

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.

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.

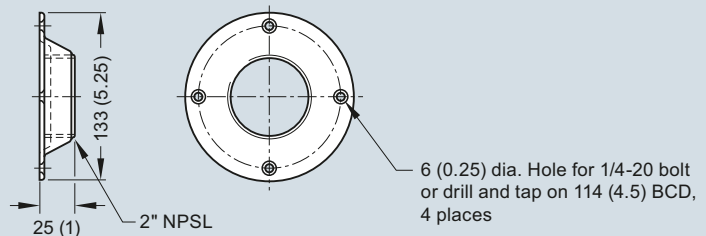
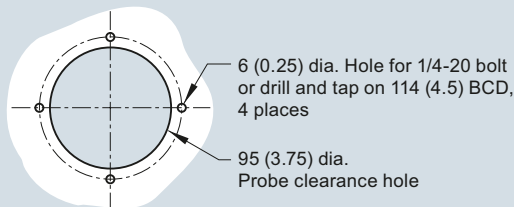
- Key Applications: tail pulleys, motor shaft sensing, screw conveyor flights, bucket elevators

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

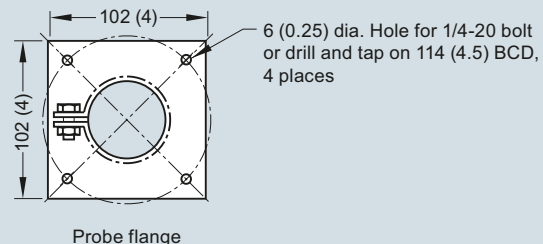
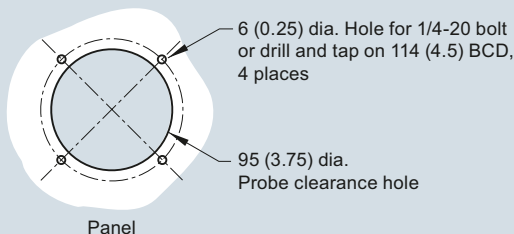
Design

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



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



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



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		Dynamic Range	
Measuring principle	Motion monitor and alarm	0 ... 7 200 PPM	
Typical application	Monitoring loss of motion in tail pulley, screw flights, bucket elevators	Ambient Temperature Range	
Features	<ul style="list-style-type: none"> • Switch selectable overspeed or underspeed detection • Setpoint adjustment: 0.15 ... 3 000 PPM • Adjustable start-up time delay: 0 ... 60 seconds • Visual indication of probe operation and relay status 	-20 ... +50 °C (-5 ... +122 °F)	
Output	2 relays working in unison, each providing 1 SPDT Form C relay contact, rated 8 A at 250 V AC resistive	Design	
Performance		Enclosure rating	
Repeatability	± 1 %	Type 4X/NEMA 4X/IP65 (standard and optional stainless steel)	
Dead band	± 0.25 %	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	
		Power Supply	
		100/115/200/230 V AC switch selectable, 50/60 Hz, 15 VA ± 10 % of rated voltage	
		Certificates and approvals	
		CE, RCM, CSA _{US/IC} , FM	

Milltronics MFA 4p motion failure alarm controller

Selection and Ordering data	Article No.
MFA 4P Motion Failure Alarm Controller 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.	7MH7144-
Enclosure NEMA 4X, polycarbonate enclosure NEMA 4, painted mild steel enclosure NEMA 4X, 304 (1.4301) stainless steel enclosure	1 2 3
Input Voltage 100/115/200/230 V AC, 50/60 Hz, switch selectable	A
Speed detection version 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
Approvals CE, RCM, CSA _{US/IC} , FM	2

Selection and Ordering data	Order code
Further designs Please add "-Z" to Article No. and specify Order code(s).	
Manufacturer's test certificate: According to EN 10204-2.2	C11
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	Y15
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)	A35
Stainless steel, sun/weather shield (finished unit is field mounted inside enclosure) [357 x 305 x 203 mm (14 x 12 x 8 inch)]	S50
Operating Instructions English German Note: The operating instructions should be ordered as a separate item on the order. All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation This device is shipped with the Siemens Level and Weighing manual DVD containing the complete operating instructions library.	Article No. A5E33988839 7ML1998-5FM31
Spare Parts Transformer Circuit Card, standard Circuit Card, Slow speed Lid with overlay for MFA 4p	7MH7723-1DX 7MH7723-1DU 7MH7723-1DV 7MH7723-1GY
● We can offer shorter delivery times for configurations designated with the Quick Ship Symbol ●. For details see page 9/5 in the appendix.	

