The Universal Positioner SRD960 is designed to operate pneumatic valve actuators and is available in the version Ex d / explosionproof (flameproof). It can be operated from control systems (e.g. the Foxboro I/A Series System), controllers, or PC-based configuration- and operation tools such as VALcare™. The positioner is available with different communication protocols. The multi-lingual backlit full text grahic-LCD in connection with the external 4 push buttons (optional with infrared interface IrCom) allows a comfortable and easy local configuration and operation.

**MAIN FEATURES**

**Intelligent**
- Auto-start with self-calibration
- Self diagnostics, status- and diagnostic messages
- Easy operation with four key pads
- Multi-Lingual backlit full text graphical LCD, or LEDs
- With communication HART, FOUNDATION Fieldbus H1, PROFIBUS-PA, FoxCom
- Configuration by means of local keys, hand-held terminal (HART), PC or I/A Series system or with a infrared interface by means of IRCOM
- **Advanced Diagnostic / Premium Diagnostic:** FDT-based Software for valve diagnostic and Predictiv Maintenance
- Stroke 8 to 120 mm / 260 mm (0.3 to 4.7 in / 10.2 in)
- Angle range up to 95 ° (up to 300° on request)
- Supply air pressure up to 6 bar (90 psig), with spool valve up to 7 bar (105 psig)
- Single or double-acting
- Mounting on linear actuators according to NAMUR – IEC 534, Part 6 – VDI/VDE 3847
- Mounting on rotary actuators acc. to VDI/VDE 3845
- Protection class IP 66, NEMA 4X
- Approved for SIL applications
- Explosion protection: Flameproof acc. to ATEX, Explosion proof acc. to FM
OVERVIEW of SRD960 Positioner

Electronic Version: (see P.4, 8)
"H" HART (4-20 mA) P.8
"F" FoxCom (Digital) P.8
"P" PROFIBUS PA P.9
"Q" FOUNDATION Fieldbus H1 P.9

Additional I/O: P.11
Binary inputs
Binary outputs
Position feedback
Limit switches

Mounting Adapters P.15
1/4-18NPT or G1/4

Cable Glands P.19
1/2-14NPT or M20x1.5

Display Covers: P.14
LCD or LED or Closed

Boosters P.18

built-in Gauges P.17

Combinations

<table>
<thead>
<tr>
<th>Device version</th>
<th>Controller</th>
<th>Display</th>
<th>local configuration</th>
<th>remote configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;H&quot; HART (4-20)</td>
<td>Digital</td>
<td>LCD or 5 LEDs</td>
<td>push buttons</td>
<td>via communication</td>
</tr>
<tr>
<td>&quot;P&quot; Profibus</td>
<td>Digital</td>
<td>LCD or 5 LEDs</td>
<td>push buttons</td>
<td>via communication</td>
</tr>
<tr>
<td>&quot;Q&quot; F.Fieldbus</td>
<td>Digital</td>
<td>LCD or 5 LEDs</td>
<td>push buttons</td>
<td>via communication</td>
</tr>
<tr>
<td>&quot;F&quot; FoxCom</td>
<td>Digital</td>
<td>LCD or 5 LEDs</td>
<td>push buttons</td>
<td>via communication</td>
</tr>
</tbody>
</table>
FUNCTIONAL SPECIFICATIONS  (common data for SRD960 -B or C)

Travel range
Stroke range ................. 8 ... 260 mm (0.3 ... 10.2 in)
with standard feedback levers; special levers on request
Rotation angle range ........ up to 95°
(without mechanical stop)

Supply
Supply air pressure 5) .......... 1.4 ... 6 bar (20 ... 90 psig)
with spool valve 4) .......... 1.4 ... 7 bar (20 ... 105 psig)
Output to actuator .......... 0 to ~100 % of supply air pressure
(up to 5.5 bar at 6 bar supply air pressure)
Air supply 1) ............... according to ISO 8573-1
Solid particle size and density class 2
Oil rate ............ class 3
Pressure dew point 10 K under ambient temperature
For air supply, we recommend the FOXBORO ECKARDT
FRS923 filter regulator.

Response characteristic 2) 3)
Sensitivity ................. < 0.1 % of travel span
Non-linearity (terminal based adjustment) ........ < 0.4 % of travel span
Hysteresis ................. < 0.3 % of travel span
Supply air dependence .......... < 0.1 % / 1 bar (15 psi)
Temperature effect .......... < 0.3 % / 10 K
Mechanical vibration
10 to 60 Hz up to 0.14 mm,
60 to 500 Hz up to 2 g .......... < 0.25 % of travel span

Air output ln/h (scfh)
at max. deviation, single and double acting:

<table>
<thead>
<tr>
<th>Supply air pressure bar (psig)</th>
<th>1.4 (20)</th>
<th>3 (45)</th>
<th>6 (90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>without booster 5)</td>
<td>2 700 (95)</td>
<td>5 000 (177)</td>
<td>7 500 (265)</td>
</tr>
<tr>
<td>with Spool Valve 4)</td>
<td>6 000 (211)</td>
<td>12 000 (423)</td>
<td>18 000 (636)</td>
</tr>
<tr>
<td>with booster code F, G</td>
<td></td>
<td></td>
<td>21 000 (742)</td>
</tr>
<tr>
<td>with booster code H</td>
<td></td>
<td></td>
<td>42 000 (1 484)</td>
</tr>
</tbody>
</table>

Air consumption (steady state) l\textsubscript{n}/h (scfh)

<table>
<thead>
<tr>
<th>Supply air pressure bar (psig)</th>
<th>1.4 (20)</th>
<th>3 (45)</th>
<th>6 (90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>single acting</td>
<td>80</td>
<td>130</td>
<td>220</td>
</tr>
<tr>
<td>double acting</td>
<td>130</td>
<td>230</td>
<td>430</td>
</tr>
<tr>
<td>Spool Valve</td>
<td>100</td>
<td>240</td>
<td>500</td>
</tr>
</tbody>
</table>

Note: The use of boosters in connection with Spool valve is not recommended.

1) Pressure dew point 10 K under ambient temperature
2) Data measured according to VDI/VDE 2177
3) With stroke 30 mm and lever length 90 mm
4) Spool valve is the type of amplifier used in device SRD960-C
5) Standard diaphragm amplifier

Devices SRD960-B and SRD960-Cxxxxooo-xxxx-M are using "standard" diaphragm amplifier

Special Version of SRD960
SRD960 for actuator with rotation up to 300°
This special version of the SRD960 is designed to be mounted by means of standard attachment kit (like the EBZG-R) onto rotary actuator with rotation up to 300°. This special version is made of a standard SRD960 with new gears.
To be ordered under special version ECEP EP0265

Please consult TI EVE0109 LP
**FUNCTIONAL SPECIFICATIONS** (common data for SRD960 -B or C)

**Features**

- **Automatic start-up** . . . . . . Autostart functionality
  - Automatic detection of mechanical stops, control parameters and of direction of spring force. A dynamic optimization is included in this procedure. This procedure allows a full adaptation on optimization of the positioner to the actuator without any manual adjustments!

