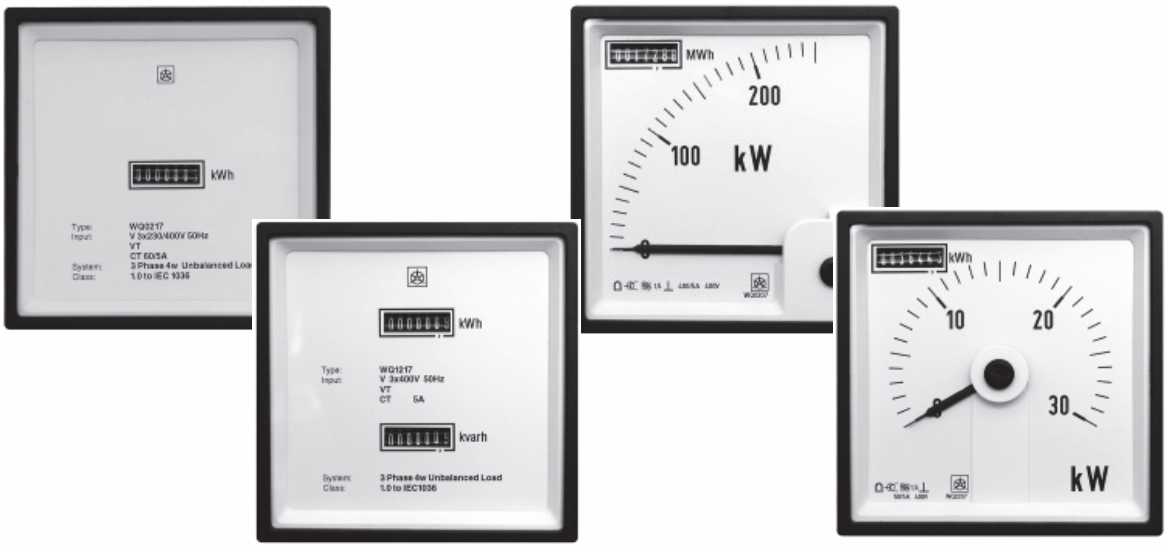
Energy sector



Energy Meters with Power Display

Energy Meter - WQ0217 & WQ1217
Energy Meter with analogue pointer - WQ0207 & WQ2207

- 7 digits electromechanical register
- Up to 2 registers
- Momentary power or power factor display (WQ0207 –90° and WQ2207 –240° only)
- Standard 96 X 96 DIN case
- Accuracy class EN 62053-21 class 1
- Protective cover for terminal

Iskra®

PROPERTIES

- Energy meter
- 7 digits electromechanical register
- Up to 2 registers
- Momentary power or power factor display (WQ0207 – 90° and WQ2207 –240° only)
- Standard 96 X 96 DIN case
- Exchangeable scale
- Accuracy class EN 62053-21 class 1
- Input frequency range from 16 Hz to 400 Hz (external power supply only)
- Up to 2 pulse outputs (option)
- AC or Universal power supply
- Automatic range of nominal current (max. 12.5A) and voltage
- Protective cover for terminal
- USB service port (option)

DESCRIPTION

The meter is intended for energy measuring in single-phase or three-phase electrical power network. The meter measure according to the principle of fast sampling of voltage and current signals. A built-in microprocessor calculates energy, power and power factor from the measured signals.

USE

The meter is intended for monitoring and measuring electrical quantities of three-phase electric-energy distribution system. Meter record energy in all four quadrants. Up to 2 pulse outputs are available for measurements control.

COMPLIANCE WITH STANDARDS:

Standard EN	Description
61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use
60529	Degrees of protection provided by enclosures (IP code)
60051-1	Direct acting indicating analogue electrical measuring instruments and their accessories
61326	Electrical equipment for measurement, control and laboratory use - EMC requirements
62052−11*	Electricity metering equipment – General requirements, tests and test conditions
62053−21*	Electricity metering equipment (a.c.) Particular requirements
62053−31*	Electricity metering equipment (a.c.) Particular requirements

* – Partial compliance

DESCTRIPTION OF PROPERTIES

MEASURANDS

- Measurements of energy in all 4 quadrants
- Measurements of momentary active, reactive power and power factor (only WQ0207 and WQ2207)

ELECTROMECHANICAL REGISTER

The meter is available with one or with two (WQ1217 only) electromechanical registers. Registers have 7 digits.

