## POWER PRODUCT WI Power Circuit Breakers

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## 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 <br> 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 $50^{\circ} \mathrm{C}$ 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.


## Exterior Breaker Features



(1) Guide Frame (for drawout version only)
(2) Vertical to Horizontal BUS Connector
(3) Position Signaling Switch
(4) Breaker / Guide Frame Grounding Contact

5 Shutter (locking)
(6) Communications module
(7) External CubicleBUS I/O Module

8 Plug-In Open and Closed Solenoids)
(9) Multiple Secondary Connections
(10) Auxiliary Switch Block
(1) Door Sealing Frame
(12) Interlocking Set Base Plate
(13) Protective Cover for OPEN/CLOSE Buttons
(14) Multiple Key Locking Accessories
(5) Single Bolt Motor Operator Installation
(16) Operations Counter
(17) Breaker Status Sensor (BSS)
(18) Complete Trip Unit Family
(19) Remote Reset
(20) Multi Angle LCD Module
(21) Ground Fault Protection Module
(22) Rating Plug
23) Metering Function (+ wave forms and harmonics)
24) Circuit Breaker


## Standard cradle

(1) Stationary secondary disconnect
(2) Primary disconnects
(3) Cradle frame assembly for draw-out breakers


## Cradle accessories

(1) Mechanical interlock (not shown)
(2) Isolation shutters

5 Breaker position switches (TOC)
(3) Mechanism operated contact switches (MOC)
(6) Communication module location (COM 16 or COM 15)
(4) Dual key-lock location

## Electronic Trip Unit (ETU]

## 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 14t: ETU745 and 776 make it possible to switch over from an $12 t$ to an 14 t 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 $12,000 \mathrm{amps}(6 \times 2000)$ will cause the breaker to trip after 10 seconds. Long-time is an inverse of $12 t$ 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 12 t . The 12 t 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 $\left(\left.\right|^{2} t\right)$ or fixed delay.

## WL Circuit Breaker

## Electronic Trip Unit [ETU]

## 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 ${ }^{12} \mathrm{t}$ or $\mathrm{l}^{4} \mathrm{t}$ long-time delay | X | X |
| Adjustable instantaneous pick-up | X | X |
| Selectable $\mathrm{I}^{2} \mathrm{t}$ or $\mathrm{l}^{4} \mathrm{t}$ 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 <br> (absolute values) <br> Paralemer |  | X |
| Parameterization by menu/keypad (absolute values) |  | X |
| Remote parameterization of the alarm functions |  | X |
| Remote parameterization of the relay functions |  | X |
| Alphanumeric display | 0 | X |
| Graphical display |  | X |
| Power meter function | 0 | 0 |
| Communication via PROFIBUS DP | 0 | 0 |
| Communication via Modbus RTU | 0 | 0 |
| Communication via Modbus TCP / PROFINET IO | 0 | 0 |

[^0]
## 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 la, lb, lc, In | 30 ... 8000A | $\pm 1 \%$ |
| Ground-fault current Ig (measure with external Gnd transformer) | 100 ... 1200A | $\pm 5 \%$ |
| Line-to-line voltages Vab, Vbc, Vca | $80 \ldots 120 \%$ Vn | $\pm 1 \%$ |
| Line-to-neutral voltages Van, Vbn, Vcn | $80 \ldots 120 \% \mathrm{Vn}$ | $\pm 1 \%$ |
| Average value of phase-to-phase voltages V L-L AVG | $80 . . .120 \% \mathrm{Vn}$ | $\pm 1 \%$ |
| Apparent power kVA per phase | $13 . . .8000 k V A$ | $\pm 2 \%$ |
| Total apparent power KVA | $13 . . .24000 \mathrm{kVA}$ | $\pm 2 \%$ |
| Active power kW per phase | -8000 ... 8000kW | $\pm 3 \%$ (power factor $>0.6$ ) |
| Total active power kW total | -24000 ... 24000kVA | $\pm 3 \%$ (power factor $>0.6$ ) |
| Reactive power kvar | -6400 ... 6400kvar | $\pm 4 \%$ (power factor > 0.6 ) |
| Total reactive power kvar | -20000 ... 20000kvar | $\pm 4 \%$ (power factor $>0.6$ ) |
| Power factor per phase | -0.6 ... 1 ... 0.6 | $\pm 0.04$ |
| Power factor total | -0.6 ... 1 ... 0.6 | $\pm 0.04$ |
| Demand of currents la, lb, Ic | $30 . . .8000 \mathrm{~A}$ | $\pm 1 \%$ |
| Average demand of 3-phase current | $30 . . .8000 \mathrm{~A}$ | $\pm 1 \%$ |
| Demand kWD per phase | $13 . . .8000 \mathrm{~kW}$ | $\pm 3 \%$ (power factor $>0.6$ ) |
| kW demand 3-phase active power kWD total | $13 . .88000 \mathrm{~kW}$ | $\pm 3 \%$ (power factor > 0.6) |
| kVA demand kVA total | $13 . .88000 \mathrm{kVA}$ | $\pm 2 \%$ |
| kVAR demand kVAR per phase | $13 . . .8000 \mathrm{kVA}$ | $\pm 2 \%$ |
| kVAR demand total | -24000 ... 24000kvar | $\pm 4 \%$ (power factor > 0.6 ) |
| kWhr imported | $1 \ldots 10000 \mathrm{MWh}$ | $\pm 2 \%$ |
| kWhr exported | $1 . .10000 \mathrm{MWh}$ | $\pm 2 \%$ |
| kVARh imported | 1 ... 10000Mvarh | $\pm 4 \%$ |
| kVARh exported | 1 ... 10000Mvarh | $\pm 4 \%$ |
| Frequency | $15 . .440 \mathrm{~Hz}$ | $\pm 0.1 \mathrm{~Hz}$ |
| Total harmonic distortions for current and voltage | 2 ... 100\% | $\pm 3 \%$ from the meas. range up to the 29th harmonic |
| Phase unbalance for current and voltage | 2 ... 150\% | $\pm 1 \%$ |

