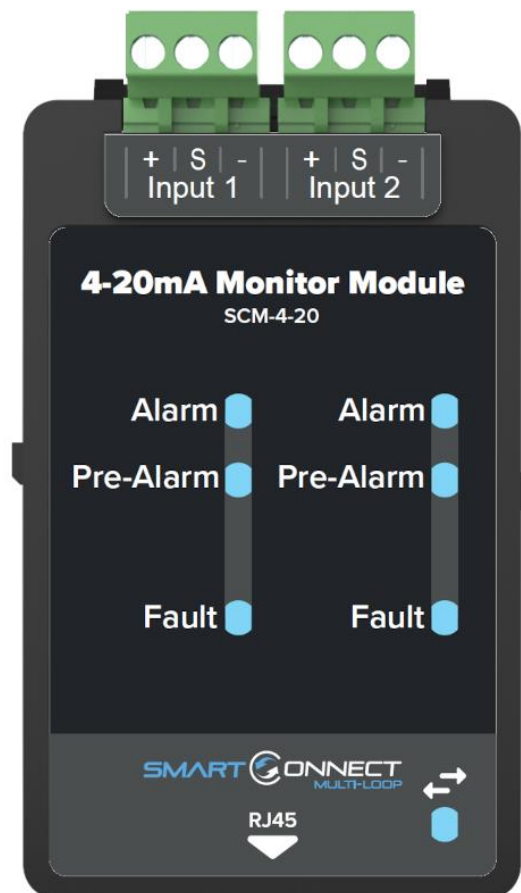


### 4-20mA GAS DETECTOR MODULE INSTRUCTION MANUAL



## SCM-4-20

## General

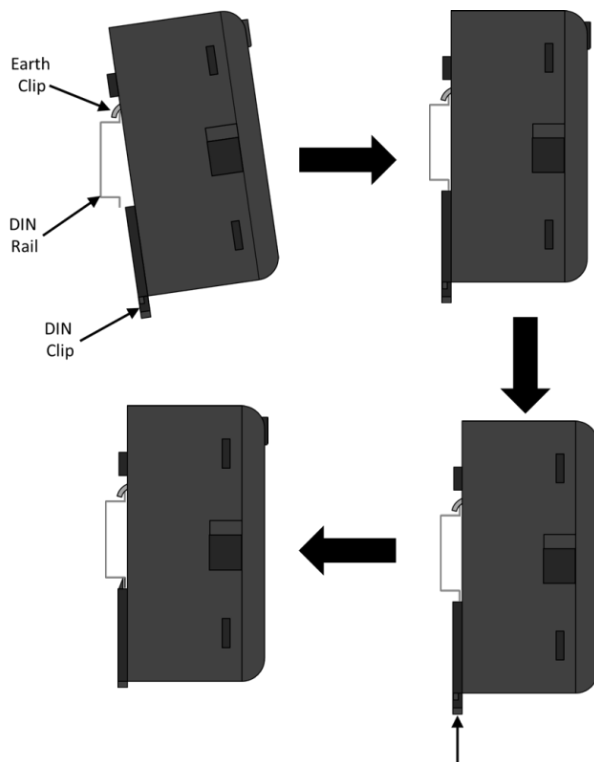
The SCM-ZMM is a six zone monitor module that is designed to be DIN mounted inside of a Smart Connect Multi-loop control panel. It's powered and interfaced to the Smart Multi-loop via a RJ45 connection. The module has six zone monitor circuits which can be typically used for conventional devices and/or for special detectors that are not available in addressable form such as UV detectors, aspiration and beam detectors etc. The module monitors and transmits the status (normal, open, short, or alarm) of a zone with the detectors to a control panel. Each zone input can be programmed to either give an alarm or technical alarm signal when active.

## Installation



**ATTENTION:** THE PANEL MUST BE POWERED DOWN AND DISCONNECTED FROM THE BATTERIES BEFORE INSTALLING OR REMOVING ANY MODULES.

1. Ensure that the installation area is free from any cables or wires that may get caught, and that there is enough space on the DIN rail to mount the module. Also ensure that the DIN clip underneath the module is in the open position.
2. Place the module onto the DIN rail, hooking the metal earth clip underneath onto the rail first.
3. Once the earth clip is hooked, push the bottom of the module onto the rail so that the module sits flat.
4. Push the plastic DIN clip (located at the bottom of the module) upwards to lock and secure the module into position.



5. Once the module is secured to the DIN rail, simply connect the supplied CAT5E cable to the module's RJ45 port.
6. Connect the other end of CAT5E cable to the nearest unoccupied RJ45 port on the termination PCB.



## TRM RJ45 Port Address Designation

Each RJ45 port on the Smart Connect Multi-loop termination has its own unique port address. This port address is important to keep note of as it is displayed on Alarm/Fault messages and is used when configuring or setting up cause and effects on the panel (See SCM operation manual GLT-261-7-10).

