

YOKOGAWA 

# Panel METERS

Catalog



# YOKOGAWA Supplies A Complete Line of Precise Panel Meters . . .



### Elapsed Time Meters

Devices will match the frequency of AC power systems. Six-digit counters record hours, tenths of hours, minutes and tenths of minutes. Reset or non-reset models available.



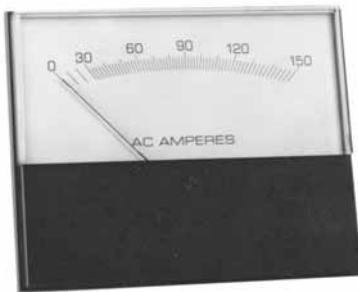
### Horizon Line Panel Meters

These meters possess the same precision qualities as New Big Look. In addition, Horizon Line panel meters can be front or rear mounted on panel.



### New Big Look Panel Meters

These meters feature extra-wide scales, big bold numerals above the scale and divisions for unobstructed reading. Tapered needle-sharp pointers and shadow-free acrylic covers help to pinpoint values. Available in taut band and pivot and jewel types. Gasket sealer gives New Big Look dust and moisture resistant design. (Except 1 1/2").



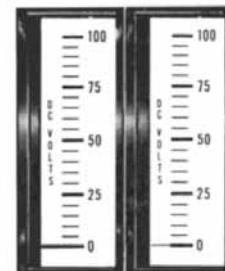
### Stylist Series Panel Meters

Available in Window mount or Surface mount styles. Optional bezels for Surface mount permit rear panel mounting. Standard movement torque to weight ratio is approximately 4 times greater than most other manufacturer's high torque versions.



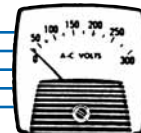
### Thin edgewise meters

Our thin element design provides the maximum performance in the smallest of spaces. Available in 1 1/2" to 3 1/2" sizes for vertical or horizontal mounting.

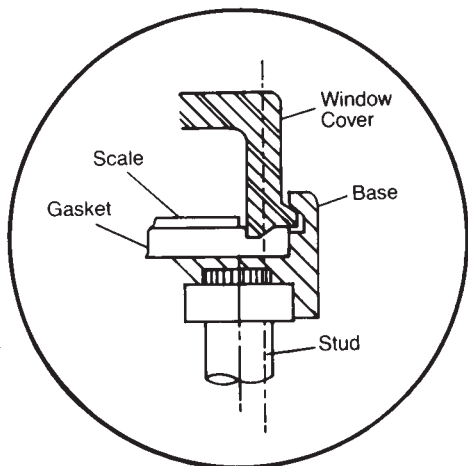


### Edgewise Meters

YOKOGAWA's answer to the squeeze for space problem. This design allows meters to be mounted vertically or horizontally. They can stand alone or be stacked in space-saving clusters. Built-in magnetic shielding prevents interference among meters and removes the burden of special calibration.

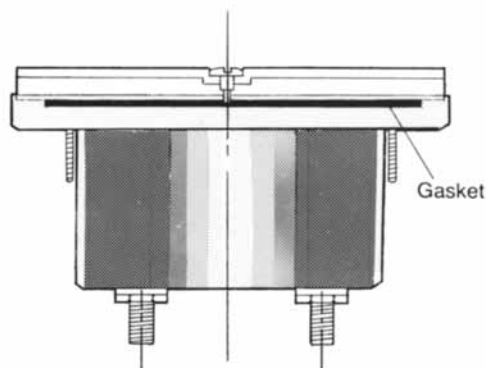


# YOKOGAWA Offers These Advantages . . .



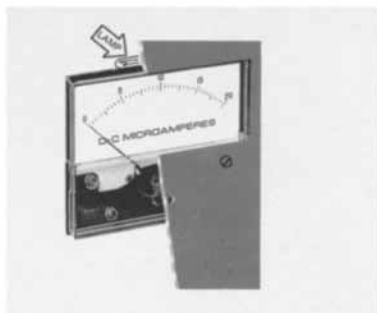
## Gasket Sealing Design Establishes A New Industry Standard

Dust resistant construction is now a standard feature of all New Big Look panel meters 2½"-4½" only. YOKOGAWA's unique gasket sealing design eliminates the need for a crimped bezel, providing for quick modification and scale changes while maintaining the integrity of the meters.



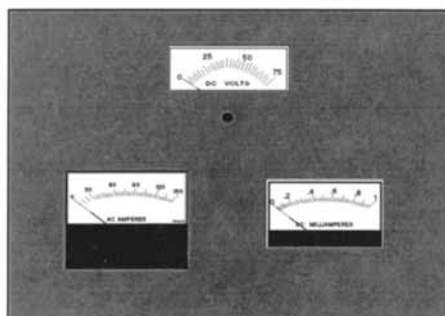
## Dust Resistant Construction

YOKOGAWA Big Look panel meters, except 1½", feature gasketed construction to seal out dust and other air-suspended damaging particles. Application is ideal for adverse environments. Special dust resistant features are included on all YOKOGAWA New Big Look meters, (except 1½"). For more severe applications, to meet UL-1437 or IEC 144 requirements, other models are also available upon request.



## Back-Of-Panel Mounting For Horizon Line

Horizon Line panel meters can be mounted either behind or in front of the panel. Behind-panel mounting is easy . . . just remove snap-off mask and mount. No special mounting hardware or bezel is required. This design feature improves panel appearance . . . saves time and money. When illuminated scales are required, simply position light source as shown, or in any suitable position along the edge of the instrument.

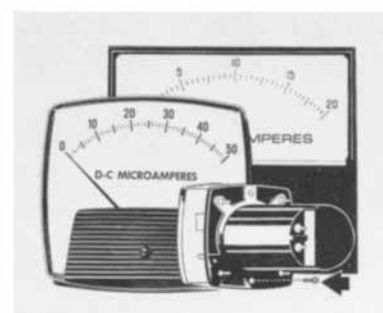


## Three Mounting Types Available in Stylist Series

Rear Panel Window Mount

Front of Panel Surface Mount

Rear Panel Surface Mount Available with Optional Bezel



## Clean, Readable Case Design Provides Extra Safety

YOKOGAWA's brand New Big Look and Horizon Line panel meters are designed to provide attractive styling, quick, sure readability for any application . . . and a built in safety feature to help you meet national safety requirements. If you must remove the acrylic cover, you have to remove the instrument itself from the panel in order to reach the special safety screws holding on the cover. Removing the meter prevents shock hazard. This safety feature is standard on all New Big Look and Horizon Line meters.

# New Big Look, Horizon Line and Stylist Panel Meters

## Suspension

### Taut Band

Taut band is a means of suspending the moving mechanism between two ribbons of metal, obviating the need for pivots, jewels and control springs found in conventional mechanisms. The absence of friction resulting from this permits greater sensitivities and provides more rugged meters. Common failures of conventional meters subjected to shock testing are cracked jewels and/or blunted pivots. Taut band, without pivot and jewels, consequently, will withstand shock in excess of that specified for pivot and jewel meters. For example, ANSI Specifications for panel meters require 50G shock. Taut-band meters will withstand 100G shock.

### Pivot and Jewel

In this design the coil and pointer are supported by polished steel pivots at each end which fit into jewel bearings. Pivot and jewel meters are recommended for high-vibration environments because of the mechanism's inherent stability and strength. Accuracy and repeatability are almost equal to the taut-band's, and good performance from the pivot and jewel construction is the reason for its long popularity. Don't specify pivot and jewel meters for applications that involve high shock, but do take advantage of this meter's ability to withstand vibration.

### High-sensitivity DC Voltmeters

Standard DC voltmeter sensitivity is 1000 ohms/volt. Expressed differently, 1000 ohms/volt sensitivity means that the meter draws approximately one milliamp full-scale current.

Occasionally lower current drains are necessary, hence higher sensitivities may be required. The table below compares available sensitivities, maximum self-contained voltages, and approximate full-scale currents. The voltage range could be extended by using external resistors.

### Maximum and Minimum Ratings

In general, the maximum and minimum ratings of current and voltage are those listed in "Ratings." Listed are rating limits for self-contained meters.

Ratings greater than those listed can be accomplished by use of external shunts, resistors or transformers. Meters to be used with external accessories are shown in "Ratings." See page 29 for Shunts, resistors and Transformers.

## Expanded-scale Voltmeters

For very close monitoring of voltages, Zener diode expanded scale voltmeters are available in 3½- and 4½-inch sizes for AC and DC ratings. Accuracy is ±0.5% of full-scale value. Standard voltage spans are listed in "Ratings."

Expanded scale voltmeters can be furnished for any mid-span values from 12 to 300 volts. Minimum span is 16% of mid-span value.

### Frequency Effect — AC Meters

Iron vane voltmeters are sensitive to frequency and should not be used on frequencies other than design frequency. (Standard voltmeters are calibrated at 60 Hertz. Used at 50 Hertz, accuracy becomes ±2½%. There are also 150- and 300-volt ratings listed which are calibrated at 400 Hertz). For calibrations at frequencies other than 60 and 400 Hertz, refer to factory.

All Iron-vane ammeters (which produce a conventional scale distribution with divisions crowded in lower third of scale) from 10 milliamperes to 50 amperes are virtually unaffected by a change in frequency; e.g., a stock ammeter (calibrated at 60 Hertz) when used at 400 Hertz incurs an additional error of only .5 percent full-scale. If used on 1000 Hertz, the additional error is 4 percent. We recommend use of stock (60 Hertz) ammeters on any frequency in the range of 25 Hertz to 400 Hertz. For calibration at frequencies outside the 25-Hertz to 400-Hertz range, refer to factory or use a rectifier-type AC ammeter.

### Rectifier-type Meters

Rectifier-type meters differ from iron-vane mechanisms in that:

- They provide a nominally linear (DC) scale rather than conventional iron-vane distribution which has a slight crowding at low end of scale.

- AC current measurements of microamperes and milliamperes at minimum power consumption are permitted.

- AC voltmeters of higher sensitivity (ohms/volt) than iron-vane types can be made.

- Frequency response of rectifier type meters is essentially flat from 20 to 1,000 Hertz (1% effect from reference to 60 Hertz). Rectifier-type meters employ a full-wave rectifier and are available in ratings of 500µA to 30A.

### Suppressed-zero DC Meters

DC meters can be mechanically suppressed up to 20% of end-scale value. However, additional errors are introduced by suppressions; e.g.,

$$\text{Errors at 20\% suppression} = \pm 3\% \text{ of end-scale}$$

Many process transmitters in use today provide a 4-20mA signal (occasionally 10-50 mA or 1-5mA) and require a suppressed-zero meter with operating zero set. These are known as "live-zero" and are standard.

### Higher Accuracy

Standard calibration accuracy is ±2% of full scale. DC meters can be calibrated to ±1% of full scale as a special model in 3½" and 4½" with mirrored scale.

### Conduit Mounting Case — 2½-inch New Big Look Meter

Available only for 2½-inch Type 250 panel meters, for indoor or outdoor use, the conduit-mounted case provides protection to the meter under severe environmental conditions. The conduit case is both sealed and weatherproof and is pre-drilled, ready for mounting of separately ordered panel meters. Assembly of meter into case is done by purchaser. (Drawing No. 2579K10700.)

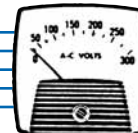
Data subject to change without notice.

#### MINIMUM RATING

SERIES	STYLIST				BIG LOOK & HORIZON LINE			
	1½	2½	3½	4½	1½	2½	3½	4½
DC CURRENT	10µA				20µA			50µA
DC VOLTAGE	50mV				50mV			
AC CURRENT (IRON VANE)	---	10mA			---	10mA		
AC VOLTAGE (IRON VANE)	---	3V			---	3V		
AC CURRENT (RECTIFIER)	1mA				500µA			
AC VOLTAGE (RECTIFIER)	3V				10V			

#### MAXIMUM RATING

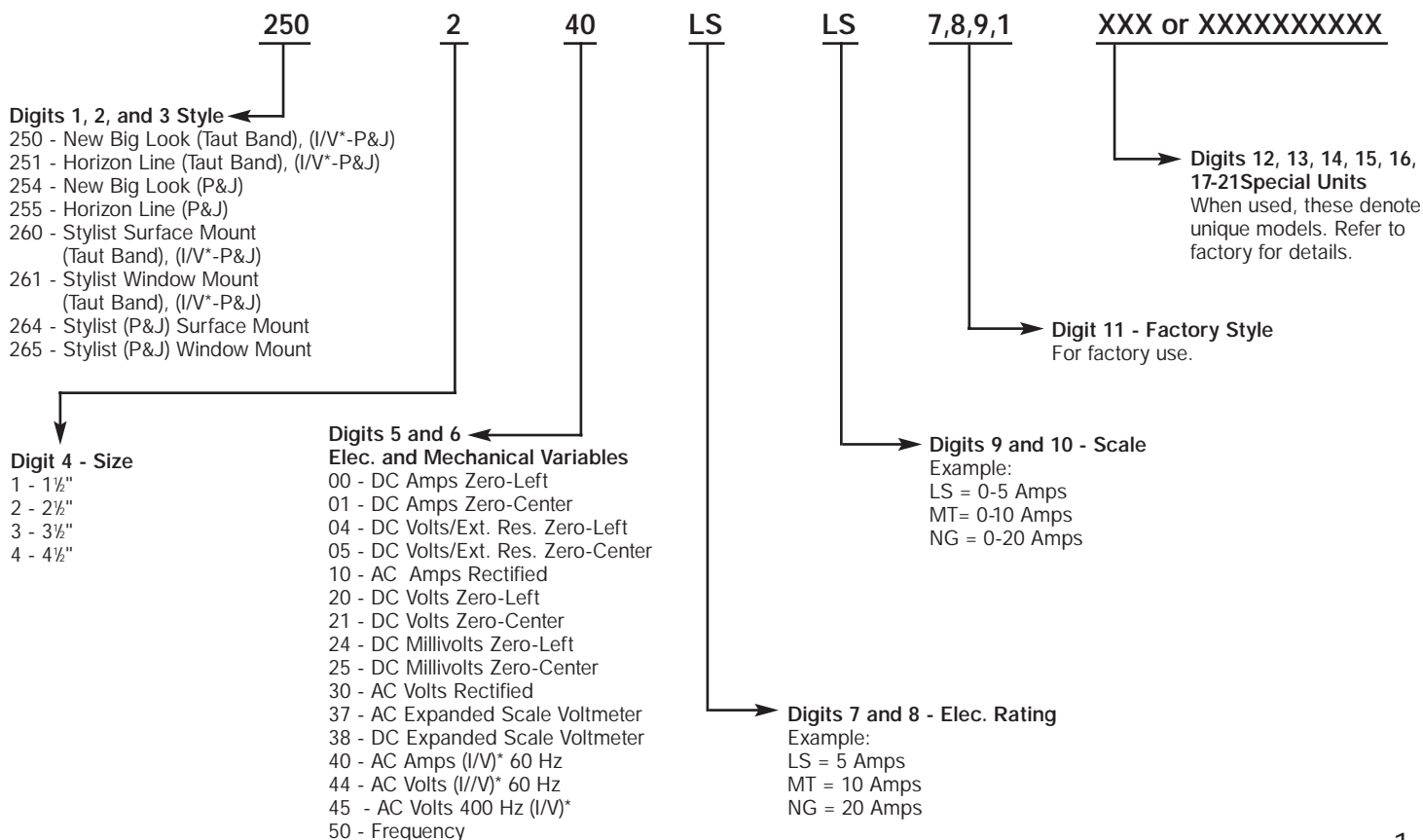
DC CURRENT	10A	50A		15A	30A	50A	
DC VOLTAGE	1000V		300V		600V		
AC CURRENT (IRON VANE)	---	50A		---	30A	80A	
AC VOLTAGE (IRON VANE)	---	600V		---	300V		
AC CURRENT (RECTIFIER)	100mA	30A		20mA			
AC VOLTAGE (RECTIFIER)	600V		150V		300V		



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## Key to 200-Prefix Catalog Numbers



\*I/V = Iron Vane Mechanism



Type 250 and 254  
New Big Look

## Specifications

**Accuracy:** All DC and AC iron-vane;  $\pm 2\%$  of full-scale AC rectifier type;  $\pm 3\%$  of full scale (with 60 Hz sine wave at 25° C). When standard 60 Hz iron vane ammeters are used at the extreme limits of 25 or 400 Hz, additional error (approx. .75%) may be experienced. Expanded-scale voltmeters:  $\pm .5\%$  of full scale value.

**ANSI Specification:** All meters meet ANSI Specifications C-39.1

**Overload:** Voltmeters (AC and DC) - 50% momentary, 20% sustained. Ammeters (AC and DC) momentary; 10 times the rated current for 10 consecutive intervals of .5 second with a 1 minute interval between successive applications; sustained: 20% for six hours.

**Scale Data:** 90 degree rotation.

### Scale Length:

Size	New Big Look
1½"	1.40"
2½"	2.06"
3½"	2.88"
4½"	3.93"

**Insulation Level:** All meters (except 1½"), 2600 Vrms Hi-pot, 1½"-1500 Vrms Hi-pot.

**Burden Data:** AC ammeter-5 amps, 0.5 va, Max. 0.5 power-factor lagging @ 60 Hz. AC voltmeter - unity power factor.

### Response Time and Overshoot:

Response time: 3 seconds (max.) for 2½", 3½", 4½" size for microammeters; 2 seconds (max.) for all other DC ratings, and 2.5 seconds (max) for AC ratings. Maximum of 40% overshoot.

**Dimensions:** See page 34-35

## How To Order

To order New Big Look panel meters use the appropriate catalog numbers provided in the tables. Taut band & AC I/V instruments have a 250 prefix number. Pivot & Jewel instruments have a prefix of 254.

### Ordering Examples:

- 2½", 300 V DC Voltmeter, zero left, taut band - 250 220 RXRX
- 2½", 300 V DC Voltmeter, zero left, pivot & jewel, 254 style - 254 220 RXRX
- 2½", 300 V AC (Iron Vane), pivot & jewel - 250244 RXRX

### Notes:

Pivot & jewel instruments are not available in 1½" size.

Meter with flame retardant window and base in 2½", 3½" and 4½" sizes are available that conform to UL1437. Include /CUL or /UL at the end of the catalog number or contact factory.

Sealed meters for outdoor use can be ordered in 2½", 3½" and 4½" sizes by including /IEC at the end of the catalog number, or contact factory.

For ratings and scales not listed contact the factory.

## DC Voltmeters

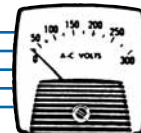
Size	1½"	2½"		3½"		4½"	
Rating & Scale	Type	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

### DC VOLTMETERS — ZERO-LEFT

1.0 Volts	250 120 LALA	250 220 LALA	254 220 LALA	250 320 LALA	254 320 LALA	250 420 LALA	254 420 LALA
1.5 Volts	250 120 LCLC	250 220 LCLC	254 220 LCLC	250 320 LCLC	254 320 LCLC	250 420 LCLC	254 420 LCLC
3 Volts	250 120 LJLJ	250 220 LJLJ	254 220 LJLJ	250 320 LJLJ	254 320 LJLJ	250 420 LJLJ	254 420 LJLJ
5 Volts	250 120 LSLJ	250 220 LSLJ	254 220 LSLJ	250 320 LSLJ	254 320 LSLJ	250 420 LSLJ	254 420 LSLJ
8 Volts	250 120 MJMJ	250 220 MJMJ	254 220 MJMJ	250 320 MJMJ	254 320 MJMJ	250 420 MJMJ	254 420 MJMJ
10 Volts	250 120 MTMT	250 220 MTMT	254 220 MTMT	250 320 MTMT	254 320 MTMT	250 420 MTMT	254 420 MTMT
15 Volts	250 120 NDND	250 220 NDND	254 220 NDND	250 320 NDND	254 320 NDND	250 420 NDND	254 420 NDND
30 Volts	250 120 NLNL	250 220 NLNL	254 220 NLNL	250 320 NLNL	254 320 NLNL	250 420 NLNL	254 420 NLNL
40 Volts	250 120 NPNP	250 220 NPNP	.....	250 320 NPNP	.....	250 420 NPNP	.....
50 Volts	250 120 NTNT	250 220 NTNT	254 220 NTNT	250 320 NTNT	254 320 NTNT	250 420 NTNT	254 420 NTNT
80 Volts	250 120 PDPD	250 220 PDPD	254 220 PDPD	250 320 PDPD	254 320 PDPD	250 420 PDPD	254 420 PDPD
100 Volts	250 120 PKPK	250 220 PKPK	254 220 PKPK	250 320 PKPK	254 320 PKPK	250 420 PKPK	254 420 PKPK
150 Volts	250 120 PZPZ	250 220 PZPZ	254 220 PZPZ	250 320 PZPZ	254 320 PZPZ	250 420 PZPZ	254 420 PZPZ
200 Volts	250 120 RLRL	250 220 RLRL	254 220 RLRL	250 320 RLRL	254 320 RLRL	250 420 RLRL	254 420 RLRL
250 Volts	250 120 RSRS	250 220 RSRS	254 220 RSRS	250 320 RSRS	254 320 RSRS	250 420 RSRS	254 420 RSRS
300 Volts	250 120 RXRX	250 220 RXRX	254 220 RXRX	250 320 RXRX	254 320 RXRX	250 420 RXRX	254 420 RXRX
500 Volts	.....	.....	.....	250 320 SFSF	254 320 SFSF	250 420 SFSF	254 420 SFSF
600 Volts	.....	.....	.....	250 320 SJSJ	254 320 SJSJ	250 420 SJSJ	254 420 SJSJ

### DC VOLTMETERS — ZERO-LEFT, RATED 0-1 mA DC, FOR USE WITH EXTERNAL RESISTORS. RESISTORS NOT INCLUDED (SEE PAGE 29 FOR RESISTORS)

500 Volts	250 104 FASF	250 204 FASF	254 204 FASF	.....	.....	.....	.....
600 Volts	250 104 FASJ	250 204 FASJ	254 204 FASJ	.....	.....	.....	.....
750 Volts	250 104 FASM	250 204 FASM	254 204 FASM	250 304 FASM	254 304 FASM	250 404 FASM	254 404 FASM



# DC Voltmeters Cont'd

Size	1½	2½		3½		4½		
Rating & Scale	Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

## DC VOLTMETERS — ZERO-CENTER

5-0-5 Volts	250 121 LSLS	250 221 LSLS	254 221 LSLS	250 321 LSLS	254 321 LSLS	250 421 LSLS	254 421 LSLS
10-0-10 Volts	250 121 MTMT	250 221 MTMT	254 221 MTMT	250 321 MTMT	254 321 MTMT	250 421 MTMT	254 421 MTMT
30-0-30 Volts	250 121 NLNL	250 221 NLNL	254 221 NLNL	250 321 NLNL	254 321 NLNL	250 421 NLNL	254 421 NLNL
50-0-50 Volts	250 121 NTNT	250 221 NTNT	254 221 NTNT	250 321 NTNT	254 321 NTNT	250 421 NTNT	254 421 NTNT
80-0-80 Volts	250 121 PDPD	250 221 PDPD	254 221 PDPD	250 321 PDPD	254 321 PDPD	250 421 PDPD	254 421 PDPD
150-0-150 Volts	250 121 PZPZ	250 221 PZPZ	254 221 PZPZ	250 321 PZPZ	254 321 PZPZ	250 421 PZPZ	254 421 PZPZ
300-0-300 Volts	250 121 RXRX	250 221 RXRX	254 221 RXRX	250 321 RXRX	254 321 RXRX	250 421 RXRX	254 421 RXRX
500-0-500 Volts	.....	.....	.....	250 321 SF SF	254 321 SF SF	250 421 SF SF	254 421 SF SF
600-0-600 Volts	.....	.....	.....	250 321 SJSJ	254 321 SJSJ	250 421 SJSJ	254 421 SJSJ

## DC VOLTMETERS — EXPANDED SCALE

24-30 Volts	.....	.....	.....	250 338 NNNN	254 338 NNNN	250 438 NNNN	254 438 NNNN
110-130 Volts	.....	.....	.....	250 338 PNP	254 338 PNP	250 438 PNP	254 438 PNP
220-260 Volts	.....	.....	.....	250 338 RTRT	254 338 RTRT	250 438 RTRT	254 438 RTRT

## DC VOLTMETERS — ZERO-CENTER, RATED 1-0-1 mA DC, FOR USE WITH EXTERNAL RESISTORS, RESISTORS NOT INCLUDED (SEE PAGE 29 FOR RESISTORS)

SCALY

500-0-500 Volts	250 105 FASF	250 205 FASF	254 205 FASF	.....	.....	.....	.....
600-0-600 Volts	250 105 FASJ	250 205 FASJ	254 205 FASJ	.....	.....	.....	.....
750-0-750 Volts	250 105 FASM	250 205 FASM	254 205 FASM	250 305 FASM	254 305 FASM	250 405 FASM	254 405 FASM

# DC Ammeters

## DC MICROAMMETERS — ZERO-LEFT

20 µA	250 100 CFCF	250 200 CFCF	.....	250 300 CFCF	.....	.....	.....
50 µA	250 100 CYCY	250 200 CYCY	.....	250 300 CYCY	.....	250 400 CYCY	.....
100 µA	250 100 DRDR	250 200 DRDR	.....	250 300 DRDR	.....	250 400 DRDR	.....
200 µA	250 100 EAEA	250 200 EAEA	254 200 EAEA	250 300 EAEA	254 300 EAEA	250 400 EAEA	254 400 EAEA
500 µA	250 100 EMEM	250 200 EMEM	254 200 EMEM	250 300 EMEM	254 300 EMEM	250 400 EMEM	254 400 EMEM

## DC MICROAMMETERS — ZERO-CENTER

20-0-20 µA	250 101 CFCF	250 201 CFCF	.....	250 301 CFCF	.....	.....	.....
50-0-50 µA	250 101 CYCY	250 201 CYCY	.....	250 301 CYCY	.....	250 401 CYCY	.....
100-0-100 µA	250 101 DRDR	250 201 DRDR	254 201 DRDR	250 301 DRDR	254 301 DRDR	250 401 DRDR	254 401 DRDR
200-0-200 µA	250 101 EAEA	250 201 EAEA	254 201 EAEA	250 301 EAEA	254 301 EAEA	250 401 EAEA	254 401 EAEA
500-0-500 µA	250 101 EMEM	250 201 EMEM	254 201 EMEM	250 301 EMEM	254 301 EMEM	250 401 EMEM	254 401 EMEM

## DC MILLIAMMETERS — ZERO-LEFT

1 mA	250 100 FAFA	250 200 FAFA	254 200 FAFA	250 300 FAFA	254 300 FAFA	250 400 FAFA	254 400 FAFA
5 mA	250 100 FXFX	250 200 FXFZ	254 200 FXFX	250 300 FXFX	254 300 FXFX	250 400 FXFX	254 400 FXFX
10 mA	250 100 GZGZ	250 200 GZGZ	254 200 GZGZ	250 300 GZGZ	254 300 GZGZ	250 400 GZGZ	254 400 GZGZ
20 mA	250 100 HFHF	250 200 HFHF	254 200 HFHF	250 300 HFHF	254 300 HFHF	250 400 HFHF	254 400 HFHF
25 mA	250 100 HJHJ	250 200 HJHJ	254 200 HJHJ	250 300 HJHJ	254 300 HJHJ	250 400 HJHJ	254 400 HJHJ
30 mA	250 100 HMHM	250 200 HMHM	254 200 HMHM	250 300 HMHM	254 300 HMHM	250 400 HMHM	254 400 HMHM
50 mA	250 100 HYHY	250 200 HYHY	254 200 HYHY	250 300 HYHY	254 300 HYHY	250 400 HYHY	254 400 HYHY
80 mA	250 100 JJJJ	250 200 JJJJ	254 200 JJJJ	250 300 JJJJ	254 300 JJJJ	250 400 JJJJ	254 400 JJJJ
100 mA	250 100 JRJR	250 200 JRJR	254 200 JRJR	250 300 JRJR	254 300 JRJR	250 400 JRJR	254 400 JRJR
150 mA	250 100 JXJX	254 200 JXJX	254 200 JXJX	250 300 JXJX	254 300 JXJX	250 400 JXJX	254 400 JXJX
200 mA	250 100 KAKA	250 200 KAKA	254 200 KAKA	250 300 KAKA	254 300 KAKA	250 400 KAKA	254 400 KAKA
250 mA	250 100 KDKD	250 200 KDKD	254 200 KDKD	250 300 KDKD	254 300 KDKD	250 400 KDKD	254 400 KDKD
300 mA	250 100 KGKG	250 200 KGKG	254 200 KGKG	250 300 KGKG	254 300 KGKG	250 400 KGKG	254 400 KGKG
500 mA	250 100 KMKM	250 200 KMKM	254 200 KMKM	250 300 KMKM	254 300 KMKM	250 400 KMKM	254 400 KMKM
800 mA	250 100 KWKW	250 200 KWKW	254 200 KWKW	250 300 KWKW	254 300 KWKW	250 400 KWKW	254 400 KWKW

## DC Ammeters Cont'd

Size	1½	2½		3½		4½		
Rating & Scale	Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

### DC MILLIAMMETERS — ZERO-CENTER

1-0-1 mA	250 101 FAFA	250 201 FAFA	254 201 FAFA	250 301 FAFA	254 301 FAFA	250 401 FAFA	254 401 FAFA
5-0-5 mA	250 101 FFX	250 201 FFX	254 201 FFX	250 301 FFXGX	254 301 FFX	250 401 FFX	254 401 FFX
10-0-10 mA	250 101 GZGZ	250 201 GZGZ	254 201 GZGZ	250 301 GZGZ	254 301 GZGZ	250 401 GZGZ	254 401 GZGZ
20-0-20 mA	250 101 HFHF	250 201 HFHF	254 201 HFHF	250 301 HFHF	254 301 HFHF	250 401 HFHF	254 401 HFHF
25-0-25 mA	250 101 HJHJ	250 201 HJHJ	254 201 HJHJ	250 301 HJHJ	254 301 HJHJ	250 401 HJHJ	254 401 HJHJ
30-0-30 mA	250 101 HMHM	250 201 HMHM	254 201 HMHM	250 301 HMHM	254 301 HMHM	250 401 HMHM	254 401 HMHM
50-0-50 mA	250 101 HYHY	250 201 HYHY	254 201 HYHY	250 301 HYHY	254 301 HYHY	250 401 HYHY	254 401 HYHY
100-0-100 mA	250 101 JRJR	250 201 JRJR	254 201 JRJR	250 301 JRJR	254 301 JRJR	250 401 JRJR	254 401 JRJR
150-0-150 mA	250 101 JXJX	250 201 JXJX	254 201 JXJX	250 301 JXJX	254 301 JXJX	250 401 JXJX	254 401 JXJX
200-0-200 mA	250 101 KAKA	250 201 KAKA	254 201 KAKA	250 301 KAKA	254 301 KAKA	250 401 KAKA	254 401 KAKA
250-0-250 mA	250 101 KDKD	250 201 KDKD	254 201 KDKD	250 301 KDKD	254 301 KDKD	250 401 KDKD	254 401 KDKD
300-0-300 mA	250 101 KGKG	250 201 KGKG	254 201 KGKG	250 301 KGKG	254 301 KGKG	250 401 KGKG	254 401 KGKG
500-0-500 mA	250 101 KMKM	250 201 KMKM	254 201 KMKM	250 301 KMKM	254 301 KMKM	250 401 KMKM	254 401 KMKM

