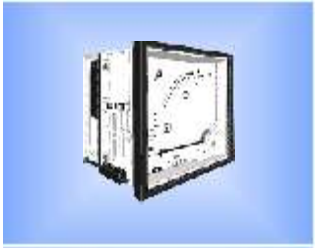
GED 15/0817

SHORT CATALOG

- METERING AND PANEL ACCESSORIES
- POWER FACTOR CORRECTION
- SWITCHES AND FUSES
- SURGE PROTECTION DEVICE
- CABLE MANAGEMENT SYSTEM
- FACTORY SOLUTION
- SYSTEM FOR TIME AND LIGHT
- KNX SYSTEM
- LIGHTNING PROTECTION
- DIGITAL ENERGY & MOTOR MANAGEMENT SYSTEM
- POWER CIRCUIT BREAKER AND CONTROL
- ACTIVE HARMONIC FILTERS









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METERING AND PANEL ACCESSORIES

METERING

Energy meter 3P kWh
Inductive Type
Voltage 3x 220/380 V,
Current .../5A or
direct 5 (20) A

Ammeter
Direct 10A~40A
or with CT.../5A

Voltmeter
Direct 250V, 500V
or with PT.../100V, 110V

Double Voltmeter
Direct 250V, 500V
or with PT.../100V, 110V

Zero Voltmeter
0 ... 800V,
for 380 - 400V

Watt meter
4... 10.000 kw with
CT.../5A

Frequency Pointer meter
45-55 Hz, 46-54 Hz
48-52 Hz

Double Frequency LED meter
45-55 Hz, 46-54 Hz
48-52 Hz

Frequency LED meter
45-55 Hz, 46-54 Hz
48-52 Hz

Cos ? meter
0.5 cap - 1 -
0.5 ind

EMG SERIES MULTIFUNCTION POWER METER

SPECIFICATION
Accuracy Class According to IEC 61557-12

PARAMETER	EMG10		EMG25		EMG50	
	Accu.	Measurement Range	Accu.	Measurement Range	Accu.	Measurement Range
Voltage	0,2%	Direct: 300 V (P-N), 500 V (P-P) Ratio: 1-5000 Adjustable	0,2%	Direct: 300 V (P-N), 500 V (P-P) Ratio: 1-5000 Adjustable	0,2%	Direct: 300 V (P-N), 500 V (P-P) Ratio: 1-5000 Adjustable
Current	0,5%	Ratio: 1-5000 Adjustable	0,5%	Ratio: 1-5000 Adjustable	0,2%	Ratio: 1-5000 Adjustable
Power - active	0,5%	10% Ib ≤ I ≤ Imax	0,5%	10% Ib ≤ I ≤ Imax	0,2%	10% Ib ≤ I ≤ Imax
- reactive	1,0%	5% Ib ≤ I ≤ Imax	1,0%	5% Ib ≤ I ≤ Imax	1,0%	5% Ib ≤ I ≤ Imax
Power factor	0,5%	0.5 Ind to 0.8 Cap	0,5%	0.5 Ind to 0.8 Cap	0,5%	0.5 Ind to 0.8 Cap
Frequency	0,1%	35 - 65 Hz	0,1%	45 - 65 Hz	0,1%	45 - 65 Hz
Active Energy (kWh)	0,5%	99,999,999.999	0,5%	0-999,999,999.999	0,5%	49,999,999.999
Reactive Energy (kVArh)	2,0%	99,999,999.999	2,0%	0-999,999,999.999	2,0%	49,999,999.999
THD	1,0%	V: 0-20%, I: 0-100%	1,0%	V: 0-20%, I: 0-100%	1,0%	V: 0-20%, I: 0-100%

GENERAL INFORMATION	EMG10	EMG25	EMG50
Display	7 segment	LCD	LCD
Use system on LV and MV	✓	✓	✓
Supply Voltage	85-300 V	85-300 V	85-300 V
Connection Type	3P4W 3P3W	3P4W 3P3W	3P4W, 3P3W Aron
Memory			1 MB
Password Protection	✓	✓	✓
Realtime Clock			✓

BASIC MEASUREMENT EMG SERIES	
Voltage (phase to phase, phase-neutral)	✓
Current (per phase, neutral current)	✓
Frequency	✓
Power Factor (total and per phase)	✓
Power per phase (active, reactive and apparent)	✓
Total Power (active, reactive and apparent)	✓
Energy (active and reactive)	✓

POWER ANALYSIS	EMG10	EMG25	EMG50
THD (voltage and current)	✓	✓	✓
Individual Harmonic		1-31	1-51
Maximum Demand	✓	✓	✓
Multitarif (peak, day, off peak)			✓
Signal Waveform			✓
Phasor Diagram			✓

COMMUNICATION	EMG10	EMG25	EMG50
RS485 MODBUS	✓	✓	✓
Profibus			

INPUT/OUTPUT (I/O)	EMG10	EMG25	EMG50
Digital Input & output		2	2
Analog output 4-20 mA			optional

LOW VOLTAGE CURRENT TRANSFORMER

CT 41
50/5A - 100/5A

CT 42
30/5A - 100/5A

CT 43
15/5A - 100/5A

CT 44
15/5A - 100/5A

CT 50
50/5A - 300/5A

CT 60
50/5A - 400/5A

CT 70
100/5A - 600/5A

CT 110
200/5A - 1600/5A

CT 150
200/5A - 2500/5A

CT 102
50/5A - 150/5A

CT 103
200/5A - 300/5A

CT 403 RING
200/5A - 1600/5A

CT 404 RING
200/5A - 2500/5A

CT 204 SPLIT CORE
500/5A - 1500/5A

CT 205 SPLIT CORE
750/5A - 5000/5A

CT 301
500/5A - 3000/5A

CT 302
600/5A - 4000/5A

CT 303
1000/5A - 5000/5A

PHASE FAILURE RELAY and WATER LEVEL CONTROL

Phase Failure Relay
GC1100

Water Level Control
GC2200

CAPACITOR

Output Capacity KVAR	Phase	Volt
Single Phase Modular MKP Type		
1.67	1	415
3.3	1	415
4.17	1	415
3.3	1	450
4.17	1	450
Three Phase Modular MKP Type		
2.3	3	415
5	3	415
10	3	415
Three Phase Modular MKPg		
12.5	3	415
15	3	415
20	3	415
25	3	415
30	3	415
40	3	415
50	3	415

MKPg Type, 480 Volt Qn (kVAr)		MKPg Type, 525 Volt Qn (kVAr)	
@415 V	@480 V	@415 V	@525 V
20	3	10.76	17.23
25	3	12.5	20
-	-	25	40

