AMPROBE®

Data Sheet

HD160C

Heavy-Duty Digital Multimeter

Rugged autoranging meter with true-rms

Key features:

- **Measures 1500 VDC**
- **CAT IV 1000 V**
- **IP67 Rated**
- **Temperature, Frequency & Capacitance**
- **Magne-Grip™ holster with magnetic hanging strap**

No hassle warranty

No waiting.

No shipping charges.

Our commitment to high-quality products and customer service is demonstrated by our industry exclusive "No Hassle" warranty. In the unlikely event that an Amprobe Test Tool requires warranty service, any of our local dealers are authorized to replace it, on the spot.

- Highest voltage capability, measuring to 1500 Vdc and 1000 Vac
- CAT IV 1000 V rated
- Special sealing for environment and water resistance. IP67 rated
- Constructed with drop-resistant housing and PCB mounting
- Measures capacitance, temperature and frequency
- Superior 10,000 count resolution with bar graph
- Magne-Grip™ holster, frees both hands for work
- Includes high voltage test leads with threaded alligator clips
- Temperature measurement built-in
- Frequency and capacitance
- Digi-Glo™ bright backlight

The HD160C is designed for professional use in harsh environments. The meter is unusually rugged and reliable in everyday heavy use applications. The meter is made using waterproof construction to prevent dirt, grime and moisture from entering the case and causing inaccurate readings or damaging shorts.

Built of tough, fire-retardant thermoplastic resistant to grease and chemical spills, with all sensitive components shock-mounted for a drop resistance to at least eight feet.

Model HD160C has an extended voltage measurement capability of 1500 V dc and 1000 V ac, unmatched by any other line of digital multimeters. The extended voltage ranges can withstand transients up to 12 kV.

HD160C

N10140

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HD160C Technical Specifications

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General Specifications

Display	4 digit LCD, 9999 counts, with annunciators, menu features and 41 segment bargraph.
Polarity Indication	Automatic
Input overload indication	OL, -OL.
Low Battery Indication	; less than 50 hours battery life remain, accuracy is no longer guaranteed
Display Update Rate	2/sec, nominal; 20/sec for bargraph.
Oper. Temp.	0 °C to +50 °C @ 0 to 75 % R.H.
Storage Temp.	-20 °C to 60 °C @ 0 to 80 % RH, battery removed
Altitude	2000 meters - indoor use
Temperature coefficient	0.1 x (spec. accuracy)/°C (0 °C to 18 °C and 28 °C to 50 °C)
Fuse	F 2 A/1500 V fuse (8 mm x 65 mm), I.R. 30 kA – Amprobe® p/n FP700
Power	Standard 9-volt battery, NEDA 1604, JIS 006P, IEC 6F22
Auto Power-Down	Meter powers down after approximately 30 minutes of inactivity. Not in Min/Max function.
Battery Life (typical)	150 hours, alkaline. Backlight usage consumes extra power and will decrease battery life significantly. Backlight auto-off after approx. 60 seconds.
Dimensions, without holster (H x W x D)	200 x 102 x 59 mm (7.9 in x 4.0 in x 2.3 in)
Weight (incl. battery)	642 g (22 oz)
Accessories	Heavy Duty CAT IV 1000 V Test leads with threaded alligator clips (TL1500), battery (installed), hex wrench (inside holster), Holster with Magne-Grip strap, Type K thermocouple probe (TP255), Temperature Adaptor (TA-1A) and User Manual.
Case material	Reinforced, high-impact, fire retardant thermoplastic
Safety	Meets EN 61010-1 **CAT IV 1000 V (1500 V DC max) Class II, EN 60529:IP67**
EMC	Meets EN 61326-1

Electrical Specifications *(Accuracy at 23 °C ± 5 °C, <75 % RH, guaranteed for one year.)*

Function	Range	Accuracy
DC Volts		
Ranges	1000 mV, 10 V, 100 V, 1500 V	
Resolution	0.1 mV in 1000 mV range	
Accuracy	±(0.1 % rdg + 5 dgt)	
Input Impedance	10 MΩ	
CMRR	>120 dB up to 1500 V dc	
NMRR	>60 dB at 50 or 60 Hz	
OL Protection	1500 V dc or 1000 V ac rms.	
Transient protection	12 kV impulse (1.2 µS/50 µS) based on EN 61010-1:2001 impulse requirement for at CAT IV 1000 V/1500V dc product. This product should not be used in installations where transients exceed 12 kV.	
AC Volts True rms		
Ranges	1000 mV, 10 V, 100 V, 1000 V	
Resolution	0.1 mV in 1000 mV range	
Accuracy	1000 mV (45 Hz to 400 Hz) 10 V, 100 V (45 Hz to 500 Hz) 10 V, 100 V (500 Hz to 2 kHz) 1000 V (45 Hz to 1 kHz)	± (1.2 % rdg + 10 dgt) ± (1.2 % rdg + 10 dgt) ± (2.0 % rdg + 10 dgt) ± (2.0 % rdg + 10 dgt)
Input Impedance	10 MΩ	
Conversion type	True rms, ac coupled 5 % to 100 % of range	
Crest factor	≤ 3	
OL Protection	1500 V dc or 1000 V ac rms	
Transient protection	12 kV impulse (1.2 µS/50 µS) based on EN 61010-1:2001 impulse requirement for at CAT IV 1000 V product. This product should not be used in installations where transients exceed 12 kV	

