HIGH ACCURACY

measurement instruments

PRODUCT DATASHEET
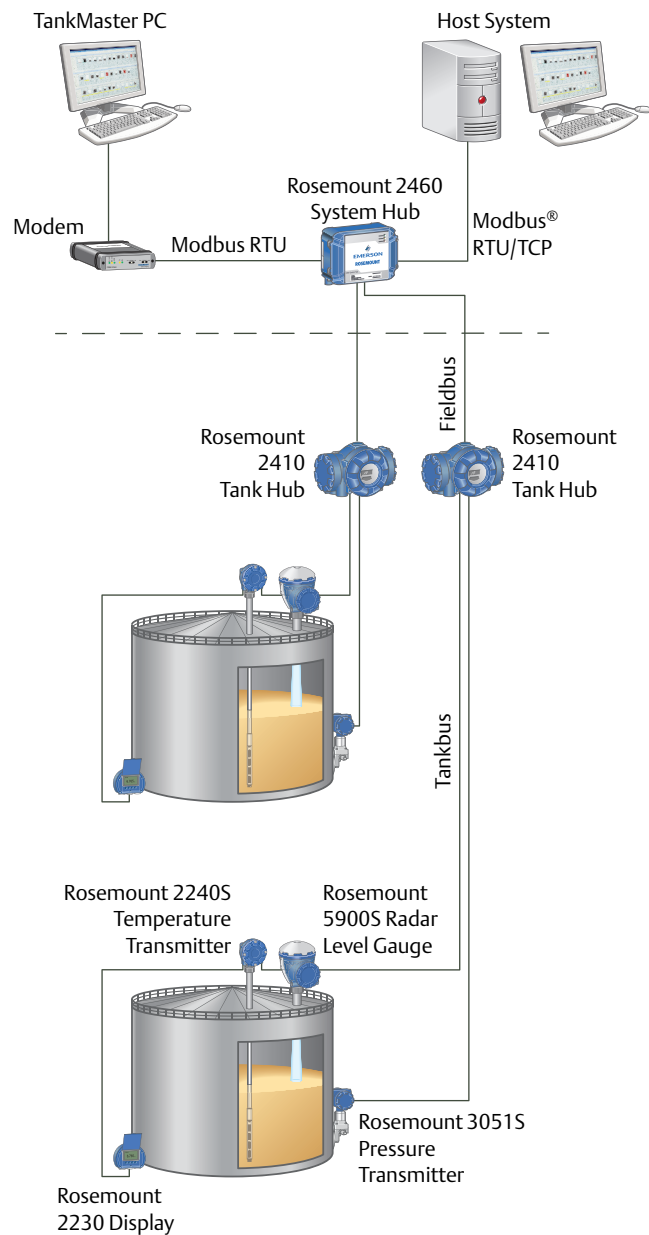
Rosemount™ 2460 System Hub

for tank gauging systems

Transfers tank gauging data to TankMaster™, Host, and DCS systems

- Ensure fast data update rate

- Serves up to 64 tanks

- Benefit from scalable options for all system sizes

- Get flexible and configurable multiple port connectivity

- Achieve instrument and system redundancy

- Enable other vendor emulation by bringing in data from Enraf®, GPE, Whessoe, L&J, or Varec® gauges

EMERSON™

Efficient update of vital online tank data

The Rosemount 2460 System Hub is a data concentrator that continuously polls and stores data from field devices such as radar level gauges, pressure and temperature devices. Measured and calculated data from one or more tanks is communicated via the Rosemount 2410 Tank Hub to the system hub buffer memory. Whenever a request is received, the system hub can immediately send data from a group of tanks to a TankMaster PC or a host.

The system hub also supports connection of other tank gauging instruments such as TankRadar™ Pro and TankRadar Rex gauges. In addition, it can be used to connect devices from other vendors, such as Honeywell® Enraf, Whessoe, etc.

Configurable multiple port connectivity

The Rosemount 2460 has eight slots for communication interface boards. These boards can be individually configured for communication with hosts or field devices. They can be ordered either for TRL2, RS485, Enraf BPM, GPE 20 mA/RS485, Whessoe 20 mA/RS485, L&J Tankway or Varec Mark/Space communication. Two slots can also be configured as RS232.

