AF24-MFT95 US

Proportional Damper Actuator, Spring Return Fail-Safe, 24 V for Use with Honeywell® Electronic Series 90, or a 0 to 135 Ω input

MFT

5 YEAR WARRANTY

- **Torque min. 133 in-lb**
- **Control fixed, 0 to 135 Ω input, or Honeywell series 90 (fixed)**
- **Feedback 2 to 10 VDC (DEFAULT)**

Application

For proportional modulation of dampers and control valves in HVAC systems. The AF24-MFT95 US provides mechanical spring return operation for reliable fail-safe application.

Default/Configuration

Default parameters for 0 to 135 Ω Input applications of the AF24-MFT95 US actuator are assigned during manufacturing. If required, custom versions of the actuator can be ordered. However the control input cannot be modified via MFT PC tool software. The parameters noted in the Technical Data table are variable.

These parameters can be changed by three means:

- Pre-set configurations from Belimo
- Custom configurations from Belimo
- Configurations set by the customer using the MFT PC tool software application.

Operation

The AF24-MFT95 US actuator provides 95° of rotation and is provided with a graduated position indicator showing 0° to 95°. The actuator will synchronize the 0° mechanical stop or the physical damper or valve mechanical stop and use this point for its zero position during normal control operations. A unique manual override allows the setting of any actuator position within its 95° of rotation with no power applied.This mechanism can be released physically by the use of a crank supplied with the actuator. When power is applied the manual override is released and the actuator drives toward the fail-safe position.

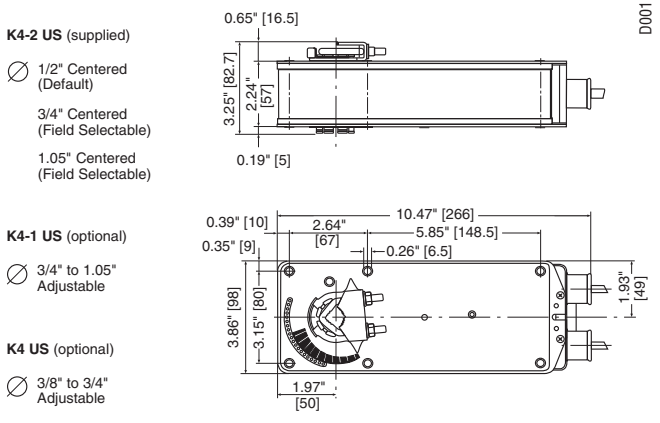
The actuator uses a brushless DC motor which is controlled by an Application Specific Integrated Circuit (ASIC) and a microprocessor. The microprocessor provides the intelligence to the ASIC to provide a constant rotation rate and to know the actuator's exact position. The ASIC monitors and controls the brushless DC motor's rotation and provides a Digital Rotation Sensing (DRS) function to prevent damage to the actuator in a stall condition. The position feedback signal is generated without the need for mechanical feedback potentiometers using DRS. The actuator may be stalled anywhere in its normal rotation without the need of mechanical end switches.

The AF24-MFT95 US is mounted directly to control shafts up to 1.05" diameter by means of its universal clamp and anti-rotation bracket. A crankarm and several mounting brackets are available for damper applications where the actuator cannot be direct coupled to the damper shaft. The spring return system provides minimum specified torque to the application during a power interruption. The AF24-MFT95 US actuator is shipped at +5° (5° from full fail-safe) to provide automatic compression against damper gaskets for tight shut-off.

