1/16 & 1/4 DIN Over Temperature/Limit Controller
Quick Start Manual PK504 (0937-75490)

1. INSTALLATION
The models covered by this manual have three different DIN case sizes. Some installation details vary between models. These differences have been clearly shown.

Note: The functions described in sections 2 thru 4 are common to all models. Installing Option Modules:

Panel-Mounting
The mounting panel must be rigid, and may be up to 8.0mm (0.320in) thick. Connectors:

Cut-Out A: 1/16 DIN = 45mm
Cut-Out B: 1/4 DIN = 92mm
For n multiple instruments mounted side-by-side, cut-out A is 480mm (1/16 DIN) or 960mm (1/4 DIN).

Mounting Panel

Panel-Mounting

Tolerance +0.5, -0.0mm
Slide mounting clamp over the instrument housing towards rear face of mounting panel until the tongues engage in the housing, then slowly push the instrument back into position.

 Hold instrument firmly in position (apply pressure to bezel only)

CAUTION: Do not remove the panel gasket; it is a seal against dust and moisture.

Rear Terminal Wiring

Use Copper Conductors (except for T/C Input):

- Single-strand wire gauge: 18 AWG (0.71mm²), Temperature Wire: 18 AWG (0.71mm²).

NEC Code:

2. SELECT MODE

Select mode is used to access the configuration and operation menu functions. Input 2 can be accessed at any time by holding down and pressing in the selected menu, press to enter. An unlock code is required to prevent unauthorized entry to Config. & Setup menus.

Press to enter the unlock code, and then press to process.

3. CONFIGURATION MODE

First setting Configuration mode from Select mode (refer to section 2).

Press to scroll through the parameters to set the required value. Press to accept the change, otherwise parameter will revert to previous value. To exit from Configuration mode, hold down and press until it returns to Select mode.

Note: Parameters displayed depends on how the instrument has been configured. Refer to user guide (available from your supplier) for further details.

Parameters marked * are repeated in Setup Mode.

For more information, refer to page 148.

CAUTION: Process Variable Offset can be used to modify the measured value to compensate for probe errors. Positive values increase the reading, negative values are subtracted. This parameter is effectively, a calibration adjustment and MUST be used with care. There is no front panel indication of when this parameter is in use.

As these functions cannot be changed, no Configuration menus are required.

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4. SETUP MODE

First select Product information mode from Select mode (refer to section 2). The Setup LED will light white in Setup mode. Press [1] to scroll through the parameters, then press [1] to set the required value.

To exit from Setup mode, hold down [2] and press [3] to return to Select mode. Note: Parameters displayed depend on how instrument has been configured.

6. ERROR/FAULT INDICATIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Lower Display</th>
<th>Upper Display Adjustment</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit Setpoint value</td>
<td>RPxn</td>
<td>Scaled Range Minimum to Scaled Range Maximum</td>
<td>Rin</td>
<td>Setting configuration required. This screen is seen at first turn on, or if hardware failure is detected in process variable input sensor or wiring.</td>
</tr>
<tr>
<td>Input Over Range</td>
<td>RPxn</td>
<td>Process Variable Input ± 5% over range</td>
<td>Rin</td>
<td>Setting configuration has been changed. Press [2] to scroll to enter the limit value now.</td>
</tr>
<tr>
<td>Input Under Range</td>
<td>RPxn</td>
<td>Process Variable Range ± 5% under range</td>
<td>Rin</td>
<td>Only. Limit Output turn-off (given into Exception condition), high alarm activates for thermocouple/RTD sensor break, low alarm activates for mA or DC sensor break.</td>
</tr>
<tr>
<td>Input Sensor Break</td>
<td>RPxn</td>
<td>Scaled Range Minimum to Parameter value</td>
<td>Rin</td>
<td>Only. Limit Output turn-off (given into Exception condition), high alarm activates for thermocouple/RTD sensor break, low alarm activates for mA or DC sensor break.</td>
</tr>
<tr>
<td>Option 1 Error</td>
<td>RPxn</td>
<td>Option 1 module fault</td>
<td>Rin</td>
<td>Only. Limit Output turn-off.</td>
</tr>
<tr>
<td>Option 2 Error</td>
<td>RPxn</td>
<td>Option 2 module fault</td>
<td>Rin</td>
<td>Only. Limit Output turn-off.</td>
</tr>
<tr>
<td>Option 3 Error</td>
<td>RPxn</td>
<td>Option 3 module fault</td>
<td>Rin</td>
<td>Only. Limit Output turn-off.</td>
</tr>
<tr>
<td>Option B Error</td>
<td>RPxn</td>
<td>Option B module fault</td>
<td>Rin</td>
<td>Only. Limit Output turn-off.</td>
</tr>
</tbody>
</table>

7. OPERATOR MODE

This mode is entered at power-on, or accessed from Select mode (refer to section 2). Note: All Configuration mode and Setup mode parameters must be set as required before starting normal operations. Press [2] to scroll through the parameters.

