

Servo NXT Troubleshooting Guide

Refer to the S70 Servo NXT IOM Manual before adjusting or replacing any actuator components. Before testing or acting on any possible issues, check for any active faults.

Warning: Turn off all power and lockout/tag out service panel before installing or modifying any electrical wiring.

Issues	Possible Causes	Possible Solutions
Servo NXT does not turn on when power is applied	Fuse is blown	Verify and replace 5A Fast Blow 5x20mm Fuse on the side of the NXT Electronic Module
	Servo NXT is incorrectly wired	Verify wire connections against the wiring diagram. Wiring diagrams found inside actuator lid and upon email request.
	Servo NXT is not receiving power	Test the Input Power connection with a multimeter or oscilloscope.
	Power is not correct	Check the provided power against the voltage listed for the Servo NXT and actuator. 120VAC 50/60Hz +/- 10% 24VAC 50/60Hz +/- 10% 24VDC - 10%, + 30%
Actuator moves back and forth near setpoint (hunting)	Deadband is too narrow	Increase the deadband setting
	Excessive noise on the signal lines	Use an oscilloscope to test for the presence of EMI. Utilize EMI reducing techniques to mitigate the issue. Command Signal and Feedback wires must be shielded and grounded. Some applications require separate conduits for signal wires, per NEC.
Servo NXT not responding to Command Signal	Servo NXT in local Control Box mode	If local control is being used, ensure the local control station is not active or is set to remote mode. If local control is not being used, test the voltage on the Control Box Open and Close pins relative to the COM pins. Greater than 3V should be measured.
	Servo NXT in manual or autocalibration mode	Check the indicators for manual and autocalibration mode
	Autocalibration not conducted after CAM Shaft assembly adjustments	Autocalibrate Servo NXT
	Servo NXT is incorrectly wired	Verify wire connections against the wiring diagram. Wiring diagrams found inside actuator lid and upon email request.
Cmd Signal Fault	Command signal does not match Input setting	Adjust the Input setting to match the command signal used
	Servo NXT is incorrectly wired	Verify wire connections against the wiring diagram. Wiring diagrams found inside actuator lid and upon email request.
	Servo NXT is not receiving the command signal	Test the Input Command connection with a multimeter or oscilloscope. Command Signal and Feedback wires must be shielded and grounded. Some applications require separate conduits for signal wires, per NEC.
Limit Switch Fault	Both limit switches are engaged or disengaged at the same time	Adjust actuator cams
	Servo NXT is incorrectly wired	Verify wire connections against the wiring diagram. Wiring diagrams found inside actuator lid and upon email request.
	Travel limit switch failure	Test the switches to ensure that they are changing Limit Switch fault light states when engaged. View the NXT's OPEN (green) and CLOSE (red) Valve Position indicator lights.

Issues	Possible Causes	Possible Solutions
Hand Wheel Fault	Hand Wheel is engaged	Disengage (push in) hand wheel
	Servo NXT is incorrectly wired	Verify wire connections against the wiring diagram. Wiring diagrams found inside actuator lid and upon email request.
	Hand wheel switch failure	Test the switch to ensure that it is changing Hand Wheel fault light states when engaged.
FB Pot Fault	Potentiometer outside of travel range	Operate the actuator to the fully open and fully closed position, and adjust the potentiometer position to always be between 0.1-3.1 VDC. Follow calibration procedure.
	Servo NXT is incorrectly wired	Verify wire connections against the wiring diagram. Wiring diagrams found inside actuator lid and upon email request.
Torque Switch Fault	Torque Switch setting enabled with no torque switches connected	Disable torque switch setting
	Torque switch(es) engaged	Check the valve and/or actuator for obstructions.
	Servo NXT is incorrectly wired	Verify wire connections against the wiring diagram. Wiring diagrams found inside actuator lid and upon email request.
	Torque Switch failure	Test the switches to ensure that they are changing Torque Switch fault light states when engaged.
	Top Plate has been removed or adjusted	This can effect Torque Switch calibration, requiring factory recalibration.
Motor Stall Fault (all 5 fault lights flash)	Operational torque is exceeding the torque rating of the actuator	Check the valve and/or actuator for obstructions. Remove actuator, measure the valve stem torque required to rotate the valve disk and verify against the actuator torque rating.
	Fault lights exist while initiating autocalibration	Correct applicable fault light
	Autocalibration not conducted after CAM Shaft assembly adjustments	Autocalibrate Servo NXT
	Motor Stall enabled on 13k & 18k inlb actuators	Disable Motor Stall Detection, by holding UP and DOWN arrows simultaneously for 5 seconds.
	Servo NXT is incorrectly wired	Verify wire connections against the wiring diagram. Wiring diagrams found inside actuator lid and upon email request.
Fault condition during autocalibration	Fault occurring during calibration	Correct any faults lights. Operate the actuator to the fully open and fully closed position, while verifying potentiometer voltage is between 0.1-3.1 VDC and NXT's OPEN (green) and CLOSE (red) Valve Position indicator lights function.
	Servo NXT is incorrectly wired	Verify wire connections against the wiring diagram. Wiring diagrams found inside actuator lid and upon email request.

Reference Files:

S70 Servo NXT IOM Manual	https://braycommercialdivision.com/wp-content/uploads/2017/01/s70-servo-nxt_modulating-controller_hs_5_15_18.pdf
S70 IOM Manual	https://braycommercialdivision.com/wp-content/uploads/2017/01/series-70-iom.pdf
BRAY NXT Servo Calibration REV2	https://youtu.be/0qPfJiB9OZQ
S70 Servo NXT Calibration & Testing	Request by Email: bcdsales@bray.com
S70 Servo NXT Potentiometer Setting	Request by Email: bcdsales@bray.com
S70 Submittal	https://braycommercialdivision.com/wp-content/uploads/2017/01/series-70-submittal-modulating.pdf
S70 Sales Brochure	https://braycommercialdivision.com/wp-content/uploads/2017/01/series-70_catalog-section.pdf