Part Number: M2000-UL, Rev. 0
Issue Date: 11/7/2017
Supersedes: NA

M2000-UL - I.S. Barriers for OPW-FMS SiteSentinel® ATG and VSmart

Certification

Copyright Information

Contact OPW Fuel Management Systems

Visit us at www.opwglobal.com/opw-fms, or contact us at:

Call 1-877-OPW-TECH (877-679-8324)
For calls outside US and Canada, call +1-708-485-4200
Fax 1-800-421-3297

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For technician registration, see
http://www.opwglobal.com/opw-fms/tech-support/technician-registration.

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http://www.opwglobal.com/opw-fms/tech-support/training-certification.

These are the minimum requirements that must be included in the manual that is provided with the equipment.

No modification permitted without reference to the notified body.

Standards

UL 1238 - STANDARD FOR CONTROL EQUIPMENT FOR USE WITH FLAMMABLE LIQUID DISPENSING DEVICES - Edition 5 – Revision Date 2013/04/11

UL 913 - STANDARD FOR INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS FOR USE IN CLASS I, II, III, DIVISION 1, HAZARDOUS (CLASSIFIED) LOCATIONS - Edition 7 - Revision Date 2011/09/23

CAN/CSA C22.2 NO. 157-92-CAN/CSA - INTRINSICALLY SAFE AND NON-INCENDIVE EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS - Edition 3 –Reaffirmed 2012

CAN/CSA C22.2 NO. 142-M1987 - PROCESS CONTROL EQUIPMENT - Edition 3 – Reaffirmed 2009 IEC 60529, Edition 2 - DEGREES OF PROTECTION PROVIDED BY ENCLOSURES (IP CODE)

Table of Contents

Section 1 Safety

Read all instructions prior to installing this product.

Do not operate or install the equipment if it has been dropped or damaged until it has been examined by an OPW qualified service technician.

Install only as described in this document.

1.1 Warnings

The inside of the console contains no useable parts and operates on high-voltage circuitry; therefore, ONLY OPW certified technicians should be allowed to access the console.

WARNING: Incorrect installation can cause fire, electric shock, or injury to persons who use this product.

The console must be installed within the safe area.

• The entity parameters of these devices must be observed prior to connecting to the barrier connectors.

- Refer to M2004-GND for Control and Barrier Entity parameters.

• To maintain IPX1 rating follow instruction manual when putting into service and during maintenance.

1.2 Installer Safety

CAUTION: Incorrect installation can endanger installers and users of this equipment and could result in environmental contamination or equipment damage. Read these instructions carefully!

Installation must be in accordance with the U.S. National Electrical Code (NFPA No. 70) and the Code for Motor Fuel Dispensing Facilities and Repair Garages (NFPA No. 30A).

Installers must know the requirements of intrinsically safe devices and must obey the instructions in this document to complete a safe installation.

For installations outside the United States, make sure that the installation obeys all applicable local codes.

When installing in a hazardous area as defined by the NEC, only intrinsically safe devices can be installed in or above the Class 1, Division 1 and 2 Hazardous Area.

It is the installer's responsibility to examine and obey any national and local codes.

NOTE: Local codes may dictate special installation requirements. Installation is subject to approval by the local authority having jurisdiction at the site.

1.3 Applicable Warnings

The inside of OPW-FMS automatic tank-gauge system consoles contain high-voltage circuitry. ONLY certified technicians should gain access to the console.

NOTE: Only certified OPW technicians are authorized to install and program this automatic tank gauge system. Failure to comply could result in a voided warranty.

DANGER: The coin cell battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire. Replace battery with Panasonic or Matsushita Electric Part Number CR-2032 (Nano), OPW Part Number 20-8344 (Integra) ONLY. Use of another battery may present a risk of fire or explosion.

To avoid possible explosion or fire, do not replace the lithium battery with a type that is not compatible.

Battery can explode if mistreated. Do not recharge, disassemble or dispose of in fire.

The battery used in this device may present a risk of fire or chemical burn if mistreated. Do not disassemble, heat above 50°C (Nano)/60°C (Integra) or incinerate.

Dispose of used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

The console can remain energized via the backup battery, even though the line power has been removed.

The inside of the console contains high-voltage circuitry; ONLY certified technicians should be permitted access to the console.

An external disconnect device must be installed for any permanently connected equipment!

An electrical outlet must be installed near any equipment requiring access through a plug connection!

The console has one (1) lithium battery. When the battery can no longer hold sufficient electrical power it must be replaced.

IMPORTANT: Replace the battery with recommended replacement ONLY. Use of another battery may present a risk of fire or explosion.

A used battery must be removed and brought to a battery-recycling center for approved disposal.

NOTICE: When the lithium battery is being charged, the Integra console must stay energized or all configuration data will be lost.

1.4 I.S. Barriers - Special Conditions for Safe Use

The intrinsic safety barriers provide intrinsically safe circuits suitable for use with Category 1 equipment located in a Group II, Gas Group IIA hazardous location. The devices are intended for use in a non-hazardous location as associated apparatus.

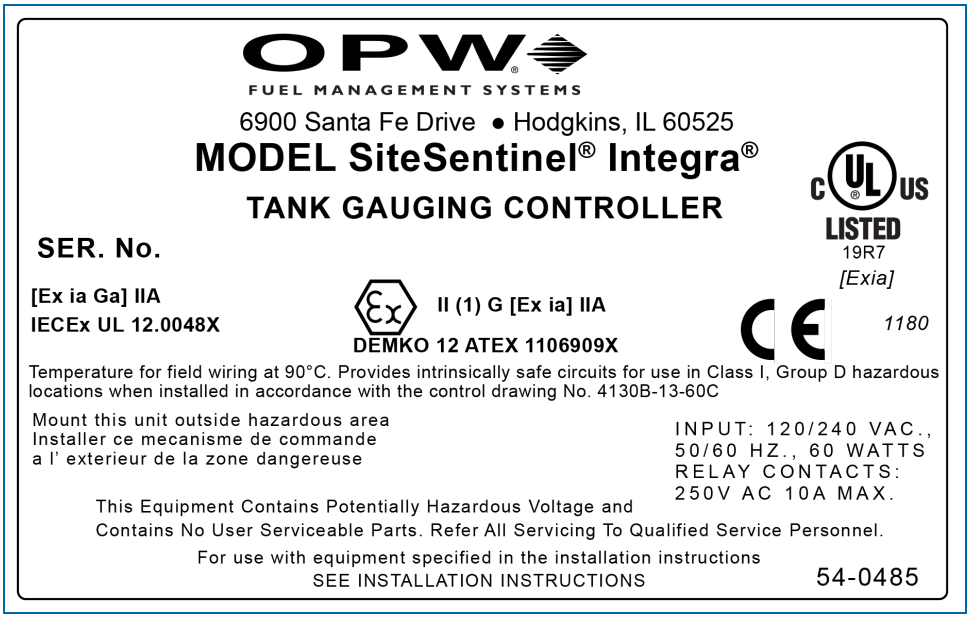
- The operating temperature range for all device types is -40 °C to +70 °C.
- Maximum permissible voltage (Um) must not be above 250 V.
- The electrical parameters of the intrinsically safe connected devices must be compatible with the electrical parameters of the barrier with which it is connected.
- The intrinsically safe barriers are intended for use only inside their respective installed enclosures.
    - DO NOT use a barrier removed from a console as standalone equipment.
    - Installation must be in accordance with the U.S. National Electrical Code (NFPA No. 70) and the Code for Motor Fuel Dispensing Facilities and Repair Garages (NFPA No. 30A).
    - Refer to the Installation Guide of the applicable console for the correct installation procedure.*
- The terminal strip of each barrier is clearly labeled for Power (PWR), Signal (SIG) and Ground (GND) connections. The wiring of intrinsically safe devices to the barrier must agree with the labeling of the terminal strip.
- Spacing requirements between the non-intrinsically safe circuit connections and the intrinsically safe connection facilities must be maintained in accordance with EN 60079-11.
- Refer to the applicable console Field Wiring Diagrams and Installation Guides for correct wiring of all Earth Ground and I.S. Ground terminals between the console and main electrical service panel.*

* All OPW-FMS Installation Guides and Field Wiring Diagrams can be found at http://www.opwglobal.com/opw-fms/tech-support/manuals-how-to-videos.

