Apex 100

High-end Precision Meter

Apex100 is an advanced high-end precision meter, specifically designed for generation, transmission and consumer bulk power transfer points. It supports the ICS DLMS open data exchange protocol for ease of reading and for integration with other systems. Comprehensive connectivity to back-end systems for monitoring and billing is provided via various communication technologies.

Application

- Bulk energy transfer measurement and reconciliation
- Captive power plants (CPP), feeder monitoring, grid substations and wind turbines
- On-line monitoring of energy exchange at various interface points
- Metering for availability based tariffs (ABT) and open access systems
- Energy accounting systems

Benefits

- Elimination of data gaps and revenue losses through use of hot-swappable meter modules, with automatic shorting of external current transformers
- Minimal integration costs through multiple communications interfaces
- Complies with the DLMS open data exchange protocol
- Maximum revenue integrity through highest possible level of metering system accuracy
- Efficient network management through accurate and detailed energy flow data
- Suitable for diverse applications through wide-range voltage, current and auxiliary supply inputs

Features

- Full four-quadrant import/export metering with active, reactive and apparent measurement
- Total harmonic distortion (THD) measurement for currents and voltages
- Draw-out type meter module with automatic CT shorting
- Wide-range dual auxiliary power supply (AC and DC), with option for self-powering
- Dynamic error compensation for external current and voltage transformers
- Intuitive graphical display for parameters and data
- Two metrology LEDs for simultaneous accuracy testing of different parameters
- Four LEDs for energy redirection and status indication
- Comprehensive data storage for current and historical readings and load survey data
- Flexible time-of-day tariff and maximum demand support, with automatic billing
- Multiple communication ports for local and remote data transfer and for interfacing with external systems
- Interoperable DLMS and Modbus protocols for meter reading

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Apex 100

Technical specifications

Electrical	
Connection type	CT/PT-operated
Wiring configuration	3-phase 3-wire, 3-phase 4-wire
Voltage range (L-N/L-L)	57.7/100 V to 69.3/120 V (configurable)*
Current range	I_b: 1-5 A (configurable)*
	I_{max}: up to 600% Ib (maximum 10 A)
Accuracy	Class 0.2s
Mains frequency	50 Hz ± 5%
Burden	As per compliance standards
Compliance	
Standards	IEC 62053-22, IS 14697
Certification	DLMS Indian Companion Standard, Category B
Mechanical	
Dimensions (W x H x D)	
19" rack (up to two meter modules)	428 × 133 × 260 mm approx. (all variants)
Small rack with single meter	299 × 133 × 260 mm approx. (for selected variants)
Enclosure	Translucent polycarbonate cover (with clear tranparent window for display) and overall mild steel body
Sealing	Sealable screws on the front and back fascia of meter
	Sealing provision for optical port & MD reset button
Weight	6 kg approx. (with rack)
Environmental	
Temperature	-10 °C to +55 °C (operating)
	-20 °C to +65 °C (storage)
Humidity	95% non-condensing
Features	
Auxiliary supply	- Dual Aux. supply provision for 48-276 V AC/DC
	- Option for Aux. supply 24-48 V DC
	- Option for self-powered supply with one Aux. supply
Display	Large backlit graphical LCD, with three buttons for parameter selection
Inputs and Outputs	
Pulse outputs	Four volt-free outputs, rated for 100 mA, 110-230 V AC/DC, pulse width 80 ms. LEDs indicate status of pulse outputs.
Pulse input	One input for time synchronization, rated for 100 mA, 24-40 V DC
Communication	
Local reading	Optical port (1107)
	Optional USB (Type A) port
Remote reading	Optional RS-232/RS-485 port for connecting to GSM/GPRS modem
	Optional Ethernet (Modbus TCP/IP) for SCADA application

* *Electrical, mechanical and features options depend on product variant.*

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Secure Meters Limited

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Censeo

Performance Monitoring & Control

Censeo is a comprehensive roto-dynamic performance and condition monitoring platform. It has been developed using our patented thermodynamic technique ,using head, differential temperature and power, and is the latest version of our Yatesmeter range. It can also operate using the conventional technique based on head, flow and power.

Censeo can be used to monitor the performance of the three key types of roto-dynamic machine (pumps, hydro-turbines and blowers). Censeo measures the performance of centrifugal and positive-displacement units.

Censeo measures flow accurately, even if the pumping system does not have sufficient straight lengths of pipework for conventional flow metering techniques.

Censeo accurately measures pump and system performance parameters, helping to improve the energy efficiency of pumping systems and to reduce their carbon footprint.

Censeo can be used to monitor the hydraulic performance of a wide range of rotating machines in industrial applications, manufacturing plants and power stations.

The provision of analogue inputs and outputs allows Censeo to be used as a fully integrated condition monitoring system. Censeo can be readily integrated into a SCADA system, providing detailed pump performance and condition monitoring data for optimal operation.

Built-in relays provide secondary protection for the pumping system and can be set to generate an alarm or trip a circuit, using data from up to eight of the measured parameters.

Applications

- Pump performance testing and monitoring for low-temperature fluids, from 0 °C to +40 °C
- Flow metering in pumped systems
- Verification and benchmarking of pumping station performance
- Condition monitoring (vibration, temperature and level)
- Secondary protection (for pump and associated motor)

Benefits

- Reduced energy costs through improved plant and system efficiency
- Helps to identify the optimum time to repair or replace pumps
- Increased reliability through condition monitoring
- Minimised repair and replacement costs through early detection of mechanical and hydraulic faults

Features

- Accurate measurement
- Compact and modular design for panel or surface mounting
- Graphical display, with four navigation keys
- Logging of hydraulic and electrical parameters
- Field-configurable analogue inputs and outputs
- Alarms for various pump parameters
- Large built-in memory (up to 40 days for 15 parameters, at 15-minute intervals)
- RS-485 port for integration with SCADA/PLC/Telemetry systems via Modbus RTU protocol
- Integration into PROFIBUS systems

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Censeo

Technical specifications

Electrical	
Auxiliary supply	110-230 V AC/DC
Internal relays	2 nos. contact rating 230 V AC, 2 A
Compliance	
Standard	ISO 5198, ISO 4185, IEC61326-1, CISPR22, EN 61010-1:2001
Mechanical	
Dimensions (W X H X D)	144 x 144 x 172 mm
Weight	1.2 kg (approx.)
Mounting type	Panel or wall mounting
Material	Fire-retardant polycarbonate
Environmental	
Ambient temperature	-10 °C to +60 °C
Ingress protection	IP 54
Humidity	95% non-condensing
Temperature & pressure sensor inputs	
Pressure sensors	Two-wire analogue 4-20 mA / four-wire analogue 1-5 V probe
Temperature sensors	Two-wire analogue probe
Power meter input	Two-wire RS-485 Modbus
Maximum pressure supported	300 bar for pump & turbine, 20 bar for blower
Maximum temperature supported	80° C for pump & turbine, 150° C for blower
Analog inputs & outputs	
Analog inputs	1-5 V / 4-20 mA Inputs
Analog outputs	1-5 V/4-20 mA input/outputs
Communication	
Censeo configuration	RS-232 communication through PACT port
Connectivity to PC/SCADA	Single pump: RS-232 communication through PACT port, using Pump Test 9 software Multiple pumps: Two-wire RS-485 communication with PC running MPM-Watch software
Software tools	
Pump configuration and testing	Pump Test 9
Online pump monitoring	MPM Watch
Features	
Pump parameters	Pump efficiency, system efficiency, head and flow
Electrical parameters	Drive power, voltage, current and frequency
Display	128 x 80 pixel graphical LCD, 81x53 mm, with green backlight
Data logging	Up to 40 days for 15 parameters, with 15-minute integration period

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Elite 440

Multi-line Three-phase Panel Meter

Elite 440 is a multi-line three-phase digital panel meter for accurate and reliable measurement of electrical parameters (voltage, current, power, frequency, etc.) for industrial and commercial applications. It has a large multi-line backlit LCD display which enables four parameters to be displayed at the same time. Modbus communication capability allows easy integration with energy monitoring systems. Expansion modules can be fitted for enhanced system integration (pulse inputs/outputs or analogue output and ethernet).

Applications

- Commercial and industrial sub-metering and energy management (EMS) applications.
- Building management and monitoring systems (BMS)
- High, medium and low-voltage switchgear panels
- Control and relay panels
- Power Control Centre (PCC) panels
- Motor Control Centre (MCC) panels
- Relaying and control outputs
- Plant automation and monitoring system (SCADA/DAS)

Benefits

- Easy interface with external devices through built-in Modbus (RS-485/Ethernet)
- Detachable connectors for easy installation
- Diagnostics assistance on display
- Suitable for star or delta connections and for low or high-voltage applications
- Cost-effective online monitoring
- Field-configurable CT/PT primary and secondary values using push-buttons

Features

- Large four-line seven-digit display (9.7 H x 5 W mm) with quadrant identification section and bar graph for instantaneous power-level indication
- High accuracy: Class 0.2s, 0.5s, 1.0
- Average THD measurement for voltage, current and power, up to 31st harmonic
- Measurement selection (star or delta/ 3P4W or 3P3W)
- Modbus communication via RS-485 port/ethernet
- True root-mean squared (RMS) metering
- Calibration LED for accuracy test on site
- Wide and configurable current range 1-2A and 5-10A
- Wide-range auxiliary power supply, suitable for high-voltage or low-voltage installations
- Maximum demand recording
- Midnight snapshot (values) for selected energy registers
- Scroll-lock and 'Favourites Page' display support
- Expansion capability via add on modules for analogue outputs or pulse inputs/outputs and ethernet
- Password protection for setup mode
- Ethernet gateway module for easy integration of multiple meters connected over RS485 network

