

# Fisher™ FIELDVUE™ DVC6200 HC

Digital Valve Controller



The FIELDVUE DVC6200 digital valve controller is a HART® communicating instrument that converts a two-wire 4 to 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, shown in Figure 1, eliminates physical contact between the valve stem and the DVC6200. There is no wearing of parts so cycle life is maximized.
- **Built to Survive** — The field proven DVC6200 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.
- **Actuator Overpressure Prevention**

### Performance

- **Accurate and Responsive** — The two-stage positioner design provides quick response to large step changes and precise control for small setpoint changes.
- **Ramped Cutoff provides smooth transition from throttling control to shutoff**

### Ease of Use

- **Enhanced Safety** — The DVC6200 is a HART communicating device; 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.

**Figure 1. Linkage-Less Non-Contact Feedback System**

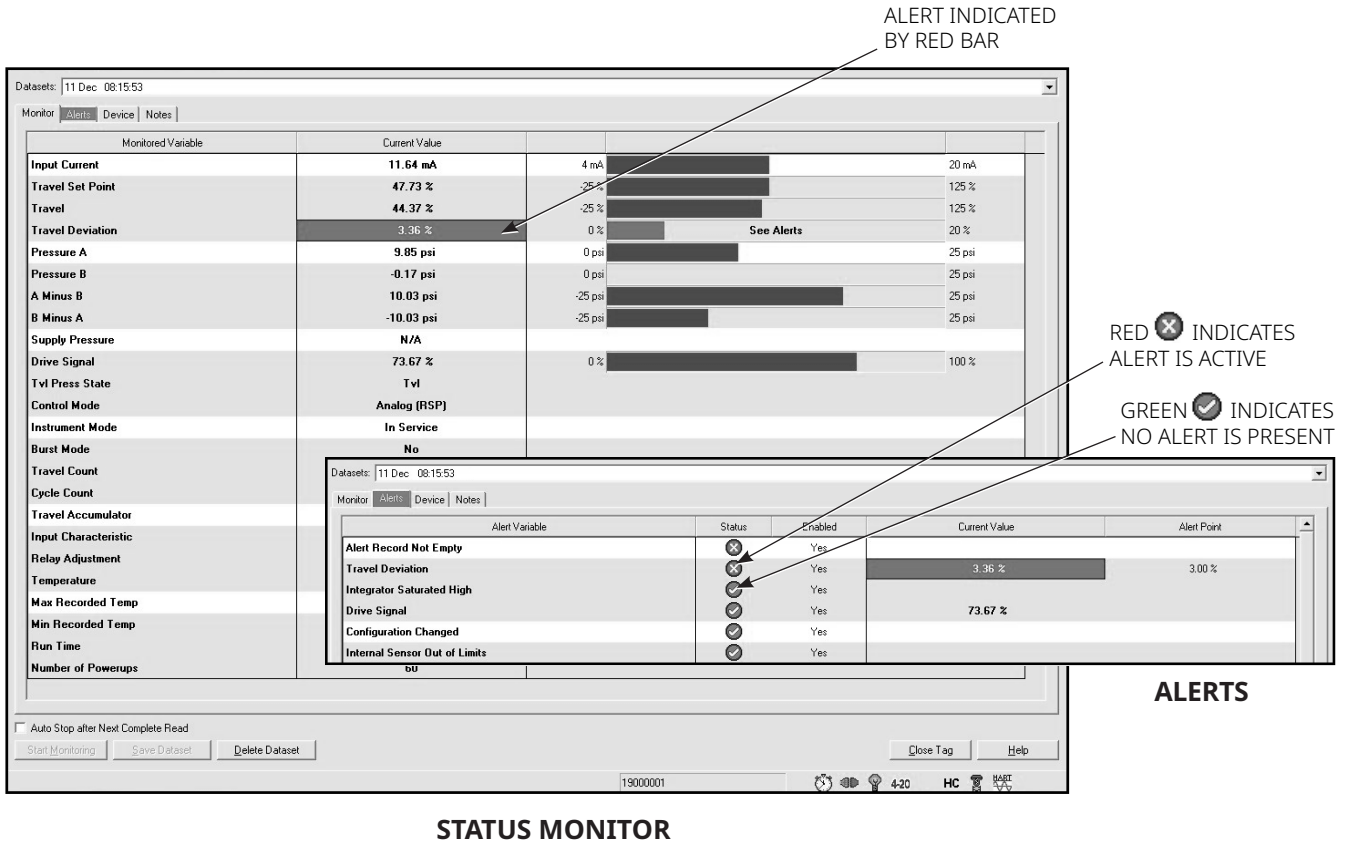


- **Easy Maintenance** — The DVC6200 is modular in design. Critical working components can be replaced without removing field wiring or pneumatic tubing.