Section 2 UL Labels

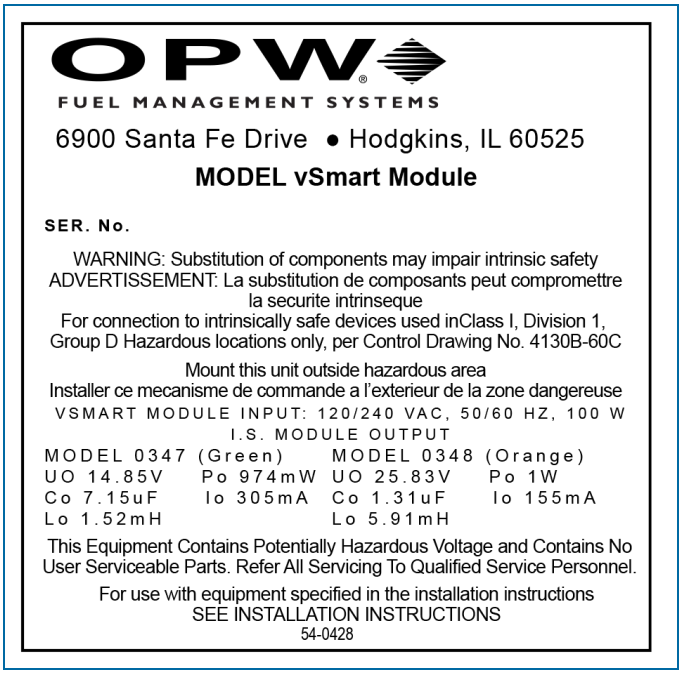
2.1 Nano

2.2 Integra



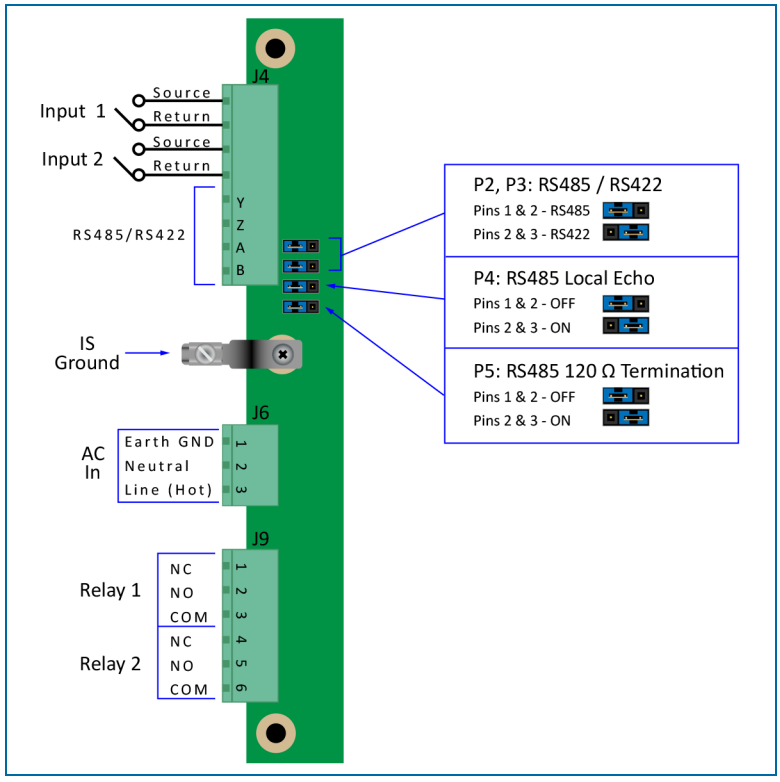
2.3 iTouch

2.4 VSmart Product Label



Section 3 Nano Connection

3.1 Internal Connectors



Internal connectors are located on the left-hand side of the console in a dedicated wiring trough.

J6 - Power In & Ground Terminal Connector

GND Console ground

N Neutral

L Line

- 120/240 VAC, 50/60 Hz, 30W
- This product must be grounded using a grounding conductor connected between the ground terminal in the console and the power distribution panel.
- As this device contains intrinsic safety barriers an additional grounding conductor must be connected between the I.S. ground terminal in the console and the power distribution panel.
- Consult national and local codes for wire size/gauge.

J9 - Relay Terminal Connector

1 Normally closed

2 Normally open

3 Common

4 Normally closed

5 Normally open

6 Common

- Relay & connector rated at 120/240 VAC, 10 Amp Max.

J4 Inputs Terminal Connector

1 Input 1 source (24 V at 4 mA)

2 Input 1 return

3 Input 2 source (24 V at 4 mA)

4 Input 2 return

- Normally used with a simple switch contact to acknowledge or start an event.

J4 - RS485/RS422 Terminal Connector

5 RS422 (Y) RS485 (Y, A)

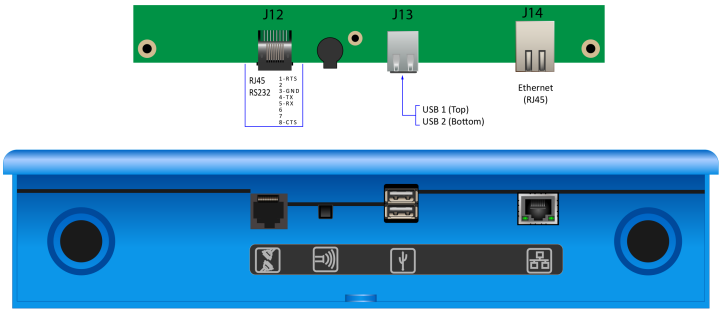
6 RS422 (Z) RS485 (Z, B)

7 RS422 (A)

8 RS422 (B)

- Connection to POS and/or External I/O modules, etc.

3.2 External Connectors



Nano Console Bottom

The external connectors are located at the bottom of the main board. Access is gained through the bottom of the console.

