



-power in control



## DATA SHEET



### kWh meters

#### WQR96 MKII, WQ2R96 MKII, WQR96-x MKII, WQR96-c MKII

- Accuracy class 1.0 (EN 62053-21)
- For single-phase and 3-phase networks
- Microprocessor-controlled meters with pulse output (SO)
- Simultaneous measurement of two quantities (except type WQR96 MKII)
- 60 to 400 V AC aux. power supply
- Complies with Electricity metering equipment standard (IEC 62052-11)



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Document no.: 4921210157C

**Application**

The kWh meters types WQR96 MKII and WQ2R96 MKII are intended for energy measurement in single-phase and 3-phase networks, providing a class 1.0 measurement of the imported or exported energy. The meters are microprocessor-controlled and equipped with a 7-digit electromechanical counter, which retains the reading in case of supply voltage failure. The meters are furthermore equipped with one or two pulse outputs. The meters can be adapted to the applied current transformers.

- WQR96 MKII** Meter with a 7-digit register and one pulse output for measurement of one type of energy only (kWh or kvarh).
- WQ2R96 MKII** Meter with two 7-digit registers and two pulse outputs for measurement of two types of energy (both kWh and kvarh imported or exported).
- WQR96-x MKII** Meter with both a 7-digit register and one pulse output for energy measurement (kWh or kvarh) and a 90° instrument for simultaneous indication of the momentary power value (active or reactive).
- WQR96-c MKII** Meter with both a 7-digit register and one pulse output for energy measurement (kWh or kvarh) and a 240° instrument for simultaneous indication of the momentary power value (active or reactive).

**Technical specifications**

<b>Auxiliary voltage</b>	60, 100, 230, 400 V AC ±20 %
<b>Rated frequency</b>	45 to 65 Hz
<b>Wire</b>	Multi-stranded: 1.5 mm <sup>2</sup> Single-stranded: 2.5 mm <sup>2</sup>

**Measuring specifications**

<b>Meas. voltage Un</b>	Ph-N 400 V AC Ph-Ph 690 V AC, range +/-20 % Consumption: <0.1 VA per phase <b>Overload capacity:</b> 1.5 × Un continuously 2 × Un for 10 s
<b>Meas. current In</b>	-/1 A or -/5 A, range 0 to 1.6 × In Consumption: <0.1 VA per phase <b>Overload capacity:</b> 3 × In continuously 25 × In for 3 s 50 × In for 1 s
<b>Meas. frequency</b>	50/60 Hz, range 16 to 400 Hz
<b>Accuracy</b>	<b>Energy:</b> Active energy EN62053-21: Class 1. Reactive energy EN62053-23: Class 2 <b>Power:</b> 1.5 % of scale at nominal temperature range 10 to 30 °C. Outside this range, 3 % of scale

