EMA

ELECTRICAL MULTIFUNCTION ANALYSERS
FLUSH MOUNTING DIN 144 x 144 - LCD DISPLAY

ENVIRONMENTAL WORKING CHARACTERISTICS
Working T: -5 ÷ +50°C
Storage T: -15 ÷ +60°C
Humidity: ≤90%

STANDARDS/ REGULATION
Safety: 61010-1:2001
EMC: EN61000-6-2
EN61000-6-4
CISPR22-EN55022

ELECTRICAL COMPATIBILITY CE
Energy: EN61036:1996

EMA-10

EMA-10 H

	EMA 10	EMA 10 H
Mechanical characteristics	Flush mounting DIN 144x144 mm I Depth 66 mm I Panel cut out 138x138 mm I Weight 0,5 kg	
Auxiliary supply	85÷265 V I 50-60 Hz / dc	
OPTION C1	20÷60 V I 50-60 Hz / dc	
Protection degree	Frontal IP 52 I Box IP 20	
Voltage inputs	3 inputs 750 V max (programmable transformer ratio with external VT 0,01÷ 5000,00)	
Current inputs	3 isolated inputs (TA) 0,005÷5A rms (10A f.s.) with external CT ratio programmable 0,01÷5000	
OPTION 1A	0,001÷1 Arms TA ratio external programmable	
Measured parameters	V I-I V I-n A I cosfi P.F. F °T I W Var VA V I-I V I-n A I cosfi P.F. F °T I W Var VA +kWh -kWh I + kVarh -Kvarh I + kVAh -kVAh +kWh -kWh I + kVarh -Kvarh I + kVAh -kVAh THD (subdivied in 4 time bands of 10 programmable periods) THD I HVL1 HVL2 HVL3 HA1 HA2 HA3	
Measuring accuracy	Voltage: < 0.5% I Current: < 0.5% I Powers: < 1% I Energies: <1% series 1 I CEI-EN61036	
Frequency measure	30 ÷ 900 Hz 30 ÷ 900 Hz (harmonic analysis with fundamental 40÷70 Hz)	
Serial outputs	1 RS485/RS232 selectable I Communication protocol ASCII o MODBUS-RTU selectable I baud rate progr. 1200÷19200 bps	
OPTION S485/232	Additional 1RS485 o RS232 I Communication protocol ASCII o MODBUS-RTU selectable baud rate progr.1200÷19200 bps (by plug-in card)	
OPTION PF	Communication protocol PROFIBUS-DP I baud rate 93700 bps MAX (by external converter type EMI-5)	
OPTION PF/S	Communication protocol PROFIBUS-DP I baud rate 2Mbps MAX (by external converter type EMI-5/S or plug-in card)	
Recording memory	Ram 128 kb	Ram 128 kb
OPTION MEM 1	Ram 1 Mb	Ram 1 Mb (by plug-in card)
Clock Calendar	Format: day/month/year I Hour/min/sec I precision: ± 1 min./month with 25°C	
Harmonic analysis	-	Up to 31st harmonic of voltage and current with numeric format
Digital outputs	2 photomos 10-50 Vdc-500mA or 260 Vac -100 mA max	
OPTION 2DO/R	2 additional outputs photomos 10-50Vdc/500mA o 260Vac/100mA max (by plug-in card)	
OPTION 4DO	4 additional outputs photomos 10-50Vdc/500mA o 260Vac/100mA max (by plug-in card)	
Digital inputs	2 passive optoisolated inputs (500V) for pulse counting and synchronisation	
OPTION 2DI+2DO	2 additional passive optoisolated inputs (500V) for pulse counting and synchronisation (by plug-in card)	
OPTION 6DI	6 additional passive optoisolated inputs (500V) for pulse counting and synchronisation (by plug-in card)	
Analog outputs OPT. 2AO	2 outputs 0-20 / 4-20 mA fully programmable I 8 bit definition(by plug-in card	
OPTION 4AO	4 outputs 0-20 / 4-20 mA fully programmable I 8 bit definition(by plug-in card)	
OPTION Z3AO	3 outputs 0-20 / 4-20 mA fully programmable – 16 bit definition (by external serial/ analog converter Z3AO)	
Display	Graphic back lighted LCD I 128x128 d. 50x50 mm	