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Elite 440

Features	Models							
	441	442	443	444	445	446	447	448
P-N voltage	●	●	●	●	●	●	●	●
Average P-N voltage	●	●	●	●	●	●	●	●
P-P voltage	●	●	●	●	●	●	●	●
Average P-P voltage	●	●	●	●	●	●	●	●
Line current (L1, L2, L3 and Average)	●	●	●	●	●	●	●	●
Active / Reactive Current	●	●	●	●	●	●	●	●
Frequency	●	●	●	●	●	●	●	●
Power factor		●	●	●	●	●	●	●
Average Power factor		●	●	●	●	●	●	●
Active Power		●	●	●	●	●	●	●
Total Active Power		●	●	●	●	●	●	●
Reactive Power			●	●	●	●	●	●
Total Reactive Power			●	●	●	●	●	●
Apparent Power			●	●	●	●	●	●
Total Apparent Power			●	●	●	●	●	●
Active Total Import / Export Energy					●	●	●	●
Reactive Import (Q1+Q2) / Export (Q3+Q4) Energy						●		●
Reactive (Q1,Q2,Q3,Q4) Energy					●		●	
Apparent Import / Export Energy					●	●	●	●
Active / Apparent Forwarded Energy		●	●	●				
Reactive Lag / Lead Forwarded Energy			●	●				
Cumulative MD				●	●	●	●	●
Phase Angle			●	●	●	●	●	●
Power On / Off Hours			●	●	●	●	●	●
Load On / Off Hours		●	●	●	●	●	●	●
Feeder Interruptions Count (When Aux is also off)			●	●	●	●	●	●
Min / Max Values							●	●
THD Voltage	●	●	●	●	●	●	●	●
THD Current	●	●	●	●	●	●	●	●
THD Power		●	●	●	●	●	●	●
RPM with Freq and VUnb and IUnb		●	●	●	●	●	●	●
Modbus on RS 485	●	●	●	●	●	●	●	●

Note:

Ethernet (add on) module is available for all Elite 440 models as single meter module or gateway

Additional modules (Two pulse input & output or four analogue outputs) can be available in Elite 443 to Elite 448

Optional software config view is available for reading and configuration

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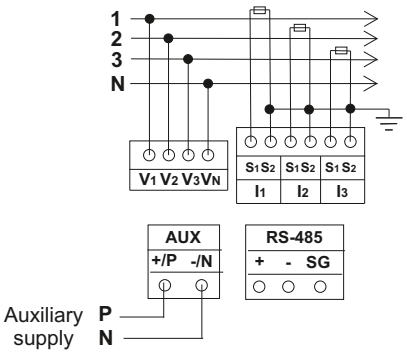
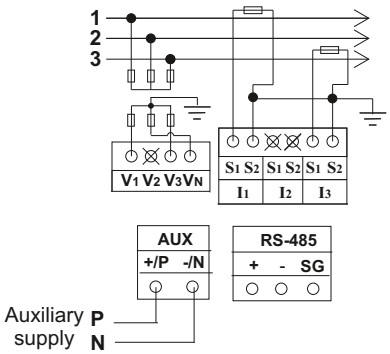
Connection Diagram

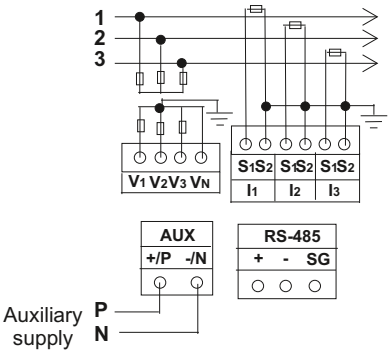
LT3Ø4W



HT3Ø3W



HT3Ø4W

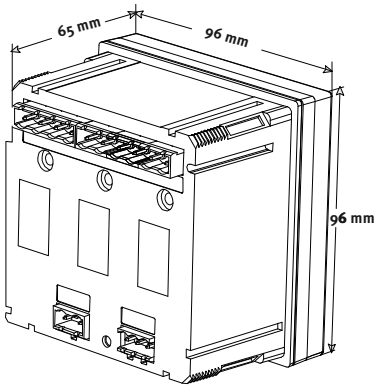


In case of CT/PT operated meter, ensure that meter is connected on secondary side of instrument transformer.

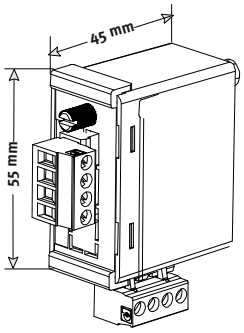
In case of 3Ø3W, V_N is replaced by V_2.

SHORT CTs BEFORE OPENING CURRENT TERMINALS

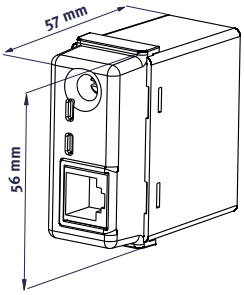
Mechanical Dimensions



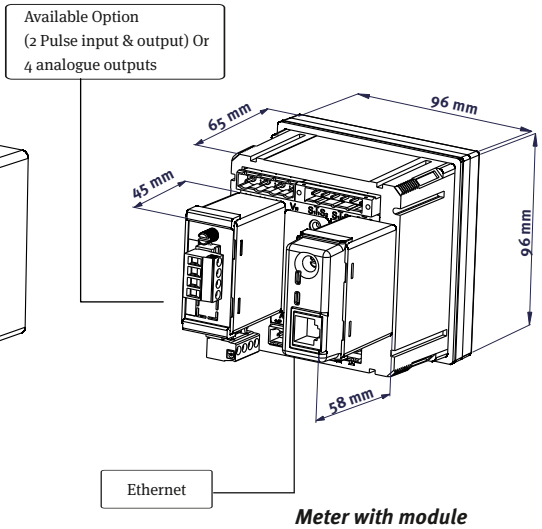
Meter without module



I/O module



Ethernet module



Meter with module

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Elite 440

Technical specifications

Electrical

Connection type	Common product for HT3/ HT4/ LT4 application
Voltage range :	
Measurement voltage range	57.7 V (100V) - 240 V (415 V) AC 3 phase 4 wire (3 phase 3 wire)
Tolerance	-30% to +20% of V_n
Aux power supply range	80 - 300 V AC/DC or 24 - 60 V DC (Variant)
Current range	Available 1-2A and 5-10 A in single variant (field configurable)
Main frequency	50/60Hz with ±5%
Accuracy Class	0.2s, 0.5s, 1.0
Burden	Aux burden : 3.5 VA; 8VA when all modules connected. Current ckt burden : 1 A - 0.05VA per phase, 5 A - 0.25 VA per phase. Voltage ckt burden : 0.15 VA per phase.
Short time over current	20 x I_{max} for 1 sec., 10 x I_{max} for 3 sec., 7 x I_{max} for 10 sec.

Approvals

Standards	IS13779, IS14697, IEC62052-11, IEC62053-21, IEC62053-23, IEC62053-22, IEC61010, IEC62053-31

Mechanical

Dimensions (WXHXD)	96 x 96 x 65 mm (w/o module); 96 x 96 x 110 mm (with module) Cut out size 92 x 92 mm
Weight	0.5 kg (approx)
Enclosure	FRPC
Terminals	Combicon connector
Max conductor size	2.5 mm^2

Environmental

Ingress protection	IP 52 (front fascia); IP20 (at terminals)
Insulation	4 kV RMS 50 Hz, 1 minute
Impulse withstand	6 kV
Temperature	-20 °C to +60 °C (operating) -25 °C to +80 °C (storage)
Humidity	95% non-condensing

Feature

Favourite page	On / Off
CT/VT primary	Configurable in field through keypad
Communication	RS485 Modbus half duplex (Default) and data will be available in floating point format (IEEE754)
Baud rate	From 1200-38400 bps (Default 9600 bps)
Load survey	40 days for 6 parameters @ 30 minutes integration period Options for 15 or 60-minute integration period.

Modules

2 Digital pulse input and output (single module)	Input supports voltage range of 8-40VDC with pulse duration of 5 ms for input 1 and 40 ms for input 2. Output are normally open type, voltage rating of 230 V AC @ 100 mA or 48 V DC @ 100 mA with pulse width of 80 ms or 240 ms
Ethernet	10/100base-T for Modbus over TCP/IP communication
4 analogue outputs	Analogue output supports current range of 4-20 mA non-isolated with loop impedance 750 Ω, auxiliary supply 20-40V DC @ 100 mA

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Brochure Version Number - 2.5

eWatch 100

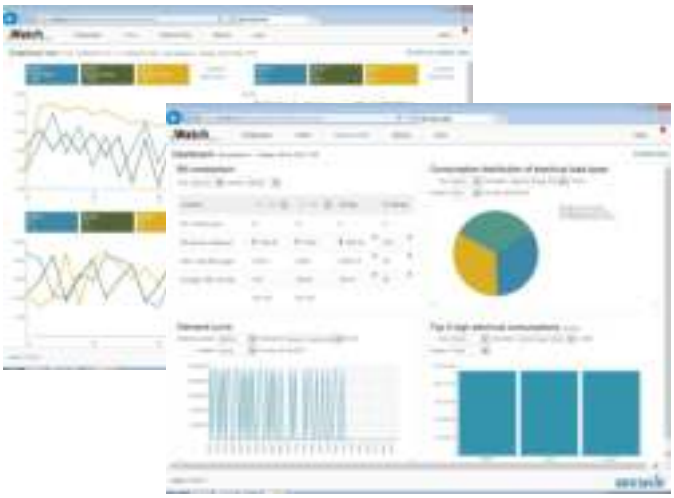
Cloud-based Energy Management

eWatch 100 is a web based solution for monitoring energy consumption, cost, operational efficiency and system status.

It provides all the information an organisation needs to manage its carbon footprint and reduce its energy costs. It optimizes the entity performance over its lifecycle.

It also enables the exchange of data from different utilities like electricity, gas ,heat and water.

Live data from energy measuring points can be viewed in real time from any location with internet access.



