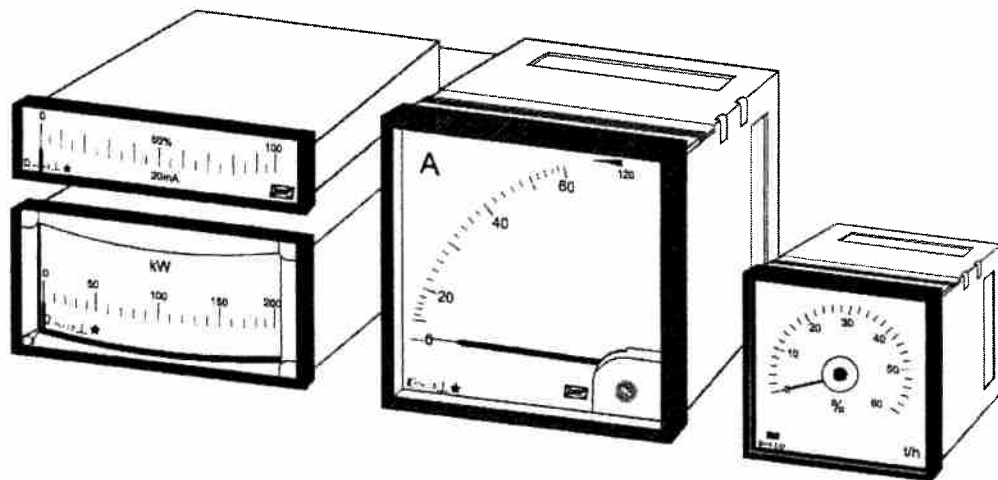


Switchboard Instruments

Types PQ96x



- Standard DIN sizes
 - Quadratic instruments: Q48...Q144
 - Edgewise instruments: 48 x 24...144 x 72mm
 - Slim edgewise instruments: 72 x 24...144 x 36mm
- Accuracy class 1.5
- Exchangeable scale (quadratic instruments)

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Available types

Quadratic instruments				
	48 x 48mm	72 x 72mm	96 x 96mm	144 x 144mm
Moving coil 90°	DQ48-x	DQ72-x	DQ96-x	DQ144-x
Moving coil 240°	DQ48-c DQ48-xc	DQ72-c DQ72-xc	DQ96-c DQ96-xc	DQ144-c DQ144-xc
- with rectifier 90°		VDQ72-x	PQ96-x	VDQ144-x
- with rectifier 240°		VDQ72-c VDQ72-xc	PQ96-c PQ96-xc	VDQ144-c VDQ144-xc
Moving iron 90°	EQ48-x	EQ72-x	EQ96-x	EQ144-x
Edgewise instruments				
	48 x 24mm	72 x 36mm	96 x 48mm	144 x 72mm
Moving coil	DPR48	DPR72	DPR96	DPR144
Slim edgewise instruments				
		72 x 24mm	96 x 24mm	144 x 36mm
Moving coil		DSM72	DSM96	DSM144

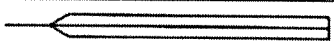
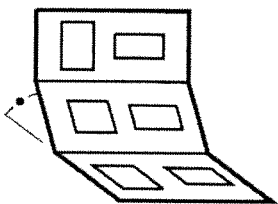
Special versions

General	Antiglare glass
	IP54 from front (incl. rubber gasket) (types DQ and EQ)
	Adjustable red pointer (types Q48-x, Q72-x, Q96-x, Q144-x) (IP52)
	Other measuring ranges than those stated in this data sheet
	For mosaic panels (quadratic and slim edgewise types) - on request
Scale	Non-standard scale
	Scale according to table or curve
	Single scale with double row of figures (standard scale)
	Double scale with 2 rows of figures (standard divisions)
	Single scale with fine divisions for standard pointer
	Red line at specified value
	Coloured section for specific scale range
	Additional text on scale, Roman types (e.g. "Generator")
Moving iron instruments	Adjusted to a specified frequency, 100...500Hz
	Adjusted for DC measurement
	Adjusted to accuracy class 1.0
Moving coil instruments	Suppressed zero (DQ...-x/DQ...-c/-xc: max. 20%)
	Zero at centre of scale or the like
	Integrated adjustment potentiometer ($\pm 10\%$ standard, up to $\pm 50\%$ on request)
	Adjusted to accuracy class 1.0

