

### Milltronics MFA 4p motion failure alarm controller

#### Overview



MFA 4p motion failure alarm controller is a highly sensitive single setpoint motion sensor system, used with Milltronics MSP probes.

#### Benefits

- Up to 100 mm (4 inch) gap between target and probe
- Switch selectable overspeed or underspeed detection
- Setpoint adjustment 0.15 to 3 000 PPM (pulses/minute)
- Adjustable start-up time delay
- Visual indication of probe operation and relay status
- General purpose, suitable for majority of industrial applications; rugged probe designs provide unmatched reliability

#### Application

The MFA 4p detects changes in the motion and speed of rotating, reciprocating or conveying equipment. It warns of equipment malfunction and signals through contacts to shut down machinery in case of a slowdown or failure. Its reliability makes it a cost-effective way to protect valuable process equipment.

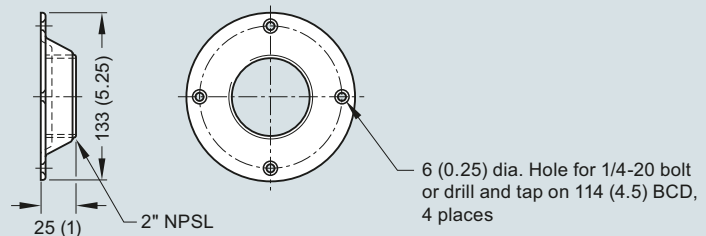
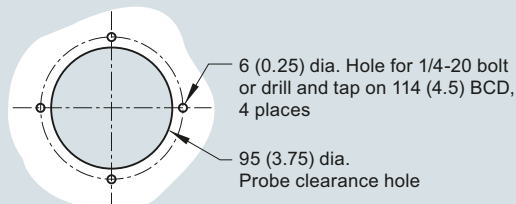
The single setpoint system suits most industrial applications. This versatile unit can be used on tail pulley shafts, driven pulleys, motor shaft sensing, belt or drag conveyors, screw conveyor flights, bucket elevators, fans and pumps.

A special feature is the adjustable 0 to 60 second time delay, allowing the monitored device to accelerate to normal running speed before monitoring begins. A wide range of probes are available to suit specific needs, including high temperatures and corrosive installations. The CE approval allows the MFA 4p to consistently meet the needs of the mining aggregate, cement and other primary and secondary industries.

- Key Applications: tail pulleys, motor shaft sensing, screw conveyor flights, bucket elevators

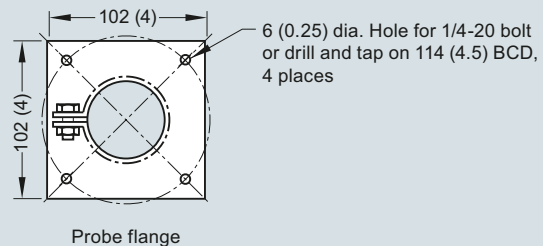
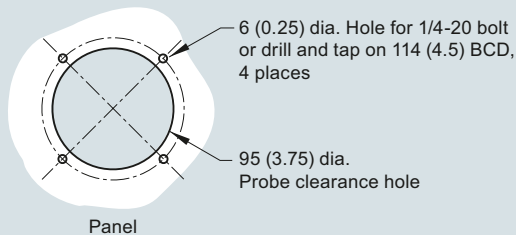
#### Design

##### Mounting for Milltronics MSP-12, MSP-3, XPP-5



**Note:** Mounting flange supplied with probe.

##### Mounting for Milltronics MSP-9



Milltronics MSP-12, MSP-3, MSP-9, XPP-5 mounting, dimensions in mm (inch)

## Process Protection

### Motion sensors

#### Milltronics MFA 4p motion failure alarm controller



##### Standard Milltronics MSP-12

- Heavy-duty general purpose motion probe
- Long lasting aluminum body with internal amplifier
- Convenient mounting flange and locknut for fast installation and setup
- Temperature rating: -40 ... +60 °C (-40 ... +140 °F)
- Enclosure rating: Type/NEMA 4X, 6, IP67



