Electronic Products

RAPIDUS Series Power Factor Controllers

Type			RAPIDUS 231R-E	RAPIDUS 211R	RAPIDUS 232R-E	RAPIDUS 212R
Definiton			Power Factor Controller (3Ø-12steps)	Power Factor Controller (1Ø-12steps)	Power Factor Controller (3Ø-24steps)	Power Factor Controller (1Ø-24steps)
Order Number			606005	606011	606007	606014
General	Measuring system		3Ø	1Ø	3Ø	1Ø
	LCD Sreen		Available	Available	Available	Available
	Language Support		Turkish, English, Russian	Turkish, English, Russian	Turkish, English, Russian	Turkish, English, Russian
	Battery		Available	Available	Available	Available
	Real Time Clock		Available	Available	Available	Available
	Password Protection		Available	Available	Available	Available
	Current Transformer Ratio		1-5000	1-5000	1-5000	1-5000
	Voltage Transformer Ratio		1-5000	1-5000	1-5000	1-5000
	Demand Period		1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable
	Connection Type		3P4W	Single phase(L-L or L-N) voltage connection with 1 CT	3P4W	Single phase(L-L or L-N) voltage connection with 1 CT
	Measurement in Quadrants		4	4	4	4
	Number of Measurement in a period		512	512	512	512
	LCD/Display Refresh Period		1 sec	1 sec	1 sec	1 sec
	Networks		TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT
	Phasor Diagram		Available	Available	Available	Available
	Signal Waveforms		-	-	-	-
	Min/Max/Demand Values		Available	Available	Available	Available
Control Operations and Functions	Compensation Modes	Rapidus (Intelligent control mode)	Available	Available	Available	Available
		Sequential	Available	Available	Available	Available
		Linear	Available	Available	Available	Available
		Circular	Available	Available	Available	Available
		Manual	Available	Available	Available	Available
	Step Conf igurations	Manually Assign	Available	Available	Available	Available
		Predef ined	1-1-1-1, 1-1-2-2, 1-2-2-4, 1-2-3-3, 1-2-4-4, 1-1-2-4, 1-2-3-4, 1-2-4-8, 1-1-2-3	1-1-1-1, 1-1-2-2, 1-2-2-4, 1-2-3-3, 1-2-4-4, 1-1-2-4, 1-2-3-4, 1-2-4-8, 1-1-2-3	1-1-1-1, 1-1-2-2, 1-2-2-4, 1-2-3-3, 1-2-4-4, 1-1-2-4, 1-2-3-4, 1-2-4-8, 1-1-2-3	1-1-1-1, 1-1-2-2, 1-2-2-4, 1-2-3-3, 1-2-4-4, 1-1-2-4, 1-2-3-4, 1-2-4-8, 1-1-2-3
		DCM	Available	Available	-	-
		Fixed Step Assigment	Available	Available	Available	Available
		Power(kVAr)	0.00-1000 adjustable	0.00-1000 adjustable	0.00-1000 adjustable	0.00-1000 adjustable
		Type	3Ø capacitor,3Ø shunt reactor,1Ø capacitor or 1Ø shunt reactor adjustable	3Ø capacitor, 3Ø shunt reactor adjustable	3Ø capacitor,3Ø shunt reactor,1Ø capacitor or 1Ø shunt reactor adjustable	3Ø capacitor, 3Ø shunt reactor adjustable
	Power factor settings	Target 1 cosØ	0.8cap. to 0.8ind. adjustable	0.8cap. to 0.8ind. adjustable	0.8cap. to 0.8ind. adjustable	0.8cap. to 0.8ind. adjustable
		Target 2 cosØ	0.8cap. to 0.8ind. adjustable	0.8cap. to 0.8ind. adjustable	0.8cap. to 0.8ind. adjustable	0.8cap. to 0.8ind. adjustable
	Learning Step Powers and Connections		Available	Available	Available	Available
	Dual cosØ target		Available	Available	Available	Available
	4 Quadrant operation for generators		Available	Available	Available	Available
	Time delays	Step activation time	1-600 sec adjustable	1-600 sec adjustable	1-600 sec adjustable	1-600 sec adjustable
		Step deactivation time	1-600 sec adjustable	1-600 sec adjustable	1-600 sec adjustable	1-600 sec adjustable
		Step discharge time	3-1000 sec adjustable	3-1000 sec adjustable	3-1000 sec adjustable	3-1000 sec adjustable
	Phase shift angle		±45 degree adjustable	±45 degree adjustable	±45 degree adjustable	±45 degree a adjustable
	Averaging time		Off, 5sec, 10sec, 20sec, 30sec, 40sec, 50sec, 60sec adjustable	Off, 5sec, 10sec, 20sec, 30sec, 40sec, 50sec, 60sec adjustable	Off, 5sec, 10sec, 20sec, 30sec, 40sec, 50sec, 60sec adjustable	Off, 5sec, 10sec, 20sec, 30sec, 40sec, 50sec, 60sec adjustable
Energy Meters	Number of Tariffs		1	1	1	1
	Multi Sub-Tariffs(Peak, Day and Off-Peak)		-	-	-	-
	1Ø Phase Energy Meter		-	-	-	-
	3Ø Phase Energy Meters		Available	Available	Available	Available
	4 Quadrant Reactive Energy Meters		-	-	-	-

