



# Century Style Analog Panel Meters



- Glass window for optimum viewing
- Rugged black plastic case
- Black knife-edge pointer for precision reading

## Frequency Meter Specifications

<b>Accuracy</b>	45-55Hz $\pm 0.3$ Hz (120V-240V) 55-65Hz $\pm 0.3$ Hz (120V-240V) 380-420Hz $\pm 1.2$ Hz (120V-240V)
<b>Movement</b>	Small core magnet, self-shielding
<b>Suspension</b>	Pivot and jewel
<b>Tracking</b>	$\pm 3\%$
<b>Shielding</b>	Calibration is unaffected by magnetic panel mounting.
<b>Center Scale Value</b>	50/60/400Hz
<b>Power Consumption</b>	1.6VA
<b>Max. Input Voltage (10 sec)</b>	150, 120V normal 280, 240V normal
<b>Dial</b>	Each dial arc is calibrated to track the specific type of movement used.
<b>Operating Temperature</b>	-4°F to +149°F (-20°C to +65°C)
<b>Case</b>	High density black plastic
<b>Pointer</b>	Knife-edge, with black matte finish
<b>Scale Length</b>	Model 2182: 1.88" (47.2mm) Model 2183: 2.48" (63.0mm) Model 2184: 3.68" (93.5mm)
<b>Net Weight</b>	Model 2182: 5oz (0.14kg) Model 2183: 6oz (0.17kg) Model 2184: 9oz (0.26kg)
<b>Warm-up Time</b>	5 minutes

## Watt Meter Specifications

<b>Accuracy</b>	$\pm 2\%$ F.S.; Compensated Meters: $\pm 3\%$ F.S.
<b>Movement</b>	Dynamometer
<b>Suspension</b>	Pivot and jewel
<b>Tracking</b>	$\pm 3\%$
<b>Shielding</b>	Calibration is unaffected by magnetic panel mounting.
<b>Response Time</b>	1.5 seconds maximum
<b>Overload (1 sec.)</b>	10 times F.S.
<b>Overload (Continuous)</b>	1.5 times F.S.
<b>Repeatability</b>	2%
<b>Dial</b>	Each dial arc is calibrated to track the specific type of movement used. $\pm 15\%$ of meter impedance
<b>Resistance</b>	-4°F to +149°F (-20°C to +65°C)
<b>Operating Temperature</b>	High density black plastic
<b>Case</b>	Knife-edge, with black matte finish
<b>Pointer</b>	Model 2173: 2.48" (63.0mm)
<b>Scale Length</b>	Model 2174: 3.68" (93.5mm) Model 2173: 9oz (0.26kg) Model 2174: 13oz (0.37kg)
<b>Net Weight</b>	

## Specifications for other meters

<b>Accuracy</b>	$\pm 2\%$ F.S. Iron Vane, $\pm 3\%$ F.S. Rectified
<b>Movement</b>	Models 2152, 2153, 2154: Iron-vane, magnetically damped. 2121 and 2121T: small core magnet, all others Annular, self-shielding
<b>Suspension</b>	Pivot and jewel except for "T" models which have taut band movement
<b>Tracking</b>	$\pm 3\%$
<b>Shielding</b>	Calibration is unaffected by magnetic panel mounting.
<b>Response Time</b>	1.5 seconds maximum
<b>Overload (1 sec.)</b>	10 times F.S.
<b>Overload (Continuous)</b>	1.5 times F.S.
<b>Repeatability</b>	2% pivot and jewel, 0.5% taut band
<b>Dial</b>	Each dial arc is calibrated to track the specific type of movement used. $\pm 15\%$ of meter impedance
<b>Resistance:</b>	-4°F to +149°F (-20°C to +65°C)
<b>Operating Temperature</b>	High density black plastic
<b>Case</b>	Knife-edge, with black matte finish
<b>Pointer</b>	Model 2121 & 2121T: 1.25" (31.7mm)
<b>Scale Length</b>	Model 2152: 1.86" (47.2mm) Model 2122, 2122T, 2142: 2.07" (52.7mm) Model 2153: 2.48" (63.0mm) Model 2123, 2123T, 2143: 2.75" (69.8mm) Model 2154: 3.68" (93.5mm) Model 2124, 2124T, 2144: 4.09" (103.9mm)
<b>Net Weight</b>	Model 2121 & 2121T: 2oz (0.06kg) Model 2152: 5oz (0.14kg) Model 2153: 6oz (0.17kg) Model 2122, 2122T, 2142: 7oz (0.20kg) Model 2123, 2123T, 2143: 8oz (0.23kg) Model 2154: 9oz (0.26kg) Model 2124, 2124T, 2144: 11oz (0.31kg)

