VRF[®] II Series



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Shown with X1 Process Fitting Imperial Conduit Entry

SURPASSING SENSITIVITY FOR THE TOUGHEST APPLICATIONS

The VRF^{*} II Series uses radio frequency to detect the presence or absence of material in a vessel. It compensates for the load of the probe and vessel environment to automatically determine the optimal operating frequency for the greatest sensitivity and stability.

FEATURES AND BENEFITS

- Universal Input Power provides flexibility in location of the unit
- The VRF II can automatically calibrate itself when the probe senses a large decrease in the impedance with **EZ-CAL**° **II**
- **Adjustable Time Delay** allows the user to determine time between sensing material and the alarm state. Advanced units can permit delays when it detects the presence and absence of material or a combination.
- Sensitivity Settings can be selected to fit specific applications and material requirements.
- Probes have been designed with **Pro-Guard**[®] that has the ability to ignore the effects of coatings that can adhere to the probe
- Move electronics up to 100 ft (30 m) away with the **Remote Option**
- Standard and Advanced offering enables the user to choose the option that best suits the application
- Frame designed to enable connection flexibility
 - Imperial or Metric conduit entry options
 - Process Fitting can be made to fit any connection

STANDARD VS. ADVANCED UNITS

STANDARD	ADVANCED
4 Sensitivity Settings (min 1.5 pF)	7 Sensitivity Settings (min 0.5 pF)
Time Delay up to 6 seconds	Time Delay up to 150 seconds
Manual, Push Button for Test and Calibration	Test and Calibration with FOB
	Universal Power
Universal Power	Indicator Lights
	Auxiliary Relay

VRF[®] II Standard Unit

VRF II - STANDARD UNIT



- 3. EPDM food grade gasket is standard.
- 4. Process Fitting X1 cannot be used with Hazardous Location Approval.
- 5. Extended ambient temperature range is -40° to 158° F (-40° to 70° C).

STANDARD UNIT DIMENSIONS



Ι	15.25	19.25	15.25
	(387.5)	(489)	(387.35)
Н	7.00	11.75	3.63
	(178)	(298.5)	(92.2)
G	4.50	10.00	3.25
	(145)	(254)	(82.55)
F	3.38	8.5	2.75
	(86)	(216)	(69.85)
E	14.25	18.25	14.25
	(362)	(463.5)	(362)
D	6.00	10.75	2.63
	(152.5)	(273)	(66.8)
С	3.50	9.00	2.25
	(89)	(228.5)	(57.2)
В	2.38	7.50	1.75
	(60.5)	(190.5)	(44.5)
A	.31 DIA.	.38 DIA.	.31 DIA.
	(8)	(9.5)	(8)
APPROX DIM'S	STD. & FOODGRADE	H.D.	STUB
PROBE TYPE	0 & 2	5 & 9	4

VRF II - STANDARD CABLE UNIT



- X1 Process Fitting includes a 3/4" NPT 310
 EPDM food grade gasket is standard.
- 4. Maximum length is 540" (13.7 m), minimum length is 12" (30.5 cm). Length cannot be zero.
- 5. Process Fitting X1 cannot be used with Hazardous Location Approval.
- 6. Extended ambient temperature range is -40° to 158° F (-40° to 70° C).

STANDARD CABLE UNIT DIMENSIONS



H	(292.1)	(412.8)	(206.2)
G	7.00	(298.5)	3.63
F	4.50 (145)	10.00 (254)	3.25 (82.6)
E	3.38 (86)	8.50 (216)	2.75 (69.9)
D	10.50 (266.7)	15.25 (387.4)	7.12 (180.8)
С	6.00 (152.5)	10.75	2.63
В	3.50 (89)	9.00 (228.5)	2.25
A	2.38 (60.5)	7.50 (190.5)	1.75 (44.5)
APPROX DIM'S	STD. & FODDGRADE	H.D.	STUB
PROBE TYPE	0 & 2	5	4



Fitting; frame dimensions for stainless steel are not standand contact factory for drawings.

- 2. Function Test FOB not available with stainless steel Housing Finish.
- 3. X1 and X2 Process Fittings include a 3/4" NPT 316 stainless steel bin connector.
- 4. EPDM food grade gasket is standard.
- 5. 3A Approval only available with Process Fittings M2 or N2 and Probe Types 2, 4 or 9.
- 6. Process Fitting X2 and Stainless Steel Housing Finish can only be ordered together.
- 7. Extended ambient temperature range is -40° to 158° F (-40° to 70° C).

3A/SANITARY DIMENSIONS

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VRF[®] II - Flush Mount

VRF II - FLUSH MOUNT

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DICA



DOME FLUSH DIMENSIONS





FLUSH PROBE SHOWN

NOTE 1-ONLP UNITS WITH ADVANCED ELECTRONICS WILL HAVE LIGHTS 2-FOR HORIZONTAL MOUNTING, CONDUIT OPENINGS MUST FACE DOWNWARDS AND INCLUDE DRIPLOOP.



