



## Fiscal Smart-Meter – Wall mounted, three phase BBSP-SUB3W

User guide

Version 0.1

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### SHOCK HAZARD

1. DISCONNECT SUPPLY BEFORE ATTACHING OR UNATTACHING ANY WIRES
2. SWITCH OFF LOAD BEFORE OPENING COVER
3. ONLY TO BE FITTED BY A QUALIFIED ELECTRICIAN
4. USE AS SPECIFIED. DO NOT EXCEED MAXIMUM RATINGS.

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## OVERVIEW

The Smart Meter SUB3W is a high accuracy energy meter suitable for use for commercial energy metering. The meter is suitable for three phase operation with a wide range of input voltages and is suitable for international use. The SUB3W provides a comprehensive range of power quality information which can be used to diagnose or monitor precise electrical behavior.

Wireless communications, wall mount fittings and internal current clamps make for simple installation.

## FEATURES

- High accuracy meter suitable for residential, commercial and industrial metering purposes
- Manufactured to comply with IEC 60687/61036/61268 and IEC 62053-21/62053-22/62053-23
- Three phase operation up to 240A
- Comprehensive energy measurements including active energy, reactive energy, power factor and RMS voltage / current.
- Wireless operation
- Low power operation
- Simple installation

## TECHNICAL FEATURES

- High accuracy design, AC2.0
- Manufactured to comply with international standards IEC 60687/61036/61268 and IEC 62053-21/62053-22/62053-23
- For each phase, measures active energy, reactive energy, apparent energy, active power, RMS voltage, RMS current, power factor
- Measures temperature and frequency
- Clear LCD to show measured values
- Wide voltage supply range of 110-240VAC

- $I_b=20A$  per phase, maximum 80A per phase

(240A maximum across all phases)

- Wireless operation
- Encrypted communications for secure operation
- Mesh networking for excellent range
- Unique serial number embedded in each device for identification on network

#### APPLICATION AREAS

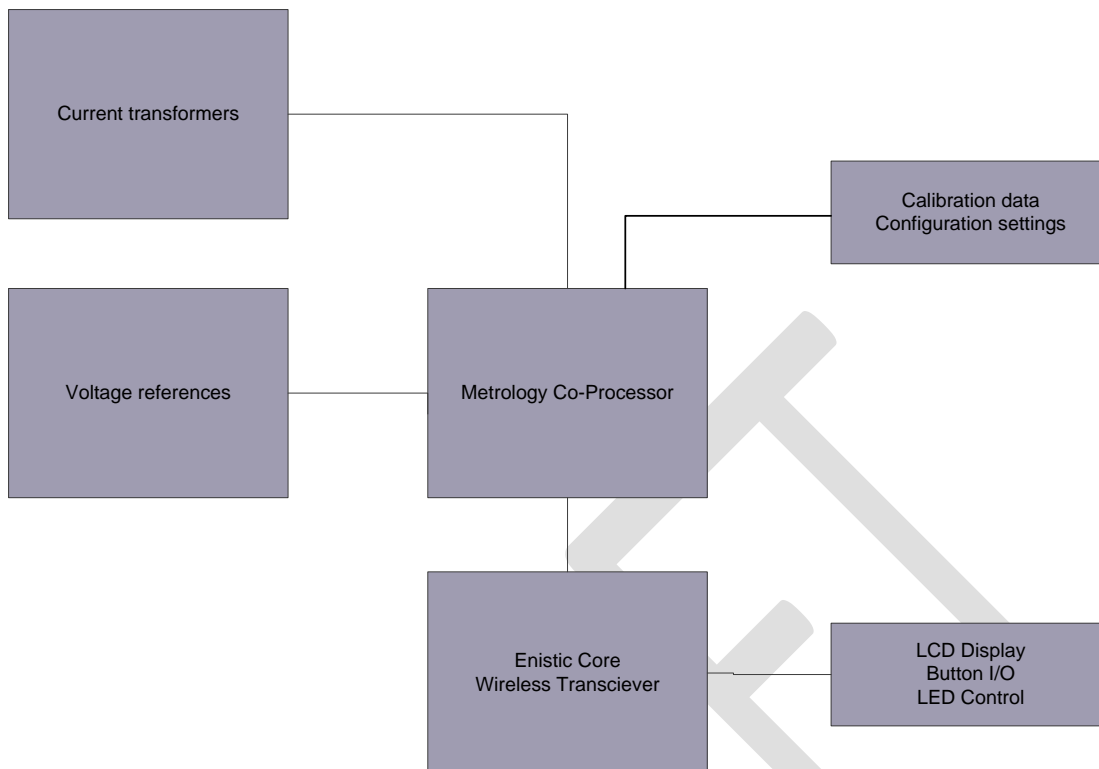
- Metering of incoming feed to offices and commercial buildings
- Metering of individual machines and three phase circuits
- Billing and bill apportionment of commercial tenants
- Analysis of power factor quality



