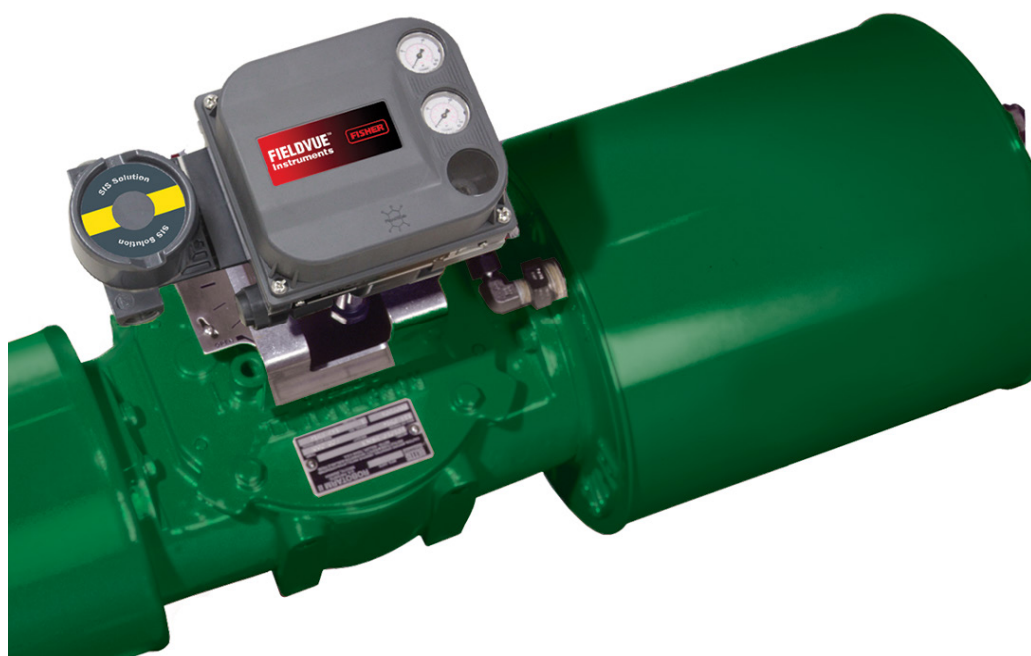


Fisher™ FIELDVUE™ DVC6200 SIS

Digital Valve Controller for Safety Instrumented Systems (SIS)



The FIELDVUE DVC6200 SIS digital valve controller is a HART® communicating instrument for use in valve applications such as Emergency Shutdown, Emergency Blow Down, Emergency Venting, and Emergency Isolation. The DVC6200 SIS is capable of monitoring the health of and controlling the safety shutdown function of a valve and can easily be installed 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 SIS. This minimizes the affects of pipeline vibration and environmental corrosion.
- Built to Survive — The field proven DVC6200 SIS 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.

Safety

- Partial Stroke Testing (PST) — An on-line diagnostic to detect valve failure modes such as stuck valve by performing a user-defined ramp test, without disrupting the process. Testing can be automated or initiated manually.
- Full Stroke Testing (FST) — An off-line diagnostic test to reveal additional valve failures undetected by the PST by performing a ramp over the entire valve travel range. FST is typically performed during a shut down.

Ease of Use

- Remote Access — Valve diagnostic information can be accessed anywhere along the loop, reducing personnel exposure to hazardous environments or difficult to reach locations.

Figure 1. Linkage-Less Non-Contact Feedback System



X0079

- 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 SIS is modular in design. Critical working components can be replaced without removing field wiring or pneumatic tubing.
- Hassle-free diagnostics — Partial stroke and full stroke tests result in an easy to understand Pass/Abnormal criteria including reason for any Abnormal result.

Value

- Spurious Trip Protection — An outgoing pressure threshold will abort the partial stroke test if exceeded. This prevents a sticking valve and actuator from overtraveling and potentially causing a spurious trip.
- Increased Uptime — The self-diagnostic capability of the DVC6200 SIS provides valve availability and health evaluation without shutting down the process or pulling the valve assembly from the line.
- Audit Documentation — Using ValveLink™ software, a time and date stamp on all tests and reports provides compliance with requirements of statutory authorities.

- **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. In addition, an integrated 4 TO 20 mA position transmitter or limit switch option is available.
- **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 ValveLink software, DD's, or DTM's.

Safety Certifications

The functional safety assessment was performed to the requirements of IEC 61508: ed2, 2010, SIL3.