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Type			RAPIDUS 231R-E	RAPIDUS 211R	RAPIDUS 232R-E	RAPIDUS 212R
Current Measurement Input	Measurement Range		10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC
	Overvoltage Category		300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II
	Measurement Surge Voltage		2 kV	2 kV	2 kV	2 kV
	Power Consumption		<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA
	intermittent overload		100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec
	Sampling Freq.between 45-65 Hz		25,6 kHz	25,6 kHz	25,6 kHz	25,6 kHz
Voltage Measurement Input	Overvoltage Category		300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III
	Measured Range L-N		95-272 VAC ±10%	95-410VAC ±10%	95-272 VAC ±10%	95-410VAC ±10%
	Measured Range L-L		164-471 VAC ±10%	95-410VAC ±10%	164-471 VAC ±10%	95-410VAC ±10%
	Measured Frequency Range		45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz
	Power Consumption		<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA
	Sampling Freq.between 45-65 Hz		25,6 kHz	25,6 kHz	25,6 kHz	25,6 kHz
Power Quality Measurements	Harmonics / current and voltage		Upto 51st	Upto 51st	Upto 51st	Upto 51st
	THD-Voltage in %		Available	Available	Available	Available
	THD-Current in %		Available	Available	Available	Available
Measurement Accuracy	According to IEC 61557-12	Total Active Power	Class 0.2	Class 0.2	Class 0.2	Class 0.2
		Total Reactive Power	Class 1	Class 1	Class 1	Class 1
		Total Apparent Power	Class 0.2	Class 0.2	Class 0.2	Class 0.2
		Total Active Energy	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Total Reactive Energy	Class 2	Class 2	Class 2	Class 2
		Frequency	Class 0.05	Class 0.05	Class 0.05	Class 0.05
		Current	Class 0.2	Class 0.2	Class 0.2	Class 0.2
		Neutral Current	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Voltage	Class 0.2	Class 0.2	Class 0.2	Class 0.2
		Power factor	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		THDV, THDI	Class 1	Class 1	Class 1	Class 1
	According to IEC 62053-22	Total Active Energy	Class 0.2S	Class 0.2S	Class 0.2S	Class 0.2S
	Accoding to IEC 62053-23	Total Reactive Energy	Class 2	Class 2	Class 2	Class 2
Input and Outputs	Compensation Relay Outputs	Number of outputs	12 pcs.	12 pcs.	24 pcs.	24 pcs.
		Type	NO (SPST)	NO (SPST)	NO (SPST)	NO (SPST)
		Max. Switching Current	2 A	2 A	2 A	2 A
		Max. Switching Voltage	250 VAC	250 VAC	250 VAC	250 VAC
		Max. Switching Power	500 VA	500 VA	500 VA	500 VA
		Mechanical life time	≥ 10^7 operations	≥ 10^7 operations	≥ 10^7 operations	≥ 10^7 operations
		Electrical life time operations (for NO side)	5×104(5A@250VAC) 1×105(5A@30VDC)	5×104(5A@250VAC) 1×105(5A@30VDC)	5×104(5A@250VAC) 1×105(5A@30VDC)	5×104(5A@250VAC) 1×105(5A@30VDC)
	Alarm Relay Outputs	Number of outputs	2 pcs.	2 pcs.	2 pcs.	2 pcs.
		Type	NO (SPST)	NO (SPST)	NO (SPST)	NO (SPST)
		Max. Switching Current	4 A	4 A	4 A	4 A
		Max. Switching Voltage	250 VAC	250 VAC	250 VAC	250 VAC
		Max. Switching Power	1000 VA	1000 VA	1000 VA	1000 VA
		Mechanical life time	≥ 10^7 operations	≥ 10^7 operations	≥ 10^7 operations	≥ 10^7 operations
		Electrical life time operations (for NO side)	5×104(5A@250VAC) 1×105(5A@30VDC)	5×104(5A@250VAC) 1×105(5A@30VDC)	5×104(5A@250VAC) 1×105(5A@30VDC)	5×104(5A@250VAC) 1×105(5A@30VDC)
	Generator/ Day-Night Input	Number of inputs	1 pc.	1 pc.	1 pc.	1 pc.
		Frequency	45-65Hz	45-65Hz	45-65Hz	45-65Hz
		Input Present or Not	95-240VAC	95-240VAC	95-240VAC	95-240VAC
	Digital Outputs		-	-	-	-
	Analog Outputs		-	-	-	-

