

NEW! all in one

speed responsive switch-model SRC

rain tight, dust tight and explosion proof models
speed range .1 to 1000 R.P.M.



®



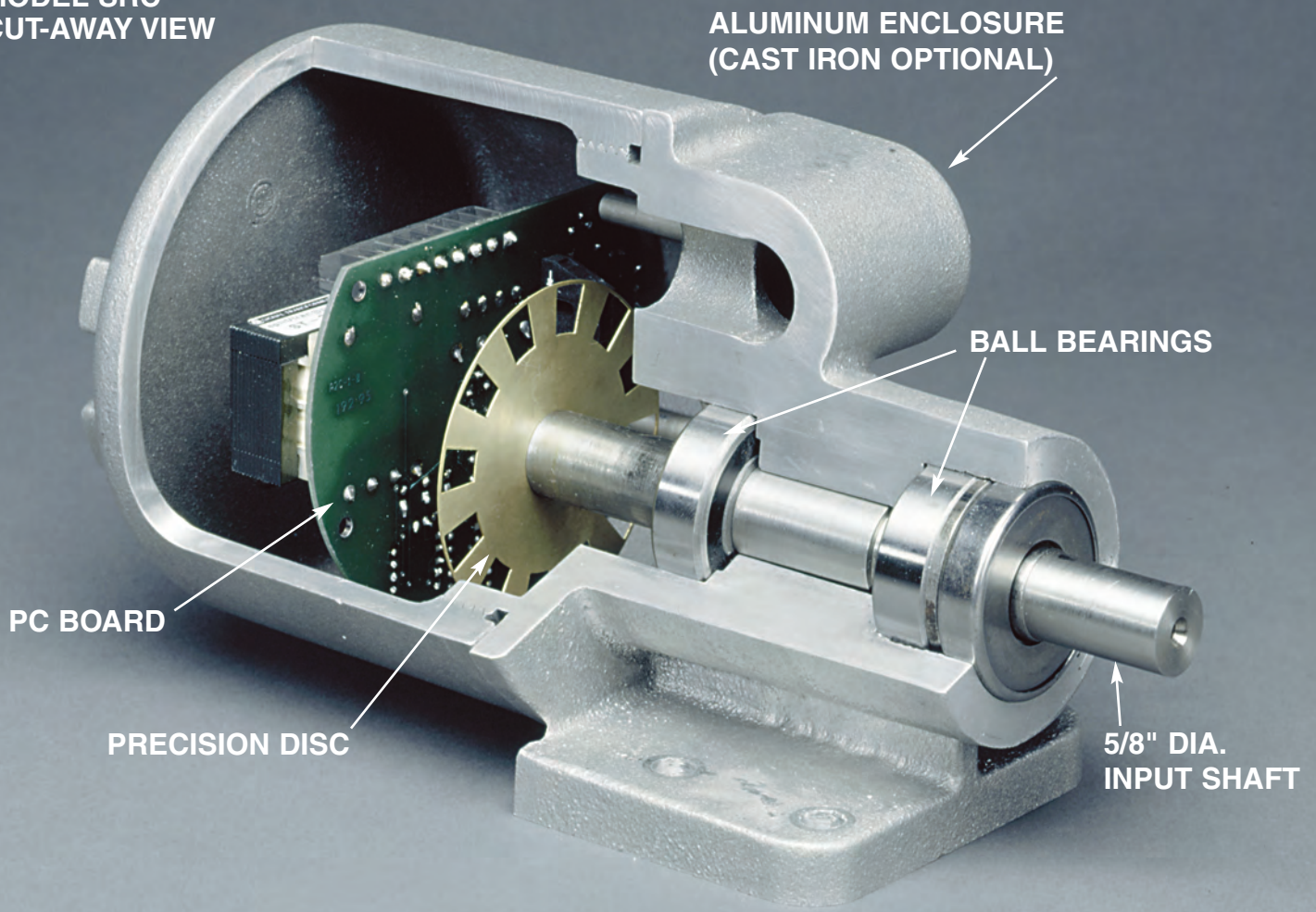
MATERIAL CONTROL, INC.

