

Desigo® Fire Safety Detectors and Peripherals

4-Input / 4-Output Interface Module Model FDCIO422

Architect & Engineer Specifications

- Siemens *ISOtechnology™* provides “True Class – X” operation to NFPA 72 SLC field wiring requirements
- Supports 252 *ISOtechnology* ready devices per loop, and in mixed mode up to 30 devices between isolated devices
- Four (4) inputs / four (4) outputs via one (1) address
- Input lines can be supervised for open, short and ground-fault conditions
- Light-emitting diode (LED) display of each input / output status
- Supports `Class A' and `Class B' input-circuit wiring
- Polarity insensitive utilizing *SureWire™* technology
- Microprocessor-controlled signal evaluation
- Two-wire installation per addressable loop
- Communication via FCnet
 - Individual Addressing
- Four (4) auxiliary current (AC) rated / direct current (DC) rated relay outputs
- Mounts in one (1) electrical back box
 - Optional 4–11/16 inch [12 cm.] and 5-inch [12.7 cm.] square back boxes
- Electronic address programming is easy and dependable
- Simple front-end access to programming port and wiring terminals
- Model DPU programs and verifies device’s address, as well as performs test functionality
- Restriction of Hazardous Substances (RoHS compliant)
- UL Listed, ULC Listed; FM (#3230), CSFM (#7165-0067:0264) and NYC Fire Department (NYCFD) Approved

Product Overview

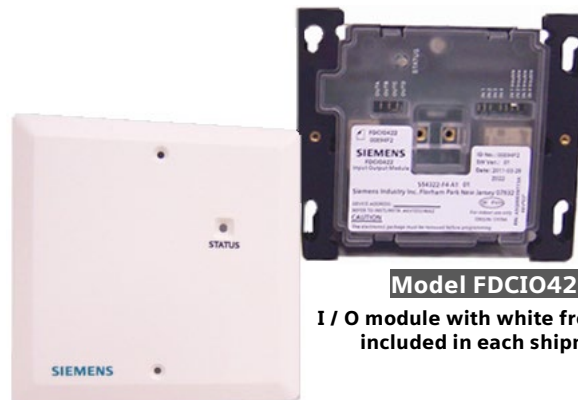
The four (4) input / (4) output interface module (Model FDCIO422) from Siemens – Fire Safety is designed to provide the means of interfacing direct shorting devices to the Device Loop Card (Model DLC and XDLCf), as well as the Desigo Fire Safety fire-alarm control panels (FACPs).

Model FDCIO422 provides the “built-in” *ISOtechnology* feature - intelligent dual direction isolation meeting NFPA 72 Class X (Style 7) survivability requirements. Up to 252 isolator devices per loop and in mixed-mode up to 30 devices between isolator devices (non-isolated devices wired in polarity-insensitive mode). Additionally, the devices between isolators can either be legacy ‘H’-series or the more contemporary ‘X’-series devices.

The isolation feature found on the FDCIO422 Intelligent Interface Modules provides invaluable information as to the location of the wiring fault. When a short occurs, the panel can identify the fault automatically, and the module recognizes the short location (in front of or behind the device – simplifying fault condition location in the application). A true time-saver versus typical troubleshooting methods.

The relays and contact-device inputs for Model FDCIO422 are controlled at the same address. From the respective Siemens FACP, the relays and input contacts can be controlled as separate functions. The relay is typically used where control or shunting of external equipment is required. Four (4) independent input / output circuits are acceptable on one (1) Model FDCIO422 module.

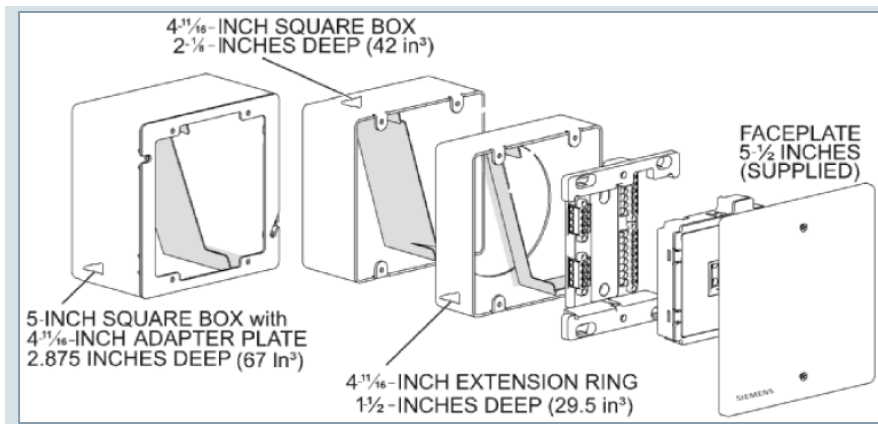
Normally Open (N.O.) or Normally Closed (N.C.) dry contacts are monitored by one (1) 4-Input / 4-Output module, (Model FDCIO422).



