

GKB24-SR-T N4H - Damper Actuator

NEMA 4, Modulating, Electronic Fail-Safe, 24 V, for 2 or 10 VDC or 4 to 20 mA Control Signal



Technical Data

Power Supply	24 VAC, $\pm 20\%$, 50/60 Hz, 24 VDC, -10% / $+20\%$
Power consumption in operation	11 W
Power consumption in rest position	3 W
Transformer sizing	21 VA (class 2 power source) / heater 21 VA
Shaft Diameter	1/2" to 1.05" round, centers on 3/4" with insert, 1.05" without insert
Electrical Connection	screw terminal (for 26 to 14 GA wire), 1/2" conduit connector
Overload Protection	electronic throughout 0° to 95° rotation
Electrical Protection	actuators are double insulated
Operating Range	DC 2...10 V, 4 to 20 mA w/ ZG-R01 (500 Ω , 1/4 W resistor)
Input Impedance	100 k Ω (0.1 mA), 500 Ω
Position Feedback	DC 2...10 V, Max. 0.5 mA
Angle of rotation	Max. 95°, adjustable with mechanical stop
Torque motor	360 in-lbs [40 Nm]
direction of rotation motor	reversible with built-in switch
direction of rotation spring-return	reversible with switch
Fail Safe Position	adjustable with dial 0 to 95° in 10° increments
Position indication	dial
Manual override	external push button
Running time motor	150 sec, constant, independent of load
Running time emergency control position	<35 sec
Bridging time	2 sec delay before fail-safe activates
Pre-charging time	5 to 20 seconds
Ambient humidity	5 to 95% RH non-condensing
Ambient temperature	-40...122 °F [-40...50 °C]
Non-operating temperature	-40...176 °F [-40...80 °C]
Degree of Protection	IP66, NEMA 4X, UL Enclosure Type 4X
Housing material	polycarbonate
Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No 24-93, CE acc. to 89/336/EC
Noise level, motor	≤ 52 dB (A)
Noise Level (Fail-Safe)	≤ 61 dB (A)
Maintenance	maintenance free
Quality Standard	ISO 9001
Weight	9.05 lb [4.11 kg]

†Rated Impulse Voltage 800V, Type of action 1.AA, Control Pollution Degree 4.

Torque min. 360 in-lb, for control of damper surfaces up to 90 sq. ft.

Application

For modulation of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications. The actuator is mounted directly to a damper shaft up to 1.05" in diameter by means of its universal clamp. The actuator operates in response to a 2 to 10 VDC, with the addition of a 500 Ω resistor, a 4 to 20 mA control input from an electronic controller or positioner. A 2 to 10 VDC feedback signal is provided for position indication. Not to be used for a master-slave application. Heater must remain powered at all times to ensure proper actuator operation at colder temperatures.

Operation

The GK..24-SR-T N4 actuator provides 95° of rotation and a visual indicator shows the position of the actuator. When reaching the damper or actuator end position, the actuator automatically stops. The gears can be manually disengaged by pressing the button located on the actuator cover. The GK..24-SR-T N4 actuator uses a sensorless brushless DC motor, which is controlled by an Application Specific Integrated Circuit (ASIC). The ASIC monitors and controls the actuator's rotation and provides a digital rotation sensing (DRS) function to prevent damage to the actuator in a stall condition. Power consumption is reduced in a holding mode. The actuator is electronically protected against overload. The anti-rotation strap supplied with the actuator will prevent lateral movement. Add-on auxiliary switches or feedback potentiometers are easily fastened directly onto the actuator body for signaling and switching functions.

Fail-Safe Indication

Green LED status indicator light sequence:

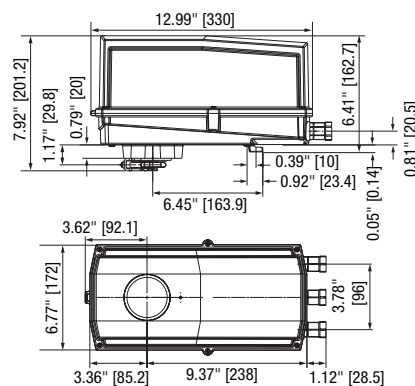
On: operation ok, no faults

Blinking: fail-safe mechanism is active

Off: fault is detected or not in operation / capacitors charging

Installation Note: Use suitable flexible metallic conduit or its equivalent with the conduit fitting. Not suitable for plenum applications.