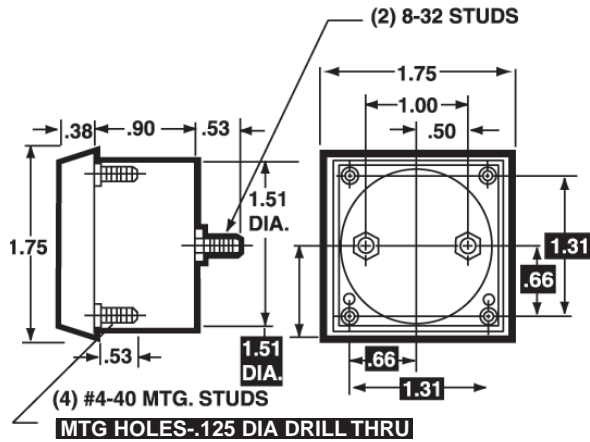
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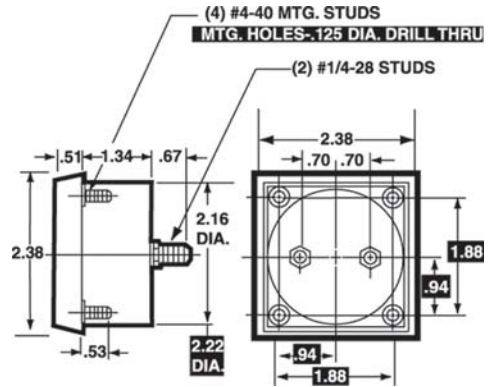
## Dimensions

1 = Panel Meter Cut-out Dimensions

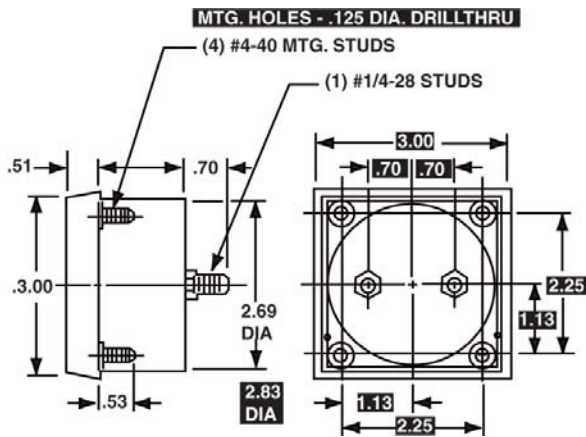
1-1/2"-Models 2121, 2121T, 2141,



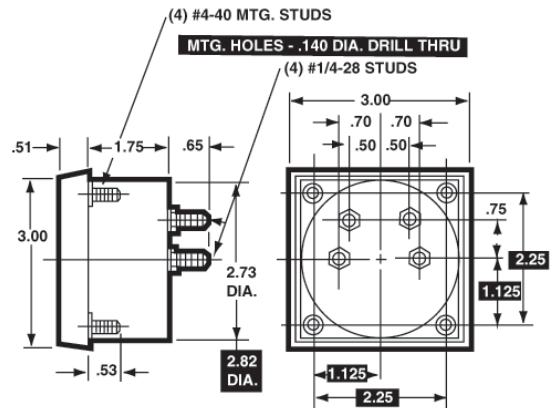
2-1/2"-Models 2122, 2122T, 2142, 2152, 2182



