

# DREXELBROOK<sup>®</sup>

## Safety IntelliPoint RF™ Series

### Point Level, SIL2 Certified Safety Switch



#### One of the Drexelbrook RF Point Level Switches You Won't Have to Calibrate

The RF switch you won't calibrate. Simply install the IntelliPoint RF Series into the tank and apply power... that's it! Unlike other RF or capacitance systems that require calibration via setpoint potentiometers, jumpers, magnets, or pushbuttons, the IntelliPoint RF Series reliably detects the absence or presence of material without any adjustments.

#### Self-Test Feature

Automatic and Local or Remote Manual test functions ensure proper system operation.

#### Auto Verify™

Each IntelliPoint™ is supplied with a continuous self-test feature that constantly monitors the integrity of not just the electronics, but the sensing element and interconnecting cable. If a fault is detected, the IntelliPoint Auto Verify™ feature alerts plant personnel.

#### Manual Certify™

The IntelliPoint™ provides a method to manually test the entire system without removing the sensor from the tank. The Manual Certify Test checks that the Auto Verify circuits are operating and confirms the probe and cables are properly connected. The Manual Certify also allows the IntelliPoint™ electronics to sense changes in the probe that simulate contact with the media or a floating roof. This provides the user with a method to insure working performance without having to climb the tank. At the completion of the Certify test routine, the output is momentarily held in the alarm state so personnel can confirm that the control circuits connected to the Final Control Element are functioning properly.

#### Intelligent Electronics

- 2 Wire or Line Powered.
- Meets Title 49 Part 195 DOT and API 2350 regulations.
- For use in safety related systems with requirements for functional safety for SIL2 (SIL 3 with Redundant Switch) In accordance to IEC61508-2.
- No calibration or setpoint adjustments.
- Automatically recognizes and ignores coatings to prevent false alarms.
- Continuous self-test monitors circuits and sensing elements for faults.
- Remote or Integral Electronics.

#### Diverse Applications

- Liquids, Slurries, Interfaces and Granulars.

#### Dual Compartment Housing

The dual compartment housing separates the customer wiring from the sensing element and operating circuits. The encapsulated power supply/terminal block design eliminates the possibility of damage caused by moisture in the conduit.

# Safety IntelliPoint RF™ Series

## Specifications

### Technology:

RF Admittance/Capacitance

### Calibration:

None

### Modes Of Operation:

High Level Fail Safe

### Repeatability:

2 mm (0.08 inch) conductive liquids

### Response Time:

Less than one second

### Indicators:

LEDs: Green Power, Red Alarm

### Self-Check:

AutoVerify automatically and continuously checks electronics and sensing element for faults. Manual Certify checks that the AutoVerify circuits are functioning.

### Time Delay:

0-60 seconds, forward acting

### 2 Wire Loop Powered:

**Power Supply:** 13 to 30 VDC

Note: The minimum supply voltage at the transmitter terminal is:

13 VDC at 22mA (Fault)

19 VDC at 5mA (Fault)

**Power Consumption:** 1 Watt maximum

### Output:

8 mA - Alarm	(or field-selectable)	8 mA - Normal
16 mA - Normal		16 mA - Alarm
22 mA - Fault		5 mA - Fault

### Line Powered:

**Power Supply:** Universal Supply

85 to 250 VAC

21 to 100 VDC Auto-Detecting w/o Jumper Changes  
DC to 400 Hz

**Power Consumption:** 2 Watts maximum

**Relay Contacts:** (2) SPDT

Maximum Contact Load:

5A/30 VDC/ 5A/250 VAC - Environmentally Sealed

Minimum Contact Load (DC):

100 mA/12 VDC

0 to 200 mA / 12 VDC Optional

### Ambient Electronic Temperature:

-30 to 70°C (-22 to 158°F) ATEX

-40 to 70°C (-40 to 158°F) FM

### Storage Temperature:

-40 to 85°C (-40 to 185°F)