REACTOR 415V

BLOCKING REACTOR 7%

- 25 kVAr
- 50 kVAr

BLOCKING REACTOR 14%

- 50 kVAr

REGULATOR

POWER FACTOR REGULATOR

- Fully Automatic Regulator 6 step, 12 step and 14 step
- No Required to adjust c/k value

MODULAR SWITCH DISCONNECTORS SD1 - SD3

3P

- SD1 : 16 A - 63 A
- SD2 : 80 A - 125 A
- SD3 : 160 A - 200 A

CHANGE-OVER SWITCHES SD1 - SD2

4P

- SD1 : 16 A - 63 A
- SD2 : 63 A - 125 A

LOAD BREAK SWITCH

3P & 4P

- VC1P : 160 A
- VC2P : 200 A - 315 A
- VC3P : 400 A - 500 A
- VC4P : 630 A - 800 A
- VC5P : 1000A - 3150 A

CHANGE-OVER SWITCH - (Two Layers Change-over Switch)

4P

- CS1P : 160 A
- CS2P : 200 A - 315 A
- CS3P : 400 A - 500 A
- CS4P : 630 A - 800 A
- CS5P : 1000A - 3150 A

MOTORIZED CHANGE-OVER SWITCH - (Two Layers Motorized Change-over Switches)

4P

- CS2 : 160 A
- CS3 : 200 A - 500 A
- CS4 : 630 A - 800 A
- CS5 : 1000A - 3150 A

NT FUSE AND FUSE HOLDER

NT FUSE 500/660V

- Type NT 00 6 - 160 A
- Type NT 0 50 - 160 A
- Type NT 1 50 - 250 A
- Type NT 2 250 - 400 A
- Type NT 3 355 - 630 A

NT FUSE 500V

- Type NT 4 800 - 1250 A

FUSE HOLDER 660V

- Type Sist 106 - 160 A
- Type Sist 160 - 160 A
- Type Sist 201 - 250 A
- Type Sist 401 - 400 A
- Type Sist 601 - 630 A
- Type Sist 1001 - 1000 A

CYLINDRICAL FUSE (fuse protections)

FUSE CONTROL 0.5 A - 32 A

- Size 10.8 x 38

FUSE HOLDER 1P & 3P
with LED or without LED

- For DIN Rail Mounting

FUSE SWITCH DISCONNECTOR

DISCONNECTOR SWITCH - MIRO

- 160A - 630A

MRO.H2/DSL MRO.H2/TSL

MRO.H1/1P MRO.H1/3P

GSM4-40 TNS Series

Four pole transient surge protector

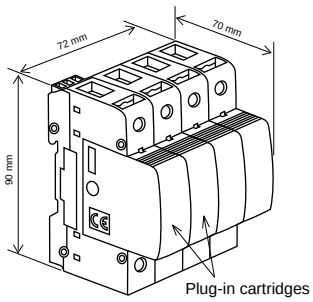
12 11 14

End of life

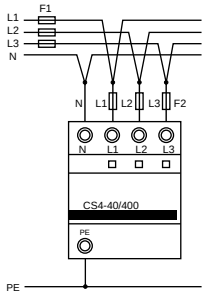
12 11 14

Protector OK

Physical Features



Example of a three-phase DIN rail protector with Imax = 40kA



40 kA Model	
F1	F1>125 Agl ↓ F2<125 Agl
F2	F1<125 Agl ↓ ~~F2~~

TECHNICAL FEATURES

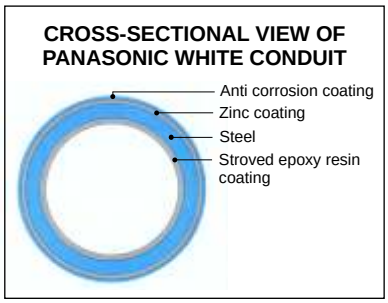
IR MODELS		GSM4-40/400 TNS
Designation according to EN 61643-11		Type 2
Designation according to IEC 61643-1		Class II
Nominal voltage AC 50-60 Hz	U_N [V]	230/400
Max. continuous operating voltage (L-PE)	U_C [V]	275
Maximum discharge current (8/20)	I_{max} [V]	40
Nominal discharge current (8/20)	I_n [kA]	20
Voltage protection level (L-PE) at In	U_P [kV]	< 1,3
Maximum back-up fuse	A gL	125
Short circuit withstand	I_{cc} [kA]	25
Response time (L-PE)	t_A [ns]	25
Insulating material & flammability class		PA66 CT1 ; V - 0
Remote monitoring		IR MODELS
End of life indication		YES
Dynamic thermal disconnection (L-PE)		YES
Certifications		ÖVE

PANASONIC WHITE CONDUIT and CONDUIT FITTINGS

JIS
Plain Type E19 - E75
Thin Wall Type C19 - C75
Thick Wall Type G16 - G104

ANSI
EMT Size ½" up to 2"
IMC Size ½" up to 4"
RSC Size ½" up to 6"

STAINLESS STEEL
IMC Size ½" up to 4"



Coupling

Nomal Bends

Bushing

Connector

Saddles Clamp

Lock Nut

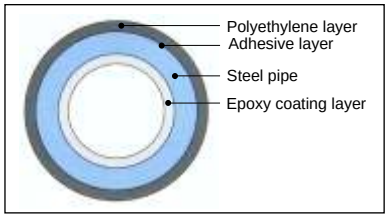
Standards

Panasonic WHITE CONDUIT is available in four types conforming to the following standard:

- UL/ANSI (EMT, IMC and RSC)
- BS (BS31-1940 and BS4568-1970)
- TIS
- JIS (Plain, Thin Wall and Thick Wall)

Underwriters Laboratories Inc.® | JAPANESE INDUSTRIAL STANDARDS CERTIFICATION MARKING FACTORY | THAI INDUSTRIAL STANDARD

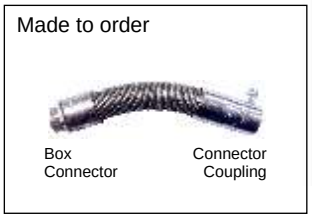
POLYETHYLENE-LINING STEEL PIPE

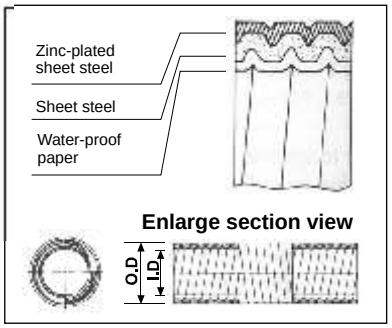


Corrotions resistant steel pipe for cable

FLEXIBLE and ACCESSORIES

(Unit: mm)