Accessories: blank covers types Q72, Q96, Q144

Blank covers are typically applied to cover panel cut-outs provided for later extension of the switchboard. The blank covers consist of a standard bezel with spring clamp for mounting in the panel, mounted with a white, opal PVC plate instead of glass. (Depth behind panel: ca. 12mm).

General technical specifications

Instruments are designed according to below mentioned standards					Standards
Accuracy	Class 1.5 (-10... <u>15</u> ...30...50°C) Linear scales: ±1.5% of full scale value (FS) Non-linear scales: ±1.5% of scale length				EN 60051 and IEC 51
Instrument sizes	48 x 24mm 48 x 48mm	72 x 24mm 72 x 36mm 72 x 72mm	96 x 24mm 96 x 48mm 96 x 96mm	144 x 36mm 144 x 72mm 144 x 144mm	DIN 43700
Bezels	Slim bezels				DIN 43718
Scale/pointer			Standard pointer		DIN 43802
Mounting angle	Standard: Other angles: 		Vertical (90 ±5). Specify angle to horizontal. ⊥ vertical mounting ∠ _{60°} 60° to horizontal (e.g.) ' horizontal mounting For edgewise instruments only horizontal or vertical scale.		DIN 16257
Measuring ranges	See pages 4-7. Others on request.				DIN 43701
Protection	Standard version		IP54 version) Marked with label: "IP54 from front only when rubber gasket is mounted" IEC 529 and EN 60529
(Housings)	From front	From rear	From front	From rear	
	IP52	IP52	IP54	IP52	
	Quadratic	Edgewise	Quadratic	Edgewise	
(Terminals)	IP20	IP00	IP20	IP00	
Climate	Class HUE Short-term condensing allowed. Max. 95% RH: max. 30 days per year Max. 85% RH: remaining days Max. 75% RH: average per year				DIN 40040
Temperature	-10...55°C (nominal) -25...60°C (operating) -25...65°C (storage)				EN 60051 and IEC 51
Panel influence	The accuracy is affected neither by the material nor by the thickness of the panel.				EN 60051 and IEC 51
Shock test	15g - 6 times - 3 directions				IEC 68-2-27, Test: Ea
Vibrations	3-13.2Hz: 3mm 13.2-100Hz: 1g				GL + LR: Test 1 DNV: Class A
Materials	All plastic materials are self-extinguishing.				UL94 (V0)
Safety	600V - CAT. III Pollution deg. 2 Quadratic instruments are supplied with protective cover fitted over terminals.				EN 61010-1
EMC	CE classified for residential, commercial and light industry plus industrial environment.				EN 50081-1/2 and EN 50082-1/2

Quadratic moving coil instruments

Application: Measurement of DC currents and DC voltages.

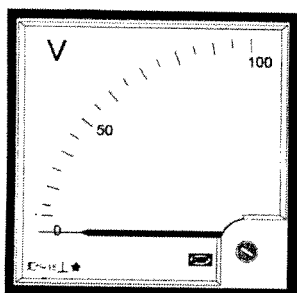
Scale: Linear scale.

Scale lengths: PQ48/72/96/144-x: 41/62/92/135mm
PQ48/72/96/144-xc/-c: 75/113/151/230mm.

