

ENGLISH

RS Pro - Analogue Panel meters – Data Sheet

The analogue panel meters offer accurate measurement and indication of most electrical and electronic parameters in industry standard 1 1/2", 2 1/2", case sizes. This innovative design features a detachable lower fascia plate which allows the flexibility of either surface or window mounting. The fascia is simply unclipped to achieve the completely flush panel appearance of panel window mounting.

The range offers AC and DC ammeters, voltmeters and frequency meters utilizing a high torque pivot and jewel movement. AC moving coil rectified meters provide 1.5% accuracy of the full-scale value and features a rear zero adjuster screw for tamper proof installation. AC moving iron meters also provide 1.5% high accuracy and true RMS measurement.

Applications:


Marine
Switchgear
Distribution systems
Control panels
Embedded generation, Energy management, Building management
Utility power monitoring
Process control
Motor monitoring

Applicable Standards:

Nominal case and cutout dimensions for indicating electrical instruments,
Scale and pointer for electrical measuring instruments,
Connections and Terminal markings for panel meters,
Terminal bolts,
Safety requirements and protective measures for Electrical indicating instruments and their accessories,

Performance specifications for direct acting indicating analogue electrical measuring instruments & their accessories,
Environmental conditions,
UL Combustibility class,

Technical conditions of delivery for electrical instruments,
Mechanical strength (Free fall test, vibration test),

Comply with following European directives: 2014/30/EC (EMC directive), 2014/35/EC (low voltage directive) & amendment 93/68/EEC, for  Marking.

Features:

Measuring and indication of AC amps, volts, frequency and DC signals.
Surface or window mounting.
Rear zero adjuster on moving coil meters.
High torque pivot and jewel movement.
True RMS measurement meters.
AC and DC inputs.
Up to 40A DC direct connected.
Up to 50A AC direct connected

IS 2419
IS 1248, DIN 43802
IS 1248, DIN 43807
As mentioned with DIN 46200/46282
IS9249, ISO 20653:2006-08
EN 60664-1, VDE 0110-1:2008-01
IEC 529, IEC 1010

IS 1248, IEC 51
IS 1248, IS: 9000, Part 5, 7, 8, VDE/VDI 3540
UL 94 V-O

As mentioned with DIN43701
IS 1248/IEC 51 IS 9000, EN 61010-1
IEC 1010



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Specifications:

Accuracy	
DC Ammeters and Voltmeters	1.5%, 0 to 100% of full-scale deflection
AC Ammeters and Voltmeters	Moving Iron: 1.5% 10 to 100% of full-scale deflection
Frequency Meters	0.5% of end scale value
Input Ratings	
DC Moving Coil Ammeters	50mA to 50A
DC Moving Coil Voltmeters	50 mV to 600V
AC Moving Coil Ammeters (VQ)	1mA to 10A
AC Moving Coil Voltmeters (VQ)	6V to 600V
AC Moving Iron Ammeters (EQ)	100mA to 60A
AC Moving Iron Voltmeters (EQ)	6V to 600V
Frequency meters	45-50-55Hz, 55-60-65Hz, 45-55-65Hz
Burden	20 to 500V AC. Standard 900 ohms/volt
Overload	
Voltmeter	2 times for 0.5 sec: 9 overloads
DC Center Zero Voltmeter	2 times for 5 sec: 1 overload
Ammeter	10 times for 0.5 sec: 9 overloads
DC Center Zero Ammeter	10 times for 5 sec: 1 overload
Enclosure	
Movement	High torque pivot and jewel moving coil and moving iron
Scale Balance	Within 1% of scale length
Relative Humidity	25% to 80% nominal range of use
Operating Temperature	0° C to +60° C
Storage Temperature	-20° C to +75° C
Enclosure Code	IP42
Case and Cover	Matt black case UL94V. Polycarbonate cover
Bezel	Matt black
Bezel Window	Shatterproof polycarbonate
Fixing	Surface mounting: 4 corner studs, 4-40 UNF
	Rear of panel mounting: 2 through hole mounts
Compliant With	
Performance	ANSI C39.1 and IEC 51
Manufacture	UL3111-1
Scaling	ANSI C39.1
Safety	IEC61010-1 (LVD) and BS EN 61326: (EMC)
Vibration	ANSI C39.1 cl. 5.13

- Limited range available with RS Pro, please contact RS components for further availability of other model types

Operation:
Moving Coil Meter

These meters offer a centre cored, self-shielding moving coil movement using pivots, hairsprings and sprung jewels. Variations in movement are limited by design. All DC voltmeters are 1000 ohms per volt, moving coil rectified products run at 900 ohms per volt. Millivolt meter use a 5 milliamps/50mV resistance.