HD160C Technical Specifications (continued)

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Function	Range	Accuracy
DC Current		
Ranges	100 µA, 1000 µA, 10mA, 100mA, 400mA, 2A (Auto/Manual ranging)	
Resolution	0.01µA in 100 µA range	
Accuracy	100 µA range 1000 µA to 400 mA ranges 2 A range	± (0.5% rdg + 10 dgts) ± (0.5% rdg + 5 dgts) ± (1.5% rdg + 10 dgts)
Input protection	2 A/1500 V fast blow ceramic fuse 8×65 mm on A input , FP700	
Burden voltage	µA range of 1 mV/1 µA, mA range of 10 mV/1 mA, 2A range of 500 mV/1A, 500 mV max. (2 V max. on 1000 µA, 100 mA, 400 mA, 2 A ranges)	
OL Protection	A Input (F 2 A/1500 V, size 8 x 65 mm IR fast blow ceramic)	
AC Current True rms		
Ranges	100 µA, 1000 µA, 10 mA, 100 mA, 400 mA, 2 A	
Resolution	0.01 µA in 100 µA range	
Accuracy (45 Hz to 1kHz)	100 µA to 100 mA 400 mA 2 A	± (1.5 % + 10 dgts) ± (2.0 % + 10 dgts) ± (2.5 % + 20 dgts)
Voltage burden	see DC Current	
Conversion type	True rms ac coupled 10 to 100% of range	
Crest factor	≤ 3	
OL protection	see DC Current	
Resistance		
Ranges	1000 Ω, 10 kΩ, 100 kΩ, 1000 kΩ, 10 MΩ, 40 MΩ	
Resolution	0.1 Ω in 1000 Ω range	
Accuracy	1000 Ω to 1000 kΩ ranges 10 MΩ range 40 MΩ range	± (0.5 % rdg + 8 dgts) ± (1.0 % rdg + 10 dgts) ± (2.0 % rdg + 10 dgts)
Overload protection, all ranges	1500 V dc or 1000 V ac rms	
Continuity Test		
Audible indication	Less than 40 Ω	
Response time	100 ms	
Overload protection	1500 V dc or 1000 V ac rms	
Capacitance		
Ranges	40 ηF, 400 ηF, 4 µF, 40 µF, 400 µF (3999 counts) (Auto/Manual ranging)	
Resolution	0.01 ηF	
Accuracy	40 ηF, 400 µF ranges 400 ηF to 40 µF ranges	±(3.0% rdg +10 dgts) ±(3.0% rdg +5 dgts)
Test voltage	< 1 V	
Test Frequency	1.3 Hz on 40 ηF to 40 µF ranges; 0.7 Hz on 400 µF range	
Overload protection	1500 V dc or 1000 V ac rms	
Temperature		
Ranges	-20 °C ~ 1300 °C (-4° F ~ 2372 °F)	3999 counts
Resolution	1 °C, 1 °F	
Accuracy	-20 °C ~ 10 °C 10 °C ~ 200 °C 200 °C ~ 1300 °C -4 °F ~ 50 °F 50° F ~ 400 °F 400 °F ~2372 °F	±(2.0% rdg + 4 °C) ±(1.0% rdg + 3 °C) ±(2.0% rdg + 2 °C) ±(2.0% rdg + 8 °F) ±(1.0% rdg + 6 °F) ±(2.0% rdg + 4 °F)
Overload protection	1500 V dc or 1000 V ac rms	

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HD160C Technical Specifications (continued)

Data Sheet

Function	Range	Accuracy
Frequency		
Ranges	100Hz, 1000Hz, 10kHz, 100kHz, 1000kHz, 10MHz	
Resolution	0.01 Hz on 100 Hz range	
Accuracy	±(0.1% rdg + 5 dgts)	
Sensitivity	3 Hz to 1 MHz 1MHz to 10MHz	>2.5 V ac rms >2.5 V ac rms, <5 V ac rms
Minimum input range	100 Hz range 1000 Hz range	>3 Hz; >30 Hz
Minimum pulse width	> 25 ns	
Duty cycle limits	> 30 % and < 70 %	
Overload protection	1500 V dc or 1000 V ac rms	

Included Accessories

Heavy Duty CAT IV 1000 V Test leads with threaded alligator clips (TL1500), battery (installed), hex wrench (inside holster), Holster with Magne-Grip strap, Type K thermocouple probe (TP255), Temperature Adaptor (TA-1A) and User Manual.

Optional Accessories

TL1500	Cat IV 1000 V Test Leads with Alligator Clips
CT235A	1000 A ac/dc Clamp
CT237A	200 A ac/dc Current Clamp
CT238A	20 A ac/dc Current Clamp
VC221B	Padded Vinyl Case. Fits meter & holster.
DC205C	Deluxe Hard-Shell Carry Case
DC207C	Large Deluxe Hard-Shell Carry Case with extra space for accessories
HV231-10A	High Voltage Probe
FP700	Replacement Fuse, 2 A/1500 V, pack of two
TA-1A	K-type thermocouple, temperature adapter

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