Icon Electronics

P44-LM1
0 – 20mA / 4 - 20mA LOOP
Version 10.7
Operating instructions and Guarantee Certificate
www.icon-electronics.com

Description:

The input signal is converted and displayed as real-world values with up to 3 decimal places. Maximum & Minimum values are logged for 24 hours (updated every 60 min). Other features include a latch facility, adjustable signal damping, 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 0-100°C ,not 4 -20mA). By setting the span to a negative value, the display will indicate lower values as the input rises. The relays remain 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. Either relay's action may be swapped to energise when the setpoint is reached.

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: 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 Offset "OFSt" (default value:0)**
  This value is displayed when the minimum signal is measured. (eg.4mA).

· **Display Span "SPAn" (default value:100)**
  This value plus the "OFSt" value is displayed when the maximum signal is measured (20mA). Eg. If the input signal is 4-20mA, "OFSt" = 100, and "SPAn"=100. The display will indicate 100 when 4mA is applied, and 200 (100+100=200) when 20mA is applied. The input offset and span may be adjusted for calibration purposes.

· **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.

· **Calibrate / Set input Offset "CAL.O" (default value: 4.00 mA)**
  This is the minimum input signal received. If a transducer with an output of 0 – 20mA is used, change this value to "0.00" mA. This value may need to be adjusted in case the transducer's offset has changed. (needs calibration)

• **Calibrate / Set input Span "CAL.S" (default value:16.00mA)**
  This is the difference between the minimum and maximum input signals. If the transducer output is 0-20mA, change this value to "20.00" V. This value may need to be adjusted in case the transducer's span has changed. (needs calibration) Note: The controller cannot accept signals greater than 20.3mA, and will not allow values greater than this to be entered. I.e. the total of "CAL.O" plus "CAL.S" values cannot exceed 20.3mA. It may be necessary to reduce one of these values in order to increase the other.

· **Reset "RESt"**
  By selecting this setting, the device is reset to the factory defaults("▲"& "▼")

Example: **Set the device to convert a 0 to 20mA signal to –1.00 to +1.00.**
If all of the following settings are NOT available, exit the menu and activate the advanced menu.
Press "↺" repeatedly until "OFSt" is displayed.
Use the "▲"& "▼" buttons to change the value to "-10.0".
Press "↺". "SPAn" is displayed.
Change the value to "20.0".
Press "↺". "dECi" is displayed.
Change the value to "2.00".
Press "↺". "CAL.O" is displayed.
Change the value to "0.00".
Press "↺". "CAL.S" is displayed.
Change the value to "20.00".
Press and hold "↺" for 3 seconds to exit the menu.
With a signal of 0mA, the device will now display "–1.00", at 10mA, the display will show "0.00", and at 20mA the display will indicate "1.00".
Now set the device to de-energise the relay if the display indicates a value greater than 0.75, and smaller than 0.25.
Press "↺" to display " Hi ".
Use "▲"& "▼" to change the value to "0.75".
Press "↺" . " Lo " is displayed.
Change the value to "0.25".
Press and hold "↺" for 3 seconds to exit the menu.
To display values from 0 to 1.000, change the offset and span settings to 0 and 1000, and set the decimal pointer the left most position.

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 displayed.
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)

Specifications:
Display offset:	-999 to 9999
Display span:	-1999 to 9999
Display resolution:	0.01 to 1.000 (adjustable)
Input offset:	0 to 20.3V
Input span:	0 to 20.3V
	(offset + span maximum = 20.3V)
Measurement resolution:	20 uA
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 it 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)

MODEL P44-

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INPUT
□ 4-20 mA
□ 0-50 mV
□ 0-10V
□ 0-150V
□ ....
□ LATCH
*IF ONLY 1 RELAY
installed terminal 8 = R1 NC

OUTPUT
□ RELAY 1
□ RELAY 2
□ 24V DC OUT
□ 4-20mA Re-tx
□ ....

SUPPLY
□ 110V AC
□ 240V AC
□ 400V AC
□ 12V
□ 24V
□ 48V
□ ....
□ AC □ DC
□ ISOLATED

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