##### High temperature Milltronics MSP-3

- Heavy-duty, high temperature aluminum probe designed to withstand operating temperatures from -50 ... 260 °C (500 °F)
- Cast aluminum probe with convenient mounting flange and locknut
- 1.5 m (5 ft) of high temperature PTFE cable provided. Up to 30 m (100 ft) may be used.
- Amplifier remote mounted in enclosure 140 x 140 x 100 mm (5.5 x 5.5 x 4 inch), available in cast aluminum (½" NPT conduit entry), painted steel (Type/NEMA 4, IP65 rating), or stainless steel (Type/NEMA 4X, IP65 rating)
- Amplifier temperature rating -40 ... +60 °C (-40 ... +140 °F)
- Enclosure rating: Type/NEMA 4X, 6, IP67



##### Milltronics XPP-5

- CSA hazardous approval (Class I, Div. 1, Groups A, B, C, D; Class II Div. 1, Groups E, F, G; Class III)
- Aluminum body that is fully potted
- Convenient mounting flange and locknut
- 3/4" NPT male hub connection
- Operating temperature from -40 ... 60 °C (-40 ... 140 °F)
- Enclosure rating: Type/NEMA 4X,6, IP67



##### Stainless high temperature Milltronics MSP-9

- Heavy-duty, high temperature 304 stainless steel probe
- Special construction allows operation of probe in environment from -50 ... 260 °C (500 °F)
- 1.5 m (5 ft) special high temperature PTFE cable provided. Up to 30 m (100 ft) may be used.
- Amplifier remote mounted in enclosure 140 x 140 x 100 mm (5.5 x 5.5 x 4 inch), available in cast aluminum (½" NPT conduit entry), painted steel (Type/NEMA 4, IP65 rating), or stainless steel (Type/NEMA 4X, IP65 rating)
- Enclosure rating: Type/NEMA 4X, 6, IP67
- Amplifier temperature rating -40 ... +60 °C (-40 ... +140 °F)



##### Milltronics RMA (Remote Mounted Amplifier)

- Available for internal mounting within Probe, or in enclosure for remote mounting
- Enclosures available in cast aluminum (½" NPT entry), painted steel (Type/NEMA 4 rating) or stainless steel (Type/NEMA 4X, IP65 rating)
- Operating temp. from -40 ... +60 °C (-40 ... +140 °F)
- Enclosure rating: Type/NEMA 4X, 6, IP67

Milltronics motion probes

#### Technical specifications

Mode of operation	
Measuring principle	Motion monitor and alarm
Typical application	Monitoring loss of motion in tail pulley, screw flights, bucket elevators
Features	
	<ul style="list-style-type: none"> <li>• Switch selectable overspeed or underspeed detection</li> <li>• Setpoint adjustment: 0.15 ... 3 000 PPM</li> <li>• Adjustable start-up time delay: 0 ... 60 seconds</li> <li>• Visual indication of probe operation and relay status</li> </ul>
Output	
	2 relays working in unison, each providing 1 SPDT Form C relay contact, rated 8 A at 250 V AC resistive
Performance	
Repeatability	± 1 %
Dead band	± 0.25 %

<b>Dynamic Range</b>	0 ... 7 200 PPM
<b>Ambient Temperature Range</b>	-20 ... +50 °C (-5 ... +122 °F)
Design	
Enclosure rating	Type 4X/NEMA 4X/IP65 (standard and optional stainless steel) Type 4/NEMA 4/IP65 (optional mild steel)
Enclosure dimensions	160 x 240 x 82 mm (6.3 x 9.5 x 3.2 inch) Optional: mild steel or 304 (1.4301) stainless steel 203 x 254 x 102 mm (8 x 10 x 4 inch)
Enclosure material	Polycarbonate Optional: mild steel or stainless steel
<b>Power Supply</b>	100 ... 240 V AC, 50/60 Hz, 15 VA, ± 10 % of rated voltage
<b>Certificates and approvals</b>	CE, RCM, EAC, KCC, CSA <sub>US/C</sub> , FM

