



PRODUCT DATASHEET

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Rosemount™ 2410 Tank Hub

for tank gauging systems



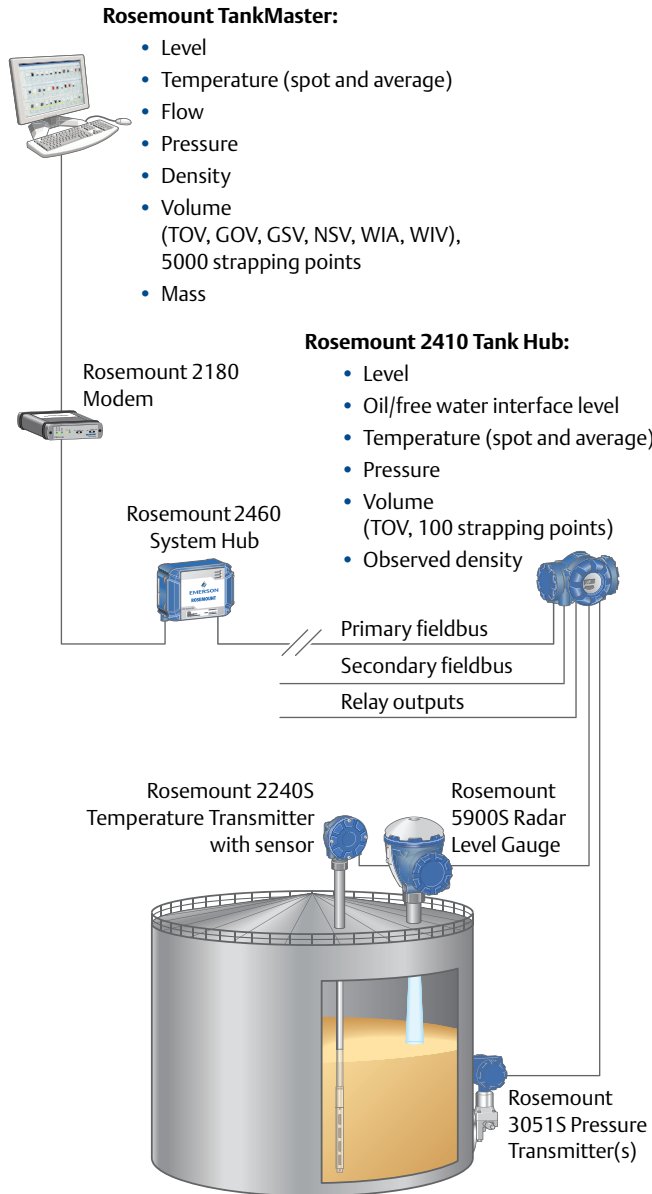
Handles communication between tank devices and the control room

- Save installation cost with the bus-powered intrinsically safe 2-wire Tankbus
- Calculate average temperature, observed density, and strapping table based volume
- Simplify start-up with tank device auto-configuration
- Many communication possibilities, including Modbus®, IEC 62591 (WirelessHART®), and emulation of other vendors' protocols
- Two configurable alarm output relays
- Certified SIL 2 or SIL 3

Rosemount 2410 Tank Hub for single or multiple tanks

Efficient communication between tanks and control room

Rosemount 2410 handles communication between the field devices and the control room. It also provides IEC 61508 certified SIL 2 and SIL 3 overfill prevention alarm outputs for the Rosemount Tank Gauging System. The device is available in two versions, for single and multiple tanks.



Tankbus communication

The Rosemount 2410 Tank Hub communicates with and powers the devices on one or several tanks via the Tankbus.

The Tankbus complies with Fieldbus Intrinsically Safe Concept (FISCO) FOUNDATION™ Fieldbus.

By using FISCO, there is no need to take entity parameters into consideration. It makes it easy to connect devices.

In addition, the available power from a FISCO power supply is higher compared to a conventional entity power supply. This enables the connection of more devices on the Tankbus.

Auto-configure tank devices

The Rosemount 2410 supports the auto-configuration of the Tankbus devices within the Rosemount Tank Gauging System. It acts as a FOUNDATION Fieldbus master on the Tankbus, which means it identifies and auto-addresses field devices in the network, manages communication, and supervises the status of all connected devices. It also includes extensive built-in diagnostics.

Data handling and calculation

Rosemount 2410 collects measurement values such as level, temperature, and pressure.

It calculates average temperature, observed density, and strapping table based volume.

Such data can be presented on the optional integrated back-lit display, a separate Rosemount 2230 Graphical Field Display, and can be sent to Rosemount TankMaster™ or a host system.

Improve data security

All tank hubs have a software write protection function.

In addition, the Rosemount 2410 with display option is equipped with a hardware write protection switch.

Control room communication

Rosemount 2410 has slots for two independent communication boards (primary and secondary fieldbus) for TRL2 Modbus, RS485 Modbus, emulation, and wireless communication.

Contents

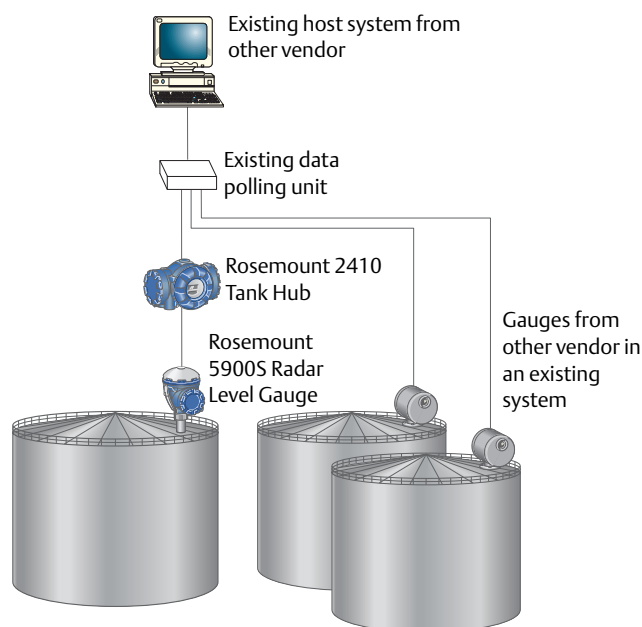
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Emulate gauges from other vendors

Rosemount 2410 enables replacement of old mechanical/servo gauges with modern Rosemount devices.

When an old gauge from another vendor is replaced with a tank hub connected to a Rosemount field device, the tank hub will act just like the replaced gauge.

By using the other vendor's field and control room communication protocol together with modern Rosemount tank gauging devices, the legacy system can be modernized step-by-step. The legacy system can be upgraded while tanks are in operation, and the existing wiring can be re-used.



Rosemount 2410 and Rosemount 5900S replacing a servo gauge in a system from another vendor. Rosemount devices are seamlessly integrated into the existing system.

Power supply with built-in cable terminator

Rosemount 2410 supplies power to the units on the Tankbus.

It is equipped with an integrated FISCO-certified IS barrier, has power conditioner functionality, and built-in electronics for bus termination. A terminator at each end of the Tankbus ensures that the fieldbus network has proper signal levels.

All these features enable the easy setup of the Rosemount Tank Gauging System.

Analog input/output

The Rosemount 2410 Tank Hub can be ordered with:

- An analog input
- An analog output for connection to a host system
- The analog output is available as certified SIL 2 for overfill prevention or dry-run protection. Suitable for connection to an automatic overfill prevention system.

Output relay functionality

Rosemount 2410 can be equipped with two solid state relays that can be configured to be controlled by level, temperature, and water level. The output is normally connected to an external system for alarm indication or process control.

These relays are user-configurable for normally open or closed operation. They can be either certified SIL 2, and used for overfill prevention via an emergency shutdown system (ESD), or non-SIL.

A third separate relay dedicated for SIL 3 overfill functionality can also be included. This relay is activated both if the alarm level is reached and/or if a device malfunction occurs. It operates in a normally closed mode, and the output can be connected to an ESD system.

