

AVID F31 SERIES POSITION MONITORS

Flat mounted dual position monitors for pneumatically actuated quarter turn valves



FEATURES

- Compact design allows installation in areas offering limited space
- Suitable for direct mounting on all Keystone and PremiAir actuators
- Units conform to VDI/VDE 3845 standard
- Clearly visible local indication
- Easy to assemble and connect electrically
- Mounting requires no sensor adjustment
- Versatile selection of electrical connections
- Fully potted electronics provide optimal protection
- Clear valve position indication and solenoid activation by LED's
- ATEX certified for II 2G/2D applications
- Control by conventional or AS-interface applications

MODELS

- **F31**
Small and compact inductive dual sensor.
- **F31K**
Inductive dual sensor with integrated terminal enclosure.

OPTIONS

- Integrated electrical solenoid connection
- Inverted position indication (NC)
- Adjustable position indication



AVID F31 SERIES POSITION MONITORS

MODEL F31 DUAL POSITION MONITOR



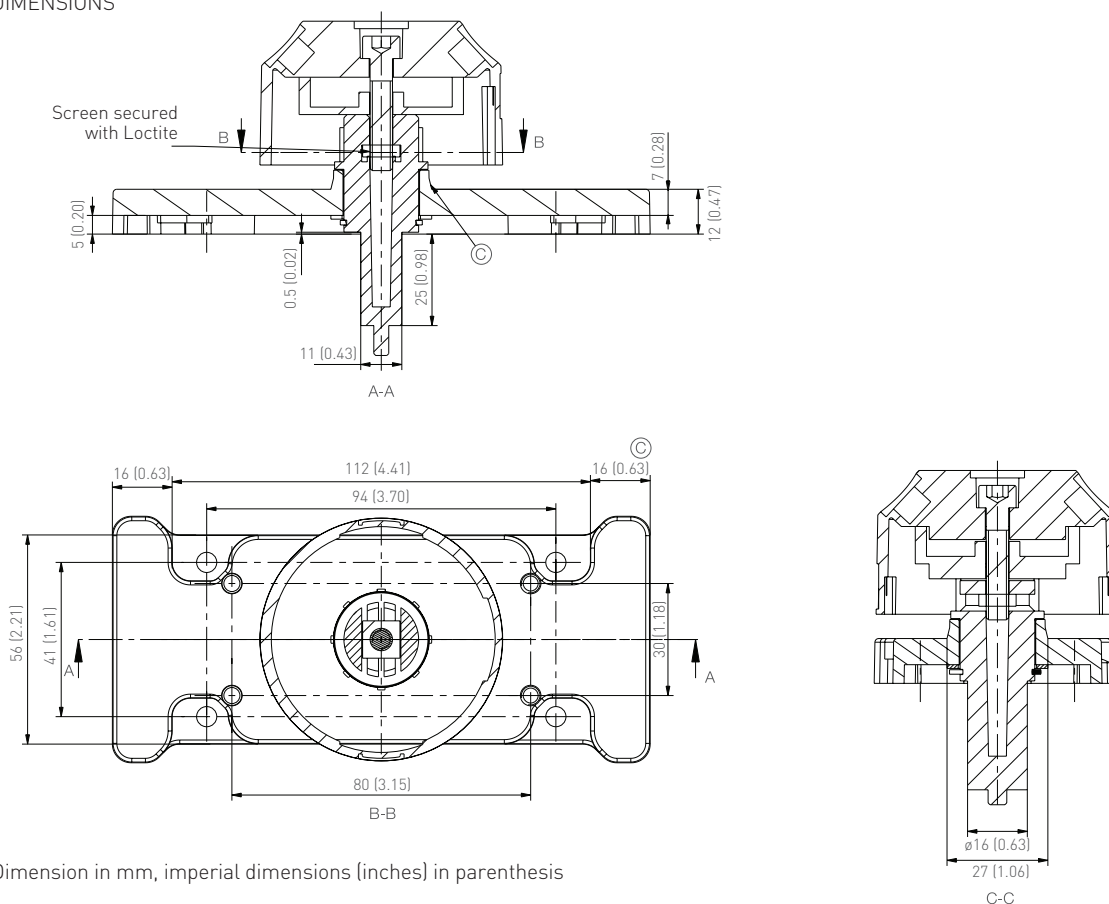
GENERAL DESCRIPTION

The model F31 dual position monitor incorporates two inductive proximity sensors to interface the valve position with a PLC/DCS control system. The units have a compact design and are mounted directly onto the Keystone F79E/U and PremiAir actuators.

