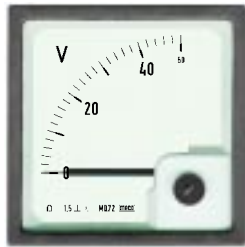
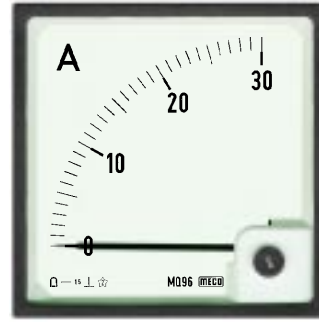




Interchangeable Scale



MQ72



MQ96

**Model**  
**Description**  
**Movement Type**  
  
**Accuracy**  
**Sensitivity**  
**Operating Voltage**  
**Test Voltage**  
**Construction & Design**  
**Scale**  
**Case/Housing Material**  
**Bezel**  
**Glass Faceplate**  
**Mounting Fasteners/Clamps**  
  
**Temperature Conditions**  
  
**Front Protection**  
**Terminal Protection**

## DC Moving Coil DIN Panel Ammeters and Volt Meters

**MQ72, MQ96**  
 Moving coil meter of 90° deflection with interchangeable scale  
 Moving coil with central magnetic core; spring-mounted jewel bearing suspension  
 ± 1.5% of full scale as per IS 1248 ; EN 60051 (IEC51)  
 1000Ω/V (Voltmeter)  
 600V RMS max.  
 2.5KV for 1 minute at 50 Hz  
 According to IS 1248; IEC51  
 According to DIN 43802  
 White ABS, dimensions as per DIN 43700  
 Black ABS, dimensions as per DIN 43718  
 Flat Glass. Antiglare and Polycarbonate (shatter proof) on request.  
 Ergonomic easy mountable clamps and nuts for easy installation on Switchboards, Panels, Mosaics etc.  
 - 10°C to + 55°C, RH < 90% (Operating) and  
 - 20°C to + 70°C, RH < 90% (Storage) EN60051 (IEC51)  
 IP52 protection as per IS2147. IP54 (optional)  
 Back cover for IP20 terminal protection as per IS2147 (optional)

Dimension and Panel Cutout						
Model	Dimensions (mm)					
	A	B	C	D	E <sub>+0.8</sub> -0.0	F
MQ72 Voltmeter & Ammeter upto 5A	72	67	17	51.5	68	21
MQ72 Ammeter above 5A	72	67	23	51.5	68	-
MQ96 Voltmeter & Ammeter upto 5A	96	90	17	51.5	92	21
MQ96 Ammeter above 5A	96	90	23	51.5	92	-

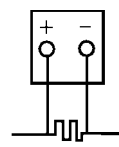
Ammeters				Voltsmeters	
μA	mA	A	with Shunt	mV	V
	1 mA	1 A	-A/60 mV		1 V
	1.5 mA	1.5 A	-A/75 mV		1.5 V
	2 mA	2 A	-A/100 mV		2 V
	2.5 mA	2.5 A			2.5 V
	4 mA	4 A			4 V
	5 mA	5 A	5A/75 mV		5 V
	6 mA	6 A	6A/75 mV		6 V
	10 mA	10 A	10A/75 mV		10 V
	15 mA	15 A	15A/75 mV		15 V
	20 mA	20 A	20A/75 mV		20 V
	25 mA	25 A	25A/75 mV		25 V
	30 mA	30 A	30A/75 mV		30 V
	40 mA	40 A	40A/75 mV		40 V
	50 mA	50 A	50A/75 mV	50 mV	50 V
	60 mA		60A/75 mV	60 mV	60 V
	75 μA	75 mA	75A/75 mV	75 mV	75 V
	100 μA	100 mA	100A/75 mV	100 mV	100 V
	150 μA	150 mA	150A/75 mV	150 mV	150 V
	250 μA	250 mA	250A/75 mV	250 mV	250 V
	400 μA	400 mA	400A/75 mV	400 mV	400 V
	500 μA	500 mA	500A/75 mV	500 mV	500 V
	600 μA	600 mA	600A/75 mV	600 mV	600 V
			and higher		1000 V

### Ordering Information : Model, Input Range, Scale

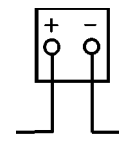
#### Notes

- Double stamping/non-standard/centre zero marking available
- Zero suppressed DC ammeter for 4-20mA & voltmeter for 5-10V available
- Voltsmeters with sensitivity 10K Ohms/V available
- Gaskets (optional) for vibration proof available
- Terminal protection cover (optional) for Voltmeter and Ammeter (upto 5A)
- Red, Yellow, Blue & White bezel on request
- External Shunts from 5A to 7500A of voltage drop 50/60/75mV available
- Other ranges like expanded scale voltmeters etc. subject to technical feasibility

