Data and Installation

S4 Mains Powered Interface

(S4-34440-02 & S4-34440-12)

GENT by Honeywell

The S4 Mains powered interface units (Part No's: S4-34440-02 and S4-34440-12) are EN54-4 compliant battery backed power supplies that can be directly connected to the Vigilon and Nano loop and also have highly flexible interfacing capability.

042bp/01
042bp/02

The 4 channels can be individually configured to provide Output and Input interface in various configuration modes, to control external equipment and receive input to allow the fire system to make decisions and take actions. It is now possible to have combined inputs and outputs giving a total of 8 external circuits connected (e.g. 4 sector outputs and 4 confirmation inputs). The units have room to accommodate optional modules on to DIN rails. It has a configurable auxiliary power output that is derived from its self contained mains power supply unit, which is battery backed to continue to deliver power in the event of mains supply failure.

Note a Nano system loop can only accept a S4-34440-02.

Technical Data

Standards - designed to meet	EN54:part 4:1998 EN54:part 17:2005 EN54:part 18:2005
Overall dimensions	478mm x 322mm x 145mm
Assembled weight (approximate)	5.25Kg (excluding batteries and optional components fitted)
Enclosure	Steel
Colour	RAL7024 Graphite Grey (fine textured)
Storage temperature	-20ºC to +70ºC
Ambient operating temperature	-10ºC to +45°C
Relative Humidity (Non condensing)	up to 95% Temperature +5ºC to +45°C
Ingress Protection	IP31(estimated)
Mains voltage	230V -15% +10% 50Hz/60Hz
Rated current	0.7A
Input modes	Input can be fault monitored, voltage free, contacts OR conventional detection zone circuit. Refer to the commissioning information for more details.
Zone Nominal voltage Quiescent current	 16V or 22.5V (default) ±15% 20mA per zone (default) Zone short circuit current limited to < 30mA **EN54 compliance limitation: 32 devices OR Maximum of 20 diode bases per zone**
Output modes	Outputs are monitored 24V (nominal) 0.5A or LED drive. Refer to the commissioning information for more details
Confirmation modes	It is possible to configure all Inputs and Outputs as confirmation channels
Sector and Auxiliary Outputs	**Sector outputs:** 0.5A max. each at 24V ± 3V, electronically current limited to approximately 1A at 25°C **Auxiliary power output: (S4-34440-02)** 0.5A max. at 24V ± 3V, electronically current limited to approximately 1A at 25°C **(S4-34440-12)** Regulation: 0 to 0.5A with 12V ±0.5V or 24V ±0.5V 0.5A to 0.65A max. with 12V ±2V or 24V ±2V **Max. total output current:** S4-34440-02 = 1.5A S4-34440-12 = 2.5A

Batteries	Two types: 2 x 12V 2.1Ahr (1Kg each) for S4-34440-02 2 x 12V 12Ahr (4.31Kg each) for S4-34440-12
Compatible # Backward compatibility is possible, refer to your supplier	Vigilon# :MCC ≥ V4.43 / V3.97 :LPC ≥ V4.41 / V3.97 Commissioning tool ≥ V1.27 Nano :MC ≥ V2.50 Commissioning tool ≥ 2.x
EN54-17 : 2005 (section 4.8) data:	Vmax 42V Ic max 0.4A Vnom 40V Is max 1A Vmin 24V IL max 20µA VSO max 16V ZC max 0.13Ω VSO min 8V
EN54-18 : 2005 data	Vmax 42V Vmin 24V

EN54-4 : 1997data	Imaxa	Imaxb	Ri max
S4-34440-02	1.5A	1.5A	2.5R
S4-34440-12	1.5A	2.5A	1.3R

Imin	80uA
UVLo	18.5Vdc ±5%
Vbatt min (with no mains)	22.5Vdc ±5%
Emission	BS EN61000-6-3: 2007 EMC for residential, commercial & light Industry.
Immunity	BS EN50130-4: 1996 +A1:1998 + A2 2003 for alarm systems
Terminals	Terminals for spur circuit off main loop

Repetitive switching of capacitive loads greater than 1500uF is not possible and will result in the thermal protection circuit automatically reducing the output voltage.

Features

☐ Fail-safe operation

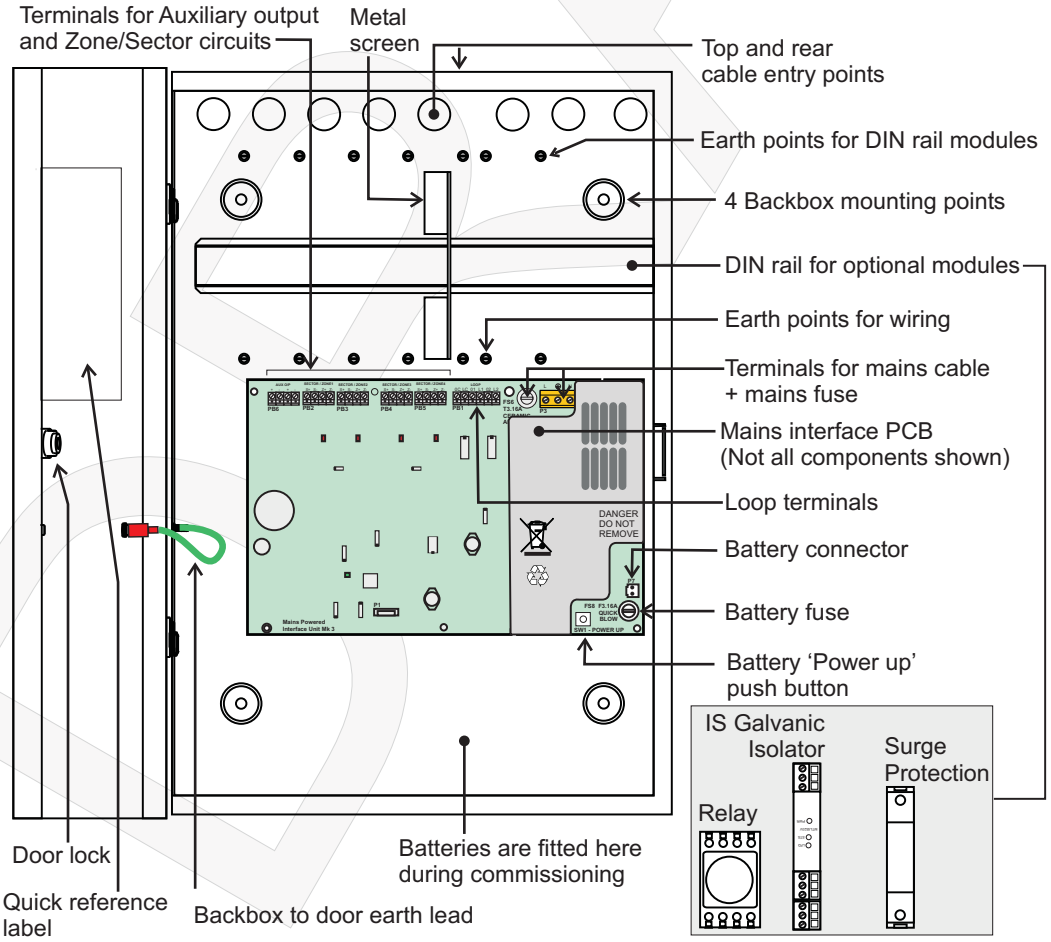
A fail-safe operation is available on all sectored outputs, if loop communications are lost for a defined duration then the sector outputs will be turned ON. Sector outputs will turn OFF immediately when communication is restored.

☐ Synchronisation

Adjustable synchronisation pulses can be selected for all sector outputs to synchronise the operation of devices such as xenon strobes or speech sounders.