ANALOGUE POINTER

Two types of pointers are available WQ0207 have 90° analogue pointer. WQ2207 have 240° analogue pointer. Pointer can show momentary active or reactive power or power factor.

OUTPUT MODULES

The meter is available without or with two pulse output modules. Available are relay or S0 pulse output modules. Modules have three terminals.

SUPPLY

Power supply connection of the meters is adaptive. Standard is AC power supply enables connection of the meter to AC voltage (57.7 & 63.5 / 100 & 110 / 230 / 400). Option is a universal power supply enables connection of the meter to DC (120−300 V) or AC voltage (85−264 V / 40-65 Hz).

USB SERVICE COMMUNICATION (OPTION)

Before use input voltage and power supply connection on the meter must be disconnected. For setting use MiQen software. Communication works only 1000 s after connection.

TECHNICAL DATA

EU DIRECTIVES:

Decree on electrical equipment designed for use within certain voltage limits **URLRS 53/00**
(Directive **2014/35/EU** on low voltage):
EN 61010-1
Safety requirements for electrical equipment for measurement, control and laboratory use, part 1: General requirements
Decree on electromagnetic compatibility (EMC) **URLRS 61/00**
(Directive **2014/30/EU** on electromagnetic compatibility):
EN 61326-1

SAFETY:

Protection class:	**II**
	600 V rms, installation category **II**
	300 V rms, installation category **III**
	pollution degree 2
	in compliance with **EN 61010-1**
Enclosure material:	PC/ABS
	Incombustibility-self-extinguishability, complying with **UL 94 V-0**
Enclosure protection:	IP 52 (IP 00 for terminals)
	in compliance with **EN 60529**
Cutting for installation:	$92^{+0,8}$ mm
Converter mass:	max. 600 g.

AMBIENT CONDITIONS:

Temperature range of operation:	-10 to +55°C
Storage temperature range:	-40 to +70°C
Average annual humidity:	≤ 75% r.h.

INPUTS

Input signals	Current	Voltage
Nominal frequency range	50, 60 Hz	
Measuring frequency range	16 –400 Hz	
Nominal value (In, Un)	1 / 5 A	75,120,250,500 V $_{L-N}$
Maximal vale	12.5 A	600 V $_{L-N}$
Consumption	< 0.1 VA	< 0.1 VA

POWER SUPPLY

Power supply	Universal	AC
Nominal voltage AC	85–264 V	57.7 & 63.5 / 100 &110 / 230 / 400
Nominal frequency	40–65 Hz	40–65 Hz
Nominal voltage DC	120–300 V	–
Consumption	< 3 VA	< 3 VA

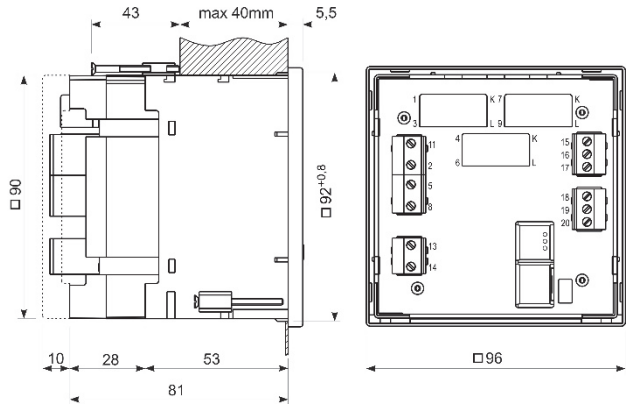
REFERENCE CONDITIONS

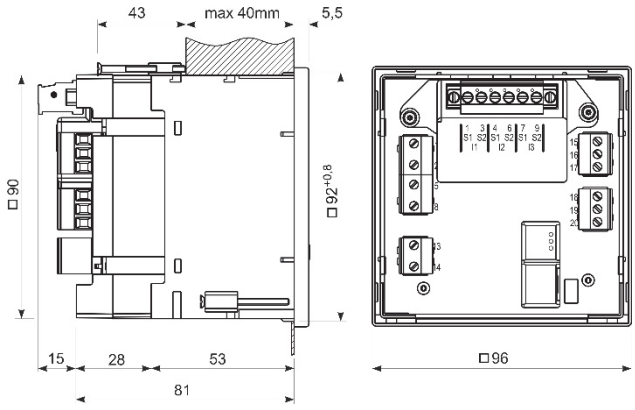
Ambient temperature:	–10 … 23 … 55°C
Voltage input:	+/- 20% Un
Current input	0 … 100 % In
Active/reactive power, factor:	cosφ = 1 / sinφ = 1
Waveform:	Sinus