Modbus TCP communication to host

One of the system hub's three Ethernet ports is used for Modbus TCP connection to host systems. By simply connecting the system hub to the existing LAN network, communication over Ethernet is established:

- Easy access, special converters are not required
- Fast communication
- No need for dedicated cabling

User-defined Modbus mapping

The Rosemount 2460 can easily be integrated into existing hosts as it can be configured to match the existing value mapping of the current system. It provides flexibility when replacing legacy devices as it can be set up to match the old device without configuring the host system.
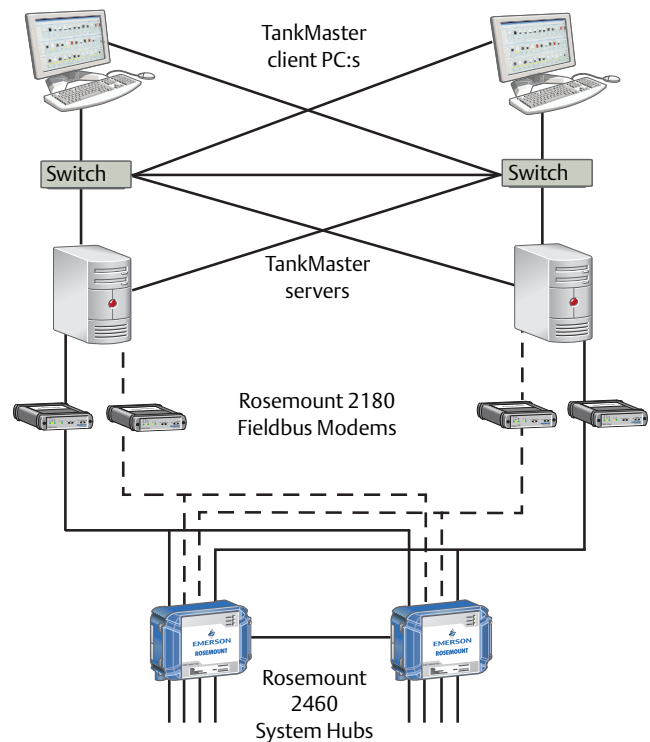
Contents

Improved system reliability with redundancy

The system hub can provide redundancy for critical operations by using two identical devices.

The primary system hub is in active and the other one is in passive mode. If the primary unit stops working properly the secondary unit is activated and a failure message is sent to TankMaster (or a DCS system).

Redundancy can be utilized for some or all equipment in the system from the control room to the field devices.

TankMaster client PC:s

Switch   Switch

TankMaster servers

Rosemount 2180 Fieldbus Modems
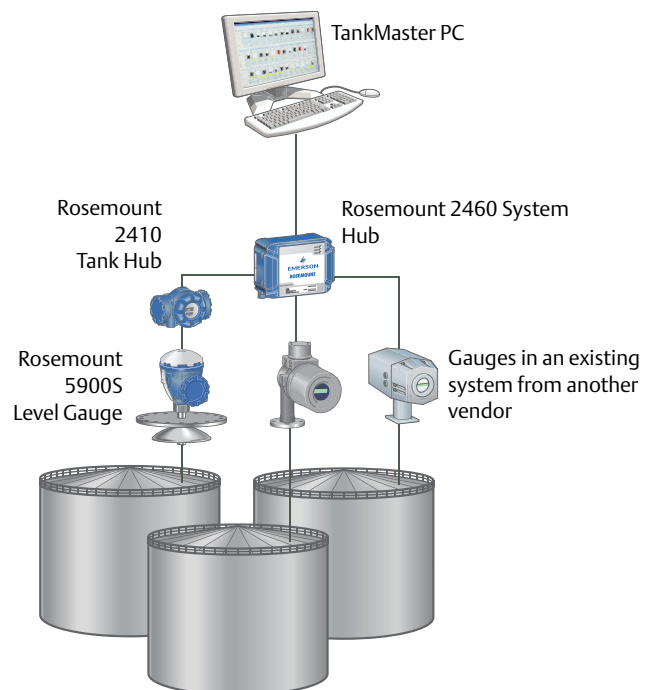
Rosemount 2460 System Hubs

Seamless integration of gauges from other vendors

Replace your old tank management system with Rosemount TankMaster by connecting the system hub to the existing Enraf, GPE, Whessoe, L&J, or Varec field devices.

Rosemount TankMaster can seamlessly replace an existing inventory management system, still being able to communicate with the field devices in use. This often enables a better update rate than before.

Emulation also enables the step-by-step modernization of a tank farm by replacing old field devices with Rosemount 5900 level gauges, temperature devices, and one or several tank hubs.

