

SIEMENS



CATALOG EDITION 1

Arc Protection

Reyrolle 7XG35 ReyArc

Arc Protection Device

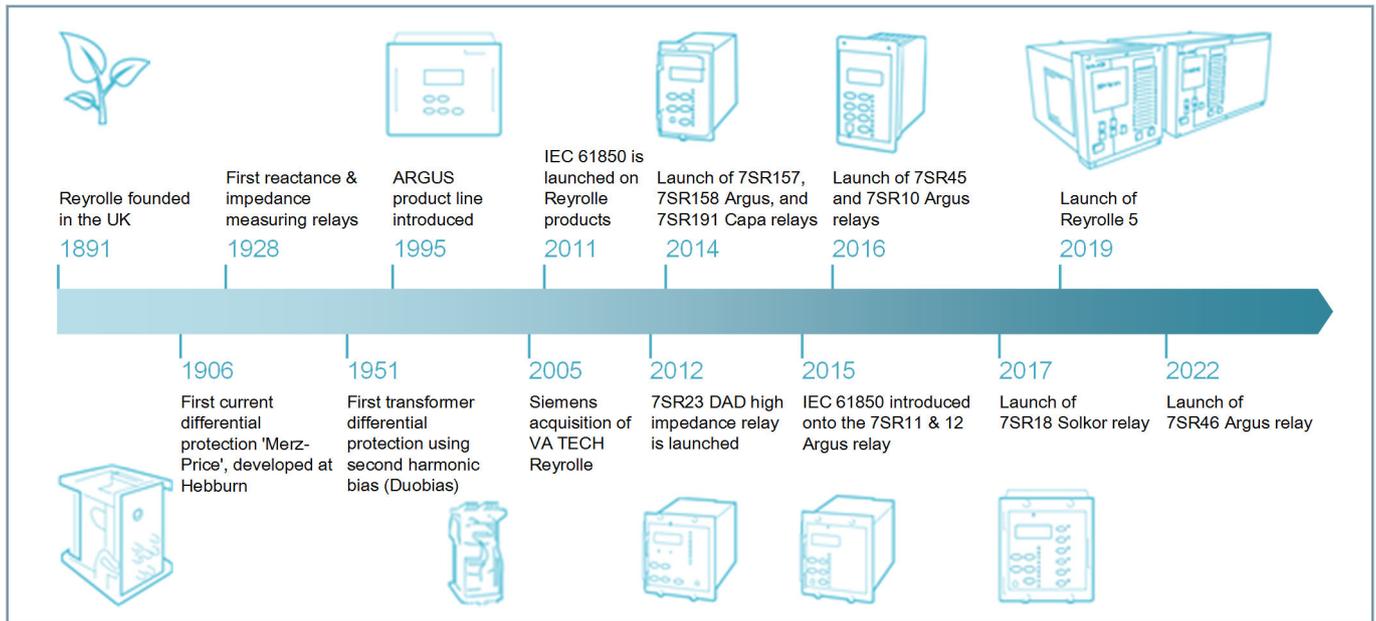
Reyrolle 7XG35 Catalog Reyarc Arc Protection Device

Reyrolle 7XG35 - Catalog Edition 1

Introduction	1
Devices and Applications	2
Reyrolle 7XG35 Reyarc Arc Protection Device	2.1
Arc Flash Detection Sensors	2.2
System	3
Applications	3.1
Hardware Construction	3.2
Technical Documentation	4
Dimension Drawings and Connection Diagrams	4.1
Technical Data	4.2
Ordering Information	4.3
Appendix	5

Introduction

Reyrolle – Solutions for Distribution Grids



[dsw_reyrolle history, 4, en_US]

Figure 1/1 History of Reyrolle

Reyrolle has been synonymous with electrical line protection devices in the sectors of sub-transmission, distribution, and industrial applications for decades. Historically, Reyrolle relays were sold mainly in traditional markets but are now sold worldwide as part of the Siemens protection network.

Since its foundation, Reyrolle has been an innovation driver in product development – based on a strong focus on market, customer and technology. Worldwide established brand names such as “Solkor” and “Argus” demonstrate this. But there is more: A wide range of Reyrolle products has determined technological firsts in the market.

The comprehensive range of Reyrolle products provides the total protection requirements of distribution markets – ranging from overcurrent protection via transformer protection and voltage control to a full spectrum of auxiliary and trip relays. The portfolio includes many famous products such as “Argus”, “Duobias”, “Solkor”, “Rho”, etc.

To serve specific needs in industrial applications, a range of proven products such as “Argus overcurrent”, “Solkor line differential” and “Rho motor protection devices” is offered.

Through successive generations, Reyrolle numerical products have been developed to increase value to system operators. This increase in value is the result of consistent development:

- Ease-of-use as a principle – our withdrawable product solutions allow flexible, easy operation through high user friendliness.
- One size fits all – the 4U housing height and the latest generation of numerical products features 1 A/5 A CT Input, and some models are provided with universal DC power supplies.

- Learn once, know all – the new product generation provides a similar look and feel as earlier products. If Reyrolle numerical devices have been previously used, there is a high consistency in both programming and interrogation.
- With Reysdisp Manager and Reysdisp Evolution, a free comprehensive software support toolkit for relay setting, fault interrogation and general system information is provided.

The 7SR5 is the latest generation of 7SR devices providing an updated user interface linking to the latest hardware platform and software implementation. The hardware platform offers a flexible solution relevant to changing power grids and load flows. The 7SR5 builds on the proven performance of the existing 7SR1 and 7SR2 products, the function implementation and user interface are instantly recognizable to users of previous generation products, but have also been updated and enhanced. In-service experience and the need for future proofing has been incorporated by implementing flexible modular hardware architecture and modular software structure.



[sc_7SR5Family, 1, ...]

Figure 1/2 Reyrolle 7SR5 Family

Description

The Reyrolle 7XG35 Arc Protection device is used in conjunction with P1X optical sensors to provide arc fault protection for medium or low voltage air insulated switchgear. Direct and reflected light produced by arcing faults is rapidly detected resulting in high speed operation. The P1X sensors are connected to the Reyrolle 7XG35 device via fiber optic cables. Integral self-supervision functionality monitors the Reyrolle 7XG35 device, the optical arc sensors and the fiber-optic connecting cables. An optional overcurrent check function can be used to provide secure 2-out-of-2 tripping criteria.