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ELECTRICAL MULTIFUNCTION ANALYSERS
FLUSH MOUNTING DIN 144 x 144 - WIDE LCD DISPLAY

ENVIRONMENTAL WORKING CHARACTERISTICS
Working T: -5 ÷ +50°C
Storage T: -15 ÷ +60°C
Humidity: ≤90%

STANDARDS/ REGULATION
Safety: 61010-1:2001
EMC: EN61000-6-2
EN61000-6-4
CISPR22-EN55022

ELECTRICAL COMPATIBILITY CE
Energy: EN61036:1996

EMA-11

EMA-11 H

	EMA 11	EMA 11 H
Mechanical characteristics	Flush mounting DIN 144x144 mm I Depth 66 mm I Panel cut out 138x138 mm I Weight 0,5 kg	
Auxiliary supply	85÷265 V I 50-60 Hz / dc	
OPTION C1	20÷60 V I 50-60 Hz / dc	
Protection degree	Frontal IP 52 I Box IP 20	
voltage inputs	3 inputs 750 V max (programmable transformer ratio with external VT 0,01÷ 5000,00)	
Current inputs	3 isolated inputs (TA) 0,005÷5A rms (10A f.s.) with external CT ratio programmable 0,01÷5000	
OPTION 1A	0,001÷1 Arms TA ratio external programmable	
Measured parameters	V I-I V I-n A I cosfi P.F. F °T I W Var VA V I-I V I-n A I cosfi P.F. F °T I W Var VA +kWh -kWh I + kVarh -Kvarh I + kVAh -kVAh +kWh -kWh I + kVarh -Kvarh I + kVAh -kVAh THD (subdivied in 4 time bands of 10 programmable periods) THD I HVL1 HVL2 HVL3 HA1 HA2 HA3	
Measuring accuracy	Voltage: < 0.5% I Current: < 0.5% I Powers: < 1% I Energies: <1% series 1 I CEI-EN61036	
OPTION 0,5	Voltage: < 0.25% I Current: < 0.25% I Powers: < 0,5% I Energies: < 0,5% series 1 I CEI-EN62052-11 / CEI-EN62053-22	
Frequency measure	30 ÷ 900 Hz 30 ÷ 900 Hz (harmonic analysis with fundamental 40÷70 Hz)	
Serial outputs	1 RS485/RS232 selectable I Communication protocol ASCII o MODBUS-RTU selectable I baud rate progr. 1200÷19200 bps	
OPTION S485/232	Additional 1RS485 o RS232 I Communication protocol ASCII o MODBUS-RTU selectable baud rate progr.1200÷19200 bps (by plug-in card)	
OPTION PF	Communication protocol PROFIBUS-DP I baud rate 93700 bps MAX (by external converter type EMI-5)	
OPTION PF/S	Communication protocol PROFIBUS-DP I baud rate 2Mbps MAX (by external converter type EMI-5/S or plug-in card)	
Recording memory	Ram 128 kb	Ram 128 kb
OPTION MEM 1	Ram 1 Mb	Ram 1 Mb (by plug-in card)
Clock Calendar	Format: day/month/year I Hour/min/sec I precision: ± 1 min./month with 25°C	
Harmonic analysis	-	Up to 31st harmonic of voltage and current with numeric format
Digital outputs	2 photomos 10-50 Vdc-500mA or 260 Vac -100 mA max	
OPTION 2DI + 2DO	2 additional outputs photomos 10-50Vdc/500mA o 260Vac/100mA max (by plug-in card)	
OPTION 4DO	4 additional outputs photomos 10-50Vdc/500mA o 260Vac/100mA max (by plug-in card)	
Digital inputs	2 passive optoisolated inputs (500V) for pulse counting and synchronisation	
OPTION 2DI+2DO	2 additional passive optoisolated inputs (500V) for pulse counting and synchronisation (by plug-in card)	
OPTION 6DI	6 additional passive optoisolated inputs (500V) for pulse counting and synchronisation (by plug-in card)	
Analog outputs OPT. 2AO	2 outputs 0-20 / 4-20 mA fully programmable I 8 bit definition(by plug-in card	
OPTION 4AO	4 outputs 0-20 / 4-20 mA fully programmable I 8 bit definition(by plug-in card)	
OPTION Z3AO	3 outputs 0-20 / 4-20 mA fully programmable – 16 bit definition (by external serial/ analog al converter Z3AO)	
Display	Graphic back lighted LCD I 128x128 d. 70x70 mm	