**Options**

- Built-in independent inductive limit switches
- Pressure Sensors for supply air pressure and output pressure I (y1) and II (y2)
- Additional Inputs / outputs:
  - 2 binary outputs (position alarms)
  - Position feedback 4 to 20 mA + binary alarm output
  - 2 binary inputs

**Operation and configuration**

Local . . . . . . . . . . . . . . . . . . . with four keys
- Display . . . . . . . . . . . . . . . . . . . Multi-Lingual Graphic LCD or five LEDs

The positioner in LCD version is available with three different menu languages:
- Two menu languages are standard:
  - English
  - German
- Freely definable third language (additional languages on request):
  - French
  - Portuguese
  - Spanish
  - Italian
  - Swedish
  - etc.

The third menu language has to be selected and specified with order.

All additional Menu languages can be downloaded into the positioner by means of the operation- and configuration software VALcare™. Additional language downloads are available on our homepage.

**Position feedback and alarms**

Position feedback / valve position . . . via communication
- Optional 1) . . . . . . . . . . . . . 4 to 20mA position feedback
- Alarms . . . . . . . . . . . . . . via communication
- Optional 1) . . . . . . . . . . . . . 1 alarm output
- Position alarms . . . . . . . . via Kommunikation
  - Hi and Lo alarm
  - Hi/Hi and Lo/Lo alarm
- Optional 1) . . . . . . . . . . . . . 2 binary outputs
  - Hi and Lo alarm
  - Hi/Hi and Lo/Lo alarm

Independent feedback:
- Limit switch (inductive) . . . Standard version
- Security version

**Diagnosis**

- **local**
  - Self diagnostics
  - Status- and diagnostic messages

- **via VALcare™ Valve Diagnostic Software**:
  - Service Management for planning and scheduling of service intervals
  - Histograms for displaying the position- and response history over time
  - Partial Stroke Test for the functional inspection of safety related actuators
  - Hours in operation, cycle counter and travel sum of the actuator are determined
  - Surveillance of loop current
  - shows condition of device:
    - Potentiometer
    - IP Motor
    - exceeding range of actuator (possible indication for wear of plug or seat)
    - remaining control deviation (possible indication for jammed actuator, blocked valve stem or plug, not sufficient air capacity /supply air pressure /positioning pressure)
  - if equipped with pressure sensors (optional):
    - Monitoring of the stem friction
    - Histograms for displaying the friction-history over time
    - surveillance of air supply and output pressure, each with display of physical value
  - Additional diagnostic possibilities in control operation by means of external sensors (optional). See also the VALcare™ Documentation.

**Service plug and IrCom**

All basic devices are equipped with a service plug A at the front side. There via RS232 interface a PC with VALcare™ (DTM) can be connected via modem EDC82 (galv. separated, not Ex).

Information about EDC82 modem see TI EVE0102_Y.

If the SRD is equipped with option "IrCom" B, communication can take place contactless via infrared with the positioner (even with a closed cover!). A modem "IR Interface" (not Ex) connected via RS232 interface to a PC with VALcare™ (DTM) makes communication possible up a range of approx. 0.5 m.

(If the notebook has an IrDa interface, this cannot be used despite being similar technology as IrDa instruction set has no communication commands for positioners.)

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1) By means of additional inputs/outputs (Option Board)
Manual settings:
Actuator mode ............... linear or rotary actuator
Linear valve ............... left or right mounted
Rotary actuator ............. opening clockwise or
counter-clockwise
Characteristic of setpoint . linear, equal percentage,
invers- equal percentage
or custom (22 points)
Valve function .............. opens or closes with
increasing setpoint
Split range ................. free upper and lower values
Travel limits ............... free upper and lower values
Cutoffs .................... free upper and lower values
Stroke range ............... configurable
Temperature unit .......... configurable (°C or °F)
Autostart .................. - Endpoints
                           - Standard Autostart
                           - Enhanced Autostart 1)
                           - Smooth response 1)
                           - Fast response 1)
Control parameters ........ Determined during Autostart.
Working range ............. freely adjustable (for indica-
tion on LCD
Manual adjustment of ...... P-gain, I-time,
T63-time and dead band
Manual operation ........... Manual input of setpoint to
drive the valve in steps with
12.5 % or 1 % 1)
Pneumatic test .............. Function to test the pneu-
matic output
Workshop ................... input and angle calibration
LCD language ............... dependent on version
LCD orientation .......... dependent on version
PROFIBUS-PA ............. Bus address
FOUNDATION Fieldbus .... Simulation
                       Switch from Link Master to
                       Basic Device

Software supported configurations:
- by means of Hand Held Terminal (HART)
- PC by means of VALcare™ Software
- PC among others by means of PC20 / PC50 / IFDC
- I/A Series System and other DCSs
- Depending on the version, configurations can be achie-
ved by a non-contact, protocol-independent infrared
interface by means of IRCOM.

Failure handling
Safety position at
- Air supply failure ........ pressure y1 = zero
- Electric power failure .... pressure y1 = zero
- Failure of electronics ..... pressure y1 = zero
- Failure of communication is recognized by configurable
 .watch dog with response delay of 0.1 s to 24 h
  behavior................. configurable as
                           pressure y1 = zero or
                           stop at last value or
                           a configured value
Diagnostic report ........... via communication and local
                         LCD
- historical status .......... is set if alarm was activated at
                          any time (also just short alarms)
Reset ...................... by acknowledging

1) from HW-Rev. 3.4 / Firmware Rev. 16
PHYSICAL SPECIFICATIONS (common data for SRD960 -B or C or T)

**Mounting** (see page 17 for details)
Attachment preparation by means of mounting adapter

**Option N** for
- NAMUR according to IEC 534, Part 6
- Direct to IFC-/Flowserve actuators such as FoxPak and FoxTop
- Rotary actuators according to VDI/VDE 3845

**Option R** for
- Rotary actuators according to VDI/VDE 3845

**Option T** for
- Integrated mounting with air connection on back
  - for details refer to page 21, Attachment prep.

**Option D** for
- NAMUR according to VDI/VDE 3847
- Rotary actuators according to VDI/VDE 3845

**Option F** for
- NAMUR according to IEC 534, Part 6
- Rotary actuators according to VDI/VDE 3845

Attachment to stroke actuators
- direct to FlowPak/FlowTop with attachment kit EBZG -E1
- for casting yoke acc. to IEC 534-6 (NAMUR) ....... with attachment kit EBZG -H
  Stroke range
  - with standard feedback lever EBZG-A: 8 to 70 mm
  - with extended feedback lever EBZG-B: 60 to 120 mm
  - with extended feedback lever EBZG-A1: 100 to 260 mm
- for pillar yoke acc. to IEC 534-6 (NAMUR) ....... with attachment kit EBZG -K
  Stroke range
  - with standard feedback lever ... 8 to 70 mm
  - with extended feedback lever ... 60 to 120 mm

Attachment to rotary actuators
- acc. to VDI/VDE 3845 ....... with attachment kit EBZG -R
- Further attachment kits see ModelCodes page 19

**Materials**

- Housing and covers ....... Aluminum (Alloy No. 230) finished with 2 component DD varnish
- All moving parts of feedback system (V4A) ....... 1.4306 / 1.4571 / 1.4104
- Mounting bracket ......... Aluminum (Alloy No. 230)
- Pneumatic diaphragm ..... Silicone (suitable for use in lacquer industry according to Lab-Test)

**Weight**

- Single acting ............. approx. 2.7 kg (3.7 lbs)
- Double acting ............. approx. 3 kg (4.4 lbs)

**Pneumatic connection**

- NAMUR mounting ........... 3 x female threads
- Direct mounting ........... Instead of the output y1 an air connection on the backside with O-ring will be used (closed at NAMUR mounting).