9/32' DIA.(7.1) HOLE OF A 7.44"(189) BOLT DIA. 6-PLC'S 6.88 DIA. (174.8) CUTOUT FOR MOUNTING

MOUNTING SURFACE PREPARATIONS OUT TWO CONCENTRIC CIRCLES ON BIN WALL AT POINT THE THE RF LEVEL CONTROL IS TO BE MOUNTED. ONE CLE TO BE 6-1/8" DIA, THE OTHER 7-7/16" DIA. L. D HOLES ON 7-7/16" DIA. CIRCLE .TS OR CAP SCREWS. **VRF II - HIGH TEMPERATURE**

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2. Ceramic probe is remote only, includes built-in lag of 9 in. (22.9 cm), Lag must be 'None', and it can only be used with Process Fittings C2 through F2, J2 or K2. All material is comprised of 304 stainless steel.

- 3. Mini Ceramic Probe includes A2 Process Fitting.
- 4. Can only be used with the ceramic Probe Type
- 5. Extended ambient temperature range is -40° to 158° F (-40° to 70° C).

HIGH TEMPERATURE DIMENSIONS

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BINDICAT



Marke

Additional drawings available at www.bindicator.com.



NOTE 1-ONLY UNITS WITH ADVANCED ELECTRONICS WILL HAVE LIGHTS. 2-FOR HORIZONTAL MOUNTING, CONDUIT OPENINGS MUST FACE DOWNWARDS AND INCLUDE DRIPLOOP.

VRF II - EXTENSIONS

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1. Units have powder coated aluminum Housing Finish.

- Extension units do not include 3/4" NPT 316 stainless steel bin connector.
 EPDM food grade gasket is standard.
 Maximum extension is 180 in (4.6 m), minimum length is 3 in. (7.6 cm). Length cannot be zero.
 Extended ambient temperature range is -40° to 158° F (-40° to 70° C).

EXTENSION DIMENSIONS

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BINDICAT



Marke

Additional drawings available at www.bindicator.com.

VRFII - ELECTRONICS REMOTE

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A



REMOTE DIMENSIONS



NOTE standard units will $\underline{\texttt{NOT}}$ have lights. Only advanced units will have lights.

S = Standard

VRF II Remote Electronics

Notes:

1. Maximum cable length is 100 ft (30.5 m) and is high temperature cable; leave blank if not used. Standard lengths are 1 ft increments.

2. Extended ambient temperature range is -40° to 158° F (-40° to 70° C).

3. Hazardous location approval not available with electroless nickel plated aluminum Housing Finish.

PROBE SPECS

		MAX TEMP °F (°C)	PROBE MATERIAL	PROBE LENGTH* IN (MM)
0	Standard Ryton [®]	450 (232)	316 SS/Ryton°	15.25 (387.5)
1	Standard Kynar [®] Coated	250 (121)	316 SS/Kynar [°]	15.25 (387.6)
2	Food Grade Polysulfone	300 (149)	316 SS/Polysulfone	15.25 (387.7)
3	Ceramic	1,000 (537)	316 SS/Ceramic	18.62 (472.9)
4	Stub Polysulfone	300 (149)	316 SS/Polysulfone	15.25 (387.7)
5	Heavy Duty Ryton [°]	450 (232)	316 SS/Ryton°	19.25 (489.0)
6	Heavy Duty Kynar [®] Coated	250 (121)	316 SS/Kynar [°]	19.25 (489.0)
7A-D	Dome Flush	200 (93)	316 SS/Epoxy	Flush Mounted
8	Flush Probe	200 (93)	316 SS/Epoxy	Flush Mounted
9	Heavy Duty Food Grade Polysulfone	300 (149)	316 SS/Polysulfone	19.25 (489.0)
A	Armored Food Grade	230 (110)	Polysulfone covered by 316 SS sleeve and food grade epoxy	15.25 (387.4)
F	Fly Ash Probe	450 (232)	316 SS/Ryton°	19.25 (489.0)
J	Jumbo	200 (93)	316 SS/Thermoset Epoxy	2.33 (5.9)
М	Mini Ceramic	830 (443)	316 SS/Ceramic	18.25 (463.6)**
Т	Teflon [®] Jacketed Standard	250 (121)	316 SS/Teflon [°]	15.25 (387.7)
U	Teflon [®] Jacketed Heavy Duty	250 (121)	316 SS/Teflon°	19.25 (489.0)

* From bottom of 11/4" fitting to tip of probe; process connections may alter length of probe. See drawings for additional details. ** From 3/4" NPT

