

### Elapsed Time Meters

**Product Codes - 99,999.99 Hours, Non Reset, Burden 2.5VA  
50 or 60Hz**

Synchronous motor running time meter with a non-resettable indicator.



**Elapsed Time Meter**

Rating	4 1/2" square flange	
	Std. case catalog number	Std. case hi-shock catalog number
110/130V 50Hz	•007-155A-PNZH-C5	078-155J-PNZH-C5
200/250V 50Hz	•007-155A-RNZH-C5	078-155J-RNZH-C5
480V 50Hz	•007-155A-SEZH-C5	078-155J-SEZH-C5
110/130V 60Hz	•007-156A-PNZH-C6	078-156J-PNZH-C6
200/250V 60Hz	•007-156A-RNZH-C6	078-156J-RNZH-C6
480V 60Hz	•007-156A-SEZH-C6	078-156J-SEZH-C6

### AC Phase Sequence, Phase Failure Indicators

**Product Codes - Neon Bulb Type, Burden 2.5VA**

Two neon bulbs for phase sequence indication - first marked the caption "correct 1-2-3", the second marked "incorrect 3-2-1". Three neon bulbs for phase failure indication - first marked 1, second marked 2, third marked 3.

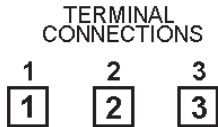


**AC Phase Sequence and Phase Failure Indicator**

Rating	4 1/2" square flange	
	Std. case catalog number	Std. case hi-shock catalog number
100/150V 50/60Hz	077-12PA-P2C6	Not available
151/300V 50/60Hz	077-12PA-P3C6	Not available
301/500V 50/60Hz	077-12PA-P4C6	Not available

For connection diagram refer to Figure E.

**Fig. E** Model 077-12P  
Phase Sequence Indicator  
3-Phase 3- or 4-Wire systems



# ANSI Switchboard Meters

High quality range of switchboard instruments with Class 1 accuracy and which complies with American ANSI-C39.1 (1981) specifications. Available in 4 1/2" case size, the rugged design characteristics meet the needs of the most demanding environmental applications. This extensive range of analog and digital/analog meters utilizes high shock and provides 1% accuracy for all RMS AC and DC ranges. The range offers various customized options and features.

## Description

Our Switchboard Meter series offers two case types; models 007 and 078.

Model 078 is high shock hermetically sealed and all models have heavy gauge pressed steel cases. Mounting is by four integral studs. Model 078 has a die-cast bezel and a projecting moulded toughened glass window, which incorporates a gas tight zero adjuster.

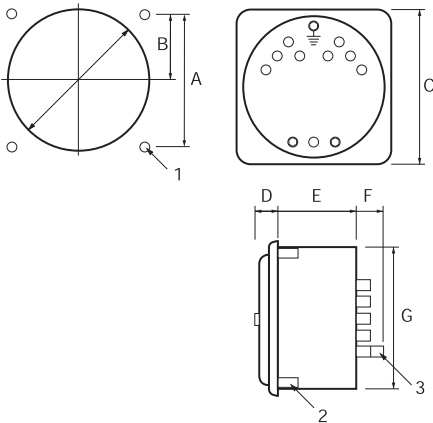
Model 007 is a one piece flame retardant polycarbonate moulding with a black matte finished bezel area, and a specially contoured window to minimize reflection from adjacent light sources.

Scales are 240° moving iron and 250° moving coil with parallax error-free platform dials. Standard dials are white matte with black printed scales and bar knife-edge pointers.

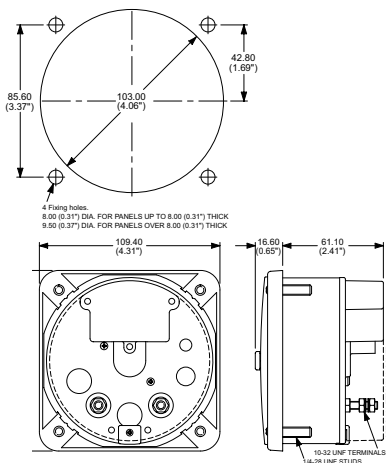
## Specifications

<b>Performance</b>	ANSI C39.1 (1981)
<b>Accuracy</b>	Class 1
<b>Terminals</b>	10 - 32 UNF terminals
<b>Response time</b>	Approximately 2.5 seconds to full scale (007 and 078)
<b>Dielectric voltage</b>	Withstand test 2.3 kV for 1 minute
<b>Standard calibration</b>	23°C
<b>Operating temperature</b>	0°C to +60°C. Model 078: -40°C to +70°C
<b>Storage temperature</b>	-10°C to +50°C
<b>Extreme temperature range</b>	-20°C to +65°C
<b>Enclosure integrity</b>	Model 007 to IP54 (NEMA 3S) splash proof, Model 078 to IP67 (NEMA 6 and 6P)
<b>Fixing on panel</b>	4 integral 1/4 -28 UNF fixing studs
<b>Certifications</b>	cULus for 007 Models, CE for 078 Models