**Electrical connection**

- Line entry ................. 1 or 2 cable glands
- Cable diameter ............. 6 to 12 mm (0.24 to 0.47 in)
- Screw terminals ............. 2 terminals for input,
  - 4 terminals for additional inputs/outputs
- Wire cross section ........ 0.3 to 2.5 mm² (AWG 22-14)
PHYSICAL SPECIFICATIONS (common data for SRD960 -B or -C or -T)

Ambient conditions
Operating conditions . . . . . . . acc. to IEC 654-1
The device can be operated at a class Dx location
Ambient temperature for
  Operation 1) ........... –40 to 80 °C (–40 to 176 °F)
  Transport and storage .... –40 to 80 °C (–40 to 176 °F)
  Storage conditions acc.
      to IEC 60721-3-1: ......... 1K5; 1B1; 1C2; 1S3; 1M2
      Display
      LCD (visible) 2) ......... –25 to 80 °C (–13 to 176 °F)
      LEDs ......... –40 to 80 °C (–40 to 176 °F)
Relative humidity ......... up to 100 %
Protection class
  acc. to IEC 529 ......... IP 66 3)
  acc. to NEMA ......... Type 4X

Electromagnetic compatibility EMC
Operating conditions: . . . . industrial environment
Immunity according to
  - EN 61 326-1 ......... fulfilled
Emission according to
  - EN 55 011,
      Group 1, Class B ......... fulfilled
NAMUR
  recommendation NE21 ......... fulfilled

SAFETY REQUIREMENTS

CE label
Electromagnetic compatibility 4) ......... 2004/108/EG
Low-voltage regulation ......... not applicable

Safety
According to EN 61010-1
(or IEC 1010-1) ......... safety class III
  Overvoltage Category I
Internal fuses ......... only with PROFIBUS or FOUNDATION Fieldbus,
  but not replaceable
External fuses ......... limitation of power supplies
  for fire protection must be observed acc. to
  EN 61010-1, appendix F (or IEC 1010-1).
Compliance with the essential health and safety
requirements has been assured by compliance with

Electrical Classification 5) 6)
See certificate of conformity EX EVE0109 A (de)(en)

Type of protection ATEX "Ex d – Flameproof"
II 2 G Ex d IIC
Temperature class T4...T6
(Design AD 639)
EC-Type-Examination Certificate PTB 02 ATEX 1084 X
Permissible ambient temperature range:
  Temperature class T4 ......... –30 °C to +80 °C
      (–22 °F to 176 °F)
  Temperature class T4 ......... (on request)
      –40 °C to +80 °C
      (–40 °F to 176 °F)
  Temperature class T6 ......... –30 °C to +75 °C
      (–22 °F to 167 °F)
  Temperature class T6 ......... (on request)
      –40 °C to +75 °C
      (–40 °F to 167 °F)

For connections in explosion protected hazardous areas
according to directive 94/9/EG appendix II, with the
following maximum values:
  Input circuit:
      Maximum electrical power ......... P max = 2.5 W
      Electrical connections ......... U max = up to 60 V
      Self-heating of device surface ......... 1.3 KW

Type of protection FM "explosion proof"
Class I Division 1, Groups B, C, D
hazardous locations, indoor and outdoor, NEMA 4X

---

1) Details see Certificates of Conformity. With built-in “Inductive Limit Switch” Code T only –20 °C
2) Below –20 °C reaction time for value changes is reduced
3) Under service as directed
4) With PROFIBUS or FOUNDATION Fieldbus, only, if shield of wiring
   is grounded on both sides.
5) With appropriate order only
6) National requirements must be observed
SRD960 with HART communication
SRD960-xHxxxx

Signal Input
- Two wire system
- Reverse polarity protection... standard feature
- Signal range............... 4 to 20 mA
- Operating range........... 3.6 to 21.5 mA
- Voltage range of unloaded input signal........... 12 to 48 V
- Load...................... 420 Ohms, 8.4 V at 20 mA
- Communication signal.... HART, 1200 Baud, FSK (Frequency Shift Key) modulated on 4 to 20 mA 0.5 Vpp at 1kOhm load
- Input impedance Z...... Z=320 Ohms
  for ac voltage 0.5 to 10 kHz with < 3 dB non-linearity
- Cable capacity and inductance see HART standard specifications. (e.g. C < 100 nF).
- Impedance of other devices at the input (parallel or serial) must be within HART spec.
- Applications without communication require not to exceed input capacitance parallel to the input not higher than 100 μF.

Configuration
- Start-up time (init phase) . approx. 2 sec
- Interruption time without power down:
  - with LCD .................. 85 ms ¹
  - with LED .................. 75 ms ¹

SRD960 with FoxCom communication
SRD960-xFxxxx

Signal Input
- Two wire system
- Reverse polarity protection... standard feature
- Voltage range of supply input DC 8 to 48 V
- Supply current............. approx. 9 mA at DC 24 V
- Communication signal..... FoxCom digital, 4800 Baud, FSK (Frequency Shift Key) modulated on supply voltage 0.5 Vpp at 500 Ohms load
- Input impedance........... Z = 500 Ohms
  (for ac voltage 3 kHz to 15 kHz)
- Start-up time (init phase) . approx. 2 sec
- Interruption time without power down:
  - with LCD .................. 85 ms ¹
  - with LED .................. 75 ms ¹

Configuration
- Local / Display ........ see page 4
- Software .................. VALcare™ (FDT-Software)
- Hardware.................. Modern PC10
- I/A Series System ........ FBM 43, FBM 243, 246 ² in connection with CP60

¹) Worst case conditions 4-20mA, with position feedback option, I/O-output
with max. current

²) Other control systems . . . AMS, Siemens SIMATIC PDM (ProcessDeviceManager)
SRD960 with communication PROFIBUS-PA and FOUNDATION Fieldbus H1
SRD960-xPxxxx or SRD960-xQxxxx

PROFIBUS-PA
Data transfer .......... according to PROFIBUS-PA profile class B based on EN 50170 and DIN 19245 part 4
GSD file .......... the actual file can be downloaded from our homepage

Configuration
Local / Display ..... see page 4
Software ............... VALcare™ (FDT-Software)
Hardware ............... PC- or PCMCIA-interfaces from Softing
I/A Series System ....... with FBM223
Other control systems .... All Profibus-PA-compatible, e.g. Siemens SIMATIC PDM (ProcessDevice Manager)

