

TWO-WIRE TRANSMITTER INPUT, ISOLATOR

Model Q404-3CXX



Provides a Fully Isolated DC Output Signal in Proportion to a Two-Wire Transmitter Input

- 24VDC Excitation Source for Two-Wire Transmitter Inputs
- Protects Equipment and Prevents Ground Loops with 2000VAC Isolation
- High Density DIN Rail Mounting
- SnapLoc, Plug-In Terminals for Low MTTR
- Universal DC Power 10.8 to 26.4VDC
- Three Year Warranty



DESCRIPTION

The model Q404-3 is a DIN rail mount, signal conditioner, with 2000VAC isolation between input, output and power. The input provides an isolated 24VDC excitation source to power a two-wire 4-20mA transmitter loop.

Factory configured output ranges support standard industrial control signals, such as 4-20mA and 0-10V. Front accessed zero and span potentiometers allow 5% adjustment of offset and gain to compensate for sensor errors or signal losses.

All 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 DIN rail foot or the adjacent unit's face plate, for right side or left side mounting, respectively. The module to be attached will easily slide onto the side of the mounted unit.

APPLICATION

Two-wire transmitter input conditioners are used to isolate and convert DC current signals into proportional, standard industrial control signals

such as 4-20mA or 0-10V. Typically an industrial control system such as a DCS or PLC requires standard industrial control signals with full isolation to ensure reliable, strong signals.

In most industrial process control or data acquisition applications, several different input sources, including currents from various field instruments (e.g. level, flow, pressure and position sensors) are common. Four-wire transmitters accept these field inputs, often through intrinsic safety barriers, and provide the controller (DCS & PLC) the standard industrial signals they require.

The 2000VAC isolation capability of the Q404-3 prevents ground loops from causing errors in DC current signals and may reduce susceptibility to Electro Magnetic Interference (EMI) and 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.

OPERATION

The model Q404-3 operates as a four-wire transmitter; it derives its

power from an independent, transformer isolated, DC to DC power source (10.8 to 26.4VDC). Typically a 12 or 24VDC source is used for power.

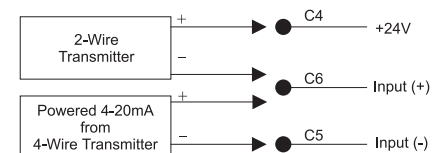
The Q404-3 has fixed input and output ranges. Standard output ranges in Table 1 are calibrated to rated accuracy.

Table 1: Standard Output Ranges*

4-20mA	0-5V
0-10V	1-5V

*Consult factory for custom ranges.

Figure 1: Connections for a loop powered 2-wire transmitter, or a powered 4-20mA input.



EUROTHERM

Note: To maximize accuracy and thermal stability, final calibration should be performed with the intended output load and the unit should be mounted in the operating installation, allowing at least 1 hour for warm up and thermal equilibrium of the system.

CALIBRATION

1) To check calibration, connect the input to a calibrated DC source. Connect the output to a DC voltage or current meter and the input power to DC source (between 10.8 and 24.6V) capable of providing up to 0.5 Amps.

2) Set the calibrator to 4mA and adjust the zero potentiometer for minimum (e.g. 4mA) output.

3) Set the calibrator to 20mA and adjust the span potentiometer for maximum (e.g. 20mA) output.

4) Repeat steps 2 and 3 to validate calibration to the output load.

FACTORY ASSISTANCE

For additional information on calibration, operation and installation please contact your local Eurotherm Company.

SPECIFICATIONS

Input

Range: 4-20mA
 Impedance: $\leq 20\Omega$
 Protection: withstands up to 24VDC
 Common Mode: 2000VAC, input to ground

Output

Range: see Table 1
 Voltage Output Drive: 10mA (1000 Ω min.)
 Current Output Compliance: 15V (750 Ω max.)