Selection and Ordering data	Article No.
Milltronics RMA Remote Mounted Amplifier 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.	7MH7145- 0
Enclosure 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	A C D

Selection and Ordering data	Order code
Further designs Please add "-Z" to Article No. and specify Order code(s).	
Manufacturer's test certificate: According to EN 10204-2.2	C11
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	Y18
Operating Instructions English German Note: The operating instructions should be ordered as a separate item on the order. All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation This device is shipped with the Siemens Level and Weighing manual DVD containing the complete operating instructions library.	Article No. A5E33988839 7ML1998-5FM31
Spare Parts Card, RMA	7MH7723-1DT
● We can offer shorter delivery times for configurations designated with the Quick Ship Symbol ●. For details see page 9/5 in the appendix.	

Process Protection

Motion sensors

Milltronics MFA 4p motion failure alarm controller

Selection and Ordering data

Milltronics Motion Sensing Probes

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)¹⁾

Add Order code Y01 and plain text:

"Total cable length ... m"

Extended cable length 2 ... 30 m (6.6 ... 98.4 ft)²⁾

Extended cable length 31 ... 50 m (101.7 ... 164 ft)⁴⁾

Extended cable length 51 ... 100 m (167.3 ... 328.1 ft)⁴⁾

Model [standard cable length/type]

MSP-3, 1/2" NPT cable inlet³⁾

[1.5 m (5 ft) high temperature cable]

MSP-9 [1.5 m (5 ft) high temperature cable]³⁾

MSP-12, 1/2" NPT cable inlet

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

¹⁾ No Y01 needed in Order code for standard length

²⁾ Only available with model options B, D, G, H, J

³⁾ MSP-3 and MSP-9 probes required the use of RMA (amplifier)

⁴⁾ Available with Model options G, H, and J only

➤ We can offer shorter delivery times for configurations designated with the Quick Ship Symbol ⚡. For details see page 9/5 in the appendix.

Article No.

7MH7146-



0

1

2

3

B

D

E

G

H

J

A

Selection and Ordering data

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

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

Cable gland kit

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

Operating Instructions

English

German

Note: The operating instructions should be ordered as a separate item on the order.

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

This device is shipped with the Siemens Level and Weighing manual DVD containing the complete operating instructions library.

Spare Parts

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

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

Mounting bracket for MSP-9

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

Lid for MSP-9

Lid gasket, for MSP-3, MSP-9

Lid gasket, for MSP-7, MSP-12

Motion cable gland adaptor kit

➤ We can offer shorter delivery times for configurations designated with the Quick Ship Symbol ⚡. For details see page 9/5 in the appendix.

Order code

Y01

Y17

A57

C11

Article No.

