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 cut-out (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” (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: 3-position 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%
- DC Voltages: 9-32VDC, ±1%
- Power Consumption: 3VA

**ACCURACY @25°C**
- ±1.0% of reading ±5 counts (45Hz - 1kHz)

**NOISE REJECTION**
- NMRR: 50dB, 50/60Hz
- CMRR: 50dB, 50/60Hz

**ANALOG TO DIGITAL CONVERSION**
- Technique: Dual slope integration
- Rate: 3 samples per second, nominal

**ENVIRONMENTAL**
- Operating Temperature: 0 to 55°C
- Storage Temperature: -10 to 60°C
- Relative Humidity: 0 to 85% non-condensing
- Temperature Coefficient: (±0.1% of input ± 0.5 count)/ºC
- Warm-up Time: Less than 15 minutes
- Response Time: Less than 3 seconds

**MECHANICAL**
- Bezel: 3.78" x 1.89" x .51"
- Depth: 1.29"/0mm
- Panel Cutout: 3.62" x 1.77"
- Weight: 9.0oz (255.1g)

**INPUTS: AC/AC TRMS Voltage**

<table>
<thead>
<tr>
<th>Input Range</th>
<th>Display Resolution</th>
<th>Input Impedance</th>
<th>Maximum Overload</th>
</tr>
</thead>
<tbody>
<tr>
<td>200mV</td>
<td>100µV</td>
<td>&gt;1MΩ</td>
<td>100V</td>
</tr>
<tr>
<td>2V</td>
<td>1mV</td>
<td>&gt;1MΩ</td>
<td>250V</td>
</tr>
<tr>
<td>20V</td>
<td>10mV</td>
<td>&gt;10MΩ</td>
<td>250V</td>
</tr>
<tr>
<td>200V</td>
<td>100mV</td>
<td>&gt;9.9MΩ</td>
<td>250V</td>
</tr>
</tbody>
</table>

**DECIMAL POINT SELECTION**

**Wiring Diagram**

**Voltage Range Selection**

All Falcon Indicators are configured initially per the customer specifications. Range changes can be accomplished as follows:

1. Disconnect power from the unit. Remove the unit from the panel.
2. Remove the front bezel by inserting a small screwdriver into the vertical slots on either side of the bezel and then turning to pry the bezel off.
3. Unscrew the two Phillips head screws at either side of the circuit board. Finally, push on the green connector assembly in the back of the unit to slide the main circuit board out from the meter.
4. Change jumpers according to the chart below.

Note: JU101 and JU102 are hard wire jumpers, and are 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.

Before switching the instrument on, make sure the supply voltage matches the power source required of the instrument as indicated on the hook-up label affixed to the instrument.

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**Decimal Point Selection**

From terminal block: The decimal point can be set from the rear screw terminal block by connecting the appropriate decimal point (DP 1, 2, 3, ...) to the DP C terminal. The J105 jumper must be in the D position (see diagram under "From front panel").

<table>
<thead>
<tr>
<th>Decimal Point</th>
<th>Connect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.999</td>
<td>DP C to DP1</td>
</tr>
<tr>
<td>19.99</td>
<td>DP C to DP2</td>
</tr>
<tr>
<td>199.9</td>
<td>DP C to DP3</td>
</tr>
<tr>
<td>1999</td>
<td>No Decimal</td>
</tr>
</tbody>
</table>

From front panel: The decimal point can also be selected by removing the front bezel from the meter. Move the push-on jumper J105 across the correct letter.

Exploded view showing jumper position "A" at J105 for decimal point 1.999
Display Scaling

The Falcon can be easily scaled for a broad range of engineering units. The meter may be scaled up to two times, or down to 1/5 the value of the input.

1) Remove the front bezel with a small screwdriver.

2) Apply the full scale input to the meter.

3) Adjust the potentiometer VR101 located on the right side the display board to the desired scaled value.

4) Replace the bezel carefully. A card of labels is provided for alternative engineering units, such as percent.

Calibration

The following procedure requires opening the unit and removing the top cover with the power ON. Use an insulated screwdriver and extreme caution when making these adjustments. It is advisable to have an Authorized Service Center perform this operation, or return the Falcon to the factory.

The Falcon is calibrated at the factory per order. If you changed the range and have moved the jumpers, your Falcon will need to be recalibrated.

1) Remove the bezel with a small screwdriver.

2) Short input terminals #1 and #2 (IN HI and IN LO) and adjust potentiometer RV1 on AC input card until display reads 0±1 count.

3) Apply an input signal to terminals #1 and #2, and adjust potentiometer VR101 until the display indicates the value of the signal. See diagram in Display Scaling.

4) Reassemble the meter and install it in your panel.
Application Example

A plant supervisor needs to monitor a welding process from a remote mezzanine. This process runs off of an AC power supply, and draws 45AC amps.

A Falcon 20VAC meter, coupled with a 50 amp/10 volt current transformer, can monitor the current draw of the welding process. The transformer allows the signal to be sent to a remote location without any appreciable signal loss.

The Falcon meter needs to be scaled before it is connected to the transformer. Remove the front bezel with a small screwdriver. Apply a 10VAC signal to the Falcon meter. Adjust potentiometer VR101 (to the right of the display) until the meter indicates 50.0 (amps), which is the full scale output of the current transformer. Once this is done, remove the signal input and put the bezel back on the Falcon.

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

<table>
<thead>
<tr>
<th>F35 Basic Unit</th>
<th>Power Supply</th>
<th>Range</th>
<th>Excitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>F35</td>
<td>AC</td>
<td>AC TRMS</td>
<td>None</td>
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</tbody>
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3-1/2 Digit Indicator

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>120VAC</td>
<td>31</td>
<td>51</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>220VAC</td>
<td>32</td>
<td>52</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>9-32VDC</td>
<td>33</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>34</td>
<td>54</td>
<td></td>
</tr>
</tbody>
</table>

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