Icon Electronics

D3-VMD1 / P44-VMD1
DC Voltage monitor (0-150V) 1 Relay
Version 6.10

Operating instructions and Guarantee Certificate

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Description:

This device is used to display and monitor DC voltage. Maximum & Minimum values are logged for 24 hours (updated every 60 min). The relay may be used for over and / or under protection. A latch facility is incorporated. Use the "ScAL" parameter for calibration purposes, or to change the number of decimal places displayed (see notes). Other features include adjust able 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 voltage applied is displayed according to the scale specified. 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. The relay's action may be swapped to energise when the setpoint is reached. 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:

Press the menu "↻" button repeatedly until the desired setting is reached.
The "▲" and "▼" buttons are used to change the value.
"↻" will display the next menu item.
To exit the menu hold "↻" button for 3 seconds.

Adjustable parameters:

· **Upper limit for relay " 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 for relay " 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: 0.5)**
  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 values ("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)
· **Lower display value "diSP"**
  Select the value to be displayed on the lower LED display. " Hi ", " Lo " or "off"
· **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 Span "SCAL" (default value:100.0)**
  This value is displayed when 150V is applied to the input. (or rated input if specified otherwise. See label on device)
· **Decimal pointer "dEci" (default value: 100.0)**
  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 press ▲"& "▼" together to select.

Example 1: **Set the device to de-energise the relay when the voltage is below 10.0V and above 90.0V**

If all of the following settings are NOT available, exit the menu and activate the advanced menu.

Press "↻" to display " Hi ".
Use "▼" and "▲" buttons to change the value to "90.0".
Press "↻" to display " Lo ".
Use "▼" and "▲" buttons to change the value to "10.0".
Press and hold "↻" for 3 seconds to exit the menu.

Example 2: **Set the device to display 0-100% for a voltage of 0-50V** ie: 0V=0%, 50V=100%

If all of the following settings are NOT available, exit the menu and activate the advanced menu.

Press "↻" repeatedly until "SCAL" is displayed.
Use "▼" and "▲" buttons to change the value to "3000".(ignore decimal pointer)
150V (full scale voltage) / 50V (new full scale value) x 100 (display value at new full scale value value)
Press "↻" to display "dEci".
Use "▼" and "▲" buttons to move the decimal pointer to the desired position.

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 stabilize 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 "▼" and "▲" simultaneously until "CODE" is displayed. Now use the "▼" and "▲" to enter a code. (1-9999)
Once a code is entered, access to options 1 & 2 is not permitted.
To clear the code & reset option 1 & 2 to default, re-enter the same code again.
 If the code is forgotten. Press and hold "▼" and "▲" until "CODE" is displayed while re-applying power to the device.
To exit without setting a code, press "↻" while "CodE" & "diSA" is displa

Specifications:
Display scale:	10 to 9999
Display resolution:	0.01 to 1 (adjustable)
Max input voltage	103% of rated input (155V on std device)
Measurement resolution:	0.15V
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 250 VAC 2500VA (Resistive)
Mechanical life:	30 million operations
Electrical life:	250 000 operations (at maximum load)