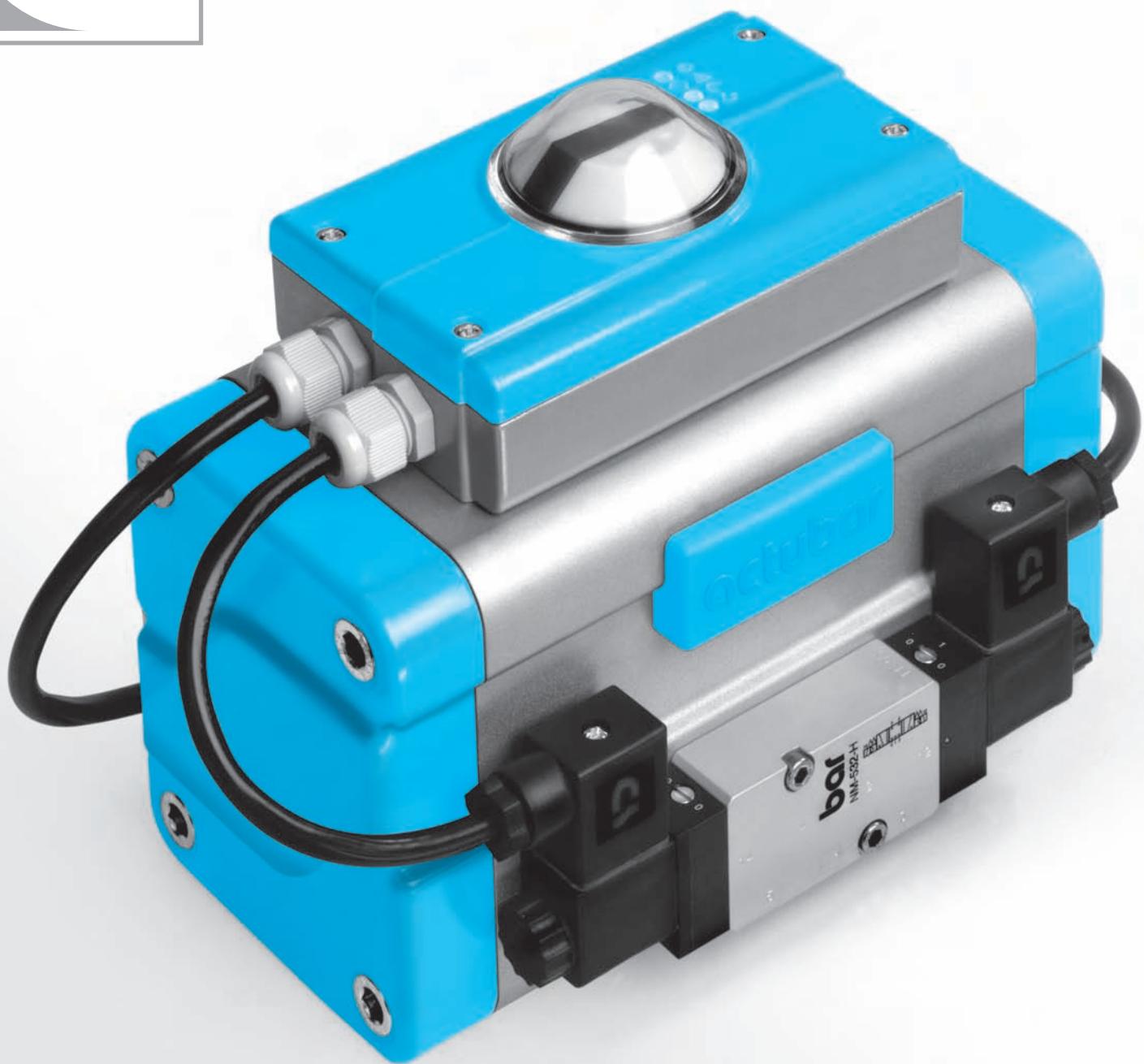


bar

Systems

A Module of the new Valve-Control System bar-vacotrol

**bar-positurn**



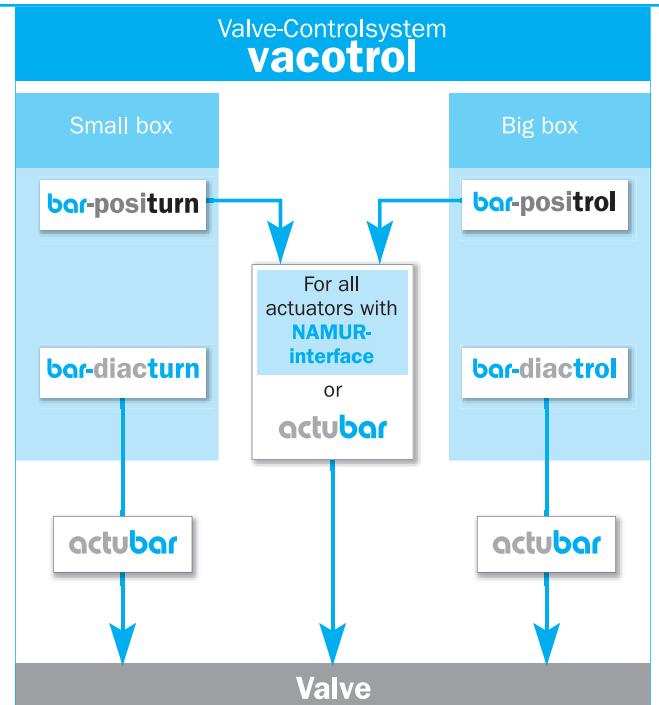
Position indicator for rotary actuators  
with external solenoid valve

## Goal Setting

bar-positionurn is a module from the new Valve-Control system **bar-vacotrol**. It can however, also be mounted on all actuators with NAMUR interface acc. to VDE/VDI 3845. Alongside the diagnosable automatic valve, the goal with bar-positionurn was to develop an economical, robust positioner especially for automated quarter-turn valves. This comes against a background that increasing numbers of "Quarter-turn-Valves" are being used also for regulating tasks.

## Uses

- The bar-positionurn is a compact positioner for quarter-turn valves
- Positionurn offers an optimum cost-effectiveness, because we concentrated on functions which are important for this kind of valves
- The special operational safety, among others, is guaranteed by the digital opto-electronic angle measuring system (industrial property right)
- Operation is easy and is limited to the points:
  - activating the actuator to automatically learning the end positions
  - Adapting the rotational direction to the actuator
  - Choice of signal type (4-20 mA or 0-10 V)
- No extra booster valve required, because NAMUR control valves are used
- Binary electrical signals for both the end positions and an analogue signal for the actual position are series
- In case of energy loss, all desired switching positions are available with the valve variations D, S and E (see page 4)

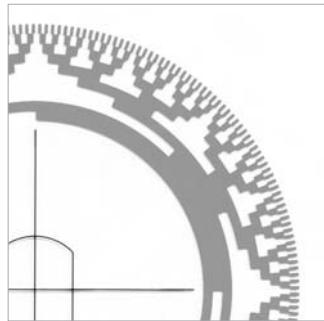


- The positioning speed of the actuator is adapted to the process demands by throttles in the control valve
