GLE/RTD100-1 Resistance Temperature Detector conditioner

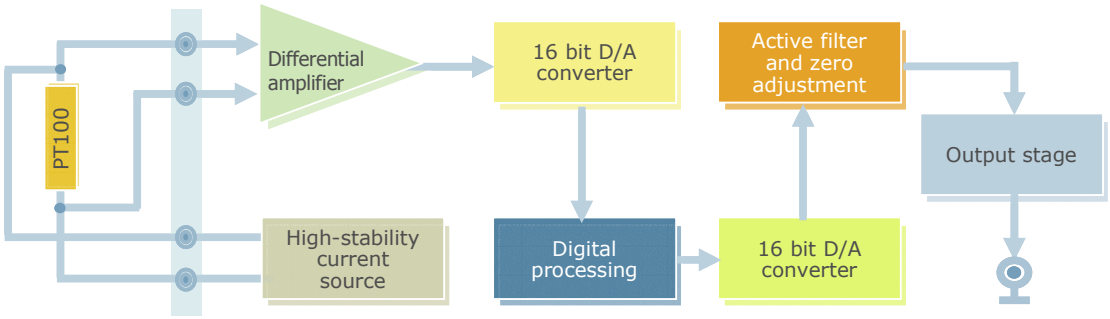
- Single-channel conditioner board for RTD-PT100 sensors
- Input range selectable: ±100; ±200; -200/+400 and -200/+800 °C
- Real-time signal linearization
- Up to 4 different linearization curves
- 16 bit A/D-D/A conversion
- Sampling rate 50 Samples/sec
- Analog output voltage ±10V and/or current 4-20 mA
- Internal auto-calibration

Overview

GreenLake Engineering GLE/RTD100-1 is a single-channel conditioning module for RTD sensors particularly suitable for all those applications requiring stable and accurate temperature measurements. Each module is pluggable into the 19" 3U rack mountable chassis GLE/EuroRack/AC that can host up to 12 GLE/RTD100-1 cards and it accepts AC 230 V as input power supply.
Each GLE/RTD100-1 board encompasses a μC for the management of the A/D conversion, the full-scale selection, the on-line signal linearization and the auto-calibration procedure. In order to achieve better accuracy, it is possible to define one of four different measurement ranges: ±100; ±200; -200/+400 and -200/+800 °C. Selection is obtainable by means of switch on the card's front panel. In the standard version the GLE/RTD100-1 module features three different algorithms for sensor linearization (polynomial method), according to the specifications reported in the table below:

Standard	α coefficient
DIN	0.003850
ITS-90	0.003926
American standard	0.003911

16-bits resolution guarantees highly accurate analog/digital and digital/analog conversions respectively before and after signal processing.



GLE/RTD100-1 block diagram

Sensor excitation can be performed through a high-stable constant current enabling a voltage signal proportional to measured temperature. In order to improve the overall accuracy and keep the measurement independent from cables' length, connection between module and transducer foresees four wires (two for signal and two for sensor excitation).
GLE/RTD100-1 is capable to perform offset and span calibration automatically switching-on the unit or manually fine adjusting values via trim pots placed on the front panel. Two auxiliary ferules on front panel allow real time view to facilitate set-up procedure.
Output can be either voltage (±10V) and current (4÷20 mA), the latter available as option.
The connection with sensors is accomplished by using removable screw terminal blocks, while outputs are available either through BNC and screw terminal blocks on the rear panel of GLE/EuroRack/AC.

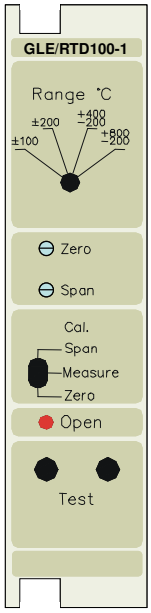
Technical Specifications- GLE/RTD100-1

Transducer type	PT100
Sensor wiring	4 wires: 2 for excitation, 2 for signal
Excitation	High-stable (10 ppm/°C) current (0.5 mA)
Sample rate	50 Samples/sec
Output refresh	50 Samples/sec
RTD linearization curve options	• DIN α=0.00385 • ITS-90 α=0.003926 • American standard α=0.003911
Linearization curve selection	Through on-board jumpers
Signal to noise ratio	90 dB
Overall linearity	0.1%
Zero stability	20 ppm
Auto-calibration	Internal by means of high-precision reference resistor (±0.01%; ±5ppm)
Manual zero and span calibration	by trimpots on front panel
Measurement range	±100; ±200; -200/+400 and -200/+800 °C
Measurement range selection	by switch on front panel
"Test" output	Ferules on front panel
Output dynamic	±10 V
Options	**Ordering code**
Current output signal (4÷20 mA)	GLE/RTD100-1/OC

GLE/EuroRack/AC

Rack type	19" 3U standard chassis
Maximum number of housed boards	12
Power supply	230 VAC, 50 Hz ±10%
Power consumption	< 30 W (fully equipped with 12 GLE/RTD100-1 boards)
Operating temperature range	0 ÷ +40°C
Input connectors	Removable screw terminals
Output connectors	Removable screw terminals and BNCs
Protection fuse	T 2A 250 V
Weight	8 kg (fully equipped with 12 GLE/RTD100-1 boards)

Due to continuous developments specifications subject to change without prior notice.



GLE/RTD100-1 front panel

GLE/RTD100-1 Ver1.0 RevA Apr04

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