

Tesseract

Technical Data sheet



Tesseract Technical Data sheet

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



Tesseract IoT Device

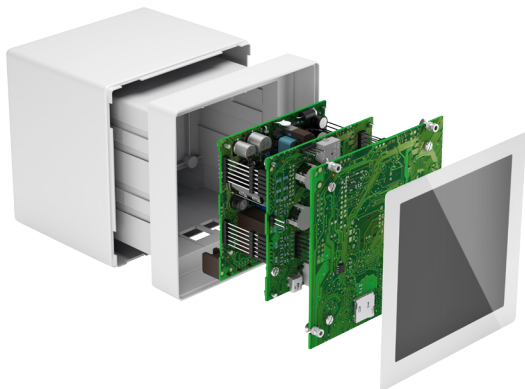
Powerful. The first industrial sensor to boast 64bit computing power and vast amount of onboard memory, the Tesseract easily outperforms the most powerful smart meters and controllers currently available in the market.

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 a capacitive touchscreen, the Tesseract promises you an unparalleled user experience.

One device-many faces. Tesseract, the only device you will ever need.

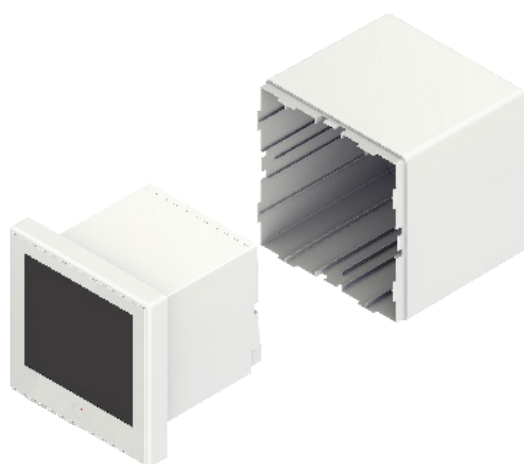


Tesseract – Expanded

Energy Values	
Active, Reactive Inductive, Reactive Capacitive, Apparent Energy	<input checked="" type="checkbox"/>
Import, Export, Nett and Total Energy	<input checked="" type="checkbox"/>
Per phase and Total Energy	<input checked="" type="checkbox"/>
Programmable decimal places	<input checked="" type="checkbox"/>
Demand Calculations	
Current (I _{rms}) on any phase	<input checked="" type="checkbox"/>
Active, Reactive and Apparent Poweran	<input checked="" type="checkbox"/>
Predicted active, reactive, apparent power	<input checked="" type="checkbox"/>
Interval calculation - Block interval / Sliding window	<input checked="" type="checkbox"/>
RTC Synchronized demand interval	<input checked="" type="checkbox"/>
Demand Control	
Programmable threshold (current, active power)	<input checked="" type="checkbox"/>
Power quality parameters	
Harmonic distortion - Voltage and Current	<input checked="" type="checkbox"/>
Individual harmonics	80
Waveform capture	<input checked="" type="checkbox"/>
Line parameter snap-shot at the time of event	<input checked="" type="checkbox"/>



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Tesseract – With Casing



Tesseract – Panel Mount Setup

Data Recording	
Voltage Sag, Voltage Swell with programmable threshold	<input checked="" type="checkbox"/>
Over current, no load, reverse current	<input checked="" type="checkbox"/>
Finer measurement resolution - 1/2 cycle	<input checked="" type="checkbox"/>
Configuration change, device access	<input checked="" type="checkbox"/>
Profiling (12 parameters, 1-60mins)	<input checked="" type="checkbox"/>
Memory Capacity	
Data Storage Memory (Mbytes)	8,192
Program memory (Mbytes)	2,000
RAM (Mbytes)	1,024
Input / Output	
Digital Inputs	4
Digital Outputs	4
Display (TFT LCD with backlight) and Touch Screen	R
Relay Output (275Vac, 5A)	2
Analog Inputs	4
Electrical Specifications	
Measurement Type -	True RMS / 200 samples per cycle
Measurement Accuracy	Class 0.2
Current & voltage	Class 0.2%
Active Power	Class 0.2%
Frequency	Class 0.5%
Power Factor	Class 0.5%
Active Energy	Class 0.5s
Reactive Energy	Class 2
Data update rate	1/2 cycle or 1 second
Input voltage range	
Operating voltage	192V to 270V VLN
Operating frequency range	45Hz to 65Hz
Input Current range	
Basic Current	5A
Maximum current	6A
Operating range of current	0.05A to 6A
Burden	0.02VA
Maximum overload - non recurring	180A for 0.5cycles
Power Supply	Self Powered
Withstanding voltage interruptions	20mS Interruption
Withstanding voltage dips	50% for 1 minute
Mechanical Specifications	
Weight	0.5kg
IP degree of protection	
DIN Rail / wall Mount	IP51
DIN Panel mount	IP30
Dimensions	
Panel Mount - recommended cutout	96.0 x 96.0 mm
DIN Rail/Wall mount	110x110x110mm
Environmental Conditions	
Operating Temperature	-10°C to 60°C
Storage Temperature	-25°C to 70°C
Humidity rating	5% to 95% non condensing
Installation category	Indoor, class II
Operating altitude (maximum)	3000m above sea level