### Housing:

Dual Compartment, Powder-Coated aluminum  
with two cable entries

### Cable Entry:

M20 x 1.5 ATEX

¾-inch NPT FMC

### Ingress Protection:

IP66 NEMA 4, 4X

### Approvals:



The IntelliPoint RF Point Level System

Transmitter has been evaluated as Explosion-proof for use in Class I, Division 1, Groups A, B, C, and D, Dust-Ignition proof for use in Class II and III, Division 1, Groups E, F, and G; Non-incendive for use in Class I, Division 2, Groups A, B, C, and D;

Suitable for use in Class II and III, Division 2, Groups F and G Hazardous (Classified) Indoor and Outdoor (Type 4, 4X, IP66) Locations with Intrinsically Safe connections to Class I, II, and III, Division 1, Groups A, B, C, D, E, F, and G Hazardous (Classified) locations.

Reference control drawing 420-0004-144-CD for the SxRxL Series and Control Drawing 420-0004-173-CD for the SxRxT Series; Intrinsically Safe for use in Class I, II, and III, Division 1, Groups A, B, C, D, E, F, and G hazardous (Classified) locations in accordance with entity requirements and control drawing 420-0004-173-CD.

### ATEX:



2 Wire Loop Powered

II 1 G Ex ia IIC T5...T2 -30°C ≤ TAMB ≤ +70°C; IP66

II 1 D Ex ia IIIC T90°C -30°C ≤ TAMB ≤ +70°C; IP66

### Line Powered

II 2 (1) G Ex d [ia] IIC T5...T2 -30°C ≤ TAMB ≤ +70°C; IP66

II 2 (1) D Ex tb [ia] IIIC T90°C -30°C ≤ TAMB ≤ +70°C; IP66



FM14ATEX0049

### MTTF (Mean Time to Failure):

285 Years, Independently Tested

### Safety:

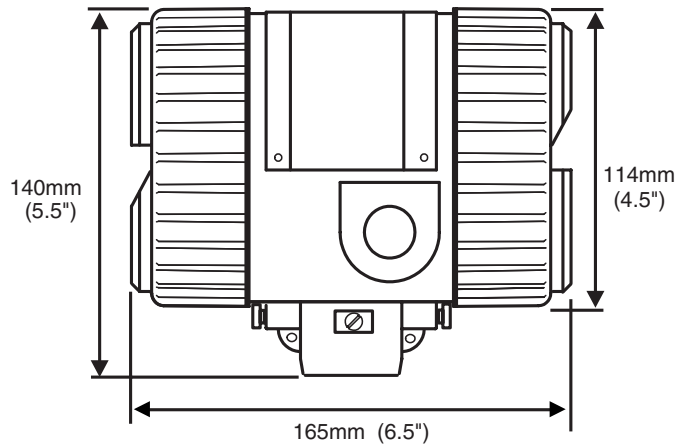


SIL2 (SIL 3 with Redundant Switch)

IEC61508-2 ed2, 2010 (EXIDA)