The DVC6200 SIS digital valve controller, in the de-energize to trip (DETT) or energize to trip (ETT) configuration, meets the systematic integrity requirements of SIL 3.

The DVC6200 SIS position monitor, in the position transmitter or limit switch configuration, meets the systematic integrity requirements of SIL 2.

Packaged Solutions

LCP100/LCP200—A local control panel can be connected directly to the DVC6200 SIS to provide manual control of the SIS valve, including manual reset. A partial stroke test can also be initiated with the local control panel (see Figure 3).

Figure 2. exida Certificates



Figure 3. Fisher LCP200 Local Control Panel



Valve Diagnostics

The DVC6200 SIS 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 SIS delivers prompt notification of current or potential equipment issues and supports NAMUR NE107 alert categorization.

Valve diagnostic tests enable condition and performance monitoring of the entire valve assembly -not just the digital valve controller. Results are displayed graphically, with severity indicated by a red/yellow/green icon. A detailed description of the identified issue as well as suggestions for recommended actions are provided.

In the event that the DVC6200 SIS is commanded to trip, diagnostic data can be gathered automatically to be used for troubleshooting.

Examples of identifiable issues are:

- Valve Stuck
- Solenoid Stuck
- Low or high air supply or pressure droop
- Dirty air supply
- External air leak (actuator diaphragm or tubing)
- Piston actuator O-ring failure
- Excessive or insufficient valve assembly friction
- Broken actuator spring
- Broken valve/actuator shaft

For additional information on FIELDVUE diagnostics and ValveLink software refer to Fisher Bulletin 62.1:ValveLink Software ([D102227X012](#))

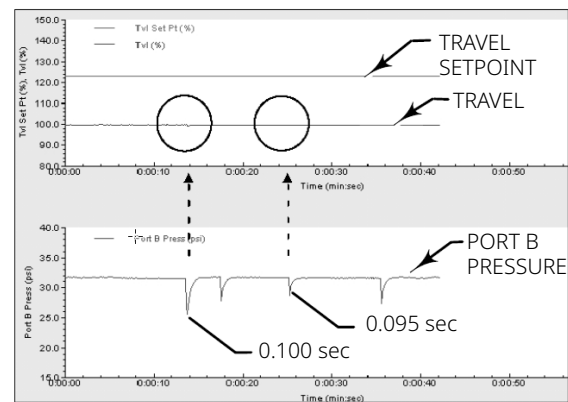
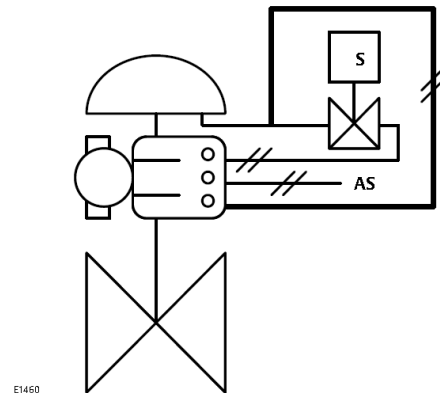
Solenoid Valve Health Monitoring

If a solenoid valve is installed between the DVC6200 SIS pressure output and the actuator, as shown in Figure 4, the operation of the solenoid valve can be verified by configuring the DVC6200 SIS. In single-acting actuator applications, the “unused” output port of the DVC6200 SIS can be piped such that the pressure downstream of the solenoid valve is measured. When the solenoid valve is pulsed, either by the DVC6200 SIS or externally, the DVC6200 SIS can sense the momentary pressure drop across the solenoid valve. The solenoid should be pulsed long enough to detect a pressure drop across the solenoid valve, but not so long that it affects the travel of the final control element. This not only increases the availability of the solenoid valve during a safety demand, but also enhances the reliability of the SIF (Safety Instrumented Function) loop.

NOTE

Solenoid Valve Health Monitoring does not apply to the DVC6200 SIS High Cv.