Technical Data	AF24-MFT95 US
Power supply	24 VAC ± 20% 50/60 Hz
Power consumption running	6 W
holding	2 W
Transformer sizing	10 VA (class 2 power source)
Electrical connection	3 ft, 18 GA appliance cable
Overload protection	electronic throughout 0 to 95° rotation
Operating range WRB	0 to 135 Ω Honeywell electronic series 90, or a 0 to 135 Ω input
Feedback output U*	2 to 10 VDC, 0.5 mA max
Mechanical angle of rotation*	95°, adjustable 35° to 95° w/ZDB-AF2 US
Torque	133 in-lb [15 Nm] constant
Direction of rotation*	spring: reversible with cw/ccw mounting
Direction of rotation* spring	reversible with cw/ccw mounting
Position indication	visual indicator, 0° to 95° (0° is spring return position)
Manual override	3mm hex crank (shipped w/actuator)
Running time motor*	150 seconds constant
spring	<20 sec spring return fail safe position
Angle of Rotation Adaptation*	Off (Default)
Override control*	Min. (Min Position) = 0%
Humidity	5 to 95% RH non-condensing
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	NEMA type 2 / IP54
Housing material	zinc coated metal
Agency listings	cULus acc. to UL 873 and CAN/CSA C22.2 No. 24-93
Noise level	max. 45 dB (A)
Servicing	maintenance free
Quality standard	ISO 9001
Weight	6.0 lbs (2.7 kg)

* Variable when configured with MFT options

Dimensions (Inches [mm])

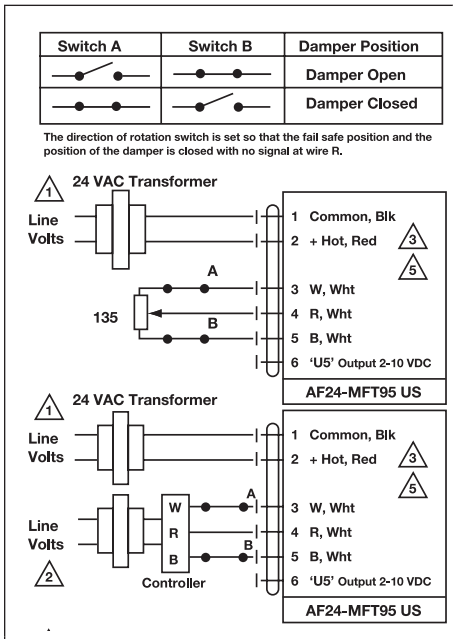


Proportional Potentiometric Control - Wiring Diagrams

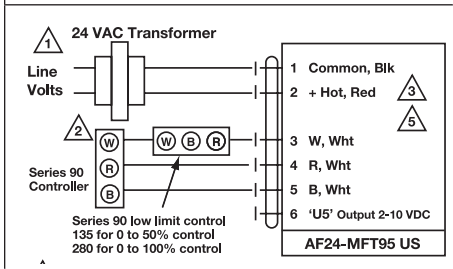
INSTALLATION NOTES

1. Provide overload protection and disconnect as required.
2. ***CAUTION** Equipment damage!*
   Actuators and controller must have separate transformers.
3. Consult controller instruction data for more detailed installation information.
4. Resistor value depends on the type of controller andthe number of actuators. No resistor is used for one actuator. Honeywell resistor kits may also be used.
5. To reverse control rotation, use the reversing switch.

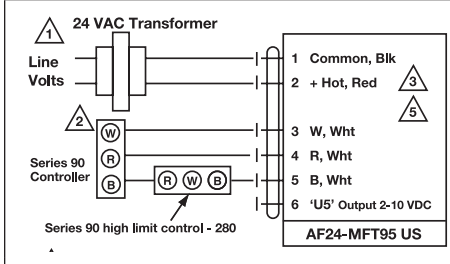
***WARNING** Live Electrical Components!*
During installation, testing, servicing and troubleshooting of this product, it maybe necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components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