Benefits

- High speed fault detection, fast operating time with <2 ms light only and <7 ms light and current check
- Selective tripping provided by zone configuration
- Up to four zones of protection
- Suitable for new switchgear or as a retrofit upgrade to existing installations
- Easy configuration using the Reydisp Evolution PC tool via USB C interface:
 - Free of charge Reydisp Evolution PC tool
 - Online and offline device configuration
- Fast operation time reduces the risk of personnel injury and minimises equipment damage
- Cost-Effective arc protection solution or protection upgrade
- Data storage features – 100 Events and 5 Fault Data records with time stamping
- Real-time status of Sensors, Inputs, Outputs and measured currents
- Straightforward installation:
 - Compact housing
 - DIN rail mounting
 - Detachable wiring connections

Functions

The Reyrolle 7XG35 device supports the following functions:

- Arcing faults detected using P1X 'Point' or 'Line' optical sensors
- Continuous self-supervision of the device and connected optical sensors
- Four high-speed binary outputs
- 11 LEDs provide clear indication of operation and alarms
- Optional CT inputs for Phase and earth fault current check functionality 50AFD/50GAFD
- Tripping can be based on arc flash or dual criteria operation – arc flash and overcurrent
- Circuit breaker failure function (50BF)
- Wide range power supply DC 24 to 240 V and AC 60 to 240 V – single ordering variant



Figure 2.1/1 Reyrolle 7XG35 Arc Protection Device

Applications

In metal-clad air insulated switchgear the light sensors are positioned such that arcing faults in the busbar, circuit breaker and the cable termination compartments etc. are reliably detected.

The Reyrolle 7XG35 device is typically located in the switchgear control cabinet.

Up to 4 optical sensors (point or line) can be connected to the Reyrolle 7XG35 device.

The Reyrolle 7XG35 and optical sensors can be installed in new switchgear and provide a straightforward retrofit solution to existing switchgear installations to improve safety and protection performance.

Product Variants

The Reyrolle 7XG35 is available with 2 variants. The devices are summarized below:

Product Code	Configuration
7XG3551-1FA00-0AA0	4 AFD sensor inputs
7XG3552-1FA00-0AA0	4 AFD sensor inputs + 4 CT current inputs

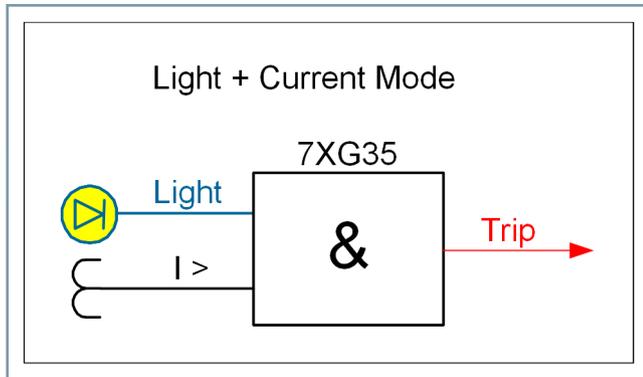
Light and Current Operation Mode

Reyrolle 7XG35 devices have both AFD and optional current inputs. To provide operational security trip operation can be based on detection of two criteria – an arc flash and the flow of phase overcurrent or earth fault current. Overcurrent protection ensures the relay does not trip for other sources of light, while the light sensors ensure the device does not trip for an external fault.

Devices and Applications

Reyrolle 7XG35 Reycarc Arc Protection Device

2.1



[dw_7XG35_LightCurrentOperationMode, 1, en_US]

Figure 2.1/2 Light and Current Operation Mode

Data Acquisition and Recording

- Event records
 - Up to 100 events are stored and are shown to 1 ms accuracy
- Fault records
 - The last 5 fault records are stored and provide clear information on the fault type

Reydisp Evolution Software – Parameterization

The Reydisp Evolution PC engineering tool is used with the Reyrolle 7XG35 device. The device is parameterized and event/fault logs are viewed using a PC connection to the USB-C interface port.

Reydisp Evolution including Reyrolle 7XG35 application templates can be downloaded directly from the Siemens webpage.

Circuit Breaker Failure Protection 50BF

Circuit breaker failure protection can be initiated from a device zone trip signal following a time delay. This can be configured to operate a binary output wired to initiate back-up tripping.

Self Monitoring

The device internal supervision monitors the power supply and internal circuitry. The protection healthy LED is illuminated steady green when the device is healthy. If a device fault is detected the LED is illuminated red.

The optical arc sensors and fiber-optic cables are also supervised. Test signals are transmitted to the arc sensors. An amber LED indicates a sensor defect.

Zone Tripping

Selective zone tripping provides discriminative tripping for all switchgear arrangements. Arc sensor inputs and high-speed binary outputs are configured clear arc faults in affected zones only.

Instruments and Meters

- Primary and secondary phases/earth current
- Status of binary inputs (BI), binary outputs (BO, HSBO)
- AFD inputs – received light levels
- Zone trip and AFD counters

LED Indications

The device has 11 LEDs for user indications and can be configured by the user for self or hand reset. Users are able to edit and download an LED template available from the Siemens website.

The 11 LED indications are for:

- Device/sensor healthy status
- 4 red LEDs for zone trip outputs
- 4 yellow LEDs for arc sensor operation and supervision
- 2 user-programmable red LEDs can be assigned by a user using the Reydisp Evolution tool output matrix

Binary Outputs (BO, HSBO)

4 user configurable high speed binary outputs (HSBO) can be used for tripping commands and can be assigned to specific protection zones.

1 user configurable binary output (BO) with a change-over contact. This is assigned to the device supervision function by default.

Binary Input (BI)

The DC 19 V binary input can be user assigned to signals such as circuit breaker position, remote trip, external light detection, etc.

Arc Flash Detection Sensors

The Reyrolle 7XG35 has four P1X series arc sensor inputs. Each input is compatible with a point or line sensor, a mixture of sensor types can be used.

Each protected switchgear compartment can be equipped with an arc sensor.

Point Sensors

Point sensors are available with fibre optic cable lengths from 3 m to 35 m. The F.O. cable is connected to the Reyrolle 7XG35 using a plug-in connector.



[sc_PointSensor_1, ...]

