



VM™ AIR GAP CAPACITIVE MEASURING CHAINS

GENERAL SPECIFICATIONS

Sensors

Operation

- Measurement Type Non-Contact Proximity, Capacitive Technology

Connection

- Integral Cable Coaxial or Triaxial
- Connector
 - Coaxial Integral Cable Male, Gold-Plated SMA
 - Triaxial Integral Cable Male, Gold-Plated SMA and Grounding Terminal

Environmental

- Temperature Range 0 to 125°C [32 to 257°F]
- Magnetic Field Immunity Up to 2 Tesla (50 or 60 Hz)
- Dust and Oil Contamination Films Have No Effect
- Humidity Up to 95%, Non-Condensing

Physical Characteristics

- Sensor Material Non-Conductive and Semi-Conductive Material
- Integral Cable Material FEP Jacket / Teflon® Insulation

Extension Cables

Connection

- Cable Type Triaxial
- Absolute Minimum Length
 - Type H (20 m) Cable Nominal Minus 1 m [39.4 in]
 - All Other Cables Nominal Minus 0.5 m [19.7 in]
- Connector
 - Sensor Side Female, Gold-Plated SMA and Grounding Terminal
 - Conditioner Side Male, Gold-Plated SMA and Grounding Terminal
- Minimum Bending Radius 10 cm [4 in]

Environmental

- Temperature Range
 - Type S Cable 0 to 75°C [32 to 167°F]
 - Type H Cable 0 to 125°C [32 to 257°F]

Physical Characteristics

- Cable Material
 - Type S Cable PVC Jacket / PE Insulation
 - Type H Cable FEP Jacket / FEP Insulation



LIN™ -300 Conditioner

Power Requirements

- Voltage 24 Vdc ±15%
- Consumption 100 mA max.
- Protection Auto-Reset Fuse
- Warm-Up Time 30 Minutes

Connection

- Power / Output 5-Pin M12 Male
- Sensor Input Female, Gold-Plated SMA and Grounding Terminal

Environmental

- Temperature Range
 - Operating 0 to 55°C [32 to 131°F]
 - Storage (Measuring Chain) -25 to 70°C [-13 to 158°F]

Physical Characteristics

- Body Nickel-Plated Aluminum
- Mounting 4 Slots for #6 (M3.5) Screws
- Max. Torque on SMA 1.1 Nm [10 in-lb]
- Status Indicator Bicolor LED

MEASURING CHAINS TECHNICAL SPECIFICATIONS

VM3.12 Air Gap Measuring Chains

Sensor	VM3.12		
Nominal Measuring Range	2 to 20 mm [79 to 787 mils]	2 to 20 mm [79 to 787 mils]	5 to 35 mm [197 to 1378 mils]
Sensor Integral Coaxial Cable Length	0.5 m [19.7 in]		
Extension Cable (Type S) Nominal Length	10 m [33 ft]	---	10 m [33 ft]
Extension Cable (Type H) Nominal Length	---	15 m [49 ft]	---
Conditioner Model	LIN-331-10S-2/20	LIN-331-15H-2/20	LIN-331-10S-5/35
Output	4 to 20mA		
Bandwidth	DC to 1.2 kHz (-3 dB)		
Sensitivity	0.889 mA/mm [22.6 µA/mil]	0.889 mA/mm [22.6 µA/mil]	0.533 mA/mm [13.5 µA/mil]
Accuracy (full scale)	See Figure 1	See Figure 2	See Figure 3
Repeatability (% of reading)	± 0.3 %	± 0.3 %	± 0.3 %
Temperature Drift (at mid-range)	< 500 ppm/°C	< 800 ppm/°C	< 800 ppm/°C
Load at Output	500 Ω max.		

VM3.2 Air Gap Measuring Chain

Sensor	VM3.2
Nominal Measuring Range	1 to 10 mm [39 to 394 mils]
Sensor Built-In Integral Cable Length	0.23 m [9 in]
Extension Cable (Type S) Nominal Length	10 m [33 ft]
Conditioner Model	LIN-332-10S-1/10
Output	4 to 20mA
Bandwidth	DC to 1.2 kHz (-3 dB)
Sensitivity	1.78 mA/mm [45 µA/mil]
Accuracy (full scale)	See Figure 4
Repeatability (% of reading)	± 0.3 %
Temperature Drift (at mid-range)	< 500 ppm/°C
Load at Output	500 Ω max.