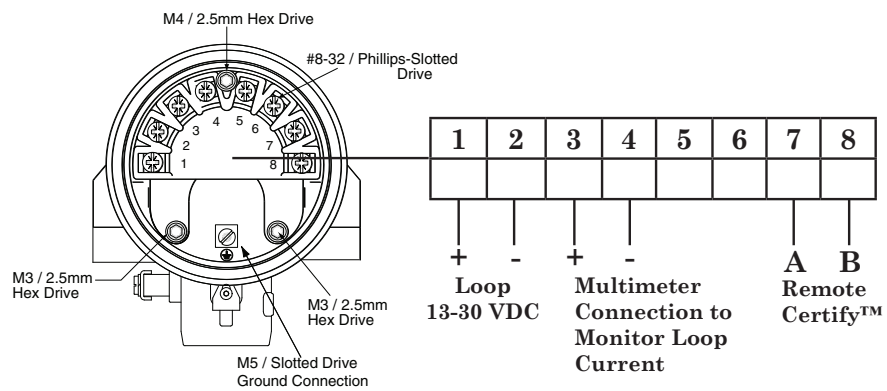
# Safety IntelliPoint RF™ Series

## Dimensions

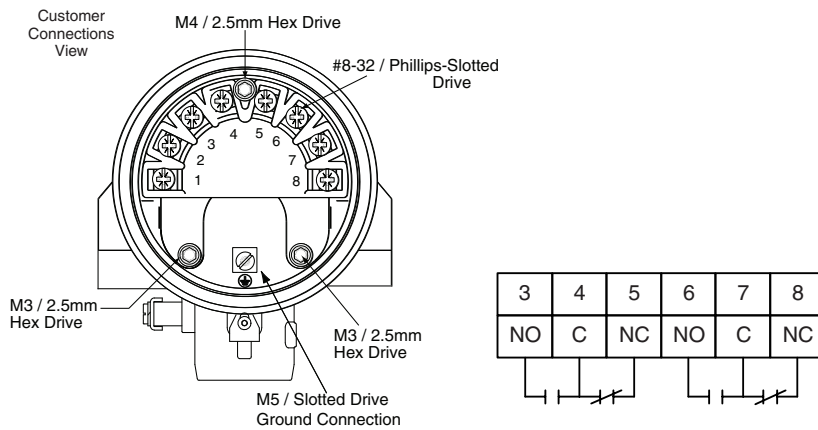


## Input Wiring

### 2 Wire Loop



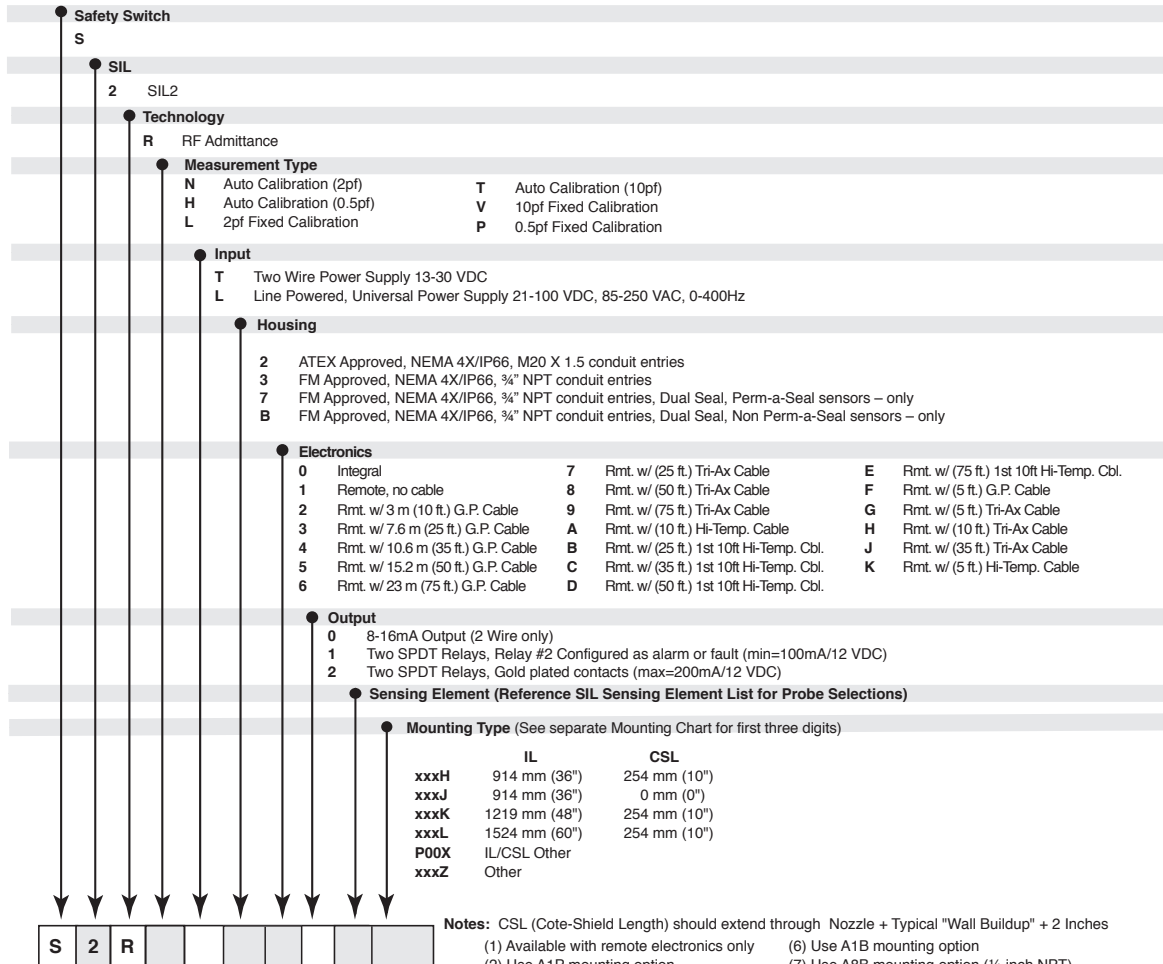
### Line Powered



# Safety IntelliPoint RF™ Series

## Model Numbering

### Safety IntelliPoint RF™



**Notes:** CSL (Cote-Shield Length) should extend through Nozzle + Typical "Wall Buildup" + 2 Inches  
 (1) Available with remote electronics only      (6) Use A1B mounting option  
 (2) Use A1P mounting option      (7) Use A8B mounting option (¼-inch NPT)  
 (3) Choose only sanitary mounting options      (8) Choose from flange mounting only  
 (4) Available with 0-inch CSL only      (9) FM approved with remote electronics only  
 (5) Use P00X mounting option

Not all mounting options are available with all sensing elements

NPT Threads			Sanitary TriClamps		
A1B	¾"NPT	316SS	A2B	1"NPT	316SS
A1C	¾"NPT	Hastelloy C	A2C	1"NPT	Hastelloy C
A1P	¾"NPT	PFA			

DIN Flanges							
E01	25 mm	16 bar	RF 316/316L SS	E02	25 mm	16 bar	RF CS
EP1	25 mm	40 bar	RF 316/316L SS	EP2	25 mm	40 bar	RF CS