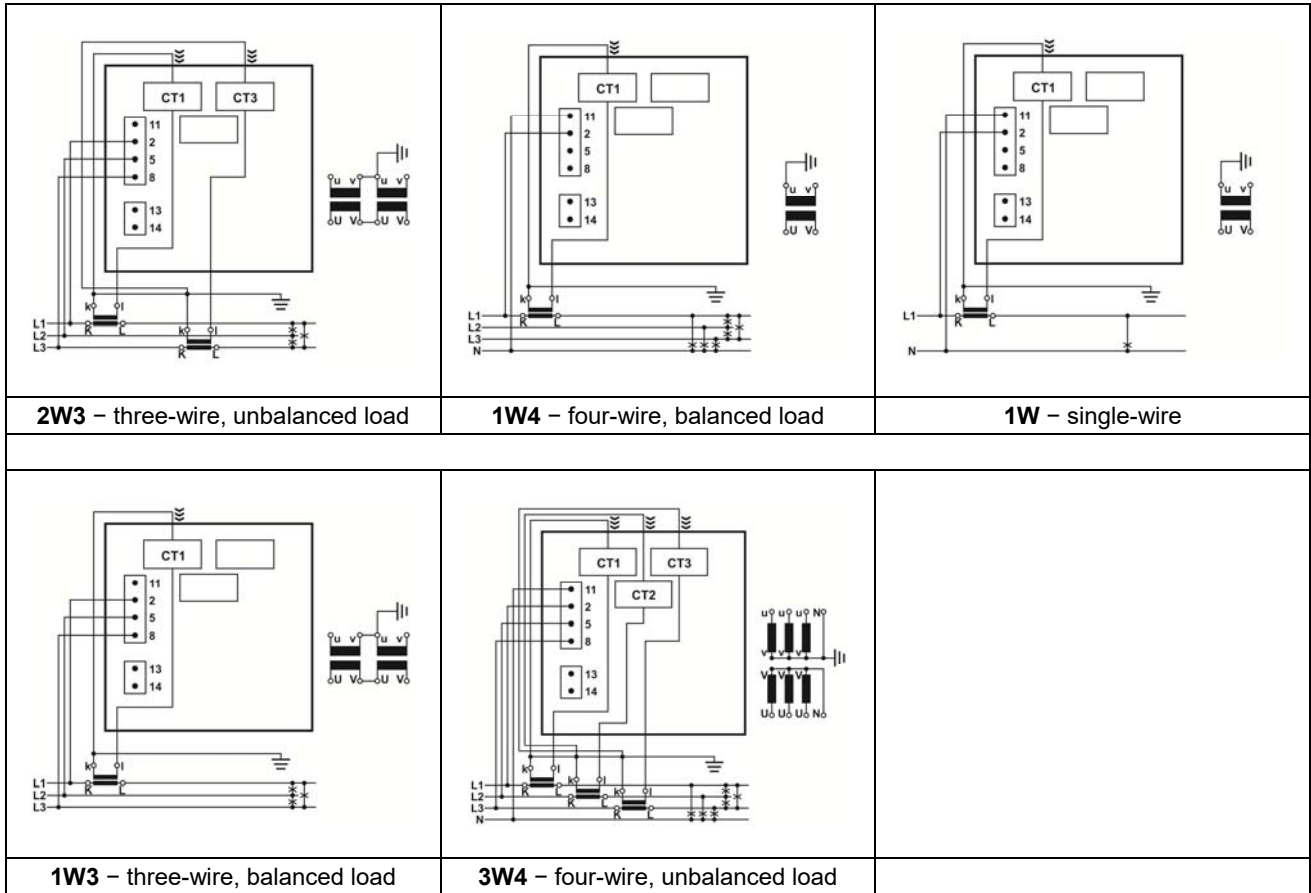
**Output and counter specifications**

<b>Relay outputs</b>	Max. 250 V (AC), max. 100 V (DC)
<b>Contact rating</b>	AC: 250 V - 6 A - 1500 VA (250 V AC - 6 A resistive AC load 100,000 operations) DC: 35 V - 6 A - 210 W (30 V DC - 6 A resistive load 500,000 operations) Pulse duration: 100 ms No. of outputs: 2
<b>Electromechanical counter</b>	7 digits, each 4 × 1.2 mm 1 pulse per selected unit (for example kWh)
<b>Relay pulse output</b>	Selectable (1 to 4000) Max. pulses per hour: 4000 Pulse duration: 100 ms
<b>Isolation</b>	1000 V (AC) between open contacts 4000 V (AC) between coil and contacts

**Type test specifications**

<b>Temperature</b>	-10 to 55 °C (operating) -25 to 70 °C (storage)	IEC/EN 62052-11
<b>Climate</b>	Relative humidity ≤75 %	IEC/EN 62052-11
<b>Vibration</b>	3 to 13.2 Hz: 2 mm <sub>pp</sub> 13.2 to 100 Hz: 0.7 g	IEC/EN 60068-2-6 & IACS UR E10
<b>Shock</b>	50 g, 11 ms, half sine Tested with 3 impacts in each direction in all 3 axes In total 18 impacts per test	IEC/EN 60068-2-27, test Ea
<b>Safety</b>	Installation cat. III 600 V/cat. II 300 V Pollution degree 2 Tested to 2210 volt	IEC/EN 61010-1 tested at 50 Hz, 1 min Each galvanic group tested to other galvanic groups and to protection earth
<b>EMC</b>		IEC/EN 62052-11 IEC/EN 60533 power distr. zone IACS UR E10 power distr. zone
<b>Materials</b>	All plastic parts are self-extinguishing	UL94 (V0)
<b>Protection</b>	Front: IP52 (IP66 optional by gasket) Housing/terminals: IP20	IEC/EN 60529
<b>Approvals</b>	See DEIF homepage for valid approval	<a href="http://www.deif.com">www.deif.com</a>

