Model MSD Motion switch with two signal set points and digital RPM readout

Quality features at low cost:

- Two set point — precise signal setting of both underspeed and overspeed
- Digital tachometer readout
- Sensor separate from control unit
- 10 amp D.P.D.T. relay output
- Advanced maintenance-free electronics

The Model MSD is both a motion sensing control and a tachometer. It has a separate rugged sensor enclosed in a heavy duty cast aluminum (or iron) housing. Electronics are contained in a separate remote control unit away from dirt, vibration, and temperature fluctuations.

This is a dual speed control with two (2) set points permitting it to indicate two (2) underspeed points; or two (2) overspeed points; or one (1) each underspeed or overspeed point. At the same time, the control unit displays the actual shaft RPM on the digital readout.

The MSD can be used to protect valuable equipment such as conveyors, bucket elevators, and rotary feeders. For instance, it can give an alarm when speed drops below a normal operating RPM and then actually shut the equipment down should the speed continue to drop to the lower critical set point.

OPERATION:

The Model MSD incorporates the same principal of operation as is used in the Model CMS described on pages 2, 3 and 4. A precision metal disc with slots on its periphery is used in the sensor to generate electronic pulses as the disc rotates past an infra-red light source. These pulses are transmitted to the electronics house in the control unit where the signal is analyzed and the relays are activated or deactivated at preset signal speeds. The electronic components of the control unit are designed to permit two signal set points.

Field adjustment of the two (2) signal set points is easily accomplished by a series of digital switches on the control panel.

MODELS:

The Model MSD is available in one basic model, Model MSD-700, incorporating the MSD-1 sensor together with the MSD-2 control unit for panel mounting. This unit incorporates a digital readout of shaft RPM together with two signal set points. The signal set points are available in three arrangements as shown in the following chart. When ordering, it is necessary to specify the signal set point arrangement desired: two (2) underspeed; or two (2) overspeed; or one (1) of each.

MODEL NUMBER	SIGNAL SET POINTS	DIGITAL TACHOMETER
MSD-701	Two signal set points for underspeed indication	Yes
MSD-702	Two signal set points for overspeed indication	Yes
MSD-703	One each underspeed and overspeed signal set points	Yes

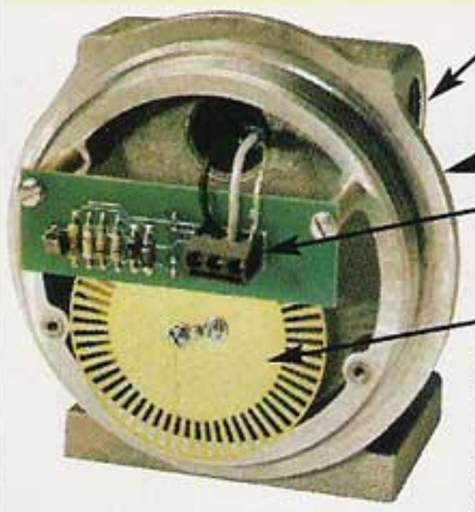
OPTIONS

OPTION NUMBER	DESCRIPTION
A	Explosion proof (NEMA 7/9) sensor MSD-1X
B	Chassis mounted control unit for mounting in existing panel or box
C	NEMA 4 enclosure for control unit
D	NEMA 12 enclosure for control unit
E	NEMA 7/9 explosion proof enclosure for control unit

MSD Sensor installed on conveyor to protect against overspeed or underspeed of the drive shaft

MODEL MSD TECHNICAL INFORMATION

Model MSD-700 consists of two (2) components: The MSD-1 sensor and the MSD-2 control unit.

