



EXL-IMU-1

EXL-IRU-1

ExMax-... "S"

ExVent-...

ExMax-... "M"



ACVATIX™

HVAC regulations in areas

EX...

Hazardous areas or potentially explosive atmospheres

Non explosion-proof Siemens components in conjunction with "ex-protected" products from Schischek are sufficient to satisfy the stringent demands of EX-PROTECTION, provided the relevant application and mounting instructions are followed.

Application

HVAC market

In the electrical and mechanical building services industry, potentially explosive atmosphere are often not identified in the early planning stages. This results in unsafe systems and costly refits.

Examples:

- Exhaust and recirculation systems
- Ventilation systems
- Battery rooms and solvent stores
- Dumps and bottling plants
- Paint spraying systems and workshops
- Clean rooms

Industrial-Chemical-Pharmaceutical market Industrial, chemical, pharmaceutical, petro-chemical and process control plant are often associated with explosive atmospheres requiring a variety of explosion-protection strategies.

Examples:

- Manufacturing & process plants
- Waste and water treatment works
- Transport and filling stations, storage facilities
- Paint spraying systems and paint stocks
- Dust generating plant
- Silos and mills

Offshore and onshore oil and gas applications In this field there are many applications which are subject to the regulations governing explosion protection. Many of these come into HVAC category

Examples:

- Ventilation systems on oil rigs
- Oil and gas processing industry
- Oil and gas transport systems (pipelines)
- Gas compressor station
- Gas works
- Fuel dumps, landfill sites

Explosion proof standards

Standards and directives From 1 July 2003 the construction of explosion-protected electrical equipment must comply with the regulations set out in Directive 94/9/EC (ATEX 100a). These new regulations cover all member states and must be observed when operating in potentially hazardous areas.

Directive 1999/92/EC (ATEX 118a) which will soon be in force, will serve as a uniform classification of explosive risk systems and consequently as the basis for the selection and classification of systems and equipment, including their installation. The ExVo (*Explosionsschutzverordnung/Germany*) is the German statutory provision for the introduction of Ex products onto the market, and the ElexV (*Verordnung über elektrische Anlagen in explosionsgefährdeten Bereichen/Germany*) is the German statutory provision for the installation and operation of electrical products in potentially explosive atmospheres. Please observe the relevant national regulations for your home country.



Standard specifications 94/9/EG - ATEX
1999/92/EG - ATEX 118a
ElexV, ExVO
EN 50014 to EN 50028

Certificates For electrical, explosion-proof devices, special registration and certification is required. Ex-products must be registered with the official bodies (in Germany, for example, the PTB (*Physikalisch-Technische Bundesanstalt in Braunschweig*)). In Europe there are currently 13 officially registered testing institutes. Certification in accordance with the ATEX directives will also be accepted in many countries outside Europe.

Labelling




The label must show the following:

Name and address of manufacturer, type code, electrical data (V, A, W, Hz), ambient temperatures if other than -20°C to +40°C and explosion protection classification:

| | |
|--|--|
|  II2G EEx d IIC T6 (gas) II2D IP65T95°C (dust) CE 0158 , PTB 99 ATEX 1103 | |
| CE | CE-sign |
| 0158 | Number of the named authority |
| PTB 99 ATEX 1103 | Authority and registration number |
|  | Sign in acc. with European conformity |
| Gruppe und Kategorie | II 2 G/ II 2 D |
| EEx | European conformity |
| d | Type of protection (e.g. „d“ = flameproof enclosure) |
| IIC | Explosion group |
| T6 | Temperature class |

In addition, the serial number of the device must be shown.

Example: label for valve actuator

| | | | |
|---|-------------------------------------|--|-------------------------------------|
| Schischek GmbH D-90579 Langenzenn | |  | |
| Type EXV-2024-Y | | EXPLOSIONSSCHUTZ | |
| Spannung | 24 VAC/DC +/- 10% | Stellweg | 35 mm |
| Frequenz | 50 Hz +/- 10 % | Stellkraft | 2000 N |
| Leistung | ca. 8 VA, I _{nom} ca.0,5 A | Stellzeit | ca. 6 Sek./mm |
| Schalhäufigk. | S1, 80 % ED | | |
| Umgebungst. | Ta -20 bis + 40 °C | Serien-Nr. | 4711 - 123456 |
| IP Schutzart | IP 56 | Baujahr | 2001, Made in Germany |
|  | 0158 |  | II 2G EEx d IIC T6 PTB 99 ATEX 1103 |
| www.schischek.com | | | |

The label has to meet special technical requirements.