J12 - RJ45/RS232 Port

- Used for connection to external RS232 devices

1 RTS

2 -

3 ISO Ground

4 TX

5 RX

6 -

7 -

6 CTS

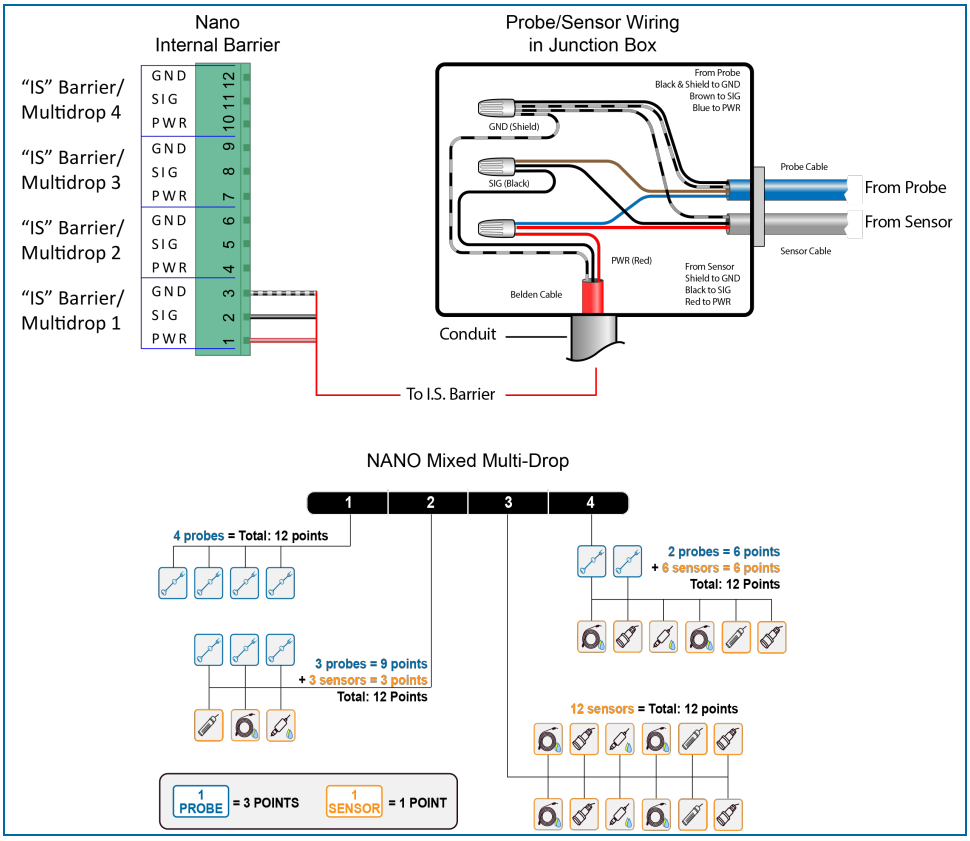
J13 - Dual USB Type-A Host Connectors

- Used for USB flash drives
- Used for external printer

J14 - RJ45 Ethernet Connector

- Used for connection to network

3.3 I.S. Barrier Terminal Connectors



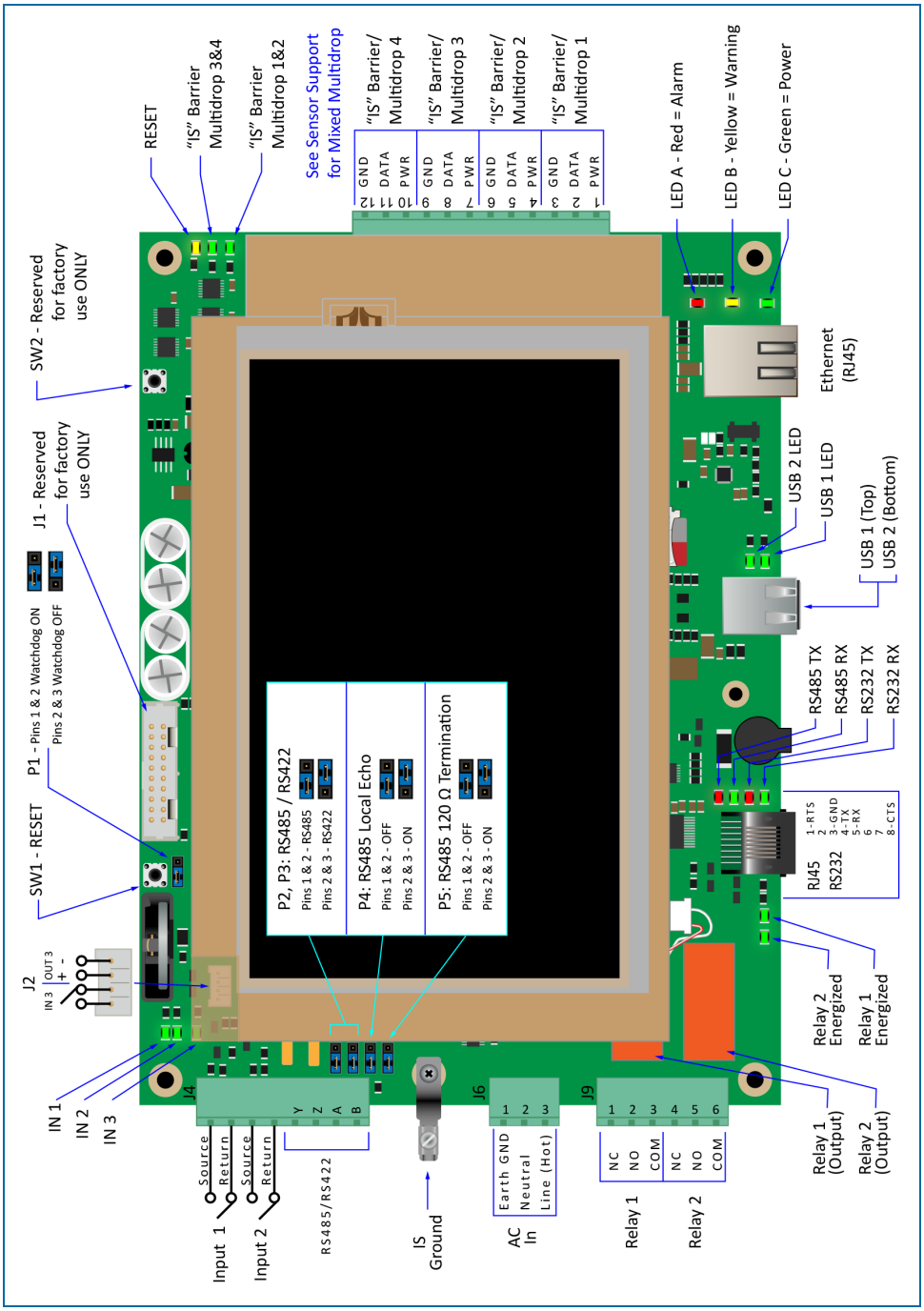
The 12V barrier is located on the right side of console in a dedicated wiring trough.

- Sensors and probes must be installed, positioned and operated according to all applicable codes. These codes may include, but are not limited to, the National Fire Prevention Code and the National Electrical Code.
- Check the requirements of any other applicable codes in the country/region of installation before beginning.
- Sensors and Probes are intrinsically safe devices for use in hazardous locations. The Nano console contains "Mixed Multi-Drop" technology where probes and sensors can be wired to the same barrier position. See the illustration above for an explanation of the "point system" that controls the probes and sensors that can be wired together.
- The entity parameters of these devices must be observed prior to connecting to the barrier connectors.
    - Refer to M2004-GND for Control and Barrier Entity parameters and for examples of applicable device connections.
- All sensor and probe wiring must be within dedicated conduit and no other wiring of any voltage can be in this conduit.

12V Barrier Terminals Numbered from Top to Bottom:

- 12 Barrier Position 4 Ground
- 11 Signal
- 10 Power
- 9 Barrier Position 3 Ground
- 8 Signal
- 7 Power
- 6 Barrier Position 2 Ground
- 5 Signal
- 4 Power
- 3 Barrier Position 1 Ground
- 2 Signal
- 1 Power

3.4 Nano Board Detail

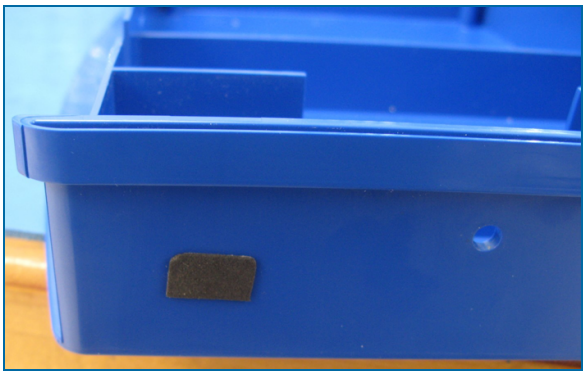


3.5 IPX1 Rating Compliance - Nano

To comply with the IPX1 rating, the SiteSentinel Nano console must have sticky-back foam to cover the holes of the enclosure and washers must be used with the mounting screws. The sticky-back foam and washers are included in IP41 Nano Kit (p/n: 20-7085) and will be shipped with the console.

IP41 Nano Kit (P/N: 20-7085)			
OPW P/N	Qty.	Part Description	Dimensions (mm)
50-2100	2	Nano IPX1 Gasket (material: 41116-SE Neoprene)	L: 12.7, W: 1.6, H: 6.4
50-0433	2	Screw Washer for M4 size screw (material: Neoprene Rubber)	O.D: 12.7; ID: 4.3, W: 1.6

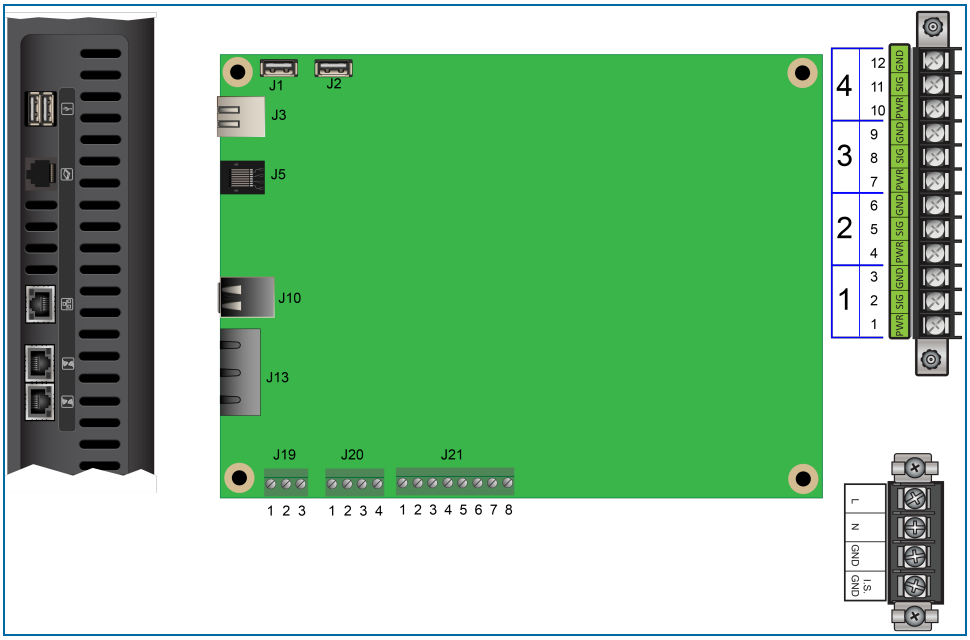
Step 1: Peel off the paper to expose the adhesive side of the sticky-back foam covering.



