

Hoyt

PANEL METER CATALOG



1-800-258-3652



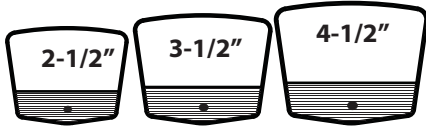
WWW.HOYTMETER.COM

Case Style & Construction

Phenolic and Glass Meters

1000 Series

Page 9



1025/26 1037/38 1045/46



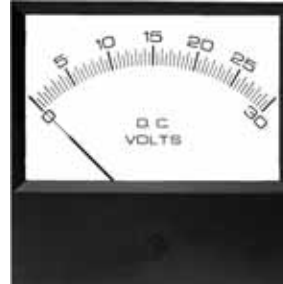
Clear plastic case fronts come with a molded-in, ribbed lower section to conceal movement, 100 degree movements and knife edge pointer. Mirror scales and color in the ribbed portion of the case is available.

4000 Series

Page 16



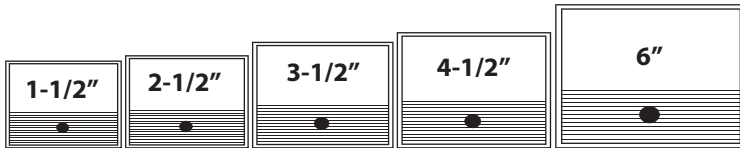
4025/26 4035/36 4045/46



Styled to meet the most demanding appearance requirements, these series conform to the standards for mounting similar size meters.

2000 Series

Pages 10,11



2018/22 2025/26 2035/36 2045/46 2060/61
2018R



Long, flat arc scales and knife edge pointers for excellent readability. Most 1-1/2" to 6" meters are supplied with the self shielded accuring movements. Bezel or surface mounting. Special Dials are available with following options: additional colors, scales, special legends, logos and mirrors.

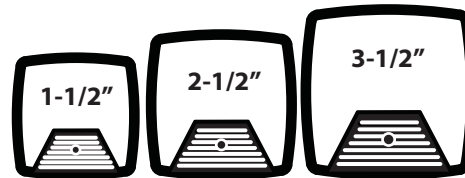
2100 Series Low Profile



2135/2136 2145/2146

5000 Series

Pages 18, 19



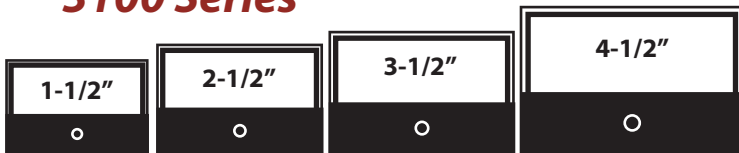
5015/16R 5025/26 5035/36



Offers gasket sealing design and dustproof polycarbonate construction. Seals out dust and other air-suspended damaging particles. The 5000 series is made with UL 94V material, ideal where impact and strength is required in harsh environments.

3100 Series

Pages 12-15



3115/16R 3125/26 3135/36R 3135/46
3135/36-2
(2" Barrell)



Consists of a popular industrial styled, high impact acrylic case that is available for surface, window, or bezel mounting applications in four sizes. Polycarbonate case available. This series is equal in mounting and specifications to similar styled meters of other manufacturers.

Hoyt Window (HW) & Bezel (HB) Series.

Edgewise Meters

Pages 26-28



685-1/673/S 685-2 685-3

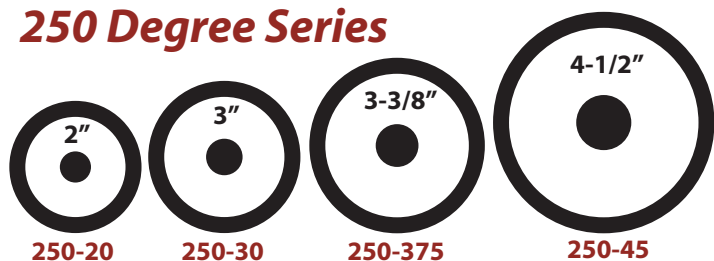


Edgewise meters have high visibility scales and straight-forward design. They come supplied with bezel and mounting hardware.

The 685 Series has been designed without any barrel projection and is fully shielded to allow vertical or horizontal stacking without interaction between movements for other external magnetic fields. Also available; TEM 42/45 E, E-20, CK 256/257, CK-150 & CK-160. (pgs. 23-25)



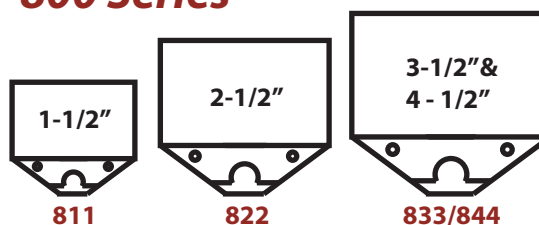
250 Degree Series



Hoyt 250° meters utilize a highly damped, spring loaded pivot & jewel movement; mechanically interlocked, negating the use of adhesives and develops very high torque. Available with or without illumination. Available with Chrome or Black Bezels.

Page 24, 25

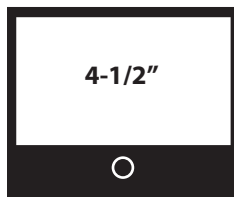
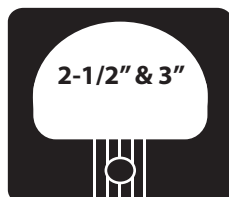
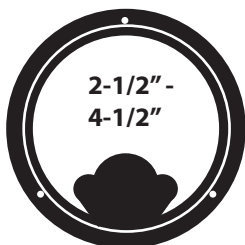
800 Series



HEIW window mount meters are a low cost alternative to a space saving and high visibility meter requirement. These "V" shaped meters provided more front panel space and space savings behind the panel.

Page 32

Industrial Panel Meters Phenolic and Metal Round and Rectangular



17/3, 17/L
552, 560, 570, 574
580, 582, 584, 617
6351/2

597/98
635/36

647/48
680/81

Rugged metal or phenolic cases with glass fronts provide long service under adverse conditions. Round models ranging in size from 2-1/2" to 4-1/2" are produced in either the $\pm 2\%$ of full scale AC repulsion or DC Moving Coil version.

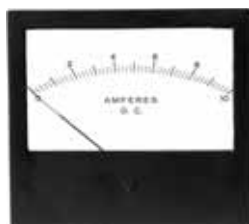
High current ammeter ranges with external shunts are available, as are special or non-standard ranges. Many case styles and options are available in the Industrial Panel Meters.



17-L



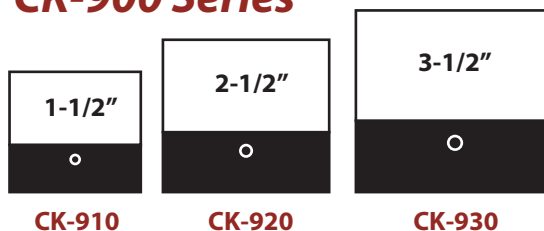
597



680

Pages 20-23

CK-900 Series



Very popular for marine & VU applications. Low cost and have 2-5% accuracy. Designed for "drop-in" replacements to many competitors models. Small rectangle barrel for illuminating face.

Page 33



LS-110 & LS-80 Series Switchboard Meters

Page 17



Combination Meters

Page 4

5% Moving Magnet Meters



Low cost options pg.34
Ultra low cost pg. 35

Percent load meters pg. 29, AC Frequency meters pg. 30,
Elapsed time indicators pg. 31

Combination Meters

FIRST ANALOG/DIGITAL PANEL METER

- ADVANTAGES OF BOTH ANALOG AND DIGITAL IN ONE PANEL METER
- SAME PRECISION ANALOG METER MOVEMENT
- 3 - 1/2 DIGIT, BRIGHT RED, DIGITAL DISPLAY WITH 0.37" HIGH DIGITS
- COMPLETELY COMPATIBLE WITH EXISTING ANALOG-ONLY OR DIGITAL PANEL METER APPLICATIONS

SIGNAL- AND AUXILIARY-POWERED

- METERS ARE AUXILIARY OR SELF-POWERED DEPENDING ON INPUT
- NEVER ANY GROUNDING OR SIGNAL-REFERENCE QUESTIONS

SIGNIFICANT SPACE SAVINGS

- FAST & EASY WITH ONLY TWO CONNECTIONS PER INPUT
- UPGRADE VIRTUALLY ANY ANALOG METER APPLICATION AND ACHIEVE ADDED BENEFIT OF DIGITAL WITH HOYT COMBO SERIES METERS



5035/5036 Combo Series

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

REPLACES:



Digital Meter Specifications

General

Digital Display	0.37"/9.4 digits; bright red LED
Sampling Rate	2.5 reading/second
<u>Measurement Type</u>	
AC	half-wave average, rms; calibrated for sinusoidal input Standard "+"; Ground "-"
DC	
Accuracy	1% At 25 °C unless noted otherwise
<u>Temperature Drift</u>	

AC Volts	±0.15V/ °C max.; -25°C to +60°C
DC Volts	±0.3 counts/°C maximum
Current Consumption	50mA Maximum; range dependent
<u>Environmental</u>	
Operating Temp.	-25°C to +60°C
Storage Temp.	-40°C to +75°C
Humidity	0 to 95%
(Non Condensing)	

AC Line Voltage

Input Voltage Range	85 to 600V _{RMS} available
Input Frequency Range	47 to 63Hz; 350-450Hz
Input Overboard Protection	300 _{RMS} (Overvoltage Category II)
Accuracy	±1V typical; ±2V maximum
Resolution	1V

AC Line Frequency

Input Voltage Range	85 to 140V _{AC} ; 170 to 264V _{AC}
Input Frequency Range	47 to 99Hz; 350 to 450Hz
Input Overboard Protection	200 _{RMS} ; maximum for 120V; 300 _{RMS} ; maximum for 240V
Sample	4 reading/second
Accuracy	±0.1Hz, -25°C to +60°C
Display	0.4"/10.1mm bright red LED

Hour Meter

Input Voltage Range	4.5 to 19V _{DC} ; 9 to 60V _{DC} 36 to 185V _{DC} ; 75 to 270V _{AC}
Resolution	0.1 Hour
Accuracy	±0.1% Hours, ±1 count
Non-Volatile Memory	-40°C to +89° C; SAE
Display	5mm; 6 digits (99,999.9 Hours)LCD

DC Voltage

Input Voltage Range	2 to 6V _{DC} ; 4.5 to 19.99V _{DC} 8 to 50V _{DC} ; 30 to 264V _{DC}
Input Frequency Range	0.5% to 3.3%; range dependent*
Input Overboard Protection	±0.5% to ±3.3%, range dependant

*Refer to DC Voltage Ranges table

DC Amperes

Source Voltage	5V _{DC} Minimum-40V _{DC}
Input Voltage Range	0 to 50mV _{DC} ; 0 to 100mV _{DC}
Resolution	1 Count
Accuracy	±1%
Shunts	External; 50 or 100mV _{DC} compatible; Field adjustable
Scaling	Application-specific

4-20mA Current Loop

Input Range	4mA _{DC} minimum; 20mA _{DC} maximum
Voltage Drop	5V _{DC}
Accuracy	±0.05%, ±1 count
Resolution	0.01mA minimum; scale dependent
Zero	Field adjustable
Gain	Field adjustable
Scaling	Between 0 to 1999; DIP selectable

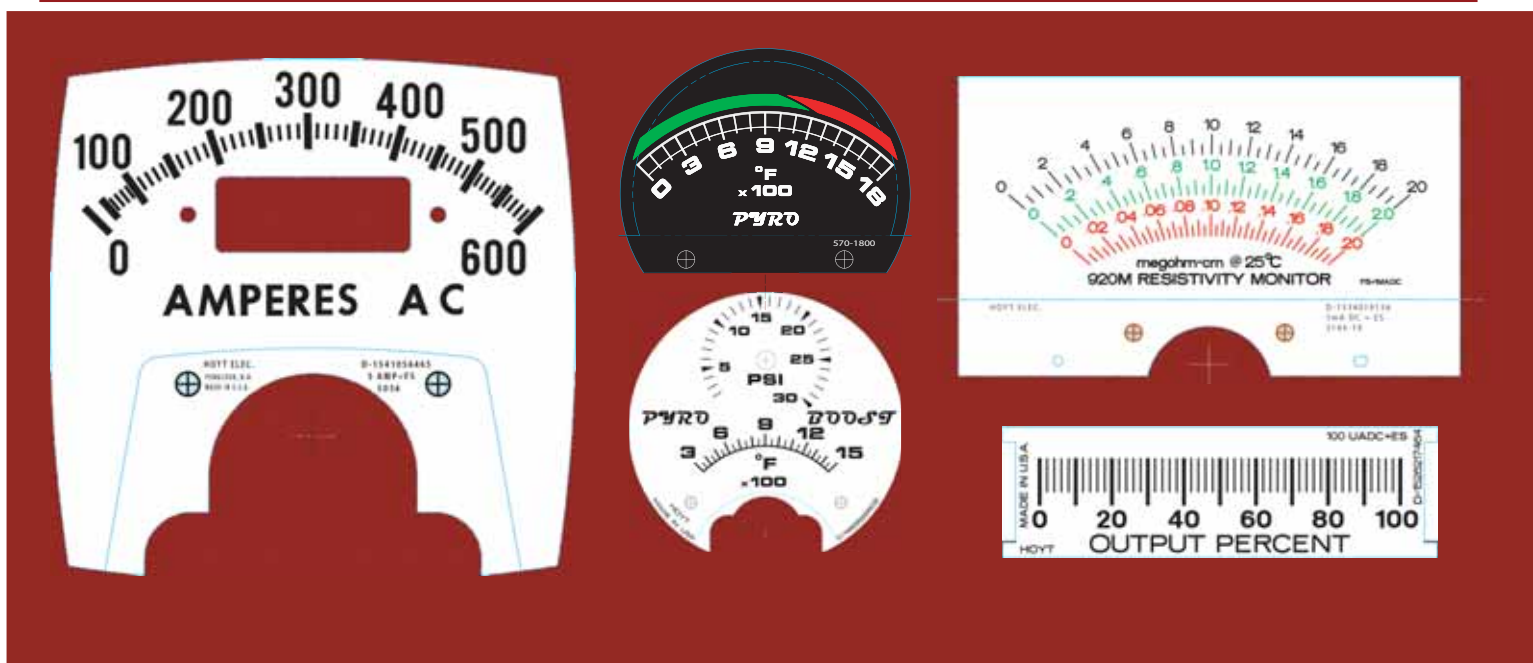
Analog Meter Specifications

All Meters 5035/5036 Series*

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

*Other 3-1/2 cases styles available for special order For Pricing, reference Analog/Digital Combo Price List.

Special dials are produced in the Hoyt art and printing departments to exact customer specifications. Ten standard Sun-fast colors are offered at an extra charge to cover printing cost only. Special colors are available for an additional charge for ink formulation. All standard dials are lithographed on hard flat aluminum pans with white backgrounds.



ELumination

Hoyt Elumination features bright white, even backlighting with no hot spots or shadowing. Just bright white, electro-luminescent (EL) light for a clearly visible scale with unmatched readability, functionality, and style. And, Hoyt panel meters with the new lighting technology installed are completely compatible with existing applications.

Lighting Kit Specifications:

Inverter Power Requirements

Input Voltage.....3-18 VDC

Input Current.....60 mA maximum

Light Output

Color.....White; Standard

Others - optional

Intensity.....10-13 Ft-L



ELumination Light Kit Components



3100 Series Shown

ELumination Lighting Kit Ordering Information:

Hoyt Meter 3100 Series

Size.....EL Light Kit Part Number

1-1/2".....3115EL15

2-1/2".....3125EL25

3-1/2".....3135EL35

4-1/2".....3145EL45

Hoyt Meter 5000 Series

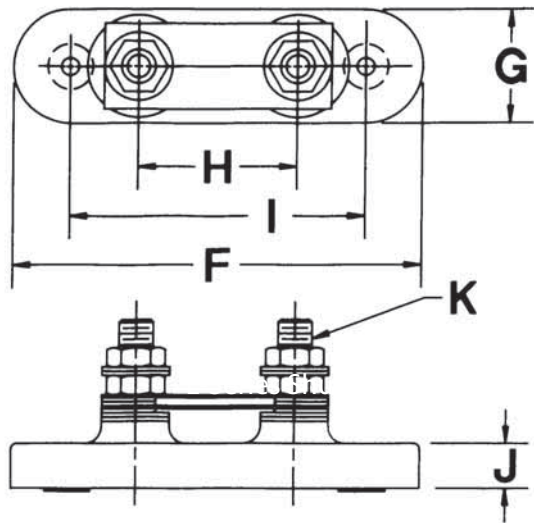
Size.....EL Light Kit Part Number

2-1/2".....5025EL25

3-1/2".....5035EL35

Please contact the factory for custom ELumination lighting kits.

Transformers & Shunts



Range Amperes	F	G	H	I	J	K
25	4.00	1.25	1.75	3.25	0.5	3/8-16X1-1/8
30	4.00	1.25	1.75	3.25	0.5	3/8-16X1-1/8
50	4.00	1.25	1.75	3.25	0.5	3/8-16X1-1/8
75	4.00	1.25	1.75	3.25	0.5	3/8-16X1-1/8
100	4.00	1.25	1.75	3.25	0.5	3/8-16X1-1/8
150	4.00	1.25	1.75	3.25	0.5	3/8-16X1-1/8
200	4.00	1.25	1.75	3.25	0.5	3/8-16X1-1/8
300	4.00	1.25	1.75	3.25	0.5	1/2-13X1-5/8

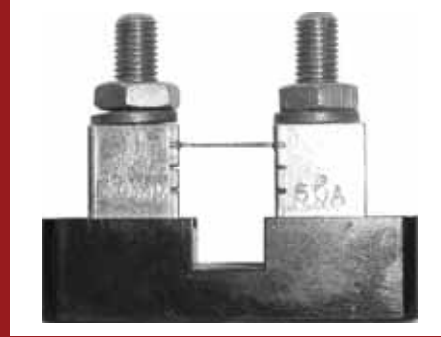
C-8033 SHUNT

The Hoyt C-8033 Shunt is designed for non electronic applications where extreme accuracy is important. This low cost shunt has an accuracy $\pm 5\%$.

