

## DIGITAL VALVE POSITIONER FY500 SERIES

- Compact size
- Nozzle flapper coil based positioner
- Spool valve high volume output with minimal steady-state air consumption
- Accordance with NAMUR and VDI/VDE mounting standards
- Built-in position transmitter feedback 4-20 mA
- Auto tune - Self calibration
- Local operation and configuration with LCD interface
- Optional position monitor module with two limit switches
- Explosion proof enclosure and intrinsically safe



Actuation and Control

### **FY500 Series**

It is the line of intelligent positioners for control valves that receive the setpoint from the main process controller and act on the valve, moving it exactly to the ideal position, providing better process performance.

- Mounting on linear actuators according IEC 60534-6, stroke from 12 mm to 200 mm;
- Mounting on rotary actuators according VDI/VDE 3845, NAMUR, from 30° to 120°;
- Auto tune procedure, automatic adjustment of control parameters and valve range;
- Local operation and configuration of the device using magnet tool and LCD interface;
- User-friendly rotative display;
- HART® configurable;
- FDT/DTM capability and connectivity;
- Supply pressure up to 10 bar (150 psi);
- The spool valve high volume output with minimal steady-state air consumption;
- Built-in position feedback provides a 4-20 mA signal for position verification;
- Optional modular design with two limit switches allows reliable position feedback;
- Design to meet Explosion Proof, Intrinsic Safety, European ATEX directive.  
(Certification Pending)



**HART® - 4 to 20 mA**

- Local adjustment with magnetic tool without needing to open the housing;
- DEVCOMDROID (Android DDL Interpreter) software, used with HART interfaces;
- Remote Parameterization and automatic setup;
- FDT/DTM (Field Device Tool / Device Type Manager) capability and connectivity;
- Multidrop operation mode.



**Foundation Fieldbus**

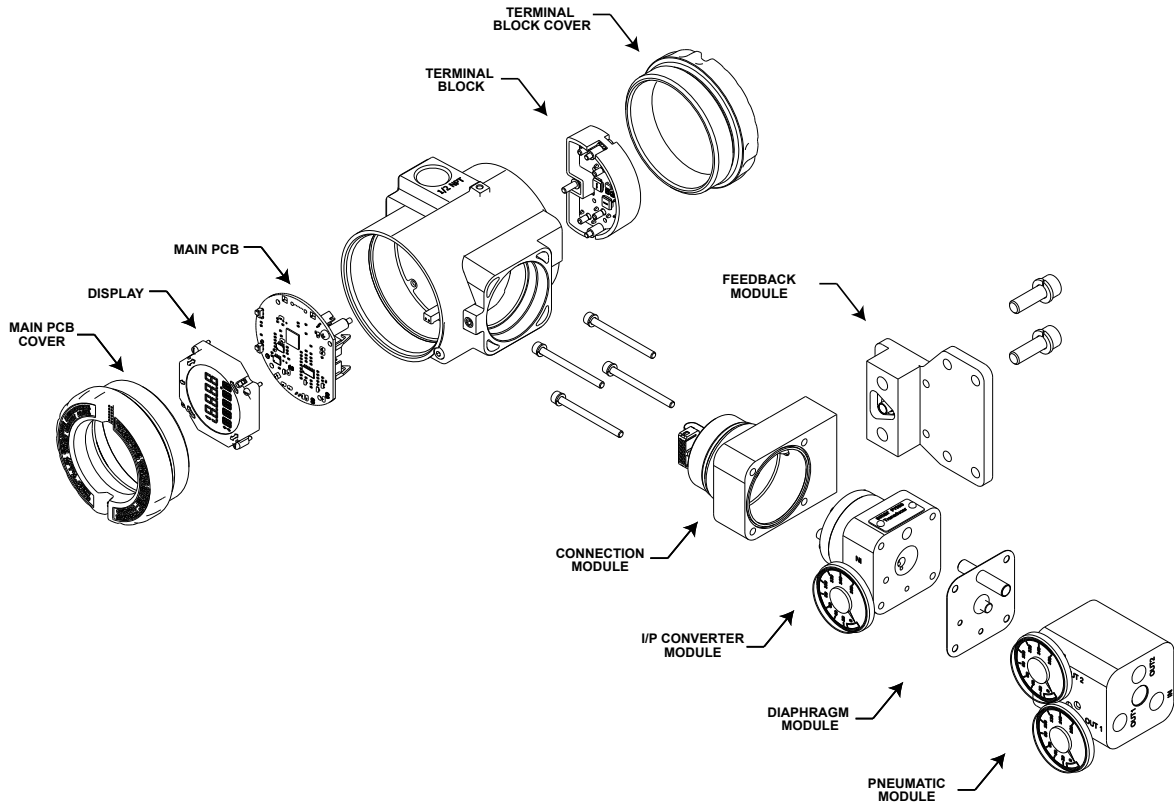
- Fieldbus communication from a PC or via local switch;
- Local adjustment with magnetic tool, without needing to open the housing;
- Current consumption of 12 mA;
- Dynamic block instantiation;
- Registered in Foundation Fieldbus (ITK Certification - pending);
- 14 function blocks.



