



# Hoyt Combo Meter

## Digital Meters

Precision Analog AND Digital  
In One Panel Meter



### ANALOG METER SPECIFICATIONS

#### ALL METERS 5035/5036 SERIES\*

Accuracy:	±2% of full scale
Overload:	20% sustained
Ranges:	AC and DC; many options available

\*Other 3 1/2" case styles available for special order.

### FEATURES

#### THE FIRST ANALOG/DIGITAL METER — THE HOYT COMBO SERIES

■ Hoyt has resolved forever the question of choosing between digital or analog panel meters with the new Combo Series. For the first time, all of the advantages of both analog and digital panel meters are combined in one meter. The Combo Series features the same precision analog meter movement you expect from Hoyt, with the addition of a 3 1/2 digit, bright red, digital display featuring 0.37" high digits. For all their innovation, the new Combo Series meters are completely compatible with existing analog-only or digital panel meter applications.

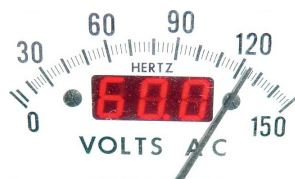
#### SIGNAL- AND LOOP-POWERED

■ With the addition of what amounts to a digital panel meter (DPM) in an analog panel meter case, questions immediately arise regarding input signal and power supply common, ground, "floating", single ended, or differential inputs. Hoyt resolves these questions too, very simply — the new Combo Series meters are self-powered, 2-wire meters. That means there are only two connections, the + and - leads of the input signal. The entire meter, both analog and digital displays, is fully powered by the signal being measured. There are never any grounding or signal- reference questions.

#### SIGNIFICANT SPACE SAVINGS

■ Regardless of whether you use analog or digital panel meters now, incorporating Hoyt's Combo Series will provide a significant space savings in your next application. If you are using analog panel meters now, you can instantly achieve the added benefit of both by upgrading to a Hoyt Combo Series meter. It's fast, easy, and the two-wire connections allow the Combo Series to upgrade virtually any analog meter application.

#### MODELS FOR YOUR APPLICATION



■ Large, bright red LED digital displays are available in Combo Series meters to monitor a wide variety of AC voltage, DC voltage, and frequency ranges. Hour meters are available in the Combo Series with LCD digital displays. With the most popular signals and ranges addressed, Hoyt has a Combo Series meter to meet your specifications.



# Hoyt Combo Meter

## Digital Meters

Precision Analog AND Digital  
In One Panel Meter

### DIGITAL METERS SPECIFICATIONS

#### GENERAL

Digital Display:	0.37"/9.4mm digits; bright red LED
Sampling Rate:	2.5 readings/second
<u>Measurement Type</u>	
AC:	half-wave average, rms; calibrated for sinusoidal input Standard "+"; Ground "-"
DC:	
Accuracy:	At 25°C unless noted otherwise
<u>Temperature Drift</u>	
AC Volts:	$\pm 0.15\text{V}/^\circ\text{C}$ maximum; $-25^\circ\text{C}$ to $+60^\circ\text{C}$
DC Volts:	$\pm 0.3$ counts/ $^\circ\text{C}$ maximum
Current Consumption:	50mA maximum; range dependent
<u>Environmental</u>	
Operating Temp.:	$-25^\circ\text{C}$ to $+60^\circ\text{C}$
Storage Temp.:	$-40^\circ\text{C}$ to $+75^\circ\text{C}$
Humidity:	0 to 95%
(Non-condensing)	

#### AC LINE VOLTAGE

Input Voltage Range:	85 to 600V <sub>RMS</sub> available
Input Frequency Range:	47 to 63Hz; 350-450Hz
Input Overload Protection:	300V <sub>RMS</sub> (Overvoltage category II)
Accuracy:	$\pm 1\text{V}$ typical; $\pm 2\text{V}$ maximum
Resolution:	1V

#### AC LINE FREQUENCY

Input Voltage Range:	85 to 140V <sub>AC</sub> ; 170 to 264V <sub>AC</sub>
Input Frequency Range:	47 to 99Hz; 350 to 450Hz
Input Overload Protection:	200V <sub>RMS</sub> , maximum for 120V; 300V <sub>RMS</sub> , maximum for 240V
Sample Rate:	4 readings/second
Accuracy:	$\pm 0.1\text{Hz}$ ; $-25^\circ\text{C}$ to $+60^\circ\text{C}$
Display:	0.4"/10.1mm bright red LED

