EV-2I1O (-EU) – Dual Input Single Output Module with Isolator	EN 54-17: 2005 / AC: 2007 – Short Circuit Isolators EN 54-18: 2005 / AC: 2007 – Input / Output Devices
CE 19 0359	**For use with Nittan Evolution Protocol Only.** **Loop Voltage: 20 to 38 Vdc** **Quiescent Current: 720µA** **Alarm Current: 5.5mA** **Loop resistance: < 50 ohm/ km** **Input line resistance: < 50 ohm/ km** **EOL resistor: 10k ohm** **Input resistance: 470 ohm or 680 ohm** **Input threshold level: ON : < 680 ohm,** **Short : <50 ohm,** **Open : > 20k ohm** **Relay Contact rating: 5A at 240Vac** **Or 5A at 30 Vdc** **Min sw open voltage (Vso min): 11 Vdc** **Max sw open voltage (Vso max): 14 Vdc** **Min sw close voltage (Vsc min): 3 Vdc** **Max sw close voltage (Vsc max): 10 Vdc** **Max line current (Ic max): 500 mA** **Max switching current (Is max): 1500 mA** **Max leakage current (Il max): 15 mA** **Max switch resistance (Zc max): 150 mΩ** **Wire size: Min. 0.75mm²** **Max. 2.5mm²** **Operating temperature: -10°C to 55°C** **Storage temperature: -40°C to 80°C** **Max. relative humidity: 95%RH, non-condensing** **Mass EV-2I1O: 175g** **Mass EV-2I1O-EU: 140g** **Technical Data Sheet: TD-EV-2I1O(-EU)**
DoP Number: 00641	
NITTAN	**Nittan Europe Ltd.** **Tel:** +44 (0) 1483 769 555 Hipley Street, **Fax:** +44 (0) 1483 756 686 Old Woking, **Email:** sales@nittan.co.uk Surrey, GU22 9LQ **Web:** www.nittan.co.uk United Kingdom

RoHS Compliance Statement

This product complies with the European Union RoHS (Restriction of Hazardous Substances) directive 2011/65/EU which restricts the use of the following six hazardous materials in the manufacture of electronic and electrical equipment.

- Lead (Pb)
- Hexavalent Chromium
- Mercury (Hg)
- Cadmium (Cd)
- Polybrominated biphenyls (PBB's)
- Polybrominated diphenyl ethers (PBDE's)

NITTAN

EV-2I1O (-EU) Installation instructions

WARNING

There is a danger of electric shock due to the presence of high voltage (AC240V). Never touch the terminals while the power is on. Make sure to turn off the high voltage AC power supply before commencing wiring work.

NOTE: Please read these instructions carefully and keep for future reference. The information in this document is subject to change without notice. For updates please refer to our website.

NOTE: Follow the requirements for the installation of the product in accordance with the Specifications. Otherwise it may cause malfunction

NOTE: Do not install the product in any location where oil, dust, iron powder, chemicals, or hydrogen sulphide may occur or affect the product. It may cause malfunction.

This package contains the following items:

Main unit:	x 1
EOL resistor:	10k ohm x 2
Alarm Resistor:	680 ohm x 2
Jumper:	x 1
Allen Key	x 1
Mounting Screws	M3.5 x 25mm x 2 (EV-2I1O Only)
Manual:	(this document) x 1

General Description

The EV-2I1O (-EU) Dual Input / Single Output Module is an addressable input/output module with short circuit isolator. The module provides two supervised inputs (Class B) and one dry contact relay output rated at 5A@240Vac. The EV-2I1O uses UK 2-gang box with surface and flush mount options, and the EV-2I1O-EU uses European 503 electrical box flush-mounted.

Two inputs are monitored to detect normal/input/open/short state, which can be used as general purpose inputs.

The relay output is used for the control of equipment such as dampers and extractors for ventilation or smoke control system. The relay contact is monitored to detect the condition (on /off /relay stuck).

