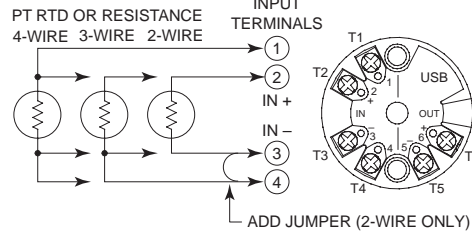


Transmitters: ST130 Series

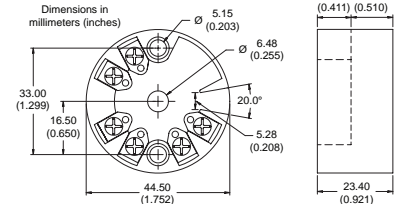
ST131 RTD input head-mount transmitter



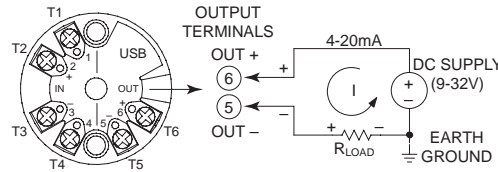
INPUT CONNECTIONS



DIMENSIONS



OUTPUT CONNECTIONS



100 ohm Pt RTD or 0-900 ohm input ◆ 4-20mA output ◆ Loop-powered, 9-32V DC

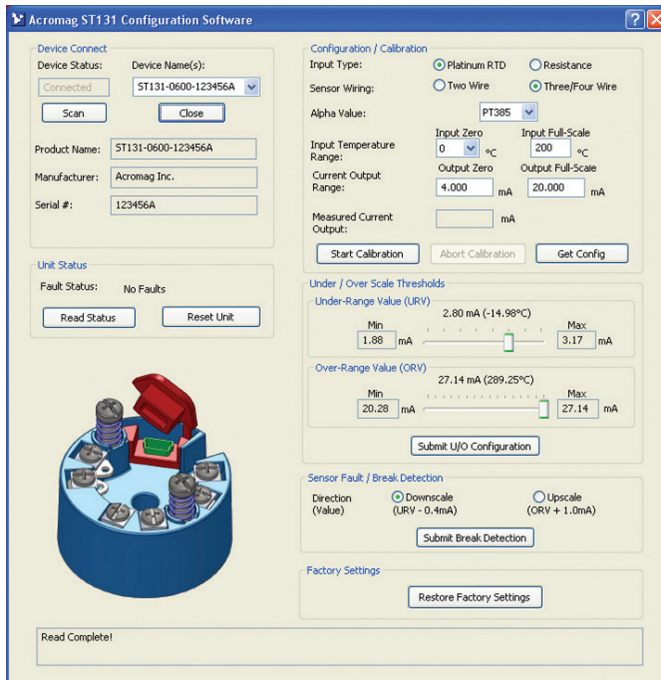
Description

The ST131 is a low-cost two-wire transmitter that converts a 100 ohm Platinum RTD sensor input to a proportional 4-20mA signal. Power is received from the output loop current. The transmitter provides sensor excitation and includes linearization, lead-wire compensation, and lead-break detection functions. Setup and calibration are fast and easy with a convenient USB connection to your PC and Acromag's Windows configuration software.

Advanced signal processing capabilities, variable range input, and convenient USB programming make this instrument a very versatile temperature transmitter for RTD and resistance elements. These transmitters are designed to withstand harsh industrial environments and operate reliably across a wide temperature range with very low drift. They feature RFI, EMI, ESD, EFT, and surge protection plus low radiated emissions.

Key Features & Benefits

- Easy setup and digital calibration via USB with Windows configuration software
- Flexible RTD or linear resistance input ranges
- Supports any 100 ohm Pt RTD (375-393 alpha)
- High accuracy and linearity
- Advanced analog signal conditioning ASIC eliminates digitization errors
- Low temperature drift
- Fast response time (< 500µs)
- Programmable over/under-range limits
- Selectable upscale or downscale operation for sensor errors and lead-break detection
- NAMUR NE43 compliant fault response
- Reverse polarity protected with non-polarized output
- Mounts in DIN Form B sensor heads
- Optional DIN rail adapter
- Wide ambient operation (-40 to 80°C)
- Hardened for harsh environments
- CE Compliant. UL/cUL Class 1 Div 2 Zone 2 approvals. ATEX / IECEx Zone 2.



ST130 Series Transmitter Configuration Software is downloadable (FREE) from www.acromag.com.



Tel 877-214-6267 ■ sales@acromag.com ■ www.acromag.com ■ 30765 Wixom Rd, Wixom, MI 48393 USA

Transmitters: ST130 Series

ST131 RTD input head-mount transmitter

Performance Specifications

IMPORTANT: To prevent damage or errors from grounded PCs and surges, Acromag strongly recommends use of the USB-ISOLATOR when configuring an ST130 transmitter.

■ USB Interface

USB Connector

USB Mini-B type socket, 5-pin.

USB Data Rate

12Mbps. USB v1.1 and 2.0 compatible.

USB Transient Protection

Transient voltage suppression on power and data lines.

USB Cable Length

5.0 meters maximum.

Driver

Not required. Uses built-in Human Interface Device (HID) USB drivers of the Windows operating system.

■ Input

Input Configuration

Two-, three- or four-wire sensor input connections.

