



## MODEL APLI - APOLLO CURRENT METERS & MODEL APLV - APOLLO VOLTMETERS



- **FOUR MULTI-RANGE UNITS COVER:**  
199.9  $\mu$ A to 1.999 A, 199.9 mV \* (A.C. or D.C.)  
1.999 V to 300 V (A.C. or D.C.)
- **3 1/2-DIGIT, 0.56" (14.2 mm) HIGH LED DISPLAY W/POLARITY**
- **BUILT-IN SCALING PROVISIONS**
- **SELECTABLE DECIMAL POINT LOCATION**
- **AUTO ZEROING CIRCUITS**
- **FRONT PANEL CALIBRATION ADJUSTMENT**
- **OVER-RANGE INDICATION**
- **NEMA 4/IP65 SEALED FRONT METAL BEZEL**



\* Accessory Shunts Available For Higher Current Ranges.

### DESCRIPTION

Apollo Volt and Current Meters are premium quality instruments designed for tough industrial applications. With multi-range capability, built-in provision for scaling, and DIP switch selectable decimal points, these units offer the ultimate in application flexibility. Just four basic models, off-the-shelf, from your local distributor, cover your voltage and current indicator needs, as well as your requirements for direct readout from pressure, speed or flow transducers, or any other variable that can be translated to voltage or current.

The attractive die-cast metal bezel of the Apollo not only enhances the appearance of any panel, it can also be sealed in the front panel for use in wash-down areas and tough, dirty industrial environments. The 3 1/2-digit bi-polar display (minus sign displayed when current or voltage is negative) features 0.56" (14.2 mm) high, 7-segment LED's for easy reading. Also featured are removable terminal blocks on the rear that facilitate installation wiring and change-outs.

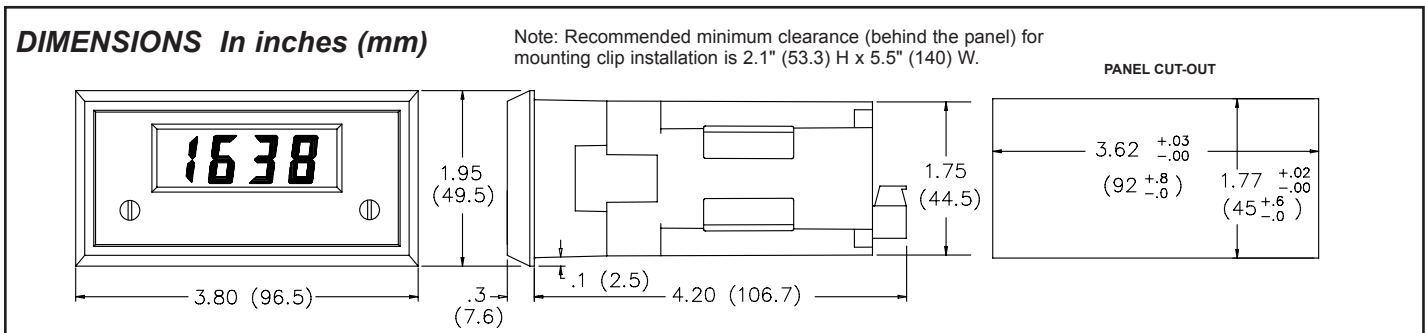
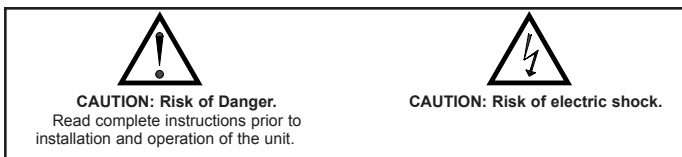
### SAFETY SUMMARY

All safety related regulations, local codes and instructions that appear in the manual or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

### SPECIFICATIONS

1. **DISPLAY:** 3 1/2-digit, 0.56" (14.2 mm) high, 7-segment LED, (-) minus sign displayed when current or voltage is negative. Decimal points inserted before 1st, 2nd, or 3rd least significant digits by DIP switch selection.
2. **POWER:** Available in either 115 VAC or 230 VAC versions. Allowable power line variation  $\pm 10\%$ , 50/60 Hz, 6 VA.  
**Isolation:** 2300 Vrms for 1 min. between input and supply (300 V working voltage).
3. **INPUT RANGES:** (Selectable by input and jumper connections.)

A.C. Voltmeters	A.C. Current Meters	D.C. Voltmeters	D.C. Current Meters
0-1.999 Volts (basic range)	0-199.9 $\mu$ A (microamps) 0-1.999 mA (milliamps)	$\pm 1.999$ Volts (basic range)	$\pm 199.9$ $\mu$ A (microamps) $\pm 1.999$ mA (milliamps)
0-19.99 Volts	0-19.99 mA	$\pm 19.99$ Volts	$\pm 19.99$ mA
0-199.9 Volts	0-199.9 mA	$\pm 199.9$ Volts	$\pm 199.9$ mA
0-300 Volts	0-1.999 amps 0-199.9 mV (basic range)	$\pm 300$ Volts	$\pm 1.999$ amps $\pm 199.9$ mV (basic range)
4. **ACCURACY:**
  - DC Volts** -  $\pm(0.1\%$  of Reading + 1 digit)
  - AC Volts** -  $\pm(0.1\%$  of Reading + 2 digits) (45-500 Hz)
  - DC Current**
    - 199.9  $\mu$ A, 1.999 mA, 19.99 mA:**  $\pm(0.1\%$  of Reading + 1 digit)
    - 199.9 mA:**  $\pm(0.15\%$  of Reading + 1 digit)
    - 1.999 A:**  $\pm(0.5\%$  of Reading + 1 digit)
  - AC Current (45-500 Hz)**
    - 199.9  $\mu$ A, 1.999 mA, 19.99 mA:**  $\pm(0.1\%$  of Reading + 2 digits)
    - 199.9 mA:**  $\pm(0.15\%$  of Reading + 2 digits)
    - 1 A:**  $\pm(0.5\%$  of Reading + 2 digits)
5. **OVER-RANGE INDICATION:** on all modes is indicated by blanking 3 least significant digits.
6. **MAX. VOLTAGE ON BASIC RANGE INPUTS:** 75 VAC or DC (Term. 8 to 3 on voltmeters, Term. 9 to 3 on current meters).
7. **MAX. VOLTAGE ON TERMINAL BLOCK:** 300 VAC or DC (Both voltmeters and current meters).



