



Mini-Max M235 Series Digital Panel Meter

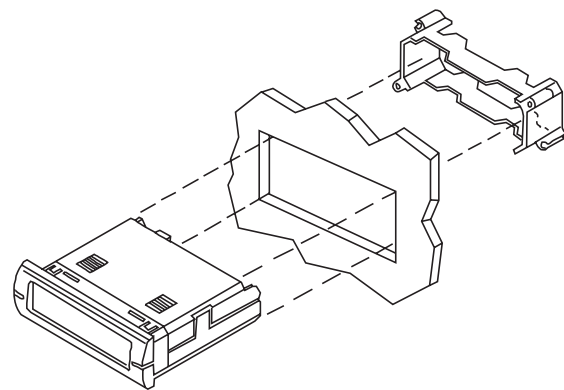
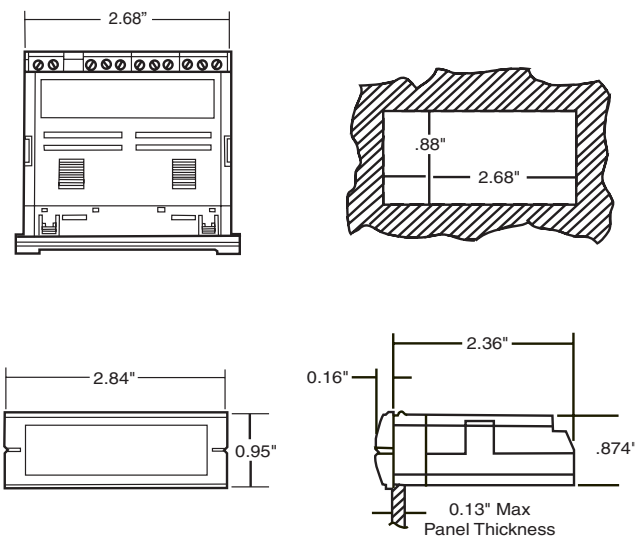
- **Minimum Depth Indicator - Less than 2.5" (60mm) of Space Required Behind the Panel**
- **Stackable Mounting Bracket Included for Easy Installation**
- **3-1/2 Digit, 0.5" (12.7mm) High LCD Display with Optional Negative Image, Bright Red Backlighting**
- **Limited Range Display Scaling and Adjustable Offset**
- **Standard Screw Terminals for Easy Installation**
- **Four Process Ranges: 4-20mA, 1-5VDC, 0-10VDC, 0-100VDC**
- **Scaled 0-100% Power**
- **85-250VAC or 9-32VDC Power Supply**



Simpson's Mini-Max Process Indicators provide high quality, accuracy and reliability in a compact, 60mm deep case. Units offer 3-1/2 digit, 0.5" (12.7mm) LCD display and are available with a bright red, negative image backlight option. All units feature user-selectable decimal point, auto zero and limited scaling capabilities.

A unique mounting bracket is provided to allow for vertical or horizontal stacking of multiple indicators. All Mini-Max units feature a 3/64 DIN, high-impact plastic case. The standard units have a clear viewing window, and the units with optional negative image, red backlighting have a red window.

Installation and Panel Cutout



Mounting Requirements

Insert the Mini-Max through the panel, and then slide the mounting bracket on to the Mini-Max. The mounting bracket allows Mini-Max units to be stacked side-to-side or top-to-bottom and maintain the DIN standard panel arrangements in 24mm by 72mm multiples. Panel cutout instructions for stacking multiple units are provided under "stacking features."