197 POPLAR PL. • UNIT 3
P.O. BOX 308
NORTH AURORA, IL 60542-0308

800-926-0376 • 630-892-4274 • FAX 630-892-4931

WWW.MATERIALCONTROLINC.COM • EMAIL: SALES@MATERIALCONTROLINC.COM

MODEL SRC CUT-AWAY VIEW



OPERATION INFORMATION

USAGE:

The model SRC motion sensing control is a compact switch 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 overspeed, underspeed, or zero speed. Rugged, heavy duty construction combined with solid state electronics and photo-electric technology, make this one of the most advanced motion detectors available. Model SRC 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.

HOW IT OPERATES:

The model SRC senses motion by means of a precision metal disc mounted on the input shaft. This disc generates measurable light pulses by a series of slots on its periphery, which rotate past an infra-red light source. A photo-electric sensor monitors the series of light pulses and converts them to a digital electronic signal. Solid state circuitry then analyzes the digital signal and activates or deactivates the output relay at the pre-set speed.

Field adjustment of the signal set point is easily accomplished by means of an adjustment screw on the electronics. 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 point. For overspeed sensing, the pick-up point is set above the normal operating speed. The output relay will energize if the speed exceeds the pick up point. Zero speed sensing can be accomplished by turning the adjustment screw to its minimum setting. The output relay will then de-energize when the shaft speed of the unit approaches zero.

SPECIFICATIONS

ELECTRICAL:

INPUT VOLTAGE: . 105-135 volts A.C., 50/60 Hz.

210-250 volts A.C., 50/60 Hz. (Special order)

OUTPUT: DPDT relay to 3 Amp. Resistive at 120 volts A.C.
DPDT relay to 3 Amp. Resistive at 240 volts A.C.
DPDT relay to 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.

OPERATING TEMPERATURE RANGE: -50°F to +150°F

REPEATABILITY: . +2% max. at constant voltage and temperature

POWER CONSUMPTION: 3 Watts

PICK- UP POINT: . 3 speed ranges at which relay will energize

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. Recommended to be 15-20% lower than pick-up point. This will eliminate shutdowns.

START UP DELAY: Adjustable up to 45 seconds

MECHANICAL:

RADIAL LOAD ON INPUT SHAFT: 125 lbs. maximum

END THRUST ON INPUT SHAFT: 100 lbs. maximum

ROTATION: Either clockwise or counter clockwise

DRIVING TORQUE: 1 inch-pound maximum

SHAFT: 5/8" diam. with #11 woodruff key (3/16"x7/8")

ENCLOSURE: Aluminum with screw cover
Epoxy coated (optional)

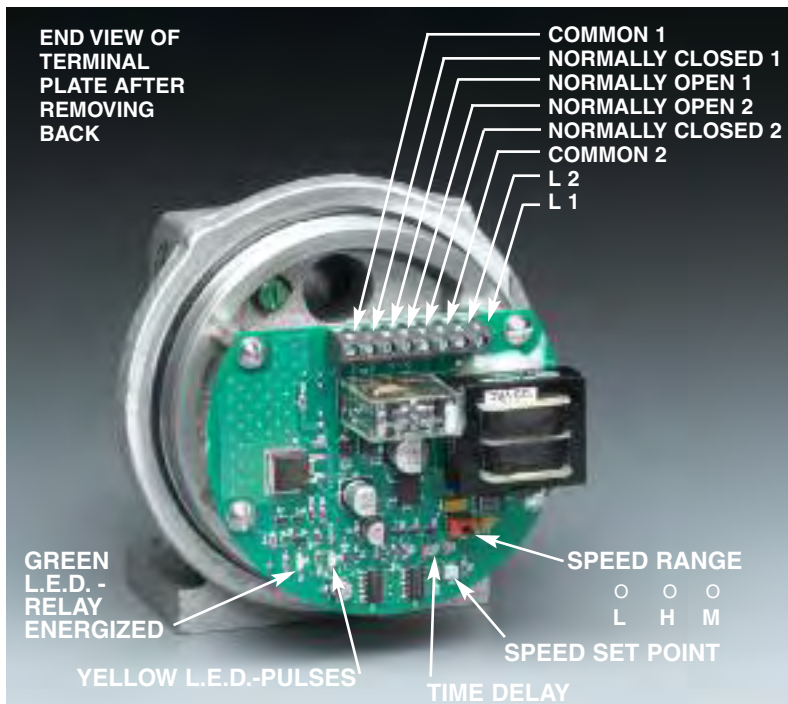
MEETS: Nema 3S, 4, and 4X (UL and CSA listed)
Nema 7: Class I groups C & D
Nema 9: Class II groups E, F, & G

BEARINGS: Ball, permanently lubricated and sealed for life

SHAFT SEAL: Leather type oil seal

WEIGHT: 5 lbs.