Applications

- Industry, micro, small and medium enterprises (MSMEs)
- Factories, offices, commercial buildings and institutions
- Industries and buildings purchasing power under Open Access
- Distributed generators and discrete loads
- Sub-Tenant Billing
- Multi-locations retail chains

Benefits

- Helps in creating awareness of cost of all utilities – electricity, gas, heat & water.
- Isolate waste & efficiency.
- Set realistic targets for energy consumption.
- Verify the effectiveness of operational charges.
- Learn when & where energy is consumed.
- Carbon emissions through meaningful real-time displays.
- Monitor the performance of geographically distributed assets while on move/ as & when required.
- Enables and encourages active participation by managers and staff.
- Provides accurate information from any location with Internet access.
- Helps energy efficiency certification targets to be met
- Affordable licensing arrangements spread the cost and provide lifetime savings

Features

- Real time personalized dashboards
- Monitoring consumption w.r.t. shifts
- Report consumption of energy groups
- User configurable spreadsheet based reports
- Facilitate entry of production data
- Historical graphs and trends
- 'Virtual meters' for in-depth analysis of a group
- Provision to integrate gas, heat & water
- Tariff module for cost calculations
- Target demand and Open access schedule monitoring
- Alerts for deviations from targeted consumption
- Downloadable reports via e-mail or spreadsheet
- Choice of package to suit individual need

Skyline gateway

- 'Daisy chain' connection for multiple meters
- Gateway collects data from meters
- Gateway sends data to eWatch 100 central data centre
- (CDC) over GPRS/Broadband
- In built memory of 256 MB

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eWatch 100

Measure

- Electricity supplied by the grid
- Electricity supplied by diesel generators (DG)
- Electricity generated from renewable sources
- Electricity consumed- total/ load or feeder specific
- Power factor and demand

Monitor

- Energy consumed against production
- Actual demand against contract demand
- Target demand against Open access schedule
- Reactive energy against load
- CO_2 emissions against energy consumption
- Consumption of different types of load/energy
- Locations with high consumption
- Building energy consumption with respect to temperature and humidity
- Consumption by department or location, using virtual groups
- Electricity, gas, heat & water consumption

Analyse

- Key performance indices (KPIs)

Industry

- Production per unit energy consumption
- Compare consumption trends of different locations

Building

- Energy consumption per unit floor area
- Energy consumption per person, per month
- Compare consumption trends of different locations

Packages	Trial (Free)	Silver	Gold	Platinum
Secure data access 24/ 7	15 days	1/2/3 years	1/2/3 years	1/2/3 years
Dashboard				
Alarms and trends				
Reports				
Parameters per meter	20	20	20	20
Max. number of meters	5	100	500	1000
Smart Phone Interface				
Energy Monitored				
Cost Monitored				
Carbon Monitored				
Web clients	1 (PC)	3 (PC + Mobile)	5 (PC + Mobile)	5 (PC + Mobile)
Support Online subscription renewal				

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Version Number - 1.0

eWatch 100

Web-based Energy Management

E-Watch 100 is a web based state-of-the-art real-time Data Acquisition, Monitoring & software for effective management of electrical systems by any electrical or non-electrical business user in an industry.

The software communicates with MODBUS supported energy meters to acquire online data, processes the data and displays the data in tabular, gauge, graphical or mimic views as per user choice.

Its enriched Alarm engine, Dash board & Reporting Tool facilities help the user to take decision proactively, thus eliminating any harmful events in the electrical system. The system also supports billing analysis for main & auxiliary supply. Further, the system helps the user to analyze carbon emission based on energy consumption.

Applications

- Commercial and Industrial sub-metering applications
- Building management and monitoring systems
- Green Buildings for carbon monitoring
- Energy Management for commerce and industry
- Power plants

Benefits

- Online energy monitoring & cost analysis
- Single system to support up to 500 meters of multiple makes including dual register meters.
- Web based software (works on Intranet).
- Easy implementation through client-server architecture
- Robust data collection through RS-485 network
- Helps to manage consumption
- Helps to set targets against which consumer can monitor utility use
- Its configuration tool eliminates recurring development cost.
- Proactive measures can be taken based on alarms, billing analysis & carbon footprint.

Features

- Online data acquisition over RS 485 MODBUS.
- Multiple on line viewing options such as tabular, configurable gauge and graphical.
- Flexibility to define dynamic tariff structure to analyze energy cost.
- Carbon emission analysis based on energy consumption.
- Flexible reporting options for energy consumption, power interruption, demand report, Alarm report, virtual metering report, event report and min-max report, meter replacement report.
- Enriched Alarm engine to generate load specific alarms based on threshold limits and send alarms on email & SMS.
- Organized storage of the collected data for the future use with auto & manual clean-up facility.
- OPC data communication support.
- Supports multi-fuel monitoring for Heat, water & gas meters.
- Facility to monitor & analyze multiple locations under single view using Virtual Meter concept
- Mimics configurability with linkage of trends/graphs.
- Separate bill analysis for mains and auxiliary.
- Shift wise production data definition with reports.

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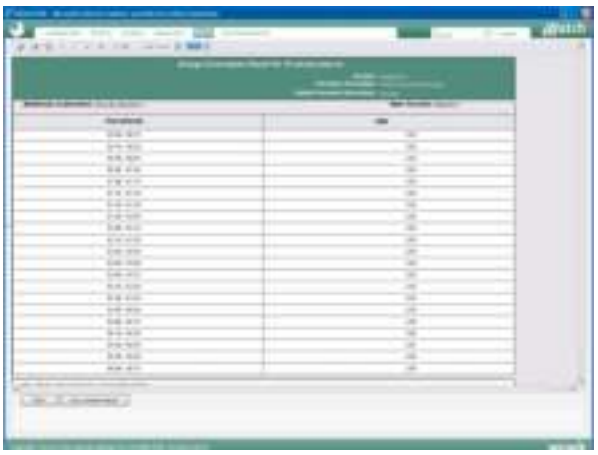
eWatch 100

Reports



Graphical Views

Gauge View

Energy Bill Report

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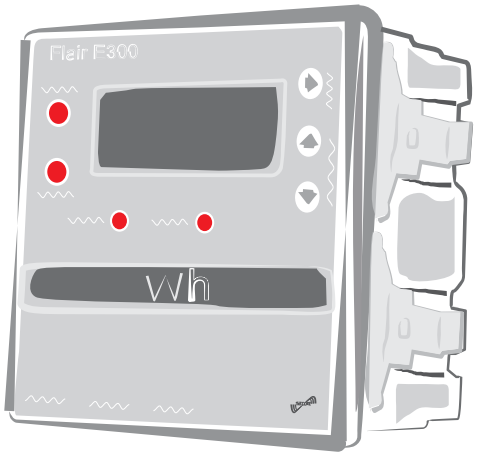
Brochure Version Number - 2.0

Flair range

Flair and Flair Mini series is a range of indicating, digital panel meters to measure basic AC and DC electrical parameters. It offers various models of voltmeter, ammeter, frequency meter, power meter, energy meter for industrial and commercial applications. These are elegant, compact and user friendly; designed for power transmission and distribution panels.



Benefits

- Compact and easy installation
- An ideal replacement for analogue meters
- Single device to measure in kilo Amps and kilo Volts

Features

- Accuracy class: 0.5s and 1.0
- True RMS measurement
- 7 segment LED display
- Available in AC and DC variants
- Auxiliary power supply – 80 to 300V AC
- Auto scaling for voltage, current, power & energy
- On site CT/ PT commissioning
- On site configuration for 3P3W or 3P4W

Flair range

Flair

Flair series has 14 variants (all 96x96mm) for measurement of all the electrical parameters like voltage, current, frequency, power and energy. It is best suited to laboratory test benches, industrial automation and process industries.

Flair Mini

Flair Mini series has 12 variants (all 48x96mm) for measurement of all the electrical parameters like voltage, current, frequency, power and energy. It is best suited to laboratory test benches, industrial automation and process industries.

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Flair series is a range of accurate and reliable digital panel meters to measure basic AC and DC electrical parameters. It offers various models of voltmeter, ammeter, frequency meter, power meter, energy meter. Flair Series, available in 96x96mm size, is suitable for use in control panels, laboratory test benches and industrial automation.

Ordering Code

Models	Single Phase					Three Phase						DC	
	V	A	F	PF	W	V	A	PF	W	VAr	Wh	V	A
Flair V100	✓												
Flair I100		✓											
Flair F100			✓										
Flair P100				✓									
Flair W100					✓								
Flair V300						✓							
Flair I300							✓						
Flair P300								✓					
Flair W300									✓				
Flair R300										✓			
Flair E300											✓		
Flair V200												✓	
Flair I200													✓

Configuration

Digit	Category	Convention	
X	Aux power supply	AC DC	1 2
Y	Accuracy class	0.2s* 0.5s 1.0	2 5 1
Z	Pulse outputs **	With pulse o/p Without pulse o/p	1 0

To order please follow:

Model number - XYZ
Eg: AC voltmeter, single phase, class 1.0,
AC auxiliary supply - Flair V100-110

* Accuracy 0.2s is available with Frequency meter
** Pulse output is available with Energy meter

Flair

Technical specifications

Electrical	
Auxiliary supply	80-300 V AC | 24 V DC
Burden on aux supply	< 3VA
	0.5 VA
Burden on measuring terminals	
Accuracy	
Frequency	Class 0.2s
V, I, F, PF	Class 0.5s (FSV), 1.0
Energy	Class 1.0
Measuring range	
Voltmeter (1P/3P)	Secondary: 0-415 V Primary: Configurable up to kV range, through push button
Ammeter (1P/3P)	Secondary: 0-5 A Primary: Configurable up to kV range, through push button
Frequency meter	40 - 70 Hz
Power meter (1P/3P active & 3P reactive)	0 - 415 V | 0 - 5 A
Power factor	0.5 lag - 1.0 - 0.5 lead (for normal voltage and current)
Energy meter	0 - 415 V | 0 - 5 A
DC voltmeter	0 - 20 V, 0 - 300 V
DC ammeter	75 mV (external shunt operated meters)
Overload capacity	
Voltage	120% Vnom
Current	120% Inom
Approvals	
Standards	Fully type tested IS13875, safety compliance as per IEC61010
Mechanical	
Bezel size	96 x 96 mm
Panel cutout	92 x 92 mm
Enclosure	Polycarbonate
Terminals	Tag screw
Weight	< 650 gms
Environmental	
Protection class	IP 50 as per IEC60529, IP 20 as per IEC60259 (terminals)
EFT	2 kV, 5 kHz
ESD	8 kV
Temperature	-10 °C to +50 °C (operating) | -25 °C to +70 °C (storage)
Humidity	95% non-condensing
Flame retardation	UL 94 VO
Features	
CT & VT primary/secondary	Configurable in field through keypad
Pulse outputs	Available in energy meter

SECURE METERS LIMITED
P.O. Box No. 30, E-Class Pratap Nagar Industrial Area, Udaipur 313003, INDIA
Tel: 91-294-2492300-04 | Fax: 91-294-2492310 | Email:mktg@securemeters.com | Web: www.securemeters.com

Flair mini series is a range of accurate and reliable digital panel meters to measure basic AC and DC electrical parameters. It offers various models of voltmeter, ammeter, frequency meter, power meter, energy meter. Flair mini series, available in 96x96mm size, is suitable for use in control panels, laboratory test benches and industrial automation.