Wireless communication

The Emerson™ Wireless 775 THUM™ Adapter acts as a wireless data link between the tank hub and an Emerson Wireless Gateway in a WirelessHART field network. Available tank data such as level, temperature, etc. are transmitted via the wireless THUM Adapter.



The Rosemount 2410 Tank Hub connected to an Emerson Wireless 775 THUM Adapter assembly with integrated junction box.

Ordering information

Rosemount 2410 Tank Hub



Additional information:

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Certifications: [page 18](#)

Dimensional drawings: [page 28](#)

Table 1. Rosemount 2410 Tank Hub Ordering Information

Model	Product description
2410	Tank Hub
Tankbus: number of tanks	
S	Single tank
M	Multiple tanks (Maximum 5 Rosemount 5300/5400 transmitters can be connected to one tank hub)
Tankbus: power and communication	
F	Intrinsically safe FOUNDATION Fieldbus (IEC 61158) power supply
Primary fieldbus	
R	TRL2 Modbus
4	RS485 Modbus
E	Enraf® Bi-phase Mark GPU
B ⁽¹⁾	Analog output 4-20 mA/HART, passive (non-IS)
7 ⁽¹⁾	Analog input 4-20 mA/HART, passive (non-IS)
Secondary fieldbus	
R ⁽²⁾	TRL2 Modbus
E ⁽²⁾	Enraf Bi-phase Mark GPU
W ⁽³⁾⁽⁴⁾	WirelessHART (IEC 62591) connectivity (IS)
L ⁽²⁾	L&J Tankway Slave 1500 XL/MCG 2000
V ⁽²⁾	Varec® Mark/Space GT 1800/1900
H ⁽²⁾	Whessoe WM 550/660 (digital current loop)
G ⁽²⁾	GPE 31422/31423 (digital current loop)
U ⁽²⁾	Sakura
T ⁽²⁾	Tokyo Keiso
C ⁽⁴⁾⁽⁵⁾	Analog output 4-20 mA/HART, active (IS)

Table 1. Rosemount 2410 Tank Hub Ordering Information

A ⁽⁴⁾⁽⁵⁾	Analog output 4-20 mA/HART, active (non-IS)	
D ⁽⁵⁾	Analog output 4-20 mA/HART, passive (IS)	
B ⁽⁵⁾	Analog output 4-20 mA/HART, passive (non-IS)	
8 ⁽⁴⁾⁽⁵⁾	Analog input 4-20 mA/HART, active (IS)	
6 ⁽⁴⁾⁽⁵⁾	Analog input 4-20 mA/HART, active (non-IS)	
9 ⁽⁵⁾	Analog input 4-20 mA/HART, passive (IS)	
7 ⁽⁵⁾	Analog input 4-20 mA/HART, passive (non-IS)	
0 ⁽⁵⁾	None	
F ⁽⁵⁾	None, ready for upgrade of secondary bus	
Safety certification (SIS)		
3 ⁽⁶⁾⁽⁷⁾	Certified IEC 61508 SIL 3 (Using relay 1xSPST, solid state. Certification is valid only when connected to a safety-certified Rosemount 5900 according to reference manual).	
S	Certified IEC 61508 SIL 2 (using analog or relay output)	
F ⁽⁷⁾⁽⁸⁾	None, ready for upgrade of safety certification (SIS)	
0	None	
Relay output		
2	2xSPST, solid state	
1	1xSPST, solid state	
F	None, ready for upgrade of relay output	
0	None	
Integral display		
1	LCD	
0	None	
Power supply		
P	Extended input range: 48-240 VAC at 50/60 Hz, and 24-48 VDC	
Firmware		
S	Standard	
Hazardous location certification		
E1	ATEX Flameproof	
E7	IECEX Flameproof	
E5	FM-US Explosion-proof	
E6	FM-Canada Explosion-proof	
E4 ⁽⁹⁾	Japan TIIS Flameproof	TIIS certified glands and adapters are excluded.
E2	INMETRO Flameproof (Brazil)	

Table 1. Rosemount 2410 Tank Hub Ordering Information

EP ⁽¹⁰⁾	KC Flameproof (South Korea)	
EW	CCOE Flame-proof	
EM	Technical Regulations Customs Union (EAC) Flameproof	
NA	No hazardous location certification	
Custody transfer type approval ⁽¹¹⁾		
R	OIML R85 E 2008 performance certification	
A	CMI (Czech Republic W&M approval)	
B	NMI (Australia)	
C	PTB (German W&M approval)	
E	TJA (Estonia W&M approval)	
G	GUM (Poland)	
I	Ministero (Italy)	
K ⁽¹²⁾	GOST (Kazakhstan)	
L	LNE (France)	
M	BMS (Belgium W&M)	
N	NMi (the Netherlands W&M approval)	
Q	IPQ (Portugal)	
S ⁽¹²⁾	GOST (Russia)	
W	METAS (Switzerland W&M approval)	
Y	Justervesenet (Norway W&M approval)	
0	None	
Housing		
A	Aluminum (polyurethane-covered), IP 66/67	
Cable/conduit connections		
1	1½-14 NPT and ¾-14 NPT	Female thread, includes: • 1 pcs 1½-14 NPT plug • 2 pcs ¾-14 NPT plugs
2	M20 x 1.5 and M25 x 1.5 adapters	Female thread, includes: • 1 pcs 1½-14 NPT plug • 2 pcs ¾-14 NPT plugs • 4 pcs 1½-14 NPT->M20x1.5 adapters • 2 pcs ¾-14 NPT->M25x1.5 adapters
G ⁽¹³⁾	Metal cable glands (1½-14 and ¾-14 NPT)	Includes: • 1 pcs 1½-14 NPT plug • 2 pcs ¾-14 NPT plugs • 4 pcs ¾-14 NPT cable glands • 2 pcs 1½-14 NPT cable glands
E	eurofast® male connector	Includes: • 1 pcs male connector • 1 pcs 1½-14 NPT plug • 2 pcs ¾-14 NPT plugs
M	minifast® male connector	

Table 1. Rosemount 2410 Tank Hub Ordering Information

Mechanical installation	
W	Mounting kit for wall installation
P	Mounting kit for both wall and pipe installation (1-2-in. vertical or horizontal pipes)

Options (include with selected model number)

Safety certificate	
QT ⁽¹⁴⁾	IEC 61508 certificate and FMEDA data
Overfill protection approval	
U1 ⁽¹⁵⁾	TÜV/DIBt WHG approval for overfill protection
U2 ⁽¹⁵⁾	SVTI approval for overfill protection (Switzerland)
Tag plate	
ST	Engraved SST tag plate
Extended warranty	
WR3	3-year limited warranty
WR5	5-year limited warranty
Typical model number: 2410 S F R 0 3 2 1 P S E1 R A 1 P ST	

1. Requires Secondary Fieldbus code W.
2. Requires Primary Fieldbus code R or 4.
3. Requires a separate Emerson Wireless 775 THUM Adapter (not included, to be ordered as a separate item).
4. Power-supply integrated. Maximum Tankbus current reduced to 200 mA.
5. Requires Primary Fieldbus code R, 4 or E.
6. Requires Secondary Fieldbus code 0, or Secondary Fieldbus code W, C, D, 8, 9, and Primary Fieldbus code 4.
7. Requires Number of tanks code S.
8. Requires Secondary Fieldbus code 0 or F.
9. Requires Secondary Fieldbus code T or S.
10. Requires Custody transfer type approval code R or 0.
11. Requires a Rosemount 5900S Radar Level Gauge with corresponding Custody transfer type approval.
12. Requires Hazardous location certification code E1.
13. Min. temperature -20 °C (-4 °F). ATEX/IECEx Ex e approved.
14. Requires Safety certification (SIS) code S or 3.
15. Requires Safety certification (SIS) code 3, or Relay output code 1 or 2.

