Hawk 3 Digital Panel Meter / Controller

File # E199939

- **All parameters set from easy to understand front panel access**
- **One, two or four 5-amp relays optional**
- **Five user-selectable brightness levels**
- **1/8 DIN, shallow depth case, 3.24”**
- **RS485 digital communications optional (H345)**
- **12 or 24 DCV Excitation output optional, maximum 30mA @ 12V and 20mA @ 24V**
- **4-20mA or 0-10 DCV analog retransmission optional**
- **NEMA 4X rated front panel**

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Specifications

DISPLAY	
Type	7- segment, red LED, 4 or 5 digits
Height	0.56" (14.2mm)
Brightness	5 settings, user programmable
Decimal Point	4 or 5 position, user programmable
Overrange Indication	Display flashes "EEEE" indicating Maximum Value Exceeded (Example: H335)
Underrange Indication	Display flashes "-EEE" indicating Minimum Value Exceeded (Example: H335)
Alarm Indicators	4 LED indicators for up to four independent setpoints
Linearization	H335 2 points H345 16 points

POWER REQUIREMENTS	
AC	85 to 250 VAC or 120VAC @ 10VA
DC	9 to 36 DCV @ 10VA
Isolation	250V RMS MAX

Note: Each supply is shown at the maximum and minimum values except the 120 VAC unit, which is allowed ± 10%

ACCURACY @ 25°C as % of rdg		
	4-1/2 digit	3-1/2 digit
DC Current		
High (5A, 2A)	± 0.2% of reading ± 1 count	± 0.3% of reading ± 1 count
All others	± 0.05% of reading ± 1 count	± 0.1% of reading ± 1 count
DC Volts		
High (600V)	± 0.1% of reading ± 1 count	± 0.2% of reading ± 1 count
All others	± 0.05% of reading ± 1 count	± 0.1% of reading ± 1 count
Resistance		
All ranges	± 0.1% of reading ± 2 counts	± 0.1% of reading ± 2 counts
* AC Current		
High (2A, 5A)	± 0.2% of reading ± 2 counts	± 0.3% of reading ± 2 counts
All others	± 0.1% of reading ± 2 counts	± 0.2% of reading ± 2 counts
* AC Volts		
High (600V)	± 0.1% of reading ± 1 count	± 0.2% of reading ± 1 count
All others	± 0.05% of reading ± 1 count	± 0.1% of reading ± 1 count
* AC functions measured at 50 hz, include ± 1 count for each additional 100 Hz above 50 Hz		

Specifications - Con't

ENVIRONMENTAL	
Operating Temperature	0 to 50ºC
Storage Temperature	-10 to +60°C
Relative Humidity	< 80% for the temp. up to 31ºC and decreasing linearly to 50% relative humidity at 50°C
Ambient Temp	25°C
Temperature Drift	± 100 ppm /°C
Warmup time	10 minutes

NOISE REJECTION	
NMRR	60 dB @ 50-60 Hz
CMRR	70 db @ 50-60 Hz
For indoor use to an altitude up to 200m	

A TO D CONVERSION	
Technique	Successive approximation with oversampling
Sample Rate	10 conversions per second
Display Rate	User Programmable from 1 - 420 updates / minute (240 default)

RS-485 Specications (only available on H345)

2 wire / Half duplex, Baud rate: 9600 baud, 1ms delay per character, 32 Nodes Maximum on Bus.
Optically and magnetically isolated for ground loop elimination

MECHANICAL	
Bezel	3.92" x 2.0" x 0.52" (99.8mm x 51.9mm x 132mm)
Depth	3.24" (82.3mm) behind panel
Panel cutout	3.62" x 1.77" (92mm x 45mm) 1/8 DIN
Weight	10 oz. (283.5 g)
Cover	NEMA 4X Rated front panel

ELECTRICAL	
Accuracy	Listed as % of reading at 25°C. Add 100ppm/°C to compensate for drift. Tested at 50Hz, include +/-1 count for every 100Hz above 50 Hz
Transient Overvoltage	Installation Category III, Pollution Degree 2
Analog Output	Sampling Rate = 100 mSec. Reaction Time 0 to Full Scale = 10 µSec

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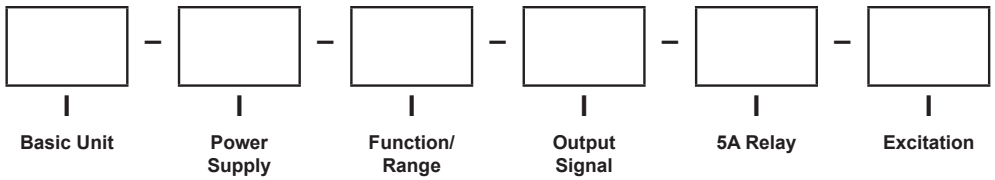
Ordering Information -

Hawk 3 Indicators can be configured by making an entry into each section. Example: H335-3-71-0-4-1



Select From Each One Below

Basic Unit		
	H335	3-1/2 digit, Red LED
	H345	4-1/2 digit, Red LED
Power Supply		
	1	120 ACV (3-1/2 only)
	2	85-250 ACV (4-1/2 only)
	3	9-36 DCV
	4	85-250 ACV (3-1/2 only)
Function/Range		
	11	200 DCmv
	12	2 DCV
	13	20 DCV
	14	200 DCV
	15	600 DCV *
	21	200 DCµA
	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
	35	600 ACV

