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The Siemens 3WA circuit breaker is a cutting-edge solution designed to meet the challenges of modern electrical distribution systems, both now and in the future. We understand the importance of electrical apparatus in safeguarding personnel, optimizing resource usage, and minimizing downtime. That's why the 3WA has been crafted specifically with you in mind.

Built on the foundation of the Siemens WL circuit breaker, we reimagined the 3WA design through a lens of quality, ensuring our product delivers exceptional performance for years to come. We tested beyond industry standards and established a robust reliability program to guarantee performance. We vetted suppliers for material quality and supply chain resilience, partnering based on value rather than the lowest bid. Finally, we modernized the electronics of the 3WA, enhancing its capabilities to better serve you. The result of these efforts is a circuit breaker manufactured by makers, for makers – embodying the essence of simplicity and reliability.

Reliable Mechanisms
Built upon the foundation of the Siemens WL, 3WA improves upon the proven quality to ensure years of operability. Tested beyond UL standards the 3WA is rated for 10,000 operations. This is accomplished through exacting tolerances, elimination of plastic parts and fasteners and attention to quality. Starting with vendors and ending at delivery, no corners are cut so that the 3WA is the most reliable breaker in low voltage distribution.

Ease of Integration
Interacting with and integrating the Siemens 3WA is simple and intuitive. Configure the 3WA physically on the ETU, through USB-C or optional Bluetooth connection. With the SENTRON powerconfig software, make adjustments to the advanced protective and setpoint functions with unbeatable granularity. Worry less about modules and accessories as many have been integrated with the breaker or ETU.

Electrical Enhancement
The new electronic platform includes the ETU300 and ETU600. The ETU300 is a cost-effective trip unit providing LSIG protection at a low price point. The ETU600 has the capability and flexibility to offer metering and protection in any system. Coupled with software packages the ETU600 is updateable and upgradeable to monitor and protect even the most advanced applications. In addition, both ETUs include enhanced Dynamic Arc-Flash Sentry - DAS+ - as a standard feature.

Tools and Support
The value of 3WA extends beyond the breaker. From quoting and configuration to installation and operation Siemens is here to support. With a new configurator that is intuitive and builds a 3D model of the breaker as you add and remove features, quoting has never been simpler. Siemens also offers experts engineering support and places information at your fingertips. Use QR codes placed on the breaker to access breaker data and cut sheets.

UL489 3WA2

3WA low voltage insulated case circuit breakers are generally intended to provide service entrance, feeder, and branch circuit protection in accordance with UL 489 Standard for Safety for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures. These circuit breakers are also certified for UL 489 Supplement SB, for use in Naval applications, and for ambient environments up to 50°C without derating.

This versatile family of insulated case circuit breakers is acceptable for use within low-voltage switchboards (i.e. UL 891), low-voltage motor control centers (i.e. UL 845), and other types of industrial control equipment (i.e. UL 508 series). Certain options and maintenance capability may be limited in comparison to the UL1066 Listed circuit breakers.

		3WA21				3WA22						3WA23	
Basic Data													
Frame Size		1				2						3	
Rated Current In	[A]	800	1200	1600	2000	800	1200	1600	2000	2500	3000	4000	5000
Rated Operational Voltage	[V AC]	< 600				< 600						< 600	
Type of Mounting		Withdrawable or Fixed				Withdrawable or Fixed						Withdrawable or Fixed	
Number of Poles		3 Pole				3/4 Pole						3/4 Pole	
3-Pole Min. Encl. Dim.	[in]	22.5 H / 14 W / 19.5 D				22.5 H / 14 W / 19.5 D						22.5 H / 14 W / 19.5 D	
Amb. Oper. Temp.	[C]	-25 to 40				-25 to 40						-25 to 40	
Interrupt Rating at 240 V AC, 480 V AC	[kA]												
N Class		50				—						—	
S Class		65				65						—	
H Class		100				100						100	
C Class		—				150						150	
Interrupt Rating at 600 V AC	[kA]												
N Class		50				—						—	
S Class		65				65						—	
H Class		65				85						100	
C Class		—				100						100	
Interrupt Rating at 1000/577 V AC	[kA]												
E Class		50				85						85	
Weights 3-Pole	[lb/kg]												
Fixed Mount Breaker		88 / 40	88 / 40	99 / 45	101 / 46	123 / 56	123 / 56	123 / 56	134 / 61	163 / 74	163 / 78	301 / 137	350 / 159
Withdrawable Breaker		107 / 48.5	107 / 48.5	120 / 51.5	122 / 59	151 / 68.5	151 / 68.5	151 / 68.5	160 / 72.5	179 / 81.5	179 / 81.5	256 / 116.5	305 / 138.5
Cradle		111 / 50	111 / 50	113 / 51.5	129/ 58.5	122 / 55.5	122 / 55.5	122 / 55.5	140 / 63.5	153 / 69.5	153 / 69.5	250 / 113.5	267 / 121.5

UL 1066 3WA3

3WA low voltage power circuit breakers are generally intended to provide main and feeder circuit protection in accordance with UL1066 Standard for Safety for Low-Voltage AC and DC Power Circuit Breakers Used in enclosures. Presently, there is not an equivalent CSA standard to UL 1066, and therefore these circuit breakers do not carry a CSA listing mark. These circuit breakers are constructed in compliance with ANSI/IEEE C37.13, and performance tested in accordance with ANSI C37.50. Throughout this document any reference to UL1066 will also mean ANSI C37 Certified.

This versatile family of power circuit breakers is acceptable for use within low voltage switchgear (i.e. ANSI/IEEE C37.20.1, ANSI/IEEE C37.20.7, and UL 1558), low voltage switchboards (i.e. UL 891), low voltage motor control centers (i.e. UL 845), and other types of industrial control equipment (i.e. UL 508 series). Certain options and ratings may be limited may be limited in comparison to the UL 489 Listed circuit breakers.

		3WA31					3WA32						3WA33		
Basic Data															
Frame Size		1					2						3		
Rated Current In	[A]	800	1000	1200	1600	2000	800	1200	1600	2000	2500	3200	3200	4000	5000
Rated Operational Voltage	[V]	< 730 Vac					< 730 Vac						< 730 Vac		
Type of Mounting		Withdrawable or Fixed					Withdrawable or Fixed						Withdrawable or Fixed		
Number of Poles		3/4 Pole					3/4 Pole						3/4 Pole		
3-Pole Min. Encl. Dim.	[in]	22.5 H / 14 W / 19.5 D					22.5 H / 14 W / 19.5 D						22.5 H / 14 W / 19.5 D		
Amb. Oper. Temp.	[C]	-25 to 40					-25 to 40						-25 to 40		
Interrupt Rating at 254 V AC, 508 V AC	[kA]														
N Class		50					50						—		
S Class		65					65						—		
M Class		—					85								
H Class		—					100							100	
E Class		85					100								
C Class		—					—							150	
Interrupt Rating at 635 V AC	[kA]														
N Class		—			50		50						—		
S Class		65					65						—		
M Class		—					65						—	65	
H Class		—					85						—	85	
C Class		—					—						—	100	
Interrupt Rating at 730 V AC	[kA]														
E Class		65					85						—	100	
Weights 3-Pole	[lb/kg]														
Fixed Mount Breaker		88 / 40	88 / 40	88 / 40	99 / 45	101 / 46	123 / 56	123 / 56	123 / 56	134 / 61	163 / 74	163 / 74	350 / 159	350 / 159	350 / 159
Withdrawable Breaker		107 / 48.5	107 / 48.5	107 / 48.5	120 / 55.5	122 / 55.5	151 / 68.5	151 / 68.5	151 / 68.5	160 / 72.5	179 / 81.5	179 / 81.5	305 / 139	306 / 139	307 / 139
Cradle		111 / 50.5	111 / 50.5	111 / 50.5	113 / 51.5	129 / 58.5	122 / 55.5	122 / 55.5	122 / 55.5	140 / 63.5	153 / 69.5	153 / 69.5	267 / 121	267 / 121	267 / 121

General Features

- **3 Frame Sizes:** Three frame sizes that cover a wide range of continuous current ratings allow for flexible exchange of breakers to other compartments and reducing the footprint of the breaker enclosures
- **Consistent Footprint:** the 3WA frame size 2 and 3, are the same footprint as the WL breakers, making retrofit simpler
- **3 Standards:** The 3WA breaker is UL certified for either UL489 (3WA2) or UL 1066/ IEC60947-2 (3WA3) to meet the needs of any application
- **Ready-to-close Indication:** Built in check points of the mechanical operator provide an additional layer of safety and external controls by inhibiting the breaker from closing until certain conditions are satisfied
- **100% Rating:** All model breakers are designed for continuous operation at their maximum current ratings without de-rating the frame
- **Bi-directional feed:** Top or bottom supply feed without any hardware configuration changes
- **DAS+ Standard Supply:** All ETU offerings come with DAS+ integrated and ready to use as a separate parameter set

Assembled View

Breaker Features

1. Option Plug
2. DAS+ LED indicator
3. ETU with backlit display
4. USB-C interface for power and data
5. Ready to Close Indicator
6. Secondary Disconnects
7. Charging Handle

Tools and Support

3WA Website

The Siemens 3WA website is the one stop shop for all information on the 3WA breakers. Be sure to explore the link to find additional resources and supplemental information. The website includes links to the configurator, other breaker families like 3VA, and technical whitepapers that provide more insights on the 3WA breaker.

Stay up to date with all the latest 3WA developments through the website which we continuously update with new information.

siemens.ca/3WA

Configuration and Catalog Numbering

Throughout this document are basic configurations for the 3WA circuit breakers. The document will help construct the catalog number that meets your needs. Beyond the document, click on the online configurator link to access our one stop shop for configuration, conversion and pricing.

To configure and order your 3WA breaker visit *siemens.com/lowvoltage/3wa2-3wa3-configurator* here you will be able to:

- Walk through all the options needed to configure your 3WA breaker
- View a 3D model of your breaker as you select options, and download when you complete the configuration
- See pricing as options are added
- Ensure the catalog number and option combinations are valid
- Save configurations for reference later
- Convert WL catalog number to new 3WA catalog number

Basic Catalog Number Structure for 3WA AC Circuit Breaker

The Structure shown below is to help as a reference of the catalog number structure. For a comprehensive list of all the options and valid combinations, visit *www.siemens.com/lowvoltage/3wa2-3wa3-configurator*.

		3WA ...	4	5	6	7	8	9	10	11	12	13	14	15	16
Standard															
IEC 60947-2 Breaker		1													
UL489		2													
UL1066 / IEC 60947-2		3													
Frame Size															
Frame Size 1			1												
Frame Size 2			2												
Frame Size 3			3												
Frame Amp Rating															
800 A				0	8										
1000 A				1	0										
1200 A				1	2										
1600 A				1	6										
2000 A				2	0										
2500 A				2	5										
3000 A				3	0										
3200 A				3	2										
4000 A				4	0										
5000 A				5	0										
6000 A				6	0										
Interrupt Rating															
N - 50ka							2								
S - 65ka							3								
M - 85ka							4								
H - 100ka							5								
C - 150ka							6								
E - High Voltage KA							8								
Non-Automatic															
Non-Automatic								A	A						
Non-Automatic, ready4COM								C	A						
ETU300															
ETU300: LSI								A	B						
ETU300: LSIG Standard GF								A	D						
ETU600, Metering Packages															
ETU600, Current Metering								A							
ETU600, Current Metering, ready4COM feature								C							
PMF - I, Energy Efficiency, ready4COM	Voltage Tap on Top							L							
	Voltage Tap on Bottom							E							
PMF - II, Basic Power Monitoring, ready4COM	Voltage Tap on Top							M							
	Voltage Tap on Bottom							F							
PMF - III, Advanced Power Monitoring, ready4COM	Voltage Tap on Top							N							
	Voltage Tap on Bottom							G							

(continued on next page)

3WA ...		4	5	6	7	8	9	10	11	12	13	14	15	16
Protective Functions														
LSI								E						
LSIG Extended GF (UL 1066)								F						
LSIG Hi-Z Extended GF (UL 1066)								G						
LSIG Standard GF								K						
LSIG Hi-Z standard GF								L						
Number of Poles														
Fixed Mount				3-Pole					0					
				4-Pole, Neutral Left					1					
Withdrawable	Without Position Signaling Swith			3-Pole					3					
				4-Pole, Neutral Left					4					
	With Position Signaling Swith			3-Pole					6					
				4-Pole, Neutral Left					7					
Type of Mounting														
Fixed Mount	Vertical									1				
	Horizontal									2				
	Front									3				
	Vertical/Horizontal									4				
	Horizontal/Vertical									5				
Draw-out	Without Cradle									0				
Operating Mechanism and Auxiliary Switch														
Manual Recharging, No Spring Motor				2 a Contacts, 2 b Contacts							0			
				4 a Contacts, 4 b Contacts							1			
With Spring Motor	24-30 V DC			2 a Contacts, 2 b Contacts							2			
				4 a Contacts, 4 b Contacts							5			
	48-60 V DC			4 a contacts, 4 b Contacts							6			
	110-127 V DA/110-125 V DC			2 a Contacts, 2 b Contacts							3			
				4 a Contacts, 4 b Contacts							7			
	208-240 V AC/220-250 V DC			2 a Contacts, 2 b Contacts							4			
				4 a Contacts, 4 b Contacts							8			

(continued on next page)

3WA ...		4	5	6	7	8	9	10	11	12	13	14	15	16
Closing Coil and Remote Trip Alarm														
Without Closing Coil	Without remote trip alarm reset coil											A		
With 100%-Duty Closing Coil	Without remote trip alarm reset coil			24-30 V DC								B		
				48-60 V DC								C		
				110-127 V AC / 110-125 V DC								D		
				208-240 V AC / 220-250 V DC								E		
	With remote trip alarm reset coil			24-30 V DC								F		
				48-60 V DC								G		
				110-127 V AC / 110-125 V DC								H		
				208-240 V AC / 220-250 V DC								J		
With 5%-Duty Closing Coil	Without remote trip alarm reset coil			24-30 V DC								K		
				48-60 V DC								L		
				110-127 V AC / 110-125 V DC								M		
				208-240 V AC / 220-250 V DC								N		
	With remote trip alarm reset coil			24-30 V DC								P		
				48-60 V DC								Q		
				110-127 V AC / 110-125 V DC								R		
				208-240 V AC / 220-250 V DC								S		
2nd Auxiliary Release														
Without 2nd auxiliary release													A	
With shunt trip, continuous duty 100%				24-30 V DC									B	
				48-60 V DC									C	
				110-127 V AC / 110-125 V DC									D	
				208-240 V AC / 220-250 V DC									E	
With shunt trip, momentary duty 5%				24-30 V DC									F	
				48-60 V DC									G	
				110-127 V AC / 110-125 V DC									H	
				208-240 V AC / 220-250 V DC									J	
With undervoltage release (UVR), instantaneous (<0.08s) and short time delayed (<0.2 s)				24-30 V DC									L	
				48-60 V DC									N	
				110-127 V AC / 110-125 V DC									P	
				208-240 V AC / 220-250 V DC									Q	
				308-415 V AC									R	
With undervoltage release (UVR-t), adjustable delay 0.2 - 3.2 s				24-30 V DC									S	
				48-60 V DC									T	
				110-127 V AC / 110-125 V DC									U	
				208-240 V AC / 220-250 V DC									V	
				308-415 V AC									W	
1st Auxiliary Release														
Without 1st auxiliary release														0
With shunt trip, continuous duty 100%				24-30 V DC										1
				48-60 V DC										2
				110-127 V AC / 110-125 V DC										3
				208-240 V AC / 220-250 V DC										4
With shunt trip, momentary duty 5%				24-30 V DC										5
				48-60 V DC										6
				110-127 V AC / 110-125 V DC										7
				208-240 V AC / 220-250 V DC										8

Basic Catalog Number Structure for 3WA Cradles

The Structure shown below is to help as a reference of the catalog number structure. For a comprehensive list of all the options and valid combinations,visit *www.siemens.com/lowvoltage/3wa2-3wa3-configurator.*

3WA8 ...		5	6	7	8	9	10	11	12	13	14	15	16
Guide Frame Size													
Frame Size 1		1											
Frame Size 2		2											
Frame Size 3		3											
Maxed Rated Current													
800 A			0	8									
1000 A			1	0									
1200 A			1	2									
1600 A			1	6									
2000 A			2	0									
2500 A			2	5									
3000 A			3	0									
3200 A			3	2									
4000 A			4	0									
5000 A			5	0									
Short Circuit Breaking Class													
N - Class					2								
S - Class					3								
M - Class					4								
H - Class					5								
C - Class					6								
E - Class					8								
Standard													
IEC 60947-2						A							
UL489						B							
ANSI-UL1066 / IEC 60947-2						C							
Distribution Network													
AC							A						
Number of Poles													
3-Pole								3					
4-Pole, Neutral Left								4					
Main Connection													
Vertical									1				
Horizontal									2				
Front Double Hole									3				
Digit 13										1			
Push-in Connection													
SZ 1, SZ 2, SZ 3	X7, X6, X5	Non-automatic breaker, without ready4COM									A		
	X8, X7, X6, X5	With ready4COM									B		
SZ 2 / SZ 3	X9, X8, X7, X5	Includes ETC600									K		
Position Signaling Switch (PSS)													
Without PSS												A	
PSS (3x connected position, 2x test position, 1x disconnected position												C	
PSS (6x connected; 0x, 0x)												D	
PSS-COM (1x connected, 1X test position, 1x disconnect position)												G	
PSS-COM (4x connected, 0x, 0x)												H	
Digit 16													1

For accessories and replacement parts visit the accessories section. Here you will find the Z-Option code and catalog numbers for all parts which are available. There are many accessories which are not installed at the factory and those are ordered separately using their 3WA911- catalog number.

Trusted Electronic Platform
TSiemens ETU300 and ETU600 electronic trip units are both built on a trusted electronic platform that provides reliable and customizable protection for low voltage electrical systems. These trip units are designed to meet the needs of a wide range of applications and provide a high level of protection against overcurrent and other electrical faults.

The ETU300 and ETU600 trip units feature advanced microprocessor technology and a range of enhanced protection functions that help to ensure the safety and reliability of electrical systems. Additionally, both trip units come equipped with DAS+ as a standard feature, which allows the trip settings to be reduced when personnel are present inside the arc flash boundary.

Basic to Advanced
With a range of hardware and software options the ETU300 and ETU600 offer market leading flexibility and performance. The ETU300 offers basic protection functions in a cost effective, easy to use format. For more complex applications the ETU600 offers adaptability and customization through additional firmware packages. The ETU600 also can continuously improve through updates as the state of energy continues to change.

Standard DAS+
An important feature of both the ETU300 and ETU600 electronic trip units is that they come equipped with DAS+ as a standard feature. DAS+ stands for "Dynamic Arc-Flash Sentry" which allows users to automatically toggle between nominal trip settings and a predefined set of lower trip settings, also known as "Maintenance Mode."

The DAS+ feature provides an additional layer of protection to keep facility personnel safe when they are within the arc flash boundary.

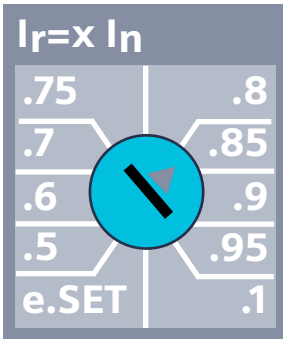
DAS+ has a dedicated parameter set giving even more flexibility to keep your electrical system and personnel safe. DAS+ can be activated via switch, remotely or directly on the ETU, DAS has never been as accessible as it is with the Siemens 3WA breaker.

User Oriented Design
From commissioning to monitoring to minimizing downtime, the Siemens ETU platform makes navigation and customization simple.

In the case where there is a need to physically interact with the ETU, the interface is intuitive and simple to navigate. Using rotary switches for settings and visible LEDs to monitor, the ETU300 makes commissioning and operation easy. The ETU600 however offers a large color display that readily provides all information about the breaker settings and status.

The ETU600 gives you the ability to configure and monitor the breaker remotely. With a wide variety of communication options, setting the ETU and monitoring the power system has never been simpler. Even without remote communications, you can connect to the ETU600 via a built-in USB C port or the optional Bluetooth. With these interfaces, access to the breaker is seamless and intuitive using the program SENTRON powerconfig.

The ETU600 allows you to have both fixed- and remotely-settable settings. Each knob on the front has a selection of pickup or delay settings plus one additional position labeled "e.SET". With the dial pointer set to the e.SET position, that setting becomes remotely programmable. This provides additional flexibility and another way to either allow or prevent remote setting changes.



Improved Metering and Monitoring
To monitor your electrical system, the 3WA provides +/- 1% metering accuracy for currents and voltages. From voltages to total harmonic distortion the 3WA gives more information about your system than ever before.

By selecting the right PMF Metering-Function package, you can completely tailor the 3WA metering and protective capabilities to your needs and application. Available in packages or as single licenses you only pay for what you need and are confident you will use.

Models Overview
With a range of hardware and software options the ETU300 and ETU600 offer market leading flexibility and performance at the level you need.

ETU600
The Siemens ETU600 electronic trip unit is an upgradeable device designed for comprehensive protection of low voltage electrical systems. This trip unit is built on an electronic platform that provides reliable and customizable protection against a wide variety of electrical faults.

The ETU600 features two highspeed microprocessors that offer security, unparalleled ability to meet any demanding application, The Protective Processor is isolated and handles all core functions of the ETU. This processor handles the basic protection functions of the ETU including LSIG and DAS+. The Application Processor is what gives the ETU600 its ability to handle any challenge.

This processor is responsible for communications and all enhanced protection functions. With the rate of change in today's electrical systems, the Application Processor will meet today's needs and can be updated to meet tomorrow's needs.

Whether in industrial, commercial, or utility systems, the ETU600 is designed to meet the specific needs of each application and ensure the safety and reliability of low voltage electrical systems. Overall, the Siemens ETU600 electronic trip unit is a trusted and effective protection device for demanding electrical systems.

ETU300
Siemens ETU300 is an electronic trip unit that offers cost-effective protection for low voltage circuit breakers. It provides reliable and accurate protection against overloads, short circuits, and ground faults, making it suitable for a wide range of applications in industrial, commercial, and multi-family settings.

The ETU300 is particularly well-suited for applications that require only the basic protective functions LSIG (Long-Time, Short-Time, Instantaneous, Ground) and DAS+ (Dynamic Arc Sensing).

Despite its cost-effectiveness, the ETU300 offers a high level of customization, allowing users to configure the trip unit to meet their specific protection requirements. It also features a user-friendly interface and basic diagnostic capabilities, giving reliable protection in a simple package.

ETU600

ETU300

Selecting an ETU

Features	ETU300	ETU600
LSI protection	•	•
LSIG protection	•	•
LSIG Hi-Z protection	–	•
N protection	•	•
Metering function	–	•
Enhanced protection functions	–	•
CubicleBUS[2]	–	•
Display	–	•
DAS+ input and output	•	•
LED trip indication via LED	•	•
Bluetooth and USB-C	–	•
FW updates	–	•
Internal self-testing with without trip	•	•
Extended test functionality	–	•
Powering up via powerbank	–	•
Powering up for testing via TD400	•	–
• Available – Not available		

Protection and Metering Packages

To take advantage of its high-speed microprocessors and versatile design, the ETU600 electronic trip unit can be equipped with several enhanced protection-metering packages to adapt it to any demanding application.

The protection-metering packages are referred to as PMF levels in reference to the standard IEC 60364-8-1. That standard defines what is included in each of the three levels①.

The PMF packages give ultimate control over which 3WA trip unit features are available. The different levels of protection-metering functionality can be specified when the breaker is ordered or as separate upgrade licenses at a later time. . The ETU600 with protection-metering packages is easily customizable and updateable.

① Please contact Siemens for the availability of PMF-level calibration per IEC 61557-12.

Protective Functions	Standard	PMF-I	PMF-II	PMF-III
Overload (LT)	•	•	•	•
Short-Time (ST)	•	•	•	•
Instantaneous (INST)	•	•	•	•
Ground Fault (GF)	•	•	•	•
Directed Short-time (dST)	–	–	•	•
Reverse Power (RP)	–	–	•	•
Unbalance (voltage, current)	–	–	•	•
Voltage (over-/under voltage)	–	–	•	•
Power (forward, reverse)	–	–	•	•
Frequency (over-/under frequency	–	–	•	•
Phase Rotation	–	–	•	•
Total Harmonic Distortion (THD)	–	–	–	•

Metering Packages	Standard	PMF-I	PMF-II	PMF-III
Phase current I_{L1}, I_{L2}, I_{L3}	•	•	•	•
Neutral Current I_N	•	•	•	•
Line to Neutral Voltage V_{LN}	–	•	•	•
Line to Line Voltage V_{LL}	–	•	•	•
Active Energy E_a	–	•	•	•
Reactive Energy E_r	–	–	•	•
Apparent Energy E_{ap}	–	–	•	•
Active Power P	–	–	•	•
Reactive Power Q	–	–	•	•
Apparent Power S	–	–	•	•
Power Factor PF	–	–	•	•
Cos phi	–	–	•	•
Frequency	–	–	•	•
Unbalance % V, % A	–	–	•	•
Total Harmonic Distortion THD-I, THD-V	–	–	–	•

Note: Power Factor = P/S (Active Power/Apparent Power), cos-phi = the angle between current and voltage of the fundamental.

ETU Accessories

Option Plugs

Both the ETU300 and ETU600 utilize Option Plugs to set both the 100% rating of the circuit breaker and enable different ground fault protection solutions. The ETU continuously monitors for the presence and validity of the option plug. If there is no option plug or the plug rating exceeds the breaker frame rating, the breaker will trip and display an error upon boot-up.

There are three kinds of Option Plugs: LSI, LSI GFs and LSI GFx. LSI option plugs do not have any ground fault protection although they do allow setting an alarm setpoint on ground current (residual or directly sensed) in an ETU600. LSI GFs (standard) provides GF protection settable up to 1200A and can be used with both UL489 and UL1066 breakers. LSI GFx (extended) provides GF protection settable up to 2000A and can only be used in UL1066 breakers.

Option Plugs

For overall rating options based on breaker size see the table below.

Option Plugs				
Description **LSI** **LSIG GFs - Standard** **LSIG GFx - GF Extended**	**Catalog No.** **3WA9111-1EB ...** **3WA9111-1EG ...** **3WA9111-1EX ...**	**No Ground Fault - UL489 or UL1066** **Ground Fault Max: 1200A - UL489 or UL1066** **Ground Fault Max: 2000A - UL1066 only**		
Ratings				
Rated current	**Frame size I**	**Frame size II**	**Frame size III**	**Catalog Number No. Ext.**
200 A	•	•		**72**
225 A	•	•		**71**
250 A	•	•		**02**
300 A	•	•		**73**
315 A	•	•		**03**
350 A	•	•	–	**74**
400 A	•	•		**04**
450 A	•	•		**75**
500 A	•	•		**05**
600 A	•	•		**76**
630 A	•	•		**06**
700 A	•	•		**07**
800 A	•	•	•	**08**
1000 A	•	•	•	**10**
1200 A	•	•	•	**11**
1250 A	•	•	•	**12**
1600 A	•	•	•	**16**
2000 A	•	•	•	**20**
2500 A		•	•	**25**
3000 A		•	•	**30**
3200 A	–	• *	•	**32**
4000 A		–	•	**40**
5000 A			•	**50**
	Example GF Standard:	3WA9111-1EBO8	800A - FS I, II, & III	
	Example GF Extended:	3WA9111-1EX32	3200A - FS III only	
	Example LSI - only:	3WA9111-1EB25	2500A - FS II & III only	

** Frame Size 2, 3200A option plugs are only available for 3WA3 breaker frames*

Voltage Tap Modules

The 3WA circuit breaker with an ETU600 has the capability to measure primary voltages on the top or bottom primary stabs. Available factory-installed or as a field-installable retrofit, the Voltage Tap Modules eliminate the need for external Voltage Transformers required for metering and protection.

There are two types available:

- VTM680 is for applications up to 690V and supplies control power to the ETU in which it is installed if permanently supplied with line side voltage.
- VTM640 is for applications between 690V and 1000V but does not supply control power to the ETU.

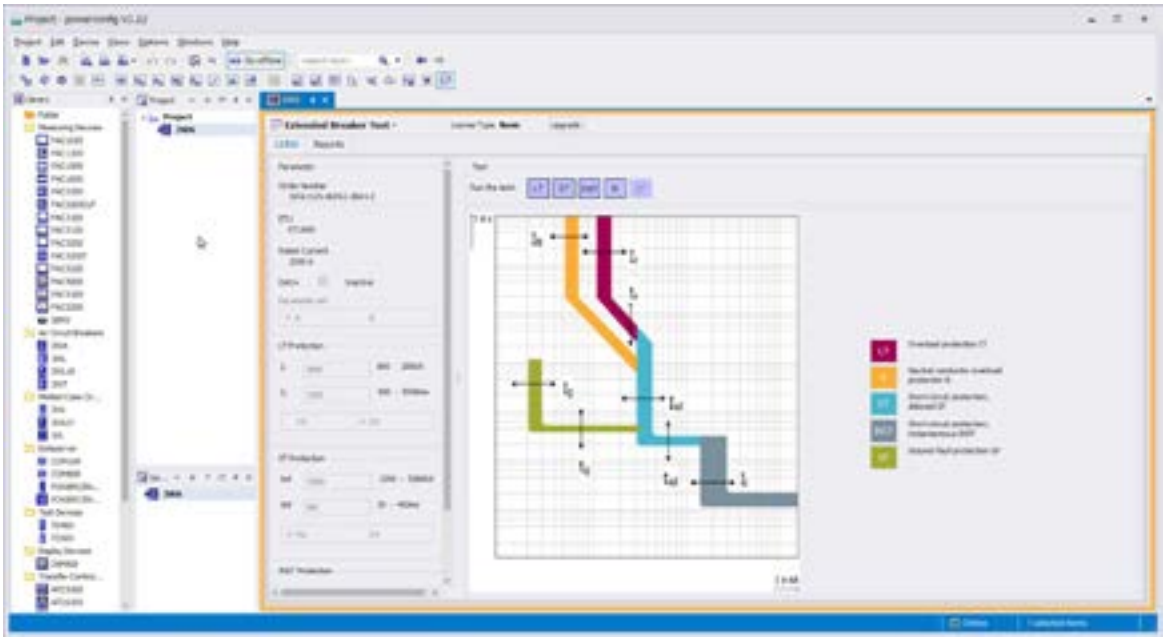
The V-tap option is configurable for either upper or lower primary terminal connections and can be changed in the field if necessary. The wiring between the bus taps and the ETU is fused for protection.

Voltage Tap Modules

Digital Tools

SENTRON Powerconfig

SENTRON powerconfig is a multifunctional software tool to help with anything from commissioning to monitoring to testing. Available as either a desktop application or mobile app, SENTRON powerconfig gives you access to all details of the 3WA breaker. Connect to the ETU600 either through a communications module, USB-C or optional Bluetooth, and SENTRON powerconfig will show all details associated with the protection parameters and status.



The Basic SENTRON powerconfig software is available for free download online. There is also an Advanced option which provides more complex testing options and the ability to export and print test reports as PDF files. Regardless, the SENTRON powerconfig is a great tool to utilize throughout the lifecycle of the 3WA breaker and the application.

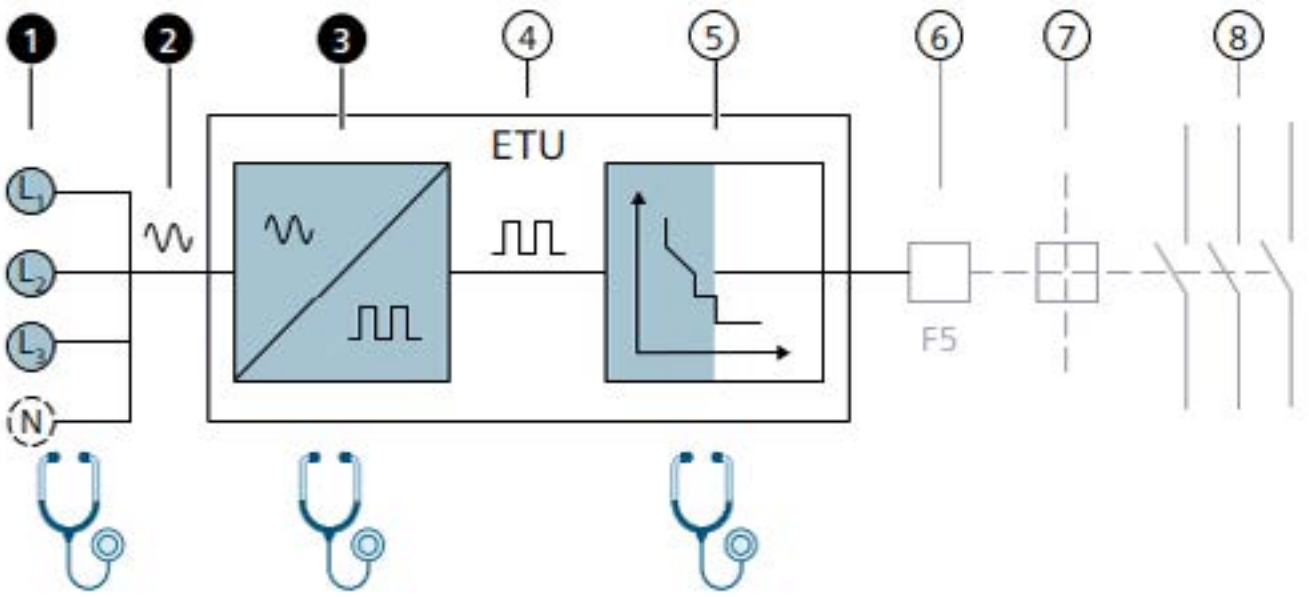
Testing
The 3WA is built with testing and verification in mind. Using a combination of the ETU as well as the SENTRON powerconfig software the entire functionality of the breaker can be tested and verified. When the testing is complete, a copy of the test report is generated and can be printed as a PDF through the SENTRON powerconfig software. A local copy is also saved on the ETU so that information on the last inspection is always available.

The 3WA ETUs are continuously monitoring all aspects of the performance of the breaker electronics as indicated in points 1 through 5. This self-monitoring checks the current sensors, the analog to digital converter, and the ETU. Any problem detected is immediately reported to ensure fault-free performance.

To demonstrate that all aspects of the circuit breaker are operating at peak performance, software assistance is required. SENTRON powerconfig provides a complete solution to accomplish this.

With powerconfig, the components indicated in the graphic above can be tested and verified. The software mimics the signals the ETU would see during a fault on the power system. Many different types of faults can be simulated to demonstrate that the ETU will behave as expected: phase overcurrent, phase unbalance, short circuits. The ETU will treat the signal as an actual event and behave as it is programmed. Because the ETU is not in a special test mode, no expected ETU behavior will be affected. When the ETU determines it is time to trip, the trip solenoid, breaker mechanism and contacts will all be exercised (trip/open). For this reason, a Digital Test which could result in a trip should only be done when a trip will not interrupt facility operations. This gives a complete picture of the functionality of the breaker and gives far more detailed testing options.

Due to its lack of an application processor, Digital Testing with powerconfig cannot be used with the ETU300.



❶ Current sensors
❷ Analog measuring signal
❸ Analog/digital converter
❹ Digital measuring signal
❺ Protection electronics
❻ Tripping solenoid F5
❼ Breaker mechanism
❽ Main contacts

Communications

Overview

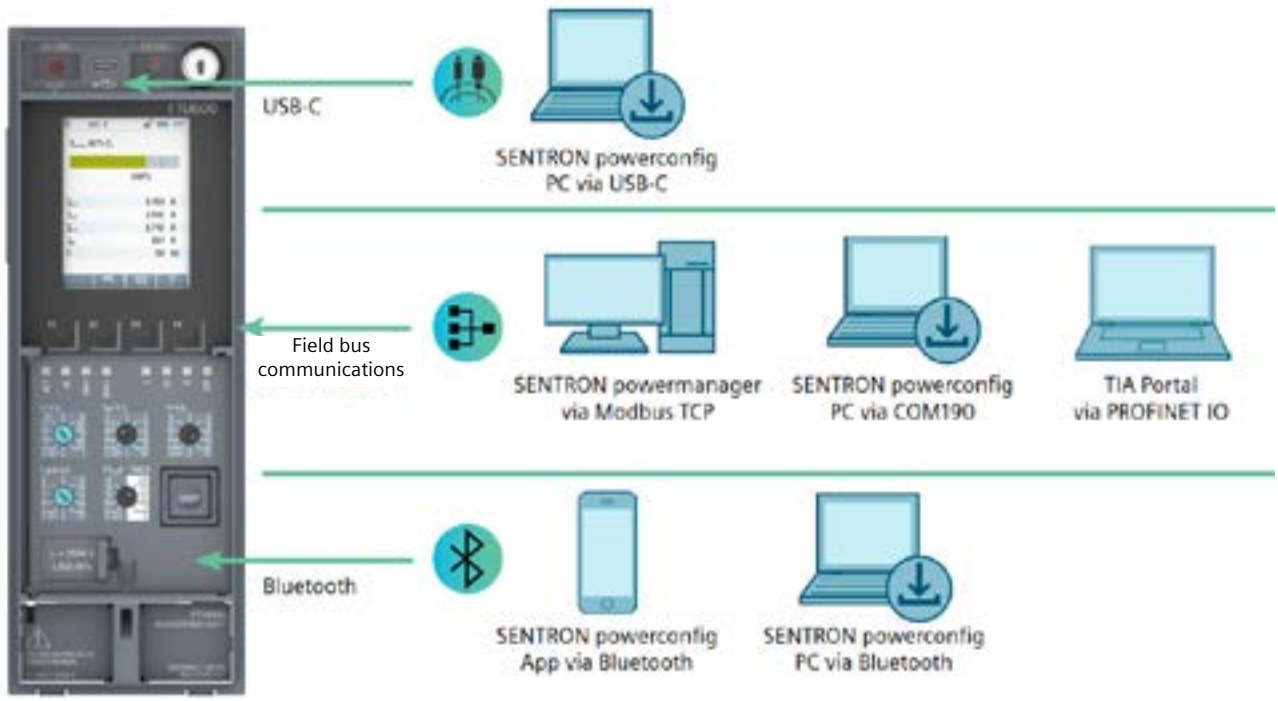
3WA Circuit Breakers are essential components of electrical systems that require protection from overloads and other electrical faults. They play a crucial role in ensuring the safety and reliability of electrical equipment and systems. However, simply having circuit breakers installed is not enough - proper communication and control are necessary to effectively manage and monitor these devices.

This is where 3WA communication modules and abilities come into play. Communications modules as well as other accessories such as remote operators and status indicators, enable operators to monitor and control circuit breakers from a safe distance, minimizing the risk of injury or damage to equipment and providing valuable information on loads.

The addition of a communications interface, such as for PROFINET, PROFIBUS, Modbus TCP or Modbus, allows real-time monitoring and data transfer as well as remote access to circuit breaker information, all of which are critical for efficient maintenance and troubleshooting.

These interfaces provide flexible options for connecting the circuit breaker to external devices and systems, enabling remote monitoring and control capabilities.

The USB-C interface allows the connection of a laptop running powerconfig for the purpose of testing or setting of the ETU parameters. It also allows the connection of a power bank to power the ETU to set parameters manually.



CubicleBUS^2 is the Siemens internal communication bus that connects all the devices that make up a 3WA breaker. External CubicleBUS^2 devices currently include the following:

- COM190 – Modbus TCP / PROFINET IO communications module
- COM150 – Modbus RTU communications module
- IOM240 – input/output module
- IOM350 – high-power I/O module
- ZSI200 – Zone Selective Interlocking module

The CubicleBUS^2 system is continuously monitored, and the status of connected devices can be checked on the screen of the ETU600.

The optional Bluetooth interface allows users to connect to the ETU with Sentron powerconfig using either a laptop computer or the mobile app. This allows operators to operate at a safe distance while changing parameters, testing, and monitoring the breaker. This would allow an operator to stay outside of the arc flash boundary while interacting with the breaker over Bluetooth. The Bluetooth function can be disabled temporarily or permanently if desired.

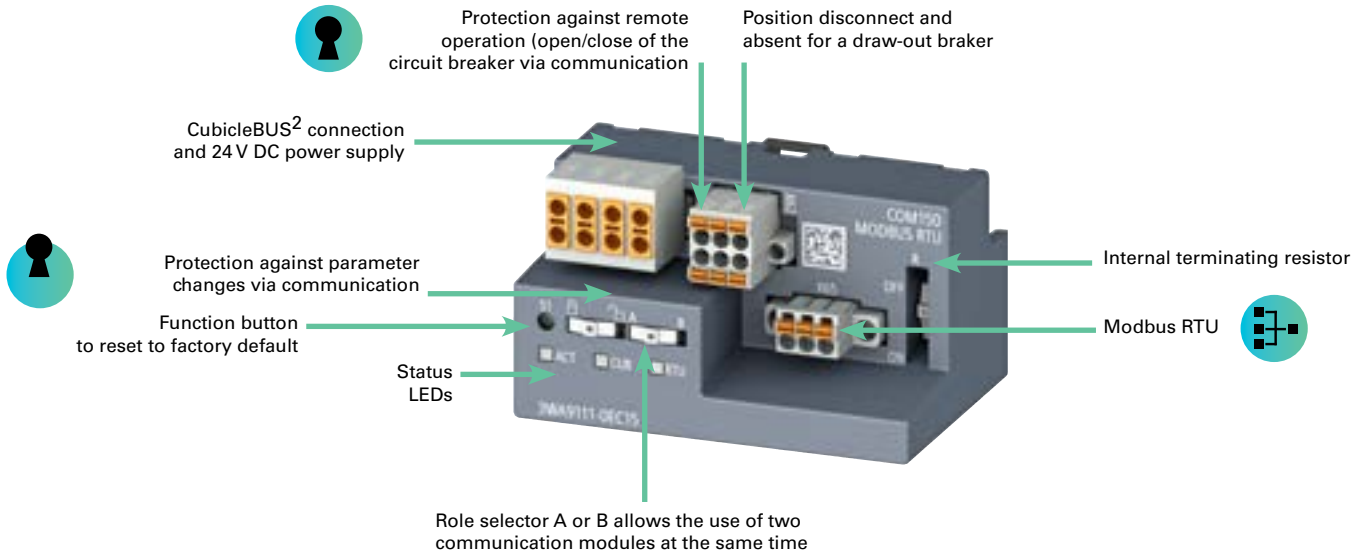
The USB-C and Bluetooth interfaces allow easy and secure access to Siemens 3WA circuit breakers, making them simpler to manage and maintain. Utilizing one of these interfaces, technicians can quickly and easily configure and monitor the circuit breaker from a variety of devices, enhancing its functionality and flexibility.

Utilizing a communications module connected to the breaker via CubicleBUS allows breakers to be networked and integrated into plant SCADA or EPMS systems utilizing PLCs and/or host computers from Siemens and many other vendors.

COM150, Modbus RTU Module

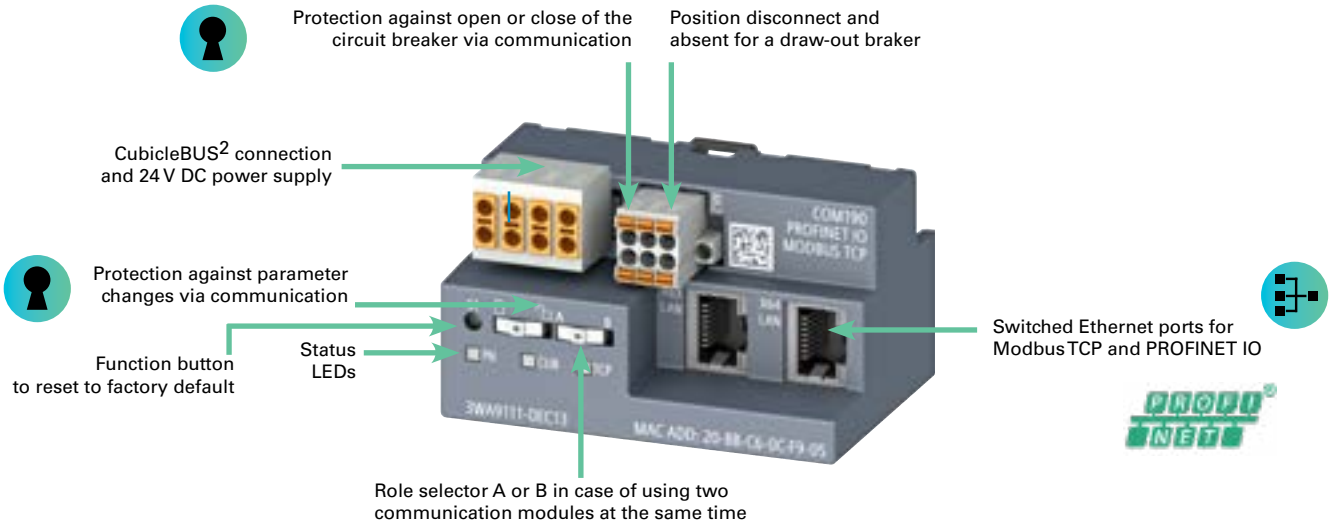
Implementing the widely-used Modbus RTU protocol over an RS485 interface, the COM150 can be easily integrated into a power monitoring system. The module implements a physical switch which sets the device to read-only mode ensuring that remote parameter changes cannot be made.

It includes a switchable bus terminating resistor, simplifying integration. With easily understood status LEDs and a communication that is continuously monitored, using a COM150 is straightforward and intuitive.

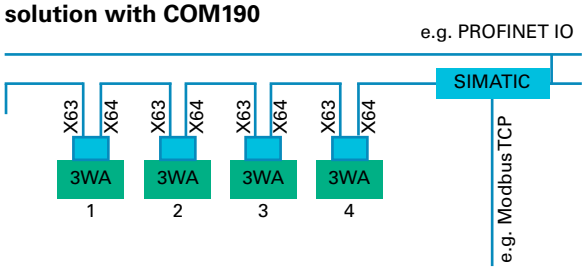


COM190, PROFINET IO — Modbus TCP module

The COM190 module implements two industry-standard protocols: PROFINET I/O and Modbus TCP and allows both to be used simultaneously. Equipped with two switched Ethernet ports, the COM190 offers the flexibility to connect in multi-master, hub-and-spoke, daisy-chain and ring configurations. It is also possible to connect two communications modules (2x COM190s or 1xCOM190 and 1x other) to give redundant communications. The modules allow specifying primary and secondary roles to ensure the system always stays connected. Like all other 3WA communications modules, it has a physical switch to put the device into read-only mode.



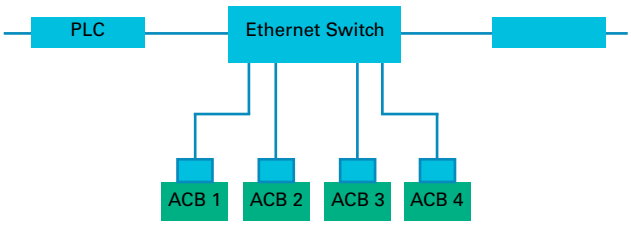
Advantage in architecture solution with COM190



Advantage

- 2 Ethernet connection, works in a ring = always available (even after a fault/disconnection (redundant)
- No separate switch required
- No separate installation slot required
- Isochrone real-time-capable (CC = Class C)
- Ring topology is supported
- Highest performance of any PROFINET module on the market
- Small wiring outlay

Standard market solution



Disadvantage

- Separate switch required
- Separate installation slot required
- Only real-time-capable with PLC (Not Class C)
- Ring topology is not supported
- Increased wiring outlay
- Increased susceptibility to faults

IO Modules

Siemens 3WA circuit breakers can be equipped with two different I/O (Input/Output) modules: IOM230 & IOM350. These modules allow the trip unit or communications module to monitor the operation of external status contacts and control external devices.

The outputs of the modules can be controlled by setpoints or alarms in the trip unit or to open/close based on communicated commands. The inputs can be configured to activate DAS+, change the active parameter set or to simply pass the status of that input to the communications module. For example, utilizing an I/O module to communicate the status of a transformer overtemperature contact and control a fan thus eliminating the need for additional PLC I/O ports or wiring. It can also monitor the status of a generator breaker and if it is closed – indicating a transfer to a backup power source – it can switch to Parameter Set B, an alternate set of parameters appropriate to protecting with the backup source feeding the load.

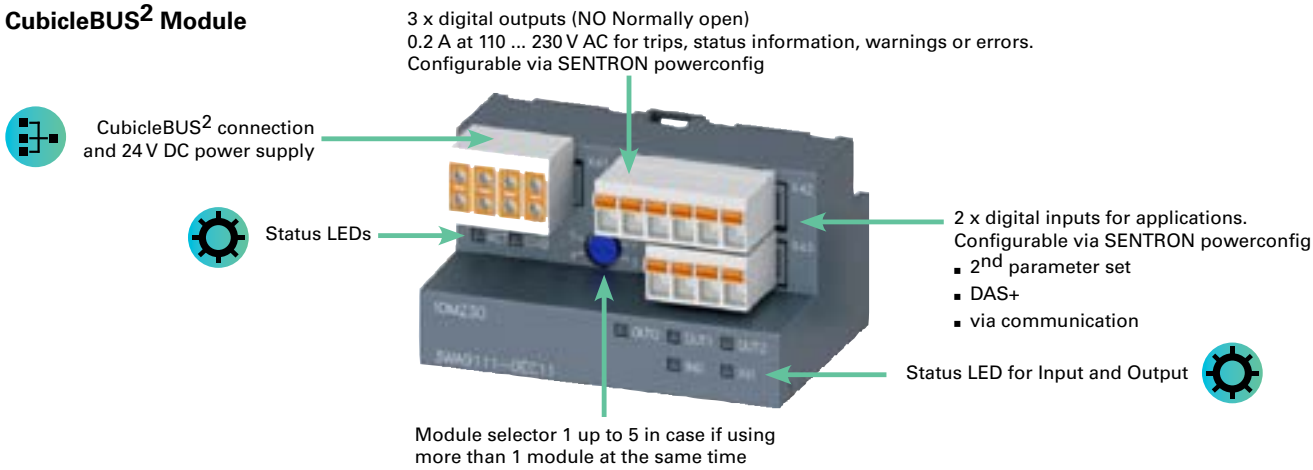
Although the ETU600 features I/O for DAS+ activation and indication, the inputs and outputs of the I/O modules can be programmed to do the same thing if the application requires it.

Overall, the I/O modules for Siemens 3WA circuit breakers provide an efficient and reliable way to enhance the performance and functionality of the 3WA breakers, making them a popular choice for a variety of applications in industries such as power generation, distribution, and automation.

IOM230

The IOM230 has 2 inputs and 3 outputs. The outputs are solid state Form A contacts capable of handling up to 230V ac. The inputs are likewise solid state and designed to interface directly with 24V dc signal levels. If there is a need for additional monitoring, up to 5 IOM230s modules can be used at the same time. The module selector dial makes designating modules intuitive and simple. Wire to any external device such as a switch or PLC or configure through SENTRON powerconfig to monitor parameters within the ETU. The IOM230 can be mounted on the breaker or cradle as well as on a DIN rail in an auxiliary compartment.

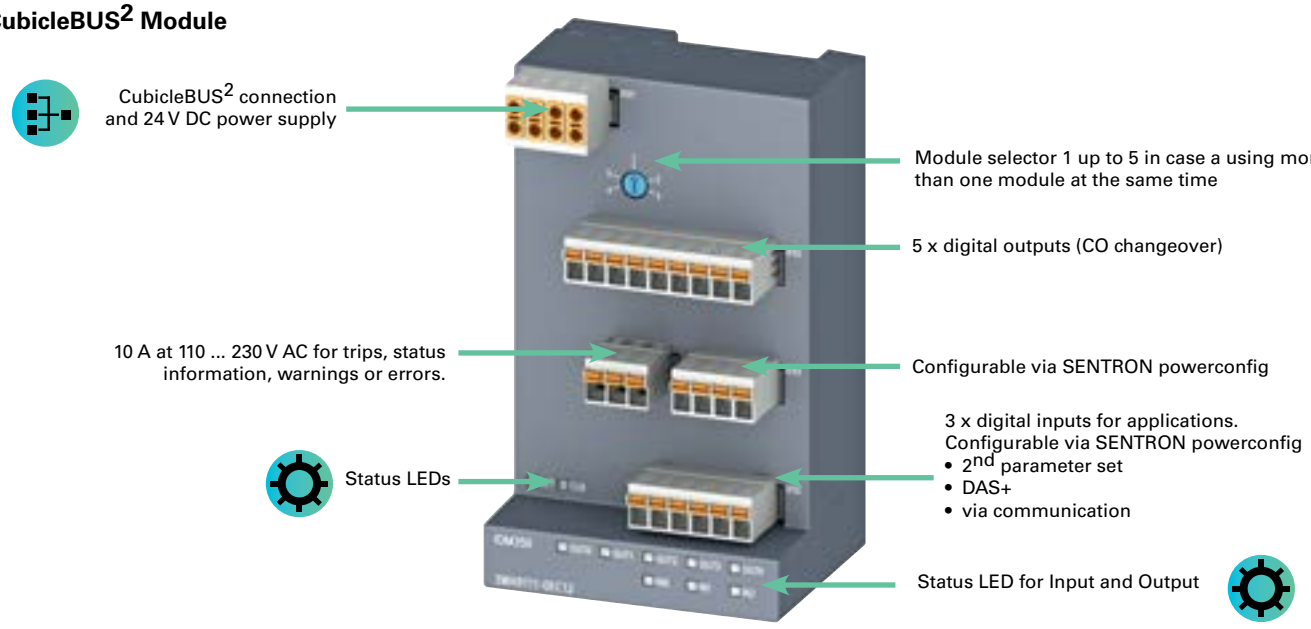
CubicleBUS^2 Module



IOM350

The IOM350 has 3 inputs, and 5 dry-contact Form C relay outputs for additional flexibility. The outputs are capable of switching AC loads up to 230V ac, and like the IOM230, the inputs are solid state. Also like the IOM230, up to 5 IOM350 modules can be connected to one breaker. Unlike the IOM230, the IOM350 can only be mounted on a DIN rail.

CubicleBUS^2 Module

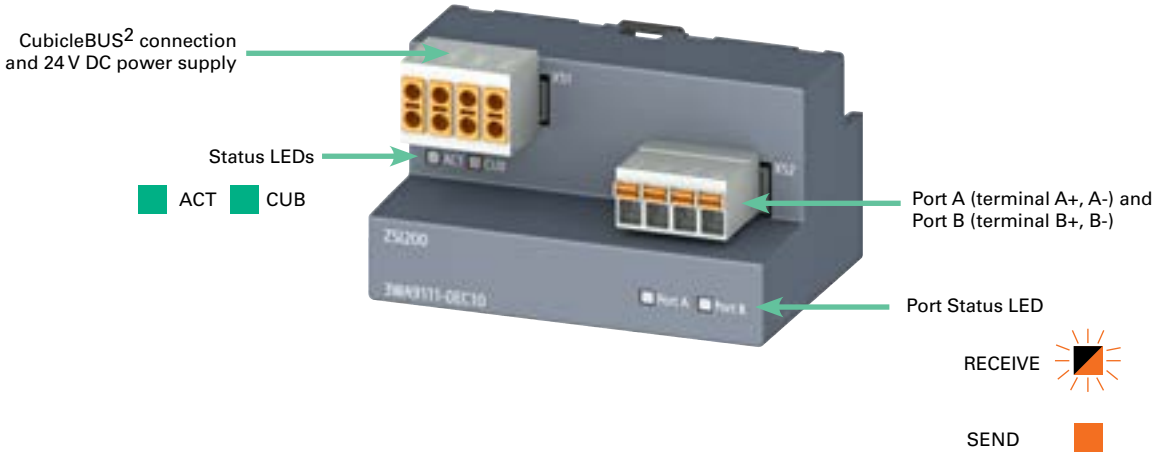


	IOM230	IOM350
Number of inputs	2	3
Number of outputs	3	5
Type of output contact	Normally Open (Form-A)	Changeover (Form-C)
Maximum continuous current of an output at 110 ... 230 V AC	0.2 A	10 A
Mounting on the circuit breaker?	yes	no
Maximum number of I/O modules	5	5

Zone Selective Interlocking
Zone Selective Interlocking (ZSI) is a system used in low voltage electrical distribution systems to enhance selectivity, improve system reliability and reduce damage caused by faults. ZSI is a method of coordinating between circuit breakers located at different levels of a power system.

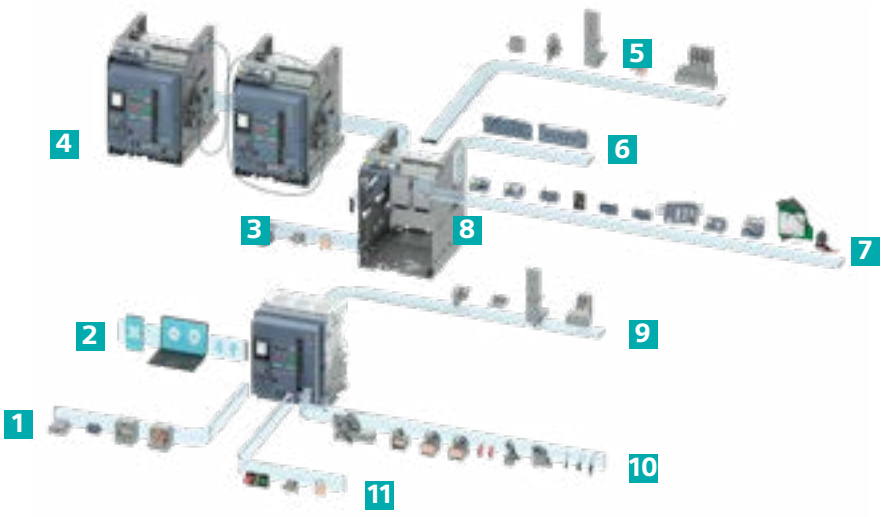
The purpose of ZSI is to detect and isolate faults within a specific area or zone of the power distribution system while minimizing the impact on the rest of the system. The ZSI scheme operates by linking protective devices located at different levels of the power system to minimize fault clearing time and therefore equipment damage. If a fault occurs, the circuit breaker closest to the fault detects the fault and communicates to upstream devices that it has done so. The upstream devices will then wait their normal delay times while the breaker closest to the fault clears it with a minimum delay known as "ZSI Time". This communication, referred to as a "blocking signal" is the key. If a device sees a fault but does not see a blocking signal, it knows it must trip as quickly as possible to clear the fault. If it sees a fault and does get a blocking signal, it waits for the downstream breaker to do its job. ZSI allows for shorter fault clearing times and minimal system disruption.

CubicleBUS^2 Module



The Siemens ZSI200 module is required for the 3WA ETU600 trip unit to communicate with other devices in the system. The method of communicating between ZSI devices is common across the entire family of Siemens protective devices so integrating 3WA into existing apparatus with WL, 3VA and 3VL breakers is simple and straightforward. Take coordination and protection to the next level with Siemens 3WA ZSI.

Siemens circuit breakers are designed to provide reliable protection for electric power systems. In addition to the circuit breakers themselves, Siemens offers a range of accessories that can be used to enhance the functionality and performance of the breakers. The 3WA accessories provide a range of features, including auxiliary switches, alarm switches, shunt trips, undervoltage releases, and lockout devices. These accessories can be used to remotely monitor, effectively control, and enhance access to the circuit breaker. Overall, the 3WA Siemens circuit breaker accessories are a valuable addition to any electrical system, providing enhanced protection and control capabilities.



❶ Electronic trip unit (ETU)
❷ Enhanced protective functions can be activated for the ETU
❸ Interlocking solutions for draw out design
❹ Interlocking solutions with Bowden cable
❺ Main connection variants for guide frame
❻ Position signaling switch (PSS) for the guide frame
❼ Interface/COM-module/Aux. terminals
❽ Cradle with shutter
❾ Main connection variants for fixed mounted design
❿ Internal accessories: aux. release, motor operator, aux. contacts
⓫ Locking solutions for fixed-mounted design

Configurable Accessories and Spare Parts
For many of the accessories in this section there is an option to have the accessory installed as part of the breaker or ordered as a loose accessory. To configure the accessory with the breaker, look for the Z-option code and incorporate at the end of the catalog number. This will ensure the breaker is delivered with the accessory already installed. In an instance where a spare accessory is needed, use the catalog number to order the accessory and it will be supplied loose.

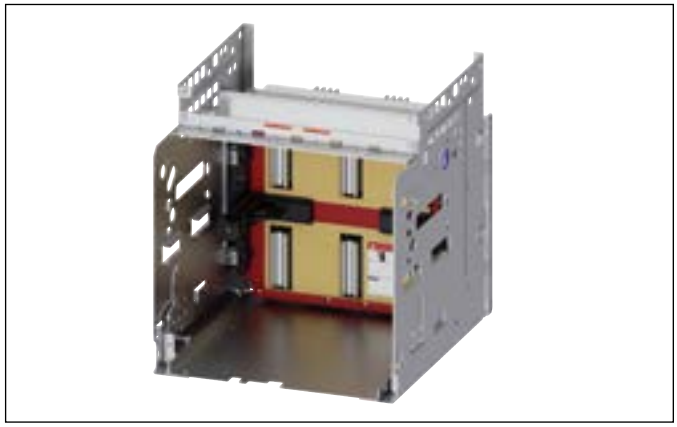
Standard Installed Accessories
To simplify the planning, configuration, and ordering process the 3WA comes with a number of standard accessories These commonly used components are included with each breaker, independent of configuration.

Item No.	Description
1	Shutter
2	Automatic reset of reclosing lockout standard with every breaker
3	2NO + 2NC auxiliary switches
4	Ready-to-close signaling contact
5	1st trip alarm contact
6	Spring charged signaling contact

Cradles
The Siemens 3WA cradle is designed and built to help safely rack in and out the 3WA breaker. Using high quality materials and minimal fasteners, this market leading cradle will withstand the test of time.

Keep all connections the same while servicing or swapping breakers, with no need to open the cabinet door to rack in or out. The 3WA cradle also offers numerous locking solutions for withdrawable breakers that can be integrated into the cradle, the cabinet door or the racking handle.

To configure a cradle, either reference the MLFB structure or visit the online configurator.



Position Signaling Switch (PSS)
A PSS device is offered for draw-out breakers to provide remote indication of the circuit breakers primary and secondary contact connections (racking positions). The PSS contacts are activated when the breaker is racked into the connected, test, or disconnected positions. These are also referred to as truck operated contacts (TOC).

Description	Catalog No.
PSS321: 3× connected position, 2× test position, 1× disconnected position	**3WA9111-0AH11**
PSS111-COM: 1x connected position, 1x test position, 1x disconnected position and option for connection to a communications module	**3WA9111-0AH12**
PSS400-COM: 4X Connected Position and option for connection to a communication module	**3WA9111-0AH13**
PSS600: 600 connected	**3WA9111-0AH14**

Mechanism Operated Contacts
Mecahnism Operated Contacts (MOC) are cradle mounted accessories which indicated the state of the breakers internal contacts (open or closed). MOCs are typically utilized when additional auxiliary contacts are necessary – above and beyond the number configurable in the circuit breaker.

Description	Catalog No.
Frame Size 1 and 2, 4x connected	**3WA9111-1AG81**
Frame Size 3, 4x connected	**3WA9111-1AG82**
Frame Size 1 and 2, 4x connected, 1x test	**3WA9111-1AG83**
Frame Size 3, 4x connected, 1 x test	**3WA9111-1AG84**
Frame Size 1-3, Fixed mount, 4x connected	**3WA9111-1AG85**

Option Plugs

The option plug sets the 100% rating of the circuit breaker and therefore the value off of which the protective functions are based. Use of an option plug that exceeds the labeled frame rating of the breaker will result in the ETU displaying an error and automatically tripping the breaker. Option plugs can be changed in the field. The difference between an option plug and a rating plug is the ability to specify the protective functions of the ETU. Option plugs are available with LSI and LSIG functions, to select the correct option plug, add the last two digits that correspond to the rated amperage to the desired protective function.

Option Plugs				
Description	**Catalog No.**			
LSI	**3WA9111-1EB ...**	**No Ground Fault - UL489 or UL1066**		
LSIG GFs - Standard	**3WA9111-1EG ...**	**Ground Fault Max: 1200A - UL489 or UL1066**		
LSIG GFx - GF Extended	**3WA9111-1EX ...**	**Ground Fault Max: 2000A - UL1066 only**		
Ratings				
Rated current	**Frame size I**	**Frame size II**	**Frame size III**	**Catalog Number No. Ext.**
200 A	•	•		72
225 A	•	•		71
250 A	•	•		02
300 A	•	•		73
315 A	•	•		03
350 A	•	•		74
400 A	•	•	–	04
450 A	•	•		75
500 A	•	•		05
600 A	•	•		76
630 A	•	•		06
700 A	•	•		07
800 A	•	•	•	08
1000 A	•	•	•	10
1200 A	•	•	•	11
1250 A	•	•	•	12
1600 A	•	•	•	16
2000 A	•	•	•	20
2500 A		•	•	25
3000 A		•	•	30
3200 A	–	• *	•	32
4000 A		–	•	40
5000 A			•	50
	Example GF Standard:	**3WA9111-1EBO8**	800A - FS I, II, & III	
	Example GF Extended (3WA3 and ETU600 only):	**3WA9111-1EX32**	3200A - FS III only	
	Example LSI - only:	**3WA9111-1EB25**	2500A - FS II & III only	

** Frame Size 2, 3200A option plugs are only available for 3WA3 breaker frames*

Voltage Taps

Ideally, a voltage tap is specified during the initial configuration of a breaker. However, if it is desired to add voltage sensing to breakers not so equipped at the factory, there are a number of kits which provide the necessary parts. In addition, if it becomes necessary to switch the voltage sensing points from top to bottom or bottom to top, kits are available for that as well.

If it becomes necessary to adapt a 3WA breaker to use existing external voltage transformers, there is a kit for installing the necessary wiring as well.

External voltage transformer kits allow the 3WA breaker to connect to external voltage transformers, including those that may already be present with legacy breakers such as the WL breaker, for maintaining existing functionality.

Ordering Info		
Description	**Frame Size and Poles**	**Catalog No.**
Move voltage tap from lower stab to upper stab	1, 3-pole	**3WA9111-0EK11**
	2, 3-pole	**3WA9111-0EK12**
	3, 3-pole	**3WA9111-0EK13**
	1, 4-pole	**3WA9111-0EK21**
	2, 4-pole	**3WA9111-0EK22**
	3, 4-pole	**3WA9111-0EK23**
Move voltage tap from upper stab to lower stab	1, 3-pole	**3WA9111-0EK31**
	2, 3-pole	**3WA9111-0EK32**
	3, 3-pole	**3WA9111-0EK33**
	1, 4-pole	**3WA9111-0EK41**
	2, 4-pole	**3WA9111-0EK42**
	3, 4-pole	**3WA9111-0EK43**
V-tap for Upper Stab Contact Only	1, 3-pole, S, M, H, C	**3WA9111-0EK51**
	2, 3-pole, S, M, H, C	**3WA9111-0EK52**
	3, 3-pole, S, M, H, C	**3WA9111-0EK53**
	1, 3-pole, E	**3WA9111-0EK55**
	2, 3-pole, E	**3WA9111-0EK56**
	3, 3-pole, E	**3WA9111-0EK57**
	1, 3-pole, S, M, H, C	**3WA9111-0EK61**
	2, 3-pole, S, M, H, C	**3WA9111-0EK62**
	3, 3-pole, S, M, H, C	**3WA9111-0EK63**
	1, 4-pole, E	**3WA9111-0EK65**
	2, 4-pole, E	**3WA9111-0EK66**
	3, 4-pole, E	**3WA9111-0EK67**
Connect to external voltage transformer	Only FSII, FSIII	**3WA9111-0EK81**

Sealable and Lockable ETU Cover

The ETU cover prevents unauthorized interaction with the electronic unit. Each breaker is delivered with the lower cover for the rotary switches. To receive a cover for the trip indicator on the upper portion of the ETU, include Z40 in the breaker configuration.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
Replacement cover for ETU300	–	**3WA9111-0EM21**
Replacement cover for ETU600	–	**3WA9111-0EM22**
Cover for reset indicator	F40	–

Remote Trip Alarm Reset Coil

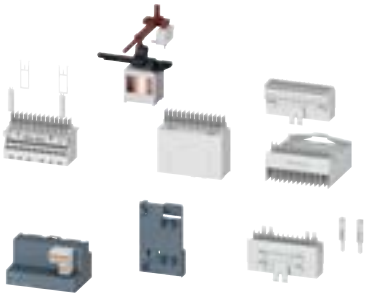
The Remote Trip Alarm Reset coil is used to reset the bell alarm and tripped indicator above the ETU. Unless a breaker is ordered with the K02 option, it will be immediately ready to close again after a trip. This functionality is provided by a reset spring which resets the tripping solenoid but not the Bell Alarm or tripped indicator. The K02 option removes the reset spring so that the breaker must be manually reset after a trip in order to be closed. Reset is accomplished by depressing the tripped indicator over the ETU. The remote reset solenoid cannot be used with breakers ordered with the K02 option or where the trip solenoid reset spring has been removed in the field. The remote reset solenoid comes with a clearing contact to prevent damage if power remains applied after the reset is complete.

	Technical Information	
Remote Reset Coil AC Operation	Voltage	240VAC 50/60Hz
	Instantaneous Current	8A
	Breaking Current	5A
Remote Reset Coil DC Operation	Voltage	24, 48, 125 or 250VDC
	Instantaneous Current	.4A @ 24, 48, 125VDC, .2A @ 250VDC

Ordering Information	
Voltage	**Catalog No.**
24V ac	**3WA9111-0EM42**
48V ac	**3WA9111-0EM44**
120V ac / 125V dc	**3WA9111-0EM45**
208V ac, 240V ac, 240V dc	**3WA9111-0EM46**

Secondary Trip Solenoid and External Trip Controller ETC600

The 3WA breaker can be equipped with a second trip solenoid. This second solenoid is identical to the one actuated by the trip unit but is accessible external to the breaker. It has the added feature of requiring manual intervention to reset and allow the breaker to be closed after a remote tripping event. This second trip solenoid is controlled through the ETC600 external trip adapter. Any application requiring remote tripping and lockout can use the ETC600 and secondary trip solenoid. It operates at a speed faster than the ETU due to no processing time.



Ordering Info	
Description	**Catalog No.**
Secondary tripping solenoid	**3WA9111-0EM61**
ETC600	**3WA9111-0EM62**

COM150
The COM150 communications module provides data, control and parameter transfer via Modbus RTU over RS485. The COM150 can be mounted on the breaker (fixed mount or draw-out) as well as on a DIN rail in a control compartment.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
COM150	F15	**3WA9111-0EC15**

COM190
The COM190 communications module supports PROFINET and Modbus TCP to transfer data, set parameters and control the circuit breaker. Both protocols can be used simultaneously and independently and support energy management and automation systems. The COM190 can be mounted on the breaker (fixed mount or draw-out) as well as on a DIN rail in a control compartment.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
COM190	F19	**3WA9111-0EC13**

ZSI Module
The ZSI200 module adds Zone selective Interlocking capability to a 3WA breaker. It allows breakers at different levels of the power system to communicate whether they have seen a fault and change trip times accordingly, allowing for faster fault clearance. The ZSI200 module interfaces seamlessly with WL & 3VA and other members of the Siemens family of circuit protection products. It can be mounted either on the breaker or on a DIN rail in a control compartment.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
ZSI200 Module	F20	**3WA9111-0EC10**

Breaker Status Sensor
The Breaker Status Sensor is an integrated circuit device that measures the internal breaker temperature, monitors breaker main contact position (open or closed), bell alarm status, shunt trip status, breaker readyto-close and closing spring charged status. All status conditions and information is transmitted through the CubicleBus network as real-time data. Used in conjunction with a COM190 or COM150 the status can be exported to a computer or monitoring equipment.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
Breaker Status Sensor BSS200	–	**3WA9111-0EC40**

Digital Input / Output Modules

Digital Input and Output modules make it possible for the breaker to communicate with secondary devices. Typically a digital input/output is used to switch parameter sets or activate DAS. They can also be used to output alarms and events. There are two options for digital IO modules the IOM230 and IOM350.

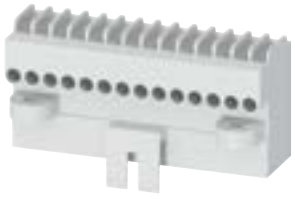
	IOM230	IOM350
Number of inputs	2	3
Number of outputs	3	5
Type of output contact	Normally Open (Form-A)	Changeover (Form-C)
Maximum continuous current of an output at 110 ... 230 V AC	0.2 A	10 A
Mounting on the circuit breaker?	yes	no
Maximum number of I/O modules	5	5

Ordering Information

Description	Z-Option	Catalog No.
IOM230	F23	**3WA9111-0EC11**
IOM350	–	**3WA9111-0EC12**

Secondary Disconnects

Secondary disconnects are used to connect external breaker controls to the internal signaling circuitry of the breaker. The disconnects come ins 3 different types of connection including screw, push-in and ring lug connection. Push-in connections are standard and allow for quick wiring with push and stick technology. These secondary disconnects are also vibration resistant and don't require maintenance. The compression screw type is favored because it doesn't require terminals and the head of the screw connection is front accessible and can be used as a testing point for continuity. Finally ring lug connections are established technology proven to work over time. The disconnects can be supplied as standard or partially via Z-option.



Ordering Information

Description	Z-Option	Catalog No.
Base part	-	**3WA9111-0AB01**
1000 V extension	-	**3WA9111-0AB02**
Manual connector: Screw connection	N03	**3WA9111-0AB03**
Manual connector: Push-in connection	-	**3WA9111-0AB04**
Manual connector: Ring lug connection	N05	**3WA9111-0AB05**
Coding kit: For fixed-mounted X5 to X8	-	**3WA9111-0AB07**
Sliding contact module: For guide frames	-	**3WA9111-0AB08**
Blanking block	-	**3WA9111-0AB12**

Auxiliary Contacts

Auxiliary contacts are typically used to provide interlocking control or remote indication of the breakers contact position. Normally Open (NO) contacts are open when the breaker is open. Normally Closed Contacts (NC) are closed when the breakers contacts are open.

Ordering Info

Description	Catalog No.
2 a + 2 b	**3WA9111-0AG01**
2 a	**3WA9111-0AG02**
1 a + 1 b	**3WA9111-0AG03**

2nd Bell Alarm

The 1st bell alarm is installed and supplied as a standard accessory with every circuit breaker. A 2nd bell alarm can be installed, only on those breakers with electronic trip units.

Ordering Information

Description	Z-Option	Catalog No.
2nd Bell Alarm	S25	**3WA9111-0AH03**

Spring Charge Signaling Contact

The 1st bell alarm is installed and supplied as a standard accessory with every circuit breaker. A 2nd bell alarm can be installed, only on those breakers with electronic trip units.

Ordering Information

Description	Z-Option	Catalog No.
1 NO Contact	S21	**3WA9111-0AH06**

General Solutions

Spring Charging Handle Lock

The Spring charge handle lock is used to prevent the manual charging of the closing springs. The lock is installed on the breaker front cover and can be used with a padlock with latch up to 3/8 in diameter.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
Without padlock	S33	**3WA9111-0BA71**

Locking Provision against the Unauthorized closing, in operator panel

The locking provision against unauthorized closing prohibits the breaker from being closed unintentionally. All 3WA2/3 breakers include a padlock hasp lockout/tagout provision. In addition to this, a lock cylinder can be installed.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
Assembly kit FORTRESS or CASTELL	S05	**3WA9111-0BA31**
Made by RONIS	S08	**3WA9111-0BA32**
Provision for Kirk/Superior	-	**3WA9111-0BA33**
Made by PROFALUX	S09	**3WA9111-0BA34**
Made by CES	S01	**3WA9111-0BA35**
Made by IKON	S03	**3WA9111-0BA36**
Assembly kit for padlocks *	S07	**3WA9111-0BA37**

** The Kirk/Superior provision accepts a Kirk or Superior/Yale lock cylinder. The cylinder itself must be ordered separately.*

Automatic Reset of Reclosing Lockout

All 3WA2/3 breakers are able to be reset after a trip. To require a manual reset prior to reclosing, the K01 option must be ordered. The factory will remove the reset spring prior to shipment. The reset spring can also be removed easily in the field.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
for use with ETU300 or ETU600	K01	**3WA9111-0EM31**

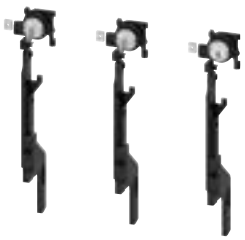
Mechanical Interlock for Cabinet Door if breaker is closed

This accessory is designed to prevent the opening of the cabinet door when the breaker is in the closed position. There are optional defeat instruction included if that feature is desired. In addition the mounting template for modification of the circuit breaker door is included with the accessory.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
Fixed-mounted circuit breaker	S30	**3WA9111-0BB12**
Guide frames	R30	**3WA9111-0BB13**

Interlocking Systems

Key interlocking system to prevent paralleling unsynchronized sources for 3 circuit breakers. Includes CES lock cylinders and two identical keys so at most two breakers can be closed simultaneously.