### 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 due to the integrated position transmitter or switch option.
- **Increased Uptime** — The self-diagnostic capability of the DVC6200 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.

Figure 2. Alerts Status Screen



## Valve Diagnostics

The DVC6200 digital valve controller provides a comprehensive library of valve diagnostic alerts, as shown in Figure 2. These alerts are easily accessed with an Emerson 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 and supports NAMUR NE107 alert categorization.

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 beyond 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 the ValveLink Software product bulletin (D102227X012).

**Table 1. Specifications**

<p><b>Available Mounting</b></p> <ul style="list-style-type: none"> <li>■ Integral mounting to Fisher 657/667 or GX Actuators</li> <li>■ Integral mounting to Fisher rotary actuators</li> <li>■ Sliding-stem linear applications</li> <li>■ Quarter-turn rotary applications</li> </ul> <p>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</p>	<p><b>Steady-State Air Consumption<sup>(2)(3)</sup></b></p> <p>At 1.4 bar / 20 psig supply pressure: Less than 0.38 normal m<sup>3</sup>/hr / 14 scfh</p> <p>At 5.5 bar / 80 psig supply pressure: Less than 1.3 normal m<sup>3</sup>/hr / 49 scfh</p>
<p><b>Communication Protocol</b></p> <ul style="list-style-type: none"> <li>■ HART 5 or ■ HART 7</li> </ul>	<p><b>Maximum Output Capacity<sup>(2)(3)</sup></b></p> <p>At 1.4 bar / 20 psig supply pressure: 10.0 normal m<sup>3</sup>/hr / 375 scfh</p> <p>At 5.5 bar / 80 psig supply pressure: 29.5 normal m<sup>3</sup>/hr / 1100 scfh</p>
<p><b>Input Signal</b></p> <p><b>Point-to-Point</b> Analog Input Signal: 4 to 20 mA DC, nominal; split-ranging available Minimum voltage available at Instrument Terminals must be 9.5 V DC for analog control, 10 V DC for HART communication Minimum Control Current: 4.0 mA Minimum Current without Microprocessor Restart: 3.5 mA Maximum Voltage: 30 V DC Overcurrent protected Reverse Polarity protected</p> <p><b>Multi-Drop</b> Instrument Power: 11 to 30 V DC at 10 mA Reverse Polarity protected</p>	<p><b>Operating Ambient Temperature Limits<sup>(1)(4)</sup></b></p> <p>-40 to 85 °C / -40 to 185 °F -52 to 85 °C / -62 to 185 °F for instruments utilizing the Extreme Temperature option (fluorosilicone elastomers)</p> <p><b>Independent Linearity<sup>(5)</sup></b></p> <p>Typical Value: ±0.5% of output span</p> <p><b>Electromagnetic Compatibility</b></p> <p>Meets EN IEC 61326-1:2021 Immunity—Industrial locations per Table 2 of the EN 61326-1 standard. Emissions—Class A ISM equipment rating: Group 1, Class A</p>
<p><b>Supply Pressure<sup>(1)</sup></b></p> <p>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 must be clean, dry and noncorrosive</p> <p><b>Per ISA Standard 7.0.01</b> A maximum 40 micrometer particle size in the air system is acceptable. Further filtration down to 5 micrometer particle size is recommended. Lubricant content is not to exceed 1 ppm weight (w/w) or volume (v/v) basis. Condensation in the air supply should be minimized. Pressure dew point: At least 10 °C less than the lowest ambient temperature expected</p> <p><b>Per ISO 8573-1</b> Maximum particle density size: Class 7 Oil content: Class 3 Pressure dew point: Class 3</p>	<p><b>General Electrical Safety - Environmental Conditions</b></p> <p>Use: Indoor and Outdoor Altitude: Up to 2000 m Temperature: See operating ambient temperature limits Humidity Testing Method: Tested per IEC61514-2 Supply Voltage Fluctuations: N/A, not connected to Mains Transient Overvoltage: Category I Pollution Degree: 4 Wet Locations: Yes</p> <p><b>Vibration Testing Method</b></p> <p>Tested per ANSI/ISA-S75.13.01 Section 5.3.5.</p>
<p><b>Output Signal</b></p> <p>Pneumatic signal, up to full supply pressure Maximum Span: 9.5 bar / 140 psig Action: ■ Double ■ Single Direct or ■ Reverse</p>	<p><b>Input Impedance</b></p> <p>An equivalent impedance of 550 ohms may be used. This value corresponds to 11 V at 20 mA.</p>



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**Table 1. Specifications (continued)**

