WESTLOCK CONTROLS

ACCUTRAK ROTARY MODELS 1040/9358/2004/9044/9468/5004/5044/2007/9479/5050

INSTALLATION AND OPERATIONS MANUAL

Installation and operating instructions for AccuTrak position monitor rotary models

1 INTRODUCTION

1.1 Product Certification

1040/9358: CSA Type 4 (Cert. #1185829)
2004: CSA Type 4 (Cert. #2599677)
9044: NEMA 4, 4X (Cert. #2599677)
9468: FMC NI/I/II/2/ABCDEFG/T4 0° C<= Ta<60° Type 4X, 6P, IP67; DIP/II/2/FG/ T4 T4, -30°C ≤Ta<60°C (Cert. #3036618C; 2Q4A6.AX)
5004/5044: FMC IS/I, II, III/1/ABCDEFG/T6 Ta=60°C Entity WD-11880, NI/I/2/ABCD/T5 Ta=60°C Entity WD-11880; Entity Parameters for P&F NJ2-V3-N, Vmax=16 V, Imax=25 mA, PI=34 mW, Ci=40 nF, Li=50 µH (Cert. #3008802); NJ2-11-N-G, Vmax=16 V, Ii=25 mA, PI=34 mW, Ci=30 nF, Li=50 µH
2007/9479: FMC XP/I/1/CD/T6 Ta=60°C, DIP/II/1/EFG/T6 TA=60°C; 9479 ONLY: N/I/I/2 ABCD/T4 Ta=60°C, Type 4, 4X (Cert. #FM16US0176; FMCA0106)
5050: FM XP/I/1/CD/T6 Ta=50°C, DIP/II/1/EFG/T6 Ta=50°C, NI/I/2/ABCD/T4 Ta=50°C, Type 4, 4X (Cert. #3026687)

1.2 Warnings

- Never remove enclosure cover or make/break electrical connections with power connected to the unit.
- Perform all wiring in accordance with site and local codes and the National Electric Code ANSI-NFPA-70 (US) or the Canadian Electric Code Part I (Canada) for the appropriate area classifications.
- Confirm that the AccuTrak model being installed is approved for the hazardous area (see Product Certification section above or unit ID label).
- Confirm that supply power to switches is within rated specifications listed on the unit identification label.
- Protect the unit from exposure to aggressive substances or atmospheres to ensure that hazard rating is not compromised.
- It is the responsibility of the customer to verify whether the unit model being installed bears a SIL approval for use in safety systems before installing it in safety applications.

1.3 Description

AccuTrak valve position monitors are intended for use as both visual and electrical position indicators for discrete rotary devices, most commonly pneumatically actuated 2-way quarter-turn or 3-way valves.

An AccuTrak monitor is not limited for use in only quarter-turn valve applications, but that application will be assumed for the purpose of this document. In addition to the monitoring features, AccuTrak monitors may serve as wiring junctions for accessories where additional terminals, conduit entries and wiring codes permit.

