



Falcon F45 Series Digital Panel Meter

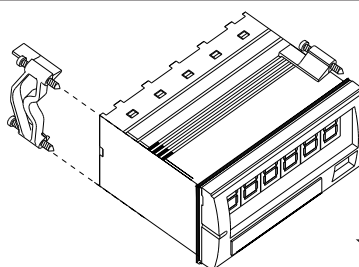
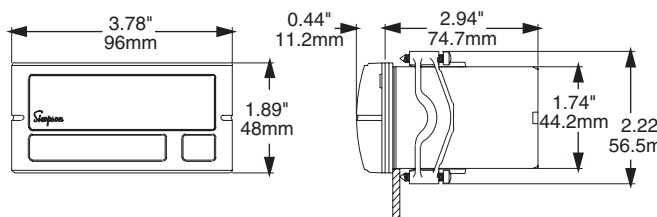
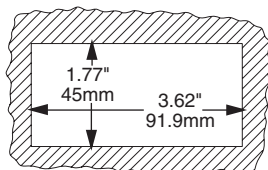
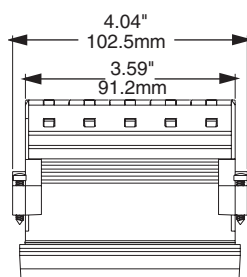
- **Full 4-1/2 Digit, Bright Red 0.56" (14.2mm) Display**
- **Broad Range Display Scaling**
- **Short 2.94" (74.7mm) Deep, 1/8 DIN Case**
- **Screw Terminal Connector for Easy Installation**
- **Four User-Settable Ranges: 200mV, 2V, 20V, 200V**
- **One Factory-Settable Range: 750V**
- **Optional Isolated 9-32VDC Power Supply**



The Falcon Series digital indicators are premium quality 1/8 DIN meters for industrial applications. All Falcon units feature jumper-selectable decimal point (internal and on the connector for remote decimal point) and display scaling, providing wide application flexibility. In addition, signal input ranges are easy to change with jumpers on the main board. The Falcon has a 0.56" bright red LED display for high visibility.

Compactly designed for applications requiring minimal rear panel depth, the Falcon fits a standard 1/8 DIN panel cutout (91.9mm x 45mm) and requires less than 3" behind the panel. A screw terminal connector is a standard feature for easy wiring of the power supply and signal input connections.

Installation and Panel Cutout



Engineering Label

Mounting Requirements

The Falcon series 1/8 DIN indicators require a panel cutout of 1.77" (45mm) high by 3.62" (91.9mm) wide. To install the Falcon into a panel cutout, remove the clips from the side of the meter. Slide the meter through your panel cutout, then slide the mounting clips back on the meter. Press evenly to ensure a proper fit.

Engineering Label Placement

If replacement of the engineering unit label is required, place the tip of a ball-point pen into the small hole at the base of the engineering label in the bezel. Slide the label up until it pops out. Grasp and remove. Slide the new label half the distance in, then use the ball-point pen to slide it down into place.

Specifications

DISPLAY

Type: 7-segment, red LED

Height: 0.56" (14.2mm)

Decimal Point: 4-position programmable internally or at terminal block J112

Overrange indication: most significant digit = "1"; other digits blank

Polarity: Automatic, with "-" indication, "+" indication implied

POWER REQUIREMENTS

AC Voltages: 120 or 220VAC, $\pm 10\%$
50/60Hz

DC Voltages: 9-32VDC; 9V -1% and 32+1%

Power Consumption: 2VA

ACCURACY @258C

$\pm 0.02\%$ of reading ± 1 count
750 ± 2 counts

ENVIRONMENTAL

Operating Temperature: 0 to 55°C

Storage Temperature: -10 to 60°C

Relative Humidity: 0 to 85% non-condensing

Temperature Coefficient:

($\pm 0.05\%$ of input ± 0.1 digit)/°C

Warm-up Time: Less than 15 minutes

Response Time: Less than 1 second

NOISE REJECTION

NMR: 60dB, 50/60Hz

CMRR: (w/1k Ω unbalanced @60Hz):
90dB min.

ANALOG TO DIGITAL CONVERSION

Technique: Dual slope integration

Rate: 2.5 samples per second, nominal

MECHANICAL

Bezel: 3.78" x 1.89" x .44"

(96 x 48 x 11.2mm)

Depth: 2.94"(74.7mm)

Panel Cut-out: 3.62" X 1.77"
(91.9 x 45mm 1/8 DIN)

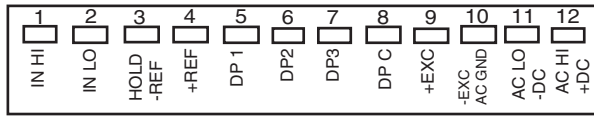
Case Material: 94V-1, UL rated Noryl®

Weight: 9.0oz (255.1g)

INPUTS: DC Voltage

Input Range	Display Resolution	Input Impedance	Maximum Overload
200mV	10 μ V	$\geq 100M\Omega$	50V
2V	100 μ V	10M Ω	100V
20V	1mV	10M Ω	100V
200V	10mV	10M Ω	250V

Wiring Diagram



Input Signal: Connect the signal to be monitored to the IN HI and IN LO terminals. These are terminals #1 and #2.

Supply Power: Connect the power to terminals #11 and #12. Note that if AC power is applied, terminal #11 is for neutral, and terminal #12 is for hot. If DC power is used, terminal #11 is for -DC, and #12 is for +DC.

