

# GKX24-MFT-T N4

NEMA 4, Proportional Control, Electronic Fail-Safe, Direct Coupled, 24V, Multi-Function Technology®



Technical Data	GKX24-MFT-T N4
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	12 W (3 W)
Transformer sizing	21 VA (class 2 power source)
Electrical connection	screw terminal (for 26 to 14 GA wire) ½" conduit connector
Overload protection	electronic throughout 0 to 95° rotation
Operating range Y	2 to 10 VDC, 4 to 20 mA (default) variable (VDC, floating point, on/off)
Input impedance	100 kΩ
Feedback output U	2 to 10 VDC, 0.5 mA max, VDC variable
Angle of rotation	max. 95°, adjustable with mechanical stop electronically variable
Torque	360 in-lb [40 Nm]
Direction of rotation	reversible with  switch
Position indication	dial
Running time	150 seconds (default) variable (90 to 350 seconds)
Motor fail-safe	35 seconds
Humidity	5 to 100% RH (UL Type 4)
Ambient temperature	-22°F to 122°F [-30°C to 50°C]
Storage temperature	-40°F to 176°F [-40°C to 80°C]
Housing	UL Type 4, NEMA 4, IP66
Housing material	polycarbonate
Agency listings†	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93, CE acc. to 89/336/EEC
Noise level	<45dB(A)
Servicing	maintenance free
Quality standard	ISO 9001
Weight	10.4 lbs [4.71 kg]

†Rated Impulse Voltage 800V, Type of action 1, Control Pollution Degree 3.

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

## Application

For proportional 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 a universal clamp.

The default parameters for 2 to 10 VDC applications of the GKX24-MFT-T N4 actuator are assigned during manufacturing. If necessary, custom versions of the actuators can be ordered. The parameters can be changed by: pre-set or custom configurations provided by Belimo or on-site using the PC-Tool software.

## Operation

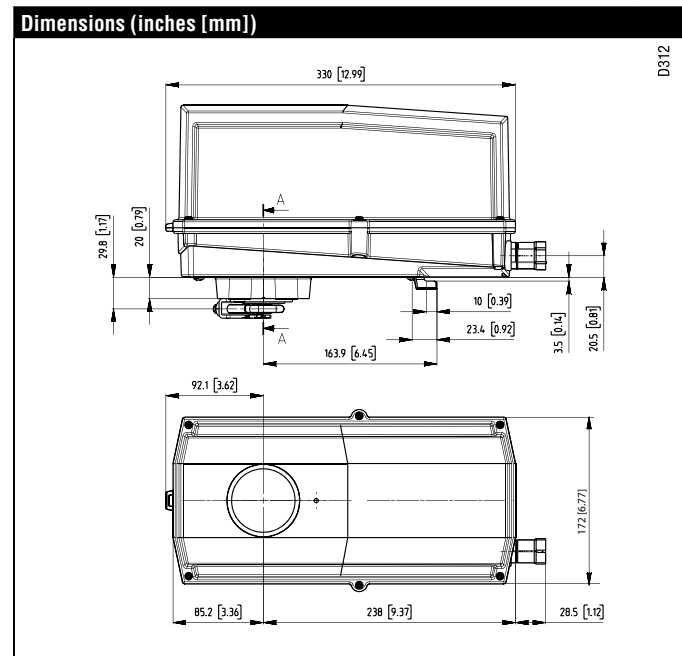
The actuator is electronically protected against overload. The anti-rotation strap supplied with the actuator will prevent lateral movement.

The GKX24-MFT-T N4 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 GKX24-MFT-T N4 actuator uses a 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 holding mode.

Add-on auxiliary switches or feedback potentiometers are easily fastened directly onto the actuator body for signaling and switching functions.

**When combining signal and power cable together, see important electrical installation diagram on page 156.**



M40024 - 05/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

#### Accessories

ZS-100	Weather Shield - Steel
S1A, S2A	Auxiliary Switch(es)
P...A	Feedback Potentiometers
SGA24	Min positioners for surface mounting
SGF24	Min positioners for flush panel mounting
ADS-100	Analog to Digital Switch
ZG-R01	Resistor for 4 to 20 mA Conversion
NSV24 US	Battery Back-Up Module
ZG-X40	Transformer
43442-00001	Gland (needed for additional wires)
11097-00001	Gasket for Gland

**Note:** When using GKX24-MFT-T N4 actuators, only use accessories listed on this page.

#### Typical Specification

Proportional control damper actuators shall be electronic direct-coupled type, which require no crank arm and linkage and be capable of direct mounting to a shaft up to 1.05" diameter. Actuators must provide proportional damper control in 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. 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.