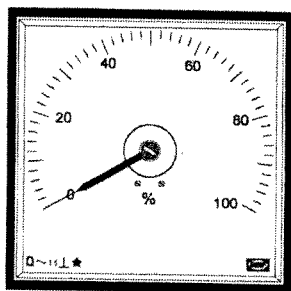
Accuracy: Class 1.5.

Burdens: Voltmeters: 1mA, R_i : 1k /V.
Ammeters: 60mV...0.5V.

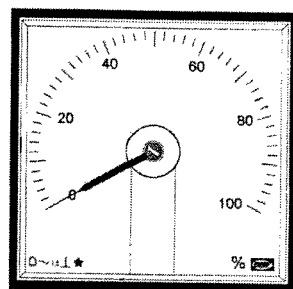
Housings: Plastic



DQ96-x (exchangeable scale)



DQ96-c (non-exch. Scale)



DQ96-xc (exchangeable scale)

Type	Size (mm)	Measuring range – V ¹	Measuring range – A ¹
DQ48-x	48 x 48	60mV...600V	1mA...600mA ² , 4...20mA
DQ72-x	72 x 72	60mV...600V	1mA...5-10-15-40 ² , 4...20mA
PQ96-x	96 x 96	60mV...600V	1mA...5-10-15-40 ² , 4...20mA
DQ144-x	144 x 144	60mV...600V	1mA...5-10-15-40 ² , 4...20mA
DQ48-xc/DQ48-c	48 x 48	60mV...600V	1mA...600mA ² , 4...20mA
DQ72-xc/DQ72-c	72 x 72	60mV...600V	1mA...5-10-15-40 ² , 4...20mA
PQ96-xc/PQ96-c	96 x 96	60mV...600V	1mA...5-10-15-40 ² , 4...20mA
DQ144-xc/DQ144-c	144 x 144	60mV...600V	1mA...5-10-15-40 ² , 4...20mA

- 1) Standard measuring ranges: 1 - 1.5 - 2.5 - 4 - 6 and multiples of 10 thereof.
- 2) Higher measuring ranges: For use with standard shunt: 60mV or 150mV.
Supplied with shunt lead, 2 x 1m - 1 mm² (0.035)

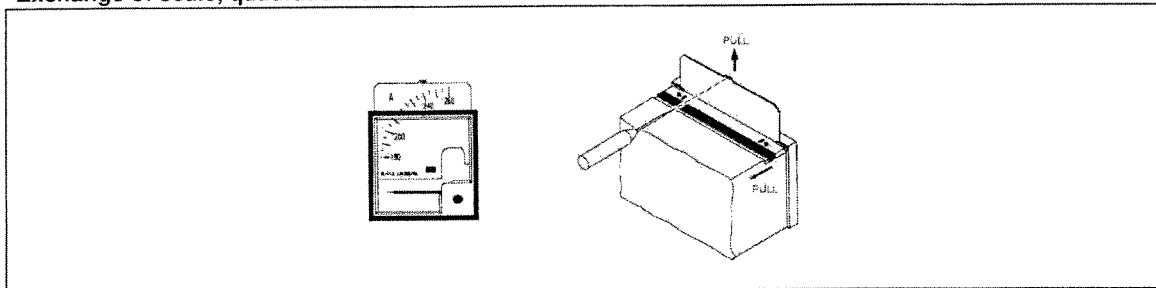
Quadratic moving coil instruments with rectifier

Application: Measurement of AC currents and AC voltages. Measures average value, calibrated to R.M.S. value at sinusoidal current/voltage.

VDQ.. Voltmeters
25...600V: R_i : approx. 1k /V. Range <50V AC: scale non-linear.

VDQ.. Ammeters
1...600mA: Voltage drop: approx. 1.2V.

Exchange of scale, quadratic instruments



- 1) Press cover at top of instrument as shown.
- 2) Remove scale by means of a suitable tool (e.g. screwdrivers).
- 3) After exchange of scale: refit cover (press till it snaps into place).

Note: interrupt signal to terminals before exchanging the scale.