☐ Auxiliary Output

The Auxiliary output can be programmed to automatically turn OFF when a mains failure occurs to preserve battery capacity. The output can also be programmed to provide a reset pulse when a fire reset occurs, (this requires other line(s) on the interface to be programmed as inputs).



Installation

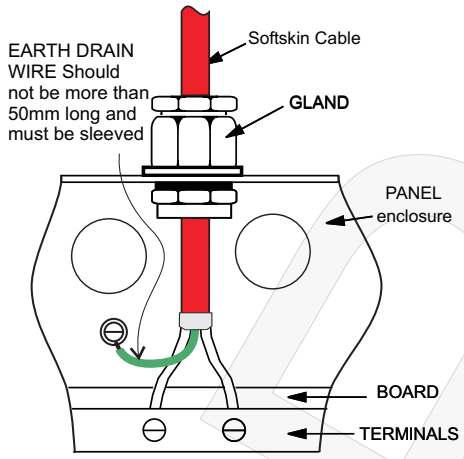
The batteries are supplied in a separate pack.

	Spare Parts packages	Qty
	Fuse 3.15A AS Ceramic (20mm x 5mm)	1
	Fuse 3.15A QB Glass (20mm x 5mm)	1
	Resistor 5.6K 0.6W	4
	Resistor 470R 0.6W	8
	Resistor 10K 0.5W	4
	Battery Link	1
	Battery Lead	1
	Capacitor 22uF 35V	4
	Instructions	1

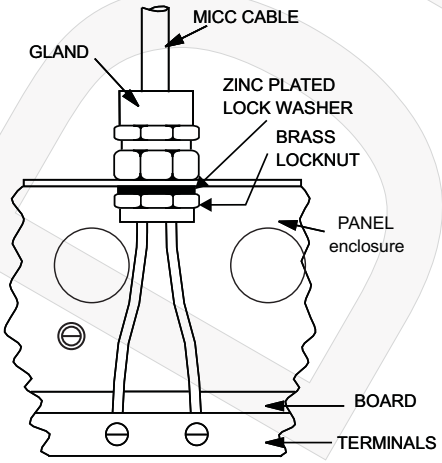
keys are supplied in a plastic bag fitted to the enclosure.

Cable termination

Softskin (Fire Tuf)
CABLE TERMINATION



MICC
CABLE TERMINATION

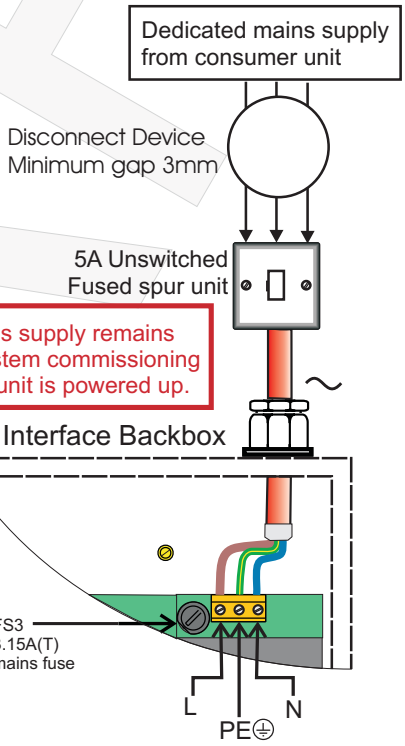


Mains supply

The mains supply cable must be a standard fire resisting type and should meet PH30 classification, such as any of the standard and enhanced loop cable. Requires a minimum conductor cross sectional area of 0.75mm^2.

Ensure that the mains supply cable enters the enclosure through a dedicated cable entry, located adjacent to the mains terminal block and that is also segregated from loop wiring.

These fire alarm system products are not designed to be powered from IT Power systems.



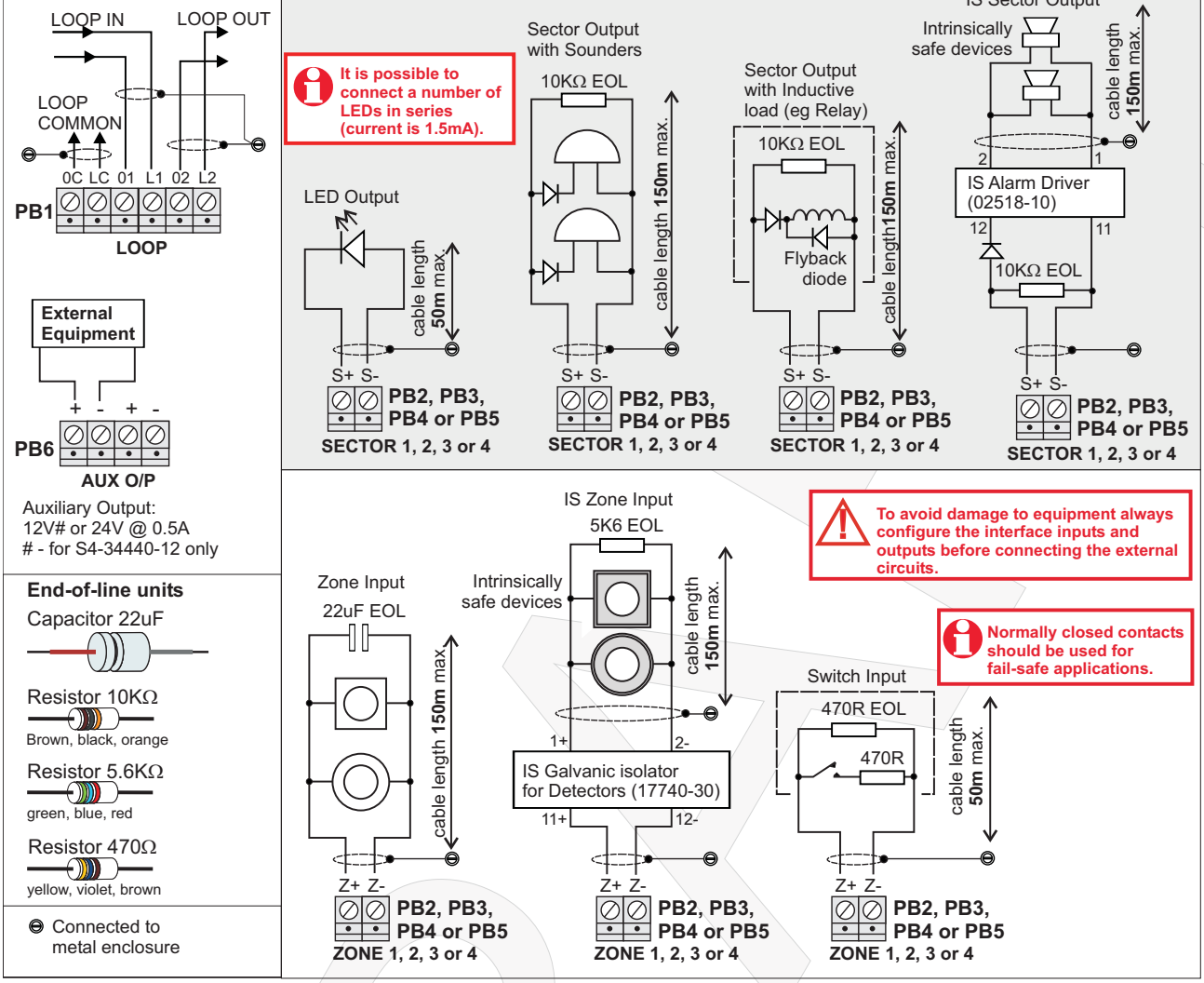
Ensure the mains supply remains isolated until system commissioning stage when the unit is powered up.

