



## VMGMD

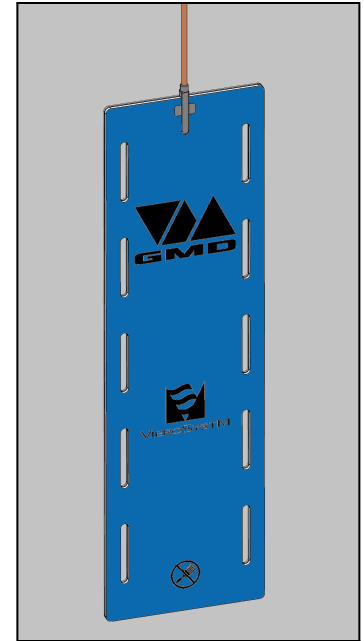
U.S. Patent No. 11125795

# For Capacitive Air Gap Measuring Chains Gearless Mill Drive

The VM™GMD sensor is designed with a thin body and a wide measuring range that allows monitoring of small and large air gaps.

VMGMD air gap sensors are easy to install without removing the rotor or poles. These sensors are resistant to chemicals and solvents commonly used during installation. During operation, they are immune from strong magnetic fields, carbon dust, and deposits of oil.

Each VMGMD air gap measuring chain is composed of a passive, non-contact capacitive sensor that measures the distance between its surface and a metallic target. The raw signal picked up by the sensor is sent to a conditioner through a triaxial extension cable to be converted into a linearized 4 to 20 mA signal. Different measuring ranges are available to adapt to different machine air gaps.



## GENERAL SPECIFICATIONS

### Sensors

#### Operation

- Measurement type Non-contact proximity, capacitive technology

#### Connection

- Integral cable Triaxial with grounding wire assembly
- Connector Male, gold-plated SMA
  - Triaxial integral cable

#### Environmental

- Operating temperature range 0 to 125°C [32 to 257°F]
- Absolute maximum temperature 155°C [311°F] <sup>1</sup>
- Resistance to industrial chemicals and solvents Very good <sup>2</sup>
- Magnetic field immunity Up to 2 Tesla
- Dust and oil contamination Films have no effect
- Humidity Up to 95%, non-condensing

#### Physical Characteristics

- Sensor material Glass reinforced laminates
- Triaxial cable material PVDF over FEP jacket / Teflon® insulation

### Extension Cables

#### Connection

- Cable type Triaxial
- Absolute minimum length 19 m [62.3 ft]
- Connectors Female, gold-plated SMA and grounding terminal
  - Sensor side Male, gold-plated SMA and grounding terminal
  - Conditioner side
- Minimum bending radius 10 cm [4 in]



### Environmental

- Operating temperature range 0 to 125°C [32 to 257°F]

### Physical Characteristics

- Type H cable material FEP Jacket / FEP Insulation

## LIN™-300 Series Conditioner

### Power Requirements

- Voltage 24 Vdc ±15%
- Consumption 120 mA max.
- 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 oblong holes for #6 (M3.5) screws
- Max. torque on SMA 1.1 Nm [10 in-lb]
- Status indicator Bicolor LED