Figure 2.2/1 Point Sensor P1X

Line Sensors

Line sensors are used in larger enclosures such as the busbar compartment, or if the switchgear design allows can be routed through the CB and cable connection compartments etc. The sensor consists of a fiber with a transparent coating. It detects arcs along the entire sensor length (5 m to 40 m).

Line sensors are connected via a supply line to the arc protection module of the Reyrolle 7XG35 using a plug-in connector. The supply line can be ordered in lengths from 3 m to 10 m.



[sc_LineSensor_1, ...]

Figure 2.2/2 Line Sensor P1X

Reyrolle 7XG35 AFD Inputs for Optical Sensors

Each AFD input connects to a twin fibre optic cable (transmit / receive).



[sc_7XG35_AFDsensorinputs_1, ...]

Figure 2.2/3 AFD Sensor Inputs

System

Applications

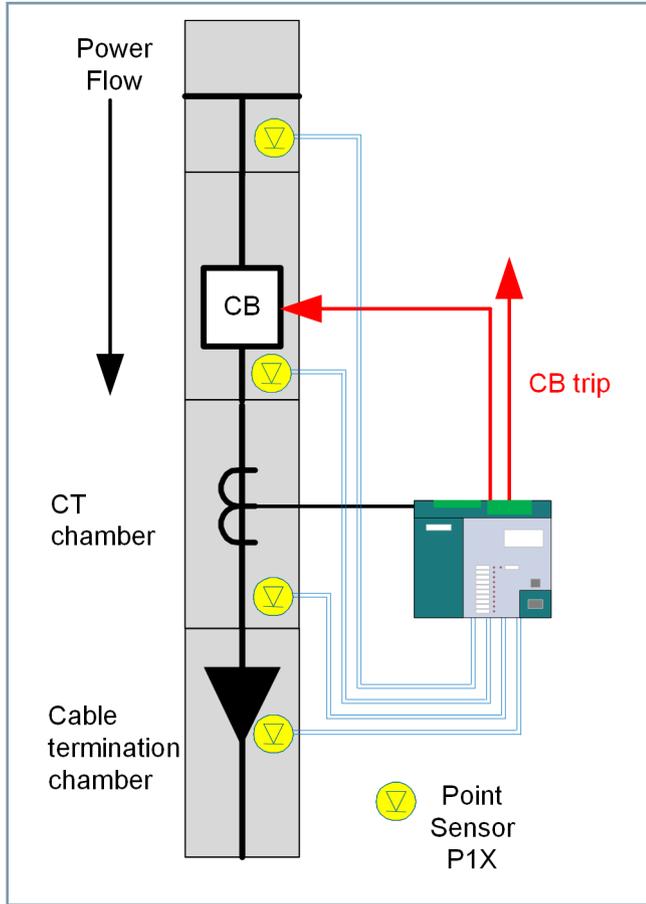
Application Example

Light sensors are installed in each switchgear compartment e.g. busbar, circuit breaker, CT chamber, and cable termination. Each sensor is connected to a Reyrolle 7XG35 AFD input (X5, X6, X7, and X8). Each AFD sensor input is mapped to a high speed binary output for CB tripping.

The circuit current transformer is connected to the device CT inputs.

The operating mode can be set to Light Only or Light and Current mode.

3.1

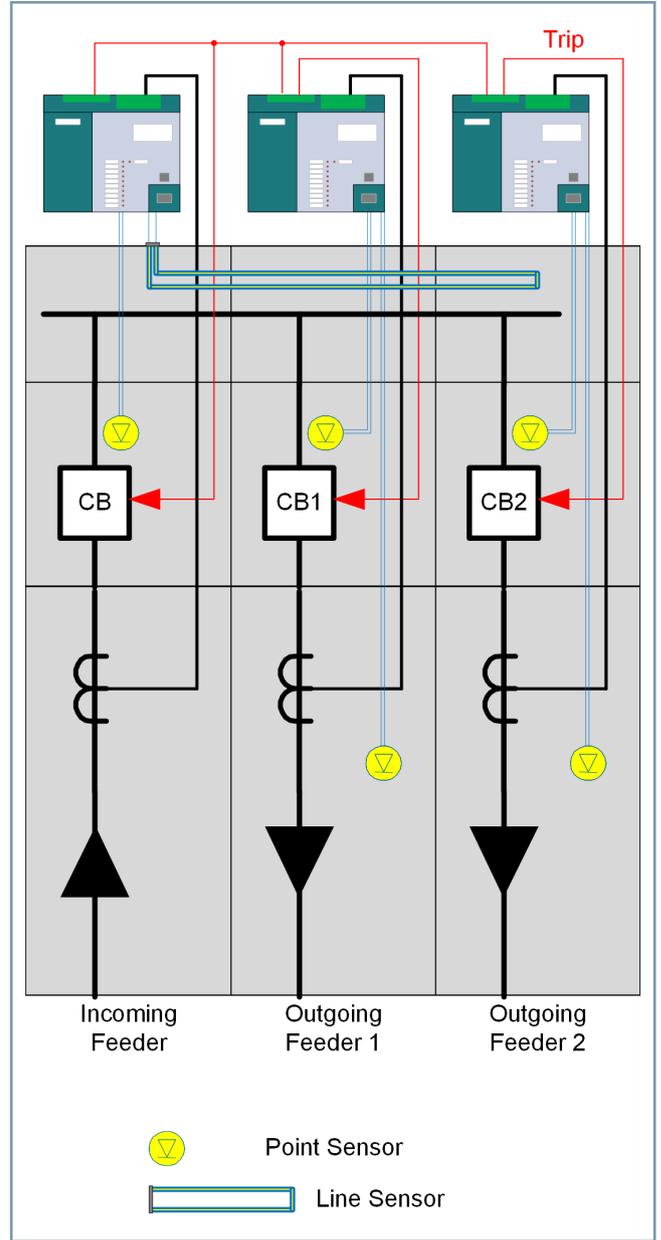


[dlw_7XG35_ApplicationExamplewithSingleMediumVoltagePanel_1_en_US]

Figure 3.1/1 Application Example with Single Medium Voltage Panel

When an arcing fault occurs a trip output is issued to the relevant circuit breaker, dependent on the location of the arc fault. The Reyrolle 7XG35 can be used in switchgear with several enclosures, an example is shown in [Figure 3.1/2](#). This installation includes a combination of point and line sensors. Point sensors are fitted into the cable compartment and circuit breaker compartment. Line sensors are run through several busbar panels.

