Conveyor Belt Alignment Switch, Type AFA, AFAX • Model M2

Installation & Maintenance Information

COOPER Crouse-Hinds

IF 959

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

APPLICATION

Type AFA, AFAX conveyor belt alignment switches are used to protect bulk handling conveyor belts from damage due to abnormal belt misalignment or run-off due to excessive speed, uneven load, leveling, breakage, and/or other problems.

When mounted in proper position on either side of conveyor belt, the operating arm will rotate in a counter-clockwise direction when contacted by the belt. Contact sets 1 and 2 and 5 and 6 will open within a 7° to 15° travel of the operating arm and remain in this state for all further counter-clockwise rotation. Contact sets 3 and 4 and 7 and 8 will close within a 23° to 31° travel of the operating arm and remain in this state for all further counter-clockwise rotation (see Figure 3 on page 2 for a diagram of the contact arrangement). Over-travel of 85° is built in so that a severe run off cannot damage the switch mechanism. The operating arm is spring loaded and will automatically return the switch to normal position when belt interference is removed.

Type AFA conveyor belt alignment switches may be used in Class II, Groups E, F, G and Class III hazardous (classified) locations as defined by the National Electrical Code® (NEC).

Type AFAX conveyor belt alignment switches may be used in Class I, Groups C, D; Class II, Groups E, F, G; and Class III hazardous (classified) locations as defined by the National Electrical Code (NEC). Type AFAX is UL Listed Enclosure Types 3, 4, and 12.

Type AFA, AFAX switches should be installed, inspected and maintained by qualified and competent personnel.

Horizontal Mounting

INSTALLATION

The following table is offered as the suggested maximum torque for the threaded items, and is to be used as a guide only.

Table 1

Bolt Size	Max. Torque (N-m)	Max. Torque (lb.-ft.)
5/16"-18	15 N-m	11 lb.-ft.
1/4"-28	11 N-m	8 lb.-ft.

⚠ WARNING

Be sure all power is turned **OFF** before and during installation and maintenance. Failure to turn off power can result in injury to personnel or damage to equipment.

⚠ WARNING

Type AFAX units are designed to meet Class I, Groups C, D; Class II, Groups E, F, G; and Class III hazardous (classified) location requirements of the National Electrical Code. These units are supplied with machined metal-to metal joints for switch housing and access covers. **Do not use gaskets**. Clean both flat joint surfaces of body, switch housing and cover before closing. Dirt or foreign material must not accumulate on flat joint surfaces. Surfaces must seat fully against each other to provide a proper explosionproof joint. Clean both flat joint surfaces of body and cover before closing. To avoid the possibilities of an explosion, oxidation and corrosion, do not use gasoline or similar solvents.

⚠ WARNING

Hammers or prying tools must not be allowed to damage the flat joint surfaces. Do not handle covers roughly, or place them on surfaces that might damage or scratch the flat joint surfaces. Compromising flat joint surfaces can result in injury to personnel or damage to equipment.

1. Disassemble unit by removing access covers and switch housing from body.
2. Mount body in horizontal or vertical position as shown in Figures 1 and 2. Use bolts or screws through two (2) 7/16 inch diameter mounting lug holes.

Note: 1-½ inch center mounting hole spacing permits attachment of body to the web of a standard 3 inch angle iron.

⚠ CAUTION

Operating arm rotates in counter-clockwise direction only. For switch units on opposite side of belt, mount unit in opposite direction.

3. Install conduit into hubs as required and pull all necessary wires into body.

® National Electrical Code is a Registered Trademark of the National Fire Protection Association.

⚠ CAUTION

- Hazardous location information specifying class and group listing is marked on the nameplate of each enclosure.
- All unused conduit openings must be plugged. Plug must engage a minimum of five (5) full threads and be a minimum of 1/8 inch thick.
- Conduit sealing fittings may be required to be installed in each attached conduit run to comply with the latest edition of National Electrical Code plus any other applicable code.

