FLOWSERVE

NAF Control Valves

V&A

NAF-D30 Compact Digital Positioner

Experience In Motion

NAF-D30 Compact Digital Positioner

Description

The NAF-D30 Digital Positioner series offers intelligent and reliable valve control, and mounts directly to the NAF-Turnex control valve actuator. Its compact modular design makes it the perfect fit for controlling all NAF Valves. It is available with 4-20 mA, Hart, Profibus and Fieldbus communication plus a range of optional integrated limit switches and continuous position feedback. Communication via DTM provides even more information from the process and enables convenient remote configuration of the device. A user friendly menu system with a graphics LCD plus LED indicators are available for local operation. Its housing is weatherproof in accordance with IP66 and remote mounting is possible for extreme conditions.

Benefits

- Reliable valve operation by robust and proven design
- Suits almost any control valve
- Very easy to install, configure and operate
- Suits small or large, rotary or linear valves
- Quick calibration and commissioning

Features

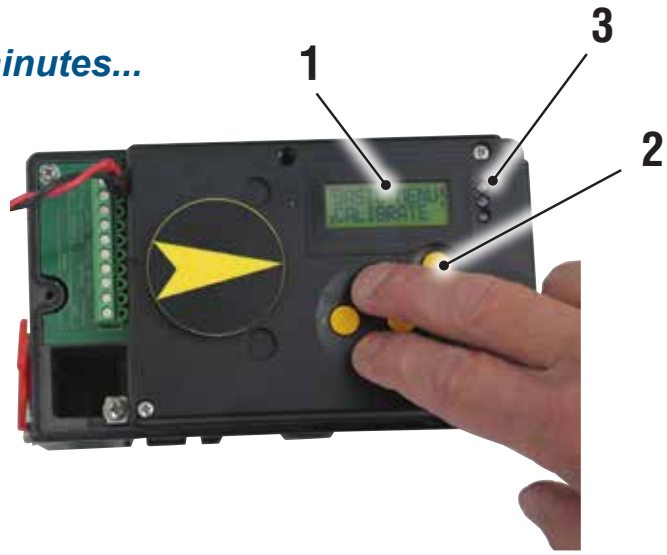
- Instant, accurate calibration by pushing two dedicated buttons simultaneously from any menu position
- Sturdy housing, robust large spool valve and proven digital technology ensure trouble free operation for many years, even when plant environments are very demanding
- The NAF-D30 suits rotary valves and is ideal for single and double acting actuators
- Combines high precision for small valves with very high air capacity to handle large valves
- ValveSight™ DTM based predictive valve diagnostics provides overview of valve health to help avoid unplanned stoppages and to reduce maintenance costs
- Scheduled or manual Partial Stroke Testing to ensure/validate On/Off applications can open or close valves when required
- A wide range of spindle shafts and mounting kits available
- The spindle shaft is preloaded to eliminate play in the feedback mechanism
- Graphics LCD, three status LEDs and intuitive multi-language menu system

Options

- Plug-in limit switches and 4-20 mA transmitter
- Hart, Profibus PA or Foundation Fieldbus
- Add-on gaugeblock
- Dome indicator
- Plug-in pressure sensors for diagnostics with ValveSight®
- Remote or integrated mounting

The NAF-D30 is up and running in minutes...

1. LCD with 5 buttons for simple menu navigation.
2. Push 2 buttons simultaneously to perform instant, accurate calibration.
3. Green, yellow, red LEDs providing instant indication of normal operation, fully open/closed valve cut off or alarm at a glance.



Air Connection

As a standard, the air between positioner and NAF-Turnex actuator is connected by reinforced tubes in PVC.

NAF can deliver as alternative:
1. Stainless steel pipes

2. Air block with air channels as per picture below.

The NAF-D30 Helps Maximize Plant Uptime

The ValveSight™ predictive diagnostics system provides a dashboard for two way communication between the valve and the operator. It taps into the valve and lets plant staff know not only detailed current status of the valve equipment but also provides indications on what is about to happen to help avoid unplanned stoppages of the plant.

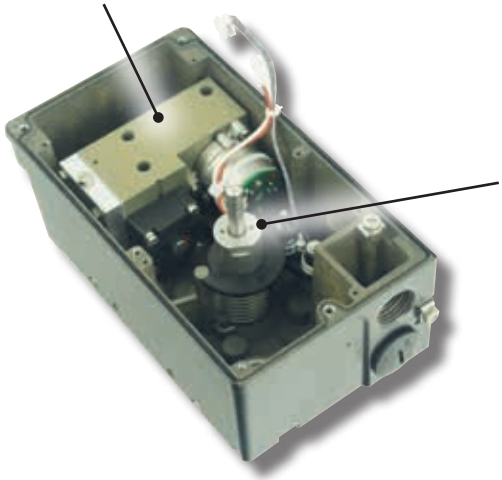
ValveSight provides:

- Online and offline diagnostics of valve, actuator and positioner
- Alarms explained in plain English
- Health bars which assist in predicting repairs as well as plan maintenance to minimize costly process downtime
- Graphs presenting trends of key valve health parameters
- PST (partial stroke) – scheduled automatic tests or manual
- Alarm limits are easily customized

The NAF-D30 can be set up and communicate in several ways including:

- Locally at the valve via an intuitive menu system in the NAF-D30 graphics display
- Locally by using a Hart handheld device
- Remotely or locally via the ValveSight DTM using a PC

Large robust spool valve for single acting and double acting applications. Very high air capacity combined with unique intelligent control algorithm ensure accurate and responsive control of all valves regardless of size and actuator type.