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


## WL Circuit Breaker

## Electronic Trip Unit (Iftu)

## Alarm parameters

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

| Alarm function | Setting range | Delay range |
| :--- | :--- | :--- |
| Overcurrent | $3 \ldots 10000 \mathrm{~A}$ | $0 \ldots 255 \mathrm{~s}$ |
| Overcurrent - ground fault | $3 \ldots 10000 \mathrm{~A}$ | $0 \ldots 255 \mathrm{~s}$ |
| Overcurrent - N-conductor | $3 \ldots 10000 \mathrm{~A}$ | $0 \ldots 255 \mathrm{~s}$ |
| Phase unbalance - current | $5 \ldots 50 \%$ | $0 \ldots 255 \mathrm{~s}$ |
| Demand - current | $3 \ldots 10000 \mathrm{~A}$ | $0 \ldots 255 \mathrm{~s}$ |
| Total harmonic distortion - current | $0 \ldots 50 \%$ | $5 \ldots 255 \mathrm{~s}$ |
| Undervoltage | $100 \ldots 1200 \mathrm{~V}$ | $0 \ldots 255 \mathrm{~s}$ |
| Overvoltage | $200 \ldots 1200 \mathrm{~V}$ | $0 \ldots 255 \mathrm{~s}$ |
| Phase unbalance - voltage | $5 \ldots 50 \%$ | $0 \ldots 255 \mathrm{~s}$ |
| Total harmonic distortion - voltage | $0 \ldots 50 \%$ | $5 \ldots 255 \mathrm{~s}$ |
| Crest factor | $0.01 \ldots 25.5 \%$ | $0 \ldots 255 \mathrm{~s}$ |
| Form factor | $0.01 \ldots 25.5 \%$ | $0 \ldots 255 \mathrm{~s}$ |
| Active power in normal direction | $1 \ldots 10000 \mathrm{~kW}$ | $0 \ldots 255 \mathrm{~s}$ |
| Active power in reverse direction | $1 \ldots 10000 \mathrm{~kW}$ | $0 \ldots 255 \mathrm{~s}$ |
| Leading power factor | $-0.999 \ldots 1$ | $0 \ldots 255 \mathrm{~s}$ |
| Lagging power factor | $-0.999 \ldots 1$ | $0 \ldots 255 \mathrm{~s}$ |
| Demand -active power | $1 \ldots 10000 \mathrm{~kW}$ | $0 \ldots 255 \mathrm{~s}$ |
| Apparent power | $1 \ldots 10000 \mathrm{kVA}$ | $0 \ldots 255 \mathrm{~s}$ |
| Reactive power in normal direction | $1 \ldots 10000 \mathrm{kvar}$ | $0 \ldots 255 \mathrm{~s}$ |
| Reactive power in reverse direction | $1 \ldots 10000 \mathrm{kvar}$ | $0 \ldots 255 \mathrm{~s}$ |
| Demand -reactive power | $1 \ldots 10000 \mathrm{kvar}$ | $0 \ldots 255 \mathrm{~s}$ |
| Underfrequency | $40 \ldots 70 \mathrm{~Hz}$ | $0 \ldots 255 \mathrm{~s}$ |
| Overfrequency | $40 \ldots 70 \mathrm{~Hz}$ | 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 | $5 \ldots 50 \%$ | $1 \ldots 15 \mathrm{~s}$ |
| Total harmonic distortion - current | 81 THDC | $0 \ldots 50 \%$ | $5 \ldots 15 \mathrm{~s}$ |
| Voltage unbalance | 47 | $5 \ldots 50 \%$ | $1 \ldots 15 \mathrm{~s}$ |
| Undervoltage | 27 | $100 \ldots 1100 \mathrm{~V}$ | $1 \ldots 15 \mathrm{~s}$ |
| Overvoltage | 59 | $200 \ldots 1200 \mathrm{~V}$ | $1 \ldots 15 \mathrm{~s}$ |
| Total harmonic distortion - voltage | 81 THDV | $0 \ldots 50 \%$ | $5 \ldots 15 \mathrm{~s}$ |
| Direction of phase rotation | 47 N |  | $1 \ldots 15 \mathrm{~s}$ |
| Active power in normal direction | 32 | $1 \ldots 10000 \mathrm{~kW}$ | $1 \ldots 15 \mathrm{~s}$ |
| Active power in reverse direction | 32 R | $1 \ldots 10000 \mathrm{~kW}$ | $1 \ldots 15 \mathrm{~s}$ |
| Under frequency | 81 U | $40 \ldots 70 \mathrm{~Hz}$ | $1 \ldots 15 \mathrm{~s}$ |
| Over frequency | 810 | $40 \ldots 70 \mathrm{~Hz}$ |  |



## Notes:

(1) $\mathrm{M}=\mathrm{tsd}=20 \mathrm{~ms}$ 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

[^1]Extended Instantaneous Protection (EIP) allows the W breaker 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.

## WL Circuit Breaker

## ETU Function



## NOTES:

(1) From the ETU keypad, delay times can be set in the following increments within the applicable limits:
$\checkmark$ Available
$20 \mathrm{~ms} . .500 \mathrm{~ms}$ in 5 ms steps $\quad 1.05 \mathrm{~s} . . .1 .5 \mathrm{~s}$ in 50 ms steps

- Not available
$510 \mathrm{~ms} . .11 .0 \mathrm{~s}$ in 10 ms steps $>1.6 \mathrm{~s}$ in 0.1 s steps
o Optional
Via communication, delay times can be set in 0.1 s 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 600A-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) $\mathrm{M}=\mathrm{tsd}=20 \mathrm{~ms}$ 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.


## WL Circuit Breaker

## Factory Installed Options©

## Characteristics

## 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 provisiononly. 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.


## 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 <br> Operation | Voltage | $240 \mathrm{VAC} 50 / 60 \mathrm{~Hz}$ |
|  | Continuous Current | 10 A |
|  | Making Current | 30 A |
|  | Breaking Current | 3 A |
| DC <br> Operation | Voltage | $24,125,250 \mathrm{VDC}$ |
|  | Continuous Current | 5 A |
|  | Making Current | 1.1 A @ 24 or 125VDC, .55A @250VDC |
|  | Breaking Current | 1.1 A @ 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 monitoring system. See breaker wiring diagram for supply terminal locations, which are included with COM15, COM16, and COM35 communications accessories


Characteristics table

| Operating Voltage | 24 VDC |
| :--- | :--- |
| Peak Inrush Current | 110 mA |
| Max. Continuous Current | 40 mA |
| Ambient Operation Temperature | -25 to $70^{\circ} \mathrm{C}$ |

## WL Circuit Breaker

## Factory Installed Options ${ }^{(1)}$

## 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 <br> Reset Coil <br> AC Operation | Voltage | $240 \mathrm{VAC} 50 / 60 \mathrm{~Hz}$ |
|  | Continuous Current | 5 A |
|  | Making Current | 8 A |
|  | Breaking Current | 5 A |
| Remote <br> Reset Coil <br> DC Operation | Voltage | $24,48,125$ or 250VDC |
|  | Continuous Current | 5 A |
| Breaking <br> Current | $.4 \mathrm{~A} @ 24,48,125 \mathrm{VDC}, .2 \mathrm{~A} @ 250 \mathrm{VDC}$ |  |

## 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


## Characteristics

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 | 120VAC Range | $104-127$ VAC |
| :--- | :--- | :--- |
|  | 240VAC Range | $208-254$ |
|  | Power Consumption | 120 W for 50ms (5\% duty cycle) |
|  | Breaker closing time | 50 ms from point of signal |
| Close Coil <br> DC Operation | 24 VDC | $14-28 \mathrm{VDC}$ |
|  | 48VDC | $28-56 \mathrm{VDC}$ |
|  | 125VDC | $70-140 \mathrm{VDC}$ |
|  | 250VDC | $140-280 \mathrm{VDC}$ |
|  | Power Consumption | 120 W for 50 ms (5\% duty cycle) |
|  | Breaker closing time | 50 ms from point of signal |

## Breaker push button lock-outs

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

## WL Circuit Breaker

## Factory Installed Options ${ }^{(1}$

## 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- <br> close <br> contact | Voltage | $125-240 \mathrm{VAC}, 125$-250VDC |
| :--- | :--- | :--- |
|  | Continuous current | 3 A |
|  | Making current | .4A @24-125VDC, 5A @ 120-240VAC |
|  | Breaking current | .2A @24-125VDC, 3A @ 120-240VAC |

## Characteristics

## 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 | 120VAC range | $104-127 \mathrm{VAC}$ |
| :--- | :--- | :--- |
| AC operation | 240VAC range | $208-254 \mathrm{VAC}$ |
|  | Power consumption | 120 W for 50ms (5\% duty cycle) |
|  | Min. closing time | 50 ms from point of signal |
| Trip coil | 24VDC range | $14-28 \mathrm{VDC}$ |
|  | 48VDC range | $28-56 \mathrm{VDC}$ |
|  | 125VDC range | $70-140 \mathrm{VDC}$ |
|  | 250VDC range | $140-280 \mathrm{DVC}$ |
|  | Power consumption | 120 W for 50 ms (5\% duty cycle) |
|  | Min. closing time | 50 ms 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 <br> (interlock <br> coil) | $120-240$ VAC range | $85-110 \%$ of nominal |
| :--- | :--- | :--- |
|  | $24-250 \mathrm{VDC}$ range | $70-126 \%$ or nominal |
|  | Power consumption | $15 \mathrm{~W} / 15 \mathrm{VA}$ |
|  | Min. shunt trip actuation | 60 ms |
|  | Opening time of breaker | 80 ms |
|  | Smallest fuse protection rating | 1 A |