VM5.1 Air Gap Measuring Chains (5 to 50mm)

Sensor	VM5.1	
Nominal Measuring Range	5 to 50 mm [197 to 1969 mils]	5 to 50 mm [197 to 1969 mils]
Sensor Integral Triaxial Cable Length	0.5 m [19.7 in]	
Extension Cable (Type S) Nominal Length	10 m [33 ft]	---
Extension Cable (Type H) Nominal Length	---	10 m [33 ft]
Conditioner Model	LIN-351-10S-5/50	LIN-351-10H-5/50
Output	4 to 20mA	
Bandwidth	DC to 1.2 kHz (-3 dB)	
Sensitivity	0.356 mA/mm [9 μ A/mil]	0.356 mA/mm [9 μ A/mil]
Accuracy (full scale)	See Figure 5	See Figure 6
Repeatability (% of reading)	\pm 0.3 %	\pm 0.3 %
Temperature Drift (at mid-range)	< 500 ppm/ $^{\circ}$ C	< 500 ppm/ $^{\circ}$ C
Load at Output	500 Ω max.	

VM5.1 Air Gap Measuring Chains (5 to 35 mm)

Sensor	VM5.1	
Nominal Measuring Range	5 to 35 mm [197 to 1378 mils]	5 to 35 mm [197 to 1378 mils]
Sensor Integral Triaxial Cable Length	0.5 m [19.7 in]	
Extension Cable (Type S) Nominal Length	---	---
Extension Cable (Type H) Nominal Length	15 m [49 ft]	20 m [66 ft]
Conditioner Model	LIN-351-15H-5/35	LIN-351-20H-5/35
Output	4 to 20mA	
Bandwidth	DC to 1.2 kHz (-3 dB)	
Sensitivity	0.533 mA/mm [13.5 μ A/mil]	0.533 mA/mm [13.5 μ A/mil]
Accuracy (full scale)	See Figure 7	See Figure 8
Repeatability (% of reading)	\pm 0.3 %	\pm 0.3 %
Temperature Drift (at mid-range)	< 800 ppm/ $^{\circ}$ C	< 1500 ppm/ $^{\circ}$ C
Load at Output	500 Ω max.	

VM6.1 Air Gap Measuring Chain

Sensor	VM6.1
Nominal Measuring Range	3 to 30 mm [118 to 1181 mils]
Sensor Integral Triaxial Cable Length	0.5 m [19.7 in]
Extension Cable (Type S) Nominal Length	10 m [33 ft]
Conditioner Model	LIN-361-10S-3/30
Output	4 to 20mA
Bandwidth	DC to 1.2 kHz (-3 dB)
Sensitivity	0.593 mA/mm [15 μ A/mil]
Accuracy (full scale)	See Figure 9
Repeatability (% of reading)	\pm 0.3 %
Temperature Drift (at mid-range)	< 800 ppm/ $^{\circ}$ C
Load at Output	500 Ω max.