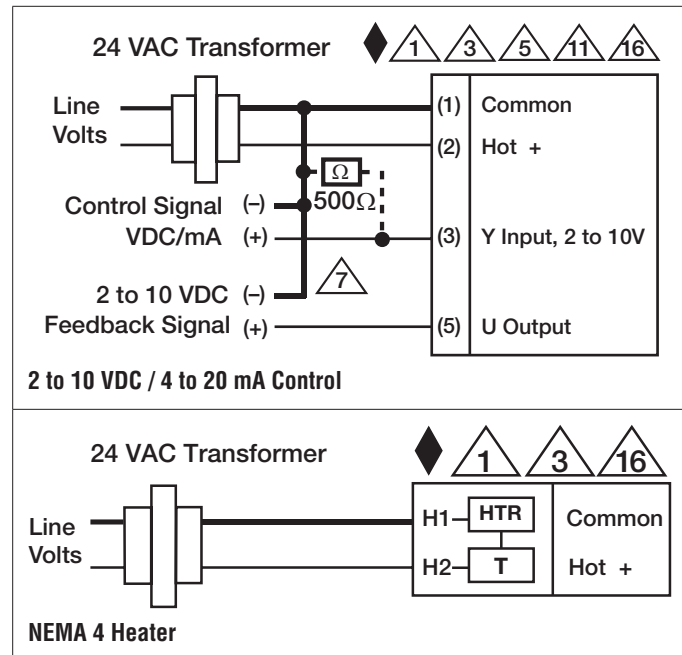
Dimensions (Inches[mm])



Accessories	
AV8-25	Shaft extension 240 mm
TOOL-07	13 mm wrench.
ZG-JSA-1	1" diameter jackshaft adaptor (11" L).
ZG-JSA-2	1-5/16" diameter jackshaft adaptor (12" L).
ZG-JSA-3	1.05" diameter jackshaft adaptor (12" L).
EF-P	Anti-rotation bracket EFB(X)/GKB(X)/GMB(X).
ZG-120	Jackshaft mounting bracket.
11097-00001	Gasket for cable gland (for NEMA 4 models).
43442-00001	Cable gland (for NEMA 4 models).
ADS-100	Analog to digital switch for modulating actuators.
IRM-100	Input rescaling module for modulating actuators.
P10000A GR	Feedback potentiometer for damper actuators and rotary actuators
P1000A GR	Feedback potentiometer for damper actuators and rotary actuators
P140A GR	Feedback potentiometer for damper actuators and rotary actuators
P2800A GR	Feedback potentiometer for damper actuators and rotary actuators
P475	Shaft mount, non-Mercury aux. switch for 1/2" dia. shafts.
P475-1	Shaft mount, non-Mercury aux. switch for 1" dia. shafts.
P5000A GR	Feedback potentiometer for damper actuators and rotary actuators
P500A GR	Feedback potentiometer for damper actuators and rotary actuators
PS-100	Actuator power supply and control simulator.
PTA-250	Pulse width modulation interface for modulating actuators.
S1A	Auxiliary switch for damper actuators and rotary actuators
S2A	Auxiliary switch for damper actuators and rotary actuators
SGA24	Positioners suitable for use with the modulating damper actuators LM..A-SR, NM..A-SR, SM..A-SR and GM..A-SR
SGF24	Positioners suitable for use with the modulating damper actuators LM..A-SR, NM..A-SR, SM..A-SR and GM..A-SR
ZG-R01	4 to 20 mA adaptor, 500Ω, 1/4 W resistor w 6" pigtail wires.
ZG-R02	50% voltage divider kit (resistors with wires).
ZG-SGF	Mounting plate for SGF.
ZG-X40	120 to 24 VAC, 40 VA transformer.

Typical Specification

Modulating control, electronic fail-safe damper actuators shall be electronic direct-coupled type, which require no crank arm and linkage and be capable of direct mounting to shaft up to 1.05" diameter. Actuators must provide modulating damper control response to a 2 to 10 VDC or, with the addition of a 500 Ω resistor, a 4 to 20 mA control input from an electronic controller or positioner. Actuators shall have brushless DC motor technology and be protected from overload at all angles of rotation. Actuators shall have reversing switch and manual override on the cover. Run time shall be constant and independent of torque. A 2 to 10 VDC feedback signal shall be provided for position feedback. Actuators shall be cULus listed, have a 5-year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.



GKB24-SR-T N4H - Damper Actuator

NEMA 4, Modulating, Electronic Fail-Safe, 24 V, for 2 or 10 VDC or 4 to 20 mA Control Signal



Wiring Diagrams



WARNING! LIVE ELECTRICAL COMPONENTS!

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.



Meets cULus requirements without the need of an electrical ground connection.



Provide overload protection and disconnect as required.



Actuators may also be powered by 24 VDC.



Only connect common to negative (-) leg of control circuits.



A 500 Ω resistor (ZG-R01) converts the 4 to 20 mA control signal to 2 to 10 VDC.



Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.



Actuators are provided with a numbered screw terminal strip instead of a cable.