Javelin

USB Programmable Transmitter

The Javelin is a loop powered, isolated transmitter, with 4–20mA output and flexible input options to suit a virtually endless range of industries.

High quality signal conditioning is a popular application. The Javelin accepts input signals from sensors such as thermocouples, RTD's, and potentiometers, and converts them to an industry standard 4–20mA output signal, where they can then be processed by PLC's and other instruments.

The Javelin can also be used to convert other standard process signals (such as ±10V, 1–5V, and 0–10V) to 4-20mA, or as a simple 4–20mA in/out isolator to protect inputs of PLC's and SCADA systems from ground loops, transients, and the effects of EMC.

- **2-wire isolated universal input**
  Accepts mA, V, mV, RTD, NTC, TC and potentiometer signals
- **4–20mA current loop output**
- **Hassle-free DIN-rail mounting** Slim 12.5mm case

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ToolBox software enables fast, USB powered setup!

- **Easily select your input/output type and range**
  Using our reusable USB Bridge Key and simple software (defineinstruments.com/toolbox)
- **No power supply or input signal required during USB programming**
- **Scale your unit without recalibrating**
- **View live data** To confirm that your setup is correct (ideal for commissioning!)
- **Save and load configuration settings**
- **Flexible linearization tables**
  For sophisticated applications

General specifications

Universal 2-wire isolated input (See p2)

Output 4–20mA or 20–4mA (loop powered)

Resolution 1µA

Output load resistance 650Ω at 24V DC (50Ω/V above 10.5V DC)

Max output current Limited to <28mA

Isolation test voltages between input/output 2500V AC for 1min

Accurate to <±0.03% FSO typical

Ambient drift <±0.003%/°C FSO typical

Response time 400msec typical (10–90% 300msec typical)

Power supply 10.5–36V DC

Supply voltage sensitivity < ±0.005%/V FSO

USB programming

Simple software programming Connect using the Bridge Key (sold separately). Program in less than a minute using Define ToolBox.
defineinstruments.com/toolbox

Construction

35mm DIN rail mount casing Installation Category II; Pollution Degree 2; Flame resistant. IP20

Dimensions (H x W x D) 90 x 12.5 x 112mm (3.54 x 0.49 x 4.41")

Single unit weight 77g (2.7oz)

Status LED Indicates startup mode, normal operation, sensor break or fault.

Environmental conditions

Operating temperature -20 to 55°C (-4 to 131°F)

Storage temperature -20 to 65°C (-4 to 149°F)

Operating humidity 5–85%RH max (non-condensing)

Altitude 2000m (6561ft)

Compliances

IP20 enclosure rating

EMC compliance Emissions (EN 61326). Immunity (EN 61326). Safety (EN 61010-1).

UL Listed File Number E473114

Thermocouple input

Thermocouple types

K	−200–+1260°C	(−328–+2300°F)
J	−200–1000°C	(−328–+1832°F)
B	400–+1800°C	(+752–+3272°F)
E	−200–+700°C	(−328–+1292°F)
N	−200–+1300°C	(−328–+2372°F)
R	0–+1700°C	(+32–+3092°F)
S	0–+1700°C	(+32–+3092°F)
T	−200–+400°C	(−328–+752°F)

Input impedance >500KΩ min

TC lead resistance 100Ω max

Cold junction comp. −10–+60°C (+14–+140°F)

CJC drift <0.02°C/C typical for all inputs

Accuracy 0.1% of FSO±1°C typical

Sensor open Upscale/Down-scale (software programmable)

RTD input

RTD types PT100 (3-wire RTD DIN 43760:1980) or PT1000 (3-wire RTD standard)

Calibrated range −200–+850°C (−328–+1562°F), 0.1°C res

Lead resistance 10Ω/lead max recommended

Sensor current 0.15mA continuous

Sensor open Upscale/Down-scale (software programmable)

Accuracy 0–300°C= ±0.15°C; <0°C or >300°C= ±0.3°C

Ambient drift 0.003°C/C typical

NTC input

NTC -40 to 125°C (various thermistors)

Sensor types
10K Beta 3984/3435
10K Beta 3691 (type 3 thermistor)

Response time 100msec

Accuracy Better than 0.4°C

Temperature drift <50ppm/°C

mA input

Range 0/4–20mA

Input resistance 10Ω

Linearity & repeatability 0.1% FSO max

Accuracy 0.1% FSO max

Ambient drift <50ppm/°C of FS input

Response 400msec

Voltage input

mV ranges ±200mV, -100mV to 1V

V ranges 0–10V, ±10V, 0–50V DC

Input impedance >500KΩ on all ranges

Accuracy 0.1% FSO max

Linearity & repeatability 0.05% FSO max

Ambient drift <50ppm/°C of FS input

Potentiometer input

Potentiometer input 3-wire

Potentiometer resistance Low range (<2KΩ)

Excitation voltage Variable

Field prog zero 0–90% of span

Field prog span 0.1–100%

Linearity & repeatability <±0.05% FSO typical

Response time 400msec

Temperature drift <50ppm/°C

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