FOUNDATION Fieldbus H1
Data transfer .......... according to Fieldbus FOUNDATION Specification Rev. 1.4, Link-Master (LAS).
Function Blocks .......... AO, Transducer, Resource, PID, 2xDI, DO
DD files .......... the actual file can be downloaded from our homepage

Configuration
Local / Display ..... see page 4
Software ............... VALcare™ (FDT-Software) or National Instruments NI-FBUS configurator
Hardware ............... FBUS-interfaces (AT-FBUS and PCMCIA-FBUS)
I/A Series System ....... with FBM220 / 221
Other control systems .... All Fieldbus FOUNDATION H1-compatible.
Fisher Rosemount Delta-V, Honeywell, Yokogawa, ABB

For both fieldbus versions
Input signal .......... digital
Supply voltage .......... DC 9 to 32 V *)
max. Supply voltage .......... DC 48 V
Operating current .......... 10.5 mA ± 0.5 (base current)
Current amplitude .......... ± 8 mA
Fault current .......... base current + 0 mA (base current + 4 mA by means of independent FDE-safety circuit) according to IEC 1158-2
Start-up time (init phase) .......... approx. 2 sec

Operating values
Bus connection .......... Fieldbus interface based on IEC 1158-2 according to FISCO-Model (see Electrical certifications)
Power supply .......... Power supply is achieved dependant on the application by means of fieldbus power supply units or segment coupler

*) Data of "Intrinsically Safe" version
SRD960 as Position Transmitter stand alone unit  SRD960 -TxQ

Input ................................ Stroke / Rotary angle by means of conductive plastic precision potentiometer

Output ................................ Two wire system
Signal range ............... 4 to 20 mA / 20 to 4 mA or free configuration
Signal range ............... 3.8 to 20.5 mA
Permitted load ............... \[ R_{\text{max}} = (U_s - 12 \text{ V}) / 0.02 \text{ A} \] (Us = supply voltage)

Power supply
Reverse polarity protection . . standard feature
Supply voltage .......... U_s = DC 12 to 36 V
Permitted ripple ......... < 10 % p.p.
Supply voltage dependency . negligible

Response characteristic
Non-linearity (terminal based adjustment) ........ < 1% F.S.
Hysteresis ............... < 0.5% F.S.
Load dependency .......... negligible
Temperature effect ......... < 0.1 % / 10 K

Weight .......... approx. 2.3 kg

Configuration and status
Local configuration ........ 2 push buttons and 2 LEDs

SRD960 as potentiometer unit for remote mounting application  SRD960 -Txxxx - H

Travel Range
Stroke range ............... 8 to 260 mm (0.3 to 10.2 in) with standard feedback levers; special levers on request
Rotation angle range .... up to 95° (to 300° on request) (without mechanical stop)

Response Characteristic
please refer you to the technical data of the positioner SRD960 with which is mounted together.

Weight .......... approx 2.3 kg

Ambient conditions
Ambient temperature ....... -40 to 100 °C (-40 to 212 °F)
IP66
For more information about remote mounting please consult TI EVE0105. R.

OPTION for all SRD960 -B or C

Pressure sensors
Three built-in pressure sensors, Code “Option –B”, for supply air, output y1 and y2 to actuator, necessary for Premium Diagnostic

Measuring range .......... 0 to 8 bar (0 to 120 psig)
Accuracy ............... 0.5 %
Temperature influence .... 0.5 % / 10 K (-40 to 80 °C)

Parts set for subsequent mounting:
Option B (3x pressure sensors) .......... EW 426 247 311

OPTION for all SRD960 -B or C

Pressure sensors
Three built-in pressure sensors, Code “Option –B”, for supply air, output y1 and y2 to actuator, necessary for Premium Diagnostic

Measuring range .......... 0 to 8 bar (0 to 120 psig)
Accuracy ............... 0.5 %
Temperature influence .... 0.5 % / 10 K (-40 to 80 °C)

Parts set for subsequent mounting:
Option B (3x pressure sensors) .......... EW 426 247 311
ADDITIONAL EQUIPMENT
Additional Inputs / Outputs, built into any SRD960-B or C

Order in Model Code: SRD960–□□□ P

Two binary outputs (limit signals) [item 1]
Stroke / angle derived from positioner feedback, configurable
galvanically separated 2 limit signals, two-wire system, according to DIN 19234, for external supply
supply voltage ............. DC 8 to 48 V
Logic:
limit value not exceeded .... < 1 mA
limit value exceeded .......... > 2.2 mA (typ. 6 mA)
device fault .................. < 50 μA
configurable as switch output:
limit value not exceeded .... < 50 μA
limit value exceeded .......... > 20 mA / 20 V
> 40 mA / 10 V
(power derated)
Reference: AB1 for upper, AB2 for lower limit
Terminals for AB1 ........ 81+, 82–
AB2 83+, 84–

Explosion protection thereto see page 7.

Parts set for subsequent mounting:
Code P ................. EW 426 346 021

Order in Model Code: SRD960–□□□ Q

Position feedback 4 to 20 mA [item 1]
Stroke / angle derived from positioner feedback, 1 output analog, galvanically separated, two-wire system according to DIN 19234, for external supply
supply voltage ............. DC 8 to 48 V
signal range ............. 3.8 to 21.6 mA
0 % and 100 % configurable
device fault ............. < 1 mA
Terminals for AI1 .......... 31+, 32–

1 Binary output alarm, galvanically separated, two-wire system, according to DIN 19234, for external supply
supply voltage ............. DC 8 to 48 V
Logic ...................... no alarm < 1 mA
alarm > 2.2 mA
device fault < 50 μA
Terminals for AB1 .......... 81+, 82–
The binary output for Alarm will be activated in the following cases:
- Remaining control deviation
- Circuit to I/P module is disturbed
- Circuit to potentiometer is disturbed
- Calibration error:
  - no angle calibration
  - no current calibration
- Autostart failed
(Pre-settings can be configured via communication)

Explosion protection thereto see page 7.

Parts set for subsequent mounting:
Code Q ................. EW 426 346 039
ADDITIONAL EQUIPMENT  (continued)
Additional Inputs / Outputs, built into any SRD960 -B or C

Order in Model Code: SRD960–□□ B

Two Binary Contact Inputs  [item 1]
Two independent binary inputs, supplied by the basic device, for connection of sensors. A connected switch is loaded with 3 V, 150 μA.
Both binary inputs can be used for diagnostics or also configurable for the control functions.

<table>
<thead>
<tr>
<th>Switch 1</th>
<th>Switch 2</th>
<th>Actuator control function</th>
</tr>
</thead>
<tbody>
<tr>
<td>close</td>
<td>close</td>
<td>normal operation</td>
</tr>
<tr>
<td>open</td>
<td>close</td>
<td>go to stop at 0 %</td>
</tr>
<tr>
<td>close</td>
<td>open</td>
<td>go to stop at 100 %</td>
</tr>
<tr>
<td>open</td>
<td>open</td>
<td>hold last position</td>
</tr>
</tbody>
</table>

Terminals for EB1: 13+, 14–
EB2: 15+, 16–

Requirements for connected switches:
- Capacitance in parallel: < 100 nF
- Resistance for ON: < 2 kOhms
- Resistance for OFF: > 10 kOhms
- Hysteresis: 2 to 5 kOhms

For application with:
- mechanical switches
- opto couper outputs
- open collector / drain outputs of transistor circuits

For further information about the contact inputs please consult TI EVE0105_B.