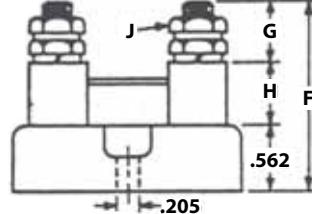
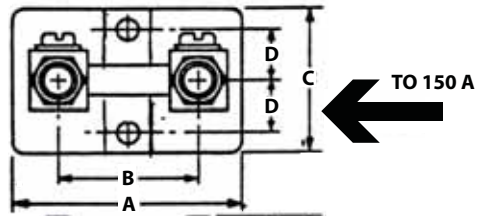
Extra heavy terminals allow for easy mounting of heavy cables and are molded into a solid Phenolic base as a support for a mounting block.



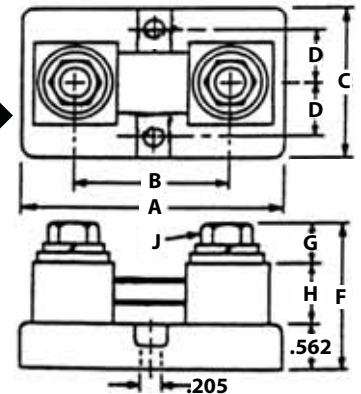
SWITCHBOARD SHUNTS



L-Series Shunt



170 A & UP



Model	AMP	A	B	C	D	F	G	H	J
L-5-50	5	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-10-50	10	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-15-50	15	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-20-50	20	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-30-50	30	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-50-50	50	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-75-50	75	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-80-50	80	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-85-50	85	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-100-50	100	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-150-50	150	2.00	1.00	1.25	.437	1.688	.625	.500	1/4-28
L-170-50	170	3.25	1.50	1.75	.625	1.750	.438	.750	3/8-16x5/8
L-200-50	200	3.25	1.50	1.75	.625	1.750	.438	.750	3/8-16x5/8
L-250-50	250	3.25	1.50	1.75	.625	1.750	.438	.750	3/8-16x5/8
L-300-50	300	3.25	1.50	1.75	.625	1.750	.438	.750	3/8-16x5/8
L-400-50	400	3.25	1.50	1.75	.625	1.750	.438	.750	3/8-16x5/8
L-450-50	450	3.25	1.50	1.75	.625	1.750	.438	.750	3/8-16x5/8
L-500-50	500	3.25	1.50	1.75	.625	1.750	.438	.750	3/8-16x5/8
L-600-50	600	3.25	1.50	1.75	.625	1.750	.438	.750	3/8-16x5/8
L-800-50	800	4.50	2.16	2.50	1.00	2.125	.562	1.00	1/2-13x7/8
L-1000-50	1000	4.50	2.16	2.50	1.00	2.125	.562	1.00	1/2-13x7/8
L-1200-50	1200	4.50	2.16	2.50	1.00	2.125	.562	1.00	1/2-13x7/8

Instrument Transformers

There are models of various shapes, sizes and VA ratings to fit every application. In sizes from .4" to 11.75" id. Standard ANSI class.

Models include:

Specialty, Solid Core, Specific Mounting, Rectangular, Wound Primary, Flexible (Split Core), Three Phase, Multi Ratio & Potential.



Features & Benefits

- Fully encapsulated, rubber molded
- Indoor or outdoor applications
- UL & CUL Recognize Standards
- Standard Output: 5A
- Optional 0.100A, 0.200A or 1.0A secondary for electronic devices
- Custom designs available

Applications

- 600 Volt Instrument Transformers
- Voltage Transformers
- Current Transformers
- Flexible Split Core
- Wound Primary

DONUT TYPE HIGH CURRENT TRANSFORMERS

These transformers may be used with any 5 AC ampere Hoyt meter. They have a 5 ampere secondary and are made in primary ranges up to 600 amperes for mounting over the bus bar or high current wire to be measured.

Connecting leads are 24" long. Capacity is 2VA insulated to 4500 volts. CT's up to 600 amperes size is 4" in diameter with a 1-1/4" hole; 700 to 1000 amperes have an overall diameter of 4" with 1-3/4" hole.

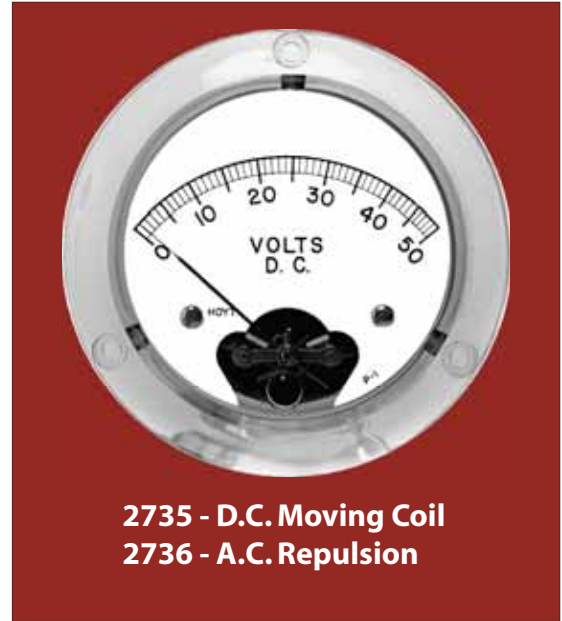
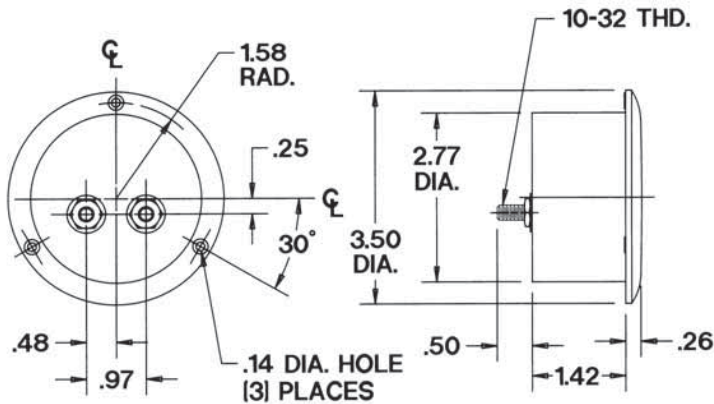
Higher current available.



Hoyt Electrical Instrument Works, Inc. Penacook, NH
(800) 258-3652 Fax (603) 753-9592 WWW.HOYTMETER.COM

3-1/2" Clear Plastic 2735/36 Meters

Model 2735/36, clear plastic meter with polycarbonate is available in AC or DC. This unique case style yields maximum visibility and dust proof seal on the panel surface. Three hole mounting on the meter front allows for easy panel mounting.



2735 - D.C. Moving Coil
2736 - A.C. Repulsion

Hoyt Meter Movements DC/AC/250 Degrees

METER MOVEMENTS

Self-Shielded Accu-Ring

Now standard in all series of panel meters. This completely self-shielded pivot and jewel high torque movement is constructed with high density sintered iron ring and pole piece which provides the best possible flux distribution through the entire 100 degree swing of the coil. This unique feature coupled with the strong Alnico V Bar magnet offers exceptionally high torque with minimum lag for fast response and quick, accurate readings, spring-loaded jewels are standard for use in rugged applications. Virtually any damping and electrical specifications can be met with a wide variety of bar magnets. Other features include all those listed for the #17 external magnet movement. Hoyt Accu-Ring movement is standard in all panel meter cases. The #22 movement is smaller, less powerful version of the #19 movement. Accuracy of 2% is standard. 1% accuracy is available in most ranges.

EXTERNAL MAGNET #17

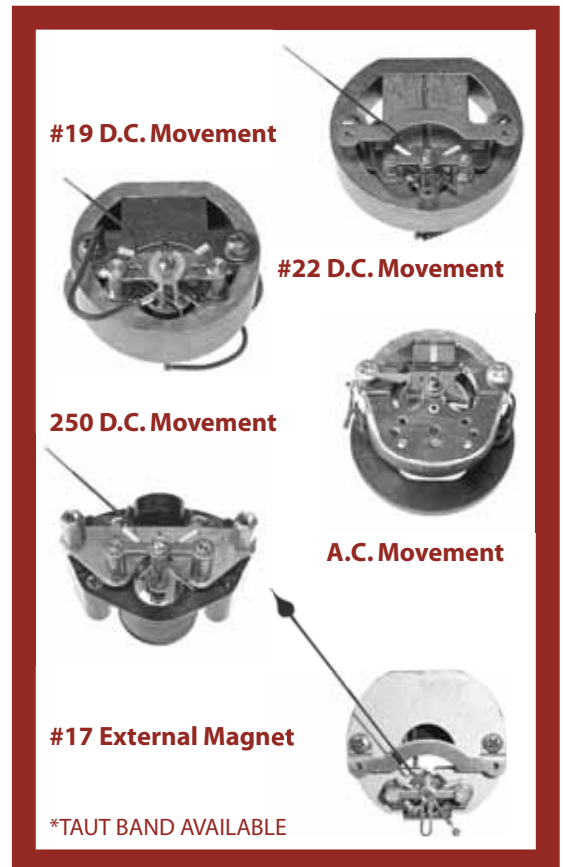
These movements, accurate within 2% are built on the D'Arsonval principle according to the best methods of meter manufacture. Features include Alnico V Magnets for high torque movement, soft iron pole pieces electronically bonded to the magnetic system for long life, microscopically inspected and selected jeweled bearings, hardened pivots specially cemented and baked to short-proof anodized coil forms for trouble free life. Strong tubular pointers-either lance or knife edgetypes, ceramic pointer stops, hair springs for quick response and good damping are incorporated into all our movements. Spring loaded jewels are standard with sapphire jewels available as an option.

AC REPULSION

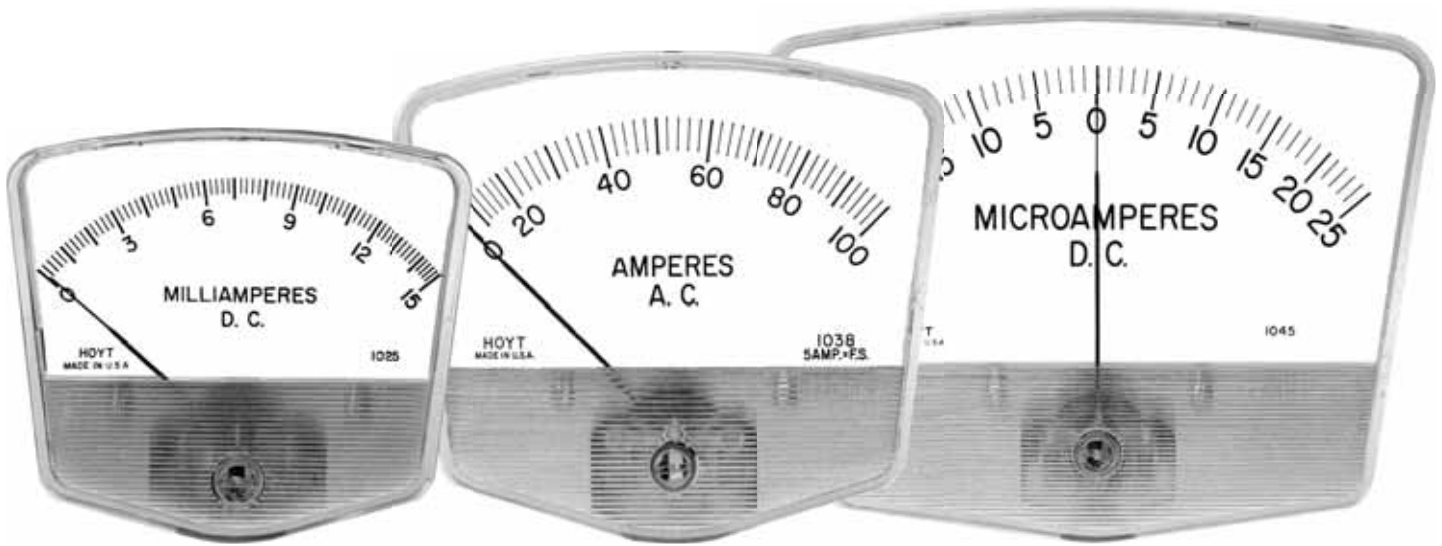
Hoyt AC Repulsion movements are made with an accuracy of 2%. Jeweled bearings, insulated or Bakelite zero adjusters, Hoyt cross arm balance, special constructed viscous damping and choice of lance or knife edge pointers. The Hoyt AC Movements are manufactured with brass movement support to match the moving element. This feature enables the Hoyt AC meter to maintain accurate readings over a wider temperature range. The AC meters can be used with corresponding size DC instruments where matching meters are wanted.

250 DEGREE

The Hoyt once-patented 250 degree meter movement is a self-shielded pivot and spring loaded jewel meter. Built for rugged industrial applications and shock resistant, this movement incorporates precision aligned, mechanically interlocked construction with very high torque. The movement is good down to 200 microamps with ample resistance. Airplane or knife edge pointers are available in different lengths to accommodate a variety of case styles and sizes.



1000 Series Plastic Panel Meters



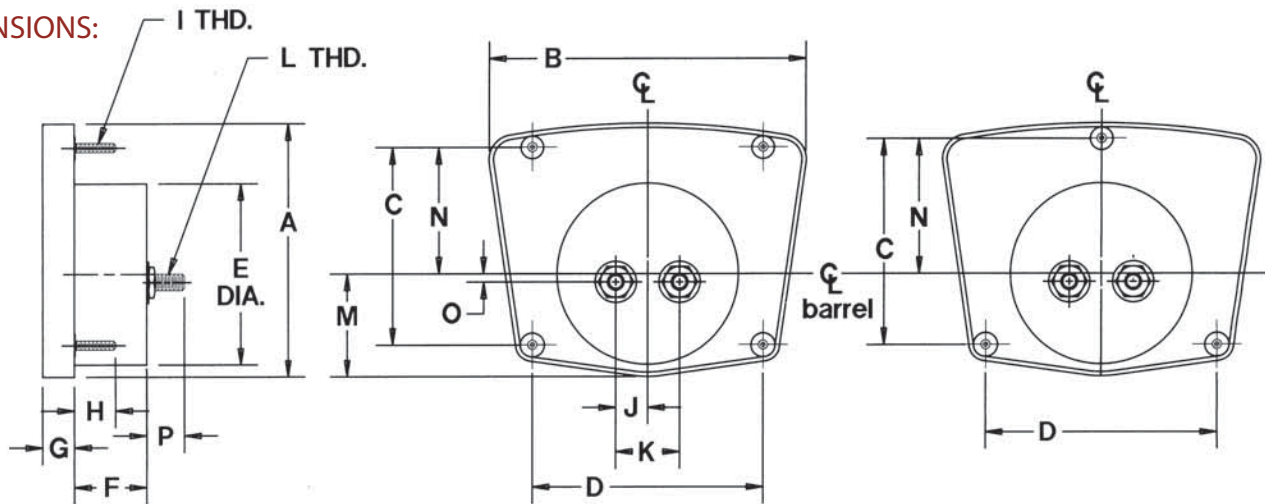
1025 - D.C. Moving Coil
1026 - A.C. Repulsion

1037 - D.C. Moving Coil
1038 - A.C. Repulsion

1045 - D.C. Moving Coil
1046 - A.C. Repulsion

Offered in three sizes from 2-1/2" to 4-1/2"; this popular line features long easy-to-read dials. The clear plastic case fronts come with a molded-in, ribbed lower section to conceal movement. All three sizes are produced as matching AC or DC meters. Most DC Meters are supplied with 100 degree movements and knife edge pointers. Mirror scales and color in the ribbed portion of the case can be provided in quantity orders at additional cost.

DIMENSIONS:

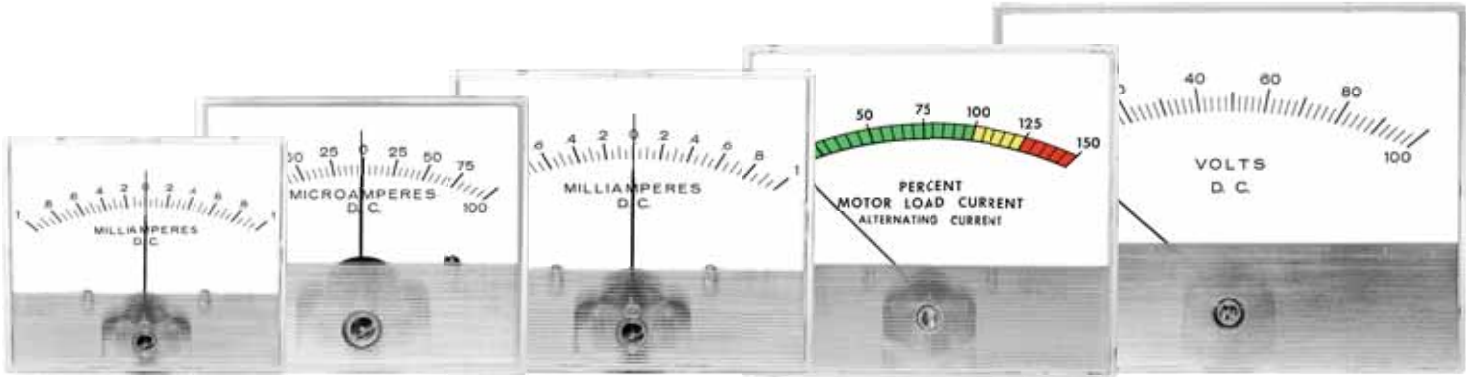


4 STUD MOUNTING
1045/46

3 STUD MOUNTING
1025/26 & 1037/38

MODELS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1025/26	2.60	2.88	1.83	2.11	2.16	1.12	0.44	0.62	4-48	0.48	0.97	10-32	1.18	1.22	0.00	0.50
1037/38	3.24	3.62	2.37	2.73	2.75	1.12	0.44	0.62	4-48	0.48	0.97	10-32	1.46	1.58	0.12	.050
1045/46	3.85	4.81	3.00	3.50	2.75	1.11	0.48	0.62	6-32	0.48	0.97	10-32	1.56	1.92	0.12	.050

2000 Series Panel/Bezel Mount Meters



2018/22	2025	2035	2045	2060
D.C. Moving Coil	D.C. Moving Coil	D.C. Moving Coil	D.C. Moving Coil	D.C. Moving Coil
2018R	2026	2036	2046	2061
A.C. Rectifier	A.C. Repulsion	A.C. Repulsion	A.C. Repulsion	A.C. Repulsion

These attractively styled meters are produced in five sizes from 1-1/2" to 6". All models have long, flat arc scales and knife edge pointers for excellent readability. Most 1-1/2" to 6" meters are supplied with the self shielded Accuring movements. The standard AC repulsion movement is also available in 2-1/2" to 6" meter cases. Features for the 2000 series include matching AC and DC models, bezel or surface mounting, and choice of standard colors on the lower front cover at additional cost. Standard ranges for this series of meters, both AC and DC, are listed on the Hoyt price sheet and include DC Microamps, Milliamps, Millivolts, Volts, and Amps; AC Milliamps, Amps and Volts. Special dials are available with the following options: additional colors, special legends, logos and mirrors.