Emerson Wireless 775 THUM Adapter Assembly



- Add wireless access to any measurement point
- Wireless output protected by industry leading security
- Gain access to additional information such as diagnostics or multivariable data

Additional information

Specifications: [page 17](#)

Certifications: [page 26](#)

Dimensional drawings: [page 28](#)

Table 2. Emerson Wireless THUM Adapter Assembly Ordering Information

Model	Product description
775TG ⁽¹⁾	Wireless 775 THUM Adapter Assembly Tank Gauging
Output	
X	Wireless
Housing	
D	Aluminum
Mounting connection	
2	M20 Conduit adapter
Input protocol	
1	Hart Data
Certification	
NA	No approval
I1	ATEX Intrinsically Safe
I2	INMETRO Intrinsically Safe
I3	NEPSI
H4 ⁽²⁾	TIIS
I5	FM Intrinsically Safe, Non-incendive
I6	CSA Intrinsically Safe
I7	IECEX Intrinsically Safe
N1	ATEX Type n
N2	INMETRO Type n
N7	IECEX Type n
IP	KOSHA Intrinsically Safe
IW	CCOE Intrinsically Safe
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety

Table 2. Emerson Wireless THUM Adapter Assembly Ordering Information

Wireless transmit rate, operating frequency, and protocol	
WA3	User-configurable update rate, 2.4 GHz DSSS, IEC 62591 (<i>WirelessHART</i>)
Wireless antenna and SmartPower solutions	
WK9	Long range, integral antenna, Power scavenging
Assemble to options	
T ⁽³⁾	2410 Tank Hub
Cable/conduit connection	
0	None (M20X1.5 female thread)
J ⁽⁴⁾	Metal Cable Gland
F	½ NPT adapter (female thread)

Options (include with selected model number)

Printed tag	
PT ⁽⁵⁾	Printed tag for unit identification
Typical model number: 775 X D 2 1 I1 WA3 WK9 T F PT	

1. Requires THUM Connection Box.
2. Requires Assemble to option code T.
3. Factory mounted 220 Ω 4W loop resistor.
4. Minimum temperature -20 °C (-4 °F) ATEX/IECEx.
5. Maximum 15 characters. Place tag information in order.

Specifications

General specifications

Single tank version

- Supports one Rosemount 5900S 2-in-1 gauge or two radar level gauges, type 5300, 5400, or 5900
- Total Observed Volume (TOV) and API corrected Net Standard Volume (NSV) calculation with 100-point strapping table

Multiple tank version

For a Rosemount 5300/5400/5900 system configuration:

- The software supports 16 field devices and 10 tanks per tank hub
- Maximum five type 5300 or 5400 gauges per tank hub

The actual number of tanks/instruments a tank hub supports depends on the configuration, which types of units are connected and how many:

- Hybrid calculations (mass and density) for up to three tanks
- Total Observed Volume (TOV) and API corrected Net Standard Volume (NSV) calculation with 100-point strapping table for one tank

For more information, see [Table 6 on page Wireless-14](#).

Examples of connected field devices

Radar level gauges (type 5900⁽¹⁾, 5300, and 5400), Rosemount 2240S Multi-input Temperature Transmitter, Rosemount 644 Temperature Transmitter, Temperature/Water Level Sensors, Rosemount 3051S Scalable Pressure Transmitter, Rosemount 2230 Graphical Field Display

Start-up time

Less than 30 s

Communication/display/configuration specifications

Tankbus

The intrinsically safe side of the Rosemount 2410 connects to the Tankbus which communicates with the field devices on the tank using FOUNDATION Fieldbus.

Fieldbus

Rosemount 2410 communicates with a host or a system hub via the supported communication protocols for the primary and secondary fieldbus.

Primary fieldbus: TRL2 Modbus, RS485 Modbus, Analog output/input 4-20 mA/HART or Enraf

Secondary fieldbus: TRL2 Modbus, Analog output/input 4-20 mA/HART, *WirelessHART* or other vendors' protocols, such as Enraf, L&J Tankway and Sakura MDP/V1

For combination guidance, see [Table 3 on page Wireless-11](#) and [Table 4 on page Wireless-12](#).

Relay outputs

SIL 3 relay output: One certified SIL 3 relay is available for overfill prevention. This non-intrinsically safe solid state relay is closed/energized during normal operation.

Maximum voltage and current: 260 VAC/VDC, 80 mA
Single pole

Relay outputs (SIL 2 or non-SIL): Maximum two relays, controlled by 10 independent virtual relay functions, which can be configured for different tanks and process variables. The two non-intrinsically safe solid state relays are user configurable for normally energized or de-energized operation.

Maximum voltage and current: 350 VAC/VDC, 80 mA
Single pole

For combination guidance, see [Table 3 on page Wireless-11](#) and [Table 4 on page Wireless-12](#).

Analog inputs/outputs

The tank hub supports analog output and input 4-20 mA/HART, active or passive, IS or non-IS. The analog output is available as certified SIL 2.

1. One Rosemount 5900S with a 2-in-1 solution or maximum two Rosemount 5900 gauges installed on separate tanks can be connected to one tank hub.

Table 3. Fieldbus Combination Matrix (Non-SIL)

		Primary Fieldbus options				
		TRL2	RS485	Enraf	Analog out passive (non-IS)	Analog In passive (non-IS)
Code		R	4	E	B	7
Secondary Fieldbus options	TRL2	R	Yes	Yes	No	No
	Enraf	E	Yes	Yes	No	No
	WirelessHART	W	Yes	Yes	Yes	Yes
	L&J Tankway 1500 XL/MCG 2000	L	Yes	Yes	No	No
	Varec Mark/Space GT 1800/1900	V	Yes	Yes	No	No
	Whessoe WM 550/660 (digital current loop)	H	Yes	Yes	No	No
	GPE 31422/31423 (digital current loop)	G	Yes	Yes	No	No
	Sakura MDP/V1	U	Yes	Yes	No	No
	Tokyo Keiso	T	Yes	Yes	No	No
	Analog out active (IS)	C	Yes	Yes	Yes	No
	Analog out active (non-IS)	A	Yes	Yes	Yes	No
	Analog out passive (IS)	D	Yes	Yes	Yes	No
	Analog out passive (non-IS)	B	Yes	Yes	Yes	No
	Analog in active (IS)	8	Yes	Yes	Yes	No
	Analog in active (non-IS)	6	Yes	Yes	Yes	No
	Analog in passive (IS)	9	Yes	Yes	Yes	No
	Analog in passive (non-IS)	7	Yes	Yes	Yes	No
	None	0	Yes	Yes	Yes	No
	Ready for upgrade	F	Yes	Yes	Yes	No

Yes = Primary Fieldbus and Secondary Fieldbus can be combined
 No = Combination not possible

Table 4. Fieldbus Combination Matrix (SIL)

