PANELTRACK ENERGY MANAGEMENT SYSTEM

PanelTrack Brochure

Energy Management Instrument

The PanelTrack energy management instrument is a panel mount energy recorder designed to provide detailed information of a specific electrical feed. Extensive communications capabilities (local & remote) enable fast and accurate information retrieval and the software provides a graphical interface for quick and easy analysis of recorded data. The digital display and RS485 communications port of the PanelTrack enables it to be used in a stand-alone mode or as a remote kWh/kVA meter in a distributed sub-metering or energy management system.

The unit has the following main functions:

- Complete kWh and kVA demand metering (Thermal & Block) with 12 month history
- Extensive load profiling, recording per phase and summated parameters
- Panel meter, displaying instantaneous values on the graphical screen
- Setpoint Control with 4 relays for switching loads

PANELTRACK

- Class 1 Accuracy
- Large Onboard Memory
- Energy Parameter Display
- Software Programmable
- RS485 + RS232 Comms
- LED rate Indicator

Energy Measurement

The PanelTrack is suitable for any three-phase metering applications. Energy consumption is accumulated into an internal grand total non-resetable counter and the kVA demand is registered and saved in month-end blocks. There are up to 13 energy blocks (current + 12 history) stored in memory and the demand can be calculated over 15, 30 or 60 minute intervals. These demand blocks can then be reset using the keypad, via remote communications or via the onboard clock.

amso@submetering.co.za
Phone 021 9750788 • Fax 021 9793366

Voltage and Current Inputs

The PanelTrack is connected in the standard four-wire or three-wire configuration. The voltage inputs of the instrument can be factory set for input voltages of either 380V or 110V AC. The current inputs interface to the supply system through external 5A current, but can also be manufactured to accommodate flexible coils allowing for easy installation.

RS485 Communications Port

The PanelTrack features a RS232 and RS485 serial communications port using the ModBus RTU protocol. The RS232 port can be used for local communications to a portable computer for onsite configuration. It also serves as a communications interface for remote metering applications. The RS485 port is utilised in distributed systems where each PanelTrack is ModBus addressable in the range 1-255.

For remote metering applications using the RS485 port, up to 32 PanelTrack meters can be connected by a screened twisted pair wire in a daisy-chain configuration. Communication can be established for distances up to 1000m on the RS485 port. Networks with longer distances or more than 32 devices require a RS485 repeater.

Rate Indicator

The PanelTrack employs a 2 rate indicators in the form of flashing light emitting diodes. These indicators flash once for every 1Wh and 1Varh (multiplication factor of unity) of energy consumed. The rate indicators are also used for on-site verification of meter accuracy.

