

Fisher™ FIELDVUE™ DVC6200

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

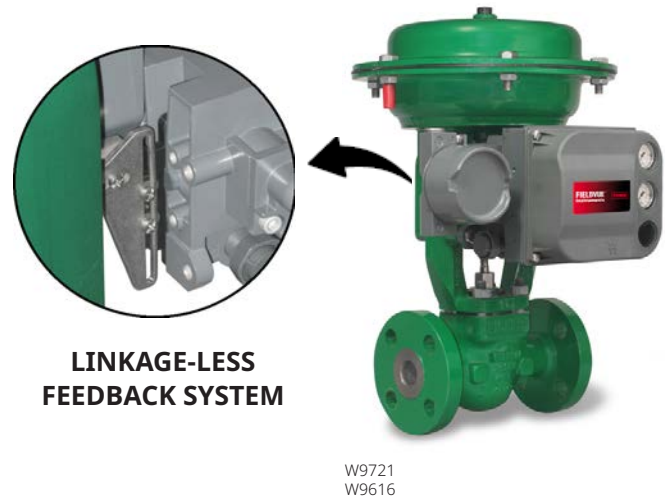
Reliability

- **Linkage-Less Non-Contact Position Feedback** - The high performance, linkage-less feedback system eliminates physical contact between the valve stem and the DVC6200 (Figure 1). There are no wearing 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.
- **Travel Control/Pressure Fallback** - Valve position feedback is critical to the operation of a digital valve controller. The DVC6200 can detect position feedback problems and automatically revert to pressure control mode to keep the valve operational.
- **Ramped Cutoff** provides smooth transition from throttling control to shutoff

