AC Voltage

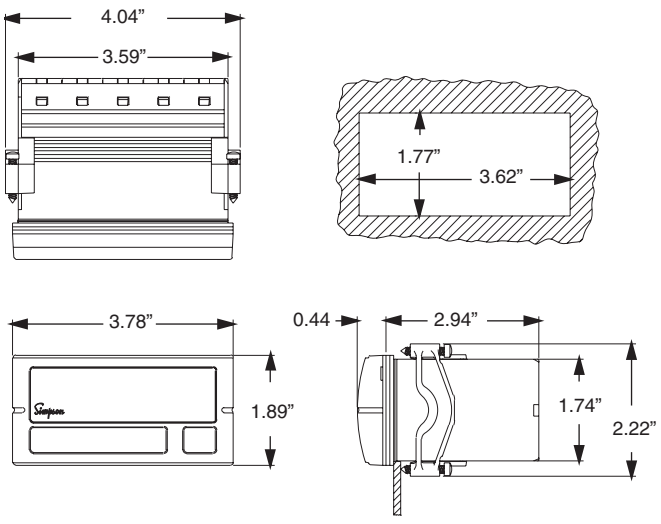
Falcon F45 Series Digital Panel Meter

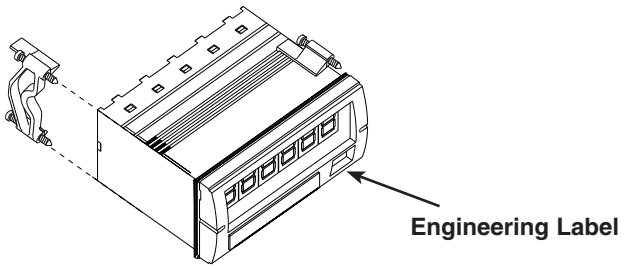
- ***Full 4-1/2 Digit, Bright Red 0.56" (14.2mm) Display***
- ***Broad Range Display Scaling***
- ***Short 2.94" (74.7mm) Deep, 1/8 DIN Case***
- ***Screw Terminal Connector for Easy Installation***
- ***Four User-Settable Ranges: 200mV, 2V, 20V, 200V***
- ***One Factory-Settable Range: 750V***
- ***Optional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

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





Mounting Requirements
The Falcon series 1/8 DIN indicators require a panel cutout of 1.77" (45mm) high by 3.62" (92mm) 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, ±10% 50/60Hz
DC Voltages: 9-32VDC; 9V -1% and 32+1%
Power Consumption: 2VA

ACCURACY @258C
±0.5% of reading ±35 counts

ENVIRONMENTAL
Operating Temperature: 0 to 55ºC
Storage Temperature: -10 to 60ºC
Relative Humidity: 0 to 85% non-condensing
Temperature Coefficient: (±0.05% of input ±0.5 digit)/ºC
Warm-up Time: Less than 15 minutes
Response Time: Less than 1 second

NOISE REJECTION
NMRR: 60dB, 50/60Hz
CMRR: (w/1kΩ unbalanced @60Hz): 90dB min.

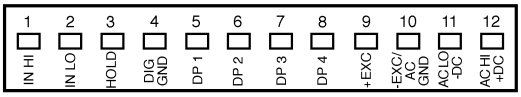
ANALOG TO DIGITAL CONVERSION
Technique: Dual slope integration
Rate: 2.5 samples per second, nominal

MECHANICAL
Bezel: 3.78" x 1.89" x .44" (96 x 48 x 11.2mm)
Depth: 2.94"(74.7mm)
Panel Cutout: 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; AC/AC TRMS Voltage

Input Range	Display Resolution	Input Impedance	Maximum Overload
200mV	10µV	≥100MΩ	50V
2V	100µV	10MΩ	100V
20V	1mV	10MΩ	100V
200V	10mV	10MΩ	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.

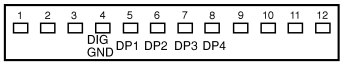
Display Hold: This feature allows you to hold the displayed value indefinitely. A remote switch or computer, etc. can be used to activate this feature. To activate feature, short circuit terminal block J112, pins 3 and 4 (Hold and DIG GND). This connection must be kept isolated from other circuitry.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

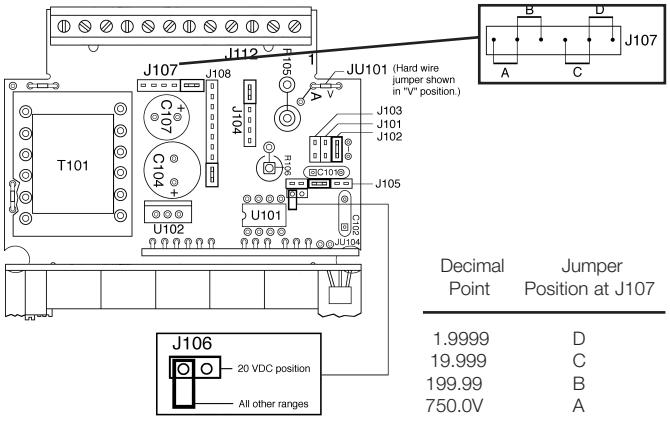
Decimal Point Selection

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.