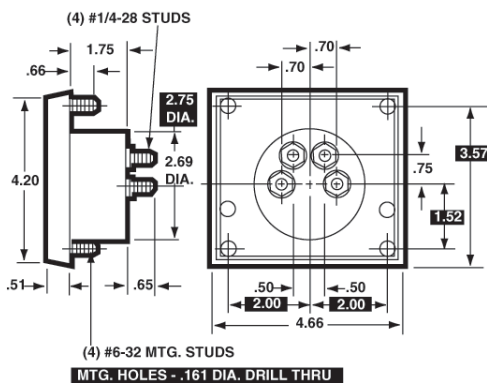
3-1/2"-Models 2123, 2123T, 2143, 2153, 2183



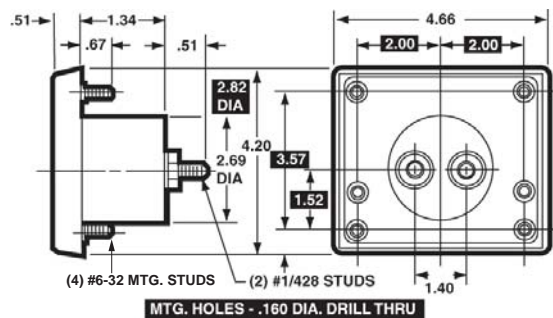
3-1/2"-Model 2173



4-1/2"-Model 2174



4-1/2"-Model 2124, 2124T, 2144, 2154, 2184





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## Ordering Information

### AC Milliammeters, Iron-Vane Movement

Range	Approx. Impedance (ohms) @ 60 Hz	Model/Size and Catalog Number		
		2-1/2" Model 2152	3-1/2" Model 2153	4-1/2" Model 2154
0-10	1,650	17680	<>	17760
0-50	80	17681	17716	17761
0-100	17.2	17682	17717	17762
0-250	3.15	17683	17718	17763
0-500	0.9	17684	17719	17764

### AC Ammeters, Iron-Vane Movement

Range	Approx. Impedance (ohms) @ 60 Hz	Model/Size and Catalog Number		
		2-1/2" Model 2152	3-1/2" Model 2153	4-1/2" Model 2154
0-1	.213	17665	17695	17740
0-1.5	.105	17666	<>	<>
0-2	.065	<>	17697	17742
0-3	.028	17667	17698	17743
0-5	.008	17668	17699	17744
0-10	.004	17669	17700	17745
0-10	.008	<>	35081†	35085†
0-15	.0025	17670	17701	17746
0-25	.002	17671	17702	17747
0-25	.008	<>	35082†	35086†
0-30	.0015	17672	17703	17748
0-50	.001	17673	17704	17749
0-50	.008	<>	35083†	35087†
0-75	.0002	<>	17710	17755
0-75	.008	<>	35084†	35088†
0-80	.008	<>	35036†	<>
0-100	.008	17674†	17706†	17751†
0-150	.008	<>	17707†	17752†
0-200	.008	<>	17708†	17753†
0-300	.008	<>	17709†	17754†

<> Available on special order.

† These meters are 5-amp meters, to be used with an external current transformer.

### AC Dual Range Ammeter/Voltmeter, Iron-Vane Movement

Range	Approx. Impedance (ohms) @ 60 Hz	Model/Size and Catalog Number		
		2-1/2" Model 2152	3-1/2" Model 2153	4-1/2" Model 2154
0-150V	15,030	-	17694	17739
0-5A	0.021			

### AC Voltmeters, Iron-Vane Movement

Range	Approx. Impedance (Ohms) @ 60 Hz	Model/Size and Catalog Number		
		2-1/2" Model 2152	3-1/2" Model 2153	4-1/2" Model 2154
0-5	33	<>	17725	<>
0-10	133	17685	17726	17771
0-15	300	17686	17727	17772
0-25	833	17687	17728	17773
0-50	3,333	17688	17729	17774
0-100	16,666	<>	17730	17775
0-150	25,000	17690	17731	17776
0-250	41,166	17691	17732	17777
0-300	50,000	17692	17733	17778
0-500†	83,333	<>	17734†	17779†

† External multipliers, Model 183 are furnished on AC meters having a range of 500 volts or higher. All others have self-contained multipliers.

