

ENERMAX+

Energy and Demand Meter



Electrical Distributors



General Characteristics:

- Wh: IEC 6205-22-Class 0.5
- varh: IEC 62053-23-Class 2.0
- 1(2)A or 5(10)A CT inputs can be user selected
- Comprehensive 4 quadrant metering
- Large 2 line alphanumeric LCD display - program mable text - auto scroll option
- 8 fixed display menus and 8 custom menus
- 3 individually programmable phase voltage monitors - Front panel alert for "lost phase voltage" - can be included in the event logging function.
- Extensive instantaneous parameters (voltage, current, pf, etc)now also include line frequency and meter temperature
- 3 programmable multifunction solid state relay outputs for steady state or pulsed control
- 3 programmable multifunction digital inputs for control, event logging or pulse counting
- Block demand periods adjustable from 1 to 60 minutes in integer sub-multiples
- Real-time clock can operate from either the internal crystal frequency, or line frequency
- Future firmware enhancements can be downloaded via optical port

Standard Meters:

Manufactured and supported in South Africa

- E+MA-654000 (4 wire, 63.5V - (L-N))
- E+MA-153000 (3 wire, 110V - (L-L))
- E+MA-454000 (4 wire, 220V - (L-N))

General Characteristics:

- Up to 12 seasons, 8 day-types, 16 rates and 64 switching times per day per season
- Up to 128 exclusion days are provided
- Daylight saving can be applied

Data Storage in non-volatile (Flash) memory:

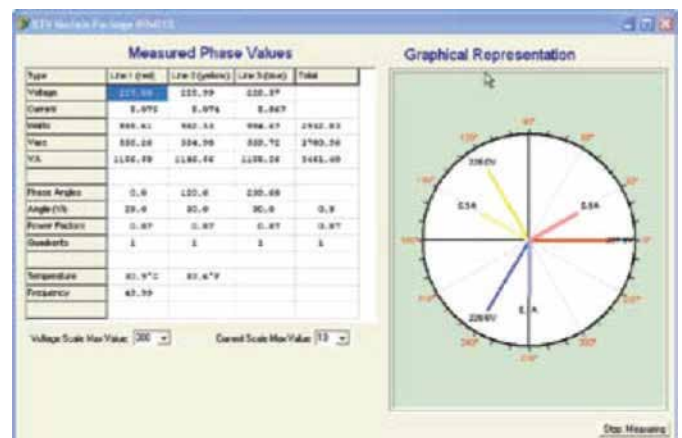
- Up to 32 stacks of historical billing data
- Up to 8 channels of profile data can be logged at different time intervals. Data capacity of 400 days @ 8 channels and 30 minute intervals
- Profile data can be stored on the basis "Snapshot", sum, minimum, maximum or average values, to suit the parameter
- A comprehensive event logging facility allows extensive audit and alarming facilities
- Meter stores up to 8 historical setups

Expansion Facilities:

- Two expansion slots
- I/O expansion modules: 4 Inputs/Outputs; 8 inputs; 8 outputs
- Capable of collecting energy pulses from other sources
- Communication modules: RS232/485 (to 115 kb); GSM/RS485; PSTN/RS485; Ethernet/485; Energy Management Module

Software:

- All new Windows software for programming and reading uses setup "wizard" and templates



Technical data sheet for ENERMAX+ energy and demand meter:

ELECTRICAL PARAMETERS				
METER ACCURACY				
IEC 62053	Active energy to IEC 62053-22		Class 0.5	
	Reactive energy to IEC 62053-23		Class 2.0	
LINE CURRENT & VOLTAGE (STATIC METER)				
LINE FREQUENCY				
Nominal	Program Setting		50 or 60Hz	
Hertz	Tolerance		± 5%	
MEASUREMENT STARTING THRESHHOLDS				
IEC62053-22(8.3.3)				
Phase	Phase voltage →		57V	110V
3	Starting voltage		45	45
3	CT starting current		0.1% I _N	
CT NOMINAL CURRENT IN				
IEC62053-22(4.2)				
Dip Select	I _N	I _{MAX}	Short circuit	Over range 20A
4 wire	0...2A	200%	0.5s @ 20 x I _{MAX}	For 60 min
3 wire	0...10A	200%	0.5s @ 20 x I _{MAX}	For 60 min
LINE NOMINAL VOLTAGES				
Range →	100V...400V	57V...230V		Operating voltage range
4 wire	Line to line	Line to neutral	80%...115%	
3 wire	--	Line to common	80%...115%	
BURDEN PER PHASE IN VOLTAGE CIRCUIT				
IEC 62053-61 (4.3 Multi-Function Meter)				
Test conditions			57Vac	110Vac
Three phases connected, no module fitted			<0.5W	<0.5W
			<1.0VA	<1.0
Three phases connected, two modules fitted			<1.0W	<1.0
			<2.0VA	<2.0
LINE BURDEN PER PHASE IN CURRENT CIRCUIT				
1A=	<0.05VA	2A=	<0.05VA	5A=
			<0.1VA	10A=
				<0.25VA
METER INSULATION WITHSTAND				
IEC62052-11 (7.4) & (7.3.1 to 7.3.3)				
METER IMPULSE VOLTAGE				
IEC62052-11 (7.3.2)				
Test with accordance specified in IEC 60060-1				
ELECTROSTATIC DISCHARGES				
IEC62052-11 (7.5.2) Contact Discharged				8kV
ELECTROMAGNETIC RF FIELDS				
IEC62052-11 (7.5.3)				
80Mhz - 2GHz tested to IEC 61000-4-3			10 and 30 V/m	
Radio Interference Suppression			IEC/CISPR 22	Class B
FAST TRANSIENT BURST TEST				
IEC62052-11 (7.5.4)				4kV
SURGE IMMUNITY TEST				
IEC62052-11 (7.5.6)				4kV
CLOCK				
IEC62054-21 (7.5.2.2 & 7.5.2.3)				
Accuracy			@ 25 Deg C: 0.5 s/day	
Synchronising			Crytal or line frequency	
BATTERY				
(Only for RTC during power down)				
RTC Back-Up	Metert powered-down period		Battery Model	
Replaceable 3V Lithium	8 years		CR2032	
METER CONNECTIONS				
CLEARANCE AND CREEPAGE				
IEC62052-11 Class 2 (5.6)				
Voltage phase to earth derived from rated system			> 300V	
Rated impulse voltage			6000V	
PHASE TERMINAL - CONNECTIONS				
IEC62052-11 (5.4)				
Wire capacity		Cable 6mm		
Terminal Quantity/Size		10 x 5mm ID		
IEC62052-11 (5.9)				
Terminal Block Insulation Material		Flame retardent translucent Polycarbonate		
<i>2005-11-25: All specifications subject to change without prior notice</i>				

AUXILIARY TERMINALS				
TERMINAL BLOCKS				
Inputs	4 x terminals		3 + common, clamp 0.08...1.5m ²	
Outputs	4 x terminals		3 + common, clamp 0.08...1.5m ²	
Rated	Electrical	Current=	5A	Voltage=
	impulse volts	2.5kV		
INPUTS				
Quantity	3		Digital	
Isolation	Optical	2kV Withstand		4kV impulse
Operation	Voltage		15...250DCV or 50...250ADV	
	Current		Ac < 2mA ohmic at 250	
Function	Program	For pulse and control inputs		
OUTPUTS				
Quantity	3		Solid state SPST relays	
Isolation	Minimum	Input to output V _{IO} 3750V _{RMS}		
Operation	Voltage		Dc 250 - Ac 250	
	Current		Maximum 250mA	
	Form		Dead State: N/O	
	Program		Standby state: N/O or N/C	
OPERATOR INTERFACES				
MANUAL - BUTTONS				
Reset	1 off	To Month-End reset: press & hold		
Scroll	1 off	Scroll Displays or Menus		
Security	Reset	Wire seal & programmable		
LCD LIQUID CRYSTAL DISPLAY				
Type	2 rows of 16 8 mm characters, Dot matrix			
LED'S				
Faceplate	Calibration	IEC62052-11 (5.11)		
	Indication	10 Imp/Wh & 10 Imp/varh; 2 x Red Line failure: 3 x Green: V1, V2, V3 Healthy: 1 x Green: behind comms lens		
COMMUNICATIONS - OPTICAL PORT				
Type	Serial	IEC62056-21		
		1 x Bidirectional, half duplex		
Rx/Tx	Baud	Max bit rate: 11k		
	Protocols	IEC 62056-21 Mode C		
ENVIRONMENT				
SHOCK AND VIBRATION				
IEC62052-11 (5.2.2.2) & (5.2.2.3)				
Shock= IEC60068-2-27		Vibration= IEC60068-2-6		
HUMIDITY				
IEC62052-11 (6.2 & 6.3.3)				up to 95%
None condensing				
TEMPERATURE				
IEC62052-11 (6.1) & IEC62053-22 (8.2)				
Range →	Operation=	-25°C...+55°C	Storage=	-25°C...+70°C
Coefficient Range →		-20°C...+55°C		
HOUSING				
IEC62052-11 (5.9) IMPERMEABILITY				IP51
IEC62052-11 (5.9) MATERIALS				
INSTALLATION				
DIMENSIONS				
Width: 170mm		Depth: 85mm		Height: 270mm
Mounting bracket		When reversed, add 22mm on meter height		
MOUNTING				
Fixing screws		Location		Mounting
3 x < 6mm diameter		Indoors		Flat surface
CABLES				
Line voltage		CT current		Auxiliary
< 6mm ²		< 6mm ²		< 1.5mm ²
TERMINAL COVER				
Fixing Screws		Security		Breakouts
2		2 Wire Seals		1 each side, 3 at bottom
SHIPPING				
LOOSE METER				
Mass	1.5kg			
METER PACKAGING				
Packaging box dimensions				
Width: 210mm		Depth: 140mm		Height: 310mm
Mass	1.8kg			