



FM81X-XXX 3-1/2 DIGIT DISPLAY INSTALLATION - SETUP - OPERATION



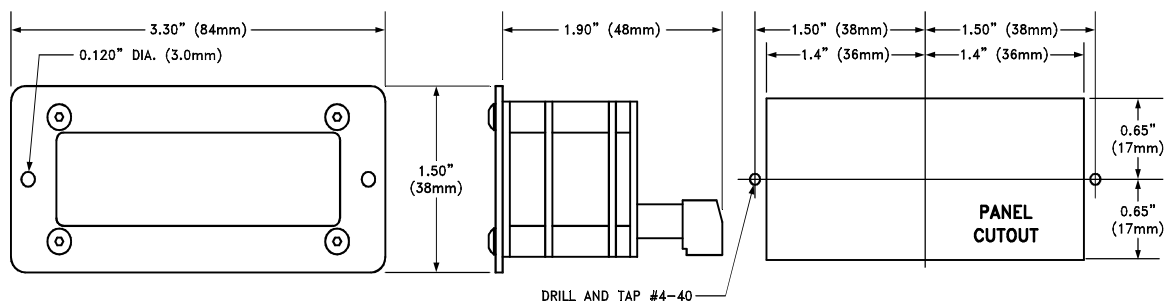
FM81X-XXX DESCRIPTION / SPECIFICATIONS

- ❑ DISPLAY - 3-1/2 digit, 0.6" tall, Red AlGaAs LEDs. -1999 to 1999 display range.
- ❑ BEZEL - 16 Ga. steel, black powder coat textured finish.
- ❑ WINDOW - Non-glare cast ruby red acrylic filter.
- ❑ ACCURACY - Overall combined accuracy corresponds to ± 1 count of display error.
- ❑ LINEARITY - Better than 0.02% typical.
- ❑ POWER SUPPLY -
 - FM814:** 6 to 14VDC or AC @ 100mA w/750V isolation.
 - FM815:** 6 to 14VDC or AC @ 100mA.
 - FM817:** 12 to 32VDC or 12 to 18VAC @ 100mA.
 - FM818:** 12 to 32VDC or 12 to 18VAC @ 100mA w/750V isolation.
- ❑ OPERATING TEMPERATURE RANGE - -25°C to +70°C
- ❑ STORAGE TEMPERATURE RANGE - -40°C to +85°C
- ❑ A/D REFERENCE - High stability 1.25V bandgap.
- ❑ A/D CONVERSION RATE (DISPLAY UPDATE RATE) - 2.5 updates per second.
- ❑ INPUT CIRCUITRY - Full differential inputs with chopper stabilized input buffer.
- ❑ OVER / UNDER RANGE INDICATION - Meter displays polarity, most significant digit, and decimal point when input exceeds min/max input range.
- ❑ CALIBRATION / DISPLAY SCALING - 20-turn potentiometers allow for adjusting span and zero.
- ❑ DECIMAL POINT - Jumper selectable for 0, 0.0, 0.00, or 0.000 display precision.
- ❑ OPTIONAL NEMA 4X BEZEL - A low durometer closed cell neoprene gasket can provide for NEMA 4X sealing.

MODEL NUMBERS / INPUT SPECIFICATIONS

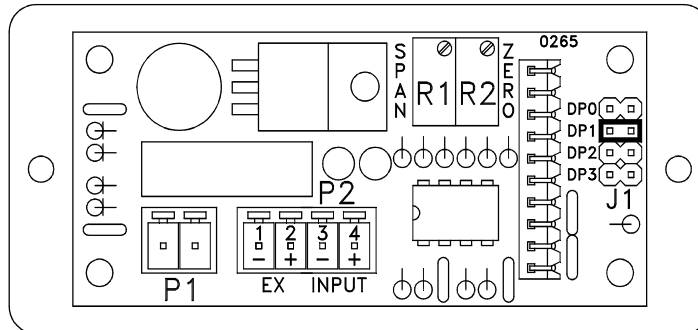
MODEL	INPUT	IMPEDANCE	MODEL	INPUT	IMPEDANCE	MODEL	INPUT	IMPEDANCE
FM81X-140	± 200.0 mVDC	3 MOHM	FM81X-153	± 100 mVDC/12VDC	3 MOHM	FM81X-175	± 100 uADC	1.00 KOHM
FM81X-141	± 2.000 VDC	3 MOHM	FM81X-160	± 50 mVDC Shunt	3 MOHM	FM81X-212	4-20 mA	10.0 OHM
FM81X-142	± 20.00 VDC	1 MOHM	FM81X-161	± 100 mVDC Shunt	3 MOHM	FM81X-217	4-20 mA / 24VDC	10.0 OHM
FM81X-143	± 200.0 VDC	1 MOHM	FM81X-170	± 200 uADC	500 OHM	FM81X-234	± 2.000 ADC EXT.	N/A
FM81X-144	± 500 VDC	1 MOHM	FM81X-171	± 2.000 mADC	100 OHM	FM81X-235	± 20.00 ADC EXT.	N/A
FM81X-150	± 20 mVDC/12VDC	3 MOHM	FM81X-172	± 20.00 mADC	10.0 OHM	FM81X-236	± 200.0 ADC EXT.	N/A
FM81X-151	± 30 mVDC/12VDC	3 MOHM	FM81X-173	± 200.0 mADC	1.00 OHM			
FM81X-152	± 50 mVDC/12VDC	3 MOHM	FM81X-174	± 2.000 ADC	0.100 OHM			

FM81X-XXX PHYSICAL SIZE AND MOUNTING





FM81X-XXX WIRING GUIDE AND CALIBRATION INSTRUCTIONS



REAR VIEW OF FM81X-XXX METERS

P1 - FM814/815-XXX POWER INPUT

- P1 - REQUIRES 6 TO 14VDC OR AC @ 100mA.