Specifications

DISPLAY

Type: 7-segment LCD
Height: 0.5" (12.7mm)
Decimal point: 3-position programmable
Overrange indication:
 Most significant digit = "1"
Backlighting:
 Optional negative image, red backlighting
Polarity: Auto with "-" indication, "+" implied

POWER REQUIREMENTS

AC Volt: 24-250VAC @40-440Hz
DC Volt: 9-30VDC

Power Consumption:

85-250VAC: 2.5VA min/4VA max
 9-32VDC: 1.5VA min/3VA max

Rated Circuit to Ground Voltage: 750VRMS

ACCURACY @ 25°C

±(0.1% of reading + 1 count)

ENVIRONMENTAL

Operating Temperature: 0 to 55°C
Storage Temperature: -10 to 60°C
Relative Humidity:
 0 to 85% non condensing @ 40°C
Temperature Coefficient:
 (± 0.02% of input ± 0.2 digits)/°C
Warmup time: Less than 20 minutes

NOISE REJECTION

NMRR: 60dB, 50/60Hz
CMRR: (w/1KΩ unbalanced @ 60Hz): 90dB min

ANALOG TO DIGITAL CONVERSION

Technique: Integrating
Rate: 3 samples/second-typical

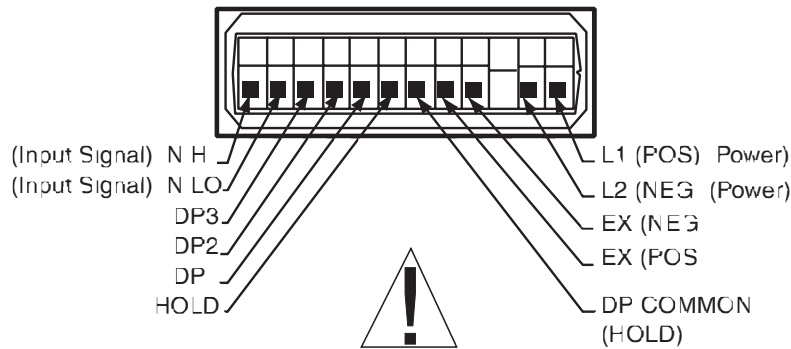
MECHANICAL

Bezel: 0.95" x 2.84"
 (24mm x 72mm)
Depth: 2.36" (60mm)
Panel Cutout: 0.88" x 2.68"
 (22.2mm x 68mm)
Weight: 3.5oz (99.2g)
Case Material:
 94-0,UL-rated, glass-filled thermoplastic

INPUTS: DC Process

Range	Resolution	Voltage Drop	Max Input (unfused)
4-20 mA	0.1%	200 mV	100 mA
Range	Resolution	Input Impedance	Maximum Input
1-5 VDC	0.1%	10 MΩ	750 V
0-10 VDC	0.1%	10 MΩ	750 V
0-100 VDC	0.1%	10 MΩ	750 V

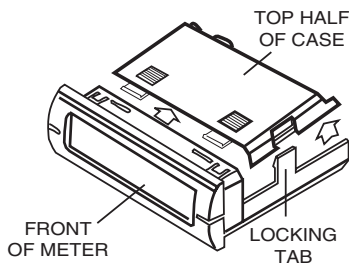
Wiring Display



These instruments are designed for maximum safety to the operator when mounted in a panel according to instructions. They are not to be used unmounted or for exploratory measurements in unknown circuits.

- Decimal Point:** To select a decimal point, connect the appropriate DP pin (DP1, DP2, or DP3) to the DP COMMON (HOLD). Unused DP inputs may remain unconnected (open).
- Display Hold:** Connect HOLD to DP COMMON (HOLD). If this feature is not required, the DP COMMON (HOLD) pin may remain unconnected (open).
- Input Signal:** Connect the IN HI and IN LO to the signal to be monitored.
- Input Power:** Connect power to the L1 and L2 terminals. For AC powered units, L1 and L2 are not polarized. **For 9-32 DC powered units, L1 must be positive with respect to L2.**

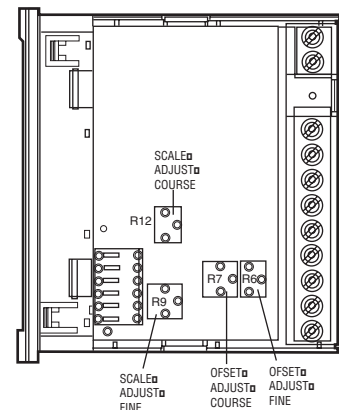
Display Scaling



Using a screwdriver or thumbnail, spread tab on each side of case to unlock top half. Lift rear top half and slide away from front of meter.

