



GED 13/0713 SHORT CATALOG

- METERING AND PANEL ACCESSORIES
- POWER FACTOR CORRECTION
- MOTOR MANAGEMENT SYSTEM AND RELAY
- SWITCHES AND FUSES
- POWER CIRCUIT BREAKER AND CONTROL
- INSTALLATION MATERIAL
- TIME AND LIGHTING MANAGEMENT SYSTEM
- LIGHTNING PROTECTION



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METERING



Energy meter
3P kWh
Inductive Type



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



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 φ meter
0.5 cap - 1 - 0.5 ind

LOW VOLTAGE CURRENT TRANSFORMER



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 404 RING
200/5A - 2500/5A



CT 102
50/5A - 150/5A



CT 103
200/5A - 300/5A



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

MULTIFUNCTION POWER METER EMG20 and 30



Basic Measurement

	EMG20	EMG30
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)	active and reactive	✓
Total Power (active, reactive and apparent)	active and reactive	✓
Energy (active and reactive)	✓	✓

Power Analysis

THD (voltage and current)		✓
Individual Harmonic		1-31
Maximum Demand		✓
Maximum and minimum of instant measurement		✓

Communication

RS485 MODBUS	optional	✓
Profibus		optional

STANDARD DUTY CAPACITOR



Single Phase MKP Type		Three Phase MKP Type
415V 50 Hz	450V 50 Hz	415V 50 Hz
1.67 kVAr	3.3 kVAr	2.5 kVAr
3.3 kVAr	4.17 kVAr	5 kVAr
4.17 kVAr	-	10 kVAr
-	-	-

Three Phase MKPc Type	Three Phase MKPg Type
415V 50 Hz	415V 50 Hz
12.25 kVAr	15 kVAr
15 kVAr	20 kVAr
20 kVAr	25 kVAr
25 kVAr	40 kVAr

HEAVY DUTY CAPACITOR and DETUNED REACTOR



MKPg Type, 525 V Qn (kVAr)		
@ 400V 50 Hz	@ 415V 50 Hz	@ 525V 50 Hz
10 kVAr	10.76 kVAr	17.23 kVAr
12.5 kVAr	13.45 kVAr	21.53 kVAr
23.23 kVAr	25 kVAr	40 kVAr
-	-	-



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
- No Rated step setting
- Temperature and fan control
- Capacitor monitoring

MOTOR PROTECTION SYSTEM - MM2

APPLICATIONS

- Motor protection and management system for low voltage AC motors
- Specifically designed for Motor Control Center applications



FEATURES

- Protection And Control
 - Motor Thermal Model
 - Single phase / Current unbalance
 - Contactor failure
 - Locked/stalled rotor
 - Ground fault
 - Undervoltage, Overvoltage
 - Overtemperature
 - Acceleration Trip
 - Thermistor Protection
 - Starts per Hour / Time Between Starts
 - Undercurrent and underpower

- Configurable motor start controller
- Undervoltage auto restart

- Monitoring and Metering
- User Interface
- EnerVista™ Software

ORDERING MM2

MM2	*	*	*	*	Description
					Basic unit
	PD				Panel mount with display *
	C				Chassis mount (black box)
		1			Option 1 Process control, 10 process inputs, undervoltage auto restart, diagnostics
			2		Option 2 Enhanced protection, power (kW), thermistor, 2nd contactor control, and 2 process inputs
				120	Control voltage 120 VAC
				240	Control voltage 240 VAC

* Only available when both options are ordered

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
- Communication
- User Interface
- EnerVista™ Software

ORDERING MM200

MM200	*	x	*	*	*	Description
Control Panel	X					None
	B					Basic Control Panel, no USB
Power supply			L			24 VDC
			H			60 - 300 VAC
Communication				1		RS485 Modbus RTU + DeviceNet Slave
				2		RS485 Modbus RTU + Profibus DP Slave
Protection					S	Standart Protection & Control

MOTOR MANAGEMENT SYSTEM - MM300

APPLICATIONS

- Low Voltage Three-phase AC motors
- MCC or stand alone panel mount applications
- Reversing and Reduced Voltage applications
- Motor applications requiring advanced Automation or Control such as conveyor
- Systems or well recovery pumps
- IEC or NEMA class motors



