Conzerv Systems Pvt Ltd (Formerly Enercon Systems Pvt Ltd)

EM 6400 Series Power Max

Compact   Smart   Universal
Powerful   Low Investment

CONZERV ™
Smart Energy Management

80mm Depth	96 x 96 mm Flush Mount	ISO 9001-2000 Certified

- Accuracy Class 1.0 (0.5 Option)
- IEC 61036 / CBIP 88
- True RMS, Accurate on Distorted waveforms
- Simultaneous sampling of Volts & Amps
- Low PT, CT burden
- Crisp, Bright Display
- View 3 Parameters together
- Auto Scaling from Kilo to Mega to Giga
- Programmable CT, PT ratios
- Built-in phase analyser
- Quick and easy installation

- Auto Scrolling
- Communication with PCs, PLCs, DCS through optional RS 485 Serial Port
- 10 year back-up of integrated data
- Tamper Proof Cover option
- Sealed dust-proof construction
- Simplest to operate - One touch 👆 key
- Measures 4 Quadrant Power & 2 Quadrant Energy (IE option measures 4 Quadrant Energy)
- Monitors Demand (Option)

EM 6459

Monitors
- Voltage: Line to Neutral, per Phase and Average
- Voltage: Line to Line, per phase and Average
- Current: Phase Wise & Average
- Phase angles of A_1, A_2, A_3
- Frequency

EM 6434

Monitors
- Power Parameters Per Phase and Total (kVA, kW, kVAR)
- PF per phase and 3 phase
- Energy Parameters (kVAh, kWh, kVARh inductive and kVARh capacitive)
- Built-in RS 485 port

EM 6400

Monitors all EM 6434 & EM 6459 features plus
- Run Hrs, ON Hrs and No. of Interruptions
- THD in % for V & I phasewise (option)
- RS 485 port option
- Demand option
- IE option (Import / Export)

User Programmable

- Delta or Star (Wye)
- PT, CT Ratios Primary & Secondary

Applications

- Control Panels
- Motor Control Centers
- Power Distribution Panels
- Connection to Plant Monitoring & Control Systems
- Genset Panels
- Original Equipment Manufacturers (OEMs)

Display Features

- Brilliant 3 line, 4 digit per line, (digit height 14mm) LED display with auto-scaling capability for Kilo, Mega, Giga
- Meter can display Volts, Amps and Frequency simultaneously
- Easy set up through Front Panel keys
- Password protection for setup parameters

Rugged Construction

Conforms to:
- Emission   : CISPR 22
- Fast Transient   : Upto 2kV
                      IEC 61000-4-4, level 3
- ESD   : IEC 61000 - 4 - 2
- Impulse voltage   : 6kV, IEC 60060, 1.2/50

BVQi   ANAB ACCREDITED   RvA MGMT SYS RvA C 248

UKAS UK   C-Tick   Australian Communications Authority

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Technical Specifications

■ Sensing / Measurement	True RMS, 1 sec update time
■ Input voltage	4 Voltage inputs (V_1, V_2, V_3, V_N) 110 or 415 V L-L nominal (Range 80 to 500V L-L)
■ Aux Supply (Control Power)	80 - 270V ac 45 - 65 Hz, 100 - 270 dc
■ Input current	Current inputs (A_1, A_2, A_3) 50mA - 6A (Field configurable 1A or 5A)
■ Overload	10A max continuous 50A max for 3 seconds
■ Burden	0.2VA max per Volts/Amps input 3VA max on Auxiliary Supply
■ Frequency	45 - 65Hz
■ Resolution	RMS 4 digit, Integ 8 digit
■ Digital Communications	RS 485 serial channel connection Industry standard Modbus RTU protocol.
■ Isolation	2000 volts ac isolation for 1 minute between communication and other circuits
■ Demand	Integration period multiple of 5 minutes from 5 to 30 minutes 15 Sec update time
■ Environmental	Operating Temperature -10°C to +60°C (14°F to 140°F) Storage Temperature -25°C to +70°C (-13°F to 158°F) Humidity 5% to 95% non condensing.
■ Weight	400 gms approx. Unpacked 500 gms approx. Shipping
■ Warranty	1 Year from date of Invoice