### DC AMMETERS — ZERO-LEFT

1 Amp	250 100 LALA	250 200 LALA	254 200 LALA	250 300 LALA	254 300 LALA	250 400 LALA	254 400 LALA
1.5 Amp	250 100 LCLC	250 200 LCLC	254 200 LCLC	250 300 LCLC	254 300 LCLC	250 400 LCLC	254 400 LCLC
2 Amp	250 100 LELE	250 200 LELE	254 200 LELE	250 300 LELE	254 300 LELE	250 400 LELE	254 200 LELE
3 Amp	250 100 LJLJ	250 200 LJLJ	254 200 LJLJ	250 300 LJLJ	254 300 LJLJ	250 400 LJLJ	254 400 LJLJ
5 Amp	250 100 LSL SLS	250 200 LSL SLS	254 200 LSL SLS	250 300 LSL SLS	254 300 LSL SLS	250 400 LSL SLS	254 400 LSL SLS
10 Amp	250 100 MTMT	250 200 MTMT	254 200 MTMT	250 300 MTMT	254 300 MTMT	250 400 MTMT	254 400 MTMT
15 Amp	250 100 NDND	250 200 NDND	254 200 NDND	250 300 NDND	254 300 NDND	250 400 NDND	254 400 NDND
20 Amp	.....	250 200 NGNG	254 200 NGNG	250 300 NGNG	254 300 NGNG	250 400 NGNG	254 400 NGNG
30 Amp	.....	250 200 NLNL	254 200 NLNL	250 300 NLNL	254 300 NLNL	250 400 NLNL	254 400 NLNL
50 Amp	.....	.....	.....	250 300 NTNT	254 300 NTNT	250 400 NTNT	254 400 NTNT

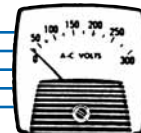
### DC AMMETERS — ZERO-LEFT, 50 mV, SHUNT RATED (LEAD RES. RANGE: .05-.07Ω)\*

SCALE	20 Amp	250 124 ECNG	250 224 ECNG	254 224 ECNG	250 324 ECNG	254 324 ECNG	250 424 ECNG	254 424 ECNG
	30 Amp	250 124 ECNL	250 224 ECNL	254 224 ECNL	250 324 ECNL	254 324 ECNL	250 424 ECNL	254 424 ECNL
	50 Amp	250 124 ECNT	250 224 ECNT	254 224 ECNT	250 324 ECNT	254 324 ECNT	250 424 ECNT	254 424 ECNT
	75 Amp	250 124 ECPB	250 224 ECPB	254 224 ECPB	250 324 ECPB	254 324 ECPB	250 424 ECPB	254 424 ECPB
	100 Amp	250 124 ECPK	250 224 ECPK	254 224 ECPK	250 324 ECPK	254 324 ECPK	250 424 ECPK	254 424 ECPK
	150 Amp	250 124 ECPZ	250 224 ECPZ	254 224 ECPZ	250 324 ECPZ	254 324 ECPZ	250 424 ECPZ	254 424 ECPZ
	200 Amp	250 124 ECRL	250 224 ECRL	254 224 ECRL	250 324 ECRL	254 324 ECRL	250 424 ECRL	254 424 ECRL
	250 Amp	250 124 ECRS	250 224 ECRS	254 224 ECRS	250 324 ECRS	254 324 ECRS	250 424 ECRS	254 424 ECRS
	300 Amp	250 124 ECRX	250 224 ECRX	254 224 ECRX	250 324 ECRX	254 324 ECRX	250 424 ECRX	254 424 ECRX
	400 Amp	250 124 ECSC	250 224 ECSC	254 224 ECSC	250 324 ECSC	254 324 ECSC	250 424 ECSC	254 424 ECSC
	500 Amp	250 124 ECSF	250 224 ECSF	254 224 ECSF	250 324 ECSF	254 324 ECSF	250 424 ECSF	254 424 ECSF
	600 Amp	250 124 ECSJ	250 224 ECSJ	254 224 ECSJ	250 324 ECSJ	254 324 ECSJ	250 424 ECSJ	254 424 ECSJ
	800 Amp	250 124 ECSN	250 224 ECSN	254 224 ECSN	250 324 ECSN	254 324 ECSN	250 424 ECSN	254 424 ECSN
	1 Kiloamp	250 124 ECVA	250 224 ECVA	254 224 ECVA	250 324 ECVA	254 324 ECVA	250 424 ECVA	254 424 ECVA
	1.5 Kiloamp	250 124 ECVC	250 224 ECVC	254 224 ECVC	250 324 ECVC	254 324 ECVC	250 424 ECVC	254 424 ECVC
2 Kiloamp	250 124 ECVE	250 224 ECVE	254 224 ECVE	250 324 ECVE	254 324 ECVE	250 424 ECVE	254 424 ECVE	

### DC AMMETERS — ZERO-LEFT, 100 mV, SHUNT RATED (LEAD RES. RANGE: .04-.08Ω)\*

SCALE	20 Amp	250 124 GBNG	250 224 GBNG	254 224 GBNG	250 324 GBNG	254 324 GBNG	250 424 GBNG	254 424 GBNG
	40 Amp	250 124 GBNP	250 224 GBNP	254 224 GBNP	250 324 GBNP	254 324 GBNP	250 424 GBNP	254 424 GBNP
	50 Amp	250 124 GBNT	250 224 GBNT	254 224 GBNT	250 324 GBNT	254 324 GBNT	250 424 GBNT	254 424 GBNT
	75 Amp	250 124 GBPB	250 224 GBPB	254 224 GBPB	250 324 GBPB	254 324 GBPB	250 424 GBPB	254 424 GBPB
	100 Amp	250 124 GBPK	250 224 GBPK	254 224 GBPK	250 324 GBPK	254 324 GBPK	250 424 GBPK	254 424 GBPK
	150 Amp	250 124 GBPZ	250 224 GBPZ	254 224 GBPZ	250 324 GBPZ	254 324 GBPZ	250 424 GBPZ	254 424 GBPZ
	200 Amp	250 124 GBRL	250 224 GBRL	254 224 GBRL	250 324 GBRL	254 324 GBRL	250 424 GBRL	254 424 GBRL
	250 Amp	250 124 GBRS	250 224 GBRS	254 224 GBRS	250 324 GBRS	254 324 GBRS	250 424 GBRS	254 424 GBRS
	300 Amp	250 124 GBRX	250 224 GBRX	254 224 GBRX	250 324 GBRX	254 324 GBRX	250 424 GBRX	254 424 GBRX
	400 Amp	250 124 GBSC	250 224 GBSC	254 224 GBSC	250 324 GBSC	254 324 GBSC	250 424 GBSC	254 424 GBSC
	500 Amp	250 124 GBSF	250 224 GBSF	254 224 GBSF	250 324 GBSF	254 324 GBSF	250 424 GBSF	254 424 GBSF
	600 Amp	250 124 GBSJ	250 224 GBSJ	254 224 GBSJ	250 324 GBSJ	254 324 GBSJ	250 424 GBSJ	254 424 GBSJ
	800 Amp	250 124 GBSN	250 224 GBSN	254 224 GBSN	250 324 GBSN	254 324 GBSN	250 424 GBSN	254 424 GBSN
	1 Kiloamp	250 124 GBVA	250 224 GBVA	254 224 GBVA	250 324 GBVA	254 324 GBVA	250 424 GBVA	254 424 GBVA
	2 Kiloamp	250 124 GBVE	250 224 GBVE	254 224 GBVE	250 324 GBVE	254 324 GBVE	250 424 GBVE	254 424 GBVE

\*Shunts are not included: For 50mV shunts, see page 31



# DC Ammeters Cont'd

Size	1½	2½		3½		4½		
Rating & Scale	Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

## DC AMMETERS — ZERO-CENTER

1-0-1 Amp	250 101 LALA	250 201 LALA	254 201 LALA	250 301 LALA	254 301 LALA	250 401 LALA	254 401 LALA
2-0-2 Amp	250 101 LELE	250 201 LELE	254 201 LELE	250 301 LELE	254 301 LELE	250 401 LELE	254 401 LELE
5-0-5 Amp	250 101 LSLS	250 201 LSLS	254 201 LSLS	250 301 LSLS	254 301 LSLS	250 401 LSLS	254 401 LSLS
10-0-10 Amp	250 101 MTMT	250 201 MTMT	254 201 MTMT	250 301 MTMT	254 301 MTMT	250 401 MTMT	254 401 MTMT
15-0-15 Amp	.....	250 201 NDND	254 201 NDND	250 301 NDND	254 301 NDND	250 401 NDND	254 401 NDND
20-0-20 Amp	.....	250 201 NGNG	254 201 NGNG	250 301 NGNG	254 301 NGNG	250 401 NGNG	254 401 NGNG
30-0-30 Amp	.....	250 201 NLNL	254 201 NLNL	250 301 NLNL	254 301 NLNL	250 401 NLNL	254 401 NLNL
50-0-50 Amp	.....	.....	.....	250 301 NTNT	254 301 NTNT	250 401 NTNT	254 401 NTNT

## DC AMMETERS — ZERO-CENTER, 50 mV, SHUNT RATED (LEAD RES. RANGE: .05-.07Ω)\*

S  
C  
A  
L  
E

20-0-20 Amp	250 125 ECNG	250 225 ECNG	.....	250 325 ECNG	.....	250 425 ECNG	.....
40-0-40 Amp	250 125 ECNP	250 225 ECNP	254 225 ECNP	250 325 ECNP	254 325 ECNP	250 425 ECNP	254 425 ECNP
50-0-50 Amp	250 125 ECNT	250 225 ECNT	254 225 ECNT	250 325 ECNT	254 325 ECNT	250 425 ECNT	254 425 ECNT
75-0-75 Amp	250 125 ECPB	250 225 ECPB	254 225 ECPB	250 325 ECPB	254 325 ECPB	250 425 ECPB	254 425 ECPB
100-0-100 Amp	250 125 ECPK	250 225 ECPK	254 225 ECPK	250 325 ECPK	254 325 ECPK	250 425 ECPK	254 425 ECPK

\*Shunts are not included: For 50mV shunts, see page 31

# AC Voltmeters

Size	1½	2½	3½	4½
Rating & Scale	Type	200 Series	200 Series	200 Series

## AC VOLTMETERS — SELF-CONTAINED, IRON VANE TYPE, PIVOT AND JEWEL 60 Hz

3 Volts	.....	250 244 LJLJ	250 344 LJLJ	250 444 LJLJ
5 Volts	.....	250 244 LSLS	250 344 LSLS	250 444 LSLS
10 Volts	.....	250 244 MTMT	250 344 MTMT	250 444 MTMT
15 Volts	.....	250 244 NDND	250 344 NDND	250 444 NDND
30 Volts	.....	250 244 NLNL	250 344 NLNL	250 444 NLNL
50 Volts	.....	250 244 NTNT	250 344 NTNT	250 444 NTNT
100 Volts	.....	250 244 PKPK	250 344 PKPK	250 444 PKPK
150 Volts	.....	250 244 PZPZ	250 344 PZPZ	250 444 PZPZ
300 Volts	.....	250 244 RXRX	250 344 RXRX	250 444 RXRX
500 Volts	.....	.....	250 344 SFSF	250 444 SFSF
600 Volts	.....	.....	250 344 SJSJ	250 444 SJSJ

## AC VOLTMETERS — SELF-CONTAINED, IRON VANE TYPE, PIVOT AND JEWEL 400 Hz

150 Volts	.....	250 245 PZPZ	250 345 PZPZ	250 445 PZPZ
300 Volts	.....	250 245 RXRX	250 345 RXRX	250 445 RXRX

## AC VOLTMETERS — TRANSFORMER RATED, 0-150 VOLTS, PIVOT AND JEWEL, IRON VANE TYPE, 60 Hz. (See page 29 for Transformers)

S  
C  
A  
L  
E

600 Volts	.....	250 244 PZSJ	250 344 PZSJ	250 444 PZSJ
750 Volts	.....	250 244 PZSM	250 344 PZSM	250 444 PZSM
3 kV	.....	250 244 PZVJ	250 344 PZVJ	250 444 PZVJ

## AC VOLTMETERS — EXPANDED SCALE, RECTIFIER TYPE

Size	1½	2½		3½		4½		
Rating & Scale	Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel
110-130 Volts	.....	.....	.....	.....	250 337 PNPB	254 337 PNPB	250 437 PNPB	254 437 PNPB
105-125 Volts	.....	.....	.....	.....	250 337 PTPT	254 337 PTPT	250 437 PTPT	254 437 PTPT

## AC Voltmeters Cont'd

Size	1½	2½		3½		4½	
Rating & Scale \ Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

### AC VOLTMETERS — SELF-CONTAINED, RECTIFIER TYPE

10 Volts	250 130 MTMT	250 230 MTMT	254 230 MTMT	250 330 MTMT	254 330 MTMT	250 430 MTMT	254 430 MTMT
15 Volts	250 130 NDND	250 230 NDND	254 230 NDND	250 330 NDND	254 330 NDND	250 430 NDND	254 430 NDND
20 Volts	250 130 NGNG	250 230 NGNG	254 230 NGNG	250 330 NGNG	254 330 NGNG	250 430 NGNG	254 430 NGNG
25 Volts	250 130 NJNJ	250 230 NJNJ	254 230 NJNJ	250 330 NJNJ	254 330 NJNJ	250 430 NJNJ	254 430 NJNJ
30 Volts	250 130 NLNL	250 230 NLNL	254 230 NLNL	250 330 NLNL	254 330 NLNL	250 430 NLNL	254 430 NLNL
50 Volts	250 130 NTNT	250 230 NTNT	254 230 NTNT	250 330 NTNT	254 330 NTNT	250 430 NTNT	254 430 NTNT
80 Volts	250 130 PDPD	250 230 PDPD	254 230 PDPD	250 330 PDPD	254 330 PDPD	250 430 PDPD	254 430 PDPD
100 Volts	250 130 PKPK	250 230 PKPK	254 230 PKPK	250 330 PKPK	254 330 PKPK	250 430 PKPK	254 430 PKPK
150 Volts	250 130 PZPZ	250 230 PZPZ	254 230 PZPZ	250 330 PZPZ	254 330 PZPZ	250 430 PZPZ	254 430 PZPZ
200 Volts	.....	.....	.....	250 330 RLRL	254 330 RLRL	250 430 RLRL	254 430 RLRL
250 Volts	.....	.....	.....	250 330 RSRS	254 330 RSRS	250 430 RSRS	254 430 RSRS
300 Volts	.....	.....	.....	250 330 RXRX	254 330 RXRX	250 430 RXRX	254 430 RXRX

## AC Ammeters

### AC MICROAMMETERS AND MILLIAMMETERS — RECTIFIER TYPE

500 µA	250 110 EMEM	250 210 EMEM	254 210 EMEM	250 310 EMEM	254 310 EMEM	250 410 EMEM	254 410 EMEM
800 µA	250 110 EWEW	250 210 EWEW	254 210 EWEW	250 310 EWEW	254 310 EWEW	250 410 EWEW	254 410 EWEW
1 mA	250 110 FAFA	250 210 FAFA	254 210 FAFA	250 310 FAFA	254 310 FAFA	250 410 FAFA	254 410 FAFA
1.5 mA	250 110 FDFD	250 210 FDFD	254 210 FDFD	250 310 FDFD	254 310 FDFD	250 410 FDFD	254 410 FDFD
2 mA	250 110 FGFG	250 210 FGFG	254 210 FGFG	250 310 FGFG	254 310 FGFG	250 410 FGFG	254 410 FGFG
3 mA	250 110 FNFN	250 210 FNFN	254 210 FNFN	250 310 FNFN	254 310 FNFN	250 410 FNFN	254 410 FNFN
5 mA	250 110 FFXF	250 210 FFXF	254 210 FFXF	250 310 FFXF	254 310 FFXF	250 410 FFXF	254 410 FFXF
10 mA	250 110 GZGZ	250 210 GZGZ	254 210 GZGZ	250 310 GZGZ	254 310 GZGZ	250 410 GZGZ	254 410 GZGZ
20 mA	250 110 HFHF	250 210 HFHF	254 210 HFHF	250 310 HFHF	254 310 HFHF	250 410 HFHF	254 410 HFHF

Size	1½	2½	3½	4½
Rating & Scale \ Type	200 Series		200 Series	200 Series

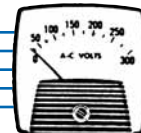
### AC MILLIAMMETERS — SELF-CONTAINED, 25-400 Hz, IRON VANE, PIVOT AND JEWEL

10 mA	.....	250 240 GZGZ	250 340 GZGZ	250 440 GZGZ
25 mA	.....	250 240 HJHJ	250 340 HJHJ	250 440 HJHJ
50 mA	.....	250 240 HYHY	250 340 HYHY	250 440 HYHY
100 mA	.....	250 240 JRJR	250 340 JRJR	250 440 JRJR
200 mA	.....	250 240 KAKA	250 340 KAKA	250 440 KAKA
500 mA	.....	250 240 KMKM	250 340 KMKM	250 440 KMKM

### AC AMMETERS — SELF-CONTAINED, 25-400 Hz, IRON VANE, PIVOT AND JEWEL

1 Amp	.....	250 240 LALA	250 340 LALA	250 440 LALA
3 Amp	.....	250 240 LJLJ	250 340 LJLJ	250 440 LJLJ
5 Amp	.....	250 240 LSLS	250 340 LSLS	250 440 LSLS
8 Amp	.....	250 240 MJMJ	250 340 MJMJ	250 440 MJMJ
10 Amp	.....	250 240 MTMT	250 340 MTMT	250 440 MTMT
15 Amp	.....	250 240 NDND	250 340 NDND	250 440 NDND
20 Amp	.....	250 240 NGNG*	250 340 NGNG*	250 440 NGNG*
30 Amp	.....	250 240 NLNL*	250 340 NLNL*	250 440 NLNL*
50 Amp	.....	.....	250 340 NTNT*	250 440 NTNT*
80 Amp	.....	.....	250 340 PDPD*	250 440 PDPD*

\* External Magnetic shield included



# AC Ammeters Cont'd

Size	1½"	2½"	3½"	4½"
Rating & Scale	Type	200 Series	200 Series	200 Series

## AC AMMETERS — TRANSFORMER-RATED, 0-5 AMPERES, 25-500 Hz, PIVOT AND JEWEL, IRON VANE

(See page 29 for Transformers)

SCALY

10 Amp	.....	250 240 LSMT	250 340 LSMT	250 440 LSMT
15 Amp	.....	250 240 LSND	250 340 LSND	250 440 LSND
20 Amp	.....	250 240 LSNB	250 340 LSNB	250 440 LSNB
30 Amp	.....	250 240 LSNL	250 340 LSNL	250 440 LSNL
40 Amp	.....	250 240 LSNP	250 340 LSNP	250 440 LSNP
50 Amp	.....	250 240 LSNT	250 340 LSNT	250 440 LSNT
75 Amp	.....	250 240 LSPB	250 340 LSPB	250 440 LSPB
80 Amp	.....	250 240 LSPD	250 340 LSPD	250 440 LSPD
100 Amp	.....	250 240 LSPK	250 340 LSPK	250 440 LSPK
150 Amp	.....	250 240 LSPZ	250 340 LSPZ	250 440 LSPZ
200 Amp	.....	250 240 LSRL	250 340 LSRL	250 440 LSRL
300 Amp	.....	250 240 LSRX	250 340 LSRX	250 440 LSRX
400 Amp	.....	250 240 LSSC	250 340 LSSC	250 440 LSSC
500 Amp	.....	250 240 LSSF	250 340 LSSF	250 440 LSSF
600 Amp	.....	250 240 LSSJ	250 340 LSSJ	250 440 LSSJ
800 Amp	.....	250 240 LSSN	250 340 LSSN	250 440 LSSN
1 Kiloamp	.....	250 240 LSWA	250 340 LSWA	250 440 LSWA
1.2 Kiloamp	.....	250 240 LSWB	250 340 LSWB	250 440 LSWB
1.5 Kiloamp	.....	250 240 LSWC	250 340 LSWC	250 440 LSWC
2.0 Kiloamp	.....	250 240 LSWE	250 340 LSWE	250 440 LSWE
3.0 Kiloamp	.....	250 240 LSVJ	250 340 LSVJ	250 440 LSVJ

# YOKOGAWA ◆ Horizon Line



Type 251 and 255  
Horizon Line

## Specifications

**Accuracy:** All DC and AC iron-vane; ±2% of full-scale, AC rectifier type; ±3% of full scale (with 60 Hz sine wave at 25° C). When standard 60 Hz iron vane ammeters are used at the extreme limits of 20 or 400 Hz, additional error (approx. .75%) may be experienced. Expanded-scale voltmeters; ±.5% of full scale value.

**ANSI Specification:** All meters meet ANSI Specifications C-39.1.

**Overload:** Voltmeters (AC and DC) - 50% momentary, 20% sustained. Ammeters (AC and DC) momentary: 10 times the rated current for 10 consecutive intervals of .5 second with a 1 minute interval between successive applications; sustained: 20% for six hours.

**Scale Data:** 90 degree rotation.

### Scale Length:

Size	Horizon Line
1½"	1.50"
2½"	2.06"
3½"	2.88"
4½"	3.93"

**Insulation Level:** All meters (except 1½"), 2600 VRMS Hi-pot, 1½"-1500 VRMS Hi-pot.

**Burden Data:** AC ammeter-5 amps, 0.5 va max. 0.5 power-factor lagging, @60 Hz. AC Voltmeter-unity power factor.

### Response Time and Overshoot:

Response time: 3 seconds (max.) for 2½",

3½", 4½" size for microammeters: 2 seconds (max.) for all other DC ratings, and 2.5 seconds (max.) for AC ratings. Maximum of 40% overshoot.

**Dimensions:** See page 36-37.

### How To Order

To Order Horizon Line panel meters use the appropriate catalog numbers provided in the tables. Taut band instruments have a 251 prefix number, Pivot & jewel instruments have a 255 prefix number, except AC Iron Vane prefix which is 251.

### Ordering Examples:

- 21/2", 300 V DC Voltmeter, zero left, taut band - 251 220 RXRX
- 21/2", 300 V DC Voltmeter, zero left, pivot & jewel - 255 220 RXRX
- 21/2", 300 VAC (Iron Vane) pivot & jewel - 251 244 RXRX

Severe-duty meters are available to meet UL 1437 requirements. UL version, with flame retardant window and base, is not offered in 1½". To order, add /UL or /CUL after catalog number, or contact factory. For ratings and scales not listed contact factory.

## DC Voltmeters

Size	1½	2½		3½		4½		
Rating & Scale	Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

### DC VOLTMETERS - ZERO-LEFT

1.0 Volts	251 120 LALA	251 220 LALA	255 220 LALA	251 320 LALA	255 320 LALA	251 420 LALA	255 420 LALA
1.5 Volts	251 120 LCLC	251 220 LCLC	255 220 LCLC	251 320 LCLC	255 320 LCLC	251 420 LCLC	255 420 LCLC
3 Volts	251 120 LJLJ	251 220 LJLJ	255 220 LJLJ	251 320 LJLJ	255 320 LJLJ	251 420 LJLJ	255 420 LJLJ
5 Volts	251 120 LSLS	251 220 LSLS	255 220 LSLS	251 320 LSLS	255 320 LSLS	251 420 LSLS	255 420 LSLS
8 Volts	251 120 MJMJ	251 220 MJMJ	255 220 MJMJ	251 320 MJMJ	255 320 MJMJ	251 420 MJMJ	255 420 MJMJ
10 Volts	251 120 MTMT	251 220 MTMT	255 220 MTMT	251 320 MTMT	255 320 MTMT	251 420 MTMT	255 420 MTMT
15 Volts	251 120 NDND	251 220 NDND	255 220 NDND	251 320 NDND	255 320 NDND	251 420 NDND	255 420 NDND
30 Volts	251 120 NLNL	251 220 NLNL	255 220 NLNL	251 320 NLNL	255 320 NLNL	251 420 NLNL	255 420 NLNL
40 Volts	251 120 NPNP	251 220 NPNP	255 220 NPNP	251 320 NPNP	255 320 NPNP	251 420 NPNP	255 420 NPNP
50 Volts	251 120 NTNT	251 220 NTNT	255 220 NTNT	251 320 NTNT	255 320 NTNT	251 420 NTNT	255 420 NTNT
80 Volts	251 120 PDPD	251 220 PDPD	255 220 PDPD	251 320 PDPD	255 320 PDPD	251 420 PDPD	255 420 PDPD
100 Volts	251 120 PKPK	251 220 PKPK	255 220 PKPK	251 320 PKPK	255 320 PKPK	251 420 PKPK	255 420 PKPK
150 Volts	251 120 PZPZ	251 220 PZPZ	255 220 PZPZ	251 320 PZPZ	255 320 PZPZ	251 420 PZPZ	255 420 PZPZ
200 Volts	251 120 RLRL	251 220 RLRL	255 220 RLRL	251 320 RLRL	255 320 RLRL	251 420 RLRL	255 420 RLRL
250 Volts	251 120 RSRS	251 220 RSRS	255 220 RSRS	251 320 RSRS	255 320 RSRS	251 420 RSRS	255 420 RSRS
300 Volts	251 120 RXRX	251 220 RXRX	255 220 RXRX	251 320 RXRX	255 320 RXRX	251 420 RXRX	255 420 RXRX
500 Volts	.....	.....	.....	251 320 SFSF	255 320 SFSF	251 420 SFSF	255 420 SFSF
600 Volts	.....	.....	.....	251 320 SJSJ	255 320 SJSJ	251 420 SJSJ	255 420 SJSJ

### DC VOLTMETERS — ZERO-LEFT, RATED 0-1 mA DC, FOR USE WITH EXTERNAL RESISTORS, RESISTORS NOT INCLUDED (SEE PAGE 29 FOR RESISTORS)

S  
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L  
Y

500 Volts	251 104 FASF	251 204 FASF	255 204 FASF	.....	.....	.....	.....
600 Volts	251 104 FASJ	251 204 FASJ	255 204 FASJ	.....	.....	.....	.....
750 Volts	251 104 FASM	251 204 FASM	255 204 FASM	251 304 FASM	255 304 FASM	251 404 FASM	255 404 FASM

### DC VOLTMETERS — ZERO-CENTER

5-0-5 Volts	251 121 LSLS	251 221 LSLS	255 221 LSLS	251 321 LSLS	255 321 LSLS	251 421 LSLS	255 421 LSLS
10-0-10 Volts	251 121 MTMT	251 221 MTMT	255 221 MTMT	251 321 MTMT	255 321 MTMT	251 421 MTMT	255 421 MTMT
30-0-30 Volts	251 121 NLNL	251 221 NLNL	255 221 NLNL	251 321 NLNL	255 321 NLNL	251 421 NLNL	255 421 NLNL
50-0-50 Volts	251 121 NTNT	251 221 NTNT	255 221 NTNT	251 321 NTNT	255 321 NTNT	251 421 NTNT	255 421 NTNT
80-0-80 Volts	251 121 PDPD	251 221 PDPD	255 221 PDPD	251 321 PDPD	255 321 PDPD	251 421 PDPD	255 421 PDPD
150-0-150 Volts	251 121 PZPZ	251 221 PZPZ	255 221 PZPZ	251 321 PZPZ	255 321 PZPZ	251 421 PZPZ	255 421 PZPZ
300-0-300 Volts	251 121 RXRX	251 221 RXRX	255 221 RXRX	251 321 RXRX	255 321 RXRX	251 421 RXRX	255 421 RXRX
500-0-500 Volts	.....	.....	.....	251 321 SFSF	255 321 SFSF	251 421 SFSF	255 421 SFSF
600-0-600 Volts	.....	.....	.....	251 321 SJSJ	255 321 SJSJ	251 421 SJSJ	255 421 SJSJ

### DC VOLTMETERS — ZERO-CENTER, RATED 1-0-1 mA, DC, FOR USE WITH EXTERNAL RESISTORS, RESISTORS NOT INCLUDED (SEE PAGE 29 FOR RESISTORS)

S  
O  
N  
L  
Y

500-0-500 Volts	251 105 FASF	251 205 FASF	255 205 FASF	.....	.....	.....	.....
600-0-600 Volts	251 105 FASJ	251 205 FASJ	255 205 FASJ	.....	.....	.....	.....
750-0-750 Volts	251 105 FASM	251 205 FASM	255 205 FASM	251 305 FASM	255 305 FASM	251 405 FASM	255 405 FASM

### DC VOLTMETERS — EXPANDED SCALE; ZENER DIODE TYPE

24-30 Volts	.....	.....	.....	251 338 NNNN	255 338 NNNN	251 438 NNNN	255 438 NNNN
110-130 Volts	.....	.....	.....	251 338 PNP	255 338 PNP	251 438 PNP	255 438 PNP
220-260 Volts	.....	.....	.....	251 338 RTRT	255 338 RTRT	251 438 RTRT	255 438 RTRT

## DC Ammeters

Size	1½	2½		3½		4½		
Rating & Scale	Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

