

ANALOGUE METERS CQ2X07 SERIES CQ - INSTRUMENTS WITH A MOVING COIL AND A RECTIFIER CQ2107, CQ2207, CQ2307 & CQ2407

- FOR MEASUREMENT OF AC CURRENTS AND VOLTAGES.
- LINEAR SCALE.
- GOOD READ-OUT SURVEY ON LARGER DISTANCE.
- MOVING-COIL PANEL INSTRUMENTS WITH EXCHANGEABLE SCALES.
- PANEL MOUNTED INSTRUMENTS WITH 240 °C.
- RESISTANCE TO MECHANICAL VIBRATIONS.
- PROTECTIVE COVER FOR TERMINALS.

FEATURES

- For measurement of AC currents and voltages
- Linear scale
- Good read-out survey on larger distance
- Moving-coil Panel instruments with exchangeable scales
- Panel mounted instruments with 240° scale
- Resistance to mechanical vibrations
- Protective cover for terminals (optional)


APPLICATION

Measuring instruments with a moving coil CQ... are intended for measurement of AC currents and voltages in the frequency range 40 ... 65 Hz. Average value of rectified current and voltage is measured. The scale is drawn in r.m.s. values at sine curve form. Distortion and deviation, respectively, from the sine current and voltage forms, entails additional errors.

CONSTRUCTION

The measuring system, made by light and quality materials is not sensitive to external electromagnetic fields and is resistant to mechanical impacts and vibrations. The meters with exchangeable dial and linear 240° scale have the standardised square casing. The scale length is much longer as the pointer is placed in the centre of the instrument.

SHIP VERSION

Special "ship version" is available for building into ships. These are mechanically resistive instruments which correspond to the rules of construction of seagoing ships (Bureau Veritas certified). The instrument case is marked by an anchor:  and a capital letter L at the end of the type designation. (e.g. CQ2207L).

¹⁾ At reference conditions for size 96x96 (CQ2207) and 144x144 mm (CQ2107) only).

TECHNICAL DATA

ACCURACY:

Accuracy class	1.5
	(standard)
Accuracy – on request	1.0 ¹⁾
	(optional)

DESIGN:

Material of housing:	PC
	uninflammable, according to UL 94 V-0
Enclosure protection:	Case IP 52, terminal contacts IP 00
	(IP 20 for connection terminals)
	according to EN 60529
Operating position	Vertical
Installation category (Vrms)	CAT III 600 V

AMBIENT CONDITIONS:

Climatic conditions:	JVF (DIN 40040)
Temperature:	
Reference range of operation	+18 ... +28°C
Nominal range of operation	-25 ... +55°C
Storing	-40 ... +70°C
Humidity	up to 80% (without condensing)
Standards:	EN 60051-1
	EN 60051-2
	EN 60051-9

EU DIRECTIVES

Directive **2014/35/EU** on low voltage.
 Directive **2014/30/EU** on electromagnetic compatibility.
 Directive on RoHS 2011/65/EU.

MEASURING RANGE:

MICROAMMETERS:

Measuring range (µA)	100 120 150 200 250 300 400 500 600 800
Voltage drop	1.2 V ... 1.5 V

MILLIAMMETERS

Measuring rating (mA)	1 1.2 1.5 2 2.5 3 4 5 6 8 10 15 20
Voltage drop	1.2 V ... 1.5 V

AMMETERS:

Measuring range (A)	xA / 1 A ²⁾ 1 A ³⁾ xA / 5 A ²⁾ 5 A ³⁾
Consumption	0.1VA 0.1VA 1.3VA 1.3 VA

VOLTMETERS:

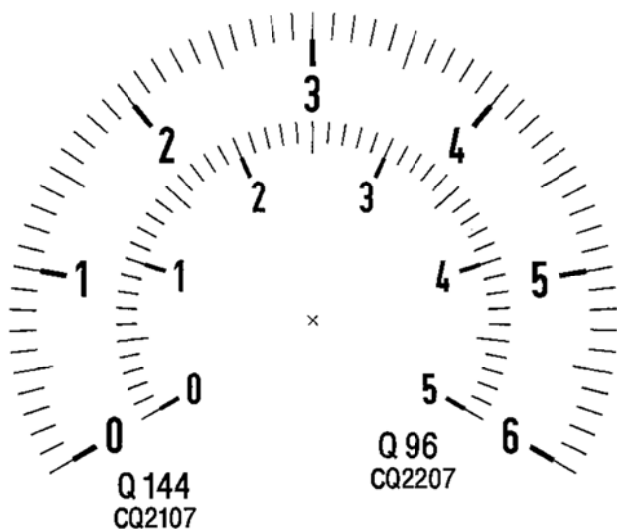
Measuring range (V)	2.5 3 4 5 6 8 10 12 15 20 25 30 40 50 60 80 100 120 150 200 250 300 / 100 V ²⁾ / 110 V ²⁾
Internal resistance	1 kΩ/V

Measuring range (V)	400 500 600
Internal resistance	4 kΩ/V

²⁾ For the connection to measuring transformer. State transformer ratio and rating at order. Ammeters CQ2407 are delivered with separated current transformer 1 A/5 mA or 5 A/5 mA.