SIZE: 5" high x 5" wide x 8 1/2" long



DESIGNED FOR THE BULK HANDLING CONVEYOR INDUSTRY

MONITOR SHAFT SPEEDS
TO PREVENT SPEED
RELATED DAMAGE TO
CONVEYOR BELTS



MODEL SRC . . . SPEED RESPONSIVE SWITCH

Please choose the model you need

- **SRC-1G** 120VAC NEMA 4
- **SRC-1X** 120VAC NEMA 4 & 7/9
- **SRC-2G** 240VAC NEMA 4
- **SRC-2X** 240VAC NEMA 4 & 7/9
- **SRC-3G** 24VAC/DC NEMA 4
- **SRC-3X** 24VAC/DC NEMA 4 & 7/9

WIRING

Remove end cap to expose terminals and pick-up speed adjustment screw. Wire input power from source to terminals L1 and L2. Be certain to use the provided ground screw. The output of the model SRC is a DP/DT relay. 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.

SIGNAL SET POINT:

FOR USE AS AN UNDERSPEED SWITCH

Select the speed range required by changing the switch to LOW for 0.1 to 10 rpm., MEDIUM for 1 to 100 rpm., and HIGH for 10 to 1000 rpm. Turn the setpoint potentiometer to the counterclockwise stop. With motion present on the input shaft and at normal operating R.P.M., the yellow L.E.D. should blink. The green L.E.D. should turn on indicating that the output relay is energized. Slowly turn the setpoint adjustment screw clockwise until the output relay de-energizes. (a "click" will occur at this point.) Back up until the output relay energizes. Thus, when speed drops below the setpoint, the green L.E.D. should turn off indicating that the output relay is de-energized. If the normal operating speed of the input shaft exceeds 10 R.P.M. for the LOW or 100 R.P.M. for the MEDIUM or 1000 R.P.M. for the HIGH, the unit should be adjusted as follows. Turn the setpoint adjustment screw clockwise until it reaches the stop. When the speed drops below 10 R.P.M. for the LOW or 100 R.P.M. for the MEDIUM or 1000 R.P.M. for the HIGH, the relay will energize. **NOTE:** Typically, the motor contactor is wired in series with one of the N.O. output contacts; and a alarm is wired with one of the N.C. output contacts.

FOR USE AS AN OVERSPEED SWITCH:

Select the speed range required by changing the switch to LOW for 0.1 to 10 rpm., MEDIUM for 1 to 100 rpm., and HIGH for 10 to 1000 rpm. Turn the setpoint potentiometer to the counterclockwise stop. With motion present on the input shaft and at normal operating R.P.M., the yellow L.E.D. should blink. The green L.E.D. should turn on indicating that the output relay is energized. Slowly turn the setpoint adjustment screw clockwise until the output relay is de-energized and the green L.E.D. turns off. (a "click" will occur at this point) With the potentiometer on that setting, if the speed increases the output relay will energize. **NOTE:** Typically, the motor contactor is wired in series with one of the N.O. output contacts; and a alarm is wired with one of the N.C. output contacts.

FOR USE AS A ZERO SPEED SWITCH:

Select the LOW speed range by changing the switch to LOW for 0.1 to 10 rpm. Turn the setpoint potentiometer to the counterclockwise stop. This will give a setpoint setting of 0.1 R.P.M. Thus, when the speed drops below 0.1 R.P.M., the output relay will de-energize. **NOTE:** Wiring should be the same as for underspeed applications.

TIME DELAY SETTING:

The model SRC motion sensing control has a start up delay that is adjustable up to 45 seconds. This setting should be set, depending on the application and the length of time it takes for the conveyor to reach it's normal operating R.P.M. This time delay takes effect upon power-up of the model SRC after shutdown. AC power to the model SRC must be interrupted for timer to be reset. This delay only affects start up, avoiding nuisance start up alarms.