### Milltronics MFA 4p motion failure alarm controller

<b>Selection and Ordering data</b> <b>MFA 4P Motion Failure Alarm Controller</b> A highly sensitive single setpoint motion sensor system, used with MSP probes. ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	Article No. <b>7MH7144-</b>
<b>Enclosure</b> NEMA 4X, polycarbonate enclosure NEMA 4, painted mild steel enclosure NEMA 4X, 304 (1.4301) stainless steel enclosure	1 2 3
<b>Input Voltage</b> 100 ... 240 V AC, ± 10 %, 50/60 Hz, 15 VA	A
<b>Speed detection version</b> Standard, underspeed (U/S) or overspeed (O/S), switch selectable Slow speed (S/S), U/S or O/S detection, switch selectable (limit of 15 ppm)	A B
<b>Approvals</b> CE, RCM, EAC, KCC, CSA <sub>US/IC</sub> , FM	2
<b>Selection and Ordering data</b> <b>Milltronics RMA Remote Mounted Amplifier</b> Remote mounted amplifier for Milltronics MSP-3 and MSP-9 motion sensing probes. ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	Article No. <b>7MH7145-</b>
<b>Enclosure</b> Aluminum enclosure, IP65, Type/NEMA 4X, ½" NPT entry Painted steel, Type/NEMA 4, IP65 rating 304 (1.4301) stainless steel enclosure, Type/NEMA 4X, IP65 rating	0 A C D
<b>Selection and Ordering data</b> <b>Further designs</b> Please add "-Z" to Article No. and specify Order code(s). Manufacturer's test certificate: According to EN 10204-2.20 Acrylic coated, stainless steel tag [38 x 51 mm (1.5 x 2 inch)]: Measuring-point number/identification (max. 16 characters), specify in plain text <b>Operating Instructions</b> All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>	Order code <b>C11</b> <b>Y18</b>
<b>Spare Parts</b> Card, RMA	Article No. <b>7MH7723-1DT</b>
<b>Selection and Ordering data</b> <b>Further designs</b> Please add "-Z" to Article No. and specify Order code(s). Manufacturer's test certificate: According to EN 10204-2.2 Acrylic coated, stainless steel tag [69 x 50 mm (2.7 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters), specify in plain text Painted mild steel, heated enclosure with viewing window for use down to -50 °C (-58 °F) (finished unit is mounted inside enclosure) [483 x 584 x 203 mm (19 x 23 x 8 inch)] Stainless steel, sun/weather shield (finished unit is field mounted inside enclosure) [357 x 305 x 203 mm (14 x 12 x 8 inch)] <b>Operating Instructions</b> All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>	Order code <b>C11</b> <b>Y15</b> <b>A35</b> <b>S50</b>
<b>Spare Parts</b> Circuit Card, standard Circuit Card, Slow speed Lid with overlay for MFA 4p	Article No. <b>7MH7723-1DU</b> <b>7MH7723-1DV</b> <b>7MH7723-1GY</b>

## Process Protection

### Motion sensors

#### Milltronics MFA 4p motion failure alarm controller

##### Selection and Ordering data

Article No.

##### Milltronics Motion Sensing Probes

7MH7146-

A series of motion sensing probes used with the MFA 4p.  
 Milltronics MSP-3: heavy-duty, high temperature aluminum  
 Milltronics MSP-9: heavy-duty, high temperature stainless steel  
 Milltronics MSP-12: heavy-duty, general purpose  
 Milltronics XPP-5: hazardous rated  
 Note: Milltronics MSP-3 and MSP-9 probes require the use of Milltronics RMA (amplifier)

➤ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

##### Cable Length

Standard length (as described in Model options)<sup>1)</sup>

Add Order code Y01 and plain text:

"Total cable length ... m"

Extended cable length 2 ... 30 m (6.6 ... 98.4 ft)<sup>2)</sup>

Extended cable length 31 ... 50 m (101.7 ... 164 ft)<sup>4)</sup>

Extended cable length 51 ... 100 m (167.3 ... 328.1 ft)<sup>4)</sup>

##### Model [standard cable length/type]

MSP-3, ½" NPT cable inlet<sup>3)</sup>

[1.5 m (5 ft) high temperature cable]

MSP-9 [1.5 m (5 ft) high temperature cable]<sup>3)</sup>

MSP-12, ½" NPT cable inlet, no cable

XPP-5 [1.5 m (5 ft) cable, (CSA Class I, Groups A, B, C and D; Class II Groups E, F, and G)]

XPP-5 [10 m (32.8 ft) cable, (CSA Class I, Groups A, B, C, and D; Class II Groups E, F, and G)]

XPP-5 [15 m (49.2 ft) cable, (CSA Class I, Groups A, B, C, and D; Class II Groups E, F, and G)]

##### Approvals

CE, RCM, EAC, KCC

<sup>1)</sup> No Y01 needed in Order code for standard length

<sup>2)</sup> Only available with model options B, D, G, H, J

<sup>3)</sup> MSP-3 and MSP-9 probes required the use of RMA (amplifier)

<sup>4)</sup> Available with Model options G, H, and J only

##### Selection and Ordering data

Order code

##### Further designs

Please add "-Z" to Article No. and specify Order code(s).

