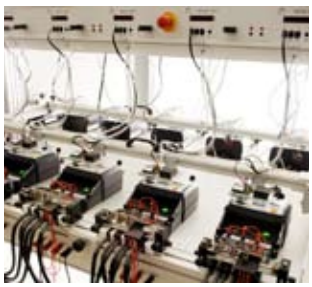
ENERMAX+

Energy and Demand Meter



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 ixed display menus and 8 custom menus
- 3 individually programmable phase voltage moni tors - 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 irmware enhancements can be download ed 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:

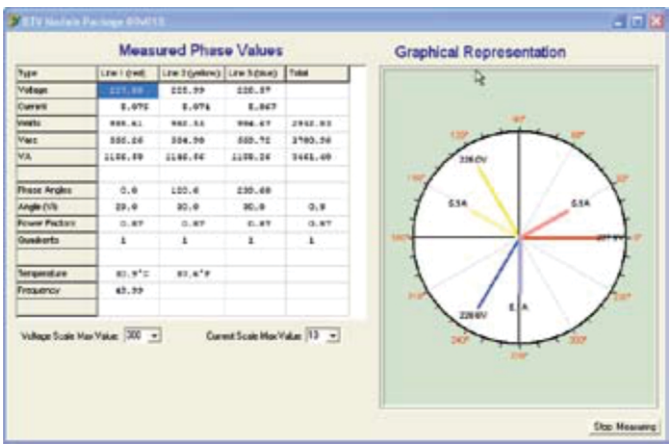
- Up to 32 stacks of historical billing data
- Up to 8 channels of proile data can be logged at different time intervals. Data capacity of 400 days @ 8 channels and 30 minute intervals
- Proile data can be stored on the basis “Snapshot”, sum, minimum, maximum or average values, to suit the parameter
- 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	230V
3	Starting voltage	45	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	230Vac
Three phases connected, no module fitted	<0.5W	<0.5W	<1.0
	<1.0VA	<1.0	<2.0
Three phases connected, two modules fitted	<1.0W	<1.0	<2.0
	<2.0VA	<2.0	<3.0

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

2005-11-25: All specifications subject to change withou prior notice

AUXILIARY TERMINALS

TERMINAL BLOCKS

Inputs	4 x terminals		3 + common, clamp 0.08…1.5m²		
Outputs	4 x terminals		3 + common, clamp 0.08…1.5m²		
Rated	Electrical	Current=	5A	Voltage=	300V
	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 $V_{I/O}$ 3750V_{RMS}
Operation	Voltage	Dc 250 - Ac 250
	Current	Maximum 250mA
	Form	Dead State: N/O
	Program	Standby state: N/O or N/C
		Outputs to be state and control

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)
		10 Imp/Wh & 10 Imp/varh: 2 x Red
	Indication	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)

None condensing	up to 95%

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 diammeter	Indoors	Flat surface

CABLES

Line voltage	CT current	Auxiliary
≤ 6mm²	≤ 6mm²	≤ 1.5mm²

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	

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