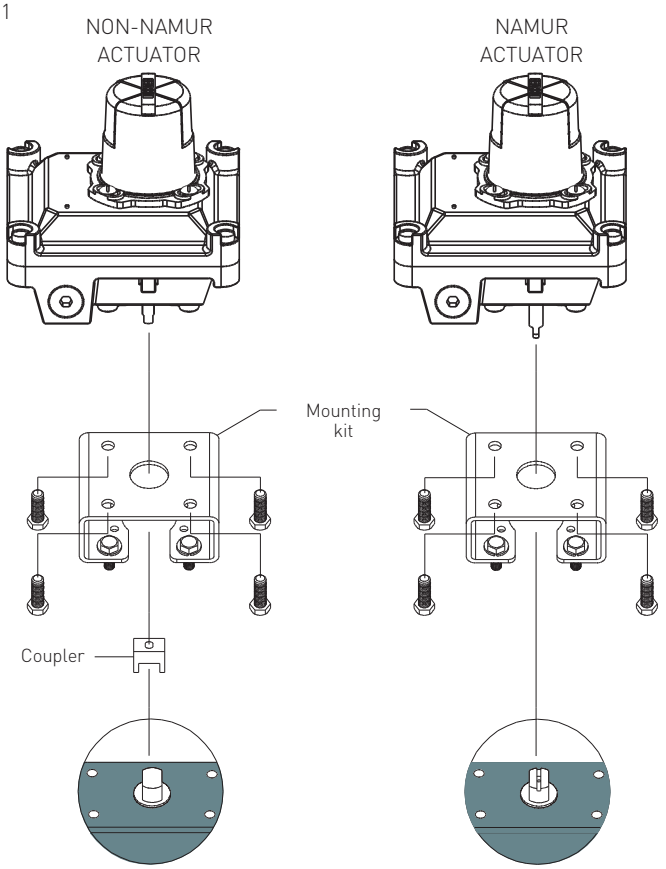
1.4 Principles of Operation

An AccuTrak monitor mounts to an actuator via a mounting kit, usually sold separately. The unit shaft couples to the actuator shaft directly via NAMUR adaptation, or via a coupling provided in the mounting kit. As the actuator rotates the unit shaft, adjustable cams on the shaft actuate mechanical or proximity switches inside the unit enclosure, at the limits of rotary travel set by the customer. The switches are pre-wired to a terminal strip in the enclosure, permitting easy connection of switch output to external electrical monitoring systems or indication devices. The visual Beacon indicator on the enclosure cover indicates 90° rotary travel between OPEN and CLOSED valve positions, unless ordered optionally for other angular strokes or 3-way valve applications.

1.5 Special Features/Conditions

To avoid build-up and discharge of static electricity in a hazardous area, only clean Westlock units with a static-free cloth dampened with water. Avoid the use of alcohol-based cleaners.

FIGURE 1



2 ORDERING

Ordering guides for all AccuTrak product series covered by this IOM are available through a local Westlock distributor, the current Westlock Controls catalog literature or the Westlock Controls website at www.westlockcontrols.com. Spare parts lists for refurbishments or repairs are also available for common AccuTrak models.

3 DEFINITIONS

NAMUR- This term, in the context of mounting brackets and shafts, refers to the NAMUR VDI/VDE 3845 standard for the dimensions of actuator output shafts and auxiliary equipment mounting hole patterns. In the context of inductive proximity sensors, NAMUR refers to conformance of the sensor to DIN 19 234, allowing its use with any NAMUR style amplifier/isolator.
Switch- A manual or mechanically actuated device for making, breaking or changing the connections in an electric circuit. This term will be used also for magnetic or inductive proximity sensors for the purpose of this document.

4 INSTALLATION

4.1 Mounting instructions

Required tools: open-end wrenches or adjustable wrench to fit all sizes of hex head bolts in the mounting kit.

1. Obtain a mounting kit suited for the actuator/valve, commonly available through a local Westlock Controls distributor.
2. Attach the mounting bracket and coupler (if required) to the unit housing with the hardware provided.
3. Attach the unit and mounting system to the actuator.
4. If mounting kit includes coupler, ensure proper axial alignment between unit shaft, coupler and actuator shaft. Failure to ensure this alignment could result in long-term stress-related failure of unit shaft in high cycle or high torque applications.

4.2 Calibration

Note 1: Switch actuation can be confirmed using a signal detection device such as a multimeter or ohmmeter, set for "continuity".

Note 2: For NAMUR P+F NJ2-V3-N type sensors, use test meter, P+F model #1-1350 or equivalent to check sensor actuation and calibration. If the proper meter is not available, contact the factory for additional assistance with the test procedure.

