

Series 3730

Type 3730-1 Electropneumatic Positioner



Control Tak

Tel: 021-66479486

SAMSON

شرکت مهندسی کنترل تک پیشرو در صنعت ابزار دقیق

Application

Single-acting or double-acting positioner for attachment to pneumatic control valves. Self-calibrating, automatic adaptation to valve and actuator.

| | |
|---------------|----------------|
| Set point | 4 to 20 mA |
| Travels | 3.75 to 200 mm |
| Opening angle | 24 to 100° |

CE Ex certified

The positioner ensures a predetermined assignment of the valve position (controlled variable x) to the input signal (set point w). It compares the input signal received from a control system to the travel or rotational angle of the control valve and issues a corresponding output signal pressure (output variable y).

Special features

- Simple attachment to all common linear and rotary actuators with interface for SAMSON direct attachment, NAMUR rib or valves with rod-type yokes according to IEC 60534-6-1, or to rotary actuators according to VDI/VDE 3845
- Any desired mounting position of the positioner
- Simple single-knob, menu-driven operation
- LCD easy to read in any mounted position due to selectable reading direction
- Variable, automatic start-up
- Preset parameters - only values deviating from the standard need to be adjusted
- Calibrated travel sensor without gears susceptible to wear
- Permanent storage of all parameters in EEPROM (protected against power failure)
- Two-wire system with a small electrical load of 300 Ω
- Tight-closing function can be activated
- Continuous monitoring of zero point
- Two standard programmable position alarms

Version

- **Type 3730-1:** electropneumatic positioner with on-site operation and LCD

Additional options

- Inductive limit contact with proximity switches
- Stainless steel housing



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Table 1: Technical data of Type 3730-1 Positioner