Ordering Information		
Description	**Z-Option**	**Catalog No.**
3-Breaker Interlock	–	**3WA9111-0BA43**

Cradle Mounted Keylock

This keylock is mounted within the cradle, and keeps the breaker locked in the OPEN position. Available with several keylock cylinder options, the provision can be used with up to two key cylinders.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
Made by CES Locks, cylinders and keys included	R61	**3WA9111-0BA51**
Made by IKON Locks, cylinders and keys included	–	**3WA9111-0BA53**
Made by KIRK-Key Lock cylinders must be ordered separately	–	**3WA9111-0BA57**
Made by RONIS Locks, cylinders and keys included	R68	**3WA9111-0BA58**
Made by PROFALUX Locks, cylinders and keys included	R60	**3WA9111-0BA50**

Open Door Racking Lock

Accessory to prevent racking of a draw-out breaker when the cubicle door is open.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
Racking lock	R50	**3WA9111-0BB15**

Racking Handle Key Lock

For draw-out breakers, the racking handle key lock provides control over the racking position of the breaker. With the option for an assortment of different lock cylinders, the breaker can be locked in three separate positions, connect, test or disconnect. These locks are available in Kirk or Superior types and are uniquely keyed.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
Made by CES	S71	**3WA9111-0BA73**
Made by IKON	–	**3WA9111-0BA75**
Made by PROFALUX	S75	**3WA9111-0BA76**
Made by RONIS	S76	**3WA9111-0BA77**
Provision for Kirk/Superior cylinders*	–	**3WA9111-0BA80**

** Lock cylinders must be ordered separately.*

Shunt Trip and Closing Coils (intermittent duty)

The intermittent duty (5%) shunt trips are standard for use in North America. A shunt trip gives the ability to remotely open the circuit breaker in an instant when energized by a control power source. The Closing Coil gives the opposite result which is closing the breaker when receiving the signal to do so. A clearing contact is also provided to be wired in series to clear the circuit of the control voltage after the breaker is opened. If dual supply sources or control circuits are being used in an application, two shunt trips can be installed. For information on the activation of the shunt trip an optional status contact can be used to provide a signaling condition that the shunt trip has been activated.

Ordering Information

Description	Z-Option	Catalog No.
Shunt trip 5% duty opening time 50ms	CC 24V ac	**3WA9111-0AD12**
	CC 48V ac	**3WA9111-0AD14**
	CC 120V ac / 125V dc	**3WA9111-0AD15**
	CC 208V ac / 240V ac / 240V dc	**3WA9111-0AD16**
	ST 24V ac	**3WA9111-0AD22**
	ST 48V ac	**3WA9111-0AD24**
	ST 120V ac / 125V dc	**3WA9111-0AD25**
	ST 208V ac / 240V ac / 240V dc	**3WA9111-0AD26**

Shunt Trip and Closing Coils (continuous duty)

The continuous duty shunt trip is intended to be used for 100% duty cycle applications and can hold the breaker in the open position during an electrical or manual "close breaker" attempt (i.e. lock-out). The continuous duty shunt can be used in conjunction with a standard shunt trip device for dual control of the breaker.

Shunt trips and close coils come in two varieties: standard magnets and "Ready4COM". The latter are standard when the breaker is ordered as Ready4COM and are internally wired to the BSS200 so that they can be actuated via communication.

Ordering Information

Description	Voltage	Catalog No.
Shunt trip 100% duty opening time 80ms	CC/ST 24V ac	**3WA9111-0AD02**
	CC/ST 48V ac	**3WA9111-0AD04**
	CC/ST 120V ac / 125V dc	**3WA9111-0AD05**
	CC/ST 208V ac / 240V ac / 240V dc	**3WA9111-0AD06**
For circuit breakers and non-automatic circuit breakers with the "ready4com" feature 100% duty switching time via direct control 80ms switching time via communication 120ms	CC/ST 24V ac	**3WA9111-0AD32**
	CC/ST 48V ac	**3WA9111-0AD34**
	CC/ST 120V ac / 125V dc	**3WA9111-0AD35**
	CC/ST 208V ac / 240V ac / 240V dc	**3WA9111-0AD36**

Undervoltage Release (UVR)

An Undervoltage Release automatically opens the breaker if there is a loss or low level of control circuit voltage. The UVR is guaranteed to keep or allow the breaker to be closed at voltages ≥ 85% of the UVR rating and is guaranteed to open or prevent the breaker from closing if control power is < 70% of UVR rating. To avoid nuisance tripping a UVR is also available with adjustable time delay before the UVR drops out and opens the breaker. For breakers with communications, a status contact, connected to the BSS200, can be installed to monitor the status of the UVR.

Ordering Information

Description	Voltage	Catalog No.
Instantaneous ≤0.08 s (UVR) and short-time delayed ≤0.2 s	24V ac	**3WA9111-0AE02**
	48V ac	**3WA9111-0AE04**
	120V ac / 125V dc	**3WA9111-0AE05**
	240V ac / 250V dc	**3WA9111-0AE06**
Delayed (UVR-t), adjustable delay 0.2 - 3.2 sec.	48V dc	**3WA9111-0AE13**
	120V ac / 125V dc	**3WA9111-0AE15**
	240V ac / 250V dc	**3WA9111-0AE16**

Spring-Charging Motors

The spring charging motor charges the closing springs so that the breaker will be ready to close on command The motor includes a built-in cutoff switch that stops the motor when the breaker is completely charged. This gives the ability to remotely operate the breaker or give an alternative to manually charging the breaker. The motor can be very easily installed in the field.

Technical Information

120 - 240 VAC range	85 - 110% of nominal
24 - 250VDC range	70 - 126% or nominal
Power Consumption	110W
Max Charging Time	10 sec.
Fuse Protection Rating	24-60V 6A, 120-240V 3A (slow-blow)
1 NO + 1 NC	3WA9111-0AG03

Ordering Information

Voltage	Catalog No.
24V dc	**3WA9111-0AF02**
48V dc	**3WA9111-0AF04**
120V ac / 125V dc	**3WA9111-0AF05**
240V ac / 250V dc	**3WA9111-0AF06**

Operation Counter

The operation counter is intended to log the number of open-close cycles the breaker experiences. This accessory is available in versions for breakers both with and without the spring-charging motor option. The counter is mounted adjacent to the charging motor and registers both manual and electrical breaker operations. The limit for the counter is 100,000 operations and is non-resettable.

When the C01 option is specified at configuration, the correct counter will always be installed. If a counter is needed for replacement or as an accessory, the correct catalog number must be selected.

Ordering Information

Description	Z-Option	Catalog No.
Mechanical operations counter for manually operated breakers	C01	**3WA9111-0AH04**
Mechanical operations counter for motor operated breakers	C01	**3WA9111-0AH05**

Ready-to-Close Contact

The ready-to-close contact allows users to electrically communicate that the breaker is ready-toclose. The breaker is ready to close if all of the following conditions are met:

- closing spring is charged
- breaker main contacts are open
- all mechanical lock-outs are disabled
- racking handle seated in stored position
- all electrical lock-outs are disabled

They are included as standard with all 3WA breakers.

Technical Information

Voltage	125-240VAC, 125-250VDC
Continuous Current	3A
Making Current	.4A @ 24-125VDC, 5A @ 120-240VAC
Breaking Current	.2A @ 24-125VDC, 3A@12-240VAC

Ordering Information

Description	Standard Delivery	Catalog No.
Ready-to-Close Contact	•	**3WA9111-0AH01**

Motor Disconnect Switch

Motor disconnect switches are used to disconnect control power from the spring charging motor inside the breaker. The motor disconnect switch is only available in combination with the charging motor and is not available in combination with the local electric close option.

Ordering Information

Description	Z-Option	Catalog No.
Operator Panel Mount	C24	**3WA9111-0AH24**

Local Electric Close

To prevent closing unintentionally the local close button can be secured either with a cover or with a lock and key combination.

Ordering Information

Description	Z-Option	Catalog No.
With sealing cover	C11	**3WA9111-0AH21**
With CES lock	C12	**3WA9111-0AH22**
With IKON lock	–	**3WA9111-0AH23**

Arc Chute Cover

An arc chute cover is used to isolate enclosure components or materials that are above the circuit breaker where heat and exhaust fumes may escape from the breakers arc chutes. Arc Chute covers are limited to a select draw-out breaker types and not available for fixed mount breakers.

Arc Chute Cover, 3WA2				
Frame Size	**Poles**	**Breaking Class**	**Rated Current**	**Catalog No.**
1	3-Poles	N, S, H	800-2000A	**3WA9111-1AS30**
1		E	800-2000A	**3WA9111-1AS31**
2		S, H	800-3000A	**3WA9111-1AS40**
2		S, H	800-3000A	**3WA9111-1AS41**
2		E, C	800-3000A	**3WA9111-1AS42**
3		H	4000-5000A	**3WA9111-1AS50**
3		E	4000-5000A	**3WA9111-1AS51**

Frame Size	**Poles**	**Breaking Class**	**Rated Current**	**Catalog No.**
1		N, S	800-2000A	**3WA9111-1AS30**
1		E	800-2000A	**3WA9111-1AS31**
2		N, S, M	800-3200A	**3WA9111-1AS40**
2		H, E	800-3200A	**3WA9111-1AS42**
3		M. H	4000-5000A	**3WA9111-1AS50**
3		E	4000-5000A	**3WA9111-1AS51**
1		N, S	800-2000A	**3WA9111-1AS60**
1		E	800-2000A	**3WA9111-1AS61**
2		N, S, M	800-3200A	**3WA9111-1AS70**
2		H, E	800-3200A	**3WA9111-1AS71**
3		M. H	4000-5000A	**3WA9111-1AS80**
3		E	4000-5000A	**3WA9111-1AS81**

Door Sealing Frame

The door sealing frame is intended to eliminate any gaps between the breaker and the cabinet door cutout. The door trim is available for all frame sizes.

Ordering Info	
Description	**Catalog No.**
for IP40	**3WA9111-0AP01**

External Neutral Current Sensors

For 4-wire residual ground fault protection we offer current sensors that mount with or without a bus bar coupling. The sensor must be wired to the ETU through the secondary disconnect terminals X8-9 & X8-10 on the breaker.

Ordering Information		
Description	**Frame Size**	**Catalog No.**
Mount on busbar	1	**3WA9111-0AA21**
	2	**3WA9111-0AA22**
	3	**3WA9111-0AA23**

Emergency Open Button

The emergency open button gives a larger mushroom push button to use on the operator panel rather than the local mechanical open button.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
Mushroom button	C25	**3WA9111-0AH25**

Packaging for Moisture Proofing

TThe packaging for moisture proofing includes a waterproof covering and silicone package to absorb excess moisture. This protects against damage that could be caused by long storage times in humid locations.

Ordering Information		
Description	**Z-Option**	**Catalog No.**
Moisture-proof packaging	P61	–

Fixed Mounted Breaker Rear Bus Connector Kits

The Fixed Mounted Breaker Rear Bus Connector Kit convert the 3WA primary mounting stabs to a standard NEMA bussing and bolt-hole pattern. The kit rotates the connections by 90° and can also be used for vertical bus arrangements. Kit includes all bussing and hardware required for mounting one 3-pole set of adapters.

3WA2

Rear vertical connection, fix-mounted breaker 3WA2				
Frame Size	**Breaking Class**	**Rated Current**	**Catalog No.**	**Note**
1	N	800-1200	**3WA9111-1AJ10**	1 piece, top/bottom mounting
1	N	1600-2000	**3WA9111-1AJ11**	1 piece, top/bottom mounting
1	S, H , E	800-2000	**3WA9111-1AJ11**	1 piece, top/bottom mounting
2	S, H , E	800-1600	**3WA9111-1AB20**	3 piece, top mounting
2	S, H , E	800-1600	**3WA9111-1AC20**	3 piece, bottom mounting incl. supporting bracket
2	S, H , E	2000	**3WA9111-1AB21**	3 piece, top mounting
2	S, H , E	2000	**3WA9111-1AC21**	3 piece, bottom mounting incl. supporting bracket
2	S, H , E	2500-3000	**3WA9111-1AB22**	3 piece, top mounting
2	S, H , E	2500-3000	**3WA9111-1AC22**	3 piece, bottom mounting incl. supporting bracket
2	C	800-3000	**3WA9111-1AB23**	3 piece, top mounting
2	C	800-3000	**3WA9111-1AC23**	3 piece, bottom mounting incl. supporting bracket
3	H, E	4000	**3WA9111-1AJ31**	1 piece, top/bottom mounting
3	H, E	5000	**3WA9111-1AB32**	1 piece, top mounting
3	H, E	5000	**3WA9111-1AC32**	1 piece, bottom mounting incl. supporting bracket
3	C	4000-5000	**3WA9111-1AB32**	1 piece, top mounting
3	C	4000-5000	**3WA9111-1AC32**	1 piece, bottom mounting incl. supporting bracket

3WA3

Rear Vertical Connection, fix-mount breaker 3WA3				
Frame Size	**Breaking Class**	**Rated Current**	**Catalog No.**	**Note**
1	N	800-1200	**3WA9111-1AJ10**	1 piece, top/bottom mounting
1	N	1600-2000	**3WA9111-1AJ11**	1 piece, top/bottom mounting
1	S, E	800-2000	**3WA9111-1AJ11**	1 piece, top/bottom mounting
2	N, S, M, H, E	800-1600	**3WA9111-1AB20**	3 piece, top mounting
2	N, S, M, H, E	800-1600	**3WA9111-1AC20**	3 piece, bottom mounting incl. supporting bracket
2	N, S, M, H, E	800-1600	**3WA9111-1AB24**	4 piece, top mounting
2	N, S, M, H, E	800-1600	**3WA9111-1AC24**	4 piece, bottom mounting incl. supporting bracket
2	N, S, M, H, E	2000	**3WA9111-1AB21**	3 piece, top mounting
2	N, S, M, H, E	2000	**3WA9111-1AC21**	3 piece, bottom mounting incl. supporting bracket
2	N, S, M, H, E	2000	**3WA9111-1AB25**	4 piece, top mounting
2	N, S, M, H, E	2000	**3WA9111-1AC25**	4 piece, bottom mounting incl. supporting bracket
2	N, S, M, H, E	2500-3200	**3WA9111-1AB22**	3 piece, top mounting
2	N, S, M, H, E	2500-3200	**3WA9111-1AC22**	3 piece, bottom mounting incl. supporting bracket
2	N, S, M, H, E	2500-3200	**3WA9111-1AB26**	4 piece, top mounting
2	N, S, M, H, E	2500-3200	**3WA9111-1AC26**	4 piece, bottom mounting incl. supporting bracket
3	M, H, E	4000	**3WA9111-1AJ31**	1 piece, top/bottom mounting
3	M, H, E	5000	**3WA9111-1AB32**	1 piece, top mounting
3	M, H, E	5000	**3WA9111-1AC32**	1 piece, bottom mounting
3	C	3200-5000	**3WA9111-1AB32**	1 piece, top mounting
3	C	3200-5000	**3WA9111-1AC32**	1 piece, bottom mounting

Fixed-Mount Breaker Front Bus Connectors

To convert the 3WA breakers primary connections to comply with standard NEMA bussing and bolt hole patterns, use the Front Buss connectors. The kit includes the required bus connections and hardware for mounting one 3-pole set of adapters to a breaker.

3WA2

Front Connection, fixed-mount breaker 3WA2				
Frame Size	**Breaking Class**	**Rated Current**	**Catalog No.**	**Note**
1	N, S	800-1200	**3WA9111-1AF10**	1 piece, top mounting
1	N, S	800-1200	**3WA9111-1AG10**	1 piece, bottom mounting
1	N, S	1600	**3WA9111-1AF11**	1 piece, top mounting
1	N, S	1600	**3WA9111-1AG11**	1 piece, bottom mounting
2	S, H, E	800-1600	**3WA9111-1AF20**	1 piece, top mounting
2	S, H, E	800-1600	**3WA9111-1AG20**	1 piece, bottom mounting
2	S, H, E	2000	**3WA9111-1AF21**	1 piece, top mounting
2	S, H, E	2000	**3WA9111-1AG21**	1 piece, bottom mounting
2	S, H, E	2500	**3WA9111-1AF22**	1 piece, top mounting
2	S, H, E	2500	**3WA9111-1AG22**	1 piece, bottom mounting
2	S, H, E	3000	**3WA9111-1AF23**	1 piece, top mounting
2	S, H, E	3000	**3WA9111-1AG23**	1 piece, bottom mounting
3	H, E	4000-5000①	**3WA9111-1AF31**	1 piece, top mounting
3	H, E	4000-5000①	**3WA9111-1AG1**	1 piece, bottom mounting incl. supporting bracket

3WA3

Front Connection, fixed-mount breaker 3WA3				
Frame Size	**Breaking Class**	**Rated Current**	**Catalog No.**	**Note**
1	N, S	800-1200	**3WA9111-1AF10**	1 piece, top mounting
1	N, S	800-1200	**3WA9111-1AG10**	1 piece, bottom mounting
1	N, S	1600	**3WA9111-1AF11**	1 piece, top mounting
1	N, S	1600	**3WA9111-1AG11**	1 piece, bottom mounting
2	N, S, M, H, E	800-1600	**3WA9111-1AF20**	1 piece, top mounting
2	N, S, M, H, E	800-1600	**3WA9111-1AG20**	1 piece, bottom mounting
2	N, S, M, H, E	2000	**3WA9111-1AF21**	1 piece, top mounting
2	N, S, M, H, E	2000	**3WA9111-1AG21**	1 piece, bottom mounting
2	N, S, M, H, E	2500	**3WA9111-1AF23**	1 piece, top mounting
2	N, S, M, H, E	2500	**3WA9111-1AG23**	1 piece, bottom mounting
3	M, H, E	4000-5000①	**3WA9111-1AF31**	1 piece, top mounting
3	M, H, E	4000-5000①	**3WA9111-1AG31**	1 piece, bottom mounting

① Only mountable on 5000A breakers

Cradle Rear Wall T-Connectors

3WA2

Cradle Rear Wall T-Connector 3WA2

Description	Frame Size	Poles	Breaking Class	Rated Current	Catalog No.
	1	3-Pole	N, S	800-1200A	**3WA9111-1AM40**
	1		N, S	1600A	**3WA9111-1AM41**
	1		N,S	2000A	**3WA9111-1AM42**
	2		S	800-1600A	**3WA9111-1AM50**
	2		S	2000A	**3WA9111-1AM51**

3WA3

Cradle Rear Wall T-Connector 3WA3

Description	Frame Size	Poles	Breaking Class	Rated Current	Catalog No.
	1	3-Pole	N, S	800-1200A	**3WA9111-1AM40**
	1		N, S	1600A	**3WA9111-1AM41**
	2		N, S, M	2000A	**3WA9111-1AM51**
	2		N, S	800-1200A	**3WA9111-1AM40**
	1	4-Pole	N, S	800-1200A	**3WA9111-1AN20**
	1		N, S	1600A	**3WA9111-1AN21**
	2		N, S, M	800-1600A	**3WA9111-1AN50**
	2		N, S, M	2000A	**3WA9111-1AN51**

Replacement Electronic Trip Units

The brains of the circuit breaker, the electronic trip units govern the available protective functions for the system. Choose the ETU which best suits your specifications. For more information, please see the trip unit section or for a deep dive be sure to read our Smart Circuit Breaker Guide. All ETUs can be replaced/installed in the field.

Ordering Info	
Description	**Catalog No.**
Electronic Trip Unit ETU300 LSI / LSIG	**3WA9111-0EE32**
Electronic Trip Unit ETU600 LSI / LSIG	**3WA9111-0EE62**
Electronic Trip Unit ETU600 LSIG Hi-Z	**3WA9111-0EE63**

Replacement Battery

The replacement battery offers a simple field installation to ensure that the real-time clock in the ETU600 remains powered in the absence of control power.

Ordering Info	
Description	**Catalog No.**
For use with ETU600	**3WA9111-0EE81**

Isolation Shutters

Shutters are included as standard for all 3WA cradles unless otherwise specified. For the safety of operators, isolation shutters reduce the accessibility of the primary terminals of the circuit breaker, by automatically closing when the breaker is disconnected or withdrawn. To increase the level of control the shutters can also be padlocked to eliminate the unintentional access of the terminals when the breaker is not in the compartment.

3WA2

Shutters, 3WA2

Description	Frame Size	Poles	Breaking Class	Rated Current	Catalog No.
Shutter	1	3-pole	N, S, H, E	800-2000A	**3WA9111-1AP10**
Shutter	2		S, H, E	800-3000A	**3WA9111-1AP20**
Shutter	2		C	800-3000A	**3WA9111-1AP22**
Shutter	3		H, E	4000-5000A	**3WA9111-1AP30**
Shutter	3		C	4000-5000A	**3WA9111-1AP32**

3WA3

Shutters 3WA3

Description	Frame Size	Poles	Breaking Class	Rated Current	Catalog No.
Shutter	1	3-Pole	N, S, E	800-2000A	**3WA9111-1AP10**
Shutter	2		N, S, M, H, E	800-3200A	**3WA9111-1AP20**
Shutter	3		M, H, E	4000-5000A	**3WA9111-1AP30**
Shutter	3		C	3200-5000A	**3WA9111-1AP32**
Shutter	1	4-Pole	N, S, E	800-2000A	**3WA9111-1AP11**
Shutter	2		N, S, M, H, E	800-3200A	**3WA9111-1AP21**
Shutter	3		M, H, E	4000-5000A	**3WA9111-1AP31**

Internal Current Sensors

If the need arises to replace the internal CTs for the 3WA, please see below for direct replacements containing all hardware needed.

Ordering Information		
Description	**Frame Size**	**Catalog No.**
All parts, 3-pole	1	**3WA9111-0AA42**
	2	**3WA9111-0AA43**
	3	**3WA9111-0AA44**
All parts, 4-pole	1	**3WA9111-0AA45**
	2	**3WA9111-0AA46**
	3	**3WA9111-0AA47**

Contact Systems

For UL1066 breakers it is possible to replace the contacts if they have seen significant wear.

Ordering Info				
Breaker	**Frame Size**	**Breaking Class**	**Rated Current**	**Catalog No.**
3WA2	1	N	800-1200A	**3WA9111-1AQ30**
	1	N	1600A	**3WA9111-1AQ31**
	1	S	800-1600A	**3WA9111-1AQ31**
	1	N, S	2000A	**3WA9111-1AQ32**
	1	H, E	800-2000A	**3WA9111-1AQ33**
	2	S, H, E	800 - 1600A	**3WA9111-1AQ40**
	2	S, H, E	2000A	**3WA9111-1AQ41**
	2	S, H, E	2500-3000A	**3WA9111-1AQ43**
	2	C	800-3000A	**3WA9111-1AQ44**
	3	H, E	4000A	**3WA9111-1AQ50**
	3	H, E	5000A	**3WA9111-1AQ51**
	3	C	4000-5000A	**3WA9111-1AQ52**
3WA3 3-pole	1	N	800-1200A	**3WA9111-1AQ30**
	1	N	1600A	**3WA9111-1AQ31**
	1	S	800-1600A	**3WA9111-1AQ31**
	1	N, S	2000A	**3WA9111-1AQ32**
	2	N, S, M, H, E	800-1600A	**3WA9111-1AQ40**
	2	N, S, M, H, E	2000A	**3WA9111-1AQ41**
	2	N, S, M, H, E	2500 - 3200A	**3WA9111-1AQ43**
	3	M, H, E	4000A	**3WA9111-1AQ50**
	3	M, H, E	5000A	**3WA9111-1AQ51**
3WA3 4-pole	1	N	800-1200A	**3WA9111-1AQ60**
	1	N	1600A	**3WA9111-1AQ61**
	1	S	800-1600A	**3WA9111-1AQ61**
	1	N, S	2000A	**3WA9111-1AQ62**
	2	N, S, M, H, E	800-1600A	**3WA9111-1AQ70**
	2	N, S, M, H, E	2000A	**3WA9111-1AQ71**
	2	N, S, M, H, E	2500 - 3200A	**3WA9111-1AQ72**
	3	M, H, E	4000A	**3WA9111-1AQ80**
	3	M, H, E	5000A	**3WA9111-1AQ81**

Arc Chutes

The Arc Chutes of a UL1066 breaker are field replaceable.

Arc Chute, 3WA2

Frame Size	Breaking Class	Rated Current	Catalog No.
1	N, S, H	800 - 2000A	**3WA9111-1AS00**
1	E	800 - 2000A	**3WA9111-1AS01***
1	E	800 - 2000A	**3WA9111-1AS02****
2	S, H	800-3000A	**3WA9111-1AS10**
2	E, C	800-3000A	**3WA9111-1AS11**
3	H	4000-5000A	**3WA9111-1AS20**
3	E, C	4000-5000A	**3WA9111-1AS21**

Arc Chute, 3WA3

Frame Size	Breaking Class	Rated Current	Catalog No.
1	N, S	800-2000A	**3WA9111-1AS00**
1	E	800-2000A	**3WA9111-1AS01***
1	E	800-2000A	**3WA9111-1AS02****
2	N, S, M	800-3200A	**3WA9111-1AS10**
2	H, E	800-3200A	**3WA9111-1AS11**
3	M, H	4000-5000A	**3WA9111-1AS20**
3	E, C	4000-5000A	**3WA9111-1AS21**

Z Options

Z Option	Description	Spare Part MLFB
B02	Option Plug with Rated Current 250 A	
B03	Option Plug with Rated Current 315 A	
B04	Option Plug with Rated Current 400 A	
B05	Option Plug with Rated Current 500 A	
B06	Option Plug with Rated Current 630 A	
B07	Option Plug with Rated Current 700 A	
B08	Option Plug with Rated Current 800 A	
B10	Option Plug with Rated Current 1000 A	
B11	Option Plug with Rated Current 1200 A	
B12	Option Plug with Rated Current 1250 A	
B16	Option Plug with Rated Current 1600 A	
B20	Option Plug with Rated Current 2000 A	
B25	Option Plug with Rated Current 2500 A	
B30	Option Plug with Rated Current 3000 A	
B32	Option Plug with Rated Current 3200 A	
B40	Option Plug with Rated Current 4000 A	
B50	Option Plug with Rated Current 5000 A	
B60	Option Plug with Rated Current 6000 A	
B71	Option Plug with Rated Current 225 A	
B72	Option Plug with Rated Current 200 A	
B73	Option Plug with Rated Current 300 A	
B74	Option Plug with Rated Current 350 A	
B75	Option Plug with Rated Current 450 A	
B76	Option Plug with Rated Current 600 A	
C01	Operations counter	
C11	Local electric close, with sealing cover	**3WA9111-0AH21**
C12	Local electric close, with CES lock	**3WA9111-0AH22**
C24	Motor disconnect switch	**3WA9111-0AH24**
C25	Emergency OPEN button, mushroom pushbutton	**3WA9111-0AH25**
D03	3WA3 Breaker with IEC main connections	
D05	3WA circuit breaker without push-in-aux.-plugs	
D08	Tin surface for main connections for guide frame, only for horizontal or flange connection	
D09	4000A 3WA with connections that match 4000A WL breaker	
D24	Circuit breaker frame size 3 in fixed mounted design with glued screws for breaker feet and lateral front covers	
D80	Circuit breaker without bluetooth functionality	
F15	Modbus-RTU module COM150	**3WA9111-2EC15**
F17	PROFIBUS-DP module COM170	**3WA9111-0EC14**
F19	PROFINET-IO/Modbus-TCP module COM190	**3WA9111-2EC13**
F20	Zone Selective Interlocking module ZSI200	**3WA9111-0EC10**
F23	Digital Input/Output module IOM230	**3WA9111-2EC11**
F40	Cover for Electronic Trip Unit	
F41	EMC Filter for Electronic Trip Unit	**3WA9111-0EM51**

(continued)

Z Options *(continued)*

Z Option	Description	Spare Part MLFB
K01	Automatic reset of the reclosing lockout	**3WA9111-0EM31**
K02	Non-Automatic reset of the reclosing lockout	
K06	2nd Trip alarm switch	**3WA9111-0AH03**
K60	Current sensor without energy core, Requires power supply 24V DC and additional undervoltage release (UVR), no power supply of the ETU via current sensors	
N03	Secondary disconnect terminals - SIGUT compressions screw terminals	**3WA9111-0AB03**
N05	Secondary disconnect terminals - Ring lug connection terminals	**3WA9111-0AB05**
P61	Special packaging for increased requirements for transportation (Moisture proofed)	
P81	Certified Test Reports (Routine Test) as paper version	
R10	Arc chute cover	
R22	"Shutter, UL/ANSI, FS1, 3-pole N/S/H/E, 800-2000A"	**3WA9111-1AP14**
R22	"Shutter, ANSI, FS1, 4-pole N/S/E, 800-2000A "	**3WA9111-1AP15**
R22	"Shutter, UL/ANSI, FS2, 3-pole N/S/M/H/E, 800-3200A"	**3WA9111-1AP24**
R22	"Shutter, ANSI, FS2, 4-pole N/S/M/H/E, 800-3200A"	**3WA9111-1AP25**
R22	"Shutter, UL, FS2, 3-pole C, 800-3000A"	**3WA9111-1AP26**
R22	"Shutter, ANSI, FS2, 3-pole F, 800-2000A"	**3WA9111-1AP27**
R22	"Shutter, UL/ANSI, FS3, 3-pole M/H/E, 4000-5000A"	**3WA9111-1AP34**
R22	"Shutter, ANSI, FS3, 4-pole M/H/E, 4000-5000A"	**3WA9111-1AP35**
R22	"Shutter, UL/ANSI, FS3, 3-pole C, 4000-5000A"	**3WA9111-1AP36**
R22	"Shutter, ANSI, FS3, 3-pole F, 4000-5000A"	**3WA9111-1AP37**
R30	Mechanical interlock to prevent opening of the circuit breaker compartment door when the circuit beraker is closed, for withdrawable design only, can be defeated, for withdrawable design only, can be defeated	**3WA9111-0BB13**
R40	Mechanical interlock to prevent closing of the circuit breaker when the circuit breaker compartment door is open, Combination with R81, R85 and R86 on request, not possible in combination with R50	
R50	Mechanical interlock to prevent the racking of the circuit breaker when the circuit breaker compartment door is open, not possible in combination with R81, R85 and R86	**3WA9111-0BB15**
R55	Mutual mechanical interlocking with 2m Bowden cable for withdrawable circuit breakers., necessary once for each circuit breaker	**3WA9111-0BB22**
R56	Mutual mechanical interlocking with 2m Bowden cable for guide frame, necessary once for each circuit breaker, only usable at separat ordered guide frame	**3WA9111-0BB23**
R57	Mutual mechanical interlocking with 2m Bowden cable for withdrawable circuit breakers without guide frame, necessary once for each circuit breaker, only usable at separat ordered circuit breaker without guide frame	**3WA9111-0BB24**
R60	Locking provision against unauthorized closing for withdrawable circuit breakers, with PROFALUX lock	**3WA9111-0BA50**
R61	Locking provision against unauthorized closing for withdrawable circuit breakers, with CES lock	**3WA9111-0BA51**
R62	Locking provision against unauthorized closing for withdrawable circuit breakers, for KIRK-Key lock. The lock must be ordered at the manufacturer	**3WA9111-0BA57**
R68	Locking provision against unauthorized closing for withdrawable circuit breakers, with RONIS lock	**3WA9111-0BA58**

(continued)

Z Options *(continued)*

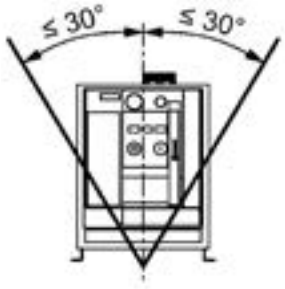
Z Option	Description	Spare Part MLFB
R71	Locking against switching on - withdrawable design (FS1) - provision only - (for 3-pole and 4-pole breakers), Double KIRK (delivery without lock. Must be ordered from manufacturer)	**3WA9111-1BA56**
R71	Locking against switching on - withdrawable design (FS2 und FS3) - 3-pole only, Double KIRK (delivery without lock. Must be ordered from manufacturer by customer)	**3WA9111-1BA57**
R71	Locking against switching on - withdrawable design (FS2) - 4-pole, Double KIRK (delivery without lock. Must be ordered from manufacturer by customer)	**3WA9111-1BA58**
R71	Locking against switching on - withdrawable design (FS3) - 4-pole, Double KIRK (delivery without lock. Must be ordered from manufacturer by customer)	**3WA9111-1BA60**
R81	Locking provision to prevent movement of the withdrawable circuit breaker in disconnected position, Consisting of bowden wire and lock in the cabinet door on the circuit breaker, with CES lock	**3WA9111-0BA81**
R82	Locking provision to prevent movement of the withdrawable circuit breaker in disconnected position, Consisting of bowden wire and lock in the cabinet door on the circuit breaker, with IKON lock	**3WA9111-0BA82**
R85	Locking provision to prevent movement of the withdrawable circuit breaker in disconnected position, Consisting of bowden wire and lock in the cabinet door on the circuit breaker, with PROFALUX lock	**3WA9111-0BA83**
R86	Locking provision to prevent movement of the withdrawable circuit breaker in disconnected position, Consisting of bowden wire and lock in the cabinet door on the circuit breaker, with RONIS lock	**3WA9111-0BA84**
S01	Locking provision against unauthorized closing - Secured Open, with CES lock	**3WA9111-0BA35**
S02	Locking provision against unauthorized closing - Secured Open, with KIRK Key Lock, lock is included	**3WA9111-0BA38**
S03	Locking provision against unauthorized closing - Secured Open, with IKON lock	**3WA9111-0BA36**
S04	Locking provision against unauthorized closing - Secured Open, with Yale Key Lock, lock is included	**3WA9111-0BA40**
S05	Locking provision against unauthorized closing - Secured Open, Locking provision for FORTRESS or CASTELL locks, The lock must be ordered at the manufacturer	**3WA9111-0BA31**
S06	Locking provision against unauthorized closing - Secured Open - Provision only, Mounting Kit for Kirk and Yale (lock not included - to be ordered from manufacturer)	**3WA9111-0BA33**
S07	Locking provision against unauthorized closing - Secured Open, for padlocks, Padlocks are not included	**3WA9111-0BA37**
S08	Locking provision against unauthorized closing - Secured Open, with RONIS lock	**3WA9111-0BA32**
S09	Locking provision against unauthorized closing - Secured Open, with PROFALUX lock	**3WA9111-0BA34**
S30	Mechanical interlock to prevent opening of the circuit breaker compartment door when the circuit beraker is closed, for fixed-mounted design only, can be defeated	**3WA9111-0BB12**
S33	Padlock device for charging handle, Padlocks are not included.	**3WA9111-0BA71**
S40	Interlocking for mechanical Close/Open, Set each consisting of 2: • transparent covers for sealing or for attaching padlocks • Cover with 6.35 mm hole (for tool actuation) • Lock mount for safety lock for key operation (without safety lock)	**3WA9111-0BA21**
S55	Mutual mechanical interlocking with 2m Bowden cable for circuit breakers in fixed-mounted design, necessary once for each circuit breaker	**3WA9111-0BB21**
S71	Racking handle key-lock, with CES lock	**3WA9111-0BA73**
S72	Racking handle key-lock - Provision only, for Kik Key and Yale	**3WA9111-1BA81**
S73	Racking handle key-lock, for KIRK-Key lock, the lock must be ordered at the manufacturer	**3WA9111-0BA80**
S75	Racking handle key-lock, with PROFALUX lock	**3WA9111-0BA76**
S76	Racking handle key-lock, with RONIS lock	**3WA9111-0BA77**
T40	Door sealing frame, IP41	**3WA9111-0AP01**
U01	Special warning labels for IEC breaker in NEMA market	
U40	Customized NEMA Label Process	
V61	Metering function PMF-I with voltage metering via external voltage transformer, only possible at frame sizes 2 and 3	
V62	Metering function PMF-II with voltage metering via external voltage transformer, only possible at frame sizes 2 and 3	
V63	Metering function PMF-III with voltage metering via external voltage transformer, only possible at frame sizes 2 and 3	
V68	Voltage tap module VTM680	

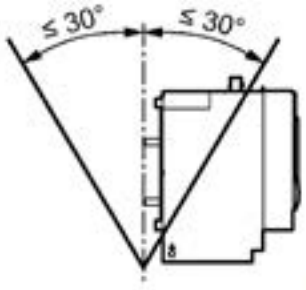
CONTINUED ON NEXT PAGE

3WA2 Frame Ratings - Frame Size 1		800A				1200A			
Rating Class		N	S	H	E	N	S	H	E
Interrupting current frame I_{cs} (kAIR RMS) 50/60 Hz	240V AC	50	65	100	50	50	65	100	50
	480V AC	50	65	100	50	50	65	100	50
	600V AC	50	65	65	50	50	65	65	50
	1000 / 577 V AC	–	–	–	50	–	–	–	50
Short-time current I_{cw} (kA RMS)	0.4 s / 480V	42	50	65	50	42	50	65	50
	0.4 s / 600V	42	50	65	50	42	50	65	50
	0.4 s / 1000V / 577V	–	–	–	50	–	–	–	50
Short Circuit Making Current (kA asymmetrical)	480V AC	110	143	220	110	110	143	220	110
	600V AC	110	143	143	110	110	143	143	110
	1000V / 577V AC	–	–	–	110	–	–	–	110
Endurance									
Mechanical duty cycles (no maintenance)		15,000	15,000	10,000	10,000	15,000	15,000	10,000	10,000
Electrical duty cycles $V_e \leq 480V$ (no maintenance)		10,000	10,000	10,000	7,500	10,000	10,000	10,000	7,500
Electrical duty cycles $V_e \leq 600V$ (no maintenance)		10,000	10,000	10,000	7,500	10,000	10,000	10,000	7,500
Electrical duty cycles $V_e \leq 1000 / 577V$ (no maintenance)		–	–	–	1,000	–	–	–	1,000
Power losses									
Draw-out breaker efficiency (Watts loss at I_n)		115	115	115	115	260	275	275	275
Fixed-mount breaker efficiency (Watts loss at I_n)		65	55	55	55	145	125	125	125
Vertical Bus bar connection according UL489-2019 (table 7.1.4.1.3)		1 pcs. (3" x 1/4")				2 pcs. (2.5" x 1/4")			
Ambient operating temperature (°C)		-25 to +40⑤				-25 to +40⑤			
Minimum enclosure dimension (in.)		22.5 H / 14 W / 19.5 D				22.5 H / 14 W / 19.5 D			
required ventilation openings per UL489	top (sq-in)	not required				not required			
	bottom (sq-in)	not required				not required			
Applicable option plug range		200-800A				200-1200A			
Mechanical make-time (ms)		35				35			
Mechanical break-time (ms)		38				38			
Electric close make-time (ms) by closing coil / (Intermittent duty)		80 / 50①				80 / 50①			
Electric Trip shunt trip break time (ms) / (Intermittent duty)		80 / 50②				80 / 50②			
Electric trip / UV break-time (ms)		80③ / 200④				80③ / 200④			
Electric trip by electronic trip unit (ms)		50				50			
Weights , 3-pole (with vertical main connections)									
Circuit breaker fixed mounted	kg / lb	40 / 88				40 / 88			
Circuit breaker fixed withdrawable w/o cradle (guide frame)	kg / lb	48.5 / 106.7				48.5 / 106.7			
Cradle (guide frame)	kg / lb	50.5 / 111.1				50.5 / 111.1			
Rated impulse withstand voltage V_{imp} / kV									
Main circuits	12								
Auxiliary circuits	4								
Control circuits⑥	2.5								
Dielectric Withstand – Primary Circuit		2.2	2.2	2.2	3.2	2.2	2.2	2.2	3.2
Dielectric Withstand – Control Circuits	1.0								
Permissible ambient temperature °C									
Storage	-40 to +80⑦								
Mounting Position – see diagram at right									

	1600A				2000A			
	N	S	H	E	N	S	H	E
	50	65	100	50	50	65	100	50
	50	65	100	50	50	65	100	50
	50	65	65	50	50	65	65	50
	–	–	–	50	–	–	–	50
	42	50	65	50	42	65	65	50
	42	50	65	50	42	65	65	50
	–	–	–	50	–	–	–	50
	110	143	220	110	110	143	220	110
	110	143	143	110	110	143	143	110
	–	–	–	110	–	–	–	110
	15,000	15,000	10,000	10,000	10,000	10,000	10,000	10,000
	10,000	10,000	10,000	7,500	7,500	7,500	7,500	7,500
	10,000	10,000	10,000	7,500	7,500	7,500	7,500	7,500
	–	–	–	7,500	–	–	–	7,500
	480	480	480	480	620	620	620	620
	165	165	165	165	260	260	260	260
	2 pcs. (3" x 1/4")				2 pcs. (4" x 1/4")			
	-25 to +40⑤				-25 to +40⑤			
	22.5 H / 14 W / 19.5 D				22.5 H / 14 W / 19.5 D			
	not required				24 (12" x 2")			
	not required				23.5			
	200-1600A				200-2000A			
	35				35			
	38				38			
	80 / 50①				80 / 50①			
	80 / 50②				80 / 50②			
	80③ / 200④				80 3) / 200④			
	50				50			
	45 / 99				46 / 101.2			
	54.5 / 119.9				55.5 / 122.1			
	51.5 / 113.3				58.5 / 128.7			
	2.2	2.2	2.2	3.2	2.2	2.2	2.2	3.2

Mounting Positions



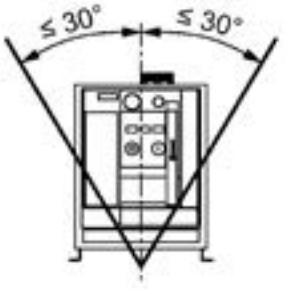


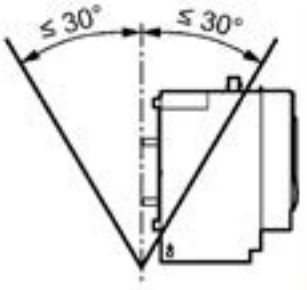
① Electrical closing time with closing coil 5% OP
② With shunt trip 5% OP
③ With instantaneous under voltage release
④ With short time delayed under voltage release
⑤ When used according UL489 Annex SB "Naval": up to +50°C
⑥ Spring charging motor 1.5kV
⑦ Storage should be in a non-condensing environment

3WA2 Frame Ratings - Frame Size 2		800A				1200				1600A			
Rating Class		S	H	E	C	S	H	E	C	S	H	E	C
Interrupting current frame I_{cs} (kAIR RMS) 50 / 60 Hz	240V AC	65	100	85	150	65	100	85	150	65	100	85	150
	480V AC	65	100	85	150	65	100	85	150	65	100	85	150
	600V AC	65	85	85	100	65	85	85	100	65	85	85	100
	1000/577 V AC	–	–	85	–	–	–	85	–	–	–	85	–
Short-time current I_{cw} (kA RMS)	0.4 s / 480V	65	85	85	100	65	85	85	100	65	85	85	100
	0.4 s / 600V	65	85	85	100	65	85	85	100	65	85	85	100
	0.4 s / 1000V/577V	–	–	85	–	–	–	85	–	–	–	85	–
Short Circuit Making Current (kA asymmetrical)	480V AC	143	220	187	330	143	220	187	330	143	220	187	330
	600V AC	143	187	187	220	143	187	187	220	143	187	187	220
	1000V/577V AC	–	–	187	–	–	–	187	–	–	–	187	–
Endurance													
Mechanical duty cycles (no maintenance)		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Electrical duty cycles $V_e \leq 480V$ (no maintenance)		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Electrical duty cycles $V_e \leq 600V$ (no maintenance)		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Electrical duty cycles $V_e \leq 1000 / 577V$ (no maintenance)		–	–	1,000	–	–	–	1,000	–	–	–	1,000	–
Power losses													
Draw-out breaker efficiency (Watts loss at I_n)		70	70	70	70	145	145	145	145	270	270	270	270
Fixed-mount breaker efficiency (Watts loss at I_n)		35	35	35	35	75	75	75	75	135	135	135	135
Applicable option plug range		200 - 800A				200 - 1200A				200 - 1600A			
Ambient operating temperature (°C)		-25 to +40⑤				-25 to +40⑤				-25 to +40⑤			
Minimum enclosure dimension (in.)		22.5 H / 22 W / 19.5 D				22.5 H / 22 W / 19.5 D				22.5 H / 22 W / 19.5 D			
required ventilation openings per UL489	top (sq-in)	not required				not required				not required			
	bottom (sq-in)	not required				not required				not required			
Mechanical make-time (ms)		35				35				35			
Mechanical break-time (ms)		34				34				34			
Electric close make-time (ms) through Closing Coil / (Intermittent duty)		80 / 50①				80 / 50①				80 / 50①			
Electric Trip shunt trip break time (ms) / (Intermittent duty)		80 / 50②				80 / 50②				80 / 50②			
Electric trip/ UV break-time (ms)		803) / 200④				803) / 200④				803) / 200④			
Electric trip trough electronic trip unit (ms)		50				50				50			
Weights , 3-pole (with vertical main connections)													
Circuit breaker fixed mounted	kg / lb	56 / 123.2				56 / 123.2				56 / 123.2			
Circuit breaker fixed withdrawable w/o cradle (guide frame)	kg / lb	68.5 / 150.7				68.5 / 150.7				68.5 / 150.7			
Cradle (guide frame)	kg / lb	55.5 / 122.1				55.5 / 122.1				55.5 / 122.1			
Rated impulse withstand voltage V_{imp} / kV													
Main circuits	12												
Auxiliary circuits	4												
Control circuits⑥	2.5												
Dielectric Withstand – Primary Circuit		2.2	2.2	3.2	2.2	2.2	2.2	3.2	2.2	2.2	2.2	3.2	2.2
Dielectric Withstand – Control Circuits	1.0												
Permissible ambient temperature °C													
Storage	-40 to +80⑦												

2000A				2500A				3000A			
S	H	E	C	S	H	E	C	S	H	E	C
65	100	85	150	65	100	85	150	65	100	85	150
65	100	85	150	65	100	85	150	65	100	85	150
65	85	85	100	65	85	85	100	65	85	85	100
–	–	85	–	–	–	85	–	–	–	85	–
65	85	85	100	65	85	85	100	65	85	85	100
65	85	85	100	65	85	85	100	65	85	85	100
–	–	85	–	–	–	85	–	–	–	85	–
143	220	187	330	143	220	187	330	143	220	187	330
143	187	187	220	143	187	187	220	143	187	187	220
–	–	187	–	–	–	187	–	–	–	187	–
10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
10,000	10,000	10,000	10,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
10,000	10,000	10,000	10,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
–	–	1,000	–	–	–	1,000	–	–	–	1,000	–
360	360	360	360	450	450	450	450	620	620	620	620
200	200	200	200	200	200	200	200	270	270	270	270
200 - 2000A				200 - 2500A				200 - 3000A			
-25 to +40⑤				-25 to +40⑤				-25 to +40⑤			
22.5 H / 22 W / 19.5 D				22.5 H / 22 W / 19.5 D				22.5 H / 22 W / 19.5 D			
not required				44 (22" x 2")				44 (22" x 2")			
not required				52				52			
35				35				35			
34				34				34			
80 / 50①				80 / 50①				80 / 50①			
80 / 50②				80 / 50②				80 / 50②			
803) / 200④				803) / 200④				803) / 200④			
50				50				50			
61 / 134.2				74 / 162.8				74 / 162.8			
72.5 / 159.5				81.5 / 179.3				81.5 / 179.3			
63.5 / 139.7				69.5 / 152.9				69.5 / 152.9			
2.2	2.2	3.2	2.2	2.2	2.2	3.2	2.2	2.2	2.2	3.2	2.2

Mounting Positions

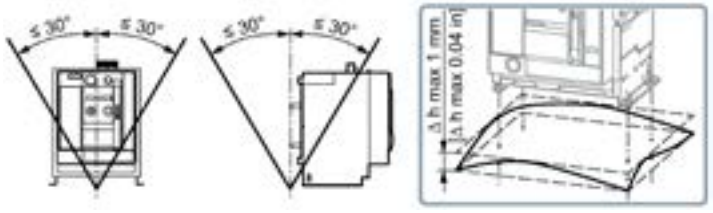




① Electrical closing time with closing coil 5% OP
② With shunt trip 5% OP
③ With instantaneous under voltage release
④ With short time delayed under voltage release
⑤ When used according UL489 Annex SB "Naval": up to +50°C
⑥ Spring charging motor 1.5kV
⑦ Storage should be in a non-condensing environment

3WA2 Frame Ratings - Frame Size 3		4000A			5000A		
Rating Class		H	E	C	H	E	C
Minimum enclosure dimension (in.)		22.5 H / 32 W / 19.5 D			22.5 H / 32 W / 19.5 D		
required ventilation openings per UL489	top (sq-in)	60 (30" x 2")			60 (30" x 2")		
	bottom (sq-in)	65			68		
Mechanical make-time (ms)		35			35		
Mechanical break-time (ms)		34			34		
Electric close make-time (ms) through closing coil / (Intermittent duty)		80 / 50①			80 / 50①		
Electric Trip shunt trip break time (ms) / (Intermittent duty)		80 / 50②			80 / 50②		
Electric trip/ UV break-time (ms)		803) / 200④			803) / 200④		
Electric trip trough electronic trip unit (ms)		50			50		
Weights , 3-pole (with vertical main connections)							
Circuit breaker fixed mounted	kg / lb	137 / 301.4			159 / 349.8		
Circuit breaker fixed withdrawable w/o cradle (guide frame)	kg / lb	116.5 / 256.3			138.5 / 304.7		
Cradle (guide frame)	kg	113.5 / 249.7			121.5 / 267.3		
Rated impulse withstand voltage V_{imp} / kV							
Main circuits		12					
Auxiliary circuits		4					
Control circuits⑥		2.5					
Dielectric Withstand – Primary Circuit		2.2	3.2	2.2	2.2	3.2	2.2
Dielectric Withstand – Control Circuits		1.0					
Permissible ambient temperature °C							
Storage		-40 to +80⑦					

Mounting Position



① Electrical closing time with closing coil 5% OP
② With shunt trip 5% OP
③ With instantaneous under voltage release
④ With short time delayed under voltage release
⑤ When used according UL489 Annex SB "Naval": up to +50°C
⑥ Spring charging motor 1.5kV
⑦ Storage should be in a non-condensing environment

CONTINUED ON NEXT PAGE

Technical Data according to UL1066

3WA3 Frame Ratings - Frame Size 1		800A			1000A		
Rating Class		**N**	**S**	**E**	**N**	**S**	**E**
Rated Voltage V_e		≤ 508	≤ 635	≤ 730	≤ 508	≤ 635	≤ 730
Interrupting current frame I_{cs} (kAIR RMS) 50/60 Hz	254V AC	50	65	85	50	65	85
	508V AC	50	65	85	50	65	85
	635V AC	–	65	65	–	65	65
	730V AC	--	--	65	–	–	65
Short-time current I_{cw} (kA RMS)	0.5 s / 508V	42	50	65	42	50	65
	1 s / 508V	42	50	65	42	50	65
	0.5 s / 635V (730V)	–	50	65	–	50	65
	1 s / 635V (730V)	–	50	65	–	50	65
Short Circuit Making Current (kA asymmetrical)	508V AC	115	150	196	115	150	196
	635V (730V)	115	150	150	115	150	150
Electrical endurance according ANSI C37.50							
Electrical duty cycles V_e ≤ 635V (no maintenance)		10,000	10,000	7,500	10,000	10,000	7,500
Electrical duty cycles V_e ≤ 730V (no maintenance)		–	–	7,500	–	–	7,500
Electrical duty cycles V_e ≤ 635V (with maintenance)		30,000	30,000	15,000	30,000	30,000	15,000
Electrical duty cycles V_e ≤ 730V (with maintenance)		–	–	15,000	–	–	15,000
Power losses							
Draw-out breaker efficiency (Watts loss at In)		120	125	125	200	200	200
Fixed-mount breaker efficiency (Watts loss at In)		70	55	55	105	90	90
vertical Bus bar connection according ANSI C37.50-2018		1 pcs. (3" x 1/4")			2 pcs. (2" x 1/4")		
Minimum enclosure dimension (in.)		3-pole: 22.5 H / 14 W / 19.5 D 4-pole: 22.5 H / 22 W / 19.5 D			3-pole: 22.5 H / 14 W / 19.5 D 4-pole: 22.5 H / 22 W / 19.5 D		
required ventilation openings per ANSI C37.51	top (sq-in)	not required			not required		
	bottom (sq-in)	not required			not required		

	1200A			1600A			2000A		
	N	S	E	N	S	E	N	S	E
	≤ 508	≤ 635	≤ 730	≤ 508	≤ 635	≤ 730	≤ 508	≤ 635	≤ 730
	50	65	85	50	65	85	50	65	85
	50	65	85	50	65	85	50	65	85
	–	65	65	50	65	65	50	65	65
	–	–	65	–	–	65	–	–	65
	42	50	65	50	50	65	50	65	65
	42	50	65	50	50	65	50	65	65
	–	50	65	50	50	65	50	65	65
	–	50	65	50	50	65	50	65	65
	115	150	196	115	150	196	115	150	196
	115	150	150	115	150	150	115	150	150
	10,000	10,000	7,500	10,000	10,000	7,500	10,000	10,000	7,500
	–	–	7,500	–	–	7,500	–	–	7,500
	30,000	30,000	15,000	30,000	30,000	15,000	30,000	30,000	15,000
	–	–	15,000	–	–	15,000	–	–	15,000
	270	270	270	500	500	500	650	650	650
	150	150	150	175	175	175	270	270	270
	2 pcs. (2.5" x 1/4")			2 pcs. (3" x 1/4")			2 pcs. (4" x 1/4")		
	3-pole: 22.5 H / 14 W / 19.5 D 4-pole: 22.5 H / 22 W / 19.5 D			3-pole: 22.5 H / 14 W / 19.5 D 4-pole: 22.5 H / 22 W / 19.5 D			3-pole: 22.5 H / 14 W / 19.5 D 4-pole: 22.5 H / 22 W / 19.5 D		
	not required			not required			3-pole: 24 (12" x 2") 4-pole: 36 (18" x 2")		
	not required			not required			3-pole: 23,5 4-pole: 34,8		

Technical Data according to IEC60947-2

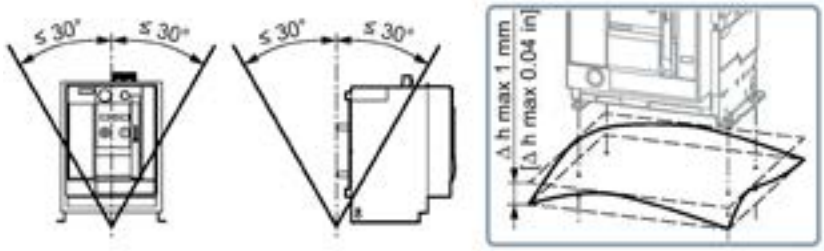
3WA3 Frame Ratings - Frame Size 1 (cont'd.)		800A			1000A		
Rating Class		N	S	E	N	S	E
Rated Insulation Voltage U_i / V			≤ 1000			≤ 1000	
Rated Voltage V_e / V		≤ 690	≤ 690	≤ 1000	≤ 690	≤ 690	≤ 1000
Short circuit breaking capacity Icu/Ics (50Hz) / kA	415 V	50/50	65/65	65/65	50/50	65/65	65/65
	500V	50/50	65/65	65/65	50/50	65/65	65/65
	690V	42/42	50/50	65/65	42/42	50/50	65/65
	1000V	–	–	50/50	–	–	50/50
Short time withstand current I_{cw} / kA	0.5s / 500V	50	65	65	50	65	65
	1s / 500V	50	65	65	50	65	65
	2s / 500V	35	45	65	35	45	65
	3s / 500V	30	35	60	30	35	60
	0.5s / 690V	42	50	65	42	50	65
	1s / 690V	42	50	65	42	50	65
	2s / 690V	35	45	65	35	45	65
	3s / 690V	30	35	60	30	35	60
	0.5s / 1000V	–	–	50	–	–	50
	1s / 1000V	–	–	50	–	–	50
	2s / 1000V	–	–	50	–	–	50
	3s / 1000V	–	–	50	–	–	50
Short Circuit Making Current I_{cm}/ kA (asymmetrical)	415 V	105	143	143	105	143	143
	500V	105	143	143	105	143	143
	690V	88	105	143	88	105	143
	1000V	–	–	105	–	–	105
Rated conditional short-circuit current Icc of the non-automatic air circuit breakers / kA	500V	50	65	65	50	65	65
	690V	42	50	65	42	50	65
	1000V	–	–	50	–	–	50
Electrical endurance according IEC60947-2							
Electrical duty cycles Ve ≤ 690V (no maintenance)		10,000	10,000	10,000	10,000	10,000	10,000
Electrical duty cycles Ve ≤ 1000V (no maintenance)		–	–	1,000	–	–	1,000
Electrical duty cycles Ve ≤ 690V (with maintenance)		30,000	30,000	15,000	30,000	30,000	15,000
Electrical duty cycles Ve ≤ 1000V (with maintenance)		–	–	15,000	–	–	15,000
Power losses							
(IEC) Draw-out breaker efficiency (Watts loss at I_n)		115	115	115	185	195	195
(IEC) Fixed-mount breaker efficiency (Watts loss at I_n)		65	55	55	100	90	90
vertical Bus bar connection according IEC60947-1		2 pcs. (1.5" x 1/4")			2 pcs. (2" x 1/4")		
Ambient operating temperature inside IEC switchgear (°C)		-40 to +70			-40 to +70		
Isolating function acc. to EN 60947-2							
Utilisation Catagory							
Degree of protection when installed in power distribution							
Without any measures							
With door sealing frame							
With IPS5 protective cover							

	1200A			1600A			2000A		
	N	S	E	N	S	E	N	S	E
		≤ 1000			≤ 1000			≤ 1000	
	≤ 690	≤ 690	≤ 1000	≤ 690	≤ 690	≤ 1000	≤ 690	≤ 690	≤ 1000
	50/50	65/65	65/65	50/50	65/65	65/65	50/50	65/65	65/65
	50/50	65/65	65/65	50/50	65/65	65/65	50/50	65/65	65/65
	42/42	50/50	65/65	42/42	50/50	65/65	42/42	50/50	65/65
	–	–	50/50	–	–	50/50	–	–	50/50
	50	65	65	50	65	65	50	65	65
	50	65	65	50	65	65	50	65	65
	35	45	65	35	45	65	35	45	65
	30	35	60	30	35	60	30	35	60
	42	50	65	42	50	65	42	50	65
	42	50	65	42	50	65	42	50	65
	35	45	65	35	45	65	35	45	65
	30	35	60	30	35	60	30	35	60
	–	–	50	–	–	50	–	–	50
	–	–	50	–	–	50	–	–	50
	–	–	50	–	–	50	–	–	50
	–	–	50	–	–	50	–	–	50
	105	143	143	105	143	143	105	143	143
	105	143	143	105	143	143	105	143	143
	88	105	143	88	105	143	88	105	143
	–	–	105	–	–	105	–	–	105
	50	65	65	50	65	65	50	65	65
	42	50	65	42	50	65	42	50	65
	–	–	50	–	–	50	–	–	50
	10,000	10,000	10,000	10,000	10,000	10,000	7,500	7,500	7,500
	–	–	1,000	–	–	1,000	–	–	1,000
	30,000	30,000	15,000	30,000	30,000	15,000	30,000	30,000	15,000
	–	–	15,000	–	–	15,000	–	–	15,000
	260	260	260	480	480	480	620	620	620
	145	145	145	165	165	165	260	260	260
	2 pcs. (2.5" x 1/4")			2 pcs. (3" x 1/4")			3 pcs. (3" x 1/4")		
	-40 to +70			-40 to +70			-40 to +70		
	P								
	B								
	IP20								
	IP41								
	IP55								

General technical data

3WA3 Frame Ratings - Frame Size 1 (cont'd.)		800A			1000A		
Rating Class		N	S	E	N	S	E
Mechanical make-time (ms)			35			35	
Mechanical break-time (ms)			38			38	
Electric close make-time (ms) through Closing Coil / (Intermittent duty)			80 / 50①			80 / 50①	
Electric Trip shunt trip break time (ms) / (Intermittent Duty)			80 / 50②			80 / 50②	
Electric trip/ UV break-time (ms)			80③ / 200④			80 3) / 200④	
Electric trip trough electronic trip unit (ms)			50			50	
Weights , 3-pole (with vertical main connections)							
Circuit breaker fixed mounted	kg / lb		40 / 88			40 / 88	
Circuit breaker fixed withdrawable w/o cradle (guide frame)	kg / lb		48.5 / 106.7			48.5 / 106.7	
Cradle (guide frame)	kg / lb		50.5 / 111.1			50.5 / 111.1	
Weights , 4-pole (with vertical main connections)							
Circuit breaker fixed mounted	kg		49			49	
Circuit breaker fixed withdrawable w/o cradle (guide frame)	kg		59.5			59.5	
Cradle (guide frame)	kg		61.5			61.5	
Rated impulse withstand voltage V_{imp} / kV							
Main circuits	12						
Auxiliary circuits	4						
Control circuits⑤	2.5						
Dielectric Withstand – Primary Circuit		2.2	2.2	3.2	2.2	2.2	3.2
Dielectric Withstand – Control Circuits	1.0						
Permissible abient temperature °C							
Storage	-40 to +80⑥						

Mounting position



① Electrical closing time with closing coil 5% OP
② With shunt trip 5% OP
③ With instantaneous under voltage release
④ With short time delayed under voltage release
⑤ Spring charging motor Vimp = 1.5kV
⑥ Storage should be in a non-condensing environment

	1200A			1600A			2000A		
	N	S	E	N	S	E	N	S	E
		35			35			35	
		38			38			38	
		80 / 50①			80 / 50①			80 / 50①	
		80 / 50②			80 / 50②			80 / 50②	
		80③ / 200④			80③ / 200④			80③ / 200④	
		50			50			50	
		40 / 88			45 / 99			46 / 101.2	
		48.5 / 106.7			54.5 / 119.9			55.5 / 122.1	
		50.5 / 111.1			51.5 / 113.3			58.5 / 128.7	
		49			54			55	
		59.5			75.5			76.5	
		61.5			62.5			69.5	
	2.2	2.2	3.2	2.2	2.2	3.2	2.2	2.2	3.2

Technical Data according to UL1066

3WA3 Frame Ratings - Frame Size 2		800A					1200A					1600A				
Rating Class		N	S	M	H	E	N	S	M	H	E	N	S	M	H	E
Rated Voltage V_e / V		≤ 635	≤ 635	≤ 635	≤ 635	≤ 730	≤ 635	≤ 635	≤ 635	≤ 635	≤ 730	≤ 635	≤ 635	≤ 635	≤ 635	≤ 730
Interrupting current frame I_{cs} (kAIR RMS) 50/60 Hz	254V AC	50	65	85	100	100	50	65	85	100	100	50	65	85	100	100
	508V AC	50	65	85	100	100	50	65	85	100	100	50	65	85	100	100
	635V AC	50	65	65	85	85	50	65	65	85	85	50	65	65	85	85
	730V AC	–	–	–	–	85	–	–	–	–	85	–	–	–	–	85
Short-time current I_{cw} (kA RMS)	0.5 s / 508V	50	65	85	85	85	50	65	85	85	85	50	65	85	85	85
	1 s / 508V	50	65	85	85	85	50	65	85	85	85	50	65	85	85	85
	0.5 s / 635V (730V)	50	65	65	85	85	50	65	65	85	85	50	65	65	85	85
	1 s / 635V (730V)	50	65	65	85	85	50	65	65	85	85	50	65	65	85	85
Short Circuit Making Current (kA asymmetrical)	508V AC	115	150	196	230	230	115	150	196	230	230	115	150	196	230	230
	635V (730V)	115	150	150	196	196	115	150	150	196	196	115	150	150	196	196
Electrical endurance according ANSI C37.50																
Electrical duty cycles V_e ≤ 635V (no maintenance)		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Electrical duty cycles V_e ≤ 730V (no maintenance)		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Electrical duty cycles V_e ≤ 635V (with maintenance)		20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Electrical duty cycles V_e ≤ 730V (with maintenance)		20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Power losses																
Draw-out breaker efficiency (Watts loss at I_n)		75	75	75	75	75	155	155	155	155	155	280	280	280	280	280
Fixed-mount breaker efficiency (Watts loss at I_n)		40	40	40	40	40	85	85	85	85	85	145	145	145	145	145
vertical Bus bar connection according ANSI C37.50-2018		1 pcs. (3" x 1/4")					2 pcs. (2" x 1/4")					2 pcs. (3" x 1/4")				
Minimum enclosure dimension (in.)		"3-pole: 22.5 H / 22 W / 19.5 D 4-pole: 22.5 H / 32 W / 19.5 D"					"3-pole: 22.5 H / 22 W / 19.5 D 4-pole: 22.5 H / 32 W / 19.5 D"					"3-pole: 22.5 H / 22 W / 19.5 D 4-pole: 22.5 H / 32 W / 19.5 D"				
"required ventilation openings per ANSI C37.51"	"top (sq-in)"	not required					not required					not required				
	"bottom (sq-in)"	not required					not required					not required				

	2000A					2500A					3200A				
	N	S	M	H	E	N	S	M	H	E	N	S	M	H	E
	≤ 635	≤ 635	≤ 635	≤ 635	≤ 730	≤ 635	≤ 635	≤ 635	≤ 635	≤ 730	≤ 635	≤ 635	≤ 635	≤ 635	≤ 730
	50	65	85	100	100	50	65	85	100	100	50	65	85	100	100
	50	65	85	100	100	50	65	85	100	100	50	65	85	100	100
	50	65	65	85	85	50	65	65	85	85	50	65	65	85	85
	–	–	–	–	85	–	–	–	–	85	–	–	–	–	85
	50	65	85	85	85	50	65	85	85	85	50	65	85	85	85
	50	65	85	85	85	50	65	85	85	85	50	65	85	85	85
	50	65	65	85	85	50	65	65	85	85	50	65	65	85	85
	50	65	65	85	85	50	65	65	85	85	50	65	65	85	85
	115	150	196	230	230	115	150	196	230	230	115	150	196	230	230
	115	150	150	196	196	115	150	150	196	196	115	150	150	196	196
	10,000	10,000	10,000	10,000	10,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
	10,000	10,000	10,000	10,000	10,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
	380	380	380	380	380	480	480	480	480	480	780	780	780	780	780
	210	210	210	210	210	210	210	210	210	210	340	340	340	340	340
	2 pcs. (4" x 1/4")					3 pcs. (4" x 1/4")					3 pcs. (5" x 1/4")				
	"3-pole: 22.5 H / 22 W / 19.5 D 4-pole: 22.5 H / 32 W / 19.5 D"					"3-pole: 22.5 H / 22 W / 19.5 D 4-pole: 22.5 H / 32 W / 19.5 D"					"3-pole: 22.5 H / 22 W / 19.5 D 4-pole: 22.5 H / 32 W / 19.5 D"				
	not required					"3-pole: 44 (22"" x 2"") 4-pole: 60 (30"" x 2"")"					"3-pole: 44 (22"" x 2"") 4-pole: 60 (30"" x 2"")"				
	not required					"3-pole: 41,8 4-pole: 56,2"					"3-pole: 41,8 4-pole: 56,2"				

Technical Data according to IEC60947-2

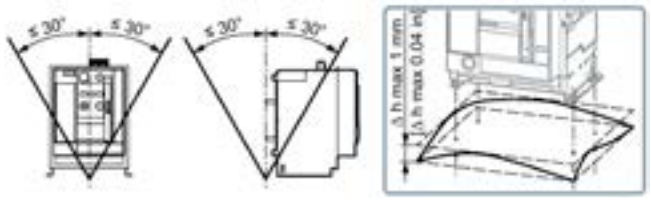
3WA3 Frame Ratings - Frame Size 2 (cont'd.)		800A					1200A				
Rating Class		N	S	M	H	E	N	S	M	H	E
Rated insulation Voltage V_i				≤ 1000					≤ 1000		
Rated Voltage V_e / V		≤ 690	≤ 690	≤ 690	≤ 690	≤ 1000	≤ 690	≤ 690	≤ 690	≤ 690	≤ 1000
Short circuit breaking capacity I_{cu}/I_{cs} (50Hz) / kA	415 V	50	65	85	100	85	50	65	85	100	85
	500V	50	65	85	100	85	50	65	85	100	85
	690V	42	50	65	85	85	42	50	65	85	85
	1000V	-	-	-	-	85	-	-	-	-	85
Short time withstand current I_{cw} / kA	0.5s / 500V	50	65	85	100	100	50	65	85	100	100
	1s / 500V	50	65	85	85	85	50	65	85	85	85
	2s / 500V	50	50	65	65	65	50	50	65	65	65
	3s / 500V	50	55	55	55	55	50	55	55	55	55
	0.5s / 690V	42	50	65	85	85	42	50	65	85	85
	1s / 690V	42	50	65	85	85	42	50	65	85	85
	2s / 690V	42	50	65	65	65	42	50	65	65	65
	3s / 690V	42	50	55	55	55	42	50	55	55	55
	0.5s / 1000V	-	-	-	-	85	-	-	-	-	85
	1s / 1000V	-	-	-	-	85	-	-	-	-	85
	2s / 1000V	-	-	-	-	66	-	-	-	-	66
	3s / 1000V	-	-	-	-	55	-	-	-	-	55
"Short Circuit Making Current I_{cm}/ kA (ansymmetrical)"	415 V	105	143	187	220	187	105	143	187	220	187
	500V	105	143	187	220	187	105	143	187	220	187
	690V	88	105	143	187	187	88	105	143	187	187
	1000V	-	-	-	-	105	-	-	-	-	105
"Rated conditional short-circuit current Icc of the non-automatic air circuit breakers / kA "	500V	50	65	85	100	85	50	65	85	100	85
	690V	42	50	65	85	85	42	50	65	85	85
	1000V	-	-	-	-	85	-	-	-	-	85
Electrical Endurance											
Electrical duty cycles Ue ≤ 690V (no maintenance)		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Electrical duty cycles Ue ≤ 1000V (no maintenance)		-	-	-	-	1,000	-	-	-	-	1,000
Electrical duty cycles Ue ≤ 690V (with maintenance)		20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Electrical duty cycles Ue ≤ 1000V (with maintenance)		-	-	-	-	20,000	-	-	-	-	20,000
Power losses											
(IEC) Draw-out breaker efficiency (Watts loss at I_n)		70	70	70	70	70	145	145	145	145	145
(IEC) Fixed-mount breaker efficiency (Watts loss at I_n)		35	35	35	35	35	75	75	75	75	75
vertical Bus bar connection according IEC60947-1		2 pcs. (1.5" x 1/4")					2 pcs. (2.5" x 1/4")				
Ambient operating temperature inside IEC switchgear (°C)		-40 to +70					-40 to +70				
Isolating function acc. to EN 60947-2		P									
Utilisation Catagory		B									
Degree of protection when installed in power distribution equipment											
Without any measures		IP20									
With door sealing frame		IP41									
With IP55 protective cover		IP55									

	1600A					2000A					2500A					3200A				
	N	S	M	H	E	N	S	M	H	E	N	S	M	H	E	N	S	M	H	E
			≤ 1000					≤ 1000					≤ 1000					≤ 1000		
	≤ 690	≤ 690	≤ 690	≤ 690	≤ 1000	≤ 690	≤ 690	≤ 690	≤ 690	≤ 1000	≤ 690	≤ 690	≤ 690	≤ 690	≤ 1000	≤ 690	≤ 690	≤ 690	≤ 690	≤ 1000
	50	65	85	100	85	50	65	85	100	85	50	65	85	100	85	50	65	85	100	85
	50	65	85	100	85	50	65	85	100	85	50	65	85	100	85	50	65	85	100	85
	42	50	65	85	85	42	50	65	85	85	42	50	65	85	85	42	50	65	85	85
	-	-	-	-	85	-	-	-	-	85	-	-	-	-	85	-	-	-	-	85
	50	65	85	100	100	50	65	85	100	100	50	65	85	100	100	50	65	85	100	100
	50	65	85	85	85	50	65	85	85	85	50	65	85	85	85	50	65	85	85	85
	50	50	65	65	65	50	50	65	65	65	50	50	65	65	65	50	50	85	85	85
	50	55	55	55	55	50	55	55	55	55	50	55	55	55	55	50	65	75	75	75
	42	50	65	85	85	42	50	65	85	85	42	50	65	85	85	42	50	65	85	85
	42	50	65	85	85	42	50	65	85	85	42	50	65	85	85	42	50	65	85	85
	42	50	65	65	65	42	50	65	65	65	42	50	65	65	65	42	50	65	85	85
	42	50	55	55	55	42	50	55	55	55	42	50	55	55	55	42	50	65	75	75
	-	-	-	-	85	-	-	-	-	85	-	-	-	-	85	-	-	-	-	85
	-	-	-	-	85	-	-	-	-	85	-	-	-	-	85	-	-	-	-	85
	-	-	-	-	66	-	-	-	-	66	-	-	-	-	66	-	-	-	-	85
	-	-	-	-	55	-	-	-	-	55	-	-	-	-	55	-	-	-	-	74
	105	143	187	220	187	105	143	187	220	187	105	143	187	220	187	105	143	187	220	187
	105	143	187	220	187	105	143	187	220	187	105	143	187	220	187	105	143	187	220	187
	88	105	143	187	187	88	105	143	187	187	88	105	143	187	187	88	105	143	187	187
	-	-	-	-	105	-	-	-	-	105	-	-	-	-	105	-	-	-	-	105
	50	65	85	100	85	50	65	85	100	85	50	65	85	100	85	50	65	85	100	85
	42	50	65	85	85	42	50	65	85	85	42	50	65	85	85	42	50	65	85	85
	-	-	-	-	85	-	-	-	-	85	-	-	-	-	85	-	-	-	-	85
	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
	-	-	-	-	1,000	-	-	-	-	1,000	-	-	-	-	1,000	-	-	-	-	1,000
	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
	-	-	-	-	20,000	-	-	-	-	20,000	-	-	-	-	20,000	-	-	-	-	20,000
	270	270	270	270	270	360	360	360	360	360	450	450	450	450	450	710	710	710	710	710
	135	135	135	135	135	200	200	200	200	200	200	200	200	200	200	325	325	325	325	325
	2 pcs. (3" x 1/4")					3 pcs. (3" x 1/4")					4 pcs. (3" x 1/4")					3 pcs. (6" x 1/4")				
	-40 to +70					-40 to +70					-40 to +70					-40 to +70				

General technical data

3WA3 Frame Ratings - Frame Size 2 (cont'd.)		800A					1200A				
Rating Class		N	S	M	H	E	N	S	M	H	E
Applicable option plug range		200-800A					200-1200A				
Mechanical make-time (ms)		35					35				
Mechanical break-time (ms)		34					34				
Electric close make-time (ms) by Closing Coil / (Intermittent Duty)		80 / 50①					80 / 50①				
Electric Trip shunt trip break time (ms) / (Intermittent Duty)		80 / 50②					80 / 50②				
Electric trip/ UV break-time (ms)		80③ / 200④					80③ / 200④				
Electric trip by electronic trip unit (ms)		50					50				
Weights , 3-pole (with vertical main connections)											
Circuit breaker fixed mounted	kg / lb	56 / 123.2					56 / 123.2				
Circuit breaker fixed withdrawable w/o cradle (guide frame)	kg / lb	68.5 / 150.7					68.5 / 150.7				
Cradle (guide frame)	kg / lb	55.5 / 122.1					55.5 / 122.1				
Weights , 4-pole (with vertical main connections)											
Circuit breaker fixed mounted	kg / lb	74 / 162.8					74 / 162.8				
Circuit breaker fixed withdrawable w/o cradle (guide frame)	kg / lb	87.5 / 192.5					87.5 / 192.5				
Cradle (guide frame)	kg / lb	76.5 / 168.3					76.5 / 168.3				
Rated impulse withstand voltage V_{imp} / kV											
Main circuits	12										
Auxiliary circuits	4										
Control circuits⑤	2.5										
Dielectric Withstand - Primary Circuit		2.2	2.2	2.2	2.2	3.2	2.2	2.2	2.2	2.2	3.2
Dielectric Withstand - Control Circuits	1.0										
Permissible abient temperature °C											
Storage	-40 to +80⑥										

Mounting position



① Electrical closing time with closing coil 5% OP
② With shunt trip 5% OP
③ With instantaneous under voltage release
④ With short time delayed under voltage release
⑤ Spring charging motor Vimp =1.5kV
⑥ Storage should be in a non-condensing environment

	1600A					2000A					2500A					3200A				
	N	S	M	H	E	N	S	M	H	E	N	S	M	H	E	N	S	M	H	E
	200-1600A					200-2000A					200-2500A					200-3200A				
	35					35					35					35				
	34					34					34					34				
	80 / 50①					80 / 50①					80 / 50①					80 / 50①				
	80 / 50②					80 / 50②					80 / 50②					80 / 50②				
	80③ / 200④					80③ / 200④					80③ / 200④					80③ / 200④				
	50					50					50					50				
	56 / 123.2					61 / 134.2					74 / 162.8					74 / 162.8				
	68.5 / 150.7					72.5 / 159.5					81.5 / 179.3					81.5 / 179.3				
	55.5 / 122.1					63.5 / 139.7					69.5 / 152.9					69.5 / 152.9				
	74 / 162.8					79 / 173.8					92 / 202.4					92 / 202.4				
	87.5 / 192.5					91.5 / 201.3					115.5 / 254.1					115.5 / 254.1				
	76.5 / 168.3					84.5 / 185.9					97.5 / 214.5					97.5 / 214.5				
	2.2	2.2	2.2	2.2	3.2	2.2	2.2	2.2	2.2	3.2	2.2	2.2	2.2	2.2	3.2	2.2	2.2	2.2	2.2	3.2

Technical Data according to UL1066

3WA3 Frame Ratings - Frame Size 3		3200A	4000A				5000A			
Rating Class		C	M	H	E	C	M	H	E	C
Rated Voltage V_e / V		≤ 635	≤ 635	≤ 635	≤ 730	≤ 635	≤ 635	≤ 35	≤ 730	≤ 635
Interrupting current frame I_{cs} (kAIR RMS) 50/60 Hz	254V AC	150	85	100	100	150	85	100	100	150
	508V AC	150	85	100	100	150	85	100	100	150
	635V AC	100	65	85	100	100	65	85	100	100
	730V AC	–	–	–	100	–	–	–	100	–
Short-time current I_{cw} (kA RMS)	0.5 s / 508V	100	85	100	100	100	85	100	100	100
	1 s / 508V	100	85	100	100	100	85	100	100	100
	0.5 s / 635V (730V)	100	65	85	100	100	65	85	100	100
	1 s / 635V (730V)	100	65	85	100	100	65	85	100	100
Short Circuit Making Current (kA asymmetrical)	508V AC	345	196	230	230	345	196	230	230	345
	635V (730V)	230	196	196	230	230	196	196	230	230
Electrical endurance according ANSI C37.50										
Electrical duty cycles V_e ≤ 635V (no maintenance)		2000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Electrical duty cycles V_e ≤ 730V (no maintenance)		2000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Electrical duty cycles V_e ≤ 635V (with maintenance)		10,000	15,000	15,000	15,000	10,000	15,000	15,000	15,000	10,000
Electrical duty cycles V_e ≤ 730V (with maintenance)		10,000	15,000	15,000	15,000	10,000	15,000	15,000	15,000	10,000
Power losses										
(IEC) Draw-out breaker efficiency (Watts loss at In)			900	900	900	1140	1140	1140	1260	1260
(IEC) Fixed-mount breaker efficiency (Watts loss at I_n)			520	520	520	620	620	620	700	700
vertical Bus bar connection according ANSI C37.50-2018		4 pcs. (5" x 1/4")	4 pcs. (5" x 1/4")				6 pcs. (5" x 1/4")			
Minimum enclosure dimension (in.)		3-pole: 22.5 H / 32 W / 19.5 D	3-pole: 22.5 H / 32 W / 19.5 D 4-pole (M; H; E-class): 22.5 H / 42 W / 19.5 D				3-pole: 22.5 H / 32 W / 19.5 D 4-pole (M; H; E-class): 22.5 H / 42 W / 19.5 D			
required ventilation openings per ANSI C37.51	top (sq-in)		3-pole: 60 (30" x 2") 4-pole: 76 (38" x 2")				3-pole: 60 (30" x 2") 4-pole: 76 (38" x 2")			
	bottom (sq-in)		3-pole: 65 4-pole: 90				3-pole: 68.2 4-pole: 96.8			

Technical Data according to IEC60947-2

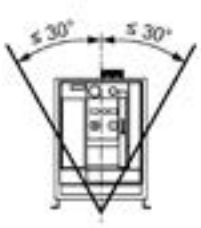
3WA3 Frame Ratings - Frame Size 3 (cont'd.)		4000A			5000A		
Rating Class		**M**	**H**	**E**	**M**	**H**	**E**
Rated Voltage V_e / V		≤ 690	≤ 690	≤ 1000	≤ 690	≤ 690	≤ 1000
Short circuit breaking capacity I_{cu}/I_{cs} (50Hz) / kA	415 V	85	100	100	85	100	100
	500V	85	100	100	85	100	100
	690V	65	85	85	65	85	100
	1000V	–	–	85	–	–	85
Short time withstand current I_{cw} / kA	0s / 500V	85	100	100	85	100	100
	1s / 500V	85	100	100	85	100	100
	2s / 500V	70	70	70	85	100	100
	3s / 500V	57	57	57	85	100	100
	0.5s / 690V	65	85	85	65	85	100
	1s / 690V	65	85	85	65	85	100
	2s / 690V	65	70	70	65	85	100
	3s / 690V	57	57	57	65	85	100
	0.5s / 1000V	–	–	85	–	–	85
	1s / 1000V	–	–	85	–	–	85
	2s / 1000V	–	–	70	–	–	85
	3s / 1000V	–	–	57	–	–	85
Short Circuit Making Current I_{cm} / kA (asymmetrical)	415 V	187	220	220	187	220	220
	500V	187	220	220	187	220	220
	690V	143	187	187	143	187	220
	1000V	–	–	187	–	–	187
Rated conditional short-circuit current Icc of the non-automatic air circuit breakers / kA	500V	85	100	100	85	100	100
	690V	65	85	85	65	85	100
	1000V	–	–	85	–	–	85
Electrical endurance according IEC60947-2							
Electrical duty cycles V_e ≤ 690V (no maintenance)		2,000	2,000	2,000	2,000	2,000	2,000
Electrical duty cycles V_e ≤ 1000V (no maintenance)		–	–	1,000	–	–	1,000
Electrical duty cycles V_e ≤ 690V (with maintenance)		15,000	15,000	15,000	15,000	15,000	15,000
Electrical duty cycles V_e ≤ 1000V (with maintenance)		–	–	15,000	–	–	15,000
Power losses							
(IEC) Draw-out breaker efficiency (Watts loss at I_n)			900	900	900	1140	1140
(IEC) Fixed-mount breaker efficiency (Watts loss at I_n)			520	520	520	620	620
vertical Bus bar connection according IEC60947-1		4 pcs. (5" x 1/4")			6 pcs. (5" x 1/4")		
Ambient operating temperature inside IEC switchgear (°C)		-40 to +70			-40 to +70		
Isolating function acc. to EN 60947-2		P					
Utilisation Catagory		B					
Degree of protection when installed in power distribution equipment							
Without any measures		IP20					
With door sealing frame		IP41					
With IP55 protective cover		IP55					

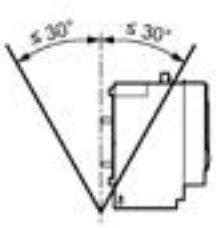
General technical data

3WA3 Frame Ratings - Frame Size 3 (cont'd.)