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
- Thermistor
- RTD Overtemperature

- Automation
- Monitoring and Metering
- Communication
- User Interface
- EnerVista™ Software

ORDERING MM300

MM300	*	*	*	*	*	*	*	*	*	Description
Control Panel	X									None
	B									Basic Control Panel, no USB
	G									Graphical Control Panel inc USB
Power Supply		H								High (60-300 vac/80-250vdc) (Standard)
Communication			S							RS485 Modbus RTU (Standard)
			D							RS485 + DeviceNet Slave + 10/100 Modbus TCP
			P							RS485 + Profibus DP Slave + 10/100 Modbus TCP
Options				S						Standard Control and Event Recorder
				1						+ Undervoltage Auto-restart
				2						+ Waveform Capture, Data Logger
				3						+ FlexLogic
I/O Modules					A	X	X	X	X	None
					B					3 Phase Current + Thermal O/L, Under Current, Single Phase Under Power
					G	G	G			3 Phase Voltage + 3 Phase Under Power, Under / Over Voltage, Phase reversal
					C	C	C	C		3 x RTD : 100PT, 120NI, 100NI - max 2
					D	D	D	D		2 x 10A Relay Form A and 6 x Digital Input 60-300ac/ (Standard) - max 5
										4 x 10A Relay Form C - max 5



MOTOR PROTECTION SYSTEM - 369

APPLICATIONS

- Protection and control for medium sized AC motors
- "Down Hole" pump applications
- Suitable for applications involving Variable Frequency Drives

FEATURES

- Protection And Control
 - Enhanced thermal model
 - Stall / Jam protection
 - Undervoltage, overvoltage
 - Underfrequency

- Thermal overload
- Undercurrent/current unbalance
- Variable lockout time
- Ground fault O/C
- Overtemperature 12 RTDs ® option)
- Starts/hour, time between starts
- Phase Reversal (M option)
- Undervoltage Auto-restart
- Two Speed Motor Protection

- User Interface
- Monitoring and Metering
- Communication
- EnerVista™ Software



ORDERING 369	*	*	*	*	*	*
369						
	HI					
	LO					
		R				
		0				
			M			
			B			
			0			
				F		
				0		
					P	
					P1	
					E	
					D	
					0	
						H
						E
						0

Basic Unit (no RTD)
 50 – 300 VDC / 40 – 265 VAC Control Power
 20 – 60 VDC / 20 – 48 VAC Control Power
 Optional 12 RTD inputs (built-in)
 No optional RTD inputs
 Optional metering package
 Optional backspin detection (includes metering)
 No optional metering package or backspin detection
 Optional fiber optic port
 No optional fiber optic port
 Optional Profibus DP0 Interface
 Optional Profibus DPV1 Interface
 Optional ModBus® TCP over Ethernet interface
 Optional DeviceNet protocol
 No optional Profibus protocol interface
 Harsh Chemical Environment Option
 Enhanced diagnostics (includes enhanced motor diagnostics, enhanced event recorder, security audit trail)
 No enhanced diagnostics

MOTOR PROTECTION SYSTEM - 469

APPLICATIONS

- Protection and Management of three phase medium and large horsepower motors and driven equipment, including high inertia, two speed and reduced-voltage start motors

FEATURES

- Protection and Control
 - Thermal model biased with RTD and negative sequence current feedback
 - Start supervision and inhibit
 - Mechanical jam
 - Voltage compensated acceleration

- Undervoltage, overvoltage
- Underfrequency
- Stator differential protection
- Thermal overload
- Overtemperature protection
- Phase and ground overcurrent
- Current unbalance
- Power elements
- Torque protection
- Dual overload curves for 2 speed motors
- Reduced voltage starting control