Bezel Mount Meters

Bezels for mounting rectangular custom series models 2018, 2025/26, 2035/36, and 2045/46 behind the panel are sturdy, die cast black metal.

Bezel mount meters may be ordered with optional quick mount positive locking tabs. This series has clear polystyrene cases standard, but acrylic or high impact polycarbonate case are available in some models.



2000 SERIES BEZELS

Bezel Part Numbers

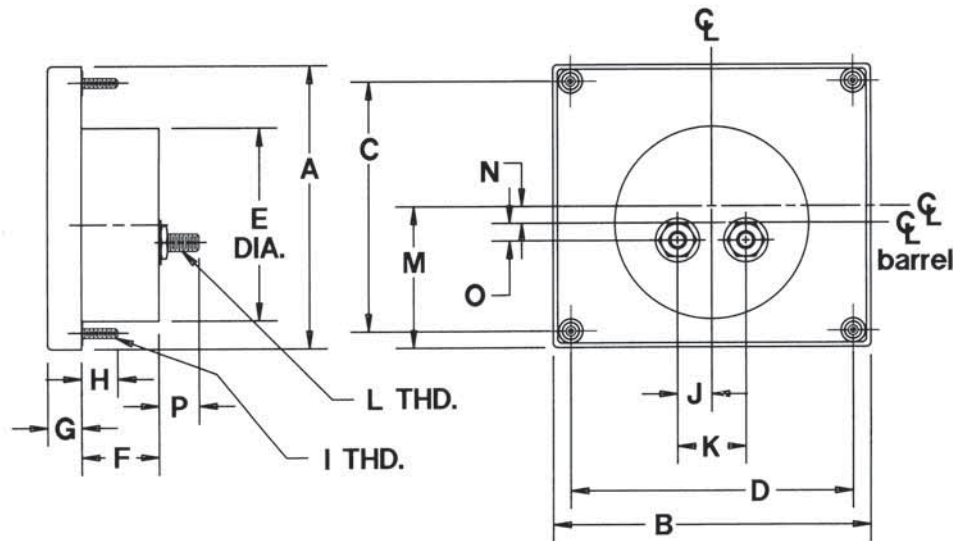
C-7052 (overall size 2" x 1-3/16") for 2018

C-7036 (overall size 3-1/8" x 1-23/32") for 2025/26

C-7048 (overall size 3-7/8" x 2-9/32") for 2035/36

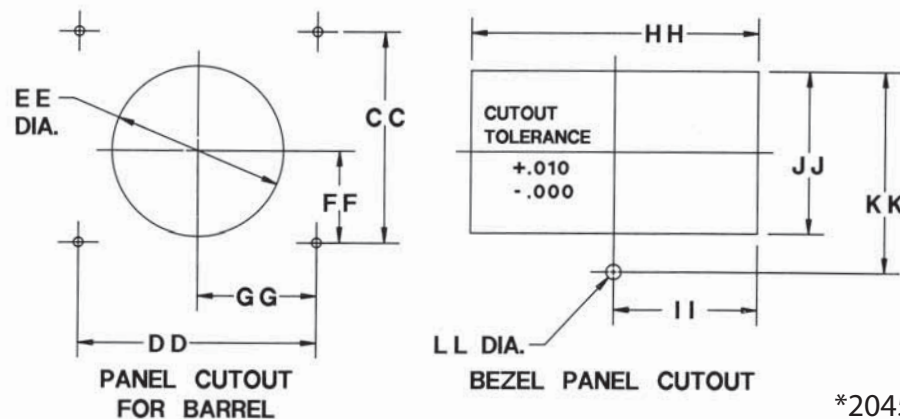
C-7030 (overall size 4-31/32" x 2-29/32") for 2045/46

DIMENSIONS:



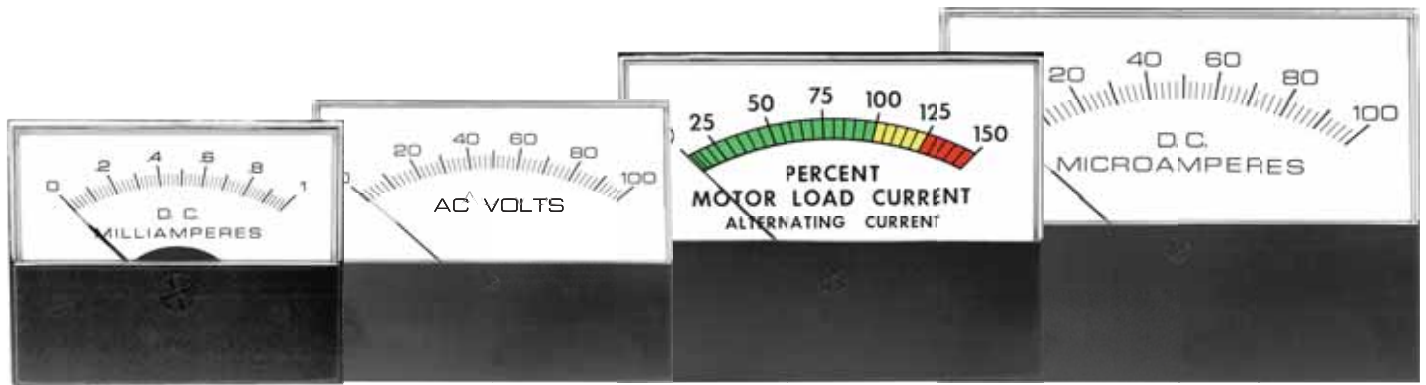
MODELS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
2018-22/18R	1.74	1.74	1.31	1.31	1.50	1.22	0.33	0.50	4-48	0.48	0.97	10-32	0.87	0.00	-.22	0.50
2025/26	2.38	2.81	1.88	1.88	2.16	1.12	0.42	0.50	4-48	0.48	0.97	10-32	1.19	0.00	0.00	0.50
2035/36	2.97	3.50	2.25	2.25	2.74	1.10	0.45	0.56	4-48	0.48	0.97	10-32	1.48	0.03	0.25	0.50
2045/46	4.03	4.50	3.56	4.00	2.75	1.10	0.48	0.62	6-32	0.48	0.97	10-32	2.02	0.24	0.25	0.50
2060/61	4.49	5.72	3.00	5.25	2.75	1.09	0.51	0.66	6-32	0.48	0.97	10-32	2.24	0.65	0.06	0.50

DIMENSIONS:



MODELS	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL
2018-22/18R	1.31	1.31	1.60	0.66	0.66	1.91	0.95	1.12	1.48	0.20
2025/26	1.88	1.88	2.26	0.94	0.94	3.00	1.50	1.61	2.06	0.25
2035/36	2.25	2.25	2.84	1.12	1.12	3.73	1.86	2.17	2.63	0.25
2045/46	3.56	4.00	2.88	1.54	2.00	4.82	2.41	2.76	3.40	0.25
2060/61	3.00	5.25	2.88	0.85	2.62	-	-	-	-	-

3100 Series



3115 - D.C. Moving Coil **3125 - D.C. Moving Coil** **3135 - D.C. Moving Coil** **3145 - D.C. Moving Coil**
3116R - A.C. Rectifier **3126 - A.C. Repulsion** **3136 - A.C. Repulsion** **3146 - A.C. Repulsion**

The 3100 Hoyt panel meter series consists of a popular industrial styled, high impact plastic case that is available for surface, window, or bezel mounting applications in four sizes: 1-1/2", 2-1/2", 3-1/2", and 4-1/2". This series of meters is equal in mounting and specifications to similar styled meters of other manufacturers.

SPECIFICATIONS

Accuracy: $\pm 2\%$ full scale value.

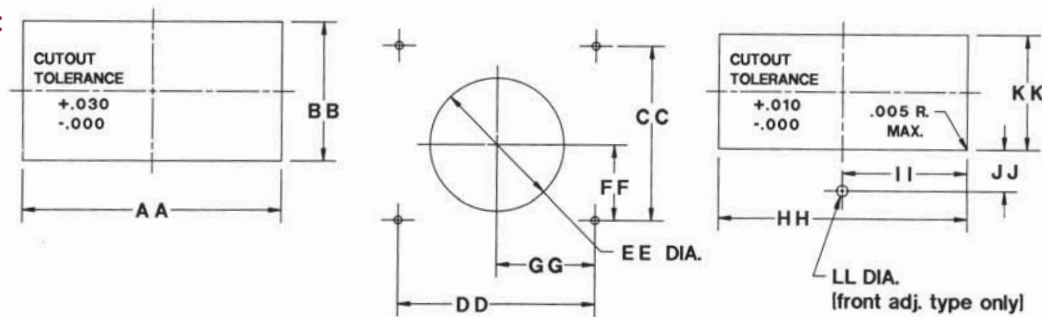
Resistance: $\pm 15\%$

Dials: 100 or 90 degree arc, black lettering on white background. Special dial colors and artwork are available as an option.

Movement: Spring loaded pivot and jewel movement that assures maximum torque and readability.

UL Recognized meters available, add -UL to model

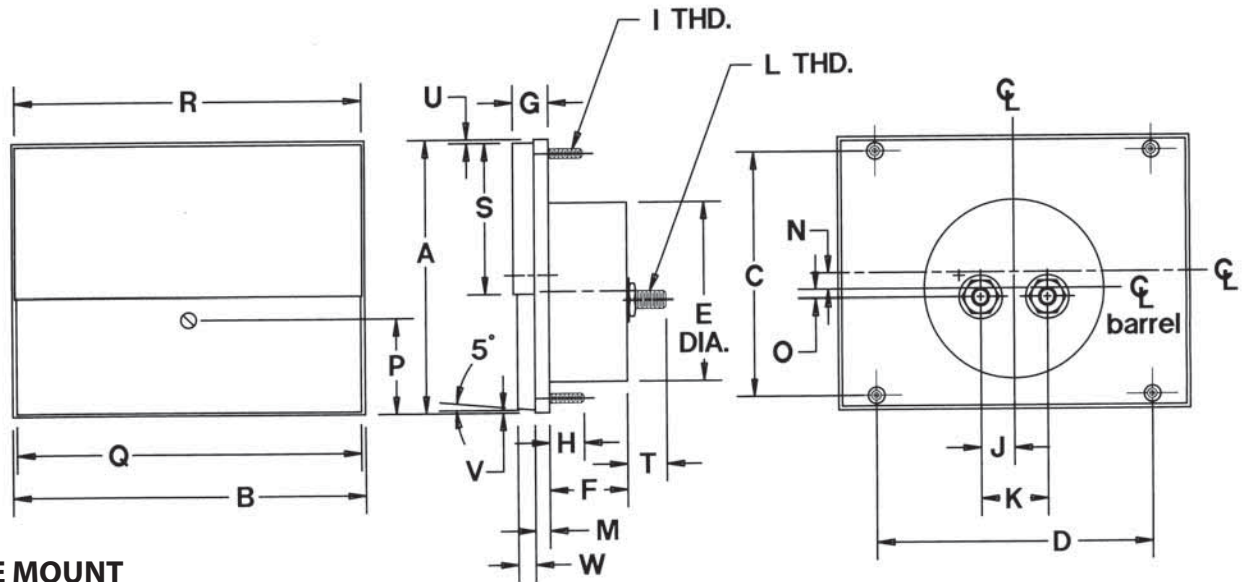
DIMENSIONS:



*3145 Shown

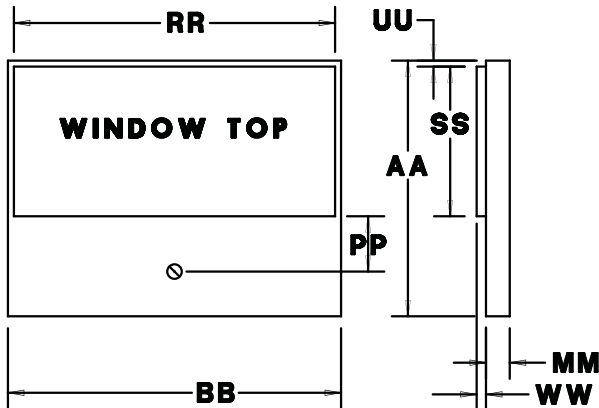
MODELS	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL
3115-22	-	-	1.310	1.310	1.590	0.660	0.660	2.150	1.075	0.535	0.935	0.265
3125/26	3.000	1.600	1.880	1.880	2.180	0.940	0.940	2.900	1.450	0.630	1.270	0.265
3135/36	3.720	2.160	2.250	2.250	2.720	1.120	1.120	3.590	1.795	0.804	1.590	0.265
3145/46	5.120	2.840	3.560	4.000	2.720	1.540	2.000	5.010	2.505	0.856	2.340	0.228

DIMENSIONS: 3100 Series



SURFACE MOUNT

MODELS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
3115-22	1.78	2.24	1.31	1.31	1.50	1.22	0.34	0.50	4-48	0.48	0.97	10-32	0.14	0.03	-.22	0.66	2.14	2.16	0.88	0.50	0.04	0.04	0.16
3125/26	2.29	2.99	1.88	1.88	2.08	1.16	0.40	0.50	4-48	0.48	0.97	10-32	0.16	0.00	0.00	0.86	2.89	2.91	1.23	0.50	0.06	0.04	0.19
3135/36	2.89	3.70	2.25	2.25	2.60	1.16	0.42	0.50	4-48	0.48	0.97	10-32	0.18	0.00	0.12	0.96	3.59	3.62	1.55	0.50	0.06	0.04	0.19
3145/46	3.98	5.10	3.56	4.00	2.60	1.13	0.52	0.50	6-32	0.48	0.97	10-32	0.21	0.24	0.12	1.39	4.98	5.02	2.21	0.50	0.05	0.04	0.25



WINDOW MOUNT

MODELS	AA	BB	MM	PP	RR	SS	UU	WW
3115-22	1.78	2.24	.28	.54	2.14	.92	.05	.15
3125/26	2.28	3.01	.30	.64	2.89	1.26	.06	.15
3135/36	2.89	3.72	.32	.81	3.58	1.58	.07	.15
3145/46	4.06	5.19	.37	.86	5.00	2.33	.09	.15

Base is the same as the surface top. See Surface dimensional chart for omitted base dimensions.

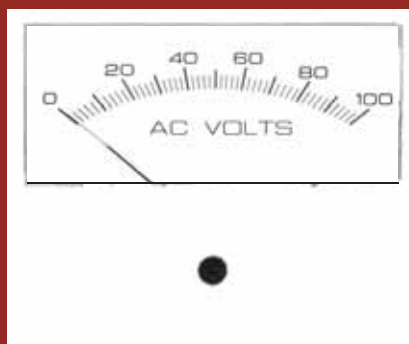
Window Mount The window mount design is available in sizes (1-1/2"; 2-1/2"; 3-1/2"; and 4-1/2"). This series is industrially styled and universally accepted with maximum dial visibility. The outside edges of the "window" that project through the panel are clear which yields maximum readability. All specifications and options are identical to those on previous page.

Bezel Mount The Hoyt bezels are available in sizes 2-1/2"; 3-1/2"; and 4-1/2" and offer a custom look to the panel surface. The bezel is molded from high strength plastic material which protects the meter from damage. This design features the zero adjuster within the window envelope therefore negating the requirement for drilling an additional hole. The optional bezel is available for use with the surface case styles and includes necessary mounting hardware.

When Ordering :

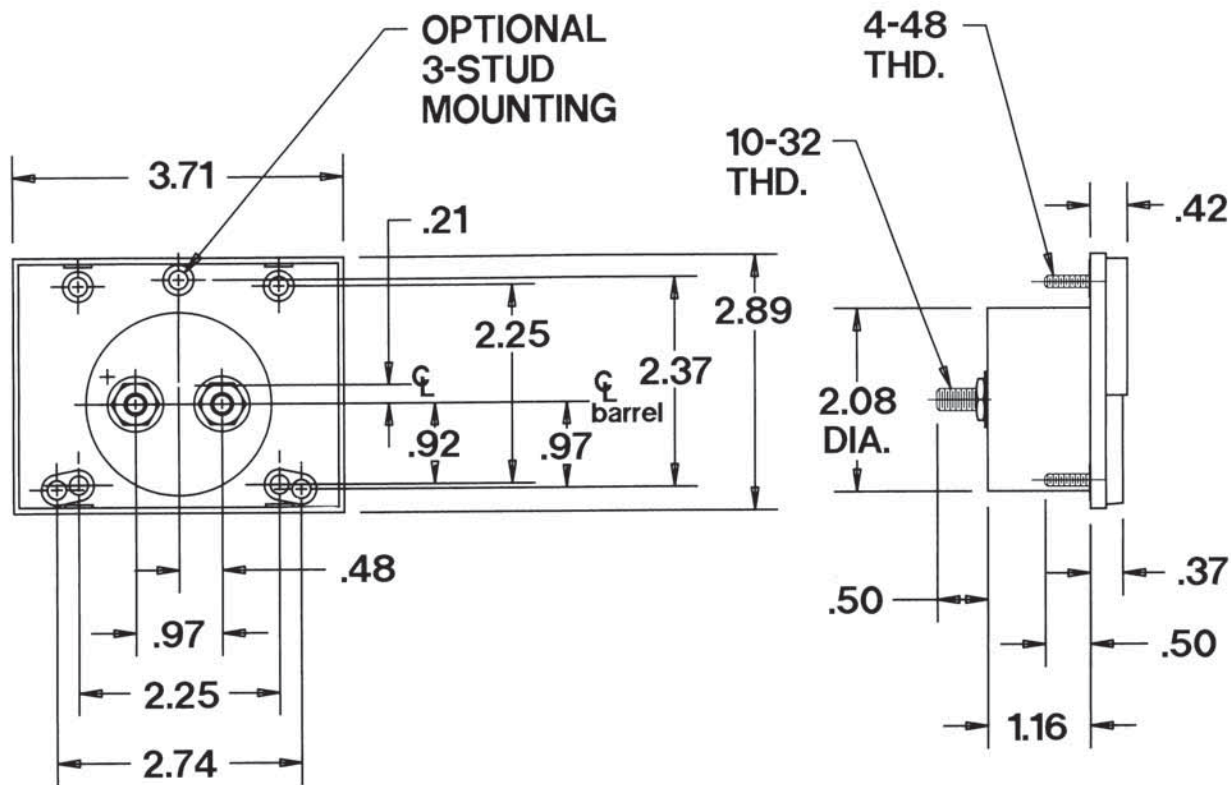
- C-8041 (overall size 1 - 3/4" x 1 - 5/32") for 3125/26
- C-8370 (overall size 2 - 5/16" x 3 - 27/32") for 3135/36
- G-8397 (overall size 3" x 5 - 1/4") for 3145/46

Window Mount



Bezels

DIMENSIONS:



3135/2 - D.C. Moving Coil
3136/2 - A.C. Repulsion



Our policy is one of continuous development and we reserve the right to supply products different in design and appearance from those described. As development is continuous, we reserve the right to alter specifications without notice.