³⁾ Ammeter with 2, 5 or 6 times overload capacity. When placing the order please specify the range, as well the connection ratio (order example: range 5/10 A, sc.100/200 A).

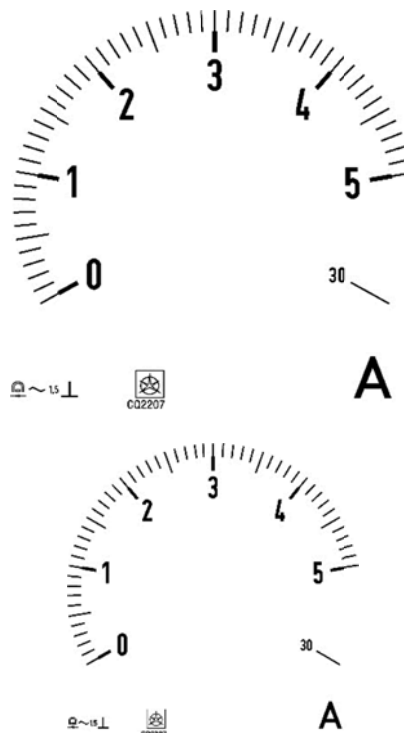
SCALE



Picture 1: Drawing of scale CQ2107, CQ2207



Picture 2: Drawing of scale CQ2307, CQ2407

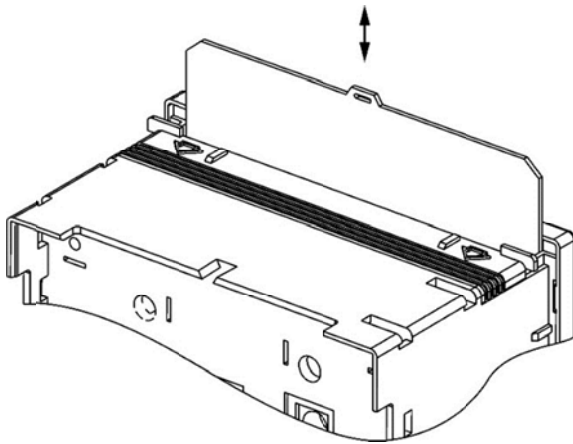


Picture 3: Drawing of scale CQ2207, CQ2307 with overload.

EXCHANGING OF SCALES

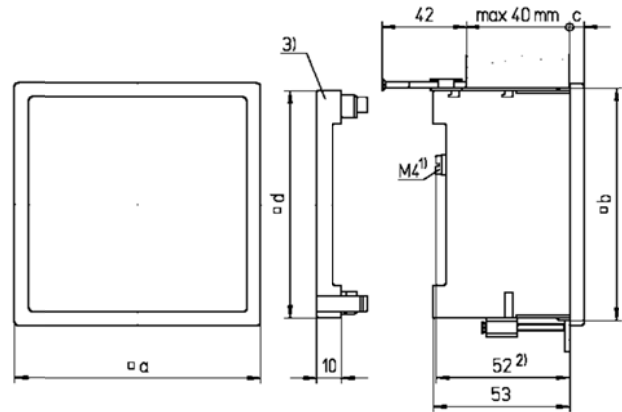
Press the cover, on top of the instrument, in the direction of the arrow and extract the scale with a suitable tool. After exchanging the scale, carefully close the opening with the cover.

The instrument must be disconnected during the dial exchange procedure.