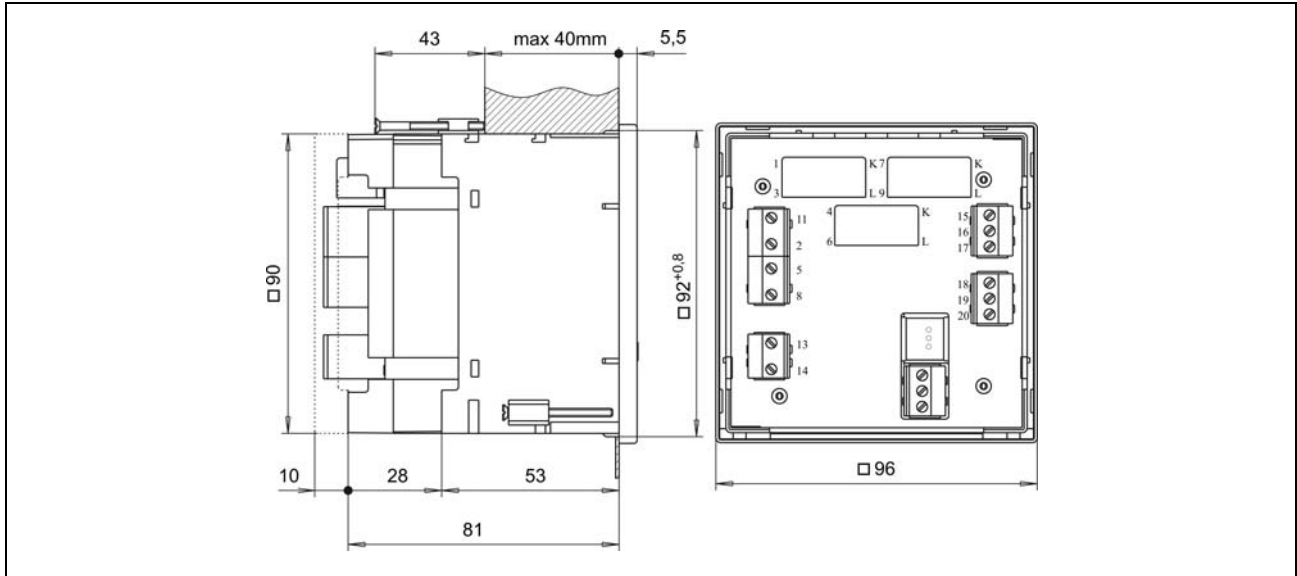
Connection diagrams



Terminals

Inputs/quantities		Terminals	
Measuring inputs	AC current	IL1	CT1 (1-3) (k-l)
		IL2	CT2 (4-6) (k-l)
		IL3	CT3 (7-9) (k-l)
	AC voltage	UL1	2 (L1)
		UL2	5 (L2)
		UL3	8 (L3)
N		11	
Auxiliary power supply		+/AC <sub>L</sub>	13
		-/AC <sub>N</sub>	14
Output modules	Output	Out -1	15
		C-12	16
		Out -2	17

**Dimensions in mm/auxiliary voltage/output connections**



**Order specifications**

**WQR96 MKII/WQ2R96 MKII**

Examples:

Type	AUX	Connection	VT ratio	CT ratio	Counter(s)	Relay 1 (2)	Relay 2
WQR96	60	1W3	10,000/100 V	100/1 A	10p/Mvarh	10p/Mvarh	-
WQ2R96	100	3W4	10,000/100 V	50/1 A	1p/MWh E*/MWh I*	1p/MWh	1p/MWh

\* : E = exported energy  
I = imported energy

**WQR96-x MKII/WQR96-c MKII**

Examples:

Type	AUX	Connection	VT ratio	CT ratio	Counter	Relay 1 & 2	Scale
WQR96-x	230	3W4	10,000/400 V	100/5 A	10p/MWh	10p/MWh	0 to 2 MW
WQR96-c	400	3W4	10,000/100 V	200/5 A	1p/MWh	1p/MWh	0 to 4 MW

**Note:** If there is no VT, the pulse duration is normally 1, 10 or 100 p/kWh/kvarh.

Due to our continuous development we reserve the right to supply equipment which may vary from the described.



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