Display Hold: This feature allows you to hold the displayed value indefinitely. A remote switch or computer, etc. can be used to activate this feature. To activate feature, short circuit terminal block J112, pins 3 and 4 (Hold and DIG GND). This connection must be kept isolated from other circuitry. To hold multiple units, separate poles of the switch must be used to maintain the isolation.



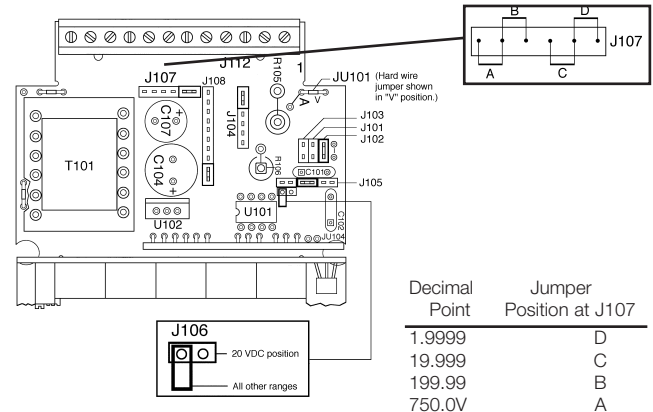
These instruments are designed for maximum safety to the operator when mounted in a panel according to instructions. They are not to be used unmounted or for exploratory measurements in unknown circuits.

Decimal Point Selection

From terminal block J112: The decimal point can be set from the rear screw terminal block J112. Connect the appropriate DP point (DP 1, 2, 3, 4) to the DIG GND terminal. Internal jumper (J107) should be removed and stored on the last contact of J107.

Point	Decimal Connect
1.9999	DIG GND to DP1
19.999	DIG GND to DP2
199.99	DIG GND to DP3
750.0	DIG GND to DP4

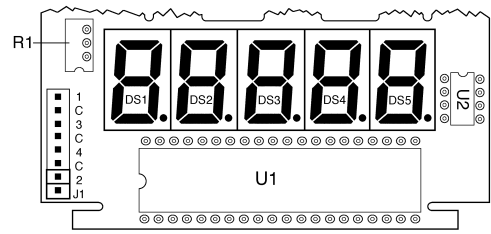
From main board: The decimal point can also be selected by accessing the main board. Move the push-on jumper J107 across the correct letter.



Calibration

The unit is calibrated at the factory per order. If you selected another range and moved the jumpers, your Falcon will need to be recalibrated. If parameters (HiE, etc.) are changed, scaling must be performed prior to calibration.

- 1) Remove the bezel with a small screwdriver.
- 2) Apply a full scale input signal to the instrument.
- 3) Adjust the potentiometer R1 located on the upper left-hand side of the display board until display shows the full scale voltage.
- 4) Replace bezel carefully.



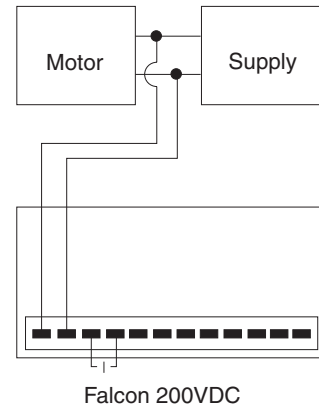
Application Example

A manufacturing plant requires a low cost digital meter to replace an analog panel meter on a 150VDC motor. The upgrade is required because the operator requires a display hold feature that is not available on the analog model.

A Falcon 3-1/2 digit indicator (200DCV) can fit this application. The meter needs no additional scaling before being installed into the panel. A switch is required for the display hold option, as one is not supplied by Simpson.

The meter is installed in parallel with the motor like the analog meter, and is ready to be placed in the panel. The Falcon is less than 3" deep, fitting well into the restricted panel space. It will take up about as much space as the analog meter it replaced. In addition, display hold is a standard feature on the Falcon. By shorting connections #3 and #4, the operator can hold the display to take a reading, and then remove the short to reactivate the indication mode. A switch can be used to short the connections.

The meter is shipped ready to install, keeping down-time to a minimum.



Ordering Information

F45 Basic Unit

F45

4-1/2 Digit Indicator

1	120VAC
2	220VAC*
3	9-32VDC
4	120VAC*

Power Supply



Range



11	200mV
12	2V
13	20V
14	200V

Excitation



0	None
1	12VDC
2	24VDC

*Meets CE EMI EN-50082-1, EN-55022, EN-61000-3-2, EN-61000-3-3

Safety Symbols



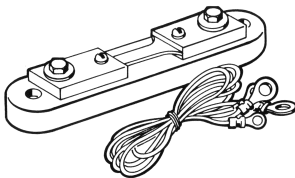
The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury.



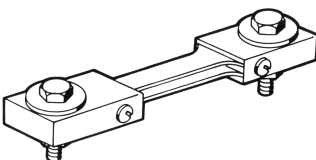
The CAUTION sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly adhered to, could result in damage to or destruction of part or all the instrument.

Accessories

Portable



Switchboard



External shunts enable digital panel meters to indicate higher DC currents than can be provided with self contained internal shunt meters. The shunt is installed in series with the load and the source. The shunts provide a DCmV drop which is sent to the display unit. The Falcon can be scaled to display the actual current load between the load and the source. Simpson offers portable and switchboard shunts.

Each portable shunt includes 5' leads.

Order Information

Portable Shunts (50mV)

Amps	Cat. Number
1	06700
5	06703
10	06704
15	06705
25	06707
30	06708
50	06709
75	06711
100	06713
150	06714
200	06715

Switchboard Shunts (50mV)

Amps	Cat. Number
100	06500
150	06503
200	06504
250	06505
300	06506
400	06507
500	06508