		Primary Fieldbus options				
		TRL2	RS485	Enraf	Analog out passive (non-IS)	Analog In passive (non-IS)
Code		R	4	E	B	7
Secondary Fieldbus options	TRL2	R	SIL 2 (relay)	SIL 2 (relay)	No	No
	Enraf	E	SIL 2 (relay)	SIL 2 (relay)	No	No
	WirelessHART	W	SIL 2 (relay)	SIL 2 (relay) or SIL 3 (relay)	SIL 2 (relay)	SIL 2 (relay)
	L&J Tankway 1500 XL/MCG 2000	L	SIL 2 (relay)	SIL 2 (relay)	No	No
	Varec Mark/Space GT 1800/1900	V	SIL 2 (relay)	SIL 2 (relay)	No	No
	Whessoe WM 550/660 (digital current loop)	H	SIL 2 (relay)	SIL 2 (relay)	No	No
	GPE 31422/31423 (digital current loop)	G	SIL 2 (relay)	SIL 2 (relay)	No	No
	Sakura MDP/V1	U	SIL 2 (relay)	SIL 2 (relay)	No	No
	Tokyo Keiso	T	SIL 2 (relay)	SIL 2 (relay)	No	No
	Analog out active (IS)	C	SIL 2 (4-20 mA and/or relay)	SIL 2 (relay) or SIL 3 (relay)	SIL 2 (4-20 mA and/or relay)	No
	Analog out active (non-IS)	A	SIL 2 (4-20 mA and/or relay)	SIL 2 (4-20 mA and/or relay)	SIL 2 (4-20 mA and/or relay)	No
	Analog out passive (IS)	D	SIL 2 (4-20 mA and/or relay)	SIL 2 (relay) or SIL 3 (relay)	SIL 2 (4-20 mA and/or relay)	No
	Analog out passive (non-IS)	B	SIL 2 (4-20 mA and/or relay)	SIL 2 (4-20 mA and/or relay)	SIL 2 (4-20 mA and/or relay)	No
	Analog in active (IS)	8	SIL 2 (relay)	SIL 2 (relay) or SIL 3 (relay)	SIL 2 (relay)	No
	Analog in active (non-IS)	6	SIL 2 (relay)	SIL 2 (relay)	SIL 2 (relay)	No
	Analog in passive (IS)	9	SIL 2 (relay)	SIL 2 (relay) or SIL 3 (relay)	SIL 2 (relay)	No
	Analog in passive (non-IS)	7	SIL 2 (relay)	SIL 2 (relay)	SIL 2 (relay)	No
	None	0	SIL 2 (relay) or SIL 3 (relay)	SIL 2 (relay) or SIL 3 (relay)	SIL 2 (relay) or SIL 3 (relay)	No
	Ready for upgrade	F	SIL 2 (4-20 mA and/or relay)	SIL 2 (4-20 mA and/or relay)	SIL 2 (4-20 mA and/or relay)	No

SIL = Primary Fieldbus and Secondary Fieldbus can be combined with SIL

No = Combination not possible

Analog input/output

Analog input

Maximum number of input channels: 1

Input Current range: 0-23 mA

Configurable Min and Max alarm limits

Lift-off voltage (Passive IS and NON-IS): 10.5 V

Max input voltage (Passive IS and NON-IS): 30 V

Output voltage (Active):

Non-IS: 22 ± 2.0 V (open loop); 20.8 ± 2.0 V @3,75 mA;

14.8 ± 2.0 V @21.75 mA

IS: 21 ± 2.0 V (open loop); 18.8 ± 2.0 V @3,75 mA;

8.2 ± 2.0 V @21.75 mA

For IS parameters, see “[Product certifications](#)” on page 18.

HART master:

Maximum 5 HART Slave Devices (Passive)

Maximum 3 HART Slave Devices (Active)

Analog output

Maximum number of output channels: 1

Output range: 3.5-23 mA

Software configurable High and Low Alarm Limits

Separate software configurable alarms for process and hardware failures

Low voltage and invalid loop current detection

Lift-off voltage (Passive IS and NON-IS): 10.5 V

Max input voltage (Passive IS and NON-IS): 30 V

Output voltage (Active):

Non-IS: 22 ± 2.0 V (open loop); 22.8 ± 2.0 V @3,75 mA;

16.8 ± 2.0 V @21.75 mA

IS: 21 ± 2.0 V (open loop); 20.8 ± 2.0 V @3,75 mA;

10.2 ± 2.0 V @21.75 mA

SIL 2 capable

Integral display output variables

The integral digital read-out display can toggle between:

- Level
- Level rate
- Ullage
- Signal strength
- Volume (TOV)
- Liquid average temperature
- 1-16 spot temperature
- Vapor average temperature
- Ambient temperature
- Free water level
- Vapor pressure
- Liquid pressure
- Air pressure
- Observed density
- Reference density
- Flow rate

Display output units⁽¹⁾

Level, free water level, and ullage: meter, millimeter, feet, or imperial 1/16

Level rate: meter/second, meter/hour, feet/second, or feet/hour

Flow rate: meter³/hour, liter/minute, barrel/hour, or US gallon/hour

Total Observed Volume (TOV): meter³, liters, barrel, or US gallon

Temperature: °F, °C, or °K

Pressure: psi, psiA, psiG, bar, barA or barG, atm, Pa, or kPa

Density: kg/m³, °API, or 60/60DegF

Signal strength: mV

Configuration tools

Rosemount TankMaster

Autoconfiguration support

Yes (Tankbus addressing)

1. Density, mass, and more volume parameters are calculated in Rosemount TankMaster (GOV, GSV, NSV, WIA/WIV).

Electrical specifications

Power supply (nominal values)

24-48 VDC (-15% to +10%)

48-240 VAC (-15% to +10%), 50/60 Hz

Power consumption

Max. 20 W depending on configuration.

Recommended Miniature Circuit Breaker (MCB): 2A slow

Tankbus cabling

0.5-1.5 mm² (AWG 22-16), twisted shielded pairs.

Recommended cabling is shielded twisted pairs, 0.75 mm² (AWG 18). Tankbus cabling must fulfill FISCO cable and installation requirements, and must also be approved for use at minimum 85 °C (185 °F).

FISCO (Fieldbus Intrinsically Safe Concept)

The following cable characteristics are specified for FISCO according to IEC 60079-27:

Table 5. FISCO Cable Characteristics

Parameter	Value
Loop resistance	15 Ω /km to 150 Ω /km
Loop resistance	0.4 mH/km to 1 mH/km
Capacitance	45 nF/km to 200 nF/km
Maximum length of each spur ⁽¹⁾ cable	60 m in gas Group IIC
Maximum length of each trunk ⁽²⁾ cable	1000 m in gas Group IIC, and 1900 m in gas Group IIB

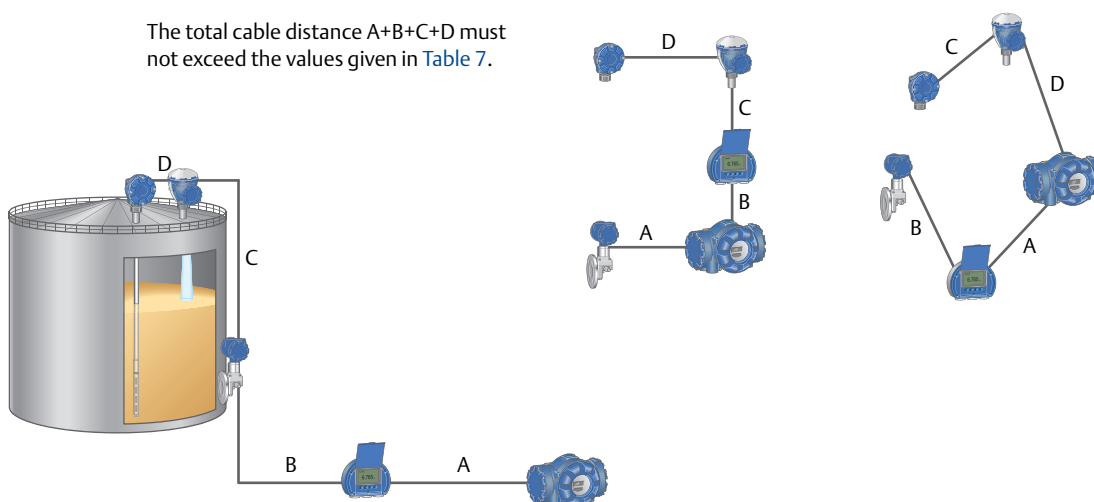
1. The spur is an unterminated part of the network. It is allowed to have an up to 60 m long spur. For longer distances, an alternative network configuration should be considered.
2. The trunk is the part of the network that has terminators at both ends. In the Rosemount Tank Gauging System, a trunk can be the part of the network between the tank hub and a segment coupler or the last device in a daisy-chain configuration.

