

# Hawk 3 Digital Panel Meter/Controller



- 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 power supply output optional
- 4-20mA or 0-10 DCV analog transmission optional
- NEMA 4X rated front panel

## Specifications

### DISPLAY

|                       |                                                           |
|-----------------------|-----------------------------------------------------------|
| Type                  | 7-segment, red LED                                        |
| Quantity              | 4 or 5                                                    |
| Brightness            | 5 user-selectable levels                                  |
| Height                | 0.56" (14.2mm)                                            |
| Decimal point         | 4 or 5 position, user programmable                        |
| Overrange indication  | Display flashes "EEEE" indicating Maximum Value Exceeded  |
| Underrange indication | Display flashes "-EEEE" indicating Minimum Value Exceeded |
| Alarm Indicators      | 4 LED indicators for up to four independent setpoints     |

### POWER REQUIREMENTS

|           |                        |
|-----------|------------------------|
| AC        | 120, 85-250 VAC @ 10VA |
| DC        | 9-36 DCV @ 10VA        |
| ISOLATION | 250V RMS MAX           |

### ACCURACY @ 25°C as % of rdg

|                    | 4-1/2 digit     | 3-1/2 digit     |
|--------------------|-----------------|-----------------|
| <b>DC Current</b>  |                 |                 |
| High (5A, 2A)      | 0.2% ± 1 count  | 0.3% ± 1 count  |
| All Others         | 0.05% ± 1 count | 0.1% ± 1 count  |
| <b>DC Volts</b>    |                 |                 |
| High (600 V)       | 0.1% ± 1 count  | 0.2% ± 1 count  |
| All others         | 0.05% ± 1 count | 0.1% ± 1 count  |
| <b>Resistance</b>  |                 |                 |
| All ranges         | 0.1% ± 2 counts | 0.1% ± 2 counts |
| <b>*AC Current</b> |                 |                 |
| High (2A, 5A)      | 0.2% ± 2 counts | 0.3% ± 2 counts |
| All others         | 0.1% ± 2 counts | 0.2% ± 2 counts |
| <b>*AC Volts</b>   |                 |                 |
| High (600V)        | 0.1% ± 1 count  | 0.2% ± 1 count  |
| All others         | 0.05% ± 1 count | 0.1% ± 1 count  |

\* AC functions measured at 50 Hz, include ± 1 count for each additional 100 Hz above 50 Hz

### ENVIRONMENTAL

|                       |                  |
|-----------------------|------------------|
| Operating Temperature | 0 to 50°C        |
| Storage Temperature   | -10 to +60°C     |
| Relative Humidity     | <80%             |
| Ambient Temperature   | 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 |

### A TO D CONVERSION

|              |                                                      |
|--------------|------------------------------------------------------|
| Technique    | Successive approximation with oversampling           |
| Sample Rate  | 10 conversions per second                            |
| Display Rate | User programmable<br>1-420 updates/min (240 default) |

### MECHANICAL

|              |                                                 |
|--------------|-------------------------------------------------|
| Bezel        | 3.9" x 2.0" x 0.52" (99.8mm x 51.9mm x 13.2 mm) |
| Depth        | 3.24" (82.3 mm)                                 |
| Panel Cutout | 3.62" x 1.77" (92 mm x 45mm)                    |
| Weight       | 10 oz (283.5g)                                  |
| Cover        | NEMA 4X Rated front panel                       |

more >>



# Hawk 3 Digital Panel Meter/Controller

## Ordering Information

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

|                      |   |                      |   |                      |   |                      |   |                      |
|----------------------|---|----------------------|---|----------------------|---|----------------------|---|----------------------|
| <input type="text"/> | — | <input type="text"/> | — | <input type="text"/> | — | <input type="text"/> | — | <input type="text"/> |
|----------------------|---|----------------------|---|----------------------|---|----------------------|---|----------------------|