Ordering Code

Models	Single Phase					Three Phase						DC	
	V	A	F	PF	W	V	A	PF	W	VAr	Wh	V	A
Flair Mini V100	✓												
Flair Mini I100		✓											
Flair Mini F100			✓										
Flair Mini P100				✓									
Flair Mini W100					✓								
Flair Mini V300						✓							
Flair Mini I300							✓						
Flair Mini P300								✓					
Flair Mini W300									✓				
Flair Mini R300										✓			
Flair Mini E300											✓		
Flair Mini V200												✓	
Flair Mini I200													✓

Configuration

Digit	Category	Convention	
X	Aux power supply	AC DC	1 2
Y	Accuracy class	0.2s* 0.5s 1.0	2 5 1

To order please follow:

Model number - XY
Eg: AC voltmeter, single phase, class 1.0,
AC auxiliary supply - Flair Mini V100-11

* Accuracy 0.2s is available with Frequency meter

Flair Mini

Technical specifications

Electrical	
Auxiliary supply	80-300 V AC
Burden on aux supply	< 3VA
Burden on measuring terminals	0.5 VA
Accuracy	
Frequency	Class 0.2s
V, I, F, PF	Class 0.5s (FSV), 1.0
Energy	Class 1.0
Measuring range	
Voltmeter (1P/3P)	Secondary: 0-415 V Primary: Configurable up to kV range, through push button
Ammeter (1P/3P)	Secondary: 0-5 A Primary: Configurable up to kV range, through push button
Frequency meter	40 - 70 Hz
Power meter (1P/3P active & 3P reactive)	0 - 415 V | 0 - 5 A
Power factor	0.5 lag - 1.0 - 0.5 lead (for normal voltage and current)
Energy meter	0 - 415 V | 0 - 5 A
DC voltmeter	0 - 20 V, 0 - 300 V
DC ammeter	75 mV (external shunt operated meters)
Overload capacity	
Voltage	120% Vnom
Current	120% Inom
Approvals	
Standards	Fully type tested IS13875, safety compliance as per IEC61010
Mechanical	
Bezel size	48 x 96 mm
Panel cutout	44 x 92 mm
Enclosure	Polycarbonate
Terminals	Tag screw
Weight	< 300 gms
Environmental	
Protection class	IP 50 as per IEC60529, IP 20 as per IEC60259 (terminals)
EFT	2 kV, 5 kHz
ESD	8 kV
Temperature	-10 °C to +50 °C (operating) | -25 °C to +70 °C (storage)
Humidity	95% non-condensing
Flame retardation	UL 94 VO
Features	
CT & VT primary/secondary	Configurable in field through keypad

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Tel: 91-294-2492300-04 | Fax: 91-294-2492310 | Email:mktg@securemeters.com | Web: www.securemeters.com

I-Credit 350

Direct-connected Single-phase Energy Meter

i-Credit is the name of our family of single-phase direct-connected 'intelligent credit' meters, stemming from our experience at the forefront of metering technology. i-Credit 350 is the latest member of this family, featuring enhanced tamper detection facilities and interoperable DLMS communication protocol.

Application

- Domestic billing
- Small commercial premises

Benefits

- Compact and accurate
- Protects against tamper attempts

Features

- Consumer-friendly display
- Envelope architecture (integrated base and cover design)
- Open DLMS protocol for meter reading
- Load profile recording
- Time-of-use tariffs
- Historical registration of billing data
- Optical communication port for data retrieval
- High-intensity LED for testing and calibration
- Power factor recording
- Meter reading in absence of mains
- Deficiency recording in absence of neutral
- Support forward recording in case of current reversal

SECURE
energy together

I-Credit 350

Technical specifications

Electrical	
Connection type	Direct connected
Wiring configuration	Single phase, two wire
Voltage range	230/240 V (L-N)
Current range	5-30 A or 10-60 A
Accuracy	Class 1.0
Mains frequency	50 Hz ± 5%
Burden	As per standards
Compliance	
Standards*	IS 13779, IEC62052-11, IEC62053-21
Mechanical	
Dimensions (W x H x D)	129 x 133 x 84 mm (approx.)
Weight	0.5 kg (approx.)
Enclosure	Engineering plastic
Sealing	Provision for sealing on meter enclosure
Environmental	
Ingress protection	IP 51
Insulation class	Protective class II
Impulse withstand	10 kV
Temperature	-10 °C to +55 °C (operating) -25 °C to +70 °C (storage)
Humidity	95% non-condensing
Features	
Tariff	Up to 4 rates
Maximum demand	Up to 2 types, configurable in 4 registers
Load survey	Up to 60 parameter-days with 30-minute integration period
Communication	IEC 1107 physical port for local communication

** Standard compliance and communication facilities depend on product variant.*

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Secure Meters Limited

P.O. Box No. 30, E-Class Pratap Nagar Industrial Area, Udaipur 313003, INDIA

T: 91-294-2492300-04 | F: 91-294-2492310 | E:mktg@securetogether.com | www.securetogether.com

Premier 300

CT/VT-Operated Energy Meter

Premier is the family of CT/VT operated meters, which covers a wide range of power levels and offers flexible time-of-use tariff metering and communications capabilities.

Premier 300 is the latest offering from this family having enhanced event detection facility and interoperable DLMS communication protocol. It is available in various accuracy classes and wiring configurations.

Application

- CT/VT-operated industrial and commercial billing purpose
- Remote data collection for billing and consumption analysis
- Transformer metering, boundary metering and substation monitoring

Benefits

- A wide range for catering to various utilities requirement
- High precision metering
- Revenue protection
- Suitable for doing load analysis and energy audit

Features

- True four quadrant metering
- Import/Export metering and forwarded metering option for LT/HT systems
- Distribution transformer metering events support viz high and low voltage, under and over load
- Time of day metering with maximum demand registration and automatic billing
- Backlit LCD display with annunciators for various critical events
- Scroll lock feature for continuous display of a desired parameter on display
- High-resolution energy display mode for dial test
- DLMS protocol for meter reading, with option for remote reading port
- Advanced event detection features for voltage, current and magnetic influences
- Two metrology LEDs for accuracy testing of different energy types
- Meter reading in the absence of mains, using internal battery

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Premier 300

Technical specifications

Electrical

	LT	HT
Connection type	CT-operated	CT/VT-operated
Wiring configuration	3-phase 4-wire	3-phase 3-wire, 3-phase 4-wire
Voltage range	230/240 V (P-N)	110 V (P-P), 63.5 V (P-N)

Applicable to both LV and HV

Current range	-/5(10) A, -/1(2) A *
Accuracy	Class 0.2s, 0.5s for HT and Class 0.5s
Mains frequency	50 Hz ± 5%
Burden	As per standards

Compliance

Standards	IS 14697, IEC 62052-11, IEC 62053-22, IS 15959

Mechanical

Dimensions (W x H x D)	191 x 255 x 82 mm (approx.)
Weight	1.8 kg (approx.)
Enclosure	Engineering plastic
Sealing	Provision of sealing on main cover and terminal cover

Environmental

Ingress protection	IP 51
Temperature	-10 °C to +55 °C (operating) -25 °C to +70 °C (storage)
Humidity	95% non-condensing RH

Features

Tariff rate registers	Up to 8 rate registers, for two energy channels
Maximum Demand	Up to 2 types, configurable in 8 registers
Load Survey	Up to 90 days load profile for 8 parameters (configurable), with 30 minute integration period.
Communication	Optical port for local communication Optional RS 232 / RS 485 port on RJ-11 for remote communication. Optional RS 485 port on RJ-11 with MODBUS

** For more details, contact your nearest sales office*

SECURE energy together

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P.O. Box No. 30, E-Class Pratap Nagar Industrial Area, Udaipur 313003, INDIA
T: 91-294-2492300-04 | F: 91-294-2492310 | E:mktg@securetogether.com | www.securetogether.com

Sprint 350

Direct connected three-phase energy meter

Sprint 350 is an enhanced metering solution for three-phase direct-connected installations. It is suitable for domestic, industrial and commercial applications.

It has advanced revenue protection features, making it especially useful in areas where theft and fraud are prevalent.