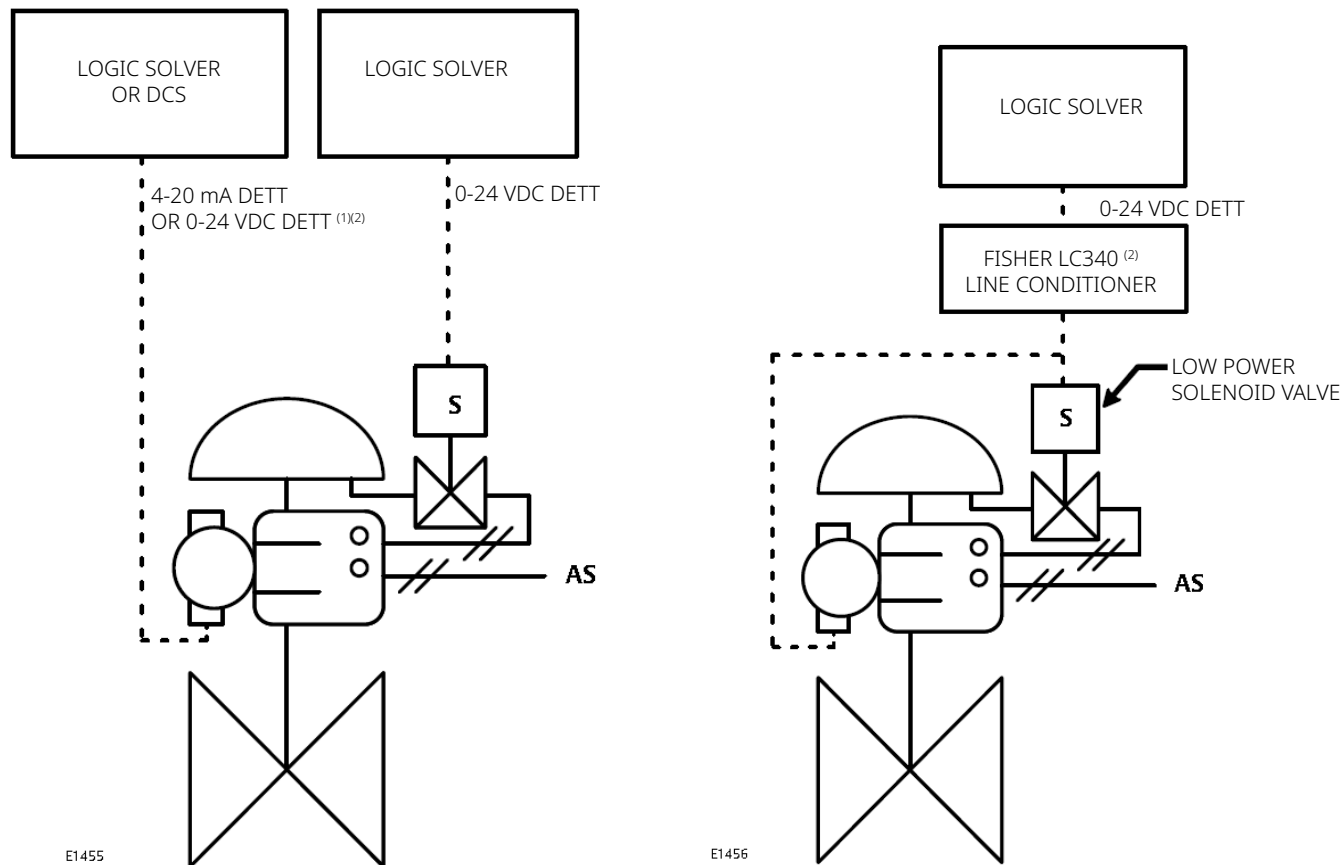
Figure 4. Solenoid Valve Testing



ValveLink Software Screen Image Showing Pressure Drop Across the Solenoid Valve

Application Examples

Figure 5. De-Energize to Trip (DETT) FIELDVUE DVC6200 SIS and DETT Solenoid Valve



Options Available

- LCP100/LCP200 Local Control Panel or external pushbutton
- Integral 4 to 20 mA position transmitter or discrete switch

Benefits

- DVC6200 SIS provides diagnostic coverage with PST
- DVC6200 SIS used with solenoid can provide redundant safety function
- DVC6200 SIS can provide additional diagnostic coverage when optional solenoid pulse recording is utilized
- When powered by 4 to 20 mA, the DVC6200 SIS is capable of recording the demand and reset stroke

