

**Falcon F35 & F45
Digital Panel Meters**

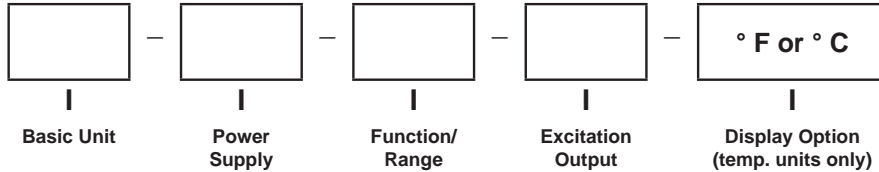


- 1/8 DIN Indicator
- 3-1/2 or 4-1/2 digit bright red LED display
- Front panel pops off for easy decimal point setting and display scaling
- Only 3.12" (79mm) required behind panel
- Optional excitation output
- NEMA 4X removable cover, using part # 45003

Falcon F35 & F45 Digital Panel Meters

Ordering Information -

Falcon Indicators can be configured by making an entry into each section. Example: F35-1-52-0.



| Select From Each One Below | |
|---|----------------------------|
| Basic Unit | |
| F35 | 3-1/2 digit LED |
| F45 | 4-1/2 digit LED |
| Power Supply | |
| 1 | 120 ACV |
| 2 | 220 ACV |
| 3 | 9-32 DCV † |
| Function/Range | |
| 11 | 200 DCmv |
| 12 | 2 DCV |
| 13 | 20 DCV |
| 14 | 200 DCV |
| 21 | 200 DC μ A |
| 22 | 2 DCmA |
| 23 | 20 DCmA |
| 24 | 200 DCmA |
| 25 | 2 DCA |
| 26 | 5 DCA |
| 31 | 200 ACmV |
| 32 | 2 ACV |
| 33 | 20 ACV |
| 34 | 200 ACV |
| 41 | 200 AC μ A |
| 42 | 2 ACmA |
| 43 | 20 ACmA |
| 44 | 200 ACmA |
| 45 | 2 ACA |
| 46 | 5 ACA |
| 51 | 200 ACmV TRMS * |
| 52 | 2 ACV TRMS * |
| 53 | 20 ACV TRMS * |
| 54 | 200 ACV TRMS * |
| Function/Range | |
| 61 | 200 AC μ A TRMS * |
| 62 | 2 ACmA TRMS * |
| 63 | 20 ACmA TRMS * |
| 64 | 200 ACmA TRMS * |
| 65 | 2 ACA TRMS * |
| 66 | 5 ACA TRMS * |
| 71 | 4-20 DCmA Process |
| 72 | 1-5 DCV Process |
| 73 | 0-10 DCV Process |
| 80 | J T/C ** |
| 81 | K T/C ** |
| 82 | S T/C ** |
| 83 | T T/C ** |
| 84 | E T/C ** |
| 85 | R T/C ** |
| 86 | DCmV ** |
| 90 | RTD Pt100 Ohm ** |
| 91 | 20-199.9 Hz RMS * |
| 92 | 20-1999 Hz RMS * |
| 93 | 20-199.9 Hz Sq. Wave * |
| 94 | 20-1999 Hz Sq. Wave * |
| Excitation Output (not available with AC, temperature, or frequency inputs) | |
| 0 | None |
| 1 | 12 DCV @ 25mA max. current |
| 2 | 24 DCV @ 25mA max. current |
| Display Option Temperature Meter | |
| C | ° C |
| F | ° F |

