










Energy Management

	Energy Meter	Energy Meter	Power Analyzer	Multifunction Meter
Types	EM1-DIN	EM2-DIN	WM1-DIN	WM12-DIN
				
Dimensions (mm) H x W x D	89 x 35 x 58.5	89 x 107 x 58.5	89 x 71.5 x 58.5	90 x 107,8 x 64,5
Function	1-phase energy meter. 1-phase system. Active energy measurement.	1- or 3-phase energy meter. 1-phase, 3-phase, 3 or 4 wires. Active and reactive energy metering (partial and total).	1- or 3-phase power analyzer. 1-phase, 3-phase balanced, 3 or 4 wires. Measurement of: V _{L-N} or V _{L-L} , A, W, VA, var, Wh, VAh, varh.	3-phase multifunction power indicator. System: V _{LL} , V _{LN} , An, VA, VAdmd, Wdmd, W, var, PF, Hz. Max: A, Wdmd. Single phase: V _{LL} , V _{LN} , A, VA, W, var, PF
Input Specifications				
Range code	230 VAC - 22.5 AAC [AV8]	250/433 VAC - 5 AAC [AV5]	400 VAC(1-phase)/500 VAC(3-phase)-5/27AAC 3-phase system with neutral [27A]. As above but for measurement on 3-phase without neutral [TX instead of PX]	400/660V _{L-L} /5(6)AAC [AV5] 100/208V _{L-L} /5(6)AAC [AV6]
Accuracy	Class 2 (EN61036)	±1% RDG (kWh)	±2% FS (V, A)	±0.5% FS (V, A)
Display	5+1 digits Electromech. display	6-digit backlighted LCD	3-digit LED	3x3 digits LED
Display refresh time		1.5 times/s	1.5 times/s	1.5 times/s
Output Specifications				
Serial communication		RS 485 output + 1 relay NO [XS]; no output (standard) [XX]	RS 485 (1-phase 3-phase system with neutral [RX]) RS 485 (1-phase 3-phase system without neutral [SX]); both instead of "PX" 1 programmable open collector pulse out [PX]*	RS 485 port (on request) [S]
Pulse	1 pulse output (on request): 10 pulse/kWh		1 SSR alarm output [1]** instead of [0] (no alarm)	
Alarm		1 relay output (driven only by serial comm.)		
General Specifications				
Power supply	230 VAC [D]	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D]	115 VAC [C] 230 VAC [D]	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D] 18 to 60 VDC [3] CE - UL
Approvals/Marks	CE	CE	CE	CE - UL
References				
* Only without alarm			WM1-DIN 27A A D O PX	
** Only without pulse			WM1-DIN 27A A D O XX	
With pulse				
No serial Output	24 VAC 48 VAC 115 VAC 230 VAC	EM1-DIN AV8 1 D XX EM1-DIN AV8 1 D PX	WM1-DIN 27A A C O XX WM1-DIN 27A A D O XX	
Serial Output	24 VAC 48 VAC 115 VAC 230 VAC	EM2-DIN AV5 3 A XX EM2-DIN AV5 3 B XX EM2-DIN AV5 3 C XX EM2-DIN AV5 3 D XX EM2-DIN AV5 3 A XS EM2-DIN AV5 3 B XS EM2-DIN AV5 3 C XS EM2-DIN AV5 3 D XS	WM1-DIN 27A A C O RX WM1-DIN 27A A D O RX	
Ordering References				