[^2]
## Factory Installed Options® ${ }^{(1}$

## 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 1 NO configured.


## Characteristics table

| Signaling <br> contact | Voltage | 127-240VAX, 24-125VDC |
| :--- | :--- | :--- |
|  | Continuous current | 3 A |
|  | 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- <br> charging <br> motor | $120-240 \mathrm{VAC}$ range | $85-110 \%$ of nominal |
| :--- | :--- | :--- |
|  | $24-240 \mathrm{VDC}$ range | $70-126 \%$ of nominal |
|  | Power consumption | 110 W |
|  | Max. charging time | 10 seconds |
|  | Fuse protection rating | $24-60 \mathrm{~V} 6 \mathrm{~A}, 120-240 \mathrm{~V} \mathrm{3A}$ <br> (slow-blow) |

## Characteristics

## 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 <br> Coil voltage tolerance | 85-110\% of nominal |
|  | 24-250VDC <br> Coil voltage tolerance | 85-126\% of nominal |
|  | Supply voltage | $120,240 \mathrm{VAC}$ or $24,48,125,250 \mathrm{VDC}$ |
|  | 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 200 ms |
|  | UVR with time delay (adjustable delay) | 0.2 to 3.2 sec . |

## WL Circuit Breaker

## Factory Installed Options ${ }^{(1)}$

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

| Secondary <br> disconnects | Wire connection type | Number of wires and sizes |
| :--- | :--- | :--- |
|  | Screw compression | $1 \times 14 \mathrm{AWG}$ or $2 \times 16 \mathrm{AWG}$ |
|  | Tension spring compression | $2 \times 14 \mathrm{AWG}$ |
|  | Ring lug terminal | $2 \times 14 \mathrm{AWG}$ or $2 \times 16 \mathrm{AWG}$ |

## 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.


## Characteristics

## 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 DB9F 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 | 24 VDC |
| :--- | :--- |
| Peak inrush current | 280 mA |
| Max. continuous current | 125 mA |
| Ambient temperature | -25 to $70^{\circ} \mathrm{C}$ |

## 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


## WL Circuit Breaker

## Cradle Factory Installed Options©

## 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.


## Characteristics

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 $50 / 60 \mathrm{~Hz}$ |
|  | Continuous current | 10A |
|  | Making current | 30A |
|  | Breaking current | 3A |
| DC Operation | Voltage | 24, 125, 250VDC |
|  | Making current | $\begin{aligned} & \text { 1.1A @ 125VDC, } \\ & 0.55 \mathrm{~A} @ 250 \mathrm{VDC} \end{aligned}$ |
|  | 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 <br> Option 2 <br> 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 |

## 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 handheld 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 |

## Accessories

## 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:

| 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 |

## Accessories

## 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

WLRBRDTEMPL must be ordered. WLRBRDKIT
Remote Breaker Racking Device Door Bracket InstallTemplate 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


## Accessories

## Selection

## 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 250 V 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 $\mathrm{tZSI}=50 \mathrm{~ms}$, 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 $4 \ldots 20 \mathrm{~mA}$ and a $0 \ldots 10 \mathrm{~V}$ 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 |

## WL Circuit Breaker

## Accessories

## 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 $90^{\circ}$ 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, <br> 150 kAIC at 480V rated breaker only | WLC2R30CONUL |
| Frame size 3, 4000A to 5000A frame, 100 kAIC at 480V | WLC3R50CONUL |

Interrupting Class $\longrightarrow$
Frame Size
Breaker Type $\qquad$
Number of Poles $\qquad$
Frame Ampere Rating $\qquad$
Rating Plug $\qquad$
Electronic Trip Unit (ETU)
Bell Alarm, Breaker Ready-to-Close, Auxiliary Contacts

## Shunt Trip

Undervoltage Release (with or without time delay) or 2nd Shunt Trip $\qquad$
Charging Motor, Motor Switch, Operations Counter $\qquad$
Close Coil, Power Metering and Communications $\qquad$
Breaker Locks $\qquad$
Miscellaneous Options $\qquad$

## 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) $50 / 60 \mathrm{~Hz}$ | 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 ( ${ }^{\circ} \mathrm{C}$ ) |  | -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 |  |  | $\begin{aligned} & 200- \\ & 2500 A \end{aligned}$ |  | $\begin{aligned} & 200- \\ & 3000 \mathrm{~A} \end{aligned}$ |  |
| 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.) |  | $\begin{aligned} & 10,000 \text { (5000 } \\ & \text { for Class C) } \end{aligned}$ |  |  | $\begin{aligned} & 10,000 \text { (5000 } \\ & \text { for Class C) } \end{aligned}$ |  |  | $\begin{aligned} & 10,000 \text { (5000 } \\ & \text { for Class C) } \end{aligned}$ |  |  | $\begin{aligned} & 10,000 \text { (5000 } \\ & \text { for Class C) } \end{aligned}$ |  |  | $\begin{aligned} & 10,000 \\ & (5000 \\ & \text { for Class C) } \end{aligned}$ |  | $\begin{array}{\|l\|} \hline 10,000 \\ (5000 \\ \text { for Class C) } \\ \hline \end{array}$ |  |
| Electrical duty cycles (no maint) |  | $\begin{array}{\|l\|} \hline 7500(5000 \\ \text { for Class C) } \\ \hline \end{array}$ |  |  | $\begin{aligned} & 7500(5000 \\ & \text { for Class C) } \end{aligned}$ |  |  | $\begin{array}{\|l\|} \hline 7500 \text { ( } 5000 \\ \text { for Class C) } \\ \hline \end{array}$ |  |  | 4000 |  |  | 4000 |  | 4000 |  |
| Draw-out breaker efficiency (Watts loss at $\mathrm{In}_{n}$ ) |  | 85 |  |  | 150 |  |  | 320 |  |  | 500 |  |  | 680 |  | 1000 |  |
| Fixed-mount breaker efficiency (Watts loss at $\ln$ ) |  | 40 |  |  | 80 |  |  | 120 |  |  | 230 |  |  | 320 |  | 480 |  |
| Ambient operating temperature ( ${ }^{\circ} \mathrm{C}$ ) |  | -25 to 40 |  |  | -25 to 40 |  |  | -25 to 40 |  |  | -25 to 40 |  |  | -25 to 40 |  | -25 to 40 |  |

## WL Insulated Case Circuit Breaker

## Ratings for UL489 Listed Breakers

| WL frame ratings - Frame size 3 |  | 4000A |  | 5000A |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Rating Class |  | L | C | L | C |
| Interrupting current frame Ics (kAIR RMS) $50 / 60 \mathrm{~Hz}$ | 240VAC | 100 | 150 | 100 | 150 |
|  | 480VAC | 100 | 150 | 100 | 150 |
|  | 600VAC | 85 | 100 | 85 | 100 |
| Short-time current Icw (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 $\mathrm{In}^{\text {) }}$ |  | 1100 |  | 1100 |  |
| Fixed-mount breaker efficiency (Watts loss at In ) |  | 580 |  | 580 |  |
| Ambient operating temperature ( ${ }^{\circ} \mathrm{C}$ ) |  | -25 to 40 |  | -25 to 40 |  |