Step 2: Adhere to the console enclosure to cover holes.

Remove the sticky-back foam to service the console and reapply after service maintenance has been completed.

Section 4 Integra Connections



Power In & Ground Terminal Connectors

These terminals are located in the bottom right corner of the inside of the console

L Line

N Neutral

GND Console ground

I.S. GND

- 120/240 VAC, 50/60 Hz, 200W
- This product must be grounded using a grounding conductor connected between the ground terminal in the console and the power distribution panel.
- As this device contains intrinsic safety barriers an additional grounding conductor must be connected between the I.S. ground terminal in the console and the power distribution panel.
- Consult national and local codes for wire size/gauge.

J1 & J2 - USB Host

J19 - Output Relay

Pin 1 - Normally Closed

Pin 2 - Common

Pin 3 - Normally Open

J20 - External Inputs

Pin 1 - Input 2

Pin2 - +12V Out

Pin3 - Input 1

Pin 4 - +12V Out

J21 - RS422 and PetroNet

Pin 1 - RS422 Isolated Ground

Pin 2 - RS422 Z

Pin 3 - RS422 Y

Pin 4 - RS422 B

Pin 5 - RS422 A

Pin 6 - PetroNet Isolated Ground

Pin 7 - PetroNet B

Pin 7 - PetroNet A

4.1 External Connectors

J3 - USB Host (x2)

J5 - Modem Line

J10 - RJ45 - Ethernet 10/100

J13 - RJ45/RS232 Port (x2)

- Used for connection to external RS232 devices

1 - RTS Output

2 - DTR Output

3 - ISOL Ground

4 - TX Output

5 - RX Input

6 - DCD Input

7 - Open

6 - CTS Input

4.2 I.S. Barrier Terminal Connectors

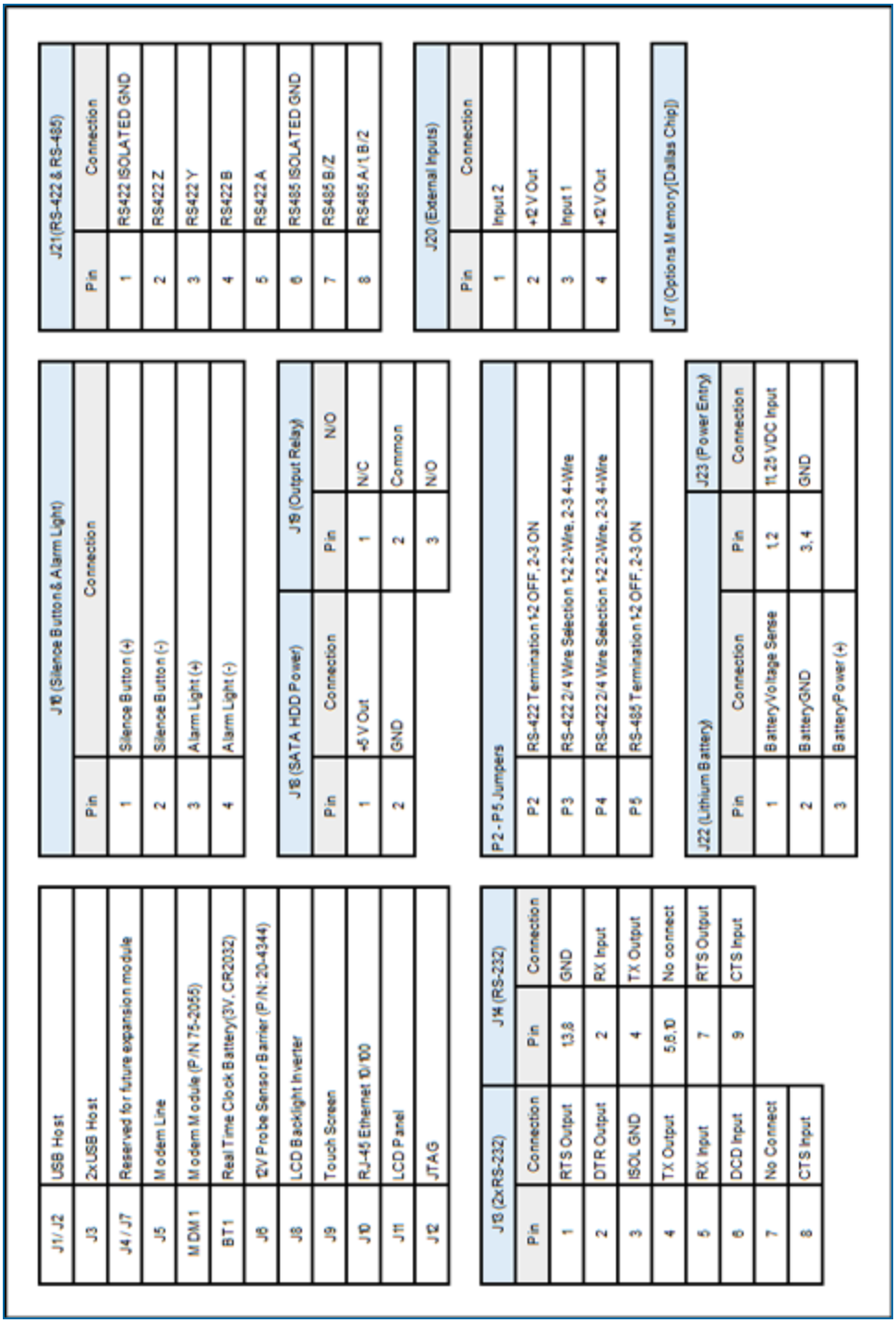
The 12V barrier is located on the right side of console in a dedicated wiring trough.

- Sensors and probes must be installed, positioned and operated according to all applicable codes. These codes may include, but are not limited to, the National Fire Prevention Code and the National Electrical Code.
- Check the requirements of any other applicable codes in the country/region of installation before beginning.
- Sensors and Probes are intrinsically safe devices for use in hazardous locations.
- The entity parameters of these devices must be observed prior to connecting to the barrier connectors.
    - Refer to M2004-GND for Control and Barrier Entity parameters and for examples of applicable device connections.
- All sensor and probe wiring must be within dedicated conduit and no other wiring of any voltage can be in this conduit.

12V Barrier Terminals Numbered from Top to Bottom:

- 12 Barrier Position 4 Ground
- 11 Signal
- 10 Power
- 9 Barrier Position 3 Ground
- 8 Signal
- 7 Power
- 6 Barrier Position 2 Ground
- 5 Signal
- 4 Power
- 3 Barrier Position 1 Ground
- 2 Signal
- 1 Power

4.3 Integra Board Connection Overview



J1 / J2	USB Host
J3	2xUSB Host
J4 / J7	Reserved for future expansion module
J5	Modem Line
MDM 1	Modem Module (P/N 75-2055)
BT1	Real Time Clock Battery(3V, CR2032)
J6	12V Probe Sensor Barrier (P/N: 20-4344)
J8	LCD Backlight Inverter
J9	Touch Screen
J10	RJ-45 Ethernet 10/100
J11	LCD Panel
J12	JTAG

J10 (Silence Button & Alarm Light)	
Pin	Connection
1	Silence Button (+)
2	Silence Button (-)
3	Alarm Light (+)
4	Alarm Light (-)

J18 (SATA HDD Power)	
Pin	Connection
1	+5 V Out
2	GND

J19 (Output Relay)	
Pin	N/O
1	N/C
2	Common
3	N/O

P2 - P5 Jumpers	
P2	RS-422 Termination 1-2 OFF, 2-3 ON
P3	RS-422 2/4 Wire Selection 1-2 2-Wire, 2-3 4-Wire
P4	RS-422 2/4 Wire Selection 1-2 2-Wire, 2-3 4-Wire
P5	RS-485 Termination 1-2 OFF, 2-3 ON

J22 (Lithium Battery)	
Pin	Connection
1	Battery Voltage Sense
2	Battery GND
3	Battery Power (+)

J23 (Power Entry)	
Pin	Connection
1,2	11.25 VDC Input
3, 4	GND

J21 (RS-422 & RS-485)	
Pin	Connection
1	RS422 ISOLATED GND
2	RS422 Z
3	RS422 Y
4	RS422 B
5	RS422 A
6	RS485 ISOLATED GND
7	RS485 B/Z
8	RS485 A/1 B/2

J20 (External Inputs)	
Pin	Connection
1	Input 2
2	+12 V Out
3	Input 1
4	+12 V Out

J17 (Options Memory(Dallas Chip))

J13 (2xRS-232)		J14 (RS-232)	
Pin	Connection	Pin	Connection
1	RTS Output	1,3,8	GND
2	DTR Output	2	RX Input
3	ISOL GND	4	TX Output
4	TX Output	5,6,10	No connect
5	RX Input	7	RTS Output
6	DCD Input	9	CTS Input
7	No Connect		
8	CTS Input		

Section 5 20-8319 VSmart Module

For Integra 500 Only

Figure 5-1 VSmart Module (OPW Part Number 20-8319)

The VSmart Module is used to connect monitored devices (e.g., probes, sensors, leak detection devices) to the tank-gauge system through Intrinsically Safe (I.S.) barriers. The VSmart Module can contain one (1) or two (2) 4-channel I.S. barriers.

