synaptec
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Analytics Interrogators Current Voltage Temperature

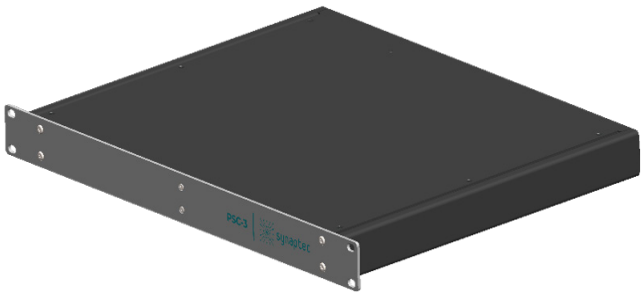
Passive Secondary Converter for Current – Three-Phase (PSC-3-C) Gen2

(003-02-A001-1) & (003-02-A001-2)

The PSC-3-C is Synaptec's passive, three-phase analogue current sensor for power network applications. It converts Current Transformer (CT) secondary currents into optical signals to be measured, synchronised and digitised over long distances without the need for auxiliary power or data networks.

Key Points

- Accurate and synchronised measurement of industry-standard CT secondary currents
- Passive operation, requiring minimal supporting infrastructure
- Suitable for use over long distances, enabling low-cost instrumentation of power networks
- Compatible with Synaptec Interrogators for centralised measurement, synchronisation and digitisation – and delivery of protection functions and analytics
- Straightforward installation within standard 19-inch rack systems



The PSC-3-C uses Synaptec's Distributed Electrical Sensing (DES) technology to measure current by converting signals from the secondary windings of industry-standard CTs into optical signals. These signals are transmitted over standard single-mode optical fibre and are measured, synchronised, and digitised at a central location by a Synaptec Interrogator. The PSC-3-C provides three-phase measurement in a standard rack-mounted 19-inch 1U enclosure and is designed for installation in a substation environment. The PSC-3-C may be mounted adjacent to a DES Interrogator or at a remote location.

Multiple PSC-1-C and PSC-3-C units can be connected in series, with a typical maximum distance of 60 km from the Interrogator to the final sensor; longer distances can be achieved using an optical amplifier.

The PSC-3-C can be deployed on existing fibre optic infrastructure within substations or power networks. It does not require auxiliary power, 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	Three-phase: 2.4 A	Three-phase: 12 A	ENA TS 48-5
Rated short-time current	Three-phase: 6 A for 2 min, 35 A for 10s	Three-phase: 30 A, for 2 min	ENA TS 48-5
Connection to CTs (number)	Three-phase x 2 poles (6 connections)		
Connection to CTs (conductor)	Option 1: Rigid (0.5 to 4mm2) Option 2: Stranded+ferrule (0.5 to 4mm2)		(003-02-A001-1) – Enclosed Terminal
	For use with an insulated ring terminal – ID: 3.5mm min., OD: 8mm max.		(003-02-A001-2) – Barrier Terminal
Burden resistance	1 Ω typical	≤ 0.2 Ω typical	Based on project specifications
Optical			
Fibre type	ITU-T G.652.D, G.657.A1		Based on project specifications
Fibre connection	Shuttered Duplex SC-APC Connector		For use with an SC/APC patch cable
Environmental			
Operating temperature	-10 to 50 °C		Other ratings on request
Storage temperature	-25 to 50 °C		
IP protection	IP20[1]		(003-02-A001-1) – Enclosed Terminal
	IP10		(003-02-A001-2) – Barrier Terminal
Mechanical			
Dimensions (L×W×H)	482.6 x 368 x 43.6 mm (19” x 1U)		IEC 60297-3-100
Weight	4.3 kg		
Mounting	Standard 19” rackmount		Requires installation on a rack shelf

[1]Rating based on Synaptec’s assessment, considering recommended usage and conductor preparation.

Design and qualification note

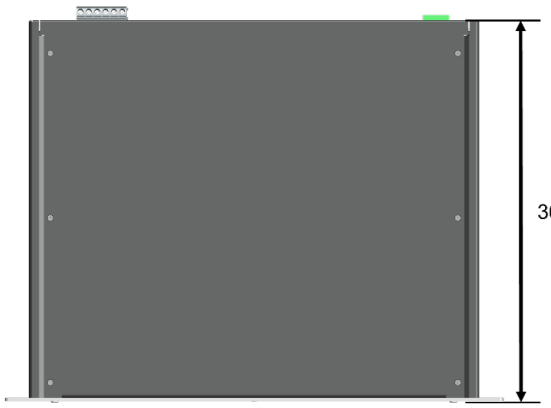
The PSC-3-C integrates the same core technology used in the PSC-1-C Gen2, which has undergone type testing to outdoor-grade standards. Relevant PSC 1 C test reports are available. Further PSC-3-C testing can be arranged on request.

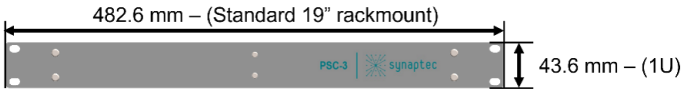
Product dimensions

Mounting:
19in Rack x 1U
For use with M6 screws

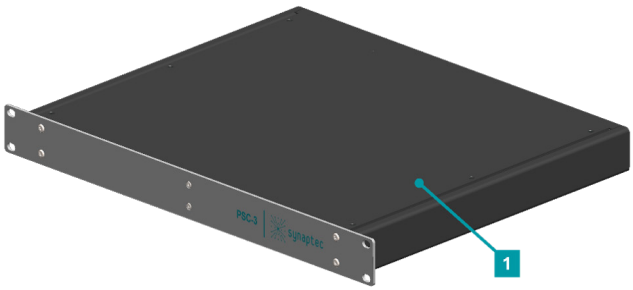
Support:
Requires Installation on a rack shelf

Ventilation:
No clearance required above or below the unit





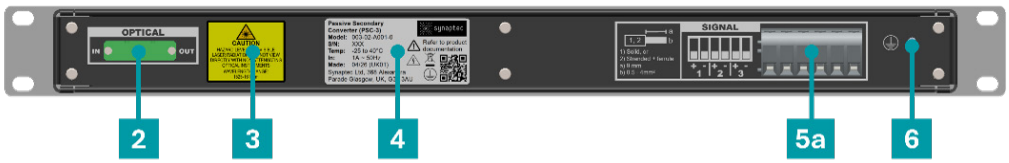
Product overview & variants



Item	Designation
1	19" x 1U Rack-mounted Enclosure
2	Shuttered Duplex SC-APC Connector
3	Laser Safety Label per IEC 60825-2
4	Rating Plate
5a	CT Terminal Block - Enclosed Terminal
5b	CT Terminal Block - Barrier Terminal
6	M4 Earth Stud – For use with M4 ring terminal

The PSC-3-C is available with two different electrical connection variants (5a and 5b):

(003-02-A001-1) – Enclosed Terminal Variant



(003-02-A001-2) – Barrier Terminal Variant

Reference note

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