† Not available for use with frequency meters

* Only available with F35

** Only available with F45

| Specifications | |
|----------------------------------|---|
| DISPLAY | |
| Type | 7- segment, red LED |
| Height | 0.56" (14.2mm) |
| Decimal Point | User-programmable, internally or on the terminal block |
| 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 | 9-32DCV, ±1% |
| Power Consumption | F35: 3VA, F45: 2VA |
| ISOLATION | 250V RMS MAX |
| ACCURACY @25°C | |
| F45 DC Process/Voltage | ±0.02% of reading ± 1 count |
| F35 DC Process/Voltage | ±0.1% of reading ± 1 count |
| F45 DC Current | ±0.05% of reading ±1 count 2A ± 5 counts, 5A ± 5 counts |
| F35 DC Current | ±0.1% of reading ± 1 count 2A ± 5 counts, 5A ± 5 counts |
| F45 AC Voltage/Current | ±0.5% of reading ± 35 counts |
| F35 AC Voltage/Current * | ±1% of reading ± 5 counts (50Hz-100Hz) * For TRMS (45 Hz to 1KHz) |
| ENVIRONMENTAL | |
| Operating Temperature | 0 to 55°C |
| Storage Temperature | -10 to 60°C |
| Relative Humidity | 0 to 85% non-condensing |
| Warm-up Time | Less than 15 minutes |
| NOISE REJECTION | |
| NMRR | F35=50dB, 50/60Hz; F45=60dB, 50/60Hz |
| CMRR | (w/1KΩ unbalanced @ 60Hz) 90dB min. |
| A TO D CONVERSION | |
| Technique | Dual slope integration |
| Rate | F35=3 samples per second, nominal; F45=2.5 samples per second, nominal |
| MECHANICAL | |
| Bezel | 3.78" x 1.89" x .51" |
| Depth | 2.94" |
| Panel Cutout | 3.62" X 1.77" |
| Case Material | 94V-1, UL rated Noryl® |
| Weight | 9.0oz (255.1g) |
| Temperature Coefficient | |
| F35 AC/TRMS (Voltage/Current) | (±0.1% of input ± 0.5 count)/°C |
| F35 DC (Voltage/Current/Process) | (±0.01% of input ± 0.05 count)/°C |
| F45 AC (Voltage/Current) | (±0.05% of input ± 0.5 count)/°C |
| F45 DC Current | (±0.01% of input ± 0.1 count)/°C |
| F45 DC (Voltage/Process) | (±0.05% of input ± 0.1 count)/°C |

| Specifications for F35 Frequency Meters | |
|--|--|
| DISPLAY | |
| Type | 7- segment, red LED |
| Height | 0.56" (14.2mm) |
| Overrange Indication | |
| | Most significant digit = "1"; other digits blank |
| POWER REQUIREMENTS | |
| AC Voltages | 120 or 220VAC, ±10% 50/60Hz |
| Power Consumption | 2.5VA min./4VA max. |
| ACCURACY @25°C | |
| 200 Hz | ±0.2% of input ±0.2 Hz |
| 2 KHz | ±0.2% of input ± 2Hz |
| INPUT LEVEL | |
| | 500mV to 250V RMS at 1.0MΩ impedance OR 5V to 24V Square Wave (DCoffset 2V maximum) |
| Resolution | |
| | 200Hz = 0.1Hz 2kHz = 1Hz |
| ENVIRONMENTAL | |
| Operating Temperature | 0 to 55°C |
| Storage Temperature | -10 to 60°C |
| Relative Humidity | 0 to 85% non-condensing @ 40°C |
| Temperature Coefficient | (±0.05% of input ± 0.5 count)/°C |
| Warm-up Time | Less than 15 minutes |
| CONVERSION | |
| Technique | Frequency-to-voltage |
| Rate | 3 samples per second, nominal |

| Specifications for F45 Temperature Meters | |
|---|--|
| DISPLAY | |
| Type | 7- segment, red LED |
| Height | 0.56" (14.2mm) |
| Decimal Point | Jumper-selectable 2-position (corresponding to resolution desired) |
| 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 | 9-32 DCV, $\pm 1\%$ |
| Power Consumption | 3VA |
| ENVIRONMENTAL | |
| Operating Temperature | 0 to 55°C |
| Storage Temperature | -10 to 60°C |
| Relative Humidity | 0 to 85% non-condensing |
| Warm-up Time | Less than 20 minutes |
| INPUTS | |
| Thermocouple | J, K, E, T, R, and S |
| RTD | Platinum 100 (.00385 alpha), 2, 3 or 4 wire |
| Millivolt | $\pm 84\text{mV}$ reading of uncompensated mV |
| Input Impedance | 7M Ω (typical) |
| Conversion Rate | 2-1/2 times per second |
| Open Thermocouple Detection | -1 on display, -40nA bias on thermocouple |

