

**Electronic Register Manual ZTM1100
Installation & Maintenance****For Electronic Registers including :**

- | | | | | | |
|-------------|--------------------------|---------------|--------------------------|-----------------|--------------------------|
| CC56 | <input type="checkbox"/> | PIA | <input type="checkbox"/> | EDB 180 | <input type="checkbox"/> |
| PC58 | <input type="checkbox"/> | PCDT58 | <input type="checkbox"/> | PDB 180 | <input type="checkbox"/> |
| DU53 | <input type="checkbox"/> | PRT | <input type="checkbox"/> | PDMB 180 | <input type="checkbox"/> |
| ELNC | <input type="checkbox"/> | PAC | <input type="checkbox"/> | PMFC | <input type="checkbox"/> |

Meter Model No.: TS _____

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Model PAC Frequency Scaler & Pulse Isolator



The PAC series signal conditioners are two wire frequency to analog converters that convert a pulse rate input into a 4-20 mA output signal proportional to frequency or rate.

PAC-L (Low Range):

The PAC-L is intended for use with lower full scale input frequencies. Full scale frequencies of 15 Hz to 2000 Hz are possible. The unit includes both a contact closure input and an opto-isolated input. Output response time is selectable 1 or 10 seconds.

PAC-H (High Range):

The PAC-H is intended for high full scale frequencies. Full scale frequencies of 75 to 10,000 Hz are possible. This version includes a magnetic pickup compatible input and an opto-isolated input. Output response time is selectable 0.1 to 1 seconds.

The amplified frequency signal is then converted to an analog signal using a precision frequency to analog converter.

The output stage derives its power from the output current loop. The output stage converts the input signal into the desired output range. Multi-turn potentiometers provide for the necessary trimming of span and zero.

Specifications

Operating Temperature:

- 32° F (0°C) to 158°F (70°C)

Contact Closure Input (Low Range Models Only):

- Sensor Compatibility- Requires an isolated, contact closure
- Maximum Contact Voltage- 5 V
- Maximum Contact Current- 0.12 mA
- Nominal Pullup Resistance - 47 Kohm to 5 Vdc
- Frequency Range - 0-100 Hz

High Level Pulse Input (Low & High Range Models):

- Type: Opto-Isolated
- Logic 1: 4-30 VDC
- Logic 0: 0-1 VDC
- Frequency Range: 0-10 kHz
- Fault Protection:
- Reverse Polarity Protection
- Over Voltage Protection
- Isolation Voltage: 500 V
- Fast Transient Immunity: 500 V
- Maximum Rise Time: No Limit
- Maximum Fall Time: No Limit

Frequency to Current Conversion:

PAC-L:

- Range Selection: DIP Switch Selectable
- Available Ranges: 30 Hz, 60 Hz, 120 Hz, 240 Hz, 480 Hz, 960 Hz, 1920 Hz

Analog Output:

- Accuracy: $\pm 0.1\%$ Span (@ 20° C)
- Output Type: Two Wire, Loop Powered
- Range: 4-20 mA (10 - 50 mA optional)
- Compliance Voltage: 10 to 40 VDC
- Loop Burden: < 10 VDC (less than 500 μ)
- Trim Controls: Zero & Span, non-interacting
- Span (20 mA) Trim Range: 50% to 100% of full scale
- Linearity: < $\pm 0.1\%$ Span
- Output Voltage Effect: < $\pm 0.002\%$ Span/Volt
- Temperature Effect: < 200 PPM/C°
- Reverse Polarity Protected
- Noise Content: < 0.2% Span
- Response Time: 0.1, 1, 10 seconds (switch selectable)
- Over-current Limiting: 35 mA
- Output Loop Indicator:

LED illuminates when output loop is powered by proper polarity and blinks proportionally to the input frequency.

Mounting Styles:

- DIN Rail Mount:
Plastic enclosure with a snap fastener for fitting to DIN 46 277 and DIN EN 50 022 assembly rails.
- NEMA 4X: 4.92" x 4.92" NEMA 4X Enclosure for wall mounting.
- Explosion Proof:
Aluminum enclosure for:
Class I, Division 1, Groups B, C & D
Class II, Division I, Groups E, F & G.

PAC-L

Typical Wiring Hookup

Contact Closure Hookup (PAC-L Only)

Hall Effect Hookup (PAC-L Only)

DO NOT USE

SEE DRAWING ON

FOLLOWING PAGE

Input & Output Settings

Removing the case:

