SYNCRO
Analogue Addressable I/O Board
Product Manual

incite fire

Australia   Version 1 – May 2012

Contents

1   General

To further enhance the versatility of the Syncro fire alarm system, additional input and output capability can be added using Syncro I/O boards.

These boards have 16 channels, each of which can be individually selected to be an input or an output. Up to 32 boards in total can be connected to the dedicated RS485 communications bus in the control panel giving the capability of 512 inputs, 512 outputs or a mixture of both in any combination.

All inputs and outputs are configurable in the same way as devices connected to the loops and all may contribute to, or be acted upon, by cause and effect logic.

These boards are typically used in applications such as LED floor plan mimic drivers or to receive inputs from plant alarms or other related systems.

Standard Syncro control panels contain fixings for one I/O board, which can easily be connected using four small signal wires to the power and comms bus within the panel.

2   Inputs

Inputs to the I/O board are optically isolated and are activated by connecting any of the terminals marked 0V to the input via a contact with a resistance no greater than 500 ohms.

The current switched by the contact will be a maximum of 3 milliamps.
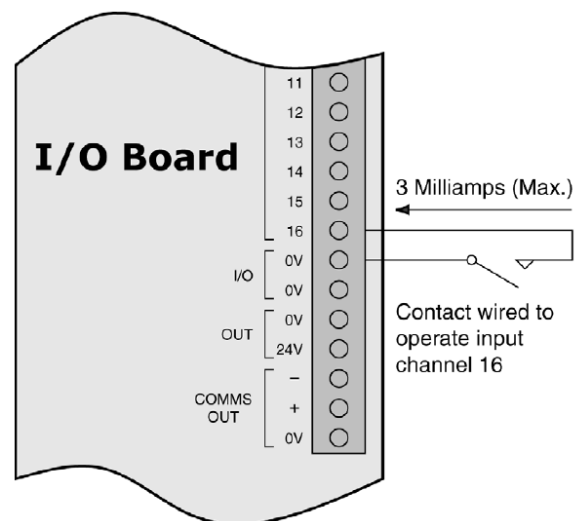
3 Outputs

When configured as outputs, the I/O board channels supply a negative voltage (with respect to the I/O board 24V power supply) via a transistor.

Because transistor elements can be damaged by excessive current drain, great care should be taken when connecting to outputs. Particular care should be taken to ensure that suppression diodes on relay coils are correctly polarised. Wrongly connected diodes will damage the outputs. Diodes should be connected with the band to the positive 24V.

Individual channels can supply current up to 100 milliamps but this must be limited to 500 milliamps for each bank of eight (500 milliamps for 1-8 and 500 milliamps for 9-16).

The power supply to the I/O board should also be considered to ensure that its rating is not exceeded if multiple channels are switched on.
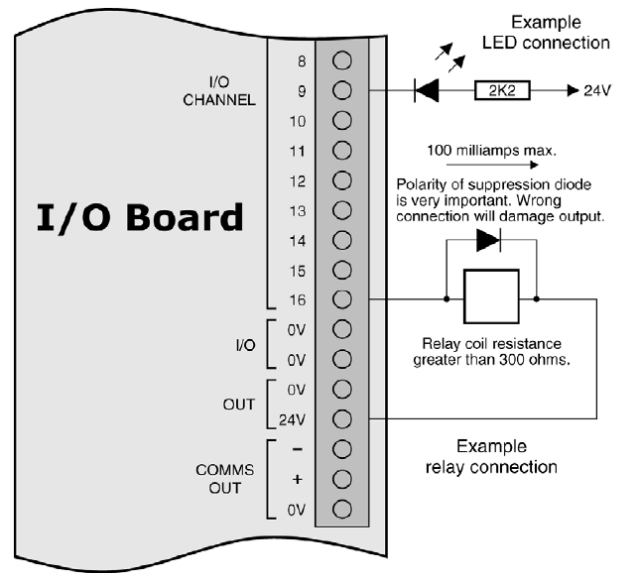
4 Addressing

Up to 32 I/O boards may be connected to a control panel and in order for the panel to recognise them individually, each board must be allocated an address.