| Temperature | | | |
|-------------|------------------------|--|------------------------------------|
| Sensor Type | Temperature Range | Accuracy | Resolution |
| E | -200 to 1000°C | $\pm 0.1\%$ of rdg $\pm 1^\circ\text{C}$ $\pm 0.1\%$ of rdg $\pm 1.8^\circ\text{F}$ | 0.1 or 1 Degree User Selectable |
| | -328 to 1832°F | | |
| J | -200 to 1200°C | | |
| | -328 to 2192°F | | |
| K | -200 to 1372°C | | |
| | -328 to 2501°F | | |
| T | -200 to 400°C | | |
| | -328 to 752°F | | |
| RTD Pt 100 | -200 to 850°C | | |
| | -328 to 1562°F | | |
| R,S | -50 to 1768°C | 1 Degree Automatic | |
| | -58 to 3214°F | | |
| | Voltage Range | $\pm 0.02\%$ of rdg ± 1 count | 0.01 mV |
| | $\pm 84.00\text{mV}$ | | |
| | Voltage Range | $\pm 0.02\%$ of rdg ± 1 count | 0.001mV |
| | -19.999mV to +84.000mV | | |

Inputs

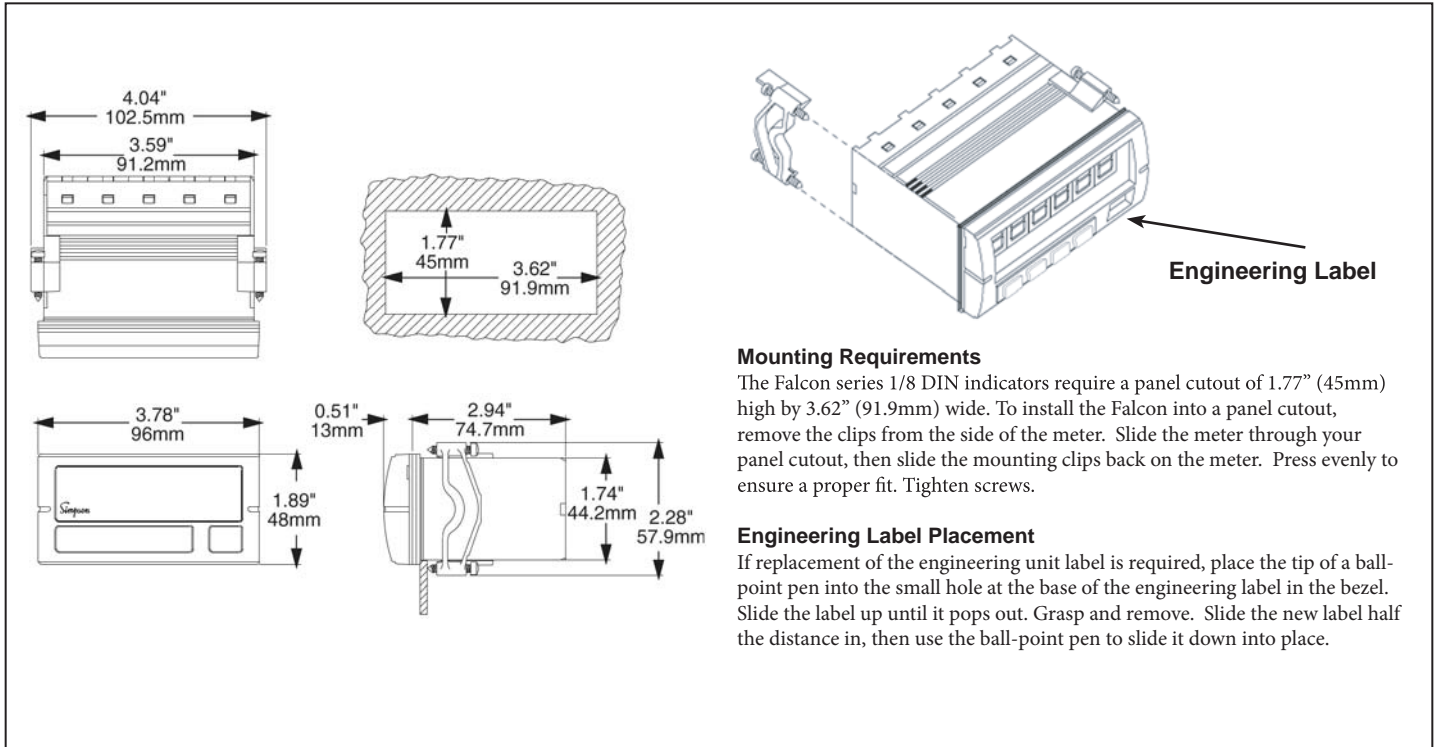
| DC Voltage | | | | | |
|------------|------------|-----------------|------------|-----------------|---------------------|
| Range | F35 | | F45 | | Max Input (Unfused) |
| | Resolution | Input Impedance | Resolution | Input Impedance | |
| 200mV | 100μV | >100MEG | 10μV | >100MEG | 100V |
| 2V | 1mV | >10MEG | 100μV | >10MEG | 250V |
| 20V | 10mV | >10MEG | 1mV | >9.9MEG | 250V |
| 200V | 100mV | >9.9MEG | 10mV | >9.8MEG | 250V |