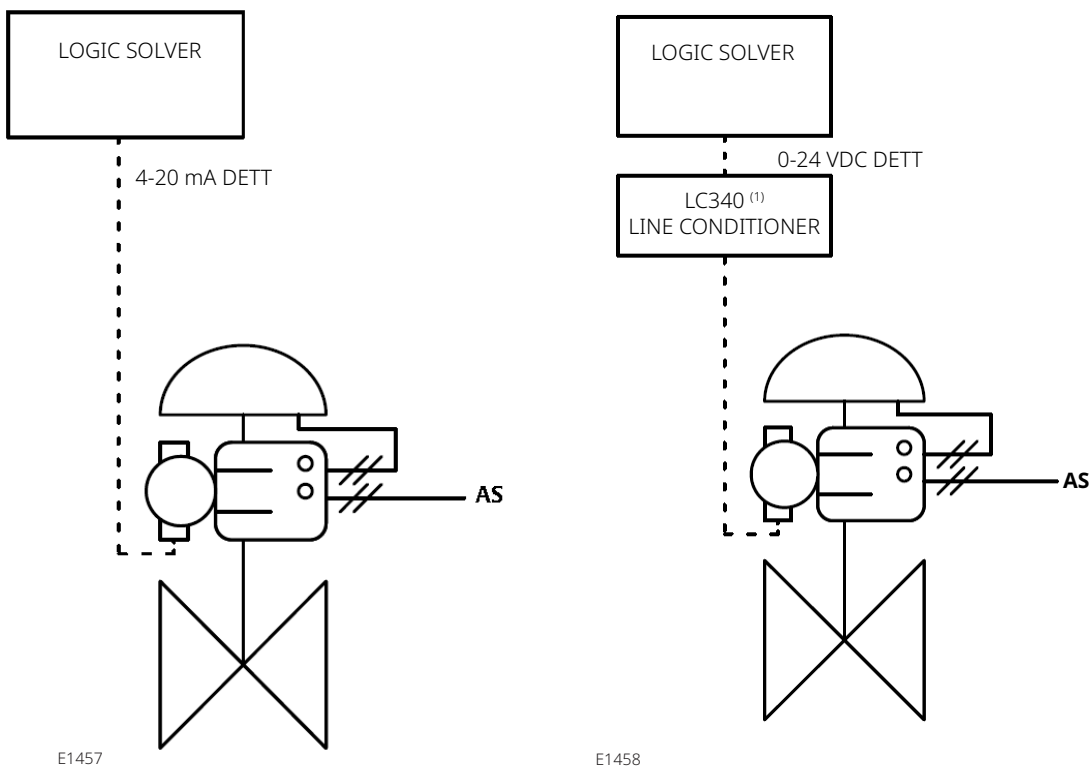
Operation

- DVC6200 SIS will move to the safety demand state upon signal de-energization, loss of power, or loss of pneumatic supply

1. LC340 line conditioner is required for 0 to 24 VDC DETT.

2. LC340 mounting requires standard 35 mm DIN rail; install in marshalling or I/O cabinet, or junction box. For additional information refer to the LC340 instruction manual (D102797X012), available at www.Fisher.com or from your [Emerson sales office](#).

Figure 6. De-Energize to Trip (DETT) FIELDVUE DVC6200 SIS; No Solenoid Valve



Options Available

- LCP100/LCP200 Local Control Panel or external pushbutton
- Integral 4 to 20 mA position transmitter or discrete switch

Benefits

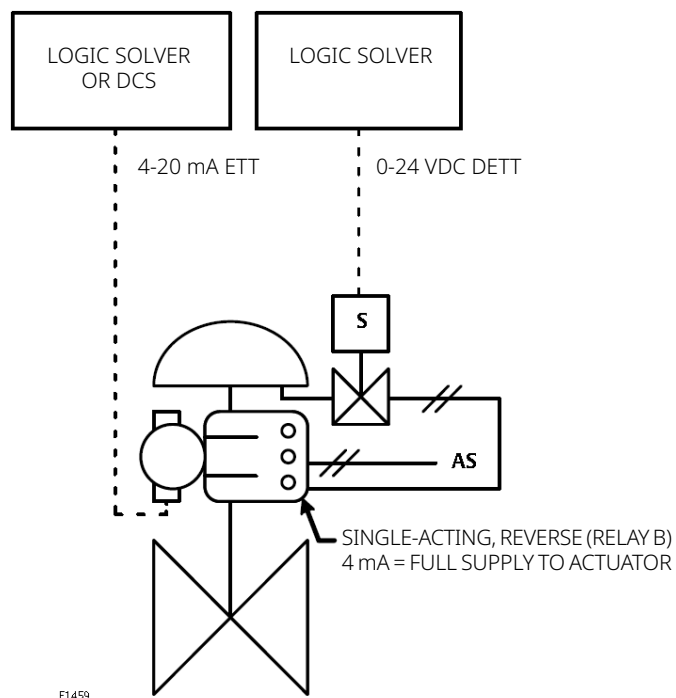
- DVC6200 SIS provides diagnostic coverage with PST
- Eliminates solenoid valve
- When powered by 4 to 20 mA, the DVC6200 SIS is capable of recording the demand and reset stroke