Applicable option plug range		800-3200A			800-4000A			800-5000A			
Minimum enclosure dimension (in.)		3-pole: 22.5 H / 32 W / 19.5 D			3-pole: 22.5 H / 32 W / 19.5 D 4-pole (M; H; E-class): 22.5 H / 42 W / 19.5 D			3-pole: 22.5 H / 32 W / 19.5 D 4-pole (M; H; E-class): 22.5 H / 42 W / 19.5 D			
Mechanical make-time (ms)		35			35			35			
Mechanical break-time (ms)		34			34			34			
Electric close make-time (ms) through Closing Coil / (Intermittent Duty)		80 / 50①			80 / 50①			80 / 50①			
Electric Trip shunt trip break time (ms) / (Intermittent Duty)		80 / 50②			80 / 50②			80 / 50②			
Electric trip/ UV break-time (ms)		80③/ 200④			80③/ 200④			80③/ 200④			
Electric trip trough electronic trip unit (ms)		50			50			50			
Weights , 3-pole (with vertical main connections)											
Circuit breaker fixed mounted	kg / lb	159 / 349.8			137 / 301.4			159 / 349.8			
Circuit breaker fixed withdrawable w/o cradle (guide frame)	kg / lb	138.5 / 304.7			116.5 / 256.3			138.5 / 304.7			
Cradle (guide frame)	kg / lb	121.5 / 267.3			113.5 / 249.7			121.5 / 267.3			
Weights , 4-pole (with vertical main connections)											
Circuit breaker fixed mounted	kg / lb	–			174 / 382.8			204 / 448.8			
Circuit breaker fixed withdrawable w/o cradle (guide frame)	kg / lb	–			146.5 / 322.3			176.5 / 388.3			
Cradle (guide frame)	kg / lb	–			152.5 / 335.5			160.5 / 353.1			
Rated impulse withstand voltage Vimp / kV											
Main circuits		12									
Auxiliary circuits		4									
Control circuits⑤		2.5									
Dielectric Withstand – Primary Circuit		2.2			2.2	2.2	3.2	2.2	2.2	2.2	3.2	2.2
Dielectric Withstand – Control Circuits		10									
Permissible abient temperature °C											
Storage		-40 to + 80⑥									

Mounting position





① Electrical closing time with closing coil 5% OP
② With shunt trip 5% OP
③ With instantaneous under voltage release
④ With short time delayed under voltage release
⑤ Spring charging motor Vimp =1.5kV
⑥ Storage should be in a non-condensing environment

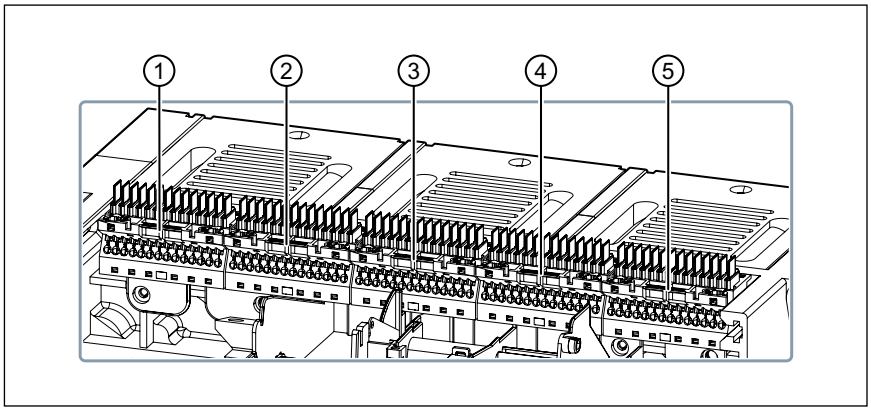
Circuit Diagrams

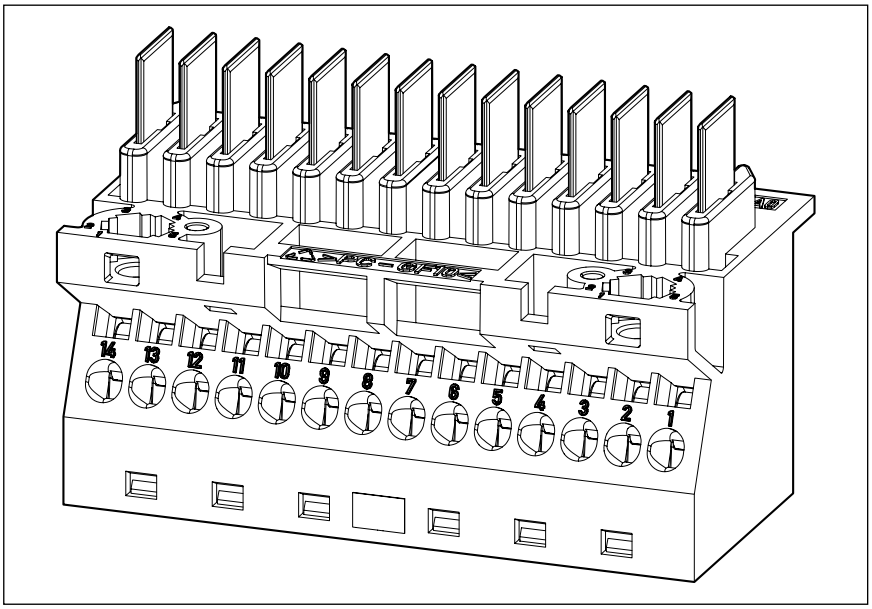
Secondary disconnect terminal blocks X5 to X9 and their terminal markings.

The secondary disconnect terminal blocks are mounted above the operator panel.

❶ Secondary disconnect terminal block X9 (sizes 2 and 3 only)
❷ Secondary disconnect terminal block X8
❸ Secondary disconnect terminal block X7
❹ Secondary disconnect terminal block X6
❺ Secondary disconnect terminal block X5

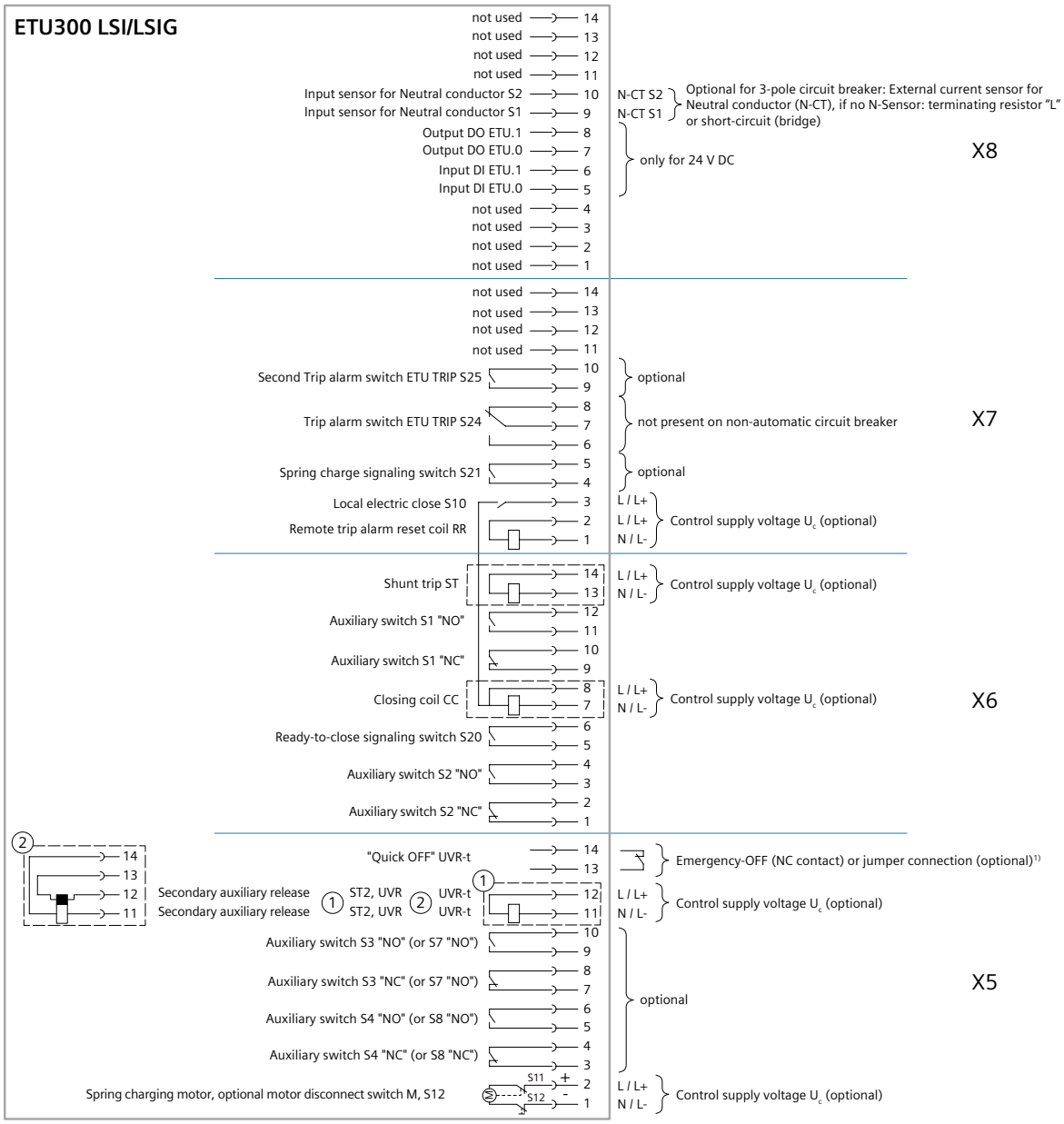
The terminals of each of the secondary disconnect terminal blocks are numbered in descending order from left to right.





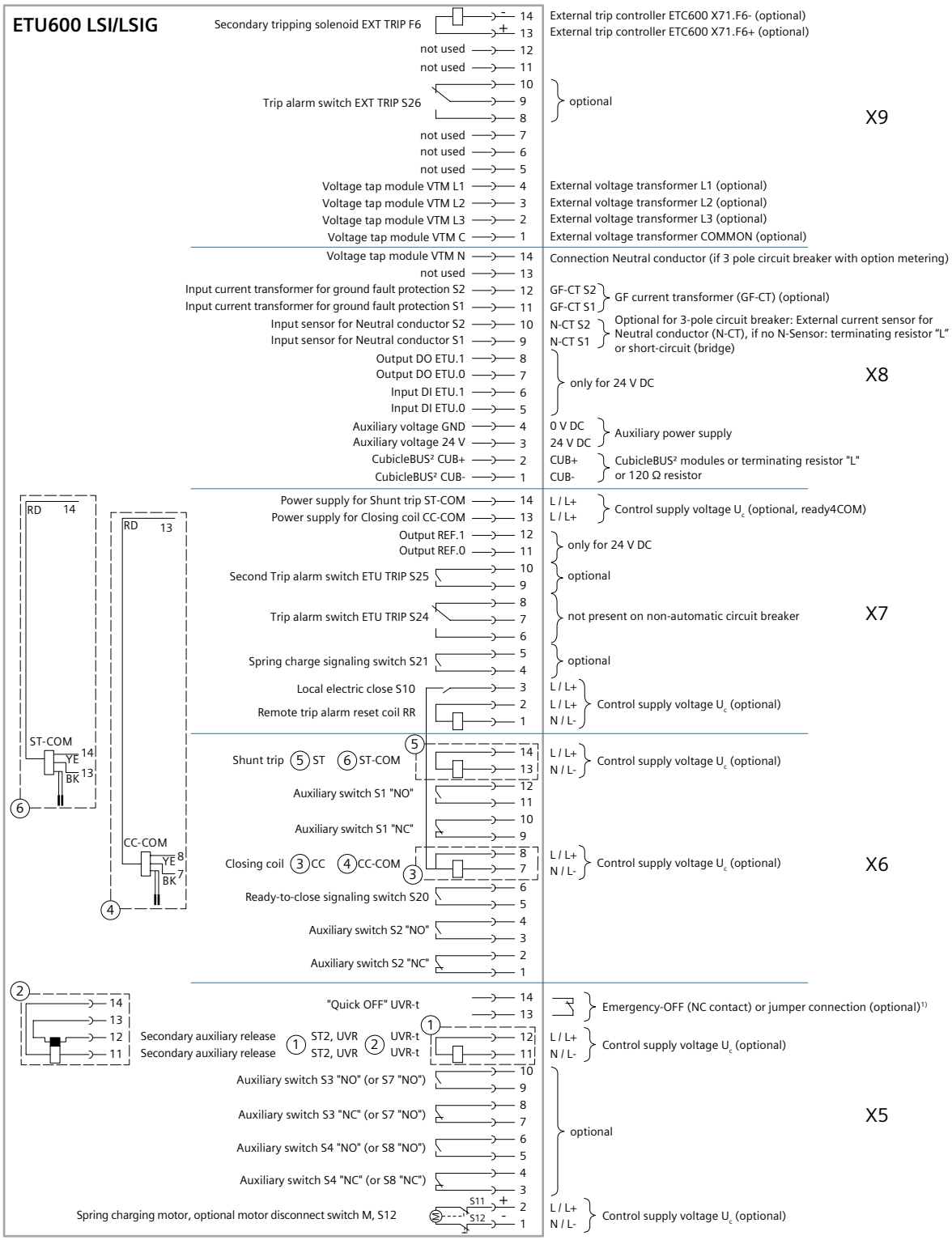
Terminal connection diagrams
of secondary disconnect terminal

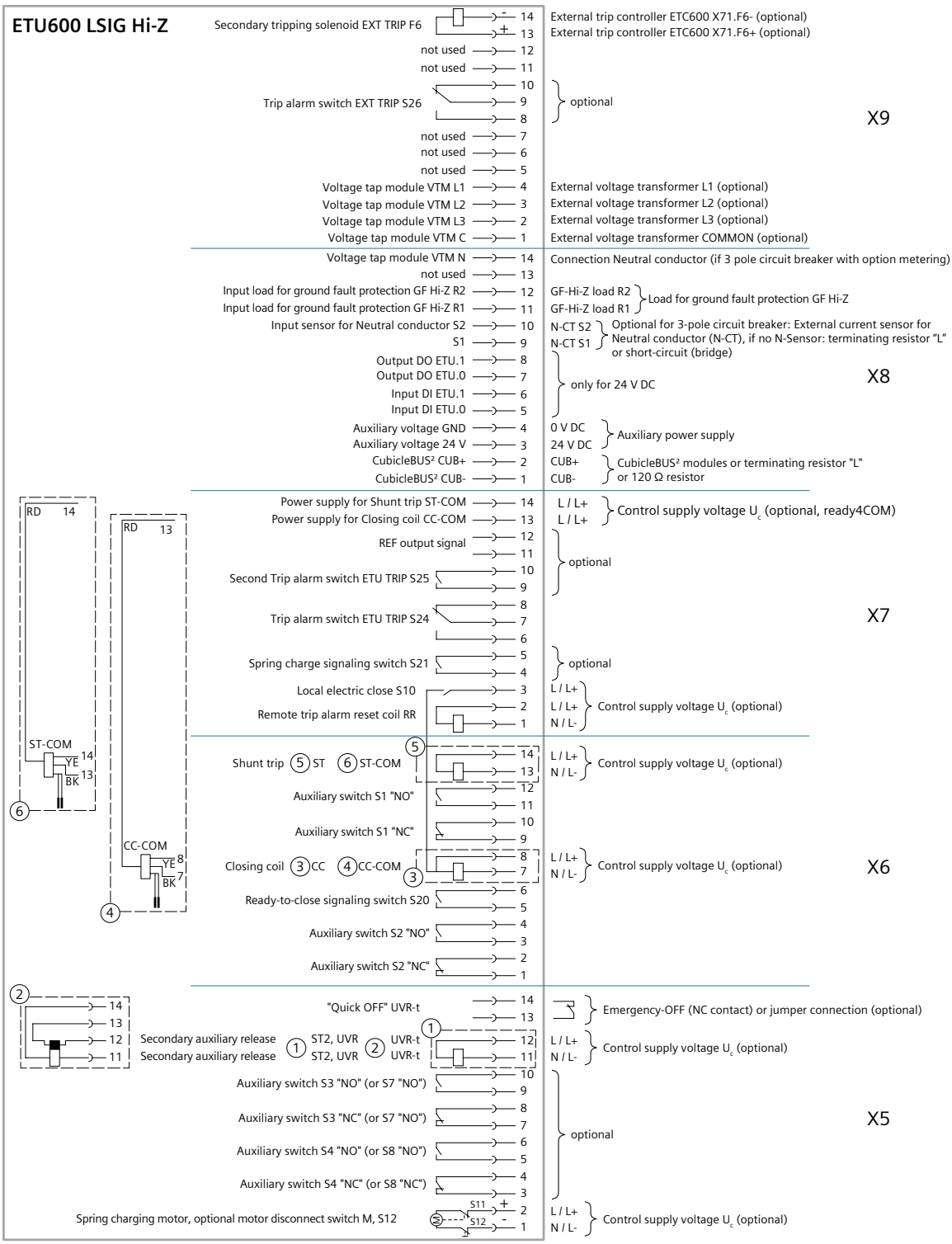
ETU300 terminal assignment diagram



ETU600 terminal assignment diagram

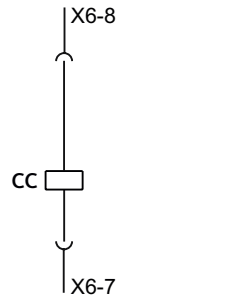
ETU600 terminal assignment diagram



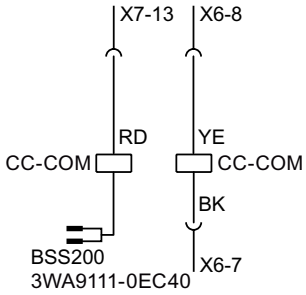

ETU600 LSIG Hi-Z
Secondary tripping solenoid EXT TRIP F6
- 14
+ 13
External trip controller ETC600 X71.F6- (optional)
External trip controller ETC600 X71.F6+ (optional)
not used 12
not used 11
Trip alarm switch EXT TRIP S26
10
9
8
optional
X9
not used 7
not used 6
not used 5
Voltage tap module VTM L1 4
Voltage tap module VTM L2 3
Voltage tap module VTM L3 2
Voltage tap module VTM C 1
External voltage transformer L1 (optional)
External voltage transformer L2 (optional)
External voltage transformer L3 (optional)
External voltage transformer COMMON (optional)
Voltage tap module VTM N 14
not used 13
Input load for ground fault protection GF Hi-Z R2 12
Input load for ground fault protection GF Hi-Z R1 11
Input sensor for Neutral conductor S2 10
S1 9
Connection Neutral conductor (if 3 pole circuit breaker with option metering)
GF-Hi-Z load R2
GF-Hi-Z load R1
Load for ground fault protection GF Hi-Z
N-CT S2
N-CT S1
Optional for 3-pole circuit breaker: External current sensor for Neutral conductor (N-CT), if no N-Sensor: terminating resistor "L" or short-circuit (bridge)
Output DO ETU.1 8
Output DO ETU.0 7
Input DI ETU.1 6
Input DI ETU.0 5
only for 24 V DC
X8
Auxiliary voltage GND 4
Auxiliary voltage 24 V 3
0 V DC
24 V DC
Auxiliary power supply
CubicleBUS² CUB+ 2
CubicleBUS² CUB- 1
CUB+
CUB-
CubicleBUS² modules or terminating resistor "L" or 120 Ω resistor
RD 14
RD 13
ST-COM
YE
BK
14
13
CC-COM
8
7
Power supply for Shunt trip ST-COM 14
Power supply for Closing coil CC-COM 13
L / L+
L / L+
Control supply voltage U_c (optional, ready4COM)
REF output signal 12
11
optional
Second Trip alarm switch ETU TRIP S25 10
9
Trip alarm switch ETU TRIP S24 8
7
6
X7
Spring charge signaling switch S21 5
4
optional
Local electric close S10 3
Remote trip alarm reset coil RR 2
1
L / L+
L / L+
N / L-
Control supply voltage U_c (optional)
Shunt trip 5 ST 6 ST-COM
14
13
L / L+
N / L-
Control supply voltage U_c (optional)
Auxiliary switch S1 "NO" 12
11
Auxiliary switch S1 "NC" 10
9
Closing coil 3 CC 4 CC-COM
8
7
L / L+
N / L-
Control supply voltage U_c (optional)
X6
Ready-to-close signaling switch S20 6
5
Auxiliary switch S2 "NO" 4
3
Auxiliary switch S2 "NC" 2
1
"Quick OFF" UVR-t 14
13
Emergency-OFF (NC contact) or jumper connection (optional)
Secondary auxiliary release
Secondary auxiliary release
1 ST2, UVR
2 ST2, UVR
UVR-t 12
UVR-t 11
L / L+
N / L-
Control supply voltage U_c (optional)
Auxiliary switch S3 "NO" (or S7 "NO") 10
9
Auxiliary switch S3 "NC" (or S7 "NO") 8
7
Auxiliary switch S4 "NO" (or S8 "NO") 6
5
Auxiliary switch S4 "NC" (or S8 "NC") 4
3
optional
X5
Spring charging motor, optional motor disconnect switch M, S12
S11
S12
+ 2
- 1
L / L+
N / L-
Control supply voltage U_c (optional)

Closing coil CC / CC-COM

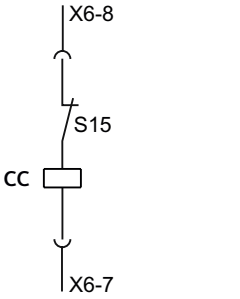
3WA9111-0AD0. (CC)



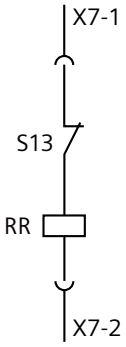
3WA9111-0AD3. (CC-COM)



3WA9111-0AD1. (CC)

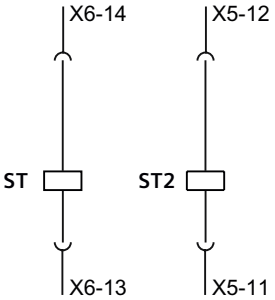


Remote trip alarm reset coil RR

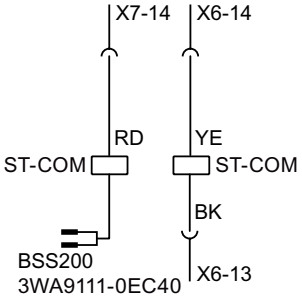


Shunt trip ST / ST-COM / ST2

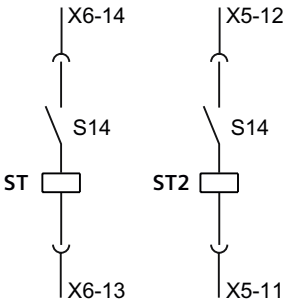
3WA9111-0AD0. (ST/ST2)



3WA9111-0AD3. (ST-COM)

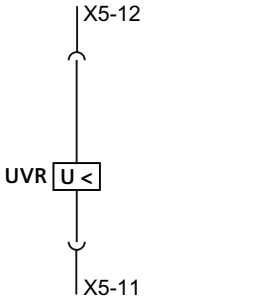


3WA9111-0AD2. (ST/ST2)

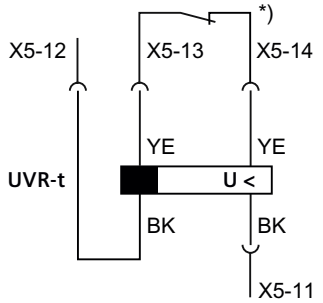


Undervoltage release UVR / UVR-t

3WA9111-0AE0. (UVR)

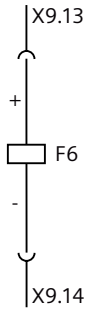


3WA9111-0AE1. (UVR-t)

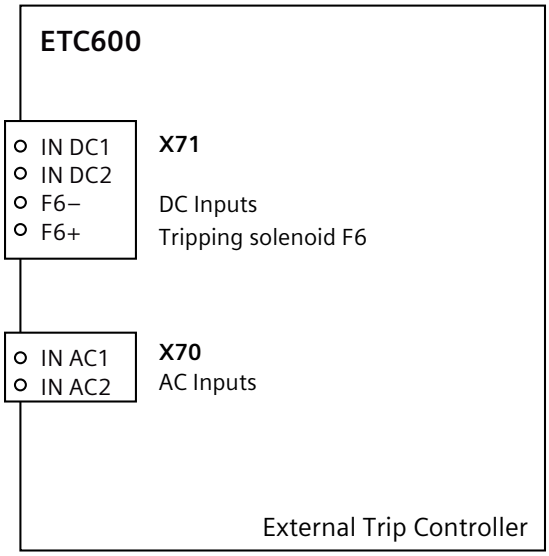


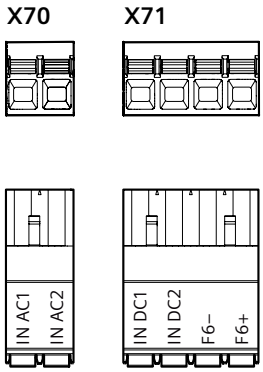
*) EMERGENCY OFF or jumper. Shunt trip with 100% ON period can be used as an electrical closing lockout.

Second tripping solenoid F6 with reclosing lockout

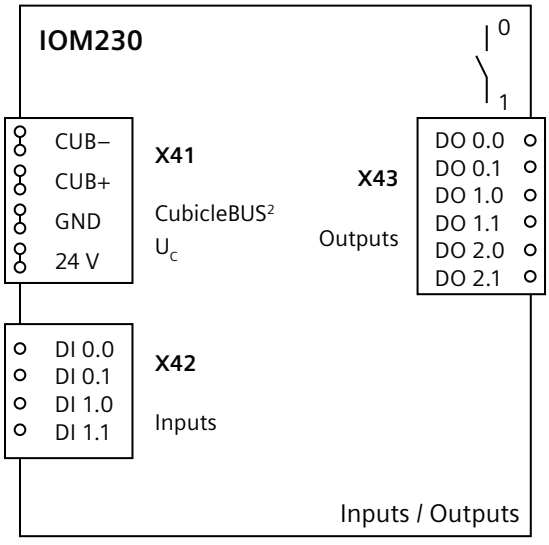


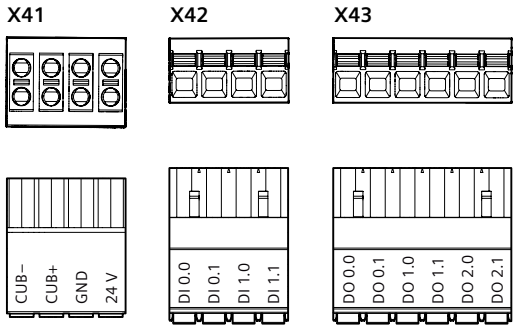
External Trip Controller ETC600



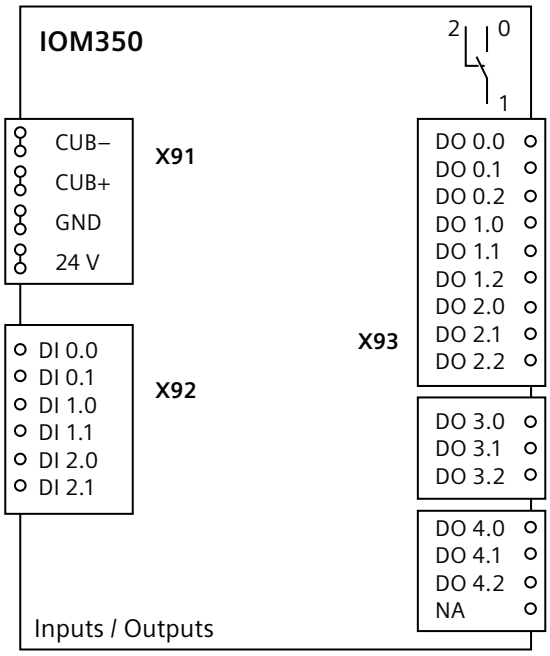


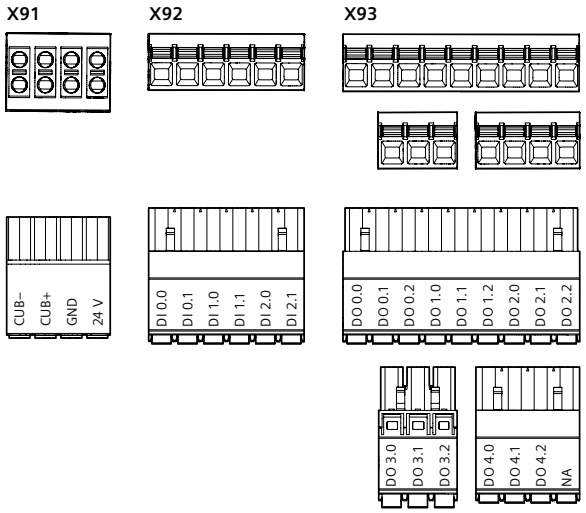
Digital input / output module IOM230



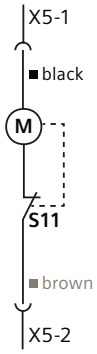


Digital input/output module IOM350



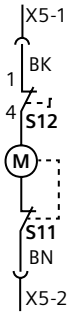


Spring charging motor



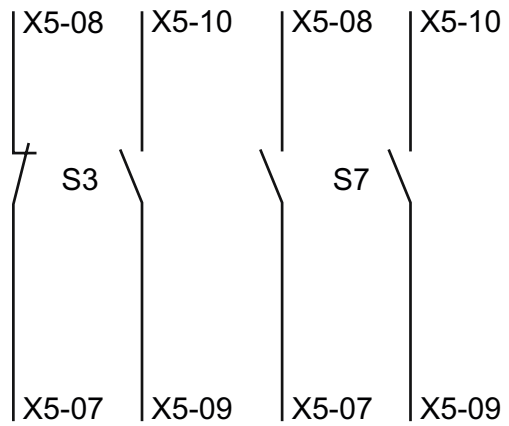
Motor disconnect switch

3WA9111-0AH24

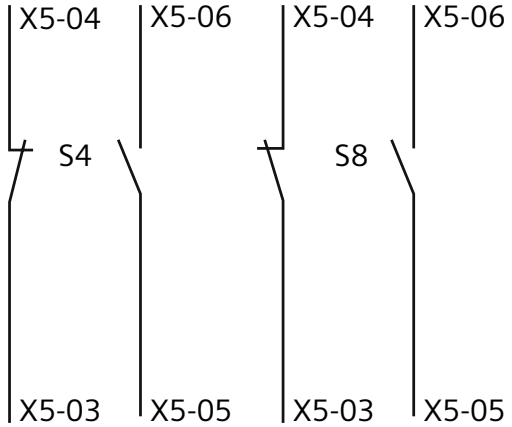


Auxiliary switch*

3WA9111-0AG0. (S3/S7)

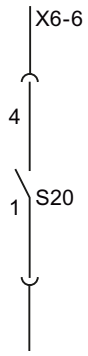


3WA9111-0AG0. (S4/S8)

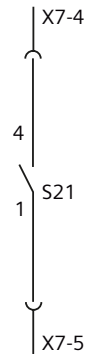


** All auxiliary, signaling, and status contacts are shown in the breaker open, uncharged, and untripped position.*

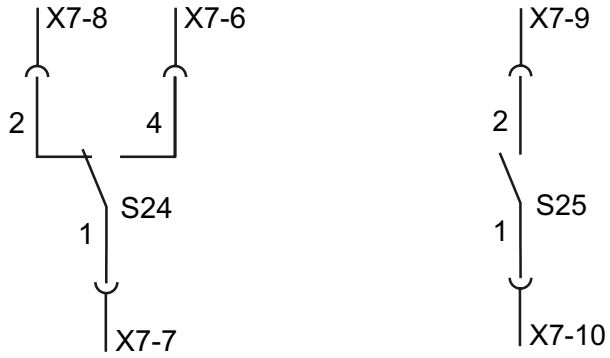
Ready-to-close signaling contact S20



Spring charge signaling contact S21

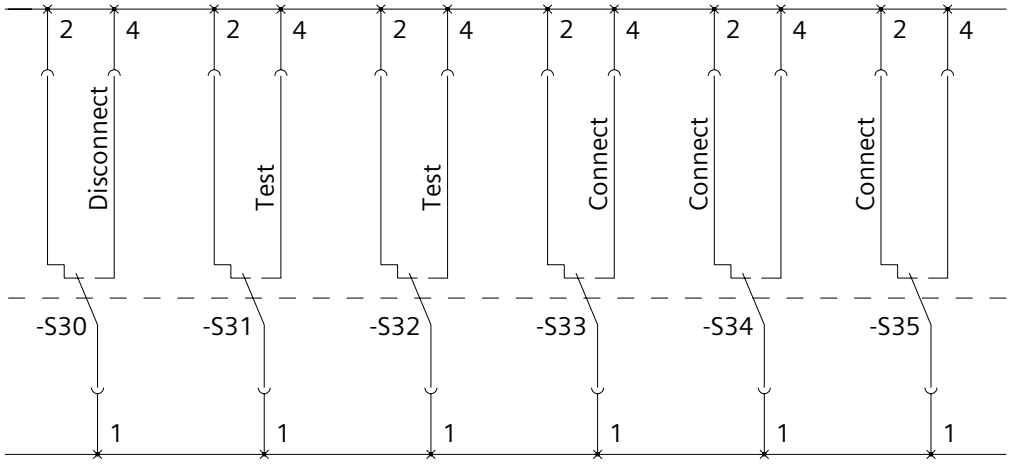


Trip alarm switches S24 and S25

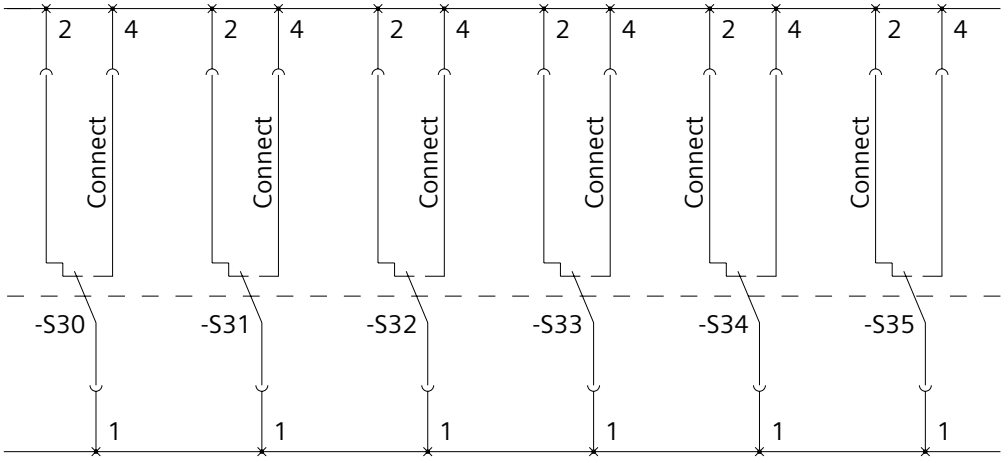


Position signaling switch terminal assignment

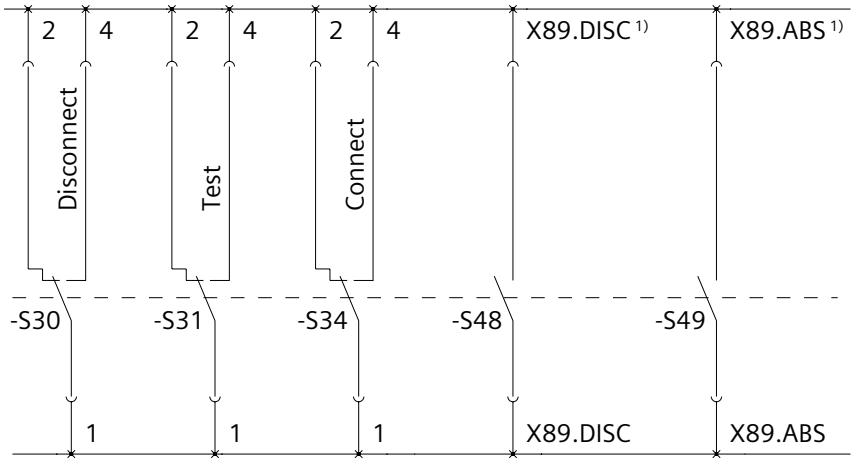
PSS123 position signaling module



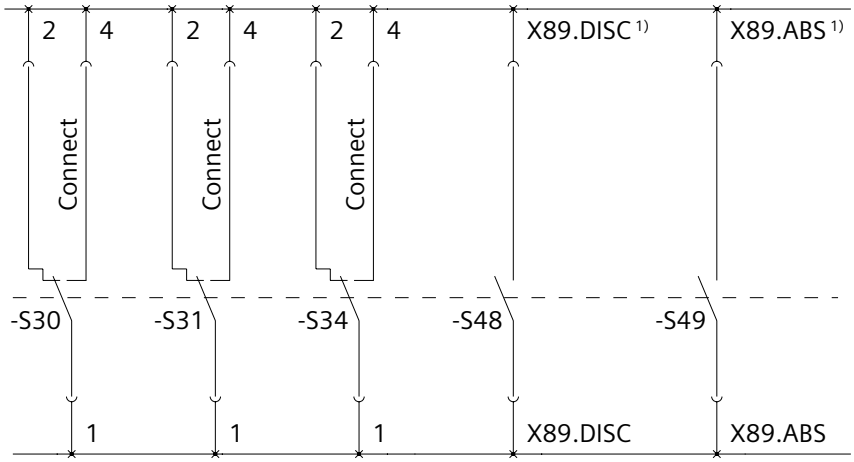
PSS600 position signaling switch module



PSS111 COM position signaling switch module

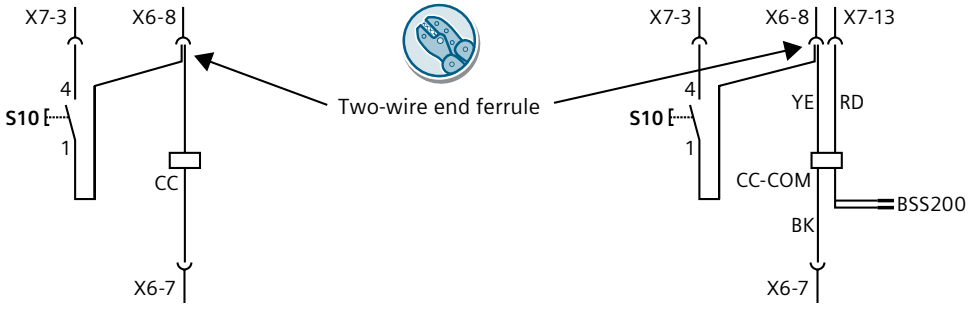


PSS400 COM position signaling switch module

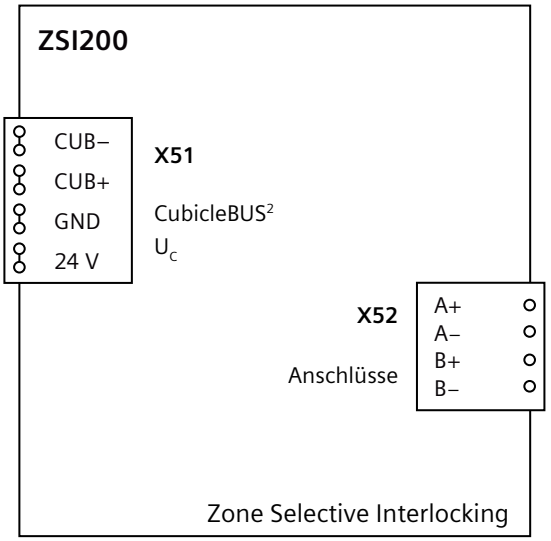


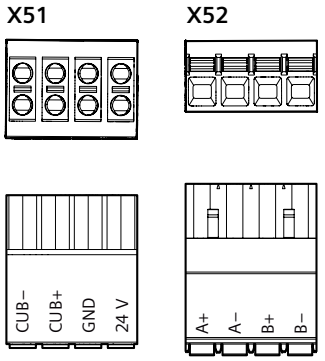
PSS123 position signaling module

3WA9111-0AH21
3WA9111-0AH22
3WA9111-0AH23

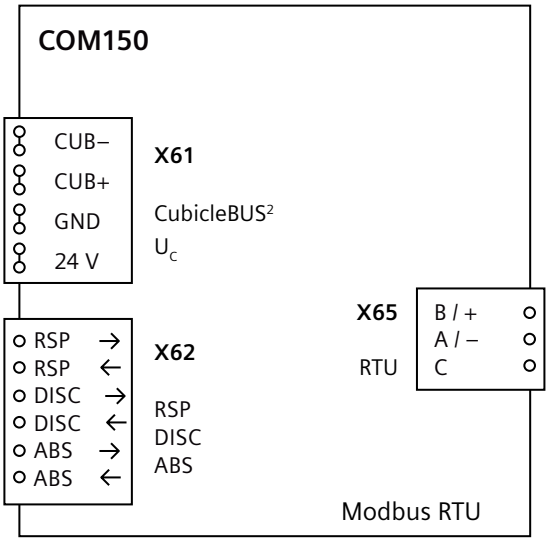


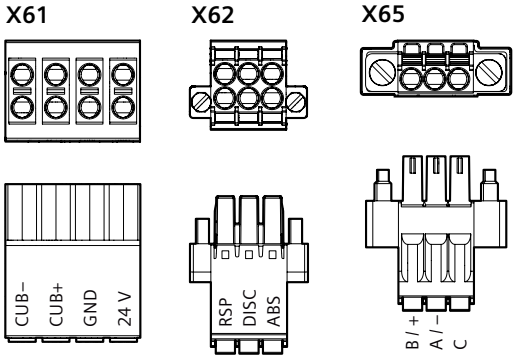
ZSI200 zone selective interlocking module



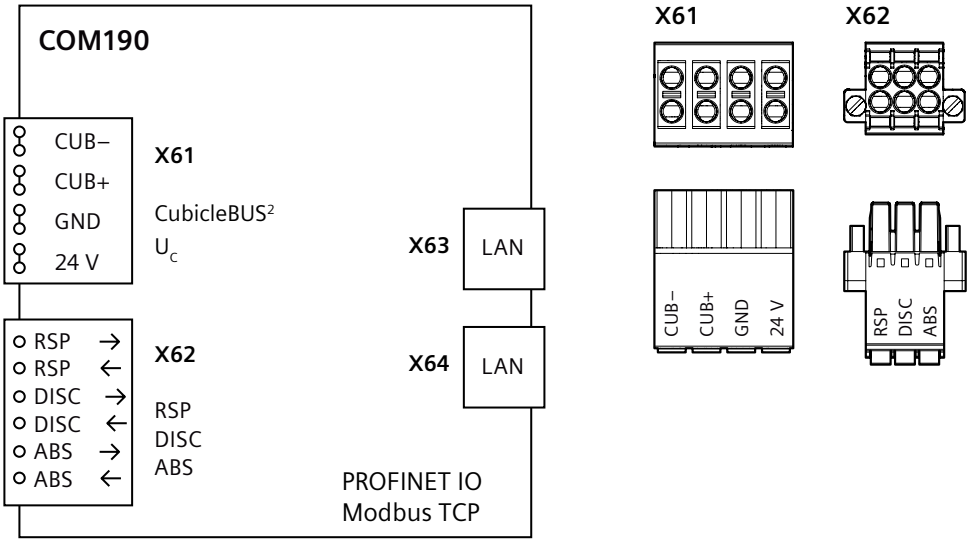


COM150 communications module

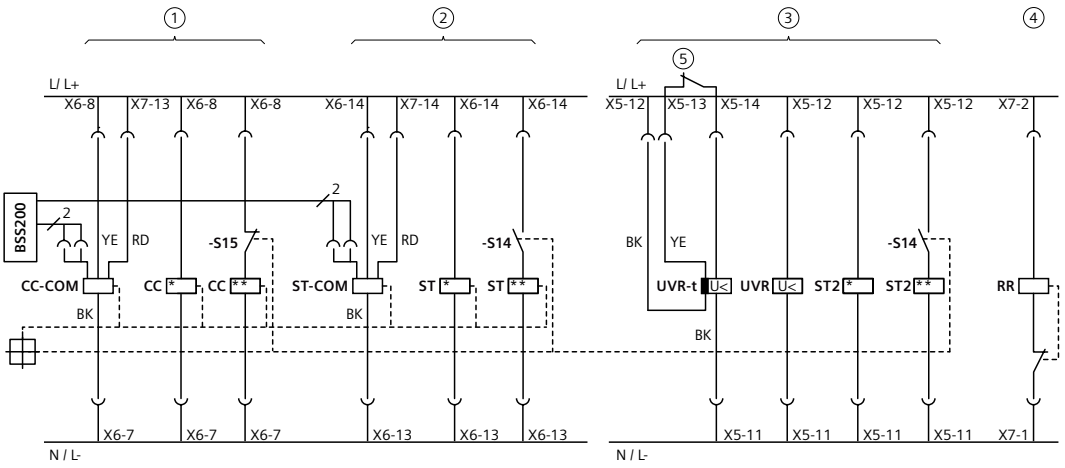




COM190 communications module



Breaker Status Sensor BSS200



WL Circuit Breaker

Introduction

Businesses are becoming increasingly more intelligent about the way they consume energy. Industrial and Commercial energy consumers are continuously looking for practical and efficient methods of measuring their energy usage while simultaneously ensuring any possible downtime is minimized. At Siemens we understand those needs and we have developed products and solutions to help energy consumers achieve their goals.

One of our solutions begins with our world-class WL Circuit Breakers. The WL line-up of breakers developed by Siemens combines decades of patented circuit breaker protection experience with the latest technology in circuit breaker performance and communication.

A good example of our innovative technology is, Dynamic Arc-Flash Sentry® (DAS). DAS is a solution that allows users the ability to automatically lower the down-stream available fault current when facility personnel are nearby the electrical equipment. Helping our customers provide a safer work-place environment is an important part to our overall solutions.

Other valuable aspects that complement our solutions are the WL circuit breaker's ability to gather energy and environmental data and send it to a central or remote monitoring network system. You'll find these capabilities and more when you take a closer look at WL circuit breakers features within this guide.

WL Circuit Breaker Features and Benefits

- 3 frame sizes: Three frame sizes that cover a wide range of continuous current ratings allow for flexible exchange of breakers to other compartments and reducing the footprint of the breaker enclosures.
- Ready-to-close indication: Built-in check points of the breakers mechanical operator provide an additional layer of safety and external controls by inhibiting the breaker from closing until certain conditions are satisfied.
- 100% rating: All model breakers are designed for continuous operation at their maximum current ratings without de-rating the frame.
- High-efficiency: Low loss of energy flowing through the breaker reduces the operating costs.
- Bi-directional feed: Top or bottom supply feed without any hardware configuration changes.
- Rogowski coil sensing: Full range sensing without tap terminals or exchanging sensors to match load change requirements.
- Modular trip unit: Upgrading to a higher or lower current rating, adding ground fault, power monitoring or communication is cost effective and expandable using separately available modules.
- Common accessories: Interchangeable accessories for all Frame sizes makes upgrading easy and readily available.

Practical solution Applications

The WL line of power breakers are protecting electrical distribution applications like waste water treatment, industrial plants, hospitals, transportation systems and data centers just to name a few. Yes, mission critical applications trust the Siemens WL circuit breakers to operate safe and reliably. The compact modular design provides higher power density in a section or line-up of distribution gear. Components like spring-charging motor, shunt trips, and trip units are common across the entire line of breakers. That allows users the ability to stock fewer spare parts or exchange options if necessary. Common options and accessories also make learning how to order, maintain and operate the WL much easier than most breakers on the market today.

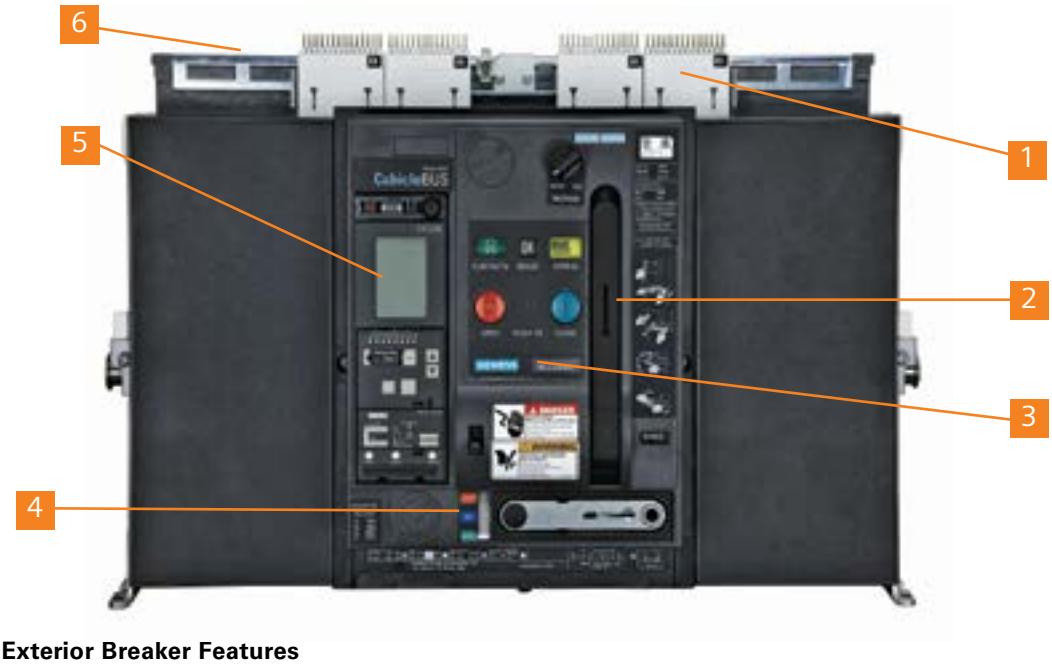
WL circuit breakers are manufactured and performance tested to comply with UL489 and UL1066 standards for listed products.

UL/CSA 489 Listed type WL low voltage insulated case circuit breakers are generally intended to provide service entrance, feeder, and branch circuit protection in accordance with UL/CSA 489 Standard for Safety for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures. These circuit breakers are also certified for UL 489 Supplement SB, for use in Naval applications, and for ambient environments up to 50°C without derating. This versatile family of insulated case circuit breakers is acceptable for use within low-voltage switchboards (i.e. UL 891), low-voltage motor control centers (i.e. UL 845), and other types of industrial control equipment (i.e. UL 508 series). Certain options and maintenance capability may be limited in comparison to the UL1066 Listed circuit breakers. UL file numbers E231263, E236091 and E236299 apply.

UL 1066 Listed type WL low voltage power circuit breakers are generally intended to provide main and feeder circuit protection in accordance with UL1066 Standard for Safety for Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures. Presently, there is not an equivalent CSA standard to UL 1066, and therefore these circuit breakers do not carry a CSA listing mark. These circuit breakers are constructed in compliance with ANSI/IEEE C37.13, and performance tested in accordance with ANSI C37.50. Throughout this document any reference to UL1066 will also mean ANSI C37 Certified. This versatile family of power circuit breakers is acceptable for use within low voltage switchgear (i.e. ANSI/IEEE C37.20.1, ANSI/IEEE C37.20.7, and UL 1558), low voltage switchboards (i.e. UL 891), low voltage motor control centers (i.e. UL 845), and other types of industrial control equipment (i.e. UL 508 series). Certain options and ratings may be limited may be limited in comparison to the UL/CSA 489 Listed circuit breakers. UL file numbers E240124, E240232, E240233 and E236299 apply.

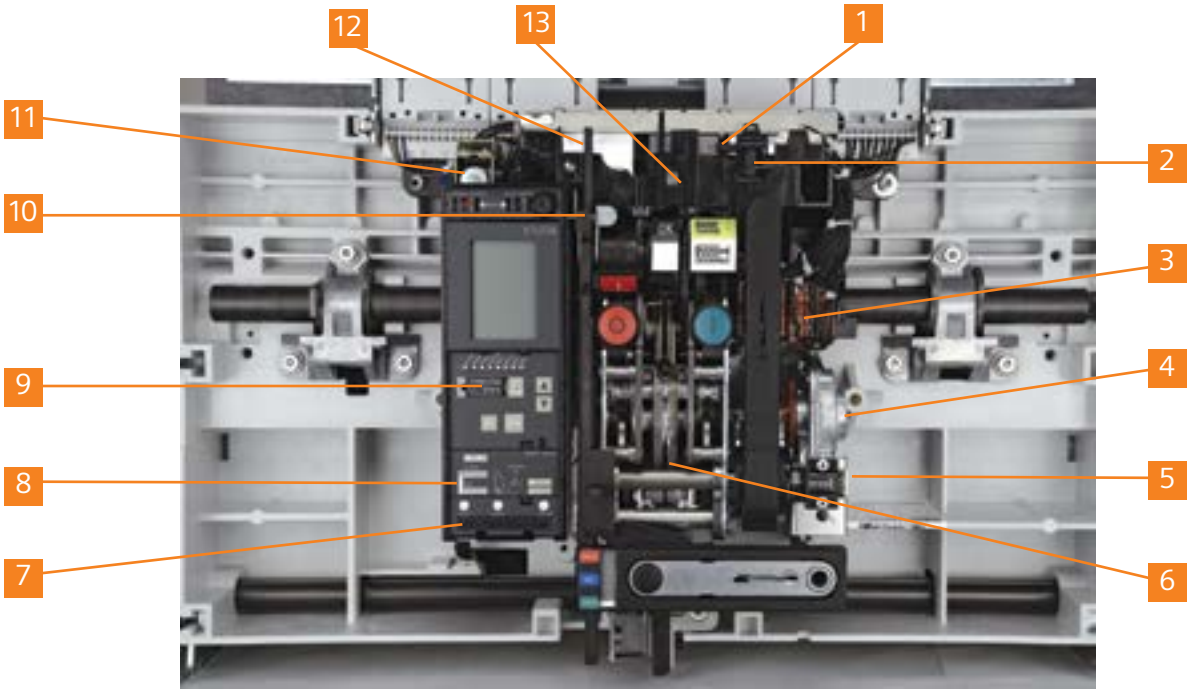
WL Circuit Breaker

Breaker Assembly View



Exterior Breaker Features

❶ Secondary contacts
❷ Charging handle
❸ Centralized operator panel
❹ Integral racking handle with position indicator
❺ Trip unit with LCD
❻ Arc chutes



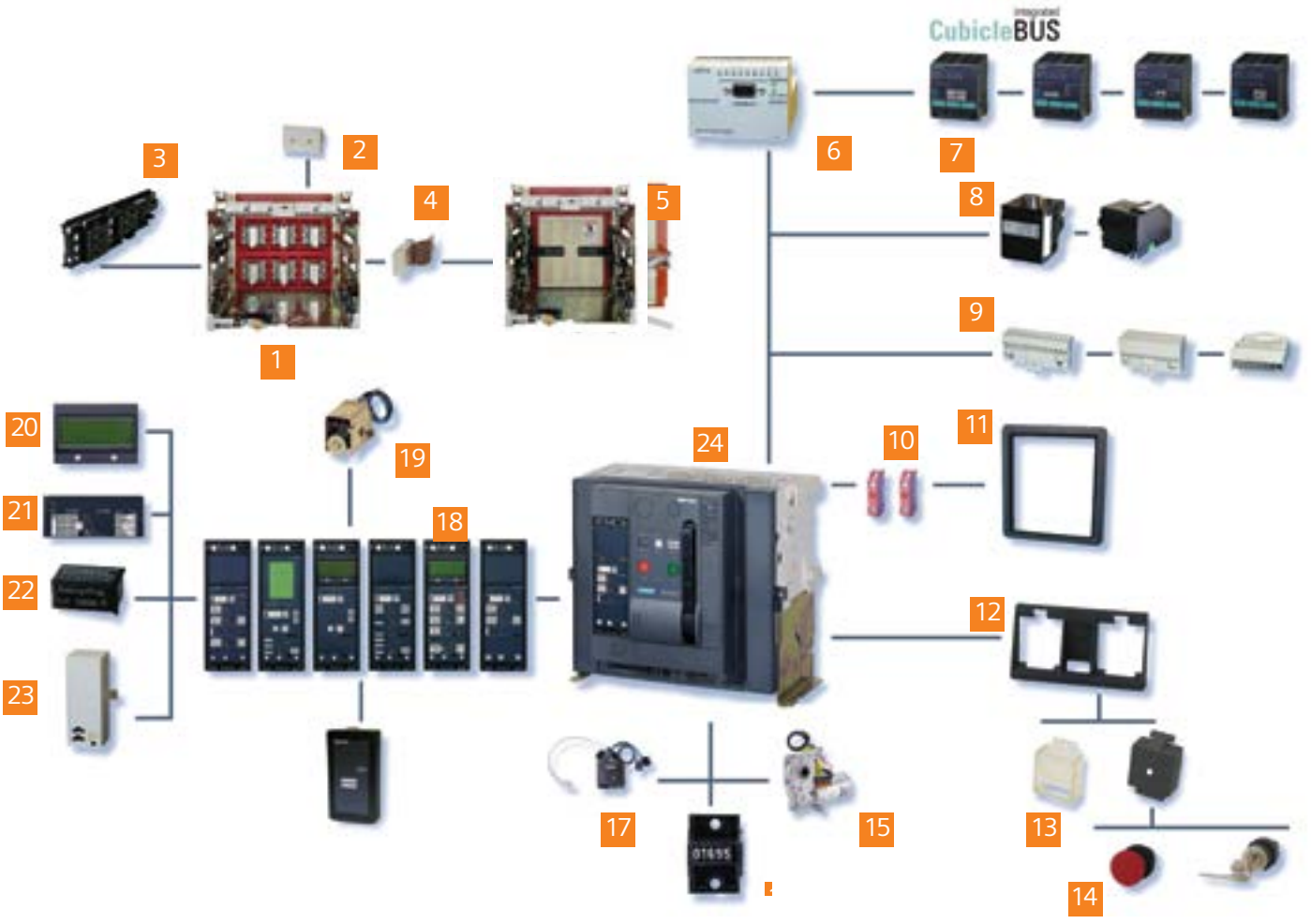
Interior Breaker Features

❶ Remote closing coil
❷ Second shunt trip or UV release
❸ Auxiliary switch
❹ Automatic charging motor
❺ Operation counter
❻ Operating mechanism
❼ Electronic trip unit (ETU)
❽ Optional ground fault module with alarm and trip functions
❾ Interchangeable current rating plug
❿ Breaker status sensor (BSS)
⓫ Bell alarm contact with remote reset
⓬ Shunt trip coil
⓭ Ready-to-close-contact

WL Circuit Breaker

Superior Individual Products for Low-voltage Power Distribution Systems

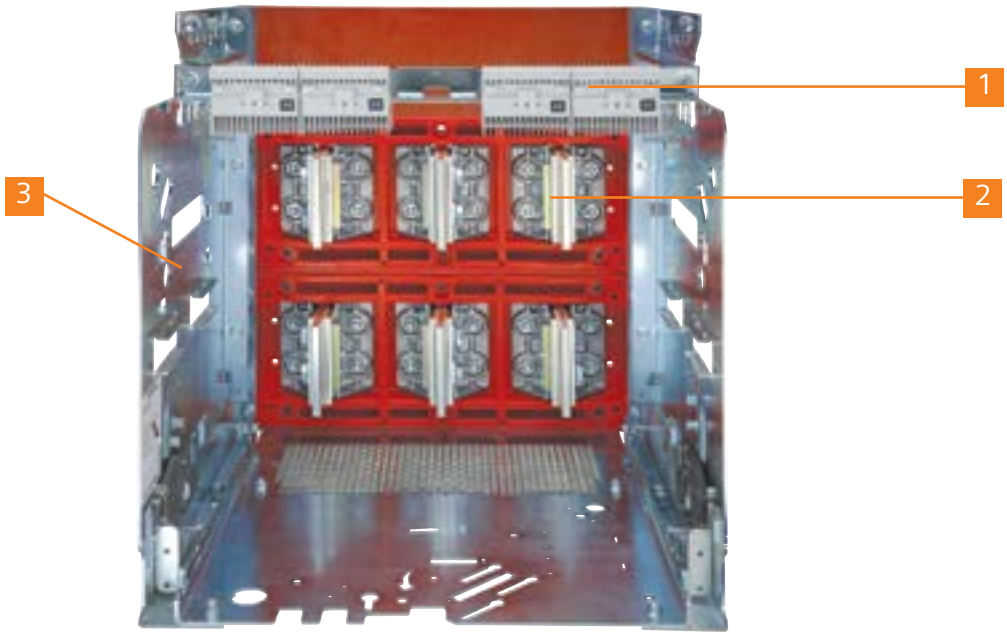
Overview



❶ Guide Frame (for drawout version only)
❷ Vertical to Horizontal BUS Connector
❸ Position Signaling Switch
❹ Breaker / Guide Frame Grounding Contact
❺ Shutter (locking)
❻ Communications module
❼ External CubicleBUS I/O Module
❽ Plug-In Open and Closed Solenoids)
❾ Multiple Secondary Connections
❿ Auxiliary Switch Block
⓫ Door Sealing Frame
⓬ Interlocking Set Base Plate
⓭ Protective Cover for OPEN/CLOSE Buttons
⓮ Multiple Key Locking Accessories
⓯ Single Bolt Motor Operator Installation
⓰ Operations Counter
⓱ Breaker Status Sensor (BSS)
⓲ Complete Trip Unit Family
⓳ Remote Reset
⓴ Multi Angle LCD Module
㉑ Ground Fault Protection Module
㉒ Rating Plug
㉓ Metering Function (+ wave forms and harmonics)
㉔ Circuit Breaker

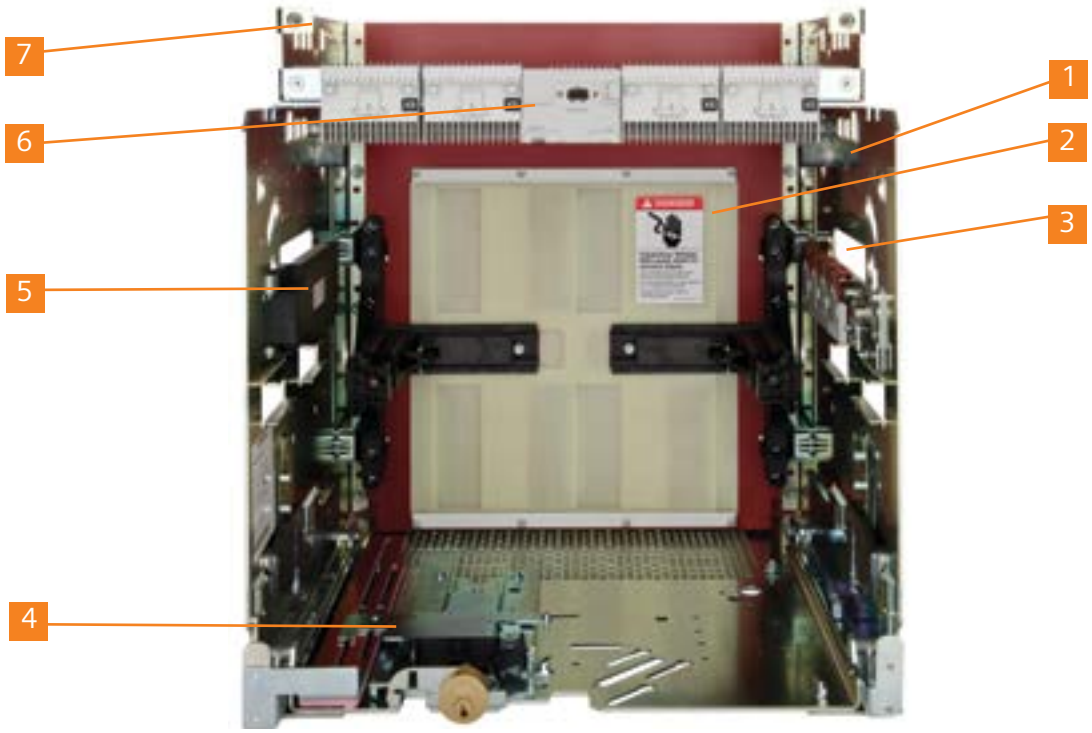
WL Circuit Breaker

Draw-out Cradle Assembly View



Standard cradle

❶ Stationary secondary disconnect
❷ Primary disconnects
❸ Cradle frame assembly for draw-out breakers



Cradle accessories

❶ Mechanical interlock (not shown)
❷ Isolation shutters
❸ Mechanism operated contact switches (MOC)
❹ Dual key-lock location
❺ Breaker position switches (TOC)
❻ Communication module location (COM 16 or COM 15)
❼ Optional arc chute cover (not shown)

Electronic trip units (ETUs)
Power system protection is necessary to defend against common types of abnormal occurrences, such as overloads or faults that can lead to electrical power system failure.

The methods for detecting and clearing such abnormalities and restore to normal operation is an engineered technique. Adequate protection requires constant measurements of certain system quantities, such as voltages and currents, comparing those system quantities, or some combination of the quantities, to a threshold setting computed by a systems engineer and set into an electronic trip unit like those available on the WL breakers. It's equally important for power system protection to perform under normal operating conditions. If the above thresholds are set too low the power may be interrupted unnecessarily causing loss of productivity or safety provisions. The WL circuit breaker offers a practical means of setting power system protection through vast selectivity available in its Electronic Trip Unit (ETU). WL ETUs have a wide range of protective settings for implementing simple or complex coordination schemes and configuring reliable system protection.

ETU Enhanced Features

- Extended Instantaneous Protection (EIP): Allows the entire range of WL ampacities to be applied at the withstand rating of the breaker with minus 0% tolerance; that means no instantaneous override whatsoever. EIP further enables the circuit breaker to be applied up to the full interrupting rating of the breaker on systems where the available fault current exceeds the withstand rating, even with LS-only trip units.
- Dynamic Arc-Flash Sentry (DAS): Allows you the ability to execute a faster coordinated trip condition should an arc fault event occur while personnel are within the arc flash boundary. When the presence of personnel is no longer in the arc flash boundary, DAS will default back to maintaining your selective trip coordination through time delay functions. This is like toggling between two trip units on one breaker. DAS can be activated by a simple contact closer, so a wide range of activation devices can be used to enable DAS.
- Selectable I4t: ETU745 and 776 make it possible to switch over from an I2t to an I4t inverse-time function for overload protection. This selectivity increases optimization of coordinated overload protection when overload fuse protection is also provided.

ETU Basic Functions

Long-time trip
The long-time delay adjustment is used to set the tripping delay of the circuit breaker based on the magnitude of the overcurrent condition (6 times Ir). For example if the rating plug is 2000 amps and the long-time delay is set to 10 seconds, a fault current of 12,000 amps (6 x 2000) will cause the breaker to trip after 10 seconds. Long-time is an inverse of I2t ramp function. This means the higher the current, the shorter the time the circuit breaker will remain closed. An Alarm LED indicator will flash during the delay period and a separate "Trip L" indicator may turn on if the breaker trips on long-time function.

Short-time trip
The short-time pickup adjustment is used to set the level of high current the breaker will carry for a short period of time without tripping. This adjustment is set in multiples of the value of the rating plug (Ir). Together with the short-time delay, this adjustment allows downstream breakers time to clear short circuit faults without tripping upstream breakers. Short-time delay is used to set the time interval the breaker will wait before responding to the current value selected by short-time pickup. There are two modes of operation: fixed and I2t. The I2t delay has the characteristic of being inversely proportional to the square of the magnitude of the current. This means higher overcurrent conditions have shorter delays. An Alarm LED indicator may flash during the delay period and a separate "Trip S" indicator will turn on if the breaker trips on short-time function.

Instantaneous trip
The instantaneous pickup adjustment is used to set the current level at which the breaker will trip without an intentional time delay. Non-delayed tripping as a result of severe over-current minimizes potential damage to the electrical system and equipment.

Ground fault
The ground fault pickup adjustment is used to set the level of ground current at which circuit interruption will be initiated.