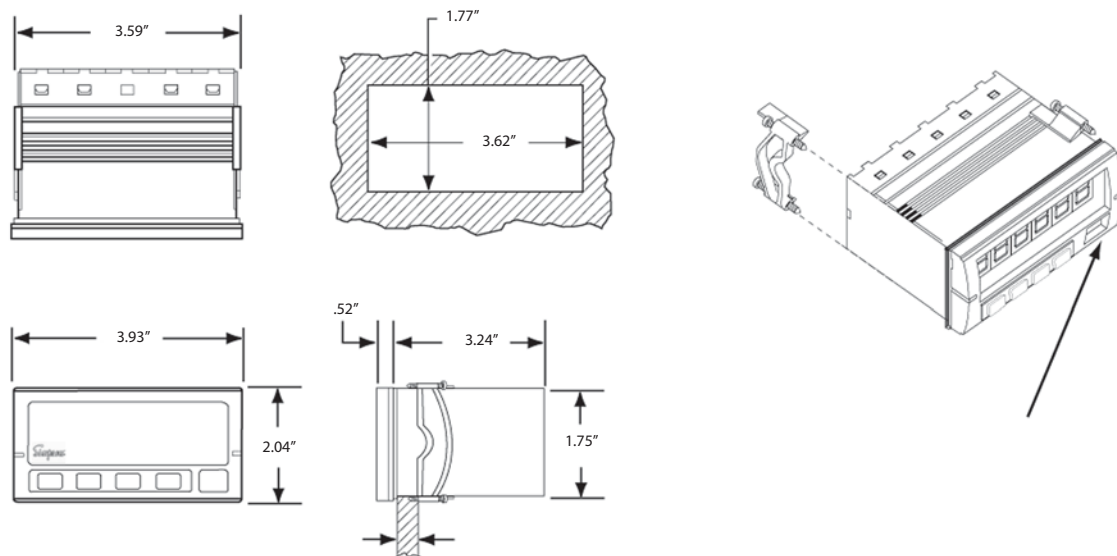
|                   |                     |                       |                      |                 |                   |
|-------------------|---------------------|-----------------------|----------------------|-----------------|-------------------|
| <b>Basic Unit</b> | <b>Power Supply</b> | <b>Function/Range</b> | <b>Output Signal</b> | <b>5A Relay</b> | <b>Excitation</b> |
|-------------------|---------------------|-----------------------|----------------------|-----------------|-------------------|

| Selection                       | Description             | Selection                       | Description         |
|---------------------------------|-------------------------|---------------------------------|---------------------|
| <b>Basic Unit</b>               |                         | <b>Function/Range continued</b> |                     |
| H335                            | 3-1/2 digit, Red LED    | 51                              | 200 ACmV TRMS       |
| H345                            | 4-1/2 digit, Red LED    | 52                              | 2 ACV TRMS          |
| <b>Power Supply</b>             |                         | 53                              | 20 ACV TRMS         |
| 1                               | 120 ACV (3-1/2 only)    | 54                              | 200 ACV TRMS        |
| 2                               | 85-250 ACV (4-1/2 only) | 55                              | 600 ACV* TRMS       |
| 3                               | 9-36 DCV                | <b>5A Relays</b>                |                     |
| 4                               | 85-250 ACV (3-1/2 only) | 0                               | None                |
| <b>Function/Range</b>           |                         | 1                               | One                 |
| 11                              | 200 DCmv                | 2                               | Two                 |
| 12                              | 2 DCV                   | 4                               | Four                |
| 13                              | 20 DCV                  | <b>Excitation</b>               |                     |
| 14                              | 200 DCV                 | 0                               | None                |
| 15                              | 600 DCV*                | 1                               | 12 DCV              |
| <b>Output Signal</b>            |                         | 2                               | 24 DCV              |
| 21                              | 200 DCμA                | <b>5A Relays continued</b>      |                     |
| 22                              | 2 DCmA                  | 61                              | 200 ACμA TRMS       |
| 23                              | 20 DCmA                 | 62                              | 2 ACmA TRMS         |
| 24                              | 200 DCmA                | 63                              | 20 ACmA TRMS        |
| 25                              | 2 DCA                   | 64                              | 200 ACmA TRMS       |
| 26                              | 5 DCA                   | 65                              | 2 ACA TRMS          |
| <b>Function/Range continued</b> |                         | 66                              | 5 ACA TRMS          |
| 31                              | 200 ACmV                | 71                              | 4-20 DCmA Process   |
| 32                              | 2 ACV                   | 72                              | 0-10 DCV Process    |
| 33                              | 20 ACV                  | <b>Output</b>                   |                     |
| 34                              | 200 ACV                 | 0                               | None                |
| 35                              | 600 ACV*                | 1                               | 4-20 DCmA           |
| <b>Function/Range continued</b> |                         | 2                               | 0-10 DCV            |
| 41                              | 200 ACμA                | 6                               | RS-485 (4-1/2 only) |
| 42                              | 2 ACmA                  | <b>5A Relays</b>                |                     |
| 43                              | 20 ACmA                 | 0                               | None                |
| 44                              | 200 ACmA                | 1                               | One                 |
| 45                              | 2 ACA                   | 2                               | Two                 |
| 46                              | 5 ACA                   | 4                               | Four                |
| <b>Excitation</b>               |                         | <b>Excitation</b>               |                     |
| Continued on next column        |                         | 0                               | None                |
| * Awaiting UL approval          |                         | 1                               | 12 DCV              |
|                                 |                         | 2                               | 24 DCV              |



