

DCLI

Deeter Current-Loop Indicator User Manual.

Packing list

Open the outer carton and check all parts listed below are enclosed and undamaged.

- The Indicator Module.
- The User Manual.

If any parts are missing or damaged please contact the Deeter Group at:

In Europe

Deeter House,
Valley Road,
Hughenden Valley,
Bucks.
HP14 4LW
Tel: +44 (0)1494 566046
Fax: +44 (0)1494 563961
Email: sales@deeter.co.uk

In the USA

446
Commerce Street
Tallmadge
Ohio
44278
Tel: 001 330 630 3510
Fax: 001 330 630 3512
Sales@deeterelectronicsinc.com



Warnings ⚠

- Power down all connected equipment before making any connections to the display unit.
- Take care not to damage the connected wires when inserting the display in the mounting panel.
- Do not attempt to repair this product yourself. Contact the Deeter Group for product servicing or repairs.
- This device is not water proof.
- Do not touch the electronic circuit should it become exposed.
- When disposing of this product, do so in accordance with your local waste disposal regulations.



General

The DCLI (Deeter Current-Loop Indicator) is an easy to mount display module designed to work with any 4-20mA process current sensor / device.

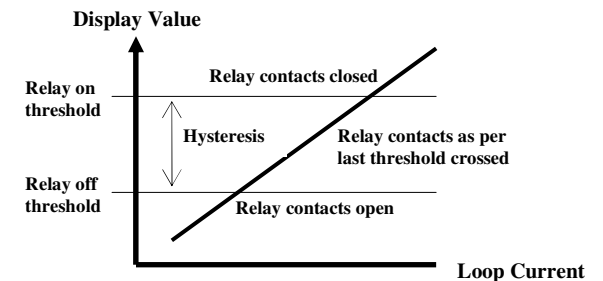
A 0-20mA option is provided and can be selected during calibration setup.

The integral display consists of four 7-segment LED's capable of showing values between -999 and 9999 with selectable decimal point position.

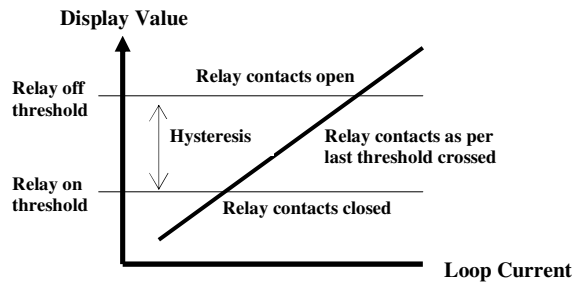
Any number in this range can represent the minimum or maximum current input. Therefore the display may also be configured to represent an inverted 20-4mA current if desired.

The module also incorporates two relays which can be individually configured to open and close their contacts at any displayed threshold. Separate ON and OFF values can be entered to enable hysteresis and so the relays contacts can be set open or closed during either maximum or minimum input current, see diagrams below.