ACCURACY

Measurand		Accuracy
Active, reactive and apparent power		1.5
Power factor (PF)		1.5
Active energy	EN 62053-21	Class 1
Reactive energy	EN 62053-23	Class 2

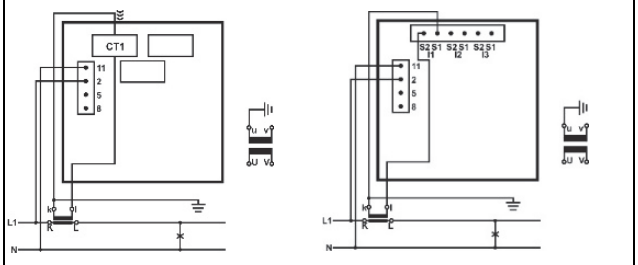
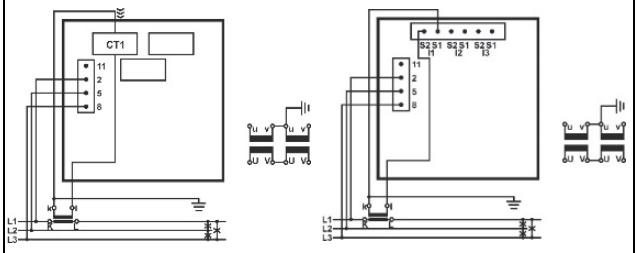
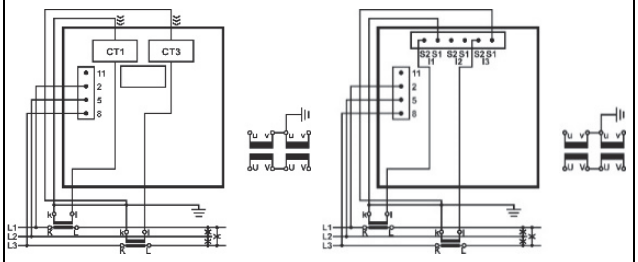
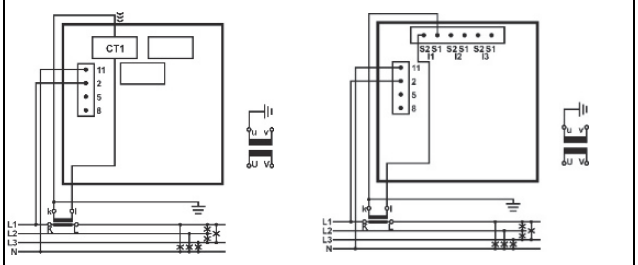
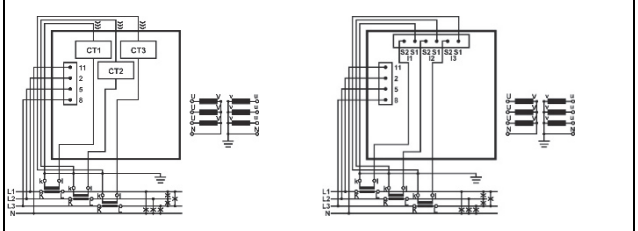
DIMENSIONAL DRAWING





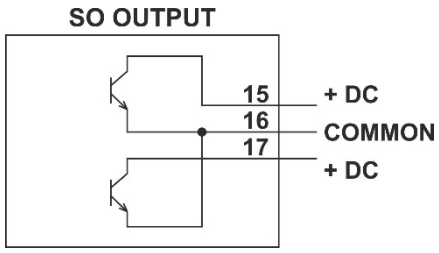
CONNECTION

Voltage inputs can be connected either directly to low-voltage network or via a high-voltage transformer to high-voltage network.
Current inputs shall be connected to network via a corresponding current transformer

System/ connection with Terminal assignment

Single-phase connection 1b (1W)

Three-phase three-wire Connection with balanced load 3b (1W3)

Three-phase three-wire Connection with unbalanced load 3u (2W3)

Three-phase four wire Connection with balanced load 4b (1W4)

Three-phase four wire Connection with unbalanced load 4u (3W4)