Total cable length: enter the total cable length in plain text description

Y01

Acrylic coated, stainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]:  
 Measuring-point number/identification (max. 16 characters), specify in plain text

Y17

Cable gland kit

A57

Manufacturer's test certificate: According to EN 10204-2.2

C11

##### Operating Instructions

All literature is available to download for free, in a range of languages, at <http://www.siemens.com/processinstrumentation/documentation>

##### Spare Parts

Locknut, for MSP-3, MSP-7, MSP-12, XPP-5

Article No.

7MH7723-1CR

Mounting flange, for MSP-3, MSP-7, MSP-12, XPP-5

7MH7723-1CS

Mounting bracket for MSP-9

7MH7723-1CT

Lid, 1/2" NPT cable inlet for MSP-3, MSP-7, MSP-12

7MH7723-1CU

Lid for MSP-9

7MH7723-1CV

Lid gasket, for MSP-3, MSP-9

7MH7723-1CW

Lid gasket, for MSP-7, MSP-12

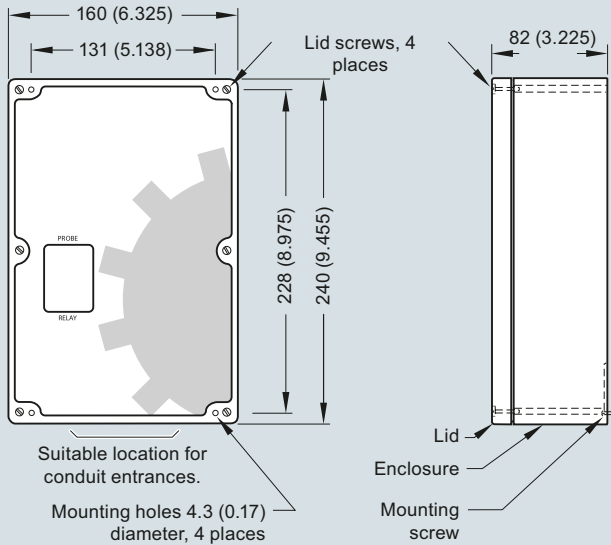
7MH7723-1CX

Motion cable gland adaptor kit

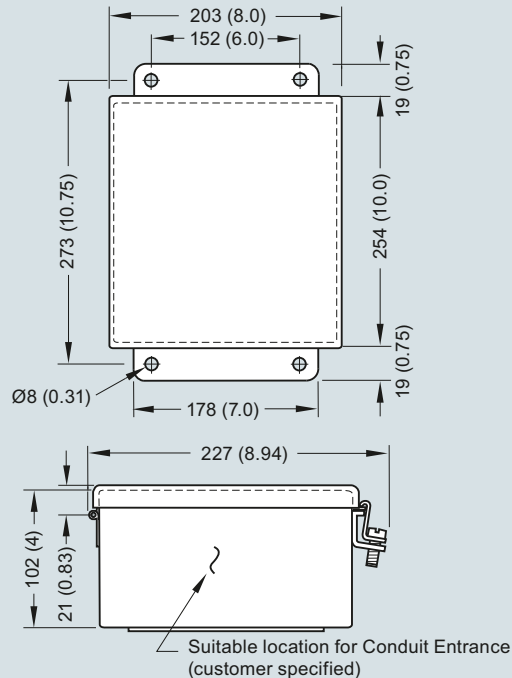
7MH7723-1JU

**Dimensional drawings**

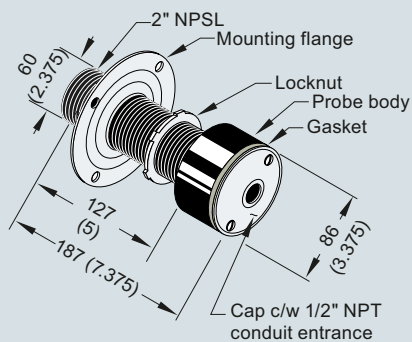
**Type 4X/NEMA 4X/IP65 Polycarbonate Enclosure**