### DC MICROAMMETERS — ZERO-LEFT

20 µA	251 100 CFCF	251 200 CFCF	.....	251 300 CFCF	.....	.....	.....
50 µA	251 100 CYCY	251 200 CYCY	.....	251 300 CYCY	.....	251 400 CYCY	.....
100 µA	251 100 DRDR	251 200 DRDR	.....	251 300 DRDR	.....	251 400 DRDR	.....
200 µA	251 100 EAEA	251 200 EAEA	255 200 EAEA	251 300 EAEA	255 300 EAEA	251 400 EAEA	255 400 EAEA
500 µA	251 100 EMEM	251 200 EMEM	255 200 EMEM	251 300 EMEM	255 300 EMEM	251 400 EMEM	255 400 EMEM



# DC Ammeters Cont'd

Size	1½	2½		3½		4½		
Rating & Scale	Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

## DC MICROAMMETERS — ZERO-CENTER

20-0-20 µA	251 101 CFCF	251 201 CFCF	.....	251 301 CFCF	.....	.....	.....
50-0-50 µA	251 101 CYCY	251 201 CYCY	.....	251 301 CYCY	.....	251 401 CYCY	.....
100-0-100 µA	251 101 DRDR	251 201 DRDR	255 201 DRDR	251 301 DRDR	255 301 DRDR	251 401 DRDR	255 401 DRDR
200-0-200 µA	251 101 EAEA	251 201 EAEA	255 201 EAEA	251 301 EAEA	255 301 EAEA	251 401 EAEA	255 401 EAEA
500-0-500 µA	251 101 EMEM	251 201 EMEM	255 201 EMEM	251 301 EMEM	255 301 EMEM	251 401 EMEM	255 401 EMEM

## DC MILLIAMMETERS — ZERO-LEFT

1 mA	251 100 FAFA	251 200 FAFA	255 200 FAFA	251 300 FAFA	255 300 FAFA	251 400 FAFA	255 400 FAFA
5 mA	251 100 FFXF	251 200 FFXF	255 200 FFXF	251 300 FFXF	255 300 FFXF	251 400 FFXF	255 400 FFXF
10 mA	251 100 GZGZ	251 200 GZGZ	255 200 GZGZ	251 300 GZGZ	255 300 GZGZ	251 400 GZGZ	255 400 GZGZ
20 mA	251 100 HFHF	251 200 HFHF	255 200 HFHF	251 300 HFHF	255 300 HFHF	251 400 HFHF	255 400 HFHF
25 mA	251 100 HJHJ	251 200 HJHJ	255 200 HJHJ	251 300 HJHJ	255 300 HJHJ	251 400 HJHJ	255 400 HJHJ
30 mA	251 100 HMHM	251 200 HMHM	255 200 HMHM	251 300 HMHM	255 300 HMHM	251 400 HMHM	255 400 HMHM
50 mA	251 100 HYHY	251 200 HYHY	255 200 HYHY	251 300 HYHY	255 300 HYHY	251 400 HYHY	255 400 HYHY
80 mA	251 100 JJJJ	251 200 JJJJ	255 200 JJJJ	251 300 JJJJ	255 300 JJJJ	251 400 JJJJ	255 400 JJJJ
100 mA	251 100 JRJR	251 200 JRJR	255 200 JRJR	251 300 JRJR	255 300 JRJR	251 400 JRJR	255 400 JRJR
150 mA	251 100 JXJX	251 200 JXJX	255 200 JXJX	251 300 JXJX	255 300 JXJX	251 400 JXJX	255 400 JXJX
200 mA	251 100 KAKA	251 200 KAKA	255 200 KAKA	251 300 KAKA	255 300 KAKA	251 400 KAKA	255 400 KAKA
250 mA	251 100 KDKD	251 200 KDKD	255 200 KDKD	251 300 KDKD	255 300 KDKD	251 400 KDKD	255 400 KDKD
300 mA	251 100 KGKG	251 200 KGKG	255 200 KGKG	251 300 KGKG	255 300 KGKG	251 400 KGKG	255 400 KGKG
500 mA	251 100 KMKM	251 200 KMKM	255 200 KMKM	251 300 KMKM	255 300 KMKM	251 400 KMKM	255 400 KMKM
800 mA	251 100 KWKW	251 200 KWKW	255 200 KWKW	251 300 KWKW	255 300 KWKW	251 400 KWKW	255 400 KWKW

## DC MILLIAMMETERS — ZERO-CENTER

1-0-1 mA	251 101 FAFA	251 201 FAFA	255 201 FAFA	251 301 FAFA	255 301 FAFA	251 401 FAFA	255 401 FAFA
5-0-5 mA	251 101 FFXF	251 201 FFXF	255 201 FFXF	251 301 FFXF	255 301 FFXF	251 401 FFXF	255 401 FFXF
10-0-10 mA	251 101 GZGZ	251 201 GZGZ	255 201 GZGZ	251 301 GZGZ	255 301 GZGZ	251 401 GZGZ	255 401 GZGZ
20-0-20 mA	251 101 HFHF	251 201 HFHF	255 201 HFHF	251 301 HFHF	255 301 HFHF	251 401 HFHF	255 401 HFHF
25-0-25 mA	251 101 HJHJ	251 201 HJHJ	255 201 HJHJ	251 301 HJHJ	255 301 HJHJ	251 401 HJHJ	255 401 HJHJ
30-0-30 mA	251 101 HMHM	251 201 HMHM	255 201 HMHM	251 301 HMHM	255 301 HMHM	251 401 HMHM	255 401 HMHM
50-0-50 mA	251 101 HYHY	251 201 HYHY	255 201 HYHY	251 301 HYHY	255 301 HYHY	251 401 HYHY	255 401 HYHY
100-0-100 mA	251 101 JRJR	251 201 JRJR	255 201 JRJR	251 301 JRJR	255 301 JRJR	251 401 JRJR	255 401 JRJR
150-0-150 mA	251 101 JXJX	251 201 JXJX	255 201 JXJX	251 301 JXJX	255 301 JXJX	251 401 JXJX	255 401 JXJX
200-0-200 mA	251 101 KAKA	251 201 KAKA	255 201 KAKA	251 301 KAKA	255 301 KAKA	251 401 KAKA	255 401 KAKA
250-0-250 mA	251 101 KDKD	251 201 KDKD	255 201 KDKD	251 301 KDKD	255 301 KDKD	251 401 KDKD	255 401 KDKD
300-0-300 mA	251 101 KGKG	251 201 KGKG	255 201 KGKG	251 301 KGKG	255 301 KGKG	251 401 KGKG	255 401 KGKG
500-0-500 mA	251 101 KMKM	251 201 KMKM	255 201 KMKM	251 301 KMKM	255 301 KMKM	251 401 KMKM	255 401 KMKM

## DC AMMETERS — ZERO-LEFT

1 Amp	251 100 LALA	251 200 LALA	255 200 LALA	251 300 LALA	255 300 LALA	251 400 LALA	255 400 LALA
1.5 Amp	251 100 LCLC	251 200 LCLC	255 200 LCLC	251 300 LCLC	255 300 LCLC	251 400 LCLC	255 400 LCLC
2 Amp	251 100 LELE	251 200 LELE	255 200 LELE	251 300 LELE	255 300 LELE	251 400 LELE	255 400 LELE
3 Amp	251 100 LLLJ	251 200 LLLJ	255 200 LLLJ	251 300 LLLJ	255 300 LLLJ	251 400 LLLJ	255 400 LLLJ
5 Amp	251 100 LSLJ	251 200 LSLJ	255 200 LSLJ	251 300 LSLJ	255 300 LSLJ	251 400 LSLJ	255 400 LSLJ
10 Amp	251 100 MTMT	251 200 MTMT	255 200 MTMT	251 300 MTMT	255 300 MTMT	251 400 MTMT	255 400 MTMT
15 Amp	.....	251 200 NDND	255 200 NDND	251 300 NDND	255 300 NDND	251 400 NDND	255 400 NDND
20 Amp	.....	251 200 NGNG	255 200 NGNG	251 300 NGNG	255 300 NGNG	251 400 NGNG	255 400 NGNG
30 Amp	.....	251 200 NLNL	255 200 NLNL	251 300 NLNL	255 300 NLNL	251 400 NLNL	255 400 NLNL
50 Amp	.....	251 200 NTNT	.....	251 300 NTNT	255 300 NTNT	251 400 NTNT	255 400 NTNT

## DC AMMETERS — ZERO-LEFT, 50 mV, SHUNT RATED (LEAD RES. RANGE: .05-.07Ω)\*

20 Amp	251 124 ECNG	251 224 ECNG	255 224 ECNG	251 324 ECNG	255 324 ECNG	251 424 ECNG	255 424 ECNG
30 Amp	251 124 ECNL	251 224 ECNL	255 224 ECNL	251 324 ECNL	255 324 ECNL	251 424 ECNL	255 424 ECNL
50 Amp	251 124 ECNT	251 224 ECNT	255 224 ECNT	251 324 ECNT	255 324 ECNT	251 424 ECNT	255 424 ECNT
75 Amp	251 124 ECPB	251 224 ECPB	255 224 ECPB	251 324 ECPB	255 324 ECPB	251 424 ECPB	255 424 ECPB
100 Amp	251 124 ECPK	251 224 ECPK	255 224 ECPK	251 324 ECPK	255 324 ECPK	251 424 ECPK	255 424 ECPK
150 Amp	251 124 ECPZ	251 224 ECPZ	255 224 ECPZ	251 324 ECPZ	255 324 ECPZ	251 424 ECPZ	255 424 ECPZ
200 Amp	251 124 ECRL	251 224 ECRL	255 224 ECRL	251 324 ECRL	255 324 ECRL	251 424 ECRL	255 424 ECRL
250 Amp	251 124 ECRS	251 224 ECRS	255 224 ECRS	251 324 ECRS	255 324 ECRS	251 424 ECRS	255 424 ECRS
300 Amp	251 124 ECRX	251 224 ECRX	255 224 ECRX	251 324 ECRX	255 324 ECRX	251 424 ECRX	255 424 ECRX
400 Amp	251 124 ECSC	251 224 ECSC	255 224 ECSC	251 324 ECSC	255 324 ECSC	251 424 ECSC	255 424 ECSC

SCALY

## DC Ammeters Cont'd

Size	1½	2½		3½		4½		
Rating & Scale	Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

### DC AMMETERS — ZERO-LEFT, 50mV, SHUNT RATED\* - continued

SCALE

500 Amp	251 124 ECSF	251 224 ECSF	255 224 ECSF	251 324 ECSF	255 324 ECSF	251 424 ECSF	255 424 ECSF
600 Amp	251 124 ECSJ	251 224 ECSJ	255 224 ECSJ	251 324 ECSJ	255 324 ECSJ	251 424 ECSJ	255 424 ECSJ
800 Amp	251 124 ECSN	251 224 ECSN	255 224 ECSN	251 324 ECSN	255 324 ECSN	251 424 ECSN	255 424 ECSN
1 Kilomap	251 124 ECVA	251 224 ECVA	255 224 ECVA	251 324 ECVA	255 324 ECVA	251 424 ECVA	255 424 ECVA
1.5 Kiloamp	251 124 ECVC	251 224 ECVC	255 224 ECVC	251 324 ECVC	255 324 ECVC	251 424 ECVC	255 424 ECVC
2 Kiloamp	251 124 ECVE	251 224 ECVE	255 224 ECVE	251 324 ECVE	255 324 ECVE	251 424 ECVE	255 424 ECVE

### DC AMMETERS — ZERO-LEFT, 100mV, SHUNT RATED (LEAD RES. RANGE: .04-.08Ω)\*

SCALE

20 Amp	251 124 GBNG	251 224 GBNG	255 224 GBNG	251 324 GBNG	255 324 GBNG	251 424 GBNG	255 424 GBNG
40 Amp	251 124 GBNP	251 224 GBNP	255 224 GBNP	251 324 GBNP	255 324 GBNP	251 424 GBNP	255 424 GBNP
50 Amp	251 124 GBNT	251 224 GBNT	255 224 GBNT	251 324 GBNT	255 324 GBNT	251 424 GBNT	255 424 GBNT
75 Amp	251 124 GBPB	251 224 GBPB	255 224 GBPB	251 324 GBPB	255 324 GBPB	251 424 GBPB	255 424 GBPB
100 Amp	251 124 GBPK	251 224 GBPK	255 224 GBPK	251 324 GBPK	255 324 GBPK	251 424 GBPK	255 424 GBPK
150 Amp	251 124 GBPZ	251 224 GBPZ	255 224 GBPZ	251 324 GBPZ	255 324 GBPZ	251 424 GBPZ	255 424 GBPZ
200 Amp	251 124 GBRL	251 224 GBRL	255 224 GBRL	251 324 GBRL	255 324 GBRL	251 424 GBRL	255 424 GBRL
250 Amp	251 124 GBRS	251 224 GBRS	255 224 GBRS	251 324 GBRS	255 324 GBRS	251 424 GBRS	255 424 GBRS
300 Amp	251 124 GBRX	251 224 GBRX	255 224 GBRX	251 324 GBRX	255 324 GBRX	251 424 GBRX	255 424 GBRX
400 Amp	251 124 GBSC	251 224 GBSC	255 224 GBSC	251 324 GBSC	255 324 GBSC	251 424 GBSC	255 424 GBSC
500 Amp	251 124 GBSF	251 224 GBSF	255 224 GBSF	251 324 GBSF	255 324 GBSF	251 424 GBSF	255 424 GBSF
600 Amp	251 124 GBSJ	251 224 GBSJ	255 224 GBSJ	251 324 GBSJ	255 324 GBSJ	251 424 GBSJ	255 424 GBSJ
800 Amp	251 124 GBSN	251 224 GBSN	255 224 GBSN	251 324 GBSN	255 324 GBSN	251 424 GBSN	255 424 GBSN
1 Kiloamp	251 124 GBVA	251 224 GBVA	255 224 GBVA	251 324 GBVA	255 324 GBVA	251 424 GBVA	255 424 GBVA
2 Kiloamp	251 124 GBVE	251 224 GBVE	255 224 GBVE	251 324 GBVE	255 324 GBVE	251 424 GBVE	255 424 GBVE

### DC AMMETERS — ZERO-CENTER

1-0-1 Amp	251 101 LALA	251 201 LALA	255 201 LALA	251 301 LALA	255 301 LALA	251 401 LALA	255 401 LALA
2-0-2 Amp	251 101 LELE	251 201 LELE	255 201 LELE	251 301 LELE	255 301 LELE	251 401 LELE	255 401 LELE
5-0-5Amp	251 101 LSLS	251 201 LSLS	255 201 LSLS	251 301 LSLS	255 301 LSLS	251 401 LSLS	255 401 LSLS
10-0-10 Amp	251 101 MTMT	251 201 MTMT	255 201 MTMT	251 301 MTMT	255 301 MTMT	251 401 MTMT	255 401 MTMT
15-0-15 Amp	.....	251 201 NDND	255 201 NDND	251 301 NDND	255 301 NDND	251 401 NDND	255 401 NDND
20-0-20 Amp	.....	251 201 NGNG	255 201 NGNG	251 301 NGNG	255 301 NGNG	251 401 NGNG	255 401 NGNG
30-0-30 Amp	.....	251 201 NLNL	255 201 NLNL	251 301 NLNL	255 301 NLNL	251 401 NLNL	255 401 NLNL
50-0-50 Amp	.....	.....	.....	251 301 NTNT	255 301 NTNT	251 401 NTNT	255 401 NTNT

### DC AMMETERS — ZERO-CENTER, 50mV, SHUNT RATED (LEAD RES. RANGE .05-.07Ω)\*

SCALE

20-0-20 Amp	251 125 ECNG	251 225 ECNG	255 225 ECNG	251 325 ECNG	255 325 ECNG	.....	.....
40-0-40 Amp	251 125 ECNP	251 225 ECNP	255 225 ECNP	251 325 ECNP	255 325 ECNP	251 425 ECNP	255 425 ECNP
50-0-50 Amp	251 125 ECNT	251 225 ECNT	255 225 ECNT	251 325 ECNT	255 325 ECNT	251 425 ECNT	255 425 ECNT
75-0-75 Amp	251 125 ECPB	251 225 ECPB	255 225 ECPB	251 325 ECPB	255 325 ECPB	251 425 ECPB	255 425 ECPB
100-0-100 Amp	251 125 ECPK	251 225 ECPK	255 225 ECPK	251 325 ECPK	255 325 ECPK	251 425 ECPK	255 425 ECPK

\*Shunts are not included: For 50mV shunts, see page 31

## AC Voltmeters

Size	1½	2½		3½		4½		
Rating & Scale	Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

### AC VOLTMETERS — SELF-CONTAINED, IRON VANE TYPE, 60 Hz

3 Volts	.....	.....	251 244 LJLJ	.....	251 344 LJLJ	.....	251 444 LJLJ
5 Volts	.....	.....	251 244 LSLS	.....	251 344 LSLS	.....	251 444 LSLS
10 Volts	.....	.....	251 244 MTMT	.....	251 344 MTMT	.....	251 444 MTMT
15 Volts	.....	.....	251 244 NDND	.....	251 344 NDND	.....	251 444 NDND
30 Volts	.....	.....	251 244 NLNL	.....	251 344 NLNL	.....	251 444 NLNL
50 Volts	.....	.....	251 244 NTNT	.....	251 344 NTNT	.....	251 444 NTNT
150 Volts	.....	.....	251 244 PZPZ	.....	251 344 PZPZ	.....	251 444 PZPZ
300 Volts	.....	.....	251 244 RXRX	.....	251 344 RXRX	.....	251 444 RXRX
500 Volts	.....	.....	.....	.....	251 344 SFSF	.....	251 444 SFSF
600 Volts	.....	.....	.....	.....	251 344 SJSJ	.....	251 444 SJSJ



# AC Voltmeters Cont'd

Size	1½	2½		3½		4½	
Rating & Scale \ Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

## AC VOLTMETERS — SELF-CONTAINED, IRON VANE TYPE, 400 Hz

150 Volts 300 Volts	..... .....	..... .....	251 245 PZPZ 251 245 RXRX	..... .....	251 345 PZPZ 251 345 RXRX	..... .....	251 445 PZPZ 251 445 RXRX
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## AC VOLTMETERS — TRANSFORMER RATED, 0-150 VOLTS, IRON VANE TYPE, 60 Hz. (See Page 29 For Transformers)

S  
C  
A  
L  
E

600 Volts 750 Volts 3 kV	..... ..... .....	..... ..... .....	251 244 PZSJ 251 244 PZSM 251 244 PZVJ	..... ..... .....	251 344 PZSJ 251 344 PZSM 251 344 PZVJ	..... ..... .....	251 444 PZSJ 251 444 PZSM 251 444 PZVJ
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## AC VOLTMETERS — EXPANDED SCALE, RECTIFIER TYPE

110-130 Volts 105-125 Volts	..... .....	..... .....	..... .....	251 337 PNPJ 251 337 PTPT	255 337 PNPJ 255 337 PTPT	251 437 PNPJ 251 437 PTPT	255 437 PNPJ 255 437 PTPT
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## AC VOLTMETERS — SELF-CONTAINED, RECTIFIER TYPE

10 Volts 15 Volts 20 Volts 25 Volts 30 Volts	251 130 MTMT 251 130 NDND 251 130 NGNG 251 130 NJNJ 251 130 NLNL	251 230 MTMT 251 230 NDND 251 230 NGNG 251 230 NJNJ 251 230 NLNL	255 230 MTMT 255 230 NDND 255 230 NGNG 255 230 NJNJ 255 230 NLNL	251 330 MTMT 251 330 NDND 251 330 NGNG 251 330 NJNJ 251 330 NLNL	255 330 MTMT 255 330 NDND 255 330 NGNG 255 330 NJNJ 255 330 NLNL	251 430 MTMT 251 430 NDND 251 430 NGNG 251 430 NJNJ 251 430 NLNL	255 430 MTMT 255 430 NDND 255 430 NGNG 255 430 NJNJ 255 430 NLNL
50 Volts 80 Volts 100 Volts 150 Volts 200 Volts	251 130 NTNT 251 130 PDPD 251 130 PKPK 251 130 PZPZ .....	251 230 NTNT 251 230 PDPD 251 230 PKPK 251 230 PZPZ .....	255 230 NTNT 255 230 PDPD 255 230 PKPK 255 230 PZPZ .....	251 330 NTNT 251 330 PDPD 251 330 PKPK 251 330 PZPZ 251 330 RLRL	255 330 NTNT 255 330 PDPD 255 330 PKPK 255 330 PZPZ 255 330 RLRL	251 430 NTNT 251 430 PDPD 251 430 PKPK 251 430 PZPZ 251 430 RLRL	255 430 NTNT 255 430 PDPD 255 430 PKPK 255 430 PZPZ 255 430 RLRL
250 Volts 300 Volts	..... .....	..... .....	..... .....	251 330 RSRS 251 330 RXRX	255 330 RSRS 255 330 RXRX	251 430 RSRS 251 430 RXRX	255 430 RSRS 255 430 RXRX

# AC Ammeters

Size	1½	2½		3½		4½	
Rating & Scale \ Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel

## AC MICROAMMETERS AND MILLIAMMETERS — RECTIFIER TYPE

500 µA 800 µA 1 mA 1.5 mA 2 mA	251 110 EMEM 251 110 EWEW 251 110 FAFA 251 110 FDFD 251 110 FGFG	251 210 EMEM 251 210 EWEW 251 210 FAFA 251 210 FDFD 251 210 FGFG	255 210 EMEM 255 210 EWEW 255 210 FAFA 255 210 FDFD 255 210 FGFG	251 310 EMEM 251 310 EWEW 251 310 FAFA 251 310 FDFD 251 310 FGFG	255 310 EMEM 255 310 EWEW 255 310 FAFA 255 310 FDFD 255 310 FGFG	251 410 EMEM 251 410 EWEW 251 410 FAFA 251 410 FDFD 251 410 FGFG	255 410 EMEM 255 410 EWEW 255 410 FAFA 255 410 FDFD 255 410 FGFG
3 mA 5 mA 10 mA 20 mA	251 110 FNFN 251 110 FFXF 251 110 GZGZ 251 110 HFHF	251 210 FNFN 251 210 FFXF 251 210 GZGZ 251 210 HFHF	255 210 FNFN 255 210 FFXF 255 210 GZGZ 255 210 HFHF	251 310 FNFN 251 310 FFXF 251 310 GZGZ 251 310 HFHF	255 310 FNFN 255 310 FFXF 255 310 GZGZ 255 310 HFHF	251 410 FNFN 251 410 FFXF 251 410 GZGZ 251 410 HFHF	255 410 FNFN 255 410 FFXF 255 410 GZGZ 255 410 HFHF

## AC MILLIAMMETERS — SELF-CONTAINED, 25-400 Hz, IRON VANE

10 mA 25 mA 50 mA 100 mA 200 mA	..... ..... ..... ..... .....	..... ..... ..... ..... .....	251 240 GZGZ 251 240 HJHJ 251 240 HYHY 251 240 JRJR 251 240 KAKA	..... ..... ..... ..... .....	251 340 GZGZ 251 340 HJHJ 251 340 HYHY 251 340 JRJR 251 340 KAKA	..... ..... ..... ..... .....	251 440 GZGZ 251 440 HJHJ 251 440 HYHY 251 440 JRJR 251 440 KAKA
500 mA	.....	.....	251 240 KMKM	.....	251 340 KMKM	.....	251 440 KMKM

## AC Ammeters Cont'd

Size		1½		2½		3½		4½	
Rating & Scale	Type	Taut Band	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	Taut Band	Pivot and Jewel	

### AC AMMETERS — SELF-CONTAINED, 25-400 Hz, IRON VANE

1 Amp	.....	.....	251 240 LALA	.....	251 340 LALA	.....	251 440 LALA
3 Amp	.....	.....	251 240 LJJ	.....	251 340 LJJ	.....	251 440 LJJ
5 Amp	.....	.....	251 240 LSLS	.....	251 340 LSLS	.....	251 440 LSLS
8 Amp	.....	.....	251 240 MJMJ	.....	251 340 MJMJ	.....	251 440 MJMJ
10 Amp	.....	.....	251 240 MTMT	.....	251 340 MTMT	.....	251 440 MTMT
15 Amp	.....	.....	251 240 NDND	.....	251 340 NDND	.....	251 440 NDND
20 Amp	.....	.....	251 240 NGNG*	.....	251 340 NGNG*	.....	251 440 NGNG*
30 Amp	.....	.....	251 240 NLNL*	.....	251 340 NLNL*	.....	251 440 NLNL*
50 Amp	.....	.....	.....	.....	251 340 NTNT*	.....	251 440 NTNT*
80 Amp	.....	.....	.....	.....	251 340 PDPD*	.....	251 440 PDPD*

\*External magnetic shield included

### AC AMMETERS — TRANSFORMER-RATED, 0-5 AMPERES, 25-400 Hz, IRON VANE (See Page 29 For Transformers)

SCALE

10 Amp	.....	.....	251 240 LSMT	.....	251 340 LSMT	.....	251 440 LSMT
15 Amp	.....	.....	251 240 LSND	.....	251 340 LSND	.....	251 440 LSND
20 Amp	.....	.....	251 240 LSNB	.....	251 340 LSNB	.....	251 440 LSNB
30 Amp	.....	.....	251 240 LSNL	.....	251 340 LSNL	.....	251 440 LSNL
40 Amp	.....	.....	251 240 LSNP	.....	251 340 LSNP	.....	251 440 LSNP
50 Amp	.....	.....	251 240 LSNT	.....	251 340 LSNT	.....	251 440 LSNT
75 Amp	.....	.....	251 240 LSPB	.....	251 340 LSPB	.....	251 440 LSPB
80 Amp	.....	.....	251 240 LSPD	.....	251 340 LSPD	.....	251 440 LSPD
100 Amp	.....	.....	251 240 LSPK	.....	251 340 LSPK	.....	251 440 LSPK
150 Amp	.....	.....	251 240 LSPZ	.....	251 340 LSPZ	.....	251 440 LSPZ
200 Amp	.....	.....	251 240 LSRL	.....	251 340 LSRL	.....	251 440 LSRL
300 Amp	.....	.....	251 240 LSRX	.....	251 340 LSRX	.....	251 440 LSRX
400 Amp	.....	.....	251 240 LSSC	.....	251 340 LSSC	.....	251 440 LSSC
500 Amp	.....	.....	251 240 LSSF	.....	251 340 LSSF	.....	251 440 LSSF
600 Amp	.....	.....	251 240 LSSJ	.....	251 340 LSSJ	.....	251 440 LSSJ
800 Amp	.....	.....	251 240 LSSN	.....	251 340 LSSN	.....	251 440 LSSN
1 Kiloamp	.....	.....	251 240 LSVA	.....	251 340 LSVA	.....	251 440 LSVA
1.2 Kiloamp	.....	.....	251 240 LSVB	.....	251 340 LSVB	.....	251 440 LSVB
1.5 Kiloamp	.....	.....	251 240 LSVL	.....	251 340 LSVL	.....	251 440 LSVL
2.0 Kiloamp	.....	.....	251 240 LSVK	.....	251 340 LSVK	.....	251 440 LSVK
3.0 Kiloamp	.....	.....	251 240 LSVJ	.....	251 340 LSVJ	.....	251 440 LSVJ

## AC Motor Load Indicators - Available in Horizon Line or New Big Look

	Size		2½	3½	4½
Rating Amps	Scale Marking	Terminal Resistance Ohms (±15%)	Cat. No.	Cat. No.	Cat. No.

### AC LOAD INDICATORS, PIVOT AND JEWEL TYPE 250 — 5-AMP CURRENT TRANSFORMER RATED, 60 Hz — IRON VANE TYPE

5	0-150% Motor Load Current Red Band — 100-150	0.007	250 240 LSPZ7AAA	250 340 LSPZ7AAA	250 440 LSPZ7AAA
5	0-150% Motor Load Current Green — 0-100 Yellow — 100-125, Red — 125-150	0.007	250 240 LSPZ7AAB	250 340 LSPZ7AAB	250 440 LSPZ7AAB

### AC LOAD INDICATORS, PIVOT AND JEWEL TYPE 251 — 5-AMP CURRENT TRANSFORMER RATED, 60 Hz — IRON VANE TYPE

5	0-150% Motor Load Current Red Band — 100-150	0.007	251 240 LSPZ7AAJ	251 340 LSPZ7AAJ	251 440 LSPZ7AAJ
5	0-150% Motor Load Current Green — 0-100 Yellow — 100-125, Red — 125-150	0.007	251 240 LSPZ7AAK	251 340 LSPZ7AAK	251 440 LSPZ7AAK



# AC Frequency Meters - Available in Horizon Line or New Big Look

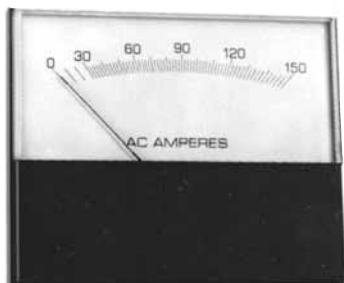
Size			1½"	2½"	3½"	4½"
Voltage	Center Frequency Hertz	Scale Hertz	Cat. No.	Cat. No.	Cat. No.	Cat. No.

AC FREQUENCY — PIVOT AND JEWEL, SELF-CONTAINED, ACCURACY ±3 PERCENT OF SPAN; I.E., 0.3 Hz FOR 45-55 AND 55-65, AND 1.2 Hz FOR 380-420 RANGE

120	50	45-55	.....	250 AGAG	350 AGAG	450 AGAG			
120	55	45-65	.....	250 AJAJ	350 AJAJ	450 AJAJ			
120	60	55-65	.....	250 ANAN	350 ANAN	450 ANAN			
120	400	380-420	.....	250 BKBK	350 BKBK	450 BKBK			
208	50	45-55	.....	Choose prefix 254 or 255	Choose prefix 254 or 255	Choose prefix 254 or 255			
208	55	45-65	.....				250 GGGG	350 GGGG	450 GGGG
208	60	55-65	.....				250 GJGJ	350 GJGJ	450 GJGJ
208	400	380-420	.....				250 GNGN	350 GNGN	450 GNGN
240	50	45-55	.....	250 HKHK	350 HKHK	450 HKHK			
240	55	45-65	.....	250 DG DG	350 DG DG	450 DG DG			
240	60	55-65	.....	250 DJ DJ	350 DJ DJ	450 DJ DJ			
240	400	380-420	.....	250 DNDN	350 DNDN	450 DNDN			
				250 EKEK	350 EKEK	450 EKEK			

NOTE: For non-listed voltages, up to 480 VAC, frequency ranges or special calibration (accuracy ±2% of span) contact factory. For taut-band suspension replace prefix 254 with 250 and prefix 255 with 251.