8. **MAX. SHUNT CURRENTS (ON CURRENT METERS):**

**199.9 µA through 19.99 mA:** 10 x max. range current

**199.9 mA:** 1 amp

**1.999 amp:** 3 amps

*Caution: In circuits where fault currents can exceed the maximum shunt current, a fast-blow fuse should be installed in series with the input signal.*

*Otherwise, a slow blow 10 amp fuse is recommended that will allow for start-up over current situations, while still protecting the instrument.*

9. **TEMPERATURE COEFFICIENTS:**

<b>Current meters</b>	<b>Voltmeters</b>
D.C.: ±100 PPM/°C	D.C.: ±75 PPM/°C
A.C.: ±200 PPM/°C	A.C.: ±150 PPM/°C

10. **ENVIRONMENTAL CONDITIONS:**

**Operating Temperature :** 0° to 60°C

**Storage Temperature :** -40° to 80°C

**Operating and Storage Humidity:** 85% max. relative humidity (non-condensing) from 0°C to 50°C.

**Altitude:** Up to 2000 meters

11. **RESPONSE TIME TO STEP CHANGE INPUT:** 1 sec. nominal

12. **READING RATE:** 2.5 readings/sec., nominal

13. **NORMAL MODE REJECTION:** 50 dB 50/60 Hz (D.C. units only)

14. **COMMON MODE REJECTION:** 110 dB D.C. or 50/60 Hz (D.C. units only)

15. **COMMON MODE VOLTAGE (COMM. TO EARTH):** 350 volt peak

16. **CERTIFICATIONS AND COMPLIANCES:**

**SAFETY**

IEC 61010-1, EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 1.

IP65 Enclosure rating (Face only), IEC 529

Type 4 Enclosure rating (Face only), UL50

**ELECTROMAGNETIC COMPATIBILITY:**

**Immunity to EN 50082-2**

Electrostatic discharge	EN 61000-4-2	Level 2; 4 Kv contact Level 3; 8 Kv air
Electromagnetic RF fields	EN 61000-4-3	Level 3; 10 V/m <sup>1</sup> 80 MHz - 1 GHz
Fast transients (burst)	EN 61000-4-4	Level 4; 2 Kv I/O Level 3; 2 Kv power
RF conducted interference	EN 61000-4-6	Level 3; 10 V/rms <sup>2</sup> 150 KHz - 80 MHz
Power frequency magnetic fields	EN 61000-4-8	Level 4; 30 A/m
Simulation of cordless telephone	ENV 50204	Level 3; 10 V/m 900 MHz ± 5 MHz 200 Hz, 50% duty cycle

**Emissions to EN 50081-2**

RF interference	EN 55011	Enclosure class A Power mains class A
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*Notes:*

1. *Self-recoverable loss of performance during EMI disturbance at 10 V/m: Process signal may deviate during EMI disturbances.*

*For operation without loss of performance:*

*Unit is mounted in a grounded metal enclosure (Buckeye SM7013-0 or equivalent)*

*I/O and power cables are routed in metal conduit connected to earth ground.*

2. *Self-recoverable loss of performance during EMI disturbance at 10 V/rms: Process signal may deviate during EMI disturbances.*

*For operation without loss of performance:*

*Install power line filter, RLC#LFIL0000 or equivalent*

*Refer to the EMC Installation Guidelines section of this bulletin for additional information.*

17. **CONSTRUCTION:** Metal die-cast front bezel with black, high impact plastic insert case. This unit is rated for NEMA 4/IP65 indoor use when properly installed (panel gasket and mounting clips included). Installation Category II, Pollution Degree 2.

18. **WEIGHT:** 1.2 lbs. (0.54 Kg)

MODEL NO.	DESCRIPTION	PART NUMBERS	
		230 VAC	115 VAC
**APLVD	Apollo DC Voltmeter	APLVD410	APLVD400
**APLVA	Apollo AC Voltmeter	APLVA410	APLVA400
**APLID	Apollo DC Current Meter	APLID410	APLID400
**APLIA	Apollo AC Current Meter	APLIA410	APLIA400
-	*10 amp Current Shunt	APSCM010	
-	*100 amp Current Shunt	APSCM100	

For more information on Pricing, Enclosures, & Panel Mount Kits, refer to the RLC Catalog or contact your local RLC distributor.

\* Voltage drop at full current = 100.0 mV maximum. Continuous current should not exceed 115% of rating.

\*\* Units are shipped calibrated to the following readings:

MODEL NO.	DISPLAY @ INPUT
APLVD	1999 @ 1.999 VDC
APLVA	1999 @ 1.999 VAC
APLID	1999 @ 199.9 mVDC
APLIA	1999 @ 199.9 mVAC