Figure 1

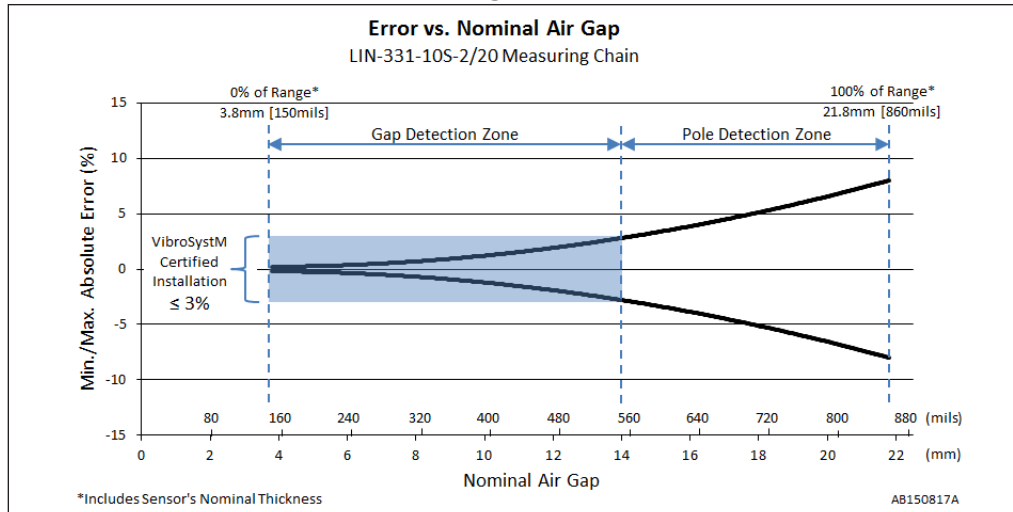


Figure 2

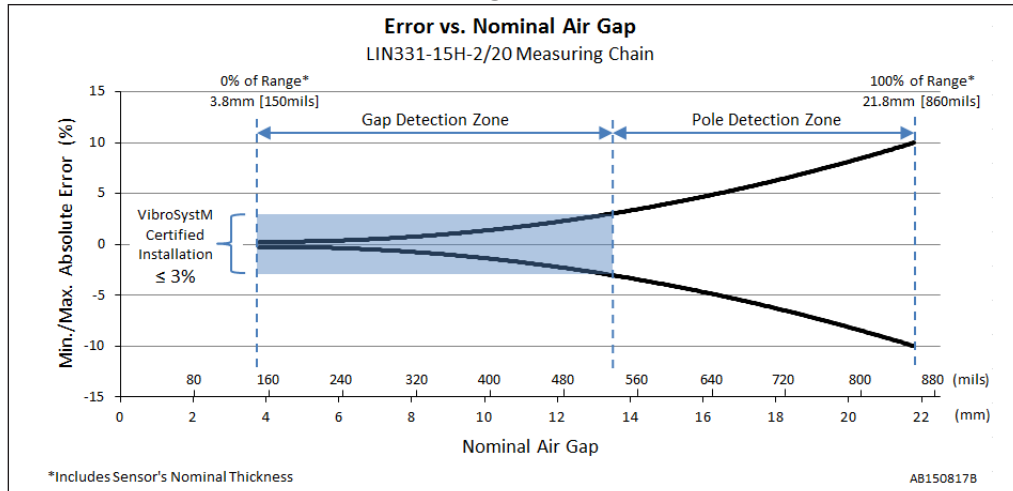


Figure 3

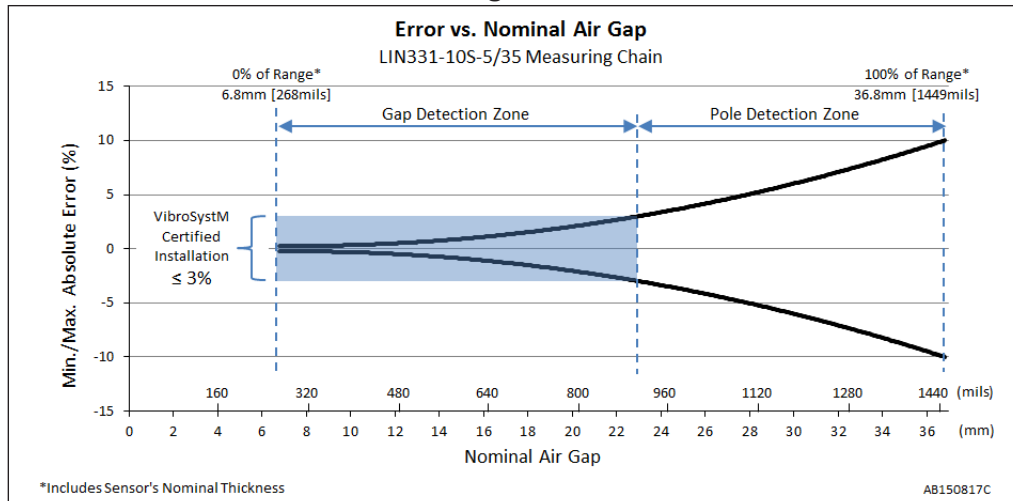