Application

- Direct connected domestic, industrial and commercial billing
- Sub metering for residential, small industrial and commercial establishments
- Remote data collection for billing and consumption analysis

Benefits

- A wide range catering to various utilities requirement
- Power factor recording for reactive power management
- Revenue protection

Features

- Single vector/bi vector/tri vector measurement
- Time of day metering with maximum demand registration and automatic billing
- Phase indicators for healthiness of voltages
- Backlight LCD display with annunciators for various critical events
- Forwarded energy registration under current reversal condition
- Scroll lock feature for continuous display of desired parameter
- High resolution energy mode for dial test
- Interoperable DLMS protocol for meter reading with option for remote reading port
- Advanced tamper detection features for voltage, current and magnetic influences
- Two separate metrology LEDs for accuracy testing of different energy types
- Meter reading in the absence of mains supply using internal battery

SECURE
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Sprint 350

Technical specifications

Electrical

Connection type	Direct connected
Wiring configuration	3-phase 4-wire
Voltage range	230/240 V(P-N), 400/415 V (P-P)
Current range	5-30 A, 10-40 A,10-60 A, 20-100 A
Accuracy	Class 1.0
Mains frequency	50 Hz ± 5%
Burden	As per standards

Compliance

Standards	IS 13779, IEC 62052-11, IEC 62053-21, DLMS Indian Companion Standard

Mechanical

Dimensions (W x H x D)	191 x 255 x 82 mm (approx.)
Weight	2 kg (approx.)
Enclosure	Engineering plastic
Sealing	Provision of sealing on mains cover and terminal cover

Environmental

Degree of protection	IP 51
Insulation class	Protective class II
Temperature	-10 ^{o}C to +55 ^{o}C (operating) -25 ^{o}C to +70 ^{o}C (storage)
Humidity	95% non-condensing

Features

Tariff rate registers	Up to 8 rate registers, for two energy channels
Maximum Demand	Up to 2 types, configurable in 8 registers
Load Survey	Up to 70 days load profile for 8 parameters (configurable), with 30-minute integration period.
Communication	Optical port for local communication, optional RS232 (RJ11 port) for remote communication

Contact your nearest sales office for more details

SECURE energy together

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P.O. Box No. 30, E-Class Pratap Nagar Industrial Area, Udaipur 313003, INDIA

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PT1: single phase

multi-function transducers

compact, configurable multiple measurand transducers

Accurate
class 0.2, 0.5 & 1

USB
programming

Response time
~100-220 ms

Compact size

PT1 is a range of compact, configurable multiple measurand transducers designed to meet the demanding needs of supply utilities and industrial applications. It offers accurate true-RMS measurements for high efficiency and quick response time. It is equipped with two load-independent, galvanically-isolated analogue outputs that can be configured for different measurands, input range and output curves.

- Best in class response time
- Long range, site-configurable inputs, outputs and measurands
- Load-independent accuracy on all outputs
- 2-in-1 programmable transducers
- Diagnostic LEDs
- Compact footprint

Measurement functions (Measurands)	Output type	Output range	No. of outputs	Accuracy class
Voltage, current, frequency, active power	Option for mA or V	0-20 mA, 4-20 mA,0-10 mA, 0-5 mA* 0-2 mA*, 0-5 V, 0-10 V	2	0.2, 0.5, 1.0

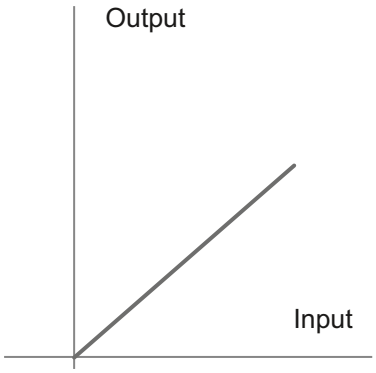
*available in accuracy class 1.0 only
Frequency accuracy - ± 0.1 Hz

PT1: single phase

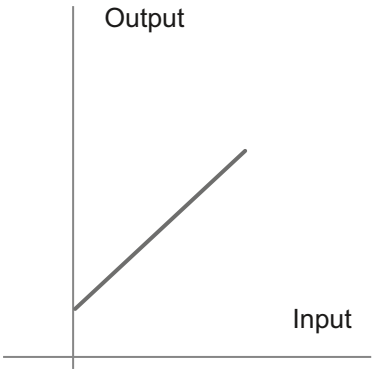
multi-function transducers

Output cuves

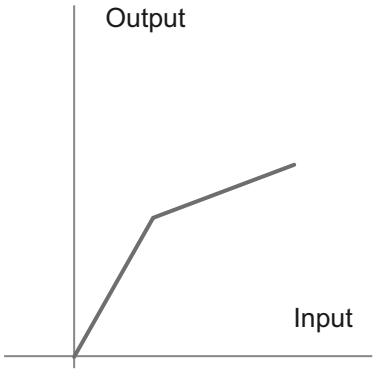
Curve A
Linear



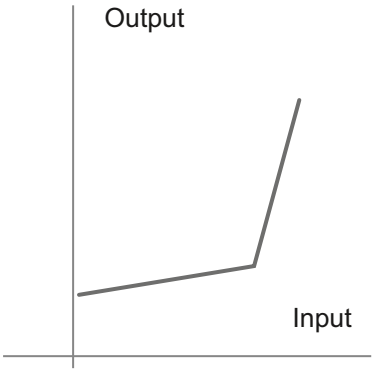
Curve B
Linear with live zero



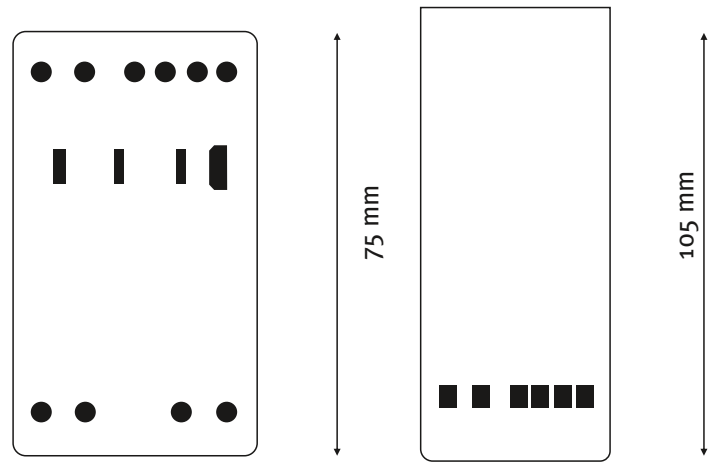
Curve C
Compressed upper region



Curve D
Compressed lower region

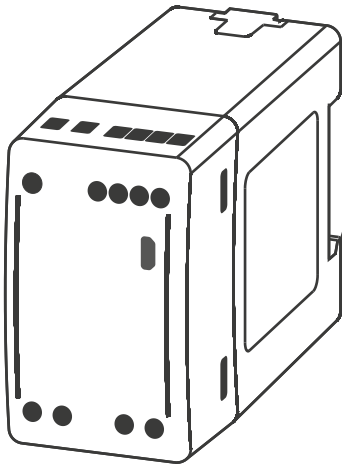


Mechanical dimensions



Front view

Top view



Isometric view

PT1: single phase

Technical specifications

Site-configurable measurement functions (measurands)

AC voltage	
Nominal input (U_n)	57.7 to 415 V
Measuring range	0 to 130 % U_n (up to 500 V)
Scale factor	0.8 to 1.3 of U_n (up to 500 V)
Measurement frequency	50/60 Hz (±5 %)
Burden	≤ 0.2 VA
Maximum overload voltage	1.3 x U_n continuously (500 V max.)
	2 x U_n for 1 s, with up to 10 repetitions at 10 s intervals
AC current	
Nominal input (I_n)	1/5 A
Measuring current range	0 to 150 % I_n
Scale factor	0.6 to 1.5 of I_n
Burden	≤ 0.2 VA
Maximum overload current	2 x In continuously
	20 x In for 1 s, with up to 10 repetitions at 100 s intervals
Frequency	
Nominal input voltage (U_n)	57.7 to 415 V
Input range	0 to 130 % U_n (up to 500 V)
Measurement range	45 Hz to 55 Hz, or 55 Hz to 65 Hz
Accuracy	±0.1 Hz
Active Power	
Nominal input voltage (U_n)	57.7 to 415 V
Input voltage range	0 to 130 % U_n (up to 500 V)
Nominal input current (I_n)	1/5 A
Input current range	0 to 150 % I_n
Measurement frequency	50/60 Hz (±5 %)
Scale factor	0.5 to 1.5 of U_n x I_n (at unity power factor)
Auxiliary supply	
High auxiliary	
Nominal voltage range	80 to 276 V AC/DC (±10 %)
Frequency	50/60 Hz
Maximum burden	≤6VA, 3W with one output at 750 Ω
	≤7VA, 3.5W with two outputs at 750 Ω each
Low auxiliary	
Nominal voltage range	24 to 80 V DC (±10 %)
Maximum burden	≤3 W with one output at 750 Ω
	≤4 W with two outputs 750 Ω each
Analogue outputs	
Output type	mA or V, Uni-polar
Maximum load resistance	≤750 Ω for 20 mA, ≥ 2 k Ω for 10 V(for each output)
Response time	5 cycles measurement (≤100-220 ms)
Ripple	‹0.4 % peak to peak

PT1: single phase

Technical specifications

Temperature range	
Operating range	-5 °C to +55 °C
Storage range	-25 °C to +70 °C
Mechanical	
Dimension (W x H x D)	45 x 75 x 105 mm
Weight	0.4 kg approx.
Material	Fire-retardant polycarbonate (PC-FR), UL94 V-0
Mounting	DIN (EN 50022)
Connector type	Screw terminals
Conductor size for terminals	≤4 mm^2
Environmental	
Protection class	II (double insulation) EN 61010-1
Pollution degree	2
Installation category	CAT III
Protection degree	Housing: IP 40, front side: IP 20
Standards compliance	
Standards	IEC 60688, IEC 61010-1, IEC 61010-2-30, IEC 61326-1, DIN 50022
Communication ports	
USB	For on-site configuration
Configuration software tool	
ConfigView	For on-site configuration of measurement inputs, measurands, output curve and online parameter reading. It can be freely downloaded from www.securetogether.com

Ordering key

PT1 XX1-1XF

X	X	1	–	1	Y	F

Aux supply
6: High
7: Low

Output
1: mA
2: V

Accuracy
1: Cl 1.0
2: Cl 0.2
5: Cl 0.5

Example

PT1 611-12F
where high auxiliary (6),
mA output (1), accuracy class 0.2

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03-16/I/Ver 1.0

PT1: single phase

single-function transducers

compact, long range site configurable transducers

Accurate
class 0.2, 0.5 & 1

USB
programming

Response time
range is 100-220 ms

Compact size

PT1 is a range of compact, configurable single measurand transducers designed to meet the demanding needs of supply utilities and industrial applications. It offers accurate true-RMS measurements for high efficiency and quick response time. It is equipped with two load-independent, galvanically-isolated analogue outputs that can be configured for desired input range and output curves.