This allows the location of the arcing fault to be determined and the correct CB to be tripped. Selective tripping will disconnect the minimum amount of plant to isolate the faulted section.



[dlw_7XG35_ApplicationExamplewithSingleMediumVoltageSwitchgear_1_en_US]

Figure 3.1/2 Application Example with Single Medium Voltage Switchgear

Hardware Construction

The devices are housed in a polycarbonate case suitable for mounting on a standard 35 x 15 mm DIN rail. No special tools are required for device installation.

Electrical connectors are located on the top of the devices and optical (AFD sensor) connectors are on the bottom to prevent dirt dropping into the optical inputs if the dust protection caps are not fitted.



Figure 3.2/1 Device Case

Screw type terminal blocks are suitable for flat type screwdrivers with a 3-mm blade.

Terminal Blocks

- X1: Auxiliary power supply DC 24 to 240 V and AC 60 V to 240V
- X2: 1 binary input and 1 change-over binary output
- X3: 4 high speed binary output (HSBO) contacts configured as self or hand reset (latched). The outputs can be used to directly trip the circuit breaker.
- X4: Fitted on devices with CT inputs, 1 A/5 A



Figure 3.2/2 Earthing Terminal

The case earth stud should be solidly connected to the panel earth with a cable of minimum diameter 2.5 mm².

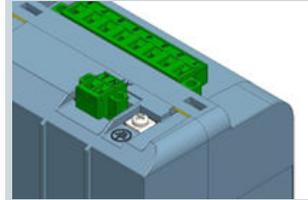


Figure 3.2/3 Case Earth Stud

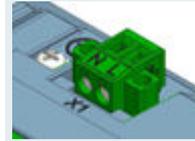


Figure 3.2/4 Auxiliary Power

X1 terminal auxiliary power supply: DC 24 to 240 V and AC 60 V to 240 V voltage ratings.



Figure 3.2/5 Test/Reset Button

Pressing the LED Test/Reset push-button on the front fascia for 2 s resets the indication LEDs and the latched (hand reset) binary outputs.



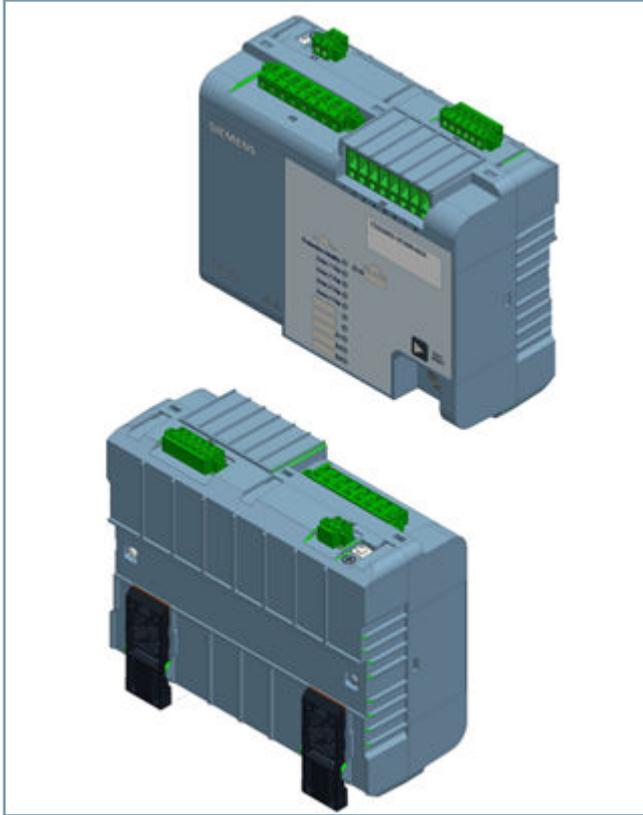
Figure 3.2/6 USB Port

The USB type C front interface on the front fascia is for parameterization and Reydisp tool device configuration. The configuration file is transferred via the USB-C interface. Stored device data/logs could be read and transferred to the PC. The front USB port cover provides environmental protection.

System

Hardware Construction

3.2



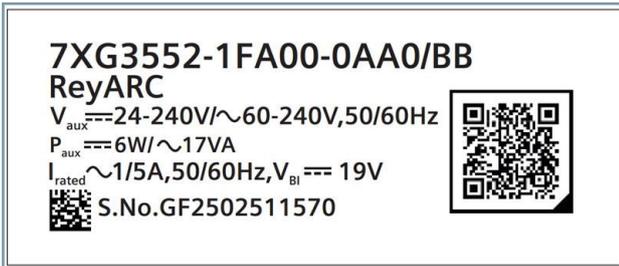
[sc_7XG35_DinRailMountHousing, 1, _]

Figure 3.2/7 DIN Rail Mount Housing

Relay Information

The device is identified by 3 labels located on the front and sides of the device.

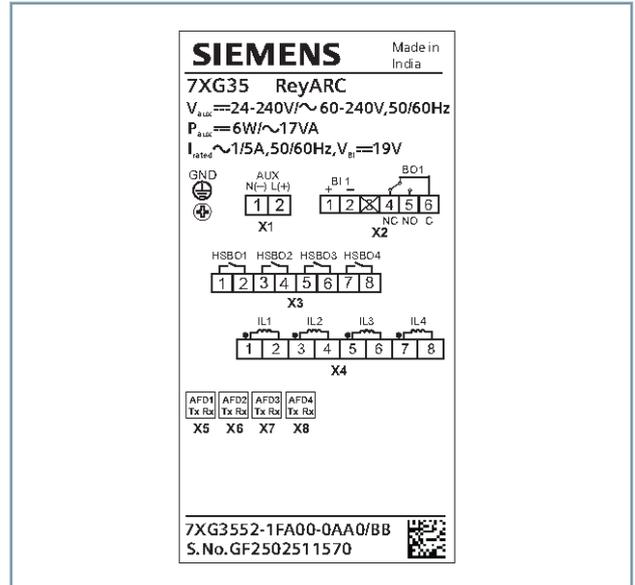
- The front label displays the MLFB complete order code for hardware, product family, product version, serial number, nominal auxiliary supply voltage ratings, current input ratings with CT input devices, binary input threshold voltage, and device identification reference. The QR code will display a web page containing detailed product information and documentation.