#### HOURLY METER

Input Voltage Range:	4.5 to 19V <sub>DC</sub> ; 9 to 60V <sub>DC</sub> 36 to 185V <sub>DC</sub> ; 75 to 270V <sub>AC</sub>
Resolution:	0.1 Hour
Accuracy:	$\pm 0.1\%$ Hours, $\pm 1$ count
Non-Volatile Memory:	$-40^\circ\text{C}$ to $+89^\circ\text{C}$ ; SAE
Display:	5mm; 6 digits (99,999.9 Hours)

#### DC VOLTAGE

Input Voltage Range:	2 to 6V <sub>DC</sub> ; 4.5 to 19.99V <sub>DC</sub> 18 to 50V <sub>DC</sub> ; 30 to 264V <sub>DC</sub>
Resolution:	0.5% to 3.3%, range dependent*
Accuracy:	$\pm 0.5\%$ to $\pm 3.3\%$ , range dependent*
*Refer to DC Voltage Ranges table	

#### DC AMPERES

Source Voltage:	5VDC minimum
Input Voltage Range:	0 to 50mV <sub>DC</sub> ; 0 to 100mV <sub>DC</sub>
Resolution:	1 count
Accuracy:	$\pm 1\%$
Shunts:	External; 50 or 100mV <sub>DC</sub> compatible; Field adjustable
Scaling:	Application-specific

#### 4-20mA CURRENT LOOP

Input Range:	4mA <sub>DC</sub> minimum; 20mA <sub>DC</sub> maximum
Voltage Drop:	5VDC
Accuracy:	$\pm 0.05\%$ , $\pm 1$ count
Resolution:	0.01mA minimum; scale dependent
Zero:	Field adjustable
Gain:	Field adjustable
Scale:	Between 0 to 1999; DIP selectable

#### AC AMPERES

Input Current Range:	0 to 2000A <sub>AC</sub>
Power:	85 to 264 V <sub>AC</sub>
Resolution:	0.1 Amps, 0-500 A <sub>AC</sub> 1.0 Amps, 1000-2000 A <sub>AC</sub>
Accuracy:	$\pm 1$ Amp



# Hoyt Combo Meter

## Digital Meters

Precision Analog AND Digital  
In One Panel Meter

### OPTIONS FOR DIGITAL: ORDERING INFORMATION

#### AC VOLTAGE RANGES

Input Range (V <sub>AC</sub> )	Frequency (Hz)	Hoyt Option #
85 to 264	47.0 to 63.0	56VA124
85 to 140	350 to 450	40VA120
240 to 310	47.0 to 99.0	56VA240
350 to 600	47.0 to 63.0	56VA480

#### AC FREQUENCY RANGES

Input Range (V <sub>AC</sub> )	Frequency (Hz)	Resolution (Hz)	Hoyt Option #
85 to 140	47.0 to 99.0	0.1	56HZ120
85 to 140	350 to 450	1.0	40HZ120
190 to 264	47.0 to 99.0	0.1	56HZ240

#### DC VOLTAGE RANGES

Input Range (V <sub>DC</sub> )	Resolution (V <sub>DC</sub> )	Accuracy (V <sub>DC</sub> )	Hoyt Option #
+2.00 to +6.00	0.01	±0.01	26VD
+4.50 to +19.99	0.01	±0.01	520VD
+18.0 to +50.0	0.1	±0.1	1850VD
+30 to +264	1.0	±1	30264VD
0 to 5*	DIP Switch Selectable Scaling 5PVD		
0 to 10*	DIP Switch Selectable Scaling 10PVD		

\*Aux Power Required (15 - 40VDC)

#### AC AMPERES (POWER: 85-264 VAC) (5AAC CT RATED)

Input Range (A <sub>AC</sub> )	Resolution	Accuracy	Hoyt Option #
0 to 100	0.1A	±1A	56AA101
0 to 200	0.1A	±1A	56AA201
0 to 300	0.1A	±1A	56AA301
0 to 500	0.1A	±1A	56AA501
0 to 1000	1.0A	±1A	56AA102
0 to 2000	1.0A	±1A	56AA202

#### DC AMPERE RANGES

Input Range (mV <sub>DC</sub> )	Hoyt Option #
0 to 50	50MVA SCALED (specify)
0 to 100	100MVA SCALED (specify)

#### HOUR METER INPUT VOLTAGE RANGES

Input Range	Hoyt Option #
5 to 15VDC	HR12VD
9 to 60VDC	HR24VD
36 to 185VDC	HR30VD
75 to 270VAC	HR24VA

#### 4-20MA CURRENT LOOP

Input Range (mA <sub>DC</sub> )	Hoyt Option
4 to 20 (Specify Scaling)	42LP102