EQ1	50 mm	16 bar	RF 316/316L SS	EQ2	50 mm	16 bar	RF CS
ER1	50 mm	40 bar	RF 316/316L SS	ER2	50 mm	40 bar	RF CS
ES1	80 mm	16 bar	RF 316/316L SS	ES2	80 mm	16 bar	RF CS
ET1	80 mm	40 bar	RF 316/316L SS	ET2	80 mm	40 bar	RF CS
EU1	100 mm	16 bar	RF 316/316L SS	EU2	100 mm	16 bar	RF CS
EV1	100 mm	40 bar	RF 316/316L SS	EV2	100 mm	40 bar	RF CS
EW1	150 mm	16 bar	RF 316/316L SS	EW2	150 mm	16 bar	RF CS
EX1	150 mm	40 bar	RF 316/316L SS	EX2	150 mm	40 bar	RF CS

ANSI Flanges			
DA1	1"	150#	RF 316/316L SS
DB1	1½"	150#	RF 316/316L SS
DC1	2"	150#	RF 316/316L SS
DD1	2½"	150#	RF 316/316L SS
DE1	1"	300#	RF 316/316L SS
DF1	1½"	300#	RF 316/316L SS
DG1	2"	300#	RF 316/316L SS
DH1	2½"	300#	RF 316/316L SS
DI1	3"	150#	RF 316/316L SS
DJ1	3"	300#	RF 316/316L SS
DK1	4"	150#	RF 316/316L SS
DL1	4"	300#	RF 316/316L SS
DM1	6"	150#	RF 316/316L SS
DN1	6"	300#	RF 316/316L SS

ANSI Flanges			
DA2	1"	150#	RF CS
DB2	1½"	150#	RF CS
DC2	2"	150#	RF CS
DD2	2½"	150#	RF CS
DE2	1"	300#	RF CS
DF2	1½"	300#	RF CS
DG2	2"	300#	RF CS
DH2	2½"	300#	RF CS
DI2	3"	150#	RF CS
DJ2	3"	300#	RF CS
DK2	4"	150#	RF CS
DL2	4"	300#	RF CS
DM2	6"	150#	RF CS
DN2	6"	300#	RF CS

