

Quad Modules- Product Information

Introduction

The three Quad Modules are as follows:

FC410QRM Quad Relay Module

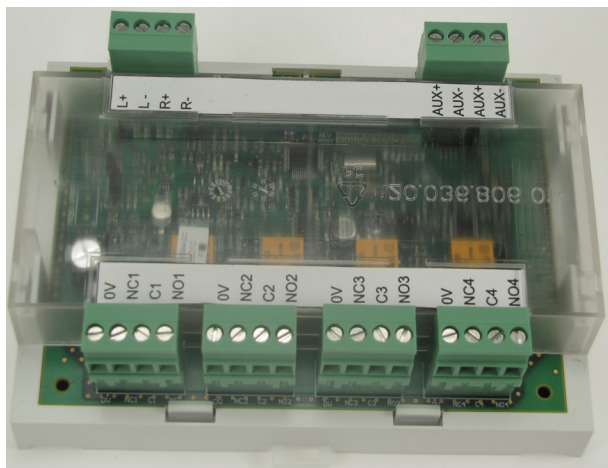


Fig. 1: FC410QRM Quad Relay Module

The FC410QRM Quad Relay Module as shown in Figure 1 is designed to provide four potential free relay changeover outputs. The outputs are monitored with parallel contacts of the relays. The outputs can be connected to an Auxiliary Voltage source and its voltage can be monitored.

FC410QMO Quad Monitored Output Module

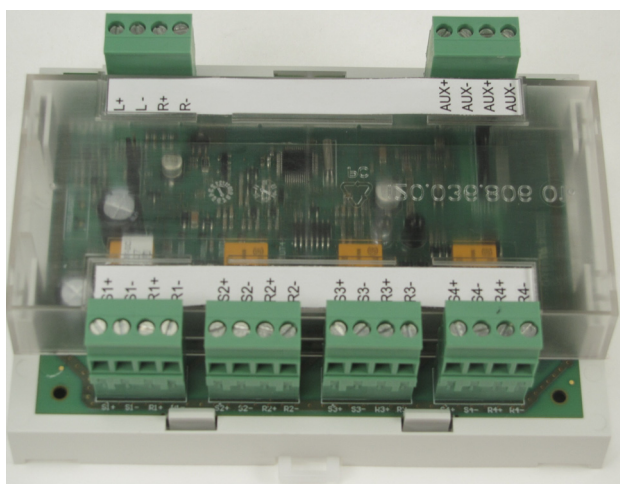


Fig. 2: FC410QMO Quad Monitored Output Module

The FC410QMO Quad Monitored Output Module as shown in Figure 2 comprises of four relay outputs and four relays with selectable wiring supervision. The output wiring is monitored for any short or open circuit.

FC410QIO Quad Input/Output Module

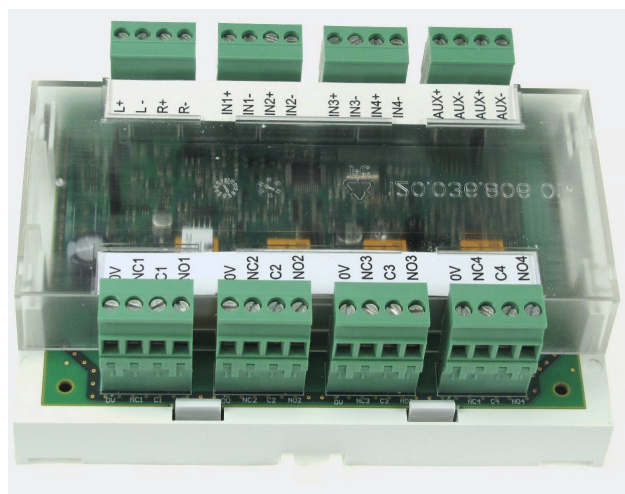


Fig. 3: FC410QIO Quad Input/Output Module

The FC410QIO Quad Input/Output Module as shown in Figure 3 is designed to provide four monitored inputs and four potential free relay changeover outputs. The outputs are monitored with parallel contacts of the relays. The outputs can be connected to an Auxiliary Voltage source and its voltage can be monitored.

IP66 Enclosure

The IP66 Enclosure as shown in Figure 4 is designed to provide protection against mechanical shocks and electrostatic discharge for the Quad Modules. The IP66 enclosure is supplied complete with the DIN rail and the mounting plate.

The DIN rail is fixed onto the mounting plate that is fitted to the base of the IP66 enclosure. The Quad Module is snapped onto the DIN rail.