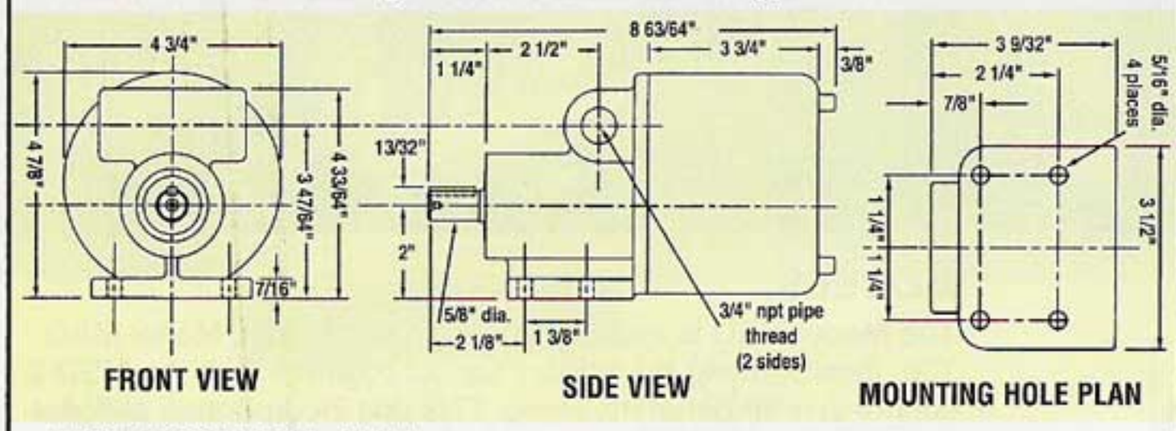


INTERIOR OF SENSOR MSD-1:

This is the standard MSD-1 sensor with NEMA 4, 7, 9 dust-tight, rain-tight, and explosion proof enclosure. Inside, the signal sensing disc rotates on the rugged stainless steel input shaft. A photo-coupler is activated by the control unit and senses the speed of the disc. The resulting signal is then transmitted to the control unit.

SPECIFICATIONS:

• **INPUT:** 12 V.D.C. from control unit. No other input required • **OUTPUT:** 12 V.D.C. square wave to control unit • **OPERATING TEMPERATURE RANGE:** -50°F to +150°F • **MAXIMUM SPEED LIMIT:** 1000 R.P.M. • **SHAFT LOAD:** 125 lbs. radial; 100 lbs. end thrust • **ROTATION:** Clockwise or counterclockwise • **DRIVE TORQUE:** 1 inch-pound • **SHAFT:** 5/8" dia. x 1-1/4" long stainless steel • **ENCLOSURE:** NEMA 4 and NEMA 7, 9 cast aluminum or cast iron • **BEARINGS:** Permanently lubricated and sealed for life ball bearings • **SHAFT SEAL:** Leather type oil seal.

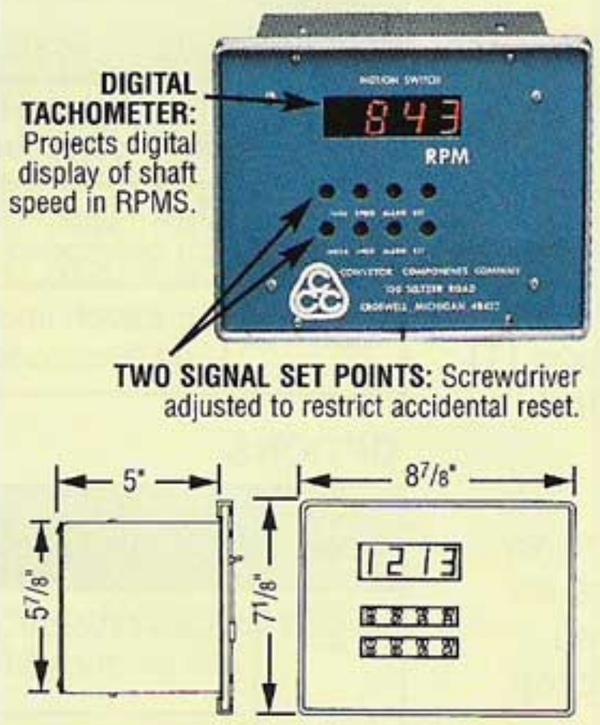


MSD-2 CONTROL UNIT:

Pictured here is the standard MSD-2 control unit for panel mounting. It activates the sensor and analyzes the resulting signal. It includes two (2) output relays, the digital tachometer readout, and two (2) signal set points consisting of two (2) underspeed points, or two (2) overspeed points, or one (1) each underspeed and overspeed point.