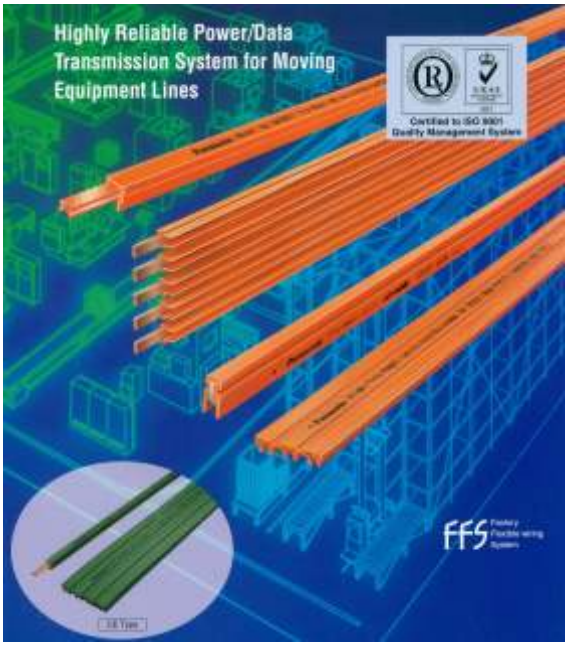




CABLE LUG (GAE)

Standard Type: 6 - 95 mm2
Heavy Duty Type: 2.5 500 mm2
Material: copper with 99.98% cu

INSULATED TROLLEY SYSTEMS



This product not only supplies power to high-speed conveyors but also meets a variety of conditions for supplying power to other moving equipment

This system can be selected to meet a variety conditions for supplying power to moving equipment. Some examples of such conditions include use with multi circuits line such as those used with high-speed conveyors and monorails, conservation of space for hoists and cranes, and use with lines that require high capacity.

Four types and eleven different versions of insulated trolleys available for various power supply needs in moving equipment.

1. Tro-Reel HS
(Non-Tension Type, for Indoor Use Only)

Ideal for high-speed monorails.

2. High-Tro-Reel
(Non-Tension Type, for Indoor Use Only)

Ideal for auto conveyors and monorails.

3. Tro-Reel HS
(for Indoor and outdoor Use)

Jointless installation of up to 100m.

4. High-Tro-Reel
(Tension Type, for Indoor Use Only)

Ideal for supplying power to confined spaces in hoists and cranes.

TABLE OF INSULATED TROLLEYS BASED ON RATED CAPACITY

Rated voltage (V)	600V																		
Rated current (A)	60A					90A							150A			200A			300A	500A
Number of Poles (P)	1P	3P	4P	5P	6P	1P	3P	4P	5P	6P	7P	8P	1P	3P	4P	1P	3P	4P	1P	1P
Tro-Reel HS (non-tension type)							●	●	●	●	●	●								
High-Tro-Reel (non-tension type)		●	●	●	●															
Tro-Reel	●												●			●			●	
High-Tro-Reel (tension type)		●	●	●			●	●	●					●	●		●	●		

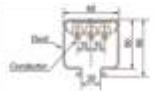
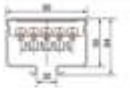
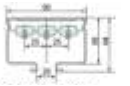
TROLLEY DUCTS

These products can be used to easily construct various electrical circuits, which provide improved safety, power consumption, and efficiency.

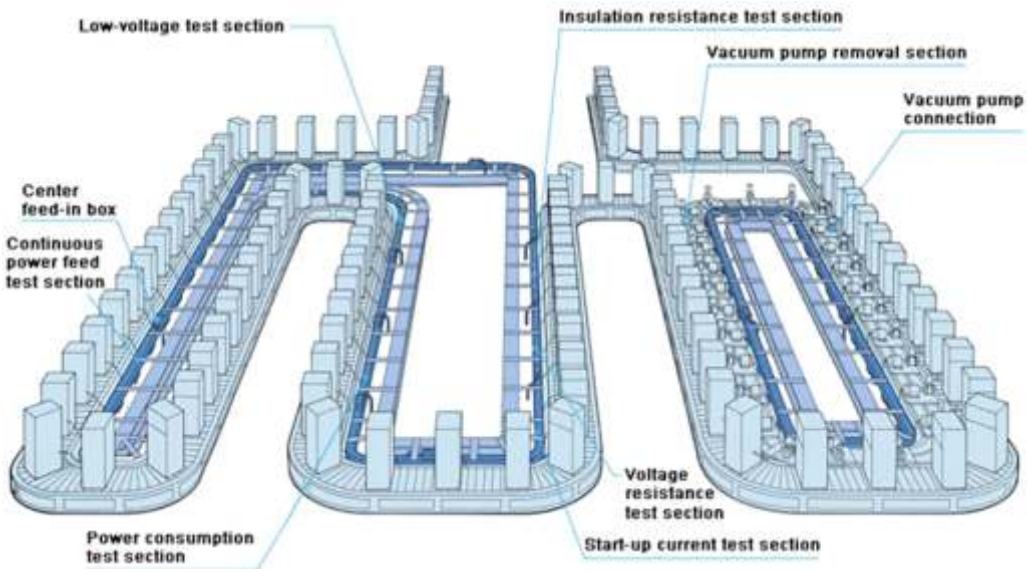
Curved sections, point switching, circuit separation, and other complex circuits can be easily integrated to automate and streamline the manufacturing process.

This product can be applied to a variety of situations such as use with turn tables and other switching devices, automated conveyor lines of assembly factories, automatic doors, overhead traveling cranes, shipping and conveyance of makerials between indoor and outdoor areas, inspection and aging lines, and automated warehouses without human presence.

- TROLLEYS DUCT-PRODUCT SPECIFICATION

Rated current	Rated voltage	No.of Poles	
30A 60A	300V	2P	
		3P	
		4P	
		5P	
100A	600V	3P	 2P type is custom-made

- TROLLEYS DUCT EXAMPLE 1



Aging and product inspection circuits
The Trolley Duct is used for aging and product inspection circuits that come after assembly processes at electrical appliances manufacturing facilities, contributing to line automation and labor-savings.

FACTORY LINE SYSTEMS

The line can be branched and power can be accessed wherever necessary.

Changes to the power supply positions of equipment due to changes in the layout and increases in the number of power supplies required due to an increase in the amount of equipment used are supported by the capability to change the positions of and increase the number of plugs.

