Fisher™ FIELDVUE™ DVC6200 Digital Valve Controller

The FIELDVUE DVC6200 digital valve controller is a HART® communicating instrument that converts a two-wire 4-20 mA control signal into a pneumatic output to an actuator. It can easily be retrofitted in place of existing analog positioners on most Fisher and non-Fisher pneumatic actuators.

Features

Reliability

- **Linkage-Less Non-Contact Position Feedback**—The high performance, linkage-less feedback system eliminates physical contact between the valve stem and the DVC6200. There are no wearing parts so cycle life is maximized.

- **Built to Survive**—The field proven DVC6200 instrument has fully encapsulated electronics that resist the effects of vibration, temperature, and corrosive atmospheres. A weather-tight wiring terminal box isolates field wiring connections from other areas of the instrument.

Performance

- **Accurate and Responsive**—The two-stage positioner design provides quick response to large step changes and precise control for small setpoint changes.

Ease of Use

- **Enhanced Safety**—The DVC6200 is a HART communicating device, so information can be accessed anywhere along the loop. This flexibility can reduce exposure to hazardous environments and make it easier to evaluate valves in hard to reach locations.

- **Faster Commissioning**—HART communications allows you to quickly commission loops with a variety of tools, either locally at the valve assembly or remotely.

Value

- **Hardware Savings**—When installed in an integrated control system, significant hardware and installation cost savings can be achieved. Valve accessories such as limit switches and position transmitters can be eliminated because this information is available via the HART communication protocol.

- **Increased Uptime**—The self-diagnostic capability of the DVC6200 digital valve controller provides valve performance and health evaluation without shutting down the process or pulling the valve assembly from the line.

- **Improved Maintenance Decisions**—Digital communication provides easy access to the condition of the valve. Sound process and asset management decisions can be made by analysis of valve information through Fisher ValveLink™ software.
Valve Diagnostics

The DVC6200 digital valve controller provides a comprehensive library of valve diagnostic alerts, as shown in figure 1. These alerts are easily accessed with the 475 Field Communicator. When installed as part of a HART communicating system, the DVC6200 delivers prompt notification of current or potential equipment issues directly to the asset management system.

Alerts assist in identification and notification of the following situations:

- Valve travel deviation due to excessive valve friction or galling
- High cycle due to dither or improper tuning
- Total travel movement accumulation beyond a specified point resulting in packing wear
- Valve travel above or below a specified point
- Various instrument mechanical and electrical issues

These alerts are stored in memory on board the DVC6200.

For additional information on FIELDVUE diagnostics and ValveLink software refer to Fisher bulletin 62.1:ValveLink Software (D102227X012).
Specifications

Available Mounting
- Integral mounting to the Fisher GX Control Valve and Actuator System
- Integral mounting to Fisher rotary actuators
- Sliding-stem linear applications
- Quarter-turn rotary applications

DVC6200 digital valve controllers can also be mounted on other actuators that comply with IEC 60534-6-1, IEC 60534-6-2, VDI/VDE 3845 and NAMUR mounting standards.

Communication Protocol
- HART 5 or HART 7

Input Signal
Point-to-Point

- Analog Input Signal: 4-20 mA DC, nominal; split ranging available

Minimum Voltage Available at Instrument Terminals must be 9.5 VDC for analog control, 10 VDC for HART communication

- Minimum Control Current: 4.0 mA
- Minimum Current w/o Microprocessor Restart: 3.5 mA
- Maximum Voltage: 30 VDC
- Overcurrent protected
- Reverse Polarity protected

Multi-drop

- Instrument Power: 11 to 30 VDC at 10 mA
- Reverse Polarity protected

Supply Pressure(1)

- Minimum Recommended: 0.3 bar (5 psig) higher than maximum actuator requirements
- Maximum: 10.0 bar (145 psig) or maximum pressure rating of the actuator, whichever is lower

Supply Medium

- Air or Natural Gas

Supply medium must be clean, dry, and noncorrosive and meet the requirements of ISA Standard 7.0.01 or ISO 8573-1