<> Available on special order.

### AC Voltage Meters Rectifier Type, Self-Shielding Movement

Range	Approx. Impedance (Ohms) @ 60 Hz	Model/Size and Catalog Number		
		2-1/2" Model 2142	3-1/2" Model 2143	4-1/2" Model 2144
0-5	2000 ohms per volt	17460	17542	17640
0-10		<>	17543	17641
0-15		<>	17544	17642
0-50		<>	17545	17643
0-150		17462	17546	17644
0-300	<>	<>	17645	

<> Available on special order.

### DC Milliammeters, Self-Shielding Movement

Range	Approx. Impedance (Ohms) @ 60 Hz	Model/Size and Catalog Number			
		1-1/2" Model 2121	2-1/2" Model 2122	3-1/2" Model 2123	4-1/2" Model 2124
0-1	43.0	17825	17430	17510	17600
0-3	2.0	<>	17431	17511	17601
0-5	2.0 (20)†	17826	17432	17512	17602
0-10	10.0 (2.2)†	17827	17433	17513	17603
0-15	6.6 (2.2)†	17828	17434	<>	<>
0-20	5.0	<>	<>	17515	<>
0-25	4.0 (6.0)†	17829	17436	17516	17606
0-50	2.0 (3.0)†	17830	17437	17517	17607
0-100	1.0 (1.5)†	17832	17438	17518	17608
0-150	.66 (1.0)†	17833	17439	17519	17609
0-200	.50 (.75)†	17834	17440	17520	17610
0-250	.40 (.60)†	17835	17441	17521	17611
0-300	.33 (.50)†	17836	17442	17522	17612
0-500	.20 (.30)†	17837	17443	17523	17613
0-750	.13	<>	<>	17524	17614
0-1000	.05	<>	17444	<>	17615

<> Available on special order.

† Resistances of Model 2121 shown in ( )

### DC Microammeters, Self-shielding Movement

Range	Approx. Impedance (Ohms) @ 60 Hz	Model/Size and Catalog Number			
		1-1/2" Model 2121	2-1/2" Model 2122	3-1/2" Model 2123	4-1/2" Model 2124
0-50	1800 (5500)*	17815	17418	17499	17589
0-100	1800	17816	17420	17501	17591
0-200	1100	17818	17422	17503	17593
0-500	90 (190)*	17819	17424	17505	17595
25-0-25	1800 (5500)*	17820	<>	17506	17596
50-0-50	1800	17821	17425	17507	17597
100-0-100	1100	17822	17426	17508	17598
500-0-500	43	17823	35063	17509	17599

\* Resistances of Model 2121 shown in ( )

<> Available on special order.

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## Taut Band DC Microammeters, Self-shielding Movement

Range	Approx. Impedance (Ohms) @ 60 Hz	Model/Size and Catalog Number		
		2-1/2" Model 2122T	3-1/2" Model 2123T	4-1/2" Model 2124T
0-10	4900	17415	17496	17586
0-15	1960	17416	17497	17587
0-25	1960	17417	17498	17588
0-50	960	17419	17500	17590
0-100	500	17421	17502	17592
0-200	234	17423	<>	17594

<> Available on special order

## DC Ammeters, Self-shielding Movement

Range	Approx. Impedance (Ohms) @ 60 Hz	Model/Size and Catalog Number			
		1-1/2" Model 2121	2-1/2" Model 2122	3-1/2" Model 2123	4-1/2" Model 2124
0-1	.050	17800	17400	17475	17565
0-1.5	.003	<>	17401	17476	<>
0-2	.025	17801	17402	17477	17567
0-3	.0166	17802	17403	17478	17568
0-5	.010	17803	17404	17479	17569
0-10	.005	17805	17405	17480	17570
0-15	.0033	17806†	17406	17481	17571
0-25	.0020	17807†	17407	17482	17572
0-30	.0017	<>	17408	17483	17573
0-50	.001	17808†	17409	17484	17574
0-100	10.0	<>	17410†	17485†	17575†
0-150	10.0	<>	<>	17486†	17576†
0-200	10.0	<>	17412†	17487†	17577†
0-300	10.0	<>	-	17488†	17578†
0-500	10.0	<>	-	17489†	17579†
2-0-2	.025	<>	-	35064	-
5-0-5	.010	<>	-	35072	-
15-0-15	.0033	<>	-	17490	-
30-0-30	.0017	<>	-	17491	-

†1-1/2" DC current meters are self-contained through 10 amps; higher ranges are supplied as 50mV meters and require an external shunt from page C3. 2-1/2", 3-1/2" and 4-1/2" meters are self-contained through 50 amps. Higher ranges are 50 mv and require use of an external shunt from page C3.