Table 6. Power Budget

Field device	Power consumption
Rosemount 5900S or 5900C Radar Level Gauge	50 mA
Rosemount 5900S Radar Level Gauge, 2-in-1 solution	100 mA
Rosemount 5300 or 5400 Level Transmitter	21 mA
Rosemount 2230 Graphical Field Display	30 mA
Rosemount 2240S Multi-input Temperature Transmitter	30 mA including 565, 566 and 765 temperature sensors
Rosemount 644 Temperature Transmitter	12 mA
Rosemount 3051S, and Rosemount 2051 Pressure Transmitters	18 mA

Figure 1. Cable Distances

The total cable distance A+B+C+D must not exceed the values given in [Table 7](#).

**Table 7. Allowed Cabling Distances for Different System Configurations**

Cable diameter	Loop resistance	Maximum cabling distance from power source to all devices on the tank		
		With maximum power usage of 250 mA	With typical power usage of 128 mA for 5900S, 2240S, 2230, 3051S	With typical power usage of 178 mA for 5900S 2-in-1, 2240S, 2230, 3051S
		Distance in m (ft)	Distance in m (ft)	Distance in m (ft)
20 AWG (0.5 mm ²)	66 Ω/km	212 (695)	414 (1358)	298 (978)
18 AWG (0.75 mm ²)	42 Ω/km	333 (1092)	651 (2136)	468 (1535)
17 AWG (1.0 mm ²)	33 Ω/km	424 (1391)	829 (2720)	596 (1955)
16 AWG (1.5 mm ²)	26 Ω/km	538 (1765)	1000 (3281)	756 (2480)

The typical cabling distance from the tank hub towards the control room is up to 4 km (2.5 miles) depending on which protocol is used.

Power and relay cabling

0.5-2.5 mm² (AWG 22-14), twisted shielded pairs

Maximum Tankbus cable lengths

Depends on the cable. For details, see the Rosemount Tank Gauging [System Data Sheet](#).

Built-in Tankbus terminator

The Rosemount 2410 Tank Hub has a built-in tank bus terminator, which can be disconnected if required.

Mechanical specifications

Housing material

Polyurethane-covered die-cast aluminum

Cable entry (connection/glands)

Non-IS side: Two ½ - 14 NPT and Two ¾ - 14 NPT entries for cable glands or conduits

IS side: Two ½ - 14 NPT entries for cable glands or conduits

Three metal plugs to seal any unused ports are included in the delivery

Optional:

- M20 x 1.5 and M25 x 1.5 conduit/cable adapter
- Cable glands in metal (½ - 14 NPT and ¾ - 14 NPT)
- 4-pin male eurofast connector or A size Mini 4-pin male minifast connector

Installation

Can be installed on a 33.4-60.3 mm (1-2 in.) diameter pipe or wall, at ground level close to the tank or on top of the tank using existing cabling.

Weight

4.7 kg (10.4 lbs)

Environmental specification

Ambient temperature

-40 to 70 °C (-40 to 158 °F). Minimum start-up temperature is -50 °C (-58 °F).

With LCD display: -25 to 70 °C (-13 to 158 °F)

Storage temperature

-50 to 85 °C (-58 to 185 °F)

With LCD display: -40 to 85 °C (-40 to 185 °F)

Humidity

0 - 100% relative humidity

Ingress protection

IP 66 and IP 67 (NEMA® 4X)

Metrology sealing possibility

Yes

Write protect switch

Yes (hardware and software write protection)

Transient/built-in lightning protection

In accordance with IEC 61000-4-5, level 4 kV line to ground. Compliant with IEEE 587 category B transient protection and IEEE 472 surge protection.

Specifications for Emerson Wireless 775 THUM Adapter Assembly

General specifications

The THUM Adapter allows *WirelessHART* communication according to the IEC 62591 standard between the Rosemount 2410 Tank Hub and the Emerson Wireless Gateway. The THUM is integrated with a connection box.

Transmission range

Application dependent. Consult factory

Communication specifications

Communication protocol

IEC 62591 (*WirelessHART*)

Radio characteristics

- Standard IEEE 802.15.4 radio
- 2.4 GHz ISM band sliced into 16 radio-channels
- Continually “hop” across channels to avoid interference and increase reliability
- Direct sequence spread spectrum (DSSS) delivers high reliability in challenging radio environment

Update rate

User selectable, 8 seconds to 60 minutes

Electrical specifications

Power supply

Powered by Rosemount 2410 Tank Hub

Output cabling

Shielded twisted pair wiring, 0.5-2.5 mm² (AWG 22-14)
Maximum cable length depends on cable characteristics.

Mechanical specifications

Housing/enclosure

Polyurethane painted, low-copper aluminum housing

Cable entry (connection/glands)

One M20x1.5 entry for cable gland or conduit adapter

Optional:

- Metal cable gland M20x1.5
- ½ NPT adapter (female thread)

Installation

The THUM Adapter can be installed on a vertical or horizontal 1- to 2-in. pipe, away from the tank hub at the best possible tank roof position. It should be installed approximately 2 m (6 ft) or more from any large structure or conductive surface.

Antenna

Polybutadine terephthalate (PBT)/polycarbonate (PC) integrated omnidirectional antenna

Weight

Connection box and THUM Adapter: 2.0 kg (4.4 lbs.)

Environmental specifications

Ambient temperature

-40 to 85 °C (-40 to 185 °F)

Storage temperature

-40 to 85 °C (-40 to 185 °F)

Humidity limits

0 - 100% relative humidity

Ingress protection

IP 66 and NEMA 4X

Note

For more information, see the Emerson Wireless 775 THUM Adapter [Product Data Sheet](#).

Product certifications

Rev 2.9

European directive information

The most recent revision of the EU Declaration of Conformity can be found at [Emerson.com/Rosemount](https://emerson.com/rosemount).

Ordinary location certification

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

Installing equipment in North America

The US National Electrical Code® (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

North America

E5 USA Explosion-proof

Certificate: FM16US0123X

Standards: FM Class 3600:2011,
FM Class 3610:2015,
FM Class 3615:2006,
FM Class 3810:2005,
NEMA 250:2003,
ANSI/IEC 60529:2004,
ANSI/ISA 61010-1:2004,
ANSI/ISA 60079-0:2013,
ANSI/ISA 60079-11:2014,
ANSI/ISA 60079-26:2011

Markings: AIS/I/1/CD

XP-AIS/I/1/CD/T4 Ta = -50°C to +70°C

DIP/II,III/1/EFG/T4 Ta = -50°C to +70°C;

I/1/Ex d e [ib] IIB T4 Ta = -50°C to +70°C

I/1 [0]/Ex d e [ia IIC] IIB T4 Ta = -50°C to +70°C

I/1/Ex d e ib IIB T4 Ta = -50°C to +70°C

Type 4X; IP66; IP67

Special conditions for safe use (X):

1. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.

Ex marking	Comm. Bus	Ui V	Ii mA	Pi W	Ci μF	Li mH	Uo V	Io mA	Po W	Co μF	Lo mH	Group
Ex d e [ib] IIB T4	FISCO	-	-	-	-	-	15	354	5.32	-	-	IIB
Ex d e [ia IIC] IIB T4	HART/4-20mA Active	-	-	-	-	-	23.1	95.3	0.55	0.14	3.9	IIC
										1.0	15	IIB
										3.67	33	IIA
Ex d e ib IIB T4	HART/4-20mA Passive	30	300	1	0	0	-	-	-	-	-	IIB
Ex d e [ib] IIB T4	Fieldbus	-	-	-	-	-	15	200	3	1.99	143	IIB

E6 Canada Explosion-proof

Certificate: FM16CA0068X

Standards: CSA C22.2 No 0.4:2004 (Reaffirmed 2013),
 CSA C22.2 No. 0.5:2016, CSA C22.2 No.
 30-M1986:1986 (Reaffirmed 2012),
 CSA C22.2 No. 94-M91:1991 (Reaffirmed
 2011),
 CSA C22.2 No. 1010.1:2004 (Reaffirmed 2009),
 CAN/CSA 60079-0:2015,
 CAN/CSA 60079-1:2016,
 CAN/CSA 60079-7:2012,
 CAN/CSA 60079-11:2014,
 CSA C22.2 No. 60529:2005 (Reaffirmed 2015)

Markings: AIS/I/1/CD

XP-AIS/I/1/CD/T4 Ta = -50°C to +70°C

DIP/II,III/1/EFG/T4 Ta = -50°C to +70°C;

I/1/AEx d e [ib] IIB T4 Ta = -50°C to +70°C

I/1[0]/Ex d e [ia IIC] IIB T4 Ta = -50°C to +70°C

I/1/Ex d e ib IIB T4 Ta = -50°C to +70°C

Type 4X; IP66; IP67

Special conditions for safe use (X):

1. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.