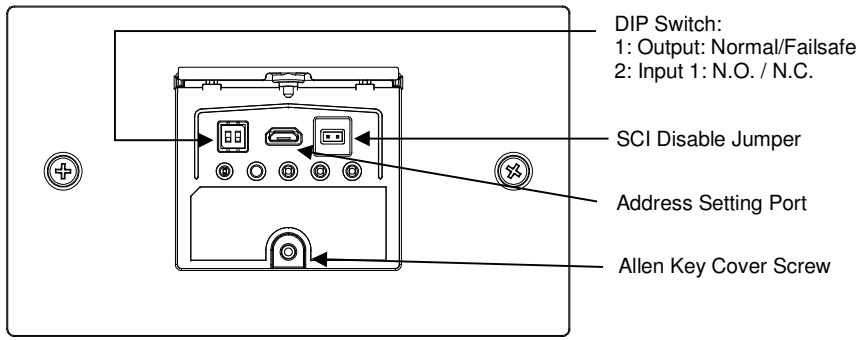


Figure 1

Address Setting

Loosen the Allen key screw to open the access door in the front, using the 1.5mm Allen key provided. It is possible to configure the address setting and change the setting of DIP switch or jumper pin (refer to Figure 1).

Use EV-AD2-EXT to set the address of the EV-2I1O (-EU). The factory default address of 1 is given to the module. Connect the EV-AD2-EXT to the address setting port with the Micro USB cable for the programmer and change the address to any of 1-254, with reference to the instruction manual of EV-AD2-EXT programmer. (Note that the number of available addresses can be less depending on a control panel model.) The address can be set regardless of whether power supply from the control panel is turned on or off.

Address setting is possible even after connecting the module to the Loop.

DIP Switch Operation

With DIP switch 1, it is possible to select normal mode or failsafe mode (refer to Table 1 and Figure 1). The DIP switch 2 can change the input setting (normally open/ normally closed).

If the loop power supply is off, the relay is activated in the failsafe mode. Refer to Table 2 for the relay position in each condition in the normal/failsafe mode.

DIP switch	Position	Function
1	ON	Failsafe mode
	OFF	Normal mode
2	ON	Input circuit 1: Normally closed
	OFF	Input circuit 1 & 2: Normally open

Table 1

Condition	Relay Normal mode	Relay Failsafe mode
Loop power Off	Off	On
Standby	Off	Off
Alarm	On	On

Table 2

LED Operation

Five LEDs are visible through the translucent access door of the enclosure (refer to Figure 2 and Table 3).

Polling LED: flashes green during polling from the control panel.

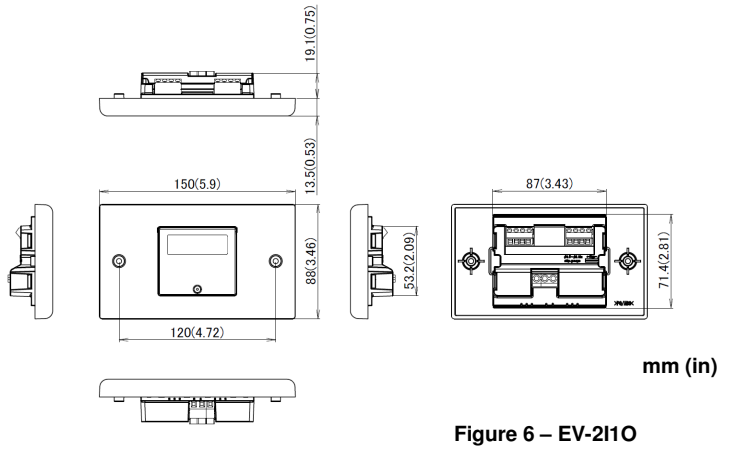
Input LED: illuminates red to indicate that an input is activated.

Output LED: illuminates red when the output relay is on after receiving a command from the control panel.

Fault LED: illuminates yellow when a fault condition, i.e. an open or short circuit in the input circuit, or relay stuck fault is detected in the output circuit.

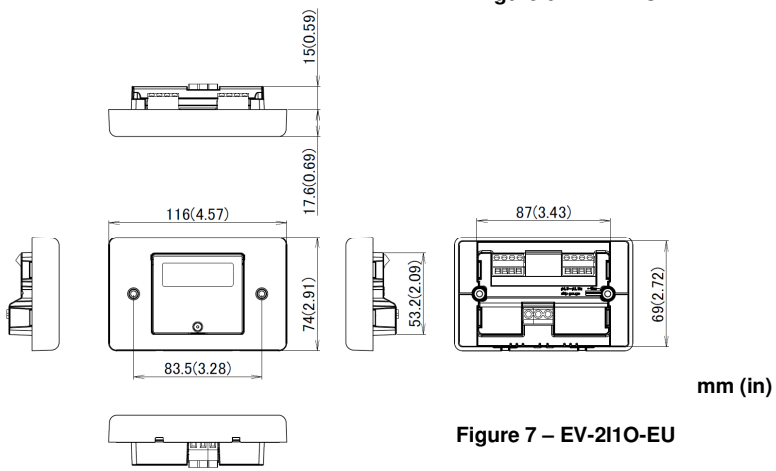
SCI LED: illuminates yellow when a short circuit is detected in the loop and the short circuit isolator (SCI) is activated.