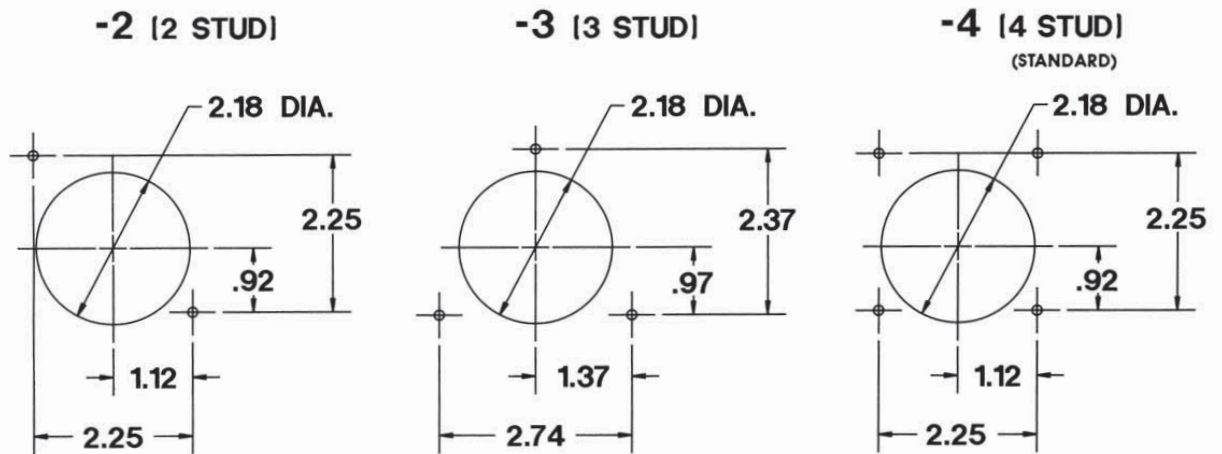
3135/36-2 Series

HOYT 3135/36-2 SERIES OFFERS THESE ADVANTAGES...

- SMALL BARRELL FOR TIGHT SPACE APPLICATION
- VISCOSITY DAMPING TO CONTROL OVERSHOOT & OSCILLATION
- OPTIONAL CUSTOM DIALS WITH YOUR NAME, SCALE, LOGO, ETC.
- AC IRON VANE REPULSION MOVEMENT
- SPECIAL RANGES AND RESISTANCES TO MATCH YOUR EQUIPMENT DESIGN
- 4 WAY MOUNTING INCLUDING 2, 3, 4 HOLES
- PIVOT & JEWEL MOVEMENT
- HIGH IMPACT PLASTIC CASE
- COLOR FAST METAL DIALS
- DC MOVING COIL MOVEMENT
- 1 YEAR LIMITED WARRANTY
- 1% & 2% ACCURACY AVAILABLE

MOUNTING IN YOUR PRESENT PANEL OPENING...

STUD MOUNTING OPTIONS



METER TYPES AVAILABLE:

- DC** MICROAMMETERS
MILLIAMMETERS
AMMETERS
MILLIVOLTMETERS
VOLTMETERS
- AC** RECTIFIER TYPE VOLTMETERS
AMMETERS
VOLTMETERS
FREQUENCY METERS



AVAILABLE

SPECIFICATIONS:

- #10 TERMINALS STANDARD, 1/4-28 AVAILABLE
- 90 DEGREE POINTER DEFLECTION AC
- 100 DEGREE POINTER DEFLECTION DC

HOW TO ORDER...

1. To order the Hoyt 3135/36-2 series meter, use the appropriate ranges from the price sheet. AC Meters require part number 3136-2-_____ and DC Meters require part number 3135-2-_____
2. Decide which mounting option is required and add to - _____
3. Add range and scale from price list as examples below.

EXAMPLE:

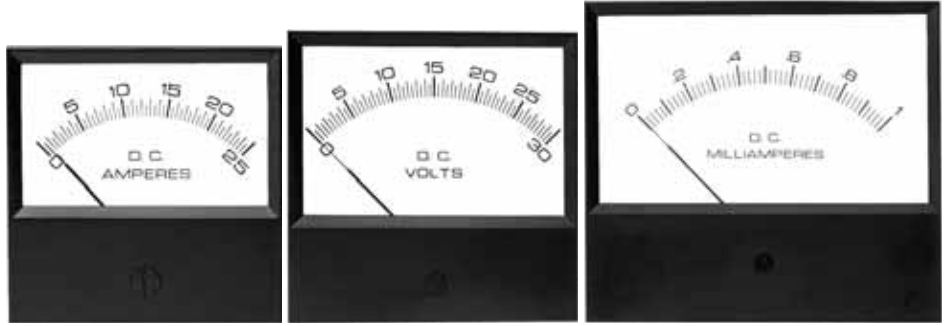
3136-2-4, 0-5AAC, 100AAC (5 ACC Meter with 4 stud mounting)
(100 AAC Dial)

Hoyt Electrical Instrument Works, Inc. Penacook, NH
(800) 258-3652 Fax (603) 753-9592 WWW.HOYTMETER.COM

4000 Series Phenolic and Glass Meters

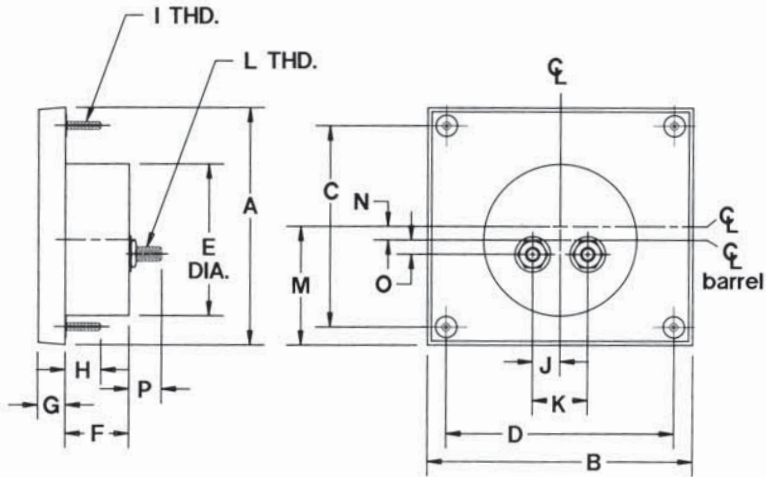
Handsomely styled to meet the most demanding appearance requirements, this series conforms to the standards for 2-1/2", 3-1/2", 4-1/2" 4 hole mounting to provide for interchanging with other similar size meters. These are high quality instruments, available in AC and DC models including D'Arsonval 2% accuracy DC, AC repulsion and rectifier type movements.

NOTE: UL RECOGNIZED VERSION AVAILABLE. TO ORDER ADD -UL TO MODEL.



4025- D.C. Moving Coil **4035- D.C. Moving Coil** **4045- D.C. Moving Coil**
4026- A.C. Repulsion **4036- A.C. Repulsion** **4046- A.C. Repulsion**

DIMENSIONS:



MODELS	A	B	C	D	E	F	G	H
4025/26	2.38	2.38	1.88	1.88	2.16	1.11	0.47	0.50
4035/36	3.00	3.00	2.25	2.25	2.69	1.12	0.47	0.62
4045/46	4.20	4.66	3.56	4.00	2.69	1.12	0.47	0.62
MODELS	I	J	K	L	M	N	O	P
4025/26	4-48	0.48	0.97	10-32	1.19	0.00	0.00	0.50
4035/36	4-48	0.48	0.97	10-32	1.50	0.00	0.25	0.50
4045/46	6-32	0.48	0.97	10-32	2.10	0.24	0.25	0.50

2100 Series Low Profile Phenolic Meters

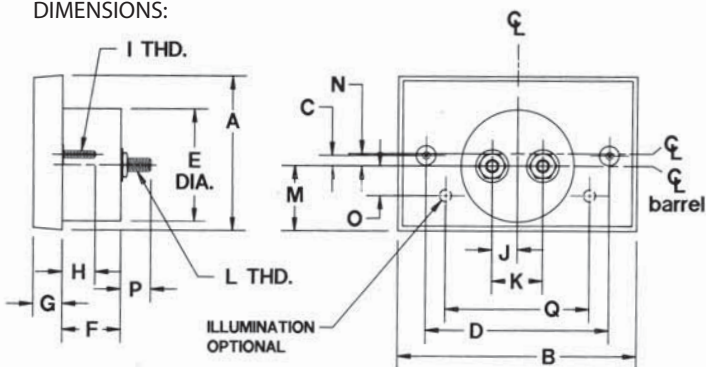
The low profile series of non-static phenolic and glass meters is especially suited for applications where plastic meters are unsuitable or where low, rectangular styling is a must. This series features a clean, uncluttered scale for excellent readability, smooth satin finish front and fast, two stud mounting. While shielded Accuring movement is standard in most ranges, these meters can be ordered with any Hoyt movement. Matching AC versions are available as are rectifiers and VU models.



2135 - D.C. Moving Coil
2136 - A.C. Repulsion

2145 - D.C. Moving Coil
2146 - A.C. Repulsion

DIMENSIONS:



MODELS	A	B	C	D	E	F	G	H	
2135/36	2.73	4.01	0.00	2.94	2.16	1.08	0.55	0.66	
2145/46	2.96	4.56	0.20	3.50	2.16	1.08	0.55	0.66	
MODELS	I	J	K	L	M	N	O	P	Q
2135/36	6-32	0.48	0.97	10-32	1.25	0.12	0.57	0.50	2.46
2145/46	6-32	0.48	0.97	10-32	1.25	0.24	0.57	0.50	2.75

LS-110 & LS-80 Series Switchboard Meters



LS-110

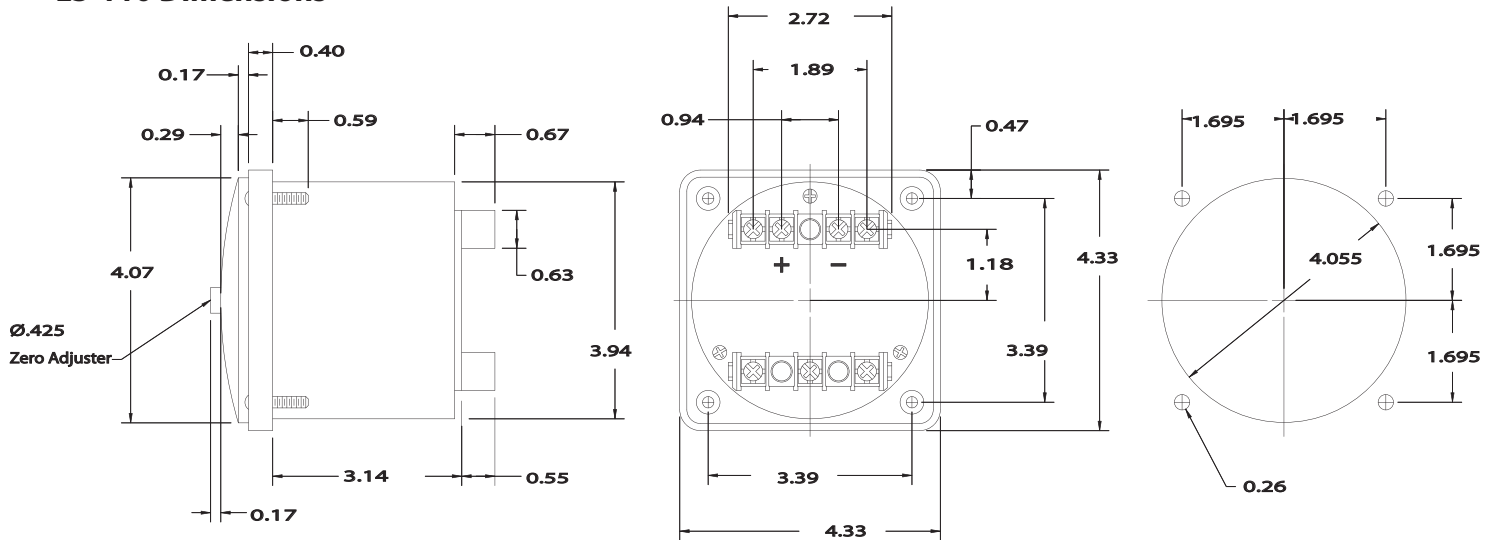


LS-80

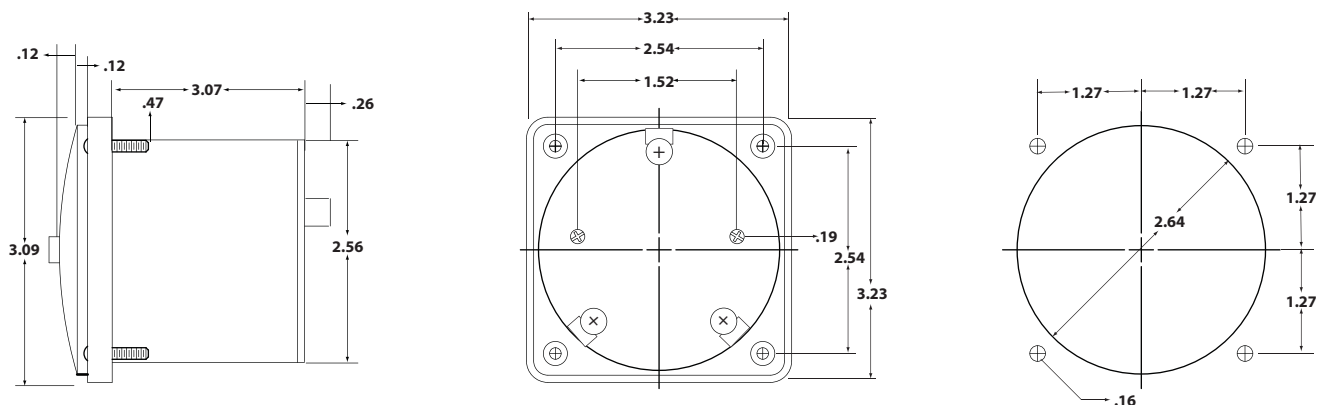
- The LS-110 is 4.5" Square
 - The LS-80 is 3.25" Square
 - All AC moving coil rectifier ammeters and voltmeter are $\pm 1\%$
 - DC Moving coil ammeters and voltmeters $\pm 1\%$
 - Frequency meters $\pm 0.15\text{Hz}$ (50Hz & 60Hz), and all power meters are $\pm 1\%$.
 - All AC & DC voltmeters - 50% momentary /20% prolonged
 - AC & DC ammeters - 50% momentary/20% prolonged
 - Frequency meters - 20% maximum; and power meters - 20% maximum. All ammeters and power meters <0.5V maximum
 - Meters are ANSI C39.1
- * Some available options include custom artwork, colored dials, traceable calibration, custom logos, panel gaskets, and anti-glare window.

*Available meters include:
Watts, Vars, Powerfactor, Syncroscope, Amp and Volts.

LS-110 Dimensions



LS-80 Dimensions



Hoyt Electrical Instrument Works, Inc. Penacook, NH
(800) 258-3652 Fax (603) 753-9592 WWW.HOYTMETER.COM





5015 - D.C. Moving Coil
5016R - A.C. Rectifier



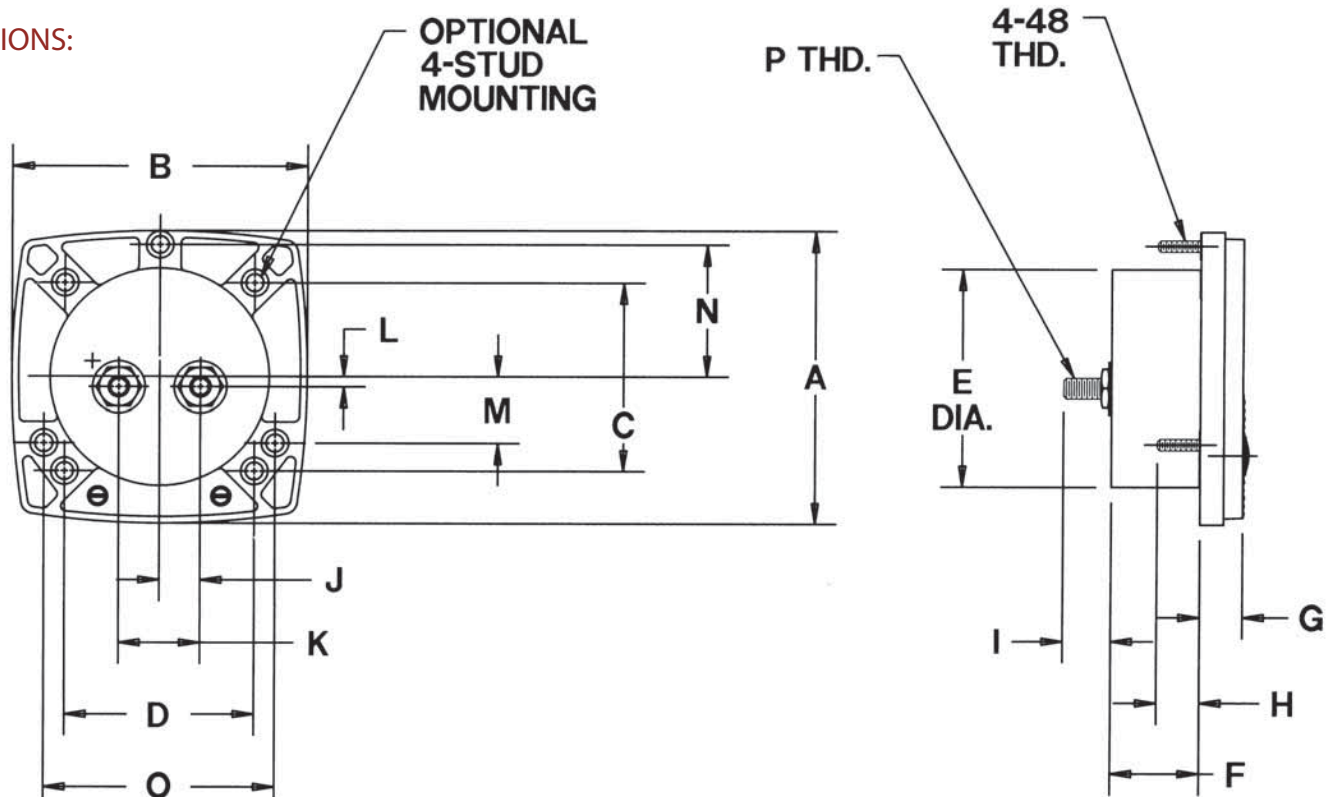
5025 - D.C. Moving Coil
5026 - A.C. Repulsion



5035 - D.C. Moving Coil
5036 - A.C. Repulsion

MODELS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
5015/16R	1.76	1.76	1.31	1.31	1.50	1.08	0.48	0.50	0.50	0.48	0.97	-0.22	-	-	-	10-32
5025/26	2.71	2.71	1.88	1.88	2.08	1.06	0.47	0.50	0.50	0.48	0.97	0.00	0.61	1.22	2.11	1/4-28
5035/36	3.50	3.50	2.25	2.25	2.60	1.05	0.50	0.50	0.50	0.48	0.97	0.13	0.79	1.58	2.74	1/4-28

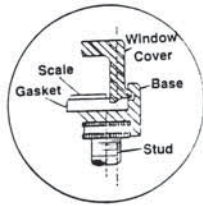
DIMENSIONS:



Our policy is one of continuous development and we reserve the right to supply products different in design and appearance from those described. As development is continuous, we reserve the right to alter specifications without notice.