Output Signal

Pneumatic signal, up to full supply pressure

- Minimum Span: 0.4 bar (6 psig)
- Maximum Span: 9.5 bar (140 psig)

Action: Double, Single Direct or Reverse

Steady-State Air Consumption(2)(3)

- At 1.4 bar (20 psig) supply pressure: Less than 0.38 normal m³/hr (14 scfh)
- At 5.5 bar (80 psig) supply pressure: Less than 1.3 normal m³/hr (49 scfh)

Maximum Output Capacity(2)(3)

- At 1.4 bar (20 psig) supply pressure: 10.0 normal m³/hr (375 scfh)
- At 5.5 bar (80 psig) supply pressure: 29.5 normal m³/hr (1100 scfh)

Operating Ambient Temperature Limits(1)(4)

- -40 to 85°C (-40 to 185°F) for instruments utilizing the Extreme Temperature option (fluorosilicone elastomers)

Independent Linearity(5)

Typical Value: ±0.50% of output span

Electromagnetic Compatibility

Meets EN 61326-1:2013

- Immunity—Industrial locations per Table 2 of the EN 61326-1 standard.
- Emissions—Class A

ISM equipment rating: Group 1, Class A

Vibration Testing Method

Tested per ANSI/ISA-S75.13.01 Section 5.3.5.

Input Impedance

An equivalent impedance of 550 ohms may be used. This value corresponds to 11V @ 20 mA.

Humidity Testing Method

Tested per IEC 61514-2

Electrical Classification

Hazardous Area Approvals

- CSA—Intrinsically Safe, Explosion-proof, Division 2, Dust Ignition-proof
- FM—Intrinsically Safe, Explosion-proof, Non-Incendive, Dust Ignition-proof
- ATEX—Intrinsically Safe, Flameproof, Type n
- IECEx—Intrinsically Safe, Flameproof, Type n

Electrical Housing

- CSA—Type 4X, IP66
- ATEX—IP66
- FM—Type 4X, IP66
- IECEx—IP66

-continued-
Specifications (continued)

Other Classifications/Certifications

- Natural Gas Certified, Single Seal Device— CSA, FM, ATEX, and IECEx
- Lloyds Register— Marine Type Approval
- CUTR— Customs Union Technical Regulations (Russia, Kazakhstan, Belarus, and Armenia)
- INMETRO— National Institute of Metrology, Quality and Technology (Brazil)
- KGS— Korea Gas Safety Corporation (South Korea)
- NEPSI— National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation (China)
- PESO CCÖE— Petroleum and Explosives Safety Organisation - Chief Controller of Explosives (India)
- TIIS— Technology Institution of Industrial Safety (Japan)

Not all certifications apply to all constructions. Contact your Emerson sales office or Local Business Partner for classification/certification specific information.

Connections

- Supply Pressure: 1/4 NPT internal and integral pad for mounting 67 CFR regulator
- Output Pressure: 1/4 NPT internal
- Tubing: 3/8-inch recommended
- Vent: 3/8 NPT internal
- Electrical: 1/2 NPT internal or M20

Actuator Compatibility

- Stem Travel (Sliding-Stem Linear)
  - Minimum: 6.35 mm (0.25 inch)
  - Maximum: 606 mm (23.7/8 inches)
- Shaft Rotation (Quarter-Turn Rotary)
  - Minimum: 45 °
  - Maximum: 90 °

Weight

- Aluminum: 3.5 kg (7.7 lbs)
- Stainless Steel: 8.6 kg (19 lbs)

Construction Materials

- Housing, module base and terminal box: A03600 low copper aluminum alloy (standard), Stainless Steel (optional)
- Cover: Thermoplastic polyester
- Elastomers: Nitrile (standard)

Options

- Supply and output pressure gauges or Tire valves
- Integral mounted filter regulator
- Low-Bleed Relay
- Extreme Temperature
- Natural Gas Certified, Single Seal Device
- Remote Mount
- Stainless Steel
- Integral 4-20mA Position Transmitter
- Integral Limit Switch

Additional Information

For additional information go to Fisher.com or contact your Emerson sales office or Local Business Partner.

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