

VDC/mADC ANALOG METER REPLACEMENT DPM

MODEL
590

U.S. Patent No.
4,908,569

Features

- 50mV-500V & 200 μ A-2ADC Ranges
- Ultra Low Power (500 μ A)
- 3½" Standard Meter Case
- .5" High LCD Display
- Rugged • Low Cost
- High Accuracy & Resolution
- Same Connections as most Analog Meters
- Optional Backlight
- MTBF: 80,000 Hours

DESCRIPTION: Model 590 requires 5VDC typically to operate at a very low current of 500 μ A maximum. The 590 was designed to replace analog panel meters in certain applications where high accuracy, reliability and shock and vibration are of concern. The meter cases used are modified analog meter cases only on the face plate. The body is the same as the analog equivalent. For direct analog meter applications, see other **POWERLESS DPM®** that require no power to operate since they take it from the signal just like an analog meter does. Optional 7-32VDC operation is internal to the unit.

BACKLIGHT: Standard display has reflective black digits over silver background. An optional backlight is available at the time of ordering. When ordered, the digits are black over an illuminated green background. The intensity is not adjustable, (see Typical Connections). **Not available with 7-32VDC power option.**

LIGHT SOURCE: Electroluminescent (E.L.) requiring 120VAC @ 400Hz to operate. If ordered, an internal DC-AC converter is installed and requires 5VDC @ 70mA. The E.L. has uniform light output, and its life expectancy is in excess of 15,000 hours.

COMMON MODE VOLTAGE: The unit can be connected in differential mode with up to 2VDC/AC between digital ground and - signal. For better results and noise rejection connect the unit in single ended mode, (digital ground to - signal).



D.C. VOLTS/AMPS

POWER SUPPLIES: When required and ordered will be externally mounted. Two types are available, the "Open Frame" style accepts 120/240VAC and delivers 5VDC at up to 400mADC. The "Power Pack" is a wall plug in module available only for 120VAC input and delivers 5VDC at up to 100mADC.

DECIMAL POINTS: Installed at Otek and must be specified at the time of ordering.

SPECIFICATIONS AT 25°C

Accuracy and Linearity	±0.05% of full scale ±1 count
Resolution	0.05% of F.S.
Power Operating Range	5VDC(see power input option)
Current Requirements	0.50mA
Input Signal Protection	300% of specified range
Polarity	Bipolar
Temperature Coefficient	100PPM/°C
Measuring Method	Dual slope integration
Input Type	Single ended and differential
Span Adjustment Range	±40% of full scale
Backlight Operating Range (for DC-AC)	70mA at 4-6VDC
Operating/Storage Temperature	-10° to +60°C/-20° to +70°C
Display5" Reflective LCD
MTBF	80,000 Hours

CASE MATERIAL: U.L. approved ABS Polycarbonate 94VO rated. Black matte with clear window.

ORDERING INFORMATION (11/1/00)

MODEL **5** **9** **0**-**1**

INPUT RANGE (1)

- 0 200mVDC/1K Ω
- 1 2VDC/10M Ω
- 2 20VDC/10M Ω
- 3 200VDC/10M Ω
- 4 500VDC/10M Ω
- 5 200 μ ADC/1K Ω
- 6 2mADC/100 Ω
- 7 20mADC/10 Ω
- 8 200mADC/1 Ω
- 9 2ADC/0.1 Ω
- \$ 50mVDC/10M Ω

BACKLIGHT & DECIMAL POINT

- 0 No and No D.P.
- 1 No and 1.XXX D.P.
- 2 No and 1X.XX D.P.
- 3 No and 1XX.X D.P.
- 4 Backlit and No D.P.
- 5 Bklt and 1.XXX D.P.
- 6 Bklt and 1X.XX D.P.
- 7 Bklt and 1XXX D.P.

