

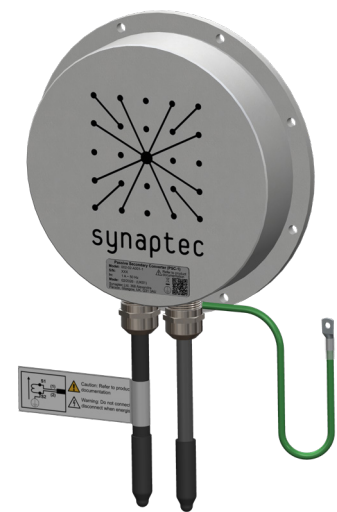
Passive Secondary Converter for Current – Single Phase (PSC-1-C) Gen2

(002-02-A001-1)

The PSC-1-C is Synaptec's passive analogue current sensor for power network applications. It converts Current Transformer (CT) secondary current into an optical signal to be measured, synchronised and digitised over long distances without the need for auxiliary power, data networks or expensive civil works.

Key Points

- Accurate and synchronised measurement of industry-standard CT secondary currents
- Passive operation, requiring minimal supporting infrastructure
- For use over long distances, enabling low-cost instrumentation of power networks
- Type-tested and trusted for continuous, maintenance-free use in harsh outdoor, and hard-to-reach locations
- Compatible with Synaptec Interrogators for centralised measurement, synchronisation and digitisation – and delivery of protection functions and analytics
- Straightforward to install on new or existing circuits



The PSC-1-C uses Synaptec's unique Distributed Electrical Sensing (DES) technology to measure phase or sheath current by converting current from the secondary winding of an industry-standard CT into an optical signal. This signal is transmitted over standard single-mode optical fibre and measured, synchronised and digitised at a central location by a Synaptec Interrogator.

Multiple sensors can be connected in series, with a typical maximum distance of 60 km from the Interrogator to the final PSC-1-C; longer distances can be achieved using an optical amplifier.

The PSC-1-C can be deployed on existing fibre optic infrastructure, such as an optical ground wire (OPGW) on overhead transmission lines or fibres within underground or subsea cable networks. The PSC-1-C does not require auxiliary power, civil works, digital telecoms or local time synchronisation at measurement locations, providing a cost-effective solution for instrumenting new or existing circuits.

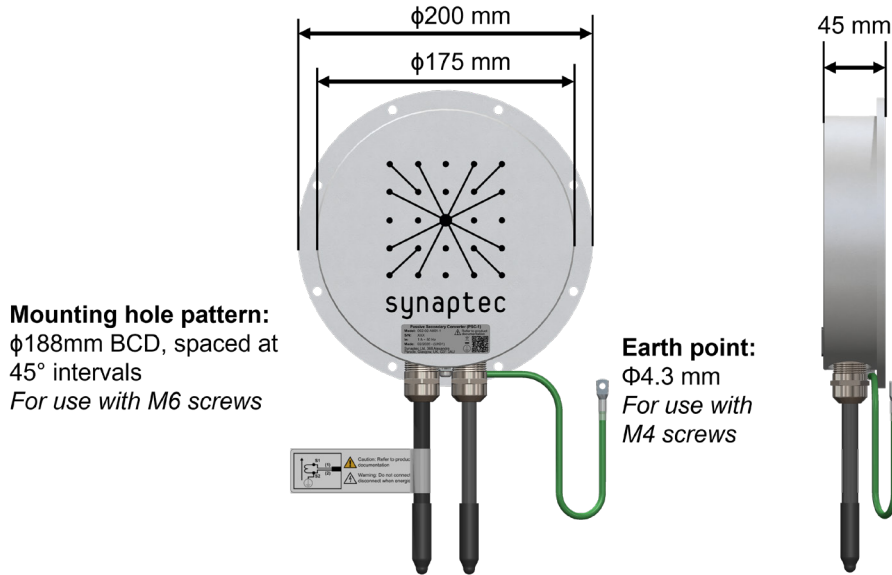
Applications

- Greenlight® for cable condition monitoring
- Mixed Circuit Protection (MCP)
- Line differential protection for complex feeders
- Synchronised waveform monitoring
- Digitalising substations