[sc_7XG35_MLFBLabel, 1, _]

Figure 3.2/8 MLFB Label

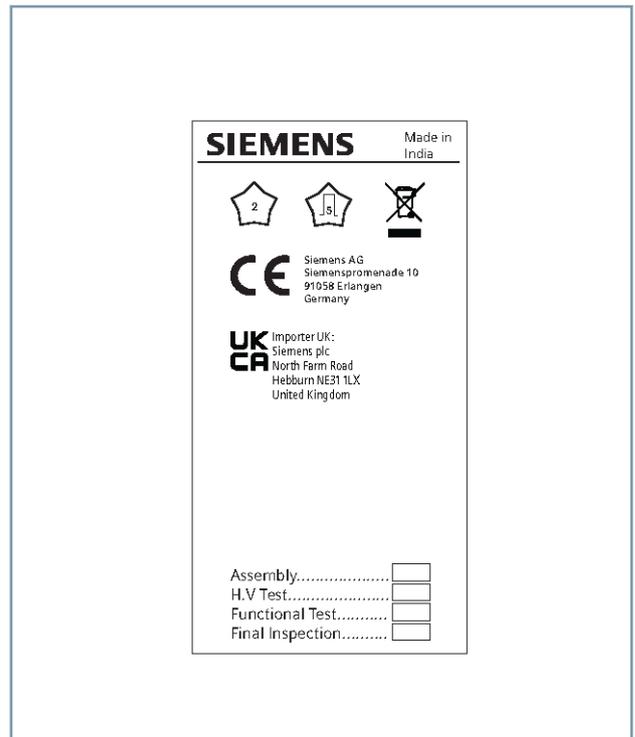
- The diagram label displays terminal numbers and device ratings.



[sc_7XG35_TerminalDiagramLabel, 1, _]

Figure 3.2/9 Terminal Diagram Label

- The compliance label includes information for electrical safety and conformity.



[sc_7XG35_ComplianceLabel, 1, _]

Figure 3.2/10 Compliance Label

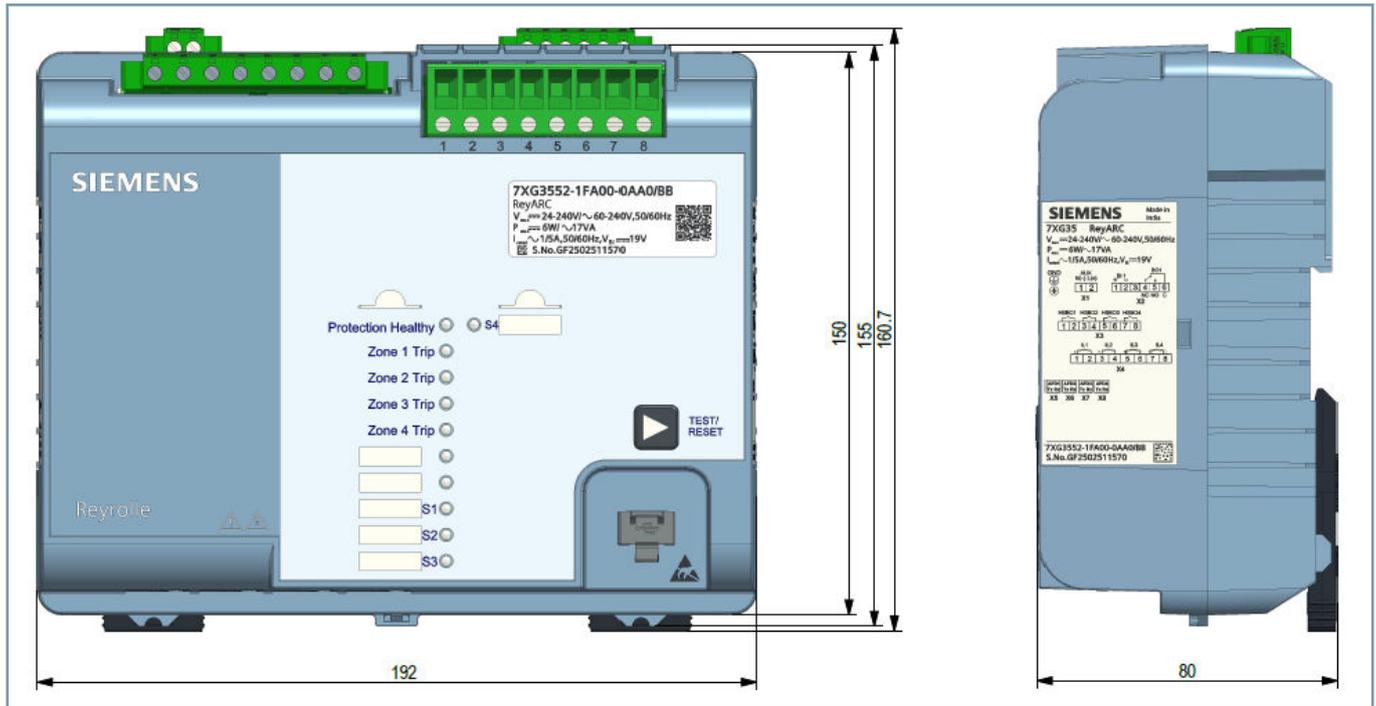
In the following table you can find explanations and definitions of symbols:

	Electrical Hazard
	Refer to device documentation
	Waste Electrical and Electronic Equipment Directive (WEEE)
	European CE marking
	United Kingdom (UK) conformity-assessed marking
	5 kV impulse voltage test (type test) in compliance with Class III
	Electrical Hazard