| The technical data for the explosion-protected devices may be restricted by the limits specified in the test certificates. | | | |
|---|--|--|---|
| Travel | Adjustable | Direct attachment to Type 3277 Actuator | 3.6 to 30 mm |
| | | Attachment according to IEC 60534-6 (NAMUR) | 3.6 to 200 mm |
| | | Attachment to rotary actuators according to VDI/VDE 3845 | 24 to 100° opening angle |
| Travel range | | Adjustable within the initialized travel/angle of rotation; travel can be restricted to 1/5 at the maximum | |
| Set point w | Signal range | 4 to 20 mA · Two-wire device, reverse polarity protection | |
| | Split-range operation | 4 to 11.9 mA and 12.1 to 20 mA | |
| | Static destruction limit | 100 mA | |
| Minimum current | | 3.7 mA | |
| Load impedance | | ≤6 V (corresponding to 300 Ω at 20 mA) | |
| | | 1.4 to 7 bar (20 to 105 psi) | |
| Supply air | Air quality acc. to ISO 8573-1 (edition 2001-02) | Max. particle size and density: Class 4 · Oil content: Class 3 · Pressure dew point: Class 3 or at least 10 K below the lowest ambient temperature to be expected | |
| Signal pressure (output) | | 0 bar up to the capacity of the supply pressure · Can be limited to approx. 2.4 bar over software | |
| Characteristic | | Optionally, 3 characteristics for globe valves and 8 characteristics for rotary valves | |
| Hysteresis | | ≤1 % | |
| Sensitivity | | ≤0.1 % | |
| Transit time | | <0.5 s for initialization not permissible · Adaptation over volume restriction Q | |
| Direction of action | | Reversible | |
| Air consumption | | Independent from supply pressure approx. 110 l _n /h | |
| Air output capacity | to fill actuator with air | At Δp = 6 bar: 8.5 m _n ³ /h | At Δp = 1.4 bar: 3.0 m _n ³ /h |
| | to vent actuator | At Δp = 6 bar: 14.0 m _n ³ /h | At Δp = 1.5 bar: 4.5 m _n ³ /h |
| Permissible ambient temperature | | -20 to 80 °C in all versions | |
| | | -45 to 80 °C with metal cable gland | |
| | | The temperature limits for the explosion-protected devices may be restricted by the limits specified in the test certificates. | |
| Influences | Temperature | ≤0.15 %/10 K | |
| | Supply air | None | |
| | Effect of vibration | ≤0.25 % of 15 to 1500 Hz and 4 g according to IEC 770 | |
| Electromagnetic compatibility | | Complying with EN 61000-6-2, EN 61000-6-3, EN 61326-1 and NAMUR Recommendation NE 21 | |
| Electrical connections | | One M20 x 1.5 cable gland for 6 to 12 mm clamping range · Second M20 x 1.5 threaded connection additionally exists · Screw terminals for 0.2 to 2.5 mm ² wire cross-sections | |
| Explosion protection | | See Table 2 | |
| Degree of protection | | IP 66/NEMA 4X | |
| Use in safety-instrumented systems (SIL) | | Observing the requirements of IEC 61508, the systematic capability of the pilot valve for emergency venting as a component in safety-instrumented systems is given. | |
| | | Use is possible on observing the requirements of IEC 61511 and the required hardware fault tolerance in safety-instrumented systems up to SIL 2 (single device/HFT = 0) and SIL 3 (redundant configuration/HFT = 1). | |
| Weight | | 1.0 kg · Special version in stainless steel: 2.2 kg | |
| Compliance | |  | |
| Materials | | | |
| Housing | | Die-cast aluminum EN AC-ALSi12(Fe) (EN AC-44300) acc. to DIN EN 1706, chromated and powder coated · Special version: stainless steel 1.4581 | |
| External parts | | Stainless steel 1.4404/316L | |
| Cable gland | | M20 x 1.5, black polyamide | |
| Binary contacts | | | |
| Two software limit contacts with configurable limits (0.5 % steps), reverse polarity protection, floating · See rows below for default settings | | | |
| Signal state | Version without explosion protection | Ex | |
| | No response: Conductive (R = 348 Ω) Response: Non-conducting | No response: ≥ 2.2 mA Response: ≤ 1.0 mA | |
| Operating voltage | For connection to the binary input of the PLC acc. to IEC 61131-2, P _{max} = 400 mW or for connection to NAMUR switching amplifier acc. to EN 60947-5-6 | For connection to NAMUR switching amplifier acc. to EN 60947-5-6 | |
| Options | | | |
| Pepperl+Fuchs inductive limit contact | | For connection to switching amplifier acc. to EN 60947-5-6. Can be used in combination with a software limit contact. | |
| SJ2-SN proximity switch | | Measuring plate not detected: ≥3 mA · Measuring plate detected: ≤1 mA | |

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Table 2: Explosion protection certificates

| Type | Certification | Type of protection/comments | | | |
|--------------|--|---|---|--|--|
| 3730 | -7 STCC | On request | | | |
| | |  EC type examination certificate | Number Date | PTB 04 ATEX 2033 2017-01-24 | II 2G Ex ia IIC T6-T4 Gb; II 2D Ex tb IIIC T80°C Db |
| | -11 | CCoE | Number Date Valid until | A/P/HQ/MH/144/1164 2014-10-27 2019-10-26 | Ex ia IIC T6 |
| | | | -11  On request | | |
| | | | IECEX | Number Date | IECEX PTB 06.0055X 2017-01-26 |
| | NEPSI | Number Date Valid until | | GYJ14.1109 2014-05-08 2019-05-07 | Ex ia IIC T4~T6 Gb |
| | | -13 | CSA | Number Date | 1675820 2017-05-18 |
| | FM | | | Number Date | 3023478 2008-11-03 |
| | | -15 |  EC type examination certificate | Number Date | PTB 04 ATEX 2033 2017-01-24 |
| | IECEX | | | Number Date | IECEX PTB 06.0055X 2017-01-26 |
| | | -18 |  Certificate of conformity | Number Date | PTB 04 ATEX 2114 X 2017-01-26 |
| | -18  On request | | | | |
| IECEX | Number Date | | IECEX PTB 06.0055X 2017-01-26 | Ex nA IIC T6-T4 Gc, Ex tc IIIC T80°C Dc | |
| | NEPSI | | Number Date Valid until | GYJ14.1110X 2014-05-08 2019-05-07 | Ex ic IIC T4~T6 Gc; Ex nA IIC T4~T6 Gc |