Inputs / Quantities		Terminals	
Measuring inputs:	AC current	IL1	1, 3
		IL2	4, 6
		IL3	7, 9
	AC voltage	UL1	2
		UL2	5
		UL3	8
		N	11
Auxiliary power supply:		+ / AC_L	13
		– / AC_N	14
Output modules	Output	Out –1	15
		C–12	16
		Out –2	17

OUTPUT MODULE CONNECTION



TERMINALS

Connection	Max. conductor cross-sections
Voltage inputs (4)	≤ 2.5 mm^2; one conductor
Current inputs (3)	≤ Ø 6 mm; one conductor with insulation
Power supply (2)	≤ 2.5 mm^2; one conductor
Modules (3)	≤ 2.5 mm^2; one conductor

DATA FOR ORDERING

ORDERING

When ordering the meter, all required specifications shall be stated in compliance with the ordering code. Special options are available and shall be stated as additional text. Possible options are: different logotype, special scale, additional line value and colour ...

GENERAL ORDERING CODE FOR WQ0207 AND WQ2207 HARDWARE CONFIGURATION

Device type	Accuracy class	Index Zero Position	Connection	Nominal Voltage	Nominal Current	Frequency Range	Auxiliary Supply	Current Connection	Service Communicati	Output 1 &2	Finish	Window	Dial	Index Type	Zero Adjuster Colour	Protection Cover	Comment
WQ0207 or WQ2207	X	X	XX	XXXX	XX	X	X	X	X	X	X	X	X	X	X	X	
																Y Yes *	
																N No	
															S Black *		*If **Finish** is **P, G, R** or **V** then only **S** (Black) is available*
															W White		
														S Single Scale *			
														D Double Scale			
													S Standard with Scale *				
													N Bianco Dial				
													X No Dial				
												A Clear Glass *					
												L Anti-Glare Glass					
												P Polycarbonate Pane					
											A Standard *						
											H HVE (Tropical Seal)						
											P IP54						
											G HVE + IP54						
											S Ship Ver.						
											T Ship Ver. + HVE						
											R Ship Ver. + IP54						
											V Ship Ver. + HVE + IP54						
										N Without *							
										S 2x Pulse output							
										M 2x Relay output							
									N Without *								
									M Mini USB								
								T Through Hole Transformer *									
								C Screw Terminal Connector									
							X Internal L1-N										*With 1B, 4B and 4U only*
							Y Internal L1-L2										*With 3B and 3U only*
							A E 57,7 V										
							B E 63,5 V										
							C E 100 V										
							D E 110 V										
							R E 115 V										
							E E 230 V										
							I E 240 V										
							F E 400 V										
							J E 440 V										
							V 120...370 V DC, 85...264 V AC										
						S 50 Hz *											
						T 60 Hz											
						R 45...65 Hz											
					1A 1 A												
					5A 5 A												
				57P7 57.7 V L-N \													
				63P5 63.5 V L-N |													
				66P4 66.4 V L-N |													
				69P3 69.3 V L-N |													
				100P 100 V L-N |													
				110P 110 V L-N |													
				115P 115 V L-N |													
				120P 120 V L-N 1B													
				127P 127 V L-N Connect.													
				130P 130 V L-N |													
				132P 132 V L-N |													
				220P 220 V L-N |													
				230P 230 V L-N |													
				240P 240 V L-N |													
				250P 250 V L-N |													
				254P 254 V L-N /													
			1B Single phase														
			3B 3 phase 3 wire balanced														
			3U 3 phase 3 wire unbalanced														
			4B 3 phase 4 wire balanced														
			4U 3 phase 4 wire unbalanced														
		L 0 / 1 (unipolar index)*															
		C -1 / 0 / 1 (bipolar index)															
		F -0.1 / 0 / 1 (bipolar index 10%)															
	S Class 1.5 *																
	H Class 1.0																

100L 100 V L-L \ | **110L** 110 V L-L \| | **115L** 115 V L-L \| | **120L** 120 V L-L \| | **220L** 220 V L-L \| | **225L** 225 V L-L \| | **230L** 230 V L-L \| | **380L** 380 V L-L 3B and 3U | **400L** 400 V L-L Connect. | **415L** 415 V L-L \| | **440L** 440 V L-L \| | **450L** 450 V L-L \| | **460L** 460 V L-L \| | **470L** 470 V L-L \| | **480L** 480 V L-L \| | **500L** 500 V L-L /