Technical Documentation

Dimension Drawings and Connection Diagrams

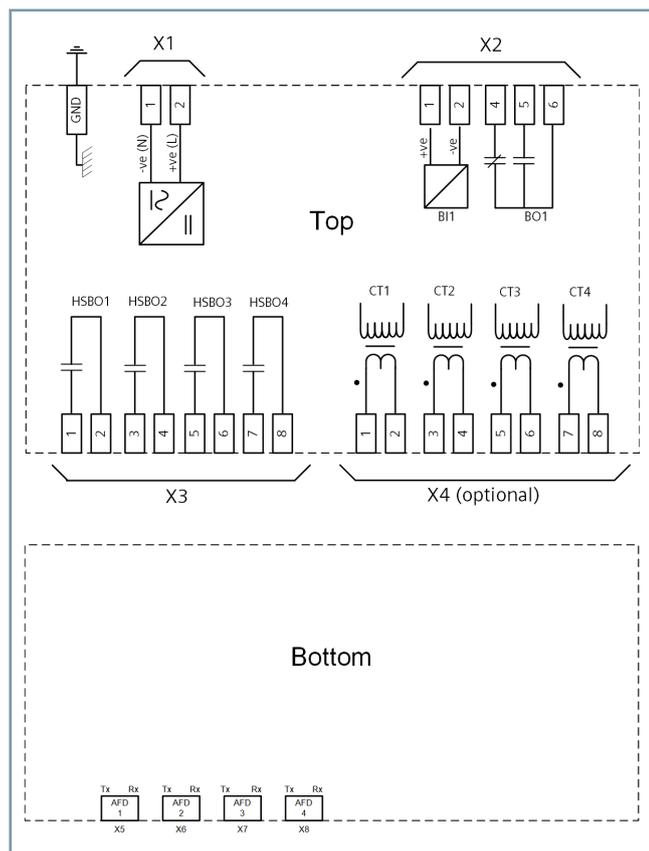
Dimension Drawings



[sc_7XG35_Dimensions, 1, -,-]

Figure 4.1/1 7XG35 Dimensions in mm

Connection Diagram



[dw_7XG35_ConnectionDiagram, 1, en_US]

Figure 4.1/2 Reyrolle 7XG35 Connection Diagram

- AFD Arc flash detector input
- BI Binary input
- BO Binary output
- HSBO High speed binary output
- AUX Auxiliary power supply

Technical Documentation

Technical Data

Technical Data

Auxiliary Power Supply

Parameter	Value
Rated auxiliary voltage	AC 60 V to 240 V/DC 24 V to 240 V
Tolerance	-20 % to +10 %
Rated frequency	50 Hz/60 Hz
Allowable alternating component in DC (ripple)	≤15 % of DC voltage
Typical power consumption (DC)	< 6 W
Typical power consumption (AC)	< 17 VA
Inrush current	65 A for 600 μs maximum
Maximum interruption time (collapse to 0)	≤ 20 ms (DC 19.2 V) ≤ 20 ms (AC 48 V)

Current Inputs

Parameter	Value	
Quantity	3 x phase and 1 x earth (ground)	
Rated current I_{rated}	1 A or 5 A	
Measuring range	0.1 · I_{rated} to 12 I_{rated} (Phase) 0.05 I_{rated} to 4 I_{rated} (Earth)	
Instrumentation accuracy	± 10 % or ± 2 % I_{rated}	
Frequency	50 Hz (47.5 Hz to 52.5 Hz) 60 Hz (57 Hz to 63 Hz)	
Thermal withstand	Continuous	4 I_{rated}
	Short time 1 s	500 A
	10 ms	1250 A
Burden		≤ 0.03 VA (1 A phase and earth element) ≤ 0.2 VA (5 A phase and earth element)

Terminal Blocks

Terminal Description	Specifications
Grounding terminal	<p>Ground the equipment at the grounding terminal</p> <ul style="list-style-type: none"> Insulated ring terminal, M3 stud size, conductor cross-section 2.5 mm² to 6 mm², 14 AWG to 10 AWG Manufacturer/part number: RS Stock No. 613-9334 or equivalent Tightening torque: 0.5 Nm to 0.6 Nm
X1: Auxiliary power supply	<ul style="list-style-type: none"> DC 24 V to 240 V, AC 60 V to 240 V, 50 Hz/60 Hz; tolerance: -20 % to +10 % Connection type: screw connection with tension sleeve Bootlace ferrule, insulated, conductor cross-section 2.5 mm², 8 mm Manufacturer: Weidmueller, Mfr., part no. 9019160000 or equivalent Tightening torque: 0.4 Nm to 0.5 Nm
X2: 1 binary input and 1 binary output	<p>1 binary input (pin 1, 2) and 1 binary output for supervision contact (pin 4, 5, 6)</p> <ul style="list-style-type: none"> Connection type: screw connection with tension sleeve Bootlace ferrule, insulated, conductor cross-section 2.5 mm², 8 mm Manufacturer: Weidmueller, Mfr., part no. 9019160000 or equivalent Tightening torque: 0.5 Nm to 0.6 Nm
X3: 4 high-speed binary output	<ul style="list-style-type: none"> Connection type: screw connection with tension sleeve Bootlace ferrule, insulated, conductor cross-section 2.5 mm², 8 mm Manufacturer: Weidmueller, Mfr., part no. 9019160000 or equivalent Tightening torque: 0.5 Nm to 0.6 Nm
X4: 4 current inputs	<ul style="list-style-type: none"> Connection type: front screw connection Bootlace ferrule, insulated, conductor cross-section 2.5 mm² to 4 mm² Manufacturer: Weidmueller, Mfr., part no. 9019170000 for 2.5 mm² and ENER, Mfr., part no. ENEVN 4009 for 4 mm² or equivalent Tightening torque: 0.6 Nm

Terminal Description	Specifications
X5-X8: Arc flash detector sensor inputs	<ul style="list-style-type: none"> The device supports arc sensor (both the Siemens P1X point sensor and Siemens P1X line sensor) for connection to these inputs Ambient temperature for arc sensors: -40 °C to +85 °C (-40 °F to +185 °F) Ensure that the arc flash detector sensor input dust cover is in place when the arc sensor is not connected to the inputs
Front communication port	USB, type C <ul style="list-style-type: none"> Communication port for Reydis Evolution PC tool

Binary Outputs

Parameter	Value	
Quantity	1	
Operating voltage	Maximum	AC 250 V/DC 250 V
	Minimum	AC 0 V/DC 0 V
Contact operate time	8 ms typical	
Release time	≤ 9 ms typical	
Making capacity	≥ 1000 W at L/R ≤ 40 ms	
Contact current	Continuous	5 A
	Short time duty cycle (DC 250 V)	30 A, 200 ms On, 15 s Off
Breaking capacity	DC inductive	30 W at L/R = 40 ms
	DC resistive	75 W
	AC resistive	1250 VA
Mechanical/electrical endurance	Unloaded cycles	≥ 10000
	Making cycles	≥ 1000
	Breaking cycles	≥ 1000
	Operations per minute, full load	≤ 6