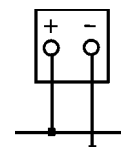
#### Wiring Diagram



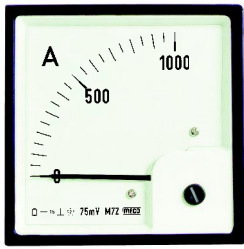
Ammeter with Shunt



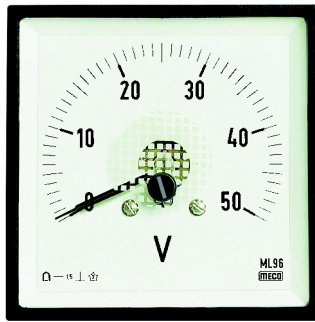
Ammeter with direct connection



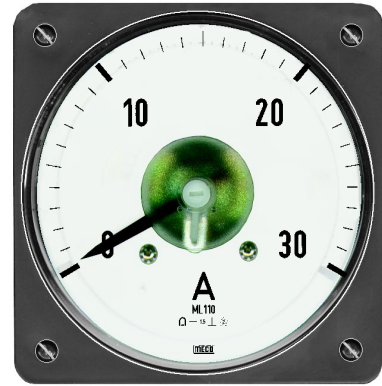
Voltmeter with direct connection



**M72, M96**



**ML72, ML96, ML144**



**ML110**

Model	M72, M96	ML72, ML96, ML144, ML110
Description	Full Scale deflection 90°	Full Scale deflection 240°
Movement Type	Moving-coil with central magnetic Core; spring-mounted bearing jewel suspension	Moving-coil with central magnetic Core; spring-mounted bearing jewel suspension
Accuracy	± 1.5% of Full Scale	± 1.5% of Full Scale for ML96, ML144, ML110 ± 2.5% of Full Scale for ML72
Sensitivity	1000Ω/V (Voltmeter); 200Ω/V (Ammeter)	1000Ω/V (Voltmeter); 200Ω/V (Ammeter)
Operating Voltage	600 V RMS max.	600 V RMS max.
Test Voltage	2.5 KV for 1 minute at 50 Hz	2.5 KV for 1 minute at 50 Hz
Construction & Design	According to I.S.1248; IEC 51	According to I.S. 1248; IEC 51
Scale	According to DIN 43802	According to DIN 43802
Case	ABS	ABS
Dimensions and Panel cutout	Refer Dimensions	Refer Dimensions

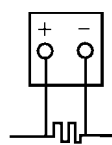
Ammeters				Voltmeters	
μA	mA	A	On shunt	mV	V
	1 mA	1 A	—A/60 mV		1 V
	1.5 mA	1.5 A	—A/75 mV		1.5 V
	2 mA	2 A	—A/100 mV		2 V
	2.5 mA	2.5 A			2.5 V
	4 mA	4 A			4 V
	5 mA	5 A	5A/75 mV		5 V
	6 mA	6 A	6A/75 mV		6 V
	10 mA	10 A	10A/75 mV		10 V
	15 mA	15 A	15A/75 mV		15 V
	20 mA	20 A	20A/75 mV		20 V
	25 mA	25 A	25A/75 mV		25 V
	30 mA	30 A	30A/75 mV		30 V
	40 mA	40 A*	40A/75 mV		40 V
50 μA	50 mA	50 A	50A/75 mV	50 mV	50 V
60 μA	60 mA		60A/75 mV	60 mV	60 V
75 μA	75 mA		75A/75 mV	75 mV	75 V
100 μA	100 mA		100A/75 mV	100 mV	100 V
150 μA	150 mA		150A/75 mV	150 mV	150 V
250 μA	250 mA		250A/75 mV	250 mV	250 V
400 μA	400 mA		400A/75 mV	400 mV	400 V
500 μA	500 mA		500A/75 mV	500 mV	500 V
600 μA	600 mA		600A/75 mV and higher	600 mV	600 V
					1000 V

**Ordering Information** : Model, Input range, Scale

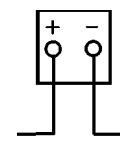
**Notes**

- ☐ Ranges common to M and ML Series
- ☐ All other refer to M Series only
- \* For ML72 DC direct current upto 1A. Above 1A, use with external shunt.
- a) Double stamping/non-standard/centre zero marking available.
- b) Zero suppressed DC ammeter for 4-20mA & voltmeter for 5-10V available.
- c) Voltmeters with sensitivity 10 K Ohms/V available in 90°
- d) Rubber gaskets for vibration proof available.
- e) Other ranges subject to technical feasibility.

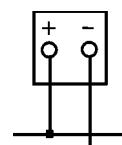
**Wiring Diagram**



Ammeter on Shunt



Ammeter with direct connection



Voltmeter with direct connection