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## HARDWARE ARCHITECTURE

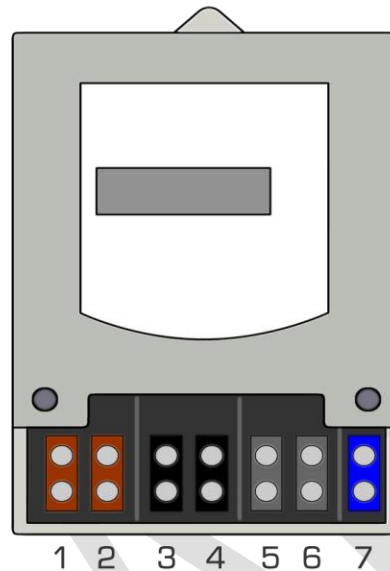


The Fiscal Meter uses one primary processor and an advanced metrology co-processor working concurrently:

1. Enistic Core Wireless Transceiver – responsible for decoding, interpreting and responding to incoming Zigbee Pro wireless messages from other Enistic equipment.
2. Metrology co-processor – The main metrology processor, responsible for the accurate measurement of the electrical characteristics such as active energy usage, re-active energy usage etc.

CONNECTIONS

## Fiscal Smart Meter - Connections



### Connections

- 1 = Phase 1 IN
- 2 = Phase 1 OUT
- 3 = Phase 2 IN
- 4 = Phase 2 OUT
- 5 = Phase 3 IN
- 6 = Phase 3 OUT
- 7 = Neutral



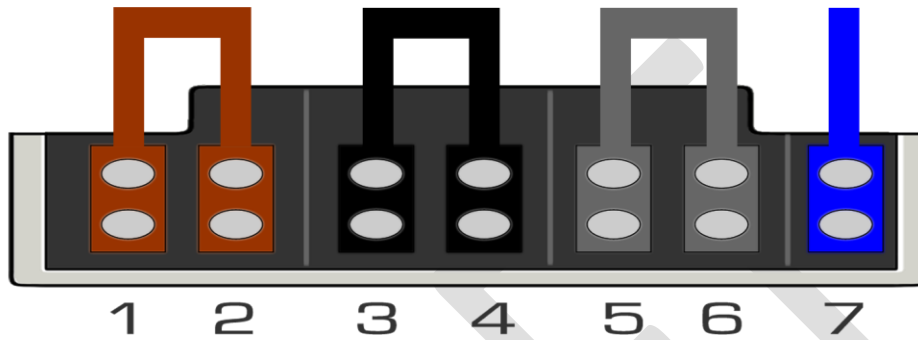
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SCHEMATIC DIAGRAM

### Fiscal Smart Meter - Internal schematic



#### Connections

- |                |                 |
|----------------|-----------------|
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| 3 = Phase 2 IN | 4 = Phase 2 OUT |
| 5 = Phase 3 IN | 6 = Phase 3 OUT |
| 7 = Neutral    |                 |

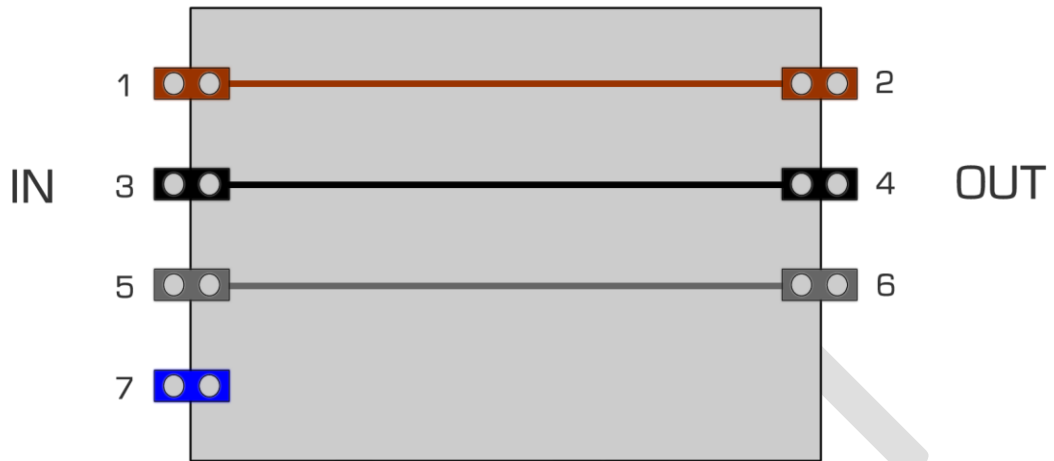


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## Fiscal Smart Meter - Schematic