High Speed Binary Outputs

Parameter	Value	
Quantity	4	
Operating voltage	Maximum	AC 200 V/DC 250 V
	Minimum	AC 3 V/DC 3 V
Contact operate time	≤ 1 ms	
Release time	≤ 9 ms	
Making capacity	≥ 1000 W at L/R ≤ 40 ms	
Contact current	Continuous	5 A
	Short time duty cycle (DC 250 V)	30 A, 200 ms On, 15 s Off
Breaking capacity	DC inductive	30 W at L/R = 40 ms
	DC resistive	75 W
	AC resistive	1250 VA

Parameter	Value	
Mechanical/electrical endurance	Unloaded cycles	≥ 10000
	Making cycles	≥ 1000
	Breaking cycles	≥ 1000
	Operations, full load	≤ 10 per second make, 6 per minute break

Binary Inputs

Parameter	Value	
Quantity	1	
BI threshold	DC 19 V	
BI operating range	DC 19 V to 264 V	
Current for operation	0.6 mA to 3.5 mA	
Pickup delay	User selectable 0 ms to 600000 ms (600 s)	
Dropout delay	User selectable 0 ms to 600000 ms (600 s)	
DC performance (DC 24 V)	Reset/operate voltage ratio	≥ 95 %
	Response time	< 7 ms
	Response time when programmed to energize a high speed binary output (which includes output relay operation)	< 9 ms
	Drop off time	< 9 ms

4.2

Arc Flash Detector Inputs

Parameter	Value	
Connector type	AVAGO AFBR-4526Z	
Number of sensor connections	Up to 4 sensors – point sensor or line sensor (Siemens P1X series)	
Fiber type	Polymer Optical Fiber (POF) 1 mm	
Receiver	Type = point (default)	-20 dBm ± 2 dBm
	Type = line (default)	-31.5 dBm ± 2 dBm
	Type = point/line (custom)	(-34 dBm to -10 dBm) ± 2 dBm
	Spectrum	400 nm to 1100 nm
	Attenuation	For polymer optical fibers a path attenuation of 0.2 dB/m is typical. Additional attenuation comes from the plug and the sensor head.
	Optical budget ¹	Minimal 25 dB
	Analog sampling rate	5 kHz
	ADC type	12 bit successive approximation

¹ All values in combination with sensors approved by Siemens

Technical Documentation

Technical Data

Parameter	Value		
Transmitter	Wavelength	$\lambda = 650 \text{ nm}$	
	Transmitter power	Maximum	2 dBm
		Minimum	0 dBm
	Numerical aperture	0.5 ²	
	Signal rate connection test	1 pulse per 1.666 s	
Loop integrity test pulse width	11 μs		

Arc Flash Detection

Parameter	Value	
Reference (50AFD)	I_{set} setting	$0.1 \cdot I_{\text{rated}}$ to $6 \cdot I_{\text{rated}}$, $\Delta 0.1 \cdot I_{\text{rated}}$
	I applied current (for operate time)	$0 \cdot I_{\text{set}}$ (switched) to $2 \cdot I_{\text{set}}$ (switched)
Reference (50GAFD)	I_{set} setting	$0.05 \cdot I_{\text{rated}}$ to $2 \cdot I_{\text{rated}}$, $\Delta 0.01 \cdot I_{\text{rated}}$
	I applied current (for operate time)	$0 \cdot I_{\text{set}}$ (switched) to $2 \cdot I_{\text{set}}$ (switched)
Reference (AFD Zone)	Zone n element	Enable/Disable
	Zone n operating mode	Light only Light and current
Reference (AFD Input Config)	AFDn	Enable/Disable
	AFDn sensor type	Point/Line
	AFDn threshold	Point/Line/-34 dBm to -10 dBm

50 AFD and 50GAFD

Parameter	Value	
Operate and reset level	Operating level I_{op}	$I_{\text{set}} \pm 10 \% \text{ or } \pm 2 \% I_{\text{rated}}$
	Reset level	$\geq 90 \% I_{\text{op}}$
	Repeatability	$\pm 5 \%$
	Variation IEC 60255-1	$-10 \text{ }^\circ\text{C to } +55 \text{ }^\circ\text{C} \leq 5 \% f_{\text{rated}} \pm 5 \% \leq 5 \% \text{ or } 1 \% I_{\text{rated}}$
AFD zone operate and reset time	Operate time using HSBO	$< 2 \text{ ms}$
	Operate mode - Light only	
	Operate time using HSBO	$< 7 \text{ ms } (I > 2 \cdot I_{\text{set}})$
	Operate mode = Light and current	
	Reset time (light)	$\leq 30 \text{ ms}$
Reset time (current)	$\leq 60 \text{ ms}$	

Circuit Breaker Failure Protection (CBFP)

Parameter	Value
CBFP Delay (t_{delay})	20 ms to 5000 ms step of 5 ms
CBFP Zone n	Enable Disable
Zone n criteria	Light only Current only Light & current
t_{basic}	$< 20 \text{ ms}$
Operate time (t_{op})	$t_{\text{delay}} \pm 1 \% \text{ or } \pm 20 \text{ ms}$
Operate mode: all modes	
Disengaging time	$< 30 \text{ ms}$

Mechanical

Vibration – Sinusoidal (IEC 60255-21-1 Class 1)

Type	Level	Variation
Vibration response	0.5 gn	$\leq 5 \%$
Vibration endurance	1.0 gn	$\leq 5 \%$

Shock and Bump (IEC 60255-21-2 Class 1)

Type	Level	Variation
Shock response	5 gn, 11 ms	$\leq 5 \%$
Shock withstand	15 gn, 11 ms	$\leq 5 \%$
Bump test	10 gn, 16 ms	$\leq 5 \%$

Seismic (IEC 60255-21-3 Class 1)

Type	Level	Variation
Seismic response	X-plane – 3.5 mm displacement below crossover frequency (8 Hz to 9 Hz), 1 gn above Y-plane – 1.5 mm displacement below crossover frequency (8 Hz to 9 Hz), 0.5 gn above.	$\leq 5 \%$

IP Ratings (IEC 60259)

Type	Level
Enclosure	IP 20

Product Safety

Protection Class

Type	Level
Protection class	I

² Numerical aperture (NA = sin θ [launch angle])