- Best in class response time
- Long range, site-configurable inputs and outputs
- Load-independent accuracy on all outputs
- Diagnostic LEDs
- Compact footprint

	Measurement functions (Measurands)	Output type	Output range	No. of outputs	Accuracy class
AC system	Voltage, current, frequency, active power	Option for mA or V	0-20 mA, 4-20 mA, 0-10 mA, 0-5 mA*, 0-2 mA*, 0-5 V, 0-10 V	2	0.2, 0.5, 1.0
DC system	Voltage, current	Option for mA or V	0-20 mA, 4-20 mA, 0-10 mA, 0-5 mA*, 0-2mA*, 0-5 V, 0-10 V	2	0.2, 0.5, 1.0

*available in accuracy class 1.0 only
Frequency accuracy - ± 0.1 Hz
#Available with DC Voltage function only

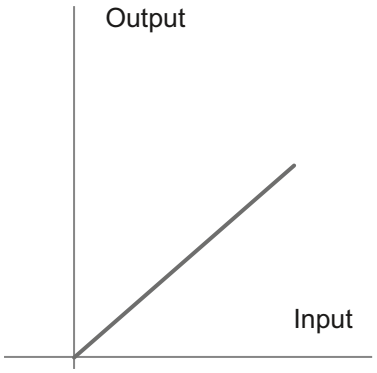
SECURE

PT1: single phase

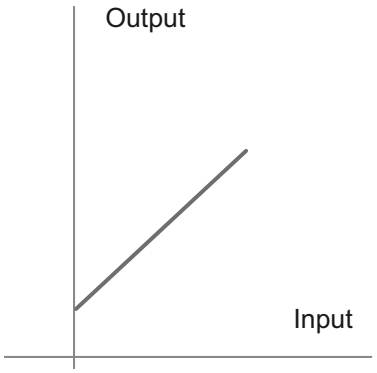
single-function transducers

Output cuves

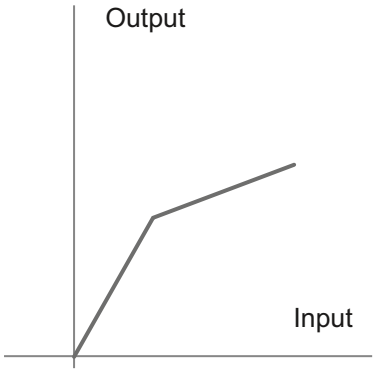
Curve A
Linear



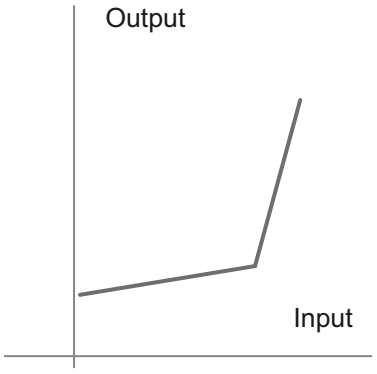
Curve B
Linear with live zero



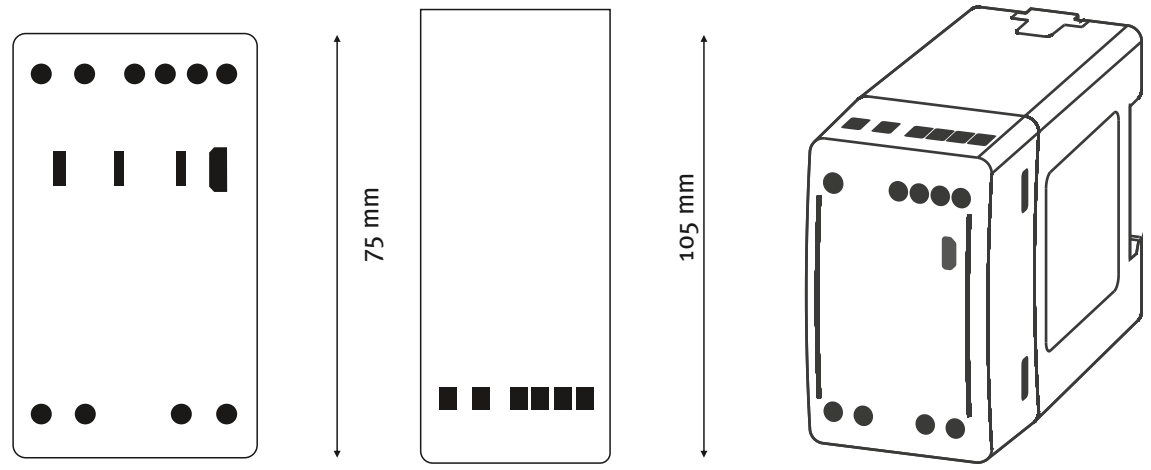
Curve C
Compressed upper region



Curve D
Compressed lower region



Mechanical dimensions



PT1: single phase

Technical specifications

Variant-wise technical specifications

AC/DC voltage

Nominal input (U_n)	57.7 to 415 V
Measuring range	0 to 130 % U_n (up to 500 V)
Scale factor	0.8 to 1.3 of U_n (up to 500 V)
Measurement frequency	50/60 Hz (±5 %)
Burden	≤0.2 VA
Maximum overload voltage	1.3 x U_n continuously (500 V max.)
	2 x Un for 1 s, with up to 10 repetitions at 10 s intervals

For self-powered variant (AC/DC Voltage)

Measurement range	80 to 276 V AC/DC
Measurement range	0 to 110 % U_n
Burden	≤6VA, 3W with one output at 750 Ω
	≤7VA, 3.5W with two outputs at 750 Ω each

AC current

Nominal input (I_n)	1/5 A
Measuring current range	0 to 150 % I_n
Scale factor	0.6 to 1.5 of I_n
Burden	≤0.2 VA
Maximum overload current	2 x I_n continuously
	20 x I_n for 1 s, with up to 10 repetitions at 100 s intervals

DC current

Measurement input range	0-20 mA directly, or 0-300 mV through shunt

Frequency

Nominal input voltage (U_n)	57.7 to 415 V
Input range	0 to 130 % U_n (up to 500 V)
Measurement range	45 Hz to 55 Hz, or 55 Hz to 65 Hz
Accuracy	±0.1 Hz

Active Power

Nominal input voltage (U_n)	57.7 to 415 V
Input voltage range	0 to 130 % U_n (up to 500 V)
Nominal input current (I_n)	1/5 A
Input current range	0 to 150 % I_n
Measurement frequency	50/60 Hz (±5%)
Scale factor	0.5 to 1.5 of U_n x I_n (at unity power factor)

Auxiliary Supply

High auxiliary

Nominal voltage range	80-276 V AC/DC (±10%)
Frequency	50/60 Hz
Maximum burden	≤6VA, 3W with one output at 750 Ω
	≤7VA, 3.5W with two outputs at 750 Ω each

Low auxiliary

Nominal voltage range	24-80 V DC (±10%)
Maximum burden	≤3 W with one output, ≤4 W with two outputs

Self-powered (only for voltage transducers)

Nominal voltage range	80-276 V AC/DC
Maximum burden	≤6VA, 3W with one output at 750 Ω
	≤7VA, 3.5W with two outputs at 750 Ω each

PT1: single phase

Technical specifications

Analogue outputs	
Type	mA or V, uni-polar
Maximum load resistance	≤750 Ω for 20 mA, ≥2 kΩ for 10 (for each output)
Response time	5 cycles measurement (≤100-220 ms)
Ripple	‹0.4 % peak to peak
Temperature range	
Operating range	-5 °C to +55 °C
Functional range	-20 °C to +70 °C
Mechanical	
Dimension (W x H x D)	45 x 75 x 105 mm
Weight	0.4 kg (approx.)
Material	Fire-retardant polycarbonate (PC-FR), UL94 V-0
Mounting	DIN (EN 50022)
Connector type	Screw terminals
Conductor size for terminals	≤4 mm^2
Environmental	
Protection class	II (double insulation) EN 61010-1
Pollution degree	2
Installation category	CATIII
Protection degree	Protection housing IP 40, terminals IP 20
Standards compliance	
Standards	IEC 60688, IEC 61010-1, IEC 61010-2-30, IEC 61326-1, DIN 50022
Communication ports	
Micro USB	for on-site configuration
Configuration software tool	
ConfigView	For on-site configuration of measurement inputs, measurands, output curve and online parameter reading. It can be freely downloaded from www.securetogether.com

Ordering key

PT1 XXX-1YY

X	X	X	–	1	Y	Y

Aux supply
6: High
7: Low
8: Self Powered*

Output
1: mA
2: V

HW Configuration
1 : Default**
2 : DC Current

Accuracy
1: Cl 1.0
2: Cl 0.2
5: Cl 0.5

Function
1: Voltage AC/DC
2: Current DC#
3: Frequency†
5: Current AC
6: Active Power

Example

PT1 611-126
where high auxiliary (6), mA output (1), accuracy class 0.2, function (6)

*Self powered is voltage transducer only.
#Current DC available only in DC Current.
** Default means AC/DC voltage, AC current
† default digit for frequency accuracy i.e. ± 0.1 Hz

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03-16/I/Ver 1.0

PT3: three phase

multi-function transducers

compact, configurable multiple measurand transducers

Accurate
Class 0.2 or 0.5 & 1

USB
programming

Response time
~100-220 ms

Modbus RTU

PT3 is a range of compact, configurable multiple measurand transducers designed to meet the demanding needs of supply utilities and industrial applications. It offers accurate true-RMS measurements for high efficiency and quick response time. It is equipped with up to four load-independent, galvanically-isolated analogue outputs that can be configured for desired measurands, input range and different curves. PT3 transducers comply with IEC 60688.