## Wattmeters/Dynamometer Type, Not RA

Range	Maximum		Model/Size and Catalog Number	
	Volts	Amps	3-1/2" Model 2174	4-1/2" Model 2174
0-10	150	.175	17875*	17890*
0-20	150	.400	17876	17891*
0-30	150	0.650	17877*	17892*
0-30	300	0.300	17879*	17894*
0-50	300	0.500	17880*	17895*
0-75	150	1.0	17881	17896
0-150	150	2.0	17882	17897
0-300	150	4.0	17883	17898
0-600	300	4.0	17884	17899
0-750	150	10.0	17885	17900
0-1500	300	10.0	17886	17901
0-3000	300	20.0	17887	17902

\* Compensated wattmeters: calibrated for either magnetic or non-magnetic panels and for a frequency of 25-125Hz.

## Percent Motor Load Meters, Self-shielding Movement

Type	Rating	Model/Size and Catalog Number			
		3-1/2" Model #	Catalog #	4-1/2" Model #	Catalog #
DC (Note 1)	30 mV	2123	17564	2124	17637
AC (Note 2)	5 amps	2153	17711	2154	17756

- These DC meters require an external shunt from page C3, and an 8 to 10 Ω 2W wire-wound potentiometer (customer supplied).
- These AC meters require use of a current transformer from page C5.

## Frequency Meters, Self-shielding Movement

Range	Approx. Impedance (Ohms) @ 60 Hz	Model/Size and Catalog Number		
		2-1/2" Model 2182	3-1/2" Model 2183	4-1/2" Model 2184
45-55 Hz	120V	3511B	35124	35130
55-65 Hz	120V	35120	35126	35132
380-420 Hz	120V	35122	35128	35134
45-55 Hz	240V	35119	35125	35131
55-65 Hz	240V	35121	35127	35133
380-420 Hz	240V	35123	35129	35135

## DC Millivoltmeters, Self-shielding Movement

Range	Approx. Impedance (Ohms) @ 60 Hz	Model/Size and Catalog Number		
		2-1/2" Model 2122	3-1/2" Model 2123	4-1/2" Model 2124
0-50	10.0	17472	17540	17636
50-0-50	20.0	<>	17541	17635

<> Available on special order

## DC Voltage Meters, Self-shielding Movement

Range	Approx. Impedance (Ohms) @ 60 Hz	Model/Size and Catalog Number			
		1-1/2" Model 2121	2-1/2" Model 2122	3-1/2" Model 2123	4-1/2" Model 2124
0-5		17840	17445	17525	17618
0-8		<>	<>	<>	17619
0-10		17842	17446	17527	17620
0-15		17843	17447	17528	17621
0-25		17844	17448	17529	17622
0-30		17845	17449	17530	17623
0-50	1000 ohms per volt	17846	17450	17531	17624
0-100		17848	17451	17532	17625
0-150		17849	17452	17533	17626
0-200		<>	<>	17534	17627
0-250		<>	<>	17535	<>
0-300		-	17455	17536	17629
0-300	2000 ohms per volt	17580	<>	<>	<>
0-500		17851*	17456	17537	17630
0-750		<>	<>	17538	17631
0-1000		<>	17458*	17539*	17632*

\*External multipliers (Model 183) are furnished on 1-1/2" DC meters 500 volts or higher; on 2-1/2" DC meters 750 volts or higher; and on 3-1/2" and 4-1/2" DC meters 1000 volts or higher. All others have self-contained multipliers.

<> Available on special order.