TankMaster PC

Rosemount 2410 Tank Hub

Rosemount 2460 System Hub

Rosemount 5900S Level Gauge

Gauges in an existing system from another vendor

Ordering information

Table 1. Rosemount 2460 System Hub Ordering Information

Model	Product description
2460	System Hub
Capacity[1][2]	
1	1-16 tanks
4	1-48 tanks
6	1-64 tanks
Firmware	
S	Standard
Redundancy/emote access (Ethernet)	
0	None
R	Redundancy (Requires two identical system hubs with redundancy enabled.)
Modbus mapping	
S	Standard
G	User-defined Modbus Mapping (Enables customized mapping for host communication.)
Port 1, field communication (serial port)[3]	
R	TRL2 Modbus
E	Enraf Bi-phase Mark GPU
G	GPE (Digital Current Loop)
P	GPE (RS485)
H	Whessoe WM 550/660 (Digital Current Loop)
Y	Whessoe WM 660 (RS485)
L[4][5]	L&J Tankway
V[4][5]	Varec Mark/Space
4	RS485 Modbus
Port 2, field communication (serial port)[3]	
0	None
R	TRL2 Modbus
E	Enraf Bi-phase Mark GPU
G	GPE (Digital Current Loop)
P	GPE (RS485)
H	Whessoe WM 550/660 (Digital Current Loop)
Y	Whessoe WM 660 (RS485)

Table 1. Rosemount 2460 System Hub Ordering Information

L[4][5]	L&J Tankway
V[4][5]	Varec Mark/Space
4	RS485 Modbus
Port 3, field communication (serial port)[3]	
0	None
R	TRL2 Modbus
E	Enraf Bi-phase Mark GPU
G	GPE (Digital Current Loop)
P	GPE (RS485)
H	Whessoe WM 550/660 (Digital Current Loop)
Y	Whessoe WM 660 (RS485)
L[4][5]	L&J Tankway
V[4][5]	Varec Mark/Space
4	RS485 Modbus
Port 4, field communication (serial port)[3]	
0	None
R	TRL2 Modbus
E	Enraf Bi-phase Mark GPU
G	GPE (Digital Current Loop)
P	GPE (RS485)
H	Whessoe WM 550/660 (Digital Current Loop)
Y	Whessoe WM 660 (RS485)
L[4][5]	L&J Tankway
V[4][5]	Varec Mark/Space
4	RS485 Modbus
Port 5, field or host communication (serial port)[3]	
00	None
FR	TRL2 Modbus, field communication
FE	Enraf Bi-phase Mark GPU, field communication
FG	GPE (Digital Current Loop), field communication
FP	GPE (RS485), field communication
FH	Whessoe WM 550/660 (Digital Current Loop), field communication
FY	Whessoe WM 660 (RS485), field communication
FL[4][5]	L&J Tankway, field communication
FV[4][5]	Varec Mark/Space, field communication

Table 1. Rosemount 2460 System Hub Ordering Information

F4	RS485 Modbus, field communication
H8[6]	Enraf CIU 858 emulation (RS485)
HR	TRL2 Modbus, host communication
H4	RS485 Modbus, host communication
Port 6, field or host communication (serial port)[3]	
00	None
FR	TRL2 Modbus, field communication
FE	Enraf Bi-phase Mark GPU, field communication
FG	GPE (Digital Current Loop), field communication
FP	GPE (RS485), field communication
FH	Whessoe WM 550/660 (Digital Current Loop), field communication
FY	Whessoe WM 660 (RS485), field communication
FL[4][5]	L&J Tankway, field communication
FV[4][5]	Varec Mark/Space, field communication
F4	RS485 Modbus, field communication
H8[6]	Enraf CIU 858 emulation (RS485), host communication
HR	TRL2 Modbus, host communication
H4	RS485 Modbus, host communication
Port 7, host communication (serial port)	
00	None
TR	TRL2 Modbus communication to TankMaster
T2	RS232 Modbus communication to TankMaster
T4	RS485 Modbus communication to TankMaster
HE[6]	Enraf CIU 858 emulation (RS232)
H8[6]	Enraf CIU 858 emulation (RS485)
HR	TRL2 Modbus communication to host/DCS
H2	RS232 Modbus communication to host/DCS
H4	RS485 Modbus communication to host/DCS
Port 8, host communication (serial port)	
TR	TRL2 Modbus communication to TankMaster
T2	RS232 Modbus communication to TankMaster
T4	RS485 Modbus communication to TankMaster
OPC host communication (Ethernet)	
00	None

Table 1. Rosemount 2460 System Hub Ordering Information

Modbus TCP host communication (Ethernet)	
00	None
M1	1 Modbus TCP client. Third party Modbus TCP client (not required for TankMaster).
M5	1-5 Modbus TCP clients. Third party Modbus TCP clients (not required for TankMaster).
Power supply	
P	100-250 VAC 50/60 Hz, 24-48 VDC
Custody transfer type approval[7]	
R	OIML R85 edition 2008
A	CMI (Czech Republic)
C	PTB Eich (Germany)
N	NMi (The Netherlands)
0	None
Housing	
A	Aluminum (polyurethane-covered), IP 65
Cable/conduit connections	
G	Metal cable glands (M20 x1.5 and M25 x1.5), 9 plugs and 11 glands are included (2 pcs M25 and 7 pcs M20 plugs)
1	NPT adapters (½ -14 NPT and ¾ -14 NPT), 9 plugs and 11 adapters are included (2 pcs M25 and 7 pcs M20 plugs)
2	Metal plugs (M20 x 1.5 and M25 x1.5) (2 pcs M25 and 9 pcs M20 plugs)
Extra	
0	None