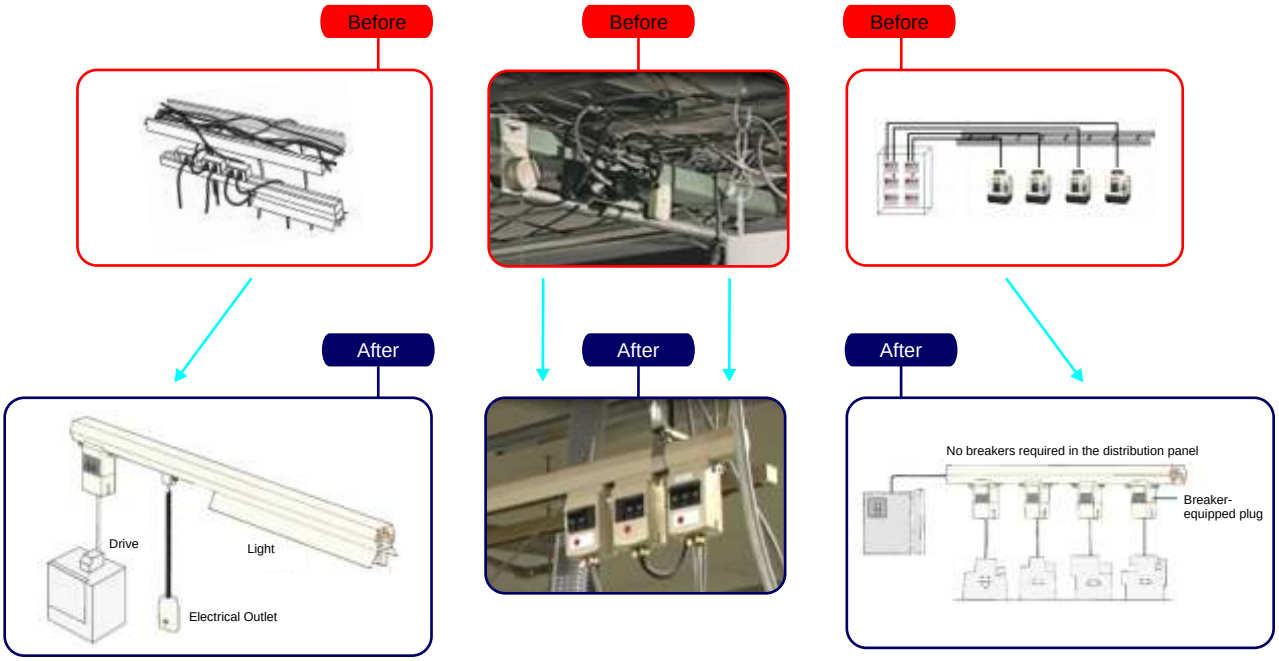
This electrical circuit system does not require rewiring, which leads to a decrease in costs, and is also recommended for wiring in advance.

Rewiring is not required even after a change inside the manufacturing line.

Simplifies wiring and appearance. Effective for productivity improvement.

No risk of tripping over or damaging a cable on the floor.

- FACTORY LINE SYSTEMS - EXAMPLE 1



Analog Time Switch

SUL 180 a, SUL 181 d

- ON - OFF Switch / Normally Open contact 16A/250V~
- Program Segment 15 min
- Permanent ON - OFF Switch
- 24 Hour Time Switch

- Changeover Switch 16A/250V~
- Program segment 30 min
- Permanent ON - OFF Switch
- 24 Hour Time Switch

Digital Time Switch

SIMPLEXA Series, TR 610 TOP 2 (1 & 2 Channel)

- 1 Changeover 28 memory locations
- Daily/weekly program function
- LCD Display
- Program segment 1 min
- Program block for weekday, weekend
- Sealable cover

- 1 Changeover 56 memory locations
- Daily/weekly program function
- LCD illuminated display
- Program segment 1 min
- Interface for Obelisk top2 memory card for PC
- 2nd Control Unit
- Hour counter

HOUR COUNTER BZ 142 - 1

- Hour Counter with synchronous motor
- 5 digit hour counter
- 2 Decimal Accuracy

Motion Detector

MOTION DETECTOR

- Circle detection area
- Economic product range
- Lux sensor integration
- Available on 1 or 2 channel
- Wall mounted, ceiling mounted or internal and external corner
- Remote control (optional)

thePiccola S360

theMova S360 DE

theLuxa S150/S180

theLuxa S360

Luxa 103-360

Presence Detector

PRESENCE DETECTOR

- Square detection area
- Premium product range
- Lux sensor integration
- Self learning time delay off
- Available on 1 or 2 channel
- Wall mounted, ceiling mounted
- Remote control (optional)
- Master slave connection
- Short presence detection
- Smart Switching

theRonda

thePrema

PlanoCentro

Presence Light 180

Presence Light 360

Compact Office DIM

Compact Passage

KNX SYSTEM


Control monitor window status


Control shutters

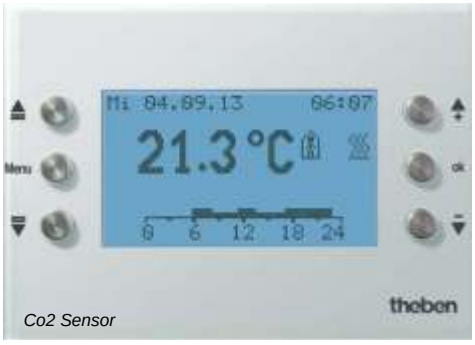

Push buttons or switches


Scene setting

KNX
Integration of e.g.