Note: Operator mode screens follow, without exiting from Setup mode.

9. SPECIFICATIONS

UNIVERSAL INPUT

- Thermocouple: ±0.1% of full range, ±1.5LSB (±C for Thermocouple CJC).
- Calibrator: BI9007, BI9012S & BI9094.
- PT100 Calibration: ±0.1% of full range, ±1.SSD
- Bi9014 & BI943760 (0.00385°C/°C)
- DC Calibration: ±0.1% of full range, ±1.SSD.
- Sampling Rate: 4 per second.
- Impedance: >10MΩ resistive, except DC mA (5S) and V (±F).
- Sensor Break: Thermocouple, RTD, 4 to 20 mA, 2 to 10V and 1 to 5V ranges only. Limit Output turn-off (given into Exception condition), high alarm activates for thermocouple/RTD sensor break, low alarm activates for mA or DC sensor break.
- Isolation: Isolated from all outputs (except SSR driver).
- Universal input must not be connected to operator accessible circuits if relay outputs are connected to a hazardous voltage source. Supplementary insulation or input grounding would then be required.

DIGITAL INPUT

- Volt (AC/DC): 24 to 240V (±5% V). Reset: Closed<0.8VDC = Reset (edge triggered).
- Isolation: Reinforced safety isolation from inputs and other outputs.

OUTPUTS

- Limit Relay Contact Type & Rating: Single pole double throw (SPDT), 5A active at 120/240VAC. Slot 1 position for this function, optional function for Slot 2 & 3 relay modules.
- Lifetime: >100,000 operations at rated voltage/current.
- Isolation: Basic isolation from universal input and SSR outputs.
- Alarm Relays Contact Type & Rating: Single pole double throw (SPDT), 2A active at 120/240VAC.
- Lifetime: >500,000 operations at rated voltage/current.
- Isolation: Not isolated from universal input or other SSR driver outputs.
- SSR Driver Drive Capability: SSR drive voltage >10V into 500Ω min.
- Isolation: Not isolated from universal input or other SSR driver outputs.
- Drive: 20 to 280 rms (47 to 63Hz).
- Current Rating: 0.1 to 1A (full cycle rms on-state @ 25°C); derates linearly above 40°C to 0.5A @ 80°C.
- Isolation: Reinforced safety isolation from inputs and other outputs.
- DC Resolation: 8 bits in 250μs (10 bits in 1x typical, >10 bits in ±1x typical).
- Power Rating: 20 to 28V DC (24V nominal) into 910Ω minimum resistance.
- Isolation: Reinforced safety isolation from inputs and other outputs.

SERIAL COMMUNICATIONS

- Physical: RS485, at 1200, 2400, 4800, 5600 or 20000bps.
- Protocol: Selectable between Modbus and Weil ASCII.
- Isolation: Reinforced safety isolation from inputs and all outputs.

OPERATING CONDITIONS (FOR Indoor USE)

- Ambient: 0°C to 55°C (Operating), -20°C to 80°C (Storage).
- Temperature: Relative Humidity: 20% to 95% non-condensing.
- Supply Voltage: 100 to 240VAC ±10%, 50/60Hz, 7.5VA (for remote powered versions), or 20 to 48VAC 50/60Hz 7.5VA or 22 to 65V DC 5V (for low voltage versions).

ENVIRONMENTAL

- EMI: EMI: Complies with EN61326 (Susceptibility & Emissions).
- Safety: Complies with EN61010-1 & UL61010.
- Pollution Degree: Pollution Degree 2, Installation Category II.
- Front Panel Sealing: To IP66 (P20 behind the panel).

PHYSICAL

- Front Bezel Size: 48 x 48mm, 50 x 50mm
- Front Bezel: 110mm, 96 x 96mm
- Depth Behind Panel: 100mm
- Weight: 0.21kg maximum.