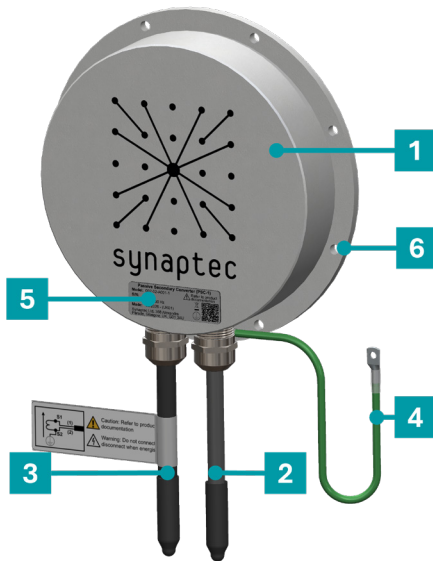
Specifications

Electrical	1A	5A	Notes / Standards
Frequency range	50 or 60 Hz		
Operating principle	Passive optical encoding		Using Synaptec DES Interrogator
Accuracy	1/10TPM class		IEC 61869-13 7.2.6.602.2
Rated continuous current	2.4 A	12 A	ENA TS 48-5
Rated short-time current	6 A for 2 min, 35 A for 10s	30 A, for 2 min	ENA TS 48-5
Dielectric voltage	2.3 kV AC (rms)		BS EN 60255-27 (acc. to ENA TS 48-5)
Impulse voltage	4 kV		BS EN 60255-27 (acc. to ENA TS 48-5)
Cable rating	2 x 2.5mm ² , 0.6/1 kV, special PVC (black), with TCWB shield		
Cable connection	Unterminated		
Minimum cable bend radius	90mm fixed, 180mm unfixed		
Cable outer diameter	11.3mm nominal		
Burden resistance	1 Ω typical	≤ 0.2 Ω typical	Based on project specifications
Optical			
Fibre type	ITU-T G.652.B, G.652.D, G.657.A1, G.657.A2		Based on project specifications
Fibre connection	Single-mode fusion splice		
Environmental			
Ambient temperature	-40 to +50 °C		Other ratings on request
IP protection	IP66, IP68		Submersion in water: 1 m for 1 h
Mechanical			
Dimensions (L×W×H)	215 x 200 x 45 mm		Excluding electrical and fibre cables
Enclosure weight	2.4 kg		Excluding electrical and fibre cables, which are based on project specifications
Mounting	Screw/Bolt		See Figure 1
Vibration	Response and Endurance (Operating): Class 1		BS EN 60255-21-1
Shock	Response and Endurance (Operating): Class 1		BS EN 60255-21-2
Bump	Endurance (Operating): Class 1		BS EN 60255-21-2
Seismic	Response (Operating): Class 1		BS EN 60255-21-3
EMC			
Oscillatory waves immunity	Pass		BS EN 61000-4-18 (acc. to ENA TS 48-5)
ESD immunity	Pass		BS EN 60255-26, clause 7.2.3 (acc. to ENA TS 48-5)
Electrical fast transient/burst immunity	Pass		BS EN 60255-26, clause 7.2.5 (acc. to ENA TS 48-5)
Surge immunity	Pass		BS EN 60255-26, clause 7.2. / BS EN 61000-4-5 (acc. to ENA TS 48-5)
Conducted EM field disturbance	Pass		BS EN 60255-26, clause 7.2.8 (acc. to ENA TS 48-5)
Power frequency mag. field immunity	Pass		BS EN 61000-4-8 (acc. to ENA TS 48-5)
Pulse mag. field immunity	Pass		BS EN 61000-4-9 (acc. to ENA TS 48-5)
Damped oscillatory mag. field immunity	Pass		BS EN 61000-4-10 (acc. to ENA TS 48-5)

Product dimensions



Product overview



Item	Designation
1	Sensor enclosure
2	Fibre optic cable
3	Current transformer secondary connection
4	Earth bonding strap
5	Rating plate
6	Mounting points

Reference note

For installation instructions, laser safety information, end-of-life guidance, and additional technical details, please refer to the Product Manual.



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