Function/Range		
	41	200 ACµA
	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
	55	600 ACV* TRMS
	61	200 ACµA 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	0-10 DCV Process
	81	200 Ohm
	82	2K Ohm
	83	20K Ohm
	84	200K Ohm

Output Signal		
	0	None
	1	4-20 DCmA
	2	0-10 DCV
	6	RS-485 (4-1/2 only)
5A Relays		
	0	None
	1	One
	2	Two
	4	Four
Excitation		
	0	None
	1	12 DCV
	2	24 DCV

* Awaiting UL approval

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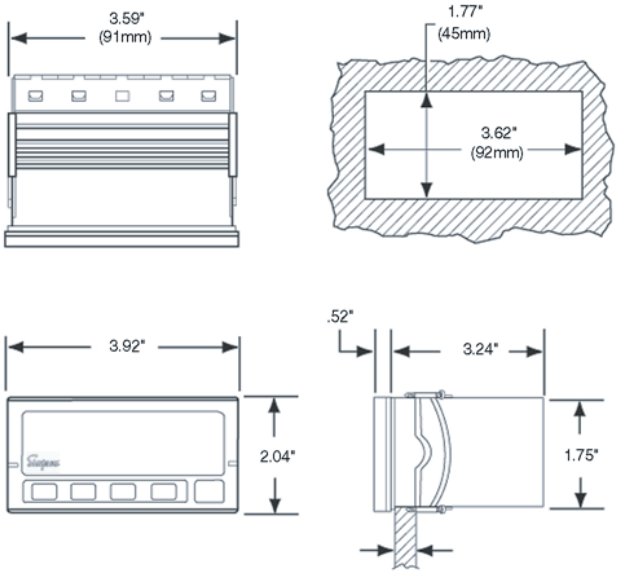
Installation and Panel Cutout - H335, H340, H345



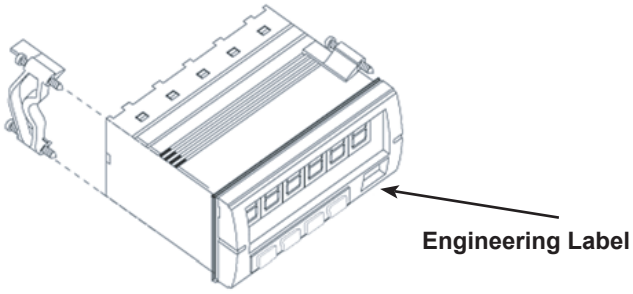
Mounting Requirements
The Hawk 3 Advanced Digital Controller 1/8 DIN meters require a panel cutout of 1.77" (45mm) high by 3.62" (92mm) wide.

To install the Hawk 3 meter into a panel cutout, remove the clips from the side of the meter.

Slide the meter through the panel cutout, then slide the mounting clips back on the meter. Press evenly to ensure a proper fit. Tighten screws.

Engineering Label Placement
To replace the engineering unit label, place the tip of a ballpoint 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 ballpoint pen to slide it down into place.



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Inputs

DC Voltage				
Range	Resolution 4-1/2	Resolution 3-1/2	Input Impedance	Overload
200 mV	10 µV	.1 mV	1M Ω	5 DCV
2 V	.1 mV	1 mV	1M Ω	5 DCV
20 V	1 mV	10 mV	1M Ω	300 DCV
200 V	10 mV	.1 V	1M Ω	300 DCV
600 V	.1 V	1 V	1M Ω	1K DCV

AC Voltage (same for TRMS @ 60 Hz)				
Range	Resolution 4-1/2	Resolution 3-1/2	Input Impedance	Overload
200 mV	10 µV	.1 mV	200K Ω	5 DCV
2 V	.1 mV	1 mV	200K Ω	5 DCV
20 V	1 mV	10 mV	1M Ω	300 DCV
200 V	10 mV	.1 V	1M Ω	300 DCV
600 V	.1 V	1 V	1M Ω	1K DCV

DC Current				
Range	Resolution 4-1/2	Resolution 3-1/2	Input Impedance	Overload
200 µA	10 nA	.1 µA	1K Ω	4.5 mA DC
2 mA	.1 µA	1 µA	100 Ω	45 mA DC
20 mA	1 µA	10 µA	10 Ω	200 mA DC
200 mA	10 µA	.1 mA	1 Ω	600 mA DC
2 A	.1 mA	1 mA	.013 Ω	5.5 A DC
5 A	1 mA	10 mA	.013 Ω	5.5 A DC

AC Current (same for TRMS @ 60 Hz)				
Range	Resolution 4-1/2	Resolution 3-1/2	Input Impedance	Overload
200 µA	10 nA	.1 µA	1K Ω	4.5 mA DC
2 mA	.1 µA	1 µA	100 Ω	45 mA DC
20 mA	1 µA	10 µA	10 Ω	200 mA DC
200 mA	10 µA	.1 mA	1 Ω	600 mA DC
2 A	.1 mA	1 mA	.013 Ω	5.5 A DC
5 A	1 mA	10 mA	.013 Ω	5.5 A DC

Resistance				
Range	Resolution 4-1/2	Resolution 3-1/2	Input Impedance	Overload
200 Ω	10 m Ω	.1 Ω	1.2K Ω	± 5 DCV
2K Ω	.1 Ω	1 Ω	12K Ω	± 5 DCV
20K Ω	1 Ω	10 Ω	121K Ω	± 5 DCV
200K Ω	10 Ω	100 Ω	1.2M Ω	± 5 DCV

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