

775 Smart Wireless THUM™ Adapter

The Smart Wireless THUM adapter is a device for use on HART® communicating instruments such as the Fisher® FIELDVUE® digital valve controller. The THUM adapter adapts the wired HART protocol to the *WirelessHART™* protocol.

In many process facilities, HART communicating field devices have been installed and working for years. However, getting important information such as valve health to the people who need it is a challenge, as diagnostic information is often inaccessible.

A wireless network can be deployed to gain access to valve diagnostics. The THUM adapter is installed on field devices one at a time – significantly reducing the risk and impact of installation error. Plus, the network is scalable. Start with one THUM adapter on a DVC6000 digital valve controller, as shown in figure 1. Then, as you see the value it brings, add more devices to the network.

Features

- **Loop Powered**—No batteries to replace. No maintenance required.
- **Reliable Wireless**—The *WirelessHART* communication protocol provides the high level of communication reliability required in process control applications.
- **Rugged Construction**—The electronics are fully encapsulated and enclosed in an aluminum housing.
- **Security**—The *WirelessHART* self-organizing mesh network includes encryption, authentication, and authorization mechanisms to provide industry leading security.
- **Diagnostics**—The THUM adapter enables configuration, calibration, and valve health monitoring.

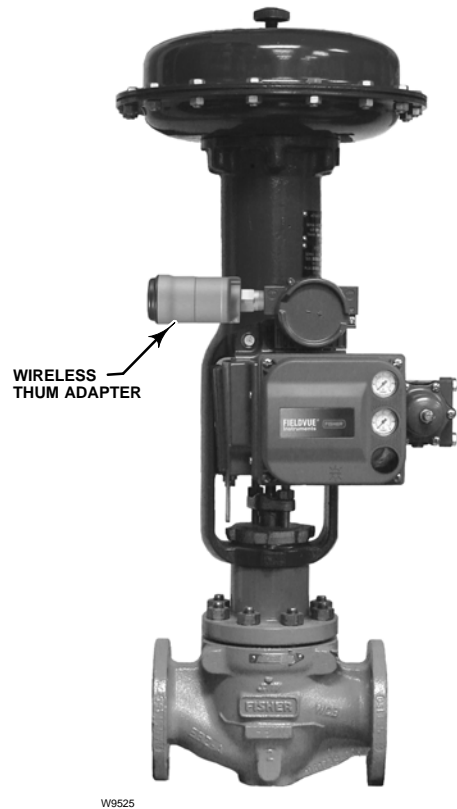


Figure 1. Sliding-Stem Control Valve with FIELDVUE DVC6010 Digital Valve Controller and the Wireless THUM Adapter

- **Reduced Installation Errors**—The THUM adapter can be installed right on the valve, so you don't have to worry about the risk of disturbing the wrong twisted pair of wires.

Note

Neither Emerson, Emerson Process Management, nor any of their affiliated entities assume responsibility for the selection, use, or maintenance of any product. Responsibility for the selection, use, and maintenance of any product remains with the purchaser and end-user.

Specifications

Functional Specifications

Input

Any 2–or 4–wire HART 5.0 powered device

Output

WirelessHART Communication Protocol

Humidity Limits

0–100% relative humidity

Burst Rate

User selectable, 8 sec. to 60 min.

Physical Specifications

Electrical Connections

The THUM adapter is connected in series with the 4–20 mA loop.

Power Requirements

SmartPower™: Power scavenging technology (no battery required)

The THUM adapter draws power by drawing voltage from the loop. The drop is linear from 2.25 volts at 3.5 mA to 1.2 volts at 25 mA, but does not affect the 4–20 mA current signal. Under fault conditions, the maximum voltage drop is 2.5 volts.

Materials of Construction

Enclosure

Housing – Low–copper aluminum
Paint – Polyurethane

Antenna

Poly butadine terephthalate (PBT)/Polycarbonate (PC) integrated omnidirectional antenna

Weight

0.29 kg (0.65 lb)

Enclosure Rating

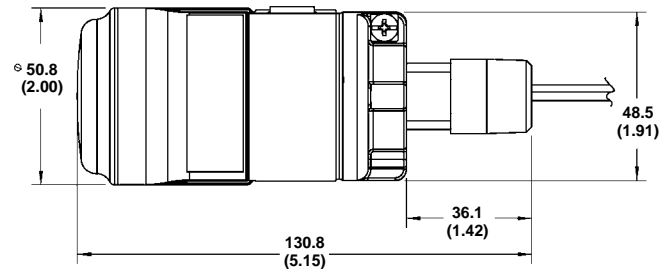
NEMA 4X and IP66

Mounting

May be installed anywhere on the control wiring loop. Typically, mounting will be on or near the control valve. May be mounted directly on the available conduit opening of the terminal box.