Ratings for UL489 Listed non-automatic switches

| WL frame ratings | Frame size 1 <br> $800-2000 \mathrm{~A}$ | Frame size 2 <br> $800-3000 \mathrm{~A}$ | Frame size 3 <br> $4000 / 5000 \mathrm{~A}$ |  |
| :--- | :--- | :--- | :--- | :--- |
| 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 <br> Max ampere rating (A)1 | Frame size |  |  | Breaker type |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { 240VAC } \\ & 480 \mathrm{VAC} \end{aligned}$ | 600VAC |  | 1 | 2 | 3 | Fixed mount | Drawout |  |  |  |  |  |  |
| 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 |

## WL Insulated Case Circuit Breaker

Rating Plug

| Maximum continuous current rating | For use with frame size |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 1 | 2 | 3 | 1 |
| 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 |


| Trip unit models | Function |  |  | LCD display Alpha num. | Ground fault |  | EMC filter |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | L | S | I |  | 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 |

(X) Indicates function can be disabled by user

1 Neutral protection " N " is available as standard.

## WL Insulated Case Circuit Breaker

## UL 489 Listed Catalogue Number

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

| Bell alarm |  |  |  |
| :--- | :--- | :--- | :--- |

Breaker catalog number

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |





|  |  |
| :--- | :--- |
|  |  |
|  | $x$ |
|  | $x$ |


|  |  | X | X |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 24 | X |  |  |  |
| 120 | 125 | X |  |  |  |
| 240 | 250 | X |  |  |  |


|  | 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 contact | Continuous duty coil (electrical interlock) | None | , |
| :---: | :---: | :---: | :---: | :---: | :---: |
| AC | DC |  |  |  |  |
|  |  |  |  |  | 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 |

## WL Insulated Case Switch

UL 489 Listed Non-automatic Catalogue Number
Undervoltage Release (with or without time delay) or 2nd Shunt Trip

| Operation voltage |  | UVR without delay | UVR with delay | UVR status ${ }^{1}$ contact (1NO) | 2nd shunt trip | None |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AC | DC |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 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 |

Breaker catalog number

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

Charging motor, motor switch, operations counter

|  | Charging motor operation voltage |  | Motor cut-off switch | Operations counter | None |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AC | DC |  |  |  |  |
| $\bigcirc$ |  |  |  |  |  | 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




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 ${ }^{2}$ | 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 <br> OPEN position (provision only) ${ }^{2}$ | Manual trip reset ETU <br> (Automatic trip reset is standard) |  |
| :---: | :---: | :---: |
|  | None | N |
| X |  | B |
|  | X | C |
| X | X | D |

[^3]

## WL Insulated Case Switch

UL 489 Listed Non-automatic Catalogue Number

|  |  |  |  |  |  | ch | C | tal | g | nu | mb |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Shun |  |  |  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1314 | 15 |
| Ope | voltage | Status | Shunt | Continuous duty rated |  |  |  |  |  |  |  |  |  |  | $\uparrow$ |  |  |  |
| AC | DC | contact ${ }^{1}$ | trip | (electrical interlock) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | 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 |  | UVR without delay | UVR with delay | UVR status 1 contact (1NO) | 2nd shunt trip | None |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AC | DC |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 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 |

## WL Insulated Case Switch

UL 489 Listed Non-automatic Catalogue Number
Charging motor, motor switch and operation counter

| Charging motor operation voltage |  | Motor cut-off switch | Operations counter | None |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| AC | DC |  |  |  |  |
|  |  |  |  |  | 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



Miscellaneous options

```
Key lock switch
OPEN position (provision only) \({ }^{2}\)
```

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
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 480 V 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 |
| 24 V DC trip unit and communications power supply 3.8A SITOP power, Class 2 | WLSITOP1 |
| Optional metric inserts and bolts for breaker mains (4 each) M $8 \times 25$ for FS1 and 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 Līsted Catalogue Number

Interrupting rating, frame size, and frame rating

| Class | Interrupt rating (kA) |  | Frame <br> Max ampere rating (A) | Frame size |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { 240VAC } \\ & \text { 480VAC } \end{aligned}$ | 600VAC |  | 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 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Type of secondary terminal connection 1

For circuit breakers:
Spring clamp terminals
Ring terminals
Screw clamp terminals (low profile, non-partable design)
For switches (non-automatic circuit breakers):
Screw clamp terminals

| Ring terminals | J |
| :--- | :--- |
| Screw clamp terminals (low profile non-partable design) | N |

Screw clamp terminals (low profile non-partable design)
Truck Operated Contacts (TOC)

## Breaker position switches in the following configurations:

## None

(1) Connected, (1) Test, (1) Disconnected - all Form C 1
(3) Connected, (2) Test, (1) Disconnected - all Form C
(6) Connected - all Form C

Cradle mounted key locks - FS2 and FS3 only 6
None
X
Lock breaker in OPEN position (Kirk lock)
A
Lock breaker in OPEN position (Superior lock)
Double-key lock breaker in OPEN position (Kirk lock)
Double-key lock breaker in OPEN position (Superior lock)
Provision only - Lock breaker in OPEN position
Provision only - Double-key lock breaker in OPEN position
Primary conductor isolation shutter
None
Isolation Shutter F

[^4]
## WL Insulated Case Breaker Cradles

UL 489 Listed Catalog Number
Cradle catalog number

| G | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |



| 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 ULI 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) $50 / 60 \mathrm{~Hz}$ | 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 Icw (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 ( ${ }^{\circ} \mathrm{C}$ ) |  | -25 to 40 |  |  |  |  | -25 to 40 |  |  |  |  |



[^5]
## 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 Ics | 254VAC | 150 | 200 | 85 | 100 | 150 | 200 | 85 | 100 | 150 | 200 | 85 | 100 | 150 |
| (kAIC RMS) $50 / 60 \mathrm{~Hz}$ | 508 VAC | 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 Icw (KA RMS) | 1 sec . | $100^{2}$ | - | 85 | 1002 | $100^{2}$ | - | 85 | 1002 | $100^{2}$ | - | 85 | 1002 | $100^{2}$ |
| Close and latch rating (kA RMS) |  | 1002 | - | 85 | 1002 | 1002 | - | 85 | $100{ }^{2}$ | $100^{2}$ | - | 85 | $100^{2}$ | $100{ }^{2}$ |
| Applicable rating plug range |  | 800-3200A |  | 800-4000A |  |  |  | $800-5000 \mathrm{~A}$ |  |  |  | 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) |  | 40173 |  | 40173 |  |  |  | 40173 |  |  |  | 40173 |  |  |
| 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 ( ${ }^{\circ} \mathrm{C}$ ) |  | -25 to 40 |  | -25 to 40 |  |  |  | -25 to 40 |  |  |  | -25 to 40 |  |  |

Ratings for UL 1066 Listed Non-automatic Switches


[^6]
## WL Power Circuit Breaker

UL 1066 Listed Catalogue Number
Interrupting rating, frame size, breaker type and frame rating (3-Pole Circuit Breakers)

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

| Class | Interrupt rating (kA) |  | Frame <br> Max ampere rating (A) | Frame size |  | Fuse (A) |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { 254VAC } \\ & 508 \mathrm{VAC} \end{aligned}$ | 635VAC |  | 2 | 3 |  |  |  |  |  |  |  |
| 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 |

