

## Dual Output Isolator / Signal Splitter

Type C16-3

### Installation Guide



Document Ref: UDC16-3.vp Rev 0



#### WARNING!

It is important that this guide is read and fully understood before attempting installation or commissioning of the instrument. Instructions appearing in this document, and current safety legislation, must be observed to ensure personal safety and to prevent damage to the instrument or equipment connected to it.

The instrument should be installed, commissioned and operated only by suitably qualified and authorised personnel.

- The specifications for the instrument must not be exceeded. If the instrument is used in a manner not specified, the protection provided by the instrument may be compromised.
- The instrument must be installed in an enclosure that provides adequate protection against electric shock.
- Ensure that power to the instrument is switched off and signal wiring isolated from hazardous voltages before carrying out installation or maintenance.
- The instrument is designed for installation in a clean, dry environment (Pollution degree 1).
- Stroud Instruments Ltd strongly recommends that repairs and re-calibration work are done on a return to factory basis in order that our quality standards, product specifications and safety precautions are not compromised.
- The instrument is double insulated

Note: Clean only with a dry soft cloth.

### Safety and EMC information

Safety: EN61010 -1  
Immunity: EN50082-1  
Emissions: EN50081-1  
CE certified

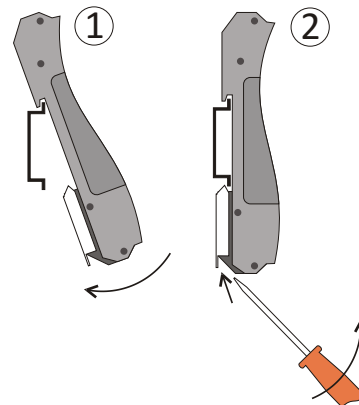
### Installation

#### Location

- The instrument is designed for installation in a clean, dry environment
- Do not install near to switchgear, motor controllers or other sources of strong magnetic fields.
- Avoid exposure to direct sunlight and ensure the ambient temperature inside the enclosure that the unit is mounted in will not exceed our specification.