Model FDCIO422

I / O module with white front plate included in each shipment





Model FDCIO422
Diagram of a Desigo Fire Safety 4- In / 4-Out module mounting to an inclusive front plate

Specifications

Model FDCIO422 is used for the connection of up to two (2) independent, 2-wire Class A or four (4) independent Class B dry and N.O configurable contacts, and reports the status of either the N.O or N.C. contact to the FACP. Inputs can be independently configured, via a Cerberus PRO FACP, for the following zones: 'Trouble' | 'Alarm' | 'Supervisory' | 'Status'.

Model FDCIO422 has four (4) programmable outputs with four (4) potential free-latching 'Form A' (dry) relay contacts for fire-control installations.

Siemens FACP loop technology provides supervised, isolated, power-limited communication to a Model FDCIO422 interface module. Optional use of "built-in" **ISOtechnology** provides true NFPA 72 Class-X SLC protection against short circuit conditions.

The four (4) input / (4) output interface module provides status indication per LED for each input / output, plus one (1) LED for general device status. Also included with Model FDCIO422 are four (4) EOL devices (470 ohms (Ω)), as well as three (3) separators to separate power-limited wiring from non-power-limited wiring.

Separators are delivered in the following sizes:

- 4-11/16 inch [12 cm.] back box
- 4-11/16-inch [12 cm.] extension ring

NOTE: Optional 5" [12.7cm.] back boxes are available exclusively via Randl Industries, Inc.

Model FDCIO422 has a multi-color LED that flashes **GREEN** when operating in 'Normal' (standby) condition; in **AMBER** if a node is in a 'Trouble' event, and in **RED** to indicate a change of event status.

Model FDCIO422 is fitted with screw terminals for connection to an addressable circuit, and is fully compatible on the same circuits of all Desigo and FireFinder XLS/V 'H'-series detection devices; Desigo Modular 'X'-series devices; 'HMS'-series addressable manual stations, or any other addressable intelligent modules (e.g. – Model HCP or Model HZM). Interspersing 'X' & 'H'-series devices on the same loop is mostly permitted, but there are exceptions: Models HLIM (isolation module) and SBGA-34 (audible base) cannot be used with 'X' devices on the same loop.

Field-Device Programmer / Test Unit

Each Model FDCIO422 interface module is compatible with the Siemens field-device programmer / test unit (Model DPU), which is a compact, portable and menu-driven accessory for electronically programming and testing Model FDCIO422 promptly and reliably.

Model DPU eliminates the need for cumbersome, unreliable mechanical programming methods (e.g. – dials and rotary switches), and reduces installation and service costs by electronically programming and testing the detector prior to installation, via the microcomputer-chip, non-volatile memory found in each Model FDCIO422 interface module.

For proper operation of Model DPU, the technician selects the device program mode, and enters the desired address. In turn, Model DPU automatically sets and verifies the address, as well as tests the Model FDCIO422 module. When in the 'test' mode, Model DPU will perform a series of diagnostic tests without altering the address or other stored data, allowing technicians to determine if the detector is operating properly.

Each field-device programmer / test unit operates on AC power or rechargeable batteries, providing flexibility and convenience in the programming / testing of fire-safety equipment from practically any location.



Model FDCIO422-EOL
End-of-line resistor used with 4- In / 4-Out modules



Model TB-EOL
End-of-line terminal used with 4- In / 4-Out modules

Networking | Range Data

COMMUNICATION PROTOCOL:	Loop technology supervised signaling line circuit, power limited
STORAGE TEMPERATURE RANGE:	-22° – +140°F (-30° – +60°C)
OPERATING TEMPERATURE RANGE:	+32° – +120°F (0° – +49°C)
RELATIVE HUMIDITY:	5 – 85% (non-freezing, condensing at low temperature)

Physical Properties

COLOR:	Carrier: RAL 9017
CAGE COVER:	Transparent
CAGE:	RAL 9017
FACEPLATE:	White
WEIGHT:	1 Lb (454 g.)
DIMENSIONS: (W –x– H –x– D)	4" –x– 4.7" –x– 1.2" (12 cm. –x– 12 cm. –x– 3.1 cm.)