This is done via a DIL switch (as is used on many field devices) and setting a binary number. Care should be taken where more than one I/O board is used to give each board a unique address setting.
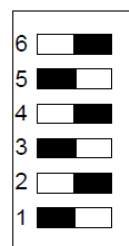
Some example address number settings are shown below. For address 32 all switches must be off.
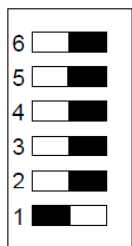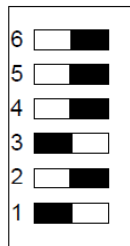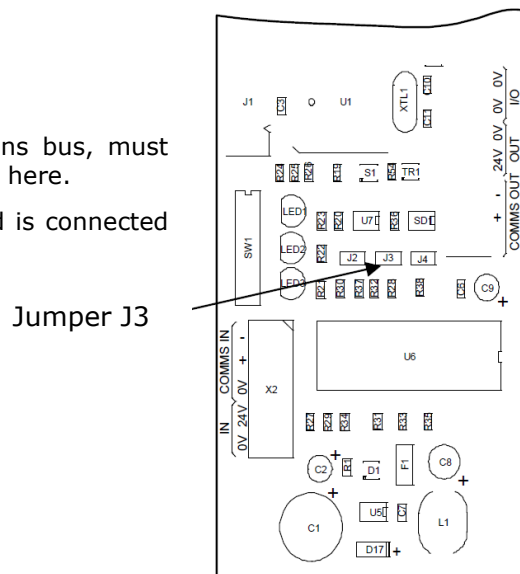
Shows switch actuator in the ON position.

Switch Number – 1 2 3 4 5 6
Value – 1 2 4 8 16 not used

5 Terminating

The last board connected to the RS485 communications bus, must have a terminating jumper fitted at position J3 as shown here.

This jumper should be fitted even if only one I/O board is connected to the bus.

Jumper J3

5.1   Power connections

The I/O board requires a nominal 24V DC supply. This can be between 21 and 30 volts DC, a voltage range, which suits battery-backed systems.

The Aux 24V available in the Syncro panel is fused at 500 milliamps and is suitable for powering I/O boards. The total load current drawn by all outputs when switched should be considered when using this supply.

Connections are provided for both incoming and outgoing power as shown below.

5.2   Comms connections

The panel communicates with I/O boards using a 2 wire RS485 data bus. This bus along with a 24V DC fused power supply is available on the main termination board in the control panel.

Connections to I/O boards within the control panel can be made with small gauge equipment wire. Connections to boards mounted outside of the control panel should be made using a suitable RS485 data communications cable such as Belden 9271.

Connections are provided for both incoming and outgoing power as shown below.
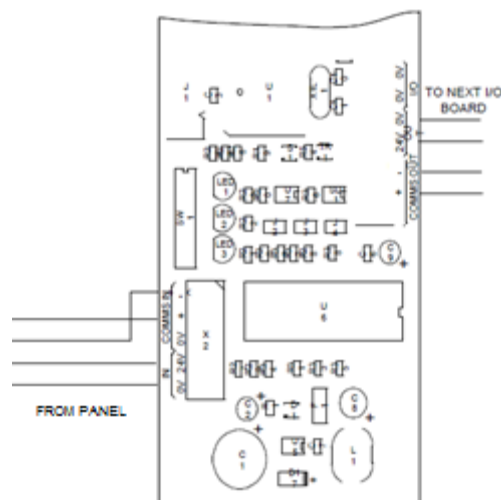
6 Configuring I/O boards

6.1 Inputs

To make best use of the I/O board, it should be configured using the Loop Explorer PC configuration programme.

I/O boards, which are auto learned by the Syncro control panel, default to all 16 channels as inputs and the action they perform when activated is fault.

