Data Sheet
2101155-AI

XMV Multi-Variable Transmitter Overview

Accessories
Accessories

INTRODUCTION

The ABB **XMV** (267CS/269CS) measures Static Pressure, Differential Pressure, and Process Temperature in a vapor or liquid media. The XMV (multi-variable transmitter) is a two - wire RS 485 Modbus device with two additional wires required for power. It has a permissible terminal voltage range of 10.5 - 30 VDC. The current draw is approximately 11.7 mA per XMV. This unit is designed to operate with the ABB Totalflow ***X*FC** (e***X***pandable **F**low **C**omputer) or ***X*RC** (e***X***pandable **R**emote **C**ontroller). The combination of an *X*RC and one or more XMVs makes an ideal solution when multi-tube measurement is required or when the transmitters must be located in a Class I, Division 1, Group A, B, C, or D area.

All Totalflow *X*Series devices (G3 or G4) can easily be configured to communicate with the XMV. G4 devices utilize an XMV Interface application that makes the interface to XMVs "plug-and-play". The data from the XMV is then available to be utilized by any of the applications (AGA tube apps, trending, etc.) within the *X*FC/*X*RC. (see "ABB Multivariable (XMV) with Totalflow *X*Series Equipment User's Setup
Manual - 2101562-001" for complete setup details)

FEATURES

- Base accuracy: ± 0.075 % (267CS)
  ± 0.040 % (269CS)
- Available Span limits
  - ◊ Differential Pressure Sensors:
    25 in H_2O (60 mbar), 160 in H_2O (400 mbar), 400 in H_2O (1000 mbar), and 1000 in H_2O (2500 mbar)
  - ◊ Absolute Pressure Sensors:
    300 psia (20 bar), 1500 psia (100 bar), and 6000 psia (410 bar)
- One transmitter replaces three separate transmitters.
  - ◊ saving initial purchase costs
- Reduced process penetrations
  - ◊ saves money and reduces the chance of leaks
- Fewer transmitters, less wiring and fewer shut-off valves
  - ◊ reduce installation costs
- Explosion Proof: Class I, Division 1, Groups A, B, C, D
  Non Incendive: Class I, Division 2, Groups A, B, C, D
  Flame Proof: ⟨Ex⟩ II 1/2G ; EExd IIC T6 (ATEX)
- Easily configured to communicate with Totalflow XRC (remote controllers) or XFC (flow computers) using Modbus interface
- Optional Display (LCD)
  - ◊ plug-in and rotatable
  - ◊ display current DP, SP, and temperature
  - ◊ ability to display any additional information that is available from an *X*Series device (orifice plate size, etc.)
- Local Control Keys (standard)
  - ◊ may be used for transmitter configuration (baud rate, Modbus slave address, etc.). Optional Display (LCD) is needed to view the configuration.
- Operates on 10.5 to 30 VDC
- MODBUS RS485 Digital Communications
- Supply current ~10 mA, transmitting supply current does not exceed 25 mA

Measuring Accuracy

Reference conditions according to IEC 60770 apply: ambient temperature of 20° C (68° F), relative humidity of 65 %, atmospheric pressure of 1013 mbar (14.7 psi), mounting position with vertical diaphragm and zero-based range for transmitter with isolating diaphragms in Hastelloy and silicone oil fill.

Unless otherwise specified, errors are quoted as % of span.

In order to optimize performance characteristics, it is recommended to select the transmitter sensor providing the lowest range-down ratio.

Accuracy Rating

Percentage of calibrated span including combined effects of linearity, hysteresis and reproducibility.

Differential Pressure Sensor (267CS)
- ± 0.075% for range-down from 1:1 to 10:1

Differential Pressure Sensor (269CS)
- ± 0.04% for range-down from 1:1 to 10:1

Absolute Pressure Sensor (267CS/269CS)
- 0.075% of the URL of the absolute pressure sensor

Process Temperature Measurement (Pt 100 RTD)
- ± 0.3° C (0.54° F)

Available Transmitter Ranges

The ABB Totalflow base part numbers for the XMV are as follows:

- ± 0.075% accuracy (DP) 267CS
  - ◊ 1641026-xxx (with local keys, no display)
  - ◊ 1641027-xxx (with local keys, LCD display)
  - ◊ 1641025-xxx (with local keys, LCD display [ATEX version])
- ± 0.04% accuracy (DP) 269CS
  - ◊ 1641024-xxx (with local keys, LCD display)

