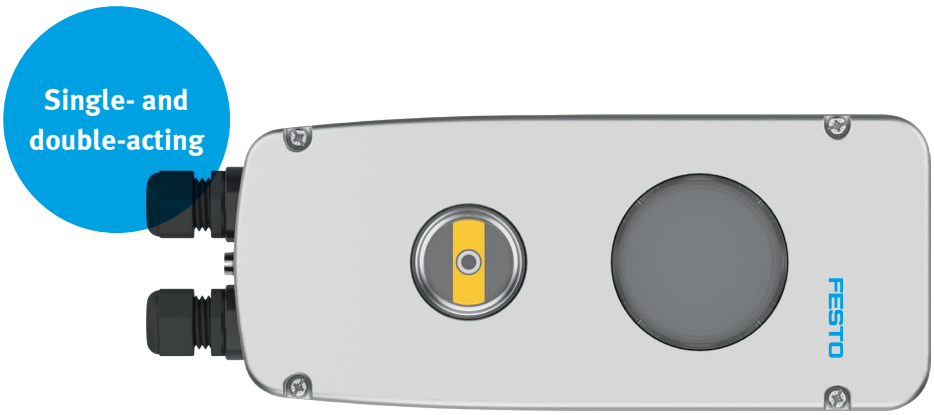
Smart positioner CMSH with HART communication



Economical and flexible

Highlights

- HART communication
- 2-conductor technology
- High air output
- Low internal air consumption
- Ambient temperature –40 ... +80 °C
- Fail safe or fail in place
- Optional connection for external position sensor
- Perfect teamwork with the pneumatic extension modules VTOP

The CMSH provides you with all the benefits of a highly dynamic, low-wear positioning system with high air output and a long service life. You now only need one device for the fast and precise control of actuators, whether large or small, linear or rotary, single-acting or double-acting. Together with the low internal air consumption, this reduces costs. Featuring 2-wire technology, HART communication, condition monitoring functions and a modular system with many variants, the CMSH offers excellent flexibility for a great number of applications.

Extremely user-friendly
The large display with plain text and rotatable reading direction makes it easier to quickly check the status of the device by means of status feedback according to NAMUR recommendation 107 (NE 107). Commissioning takes next to no time thanks to the setup assistant. And you can select application parameters for precise or fast control, as appropriate to the application.

Integrated diagnostics
Alongside numerous standard diagnostic options such as position monitoring, pressure sensors for supply air and actuator chamber pressures open up further intelligent diagnostic functions and increase system availability. The additional monitoring of the break-away pressure ensures even more reliable partial stroke testing.

Flexible installation
You either install the mounting adapter in the usual way to VDI/VDE 3845-1 with external piping, or simply and reliably with integrated air routing to VDI/VDE 3847-2, without any external piping whatsoever.

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Smart positioner CMSH with HART communication

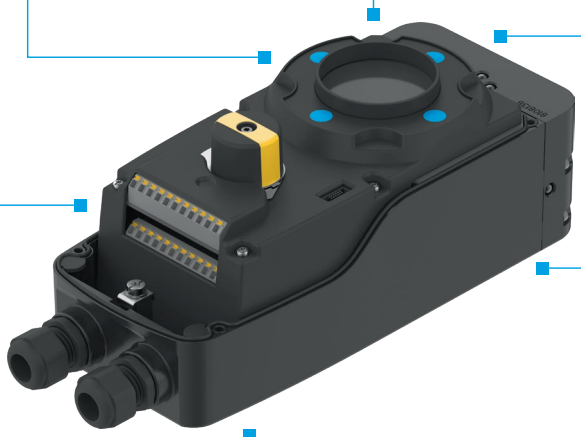
Maximum flexibility for a variety of applications

The CMSH provides maximum flexibility, making it the perfect solution for almost every application.

Take advantage of the option to connect an external position sensor in order to have easier access to the positioner or for extreme ambient conditions such as continuous vibrations.

Large display with rotatable reading direction and convenient 4-button navigation.

Safety in the event the power supply fails: choose between fail safe (travel to safe position) or fail in place (hold the last position).



For increased process reliability: analogue position feedback possible.

End position feedback even if the positioner fails: limit switches for independent feedback of position limits.

Supply air pressure and actuator chamber pressures always in view with pressure gauge for additional pressure monitoring.

Keep an eye on the device status and remotely trigger software functions through the option to add further digital inputs/outputs.

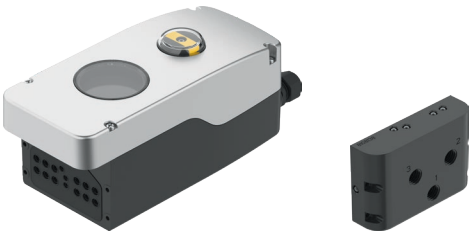
Your choice: single-acting, double-acting or universal design?