Together with ground fault delay, this adjustment allows selective tripping between main and feeder or downstream breakers.

The ground fault delay adjustment is used to set the time interval (in seconds) the breaker will wait before responding once the ground fault pickup level has been reached. The available ground fault delay settings available are: inverse time (I^2t) or fixed delay.

ETU communication

The ETU uses a Siemens proprietary communication network called CubicleBus. The CubicleBus network ensures all Siemens devices are able to transmit data reliably and efficiently. The ETU can not be connected directly any other network so the use of converters are necessary to allow communication between the ETU and the outside world. The WL has three types of communications modules to allow communication between the ETU and computer type equipment. The three converts are:

- PROFIBUS (COM15)
- Modbus (COM16)
- Modbus TCP / PROFINET IO (COM35)

The WL PROFIBUS communications module is model 'COM15.' The COM15 device acts as an interface between the WL breaker and a PLC. A joint device master file (GSD) can be used for integrating WL circuit breakers in a PROFIBUS DP network. The advantage of this joint communication profile is that the same software can be used for automation, monitoring and control systems.

The WL Modbus communications module is model 'COM16'. The COM16 device enables the WL breaker to be connected to any Modbus master network. Universal Modbus mapping can be used to allow custom monitoring and controls with a centralized monitoring system.

The COM16 has a standard RS485 Modbus port for convenient daisy-chaining to other WL breakers and Modbus devices to create a serial network that can connect through a suitable gateway to a LAN or WAN network.

The WL Modbus TCP and PROFINET IO communications module is model 'COM35'. This device can communicate PROFINET IO and Modbus TCP simultaneously over Ethernet, and is capable of supporting dual masters. The datasets are structured identical to the COM15 and COM16 communications devices for easy integration in existing SCADA systems.

All three communications modules require a 24VDC Class 2 power supply. See External Accessories for more information on available power supplies.

ETU Models and Features

Features and Characteristics	ETU745	ETU776
Long-time overcurrent protection (L)	X	X
Short-time delayed overcurrent protection (S)	X	X
Instantaneous overcurrent protection (I)	X	X
Neutral conductor protection (N)	X	X
Ground fault protection (G)	X	X
Selectable neutral protection	X	X
Defeatable short-time protection	X	X
Defeatable instantaneous protection	X	X
Selectable thermal memory	X	X
Zone selective interlocking	X	X
Selectable I^2t or I^4t long-time delay	X	X
Adjustable instantaneous pick-up	X	X
Selectable I^2t or I^4t long-time delay		X
Adjustable short-time delay and pick-up	X	X
Selectable and adjustable neutral protection	X	X
Dual protective setting capability		X
Dynamic arc-flash sentry (DAS)		X
Extended instantaneous protection (EIP)	X	X
Parameterization by rotary switches	X	
Parameterization by communication (absolute values)		X
Parameterization by menu/keypad (absolute values)		X
Remote parameterization of the alarm functions		X
Remote parameterization of the relay functions		X
Alphanumeric display	O	X
Graphical display		X
Power meter function	O	O
Communication via PROFIBUS DP	O	O
Communication via Modbus RTU	O	O
Communication via Modbus TCP / PROFINET IO	O	O

(X) = Standard feature, (O) = Optional feature

Power metering function
In addition to excellent protection capabilities, the WL ETU has unparalleled power metering functionality. True RMS current sensing for metering is obtained from the same current sensors used for overload protection. ETU power metering can measure the following:

Measured value	Value range	Accuracy
Currents Ia, Ib, Ic, In	30 ... 8000A	± 1%
Ground-fault current Ig (measure with external Gnd transformer)	100 ... 1200A	± 5%
Line-to-line voltages Vab, Vbc, Vca	80 ... 120% Vn	± 1%
Line-to-neutral voltages Van, Vbn, Vcn	80 ... 120% Vn	± 1%
Average value of phase-to-phase voltages V L-L AVG	80 ... 120% Vn	± 1%
Apparent power kVA per phase	13 ... 8000kVA	± 2%
Total apparent power KVA	13 ... 24000kVA	± 2%
Active power kW per phase	-8000 ... 8000kW	± 3% (power factor > 0.6)
Total active power kW total	-24000 ... 24000kVA	± 3% (power factor > 0.6)
Reactive power kvar	-6400 ... 6400kvar	± 4% (power factor > 0.6)
Total reactive power kvar	-20000 ... 20000kvar	± 4% (power factor > 0.6)
Power factor per phase	-0.6 ... 1 ... 0.6	± 0.04
Power factor total	-0.6 ... 1 ... 0.6	± 0.04
Demand of currents Ia, Ib, Ic	30 ... 8000A	± 1%
Average demand of 3-phase current	30 ... 8000A	± 1%
Demand kWD per phase	13 ... 8000kW	± 3% (power factor > 0.6)
kW demand 3-phase active power kWD total	13 ... 8000kW	± 3% (power factor > 0.6)
kVA demand kVA total	13 ... 8000kVA	± 2%
kVAR demand kVAR per phase	13 ... 8000kVA	± 2%
kVAR demand total	-24000 ... 24000kvar	± 4% (power factor > 0.6)
kWhr imported	1 ... 10000MWh	± 2%
kWhr exported	1 ... 10000MWh	± 2%
kVARh imported	1 ... 10000Mvarh	± 4%
kVARh exported	1 ... 10000Mvarh	± 4%
Frequency	15 ... 440 Hz	± 0.1 Hz
Total harmonic distortions for current and voltage	2 ... 100%	± 3% from the meas. range up to the 29th harmonic
Phase unbalance for current and voltage	2 ... 150%	± 1%

Potential transformers (PTs) are required to step down the supply voltage to a level that is suitable for local input connection to the breaker. PTs must be wired to the secondary connections of the breaker and configured for three-phase, three-wire or three-phase, four-wire supply system. The measured values can be sent to a central database for future power analysis or consumption reports.

Metering is not field installable, it is integrated into the trip unit and must be configured in the initial breaker purchase.

Event log The event log is very extensive. Information regarding the list of events can be found in the WL operation manual or communication guide. Some of the event log categories are:

- Warnings
- Trip Logs
- Set-points
- Maintenance Detail
- CubicleBus Conditions
- Waveform Displays

Alarm parameters

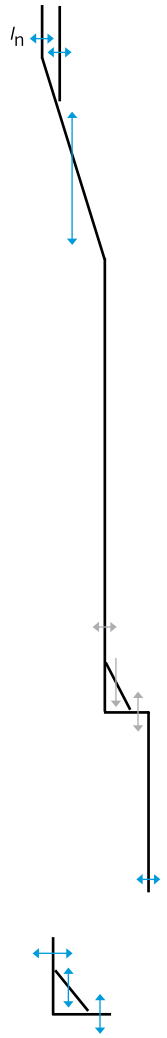
The metering function includes the following alarm set-point functions::

Alarm function	Setting range	Delay range
Overcurrent	3 ... 10000A	0 ... 255 s
Overcurrent – ground fault	3 ... 10000A	0 ... 255 s
Overcurrent – N-conductor	3 ... 10000A	0 ... 255 s
Phase unbalance – current	5 ... 50%	0 ... 255 s
Demand – current	3 ... 10000A	0 ... 255 s
Total harmonic distortion – current	0 ... 50%	5 ... 255 s
Undervoltage	100...1200V	0 ... 255 s
Overvoltage	200...1200V	0 ... 255 s
Phase unbalance – voltage	5 ... 50%	0 ... 255 s
Total harmonic distortion – voltage	0 ... 50%	5 ... 255 s
Crest factor	0.01 ... 25.5%	0 ... 255 s
Form factor	0.01 ... 25.5%	0 ... 255 s
Active power in normal direction	1 ... 10000kW	0 ... 255 s
Active power in reverse direction	1 ... 10000kW	0 ... 255 s
Leading power factor	-0.999 ... 1	0 ... 255 s
Lagging power factor	-0.999 ... 1	0 ... 255 s
Demand – active power	1 ... 10000kW	0 ... 255 s
Apparent power	1 ... 10000kVA	0 ... 255 s
Reactive power in normal direction	1 ... 10000kvar	0 ... 255 s
Reactive power in reverse direction	1 ... 10000kvar	0 ... 255 s
Demand – reactive power	1 ... 10000kvar	0 ... 255 s
Underfrequency	40 ... 70 Hz	0 ... 255 s
Overfrequency	40 ... 70 Hz	0 ... 255 s

Extended relaying

Protective relays included with the metering function can monitor the following criteria and initiate a trip if the values are exceeded.

Protective relay function	ANSI device number	Setting range	Delay range
Current unbalance	46	5 ... 50%	1 ...15 s
Total harmonic distortion - current	81 THDC	0 ... 50%	5 ...15 s
Voltage unbalance	47	5 ... 50%	1 ...15 s
Undervoltage	27	100 ... 1100V	1 ...15 s
Overvoltage	59	200 ... 1200V	1 ...15 s
Total harmonic distortion - voltage	81 THDV	0 ... 50%	5 ...15 s
Direction of phase rotation	47N		
Active power in normal direction	32	1 ... 10000kW	1 ...15 s
Active power in reverse direction	32R	1 ... 10000kW	1 ...15 s
Under frequency	81U	40 ... 70 Hz	1 ...15 s
Over frequency	81O	40 ... 70 Hz	1 ...15 s



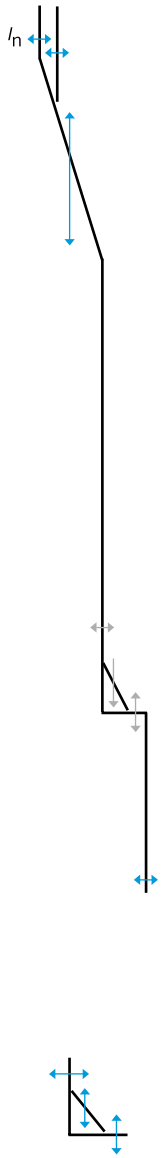
Basic functions		ETU745
L	Long-time overcurrent protection	✓
	Function can be disabled	–
	Setting range $I_R = I_n$ x ...	0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.8, 0.9, 1
	Switch-selectable overload protection (I^2t or I^4t dependent function)	✓
	Setting range of time delay class t_R at I^2t (seconds)	2, 3.5, 5.5, 8, 10, 14, 17, 21, 25, 30
	Setting range of time delay t_R at I^4t (seconds)	1, 2, 3, 4, 5
	Thermal memory	✓ (via slide switch)
	Phase loss sensitivity	set t_{sd} =20 ms (M)
N	Neutral protection	✓
	Function can be disabled	✓ (via slide switch)
	N-conductor setting range $I_N = I_n$ x ...	0.5 ... 1
S	Short-time overcurrent protection	✓
	Function can be disabled	✓ (via rotary switch)
	Setting range $I_{sd} = I_n$ x ...	1.25, 1.5, 2, 2.5, 3, 4, 6, 8, 10, 12
	Setting range of time delay t_{sd}, fixed (constant time in seconds)	0.02 (M), 0.1, 0.2, 0.3, 0.4, OFF
	Setting range of time delay I_{sd} at I^2t (seconds)	0.1, 0.2, 0.3, 0.4
I	Zone Selective Interlocking (ZSI) function	per CubicleBUS module
	Instantaneous overcurrent protection	✓
	Function can be disabled	✓
	Extended Instantaneous Protection	Instantaneous is active when disabled
	Setting range $I_i = I_n$ x ...	1.5, 2.2, 3, 4, 6, 8, 10, 12 0.8 x I_{cw} = Max,
G	Ground fault protection	O (field installable module)
	Trip and alarm function	✓
	Detection of the ground fault current by residual summing method	✓
	Detection of the ground fault current by direct sensing method	✓
	Setting range of the I_g for trip	FS1 & 2: 100, 300, 600, 900, 1200A, FS3: 400, 600, 800, 1000, 1200A
	Setting range of the I_g for alarm	FS1 & 2: 100, 300, 600, 900, 1200A, FS3: 400, 600, 800, 1000, 1200A
	Setting range of the time delay t_g (fixed seconds)	0.1, 0.2, 0.3, 0.4, 0.5
	Setting range time delay t_g at I^2t	0.4, 0., 0.3, 0.4, 0.5
	ZSI ground function	per CubicleBUS module

Notes:

① M = tsd = 20ms is the motor protection setting with phase-loss sensitivity enabled: LT pick-up is reduced to 80% when phase unbalance > 50% .

② Extended Instantaneous Protection (EIP) allows the WL breaker to be applied at the withstand rating of the breaker with minus 0% tolerance; that means no instantaneous override whatsoever. EIP further enables the circuit breaker to be applied up to the full instantaneous rating of the breaker on systems where the available fault current exceeds the withstand rating.

✓ available
– not available
o optional



Basic function		ETU776
L	Long-time overcurrent protection	✓
	Function can be disabled	–
	Setting range $I_R = I_n$ x ...	40-100% of I_n (Adjustable in Amps[1])
	Switch-selectable overload protection (I^2t or I^4t dependent function)	✓
	Setting range of time delay t_R at I^2t (seconds)	2...30s
	Setting range of time delay t_R at I^4t (seconds)	1...5s
	Thermal memory	✓ (on/off via keypad or communications)
	Phase loss sensitivity	✓ (on/off via keypad or communications)
N	Neutral protection	✓
	Function can be disabled	✓ (on/off via keypad or communications)
	N-conductor setting range $I_N = I_n$ x ...	0.5 ... 2 OFF
S	Short-time delayed overcurrent protection	✓
	Function can be switched ON/OFF	✓ (on/off via keypad or communications)
	Setting range $I_{sd} = I_n$ x ...	1.25... 0.9 x I_{cw} = max
	Setting range of time delay t_{sd}, fixed (seconds)	0.02s (M), 0.08 ... 4s, OFF
	Switch-selectable short-time delay short-circuit protection (I^2t dependent function)	✓ (via keypad or communications)
	Setting range of time delay I_{sd} at I^2t (seconds)	0.1 ... 0.4s
	Zone Selective Interlocking (ZSI) function	per CubicleBUS module
I	Instantaneous overcurrent protection [2]	
	Function can be disabled, Extended Instantaneous Protection is enabled when OFF	✓ (via keypad or communications)
	Setting range I_i = In x ...	1.5 ... 0.8 x I_{cs} = MAX OFF = I_{cw} = EIP
G	Ground fault protection	o (field installable module)
	Trip and alarm function	✓
	Detection of the ground fault current by residual summing method	✓
	Detection of the ground fault current by direct summing method	✓
	Setting range of the I_g for trip	FS1 & 2: 100A ... 1200A, FS3: 400A ... 1200A
	Setting range of the I_g for alarm	FS1 & 2: 100A ... 1200A, FS3: 400A ... 1200A
	Setting range of the time delay t_g (seconds)	0.1 ... 0.5s
	Switch-selectable ground fault protection (I^2t / fixed)	✓
	Setting range time delay t_g at I^2t	0.1...0.5s
	ZSI ground function	per CubicleBUS module

NOTES:

① From the ETU keypad, delay times can be set in the following increments within the applicable limits:
20ms ... 500ms in 5ms steps 1.05s ... 1.5s in 50ms steps
510ms ... 1.0s in 10ms steps > 1.6s in 0.1s steps
Via communication, delay times can be set in 0.1s steps.

② ETU776 settings via communications: 10A steps for Instantaneous and Short Time pickup, all others 1A steps.
Via ETU Keypad: Below 1000A: 10A steps 1600A-1000A: 50A steps
1600A-1000A: 100A steps Above 10000A, 1000A steps

③ Extended Instantaneous Protection (EIP) allows the WL breaker to be applied at the withstand rating of the breaker with minus 0% tolerance; that means no instantaneous override whatsoever. EIP further enables the circuit breaker to be applied up to the full instantaneous rating of the breaker on systems where the available fault current exceeds the withstand rating.

④ M = tsd = 20ms is the motor protection setting with phase-loss sensitivity enabled: LT pick-up is reduced to 80% when phase unbalance > 50%. Keypad - Direct input at the trip unit.

✓ Available
– Not available
o Optional

Factory Installed Options①

Breaker mounted options

Ground fault module

The ground fault module (GFM) is used to detect current flowing through the grounding conductors which may present a hazardous condition. The module can be field installed. Residual sensing by phase vector summation or direct sensing can be selected on the module or via the setup of the ETU776. Ground fault modules may be ordered as alarm only or as alarm and trip. Alarm will provide a visual and communication notification. Alarm and trip model will trip the breaker in addition to alarm notification.

For more information about ground fault protection, see the Ground Fault Application Guide. www.usa.siemens.com/wl

Key lock-out

To lock the WL breaker in the "Open" position, an optional keylock can be installed in the breaker. The key cylinder and lock-out assembly are mounted in the breaker and accessible through a knockout in the breaker front cover. The key is removable only when the breaker is locked open. If a custom, coordinated key/cylinder is required, order the lock provision-only. The lock cylinder and matched key must then be ordered separately from the respective lock manufacturer.

The compatible Kirk cylinder lock part number is C-900-301. The compatible Superior cylinder lock part number is C-900.

Operation counter

For monitoring the number of breaker operations (open and close) a numerical operations counter is available. This counter is only suitable for breakers equipped with the spring-charging motor option. The counter mounts to the motor assembly and will register manual and electrical breaker operations. Counter is non-resettable up to 100,000 operations. Counter ships with available pre-service operations for field setting to zero.

① See page 6-109 for field install part numbers.

Auxiliary contacts

Auxiliary contacts can be used to provide interlocking control or remote indication of the breakers main contact position (open or closed breaker). The Normally Open (NO) contacts are open when the breakers main contacts are open. The Normally Closed (NC) contacts are closed when the breakers main contacts are open. The contacts are wired individually to the secondary disconnects for user connectivity. See breaker wiring diagram for supply terminal locations.

Characteristics table

Available Contact Configurations		2NO and 2NC or 4NO and 4NC
AC Operation	Voltage	240VAC 50/60Hz
	Continuous Current	10A
	Making Current	30A
	Breaking Current	3A
DC Operation	Voltage	24, 125, 250VDC
	Continuous Current	5A
	Making Current	1.1A @ 24 or 125VDC, .55A @250VDC
	Breaking Current	1.1A @ 24 or 125VDC, .55A @250VDC

Breaker status sensor (BSS)

BSS is an integrated circuit device that measures the internal breaker temperature, monitors breaker main contact position (open or closed), bell alarm status, undervoltage release status, breaker ready-to-close and closing spring charged status. All status conditions and information is transmitted through the CubicleBus network as real-time data. A COM16 (Modbus), COM15 (PROFIBUS) or a COM35 (Modbus TCP / PROFINET IO) accessory can be used to communicate the breaker status provided by the BSS to an external computer or monitoring system. See breaker wiring diagram for supply terminal locations, which are included with COM15, COM16, and COM35 communications accessories

.

Characteristics table

Operating Voltage	24VDC
Peak Inrush Current	110mA
Max. Continuous Current	40mA
Ambient Operation Temperature	-25 to 70°C

Bell alarm contact and reset coil

The bell alarm contacts are mechanically activated by the trip unit solenoid. If a breaker trip condition occurs, the bell alarm form-C contacts will change state closing or opening a user circuit wired to the secondary terminal block. The contacts can be locally reset to their original position by manually resetting the breaker trip button or through the use of a reset coil that resets the contacts remotely. See breaker wiring diagram for supply terminal locations. Non-automatic (manual) reset trip units can not be used with the reset coil option.

Characteristics table

Available contact configurations		Coil ratings
Remote Reset Coil AC Operation	Voltage	240VAC 50/60Hz
	Continuous Current	5A
	Making Current	8A
	Breaking Current	5A
Remote Reset Coil DC Operation	Voltage	24, 48,125 or 250VDC
	Continuous Current	5A
	Making Current	.4A @ 24, 48,125VDC, .2A @250VDC
Breaking Current	.4A @ 24, 48,125VDC, .2A @250VDC	

Racking handle key lock

A draw-out breaker can be key locked (optional) or padlocked (standard not shown) in three racking positions; connect, test or disconnect. Key lock cylinders are available in Kirk or Superior types and uniquely keyed.

For more information about interlocking possibilities, see the Locking Provisions Application Guide www.usa.siemens.com/wl

Breaker push button lock-outs

A finger or hand tool shroud option can be added to the breaker front cover to isolate the open and close buttons from unintentional use. Shrouds may be used in combination or like configuration.

To isolate the open and close buttons from unintentional use, transparent padlock covers can be installed in lieu of the shroud option. Two padlocks may be used with a latch diameter of 3/8 inch maximum (padlocks by others).

For more information about interlocking possibilities, see the Locking Provisions Application Guide. www.usa.siemens.com/wl

Close coil

To remotely close the WL breaker, a close coil must be used with a momentary electrical source. Only one close coil can be used per breaker. Charging springs must be charged and breaker open prior to activating the close coil. See breaker wiring diagram for supply terminal location.

Characteristics table

Close Coil AC Operation	120VAC Range	104 - 127VAC
	240VAC Range	208 - 254
	Power Consumption	120W for 50ms (5% duty cycle)
	Breaker closing time	50ms from point of signal
Close Coil DC Operation	24VDC	14 - 28VDC
	48VDC	28 - 56VDC
	125VDC	70 - 140VDC
	250VDC	140 - 280VDC
	Power Consumption	120W for 50ms (5% duty cycle)
	Breaker closing time	50ms from point of signal

① See page 6-109 for field install part numbers.

Factory Installed Options①

Spring charging handle lock

An optional padlock provision to prevent manual charging of the closing springs can be installed on the breaker front cover. This provision does not prevent electric charging of the closing springs and the breaker can be mechanically closed if the closing spring is charged prior to padlocking the charging handle. One padlock may be used with a latch diameter of 3/8 inch maximum (padlock by others).

For more information about interlocking possibilities, see the Locking Provisions Application Guide www.usa.siemens.com/wl

Rating plugs

The rating plug is required to limit the downstream load current. Use of a rating plug that exceeds the breaker frame rating will result in a trip unit error and will trip the breaker automatically. Rating plugs are field interchangeable.

Ready-to-close contact

In addition to the standard "ready-to-close" visual indicator on the WL breaker, an optional contact can be added to remotely monitor the ready-to-close conditions. Closing is ready if all of the following conditions are true:

- Cclosing spring-charged
- breaker main contacts are open
- mechanical lock-outs disabled
- racking handle seated in stored position
- electrical lock-outs disabled

Characteristics table

Ready-to-close contact	Voltage	125-240VAC, 125 -250VDC
	Continuous current	3A
	Making current	.4A @24-125VDC, 5A @120-240VAC
	Breaking current	.2A @24-125VDC, 3A @120-240VAC

Shunt trip (intermittent duty)

The shunt trip opens the circuit breaker instantly when energized by a remote power source. A clearing contact is wired in series with the shunt trip to remove the control voltage from the coil after the breaker is opened. Two shunt trip coils may be installed in a breaker if dual supply sources or control circuits are required.

An optional status contact may be selected to provide a signaling condition that the shunt trip has been activated.

Characteristics table

Trip coil AC operation	120VAC range	104 - 127VAC
	240VAC range	208 - 254VAC
	Power consumption	120W for 50ms (5% duty cycle)
	Min. closing time	50ms from point of signal
Trip coil DC operation	24VDC range	14 - 28VDC
	48VDC range	28 - 56VDC
	125VDC range	70 - 140VDC
	250VDC range	140 - 280DVC
	Power consumption	120W for 50ms (5% duty cycle)
	Min. closing time	50ms from point of signal

Shunt trip (continuous duty)

The continuous duty shunt trip is available for 100% duty cycle and can hold the WL breaker open during an electrical or manual "close breaker" attempt (i.e. lock-out). The continuous duty trip may be used in conjunction with a standard shunt trip solenoid for dual control.

Characteristics table

Shunt trip (interlock coil)	120 - 240 VAC range	85 - 110% of nominal
	24 - 250VDC range	70 - 126% or nominal
	Power consumption	15W / 15VA
	Min. shunt trip actuation	60 ms
	Opening time of breaker	80 ms
	Smallest fuse protection rating	1A

① See page 6-109 for field install part numbers.

Status contact

A status contact is a mechanical switch that is suitable for monitoring an undervoltage trip or second shunt trip coil position. The contact will be wired to the secondary contacts of the breaker for customer connections or wired to the Breaker Status Sensor (BSS) if communications is installed on the breaker. Contact is 1NO configured.

Characteristics table

Signaling contact	Voltage	127 - 240VAX, 24 - 125VDC
	Continuous current	3A
	Making current	1A @24 - 125DVC, 5A @120 - 240VAC
	Breaking current	1A @24 - 125DVC, 3A @120 - 240VAC

Spring-charging motor

The spring charging motor is used to automatically charge the breakers closing spring so the breaker is suitable for closing on command. Motor charging is typically used for remote breaker operation or as an alternative to local manual charging. The motor assembly can be easily installed in the field and includes an automatic cut-off switch which disconnects the current upon full charge of the closing spring mechanism.

Characteristics table

Spring-charging motor	120 - 240VAC range	85 -110% of nominal
	24 - 240VDC range	70 - 126% of nominal
	Power consumption	110W
	Max. charging time	10 seconds
	Fuse protection rating	24-60V 6A, 120-240V 3A (slow-blow)

Undervoltage release

In the event of loss or low level control circuit voltage, an undervoltage release may be used to automatically open the circuit breaker. To prevent nuisance breaker openings from temporary voltage dips, a separate adjustable time-delay undervoltage release is also available. The status of the undervoltage release can be monitored via communications using a contact connected to the BSS.

Characteristics table

Undervoltage release UVR	Operating values	85 - 110% breaker can be closed, 35 - 70% breaker will open
	120 - 240VAC Coil voltage tolerance	85 - 110% of nominal
	24 - 250VDC Coil voltage tolerance	85 - 126% of nominal
	Supply voltage	120, 240VAC or 24, 48, 125, 250VDC
	Power consumption	200VA inrush/ 5VA continuous (same in Watts for DC)
	Opening time of breaker	200 ms
	UVR w/o time delay (dual setting)	80 ms or 200ms
	UVR with time delay (adjustable delay)	0.2 to 3.2 sec.

① See page 6-109 for field install part numbers.

Factory Installed Options①

The following items are available for WL cradles. Items are described to highlight the functional characteristics of these factory installed cradle options.

Secondary disconnects

Secondary disconnects are used to interconnect external breaker control and signaling circuitry to the WL breakers factory wired circuitry. Three types of external connection terminals are available. 1. Screw connection, 2. Tension spring connection and, 3. Ring lug connection. Tension spring connection terminals are standard for fixed mounted breakers.

Characteristics table

	Wire connection type	Number of wires and sizes
Secondary disconnects	Screw compression	1 x 14AWG or 2 x 16AWG
	Tension spring compression	2 x 14AWG
	Ring lug terminal	2 x 14AWG or 2 x 16AWG

Isolation shutters

When removing a draw-out breaker from its connected position the primary contacts become exposed and more accessible to personnel in the breaker compartment. Isolation shutters reduce that accessibility to the primary terminals by automatically closing the access ports to the primary terminals whenever the breaker is disconnected or withdrawn. After removal of the breaker from its compartment, the shutters may be padlocked to inhibit manual shutter opening while breaker is not in the compartment.

Modbus, Modbus TCP, PROFIBUS, and PROFINET IO communications

PROFIBUS or Modbus communication requires a COM15 or COM16 communications module to transmit WL breaker data to external PCs or PLC monitoring systems. External communication connection to either module is through a DB-9F connector.

Modbus TCP and PROFINET IO communication requires a COM35 communications module. External communication connection is through a RJ-45 Ethernet connection.

Characteristics table

Operating voltage	24VDC
Peak inrush current	280mA
Max. continuous current	125mA
Ambient temperature	-25 to 70°C

Dual key breaker locking

For draw-out breakers, a cradle-mounted breaker lockout device can be installed with either one or two independent key cylinders. The key is removable only when the breaker is locked open. Cradle-mounted key locks are commonly utilized for interlocking in open transition schemes, where paralleling certain sources is not desirable. Siemens offers the choice of unique, uncoordinated, Kirk and Superior key lock types. If a custom, coordinated key/cylinder is required, order the lock provision-only. The lock cylinder and matched key must then be ordered separately from the respective lock manufacturer.

The compatible Kirk cylinder lock part number is C-900-301. The compatible Superior cylinder lock part number is C-900.

For more information about interlocking possibilities, see the Locking Provisions Application Guide www.usa.siemens.com/wl

① See page 6-109 for field install part numbers.

Arc chute cover

The arc chute cover is available for isolating enclosure material or parts located above the circuit breaker where heat and exhaust gases may exit from the breakers arc chutes. Arc chute covers are not available for fixed mounted breakers and limited to select draw-out breaker types.

TOC (Truck Operated Contacts)

For draw-out breaker applications a TOC device is available to provide remote indication of the circuit breakers primary and secondary contact connections (racking positions). When the breaker is racked into a connected, test or disconnected position, it activates TOC switches for external user circuits.

MOC (Mechanism Operated Contacts)

Mechanism Operated Contacts (MOC) are a cradle mounted accessory which indicate the state of the breaker's internal contacts (open or closed). MOCs are typically utilized when additional auxiliary contacts are necessary – above and beyond the number configurable in the circuit breaker – although they may also be used in lieu of t he internal auxiliary switches. Each MOC assembly includes 4 'a' and 4 'b' contacts. Two different MOC assemblies are available. One version operates when the circuit breaker is in both the "TEST" and "CONNECTED" positions, and the other version operates only when the circuit breaker is in the "CONNECTED" position.

Note per ANSI C37.20.10:
'a' contact: a contact that is open when the main device is in the standard reference position and that is closed when the device is in the opposite position.

'b' contact: a contact that is closed when the main device is in the standard reference position and that is open when the device is in the opposite position.

Characteristics table

MOC Contact Configurations	4NO and 4NC	
AC Operation	Voltage	240VAC 50/60Hz
	Continuous current	10A
	Making current	30A
	Breaking current	3A
DC Operation	Voltage	24, 125, 250VDC
	Making current	1.1A @ 125VDC, 0.55A @ 250VDC
	Breaking current	1.1A @ 125V DC, 0.55A @250VDC

TOC Switch	Breaker disconnected = Primary and secondary contacts are disconnected	Breaker in test = Primary contacts disconnected and secondary contacts are connected	Breaker connected = Primary and secondary contacts are connected
Option 1 Option 2 Option 3	1 form C contacts	1 form C contacts	1 form C contacts
	1 form C contacts	2 form C contacts	3 form C contacts
	0 form C contacts	0 form C contacts	6 form C contacts
	TOC Contact Ratings	AC Voltage	120, 240VAC
		AC Continuous Current	10A
		AC Making/Breaking Current	6A@120V, 3A@240VAC
		DC Voltage	24, 48, 125, 250VDC
		DC Continuous Current	6A, 1A, 1A
		DC Making/Breaking Current	6A, 0.22A, 0.11A

① See page 6-109 for field install part numbers.

Communication power supplies
For WL devices that require a 24VDC input we offer the Siemens SITOP power supply. The SITOP power supply is a class 2 rated devices suitable for supporting loads of 2.5 or 3.8 amps. DIN rail mounting provision and compression wire connections included. For loads of 2.5A maximum order part number **WLSITOP25** or **WLSITOP1** for 3.8A maximum loads.

Handheld test device
To test the WL breakers ETU trip functions we offer a hand-held tester that checks:

- Sensor continuity
- Long-time function
- Short-time function
- Instantaneous function
- Neutral and ground fault function

During a test, the device will electrically trip the circuit breaker performing a full function test of the ETU and the trip actuator. Cables for 120VAC power supply and ETU connection is included with the tester. Order part number **WLTS**

For more information about the capabilities of this test set, see the WLTS Application Guide. **www.usa.siemens.com/wl**

Electromagnetic Compatibility (EMC) Filter
The WL EMC filter resides between the electronic trip unit (ETU) and the current sensors, filtering out unwanted electromagnetic interference that could distort both protection and metering. Use of the filter is recommended when the breaker is applied in high-resistance grounded systems when variable-speed drives are the primary load. Order part number **WLEMCFILTER**.

Mechanical breaker interlocks
Mechanical interlock options are available for fixed or draw-out breakers. Interlocking is managed through cable connections between two or three breakers less than 6 meters apart. Lock kit includes 2.0 meter interlocking cable and mechanism for mounting to a single breaker.

For fixed breaker frame size 1 order part number **WLNTLKF1**
For fixed breaker frame size 2 or 3, order part number **WLNTLKF23**

For draw-out breaker frame size 1, 2, or 3,
order part number **WLNTLK**

For more information about interlocking possibilities, see the Locking Provisions Application Guide. **www.usa.siemens.com/wl**

For alternate cable lengths, order part number

3.0 meter	**WLNTLWRE3**
4.5 meter	**WLNTLWRE4**
6.0 meter	**WLNTLWRE5**

Metering current transformer 3-phase window (cradle mounting only)
For draw-out breaker applications, a three phase metering CT is available. Termination screws are integral to the mold for point-to-point wiring without the use of terminal blocks or wire couplers. Metering ratios range from 800:5 to 5000:5. CTs include mounting hardware.

For frame size 1 and 2 order part numbers:	
800:5 Rating	**WLG8005MCT2**
1200:5 Rating	**WLG12005MCT2**
1600:5 Rating	**WLG16005MCT2**
2000:5 Rating	**WLG20005MCT2**
2500:5 Rating	**WLG25005MCT2**
3200:5 Rating	**WLG32005MCT2**

For frame size 3 order part numbers:	
3200:5 Rating	**WLG32005MCT3**
4000:5 Rating	**WLG40005MCT3**
5000:5 Rating	**WLG50005MCT3**

4-Wire Modified Differential Ground Fault (MDGF)
For MDGF draw-out breaker applications, a three phase ironcore CT is available. The MDGF CTs are physically the same as the above metering CTs but the current ratio is 1200:1.

For frame size 2, breakers order part number:
1200:1 rating WLGMDGFCT2 Phase CT

For frame size 3, breakers order part number:
1200:1 rating WLGMDGFCT3 Phase CT

For frame size 2 and 3, neutral CT order part number:
1200:1 rating WLGNMDGCT23 Neutral CT

A typical application for modified differential ground fault is 'Main-Tie-Main' where all breakers require 3 Phase CTs and a neutral CT.

For more information about ground fault protection, see the Ground Fault Application Guide. **www.usa.siemens.com/wl**

Metering current transformer – single phase
Metering current transformer – single phase A single piece housing that is compact and designed to fit around phase or neutral bussing. Termination screws are integral to the mold for point-to-point wiring without the use of terminal blocks or wire couplers. Metering ratios range from 800:5 to 5000:5.

For frame size 1, 2 or 3, order part numbers:	
800:5 Rating	**WLG800NMCT23**
1200:5 Rating	**WLG1200NMCT23**
1600:5 Rating	**WLG1600NMCT23**
2000:5 Rating	**WLG2000NMCT23**
2500:5 Rating	**WLG2500NMCT23**
3000:5 Rating	**WLG3000NMCT23**
3200:5 Rating	**WLG3200NMCT23**
4000:5 Rating	**WLG4000NMCT23**
5000:5 Rating	**WLG5000NMCT23**

Neutral current sensor – 4-wire residual ground fault
For 4-wire residual ground fault protection we offer neutral current sensors with or without bus bar coupling. The sensors are comparable to the sensors used within the breaker and connected to the ETU. This sensor must also be wired to the ETU through designated secondary disconnects on the breaker.

Without copper bus adapters:
- 3″ max bus bar width order part number **WLNCT2**
- 3 - 5″ bus bar width order part number **WLNCT3**

With copper bus adapters:
- 3″ max bus bar width order part number **WLNCT2CB**
- 3 - 5″ bus bar width order part number **WLNCT3CB**

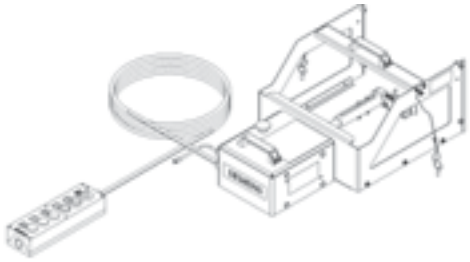
Breaker door cover
A transparent hinged door cover is available to provide IP55 protection. Provision for padlocking included. Fits frame size 2 and 3 breakers. Order part number **WLPGC**

Door sealing frame
For openings around the door cutout of the breaker, this rubber door trim is available. For frame size 2 and 3 breakers only. Order part number **WLDSF**

Breaker lifting
The breaker lifting yolk is designed to transport the WL breaker when using a hoist or other lifting equipment. The device is expandable to conform to all three WL frame sizes and easily attaches to specified lift points on the breaker. Order part number **WLLFT** (3-pole) and **WLLFT4** (4-pole)

For more information, see the Recommended Practice for Using the WL Telescopic Lifting Yokes. **www.usa.siemens.com/wl**

Remote Breaker Racking Device
Provides the ability to safely rack WL breakers into the Connect, Test and Disconnect positions from 30 feet away from the breaker, allowing the operator to be outside the arc flash boundary which provides additional personnel protection. **WLRBRD**



Door Bracket Kit, Remote Breaker Racking Device
In order to mount the remote breaker racking device on existing gear, this retrofit door bracket kit and the **WLRBRDTEMPL** must be ordered. **WLRBRDKIT**

Remote Breaker Racking Device Door Bracket Install Template
In order to mount the remote breaker racking device on existing gear, this mounting template and the **WLRBRDKIT** must be ordered. **WLRBRDTEMPL**

Breaker Hoist
This device acts as a hoist for the WL breaker, allowing it to be carried using a forklift or similar device. **WLHOIST**

CubicleBUS modules
External CubicleBUS modules enable the WL Circuit Breaker a way to interface with external switchgear controls or building management systems. They can be used, for example, to activate analog displays or devices, transmit circuit breaker status and cause of trip, or read external device control signals. One module is suitable for zone-selective interlocking main and branch breakers.

Three different CubicleBUS modules can output data from the CubicleBUS system (two digital output modules and one analog output module). A digital input module can transmit data from the switchgear or system to a PROFIBUS/Modbus master device like a power meters or logic controllers.

For more information about the capabilities of CubicleBUS modules, see the WL Communications Manual.
www.usa.siemens.com/wl

Digital Output Module with Rotary Switch – The digital output module can be used to output six events. These events can be warnings or trips and can be used for external annunciation or control. The load shedding and load restoring signals can enable a load to be switched ON or OFF automatically. Voltages of up 250V AC/DC are possible. The relay contacts are isolated.

Relay Digital Output Module: Order part number **WLRLYCUB**

Digital input module
The digital input module enables up to six additional binary signals (24V DC) to be connected. Signals, such as breaker status, arc-flash current reduction, over-temperature conditions or control circuit status switchgear, can be transmitted directly to the power monitoring network.

A total of 6 inputs are available in the "BUS Input" Switch position. Six inputs are also available if the rotary switch is in the "Parameter Switch" position, although the first input causes the active parameter set to change. If the connected ETU does not have two parameter set capability (e.g. ETU745), this input can also be used without any restrictions.

Digital Input Module: Order part number **WLDGNCUB**

ZSI module
To use the ZSI function with the WL Circuit Breaker, the external CubicleBUS ZSI module must be implemented. The zone selective interlocking (ZSI) module provides the complete range of selectivity with the short delay time of tZSI = 50 ms, ir respective of the number of levels and the location of the short-circuit in a distribution system. Its benefits become even more apparent, the higher the number of levels in large systems and the longer the resulting delay times. By shortening the time, the ZSI module significantly reduces stress and damage in the event of a shortcircuit in the switchgear.

Zone Selective Interlocking Module: Order part number **WLZSIMD**

Analog output module
The analog output module can be used to output the most important measured values sent via the CubicleBUS to analog indicators (e.g. analog meters) in the switchgear cubicle door. Each analog output module has four channels for this purpose. The signals are available at two physical interfaces: a 4 ... 20mA and a 0 ... 10V interface.

Analog output module: order part number **WLANLGCUB**

Pre-assembled CubicleBUS communication cables (RJ45-M connections)

1 meter length: order part number	**WLCBUSCABLE1**
2 meter length: order part number	**WLCBUSCABLE2**
4 meter length: order part number	**WLCBUSCABLE4**
9 meter length: order part number	**WLCBUSCABLE9**

Fixed-mounted breaker front bus connectors
Front connector bus kits are available for adapting WL breaker primary mounting stabs to a standard NEMA bussing and bolt-hole pattern. NEMA bolt connection is accessible from the front of the breaker for ease of installation or removal of breaker inside an enclosure. Kit includes the required bus and hardware for mounting one 3-pole set of adapters to a breaker.

For frame size 1, 2 or 3, order part numbers:	
Frame size 1, 1200A frame, 85 kAIC at 480V	**WLH1F12CONUL**
Frame size 2, 1600A frame, 100kAIC at 480V	**WLL2F16CONUL**
Frame size 2, 2000A frame, 100kAIC at 480V	**WLL2F20CONUL**
Frame size 2, 2500A frame, 100kAIC at 480V	**WLL2F25CONUL**
Frame size 3, 4000 to 5000A frame, 100kAIC at 480V	**WLL3F50CONUL**

Mechanical lug connector kits are available for connecting 800 to 2000A WL front connector bus kits (sold separately) to power cables.

For frame size 1, 2 or 3, order part numbers:	
Frame size 1, 1200A max, 65 kAIC at 480V	**WLS2P12CONUL**
Frame size 2, 1600A/2000A 65 kAIC at 480V	**WLS2P20CONUL**

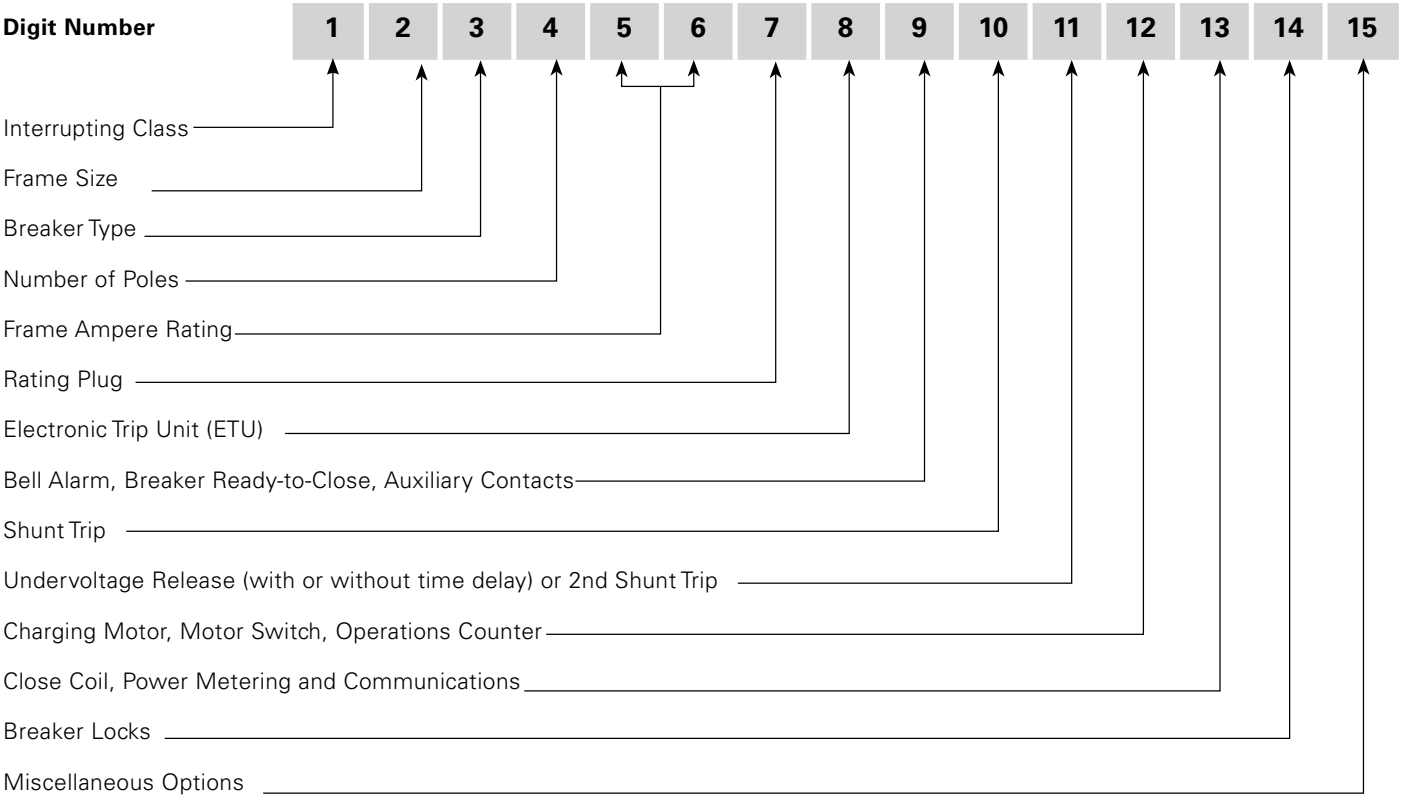
Fixed mounted breaker rear bus connector kits are available for adapting WL breaker primary mounting stabs to a standard NEMA bussing and bolt-hole pattern. Adapters also rotate the primary breaker connections by 90° for vertical bus arrangement. Bolted connections are accessible from the rear of the breaker. Kit includes the required bus and hardware for mounting one3-pole set of adapters to a breaker.

For frame size 1, 2 or 3, order part numbers:	
Frame size 1, up to 2000A frame, 85 kAIC at 480	**WLH1R12CONUL**
Frame size 2, 1600A frame, 100 kAIC at 480V	**WLL2R16CONUL**
Frame size 2, 2000A frame, 100 kAIC at 480V	**WLL2R20CONUL**
Frame size 2, 3000A frame, 100 kAIC at 480V	**WLL2R30CONUL**
Frame size 2, 800A to 3000A frame, 150 kAIC at 480V rated breaker only	**WLC2R30CONUL**
Frame size 3, 4000A to 5000A frame, 100 kAIC at 480V	**WLC3R50CONUL**

WL Circuit Breaker

WL Catalogue Numbering

Overview



WL Insulated Case Circuit Breaker

Ratings for UL489 Listed Breakers

WL frame ratings – frame size 1		**800A**			**1200A**			**1600A**			**2000A**		
Rating Class		S	H	L	S	H	L	S	H	L	S	H	L
Interrupting current frame Ics (kAIR RMS) 50/60 Hz	240VAC	65	85	100	65	85	100	65	85	100	65	85	100
	480VAC	65	85	100	65	85	100	85	85	100	65	85	100
	600VAC	65	65	65	65	65	65	65	65	65	65	65	65
Short-time current Icw (kA RMS)	0.4 sec.	65	65	65	65	65	65	65	65	65	65	65	65
Extended instantaneous protection rating (kA RMS)	480VAC	65	85	100	65	85	100	65	85	100	65	85	100
	600VAC	65	65	65	65	65	65	65	65	65	65	65	65
Close and latch rating (kA RMS)		65	65	65	65	65	65	65	65	65	65	65	65
Applicable rating plug range		200 - 800A			200 - 1200A			200 - 1600A			200 - 2000A		
Mechanical make-time (ms)		35			35			35			35		
Mechanical break-time (ms)		34			34			34			34		
Electric close make-time (ms)		50			50			50			50		
Electric trip/ UV break-time (ms)		40/73			40/73			40/73			40/73		
Electric trip and reclose interval (ms)		80			80			80			80		
Mechanical duty cycles (no maint.)		7500			7500			7500			7500		
Electrical duty cycles (no maint.)		7500			7500			7500			7500		
Draw-out breaker efficiency (Watts loss at In)		80			180			350			530		
Fixed-mount breaker efficiency (Watts loss at In)		60			120			160			270		
Ambient operating temperature (°C)		-25 to 40			-25 to 40			-25 to 40			-25 to 40		

WL frame ratings – frame size 2		800A			1200A			1600A			2000A			2500A		3000A	
Rating Class		S	L	C	S	L	C	S	L	C	S	L	C	L	C	L	C
Interrupting current frame Ics	240VAC	65	100	150	65	100	150	65	100	150	65	100	150	100	150	100	150
(kAIR RMS) 50/60 Hz	480VAC	65	100	150	65	100	150	65	100	150	65	100	150	100	150	100	150
	600VAC	65	85	100	65	85	100	65	85	100	65	85	100	85	100	85	100
Short-time current Icw (kA RMS)	0.4 sec.	65	85	100	65	85	100	65	85	100	65	85	100	85	100	85	100
Extended instantaneous protection	480VAC	65	100	150	65	100	150	65	100	150	65	100	150	100	150	100	150
rating (kA RMS)	600VAC	65	85	100	65	85	100	65	85	65	65	85	100	85	100	85	100
Close and latch rating (kA RMS)		65	85	100	65	85	100	65	85	100	65	85	100	85	100	85	100
Applicable rating plug range		200 - 800A			200 - 1200A			200 - 1600A			200 - 2000A			200 - 2500A		200 - 3000A	
Mechanical make-time (ms)		35			35			35			35			35		35	
Mechanical break-time (ms)		34			34			35			34			34		34	
Electric close make-time (ms)		50			50			50			50			50		50	
Electric trip/ UV break-time (ms)		40/73			40/73			40/73			40/73			40/73		40/73	
Electric trip and reclose interval (ms)		80			80			80			80			80		80	
Mechanical duty cycles (no maint.)		10,000 (5000 for Class C)			10,000 (5000 for Class C)			10,000 (5000 for Class C)			10,000 (5000 for Class C)			10,000 (5000 for Class C)		10,000 (5000 for Class C)	
Electrical duty cycles (no maint)		7500 (5000 for Class C)			7500 (5000 for Class C)			7500 (5000 for Class C)			4000			4000		4000	
Draw-out breaker efficiency (Watts loss at I_n)		85			150			320			500			680		1000	
Fixed-mount breaker efficiency (Watts loss at I_n)		40			80			120			230			320		480	
Ambient operating temperature (°C)		-25 to 40			-25 to 40			-25 to 40			-25 to 40			-25 to 40		-25 to 40	

NOTE: Frame Size 1 H-Class only for switches

WL frame ratings – Frame size 3		4000A		5000A	
Rating Class		**L**	**C**	**L**	**C**
Interrupting current frame Ics (kAIR RMS) 50/60 Hz	240VAC	100	150	100	150
	480VAC	100	150	100	150
	600VAC	85	100	85	100
Short-time current *I*cw (kA RMS)	0.4 sec.	85	100	85	100
Extended instantaneous protection rating	480VAC	100	150	100	150
(kA RMS)	600VAC	85	100	85	100
Close and latch rating (kA RMS)		85	100	85	100
Applicable rating plug range		800 - 4000A		800 - 5000A	
Mechanical make-time (ms)		35		35	
Mechanical break-time (ms)		34		34	
Electric close make-time (ms)		50		50	
Electric trip/ UV break-time (ms)		40/73		40/73	
Electric trip and reclose interval (ms)		80		80	
Mechanical duty cycles (no maint.)		5000		5000	
Electrical duty cycles (no maint.)		2000		2000	
Draw-out breaker efficiency (Watts loss at I_n)		1100		1100	
Fixed-mount breaker efficiency (Watts loss at I_n)		580		580	
Ambient operating temperature (°C)		-25 to 40		-25 to 40	

Ratings for UL489 Listed non-automatic switches

WL frame ratings		Frame size 1 800-2000A	Frame size 2 800 - 3000A	Frame size 3 4000/5000A
Rating Class		**L**	**L**	**L**
Breaking capacity with external relay (kA RMS)	240VAC	100	100	100
50/60 Hz, instantaneous trip	480VAC	100	100	100
	600VAC	85	85	85
Short-time current Icw (kA RMS)	0.4 sec.	85	85	85

WL Insulated Case Circuit Breaker

UL 489 Listed Catalogue Number

Interrupting rating, frame size, breaker type and frame rating

Note: Cradle must be ordered separately for drawout breaker types (see page 39)

Class	Interrupt rating (kA)		Frame	Frame size			Breaker type		Breaker catalog number																	
	240VAC 480VAC	600VAC	Max ampere rating (A)1	1	2	3	Fixed mount	Drawout	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
S	65	65	800	X			X		S	1	F	3	0	8												
S	65	65	800		X		X		S	2	F	3	0	8												
S	65	65	800	X				X	S	1	D	3	0	8												
S	65	65	800		X			X	S	2	D	3	0	8												
S	65	65	1200	X			X		S	1	F	3	1	2												
S	65	65	1200		X		X		S	2	F	3	1	2												
S	65	65	1200	X				X	S	1	D	3	1	2												
S	65	65	1200		X			X	S	2	D	3	1	2												
S	65	65	1600	X			X		S	1	F	3	1	6												
S	65	65	1600		X		X		S	2	F	3	1	6												
S	65	65	1600	X				X	S	1	D	3	1	6												
S	65	65	1600		X			X	S	2	D	3	1	6												
S	65	65	2000	X			X		S	1	F	3	2	0												
S	65	65	2000		X		X		S	2	F	3	2	0												
S	65	65	2000	X				X	S	1	D	3	2	0												
S	65	65	2000		X			X	S	2	D	3	2	0												
L	100	65	800	X			X		L	1	F	3	0	8												
L	100	85	800		X		X		L	2	F	3	0	8												
L	100	65	800	X				X	L	1	D	3	0	8												
L	100	85	800		X			X	L	2	D	3	0	8												
L	100	65	1200	X			X		L	1	F	3	1	2												
L	100	85	1200		X		X		L	2	F	3	1	2												
L	100	65	1200	X				X	L	1	D	3	1	2												
L	100	85	1200		X			X	L	2	D	3	1	2												
L	100	65	1600	X			X		L	1	F	3	1	6												
L	100	85	1600		X		X		L	2	F	3	1	6												
L	100	65	1600	X				X	L	1	D	3	1	6												
L	100	85	1600		X			X	L	2	D	3	1	6												
L	100	65	2000	X			X		L	1	F	3	2	0												
L	100	85	2000		X		X		L	2	F	3	2	0												
L	100	65	2000	X				X	L	1	D	3	2	0												
L	100	85	2000		X			X	L	2	D	3	2	0												
L	100	85	2500		X		X		L	2	F	3	2	5												
L	100	85	2500		X			X	L	2	D	3	2	5												
L	100	85	3000		X		X		L	2	F	3	3	0												
L	100	85	3000		X			X	L	2	D	3	3	0												
L	100	85	4000			X	X		L	3	F	3	4	0												
L	100	85	4000			X		X	L	3	D	3	4	0												
L	100	85	5000			X	X		L	3	F	3	5	0												
L	100	85	5000			X		X	L	3	D	3	5	0												
C	150	100	800		X		X		C	2	F	3	0	8												
C	150	100	800		X			X	C	2	D	3	0	8												
C	150	100	1200		X		X		C	2	F	3	1	2												
C	150	100	1200		X			X	C	2	D	3	1	2												
C	150	100	1600		X		X		C	2	F	3	1	6												
C	150	100	1600		X			X	C	2	D	3	1	6												
C	150	100	2000		X		X		C	2	F	3	2	0												
C	150	100	2000		X			X	C	2	D	3	2	0												
C	150	100	2500		X		X		C	2	F	3	2	5												
C	150	100	2500		X			X	C	2	D	3	2	5												
C	150	100	3000		X		X		C	2	F	3	3	0												
C	150	100	3000		X			X	C	2	D	3	3	0												
C	150	100	4000			X	X		C	3	F	3	4	0												
C	150	100	4000			X		X	C	3	D	3	4	0												
C	150	100	5000			X	X		C	3	F	3	5	0												
C	150	100	5000			X		X	C	3	D	3	5	0												

Rating Plug

Breaker catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Maximum continuous current rating	For use with frame size 1	2	3	7	8
200	X	X		A	
225	X	X		B	
250	X	X		C	
300	X	X		D	
315	X	X		E	
350	X	X		F	
400	X	X		G	
450	X	X		H	
500	X	X		J	
600	X	X		K	
630	X	X		L	
700	X	X		M	
800	X	X	X	N	
1000	X	X	X	P	
1200	X	X	X	Q	
1250	X	X	X	R	
1600	X	X	X	T	
2000	X	X	X	U	
2500		X	X	V	
3000		X	X	W	
3200			X	Y	
4000			X	Z	
5000			X	1	

Electronic trip unit (ETU)[1)]

Trip unit models	Function L	S	I	LCD display Alpha num.	Ground fault Alarm	Trip	EMC filter	8
ETU745	X	(X)	(X)					C
ETU745	X	(X)	(X)	X				D
ETU745	X	(X)	(X)		X			E
ETU745	X	(X)	(X)	X	X			F
ETU745	X	(X)	(X)		X	X		G
ETU745	X	(X)	(X)	X	X	X		H
ETU745	X	(X)	(X)				X	3
ETU745	X	(X)	(X)	X			X	4
ETU745	X	(X)	(X)		X		X	5
ETU745	X	(X)	(X)	X	X		X	6
ETU745	X	(X)	(X)		X	X	X	7
ETU745	X	(X)	(X)	X	X	X	X	8
ETU776	X	(X)	(X)					V
ETU776	X	(X)	(X)		X			W
ETU776	X	(X)	(X)		X	X		Y
ETU776	X	(X)	(X)				X	M
ETU776	X	(X)	(X)		X		X	Z
ETU776	X	(X)	(X)		X	X	X	1

(X) Indicates function can be disabled by user

1 Neutral protection "N" is available as standard.

Breaker catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Bell alarm, breaker ready-to-close, auxiliary contacts

Bell alarm			Breaker	Breaker open/close auxiliary switches		
Remote reset coil voltage		Form C	ready-to-close			
AC	DC	contacts	1*b* contact	2*a* + 2*b*	4*a* + 4*b*	
						None X
		X				A
			X			B
				X		C
					X	D
		X	X			E
		X		X		F
		X			X	G
			X	X		H
			X		X	I
		X	X	X		J
		X	X		X	K
	24	X				L
	48	X				M
120	125	X				N
240	250	X				O
	24	X	X			P
	48	X	X			Q
120	125	X	X			R
240	250	X	X			S
	24	X		X		T
	48	X		X		U
120	125	X		X		V
240	250	X		X		W
	24	X			X	Y
	48	X			X	Z
120	125	X			X	1
240	250	X			X	2
	24	X	X	X		3
	48	X	X	X		4
120	125	X	X	X		5
240	250	X	X	X		6
	24	X	X		X	7
	48	X	X		X	8
120	125	X	X		X	9
240	250	X	X		X	0

Shunt trip

Operation voltage		Status	Continuous duty coil
AC	DC	contact	(electrical interlock)
			None X
	24		A
	48		B
120	125		C
240	250		D
	24	X	E
	48	X	F
120	125	X	G
240	250	X	H
	24		J
	48		K
120	125		L
240	250		M
	24	X	N
	48	X	P
120	125	X	R
240	250	X	S

WL Insulated Case Switch

UL 489 Listed Non-automatic Catalogue Number

Undervoltage Release (with or without time delay) or 2nd Shunt Trip

Breaker catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Operation voltage		UVR without delay	UVR with delay	UVR status[1] contact (1NO)	2nd shunt trip		
AC	DC						
						None	X
	24	X					A
	48	X					B
120	125	X					C
240	250	X					D
	48		X				E
120	125		X				F
240	250		X				G
	24				X		H
	48				X		J
120	125				X		K
240	250				X		L
	24	X		X			M
	48	X		X			N
120	125	X		X			P
240	250	X		X			Q
	48		X	X			R
120	250		X	X			S
240	250		X	X			T

Charging motor, motor switch, operations counter

Charging motor operation voltage		Motor cut-off switch	Operations counter		
AC	DC				
				None	X
	24				A
	48				B
120	125				C
240	250				D
	24	X			E
	48	X			F
120	125	X			G
240	250	X			H
	24		X		J
	48		X		K
120	125		X		L
240	250		X		M
	24	X	X		N
	48	X	X		P
120	125	X	X		Q
240	250	X	X		R

[1] Status contact is only available when Communications is not installed on breaker. Signal is sent via communications in lieu of status contact.

WL Insulated Case Switch

UL 489 Listed Non-automatic Catalogue Number

Selection

Close coil, power metering and communications

Close coil operation voltage		Power metering capable	Modbus	PROFIBUS	Modbus TCP/ / PROFINET	Breaker catalog number 13
AC	DC					
						None X
	24					A
	48					B
120	125					C
240	250					D
			X			G
				X		H
					X	E
	24		X			N
	24			X		P
	48		X			S
	48			X		T
120	125		X			W
120	125			X		Y
120	125				X	J
240	250		X			2
240	250			X		3
	24	X	X			Q
	48	X	X			U
120	125	X	X			Z
240	250	X	X			4
	24	X		X		R
	24	X			X	6
	48	X		X		V
	48	X			X	7
120	125	X		X		1
120	125	X			X	9
240	250	X		X		5
240	250	X			X	O
		X	X			L
		X		X		M
		X				F
		X			X	K
120	125	X				8

Breaker locks

Key lock breaker OPEN position (lock type – KIRK) [1]	Key lock breaker OPEN position (lock type – SUPERIOR) [1]	Padlock provisions for OPEN and CLOSE push buttons [2]	Padlock provisions for charging handle [2]	Breaker catalog number 14
				None X
X				A
		X		C
			X	E
	X			F
X		X		G
	X	X		J
X			X	S
	X		X	U
		X	X	V
X		X	X	W
	X	X	X	Z

Miscellaneous options

Key lock breaker OPEN position (provision only) [2]	Manual trip reset ETU (Automatic trip reset is standard)	Breaker catalog number 15
	None	N
X		B
	X	C
X	X	D

[1] Custom key locks are not available and must be supplied by others. Order key lock provision if custom if keyed alike locks are required.
[2] Locks provided by others.

WL Insulated Case Switch

UL 489 Listed Non-automatic Catalogue Number

Breaking capacity, frame size, switch type and frame rating

Class	Breaking capacity (kA) 240VAC 480VAC	Breaking capacity (kA) 600VAC	Frame Max ampere rating (A)	Frame size 1	Frame size 2	Frame size 3	Switch type Fixed mounted	Switch type drawout
L	100	85	800	X			X	
L	100	85	800	X				X
L	100	85	1200	X			X	
L	100	85	1200	X				X
L	100	85	1600	X			X	
L	100	85	1600	X				X
L	100	85	2000	X			X	
L	100	85	2000	X				X
L	100	85	800		X		X	
L	100	85	800		X			X
L	100	85	1600		X		X	
L	100	85	1600		X			X
L	100	85	2000		X		X	
L	100	85	2000		X			X
L	100	85	2500		X			X
L	100	85	2500		X			X
L	100	85	3000		X		X	
L	100	85	3000		X		X	
L	100	85	4000		X		X	
L	100	85	4000			X		X
L	100	85	5000			X	X	
L	100	85	5000			X		X

Switch catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
L	1	Y	3	0	8	S	S							
L	1	Z	3	0	8	S	S							
L	1	Y	3	1	2	S	S							
L	1	Z	3	1	2	S	S							
L	1	Y	3	1	6	S	S							
L	1	Z	3	1	6	S	S							
L	1	Y	3	2	0	S	S							
L	1	Z	3	2	0	S	S							
L	2	Y	3	0	8	S	S							
L	2	Z	3	0	8	S	S							
L	2	Y	3	1	6	S	S							
L	2	Z	3	1	6	S	S							
L	2	Y	3	2	0	S	S							
L	2	Z	3	2	0	S	S							
L	2	Y	3	2	5	S	S							
L	2	Z	3	2	5	S	S							
L	2	Y	3	3	3	S	S							
L	2	Z	3	3	0	S	S							
L	3	Y	3	4	0	S	S							
L	3	Z	3	4	0	S	S							
L	3	Y	3	5	0	S	S							
L	3	Z	3	5	0	S	S							

Ready-to-close and auxiliary contacts

Ready-to-close 1*b* contact	Breaker open/close auxiliary switches 2*a* + 2*b*	4*a* + 4*b*		
			None	X
X				B
	X			C
		X		D
X	X			H
X		X		I

Shunt trip

Switch catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Operation voltage AC	Operation voltage DC	Status contact[1]	Shunt trip	Continuous duty rated (electrical interlock)	
					None X
	24		X		A
	48		X		B
120	125		X		C
240	250		X		D
	24	X	X		E
	48	X	X		F
120	125	X	X		G
240	250	X	X		H
	24			X	J
	48			X	K
120	125			X	L
240	250			X	M
	24	X		X	N
	48	X		X	P
120	125	X		X	R
240	250	X		X	S

Undervoltage release (with or without time delay) or 2nd shunt trip

Operation voltage AC	Operation voltage DC	UVR without delay	UVR with delay	UVR status [1] contact (1NO)	2nd shunt trip	
						None X
	24	X				A
	48	X				B
120	125	X				C
240	250	X				D
	48		X			E
120	125		X			F
240	250		X			G
	24				X	H
	48				X	J
120	125				X	K
240	250				X	L
	24	X		X		M
	48	X		X		N
120	125	X		X		P
240	250	X		X		Q
	48		X	X		R
120	250		X	X		S
240	250		X	X		T

[1] Status contact is only available when communication is not installed. Signal is sent via communications in lieu of status contact.

Charging motor, motor switch and operation counter

Switch catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Charging motor operation voltage		Motor cut-off switch	Operations counter	
AC	DC			
				None X
	24			A
	48			B
120	125			C
240	250			D
	24	X		E
	48	X		F
120	125	X		G
240	250	X		H
	24		X	J
	48		X	K
120	125		X	L
240	250		X	M
	24	X	X	N
	48	X	X	P
120	125	X	X	Q
240	250	X	X	R

Close coil, communications

Close coil operation voltage		Power metering capable	Modbus [1]	PROFIBUS [1]	Modbus TCP / PROFINET [1]	
AC	DC					
						None X
	24					A
	48					B
120	125					C
240	250					D
			X			G
				X		H
					X	E
	24		X			N
	24			X		P
	48		X			S
	48			X		T
120	125		X			W
120	125			X		Y
120	125				X	J
240	250		X			2
240	250			X		3
120	125	X				8

[1] Requires 24VDC power supply. Power metering not available on non-automatic switches and BSS is included.

WL Insulated Case Switch

UL 489 Listed Non-automatic Catalogue Number

Selection

Switch locks

Key lock switch OPEN position (lock type – KIRK) [1]	Key lock switch OPEN position (lock type – SUPERIOR) [1]	Padlock provisions for OPEN and CLOSE push buttons [2]	Padlock provisions for charging handle	Switch catalog number 14
				None → X
X				A
		X		C
			X	E
	X			F
X		X		G
	X	X		J
X			X	S
	X		X	U
		X	X	V
X		X	X	W
	X	X	X	Z

Miscellaneous options

Key lock switch OPEN position (provision only) [2]	Switch catalog number 15
	None → N
X	B

[1] Custom key locks are not available and must be supplied by others. Order Key Lock Provisions if custom keys or keyed alike locks are required.
[2] Padlock provided by others.

WL Insulated Case Breaker Cradle

UL 489 Listed Accessories

Selection

External breaker accessories

Description		Catalog number
Front mount connectors	**for fixed breakers**	
FS1, 85kAIC at 480V max.	800A, 1200A	**WLHF12CONUL**
FS2, 100kAIC at 480V max.	1600A	**WLL2F16CONUL**
FS2, 100kAIC at 480V max.	2000A	**WLL2F20CONUL**
FS2, 100kAIC at 480V max.	3000A	**WLL2F30CONUL**
FS3, 100kAIC at 480V max.	4000A, 5000A	**WLL3F50CONUL**
Mechanical lug		
FS1, 65kAIC at 480V max	800A, 1200A	**WLS2P12CONUL**
FS2, 65kAIC at 480V max	1600A, 2000A	**WLS2P20CONUL**
Rear vertical connectors		
FS1, 100kAIC at 480V max	800A, 1200A, 1600A, 2000A	**WLH1R12CONUL**
FS2, 100kAIC at 480V max	800A, 1200A, 1600A	**WLL2R16CONUL**
FS2, 100kAIC at 480V max	2000A	**WLL2R20CONUL**
FS2, 1100kAIC at 480V max	2500A, 3000A	**WLL2R30CONUL**
FS2, 150kAIC at 480V max	800A, 1200A, 1600A, 2000A, 2500A, 3000A	**WLC2R30CONUL**
FS3, 150kAIC at 480V max	4000A, 5000A	**WLC3R50CONUL**
Single phase CTs for metering, 5A secondary		
Rating:	800:5	**WLG800NMCT23**
Rating:	1200:5	**WLG1200NMCT23**
Rating:	1600:5	**WLG1600NMCT23**
Rating:	2000:5	**WLG2000NMCT23**
Rating:	2500:5	**WLG2500NMCT23**
Rating:	3000:5	**WLG3000NMCT23**
Rating:	4000:5	**WLG4000NMCT23**
Rating:	5000:5	**WLG5000NMCT23**
Modified differential ground fault (MDGF) CTs		
Modified differential GF	(FS2 1200:1) Phase CT	**WLGMDGFCT2**
Modified differential GF	(FS3 1200:1) Phase CT	**WLGMDGFCT3**
Modified differential GF	(FS2 and FS3 1200:1) Neutral CT	**WLGNMDGFCT23**
4-wire residual ground fault sensor		
Without copper bus adapters (pass-thru mount) - for 3" max bus bar		**WLNCT2**
Without copper bus adapters (pass-thru mount) - for 3 - 5" max bus bar		**WLNCT3**
With copper bus adapters for bus bar connection - for 3" max bus bar		**WLNCT2CB**
With copper bus adapters for bus bar connection - for 3 - 5" max bus bar		**WLCNMDGCT23**
Mechanical interlocks		
Fixed mounted breaker (FS1)		**WLNTLKF1**
Fixed mounted breaker (FS2 and FS3)		**WLNTLKF23**
Miscellaneous external accessories		
Crimp lugs for 10# AWG secondary wiring (package of 70)		**WL10RL**
Auxiliary contact on drawout breaker (knife block)		**WLCNMD**
24V DC trip unit and communications power supply, 2.5A SITOP power, Class 2		**WLSITOP25**
24V DC trip unit and communications power supply 3.8A SITOP power, Class 2		**WLSITOP1**
Optional metric inserts and bolts for breaker mains (4 each) M8x25 for FS1and FS2		**WLMETRC**
Optional metric inserts and bolts for breaker mains (4 each) M10x25 for FS3		**WLMETRC3**
Secondary disconnect coding kit for UL 489 fixed mounted breaker		**WLCODEKITUL**
Pull apart terminal block with 1 meter leads for UL 489 fix mounted breakers		**WLTERMBLKUL**

WL Insulated Case Breaker Cradles

UL 489 Listed Catalogue Number

Selection

Interrupting rating, frame size, and frame rating

Class	Interrupt rating (kA)		Frame	Frame size		
	240VAC 480VAC	600VAC	Max ampere rating (A)	1	2	3
S	65	65	800	X		
S	65	65	800		X	
S	65	65	1200	X		
S	65	65	1200		X	
S	65	65	1600	X		
S	65	65	1600		X	
S	65	65	2000	X		
S	65	65	2000		X	
L	100	65	800	X		
L	100	85	800		X	
L	100	65	1200	X		
L	100	85	1200		X	
L	100	65	1600	X		
L	100	85	1600		X	
L	100	65	2000	X		
L	100	85	2000		X	
L	100	85	2500		X	
L	100	85	3000		X	
L	100	85	4000			X
L	100	85	5000			X
C	150	100	800		X	
C	150	100	1200		X	
C	150	100	1600		X	
C	150	100	2000		X	
C	150	100	2500		X	
C	150	100	3000		X	
C	150	100	4000			X
C	150	100	5000			X

Cradle catalog number

G	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S	1	3	0	8										
S	2	3	0	8										
S	1	3	1	2										
S	2	3	1	2										
S	1	3	1	6										
S	2	3	1	6										
S	1	3	2	0										
S	2	3	2	0										
L	1	3	0	8										
L	2	3	0	8										
L	1	3	1	2										
L	2	3	1	2										
L	1	3	1	6										
L	2	3	1	6										
L	1	3	2	0										
L	2	3	2	0										
L	2	3	2	5										
L	2	3	3	0										
L	3	3	4	0										
L	3	3	5	0										
C	2	3	0	8										
C	2	3	1	2										
C	2	3	1	6										
C	2	3	2	0										
C	2	3	2	5										
C	2	3	3	0										
C	3	3	4	0										
C	3	3	5	0										

Type of secondary terminal connection [1]	
For circuit breakers:	
Screw clamp terminals	A
Spring clamp terminals	B
Ring terminals	C
Screw clamp terminals (low profile, non-partable design)	L
For switches (non-automatic circuit breakers):	
Screw clamp terminals	G
Spring clamp terminals	H
Ring terminals	J
Screw clamp terminals (low profile non-partable design)	N
Truck Operated Contacts (TOC)	
Breaker position switches in the following configurations:	
None	X
(1) Connected, (1) Test, (1) Disconnected - all Form C	1
(3) Connected, (2) Test, (1) Disconnected - all Form C	3
(6) Connected - all Form C	6
Cradle mounted key locks – FS2 and FS3 only	
None	X
Lock breaker in OPEN position (Kirk lock)	A
Lock breaker in OPEN position (Superior lock)	B
Double-key lock breaker in OPEN position (Kirk lock)	C
Double-key lock breaker in OPEN position (Superior lock)	D
Provision only - Lock breaker in OPEN position	E
Provision only - Double-key lock breaker in OPEN position	F
Primary conductor isolation shutter	
None	X
Isolation Shutter	F

[1] Terminal blocks (X5, X6, X8, X9) are installed as standard.

WL Insulated Case Breaker Cradles

UL 489 Listed Catalog Number

Selection

Cradle catalog number

					G	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Arc chute covers																			
None															X				
Arc chute covers				(FS1 only)											C				
Arc chute covers				(FS2 only)											D				
Arc chute covers				(FS3 only – except Class C)											B				
Door locks and mechanical interlocks																			
1. Mechanical interlock with 2.0 meter Bowden cable																			
2. Locks cubicle door, when breaker is in connect position				(FS2 and FS3)															
3. Locks cubicle door, when breaker is in connect position				(FS1 only)															
4. Locks against racking breaker if the cubicle door is open				(FS2 and FS3)															
1	**2**	**3**	**4**																
					None											X			
X																M			
	X															A			
		X														B			
			X													C			
X	X															D			
X	X		X													E			
X		X														F			
X			X													G			
	X		X													H			
Mechanism Operated Contacts (MOC)																			
Breaker open/close auxiliary switches (4a & 4b) in the following positions:																			
None																	X		
Test and Connect position				(FS1 and FS2 only)													M		
Connect position				(FS1 and FS2 only)													N		
Test and Connect position				(FS3 only)													P		
Connect position				(FS3 only)													Q		
Connector and heater options																			
Standard rear connectors																		X	
Standard rear connectors and a cradle heater				(FS2 and FS3)														H	
Rotatable rear connector				(FSI and FS2 2000A and below, S Class)														J	
Rotatable rear connectors and a cradle heater				(FS2 2000A and below, S Class)														K	
Future use																			
Placeholder (required)																			N

WL Insulated Case Breaker Cradles

UL 489 Listed Accessories

Selection

Cradle accessories		Catalog number
3-phase metering CTs, cradle mounted (3 windows per CT)		
FS1 and FS2	Rating – 800:5	**WLG8005MCT2**
	Rating – 1200:5	**WLG12005MCT2**
	Rating – 1600:5	**WLG16005MCT2**
FS2	Rating – 2500:5	**WLG25005MCT2**
	Rating – 3000:5	**WLG30005MCT2**
FS3	Rating – 4000:5	**WLG40005MCT3**
	Rating – 5000:5	**WLG50005MCT3**

WL Power Circuit Breaker

Ratings for UL 1066 Listed (ANSI C37) Breakers

WL frame ratings – Frame size 2		800A					1600A				
Rating Class		**N**	**S**	**H**	**L**	**F**	**N**	**S**	**H**	**L**	**F**
Interrupting current frame Ics (kAIC RMS) 50/60 Hz	254VAC	50	65	85	100	200	50	65	85	100	200
	508VAC	50	65	85	100	200	50	65	85	100	200
	600VAC	—	—	—	—	200	—	—	—	—	200
	635VAC	50	65	65	85	—	50	65	65	85	—
Short-time current *I*cw (kA RMS)	1 sec.	50	65	65	85	—	50	65	65	85	—
Close and latch rating (kA RMS)		50	65	65	85	—	50	65	65	85	—
Applicable rating plug range		200 - 800A					200 - 1600A				
Mechanical make-time (ms)		35					35				
Mechanical break-time (ms)		34					34				
Electric close make-time (ms)		50					50				
Electric trip/ UV break-time (ms)		40/73					40/73				
Electric trip and reclose interval (ms)		80					80				
Mechanical duty cycles (with maint.) [1]		15,000					15,000				
Electrical duty cycles (with maint.) [1]		15,000					15,000				
Draw-out breaker efficiency (Watts loss at rated In)		85					320				
Draw-out fused breaker efficiency (Watts loss at rated In)		Consult factory					Consult factory				
Ambient operating temperature (°C)		-25 to 40					-25 to 40				

WL frame ratings – Frame size 2		2000A				3200A		
Rating Class		**S**	**H**	**L**	**F**	**S**	**H**	**L**
Interrupting current frame *I*cs	254VAC	65	85	100	200	65	85	100
(kAIC RMS) 50/60 Hz	508VAC	65	85	100	200	65	85	100
	600VAC	—	—	—	200	—	—	—
	635VAC	65	65	85	—	65	65	85
Short-time current *I*cw (kA RMS)	1 sec.	65	65	85	—	65	65	85
Close and latch rating (kA RMS)		65	65	85	—	65	65	85
Applicable rating plug range		200 - 2000A				200 - 3200A		
Mechanical make-time (ms)		35				35		
Mechanical break-time (ms)		34				34		
Electric close make-time (ms)		50				50		
Electric trip/ UV break-time (ms)		40/73				40/73		
Electric trip and reclose interval (ms)		80				80		
Mechanical duty cycles (with maint.) [1]		15,000				15,000		
Electrical duty cycles (with maint.) [1]		15,000				15,000		
Draw-out breaker efficiency (Watts loss at rated In)		700				1650		
Draw-out fused breaker efficiency (Watts loss at rated In)		Consult factory				Consult factory		
Ambient operating temperature (°C)		-25 to 40				-25 to 40		

[1] Maintenance means: replacing main contacts and arc chutes (see operating instructions).
M-Class main contacts can be replaced by Siemens personnel only.