Part Number	Differential Pressure Range	Static Pressure Range
xxxxxxx-001	60 mbar (25 " H_2O)	410 bar (6000 psi)
xxxxxxx-002	60 mbar (25 " H_2O)	20 bar (300 psi)
xxxxxxx-003	60 mbar (25 " H_2O)	100 bar (1500 psi)
xxxxxxx-004	400 mbar (160 " H_2O)	410 bar (6000 psi)
xxxxxxx-005	400 mbar (160 " H_2O)	20 bar (300 psi)
xxxxxxx-006	400 mbar (160 " H_2O)	100 bar (1500 psi)
xxxxxxx-010	1000 mbar (400 " H_2O)	410 bar (6000 psi)
xxxxxxx-011	1000 mbar (400 " H_2O)	20 bar (300 psi)
xxxxxxx-012	1000 mbar (400 " H_2O)	100 bar (1500 psi)
xxxxxxx-007	2500 mbar (1000 " H_2O)	410 bar (6000 psi)
xxxxxxx-008	2500 mbar (1000 " H_2O)	20 bar (300 psi)
xxxxxxx-009	2500 mbar (1000 " H_2O)	100 bar (1500 psi)

General Specifications		
Dimensions (approximate)	Width	5.4 in. (137 mm) with LCD display
	Height	7.32 in. (186 mm)
	Depth	5.51 in. (140 mm) with electrical and RTD connections
Weight (approximate)		8 lbs (3.5 kg)
Certification	Explosion Proof (approved Div 1 RTD available)	Class I, Div1, Groups A, B, C, D, T6 (not including Ether atmospheres) Class II, Div 1, Groups E, F, G: Class III, Div 1
	Non Incendive	Suitable for Class I, Div 2, Groups A, B, C, D, T4A
	Directive 94/9/EC (ATEX) Flame Proof	II 1/2G; EExd, IIC, T6; Class I Zone 1 (ambient temperature range: 40ºF to 167°F (-40º C to 75°C)
Mounting		Wall, pipe or direct
Operating Temperature Limits *Note: for hazardous atmosphere applications, see the temperature range specified on the relevant certificate/approval*	Transmitter	-40ºF to 176°F (-40º C to 80°C)
	LCD Display	-4ºF to 158°F (-20º C to 70°C)
Humidity		Up to 100%; condensation, icing permitted
Electromagnetic compatibility (EMC) *(according to EN 550011) Meets NAMUR recommendations*	Definition	Class 3
	RFI Suppression	Limit Class B
Low Voltage Directive		Meets 73/23/EC
Vibration Resistance		Acceleration up to 2 g at frequencies up to 1000 Hz (according to IEC 60068-2-26)
Shock Resistance *(according to IEC 60068-2-27)*	Acceleration	50 g
	Duration	11 ms
Wet and Dust-laden Atmospheres (protection type)		The transmitter is dust and sand-tight and protected against immersion effects as defined by IEC EN60529 (1989) to IP 67 or by NEMA to 4X or by JIS to C0920. Protection type with plugged connection: IP 65

Operating Influences	
Power Supply	Within the specified limits for the voltage/load the total influence is less than 0.001% of URL per volt
Electromagnetic Fields	Total effect: less than 0.05% of span from 80 to 1000 MHz and for field strengths up to 10 V/m when tested with unshielded conduit, with or without meter.
Installation Position	Rotations in the plane of the transmitter diaphragm have negligible effect. A tilt from vertical causes a zero shift of sin α x 0.35 kPa (3.5 mbar, 1.4 in H_2O) of URL which can be corrected with the zero adjustment. No effect on the span.
Stability	± 0.15% of URL over a sixty month period
Vibration Effect	± 0.10% of URL (according to IEC 61298-3)
Ambient Temperature Effect **DP Sensor** Between the temperature of -10ºC to +60ºC (14ºF to +140ºF) Per 10ºC (18ºF) change between the limits of -40ºC to -20ºC (-40ºF to -4ºF) and 65ºC to 80ºC (149ºF to 179ºF) per 20ºC (36ºF) change between the limits of –20ºC to + 65ºC (-4ºF to +149ºF) **SP Sensor** per 20ºC (36º F) change between the limits of –40ºC to +80ºC (-40ºF to +176ºF)	Differential pressure sensor: ± (0.08% URL/Span + 0.065%) span : 267CS ± (0.06% URL/Span + 0.050%) span : 269CS ± (0.033% URL/Span + 0.040%) span : 267CS ± (0.025% URL/Span + 0.030%) span : 269CS ± (0.04% URL + 0.065% span) : 267CS ± (0.03% URL + 0.050% span) : 269CS Absolute pressure sensor: ± (0.08% URL + 0.08% span): 267CS/269CS Limited to ± (0.1% URL + 0.1% span) per the complete temperature range of 120º C (216º F)
Static Pressure Effect (DP Zero) (zero errors can be calibrated out at line pressure)	Up to 100 bar (1450 psi): 0.05% of URL > 100 bar (1450 psi): 0.05% URL per 100 bar (1450 psi)
Static Pressure Effect (DP Span)	Up to 100 bar (1450 psi): 0.05% of span > 100 bar (1450 psi): 0.05% of span per 100 bar (1450 psi)

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ABB Inc.
Totalflow Products
7051 Industrial Blvd.
Bartlesville, OK 74006
Tel: (918) 338-4888
Fax: (918) 338-4699
(800) 442-3097

For more information, please contact your local ABB Totalflow representative or visit our website.