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RUSKIN AIR MEASUREMENT ACTUATOR (VAFB24-BAC RAMS)
FACTORY INSTALLED ON AIRFLOW-IQ SERIES AIR MEASUREMENT STATIONS

Communicative actuator for adjusting air dampers in ventilation and air conditioning systems.

- Torque 180 in-lb
- Ethernet 10/100 Mbit/s, TCP/IP, integrated Web server
- BACnet/IP, BACnet MS/TP
- Control up to three additional actuators via MP-Bus
- Two analog inputs for flow sensing and receiving a DDC setpoint

Technical Data	VAFB24-BAC RAMS
Power supply	24 VAC± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	7.5 W
Transformer sizing	10.0 VA (Class 2 power source)
Electrical connection	18GA plenum rated cable and RJ45 socket (Ethernet)
Overload protection	electronic throughout 0 to 95° rotation
Communication	TCP/IP
Angle of rotation	max. 95°, adjustable with mechanical stop
Torque	180 in-lb [20Nm]
Direction of rotation - motor	reversible with ↷/↶ switch
Direction of rotation - spring	reversible with cw/ccw mounting
Manual overide	5mm hex crank, supplied
Running time	70 seconds
Automatic adjustment of running time to match the mechanical angle of rotation	manual triggering of the adaption by pressing the "Adaption" button or via communication
Interfaces	**Ethernet:** 10/100 Mbit/s, TCP/IP, Web server integrated. Supported protocols: BACnet/IP, DHCP, IPv4, UDP, TCP, HTTP, NTP, SMTP, Zeroconf **EIA-485:** BACnet MS/TP **MP-Bus:** Master, 1200 Baud, Up to three additional actuators can be connected
SharedLogic automation function	open programmable HVAC application with real time clock, programming and comissioning with SL-Tool
Humidity	5 to 95% RH non condensing (EN 6073-1)
Ambient temperature	-22°F to 122°F -30° to 50°
Storage temperature	-40°F to 176°F [-40°C to 80°C]
Housing	NEMA2, IP54, UL enclosure type 2
Housing materials	zinc coated metal and plastic housing
Agency listing	CE acc. To 2004/108/EEC and 2006/95/EC
Noise level	<40dB(A) motor ; <62dB(A) spring
Servicing	maintenance free
Quality standard	ISO 9001
Weight	4.6 lb [1.9 kg]

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

MODE OF OPERATION

The air measurement actuator is the BACnet interface and setup port for the air measurement station. The air measurement actuator accepts a CFM SETPOINT via analog input S2 or a network driven value that when present will override the analog input. The actuator will modulate the damper to maintain the set point value. Air flow measurement sensor is connected to Input S1 of the actuator and can represent velocity pressure or a velocity air flow measurement. Air measurement is calculated based on actuator's configuration and reported via the BACnet interface or an analog output from the sensor to the building automation system. Air Measurement actuator includes WEBSERVER and can be configured using any web browser such as Internet Explorer.

Direct Position Control via BACnet or Analog Input is also possible, using the flow input for reporting only.

FEATURES

- Setup via integrated Web Server and Ethernet IP connection, directly to actuator.
- BACnet/IP or BACnet MS/TP
- Fail Safe Signal Interlock, drives damper closed on loss of signal.
- Spring open or spring close on loss of power as required for application.
- Controls multiple MFT actuators – Use for Large multi-section air measurement stations or to control Return air damper or hot-deck cold-deck or face & bypass applications, equal or equal and opposite position.

INPUTS

Two inputs. S1 - Sensor. S2 - Setpoint & fail safe interlock contact Note: When using Network CFM setpoint or position control S2 must be jumpered to 24V (Pin2 RED) to enable operation. Loss of signal on S2 will drive the actuator to the closed position. Connect through dry contact if desired for low-temperature protection or occupied / unoccupied operation.

SIMPLE DIRECT MOUNTING

Simple direct mounting on the damper shaft with a universal clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.

MANUAL OVERRIDE

Manual position override with hand crank and lock switch is possible while power is removed from the actuator.

ADJUSTABLE ANGLE OF ROTATION

Adjustable angle of rotation with mechanical end stops.

HIGHER OPERATIONAL RELIABILITY

The actuator is overload protected. No limit switches are required, automatically stops when the end stop is reached.

COMMISSIONING

Site specific network interface configuration by installing contractor.