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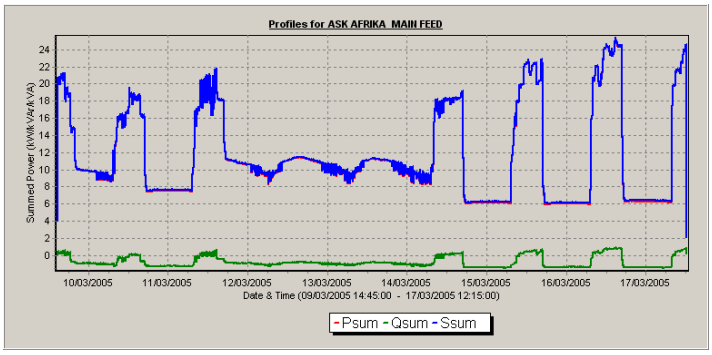
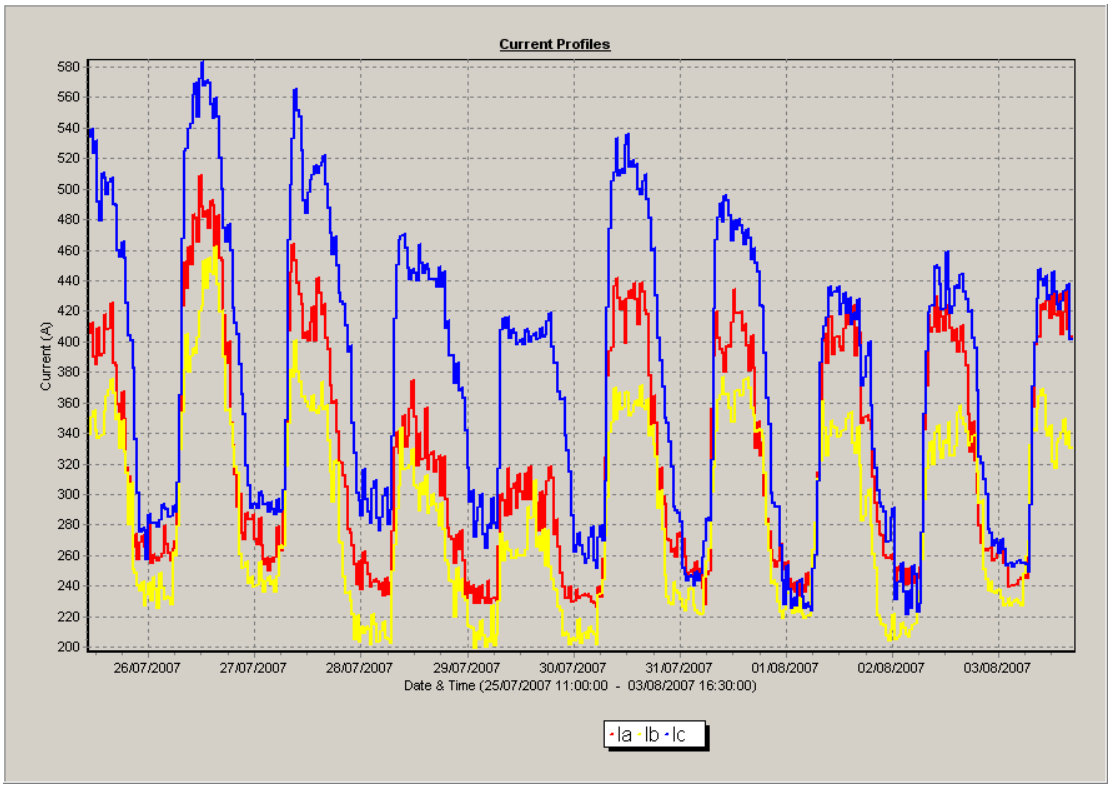
Load Profile Recording



The PanelTrack records all power parameters, per phase as well as summed, at selectable intervals of 1, 2, 5, 10, 15, 30 or 60 minutes/seconds. These recorded values can be viewed and analyzed via the PanelTrack or PowerServe software.



Graphical Statistics

Information	Parameter	Date & Time	Value	Unit
Description	Main Supply			
Feeder	Feeder 1			
Graph Statistics	Recording Start	25/07/2007 11:00:00		
	Recording End	03/08/2007 16:30:00		
Phase Voltage	Phase A Maximum Va	01/08/2007 05:00:00	246.5	V
	Phase B Maximum Vb	01/08/2007 05:00:00	249.3	V
	Phase C Maximum Vc	01/08/2007 05:00:00	248.0	V

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Line Voltage	Phase AB Maximum Vab	01/08/2007 05:00:00	429.4	V
	Phase BC Maximum Vbc	01/08/2007 05:00:00	430.7	V
	Phase CA Maximum Vca	01/08/2007 05:00:00	428.3	V
Current	Phase A Maximum Ia	26/07/2007 12:00:00	508.9	A
	Phase B Maximum Ib	26/07/2007 15:30:00	462.0	A
	Phase C Maximum Ic	26/07/2007 12:30:00	583.3	A
Active Power	Phase A Maximum	26/07/2007 12:00:00	119.336	kW
	Phase B Maximum	26/07/2007 15:30:00	107.671	kW
	Phase C Maximum	26/07/2007 12:30:00	138.846	kW
Reactive Power	Phase A Maximum	27/07/2007 16:30:00	28.544	kVAr
	Phase B Maximum	27/07/2007 17:00:00	29.601	kVAr
	Phase C Maximum	27/07/2007 11:30:00	21.575	kVAr
Apparent Power	Phase A Maximum	26/07/2007 12:00:00	122.443	kVA
	Phase B Maximum	26/07/2007 15:30:00	110.815	kVA
	Phase C Maximum	26/07/2007 12:30:00	140.399	kVA
Maximum Demand kW	Active Power	26/07/2007 12:00:00	354.296	kW
	Apparent Power		362.599	kVA
	Reactive Power		77.152	kVAr
	Power Factor		0.977	
Maximum Demand kVA	Apparent Power	26/07/2007 12:00:00	362.599	kVA
	Active Power		354.296	kW
	Reactive Power		77.152	kVAr
	Power Factor		0.977	
Energy	Import Active Energy		50943.600	kWh
	Export Active Energy		0.000	kWh
	Inductive Reactive Energy		12824.200	kVArh
	Capacitive Reactive Energy		0.000	kVArh
Load Factor kW	(Avg kW)/(Max kW)		0.650	
Load Factor kVA	(Avg kVA)/(Max kVA)		0.650	