All mains powered equipment must be earthed. Mains supply to any fire alarm control and indicating equipment must be via an unswitched 5A fused spur unit. A disconnect device must be provided to disconnect both poles and must have a minimum gap of 3mm. The **disconnect device** should be available as part of the building installation and must be easily accessible after installation is complete.

Wiring test

DO NOT undertake high voltage insulation tests WITH THE CABLES CONNECTED to the Mains Interface unit and external equipment. Such a test may damage the electronics circuitry in external equipment and in the Mains Interface unit.

External wiring



Options

These optional products should be mounted on the DIN rail.

The relays and intrinsically safe products listed below should be mounted apart, a metal screen is provided inside the enclosure.

19104-52 Low voltage power relay
17740-30 Intrinsically safe galvanic isolator for IS detectors and call points
02518-10 Intrinsically safe alarm driver for IS sounders

CE
0832

Gent by Honeywell (Novar Systems Limited)
Manufactured by: Honeywell Life Safety Systems,
140 Waterside Road, Hamilton Industrial Park,
Leicester, LE5 1TN, United Kingdom

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DoP	Product No.
052-CPR-2013	S4-34440-02
052-CPR-2013	S4-34440-12

EN54-4: 1997 +A12002, A2:2006, EN54-17:2005, EN54-18:2005

S4-34440-02 (EN54-4-17 & 18)
S4-34440-12 (EN54-4-17 & 18)

Intended for use in fire detection and fire alarm systems in and around buildings

Refer to DOP 052-CPR-2013 for level or class of performance declared, for details see website www.gent.co.uk

WEEE Directive:
At the end of their useful life, the packaging, product and batteries should be disposed of via a suitable recycling centre.
Do not dispose of with your normal household waste. Do not burn.

At the end of their useful life, the packaging, product and batteries should be disposed of via a suitable recycling centre and in accordance with national or local legislation.

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Commissioning information

S4 Mains powered interface

(S4-34440-02 & S4-34440-12)

GENT by Honeywell

Backward Compatibility

(when installed on Vigilon loop)
A S4 Mains powered interface unit can be converted to be a BACKWARD COMPATIBLE 34440 Mains powered interface unit for use on a Vigilon loop. The conversion is done using a S4 Interface programmer unit. For further information contact your supplier.

Compatibility

Only an EN Vigilon panel based fire alarm system with compatible software can operate a Mains powered interface to drive a compliant BS7273 Part 4:2007 system. These Mains powered interface units MUST NEVER be used to drive a BS7273 part 4 compliant system where the fire alarm system has a BS Vigilon panel or a Nano panel.

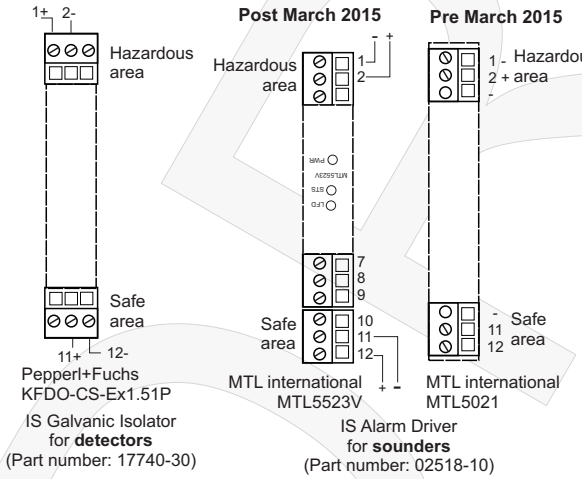
The S4 Mains powered interface unit is compatible for use in Vigilon and Nano systems having the following panel firmware.

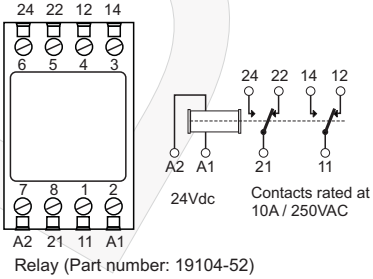
Control Panel	having card and firmware
Vigilon	Main Controller Card ≥ V4.43 / V3.97
	Loop Processor Card ≥ V4.41 / V3.97
	Vigilon Commissioning tool ≥ V1.27
Nano	Main Controller ≥ V2.50
	Nano Commissioning tool ≥ V2.x

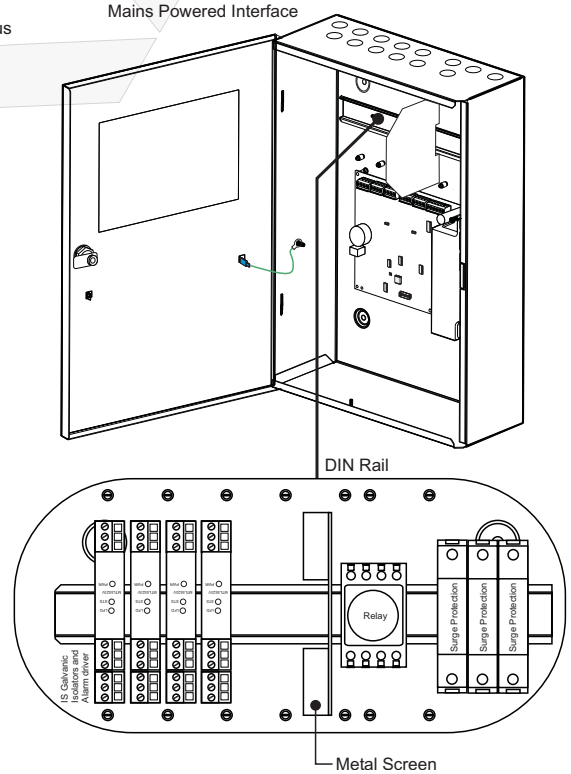
Note a Nano loop can only accommodate S4-34440-02.

Factory settings

- ☐ The S4 Mains powered interface channels 1 - 4 are all set to UNUSED.
- ☐ The Auxiliary output is off and is unaffected by mains failure or fire reset.