Options (include with selected model number)

Tag plate	
ST	Engraved SST tag plate
Conformance certificate	
Q1	Printed copy of certificate of conformance
Extended warranty[8]	
WR3	3-year limited warranty
WR5	5-year limited warranty
Typical model number: 2460 1 S 0 S R R R R FR FR TR TR 00 00 P R A 1 0 WR3	

1. Maximum number of tanks depends on selected field ports configuration.
2. Each Rosemount 5900S Radar Level Gauge with 2-in-1 functionality corresponds to two tanks.
3. See Table 2 on page 9 for maximum number of devices connected to each field port.
4. Not supported for redundant system hubs (Redundancy option code R).
5. External power supply is required for powering the bus.

6. Emulation of Enraf CIU 858 for connection to existing host system or service/configuration tool.
7. Requires Rosemount 5900S Radar Level Gauge and Rosemount 2410 Tank Hub with corresponding Custody transfer type approval.
8. Standard warranty is 18 months from delivery.

Specifications

Communication/configuration specifications

Number of tanks

Each Rosemount 2460 can be configured for up to 64 tanks.

The actual number of tanks depends on the electrical interface and field port configuration. For more information, see Table 2.

Note that each Rosemount 5900S Radar Level Gauge with 2-in-1 functionality corresponds to two tanks.

Number of devices per field port

Table 2 lists the maximum number of devices that can be connected to each Rosemount 2460 field port.

Examples of devices are Rosemount 2410, Rosemount TankRadar Pro, and legacy devices, such as Rosemount TankRadar Rex and Rosemount TankRadar TRL2.

Table 2. Number of Devices

Interface	Maximum number of devices connected to each field port
RS485	16
TRL2[1]	8
Enraf BPM	10
GPE 20 mA/RS485	10[2]
Whessoe 20 mA/RS485	10[2]
L&J	10[2]
Varec	10[2]
E+H NRF590 Tank Side Monitor (TSM)	16[3]

1. Devices such as Rosemount 2410 Tank Hub, Rosemount TankRadar Rex, Rosemount TankRadar Pro, TRL2 gauges, and DAU are supported.

2. In certain situations, more than 10 devices may work. Contact Emerson Automation Solutions/Tank Gauging Service Department for advice.

3. Other devices using the Tank Side Monitor Modbus mapping are also supported.

Number of ports

Interface	Number of ports
Modem[1]	8
Ethernet[2]	3
USB[2]	1
SD[2]	1

1. For more information, see Table 3 on page 10 and Table 4 on page 11.

2. For more information, see Table 6 on page 11.

Modem ports can be configured for either field or host communication according to the model code. For more information, see Table 5 on page 11.

Hosts

See Table 3 on page 10 and Table 5 on page 11.

Enraf emulation

Support for data polling of Enraf field devices.

Protocol:
- GPU

Electrical interface:
- Enraf Bi-phase Mark

Support for emulation of Enraf CIU 858 for connection to existing host system or service/configuration tool.

Protocol:
- GPU

Electrical interface:
- RS485
- RS232

GPE emulation

Support for data polling of GPE field devices.

Protocol:
- GPE

Electrical interface:
- 20 mA Digital Current Loop
- RS485

Whessoe emulation

Support for data polling of Whessoe field devices.

Protocol:
- WM 550
- WM 660

Electrical interface:
- 20 mA Digital Current Loop
- RS485

L&J emulation

Support for data polling of L&J field devices.

Protocol:
- L&J Tankway

Electrical interface:
- L&J Tankway

E+H Tank Side Monitor emulation

Support for data polling of Tank Side Monitor field devices.

Protocol:
- Modbus

Electrical interface:
- RS485

Varec emulation

Support for data polling of Varec field devices.

Protocol:
- Varec Mark/Space

Electrical interface:
- Varec Mark/Space

Rosemount 2160/2165 emulation

Host protocol, supporting the Rosemount 2160/2165 Field Communication Unit input register mapping. Enables the replacement of Rosemount 2160/2165 without re-programming the host.

