

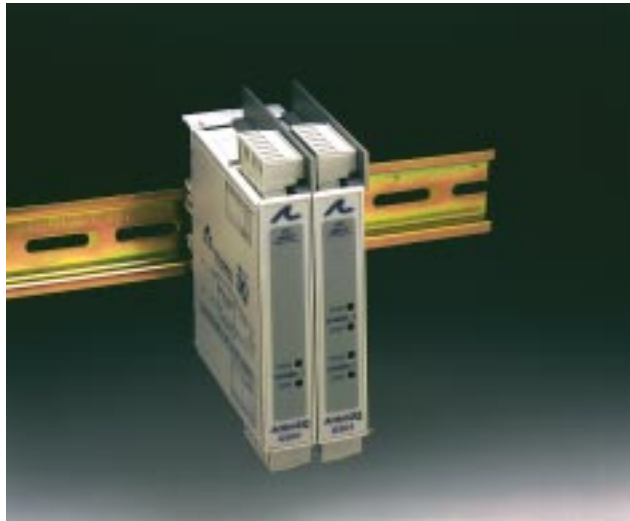
ACTIONI/Q® Q501

MODEL



Benefits

- Multi-Channel Design Provides One or Two Two-wire Transmitters in 1 Package
- Protects Equipment and Prevents Ground Loops with 1800VDC Isolation
- High Density DIN Rail Mounting
- SnapLoc, Plug-In Screw Terminals for Low MTTR
- Standard Input Ranges for the Most Popular Applications
- Output Loop Powered from 12 to 35VDC
- Three Year Warranty



Multi-Channel, DC Input, Isolating Two-Wire Transmitter

Provides One or Two Isolated 4-20mA Output Current Loops in Proportion to One or Two DC Inputs

DESCRIPTION

The ActionI/Q model Q501 is a DIN rail mount, DC input, single(1) or dual (2) channel, two-wire transmitter. Each channel accepts a DC voltage or current input and provides an isolated 4-20mA output. Each channel is fully isolated (1800VDC) from input to output and channel to channel.

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

DC input, two-wire transmitters are used to isolate and convert a DC voltage or current into a proportional 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 monitored by a control system or displayed for an operator.

Typically, DC voltages or currents from various field instruments (e.g. level, flow, pressure and position sensors) are used to monitor and control a manufacturing process. Voltage signals can only run a short distance to a panel without errors caused by noise or lead resistance in the wires. These sensor (voltage) signal wires are usually 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.



*Protecting the
Integrity of
Industrial
Process Signals*



Table 1: Q501 Input Ranges*

4-20mA	0-1mA	0-5V	0-1V	0-100V	0-500mV
0-20mA	0-10V	1-5V	0-100mV	±10V	0-50mV

*Consult factory for non-standard ranges

The 1800VDC isolation capability of the Q501 prevents ground loops from causing errors in DC voltage or current signals and may reduce susceptibility to Radio Frequency Interference (RFI). Isolation also provides protection from high voltages and current spikes which may damage expensive Supervisory Control And Data Acquisition (SCADA) equipment, such as a PLC or DCS.

OPERATION

The ActionI/Q model Q501 operates as a two-wire transmitter; each channel derives its power

from a (12-35VDC) source connected in series with the 4-20mA output loop. Typically a 24VDC source is used for power, allowing 12VDC (600Ω @ 20mA) for other devices connected in series, in the current loop. The outputs of the Q501 are isolated from the inputs and protected from reverse polarity. Zero and span pots are provided for each channel to calibrate the output to the input source (+/-5%).

The Q501 provides a single or dual channel, DC input, isolating, two-wire transmitter in one package. Standard input ranges (see Table 1) are calibrated to rated accuracy. One range per module; one or two channels per module.

capable of supplying at least 20mA and a milliamp current meter.

Note: The voltage source (Vs) connected to the output must be sufficient to accommodate all other device loads (RL) in the current loop.
 $V_s \geq I_2 + (0.02R_L)$

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

3. Set the calibrator to the specified maximum DC input value and adjust the span potentiometer for 20mA output.

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

CALIBRATION

1. Connect the input to a calibrated DC source. Connect the output in series to a voltage source

SPECIFICATIONS

Input	Ranges: see Table 1 Impedance: $\geq 100K\Omega$ (voltage inputs), $\leq 20\Omega$ (20mA Inputs), $\leq 400\Omega$ (1mA Inputs) Protection: withstands up to 24VDC (current input), 120VAC (voltage input) without damage
Output Range	4-20mA
Supply Voltage Range	12 to 35VDC, each channel
Output Accuracy	$\leq 0.1\%$ of full-scale input typical, $\leq 0.2\%$ maximum @23°C including linearity, repeatability and hysteresis
Adjustability	Front accessed 10 turn, $\pm 5\%$ of span for zero and span, typical
Stability	$\leq 0.025\%/^{\circ}C$ of full-scale maximum Capable of meeting IEC 801-2 level 2 (4kV)

ESD Susceptibility Isolation

Capable of meeting IEC 801-2 level 2 (4kV) 1800VDC or peak AC between input and output and channel to channel

Response Time Temperature

100mSec typical (10 to 90%)
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 $\leq 75VDC$)

ASSISTANCE

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

800-783-6664

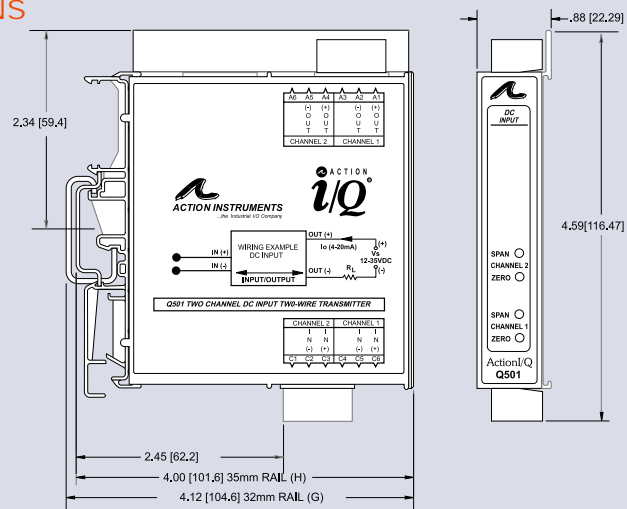
MODELS AND ACCESSORIES

Accessories

All ActionI/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 (2.3 A)

DIMENSIONS



Ordering Information

Specify:

1. Model: **Q501**
2. Channels: 1 or 2
3. Input Range: (see Table 1)
4. Accessories: (see Accessories)

Terminal Connections

- | | | |
|--|--|----------------------------------|
| Pin A1: Channel 1, Power & Output (+) | Pin A5: Channel 2, Power & Output (-)* | Pin C3: Channel 2, DC Input (+)* |
| Pin A2: Channel 1, Power & Output (-) | Pin A6: Not Internally Connected | Pin C4: Not Internally Connected |
| Pin A3: Not Internally Connected | Pin C1: Not Internally Connected | Pin C5: Channel 1, DC Input (-) |
| Pin A4: Channel 2, Power & Output (+)* | Pin C2: Channel 2, DC Input (-)* | Pin C6: Channel 1, DC Input (+) |