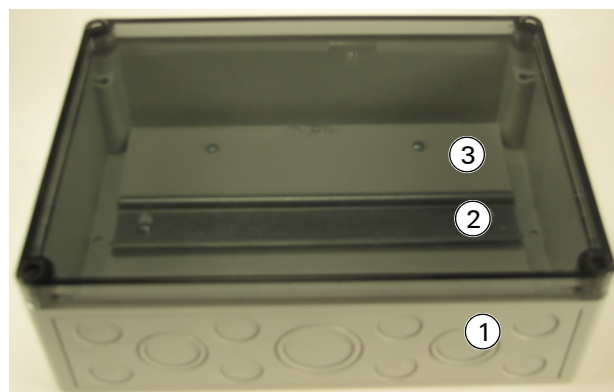


Fig. 4: IP66 Enclosure fitted with DIN rail and Mounting plate
1–IP66 enclosure
2–DIN rail
3–Mounting plate

Features and Functions

The features of each of the Quad Modules are as follows:

FC410QRM Quad Relay Module

Features

Output Circuit (Relay Contact)

- Nominal switching capacity 2 A 30 VDC (resistive load)
- Max. switching power 60 W, 125 VA (resistive load)

Auxiliary Voltage Input

- Auxiliary voltage 24 VDC max 55 VDC
(Threshold voltage for auxiliary voltage fault indication: 18 VDC \pm 1 V)
- Auxiliary voltage 48 VDC max 55 VDC
(Threshold voltage for auxiliary voltage fault indication: 36 VDC \pm 2 V)

FC410QMO Quad Monitored Output Module

Features

Output Circuit (Relay Contact)

- Nominal switching capacity 2 A 30 VDC (resistive load)
- Max. switching power 60 W, 125 VA (resistive load)
- Relay outputs have two states defined as follows:
Normal- wiring is monitored: Monitoring shall be provided by injection of a reverse polarity current through the wiring and end of line device, resistor R_{EOL} .
Active- output is activated: The output is supplied by the voltage for the Auxiliary voltage terminals with normal polarity.

Nominal R_{EOL} = 27 Kilo Ohm. Terminator is needed for proper wiring test.

Auxiliary Voltage Input

- Auxiliary voltage 24 VDC max 55 VDC
(Threshold voltage for auxiliary voltage fault indication: 18 VDC \pm 1.5 V)
- Auxiliary voltage 48 VDC max 55 VDC
(Threshold voltage for auxiliary voltage fault indication: 36 VDC \pm 2.5 V)
- Wiring monitor (Threshold resistance for auxiliary voltage fault indication: 10 Ohms)

FC410QIO Quad Input/Output Module

Features

Input Circuit

- EOL terminator: nominal 3.3 Kilo Ohms

- Alarm resistor: nominal 0.68 Kilo Ohms
- Open and Short circuit detection can be set to:
Compatible mode
EN54-13 compliant mode (10% hysteresis)
- Maximum cable resistance: 50 Ohms
- Maximum cable length: 200 m (standard cable J-Y(ST)Y 2x0.8)

Output Circuit (Relay Contact)

- Nominal switching capacity 2 A 30 VDC (resistive load)
- Max. switching power 60 W, 125 VA (resistive load)

Auxiliary Voltage Input

- Auxiliary voltage 24 VDC max 55 VDC
(Threshold voltage for auxiliary voltage fault indication: 18 VDC \pm 1 VDC)
- Auxiliary voltage 48 VDC max 55 VDC
(Threshold voltage for auxiliary voltage fault indication: 36 VDC \pm 2 VDC)

Mechanical Construction

Each Quad Module assembly comprises of a PCB assembly, a back plate and a transparent cover. (See Figures 1, 2, and 3).



NOTICE

For mechanical shocks and ESD protection, the Quad Modules must be built in a suitable enclosure/distribution cabinet or panel, that has a minimum weight of 0.8 kg and an IP rating of 20 or higher.

Operation

The operation of each of the Quad Modules is as follows:

FC410QRM Quad Relay Module

The FC410QRM has an integral FIRECLASS loop isolator. When a section of the FIRECLASS loop adjacent is shorted, the isolator trips, isolating the shorted section, and illuminating a yellow LED. This status remains until the short is removed.

The FC410QRM must be fitted in a control enclosure or any appropriate distribution enclosure. The FC410QRM is mounted via the DIN rail only.

FC410QMO Quad Monitored Output Module

The FC410QMO has an integral FIRECLASS loop isolator. When a section of the FIRECLASS loop adjacent is shorted, the isolator trips, isolating the shorted section, and illuminating a yellow LED. This status remains until the short is removed.

Spur and Loop configurations are supported in the FC410QMO Module.

The FC410QMO must be fitted in a control enclosure or any appropriate distribution enclosure. The FC410QMO is mounted via the DIN rail only.

FC410QIO Quad Input/ Output Module

The FC410QIO has an integral FIRECLASS loop isolator. When a section of the FIRECLASS loop adjacent is shorted, the isolator trips, isolating the shorted section, then the yellow LED illuminates. This status remains until the short is removed.

