



TM016 Velocity/ Acceleration Vibration Transmitter

Introduction

The TM016 is a solid state loop powered transmitter which provides a 4-20mA output proportional to the machine case vibration level. The 4-20mA output interfaces directly to any PLC or DCS for shutdown, alarm or trending. The TM016 is easy to install on the machine case.

Applications include:

- ✓ Motors
- ✓ Pumps
- ✓ Fans
- ✓ Blowers
- ✓ Engines
- ✓ Compressors
- ✓ Centrifuges
- ✓ Generators
- ✓ Turbochargers
- ✓ Gear Boxes



TM016-D4



TM016-D0, D1

Features

- ✓ Loop powered 4-20mA velocity or acceleration (peak or RMS) output
- ✓ Wide operating temperature range -40°C to +120°C (-40°F to +248°F)
- ✓ Stainless steel housing
- ✓ NEMA4X, IP65 or IP67 environmental rating
- ✓ Multiple hazardous area approvals
- ✓ Frequency filter options
- ✓ Wide selection of mounting studs



Proximity Transmitters and Seismic Vibration Transmitters

Specifications

Electrical

Overall vibration output:

4-20mA, load (loop powered)
Accuracy: 3%

Frequency response ($\pm 3\text{db}$):

Acceleration: AAA= 200, 201, 202: 2 - 3,000 Hz
Velocity: AAA= 000 to 162: 2 - 3,000 Hz

Transverse sensitivity:

< 5%

Power supply:

12VDC - 30VDC < 30mA

Maximum load resistance:

600 ohms @24VDC power supply

Isolation:

500Vrms, circuit to case

Case material:

Stainless steel

Output connection:

Flying leads: 2 cables for 4-20mA
2 cables for buffered output

Mil connector: 2 pins for 4-20mA

Buffered output:

100mV/g nominal
Maximum cable length 3m (10ft)

Filter option:

40dB/oct for hi-pass filter
40dB/oct for low-pass filter

Intrinsically safe:

ATEX: II 1G Ex ia IIC T4 @Ta=-40°C to+100°C

(Ui=30V, Ii=110mA, Pi=825mW, Ci=51.7nF, Li=84uH)

PCEC: Ex ia IIC T4

Physical

Dimensions:

Diameter: 38mm (1.5")

Height:

Flying leads: 78mm (3.1");

Mil connectors: 87mm (3.4")

Weight:

240g (0.5lb)

Output Connections:

2-pin MIL-C-5015

Flying leads: 2 or 4 wires

1 NPT

Housing Rating:

Flying leads: NEMA 4X, IP65

2-pin connector: IP67

Environmental

Temperature:

Operation:

Normal (G=0): -40°C to + 100°C (-40°F to +212°F)

High (G=1): -40°C to + 120°C (-40°F to +248°F)

Storage: -50°C to + 125°C (-58°F to +257°F)



Order Information

* Factory default

TM016-AAA-BCD-EF-G

AAA: Full Scale

AAA=000:	20mm/s (0.8ips), pk
AAA=001:	20mm/s (0.8ips), rms
AAA=121:	25mm/s (1.0ips), pk
AAA=122:	12.5mm/s (0.5ips), pk
AAA=123:	50mm/s (2.0ips), pk
AAA=124:	125mm/s (5.0ips), pk
AAA=132:	75mm/s (3.0ips), pk
AAA=151:	25mm/s (1.0ips), rms
AAA=152:	12.5mm/s (0.5ips), rms
AAA=153:	50mm/s (2.0ips), rms
AAA=154:	125mm/s (5.0ips), rms
AAA=162:	75mm/s (3.0ips), rms
AAA=200:	5.0g, pk
AAA=201:	10g, pk
AAA=202:	20g, pk