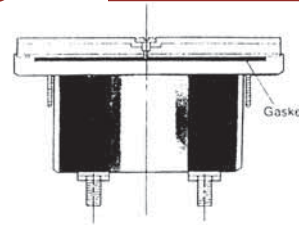
HOYT 5000 Series Offers These Advantages...



Gasket Sealing Design.

Dust resistant construction is a standard feature in the 5000 Series panel instruments. This unique sealing design provides exceptional gasket sealing while allowing for quick modification and scale changes while maintaining the integrity of the instrument.

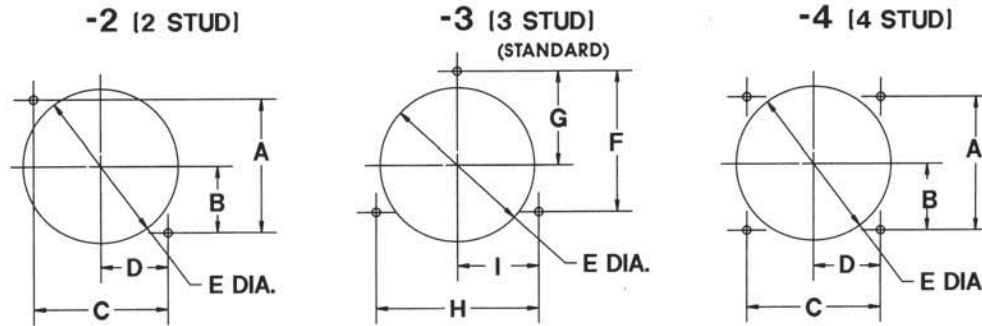
*External panel gasket available.



Dustproof Lexan® Construction

5000 series panel meters feature gasketed construction to seal out dust and other air-suspended damaging particles. The 5000 series is made with UL 94V material. Ideal where impact and strength is required in harsh environments.

Mounting In Your Present Panel Opening...



MODELS	A	B	C	D	E	F	G	H	I
5015/16R	1.31	0.66	1.31	0.66	1.59	-	-	-	-
5025/26	1.88	0.94	1.88	0.94	2.18	1.83	1.22	2.11	1.06
5035/36	2.25	1.12	2.25	1.12	2.66	2.37	1.58	2.74	1.37

The mounting studs on the 5000 series can be ordered to fit your existing panel openings at no extra cost. The 5000 series cases are interchangeable with a wide variety of competitive instruments. Optional stud placement configurations are shown above. This built-in interchangeability eliminates the need for drawing changes, setups, and redrilling of panels...and it solves your instrument replacement problems.



Recognized meters available

METER TYPES AVAILABLE

- DC** Microammeters
Milliammeters
Ammeters
Millivoltmeters
Voltmeters
Pyrometers
Hourmeters

- AC** Frequency Meters - Pointer type
Iron Vane or Rectifier type
Voltmeters
Ammeters
Hourmeters

Accuracy: All DC and AC: ±2% of full scale

AC rectifier type ±3% of full scale (with 60 HS 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 ±2% of full scale value.

ANSI Specifications:

All meters meet ANSI Specifications C39.1

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 seconds with
a 1 minute interval between successive
applications; 20% for six hours.

Scale Data:

90 degree rotation.

Insulation Level:

All meters 2600 V RMS

How To Order...

To order the Hoyt 5000 panel meters use the appropriate ranges from the price sheet. AC meters require part numbers 5026 or 5036. DC Part numbers 5025 or 5035.

ORDERING EXAMPLES:

- 2-1/2" 300 VDC Voltmeter, zero left
Example: 5025, 0-300 VDC
- 3-1/2" 300 AAC Ammeter, zero left
Example: 5036, 5 AAC, 300 AAC

NOTE:

Severe Duty meters are available to meet UL 1437 requirements. To order add "-UL" after catalog number.



Industrial Panel Meters

Round and Rectangular / Phenolic and Metal

This series was designed to meet industrial requirements and for other applications where rugged metal or phenolic cases with glass fronts provide long service under adverse conditions. Round models ranging in size from 2-1/2" to 4-1/2" are produced in either the $\pm 2\%$ of full scale AC repulsion or DC Moving Coil version. AC ranges are standard up to 50 amperes self contained and 600 AC volts. Ranges down 10 milliamperes AC are also standard.

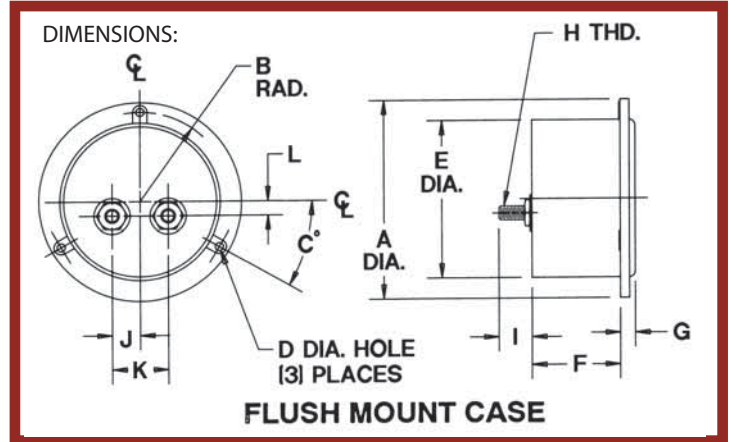
Both round and square models come in DC ranges from 20 microamperes to 50 millivolts to 750 volts DC. High current ammeter ranges with external shunt are available, as are special or non-standard ranges. The industrial meters shown here and on the following pages represent the many case styles and options in this series. For exact specifications and certified dimensions, please contact the factory.

PHENOLIC

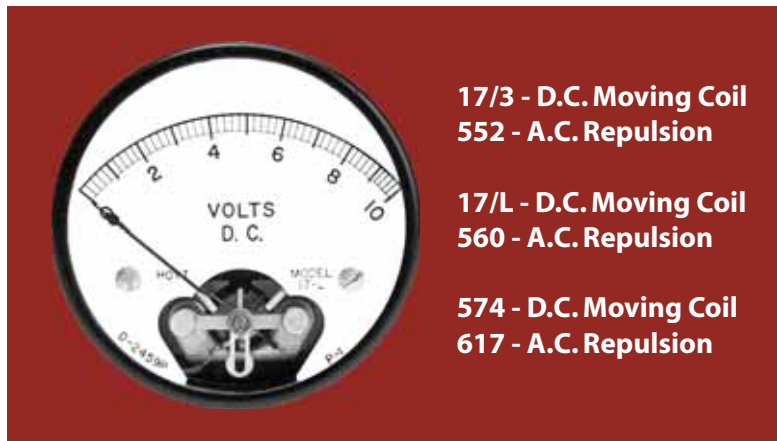
*option code -P



17/3 - D.C. Moving Coil 582 - D.C. Moving Coil
552 - A.C. Repulsion 584 - A.C. Repulsion



MODELS	A	B	C	D	E	F	G	H	I	J	K	L
17-3/552	2.69	1.22	30	0.12	2.20	1.38	0.20	10-32	0.50	0.48	0.97	0.00
582/584	3.50	1.58	30	0.14	2.75	1.39	0.26	10-32	0.50	0.48	0.97	0.25
17-L/560	3.22	1.44	30	0.14	2.50	1.44	0.12	10-32	0.50	0.48	0.97	0.12
574/617	4.50	2.06	30	0.14	3.75	1.45	0.09	10-32	0.50	0.48	0.97	0.69

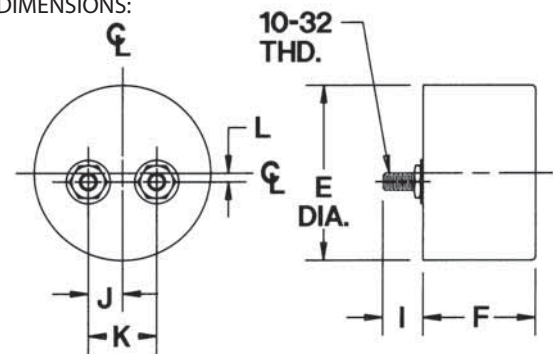


17/3 - D.C. Moving Coil
552 - A.C. Repulsion

17/L - D.C. Moving Coil
560 - A.C. Repulsion

574 - D.C. Moving Coil
617 - A.C. Repulsion

DIMENSIONS:



MODELS	E	F	I	J	K	L
17-3/552	2.05	1.43	0.50	0.48	0.97	0.00
17-L/560	2.50	1.72	0.50	0.48	0.97	0.12
574/617	3.75	1.58	0.50	0.48	0.97	0.69

STRAIGHT SIDE METAL CASE

*option code -SS



20



17/L - D.C. Moving Coil
560 - A.C. Repulsion



574 - D.C. Moving Coil
617 - A.C. Repulsion

METAL



17/3 - D.C. Moving Coil
552 - A.C. Repulsion

17/L - D.C. Moving Coil
560 - A.C. Repulsion

570 - D.C. Moving Coil
580 - A.C. Repulsion
574 - D.C. Moving Coil
617 - A.C. Repulsion

CASE OPTIONS: WIDE & NARROW FLUSH MOUNTED SEMI-MASKED METAL CASES

**option codes:*

Wide Rim 3-Hole - WR

Narrow Rim U-Clamp - NR

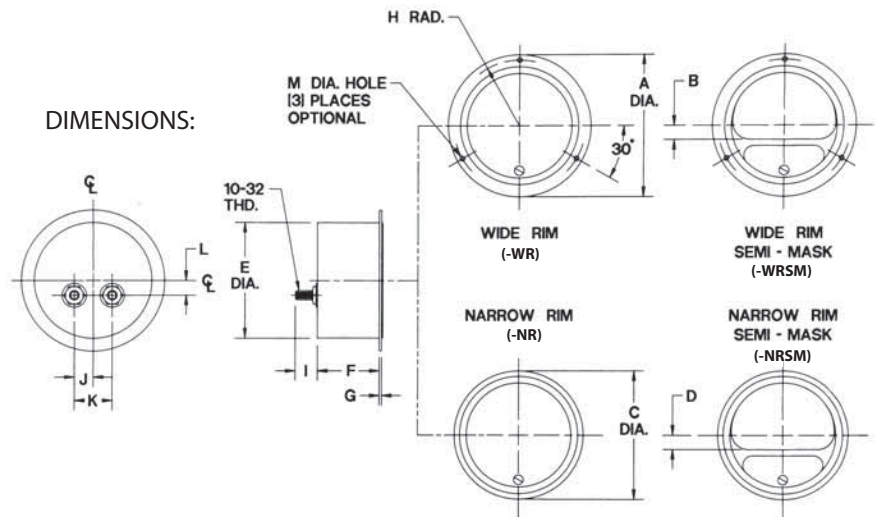
3-Hole Semi Mask - SM

Wide Rim Semi Mask - WRSM

Narrow Rim Semi Mask - NRSM

MODELS	A	B	C	D	E	F	G
17-3/552	2.55	0.29	2.29	0.29	2.06	1.33	0.10
17-L/560	3.22	-	2.81	-	2.50	1.44	0.12
570/580	3.66	0.37	3.31	0.37	3.00	1.59	0.11
574/617	4.50	-	-	-	3.75	1.39	0.16
MODELS	H	I	J	K	L	M	
17-3/552	1.16	0.50	0.48	0.97	0.00	0.12	
17-L/560	1.44	0.50	0.48	0.97	0.12	0.14	
570/580	1.69	0.50	0.48	0.97	0.39	0.13	
574/617	2.06	0.50	0.48	0.97	0.69	0.14	

DIMENSIONS:



Industrial Panel Meters-Phenolic

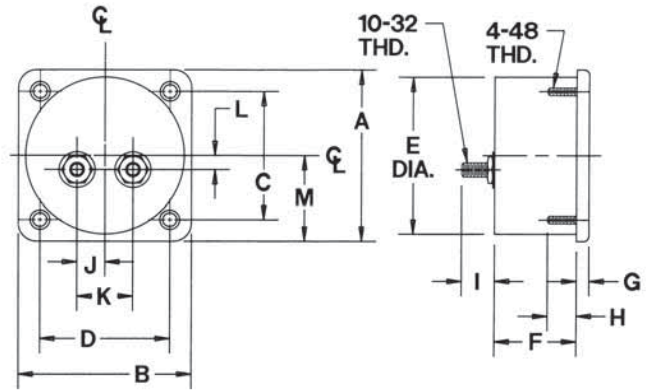


635 - D.C Moving Coil
636 - A.C. Repulsion



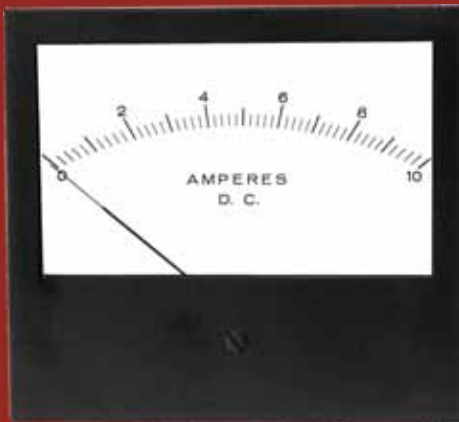
597 - D.C Moving Coil
598 - A.C. Repulsion

DIMENSIONS:



2-1/2 & 3"

MODELS	A	B	C	D	E	F	G	H	I	J	K	L	M
635/636	2.38	2.38	1.88	1.88	2.20	1.40	0.20	0.55	0.50	0.48	0.97	0.00	1.19
597/598	3.00	3.00	2.25	2.25	2.75	1.42	0.22	0.50	0.50	0.48	0.97	0.25	1.50



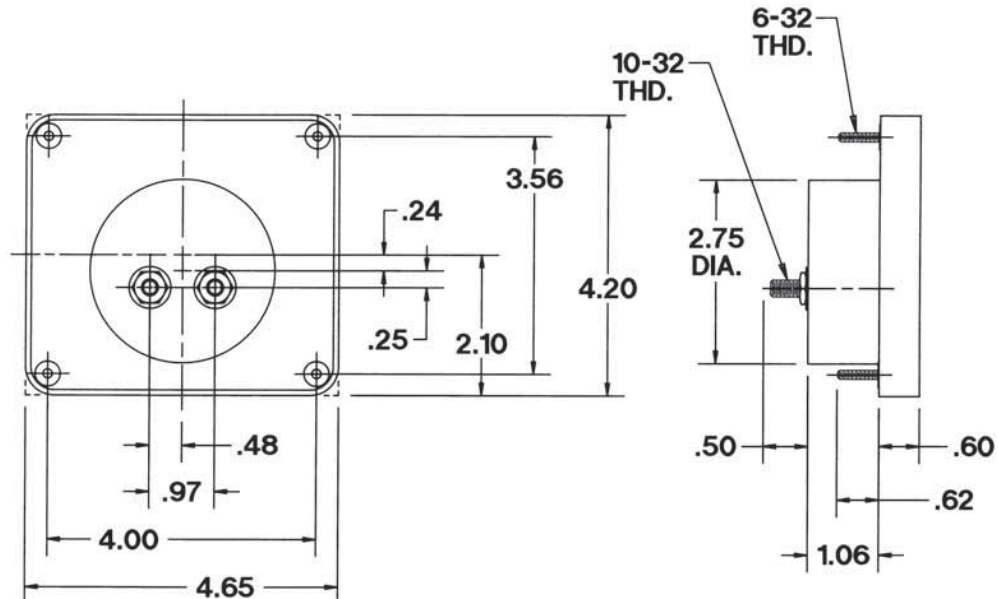
680 - D.C Moving Coil
681 - A.C. Repulsion



647 - D.C Moving Coil
648 - A.C. Repulsion

DIMENSIONS:

4-1/2"



6351/2 Industrial Panel Meters

3-1/2" Metal Cased Sealed Meters

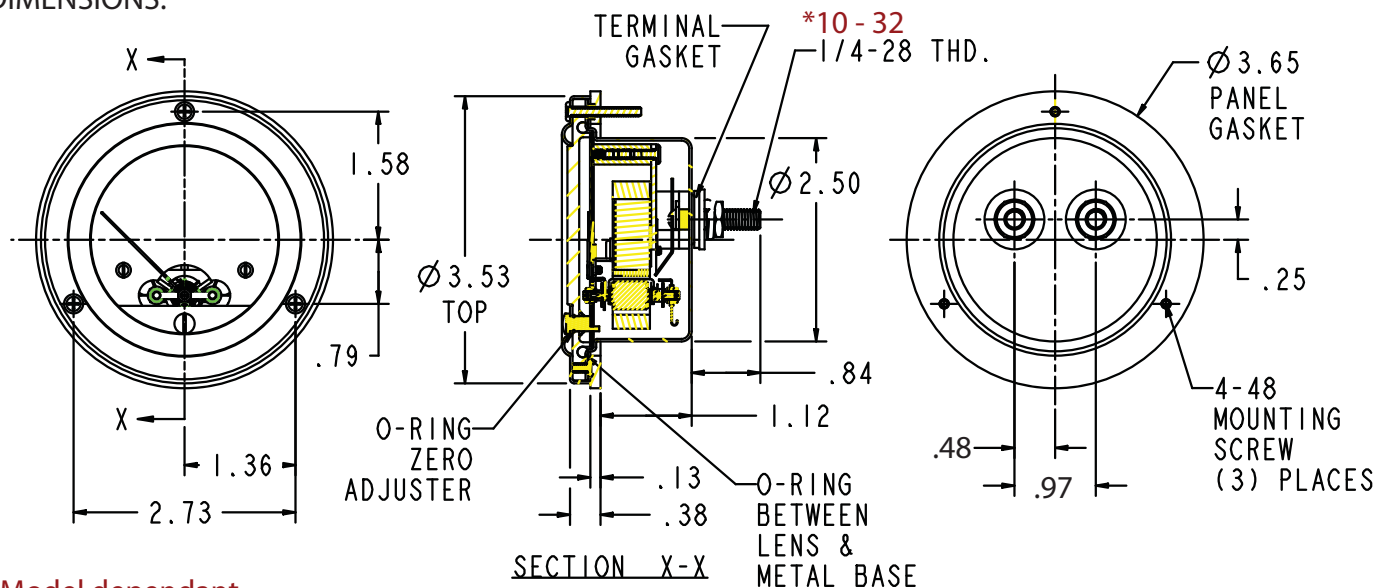


The 6351/2 Industrial Panel meters are designed for extreme duty applications where high degree of resistance to environment is required. They are dustproof and waterproof, meeting NEMA 4 and ANSI C39.1 specifications and performance standards. These meters have a $\pm 2\%$ accuracy, $\pm 2\%$ repeatability and a resistance of $\pm 20\%$. Response time is 1.5 seconds and a temperature range of -50°F to 150°F . Custom meter ranges and scales are available to meet customer specifications.