The FC410QIO must be fitted in a control enclosure or any appropriate distribution enclosure. The FC410QIO is mounted via the DIN rail only. The digital input monitoring and isolator functions are both configurable.

IP66 Enclosure

The Enclosure is supplied pre-assembled so that the Quad module can be fitted onto the DIN rail.

Technical Specification

The Technical Specification of each of the Quad Modules is as follows:

FC410QRM Quad Relay Module

Table 1 shows the technical specification information for the FC410QRM Quad Relay Module.

Parameter	Value
Type Identification Value	167
System Compatibility	Use only with FIRECLASS Fire Alarm Controllers
Environment	Indoor application only
Operating Temperature	-25 to +70 °C
Storage Temperature	-40 to +80 °C
Operating Humidity	Up to 95 % non-condensing
Dimensions (HWD)	134 x 103 x 49 mm (including plastic housing and terminal connector)
Mounting Requirements	DIN rail
Battery Requirements	Standby current 1.1 mA Alarm current 5.9 mA
Wire Size	Min. 0.5 mm ² , Max. 2.5 mm ²
Addressable Device Conditions	<ul style="list-style-type: none"> ■ Active ■ Normal ■ Auxiliary Voltage Fault ■ Relay Stuck Fault ■ Isolator Fault ■ Device No Response
Device Mode for each Single Output Point (Selectable by panel configuration software)	<ul style="list-style-type: none"> ■ Door Control ■ Alarm Control
Electromagnetic Compatibility	<ul style="list-style-type: none"> ■ EN50130-4 for immunity ■ EN61000-6-3 for emissions

Table 1: Technical Specifications-FC410QRM Quad Relay Module

FC410QMO Quad Monitored Output Module

Table 2 shows the technical specification information for the FC4 10QMO Quad Monitored Output Module.

Parameter	Value
Type Identification Value	166
System Compatibility	Use only with FIRECLASS Fire Alarm Controllers
Environment	Indoor application only
Operating Temperature	-25 to +70 °C
Storage Temperature	-40 to +80 °C
Operating Humidity	Up to 95 % non-condensing
Dimensions (HWD)	134 x 103 x 49 mm (including plastic housing and terminal connector)
Mounting Requirements	DIN rail
Battery Requirements	Standby current 2.1 mA, Alarm current 6.7 mA
Wire Size	Min. 0.5 mm ² , Max. 2.5 mm ²
Addressable Device Conditions	<ul style="list-style-type: none"> ■ Active ■ Normal ■ Auxiliary Voltage Fault ■ Isolator Fault ■ Open Circuit Fault ■ Short Circuit Fault ■ Device No Response
Device Mode for each single output point (Selectable by panel configuration software)	<ul style="list-style-type: none"> ■ Sounders ■ Door Control ■ Extinguishing Control ■ Alarm Control
Electromagnetic Compatibility	<ul style="list-style-type: none"> ■ EN50130-4 for immunity ■ EN61000-6-3 for emissions

Table 2: Technical Specifications-FC4 10QMO Quad Monitored Output Module

FC410QIO Quad Input/Output Module

Table 3 shows the technical specification information for the FC4 10QIO Quad Input/Output Module.

Parameter	Value
Type Identification Value	195
System Compatibility	Use only with FIRECLASS Fire Alarm Controllers
Environment	Indoor application only
Operating Temperature	-25 to +70 °C
Storage Temperature	-40 to +80 °C
Operating Humidity	Up to 95 % non-condensing
Dimensions (HWD)	134 x 103 x 49 mm (including plastic housing and terminal connector)
Mounting Requirements	DIN rail
Battery Requirements	Standby current 1.1 mA Alarm current 5.9 mA
Wire Size	Min. 0.5 mm ² , Max. 2.5 mm ²
Addressable Device Conditions	<ul style="list-style-type: none"> ■ Active ■ Normal ■ Auxiliary Voltage Fault ■ Relay Stuck Fault ■ Open Circuit Fault ■ Short Circuit Fault ■ Isolator Fault ■ Device No Response
Device Mode for each input point (Selectable by panel configuration software)	<ul style="list-style-type: none"> ■ Style B (Normally Open) Alarm on Short ■ Style C (Normally Open) Fault on Short (Default Setting) ■ Style C (Normally Closed) Fault on Short ■ Style C (Normally Open) Fault on Short EN54-13 ■ Style C (Normally Closed) Fault on Short EN54-13
Device Mode for each single output point (Selectable by panel configuration software)	<ul style="list-style-type: none"> ■ Door Control ■ Alarm Control

Table 3: Technical Specifications-FC4 10QIO Quad Input/ Output Module

Parameter	Value
Electromagnetic Compatibility	<ul style="list-style-type: none"> ■ EN50130-4 for immunity ■ EN61000-6-3 for emissions

Table 3: Technical Specifications-FC4 10QIO Quad Input/ Output Module (cont.)

