



## 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 (+/- 3db):

Acceleration:

AAA= 200, 201, 202: 2 - 3,000 Hz

AAA= 782: 1 - 6,000 Hz

Velocity:

AAA= 000 to 162: 2 - 3,000 Hz

AAA= 793: 2 - 6,000 Hz

AAA= 10-6,000 Hz ( $\pm 3$ dB)

Transverse Sensitivity:

< 5%

Power Supply:

A= 782, 793, 788

3 - 10mA constant current

18 - 30VDC power

10 - 14V nominal bias voltage

A= other options

12VDC - 30VDC

< 30mA

Maximum Load Resistance:

600 ohms @ 24VDC power supply

Isolation:

500Vrms, circuit to case

Case Material:

Stainless steel

Output Connections:

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 EEx iaIICT4 @Ta=-40°C to+100°C

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

PCEC: Ex iaIICT4

#### Physical

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)

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

Environmental:

Flying leads: NEMA 4X, IP65

2-pin connector: IP67



## Proximity Transmitters and Seismic Vibration Transmitters

### 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
- AAA=782: 100mV/g, pk, Current mode (C=1, 2)
- AAA=793: 4mV/mm/s (100mV/in/s), pk,  
Current mode (C=1, 2)
- AAA=788: 100mV/g, pk, Current mode (C=1, 2)

##### 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, EEx dIICT4
  - ATEX: II 1G, EEx iaIICT4
  - PCEC: Ex iaIICT4
  - Ex dIICT4
- C=3\*: CE
  - ATEX: II 1G EEx iaIICT4@Ta=-40°C to+100°C
  - PCEC: Ex iaIICT4

##### 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, EEx dIICT4



IS TECH :::INTERNAL STANDARD TECHNOLOGY:::

주소: 경기도 성남시 분당구 야탑3동 306-5번지 102호 우: 463-856

Http:// www.is77.co.kr

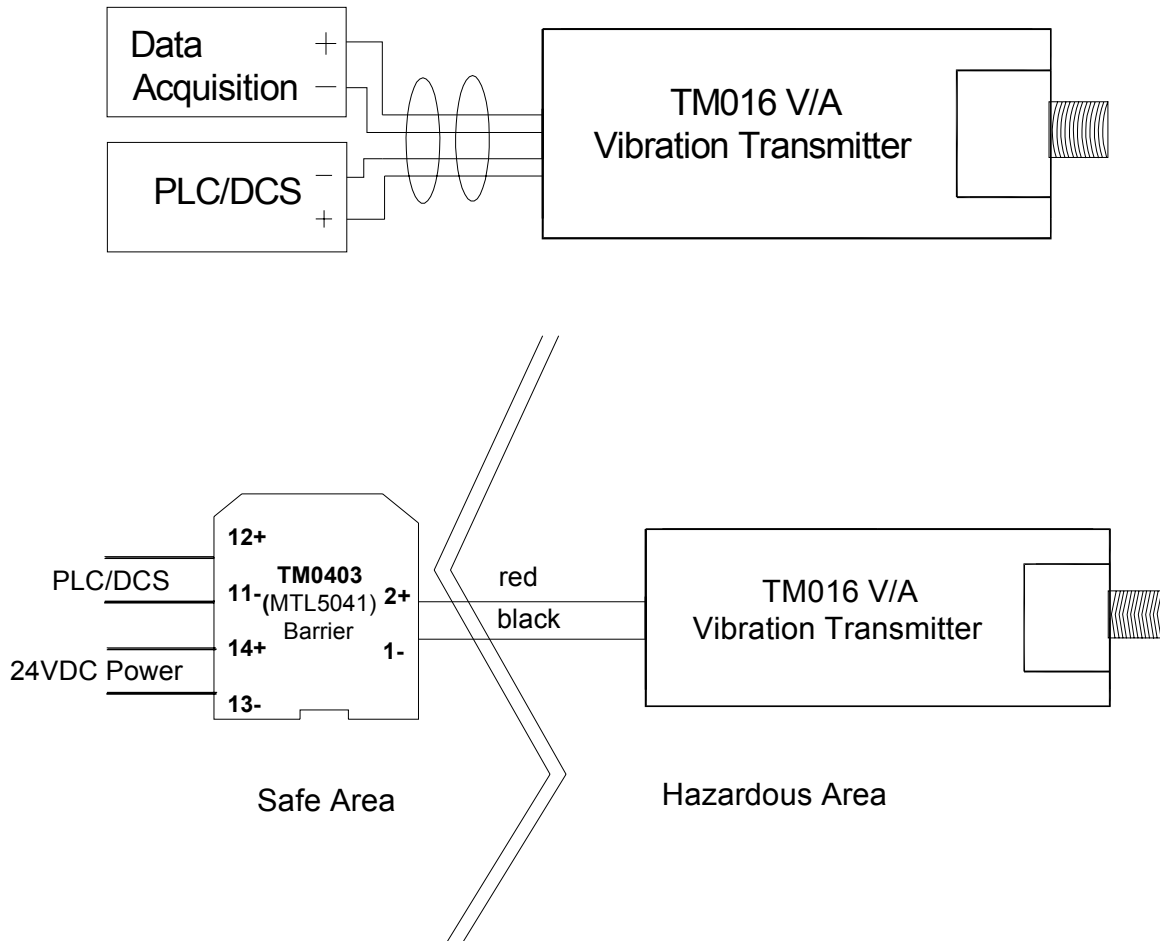
Tel: 82-31-704-2401

Fax: 82-31-704-2421

E-mail: is@is77.co.kr



## Field-Wiring Diagram



Note:

Other Barriers:

TM0404: (MTL 5042)

TM0406: (STAHL 9303/11-22-11)

TM0407: (STAHL 9160/13-11-11)



# Proximity Transmitters and Seismic Vibration Transmitters

## 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)



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



**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



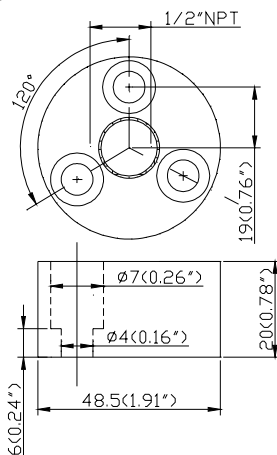
**TM016-02:** Stainless steel conduit elbow with terminal block. 1" to 3/4" NPT

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



IS TECH :: INTERNAL STANDARD TECHNOLOGY ::

주소: 경기도 성남시 분당구 야탑3동 306-5번지 102호 우: 463-856

Http:// www.is77.co.kr

Tel: 82-31-704-2401

Fax: 82-31-704-2421

E-mail: is@is77.co.kr