- Best in class response time
- Long range, site-configurable inputs, outputs and measurands
- Load-independent accuracy on all outputs
- 4-in-1 programmable transducers
- Diagnostic LEDs
- Compact footprint

Measurement functions (Measurands)	Output type	Output range	No. of outputs	Accuracy class
Voltage, current, active power, reactive power, power factor	mA or V	±20 mA, 4-20 mA, 0-20 mA, ±10mA, ±5mA*, ±2mA**, ±5V, ±10V	2 or 4	0.2, 0.5. 1.0

*available in accuracy class 1.0

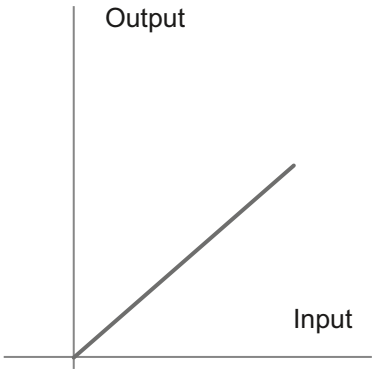
Power factor accuracy- ± 0.2 degree at nominal input range

PT3: three phase

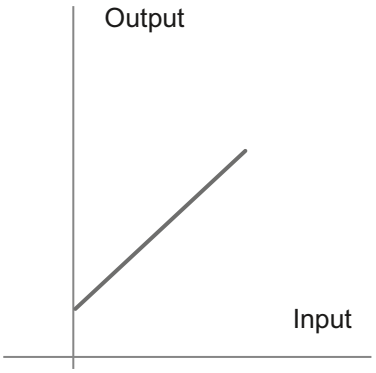
multi-function transducers

Output cuves

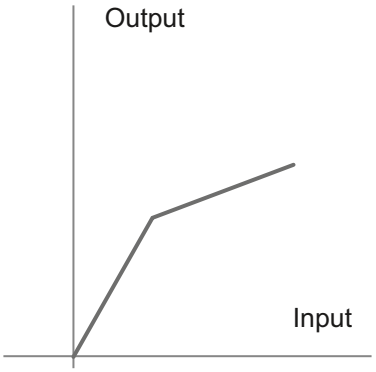
Curve A
Linear



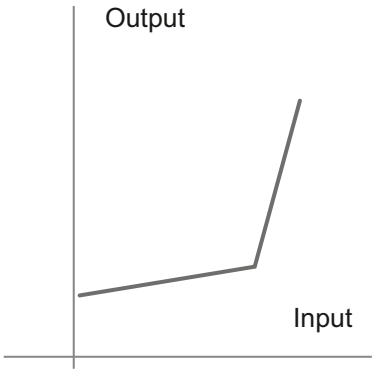
Curve B
Linear with live zero



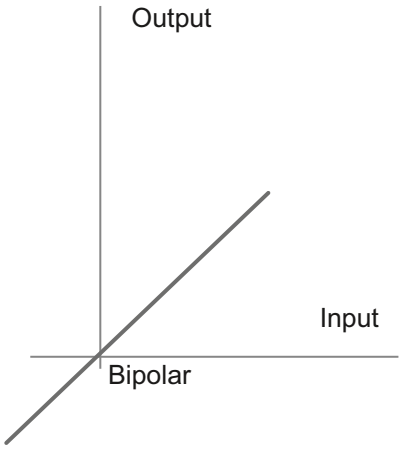
Curve F
Compressed upper region



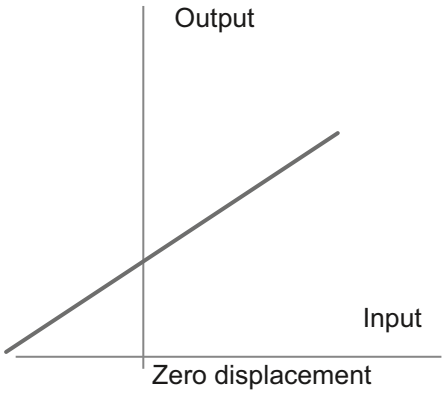
Curve F
Compressed lower region



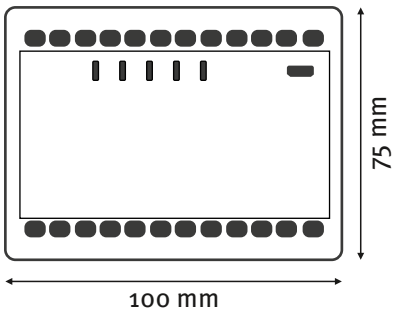
Curve C
Bipolar



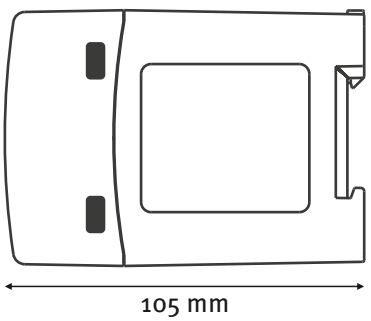
Curve D
bipolar with live zero



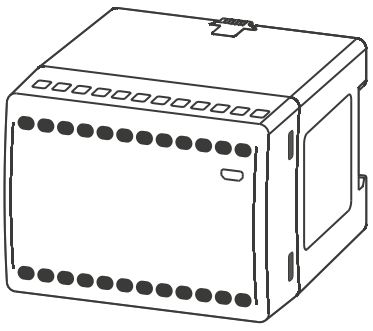
Mechanical dimensions



Front view



Side view



Isometric view

PT3: three phase

Technical specifications

Site-configurable measurement functions (measurands)

AC voltage

Nominal input (U_n)	3 x 100 to 415 V L-L (3-phase 3-wire system)
	3 x 57.5 to 240V L-N (3-phase 4-wire system)
Measuring range	0 to 130 % U_n (500 V max.)
Scale factor	0.8 to 1.3 (500 V max.)
Measurement frequency	50/60 Hz (± 5 %)
Burden	≤0.2 VA
Maximum overload voltage	1.3 x U_n continuously (500 V max.)
	2 x U_n for 1 s, with up to 10 repetitions at 10 s intervals

AC current

Nominal input (I_n)	1/5 A
Maximum input current	0 to 150 % I_n
Scale factor	0.6 to 1.5
Burden	≤ 0.2 VA per phase
Maximum overload current	2 x I_n continuously
	20 x I_n for 1 s, with up to 10 repetitions at 100 s intervals

Active power/reactive power

Nominal input voltage (U_n)	3 x 100 to 415 V L-L (3 phase 3 wire system)
	3 x 57.5 to 240V L-N (3 phase 4 wire system)
Input voltage range	0-130 % U_n (up to 500 V)
Nominal input current (I_n)	1/5 A
Input current range	0 to 150 % I_n
Measurement frequency	50/60 Hz (± 5 %)
Scale factor	0.5 to 1.5 (active power, at unity power factor)
	0.3 to 1 (reactive power, at reactive power factor ›0.8 or unity)

Power factor

Nominal input voltage (U_n)	3 x 100 to 415 V L-L (3 phase 3 wire system)
	3 x 57.5 to 240V L-N (3 phase 4 wire system)
Input voltage range	0-130 % U_n (up to 500 V)
Nominal input current (I_n)	1/5 A
Input current range	0 to 150% I_n
Measurement frequency	50/60 Hz (± 5 %)
Measurement range	-0.8 to +0.8
Accuracy	±0.2 degree (at nominal range)

Auxiliary Supply

High auxiliary	
Nominal voltage range	80-276 V AC/DC (±10 %)
Frequency	50/60 Hz
Maximum burden	≤11VA, 6 W with two outputs at 750 Ω each
	≤12 VA, 7 W with four outputs at 750 Ω each

Low auxiliary

Nominal voltage range	24-80 V DC (±10 %)
Maximum burden	≤6 W with two outputs at 750 Ω each
	≤8 W with four outputs at 750 Ω each20 ms)

Analogue outputs

Type	Current (bipolar) & Voltage
Maximum Load resistance	≤750 Ω for 20 mA, ≥2 kΩ for 10 V (for each output)
Response time	5 cycles measurement (≤100-220 ms)
Ripple	‹0.4 % peak to peak

PT3: three phase

Technical specifications

Temperature range	
Operating temperature	-5 °C to +55 °C
Storage temperature	-25 °C to +70 °C
Mechanical	
Dimension (W x H x D)	100 x 75 x 105 mm
Weight	0.7 kg (approx.)
Material	Fire-retardant polycarbonate (PC-FR), UL94 V-0
Mounting	DIN (EN 50022)
Connector type	Screw terminals
Conductor size for terminals	≤4 mm^2
Environmental	
Protection class	II (double insulation) EN 61010-1
Pollution degree	2
Installation category	CATIII
Protection degree	Protection housing IP 40, terminals IP 20
Standards compliance	
Standards	IEC 60688, IEC 61010-1, IEC 61010-2-30, IEC 61326-1, DIN 50022
Communication ports	
Mini USB	For configuration
RS-485	Modbus RTU enabled (Suitable for integration with SCADA/PLC)
Baud rate	1200-38400 baud
Configuration software- Configview	
ConfigView	For on-site configuration of measurement inputs, measurands output curve and online parameter reading. It can be freely downloaded from www.securetogether.com

Ordering key

PT3 XX3-1YF

X	X	3	–	1	Y	F

Aux supply
6: High
7: Low

Output
2: 2 nos.
4: 4 nos.