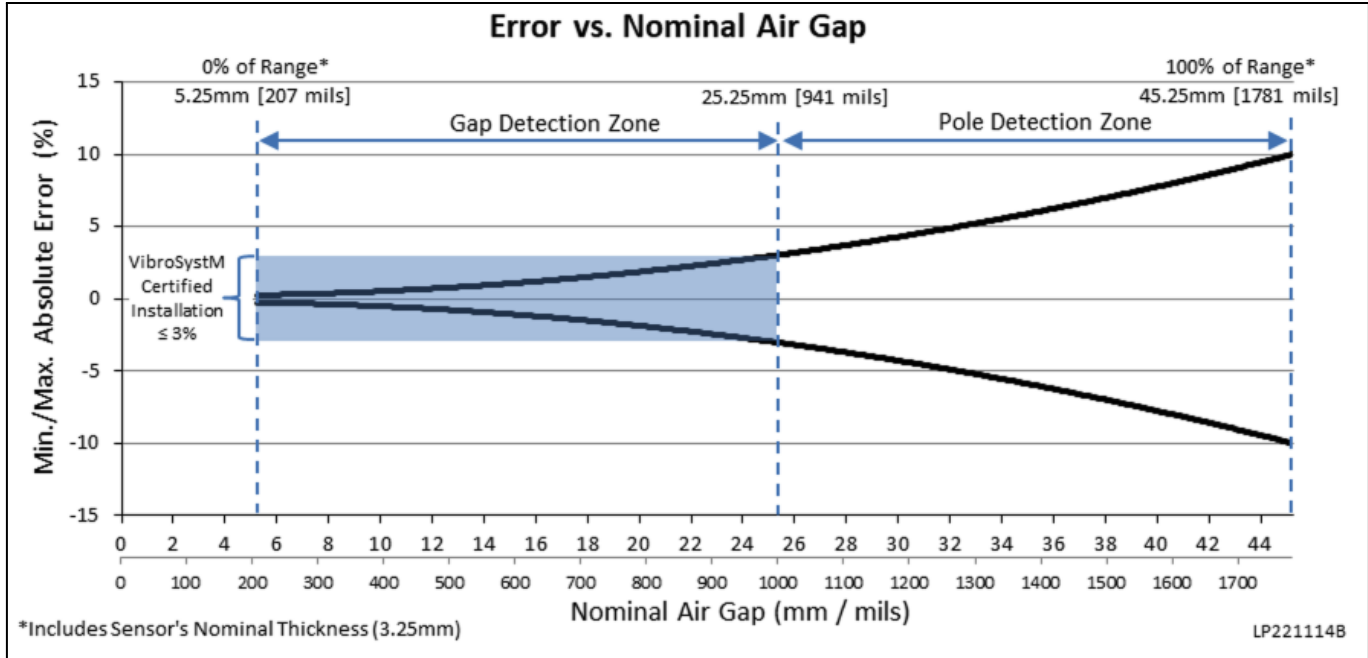
## MEASURING CHAINS TECHNICAL SPECIFICATIONS

At room temperature, unless otherwise noted

Sensor	VMGMD
Nominal measuring range	2 to 42 mm [79 to 1654 mils]
Sensor integral cable length	0.5 m [19.7 in]
Extension cable nominal length	Type H: 20 m [65.6 ft]
Conditioner model	LIN-3GMD-20H-2/42
Output	4 to 20mA
Load at output	500 Ω max.
Bandwidth	DC to 1.2 kHz (-3 dB)
Sensitivity	0.4 mA/mm [10.2 μA/mil]
Accuracy	See figure 1
Repeatability (% of reading)	± 0.3 %
Maximum temperature drift <i>(Standard installation and under normal mill operation conditions)</i>	± 2% (at mid-range)