EMA

ELECTRICAL MULTIFUNCTION ANALYSERS
FLUSH MOUNTING DIN 144 x 144 - RED LED DISPLAY

ENVIRONMENTAL WORKING CHARACTERISTICS
Working T: -5 ÷ +50°C
Storage T: -15 ÷ +60°C
Humidity: ≤90%

STANDARDS/ REGULATION
Safety: 61010-1:2001
EMC: EN61000-6-2
EN61000-6-4
CISPR22-EN55022

ELECTRICAL COMPATIBILITY CE
Energy: EN61036:1996

EMA-14
EMA-14 H

	EMA 14	EMA 14 H
Mechanical characteristics	Flush mounting DIN 144x144 mm I Depth 66 mm I Panel cut out 138x138 mm I Weight 0,5 kg	
Auxiliary supply	85÷265 V I 50-60 Hz / dc	
OPTION C1	20÷60 V I 50-60 Hz / dc	
Protection degree	Frontal IP 52 I Box IP 20	
Voltage inputs	3 inputs 750 V max (programmable transformer ratio with external VT 0,01÷ 5000,00)	
Current inputs	3 isolated inputs (TA) 0,005÷5A rms (10A f.s.) with external CT ratio programmable 0,01÷5000	
OPTION 1A	0,001÷1 Arms TA ratio external programmable	
Measured parameters	V I-I V I-n A I cosfi P.F. F °T I W Var VA V I-I V I-n A I cosfi P.F. F °T I W Var VA +kWh -kWh I + kVarh -Kvarh I + kVAh -kVAh +kWh -kWh I + kVarh -Kvarh I + kVAh -kVAh THD (subdivied in 4 time bands of 10 programmable periods) THD I HVL1 HVL2 HVL3 HA1 HA2 HA3	
Measuring accuracy	Voltage: < 0.5% I Current: < 0.5% I Powers: < 1% I Energies: <1% series 1 I CEI-EN61036	
Frequency measure	30 ÷ 900 Hz 30 ÷ 900 Hz (harmonic analysis with fundamental 40÷70 Hz)	
Serial outputs	1 RS485/RS232 configurabile I Communication protocol ASCII o MODBUS-RTU selectable I baud rate progr. 1200÷19200 bps	
OPTION S485/232	1RS485 o RS232 selectable Communication protocol ASCII or MODBUS RTU baud rate progr.1200÷19200 bps (by plug-in card)	
OPTION PF	Communication protocol PROFIBUS-DP I baud rate 93700 bps MAX (by external converter type EMI-5)	
OPTION PF/S	Communication protocol PROFIBUS-DP I baud rate 2Mbps MAX (by external converter type EMI-5/S or plug-in card)	
Recording memory	Ram 128 kb	Ram 128 kb
OPTION MEM 1	Ram 1 Mb	Ram 1 Mb (by plug-in card)
Clock Calendar	Format: day/month/year I Hour/min/sec I precision: ± 1 min./month with 25°C	
Harmonic analysis	-	Up to 31st harmonic of voltage and current with numeric format (graphic format with "NRG" software)
Digital outputs	2 photomos 10-50 Vdc-500mA or 260 Vac -100 mA max	
OPTION 2DO/R	2 additional outputs photomos 10-50Vdc/500mA o 260Vac/100mA max (by plug-in card)	
OPTION 4DO	4 additional outputs photomos 10-50Vdc/500mA o 260Vac/100mA max (by plug-in card)	
Digital inputs	2 passive optoisolated inputs (500V) for pulse counting and synchronisation	
OPTION 2DI+2DO	2 additional passive optoisolated inputs (500V) for pulse counting and synchronisation (by plug-in card)	
OPTION 6DI	6 additional passive optoisolated inputs (500V) for pulse counting and synchronisation (by plug-in card)	
Analog outputs OPT. 2AO	2 outputs 0-20 / 4-20 mA fully programmable I 8 bit definition(by plug-in card	
OPTION 4AO	4 outputs 0-20 / 4-20 mA fully programmable I 8 bit definition(by plug-in card)	
OPTION Z3AO	3 outputs 0-20 / 4-20 mA fully programmable – 16 bit definition (by external serial/ analog converter Z3AO)	
Display	alphanumeric red LED displays - 3 rows	

