Signal Modules with Class A Operation

SIGA-CC2A, SIGA-MCC2A

SIGA-MCC2A

SIGA-CC2A

MEA FM APPROVED 7300-1657: 0252 UL ULC S3424

CE LPCB S CPD

Application Notes Available
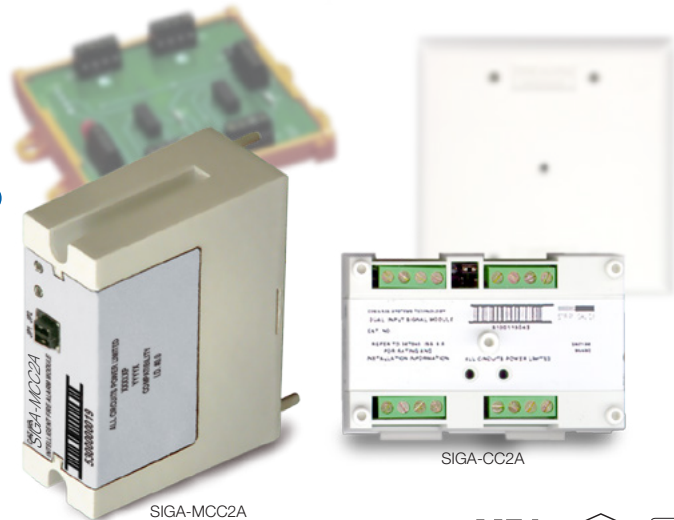
Overview

SIGA-CC2A and SIGA-MCC2A Single/Dual Input Signal Modules are part of EST's Signature Series system. They are intelligent analog addressable devices used for connecting, upon command from the loop controller, supervised Class A or Class B signal or telephone circuits to their respective power inputs.

Module power inputs may carry polarized 24 Vdc current to operate audible and visible signal appliances, or 25 and 70 V_{RMS} to operate audio evacuation speakers and firefighter's telephones. The SIGA-CC2A/MCC2A may be configured as a three-state or four-state telephone riser selector.

The loop controller assigns an address to the module automatically. No addressing switches are used. A custom address can be assigned using a laptop computer.

Diagnostic LEDs provide visible indication of the status of the module when the cover plate is removed:
- Normal — green LED flashes
- Alarm/active — red LED flashes

The CC2A mounts in a two-gang electrical box. The MCC2A plugs into a UIO motherboard. Both modules provide the same functionality.

The actual operation of the module is determined by the "personality code" selected by the installer. It is downloaded to the module from the Signature loop controller during system configuration.

Standard Features

- **Class A or B Operation**

- **Supports three- and four-state telephones**

- **Dual input (riser) select**
  Use for connecting supervised 24 Vdc Audible/Visible signal circuits, or 25 and 70 VRMS Audio Evacuation and Telephone circuits to their power inputs.

- **Ring-tone generator**
  When configured for telephone circuits, the SIGA-CC2A/MC-C2A generates its own ring-tone signal eliminating the need for a separate ring-tone circuit.

- **Plug-in (UIO) or standard 2-gang mount**
  UIO versions allow quick installation where multiple modules are required. The 2-gang mount version is ideal for remote locations that require a single module.

- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.

- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller or a laptop PC; there are no switches or dials to set.

- **Ground fault detection by address**
  Detects ground faults right down to the device level.

Application

The operation of the SIGA-CC2A/MCC2A is determined by their sub-type code or "Personality Code". The code is selected by the installer depending upon the desired application and is downloaded from the loop controller. The following personality codes can be used with the SIGA-CC2A/MCC2A:

| When using the SIGA-CC2A/MCC2A as a single input module	
Personality code 5	Riser selector Class B, single input. The module operates as a single riser selector for signal power (24 VDC) or audio evacuation (25 or 70 VAC). The output circuit is monitored for open or shorted wiring. If a short exists, the control panel inhibits the activation of the audible or visible signal circuit, so that the riser is not connected to the wiring fault.
Personality code 27	Riser selector Class A, single input. Operates the same as personality code 5, except wiring is Class A.
Personality code 6	Riser selector Class B three-state, single input, ring tone. The module operates as a riser selector for a three-state (open, normal, active) firefighter's telephone. When a telephone handset is plugged into its jack or lifted from its hook, the module generates its own ring-tone signal. A separate ring-tone riser is unnecessary. The module sends this signal to the control panel to indicate the presence of an off-hook condition and waits for the system operator to respond to the call. When the system operator responds, the ring-tone signal is disabled.
Personality code 28	Riser selector Class A three-state, single input, ring tone. Operates the same as personality code 6, except wiring is Class A.
Personality code 26	Riser selector Class B four-state, single input, ring tone. The module operates as a riser selector for a four-state (open, normal, active, trouble) firefighter's telephone. *Only one telephone can be used with the CC2A at any given time.* When a telephone handset is plugged into its jack or lifted from its hook, the module generates its own ring-tone signal. A separate ring-tone riser is unnecessary. The module sends this signal to the control panel to indicate the presence of an off-hook condition, and waits for the system operator to respond to the call. When the system operator responds, the ring-tone signal is disabled.
Personality code 29	Riser selector Class A four-state, single input, ring tone. Operates the same as personality code 26, except wiring is Class A. Not compatible with Warden Phones.
Personality code 25	Class B auto synchronization output. The module operates to provide synchronization of compatible fire alarm signals across multiple zones. The output wiring is monitored for opens and shorts. If a short exists, the module inhibits the activation of the audible/visual signal circuit so that the riser is not connected to the wiring fault. *Note: You may use nonsynchronous fire alarm signals with or instead of compatible synchronized fire alarm signals, but the operation of these devices will not comply with UL 1971.*
Personality code 19	Class A auto synchronization output. Operates the same as personality code 25, except wiring is Class A.

| When using the SIGA-CC2A/MCC2A as a dual input module:	
Personality code 7	Riser selector Class B, dual input. The module operates as a riser selector for dual signal power (24 Vdc) or dual audio evacuation (25 V or 70 V) riser selector. The output circuit is monitored for open or shorted wiring. If a short exists, the control panel inhibits the activation of the audible or visible signal circuit, so the riser is not connected to the wiring fault.
Personality code 30	Riser selector Class A, dual input. Operates the same as personality code 7, except wiring is Class A.

Installation

SIGA-MCC2A: mount the UIO motherboard inside a suitable Edwards enclosure with screws and washers provided. Plug the SIGA-MCC2A into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIO motherboard terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.
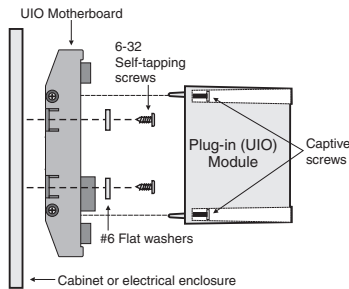
SIGA-CC2A: mount to North American 2-1/2 inch (64 mm) deep two-gang boxes and 1-1/2 inch (38 mm) deep 4-inch square boxes with two-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.
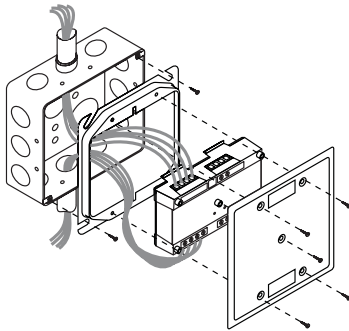
Electronic Addressing - The loop controller electronically address-es each module saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its on-board memory. The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the modules can be addressed using a laptop computer. No addressing switches are used.

Warnings & Cautions

These modules do not provide supervision of the riser. The fire alarm panel must provide this function.

These modules do not support conventional 2-wire smoke detectors.

These modules will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your fire protection specialist.

Edwards recommends that this module be installed according to latest recognized edition of national and local fire alarm codes.

Compatibility

These modules are part of EST's Signature Series intelligent processing and control platform. They are compatible with EST3, EST3X and iO Series control panels.

Testing & Maintenance

The module's automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each module and other pertinent messages. Single modules may be turned off (de-activated) temporarily, from the control panel.

Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

Wiring

Single/Dual input Class A and Class B wiring (personality 5, 7, 19, 25, 27, 30)
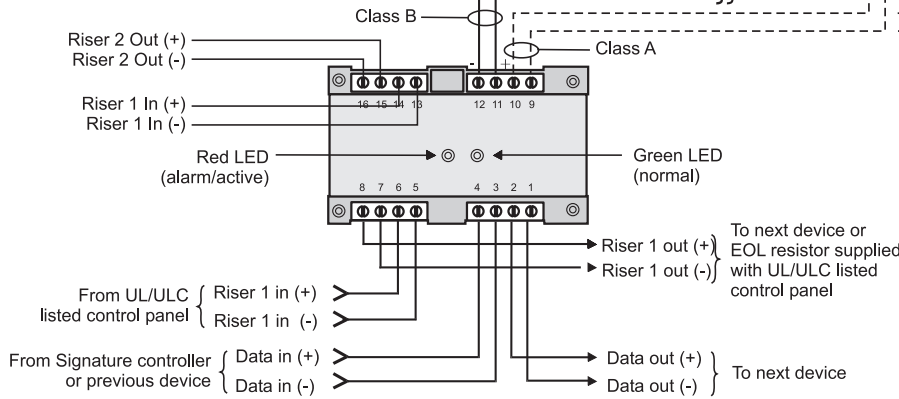Ring tone for three-state and four-state telephone Class A and Class B wiring (personality 6, 26, 28, 29)

SIGA-CC2A

Personality code 6, 26, 28, and 29:
Typical telephone circuit
Circuit is shown in the supervisory state
Polarity reverses during off-hook and call-in states

[11]

Personality code 5, 7, 27 and 30:
typical speaker circuit

[11]

Personality code 5, 7, 19, 25, 27, and 30:
typical notification appliance circuit

[11]

Class B

Riser 2 Out (+)
Riser 2 Out (-)

Class A

Riser 1 In (+)
Riser 1 In (-)

16 15 14 13   12 11 10 9

Red LED
(alarm/active)

Green LED
(normal)

8 7 6 5   4 3 2 1

Riser 1 out (+)
Riser 1 out (-)

To next device or
EOL resistor supplied
with UL/ULC listed
control panel

From UL/ULC
listed control panel { Riser 1 in (+)
Riser 1 in (-)

From Signature controller
or previous device { Data in (+)
Data in (-)

Data out (+)
Data out (-)

To next device

SIGA-MCC2A

Personality code 6, 26, 28, and 29:
Typical telephone circuit
Circuit is shown in the supervisory state
Polarity reverses during off-hook and call-in states

[11]

Personality code 5, 7, 27 and 30:
typical speaker circuit

[11]

Personality code 5, 7, 19, 27, and 30:
typical notification appliance circuit

[12]

[11]

Style Y (Class B) [1] [4] [5] [8]

Style Z (Class A) [1] [4] [8]

Signature Series motherboard
UIO2R or UIO6(R)

1 2 3 4

From Signature
controller or
previous device { Data in (+)
Data in (-)

[2] [3] [6]

4
3
2
1
TB7

MCC2A

4
3
2
1
TB14

Riser 1 out

Riser 1 in

[7] [8] [10]

To next device { Data out (+)
Data out (-)

Green LED (Normal)
Red LED (Active)

4
3
2
1
TB15

Riser 2 out

Riser 2 in

UIOR series motherboard
individual riser 1 connection. Install
the jumpers between adjacent
modules that use the same riser.

[7] [8] [10]

1 2 3 4

From UL/ULC   [4]
listed control panel [13] { Riser in (+)
Riser in (-)

Riser out (+)
Riser out (-)

To next device or EOL
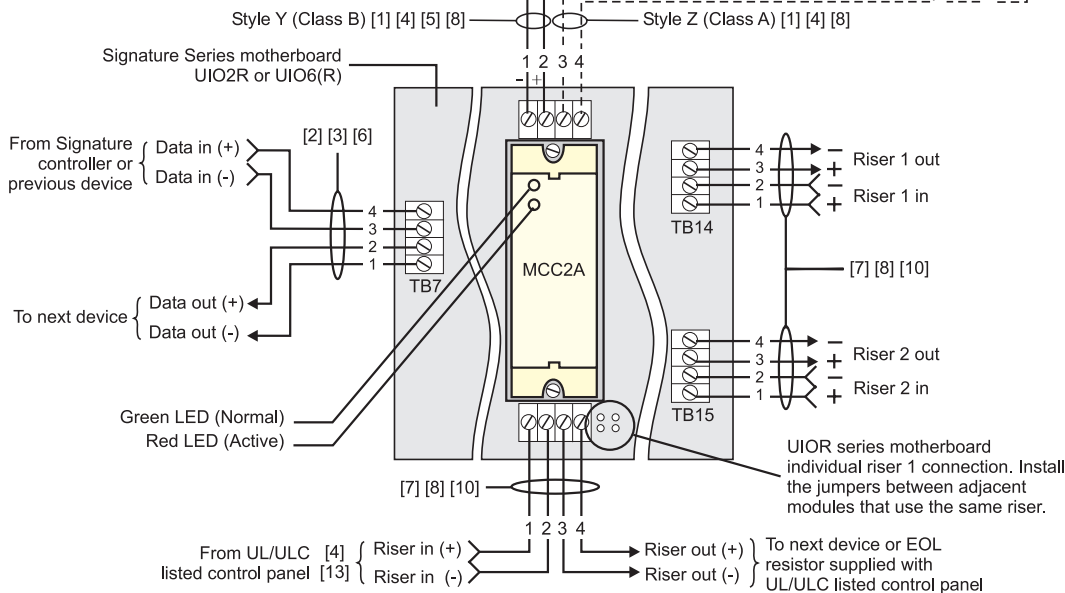resistor supplied with
UL/ULC listed control panel