- Communication
- Monitoring and Metering
- EnerVista™ Software



ORDERING 469	*	*	*	*	*
469					
	P1				
	P5				
		LO			
		HI			
			A1		
			A20		
				D	
				E	
				T	
					H

Basic Unit
 1 A phase CT secondaries
 5 A phase CT secondaries
 DC: 24 - 60 V; AC: 20 - 48 V @ 48 - 62 Hz control power
 DC: 90 - 300 V; AC: 70 - 265 V @ 48 - 62 Hz control power
 0 - 1 mA analog outputs
 4 - 20 mA analog outputs
 DeviceNet
 Enhanced front panel
 Enhanced front panel with Ethernet 10BaseT option
 Harsh (Chemical) Environment Conformal Coating

PHASE FAILURE RELAY and WATER LEVEL CONTROL (GAE)



Phase Failure Relay
GC1100



Water Level Control
GC2200

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 SWITCHES



3P & 4P

- VC2P : 250 A - 315 A
- VC3P : 400 A - 500 A
- VC4P : 630 A - 800 A
- VC5P : 1000A - 3150 A

CHANGE-OVER SWITCHES - (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

- 1P & 3P



ON - OFF SWITCH



- ON - OFF SWITCH 16A - 125A**
 - 1P - 4P / 3P - 4P
- ON - OFF SWITCH 160A - 250A**
 - 3P - 4P
- ON - OFF SWITCH WITH PADLOCKABLE HANDLE 160A - 250A**
 - 3P - 4P
- ON - OFF SWITCH SPRING RETURN**
 - 3P - 4P

CHANGE-OVER SWITCH



- CHANGE-OVER SWITCHES 16A - 125A**
 - 1P - 4P
- CHANGE-OVER SWITCHES 160A - 250A**
 - 3P - 4P
- CHANGE-OVER SWITCHES WITH SPRING RETURN**
 - 1P - 2P

METERING SWITCH / STEP SWITCH



- METERING SWITCHES**
 - Voltmeter Selector Switch 4 pos & 4 pos
 - Ampere Meter Selector Switch 4 pos

- STEP SWITCHES**
 - Step Switch with or without position

CHANGE-OVER MOTOR SWITCH



- MOTORIZED SWITCH 63A - 250A, (4P)**
- CONTROL VOLTAGE:**
 - 12V DC
 - 24V DC
 - 80 - 230V AC 50Hz

**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

**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.

**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

**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

**CONTAX - CONTACTORS**

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

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

**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

PANASONIC WHITE CONDUIT and CONDUIT FITTINGS



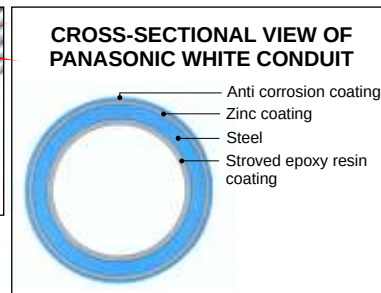
JIS
Plain Type E19 - E75
Thin Wall Type C19 - C75
Thick Wall Type G16 - G104



ANSI
EMT Size 1/2" up to 2"
IMC Size 1/2" up to 4"
RSC Size 1/2" up to 6"



STAINLESS STEEL
IMC Size 1/2" up to 4"



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



Coupling



Normal Bends



Bushing



Connector



Saddles Clamp



Lock Nut

POLYETHYLENE-LINING STEEL PIPE



Non-Threaded

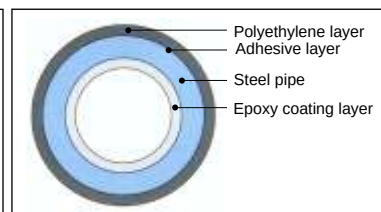


Threaded



Normal Bend

Coupling



Corrosions resistant steel pipe for cable

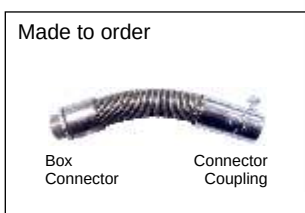
FLEXIBLE and ACCESSORIES

(Unit: mm)



Hi-Flex White

Size:
17-101



Made to order

Box Connector

Connector Coupling

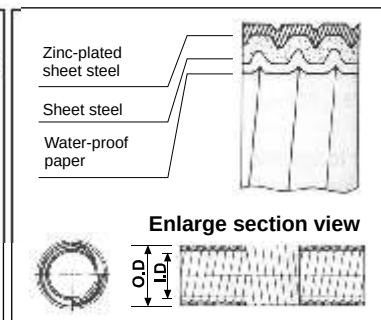


Mech Flexy + Accessories

Size 16-42

WP Connection Coupling

WP Box Connector



Zinc-plated sheet steel
Sheet steel
Water-proof paper

Enlarge section view

O.D.
I.D.