Explosion protection thereto see page 7.

Parts set for subsequent mounting:
Code B: EW 426 346 012

Order in Model Code: SRD960–□□ E

Two Binary Signal Inputs/Outputs  [item 1]
Two Binary Inputs/Outputs are configure by the device as Input or as output, as well as the kind of Signals as on/off or as to NAMUR signal in accordance (DIN 19234).

Configured as NAMUR:
Input/Output
Logic 0: > 0.35 mA, < 1 mA
Logic 1: > 2.2 mA, < 6 mA
Input current Limited to: < 6 mA

On/Off Signal
Output:
Logic 0: < 50 μA
Logic 1: > 40 mA / 10 V
Input:
Logic 0: < 4 mA
Logic 1: > 6 mA

Signal Voltage Range: 6...36 V

Terminals for Ch1: 81+, 82–
Ch2: 83+, 84–

Part set for subsequent mounting:
Code E: EW 426 247 417
ADDITIONAL EQUIPMENT (continued)

Additional Inputs/Outputs built into any SRD960 -B or C

Order in Model Code: SRD960-□□ T, U, R, V

Built-in Limit Switch

Inductive Limit Switch

- standard version (SJ2-N) .... Code T
- security version (SJ2-SN) .... Code U
- in three wire technology
  (SI 2-K08-AP7) ............... Code R

Stroke / angle derived from positioner feedback,
two-wire system

Output ............... 2 inductive proximity sensors acc. to DIN 19 234 or NAMUR for connection to switching amplifier with intrinsically safe control circuit 1)

Current consumption
vane clear ............... > 2.2 mA
vane interposed .......... < 1 mA

for control circuit with the following electrical values
supply voltage .............. DC 8 V, R approx. 1 kOhm
supply voltage range ...... DC 5...25 V (only with ZZZ)
residual ripple ............. < 10 % p.p.
line resistance .......... < 100 Ohms

Response characteristic 2)
switching differential ...... < 1 %
switching point repeatability < 0.2 %

Terminals for Code T, U . . . GW1 . 41+, 42–
GW2 . 53+, 54–

Terminals for Code R . . . . GW1 . 42
GW2 . 52
Supply 41+, 43–

Explosion protection thereto see page 7.

Parts sets for subsequent mounting:
Code T ................ EW 426 346 057
Code U ................ EW 426 346 066
Code R ................ EW 426 346 075

Built-in Limit Switch

Mechanical switches

Micro Switches .............. Code V

Stroke / angle derived from positioner feedback lever

Output .................. 2 mechanical switches
(Micro switches) 1) 4)

Manufacturer ............... Saia-Burgess

Type ...................... V4NS-C4-AC1-UL
UL- and CSA-approved

Absolute limit values AC
of mechanical switches built into positioner:
Umax .................. 42 V AC 1)
Imax .................. 0.5 A (resistive load) 5)
Imax .................. 0.03 A (inductive load) 6)

Absolute limit values DC
of mechanical switches built into positioner: 7)
Umax .................. 30 V DC
Imax .................. 1 A

Switching Differential ...... < 2.5 %
Terminals for SW1 ........ 41, 42
SW2 ........ 51, 52

The circuit of the mechanical switches have to be protected by a suitable fuse. The diameter of the protective conductor needs to be at least 1.5 mm² / AWG 16.

Parts set for subsequent mounting
Code V ................ EW 426 346 084

1) Operating mode min. (= Low) / max. (= high) selectable by adjustment of switch vanes
2) Data measured according to VDI/VDE 2177
3) With stroke 30 mm and lever length 90 mm
4) Operating mode normally open / normally closed selectable by vane adjustment
5) Approval according to UL (UL 1054) and CSA (CSA 22.2 No. 55) at 6,000 operations and T = 65 °C / 149 °F
6) Based on EN 61058-1, at 10,000 operations and T = 85 °C
7) General rating at 50,000 operations and T = 85 °C / 185 °F
LOCAL DISPLAY

Order in Model Code: SRD960-B6f/B6f/B6f/B6f/B6f/B6f/B6f/B6f/B6f/B6f/B6f/B6f

There are three Display covers available:
- Cover with LCD and 4 external push buttons
- Cover with 5 LEDs and 4 external push buttons
- Cover, solid, without window; internal push buttons

The positioner in version with LCD is available with three different menu languages:
Standard menu languages:
- English
- German
Freely definable third language (additional languages on request):
- French
- Portuguese
- Spanish
- Italian
- Swedish
- see ModelCode

The third menu language has to be selected and specified with order.

The pre-set menu language is English. This menu language can easily be set to another pre-configured menu language by means of the local push buttons.
All "freely definable" third Menu languages can be downloaded into the positioner by means of the operation- and configuration software VALcare™. This way also the pre-configured third language can be modified. The additional language downloads are available on our homepage.

Despite some special functions all configurable parameters are accessible by means of the local push buttons.

Displayed data in operation:
- valve position
- stem position
- input current
- setpoint digital
- setpoint stem
- supply pressure
- output pressure 1
- output pressure 2
- temperature
- valve cycles
- travel sum
- Hours of operation
- Tag number
- Tag name
- Firmware version

With LED display the configuration functionality is the same as with LCD (but LCD is easier to use).
Details see Master Instructions (MI) or Quick Guide (QG).
ATTACHMENT PREPARATION

Order in Model Code: SRD960-

The Universal Positioner needs a linking piece for attachment to the different brands of actuators.

The standard Mounting Adapter is marked with Option N.

Mounting Adapter

Preparation for attachment to:
• NAMUR, according to IEC 534-6
• Direct mounting to FoxPak and FoxTop actuators, with y1-d air supply (no external tubing for y)
• Rotary actuators acc. to VDI/VDE 3845

Order Option N.

Preparation for attachment to:
• Rotary actuators acc. to VDI/VDE 3845

Order Option R.

Preparation for attachment to:
• Integrated mounting with air connections on rear
• Rotary actuators acc. to VDI/VDE 3845

Order Option T.