#### Wiring Diagrams

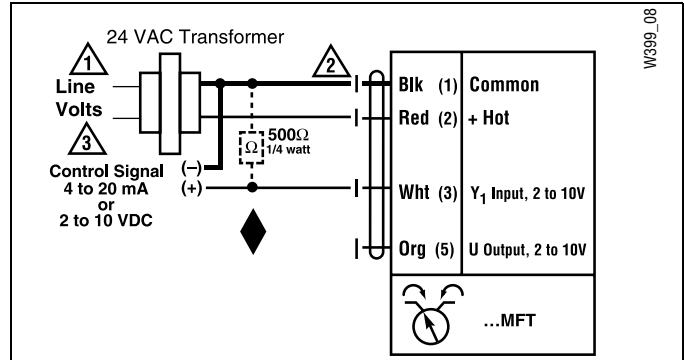
#### INSTALLATION NOTES

- 1 Provide overload protection and disconnect as required.
- 2 **CAUTION Equipment Damage!** Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.
- 3 Actuators may also be powered by 24 VDC.
- 4 Position feedback cannot be used with Triac sink controller. The actuator internal common reference is not compatible.
- 5 Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.
- 8 Contact closures A & B also can be triacs.
- 9 For triac sink the common connection from the actuator must be connected to the hot connection of the controller.

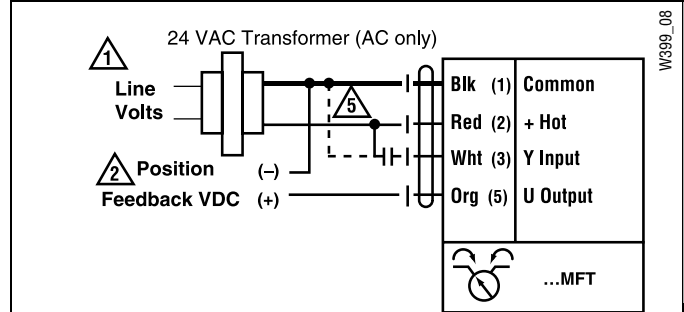
#### APPLICATION NOTES

- ◆ The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.

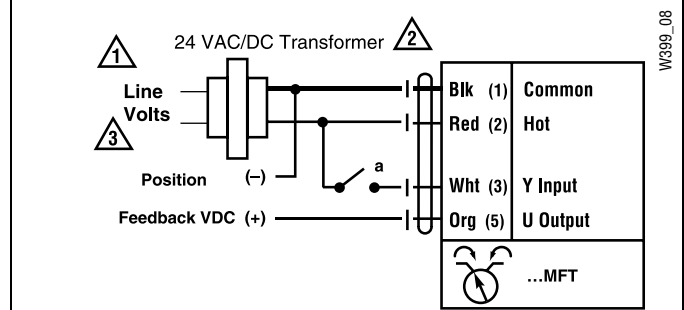
- ⚠ **WARNING Live Electrical Components!** During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components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



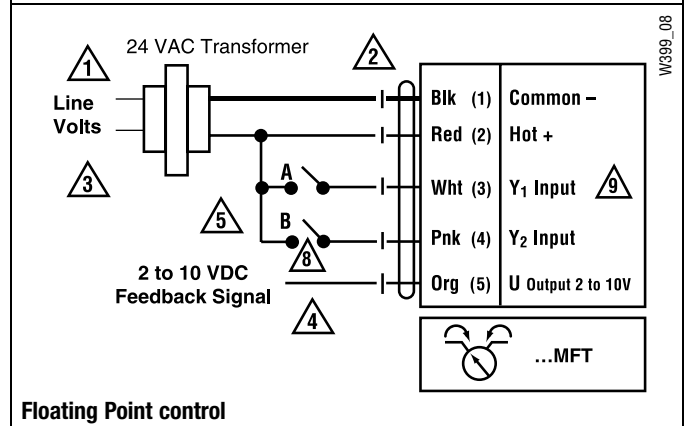
VDC/4-20 mA



PWM



On/Off control



Floating Point control