## Securing the modules

The modules are designed to clip together to make them more secure. In addition, the SCM panel is supplied with Din rail stoppers. These should be fitted before the first module, and after the last module on each rail.



## Before Powering the Panel On

1. To prevent the risk of a spark, do not connect the batteries. Only connect the batteries after powering on the system from its main AC supply.
2. Check that all external field wiring is clear from any open, shorts and ground faults.
3. Check that all the modules have been installed properly, with correct connections and placement
4. Check that all switches and jumper links are at their correct settings.
5. Check that all interconnection cables are plugged in properly, and that they are secure.
6. Check that the AC power wiring is correct.
7. Ensure that the panel chassis has been correctly earth grounded.

Before powering on from the main AC supply, make sure that the front panel door is closed

## Power on Procedure

1. After the above has been completed, turn the panel on (Via AC Only). The panel will follow the same power up sequence described in initial power up section above
2. The panel will now display one of the following messages

Message	Meaning					
 <p style="text-align: center;"><b>No Modules</b></p>	<p>Panel has not detected any modules fitted during its power up check.</p> <p>Power down the panel and check that the expected modules are fitted, and that all module cables are correctly inserted.</p> <p>Note that the panel will need at least one module fitted to run.</p>					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #00FF00;">001 New module : SOUNDER CLASS B</td></tr> <tr><td>002 Empty port</td></tr> <tr><td>003 Empty port</td></tr> <tr><td>004 Empty port</td></tr> <tr><td>005 Empty port</td></tr> </table> <p style="text-align: center;">✓ ⏪ ⏩</p>	001 New module : SOUNDER CLASS B	002 Empty port	003 Empty port	004 Empty port	005 Empty port	<p>The panel has detected a new module added to a port that was previously empty.</p> <p>This is the usual message seen the first time a panel is configured</p>
001 New module : SOUNDER CLASS B						
002 Empty port						
003 Empty port						
004 Empty port						
005 Empty port						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #FFFF00;">001 Changed module : SOUNDER CLASS B</td></tr> <tr><td>002 Empty port</td></tr> <tr><td>003 Empty port</td></tr> <tr><td>004 Empty port</td></tr> <tr><td>005 Empty port</td></tr> </table> <p style="text-align: center;">✓ ⏪ ⏩</p>	001 Changed module : SOUNDER CLASS B	002 Empty port	003 Empty port	004 Empty port	005 Empty port	<p>The panel has detected a different type of module fitted to a port that was previously occupied.</p>
001 Changed module : SOUNDER CLASS B						
002 Empty port						
003 Empty port						
004 Empty port						
005 Empty port						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #FFFF00;">001 Serial Number Changed : LOOP</td></tr> <tr><td>002 Empty port</td></tr> <tr><td>003 Empty port</td></tr> <tr><td>004 Empty port</td></tr> <tr><td>005 Empty port</td></tr> </table> <p style="text-align: center;">✓ ⏪ ⏩</p>	001 Serial Number Changed : LOOP	002 Empty port	003 Empty port	004 Empty port	005 Empty port	<p>The panel has detected a module fitted to a port that is the same type, but it's serial number has changed.</p> <p>This could happen if a loop module was swapped with another one, for example.</p>
001 Serial Number Changed : LOOP						
002 Empty port						
003 Empty port						
004 Empty port						
005 Empty port						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #FFFF00;">001 Removed Module : LOOP</td></tr> <tr><td>002 Empty port</td></tr> <tr><td>003 Empty port</td></tr> <tr><td>004 Empty port</td></tr> <tr><td>005 Empty port</td></tr> </table> <p style="text-align: center;">✓ ⏪ ⏩</p>	001 Removed Module : LOOP	002 Empty port	003 Empty port	004 Empty port	005 Empty port	<p>The panel has detected no module fitted to a port that was previously occupied.</p>
001 Removed Module : LOOP						
002 Empty port						
003 Empty port						
004 Empty port						
005 Empty port						
	<p>The panel has detected no module changes, so has powered up and started running</p>					

1. Check that the module configuration is as expected using the ▲ and ▼ to navigate the through the port numbers. Press the ✓ icon to confirm the changes.
2. The new module is now configured into the panel and is ready for use.
3. Since the batteries are not connected, the panel will report them as removed, lighting the yellow “Fault” LED, intermittently sounding the Fault buzzer, and displaying battery removed message on the screen.
4. Connect the batteries, ensuring that the polarity is correct (Red wire = +ve) & (Black wire = -ve). Acknowledge the Fault event via the display screen, and reset the panel to clear the battery fault.
5. The panel should now remain in the normal condition, and you can configure the panel as normal.