Air Measurement Station configuration, size, sensor technology and settings by installing contractor to match attached air measurement station.

BUILT IN TRENDING

Short term 31 Days
Long Term Compressed file 13 Months

Accessories	
K-LM	3/4" Shaft Clamp
AV6-20	Shaft Extension
ZG-LMSA	Shaft Adaptor of 1/2" Diameter shafts
ZG-LMSA-1	Shaft Adaptor of 3/8" Diameter shafts
ZS-100	Weather Shield - Steel
ZS-150	Weather Shield - Polycarbonate
-MPX	Actuators and I/O Expansion Modules

Safety Notes

- The actuator must not be used outside the specific field of applications, especially not in aircraft or in any other means of transport.
- It may only be installed by suitable trained personnel. Any legal regulations or regulations issued by authorities must be observed during assembly
- The actuator does not contain any parts that can be replaced or repaired by the user

Electrical Installation

INSTALLATION NOTES

1. Switching current 10 mA @ 24V
2. Resistance range 200Ω to 55 kΩ
3. Suitable for Ni1000, Pt1000, NTC3k, NTC5k and NTC10k
4. Sensor signal DC 0-10V
5. Resolution 5mV

WARNING

Connect via safety isolation transformer.

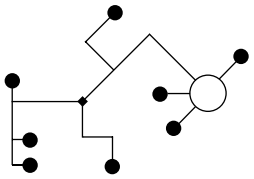
APPLICATION NOTES

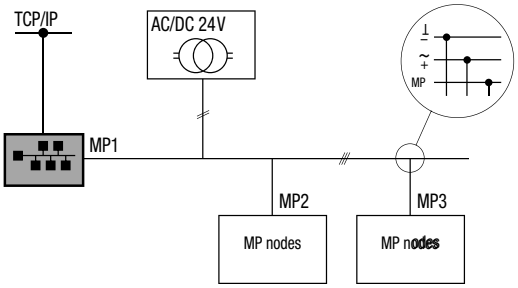
MP Bus supply and communication in the same 3-wire cable

- no shielding or twisting necessary
- no terminating resistors required

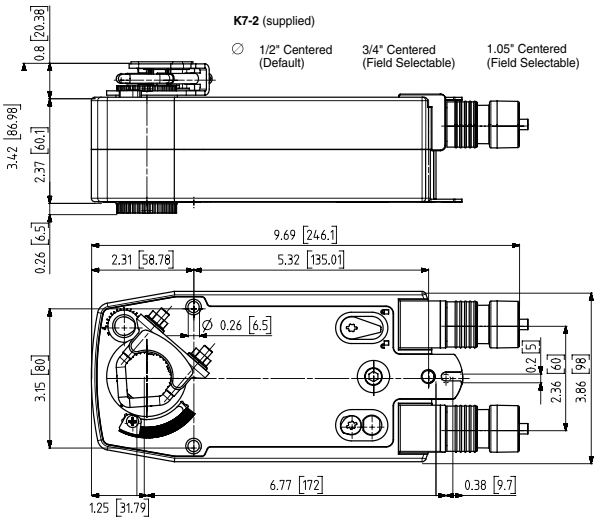
MP-Bus power topology

There are no restrictions for the power topology (star, ring, tree or hybrid forms are permitted).

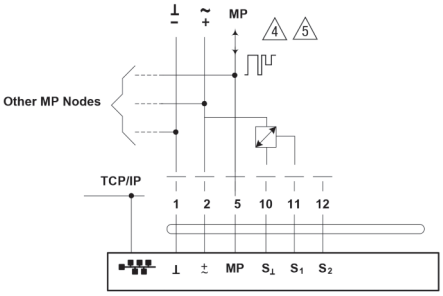




Dimensions (Inches [mm])



Wiring Diagrams



Connection of active sensors

Wiring

3-ft black plenum cable connector with the following pin assignments

Wire 1	Ground - Black
Wire 2	24V Hot – Red
Wire 5	MPBus - Orange
Wire 6	C1 BACnet MS/TP (-) Pink
Wire 7	C2 BACnet MS/TP (+) Gray
Wire 10	Sensor Com – Yellow/Black
Wire 11	S1 – Yellow/Pink
Wire 12	S2 – Yellow/Grey

Notes

S1 - 0-10V Air measurement sensor
S2- 0-10V CFM setpoint & Loss of signal Interlock. Jumper to 24V Hot if not used.

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