



70AFCD SERIES LIMIT SWITCH BOX INSTALLATION & MAINTENANCE MANUAL





70AFCD-21 Series Limit Switch Box Installation & Maintenance Manual

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FLUID SOLUTIONS

281 Ave. Pierre et Marie Curie - ZI NORD
13340 ROGNAC - FRANCE
Adresse postale : BP80015
13655 ROGNAC Cedex - FRANCE

Téléphone : + 33 4 86 30 70 80
Fax : + 33 4 86 30 70 81
<http://www.tuning-france.com>
e-mail:tuning@tuning-france.com



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1.0 General

TUNING 70AFCD series limit switch box is designed to provide accurate and reliable valve position signalling and indicating of most valves or actuators manufactured.

70AFCD limit switch box consists of a visual position indicator, quick-set cam assembly, terminal strip, switch assembly and easy mounting bracket. Quick-set cam allows for a quick and simple hand operation in the setting of switches.

2.0 Standard specification

Model	70AFCD0021
Enclosure Rated	IP67
Enclosure	High
Ambient Temperature	grade aluminium alloy
Conduit Entries	-20 deg C ~ + 60 dec C
Travel Angle	Two M20
Position Indicator	90 degree +/- 10%
Mechanical Switch	Open : Green, close : Red
	2-SPDT Mechanical Switch
	16A 1/2HP 125/250VAC, 0.6A 125VDC, 0.3A 250VDC, 5A 125VAC
Terminal Strip	8 point (option : 9~14P)
External Coating	Dry powder polyester

3.0 Marking

- TUNING logo / Trade mark
- Model
- Mechanical switches type
- CE mark
- Ambient temp.
- Manufacture year
- Cable entry size
- Address



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4.0 Setting cam

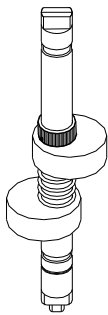
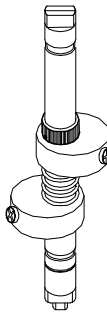
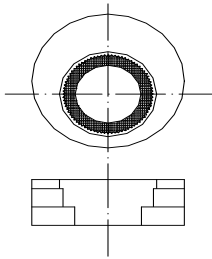
The colour of cams harmonized with position indicator help us to set the cams easily without wiring diagram. Cams shall be easily set without tool. APL series cams are splined and can be setting lift up or push down the cam from gear by hand in a seconds without setting tools. Self-locking, spring loading make never slip out of adjustment.

Note :

- Basically cams shall be set by manufacturer before shipment.

- Loose the captive cover bolts with a applicable tool. (L-Hex. Wrench recommended)
- Turn the cover counter clockwise to open carefully.
- Open cam setting

- Electric power or air supply of valve actuator on to operate the actuator fully open

Mechanical switches	Proximity sensors	Splined cam
		

- Lift the bottom cam up and rotate it until the switch is activated.
- And then release it. Cam shall be back into a stable position by itself.
- Close cam setting
 - Electric power or air supply of valve actuator off to operate the actuator fully close
 - Push the upper cam down and rotate it until the switch is activated.
 - And then release it. Cam shall be back into a stable position by itself.

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5.0 Wiring

Danger ;

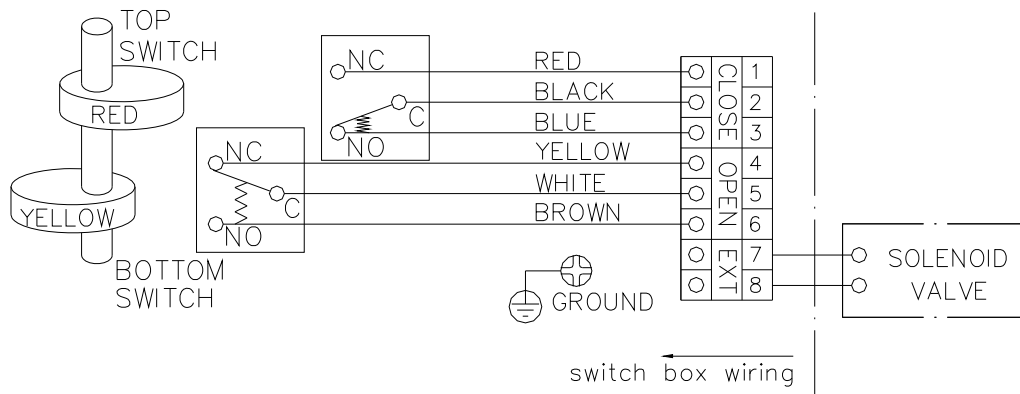
- ✓ **HAZARDOUS VOLTAGE.** No electrical power should be connected until all wiring and limit switch adjustments have been completely.