## YOKOGAWA ◆ Stylist Series



Type 260 and 264  
Stylist Surface Mount

### Specifications

**Accuracy:** All DC and AC iron vane, ±2% of fullscale, AC rectifier type; ±3% of fullscale (60 Hz sinewave). Expanded scale voltmeters ±5% of fullscale. Special order DC with mirror back scale (DC only) 31/2 - 41/2" Available @ ±1%.

**ANSI Specification:** All meters meet ANSI Specifications C-39.1 (See page 14 for exceptions.)

**Overload:** Voltmeters (AC + DC) - 50% momentary, 20% sustained. Ammeters (AC +DC) momentary: 10 times the rated current for 10 consecutive intervals of .5 seconds with 1 minute interval between successive applications; sustained: 20% for six hours.

### Scale Data:

ARC	90°	95°
METER SIZE	AC IRON VANE	TAUT BAND/ PIVOT & JEWEL
1½"	—	1.66"
2½"	2.15"	2.29"
3½"	2.70"	2.85"
4½"	3.80"	4.01"

**Insulation Level:** 2600V/1 min.  
(2½"-4½")  
1500V/1 min. (1½")

### Response Time:

3 seconds (Max.) - Microammeters  
2 seconds (Max.) - All other DC ratings  
2.5 seconds (Max.) - All AC ratings  
Maximum 40% overshoot

**Dimensions:** See page 38.

**Burden Data:** AC Ammeter 5 amps @ 60 Hz, 0.5VA, Max. .5 Power factor lagging, AC voltmeter - unity power factor.

### Notes:

Severe-duty meters are available to meet /CUL or /UL 1437 requirements in 2½"-4½" sizes. To order, add /UL or /CUL after catalog number, or contact factory.

## DC Voltmeters

Rating & Scale \ Size	1½	2½	3½	4½
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### DC MILLIVOLTMETERS — ZERO-LEFT

0-50 0-100	260124ECEC 260124GBGB	26□ 224ECEC 26□ 224GBGB	26□ 324ECEC 26□ 324GBGB	26□ 424ECEC 26□ 424GBGB
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### DC MILLIVOLTMETERS — ZERO-CENTER

50-0-50 100-0-100	260125ECEC 260125GBGB	26□ 225ECEC 26□ 225GBGB	26□ 325ECEC 26□ 325GBGB	26□ 425ECEC 26□ 425GBGB
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### DC VOLTMETERS — ZERO-LEFT

0-1 0-1.5 0-2 0-3 0-5	260120LALA 260120LCLC 260120LELE 260120LJLJ 260120LSLS	26□ 220LALA 26□ 220LCLC 26□ 220LELE 26□ 220LJLJ 26□ 220LSLS	26□ 320LALA 26□ 320LCLC 26□ 320LELE 26□ 320LJLJ 26□ 320LSLS	26□ 420LALA 26□ 420LCLC 26□ 420LELE 26□ 420LJLJ 26□ 420LSLS
0-10 0-15 0-20 0-25 0-30	260120MTMT 260120NDND 260120NGNG 260120NJNJ 260120NLNL	26□ 220MTMT 26□ 220NDND 26□ 220NGNG 26□ 220NJNJ 26□ 220NLNL	26□ 320MTMT 26□ 320NDND 26□ 320NGNG 26□ 320NJNJ 26□ 320NLNL	26□ 420MTMT 26□ 420NDND 26□ 420NGNG 26□ 420NJNJ 26□ 420NLNL
0-40 0-50 0-75 0-80 0-100	260120NPNP 260120NTNT 260120PBPB 260120PPDP 260120PKPK	26□ 220NPNP 26□ 220NTNT 26□ 220PBPB 26□ 220PPDP 26□ 220PKPK	26□ 320NPNP 26□ 320NTNT 26□ 320PBPB 26□ 320PPDP 26□ 320PKPK	26□ 420NPNP 26□ 420NTNT 26□ 420PBPB 26□ 420PPDP 26□ 420PKPK
0-150 0-200 0-250 0-300 * 0-500	260120PZPZ 260120RLRL 260120RSRS 260120RXRX 260120SFSF	26□ 220PZPZ 26□ 220RLRL 26□ 220RSRS 26□ 220RXRX 26□ 220SFSF	26□ 320PZPZ 26□ 320RLRL 26□ 320RSRS 26□ 320RXRX 26□ 320SFSF	26□ 420PZPZ 26□ 420RLRL 26□ 420RSRS 26□ 420RXRX 26□ 420SFSF
* 0-600 * 0-750 * 0-1000	260120SJSJ 260120SMSM 260120SSSS	26□ 220SJSJ 26□ 220SMSM 26□ 220SSSS	26□ 320SJSJ 26□ 320SMSM 26□ 320SSSS	26□ 420SJSJ 26□ 420SMSM 26□ 420SSSS

### DC VOLTMETERS — ZERO-CENTER

5-0-5 10-0-10 15-0-15 25-0-25 50-0-50	260121LSLS 260121MTMT 260121NDND 260121NJNJ 260121NTNT	26□ 221LSLS 26□ 221MTMT 26□ 221NDND 26□ 221NJNJ 26□ 221NTNT	26□ 321LSLS 26□ 321MTMT 26□ 321NDND 26□ 321NJNJ 26□ 321NTNT	26□ 421LSLS 26□ 421MTMT 26□ 421NDND 26□ 421NJNJ 26□ 421NTNT
100-0-100 150-0-150 300-0-300 * 500-0-500 * 600-0-600	260121PKPK 260121PZPZ 260121RXRX 260121SFSF 260121SJSJ	26□ 221PKPK 26□ 221PZPZ 26□ 221RXRX 26□ 221SFSF 26□ 221SJSJ	26□ 321PKPK 26□ 321PZPZ 26□ 321RXRX 26□ 321SFSF 26□ 321SJSJ	26□ 421PKPK 26□ 421PZPZ 26□ 421RXRX 26□ 421SFSF 26□ 421SJSJ

### DC VOLTMETERS — EXPANDED SCALE

5 ± 10% 12 ± 10% 15 ± 10% 28 ± 10% 48 ± 10%		26□ 238LYLY 26□ 238MYMY 26□ 238NFNF 26□ 238NHNH 26□ 238NSNS	26□ 338LYLY 26□ 338MYMY 26□ 338NFNF 26□ 338NHNH 26 <b>r</b> 338NSNS	26□ 438LYLY 26□ 438MYMY 26□ 438NFNF 26□ 438NHNH 26□ 438NSNS
120 ± 10% 150 ± 10% 300 ± 10%		26□ 238PPPP 26□ 238PYPY 26□ 238RWRW	26□ 338PPPP 26□ 338PYPY 26□ 338RWRW	26□ 438PPPP 26□ 438PYPY 26□ 438RWRW

### DC VOLTMETERS — PERCENT DEVIATION ±.05% FULL SCALE ACCURACY

12 ± 10% 28 ± 10% 120 ± 10%		26□ 221MYMY 26□ 221NHNH 26□ 221PPPP	26□ 321MYMY 26□ 321NHNH 26□ 321PPPP	26□ 421MYMY 26□ 421NHNH 26□ 421PPPP
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**NOTE ON ORDERING:** The ranges and catalog numbers in this catalog refer to both surface and window mount panel meters. To specify your choice, replace the □ in the catalog number with either of the following: 0 for Surface Mount (Taut Band), 1 for Window Mount (Taut Band), 4 for Surface Mount (Pivot & Jewel) or 5 for Window Mount (Pivot & Jewel). (1½" is only available in Surface Mount (Taut Band). "Not ANSI."

## DC Ammeters

Rating & Scale \ Size	1½	2½	3½	4½
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### DC MICROAMMETERS — ZERO-LEFT

0-10	260100BZBZ	26 □ 200BZBZ*	26 □ 300BZBZ*	26 □ 400BZBZ*
0-20	260100CFCF	26 □ 200CFCF*	26 □ 300CFCF*	26 □ 400CFCF*
0-50	260100CYCY	26 □ 200CYCY	26 □ 300CYCY	26 □ 400CYCY
0-100	260100DRDR	26 □ 200DRDR	26 □ 300DRDR	26 □ 400DRDR
0-200	260100EAEA	26 □ 200EAEA	26 □ 300EAEA	26 □ 400EAEA
0-500	260100EMEM	26 □ 200EMEM	26 □ 300EMEM	26 □ 400EMEM

### DC MICROAMMETERS — ZERO-CENTER

10-0-105	260101BZBZ	26 □ 201BZBZ*	26 □ 301BZBZ*	26 □ 401BZBZ*
25-0-25	260101CJCJ	26 □ 201CJCJ	26 □ 301CJCJ	26 □ 401CJCJ
50-0-50	260101CYCY	26 □ 201CYCY	26 □ 301CYCY	26 □ 401CYCY
100-0-100	260101DRDR	26 □ 201DRDR	26 □ 301DRDR	26 □ 401DRDR
500-0-500	260101EMEM	26 □ 201EMEM	26 □ 301EMEM	26 □ 401EMEM

### DC MILLIAMMETERS — ZERO-LEFT

\*Taut Band Only

0-1	260100FAFA	26 □ 200FAFA	26 □ 300FAFA	26 □ 400FAFA
0-2	260100FGFG	26 □ 200FGFG	26 □ 300FGFG	26 □ 400FGFG
0-3	260100FNFN	26 □ 200FNFN	26 □ 300FNFN	26 □ 400FNFN
0-5	260100FXFX	26 □ 200FXFX	26 □ 300FXFX	26 □ 400FXFX
0-10	260100GZGZ	26 □ 200GZGZ	26 □ 300GZGZ	26 □ 400GZGZ
0-15	260100HCHC	26 □ 200HCHC	26 □ 300HCHC	26 □ 400HCHC
0-20	260100HFHF	26 □ 200HFHF	26 □ 300HFHF	26 □ 400HFHF
0-25	260100HJHJ	26 □ 200HJHJ	26 □ 300HJHJ	26 □ 400HJHJ
0-30	260100MHMH	26 □ 200MHMH	26 □ 300MHMH	26 □ 400MHMH
0-50	260100HYHY	26 □ 200HYHY	26 □ 300HYHY	26 □ 400HYHY
0-100	260100JRJR	26 □ 200JRJR	26 □ 300JRJR	26 □ 400JRJR
0-150	260100JXJX	26 □ 200JXJX	26 □ 300JXJX	26 □ 400JXJX
0-200	260100KAKA	26 □ 200KAKA	26 □ 300KAKA	26 □ 400KAKA
0-300	260100KGKG	26 □ 200KGKG	26 □ 300KGKG	26 □ 400KGKG
0-500	260100KMKM	26 □ 200KMKM	26 □ 300KMKM	26 □ 400KMKM
0-750	260100KUKU	26 □ 200KUKU	26 □ 300KUKU	26 □ 400KUKU

### DC MILLIAMMETERS — ZERO-CENTER

1-0-1	260101FAFA	26 □ 201FAFA	26 □ 301FAFA	26 □ 401FAFA
5-0-5	260101FXFX	26 □ 201FXFX	26 □ 301FXFX	26 □ 401FXFX
10-0-10	260101GZGZ	26 □ 201GZGZ	26 □ 301GZGZ	26 □ 401GZGZ
25-0-25	260101HJHJ	26 □ 201HJHJ	26 □ 301HJHJ	26 □ 401HJHJ
50-0-50	260101HYHY	26 □ 201HYHY	26 □ 301HYHY	26 □ 401HYHY
100-0-100	260101JRJR	26 □ 201JRJR	26 □ 301JRJR	26 □ 401JRJR
200-0-200	260101KAKA	26 □ 201KAKA	26 □ 301KAKA	26 □ 401KAKA
500-0-500	260101KMKM	26 □ 201KMKM	26 □ 301KMKM	26 □ 401KMKM

### DC MILLIAMMETERS — SUPPRESSED ZERO (Indicating receiving gauge applications ±3% F.S.)

0.25-1.25	260100FEFE	26 □ 200FEFE	26 □ 300FEFE	26 □ 400FEFE
1-5	260100FYFY	26 □ 200FYFY	26 □ 300FYFY	26 □ 400FYFY
4-20	260100HEHE	26 □ 200HEHE	26 □ 300HEHE	26 □ 400HEHE
10-50	260100HXHX	26 □ 200HXHX	26 □ 300HXHX	26 □ 400HXHX

These meters are supplied with 0-100 dial labeled PERCENT.

### DC AMMETERS — ZERO-LEFT, SELF-CONTAINED

0-1	260100LALA	26 □ 200LALA	26 □ 300LALA	26 □ 400LALA
0-1.5	260100LCLC	26 □ 200LCLC	26 □ 300LCLC	26 □ 400LCLC
0-2	260100LELE	26 □ 200LELE	26 □ 300LELE	26 □ 400LELE
0-3	260100LJLJ	26 □ 200LJLJ	26 □ 300LJLJ	26 □ 400LJLJ
0-5	260100LSLS	26 □ 200LSLS	26 □ 300LSLS	26 □ 400LSLS
0-10	260100MTMT	26 □ 200MTMT	26 □ 300MTMT	26 □ 400MTMT
0-15	—	26 □ 200NDND	26 □ 300NDND	26 □ 400NDND
0-20	—	26 □ 200NGNG	26 □ 300NGNG	26 □ 400NGNG

**NOTE ON ORDERING:** The ranges and catalog numbers in this catalog refer to both surface and window mount panel meters. To specify your choice, replace the □ in the catalog number with either of the following: 0 for Surface Mount (Taut Band), 1 for Window Mount (Taut Band), 4 for Surface Mount (Pivot & Jewel) or 5 for Window Mount (Pivot & Jewel). (1½" is only available in Surface Mount (Taut Band).

## DC Ammeters Cont'd

Rating & Scale \ Size	1½	2½	3½	4½
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### DC AMMETERS — ZERO-LEFT, SELF-CONTAINED (cont'd)

0-25	—	26 □ 200NJNJ	26 □ 300NJNJ	26 □ 400NJNJ
0-30	—	26 □ 200NLNL	26 □ 300NLNL	26 □ 400NLNL
0-50	—	26 □ 200NTNT	26 □ 300NTNT	26 □ 400NTNT

### DC AMMETERS — ZERO-LEFT, 50mV SHUNT RATED (LEAD RES. RANGE: .05-.07Ω)\*

S C A L E	0-15	260124ECND	26 □ 224ECND	26 □ 324ECND	26 □ 424ECND
	0-20	260124ECNG	26 □ 224ECNG	26 □ 324ECNG	26 □ 424ECNG
	0-25	260124ECNJ	26 □ 224ECNJ	26 □ 324ECNJ	26 □ 424ECNJ
	0-30	260124ECNL	26 □ 224ECNL	26 □ 324ECNL	26 □ 424ECNL
	0-50	260124ECNT	26 □ 224ECNT	26 □ 324ECNT	26 □ 424ECNT
	0-75	260124ECPB	26 □ 224ECPB	26 □ 324ECPB	26 □ 424ECPB
	0-100	260124ECPK	26 □ 224ECPK	26 □ 324ECPK	26 □ 424ECPK
	0-150	260124ECPZ	26 □ 224ECPZ	26 □ 324ECPZ	26 □ 424ECPZ
	0-200	260124ECRL	26 □ 224ECRL	26 □ 324ECRL	26 □ 424ECRL
	0-300	260124ECRX	26 □ 224ECRX	26 □ 324ECRX	26 □ 424ECRX
	0-500	260124ECSF	26 □ 224ECSF	26 □ 324ECSF	26 □ 424ECSF
	0-750	260124ECSM	26 □ 224ECSM	26 □ 324ECSM	26 □ 424ECSM
	0-1000	260124ECSS	26 □ 224ECSS	26 □ 324ECSS	26 □ 424ECSS
	0-1200	260124ECSV	26 □ 224ECSV	26 □ 324ECSV	26 □ 424ECSV
	0-1500	260124ECTC	26 □ 224ECTC	26 □ 324ECTC	26 □ 424ECTC
	0-2000	260124ECTM	26 □ 224ECTM	26 □ 324ECTM	26 □ 424ECTM

### DC AMMETERS — ZERO LEFT, 100mV SHUNT RATED (LEAD RES. RANGE: 0.4-0.8Ω)\*

S C A L E	0-75	260124GBP	26 □ 224GBP	26 □ 324GBP	26 □ 424GBP
	0-100	260124GBPK	26 □ 224GBPK	26 □ 324GBPK	26 □ 424GBPK
	0-150	260124GBPZ	26 □ 224GBPZ	26 □ 324GBPZ	26 □ 424GBPZ
	0-200	260124GBRL	26 □ 224GBRL	26 □ 324GBRL	26 □ 424GBRL
	0-300	260124GBRX	26 □ 224GBRX	26 □ 324GBRX	26 □ 424GBRX
	0-500	260124GBSF	26 □ 224GBSF	26 □ 324GBSF	26 □ 424GBSF
	0-750	260124GBSM	26 □ 224GBSM	26 □ 324GBSM	26 □ 424GBSM
	0-1000	260124GBSS	26 □ 224GBSS	26 □ 324GBSS	26 □ 424GBSS
	0-1200	260124GBSV	26 □ 224GBSV	26 □ 324GBSV	26 □ 424GBSV
	0-1500	260124GBTC	26 □ 224GBTC	26 □ 324GBTC	26 □ 424GBTC
	0-2000	260124GBTM	26 □ 224GBTM	26 □ 324GBTM	26 □ 424GBTM

### DC AMMETERS — ZERO-CENTER, SELF-CONTAINED

1-0-1	260101LALA	26 □ 201LALA	26 □ 301LALA	26 □ 401LALA
3-0-3	260101LJLJ	26 □ 201LJLJ	26 □ 301LJLJ	26 □ 401LJLJ
5-0-5	260101LSLS	26 □ 201LSLS	26 □ 301LSLS	26 □ 401LSLS
10-0-10	260101MTMT	26 □ 201MTMT	26 □ 301MTMT	26 □ 401MTMT
15-0-15	—	26 □ 201NDND	26 □ 301NDND	26 □ 401NDND
25-0-25	—	26 □ 201NJNJ	26 □ 301NJNJ	26 □ 401NJNJ
50-0-50	—	26 □ 201NTNT	26 □ 301NTNT	26 □ 401NTNT

### DC AMMETERS — ZERO-CENTER, 50mV, SHUNT RATED (LEAD RES. RANGE: .05-.07Ω)\*

S C A L E	15-0-15	260125ECND	26 □ 225ECND	26 □ 325ECND	26 □ 425ECND
	25-0-25	260125ECNJ	26 □ 225ECNJ	26 □ 325ECNJ	26 □ 425ECNJ
	50-0-50	260125ECNT	26 □ 225ECNT	26 □ 325ECNT	26 □ 425ECNT
	75-0-75	260125ECPB	26 □ 225ECPB	26 □ 325ECPB	26 □ 425ECPB
	100-0-100	260125ECPK	26 □ 225ECPK	26 □ 325ECPK	26 □ 425ECPK
	200-0-200	260125ECRL	26 □ 225ECRL	26 □ 325ECRL	26 □ 425ECRL
	300-0-300	260125ECRX	26 □ 225ECRX	26 □ 325ECRX	26 □ 425ECRX
	400-0-400	260125ECSC	26 □ 225ECSC	26 □ 325ECSC	26 □ 425ECSC
	500-0-500	260125ECSF	26 □ 225ECSF	26 □ 325ECSF	26 □ 425ECSF

\*Shunts are not included. See Page 31 For 50mV Shunts.

**NOTE ON ORDERING:** The ranges and catalog numbers in this catalog refer to both surface and window mount panel meters. To specify your choice, replace the □ in the catalog number with either of the following: 0 for Surface Mount (Taut Band), 1 for Window Mount (Taut Band), 4 for Surface Mount (Pivot & Jewel) or 5 for Window Mount (Pivot & Jewel). (1½" is only available in Surface Mount (Taut Band).)

## AC Voltmeters

Rating & Scale \ Size	1½	2½	3½	4½
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### AC VOLTMETERS — TAUT BAND, MOVING COIL: SELF-CONTAINED, RECTIFIER TYPE

0-3	260130LJLJ	26 □ 230LJLJ	26 □ 330LJLJ	26 □ 430LJLJ
0-5	260130LSLS	26 □ 230LSLS	26 □ 330LSLS	26 □ 430LSLS
0-10	260130MTMT	26 □ 230MTMT	26 □ 330MTMT	26 □ 430MTMT
0-15	260130NDND	26 □ 230NDND	26 □ 330NDND	26 □ 430NDND
0-25	260130NJNJ	26 □ 230NJNJ	26 □ 330NJNJ	26 □ 430NJNJ
0-50	260130NTNT	26 □ 230NTNT	26 □ 330NTNT	26 □ 430NTNT
0-100	260130PKPK	26 □ 230PKPK	26 □ 330PKPK	26 □ 430PKPK
0-150	260130PZPZ	26 □ 230PZPZ	26 □ 330PZPZ	26 □ 430PZPZ
0-300	260130RXRX	26 □ 230RXRX	26 □ 330RXRX	26 □ 430RXRX

### AC VOLTMETERS — TAUT BAND, MOVING COIL: TRANSFORMER RATED, 0-150V, RECTIFIER TYPE\*

SCALE	0-750	260130PZSM	26 □ 230PZSM	26 □ 330PZSM	26 □ 430PZSM
	0-1500	260130PZTC	26 □ 230PZTC	26 □ 330PZTC	26 □ 430PZTC
	0-3000	260130PZUA	26 □ 230PZUA	26 □ 330PZUA	26 □ 430PZUA

### AC VOLTMETERS — TAUT BAND, MOVING COIL: EXPANDED SCALE, RECTIFIER TYPE

105-125	Accuracy ±0.5%FS ±0.5%FS ±1.0%FS ±1.0%FS	26 □ 237PTPT	26 □ 337PTPT	26 □ 437PTPT
210-250		26 □ 237RRRR	26 □ 337RRRR	26 □ 437RRRR
95-135		26 □ 237PJPJ	26 □ 337PJPJ	26 □ 437PJPJ
190-270		26 □ 237RKRK	26 □ 337RKRK	26 □ 437RKRK

### AC VOLTMETERS — IRON VANE, PIVOT & JEWEL: SELF-CONTAINED, 60Hz\*

0-500		26 □ 244LJLJ	26 □ 344LJLJ	26 □ 444LJLJ
0-5		26 □ 244LSLS	26 □ 344LSLS	26 □ 444LSLS
0-10		26 □ 244MTMT	26 □ 344MTMT	26 □ 444MTMT
0-15		26 □ 244NDND	26 □ 344NDND	26 □ 444NDND
0-30		26 □ 244NLNL	26 □ 344NLNL	26 □ 444NLNL
0-50		26 □ 244NTNT	26 □ 344NTNT	26 □ 444NTNT
0-100		26 □ 244PKPK	26 □ 344PKPK	26 □ 444PKPK
0-150		26 □ 244PZPZ	26 □ 344PZPZ	26 □ 444PZPZ
0-300		26 □ 244RXRX	26 □ 344RXRX	26 □ 444RXRX
0-500		26 □ 244SFSF	26 □ 344SFSF	26 □ 444SFSF
0-600		26 □ 244SJSJ	26 □ 344SJSJ	26 □ 444SJSJ

### AC VOLTMETERS — IRON VANE, PIVOT & JEWEL: TRANSFORMER RATED 0-150 VOLTS, 60Hz\*

SCALE	0-600	26 □ 244PZSJ	26 □ 344PZSJ	26 □ 444PZSJ
	0-750	26 □ 244PZSM	26 □ 344PZSM	26 □ 444PZSM
	0-3K	26 □ 244PZVJ	26 □ 344PZVJ	26 □ 444PZVJ

\*Iron Vane, Pivot & Jewel use only 0 for Surface Mount, 1 for Window Mount. Also, For Transformer Rated Voltmeters See Page 31 For Transformers.

## AC Ammeters

Rating & Scale \ Size	1½	2½	3½	4½
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### AC MILLIAMMETERS — TAUT BAND, MOVING COIL: SELF-CONTAINED, RECTIFIER TYPE

0-1	260110FAFA	26 □ 210FAFA	26 □ 310FAFA	26 □ 410FAFA
0-5	260110FXFX	26 □ 210FXFX	26 □ 310FXFX	26 □ 410FXFX
0-10	260110GZGZ	26 □ 210GZGZ	26 □ 310GZGZ	26 □ 410GZGZ
0-25	260110HJHJ	26 □ 210HJHJ	26 □ 310HJHJ	26 □ 410HJHJ
0-50	260110HYHY	26 □ 210HYHY	26 □ 310HYHY	26 □ 410HYHY
0-100	260110JRJR	26 □ 210JRJR	26 □ 310JRJR	26 □ 410JRJR
0-200	—	26 □ 210KAKA	26 □ 310KAKA	26 □ 410KAKA

## AC Ammeters Cont'd

Rating & Scale \ Size	1½	2½	3½	4½
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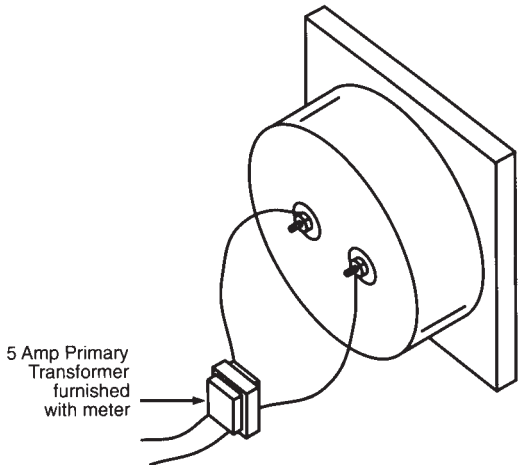
### AC AMMETERS — TAUT BAND, MOVING COIL: SELF-CONTAINED, RECTIFIER TYPE, 60Hz±10%

0-1		26□210LALA	26□310LALA	26□410LALA
0-1.5		26□210LCLC	26□310LCLC	26□410LCLC
0-2		26□210LELE	26□310LELE	26□410LELE
0-3		26□210LJLJ	26□310LJLJ	26□410LJLJ
0-5		26□210LSLS	26□310LSLS	26□410LSLS
0-10		26□210MTMT	26□310MTMT	26□410MTMT
0-15		26□210NDND	26□310NDND	26□410NDND
0-20		26□210NGNG	26□310NGNG	26□410NGNG
0-25		26□210NJNJ	26□310NJNJ	26□410NJNJ
0-30		26□210NLNL	26□310NLNL	26□410NLNL

### AC AMMETERS — TAUT BAND, MOVING COIL: TRANSFORMER RATED, 0-5A, RECTIFIER TYPE, 60Hz±10%

0-50		26□210LSNT	26□310LSNT	26□410LSNT
0-60		26□210LSNW	26□310LSNW	26□410LSNW
0-75		26□210LSPB	26□310LSPB	26□410LSPB
0-100		26□210LSPK	26□310LSPK	26□410LSPK
0-150		26□210LSPZ	26□310LSPZ	26□410LSPZ
0-200		26□210LSRL	26□310LSRL	26□410LSRL
S C A L E	0-300	26□210LSRX	26□310LSRX	26□410LSRX
	0-400	26□210LSSC	26□310LSSC	26□410LSSC
	0-500	26□210LSSF	26□310LSSF	26□410LSSF
	0-600	26□210LSSJ	26□310LSSJ	26□410LSSJ
	0-800	26□210LSSN	26□310LSSN	26□410LSSN
0-1000	26□210LSSS	26□310LSSS	26□410LSSS	
0-1500	26□210LSTC	26□310LSTC	26□410LSTC	
0-2000	26□210LSTM	26□310LSTM	26□410LSTM	

### AC AMMETERS — TAUT BAND, MOVING COIL: SEPARATE TRANSFORMERS, RECTIFIER TYPE, 60Hz±10%

0-1	260110LALA	} EACH METER IS SUPPLIED WITH AN EXTERNAL C.T. WITH INPUT RANGE MATCHING FULL SCALE INPUT.	
0-1.5	260110LCLC		
0-2	260110LELE		
0-3	260110LJLJ		
0-5	260110LSLS		
0-10	260110MTMT	} METER SUPPLIED WITH 5 AMP EXTERNAL C.T. — USER MUST PURCHASE ADDITIONAL C.T. OF PROPER SCALE RANGE WITH 5 AMP SECONDARY TO CONNECT TO EXT. 5 AMP C.T. SUPPLIED, SEE CATALOG 500 CTP.T.	
0-15	260110NDND		
0-20	260110NGNG		
0-25	260110NJNJ		
0-30	260110NLNL		
S C A L E	0-50	260110LSNT	
	0-60	260110LSNW	
	0-75	260110LSPB	
	0-100	260110LSPK	
	0-150	260110LSPZ	
	0-200	260110LSRL	
	0-300	260110LSRX	
	0-400	260110LSSC	
	0-500	260110LSSF	
	0-600	260110LSSJ	
0-800	260110LSSN		
0-1000	260110LSSS		
0-1500	260110LSTC		
0-2000	260110LSTM		

### AC MILLIAMMETERS — IRON VANE, PIVOT & JEWEL: SELF-CONTAINED, 50-400Hz\*

0-10		26□240GZGZ	26□340GZGZ	26□440GZGZ
0-25		26□240HJHJ	26□340HJHJ	26□440HJHJ
0-50		26□240HYHY	26□340HYHY	26□440HYHY
0-100		26□240JRJR	26□340JRJR	26□440JRJR
0-250		26□240KDKD	26□340KDKD	26□440KDKD
0-500		26□240MKMK	26□340MKMK	26□440MKMK

**NOTE ON ORDERING:** The ranges and catalog numbers in this catalog refer to both surface and window mount panel meters. To specify your choice, replace the □ in the catalog number with either of the following: 0 for Surface Mount (Taut Band), 1 for Window Mount (Taut Band), 4 for Surface Mount (Pivot & Jewel) or 5 for Window Mount (Pivot & Jewel). (1½" is only available in Surface Mount (Taut Band). \*Iron Vane, Pivot & Jewel use only 0 for Surface Mount, 1 for Window Mount.

