

TESSERACT Pro

Single Phase Ultra-Smart Energy Meter

Powerful

The first industrial sensor to boast 64 bit 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

Installed with Android operating system, the 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 Android operating system allows it to be upgraded in-situ, thus future-proofing your smart energy investments!

User-friendly

With an industry-unique capacitive touchscreen, the 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
- RTC Synchronized

Power Quality Parameters

- Harmonic distortion - voltage and current
- Individual harmonics 63
- Supports single phase two wire systems

Data Recording

- Finer measurement resolution
- Configuration change, device access

Memory Capacity

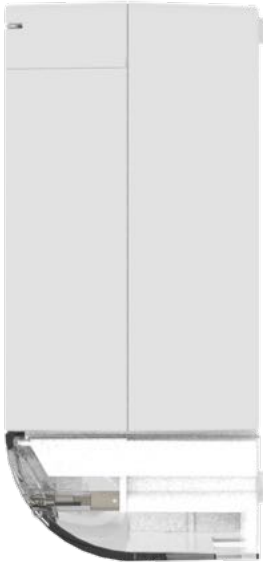
- FeRAM (kilobytes) 128
- Data storage memory (mega bytes) 8,192
- Program memory (mega bytes) 2,000
- RAM (mega bytes) 1,024

Input / Output

- Digital inputs/outputs 4/2
- Display (TFT with backlight) and touch screen Yes
- Relay output (275Vac, 5A) 1
- Analog inputs 2

Load Control

- Internal Latch Relay 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	192mm (height) x 140mm (width) x 87mm (depth)
Terminal Cover	Extended (40mm) or Short

Environmental Conditions

Operating temperature	0°C to 60°C
Storage temperature	-10°C to 70°C
Humidity rating	5% to 95% non condensing

Firmware Characteristics

Android OS	Multiple applications can run in parallel
Harmonic distortion	Up to 63rd harmonic for voltage, current, power, energy
Instantaneous parameters	Voltage, current, frequency, power factor, active, reactive, apparent power
Firmware upgrade	Remotely through communication ports
Memory	8GB of storage memory & 2GB of program memory and applications

Display and Front End Specifications

Display	800x480 color TFT with backlight
Navigation	Progressive capacitive touch screen
Menu functions	Instantaneous, power, energy, history data, trends, vector diagram and waveform, harmonics, analog meters, settings
Sealing Provision	Meter cover, modem cover, terminal cover hardware sealing

Standard Compliance

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

Ordering Guide (*)

LCD with Relay	TSPRO0R1PDC01
LCD without Relay	TSPRO0N1PDC01
LCD with Relay 3G	TSPROGR1PDC01
LCD without Relay NBloT	TSPRONN1PDC01
LCD with Relay NBloT	TSPRONR1PDC01

*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 touch screen

Display and Front Panel

Easy to read color TFT display
Simple intuitive touch screen navigation
Auto-ranging and auto scaling

Communications Interfaces

RS485/3G/4G/NBloT/Ethernet/USB 2.0 OTG
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
Android file system

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

Provides standard Android operating system
Multiple applications can run simultaneously and perform variety of functions
Default applications include - line parameters, Time of Use, Event logging
FeRAM 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 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	<input checked="" type="checkbox"/>

Instantaneous Values

Voltage, current, power factor, phase angle	<input checked="" type="checkbox"/>
Frequency	<input checked="" type="checkbox"/>
Active, reactive (ind.), reactive (cap.), apparent power total	<input checked="" type="checkbox"/>