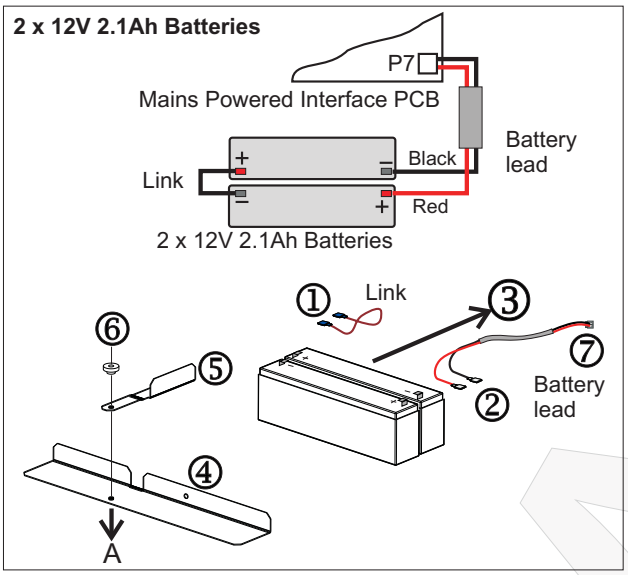


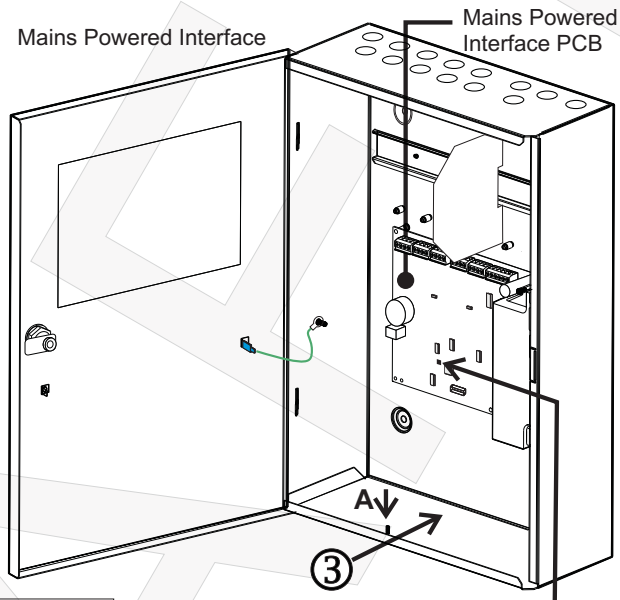


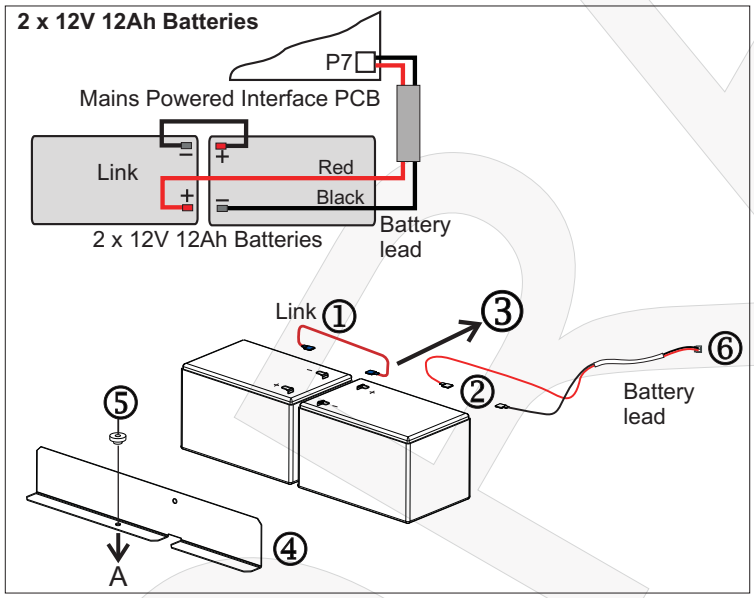
How to install batteries and Power up

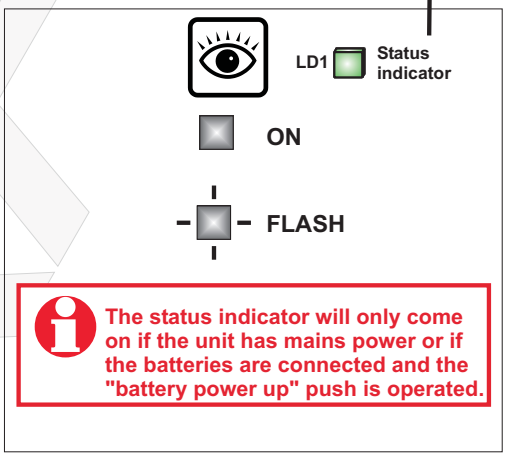
The following illustration shows how to connect a pair of 12V 12Ah batteries for S4-34440-12 or 12V 2.1Ah batteries for S4-34440-02 into a S4 Mains powered interface unit. The numbers ①, ②, ③.. shows the order in which to carry out the installation.

DO NOT fit the 12V 2.1Ah batteries inside the S4-34440-12 Mains powered interface unit .





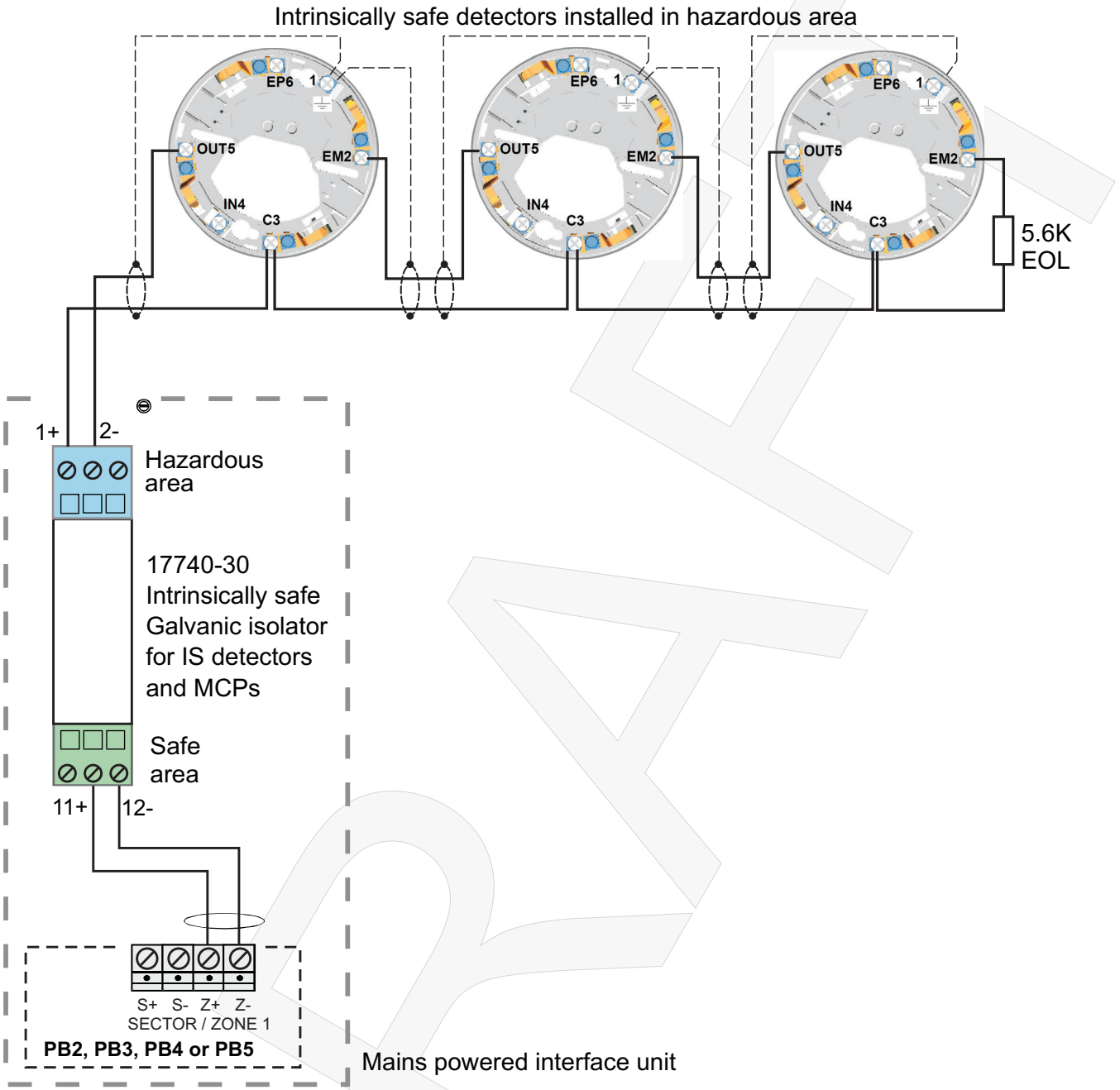




Status Indicator LD1

Indicator LD1	colour	meaning...
FLASH	Green	OK - Interface replies to a loop communication sequence.
Long FLASH with loop communications	Amber	There is a short circuit, open circuit or confirmation timeout on an interface zone / sector channel.
Short FLASH	Amber	The interface loses synchronisation with the loop communications sequence.
ON continuously	Amber	System error is detected (e.g. a configuration memory checksum / validity check error or a Flash / RAM error).