Dimensions



mm (in)

Figure 6 – EV-2I1O



mm (in)

Figure 7 – EV-2I1O-EU

End of Life Disposal

Like all electronic equipment, at the end of its working life this unit should not be disposed of in a refuse bin. All Nittan products since 2005 have been marked with the WEEE Logo in compliance with European Directive 2012/19/EU and Nittan Europe Limited is a member of a WEEE Compliance Scheme. Contact sales@nittan.co.uk for a copy of our WEEE Compliance Policy.

Trouble shooting

Problem	Possible cause
No response	The module falls off. Address setting is not correct. Duplicate address. Loop wiring is not correct. An open or short circuit in the loop. Loop voltage is too low.
Communication error	Duplicate address. Loop voltage is too low.
The module information is not found on the panel	Data registered on the control panel is not correct.
Open circuit is detected in the input circuit	Input wiring is not correct. An open circuit in the input circuit. EOL resistor is removed.
Short circuit is detected in the input circuit	Input wiring is shorted.
Input condition is latched	Insulation in the input circuit is not enough. Input wiring is not correct. EOL resistor is not appropriate.
Input is not detected	Input wiring is not correct. Input resistor is not appropriate.
Short circuit is detected in the input condition	Input wiring is not correct. Input resistor is not connected. The DIP switch N.O/N.C setting is not appropriate (DIP switch is set to N.C)
Input is detected in the open circuit condition	The DIP switch N.O/N.C setting is not appropriate (DIP switch is set to N.C)
Relay stuck is detected	Relay is at fault. Relay is welded due to exceeding the rating.
Relay fails to operate while relay stuck is not detected	Loop wiring is not correct. Address setting is not correct. Control panel has incorrect cause and effect programming.
Relay is activated continuously while relay stuck is not detected	Loop wiring is not correct.
Relay is activated when powering off the module or the system	The module is set to the failsafe mode
SCI operates	There is a short circuit in the loop. Too many devices (over 20mA in total in a standby condition) are connected between the module and the next SCI.

Indicating LEDs

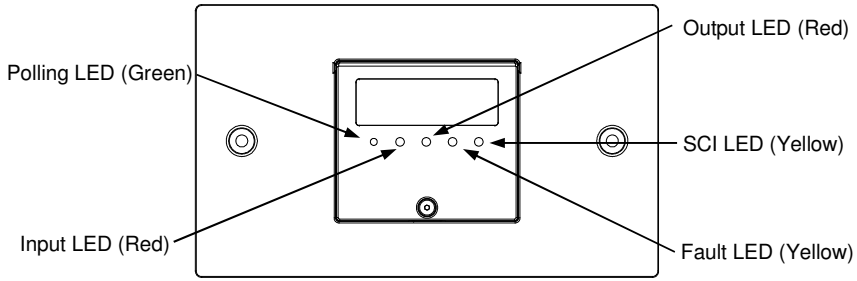


Figure 2

	Colour	Function	State of module	State of LED
Polling LED	Green	Polling	Polling	Flashing
Input LED	Red	Input	Input	Steady on
Output LED	Red	Output	Relay on	Steady on
Fault LED	Yellow	Fault	Open/short (input circuit) Relay stuck (output circuit)	Steady on
SCI LED	Yellow	Loop	SCI	Steady on

Table 3

Installation

The EV-2I1O is designed to mount on the range of 2-Gang back boxes widely available in the UK (Min 35mm depth). Refer figure 3. The EV-2I1O-EU is designed to mount on the European 503 series back boxes available in many European countries. Refer figure 4.