Operation

- DVC6200 SIS will move to the safety demand state upon signal de-energization, loss of power, or loss of pneumatic supply

1. LC340 mounting requires standard 35 mm DIN rail; install in marshalling or I/O cabinet, or junction box. For additional information refer to the LC340 instruction manual ([D102797X012](#)), available at www.Fisher.com or from your Emerson sales office.

Figure 7. FIELDVUE DVC6200 SIS for PST only and DETT Solenoid Valve



Options Available

- LCP100/LCP200 Local Control Panel or external pushbutton
- Integral 4 to 20 mA position transmitter or discrete switch

Benefits

- The energize to trip option provides maximum actuator pressure at minimum control signal (4 mA). Therefore, loss of the control signal will not cause the valve to trip.
- Prevents spurious trip on loss of electrical power to DVC6200 SIS
- DVC6200 SIS can provide additional diagnostics coverage when performing PST
- DVC6200 SIS can provide additional diagnostic coverage when optional solenoid pulse recording is utilized

Operation

- DVC6200 SIS will move to the safety demand state upon signal energization or loss of pneumatic supply
- The solenoid valve will move to the safety demand state upon signal de-energization

Table 1. Specifications

Available Mounting	Output Signal
■ Sliding-stem linear applications ■ Quarter-turn rotary applications ■ Integral mounting to Fisher rotary actuators ■ Integral mounting to Fisher 657/667 or GX Actuators DVC6200 SIS 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	Pneumatic Output: up to full supply pressure Maximum Span: 9.5 bar / 140 psig Action: ■ Double ■ Single Direct or ■ Single Reverse Note: HCV3 is only available for Single Direct action Electronic Output⁽³⁾ ■ Integral 4 to 20 mA Position Transmitter ⁽⁴⁾: 4 to 20 mA output, isolated Supply Voltage: 8 to 30 VDC Reference Accuracy: 1% of travel span Safety Accuracy: 5% of travel span ■ Integral Limit Switch: 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 Safety Accuracy: 5% of travel span
Communication Protocol	
■ HART 5 or ■ HART 7	
Input Signal	
Point-to-Point Analog Input Signal: 4 to 20 mA DC, nominal 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	
Supply Pressure ⁽¹⁾	
Minimum Recommended DVC6200 SIS w/Low Bleed Relay: 0.3 bar / 5 psig higher than maximum actuator requirements DVC6200 SIS High Cv (HCV1, HCV2, HCV3) ⁽²⁾: 2.8 bar / 40 psig required 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 Per ISA Standard 7.0.01 A maximum 40 micrometer particle size in the air system is acceptable, however, the DVC6200 SIS High Cv requires a maximum 5 micrometer particle size. Further filtration down to 5 micrometer particle size for other applications is recommended as well. 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	Steady State Air Consumption ⁽⁵⁾⁽⁶⁾ DVC6200 SIS w/Low Bleed Relay ⁽⁷⁾ At 1.4 bar / 20 psig supply pressure: 0.056 normal m³/hr / 2.1 scfh, average At 5.5 bar / 80 psig supply pressure: 0.184 normal m³/hr / 6.9 scfh, average DVC6200 SIS High Cv At 3.4 bar / 50 psig supply pressure HCV1 Pressurized: 0.033 normal m³/hr / 1.25 scfh Vented: 0.129 normal m³/hr / 4.82 scfh HCV2 Pressurized: 0.039 normal m³/hr / 1.49 scfh Vented: 0.173 m³/hr normal / 6.48 scfh HCV3 Pressurized: 0.144 normal m³/hr / 5.38 scfh Vented: 0.179 normal m³/hr / 6.70 scfh Maximum Output Capacity ⁽⁵⁾ DVC6200 SIS w/Low Bleed Relay ⁽⁶⁾ 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 DVC6200 SIS High Cv HCV1: 1.2 Cv HCV2: 3.2 Cv HCV3: 6.2 Cv exhaust, 3.2 Cv fill Operating Ambient Temperature Limits ⁽¹⁾⁽⁸⁾ -52 to 85 °C / -62 to 185 °F

continued -

Table 1. Specifications (continued)