57V7 57.7/100 \ | **63V5** 63.5/110 \| | **66V4** 66.4/115 \| | **69V3** 69.3/120 \| | **110V** 110/190 \| | **120V** 120/208 \| | **127V** 127/220 \| | **130V** 130/225 4B and 4U | **132V** 132/230 Connect. | **220V** 220/380 \| | **230V** 230/400 \| | **240V** 240/415 \| | **254V** 254/440 \| | **277V** 277/480 \| | **288V** 288/500 /

WQ0207 Energy meter with one register and 90° scale
WQ2207 Energy meter with one register and 240° scale

* - Default ordering value

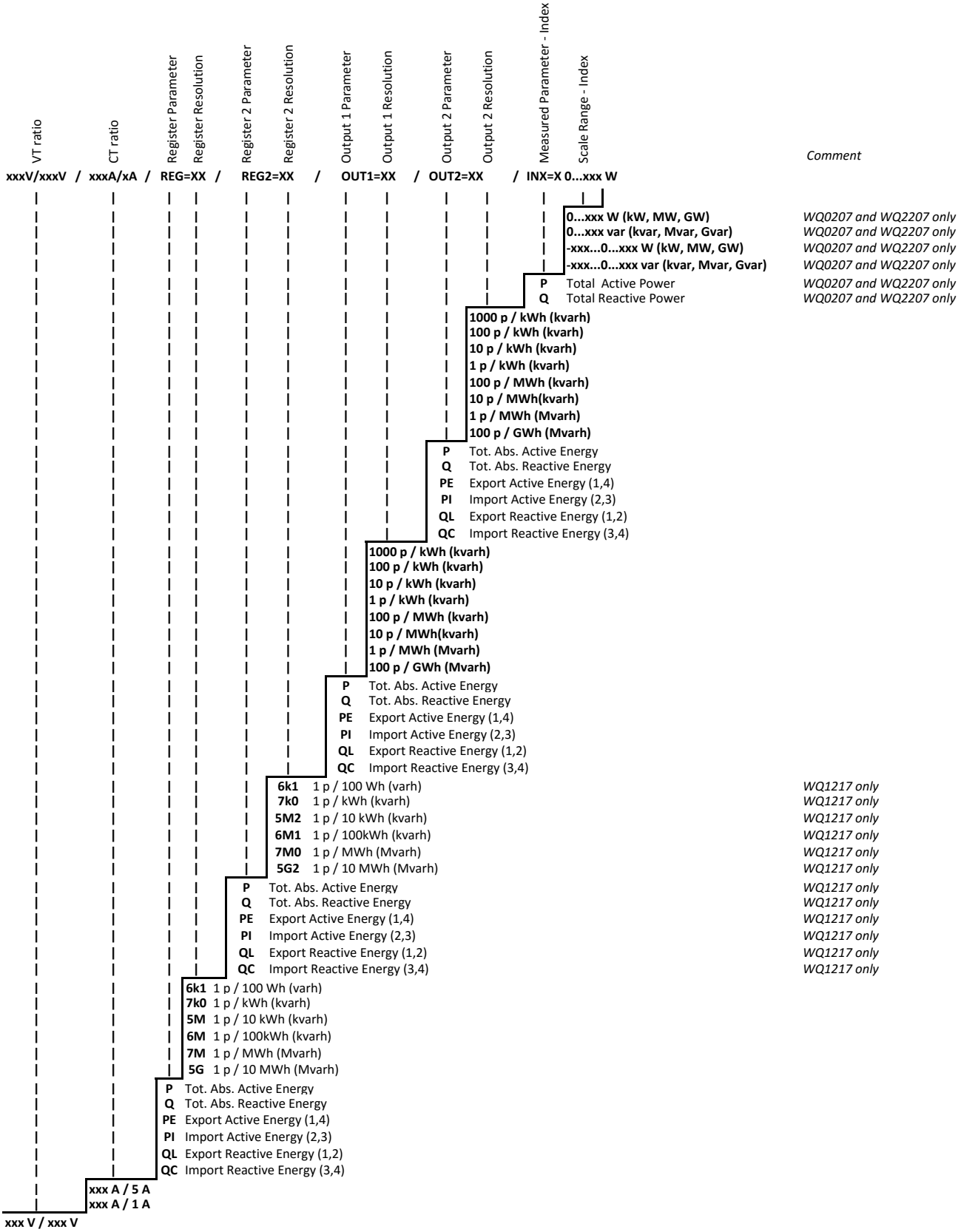
GENERAL ORDERING CODE FOR WQ0217 AND WQ2217 HARDWARE CONFIGURATION

Device type	Accuracy class	Connection	Nominal Voltage	Nominal Current	Frequency Range	Auxiliary Supply	Current Connection	Service Communication	Output 1 &2	Finish	Window	Dial	Protection Cover	Comment
WQ0217 or WQ2217	**X**	**XX**	**XXXX**	**XX**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	
													Y Yes *	
													N No	
												S Standard with Scale *		
												N Bianco Dial		
												X No Dial		
											A Clear Glass *			
											L Anti-Glare Glass			
											P Polycarbonate Pane			
										A Standard *				
										H HVE (Tropical Seal)				
										P IP54				
										G HVE + IP54				
									N Without *					
									S 2x Pulse output					
									M 2x Relay output					
								N Without *						
								M Mini USB						
							T Current Transformer *							
							C Terminal Connector							
						X Internal L1-N								*With 1B, 4B and 4U only*
						Y Internal L1-L2								*With 3B and 3U only*
						A E 57,7 V								
						B E 63,5 V								
						C E 100 V								
						D E 110 V								
						R E 115 V								
						E E 230 V								
						I E 240 V								
						F E 400 V								
						J E 440 V								
						V 120...370 V DC, 85...264 V AC								
					S 50 Hz *									
					T 60 Hz									
					R 45…65 Hz									
				1A 1 A										
				5A 5 A										
			57P7 57.7 V L-N \											
			63P5 63.5 V L-N |										
			66P4 66.4 V L-N |										
			69P3 69.3 V L-N |										
			100P 100 V L-N |										
			110P 110 V L-N |										
			115P 115 V L-N |										
			120P 120 V L-N 1B											