# Hawk 3 Installation Instructions

## 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 and 3.62" (92 mm wide). To install the Hawk 3 meter into the 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 into place.

## Inputs

### DC Voltage

| Range | Resolution 4.5 | Resolution 3.5 | Input Impedance | Overload |
|-------|----------------|----------------|-----------------|----------|
| 200mV | 10µV           | .1mV           | 1MΩ             | 5DCV     |
| 2V    | .1mV           | 1mV            | 1MΩ             | 5DCV     |
| 20V   | 1mV            | 10mV           | 1MΩ             | 300DCV   |
| 200V  | 10mV           | .1V            | 1MΩ             | 300DCV   |
| 600V  | .1V            | 1V             | 1MΩ             | 1KDCV    |

### DC Current

| Range | Resolution 4.5 | Resolution 3.5 | Input Impedance | Overload |
|-------|----------------|----------------|-----------------|----------|
| 200µA | 10nA           | .1µA           | 1KΩ             | 45mADC   |
| 2mA   | .1µA           | 1µA            | 100Ω            | 45mADC   |
| 20mA  | 1µA            | 10µA           | 10Ω             | 200mADC  |
| 200mA | 10µA           | .1mA           | 1Ω              | 600mADC  |
| 2A    | .1mA           | 1mA            | .013Ω           | 5.5ADC   |
| 5A    | .1mA           | 1mA            | .013Ω           | 5.5ADC   |

### AC Current

| Range | Resolution 4.5 | Resolution 3.5 | Input Impedance | Overload |
|-------|----------------|----------------|-----------------|----------|
| 200µA | 10nA           | .1µA           | 1KΩ             | 45mA DC  |
| 2mA   | .1µA           | 1µA            | 100Ω            | 45mA DC  |
| 20mA  | 1µA            | 10µA           | 10Ω             | 200mA DC |
| 200mA | 10µA           | .1mA           | 1Ω              | 600mA DC |
| 2A    | .1mA           | 1mA            | .013Ω           | 5.5ADC   |
| 5A    | .1mA           | 1mA            | .013Ω           | 5.5ADC   |

### AC Voltage

| Range | Resolution 4.5 | Resolution 3.5 | Input Impedance | Overload |
|-------|----------------|----------------|-----------------|----------|
| 200mV | 10µV           | .1mV           | 200KΩ           | 5DCV     |
| 2V    | .1mV           | 1mV            | 200KΩ           | 5DCV     |
| 20V   | 1mV            | 10mV           | 1MΩ             | 300DCV   |
| 200V  | 10mV           | .1V            | 1MΩ             | 300DCV   |
| 600V  | .1V            | 1V             | 1MΩ             | 1KDCV    |

### Resistance

| Range | Resolution 4.5 | Resolution 3.5 | Input Impedance | Overload |
|-------|----------------|----------------|-----------------|----------|
| 200Ω  | 10mΩ           | .1Ω            | 1.2KΩ           | ± 5DCV   |
| 2KΩ   | .1Ω            | 1Ω             | 12KΩ            | ± 5DCV   |
| 20KΩ  | 1Ω             | 10Ω            | 121KΩ           | ± 5DCV   |
| 200KΩ | 10Ω            | 100Ω           | 1.2MΩ           | ± 5DCV   |

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