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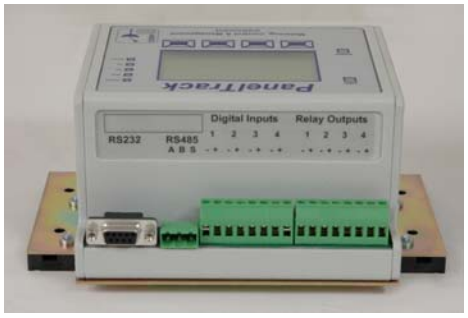
Setpoint Control

The PanelTrack comes equiped with 4 relay outputs and 4 digital inputs which can be utilized for setpoint control. The setpoint control switches the relays when a pre-programmed condition occurs. The condition connected to a specific relay can be selected from a list of power parameters (kVA, kW etc.) where a threshold value is pre-programmed or the 4 digital inputs and power parameters can be used in conjunction with various boolean equations (and gates, or gates, invertors, delay timers and periodic timers).



Technical Information

General Specifications	
Dimensions	144x144x80mm
Voltage input Range	85V ac - 260V ac (Phase to Neutral)
Current input	0 - 5Amp ac
	0 - 1Amp ac
Communication Interface	1 x RS232 Port
	1 x RS485 Port
Communication Protocol	Modbus RTU
Accuracy	Class 1
Clock Accuracy	Accurate to ±4 Minutes/Year (-40°C to +85°C)
	Accurate to ±1 Minute/Year (0°C to +40°C)

Display	
Type of Display	128 x 64 Graphical LCD with backlight & contrast control
Instantaneous Displayed Values	Line Current (Per Phase)
	Phase Voltage (4Wire/3Watt Only)
	Line Voltage
	kW (Per Phase & Summed)
	kVA (Per Phase & Summed)
	kVar (Per Phase & Summed)

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	Power Factor (Per Phase & Summed)
	Frequency
Measuring Method	3Watt/4Wire or 2Watt/3Wire

Profile Recording	
Memory Capacity	4 MB
Memory Type	Non Volatile Flash
Parameters Recorded	V, I, kW, kVA, kVar and Power factor (Per phase & Summed)
Recording Intervals	1, 2, 5, 10, 15, 30, 60 Second(s) or Minute(s)
Recording Method	Average over recording period
Recording Buffer	Continuous buffer (FIFO)
Typical Recording Time	22 Hours 45 Minutes @ 1 Second
	9 Days 11 Hours 35 Minutes @ 10 Seconds
	8 Weeks @ 1 Minute
	2 Years 17 Weeks @ 15 Minutes

Onboard Statistics and Month End Data	
Voltage	Highest and Lowest Voltage
Current	Highest Current
Energy (Meter Grand Totals)	Active Energy Import
	Active Energy Export
	Reactive Energy Capacitive
	Reactive Energy Inductive
Month End Demand	12 Month History + Current
Month End Energy	12 Month History + Current

Boolean and Control Functions	
Programmable Relay Outputs	4
Programmable Digital Inputs	4
Programmable Set-point Control	8
Cyclic/Periodic Timers	8
Delay Timers	8
4 Inputs Boolean AND Gate	8
4 Input Boolean OR Gate	8
Inverter	8