Case and Composition: Thermoplastic window, steel base, ruggedized, gasket sealed.

Movement: DC Moving Coil or AC Repulsion, all with Pivot and Jewel movements, Heavy Damping.

DIMENSIONS:



*Model dependant

250 Degree Series



250-20



250-30

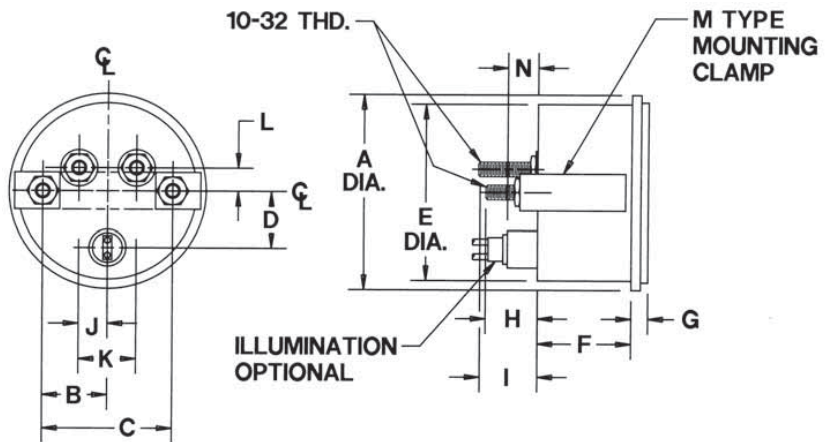


250-375



250-45

DIMENSIONS:



MODELS	A	B	C	D	E	F	G	H	I	J	K	L	M	N
250-20	2.29	0.48	0.97	-.56	2.05	1.51	0.26	0.00	1.00	0.48	0.97	0.00	"U"	0.51
250-30	3.32	1.09	2.18	1.03	3.00	1.65	0.28	0.78	0.94	0.48	0.97	0.63	"L"	0.00
250-375	3.80	1.31	2.62	1.12	3.36	1.63	0.38	0.78	0.94	0.48	0.97	0.65	"L"	0.00
250-45	-	1.47	2.94	1.38	-	1.80	-	-	0.94	0.48	0.97	0.63	"L"	0.00

*250-45-For Case Style & omitted dimensions, refer to Model 574, page 21

The Hoyt 250° meters utilize a highly damped, spring loaded pivot & jewel movement; mechanically interlocked, negating the use of adhesives and develops very high torque. The meters are desirable for the following applications:

- **Emergency Vehicles**
- **Marine Instrumentation**
- **Speed (RPM)**
- **Pressure and Flow**
- **Pyrometers**
- **Diesel and Gas Instrumentations**

Our policy is one of continuous development and we reserve the right to supply products different in design and appearance from those described. As development is continuous, we reserve the right to alter specifications without notice.

HOYT 250 Degree Series Offers These Advantages...

- SPECIAL RANGES AND RESISTANCES TO MATCH YOUR EQUIPMENT DESIGN
- ELECTRICAL DAMPING TO CONTROL OVERSHOOT & OSCILLATION
- OPTIONAL CUSTOM DIALS WITH YOUR NAME, LOGO, ETC.
- LONG 250 DEGREE POINTER SWING
- PIVOT & JEWEL MOVEMENT



- THREE SIZES AVAILABLE FOR YOUR APPLICATION
- NOW AVAILABLE WITH OR WITHOUT ILLUMINATION
- AVAILABLE WITH CHROME OR BLACK BEZELS

- 1 YEAR LIMITED WARRANTY
- HIGH IMPACT METAL CASE
- COLOR FAST METAL DIALS
- DC MOVING COIL MOVEMENT
- 1% & 2% ACCURACY AVAILABLE

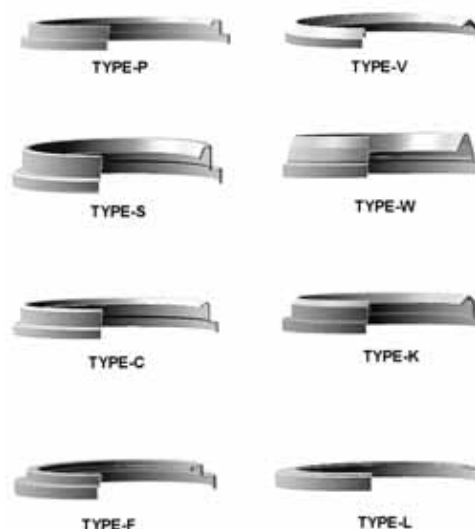
SPECIFICATIONS:

#10 TERMINALS STANDARD, 1/4-28 AVAILABLE
 250 DEGREE POINTER DEFLECTION DC
 IRON CASE STANDARD
 BRASS CASE AVAILABLE (EXTRA COST)

METER TYPES AVAILABLE:

DC MICROAMMETERS
 MILLIAMMETERS
 AMMETERS
 MILLIVOLTMETERS
 VOLTMETERS
 PYROMETERS
 CUSTOM GAUGES

Bezels Available



HOW TO ORDER...

1. To order the Hoyt 250 degree series meter, use the appropriate ranges from the price sheet. Select part number 250-20 for 2" meters, select part number 250-30 for 3" meters, 250-375 for 3-3/8" meter.
2. Decide which bezel option is required and add to - ____.
3. Use "I" for Illuminated and "N" for Non-illuminated.
4. Add range and scale from price list as examples below.

EXAMPLE:

250-375, CHROME, 4-20 MADDC SPECIAL dial D-1292325

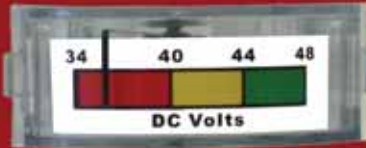
TOP AVAILABILITY CHART

MODELS	C	F	S	P	L	K	W	V
17/3	-	O	X	-	X	X	X	Z
250-20	-	X	X	-	X	O	X	Z
250-30	X	O	X	X	X	-	-	-
570	X	O	X	X	X	-	-	-
250-375	-	-	-	O	-	-	-	-

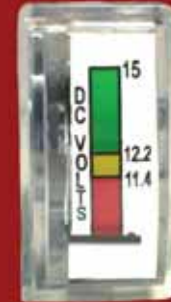
O = STANDARD TOPS (BLACK)
 X = SPECIAL TOPS (EXTRA COST)
 Z = REQUIRES SPECIAL BASE (EXTRA COST)
 OPTIONAL MATERIALS AND FINISH AVAILABLE (EXTRA COST)

Edgewise Analog Panel

The E-20 and CK-150 Series edgewise meter are suitable for many applications requiring a low cost solution. The standard case is polystyrene, but UL Polycarbonate is available. Accuracy is $\pm 5\%$ of full scale and most AC/DC ranges are available. Typical uses include test equipment, power supplies, emergency lighting chargers, recreational equipment, etc. Features quick snap in ears...no brackets required!

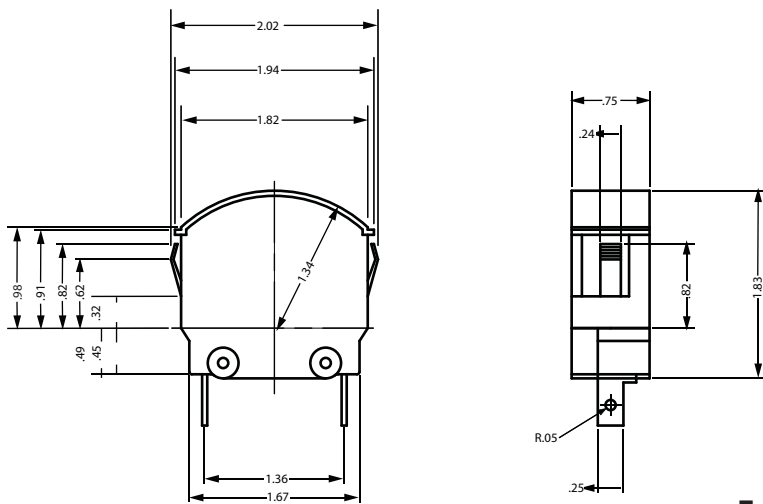


E-20
CK-256
CK-257

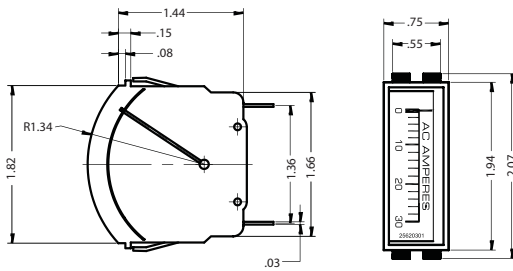


CK-150
CK-160

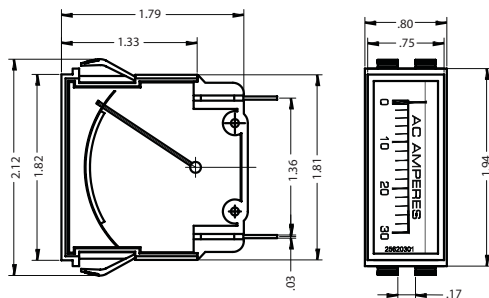
DIMENSIONS:



E-20
(Polycarbonate)



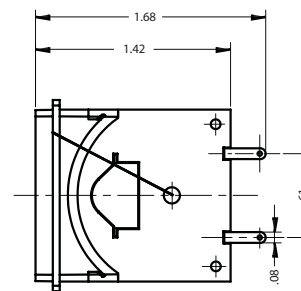
CK-256



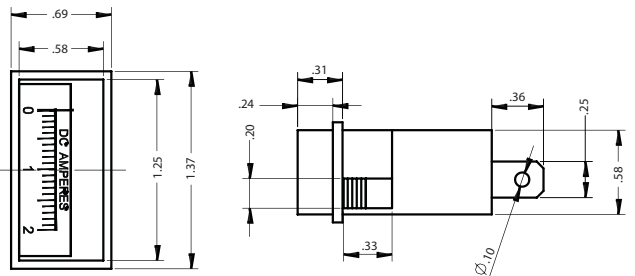
CK-257



CK-150



CK-160



Hoyt 2-1/2" Edgewise Meters

Model 685 2-1/2" edgewise has been designed without any barrel projection and is fully shielded to allow vertical or horizontal stacking without interaction between movements or other external magnetic fields. The specially engineered, rugged D'Arsonval movement with high torque-to-weight ratio provides excellent response and damping characteristics. The 685 is offered in DC, AC rectifier-type and VU meter versions. The 685 can be ordered in single, dual, or triple stack versions. Supplied bezel and mounting hardware enable quick, trouble-free installation.

MODEL 685



685-1



685-2



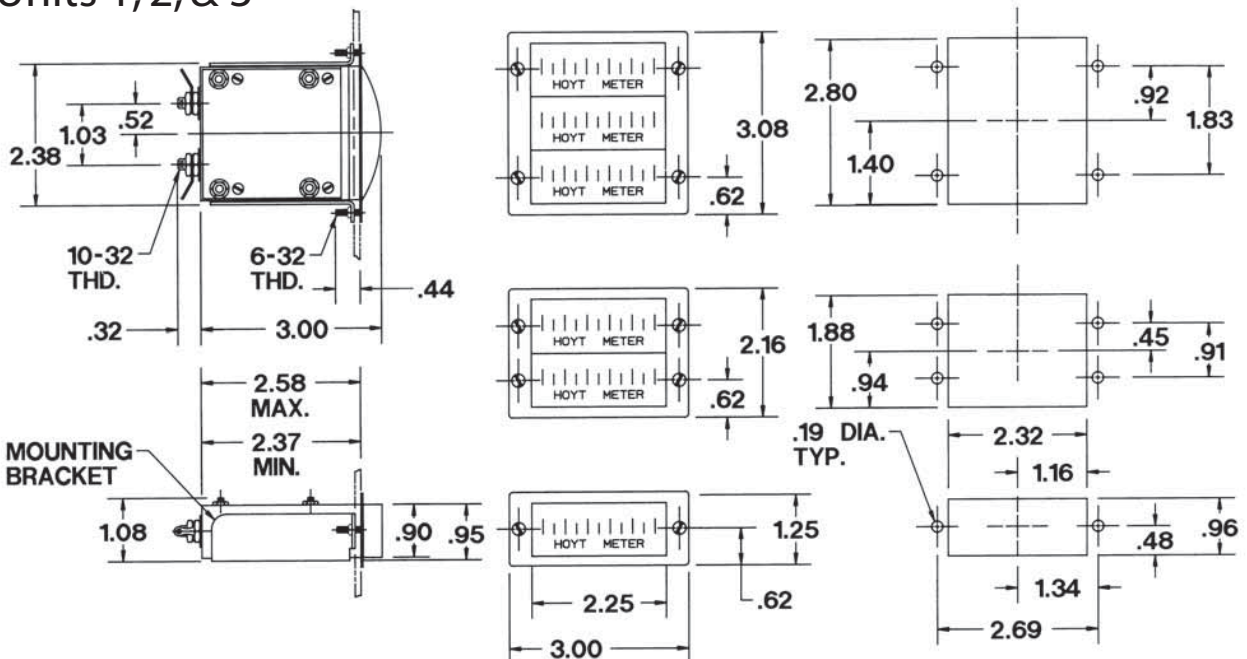
685-3

Please specify when ordering as 685-1, 685-2, 685-3.

DIMENSIONS

MODEL 685

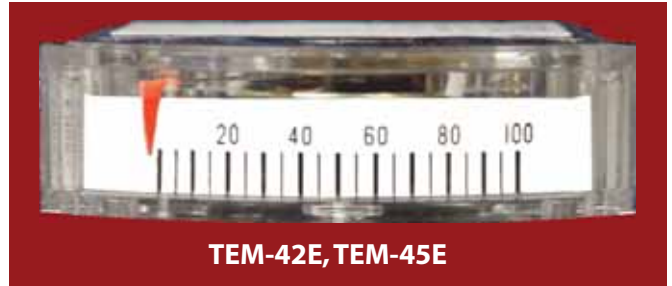
Bezel Units 1, 2, & 3



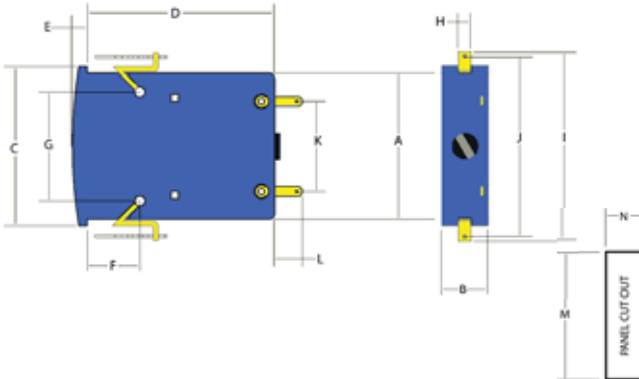
2-1/2" Edgewise Meters

These compact edgewise panel meters require a minimum of panel space and have an attractive appearance. Available in DC only, this unique D'Arsonval mechanism provides 2% accuracy with either vertical or horizontal mounting.

Special resistance, accuracy, pointers and ranges available.