Hazardous Area Approvals	Connections
CSA - Intrinsically Safe, Explosion-proof, Division 2, Dust Ignition-proof (Canada) FM - Intrinsically Safe, Explosion-proof, Non-Incendive, Dust Ignition-proof (United States) ATEX - Intrinsically Safe, Flameproof, Type n, Dust by intrinsic safety IECEx - Intrinsically Safe, Flameproof, Type n, Dust by intrinsic safety or by enclosure Natural Gas Certified, Single Seal Device— CSA, FM, ATEX, IECEx Marine Approvals - Lloyds, DNV, ABS, Bureau Veritas CML - Certification Management Limited (Japan) CUTR - Customs Union Technical Regulations ESMA - Emirates Authority for Standardization and Metrology - ECAS-Ex (UAE) INMETRO - National Institute of Metrology, Quality and Technology (Brazil) KOSHA - Korean Occupational & Health Agency (South Korea) KTL - Korea Testing Laboratory (South Korea) CCC - China Compulsory Certification NEPSI - National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation (China) PESO CCOE - Petroleum and Explosives Safety Organisation - Chief Controller of Explosives (India) SANS - South Africa National Standards UKEx - Intrinsically Safe & Dust, Flameproof, Dust by Enclosure, Type n (United Kingdom) Not all certifications apply to all constructions. Contact your <a href="#">Emerson sales office</a> or refer to the DVC6200 product page at <a href="#">Fisher.com</a> for approval specific information	Supply Pressure: 1/4 NPT internal and integral pad for mounting 67CFR regulator Output Pressure: 1/4 NPT internal Tubing: 3/8-in. recommended Vent: 3/8 NPT internal Electrical: 1/2 NPT internal or M20
	Actuator Compatibility
	Stem Travel (Sliding-Stem Linear): Linear actuators with rated travel between 6.35 mm / 0.25 in. and 606 mm / 23.375 in. Shaft Rotation (Quarter-Turn Rotary): Rotary actuators with rated travel between 45° and 180° <sup>(6)</sup>
	Weight
	Aluminum: 3.5 kg / 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
	<ul style="list-style-type: none"> <li>■ Supply and output pressure gauges or ■ Tire Valves</li> <li>■ Integral mounted filter regulator ■ Low-Bleed Relay<sup>(7)</sup></li> <li>■ Extreme Temperature</li> <li>■ Natural Gas Certified, Single Seal Device ■ Remote Mount<sup>(8)</sup></li> <li>■ Stainless Steel ■ Integral 4 to 20 mA Position Transmitter<sup>(9)(10)</sup></li> <li>■ Integral Limit Switch<sup>(11)</sup></li> </ul>
Electrical Housing	
CSA - Type 4X, IP66                      ATEX - IP66 FM - Type 4X, IP66                      IECEx - IP66	

**NOTE:** Specialized instrument terms are defined in ANSI/ISA Standard 51.1 - Process Instrument Terminology.

1. The pressure/temperature limits in this document and any other applicable code or standard should not be exceeded.
2. Normal m<sup>3</sup>/hr - Normal cubic meters per hour at 0 °C and 1.01325 bar, absolute. Scfh - Standard cubic feet per hour at 60 °F and 14.7 psia.
3. Values at 1.4 bar / 20 psig based on a single-acting direct relay; values at 5.5 bar / 80 psig based on double-acting relay.
4. Temperature limits vary based on hazardous area approval. Lower temperature limit for CUTR Ex d approval with fluorosilicone elastomers is -53 °C / -63.4 °F.
5. Not applicable for travels less than 19 mm / 0.75 in. or for shaft rotation less than 60°. Also not applicable for digital valve controllers in long-stroke applications.
6. Rotary actuators with 180° rated travel require a special mounting kit; contact your Emerson sales office for kit availability.
7. The Quad O steady-state consumption requirement of 6 scfh can be met by a DVC6200 with low bleed relay A option, when used with up to 4.8 bar / 70 psi supply of Natural Gas at 16 °C / 60 °F. The 6 scfh requirement can be met by low bleed relay B and C when used with up to 5.2 bar / 75 psi supply of Natural Gas at 16 °C / 60 °F.
8. 4-conductor shielded cable, 18 to 22 AWG minimum wire size, in rigid or flexible metal conduit, is required for connection between base unit and feedback unit.
9. 4 to 20 mA output, isolated; Supply Voltage: 8 to 30 V DC; Reference Accuracy: 1% of travel span.
10. Position transmitter meets the requirements of NAMUR NE43; selectable to show failure low (< 3.6 mA) or failure high (> 22.5 mA). Fail high available only when the positioner is powered.
11. One isolated 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: 30 V DC maximum; Reference Accuracy: 2% of travel span.

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