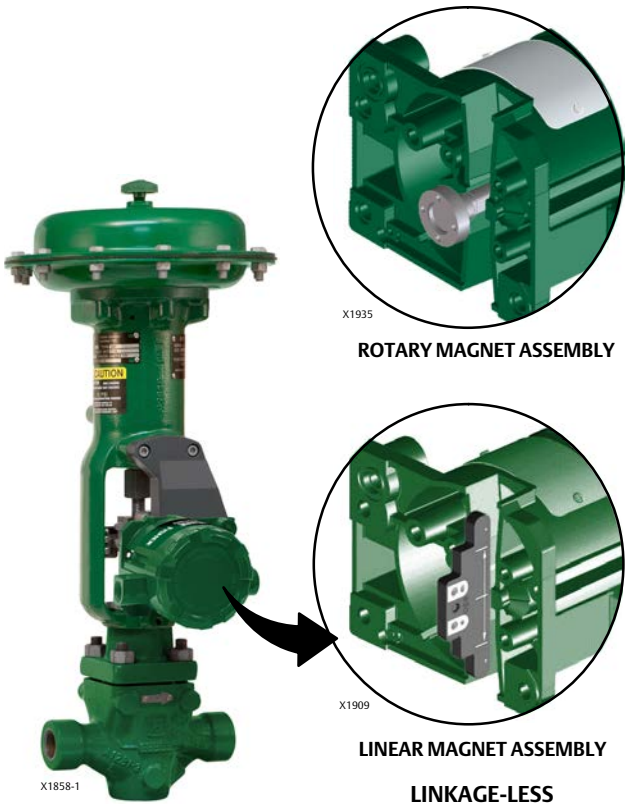
Fisher™ FIELDVUE™ 4400 Digital Position Transmitter

A Fisher FIELDVUE 4400 transmitter senses the position of rotary or sliding-stem valves, vents, dampers, or other devices. It provides a precise non-contact feedback to indicate equipment position with a percent (%) of span plus on/off indication. The 4400 provides 4-20 mA position feedback and has two 1 amp solid-state limit switches.



ROTARY MAGNET ASSEMBLY

LINEAR MAGNET ASSEMBLY

LINKAGE-LESS FEEDBACK SYSTEM

FISHER 4400 TRANSMITTER ON CONTROL VALVE

Features

Simple to Configure

- Ease of Calibration—Local pushbuttons, accessible when the cover is removed, allow you to calibrate the digital position transmitter in the field. This eliminates the need for tools or the setting of cams or potentiometers during set-up, saving you time.

Valve Performance Indicators

The 4400 can track valve response in both directions and allows you to select which diagnostic monitors report the various device conditions as alerts to the host. The time stamped data lets you know exactly when an event starts and ends, providing valuable troubleshooting information.

Valve performance indicators include:

- Cycle count
- Time to open/close
- Travel accumulator
- Dwell time (how long in open or close position)
- Current valve position
- Stroke Time

Digital Integration

- Communication Flexibility— Because the 4400 is a HART® (Highway Addressable Remote Transducer) communicating device, information can be accessed anywhere along the loop. This digital communication occurs over the same two-wire loop that provides the 4-20 mA process control signal, without disrupting the process signal.

  This flexibility can reduce exposure to hazardous environments and make it easier to evaluate equipment in hard to reach locations.

Mounting Versatility

- Leverages the FIELDVUE instruments vast catalog of mounting kits for a variety of applications.

Benefit of Implementing Position Feedback

- Broad Range of Applications— The 4400 provides accurate position indication, monitoring, and performance information around valves that are not typically monitored, including pressure relief, safety, and antisurge valves.

- Insight into Valve Position helps to reduce production issues and reduce the need to visit the valve in the field.

- Accurate and Responsive—Position sensing uses the proven hall-sensing design, providing position feedback accuracy with the measured device (e.g. valve, regulator, level, or louver).