LED Indication

Green LED indicates power on

Output Accuracy

$\leq \pm 0.1\%$ of full-scale input typical,
 $\leq \pm 0.2\%$ maximum @23C includ-

ing linearity, repeatability and hysteresis

Adjustability

Front accessed 10 turn, $\pm 5\%$ of range for zero and span

Stability

$\leq 0.025\%/C$ of full-scale maximum for full-scale and zero

EMC Compliance (CE Mark)

Emmissions: EN50081-1
 Immunity: EN50082-2
 Safety: EN50178

Isolation

$\geq 2000VAC$ between input and output and channel to channel

Response Time

25mSec typical (10 to 90%)

Power

10.8 to 26.4VDC ,2W max.

Temperature

Operating: -5 to 60°C (23 to 140°F)
 Storage: -40 to 80°C (-40 to 176°F)

Humidity (non-condensing)

Operating: 15 to 90% (@45°C)
 Soak: 90% for 24 hours (@60°C)

Wire Terminal

Socketed screw terminals for 12-22 AWG

Agency Approvals

CE conformance per EMC directive 89/336/EEC and Low Voltage 73/23/EEC.

ACCESSORIES

All Q404 modules mount on standard TS32 (model MD02) or TS35 (model MD03) DIN rail. In addition the following accessories are available:

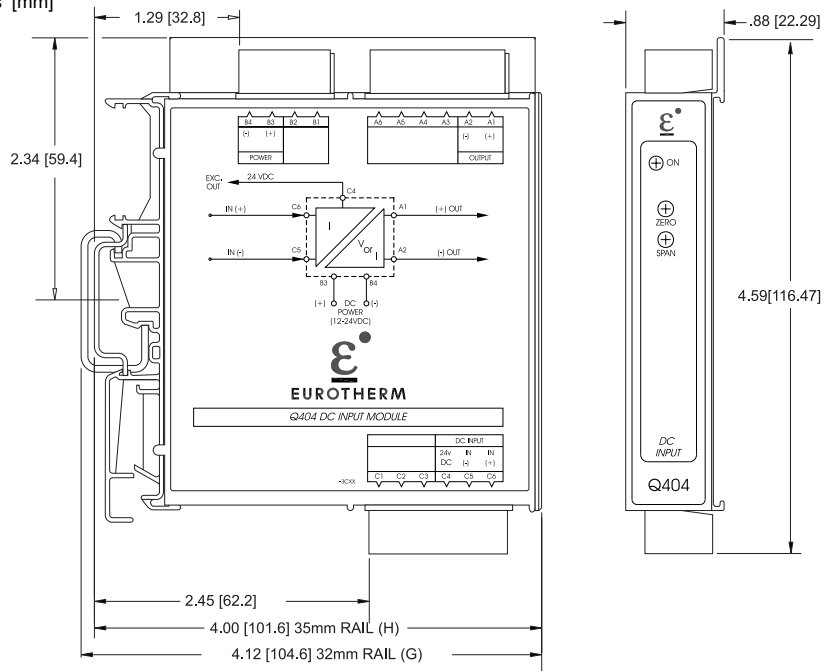
- MD02** TS32 DIN rail
- MD03** TS35 x 7.5 DIN rail
- G902** 24VDC Power Supply (500mA)
- H902** 24VDC Power Supply (200mA)
- H910** 24VDC Power Supply (1 Amp)
- H915** 24VDC Power Supply (2.1 Amp)

- Pin C1: Not Internally Connected
- Pin C2: Not Internally Connected
- Pin C3: Not Internally Connected

- Pin C4: +24VDC Excitation
- Pin C5: Channel 1, DC Input (-)
- Pin C6: Channel 1, DC Input (+)

DIMENSIONS

Inches [mm]



ORDERING INFORMATION

Specify:

1. Model: Q404-3 (see Table 1)
2. Input Range: (4-20mA, 24V excitation)
3. Output Range: (see Table 1)
4. Accessories: (see Accessories)

TERMINAL CONNECTIONS

- Pin A1: Channel 1, Output (+)
- Pin A2: Channel 1, Output (-)
- Pin A3: Not Internally Connected
- Pin A4: Not Internally Connected
- Pin A5: Not Internally Connected
- Pin A6: Not Internally Connected
- Pin B1: Not Internally Connected
- Pin B2: Not Internally Connected
- Pin B3: DC Power (+)
- Pin B4: DC Power (-)

All Prices and Specifications subject to change without notice

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