There are two (2) types of I.S. barriers that can be used with a VSmart Module, a 12 -volt version (for 924/924B Probes, standard sensors and Smart Sensors) and a 24-volt version (for Model 7100V AST Flex Probes and EECO Probes).

NOTE: Conduit is recommended for Petro-Net connections between VSmart Modules and consoles, but it is not required.

5.1 VSmart Specifications

Dimensions:	Width: 28.7 cm (11.3 in) Height: 14.2 cm (5.6 in) Depth: 14.7 cm (5.8 in)
Standard Voltage Supply:	105 to 265 VAC, 50-60 Hz
Power Consumption:	60 watts maximum
Temperature Range:	-40°C to 70°C (-40°F to 158°F)
Device Capacity:	Up to two (2) I.S. Barriers Up to eight (8) Barrier Positions
Maximum Total-Run I.S. Wiring Length*:	304.8 m (1,000 ft) when using Belden 88760 152.4 m (500 ft) when using Belden 88761 (22-AWG)
Non-smart Sensor Wiring Requirements:	14- to 18-AWG oil-and-gas resistant (TFFN, THHN or THWN)
Petro-Net™ Communication Wiring	18-AWG, twisted pair, oil-and-gas resistant (TFFN,

Requirement:	THHN, THWN)
Maximum Petro-Net™ Extension using RS485:	1524 m (5,000 ft)**
Barrier Part Numbers:	P/N: 20-4344 12V Barrier P/N: 20-4345 24V Barrier

NOTE: *Maximum I.S. Wiring Length is the maximum length of cable that can be used to connect all probes or sensors on one channel. The length includes the run of cable from an I.S. Barrier to each probe or sensor board in the string.

**Maximum Petro-Net extension using RS-485 is the maximum length of Petro-Net cable that can be used to connect all Petro-Net devices.

5.2 VSmart Module Installation

NOTICE: VSmart modules are not weatherproof and are not intended for outdoor use. Install VSmart modules indoors only.

The VSmart module must be installed on an indoor wall. Use the supplied tabs. Module installation tab and conduit knockout dimensions and locations are shown in the drawings below.

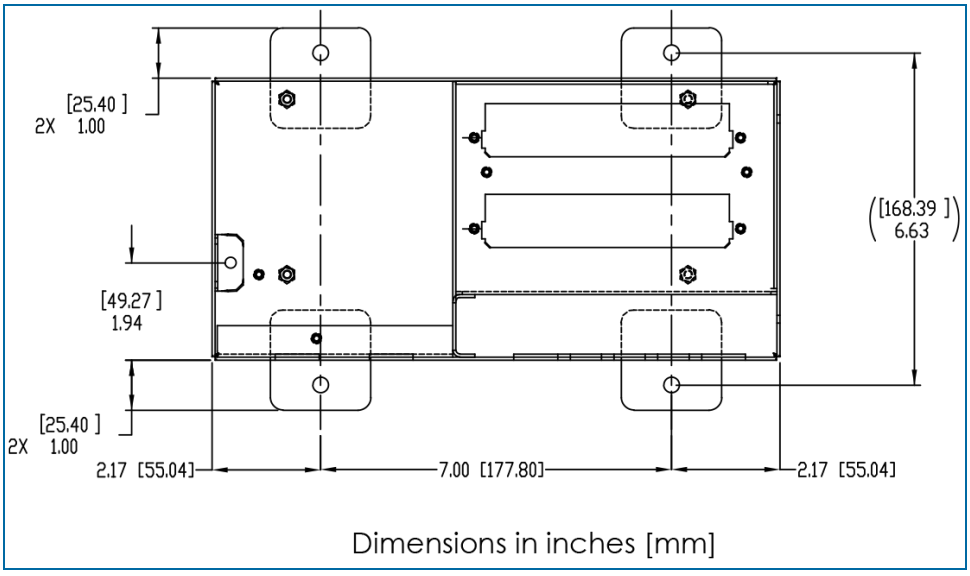


Figure 5-2 Installation Tab Locations and Dimensions

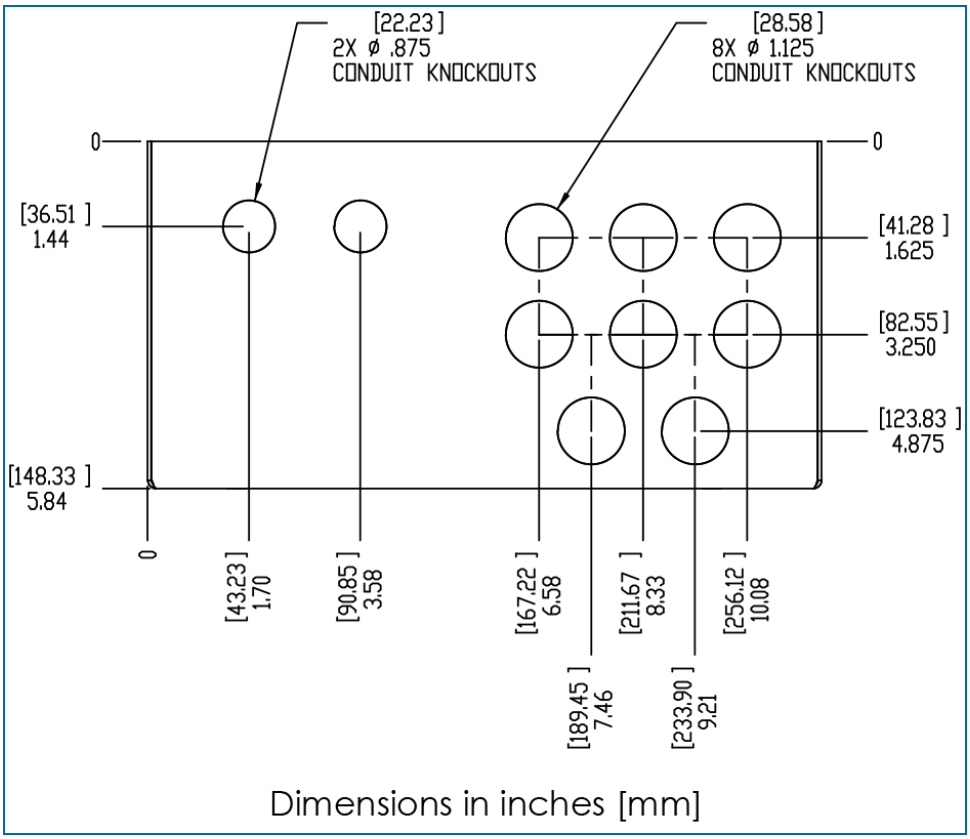


Figure 5-3 Conduit Knockout Locations and Dimensions

5.2.1 Probe & Sensor Conduits

IMPORTANT: You must obey all local, state and federal regulations when this product is installed. Rigid steel conduit could be required. It is recommended to use rigid steel conduit when possible.

Each VSmart Module is equipped with eight (8) ¾-inch (19 mm) knockouts to accommodate conduit for probe cables and sensor wiring. Two (2) additional ½-inch (13 mm) knockouts are provided for power and communication wiring conduits.

For probe and sensor field connections, always use a weatherproof junction box.

5.2.2 Circuit Breaker Conduits

Install ½-inch (13 mm) conduit from the power knockout in the console to the circuit breaker box. Install one more ½-inch (13 mm) conduit from the power knockout in each VSmart Module to the circuit-breaker box.

5.3 External VSmart Module Wiring

VSmart modules must have dedicated AC power and two (2) ground connections for the module and barrier.

1. Pull two (2) AC power wires and one (1) ground wire (14-AWG minimum) from the circuit breaker to each module; multiple modules can share the same circuit as long as they do not exceed the circuit breaker rating.
2. Pull one (1) ground (12-AWG minimum) from the panel for the I.S. barrier ground.

NOTE: See the Integra 500 Field Wiring Diagram for VSmart Module wiring.

NOTE: All OPW-FMS equipment must be on the same phase of AC power.