Specifications

Input Signal Source

Hall Effect Sensor and magnet array

Transmitter Output Signal

Analog: 4 to 20 mA DC

High saturation: 20.5 mA
Low saturation: 3.8 mA
High alarm(1)*:* > 21.0 mA
Low Alarm(1)*:* < 3.6 mA

Digital - PENDING:
HART 1200 Baud Frequency Shift Keyed (FSK)

HART Version 7

HART impedance requirements must be met to enable communication. Total shunt impedance across the master device connections (excluding the master and transmitter impedance) must be between 230 and 600 ohms.

HART receive impedance:
Rx: 28.06k ohms
Cx: 5.84 nF

Output Current Limit: 30 mA DC maximum

Integral Limit Switch - PENDING

Two isolated solid state limit switches, configurable throughout the calibrated travel range or actuated from a device alert

Off State: 0 mA (nominal)

On State: up to 1 A

Supply Voltage: 24 - 30 VDC

Travel Limit Trip Points

Two

Recommended Power Supply

24 to 30 volts DC; 25 mA
Instrument has reverse polarity protection.

A minimum compliance voltage of 17.75 VDC (due to HART impedance requirement) is required to guarantee HART communication

Reference Accuracy

± 1% of output span. Includes combined effects of hysteresis, linearity, and deadband

Limit Switch: 2% of travel span

Sensor Refresh Rate

100 ms (10 Hz)

Repeatability

± 0.25% of span

Electromagnetic Compatibility

Meets EN61326-1:2013 and EN61326-3-2:2008

General Electrical Safety - Environmental Conditions

Use: Indoor and Outdoor

Altitude: up to 2000 m

Temperature: -40°C to +80°C

Relative Humidity: 9.2 - 90%

Supply Voltage Fluctuations: N/A, not connected to Mains

Transient Overvoltage: Category I

Pollution Degree: 4

Wet Locations: Yes

Operating Ambient Temperature Limits(2)

-40 to 80°C (-40 to 176°F)

Mounting

The instrument can mount on the actuator of siding-stem or rotary valves or it can be used for other applications. Refer to Bulletin 62.3:4400(S1), D104740X012, for 4400 position monitor and magnet array dimensions.

-continued-

Specifications (continued)

Actuator Compatibility

Stem Travel (Sliding-Stem Linear)

Linear actuators with rated travel between 6.35 mm (0.25 inch) and 606 mm (23.375 inches)

Shaft Rotation (Quarter-Turn Rotary)

Rotary actuators with rated travel between 45 degrees and 180 degrees(3)

Hazardous Area Approvals

cCSAus— Explosion-proof, Class I Div. 1, Class I Div. 2

Hazardous Area Approvals - PENDING

cCSAus— Intrinsically Safe, Dust Ignition-proof

ATEX— Intrinsically Safe, Flameproof, Type n, Dust by intrinsic safety

IECEx— Intrinsically Safe, Flameproof, Type n, Dust by intrinsic safety or by enclosure

Electrical Housing

cCSAus— Type 4X, IP66

Electrical Housing - PENDING

ATEX— IP66

IECEx— IP66

Safety Instrumented System Classification - PENDING

SIL2 capable

Dimensions

Refer to figure 1

Approximate Weight

Transmitter without mounting bracket: 1.8 kg (4 lbs.)