**PROFIBUS PA**

- Basic configuration can be done using a magnetic tool without needing to open the housing;
- Full configurable via remote configurator (Smar ProfibusView);
- Function blocks for analog output;
- Current consumption of 12 mA;
- Supports DTM and EDDL.





The FY500 accepts a setpoint signal from a controller or other device through a twisted pair of wires.

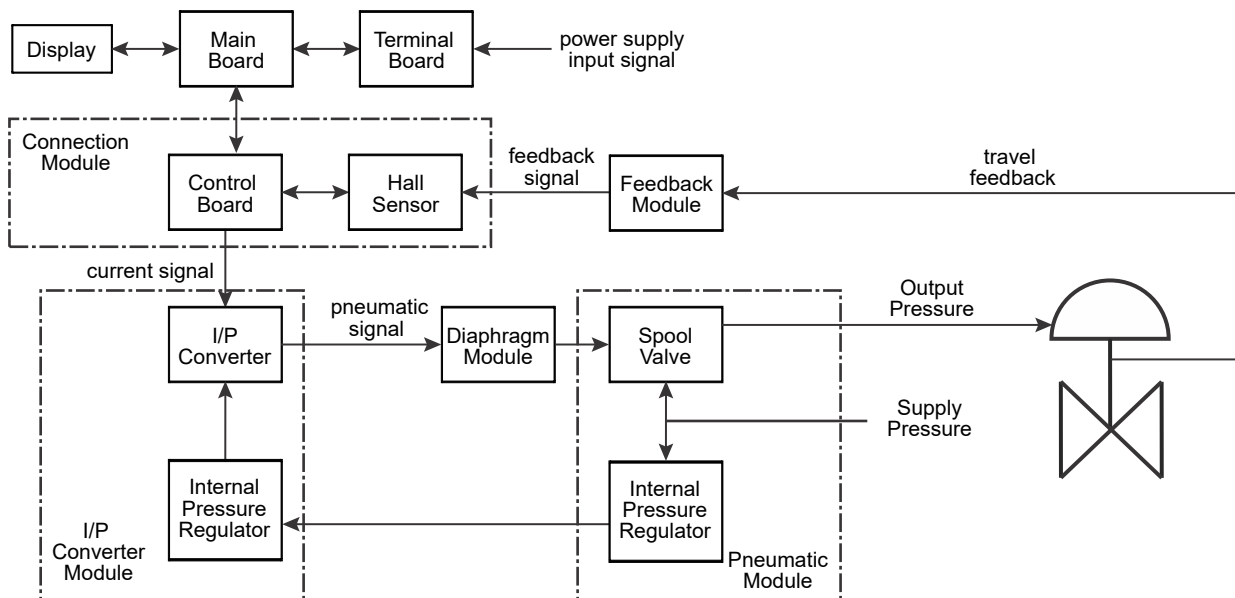
After executing auto calibration procedure, it compares this input signal to the actual valve position, which it measures with the Hall Effect sensor that is connected to the feedback module.

The difference between the setpoint and the actual position is then amplified and a corrective current signal is sent to the I/P converter module .

The supply pressure to the FY500 passes through an internal pressure regulator that regulates it to approximately 22 psi. The air then goes through an orifice that restricts the flow and air consumption.

The I/P converts the current signal to a pneumatic signal, which is sent to the diaphragm module and the spool valve.

The spool valve directs supply air to the actuator to move the valve until the Hall Effect Sensor reading agrees with the setpoint.