#### DIN rail mounting

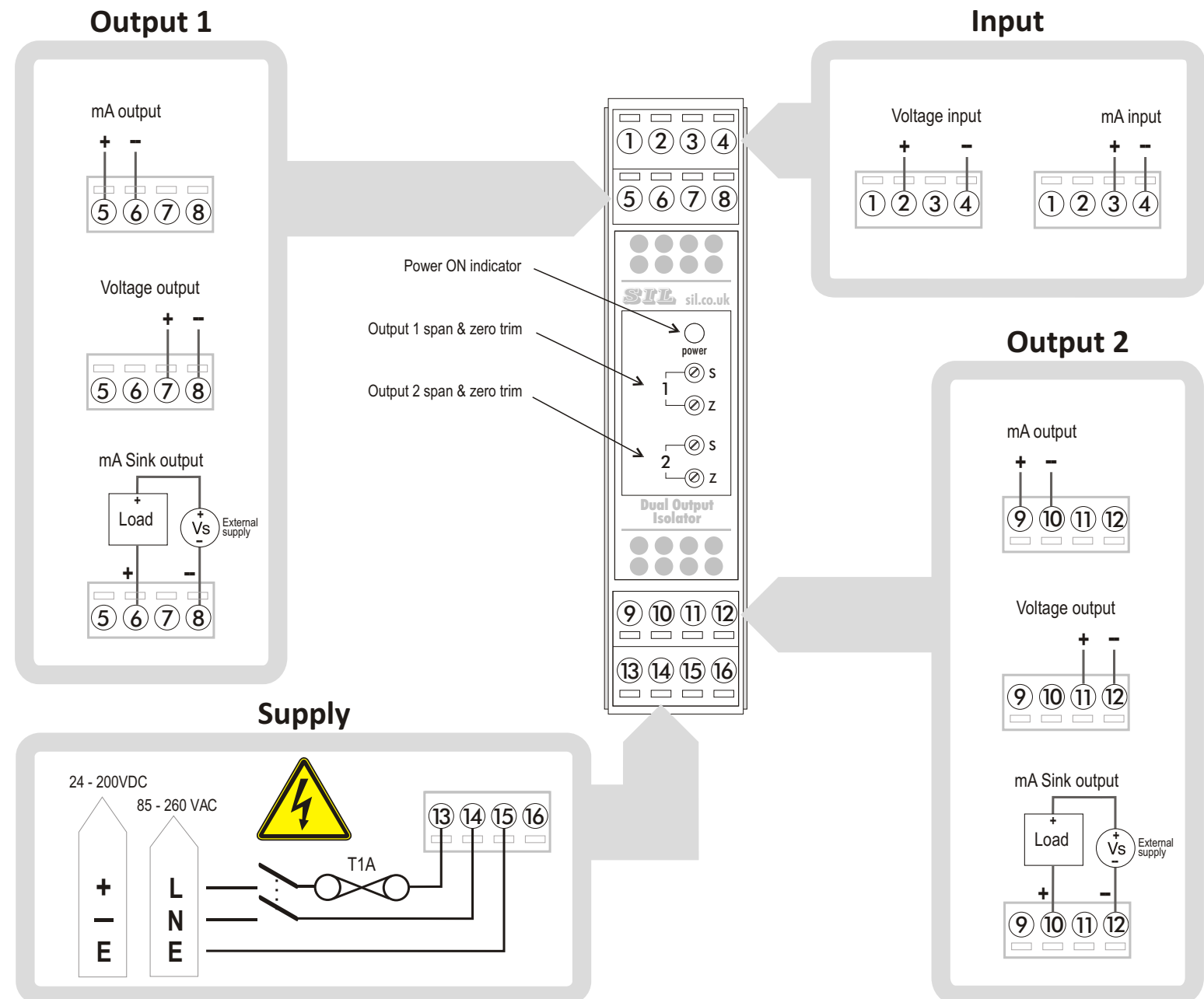
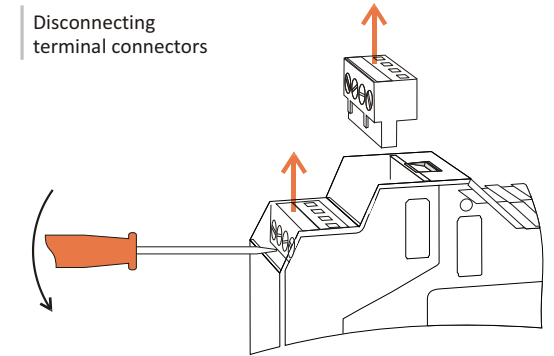
1. Hook the top DIN rail recess over the DIN rail, and press the bottom edge against the DIN rail until the spring-loaded latch clicks home.
2. To remove the instrument from the DIN rail, insert a small bladed screwdriver into the slot in the spring-loaded latch and gently lever the screwdriver up until the latch releases from the DIN rail.



### Wiring and connections

- Segregate power supply and signal wiring.
- Use screened cable for all signal wiring with the screen earthed at one end only.
- All connections should be made using ferrules to avoid short-circuits between adjacent terminals.
- This instrument is equipped with a universal power supply and may be operated from either of the following supply ranges:  
DC supplies: 24 VDC to 200 VDC or AC supplies: 85 VAC to 260VAC
- Power supply wiring to the instrument should be protected by a 1A time-delay fuse and double pole switch - see below. The switch should be clearly marked as the isolating switch for the instrument.

Note: terminal connectors are removable.



# Configuration

If calibration / configuration data is specified at the time of ordering i.e. a Type C16-3 /9 is ordered, ranges will have been factory set and tested. In this case the relevant details will be given on the data label fixed to the side of the unit. If not specified, i.e. a Type C16-3 is ordered, the unit will be supplied set as follows:

Input: 4-20mA, Output 1: 4-20mA, Output 2: 4-20mA.

## Internal configuration settings

- NOTES:
- The following procedures require the case to be opened
  - Without trimming, the front panel accessible 'Span' and 'Zero' controls the range change may introduce an error of typically 1%.

Other than switches SW1, SW2 and SW3 there are no other internal adjustments available to the user.