| AC TRMS Voltage | | | | | |
|-----------------|------------|-----------------|------------|-----------------|---------------------|
| Range | F35 | | F45 | | Max Input (Unfused) |
| | Resolution | Input Impedance | Resolution | Input Impedance | |
| 200mV | 100μV | >100MEG | 10μV | >100MEG | 100V |
| 2V | 1mV | >1MEG | 100μV | >1MEG | 250V |
| 20V | 10mV | >10MEG | 1mV | >1MEG | 250V |
| 200V | 100mV | >9.9MEG | 10mV | >1MEG | 250V |

| DC / AC TRMS Current | | | | |
|----------------------|------------|-------|--------------|---------------------|
| Range | Resolution | | Voltage Drop | Max Input (Unfused) |
| | F35 | F45 | | |
| 200μA | 100μA | 10μA | 200mV | 10mA |
| 2mA | 1μA | 100μA | | 40mA |
| 20mA | 10μA | 1μA | | 100mA |
| 200mA | 100μA | 10μA | | 500mA |
| 2A | 1mA | 100μA | | 2.2A |
| 5A | 10mA | 1mA | | 5.2A |

| DC Process | | | | | |
|------------|------------|-----------------|------------|-----------------|---------------------|
| Range | F35 | | F45 | | Max Input (Unfused) |
| | Resolution | Input Impedance | Resolution | Input Impedance | |
| 4 to 20mA | 0.1 % | 10 Ohms | .01 % | 10 Ohms | 500mV |
| 1 to 5Vdc | 0.1 % | >10MEG | .01 % | >9.9MEG | 10V |
| 0 to 10Vdc | 0.1 % | >10MEG | .01 % | >9.9MEG | 10V |

Installation and Panel Cutout



The technical drawings include:

- Top View:** Shows overall dimensions of 4.04" (102.5mm) width and 3.59" (91.2mm) height.
- Panel Cutout:** A hatched rectangle indicating the required cutout dimensions of 1.77" (45mm) height and 3.62" (91.9mm) width.
- Front View:** Shows a width of 3.78" (96mm) and a height of 1.89" (48mm).
- Side View:** Shows a depth of 0.51" (13mm), a mounting hole diameter of 2.94" (74.7mm), and a mounting hole offset of 1.74" (44.2mm) from the bottom edge, with a total depth of 2.28" (57.9mm).
- 3D Isometric View:** Shows the meter with an arrow pointing to the "Engineering Label" on the right side of the bezel.

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. Tighten screws.

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.