Figure 1. Linkage-Less Non-Contact Feedback System



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

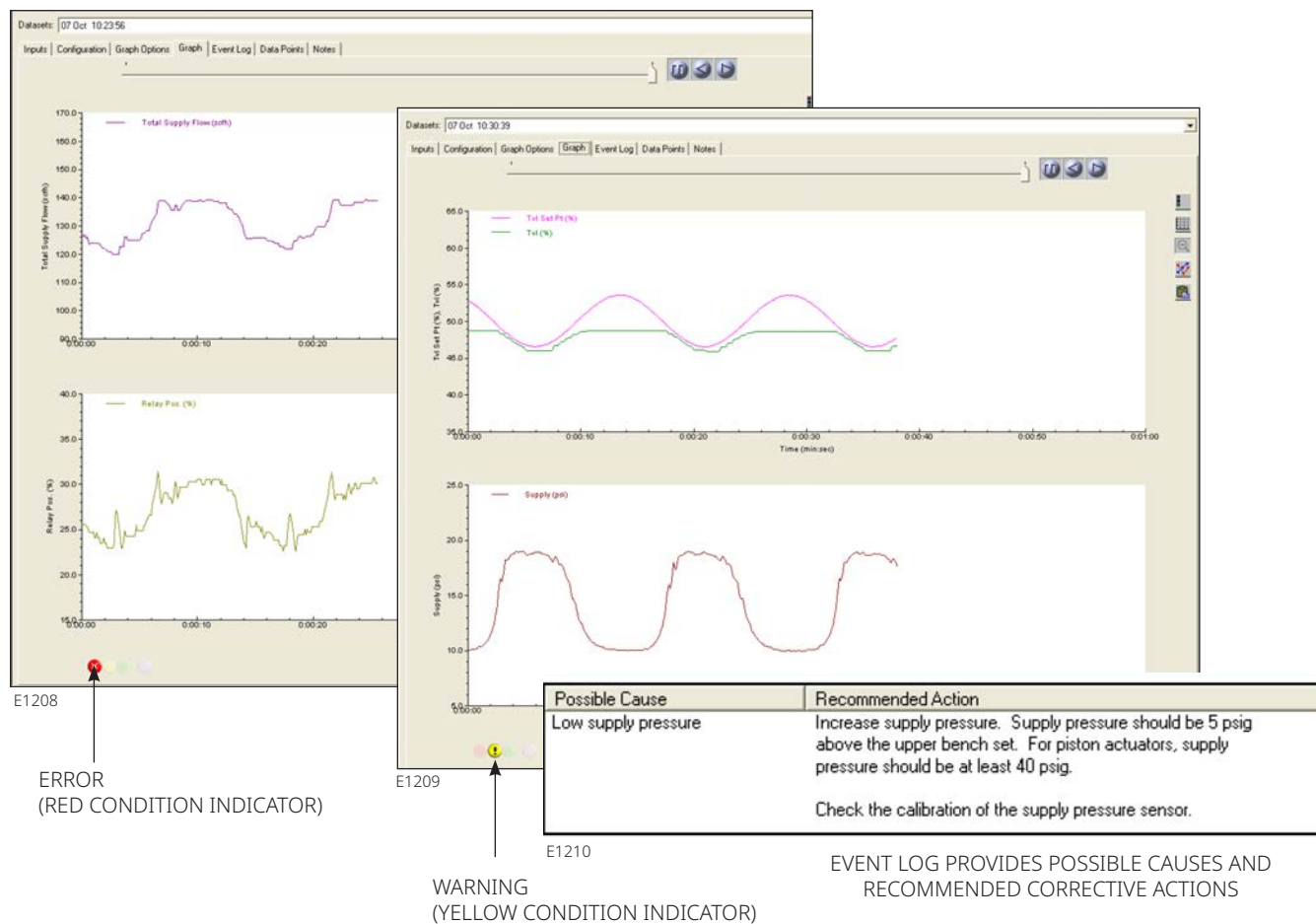
Value

- **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 availability 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 diagnostic information through Fisher ValveLink™ software, DD's, or DTM's.

Valve Diagnostics

The DVC6200 digital valve controller provides a broad and deep portfolio of valve diagnostic capabilities. Whether an Emerson Field Communicator is used to check for valve alerts and operational status, or ValveLink software is used for comprehensive diagnostic test and analysis, the tools are easy to use. When installed as part of a HART communicating system, the DVC6200 delivers prompt notification of current or potential equipment issues and supports NAMUR NE107 alert categorization.

Performance Diagnostics enable condition and performance monitoring of the entire valve assembly (not just the digital valve controller) while the valve is actively controlling the process. When conducting Performance Diagnostics tests, the valve does NOT move beyond the normal setpoint changes driven by the process controller. The DVC6200 uses statistical algorithms to determine condition and performance related issues based on live readings from the many on-board sensors. Results are then displayed graphically, with severity indicated by a red/yellow/green indicator (Figure 2). A detailed description of the identified issue as well as suggestions for recommended actions are provided.

Figure 2. Condition Indicators

Examples of identifiable issues are:

- Low or high air supply or pressure droop
- Incorrect regulator setting
- Dirty air supply
- External air leak (actuator diaphragm or tubing)
- Calibration shift
- Valve stuck
- Piston actuator O-ring failure
- Excessive or insufficient valve assembly friction
- Excessive valve assembly deadband
- Elastomer failure in the DVC6200
- Broken actuator spring

Performance Diagnostics also provide access to full-stroke dynamic testing of the valve assembly including; valve signature, dynamic error band, step response, and stroke check. These tests change the instrument setpoint at a controlled rate and are performed while the valve assembly is isolated from the process.

For additional information on FIELDVUE diagnostics and ValveLink software refer to the ValveLink Software product bulletin ([D102227X012](#))

Table 1. Specifications

Available Mounting	Supply Pressure ⁽¹⁾ (continued)
■ Integral mounting to Fisher 657/667 or GX Actuators ■ Window 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	Per ISA Standard 7.0.01 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 Per ISO 8573-1 Maximum particle density size: Class 7 Oil content: Class 3 Pressure dew point: Class 3
Communication Protocol	Output Signal
■ HART 5 or ■ HART 7	Pneumatic Output: up to full supply pressure Maximum Span: 9.5 bar / 140 psig Action: ■ Double ■ Single Direct or ■ Single Reverse
Input Signal	Steady State Air Consumption ⁽²⁾⁽³⁾
Point-to-Point 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 Multi-Drop Instrument Power: 11 to 30 V DC at 10 mA Reverse Polarity protected	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
Supply Pressure ⁽¹⁾	Operating Ambient Temperature Limits ⁽¹⁾⁽⁴⁾
Minimum Recommended DVC6200 SIS w/Low Bleed Relay: 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 Medium Air or Natural Gas Supply medium must be clean, dry and noncorrosive	-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)
	Performance ⁽⁵⁾
	Accuracy: ±0.5% of output span Linearity: ±0.5% of output span Hysteresis and Deadband: ±0.25% of output span Repeatability: ±0.3% of output span