Accuracy
1: Cl 1.0
2: Cl 0.2
5: Cl 0.5

Example

PT3 643-12F
where high auxiliary (6), output nos. (4), accuracy class(2)

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03-16/I/Ver 1.0

PT3: three phase

single-function transducers

compact, long range site configurable transducers

Accurate
class 0.2 or 0.5 & 1

USB
programming

Response time
~100-220 ms

Modbus RTU

PT3 is a range of compact, configurable single measured transducers designed to meet the demanding needs of supply utilities and industrial applications. It offers accurate true RMS measurements for high efficiency with quick response time. It is equipped with up to four load-independent, galvanically-isolated analogue outputs that can be configured for desired input range and output curves. PT3 transducers comply with IEC 60688.

- Best in class response time
- Long range, site-configurable inputs and outputs
- Load-independent accuracy on all outputs
- Diagnostic LEDs
- Compact footprint

Measurement functions (Measurands)	Output range	No. of outputs	Accuracy class
Voltage, current, active power, reactive power, power factor	±20 mA, 4-20 mA, 0-20 mA ±10mA, ±5mA*,±2mA*, ±5V, ±10V	2 or 4	0.2, 0.5, 1.0

*available in accuracy class 1.0

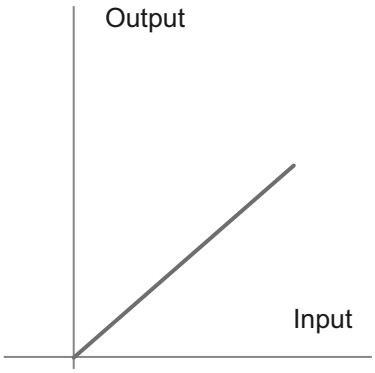
Power factor accuracy- ± 0.2 degree at nominal input range

PT3: three phase

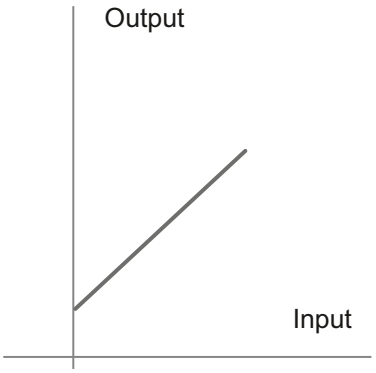
single-function transducers

Output cuves

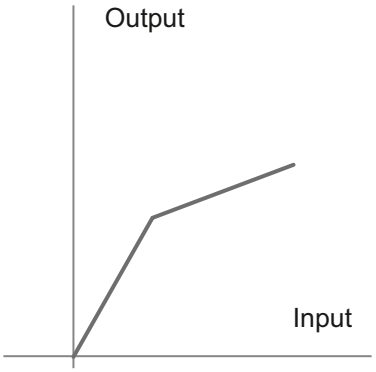
Curve A
Linear



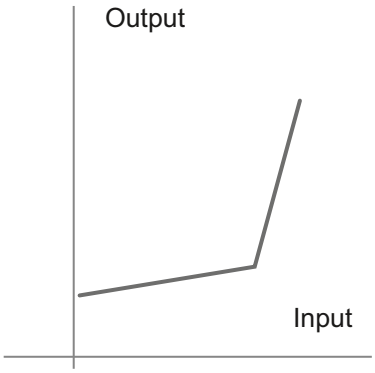
Curve B
Linear with live zero



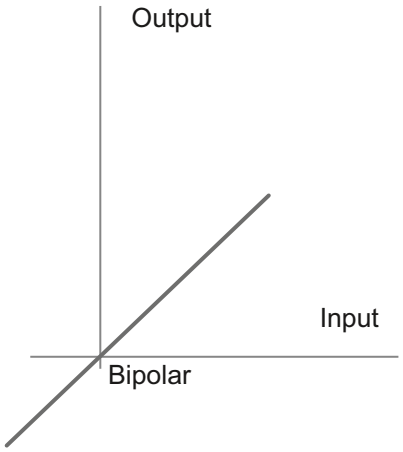
Curve F
Compressed upper region



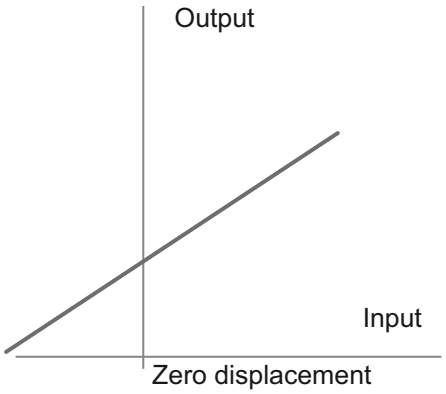
Curve F
Compressed lower region



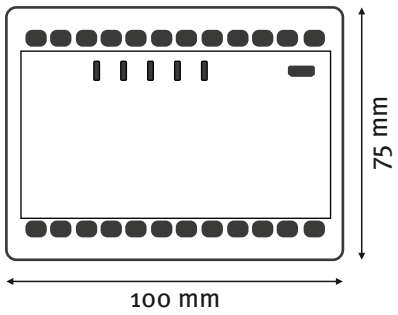
Curve C
Bipolar



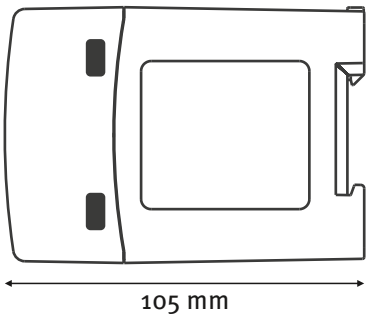
Curve D
bipolar with live zero



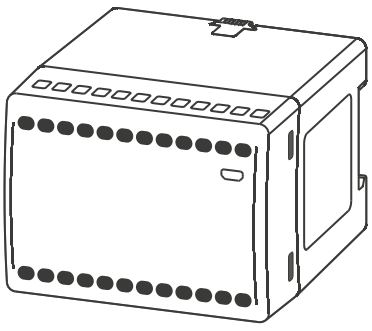
Mechanical dimensions



Front view



Side view



Isometric view

PT3: three phase

Technical specifications

AC voltage

Nominal input (U_n)	3 x 100 to 415 V L-L (3-phase 3-wire system) 3 x 57.5 to 240V L-N (3-phase 4-wire system)
Measuring range	0 to 130 % of V_n (500 V max.)
Scale factor	0.8 to 1.3 (500 V max.)
Measurement frequency	50/60 Hz (±5 %)
Burden	≤0.2 VA
Maximum overload voltage	1.3 x Un continuously (500 V max.) 2 x Un for 1 s, with up to 10 repetitions at 10 s intervals

AC current

Nominal input (I_n)	1/5 A
Measuring current range	0 to 150 % I_n
Scale factor	0.6 to 1.5 I_n
Burden	≤0.2 VA
Maximum overload current	2 x I_n continuously 20 x I_n for 1 s, with up to 10 repetitions at 100 s intervals

Active power /reactive power

Nominal input voltage (U_n)	3 x 100 to 415 V L-L (3-phase 3-wire system) 3 x 57.5 to 240V L-N (3 -phase 4-wire system)
Input voltage range	0 to 130 % U_n (up to 500 V)
Nominal input current (I_n)	1/5 A
Input current range	0 to 150 % I_n
Measurement frequency	50/60 Hz (±5 %)
Scale factor	0.5 to 1.5 of Un x In primary (active power, at unity power factor) 0.3 to 1 Un x In primary (reactive power, at reactive power factor›0.8 or unity)

Power factor

Nominal input voltage (U_n)	3 x 100 to 415 V L-L (3 phase 3 wire system) 3 x 57.5 to 240V L-N (3 phase 4 wire system)
Input voltage range	0 to 130 % U_n
Nominal input current (I_n)	1/5 A
Input current range	0 to 150% I_n
Measurement frequency	50/60 Hz (±5 %)
Measurement range	-0.8 to +0.8
Accuracy	±0.2 degree (at nominal range)

Auxiliary supply

High auxiliary

Nominal voltage range	80-276 V AC/DC (±10 %)
Frequency	50/60 Hz
Maximum burden	≤11VA, 6 W with two outputs at 750 Ω each ≤12 VA, 7 W with four outputs at 750 Ω each

Low auxiliary

Nominal voltage range	24-80 V DC (±10 %)
Maximum burden	≤6 W with two outputs at 750 Ω each ≤8 W with four outputs at 750 Ω each

Analogue outputs

Type	Current (bipolar) & Voltage
Maximum load resistance	≤750 Ω for 20 mA, ≥ 2 k Ω for 10 V (for each output)
Response time	5 cycles measurement (≤100-220 ms)
Ripple	‹0.4 % peak to peak

PT3: three phase

Technical specifications

Temperature range	
Operating temperature	-5 °C to +55 °C
Storage temperature	-25 °C to +70 °C
Physical	
Dimension (W x H x D)	100 x 75 x 105 mm
Weight	0.7 kg (approx.)
Material	Fire-retardant polycarbonate (PC-FR, UL 94 V-0)
Mounting	DIN (EN 50022)
Connector type	Screw terminals
Conductor size for terminals	≤4 mm^2
Environmental	
Protection class	II (double insulation) EN 61010-1
Pollution degree	2
Installation category	CATIII
Protection degree	Protection housing IP 40, terminals IP 20
Standards compliance	
Standards	IEC 60688, IEC 61010-1, IEC 61010-2-30, EC 61326-1, DIN 50022
Communication ports	
Micro USB	For configuration Can be configured without auxiliary power
RS-485	Modbus RTU enabled (suitable for integration with SCADA/PLC)
Baud rate	1200-38400 baud
Configuration software	Configview
ConfigView	For on-site configuration of measurement inputs, measurands, output curve and online parameter reading. It can be freely downloaded from www.securetogether.com

Ordering key

PT3 XX3-1YY

X	X	3	–	1	Y	Y

Aux supply
6: High
7: Low

Output
2: 2 nos.
4: 4 nos.

Accuracy
1: Cl 1.0
2: Cl 0.2
5: Cl 0.5

Function
1: Voltage
5: Current
6: Active Power
7: Reactive Power
8: Power Factor

Example

PT3 643-121
where high auxiliary (6),
output nos. (4), accuracy class (2)
function voltage(1)

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