WL Power Circuit Breaker

Ratings for UL 1066 Listed (ANSI C37) Breakers

WL frame ratings – Frame size 3WL frame		3200A		4000A				5000A				6000A		
Rating Class		**M**	**F**	**H**	**L**	**M**	**F**	**H**	**L**	**M**	**F**	**H**	**L**	**M**
Interrupting current frame *I*cs	254VAC	150	200	85	100	150	200	85	100	150	200	85	100	150
(kAIC RMS) 50/60 Hz	508VAC	150	200	85	100	150	200	85	100	150	200	85	100	150
	600VAC	—	200	—	—	—	200	—	—	—	200	—	—	—
	635VAC	85	—	85	85	85	—	85	85	85	—	85	85	85
Short-time current *I*cw (kA RMS)	1 sec.	100 [2]	—	85	100 [2]	100 [2]	—	85	100 [2]	100 [2]	—	85	100 [2]	100 [2]
Close and latch rating (kA RMS)		100 [2]	—	85	100 [2]	100 [2]	—	85	100 [2]	100 [2]	—	85	100 [2]	100 [2]
Applicable rating plug range		800 - 3200A		800 - 4000A				800 - 5000 A				800 - 6000 A		
Mechanical make-time (ms)		35		35				35				35		
Mechanical break-time (ms)		34		34				24				24		
Electric close make-time (ms)		50		50				50				50		
Electric trip/ UV break-time (ms)		40/73		40/73				40/73				40/73		
Electric trip and reclose interval (ms)		80		80				80				80		
Mechanical duty cycles (with maint.) [1]		10,000		10,000				10,000				10,000		
Electrical duty cycles (with maint.) [1]		10,000		10,000				10,000				10,000		
Draw-out breaker efficiency (Watts loss at rated In)		700		1100				1650				2375		
Draw-out fused breaker efficiency (Watts loss at rated In)		Consult factory		Consult factory				Consult factory				N/A		
Ambient operating temperature (°C)		-25 to 40		-25 to 40				-25 to 40				-25 to 40		

Ratings for UL 1066 Listed Non-automatic Switches

WL frame ratings		Frame size 2 800A - 3200A [4]		Frame size 3 3200A - 6000A [4]	
Rating Class		**L**	**F** [3]	**L**	**F** [3]
Breaking capacity with external relay (kA RMS)	254VAC	100	200	100	200
50/60 Hz, instantaneous trip	508VAC	100	200	100	200
	635VAC	85	200	85	200
Short-time current Icw (kA RMS)	1 sec.	65	N/A	100	N/A

[1] Maintenance means: replacing main contacts and arc chutes (see operating instructions).
M-Class main contacts can be replaced by Siemens personnel only. Do not apply switch or breaker rated at 635VAC to a system with fault current > 85kA RMS.

[2] Short-time withstand current (Icw) at 635 VAC is kAIC RMS.

[3] Max. 600 VAC.

[4] 3200A frame rating is only available in L-Class in Frame Size 2. 3200A frame rating is not available in L-Class in Frame Size 3.

Interrupting rating, frame size, breaker type and frame rating (3-Pole Circuit Breakers)

Note: Cradle must be ordered separately (see page 54)

Class	Interrupt rating (kA) 254VAC 508VAC	Interrupt rating (kA) 635VAC	Frame Max ampere rating (A)	Frame size 2	Frame size 3	Fuse (A)	Breaker catalog number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
N	50	50	800	X			N	2	A	3	0	8									
N	50	50	1600	X			N	2	A	3	1	6									
S	65	65	800	X			S	2	A	3	0	8									
S	65	65	1600	X			S	2	A	3	1	6									
S	65	65	2000	X			S	2	A	3	2	0									
S	65	65	3200	X			S	2	A	3	3	2									
H	85	65	800	X			H	2	A	3	0	8									
H	85	65	1600	X			H	2	A	3	1	6									
H	85	65	2000	X			H	2	A	3	2	0									
H	85	65	3200	X			H	2	A	3	3	2									
H	85	85	4000		X		H	3	A	3	4	0									
H	85	85	5000		X		H	3	A	3	5	0									
H	85	85	6000		X		H	3	A	3	6	0									
L	100	85	800	X			L	2	A	3	0	8									
L	100	85	1600	X			L	2	A	3	1	6									
L	100	85	2000	X			L	2	A	3	2	0									
L	100	85	3200	X			L	2	A	3	3	2									
L	100	85	4000		X		L	3	A	3	4	0									
L	100	85	5000		X		L	3	A	3	5	0									
L	100	85	6000		X		L	3	A	3	6	0									
M	150	85	3200		X		M	3	A	3	3	2									
M	150	85	4000		X		M	3	A	3	4	0									
M	150	85	5000		X		M	3	A	3	5	0									
M	150	85	6000		X		M	3	A	3	6	0									
F	200	200	800	X		400	F	2	A	3	0	A									
F	200	200	800	X		600	F	2	A	3	0	B									
F	200	200	800	X		800	F	2	A	3	0	C									
F	200	200	800	X		900	F	2	A	3	0	D									
F	200	200	800	X		1000	F	2	A	3	0	E									
F	200	200	800	X		1200	F	2	A	3	0	F									
F	200	200	800	X		1600	F	2	A	3	0	G									
F	200	200	800	X		2000	F	2	A	3	0	H									
F	200	200	800	X		2500	F	2	A	3	0	J									
F	200	200	800	X		3000	F	2	A	3	0	K									
F	200	200	1600	X		400	F	2	A	3	1	A									
F	200	200	1600	X		600	F	2	A	3	1	B									
F	200	200	1600	X		800	F	2	A	3	1	C									
F	200	200	1600	X		900	F	2	A	3	1	D									
F	200	200	1600	X		1000	F	2	A	3	1	E									
F	200	200	1600	X		1200	F	2	A	3	1	F									
F	200	200	1600	X		1600	F	2	A	3	1	G									
F	200	200	1600	X		2000	F	2	A	3	1	H									
F	200	200	1600	X		2500	F	2	A	3	1	J									
F	200	200	1600	X		3000	F	2	A	3	1	K									
F	200	200	2000	X		400	F	2	A	3	2	A									
F	200	200	2000	X		600	F	2	A	3	2	B									
F	200	200	2000	X		800	F	2	A	3	2	C									
F	200	200	2000	X		900	F	2	A	3	2	D									
F	200	200	2000	X		1000	F	2	A	3	2	E									
F	200	200	2000	X		1200	F	2	A	3	2	F									
F	200	200	2000	X		1600	F	2	A	3	2	G									
F	200	200	2000	X		2000	F	2	A	3	2	H									
F	200	200	2000	X		2500	F	2	A	3	2	J									
F	200	200	2000	X		3000	F	2	A	3	2	K									
F	200	200	3200		X	6000	F	3	A	3	3	2									
F	200	200	4000		X	6000	F	3	A	3	4	0									
F	200	200	5000		X	6000	F	3	A	3	5	0									

Interrupting rating, frame size, breaker type and frame rating (4-Pole Circuit Breakers)

Note: Cradle must be ordered separately (see page 54)

	Interrupt rating (kA)		Frame	Frame size					Breaker catalog number														
	254VAC								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Class	508VAC	635VAC	Max. ampere rating (A)	2	3	Fixed	Drawout	Neutral CT															
S	65	65	800	X			X	X	S	2	A	4	0	8									
S	65	65	800	X		X			S	2	H	4	0	8									
S	65	65	800	X			X		S	2	G	4	0	8									
S	65	65	800	X		X		X	S	2	K	4	0	8									
S	65	65	1600	X			X	X	S	2	A	4	1	6									
S	65	65	1600	X		X			S	2	H	4	1	6									
S	65	65	1600	X			X		S	2	G	4	1	6									
S	65	65	1600	X		X		X	S	2	K	4	1	6									
S	65	65	2000	X			X	X	S	2	A	4	2	0									
S	65	65	2000	X		X			S	2	H	4	2	0									
S	65	65	2000	X			X		S	2	G	4	2	0									
S	65	65	2000	X		X		X	S	2	K	4	2	0									
S	65	65	3200	X			X	X	S	2	A	4	3	2									
S	65	65	3200	X		X			S	2	H	4	3	2									
S	65	65	3200	X			X		S	2	G	4	3	2									
S	65	65	3200	X		X		X	S	2	K	4	3	2									
H	85	65	800	X			X	X	H	2	A	4	0	8									
H	85	65	800	X		X			H	2	H	4	0	8									
H	85	65	800	X			X		H	2	G	4	0	8									
H	85	65	800	X		X		X	H	2	K	4	0	8									
H	85	65	1600	X			X	X	H	2	A	4	1	6									
H	85	65	1600	X		X			H	2	H	4	1	6									
H	85	65	1600	X			X		H	2	G	4	1	6									
H	85	65	1600	X		X		X	H	2	K	4	1	6									
H	85	65	2000	X			X	X	H	2	A	4	2	0									
H	85	65	2000	X		X			H	2	H	4	2	0									
H	85	65	2000	X			X		H	2	G	4	2	0									
H	85	65	2000	X		X		X	H	2	K	4	2	0									
H	85	65	3200	X			X	X	H	2	A	4	3	2									
H	85	65	3200	X		X			H	2	H	4	3	2									
H	85	65	3200	X			X		H	2	G	4	3	2									
H	85	65	3200	X		X		X	H	2	K	4	3	2									
L	100	85	800	X			X	X	L	2	A	4	0	8									
L	100	85	800	X		X			L	2	H	4	0	8									
L	100	85	800	X			X		L	2	G	4	0	8									
L	100	85	800	X		X		X	L	2	K	4	0	8									
L	100	85	1600	X			X	X	L	2	A	4	1	6									
L	100	85	1600	X		X			L	2	H	4	1	6									
L	100	85	1600	X			X		L	2	G	4	1	6									
L	100	85	1600	X		X		X	L	2	K	4	1	6									
L	100	85	2000	X			X	X	L	2	A	4	2	0									
L	100	85	2000	X		X			L	2	H	4	2	0									
L	100	85	2000	X			X		L	2	G	4	2	0									
L	100	85	2000	X		X		X	L	2	K	4	2	0									
L	100	85	3200	X			X	X	L	2	A	4	3	2									
L	100	85	3200 [1]	X		X			L	2	H	4	3	2									
L	100	85	3200	X			X		L	2	G	4	3	2									
L	100	85	3200 [1]	X		X		X	L	2	K	4	3	2									
L	100	85	4000		X		X	X	L	3	A	4	4	0									
L	100	85	4000 [1]		X	X			L	3	H	4	4	0									
L	100	85	4000		X		X		L	3	G	4	4	0									
L	100	85	4000 [1]		X	X		X	L	3	K	4	4	0									
L	100	85	5000		X		X	X	L	3	A	4	5	0									
L	100	85	5000 [1]		X	X			L	3	H	4	5	0									
L	100	85	5000		X		X		L	3	G	4	5	0									
L	100	85	5000 [1]		X	X		X	L	3	K	4	5	0									
L	100	85	6000		X		X	X	L	3	A	4	6	0									
L	100	85	6000		X		X		L	3	G	4	6	0									

[1] FS2 3200A, FS3 4000A/5000A fixed mount breakers have vertical rear connectors included as standard.

Rating plug

Breaker catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Maximum continuous current rating (A)	Frame size 2	Frame size 3	
200	X		A
225	X		B
250	X		C
300	X		D
315	X		E
350	X		F
400	X		G
450	X		H
500	X		J
600	X		K
630	X		L
700	X		M
800	X	X	N
1000	X	X	P
1200	X	X	Q
1250	X	X	R
1600	X	X	T
2000	X	X	U
2500	X	X	V
3000	X	X	W
3200	X	X	Y
4000		X	Z
5000		X	1
6000		X	2

Electronic trip units (ETU)

Trip unit models	Protective function			LCD display	Ground fault		EMC filter	
	L	S	I	alpha num.	Alarm	Trip		
ETU745	X	(X)	(X)					C
ETU745	X	(X)	(X)	X				D
ETU745	X	(X)	(X)		X			E
ETU745	X	(X)	(X)	X	X			F
ETU745	X	(X)	(X)		X	X		G
ETU745	X	(X)	(X)	X	X	X		H
ETU745	X	(X)	(X)				X	3
ETU745	X	(X)	(X)	X			X	4
ETU745	X	(X)	(X)		X		X	5
ETU745	X	(X)	(X)	X	X		X	6
ETU745	X	(X)	(X)		X	X	X	7
ETU745	X	(X)	(X)	X	X	X	X	8
ETU776	X	(X)	(X)					V
ETU776	X	(X)	(X)		X			W
ETU776	X	(X)	(X)		X	X		Y
ETU776	X	(X)	(X)				X	M
ETU776	X	(X)	(X)		X		X	Z
ETU776	X	(X)	(X)		X	X	X	1

( ) Function can be disabled by user.

Bell alarm, breaker ready-to-close, auxiliary contacts

Bell alarm			Breaker	Breaker open/close		Breaker catalog number 9
Remote reset coil voltage		Form C	ready-to-close	auxiliary switches		
AC	DC	contacts	1*b* contact	2*a* + 2*b*	4*a* + 4*b*	
						None X
		X				A
			X			B
				X		C
					X	D
		X	X			E
		X		X		F
		X			X	G
			X	X		H
			X		X	I
		X	X	X		J
		X	X		X	K
	24	X				L
	48	X				M
120	125	X				N
240	250	X				O
	24	X	X			P
	48	X	X			Q
120	125	X	X			R
240	250	X	X			S
	24	X		X		T
	48	X		X		U
120	125	X		X		V
240	250	X		X		W
	24	X			X	Y
	48	X			X	Z
120	125	X			X	1
240	250	X			X	2
	24	X	X	X		3
	48	X	X	X		4
120	125	X	X	X		5
240	250	X	X	X		6
	24	X	X		X	7
	48	X	X		X	8
120	125	X	X		X	9
240	250	X	X		X	0

Shunt trip

Control voltage		Status	Continuous duty coil	Breaker catalog number 10
AC	DC	contact	(electrical interlock)	
				None X
	24			A
	48			B
120	125			C
240	250			D
	24	X		E
	48	X		F
120	125	X		G
240	250	X		H
	24		X	J
	48		X	K
120	125		X	L
240	250		X	M
	24	X	X	N
	48	X	X	P
120	125	X	X	R
240	250	X	X	S

Undervoltage release (with or without time delay) or 2nd shunt trip

Breaker catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Control voltage AC	Control voltage DC	UVR without delay	UVR with delay	UVR status contact [1]	2nd shunt trip		
						None	X
	24	X					A
	48	X					B
120	125	X					C
240	250	X					D
	48		X				E
120	125		X				F
240	250		X				G
	24				X		H
	48				X		J
120	125				X		K
240	250				X		L
	24	X		X			M
	48	X		X			N
120	125	X		X			P
240	250	X		X			Q
	48		X	X			R
	125		X	X			S
120	250		X	X			T

Charging motor, motor switch, operations counter

Charging motor operation voltage AC	Charging motor operation voltage DC	Motor cut-off switch	Operations counter		
				None	X
	24				A
	48				B
120	125				C
240	250				D
	24	X			E
	48	X			F
120	125	X			G
240	250	X			H
	24		X		J
	48		X		K
120	125		X		L
240	250		X		M
	24	X	X		N
	48	X	X		P
120	125	X	X		Q
240	250	X	X		R

[1] Status contact is only available when communication is not installed on breaker. Signal is sent via communication in lieu of status contact.

WL Power Circuit Breaker

UL 1066 Listed Catalog Number

Selection

Close coil, power metering and communications

Breaker catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Close coil operation voltage		Power metering capable	Modbus [2]	PROFIBUS [2] PROFINET	Modbus TCP/ PROFINET		
AC	DC						
						None	X
	24						A
	48						B
120	125						C
240	250						D
			X				G
				X			H
					X		E
	24		X				N
	24			X			P
	48		X				S
	48			X			T
120	125		X				W
120	125			X			Y
120	125				X		J
240	250		X				2
240	250			X			3
	24	X	X				Q
	48	X	X				U
120	125	X	X				Z
120	250	X	X				4
	24	X		X			R
	24	X			X		6
	48	X		X			V
	48	X			X		7
120	125	X		X			1
120	125	X			X		9
240	250	X		X			5
240	250	X			X		0
		X		X			L
		X		X			M
		X					F
		X			X		K
120	125	X					8

Breaker locks

Key lock breaker OPEN position (lock type – KIRK) [3]	Key lock breaker OPEN position (lock type – SUPERIOR) [3]	Padlock provisions for OPEN and CLOSE pushbuttons [4]	Padlock provisions for charging handle [4]		
				None	X
X					A
		X			C
			X		E
	X				F
X		X			G
	X	X			J
X			X		S
	X		X		U
		X	X		V
X		X	X		W
	X	X	X		Z

Miscellaneous options [5]

Key lock breaker OPEN position (provision only) [4]	Manual trip reset ETU (Automatic trip reset is standard)		
		None	N
X			B
	X		C
X	X		D

[1] Requires External PTs for voltage input and 24VDC power supply.
[2] Includes BSS device and requires 24VDC power supply.
[3] Custom key locks are not available and must be supplied by others. Order key lock provision if custom if keyed alike locks are required.
[4] Locks provided by others.
[5] If a breaker lock is chosen for Digit 14, a provision need not be ordered in Digit 15.

WL Power Circuit Breaker

UL 1066 Listed Non-automatic Catalogue Number

Selection

Breaking capacity, frame size, switch type and frame rating (3-Pole Non-Automatic Circuit Breakers)

Class	Breaking capacity (kA)		Frame	Frame size			Switch catalog number													
	240VAC		Max ampere			Fuse	1	2	3	4	5	6	7	8	9	10	11	12	13	14	1
	480VAC	600VAC	rating (A)	2	3	(A)														
L	100	85	800	X			L	2	S	3	0	8	S	S							
L	100	85	1600	X			L	2	S	3	1	6	S	S							
L	100	85	2000	X			L	2	S	3	2	0	S	S							
L	100	85	3200	X			L	2	S	3	2	2	S	S							
L	100	85	4000		X		L	3	S	3	4	0	S	S							
L	100	85	5000		X		L	3	S	3	5	0	S	S							
F	200	200	800	X		1000	F	2	S	3	0	E	S	S							
F	200	200	800	X		1200	F	2	S	3	0	F	S	S							
F	200	200	800	X		1600	F	2	S	3	0	G	S	S							
F	200	200	800	X		2000	F	2	S	3	0	H	S	S							
F	200	200	800	X		2500	F	2	S	3	0	J	S	S							
F	200	200	800	X		3000	F	2	S	3	0	K	S	S							
F	200	200	1600	X		1000	F	2	S	3	1	E	S	S							
F	200	200	1600	X		1200	F	2	S	3	1	F	S	S							
F	200	200	1600	X		1600	F	2	S	3	1	G	S	S							
F	200	200	1600	X		2000	F	2	S	3	1	H	S	S							
F	200	200	1600	X		2500	F	2	S	3	1	J	S	S							
F	200	200	1600	X		3000	F	2	S	3	1	K	S	S							
F	200	200	2000	X		1000	F	2	S	3	2	E	S	S							
F	200	200	2000	X		1200	F	2	S	3	2	F	S	S							
F	200	200	2000	X		1600	F	2	S	3	2	G	S	S							
F	200	200	2000	X		2000	F	2	S	3	2	H	S	S							
F	200	200	2000	X		2500	F	2	S	3	2	J	S	S							
F	200	200	2000	X		3000	F	2	S	3	2	K	S	S							
F	200	200	3200		X	6000	F	3	S	3	3	2	S	S							
F	200	200	4000		X	6000	F	3	S	3	4	0	S	S							
F	200	200	5000		X	6000	F	3	S	3	5	0	S	S							

Breaking capacity, frame size, switch type and frame rating (4-Pole Non-Automatic Circuit Breakers)

Class	Breaking capacity (kA)		Frame	Frame size				Switch catalog number													
	254VAC 508VAC	635VAC	Max ampere rating (A)	2	3	Fixed	Drawout	1	2	3	4	5	6	7	8	9	10	11	12	13	14	1
L	100	85	800	X		X		L	2	J	4	0	8	S	S							
L	100	85	800	X			X	L	2	S	4	0	8	S	S							
L	100	85	1600	X				L	2	J	4	1	6	S	S							
L	100	85	1600	X			X	L	2	S	4	1	6	S	S							
L	100	85	2000	X		X		L	2	J	4	2	0	S	S							
L	100	85	2000	X			X	L	2	S	4	2	0	S	S							
L	100	85	3200	X		X		L	2	J	4	3	2	S	S							
L	100	85	3200	X			X	L	2	S	4	3	2	S	S							
L	100	85	4000		X	X		L	3	J	4	4	0	S	S							
L	100	85	4000		X		X	L	3	S	4	4	0	S	S							
L	100	85	5000		X	X		L	3	J	4	5	0	S	S							
L	100	85	5000		X		X	L	3	S	4	5	0	S	S							
L	100	85	6000		X		X	L	3	S	4	6	0	S	S							

Breaker ready-to-close auxiliary contacts

Breaker ready-to-close	Breaker open/close auxiliary switches	
1b contact	2a + 2b	4a + 4b
X		
	X	
		X
X	X	
X		X

Switch catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
								None						
								B						
								C						
								D						
								H						
								I						

Shunt trip

Operation voltage		Status contact
AC	DC	
	24	
	48	
120	125	
240	250	
	24	X
	48	X
120	125	X
240	250	X

10
None
A
B
C
D
E
F
G
H

Undervoltage release (with or without time delay) or 2nd shunt trip

Operation voltage		UVR without delay	UVR with delay	UVR status contact[1]	2nd shunt trip
AC	DC				
	24	X			
	48	X			
120	125	X			
240	250	X			
	48		X		
120	125		X		
240	250		X		
	24				X
	48				X
120	125				X
240	250				X
	24	X		X	
	48	X		X	
120	125	X		X	
240	250	X		X	
	48		X	X	
	125		X	X	
120	250		X	X	

11
None
A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
S
T

1 Status contact only available when communication is not installed. Signal is sent via communication in lieu of status contact.

Charging motor, motor switch, operations counter

Switch catalog number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Charging motor operation voltage		Motor cut-off switch	Operations counter	
AC	DC			
				None X
	24			A
	48			B
120	125			C
240	250			D
	24	X		E
	48	X		F
120	125	X		G
240	250	X		H
	24		X	J
	48		X	K
120	125		X	L
240	250		X	M
	24	X	X	N
	48	X	X	P
120	125	X	X	Q
240	250	X	X	R

Close coil, communications

Close coil operation voltage		metering capable	Power			
AC	DC		Modbus [1]	PROFIBUS [1]	Modbus TCP / PROFINET [1]	
						None X
	24					A
	48					B
120	125					C
240	250					D
			X			G
				X		H
					X	E
	24		X			N
	24			X		P
	48		X			S
	48			X		T
120	125		X			W
120	125			X		Y
120	125				X	J
240	250		X			2
240	250			X		3

[1] Requires 24VDC power supply. BSS is included.

WL Power Circuit Switch

UL 1066 Listed Cradle Catalogue Number

Selection

Switch locks

Key lock breaker OPEN position (lock type – KIRK) [1]	Key lock breaker OPEN position (lock type – SUPERIOR)[1]	Padlock provisions for OPEN and CLOSE pushbuttons[2]	Padlock provisions for charging handle	Switch catalog number 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
				None X
X				A
		X		C
			X	E
	X			F
X		X		G
	X	X		J
X			X	S
	X		X	U
		X	X	V
X		X	X	W
	X	X	X	Z

Miscellaneous options [3]

Key lock breaker OPEN position (provision only) [2]	Switch catalog number 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
	None N
X	B

UL 1066 Fixed Mount Breaker Vertical Connector

Description	Catalog number
FS 2 800A - 1600A Rear Vertical Connectors (8 pieces, includes Neutral Pole)	**WL4L2R16CONUL**
FS 2 2000A Rear Vertical Connectors (8 pieces, includes Neutral Pole)	**WL4L2R20CONUL**
FS 2 3200A Rear Vertical Connectors (8 pieces, includes Neutral Pole)	**WL4L2R32CONUL**[4]
FS 3 4000A - 5000A Rear Vertical Connectors (8 pieces, includes Neutral Pole)	**WL4L2R50CONUL**[4]

[1] Custom key locks are not available and must be supplied by others. Order Key Lock Provisions if custom keys or keyed alike breakers are required.
[2] Lock provided by others.
[3] If a breaker lock is chosen for Digit 14, a provision need not be ordered in Digit 15.
[4] FS II 3200A, FS III 4000A, 5000A breakers include vertical connectors as a standard.

WL Power Circuit Switch

UL 1066 Listed Cradle Catalog Number

Interrupting rating, frame size and frame rating

Class	Interrupt rating (kA)		Frame	Frame size		
	240VAC 480VAC	600VAC	Max ampere rating (A)	2	3	No. of Poles
N	50	50	800	X		3
N	50	50	1600	X		3
S	65	65	800	X		3
S	65	65	1600	X		3
S	65	65	2000	X		3
S	65	65	3200	X		3
H	85	65	800	X		3
H	85	65	1600	X		3
H	85	65	2000	X		3
H	85	65	3200	X		3
H	85	85	4000		X	3
H	85	85	5000		X	3
L	100	85	800	X		3
L	100	85	1600	X		3
L	100	85	2000	X		3
L	100	85	3200	X		3
L	100	85	4000		X	3
L	100	85	5000		X	3
L	100	85	6000		X	3
M	150	85	3200		X	3
M	150	85	4000		X	3
M	150	85	5000		X	3
M	150	85	6000		X	3
F	200	200	800	X		3
F	200	200	1600	X		3
F	200	200	2000	X		3
F	200	200	3200		X	3
F	200	200	4000		X	3
F	200	200	5000		X	3
S	65	65	800		X	4
S	65	65	1600		X	4
S	65	65	2000	X		4
S	65	65	3200	X		4
H	85	65	800	X		4
H	85	65	1600	X		4
H	85	65	2000	X		4
H	85	65	3200	X		4
L	100	85	800	X		4
L	100	85	1600	X		4
L	100	85	2000	X		4
L	100	85	3200	X		4
L	100	85	4000		X	4
L	100	85	5000		X	4
L	100	85	6000		X	4

Cradle catalog number

G	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	N	2	3	0	8									
	N	2	3	1	6									
	S	2	3	0	8									
	S	2	3	1	6									
	S	2	3	2	0									
	S	2	3	3	2									
	H	2	3	0	8									
	H	2	3	1	6									
	H	2	3	2	0									
	H	2	3	3	2									
	H	3	3	4	0									
	H	3	3	5	0									
	L	2	3	0	8									
	L	2	3	1	6									
	L	2	3	2	0									
	L	2	3	3	2									
	L	3	3	4	0									
	L	3	3	5	0									
	L	3	3	6	0									
	M	3	3	3	2									
	M	3	3	4	0									
	M	3	3	5	0									
	M	3	3	6	0									
	F	2	3	0	8									
	F	2	3	1	6									
	F	2	3	2	0									
	F	2	3	3	2									
	F	3	3	4	0									
	F	3	3	5	0									
	S	2	4	0	8									
	S	2	4	1	6									
	S	2	4	2	0									
	S	2	4	3	2									
	H	2	4	0	8									
	H	2	4	1	6									
	H	2	4	2	0									
	H	2	4	3	2									
	L	2	4	0	8									
	L	2	4	1	6									
	L	2	4	2	0									
	L	2	4	3	2									
	L	3	4	4	0									
	L	3	4	5	0									
	L	3	4	6	0									

Type of secondary terminal connection [1]	
For Breakers:	
Screw clamp terminals	P
Spring clamp terminals	T
Ring terminals	R
Screw clamp terminals (low profile, non-partable design)	K
For Switch (Non-automatic):	
Screw clamp terminals	D
Spring clamp terminals	E
Ring terminals	F
Screw clamp terminals, non-partable design)	M

Truck Operated Contacts (TOC)	
Breaker position switches in the following configurations:	
None	X
(1) Connected, (1) Test, (1) Disconnected - all Form C	1
(3) Connected, (2) Test, (1) Disconnected - all Form C	3
(6) Connected - all Form C	6

[1] Terminal blocks (X5, X6, X8, X9) are installed as standard.

[2] Fused Frame Size 3 circuit breakers include a two cylinder provision as standard, with the second position pre-populated with a key-interlock to prevent racking (in or out) of the separately-mounted fuse carriage while the associated fused circuit breaker is closed.

WL Power Circuit Breaker Cradles

UL 1066 Listed Cradle Catalog Number

Selection

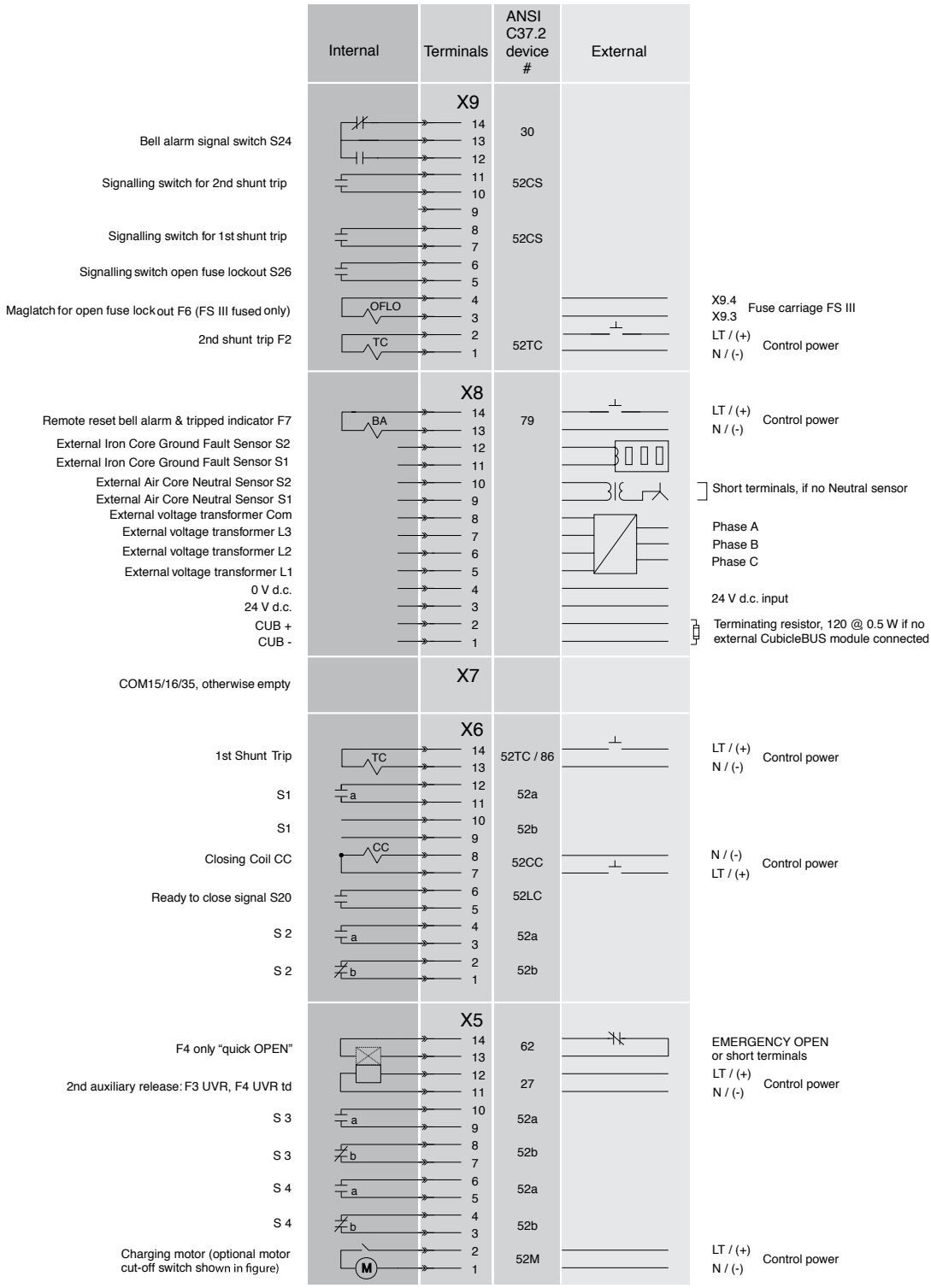
Cradle catalog number

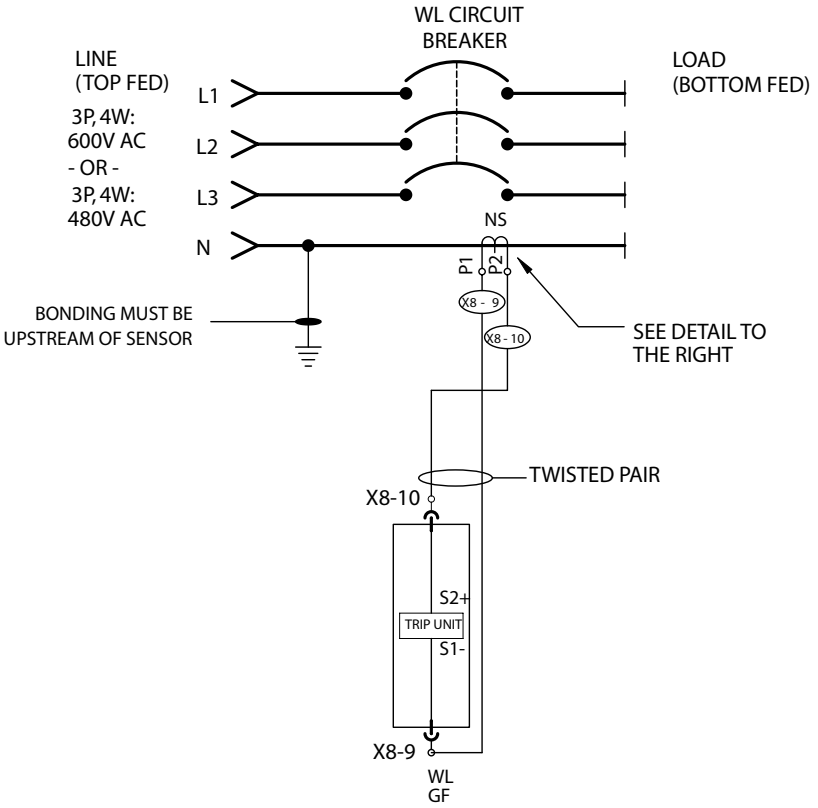
	G	2	3	4	5	6	7	8	9	10	11	12	13	14	1
Cradle mounted key locks [2]															
None									X						
Lock breaker in OPEN position (Kirk key)									A						
Lock breaker in OPEN position (Superior key)									B						
Double lock breaker in OPEN position (Kirk key)									C						
Double lock breaker in OPEN position (Superior key)									D						
Provision only - Lock breaker in OPEN position									E						
Provision only - Double lock breaker in OPEN position									F						
Primary conductor isolation shutter															
None										X					
Isolation Shutters										F					
Arc chute covers															
None											X				
Arc chute covers (FS2 only – Except Class F)											A				
Arc chute covers (FS3 only – Except Class F and M)											B				
Door locks and mechanical interlock															
1. Mechanical interlock with 2.0 meter Bowden cable															
2. Locks cubicle door, when breaker is in connect position (FS2 and FS3)															
3. Locks against racking breaker if the cubicle door is open (FS2 and FS3)															
1		**2**		**3**											
None												X			
X												M			
		X										A			
				X								C			
X		X										D			
X		X		X								E			
X				X								G			
		X		X								H			
Mechanism Operated Contacts (MOC)															
Breaker open/close auxiliary switches (4a & 4b) in the following positions:															
None													X		
Test and Connect position (FS2 only)													M		
Connect position (FS2 only)													N		
Test and Connect position (FS3 only)													P		
Connect position (FS3 only)													Q		
Connector and heater options															
Standard rear connectors														X	
Standard rear connectors and a cradle heater														H	
Rotatable rear connectors (FS2, 2000A and below, N, S, & H Class)														J	
Rotatable rear connectors and a cradle heater (FS2, 2000A and below, N, S, & H Class)														K	
Future use															
Placeholder (required)															N

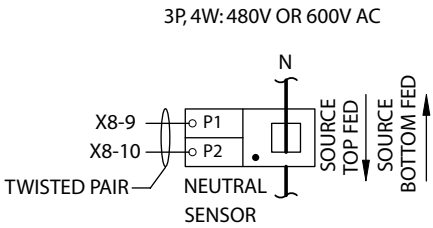
UL 1066 Listed accessories

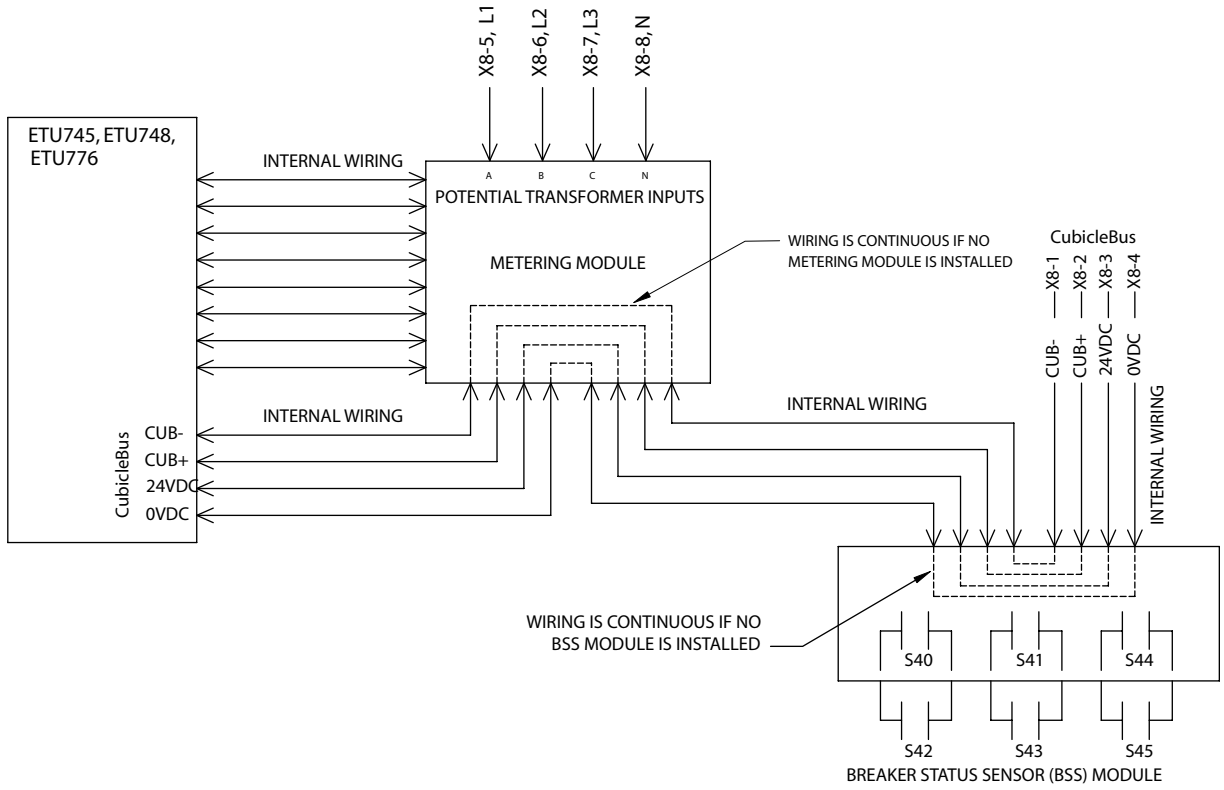
Cradle accessories		Catalog Number
3-phase metering CTs, cradle mounted (3 windows per CT)		
FS2	Ratings – 800:5	**WLG8005MCT2**
	Ratings – 1600:5	**WLG16005MCT2**
	Ratings – 2000:5	**WLG20005MCT2**
	Ratings – 3200:5	**WLG32005MCT2**
FS3	Ratings – 3200:5	**WLG32005MCT3**
	Ratings – 4000:5	**WLG40005MCT3**
	Ratings – 5000:5	**WLG50005MCT3**

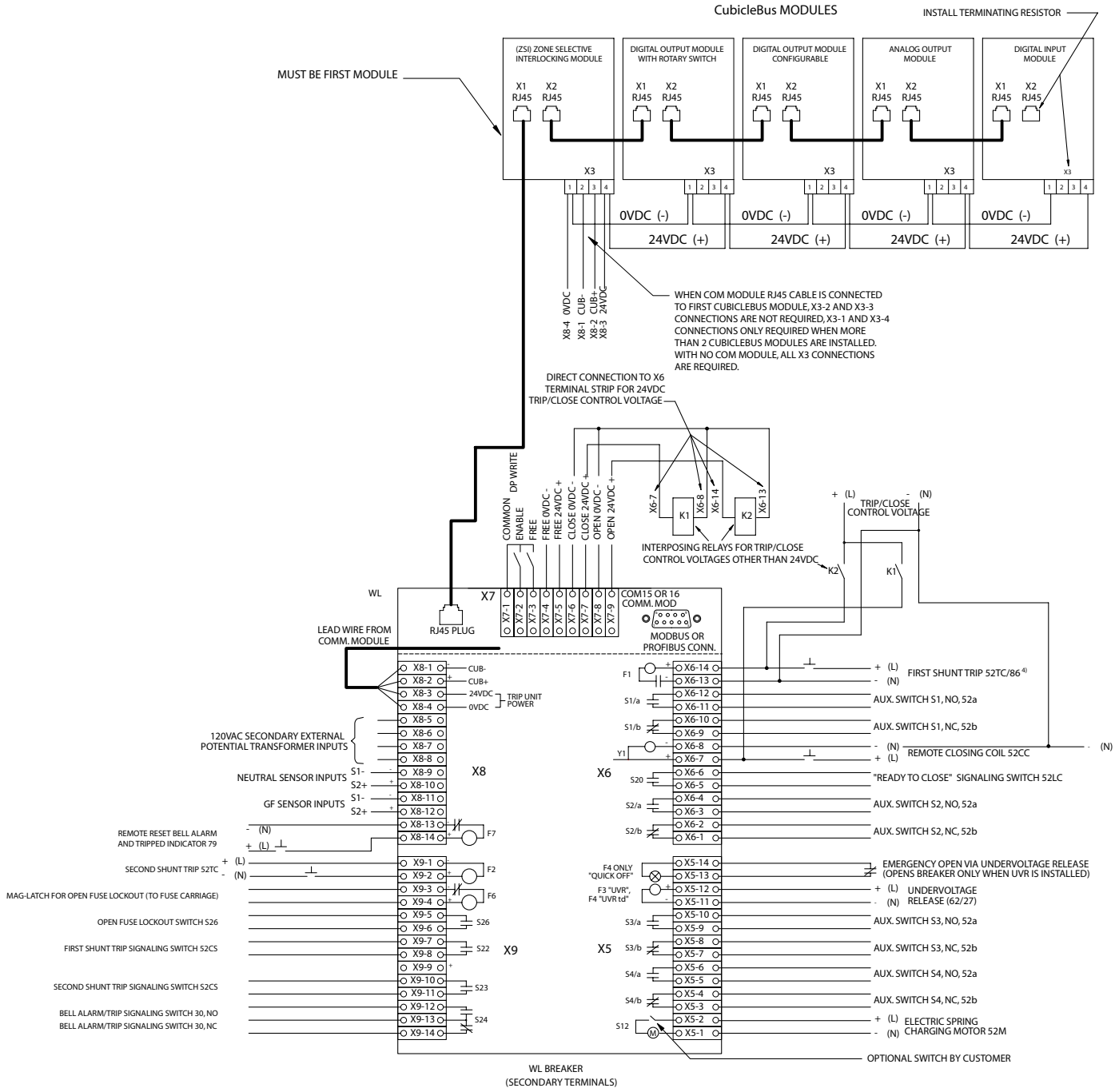
WL Secondary Terminal Assignments




WL CIRCUIT BREAKER
LINE (TOP FED)
3P, 4W: 600V AC
- OR -
3P, 4W: 480V AC
L1
L2
L3
N
LOAD (BOTTOM FED)
NS
P1
P2
X8 - 9
X8 - 10
BONDING MUST BE UPSTREAM OF SENSOR
SEE DETAIL TO THE RIGHT
TWISTED PAIR
X8-10
S2+
TRIP UNIT
S1-
X8-9
WL GF


3P, 4W: 480V OR 600V AC
N
X8-9
X8-10
P1
P2
TWISTED PAIR
NEUTRAL SENSOR
SOURCE TOP FED
SOURCE BOTTOM FED


X8-5, L1
X8-6, L2
X8-7, L3
X8-8, N
ETU745, ETU748, ETU776
INTERNAL WIRING
A
B
C
N
POTENTIAL TRANSFORMER INPUTS
METERING MODULE
WIRING IS CONTINUOUS IF NO METERING MODULE IS INSTALLED
CubicleBus
X8-1
X8-2
X8-3
X8-4
CUB-
CUB+
24VDC
0VDC
INTERNAL WIRING
INTERNAL WIRING
INTERNAL WIRING
CubicleBus
CUB-
CUB+
24VDC
0VDC
WIRING IS CONTINUOUS IF NO BSS MODULE IS INSTALLED
S40
S41
S44
S42
S43
S45
BREAKER STATUS SENSOR (BSS) MODULE



NOTES:

1. COMPONENT PLACEMENT PER PANEL, SWITCHGEAR, OR SWITCHBOARD DRAWINGS.
2. ALL DEVICES SHOWN IN OPEN AND/OR DE-ENERGIZED STATE.
3. ALL GROUND FAULT WIRING TO BE SHIELDED TWISTED PAIR
4. SHUNT TRIP CLEARING CONTACT ONLY WITH INTERMITTENT-DUTY SHUNT TRIPS ON FIRST SHUNT TRIP ONLY

Ground Fault Setting

Ground Fault Protection

When optional ground fault is selected, the trip unit detects fault currents that flow to ground and represent a fire hazard to the system. The adjustable time delay allows selective staggering of consecutively arranged circuit breakers.

When setting the parameters of the trip unit, a selection can be made between alarm and trip if the set current value is exceeded. The cause of the trip is displayed on an LED when the query button is pressed.

Modules

The trip unit versions ETU745 and ETU776 can be retrofitted with a ground fault protection module.

Two versions of the optional ground fault module can be ordered:

- Trip and Alarm
- Alarm only

Ground Fault Measuring Methods

Residual sensing of the ground fault current

The trip unit calculates the ground fault current by vectorial current summation of the 3- phase currents and the neutral conductor current.

Direct measurement of the ground fault current

A current transformer with the transformer ratio 1200A : 1A is used to measure the ground fault current. The transformer can be installed directly in the grounded star point of a transformer.

Setting

The ground fault module can be set depending on the measuring method (see above):

Measuring method 1: in position sum I
Measuring method 2: in position G.

With trip unit ETU776, this setting is implemented via the display and key pad or communications.

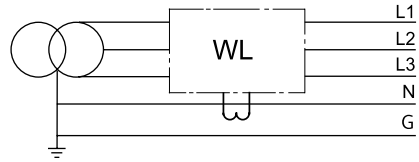
Ground Fault Protection with I^2t Characteristic Curve

All versions of the ground fault modules are delivered with an I^2t or fixed delay.

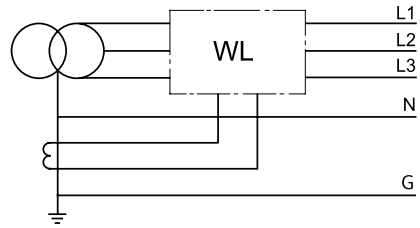
Modules are available in either Alarm only or Alarm and Trip functions.

For more information about ground fault protection, see the Ground Fault Application Guide.
www.usa.siemens.com/wl

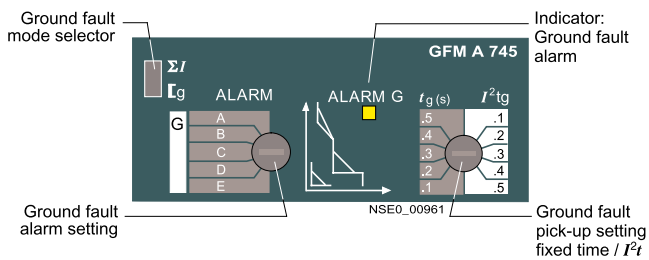
Residual sensing of the ground fault current



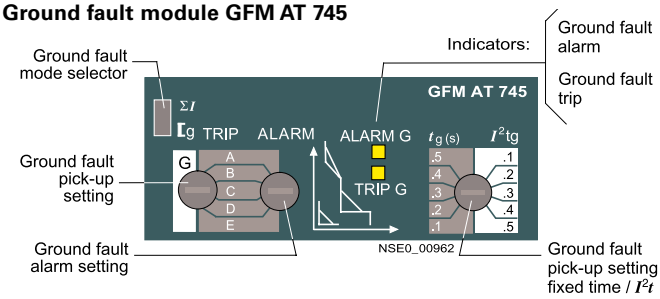
Direct measurement of the ground fault current



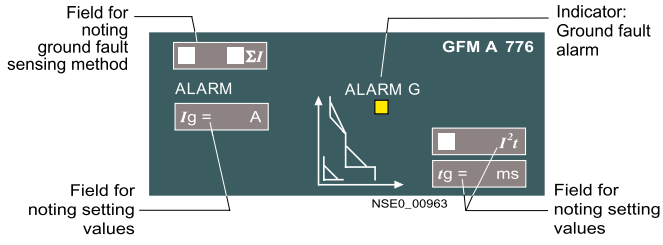
Ground fault module GFM A 745



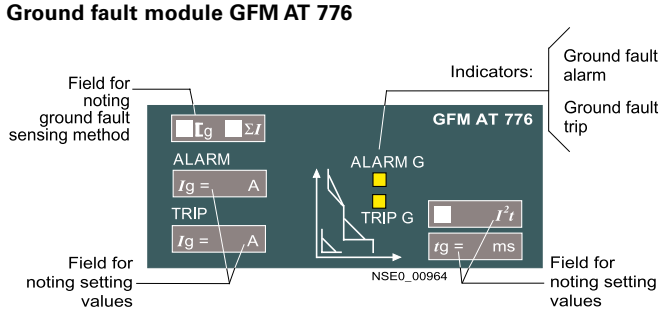
Ground fault module GFM AT 745



Ground fault module GFM A 776



Ground fault module GFM AT 776



Metering Voltage Details

VT / PT connections for the WL Breaker when equipped with metering

WL power metering ("Meter Function") can accept 3W or 4W (LL/LN) system voltage connections.

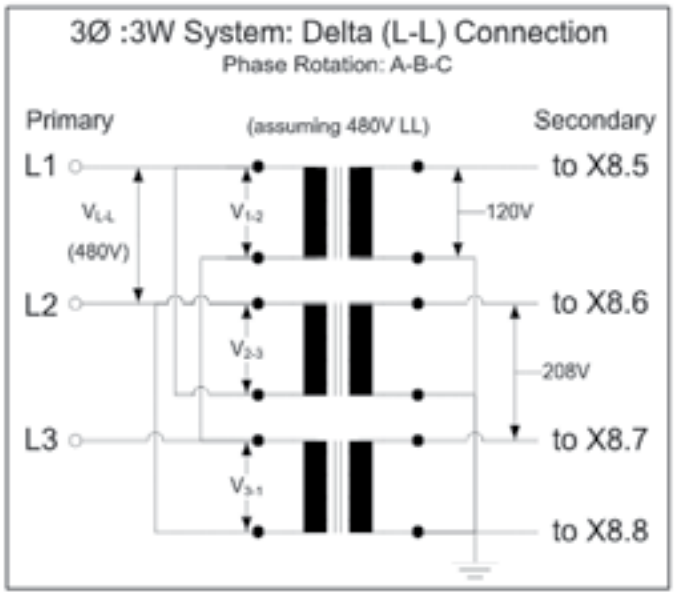
The trip unit settings available are:
1) VT Primary Voltage (240V, 480V, 600V)
2) VT Secondary Voltage (100V, 110V, 120V)
3) VT Connection (Wye / LN, Delta / LL)

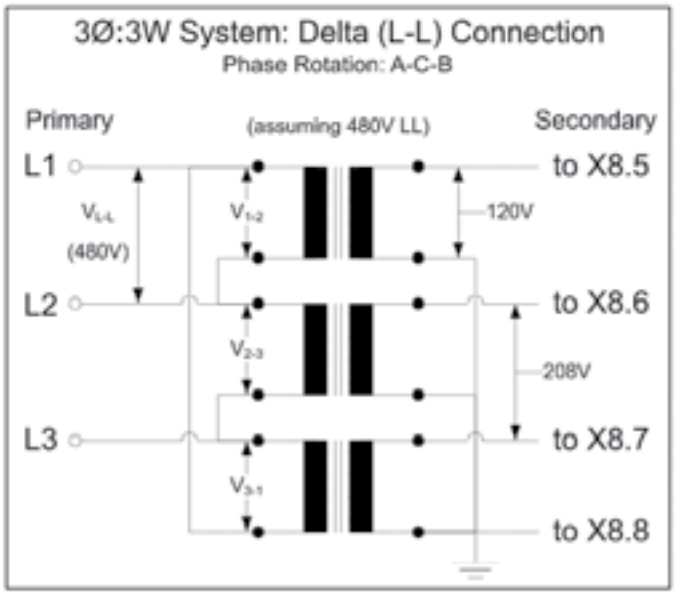
Three VTs must be used at all times.

All three VTs should be rated for the nominal system L-L voltage (e.g. 480V) and may have either 100V, 110V or 120V secondary voltages.

The following ratios are suggested or equivalent VTs can be used: (Must be suppled by others)
240:120 = 2:1 (ITI Part # 460-240 or 468-240)
480:120 = 4:1 (ITI Part # 460-480 or 468-480)
600:120 = 5:1 (ITI Part # 460-600 or 468-600)

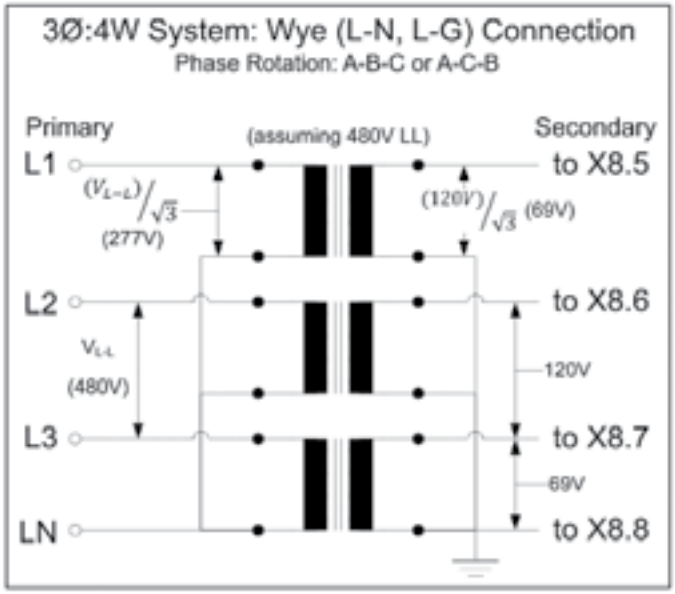
VT Accuracy:
Each Metering Module presents a purely resistive (unity power factor) load to the transformer. Assuming no other devices connected to the VT, a ITI type 486 VT can safely feed 10 metering modules and and still maintain 0.6% accuracy assuming the wiring from the VT to the individual metering modules is twisted pair and kept to a minimum length.



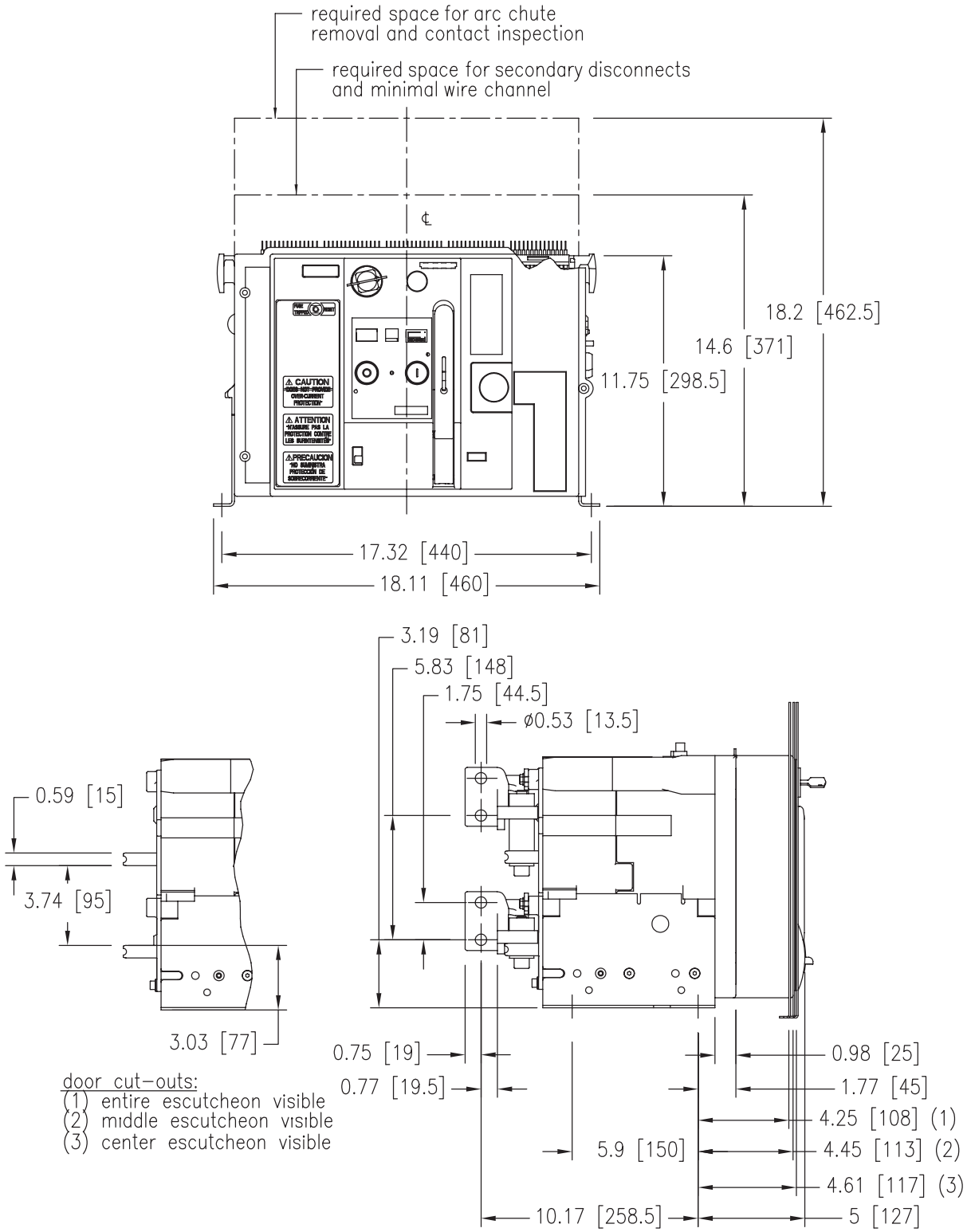


Notes:

- Required primary and secondary overcurrent protection (fusing) not shown for clarity.
- When applied in a High Resistance Ground system with a L-L primary connection, the secondary common connection should be left ungrounded if possible.

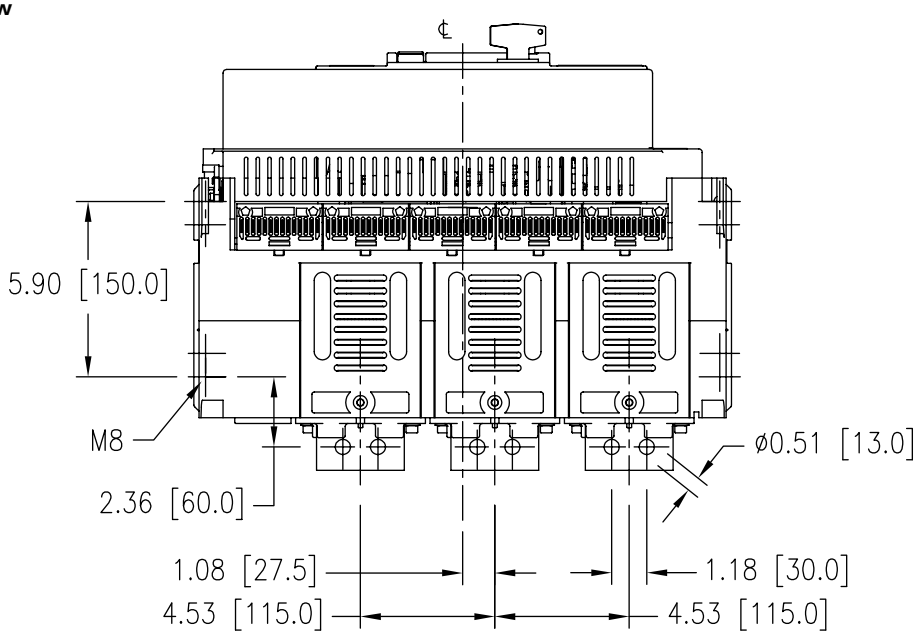


Frame size 1

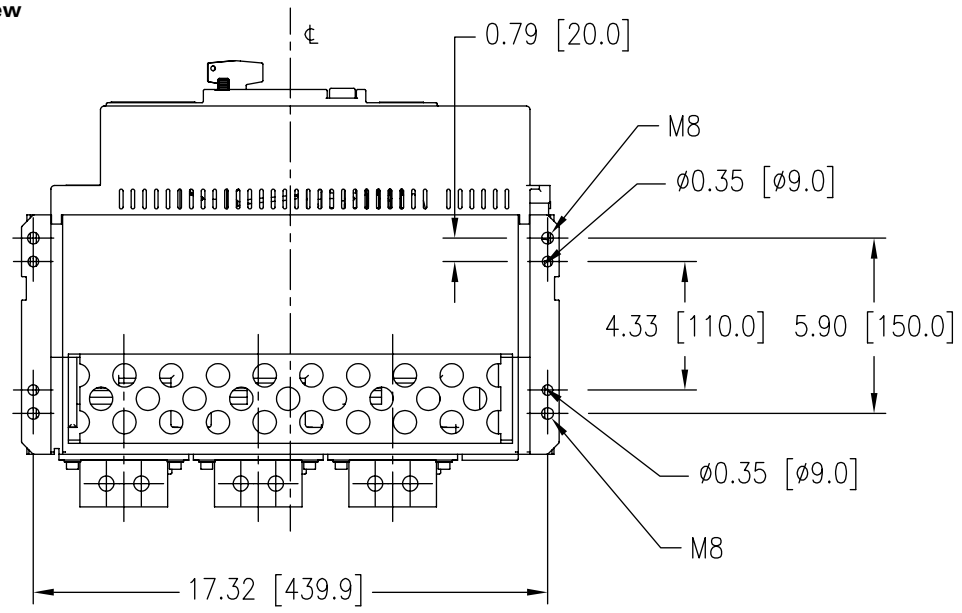

required space for arc chute removal and contact inspection
required space for secondary disconnects and minimal wire channel
℄
18.2 [462.5]
14.6 [371]
11.75 [298.5]
17.32 [440]
18.11 [460]
3.19 [81]
5.83 [148]
1.75 [44.5]
ø0.53 [13.5]
0.59 [15]
3.74 [95]
3.03 [77]
door cut-outs:
(1) entire escutcheon visible
(2) middle escutcheon visible
(3) center escutcheon visible
0.75 [19]
0.77 [19.5]
0.98 [25]
1.77 [45]
4.25 [108] (1)
5.9 [150]
4.45 [113] (2)
4.61 [117] (3)
10.17 [258.5]
5 [127]