A5E33988839

7ML1998-5FM31

7MH7723-1CR

7MH7723-1CS

7MH7723-1CT

7MH7723-1CU

7MH7723-1CV

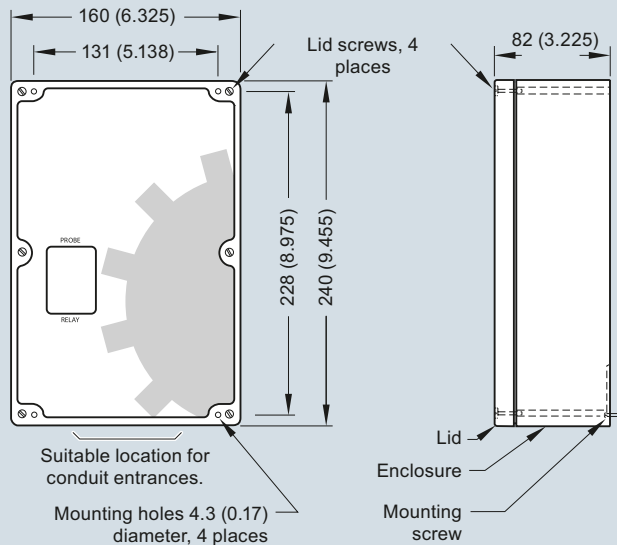
7MH7723-1CW

7MH7723-1CX

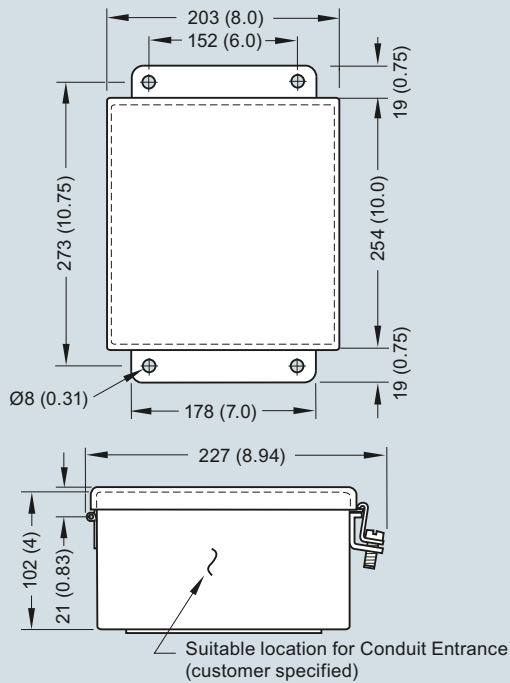
7MH7723-1JU

Dimensional drawings

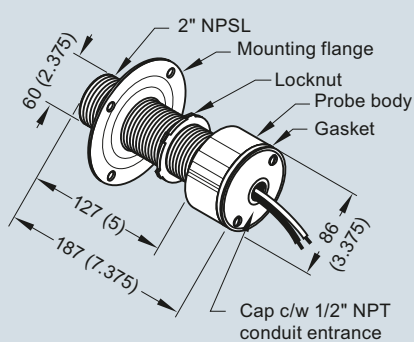
Type 4X/NEMA 4X/IP65 Polycarbonate Enclosure



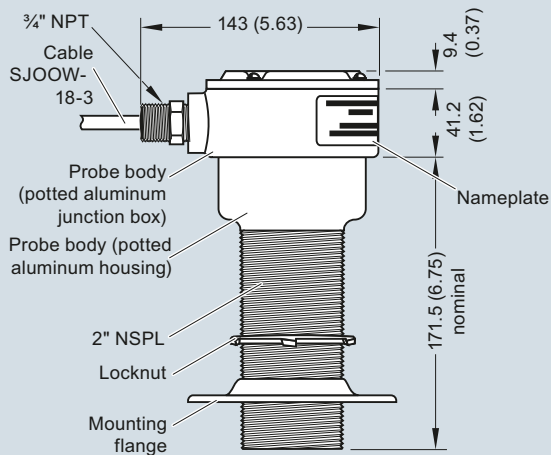
Type 4/NEMA 4/IP65 Painted Steel Enclosure & Type 4X/NEMA 4X/IP65 Stainless Steel Enclosure



Standard Probe MSP-12



Hazardous Locations XPP-5



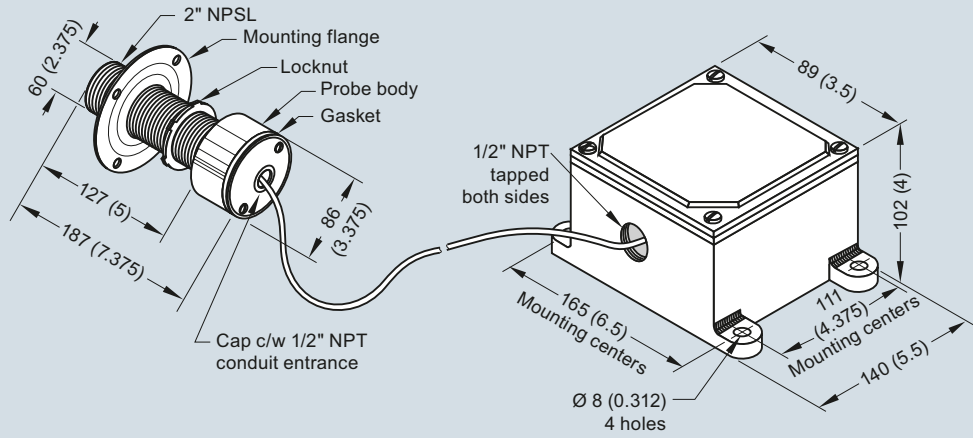
Milltronics MFA 4p and probe, dimensions in mm (inch)

Process Protection

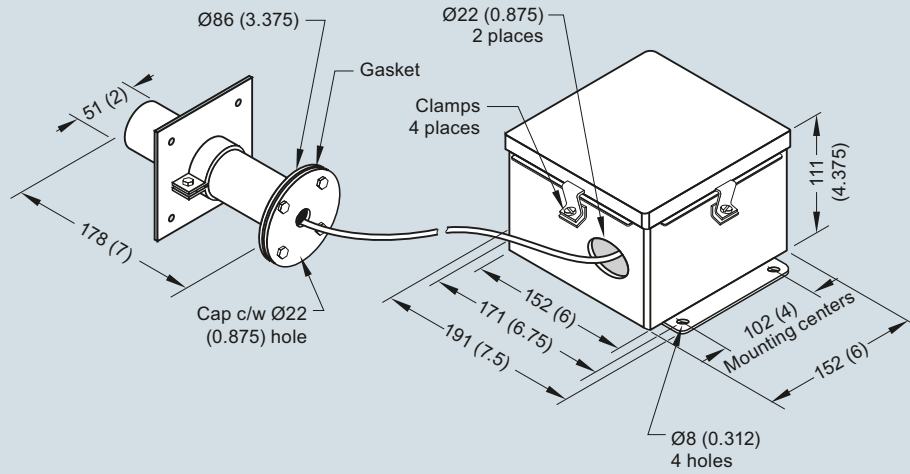
Motion sensors

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)