CABLE LUG (GAE)



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

ANALOG TIME SWITCH



SUL 180 a

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



SUL 181 d

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

DIGITAL TIME SWITCH



Simplexa Series

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



TR 610 TOP 2

- 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

- 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)

LUXA Series



101 - 150
101 - 180



101 - 360



103 - 200
103 - 200T



102 - 150/150 W
102 - 150/500 W



103 - 360
103 - 360/2

SPHINX Series



104 - 360, 104 - 360/2
104 - 360AP, 104 - 360/2AP



105 - 110/220, 105 - 220
105 - 300

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



Presence Light 180



Presence Light 360



Compact Passage



ECO-IR 180A



Compact Office
Compact Office DIM



ECO-IR 360A
ECO-IR 360C-NT
ECO-IR DUAL C-NT

SAINT-ELME SERIES LIGHTNING CONDUCTOR

Saint-Elme Active 2D:

Caracteristics of the Saint-Elme Active2D lightning conductor

- Take in account the energetic information to choose the tracer which can become an ascending tracer.
- Maintain the propagation of the tracer by discharge of the power device.
- Source of energy autonomous and clean
- Solar (2) or wind (1) energy for the "power device"
- Atmospheric electrical field for the "impulse device" (3).
- Consider the cloud polarity.
- Radius of curve of the head optimize to reduce the corona effect and guarantee the excitation device.
- Protection of the electrical part against the rain with a dimensioned flange (4).
- High quality materials, esthetical.
- Use of stainless steel to resist against corrosion.

Test

The Saint-Elme Active 2D lightning conductor was tested in the high voltage laboratory Bazet (CEB) in compliance with the NFC 17-102 standard and is subject of tests campaign in site.

The Saint-Elme Active 2D lightning conductor's excitation advance device has been determined comparing to a rod of reference obtained in short-circuiting the double device of this lightning conductor. Range of Product Saint-Elme Active 2D Range.



Rp	Active 1D®				Bâton C / B B6E BZÜs				B L)*, Q B syueV B B' ac				BÂB BÂ²EY%				B X"ISB B @, S€[			
	DT=12ms				DT=30ms				DT=60ms				DT=15ms				DT=45ms			
H(m)	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
2	11	16	16	19	19	21	25	28	31	34	39	43	13	15	18	20	25	28	35	36
4	23	32	32	37	38	43	51	57	63	69	78	85	25	29	36	41	51	57	65	72
5	28	41	41	46	48	55	63	71	79	86	97	107	32	37	45	51	63	71	81	89
6	28	41	41	46	48	55	64	72	79	87	97	107	32	38	46	52	63	71	81	90
8	28	41	41	46	49	56	65	73	79	87	98	108	33	39	47	54	64	72	82	91
10	30	45	45	52	49	57	66	75	79	88	99	109	34	40	49	56	64	72	83	92
20	32	51	51	60	50	59	71	81	80	89	102	113	35	44	55	63	65	74	86	97
30	32	55	55	65	50	60	73	85	80	90	104	116	35	45	58	69	65	75	89	101
60	32	57	57	72	50	60	75	90	80	90	105	120	35	34	58	75	65	75	90	105

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 60-1 and 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 wavv)
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





PT GUNA ERA DISTRIBUSI

affiliated company of PT Guna Elektro
www.gae.co.id

JAKARTA TIMUR 13930

Jl. Rawa Gelam II No. 8
Pulogadung Industrial Estate
T (021) 4682 5050
F (021) 4682 4758

SURABAYA 60293

Jl. Rungkut Industri I No. 29
Rungkut Industrial Estate
T (031) 849 3885-86
F (031) 841 6661

MEDAN 20151

Jl. Haji Misbah
Komplek Taman Multatuli Indah Blok A/41
T (061) 451 7080, 455 6120
F (061) 451 2028