

MODEL CMS

COMPACT MOTION CONTROL ONE SIGNAL SET POINT

RUGGED, HEAVY DUTY DETECTION

The Model CMS Motion Sensing Control is a compact unit designed to include all mechanical and electronic components in one housing. It will produce an output signal at a predetermined speed which may be either underspeed or overspeed. Rugged, heavy duty construction combined with solid state electronics and photo-electric technology, make this one of the most advanced detectors available.

The Model CMS protects all valuable rotating equipment including belt conveyors, bucket elevators, rotary feeders, or screw conveyors. It operates in either a clockwise or counterclockwise direction and mounts in any position.

The control can be mounted in any position, but the mounting surface should be flat and smooth. The bearing brackets and shim plates shown in the chart can be used to mount the unit directly to the pillow block supporting a shaft. Normally, only 1/4" mounting bolts and lock washers are required. If vibration is extreme two of the mounting holes should be doweled and bolts used in the others.

The shaft of the device should be mounted in line with or parallel to the driving shaft. Model CMS can be driven by a flexible coupling, V-belt drive, chain drive, or gear drive.



TECHNICAL SPECIFICATIONS

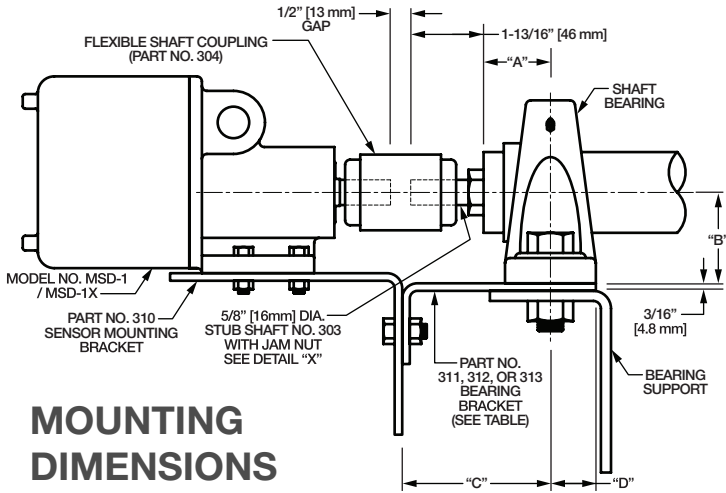
The Model CMS senses motion by means of a precision metal disc mounted on the input shaft. The disc generates measurable light pulses as a series of slots on its periphery rotate past an infra-red light source. A photo-electric sensor monitors the series of light pulses and converts them to a digital signal and activates or deactivates the output relay at the pre-set signal speed. The Model CMS has an adjustable built-in time delay eliminating the need for a separate start-up time delay.

The Model CMS will sense underspeed or overspeed conditions. Three signal speed ranges are available with each unit. The low signal speed range is from 0.1 to 10 RPM. The medium signal speed range is 1 to 100 RPM, and the high speed range is 10 to 1000 RPM.

Field adjustment of the signal set point is easily accomplished by means of an adjustment screw. The signal speed ranges are selected by a three position toggle switch on the printed circuit board. For **UNDERSPEED** sensing, the signal point is set below the normal operating speed of the unit. The output relay will then de-energize if the speed drops below the signal set point. For **OVERSPEED** sensing the signal set point is set above the normal operating speed. The output relay will energize if the speed exceeds the signal set point. The output relay can be wired either normally open or normally closed.

Zero speed sensing can be accomplished by locking the signal set point adjustment screw at its lowest setting of 0.1 RPM. The output relay will then de-energize when the shaft speed of the unit approaches zero.

MODEL CMS TECHNICAL INFORMATION



MOUNTING DIMENSIONS

MODEL CMS MOTION SPEED CONTROL

MODEL	DESCRIPTION	SHPG. WT. LBS.
CMS-1G	1 Double Pole Double Throw (DP/DT) Relay rated for 120 VAC*	7
CMS-1X	1 Double Pole Double Throw (DP/DT) Relay rated for 120 VAC*	7
CMS-2G	1 Double Pole Double Throw (DP/DT) Relay rated for 240 VAC*	7
CMS-2X	1 Double Pole Double Throw (DP/DT) Relay rated for 240 VAC**	7
CMS-3G	1 Double Pole Double Throw (DP/DT) Relay rated for 24 VAC/VDC**	7
CMS-3X	1 Double Pole Double Throw (DP/DT) Relay rated for 24 VAC/VDC**	7

* GENERAL PURPOSE NEMA TYPE 3S, 4, 4X

** EXPLOSION PROOF NEMA TYPE e 7: Class I (Div. 1 & 2), Groups C & D; Type 9: Class II (Div. 1 & 2), Groups F & G



ACCESSORIES FOR THE MODEL CMS (CMS-DSPO & MSD)