Overload

V input overload withstanding

A input overload withstanding
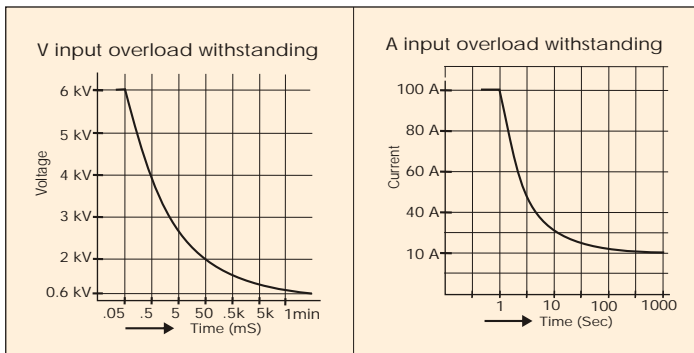
Accuracy

Measurement	Accuracy % Reading	
	CI 1.0	CI 0.5
■ Volts LN per phase	1.0	0.5
■ Volts LL per phase	1.0	0.5
■ Volts LN Avg	1.0	0.5
■ Volts LL Avg	1.0	0.5
■ Amps per phase	1.0	0.5
■ Amps Avg	1.0	0.5
■ Amps phase angle per phase	2^0	1^0
■ Frequency	0.1	0.1
■ Real Power per phase & total	1.0	0.5
■ Reactive Power per phase & total	2.0	1.0
■ Apparent Power per phase & total	1.0	0.5
■ Power Factor per phase & average	1.0	0.5
■ Active Energy Import /Export	1.0	0.5
■ Reactive Energy (Inductive / Capacitive)	2.0	1.0
■ Apparent Energy	1.0	0.5

Note:
■ Additional error of 0.05 % of full scale, for meter input current below 200 mA

Display Pages

		Pages	EM6459	EM6434	EM6400
RMS		VLL, A avg., F		-	✓
		VLN, A avg., F		-	✓
		VA, W, VAR	-		✓
		W, VA, PF	-		✓
		Per phase for the above parameters			✓
DM		VA demand	-	-	✓
		Rising demand	-	-	✓
		Time remaining	-	-	✓
		MD (Max Demand)	-	-	✓
		Hr (MD occurred)	-	-	✓
INTEG	Also for IE option	VAh	-		✓
		Wh	-		✓
		VARh Inductive	-		✓
		VARh Capacitive	-		✓
		Run hours	-	-	✓
		On hours	-	-	✓
		Interruptions (Outages)	-	-	✓

Digital Communication

RS 485 standard, communication capability using open Modbus RTU protocol. The meters can be multi-dropped using RS 485 twisted pair. The baud rate can be adjusted from 1200 bps to 19200 bps. (Preferred setting is 9600 bps).

BMS Compatible

Access of either single (individual) parameter or block of parameters through RS 485 communication port. Integrates with Honeywell, DATS, Siemens Building Technologies and other BMS packages.

RS 485 Single Point Communication Modbus

Not to scale

RS 485

RS 485 / RS 232 Converter

RS 485 Multi-Point Communication Modbus

Not to scale

RS 485

RS 485 / RS 232 Converter

Wiring Diagram

3 Phase 4 Wire	3 Phase Connected for Single Phase	3 Phase 3 Wire

Caution: Do not install selector switch on the voltage and current circuits. It will interrupt energy accumulation.

Dimensions

90 mm

90 mm

80 mm

+1

9mm additional space on both side of the meter inside the Panel

Dimension

Bezel : 96 x 96 mm

Depth : 80 mm behind Bezel

Panel cutout : 92^{+1}_{-0} x 92^{+1}_{-0} mm

"3d" VA measurement

- EM 6400 is equipped with "3d VA Measurement" capability. This accurately includes Distortion power(D) per IEEE100, into the VA calculation.

  So, $VA_{3D} = \sqrt{W^2 + VAR^2 + D^2}$

- However Arithmetic VA ($VA = VA_1 + VA_2 + VA_3$) is also available as a set-up option if you need to compare with simpler or older meters.

Integrated Parameters

- Import / Export is optional. Factory selectable on Order
- Energy Parameter (kWh, kVAh, kVARh inductive and kVARh Capacitive) (Total, Import & Export)
- Separate Run hrs indication for Import, Export and Total
- Run hrs, ON hrs, No of interruptions

Demand Parameters

- Monitors Demand- Present, Rising & Maximum, Time remaining
- VA & W demand is selectable through setup table.
- Demand interval is selectable through setup in steps of 5 min (5,10,15,20,25 & 30).
- Demand may be Sliding window (auto) or Fixed window (User), selectable through setup mode.
- The time of occurrence for the Maximum Demand is based on "On hrs" of the system.
- Maximum Demand will be cleared along with the integrators through the CLR function in the setup mode.

Accessories (Options)

- Optional Fused Voltage Probes & Clamp-on Current Probes for portable use
- Tamper proof cover
- Safety Cover
- Connector Kit

Ordering Information

Sl.	Specify	EM 6459	EM 6434	EM 6400
1	Model Number	✓	✓	✓
2	Accuracy (Cl 1.0 / Cl 0.5)	✓	✓	✓
3	Communication (Modbus RTU protocol)	—	Built-in	✓
4	Demand	—	—	✓
5	Import / Export	—	—	✓
6	Aux. Supply 80-270V ac / 100-270V dc	✓	✓	✓
7	THD	—	—	✓

Conzerv Representative

Customer Help Desk 1600 425 0555 (Toll Free All India from BSNL / MTNL lines) Or Call 080 2852 0604 (Standard Charges Apply)

Email contact@conzerv.com   www.conzerv.com