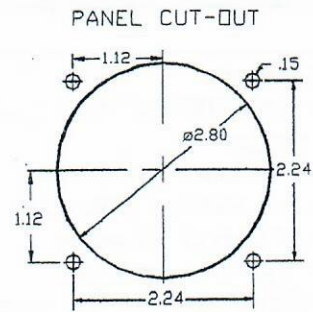
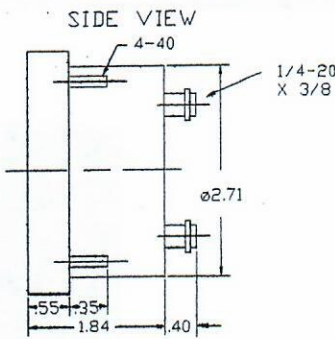
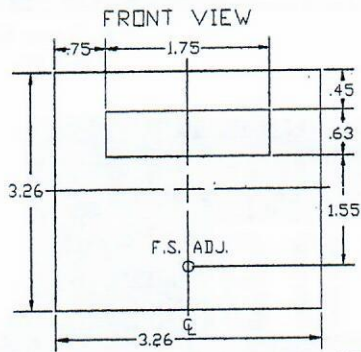
POWER INPUT (2)

- 0 5VDC
- 1 120/240VAC
- 2 120VAC
- 3 7-32VDC

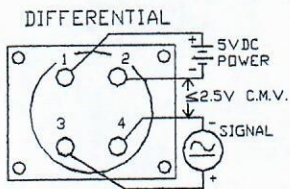
(1) 50mVDC=1000 counts
(2) 120/240 VAC is open frame P.S. Style; 120VAC is power pack power supply. See mechanical info. on back page.

590 MECHANICALS & TYPICAL CONNECTIONS

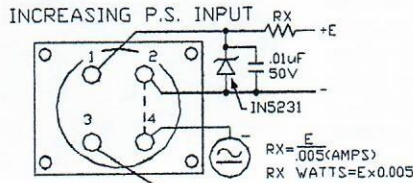
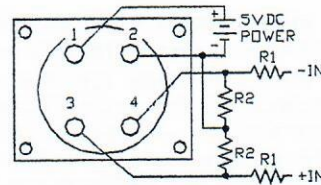
MECHANICALS



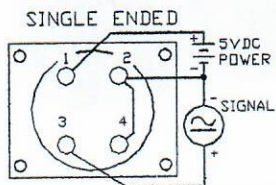
MOD. 590 VDC/mADC TYPICAL CONNECTIONS (REAR VIEW)



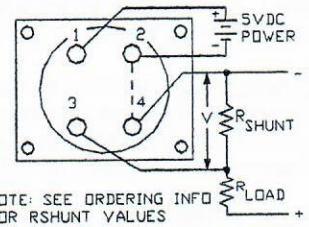
INCREASING (DIFFERENTIAL)
COMMON MODE VOLTAGE



NOTE: DO NOT EXCEED THE 2.5V
CMV BETWEEN TERMINALS 2 & 4
SELECT R1 & R2 SO VOLTAGE
DROP ACROSS R2 ≤ 2.5V



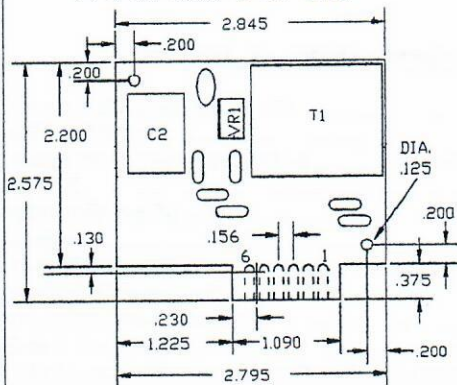
CONVERTING mV TO AMPS



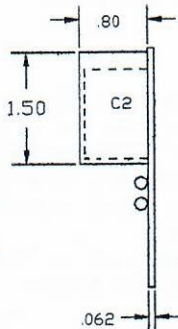
NOTE: SEE ORDERING INFO
FOR RSHUNT VALUES

MECHANICALS FOR POWER SUPPLIES

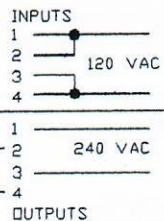
OPEN FRAME STYLE
P/N 81-3110 & 81-3112



SIDE VIEW

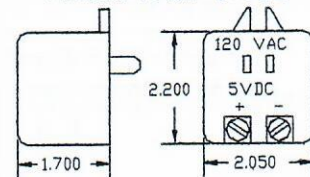


OPEN FRAME
POWER SUPPLY
TYPICAL CONNECTIONS



P/N 81-3110, 5VDC OUT

POWER PACK STYLE



ORDER P/N 75-3110 FOR 5VDC

F#87MC590.DWG

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