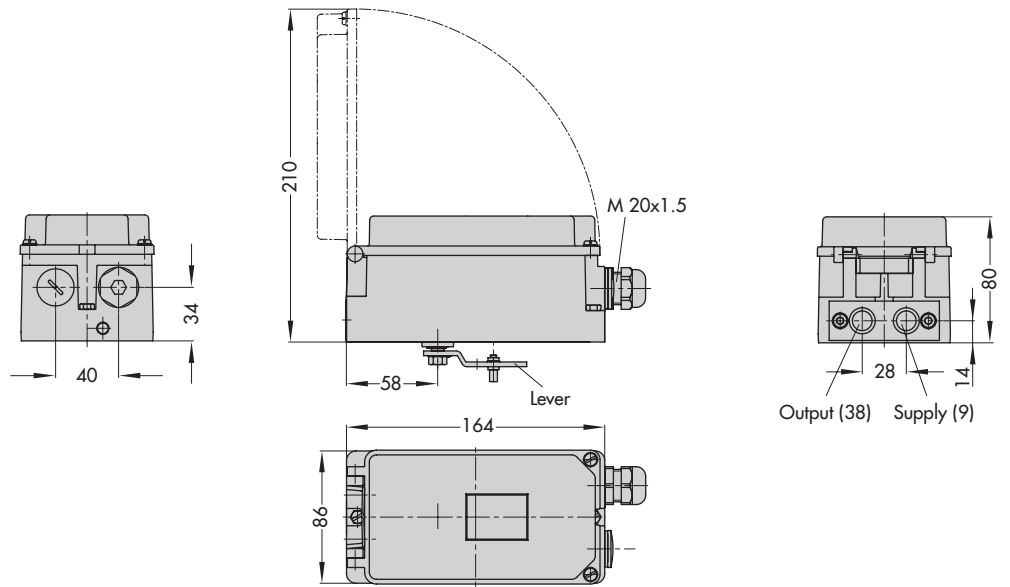
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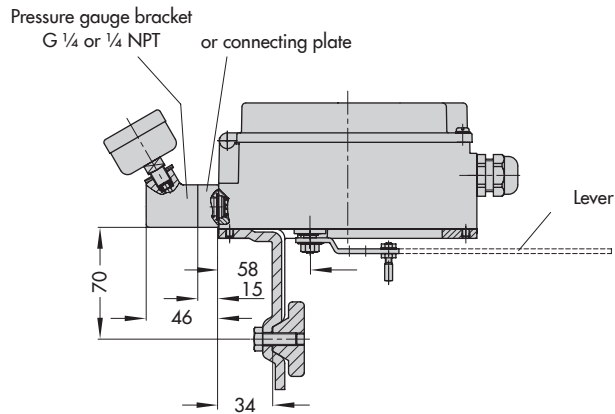
تماس : 09190345384 02166479486