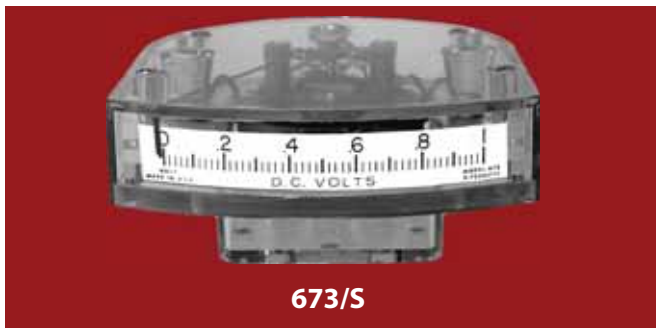


TEM-42E, TEM-45E



DIMENSIONS: TEM-42E, TEM-45E

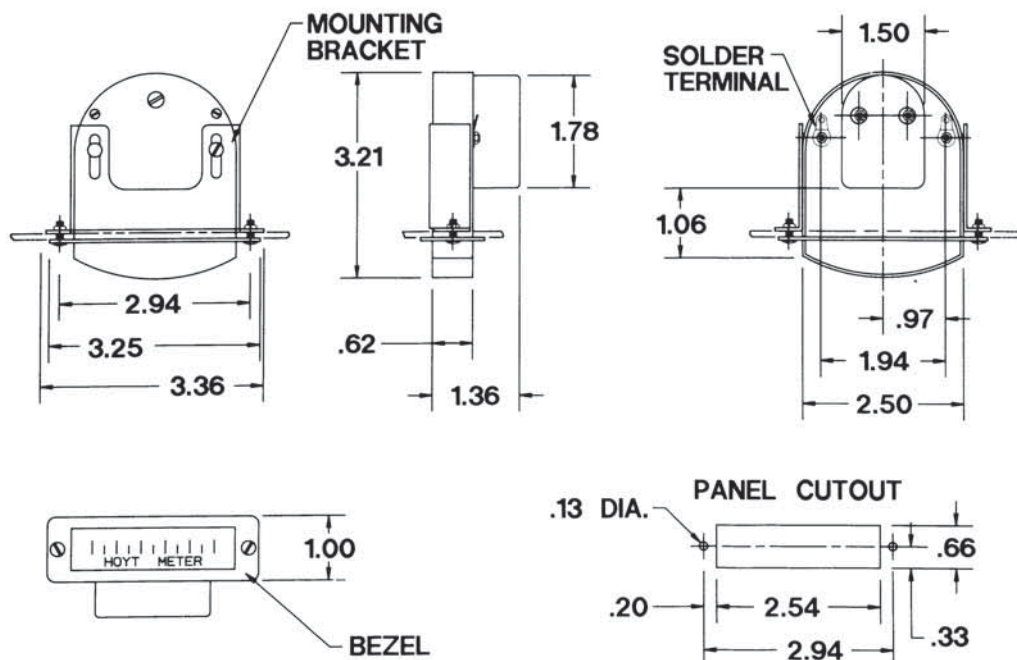
MODELS	A	B	C	D	E	F	G	H	I	J	K	L	M	N
TEM-42E	1.68	0.51	1.81	1.91	0.35	0.35	1.42	0.28	2.28	2.05	1.10	.039 max	+0.005 -0.001 1.72	+0.005 -0.001 .55
TEM-45E	1.77	0.50	1.93	2.20	0.24	0.51	1.46	0.24	2.36	2.13	1.10	.039 max	+0.005 -0.001 1.81	+0.005 -0.001 .54



673/S

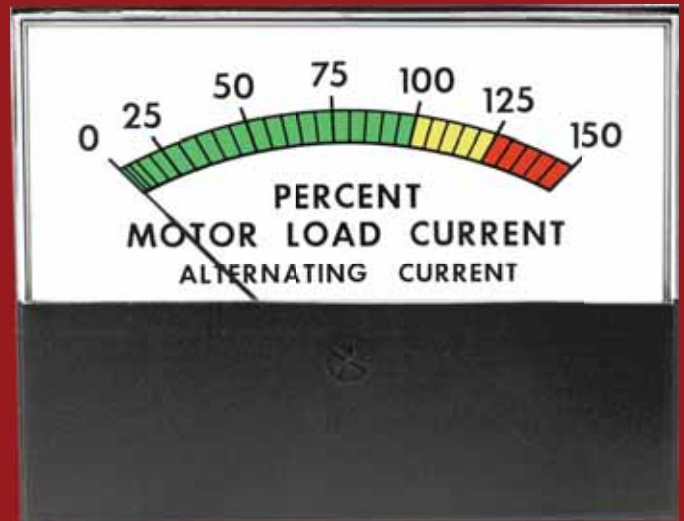
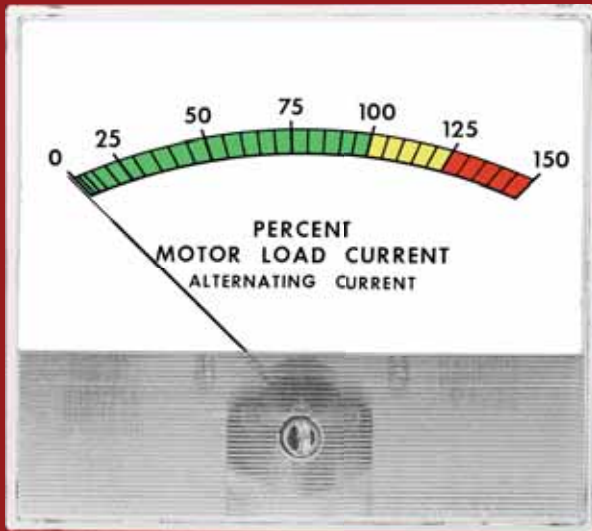
Hoyt edgewise meters have high visibility scales and straightforward design that make them especially suited to small, limited space, rack mounted power supplies and allied equipment. Supplied bezel and mounting hardware enable quick, trouble-free installation.

Model 673/S has a small projection required to enclose the D'Arsonval movement. It is also available in DC ranges and in AC rectifier and VU models.



DIMENSIONS:
MODEL 673/S

Percent Motor Load Meters



% Motor Load Meters

Hoyt Percent Motor Load Meters provide a visual analog display of AC motor load while in operation. Meter scale illustrates percent load from 0-150%. Color bands indicate the segment as follows:

- Green: 0-100%**
 - Yellow: 100-125%**
 - Red: 125-150%**
- Accuracy $\pm 2\%$ Full Scale**

AC load meters can be utilized with all AC motors of any horsepower, voltage, frequency or phase. Application of these meters can prevent overloading and motor burn-out, optimize operating load conditions or indicate the need for maintenance or replacement. Highly damped movements are used, which delay full scale pointer excursion, to avoid meter overload due to in-rush (starting) current.

*** UL RECOGNIZED METERS AVAILABLE**

please consult factory on availability.

Size and Model

2-1/2"	3-1/2"	4-1/2"
1026	1038	1046
2026	2036	2046
3126	3136	3146
4026	4036	4046
5026	5036	-
552	584	-
636	598	648
-	2136	2146

(ALL 5 AMP AC & CT RATED)

REFER TO MODEL SERIES FOR DIMENSIONAL CHARACTERISTICS AND DEFINITION OF CASE STYLE.

**When ordering, please specify maximum motor amps.*

Hoyt Electrical Instrument Works, Inc. Penacook, NH
(800) 258-3652 Fax (603) 753-9592 WWW.HOYTMETER.COM

AC Frequency Meters



Size and Model

The Hoyt AC Frequency meters available in 2-1/2", 3-1/2", & 4-1/2" models utilize the high torque bar-ring pivot and jewel mechanism with a solid-state frequency network that yields $\pm 2\%$ accuracy of the span. The unit was designed to be less susceptible to errors caused by waveform distortion. All frequency meters are self contained with zero and span adjustments accessible for final adjustments.

AC frequency meters are designed to match Hoyt ammeters and voltmeters. Seven different case styles are available in: Acrylic, Phenolic, Polystyrene or high impact Polycarbonate.

Case styles are available for surface, bezel, or window mounting.

NOTE: Special ranges and voltages available upon request.

2-1/2"	3-1/2"	4-1/2"
1026	1038	1046
2026	2036	2046
3126	3136	3146
4026	4036	4046
5026	5036	-
552	584	-
-	6352	-

RANGES
45-55 Hz
45-65 Hz
55-65 Hz
360-440 Hz SPECIAL
120 OR 240 VAC

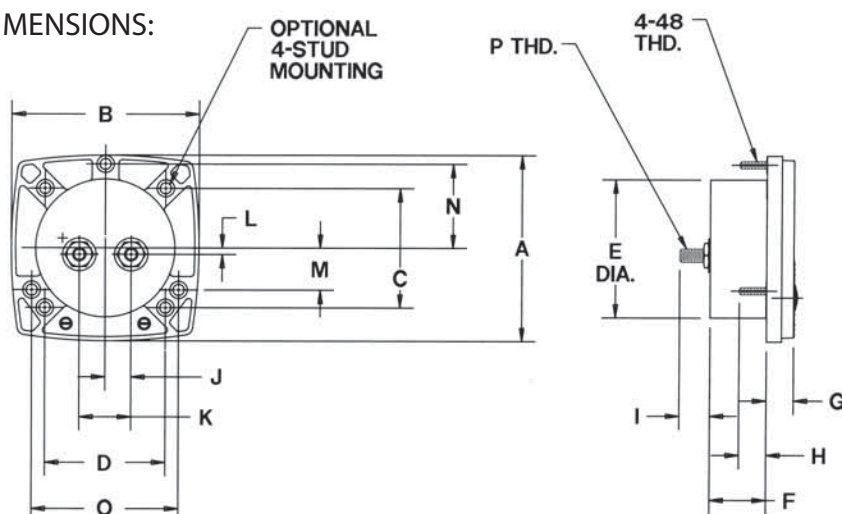
***UL RECOGNIZED METERS AVAILABLE**

3100 & 5000 Series Elapsed Time Indicators



502 HRM (Mechanical) 503 HRM (Mechanical)
502 HRD (LCD Digital) 503 HRD (LCD Digital)

DIMENSIONS:



MODELS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
502HRM	2.71	2.71	1.88	1.88	2.08	2.16	0.47	0.50	0.50	0.48	0.97	0.00	0.61	1.22	2.11	1/4-28
503HRM	3.50	3.50	2.25	2.25	2.60	2.16	0.50	0.50	0.50	0.48	0.97	0.13	0.79	1.58	2.74	1/4-28
502HRD	2.71	2.71	1.88	1.88	2.08	1.16	0.47	0.50	0.50	0.48	0.97	0.00	0.61	1.22	2.11	1/4-28
503HRD	3.50	3.50	2.25	2.25	2.60	1.16	0.50	0.50	0.50	0.48	0.97	0.13	0.79	1.58	2.74	1/4-28

The solid state electronic drive circuitry in the 502 & 503 HRM/HRD series effects longer life with no motor and less moving parts. Electronic actuation assures accuracy by eliminating delicate springs and mechanical clock mechanisms that can be affected by vibration and temperature.

Accuracy: Matches frequency control of power system. $\pm 1\%$ Quartz accuracy **Vibration Shock:** Meets ANSI specification C39.1

Case Construction: Lexan case construction, brass terminal studs **Ranges Available:** All meters available to operate 120, 240 VAC, 50 or 60 Hertz

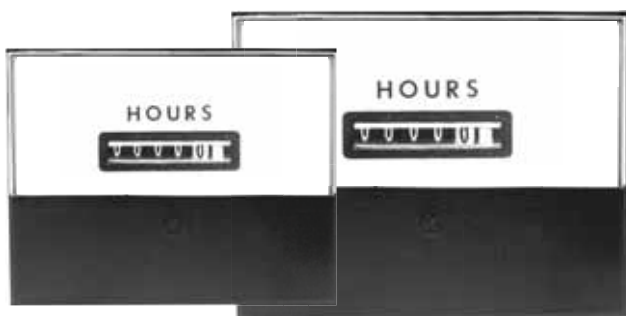
Weather Resistant: All 5000 Series meters are weather resistant. Gasket between base and cover protect counter

Display: Easy to read 10,000 or 100,000 hour numeric display

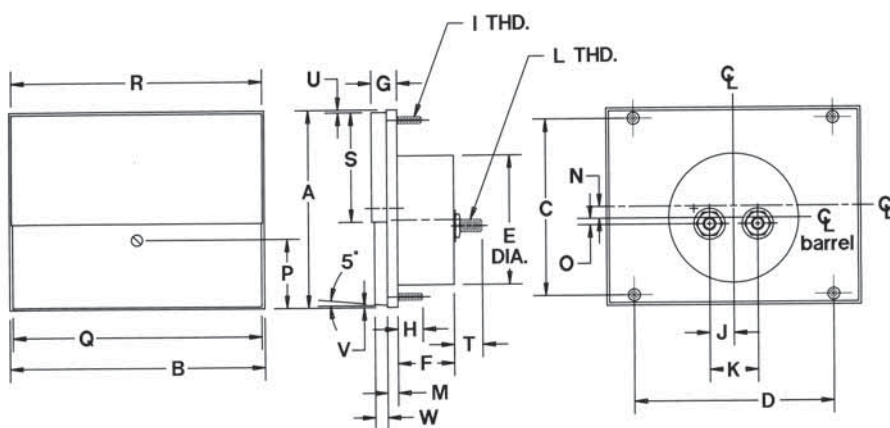
Power Rating: 0.6 watts **Operating Temperature:** From -25° to 185° F (-32° to 80° C)



Recognized meters



312 HRM (Mechanical) 313 HRM (Mechanical)
312 HRD (LCD Digital) 313 HRD (LCD Digital)



MODELS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
312HRM	2.29	2.99	1.88	1.88	2.08	2.16	0.40	0.50	4-48	0.48	0.97	10-32	0.16	0.00	0.00	0.86	2.89	2.91	1.23	0.50	0.06	0.04	0.19
313HRM	2.89	3.70	2.25	2.25	2.60	2.16	0.42	0.50	4-48	0.48	0.97	10-32	0.18	0.00	0.12	0.96	3.59	3.62	1.55	0.50	0.06	0.04	0.19
312HRD	2.29	2.99	1.88	1.88	2.08	1.16	0.40	0.50	4-48	0.48	0.97	10-32	0.16	0.00	0.00	0.86	2.89	2.91	1.23	0.50	0.06	0.04	0.19
313HRD	2.89	3.70	2.25	2.25	2.60	1.16	0.42	0.50	4-48	0.48	0.97	10-32	0.18	0.00	0.12	0.96	3.59	3.62	1.55	0.50	0.06	0.04	0.19



800 Series



811T



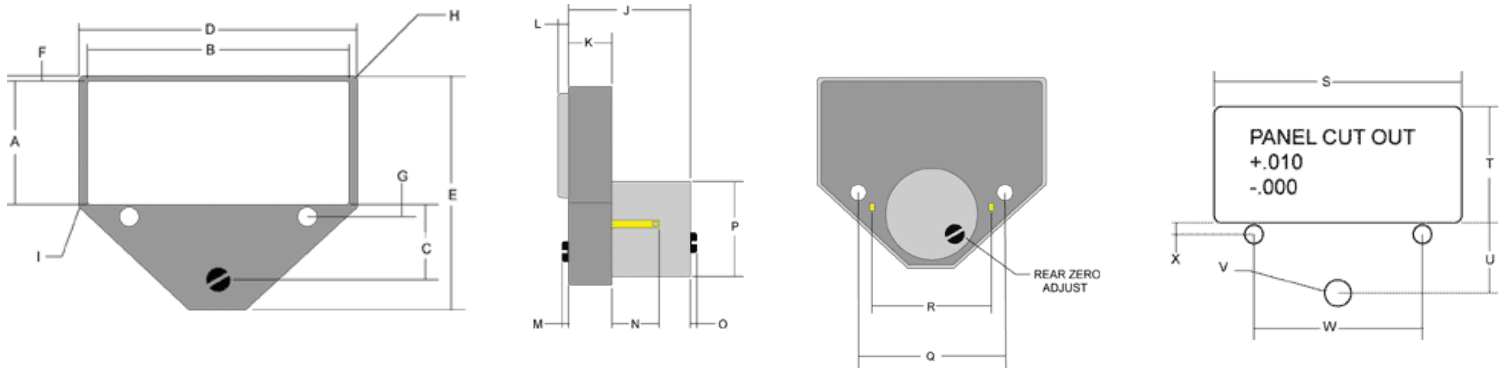
822



833/844

These window mount meters are a low cost alternative to a space saving and high visibility meter requirement. These "v" shaped meters provided more front panel space and space savings behind the panel. Standard features include pivot and jewel movement, DC and AC rectified meters, self shielded and high impact plastic front and back. Some custom options available are special dials and calibration; zero left, zero right, zero center, offset zero; special ranges and resistance; and optional mounting studs.

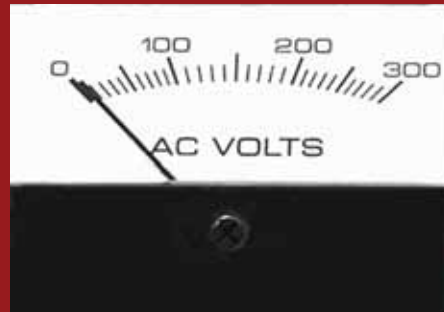
DIMENSIONS:



MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
811T	.850	1.81	.52	1.98	1.64	.110	---	---	---	1.26	.42	.115	.075	---	---	1.0	1.25	---	1.825	.860	.515	.210 DIA	---	---
822	1.10	2.35	.585	2.50	2.07	.075	.125	R.07	R.03	1.27	.46	.115	.075	.51	.06	1.0	1.60	1.30	2.36	1.11	.580	.220 DIA	1.60	.120
833	1.575	3.585	.815	3.73	2.83	.075	.250	R.04	R.03	1.28	.46	.115	.075	.51	.06	1.0	2.00	1.30	3.595	1.59	.810	.220 DIA	2.00	.245
844	1.900	4.280	.720	4.46	2.96	.095	.17	R.04	R.04	1.27	.47	.110	.075	.50	.06	1.0	2.98	1.30	4.300	1.92	.715	.220 DIA	2.98	.165



CK-910 1-1/2"



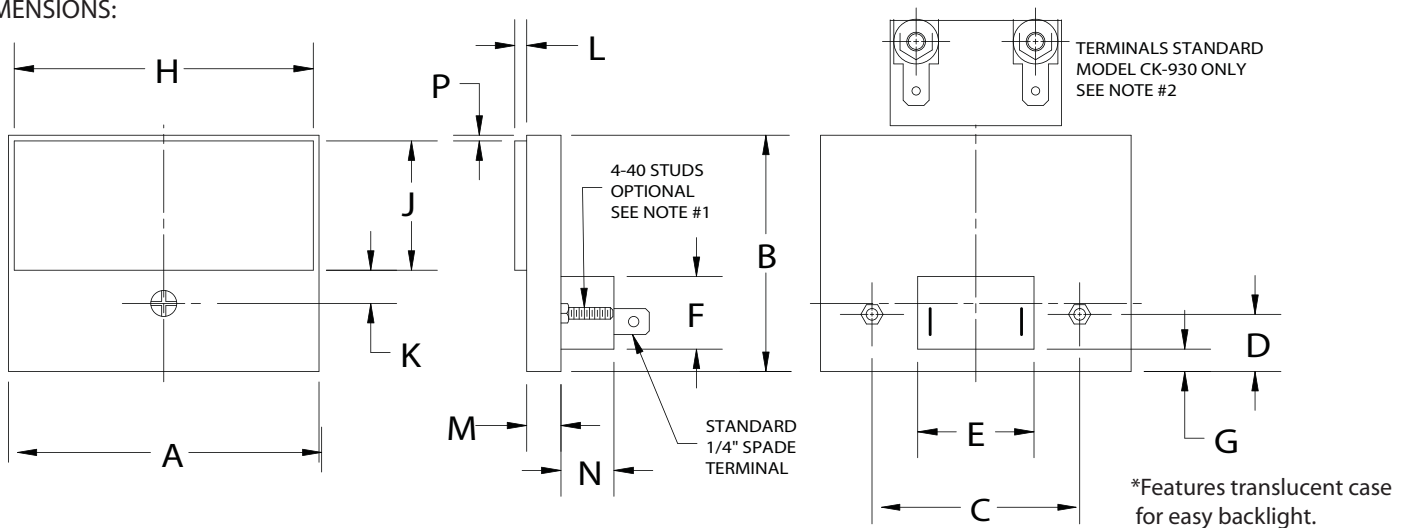
CK-920 2-1/2"



CK-930 3-1/2"

Very popular for marine & VU applications, the CK-910, CK-920 & CK-930 Series Panel Meters are low cost and have 2-5% accuracy. This series is designed for "drop-in" replacements to many competitors models. Available in most AC/DC ranges and easily installed with window or surface mounting. The CK-900 Series also features high impact translucent cases, operating zero adjusters and illumination options to enhance the backlighting of the instrument. Connections are made through the 1/4" quick disconnect terminals which may also serve as solder tabs.