Relay on threshold greater than the off threshold

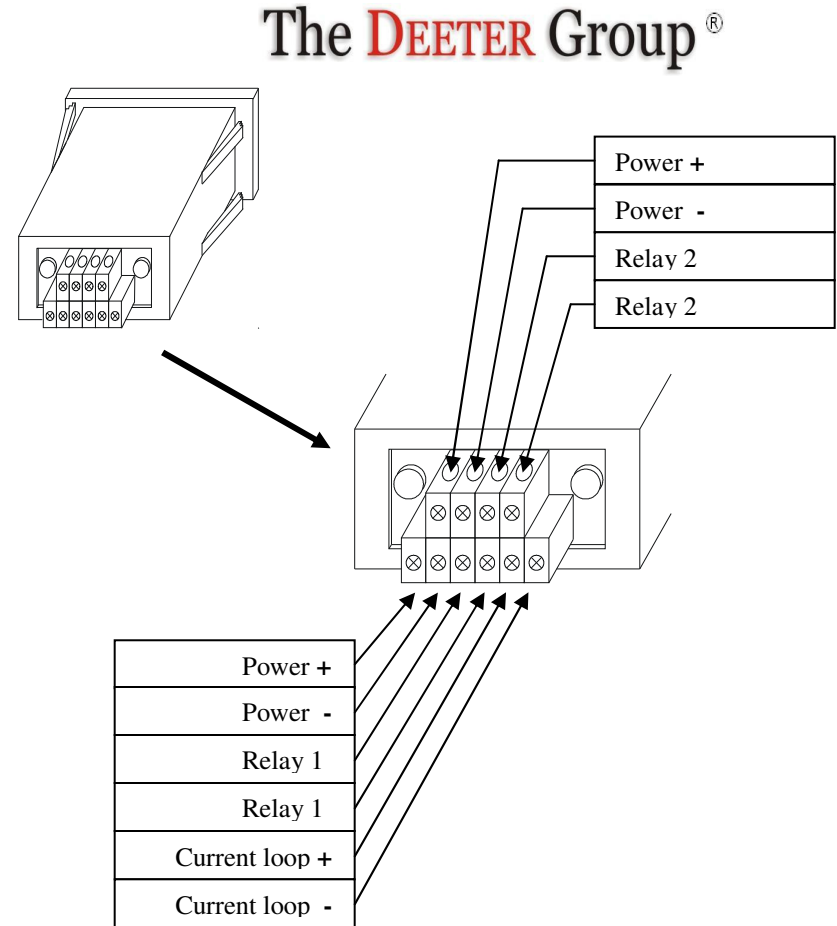


Relay on threshold less than the off threshold



Wiring

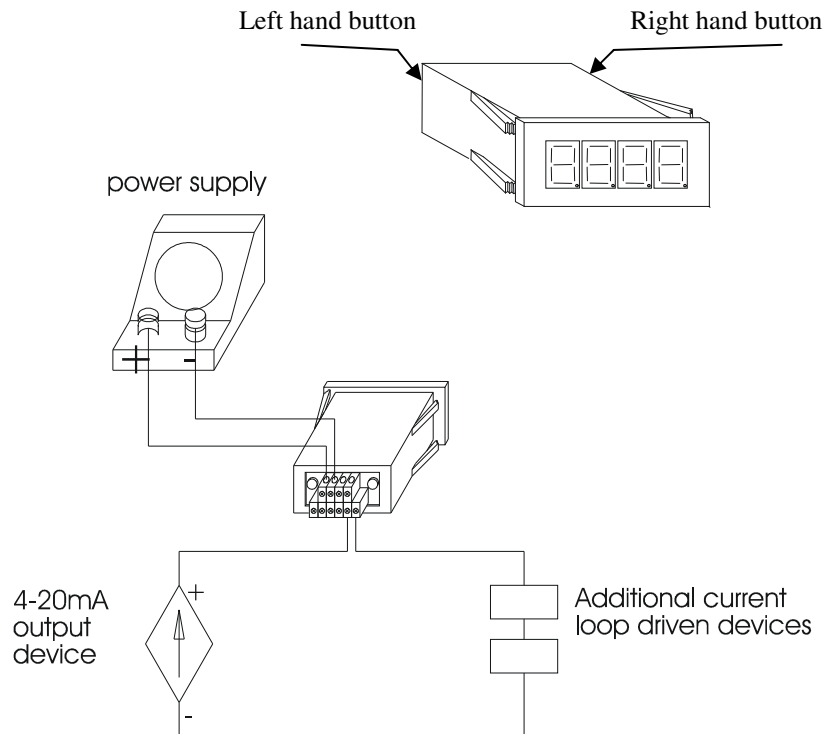
Please refer to the unit label if the screw terminal layout is different to that shown in the following drawing.



Calibration

The display module must be powered and connected to a current loop source before calibration can begin. The relays do not require connecting during the calibration. Calibration and relay settings are configured using the 2 buttons at the rear of the module.

The settings are saved to a non volatile memory, so the unit can be powered off without the need to re-set the values.



The displayed output is assumed to have a linear relationship with the input. Therefore, calibration requires recording just two input levels and selecting the desired displayed output for these inputs. Any two inputs could be used, but for the greatest accuracy they should be as far apart as possible. 4mA and 20mA settings are assumed in the following example, but the actual inputs can differ.