## 007 Power and 078



## 007 AMPs | Volts | Frequency Only



## Dimensions (in inches)

Model	Panel Cutout			Rear View		Side View		
	Dia	A	B	C	D	E	F	G
007 (Amps, Volts & Freq.)	4.06	3.37	1.69	4.31	0.65	2.41	-	4.05
007 Others	4.06	3.37	1.69	4.31	0.65	-	0.91	4.05
078	4.06	3.37	1.69	4.31	0.63	-	0.91	4.05

Dimension E on 007 others and 078 products varies with measured parameter. See product code on following page.

Dimension F on 078 (Amps, Volts & Freq.) products is included with dimension E.

1-4 Fixing holes Ø 8mm. 2-1/4-28 UNF fixing studs. 3-10-32 UNF terminals.

### Features

- Rugged pivot and jewel movement
- Class 1 accuracy

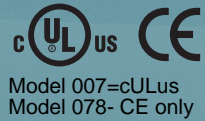
### Benefits

- Meets all the requirements of ANSI-C39.1 (1981)
- Parallax error-free platform dials
- Bump, shock and vibration proof
- Customized options and features

### Applications

- Switchgear
- Distribution systems
- Generator sets
- Control panels
- Energy management
- Building management
- Utility power monitoring
- Process control
- Motor control

### Certifications



Type of instrument	Ranges	Dimension E		Product code
		007	078	
AC rectified ammeter	1 - 30A	56	86	007/078-05B
AC rectified voltmeter	30 - 800V	56	86	007/078-05W
AC RMS ammeter	1 - 30A	56	86	007/078-05F
AC RMS voltmeter	150 - 750V	56	86	007/078-05G
Elapsed time meter (99999.99)	50 or 60Hz / 100 - 440V* and DC	56	56	007/078-155/156
Frequency meter	50, 60	<b>56</b>	<b>56</b>	007/078-41L
AC wattmeter or VArmeter	0.2 - 10A/100 - 440V*	<b>86</b>	<b>86</b>	007/078-21 or 31
LED synchroscope only	63.5 - 480V****	86	-	077-14A
LED synchroscope and synchro check relay	63.5 - 480V****	86	-	077-14 L/G/D/U
Phase sequence indicator	100 - 150, 151 - 300, 301 - 500V	56	-	077-12P
Transducer operated indicator	1, 5, 10, 20, or 4/20mA	56	56	007/078-05
DC ammeter moving coil	200QA - 30A 56	56	56	007/078-05A
DC voltmeter moving coil	50mV - 600V 56	56	56	007/078-05V
240° phase angle   power factor	1 or 5A, 100 - 400V, 50, 60	<b>86</b>	<b>86</b>	007/078-42
DIGI/Analog AC ammeter	1mA - 10A	86	-	007-DIB
DIGI/Analog AC voltmeter	200mV - 600V	86	-	007-DIW
DIGI/Analog DC ammeter	1mA - 1A	86	-	007-DIA
DIGI/Analog DC voltmeter	20mV - 600V	86	-	007-DIV
DIGI/Analog transducer indicator	DC mA	86	-	007-DIT
DIGI/Analog tachometer	AC or DC rated	86	-	007-DI2

\* 100-440V = (100/125, 200/250, 380/440).

\*\*100-440V = (100/125, 200/250, 380/440). Frequencies 45/55, 55/65, 45/65, 46/54, 50/70, 58/62, 56/64.

\*\*\*\*Nominal voltage to be specified.



## Switchboard Meter Options



### Scale - Options

Options	Option code
Red or colored line or mark (specify position)	SL
Colored zones or segments (specify limits and color(s))	SZ
Customer   user logo imprinted on dial	SM

### Construction - Options

Options	Option code
Anti-glare window	BR
Polychloroprene panel gasket	MG

The suffix option code is added at the end of the complete part number.