Mounting Connection: 1/2 NPT external

Dimensions



Performance Specifications

ElectroMagnetic Compatibility (EMC)

All Models

Meets all relevant requirements of EN 61326–1 (2006) when installed with shielded wiring. The sub–device must also use shielded wiring for installation.

Vibration Effect

Output unaffected when tested per the requirements of IEC60770–1 field with general application or pipeline with low vibration level (10–60 Hz 0.15mm displacement peak amplitude / 60–500 Hz 2g).

When the THUM adapter is used on wired devices that are subject to vibration levels greater than 2 g, it is recommended that the THUM adapter be remotely mounted.

Temperature Limits

Operating and Storage Limits: –40 to 85°C
(–40 to 185°F)

Output Specifications

The THUM adapter allows *WirelessHART* communication between the HART device it is connected to and the Smart Wireless Gateway

Smart Wireless THUM Adapter Applications



Figure 2. THUM Adapter

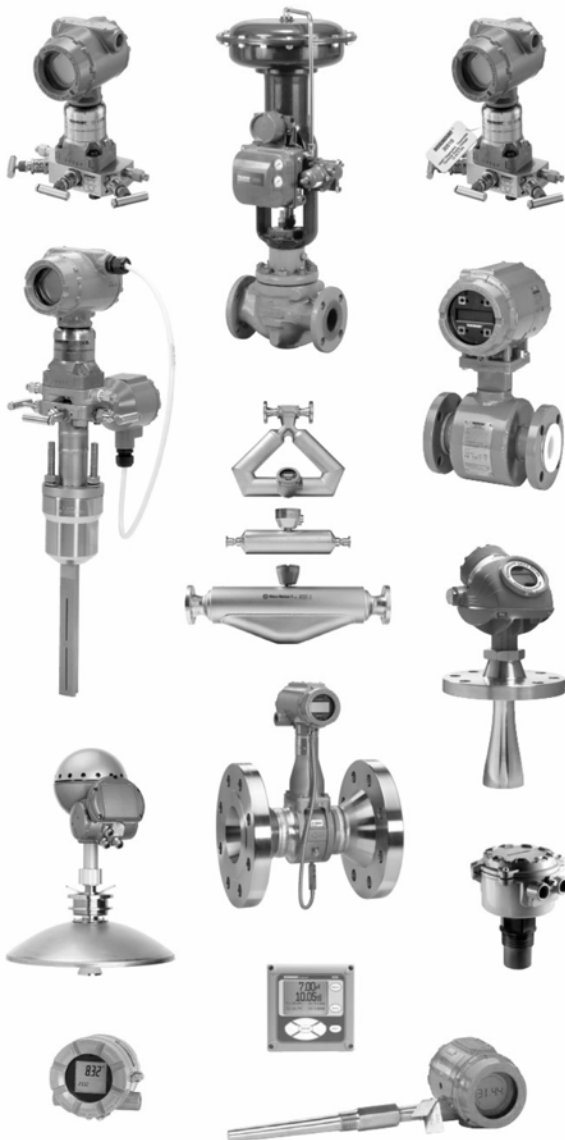


Figure 3. HART Devices Available from Emerson Process Management

Enable Enhanced Valve Capabilities

- Online, in-service valve testing through AMS® ValveLink® SNAP-ON™ Application
- Monitor alerts such as travel deviation, supply pressure, and electronics health with AMS Device Manager
- Trend actual valve position

Gain Access to Advanced Instrument Diagnostics

- Rosemount® 3051S with Advanced Process Diagnostics
- Micro Motion® Coriolis Meter Verification with optional AMS Meter Verification SNAP-ON
- Rosemount Radar Echo Curve
- Rosemount Magnetic Flow Meter Verification™ with AMS Device Manager