Independent Linearity ⁽⁹⁾	Electrical Housing
Typical Value: $\pm 0.5\%$ of output span	CSA - Type 4X, IP66 FM - Type 4X, IP66 ATEX - IP66 IECEX - IP66
Electromagnetic Compatibility	
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	
Vibration Testing Method	Electrical Classification
Tested per ANSI/ISA-S75.13.01 Section 5.3.5.	Auxiliary Terminal Contact: Nominal Electrical Rating 5 V, <1 mA
Input Impedance	
An equivalent impedance of 500 ohms may be used. This value corresponds to 10 V at 20 mA.	
Humidity Testing Method	IEC 61010 Compliance Requirements
Tested per IEC 61514-2	Power Source: The loop current must be derived from a separated extra-low voltage (SELV) power source Environmental Conditions: Installation Category I
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 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 Emerson sales office or refer to the DVC6200 SIS product page at Fisher.com for approval specific information	DVC6200 SIS w/Low Bleed Relay 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 DVC6200 SIS High Cv Supply Port HCv1: 3/8 NPT HCv2: 1/2 NPT HCv3: 1/2 NPT Output Port HCv1: 3/8 NPT HCv2: 1/2 NPT HCv3: 1 NPT Vent HCv1: 3/8 NPT HCv2: 1/2 NPT HCv3: 1 NPT Recommended tubing size at least equal to port connection size Minimum inside diameter required HCv1: 7.11 mm / 0.28 in. HCv2: 11.7 mm / 0.46 in. HCv3: 16.5 mm / 0.65 in. Electrical: 1/2 NPT internal or M20

continued -

Table 1. Specifications (continued)

Actuator Compatibility	Construction Materials
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° ⁽¹⁰⁾	Housing, module base and terminal box: A03600 low copper aluminum alloy (standard), Stainless Steel (optional) Cover: Thermoplastic polyester Elastomers: Fluorosilicone
Weight	Options
Aluminum DVC6200 SIS w/low bleed relay: 3.5 kg / 7.7 lbs DVC6200 SIS High Cv: 6.5 kg / 14.3 lbs Stainless Steel DVC6200 SIS w/low bleed relay: 8.6 kg / 19 lbs	■ Supply and output pressure gauges or ■ Tire Valves ■ Integral mounted filter regulator ⁽¹¹⁾ ■ Energize to trip ■ Standard Bleed Relay ■ Remote Mount ⁽¹²⁾⁽¹³⁾ ■ LCP100 local control panel ■ LCP200 local control panel ■ LC340 line conditioner ■ Stainless Steel ■ DVC6200 SIS High Cv
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. - HCv1: 1.2 Cv spool valve, needs a minimum 8 in. diameter cylinder/diaphragm. HCv2: 3.2 Cv spool valve, needs a minimum 12 in. diameter cylinder or 220 in² diaphragm area. HCv3: 6.2 Cv spool valve, needs a minimum 12 in. diameter cylinder or 220 in² diaphragm area. - The electronic output is available with either the position transmitter or the switch. - 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. - 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 single-acting direct relay; values at 5.5 bar / 80 psig based on double-acting relay. - The Quad O steady-state consumption requirement of 6 scfh can be met by a DVC6200 SIS 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. - 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. - Not applicable for travels less than 19 mm / 0.75 in. or for shaft rotation less than 60 degrees. Also not applicable for digital valve controllers in long-stroke applications over 4-in. - Rotary actuators with 180 degree rated travel require a special mounting kit; contact your Emerson sales office for kit availability. - An integral mounted filter regulator is not available with the DVC6200 SIS High Cv. 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. - The position monitor (transmitter or switch) with the remote mount construction is not safety certified.	



Fisher.com



Facebook.com/FisherValves



LinkedIn.com/groups/3941826



X.com/FisherValves

D103555X012 © 2012, 2025 Fisher Controls International LLC. All rights reserved.

Neither Emerson, nor any of its affiliated entities assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Fisher, FIELDVUE, and ValveLink are marks owned by one of the companies in the Emerson business unit of Emerson Electric Co. Emerson and the Emerson logo are trademarks and service marks of Emerson Electric Co. HART is a registered trademark of FieldComm Group. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

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

www.Fisher.com

FISHER™