FEATURES

- Enclosure constructed of engineered resin
- Fully potted electronics provide optimal protection
- Suitable for direct mounting on all Keystone and PremiAir actuators
- Units conform to VDI/VDE 3845 standard for mounting on other types of actuators
- Mounting requires no sensor adjustment
- Rotating 'target puck' provides visual position indication
- Versatile selection of electrical connections up till 250 V AC/DC
- Solenoid wire directly connected to F31
- Electrical connections by fixed cable or connectors
- Local valve position indication and solenoid activation by LED's
- ATEX certified for II 2G/2D applications
- Support of AS-interface 2.1
- Optional BT65A puck provides adjustable and inverted position indication

DIMENSIONS



Dimension in mm, imperial dimensions (inches) in parenthesis

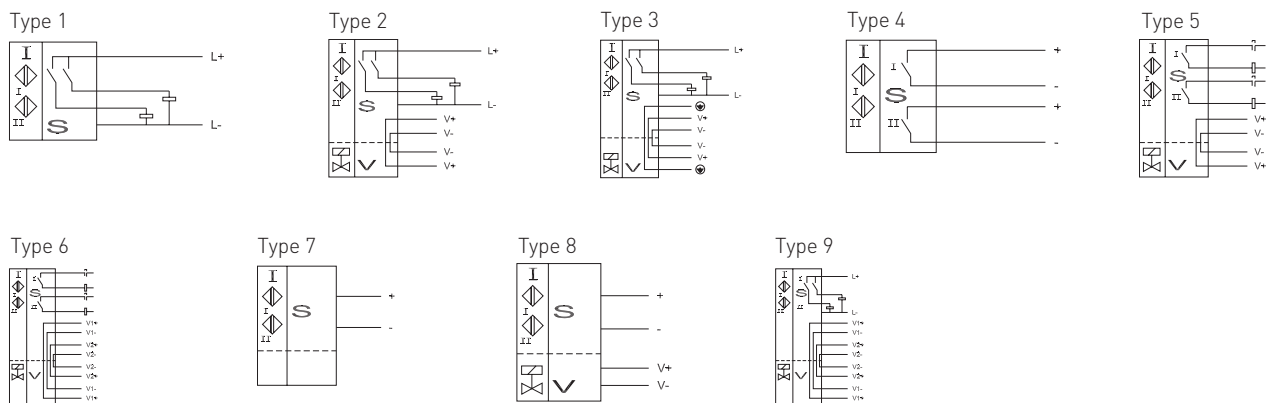
MATERIALS OF CONSTRUCTION

Body	PBT
Puck	ABS
Fasteners	Stainless steel
Plate	ABS
Shaft	ABS

SPECIFICATIONS

IP rating	IP67
Operating temperature	-25°C to +70°C / -13°F to +158°F
temperature	-25°C to +100°C / -13°F to +212°F