SPECIFICATIONS:

• **POWER INPUT:** 120 v.a.c. OR 240 v.a.c., 50/60 Hz, 50 watts • **SIGNAL INPUT:** 12 V.D.C. square wave from sensor • **OUTPUT:** two sets D.P.D.T. rated 10 AMPS resistive at 120 V.A.C.; 10 AMPS resistive at 240 V.A.C., 10 AMPS resistive at 30 V.D.C. and 1/3 HP at 125 V.A.C., 60 Hz. • **OPERATING TEMPERATURE RANGE:** -30°F to +140°F • **READING ACCURACY:** ±1 RPM • **OPERATING RANGE:** 0-1000 R.P.M. • **SIGNAL SPEED RANGE:** 0-1000 R.P.M. • **ALARM SET ACCURACY:** ±1 R.P.M. • **ENCLOSURE:** NEMA 1 panel mount or NEMA 12 and 4 J.I.C. surface mount. Also available in chassis mount version without enclosure.



ACCESSORIES:

MSD-14 shielded cable. Two conductor shielded cable for inner-connection of sensor and control unit. Recommended for maximum "noise" immunity. Maximum cable length between sensor and control unit: 500 ft. The MS accessories shown on page 4 are also available for use with the Model MSD control.

INSTALLATION AND WIRING:

Mount the sensor in any position, but on a smooth, flat surface using 1/4" mounting bolts and lock washers. If vibration is extreme, dowel two mounting holes and use bolts in the others. The sensor shaft must be in line or parallel with the drive shaft.

Use two conductor shielded cable (such as our MSD-14) to connect the unit with the sensor. A maximum of 500 ft. can be used.

The control unit contains two DP-DT relays and corresponding output contacts. Output relays energize under normal operation and de-energize in the event of alarm or power failure.

PRICE LIST

810-679-4211 • FAX 810-679-4510
TOLL FREE 800-233-3233

PRICES EFFECTIVE MARCH 1, 2005

MODEL CMS MOTION SPEED SWITCH, PGS. 3 AND 4

Model	Description	Shpg. Wt. Lbs.	Price
CMS-1G	General purpose, NEMA 4, 4X	5	$450.00 CAST IRON HOUSING: ADD $35.00
CMS-1X	Explosion proof, NEMA 7/9		

MODEL CMS AND MODEL MSD ACCESSORIES

Part Number	Description	Shpg. Wt. Lbs.	Price
303	Stub shaft	.5	$ 8.00
304	Flexible coupling	.5	41.00
305	Coupling guard	.5	26.00
310	Mounting bracket	1.0	13.00
311	Bearing bracket	3.5	56.00
312	Bearing bracket	6.0	56.00
313	Bearing bracket	10.0	56.00

MODEL RMS MOTION MONITORING SWITCH, PGS. 5 & 6

Model	Description	Price
RMS-1G	General purpose NEMA 4, 4X	$233.00
RMS-1	NEMA 1 DIN rail enclosure	$233.00

SWITCH ACCESSORIES

Part Number	Description	Price
RMS-8S	8 MM sensor	$ 96.00
RMS-12S	12 MM sensor	147.00
RMS-18S	18 MM sensor	152.00
RMS-30S	30 MM sensor	157.00
RMS-8M	8 MM mounting bracket	8.00
RMS-12M	12 MM mounting bracket	8.00
RMS-18M	18 MM mounting bracket	8.00
RMS-30M	30 MM mounting bracket	12.00
RMS-C	Two conductor cable	.34 ft.
RMS-T	Target disk	24.00

MODEL MSD MOTION SPEED SWITCHES, PGS. 7 AND 8

Model	Description	Shpg. Wt.	Price
MSD-701	Two underspeed signal set points digital speed readout	14	$1003.00
MSD-702	Two overspeed signal set points digital speed readout	14	1003.00
MSD-703	One each underspeed and overspeed signal set points digital speed readout	14	1003.00
MSD-700-BW	One overspeed set point with 1/4 second response and one fixed zero speed readout	14	1003.00

MODEL MSD OPTIONS (TO MODELS IN CHART)

Option	Description	Shpg. Wt.	Price to add
A	Explosion proof sensor NEMA 9	-	-3.50
B	Chassis mount control unit w/o enclosure	-1	- $ 6.50
C	NEMA 4 enclosure for control unit	13	+ 76.00
D	NEMA 12 enclosure for control unit	13	+ 52.00
E	NEMA 7/9 explosion proof enclosure for control unit	40	CONTACT SALES

MSD-14 Two conductor shielded cable to connect control unit and sensor . . . . . **$ .38/ft.**

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Epoxy Coating: Add **$35.00** to price.

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