Figure 4

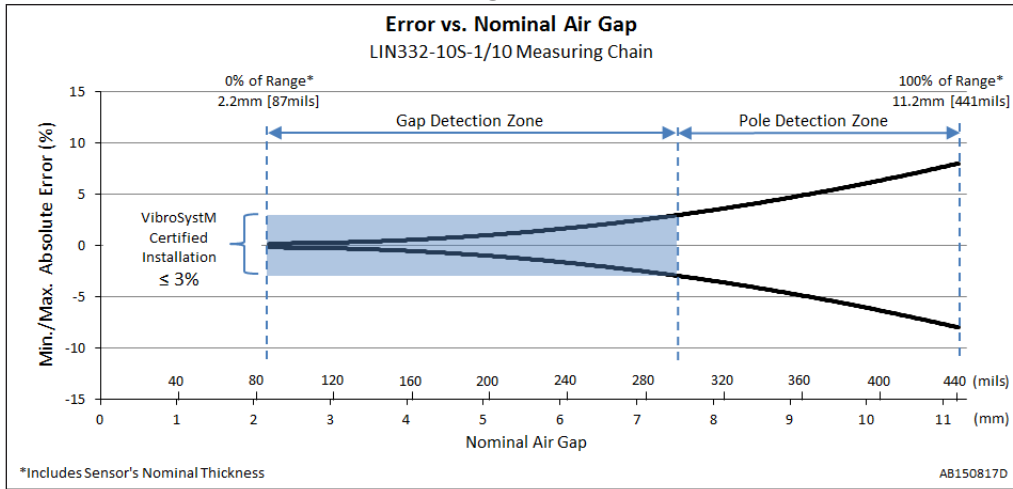


Figure 5

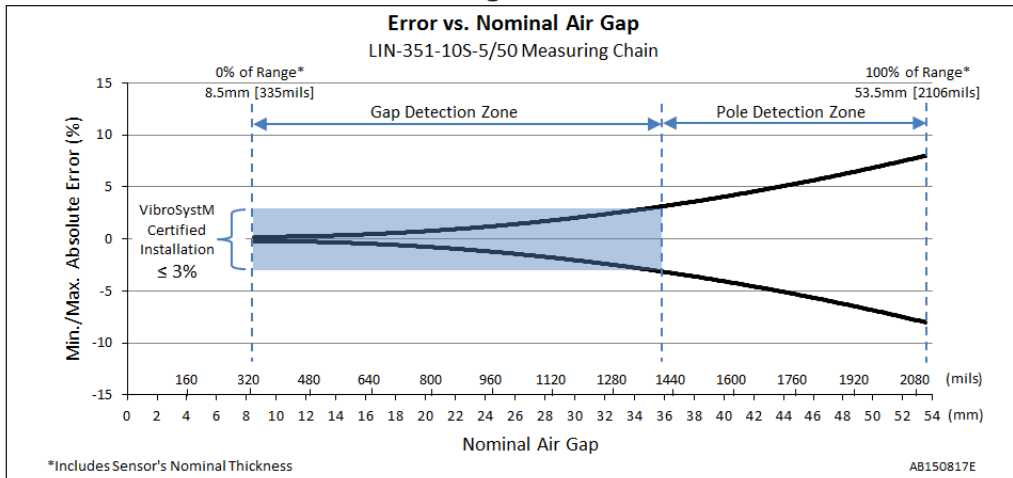


Figure 6

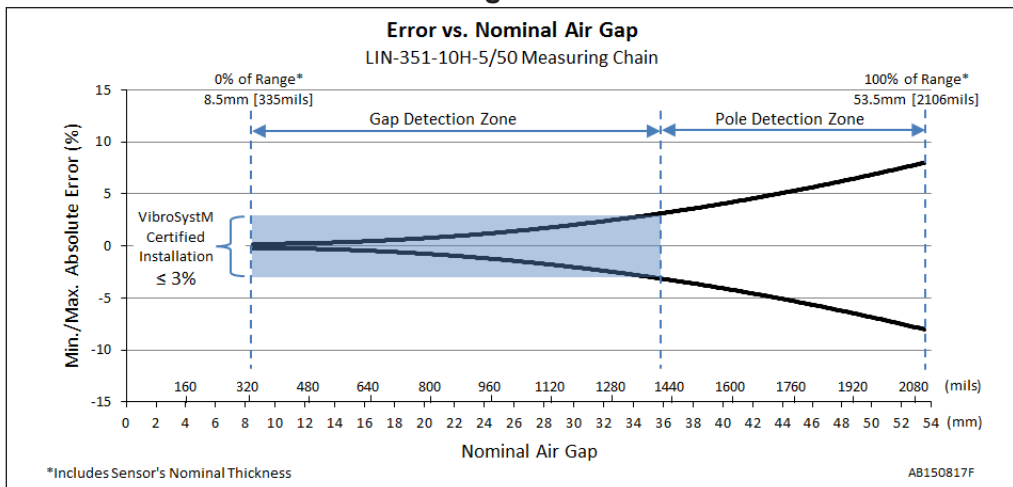