Efficiently Gather Data from Multivariable Devices

- Rosemount 3051SMV MultiVariable™ and 3095 Mass Flow Transmitters
- Rosemount 3300 and 5300 Radar Level Transmitters
- Micro Motion Coriolis Meters
- Rosemount TankRadar Rex and TankRadar Pro
- Rosemount Magnetic Flowmeters
- Rosemount Multivariable Vortex Flowmeter

Make any HART Device Wireless to Enable New Measurement Points

- Level
- Flow
- Valves
- Liquid and Gas Analytical
- Pressure
- Temperature

Remotely Manage Device and Monitor Health with AMS Device Manager

- Reduce troubleshooting time
- As found, as left data
- Calibration tracking

Product Certifications

European Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found at www.rosemount.com. A hard copy may be obtained by contacting an Emerson Process Management representative.

Emerson Process Management complies with following directives:

- *ATEX Directive (94/9/EC)*
- *Electro Magnetic Compatibility (EMC) (2004/108/EC)*
- *Radio and Telecommunications Terminal Equipment Directive (R&TTE) (1999/5/EC)*

Telecommunication Compliance

All wireless devices require certification to ensure that they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification. Emerson is working with governmental agencies around the world in order to comply with country directives and laws that govern wireless device usage.

FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

Ordinary Location Certification for FM

As standard, the transmitter has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

Hazardous Locations Certificates

North American Certificates

Factory Mutual (FM) Approvals

FM Intrinsic Safety and Non-incendive

Intrinsically Safe for Class I/II/III, Division 1, Groups A, B, C, D, E, F, G.

Zone Marking: Class I, Zone 0, AEx ia IIC

Temperature Codes T4 ($-50^{\circ}\text{C} \leq T_{\text{amb}} \leq 70^{\circ}\text{C}$)

Non-incendive for Class I, Division 2, Groups A, B, C, D.

Intrinsically safe and non-incendive when installed according to Rosemount Drawing 00775-0010.

Enclosure Type 4X/IP66

CSA – Canadian Standards Association

CSA Intrinsic Safety

Intrinsically Safe for Class I, Division 1, Groups A, B, C, D.

T3C ($-50^{\circ}\text{C} \leq T_{\text{amb}} \leq 70^{\circ}\text{C}$)

Intrinsically Safe when installed according to Rosemount Drawing 00775-0012.

Suitable for Class 1, Division 2, Groups A, B, C, D.

Enclosure Type 4X / IP66

European Certifications

ATEX Intrinsic Safety

Certificate No.: Baseefa09ATEX0125X  II 1G

Ex ia IIC T5 ($-50^{\circ}\text{C} \leq T_{\text{amb}} \leq 40^{\circ}\text{C}$)

Ex ia IIC T4 ($-50^{\circ}\text{C} \leq T_{\text{amb}} \leq 70^{\circ}\text{C}$)

IP66

CE 1180

Loop Power: $U_i = 30\text{V}$; $I_i = 200\text{ mA}$; $P_i = 1.0\text{ W}$; $C_i = 0$; $L_i = 0$

Special conditions for safe use (X)

The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

ATEX Type n

Certificate No.: Baseefa09ATEX0131  II 3G

Ex nAnL IIC T4 ($-50^{\circ}\text{C} \leq T_{\text{amb}} \leq 70^{\circ}\text{C}$)

$U_i = 45\text{ Vdc MAX}$

IP66

CE 1180

IECEx Certifications

IECEx Intrinsic Safety

Certificate No.: IECEx BAS 09.0050X

Ex ia IIC T5 ($-50^{\circ}\text{C} \leq T_{\text{amb}} \leq 40^{\circ}\text{C}$)

Ex ia IIC T4 ($-50^{\circ}\text{C} \leq T_{\text{amb}} \leq 70^{\circ}\text{C}$)

IP66

Loop Power: $U_i = 30\text{V}$; $I_i = 200\text{ mA}$; $P_i = 1.0\text{ W}$; $C_i = 0$; $L_i = 0$

Special conditions for safe use (X)

The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

IECEx Type n

Certificate No.: IECEx BAS 09.0058

Ex nAnL IIC T4 ($-50^{\circ}\text{C} \leq T_{\text{amb}} \leq 70^{\circ}\text{C}$)

$U_i = 45\text{ Vdc MAX}$

IP66

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