DIMENSIONS:

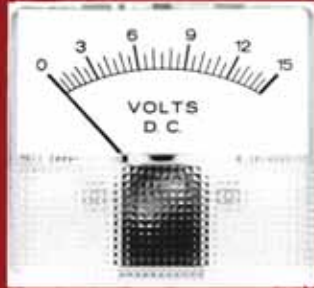


MODELS	A	B	C	D	E	F	G	H	J	K	L	M	N	P
CK-930	3.72	2.89	2.62	.930	1.65	1.02	.100	3.56	1.55	.800	.120	.370	1.09	.065
CK-920	2.99	2.27	2.00	.550	1.12	.700	.205	2.87	1.25	.320	.115	.330	.510	.055
CK-910	2.26	1.77	1.50	.500	1.12	.700	.135	2.14	.920	.220	.115	.330	.510	.055

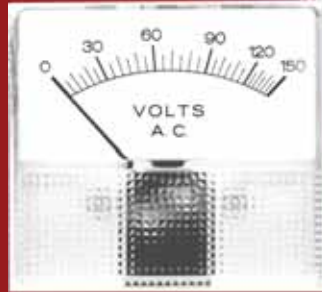
- Notes:
1. 4-40 Mounting studs are optional. If mounting studs are required part number must have a -S. Example; CK-920-S when studs are required.
 2. Model CK-930 has 10 -32 terminals with spade as standard, if just spades are required order as CK-930-T.

Hoyt 5% Moving Magnet Meters

These meters are especially suited for applications requiring high durability at low cost. They feature rugged steel backs, U-clamp for mounting, fade proof lithographed metal dials, and static-free polystyrene or glass fronts. This series comes in a wide variety of case styles and colors and in special ranges to meet customer specifications. Current ranges up to 50 amps self-contained are available for intermittent use. Voltage ranges start as low as 50 millivolts. Ranges up to 300 volts DC are available.



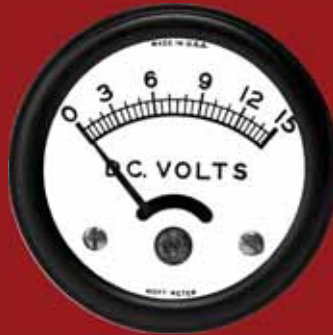
**825-DC
Moving Magnet**



**826-AC
Rectifier**



799



640 Flush Mount



693



793M



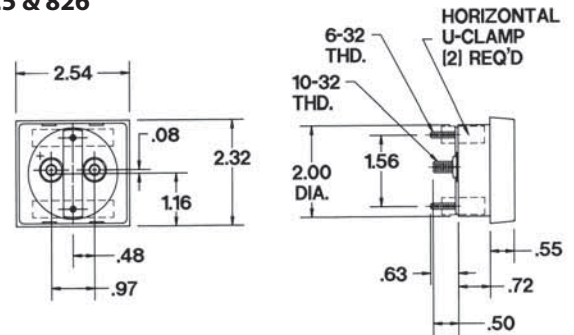
795



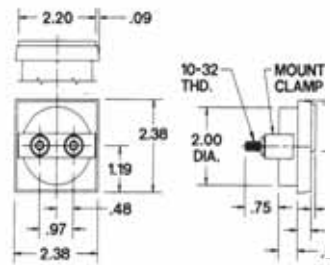
Bezel Mount

DIMENSIONS:

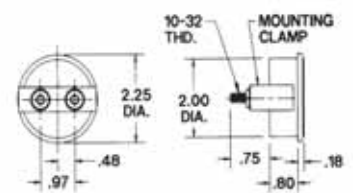
825 & 826



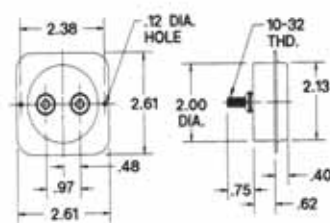
799



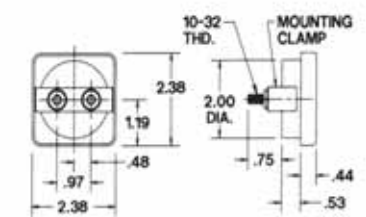
640 FLUSH MOUNT



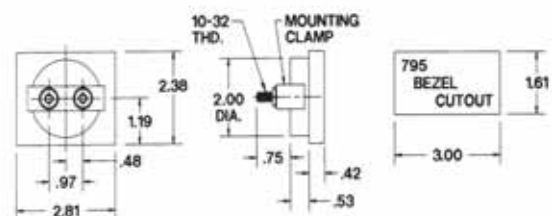
693



793M



795 & 795B

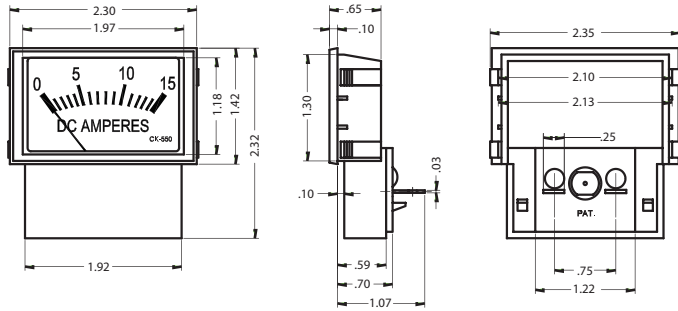


Ultra Low Cost Imports

Designed for economy, these rugged and dependable low cost meters come in a variety of AC and DC ranges and feature easy installation and an accuracy of $\pm 5\%$ of full scale.



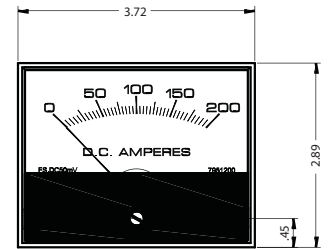
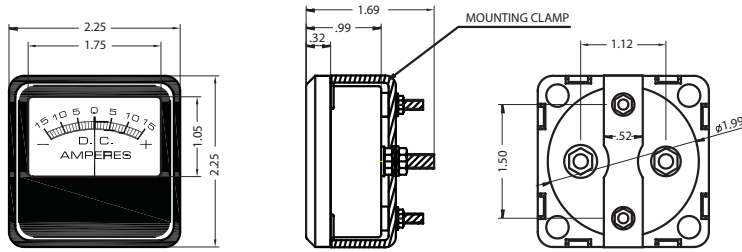
CK-550



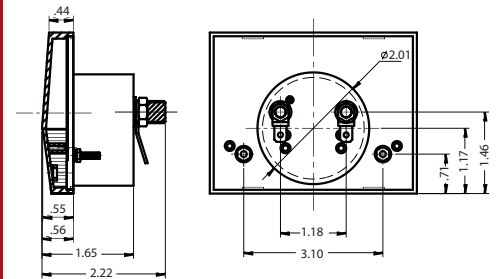
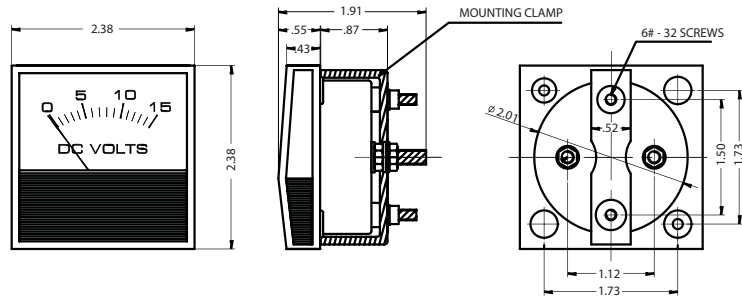
CK-795 & CK-796



CK-580



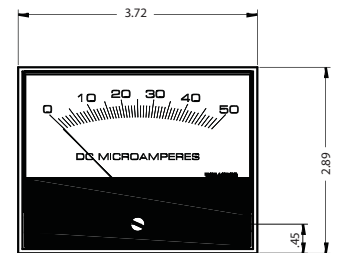
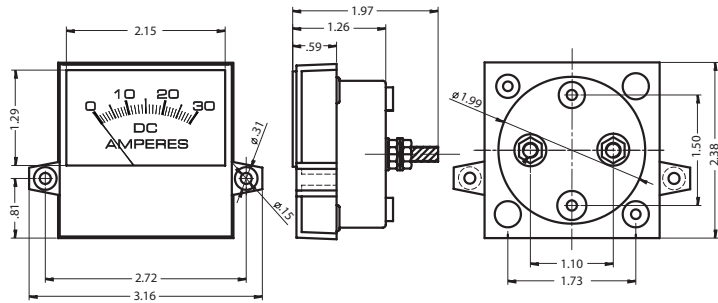
CK-610



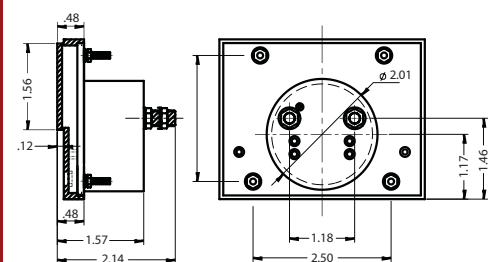
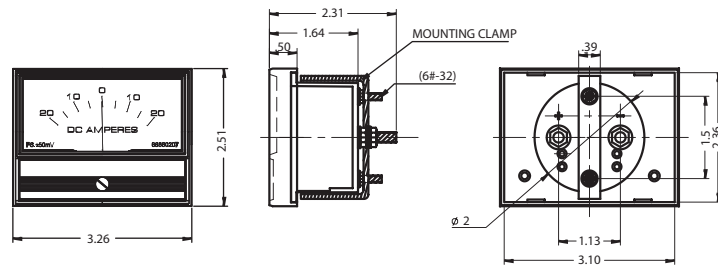
CK-795



CK-616



CK-688



CK-796



VU (Volume Unit) Information

GENERAL

The VU meter has become the universal standard level indicator for practically all audio frequency transmission systems. VU meters are for the measurement of sound or noise levels - including broadcast monitoring, use with public address of communication systems, and in all instances where volume level measurements are to be made. It is also being used for the measurement of noise level and other audio frequency energy where established dynamic characteristics of the instrument give a common result for measurements taken in different laboratories.

VU INSTRUMENT DETAILS

The VU meter is designed to read zero VU or 100% with 1.228 volts applied to the instrument and the 3600 ohm series resistance; this represents 4 DB above 1 milliwatt in 600 ohms. The combination of a special copper oxide rectifier and an extremely sensitive movement with special magnetic system gives very high sensitivity.

STANDARDIZED INSTRUMENT SCALE

The VU instrument has become so universally accepted that numerous requests have been received to add other scale ranges to the VU Scale for special purposes.

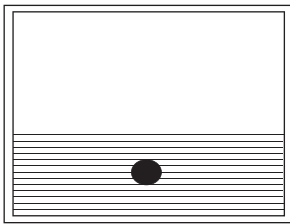
TYPE A SCALE

The "A" Scale reads "-20 to +3" in type on the top of the arc, with "0-100" on the bottom of the arc in type.

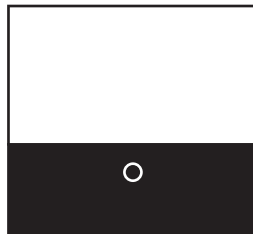
TYPE B SCALE

The "B" Scale reads "0-100" in type on the top of the arc, with "-20 to +3" in type on the bottom of the arc.

Available in these series:



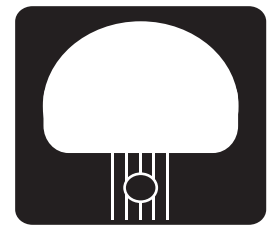
2000 Series



3100 Series



Industrial Panel Meters



Buff



White

BOTH SHOWN ARE TYPE "A"



HOYT ELECTRICAL INSTRUMENT WORKS, the leading manufacturer of analog panel meters for over 100 years, produces a complete line of the highest quality electrical indicating panel meters available today. The Penacook, N.H. plant was designed specifically for the processing and production of Analog Panel Meters. Our production facilities include dial printing, CAD, tool and die shop, metal stamping, production painting, meter coil winding and assembly.

QUALITY CONTROL is the responsibility of each and every production worker and the results reflect the lowest warranty return available.

We specialize in custom instruments. Many of our customers purchase Hoyt Panel Meters because their needs are:

- **CUSTOM DIALS**
- **CUSTOM CASES**
- **CUSTOM RANGES**
- **CUSTOM ELECTRICAL SPECIFICATIONS**
- **CUSTOM ACCURACY**
- **CUSTOM RESISTANCE AND DAMPING**

When custom panel meters are required with maximum emphasis on **QUALITY** contact a factory representative who will assist you to properly select the meter for your application.

GLOSSARY OF TERMS

ACCURACY: Expressed in percent of end scale rating and indicates the maximum deviation to be obtained from the actual input value. The percent is always of end scale value and, if the zero is at a point other than one end of the scale, the sum of the end-scale readings will be the considered the end scale value.

ANSI C39.1 STANDARD: American National Standards Institute Inc. Standard C39.1 applies to analog instruments, defining nomenclature, test conditions, and procedures, general construction requirements, mounting dimensions, and performance requirements.

DAMPING: Term applied to the characteristics of the pointer movement once electrical energy is applied and specifically to the ability of the pointer to indicate properly, quickly with a minimum amount of overshoot or oscillation before coming to rest.

REPEATABILITY: Usually expressed as a percent of full scale, repeatability is the ability of an instrument to read over and over again the same input.

SELF-SHIELDING: Inherent in the construction, unaffected by stray magnetic fields.

TRACKING: The ability of an instrument to indicate at the division line being checked, when energized by corresponding proportional value of actual end-scale excitation, expressed as a percentage of actual end-scale value.

For zero center meters, tracking from each end-scale point to the zero point should be checked independently and expressed as a percentage of the end-scale value. For offset zero meters, the larger end-scale value should be used.

VU METERS - VOLUME LEVEL INDICATORS: Hoyt VU meters are for measurement of sound or noise levels including all instances where volume level measurements are to be made. This instrument is essentially a low range rectifier type voltmeter using the D'Arsonval type movement. Hoyt VU meters can be ordered with a type "A" or "B" scale, in a variety of case styles, ranging from 1-1/2" 2-1/2", 3-1/2" & 4-1/2" in 2000 and 3100 series meters. Special options available at extra cost include LED for peak measurements and illumination provisions.

TERMS AND CONDITIONS

TERMS - NET 30 DAYS ON APPROVED CREDIT

INVOICE MINIMUM - \$100.00

SHIPMENTS - F.O.B. PENACOOK, N.H.



HOYT WARRANTY AND REPAIR

Hoyt Electrical Instrument Works, Inc. warrants its products to be free of defective materials and workmanship for a period of (1) year after shipment to the original purchaser. This warranty shall be limited to defective materials and workmanship, it will not cover those products which have been damaged due to improper handling, storage, installation or operation by the purchaser or any third party. At Hoyt's discretion, defective products may be repaired or replaced and the products returned to proper working condition. All warranty claims must be made in writing prior to returning products to Hoyt. All products must be returned prepaid to Hoyt Electrical Instrument Works, Inc., (**with RMA #**) 23 Meter Street, Penacook, NH 03303. (Return authorization request form may be downloaded from www.HOYTMETER.com)

Return shipments must be made in the original packaging or packaging of equal quality that will provide appropriate protection during shipping. Hoyt will not be responsible for the warranty repair of products returned via inadequate containers and packaging, nor for missing components.

Hoyt shall not be liable for any special, punitive, incidental or consequential damages made by the buyer or any third party. This statement of warranty is in lieu of all other warranties, guarantees, liabilities and obligations, statutory or implied to the original purchaser or to any other party.

Other Quality Products From

HOYT



**High Current Transformers & Shunts, pgs. 6, 7
Bezels are with corresponding meters
Meter movements, pg. 10 & 13**

For Hundreds of years, New England craftsmen have lived by the rule that anything worth doing is worth doing well. At HOYT, that rule is honored today as it was in previous generations who founded and fostered a company exclusively to making a better line of analog panel meters. From the HOYT family members who have manufactured meters since 1890 and have owned and actively operated the business since 1904, to the skilled production workers in the plant, HOYT people apply their special skills to the design and manufacture of panel meters that meet and exceed industry standards.

Personal pride, yankee ingenuity, and uncommon commitment to tradition and reputation are reflected in every meter that leaves the modern, 30,000 square foot facility in Penacook, New Hampshire.

The HOYT custom product line includes rectifier type AC meters, 50-2000 cycle calibrated AC meters and suppressed zero DC meters. All of HOYT meters used rugged pivot and jewel movements, tested and proven for many years in industrial environments. HOYT also offers a wide selection of case styles, colors and materials. Special dial colors and layouts for non-standard range dials also available.

Price and specifications, including colors and materials, are subject to change without notice. Products may be withdrawn at any time at the option of the manufacturer. Catalog dimensions are for reference only. Contact the factory for certified dimension.

HOYT
Meters
Made in USA

HOYT ELECTRICAL INSTRUMENT WORKS, INC.

23 METER ST., PO BOX 8798

PENACOOK, NH 03303

(603) 753-6321 FAX (603) 753-9592

TOLL FREE (800) 258-3652

email: info@hoytmeter.com



WWW.HOYTMETER.COM

