

TESSERACT

Single Phase Ultra-Smart Energy Meter

Powerful

The first industrial sensor to boast 32bit computing power and vast amount of onboard memory, the Tesseract easily outperforms the most powerful smart meters and controllers currently available in the market.

Flexible

Tesseract gives you access to an ever-growing eco-system of smart energy applications, allowing you to deploy the device as a simple energy meter, sophisticated power analyzer, demand response controller, sustainability sensor, and much more, all at once!

Future Proof

Equipped with the latest interface technologies, the Tesseract can adapt to a wide range of IoT environments.

The DLMS protocol allows it to be upgraded in-situ, thus future-proofing your smart energy investments!

User-friendly

With an elegant LCD display, Tesseract promises you an unparalleled user experience.



One Device Infinite Possibilities

The patent pending Tesseract is the next generation platform for smart energy management.

Tesseract is the only device you will ever need.



Front Profile



Bottom Profile

Energy Values

- Active, reactive inductive, reactive capacitive, apparent energy
- Import, export, net and total energy
- Total energy
- Programmable decimal places

Demand Calculations

- Current (Irms)
- Active, reactive and apparent power
- Interval calculation - block interval / sliding window
- RTC synchronized

Demand Control

- Programmable threshold (current & power)

Power Quality Parameters

- Harmonic distortion - voltage and current
- Individual harmonics 63
- Over current, unbalance, over voltage. Low voltage
- Supports single phase two wire systems

Data Recording

- Over current, no load, reverse current
- Finer measurement resolution
- Configuration change, device access
- Profiling (15 parameters, 1-60mins)

Memory Capacity

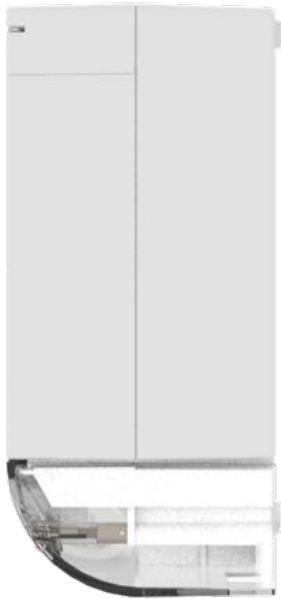
- FeRAM (kilo bytes) 128
- Data storage memory (kilo bytes) 1024
- Program memory (kilo bytes) 512
- RAM (kilo bytes) 38

Input / Output

- Digital inputs 2
- Display (LCD with backlight) Yes
- Relay output (275Vac, 5A) 1

Load Control

- Internal latch relay (Phase and Neutral) 100A



Side Profile



Back Profile

Electrical Specifications

Measurement type	True RMS / 200 samples per cycle
Measurement accuracy	
Current & voltage	0.2%
Active power	0.2%
Frequency	0.5%
Power factor	0.5%
Active energy	Class 1
Reactive energy	Class 2
Data update rate	1 second
Input voltage range	0V to 300Vac
Operating voltage	90V to 270V L-N
Reference voltage (Vref)	220V, 230V, 240V
Operating frequency range	45Hz to 65Hz
Input current range	
- Basic current (I_b)	10A
- Maximum current (I_{max})	100A
- Operating range of current	0A to 100A
Burden	< 0.5VA
Maximum overload - non recurring	3000A for 0.5 mains cycle
Power supply	Self powered
Withstanding voltage interruptions	20ms interruption
Withstanding voltage dips	50%

Mechanical Specifications

Weight	<1.5kg
IP degree of protection	IP51/4
Dimensions	235mm (height) x 150mm (width) x 87mm (depth)
Terminal Cover	Extended (40 mm) or Short

Environmental Conditions

Operating temperature	0°C to 70°C
Storage temperature	-10°C to 80°C
Humidity rating	5% to 95% non condensing

Firmware Characteristics

Harmonic Distortion	Up to 63rd harmonic for voltage, current, power, energy
Instantaneous parameters	Voltage, current, frequency, power factor, active, reactive, apparent power
Load profiling	Programmable interval time
Alarms	Programmable events and threshold
Demand control	Programmable control mode based on current or power
Firmware upgrade	Remotely through communication ports

Display and Front End Specifications

Display	LCD with backlight
Menu functions	Instantaneous, power, energy, demand control, history data, harmonics
Sealing Provision	Meter cover, modem cover, terminal cover hardware sealing

Ordering Guide (*)

LCD with Relay	TSLIT0R1PDC01
LCD without Relay	TSLIT0N1PDC01
LCD with Relay 3G	TSLITGR1PDC01
LCD without Relay NBloT	TSLITNN1PDC01
LCD with Relay NBloT	TSLITNR1PDC01

Standard Compliance

Metrology	IEC62052-11, IEC62053-21, IEC 62053-23
Communication	IEC62056

* As our products are developed and upgraded from time to time, please contact us for the latest information.

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Features

Installation Options and Configuration

Flexible and easy installation
Easy setup through software

Display and Front Panel

Easy to read LCD display
Simple intuitive push button navigation
Auto-ranging and auto scaling

Communications Interfaces

NBLoT/3G/4G/RS485
LVTTTL RS232 adaptable to Silver Spring Network or Trilliant RF and 3G modules
Supports standard DLMS / COSEM protocol
Simultaneous communication on ports
Programmable speed options on RS485 (2400 - 38400bps)
Daisy chain support, up to 31 serial Modbus devices
Password protected access to configuration parameters
Modular communication - field replaceable

Alarms

Meter cover, modem cover, terminal cover removal detection
Magnetic field detection
Battery low detection
Load disconnect / reconnect

Real Time Clock

Temperature compensated Real Time Clock of <5ppm error
Synchronization with time server

Scalability

Multiple applications can run simultaneously and perform variety of functions

Default applications include - line parameters, Time of Use, Event logging, demand control, load profiling
FRAM data storage supports > trillion writecycles

Standard Input / Output

One programmable potential free relay output.
Two digital inputs for water and gas meter interface

Specifications

General

Use on Low voltage	Yes
RMS Current accuracy	0.2% of reading
RMS Voltage accuracy	0.2% of reading
Active Energy Accuracy	Class 1
Reactive Energy Accuracy	Class 2
Number of samples / cycle	200
Four quadrant measurement	

Instantaneous Values

Voltage, current, power factor, phase angle
Frequency

Active, Reactive (Ind.), Reactive (Cap.), Apparent Power Total