See pag. 110








	Power Analyzer	Energy Meter	Energy Meter
Types	WM2-DIN	EM3-DIN	EM4-DIN
			
Dimensions (mm) H x W x D	89 x 107 x 58.5	90 x 162.5 x 63	90 x 162.5 x 63
Description		MODULAR	MODULAR
Function	1- or 3-phase power analyzer 1-phase, 3-phase, 3 or 4 wires. Measurement of: kW, kvar, PF, V _{L-L} , V _{L-N} , A, kWh tot/par, kvarh tot/par.	2-phase, 3-phase unbalanced 3 or 4 wires energy meter. Direct connection up to 90 A. 6+1 digits electro- mechanical display.	3-phase energy meter. Direct connection up to 90 A. Back-lighted LCD display. 3 1/2 digits instantaneous variables read out, 8+ 7 1/2 dgt energy read out. Measurement of system and phase variables, energy by timeperiods, m ³ H ₂ O and m ³ GAS.
Input Specifications			
Range code	433 VAC - 5 AAC [AV5]	208V _{L-L} [AV8], 220V _{L-L} [AV2], 400V _{L-L} [AV9], 660V _{L-L} [AV3]/20(90)AAC. 3-phase unbalanced load [3]	100V _{L-L} [AV6], 208V _{L-L} [AV4], 400V _{L-L} [AV5], 660V _{L-L} [AV7] 5(10) AAC; 208V _{L-L} [AV0] [AV8 self p.s.], 220V _{L-L} [AV2], 400V _{L-L} [AV1] [AV9 self p.s.], 660V _{L-L} [AV3] 20(90) AAC;
Accuracy	±1% FS (kWh)		
Active energy		Class 2: (EN61036)	Class 1: (EN61036)
Reactive energy		Class 3: (EN61268)	Class 2: (EN61268)
Display	3-digit backlighted LCD (6-digit for energy)	6+1 digits (electro- mechanical)	3 1/2-digit backlighted LCD (8-digit for energy)
Output Specifications			
Out 1 (Pulse)	1 programmable open collector pulse output [P]	Dual pulse outputs (NPN transistor) [O]	Dual pulse output module (NPN trans.) [O]
Out 1 (Alarm)			1 alarm output module [O] (NPN trans.) 30 VDC//100 mA Max. RS422/485 serial port [SO]
Out 2 (Serial communication)	RS 485 output [PS] Standard [PX]		
Inputs			2 digital inputs module [D]
General Specifications			
Power supply	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D]	Self power supply [X]: 400VAC, 208VAC VL-L Auxiliary power supply: 230VAC[D], 115VAC[C]	Self power supply: [X] 400VAC, 208VAC, 220VAC VL-L Auxiliary power supply: 230[D], 115[C], 48[B], 24 [A]VAC, 18 to 60 VDC [4], 77 to 143 VDC [5]
Approvals/Marks	CE	CE	CE
References	<ul style="list-style-type: none"> WM2-DIN AV5 3 A P X WM2-DIN AV5 3 B P X WM2-DIN AV5 3 C P X WM2-DIN AV5 3 D P X WM2-DIN AV5 3 A P S WM2-DIN AV5 3 B P S WM2-DIN AV5 3 C P S WM2-DIN AV5 3 D P S 		
Ordering References		See pag. 110	See pag. 110

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	Power Analyzer	Power Transducer	Power Transducer
Types	WM22-DIN	SPT-90	PQT-90
			
Dimensions (mm) H x W x D	90 x 162.5 x 63	90 x 90 x 138	90 x 90 x 138
Description	MODULAR	MODULAR	MODULAR
Function	3-phase power analyzer. Direct connection up to 90 A. Back-lighted LCD display. 4 x 3 1/2 digits instantaneous variables read out, 7 1/2 digits energy read out. Measurement of system and phase variables. Measurement of THD.	1-phase, 3-phase transducer. 3-phase 3 or 4 wires. Measurement of: W, Wdmd, VA, var, PF, Wh, VAh, varh, VL-L sys, VL1-N, VL2-N, VL3-N, Hz. Programming unit or programming software	Power quality transducer. 32 bit μ P based. Alarm outputs, SMS messages. Measurement of all instantaneous variables. Energy, water and gas metering. 2MB memory+ Real time clock (on request).
Input Specifications			
Range code	100V _{L-L} [AV6], 208V _{L-L} [AV4], 400V _{L-L} [AV5], 660V _{L-L} [AV7] 5(10) AAC; 208V _{L-L} [AV0], 400V _{L-L} [AV1], 220V _{L-L} [AV2] 660V _{L-L} [AV3] 20(90) AAC;	100VAC 1A[AV1]; 100VAC 5A[AV3]; 433VAC 1A [AV4]; 433VAC 5A[AV5]; 690VAC 5A[AV7]	240/415 VAC-1/5 AAC [AV5] 400/690 VAC-1/5 AAC [AV7]
Accuracy	$\pm 0.5\%$ RDG (A,V)	$\pm 5\%$ FS (A,V)	Class 0.5 (A,V)
Active energy	Class 1: (EN61036)		
Reactive energy	Class 2: (EN61268)		
Sampling Rate	1000 samples /s @ 50Hz	1900 samples /s @ 50Hz	6400 samples /s @ 50Hz
Output Specifications			
Out 1 (Pulse)	Dual pulse output module (NPN trans.)(O)	Single /dual pulse, open collector modules	Up to 2 single/dual open collector or relay modules
Out 1 (Alarm)	1 alarm + 1 pulse output module [O] (NPN tr) 30 VDC//100 mA Max.	Single/dual alarm setpoint, relay modules	Up to 2 single/dual open collector or relay modules
Out 2 (Analogue)	1 analogue output : 0 to 20 mADC [A1], or 0 to 10 VDC [V1]	Single/dual analogue output modules	Up to 2 single/dual analogue output modules
Out 2 (Serial communication)	RS422/485 serial port [SO]	RS485 multidrop birectional module	RS 422/485 port, RS232 port + RTC+2MB data module
Out 2 Internet/Ethernet port			Internet/Ethernet comm. with WEB server capability [E1]
Inputs		3 digital inputs module [D1]	Up to 6 digital inputs
Options		Programming key-pad module [K]; RS232 Port module [S]	
General Specifications			
Power supply	Self power supply: 400VAC 208VAC VL-L Auxiliary power supply: 230[D], 115[C], 48[B], 24 [A]VAC 18 to 60 [4] 77 to 143 VDC [5]	18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H]	18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H]
Approvals/Marks	CE	CE - UL - CSA	CE - UL - CSA
Ordering References	See pag. 110	See pag. 111	See pag. 111