Figure 7

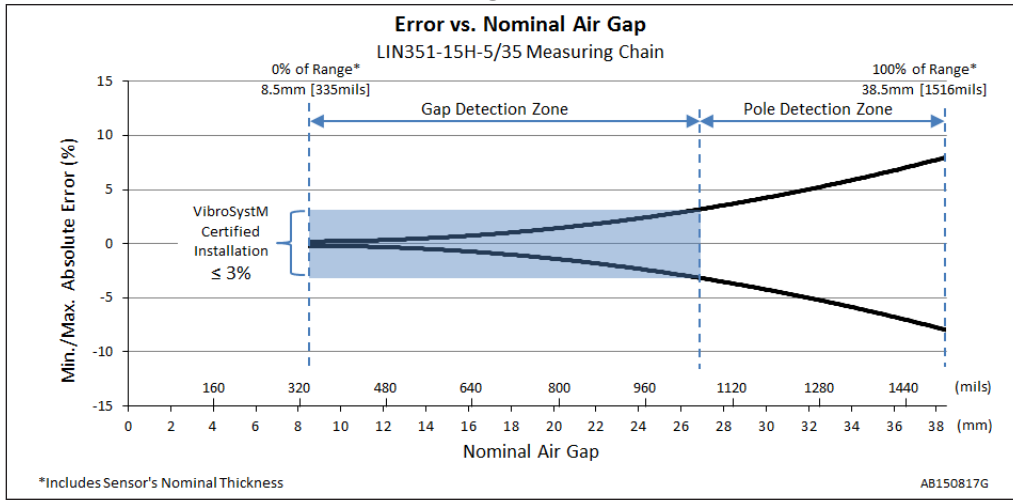


Figure 8

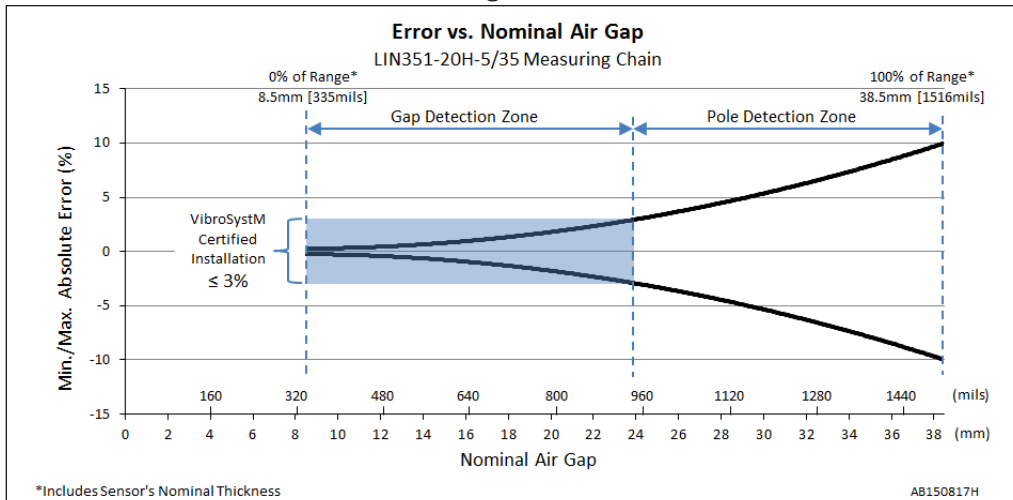
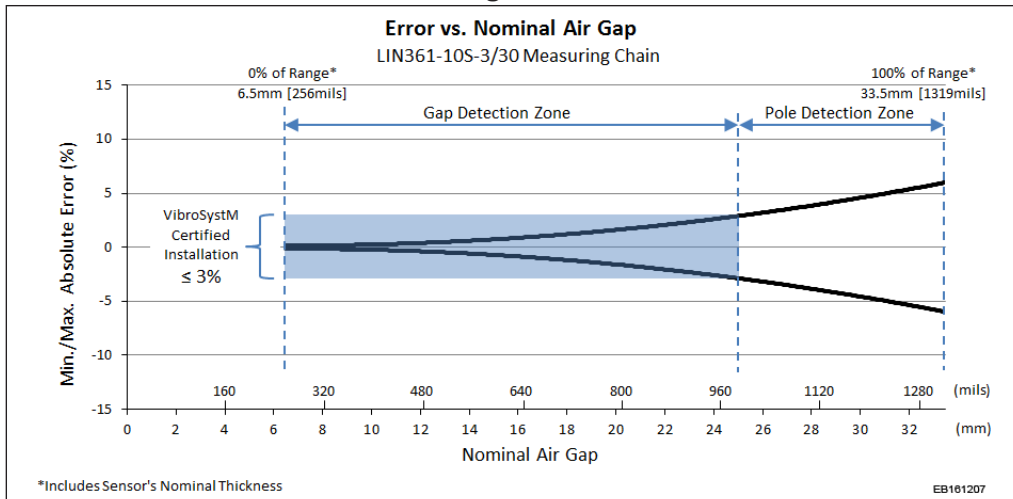