AVID F31 SERIES POSITION MONITORS



Output	Voltage	Load target absent	Load target present	Connection sensor	Connection solenoid	Temperature range	ATEX	Reference	Electrical diagram
2x PNP	10...30 V DC	<0.5 mA	<100 mA	Cable PVC 5M	None	-25 ... +70 °C		NBN3-F31-E8-K	Type 1
2x PNP	10...30 V DC	<0.5 mA	<100 mA	Cable PVC 5M	Cable PVC 0,5M	-25 ... +70 °C		NBN3-F31-E8-K-K	Type 2
2x PNP	10...30 V DC	<0.5 mA	<100 mA	M12 connector	None	-25 ... +70 °C		NBN3-F31-E8-V1	Type 1
2x PNP	10...30 V DC	<0.5 mA	<100 mA	M18 connector	None	-25 ... +70 °C		NBN3-F31-E8-V18	Type 1
2x PNP	10...30 V DC	<0.5 mA	<100 mA	Rd24 x 1/8	M12 connector	-25 ... +70 °C		NBN3-F31-E8-V16-V15	Type 3
2x PNP	10...30 V DC	<0.5 mA	<100 mA	Cage clamp terminals	None	-25 ... +70 °C		NBN3-F31K-E8	Type 1
2x PNP	10...30 V DC	<0.5 mA	<100 mA	Cage clamp terminals	Cage clamp terminals	-25 ... +70 °C		NBN3-F31K-E8-K	Type 2
2x PNP	10...30 V DC	<0.5 mA	<100 mA	Cage clamp terminals	2 x M12 connector	-25 ... +70 °C		NBN3-F31K-E8-V1-V1	Type 9
2x 2 wires	6...60 V DC	<1 mA	<100 mA	Cable PVC 5M	None	-25 ... +70 °C		NBN3-F31-Z8-K	Type 4
2x 2 wires	6...60 V DC	<1 mA	<100 mA	Cable PVC 5M	Cable PVC 0,5M	-25 ... +70 °C		NBN3-F31-Z8-K-K	Type 5
2x 2 wires	6...60 V DC	<1 mA	<100 mA	M12 connector	None	-25 ... +70 °C		NBN3-F31-Z8-V1	Type 4
2x 2 wires	6...60 V DC	<1 mA	<100 mA	M18 connector	None	-25 ... +70 °C		NBN3-F31-Z8-V18	Type 4
2x 2 wires	6...60 V DC	<1 mA	<100 mA	Rd24 x 1/8	Rd24 x 1/8	-25 ... +70 °C		NBN3-F31-Z8-V16-V16	Type 5
2x 2 wires	6...60 V DC	<1 mA	<100 mA	Cage clamp terminals	None	-25 ... +70 °C		NBN3-F31K-Z8	Type 4
2x 2 wires	6...60 V DC	<1 mA	<100 mA	Cage clamp terminals	Cage clamp terminals	-25 ... +70 °C		NBN3-F31K-Z8-K	Type 5
2x 2 wires	6...60 V DC	<1 mA	<100 mA	Cage clamp terminals	2 x M12 connector	-25 ... +70 °C		NBN3-F31K-Z8-V1-V1	Type 6
2x 2 wires	20...253 V AC/DC	<1.7 mA	<400 mA	Cable PVC 5M	None	-25 ... +70 °C		NBN3-F31-U8-K	Type 4
2x 2 wires	20...253 V AC/DC	<1.7 mA	<400 mA	M18 connector	None	-25 ... +70 °C		NBN3-F31-U8-V18	Type 4
Namur	8 V DC	>3 mA	<1 mA	Cable PVC 5M	None	-25 ... +100 °C	1G 2G 3G	NCN3-F31-N4-K	Type 4
Namur	8 V DC	>3 mA	<1 mA	Cable PVC 5M	Cable PVC 0,5M	-25 ... +100 °C	1G 2G 3G	NCN3-F31-N4-K-K	Type 5
Namur	8 V DC	>3 mA	<1 mA	M18 connector	None	-25 ... +100 °C	2G 3G	NCN3-F31-N4-V18	Type 4
Namur	8 V DC	>3 mA	<1 mA	M12 connector	None	-25 ... +100 °C	1G 2G 3G	NCN3-F31-N4-V1	Type 4
Namur	8 V DC	>3 mA	<1 mA	Rd24 x 1/8	Cable PVC 0,5M	-25 ... +100 °C	2G 3G	NCN3-F31-N4-V16-K	Type 5
Namur	8 V DC	>3 mA	<1 mA	Rd24 x 1/8	Rd24 x 1/8	-25 ... +100 °C	2G 3G	NCN3-F31-N4-V16-V16	Type 5
Namur	8 V DC	>3 mA	<1 mA	Cage clamp terminals	None	-25 ... +100 °C	1G 2G 3G	NCN3-F31K-N4	Type 4
Namur	8 V DC	>3 mA	<1 mA	Cage clamp terminals	Cage clamp terminals	-25 ... +100 °C	1G 2G 3G	NCN3-F31K-N4-K	Type 5
Namur	8 V DC	>3 mA	<1 mA	Cage clamp terminals	2 x M12 connector	-25 ... +100 °C	1G 2G 3G	NCN3-F31K-N4-V1-V1	Type 6
AS-i	AS-i V2.1	n.a.	35 mA	M12 connector	None	-25 ... +70 °C		NCN3-F31-B3B-V1	Type 7
AS-i	AS-i V2.1	n.a.	35 mA	M12 connector	M12 connector	-25 ... +70 °C		NCN3-F31-B3B-V1-V1	Type 8
AS-i	AS-i V2.1	n.a.	35 mA	M12 connector	Cable PVC 0,5M	-25 ... +70 °C		NCN3-F31-B3B-V1-K	Type 8
AS-i	AS-i V2.0	n.a.	35 mA	M12 connector	Cable PVC 0,5M	-25 ... +70 °C		NCN3-F31-B3-V1-K	Type 8
AS-i	AS-i V2.1	n.a.	35 mA	Cage clamp terminals	Cage clamp terminals	-25 ... +70 °C		NCN3-F31K-B3B-K	Type 8