Construction Materials

Transmitter Housing and Cover: Aluminum Alloy

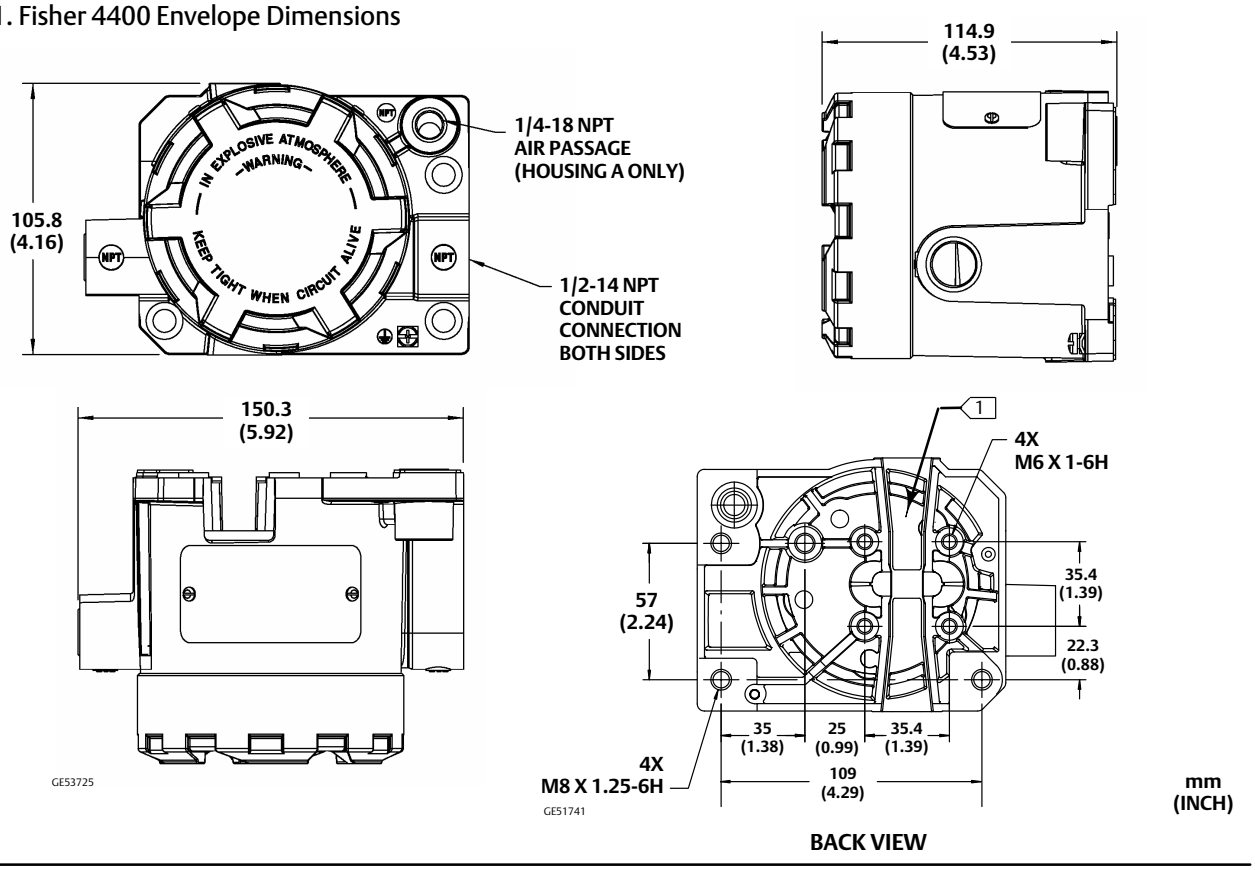
O-Rings: Fluorosilicone

Mounting Hardware: Aluminum and steel construction

Pipe Plug: Nickel coated steel

Note: Specialized instrument terms are defined in ANSI/ISA Standard 51.1 - Process Instrument Terminology.
1. Only one of the High/Low alarm definition is available in a given configuration. Both alarms are NAMUR NE43 compliance.
2. The temperature limits in this manual and any applicable standard or code limitation for valve should not be exceeded.
3. Rotary actuators with 180 degree rated travel require a special mounting kit; contact your Emerson sales office for kit availability.

Figure 1. Fisher 4400 Envelope Dimensions



1 Housing insert for SSTEM #210 magnet assembly inserted here.

Product Selection

Base Instrument Model	
4400	Digital Position Transmitter
Hazardous Area Approval Agency/Location/Protection	
A	None: EMC compliance to CE, IEC 61010 and IEC 61000-4
B	cCSAus: Intrinsically Safe, Explosion-proof, Division 2, Dust Ignition-proof
C	IECEx: Intrinsically Safe, Flameproof, Type n, Dust by intrinsic safety or by enclosure (includes Certified Blanking Element) (Includes RCM mark for import into Australia & New Zealand)
D	ATEX: Intrinsically Safe, Flameproof, Type n, Dust by intrinsic safety

Emerson
Marshalltown, Iowa 50158 USA
Sorocaba, 18087 Brazil
Cernay, 68700 France
Dubai, United Arab Emirates
Singapore 128461 Singapore

www.Fisher.com