Preparation for attachment to:
• NAMUR, according to VDI/VDE 3847
• Rotary actuators acc. to VDI/VDE 3845

Order Option D.

as Option N, but no y1-d air supply (with external tubing for y)

Order Option F.
1 Cable gland ¹)
2 Plug, interchangeable with Pos. 1 ¹)
3 Connection ²) (11+/12-) for input (w) or terminals (11/12) for bus connection IEC 1158-2
3a Connection ²) for additional inputs / outputs
4 Ground connection
5 Female thread G ¼ or ¼-18 NPT ³) for output I (y1)
6 Female thread G ¼ or ¼-18 NPT ³) for air supply (s)
7 Female thread G ¼ or ¼-18 NPT ³) for output II (y2)
8 Direct attachment hole for output I (y1)
9 Feedback shaft
10 Connection manifold for attachment to stroke actuators (see page 17 for details)
11 Connection base for attachment to rotary actuators
12 Cover with window and push buttons
12a Push button protection cover (option -X)
13a Key Ø MENU
13b Key – DOWN
13c Key + UP
13d Key √ ENTER / STORE
15 pneumatic unit with amplifier and connection
16 4 screws for connection of pneumatic unit
18 built-in pressure gauges for air-supply, output Y1 and output Y2
19 Cover for electronic connection compartment
20 Protection screw for electronic connection- and electronic compartment
21 Air vent, dust and water protected (IP65 and NEMA 4X)
22 Data label
25 Tip jacks, 2 mm dia.
26 Arrow is perpendicular to shaft at angle 0 degree

¹) See cable glands BUSG on page 19. The device is supplied with dust protection covers
²) Screw terminals or WAGO Cage clamps
³) Type of thread marked on housing
# Model Codes SRD960

<table>
<thead>
<tr>
<th>Universal Positioner</th>
<th>SRD960</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version</strong></td>
<td></td>
</tr>
<tr>
<td>Single Acting</td>
<td>-B</td>
</tr>
<tr>
<td>Double Acting</td>
<td>-C</td>
</tr>
<tr>
<td>Position Transmitter (w/o pneumatic components)</td>
<td>-T</td>
</tr>
<tr>
<td>Local Control Panel (LCP960) For PST Monitoring</td>
<td>-L</td>
</tr>
<tr>
<td><strong>Input / Communication</strong></td>
<td></td>
</tr>
<tr>
<td>HART (4-20 mA)</td>
<td>(g)</td>
</tr>
<tr>
<td>FoxCom (Digital)</td>
<td>(g)</td>
</tr>
<tr>
<td>Profinet PA based on IEC 1158-2 (MBP) according to FISCO (Fieldbus)</td>
<td>(g)</td>
</tr>
<tr>
<td>HART (4-20 mA)</td>
<td>(g)</td>
</tr>
<tr>
<td><strong>Additional Inputs / Outputs</strong></td>
<td></td>
</tr>
<tr>
<td>Without Additional Inputs / Outputs</td>
<td>(n)</td>
</tr>
<tr>
<td>Binary Input - integrated</td>
<td>(g)</td>
</tr>
<tr>
<td>Binary Output - integrated</td>
<td>(g)</td>
</tr>
<tr>
<td>Binary Inputs/Outputs (mandatory for ESD application)</td>
<td>(E)</td>
</tr>
<tr>
<td>Analog Position Feedback (4-20 mA) - integrated and connected as Option Board</td>
<td>(g)</td>
</tr>
<tr>
<td>- stand alone feedback unit</td>
<td>(f)</td>
</tr>
<tr>
<td>Potentiometer Input (for Remote Mounting - main unit)</td>
<td>(g)</td>
</tr>
<tr>
<td>Limit Switches (standard version SJ2-N)</td>
<td>(g)</td>
</tr>
<tr>
<td>Limit Switches (security version SJ2-SN)</td>
<td>(g)</td>
</tr>
<tr>
<td>Limit Switch (three-wire version)</td>
<td>(g)</td>
</tr>
<tr>
<td>Mechanical Switches (Micro Switches)</td>
<td>(g)</td>
</tr>
<tr>
<td><strong>Display / Indication</strong></td>
<td></td>
</tr>
<tr>
<td>LEDs (cover without window and without external pushbuttons)</td>
<td>(g)</td>
</tr>
<tr>
<td>Graphic LCD (cover with window and with external pushbuttons)</td>
<td>(g)</td>
</tr>
<tr>
<td>LEDs (cover with window and with external pushbuttons)</td>
<td>(g)</td>
</tr>
<tr>
<td><strong>Gauges</strong></td>
<td></td>
</tr>
<tr>
<td>Without Gauges</td>
<td>(g)</td>
</tr>
<tr>
<td>Built-In Gauges with scale in bar/psi</td>
<td>(g)</td>
</tr>
<tr>
<td><strong>Pneumatic Connection</strong></td>
<td></td>
</tr>
<tr>
<td>1/4 - 18 NPT</td>
<td>(g)</td>
</tr>
<tr>
<td>G 1/4</td>
<td>(g)</td>
</tr>
<tr>
<td>not applicable</td>
<td>(f)</td>
</tr>
<tr>
<td><strong>Electrical Connection</strong></td>
<td></td>
</tr>
<tr>
<td>1/2 - 14 NPT (w/o cable glands or plugs for certified SRD960)</td>
<td>6</td>
</tr>
<tr>
<td>M20 x 1.5 (w/o cable glands or plugs for certified SRD960)</td>
<td>7</td>
</tr>
<tr>
<td><strong>Electrical Certification / Explosion protection</strong></td>
<td></td>
</tr>
<tr>
<td>Flameproof II 2 G Ex IIIB/IIC T4/T5/T6 according to ATEX (w/o cable glands or plugs)</td>
<td>EDZ</td>
</tr>
<tr>
<td>Explosion-proof according to FM (w/o cable glands or plugs)</td>
<td>FDZ</td>
</tr>
<tr>
<td>GOST Approved For Explosion-proof</td>
<td>GDZ</td>
</tr>
<tr>
<td>Without Ex (with cable glands and plugs).</td>
<td>ZZZ</td>
</tr>
<tr>
<td><strong>Mounting Preparation on Positioner</strong></td>
<td></td>
</tr>
<tr>
<td>NAMUR acc. to IEC 534-6 / Direct Mounting to Flowserve actuators FlowPak and FlowTop / Rotary Actuators according to VDI/VDE 3845</td>
<td>(p)</td>
</tr>
<tr>
<td>Rotary Actuators according to VDI/VDE 3845</td>
<td>(p)</td>
</tr>
<tr>
<td>Integrated attachment with air channels on back / Rotary Actuators according to VDI/VDE 3845 (g)</td>
<td>(p)</td>
</tr>
<tr>
<td>Direct mounting acc. to NAMUR VDI/VDE 3847 / Rotary Actuators according to VDI/VDE 3845</td>
<td>(p)</td>
</tr>
<tr>
<td>NAMUR acc. to IEC 534-6 / Rotary Actuators according to VDI/VDE 3845</td>
<td>(p)</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td></td>
</tr>
<tr>
<td>LCD Language in English / German / French</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Spanish</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Portuguese</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Polish</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Czech.</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Italian</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Turkish</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Swedish</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Finnish</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Chinese</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Russian</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Hungarian.</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Serbian</td>
<td>(e)</td>
</tr>
<tr>
<td>LCD Language in English / German / Dutch</td>
<td>(e)</td>
</tr>
</tbody>
</table>

(continued on next page)
In case of need select LEXG-G with SRD960-C

So avoid to select LEXG-G with SRD960-C

The use of boosters together with a spool valve amplifier is not recommended.

