TESSERACT

3 Phase Ultra-Smart Energy Meter (CT)

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.

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Front Profile

Bottom Profile

Energy Values

Active, reactive inductive, reactive capacitive, apparent energy	☑
Import, export, net and total energy	☑
Per phase and total energy	☑
Programmable decimal places	☑

Demand Calculations

Current (Irms) on any phase	☑
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, low voltage, over voltage	☑
Supports three phase three / four 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/outputs	2/2
Display (LCD with backlight)	Yes
Relay output (275Vac, 5A)	2

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 0.5s
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)	3x110V, 3x230V, 3x240V
Operating frequency range	45Hz to 65Hz
Input current range	
- Basic current (In)	5A
- Maximum current (Imax)	10A
- Operating range of current	0A to 10A
Burden	< 0.2VA
Maximum overload - non recurring	200A for 0.5s
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	279mm (height) x 179mm (width) x 90mm (depth)

Environmental Conditions

Operating temperature	0^{0}C to 70^{0}C
Storage temperature	-10^{0}C to 80^{0}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
Programmable multiplying factors (CT/VT ratios)	Displays, stores and communicates transformer primary values

Standard Compliance

Metrology	IEC 62052-11, IEC62053-22, 23
Communication	IEC62056

Ordering Guide (*)

LCD with Relay	TSLIT0R3PCT01
LCD without Relay	TSLIT0N3PCT01
LCD with Relay 3G	TSLITGR3PCT01
LCD without Relay NBIoT	TSLITNN3PCT01
LCD with Relay NBIoT	TSLITNR3PCT01

** 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

RS485 / 3G / 4G / NBIoT

LVTTL 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

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 features 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 write cycles

Standard Input / Output

One digital output (KY) energy pulse output programmable for active or reactive energy

One programmable potential free relay output.

Two free open collector inputs for water and gas meter interface

Specifications

General

Use on low and high voltage	Yes
RMS current accuracy	0.2% of reading
RMS voltage accuracy	0.2% of reading
Active energy accuracy	Class 0.5s
Reactive energy accuracy	Class 2.0
Number of samples / cycle	200
Four quadrant measurement	☑

Instantaneous Values

Voltage, current, power factor, phase angle	☑
Phase angle, power factor	☑
Active, reactive (ind.), reactive (cap.), apparent power total & per phase	☑