Dimensions in mm

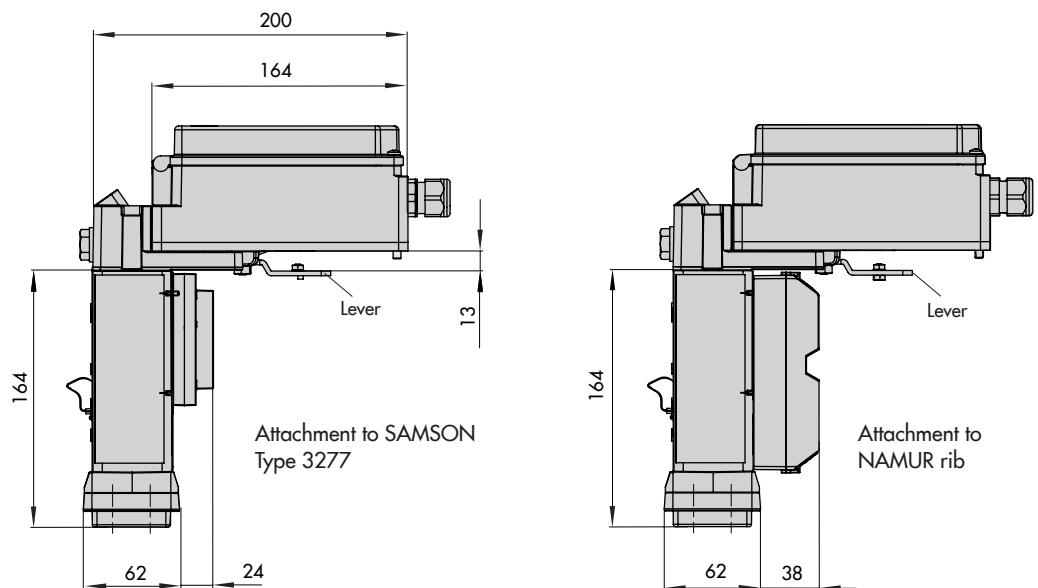
Direct attachment



Attachment according to IEC 60534-6 (NAMUR)

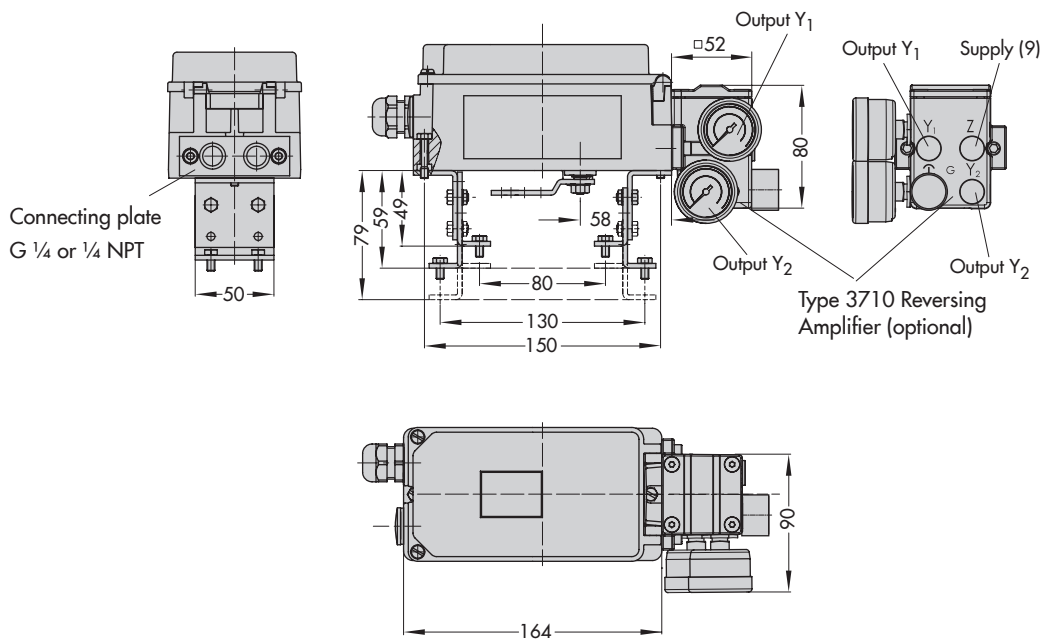


Attachment according to VDI/VDE 3847



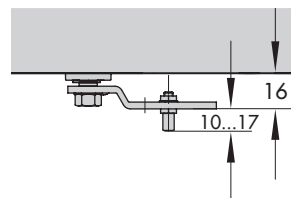
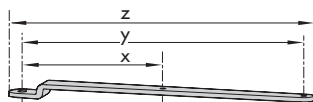
Dimensions in mm

Attachment to rotary actuators



Lever

| Lever | x | y | z |
|-------|--------|--------|--------|
| S | 17 mm | 25 mm | 33 mm |
| M | 25 mm | 50 mm | 66 mm |
| L | 70 mm | 100 mm | 116 mm |
| XL | 100 mm | 200 mm | 216 mm |