SEE PRICE SHEET
FOR PRICES

ACCESSORIES:



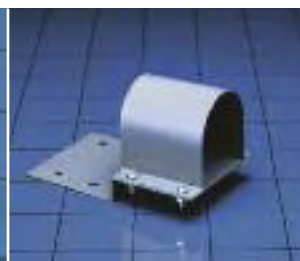
STUB SHAFT:

5/8" dia. 3" threaded one end, keyed other end. With jam nut and 3/16" key.
Model S-1



FLEXIBLE COUPLING:

Available for connection of the sensor to the driven shaft.
Model C-1



COUPLING GUARD:

Protection cover for coupling connection.
Model G-1



MOUNTING BRACKET:

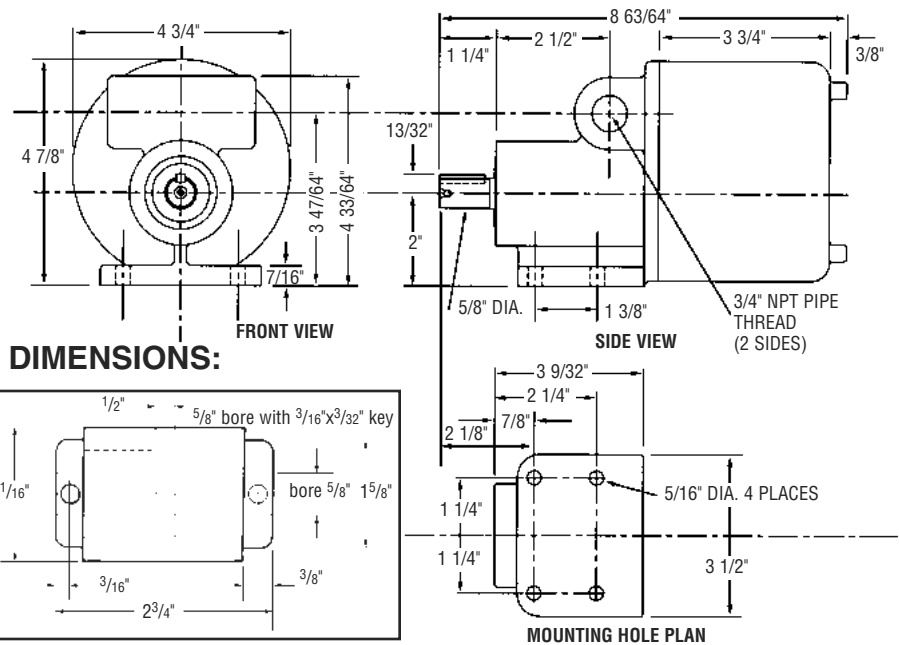
For mounting sensor to rotary machinery.
Model A-1



BEARING BRACKETS:

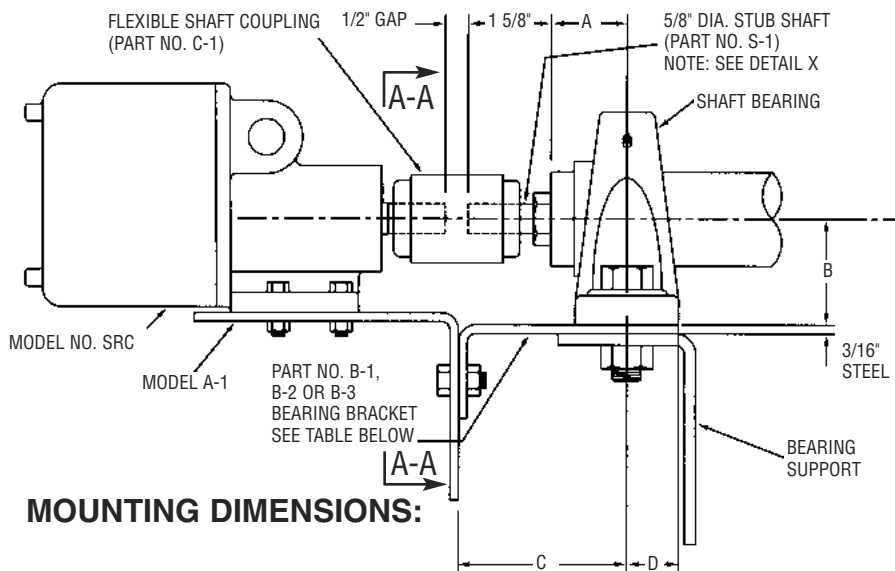
Attaches mounting bracket to pillow block bearing assembly.
Models B-1, B-2 or B-3