5.4 VSmart Addressing

VSmart modules must be assigned a unique identification number. Module numbers must be unique within the Module Group; that is, it is possible assign the same number to both a VSmart Module and to an OM4 Module, but it is not possible to assign the same number to more than one VSmart Module or to more than one OM4 Module. The module numbers are used when the system is configured. Refer to the "M1801 SiteSentinel® Integra™ Configuration Manual" for details about system setup.

A small, white rotary switch is located at the top of the PC board inside each module. The switch has 10 positions, marked "0" to "9." A small arrow on the switch points to the current position. Default switch setting is "1."

NOTE: Although the switch has 10 settings, only settings 1-8 are valid. DO NOT set the switch to either "0" or "9" – the module will NOT be recognized by the system.

To set the Petro-Net address:

1. Turn the module power OFF.
2. Use a ¼-inch (6 mm) blade screwdriver to gently rotate the rotary switch to the desired location.
3. Turn the module power to ON.

IMPORTANT: Do not change the module number while the module power is ON.

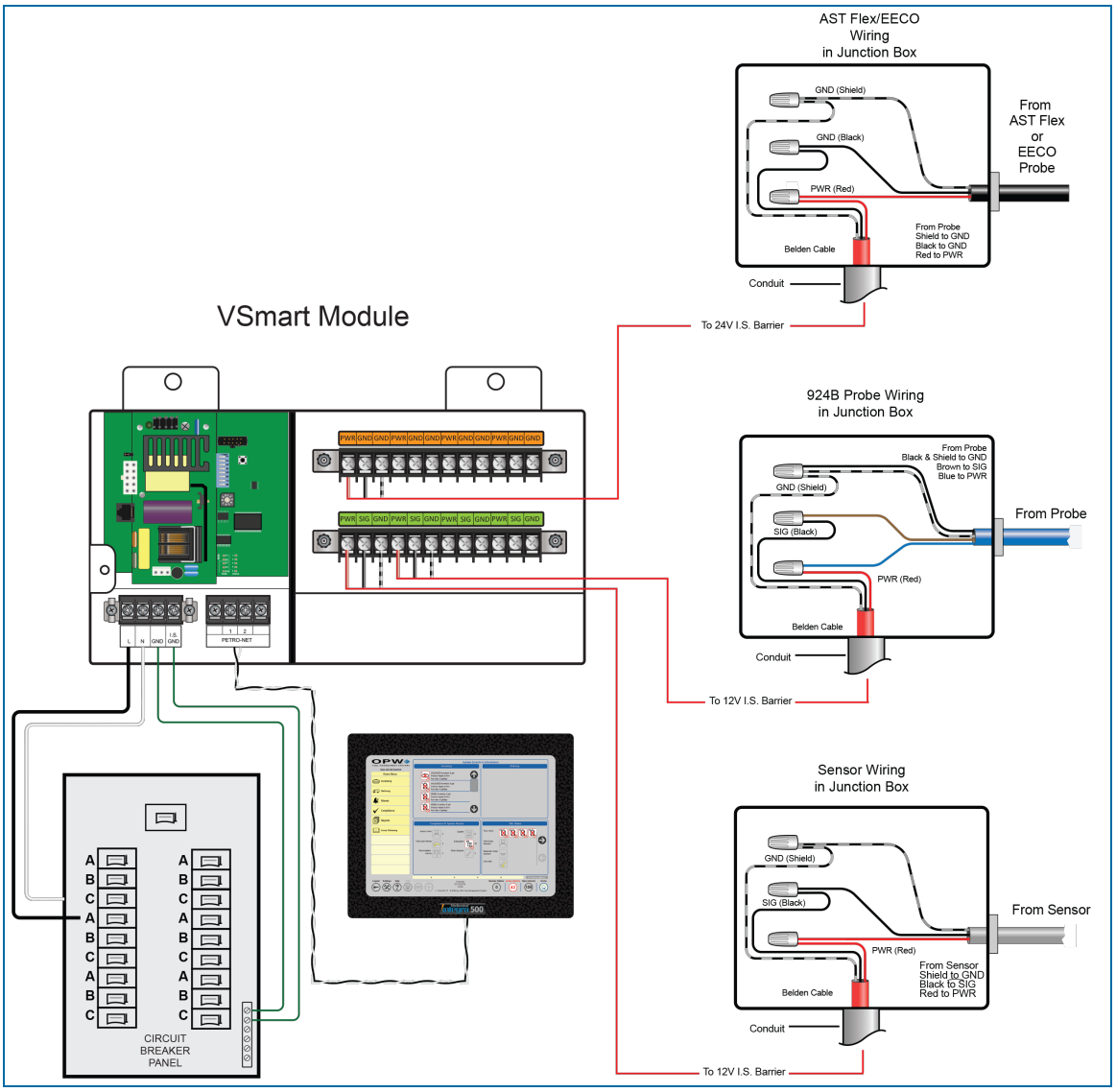
NOTE: The eight-position DIP switch should remain in the closed position for normal operation.

5.5 VSmart Capabilies

see the table below for capabilities of the VSmart Module in connection with peripheral devices.

I.S. Barrier Capacity (up to two [2] I.S. Barriers per VSmart Module, four [4] positions per Barrier)		
	Maximum per Channel	Maximum per I.S. Barrier
Sensors:	16	64
924B Probes:	4	16
AST (Flex) / UST (924) / EECO*:	1	4
VLLD Sensors:	3	12

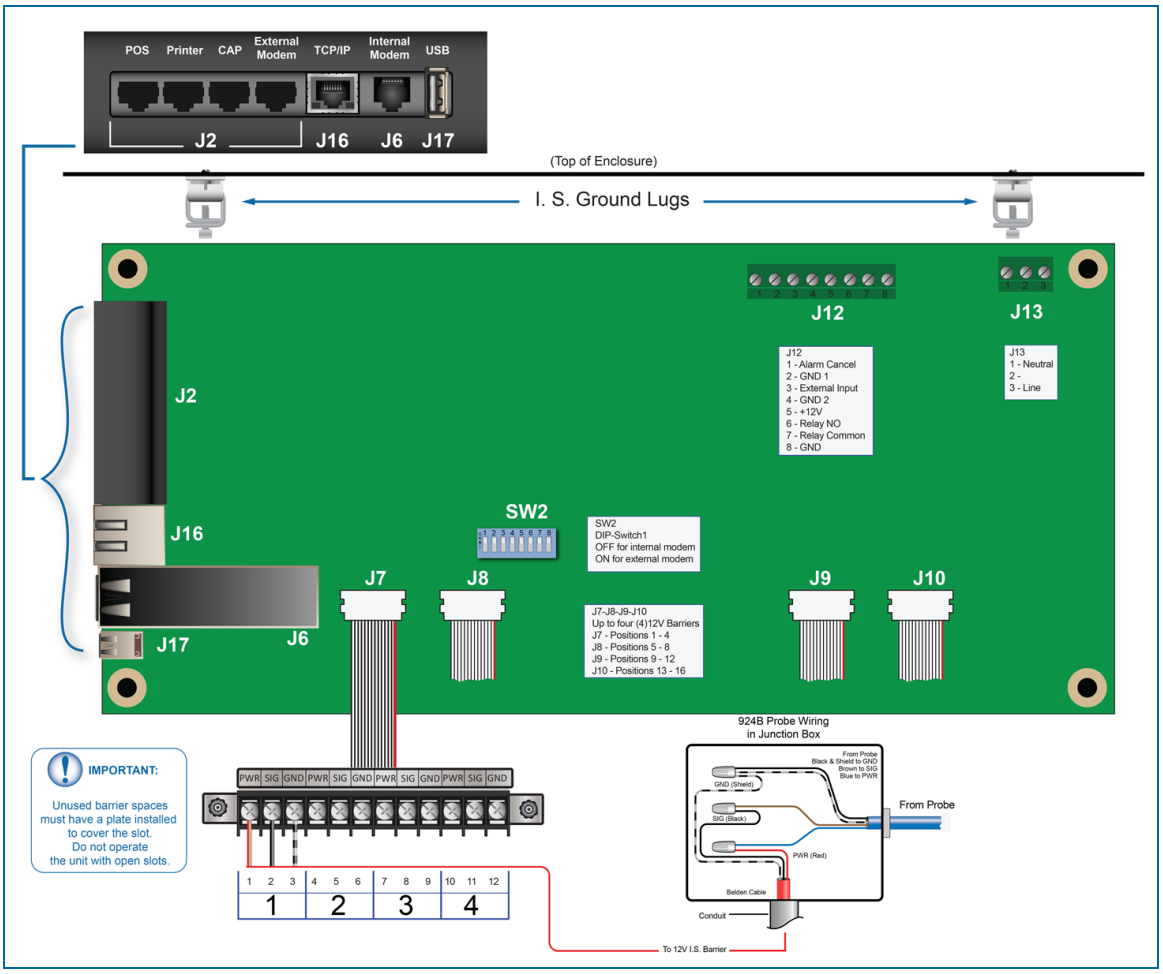
* 24V barrier is required for Flex and EECO probes.