# IntelliPoint RF™ Series

## SIL Sensing Element List

#	Application	Sensing Element Part Number	Pressure/Temperature	Wetted Parts	
General & Application Specific Sensing Elements	00	General purpose	700-1202-001 Remote 700-1202-021 Integral	13.8 bar @ 232°C (200 PSI @ 450°F) 316/316L SS and PEEK	
	02	General purpose, longer insertion lengths w/cable attachment and 316/316L SS bottom weight	700-1202-014 Remote 700-1202-024 Integral	13.8 bar @ 177°C (200 PSI @ 350°F) 316/316L SS and PEEK	
	03	Proximity	700-1202-018 Remote 700-1202-028 Integral	13.8 bar @ 232°C (200 PSI @ 450°F) 316/316L SS and PEEK with 76mm (3) 216SS proximity plate	
	04	General purpose, high temperature and pressure	700-1202-041 Remote 700-1202-042 Integral	69 bar @ 121°C (1000 PSI @ 250°F) 20.7 bar @ 232°C (300 PSI @ 450°F) 316/316L SS and PEEK	
	06	General purpose with FDA approved materials of construction	700-1202-031 Remote 700-1202-032 Integral	13.8 bar @ 232°C (200 PSI @ 450°F) 316/316L SS and FDA grade PEEK	
	07	General purpose for granular materials	700-1202-010 Remote 700-1202-020 Integral	13.8 bar @ 232°C (200 PSI @ 450°F) 316/316L SS and PEEK with 7/8 Inch dia. 316/316L SS collar	
	09	General purpose for granular materials w/FDA approved materials of construction	700-1202-033 Remote 700-1202-034 Integral	13.8 bar @ 232°C (200 PSI @ 450°F) 316/316L SS and FDA grade PEEK with 7/8 Inch dia. 316/316L SS collar	
	10	Corrosive liquids	700-0001-018 Remote	3.4 bar @ 149°C (50 PSI @ 300°F) PFA	
	11	General purpose, higher pressure, TFE compatibility required	700-0201-005 Integral or Remote	69 bar @ 38°C (1000 PSI @ 100°F) 13.8 bar @ 232°C (200 PSI @ 450°F) 316/316L SS and TFE	
	12	Corrosive material, higher pressure	700-0201-005 Integral or Remote (Hastelloy C)	69 bar @ 38°C (1000 PSI @ 100°F) 13.8 bar @ 232°C (200 PSI @ 450°F) Hastelloy C and TFE	
	13	Sanitary	700-0201-019 Integral or Remote	13.8 bar @ 149°C (200 psi @ 300°F) 316/316L SS and TFE	
	14	General purpose, low pressure	700-0202-002 Integral or Remote	3.4 bar @ 149°C (50 PSI @ 300°F) 1.4 bar @ 232°C (20 PSI @ 450°F) 316/316L SS and TFE	
	15	Heavy Duty agitated tanks or material w/bulk density	700-0202-043 Integral or Remote	69 bar @ 38°C (1000 PSI @ 100°F) 13.8 bar @ 232°C (200 PSI @ 450°F) 316/316L SS and TFE	
	16	High integrity seal for hazardous materials	700-0002-360 Integral or Remote	34.5 bar @ 149°C (500 PSI @ 300°F) PFA	
	17	Sanitary low pressure	700-0202-029 Integral or Remote	34.5 bar @ 149°C (50 PSI @ 300°F) 316/316L SS and TFE	
	18	Corrosive material, higher pressure with water like viscosity	700-0001-022 Integral or Remote	69 bar @ 38°C (1000 PSI @ 100°F) 34.5 bar @ 149°C (500 PSI @ 300°F) TFE	
	19	Interface Measurement	700-0002-023 Integral or Remote	69 bar @ 38°C (1000 PSI @ 100°F) 34.5 bar @ 149°C (500 PSI @ 300°F) 316/316L SS and TFE	
	20	Miniature Pilot Plant Sensor	700-0209-002 Remote	69 bar @ 121°C (1000 PSI @ 250°F) 0 bar @ 232°C (0 PSI @ 450°F) 316/316L SS and TFE	
