

## mA Sink mode

In this mode the CAL-2 simulates a two wire transmitter. Use this mode where the receiving instrument powers the current loop or where the loop is powered by a separate power supply (as shown below). The CAL-2 'sinks' (or regulates) the loop current to the value set by the Output Level Selector / dial setting.

An external power supply of 12V to 30V DC is required.

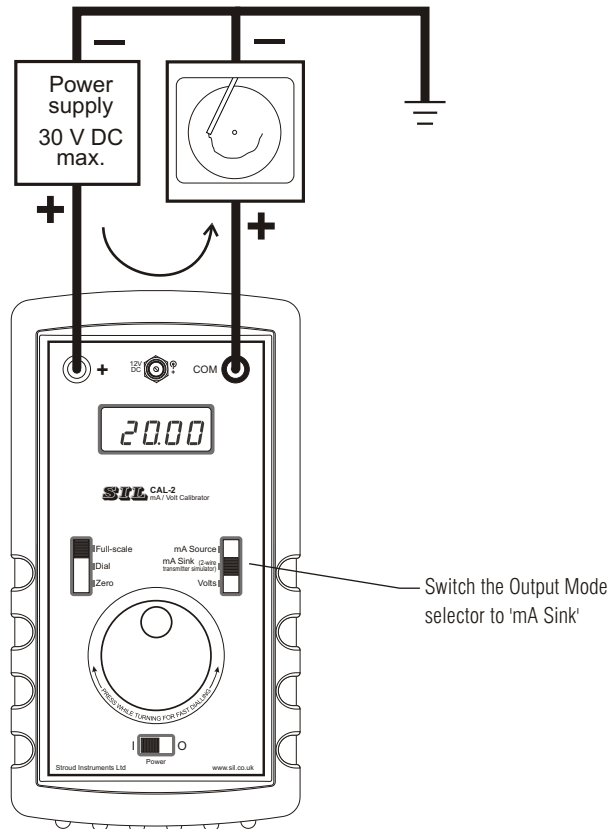


For your personal safety and to avoid damage to the CAL-2, ensure that the external circuit voltage is no greater than 30VDC before connecting test leads.



Do not connect a power source directly across the CAL-2 output terminals, the instrument will be damaged.

*Please note: the CAL-2 displays a direct reading of the output signal. With current output modes, in the event of an open circuit loop, e.g. the instrument not connected or a loop fault exists, the display will read '0.00'.*



Switch the Output Mode selector to 'mA Sink'

## Volts mode

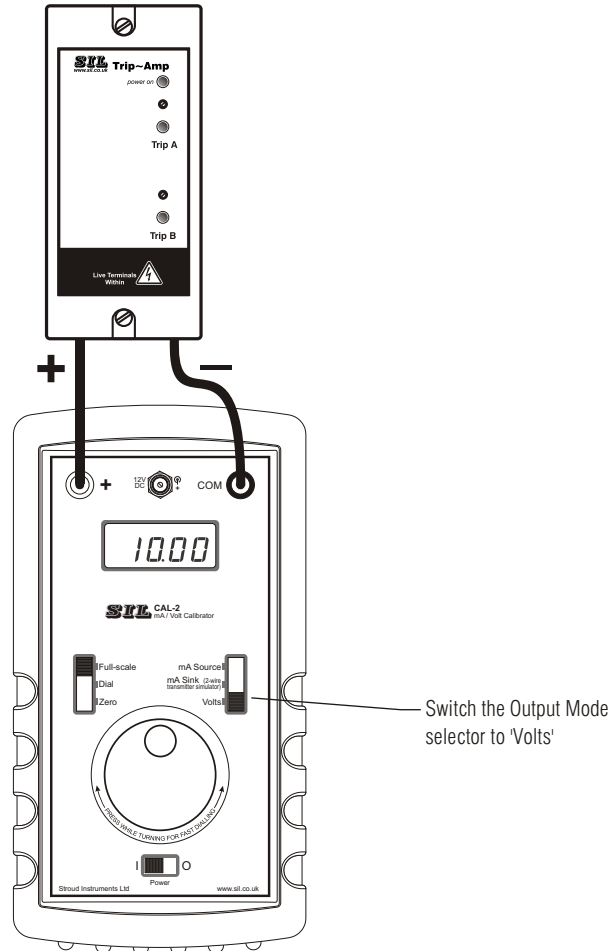
Use this mode for generating test signals in the range 0 to 10V.



Do not apply any external voltage to the output terminals in this mode, this may result in damage to the CAL-2



For your personal safety, always ensure that the external circuit is voltage free before connecting test leads.



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## mA / Volt Calibrator

Type CAL-2  
User Guide



### WARNING!

It is important that this guide is read and fully understood before attempting to use this 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.

## Safety Information



The specifications for this instrument must not be exceeded. If the instrument is used in a manner not specified, the protection provided by the instrument may be compromised.



This instrument must not be used in explosive atmospheres, e.g. explosive or flammable gas, dust or vapour.



This instrument contains no serviceable parts or user adjustments and must not be dismantled. For servicing, repairs or recalibration the instrument must be returned to the supplier.



