

# EARTH RESISTANCE METER SERIES (OHM METER)



This instrument comprised of indicator and attachment current box for measuring insulation resistance of the non-grounding method AC line.

## Features

- ▶ High performance and high reliability meter.
- ▶ Have a varied selection of type model, wide angle instrument, square shape instrument and satisfy mounting space.
- ▶ It can measure the grounding resistance of the circuit continually while on hot-line.
- ▶ Vibration resistance is considered of make available for marine.
- ▶ Resistant indicator and the stabilization power unit is compatibility.
- ▶ No output voltage fluctuation even  $\pm 20\%$  of AC input voltage changed stabilization power.
- ▶ Meter relay external with alarm contact can be manufacturable.



## Specification List of OHM Meter

### STANDARD COMMON SPECIFICATION

ITEM	STANDARD SPECIFICATION
Standard	JIS C 1102-1, 6, 9 [Electric Indicating Meter Direct Acting Type] Compliant IEC 60051-1 Compliant JIS C 1103 [Dimensions Electric Indicating Meter Switchboards]
Class	Please reference to each series
Deflection angle of meter	Please reference to each series
Length of scale	Please reference to each series
Plate of scale	White paint
Pointer	Lance type (black)
Installation posture	Vertical (⊥)
Material of panel	Iron plate
Thickness of panel	Below 10mm
Color of cover	Black (Munsell N1.5) Dark blue (Munsell 7.5BG4/1.5)
Material of cover	Methacrylic acid resin (Antistatic Colcoat treatment on both sides)
Max. circuit voltage	650V
Withstand voltage	AC2000V (50/60Hz) 1 min.: Between electric circuit and outer case. If 500V is exceeded (2E-1000)V
Insulation resistance	DC500V, 50MΩ or above: Between electric circuit and outer case.
Operated temperature humidity range	-10~+55°C, Average day temperature is below 40°C, 25~85% RH (Reference ambient temperature 45°C for steel ship rules)
Storage temperature range	-20~70°C

# Dimension and Connecting Diagram of OHM Meter

## PRINCIPLE OF OPERATING

The DC voltage (50V) generated between output terminal M, L of a attached power supply box (DM-83Q) is used, with the DC ammeter which formed the resistance scale, the DC leakage current to the earth by measurement and it can be adapted to display the insulation resistance.

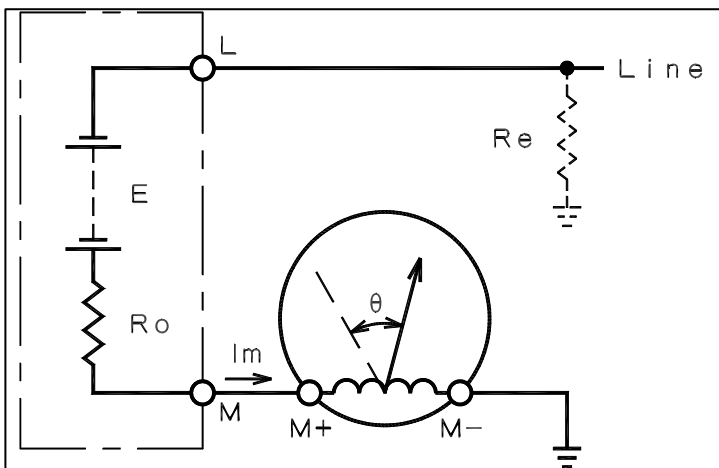
AC input terminal and DC output terminal M, L of a attached power supply box (DM-83Q) are insulated by the transformer.