Diming Light and LED


Movement & Presence Detector



Co2 Sensor

The KNX Association foundation in 1990

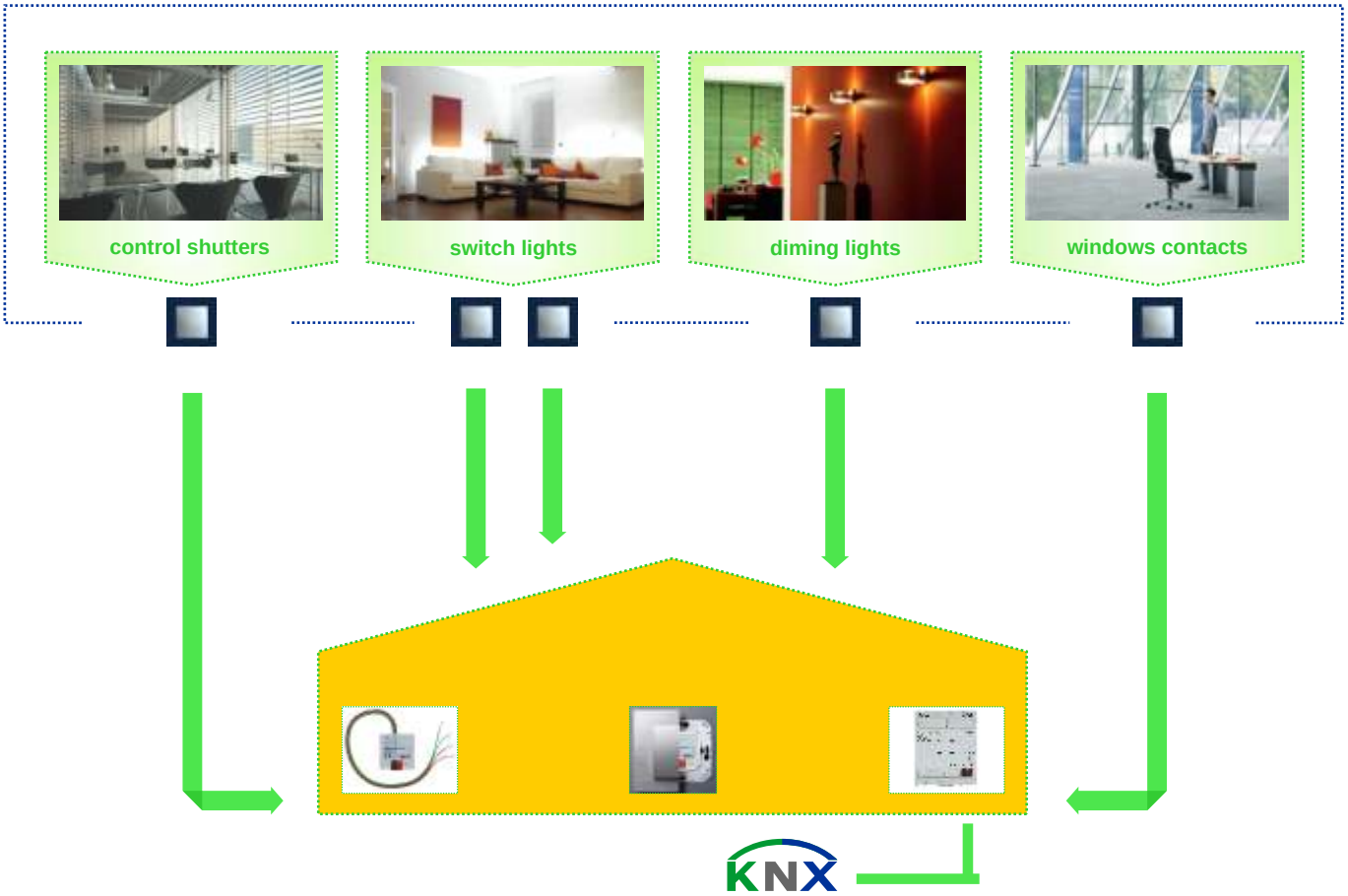
The driving force behind KNX is KNX Association, a group of leading companies active in many fields of home and building control.

Currently, KNX Association has more than 300 members, accounting for more than 80% of the home and building control devices sold in Europe.

At a glance

- KNX Actuators
- KNX Sensors
- KNX Controller
- KNX Clocks Save clocks

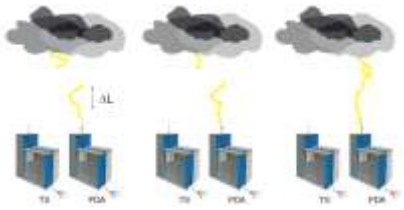
INTEGRATION

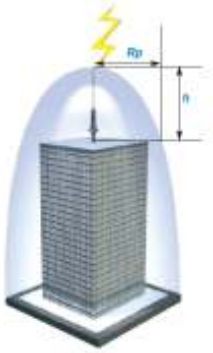


SAINT-ELME SERIES LIGHTNING CONDUCTOR

Introduction to ESE (Early Streamer Emmision)

Short reminder on ESE lightning conductor
- Simple rod equipped with a device reducing the excitation time
- **Better probability** to capture the descending tracer





Radius of Protection

Radius of protection *Rp* are theoretically calculated following NF C 17-102 French standard and depending on
- Excitation advance time (in µs)
- Lightning conductor height h
- Level of protection (I, II, III or IV)

Rp	Active 1D 12				SE6				SE9				Active 1D 60 ; SE15			
	ΔT=12µs				ΔT=15µs				ΔT=30µs				ΔT=60µs			
H(m)	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
2	11	16	16	19	13	15	18	20	19	21	25	28	31	34	39	43
4	23	32	32	37	25	29	36	41	38	43	51	57	63	69	78	85
5	28	41	41	46	32	37	45	51	48	55	63	71	79	86	97	107
6	28	41	41	46	32	38	46	52	48	55	64	72	79	87	97	107
8	28	41	41	46	33	39	47	54	49	56	65	73	79	87	98	108
10	30	45	45	52	34	40	49	56	49	57	66	75	79	88	99	109
20	32	51	51	60	35	44	55	63	50	59	71	81	80	89	102	113
30	32	55	55	65	35	45	58	69	50	60	73	85	80	90	104	116
60	32	57	57	72	35	34	58	75	50	60	75	90	80	90	105	120

LIGHTNING COUNTER

LIGHTNING COUNTER
Impact Controller 1 kA to 100 kA, Conformity test carried by LCIE

The impact controller or lightning counter is designed for detecting and counting lightning strikes received by structures with lightning conductor. It is fitted in general to a down conductor.

ORDERING CODE	AFV 0907 CF
Counting range	00 to 99
Counter threshold IEC 60-1and 1180-1 (minimal discharge current detected)	1 kA in 8/20 wave (no detection below 150 A)
Maximum discharge current detected in compliance with IEC 60-1 and 1180-1	100 kA in 8/20 wave* (150 kA in 4/10 wavw)
Permanent working current	None
Terminal capacity	ø 8 mm (50mm²)
Necessary circuit breaker	No
Operating temperature range	- 30° C / + 80° C
Protection index	Ip53
Dimensions	165x92x47 mm
Weight	430 g

EARTHING EQUIPMENT

CONTROL JUNCTIONS
NF C 17-100 and NFC 17-102 standards:
A control junction must be inserted on each down conductor to allow disconnection from its earth terminal. The 2F control junction, featuring very low impedance and perfect conductivity, is designed for easy installation and inspection

GIM GROUNDING IMPROVEMENT MATERIAL

GIM Ground Improving Material is an earthing backfill compound consisting of highly conductive materials, which increase the earthing system's efficiency. It is most useful for area with high soil resistance and also when the probability of erosion due to the flow of water exists.

