

**Falcon F35 & F45
Digital Panel Meters**

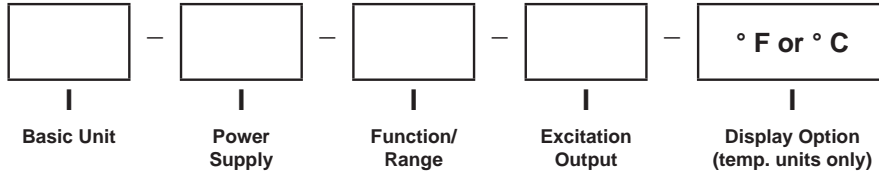


- 1/8 DIN Indicator
- 3-1/2 or 4-1/2 digit bright red LED display
- Front panel pops off for easy decimal point setting and display scaling
- Only 3.12" (79mm) required behind panel
- Optional excitation output
- NEMA 4X removable cover, using part # 45003

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

† 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, $\pm 10\%$ 50/60Hz
DC Voltages	9-32DCV, $\pm 1\%$
Power Consumption	F35: 3VA, F45: 2VA
ISOLATION	250V RMS MAX
ACCURACY @25°C	
F45 DC Process/Voltage	$\pm 0.02\%$ of reading ± 1 count
F35 DC Process/Voltage	$\pm 0.1\%$ of reading ± 1 count
F45 DC Current	$\pm 0.05\%$ of reading ± 1 count 2A ± 5 counts, 5A ± 5 counts
F35 DC Current	$\pm 0.1\%$ of reading ± 1 count 2A ± 5 counts, 5A ± 5 counts
F45 AC Voltage/Current	$\pm 0.5\%$ of reading ± 35 counts
F35 AC Voltage/Current *	$\pm 1\%$ 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/1K Ω 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)	($\pm 0.1\%$ of input ± 0.5 count)/°C
F35 DC (Voltage/Current/Process)	($\pm 0.01\%$ of input ± 0.05 count)/°C
F45 AC (Voltage/Current)	($\pm 0.05\%$ of input ± 0.5 count)/°C
F45 DC Current	($\pm 0.01\%$ of input ± 0.1 count)/°C
F45 DC (Voltage/Process)	($\pm 0.05\%$ of input ± 0.1 count)/°C

Falcon F35 & F45 Digital Panel Meters

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, $\pm 10\%$ 50/60Hz
Power Consumption	2.5VA min./4VA max.
ACCURACY @25°C	
200 Hz	$\pm 0.2\%$ of input ± 0.2 Hz
2 KHz	$\pm 0.2\%$ of input ± 2 Hz
INPUT LEVEL 500mV to 250V RMS at 1.0M Ω 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	($\pm 0.05\%$ 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

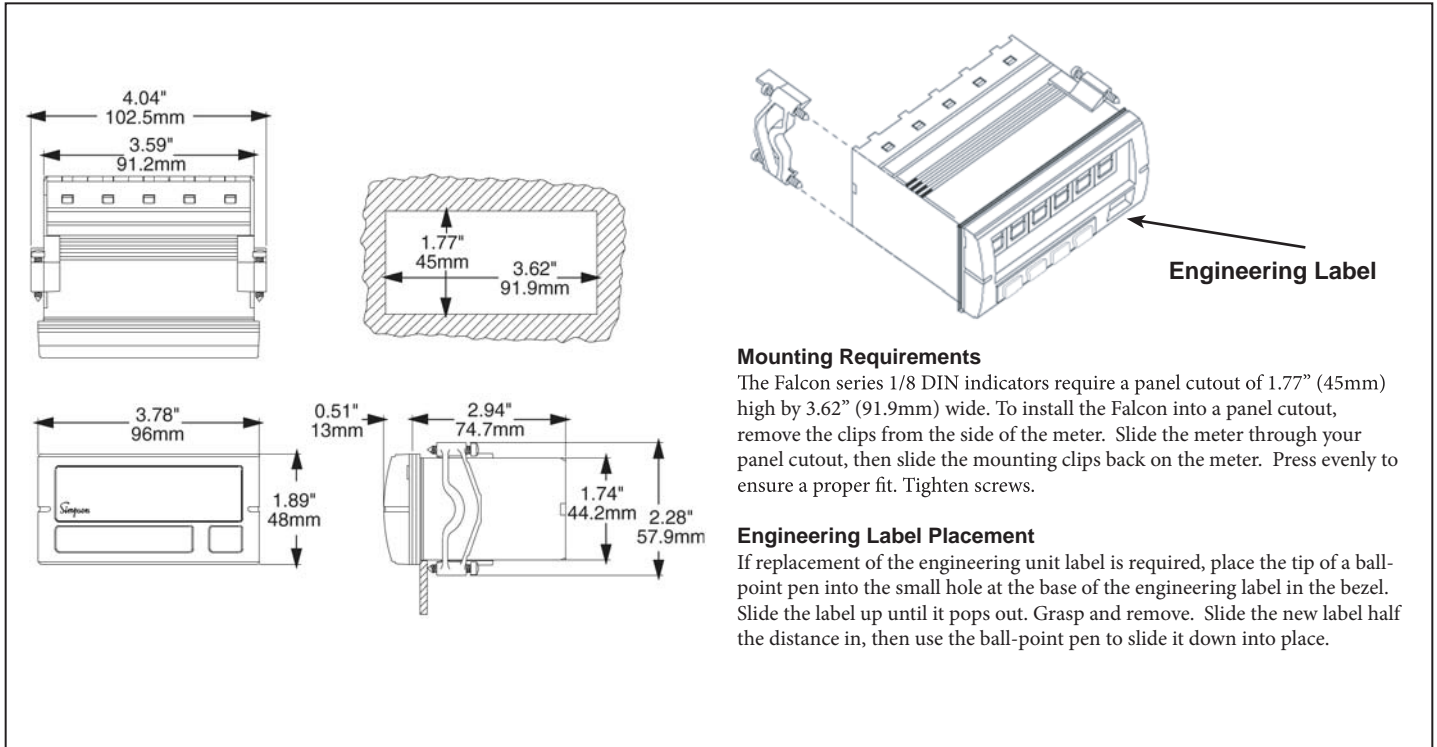
DC Voltage					
Range	F35		F45		Max Input (Unfused)
	Resolution	Input Impedance	Resolution	Input Impedance	
200mV	100 μ V	>100MEG	10 μ V	>100MEG	100V
2V	1mV	>10MEG	100 μ V	>10MEG	250V
20V	10mV	>10MEG	1mV	>9.9MEG	250V
200V	100mV	>9.9MEG	10mV	>9.8MEG	250V

AC TRMS Voltage					
Range	F35		F45		Max Input (Unfused)
	Resolution	Input Impedance	Resolution	Input Impedance	
200mV	100 μ V	>100MEG	10 μ V	>100MEG	100V
2V	1mV	>1MEG	100 μ V	>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		
200 μ A	100 μ A	10 μ A	200mV	10mA
2mA	1 μ A	100 μ A		40mA
20mA	10 μ A	1 μ A		100mA
200mA	100 μ A	10 μ A		500mA
2A	1mA	100 μ A		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 rectangular cutout in a panel with dimensions 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. The total height from the bottom edge to the top of the meter is 2.28" (57.9mm).
- 3D View:** Shows the meter with an arrow pointing to the "Engineering Label" on the right side.

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.