	Multifunction Meter	Power Analyzer	Energy Meter	Power Analyzer
Types	WM12-96	WM14-96	EM2-96	WM2-96
Dimensions (mm) H x W x D	96 x 96 x 46	96 x 96 x 46	96 x 96 x 124	96 x 96 x 124
Description	3-phase multifunction indicator. System: V_{LL} , V_{LN} , A, An, VA, VAdmd, W, Wdmd, var, PF, Hz. Max: A, Wdmd Single phase: V_{LL} , V_{LN} , A, VA, W, var, PF	3-phase power analyzer. System: V_{LL} , V_{LN} , A, An, VA, VAdmd, Wdmd, W, var, PF, Hz, kWh, kvarh Max: A, Admd, Wdmd Single phase: V_{LL} , V_{LN} , A, Admd, VA, W, var, PF, hour meter	MODULAR 3-phase energy meter. 1-phase, 3-phase, 3 or 4 wires. Active reactive energy metering (partial and total).	MODULAR 3-phase power analyzer. 1-phase, 3-phase, 3 or 4 wires. Measurements of: kW, kvar, PF, kWh, kvarh, A, V_{L-L} , VL1-N, VL2-N, VL3-N.
Input Specifications				
Range Code	400/660 $V_{L-L}/5(6)$ AAC [AV5] 100/208 $V_{L-L}/5(6)$ AAC [AV6]	400/660 $V_{L-L}/5(6)$ AAC [AV5] 100/208 $V_{L-L}/5(6)$ AAC [AV6]	433 $VAC_{L-L}-5$ AAC[AV5] [AC1014]; 690 V_{L-L} VAC-5 AAC [AV7] [AC1015]	433 $VAC_{L-L}-5$ AAC[AV5] [AC1014]; 690 V_{L-L} VAC-5 AAC [AV7] [AC1015]
Accuracy	0.5 FS (V, A)	0.5 FS (V, A) 2 (kWh) 3 (kvarh)	±1% RDG (kWh)	±0.5% FS (V, A)
Display	3x3 digits, LED	3x3 digits, LED 8+1 digits (energy)	6-digit backlighted LCD	3-digit backlighted LCD (6-digit for energy).
Display refresh time	1.5 times/s	1.5 times/s	3 times/s	3 times/s
Output Specifications				
Serial communication output	RS 485 port (on request) [S]	RS 485 port (on request) [S]	RS 422/485 port (only with [L] or [H] p.s.)	RS 422/485 port (only with [L] or [H] p.s.)
Alarm output			Single relay SPDT; dual relay SPDT;*	
Pulse output				Single NPN transistor; dual NPN transistor (redundant); Single relay SPDT; dual relay SPDT (redundant)
General Specifications				
Power supply	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D] 18 to 60 VDC [3]	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D] 18 to 60 VDC [3]	24 VAC [A] 48 VAC [B] 115VAC [C] 230 VAC [D] 18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H] CE - UL - CSA	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D] 18 to 60 VDC [3] 90 to 260 VAC/DC [H] CE - UL - CSA
Approvals/Marks	CE - UL - CSA	CE	CE - UL - CSA	CE - UL - CSA
Note			*The alarm outputs are driven only by the serial communication.	
Ordering References	See pag. 110	See pag. 112	See pag. 110	See pag. 110