Each channel of the VSmart module can be connected to multiple probes and sensors through parallel, multi-drop connections. Each connected device is detected by the Integra console through IntelliSense™ technology.

NOTE: Probes and Sensors cannot be on the same barrier channel.

Section 6 iTouch Connections



6.1 Connections

I.S. Ground Lugs

Two (2) I.S. ground lugs are installed at the top of the enclosure. Install two (2) continuous ground wires from both ground lugs connected back to the distribution panel ground.

J13 - AC Line In

- Pin 1 - Neutral
- Pin 2 - Open
- Pin 3 - Line

J12 - External I/O

- Pin 1 - Alarm Cancel
- Pin 2 - GND 1
- Pin 3 - External input
- Pin 4 - GND 2
- Pin 5 - +12V
- Pin 6 - Relay Normally Open
- Pin 7 - Relay Common
- Pin 8 - GND

J2

POS

- Printer
- Cap
- External Modem

J16

- TCP/IP

J6

- Internal Modem

J17

- USB

6.2 I.S. Barrier Terminal Connectors

There can be up to four (4)12V barriers installed with up to 16 available barrier positions.

IMPORTANT: Unused barrier spaces must have a plate installed to cover the slot. Do not operate the unit with open slots.

- Sensors and probes must be installed, positioned and operated according to all applicable codes. These codes may include, but are not limited to, the National Fire Prevention Code and the National Electrical Code.
- Check the requirements of any other applicable codes in the country/region of installation before beginning.
- Sensors and Probes are intrinsically safe devices for use in hazardous locations.
- The entity parameters of these devices must be observed prior to connecting to the barrier connectors.

    - Refer to M2004-GND for Control and Barrier Entity parameters and for examples of applicable device connections.
- All sensor and probe wiring must be within dedicated conduit and no other wiring of any voltage can be in this conduit.

12V Barrier Terminals

- 1 Power
- 2 Signal
- 3 Barrier Position 1 Ground
- 4 Power
- 5 Signal
- 6 Barrier Position 2 Ground
- 7 Power
- 8 Signal
- 9 Barrier Position 3 Ground
- 10 Power
- 11 Signal
- 12 Barrier Position 4 Ground

Section 7 Certification

[1] **EC-TYPE EXAMINATION CERTIFICATE**

[2] **Component intended for use on/in equipment or protective system intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

[3] EC-Type Examination Certificate Number: **DEMKO 07 ATEX 0522559U Rev. 1**

[4] Component: **Intrinsic Safety Barrier Model 03XX**

[5] Manufacturer: **OPW Fuel Management Systems**

[6] Address: **6900 Santa Fe Drive, Hodgkins, IL 60525 USA**

[7] This Component and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this component has been found to comply with the Essential Health and Safety Requirements relating to design and construction of components intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **4786810600**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012+A11:2013 **EN 60079-11:2012** **EN 60079-26:2007**

[10] The sign "U" placed after the certificate number indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.

[11] This EC-Type examination certificate relates only to the design, examination and tests of the specified component in accordance with the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this component. These are not covered by this certificate.

[12] The marking of the component shall include the following:

II (1) G [Ex ia] IIA

Certification Manager
Jan-Erik Storgaard

This is to certify that the sample(s) of the Component described herein ("Certified Component") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Equipment Certification Program Requirements. This certificate and test results obtained apply only to the component sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured component. UL has not established Follow-Up Service or other surveillance of the component. The Manufacturer is solely and fully responsible for conformity of all component to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2007-02-27
Re-issued: 2015-07-05

Notified Body UL International Demko A/S, Ballerup 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

00-IC-F0057 – Issue 8.0 This certificate may only be reproduced in its entirety and without any change, schedule included. Page 1 of 2

[13]
[14]

Schedule
EC-TYPE EXAMINATION CERTIFICATE No.
DEMKO 07 ATEX 0522559U Rev. 1
Report: 4786810600

[15] Description of Component:
These devices are intrinsic safety barriers that provide intrinsically safe circuits suitable for use with Category 1 equipment located in a Group II, Gas Group IIA hazardous location. The devices are intended for use in a non-hazardous location as associated apparatus.

Nomenclature for types:

0324 Ex II (1) G [Ex ia] IIA

0347 Ex II (1) G [Ex ia] IIA

0348 Ex II (1) G [Ex ia] IIA

Temperature range
The operating temperature range for all types is -40 °C to +70 °C

Electrical data

Models 0324 and 0347
Intrinsic Safety Electric Parameters (Entity parameters):
Terminal Combinations:
1, 2 and 3; 4, 5 and 6; 7, 8 and 9; 10, 11 and 12:
Um = 250V Uo = 14.85V
Io = 305mA Po = 974mW
Lo = 1.52mH Co = 3.0uF
or
Lo = 600uH Co = 5.0uF

Model 0348
Intrinsic Safety Electric Parameters (Entity parameters):
Terminal Combinations:
1 and 2; 4 and 5; 7 and 8; 10 and 11:
Um = 250V Uo = 25.83V
Io = 155mA Po = 1.0W
Lo = 5.91mH Co = 0.8uF

[16] Descriptive Documents
The scheduled documents are listed in the report no. provided under item no. [8] on page 1 of this EC-Type Examination Certificate.

[17] Schedule of limitations:

- Um must not exceed 250 V.
- The electrical parameters of the intrinsically safe devices connected to the barrier must be compatible with the electrical parameters of barriers specified in this Certificate.
- The enclosure must be bonded to the earthing connection facility of the end use device.
- The intrinsically safe electrical (entity) parameters are based on specific combinations of field wiring terminals. Each intrinsically safe terminal must be clearly identified in the end-use device to ensure correct installation.
- Spacing requirements between the non-intrinsically safe circuit connections and the intrinsically safe connection facilities must be maintained in accordance with EN 60079-11.
- All necessary marking requirements must be reviewed in the end-use.
- These devices are only intended for use in a larger stationary device.
- The need to conduct Electrical Strength Testing must be considered in the end-use.

[18] Essential Health and Safety Requirements
Concerning ESRs this Schedule verifies compliance with the Annex III of ATEX directive only. By placing the product on the market, the manufacturer declares compliance with other relevant Directives, and all other safety related requirements including those of Annex II of this Directive.

Additional information
The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in ANNEX III to Directive 94/9/EC of the European Parliament and the Council of 23 March 1994.

Section 8 Declaration of Conformity

I.S. Barriers

OPW FUEL MANAGEMENT SYSTEMS — ONE COMPANY. ONE WORLD. ONE SOURCE.

DECLARATION OF CONFORMITY

In accordance with Article 9 of the Council Directive 2014/34/EU, equipment intended for use in potentially explosive atmospheres. Given in Annex II to the Directive.

Standard (s) to which conformity is declared:	EN 60079-0:2012+A11:2013 EN 60079-11: 2012 EN 60079-26: 2007
Manufacturers Name:	OPW Fuel Management Systems, Inc.
Manufacturers Address:	6900 Santa Fe Drive Hodgkins, IL. 60525 USA
Type of Equipment:	Intrinsic Safety Barriers
Model:	Models 0324, 0347 & 0348
Marking:	Ⓔx II (1) G [Ex ia]
Notified Body:	UL International Demko A/S. Notified Body Number 0539
EC Type Certificates:	DEMKO 07 ATEX 0522559U

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive (s) and Standard (s).

Place: Hodgkins, IL.

Date: 30 March 2016

Nicole Chavez
Engineering Compliance Technician

Nano

FUEL MANAGEMENT SYSTEMS
ONE COMPANY. ONE WORLD. ONE SOURCE.

DECLARATION OF CONFORMITY

In accordance with Article 9 of the Council Directive 94/9/EC, equipment intended for use in potentially explosive atmospheres. Given in Annex II to the Directive.

Standard (s) to which conformity is declared:	EN 60079-0: 2012 EN 60079-11: 2012 EN 60079-26: 2007
Manufacturers Name:	OPW Fuel Management Systems, Inc.
Manufacturers Address:	6900 Santa Fe Drive Hodgkins, IL. 60525 USA
Type of Equipment:	Tank Gauge/Sensor Controller
Model:	SiteSentinel NANO
Marking:	Ex II (1)G [Ex ia] IIA
Notified Body:	UL International Demko A/S. Notified Body Number 0539
EC Type Certificates:	DEMKO 13 ATEX 1311712X

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive (s) and Standard (s).