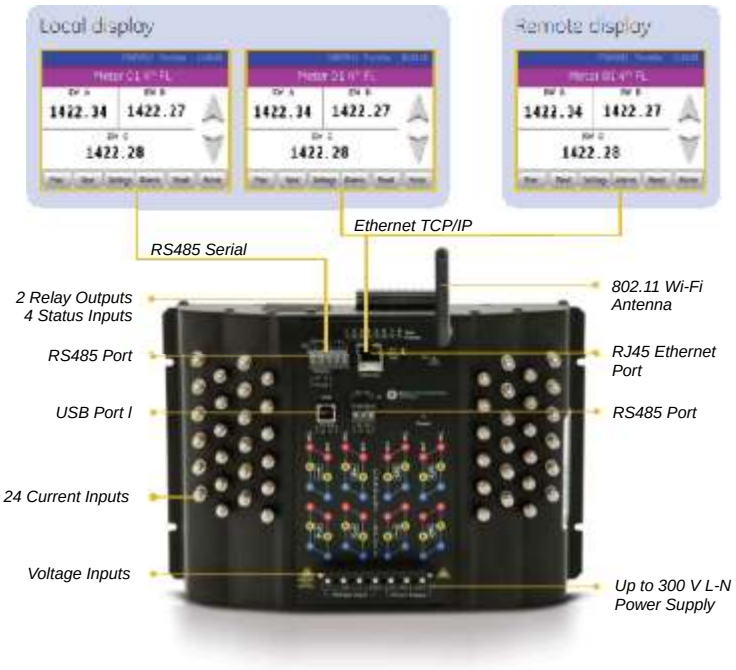
Multilin™EPM 4600

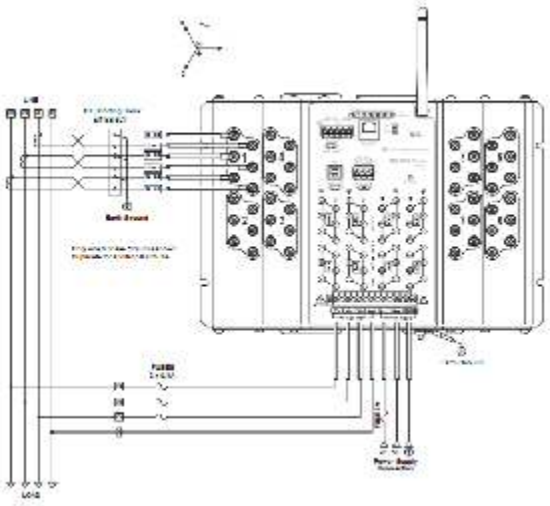
Multi-Feed Power and
Energy Metering Solution

Simple, Space Saving Installation
- Simple space and cost saving installation with the capability of measuring 8 – Three phase or 24 – Single phase inputs
- Powerful Ethernet, Wi-Fi, RS485 and USB communications capabilities allowing easy installation in existing or new infrastructure
- User-friendly, optional touch screen, color display for remote viewing of metering information

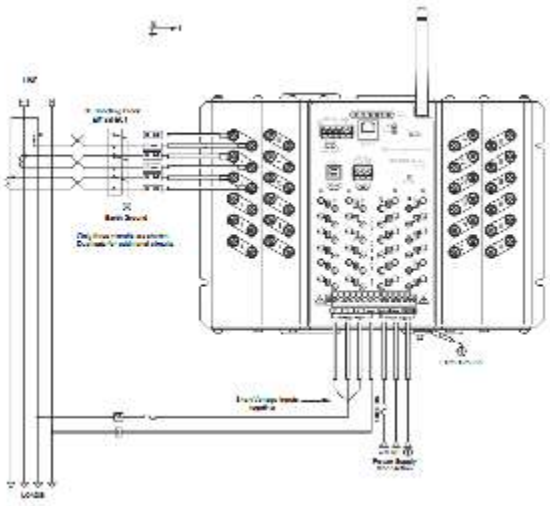
Comprehensive Energy Awareness
- Multiple circuit capability identifies usage of specific groups or processes
- 0.5% Revenue grade accuracy per circuit
- Advanced load profiling and logging with up to 2400 days (32 MB) of logged energy information

Effective Energy Management
- Reduce Peak Demand by identifying Peak Periods and Initiating Energy Reduction Control Schemes
- Provide accountable , detailed, metrics-based end user awareness to drive ownership of energy savings





Three Phase, 4-Wire WYE System with 3 CTs: EPM4600-T
One 3 Phase circuit shown. Multiply by up to 8 circuits.
Note: All Voltages must be common per phase on each circuit.



Single Phase, 2-Wire Direct: EPM4600-S
3 Circuits are shown. Multiply by up to 24 circuits.
Note: All Current must originate from a common Voltage source.

VOLTAGE INPUTS

- 0-576V Line to Neutral
- 0-721V Line to Line
- Universal Voltage Input
- Input withstand capability: Meets IEEE C37.90.1 (Surge Withstand Capability)
- Programmable Voltage Range to any PT Ratio
- Voltage Inputs Burden:
  - 0.09Va/Phase Max at 600 Volts,
  - 0.014Va at 120 Volts

COMMUNICATION

RS485 (COM 1 AND COM 3)
- Baud Rate: 9,600 to 57,600
- Address: 001-247
- 8 Bit, Even, Odd, No Parity
- Modbus RTU, Modbus ASCII

ETHERNET/WI-FI (OPTIONAL FOR COM 1)
- RJ45 or 802.11b Wireless
- 10/100BaseT Ethernet
- Modbus TCP

USB (COM 2)
- Port Baud Rate: 57,600
- Modbus ASCII

METER ACCURACY

- Voltage L-N 0.3% of reading @ (69 to 480)V
- Voltage L-L 0.5% of reading @ (120 to 600)V
- Current Phase: 0.3% of reading @ (0.15 to 5)A
- W/Wh: 0.5% of reading @ (0.15 to 5)A @ (69 to 480)V @ +/- (0.5 to 1) lag/lead PF
- VAR/VARh: 1.0% of reading @ (0.15 to 5)A @ (69 to 480)V @ +/- (0 to 0.8) lag/lead PF
- VA/VAh/PF: 1.0% of reading @ (0.15 to 5)A @ (69 to 480)V @ +/- (0.5 to 1) lag/lead PF
- Frequency: +/- 0.01Hz