Control



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	Power Analyzer	Power Analyzer	Utility Meter	Utility Meter
Types	WM23-96	WM3-96	WM24-96	WM4-96
				
Dimensions (mm) H x W x D	96 x 96 x 124	96 x 96 x 124	96 x 96 x 124	96 x 96 x 124
Description	MODULAR 3-phase power quality analyzer System: V_{LN} , V_{LL} , An, VA, VAdmd, W, Wdmd, var, PF, Hz, THD Single phase: V_{LN} , V_{LL} , A, W, var, PF, THD; Max: W (standard), A [A]	MODULAR 3-phase power quality analyzer System: V_{LN} , V_{LL} , An, VA, VAdmd, W, Wdmd, var, PF, Hz, THD total/partial kWh, kvarh (4 tariff) Single phase: V_{LN} , V_{LL} , A, W, var, PF, THD	MODULAR 3-phase universal utility meter System: V_{LN} , VA, VAdmd, W, Wdmd, var, PF, Hz, total/partial kWh, (4 tariff) total/partial kvarh, gas, H ₂ O. Single phase: V_{LN} , A, W, var, PF	MODULAR Universal utility meter and power analyzer. 32 bit μ P based. Load profile indication. Alarm outputs, SMS messages. Measurement of all instantaneous variables. Energy, water and gas metering.
Input Specifications				
Range Code	57/100V _{L-L} /5(6)AAC [AV6], 120/208V _{L-L} /5(6)AAC [AV4], 230/400V _{L-L} /5(6)AAC [AV5], 380/660V _{L-L} /5(6)AAC [AV7]	433 VAC-1/5 AAC [AV5] 690 VAC-1/5 AAC [AV7]	57/100V _{L-L} /5(6)AAC [AV6], 120/208V _{L-L} /5(6)AAC [AV4], 230/400V _{L-L} /5(6)AAC [AV5], 380/660V _{L-L} /5(6)AAC [AV7]	433 VAC-1/5 AAC [AV5] 690 VAC-1/5 AAC [AV7]
Accuracy	± 0.5 FS (V, A)	$\pm 0.5\%$ RDG (V, A)	$\pm 0.5\%$ RDG (V, A)	$\pm 0.5\%$ RDG (V, A)
Display	4x3 1/2 digits LCD (back lighted).	4x4 digits backligh. LCD 4x9 digits (energy).	4x3 1/2 digits LCD, 8 digits (energy)	4x4 digits backligh. LCD 4x9 digits (energy).
Display refresh time	1.5 times/s	10 times /s	1.5 times/s	10 times/s
Output Specifications				
Serial communication port	RS 485 port (on request) [S1] RS 232 port (on request) [S]	RS 422/485 port RS232 port + RTC	RS 485 port (on request) [S1] RS 232 port (on request) [S]	RS 422/485 port, RS232 port + RTC + 2MB data or RS232
Internet/Ethernet port				Internet/Ethernet comm. with WEB server capability [E1]
Alarm output	Up to 2 single/dual open collector or relay modules	Up to 2 single/dual open collector or relay modules	Up to 2 single/dual open collector or relay modules	Up to 2 single/dual open collector or relay modules
Pulse output		Up to 2 single/dual open collector or relay modules	Up to 2 single/dual open collector or relay modules	Up to 2 single/dual open collector or relay modules
Digital input	Up to 3 (W/VAdmd sync.)	Up to 3 digital inputs	Up to 3 (time per. mngr.)	Up to 6 digital inputs
Analogue output	Up to 1 (mA/V) analog. output module	Up to 2 single/dual analog output modules		
General Specifications				
Power supply	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D] 18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H]	18 to 60 VAC/DC 90 to 260 VAC/DC	24 VAC [A] 48 VAC [B] 115 VAC [C] 230 VAC [D] 18 to 60 VAC/DC [L] 90 to 260 VAC/DC [H]	18 to 60 VAC/DC 90 to 260 VAC/DC
Approvals/Marks	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA	CE - UL - CSA
Ordering References	See pag. 111	See pag. 111	See pag. 111	See pag. 111