303 STUB SHAFT
 5/8" dia., threaded one end, keyed other end. With jam nut and 3/16" key.



304 FLEXIBLE COUPLINGS
 Available for connection of the CMS sensor to the driven shaft.



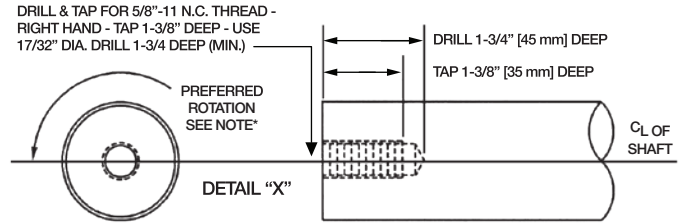
305 COUPLING GUARD
 Protection cover for coupling connection.



310 MOUNTING BRACKET
 For mounting CMS sensor to rotary machinery.



311, 312, 313 BEARING BRACKETS
 Attaches 310 mounting bracket to pillow block bearing assembly.



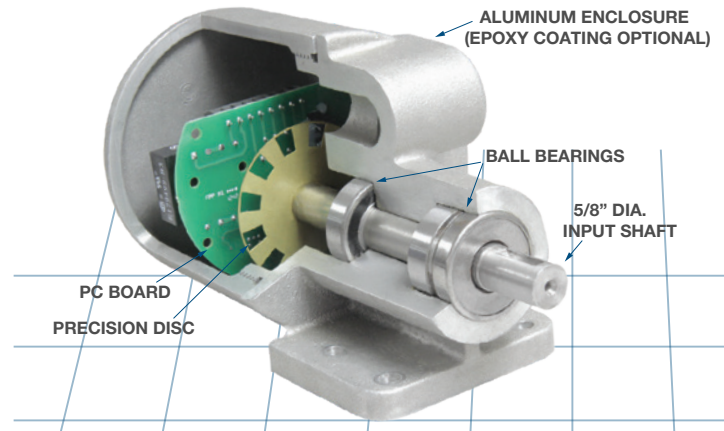
*NOTE: When threaded stub shaft (Part 303 or equal) is to be used. It is recommended that the location of the stub be in the end of the shaft that rotates counterclockwise. This allows the threads to continue being under a constant fastening torque while the shaft turns. If the rotation is clockwise or the shaft is for reversing type service, make sure the jam nut is locked tight against the shaft.

Part No. 310 will fit parts No's. 311, 312 or 313

Bearing Bracket & Shim Plate	All Dimensions are in inches				
	Shaft Diameter	"A"	"B"	"C"	"D"
311	1 7/16	1 1/4 to 2	1 7/8 to 2 1/8	3 1/8	1 1/8
312	1 15/16 to 2 7/16	1 1/2 to 2 9/16	2 1/4 to 3	3 3/4	1 5/8
313	2 15/16 to 3 15/16	3 to 3 3/4	3 1/8 to 4 1/8	4 1/2	2 3/16

BEARING BRACKETS AND SHIM PLATES FOR CMS

MODEL CMS (Cut-Away View)



The output of the Model CMS is a DP/DT relay connected to the terminal block at the rear of the unit. There are two sets of output contacts. Each set includes normally open, normally closed and common. As a result, the unit can be used, to control two separate circuits such as a motor starter and a signal light. Input power is connected from the source to contacts L₁ and L₂. A ground connection is also furnished.

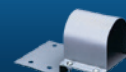
CMS-K CMS ACCESSORY MOUNTING KIT INCLUDES:



STUB SHAFT



FLEXIBLE COUPLING



COUPLING GUARD



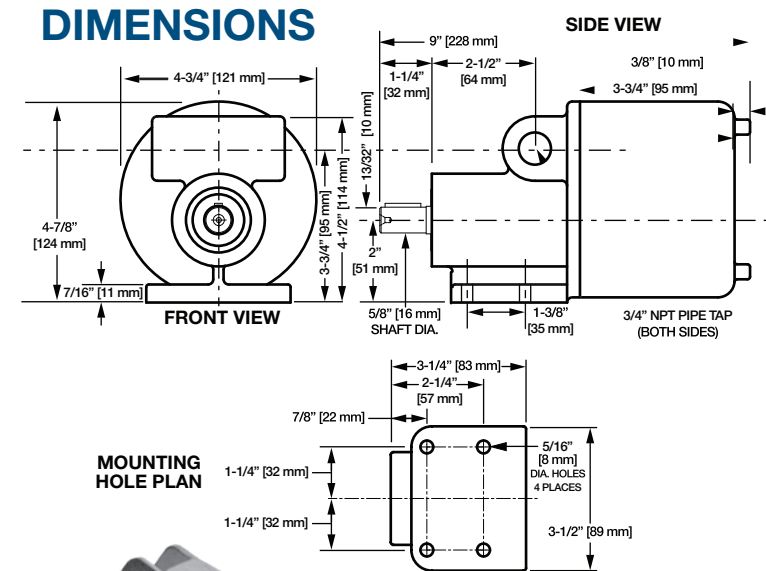
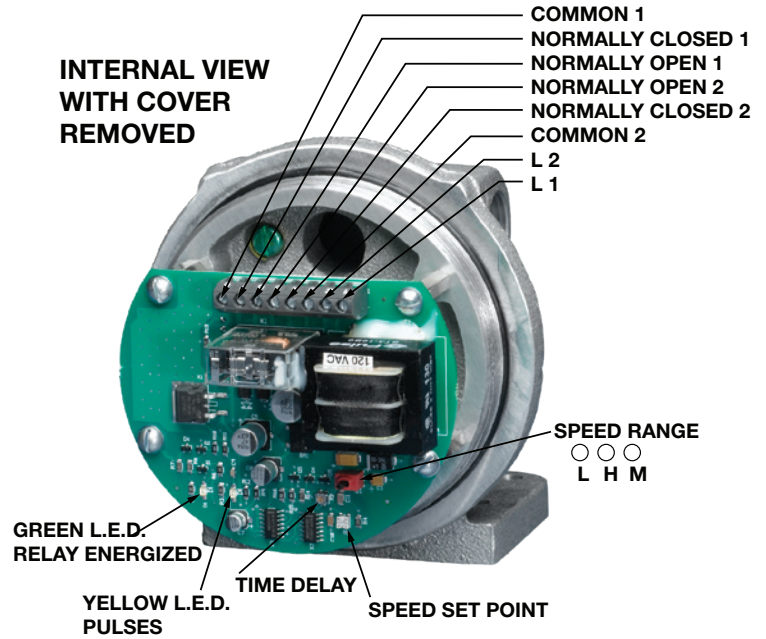
MOUNTING BRACKET

MECHANICAL SPECIFICATIONS

- RADIAL LOAD ON INPUT SHAFT:** 125 lb. max.
- END THRUST ON INPUT SHAFT:** 100 lb. max.
- ROTATION:** Either clockwise or counterclockwise
- DRIVING TORQUE:** 1 inch-pound maximum
- SHAFT:** 5/8" diameter with 3/16" x 1" square key
- ENCLOSURE:** Aluminum with screw on cover. Optional epoxy coating available.
- MEETS:** NEMA Type 3S, 4, 4X; or NEMA Type 7: Class 1, Groups C & D; NEMA Type 9: Class II, Groups F & G
- BEARINGS:** (2) Ball Bearings, permanently lubricated and sealed for life
- SHAFT SEAL:** Leather type oil seal
- WEIGHT:** 6 lb.
- SIZE:** 5" high x 5" wide x 8 1/2 long

ELECTRICAL SPECIFICATIONS

- INPUT VOLTAGE:** 105-135 A.C., 50/60 Hz.
210-250 volts A.C., 50/60 Hz. (Special Order)
- OUTPUT:** DPDT relay 3 amp. Resistive at 120 volts A.C.
DPDT relay 3 amp. Resistive at 240 volts A.C.
DPDT relay 3 amp. Resistive at 30 volts D.C.
1/10 Horse Power at 120 volts A.C.
1/10 Horse Power at 240 volts A.C.
- AMBIENT TEMPERATURE:** 14°F to 131°F (-10°C to 55°C)
- MAX. OPERATING TEMPERATURE:** T6: 185°F (85°C) "X" units only
- REPEATABILITY:** +2% max. at constant voltage and temperature
- POWER CONSUMPTION:** 3 Watts maximum
- SPEED RANGES:** 3 Signal Speed Ranges
LOW: 0.1 to 10 RPM
MEDIUM: 1 to 100 RPM
HIGH: 10 to 1000 RPM
- SIGNAL POINT:** Speed at which relay will de-energize for Underspeed, or energize for Overspeed. Recommended to be 15-20% lower than running speed. This will eliminate nuisance shutdowns.
- START UP DELAY:** Adjustable up to 45 seconds



MODEL SC SKIRTBOARD CLAMP

REDUCES MATERIAL SPILLAGE OFF THE SIDES OF THE CONVEYOR BELT



The Model SC-4 skirtboard clamp forms the basis for a dust containing system that doesn't allow material to leave the edges of the conveyor belt.

PART NO.	DESCRIPTION	SHIPPING WEIGHT (LBS.)
SC-4	Skirtboard Clamp	2