Notes

1. For maximum wire resistance and maximum wire distances, refer to IOMC Manual (P/N 270144).

2. Maximum #12 AWG (2.5mm^2) wire. Min. #18 (0.75mm^2).

3. Refer to Signature Loop Controller Installation Sheet for wiring specifications.

4. These modules will NOT support two-wire smoke detectors.

5. All wiring power limited and supervised. If the input source is non-power limited, then maintain spacing of 1/4 inch or use FPL, FPLP, FPLR or equivalent in accordance with NEC.

6. The SIGA-UIO6 does not come with TB8 through TB13.

7. Supervised and power-limited.

8. Supervised and power-limited when connected to a power-limited source. If the source is nonpower-limited, maintain a space of 1/4 inch from power-limited wiring or use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electrical Code.

9. The input for this riser is common to all modules.

Specifications

	SIGA-CC2A	SIGA-MCC2A
Voltage	20 VDC	
Current	Standby: 310 µA Alarm: 135 µA	
Ground fault impedance	10 k Ohms	
Wire Size	12 to 18 AWG (2.5 to 0.75 sq mm)	
Maximum line impedance	Refer to the installation manual for your fire alarm control panel	
Output ratings (special applications)	24 VDC: 2 A 25 VAC audio: 50 W 70 VAC audio: 35 W EOL resistor value: 47 kΩ Max. circuit resistance: Refer to manual Max. circuit capacitance: 0.1 µF	
Operating environment	Temperature: 32 to 120°F (0 to 49°C) Humidity: 0 to 93% RH, noncondensing at 90°F (32°C)	
Storage temperature	-4 to 140°F (-20 to 60°F)	
Mounting	North American 2-1/2 in. deep 2-gang box Standard 4 in. square box by 1-1/2 in. deep box European 100 mm square box	UIO2R or UIO6(R) motherboard
Synchronization	Meets UL1971 synchronization requirement. All signaling devices signal within 0.01 seconds of each other for a period of at least two hours while maintaining a one hertz signal rate. (For a list of compatible devices, see "Compatibility"). Note: For synchronization, the maximum resistance between any two devices is 20 Ω. See the voltage specifications for the MCC2A, the signaling device, and the control panel to determine the maximum allowable wire resistance.	

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-CC2A	Dual Input Signal Module (Standard Mount) with Class A Operation	0.5 (0.23)
SIGA-MC-C2A	Dual Input Signal Module (UIO Mount) with Class A Operation	0.18 (0.08)

Related Equipment		
27193-21	Surface Mount Box - Red, 2-gang	2 (1.2)
27193-26	Surface Mount Box - White, 2-gang	2 (1.2)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs - Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs - Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board - Six Module Positions	0.56 (0.25)
235196P	Bi-polar Transient Protector	0.01 (0.05)

Accessories		
MFC-A	Multifunction Fire Cabinet - Red, supports Signature Module Mounting Plates	7.0 (3.1)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

Strobe Capacity

Strobe candela rating	Maximum strobes
15, 15PS, 5A	29
30, 15/75, 3A, 7A	16
60, 75PS, 6A	11
75	10
110, 8A	8

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DATA SHEET 85001-0609
Not to be used for installation purposes. **Issue 2**

11-05-14