- To simplify installation, the spindle shaft has a friction clutch which means easier commissioning and no possibility of breaking the feedback mechanism
- Torsional play in the valve position feedback mechanism is eliminated by a preloaded spring

Technical data

NAF-D30 Compact Digital Positioner

Rotation angle	min 2.5° max 100°
Stroke	From 5 mm (0.2¨)
Input signal	4-20 mA DC
Air supply	1.4-8 bar (20-115 psi) DIN/ISO 8573-1 3.2.3 Free from oil, water and moisture.
Air delivery	Up to 45.6 Nm^3/h at 6 bar (29.3 scfm @ 87 psi)
Air consumption	0.5 Nm^3/h at 6 bar (0.31 scfm @ 87 psi)
Air connections	¼" G or NPT
Cable entry	2x M20x1.5 or ½" NPT
Electrical connections	Screw terminals 2.5 mm^2 /AWG14
Linearity	<0.4%
Repeatability	<0.5%
Hysteresis	<0.3%
Dead band	0.1-10% adjustable
Display	Graphic, view area 15 x 41 mm (0.6 x 1.6¨)
UI	5 push buttons
CE directives	93/68EEC, 89/336/EEC, 92 /31/EEC
Voltage drop, w/o HART	8 V
Voltage drop, with HART	9.4 V
Vibrations	< 0.25% FS 10-500 Hz 2g max
Enclosure	IP66
Material	Die-cast Aluminum
Surface treatment	Powder epoxy
Temperature range	–40°C to +80°C (-40˚F to 176˚F)
Weight	1.8 kg (4 lbs)
Mounting position	Any
Communication protocols	Hart Profibus PA Foundation Fieldbus

Optional plug-in modules

Mechanical switches	
Type	SPDT
Size	Sub miniature
Rating	3 A/125 VAC / 2 A/30 VDC
Temperature range	-30°C to 80°C (–22°F to 180°F)

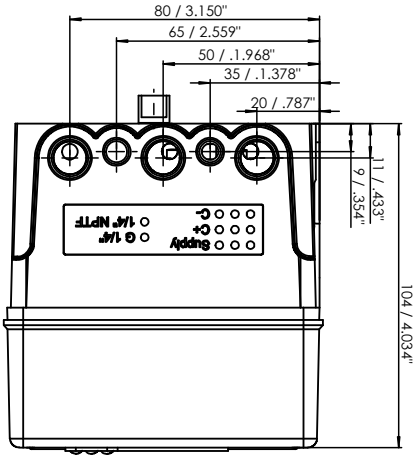
NAMUR sensors	
(NJ2-V3-N)	
Type	Proximity DIN EN 60947-5-6:2000
Load current	1 mA ≤ I ≤ 3 mA
Voltage range	8 VDC
Hysteresis	0.2%
Temperature range	–25°C to 85°C (–13°F to 185°F)

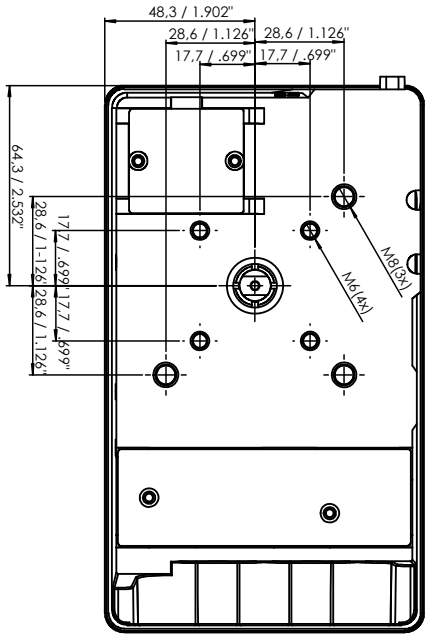
Proximity switches	
Type	SPDT
Rating	0.4 A @ 24 VDC, Max 10 W
Operating time	Max 1.0 ms
Max voltage	200 VDC
Contact resistance	0.2 Ω
Temperature range	-30°C to 80°C (–22°F to 180°F)