## Field Wiring

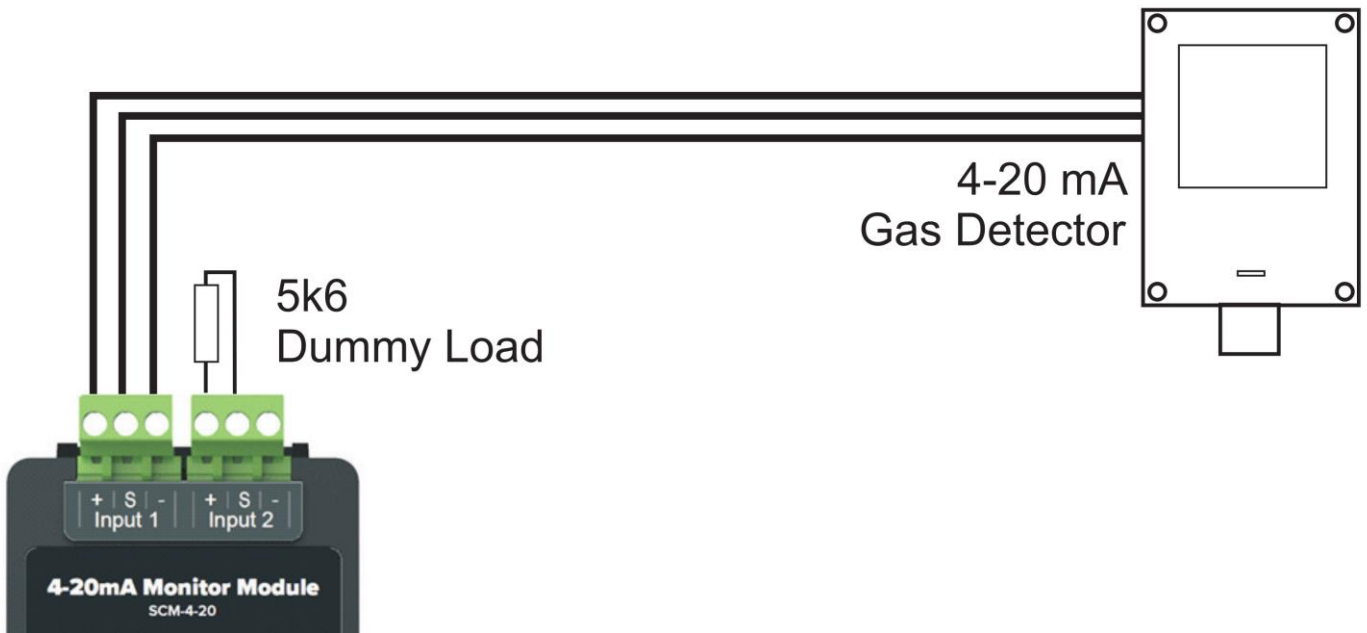


**NOTE:** The terminal blocks are removable to make wiring easier.



**ATTENTION:** DO NOT EXCEED POWER SUPPLY RATINGS, OR MAXIMUM CURRENT RATINGS.

### Class B Wiring



NOTE: Any unused circuits should have a 5k6, 1 Watt dummy load fitted between + and S terminals, to prevent a fault being reported.



**NOTE:** Only one 4-20mA detector per circuit

## Wiring recommendations

It is recommended that the distance between panel and detector does not exceed 500m.

## Configuring Detectors

The SCM-4-20 Module is optimised for connecting Zeta's range of 4-20mA detectors. These have a stepped output and the module has preset options for each detector. It also has a custom setting that is fully adjustable so can be configured for any detector.

### Preset

The Smart Connect Multiloop has preset settings for the range of gas detectors supplied by Zeta Alarms Limited. These detectors have a stepped output, giving currents of 4, 12 or 20mA for normal, pre-alarm, and alarm conditions. (See appendix A for the list of available detectors)

### Custom

In addition to the preset detectors, the smart Connect multiloop has the option of custom settings, where the user can enter:-

Detector description,

Measurement units (%vol, ppm, %LEL)


Full scale Range (EG 0-30ppm)

Output current range (to allow for detectors that output more than 20mA)

Pre alarm current

Alarm current

## Front Unit LED Indications

LED Indication	Description	LED Indication	LED Indication
ALARM		Pre-Alarm	
<b>Fault</b>	Flashing when a short circuit condition has been detected.		Pulses to show communication between the module and the motherboard.

## Configuring Cause and Effect

The SCM-4-20 reports events on screen as a **Technical alarm / Gas Alarm**, or **Technical Alarm / Gas Pre Alarm**. To operate an output on one of these events, it is programmed as follows:

### Pre-alarm

To Operate an output on a **gas pre-alarm**, use the **Tech alarm ON** cause. This can be made on a panel, zone, or local I/O level.