CURRENT INPUTS

- Class 10: (0 to 10)A, 5A nominal, 10A Maximum
- Class 2: (0 to 2)A, 1A nominal, 2A Maximum
- Programmable Current to any CT Ratio
- Current Inputs Burden: 0.005VA Per Input
- Max at 11A
- Pickup Current: 0.1% of nominal
  - Class 10: 5mA
  - Class 2: 1mA
- Continuous Current Withstand: 20A

DIGITAL ENERGY
OVERALL GENERAL MEASUREMENT :

- Phase to Neutral (voltage & current)
- Phase to Phase (voltage & current)
- Power Factor
- Frequency
- Energy (demand)
- Power

SUB METER

EPM 6100 FEATURES
Metering
- Total Harmonic Distortion
- Voltage and Current Angles
- Bright Red LED Display with Three.56” Lines
- % of Load Bar for Analog Meter Perception

EPM 7100 FEATURES
Metering
- 2 MB of Data Logging Capacity
- Total Harmonic Distortion
- Voltage and Current Angles
- Bright Red LED Display with Three.56” Lines
- % of Load Bar for Analog Meter Perception

POWER METER

EPM 2000 FEATURES
Monitoring and Metering
- Monitors equipment “run hours”, “on hours” and interruptions (outages)

EPM 2200 FEATURES
Monitoring and Metering
- Future field Upgradeable for added functionality (communications option required)
- 0.5% Accuracy

EPM 6000 FEATURES
Monitoring and Metering
- True RMS multifunction measure-ments including voltage, current, power, freq., energy, etc.
- Meets ANSI C12.20 (0.2%) and IEC 687 (0.2%) accuracy classes
- Future field upgradeable for added functionality without removing installed meter
- Load percentage graphical bar for instant load visualization

EPM 6010 FEATURES
Measuring and Metering
- High accuracy multifunction power meter, 0.2% class
- Samples at 400 +times per cycle and has 24bit A/D conversion to measure accurately and reliably
- Meets ANSIC 12.20 (0.2%) and IEC687 (0.2%) accuracy classes Total harmonic distortion (%THD)
- Load percentage graphical bar for instant load visualization
- True RMS multifunction measurements

POWER QUALITY METER

EPM 7000 FEATURES
Monitoring and Metering
- Meets ANSI C 12.20 and IEC 687 (0.2% Accuracy)

EPM 9000/9450/9650 FEATURES
Monitoring and Metering
- Laboratory grade 0.04% Watt-Hour accuracy Flicker and waveform recording
- Real-time PQ monitoring and harmonic analysis to 255th order

EPM 9800 FEATURES
Monitoring and Metering
- True RMS real-time power and energy parameters reporting
- 4 quadrant, high accuracy revenue metering
- Automatic dial-out for remote data downloads, dial-In during outage notification
- Comprehensive events and alarms recording using GPS synchronized time stamps.
- Historical logs for energy, power events and alarms.
- Flicker and waveform recording
- Real-time PQ monitoring and analysis

PQM II FEATURES
Monitoring and Metering
- V I unbalance
- True PF crest and K factor
- Harmonic analysis through 63rd with THD and TIF
- Event recorder - 150 events
- Waveform capture
- Data logger -98,000 events
- Voltage Disturbance Recorder (VDR) -500 events

MOTOR MANAGER - MM200

APPLICATIONS

- Low Voltage Three-Phase AC Motors
- MCC and standalone Panel Mount Applications
- IEC NEMA Motor Control Center (MCCs)
- Process control applications
- System architecture requiring multiple simultaneous communications
- FVNR, FVR, two speed

FEATURES

Protection and control

- Motor Thermal Model
- Undercurrent
- Current Unbalance
- Acceleration Time
- Sensitive Ground Fault
- Built-in Starter Logic
- FVNR, FVR, Two-Speed
- Auto / Manual Control
- Configurable Inputs

Monitoring and Metering

- Current, Motor Loads, Thermal Capacity
- 1A / 5A combined CT inputs
- Motor Running Time, Cause of Trip, Total Number of Trips

User Interface

- Optional Control Panel with control push buttons and LED status indicators
- Includes EnerVista MM200 Setup software for simple Programming and retrieval of system or trip information

Communications

- Low voltage motor protection and control
- Multiple protocols - Modbus RTU, DeviceNet or Profibus DP
- Simultaneous Communications
- Networking through Rs485

EnerVista™ Software

MOTOR MANAGEMENT SYSTEM - MM300

APPLICATIONS

- Low Voltage three phase AC motors
- MCC or stand alone panel mount applications
- Reversing and Reduced Voltage applications
- IEC or NEMA class motors
- Motor applications requiring advanced Automation or Control such as conveyor Systems or well recovery pumps
- Advanced FlexLogic™ reduces requirement for local PLC's

FEATURES

Protection and control

- Enhanced Thermal Modeling
- Mechanical Jam / Stalled Rotor
- Undercurrent, Underpower
- Acceleration Time
- Current Unbalance
- Ground Fault, Sensitive Ground Fault
- Phase Overvoltage / Undervoltage
- Auxiliary Undervoltage
- Phase Reversal, VT Fuse Failure
- RTD Overtemperature, Thermistor

Monitoring and Metering

- Metering - current, voltage, power, energy, frequency, RTD, Thermistor
- Oscillography – analog values at 32 Samples/ cycle and digital states
- Event Recorder - Up to 256 time tagged events with 1ms resolution
- Advanced device health diagnostics

Automation

- Programmable Flexlogic™ option
- Starter Control, Process Interlocks
- Programmable inputs and outputs
- Undervoltage Auto-restart

Communications

- Networking Interfaces - Two Wire RS485, RJ45 Ethernet, Programming Ports - USB, RS485
- Multiple Protocols (Modbus RTU , Modbus TCP/IP, Profibus, Devicenet)
- Network Time Protocol (when ordered with Ethernet) user Interface

EnerVista™ Software

BREAKERS Series

AIR CIRCUIT BREAKER

M-Pact Series
Rating: 800A up to 4000A,
3 & 4 Poles
Breaking capacities
50kA up to 80kA

Fixed Pattern and withdrawable type in accordance with IEC 60947-2

Entelliguard Series
Rating: 5000A up to 6400A
Breaking capacities 100kA

Fixed Pattern and withdrawable type in accordance with IEC 60947-2

MCCB SERIES RECORDPLUS

A full range of thermal-magnetic and electronic moulded case circuit breakers from 16A to 1250A. In 3 and 4 poles, fixed or withdrawable versions.

Breaking capacities from 25kA up to 150kA

MCCB SERIES RECORD SL

Non adjustable MCCB's from 16A up to 250A, 3 Poles and 4 Poles.