**Functional Specifications**

<p><b>Input and Communication Protocol</b></p>	<p>HART® Two-wire, 4-20 mA, controlled according to NAMUR NE43 specification, with super-imposed digital HART® Protocol Voltage Drop 9.5 Vdc Max / 20 mA (equivalent to 475 Ω). Minimum Control Current: 3.8 mA.</p> <p><b>FOUNDATION Fieldbus and PROFIBUS PA</b> Bus power: 9 - 32 Vdc and quiescent current consumption: 12 mA. Digital only.</p>
<p><b>Humidity Limits</b></p>	<p>0 to 100% RH (Non-condensable Relative Humidity).</p>
<p><b>Travel</b></p>	<p>Linear Actuator stroke: 12 - 200 mm. Rotary Actuator: 30° - 120° Rotation Angle.</p>
<p><b>Indicator</b></p>	<p>Rotative LCD, with 4½-numerical digit and 5-character alphanumeric. Function and status icons.</p>
<p><b>Pressure Supply</b></p>	<p>2 - 10 bar (30-150 psi). Free of oil, dust and water, as per ANSI/ISA S7.0.01-1996.</p>
<p><b>Gauge</b></p>	<p>For supply pressure and output monitoring only, 0 to 160 psi scale. Acrylic display, 304 Stainless Steel connections and flexible parts in Brass.</p>
<p><b>Flow Characterization</b></p>	<p>Linear, Equal Percentage, Quick Opening, 16-point freely configurable table.</p>
<p><b>Temperature Limits</b></p>	<p>Operation: -40 to 85 °C (-40 to 185 °F). Storage: -40 to 90 °C (-40 to 194 °F).</p>
<p><b>Configuration</b></p>	<p><b>HART®</b> Through digital communication, using DevComDroid configuration software (Android DDL Interpreter), used with HART interfaces, such as HI331 bluetooth interface, FDT/DTM. The FY500 HART® can also be configured using third-party configuration tools, and can be partially configured through local adjustment using the Smar magnetic tool.</p> <p><b>FOUNDATION Fieldbus and PROFIBUS PA</b> Basic configuration can be done using the local adjustment magnetic tool only if the equipment has a display. The full configuration is possible only using the configuration software.</p>
<p><b>Hazardous Area Certifications</b></p>	<p>Intrinsically safe and explosion proof (Certification pending)</p>
<p><b>European Directive Information</b></p>	<p>FY500 is in compliance with the directive. It was designed and manufactured in accordance with good engineering practices using ANSI, ASTM, DIN and JIS standards. Quality Management System audited by BVQI (Bureau Veritas Quality International) for the Management Systems certification.</p> <p><b>EMC Directive (2014/30/EU) – Electromagnetic ompatibility</b> The EMC test was performed according to standard: IEC61326:2002</p> <p><b>ATEX Directive (2014/34/EU) - Explosive Atmosphere, Hazardous Location</b></p>

**Performance Specifications**

<b>Independent Linearity</b>	±0.5% of output span (1) (2)
<b>Air Consumption</b>	0.31 scfm (0.49 normal m3/hr) @ 60 psig (4.1 bar) supply pressure (1)
<b>Output Capacity</b>	13 scfm (20.5 normal m3/hr) @ 60 psig (4.1 bar) supply pressure (1)
<b>Vibration Effect</b>	Tested per ANSI/ISA-75.13.01 Section 5.3.5.
<b>Ambient Temperature Effect</b>	0.8% / 20°C of output span (1)
<b>Electromagnetic Interference Effect</b>	Meets IEC 61326:2002