Wiring to Intrinsically safe detectors



The Intrinsically safe alarm driver is wired in a similar manner, see part 1 of this leaflet for data.

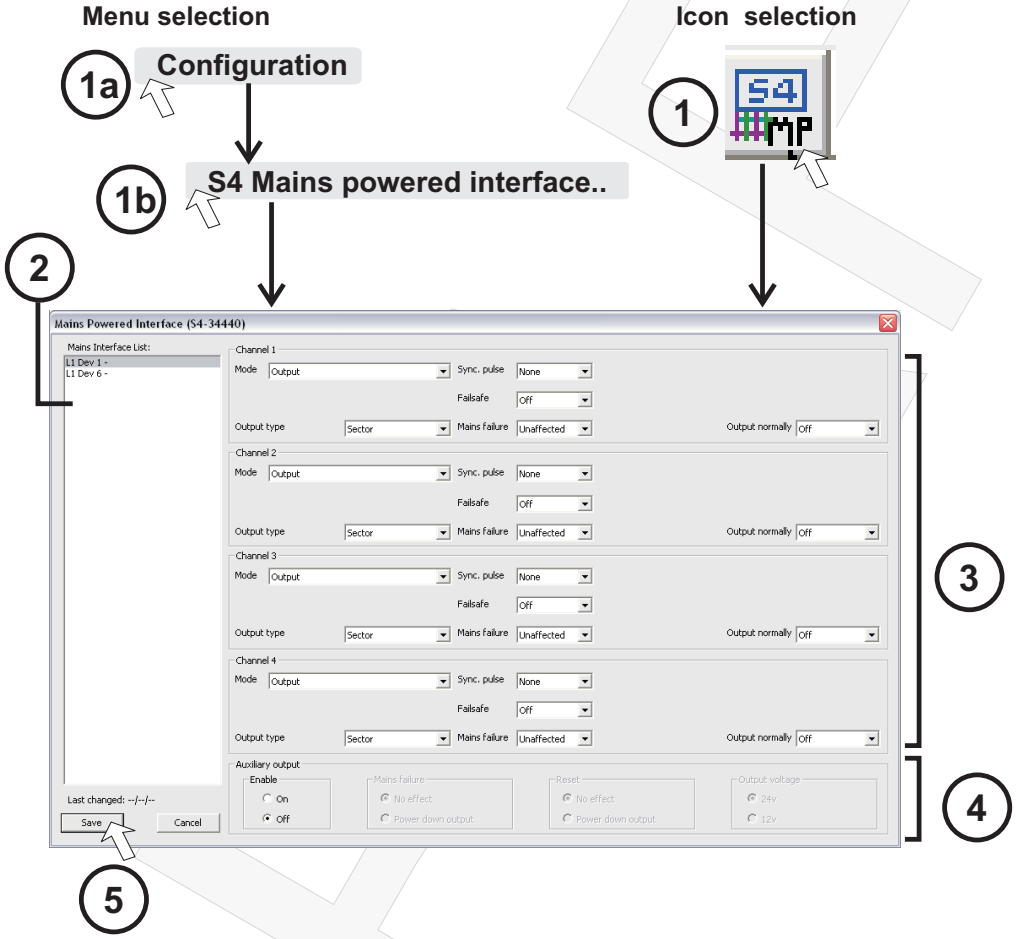
Vigilon system - Commissioning the interface

S4 Mains Powered Interface - *Config. menu*

Menu option	you can use this option to..	notes
S4 Mains Powered Interface...	...to configuring the S4-34440-02 and S4-34440-12 Mains powered interface units.	

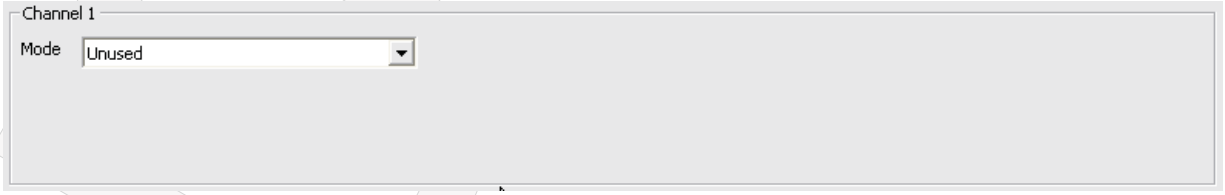
Operation (The numbers ①②③④..shows the order in which to the make selections and enter appropriate data).

After opening the Mains Interface configuration window select the required interface from the system tree for configuration.



Unused Mode

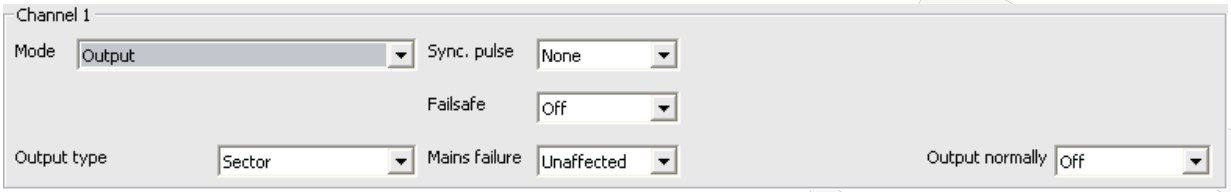
When a channel is not being used it must be setup as an unused channel.



Mode	settings	notes
Unused		Set the channel mode to unused if it is not required.

Output mode

This is when a channel is configured as an output and the channels input terminals are not used.



Mode	settings	notes
Output	Output type Sector LED UnMonitored Sector Door release cat.A Door release cat.B	The **Sectored output** is used to power a wide range of alarm products such as sounders, bells, door holders and relay. A series blocking diode must be used. The **LED output** drive of 1.5mA is available. The **Unmonitored sector output** is for use with galvanic isolator, in this mode no end-of-line resistor or series diode is required. Unmonitored sector lines will have no associated analogue channels. The **Door release category A** option is used for controlling door release mechanisms that need to meet the requirement of BS7273 Part 4. With Category A the outputs are operated (doors released) from ***fire, fault and disablement*** events, see * below. The **Door release category B** option is used for controlling door release mechanisms that need to meet the requirement of BS7273 Part 4. With Category B the outputs are operated (doors released) from ***fire*** events, see * below.
	Sync. pulse None 10ms 20ms 30ms	The outputs sends a **synchronisation pulse** every 10s, the output is turned off for a short duration. The duration can be programmed to be approximately 10, 20 or 30ms for compatibility with a wide range of annunciation devices that require synchronisation such as strobes, sounders and voice sounders.
	Failsafe Off On	When On it allows the setting of **Fail safe periods** for all Mains powered interface outputs, where outputs are used for fire doors control applications. When set to 'On' the **Initial fail safe period** defaults to 120s and the **Final fail safe period** defaults to disabled. See page 15.
	Mains failure Unaffected TurnOff	To preserve battery capacity for essential functions it is possible to configure individual outputs to deactivate 'Turn Off' during a **mains power failure**.
	Output normally Off On	* This is when a sectored output is configured to work in an inverse manner. An ON setting will cause the output to turn OFF. Note that in this mode the sector wiring is effectively unmonitored, it is only monitored when the output is de-energised. This feature may be used with equipment such as magnetic door holders to ensure the fire door will release once a fire has been detected.