NOTES

1. Max. allowed operating temperature depends on the supply voltage. Refer to datasheet for detailed information.
2. The lines marked in **bold** represent the most commonly used models.
3. Temperature -25°C to +70°C = -13°F to +158°F
-25°C to +100°C = -13°F to +212°F

AVID F31 SERIES POSITION MONITORS

ACCESSORIES

MOUNTING KIT

The AVID F31 mounting kit consists of a base plate with integrated NAMUR puck type BT65. This mounting kit fits directly to all model Keystone and PremiAir type of actuators. All mounting holes are predrilled, and as a result the position sensor doesn't require any adjustment during installation.

BT65A

The standard mounting kit offers the possibility to install a second position sensor for safety applications. This type of application requires the BT65A with 4 position indicators.

BT65B

For some applications with requirement to use 'normally closed' position detection the BT65B can be used. This puck has two sliding metal triggers that can be rotated 360 degrees. Next to the ability to use a normally closed position feedback, it is also possible to set the sliding triggers for any intermediate position detection.

FIELD WIRING CONNECTIVITY

The AVID F31 series dual position indication has a number of different field wire connectors. For each requirement Pentair offers the right solution:

V1-W

Female M12 connector with 90 degrees angle with terminals. To be used for the connection of the F31 sensor to the PLC/DCS cable.

V15-W

Male M12 connector with 90 degrees angle with terminals. To be used for the connection of the F31 sensor to the solenoid valve.

V18-W

Female M18 connector with 90 degree angle with terminals. To be used for the connection of the F31 sensor to the PLC/DCS cable.

VAZ-T1-FK-V1R

Female M12 connector for the connection of the F31 sensor to the AS-interface network.

SOLENOID WIRING CONNECTIVITY

The F31 provides direct connectivity to the solenoid of the actuator. This reduces the number of wires to the PLC and saves a lot on installation costs. Depending on the solenoid there are a number of solutions:

VMA-2+PE-0,3M-PVC-V1-W

Valve connector Form A with 30 cm cable and angled M12 connector.

VMA-2+PE/LED/Z2-0,3M-PVC-V1-W

Identical to VMA-2+PE-0,3M-PVC-V1-W, but with an additional LED and surge suppression circuit.

VMC-2+PE-0,3M-PVC-V1-W

Valve connector Form C with 30 cm cable and angled M12 connector.

VMC-2+PE/LED/Z2-0,3M-PVC-V1-W

Identical to VMC-2+PE-0,3M-PVC-V1-W, but with additional LED and surge suppression circuit.

VMC1-2+PE-0,3M-PVC-V1-W

Valve connector Form C1 with 30 cm cable and angled M12 connector.

VMC1-2+PE/LED/Z2-0,3M-PVC-V1-W

Identical to VMC1-2+PE-0,3M-PVC-V1-W, but with an additional LED and surge suppression circuit.