Decimal Point	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.



Decimal Point	Jumper Position at J107
1.9999	D
19.999	C
199.99	B
750.0V	A

Voltage Range Selection

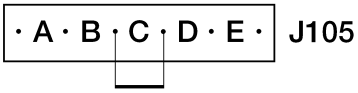
All Falcon Indicators are configured initially per the customer specified part number. Range changes can easily be accomplished as follows: Disconnect power and pop the front bezel off with a small screwdriver, taking care to keep the gaskets in place. Unscrew the main board from the case with a Phillips head screwdriver, and slide the main board out. Note: If a new range is selected, the calibration procedure must also be performed. Only perform this section if a different function or range is required.

Input Range	J105 PJ	J106 PJ	J101* PJ	J102* PJ	J103 PJ	JU101* Jumper Position
200mV	C	NO	NO	YES	NO	V
2V	B	NO	NO	NO	YES	V
20V	D	NO	NO	NO	YES	V
200V	E	NO	NO	NO	YES	V

*** 750 volt range may be configured upon order by factory or Authorized Service Center**

Note: JU101 and JU102 are hard wire jumpers and can be removed by cutting them. Resoldering the JU jumpers is not recommended. If this is required, or if a function is to be changed from volts to current, Simpson recommends returning the Falcon to the factory or an Authorized Service Center. After moving the jumpers to the desired location, put the Falcon back together and install in your panel, or proceed to calibration.

Note: See diagram in Decimal Point Selection panel for J106 jumper location.



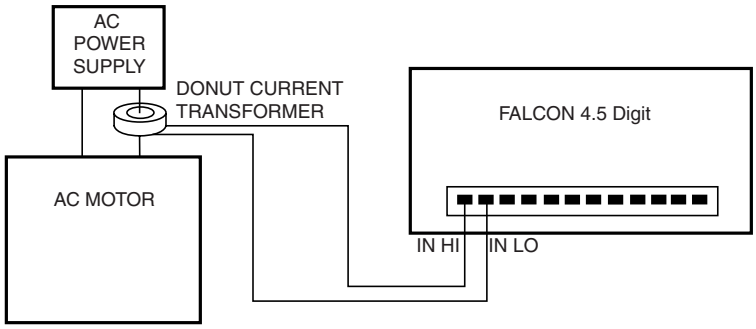
Example: 200mV input

Application Example

A plant maintenance engineer needs to monitor AC voltage of a particular load. The maximum full load is 700VAC, and the specification calls for TRMS reading. The maintenance engineer wants a resolution of 0.1VAC, and needs to freeze the display periodically to take a reading for maintenance purposes.

The Falcon 4 1/2 digit AC TRMS (750V) unit is installed in parallel with the source and load. No scaling is required - since the electrical input range of the meter is the same as the displayed range - and it has a 0.1 volt resolution. The Falcon has a standard display hold feature that can be wired to a switch the operator can use to "hold" the display.

If the application changes, the Falcon's flexibility allows it to be scaled and calibrated accordingly.



Ordering Information

F45 Basic Unit — **Power Supply** — **Range** — **Excitation**

F45

4-1/2 Digit Indicator

Power Supply

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

Range

AC

31	200mV
32	2V
33	20V
34	200V

Excitation

0	None

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

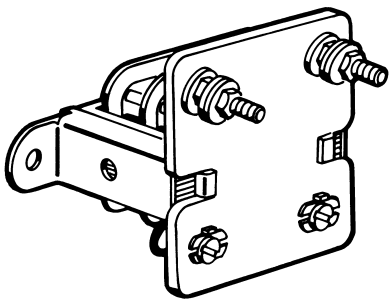
Safety Symbols

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

Model 186 Current Transformer



Model 186 Current Transformers easily convert a current signal (up to 50 amps) into a 0-10 AC volt signal and transmit the signal over a long distance. This allows remote monitoring of a process or application.

These units can be coupled with a Donut Current Transformer if a high current rating (up to 1999 amps) is to be monitored at a remote location.

Ordering Information

Range	VA	Cat.Number
0-5 amp	0.75	01312
0-10 amp	1.45	01314
0-15 amp	1.05	01315
0-20 amp	1.04	01316
0-25 amp	1.50	01317
0-30 amp	1.10	01318
0-40 amp	1.09	01319
0-50 amp	1.90	01321
0-100mA	0.50	01295
0-300mA	0.48	01303
0-500mA	0.53	01304