Digital communication protocols

Table 3. Serial Host Communication Ports (5-8)

Supported devices	Protocol	Electrical interface	Baud rate	Port
TankMaster	Modbus RTU	TRL2	4800	5-8
		RS485 (2-wire)	150-38400	5-8[1]
		RS485 (4-wire)		7-8[1]
		RS232		7-8
Other hosts (DCS, SCADA etc.)	Modbus RTU	TRL2	4800	5-7
		RS485 (2-wire)	150-38400	5-7[1]
		RS485 (4-wire)		7[1]
		RS232		7
Enraf CIU 858 emulation	GPU	RS485 (2-wire)	150-38400	5-7[1]
		RS485 (4-wire)		7[1]
		RS232		7

1.   Configurable termination by hardware switch.

Table 4. Serial Field Communication Ports (1-6)

Supported devices	Protocol	Electrical interface	Baud rate	Port
Rosemount 2410,TankRadar Rex gauges (with SDAU), IDAU, TankRadar Pro and TankRadar TRL2 gauges	Modbus RTU	TRL2	4800	1-6
Rosemount 2410		RS485 (2-wire)	150-38400	
Enraf 811, 813, 854, 873, 877, 894, 970, 971 and TOI-B	GPU	Enraf Bi-phase Mark	1200/2400	
GPE 31422, 31423	GPE	20 mA Digital Current Loop	150-2400	
		RS485	150-38400	
Whessoe 1315, 1143	WM 550	20 mA Digital Current Loop	150-2400	
	WM 660	20 mA Digital Current Loop	150-2400	
		RS485	150-38400	
L&J 1500 XL, MCG 2000	L&J Tankway	L&J Tankway	300-4800	
Varec 1800, 1900	Varec Mark/Space	Varec Mark/Space	70/250	
E+H NRF590 Tank Side Monitor	Modbus	RS485	150-38400	

Table 5. Port Configuration Options

Ports	1	2	3	4	5	6	7	8
Alternative 6+2 (standard)	Field Port	Field Port	Field Port	Field Port	Field Port	Field Port	Host Port	Host Port
Alternative 5+3	Field Port	Field Port	Field Port	Field Port	Field Port	Host Port	Host Port	Host Port
Alternative 4+4	Field Port	Field Port	Field Port	Field Port	Host Port	Host Port	Host Port	Host Port

Table 6. Additional Interfaces

Electrical interface	Description
Ethernet 1 (ETH 1)[1]	Modbus TCP connection to host system
Ethernet 2 (ETH 2)[2]	Connected to redundant system hub
Ethernet 3 (ETH 3)	Used for service purposes only
USB 2.0[3]	USB memory stick for logging diagnostic data (service purposes only)
SD[3]	SD card for logging diagnostic data (service purposes only)

1.   When connecting the system hub to the local LAN network, make sure the connection is secure to prevent unauthorized access.

2.   CAT 5 or 6 cable is recommended.

3.   FAT32 file system.

Figure 1. Typical Configuration of a Rosemount 2460 System Hub

TankMaster

Other hosts

USB
RS232

Modem

DCS/Other hosts
(TRL2, RS485, RS232)

Modbus
RTU/TCP

RS232

TRL2,
RS485

Rosemount 2460
System Hub

EMERSON
ROSEMOUNT

Rosemount
2410 Tank Hub

TRL2,
RS485,
other vendors

Field devices

Tankbus

Primary bus:
TRL2, RS485

Field devices

Secondary bus: Enraf, Whessoe and others,
HART 4-20 mA analog output/input
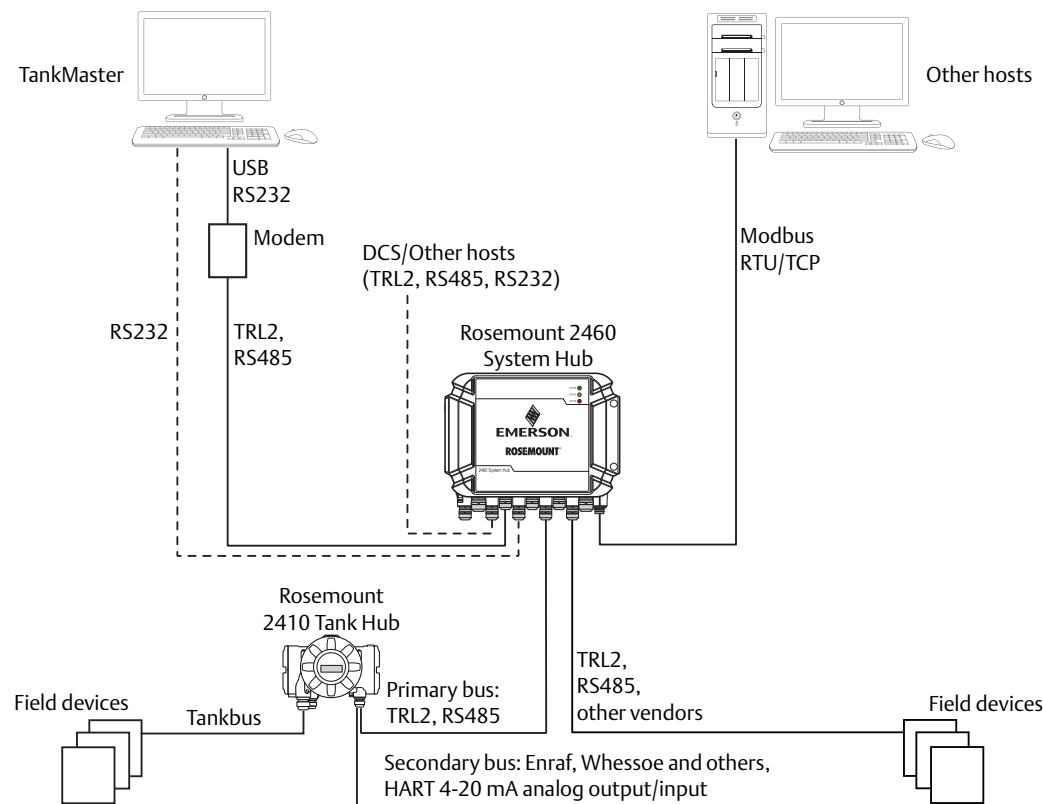
Figure 2. Typical Redundant Configuration