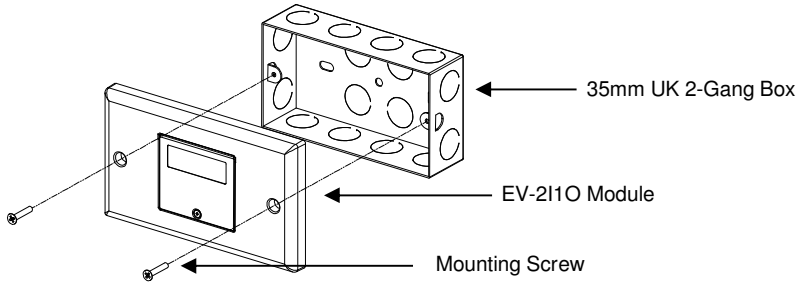


Figure 3 – EV-2I1O

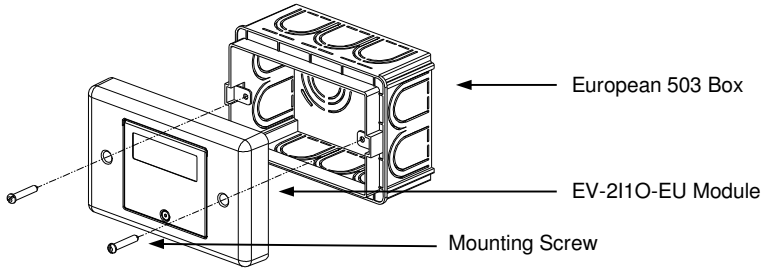


Figure 4 – EV-2I1O-EU

Connections

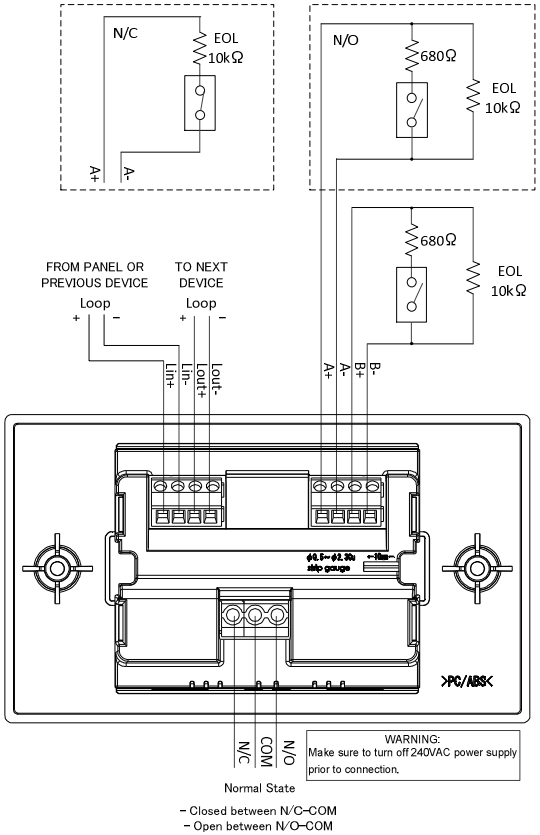


Figure 5

NITTAN

EV-2I1O (-EU) Installation instructions

General Operation

Standby condition: The module receives polling from the control panel at the regular interval.

Input condition: When the monitored contact switches into an input state, the module reports the state to the control panel.

Output Operation: On a command from the control panel the output relay will change state. It is possible to set the relay to "Failsafe" mode, where it will also change state if loop power is lost.

Fault condition: The module reports to the control panel on an open or short circuit in the input circuit and relay stuck in output circuit.

SCI in active condition: When SCI is activated to isolate a short circuit in the loop, the LED on the module illuminates yellow.

Interchangeability with Existing Products

It is necessary to update the software of the control panel to respond to EV-2I1O, prior to the replacement of the existing model EV-SIO. The EOL resistors will also need to be changed.

SCI Function

The EV-2I1O (EU) has a built-in short circuit isolator. The SCI circuit prevents entire loop failure in the event of a short between L+ and L- on the loop. If a short circuit is detected, the section of line containing a short circuit is automatically isolated. If not required the Isolator can be bypassed using the Jumper provided.

Service and Maintenance

Inspection and tests of the module shall be carried out periodically according to the requirements of BS 5839 Part 1, Fire Detection and Alarm Systems for Buildings: Code of Practice for System Design, Installation and Servicing, or equivalent local codes of practice.

For a routine inspection, ensure the module is secure and undamaged.

When carrying out site testing of the module, set the Fire Alarm Control Panel to test mode and take any necessary precautions, so as to limit the activation of alarm sounders/bells and any fire service summoning device.

WARNING

There is a danger of electric shock due to the presence of high voltage (AC240V). Never touch the terminals while the power is on. Make sure to turn off the high voltage AC power supply before commencing wiring work.