

ACTIONI/Q[®] Q510 MODEL



Benefits

- Multi-Channel Design
Provides Two(2) or
Four(4) Two-wire Trans-
mitters in 1 Package
- High Density DIN Rail
Mounting
- SnapLoc, Plug-In, Screw
Terminals for Low MTTR
- Output Linear to Input
Temperature
- Standard Input Ranges for
the Most Popular Applica-
tions
- Output Loop Powered
from 10 to 35VDC
- Three Year Warranty



Multi-Channel, RTD Input, Two-Wire Transmitter

Provides 2 or 4 Current Loop (4-20mA) Output(s) in Proportion to the PT100Ω RTD Inputs

DESCRIPTION

The ActionI/Q model Q510 is a DIN rail mount, RTD Input, dual (2) or quad (4) channel two-wire transmitter. Each channel accepts an RTD input and provides a output loop powered 4-20mA signal, linear to the RTD temperature input. Each channel is an independent transmitter, having 600VDC channel to channel isolation.

All ActionI/Q modules feature SnapLoc, plug-in, screw terminals for easy installation and low Mean-Time-To-Repair (MTTR). If desired, two or more modules can slide together and interlock for solid, high density mounting. This is accomplished by removing either the foot, or the adjacent unit's face plate, for right-hand side or left-hand side mounting, respectively. The module to be attached will easily slide on to the side of the mounted unit.

APPLICATION

RTD input, two-wire transmitters are used to convert a specific temperature range into a regulated 4-20mA signal. Two-wire transmitters are primarily used in remote locations near the sensor since they reduce the probability of signal errors and save wiring costs by utilizing the two power wires to send the 4-20mA signal. The current signal is usually sensed by a control system or displayed for an operator.

Typically, several RTDs are used to measure temperatures in a vessel or cell. The lead wires can run a short distance to a panel, or farther with the use of shielded wire, without errors caused by noise or lead resistance in the wires. These sensor wires are then terminated at the two-wire transmitter and converted into a 4-20mA signal which is highly immune to noise and not affected by lead resistance, both of which can cause significant errors in voltage signals transmitted over long distances.

OPERATION

The ActionI/Q model Q510 operates as a two-wire transmitter; each channel derives its power from a (10-35VDC) source connected in series with the 4-20mA output loop. Typically a 24VDC source is used, allowing 14VDC (700W @ 20mA) or less for other devices connected in series, in the current loop. The outputs of the Q510



*Protecting the
Integrity of
Industrial
Process Signals*



are protected from reverse polarity. Zero and span pots are provided for each channel to calibrate the output to the input RTD.

The Q510 provides either a dual (2) channel or quad (4) channel, RTD to current, two-wire transmitters in one package. Standard input temperature ranges (see Table 1) are calibrated to rated accuracy. One range per module; two or four channels per module.

CALIBRATION

1. Connect the input to a calibrated three-wire resistance source (not a resistance simulator).

Connect the output in series to a voltage source capable of supplying at least 20mA and a milliamp current meter.

2. Set the calibrator to the specified minimum temperature resistance value and adjust the zero potentiometer for 4mA output.

Note: The voltage source (Vs) connected to the output must be sufficient to accommodate all other device loads (RL) in the current loop. $V_s \geq 10V + 0.02 \times R_L$

3. Set the calibrator to the specified maximum

temperature resistance value and adjust the span potentiometer for 20mA output.

4. Repeat steps 2 and 3, as necessary, to validate calibration.

ASSISTANCE

For additional information on calibration, operation and installation please contact our Technical Services Group. Call toll-free:

800-783-6664

SPECIFICATIONS

Input	Type: Accepts two or four, three-wire Pt100 RTDs (a:0.00385Ω/Ω/°C) Ranges: see Table 1
Input Excitation	0.8mA, typical, each channel
Input Leadwire Effect	<1% of full scale output, max. (@40Ω max./ lead)
Output Range	4-20mA
Supply Voltage Range	10 to 35VDC, each channel
Output Accuracy	≤ 0.1% of full-scale input typical, ≤0.4% maximum, including linearity, repeatability and hysteresis
Adjustability	Front accessed 10 turn, ±2% of span for zero and span, typical.
Stability	≤ 0.025%/°C of full-scale maximum for full-scale and zero

ESD Susceptibility	Capable of meeting IEC 801-2 level 2 (4kV)
Response Time	50mSec typical (10 to 90%)
Temperature	Operating: -40 to 80°C (-40 to 176°F) Storage: -40 to 80°C (-40 to 176°F)
Humidity	(non-condensing) Operating: 15 to 90% (@45°C)
Wire Terminal	Socketed screw terminals for 12-22 AWG
Weight	0.34lbs
Agency Approvals	CSA certified per standard C22.2 (File No. LR42272). UL recognized per standard UL508 (File No. E99775). CE conformance per EMC directive 89/336/EEC and low voltage 73/23/EEC (Input ≤75VDC).