Place: Hodgkins, IL.

Date: 5 November 2013

Nicole Chavez
Engineering Compliance Technician

Integra

OPW FUEL MANAGEMENT SYSTEMS
ONE COMPANY. ONE WORLD. ONE SOURCE.

DECLARATION OF CONFORMITY

In accordance with the Council Directive 2014/34/EU, equipment intended for use in potentially explosive atmospheres. Given in Annex II to the Directive.

Standard (s) to which conformity is declared:	EN 60079-0: 2012+11:2013 EN 60079-11: 2012 EN 60079-26: 2007
Manufacturers Name:	OPW Fuel Management Systems, Inc.
Manufacturers Address:	6900 Santa Fe Drive Hodgkins, IL. 60525 USA
Type of Equipment:	Tank Gauge/Sensor Controller
Model:	Model SiteSentinel Integra
Marking:	Ⓔx II (1)G [Ex ia] IIA
Notified Body:	UL International Demko A/S. Notified Body Number 0539
EC Type Certificates:	DEMKO 12 ATEX 1106909X

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive (s) and Standard (s).

Place: Hodgkins, IL.

Date: 30 March 2016

Nicole Chavez
Engineering Compliance Technician

iTouch/VSmart

OPW FUEL MANAGEMENT SYSTEMS
ONE COMPANY. ONE WORLD. ONE SOURCE.

DECLARATION OF CONFORMITY

In accordance with the Council Directive 2014/34/EU, equipment intended for use in potentially explosive atmospheres.

Standard (s) to which conformity is declared:	EN 60079-0: 2012+A11:2013 EN 60079-11: 2012 EN 60079-26: 2007
Manufacturers Name:	OPW Fuel Management Systems, Inc.
Manufacturers Address:	6900 Santa Fe Drive Hodgkins, IL. 60525 USA
Type of Equipment:	Tank Gauge/Sensor Controller
Model:	Model VSMART Module Model SiteSentinel iTOUCH Model SiteSentinel 1 Model SiteSentinel SSEM Smart Module
Marking:	Ⓔx II (1)G [Ex ia] IIA
Notified Body:	UL International Demko A/S. Notified Body Number 0539
EC Type Certificates:	DEMKO 09 ATEX 0861746X

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive (s) and Standard (s).

Place: Hodgkins, IL.

Date: 30 March 2016

Nicole Chavez
Engineering Compliance Technician

DECLARATION OF CONFORMITY

In accordance with ATEX Directive 94/9/EC, Annexes IV and VII Equipment intended for use in potentially explosive atmospheres.

Standard (s) to which conformity is declared:	EN 60079-26:2007 EN 60079-0: 2012+A11:2013 EN 60079-11:2012
Manufacturers Name:	OPW Fuel Management Systems, Inc.
Manufacturers Address:	6900 Santa Fe Drive Hodgkins, IL. 60525 USA
Type of Equipment:	Integrated Tank Monitoring System
Model:	SiteSentinel 1 (I.S. Module/924 Probe)
Marking:	I.S. Module: Ex II (1) G [EEx ia] IIA
	924 Probe: Ex II (1) G Ex ia IIA T4
Notified Body:	SGS Baseefa Ltd. Notified Body Number 1180 Buxton, Derbyshire UK
EC Type Certificates:	Baseefa03ATEX0348X Baseefa03ATEX0349X

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive (s) and Standard (s).

Place: Hodgkins, IL.

Date: 16 March 2016

Nicole Chavez
Engineering Compliance Technician

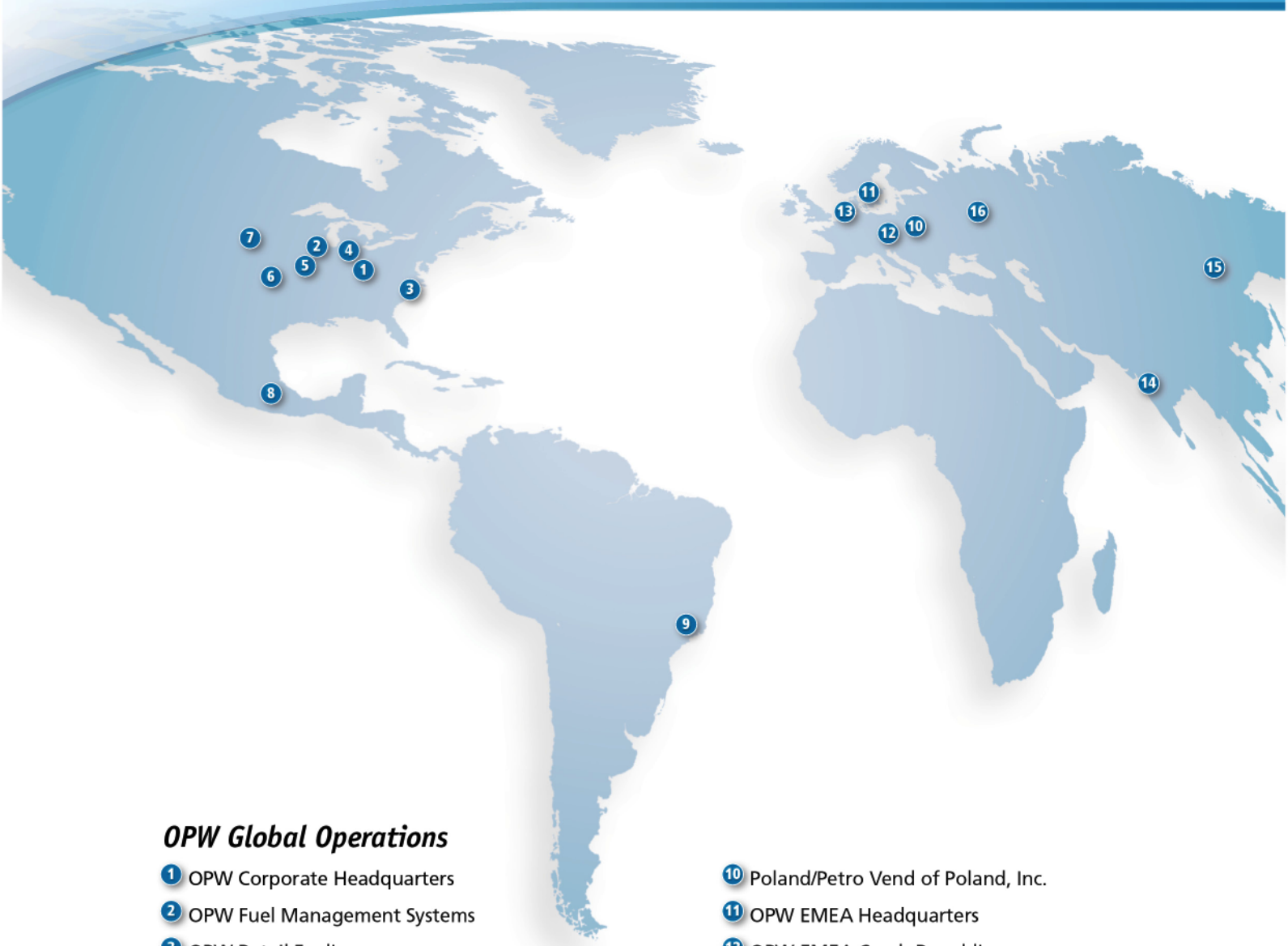
Revisions

Revision #	ECO	Effective	Software Version	Key Changes
0	1248	11/7/17	na	Initial Release

NOTE: It is possible that older software versions might not support all features

OPW
FUEL MANAGEMENT SYSTEMS

Leading The Way in Fluid Handling Solutions Worldwide



OPW Global Operations

1. OPW Corporate Headquarters
2. OPW Fuel Management Systems
3. OPW Retail Fueling
4. OPW Engineered Systems
5. Midland Manufacturing
6. Civacon
7. PDQ Manufacturing Inc.
8. OPW Mexico
9. OPW Latin America
10. Poland/Petro Vend of Poland, Inc.
11. OPW EMEA Headquarters
12. OPW EMEA Czech Republic
13. OPW FTG Europe
14. OPW India
15. OPW Asia Pacific
16. OPW Russia

OPW
FUEL MANAGEMENT SYSTEMS

6900 Santa Fe Dr. ◆ Hodgkins, Illinois, USA 60525
Phone: (708) 485-4200 ◆ Fax: (708) 485-7137
www.opwglobal.com