Input Ranges

100 ohm Platinum RTD, alpha = 375-393, 385 (default), -50 to 900°C (-58 to 1652°F).

0 to 900 ohms linear resistance.

Programs in °C or ohmic integers only.

Zero Adjust

RTD 3/4 wire: -50, -17.78, or 0°C (-58, 0, 32°F).

RTD 2 wire: 0°C (32°F) fixed.

RES: 0 or 100 ohms.

Full-Scale Adjust

RTD: up to 900°C (1652°F), 50°C (58°F) span minimum.

Resistance: up to 900 ohms, 8 ohm span minimum.

Excitation Current

0.5mA, nominal.

Lead-Wire Compensation

25 ohms per lead.

Lead Break (Sensor Burnout) Detection

Configurable for either upscale or downscale.

■ Output

Output Range

4 to 20mA DC.

Under-scale limit adjustable for 2.1 to 3.6mA, nominal.

Over-scale limit adjustable for 21 to 30mA, nominal.

Output Fault Limits (Sensor Fault)

0.4mA below selected under-scale threshold and

1.0mA above over-scale threshold, typical.

Output Compliance

$R_{LOAD} = (V_{SUPPLY} - 9V) / 0.02A$.

$R_{LOAD} = 0$ to 750 ohms @ 24V DC.

Output Accuracy

Better than $\pm 0.1\%$ of span, typical for spans less than 500°C. Includes the effects of repeatability, terminal point conformity, and linearization, but does not include sensor error.

Ambient Temperature Effect

Better than $\pm 0.010\%$ per °C of input span or $\pm 80\text{ppm}/^\circ\text{C}$, typical. Includes the combined effects of zero and span drift over temperature.

Output Response Time

500 μs , typical with 250 ohm load.

■ Environmental

Operating temperature

-40 to 80°C (-40° to 176°F).

Storage temperature

-40 to 85°C (-40 to 185°F).

Relative humidity

5 to 95% non-condensing.

Power Requirement

9-32V DC SELV (Safety Extra Low Voltage), 28mA max.

Isolation

Not isolated.

Shock and Vibration Immunity

Vibration: 5g, per IEC 60068-2-64.

Shock: 50g, per IEC 60068-2-27.

Radiated Emissions

BS EN 61000-6-4, CISPR 16.

Radiated Field Immunity (RFI)

BS EN 61000-6-2, IEC 61000-4-3.

Conducted RF Immunity (CRFI)

BS EN 61000-6-2, IEC 61000-4-6.

Electrostatic Discharge (ESD)

BS EN 61000-6-2, IEC 61000-4-2.

Electrical Fast Transient (EFT)

BS EN 61000-6-2, IEC 61000-4-4.

Surge Immunity

BS EN 61000-6-2, IEC 61000-4-5.

Approvals

CE compliant. UL/cUL listings. ATEX / IECEx Zone 2.

Designed for Class I; Division 2; Groups ABCD; Zone 2.

■ Physical

General

General purpose enclosure with potted circuit designed for mounting in DIN Form B connection heads.

DIN-Rail Mounting

Using optional ST130-DIN adapter, unit can mount to 35x15mm, T-type or G-type DIN rails.

Case Material

Self-extinguishing polycarbonate ABS plastic, UL94 V-0 rated base material. USB dust cap material is Santoprene, 251-70W232.

Printed Circuit Board

Military grade fire-retardant epoxy glass per IPC-4101/98 with humi-seal conformal coating.

I/O Connectors

Barrier strip type, captive screw terminals.

Wire range: AWG #14-28 solid or stranded.

Dimensions

Diameter = 44.5mm (1.752 inches),

Height = 23.4mm (0.921 inches).

Conforms to DIN 43 729 Form B size requirements.

Shipping Weight

0.5 pounds (0.22 Kg) packed.

Ordering Information

Models

ST131-0600

Transmitter, 100 ohm Pt RTD input, CE Compliant.

Default calibration: Pt385 RTD, 3-wire, 0-200°C input, 4-20mA output, upscale fault detect.

ST131-0610

Same as ST131-0600 plus UL/cUL Class 1 Div 2 Zone 2 approval and ATEX Certified.

If mounting screws are required, order one ST130-MTG with each unit.

Services

ST13x-Config/Cal

Factory custom configuration/calibration service.

Specify input type, input/output zero and full-scale values, filtering, and sensor fault settings on order.

Software

ST13C-SIP

Software Interface Package. Includes configuration software (ST130-CONFIG), isolator (USB-Isolator) and two USB cables (Part # 4001-112, 4001-113) for Acromag ST130 Series head-mount transmitters.

One (1) kit recommended per customer.

Accessories

Connection Head Enclosures

See Bulletin 8400-630 or www.acromag.com for info.

ST130-DIN

DIN-rail adapter.

ST130-MTG

Replacement mounting kit (screws and relief springs) for installing ST130 transmitter in a DIN Form B connection head.

USB-ISOLATOR

USB-to-USB isolator, includes USB cable (4001-112).

Acromag 
THE LEADER IN INDUSTRIAL I/O

ISO9001 
AS9100 **MADE IN USA**

Tel 877-214-6267 ■ sales@acromag.com ■ www.acromag.com ■ 30765 Wixom Rd, Wixom, MI 48393 USA