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Tesseract – Input/Output Port



Tesseract – Rear View

Firmware Characteristics	
Android application	Multiple applications can run in parallel
Harmonic Distortion	Upto 80th harmonic for voltage, current, power, energy
Sag/Swell detection	Analysis of voltage values at every cycle with programmable thresholds and duration
Instantaneous Parameters	Voltage, Current, Frequency, Power factor, Active, reactive, apparent power with programmable resolution
Load profiling	Selection of parameters to profile from the list of parameters. Programmable interval time.
Trending and Prediction	Trending of energy values over a period of time. Prediction of demand during interval period
Waveform capture	Waveform capture of voltage and current channels of each phase. Programmable number of samples per cycle and number of cycles. Maximum 150,000 cycles or 50MBytes of memory
Alarms	Programmable events and threshold. Programmable priority and user defined levels
Demand control	Programmable control mode based on current or power
Firmware upgrade	Remotely through communication ports
Memory	2GB of program memory and applications
Display and Front End Specifications	
Display	640x640 color TFT LCD with backlight control
Navigation	Progressive Capacitive Touch Screen
Menu functions	Instantaneous, Power, Energy, Demand Control, History data, Trends, Vector diagram and Waveform, Harmonics, Analog Meters, Settings



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Features	
Installation Options and Configuration	
Flexible and easy installation	
DIN Rail mount	
DIN Panel mount (92x92mm)	
Wall mount mount	
Easy setup through touch screen	
Display and Front panel	
Easy to read color TFT LCD display	
Simple intuitive touch screen navigation	
Auto-ranging and auto scaling	
Communications Interfaces	
RS485, Ethernet, WiFi, USB 2.0	
Supports standard Modbus RTU, Modbus TCP protocols to interface with other systems	
Simultaneous communication on ports	
Programmable speed options on RS485 (2400 - 38400bps)	
Daisy chain support, upto 31 serial Modbus devices	
Password protected access to configuration parameters	
Android file system	
Real Time Clock	
Temperature compensated Real Time Clock	<5ppm accuracy
Synchronization with time server	
Scalability	
Provides standard Android operating system	
Multiple applications can run simultaneously and perform different functions	
Default applications include - line parameters, Time of Use, Event logging, demand control, load profiling	
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. Default function one second pulse on command	
Ordering Guide	
DIN Panel Meter	TSDINP8806
DIN Rail Meter	TSDINR8806
DIN Wall Mount Meter	TSWALL8806
All in one meter	TSUNIV8806
Accessories	
Ethernet Cable	TSETHW8806
RS 485 Cable	TSRS488806
DIN Panel lock	TSPNLL8806
Security Seals	ANASECSEAL
Specifications	
General	
Use on Low voltage and high voltage	Yes
RMS Current accuracy	0.2% of reading
RMS Voltage accuracy	0.2% of reading
Active Energy Accuracy	0.50%
Reactive Energy Accuracy	1.00%
Number of samples/cycle	200
Four quadrant measurement	<input checked="" type="checkbox"/>
Instantaneous Values	
Voltage, Current, Power Factor, Phase angle	<input checked="" type="checkbox"/>
Phase Angle, Power Factor	<input checked="" type="checkbox"/>
Active, Reactive(Ind.), Reactive(Cap.), Apparent Power Total & Per Phase	<input checked="" type="checkbox"/>
Voltage and Current auto ranging	<input checked="" type="checkbox"/>

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As product is developed and upgraded from time to time, please contact us for the latest information.