Current input and display output calibration

- Press and hold down the right hand button for 2 seconds. The display will show 'CAL1'.
- Adjust the current loop to the module to 4mA.
- Press and hold the right hand button for 2 seconds. The display will show '0' to represent the displayed output for the 4mA input. To increment or decrement the display, press and hold the left hand button. Rapid change will start after 2 seconds and gradually increase in speed if the button is continually held down.
- To toggle between increment and decrement, press and release the right hand button.
- When the desired display output has been selected for the 4mA loop current, press and hold the right hand button for 2 seconds. The display will show 'CAL2'.
- Adjust the input loop current to the module to 20mA. Press and hold the right hand button for 2 seconds. The display will show '0' to represent the displayed output for the 20mA input.
- Repeat the process for setting the displayed output, as above. Press and hold the right hand button for 2 seconds. The display will show '.dp'
- Choose the desired decimal point position (or decimal point off) by pressing the left hand button.
- Press and hold the right hand button for 2 seconds. The display will show '4or0'. Press the left hand button to toggle the decimal point between 4 and 0. This selects the 4-20mA or 0-20mA operation.
- Press and hold the right hand button for 2 seconds to save and complete the calibration mode.
- Vary the current input to check the display is configured as required before moving on to setting the relays. The display will show 'Hi' or '-Lo' for values outside the display range.

Relay setup procedure

- The relays are configured to turn on or off at displayed output thresholds (not the loop current).
- Press and hold the left hand button for 2 seconds to enter the relay set up mode.
- The display will show 'r1.on' representing Relay1 ON, for a short while. The display will then show the threshold value the device is currently set to.
- To increment or decrement this value, press and hold the left hand button. Rapid change will start after 2 seconds and gradually increase in speed if the button is continually held down.
- To toggle between increment and decrement, press and release the right hand button.
- When set, press the right hand button for 2 seconds to advance to the next stage.
- Use the above method to set all 4 thresholds; r1.on (Relay1 on), 1.off (Relay1 off), R2.on (Relay2 on) and 2.off (Relay2 off).
- When the relay setup has been completed the display will show 'donE' for 2 seconds and then return to normal operation.

Mounting

The display module is enclosed in a black plastic box with a tough dark red translucent face plate.

When mounted, only the face plate protrudes above the mounting panel by a height of 7mm.

A 69.3mm x 29.3mm square aperture should be cut into the mounting panel with a 4mm clear border around the hole.

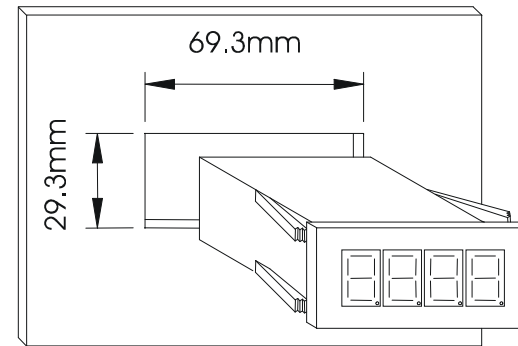
The module is designed with 4 flexible retaining arms which will grip when mounted into a panel thickness of

11 Gauge 2.95mm [0.116"]

14 Gauge 2.03mm [0.080"]

16 Gauge 1.63mm [0.064"]

Once mounted the module can easily be removed by squeezing together the flexible arms and pushing the module out of the mounting panel.



Specification

Supply voltage range	7 to 26Vdc
Supply current	<100mA
Current loop voltage	30Vdc Max
Current loop range	1mA to 21mA. (0mA to 21mA for the 0-20mA option)
Current loop resistance	100Ω
Relay contacts	48Vac/dc 0.5A
Operating temperature	-20° to +60°C
Display range	-999 to 9999
Accuracy *	±0.1%
Environmental enclosure	IP40. IP55 when fitted to a suitable enclosure

* To ensure maximum accuracy, calibrate using the full 4mA to 20mA current loop range.

* Re-calibrate if additional equipment is added to the current loop.

Error Messages

'HI'	Display value greater than +9999
'-LO'	Display value less than -999
'OPEn'	Loop current less than 1mA (4-20mA option only)
'OVER'	Loop current greater than 21mA
'dxxx'	Start up firmware revision, where xxx=revision No.

Other messages will be displayed during the calibration and setup mode.