Frame size 1
Horizontal Connectors

Top view



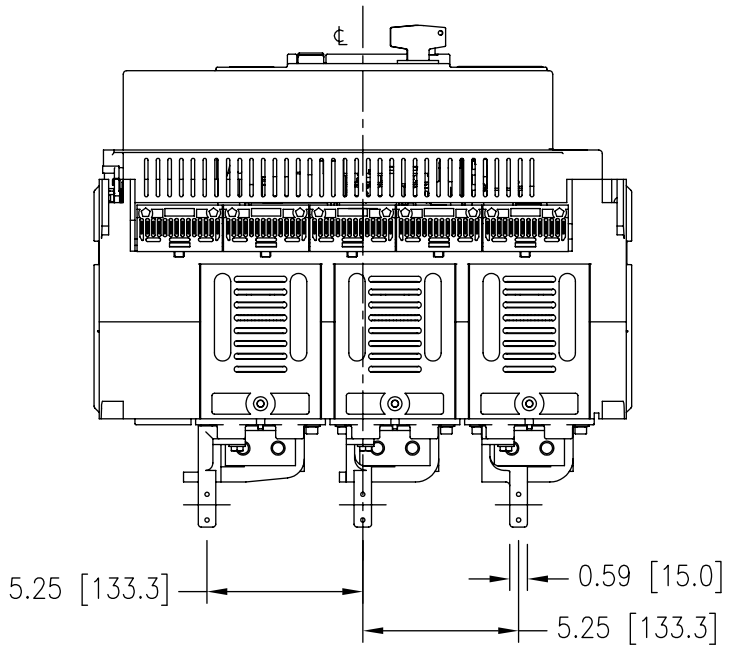
Bottom view



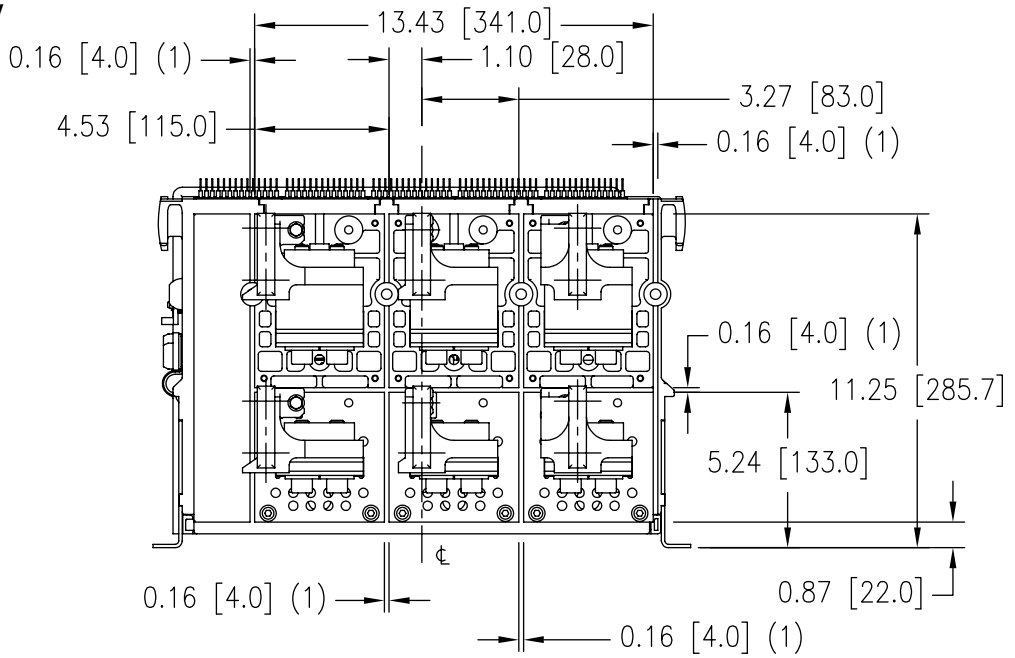
Frame Size 1

Rear Vertical Connectors

Top view



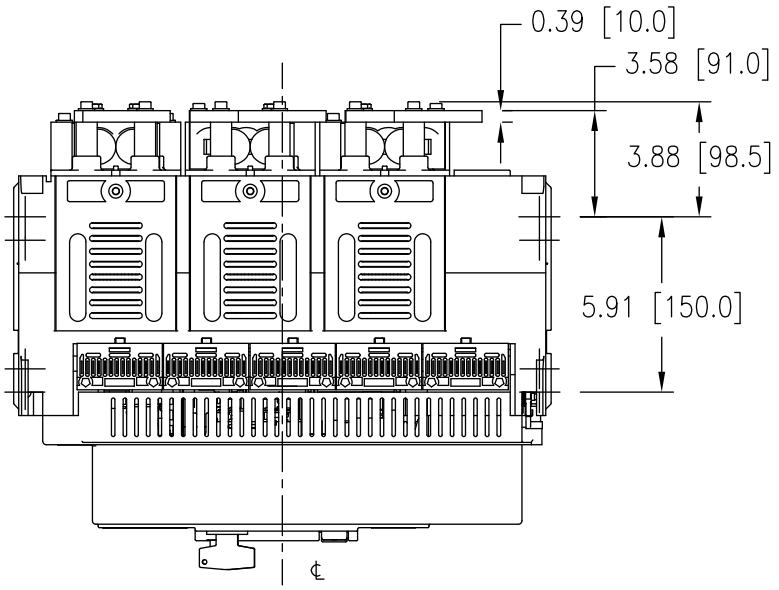
Rear view



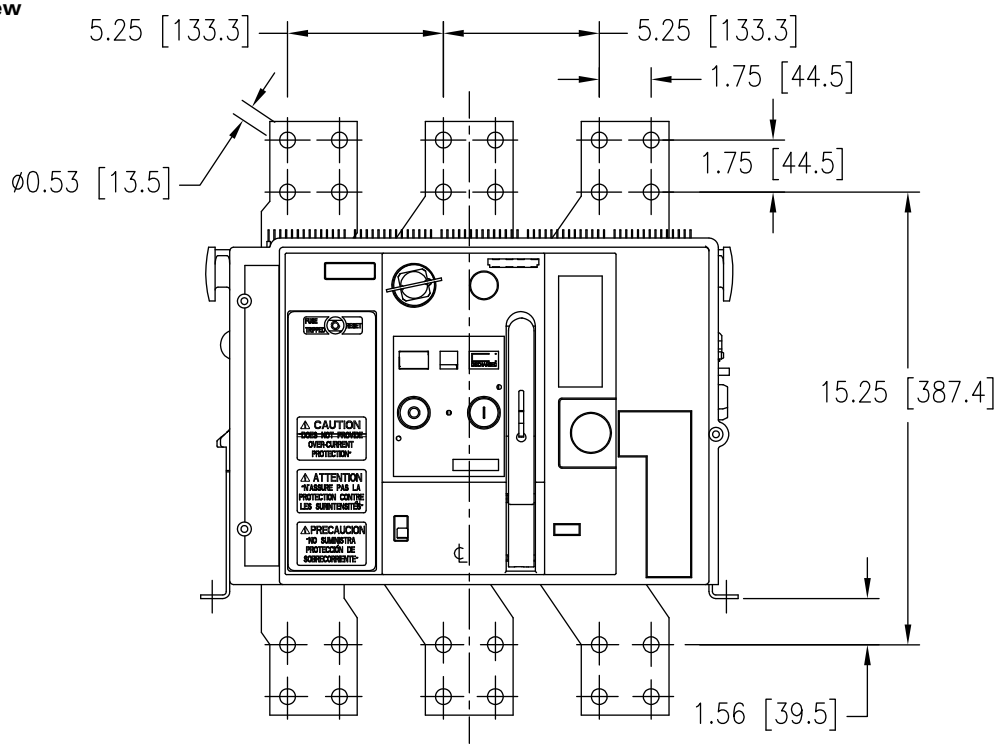
(1) = slots for insulation barriers

Frame Size 1
Front Connectors

Top view



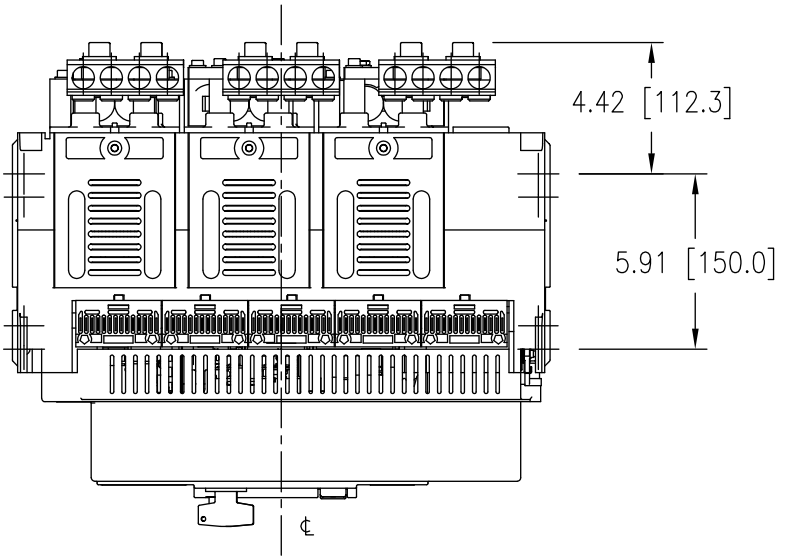
Front view



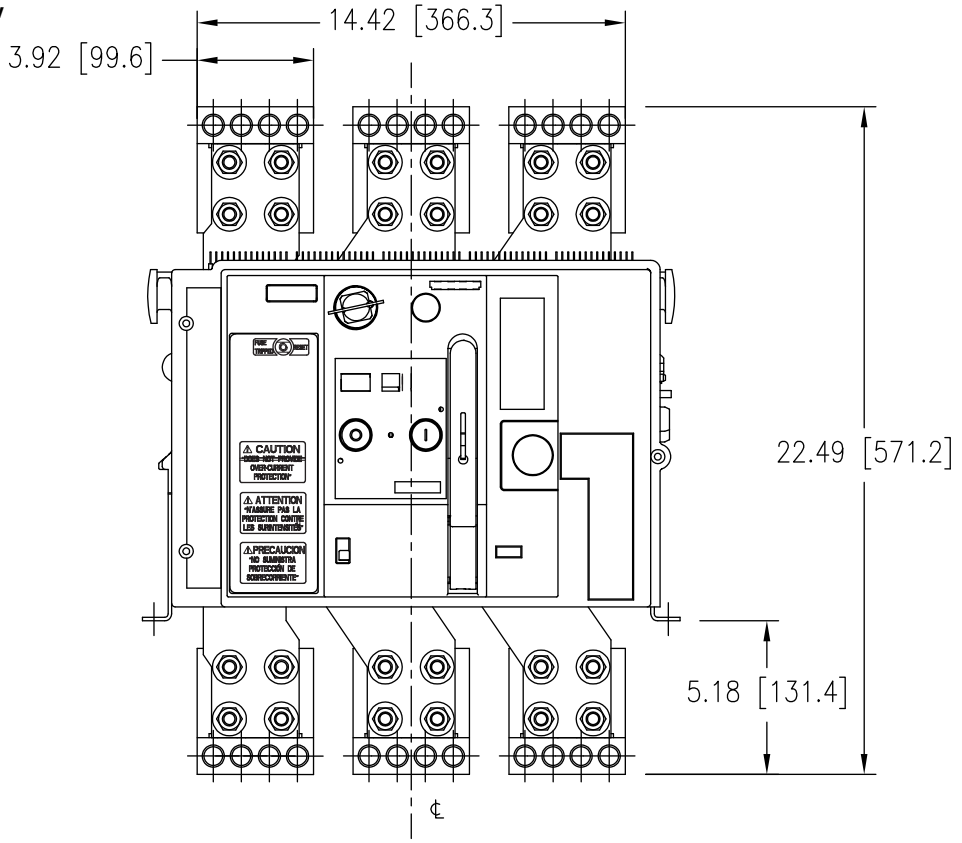
Frame Size 1

Front Connectors and Lugs

Top view

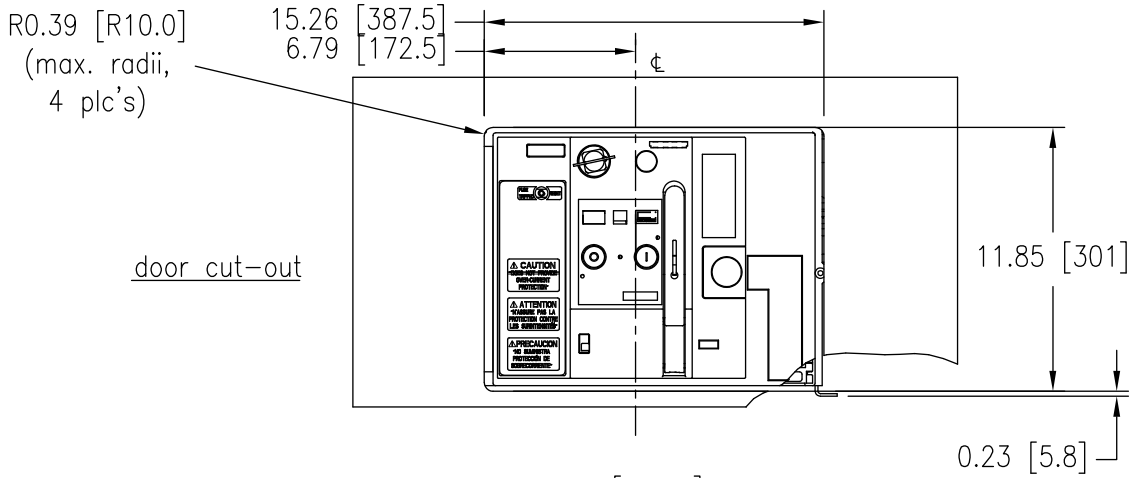


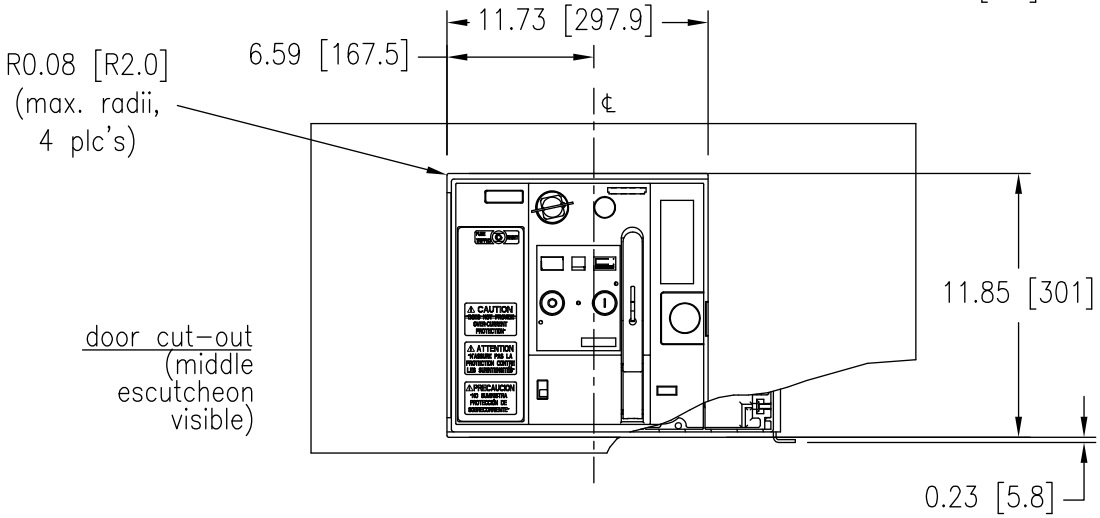
Front view

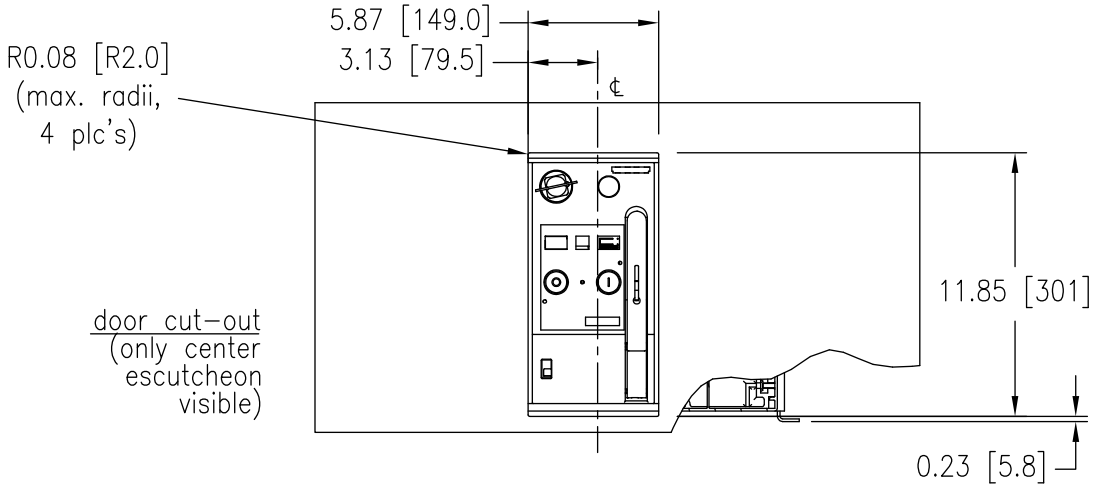


Fixed Size 1

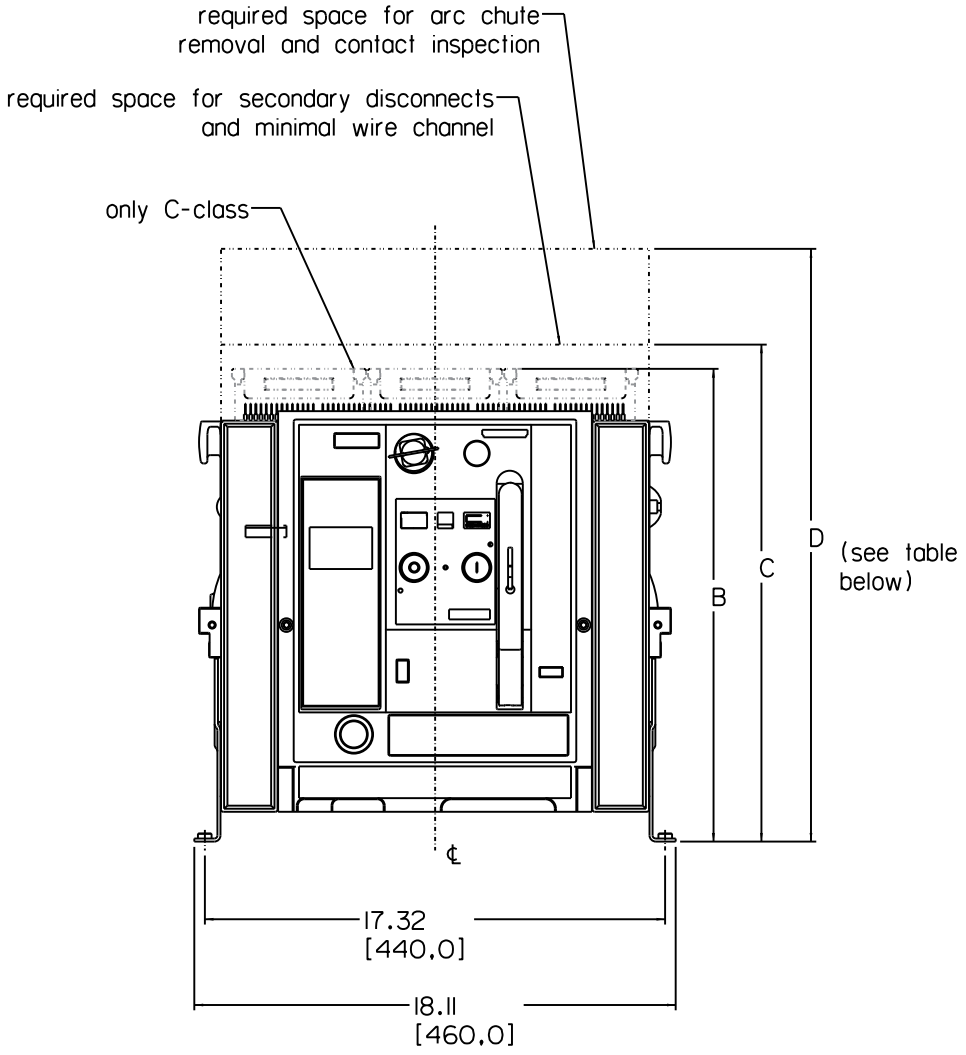
Door Cut-outs







Frame Size 2

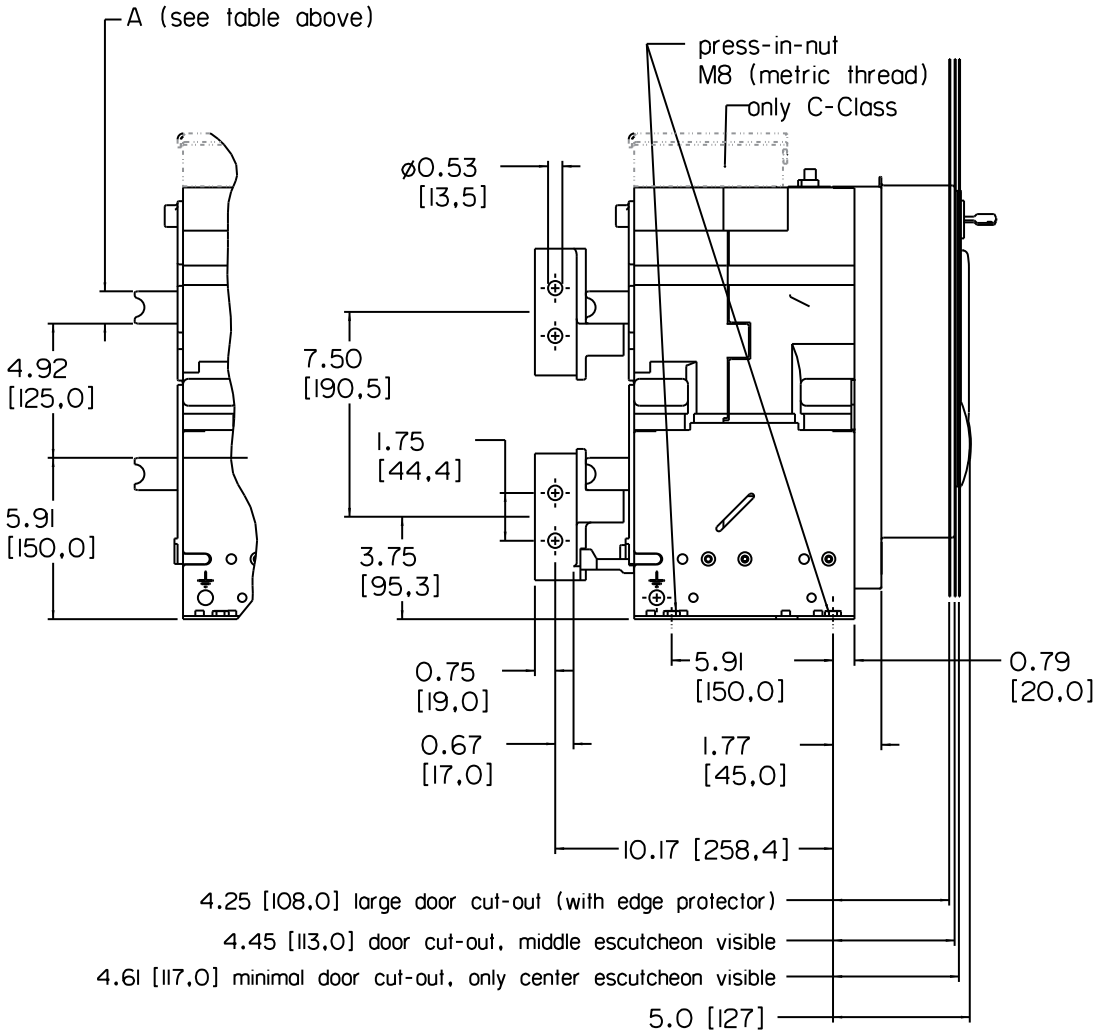


Interrupting class	Dimension B	Dimension C	Dimension D
S/L	15.85 [402.5]	18.70 [475.0]	22.30 [566.5]
C	17.80 [452.10]	18.70 [475.0]	25.20 [640.0]

Frame Size 2

Optional Vertical Connectors

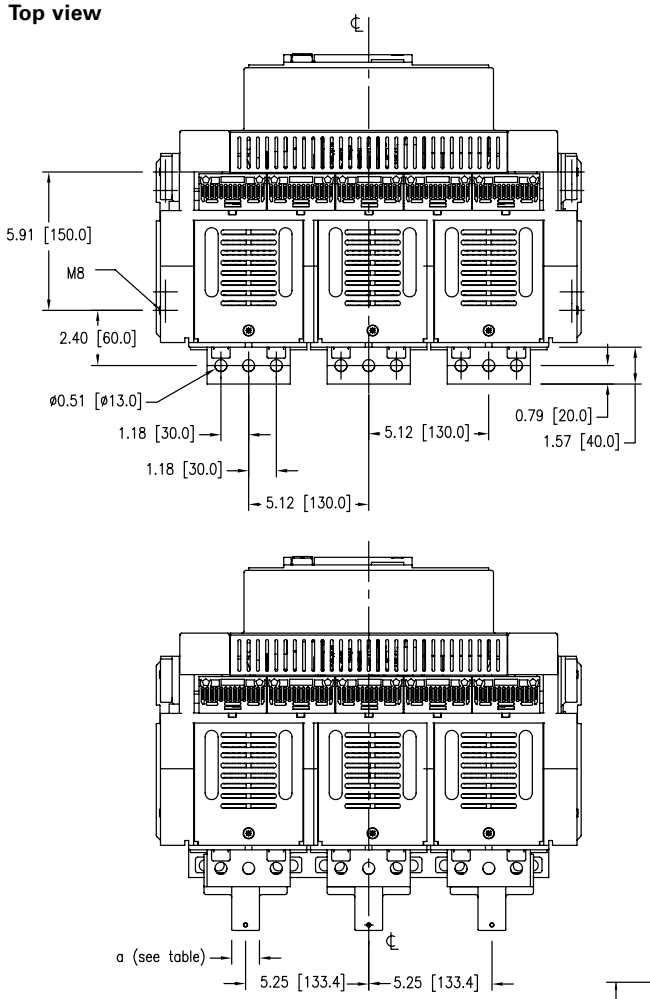
Interrupting Class	Rated Current	Dimension A
S/L	max. 1600 A	0.39 [10]
S/L	max. 2000 A	0.59 [15]
S/L	max. 3000 A	1.18 [30]
C	1600 - 3000 A	1.18 [30]



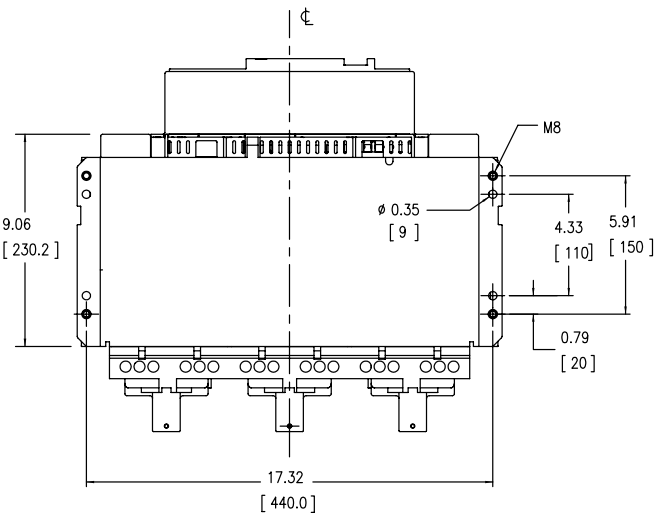
Frame Size 2

Optional Vertical Connectors

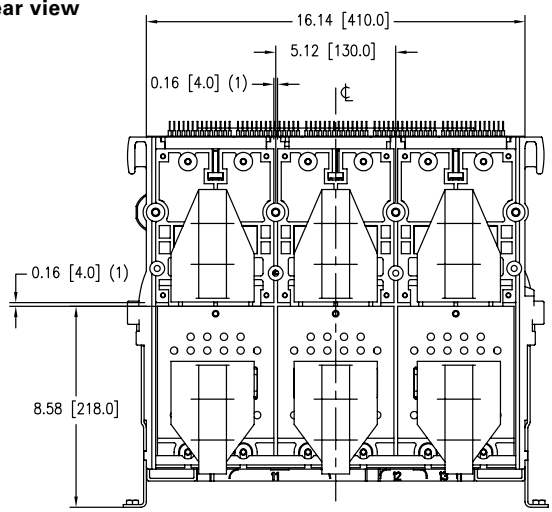
Top view



Rated Current	Dimension A
max. 1600 A	0.39 [10]
max. 2000 A	0.59 [15]
max. 3000 A	1.18 [30]
C-class always	1.18 [30]



Rear view

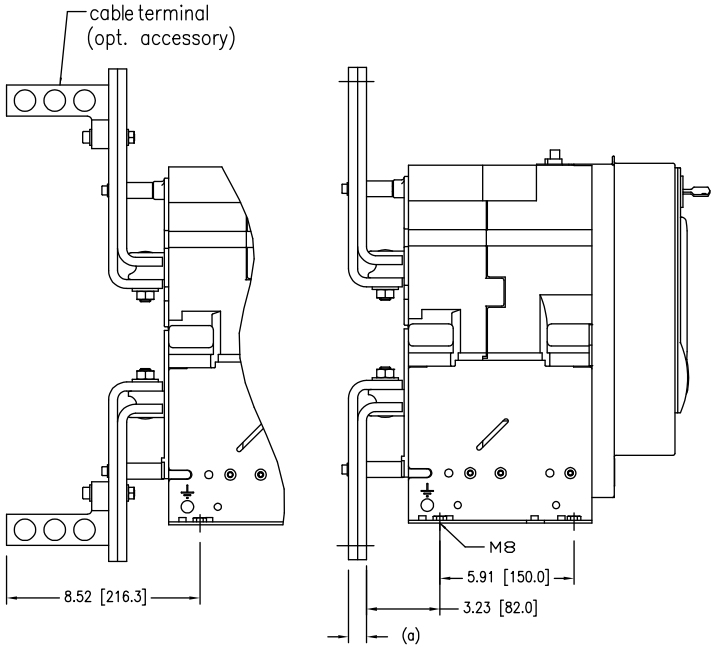


(1) = Slots 0.2 [5] for insulation barriers

Frame Size 2

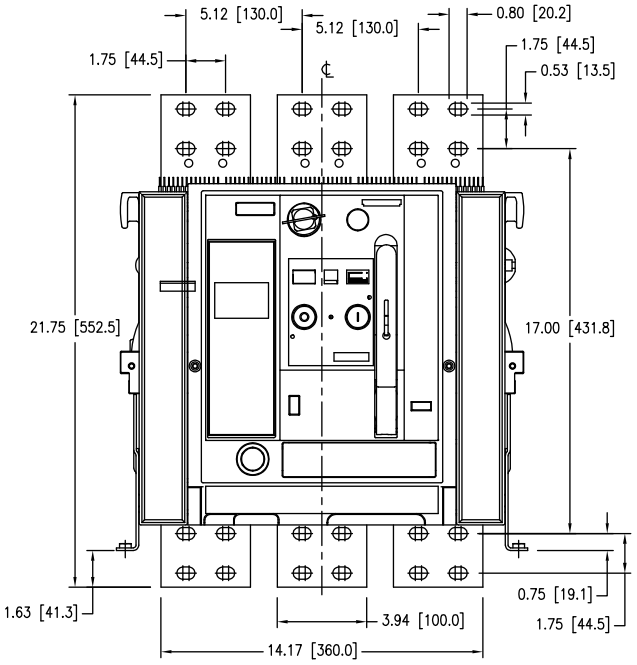
Front Connectors

LH side view



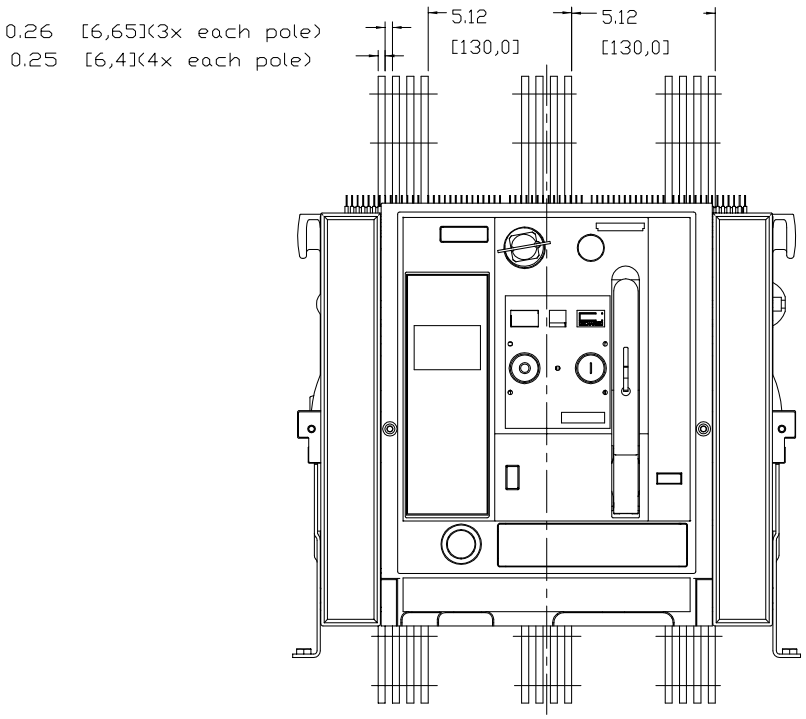
Rated Current	Dimension A
max. 1600 A	0.39 [10]
max. 2000 A	0.79 [20]
max. 2500 A	0.79 [20]

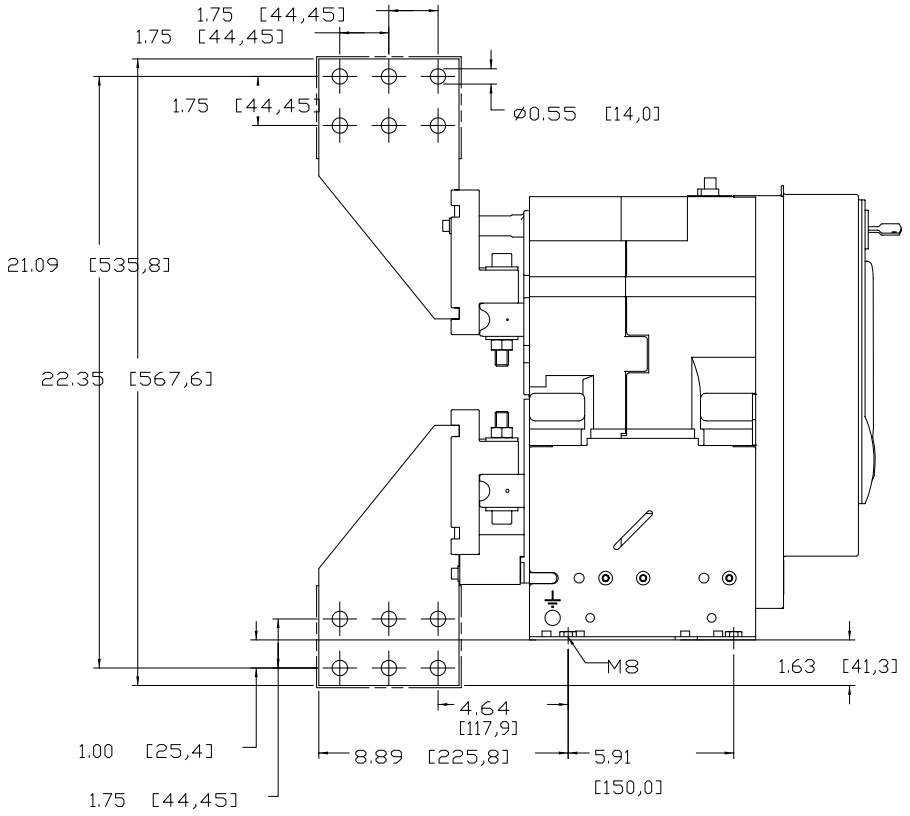
Front view



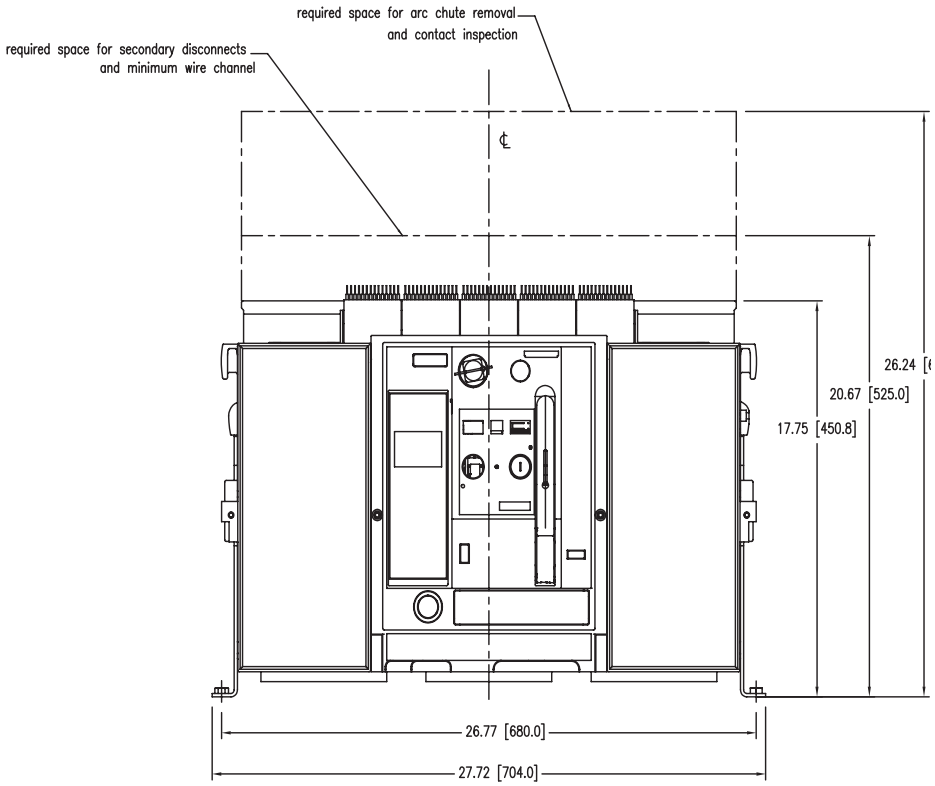
Frame Size 2

3000A Front Connectors

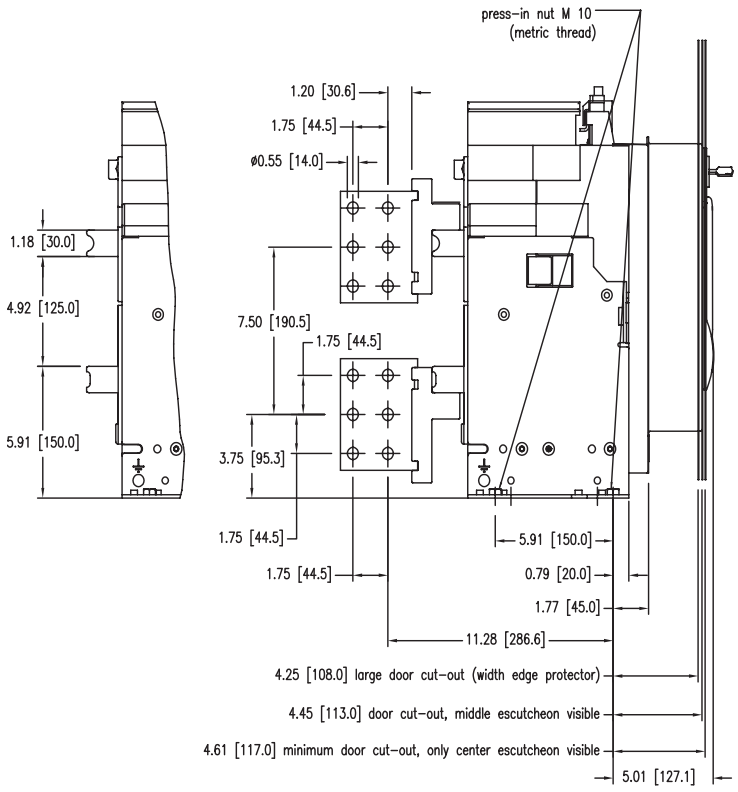




Frame Size 3



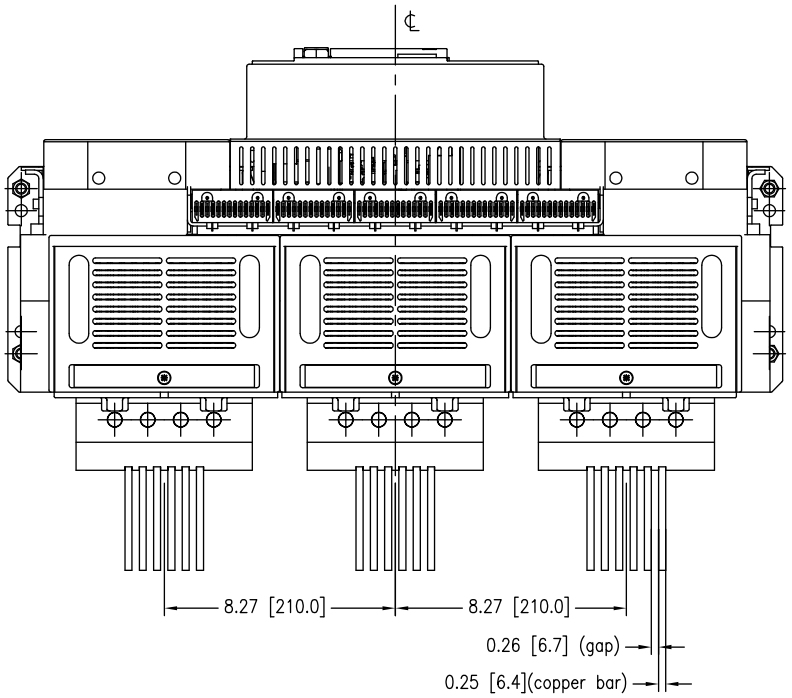
LH side view



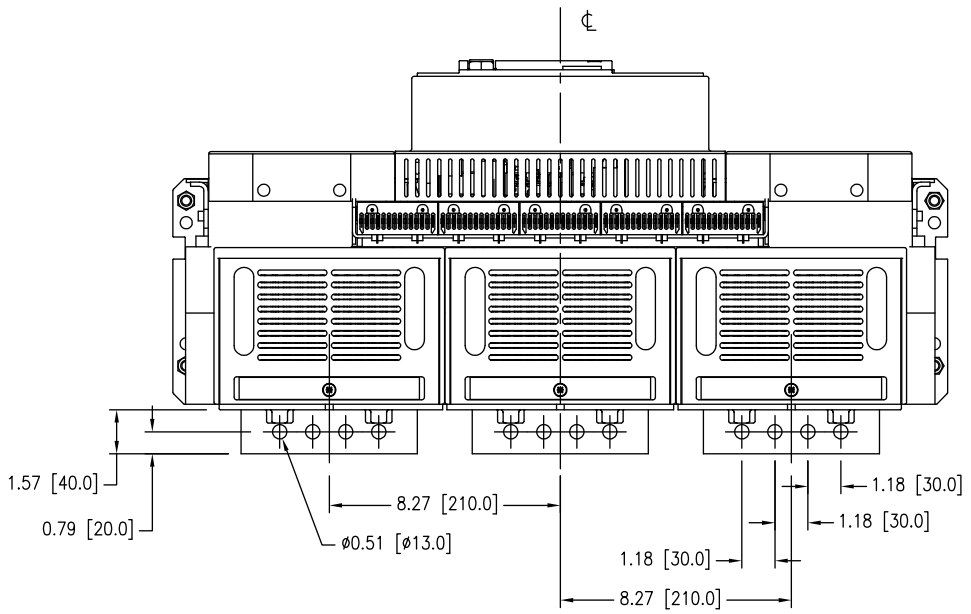
Frame Size 3

Vertical Connectors and Horizontal Stabs

Top view

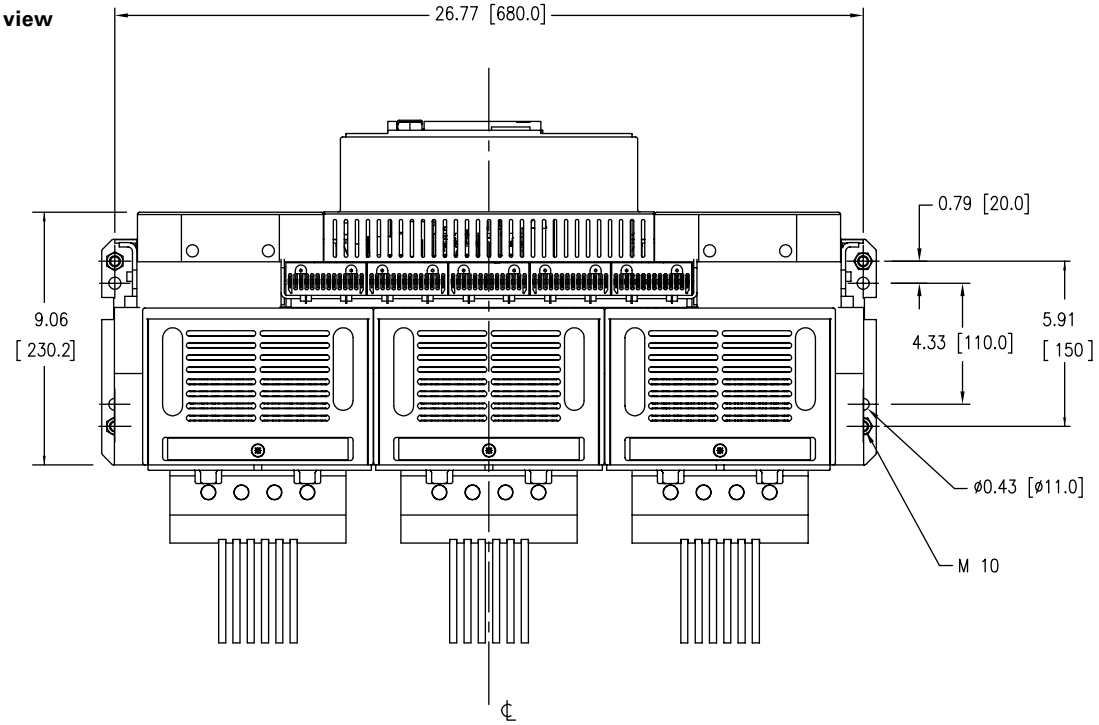


Top view

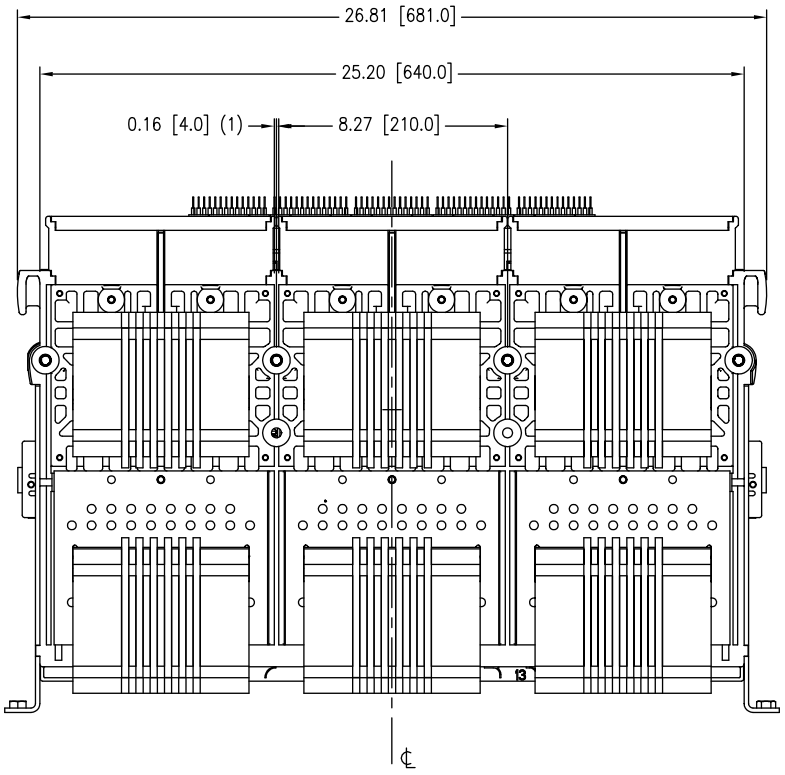


Frame Size 3

Top view



Rear view

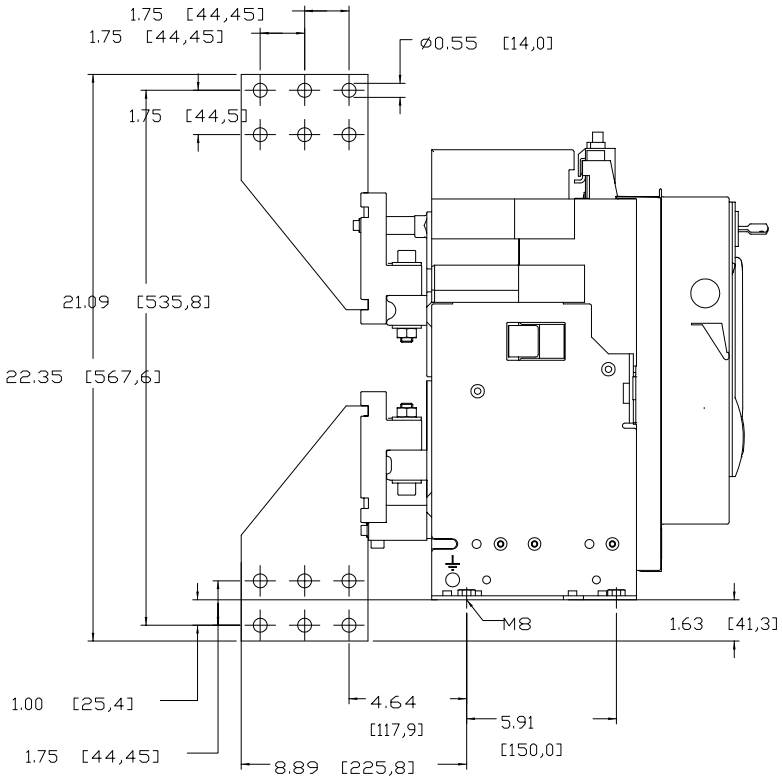


(1) = Slots 0.2 [5] for insulation barriers

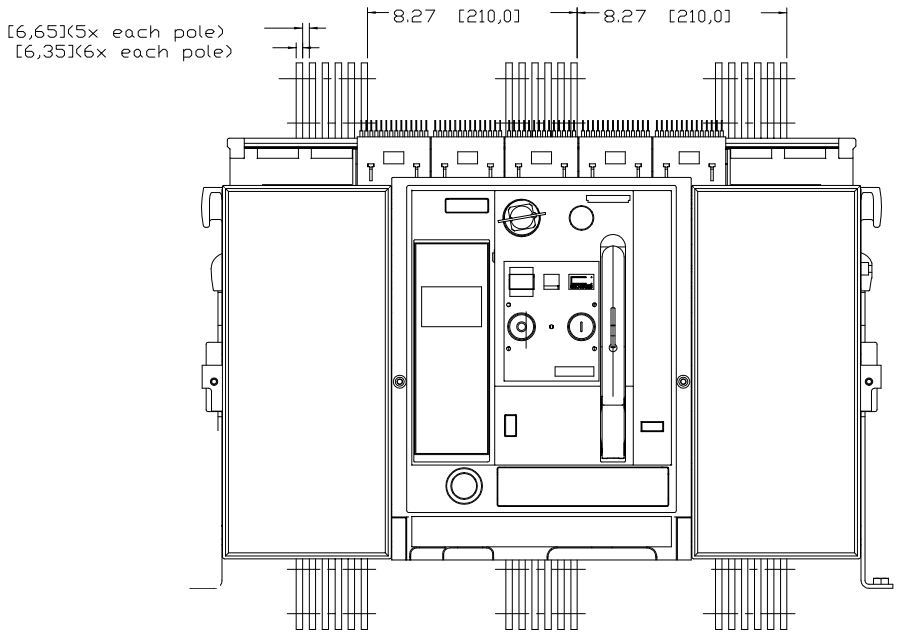
Frame Size 3

5000A Vertical Connectors

LH side view

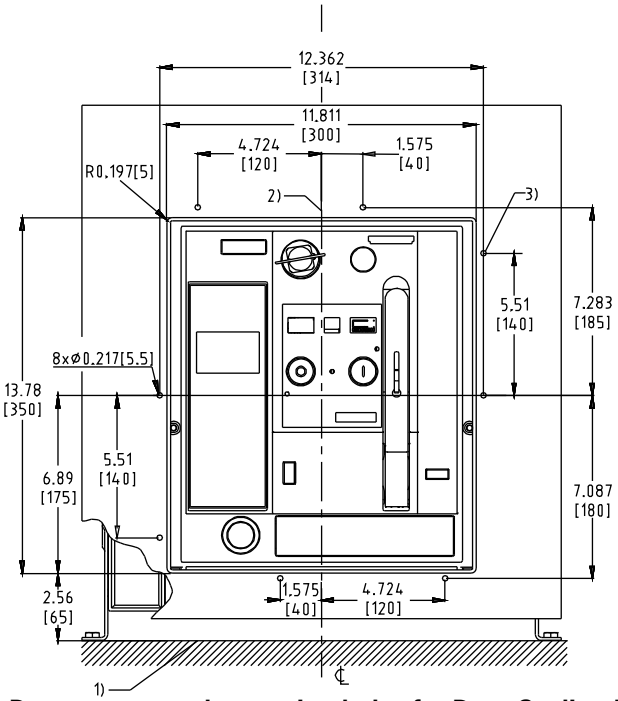


Front view

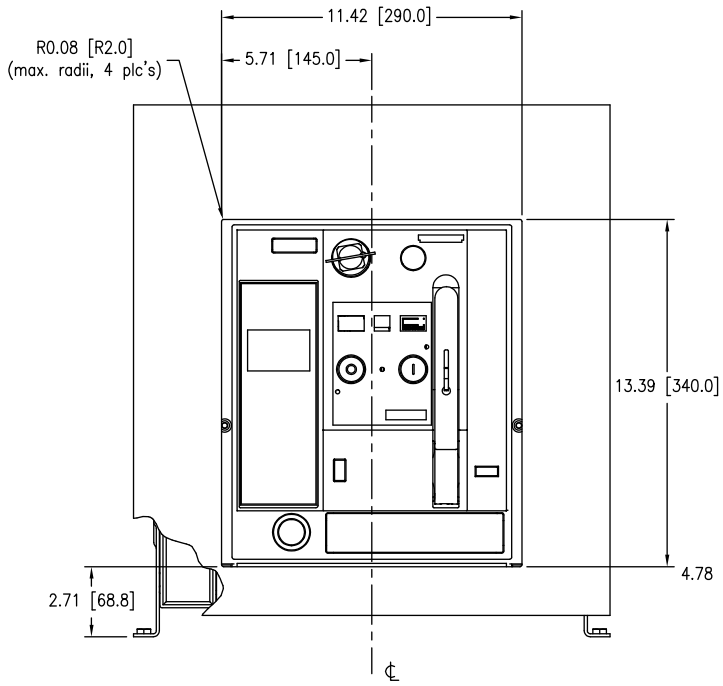


Frame Size 2 and 3

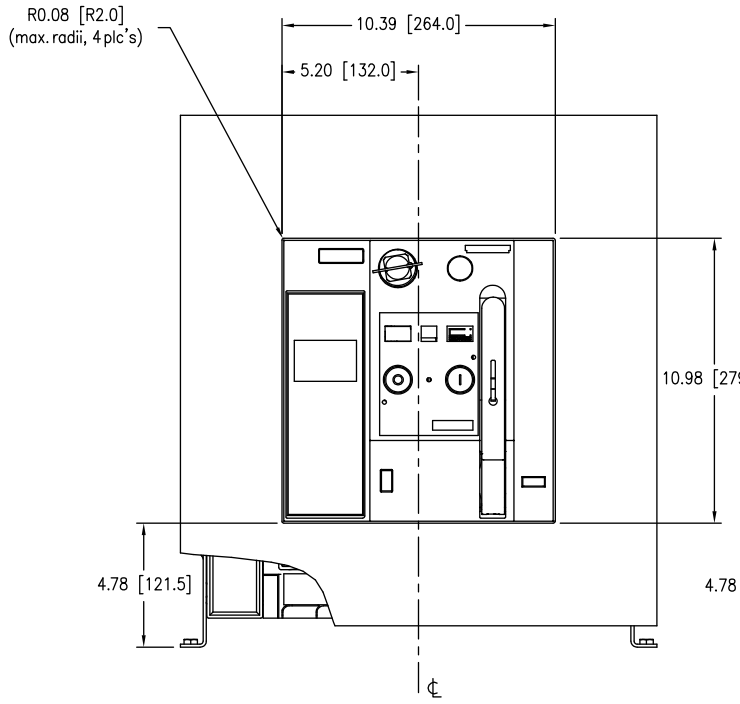
Door Cut-outs



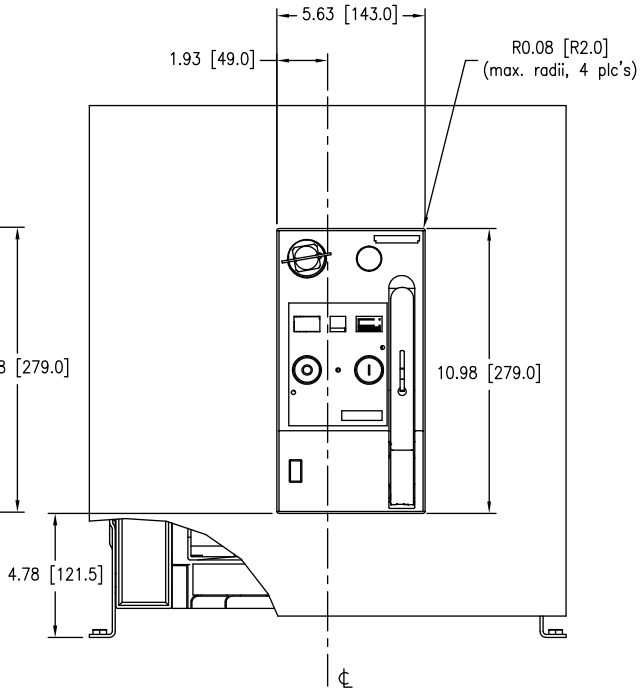
Door cut-out and mounting holes for Door Sealing Frame



Door cut-out (after mounting Door Sealing Frame)



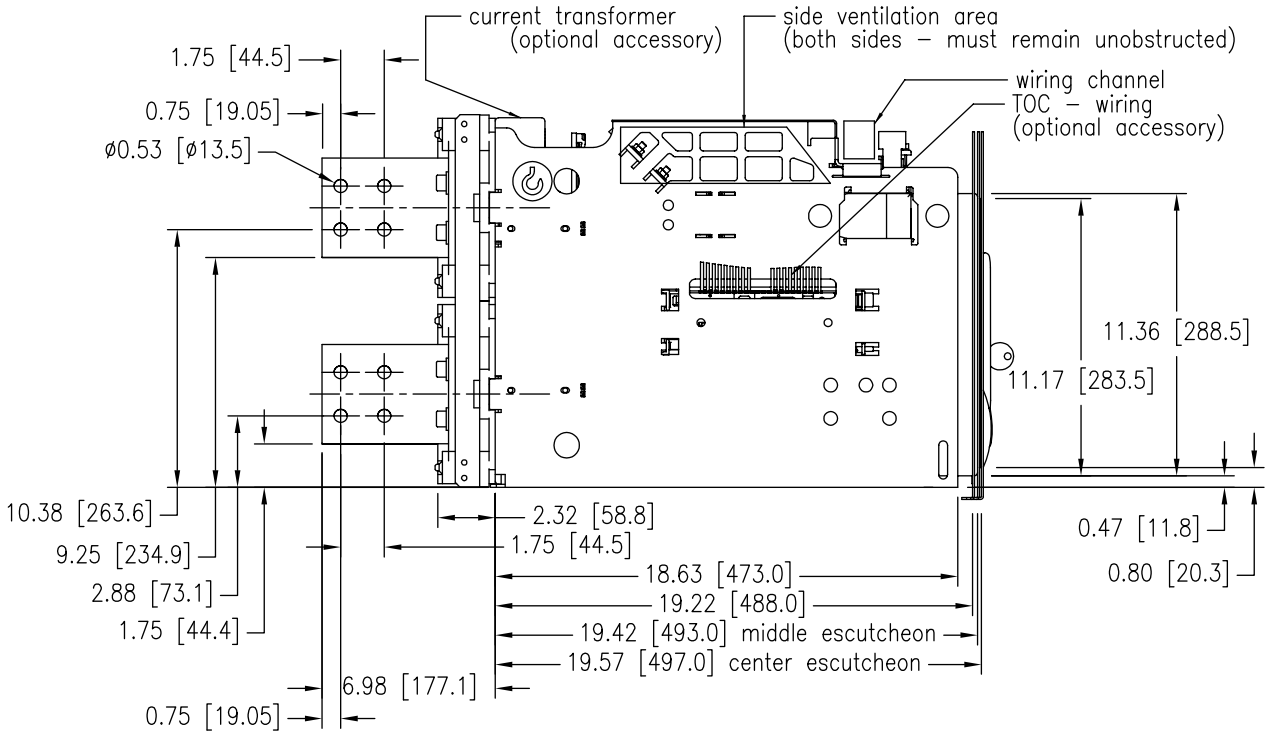
Door cut-out (Middle escutcheon visible)

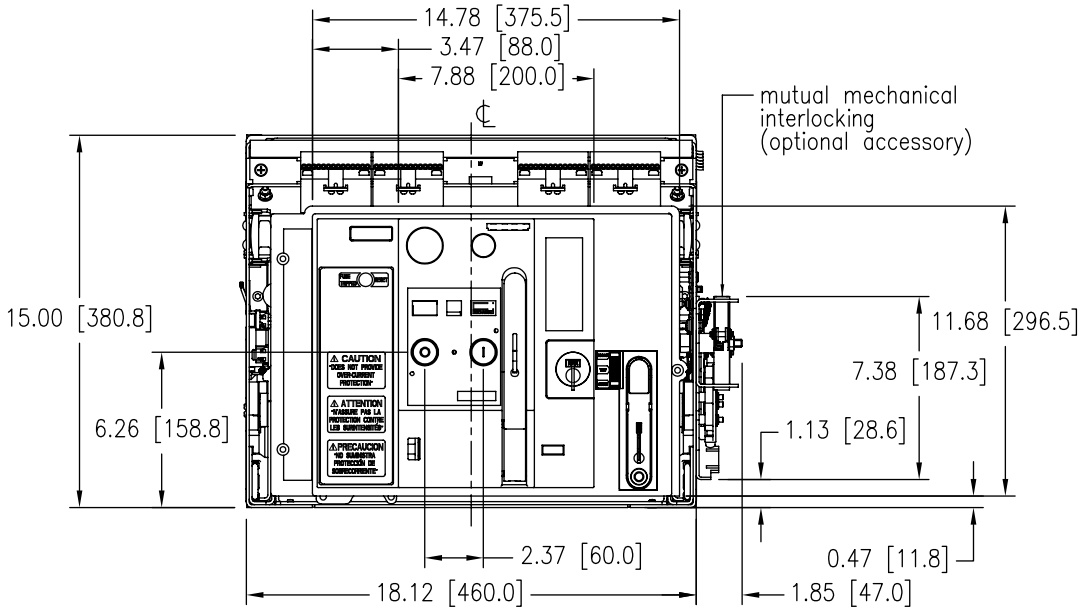


Minimal door cut-out (Only center eustcheon visible)

1) Breaker mounting surface.
2) Center of breaker front panel.
3) Drill eight holes for mounting door sealing frame.

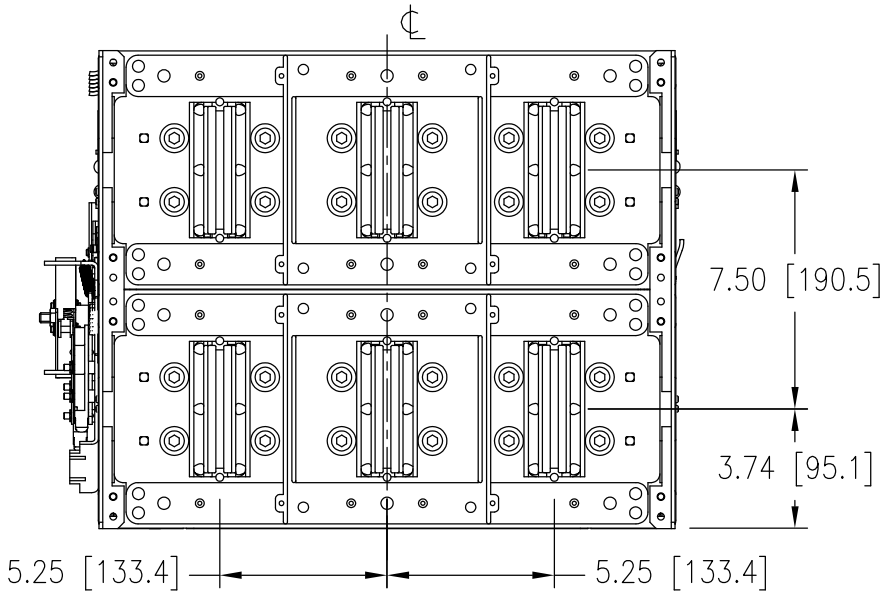
Frame Size 1


current transformer
(optional accessory)
side ventilation area
(both sides – must remain unobstructed)
wiring channel
TOC – wiring
(optional accessory)
1.75 [44.5]
0.75 [19.05]
ø0.53 [ø13.5]
11.36 [288.5]
11.17 [283.5]
10.38 [263.6]
9.25 [234.9]
2.88 [73.1]
1.75 [44.4]
0.75 [19.05]
2.32 [58.8]
1.75 [44.5]
18.63 [473.0]
19.22 [488.0]
19.42 [493.0] middle escutcheon
19.57 [497.0] center escutcheon
6.98 [177.1]
0.47 [11.8]
0.80 [20.3]

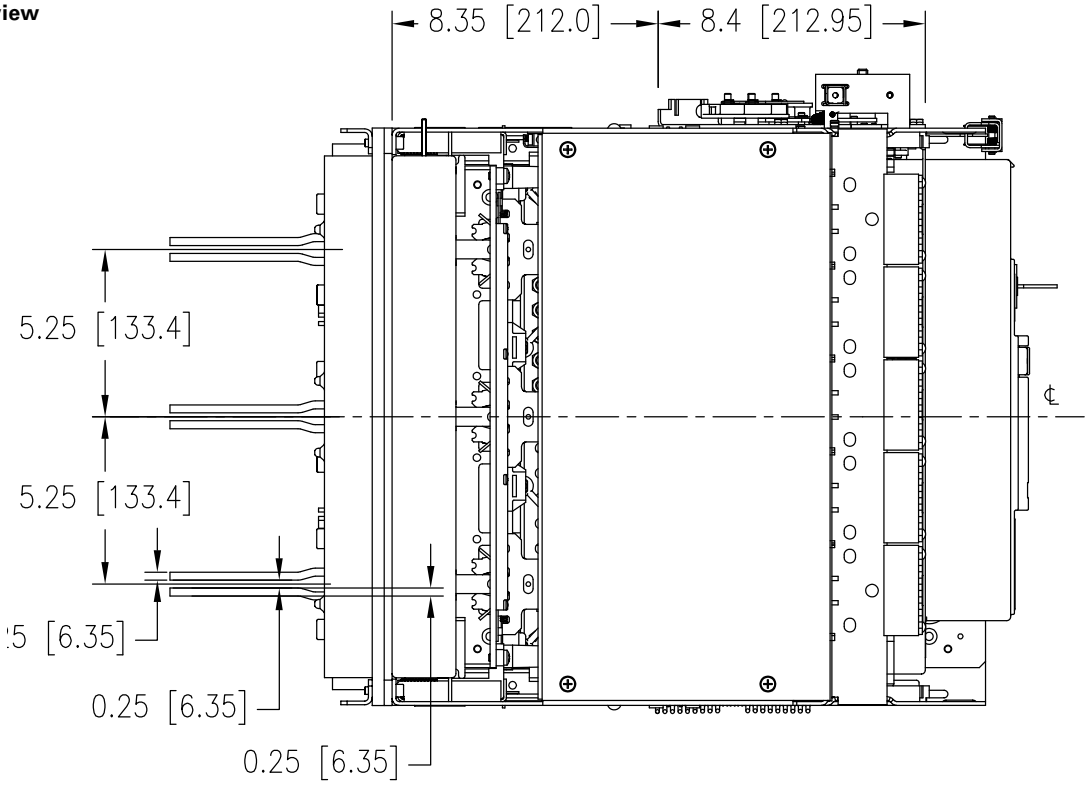

14.78 [375.5]
3.47 [88.0]
7.88 [200.0]
mutual mechanical
interlocking
(optional accessory)
15.00 [380.8]
6.26 [158.8]
11.68 [296.5]
7.38 [187.3]
1.13 [28.6]
2.37 [60.0]
18.12 [460.0]
0.47 [11.8]
1.85 [47.0]

Frame Size 1
Vertical Connectors

Rear view

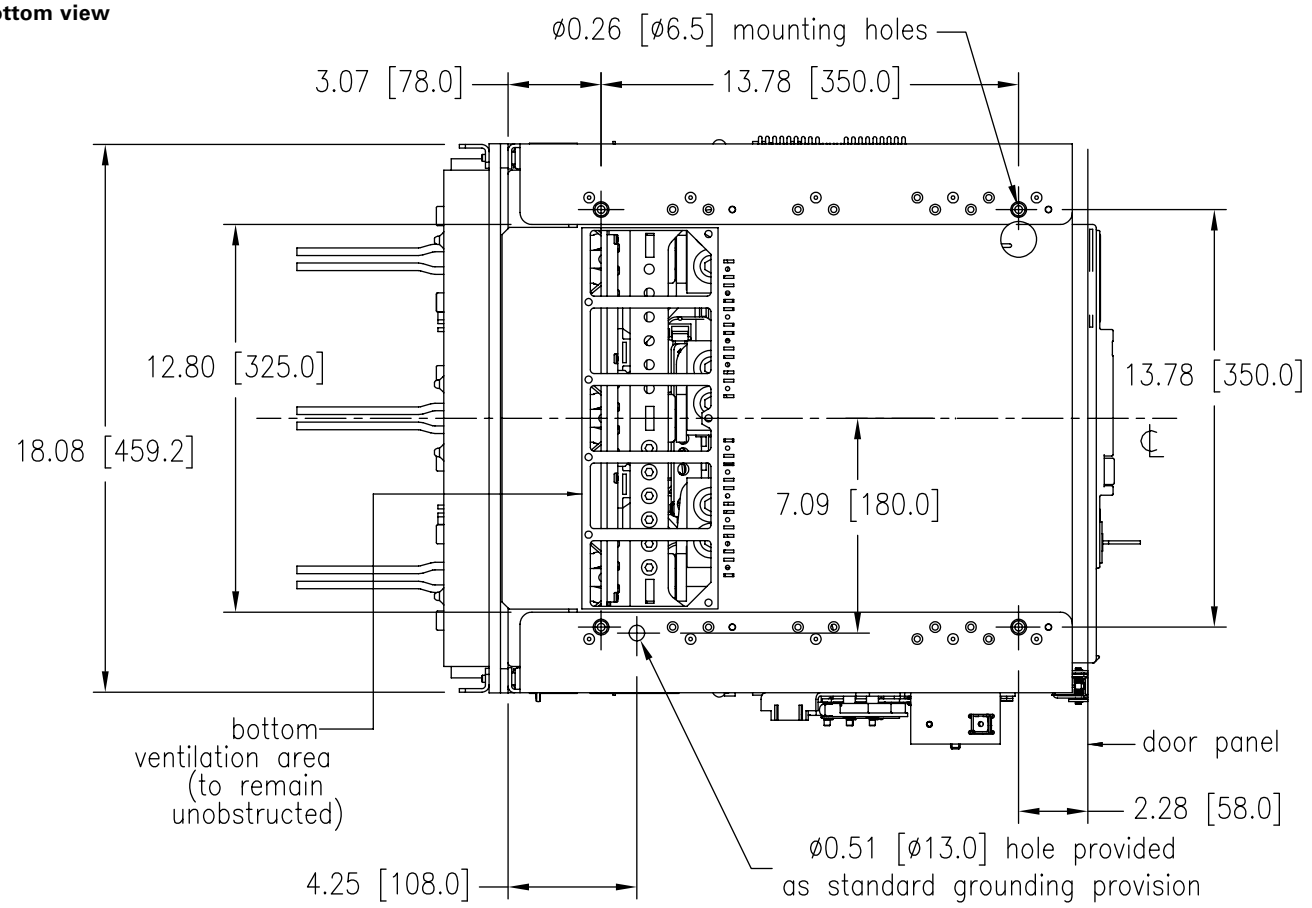


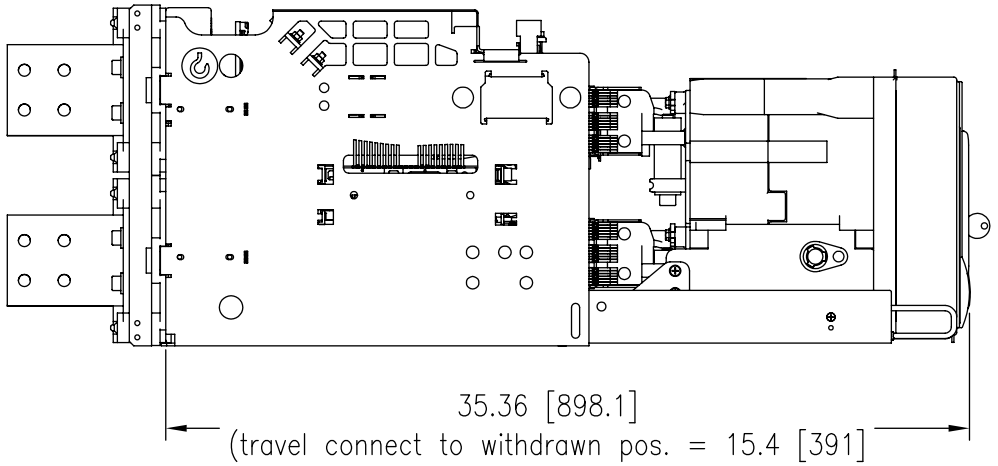
Top view



Frame Size 1

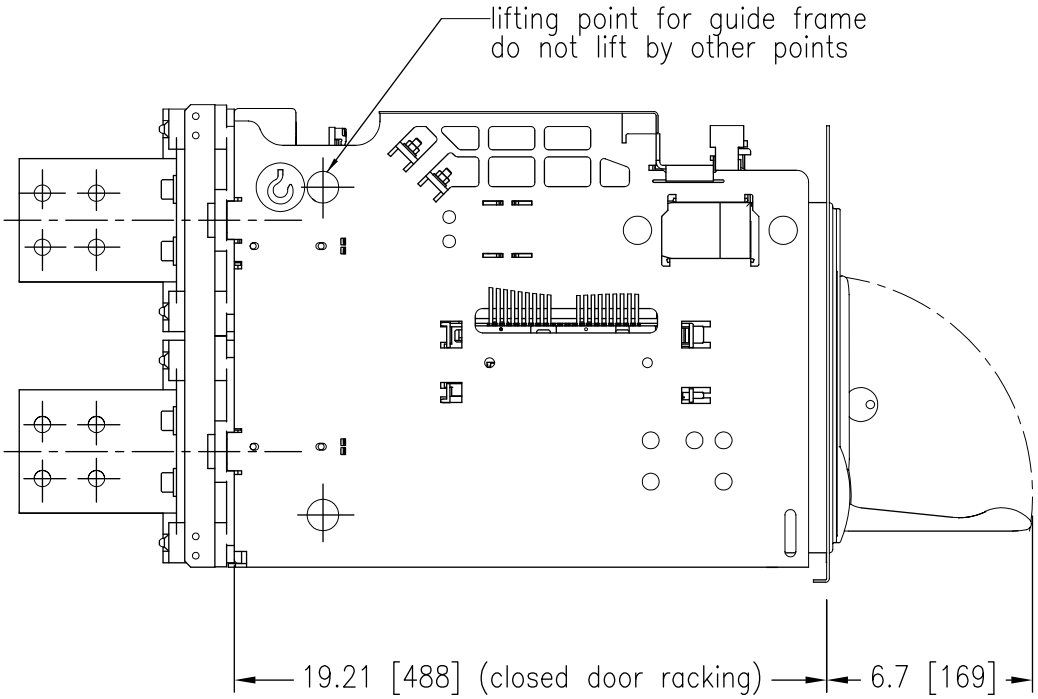
Bottom view

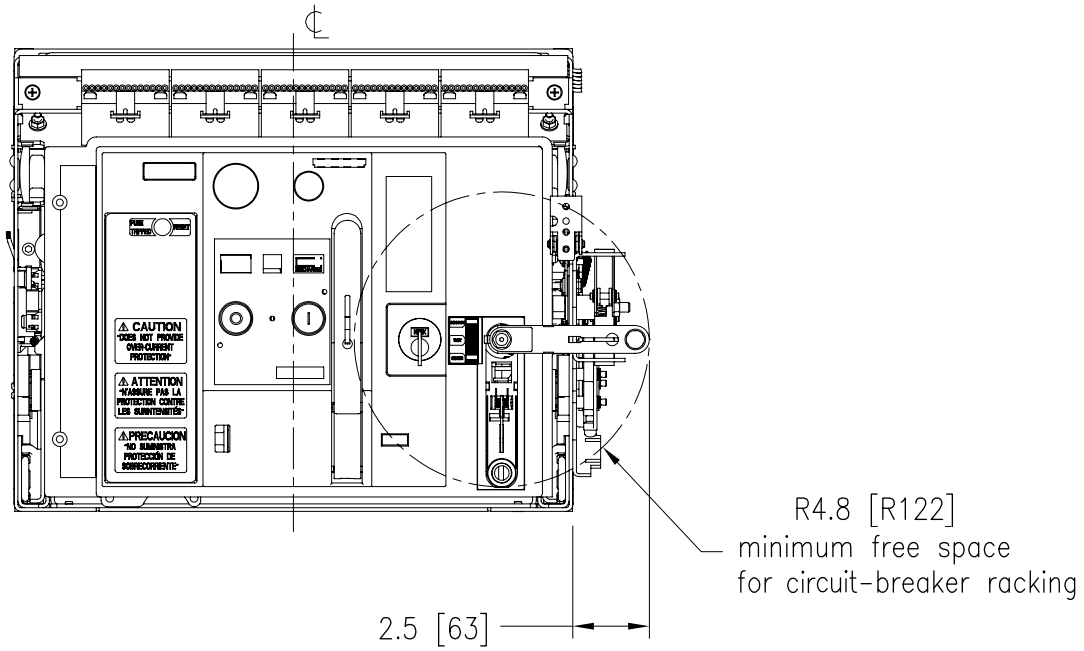




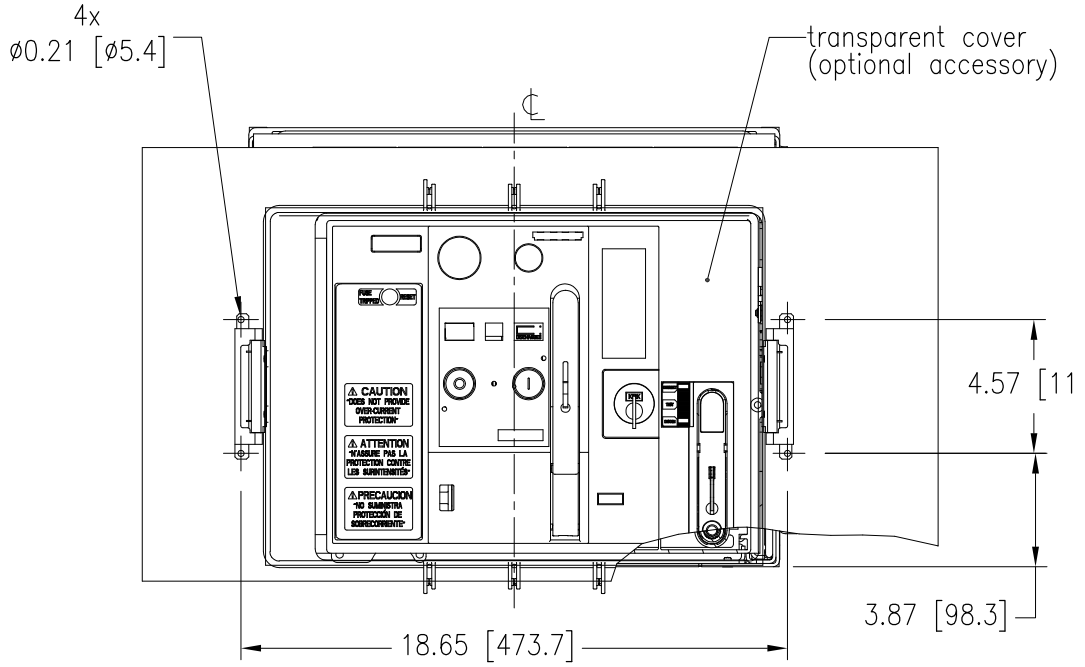
Frame Size 1

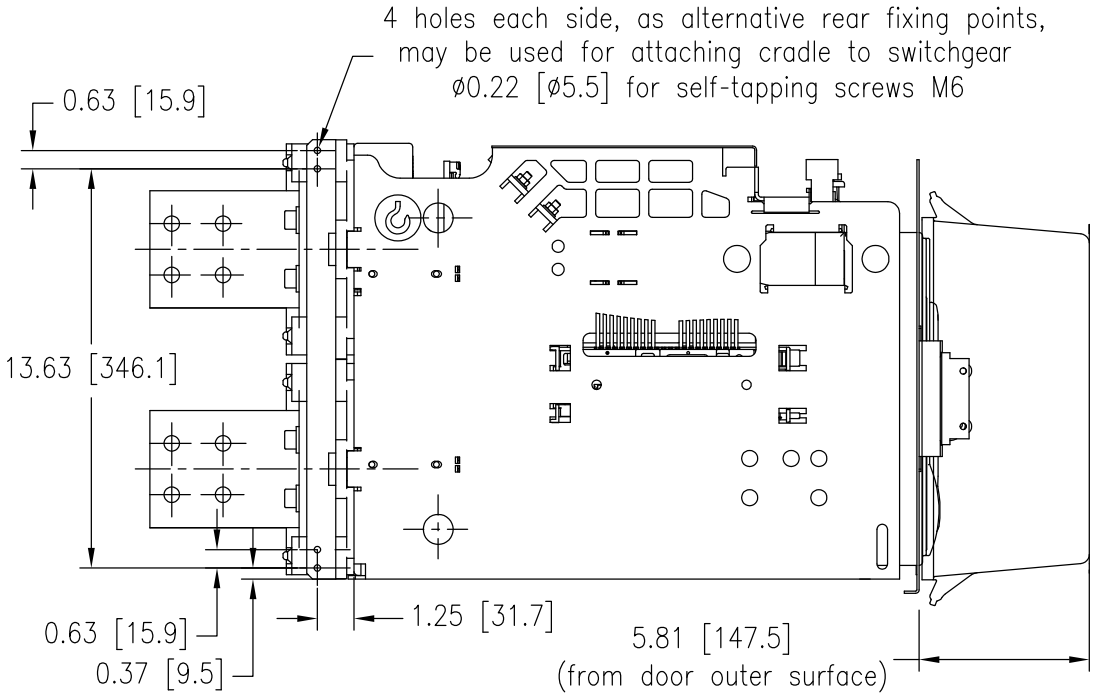
Charging and Racking





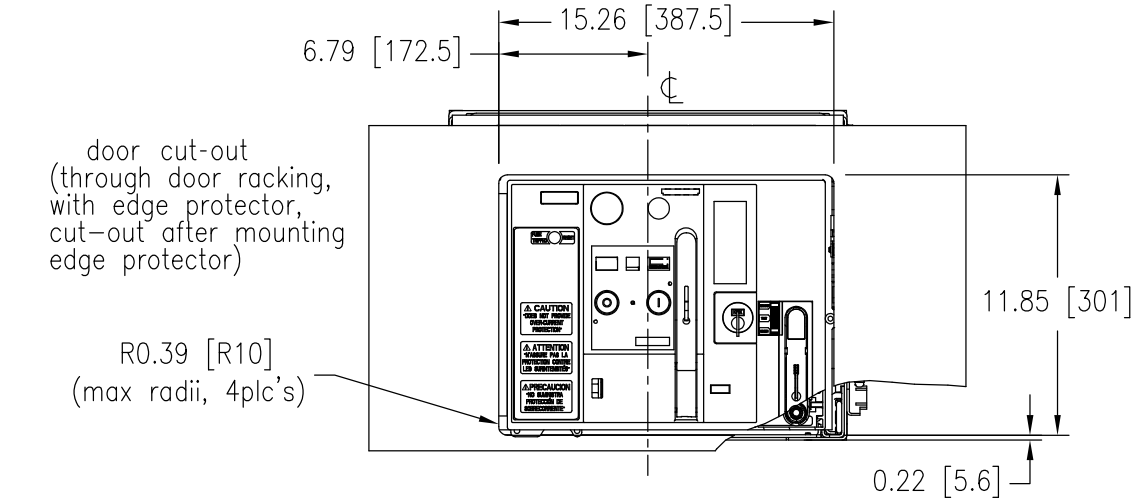
Frame Size 1
Plexiglass Cover

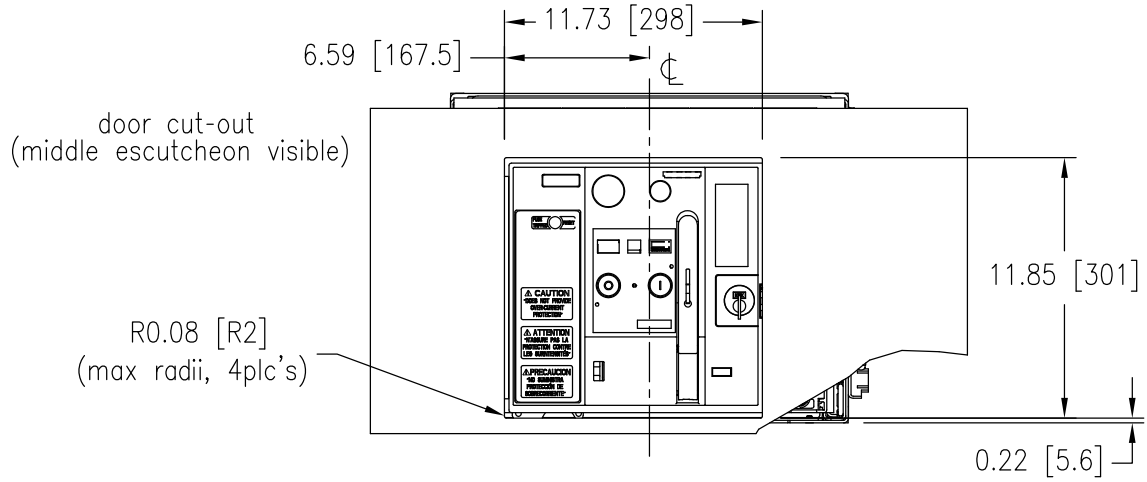


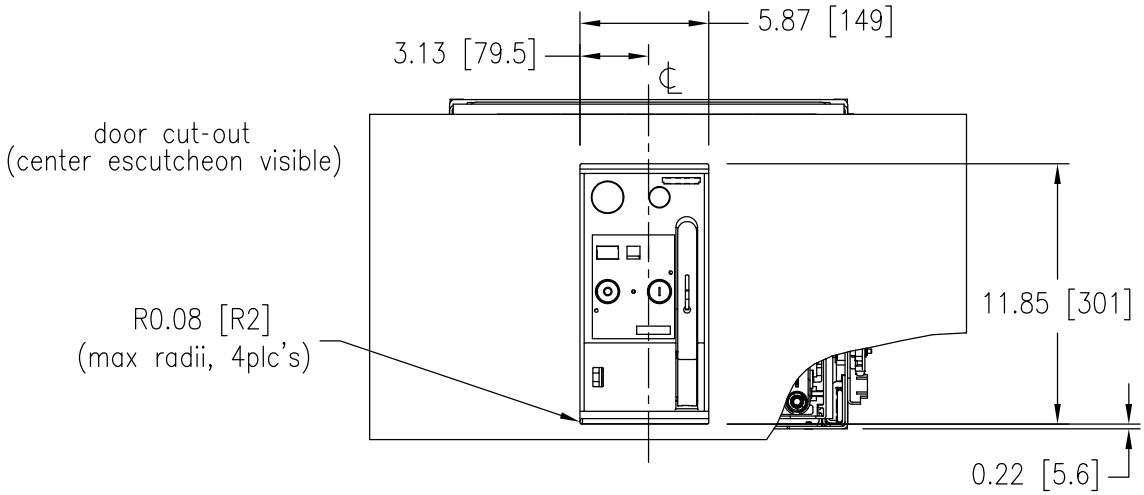


Frame Size 1

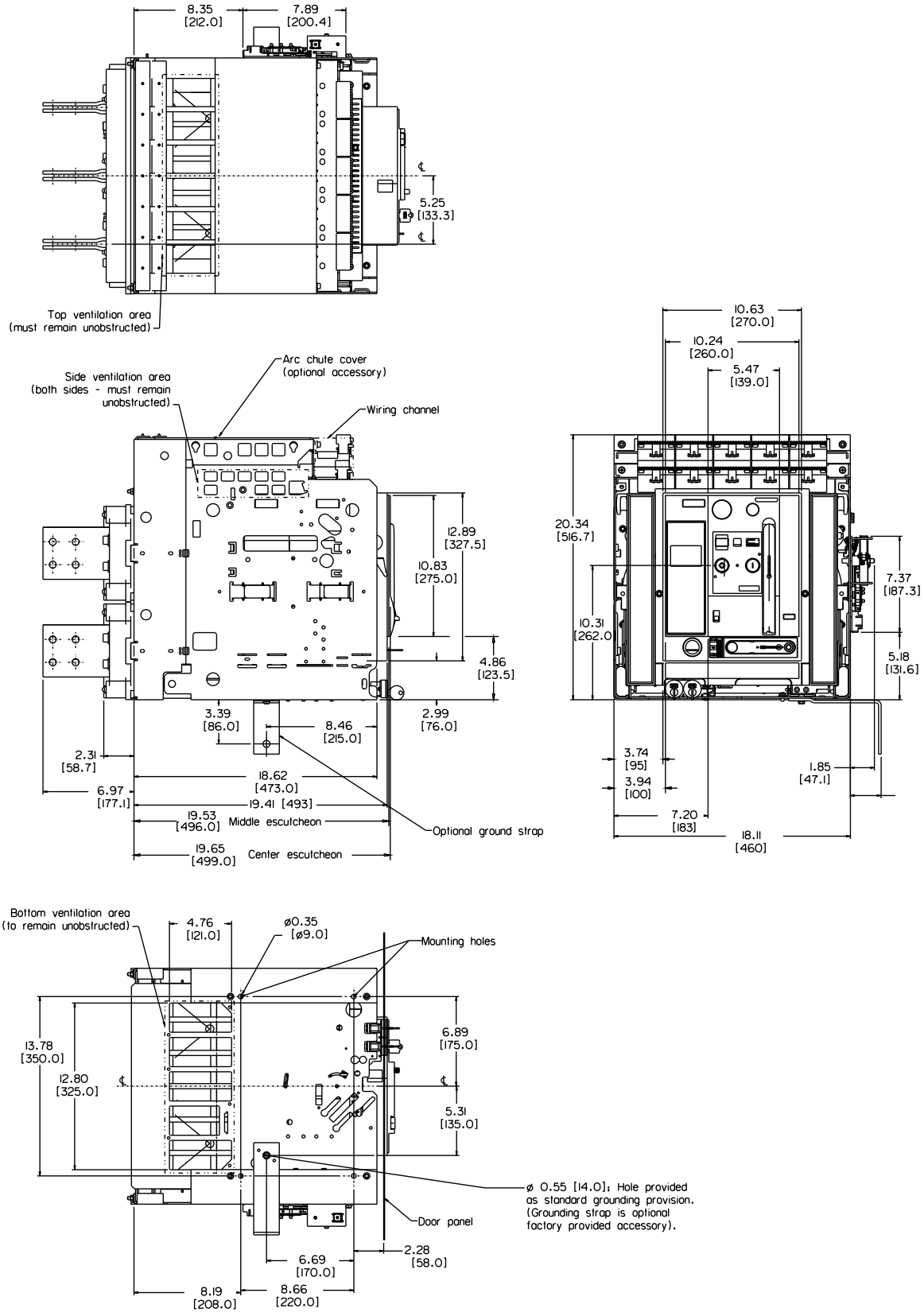
Door Cut-outs





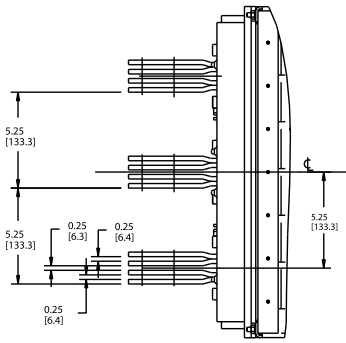


Frame Size 2

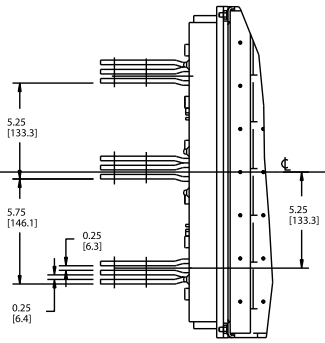

8.35
[212.0]
7.89
[200.4]
5.25
[133.3]
Top ventilation area
(must remain unobstructed)
Side ventilation area
(both sides - must remain
unobstructed)
Arc chute cover
(optional accessory)
Wiring channel
12.89
[327.5]
10.83
[275.0]
4.86
[123.5]
3.39
[86.0]
8.46
[215.0]
2.99
[76.0]
2.31
[58.7]
18.62
[473.0]
6.97
[177.1]
19.41 [493]
19.53
[496.0]
Middle escutcheon
Optional ground strap
19.65
[499.0]
Center escutcheon
10.63
[270.0]
10.24
[260.0]
5.47
[139.0]
20.34
[516.7]
7.37
[187.3]
10.31
[262.0]
5.18
[131.6]
3.74
[95]
3.94
[100]
1.85
[47.1]
7.20
[183]
18.11
[460]
Bottom ventilation area
(to remain unobstructed)
4.76
[121.0]
ø0.35
[ø9.0]
Mounting holes
13.78
[350.0]
12.80
[325.0]
6.89
[175.0]
5.31
[135.0]
ø 0.55 [14.0]; Hole provided
as standard grounding provision.
(Grounding strap is optional
factory provided accessory).
Door panel
2.28
[58.0]
6.69
[170.0]
8.19
[208.0]
8.66
[220.0]