PROBE MODIFICATIONS AND OPTIONS

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Probe Attachm	ents for Heavy Duty Probes Only	When to Use	
LHF110030	Rigid Tip Extension - 12" (300 mm)		
LHF110031	Rigid Tip Extension - 24" (600 mm)		
LHF110032	Rigid Tip Extension - 36" (900 mm)	To extend active length for vertical	
LHF110033	Rigid Tip Extension - 48" (1200 mm)	mounting	
LHF110034	Rigid Tip Extension - 60" (1500 mm)		
LHF110035	Flexible Tip Extension - 12" (300 mm)	To extend active length, vertical	
LHF110036	Flexible Tip Extension - 24" (600 mm)		
LHF110037	Flexible Tip Extension - 36" (900 mm)		
LHF110038	Flexible Tip Extension - 48" (1200 mm)		
LHF110039	Flexible Tip Extension - 60" (1500 mm)		
LRF110851	Cable/Weight Tip Extension (84" maximum) Specify length in inches		
Probe Attachm	ients		
LRF110085	Sensitivity Sleeve - 3/4", Standard Probe		

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5Sensitivity Sleeve - 1¼", Standard ProbeAdds mechanical sensitivity by providing more surface contact between material and probe9Sensitivity Sleeve - ¾", Heavy Duty Probebetween material and probe		
		Sensitivity Sleeve - 11/4", Heavy Duty Probe
Tear Drop Sensitivity Attachment, Standard Probe - 11/4"		
Tear Drop Sensitivity Attachment, Heavy Duty Probe - 11/4"		
Tear Drop Sensitivity Attachment, Standard Probe - 3/4"	Provides additional mechanical sensitivity to tip of probe	
Tear Drop Sensitivity Attachment, Heavy Duty Probe - 3/4"		
Tear Drop Sensitivity Attachment, Ceramic Probe - 11/4"		
	Sensitivity Sleeve - 11/4", Standard ProbeSensitivity Sleeve - 3/4", Heavy Duty ProbeSensitivity Sleeve - 11/4", Heavy Duty ProbeTear Drop Sensitivity Attachment, Standard Probe - 11/4"Tear Drop Sensitivity Attachment, Heavy Duty Probe - 11/4"Tear Drop Sensitivity Attachment, Standard Probe - 3/4"Tear Drop Sensitivity Attachment, Heavy Duty Probe - 3/4"Tear Drop Sensitivity Attachment, Heavy Duty Probe - 3/4"Tear Drop Sensitivity Attachment, Ceramic Probe - 11/4"	

Remote Cable Options

VRFK35208	Bulk Cable, Low Temperature
VRFK35209	Bulk Cable, High Temperature
LRF110039	Termination Kit
LRF110028	Preterminated Remote Cable, Low Temperature (in feet)
LRF110029	Preterminated Remote Cable, High Temperature (in feet)

Probe Modifications

-	Welded Tip Extension
	Bent Probe (Exact location and degree of bend required)
	Shortened Probe (Exact length required)
	Kynar [®] Coated Tip Extension
	Teflon Welded Tip Extension

SPECIFICATIONS

FUNCTIONAL

Power Requirements	Universal, 120 - 240 VAC 50/60 Hz or 24 - 48 VDC
Power Consumption - STANDARD	3 W AC; 3 W DC
Power Consumption - ADVANCED	4 W AC; 4 W DC
Fuse	Fast Blow, 1A 300 V (Not User Serviceable)
Ambient Temperature	Ordinary Location: -40° to 158° F (-40° to 70° C) Hazardous Location: -4° to 158° F (-20° to 70° C) Hazadrous Location, Extended: -40° to 158° F (-40° to 70° C)
Process Temperature	-20° to 302° F (-29° to 150° C) Standard Up to 500° F (Up to 260° C) with Extension 3 and Lag
Probe Temperature Range	-40° to 993° F (-40° to 534° C) depending on probe
Outputs	
Main Relay	8 A DPDT @ 240 VAC or 30 VDC (resistive)
Auxiliary Relay - ADVANCED Only	0.46 A SPDT @ 150 VAC or 1 A @ 30 VDC
PERFORMANCE	
Pressure Rating	150 psi (10.5 kg/cm ²) with ³ / ₄ " NPT; 50 psi (3.5 kg/cm ²) with 1 ¹ / ₄ " NPT
Time Delay - STANDARD	Field Adjustable; 0.2 - 6 seconds
Time Delay - ADVANCED	Field Adjustable; 0 - 150 seconds
Fail Safe	Field Selectable; high/low level
Sensitivity - STANDARD	Field Adjustable; minimum 1.5 pf
Sensitivity - ADVANCED	Field Adjustable; minimum 0.5 pf
Maximum Particle Size	⁹ /16″ (14.3 mm)
PHYSICAL	
Enclosure Material	Polyester or epoxy coated aluminum or 304 SS
Dual Conduit Entry	³ /4" NPT or M20 x 1.5
Mounting Plate Material	Mild Steel, 304 SS
Extended Pipe Material	Galvanized or 316 SS
Shipping Weight	Integral, non-extended 10 lb (4.5 kg)

AGENCY APPROVALS

UL (US and Canada)

- Ordinary Location, Type 4X; IP66
- Hazardous Locations, Type 4X

Explosion Proof, Class I, Div 1, Groups C, D Dust Ignition Proof, Class II, Div 1, Groups E, F, G Intrinsically Safe

CE

- Electromagnetic Compatibility Directive
- Low Voltage Directive











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