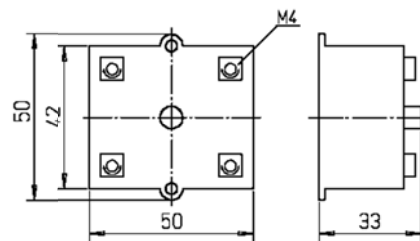


Picture 4: Exchanging of scales

DIMENSIONAL DRAWING



Picture 5: Dimensional drawing CQ2107, CQ2207, CQ2307 and CQ2407 (all dimensions are in mm)



Picture 6: Separated current transformer 1 A/5mA or 5 A/5mA only at CQ2407

Type		CQ2107	CQ2207	CQ2307	CQ2407
Bezel (mm)	□ a	144	96	72	48
Panel cut-out (mm)	□ b	138 ^{+1.0}	92 ^{+0.8}	68 ^{+0.8}	45 ^{+0.6}
Bezel height (mm)	c	8.0	5.5	5.5	5.0
Protect cover (mm)	□ d	90	90	66.5	42.5
Scales length (mm)		235	155	113	71
Weight approx. (kg)		0.39	0.25	0.19	0.15

Table 1: Dimensions and weight

DATA FOR ORDERING

State the instrument type designation and rating. In case for connection to the measuring transformer, the transformer ratio should also be stated.

ORDERING EXAMPLE FOR STANDARD VERSION:

- Milliammeter CQ2207, 10 mA
- Voltmeter CQ2307, 120 kV, for the connection to voltage transformer 100/0.1 kV

When ordering scales, state same data as when ordering the instrument.

WITH CODE:

CQ2307SL_A7D5SAASNSSSYS

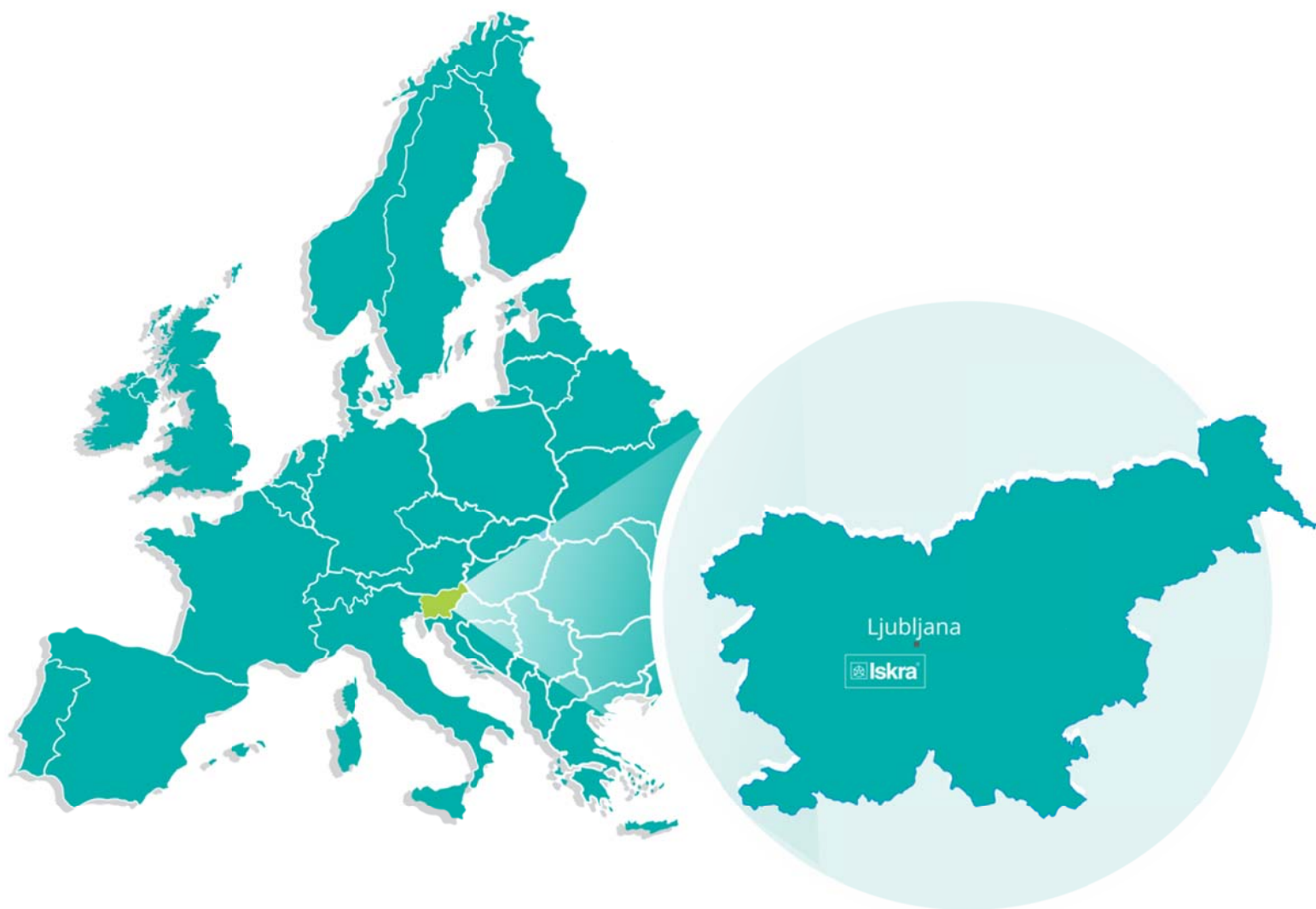
- CQ2307** Type
S Class 1.5
L Left zero position
_A Unit
7D5 Rating
S 40-65 Hz
A Standard finish
A Standard window
S Standard dial
N without illuminated
S Single scale
S Black zero adjuster
S Black frame
Y With protection cover
S Vertically mounting position