1. Measured according ANSI / ISA-75.13.01-2013
2. Typical value. Not applicable for ACP mounting brackets applications

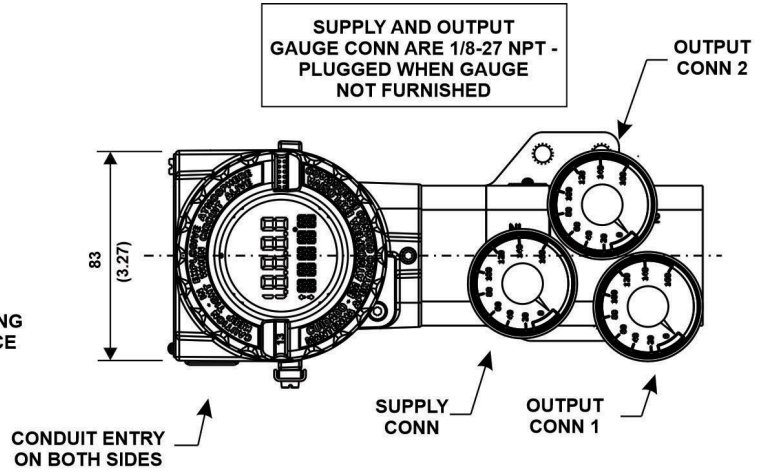
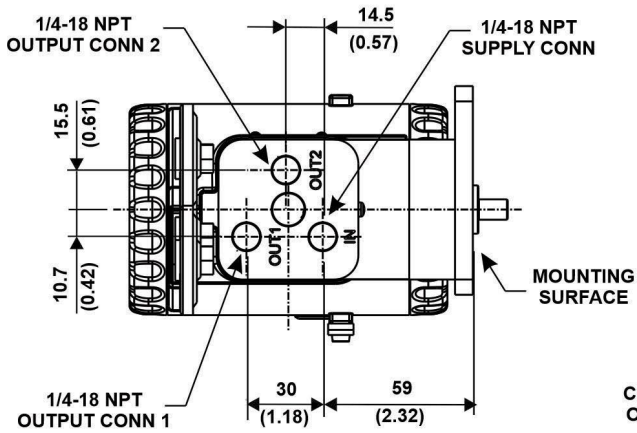
**Physical Specifications**

<b>Electrical Connection</b>	1/2-14 NPT 1/2-14 NPT with 3/4-14 NPT adaptor (AISI316) 1/2-14 NPT with 3/4-14 BSP adaptor (AISI316) 1/2-14 NPT with 1/2-14 BSP adaptor (AISI316) M20x1.5 PG 13.5 DIN
<b>Pneumatic Connections</b>	Supply and Output Pressure: 1/4-18 NPT Gauges: 1/8-27 NPT
<b>Material of Construction</b>	Injected low copper aluminum with polyester painting or 316 Stainless Steel housing, with Buna N O-Rings on cover (NEMA 4X, IP66W). Identification Plate: 316 SST.
<b>Mounting</b>	Mounting brackets for linear actuators that comply with IEC 60534-6; and for rotary actuators according VDI/VDE 3845 and NAMUR standards.
<b>Approximate Weights</b>	Without display and mounting bracket: 5.5 kg (316 SST). 2.3 kg (aluminum).