**WARNING: The Dual Output Isolator must be isolated from power supply and any potentially hazardous signals before commencing this procedure.**

## Opening the case

- Turn off all power to the unit and isolate all potentially hazardous signals. NB the terminals are removable to facilitate a quick disconnect. see 'Wiring and connections'.
- To open the unit release the top and bottom catches by pressing down with a small screwdriver as shown and withdraw the front panel and PCB assembly out of the case.

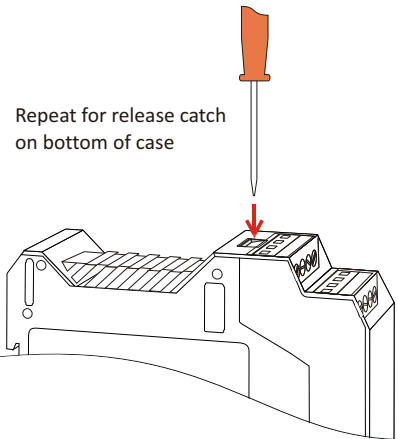
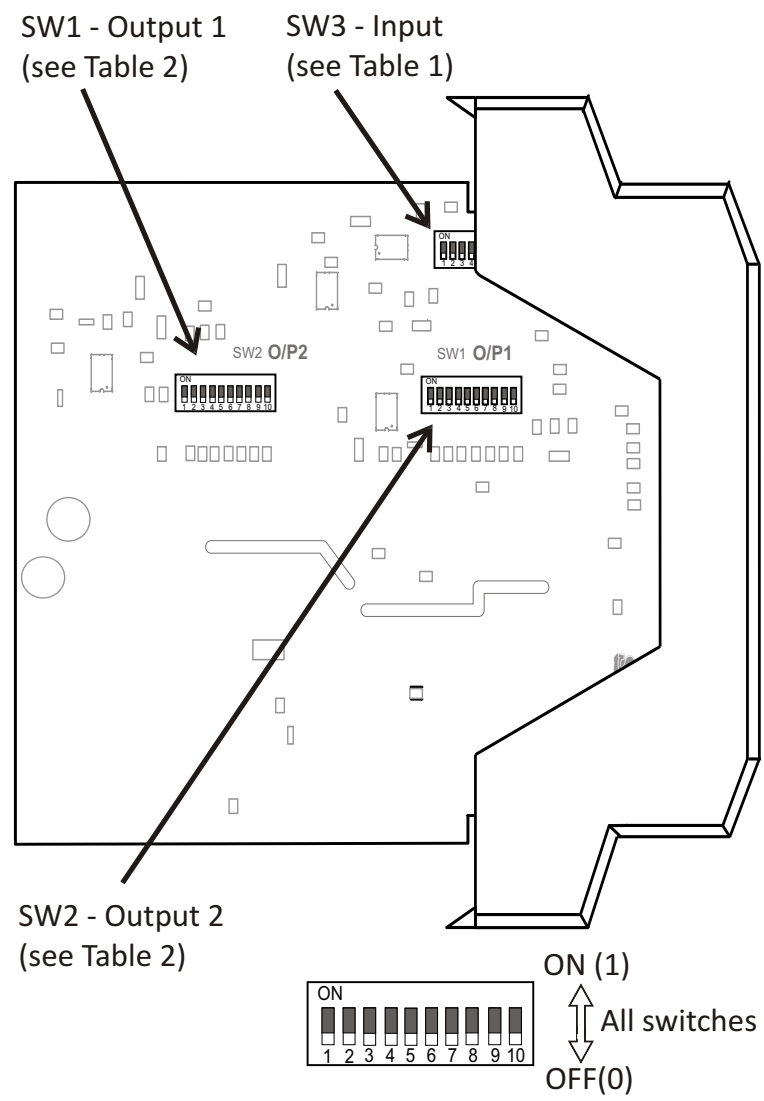


Fig 1. Configuration switches



## Input signal configuration

- Referring to Table 1 and Fig 1, set Switch SW3 to suit the input signal e.g. for 4-20mA, set SW3/1 & SW3/2 to 'ON' and SW3/3 & SW3/4 to 'OFF'.
- Referring to Table 2, set switches SW1 and SW2 positions /1 & /2 to suit the type of input signal e.g. for a 4-20mA input signal (raised zero), set SW1/1 and SW2/1 to 'OFF' and set SW1/2 and SW2/2 to 'ON'

Input Full Scale	1	2	3	4
10mA or 5V	1	0	0	0
20mA	1	1	0	0
10V	0	0	1	0

## Output signal configuration

- Referring to Table 2 and Fig 1, set positions 3 to 10 of switches SW1 and SW2 to suit the required output signals.

