

Upgrading from Fisher™ FIELDVUE™ DVC6200 HW1 to DVC6200 HW2

Table of Contents

- Management of Change2
- Background2
- Question & Answer Checklist2
- FIELDVUE DVC6200 HW1 and DVC6200 HW2
Instrument Comparison3**
 - Terminal Box 3
 - Printed Wiring Board 4
 - Rear Housing 4
 - Firmware 4
- DVC6200 HW1 to DVC6200 HW2 Transition
Design Comparison5**
 - Electrical 5
 - Position Control Capability 6
 - Diagnostics Capability 6
 - Operating Ambient Temperature Limits 6
 - Steady State Air Consumption 6
 - Maximum Output Capacity 6
 - Connections 6
 - Available Configurations 6
 - Retrofitting 6
- Conclusion7**
- Additional Resources7**



Management of Change

Management of Change (MOC) is a procedure used to proactively manage changes that have the potential to impact safety or the process within a plant. Evaluating new techniques for improving MOC approval procedures can have an impact on plant efficiency. Historically, upgrading obsolete products or replacing existing process control equipment had been delayed or abandoned due to the extensive paperwork involved in completing a complex MOC approval sheet.

Displayed in the following sections are design comparisons between the current DVC6200 HW2 and legacy HW1 products. These comparisons demonstrate how the design of Fisher instrument technologies users to efficiently transition to newer Fisher™ FIELDVUE™ products.

Background

In order to continue to increase the usefulness and value of the DVC6200 digital valve controller, additional features and functions have been implemented within the electronics hardware (HW) and firmware. These changes include a new auto travel calibration button, simplified wiring terminals, and HART 7 device registration.

Question & Answer Checklist

- 1** **Q:** Does the proposed modification cause any changes to the piping and instrumentation diagram (P&ID)?
A: No.

- 2** **Q:** Does the proposed modification change process chemistry, technology, or operating and control philosophies?
A: No.

- 3** **Q:** Have the operating and design limits of the proposed modification changed?
A: No.

- 4** **Q:** Have the codes and standards to which the new equipment has been designed changed?
A: No.

- 5** Q: Does the proposed modification change the Hazardous Electrical Area classification?
A: Yes. The Intrinsic Safety parameters and T-Codes have changed. See the electrical section in this document for details.
- 6** Q: Does the proposed modification change existing or create new demands for battery back-up or other power supply redundancy or reliability?
A: No.
- 7** Q: Does the proposed modification introduce new equipment that needs to be operated and, has a new operations list been stated?
A: No.
- 8** Q: Does the proposed modification introduce new equipment items that require spare parts, training manuals, maintenance procedures or training to teach the maintenance department how to maintain them?
A: No.
- 9** Q: Does the proposed modification change the spares for existing pieces of equipment?
A: Yes. New spare parts include the terminal box, printed wiring board, and rear housing.
- 10** Q: Does the proposed modification introduce new equipment items that require periodic predictive maintenance?
A: No.

FIELDVUE DVC6200 HW1 and DVC6200 HW2 Instrument Comparison

There are four elements of the DVC6200 instrument which have changed with this HW2 enhancement:

Terminal Box

Two push buttons have been added to the terminal box to improve ease of use. The “CAL” button allows the user to perform an auto travel calibration routine locally at the valve without the need for additional tools. This button is disabled

by default from the factory and must be enabled by a HART communicating host. The other push button, to the right of the “CAL” push button, is labeled with a padlock symbol. This push button is used during the routine to remove instrument protection (not common). Instrument protection is disabled by default from the factory.

The “AUX” terminals have been removed from the HW2 construction. In the HW1 construction, the AUX terminals could be configured to initiate an auto calibration routine. With the new “CAL” push button, the AUX terminals became unnecessary. The AUX terminals could alternatively be configured to monitor an open/close circuit wired to the terminals. If the terminals detected a closed circuit (perhaps triggered by a local switch) then the DVC6200 could communicate an “AUX Input Alert” to a HART communicating host. This feature was seldom used and therefore removed from the instrument.

The “TEST” terminals have been removed from the HW2 construction. These terminals were available to measure the loop current without having to disrupt the LOOP wiring. This feature was seldom used and therefore removed from the instrument. Loop current can be read from the device using any HART host via Universal Command 3.

Printed Wiring Board

The printed wiring board (PWB) is a matched set with the terminal box. The usability features of the PWB are unchanged.

Rear Housing

The rear housing is also a matched set with the terminal box and printed wiring board. The usability features of the rear housing are unchanged. There has been no change to the method of mounting the DVC6200 HW2 instrument to a control valve actuator.