Electrical Ratings

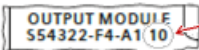
VOLTAGE RATING:	12 – 32 VDC
MAXIMUM VOLTAGE: (for module using Fcnet communication)	32 VDC
OPERATING RATING: (quiescent)	1mA
PEAK CURRENT:	1.92mA, max.

For Model FDCIO422

NOTICE

AC ratings must not be used with modules with an ES less than 10.

The ES number can be found on the label:



ES

NOTES:

- Verify control panel supports Class-X mode for FDCIO422 module of ES30 or higher.
- Class X mode must be used with FDCIO422, modules that have **Engineering State (ES)** version '30' or higher.

Supervised Switch Ratings

MONITORING VOLTAGE:	3VDC
CABLE-LENGTH INPUT:	200 feet (61 meters), max.
INPUT-SHIELDING, CABLE-LENGTH RANGE:	30 feet – 200 feet (9.14m – 61m)
C LINE-TO-LINE:	0.02 µF, max.
C LINE-TO-SHIELD:	0.04 µF, max.
LINE SIZES AMERICAN WIRE GAUGE (AWG):	14 AWG, max. 18 AWG, min.

AC Relay Output Ratings

OUTPUT A, B, C, D	OUTPUT B, C	OUTPUT C
4 –x– 5 Amps max.	or 2 –x– 7 Amps	or 1 –x– 8 Amps
4 –x– 3 Amps max.	or 2 –x– 4 Amps	or 1 –x– 5 Amps
4 –x– 2 Amps max.	or 2 –x– 2.5 Amps	or 1 –x– 3 Amps

Normally Open (N.O.) or Normally Closed (N.C.) Contacts

30 VDC, resistive; 125 VAC, resistive	Ambient Temp: 77°F (25°C)
30 VDC, resistive; 125 VAC, resistive	Ambient Temp: 100°F (38°C)
30 VDC, resistive or inductive (0.35pF); 120 VAC, resistive	Ambient Temp: 120°F (49°C)

NOTES:

- AC output ratings are only applicable to Model FDCIO422 interface modules that have **Engineering State (ES)** version '10' or higher.
- The part number (S54322-F4-A1) for Model FDCIO422 is found on the back of each interface module, and the **ES** version is placed just the right of the part number. (See illustration).
- Refer to Installation Operation Manual, IOM: **A6V10324662**, for further details.

Details for Ordering

MODEL OR TYPE	PART NUMBER	PRODUCT
FDCIO422	S54322-F4-A1	Four (4) Input / Four (4) Output Interface Module
FDCIO422-EOL	S54312-F7-A1	End-of-Line (EOL) Resistor {100 Ω ±1% ½ W}
TB-EOL	S54322-F4-A2	TB - EOL Terminal

Optional Accessories

[orderable through Randl Industries, Inc.]

PART NUMBER	PRODUCT
M-411000	4– ¹¹ / ₁₆ -Inch [12 cm.] adapter plate
T55017	5-Inch [12.7 cm.] back box
T55018	5-Inch [12.7 cm.] back box
T55019	5-Inch [12.7 cm.] back box

Product Compatibilities

MODEL OR TYPE	DATA SHEET	PANEL
XLS	6300	FireFinder (fire-system overview)
XLSV	6340	FireFinder (fire w/ voice system overview)
DESIGO MODULAR	7300	Desigo Modular (overview)
FC2005	6813	Desigo Fire Safety 50-point addressable
FC2025	6815	Desigo Fire Safety 252-point addressable (fire)
FC2050		Desigo Fire Safety 504-point addressable (fire)
FV2025	6821	Desigo Fire Safety 252-point addressable (fire w/ Intelligent Voice Communication [IVC])
FV2050		Desigo Fire Safety 504-point addressable (fire w/ Intelligent Voice Communication [IVC])

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NOTICE – The information contained in this data-sheet document is intended only as a summary, and is subject to change without notice.

The product(s) described here has/have a specific instruction sheet(s) that cover various technical, limitation and liability information.

Copies of install-type, instruction sheets – as well as the *General Product Warning and Limitations* document, which also contains important data, are provided with the product, and are available from the Manufacturer.

Data contained in the aforesaid type of documentation should be consulted with a fire-safety professional before specifying or using the product.

Any further questions or assistance concerning particular problems that might arise, relative to the proper functioning of the equipment, please contact the Manufacturer.

SIEMENS

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