Span Adjustment: Mini-Max indicators have limited range coarse and fine adjustments for display scaling. There are no optional connections required for these to function. The "coarse" calibration R12 will allow a limited range of scaling values. The meter can be scaled up to 2 times, or down to 1/2 the value of the input or a maximum reading of 1.999 whichever is lower. Example: a 2 volt input has a maximum reading of 1.999 counts, so you can't double the 2 volts, but you can make 1 volt read 1.999. The "fine" calibration R9 allows for an approximate range of 1% of the "coarse" calibration. Apply the full scale input to the meter. Adjust R12 to within 1% of the desired scaled value, then use R9 to obtain the final desired result.

Offset Adjustment: To adjust the offset, apply the offset input signal. (e.g. 4 mA on 4-20 mA input) Use R7 for a "coarse" adjustment of the offset. The offset can be scaled up or down approximately 250 counts. Adjust R7 to within 1% of the desired scaled value, then use R6 to obtain the final desired result.



Note: Any physical damage to the meter during calibration will void the warranty.

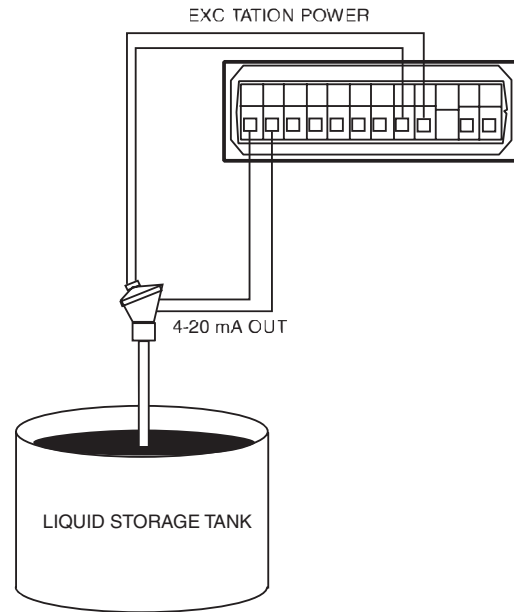
Application Example

Remote temperature (0-300°) monitoring of a liquid storage tank is required.

A 4-20mA transmitter is placed in a thermal protection head. The thermocouple located in the thermal head gives a mV signal to the transmitter, which sends out to the Mini-Max a 4-20mA signal. This allows the Mini-Max to be in a remote location, such as a control room. The Mini-Max inputs and display must be scaled prior to connecting the 4-20mA signal.

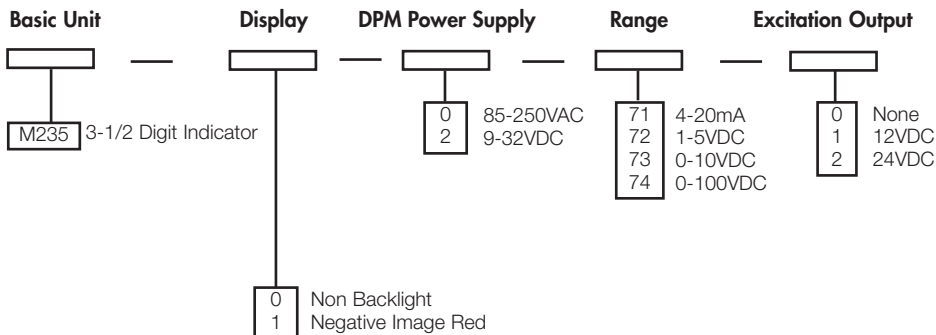
1. Apply a 4mA signal
2. Adjust R6/R7 to 0
3. Apply 20mA signal
4. Adjust R9/R12 to 300

The 4-20mA signal is connected to the IN HI and IN LO terminals, and the Mini-Max will display the temperature of the tank.



Ordering Information

Your Mini-Max Voltage Indicator can be configured by making an entry for each box.



Note: Models for DC current and voltage, AC TRMS voltage and current, AC frequency and temperature are also available.

Note: Special scaling is available from the factory at the time of ordering.

Safety Symbols



The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury.



The CAUTION sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly adhered to, could result in damage to or destruction of part or all of the instrument.