Before connecting test leads to the external circuit, ensure the circuit is voltage free for use in 'mA Source' and 'Volts' output modes and no greater than 30VDC for 'mA Sink' output mode.

## Product Specifications

Please refer to the product data sheet for full specifications. This is available for download at [www.sil.co.uk](http://www.sil.co.uk).

## Receipt and unpacking

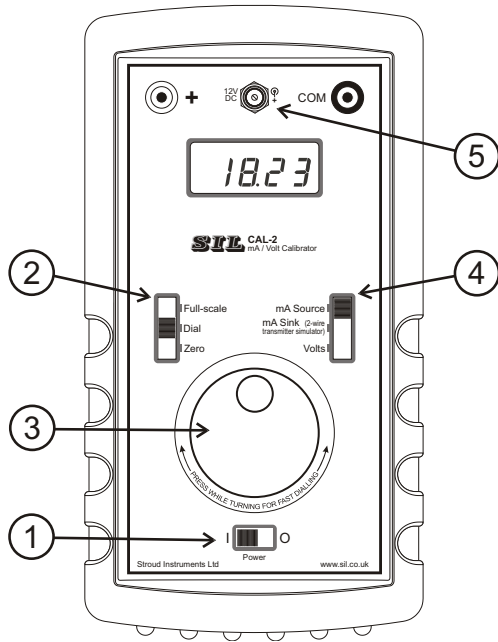
Please inspect the packaging and instrument thoroughly for any signs of transit damage. If the instrument has been damaged, please notify your supplier immediately.

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## Basic operation



- Power Switch** - when switched on the CAL-2 performs internal self-checking procedures. During this short period a sequence of numbers are displayed.
- Output Level Selector** - provides for rapid selection between three set-points: *Full-scale* (10V or 20mA) and *Zero* (0V or 0mA) fixed set-points, and the variable *Dial* setting. NB for generating raised zero signals the Dial setting may be used.
- Dial** - provides variable outputs across the output ranges (0 - 10.22V or 0 - 20.44mA). To facilitate rapid transition across the output range, dial speed is increased 10-fold when the dial is pressed whilst turning. The last dialled output value is retained in memory when the CAL-2 is switched off. - this can be particularly useful for storing a raised zero value. e.g. 4mA.
- Output Mode Selector** - selects between *mA Source*, *mA Sink* and *Voltage output*.
- External Power socket** - for use with the optional universal AC mains power supply (part no. 3144-0012). When the jack is inserted the battery supply is disconnected.

## Examples

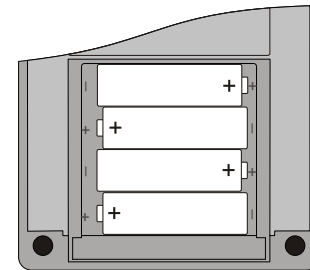
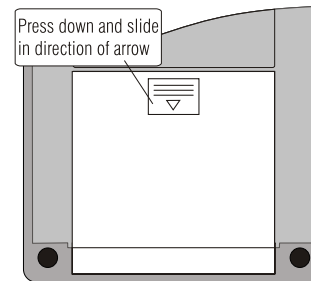
- Voltage test signals required: 0V, 5V and 10V**  
Set Output Mode Selector to 'Volts'  
Set Output Level Selector to 'Dial'  
Adjust dial to set output to 5.00V  
Use Output Level Selector to switch between full-scale (10V), dial (5V) and zero.
- mA test signals required: 4mA and 20mA**  
Set Output Mode Selector to 'mA Source' or 'mA Sink'  
Set Output Level Selector to 'Dial'  
Adjust dial to set output to 4.00mA  
Use Output Level Selector to switch between full-scale (20mA) and dial (4mA).

## Installing / replacing batteries

The CAL-2 mA / Volt Calibrator requires 4 off Type AA (LR6, MN1500, HP7) alkaline dry batteries. Replace the batteries when the display indicates 'LOW BATTERY'.

### To install batteries:

- Turn off the power switch
- Disconnect test leads
- Remove the protective boot
- Locate the battery compartment cover on the rear of the instrument, press down as shown and slide off the cover.
- Note the polarity of the batteries and fit as shown (NB the polarity is embossed on the floor of the compartment).
- Replace battery compartment cover and protective boot.



## Mains power supply option

Only the optional universal mains power supply (part no. 3144-0012) should be used for this purpose. Switch off the CAL-2 before connecting the power supply.

## mA Source mode

In mA Source mode the CAL-2 provides the power source to drive the current loop. Use this mode for passive (non-powered) circuits (for powered current loops see *mA Sink mode*).

- Do not apply any external voltage to the output terminals in this mode - this may result in damage to the CAL-2
- For your personal safety and to avoid damage to the CAL-2, always ensure that the external circuit is voltage free before connecting test leads.

Please note: the CAL-2 displays a direct reading of the output signal. With current output modes, in the event of an open circuit loop, e.g. the instrument not connected or a loop fault exists, the display will read '0.00'.