P1 - FM817/818-XXX POWER INPUT

- P1 - REQUIRES 12 TO 32VDC OR 12 TO 18VAC @ 100mA.
- NOTE: P1 IS NOT POLARITY SENSITIVE.

P2 - SIGNAL INPUT & EXCITATION

- P2 - 1: NEGATIVE EXCITATION.
- P2 - 2: POSITIVE EXCITATION.
- P2 - 3: NEGATIVE SIGNAL INPUT.
- P2 - 4: POSITIVE SIGNAL INPUT.
- NOTE: P2-1 AND P1-2 ARE ONLY PRESENT ON UNITS WITH EXCITATION VOLTAGE (SEE TABLE PAGE 1).

J1 - DECIMAL POINT LOCATOR

- J1 - DP0: DISPLAY 0 (NO DECIMAL POINT)
- J1 - DP1: DISPLAY 0.0
- J1 - DP2: DISPLAY 0.00.
- J1 - DP3: DISPLAY 0.000

R1 - SPAN ADJUSTMENT POTENTIOMETER

- R1 ADJUSTS THE SLOPE OF THE DISPLAY AS A FUNCTION OF THE INPUT SIGNAL LEVEL, THIS ADJUSTMENT WILL AFFECT THE ZERO ADJUSTMENT.

R2 - ZERO ADJUSTMENT POTENTIOMETER

- R2 ADJUSTS THE OFFSET OF THE DISPLAY AS A FUNCTION OF THE INPUT SIGNAL LEVEL, THIS ADJUSTMENT DOES NOT AFFECT THE SLOPE OF THE DISPLAY AS SET BY R1.

CALIBRATION OF FM81X-XXX METERS

- A KNOWN SIGNAL SOURCE ROUGHLY 50% TO 60% OF THE FULL SCALE INPUT RANGE OF THE METER IS REQUIRED FOR PROPER CALIBRATION (SCALING) OF THE METER.
- SHORT THE SIGNAL INPUTS TO THE METER, ADJUST R2 TO ZERO THE DISPLAY.
- APPLY THE KNOWN SIGNAL TO THE METER INPUT, ADJUST R1 UNTIL THE METER DISPLAYS THE PROPER VALUE. FOR 4 TO 20mA METERS USE 16mA FOR THIS STEP.
- IF ZERO OFFSET IS REQUIRED, SHORT THE SIGNAL INPUTS AND ADJUST R2 FOR PROPER READING. FOR 4 TO 20mA METERS, APPLY 4mA TO ADJUST DISPLAY OFFSET.
- CALIBRATION IS NOW COMPLETE, THE R1 CAN BE 'TWEAKED' AFTER INSTALLATION TO COMPENSATE FOR SIGNAL OFFSETS.
- NOTE: SIGNAL INPUTS CAN BE REVERSED TO PROVIDE A REVERSE READING DISPLAY ON 4 TO 20mA METERS.



FOX

TERMS AND CONDITIONS

- Invoices are due **NET 30 DAYS** from the date of the invoice, pending credit approval. All shipments are **F.O.B. Cortland, Illinois, U.S.A.** Returns are allowed on standard product within 90 days of invoice date. Returns must pass factory inspection before being accepted and are subject to a 25% restocking charge.
- **FOX METER INC.** reserves the right to discontinue models, change specifications, price, or design of any of its products at any time without notice and without incurring any obligation whatsoever.
- Any costs incurred in the process of collecting past due invoices including, but not limited to, collection fee percentages and any legal fees will be added to the amount collected.

WARRANTY

- **FOX METER INC.** warrants its products to be free from defective material or workmanship for a period of two years from date of purchase.
- **FOX METER INC.**, under this warranty, is limited to repairing the defective device when returned to the factory, shipping charges prepaid, within two full years from date of purchase.
- This warranty is transferrable to second and third parties and will remain in force for the two year term from date of original purchase from **FOX METER INC.**
- Units returned to **FOX METER INC.** that have been subject to abuse, misuse, damage or accident, or have been connected, installed or adjusted contrary to the instructions furnished by **FOX METER INC.**, or that have been repaired by unauthorized persons will not be covered by this warranty.
- The purchaser agrees to assume all liabilities for any damages and/or bodily injury which may result from the use or misuse of the product(s) manufactured by and/or purchased from **FOX METER INC.** by the purchaser, his employees, or agents.
- This warranty is in lieu of all other representations or warranties, expressed or implied and no agent or representative of **FOX METER INC.**, is authorized to assume any other obligation in connection with the sale and purchase of **FOX METER INC.**, products.
- The terms of this warranty will only be honored if the products or equipment for which warranty service have been requested have been paid for in full by the original purchaser within the agreed upon terms and conditions of sale.

* NOTE *

- While **FOX METER INC.** provides application assistance on its products, personally and through our literature, it is the responsibility of the customer to determine the compatibility of the product in the application.

FACTORY SERVICE AND REPAIR

- **FOX METER INC.** will service and repair its products free of charge for the period of two years, subject to the warranty conditions above.
- When returning any defective product to **FOX METER INC.**, please include any information that may pertain to the problem and please include the name of the individual for us to contact, along with your company name, address and phone number.

RETURN REPAIRS TO:

FOX METER INC.
302 W. Lincoln Hwy. Suite 2
Cortland, IL 60112
ATTN: Service Department