4. With type AFA Series only, make sure gasket is in place to mate with flange of switch housing.
5. Determine opening in body that will be used to mount the switch housing. Any one of the three (3) openings may be used as determined by the mounting position of the body and the orientation of the operating arm to the belt. Using this opening, connect the DPDT switch to the line wires following your system wiring pattern in compliance with the latest edition of the National Electrical Code plus any other applicable code. See Figure 3 for switch contact arrangement.
6. Mount switch housing assembly to body with four (4) screws provided, orienting operating arm in correct position. Assemble roller to required height. Lock in height by tightening Allen head screw at the end of the shaft. Tighten Allen head screw to proper torque value listed in Table 1 on previous page.
7. Test wiring for correctness with continuity checks and for unwanted grounds with insulation resistance tester.
8. Replace access covers on all unused openings. With AFA style only, make sure that gaskets are properly seated when they are required. Make sure all bolts are securely tightened to proper torque value listed in Table 1 on previous page.

⚠ WARNING

Type AFAX units are designed to meet Class I, Groups C, D; Class II, Groups E, F, G; and Class III hazardous (classified) location requirements of the National Electrical Code. These units are supplied with machined metal-to metal joints for switch housing and access covers. **Do not use gaskets**. Clean both flat joint surfaces of body, switch housing and cover before closing. Dirt or foreign material must not accumulate on flat joint surfaces. Surfaces must seat fully against each other to provide a proper explosionproof joint. Clean both flat joint surfaces of body and cover before closing. To avoid the possibilities of an explosion, oxidation and corrosion, do not use gasoline or similar solvents.

9. Check operating arm by pushing in direction indicated in Figure 1 and Figure 2 on next page. Arm should move through full over-travel without binding.

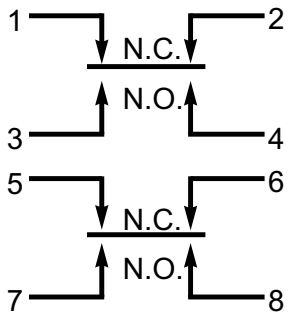
Contact Arrangement	Diagram	Cat. #
2 normally open 2 normally closed		2 pole: AFA20/AFAX20-M2