IP66 Enclosure

Table 4 shows the technical specification information for the IP66 Enclosure.

Parameter	Value
Width	254 mm
Height	170 mm
Depth	90 mm
Base material	Polystyrene, grey, similar to RAL 7035
Cover material	Polycarbonate, transparent
Sealing material	Polyurethane
Cover screw material	Polyamide 6, fiber-glass reinforced
Ingress protection	IP66-acc. EN 60529/ DIN VDE 0470-1
Ambient temperature (min.)	-25 °C
Ambient temperature (max.)	40 °C
Max. Relative Humidity at 25 °C (Short Term)	100%
Rated insulation voltage AC	690 V

Table 4: Technical Specifications-IP66 Enclosure

Parameter	Value
Impact resistance	IK07 acc.DIN EN 5012/ VDE 0470 Part 100
Knockouts	24 x M20 4 x M25/32 4 x M32/40

Table 4: Technical Specifications-IP66 Enclosure

Wiring and Installation

For information on installing the Quad Modules, refer to the following documents:

- FC4 10QRM Quad Relay Module Installation Sheet
- FC4 10QMO Quad Monitored Output Module Installation Sheet
- FC4 10QIO Quad Input/Output Module Installation Sheet


Ordering Information


The ordering numbers for each of the Quad Modules is as shown below:


Quad Modules	Ordering Numbers
IP66 Housing for Quad Monitored Modules:	557.201.410
FC4 10QMO Quad Monitored Output Module:	555.800.770
FC4 10QIO Quad Input/ Output Module:	555.800.771
FC4 10QRM Quad Relay Module:	555.800.773

Table 5: Ordering Information

CPR Information


<p>Tyco Fire & Security GmbH, Victor von Bruns-Strasse 21, 8212 Neuhausen am Rheinfall, Switzerland</p> <p>15 0786-CPR-21158 21 0832-UKCA-CPR-F0145 DoP-2015-4090</p>
<p>EN54-17 and EN54-18</p> <p>Input-/Output device with Short-Circuit Isolator for use in fire detection and alarm systems in buildings FC410QIO</p>
<p>Essential Characteristics</p> <p>EN54-17 and EN54-18</p> <p>Performance under fire conditions: Pass Operational reliability: Pass Durability of operational reliability; temperature resist- ance: Pass Durability of operational reliability; vibration resistance: Pass Durability of operational reliability; humidity resist- ance: Pass Durability of operational reliability; corrosion resist- ance: Pass Durability of operational reliability; electrical stability: Pass</p> <p>EN54-18</p> <p>Response delay (response time): Pass</p>
<p>Isolator Specification Guide A16381RMK0_EN</p>


<p>Tyco Fire & Security GmbH, Victor von Bruns-Strasse 21, 8212 Neuhausen am Rheinfall, Switzerland</p> <p>15 0786-CPR-21159 21 0832-UKCA-CPR-F0144 DoP-2015-4089</p>
<p>EN54-17 and EN54-18</p> <p>Input-/Output device with Short-Circuit Isolator for use in fire detection and alarm systems in buildings FC410QMO</p>
<p>Essential Characteristics</p> <p>EN54-17 and EN54-18</p> <p>Performance under fire conditions: Pass Operational reliability: Pass Durability of operational reliability; temperature resist- ance: Pass Durability of operational reliability; vibration resistance: Pass Durability of operational reliability; humidity resist- ance: Pass Durability of operational reliability; corrosion resist- ance: Pass Durability of operational reliability; electrical stability: Pass</p> <p>EN54-18</p> <p>Response delay (response time): Pass</p>
<p>Isolator Specification Guide A16381RMK0_EN</p>


<p>Tyco Fire & Security GmbH, Victor von Bruns-Strasse 21, 8212 Neuhausen am Rheinfeld, Switzerland</p> <p>15 0786-CPR-21158 21 0832-UKCA-CPR-F0146 DoP-2015-4090</p>
<p>EN54-17 and EN54-18 Input-/Output device with Short-Circuit Isolator for use in fire detection and alarm systems in buildings FC410QRM</p>
<p>Essential Characteristics EN54-17 and EN54-18 Performance under fire conditions: Pass Operational reliability: Pass Durability of operational reliability; temperature resist- ance: Pass Durability of operational reliability; vibration resistance: Pass Durability of operational reliability; humidity resist- ance: Pass Durability of operational reliability; corrosion resist- ance: Pass Durability of operational reliability; electrical stability: Pass EN54-18 Response delay (response time): Pass</p>
<p>Isolator Specification Guide A16381RMK0_EN</p>



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