- bar-positionurn can also be used as position encoder or as self-initialising end position indication for OPEN/SHUT valves
- Low energy costs, as there is no constant loss of air

## Range of Application

The bar-positionurn finds application in the following:

- Butterfly valves for inflow and outflow in filters for water preparation plant
- Exhaust gas butterfly valves in furnaces
- Air valves on ventilators
- Dosing tasks
- Regulating tasks in process technology with "Quarter-turn-Valves", which have to fulfil special safety demands, e.g. rapid reaction by current loss among others



**Fig. 1**  
bar-positioner on actuator with NAMUR interface. Scope of delivery with bridge and connected solenoid valve

**Fig. 2**  
bar-positioner directly onto actubar.  
Scope of delivery with connected  
solenoid valve

## Function

bar-positioner is a 3-point regulator in 4-wire technology. The voltage supply is required with 24V DC. It is directly mountable onto actuators with NAMUR interface using bridges (Fig. 1) or on actuators of the type actubar (Fig. 2). The position regulation takes place – each acc. to safety demands – via special control valves, which are built onto the NAMUR interface. The angle of swing is measured with a digital opto-electronic position sensor. The theoretical value is to be specified as an analogue signal. The processor compares theo. and act. values and drives the solenoid valve. In the current-free middle position the double-acting actuator is blocked pneumatically. The position of the valve is determined via the position indicator. In the bar-positioner cover there are 4 lights pointing outwards, displaying the following modes:

- Ready
- Error/fault
- Right end position reached
- Left end position reached

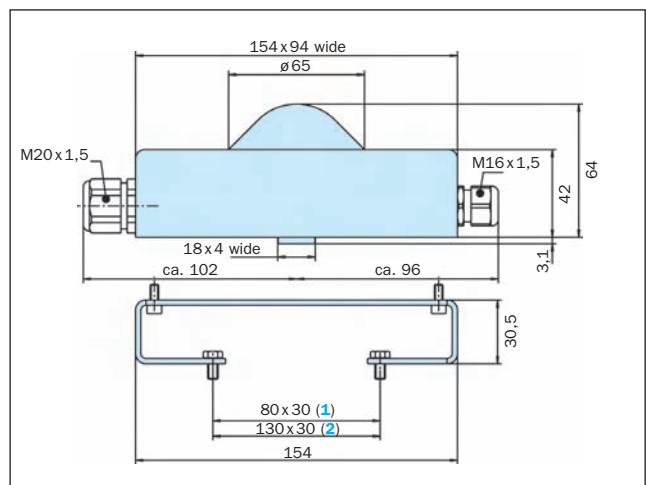
## Electr. Connections/ Terminal Diagram

Terminal-No.	Signals
	<b>Digital inputs for</b>
1	Rotate anti-clockwise
2	Rotate clockwise
3	Initialising
4	Isolation for position regulator
5	<b>External signal voltage for digital outputs</b>
	<b>Digital outputs for</b>
6	Left end position reached
7	Right end position reached
8	Ready
10	<b>Analogue input</b> Theo. value for swing angle
11	<b>Analogue output</b> Act. Value for swing angle
	<b>Current supply</b>
13	24V DC
14	GND
	<b>Drive circuit solenoid valve</b>
15	Coil 1
16	GND
17	Coil 2
18	GND

## Technical Data

<b>Material</b>	
Housing	Al- die-cast, plastic-coated
Screws	Stainless steel A2
Viewing glass	PMMA (Makrolon)
<b>Rotating angle</b>	up to 180°
<b>Protection class</b>	IP 65
<b>Ambient temperature</b>	- 20 ° up to + 70° C
<b>Weight</b>	0,65 kg (excl. solenoid valve)
<b>Analogue actuating signal</b>	selectable 0-20 mA, 4-20 mA, 0-10 V, polarised at 0-10V > 1 kΩ, at 20 mA < 500 Ω
<b>Dead zone</b>	+ 2% of nominal swing angle
<b>Gain</b>	adjustment via throttle at the solenoid valve
<b>Position indication</b>	selectable 0-20 mA, 4-20 mA, 0-10 V, polarised < 0,5 % of nominal swing angle
<b>Resolution</b>	
<b>End position message</b>	optocoupler, short-circuit-proof, 12-28 V DC, 1 kΩ series resistance and built-in 10 kΩ Message ca. 3° before end pos.
<b>Supply voltage</b>	24VDC (21-28 V) polarised
<b>Power input</b>	Variation <b>D</b> : 4,2 W Variation <b>S</b> : 10,2 W Variation <b>E</b> : 7,2 W
<b>Cable</b>	Ø 7 - 13 mm, 0,5 mm <sup>2</sup> , cable length as desired
<b>Binary input signal at OPEN/SHUT valves</b>	< 10 V for "0"; > 18 V for "1"
<b>Operating pressure</b>	2,5 - 10 bar

## Measurement Mounting with bridge 1 and 2



## Valve variations

Order key	Drive type	Function by energy loss
<b>D</b>	double-acting	valve stays in last position in case of current-loss
<b>S</b>	double-acting	Safety function: valve shuts or opens in case of current loss
<b>E</b>	single-acting	Safety function: valve shuts or opens in case of current loss and/or loss of compressed air

(if required, ask for circuit diagram)

## Details for ordering

PN	D	1	M
<b>Construction:</b> <b>M</b> = Mounting on actuator <b>U</b> = Unmounted			
<b>NAMUR-dimension and pinion extension of actuator:</b> <b>0</b> = excl. bridge for mounting directly onto actubar <b>1</b> = 80 x 30 x 30 mm <b>2</b> = 130 x 30 x 30 mm			
Valve variations <b>D</b> , <b>S</b> or <b>E</b>			
Type <b>PN</b> = positurm			

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