MODEL SRC SPEED RESPONSIVE SWITCH TECHNICAL INFORMATION

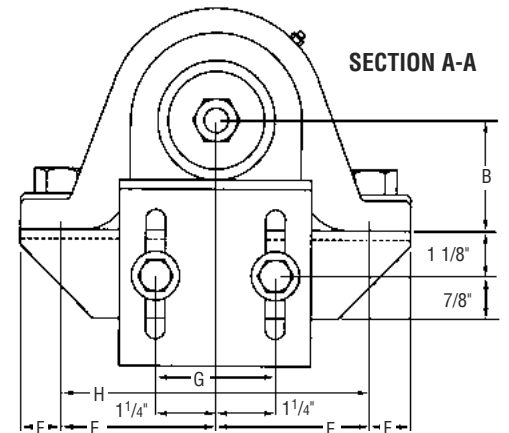


OPTIONAL FLEXIBLE SHAFT COUPLING (PART C-1)
 For direct shaft connection we recommend "Gear Grip" flexible coupling. We find this to be the most durable and reliable. This coupling will operate at up to a 7 1/2° axial misalignment with no significant life reduction. Few coupling offer this great a misalignment allowance. The unit features high shock resistance and eliminates transmission of lateral thrust from one shaft to the other (no end thrust).

SLEEVE: Has axially molded internal teeth, made of neoprene with textile reinforcement. Two end fitting grooved to mate with sleeve teeth. One fitting attached to each shaft.

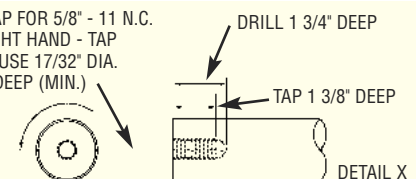


MOUNTING DIMENSIONS:



DRILL AND TAP FOR 5/8" - 11 N.C. THREAD - RIGHT HAND - TAP 1 3/8" DEEP - USE 17/32" DIA. DRILL 1 3/4" DEEP (MIN.)

PREFERRED ROTATION (SEE NOTE)



NOTE: When threaded stub shaft (part No. S-1 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 that the jam nut is locked tight against the shaft.

ALL DIMENSIONS ARE IN INCHES

SHAFT DIA.	A	B	C	D	E	F	G	H	BEARING BRACKET & SHIM PLATE PART NO.
1 7/16	1 1/4 TO 2	1 7/8 TO 2 1/8	3 1/8	1 1/8	2 11/16	1 13/16		9/16w x 15/16 Lg.	B1
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	3 11/16	1 15/16	13/32 x 1 Lg.	13/16w x 2 Lg.	B2
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	4 13/16	2 11/16		1 1/16w x 2 9/16 Lg.	B3

MOUNTING INSTRUCTIONS:

- Switch can be mounted for operation in any position.
- The surface to which the switch is affixed should be as flat and as smooth as possible.
- On installation where vibration conditions are not extreme use 1/4" diameter machine bolts with lock washers through the four mounting holes in the base of the switch. (Mounting bolts and lock washers are not furnished with

the switch.) If vibration conditions are extreme the use of doweling is recommended through the four mounting holes in the switch base.

- The switch should be mounted as axially in line, and/or parallel as possible to the existing shaft which is to drive the switch.
- The MODEL SRC switch can be driven by one of the following means:

A. Direct connection through a coupling (pre-

ferred means). NOTE: Switch should be concentric with the mating shaft. If stub is used it must be concentric with the main shaft. If a stub shaft is required we suggest the use of a 5/8" stub shaft. Use with a split or flexible type coupling.

B. Cog belt drive (timing): A v-belt drive is not as desirable because of possible slippage.

C. Roller chain drive.

D. Spur gears.



MATERIAL CONTROL, INC.

197 POPLAR PL. • UNIT 3

P.O. BOX 308

NORTH AURORA, IL 60542-0308

800-926-0376 • 630-892-4274 • FAX 630-892-4931

WWW.MATERIALCONTROLINC.COM • EMAIL: SALES@MATERIALCONTROLINC.COM



"CHARGE IT"

© Copyright Material Control, Inc. 1997

SUBJECT TO CHANGE WITHOUT NOTICE

TERMS: NET 30 DAYS

F.O.B. FACTORY - TAX NOT INCLUDED