Zone Input mode

This example shows how to set a channel as a **Zone input.**

Mode	settings	notes
Zone Input	Zone Input Type Gent IS Esser Sensor Apollo/Nittan	The **Zone Input Type** monitors 'conventional' detectors and call points, with manual call points having 470 ohms resistor in series with Normally Open contacts. When Gent detectors operate they will draw a constant current of 30mA. A standard end-of-line capacitor must be fitted across the Z+ and Z- terminals. Each zone input can have up to 20 standard detectors connected with the diode base option. A Zone Input Type can accommodate a range of different products to operate at different zone input thresholds: Gent (**Type 0**) IS Esser Sensor (**Type 1**) Apollo/Nittan (**Type 2**) Tanlentum Flame (**Type 3**) Det-tronics Flame (**Type 4**) S/C Fire (**Type 5**)
	Validation Delay 0.00 2.40 4.80 7.20 9.60 12.00 14.40	The purpose of the alarm **Validation Delay** is to minimise false alarms. The alarm validation timeout can be any value in the range 0 (off) to 37.5 seconds. During alarm validation delay timeout period the interface will suppress fire event by applying a reset to the zone circuit and then wait for a second confirming fire signal.
	Reset Period 1.90 2.54 3.18 3.82 4.46 5.10 5.74 6.38	Other detector types may need a specific **Reset period** which can be set here in seconds.

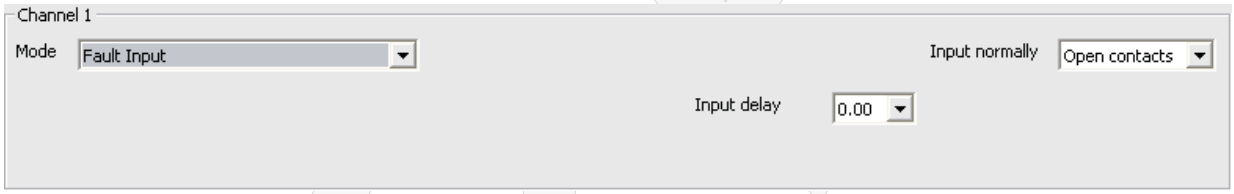
Supervisory Input mode

This example sets the respective channel as a **Supervisory input.**

Mode	settings	notes
Supervisory input	Input delay 0.00 2.40 4.80 7.20 9.60 12.00 14.40	The **Input Delay** is the time before the input is accepted by the interface, this will filter any noise or spurious signals, commonly know as "bounce". This time is the debounce period. The input delay timeout can be any value in the range 0 to 36 seconds.
	Input normally Open contacts Closed contacts	The input channel can be configured to operate with normally open or normally closed contacts. Note normally closed operation should be selected if fail safe contact monitoring is required.

Fault Input mode

This example shows how to set a channel as a **Fault input.**



Mode	settings	notes
Fault input	Input delay	As described for Supervisory input.
	Input normally	As described for Supervisory input.

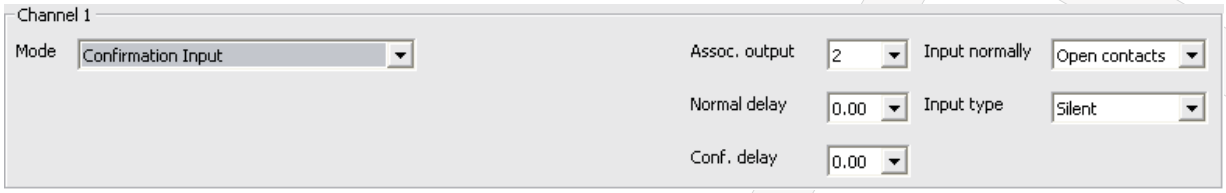
Fire Input mode

This example shows how to set a channel as a **Fire input.**

Mode	settings	notes
Fire Input	Input delay	As described for Supervisory input.
	Input normally	As described for Supervisory input .

Confirmation Input mode

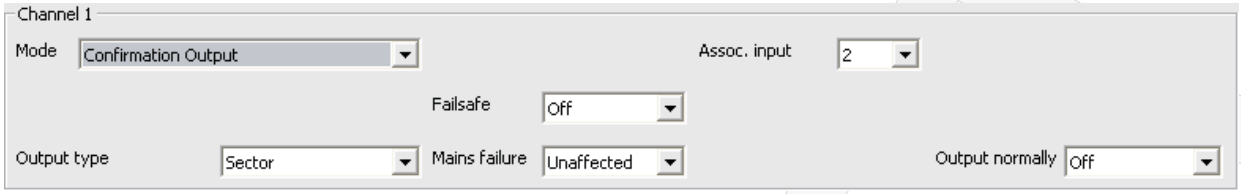
The purpose of a **Confirmation Input** is to allow the system to monitor the correct operation of an output, which relies on external equipment sending back the correct signal. In this mode use a 470ohms end-of-line resistor with another 470ohms resistor being switched in parallel across the Z+ and Z- terminals to provide the feedback signal.



Mode	settings	notes
Confirmation Input	Associated output 2 3 4	The selected output channel is associated with the confirmation input channel. Note channel 1 cannot be selected for associated output as it is already being used as an input, however this would be possible if the channel was configured as a combined input/output channel.
	Normal delay 0.00 1.20 2.40 3.60 4.80 6.00 7.20	The **Normal delay** is the time before a confirmation input is accepted by the interface, this will filter any noise or spurious signals, commonly know as "bounce". This time is the debounce period.
	Confirmation delay 0.00 2.40 4.80 7.20 9.60 12.00 14.40 16.80	This is the delay time before a confirmation input is accepted by the interface and is how long the interface waits for a confirmation signal before it brings up a fault message.
	Input normally	See page 7.
	Input type Silent Verbose	The **verbose** setting will generate true/false supervisory messages whenever the input changes state, as well as generate timeout fault if the change does not occur before the delay has elapsed. The **silent** setting will only give a timeout fault.

Confirmation Output mode

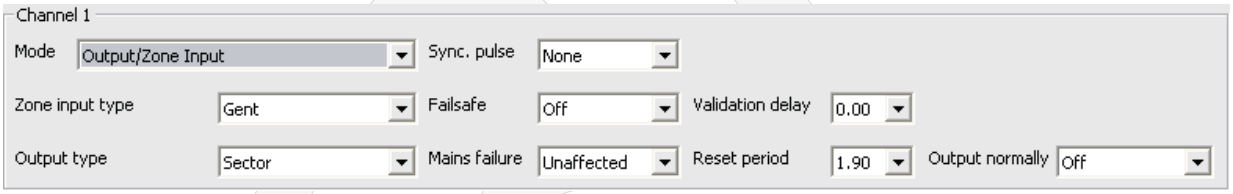
A channel is configured as a confirmation output and is associated with an input at another channel, but not its own channel.



Mode	settings	notes
Confirmation Output	Output type: Sector LED UnMonitored Sector	See page 5.
	Fail safe	See page 5.
	Mains Failure	See page 5.
	Associated Input 2 3 4	The selected input channel is associated with the confirmation output channel. Note channel 1 cannot be selected for associated input as it is already being used as an output.
	Output Normally	See page 5.

Output with Zone Input mode

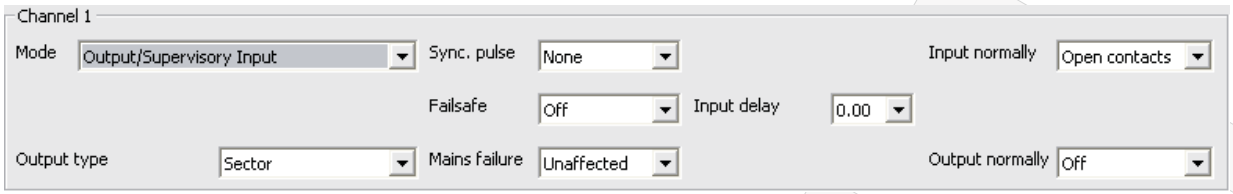
This is when a channel is configured as an output and the channels input terminals are Zone Input.