TankMaster

Rosemount 2460
System Hub,
primary

Rosemount 2460
System Hub,
secondary

Modem

EMERSON
ROSEMOUNT

EMERSON
ROSEMOUNT

Redundancy control signal

Rosemount
2410 Tank Hub

Field devices

Tankbus
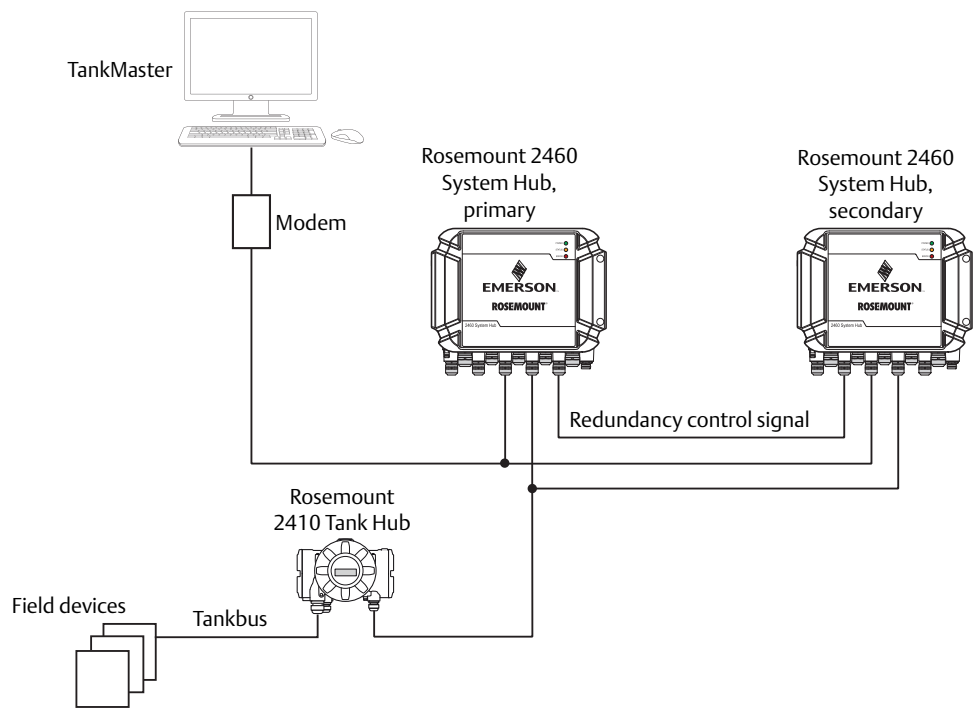
Electrical specifications

Power supply

24-48 VDC (-15%, +10%)
100-250 VAC (-15%, +10%), 50/60 Hz (±2%)

Power consumption

Maximum 20 W

Cable entries

Nine M20 x 1.5
Two M25 x 1.5

Electrical interface

See Table 3, Table 4 and Table 6.

Cable size

Power: 0.75 to 2.1 mm² (18-14 AWG)
Bus: 0.5 to 2.5 mm² (20-14 AWG) depending on communication interface

Built-in mains fuses

T1.6 A

Backup battery

3V CR 1632 lithium

Mechanical specifications

Housing material

Polyurethane-covered die-cast aluminum

Installation

Wall mounted by four screws. For more information, see "Dimensional drawings" on page 15.