B: Mounting Adaptor

B=0:	1/4" NPT
B=1:	1/2" NPT
B=2:	3/8-24UNF X 1/2"
B=3:	1/2-20UNF X 1/2"
B=4:	M8x1-12
B=5:	M10x1.25-12

C: Hazardous Area and Approvals

C=1:	CE
C=2*:	CE
CSA:	Class I, Div. 1, Groups A, B, C & D Class II, Div. 1, Groups E, F, G & T4@Ta=-40°C to+120°C
ATEX:	II 2G, Ex d IIC T4@Ta=-40°C to+120°C KEMA06ATEX0275
ATEX:	II 1G, Ex ia IIC T4@Ta=-40°C to+100°C KEMA06ATEX0228
GOST R:	0Ex ia IIC T4X
PCEC:	Ex ia IIC T4 Ex d IIC T4
IECEX	Ex d IIC T4 Gb IECEX CQM 10.0026X
C=3*:	CE
ATEX:	II 1G Ex ia IIC T4@Ta=-40°C to+100°C KEMA06ATEX0228
GOST R:	0Ex ia IIC T4X
PCEC:	Ex ia IIC T4

D: Connection

D=0:	4-20mA, flying leads
D=1:	4-20mA, flying leads with buffered output
D=4:	4-20mA, 2-PIN MIL connector (C=1, 3)

E: High-pass Filter

E=0:	None
E=1:	5Hz
E=2:	10Hz
E=3:	20Hz
E=4:	50Hz
E=5:	100Hz
E=6:	200Hz

F: Low-pass Filter

F=0:	None
F=1:	500Hz
F=2:	1000Hz
F=3:	2000Hz

G: Temperature

G=0:	Normal temperature (-40°C to + 100°C)
G=1:	High temperature (-40°C to + 120°C)

TM016-K1

Vibration transmitter kit includes:

TM016-D0 or -D1 with TM016-02

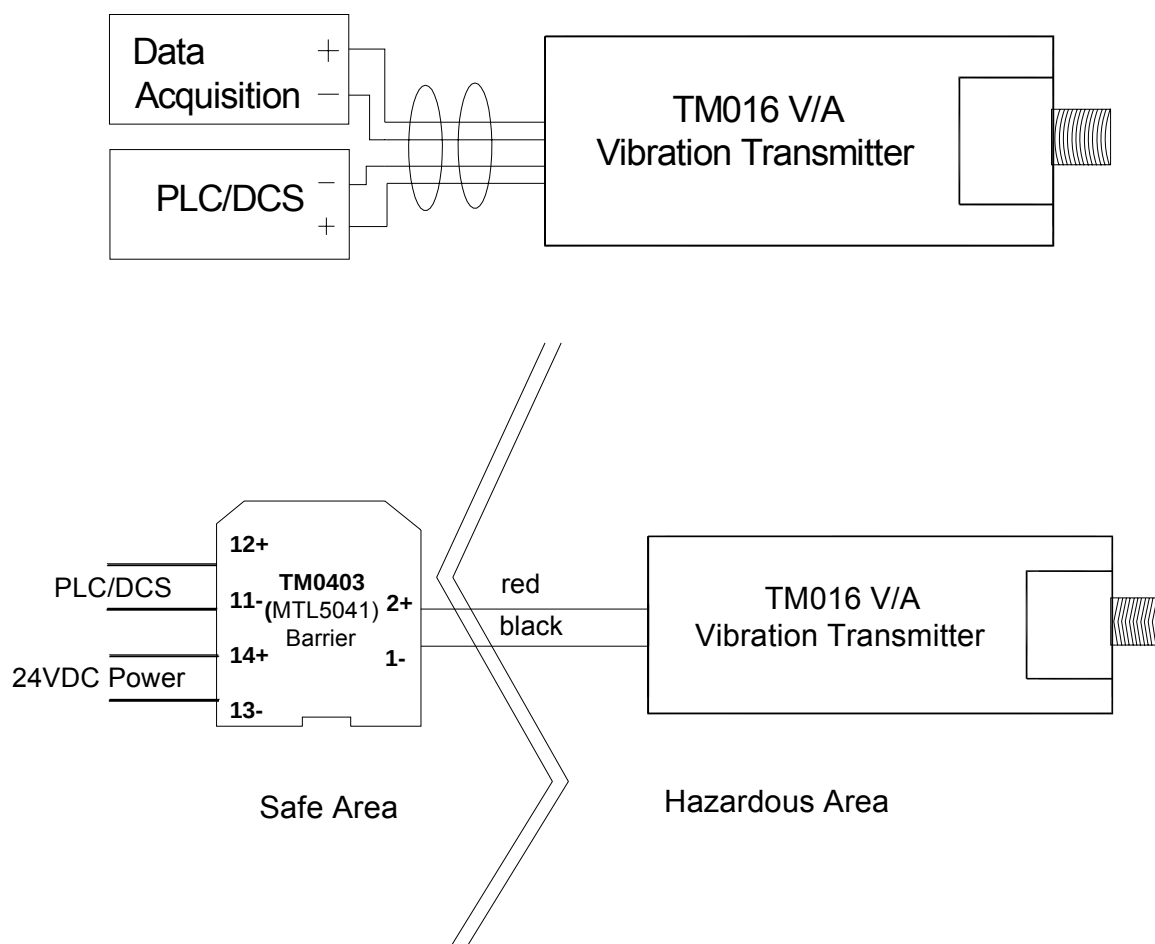
CE mark

CSA:	Class I, Div. 1, Groups A, B, C & D Class II, Div. 1, Groups E, F, G & T4
ATEX:	II 2G, Ex dII CT4 @Ta=-40°C to+120°C KEMA06ATEX0275
IECEX	Ex d IIC T4 Gb IECEX CQM 10.0026X



Field-Wiring Diagram

Note:



Other Barriers:

- TM0404: (MTL 5042)
- TM0406: (STAHL 9303/11-22-11)
- TM0407: (STAHL 9160/13-11-11)



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Accessories

(Standard cable length is 5 meters. XX = 05)



TM0702-XX: Aluminum MIL connector with XX meters cable, 6.35mm diameter.
< 120°C (250°F)



TM0703-XX: Sealed tight boot connector with XX meters cable, 6.35mm diameter.
< 120°C (250°F)



TM0704-XX: Stainless steel MIL connector with Armored XX meters cable,
4.83mm diameter. < 150°C (300°F) Maximum Length is 10 meters



TM0705-XX: Cornered MIL connector with XX meters cable, 6.35mm diameter.
< 120°C (250°F) Maximum Length is 10 meters



TM016-01: Aluminum conduit elbow & reducer. 1" to 3/4" NPT



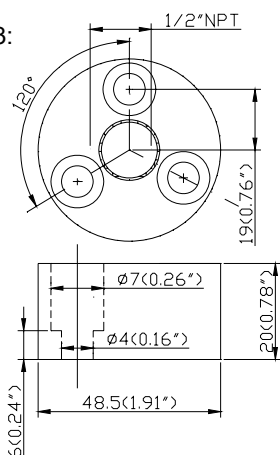
TM016-11: Aluminum conduit elbow & reducer with terminal block. 1" to 3/4" NPT
Class I, Div. 1, Groups B, C & D; Class II, Div. 1, Groups E, F & G and NEMA 4X, IP65



TM016-02: Stainless steel conduit elbow with terminal block. 1" to 3/4" NPT
Class I, Div. 1, Groups A, B, C, D & T4; Class II, Div. 1, Groups E, F & G and NEMA 4X, IP65
(works with TM016)

TM016-03: Stainless steel flange mounting adaptor with 1/2" NPT mount; 3 holes of 7mm
on the circle of 38mm (1.5") in diameter

TM016-03:



TM900: Power converter

TM0200: 3-1/2 digit display unit