D4-CMD1 / P49-CMD1
DC current monitor (0-50mV)

Version 10.7
Operating instructions
and
Guarantee Certificate

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Description:
The 50mV DC input signal is displayed as the current through the shunt with up to 3 decimal places. The relay may be used for over and / or under protection. Maximum & Minimum values are logged for 24 hours (updated every 60 min). Other features include relay latch, adjustable signal damping, adjustable start-up and reaction delays, the ability to swap the relay's functionality. All settings may be locked & code protected to avoid changes from being made by unauthorised personnel.

Operation:
The signal is displayed as 'real world' values.(eg 0-100A ,not 0 -50mV). The relay remains energised while the input signal is between the upper and lower set points. Once de-energised, the signal must change in the opposite direction by the hysteresis amount before the relay will re-energise. Note: the relay will NOT re-energise while the **latch pins are shorted**. The latch pins can also be used as a reset.

Menu functionality:
All adjustments are made via the three front mounted buttons. Press the "MENU" button repeatedly until the desired setting is reached, press "SELECT" to display the current value of the selected setting. The "+" and "-" buttons are used to change the value. "ENTER" will return the device to the menu. The "BACK" button will exit the menu.

Adjustable parameters:

- **Upper limit "Hi " (default: disabled)**
  When the input rises above this value, the relay changes state until the signal drops by the hysteresis amount (see "HYSt" setting)
- **Lower limit "Lo " (default: disabled)**
  When the input drops below this value, the relay changes state until the signal rises by the hysteresis amount (see "HYSt" setting)
- **Hysteresis value "HYSt " (default: 0.5A)**
  Once the set-point is reached, (& relay changed state), the input signal must change (in the opposite direction) by this value before the relay will return to its original state.
- **Start-up delay "St d" (default: 0.0 Sec, max: 100.0 Sec)**
  Delay (after power-up) before monitoring starts (to allow the signal to stabilize).
- **Reaction delay "rE d " (default: 0.0 Sec, max: 100.0 Sec)**
  A fault condition must occur for longer than this period before the relay changes state. (To allow fault conditions for short periods of time)
- **Relay function "rE.Fu " (default: De-energise)**
  Relay state when the setpoint is reached "dE.En"=de-energise, "EnEr"= energise.
- **Fault indication "indi" (default: on)**
  During fault conditions the display indicates whether the value is above or below the set point value ("-Hi-","-Lo-"). If a fault condition exists, but the relay is being held energised by the start-up or reaction delay timers, "-r1-" is displayed. Changing this setting to "off", disables these messages. Note:This setting does not affect the "Er.Hi" and "Er.LO" messages. (see notes)
- **24 hour Minimum "24h.L"**
  Display the lowest value measured during the past 24 hours (Press "SELECT" to clear)
- **24 hour Maximum "24h.h"**
  Display the highest value measured during the past 24 hours (Press "SELECT" to clear)
- **Display Scale "ScaL" (default value:100.0)**
  This is the value displayed when 50mV is applied to the device. Set this value to match the primary of the shunt being used.
- **Decimal pointer "dEci" (default value: no decimal pointer)**
  Use this setting to adjust the decimal point to the desired position.(0.000/0.00/0.0/0)
- **Software damping filter "FiLt" (default value:6)**
  Adjust from 1 to 15 to increase the amount of signal damping.
- **Reset "RESt"**
  By selecting this setting, the device is reset to the factory defaults

Example 1: **Set the device to de-energise relay 1 when the current is below 10.0A and above 90.0A (100A shunt)**
If all of the following settings are NOT available, exit the menu and activate the advanced menu.
Press "MENU" to display "Hi". Press "SELECT" and change the value to "90.0". Press "ENTER". "Lo " is displayed. Press "SELECT" and change the value to "10.0". Press "ENTER". Press "BACK" to exit the menu.

Notes:

· Whenever the input signal is above or below the "CAL.O" or "CAL.S" values by more than 3%. The display indicates "Er.Hi" or "ER.Lo".
· Certain settings are reset to default when the device is re-configured. Re-check all settings to ensure they are correct before commissioning. (use the advanced menu)
· The maximum & minimum values are NOT updated during the first 30 seconds after power up. This allows the input signal to stabalize first.

Menu options:

Exit the menu before making the following adjustments.

1. Lock / unlock parameters: (default: unlocked)

Press "BACK", **then** "ENTER" and hold the 2 buttons until the desired option is displayed. The display cycles between "Loc" (no changes allowed) & "u.Loc" (parameters may be adjusted)

2. Full / reduced menu (default: Full)

Press "SELECT", **then** "ENTER" and hold the 2 buttons until the desired option is displayed. The display cycles between "rEdu" (limited menu) & "Full" (all parameters are accessible)

3. Access Code: (default: no code)

Once options 1 & 2 are set as required, Press "BACK" and "SELECT" simultaneously until "CODE" is displayed. Now use the "+" & "-" to enter a code.

(1-9999) Once a code is entered, access options 1 & 2 is not permitted. To clear the code, re-enter the same code again. If the code is forgotten. Press and hold "+" & "-" until "CODE" is displayed while re-applying power to the device.To skip code entry, press "Enter" while "CodE" is displayed.

Specifications:

Display scale:	10 to 9999
Display resolution:	0.01 to 1.000 (adjustable)
Measurement resolution:	50 uV
Accuracy	±0.3% @ 25°C (% of full scale)
Input voltage:	±15% of rated input

12 Month guarantee:

Our product is guaranteed for a 12 (twelve) month period from date of purchase. This guarantee is valid for defects arising from failure during specified conditions. This guarantee does not cover damage due to abuse, tampering or improper installation. Our company does not accept liability for any consequential damage or loss arising from product malfunction. Should this product prove to be defective, kindly return for inspection or repair. For further information contact your nearest distributor.

Relay specifications:

Contact rating:	10A@250VAC
Mechanical life:	30 million operations
Electrical life:	250 000 operations (at maximum load)