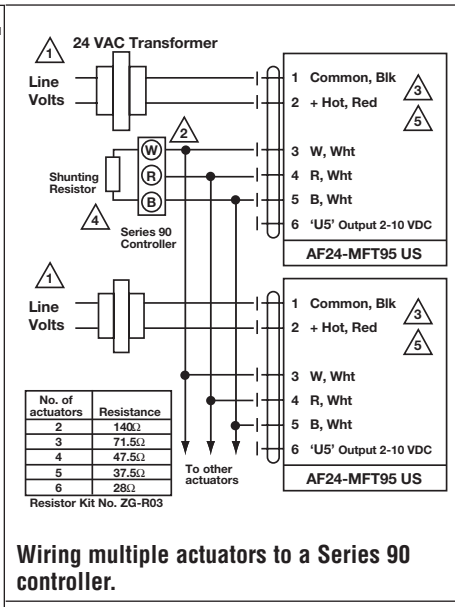
Override of AF24-MFT95 US



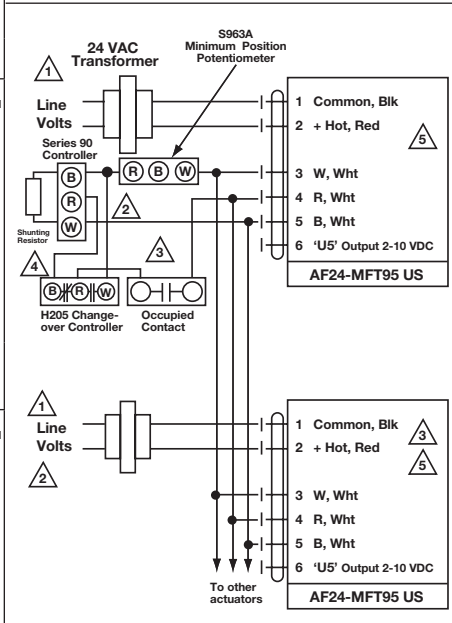
AF24-MFT95 US used with a Series 90 controller and a Series 90 low limit control



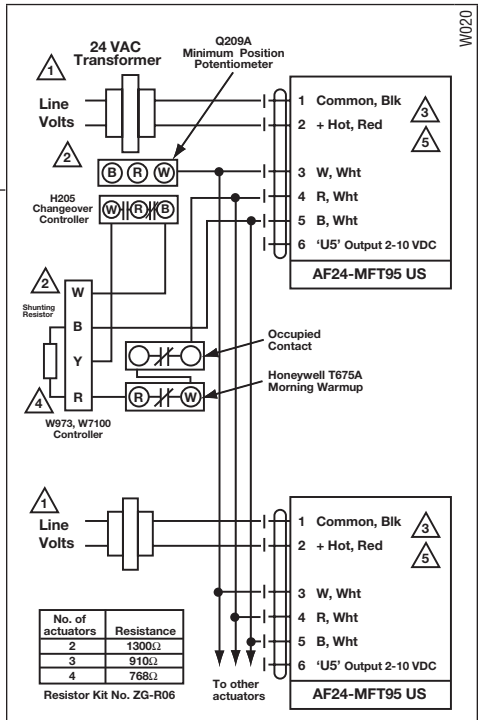
AF24-MFT95 US used with a Series 90 controller and a Series 90 high limit control



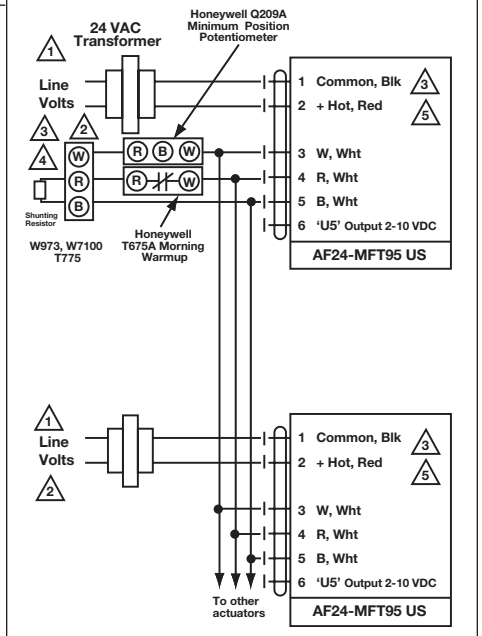
Wiring multiple actuators to a Series 90 controller.



Wiring multiple actuators to a Series 90 controller using a minimum position potentiometer.



Used with the W973 and W7100 controllers.



Typical wiring diagrams for multiple actuators used with the W973, W7100 and T775 controllers.