EMA

ELECTRICAL MULTIFUNCTION ANALYSERS
FLUSH MOUNTING DIN 96 x 96 - LCD DISPLAY

ENVIRONMENTAL WORKING CHARACTERISTICS
Working T: -5 ÷ +50°C
Storage T: -15 ÷ +60°C
Humidity: ≤90%

STANDARDS/ REGULATION
Safety: 61010-1:2001
EMC: EN61000-6-2
EN61000-6-4
CISPR22-EN55022

ELECTRICAL COMPATIBILITY CE
Energy: EN61036:1996

	EMA 90	EMA 90 H
Mechanical characteristics	Flush mounting DIN 96x96 mm I Depth 120 mm I Panel cut out 92x92mm I Weight 0,5 kg	
Auxiliary supply	85÷265 V I 50-60 Hz / dc	
OPTION C1	20÷60 V I 50-60 Hz / dc	
Protection degree	Frontal IP 52 I Box IP 20 (IP65 with external cover)	
Voltage inputs	3 inputs 750 V max (programmable transformer ratio with external VT 0,01÷5000)	
Current inputs	3 isolated inputs (TA) 0,005÷5A rms (10A f.s.) with external CT ratio programmable 0,01÷5000	
OPTION 1A	0,001÷1 Arms TA ratio external programmable	
Measured parameters	V l-l V l-n A I cosfi P.F. F °T I W Var VA +kWh -kWh I + kVarh -Kvarh I + kVAh -kVAh THD	V l-l V l-n A I cosfi P.F. F °T I W Var VA +kWh -kWh I + kVarh -Kvarh I + kVAh -kVAh (subdivied in 4 time bands of 10 programmable periods) THD I HVL1 HVL2 HVL3 HA1 HA2 HA3
Measuring accuracy	Voltage: < 0.5% I Current: < 0.5% I Powers: < 1% I Energies: < 1% series 1 I CEI-EN61036	
OPZIONE 0,5	Voltage: < 0.25% I Current: < 0.25% I Powers: < 0,5% I Energies: < 0,5% series 1 I CEI-EN62052-11 / CEI-EN62053-22	
Frequency measure	30 ÷ 900 Hz	30 ÷ 900 Hz (harmonic analysis with fundamental 40÷70 Hz)
Serial outputs	1RS485/RS232 additional I selection of communication protocol ASCII or MODBUS-RTU I baud rate progr. 1200÷19200 bps	
OPTION S485/232	1RS485 or RS232 additional I selection of communication protocol ASCII or MODBUS-RTU I baud rate progr. 1200÷19200 bps	
OPTION PF	Communication protocol PROFIBUS-DP baud rate I 93700 bps MAX (by external converter EMI-5)	
OPTION PF/S	Communication protocol PROFIBUS-DP baud rate I 2Mbps MAX (by external converter EMI-5/S)	
Recording memory	Ram 128 kb	Ram 128 kb
OPTION MEM 1	Ram 1 Mb	Ram 1 Mb
Clock Calendar	Format: day/month/year I Hour/min/sec I precision: ± 1 min./month with 25°C	
Harmonic analysis	-	Up to 31st harmonic of voltage and current with numeric format
Digital outputs	2 photomos 1 -50 Vdc I 500 mA o 260 Vac I 100 mA max	
OPTION 2DO/R	Relay's output (5A-250V resistive load)	
Digital inputs	2 passive optoisolated inputs (500V) for pulse counting and synchronisation	
OPTION 4DI	4 passive optoisolated inputs (500V) for pulse counting and synchronisation	
Analog outputs OPT.1AO	1 output 0-20 / 4-20 mA fully programmable – 8 bit definition	
OPTION Z3AO	3 outputs 0-20 / 4-20 mA fully programmable – 16 bit definition (by external serial/ analog converter Z3AO)	
Display	Graphic back lighted LCD I 128x128 depth 50x50 mm	