Article code

| Positioner | Type 3730-1 | x | x | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | x | 0 | 0 | x | 0 | 0 | 0 |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| With LCD and autotune, 4 to 20 mA set point, two software limit contacts* | | | | | | | | | | | | | | | | | | |
| Explosion protection | | | | | | | | | | | | | | | | | | |
| Without | | 0 | | | | | | | | | | | | | | | | |
| ATEX: II 2G Ex ia IIC T6..T4 Gb; II 2D Ex ia IIIC T80°C Db | | 1 | | | | | | | | | | | | | | | | |
| FM/CSA: Class I, Zone 0 AEx ia IIC; Class I, II, III, Div.1, Groups A–G; Class I, Div.2, Groups A–D; Class II, Div.2, Groups F, G/ Ex ia IIC T6; Class I, Zone 0; Class II, Groups E–G; Ex nA II T6; Class I, Zone 2; Class I, Div.2, Groups A–D; Class II, Div.2, Groups E–G | | 3 | | | | | | | | | | | | | | | | |
| ATEX: II 2D Ex tb IIIC T80°C Db | | 5 | | | | | | | | | | | | | | | | |
| ATEX: II 3G Ex nA II T6 Gc; II 3D Ex tc IIIC T80°Dc | | 8 | | | | | | | | | | | | | | | | |
| Option: Inductive limit contact | | | | | | | | | | | | | | | | | | |
| Without | | 0 | | | | | | | | | | | | | | | | |
| With SJ2-SN proximity switch (NC contact) | | 1 | | | | | | | | | | | | | | | | |
| Housing material | | | | | | | | | | | | | | | | | | |
| Aluminum (standard) | | | | | | | | | | | | 0 | | | | | | |
| Stainless steel 1.4581 | | | | | | | | | | | | 1 | | | | | | |
| Special applications | | | | | | | | | | | | | | | | | | |
| Without | | | | | | | | | | | | | | | | | | 0 |
| Device compatible with paint (lowest permissible ambient temperature –20 °C) | | | | | | | | | | | | | | | | | | 1 |
| Exhaust air port with ¼ NPT thread, back of housing sealed | | | | | | | | | | | | | | | | | | 2 |
| Special version | | | | | | | | | | | | | | | | | | |
| Without | | | | | | | | | | | | | | | | | | 0 0 0 |

* Additional functions such as limit contacts, solenoid valve, position transmitter or external position sensor, e.g. with Type 3730-2 Positioner

Mounting the positioner

The Type 3730 Electropneumatic Positioner can be attached directly to the Type 3277 Actuator over a connection block.

In actuators with fail-safe action "actuator stem extends" and Type 3277-5 Actuator (120 cm²), the signal pressure is routed over an internal hole in the actuator yoke to the actuator.

In actuators with fail-safe action "actuator stem retracts" and in actuators with effective diaphragm areas of 175 cm² or larger, the signal pressure is routed to the actuator over ready-made external piping.

Using the appropriate bracket, the positioner can also be attached according to IEC 60534-6-1 (NAMUR recommendation). The positioner can be mounted on either side of the control valve.

A pair of universal brackets is used for the attachment to Type 3278 Rotary Actuators or other rotary actuators according to VDI/VDE 3845. The rotary motion of the actuator is transferred to the positioner over a coupling wheel with scale.

Ordering text

Positioner Type 3730-1x

- Without pneumatic connecting rail (only when directly attached to Type 3277)
- With pneumatic connecting rail ISO 228/1-G ¼
- With pneumatic connecting rail ¼-18 NPT
- Without/with pressure gauge up to max. 6 bar
- Additional cover label with list of parameters and operating instructions in English/Spanish or English/French (standard version German/English)
- Attachment to Type 3277 Actuator (120 to 750 cm²)
- Attachment acc. to IEC 60534-6-1 (NAMUR)
Travel: ... mm, if applicable, stem diameter: ... mm
- Attachment to Type 3278 Rotary Actuator (160/320 cm²)
- Attachment to rotary actuators according to VDI/VDE 3845
- Pneumatic reversing amplifier for double-acting actuators with connection acc. to ISO 228/1-G ¼ or ¼-18 NPT
- Adapter M20 x 1.5 to ½ NPT
- Metal cable gland
- Free of substances that impair paint adhesion
- Exhaust air port with ¼ NPT thread
- Special version: housing made of CrNiMo steel

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Specifications subject to change without notice



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