## WL Power Circuit Breaker

UL 1066 Listed Catalogue Number
Interrupting rating, frame size, breaker type and frame rating (4-Pole Circuit Breakers)
Note: Cradle must be ordered separately (see page 54)

| Class | Interrupt rating (kA) |  | Frame <br> Max. ampere <br> rating (A) | Frame size |  | Fixed | Drawout | Neutral CT |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 254VAC 508VAC | 635 VAC |  | 2 | 3 |  |  |  |  |  |  |  |  |
| S | 65 | 65 | 800 | X |  |  | X | X | S | 2 A | 4 | 0 | 8 |
| S | 65 | 65 | 800 | X |  | X |  |  | 5 | 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 |
| 5 | 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 | 5 | 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 |
| 5 | 65 | 65 | 2000 | X |  | X |  | X | 5 | 2 K | 4 | 2 | 0 |
| S | 65 | 65 | 3200 | X |  |  | X | X | S | 2 A | 4 | 3 | 2 |
| 5 | 65 | 65 | 3200 | X |  | X |  |  | 5 | 2 H | 4 | 3 | 2 |
| s | 65 | 65 | 3200 | X |  |  | X |  | S | 2 G |  | 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 | A | 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 |  |  |  | 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 | A | 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 |  | 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 | 40001 |  | X | X |  |  | L | 3 H | 4 | 4 | 0 |
| L | 100 | 85 | 4000 |  | X |  | X |  | L | 3 G | 4 | 4 | 0 |
| L | 100 | 85 | 40001 |  | 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 | 50001 |  | 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 400CIA/5000A fixed mount breakers have vertical rear connectors included as standard.

## WL Power Circuit Breaker

UIL 1066 Listed Catalogue Number


| Maximum continuous current rating (A) | Frame size $2$ | Frame size 3 | $\uparrow$ |
| :---: | :---: | :---: | :---: |
| 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)

## 9) Syyyyyg inoyio

| Trip unit models | Protective function |  |  | LCD display alpha num. | Ground fault |  | EMC filter |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | L | S | 1 |  | 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.

## WL Power Circuit Breaker

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


Shunt trip

| Control voltage |  | Status contact | Continuous duty coil (electrical interlock) | None |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| AC | DC |  |  |  |  |
|  |  |  |  |  | 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 |

## WL Power Circuit Breaker

UL 1066 Listed Catalogue Number
Undervoltage release（with or without time delay）or 2nd shunt trip

UVR
without delay
with delay

| UVR | 2nd shunt |
| :--- | :--- |
| status contact 1 | trip |

Breaker catalog number

| 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

A

Charging motor，motor switch，operations counter

|  | Charging motor operation voltage |  | Motor cut－off switch | Operations counter | None |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AC | DC |  |  |  |  |
| （－） |  |  |  |  |  | X |
|  |  | 24 |  |  |  | A |
| ¢ッ |  | 48 |  |  |  | B |
|  | 120 | 125 |  |  |  | C |
|  | 240 | 250 |  |  |  | D |
| 司品 |  | 24 | X |  |  | E |
| 星 |  | 48 | X |  |  | F |
| $\underline{\square}$ | 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 |

## WL Power Circuit Breaker

## UL 1066 Listed Catalog Number

Close coil, power metering and communications

| Close coil operation voltage |  | Power metering capable | Modbus 2 | PROFIBUS 2 PROFINET | Modbus TCP/ PROFINET | None |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AC | DC |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  | 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 |


| 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 |

[^7]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
Breaking capacity, frame size, switch type and frame rating (3-Pole Non-Automatic Circuit Breakers)

| Class | Breaking capacity (kA) |  | Frame <br> Max ampere | Frame size |  |  | 4 | 4 | 4 |  | 4 | 4 | 4 | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 240VAC |  |  |  |  | Fuse |  |  |  |  |  |  |  |  |
|  | 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 | 5 |
| 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 | 5 |
| 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 |
| :--- |
| L |
| L |
| L |
| L |
| L |
| L |
| L |
| L |
| L |
| L |


| Breaking capacity (kA) |  | Frame | Frame size |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \mathbf{2 5 4 V A C} \\ & 508 \mathrm{VAC} \end{aligned}$ | 635VAC | Max ampere rating (A) | 2 | 3 | Fixed | Drawout |
| 100 | 85 | 800 | X |  | X |  |
| 100 | 85 | 800 | X |  |  | X |
| 100 | 85 | 1600 | X |  |  |  |
| 100 | 85 | 1600 | X |  |  | X |
| 100 | 85 | 2000 | X |  | X |  |
| 100 | 85 | 2000 | X |  |  | X |
| 100 | 85 | 3200 | X |  | X |  |
| 100 | 85 | 3200 | X |  |  | X |
| 100 | 85 | 4000 |  | X | X |  |
| 100 | 85 | 4000 |  | X |  | X |
| 100 | 85 | 5000 |  | X | X |  |
| 100 | 85 | 5000 |  | X |  | X |
| 100 | 85 | 6000 |  | X |  | X |


| Breaking capacity (kA) |  | Frame Max ampere rating (A) | Frame size |  |  |  | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \mathbf{2 5 4 V A C} \\ & 508 \mathrm{VAC} \end{aligned}$ | 635 VAC |  | 2 | 3 | Fixed | Drawout |  |
| 100 | 85 | 800 | X |  | X |  | L |
| 100 | 85 | 800 | X |  |  | X | L |
| 100 | 85 | 1600 | X |  |  |  | L |
| 100 | 85 | 1600 | X |  |  | X | L |
| 100 | 85 | 2000 | X |  | X |  | L |
| 100 | 85 | 2000 | X |  |  | X | L |
| 100 | 85 | 3200 | X |  | X |  | L |
| 100 | 85 | 3200 | 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 | L |
| 100 | 85 | 6000 |  | X |  | X | L |

Switch catalog number

[^8]|  | 10 | 11 | 12 | 13 | 14 | 15 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## WL Power Circuit Switch

UL 1066 Listed Non-automatic Catalogue Number
Breaker ready-to-close auxiliary contacts


Shunt trip

| Operation voltage |  | Status contact | None | X |
| :---: | :---: | :---: | :---: | :---: |
| AC | DC |  |  |  |
|  |  |  |  |  |
|  | 24 |  |  | A |
|  | 48 |  |  | B |
| 120 | 125 |  |  | C |
| 240 | 250 |  |  | D |
|  | 24 | X |  | E |
|  | 48 | X |  | F |
| 120 | 125 | X |  | G |
| 240 | 250 | X |  | H |

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

| Operation voltage |  | UVR without delay | UVR <br> with delay | UVR <br> status contact ${ }^{1}$ | 2nd shunt trip | None |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AC | DC |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 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 |

[^9]
## WL Power Circuit Switch

UL 1066 Listed Non-automatic Catalogue Number

Charging motor, motor switch, operations counter

| Charging motor |
| :--- |
| $\begin{array}{l}\text { Chat } \\ \text { operation voltage }\end{array}$ |
| AC |

Close coil, communications


## WL Power Circuit Switch

UL 1066 Listed Cradle Catalogue Number
Selection

|  |  |  |  |  | tch | ca | tal |  | nu |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Switch locks |  |  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 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 |  |  |  |  |  |  |  |  |  |  |  |  |  | $\uparrow$ | 4 |
|  |  |  |  |  | ne |  |  |  |  |  |  |  |  |  |  |  | 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 <br> OPEN position (provision only) ${ }^{2}$

None
B

## UL 1066 Fixed Mount Breaker Vertical Connector Kits

| Description | Catalog number |
| :--- | :--- |
| FS 2 800A - 1600A Rear Vertical Connectors (8 pieces, includes Neutral Pole) | WL4L2R16CONUL |
| FS 2000A Rear Vertical Connectors (8 pieces, includes Neutral Pole) | WL4L2R20CONUL |
| FS 3200A Rear Vertical Connectors (8 pieces, includes Neutral Pole) | WL4L2R32CONUL 4 |

[^10]
## WL Power Circuit Switch

## UL 1066 Listed Cradle Catalog Number



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

UIL 1066 Listed Cradle Catalog Number


## UL 1066 Listed accessories

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

## WL Secondary Terminal Assignments



## General Wiring




NOTES:

1. COMPONENT PLACEMENT PER PANEL, SWITCHGEAR, OR SWITCHBOARD DRAWINGS.
2. ALL DEVICES SHOWN IN OPEN AND/OR DE-ENERGIZED STATE.
3. 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 $\mathrm{I}^{\mathbf{2} \mathrm{t}}$ Characteristic Curve

All versions of the ground fault modules are delivered with an 12 t 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

## Selection

Residual sensing of the ground fault current


Direct measurement of the ground fault current


## Ground fault module GFM A 745



Ground fault module GFM A 776


Ground fault module GFM AT 745


Ground fault module GFM AT 776


## Metering Voltage Details

Selection
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 ( $240 \mathrm{~V}, 480 \mathrm{~V}, 600 \mathrm{~V}$ )
2) VT Secondary Voltage (100V, 110V, 120V)
3) VT Connection (Wye / LN, Delta / LL)

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


## 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.

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.


