



PC12

Primary Digital Converter

High-voltage designs increasingly incorporate Intelligent Electronic Devices (IEDs) - making smart substations a reality. In the digital chain for voltage and current measurement, the PC12 converter uses the latest technologies to convert analog signals into digital data which is transmitted to the merging unit and ultimately to the protection relays and control room.

High-Tech Converter

The digitisation of signal outputs from Low Power Instrument Transformers (LPIT) is crucial and requires state-of-the-art electronics using high-performance components.

The PC12 is a smart converter providing high performance and reliability. It is based on a digital conversion unit and a digital core (FPGA: Field Programmable Gate Array) for signal treatment, management and communication. An analog condition circuit, digital filters and integrator provide low noise, high linearity and high bandwidth to the converter.

Compatible with all GIS Types

With a rugged and compact design, compliant with all GIS layouts, the PC12 can be easily integrated with the whole GE GIS range. The 3-phase design means that only one converter is required for a 3-phase measurement point. This design is particularly adapted to harsh environments where Electromagnetic Compatibility (EMC) can be a problem, as it is the case in most HV substations.

Key Benefits

- Reliable substation protection
- High performance and rugged
- Easy calibration and maintenance
- 3-phase compact design for voltage levels up to 1100 kV
- Communication standards IEC 61869-1, -6, -7, -8, -9

Technical Characteristics

- Rated supply voltage
48 VDC (proprietary input)
connected to PC1 power supply
(48 - 350 VDC / 100 - 240 VAC)
Power cons. ~ 5 W @ 20°C
- Ambient temperature: -40°C up to 80°C
- Protection index: IP64, as per IEC standard
- Case material: Stainless steel
- EMC immunity standards
IEC 61000-4-2,4,5,8,16 Level 4
IEC 61000-4-3,6,17 Level 3
- Emissions standard: EN55022 Class A
- Communication standards
IEC 61869 -1, -6, -7, -8, -9



Easy to Maintain

Thanks to its modular concept, the replacement of a PC12 module is as simple as an off-the-shelf replacement.

Calibration values for sensors are included in the sensors themselves and pre-stored in an EEPROM memory unit before leaving the factory.

If a PC12 needs to be replaced, as soon as the new sensor is plugged in, the calibration values are automatically swapped to PC12 internal memory.

Ratings

| Module type | | PC12-3U 3 x CEVT* | PC12-3I 3 x RECT* |
|--|---------------|---|----------------------|
| Rated voltage | kV | Up to 1100 | - |
| Rated current | kA | - | Up to 200 |
| Delay time | µs | < 500 | < 500 |
| Sample values output rate: | | | |
| - Protection channel | kSps | 4.8 ¹ / 4 ² / 5.76 ² | |
| - Metering channel | kSps | 4.8 ¹ / 4 ² / 5.76 ² | |
| - Qualimetry channel | kSps | 14.4 ¹ / 12.8 / 15.36 ² | |
| FFT Analysis Harmonics (qualimetry channel only) | Harmonic rank | 100 | 100 |
| Frequency domain (sensor input) | Hz | 0-10K | 0-10K |
| A/D converters | Qty | 2 | 2 |
| Internal references | Qty | 3 (1 at 0.02 %) | 4/20 mA, RDT100 |
| Auxiliary Channels | Type | 4/20 mA, RDT100 | |
| MTBF (acc. To MIL-HDBK-217F) | Hours | 175 000 | 175 000 |

*CEVT : Capacitive Electronic Voltage Transformer,

*RECT : Rogowski Electronic Current Transformer

1: Legacy, 2: Deprecated.

Several Communication Rates

High speed electronics allow the simultaneous transmission of protection, metering and qualimetry sample value outputs according to the IEC 61850-9.2 / IEC 61869 standards.

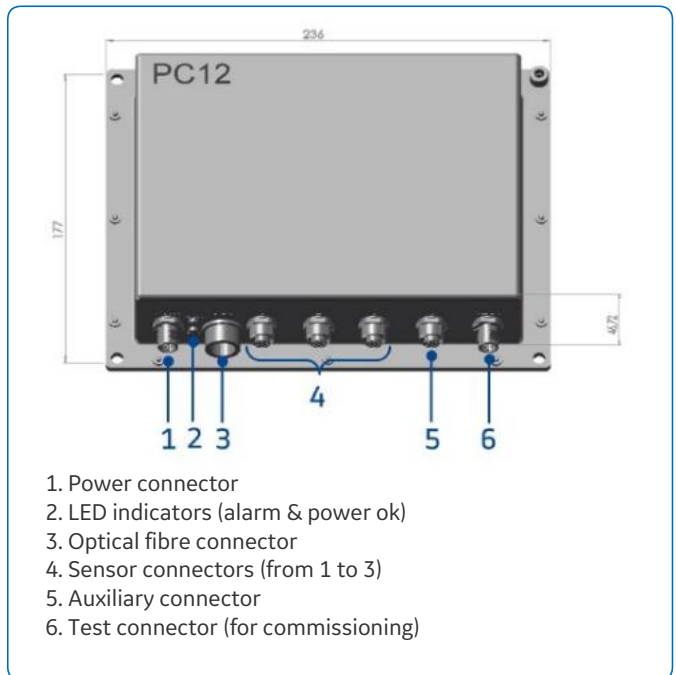
The design meets Smart Grid requirements up to harmonic 100 on the qualimetry channel.

Important note:

This product may not be sold on its own.

It must always be integrated in a global Low Power Instrument Transformers (DIT) solution.

PC12 Connectors



1. Power connector
2. LED indicators (alarm & power ok)
3. Optical fibre connector
4. Sensor connectors (from 1 to 3)
5. Auxiliary connector
6. Test connector (for commissioning)

For more information please contact
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Imagination at work