Frame Size 2

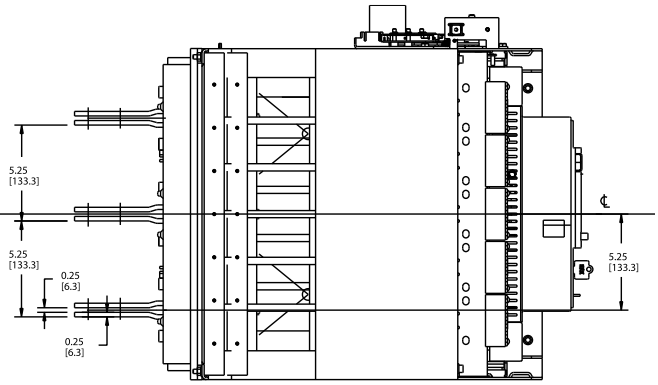
2500/3000A

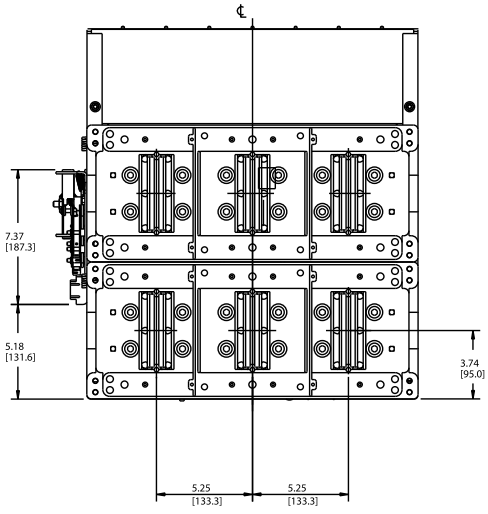


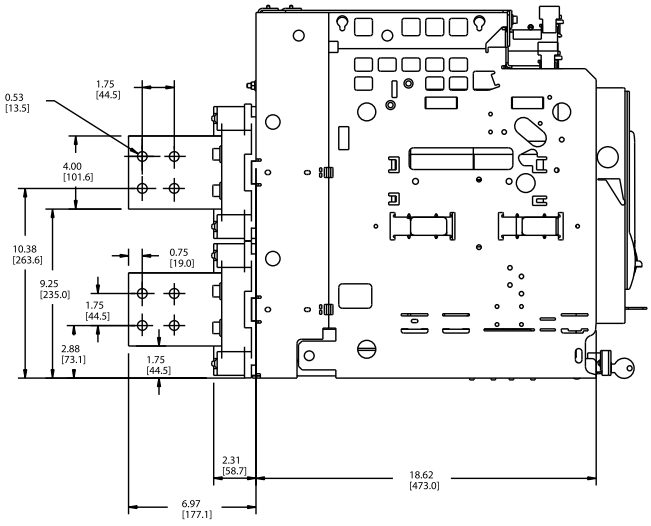
2000A



800/1200/1600A



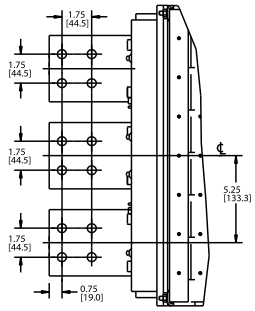




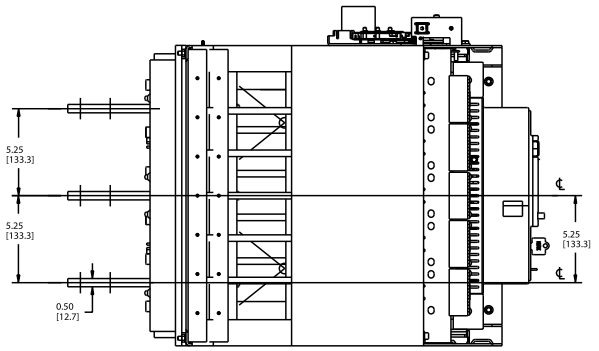
Frame Size 2

Vertical Connectors and Optional Horizontal Connectors

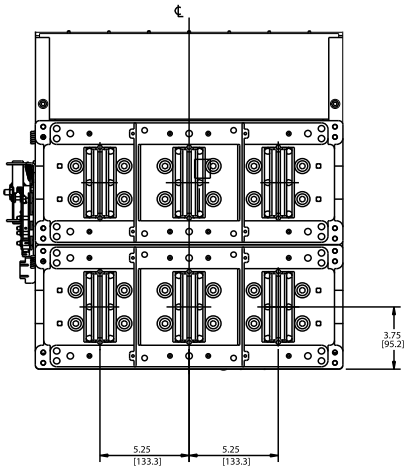
Horizontal Main Bus Connectors

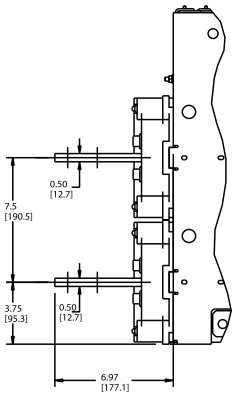


Vertical Main Bus Connectors

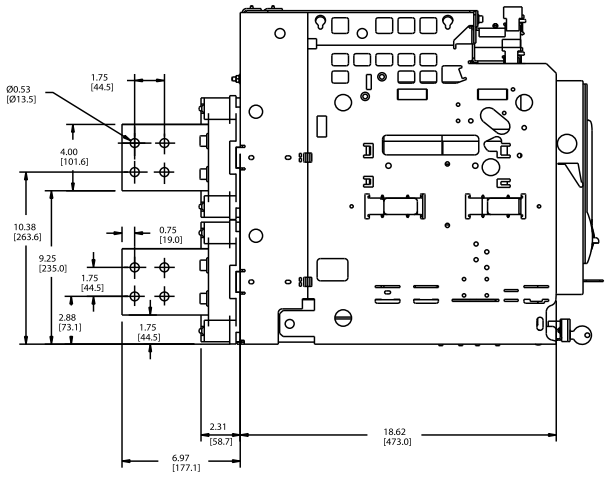


Horizontal Main Bus Connectors





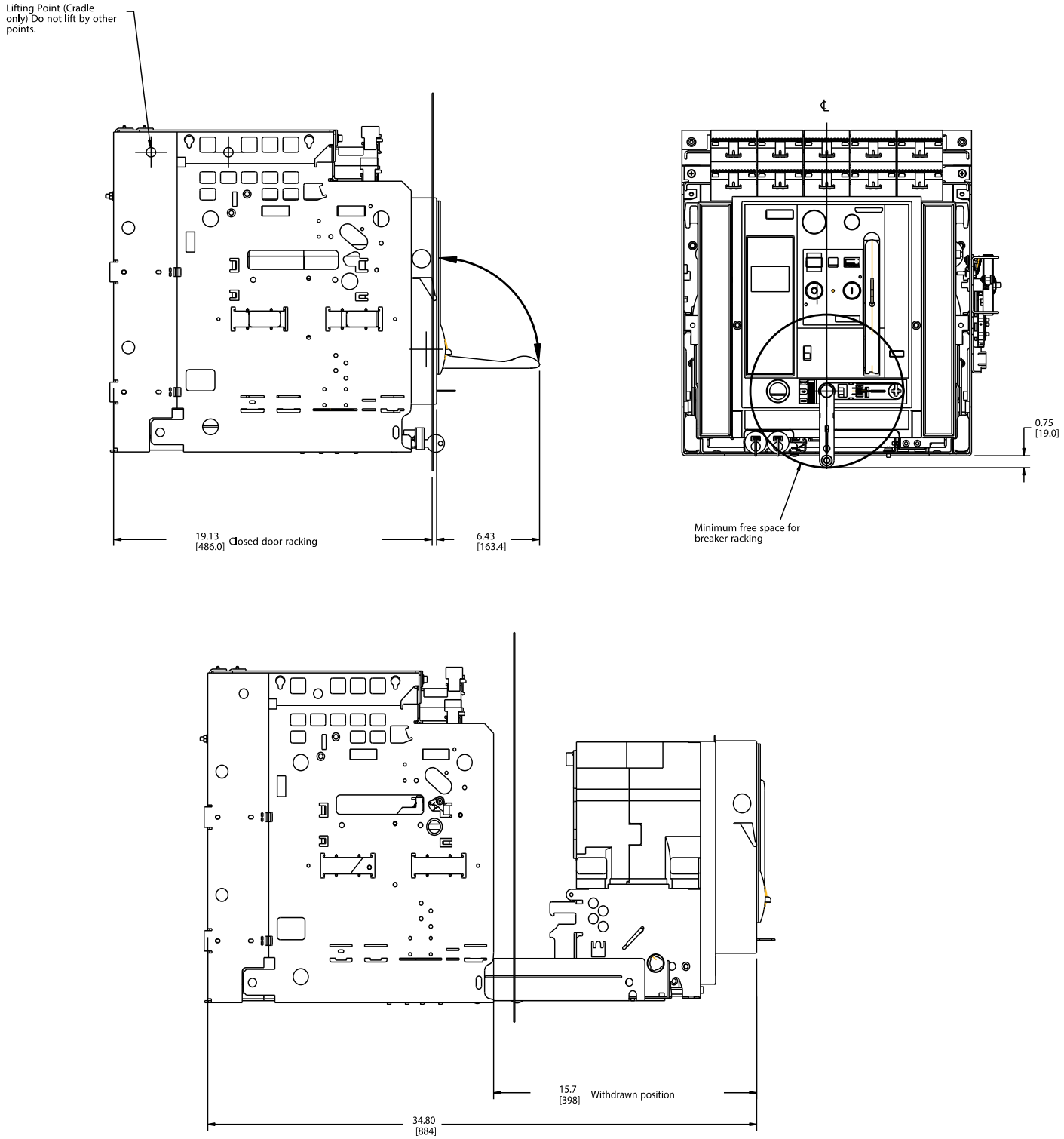
Vertical Main Bus Connectors



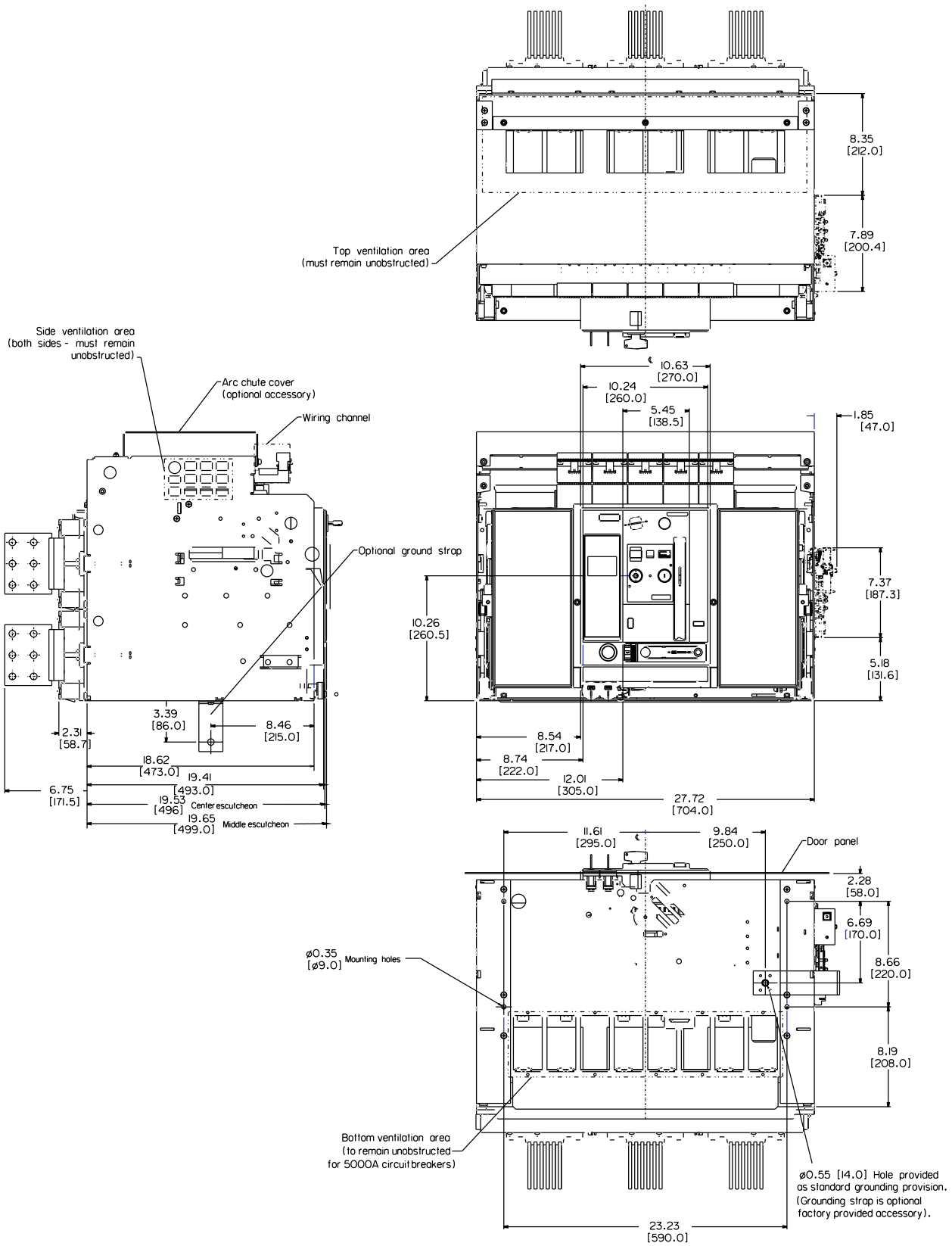
Note:
Rotatable main bus connectors are only available under the following conditions:
(1) Only acceptable for FS II 800A-2000A Frame Sizes
(2) Only acceptable for short circuit ratings of 85KAIC or less

Frame Size 2

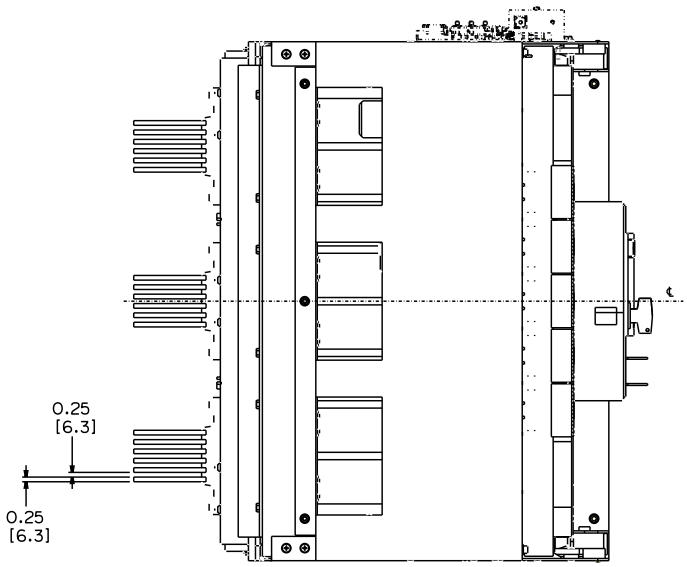
Charging, Racking and Draw-out

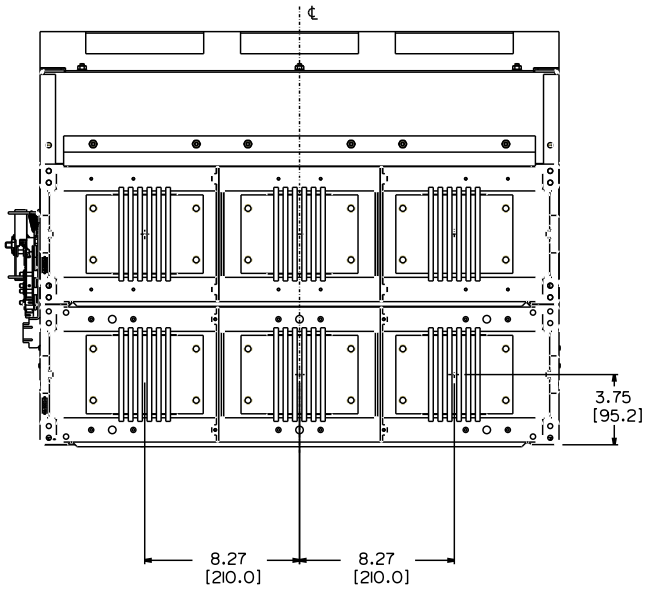


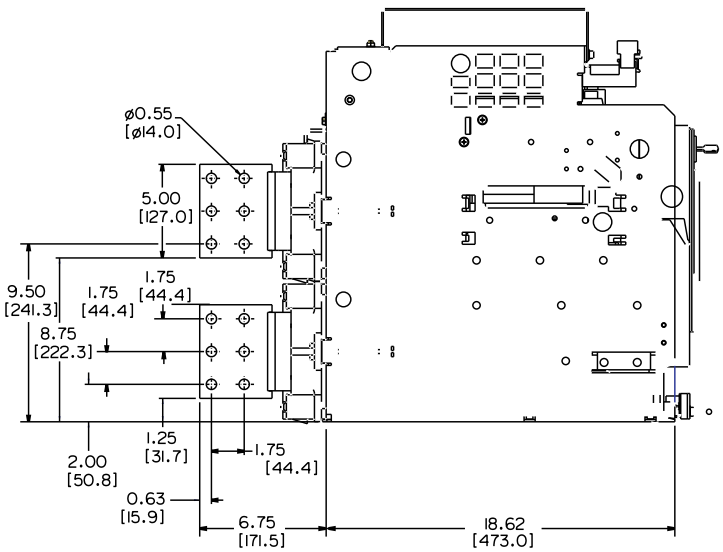
Frame Size 3


Top ventilation area
(must remain unobstructed)
8.35
[212.0]
7.89
[200.4]
Side ventilation area
(both sides - must remain
unobstructed)
Arc chute cover
(optional accessory)
Wiring channel
Optional ground strap
10.63
[270.0]
10.24
[260.0]
5.45
[138.5]
1.85
[47.0]
7.37
[187.3]
10.26
[260.5]
5.18
[131.6]
3.39
[86.0]
2.31
[58.7]
8.46
[215.0]
18.62
[473.0]
19.41
[493.0]
6.75
[171.5]
19.53
[496]
Center escutcheon
19.65
[499.0]
Middle escutcheon
8.54
[217.0]
8.74
[222.0]
12.01
[305.0]
27.72
[704.0]
11.61
[295.0]
9.84
[250.0]
Door panel
2.28
[58.0]
6.69
[170.0]
8.66
[220.0]
8.19
[208.0]
ø0.35
[ø9.0]
Mounting holes
Bottom ventilation area
(to remain unobstructed
for 5000A circuit breakers)
ø0.55 [14.0] Hole provided
as standard grounding provision.
(Grounding strap is optional
factory provided accessory).
23.23
[590.0]

Frame Size 3
Vertical Connectors

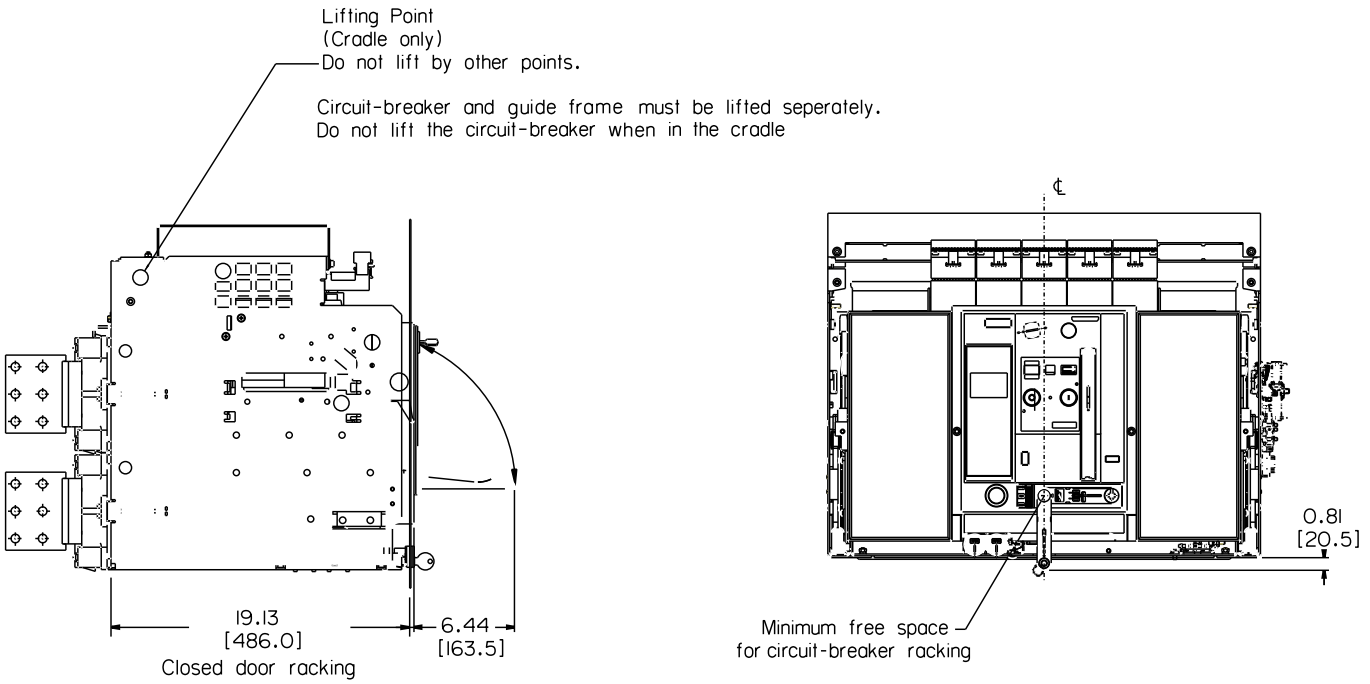


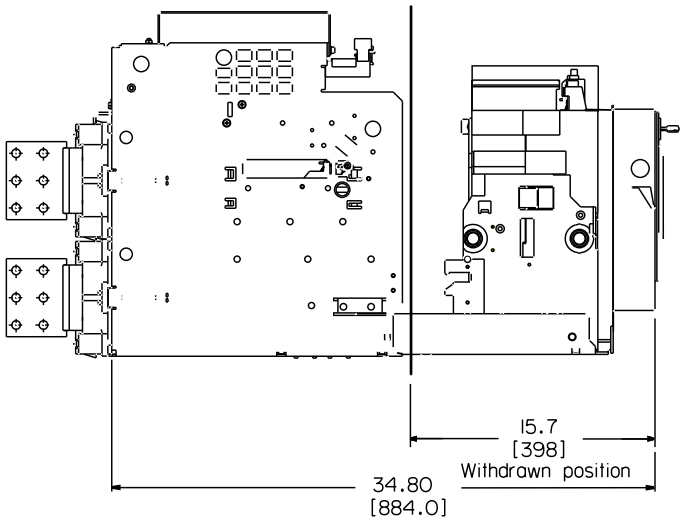




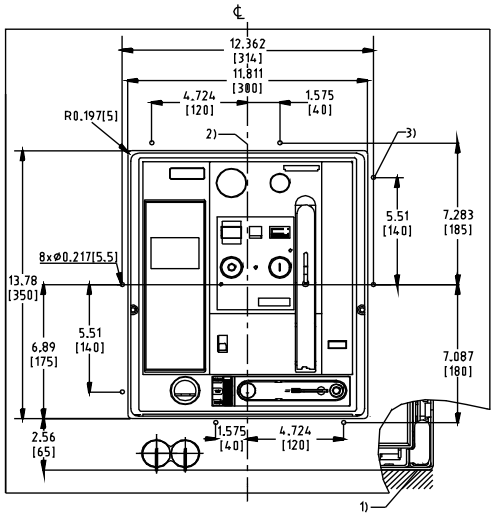
Frame Size 3

Charging, Racking and Draw-out

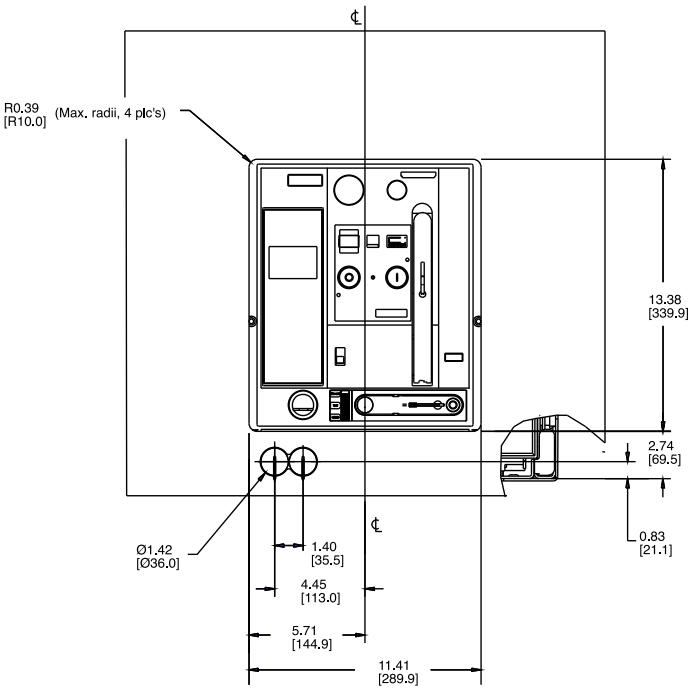




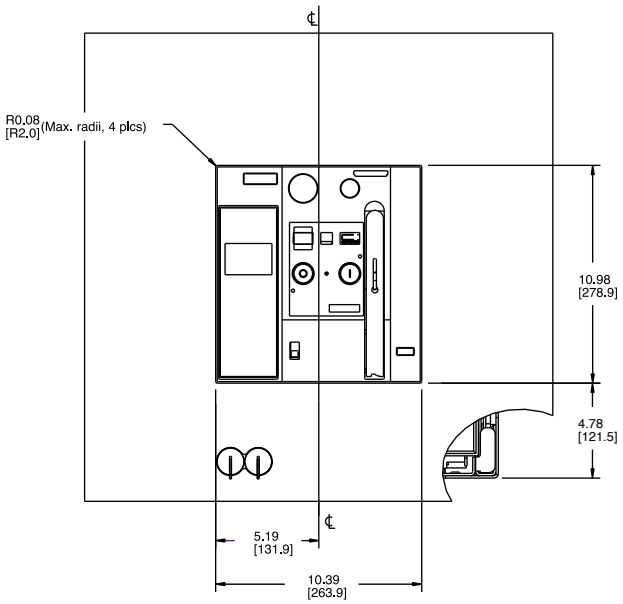
Frame Size 2 and 3
Door Cut-outs



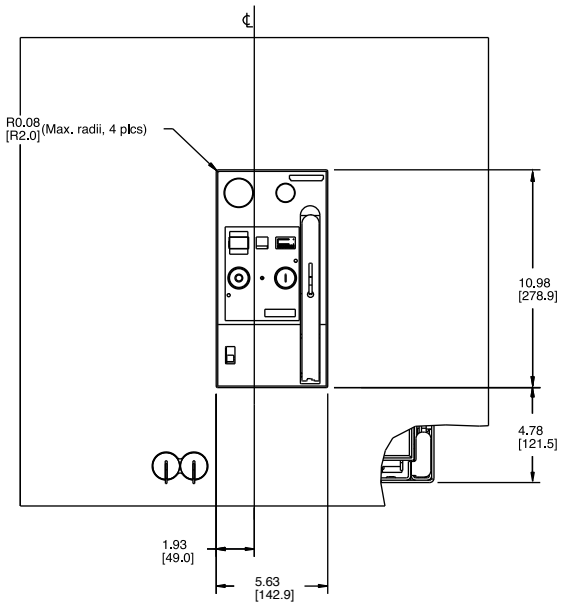
Door cut-out and mounting holes for Door Sealing Frame



Door cut-out (after mounting Door Sealing Frame)



Door cut-out (Middle escutcheon visible)

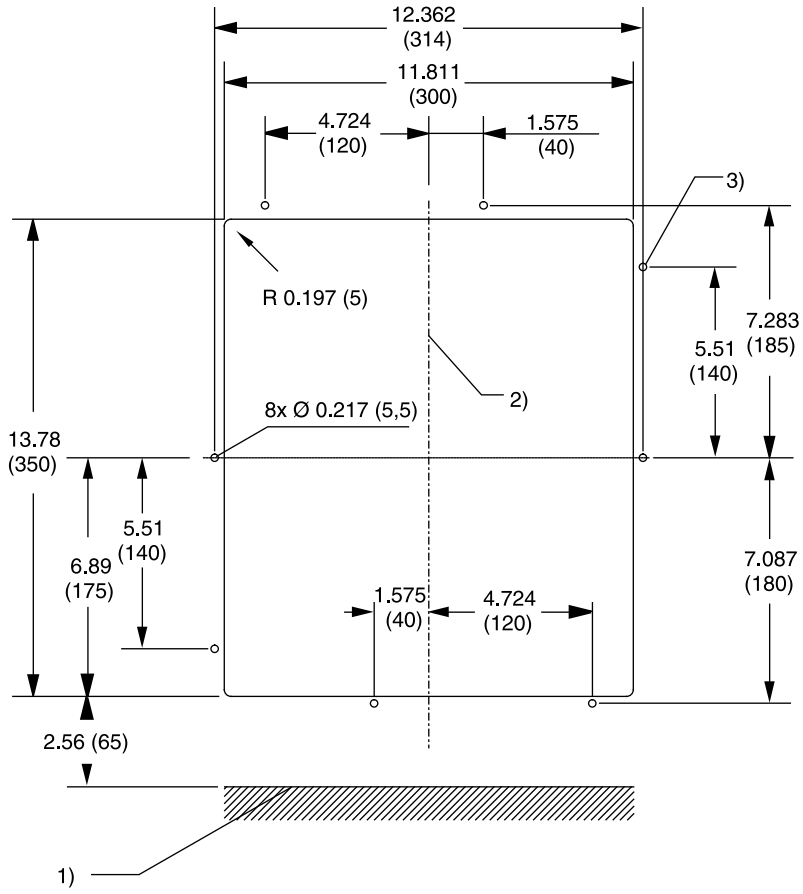


Minimal door cut-out (Only center eustcheon visible)

1) Mounting surface of the circuit breaker or cradle.
2) Center of breaker front panel.
3) Drill eight holes for mounting door sealing frame.

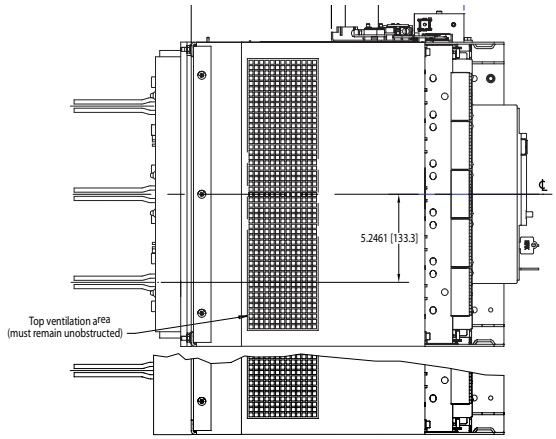
UL489 Door Sealing Frame

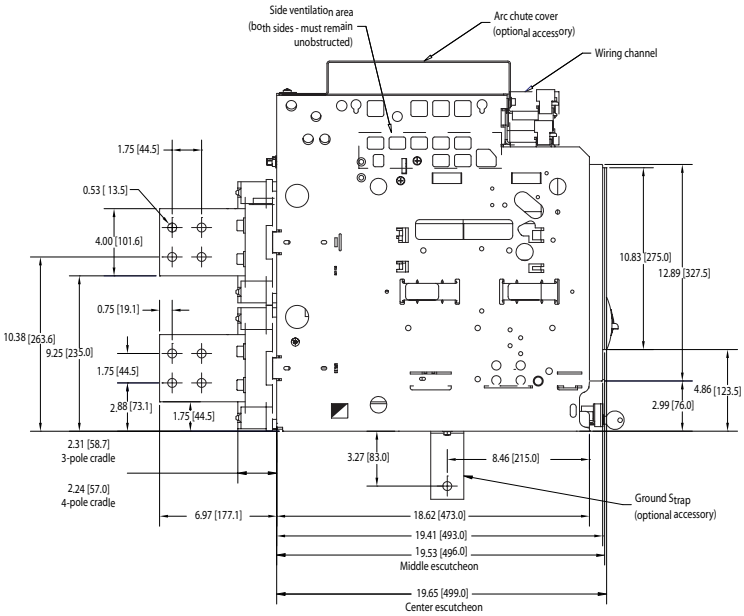
Frame Size 2 and 3
Door Cut-outs

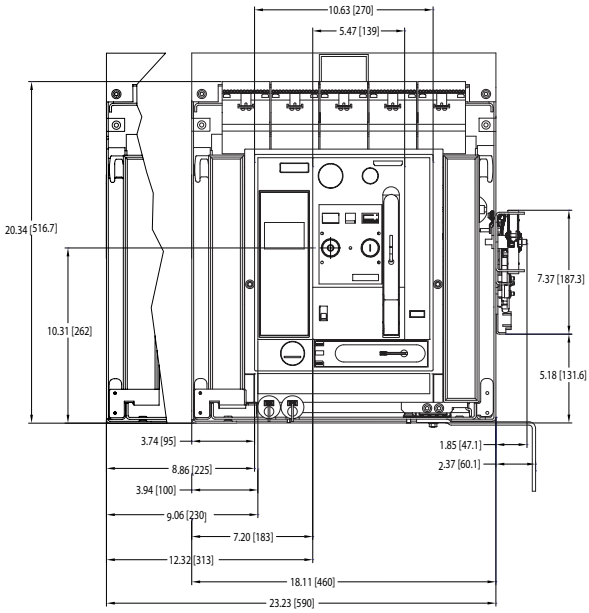


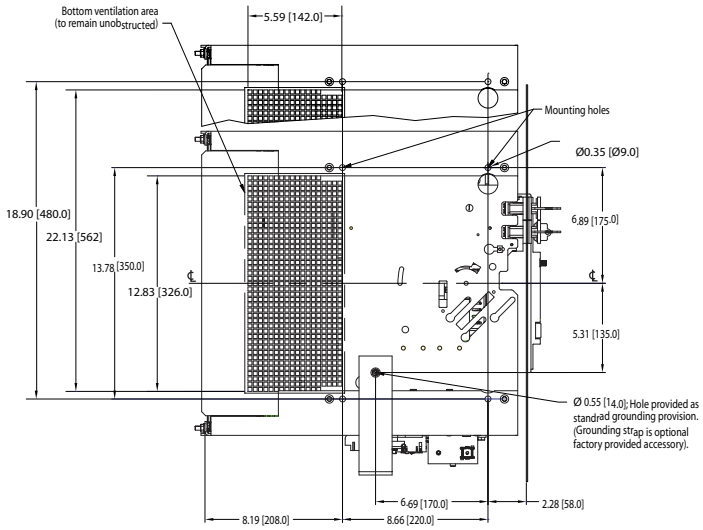
1) Mounting surface of the circuit-breaker or cradle.
2) Center of breaker front panel.
3) Drill eight holes for mounting door sealing frame.

Frame Size 2

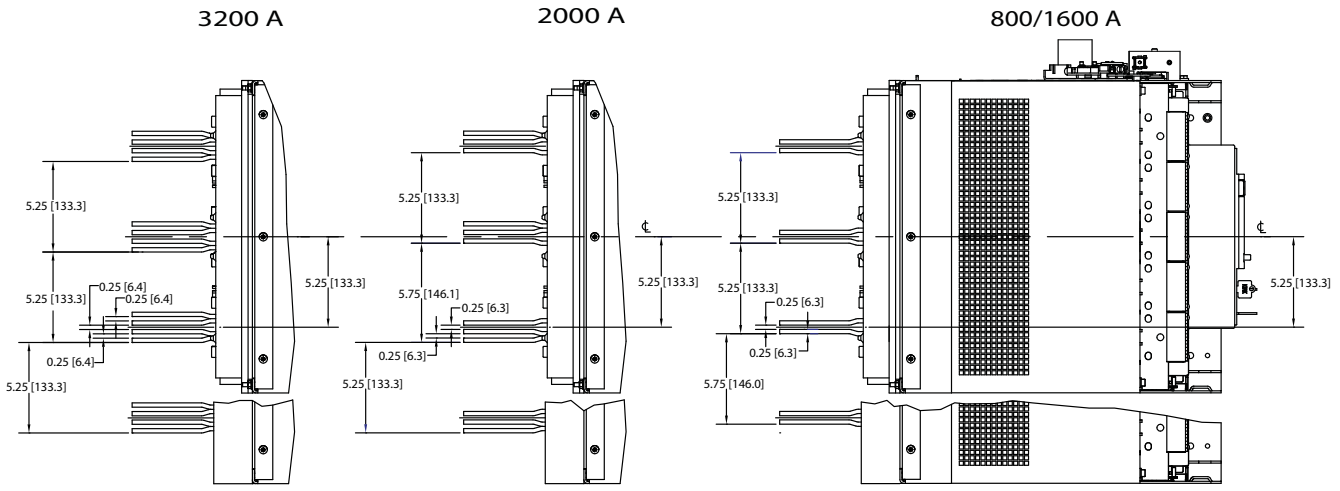

5.2461 [133.3]
Top ventilation area
(must remain unobstructed)

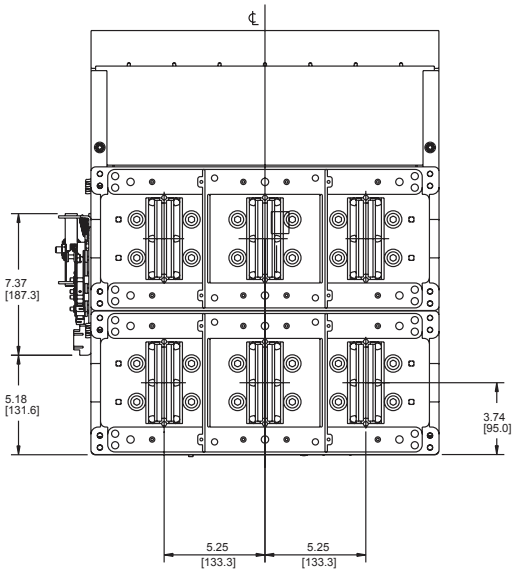

Side ventilation area
(both sides - must remain unobstructed)
Arc chute cover
(optional accessory)
Wiring channel
1.75 [44.5]
0.53 [13.5]
4.00 [101.6]
0.75 [19.1]
10.38 [263.6]
9.25 [235.0]
1.75 [44.5]
2.88 [73.1]
1.75 [44.5]
2.31 [58.7]
3-pole cradle
2.24 [57.0]
4-pole cradle
6.97 [177.1]
10.83 [275.0]
12.89 [327.5]
4.86 [123.5]
2.99 [76.0]
3.27 [83.0]
8.46 [215.0]
Ground strap
(optional accessory)
18.62 [473.0]
19.41 [493.0]
19.53 [496.0]
Middle escutcheon
19.65 [499.0]
Center escutcheon

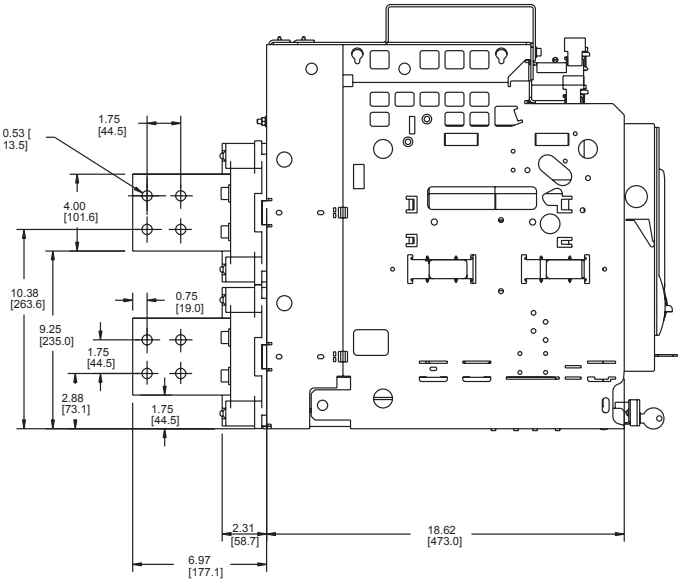

10.63 [270]
5.47 [139]
20.34 [516.7]
10.31 [262]
7.37 [187.3]
5.18 [131.6]
3.74 [95]
8.86 [225]
3.94 [100]
9.06 [230]
7.20 [183]
12.32 [313]
18.11 [460]
23.23 [590]
1.85 [47.1]
2.37 [60.1]


Bottom ventilation area
(to remain unobstructed)
5.59 [142.0]
Mounting holes
Ø0.35 [Ø9.0]
18.90 [480.0]
22.13 [562]
13.78 [350.0]
12.83 [326.0]
6.89 [175.0]
5.31 [135.0]
Ø 0.55 [14.0]; Hole provided as standard grounding provision.
(Grounding strap is optional factory provided accessory).
6.69 [170.0]
2.28 [58.0]
8.19 [208.0]
8.66 [220.0]

Frame Size 2

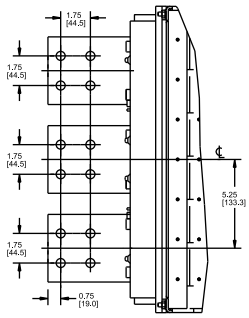

3200 A
2000 A
800/1600 A
5.25 [133.3]
0.25 [6.4]
0.25 [6.4]
5.75 [146.1]
0.25 [6.3]
5.75 [146.0]


7.37 [187.3]
5.18 [131.6]
3.74 [95.0]
5.25 [133.3]
5.25 [133.3]

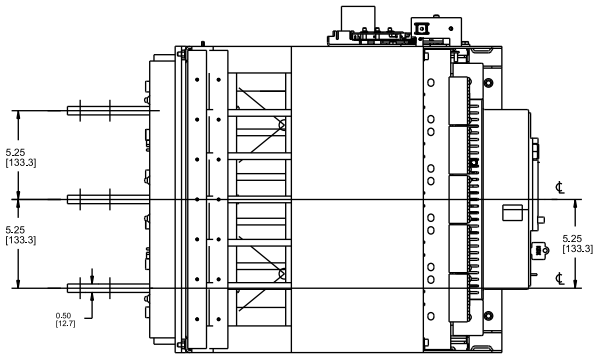

0.53 [13.5]
1.75 [44.5]
4.00 [101.6]
10.38 [263.6]
0.75 [19.0]
9.25 [235.0]
1.75 [44.5]
2.88 [73.1]
1.75 [44.5]
2.31 [58.7]
18.62 [473.0]
6.97 [177.1]

Frame Size 2

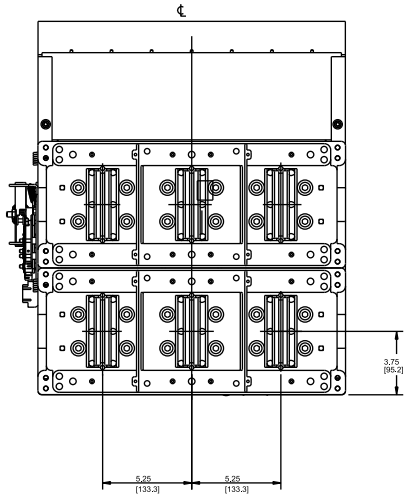
Horizontal Main Bus Connectors

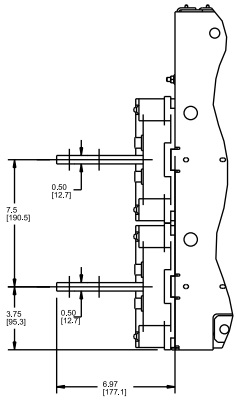


Vertical Main Bus Connectors

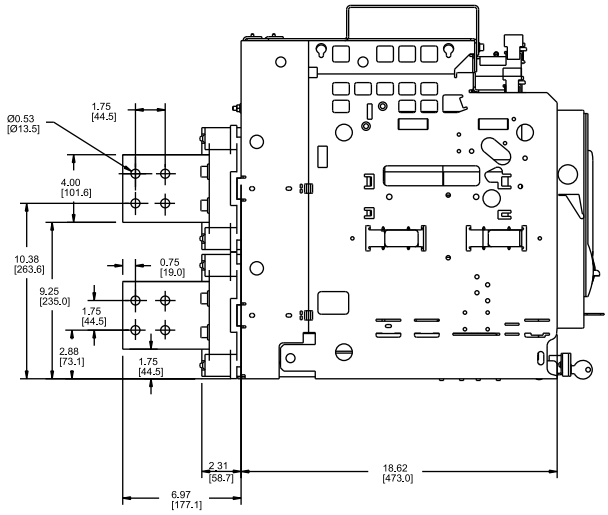


Horizontal Main Bus Connectors





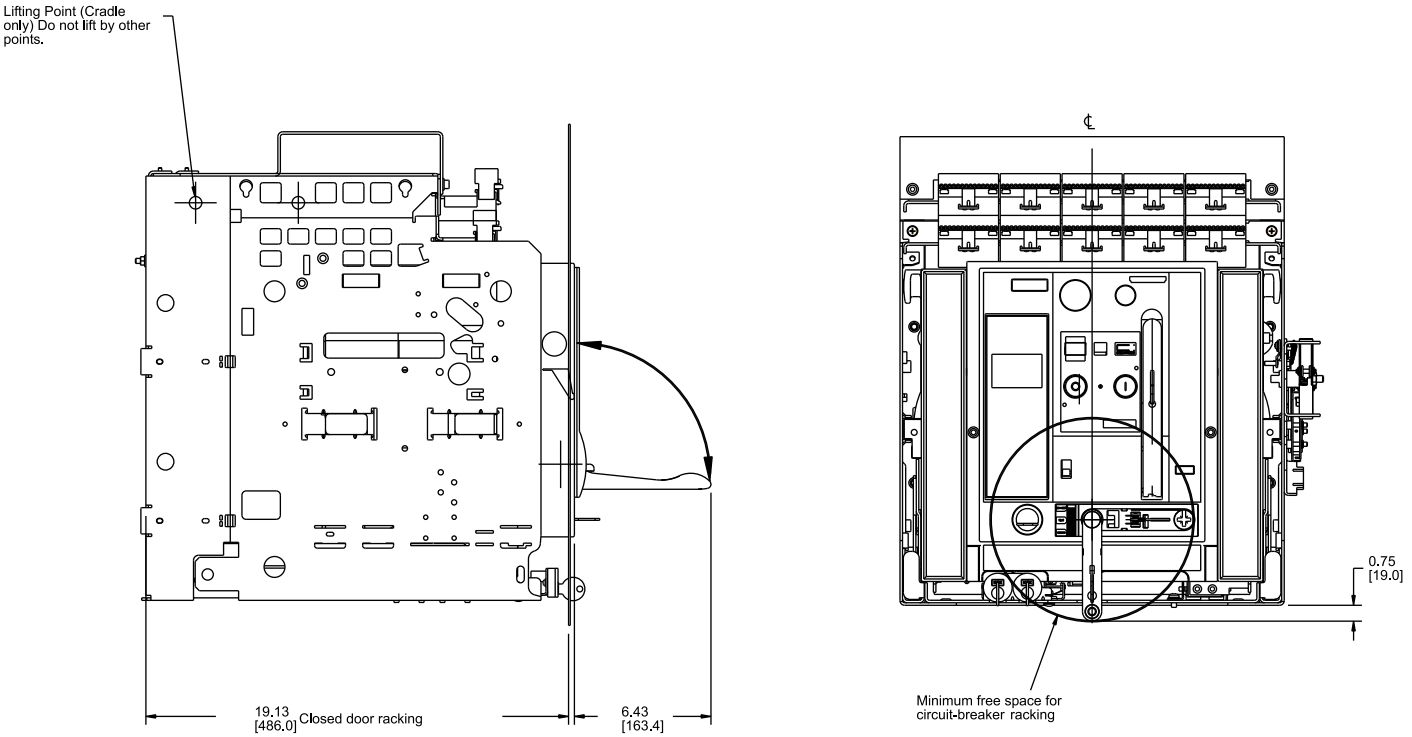
Vertical Main Bus Connectors

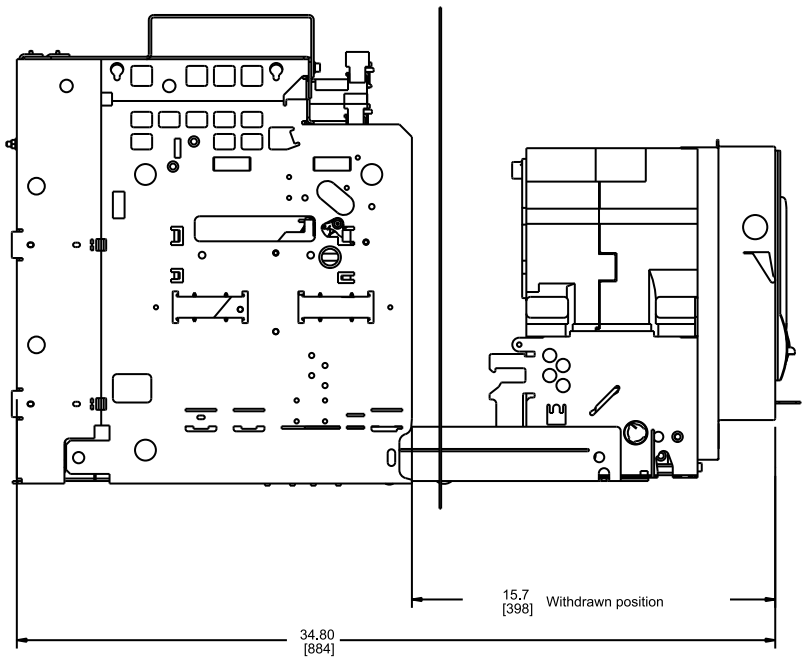


NOTE:
Rotatable main bus connectors are only available under the following conditions:
(1) Only acceptable for FS2 800A – 2000A Frame Sizes
(2) Only acceptable for short circuit ratings of 85kAIC or less

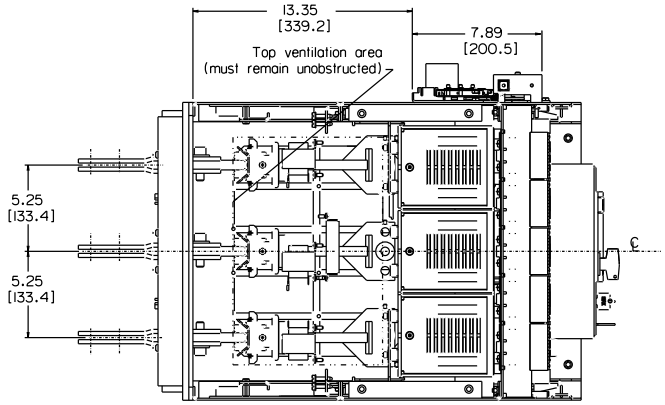
Frame Size 2

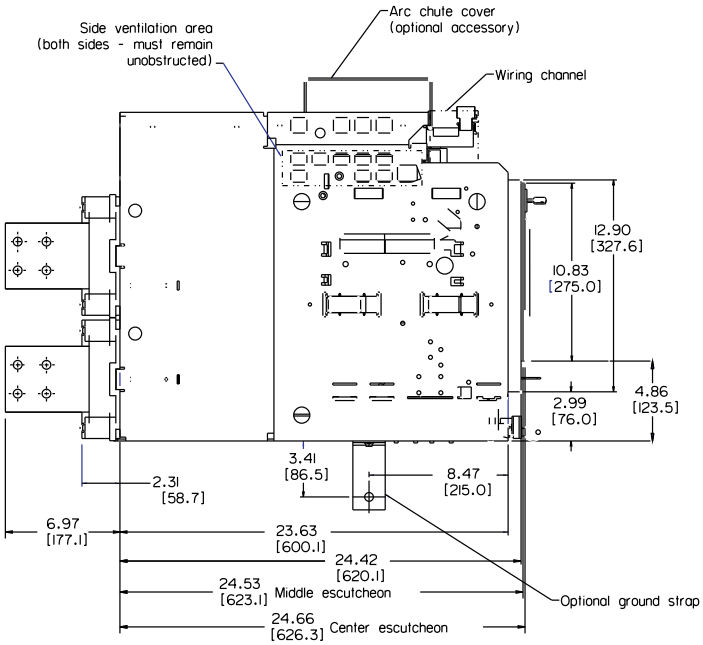
Charging, Racking and Draw-out

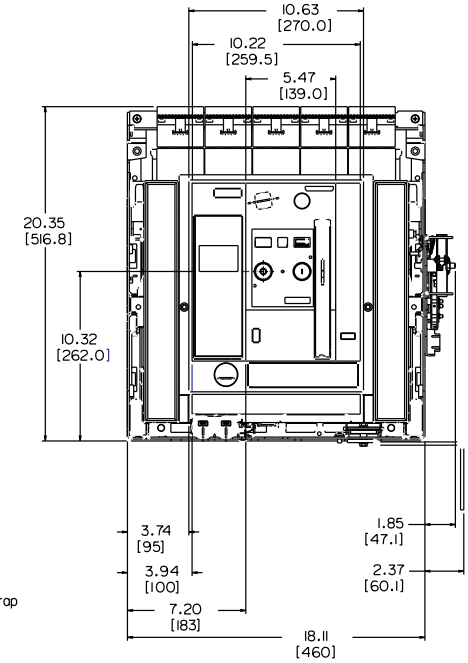


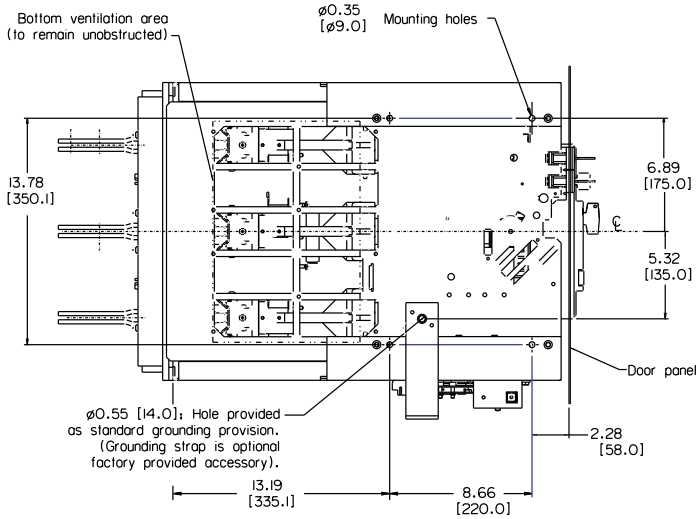


Frame Size 2

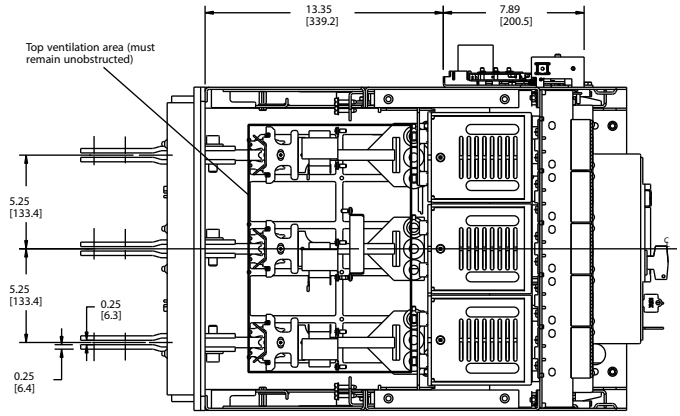

13.35
[339.2]
7.89
[200.5]
Top ventilation area
(must remain unobstructed)
5.25
[133.4]
5.25
[133.4]
℄

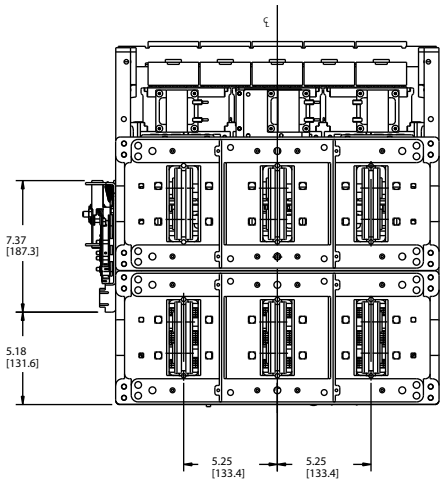

Side ventilation area
(both sides - must remain
unobstructed)
Arc chute cover
(optional accessory)
Wiring channel
12.90
[327.6]
10.83
[275.0]
4.86
[123.5]
2.99
[76.0]
3.41
[86.5]
8.47
[215.0]
2.31
[58.7]
6.97
[177.1]
23.63
[600.1]
24.42
[620.1]
24.53
[623.1]
Middle escutcheon
24.66
[626.3]
Center escutcheon
Optional ground strap

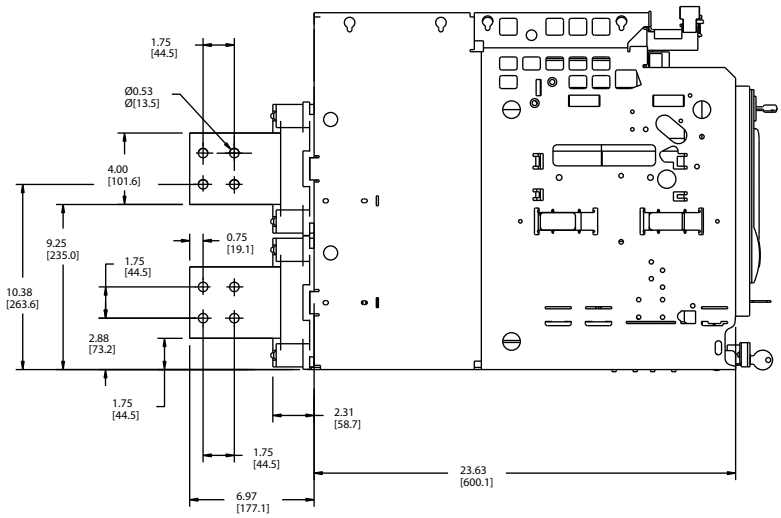

10.63
[270.0]
10.22
[259.5]
5.47
[139.0]
20.35
[516.8]
10.32
[262.0]
3.74
[95]
3.94
[100]
7.20
[183]
1.85
[47.1]
2.37
[60.1]
18.11
[460]


Bottom ventilation area
(to remain unobstructed)
ø0.35
[ø9.0]
Mounting holes
13.78
[350.1]
6.89
[175.0]
℄
5.32
[135.0]
Door panel
ø0.55 [14.0]; Hole provided
as standard grounding provision.
(Grounding strap is optional
factory provided accessory).
2.28
[58.0]
13.19
[335.1]
8.66
[220.0]

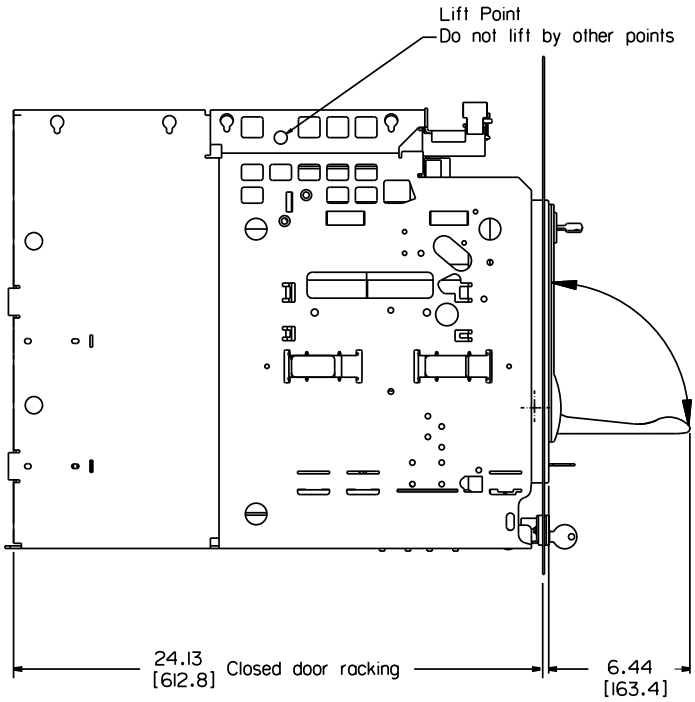
Frame Size 2

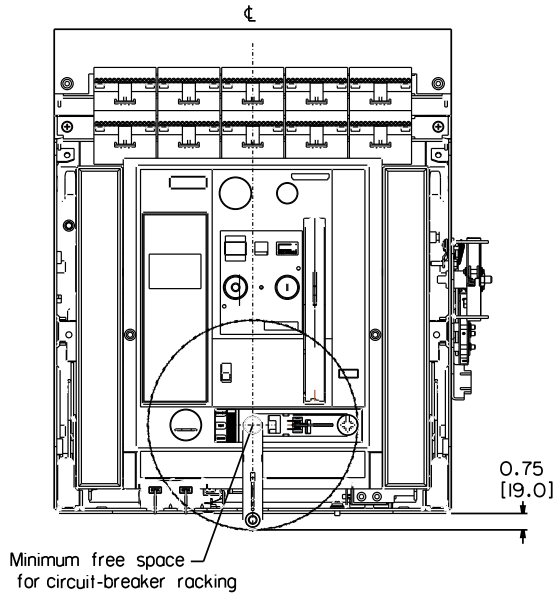

13.35
[339.2]
7.89
[200.5]
Top ventilation area (must
remain unobstructed)
5.25
[133.4]
5.25
[133.4]
0.25
[6.3]
0.25
[6.4]

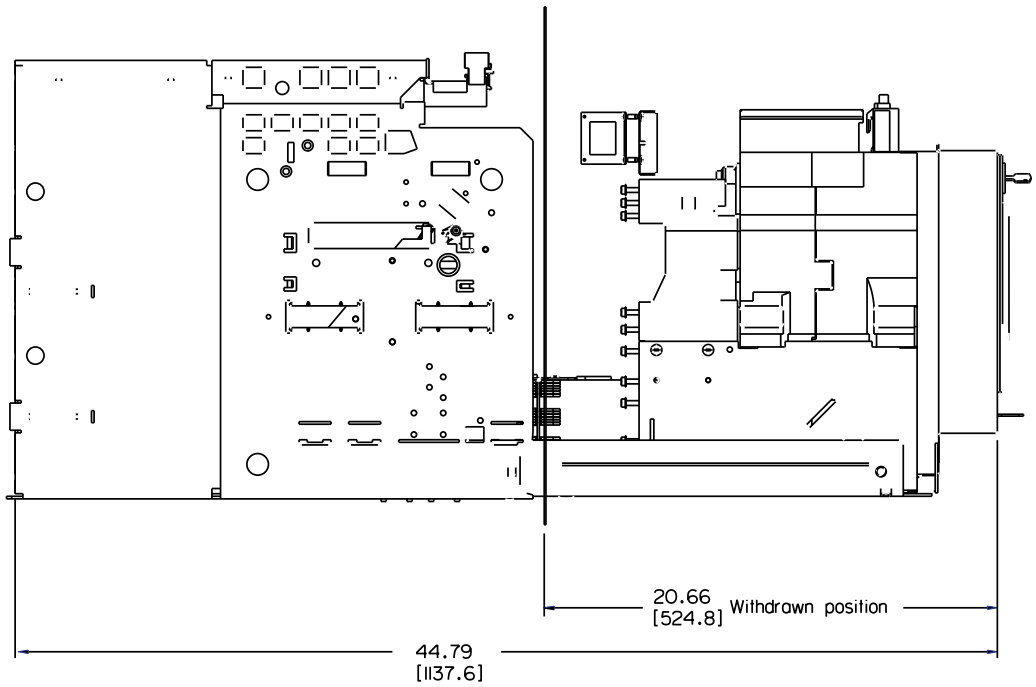

7.37
[187.3]
5.18
[131.6]
5.25
[133.4]
5.25
[133.4]


1.75
[44.5]
Ø0.53
Ø[13.5]
4.00
[101.6]
9.25
[235.0]
0.75
[19.1]
1.75
[44.5]
10.38
[263.6]
2.88
[73.2]
1.75
[44.5]
2.31
[58.7]
1.75
[44.5]
23.63
[600.1]
6.97
[177.1]

Frame Size 2
Charging, Racking and Draw-out

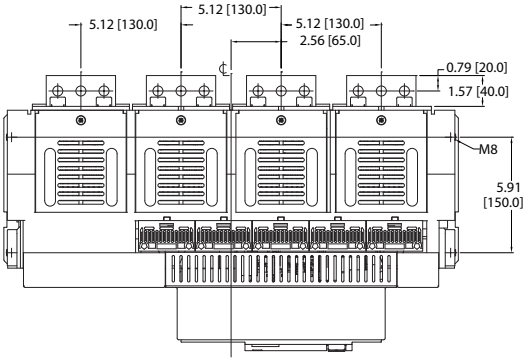


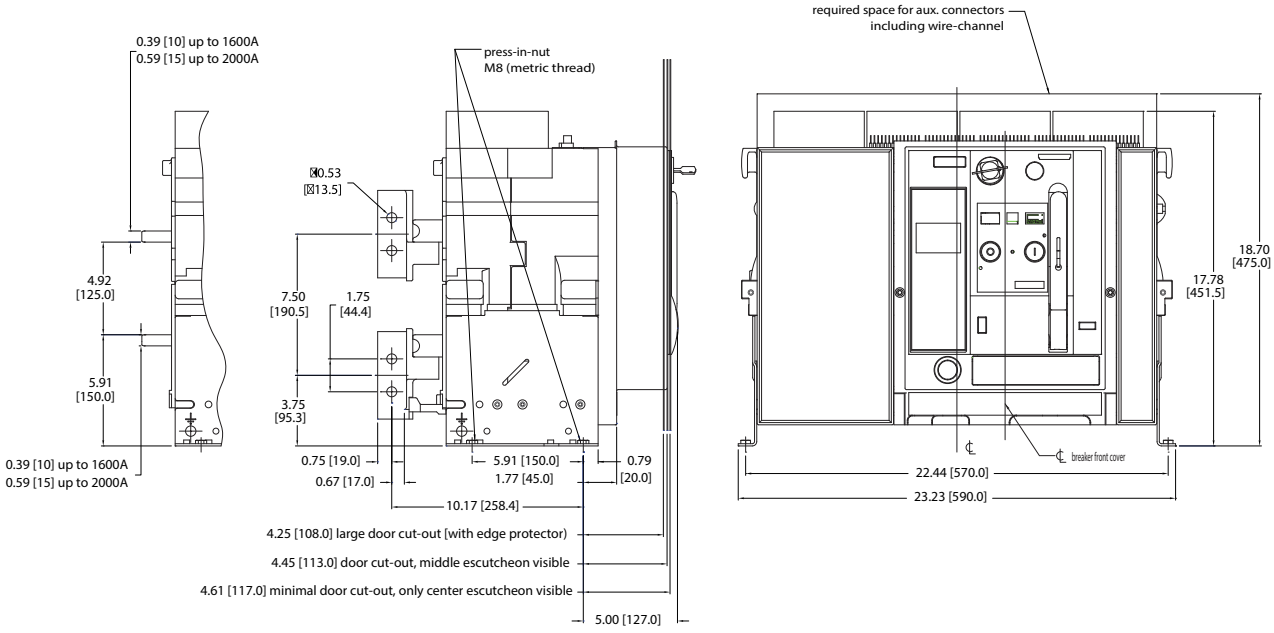




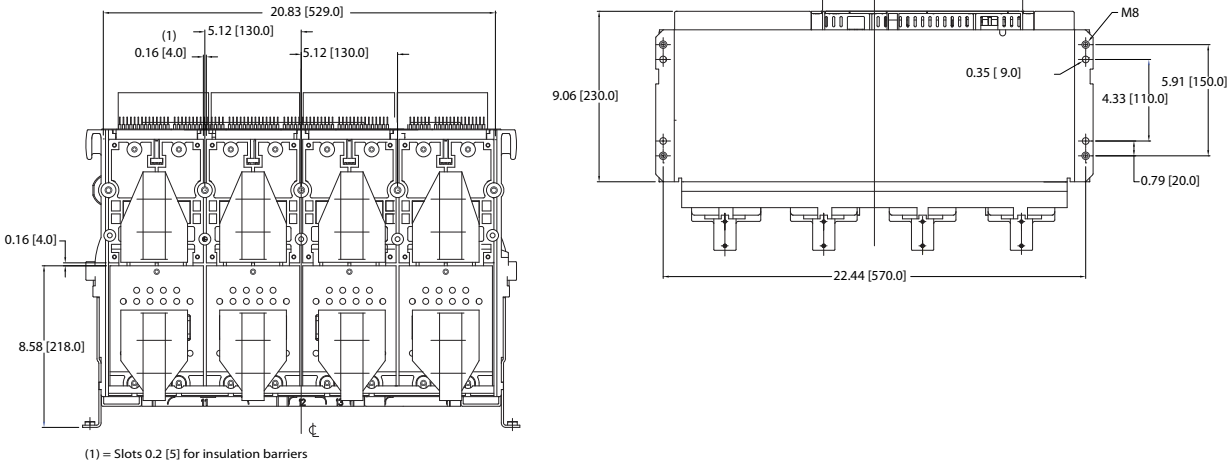
Frame Size 2
Fixed Mounted Version

Fixed mount versions are only available with rear vertical connector for FS2 3200A and FS3 4000A/5000A



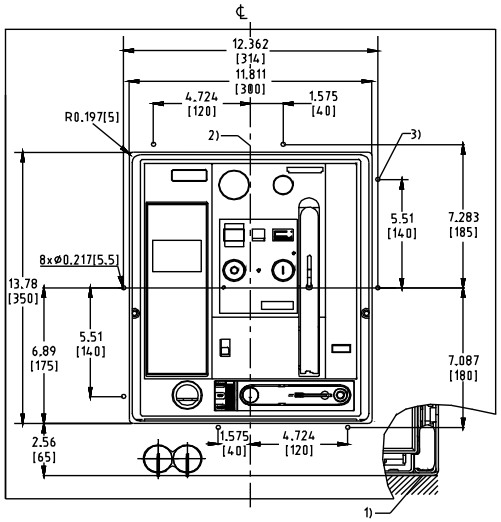


Rear View

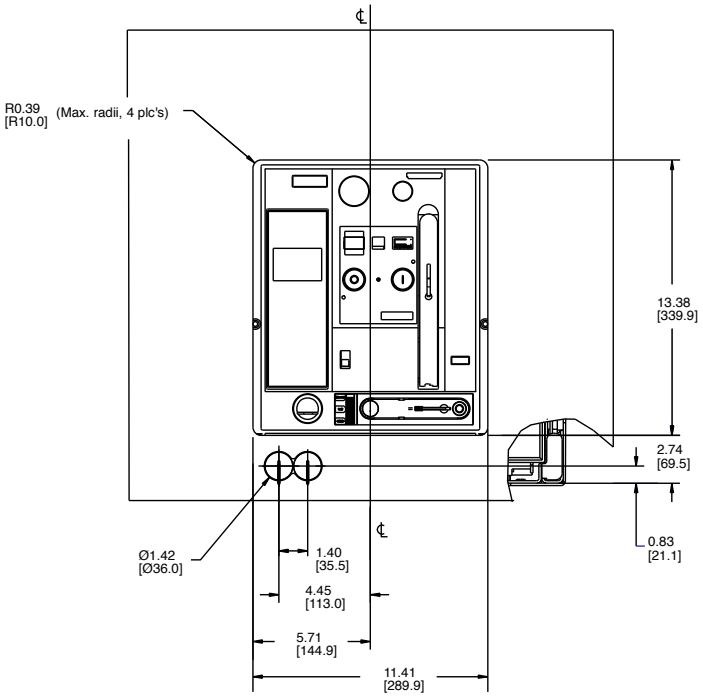


Frame Size 2

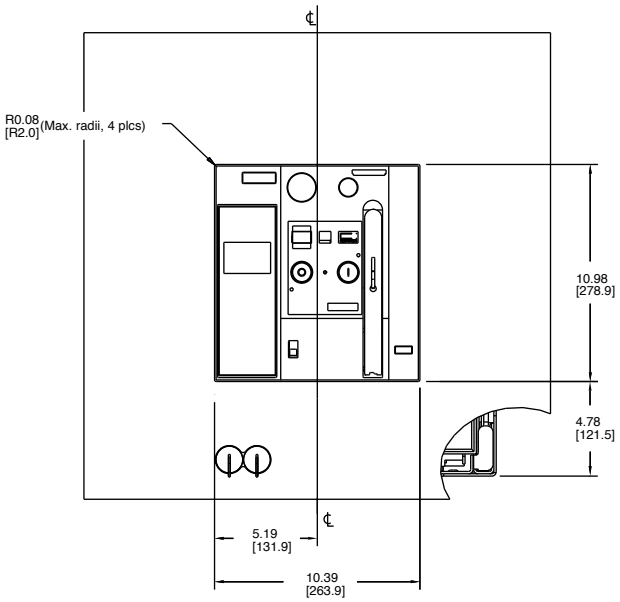
Door Cut-outs



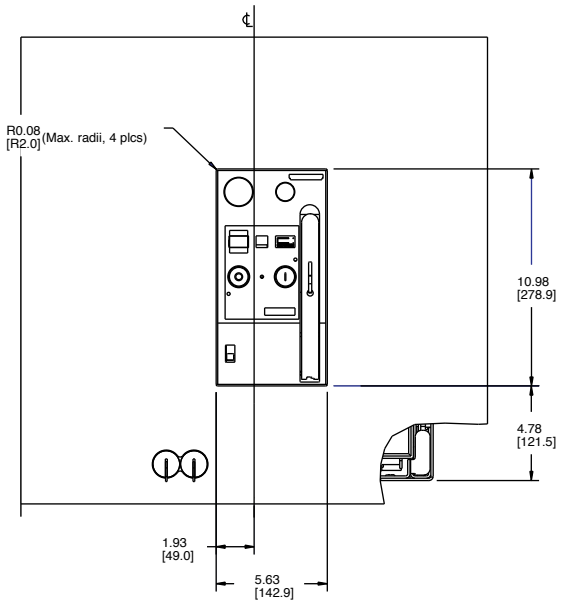
Door cut-out and mounting holes for Door Sealing Frame



Door cut-out (after mounting Door Sealing Frame)



Door cut-out (Middle escutcheon visible)

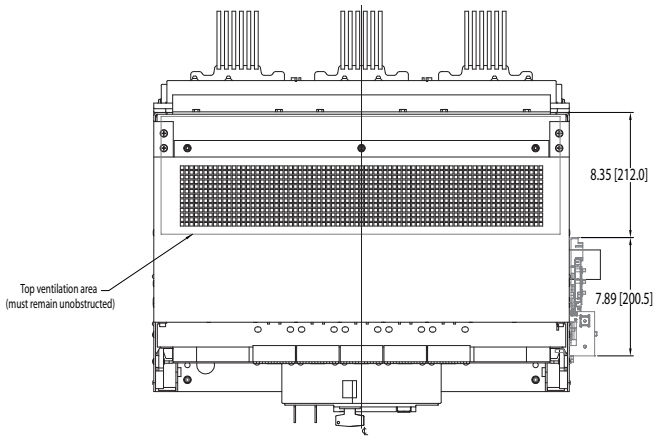


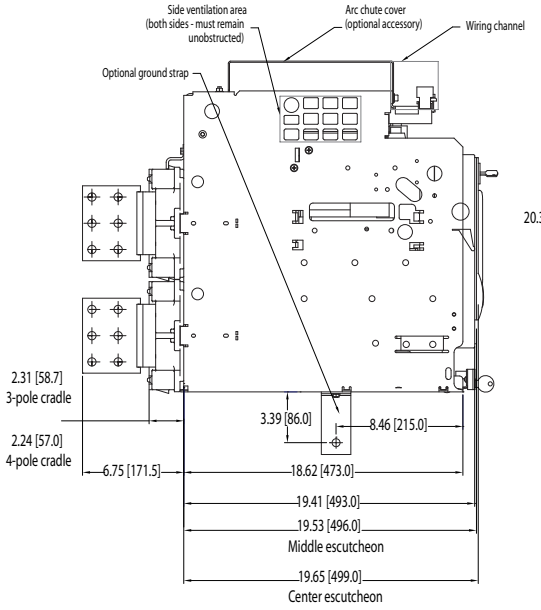
Minimal door cut-out (Only center eustcheon visible)

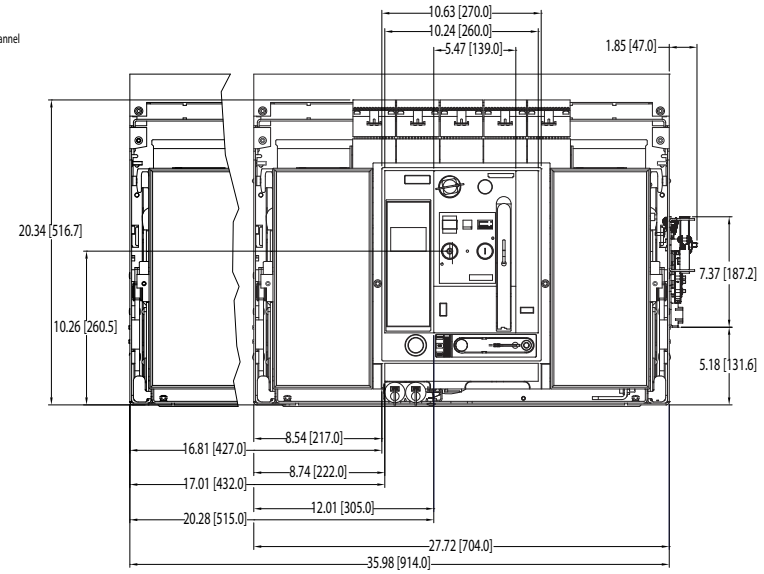
1) Mounting surface of the circuit breaker or cradle.
2) Center of breaker front panel.
3) Drill eight holes for mounting door sealing frame.