	21	Heavy Duty agitated tanks or material w/bulk density and corrosive	700-0202-043 Integral or Remote	69 bar @ 38°C (1000 PSI @ 100°F) 13.8 bar @ 232°C (200 PSI @ 450°F) Hastelloy C and TFE	
	22	700-0202-043 with proximity plate	700-0202-044 Integral or Remote	69 bar @ 38°C (1000 PSI @ 100°F) 13.8 bar @ 232°C (200 PSI @ 450°F) 316/316L SS and TFE	
	24	Inactive cable probe with active weight - liquids only	700-0005-485 Integral 700-0005-285 Remote	200 psi @ 200°F 316/316L SS and FEP	
	25	Inactive cable probe with active weight - corrosive liquids	700-0005-485 Integral 700-0005-285 Remote	200 psi @ 200°F Hastelloy C and FEP	
	26	Extra heavy duty rearmount	700-0220-001 Remote	20 psi @ 180°F 316/316L SS and FEP	
	27	Extra heavy duty	700-0221-002 Remote	50 psi @ 300°F 20 psi @ 450°F 316/316L SS and FEP	
	28	General purpose very high pressure	700-1202-051 Remote 700-1202-052 Integral	1500 PSI @ 250°F 500 psi @ 450°F 316/316L SS and PEEK	
	High Pressure/Temperature	60	High Pressure and High Temperature	700-0204-038 Remote	137.9 bar @ 93°C (2000 PSI @ 200°F) 68.9 bar @ 260°C (1000 PSI @ 500°F) 316/316L SS and Ceramic
		61	High Temperature	700-0204-002 Remote	1 psi @ 700°F 0 bar @ 816°C (0 PSI @ 1500°F) 316/316L SS and Ceramic
		62	Very high pressure - not for steam	700-0204-048 Remote	4000 psi @ 600°F 316/316L SS, Vespel and Ceramic
64		High pressure and high temperature	700-0204-024 Remote	1000 psi @ 750°F 316/316L SS, Monel 400 and Alumina Ceramic	
66	700-0204-002 with secondary seal - vertical only in liquids	700-0204-022 Remote	1000 psi @ 100°F 200 psi @ 800°F 316/316L SS and Ceramic		
Retractable	72	Retractable, bare center rod	700-0201-027 Integral or Remote	150 psi @ 300°F 316/316L SS and TFE	
	73	Retractable, insulated center rod	700-0201-028 Integral or Remote	150 psi @ 300°F 316/316L SS and TFE	
Specialty	85	Leak detection	700-9000-494 Remote	0 psi @ 185°F 316/316L SS and TFE	
	86	SIL floating roof and hydrocarbon liquids - 3/4"	700-0005-594 Integral	0 psi @ 185°F Brass Polyolefin and FEP -.75 inch diameter probe	
	87	SIL floating roof and hydrocarbon liquids - 1.5"	700-0005-595 Integral	0 psi @ 185°F Brass Polyolefin and FEP -1.5 inch diameter probe	
Integrated Ground Reference	90	Perforated concentric shield	700-0201-059 Integral or Remote	300 psi @ 300°F 316/316L SS and TFE	
	91	General purpose with perforated concentric shield	700-1202-015 Remote 700-1202-016 Integral	13.8 bar @ 232°C (200 PSI @ 450°F) 316/316L SS and PEEK	
	92	General purpose higher pressure with perforated concentric shield	700-1202-045 Remote 700-1202-046 Integral	1000 PSI @ 250°F 300 psi @ 450°F 316/316L SS and PEEK	
	93	General purpose very high pressure with perforated concentric shield	700-1202-055 Remote 700-1202-056 Integral	1500 PSI @ 250°F 500 psi @ 450°F 316/316L SS and PEEK	
	94	Miniature Pilot Plant Sensor with concentric shield	700-0209-024 Remote	69 bar @ 121°C (1000 PSI @ 250°F) 0 bar @ 232°C (0 PSI @ 450°F) 316/316L SS and TFE	