3Ø:4W System: Wye (L-N, L-G) Connection Phase Rotation: A-B-C or A-C-B


## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker

## Frame size 1



## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker
Frame size 1
Horizontal Connectors




## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker
Frame Size 1
Rear Vertical Connectors

Top view


Rear view

(1) $=$ slots for insulation barriers

## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker
Frame Size 1
Front Connectors

Top view


## Front view



## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker
Frame Size 1
Front Connectors and Lugs

Top view


Front view


## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker
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 | $17.80[452.10]$ | $18.70[475.0]$ | $25.20[640.0]$ |

## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker

## 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 | $1600-3000 \mathrm{~A}$ | $1.18[30]$ |



## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker
Frame Size 2
Optional Vertical Connectors


## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker
Frame Size 2
Front Connectors

## LH side view



| Rated Current | Dimension A |
| :--- | :--- |
| max. 1600 A | $0.39[10]$ |
| max. 2000 A | $0.79[20]$ |
| $\max .2500 \mathrm{~A}$ | $0.79[20]$ |

## Front view



Frame Size 2
3000A Front Connectors



# Low Voltage Circuit Breaker <br> UL489 Fixed-mount Breaker 

## Frame Size 3



LH side view


## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker
Frame Size 3
Vertical Connectors and Horizontal Stabs
Top view


Top view


## Low Voltage Circuit Breaker

UL489 Fixed-mount Breaker
Frame Size 3


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

# Low Voltage Circuit Breaker 

UL489 Fixed-mount Breaker
Frame Size 3
5000A Vertical Connectors

LH side view


Front view
6 CIRCUIT BREAKERS


# Low Voltage Circuit Breaker 

UL489 Fixed-mount Breaker
Dimensions
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)

## Low Voltage Circuit Breaker

UL489 Draw-out Breaker
Dimensions
Frame Size 1


## Low Voltage Circuit Breaker

UL489 Draw-out Breaker
Frame Size 1
Vertical Connectors

## Rear view




## Low Voltage Circuit Breaker

UL489 Draw-out Breaker
Frame Size 1


## Low Voltage Circuit Breaker

## UL489 Draw-out Breaker

Frame Size 1
Charging and Racking



Frame Size 1
Plexiglass Cover


4 holes each side, as alternative rear fixing points,


## Low Voltage Circuit Breaker

## UL489 Draw-out Breaker

Frame Size 1
Door Cut-outs
door cut-out (through door racking, with edge protector, cut-out after mounting edge protector)

(max radii, 4plc's)


Frame Size 2



## Low Voltage Circuit Breaker

UL489 Draw-out Breaker
Frame Size 2



## Low Voltage Circuit Breaker

UL489 Draw-out Breaker
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



## Low Voltage Circuit Breaker

UL489 Draw-out Breaker
Frame Size 2
Charging, Racking and Draw-out

Lifting Point (Cradl
only) Do not lift by othe
only) Do
points.


# Low Voltage Circuit Breaker <br> UL489 Draw-out Breaker 

Frame Size 3


## Low Voltage Circuit Breaker

UL489 Draw-out Breaker
Dimensions
Frame Size 3
Vertical Connectors


## Low Voltage Circuit Breaker

UL489 Draw-out Breaker
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 (Middle escutcheon visible)


Door cut-out (after mounting Door Sealing Frame)


Minimal door cut-out (Only center eustcheon visible)

## Low Voltage Circuit Breaker

## UL489 Door Sealing Frame

Frame Size 2 and 3
Door Cut-outs


## Low Voltage Circuit Breaker

UL 1066 Draw-out Non-fused Breaker
Frame Size 2


CIRCUIT BREAKERS 6


## Low Voltage Circuit Breaker

UL 1066 Draw-out Non-fused Breaker
Frame Size 2


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 85 kAIC or less

## Low Voltage Circuit Breaker

UL 1066 Draw-out Non-fused Breaker
Frame Size 2
Charging, Racking and Draw-out
Lifting Point (Cradle
only) Do not lift by oth
only) Do not lift by other
points.



## Low Voltage Circuit Breaker

UL 1066 Draw-out Fused Breaker
Frame Size 2


# Low Voltage Circuit Breaker <br> UL 1066 Draw-out Fused Breaker 

Frame Size 2


Sy3yyay ilnoyig 9

## Low Voltage Circuit Breaker

UL 1066 Draw-out Fused Breaker
Frame Size 2
Charging, Racking and Draw-out

$9 \frac{\text { Sy3nyzag innoyio }}{\text { yimod im }}$


## Low Voltage Circuit Breaker <br> UL 1066 Draw-out Fused Breaker

## Frame Size 2

Fixed Mounted Version

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


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


Frame Size 2
Door Cut-outs


6
Door cut-out and mounting holes for Door Sealing Frame


Door cut-out (Middle escutcheon visible)


Door cut-out (after mounting Door Sealing Frame)

## Low Voltage Circuit Breaker <br> UL 1066 Draw-out Non-fused Breaker

## Frame Size 3

Drawout (3-Pole and 4-Pole)


## Low Voltage Circuit Breaker

UL 1066 Draw-out Non-fused Breaker
Frame Size 3


CIRCUIT BRERKKERS 6


## Low Voltage Circuit Breaker <br> UL 1066 Draw-out Non-fused Breaker

Frame Size 3


# Low Voltage Circuit Breaker <br> UL 1066 Draw-out Fuse Carriage 

Frame Size 3
Fuse Carriage


## Low Voltage Circuit Breaker <br> UL 1066 Draw-out Fuse Carriage

Frame Size 3
Fuse Carriage Racking


## Low Voltage Circuit Breaker

UL 1066 Door Sealing Frame

## Frame Size 3

Fixed Mounted Version

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


Top view vertical connection


Frame Size 3
Door Cut-outs


Door cut-out and mounting holes for Door Sealing Frame


Door cut-out (Middle escutcheon visible)


Door cut-out (after mounting Door Sealing Frame)

Minimal door cut-out (Only center eustcheon visible)

## Low Voltage Circuit Breaker

UL 1066 Draw-out
Frame Size 2 and 3
Door Cut-outs


## Trip Units and Rating Plugs

ETU 745
ETU 776



| ETU catalog <br> number | Trip unit <br> functions | Protective <br> covers | Replacement <br> LCD displays | Ground <br> fault alarm | Ground fault <br> 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 Compatible with all WL ETU versions

Rating plug

Rating plug

| Catalog <br> number | Ampere <br> rating | Catalog <br> number | Ampere <br> rating | Catalog <br> number | Ampere <br> rating | Catalog <br> number |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| WLRP200 | $200 A$ | WLRP400 | $400 A$ | WLRP800 | 8mpere |  |
| rating |  |  |  |  |  |  |