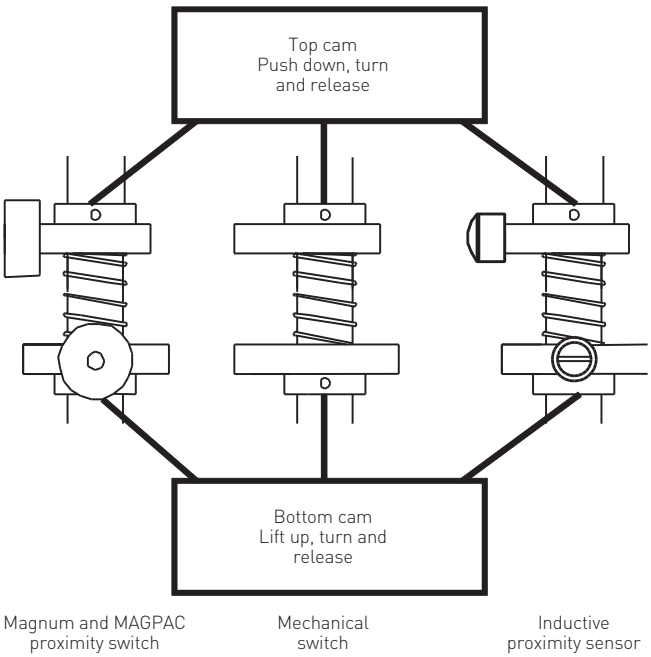
Note 3: Adjust cams by hand by pushing/ pulling the cam against the shaft spring to disengage from the mating spline, rotating to adjust and re-engaging firmly onto spline.

Required tools: Signal detection device (see note 1); slotted screw driver / hex (Allen) key for cover screws (M4, M5 or M8, #10 or 5/16 by model)

Switch adjustment (two switches)

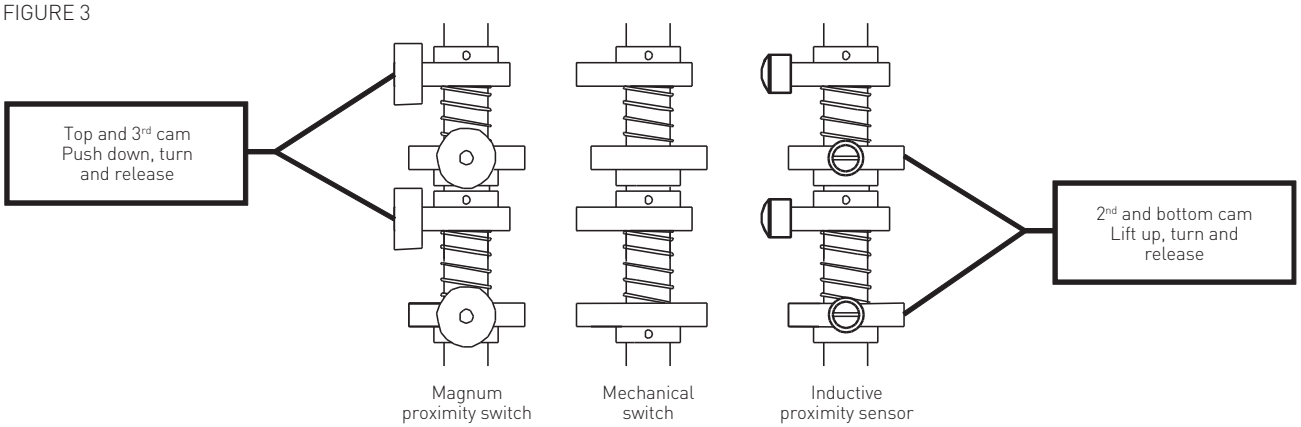
1. Remove unit cover as follows: loosen (but do not remove) captive screws, rotate cover slightly to grip corners, pull firmly. DO NOT PRY COVER WITH TOOLS.
2. With valve in the closed position, adjust bottom cam until bottom switch (#2) actuates.
3. Stroke valve to the open position, adjust top cam until top switch (#1) actuates.
4. Cycle actuator several times to confirm proper switch indication at each end of stoke. Finely adjust cams if necessary.
5. Skip to Field Wiring section or replace unit cover, applying approximately 20 in·lbs of torque to cover screws.

FIGURE 2



Switch adjustment (four switches, no CS transmitter option)
Follow steps as above for the calibration of two switches but adjust the first and third cams from the top for switches #1 and #2 and the second and fourth cams from the top for switches #3 and #4 (see Figure 3).