RAPIDUS Series Power Factor Controllers

Type			RAPIDUS 231R-E	RAPIDUS 211R	RAPIDUS 232R-E	RAPIDUS 212R
Supply	Auxilary supply input		No	No	No	No
	Voltage		95-272VAC ±10% from L1-N	95-410VAC ±10% from La-Lb	95-272VAC ±10% from L1-N	95-410VAC ±10% from La-Lb
	Frequency		45-65Hz	45-65Hz	45-65Hz	45-65Hz
	Consumption	AC	< 10VA	< 10VA	< 10VA	< 10VA
		DC	-	-	-	-
Data Logging with timestamp	Min/max/avg Values	Hourly records	1920 hours x 68 different paramaters	1920 hours x 68 different paramaters	1920 hours x 68 different paramaters	1920 hours x 68 different paramaters
		Daily records	240 days x 68 different paramaters	240 days x 68 different paramaters	240 days x 68 different paramaters	240 days x 68 different paramaters
		Monthly records	36 hours x 68 different paramaters	36 hours x 68 different paramaters	36 hours x 68 different paramaters	36 hours x 68 different paramaters
	Demand		4 months x 16 different parameters	4 months x 16 different parameters	4 months x 16 different parameters	4 months x 16 different parameters
	Alarm records		50	50	50	50
Communication	Protocol		Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU
	Baud rate		2400-115200 bps adjustable	2400-115200 bps adjustable	2400-115200 bps adjustable	2400-115200 bps adjustable
	Parity number		None	None	None	None
	Stop bit		1	1	1	1
	Address		1-247 adjustable	1-247 adjustable	1-247	1-247
	Isolation		2000V RMS	2000V RMS	2000V RMS	2000V RMS
Mechanical Properties	Weight(g)		670	663	765	750
	Protection Class		Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)
	Assembly Type		Panel Mount	Panel Mount	Panel Mount	Panel Mount
Cable Cross Sections	Voltage, Current, All Relay Outputs, Gen Input	Stranded:	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG
		Solid:	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG
	RS 485	Stranded:	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG
		Solid:	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG
Ambient Conditions	Operating Temperature	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C
	Storage Temperature	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C
	Relative Humidity (no condensation)	Max.95%	Max.95%	Max.95%	Max.95%	Max.95%
Accessories		Type	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)
		Definition	SILICONE COVER	SILICONE COVER	SILICONE COVER	SILICONE COVER
		Order Number	250 001	250 001	250 001	250 001
		Packaging unit	2	2	2	2