[^11]
## WL Spare/Replacement Parts

Communication Componentes


COM Device


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 |  |
| Breaker status sensor |  |
| WLBSS | Breaker status sensor for Profibus/Modbus |
| External I/O CubicleBus modunting hardware and BSS |  |
| 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 - 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



Handheld tester


24VDC power supply


TD400

| Catalog number <br> 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 | 24Vdc ETU and COMM power supply, 2.5A SITOP Power, Class 2 |
| WLSITOP25 | 24Vdc ETU and COMM power supply, 3.8A SITOP Power, Class 2 |
| WLSITOP1 | Function test device for testing the tripping characteristics for overcurrent <br> release ETU15B to ETU76B (IEC circuit breakers) |
| Trip unit test equipment | TD400 Kit (IEC and UL) <br> Commissioning and service tool for WL, 3WL1/5, and 3VA Circuit Breaker <br> Comes with adapter, cable, and case |
| 3VW9011-0AT40 | TD400 Adapter (spare part) for 3VA |
| 3VW9011-0AT43 | TD400 Adapter (spare part) for 3WL ETU (UL) |
| 3VW9011-0AT44 | TD400 Adapter (spare part) for 3WL ETU (IEC) |
| 3VW9011-0AT45 |  |




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


Extends Height of WLCNMD WLCNMDA


Coding Kit WLCODEKITUL

## WL Spare/Replacement Parts

## Cradle Frame Accessories



Arc Chute Cover


## Catalog number

Stationary primary bus-bar disconnect terminals
consists of 1 bus-bar pole only)

| WLGST15123LI | Stab tip replacement kit -800 A/1200A, FS1, Line Side |
| :--- | :--- |
| WLGST10163LD | Stab tip replacement kit -800 A/1200A/1600A, FS2, Load Side |
| WLGST10163LL | Stab tip replacement kit -800 A/1200A/1600A, FS2, Line and Load Side |
| WLGST15203LL | FS2 2000A and FS1 $800 / 1200 / 1600 / 2000$ lower Stab Tip |
| WLGST15203LD | Stab tip replacement kit -2000 A -800 A/1200A, FS2, Load Side |
| WLGST30323LL | Stab tip replacement kit -2500 A/3000A, FS2, Line and Load Side |
| WLGST30503LL | Stab tip replacement kit -4000 A/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 |
| $W L 4 G A R C 2 ~$ | 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 $+4 N C$, Test and Connect Position, FS1/FS2 |
| :--- | :--- |
| WLMOCC | MOC with $4 N O+4 N C$, Connect Position, FS1/FS2 |
| WLMOC3 | MOC with $4 N O+4 N C$, Test and Connect Position, FS3 |
| WLMOCC3 MOC with 4NO $+4 N C$, Connect Position, FS3 <br> (for fixed mounted circuit breakers)  |  |
| WLMOCUL1 | MOC with 4NO $+4 N C$, FS1 Fixed |
| WLMOCUL | MOC with 4NO $+4 N C$, 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

WLG3SHUT2L
FS1 3-Pole Shutter for Class S,H,L

WLG3SHUT2F
e Shutter for Class N

WLG3SHUT2M FS2 3-Pole Shutter for Class C
WLG3SHUT3L
WLG3SHUT3M
FS3 3-Pole Shutter for Class L,F,H

WLG3SHUT3FC
FS3 3-Pole Shutter for Class C,M

WLG4SHUT2L
FS3 3-Pole Shutter for Fuse Carriage

WLG4SHUT3L
FS2 4-Pole Shutter for Class S,H,L
FS3 4-Pole Shutter for Class H,L


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 <br> (FS2, FS3 only) |


| WLDRLC | Locking device against opening the cubicle door when breaker is <br> in connect position, FS1 Only |
| :--- | :--- |
| WLDRLC1 | Locking device against opening the cubicle door when breaker is in <br> connect position, FS2, FS3 |
| WLDRLC5UL | Locking device against moving/racking the breaker when the cubicle <br> 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 |

[^12]
## WL Spare/Replacement Parts

## Metering GT Units



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 | $3200: 5$ |
| WLG400NMCT23 | $4000: 5$ |
| WLG5000NMCT23 | $5000: 5$ |



Modified differential CT


Neutral Sensor


Neutral Sensor with

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 | $3^{\prime \prime}$ | Without copper bus adapter (pass-thru mount) |
| WLNCT3 | $3-5^{\prime \prime}$ max. bus-bar size | Without copper bus adapter (pass-thru mount) |
|  |  |  |
| WLNCT2CB | For $3^{\prime \prime}$ | With copper bus adapter for bus connection |
| WLNCT3CB | For $3^{\prime \prime}-5^{\prime \prime}$ max. bus-bar size | With copper bus adapter for bus connection |

## WL Spare/Replacement Parts



Shunt Trip Coil


Auxiliary Contact


Ready-to-Close Contact


Bell Alarm Reset Coil


Bell Alarm Contacts


Operations Counter

| Catalog number |  |
| :---: | :---: |
| Shunt trip release |  |
| WLST24 | 24 Vdc , 3-cycle momentary duty |
| WLST48 | $48 \mathrm{Vdc}, 3$-cycle momentary duty |
| WLST120 | $120 \mathrm{Vdc} / 120 \mathrm{Vac}$, 3-cycle momentary duty |
| WLST240 | $250 \mathrm{Vdc} / 240 \mathrm{Vac}, 3$-cycle momentary duty |
| WLSTCD24 | 24 Vdc , continuous duty (UL 489 only) |
| WLSTCD48 | 48 Vdc , continuous duty (UL 489 only) |
| WLSTCD120 | $120 \mathrm{Vdc} / 120 \mathrm{Vac}$, continuous duty (UL 489 only) |
| WLSTDC240 | $250 \mathrm{Vdc} / 240 \mathrm{Vac}$, 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 | 24 Vdc |
| WLRSET48 | 48 Vdc |
| WLRSET120 | $125 \mathrm{Vdc} / 120 \mathrm{Vac}$ |
| WLRSET240 | $250 \mathrm{Vdc} / 240 \mathrm{Vac}$ |
| WLBA | Form "C" contact |

## WL Spare/Replacement Parts



Undervoltage Trip Coil


Signal Contacts


Closing Coil


Charging Motor

| Catalog number |  |
| :--- | :--- |
| Undervoltage trip release |  |
| WLUV24 | 24 Vdc, instantaneous trip |
| WLUV48 | 48 Vdc, instantaneous trip |
| WLUV120 | $125 \mathrm{Vdc} / 120 \mathrm{Vac}$, instantaneous trip |
| WLUV240 | $250 \mathrm{Vdc} / 240 \mathrm{Vac}$, instantaneous trip |
| WLUVD48 | 48 Vdc, time delayed |
| WLUVD120 | $125 \mathrm{Vdc} / 120 \mathrm{Vac}$, time delayed |
| WLUVD240 | $250 \mathrm{Vdc} / 1240 \mathrm{Vac}$, time delayed |