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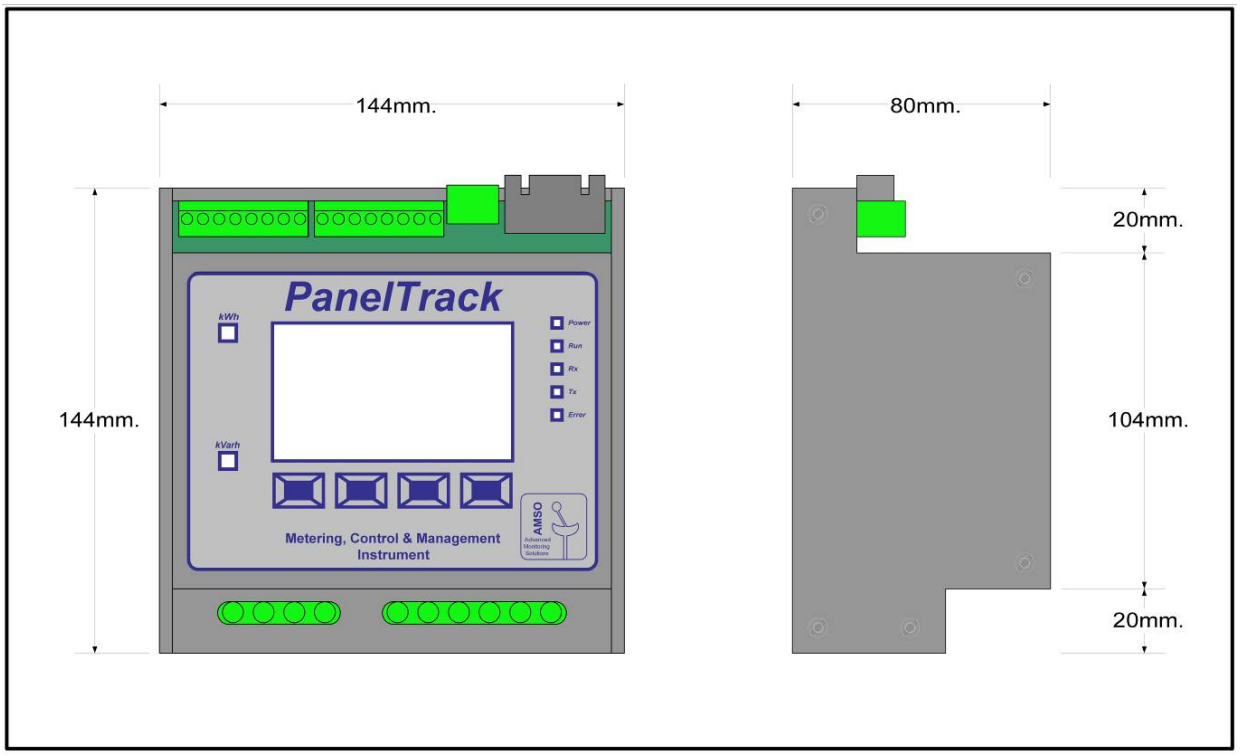
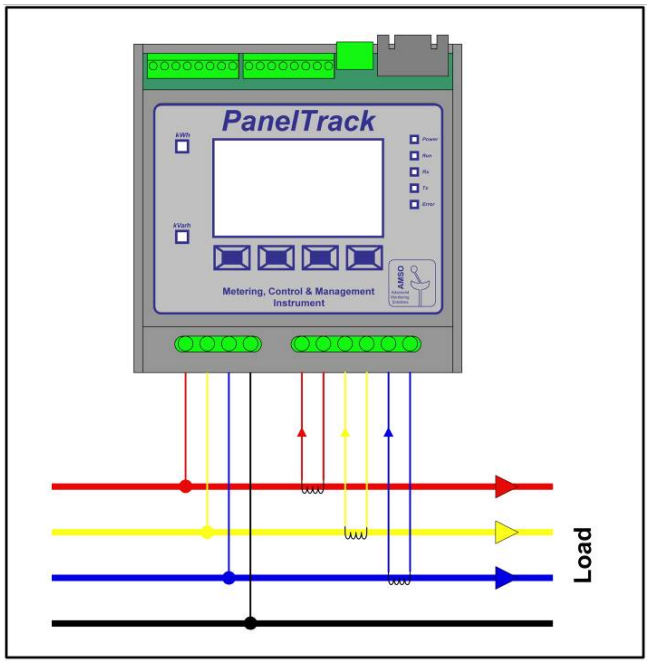


Connection Method



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