Mode	settings	notes
Output / Zone input	Zone input type	See page 6.
	Output type	See page 5.
	Sync. pulse	See page 5.
	Failsafe	See page 5.
	Mains failure	See page 5.
	Validation delay	See page 6.
	Reset period	See page 6.
	Output normally	See page 5.

Output with Supervisory Input mode

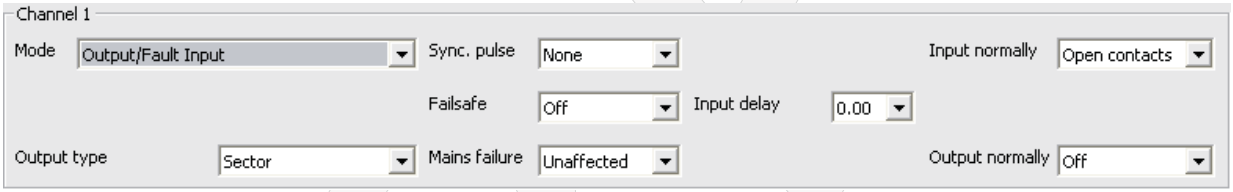
This is when a channel is configured as an output and the channels input terminals are Supervisory Input.



Mode	settings	notes
Output / Supervisory input	Output Type	See page 5.
	Sync. pulse	See page 5.
	Failsafe	See page 5.
	Mains Failure	See page 5.
	Input Delay	See page 7.
	Input normally	See page 7.
	Output normally	See page 5.

Output with Fault Input mode

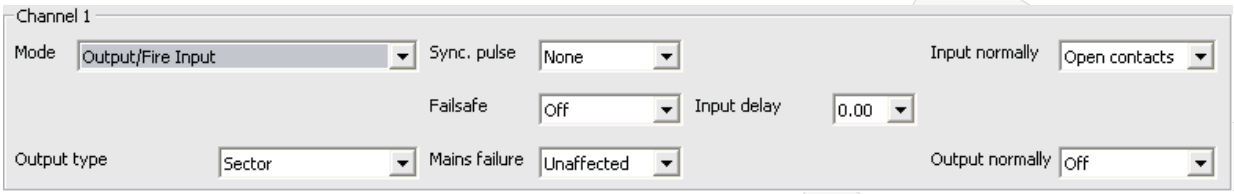
This is when a channel is configured as an output and the channels input terminals are Fault Input.



Mode	settings	notes
Output / Fault input	Output type	See page 5.
	Sync pulse	See page 5.
	Failsafe	See page 5.
	Mains Failure	See page 5.
	Input Delay	See page 7.
	Output normally	See page 5.

Output with Fire input mode

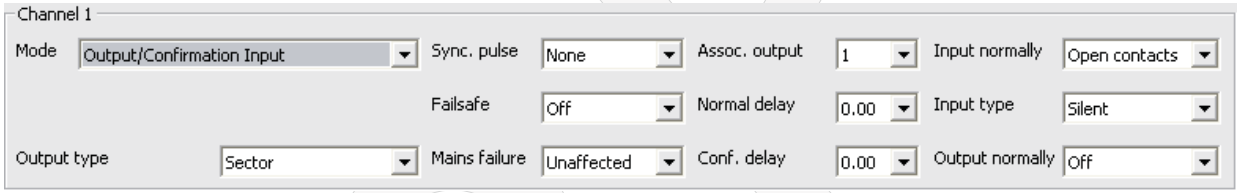
This is when a channel is configured as an output and the channels input terminals are Fire Input.



Mode	settings	notes
Output / Fire input	Output Type	See page 5.
	Sync. pulse	See page 5.
	Failsafe	See page 5.
	Mains failure	See page 5.
	Input Delay	See page 7.
	Input normally	See page 7.
	Output normally	See page 5.

Output / Confirmation Input mode

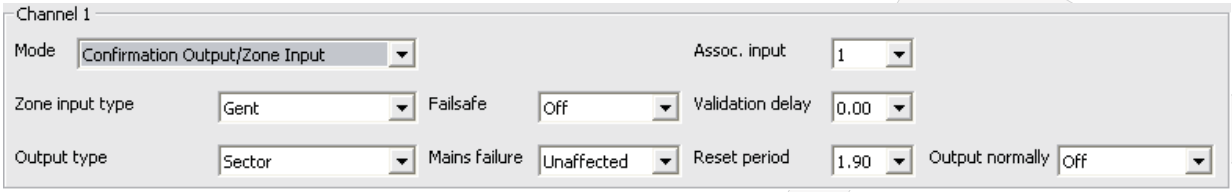
This is when a channel is configured as an output and the channels input terminals are Confirmation Input.



Mode	settings	notes
Output / Confirmation input	Output type	See page 5.
	Sync. pulse	See page 5.
	Failsafe	See page 5.
	Mains failure	See page 5.
	Associated output	See page 8.
	Normal delay	See page 8.
	Conf. delay	See page 8.
	Input normally	See page 7.
	Input type	See page 8.
	Output normally	See page 5.

Confirmation Output with Zone Input mode

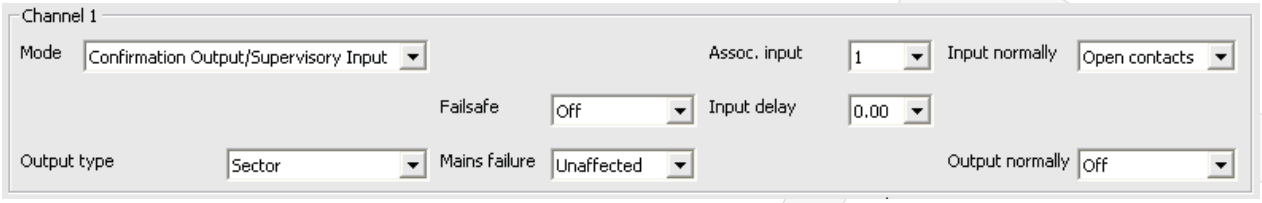
This example shows how to set a confirmation output when there is a state change on the associated **Zone** input.



Mode	settings	notes
Confirmation Output/Fault Input	Zone Input Type	See page 6.
	Output Type: Sector LED UnMonitored Sector	See page 5.
	Failsafe	See page 5.
	Mains failure	See page 5.
	Output normally	See page 5.
	Associated Input	See page 9.
	Validation Delay	See page 6.
	Reset Period	See page 6.
	Output Normally	See page 5.

Confirmation Output with Supervisory Input mode

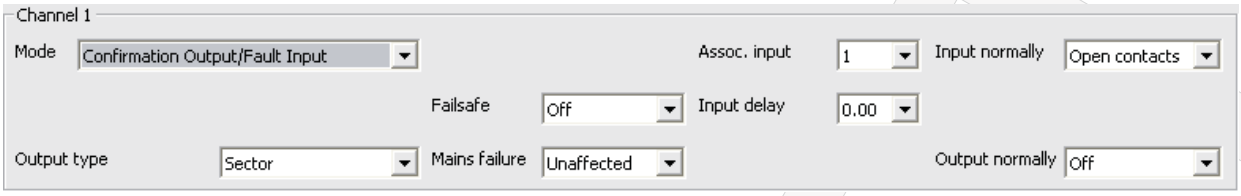
This example shows how to set a confirmation output when there is a state change on the associated **Supervisory** input.



Mode	settings	notes
Confirmation Output/Supervisory Input	Output type: Sector LED UnMonitored Sector	See page 5
	Failsafe	See page 5.
	Mains failure	See page 5.
	Output normally	See page 5.
	Associated input: 1 2 3 4	The selected input channel is associated with the confirmation output channel.
	Input delay	See page 7.
	Input normally	See page 7.