MODELS AND ACCESSORIES

Accessories

All Action/Q modules mount on standard TS32 (model MD02) or TS35 (model MD03) DIN rail. In addition the following accessories are available:

MD02	TS32 DIN rail
MD03	TS35 x 7.5 DIN rail
G905	24VDC Power Supply (500mA)
H902	24VDC Power Supply (200mA)
H910	24VDC Power Supply (1 Amp)
H915	24VDC Power Supply (2.1 A)

Ordering Information

Specify:

1. Model: **Q510**
2. Channels: 2 or 4
3. Input Range: (see Table 1)
4. Accessories: (see Accessories)

Terminal Connections

Pin A1: Channel 1, Power & Output(+)	Pin C4: Channel 1, RTD Input Return	Pin A3: Not Internally Connected
Pin A2: Channel 1, Power & Output(-)	Pin C5: Channel 1, RTD Input(-)	Pin A4: Channel 2, Power & Output(+)
Pin A3: Not Internally Connected	Pin C6: Channel 1, RTD Input(+)	Pin A5: Channel 2, Power & Output(-)
Pin A4: Channel 2, Power & Output(+)	Pin D1: Channel 4, RTD Input Return	Pin A6: Not Internally Connected
Pin A5: Channel 2, Power & Output(-)	Pin D2: Channel 4, RTD Input(-)	Pin C1: Channel 2, RTD Input Return
Pin A6: Not Internally Connected	Pin D3: Channel 4, RTD Input(+)	Pin C2: Channel 2, RTD Input(-)
Pin B1: Channel 3, Power & Output(+)	Pin D4: Channel 3, RTD Input Return	Pin C3: Channel 2, RTD Input(+)
Pin B2: Channel 3, Power & Output(-)	Pin D5: Channel 3, RTD Input(-)	Pin C4: Channel 1, RTD Input Return
Pin B3: Channel 4, Power & Output(+)	Pin D6: Channel 3, RTD Input(+)	Pin C5: Channel 1, RTD Input(-)
Pin B4: Channel 4, Power & Output(-)	Two Channel Q510-0xxx	Pin C6: Channel 1, RTD Input(+)
Pin C1: Channel 2, RTD Input Return	Pin A1: Channel 1, Power & Output(+)	
Pin C2: Channel 2, RTD Input(-)	Pin A2: Channel 1, Power & Output(-)	
Pin C3: Channel 2, RTD Input(+)		

DIMENSIONS

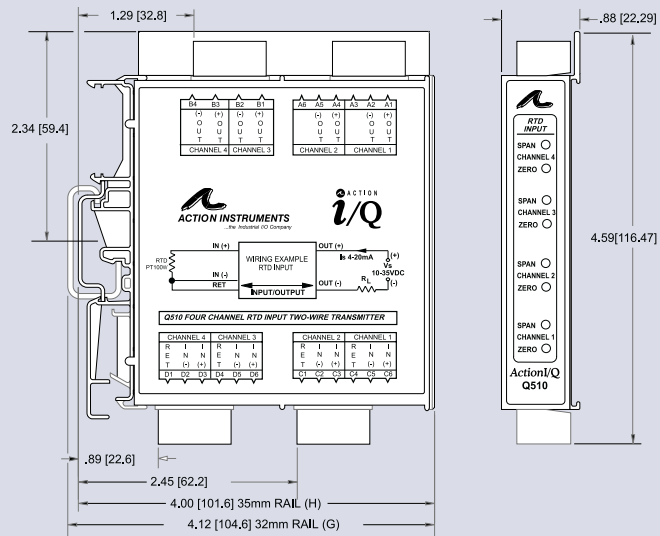


Table 1: Input Ranges*

0-100°C	0-150°C
0-200°F	0-300°F
0-200°C	0-250°C
0-400°F	0-500°F
0-500 °C	0-1000 °F

*Consult factory for non-standard ranges