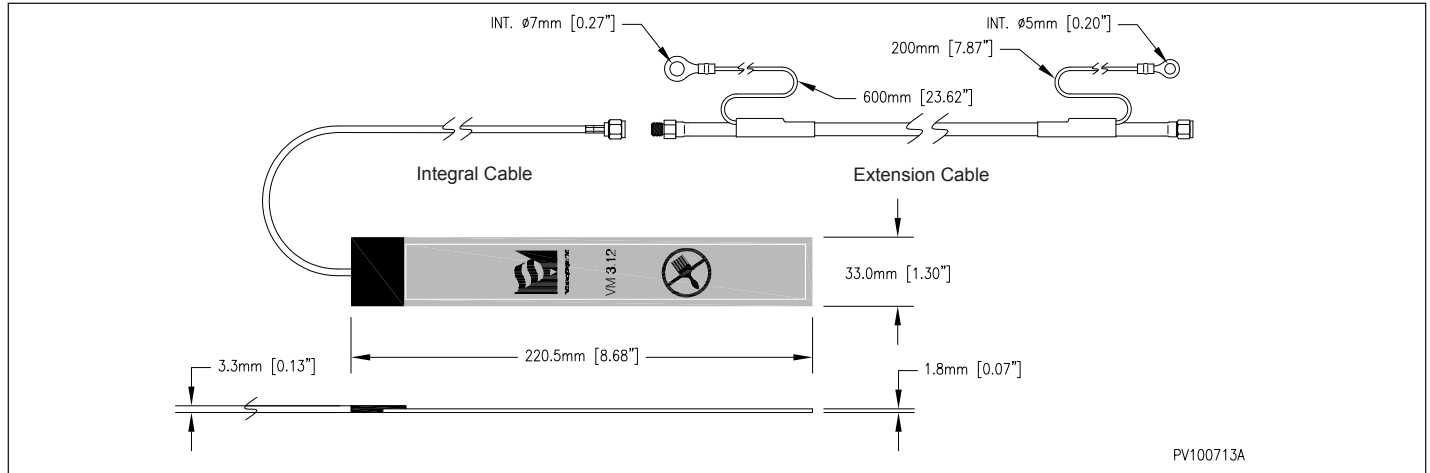
Figure 9



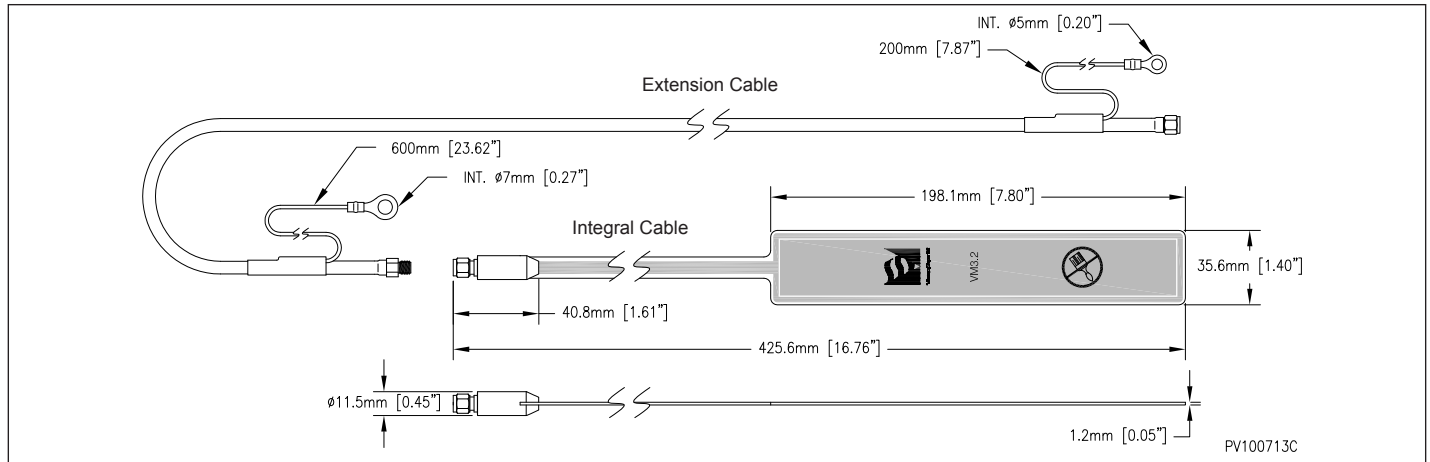


DIMENSIONS

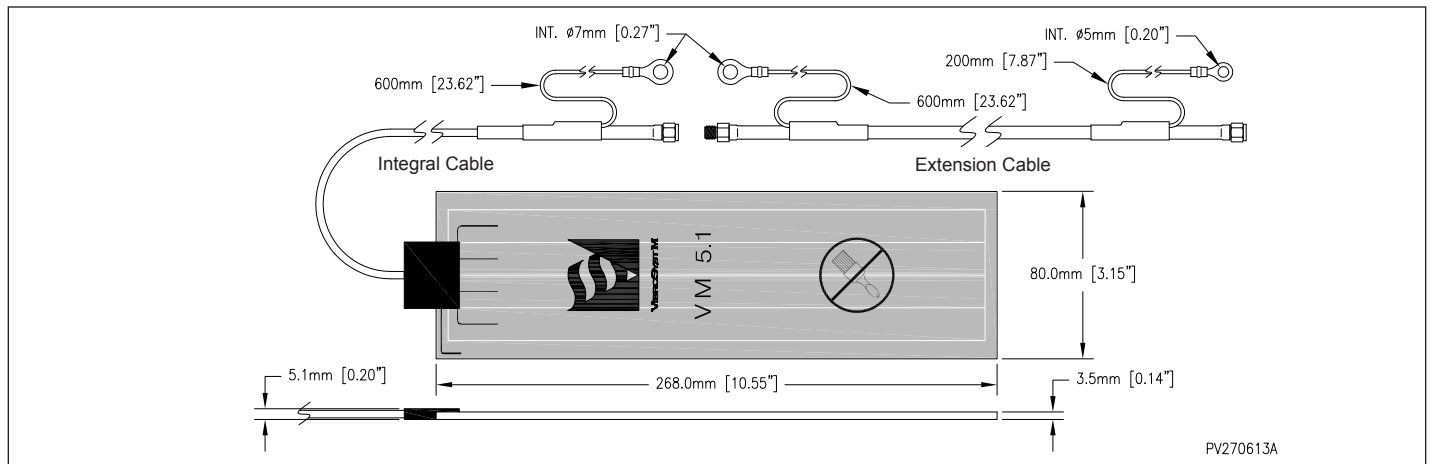
VM3.12 Sensor



VM3.2 Sensor

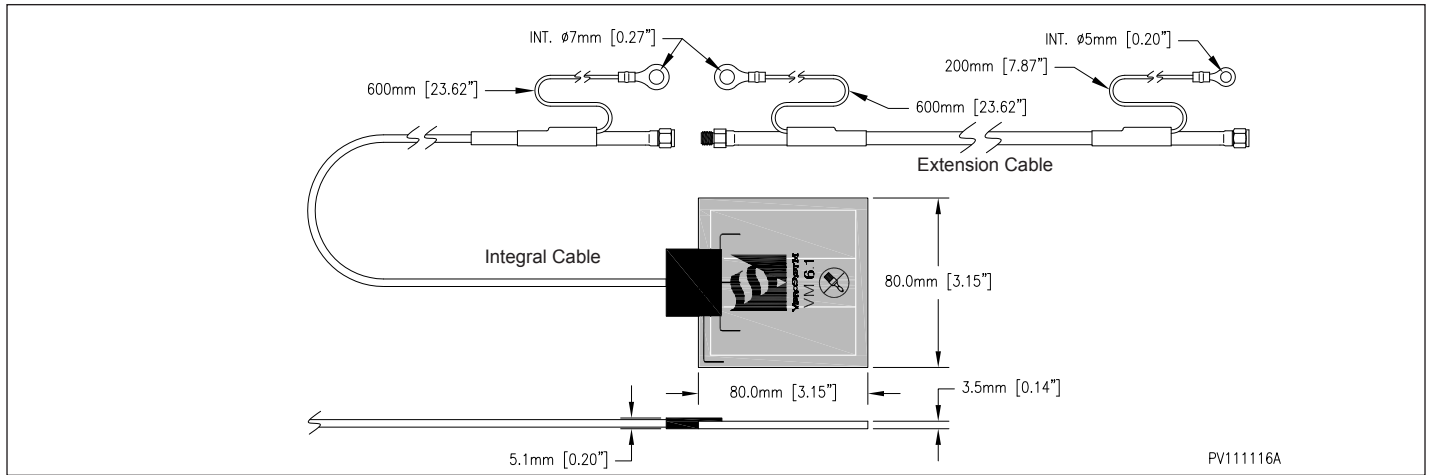


VM5.1 Sensor

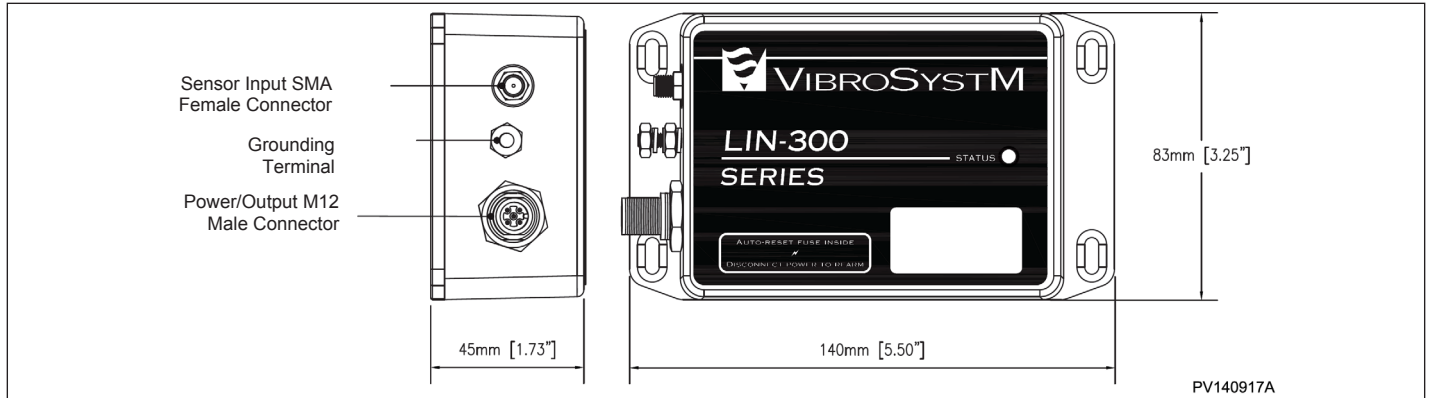




VM6.1 Sensor



LIN-300 Conditioner





PRODUCT IDENTIFICATION

Product Number	Description
<i>LIN-331-10S-2/20 Measuring Chain</i>	
VSM-L331-2/20-10	LIN-331-10 conditioner (2-20 mm)
VSM-CBL-331-2/20-10	Cable / Triaxial - SMA/SMA / (10 m/32.8 ft)
VSM-VM31-2/20	VM 3.12 air gap sensor (2-20 mm)
<i>LIN-331-15H-2/20 Measuring Chain</i>	
VSM-L331-2/20/15H	LIN-331-15H conditioner (2-20 mm)
VSM-CBL-331-2/20-15H	Cable / Triaxial - SMA/SMA / (15 m/49.2 ft)