Weight

7 kg (15 lbs)

Environmental specifications

Temperature limits

Ambient temperature

-40 to 70 °C (-40 to 158 °F)

Storage temperature

-40 to 80 °C (-40 to 176 °F)

Humidity limits

0-100% relative humidity

Ingress protection

IP 65

Additional specifications

Metrology sealing possibility

Yes

Write protection

Yes, via software configuration and/or hardware switch.

Product certifications

Rev 3.1

European directive information

The most recent revision of the EU Declaration of Conformity can be found at Emerson.com/Rosemount.

Ordinary location certification

As standard, the Rosemount 2460 System Hub 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).

> Certificate: 2735155
>
> Standards: CAN/CSA-C22.2 No. 61010-1-12;
> UL Std. No. 61010-1 (3rd Edition);
>
> Markings: Rated 24-48 V dc, 100-250 V ac, 20 W, 50/60 Hz;
> Ambient rated -40 to +70 °C

Electromagnetic compatibility compliance

FCC

This device complies with Part 15 of the FCC Rules.

> Standards: FCC 47 CFR Part 15B,
> 15.107 Conducted emission class A,
> 15.109 Radiated Emission class A

Custody transfer certifications

OIML custody transfer

Certificate: R85-2008-SE-11.01

Dimensional drawings

Figure 3. Rosemount 2460 System Hub
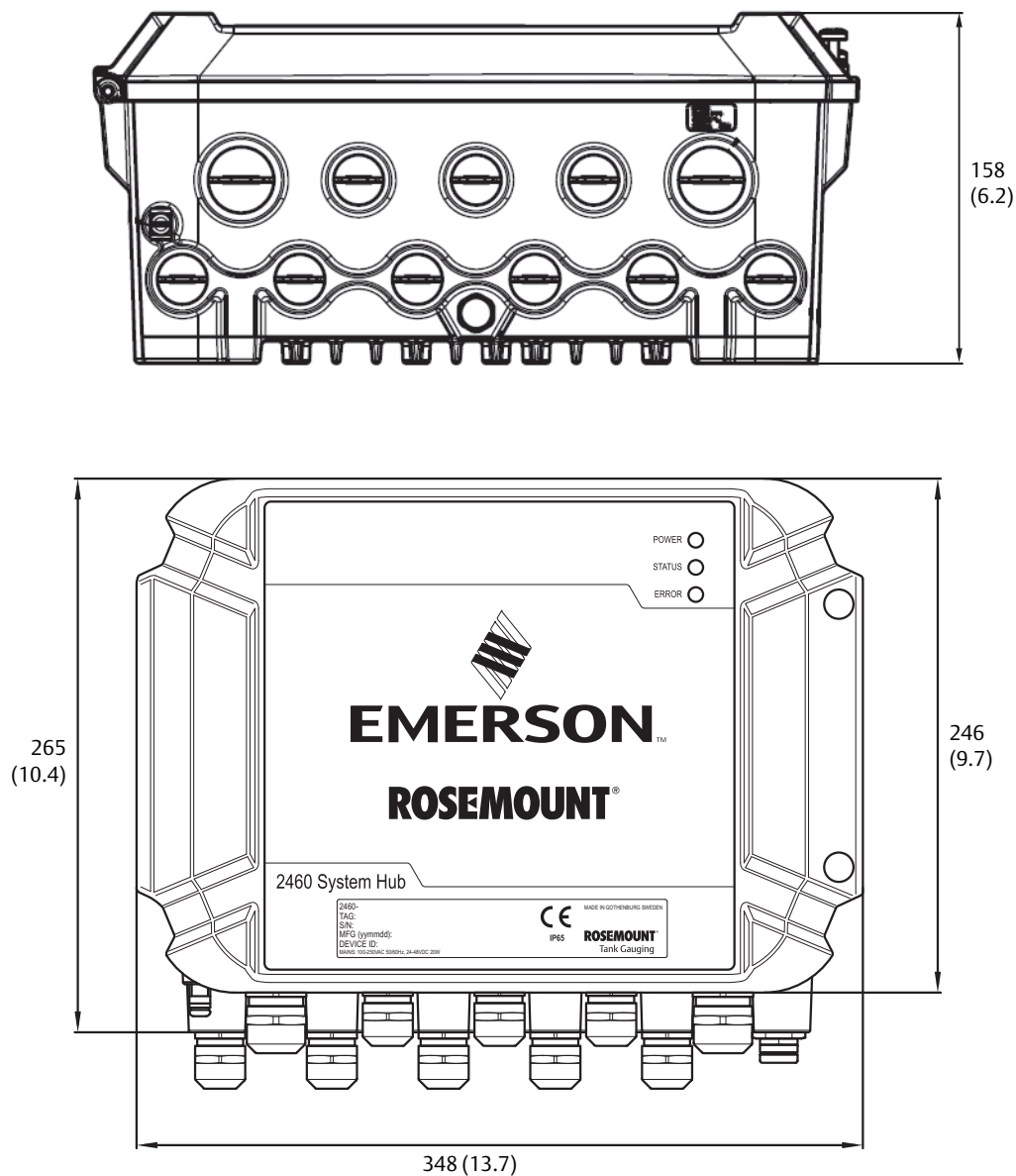
Dimensions are in millimeters (inches).