Moving Iron Meter

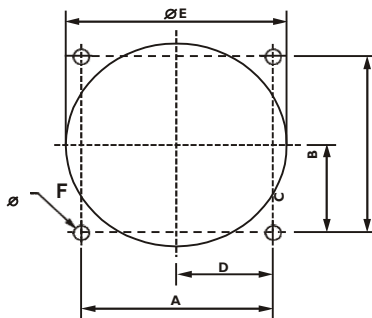
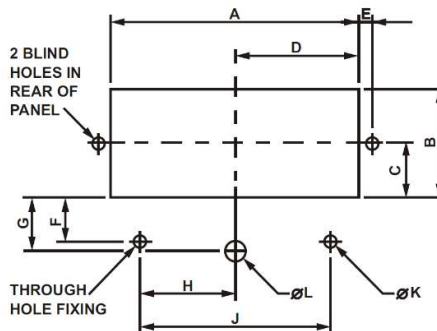
This clapper type repulsion design utilizes a pivot, hairspring and jewel movement. The bottom jewel is oil filled to provide damping while the top spring is for resilience. All voltmeters are manufactured with internal voltage dropper resistors.

Frequency Meter

Frequency meters use a 1mA/350 ohm movement driven by an EMC hard frequency conversion circuit.

Dials, Pointers and Scales

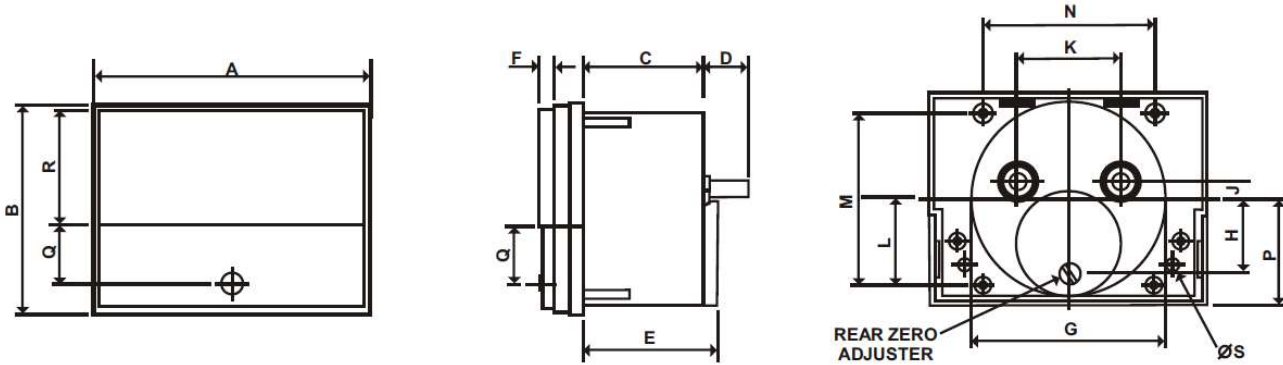
Standard dials are matt white with black printed scales and a tubular knife-edge black pointer. These meters are balanced within 1% of scale length and feature a highly repeatable scale shape, ensuring consistently accurate measurement reading. Dials are interchangeable and for nonstandard customer specific dials are available upon request.

Dimensions:
Surface Mount Cut Out

Window Mounting Cut Out

Model 1 1/2" and 2 1/2" Surface Mount Cut Out Dimensions

	A	B	C	D	E	F
1 1/2" Inches	1.31	1.31	0.66	0.66	1.56	0.14
1 1/2" mm	33.3	33.3	16.8	16.8	39.6	3.56
2 1/2" Inches	1.88	1.88	0.94	0.94	2.16	0.15
2 1/2" mm	47.8	47.8	23.9	23.9	54.9	3.8

Model 1 1/2" and 2 1/2" Window Mounting Cut Out Dimensions

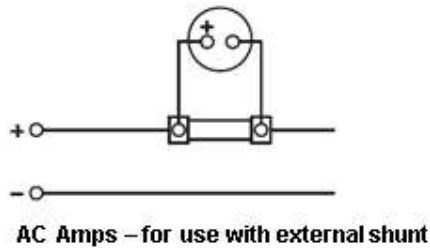
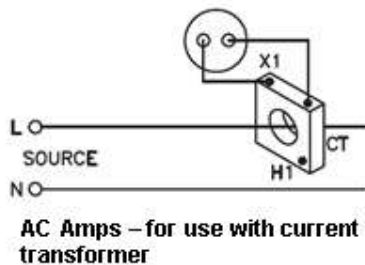
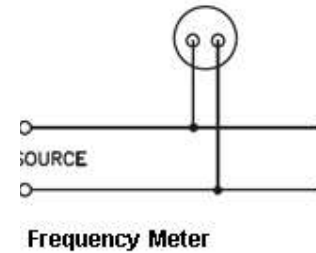
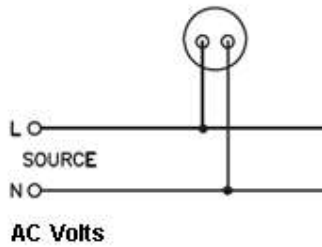
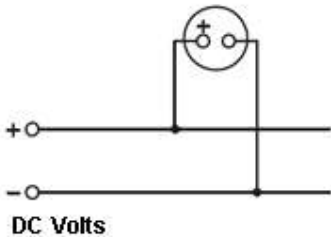
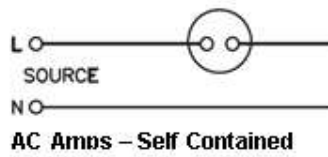
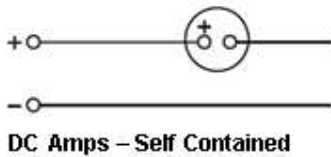
	A	B	C	D	E	F	G	H	J	K	L
1 1/2" Inches	2.17	0.94	0.47	1.08	0.16	-	0.47	-	-	-	0.23
1 1/2" mm	74.2	35.5	16.0	37.1	4.1	-	11.9	-	-	-	5.84
2 1/2" Inches	2.92	1.28	0.63	1.46	0.16	0.64	0.81	1.13	2.26	0.14	0.23
2 1/2" mm	74.2	35.5	16.0	37.1	4.1	16.3	20.6	28.7	57.4	3.6	5.8