So avoid to select LEXG-G with SRD960-C

In case of need select LEXG-G with SRD960-C

---

**ACCESSORIES, FOR ALL DEVICES**

- Booster relays, Code LEXG-F, -G, -H
- Connection manifold, Code LEXG-K, -L, -D, -D1

Lateral attachment to positioner

Air output 

**Options**

- Diaphragm Amplifier for double acting positioner
- Premium Diagnostics Features (made with built-in pressures sensors) (HART and FoxCom)
- Build in pressure sensors (analog, FF, Profibus)
- Infrared Interface for communication by means of IRCOM
- Cover for protection of local push buttons
- Approved for SIL2 / SIL3 application
- Booster relays, Code LEXG-F, -G, -H
- Custom Configuration
- Approved for SIL2 / SIL3 application
- Certificate EN 10204-2.1
- ATEX application down to –40°C
- Custom Configuration
- Approved for SIL2 / SIL3 application
- Certificate of compliance with the order
- Tag No. Labeling
- Feedback-Unit for Remote Mounting - Version of Position Transmitter only with a potentiometer
- Cage Clamp Connection (WAGO) instead of Screw terminals
- Certificate EN 10204-2.1 - Certificate of compliance with the order
- Options

**Tag No. Labeling**

- Stamped With Weather Resistant Color
- Stainless Steel Label Fixed With Wire

(a) Not released
(b) ONLY WITH (additional Inputs/Outputs E) AND (Optional Feature -B)
(c) Diaphragm Amplifier for double acting positioner
(d) NOT available with Input / Communication D
(e) Only with Display / Indication D
(f) NOT WITH Version -B, Version C
(g) Not available with Version -T
(h) Not available with Display / Indication D
(i) Only available for Version single-acting -B in connection with Input/Communication D and H

(j) ONLY WITH (Version: C)
(k) Not in connection with Display / Indication S
(l) ONLY WITH Electrical Classification EDZ
(m) Only available with Version T, Input/communication X,
(n) WITH (Version: B, C) OR
(o) WITH (Version: T) AND (Input: X) AND (Optional Features: H)
(p) NOT WITH Version -L

**MODEL CODES SRD960**

| LCD Language in English / German / Romanian | (e)(g)(p) | P |
| LCD Language in English / German / Lithuanian | (e)(g)(p) | Q |
| Without | (h)(p) | S |

**Connection manifold, Code LEXG-K, -L, -D, -D1**

**Booster relays, Code LEXG-F, -G, -H**

**ACCESSORIES, FOR ALL DEVICES**

- Booster relays, Code LEXG-F, -G, -H
- Connection manifold, Code LEXG-K, -L, -D, -D1

Lateral attachment to positioner

Air output  see table on page 3

**Options**

- Diaphragm Amplifier for double acting positioner
- Premium Diagnostics Features (made with built-in pressures sensors) (HART and FoxCom)
- Build in pressure sensors (analog, FF, Profibus)
- Infrared Interface for communication by means of IRCOM
- Cover for protection of local push buttons
- Approved for SIL2 / SIL3 application
- Booster relays, Code LEXG-F, -G, -H
- Custom Configuration
- Approved for SIL2 / SIL3 application
- Certificate EN 10204-2.1
- ATEX application down to –40°C
- Custom Configuration
- Approved for SIL2 / SIL3 application
- Certificate of compliance with the order
- Tag No. Labeling
- Feedback-Unit for Remote Mounting - Version of Position Transmitter only with a potentiometer
- Cage Clamp Connection (WAGO) instead of Screw terminals
- Certificate EN 10204-2.1 - Certificate of compliance with the order
- Options

**Tag No. Labeling**

- Stamped With Weather Resistant Color
- Stainless Steel Label Fixed With Wire

(a) Not released
(b) ONLY WITH (additional Inputs/Outputs E) AND (Optional Feature -B)
(c) Diaphragm Amplifier for double acting positioner
(d) NOT available with Input / Communication D
(e) Only with Display / Indication D
(f) NOT WITH Version -B, Version C
(g) Not available with Version -T
(h) Not available with Display / Indication D
(i) Only available for Version single-acting -B in connection with Input/Communication D and H

(j) ONLY WITH (Version: C)
(k) Not in connection with Display / Indication S
(l) ONLY WITH Electrical Classification EDZ
(m) Only available with Version T, Input/communication X,
(n) WITH (Version: B, C) OR
(o) WITH (Version: T) AND (Input: X) AND (Optional Features: H)
(p) NOT WITH Version -L

**MODEL CODES SRD960**

| LCD Language in English / German / Romanian | (e)(g)(p) | P |
| LCD Language in English / German / Lithuanian | (e)(g)(p) | Q |
| Without | (h)(p) | S |

**Connection manifold, Code LEXG-K, -L, -D, -D1**

**Booster relays, Code LEXG-F, -G, -H**

**ACCESSORIES, FOR ALL DEVICES**

- Booster relays, Code LEXG-F, -G, -H
- Connection manifold, Code LEXG-K, -L, -D, -D1

Lateral attachment to positioner

Air output see table on page 3

**Options**

- Diaphragm Amplifier for double acting positioner
- Premium Diagnostics Features (made with built-in pressures sensors) (HART and FoxCom)
- Build in pressure sensors (analog, FF, Profibus)
- Infrared Interface for communication by means of IRCOM
- Cover for protection of local push buttons
- Approved for SIL2 / SIL3 application
- Booster relays, Code LEXG-F, -G, -H
- Custom Configuration
- Approved for SIL2 / SIL3 application
- Certificate EN 10204-2.1
- ATEX application down to –40°C
- Custom Configuration
- Approved for SIL2 / SIL3 application
- Certificate of compliance with the order
- Tag No. Labeling
- Feedback-Unit for Remote Mounting - Version of Position Transmitter only with a potentiometer
- Cage Clamp Connection (WAGO) instead of Screw terminals
- Certificate EN 10204-2.1 - Certificate of compliance with the order
- Options

**Tag No. Labeling**

- Stamped With Weather Resistant Color
- Stainless Steel Label Fixed With Wire

(a) Not released
(b) ONLY WITH (additional Inputs/Outputs E) AND (Optional Feature -B)
(c) Diaphragm Amplifier for double acting positioner
(d) NOT available with Input / Communication D
(e) Only with Display / Indication D
(f) NOT WITH Version -B, Version C
(g) Not available with Version -T
(h) Not available with Display / Indication D
(i) Only available for Version single-acting -B in connection with Input/Communication D and H

(j) ONLY WITH (Version: C)
(k) Not in connection with Display / Indication S
(l) ONLY WITH Electrical Classification EDZ
(m) Only available with Version T, Input/communication X,
(n) WITH (Version: B, C) OR
(o) WITH (Version: T) AND (Input: X) AND (Optional Features: H)
(p) NOT WITH Version -L

**MODEL CODES SRD960**

| LCD Language in English / German / Romanian | (e)(g)(p) | P |
| LCD Language in English / German / Lithuanian | (e)(g)(p) | Q |
| Without | (h)(p) | S |
### Model Codes Accessories