Breaking capacities from 16kA up to 25kA

MCB'S SERIES REDLINES

Miniature Circuit Breaker
From 0.5A up to 125A -
1P to 4P configuration.
From 4.5kA up to 50kA
breaking capacities.
1, 2, 3 & 4 Poles, According to
IEC 60898 and IEC 60947-2.

RCCB'S SERIES REDLINES

Residual current operated circuit breakers without integral overcurrent protection.
From 16 to 100A and 10mA to 300mA
(IEC 61008), 2 & 4 Poles.

CONTROL AND AUTOMATION

CONTACTORS

Three ranges, 3 and 4 poles:
Series M :
from 6A to 9A in AC3
Series CL:
from 9A to 105A in AC3
Series CK:
from 150A to 825A in AC3

THERMAL OVERLOAD RELAYS

To fit on the three contactor ranges :
Series MT :
from 0.11A to 14A setting
Series RT :
from 0.16A to 110A setting
Series RT :
from 55A to 850A setting

CONTAX - CONTACTORS

Contactors are electromechanically controlled switches used to control single or multi-phase (high) power loads while the control itself can be low powerFrom 20 to 63A - 1, 2 & 3 Modules.

CONTACT R - RELAYS

Relays are electromechanically controlled switches used to control low power loads.

Nominal Current 16A, 1 & 2 Modules

MANUAL MOTOR STARTER SERIES SURION

Thermal and magnetic protection.
From 0.1A to 63A
From 25kA to 100kA
Standard and high breaking capacity

ACTIVE HARMONIC FILTERS

Merus A-series and S-series

A new generation of dynamic reactive power compensation and active harmonic filtering solutions.

Power quality can affect the overall company performance, which is a fact easily overlooked by the management.

The Merus active harmonic filters provide a quick return on your investment the device's quick and effective response to power system variations enables higher process reliability, longer equipment life, reduced energy losses and better productivity.

It also makes it easy to comply with global power quality standards and demanding grid codes.

Harmonic distortion, voltage variations, poor power factor and load unbalancing are among the key elements that not only test the reliability of modern electrical systems but also induce overall greater system losses.

HARMONICS CURRENT SOURCE

MERUS ACTIVE FILTER

RESULT

KEY FUNCTIONS

- Fast and effective mitigation of harmonics
- Voltage stabilization and flicker mitigation
- Balancing loads in three phase systems
- Improvement in power factor

Type A 50, A 100, A 150, A 200 (208V - 480V)

Type M 500 (480V - 750V)

Type M 1000 (750V - 1050V)

FEATURES

- Fast response time
- Compact size
- Modular cubicle and system design
- Modular controller concept
- Open and close loop
- Advanced user interface with 3.5" touch screen
- Sophisticated communications

Rise of non-linear and other challenging loads in modern electrical networks present unique power quality challenges.

Active filtering technology can be applied to industrial or commercial environments where good power quality is essential.

It can be used to improve the power quality of variable speed drive-fed motors, compressors, pumps, conveyors, shredders, mixers, extruders, winders, grinders, crushers, DC Drives, welding equipment and UPS (Uninterrupted Power Supply) systems.

GOOD POWER QUALITY MEANS

- Energy efficiency
- Higher productivity in industrial plants
- Reduced maintenance costs
- Longer lifetime of electrical and process equipment
- Additional electric capacity in existing electrical network

TECHNICAL SPECIFICATIONS

MODEL	A50	A100	A150	A200
Rating of individual units	**50A**	**100A**	**150A**	**200A**
Nominal voltage	Standard 400V ±10% (other voltages on request)			
Harmonic performance	up to 50th harmonic – compliance with IEEE 519 and G5/4			
Rated frequency	50 / 60 Hz			
Operating modes	All harmonics/All harmonics but not fundamental/Selective harmonics			
Response time	<< 1 ms / 1 cycle (selective mode)			
Switching frequency	10kHz			
Controller	Real time digital control with FFT			
Balancing capacity	100% * IN of active filter			
Neutral wire current	150A	300A	450A	Not available
3-Wire/4-Wire	3W & 4W	3W & 4W	3W & 4W	4W Only
Human-machine interface (HMI)	3,5” easy to use touch screen interface			
HMI languages	8 languages including English-German-Spanish-Chinese-Russian. Others on request			
Monitoring	On-site and remote monitoring possibilities			
Reporting	Reports data of power quality events up to previous one month			
Communication	Ethernet / RS485, ModBus			
Cooling media	Air			
Protection degree	IP 21, IP 34 as an option			
Ambient temperature	40°C, without derating			
Humidity	Maximum 95% RH; non-condensing			
Power losses	< 3 %			
Current transformers	3 pieces, secondary 5A or 1A, class 0,5 or better			
Dimension	600 x 600 x 1000	600 x 600 x 100	600 x 600 x 1600	600 x 600 x 1600
Weight	110 kg	130 kg	280 kg	280 kg
Cable entry	Top or bottom	Top or Bottom	Bottom	Bottom
Noise	60dB	66dB	68dB	68dB

MODEL	M500	M1000
Rating of individual units	**420A**	**820A**
Nominal voltage	690V ±10%	960V ±10%
Harmonic performance	up to 31st harmonic – compliance with EEE 519 and G5/4	up to 17st harmonic – compliance with EEE 519 and G5/4
Rated frequency	50Hz or 60Hz	
Operating modes	All harmonics/All harmonics but not fundamental/Selective harmonics	
Response time	<< 1 ms / 1 cycle (selective mode)	
Switching frequency	8kHz	4kHz
Controller	Real time digital control with FFT	
Balancing capacity	100% * IN of active filter	
Neutral wire current	Not available	Not available
3-Wire/4-Wire	3W	3W
Human-machine interface (HMI)	3,5” easy to use touch screen interface	
HMI languages	8 languages including English-German-Spanish-Chinese-Russian. Others on request	
Monitoring	On-site and remote monitoring possibilities	
Reporting	Reports data of power quality events up to previous one month	
Communication	Ethernet / RS485, ModBus	
Cooling media	Air	Liquid
Protection degree	IP 21, IP 34 as an option	
Ambient temperature	40°C, without derating	
Humidity	Maximum 95% RH; non-condensing	
Power losses	< 3 %	
Current transformers	3 pieces, secondary 5A or 1A, class 0,5 or better	
Dimension	1420 x 1100 x 2000	2120 x 2220 x 2150
Weight	1160 kg	2180 kg
Cable entry	Bottom	Bottom
Noise	70dB	80dB

PT GUNA ERA DISTRIBUSI
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