			127P 127 V L-N Connect.											
			130P 130 V L-N |										
			132P 132 V L-N |										
			220P 220 V L-N |										
			230P 230 V L-N |										
			240P 240 V L-N |										
			250P 250 V L-N |										
			254P 254 V L-N /											
							100L 100 V L-L \						**57V7** 57.7/100 V \	
							110L 110 V L-L |					**63V5** 63.5/110 V |	
							115L 115 V L-L |					**66V4** 66.4/115 V |	
							120L 120 V L-L |					**69V3** 69.3/120 V |	
							220L 220 V L-L |					**110V** 110/190 V |	
							225L 225 V L-L |					**120V** 120/208 V |	
							230L 230 V L-L |					**127V** 127/220 V |	
							380L 380 V L-L 3B and 3U						**130V** 130/225 V 4B and 4U	
							400L 400 V L-L Connect.						**132V** 132/230 V Connect.	
							415L 415 V L-L |					**220V** 220/380 V |	
							440L 440 V L-L |					**230V** 230/400 V |	
							450L 450 V L-L |					**240V** 240/415 V |	
							460L 460 V L-L |					**254V** 254/440 V |	
							470L 470 V L-L |					**277V** 277/480 V |	
							480L 480 V L-L |					**288V** 288/500 V /	
							500L 500 V L-L /							
		1B Single phase												
		3B 3 phase 3 wire balanced												
		3U 3 phase 3 wire unbalanced												
		4B 3 phase 4 wire balanced												
		4U 3 phase 4 wire unbalanced												
	S Active cl.1 / Reactive cl.2 *													

WQ0217 Energy meter with one register
WQ2217 Energy meter with one register

* - Default ordering value

CONFIGURATION SETTINGS - GENERAL ORDERING CODE FOR ALL ENERY METERS



EXAMPLE OF ORDERING:

The WQ0207 meter is connected directly to phase voltage 230 V_{L-N} (4u) and 2000/5 A current transformer. External power supply is 400 Vac. Measured parameter on register is total absolute active energy and has resolution 1 pulse for 10 kWh. Analogue pointer has range 0 … 1.5 MW (total absolute active energy).

ORDERING CODE:

Hardware configuration:	**Configuration settings:**
WQ0207 SL4U230V5ASFTNNAASSSY	**200A/5A / REG = P 5M2 / INX = P 0…1.5MW**

DICTIONARY:

RMS	*Root Means Square*
PF	*Power factor*
MiQen	*Software for MC meters*
AC	*Alternating quantity*
USB	*Universal serial bus for service and setting*

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