The positioners CMSH are designed for mounting on single-acting and double-acting actuators. The choice is yours:

- Commit yourself and pick one of the predefined designs for single-acting or double-acting actuators, or...
- Stay flexible and opt for the universal design. With this design, you determine how the CMSH works simply by using different pneumatic sub-bases.

Variant for single-acting actuators

Variant for double-acting actuators



Universal design for flexible mounting of different sub-bases

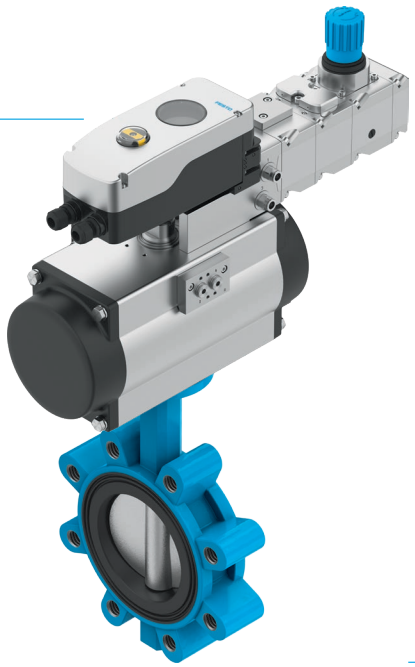
Smart positioner CMSH with HART communication

Monitoring and diagnostic function

CMSH provides transparency with continuous system and application diagnostics
The CMSH monitors both itself and the application to be controlled. In both cases, you always have the values available at a glance and receive status feedback immediately in the event of critical deviations.

Self-monitoring functions

The CMSH continuously checks the integrated electronics, sensors and the pneumatic positioning system. This means you can see at all times whether the full system functionality is available.



Application-specific diagnostic options

- Standard online diagnostics, e.g.
  - Position, ambient temperature, counter
- Integrated pressure sensors additionally monitor supply air pressure and actuator chamber pressures for intelligent diagnostic functions like
  - Continuous monitoring of the break-away pressure
  - Leakage detection
  - Partial stroke tests

You can detect the current status on the CMSH either locally or via remote access on the basis of the official symbols from NE 107:

Failure

Check function

Out of specifiction

Maintenance required

Local operation, via remote access or both – with CMSH everything is possible

For commissioning, retrieving information during operation or for maintenance and diagnostics, you have the choice between the following operating options:
- On the local display: using the user-friendly, intuitive software menu
- Via remote access: using EDD-based or FDT-based transfer

EDD-based or FDT-based transfer of information to higher-level distributed control systems (DCS) and asset management tools provides even more information about the process and enables quick and predictive maintenance for a process valve. This increases the availability and efficiency of the plant and system.

Smart positioner CMSH with HART communication

Easy and reliable mounting

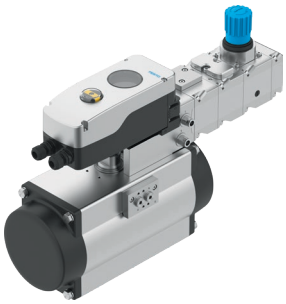
The CMSH supports standardised interfaces and features innovative installation concepts for a wide range of application options.

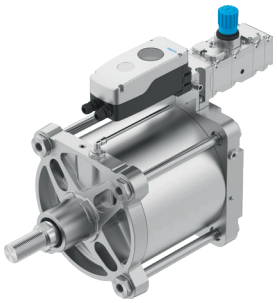
Mounting interfaces for all common quarter turn and linear actuators

Usual mounting
Mounting adapter for rotary and linear actuators according to VDI/VDE 3845-1 (IEC60534-6-2) and VDI/VDE 3847-2 with external piping.

Mounting adapter for diaphragm actuators to IEC60534-6-2 with external piping.

Mounting with integrated air routing
Reliable and robust mounting to VDI/VDE 3847-2, e.g. using manifold block DADG-FM-F9-... without external piping.





