

Yokogawa ER5*C

RTD Input Signal Conditioner Card

Product scope

- Accepts three-wire Pt100, JPt100 or Pt50 resistance sensors.
- Produces two standardized 1 to 5 V DC output channels.
- Separates the field input from output, power and ground circuits.

Manufacturer source

Exact-model technical record

Verified model-specific overview, function, operating principle, applications and technical data.

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Yokogawa ER5°C

RTD Input Signal Conditioner Card

Product overview

Yokogawa ER5°C is a three-wire RTD input conditioner for Pt100, JPt100 and Pt50 sensors. It converts the selected resistance range into two isolated 1 to 5 V DC outputs for CENTUM signal-processing assemblies.

ER5°C excites a three-wire resistance thermometer with 1 mA and linearizes the selected Pt100, JPt100 or Pt50 range. The card provides two 1 to 5 V DC outputs for parallel monitoring or control use.

Its role is to turn low-level resistance changes from process temperature sensors into standardized voltage signals. Input, output, power and ground are isolated so the channel can be integrated without directly joining field and system potentials.

The sensor standard, temperature span and three-wire lead arrangement must match the range setting. Lead resistance and terminal continuity should be checked before calibration because they directly affect an RTD measurement chain.

Technical specifications

Input sensor	Three-wire RTD
Excitation current	1 mA
Supported elements	Pt100, JPt100 and Pt50
Output signal	1 to 5 V DC, two outputs
Isolation	Input/output/power/ground isolated
Supply voltage	24 V DC $\pm 10\%$
Maximum current consumption	60 mA
Operating temperature	0 to 50 °C
Relative humidity	5 to 90% RH, non-condensing
Width	73 mm
Height	24 mm
Depth	115 mm including knob
Mass	Approximately 70 g
Style code	C

ER5°C function and operating principle

Ordered configuration

The C-style card is configured for resistance-temperature measurement rather than millivolt or current input.

System role

It excites, linearizes and isolates the RTD signal before delivering system-level voltage outputs.

Selection and installation

Sensor curve, span links and lead compensation must be verified against the installed element.

Functional path

- Accepts three-wire Pt100, JPt100 or Pt50 resistance sensors.
- Produces two standardized 1 to 5 V DC output channels.
- Separates the field input from output, power and ground circuits.

Application scenarios

- Temperature loops from vessels, bearings and heat exchangers can be standardized for CENTUM input processing.
- Dual outputs allow the conditioned value to serve separate monitoring and control destinations.
- Legacy panels can retain existing RTD field wiring when the exact card style and range arrangement are preserved.

ER5°C engineering checks

Temperature Range

- Selectable ranges cover the supported Pt100, JPt100 and Pt50 sensing elements.
- Ambient operation is specified from 0 to 50 °C for the installed card.
- Range selection must follow the actual sensor curve and required process span.

Interoperability

- The RTD input is isolated from the two voltage outputs.
- Power and ground separation reduces unwanted current paths through the measurement loop.
- Isolation does not replace correct shielding and cabinet grounding practices.

Performance

- A known resistance source can verify the configured temperature span.
- Three-wire lead continuity should be confirmed before zero and span checks.
- Both 1 to 5 V outputs should track the same simulated RTD points.

Critical technical note

Wire Yokogawa ER5°C only for the selected three-wire RTD standard; a mismatched Pt curve or lead arrangement produces systematic temperature error.

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