Firmware

The firmware has been updated to support the new electrical features. Additionally, the DVC6200 instrument is HART 5 and HART 7 registered with the HART Communication Foundation. This registration resulted in new device type identification (device type 09 for HART 5 and device type 1309 for HART 7). This requires the latest Device Descriptions (DD) to be installed on a HART communicating host. The latest DD's can be obtained from the www.emerson.com or the HART Communication Foundation website

Component	HW2
I/P Converter	No change
Pneumatic Relay	No change
Printed Wiring Board (PWB)	New
Terminal Box	New
Cover	No change
Module Base	No change
Back Housing	New
Mounting	No change
Firmware	New

Table 1. FIELDVUE DVC6200 Instrument Component Codes

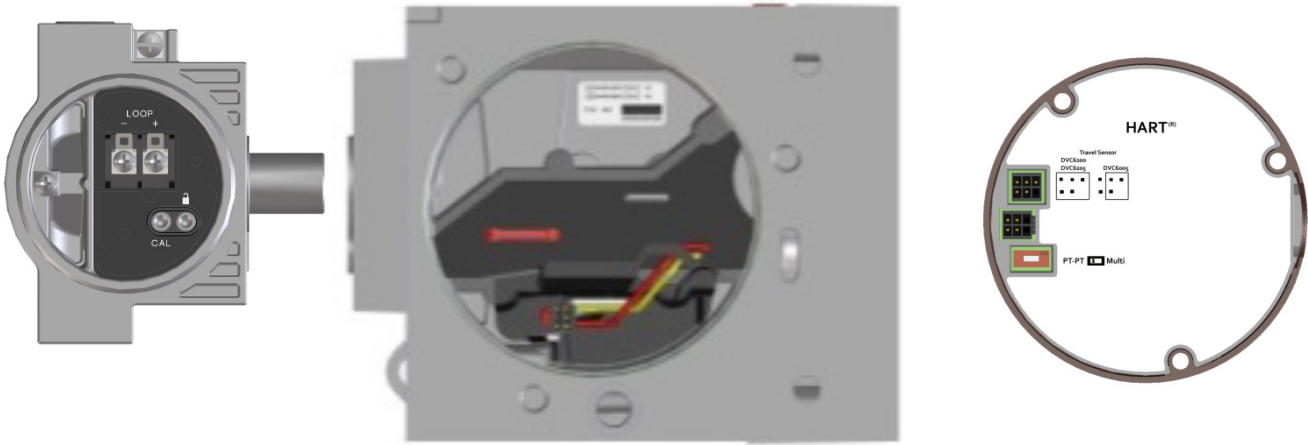


Figure 1. DVC6200 Terminal Box, Rear Housing, and Printed Wiring Board

DVC6200 HW1 to DVC6200 HW2 Transition Design Comparison

Electrical

The Intrinsic Safety parameters are different between HW1 and HW2.

Instrument	HW1	HW2	Comment
Vmax	30 VDC	30 VDC	No change
I _{max}	226 mA	130 mA	-96 mA
C _i	5 nF	15 nF	+10 nF
L _i	0.55 mH	0.55 mH	No change
P _i	1.4 W	1.0 W	-0.4 W
T ₅	≤ 80°C	≤ 80°C	No change
T ₆	≤ 75°C	≤ 74°C	-1°C

Table 2. Intrinsic Safety Parameter Changes

Additionally, the ATEX approval for Explosive Dust Atmospheres (Ex tD) is not available with the HW2 instrument.

Position Control Capability

No change.

Diagnostics Capability

No change.

Operating Ambient Temperature Limits

No change.

Steady State Air Consumption

No change.

Maximum Output Capacity

No change.

Connections

The terminals are different between HW1 and HW2.

HW1	HW2
LOOP +/-	LOOP +/-
Ground	Ground
TALK +/-	TALK +/-
AUX +/-	--
TEST +/-	--

Table 3. Terminal Differences

Available Configurations

All existing constructions are supported with the new HW2 electronics.

Retrofitting

Individual components cannot be upgraded from HW1 to HW2. The Terminal Box, Rear Housing, and PWB are a matched set and must be upgraded as a set. For example, a damaged HW1 terminal box must be replaced with a HW1 terminal box, not a HW2 terminal box.

Conclusion

The FIELDVUE DVC6200 digital valve controller continues to be the most reliable digital valve controller in production. The design philosophy allows the user the flexibility to transition from legacy FIELDVUE products to the current DVC6200 instrument, avoiding lengthy MOC approval documents.

Additional Resources

[Product Bulletin \(D103415X012\)](#)

[Quick Start Guide \(D103556X012\)](#)

[Instruction Manual \(D103605X012\)](#)



Visit [Fisher.com](http://www.fisher.com) to
find an Emerson sales
contact in your area.



<http://www.Facebook.com/FisherValves>



<http://www.Twitter.com/FisherValves>



<http://www.YouTube.com/user/FisherControlValve>



<http://www.Linkedin.com/groups/Fisher-3941826>

© 2018 Fisher Controls International LLC. All rights reserved.

Fisher and FIELDVUE are marks owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. Emerson and the Emerson logo are trademarks and service marks of Emerson Electric Co. 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, nothing herein is to be construed as a warranty or guarantee, express or implied, regarding the products or services described herein or their use, performance, merchantability or fitness for a particular purpose. Individual results may vary. 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 our products at any time without notice. Responsibility for proper selection, use and maintenance of any product or service remains solely with the purchaser and end user.

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