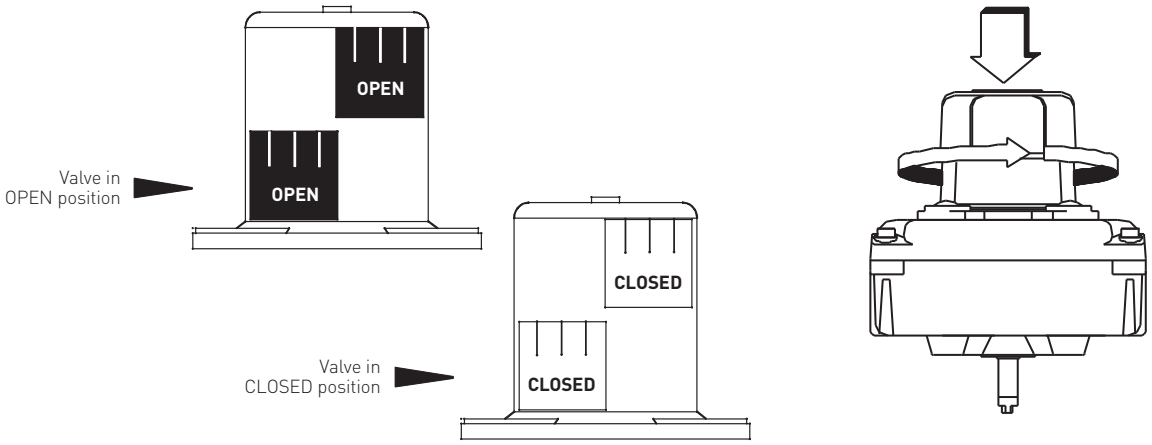
FIGURE 3



Transmitter setting (optional CS transmitter)
For the calibration of optional current signal (CS) transmitter, see Westlock Controls Installation/ Operations Manual VCIOM-04112, available through your local sales representative or at www.westlockcontrols.com.

Beacon adjustment
Note: skip this step if cover is flat or Beacon already displays the correct valve status.
Required tools: slotted screw driver for #12 screws / hex (Allen) key for M5 socket head screws.
1. For two-way OPEN/CLOSED: remove, rotate and re-fasten outer beacon to synchronize displayed position with valve position.
2. For three-way flow paths: remove, rotate and re-fasten outer beacon and/or inner beacon coupler to synchronize displayed flow path with valve/actuator flow path.

FIGURE 4



5 FIELD WIRING

WARNING
See the warnings section of this document for important warnings pertaining to the wiring of this unit. Remove and replace cover before and after wiring, per instructions given in the Switch Adjustment section above.

Required tools: slotted screw drivers for terminal strip screws (#2), cover screws (M4, M5 or M8, #10 or 5/16 by model), and grounding screw (#8 or M4 or M5 by model); wire strippers as required for field wires.

1. Wire the AccuTrak monitor strictly according to the wiring diagram on the inside of the enclosure cover.
2. Confirm that the ground wire is secure under the grounding screw in the enclosure.
3. Seal all unused conduit entries as required with suitably certified plugs having an ingress protection rating of IP67 or better.
4. Ensure that only suitably certified cable glands are used, having an ingress protection rating of IP67 or better.
5. Ensure that the temperature rating of all field wiring meets the service temperature range of the application.

Document History
IOM: TECH-385
Rev: -
ECN: 11813

Release Dates
Initial release: 02/12/18

Previous documents
This document replaces all previous installation and operating instructions including TECH-385 and TECH-385Q. To ensure you have the most recent version, please check the library on our website (westlockcontrols.com).

Translations
Where translated, the copy is taken from the original English document TECH-385-EN as checked by the relevant notified certification body and therefore the original English document will prevail. No rights or liability can be derived from any translation.

WARNING
This symbol warns the user of possible danger. Failure to observe this warning may lead to personal injury or death and/or severe damage to equipment.

ATTENTION
This symbol identifies information about operating the equipment in a particular manner that may damage it or result in a system failure. Failure to observe this warning can lead to total failure of the equipment or any other connected equipment.

NOTE
This symbol draws attention to information that is essential for understanding the operation and/or features of the equipment.

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