ORDERING CODE

*Standard version.

Type	Class	Zero Position	Unit	Rating	Frequency Range	Finish	Window	Dial	Illuminated Scale	Index Type	Zero Adjuster Colour	Frame Colour	Protection Cover	Mounting Position
CQ2x07	X	X	X	X	X	X	X	X	X	X	X	X	X	X
														A 30° B 60° C 0° - Horizontally S 90° - Vertically *
														N No Y Yes*
														S Black *
														S Black * W White ¹
														D Double Scale S Single Scale *
														N No *
														N Bianco Dial S Standard with Scale * W Black, White Scale X No Dial Y Black, Yellow Scale
														A Clear Glass * B Clear Glass + Red Adj. Index ¹ D Anti-Glare + Red Adj. Index ¹ L Anti-Glare Glass P Polycarbonate Panel R Polycarbonate + Red Adj. Index ¹
														A Standardna * G HVE + IP54 ¹ H HVE (Tropical Seal) M Inc. Mech. Resistance P IP54 ¹ R Ship Ver. + IP54 ¹ S Ship Ver. T Ship Ver. + HVE
														S 40-65 Hz
														1 1.2 1.5 2 3 4 5 6 7.5 8 10 12 15 20 25 30 40 50 60 75 80 100 120 150 200 250 300 400 500 600 800
														uA rating selection limits 100 ... 800 mA " 1 ... 800 _A " 1 ... 7.5 _V " 2.5 ... 600
														Left Hand Zero *
														H cl. 1 S cl. 1.5 *
CQ2107														Front frame (mm) 144x144
CQ2207														Front frame (mm) 96x96
CQ2307														Front frame (mm) 72x72
CQ2407														Front frame (mm) 48x48

¹ IP54 is not available with Red. Adj. Index and White Zero Adjuster



Iskra, d.o.o.

BU Ljubljana

Stegne 21
SI-1000, Ljubljana
Phone: +386 1 513 10 00

Iskra, d.o.o.

BU Capacitors

Vajdova ulica 71
SI-8333, Semič
Phone: +386 7 38 49 200

Iskra, d.o.o.

BU MIS

Ljubljanska c. 24a
SI-4000, Kranj
Phone: +386 4 237 21 12

Iskra, d.o.o.

BU Batteries & Potentiometers

Šentvid pri Stični 108
SI-1296, Šentvid pri Stični
Phone: +386 1 780 08 00

Iskra, d.o.o.

BU Electroplating

Glinek 5
SI-1291, Škofljica
Phone: +386 1 366 80 50

Iskra IP, d.o.o.

Vajdova ulica 71
SI-8333, Semič
Phone: +386 7 384 94 54

Iskra STIK, d.o.o.

Ljubljanska cesta 24a
SI-4000, Kranj
Phone: +386 4 237 22 33

Iskra Lotrič, d.o.o.

Otoče 5a
SI-4244, Podnart
Phone: +386 4 535 91 68

Iskra ODM, d.o.o.

Otoče 5a
4244, Podnart
Phone: +386 1 513 10 00

Iskra Tela L, d.o.o.

Omladinska 66
78250, Laktaši
Phone: +387 51 535 890

Iskra Sistemi - M dooel

Ul, Dame Gruev br. 16/5 kat
1000, Skopje
Phone: +389 75 444 498

Iskra Commerce, d.o.o.

Hadži Nikole Živkoviča br. 2
11000, Beograd
Phone: +381 11 328 10 41

Iskra Hong Kong Ltd.

33 Canton Road, T.S.T.
1705, China HK City
Phone: +852 273 00 917



Iskra, d.o.o.

Stegne 21
SI-1000 Ljubljana, Slovenia

Phone: +386 (0) 1 513 10 00
www.iskra.eu