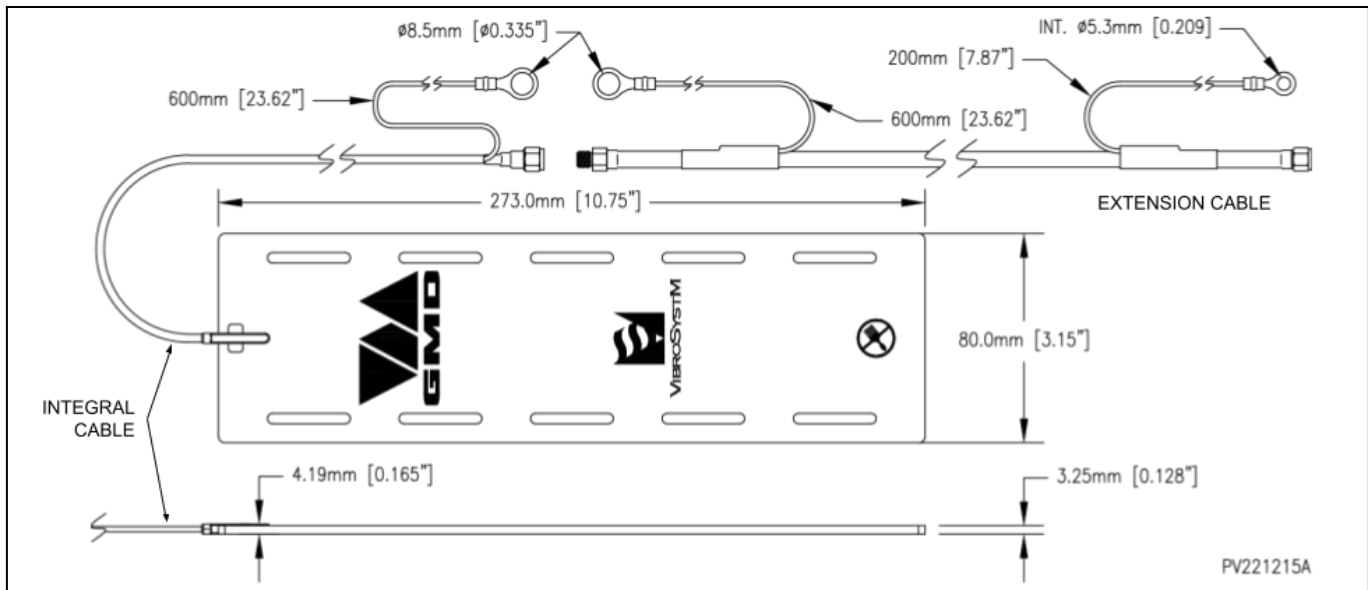


Figure 1: LIN-3GMDAF-20H-2/42 Measuring Chain



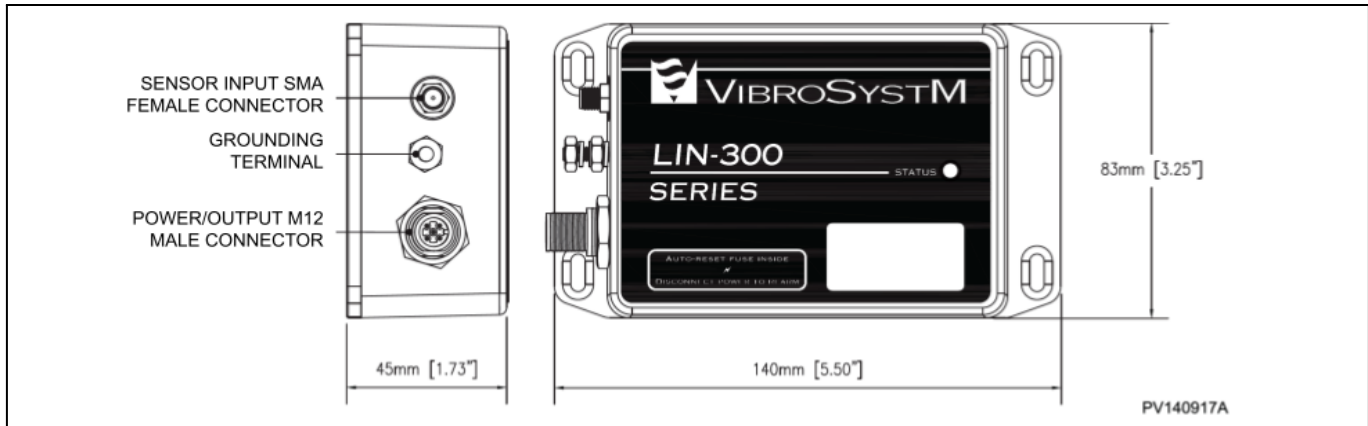
## VMGMD MEASURING CHAINS OVERVIEW

### VMGMD Sensor with Extension Cable





## LIN-300 Series Conditioner



## PRODUCT INFORMATION

Product Number	Description
<b>LIN-3GMD-20H-2/42 Measuring Chain</b>	
VSM-VMGMDAF	VMGMD air gap sensor (2-42 mm)
VSM-L3GMDF-20H-2/42	LIN-3GMD-20H-2/42 conditioner (2-42 mm)
VSM-CBL-GMDF-20H	Cable / Triaxial GMD - SMA/SMA / (20 m/65.6 ft)

<sup>1</sup> Applicable to the sensor body in the event of a fault, for a short period of time (<3h per event). If left continuously at temperature above operating range, premature aging of the sensor will occur.

<sup>2</sup> Compatible with acetone, alcohol isopropyl, and paint thinner. Do not soak or submerge. Test any other product on a small area of the sensor before using it. If in doubt, contact VibroSystM for support.