**WARNING - Electric shock hazard**  
Do not attempt to adjust the front panel accessible 'Span' and 'Zero' controls with the unit out of its case.

- Reassemble the case as follows: Insert the front panel / PCB assembly into the case ensuring that the two leading edges of the side panels are correctly located into the front panel section (the sides of case must fit flush with the sides of the front section).
- Attach the C16-3 to the DIN rail.
- Reconnect wiring / reinsert the removable terminals ensuring wiring / removable terminals are returned to their correct locations.

Input Type	1	2	Output Type	3	4	5	6	7	8	9	10
True Zero	1	0	0-10mA	1	0	0	1	0	0	0	0
Raised Zero	0	1	0-20mA	1	0	1	0	0	0	0	0
			4-20mA	0	1	1	0	0	0	0	0
			0-10V	1	0	0	0	0	1	0	1
			0-5V	1	0	0	0	1	0	0	1
			1-5V	0	1	0	0	1	0	0	1
			Current Sink 0-10mA	1	0	0	1	0	0	0	0
			Current Sink 0-20mA	1	0	1	0	0	0	0	0
			Current Sink 4-20mA	0	1	1	0	0	0	0	0

## Calibration adjustment

- After a warm-up time of 30 minutes, for each output:
  - Set the input signal to Zero value and adjust the 'Zero' trim to achieve the required output zero.
  - Set the input signal to Full-scale value and adjust the 'Span' trim to the required output full scale.
  - repeat steps (i) and (ii) as required.

# SPECIFICATIONS

**Input**  
Inputs are switch selectable  
0-10 mA into 100 ohms  
0-20 mA into 50 ohms  
4-20 mA into 50 ohms  
0-5v into greater than 200 k ohms  
1-5v into greater than 200 k ohms  
*N.B. Inputs other than those listed can be provided on a factory set i.e. non-user adjustable basis.*

**Outputs**  
Each output is individually switch selectable  
0-10 mA into 2000 ohms max.  
0-20 mA into 1000 ohms max.  
4-20 mA into 1000 ohms max.  
0-5v into 500 ohms minimum  
1-5v into 500 ohms minimum  
Current sink 4-20mA @ 50 volts max.  
*N.B. Outputs other than those listed can be provided on a factory set i.e. non-user adjustable basis.*

**Isolation**  
The input and outputs are isolated from each other and from the power supply.  
Maximum Voltage 250V RMS or 400V DC  
Resistance between input, output(s) or power supply 50 x 10<sup>6</sup> ohms measured at 1000V DC.

**Calibrated Accuracy**  
Error ± 0.2% FSD at 100% when factory calibrated.  
NB Error introduced by User output range changes, typically 1% but may be corrected by span control.

**Linearity Error**  
± 0.1% FSD

**Output Ripple**  
0.2% RMS of FSD

**Load Resistance Effect**  
0.001% of span / 100 ohm change

**Stability**  
Over 24 hours ± 0.1% FSD  
Over 1 year ± 0.25% FSD

**Response Time**  
1 sec as standard.

**Input Overrange Protection**  
Voltage Inputs: 250 volts RMS or DC  
Current Inputs: 50mA

**Temperature Coefficients**  
Zero: ± 0.02% span / °C  
Span: ± 0.02% span / °C

**Temperature Range**  
Operating: -10°C to +60°C  
Storage: -20°C to +70°C

**Power Supply**  
85 - 260 VAC 50/60Hz; 24 - 200 VDC (3W nominal)

**Weight**  
Approx. 0.5kg

**Safety & EMC**  
Safety: EN61010-1  
Immunity: EN50082-1  
Emissions: EN50081-1  
CE certified