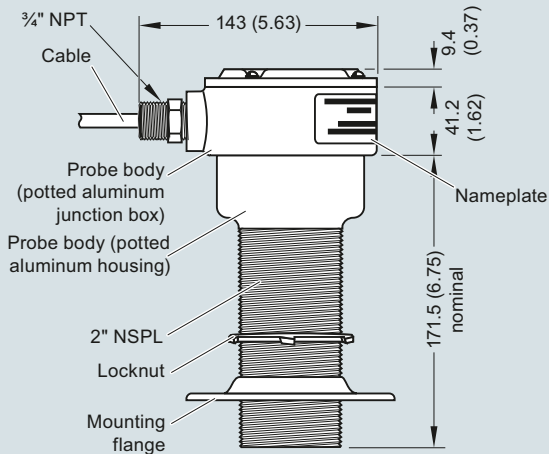
**Type 4/NEMA 4/IP65 Painted Steel Enclosure & Type 4X/NEMA 4X/IP65 Stainless Steel Enclosure**



**Standard Probe MSP-12**



**Hazardous Locations XPP-5**



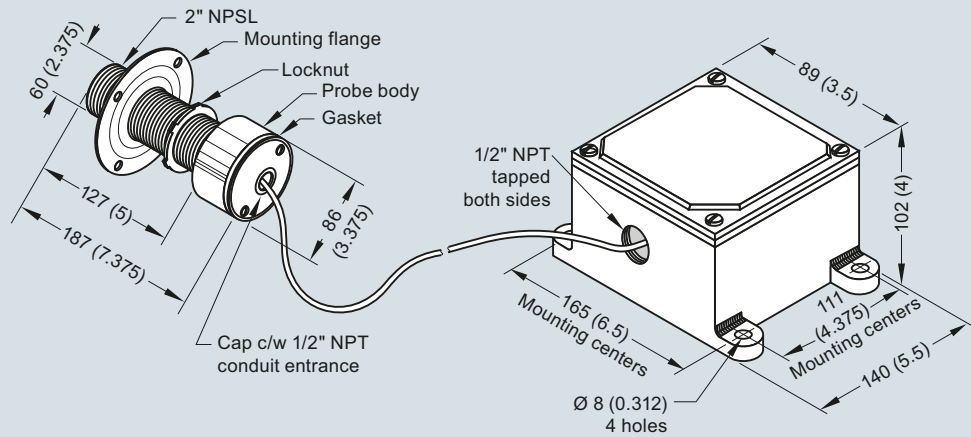
Milltronics MFA 4p and probe, dimensions in mm (inch)

## Process Protection

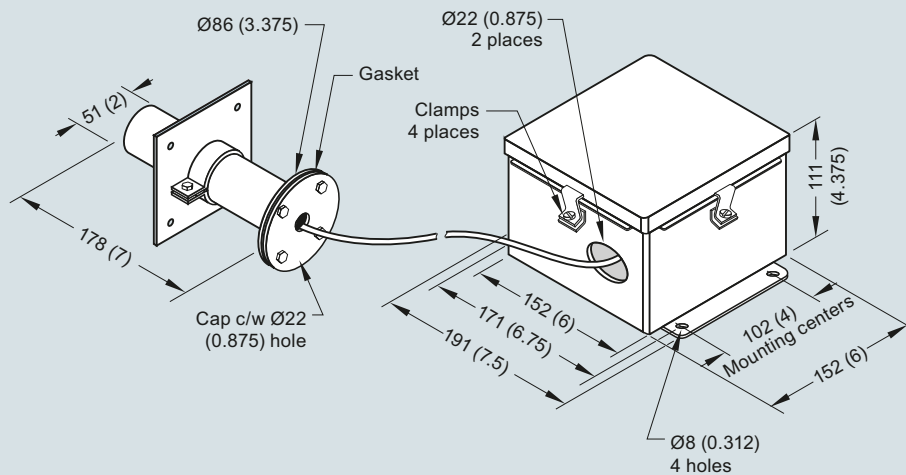
### Motion sensors

#### Milltronics MFA 4p motion failure alarm controller

##### High temperature probe MSP-3



##### High temperature stainless steel probe MSP-9



Milltronics probes, dimensions in mm (inch)