AFCD limit switch box enclosure feature prewired switches. All user connections are made at a numbered terminal strip. A wiring diagram, located inside the cover, indicates which terminal numbers correspond to switch contacts, such as normally open (NO), normally closed (NC), etc. Follow the wiring diagram and electrical code to connect the switches to your system.

Solenoid valve may also can be wired through the AFCD enclosure. Two auxiliary terminals are included as standard.

AFCD limit switch box has two cable entries on the body and supply a blanking plug not a cable gland which meet the type of protection. Cable gland shall be applied by installer or user.

MECHANICAL SWITCH(2 SPDT)



Note ;

- ✚ **Grounding should be connected until all wiring have been completely.**
- ✚ **Internal/External grounding wire square shall be min.2SQ. recommended.**



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6.0 Maintenance

Caution ;

- ✓ ***Shut off incoming power or air supply on the valve actuator if any before maintenance of limit switch box.***
- ✓ ***Be sure that the area is clean before disassemble and maintenance limit switch box. Clean all parts and housing before re-assemble.***
- ✓ ***Refers to the part list when ordering replacement or spare parts.***

Maintenance, under normal conditions at six month intervals or 100,000 cycle operation. But when conditions are more severe, more frequent inspections may be required.

- Insure valve actuator alignment
- Insure wiring is insulated, connected and terminated properly
- Insure all screws are present and tight
- Insure cleanliness of internal electrical devices
- Insure conduit connections are installed properly and are dry
- Check internal devices for condensation
- Check enclosure O rings seals and verify that the O ring is not pinched between housing
- Visually inspect during open/close cycle
- Inspect identification labels for wear and replace if necessary

Warning ;

- ✓ ***Treat cover with care. Gap surfaces must not be damaged or dirtied in any way.***

7.0 Inspection

- The limit switch box should be inspected upon receipt to ensure that no damage has been sustained on transit.
- Check the item and quantity of products with packing list or related documents.
- Check the limit switch box o-ring. Where a damage on it, it caused the corrosion of internal parts.
- Check the adjustment of cams. Cams shall be released when those have been used for a long period of operating. If do so, they don't work correctly with switches.

8.0 Storage

The products must be stored in a clean, cool and dry area. The unit shall be stored with the cover installed and the conduit openings sealed. Storage must be off the floor, covered with a sealed dust protector.

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9.0 Trouble shooting

The following instructions are offered for the most common difficulties encountered during installation and start-up.

Signal fails to main control room.

- Check the wiring of limit switch box in accordance with wiring diagram.
- Check where the cams or switches are damaged or broken.
- Check the main signal wire from the terminal strip.
- Re-set the limit switch box.
- Verify the current position transmitter resistance value.
- Check potentiometer gear jamming.
- Check the zero and span calibration.
- Check the card damaged or not.

10.0 Tools

- 1 Set Metric Allen Key (Hex Wrench)
- 1 Set Screw Drivers
- 1 Set Metric Spanner
- 1 Wire Stripper long Nose
- 1 Needle nose plier
- 1 Multi Meter (AC, DC, Resistance)

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11.0 Installation and Maintenance Tips

For any installation and maintenance work, the following should be observed :

Caution :

- ✓ ***A regular inspection and maintenance performed by qualified and trained personnel***
 - ✓ ***Observe additional national regulations.***
-
- Check the limit switch box visually . Ensure that no outside damage or changes are visible. The electric connecting cables must be without damage and wired correctly.
 - Cable entries, cable glands, plugs etc. have to be checked for correct tightness and sealing.
 - Take care of possible discolouration of the terminals and wires.
 - Ensure that all housing covers are handled carefully and that the seals are checked.
 - All cable have to be checked.
 - If defects which affect the safety are detected during maintenance, repair measures have to be taken immediately.
 - Any kind of surface coating for the gap surface is not permitted.
 - When exchanging parts, seals etc. only original spare parts shall be used.

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