## AC Ammeters Cont'd

Rating & Scale \ Size	1½	2½	3½	4½
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### AC AMMETERS — IRON VANE, PIVOT & JEWEL: SELF-CONTAINED, 50-400Hz\*

0-1		26 □ 240LALA	26 □ 340LALA	26 □ 440LALA
0-1.5		26 □ 240LCLC	26 □ 340LCLC	26 □ 440LCLC
0-2		26 □ 240LELE	26 □ 340LELE	26 □ 440LELE
0-3		26 □ 240LJLJ	26 □ 340LJLJ	26 □ 440LJLJ
0-5		26 □ 240LSLS	26 □ 340LSLS	26 □ 440LSLS
0-10		26 □ 240MTMT	26 □ 340MTMT	26 □ 440MTMT
0-15		26 □ 240NDND	26 □ 340NDND	26 □ 440NDND
0-20		26 □ 240NGNG	26 □ 340NGNG	26 □ 440NGNG
0-25		26 □ 240NJNJ	26 □ 340NJNJ	26 □ 440NJNJ
0-30		26 □ 240NLNL	26 □ 340NLNL	26 □ 440NLNL
0-50		26 □ 240NTNT	26 □ 340NTNT	26 □ 440NTNT

### AC AMMETERS — IRON VANE, PIVOT & JEWEL: TRANSFORMER RATED, 0-5 AMPERES, 50-400Hz\*

0-10		26 □ 240LSMT	26 □ 340LSMT	26 □ 440LSMT
0-15		26 □ 240LSND	26 □ 340LSND	26 □ 440LSND
0-20		26 □ 240LSNG	26 □ 340LSNG	26 □ 440LSNG
0-30		26 □ 240LSNL	26 □ 340LSNL	26 □ 440LSNL
0-40		26 □ 240LSNP	26 □ 340LSNP	26 □ 440LSNP
0-50		26 □ 240LSNT	26 □ 340LSNT	26 □ 440LSNT
0-75		26 □ 240LSPB	26 □ 340LSPB	26 □ 440LSPB
0-80		26 □ 240LSPD	26 □ 340LSPD	26 □ 440LSPD
0-100		26 □ 240LSPK	26 □ 340LSPK	26 □ 440LSPK
0-150		26 □ 240LSPZ	26 □ 340LSPZ	26 □ 440LSPZ
0-200		26 □ 240LSRL	26 □ 340LSRL	26 □ 440LSRL
0-300		26 □ 240LSRX	26 □ 340LSRX	26 □ 440LSRX
0-400		26 □ 240LSSC	26 □ 340LSSC	26 □ 440LSSC
0-500		26 □ 240LSSF	26 □ 340LSSF	26 □ 440LSSF
0-600		26 □ 240LSSJ	26 □ 340LSSJ	26 □ 440LSSJ
0-800		26 □ 240LSSN	26 □ 340LSSN	26 □ 440LSSN
0-1K		26 □ 240LSVA	26 □ 340LSVA	26 □ 440LSVA
0-1.2K		26 □ 240LSVB	26 □ 340LSVB	26 □ 440LSVB
0-1.5K		26 □ 240LSVC	26 □ 340LSVC	26 □ 440LSVC
0-2.0K		26 □ 240LSVE	26 □ 340LSVE	26 □ 440LSVE
0-3.0K		26 □ 240LSVJ	26 □ 340LSVJ	26 □ 440LSVJ

\*Iron Vane, Pivot & Jewel use only 0 for Surface Mount, 1 for Window Mount. Also see Page 31 For Transformer-Rated Meters

## Frequency Meters (For 480V AC input contact factory)

Voltage	Center Frequency	Scale Hertz	1½	2½	3½	4½
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### FREQUENCY METERS — TAUT BAND OR PIVOT & JEWEL: SELF-CONTAINED

120	50	45-55		26 □ 250AGAG	26 □ 350AGAG	26 □ 450AGAG
120	55	45-65		26 □ 250AJAJ	26 □ 350AJAJ	26 □ 450AJAJ
120	60	55-65		26 □ 250ANAN	26 □ 350ANAN	26 □ 450ANAN
120	400	380-420		26 □ 250BKBK	26 □ 350BKBK	26 □ 450BKBK
208	50	45-55		26 □ 250GGGG	26 □ 350GGGG	26 □ 450GGGG
208	55	45-65		26 □ 250GJGJ	26 □ 350GJGJ	26 □ 450GJGJ
208	60	55-65		26 □ 250GNGN	26 □ 350GNGN	26 □ 450GNGN
208	400	380-420		26 □ 250HKHK	26 □ 350HKHK	26 □ 450HKHK
240	50	45-55		26 □ 250DGDG	26 □ 350DGDG	26 □ 450DGDG
240	60	55-65		26 □ 250DNNDN	26 □ 350DNNDN	26 □ 450DNNDN
240	400	380-420		26 □ 250EKEK	26 □ 350EKEK	26 □ 450EKEK
240	55	45-65		26 □ 250DJDJ	26 □ 350DJDJ	26 □ 450DJDJ

**NOTE ON ORDERING:** The ranges and catalog numbers in this catalog refer to both surface and window mount panel meters. To specify your choice, replace the □ in the catalog number with either of the following: 0 for Surface Mount (Taut Band), 1 for Window Mount (Taut Band), 4 for Surface Mount (Pivot & Jewel) or 5 for Window Mount (Pivot & Jewel).

# YOKOGAWA Terminal Resistance Values

ALL VALUES ARE ±15% TOLERANCE

## New Big Look and Horizon Line

Rating and Scale	Taut Band	Pivot and Jewel
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## DC Voltmeters (See pages 2, 3, 8)

### DC VOLTMETER — ZERO-LEFT

1.0 Volts 1.5 Volts 3 Volts 5 Volts 8 Volts 10 Volts 15 Volts 30 Volts 80 Volts 100 Volts 150 Volts 200 Volts 250 Volts 300 Volts 500 Volts 600 Volts	↑ 1,000 Ohms/Volt ↓	↑ 1,000 Ohms/Volts ↓
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### DC VOLTMETERS — ZERO-LEFT, RATED 0-1 mA DC, FOR USE WITH EXTERNAL RESISTORS

SCALE	500 Volts	10.5 Ohms	42.4 Ohms
	600 Volts	10.5 Ohms	42.4 Ohms
	750 Volts	10.5 Ohms	42.4 Ohms

### DC VOLTMETERS — ZERO-CENTER

5-0-5 Volts 10-0-10 Volts 30-0-30 Volts 50-0-50 Volts 80-0-80 Volts 150-0-150 Volts 300-0-300 Volts 500-0-500 Volts 600-0-600 Volts	↑ 1,000 Ohms/Volt ↓	↑ 1,000 Ohms Volt ↓
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### DC VOLTMETERS — ZERO-CENTER, RATED 1-0-1 mA DC, FOR USE WITH EXTERNAL RESISTORS

SCALE	500-0-500 Volts	6.8 Ohms	22.4 Ohms
	600-0-600 Volts	6.8 Ohms	22.4 Ohms
	750-0-750 Volts	6.8 Ohms	22.4 Ohms

## DC Ammeters (See pages 3-5, 8-10)

### DC MICROAMMETERS — ZERO-LEFT

20 μA	2000 Ohms	.....
50 μA	2000 Ohms	.....
100 μA	484 Ohms	.....
200 μA	121 Ohms	980 Ohms
500 μA	40 Ohms	228 Ohms

### DC MICROAMMETERS — ZERO-CENTER

20-0-20 μA	12000 Ohms	.....
50-0-50 μA	484 Ohms	.....
100-0-100 μA	121 Ohms	980 Ohms
200-0-200 μA	750 Ohms	228 Ohms
500-0-500 μA	10.5 Ohms	42.4 Ohms

## New Big Look and Horizon Line

Rating and Scale	Taut Band	Pivot and Jewel
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### DC MILLIAMMETERS — ZERO-LEFT

1 mA	10.5 Ohms	42.4 Ohms
5 mA	20 Ohms	10.0 Ohms
10 mA	5.0 Ohms	5.0 Ohms
20 mA	2.39 Ohms	2.4 Ohms
25 mA	1.99 Ohms	2.0 Ohms
30 mA	1.66 Ohms	1.7 Ohms
50 mA	1.0 Ohms	1.0 Ohms
80 mA	0.64 Ohms	0.63 Ohms
100 mA	0.50 Ohms	0.50 Ohms
150 mA	0.33 Ohms	0.33 Ohms
200 mA	0.25 Ohms	0.25 Ohms
250 mA	0.2 Ohms	0.20 Ohms
300 mA	0.16 Ohms	0.167 Ohms
500 mA	0.10 Ohms	0.100 Ohms
800 mA	0.06 Ohms	0.063 Ohms

### DC MILLIAMMETERS — ZERO-CENTER

1-0-1 mA	6.8 Ohms	22.4 Ohms
5-0-5 mA	5.0 Ohms	9.7 Ohms
10-0-10 mA	2.4 Ohms	4.9 Ohms
20-0-20 mA	1.2 Ohms	2.4 Ohms
25-0-25 mA	1.0 Ohms	2.0 Ohms
30-0-30 mA	0.88 Ohms	1.7 Ohms
50-0-50 mA	0.51 Ohms	1.0 Ohms
100-0-50 mA	0.51 Ohms	0.51 Ohms
150-0-150 mA	0.33 Ohms	0.33 Ohms
200-0-200 mA	0.25 Ohms	0.25 Ohms
250-0-250 mA	0.2 Ohms	0.20 Ohms
300-0-300 mA	0.17 Ohms	0.168 Ohms
500-0-500 mA	0.10 Ohms	0.100 Ohms

### DC AMMETERS — ZERO-LEFT

1 Amp	0.050 Ohms	0.050 Ohms
1.5 Amp	0.033 Ohms	0.033 Ohms
2 Amp	0.025 Ohms	0.025 Ohms
3 Amp	0.0169 Ohms	0.0169 Ohms
5 Amp	0.010 Ohms	0.0100 Ohms
10 Amp	0.0050 Ohms	0.0050 Ohms
15 Amp	0.0033 Ohms	0.0033 Ohms
20 Amp	0.0025 Ohms	0.0025 Ohms
30 Amp	0.00167 Ohms	0.00167 Ohms
50 Amp	0.00100 Ohms	0.00100 Ohms

### DC AMMETERS — ZERO-LEFT, 50 mV, SHUNT RATED

20 Amp 30 Amp 50 Amp 75 Amp 100 Amp	25 Ohms	12.5 Ohms	
SCALE	150 Amp	Calibrated for use with two-way Shunt lead resistance of 0.065 Ohms	Calibrated for use with two-way Shunt lead resistance of 0.065 Ohms
	200 Amp		
	250 Amp		
300 Amp 400 Amp			
500 Amp 600 Amp 800 Amp			
1 Kiloamp 1.5 Kiloamp 2 Kiloamp			



New Big Look and Horizon Line		
Rating and Scale	Taut Band	Pivot and Jewel

**DC AMMETERS — ZERO-LEFT, 100 mV, SHUNT RATED**

Rating and Scale	Taut Band	Pivot and Jewel
20 Amp 40 Amp 50 Amp 75 Amp 100 Amp	50 Ohms	25 Ohms
<b>S O C N A L L Y</b> 150 Amp 200 Amp 250 Amp 300 Amp 400 Amp	Calibrated for use with two-way Shunt lead resistance of 0.065 Ohms	Calibrated for use with two-way Shunt lead resistance of 0.065 Ohms
500 Amp 600 Amp 800 Amp 1 Kiloamp 2 Kiloamp		

**DC AMMETERS — ZERO-CENTER**

Rating and Scale	Taut Band	Pivot and Jewel
1-0-1 Amp 2-0-2 Amp 5-0-5 Amp 10-0-10 Amp 15-0-15 Amp	0.0500 Ohms 0.0250 Ohms 0.0100 Ohms 0.0050 Ohms 0.0033 Ohms	0.0500 Ohms 0.0250 Ohms 0.0100 Ohms 0.0050 Ohms 0.0033 Ohms
20-0-20 Amp 30-0-30 Amp 50-0-50 Amp	0.0025 Ohms 0.00167 Ohms 0.00100 Ohms	0.0025 Ohms 0.00167 Ohms 0.00100 Ohms

**DC AMMETERS — ZERO-CENTER, 50 mV, SHUNT RATED**

Rating and Scale	Taut Band	Pivot and Jewel
<b>S O C N A L L Y</b> 20-0-20 Amp 50-0-50 Amp 75-0-75 Amp 100-0-100 Amp 150-0-150 Amp	50 Ohms Calibrated for use with two-way Shunt lead resistance of 0.065 Ohms	25 Ohms Calibrated for use with two-way Shunt lead resistance of 0.065 Ohms

**AC Voltmeters (IRON VANE)** See pages 5-6, 10-11

**AC VOLTMETERS, SELF-CONTAINED, 60 Hz**

Rating and Scale	Taut Band	Pivot and Jewel
3 Volts 5 Volts 10 Volts 15 Volts 30 Volts		11.1 Ohms 29.0 Ohms 110 Ohms 251 Ohms 779 Ohms
50 Volts 100 Volts 150 Volts 300 Volts 500 Volts		2,500 Ohms 10,000 Ohms 15,000 Ohms 70,260 Ohms 117,260 Ohms
600 Volts		140,000 Ohms

**AC VOLTMETERS, SELF-CONTAINED, 400 Hz (IRON VANE)**

Rating and Scale	Taut Band	Pivot and Jewel
150 Volts 300 Volts		15,268 Ohms 70,900 Ohms

**AC VOLTMETERS, TRANSFORMER RATED, 60 Hz, 150 Volts (IRON VANE)**

Rating and Scale	Taut Band	Pivot and Jewel
SCALE ONLY 600 Volts 750 Volts 3 Kv		15,000 Ohms 15,000 Ohms 15,000 Ohms

New Big Look and Horizon Line		
Rating and Scale	Taut Band	Pivot and Jewel

**AC VOLTMETERS (RECTIFIER TYPE)**

Rating and Scale	Taut Band	Pivot and Jewel
10 Volts 15 Volts 20 Volts 25 Volts 30 Volts	1,000 Ohms/Volt	1,000 Ohms/Volt
50 Volts 80 Volts 100 Volts 150 Volts 200 Volts		
250 Volts 300 Volts		

**AC Ammeters** (See pages 6-7, 11-12)

**AC MILLIAMMETERS, SELF-CONTAINED, 25-400 Hz (IRON VANE)**

Rating and Scale	Taut Band	Pivot and Jewel
10 mA 25 mA 50 mA 100 mA 200 mA		2158 Ohms 341 Ohms 84 Ohms 21 Ohms 4.1 Ohms
500 mA		0.7 Ohms

**AC AMMETERS — SELF-CONTAINED, 25-400 Hz (IRON VANE)**

Rating and Scale	Taut Band	Pivot and Jewel
1 Amp 3 Amp 5 Amp 8 Amp 10 Amp		0.17 Ohms 0.015 Ohms 0.007 Ohms 0.003 Ohms 0.0024 Ohms
15 Amp 20 Amp 30 Amp 50 Amp 80 Amp		0.0016 Ohms 0.001 Ohms 0.0006 Ohms 0.0004 Ohms 0.0004 Ohms

**AC AMMETERS — TRANSFORMER RATED 60 Hz (IRON VANE) 5 AMPERES**

Rating and Scale	Taut Band	Pivot and Jewel
10 Amp 15 Amp 20 Amp 30 Amp 40 Amp	0.007 Ohms	
<b>S O C N A L L Y</b> 50 Amp 75 Amp 80 Amp 100 Amp 150 Amp		
200 Amp 300 Amp 400 Amp 500 Amp 600 Amp 800 Amp		
1 Kiloamp 1.2 Kiloamp 1.5 Kiloamp 2.0 Kiloamp 3.0 Kiloamp		

# YOKOGAWA Terminal Resistance Values

ALL VALUES ARE ±15% TOLERANCE

Stylist Series		
Rating and Scale	Taut Band	Pivot and Jewel

## DC Voltmeters (See page 14)

### DC MILLIVOLTMETERS — ZERO-LEFT

50 mV 100 mV	10 Ohms 20 Ohms	12.5 Ohms 25 Ohms
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### DC MILLIVOLTMETERS — ZERO-CENTER

50-0-50 mV 100-0-100 mV	20 Ohms 40 Ohms	25 Ohms 50 Ohms
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### DC VOLTMETERS — ZERO-LEFT

1 Volt thru 500 Volts 600 Volts	1000 Ohms/Volt 10000 Ohms/Volt	1000 Ohms/Volt 10000 Ohms/Volt
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### DC VOLTMETERS — ZERO-CENTER

5-0-5 Volts thru 500-0-500 Volts 600-0-600 Volts	1000 Ohms/Volt 10000 Ohms/Volt	
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## DC Ammeters (See pages 15-16)

### DC MICROAMMETERS — ZERO-LEFT

10 uA 20 uA 50 uA 100 uA 200 uA 500 uA	5900 Ohms 4600 Ohms 2000 Ohms 660 Ohms 190 Ohms 116 Ohms	N/A N/A 6000 Ohms 1950 Ohms 980 Ohms 228 Ohms
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### DC MICROAMMETERS — ZERO-CENTER

10-0-10 uA 25-0-25 uA 50-0-50 uA 100-0-100 uA 500-0-500 uA	4600 Ohms 2000 Ohms 660 Ohms 190 Ohms 32 Ohms	N/A 6000 Ohms 1950 Ohms 980 Ohms 42.4 Ohms
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### DC MILLIAMMETERS — ZERO-LEFT

1 mA 2 mA 3 mA 5 mA 10 mA 15 mA 20 mA 25 mA 30 mA 50 mA 100 mA 150 mA 200 mA 300 mA 500 mA 750 mA	32 Ohms 11.2 Ohms 30 Ohms 3.5 Ohms 4.9 Ohms 3.3 Ohms 2.5 Ohms 1.9 Ohms 1.7 Ohms 1.0 Ohms 0.49 Ohms 0.33 Ohms 0.25 Ohms 0.17 Ohms 0.10 Ohms 0.067 Ohms	42.4 Ohms 22 Ohms * * * * * * * * * * * * * * *
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Stylist Series		
Rating and Scale	Taut Band	Pivot and Jewel

### DC MILLIAMMETERS — ZERO-CENTER

1-0-1 mA 5-0-5 mA 10-0-10 mA 25-0-25 mA 50-0-50 mA 100-0-100 mA 200-0-200 mA 500-0-500 mA	11.2 Ohms 9.9 Ohms 5.0 Ohms 2.0 Ohms 1.0 Ohms 0.53 Ohms 0.25 Ohms 0.10 Ohms	22 Ohms * * * * * * *
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### DC MILLIAMMETERS — SUPPRESSED ZERO (Indicating receiving gauge applications)

0.25-1.25 mA 1-5 mA 4-20 mA 10-50 mA	32 Ohms 31 Ohms 6.2 Ohms 2.4 Ohms	42.4 Ohms * * *
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### DC AMMETERS — ZERO-LEFT, SELF-CONTAINED

1 Amp 1.5 Amp 2 Amp 3 Amp 5 Amp 10 Amp 15 Amp 20 Amp 25 Amp 30 Amp 50 Amp	0.05 Ohms 0.033 Ohms 0.025 Ohms 0.017 Ohms 0.010 Ohms 0.0050 Ohms 0.0033 Ohms 0.0025 Ohms 0.0020 Ohms 0.0017 Ohms 0.0010 Ohms	* * * * * * * * * * *
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### DC AMMETERS — ZERO-LEFT, 50mV, SHUNT RATED

15 Amps thru 2000 Amps	10 Ohms	*
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Stylist Series	
Rating and Scale	Pivot and Jewel

### DC AMMETERS — ZERO-LEFT, 100mV, SHUNT RATED

75 Amps thru 2000 Amps	20 Ohms
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### DC AMMETERS — ZERO-CENTER, SELF-CONTAINED

1-0-1 Amp 3-0-3 Amp 5-0-5 Amp 10-0-10 Amp 15-0-15 Amp 25-0-25 Amp 50-0-50 Amp	0.050 Ohms 0.017 Ohms 0.010 Ohms 0.0050 Ohms 0.0033 Ohms 0.0020 Ohms 0.0010 Ohms
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### DC AMMETERS — ZERO-CENTER, 50mV, SHUNT RATED

15-0-15 Amps thru 500-0-500 Amps	20 Ohms
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\*Contact factory

# Stylist Panel Meter

Stylist Series	
Rating and Scale	Taut Band

## AC Voltmeters (See page 17)

### AC VOLTMETERS — SELF-CONTAINED, RECTIFIER TYPE

3 Volts thru 600 Volts	900 Ohms/Volt
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### AC VOLTMETERS — TRANSFORMER RATED, 0-150V, RECTIFIER TYPE

750 Volts through 3000 Volts (SCALE ONLY)	130 KOhms
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### AC VOLTMETERS — EXPANDED SCALE, RECTIFIER TYPE

105-125 Volts thru 190-270 Volts	225 Ohms/Volt
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Stylist Series	
Rating and Scale	Pivot & Jewel

### AC VOLTMETERS — IRON VANE, SELF-CONTAINED, 60 Hz

3 Volts	11.1 Ohms
5 Volts	29.0 Ohms
10 Volts	110.0 Ohms
15 Volts	251.0 Ohms
30 Volts	779.0 Ohms
50 Volts	2.5 KOhms
100 Volts	10.1 KOhms
150 Volts	15.1 KOhms
300 Volts	70.3 KOhms
500 Volts	117.3 KOhms
600 Volts	139.9 KOhms

### AC VOLTMETERS — IRON VANE, TRANSFORMER RATED, 150 VOLTS, 60Hz

600 Volts through 3KVolts (SCALE ONLY)	15.1 KOhms
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Stylist Series		
Rating and Scale	Taut Band	Pivot and Jewel

## AC Ammeters (See pages 17-19)

### AC MILLIAMMETERS — SELF-CONTAINED, RECTIFIER TYPE

1 mA	630 Ohms	*
5 mA	180 Ohms	*
10 mA	95 Ohms	*
25 mA	39 Ohms	*
50 mA	35 Ohms	*
100 mA	18 Ohms	*
200 mA	9 Ohms	*
500 mA	.20 Ohms	*

Stylist Series		
Rating and Scale	Taut Band	Pivot and Jewel

### AC AMMETERS — SELF-CONTAINED, RECTIFIER TYPE

1 Amp	.09 Ohms	*
1.5 Amp	.07 Ohms	*
2 Amp	.05 Ohms	*
3 Amp	.03 Ohms	*
5 Amp	0.2 Ohms	*
10 Amp	0.1 Ohms	*
15 Amp	.007 Ohms	*
20 Amp	.005 Ohms	*
25 Amp	.005 Ohms	*
30 Amp	.003 Ohms	*
50 Amp	.002 Ohms	*

### AC AMMETERS — TRANSFORMER RATED, 0-5A, RECTIFIER TYPE

60 Amps thru 2000 Amps (SCALE ONLY)	.02 Ohms	*
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### AC AMMETERS — SEPARATE TRANSFORMER RECTIFIER TYPE (1 1/2" SIZE)

50 Amps thru 2000 Amps	.015 Ohms	*
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Stylist Series	
Rating and Scale	Pivot & Jewel

### AC MILLIAMMETERS — IRON VANE, SELF-CONTAINED, 50-400Hz

10 mA	2.158 KOhms
25 mA	341.0 Ohms
50 mA	83.7 Ohms
100 mA	21.0 Ohms
250 mA	2.75 Ohms
500 mA	.704 Ohms

### AC AMMETERS — IRON VANE, SELF-CONTAINED, 50-400 Hz

1 Amp	.17 Ohms
1.5 Amps	.110 Ohms
2 Amps	.044 Ohms
3 Amps	.0153 Ohms
5 Amps	.0071 Ohms
10 Amps	.0024 Ohms
15 Amps	.0017 Ohms
20 Amps	.0009 Ohms
25 Amps	.0007 Ohms
30 Amps	.0006 Ohms
50 Amps	.0004 Ohms

### AC AMMETERS — IRON VANE, TRANSFORMER RATED, 0-5 AMPS, 50-400Hz

10 Amps thru 3KAmps (Scale Only)	.0071 Ohms
-------------------------------------	------------

\*Contact Factory

# YOKOGAWA ◆ Elapsed Time Meters



Back of Panel  
Unmounted



New Big Look  
Panel Mounted



Square Case



Round Case



Conduit Case

## Specifications

**Accuracy:** Matches frequency control of power system.

**Vibration Shock:** Meets ANSI Specification C39.1

**Materials:** Case of clear Polycarbonate, frame of black Polycarbonate, brass terminal studs, Polycarbonate front covers.

**Safety:** Type 240 elapsed-time meters are recognized under the Component Program of Underwriters' Laboratories. (UL File #E91703) & CSA

**Input Range:** All Type 240 models available to operate on 120 or 208/240 or 480 volts AC, 50 or 60 Hertz.

**Sealing:** All non-reset Type 240 models are weather resistant. Sealed window and no-through screw holes for flange or back-of-panel mounting protect motor, counter, and gearing from rain or panel wash-down.

**Presentation:** 6-digit counter in 1/2" high hours and tenths of hours or minutes and tenths of minutes.

**Insulation Level:** Operating at 120, 208, 240 or 480 volts AC, will pass Hi-pot of 2000 VRMS for one minute.

**Burden:** 3 VA typical.

**Dimensions:** See pages 40 & 41.

**Motor:** Synchronous.

### Features:

- Back-of-panel model
- 2 1/2" and 3 1/2" New Big Look models
- 2 1/2" and 3 1/2" Round and Square models
- Conduit-case models
- Complete interchangeability physically and electrically with most GE Types 235 and 236 models
- Optional 3 stud mounting is available on 3 1/2" New Big Look style 240 meters only.

Motor Volt AC	Nonreset Type		Reset Type	
	Register in Minutes	Register in Hours	Register in Minutes	Register in Hours

### 2 1/2-INCH NEW BIG LOOK — 60Hz

120	240 213 AAAB	240 211 AAAB	240 214 AAAB	240 212 AAAB
240	240 213 ABAB	240 211 ABAB	240 214 ABAB	240 212 ABAB
480	240 213 ACAB	240 211 ACAB	240 214 ACAB	240 212 ACAB

### 3 1/2-INCH NEW BIG LOOK — 60 Hz

120	240 313 AAAB	240 311 AAAB	240 314 AAAB	240 312 AAAB
240	240 313 ABAB	240 311 ABAB	240 314 ABAB	240 312 ABAB
480	240 313 ACAB	240 311 ACAB	240 314 ACAB	240 312 ACAB

### SQUARE CASE 2 1/2-INCH — 60 Hz

120	240 613 AAAD	240 611 AAAD	240 614 AAAD	240 612 AAAD
240	240 613 ABAD	240 611 ABAC	240 614 ABAD	240 612 ABAD
480	240 613 ACAD	240 611 ACAD	240 614 ACAD	240 612 ACAD

### SQUARE CASE 3 1/2-INCH — 60 Hz

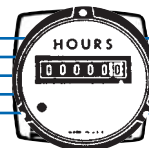
120	240 713 AAAD	240 711 AAAD	240 714 AAAD	240 712 AAAD
240	240 713 ABAD	240 711 ABAD	240 714 ABAD	240 712 ABAD
480	240 713 ACAD	240 711 ACAD	240 714 ACAD	240 712 ACAD

### ROUND CASE 2 1/2-INCH — 60 Hz

120	240 633 AAAB	240 631 AAAB	240 634 AAAB	240 632 AAAB
240	240 633 ABAB	240 631 ABAB	240 634 ABAB	240 632 ABAB
480	240 633 ACAB	240 631 ACAB	240 634 ACAB	240 632 ACAB

### ROUND CASE 3 1/2-INCH — 60 Hz

120	240 733 AAAB	240 731 AAAB	240 734 AAAB	240 732 AAAB
240	240 733 ABAB	240 731 ABAB	240 734 ABAB	240 732 ABAB
480	240 733 ACAB	240 731 ACAB	240 734 ACAB	240 732 ACAB



## BACK-OF-PANEL — 60 Hz

120 208/240 480	240 003 AAAA 240 003 ABAA 240 003 ACAA	240 001 AAAA 240 001 ABAA 240 001 ACAA	240 004 AAAA 240 004 ABAA 240 004 ACAA	240 002 AAAA 240 002 ABAA 240 002 ACAA
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## CONDUIT-MOUNTED CASE 2½-INCH — 60 Hz†

120 208/240 480	240 253 AA AF 240 253 AB AF 240 253 AC AF	240 251 AA AF 240 251 AB AF 240 251 AC AF		
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† Replacement meters for conduit-mounted case models not available as a separate item. However, motors can be supplied as a renewal part.

### 50-HERTZ RATINGS FOR NEW BIG LOOK

For 50 Hz service simply select the identical 60 Hz catalog number and change letters 7 & 8 as follows:

240213 \*\* AB

- AA = 120V, 60 Hz
- AB = 240V, 60 Hz
- AC = 480V, 60 Hz
- AD = 120V, 50 Hz
- AE = 240V, 50 Hz
- AF = 480V, 50 Hz
- AG = 208V, 60 Hz
- AH = 208V, 50 Hz

### OPTIONAL 3-STUD MOUNTING

For 3-stud mounting option (3½" New Big Look only) simply select the identical 4-stud catalog number and change letters 9 & 10 as follows:

240313AA\*\*

- AB = Std 4 stud mounting
- AC = Optional 3 stud mounting

Conduit case #2579K10G0700 can be ordered as a replacement item for the 240 25\*\*\*\*\* elapsed time meter assembly or for use with a 2½" Big Look meter.

# YOKOGAWA ◆ Y Series AC & DC Hour Meters

## Specifications

The Y Series hour meters are designed to monitor operating time, warranty periods and maintenance intervals on electrically driven machines and devices. Examples are business machines, compressors, power drives, generators, battery operated vehicles, electric furnaces, refrigeration equipment, farm and industrial machinery. In many cases, the operating environment is quite harsh. The Y Series hour meters offer a high degree of protection against dust and moisture and wide operating temperature range.

The measurement range for AC meters is 0 to 99,999.99 hours and DC meters is 0 to 999,999.9 hours. They are not re-settable. Ordering information for all models with various mounting configurations and terminations is described below.