By using the Loop Explorer PC configuration programme the inputs can be changed to any of the following actions.
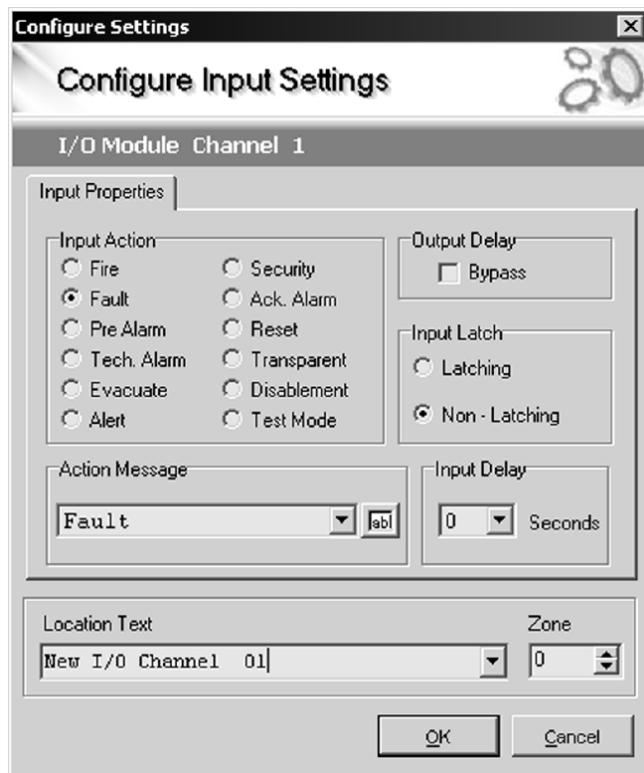
- FIRE
- PRE-ALARM
- TECH ALARM
- EVACUATE
- ALERT
- SECURITY
- ACKNOWLEDGE ALARM
- RESET
- TRANSPARENT
- DISABLEMENT
- TEST MODE

Each input can also be allocated a forty-character address message, assigned to a zone, be made latching or non-latching, have an input delay and be configured to bypass any output delays which the input may be configured to act upon.

Inputs can also be part of system wide cause and effect logic operations.

6.2 Outputs

Using the Loop Explorer configuration programme, any channel may also be programmed to be an output. Channels, which are programmed as outputs without any further configuration, will default to "default ring mode".
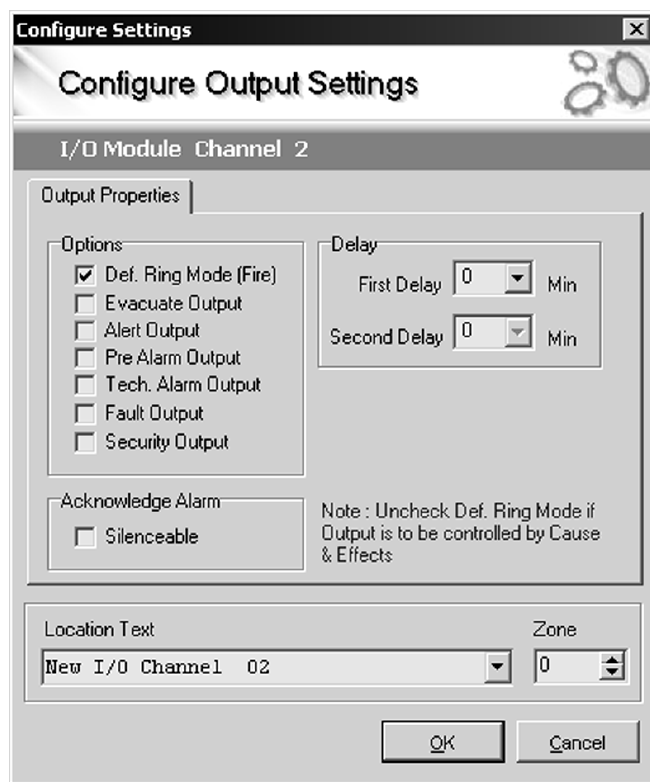
Other than default ring mode, outputs can have attributes set as follows:

- SILENCEABLE
- EVACUATE OUTPUT
- PRE-ALARM OUTPUT
- FAULT OUTPUT

Outputs can also have individual first and second stage delay times set, be allocated a forty-character address message and be assigned to a zone.

