AQ-103 Arc flash protection device

Description

AQ-103 Arc flash protection device is a sophisticated microprocessor-based arc flash protection device for arc light detection. It is designed to minimize the damage caused by an arcing fault (arc flash) by tripping the circuit breaker that sources the fault current. The complete system self-supervision function of AQ-103 provides the highest level of dependability by continuously monitoring all internal system functions as well as with external connections.

The AQ-103 arc flash protection device acts as a sub-unit to AQ-110P (or, AQ-110F) in an AQ 100 arc protection system. It can also function as a stand-alone unit in light-only systems. AQ-103 provides communication through RS-485 and Modbus protocols as ordering options. Through Modbus communication, AQ-103 connects to a local display (AQ-S254A) for indication of exact fault location and to a SCADA system either through an AQ-S254 device or a remote terminal unit (RTU).

Features:

- A wide range for the power supply (18...72 V DC **or** 92...265 V AC/DC).
- A maximum of 14 arc light point sensors (1 point sensor per channel).
- A maximum of 1 fiber loop sensor or connection to quenching device (optional).
- 4 trip relays.
- 1 system failure relay.
- 1 fast binary output.
- 2 fast binary inputs.
- 1 high-speed output (HSO).
- 1 multifunction push button.
- Non-volatile memory.
- 25 indication LEDs.
- Modbus protocol (optional)

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Learn more about how different protection techniques affect the consequences of an arc flash:

“Arc flash comparison” by Arcteq Relays (**https://youtu.be/EUlZ_a_rcIg**)

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Technical data

PROTECTION

- Light (L>)
- Light and pressure (L> / P>)
- Circuit breaker failure protection (50BF/52BF)
- Total trip time when using mechanical trip relays: 7 ms (only arc light signal from an AQ-110x device)
- Total trip time when using mechanical trip relays: 7 ms (both overcurrent and arc light signal from an AQ-110x device)
- Trip time when using solid state trip relays: 2 ms (only arc light signal from an AQ-110x device)
- Trip time when using solid state trip relays: 2 ms (both overcurrent and arc light signal from an AQ-110x device)
- Reset time (arc light stage): 2 ms

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INPUTS AND OUTPUTS

Applicable sensors

- AQ-01 light sensor (activation thresholds: 8 klx, 15 klx, 50 klx)
- AQ-02 light and pressure sensor (activation thresholds: 8 klx, 15 klx, 50 klx)
- AQ-06 plastic fiber sensor (3...40 m) (optional)
- AQ-07 glass fiber sensor (3-50 m length) (optional)
- AQ-08 glass fiber sensor (3...15 m) (optional)

Trip relays (T1, T2, T3, T4)

- 3 NO + 1 NC or 4 NO
- Rated voltage: 250 V AC/DC
- Continuous carry: 5 A
- Make-and-carry for 3 s: 16 A
- Make-and-carry for 0.5 s: 30 A
- Breaking capacity DC (when L/R = 40 ms): 40 W; 0.36 A at 110 V DC
- Contact material: AgNi 90/10

Binary output (BO1)

- Number of outputs: 1
- Rated voltage: +24 V DC
- Maximum rated current: 20 mA

Binary inputs (BI1, BI2)

- Number of inputs: 2
- Threshold voltage: 24 V DC
- Rated voltage: 250 V AC/DC
- Rated current: 3 mA

Power supply

- Auxiliary power supply: 92...265 V AC/DC
- Auxiliary power supply: 18...72 V DC (optional)
- Maximum interruption: 100 ms
- Maximum power consumption: 5 W
- Standby current: 90 mA

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INTERFACE

- 25 indication LEDs
- Multifunction push button (SET)
- Autoconfiguration
- Indication reset
- System check

SELF-SUPERVISION

- Sensors and wiring
- Binary I/O
- Trip coil
- Power supply
- Internal voltages
- Settings

COMMUNICATION

- Modbus RTU

SYSTEM CONNECTIVITY

- AQ 100 series
- AQ 200 series
- AQ 300 series

ACCESSORIES

- AX006 Wall mounting bracket

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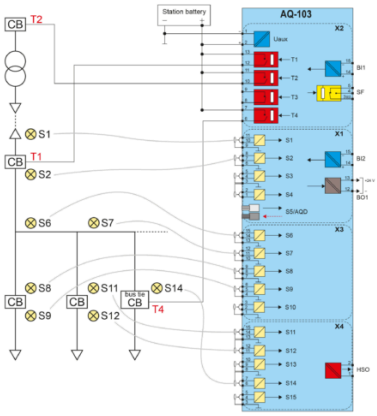
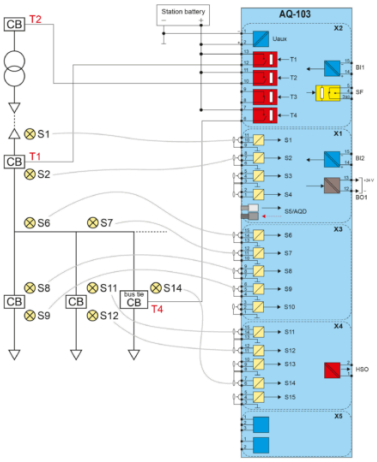
Application Drawing





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