Ex marking	Comm. Bus	Ui V	Ii mA	Pi W	Ci μF	Li mH	Uo V	Io mA	Po W	Co μF	Lo mH	Group
Ex d e [ib] IIB T4	FISCO	-	-	-	-	-	15	354	5.32	-	-	IIB
Ex d e [ia IIC] IIB T4	HART/4-20mA Active	-	-	-	-	-	23.1	95.3	0.55	0.14	3.9	IIC
										1.0	15	IIB
										3.67	33	IIA
Ex d e ib IIB T4	HART/4-20mA Passive	30	300	1	0	0	-	-	-	-	-	IIB
Ex d e [ib] IIB T4	Fieldbus	-	-	-	-	-	15	200	3	1.99	143	IIB

Europe

E1 ATEX Flame-proof

Certificate: FM10ATEX0012X

Standards: EN 60079-0:2012+A11:2013,
EN 60079-1:2014, EN 60079-7:2007,
EN 60079-11:2012, EN 60079-26:2015,
EN 60529:1992 + A2:2013

Markings:  II 2(2) G Ex db e [ib] IIB T4
Ta = -50°C to 70°C; IP66, IP67
II 2(1) G Ex db e [ia IIC] IIB T4
Ta = -50°C to 70°C; IP66, IP67
II 2 G Ex db e ib IIB T4
Ta = -50°C to 70°C; IP66, IP67

Special conditions for safe use (X):

1. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.

Ex marking	Comm. Bus	Ui V	Ii mA	Pi W	Ci μF	Li mH	Uo V	Io mA	Po W	Co μF	Lo mH	Group
Ex db e [ib] IIB T4	FISCO	-	-	-	-	-	15	354	5.32	-	-	IIB
Ex db e [ia IIC] IIB T4	HART/4-20mA Active	-	-	-	-	-	23.1	95.3	0.55	0.14	3.9	IIC
										1.0	15	IIB
										3.67	33	IIA
Ex db e ib IIB T4	HART/4-20mA Passive	30	300	1	0	0	-	-	-	-	-	IIB
Ex db e [ib] IIB T4	Fieldbus	-	-	-	-	-	15	200	3	1.99	143	IIB

International

E7 IECEx Flame-proof

Certificate: IECEx FMG 10.0005X

Standards: IEC 60079-0:2011, IEC 60079-1:2014,
IEC 60079-7:2006-07, IEC 60079-11:2011,
IEC 60079-26:2014

Markings: Ex db e [ib] IIB T4 Gb
Ex db e [ia IIC Ga] IIB T4 Gb
Ex db e ib IIB T4 Gb

Special conditions for safe use (X):

1. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.

Ex marking	Comm. Bus	Ui V	Ii mA	Pi W	Ci μF	Li mH	Uo V	Io mA	Po W	Co μF	Lo mH	Group
Ex db e [ib] IIB T4 Gb	FISCO	-	-	-	-	-	15	354	5.32	-	-	IIB
Ex db e [ia IIC Ga] IIB T4 Gb	HART/4-20mA Active	-	-	-	-	-	23.1	95.3	0.55	0.14	3.9	IIC
										1.0	15	IIB
										3.67	33	IIA
Ex db e ib IIB T4 Gb	HART/4-20mA Passive	30	300	1	0	0	-	-	-	-	-	IIB
Ex db e [ib] IIB T4 Gb	Fieldbus	-	-	-	-	-	15	200	3	1.99	143	IIB

Brazil

E2 INMETRO Flame-proof

Certificate: UL-BR 17.1017X

Standards: ABNT NBR IEC 60079-0:2013,
ABNT NBR IEC 60079-1:2016,
ABNT NBR IEC 60079-7:2008,
ABNT NBR IEC 60079-11:2013

Markings: Ex db e [ib] IIB T4 Gb
Ex db e [ia IIC] IIB T4 Gb
Ex db e ib IIB T4 Gb
Tamb= -50 °C a +70 °C
IP66/IP67

Special conditions for safe use (X):

1. See certificate for special conditions.

Ex marking	Comm. Bus	Ui V	Ii mA	Pi W	Ci μF	Li mH	Uo V	Io mA	Po W	Co μF	Lo mH	Group
Ex db e [ib] IIB T4 Gb	FISCO	-	-	-	-	-	15	354	5.32	-	-	IIB
Ex db e [ia IIC Ga] IIB T4 Gb	HART/4-20mA Active	-	-	-	-	-	23.1	95.3	0.55	0.14	3.9	IIC
										1.0	15	IIB
										3.67	33	IIA
Ex db e ib IIB T4 Gb	HART/4-20mA Passive	30	300	1	0	0	-	-	-	-	-	IIB
Ex db e [ib] IIB T4 Gb	Fieldbus	-	-	-	-	-	15	200	3	1.99	143	IIB

China

E3 China Flame-proof

Certificate: GYJ17.1468X

Standards: GB 3836.1 – 2010, GB 3836.2 – 2010,
GB 3836.3 – 2010, GB 3836.4 – 2010,
GB 3836.20 – 2010

Markings: Ex d e [ib] IIB T4 Gb
Ex d e [ia IIC Ga] IIB T4 Gb
Ex d e ib IIB T4 Gb

Special conditions for safe use (X):

1. See certificate for special conditions.

Ex marking	Comm. Bus	Ui V	Ii mA	Pi W	Ci μF	Li mH	Uo V	Io mA	Po W	Co μF	Lo mH	Group
Ex d e [ib] IIB T4 Gb	FISCO	-	-	-	-	-	15	354	5.32	-	-	IIB
Ex d e [ia IIC Ga] IIB T4 Gb	HART/4-20mA Active	-	-	-	-	-	23.1	95.3	0.55	0.14	3.9	IIC
										1.0	15	IIB
										3.67	33	IIA
Ex d e ib IIB T4 Gb	HART/4-20mA Passive	30	300	1	0	0	-	-	-	-	-	IIB

Technical Regulations Customs Union (EAC)

EM EAC Flame-proof

Certificate: RU C-SE.AA87.B.00345

Markings: 1Ex d e [ib] IIB T4 Gb

1Ex d e [ia IIC Ga] IIB T4 Gb

1Ex d e IIB T4 Gb

Tamb= -50 °C a +70 °C

IP66/IP67

Ex marking	Comm. Bus	Ui V	Ii mA	Pi W	Ci μF	Li mH	Uo V	Io mA	Po W	Co μF	Lo mH	Group
Ex d e [ib] IIB T4 Gb	FISCO	-	-	-	-	-	15	354	5.32	-	-	IIB
Ex d e [ia IIC Ga] IIB T4 Gb	HART/4-20mA Active	-	-	-	-	-	23.1	95.3	0.55	0.14	3.9	IIC
										1.0	15	IIB
										3.67	33	IIA
Ex d e ib IIB T4 Gb	HART/4-20mA Passive	30	300	1	0	0	-	-	-	-	-	IIB
Ex d e [ib] IIB T4 Gb	Fieldbus	-	-	-	-	-	15	200	3	1.99	143	IIB

Japan

E4 Japan Flame-proof

Certificate: CML 17JPN2086X

Markings: Ex d e [ib] IIB T4 Gb; FISCO

Ex d e [ia IIC Ga] IIB Gb T4; HART/4-20mA Active

Ex d e ib IIB Gb; HART/4-20mA Passive

Special conditions for safe use (X):