All outputs can also be acted upon by system wide cause and effect logic operations.

7 Indications

LED indicators on the I/O board give some simple diagnostic information and show that the boards are communicating with the control panel.

The red LED (LED1) is on during receipt of a message from the control panel and is off if the I/O board is happy with the communication.

This LED should be flickering more or less continuously when the board is operating normally.

If this LED is not lit, then the board is not receiving data from the control panel and the comms connection should be checked.

If this LED is permanently lit, then it is likely that data is being received but that it is being corrupted.

In this case the quality of the comms connection should be checked for interference from mains or other noise generating sources.

The yellow LED (LED2) will flicker briefly every few seconds when the I/O board responds to the main panel.

If this LED does not flicker then it is not responding to the control panel and the comms connection should be checked.

These simple indications are not designed to provide detailed diagnostic help but should assist in establishing whether I/O boards are communicating correctly with the control panel.
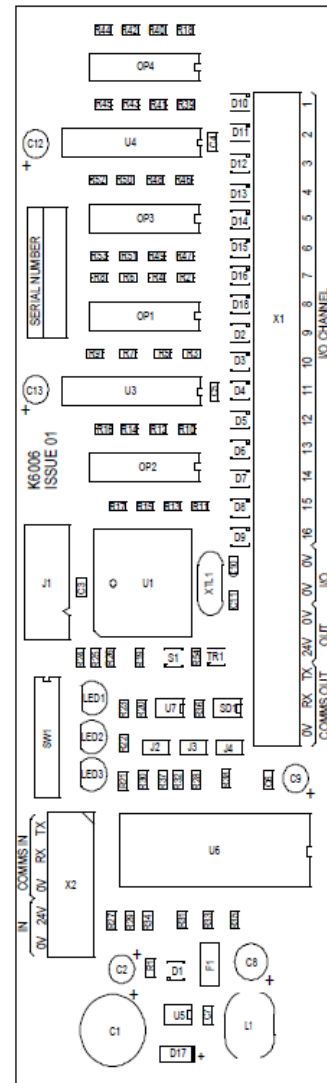
8 Specifications

Part number	Z10097
Supply voltage range	21 to 30 Volts DC
Quiescent current consumption	20 milliamps
Current per input	3 milliamps maximum
Current per output	100 milliamps maximum
Communications	RS485 two wire
Maximum distance from control panel	1200 metres (subject to correct type of cable)
PCB size	190mm X 60mm
Cable capacity	$2.5mm_2$ per terminal
Operating temperature	-5_o to $+50_o$ Celsius
Operating humidity	<95% non-condensing

incite fire

Sydney

Block Y, Unit 1, 391 Park Road, REGENTS PARK NSW 2143
Mail: PO Box 508 GYMEA NSW 2227
Phone: 1300 INCITE (1300 462 483) | 02 9644 7144
Fax: 02 9644 7255
Email: sales@incitefire.com.au
Technical support: support@incitefire.com.au

Melbourne

Address: Unit 120, 45 Gilby Road, MT WAVERLEY VIC 3149
Phone: 03 9544 2211
Fax: 03 9544 2212
Email: salesvic@incitefire.com.au

Brisbane

Address: 25 Jeays Street, BOWEN HILLS QLD 4006
Phone: 07 3252 5366
Fax: 07 3252 4099
Email: salesqld@incitefire.com.au

Perth

Address: Unit 2, 48 Irvine Drive, MALAGA WA 6090
Phone: 08 9349 2972
Email: saleswa@incitefire.com.au