Insulation – Dielectric Withstand (IEC 60255-27)

Type	Level
Between any terminal and earth	AC 2.5 kV RMS for 1 min
Between independent circuits	AC 1.0 kV RMS for 1 min
Across open contacts	

Transient Overvoltage – Impulse Voltage Withstand (IEC 60255-27)

Type	Level
Between all terminals and earth or between any 2 independent circuits	5 kV, 1.2/50 μ s, 0.5 J

Insulation Resistance (IEC 60255-27)

Type	Level
Insulation resistance at DC 500 V	> 100 M Ω

EMC Tests

Conducted Radio Frequency – Emissions (IEC 60255-26)

Type	Limits	
	Quasi-peak	Average
0.15 MHz to 0.5 MHz	79 dB (μ V)	66 dB (μ V)
0.5 MHz to 30 MHz	73 dB (μ V)	60 dB (μ V)

Radiated Radio Frequency – Emissions (IEC 60255-26)

Type	Limits at 10 m, Quasi-peak
30 MHz to 230 MHz	40 dB (μ V/m)
230 MHz to 1 GHz	47 dB (μ V/m)

Radiated Immunity (IEC 60255-26)

Type	Level
80 MHz to 2700 MHz	10 V/m
2.7 GHz to 6 GHz	3 V/m
80 MHz, 160 MHz, 380 MHz, 450 MHz, 900 MHz, 1850 MHz, 2150 MHz	10 V/m

Electrostatic Discharge (IEC 60255-26)

Type	Level	Variation
Contact discharge	8 kV	\leq 5 %
Air discharge	15 kV	\leq 5 %

Conducted Disturbance Induced by Radio Frequency Fields (IEC 60255-26)

Type	Level
Spot frequency: 27 MHz and 68 MHz	10 V/m
Sweep frequency: 150 kHz to 80 MHz	10 V/m

Burst Immunity (IEC 60255-26 Zone A)

Type	Level	Variation
Aux power, I/O and earth	4 kV, 5 kHz	\leq 10 %

Slow Damped Oscillatory Wave/HF Disturbance (IEC 60255-26, 1 MHz)

Type	Level	Variation
Aux power, I/O, common (longitudinal) mode	2.5 kV	\leq 10 %
Aux power, I/O, differential (transverse) mode	1.0 kV	

Slow Damped Oscillatory Wave/HF Disturbance (IEC 61000-4-18, 100 kHz)

Type	Level	Variation
Aux power, I/O, common (longitudinal) mode	2.5 kV	\leq 10 %
Aux power, I/O, differential (transverse) mode	1.0 kV	

Fast Damped Oscillatory Wave (IEC 60255-26: 3 MHz, 10 MHz, and 30 MHz)

Type	Level	Variation
Aux power, I/O, common (longitudinal) mode	2.0 kV	\leq 10 %

Surge Immunity (IEC 60255-26 Zone A)

Type	Level	Variation
Aux power and I/O: between all terminals and earth	4 kV	\leq 10 %
Aux power and I/O: between any two independent circuits	2 kV	

Ring Wave Immunity Test (IEC 61000-4-12)

Type	Level
Common mode	4 kV
Differential mode	2 kV

Power Frequency Disturbance (IEC 60255-26 Zone A)

Type	Level 0 to 150 kHz
I/O common mode	300 V
I/O differential mode	150 V

Technical Documentation

Technical Data

Magnetic Field with Power Frequency (IEC 60255-26 Zone A)

Type	Level
100 A/m (0.126 mT) continuous	50 Hz
1000 A/m (1.26 mT) for 3 s	

Pulse Magnetic Field (IEC 61000-4-9 Level 5)

Type	Level
1000 A/m	Magnetic field strength for short duration 1 s to 3 s

Damped Oscillatory Magnetic Field Immunity (IEC 61000-4-10 Level 5)

Type	Level
100 A/m	0.1 MHz and 1 MHz

Climatic Tests

4.2

Temperature (IEC 60068-2-1/2/14, IEC 60255-1)

Parameter	Value
Operating range	-10 °C to +55 °C
Storage range	-25 °C to +70 °C
Change of temperature	-10 °C to +55 °C

Humidity (IEC 60068-2-78, IEC 60068-2-30, and IEC 60255-1)

Parameter	Value
Cyclic temperature with humidity	+25 °C at 95 % RH and +55 °C at 95 % RH (6 days)
Damp heat steady state	+40 °C at 95 % RH (10 days)

Ordering Information - Reyrolle 7XG35 Arc Protection Device

Product Description	Order No.																	
	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16
ReyArc	7	X	G	3	5	5	□	-	1	F	A	0	0	-	0	A	A	0
Arc Flash Protection Device, DIN Rail Mount, DC 24 V to DC 240 V, AC 60 V to AC 240 V, 50/60 Hz, 4 HSBO/1 BI/1 BO																		
<i>Sensor and Current Inputs</i>																		
4 Arc sensor inputs							1											
4 Arc sensor inputs + 4 current inputs							2											

Selection and Ordering Information – Optic Arc Sensors

Accessories	Article per packaging unit	Order no. (short designation)
Point sensor with line length of 3 m	1	P1X19
Point sensor with line length of 4 m	1	P1X28
Point sensor with line length of 5 m	1	P1X37
Point sensor with line length of 7 m	1	P1X277
Point sensor with line length of 10 m	1	P1X46
Point sensor with line length of 15 m	1	P1X55
Point sensor with line length of 20 m	1	P1X64
Point sensor with line length of 35 m	1	P1X82
Line sensor, length 5 m	1	P1X107
Line sensor, length 10 m	1	P1X116
Line sensor, length 20 m	1	P1X125
Line sensor, length 30 m	1	P1X134
Line sensor, length 40 m	1	P1X143
Supply line for line sensors 3 m	1	P1X152
Supply line for line sensors 5 m	1	P1X161
Supply line for line sensors 10 m	1	P1X170

Table 4.3/1 Accessories

Indication of Conformity

This product is CE-compliant to relevant EU directives.

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Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

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OpenSSL

This product includes software developed by the OpenSSL Project for use in OpenSSL Toolkit (<http://www.openssl.org/>).

This product includes software written by Tim Hudson (tjh@cryptsoft.com).

This product includes cryptographic software written by Eric Young (ey@cryptsoft.com).

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