1. See certificate for special conditions.

Ex marking	Comm. Bus	Ui V	Ii mA	Pi W	Ci μF	Li mH	Uo V	Io mA	Po W	Co μF	Lo mH	Group
Ex d e [ib] IIB T4 Gb	FISCO	-	-	-	-	-	14.96	343.3	5.14	-	-	IIB
Ex d e [ia IIC Ga] IIB T4 Gb	HART/4-20mA Active	-	-	-	-	-	23.1	95.3	0.55	0.14	3.9	IIC
										1.0	15	IIB
										3.67	33	IIA
Ex d e ib IIB T4 Gb	HART/4-20mA Passive	30	300	1	0	0	-	-	-	-	-	IIB

Republic of Korea

EP Korea Flame-proof

Certificate: 13-KB4BO-0458, 13-KB4BO-0459,
13-KB4BO-0460

Markings: Ex de [ib] IIB T4
Ex de [ia IIC] IIB T4
Ex de [ib IIC] IIB T4
(-50°C ≤ Ta ≤ +70°C)

Ex marking	Comm. Bus	Ui V	Ii mA	Pi W	Ci μF	Li mH	Uo V	Io mA	Po W	Co μF	Lo mH	Group
Ex d e [ib] IIB T4	FISCO	-	-	-	-	-	15	354	5.32	-	-	IIB
Ex d e [ia IIC] IIB T4	HART/4-20mA Active	-	-	-	-	-	23.1	95.3	0.55	0.14	3.9	IIC
										1.0	15	IIB
										3.67	33	IIA
Ex d e ib IIB T4	HART/4-20mA Passive	30	300	1	0	0	-	-	-	-	-	IIB

India

EW CCOE Flame-proof

Certificate: P380588/1

Markings: Ex d e [ib] IIB T4 Gb
Ex d e [ia IIC Ga] IIB T4 Gb
Ex d e ib IIB T4 Gb

Ex marking	Comm. Bus	Ui V	Ii mA	Pi W	Ci μF	Li mH	Uo V	Io mA	Po W	Co μF	Lo mH	Group
Ex d e [ib] IIB T4 Gb	FISCO	-	-	-	-	-	15	354	5.32	-	-	IIB
Ex d e [ia IIC Ga] IIB T4 Gb	HART/4-20mA Active	-	-	-	-	-	23.1	95.3	0.55	0.14	3.9	IIC
										1.0	15	IIB
										3.67	33	IIA
Ex d e ib IIB T4 Gb	HART/4-20mA Passive	30	300	1	0	0	-	-	-	-	-	IIB
Ex d e [ib] IIB T4 Gb	Fieldbus	-	-	-	-	-	15	200	3	1.99	143	IIB

Additional certifications

Safety Certification (SIS)

For more information on product certificates, refer to the Rosemount 2410 [Reference Manual](#).

- 3** Functional Safety
 Certificate: ROS 1312032 C001
 SIL 3 2-in-1 (1oo2) option (SIS-relays)
 Standards: IEC 61508:2010 Parts 1-7
- S** Functional Safety
 Certificate: ROS 1312032 C004
 SIL 2 1-in-1 (1oo1) option,
 with 4-20mA or K1/K2 relay
 Standards: IEC 61508:2010 Parts 1-7
- Certificate: ROS 1312032 C005
 SIL 2 2-in-1 (1oo1) option,
 with 4-20mA or K1/K2 relay
 Standards: IEC 61508:2010 Parts 1-7

Conduit plugs and adapters

IECEx Flameproof and Increased Safety

Certificate: IECEx FMG 13.0032X

Standards: IEC60079-0:2011,
 IEC60079-1:2007-04,
 IEC60079-7:2006-07

Markings: Ex d e IIC Gb

ATEX Flameproof and Increased Safety

Certificate: FM13ATEX0076X

Standards: EN60079-0:2012,
 EN60079-1:2007,
 IEC60079-7:2007

Markings:  II 2 G Ex d e IIC Gb

Conduit Plug Thread Sizes

Thread	Identification Mark
M20 x 1.5	M20
½ - 14 NPT	½ NPT

Thread Adapter Thread Sizes

Male Thread	Identification Mark
M20 x 1.5 – 6g	M20
½ - 14 NPT	½ - 14 NPT
¾ - 14 NPT	¾ - 14 NPT
Female Thread	Identification Mark
M20 x 1.5 – 6H	M20
½ - 14 NPT	½ - 14 NPT
G1/2	G1/2

Product certifications for Emerson 775 THUM Adapter

Extract from Emerson 775 THUM Adapter Product Certifications Rev 2.3

European Directive Information

A copy of the EU Declaration of Conformity can be found at the end of the Emerson Wireless THUM Adapter Quick Start Guide. The most recent revision of the EU Declaration of Conformity can be found at Emerson.com/Rosemount.

Ordinary Location Certification from FM Approvals

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

Telecommunication compliance (for wireless products only)

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 to supply fully compliant products and remove the risk of violating country directives or laws governing wireless device usage.

FCC and IC (for wireless products only)

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.

Installing equipment in North America

The US National Electrical Code (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

USA

I5 USA Intrinsically Safe (IS) and Non-incendive
Certificate: 3036224

Standards: FM Class 3600 – 1998, FM Class 3610 – 2007, FM Class 3611 – 2004, FM Class 3810 – 2005, NEMA 250 – 2003, IEC 60529 - 2004

Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; Class 1, Zone 0, AEx ia IIC T4; NI CL I, DIV 2, GP A, B, C, D T4; T4(-50°C ≤ Ta ≤ +70°C) when connected per Rosemount drawing 00775-0010; Type 4X/IP66

Canada

I6 Canada Intrinsically Safe
Certificate: 2174201

Standards: CAN/CSA C22.2 No. 0-M91 (R2001), CAN/CSA C22.2 No. 94-M91 (R2001), CSA Std C22.2 No. 142-M1987, CAN/CSA C22.2 No. 157-92, CSA Std C22.2 No. 213-M1987, C22.2 No. 60529

Markings: Intrinsically Safe Class I, Division 1, Groups A, B, C, D T3C; Suitable for use in Class I, Division 2, Groups A, B, C, D T3C; T3C(-50°C ≤ Ta ≤ +70°C) when installed per Rosemount drawing 00775-0012; Type 4X/IP66

Europe

I1 ATEX Intrinsic Safety
Certificate: Baseefa09ATEX0125X

Standards: IEC 60079-0:2011; EN60079-11:2012;

Markings:  II 1G Ex ia IIC T4 Ga, T4(-50°C ≤ Ta ≤ +70°C)

Special conditions for safe use (X):

1. The surface resistivity of the antenna cover is greater than 1GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
2. The Model 775 enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in zone 0.

- N1** ATEX Type n
 Certificate: Baseefa09ATEX0131
 Standards: IEC 60079-0:2011, EN 60079-15:2010;
 Markings: Ex II 3G nA IIC T4 Gc, T4(-50°C ≤ Ta ≤ +70°C)
 IP66

International

- I7** IECEx Intrinsic Safety
 Certificate: IECEx BAS 09.0050X
 Standards: IEC 60079-0:2011, IEC 60079-11:2011;
 Markings: Ex ia IIC T4 Ga, T4(-50°C ≤ Ta ≤ +70°C)
 IP66

Special conditions for safe use (X):

1. The surface resistivity of the antenna is greater than 1GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
2. The Model 775 enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in zone 0.

- N7** IECEx Type n
 Certificate: IECEx BAS 09.0058
 Standards: IEC 60079-0:2011, IEC 60079-15:2010;
 Markings: Ex nA IIC T4 Gc, T4(-50°C ≤ Ta ≤ +70°C)
 IP66

Brazil

- I2** INMETRO Intrinsic Safety
 Certificate: UL-BR 15.0089X
 Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-11:2009
 Markings: Ex ia IIC T4 Ga(-50°C ≤ Ta ≤ +70°C)
 IP66

Special conditions for safe use (X):

1. The surface resistivity of the antenna is greater than 1GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; special care must be taken to minimize the risk of impact or friction of the housing which can cause the generation of sparks.