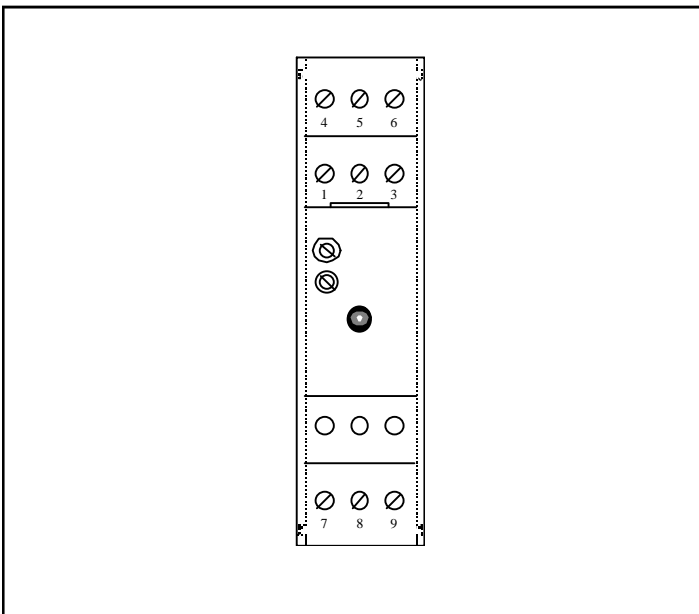
The case must be removed to change switch settings. To remove the case proceed as follows:

Refer to FIGURE 1. Using finger tips, carefully pry the case away from the terminal blocks (as shown with dotted lines).

Pry far enough to release the restraining clips on both sides of the case.

Press up on terminal block with thumbs. The assembly will pop out allowing it to be removed from case.

Figure 1:



Input Frequency Range Settings:

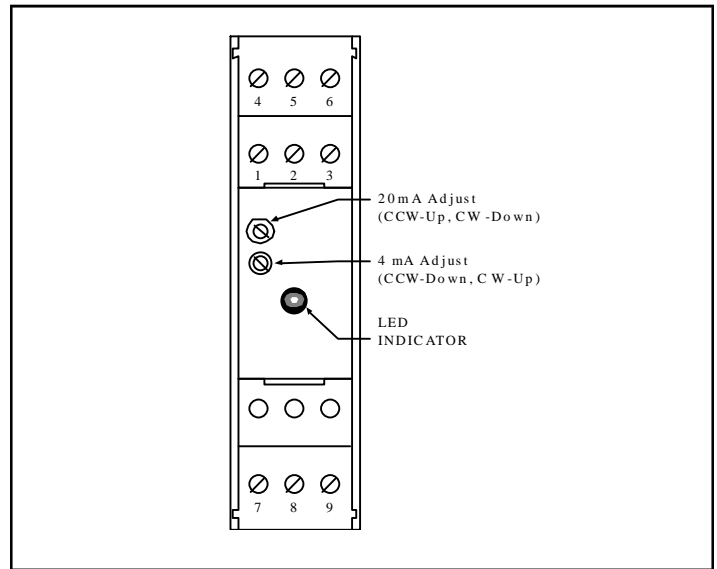
The appropriate range is selected by turning "ON" the corresponding switch.

| <u>PAC-H Range:</u> | <u>PAC-L Range:</u> | <u>Switch # "ON"</u> |
|---------------------|---------------------|----------------------|
| 0-150Hz | 0-30Hz | 1 |
| 0-300Hz | 0-60Hz | 2 |
| 0-600Hz | 0-120Hz | 3 |
| 0-1200Hz | 0-240Hz | 4 |
| 0-2500Hz | 0-480Hz | 5 |
| 0-5000Hz | 0-960Hz | 6 |
| 0-10000Hz | 0-1920Hz | 7 |

Output Adjustments:

The unit has two potentiometers for adjustment. The upper potentiometer controls the 20mA setpoint and the lower potentiometer controls the 4mA setpoint (see Figure 2). The 4mA output range can be adjusted from 3mA to 5mA. The 20mA output range can be trimmed from 50% to 100% of the selected range. To adjust the output, initially turn the 20mA adjust 20 turns CW for starting position. Input 0 frequency and adjust the 4 mA pot. Connect your maximum frequency and adjust the 20 mA pot.

Figure 2:



Response Time Setting:

Switch #8 controls the output response time.

| <u>Switch #8</u> | <u>PAC-H Resp. Time</u> | <u>PAC-L Resp. Time</u> |
|------------------|-------------------------|-------------------------|
| OFF | 0.1 second | 1 second |
| ON | 1 second | 10 seconds |

Turn switch #8 ON to provide damping of the output resulting in a slower response time.

LED Indicator:

The PAC has a LED which indicates the status of the unit. The table below describes the 3 states for the LED.

| <u>LED STATUS:</u> | <u>MEANING:</u> |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OFF | The unit is off. |
| ON (constant) | The unit is loop powered. |
| BLINKING | The unit is receiving an input frequency. The LED will blink at a rate proportional to the input frequency. (The LED may appear to be constant at high input frequencies) |

Dimensions (inches)

DIN Rail Mount

NEMA 4X Enclosure

Options

Example: PAC L D ET DR-4

Series _____
PAC= Pulse to Analog

Range _____
L = Low Range
H = High Range

Mounting _____
B= Nema 4X
C= Explosion Proof
D= DIN Rail

Options _____
ET= Extended Temp (-20° to 85° C)
50 = 10-50 mA output

Accessories: (add to end of part number) _____
DR-4= 4" DIN Rail

NEMA 7/4 Enclosure



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