TR Series  
(with 3 screw front mount)



TS Series  
(with 52mm bezel)



TM Series  
(with Code G mount)



TM Series  
(with 2 screw mount)

# YOKOGAWA Y Series AC & DC Hour Meters

1. Square Model	Round Model	Miniature Model	Input (voltage is +/-10%)
TS-0246	TR-0246	TM-0246	24V-60Hz
TS-1206	TR-1206	TM-1206	120V-60Hz
TS-1205	TR-1205	TM-1205	120V-50Hz
TS-2306	TR-2306	TM-2306	230V-60Hz
TS-2305	TR-2305	TM-2305	230V-50Hz
TS-2406	TR-2406	TM-2406	240V-60Hz
TS-4005	TR-4005		400V-50Hz
		TM-0612	6-12VDC
TS-0630	TR-0630		6-30VDC
		TM-1236	12-36VDC
TS-1080	TR-1080		10-80VDC
		TM-3680	36-80VDC
TS-1100	TR-1100	TM-1100	110VDC

3. Code	Mounting Configuration
A	Aluminum Clamp (TR & TS only)
C	Anti-vibration boot & clamp (TR & TS only)
D	DIN rail adapter for TS, DIN rail housing for TM
F	Snap fastener for TS only
G	Fork clamp retainer for TS & TM
H	3 Screw front mounting, TR & TM only
S	2 Screw Mounting, TM only

2. Code	Electrical input terminal
A	Combination pin and screw terminals
B	Flat pin terminals
C	Screw for TS only

4. Code	Options
/EPB	Polished Metal Bezel

Optional Bezels for TS Model*	
M1106QE-A	(52mm x 52mm)
M1106QF-A	(55mm X 55mm)
M1106QG-A	(72mm x 72mm)

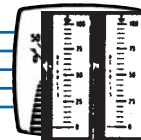
\*order as separate line item

Ordering example: Specify model, mounting configuration code, electrical input terminal code. Include option code if desired. TS-1206AA is a 120V-60Hz hour meter with square face, aluminum clamp and combination terminals. The combination pin and screw or flat pin terminals can be used with 1/4" quick connect lugs. For technical information, outline dimensions and panel cutouts see below and pages 42 & 43.

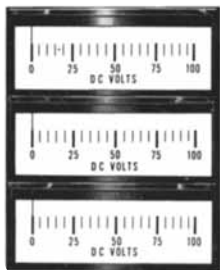
## Technical Data for Y Series Hour Meters

Specification	AC Hour Meters	DC Hour Meters
Operating voltage	24V, 120V, 230V, 240V, 400V (± 10%)	6-30V, 10-80V, 110V (± 10%) TS & TR, 6-12, 12-36, 36-80 for TM
Mains frequency	60 Hz and 50Hz models	DC
Power consumption	max 8mA	max 9mA
Operating temp. range	-13°F...+176°F (-25°C...+80°C) TR, TS -13°F...+158°F (-25°C...+70°C) TM	-4°F...+158°F (-20°C...+70°C) TR, TS -14°F...+131°F (-10°C...+55°C) TM
Storage temp. range	-40°F...+176°F (40°C...+80°C) TR, TS	-13°F...+158°F (-25°C...+70°C) TR, TS
Environmental specif.	77...131°F (25...55°C), 95% relative humidity, 6 cycles IEC 68-2-30	
Vibration	50m/s <sup>2</sup> , 10...150HZ IEC 68-2-6	
Shock	490m/s <sup>2</sup> , 11ms IEC 68-2-27	
Accuracy	± 0.02%	
Reading accuracy	1/100 hour (36sec)	1/10 hour (6min)
Lifetime	min 99999 hours	
Weight	app. 50g(1.76oz)	app. 52g(1.83oz)
Front dimensions	TR-58mm (2.28" Diameter), TS-48x48mm (1.89"x1.89"), TM 36x24mm (1.42"x0.94")	
Cutout dimension	TR-50mm (1.97" Diameter), TS-45.5x45.5mm (1.79"x1.79"), TM 33x22mm (1.30"x0.87")	
Counting range	99,999.99 hours	999,999.9 hours
Count before shipping	00001.00 hours	000001.0 hours
Number of digits	5 integers, 2 decimals 6 integers, 1 decimal	
Digit height	4mm (0.16")	
Digit color	integers:white	
	decimals:red	
Wheel color	integers:black	
	decimals:white=60Hz, decimals:black=50Hz	
	decimals:black	
Protection class	TR(round) IP67-front face, IP00-terminals TS(square) IP65-front face, IP20-terminals TM(rectangle) IP67-total, IP00-terminals	
Housing color	black	
Face Plate	black with clear viewing lens, and printed "h"	
TS mounting options	A=aluminum clamp, G=Retainer, D=DIN rail, F=Snap fastener, C=antivibration rubber	
TR mounting options	A=aluminum clamp, C=anti-vibration rubber 80mm dia., H=3 screw mtg. on 64.3mm dia.	
TS bezels (optional)	52x52mm(2.05" sq), 55x55mm(2.17"sq), 72x72mm(2.83" sq)	
TM mounting options	D=DIN rail housing, G=Retainer, H=3-screw mtg., R=clamp retainer, S=-2-screw mounting	
Connection	Flat Pin 6.3x0.8mm with screw terminal	
Standards	CE, UL Recognized, (UL#E171200)	
Label on Meter	Part Number	
	Date Code yyddd 03020 (January 20, 2003)	
	Voltage and Frequency (ie. 120V 60Hz)	Voltage and Frequency (ie. 10-80V DC)
	Power consumed (ie.8mA)	Power consumed (ie.9mA)
	Appropriate UL file number and symbol	

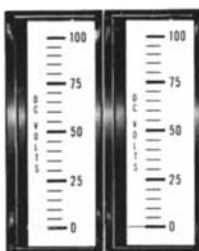
# Edgewise Panel Meters



## Type 185 Edgewise Panel Meters



Type 185  
3 Stack Mounted



Type 185  
2 Stack Mounted



Horizontal Type 185



Type 185  
Vertical  
Meter with Bezel

**Features:** Completely shielded case. No special calibration required for panel material — Dust-tight cases — Stack mounting of meters is possible with all sides of meter case flush — Optional bezel and mounting bracket for 1- or 3-unit stack — Zero regulator provided in rear of case.

**NOTE:** Mounting hardware is not included.

**Accuracy:** DC Meters  $\pm 2\%$  of full scale. AC rectifier type  $\pm 3\%$  (60 Hertz sine wave at 25°C).

**Overload:** Voltmeter — 50% momentary. 20% sustained. Ammeter — 900% momentary. 20% sustained.

**Scale Data:** 53 degrees rotation. Length — 1.785".

**Insulation Level:** 1800 VRMS Hi-pot.

**Response Time:**  
3 seconds (max.) for microammeters;  
2 seconds (max.) for all other DC ratings; and  
2.5 seconds (max.) for AC ratings.

**Overshoot:** Maximum of 40%.

**Dimensions:** See page 39.

Bezel and Mounting Assembly	Type of Mounting	Cat. No.
Assembly includes — Bezel mounting bracket(s), bolts, nuts, washers, speed nuts	For mounting one meter only .....	4149K16G0778
	For stack mounting three meters .....	4149K16G0780

## DC Ratings

Rating and Scale	Terminal Resistance Ohms $\pm 15\%$	Horizontal Scale	Vertical Scale
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### DC VOLTMETERS — ZERO-LEFT, ZERO-BOTTOM, SELF-CONTAINED, LINEAR-SCALE 1000 OHMS/VOLT

Rating and Scale	Terminal Resistance Ohms $\pm 15\%$	Horizontal Scale	Vertical Scale
10 V 15 V 30 V 50 V 100 V 150 V 300 V	1000 Ohms/volt	185 011 MTMT 185 011 NDND 185 011 NLNL 185 011 NTNT 185 011 PKPK 185 011 PZPZ 185 011 RXRX	185 013 MTMT 185 013 NDND 185 013 NLNL 185 013 NTNT 185 013 PKPK 185 013 PZPZ 185 013 RXRX

### DC VOLTMETERS — ZERO-CENTER, SELF-CONTAINED, 2000 OHMS/VOLT

Rating and Scale	Terminal Resistance Ohms $\pm 15\%$	Horizontal Scale	Vertical Scale
15-0-15 V 50-0-50 V 150-0-150 V	2000 Ohms/Volt 2000 Ohms/Volt 2000 Ohms/Volt	185 012 NDND 185 012 NTNT 185 012 PZPZ	185 014 NDND 185 014 NTNT 185 014 PZPZ

### DC VOLTMETERS — ZERO-LEFT, ZERO-BOTTOM, RATED 0-1 mA, FOR USE WITH EXTERNAL RESISTORS, RESISTORS NOT INCLUDED (SEE PAGE 29 FOR RESISTORS)

Rating and Scale	Terminal Resistance Ohms $\pm 15\%$	Horizontal Scale	Vertical Scale
500 V 600 V 750 V	34.4 Ohms 34.4 Ohms 34.4 Ohms	185 171 FASF 185 171 FASJ 185 171 FASM	185 173 FASF 185 173 FASJ 185 173 FASM

### DC MICROAMMETERS — ZERO-LEFT, ZERO-BOTTOM, SELF-CONTAINED, LINEAR-SCALE

Rating and Scale	Terminal Resistance Ohms $\pm 15\%$	Horizontal Scale	Vertical Scale
50 $\mu$ A 100 $\mu$ A 500 $\mu$ A	2200 Ohms 1100 Ohms 148 Ohms	185 111 CYCY 185 111 DRDR 185 111 EMEM	185 113 CYCY 185 113 DRDR 185 113 EMEM

### DC MICROAMMETERS — ZERO-CENTER, SELF-CONTAINED

Rating and Scale	Terminal Resistance Ohms $\pm 15\%$	Horizontal Scale	Vertical Scale
50-0-50 $\mu$ A 500-0-500 $\mu$ A	1100 Ohms 34.4 Ohms	185 112 CYCY 185 112 EMEM	185 114 CYCY 185 114 EMEM

### DC MILLIAMMETERS — ZERO-LEFT, ZERO-BOTTOM, SELF-CONTAINED, LINEAR-SCALE

Rating and Scale	Terminal Resistance Ohms $\pm 15\%$	Horizontal Scale	Vertical Scale
1 mA 5 mA 10 mA 20 mA 50 mA 100 mA 300 mA 500 mA	34.4 Ohms 10.2 Ohms 5.0 Ohms 2.6 Ohms 1.0 Ohms 0.5 Ohms 0.167 Ohms 0.100 Ohms	185 111 FAFA 185 111 FAFX 185 111 GZGZ 185 111 HFHF 185 111 HYHY 185 111 JRJR 185 111 KGKG 185 111 KMKM	185 113 FAFA 185 113 FAFX 185 113 GZGZ 185 113 HFHF 185 113 HYHY 185 113 JRJR 185 113 KGKG 185 113 KMKM

## DC MILLIAMMETERS — ZERO-CENTER, SELF-CONTAINED

1-0-1 mA	50.6 Ohms	185 112 FAFA	185 114 FAFA
5-0-5 mA	5.0 Ohms	185 112 FXFX	185 114 FXFX
10-0-10 mA	2.6 Ohms	185 112 GZGZ	185 114 GZGZ
50-0-50 mA	0.5 Ohms	185 112 HYHY	185 114 HYHY
500-0-500 mA	0.05 Ohms	185 112 KMKM	185 114 KMKM

## DC AMMETERS — ZERO-LEFT, ZERO-BOTTOM, SELF-CONTAINED, LINEAR-SCALE

1 Amp	.050 Ohms	185 111 LALA	185 113 LALA
5 Amp	.010 Ohms	185 111 LSLS	185 113 LSLS
10 Amp	.005 Ohms	185 111 MTMT	185 113 MTMT

## DC AMMETERS — ZERO-CENTER, SELF-CONTAINED

5-0-5 Amp	.005 Ohms	185 112 LSLS	185 114 LSLS
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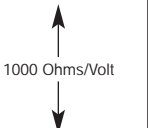
## DC AMMETERS — ZERO-LEFT, ZERO-BOTTOM, LINEAR-SCALE 50 mV SHUNT RATED, SHUNTS & LEADS NOT INCLUDED. (LEAD RES. RANGE: .05-.07Ω)

20 Amp	12.7 Ohms	185 121 ECNG	185 123 ECNG
50 Amp	12.7 Ohms	185 121 ECNT	185 123 ECNT
300 Amp	12.7 Ohms	185 121 ECRX	185 123 ECRX
500 Amp	12.7 Ohms	185 121 ECSF	185 123 ECSF

## AC Ratings

Rating and Scale	Terminal Resistance Ohms ±15%	Horizontal Scale	Vertical Scale
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## AC VOLTMETERS — RECTIFIER TYPE, ACCURACY ±3 PERCENT, SELF-CONTAINED, LINEAR-SCALE 1000 OHMS/VOLT

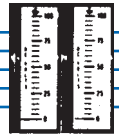
10 V		185 051 MTMT	185 053 MTMT
15 V		185 051 NDND	185 053 NDND
30 V		185 051 NLNL	185 053 NLNL
50 V		185 051 NTNT	185 053 NTNT
100 V		185 051 PKPK	185 053 PKPK
150 V		185 051 PZPZ	185 053 PZPZ

## AC MICROAMMETERS — RECTIFIER TYPE, ACCURACY ±3 PERCENT, SELF-CONTAINED, LINEAR-SCALE

500 μA	1000 Ohms	185 151 EMEM	185 153 EMEM
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## AC MILLIAMMETERS — RECTIFIER TYPE, ACCURACY ±3 PERCENT, SELF-CONTAINED, LINEAR-SCALE

3 mA	570 Ohms	185 151 FAFA	185 153 FAFA
5 mA	147 Ohms	185 151 FXFX	185 153 FXFX
10 mA	86 Ohms	185 151 GZGZ	185 153 GZGZ
20 mA	57 Ohms	185 151 HFHF	185 153 HFHF



# Series 280 Thin Edgewise Panel Meters



## Specifications

These meters are designed to meet all applicable sections of ANSI C39.1.

**Accuracy:** ±2% of full scale, DC meters; ±3% with 60 Hz sine wave at 25°C for AC rectifier type meters.

**Overload:** DC Voltmeters — 20% momentary and sustained; DC ammeters (momentary) — 10 times the rated current for 10 consecutive intervals of .5 second with 1 minute intervals between successive applications; DC ammeters (sustained) — 20% for 6 hours.

**Dielectric (Hi-pot):** 1500 VRMS for 1½" and 2½" sizes; 2600 VRMS for 3½" size.

**Response Time:** 3 seconds max for µA meters, 2 seconds (max.) for mA, A, mV, & V meters.

**Pointer Color:** red standard.

**Bezel and Mounting Hardware:** Included with meter. See below for additional information.

**Overshoot:** 25% (max.) for 1½" size, 40% (max.) for 2½" and 3½" sizes.

**Scale Data:** All three sizes designed for 53 degrees deflection. Scale lengths are 1½" size = 1.25", 2½" size = 1.93", 3½" size = 2.70".  
**Note:** All scales have linear distributions. 10V, 15V, 30V Rectifier scales will be non-linear.

**Dimensions:** See page 40.

## Mounting Hardware

Item	Cat. No.
Bezel and Hardware Kit 1½"	4149K18G0001
Bezel and Hardware Kit 2½"	4149K18G0003
Bezel and Hardware Kit 3½"	4149K18G0004
Bezel for Two 1½" Meters Stacked	4149K18G0002

# Series 280 DC Voltmeters (Taut Band)

Size		1½"		2½"		3½"	
Rating and Scale	Terminal Resistance Ohms ±15%	Horizontal Scale	Vertical Scale	Horizontal Scale	Vertical Scale	Horizontal Scale	Vertical Scale

## DC VOLTMETERS

0-10 Volts	1000 Ohms/Volt	286 011 MTMT	286 013 MTMT	287 011 MTMT	287 013 MTMT	288 011 MTMT	288 013 MTMT
0-15 Volts		286 011 NDND	286 013 NDND	287 011 NDND	287 013 NDND	288 011 NDND	288 013 NDND
0-30 Volts		286 011 NLNL	286 013 NLNL	287 011 NLNL	287 013 NLNL	288 011 NLNL	288 013 NLNL
0-50 Volts		286 011 NTNT	286 013 NTNT	287 011 NTNT	287 013 NTNT	288 011 NTNT	288 013 NTNT
0-100 Volts		286 011 PKPK	286 013 PKPK	287 011 PKPK	287 013 PKPK	288 011 PKPK	288 013 PKPK
0-150 Volts		286 011 PZPZ	286 013 PZPZ	287 011 PZPZ	287 013 PZPZ	288 011 PZPZ	288 013 PZPZ
0-200 Volts		.....	.....	287 011 RLRL	287 013 RLRL	288 011 RLRL	288 013 RLRL
0-300 Volts		.....	.....	287 011 RXRX	287 013 RXRX	288 011 RXRX	288 013 RXRX
15-0-15 Volts		286 012 NDND	286 014 NDND	287 012 NDND	287 014 NDND	288 012 NDND	288 014 NDND
30-0-30 Volts		286 012 NLNL	286 014 NLNL	287 012 NLNL	287 014 NLNL	288 012 NLNL	288 014 NLNL
150-0-150 Volts		.....	.....	287 012 PZPZ	287 014 PZPZ	288 012 PZPZ	288 014 PZPZ

DC VOLTMETERS — 0-1 mA, FOR USE WITH EXTERNAL RESISTORS, RESISTORS NOT INCLUDED (SEE PAGE 29 FOR RESISTORS)

0-500 Volts	43.2 Ohms	286 171 FASF	286 173 FASF	287 171 FASF	287 173 FASF	288 171 FASF	288 173 FASF
0-600 Volts	43.2 Ohms	286 171 FASJ	286 173 FASJ	287 171 FASJ	287 173 FASJ	288 171 FASJ	288 173 FASJ
0-750 Volts	43.2 Ohms	286 171 FASM	286 173 FASM	287 171 FASM	287 173 FASM	288 171 FASM	288 173 FASM

SO  
CAL  
LY

## Series 280 DC Ammeters (Taut Band)

Size		1½		2½		3½	
Rating and Scale	Terminal Resistance Ohms ±15%	Horizontal Scale	Vertical Scale	Horizontal Scale	Vertical Scale	Horizontal Scale	Vertical Scale

### DC AMMETERS — SELF-CONTAINED

0-50 µA	1,980 Ohms	286 111 CYCY	286 113 CYCY	287 111 CYCY	287 113 CYCY	288 111 CYCY	288 113 CYCY
0-100 µA	990 Ohms	286 111 DRDR	286 113 DRDR	287 111 DRDR	287 113 DRDR	288 111 DRDR	288 113 DRDR
0-200 µA	1,340 Ohms	286 111 EAEA	286 113 EAEA	287 111 EAEA	287 113 EAEA	288 111 EAEA	288 113 EAEA
0-500 µA	235 Ohms	286 111 EMEM	286 113 EMEM	287 111 EMEM	287 113 EMEM	288 111 EMEM	288 113 EMEM
0-1 mA	43.2 Ohms	286 111 FAFA	286 113 FAFA	287 111 FAFA	287 113 FAFA	288 111 FAFA	288 113 FAFA
0-5 mA	3.3 Ohms	286 111 FAFX	286 113 FAFX	287 111 FAFX	287 113 FAFX	288 111 FAFX	288 113 FAFX
0-10 mA	5 Ohms	286 111 GZGZ	286 113 GZGZ	287 111 GZGZ	287 113 GZGZ	288 111 GZGZ	288 113 GZGZ
0-25 mA	2.0 Ohms	286 111 HJHJ	286 113 HJHJ	287 111 HJHJ	287 113 HJHJ	288 111 HJHJ	288 113 HJHJ
0-50 mA	1.0 Ohms	286 111 HYHY	286 113 HYHY	287 111 HYHY	287 113 HYHY	288 111 HYHY	288 113 HYHY
0-100 mA	0.5 Ohms	286 111 JRJR	286 113 JRJR	287 111 JRJR	287 113 JRJR	288 111 JRJR	288 113 JRJR
0-250 mA	0.2 Ohms	286 111 KDKD	286 113 KDKD	287 111 KDKD	287 113 KDKD	288 111 KDKD	288 113 KDKD
0-500 mA	0.1 Ohms	286 111 KMKM	286 113 KMKM	287 111 KMKM	287 113 KMKM	288 111 KMKM	288 113 KMKM
0-1 Amp	0.05 Ohms	286 111 LALA	286 113 LALA	287 111 LALA	287 113 LALA	288 111 LALA	288 113 LALA
0-5 Amp	0.033 Ohms	286 111 LCLC	286 113 LCLC	287 111 LCLC	287 113 LCLC	288 111 LCLC	288 113 LCLC
0-2 Amp	0.025 Ohms	286 111 LELE	286 113 LELE	287 111 LELE	287 113 LELE	288 111 LELE	288 113 LELE
0-3 Amp	0.0167 Ohms	286 111 LJJJ	286 113 LJJJ	287 111 LJJJ	287 113 LJJJ	288 111 LJJJ	288 113 LJJJ
0-5 Amp	0.01 Ohms	286 111 LSL SLS	286 113 LSL SLS	287 111 LSL SLS	287 113 LSL SLS	288 111 LSL SLS	288 113 LSL SLS
50-0-50 µA	990 Ohms	286 112 CYCY	286 114 CYCY	287 112 CYCY	287 114 CYCY	288 112 CYCY	288 114 CYCY
100-0-100 µA	1,340 Ohms	286 112 DRDR	286 114 DRDR	287 112 DRDR	287 114 DRDR	288 112 DRDR	288 114 DRDR
500-0-500 µA	43.2 Ohms	286 112 EMEM	286 114 EMEM	287 112 EMEM	287 114 EMEM	288 112 EMEM	288 114 EMEM
01-0-1 mA	22.2 Ohms	286 112 FAFA	286 114 FAFA	287 112 FAFA	287 114 FAFA	288 112 FAFA	288 114 FAFA
5-0-5 mA	5 Ohms	286 112 FAFX	286 114 FAFX	287 112 FAFX	287 114 FAFX	288 112 FAFX	288 114 FAFX
50-0-50 mA	0.5 Ohms	.....	.....	287 112 HYHY	287 114 HYHY	288 112 HYHY	288 114 HYHY
5-0-5 Amp	0.005 Ohms	286 112 LSL SLS	286 114 LSL SLS	287 112 LSL SLS	287 114 LSL SLS	288 112 LSL SLS	288 114 LSL SLS

### DC AMMETERS — SHUNT RATED (LEAD RES. RANGE: .05-.07Ω)\*

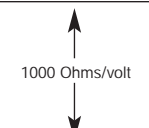
S  
C  
A  
L  
E

1 Amp	(0-50 mV) 10 Ohms	286 121 ECLA	286 123 ECLA	287 121 ECLA	287 123 ECLA	288 121 ECLA	288 123 ECLA
5 Amp	(0-50 mV) 10 Ohms	286 121 ECLS	286 123 ECLS	287 121 ECLS	287 123 ECLS	288 121 ECLS	288 123 ECLS
10 Amp	(0-50 mV) 10 Ohms	286 121 ECMT	286 123 ECMT	287 121 ECMT	287 123 ECMT	288 121 ECMT	288 123 ECMT
20 Amp	(0-50 mV) 10 Ohms	286 121 ECNG	286 123 ECNG	287 121 ECNG	287 123 ECNG	288 121 ECNG	288 123 ECNG
50 Amp	(0-50 mV) 10 Ohms	286 121 ECNT	286 123 ECNT	287 121 ECNT	287 123 ECNT	288 121 ECNT	288 123 ECNT
300 Amp	(0-50 mV) 10 Ohms	286 121 ECRX	286 123 ECRX	287 121 ECRX	287 123 ECRX	288 121 ECRX	288 123 ECRX
500 Amp	(0-50 mV) 10 Ohms	286 121 ECSF	286 123 ECSF	287 121 ECSF	287 123 ECSF	288 121 ECSF	288 123 ECSF
1 Amp	(0-100 mV) 20 Ohms	286 121 GBLA	286 123 GBLA	287 121 GBLA	287 123 GBLA	288 121 GBLA	288 123 GBLA
5 Amp	(0-100 mV) 20 Ohms	286 121 GBLS	286 123 GBLS	287 121 GBLS	287 123 GBLS	288 121 GBLS	288 123 GBLS
10 Amp	(0-100 mV) 20 Ohms	286 121 GBMT	286 123 GBMT	287 121 GBMT	287 123 GBMT	288 121 GBMT	288 123 GBMT
20 Amp	(0-100 mV) 20 Ohms	286 121 GMNG	286 123 GMNG	287 121 GMNG	287 123 GMNG	288 121 GMNG	288 123 GMNG
50 Amp	(0-100 mV) 20 Ohms	286 121 GBNT	286 123 GBNT	287 121 GBNT	287 123 GBNT	288 121 GBNT	288 123 GBNT
300 Amp	(0-100 mV) 20 Ohms	286 121 GBRX	286 123 GBRX	287 121 GBRX	287 123 GBRX	288 121 GBRX	288 123 GBRX
500 Amp	(0-100 mV) 20 Ohms	286 121 GBSF	286 123 GBSF	287 121 GBSF	287 123 GBSF	288 121 GBSF	288 123 GBSF

\*Shunts not included. See Page 31 for 50mV shunts.

## Series 280 AC Voltmeters

### AC VOLTMETERS — RECTIFIER TYPE

0-10 Volts		286 051 MTMT	286 053 MTMT	287 051 MTMT	287 053 MTMT	288 051 MTMT	288 053 MTMT
0-15 Volts		286 051 NDND	286 053 NDND	287 051 NDND	287 053 NDND	288 051 NDND	288 053 NDND
0-30 Volts		286 051 NLNL	286 053 NLNL	287 051 NLNL	287 053 NLNL	288 051 NLNL	288 053 NLNL
0-50 Volts		286 051 NTNT	286 053 NTNT	287 051 NTNT	287 053 NTNT	288 051 NTNT	288 053 NTNT
0-100 Volts		286 051 PKPK	286 053 PKPK	287 051 PKPK	287 053 PKPK	288 051 PKPK	288 053 PKPK
0-150 Volts		286 051 PZPZ	286 053 PZPZ	287 051 PZPZ	287 053 PZPZ	288 051 PZPZ	288 053 PZPZ

## Series 280 AC Ammeters

### AC AMMETERS — RECTIFIER TYPE Δ

0-500 µA	1267 Ohms	286 151 EMEM	286 153 EMEM	287 151 EMEM	287153 EMEM	288 151 EMEM	288 153 EMEM
0-1 mA	758 Ohms	286 151 FAFA	286 153 FAFA	287 151 FAFA	287153 FAFA	288 151 FAFA	288 153 FAFA
0-5 mA	196 Ohms	286 151 FAFX	286 153 FAFX	287 151 FAFX	287153 FAFX	288 151 FAFX	288 153 FAFX
0-10 mA	97 Ohms	286 151 GZGZ	286 153 GZGZ	287 151 GZGZ	287153 GZGZ	288 151 GZGZ	288 153 GZGZ
0-20 mA	55 Ohms	286 151 HFHF	286 153 HFHF	287 151 HFHF	287153 HFHF	288 151 HFHF	288 153 HFHF

A 5 AMP AC self-contained 3½" (Type 288) is available as a special, but is not per ANSI C39.1. Contact factory for more information.

# Parts and Accessories

## AC CURRENT TRANSFORMERS

Current Ratio In Amperes Primary: Secondary	** Catalog number	Accuracy at 60 Hz	Burden VA @ 60Hz	Window diameter
50:5	5RL-500	±2%	1.0	1.56"
75:5	5RL-750	±2%	1.5	1.56"
100:5	5RL-101	±2%	2.0	1.56"
150:5	5RL-151	±1%	5.0	1.56"
200:5	5RL-201	±1%	5.0	1.56"
250:5	5RL-251	±1%	10.0	1.56"
300:5	5RL-301	±1%	12.5	1.56"
400:5	5RL-401	±1%	12.5	1.56"
500:6	5RL-501	±1%	20.0	1.56"
600:5	5RL-601	±1%	25.0	1.56"
750:5	5RL-751	±1%	25.0	1.56"
800:5	5RL-801	±1%	25.0	1.56"
1000:5	5RL-102	±1%	25.0	1.56"
1200:5	5RL-122	±1%	30.0	1.56"

\*\* This is a toroidal type donut transformer with a 24" flying leads. For other styles, ratios and window diameters see transformer catalog 500CTPT-B.

## AC VOLTAGE TRANSFORMERS

Voltage Rating primary:secondary	Turns Ratio	1 Phase Catalog No.	Open Delta Catalog No. *	3 Phase Catalog No. **
69.3:120	0.58:1	467-069	469-069	3VT-460-069F
120:120	1:1	467-120	469-120	3VT-460-120F
208:120	1.73:1	467-208	469-208	N/A
240:120	2:1	467-240	469-240	3VT-460-240F
288:120	2.4:1	467-288	469-288	3VT-460-288F
300:120	2.5:1	467-300	469-300	3VT-460-300F
480:120	4:1	467-480	469-480	3VT-460-480F
600:120	5:1	467-600	469-600	3VT-460-600F

\*2 transformers in one case. \*\* 480V & 600V connected line to line. For other ratings. See 500CTPT-B.