- N2** INMETRO Type n
 Certificate: UL-BR 15.0027
 Standards: ABNT NBR IEC 60079-0:2008, IEC 60079-15:2010;
 Markings: Ex nA IIC T4 Gc (-50° ≤ Ta ≤ +70°C)
 IP66

China

- I3** NEPSI Intrinsic Safety
 Certificate: GYJ14.1094X
 Standards: GB3836.1 – 2010, GB3836.4 – 2010, GB3836.20-2010
 Markings: Ex ia IIC T4 Ga, -50 ~ +70°C

Special conditions for safe use (X):

1. See certificate for special conditions.

Japan

- I4** TIIS Intrinsic Safety
 Certificate: TC22150X
 Markings: Ex ia IIB T4 Ga, -50°C ~ +70°C

Special conditions for safe use (X):

1. See certificate for special conditions.

EAC – Belarus, Kazakhstan, Russia

- IM** Technical Regulation Customs Union (EAC) Intrinsic Safety
 Certificate: TC RU C-US.AA87.B.00993
 Markings: 0Ex ia IIC T4 Ga X
 T4 (-50° ≤ Ta ≤ +70°C)
 IP66;

Special conditions for safe use (X):

1. See certificate for special conditions.

Republic of Korea

- IP** Korea (KOSHA) Intrinsic Safety
 Certificate: 10-KB4BO-0010X
 Markings: Ex ia IIC T4

Special conditions for safe use (X):

1. See certificate for special conditions.

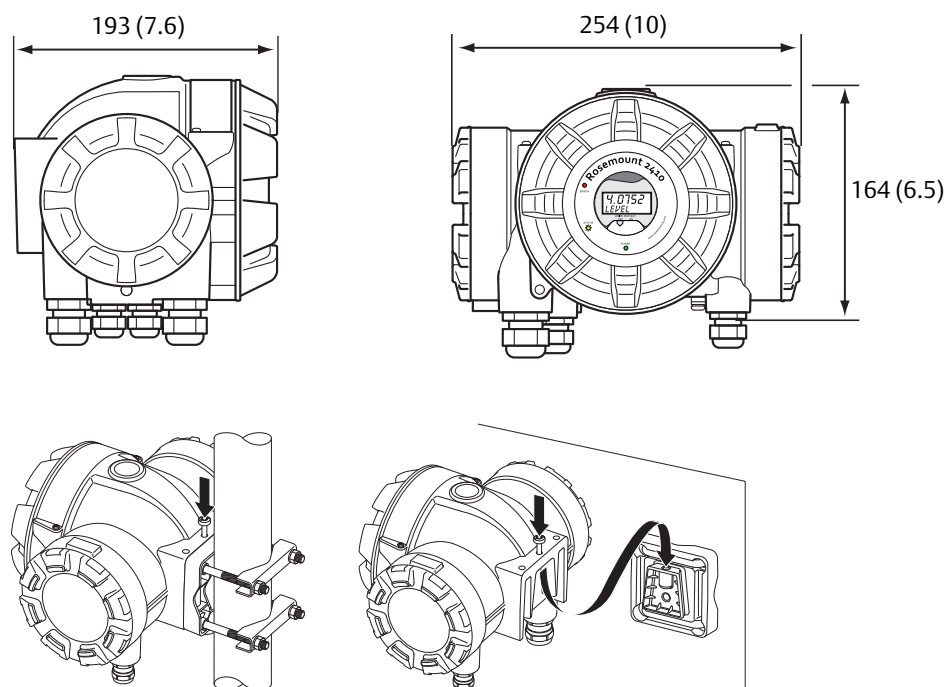
India

- IW** India (CCOE) Intrinsic Safety
 Certificate: A/P/HQ/MH/104/2023(P242867)
 Markings: Ex ia IIC T4

For more information, see the Emerson Wireless 775 THUM Adapter [Product Data Sheet](#).

Dimensional drawings

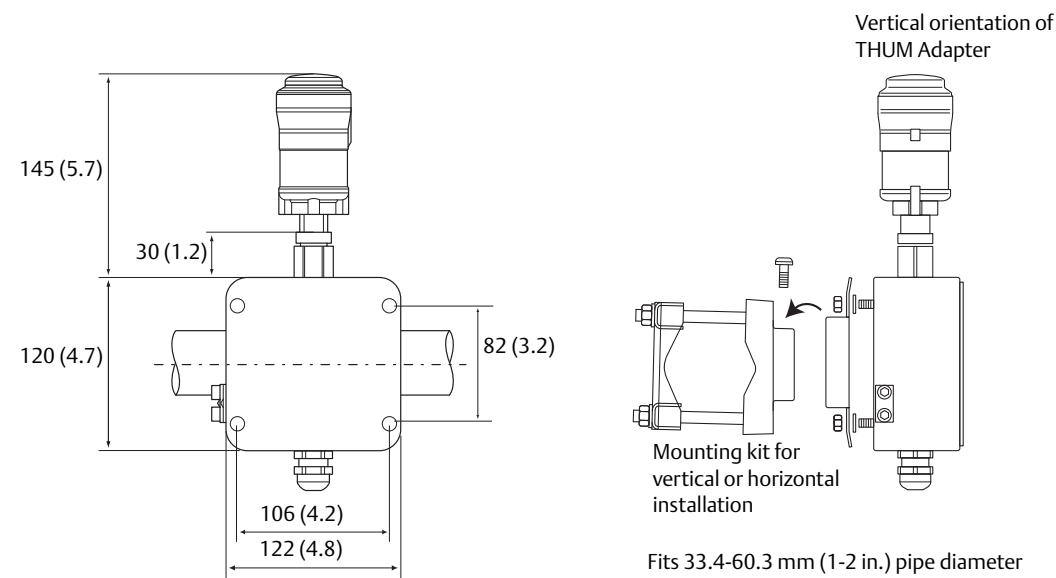
Figure 2. Rosemount 2410 Tank Hub Dimensions



Rosemount 2410 can be mounted on a wall or a pipe with 33.4-60.3 mm (1-2 in.) diameter.

Dimensions are in millimeters (inches).

Figure 3. Emerson Wireless 775 THUM Adapter Assembly Dimensions



Dimensions are in millimeters (inches).

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www.high-accuracy.com

Global Headquarters

Emerson Automation Solutions

6021 Innovation Blvd.
Shakopee, MN 55379, USA
 +1 800 999 9307 or +1 952 906 8888
 +1 952 949 7001
 RFQ.RMD-RCC@Emerson.com

North America Regional Office

Emerson Automation Solutions

8200 Market Blvd.
Chanhassen, MN 55317, USA
 +1 800 999 9307 or +1 952 906 8888
 +1 952 949 7001
 RMT-NA.RCCRFQ@Emerson.com

Latin America Regional Office

Emerson Automation Solutions

1300 Concord Terrace, Suite 400
Sunrise, FL 33323, USA
 +1 954 846 5030
 +1 954 846 5121
 RFQ.RMD-RCC@Emerson.com

Europe Regional Office

Emerson Automation Solutions Europe GmbH

Neuhofstrasse 19a P.O. Box 1046
CH 6340 Baar
Switzerland
 +41 (0) 41 768 6111
 +41 (0) 41 768 6300
 RFQ.RMD-RCC@Emerson.com

Asia Pacific Regional Office

Emerson Automation Solutions

1 Pandan Crescent
Singapore 128461
 +65 6777 8211
 +65 6777 0947
 Enquiries@AP.Emerson.com

Middle East and Africa Regional Office

Emerson Automation Solutions

Emerson FZE P.O. Box 17033
Jebel Ali Free Zone - South 2
Dubai, United Arab Emirates
 +971 4 8118100
 +971 4 8865465
 RFQ.RMTMEA@Emerson.com



[Linkedin.com/company/Emerson-Automation-Solutions](https://www.linkedin.com/company/Emerson-Automation-Solutions)



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