

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  $\pm 10V$ , 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, TC and potentiometer signals
- › **4–20mA current loop output**
- › **Hassle-free DIN-rail mounting** Slim 12.5mm case



### 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](http://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** 1 $\mu$ A

**Output load resistance** 650 $\Omega$  at 24V DC  
(50 $\Omega$ /V above 10.5V DC)

**Max output current** Limited to <28mA

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

**Accurate to**  $\leq \pm 0.03\%$  FSO typical

**Ambient drift**  $\leq \pm 0.003\%$ /°C FSO typical

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

**Power supply** 10.5–36V DC

**Supply voltage sensitivity**  $< \pm 0.005\%$ /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](http://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).

## 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

## 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) or High range (<1MΩ)

**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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