

# PositionMaster EDP300

## Digital Positioner for Natural Gas Industry

Economic use of natural gas as supply energy for control valve positioners in booster & distribution control stations.



PositionMaster EDP300

### Introduction

Increasing demand for natural gas as a clean, low cost energy, has driven the need for more pipelines with booster pumping stations and distribution control stations as well as increasing capacity in existing facilities.

The flow control and pressure regulation of the natural gas by these facilities, is accomplished in part with control valves typically using the natural gas as the supply energy to modulate the valves according to demand.

The ABB PositionMaster EDP300 is the ideal device for such application avoiding the need for costly compressed instrument air.

### Additional Information

Additional documentation on PositionMaster EDP300 is available for download free of charge at [www.abb.com/positioners](http://www.abb.com/positioners). Alternatively simply scan this code:



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## EDP300 suitable for natural gas industry

### 01 Typical booster pumping station

Natural gas pipeline networks rely on booster pumping stations along the lines to maintain the required line pressure for continuous flow of natural gas between supply and the consumer, and to remove any liquids or contaminants from the gas to provide clean sweet natural gas.

The control of gas flow through the cleaning and boosting process is done by the local controls in the station, positioning the control valves for suitable pressure and flow regulation.

Distribution is the final step in delivering natural gas to customers. Most users receive sweet natural gas from their local gas utility also known as the Local Distribution Company (LDC). The LDC is responsible to accurately monitor and control the flow of the natural gas to ensure efficient and effective service at all times.

Most booster and distribution stations are fueled by a small portion of the natural gas flowing through the station, providing the pressure energy for the valve positioners controlling the valve actuators. The natural gas line pressure provides enough pressure, avoiding the need for costly air compressors that would typically be required to provide instrument air for these positioners.

It is in these applications that the ABB Model EDP300 Digital Positioner is ideally suited using this sweet natural gas as the supply energy, the supply pressure to the EDP300 can be from 1.4 bar up to 10 bar (20 to 145psi).

The advantage of the EDP300 is the very low gas consumption during steady state valve position, the consumption is the lowest in industry for a modulating type valve positioner at only < 0.03 kg/h (0.015 scfm) ensuring lowest possible energy use.

Beginning January 1, 2015, all Natural gas driven devices such as controllers and positioners located between the wellhead and the point where gas enters the transmission pipeline will be impacted by the EPA's allowable maximum bleed limit of 0.1 scfm (standard cubic feet of gas per minute) this requirement will also extend to other parts of the pipeline network.

The ABB EDP300 Digital Positioner has a maximum steady state bleed of < 0.03 kg/h (< 0.015 scfm) which will assist natural gas facilities to meet the EPA rule.



02 Distribution station control valve with ABB positioner



02

The EDP300 is suitable for Single Acting or Double Acting type actuators and provides an integrated safety function to move the control valve to a safe position on loss or interruption of the 4 to 20 mA control signal to either open or closed (referred to as fail safe) or hold the valve in last position (referred to as fail-in-place). The applicable option depends on the process application and is part of the positioner's model selection.

The user-friendly installation and Auto-Adjust of the EDP300 ensures fast and easy setup and commissioning via local pushbuttons and LCD display that also provides indication of valve position. A comprehensive selection of control valve mounting kits is available to mount the EDP300 to the Actuator.

The following product information provide more details of the Positioner and installation:

| Document  | Description                |
|-----------|----------------------------|
| DS/EDP300 | EDP300 Data Sheet          |
| OI/EDP300 | Operating Instructions     |
| CI/EDP300 | Commissioning Instructions |

Refer to the Data Sheet for type designation and hazardous area explosion protection selection.

#### Note

The option code 'P8' must be included in the model number in all cases for Natural Gas as supply energy in place of compressed air.

To comply with the installation requirement of operation with Natural Gas the following must be followed:

- During operation with Natural Gas, the device must be used in accordance with the specifications in the relevant certificate.
- Only the design with the 'Intrinsic Safety' type of protection in combination with order code P8 has been approved for operation with natural gas.
- The provided 1/4"-NPT pneumatic outputs must be vented to safe non-hazardous areas.
- The maximum ambient temperature must not exceed 60 °C (140 °F).
- During operation with Natural Gas in type of protection 'Ex n', the device may only be operated with approved cable glands.

### EDP300 recommended models with FM/CSA approval

The following list provides recommended EDP300 models for use in application with Natural Gas as supply energy. Note these models are with FM/CSA I.S. (Intrinsically Safe) approval, for other approvals refer to the EDP300 data sheet model selection.

#### Single Acting Fail Safe:

Model: EDP300F1H1S2DA1D1M5P8R3  
(Includes 4 to 20 mA valve position feedback)

#### Single Acting Fail-in-Place:

Model: EDP300F1H1F2DA1D1M5P8R3  
(Includes 4 to 20 mA valve position feedback)

#### Double Acting Fail Safe:

Model: EDP300F1H2S2DA1D1M5P8R3  
(Includes 4 to 20 mA valve position feedback)

#### Double Acting Fail-in-Place:

Model: EDP300F1H2F2DA1D1M5P8R3  
(Includes 4 to 20 mA valve position feedback)

#### Note

Consult factory for more options such as:

- Proximity limit switches for valve travel verification.
- ESD (Emergency Shutdown Device) for process safety shutdown override or startup ready-to-go interlock function.

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