Figure 3 • Switch Contact Arrangement

Switches Rated at 7-1/2 Amperes, 600VAC

Note: For single phase applications, wire only contacts 1 through 4

Figure 4 • Switch

PLAN VIEW **ELEVATION**

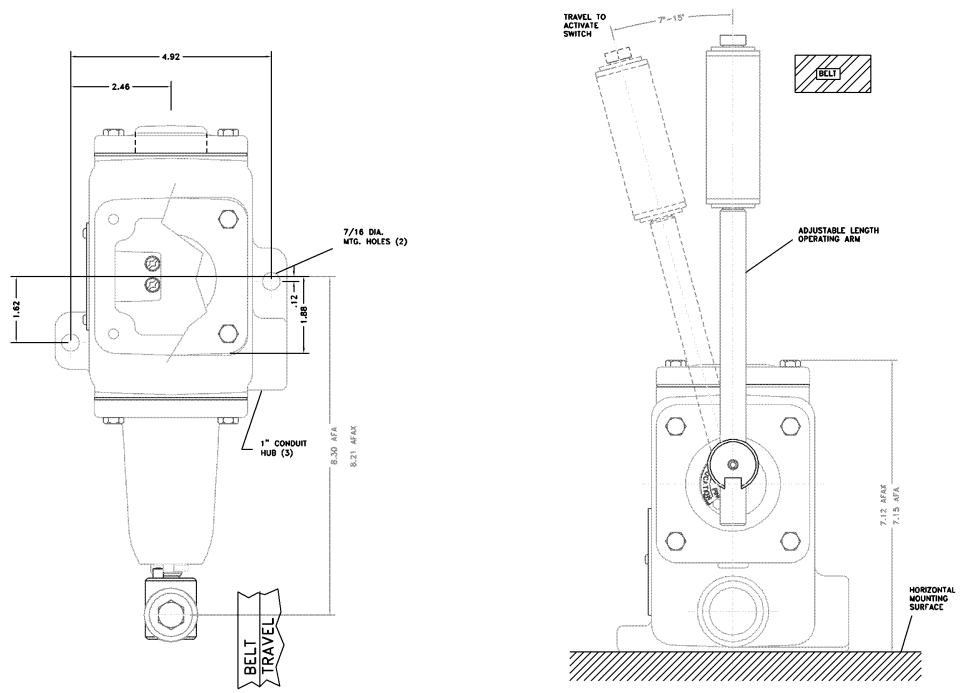


Figure 1 . Horizontal Mounting

PLAN VIEW **ELEVATION**

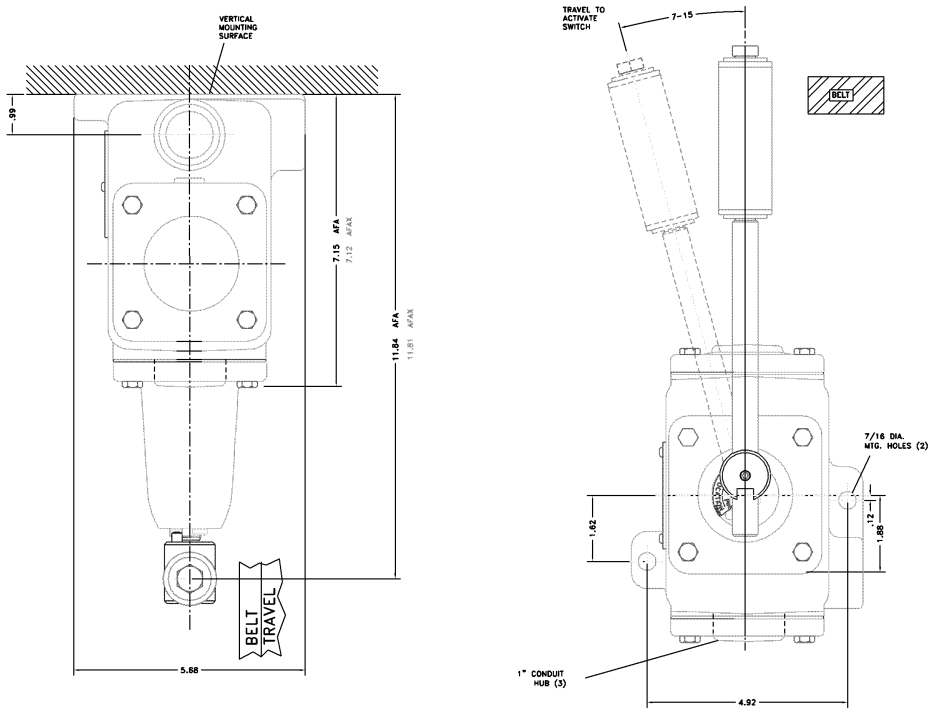


Figure 2 . Vertical Mounting

MAINTENANCE

⚠ WARNING

Be sure all power is turned **OFF** before and during installation and maintenance. Failure to turn off power can result in injury to personnel or damage to equipment.

1. Frequent inspection should be made. A schedule for maintenance checks should be determined by the environment and frequency of use. It is recommended that it should be at least once a year.
2. If necessary to open enclosure for inspection or service, refer to cautionary statement on nameplate before removing cover.
3. Perform visual, electrical, and mechanical checks on all components on a regular basis.

- Visually check for undue heating evidenced by discoloration of wires or other components, damaged or worn parts, or leakage evidenced by water or corrosion in the interior.
- Electrically check to make sure that all connections are clean and tight.
- Mechanically check that all parts are properly assembled, and operating mechanisms move freely.

⚠ WARNING

If any part of the switch components appears to be broken or damaged, **DISCONTINUE USE IMMEDIATELY.**

Replace or properly repair the item before continuing service. Failure to comply may result in personnel injury or damage to equipment.

⚠ CAUTION

Clean both flat joint surfaces of body and cover before closing. Dirt or foreign material must not accumulate on flat joint surfaces. Surfaces must seat fully against each other to provide a proper explosionproof joint. Compromising flat joint surfaces can result in injury to personnel or damage to equipment.

4. Make sure all cover bolts are securely tightened to proper torque value listed in Table 1 on first page.
5. Cooper Crouse-Hinds recommends an Electrical Preventative Maintenance program as described in the National Fire Protection Association Bulletin NFPA No. 70B.

COOPER Crouse-Hinds

Cooper Industries Inc.
Crouse-Hinds Division
PO Box 4999, Syracuse, New York 13221 • U.S.A.

IF 959
Revision 5
Revised 11/12
Supersedes 09/06