Confirmation Output with Fault Input mode

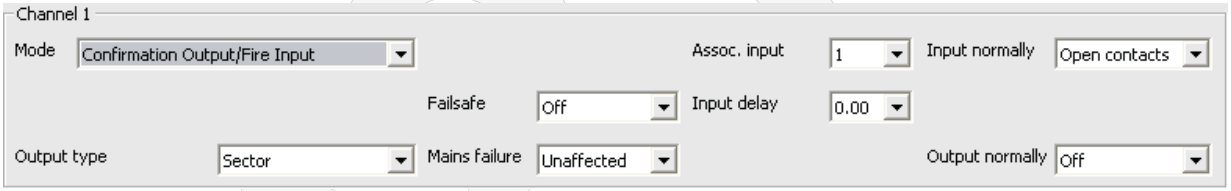
This example shows how to set a confirmation output when there is a state change on the associated **fault** input.



Mode	settings	notes
Confirmation Output/Fault Input	Output Type: Sector LED UnMonitored Sector	See page 5.
	Failsafe	See page 5.
	Mains failure	See page 5.
	Output normally	See page 5.
	Associated Input	See page 9.
	Input Delay	See page 7.
	Input Normally	See page 7.

Confirmation Output with Fire Input mode

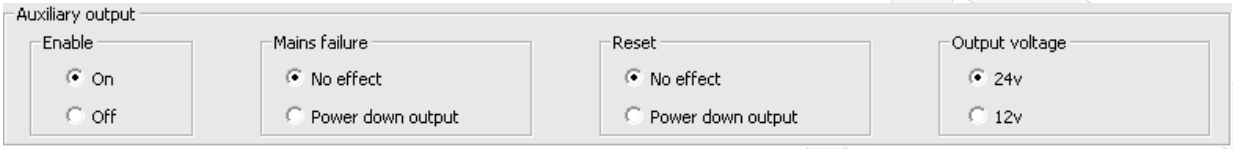
This example shows how to set a confirmation output when there is a state change on the associated **fire** input.

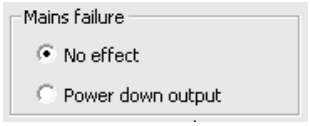
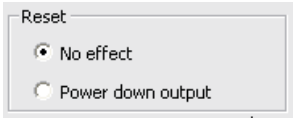
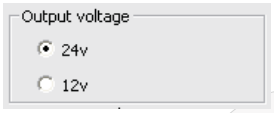


Mode	settings	notes
Confirmation Output/Fault Input	Output Type: Sector LED UnMonitored Sector	See page 5.
	Failsafe	See page 5.
	Mains failure	See page 5.
	Output normally	See page 5.
	Associated Input	See page 9.
	Input Delay	See page 7.
	Input Normally	See page 7.
	Output normally	See page 7.

Auxiliary output

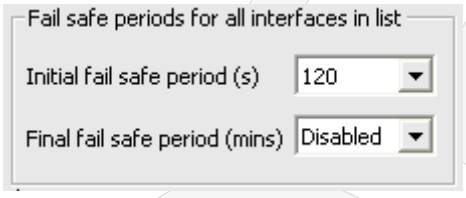
The interface has an auxiliary output rated at 1A max. The output voltage can be programmed as unregulated 24V (+/-3V) on the S4-34440-02 or regulated 12V/24V (+/-0.5V) on the S4-34440-12.

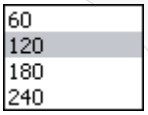
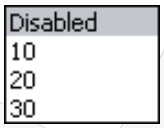


Mode	settings	notes
Auxiliary output		When 'On' the auxiliary output is enabled and is disabled when set to 'Off'. The 'Off' setting should be selected when the auxiliary output is unused to maximise the battery standby period.
		If there is a mains failure then the auxiliary output can be switched off to preserve battery supply for essential inputs and outputs.
		Option for any equipment that needs a reset pulse to remove a latched condition, such as a conventional beam that is powered from the auxiliary terminal and signals a fire condition with relay contacts connected to a line configured as a switch input.
		Select the required output voltage. The 12V option is for S4-34440-12 Interface unit only.

Fail Safe period settings

The fail safe periods are associated with the all the Mains powered interface units in a standalone system where Outputs are configured for Door release Category A applications ONLY, see page 5.



Mode	settings	notes
Initial fail safe period (seconds)		If there is a fault preventing detection of fire, disablement of fire detection or other conditions preventing fire detection operation, like supply failure, then the Outputs will turn 'On' (ie doors released) after an initial **fail safe period** of 120s (default).
Final fail safe period (minutes)		If there are three **fail safe** conditions that occur within a period set here then the Outputs are latched 'On' (ie doors released) and can only be reset by powering down the interface and then powering it up again. This **final fail safe period** can be disabled by selecting the 'Disabled' setting, which is a default setting.

Vigilon system - Configuration

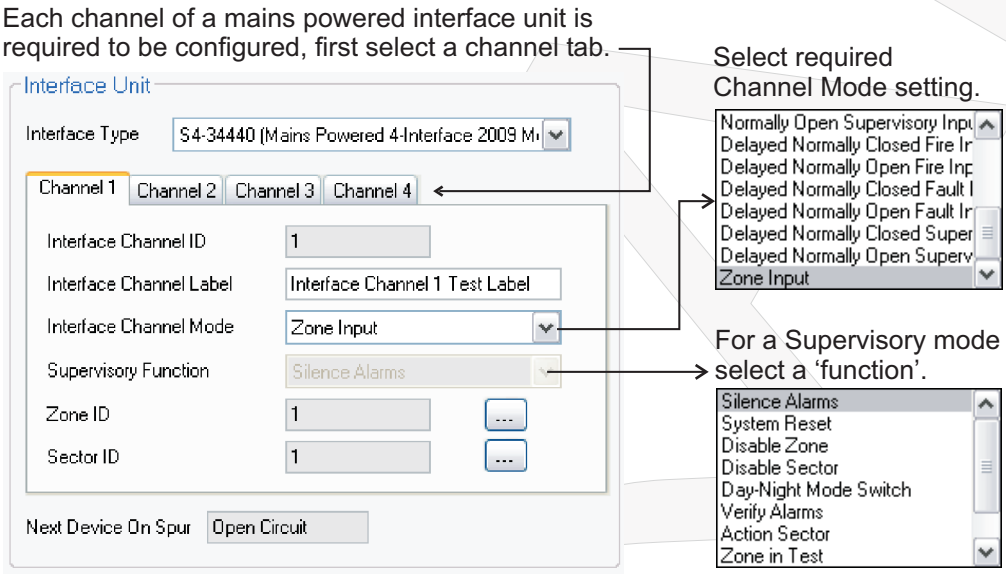
The following steps must be taken to ensure changes made to S4 mains powered interface unit configuration is correctly implemented:

- ☐ Firstly the configuration of S4 Mains Powered Interface units on the respective loop circuits must be saved at the Commissioning tool.
- ☐ The configurations of the respective loop circuits must then be transmitted to the control panel.
- ☐ The respective loop on which the S4 Mains powered interface unit(s) reside must then be backed up at the control panel.
- ☐ Finally the respective loop circuits must be reallocated from the control panel before the configured changes take effect.

Nano System - Commissioning the interface

When the S4 Mains powered interface unit S4-34440-02 installed in a Nano panel based system operates in a different manner when compared to the Vigilon panel based system. For example the use of the interface unit for door release is not applicable.

The Nano system can be configured using either the Nano Commissioning tool or from the Nano panel menus, for details see the Nano Commissioning tool user guide or Nano Commissioning instructions. The following screen shot shows the configuration possible using the Nano Commissioning tool.



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