Model 1 1/2" and 2 1/2" Dimensions

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
1 1/2" Inches	2.26	1.75	1.3	0.5	-	0.13	1.50	0.57	0.15	0.95	0.65	1.30	1.30	0.85	0.53	0.9	0.14
1 1/2" mm	57.4	44.45	33.0	12.7	-	3.55	38.1	14.48	3.81	24.13	16.60	33.02	33.02	21.60	13.46	22.9	3.6
2 1/2" Inches	3	2.3	1.3	0.5	1.46	0.15	2.12	0.81	0.2	1.12	0.94	1.88	1.88	1.16	0.63	1.27	0.14
2 1/2" mm	76.2	58.5	33.0	12.7	37.0	3.8	53.8	20.6	5.1	28.4	23.9	47.8	47.8	29.5	16.0	32.4	3.6

Connection Diagrams



RS Pro Article codes	Description
1862514	2 1/2" 76 x74mm 0/5/10A AC Ammeter Analogue Panel meter, Direct Connected
1862515	2 1/2" 76 x74mm 0/10/20A AC Ammeter Analogue Panel meter, Direct Connected
1862516	2 1/2" 76 x74mm 0/25/50A AC Ammeter Analogue Panel meter, Direct Connected
1862517	2 1/2" 76 x74mm 0/40/80A AC Ammeter Analogue Panel meter, Direct Connected
1862518	2 1/2" 76 x74mm 0/5/10A AC Ammeter Analogue Panel meter, Scaled 0/60/120A (CT Connected)
1862519	2 1/2" 76 x74mm 0/5/10A AC Ammeter Analogue Panel meter, Scaled 0/80/160A (CT Connected)
1862520	2 1/2" 76 x74mm 0/5/10A AC Ammeter Analogue Panel meter, Scaled 0/120/240A (CT Connected)
1862521	2 1/2" 76 x74mm 0/5/10A AC Ammeter Analogue Panel meter Scaled 0/150/300A (CT Connected)
1862522	2 1/2" 76 x74mm 0/5/10A AC Ammeter Analogue Panel meter Scaled 0/200/400A (CT Connected)
1862523	2 1/2" 76 x74mm 0/5/10A AC Ammeter Analogue Panel meter Scaled 0/300/600A (CT Connected)
1862524	2 1/2" 76 x74mm 0/5/10A AC Ammeter Analogue Panel meter Scaled 0/400/800A (CT Connected)
1862525	2 1/2" 76 x74mm 0/5/10A AC Ammeter Analogue Panel meter Scaled 0/500/1000A (CT Connected)
1862526	2 1/2" 76 x74mm AC Voltmeter Input 0/500V AC, Scaled 0/500V
1862527	2 1/2" 76 x74mm DC Ammeter Analogue Panel meter Input 0/1A DC
1862528	2 1/2" 76 x74mm DC Ammeter Analogue Panel meter Input 0/5A DC
1862529	2 1/2" 76 x74mm DC Ammeter Analogue Panel meter Input 0/10A DC
1862530	2 1/2" 76 x74mm DC Ammeter Analogue Panel meter Input 0/50A DC
1862531	2 1/2" 76 x74mm DC Ammeter Analogue Panel meter Input 0/75mV DC, Scaled 0/100A (for shunt)
1862532	2 1/2" 76 x74mm DC Ammeter Analogue Panel meter Input 0/75mV DC, Scaled 0/300A (for shunt)
1862533	1 1/2" 57x44mm DC Voltmeter Analogue Panel meter Input 0/10V
1862534	1 1/2" 57x44mm DC Voltmeter Analogue Panel meter Input 0/30V
1862535	1 1/2" 57x44mm DC Ammeter Analogue Panel meter Input 0/50uA
1862536	1 1/2" 57x44mm DC Ammeter Analogue Panel meter Input 0/100uA
1862537	1 1/2" 57x44mm DC Ammeter Analogue Panel meter Input 0/10A
1862538	1 1/2" 57x44mm DC Ammeter Analogue Panel meter Input 0/15A