VSM-VM31-2/20	VM 3.12 air gap sensor (2-20 mm)
<i>LIN-331-10S-5/35 Measuring Chain</i>	
VSM-L331-5/35-10	LIN-331-10S conditioner (5-35 mm)
VSM-CBL-331-5/35-10	Cable / Triaxial - SMA/SMA / (10 m/32.8 ft)
VSM-VM31-5/35	VM 3.12 air gap sensor (5-35 mm)
<i>LIN-332-10S-1/10 Measuring Chain</i>	
VSM-L332-1/10-10	LIN-332-10S conditioner (1-10 mm)
VSM-CBL-332-1/10-10	Cable / Triaxial - SMA/SMA / (10 m/32.8 ft)
VSM-VM32-1/10-10	VM 3.2 air gap sensor (1-10 mm)
<i>LIN-351-10S-5/50 Measuring Chain</i>	
VSM-L351-5/50-10	LIN-351-10S conditioner (5-50 mm)
VSM-CBL-351-5/50-10	Cable / Triaxial - SMA/SMA / (10 m/32.8 ft)
VSM-VM51	VM 5.1 air gap sensor (5-35/5-50 mm)
<i>LIN-351-10H-5/50 Measuring Chain</i>	
VSM-L351-5/50-10H	LIN-351-10H conditioner (5-50 mm)