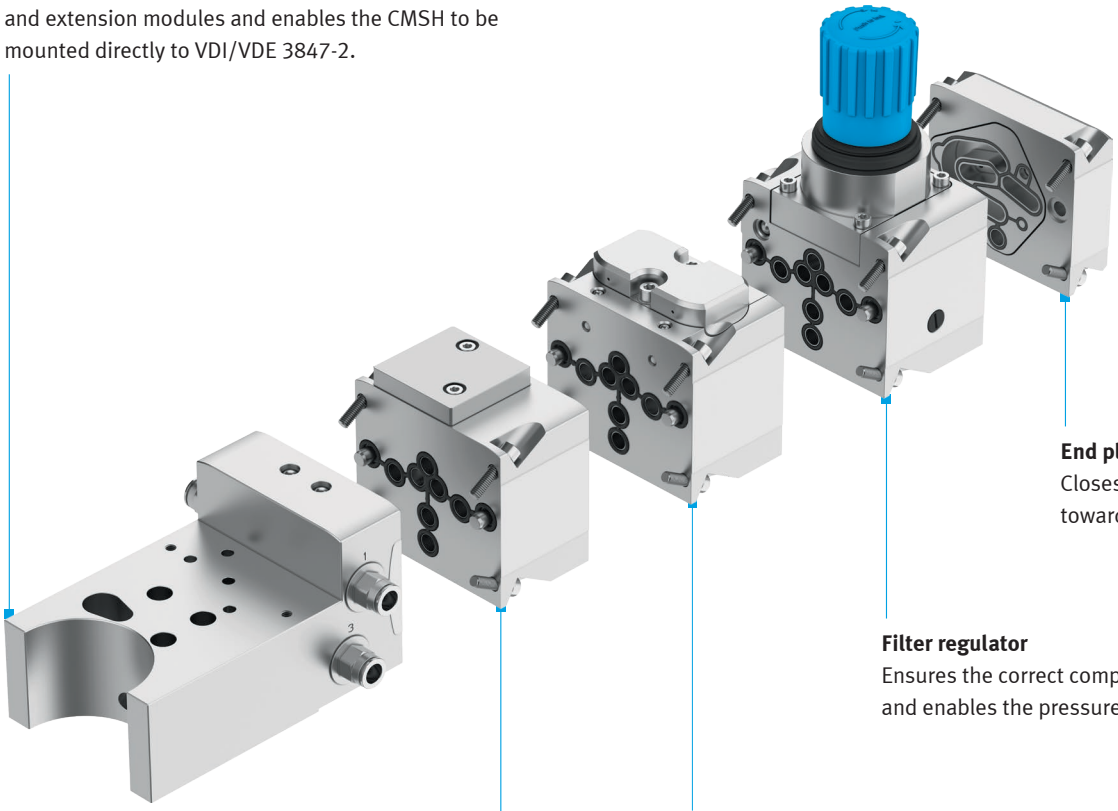
Mounting with integrated air routing and additional instrumentation
The pneumatic extension modules VTOP permit reliable and robust mounting of the positioner to VDI/VDE 3847-2 as well as easy additional integration of other instrumentation – and all without any external piping.

Smart positioner CMSH with HART communication

Ideal for CMSH: the pneumatic extension modules VTOP

With the VTOP, the CMSH is expanded into an innovative complete solution with additional instrumentation. The new installation concept saves you the tedious task of having to connect lots of components from different providers. The modular design of the VTOP with patented, integrated air routing enables the individual modules to be combined as needed according to your requirements. The combination of the CMSH and VTOP offers you a complete solution that is unprecedented on the market.

Pneumatic interface
Ensures a secure connection between the actuator and extension modules and enables the CMSH to be mounted directly to VDI/VDE 3847-2.



End plate
Closes off the module towards the back.

Filter regulator
Ensures the correct compressed air quality and enables the pressure to be controlled.

Booster
Increases the flow rate for faster travel speeds.

Fail safe (single-acting or double-acting)
In the event of a failure, it ensures the actuator to travel to the safe position you have predefined.

Smart positioner CMSH with HART communication

Technical data

Technical details	
Communication	2-wire device, 4 … 20 mA, HART 7
Function	For single-acting, double-acting actuators or switchable using sub-bases CAPS
Housing	Die-cast aluminium, powder-coated
Local user interface	LCD display with 4 pushbuttons
Mounting	VDI/VDE 3845-1 VDI/VDE 3847-2
Air capacity at Δp = 6 bar	400 l/min single-acting 300 l/min double-acting
Safety position	Fail-Safe or Fail-in-Place
Digital input	1 x digital input (function configurable via LCD display or HART)
Sensing range of position sensor	0 … 115°

Optional	
Analogue output	4 … 20 mA position feedback
Digital inputs	1 x digital input (function configurable via LCD display or HART) 1 x digital input for safety shutdown
Digital outputs	2 x digital output (function configurable via LCD display or HART)
Connection of external position sensor	Potentiometer
Limit switches	Inductive slot sensor type SJ2-SN or micro switches
Connection of pressure gauges	G1/8 connection for pressure gauge size 23/27

Operating and environmental conditions	
Operating pressure [bar]	1.4 … 8
Operating medium	Compressed air acc. to ISO 8573-1:2010 [7:4:4]
Ambient temperature [°C]	–40 … 80
Degree of protection	IP66/IP67
Explosion protection	IECEX, ATEX
Functional safety	Ex ia

136104 en 2023/09 – Errors and omissions excepted