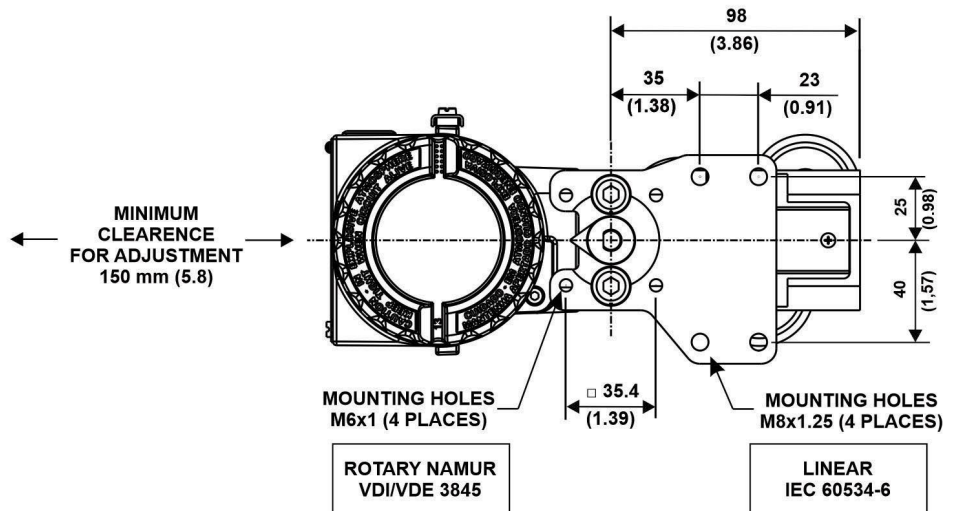
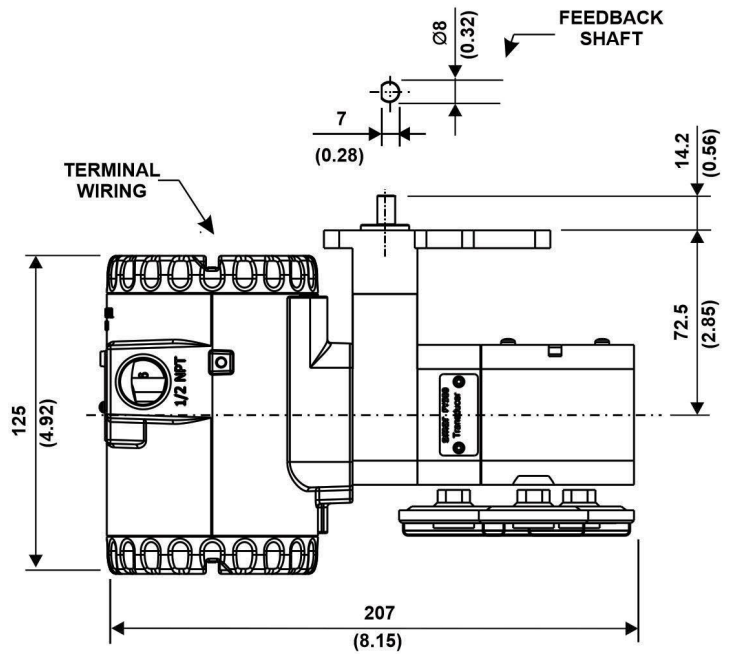
FY500		DIGITAL VALVE POSITIONER		
<b>COD. Protocol</b>				
A	APL			
F	FOUNDATION FIELDBUS			
H	HART & 4 to 20 mA			
P	PROFIBUS PA			
<b>COD. Local Indicator</b>				
0	Without Local Digital Indicator			
1	With Local Digital Indicator			
<b>COD. Mounting Bracket</b>				
0	None			
1	Rotary Actuators - VDI/VDE 3845 and NAMUR			
2	Linear Actuators Stroke 12 to 20 mm - IEC 60543-6			
3	Linear Actuators Stroke 20 to 60 mm - IEC 60543-6			
4	Linear Actuators Stroke 60 to 120 mm - IEC 60543-6			
5	Linear Actuators Stroke 120 to 200 mm - IEC 60543-6			
<b>COD. Electrical Connection</b>				
0	1/2" - 14 NPT		1	1/2 NPT with 3/4" NPT adaptor (AISI316)
A	M20x1.5		2	1/2 NPT with 3/4" BSP adaptor (AISI316)
B	PG 13.5		3	1/2 NPT with 1/2" BSP adaptor (AISI316)
<b>COD. Type of Actuator</b>				
1	Single Action			
2	Double Action			
<b>COD. Indication Gauges</b>				
0	Without Pressure Gauges			
1	With 1 Pressure Gauge - Input			
2	With 1 Pressure Gauge - Output 1			
3	With 2 Pressure Gauges - Input and Output 1			
4	With 2 Pressure Gauges - Output 1 and Output 2			
5	With 3 Pressure Gauges			
<b>COD. Certification Type</b>				
D	Explosion Proof		N	Without Certification
I	Intrinsically Safe		O	Dust Ignition
<b>COD. Certification Body</b>				
0	None			
1	FM			
5	CEPEL			
<b>SPECIAL OPTIONS (Leave it blank if not applicable)</b>				
<b>COD. Housing Material</b>				
H0	Aluminum (IP/Type)			
H1	316 SST (IP/Type)			
H2	Aluminum for saline atmosphere (IP/Type X) (1)			
H3	316 SST for saline atmosphere (IP/Type X) (1)			
<b>COD. Painting</b>				
P0	Gray Munsell N 6.5 Polyester			
P8	Without Painting			
<b>COD. TAG Plate</b>				
J0	With TAG			
J1	Blank			
J2	According user's notes			
<b>COD. Mount Version</b>				
R0	Integral Mount			
<b>COD. Limit Switches</b>				
L0	None			
L1	2 Mechanical micro switches			

FY500 - H / 1 / 3 / 0 / 2 / 3 / N / 0 • H0 / P0 / J1 / R0 / L0 ← TYPICAL MODEL

(1) IPW/TYP/EX tested for 200 hours according to NBR IEC 60529 standard



mm  
(inch)



# FY500 Series

Digital Valve Positioner



Consult our  
subsidiary



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