If the system is being run as a mixed system (EG, combined fire and gas detection), the local I/O Level (Individual gas Detectors), or zone level (With only related gas detectors in a zone) should be used. This avoids confusion between a fire alarm, and a gas detection alarm.

### Alarm

To Operate an output on a **gas alarm**, use the **Alarm** cause. This can be made on a panel, zone, or local I/O level.

If the system is being run as a mixed system (EG, combined fire and gas detection), the local I/O Level (Individual gas Detectors), or zone level (With only related gas detectors in a zone) should be used. This avoids confusion between a fire alarm, and a gas detection alarm.

## Specifications

Specification	SCM-4-20
Design Standard	EN54 Part 2
Approval	LPCB (pending)
Circuit Voltage	24V DC
Circuit Type	Power limited & Supervised
Wiring Class	Class B
Maximum Line Impedance	50Ω
Maximum Current	250mA per circuit
Wiring Class	2 x Class B circuits
Recommended cable sizes	22 AWG to 14 AWG (0.3mm <sup>2</sup> to 2.5mm <sup>2</sup> )
Dummy Load (If circuit not used)	5K6Ω, 1W
Maximum Detectors Per Circuit	1
Operating Temperature	-5°C (23°F) to 40°C (104°F)
Max Humidity	93% Non-Condensing
Size (mm) (HxWxD)	103mm x 97mm x 46mm
Weight	0.2KG



## Appendix A: Compatible detectors

### Analogue gas detectors GS-220.BC.V.ZETA for combustible gases

Model – ordering code	Detected gas	Gas concentration
GS-220.BC.V.ZETA.MET.100	METHANE	0 – 100% LEL
GS-220.BC.V.ZETA.PRO.100	PROPANE	0 – 100% LEL
GS-220.BC.V.ZETA.BUT.100	N-BUTANE	0 – 100% LEL
GS-220.BC.V.ZETA.PEN.100	N-PENTANE	0 – 100% LEL
GS-220.BC.V.ZETA.HEX.100	N-HEXTANE	0 – 100% LEL
GS-220.BC.V.ZETA.HEP.100	N-HEPTANE	0 – 100% LEL
GS-220.BC.V.ZETA.OCT.100	N-OCTANE	0 – 100% LEL
GS-220.BC.V.ZETA.MNL.100	METHANOL	0 – 100% LEL
GS-220.BC.V.ZETA.ETL.100	ETHANOL	0 – 100% LEL
GS-220.BC.V.ZETA.PRO.100	ISO-PROPANOL	0 – 100% LEL
GS-220.BC.V.ZETA.ACE.100	ACETONE	0 – 100% LEL
GS-220.BC.V.ZETA.MEK.100	METHYL ETHYL KETONE	0 – 100% LEL
GS-220.BC.V.ZETA.TOL.100	TOLUENE	0 – 100% LEL
GS-220.BC.V.ZETA.EAC.100	ETHYL ACETATE	0 – 100% LEL
GS-220.BC.V.ZETA.HYD.100	HYDROGEN	0 – 100% LEL
GS-220.BC.V.ZETA.AMM.100	AMMONIA	0 – 100% LEL
GS-220.BC.V.ZETA.UPT.100	UNLEADED PETROL	0 – 100% LEL
GS-220.BC.V.ZETA.ETH.100	ETHYLENE	0 – 100% LEL

### Analogue gas detectors GS-220.BC.V.ZETA for toxic gases

Model – ordering code	Detected gas	Gas concentration
GS-220.BC.V.ZETA.CO.500	CARBON MONOXIDE	0 – 500ppm
GS-220.BC.V.ZETA.NO2.30	NITROGEN DIOXIDE	0 – 30ppm
GS-220.BC.V.ZETA.H2S.100	HYDROGEN SULPHIDE	0 – 100ppm
GS-220.BC.V.ZETA.AMM.100P	AMMONIA	0 – 100ppm
GS-220.BC.V.ZETA.CL2.10	CHLORINE	0 – 10ppm
GS-220.BC.V.ZETA.O2.25	OXYGEN	0 – 25%VOL

### Analogue gas detectors GS-220.BC.V.ZETA for refrigerant gases

Model – ordering code	Detected gas	Gas concentration
GS-220.BC.V.ZETA.AMM.2000	AMMONIA	0 – 2000ppm
GS-220.BC.V.ZETA.134A.2000	R-134a	0 – 2000ppm
GS-220.BC.V.ZETA.404A.2000	R-404a	0 – 2000ppm
GS-220.BC.V.ZETA.407C.2000	R-407c	0 – 2000ppm
GS-220.BC.V.ZETA.410A.2000	R-410a	0 – 2000ppm
GS-220.BC.V.ZETA.290.2000	R-290	0 – 2000ppm