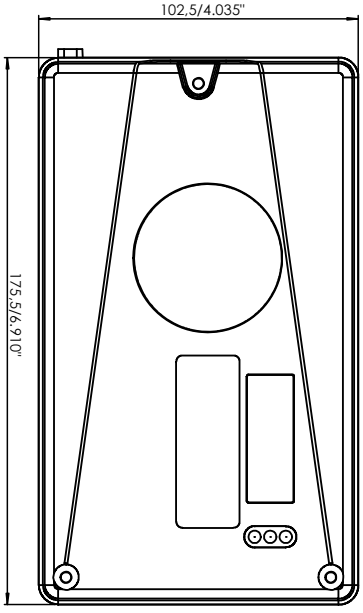
Slot NAMUR switches	
(SJ2-S1N, SJ2-SN, SJ2-N)	
Type	Proximity DIN EN 60947-5-6:2000
Load current	1 mA ≤ I ≤ 3 mA
Voltage	8 VDC
Hysteresis	0.2%
Temperature range	–25°C to 85°C (–13°F to 185°F)

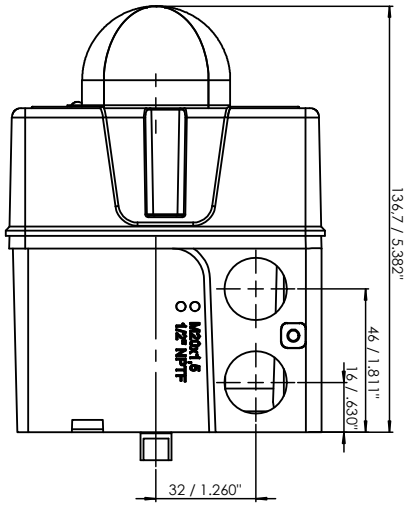
4-20 mA transmitter	
Supply	11-28 VDC
Output	4-20 mA
Resolution	0.1%
Linearity full span	+/–0.5%
Output current limit	30 mA DC
Load impedance	800 Ω @ 24 VDC

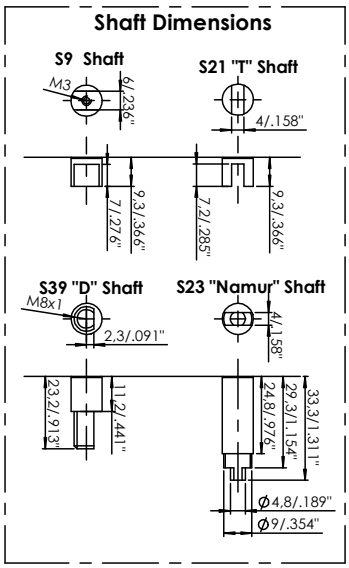
Spindle and Dimension Drawings (mm/inch)











Model Code

A =	**Model No.**		
	D 30	Full LCD menu, LED status	
B =	**Approvals / Certificate**		
	D	General purpose version	
C =	**Air relay**		
	H	High Flow Spool Valve	
D =	**Connections Threads**		
	G	¼¨ G air, M20 x 1,5 electrical	
	M	¼¨ NPT air, M20 x 1,5 electrical	
	N	¼¨ NPT air, 1/2" NPT electrical	
E =	**Connections Qty and Aux**		
	2	2 Electrical conduits	
	T	2 Electrical conduits, threaded aux. ventilation	
F =	**Housing material / Surface treatment**		
	U	Aluminum / Powder epoxy, black	
G =	**Spindle / Mounting Options**		
	09	Double D type, adaptor spindle	
	21	NAF Turnex including Mounting bracket	
	23	VDI/VDE 3845 rotary, Mounting kit not included	
	30	Adaptor spindle, select between 01/06/26/30/36	
	39	IEC 534-6, Flat D type, nut incl. Mounting kit not included	
H =	**Cover / Indicator**		
	P V A	PMV, Black cover, Arrow indicator	
	P V D	PMV, Black cover, Dome indicator	
	F W A	Flowserve, White cover, Arrow indicator	
	F W D	Flowserve, White cover, Dome indicator	
I =	**Temperature Range**		
	U	-40°C to 80°C (-40°F to 176°F)	
J =	**Input signal / Protocol**		
	4	4-20 mA / none	
	5	4-20 mA / HART	
K =	**Feedback option / Switches**		
	X	No feedback option	
	T	4-20 mA transmitter only	
	S	Limit switches Mechanical SPDT	
	N	Namur V3 type sensor, P+F NJ2-V3-N	
	P	Limit switches Proximity SPDT	
	4	Slot type Namur sensor, P+F SJ2-S1N	
	5	Slot type Namur sensor, P+F SJ2-SN	
	6	Slot type Namur sensor, P+F SJ2-N	
L =	**Options / Add-in electronics**		
	0	Standard diagnostics	
M =	**Accessories**		
	X	No accessories	
	M	Gauge block ¼¨ G (3 gauges included / SST, Brass)	
	N	Gauge block ¼¨ NPT (3 gauges included / SST, Brass)	
N =	**Special Options**		
	N	No special options	
	S	Exhaust silencers	

* Contact PMV for additional versions

A	**A**	**A**	**B**	**C**	**D**	**E**	-	**F**	**G**	**G**	**H**	**H**	**H**	-	**I**	**J**	**K**	**L**	**M**	**N**

FLOWSERVE

NAF Control Valves

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