#### Parts for Intelligent Positioner

<table>
<thead>
<tr>
<th>Attachment kit</th>
<th>EBZG</th>
</tr>
</thead>
<tbody>
<tr>
<td>for diaphragm actuators with casting yoke acc. NAMUR (incl. standard couple lever)</td>
<td>-H2</td>
</tr>
<tr>
<td>for diaphragm actuators with pillar yoke acc. NAMUR (incl. standard couple lever)</td>
<td>-K</td>
</tr>
<tr>
<td>for directly mounting (incl. standard couple lever)</td>
<td>-D</td>
</tr>
<tr>
<td>for mounting to rotary actuators acc. VDI/VDE 3845 (without bracket)</td>
<td>-R</td>
</tr>
<tr>
<td>for FlowTop / FlowPak</td>
<td>-E1</td>
</tr>
</tbody>
</table>


#### Couple lever

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-A</td>
<td>standard (stroke max. 80 mm)</td>
</tr>
<tr>
<td>-B</td>
<td>extended (stroke max. 120 mm)</td>
</tr>
<tr>
<td>-A1</td>
<td>extended (stroke max. 260 mm)</td>
</tr>
</tbody>
</table>

#### Manifold (for SRD960, SRD991 and SRI990)

<table>
<thead>
<tr>
<th>LEXG</th>
</tr>
</thead>
</table>

#### Booster Relay (for SRD960, SRD991 and SRI990, with connection 1/4 - 18 NPT)

<table>
<thead>
<tr>
<th>F</th>
<th>for Version single acting</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>for Version double acting</td>
</tr>
<tr>
<td>H</td>
<td>for Version single acting with doubled output capacity</td>
</tr>
<tr>
<td>F1</td>
<td>with connection G1/4 - 18</td>
</tr>
<tr>
<td>G1</td>
<td>for Version double acting with doubled output capacity</td>
</tr>
</tbody>
</table>

#### Booster Relay (mounted independent from positioner, for SRD960, SRD991 und SRI990, with connection G1/4)

<table>
<thead>
<tr>
<th>X1</th>
<th>for Version single acting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1</td>
<td>for Version double acting</td>
</tr>
<tr>
<td>Z1</td>
<td>for Version single acting with doubled output capacity</td>
</tr>
</tbody>
</table>

#### Adapter

<table>
<thead>
<tr>
<th>AD</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-A3</td>
<td>Adapter 1/2&quot; NPT to 3/4&quot; NPT (stainless steel)</td>
</tr>
<tr>
<td>-A5</td>
<td>Adapter M20 x 1.5 to 1/2&quot; - 14 NPT (internal thread) (Brass nickel plated)</td>
</tr>
<tr>
<td>-A6</td>
<td>Adapter M20 x 1.5 to 1/2&quot; - 14 NPT (internal thread) (stainless steel)</td>
</tr>
<tr>
<td>-A7</td>
<td>Adapter M20 x 1.5 to PG13.5 (internal thread) (stainless steel)</td>
</tr>
<tr>
<td>-A8</td>
<td>Adapter (plastic) M20 x 1.5 to PG13.5 (internal thread)</td>
</tr>
</tbody>
</table>

#### Cable Gland

<table>
<thead>
<tr>
<th>BUSG</th>
</tr>
</thead>
</table>

- M20 x 1.5 stainless steel |
- M20 x 1.5 plastics, color gray |
- M20 x 1.5 plastics, color blue |
- M20 x 1.5 plastics, color white |
- M20 x 1.5 HF-cable gland for Fieldbus |
- M20 x 1.5 Plug-connector for Fieldbus (ss / threaded connection 7/8 - UN) |
- M20 x 1.5 Plug-connector for Proibus PA (ss / threaded connection M12) |
- M20 x 1.5 stainless steel EEx d |
- M20 x 1.5 brass zink plated EEx d |
- 1/2-14 NPT cable gland 6…12 mm, Stainless steel, EEx d |
- 1/2-14 NPT cable gland 6…12 mm, Steel zink plated, EEx d |
- 1/2-14 NPT, brass zink plated, EEx d |
- M20 x 1.5 Plug, plastic |
- M20 x 1.5 Plug, EEx d / explosion proof certified, stainless steel |
- M20 x 1.5 Plug, brass zink plated, EEx d |
- 1/2-14 NPT Plug, brass zink plated, EEx d |
DIMENSIONS – Direct attachment to stroke actuators

Feedback lever  Code EBZG-A for 8..70 mm travel

Feedback lever  FoxPak/FoxTop in Code EBZG-E

Carrier bolt  for connection to valve stem

Connection to yoke using the direct connection hole for rear output l (y/y1)
The LCD orientation can be changed by means of local push buttons under Menu 9.9.2 to “flipped”, to ensure a correct orientation of the display.

**Attachment to stroke actuators acc. to IEC 534-6 (NAMUR)**

**Attachment to casting yoke**  
(with attachment kit  
Code EBZG -H)

**Attachment to pillar yoke**  
(with attachment kit  
Code EBZG -K)

**Mounting bracket**

**Feedback lever**  
Code EBZG-A for 8..70 mm travel

**Feedback lever**  
Code EBZG-B for 60..120 mm travel

**Carrier bolt**  
for connection to valve stem
DIMENSIONS – Attachment to rotary actuators acc. to VDI/VDE 3845

Attachment diagram of bracket

Delivery of bracket by manufacturer of actuator
or see EBZG -C1, -C2 or -C3
### Additional Documentation for this product:

**Technical Information of Attachment Kits for Positioners:**
- **TI EVE0011 A**
  - Overview of Attachment Kits of all positioners on actuators/valves of different manufacturers

**Quick Guide:**
- **QG EVE0109 A**
  - Extract of Master Instruction for an easy to use, easy understandable and fast start-up.
  - This document highlights the most important.

**Master Instructions:**
- **MI EVE0109 A**
  - SRD960 – all versions –

**Technical Information for Fieldbus-Communication:**
- **TI EVE0105 P**
  - SRD991/960 -PROFIBUS-PA
- **TI EVE0105 Q**
  - SRD991/960 -FOUNDATION Fieldbus H1

**Master Instruction for HART-Communication:**
- **MI EVE0105 B**
  - HART with Hand- Held Terminal

**Technical Information**
- **TI EVE0105 S**
  - SIL Functional safety
- **TI EVE0305 MUX**
  - Use of HART Multiplexer

**Valve diagnostic-, configuration- and operation-software VALcare™:**
- **MI EVE0501 V**
  - VALcare™ Valve diagnostic for Positioners
  - HART/ PROFIBUS-PA, FOUNDATION Fieldbus and IROC

### Additional Documentation for other products

**Specifications website**
- **PSS EVE0101**
  - SRP981 Pneumatic Positioner
- **PSS EVE0102**
  - SRI986 Electro-Pneumatic Positioner
- **PSS EVE0103**
  - SRI983 Electro-Pneumatic Positioner- explosion proof or EEx d version
- **PSS EVE0105**
  - SRD991 Intelligent Positioner
- **PSS EVE0107**
  - SRI990 Analog Positioner
- **PSS EVE0109**
  - SRD960 Universal Positioner
- **PSS EMO0100**
  - Accessories for devices with HART Protocol

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