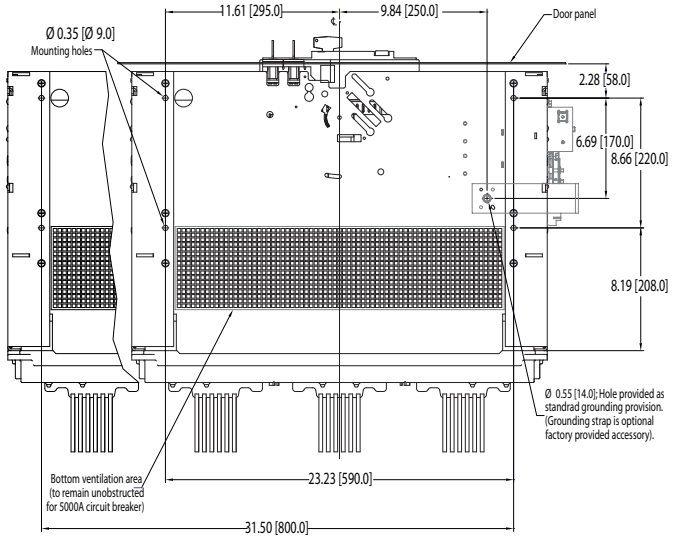
Frame Size 3

Drawout (3-Pole and 4-Pole)

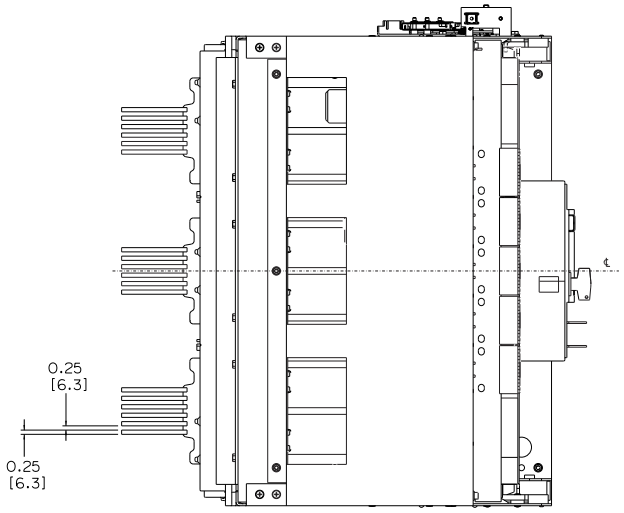


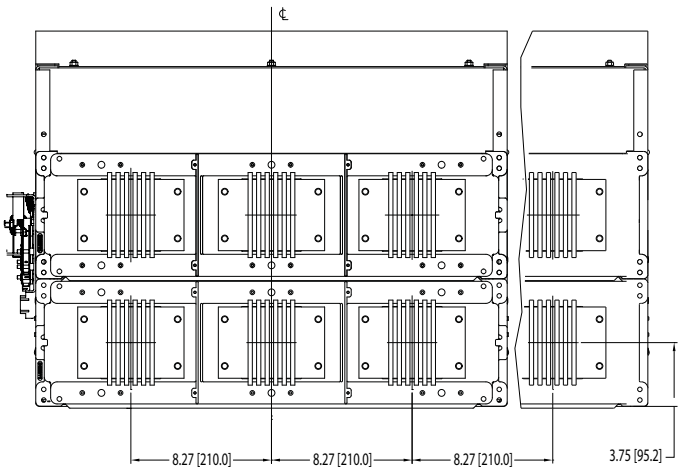


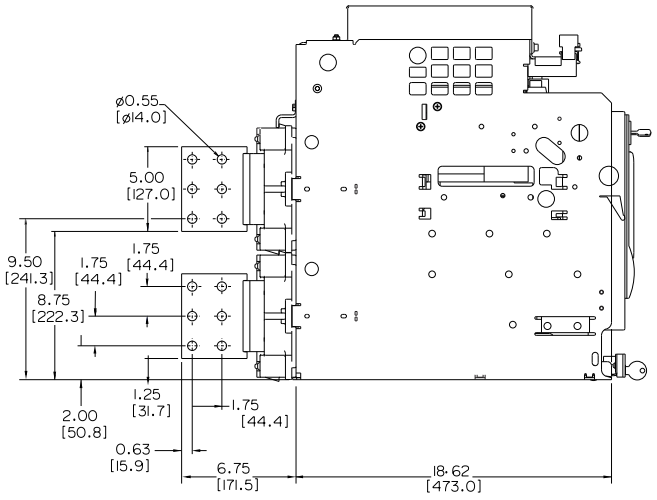




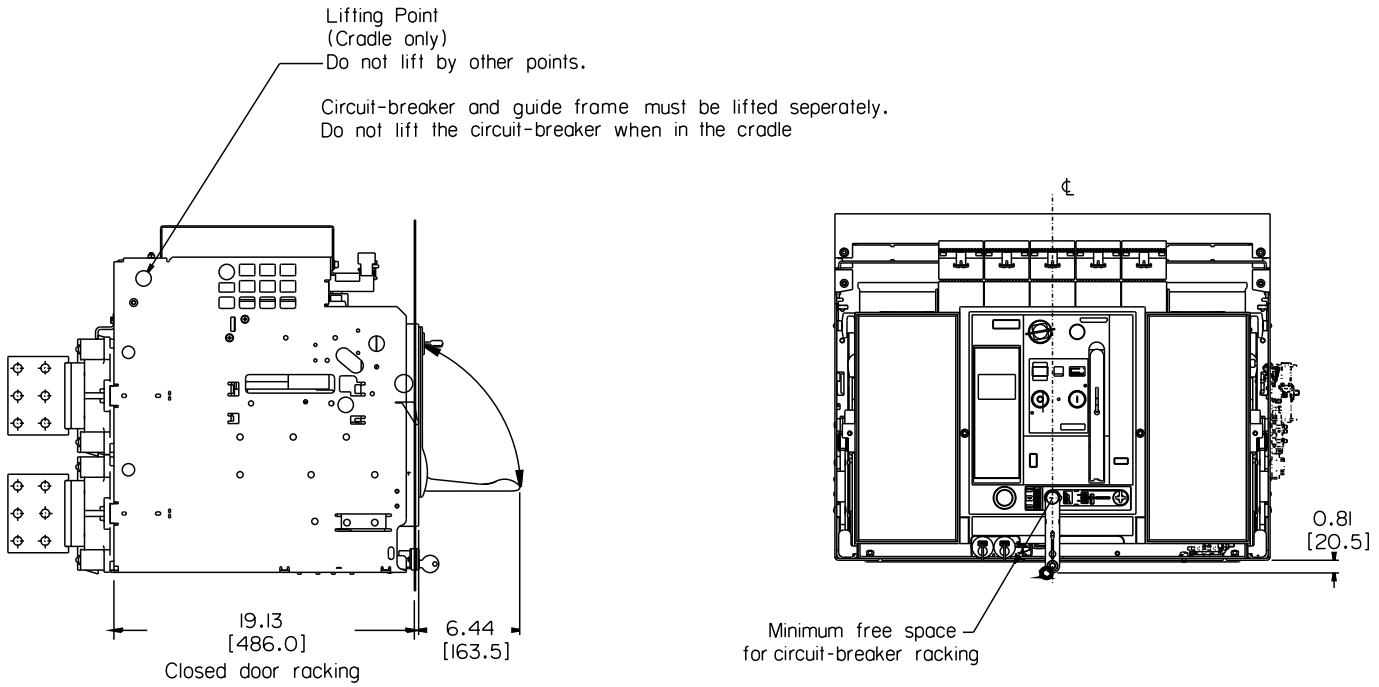
Frame Size 3

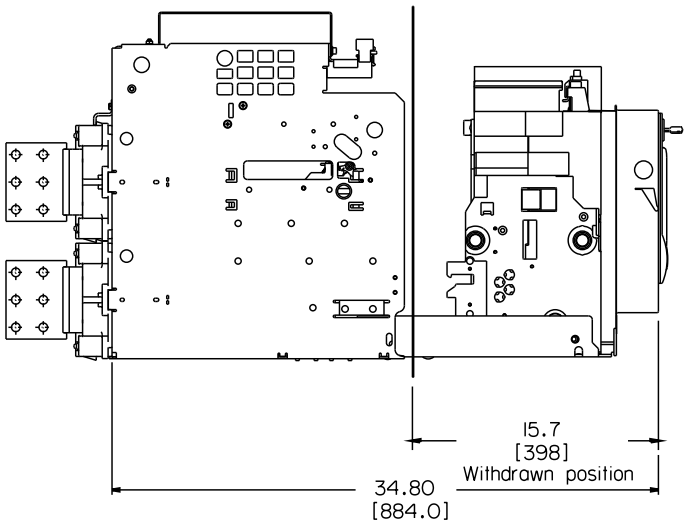

0.25
[6.3]
0.25
[6.3]


8.27 [210.0]
8.27 [210.0]
8.27 [210.0]
3.75 [95.2]


ø0.55
[ø14.0]
5.00
[127.0]
9.50
[241.3]
1.75
[44.4]
1.75
[44.4]
8.75
[222.3]
1.25
[31.7]
1.75
[44.4]
2.00
[50.8]
0.63
[15.9]
6.75
[171.5]
18.62
[473.0]

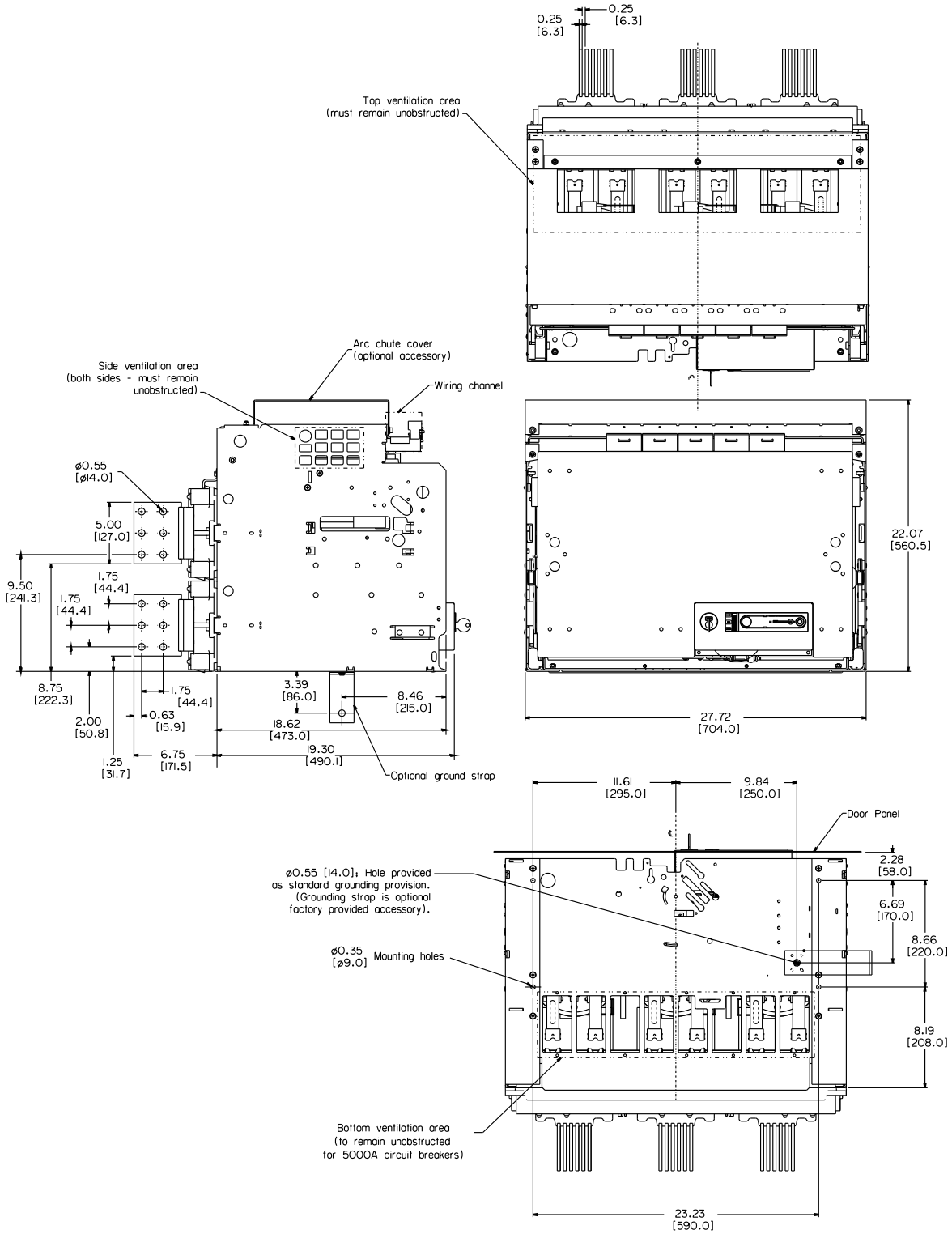
Frame Size 3


Lifting Point
(Cradle only)
Do not lift by other points.
Circuit-breaker and guide frame must be lifted seperately.
Do not lift the circuit-breaker when in the cradle
19.13
[486.0]
Closed door racking
6.44
[163.5]
℄
0.81
[20.5]
Minimum free space
for circuit-breaker racking


15.7
[398]
Withdrawn position
34.80
[884.0]

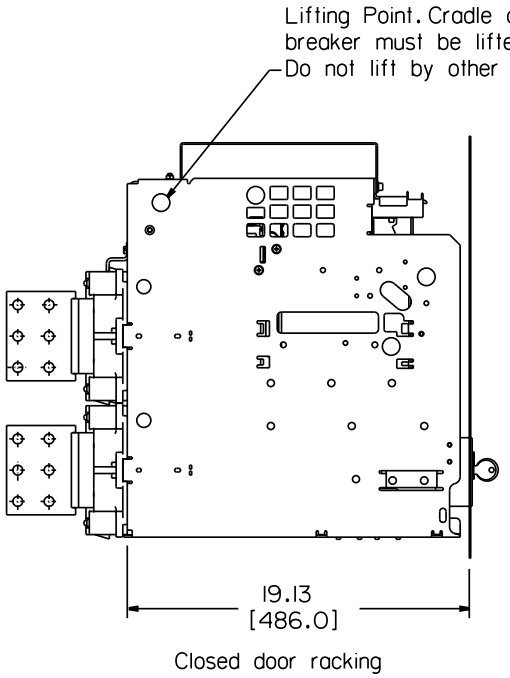
Frame Size 3

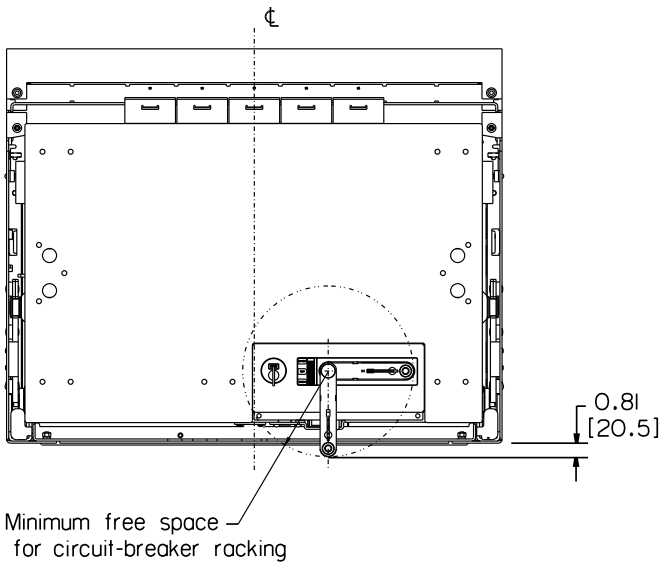
Fuse Carriage

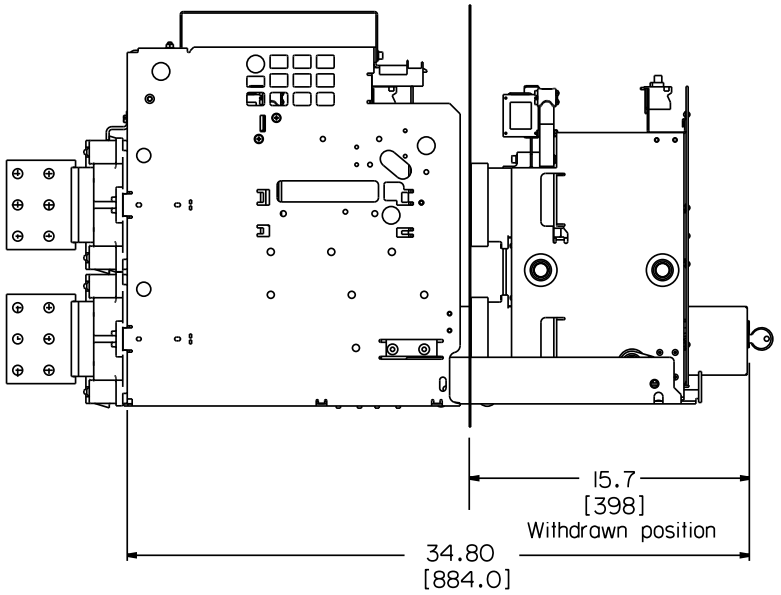


Frame Size 3

Fuse Carriage Racking



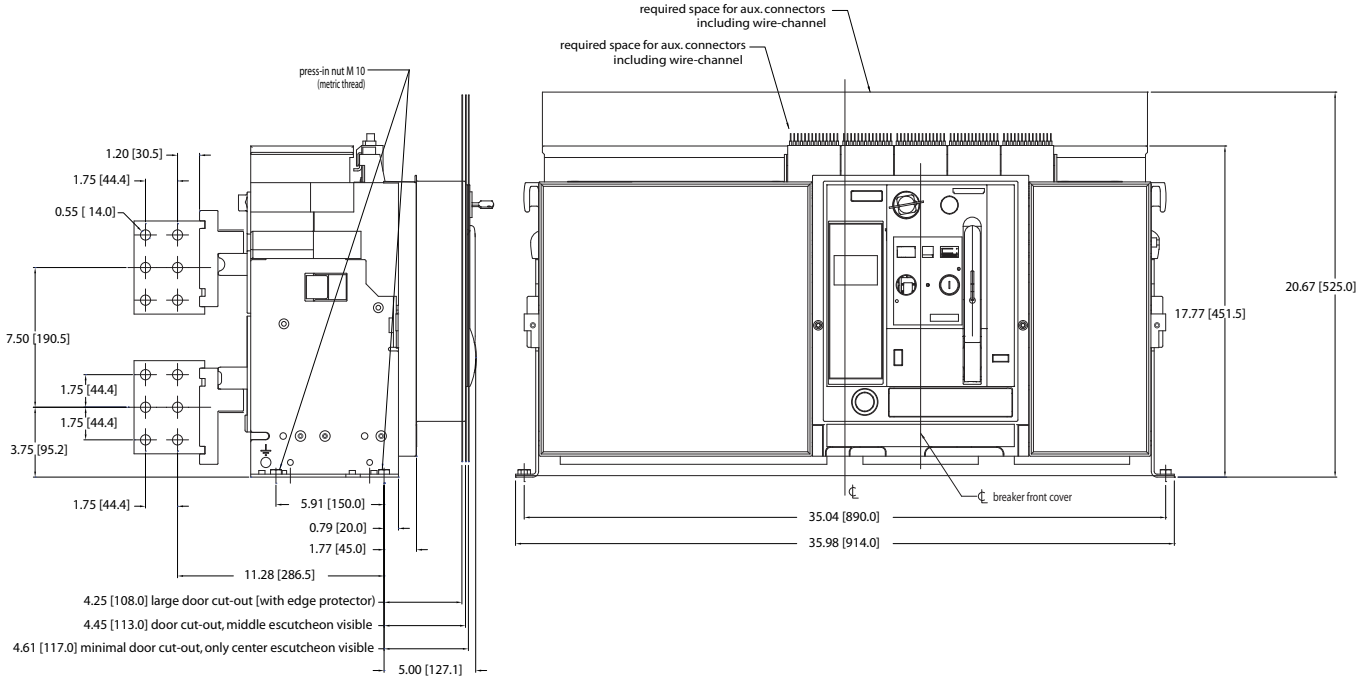




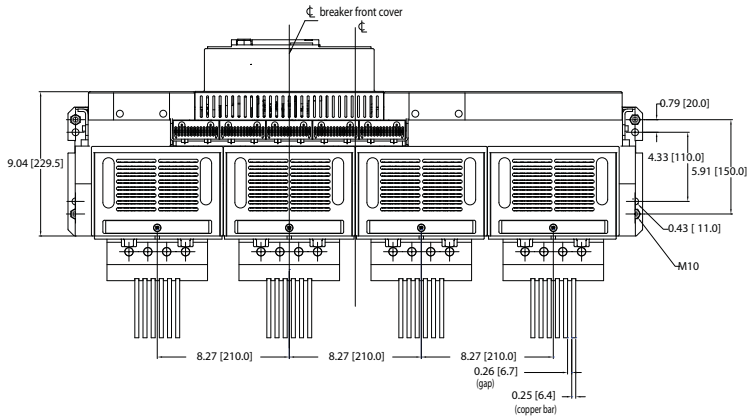
Frame Size 3

Fixed Mounted Version

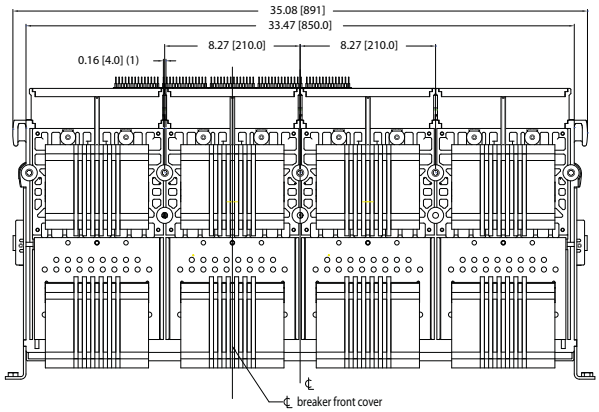
Fixed-mounted versions are only available as 4-pole with vertical connections



Top view vertical connection

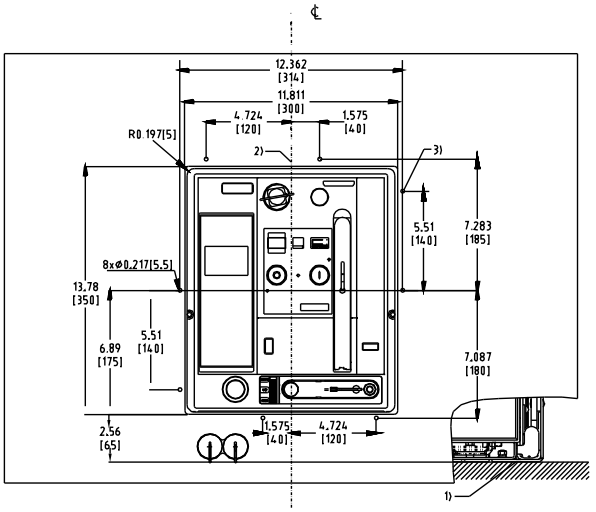


Rear view

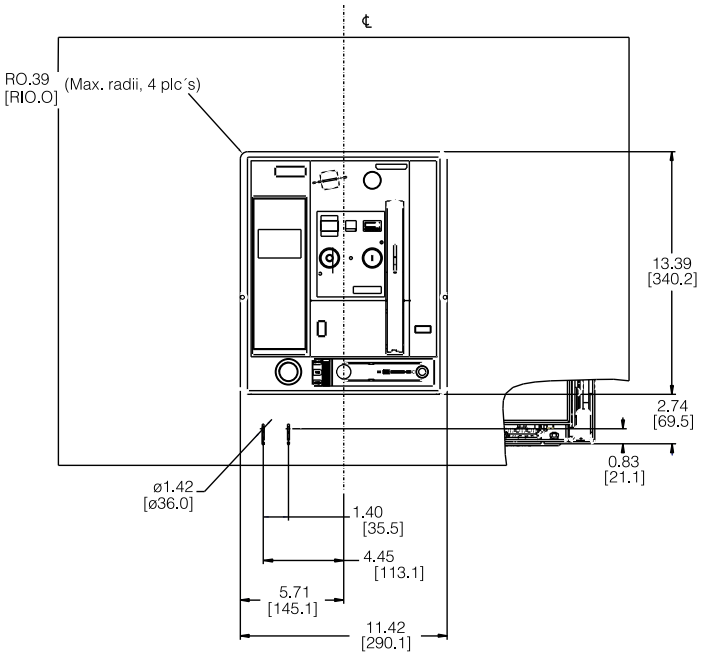


Frame Size 3

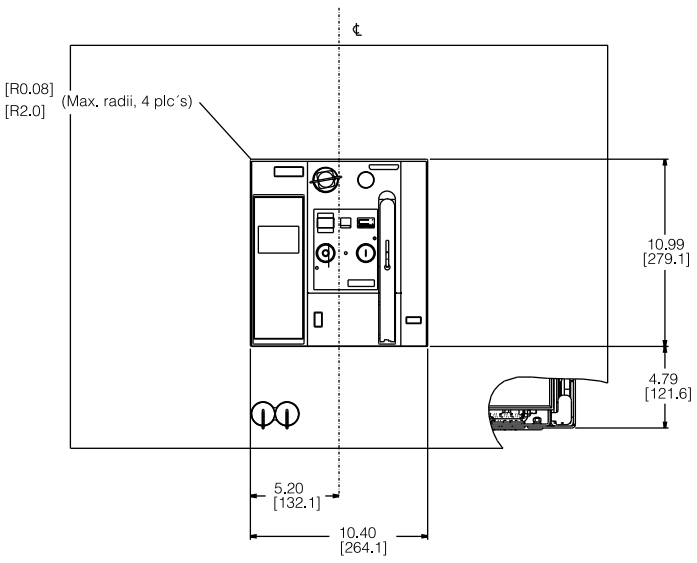
Door Cut-outs



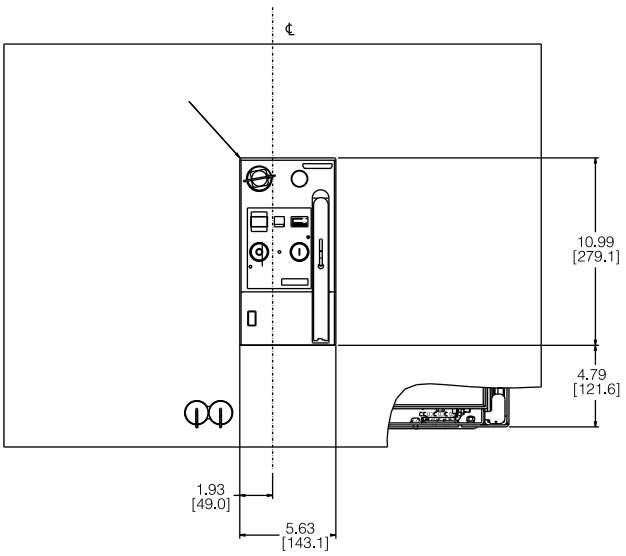
Door cut-out and mounting holes for Door Sealing Frame



Door cut-out (after mounting Door Sealing Frame)



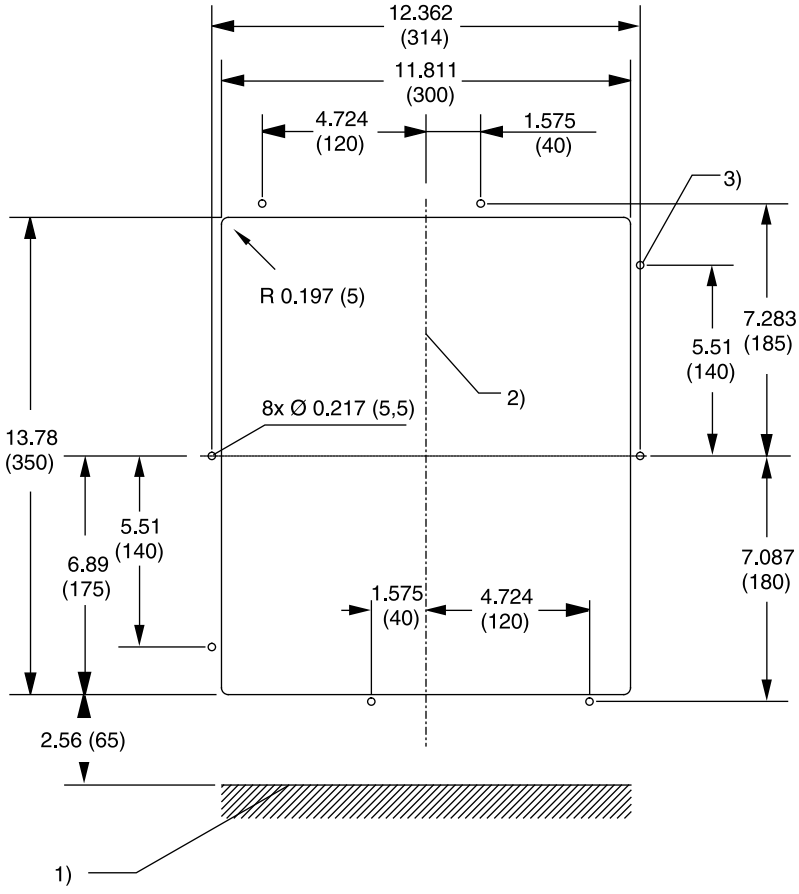
Door cut-out (Middle escutcheon visible)



Minimal door cut-out (Only center eustcheon visible)

1) Mounting surface of the circuit breaker or cradle.
2) Center of breaker front panel.
3) Drill eight holes for mounting door sealing frame.

Frame Size 2 and 3
Door Cut-outs



1) Mounting surface of the circuit-breaker or cradle.
2) Center of breaker front panel.
3) Drill eight holes for mounting door sealing frame.

WL Spare/Replacement Parts

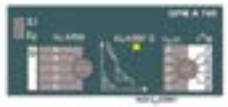
Trip Units and Rating Plugs

Selection

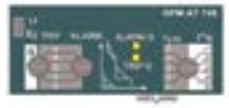
ETU 745

ETU 776

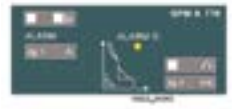
GFM A 745



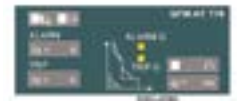
GFM AT 745



GFM A 776



GFM AT 776



ETU catalog number	Trip unit functions	Protective covers	Replacement LCD displays	Ground fault alarm	Ground fault alarm and trip
WLETU745	LSI [1]	WLTUSC55	WLLCD48	WLGFA48	WLGFM48
WLETU776[2]	LSI [1]	WLTUSC76	Not replaceable	WLGFA76	WLGFM76
WLETU776G[2]	LSIG	WLTUSC76	Not replaceable	Not available	Included
Trip unit with metering function					
WLETU745MP	LSI [1]	WLTUSC76	WLLCD48	WLGFA48	WLGFM48
WLETU776MP[2]	LSI [2]	WLTUSC76	Not replaceable	WLGFA76	WLGFM76
WLETU776GMP	LSIG	WLTUSC76	Not replaceable	Not available	WLGFM76

Overload Protection

L – Long Time Pick-up and Delay
S – Short Time Pick-up and Delay
I – Instantaneous Trip
G – Ground Fault Pick-up and Delay (Accessory sold separately)

EMC filter

Catalog number	
WLEMCFILTER	Compatible with all WL ETU versions

Rating plug

Rating plug

Catalog number	Ampere rating	Catalog number	Ampere rating	Catalog number	Ampere rating	Catalog number	Ampere rating
WLRP200	200A	**WLRP400**	400A	**WLRP800**	800A	**WLRP2500**	2500A
WLRP225	225A	**WLRP450**	450A	**WLRP1000**	1000A	**WLRP3000**	3000A
WLRP250	250A	**WLRP500**	500A	**WLRP1200**	1200A	**WLRP3200**	3200A
WLRP300	300A	**WLRP600**	600A	**WLRP1250**	1250A	**WLRP4000**	4000A
WLRP315	315A	**WLRP630**	630A	**WLRP1600**	1600A	**WLRP5000**	5000A
WLRP350	350A	**WLRP700**	700A	**WLRP2000**	2000A	**WLRP6000**	6000A

1 Optional GF module sold separately.
2 Metering function and ETU776 requires 24VDC supply.

WL Spare/Replacement Parts

Communication Components

COM Device

BSS

CubicleBus Devices

WLCOMBOARD

Catalog number	
Breaker communication module	
WLUSB485	COM16 Modbus RS485 to USB adapter cable
WLCM15M	PROFIBUS module COM15
WLCM15RET	PROFIBUS module COM15 w/ BSS
WLCM16MD	Modbus module COM16
WLCM16RET	Modbus module COM16 w/ BSS
WLCOMBOARD	COM16 RS485 adapter board (Modbus only)
WLCOM35	Modbus TCP / PROFINET module COM35
WLCOM35KIT	Modbus TCP / PROFINET module with mounting hardware
WLCOM35RET	Modbus TCP / PROFINET module with mounting hardware and BSS
Breaker status sensor	
WLBSS	Breaker status sensor for Profibus/Modbus
External I/O CubicleBus modules	
WLZSIMD	CubicleBUS Zone Selective Interlocking (ZSI) module
WLANLGCUB	CubicleBUS analog output module
WLRLYCUB	CubicleBUS digital output relay module w/ rotary switch
WLRLYCCUB	CubicleBUS digital output relay module (Configurable)
WLDGNCUB	CubicleBUS digital input module
Cables for CubicleBus modules	
WLCBUSCABLE02	CubicleBUS RJ45-M communication cable - 0.2 meters
WLCBUSCABLE1	CubicleBUS RJ45-M communication cable - 1 meter
WLCBUSCABLE2	CubicleBUS RJ45-M communication cable - 2 meters
WLCBUSCABLE4	CubicleBUS RJ45-M communication cable - 4 meters
WLCBUSCABLE9	CubicleBUS RJ45-M communication cable - 9 meters

WL Spare/Replacement Parts

Trip Unit Options

Selection

Handheld tester

24VDC power supply

TD400

Catalog number	
Trip unit test equipment	
WLTS	Hand held tester for Electronic Trip Unit, Fixed LSIG pick-up
WLTSC	Replacement cable for WLTS Test Unit

24Vdc power supply	
WLSITOP25	24Vdc ETU and COMM power supply, 2.5A SITOP Power, Class 2
WLSITOP1	24Vdc ETU and COMM power supply, 3.8A SITOP Power, Class 2

Trip unit test equipment	
3WL9111-0AT44-0AA0	Function test device for testing the tripping characteristics for overcurrent release ETU15B to ETU76B (IEC circuit breakers)
3VW9011-0AT40	TD400 Kit (IEC and UL) Commissioning and service tool for WL, 3WL1/5, and 3VA Circuit Breaker Comes with adapter, cable, and case
3VW9011-0AT43	TD400 Adapter (spare part) for 3VA
3VW9011-0AT44	TD400 Adapter (spare part) for 3WL ETU (UL)
3VW9011-0AT45	TD400 Adapter (spare part) for 3WL ETU (IEC)

WL Spare/Replacement Parts

Secondary Disconnects

Selection

Compression screw connector
WLGAUXPLUGP

Spring load connector
WLGAUXPLUGT

Ring lug connector
WLGAUXPLUGR

Catalog number	
WLGAUXPLUGP	Secondary Disconnect - Compression Screw
WLGAUXPLUGL	Secondary Disconnect - Low-Profile Compression Screw
WLGAUXPLUGT	Secondary Disconnect - Tension Terminal
WLGAUXPLUGR	Secondary Disconnect - Ring Terminal
Secondary disconnect breaker frame mount	
WLCNMD	Auxiliary Contact on Drawout Breaker (Knife Block)
WLTERMBLKUL	Pull Apart Terminal Block w/ 1M leads for UL489 Fixed Mount Breaker
WLCNMDA	Block for Extending Height of Secondary Disconnect/WLCNMD
Secondary disconnect coding kit (UL489 only)	
WLCODEKITUL	Secondary disconnect coding kit for fixed mounted breaker
WL crimp lugs	
WL10RL	Crimp Lugs (70) for WLGAUXPLUGR - #10 AWG

Low-profile screw connector
WLGAUXPLUGL

Knife Blade Contact Block
WLCNMD

WLTERMBLKUL

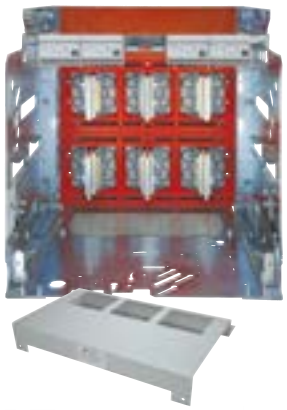
Extends Height of WLCNMD
WLCNMDA

Coding Kit
WLCODEKITUL

WL Spare/Replacement Parts

Cradle Frame Accessories

Selection



Arc Chute Cover

Catalog number	
Stationary primary bus-bar disconnect terminals consists of 1 bus-bar pole only)	
WLGST15123LI	Stab tip replacement kit - 800A/1200A, FS1, Line Side
WLGST10163LD	Stab tip replacement kit - 800A/1200A/1600A, FS2, Load Side
WLGST10163LL	Stab tip replacement kit - 800A/1200A/1600A, FS2, Line and Load Side
WLGST15203LL	FS2 2000A and FS1 800/1200/1600/2000 lower Stab Tip
WLGST15203LD	Stab tip replacement kit - 2000A - 800A/1200A, FS2, Load Side
WLGST30323LL	Stab tip replacement kit - 2500A/3000A, FS2, Line and Load Side
WLGST30503LL	Stab tip replacement kit - 4000A/5000A, FS3, Line and Load Side

Cradle arc chute cover	
WLGARC1UL	3P Arc chute cover, UL489 FS1, Class S/H/L
WLGARC2	3P Arc chute cover ANSI FS2, Class N/S/H/L
WLGARC2UL	3P Arc chute cover, UL489 FS2, Class S/L
WLGARCF2	3P Arc chute cover, ANSI FS2, Class F Fused
WLGARC3	3P Arc chute cover, ANSI/UL489 FS3, Class H/L/F
WL4GARC2	4P Arc chute Cover, ANSI FS2
WL4GARC3	4P Arc chute Cover, ANSI FS3

MOC – Mechanism operated contacts	
(for draw-out breaker)	
WLMOC	MOC with 4NO + 4NC, Test and Connect Position, FS1/FS2
WLMOCC	MOC with 4NO + 4NC, Connect Position, FS1/FS2
WLMOC3	MOC with 4NO + 4NC, Test and Connect Position, FS3
WLMOCC3	MOC with 4NO + 4NC, Connect Position, FS3
(for fixed mounted circuit breakers)	
WLMOCUL1	MOC with 4NO + 4NC, FS1 Fixed
WLMOCUL	MOC with 4NO + 4NC, FS2/FS3 Fixed

TOC – Truck operated contacts	
WLGSGSW111	Truck Operated Contact (1Conn-1Test-1Disconn)
WLGSGSW321	Truck Operated Contact (3Conn-2Test-1Disconn)
WLGSGSW6	Truck Operated Contact (6Conn)

Isolation shutters	
WLG3SHUT1L	FS1 3-Pole Shutter for Class S,H,L
WLG3SHUT2L	FS2 3-Pole Shutter for Class N,S,H,L
WLG3SHUT2F	FS2 3-Pole Shutter for Class F
WLG3SHUT2M	FS2 3-Pole Shutter for Class C
WLG3SHUT3L	FS3 3-Pole Shutter for Class L,F,H
WLG3SHUT3M	FS3 3-Pole Shutter for Class C,M
WLG3SHUT3FC	FS3 3-Pole Shutter for Fuse Carriage
WLG4SHUT2L	FS2 4-Pole Shutter for Class S,H,L
WLG4SHUT3L	FS3 4-Pole Shutter for Class H,L

WL Spare/Replacement Parts

Cradle Frame

Selection

Cradle Frame Heater
WLGHEAT

Key Interlocking
(Drawout)

Mechanical Interlock

Catalog number	
WLGHEAT	Cradle frame heater

Locking devices mounted on the cradle frame	
WLDLKRK	Kirk Key – Lock breaker in OPEN position (FS2, FS3 only)
WLDLDKRK	Double-Kirk Key – Lock breaker in OPEN position (FS2, FS3 only)
WLDLSUP	Superior – Lock breaker in OPEN position (FS2, FS3 only)
WLDLDSUP	Double Superior – Lock breaker in OPEN position (FS2, FS3 only)
WLDLDPR	Provision Only – Double lock breaker in the OPEN position (FS2, FS3 only)
WLDRLC	Locking device against opening the cubicle door when breaker is in connect position, FS1 Only
WLDRLC1	Locking device against opening the cubicle door when breaker is in connect position, FS2, FS3
WLDRLC5UL	Locking device against moving/racking the breaker when the cubicle door is in connect position, FS2, FS3
WL4DLDRK2	WL Cradle Lock Double Kirk FS2 4-Pole
WL4DLDUP2	WL Cradle Lock Double Superior FS2 4-pole
WL4DLPR2	WL Cradle Lock Single Superior Provision FS2 4-pole
WL4DLKRK3	WL Cradle Lock Single Kirk FS3 4-Pole
WL4DLSUP3	WL Cradle Lock Single Superior FS3 4-pole
WL4DLKRK3	WL Cradle Lock Double Kirk FS3 4-pole
WL4DLDSUP3	WL Cradle Lock Double Superior FS3 4-pole
WL4DLPR3	WL Cradle Lock Single Provision FS3 4-pole

Mechanical interlock devices [1]	
WLNTLK	For FS1, FS2, FS3 Draw-out breaker
WLNTLKF1	FS1 Fixed mounted circuit breaker
WLNTLK23	FS2 and FS3 Fixed mounted circuit breaker
WLNTLWIRE2	Interlock Cable (2.0m Bowden Cable)
WLNTLWRE3	Interlock Cable (3.0m Bowden Cable)
WLNTLWRE4	Interlock Cable (4.5m Bowden Cable)
WLNTLWRE5	Interlock Cable (6.0m Bowden Cable

[1] Mechanical interlock cable ships with 2.0m Bowden Cable.

WL Spare/Replacement Parts

Metering CT Units

Selection

3 phase metering CT, cradle frame mounted

Catalog number	Frame	Ratio
WLG8005MCT1	FS1	800:5
WLG12005MCT1	FS1	1200:5
WLG8005MCT2	FS2	800:5
WLG10005MCT2	FS2	1000:5
WLG12005MCT2	FS2	1200:5
WLG16005MCT2	FS2	1600:5
WLG20005MCT2	FS2	2000:5
WLG30005MCT2	FS2	3000:5
WLG32005MCT2	FS2	3200:5
WLG20005MCT3	FS3	2000:5
WLG30005MCT3	FS3	3000:5
WLG32005MCT3	FS3	3200:5
WLG40005MCT3	FS3	4000:5
WLG50005MCT3	FS3	5000:5

Single phase metering CT

Catalog number	Ratio
WLG800NMCT23	800:5
WLG1200NMCT23	1200:5
WLG1600NMCT23	1600:5
WLG2000NMCT23	2000:5
WLG3000NMCT23	3000:5
WLG3200NMCT23	3200:5
WLG4000NMCT23	4000:5
WLG5000NMCT23	5000:5

WL Spare/Replacement Parts

Ground Fault and Current Sensors

Selection

Modified differential CT

Neutral Sensor

Neutral Sensor with
Bus Connector

Catalog number		
Modified differential ground fault for source ground return		
WLGMDGFCT2	FS2	1200:1 3 phase cradle mount
WLGMDGFCT3	FS3	1200:1 3 phase cradle mount
WLGNMDGCT23	Iron core neutral sensor	1200:1 1 phase bus mount
External neutral CT for 4 wire residual ground fault		
WLNCT2	3"	Without copper bus adapter (pass-thru mount)
WLNCT3	3 – 5" max. bus-bar size	Without copper bus adapter (pass-thru mount)
WLNCT2CB	For 3"	With copper bus adapter for bus connection
WLNCT3CB	For 3" – 5" max. bus-bar size	With copper bus adapter for bus connection

WL Spare/Replacement Parts

Circuit Breaker Accessories

Selection

Shunt Trip Coil

Auxiliary Contact

Ready-to-Close Contact

Bell Alarm Reset Coil

Bell Alarm Contacts

Operations Counter

Catalog number	
Shunt trip release	
WLST24	24Vdc, 3-cycle momentary duty
WLST48	48Vdc, 3-cycle momentary duty
WLST120	120Vdc/120Vac, 3-cycle momentary duty
WLST240	250Vdc/240Vac, 3-cycle momentary duty
WLSTCD24	24Vdc, continuous duty (UL 489 only)
WLSTCD48	48Vdc, continuous duty (UL 489 only)
WLSTCD120	120Vdc/120Vac, continuous duty (UL 489 only)
WLSTDC240	250Vdc/240Vac, continuous duty (UL 489 only)
(signal contactor first Shunt Trip) **WLSTC**	"NO" switch 3A-240Vac rating
(signal contactor second Shunt Trip) **WLUVRC**	"NO" switch 3A-240Vac rating
Auxiliary signaling switch	
WLAS2	2 NO and 2 NC contacts
WLAS4	4 NO and 4 NC contacts
Ready-to-close signal switch	
WLRTCS	1 form "A" NO contact 5A - 240Vac
Bell alarm	
Remote reset solenoid for Bell-alarm and trip indicator	
WLRSET24	24Vdc
WLRSET48	48Vdc
WLRSET120	125Vdc/120Vac
WLRSET240	250Vdc/240Vac
WLBA	Form "C" contact
Operation Counter	
Available only with spring charging motor option	
WLNUMCNT	Mechanical counter

WL Spare/Replacement Parts

Circuit Breaker Accessories

Selection

Undervoltage Trip Coil

Signal Contacts

Closing Coil

Charging Motor

Catalog number	
Undervoltage trip release	
WLUV24	24Vdc, instantaneous trip
WLUV48	48Vdc, instantaneous trip
WLUV120	125Vdc/120Vac, instantaneous trip
WLUV240	250Vdc/240Vac, instantaneous trip
WLUVD48	48Vdc, time delayed
WLUVD120	125Vdc/120Vac, time delayed
WLUVD240	250Vdc/1240Vac, time delayed
Signal contactor for UV trip	
WLUVRC	"NO" switch 3A – 240Vac rating
Closing coil	
WLRCS24	24Vdc, 3 cycle momentary duty
WLRCS48	48Vdc, 3 cycle momentary duty
WLRCS120	125Vdc/120Vac, 3 cycle momentary duty
WLRCS240	250Vdc/240Vac, 3 cycle momentary duty
Spring charging motor	
WLELCMTR24	24Vdc, Charging motor
WLELCMTR48	48Vdc, Charging motor
WLELCMTR120	120Vdc/120Vac, Charging motor
WLELCMTR240	250Vdc/240Vac, Charging motor
WLELCMTR24S	24Vdc, Charging motor w/cut-off switch
WLELCMTR48S	48Vdc, Charging motor w/cut-off switch
WLELCMTR120S	125Vdc/120Vac, Charging motor w/cut-off switch
WLELCMTR240S	250Vdc/240Vac, Charging motor w/cut-off switch
WLMCOSW	Motor cut-off switch

WL Spare/Replacement Parts

Circuit Breaker Accessories

Selection

Breaker Current Sensor

Arc Chutes

Catalog number	
ANSI UL 1066 breaker internal contact replacement kit	
RCS2N10	FS2 N-Group, 800A, 1600A
RCS2S10	FS2 S-Group, 800A, 1600A
RCS2H10	FS2 H-Group, 800A, 1600A
RCS2L10	FS2 L-Group, 800A, 1600A
RCS2S15	FS2 S-Group, 2000A
RCS2HF15	FS2 H and F-Group, 2000A
RCS2L15	FS2 L-Group, 2000A
RCS2S30	FS2 S-Group, 3200A
RCS2H30	FS2 H-Group, 3200A
RCS2L30	FS2 L-Group, 3200A
RCS3HF30	FS3 H and F-Group, 4000/5000A
RCS3L30	FS2 L-Group, 4000/5000A
Internal phase sensor (Rogowski coil)	
WLCT2	FS2 ANSI breaker kit for one breaker (3 current sensors included)
WLCT3	FS3 ANSI breaker kit for one breaker (3 current sensors included)
ANSI 1066 breaker arc chute replacement kit	
WLARC2	For FS2 ANSI breaker only (3 arc chutes included)
WLARC3	For FS3 ANSI breaker only (3 arc chutes included)
WLARCM3	For FS3 ANSI M-Class breaker only (3 arc chutes included)

WL Spare/Replacement Parts

Circuit Breaker Accessories

Selection

Catalog number		Units
Circuit breaker finger cluster replacement kit		
WLFNGR1UL	For FS1 UL489 800A, 1200A	1 piece
WLFNGR10UL	For FS2 UL489 800, 1200, 1600A Class S&L	1 piece
WLFNGR15UL	For FS2 UL489 2000A, S&L	1 piece
WLFNGR30UL	For FS2 UL489 2500/3000A Class S&L	1 piece
WLFNGR30ULC	For FS2 UL489 1600/2000/2500/3000A Class C only	1 piece
WLFNGR10	For FS2 ANSI 800A, 1200A	1 piece
WLFNGR15	For FS2 ANSI 2000A	1 piece
WLFNGR30	For FS2 ANSI 3200A	1 piece
WLFCK3	For FS3 ANSI 4000A, 5000A	1 piece
WLFC6X1A	For FS1 UL489 800A, 1200A	6 pieces
WLFC6X10	For FS2 ANSI 800, 1600A	6 pieces
WLFC6X15	For FS2 ANSI 1200A	6 pieces
WLFC6X1B	For FS2 Fused	6 pieces
WLFC6X30	For FS2 ANSI, 3200A	6 pieces
WLFC6X3C	For FS2 C-Class	6 pieces
WLFC6X3A	For FS3 ANSI 4000A, 5000A	6 pieces
WLFC6X3B	For FS3 Fuse carriage	6 pieces

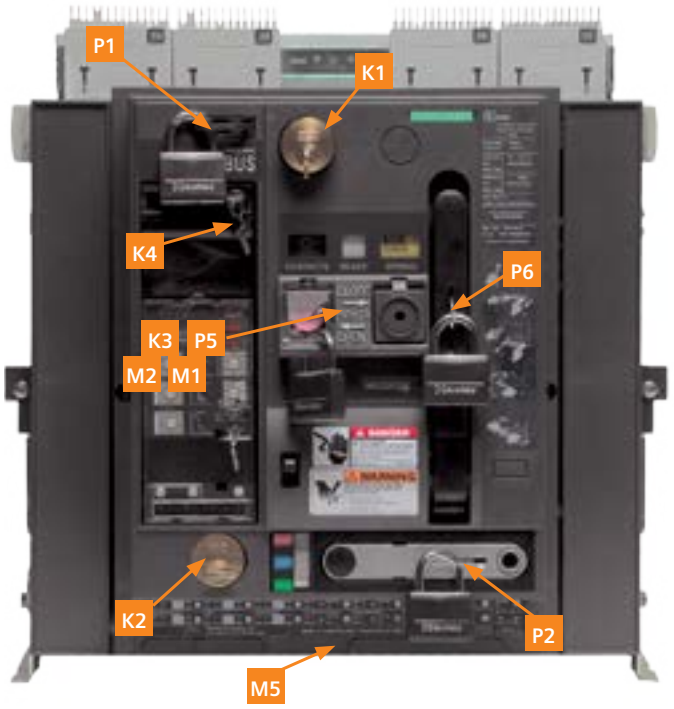
Fixed Breaker Connectors

Circuit breaker bus connectors		
UL 489 Fixed Mount (Front mount Bus Connector)		
WLH1F12CONUL	FS1, 800-1200AF, 85kAIC at 480V maximum	6 pieces
WLL2F16CONUL	FS2, 1600AF, 100kAIC at 480V maximum	6 pieces
WLL2F20CONUL	FS2, 2000AF, 100kAIC at 480V maximum	6 pieces
WLL2F25CONUL	FS2, 2500AF, 100kAIC at 480V maximum	6 pieces
WLL2F30CONUL	FS2, 2500-3000AF, 100kAIC at 480V maximum	6 pieces
WLL3F50CONUL	FS3, 4000-5000AF, 100kAIC at 480V maximum	6 pieces
(Rear Vertical Bus Connector)		
WLH1R12CONUL	FS1, 800-2000AF, 100kAIC at 480 V maximum	6 pieces
WLL2R16CONUL	FS2, 800-1600AF, 100kAIC at 480V maximum	6 pieces
WLL2R20CONUL	FS2, 2000AF, 100kAIC at 480V maximum	6 pieces
WLL2R30CONUL	FS2, 2500-3000AF, 100kAIC at 480V maximum	6 pieces
WLC2R30CONUL	FS2, 800-3000A, 150kAIC at 480V max	6 pieces
WLC3R50CONUL	FS3, 4000-5000AF, 150kAIC at 480V maximum	6 pieces
UL 1066 Fixed Mount (4-Pole Rear Vertical Bus Connector)		
WL4L2R16CONUL	FS 2 800A -1600A rear vertical connectors	(8 pieces, includes Neutral pole)
WL4L2R20CONUL	FS 2 2000A rear vertical connectors	(8 pieces, includes Neutral pole)
WL4L2R32CONUL[1]	FS 2 3200A rear vertical connectors	(8 pieces, includes Neutral pole)
WL4L2R50CONUL[1]	FS 3 4000A - 5000A rear vertical connectors	(8 pieces, includes Neutral pole)

Circuit breaker fix mount optional metric hardware	
WLMETRC	FS1 and FS2 M8x25 bolts and 6.3 washers
WLMETRC3	FS3 M10X25 bolts and 6.3 washers

[1] FS II 3200A, FS III 4000A, 5000A breakers include vertical connectors as a standard.

Locking Provisions (Overview)



Padlock Provisions

- P1 OPEN (Trip-Free) (see page 4)
- P2 Racking Handle (see page 4)
- P5 OPEN / CLOSE Buttons (see page 5)
- P6 Charging Handle (see page 5-6)

Keylock Provisions

- K1 OPEN (Trip-Free) (see page 6)
- K2 Racking Handle (see page 6)
- K3 OPEN / CLOSE Buttons (see page 7)
- K4 Bell Alarm Reset (see page 7)

Mechanical Interlocks

- M1 Emergency OPEN (see page 8)
- M2 Cheat-Hole Covers and Button Shields (see page 9)
- M5 Door Closed w/ Circuit Breaker CLOSED (see page 9)

Padlock Provisions

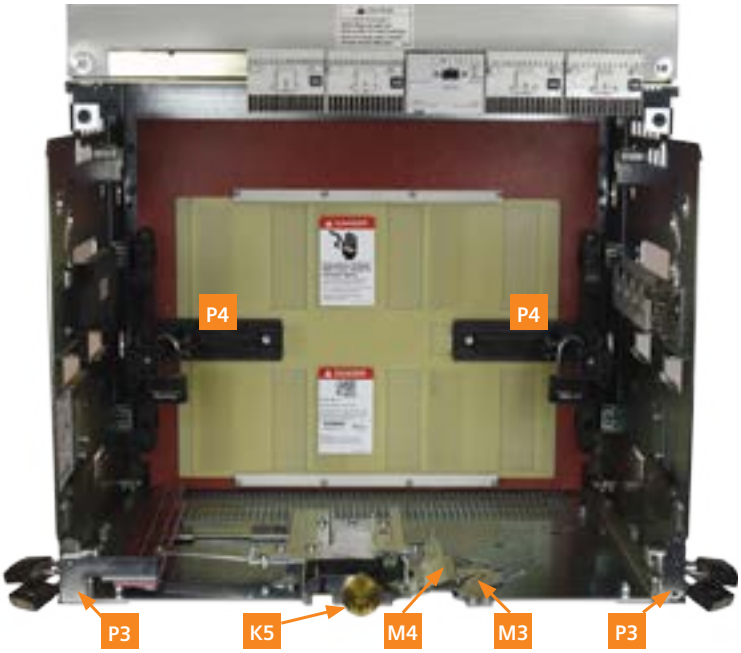
- P3 Drawout Rails (see page 5)
- P4 Shutter (see page 5)

Keylock Provisions

- K5 OPEN (Trip-Free) (see page 7)

Mechanical Interlocks

- M3 Closed Door Racking (see page 9)
- M4 Door Closed While Connected (see page 9)



WL Spare/Replacement Parts

Options and Accessories

Selection

Breaker Open Lock
WLLKOFFKRK

Pushbutton Lock Outs
WLLKKT

Charge Handle Lock
WLHANDLC

Catalog number	
Breaker Locking Device	
WLLKOFFDRUL1	Door lock FS1 (locked when breaker is closed)
WLLKOFFDRUL3	Door lock FS2/FS3 (locked when breaker is closed)
WLLKOFFKRK	Kirk key (lock when breaker is open)
WLLKOFFSUP	Superior Key (lock when breaker is open)
WLLKNP	Provision only padlock (lock when breaker is open)
WLLKOFFPR	Provision only key lock (lock when breaker is open)
WLLKKT	Sealing/Locking cover for OPEN/CLOSE button w/cheat-hole
WLLKCLKRK1	Racking handle lock, FS1 - Kirk key
WLLKCKRK	Racking handle lock, FS2/FS3 - Kirk key
WLLKCLSUP1	Racking handle lock, FS1 - Superior key
WLLKCLSUP	Racking handle lock, FS2/FS3 - Superior key
WLLKCLPR	Racking handle lock, FS2/FS3 - Provision only
WLHANDLC	Charging handle padlock provision
WLEPEN	Emergency OPEN button (mushroom head)

Fuse Kits

Catalog number	
WL fuse replacement kits	
WLCLF0400	Breaker fuse kit FS2 400A (3 Fuses)
WLCLF0600	Breaker fuse kit FS2 600A (3 Fuses)
WLCLF0800	Breaker fuse kit FS2 800A (3 Fuses)
WLCLF0900	Breaker fuse kit FS2 900A (3 Fuses)
WLCLF1000	Breaker fuse kit FS2 1000A (3 Fuses)
WLCLF1200	Breaker fuse kit FS2 1200A (3 Fuses)
WLCLF1600	Breaker fuse kit FS2 1600A (3 Fuses)
WLCLF2000	Breaker fuse kit FS2 2000A (3 Fuses)
WLCLF2500	Breaker fuse kit FS2 2500A (3 Fuses)
WLCLF3000	Breaker fuse kit FS2 3000A (3 Fuses)
WLCLF3001	Carriage fuse kit FS3 3000A (3 Fuses)
WLCLF4000	Carriage fuse kit FS3 4000A (3 Fuses)
WLCLF5000	Carriage fuse kit FS3 5000A (3 Fuses)
WLCLF6000	Carriage fuse kit FS3 6000A (3 Fuses)

Sealing Frame
WLDSF

Plexiglass Cover
WLPGC

Lift Device
WLLFT

Catalog number	
WLDSF	Door sealing frame, FS2/FS3
WLPGC	Door plexiglass cover, FS2/FS3
WLLFT	3-pole breaker lifting yoke
WLLFT4	4-pole breaker lifting yoke
WLHOIST	Breaker Lift Truck/Hoist
WLBGREASE	WL circuit breaker maintenance grease
WLBCERTEST	WL circuit breaker certified test report

Should it become necessary for the customer to return a WL circuit breaker frame for any reason, proper packaging is to be used to prevent damage to the product while in shipment.

WLPFS1B	Packaging for FS1 Breaker
WLPFS2B	Packaging for FS2 Breaker
WLPFS2FB	Packaging for FS2 Fused Breaker
WLPFS3B	Packaging for FS3 Breaker

Typical certified test report

SIEMENS
Ft. Worth, TX

WL Low Voltage Power Circuit Breaker Certified Test Report

Catalog #:
Breaker Type:
CBID: FS: Frame Rating:
Base Frame ID: Interrupt Cap:
Trip Unit ID:
Test Station: Rating Plug:

Production Order:
Sold To:

Ship To:

Test Date: **7/15/2014**

☑ Identify Test Performed - Incl. Programming, Labeling, Catalog Order Check

☑ Mechanical Accessory Tests Performed - Incl. Manual Mechanism Charging, Anti-Pumping, Trip/Close Solenoids, UVR, Motor, Aux. Switch Bell Alarms etc. (as per installed)

☑ Dielectric / Hi-Pot Tests Performed - Incl. @2.65 kV: Open x A,B,C; Closed: AB, BC, AC, AG, BG, CG
@1.80 kV: Accessories to Ground
@1.20kV: Motor connection to Ground

Primary Injection Test	Settings *ETU Initial settings / Test Current etc.; See Note 3*	Results A	 B	 C	 *	Acceptable Range Min	 Max
Long TIme Pickup (A)	IR(xIn): PU A: tR(s):						
Long Time Delay (S)	Test Current:						
Short Time Pickup (A)	Isd (xIn): PU A: Tsd(s):						
Short Time Delay (S)	Tsd(s): Test Current:						
Instantaneous Pickup (A)	Ii (xIn): PU A:						
Ground Fault Pickup (A)	Trip: Alarm: Tg(s):						
Neutral Delay (S)	tR(s): IN (xIn): ON / IN = 0.5 x In PU A: Test Current:						

UVR Drop-out Voltage: 0

Notes:
1. This WL Low Voltage Power Circuit Breaker was tested in accordance with ANSI C37.50-1989
2. The above tests were carried out according to controlled Siemens-Ft. Worth test inspection plans and standards on calibrated equipment. This process and documentation is controlled and audited by UL in accordance with ISO9001:2008. Certification available upon request.
3. All delay test settings are the same as for the preceding pickup test unless otherwise noted. PU A = Function pickup setting in Amperes.
4. All WL Circuit Breaker ETUs are set to factory default safety settings prior to shipment. [Lowest Pickups, Shortest Delays, N-protection off, Memory Off, GF=sumI]
5. The above product identification information [ETU, Catalog Number etc.] is accurate as of the test date. Any changes to this configuration are not covered by the above test results.
6. For product support, please contact your sales representative or customer service at: mark.vandre@siemens.com
7. DNT indicates 'Did Not Test' and represents a test not applicable to this configured breaker.

(signed)

Quality Manager, Siemens - Ft. Worth ModCenter

Source: Ft. Worth ModCenter Product Traceability System
Page: 1 of 1

SIEMENS
Ft. Worth

Date Printed:

WL Spare/Replacement Parts

Communication Components

Selection

Quick reference guide

Task	Accessories
Manual charging circuit breaker to electrically operated circuit breaker...	• WLELCMTRXX • WLMCOSW Motor Cut-off switch (Optional)
Remote operation of circuit breaker	• WLELCMTRXX • WLMCOSW Motor Cut-off switch (Optional) • Shunt Trip (WLSTXX) • Close coil (WLRCSXX) • Control Power
Remote operation of circuit breaker via communications	• WLELCMTRXX • WLMCOSW Motor Cut-off switch (Optional) • Shunt Trip (WLSTXX) • Close coil (WLRCSXX) • COM15/COM16/COM35 (WLCMXX) • 24V DC Power Supply • Power supply for electric motor, shunt trip etc, should be separate than the one used for trip unit.
Dynamic Arc Sentry (DAS)	• WLETU776 + WLDGNCUB + WLRLYCCUB (Input + Output Modules) • 24V DC Class 2 Power Supply
	• WLETU776 + WLCOM35 (Output Module Not Required) • 24V DC Class 2 Power Supply
	Add the following for use with communications • WLCM15M for PROFIBUS • WLCM16MD for Modbus
PROFIBUS Addition	To a circuit breaker: • WLCM15M + WLBSS • WLCM15RET includes (WLCM15M+WLBSS). This uses the 24VDC Class 2 power supply used for the ETU.
	To a switch: • WLCM15M + WLBSS + External 24VDC Class 2 UL Power Supply (WLSITOP25)
Modbus Addition	To a circuit breaker: • WLCM16RET (includes WLCM16MD+WLBSS) • 24V DC Class 2 Power Supply
	To a switch: • WLCM16RET (includes WLCM16MD+WLBSS) • 24V DC Class 2 Power Supply
Modbus TCP Addition	To a circuit breaker: • WLCOM35RET (includes WLCOM35+WLBSS) • 24V DC Class 2 Power Supply
	To a switch: • WLCOM35RET (includes WLCOM35+WLBSS) • 24V DC Class 2 Power Supply
Power Supply Requirements	For ETU, and Cubicle bus modules, the power supply must be UL Listed Class 2 24VDC • WLSITOP25 (2.5A) : good for 2 breakers (2ETUs, COMM Cubicle bus Modules) • WLSITOP1 (3.8A): good for up to 4 breakers (4ETUs, COMM Cubicle bus Modules)

WL Spare/Replacement Parts

Communication Components

Selection

Accessory	Description
WLELCMTRXX	• Charging motor • 24VDC/48VDC/125VDC/250VDC/120VAC/240VAC
WLMCOSW	• Motor cut-off switch
WLSTXX	• Shunt trip • 3-cycle or continuous duty • 24VDC/48VDC/125VDC/250VDC/120VAC/240VAC
WLRCSXX	• Closing coil • 3-cycle • 24VDC/48VDC/125VDC/250VDC/120VAC/240VAC
WLBSS	• Breaker Status Sensor (BSS Board)
WLSITOP25	• Power supply for trip unit and communications • 24VDC • 2.5A SITOP Power, Class 2
WLSITOP1	• Power supply for trip unit and communications • 24VDC • 3.8A SITOP Power, Class 2
WLCM15M	• COM15 PROFIBUS Communication Module
WLCM15RET	• COM15 PROFIBUS Communication Module with BSS
WLCM16MD	• COM16 Modbus Communication Module
WLCM16RET	• COM16 Modbus Communication Module with BSS
WLCOM35	• COM35 Modbus TCP Communication Module
WLCOM35RET	• COM35 Modbus TCP Communication Module with BSS

Notes