### Connections

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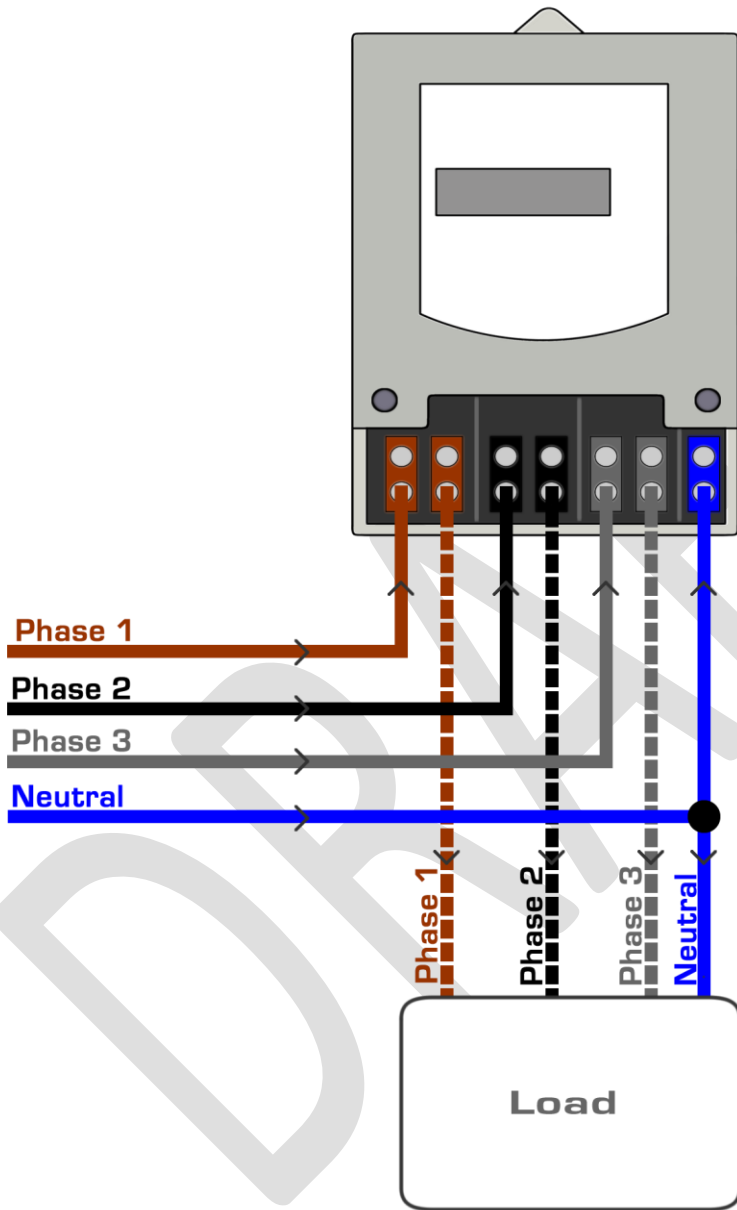
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THREE PHASE WIRING GUIDE

### Fiscal Smart Meter - Three phase wiring schematic



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## OPERATION



The display shows:

kWh The number of kilo watt hours of energy that have been consumed, measured in kWh.

kW The instantaneous power that is being used, measured in kW.

enistic The brand name of the meter

37AF The last four digits if the meter's unique serial number

/ A "spinner" which spins to show correct meter operation

## SPECIFICATIONS

**BBSP-SUB3W****Electrical**

Item	Value	Unit
Power supply	110 - 240 50-60	VAC Hz
Power consumption (typical/max)	0.1 / 0.1	W

**Measurements and metrology**

Item	Value	Unit
Accuracy class	Class AC2.0 / IEC 60044-1 Accuracy class 2 Suitable for billing applications	
Energy	Active energy phases 1/2/3, reactive energy phases 1/2/3 and apparent energy phases 1/2/3	kWh VAh, VARh
Power	Instantaneous active power phases 1/2/3	kW
General metrology	Power factor phases 1/2/3, RMS Voltage phases 1/2/3, RMS current phases 1/2/3, frequency phase 1, temperature (+- 3DegC)	V A Hz, Deg C
Maximum current	180 (3 phases of 60A each)	A
lb	10A / phase	A
Maximum diameter of input wires	9	mm
Nominal reporting interval (kWh)	10	s
Nominal reporting interval (other measurements)	180	s

**Physical**

Item	Value	Unit
Size (l x w x h)	218 x 145 x 68	mm
Fitting	Wall mount	
Weight	1250	g
Storage (min -> max)	-20 to 50	°C
Storage (min -> max)	0 to 60	% rel. hum.
Operation (min -> max)	0 to 75	°C
Operation (min -> max)	0 to 60	% rel. hum.

**Wireless communications**

Item	Value	Unit
Frequency	2.4	GHz
Interferes with WiFi	No	
Standard	IEE 802.15.4 / Zigbee Pro	
Maximum range between mesh nodes	32	m
Maximum nodes per network	> 1,000,000	nodes
Encryption standard	128 bit AES	

**Miscellaneous and standards**

Item	Value	Unit
Standards	CE, EMF, LVD, WEE, ROHS	
Manufactured to comply with	IEC 60687/61036/61268 and IEC 62053-21 IEC 62053-22/62053-23	
Country of origin	UK (Manufactured in UK)	
Packaging	Cardboard box	