EMA

ELECTRICAL MULTIFUNCTION ANALYSERS
FLUSH MOUNTING DIN RAIL 9 MODULES

ENVIRONMENTAL WORKING CHARACTERISTICS
Working T: -5 ÷ +50°C
Storage T: -15 ÷ +60°C
Humidity: ≤90%

STANDARDS/ REGULATION
Safety: 61010-1:2001
EMC: EN61000-6-2
EN61000-6-4
CISPR22-EN55022

ELECTRICAL COMPATIBILITY CE
Energy: EN61036:1996

EMA-D9
EMA-D9 H

	EMA D9	EMA D9 H
Mechanical characteristics	Flush mounting DIN 144x144 mm I Depth 66 mm I Panel cut out 138x138 mm I Weight 0,5 kg	
Auxiliary supply	85÷265 V I 50-60 Hz / dc	
OPTION C1	20÷60 V I 50-60 Hz / dc	
Protection degree	Frontal IP 52 I Box IP 20	
voltage inputs	3 inputs 750 V max (programmable transformer ratio with external VT)	
Current inputs	3 isolated inputs (TA) 0,005÷5A rms (10A f.s.) with external CT ratio programmable	
OPTION 1A	0,001÷1 Arms TA ratio external programmable	
Measured parameters	V I-I V I-n A I cosfi P.F. F °T I W Var VA +kWh -kWh I + kVarh -Kvarh I + kVAh -kVAh THD	V I-I V I-n A I cosfi P.F. F °T I W Var VA +kWh -kWh I + kVarh -Kvarh I + kVAh -kVAh (subdivisibili in 4 fasce orarie di 10 periodi programmabili) THD I HVL1 HVL2 HVL3 HA1 HA2 HA3
Measuring accuracy	Voltage: < 0.5% I Current: < 0.5% I Powers: < 1% I Energies: <1% series 1 I CEI-EN61036	
Frequency measure	30 ÷ 900 Hz	30 ÷ 900 Hz (harmonic analysis with fundamental 40÷70 Hz)
Serial outputs	1 RS485/RS232 configurabile I Protocollo di comunicazione ASCII o MODBUS-RTU selezionabile I baud rate progr. 1200÷19200 bps	
OPTION S485/232	1 RS485/RS232 configurabile I Protocollo di comunicazione ASCII o MODBUS-RTU selezionabile I baud rate progr. 1200÷19200 bps	
OPTION PF	Communication protocol PROFIBUS-DP I baud rate 93700 bps MAX (by external converter type EMI-5)	
OPTION PF/S	Communication protocol PROFIBUS-DP I baud rate 2Mbps MAX (by external converter type EMI-5)	
Recording memory	Ram 128 kb	Ram 128 kb
OPTION MEM 1	Ram 1 Mb	Ram 1 Mb
Clock Calendar	Format: day/month/year I Hour/min/sec I precision: ± 1 min./month with 25°C	
Harmonic analysis	-	Up to 31st harmonic of voltage and current with numeric format
Digital outputs	2 photomos 10-50Vdc-500 mA o 260 Vac-100 mA max	
OPTION 2DO/R	2 Relay output (5A-250V resistive load)	
Digital inputs	2 optoisolated passive inputs (500 V) for pulse counting and synchronisation	
OPTION 4DI	4 additional passive optoisolated inputs (500V) for pulse counting and synchronisation	
Analog OPTION Z3AO	3 outputs 0-20 / 4-20 mA fully programmable I 16 bit definition(by external serial/ analog converter Z3AO)	
Display	Alphanumeric LCD with 2 lines of 20 characters (every line)	