VSM-CBL-351-5/50-10H	Cable / Triaxial - SMA/SMA / (10 m/32.8 ft)
VSM-VM51	VM 5.1 air gap sensor (5-35/5-50 mm)
<i>LIN-351-15H-5/35 Measuring Chain</i>	
VSM-L351-5/35-15H	LIN-351-15H conditioner (5-35 mm)
VSM-CBL-351-5/35-15H	Cable / Triaxial - SMA/SMA / (15 m/49.2 ft)
VSM-VM51	VM 5.1 air gap sensor (5-35/5-50 mm)
<i>LIN-351-20H-5/35 Measuring Chain</i>	
VSM-L351-5/35-20H	LIN-351-20H conditioner (5-35 mm)
VSM-CBL-351-5/35-20H	Cable / Triaxial - SMA/SMA / (20 m/65.6 ft)
VSM-VM51	VM 5.1 air gap sensor (5-35/5-50 mm)
<i>LIN-361-10S-3/30 Measuring Chain</i>	
VSM-L361-3/30-10	LIN-361-10S conditioner (3-30 mm)
VSM-CBL-361-3/30-10	Cable / Triaxial - SMA/SMA / (10 m/32.8 ft)
VSM-VM61	VM 6.1 air gap sensor - 0.5m/1.6 ft Integral cable - (3-30 mm)