## RESISTORS

1000 Ohms/Volt, 1 milliampere DC full scale		Dimensions
*Voltage level	Catalog No.	
500 V	2227 01	
600 V	2227 02	
750 V	2227 03	
800 V	2227 04	
1 kV	2227 05	
1.5 kV	2227 06	
2 kV	2227 07	
*Other voltage levels available.		<p style="text-align: center;">SIDE VIEW</p> <p style="text-align: center;">TOP VIEW</p>

## WINDOW ASSEMBLIES

Size	Big Look	Horizon Line	Stylist Surface mt.	Stylist Window mt.
1 1/2"	9007K17G7700	9007K17G0707	B9015JA	N/A
2 1/2"	9007K17G7701	9007K17G0704	B9016NG	B9016NL
3 1/2"	9007K17G7702	9007K17G0705	B9016PG	B9016PL
4 1/2"	9007K17G7703	9007K17G0706	B9016QG	B9016QL

## GASKETS, MASKS, BEZEL KITS

Size	Big Look Gasket	Horizon Line Mask	Stylist Surface mount only	
			Metallic Bezel Kit	Black Bezel Kit
1 1/2"	N/A	5203K21P0001	N/A	N/A
2 1/2"	3830K20P7005	5203K18P0001	B9015KX	B9015KY
3 1/2"	3830K20P7003	5203K19P0001	B9015LX	B9015LY
4 1/2"	3830K20P7004	5203K20P0001	B9015MX	B9015MY

## INSULATING CAPNUTS

For Stylist meters 10-32 terminals	See below ..... B9015HM
For BL/HL Meters 1/4-28 terminals	See below ..... B9015HN

## DC AMMETER SHUNTS - 50 millivolt only

Catalog no.	Rating	Catalog no.	Rating
221501	1 Amp	221514	150 Amp
221502	1.5 Amp	221515	200 Amp
221503	2 Amp	221516	300 Amp
221504	3 Amp	221601	500 Amp
221505	5 Amp	221602	750 Amp
221506	7.5 Amp	221603	1 Kiloamp
221507	10 Amp	221701	1.5 Kiloamp
221508	15 Amp	221702	2 Kiloamp
221509	20 Amp	221703	3 Kiloamp
221510	30 Amp	221704	5 Kiloamp
221511	50 Amp	221705	7.5 Kiloamp
221512	75 Amp	221706	10 Kiloamp
221513	100 Amp		

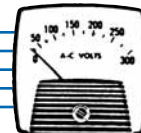
## OTHER ACCESSORIES

Mounting hardware ..... order by description of meter  
 Conduit case for 2 1/2" Big Look ..... part no. 2579K10G0700  
 Antistatic solution in 3 1/2 oz. bottle ..... part no. 177001AAAA

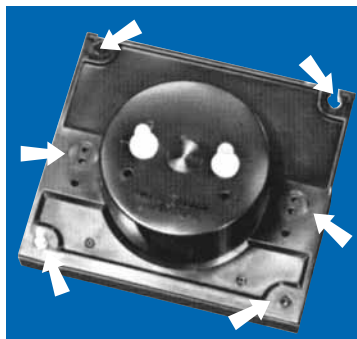
Optional Features	New Big Look Horizon Line Panel Meters	Frequency and Expanded Scale Voltmeters	Stylist Series	185 and 280 Edgewise
1. Special Scales Any deviation from standard scale information on catalog listed items constitutes a special scale.....	X	X	X	X
2. Special color on scale (black on white-std) Each special color on scale constitutes one option.....	X	X	X	X
3. Mirror-back Scale includes knife-edge pointer (DC only).....	X <sup>1</sup>	X <sup>1</sup>	X <sup>1</sup>	N/A
4. Nonlisted Rating.....	X	X	X	X
5. High-sensitivity voltmeters (DC only) Standard sensitivity for DC voltmeters is 1000 ohms/volt (1 milliamp current).....	X	X	X	X
6. Suppressed-zero (DC only) (20% Suppression Max.)..... Suppressed-zero meters have greater error than standard zero-left meters. Normally suppressed-zero units are supplied with zero adjustment. They can be furnished with inoperable zero adjustment upon request.	X	N/A	X	X
7. Offset-zero ratings and scale (DC only).....	X	N/A	X	X
8. Nonstandard lead resistance..... Standard two-way shunt lead resistance for shunt-rated ammeters, 50 or 100 millivolt, is 0.065 ohms. Normally these meters can be used with a wide range of lead resistances with only very small additional errors. However, if calibration for a specific value of lead resistance other than 0.065 ohms is required, contact factory.	X	N/A	X	X
9. Calibration for mounting at a specific angle..... Special calibration not required for meters mounted 0 to 19 degrees from vertical position.	X	X	X	X
10. Calibration for specific frequency, 25-400 Hertz. For calibration at frequencies greater than 400 Hertz, refer to factory.....	X	X <sup>3</sup>	X	X
11. Special terminal resistance..... Normally nonstandard terminal resistance requirements or close tolerance on terminal resistance should be referred to the factory.	X	N/A	X	X
12. Red Day-Glow pointer.....	X	X	X	X
13. Black scale with white or red pointer.....	X	X	X	X
14. Special case and cover material (Refer to factory on available materials).....	X	X	X	X
15. Anti-glare window.....	X	X	X	X
16. ±1% FS accuracy at one point on scale. (±2% FS over balance of scale).....	X	N/A	X	X
17. Extra Hardware.....	X	X	X	X
18. Double rated, 3 studs (including scale).....	X	N/A	X	N/A
19. ±1% FS accuracy — all points on scale (DC with Mirror Scale — 3½ and 4½ H.L. & Stylist Only).....	X	N/A	X	N/A
20. Tachometer Voltmeter (including scale, pot & special FSV).....	X	N/A	X	N/A
21. Lead length compensation pot (Millivoltmeters).....	X	N/A	X	N/A
22. UL 1437 Materials (2½-4½" only).....	X	X	X	X
23. External Magnetic Shield (2½-4½" only) (Standard on AC Ammeters 20 amps or higher).....	X <sup>2</sup>	N/A	N/A	N/A
24. IEC Standard 144 (IP54) (2½ & 3½ B.L. only).....	X	X	N/A	N/A

X= Available  
N/A = Not Available

Note: 1. Stylist 2½"-4½", HL 3½"-4½"  
2. Horizon Line and New Big Look Only  
3. Expanded Scale Voltmeter Only



# Mounting In Your Present Panel Openings . . .



## Optional Front-Mounting Configurations

The mounting studs on the New Big Look, Horizon Line and Stylist Series Surface Mount can be ordered to fit your existing panel openings at no extra cost. These cases are interchangeable with a wide variety of competitive instruments. Optional stud-placement configurations are shown at right and a cross-reference of many replacement instruments are listed on the next page. This built-in interchangeability eliminates the need for drawing changes, setups, and re-drilling of panels . . . and it solves your instrument replacement problems.

Stud Options	Barrel diameters and mounting hole locations (viewed from front of panel)			
	1 1/2"	2 1/2"	3 1/2"	4 1/2"
Standard New Big Look				
New Big Look Option No. 1	.....			
New Big Look Option No. 2 (Similar to Option No. 1 location — used when 4 studs are wanted)	.....			.....
Standard Horizon Line				
Horizon Line Option No. 1	.....	.....		
Horizon Line Option No. 2	.....			.....
Horizon Line Option No. 3 (Similar to Standard location — used when 4 studs are wanted)	.....			
Stylist Surface Standard				
Stylist Surface Option No. 1				

## INTERCHANGEABILITY CROSS-REFERENCE (for front-of-panel mounting)

Interchangeable with:	New Big Look				Horizon Line				Stylist Surface Mount			
	1½"	2"	3½"	4½"	1½"	2"	3½"	4½"	1½"	2"	3½"	4½"
Weston 1900	NI	Op1	Op1	S	NI	S	S	S	NI	Op1	Op1	Op1
Weston 201, 301 (square)	NA	Op1	Op1	NA	NA	S	S	NA	NA	Op1	Op1	NA
Weston 201, 301 (round)	NA	S	S	NA	NA	Op2	Op2	NA	CBD	CBD	CBD	CBD
Simpson 25, 125T, etc.	NA	S	S	S	NA	Op2	Op2	S	NA	NI	NI	Op1
Simpson 27, 127, etc.	NA	Op1	Op1	S	NA	S	S	S	NA	Op1	Op1	Op1
Honeywell MS, MM, 45, 55	NI	S	S	S	NI	Op2	Op2	S	NI	NI	NI	Op1
Triplett G, PL, M, 327, 337S, etc.	S	Op1	Op1	S	S	S	S	S	Op1	Op1	Op1	Op1
Triplett 221T, 331S, 351T, 420, etc.	NA	S	S	S	NA	Op2	Op2	S	NA	NI	NI	Op1
API Panelist	NA	NI	Op1	S	NA	NI	S	S	NA	NI	Op1	Op1
Westinghouse G	NA	Op1	NI	NI	NA	S	NI	NI	NA	Op1	NI	NI
Ammon, AM, AP	S	S	S	S	S	Op2	Op2	S	Op1	NI	NI	Op1
Beede, 3-01, 614, 23 etc.	NA	Op1	Op1	S	NA	S	S	S	NA	Op1	Op1	Op1
Hoyt Custom 2035	S	Op1	Op1	S	S	S	S	S	Op1	Op1	Op1	Op1
Hoyt 1035, 680, etc.	NA	S	S	S	NA	Op2	Op2	S	NA	NI	NI	Op1
Ideal 250P, K350P, 460P Imperial	NI	Op1	Op1	S	NI	S	S	S	NI	Op1	Op1	Op1
Ideal 275Pr, 305BR	NI	S	S	S	NI	Op2	Op2	S	NI	NI	NI	Op1
Simpson Wide-View	S	Op1	Op1	S	S	S	S	S	Op1	Op1	Op1	Op1
Modutec S, C	S	Op1	Op1	S	S	S	S	S	S	S	S	S
Modutec PB	CBD	S	S	CBD	CBD	S	S	CBD	S	NA	NA	S
Sun 2830, 3X, 25, etc.	NA	S	S	S	NA	Op2	Op2	S	NA	NI	NI	Op1
Mercer 924	CBD	CBD	CBD	S	CBD	CBD	CBD	S	CBD	CBD	CBD	Op1
Crompton 016 Fiesta	CBD	CBD	S	CBD	CBD	CBD	Op2	CBD	CBD	CBD	NI	CBD
Crompton 210, 223, 225, 227	CBD	Op1	Op2	S	CBD	S	Op3	Op3	CBD	Op1	S	S

**Code:**

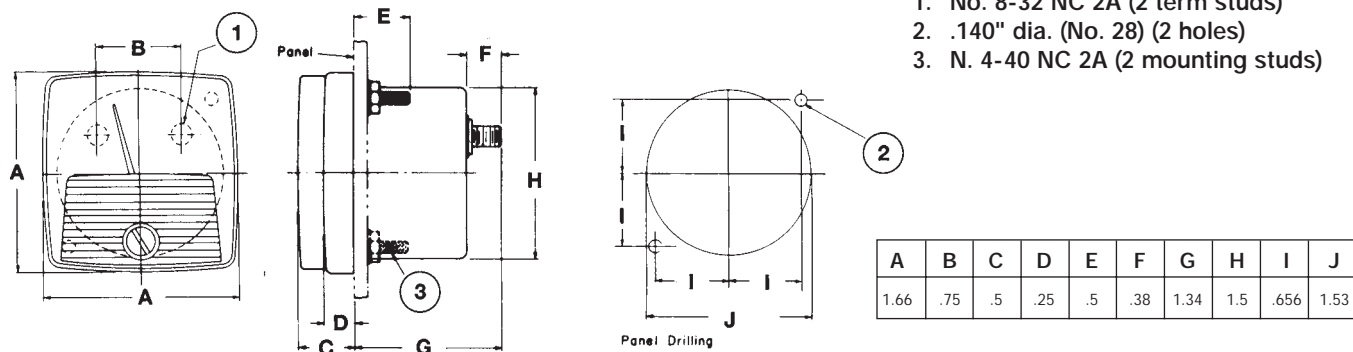
S — Interchangeable with Standard pin configuration.  
 Op1 — Interchangeable with Option 1.  
 Op2 — Interchangeable with Option 2.

Op3 — Interchangeable with Option 3.  
 NI — Not interchangeable

NA — Not applicable (usually means particular size is not manufactured).  
 CBD — Cannot be determined.

## YOKOGAWA Dimensional Drawings

Fig. 1 New Big Look 1½ inch Type 250



1. No. 8-32 NC 2A (2 term studs)
2. .140" dia. (No. 28) (2 holes)
3. N. 4-40 NC 2A (2 mounting studs)

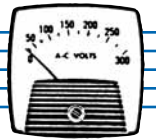
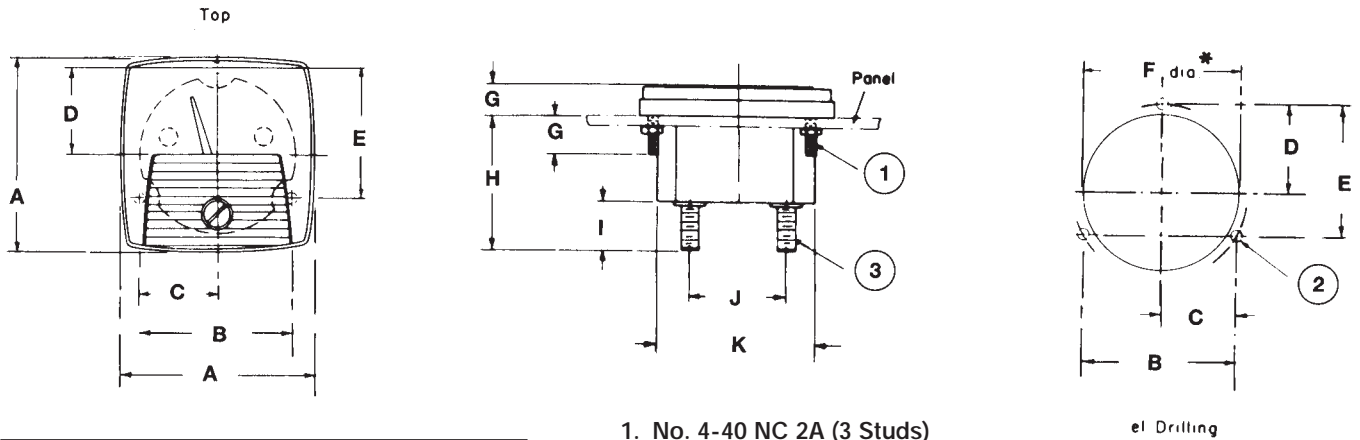


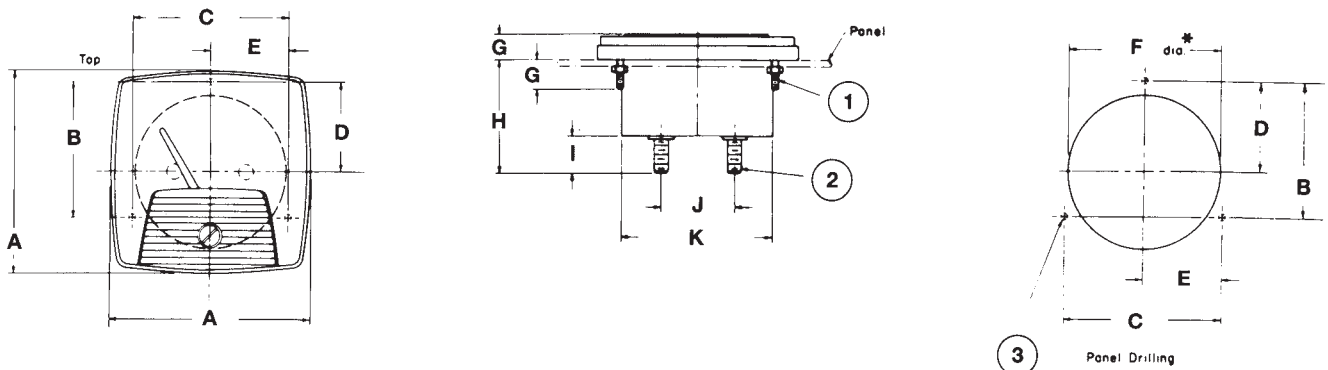
Fig. 2. New Big Look 2½-inch Types 250 & 254  
\*2.270 dia. with shield



A	B	C	D	E	F*	G	H	I	J	K
2.69	2.112	1.056	1.219	1.829	2.17	.5	1.85	.67	1.318	2.15

1. No. 4-40 NC 2A (3 Studs)
2. .140" dia. (No. 28) (3 holes)
3. 1/4" -28 NF 2A thd.

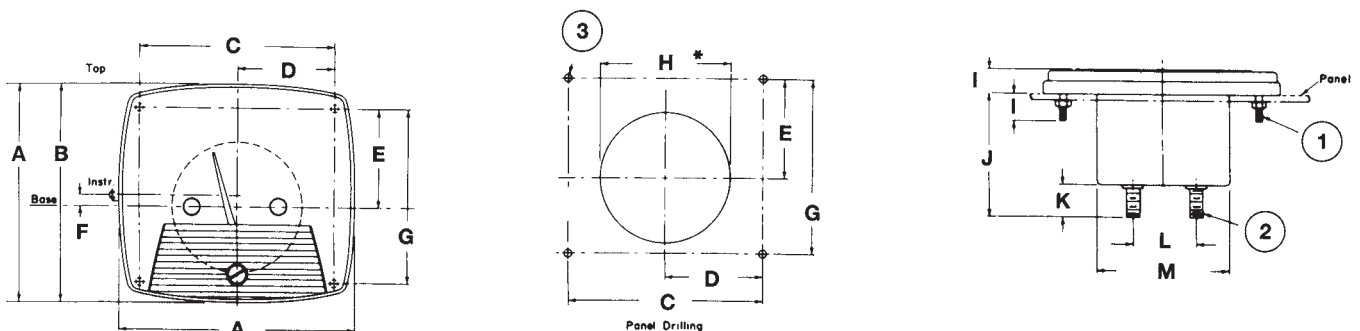
Fig. 3. New Big Look 3½-inch Types 250 & 254  
\*2.860 dia. with shield



A	B	C	D	E	F*	G	H	I	J	K
3.5	2.373	2.74	1.582	1.37	2.72	.5	1.85	.64	1.318	2.7

1. No. 4-40 NC 2A (3 Studs)
2. 1/4" - 28 NF 2A thd.
3. .140" dia. (No. 28 dr.) (3 holes)

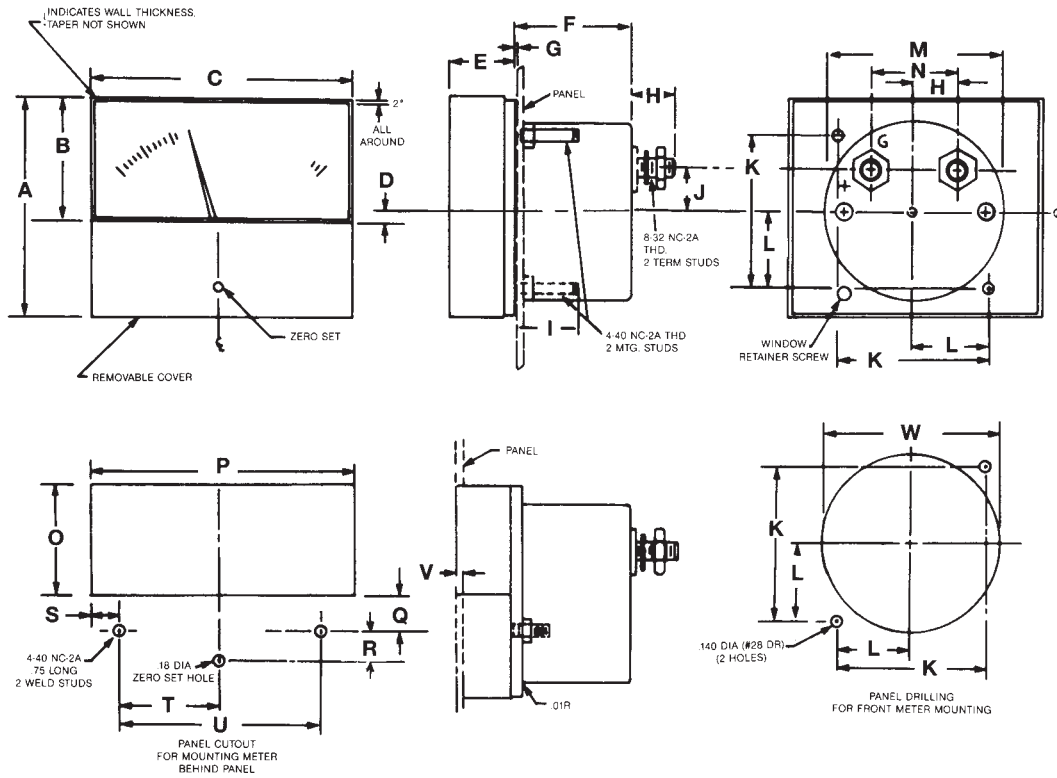
Fig. 4. New Big Look 4½-inch Types 250 & 254  
\*2.860 dia. with shield



A	B	C	D	E	F	G	H*	I	J	K	L	M
4.85	4.41	4	2	2.031	.25	3.562	2.72	.5	1.85	.64	1.318	2.7

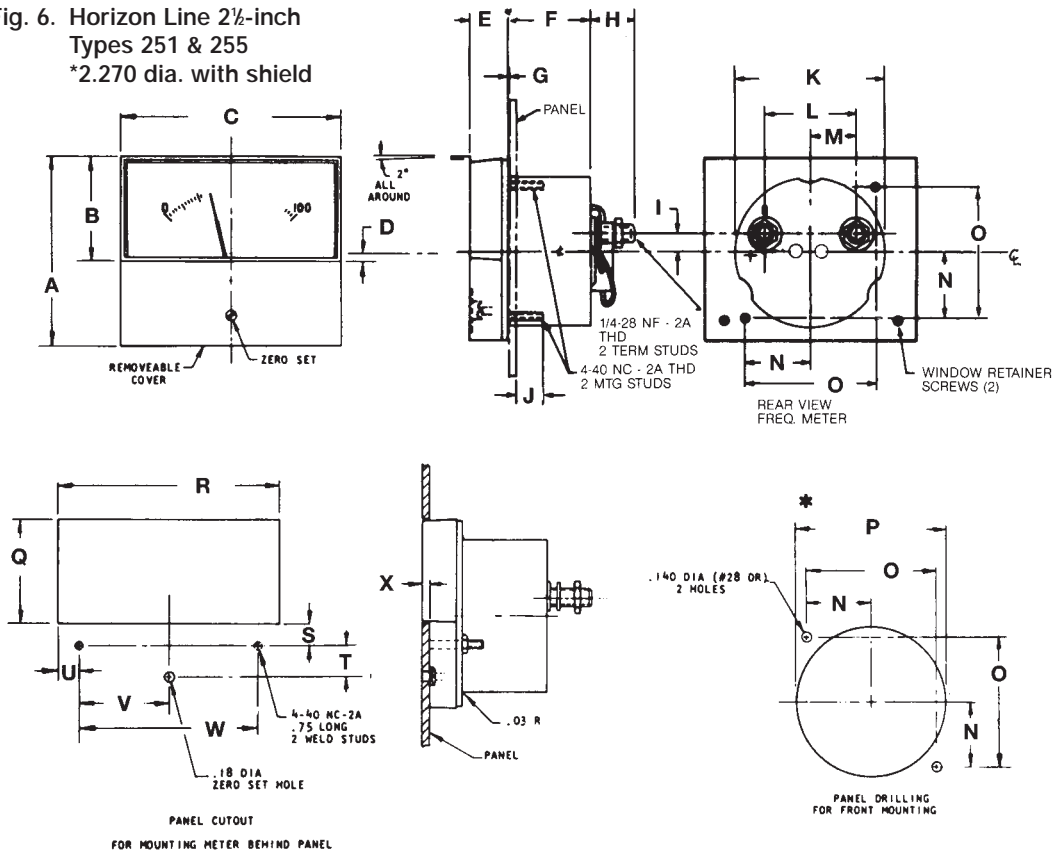
1. No. 4-40 NC 2A (4 Studs)
2. 1/4" - 28 NF 2A thd.
3. .140" dia. (No. 28 dr.) (4 holes)

Fig. 5 Horizon Line 1½-inch  
Types 251 & 255



A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1.86	1.036	2.19	.055	.5	.96	.008	.38	.5	.34	1.312	.656	1.510	.75	1.05	2.18	.356	.175	.24	.85	1.7	.06	1.53

Fig. 6. Horizon Line 2½-inch  
Types 251 & 255  
\*2.270 dia. with shield



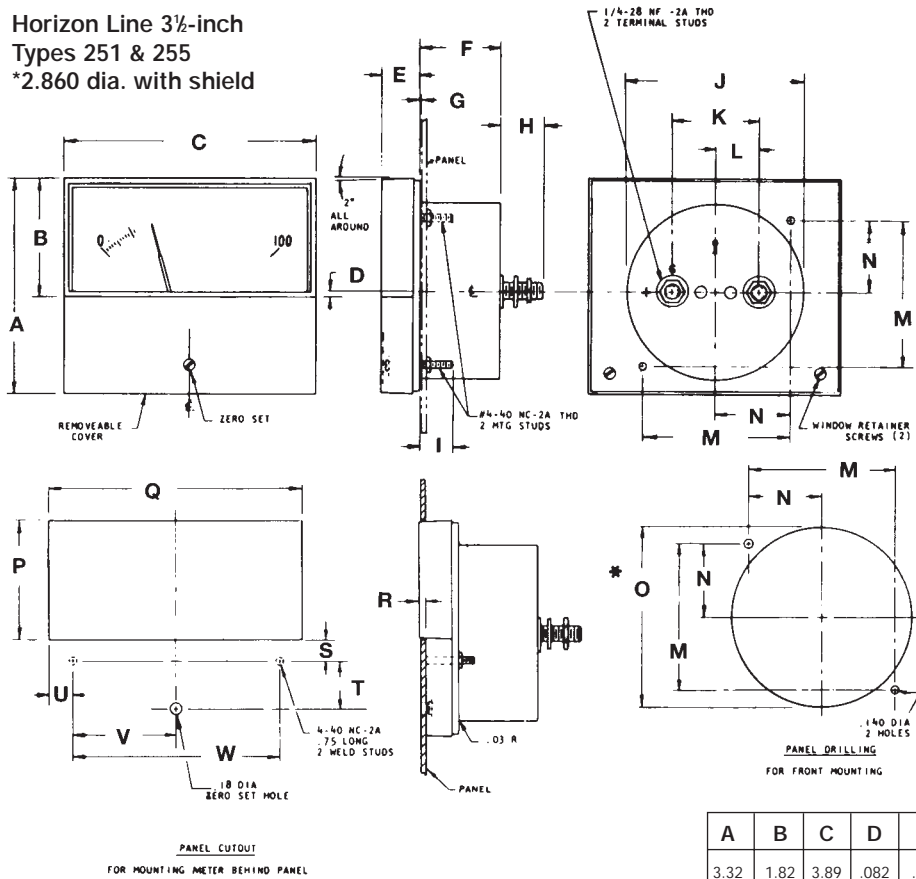
A	B	C	D	E	F
2.66	1.46	3.12	.072	.56	1.18

G	H	I	J	K	L
.088	.63	.26	.5	2.17	1.32

M	N	O	P*	Q	R
.66	.94	1.88	2.19	1.475	3.11

S	T	U	V	W	X
.296	.434	.305	1.25	2.5	.1

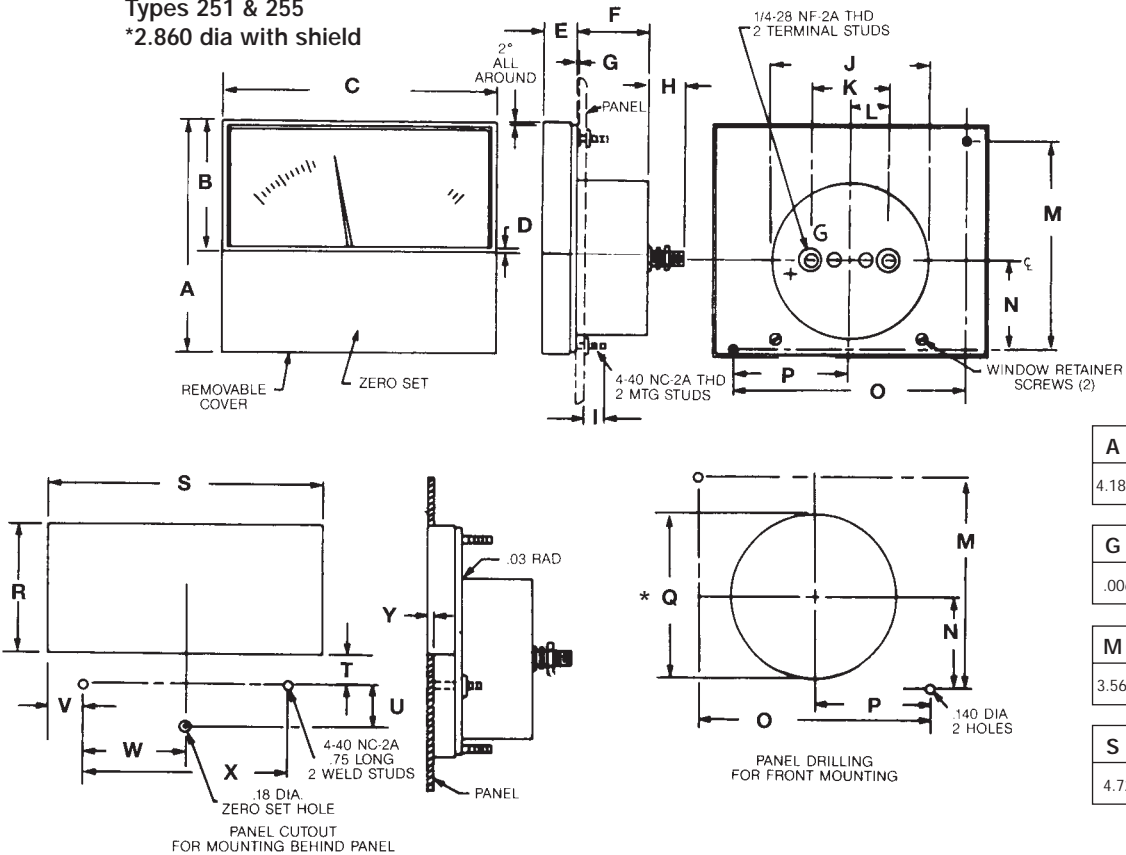
Fig. 7. Horizon Line 3½-inch  
Types 251 & 255  
\*2.860 dia. with shield



A	B	C	D	E	F	G	H	I	J	K
3.32	1.82	3.89	.082	.58	1.2	.008	.63	.5	2.7	1.32

L	M	N	O*	P	Q	R	S	T	U	V	W
.66	2.25	1.125	2.72	1.836	3.88	.1	.296	.727	.360	1.578	3.156

Fig. 8. Horizon Line 4½-inch  
Types 251 & 255  
\*2.860 dia with shield



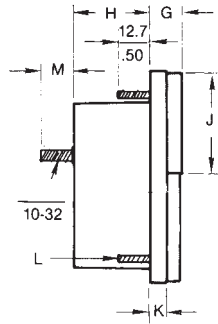
A	B	C	D	E	F
4.18	2.2	4.73	.12	.59	1.2

G	H	I	J	K	L
.006	.63	.5	2.7	1.32	.66

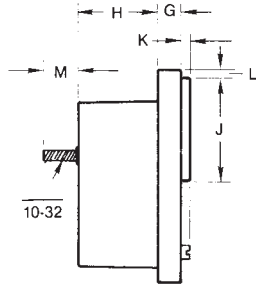
M	N	O	P	Q*	R
3.562	1.531	4	2	2.72	2.216

S	T	U	V	W	X	Y
4.72	.518	.702	.605	1.75	3.5	1

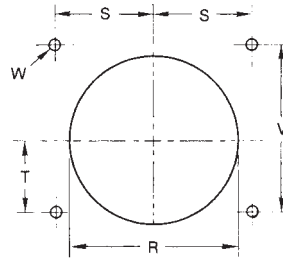
Fig. 9. Stylist Series  
Types 260, 261, 264 & 265