Figure 4. Rosemount 2460 System Hub
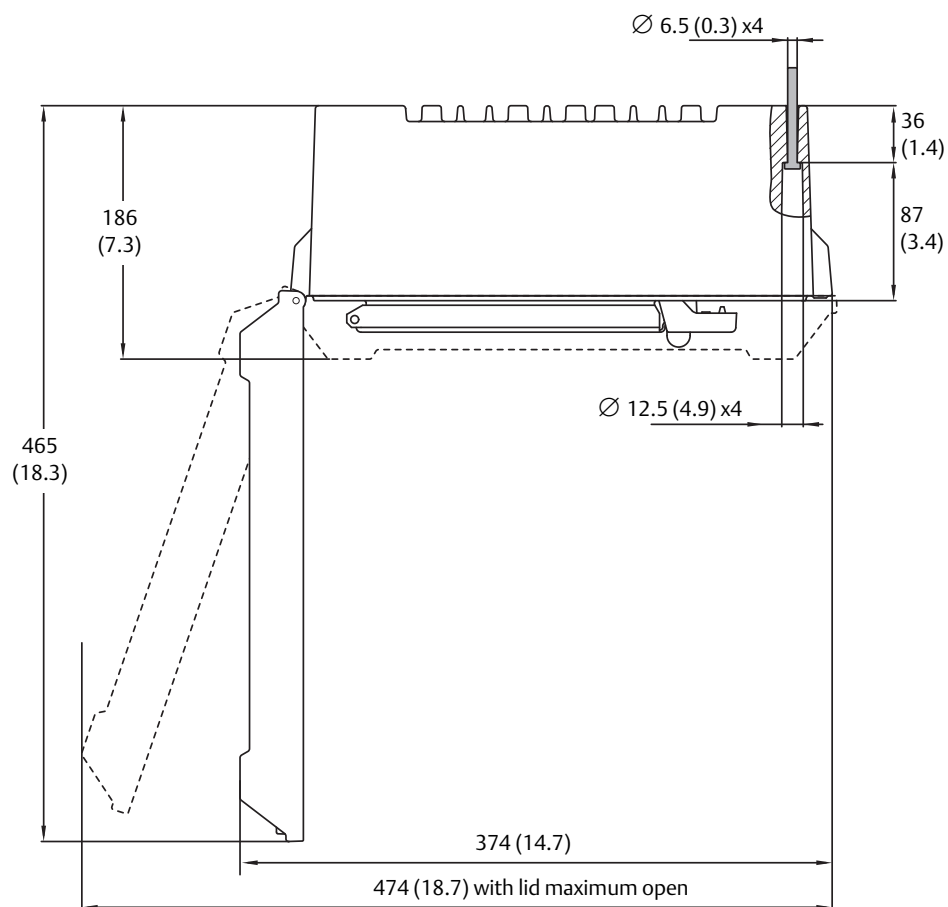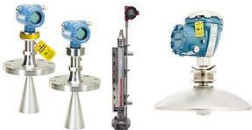
Dimensions are in millimeters (inches).

HIGH ACCURACY

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Global Headquarters and Europe Regional Office
Tank Gauging
Emerson Automation Solutions
Box 150
(Visiting address: Layoutvägen 1)
SE-435 23 Mölnlycke
Sweden
- +46 31 337 00 00
- +46 31 25 30 22
- Sales.RTG@Emerson.com

North America Regional Office
Tank Gauging
Emerson Automation Solutions
6005 Rogerdale Road
Mail Stop NC 136
Houston, TX 77072, USA
- +1 281 988 4000 or +1 800 722 2865
- Sales.RTG.HOU@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
- RMTLAContactUS@Emerson.com

Asia Pacific Regional Office
Emerson Automation Solutions
1 Pandan Crescent
Singapore 128461
- +65 6777 8211
- +65 6777 0947
- Specialist-OneLevel.RMT-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
- RTGMEA.Sales@Emerson.com

Linkedin.com/company/Emerson-Automation-Solutions

Twitter.com/Rosemount_News

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