Signal contactor for UV trip
WLUVRC "NO" switch 3A - 240Vac rating

| Closing coil |  |
| :--- | :--- |
| WLRCS24 | $24 \mathrm{Vdc}, 3$ cycle momentary duty |
| WLRCS48 | $48 \mathrm{Vdc}, 3$ cycle momentary duty |
| WLRCS120 | $125 \mathrm{Vdc} / 120 \mathrm{Vac}, 3$ cycle momentary duty |
| WLRCS240 | $250 \mathrm{Vdc} / 240 \mathrm{Vac}, 3$ cycle momentary duty |


| Spring charging motor |  |
| :--- | :--- |
| WLELCMTR24 | 24 Vdc, Charging motor |
| WLELCMTR48 | 48 Vdc, Charging motor |
| WLELCMTR120 | $120 \mathrm{Vdc} / 120 \mathrm{Vac}$, Charging motor |
| WLELCMTR240 | $250 \mathrm{Vdc} / 240 \mathrm{Vac}$, Charging motor |
| WLELCMTR24S | 24 Vdc, Charging motor w/cut-off switch |
| WLELCMTR48S | 48 Vdc, Charging motor w/cut-off switch |
| WLELCMTR120S | $125 \mathrm{Vdc} / 120 \mathrm{Vac}$, Charging motor w/cut-off switch |
| WLELCMTR240S | $250 \mathrm{Vdc} / 240 \mathrm{Vac}$, Charging motor w/cut-off switch |
| WLMCOSW | Motor cut-off switch |

## WL Spare/Replacement Parts

Circuit Breaker Accessories


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


| Catalog <br> number |  |  |
| :--- | :--- | :--- |
| Circuit breaker finger cluster replacement kit | Units |  |
| WLFNGR1UL | For FS1 UL489 800A, 1200A |  |
| 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 pece |
| WLFNGR30ULC | For FS2 UL489 1600/2000/2500/3000A | 1 piece |
| 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 |

Circuit breaker bus connectors
UL 489 Fixed Mount
(Front mount Bus Connector)

| WLH1F12CONUL | FS1, 800-1200AF, 85 kAIC at 480 V maximum | 6 pieces |
| :---: | :---: | :---: |
| WLL2F16CONUL | FS2, 1600AF, 100 kAIC at 480 V maximum | 6 pieces |
| WLL2F20CONUL | FS2, 2000AF, 100 kAIC at 480 V maximum | 6 pieces |
| WLL2F25CONUL | FS2, 2500AF, 100 kAIC at 480 V maximum | 6 pieces |
| WLL2F30CONUL | FS2, 2500-3000AF, 100 kAIC at 480 V maximum | 6 pieces |
| WLL3F50CONUL | FS3, 4000-5000AF, 100 kAIC at 480 V maximum | 6 pieces |
| (Rear Vertical Bus Connector) |  |  |
| WLH1R12CONUL | FS1, 800-2000AF, 100 kAIC at 480 V maximum | 6 pieces |
| WLL2R16CONUL | FS2, 800-1600AF, 100 kAIC at 480 V maximum | 6 pieces |
| WLL2R20CONUL | FS2, 2000AF, 100kAIC at 480 V maximum | 6 pieces |
| WLL2R30CONUL | FS2, 2500-3000AF, 100 kAIC at 480 V maximum | 6 pieces |
| WLC2R30CONUL | FS2, $800-3000 \mathrm{~A}, 150 \mathrm{kAIC}$ at 480 V max | 6 pieces |
| WLC3R50CONUL | FS3, 4000-5000AF, 150 kAIC at 480 V 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 |

[^13]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



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) |



| 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 <br> for any reason, proper packaging is to be used to prevent damage to the product <br> 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 | WL Low Voltage |
| :---: | :---: |
| Ft. Worth, TX |  |$\quad$| Power Circuit Breaker |
| :---: |
| Certified Test Report |




## 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=suml]
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
SIEMENS
Date Printed:
Page: 1 of 1
Ft. Worth

## WL Spare/Replacement Parts

Communication Components
Quick reference guide

| Task | Accessories |
| :---: | :---: |
| Manual charging circuit breaker to electrically operated circuit breaker... | - WLELCMTRXX <br> - WLMCOSW Motor Cut-off switch (Optional) |
| Remote operation of circuit breaker | - WLELCMTRXX <br> - WLMCOSW Motor Cut-off switch (Optional) <br> - Shunt Trip (WLSTXX) <br> - Close coil (WLRCSXX) <br> - Control Power |
| Remote operation of circuit breaker via communications | - WLELCMTRXX <br> - WLMCOSW Motor Cut-off switch (Optional) <br> - Shunt Trip (WLSTXX) <br> - Close coil (WLRCSXX) <br> - COM15/COM16/COM35 (WLCMXX) <br> - 24V DC Power Supply <br> - 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) <br> - 24V DC Class 2 Power Supply |
|  | - WLETU776 + WLCOM35 (Output Module Not Required) <br> - 24V DC Class 2 Power Supply |
|  | Add the following for use with communications <br> - WLCM15M for PROFIBUS <br> - WLCM16MD for Modbus |
| PROFIBUS Addition | To a circuit breaker: <br> - WLCM15M + WLBSS <br> - WLCM15RET includes (WLCM15M+WLBSS). This uses the 24VDC Class 2 power supply used for the ETU. |
|  | To a switch: <br> - WLCM15M + WLBSS + External 24VDC Class 2 UL Power Supply (WLSITOP25) |
| Modbus Addition | To a circuit breaker: <br> - WLCM16RET (includes WLCM16MD+WLBSS) <br> - 24V DC Class 2 Power Supply |
|  | To a switch: <br> - WLCM16RET (includes WLCM16MD+WLBSS) <br> - 24V DC Class 2 Power Supply |
| Modbus TCP Addition | To a circuit breaker: <br> - WLCOM35RET (includes WLCOM35+WLBSS) <br> - 24V DC Class 2 Power Supply |
|  | To a switch: <br> - WLCOM35RET (includes WLCOM35+WLBSS) <br> - 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 <br> - WLSITOP25 (2.5A) : good for 2 breakers (2ETUs, COMM Cubicle bus Modules) <br> - WLSITOP1 (3.8A): good for up to 4 breakers (4ETUs, COMM Cubicle bus Modules) |

## WL Spare/Replacement Parts

Communication Components

| Accessory | Description |
| :---: | :---: |
| WLELCMTRXX | - Charging motor <br> - 24VDC/48VDC/125VDC/250VDC/120VAC/240VAC |
| WLMCOSW | - Motor cut-off switch |
| WLSTXX | - Shunt trip <br> -3-cycle or continuous duty <br> - 24VDC/48VDC/125VDC/250VDC/120VAC/240VAC |
| WLRCSXX | - Closing coil <br> -3-cycle <br> - 24VDC/48VDC/125VDC/250VDC/120VAC/240VAC |
| WLBSS | - Breaker Status Sensor (BSS Board) |
| WLSITOP25 | - Power supply for trip unit and communications <br> - 24VDC <br> - 2.5A SITOP Power, Class 2 |
| WLSITOP1 | - Power supply for trip unit and communications <br> - 24VDC <br> -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 |


[^0]:    $(X)=$ Standard feature,$\quad(\mathrm{O})=$ Optional feature

[^1]:    $\checkmark$ available

[^2]:    (1) See page 6-109 for field install part numbers.

[^3]:    ${ }^{1}$ 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.

[^4]:    1 Terminal blocks (X5, X6, X8, X9) are installed as standard.

[^5]:    1 Maintenance means: replacing main contacts and arc chutes (see operating instructions).
    M -Class main contacts can be replaced by Siemens personnel only.

[^6]:    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.

[^7]:    1 Requires External PTs for voltage input and 24VDC power supply 2 Includes BSS device and requires 24VDC power supply.

[^8]:    L

[^9]:    1 Status contact only available when communication is not installed. Signal is sent via communication in lieu of status contact.

[^10]:    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.

[^11]:    1 Optional GF module sold separately.
    2 Metering function and ETU776 requires 24VDC supply.

[^12]:    1 Mechanical interlock cable ships with 2.0 m Bowden Cable.

[^13]:    1 FS II 3200A, FS III 4000A, 5000A breakers include vertical connectors as a standard.