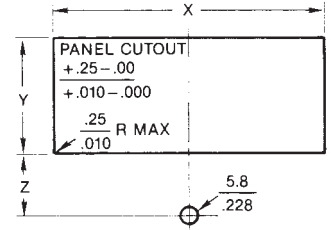
Surface Mount



Window Mount



Surface Mount  
Panel Cutout



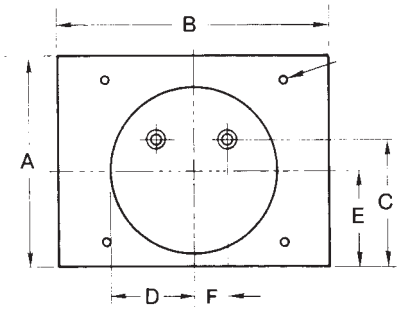
Window Mount  
Panel Cutout

SURFACE MOUNT METERS

	A	B	C	D	E	F	G	H	J	K	L	M	R	S	T	V	W
1½ in.	1.75	2.24	.99	.76	.83	.48	.34	1.30	.87	N/A	4-40	.25	1.55	.66	.66	1.31	.125
2½ in.	2.27	2.99	1.33	1.07	1.13	.56	.40	1.30	1.24	N/A	4-40	.50	2.22	.94	.94	1.88	.125
3½ in.	2.87	3.70	1.44	1.33	1.44	.56	.41	1.30	1.55	N/A	4-40	.50	2.82	1.12	1.12	2.25	.125
4½ in.	3.96	5.10	1.74	1.33	1.74	.56	.51	1.26	2.20	N/A	4-40	.50	2.82	2.00	1.54	3.56	.125

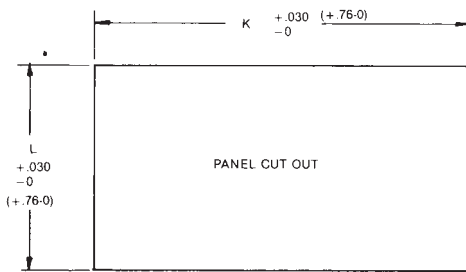
WINDOW MOUNT METERS

	A	B	C	D	E	F	G	H	J	K	L	M	X	Y	Z
2½ in.	2.29	3.01	1.35	1.06	1.15	.56	.295	1.30	1.260	.145	.06	.50	2.900	1.270	.633
3½ in.	2.90	3.73	1.45	1.33	1.45	.56	.32	1.30	1.585	.145	.07	.50	3.610	1.595	.804
4½ in.	4.60	5.18	1.79	1.33	1.79	.56	.37	1.26	2.335	.145	.09	.50	5.020	2.345	.856



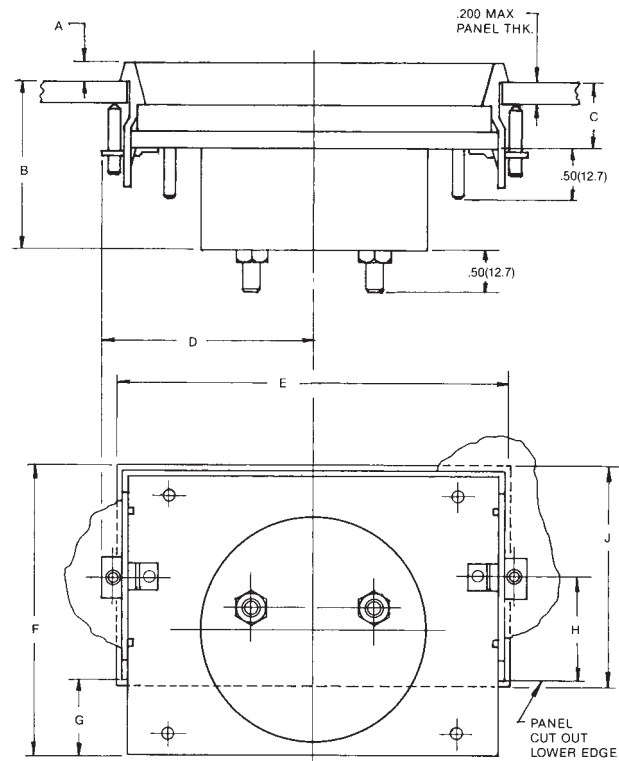
Surface and  
Window Mount Meters  
rear view (combined)

Fig. 10. Bezel Mounts of Surface Mount Stylist Meters



	A	B	C	D	E
2½ in.	.13	1.87	.57	1.78	3.15
3½ in.	.14	1.89	.59	2.14	3.85
4½ in.	.12	2.05	.75	2.84	5.24

	F	G	H	J	K	L
2½ in.	2.30	.64	.79	1.74	3.00	1.594
3½ in.	2.94	.72	1.07	2.30	3.718	2.156
4½ in.	4.05	1.13	1.42	2.99	5.126	2.843



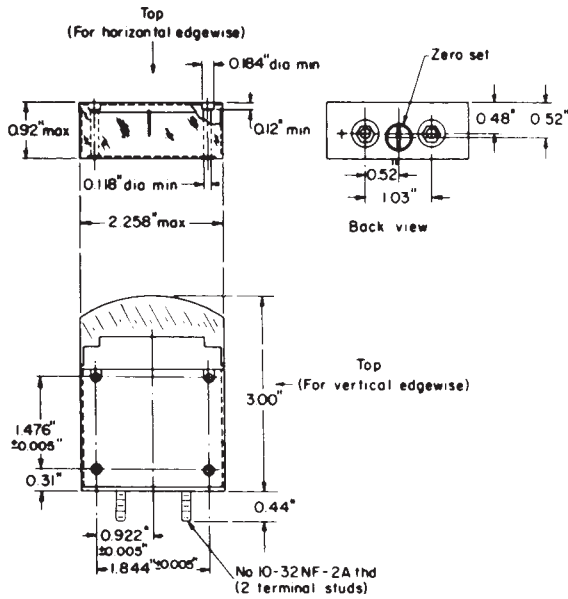


Fig. 11. Outline dimensions for Type 185 meters

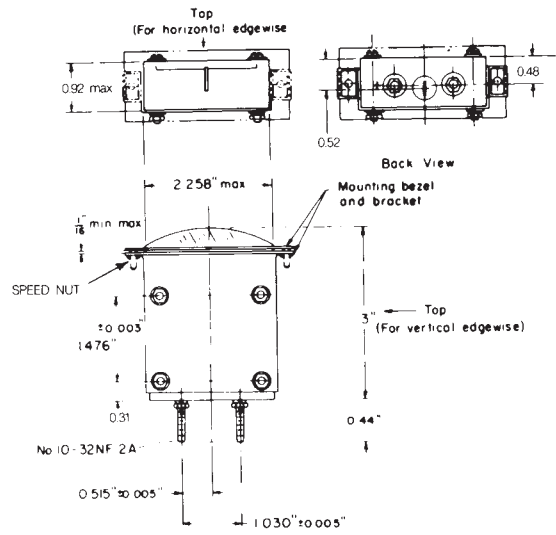


Fig. 12. Outline dimensions for Type 185 meter, with bezel and mounting bracket. See Fig. 15 & 16 below

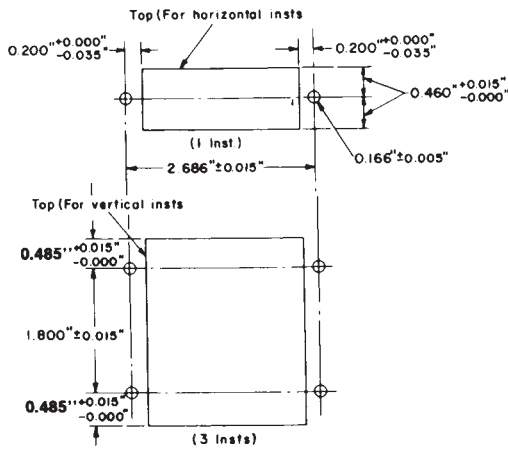


Fig. 13. Panel cutout dimensions for mounting 1 or 3 meters, with bezels and mounting brackets

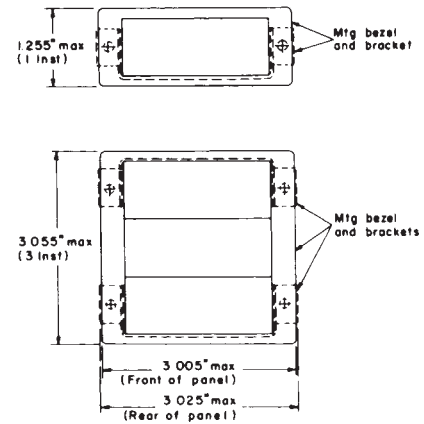


Fig. 14. Dimensions of bezels

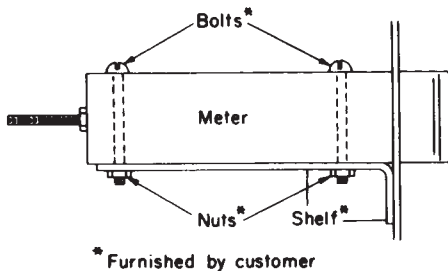


Fig. 15. Mounting of Type 185 meter on back of panel equipment

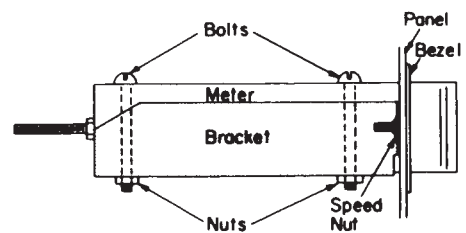


Fig. 16. Type 185 meter with bezel mounting bracket and hardware

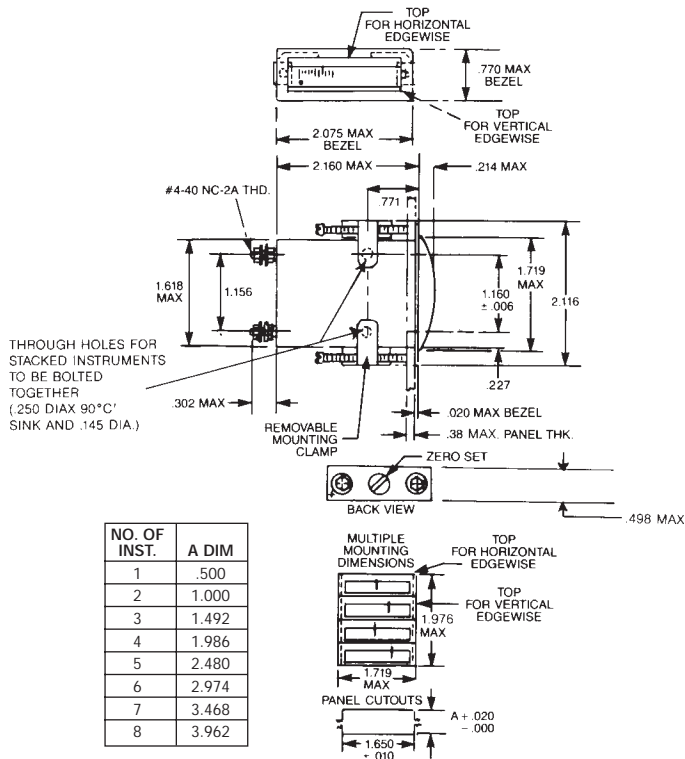


Fig. 17. Outline Dimensions for 1½-inch Type 286 meters

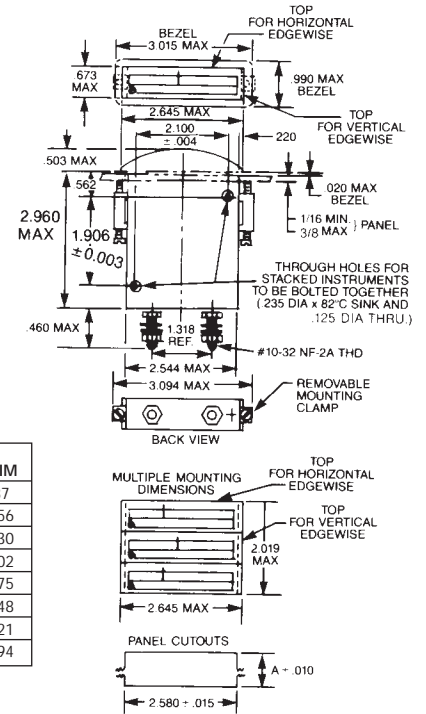


Fig. 18. Outline Dimensions for 2½-inch Type 287 meters

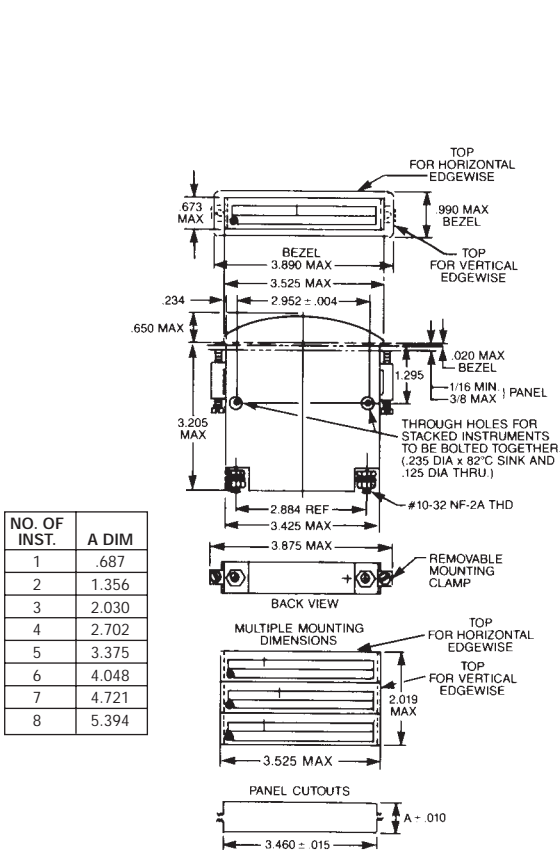


Fig. 19. Outline Dimensions for 3½-inch Type 288 meters

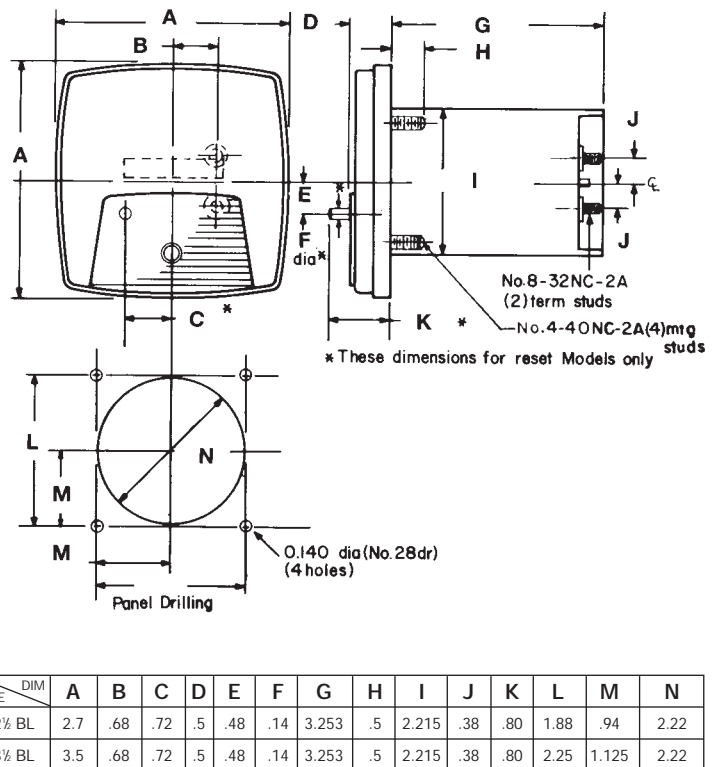


Fig. 20. New Big Look 2½ & 3½-inch Type 240

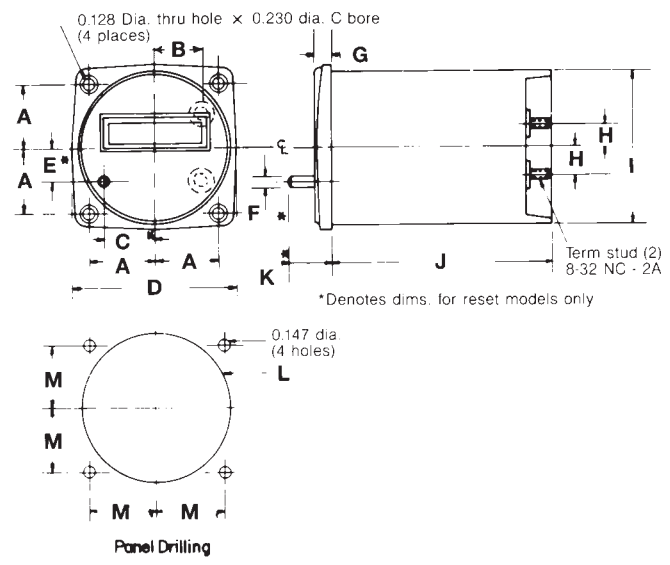
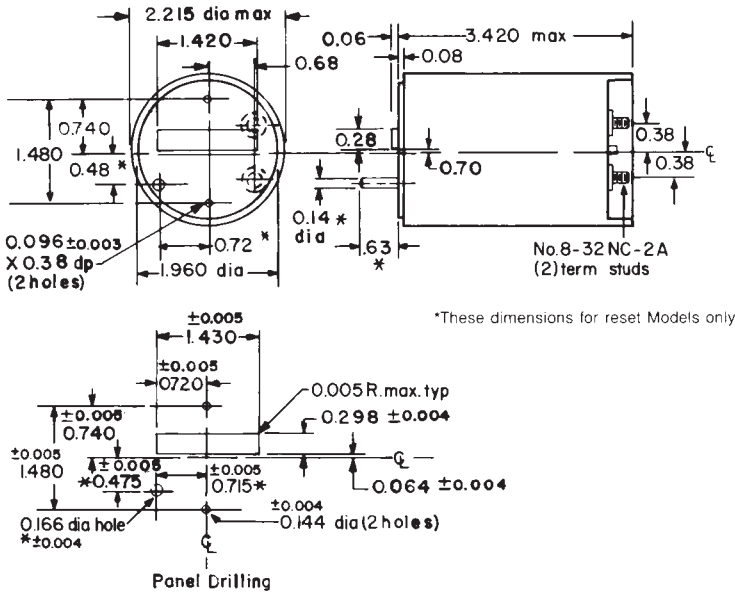
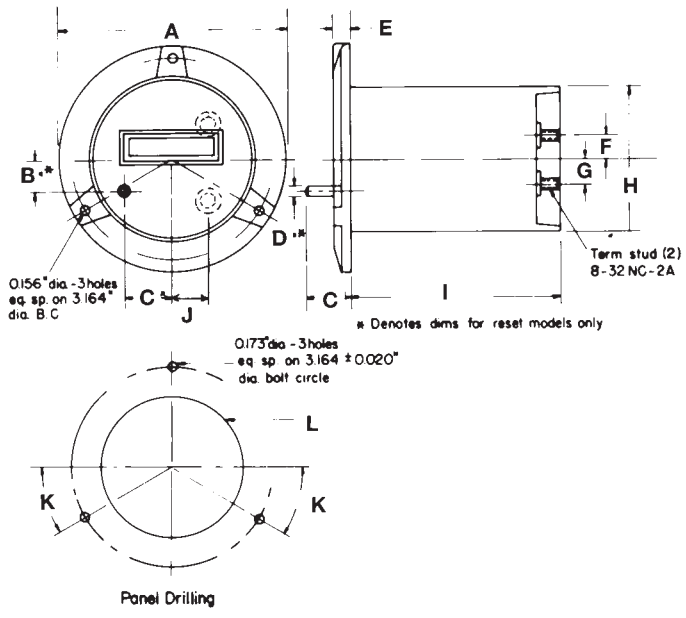


Fig. 21. Type 240 Back-of-panel model

SIZE	DIM	A	B	C	D	E	F	G	H	I	J	K	L	M
2 1/2		.94	.68	.72	2.38	.48	.14	.25	.38	2.215	3.286	.76	2.22	.94
3 1/2		1.12	.68	.72	3.0	.48	.14	.25	.38	2.215	3.286	.76	2.22	1.125

Fig. 22. Type 240 square case



SIZE	DIM	A	B	C	D	E	F	G	H	I	J	K	L
2 1/2		2.68	.48	.72	.14	.21	.38	.38	2.215	3.33	.68	30°	2.22
3 1/2		3.51	.48	.72	.14	.22	.38	.38	2.215	3.32	.68	30°	2.22

Fig. 23. 2 1/2-3 1/2-inch Type 240 round case

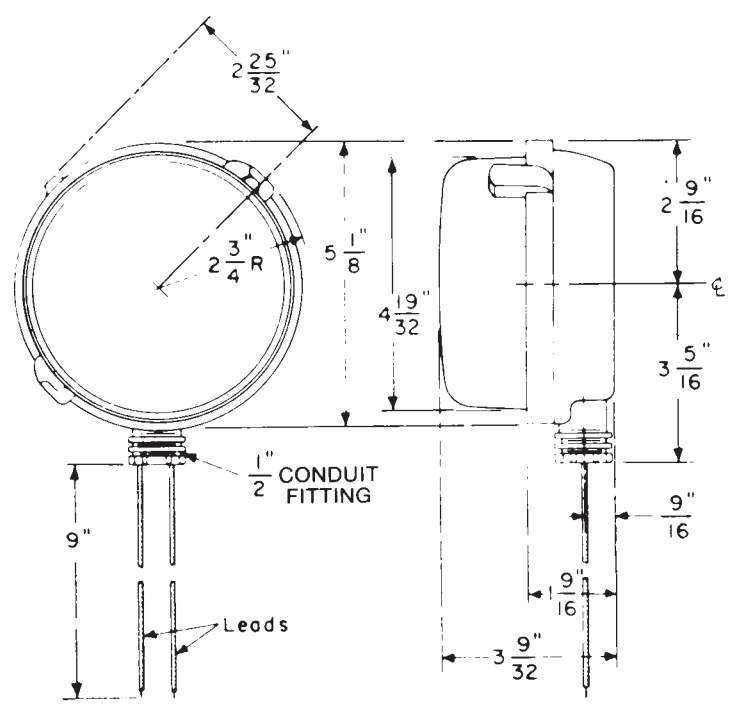
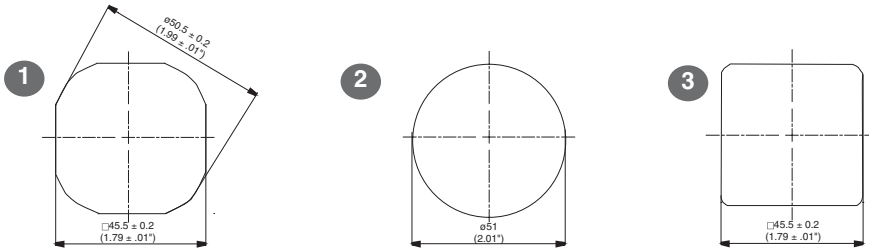
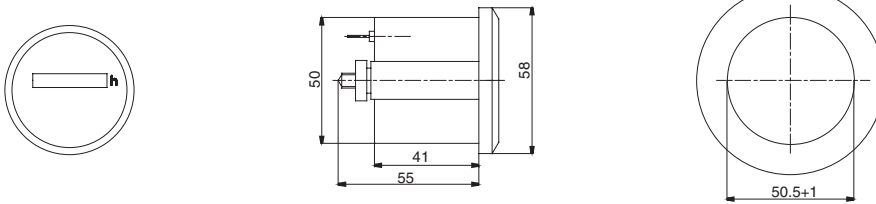


Fig. 24. Type 240 conduit-mounted case

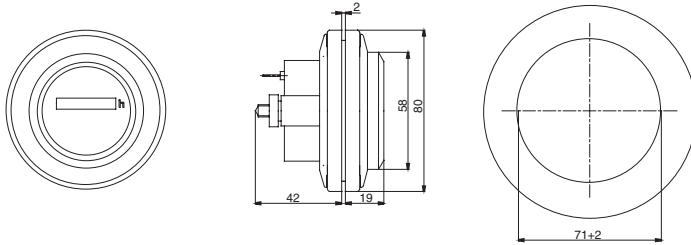
**TS Series:** Cutout for TS Series. Note: For mounting configurations see page 43.



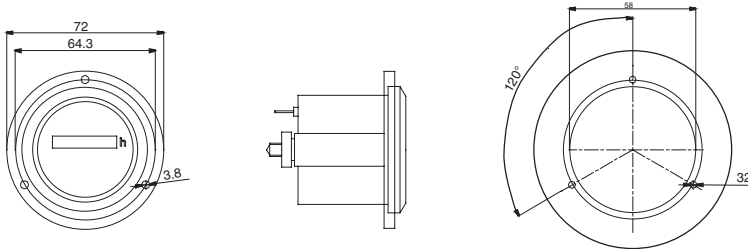
**TR Series:** Aluminum clamp. Mounting A. Cutout 51mm diameter (2.01")



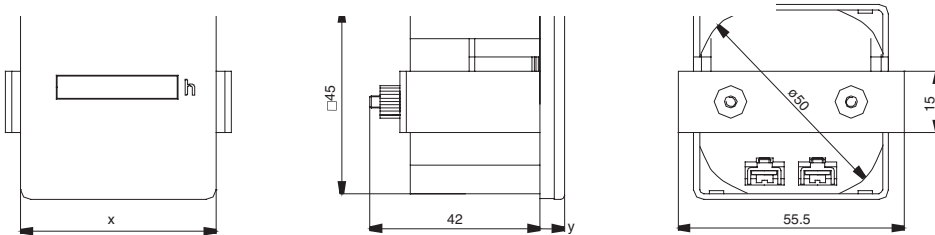
Anti-vibration boot and clamp. Mounting C. Cutout 71mm diameter (2.80") for TR and TS (square outline not shown)



Three screw front mounting. Mounting H. Cutout 58mm diameter (2.28")

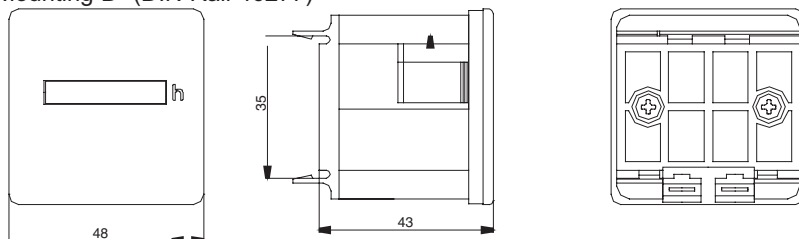


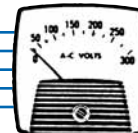
**TS Series:** Mounting A (Aluminum Clamp)



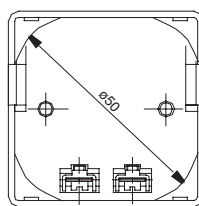
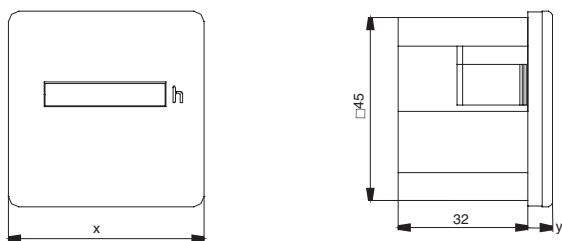
x (mm)	y (mm)	Panel Cutout
48 x 48	6	1
52 x 52	8	1,2 or 3
55 x 55	8	1,2 or 3
72 x 72	8	1,2 or 3

Mounting D (DIN Rail 46277)



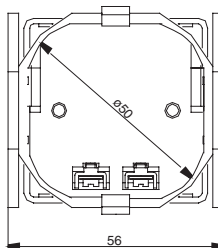
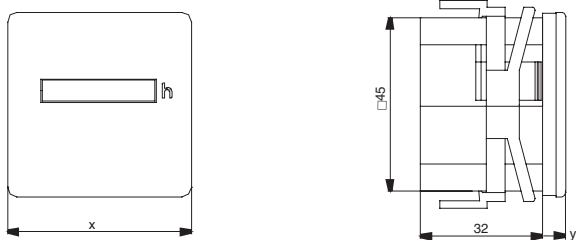


### TM Series Mounting F (Snap Fastener)



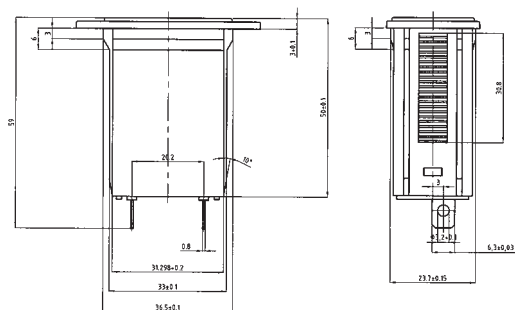
x (mm)	y (mm)	Panel Cutout
48 x 48	6	1

### TM Series Mounting G (Fork Clamp Retainer)

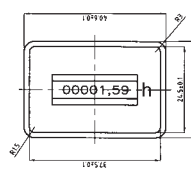
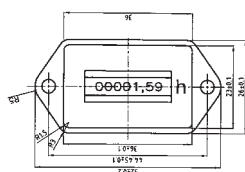


x (mm)	y (mm)	Panel Cutout
48 x 48	6	1
52 x 52	8	1,2 or 3
55 x 55	8	1,2 or 3
72 x 72	8	1,2 or 3

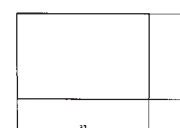
### TM Series R Retainer Mounting (Code G)



### TM Series 2-Screw Mounting



Mounting hole





# Panel METERS



Elapsed Time Meters



New Big Look Panel Meters



Horizon Line Panel Meters



Stylist Panel Meters



Type 185 Edgewise Meters



Type 280 Thin Edgewise Meters

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