The deflection angle of DC current

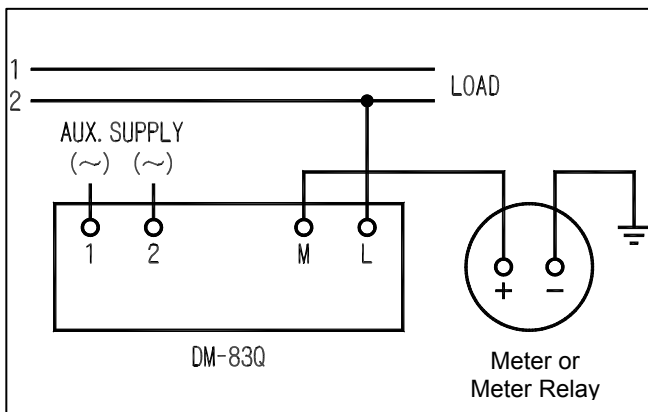
$$\theta = f(i_m) = f\left(\frac{E}{R_o + R_e}\right) = f(R_e)$$

E: Constant,    R<sub>o</sub>: Constant

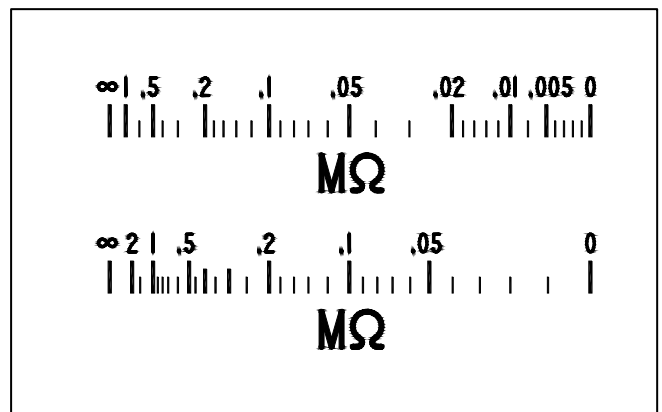
This is the basis of the conditions that DC voltage E and a protective resistance R<sub>o</sub> are constant, if resistance value is given to a scale according to the meter swing angle  $\theta$ , it will become a resistance indication meter.



### Connection Diagram

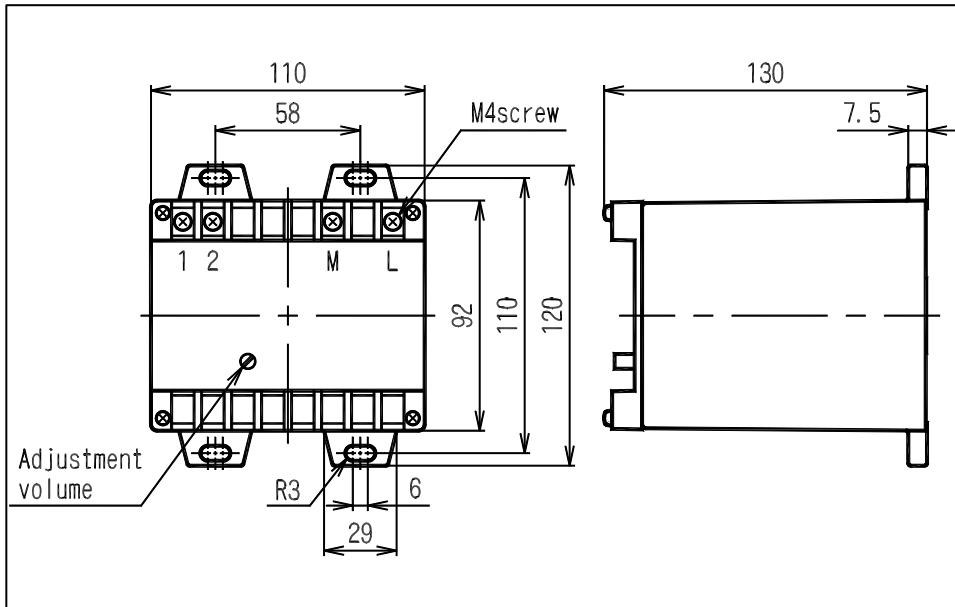


### Ex. Scale value



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## DIMENSIONS DRAWING



### Specify below items when make order

- 1) Type model of Indicator (Specify type name of any kind of DC Ammeter or DC current meter relay)
- 2) Scale value and center of scale value (Ex.: 0~5M $\Omega$ , center is 0.2M $\Omega$ )
- 3) Aux. power (AC100V or AC220V)
- 4) Color of meter cover (Black or Dark blue)
- 5) Option (Please consult with us if special specification)