continued -

Table 1. Specifications (continued)

Electromagnetic Compatibility	Hazardous Area Approvals and Other Classifications (continued)
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	Natural Gas Certified, Single Seal Device: CSA, FM, ATEX, and IECEX Marine Approvals: Lloyds, DNV, ABS, Bureau Veritas CML: Certification Management Limited (Japan) CUTR: Customs Union Technical Regulations
General Electrical Safety - Environmental Conditions	ESMA: Emirates Authority for Standardization and Metrology - ECAS-Ex (UAE) INMETRO: National Institute of Metrology, Quality and Technology (Brazil)
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	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)
Vibration Testing Method	SANS: South Africa National Standards UKCA: United Kingdom Conformity Assessment
Tested per ANSI/ISA-S75.13.01 Section 5.3.5.	Not all certifications apply to all constructions. Contact your Emerson sales office or refer to the DVC6200 product page at Fisher.com for approval specific information
Input Impedance	Electrical Housing
An equivalent impedance of 550 ohms may be used. This value corresponds to 11 V @ 20 mA.	CSA: Type 4X, IP66 FM: Type 4X, IP66 ATEX: IP66 IECEX: IP66
Hazardous Area Approvals and Other Classifications	Safety Instrumented System Classification
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	SIL 3 capable - certified by exida Consulting LLC Refer to Safety Manual for Fisher FIELDVUE DVC6200 Digital Valve Controller (D104564X012)

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Table 1. Specifications (continued)

Connections	Construction Materials
Supply Pressure: 1/4 NPT internal and integral pad for mounting Fisher 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	Housing, module base and terminal box: A03600 low copper aluminum alloy (standard), Stainless Steel (optional) Cover: Thermoplastic polyester Elastomers: Nitrile (standard)
Actuator Compatibility	Options
Stem Travel (Sliding-Stem Linear): Linear actuators with rated travel between 6.35 mm / 0.25 in. and 606 mm / 23-7/8 in. Shaft Rotation (Quarter-Turn Rotary): Rotary actuators with rated travel between 45° and 180° ⁽⁶⁾	■ Supply and output pressure gauges or ■ Tire Valves ■ Integral mounted filter regulator ■ Low Bleed Relay ⁽⁷⁾ ■ Extreme Temperature ■ Natural Gas Certified, Single Seal Device ■ Remote Mount ⁽⁸⁾ ■ Stainless Steel ■ Integral 4 to 20 mA Position Transmitter ⁽⁹⁾⁽¹⁰⁾ ■ Integral Limited Switch ⁽¹¹⁾
Weight	
Aluminum: 3.5 kg / 7.7 lbs Stainless Steel: 8.6 kg / 19 lbs	
NOTE: Specialized instrument terms are defined in ANSI/ISA Standard 51.1 - Process Instrument Terminology. - The pressure/temperature limits in this document and any other applicable code or standard should not be exceeded. - Normal m³/hour - 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. - 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. - 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. - Typical values. Not applicable for travels less than 19 mm / 0.75 inch or for shaft rotation less than 60 degrees. Also not applicable for digital valve controllers in long-stroke applications. - Rotary actuators with 180 degree rated travel require a special mounting kit; contact your Emerson sales office for kit availability. - 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. 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. 4-20 mA output, isolated; Supply Voltage: 8 to 30 VDC; Reference Accuracy: 1% of travel span. - 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. - One isolated switch, 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 VDC maximum; Reference Accuracy: 2% of travel span.	



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