Protection type

There are different types of protection which define the construction of the product. These protection types are in accordance with the CENELEC regulations (EN 50014 to 50028).

Example of the most important protection types:

| | |
|----------|--------------------------|
| EN 50014 | Common regulations |
| EN 50018 | "d" Flameproof enclosure |
| EN 50019 | "e" Increased safety |
| EN 50020 | "i" Intrinsic safety |
| EN 50028 | "m" Encapsulation |

Explosion group

This is a measure of the ignition potential in a dangerous explosive atmosphere.

The demands placed upon the product increase in stringency from IIA to IIC:

| | |
|-----|-----------------------------|
| IIA | Minimum protection required |
| IIB | Average protection required |
| IIC | Maximum protection required |

Temperature class

The temperature class depends on the material, and indicates the maximum admissible surface temperature of the product, in relation to an ambient temperature of + 40°C.

It does not indicate the operating temperature of the product, but relates, instead, to the product's own maximum temperature and therefore to the risk that it may act as a source of ignition.

| | | |
|-------------|-------------|-------------|
| T1 ≤ 450 °C | T2 ≤ 300 °C | T3 ≤ 200 °C |
| T4 ≤ 135 °C | T5 ≤ 100 °C | T6 ≤ 85 °C |

Classification of potentially explosive atmospheres

Depending on the product classification, products can be installed in the following zones:

| Classification of Ex area | Group | Category | Application for |
|---------------------------|---|---------------|------------------------|
| Zone 0 | II | 1 G | Gases – vapors –mists |
| Zone 1 | II | 1 G, 2G | Gases – vapors – mists |
| Zone 2 | II | 1 G, 2G, 3G | Gases – vapors – mists |
| Zone 20 | II | 1 D | Dusts |
| Zone 21 | II | 1 D, 2 D | Dusts |
| Zone 22 | II | 1 D, 2 D, 3 D | Dusts |
| Zone 0 and 20 | Explosive atmosphere always or often present | | |
| Zone 1 and 21 | Explosive atmosphere occasionally present | | |
| Zone 2 and 22 | Explosive atmosphere rarely present or present only for short periods | | |

Source of ignition

Hot surfaces – mechanically produced sparks – visible electric sparks – static electricity – equalizing electric currents– open flames – hot gases – hot particles – ultrasound – electromagnetic radiation (radio waves, IR radiation, visible light) – ionized radiation– ultraviolet rays.



Examples of safety-engineering characteristics

| Medium | Explosion group | Temperature class |
|----------------|-----------------|-------------------|
| Acetone | IIA | T1 |
| Acetylene | IIC | T2 |
| Fuel oil/gas | IIA | T3 |
| City gas | IIB | T1 |
| Sulphur carbon | IIC | T6 |
| Hydrogen | IIC | T1 |

Type overview

EX-LINE series

Ex protected measuring transducers and switching modules for connection to passive sensors:

| Ex-products II(1)GD [EEx ia/ib] IIC, for passive sensors and passive switching devices in hazardous areas | | | | |
|--|----------|----------|--|---|
| Stepless measuring transducers | | | Binary signals (switching modules) | |
| Temperature | Humidity | Pressure | Setpoint | Temperature, frost protection, humidity, pressure |
| EXL-IMU-1 | | | EXL-IRU-1 | |
|  | | |  | |
| AC/DC 24 V | | | AC/DC 24 V | |
| II(1)GD [EEx ia] IIC (IIB) | | | II(1)GD [EEx ia] IIC (IIB) | |
| Programmable without additional tools, 2-3-4 wire connection, output 0..10 VDC and 4...20 mA actual value indication, failure indication, housing 45 x 75 x 110 mm, DIN rail mounting Installation area is he safe area | | | Integral time running relais, adjustable housing 22,5 x 75 x 100 mm DIN rail mounting Installation area is he safe area | |

Combinations of EXL-... transducers and switching modules in acc. with ATEX certified sensors

| Temperature measurement in hazardous areas zone 1, 2, 22 (passive sensors) | | | | | |
|--|-----------------------------|--------------|---------------|------------|-------------|
| Application | Use | Type | Use | Type | Output |
| | Measuring range | Sensor | Ex-area | Ex-product | Ex-product |
| Room temperature, Pt 100 | -30 to +60 °C | TFR-2G | Zone 1, 2 | EXL-IMU-1 | DC 0...10 V |
| Room temperature, Pt 100, IP65 | -50 to +90 °C | TFR-2G3D | Zone 1, 2, 22 | EXL-IMU-1 | DC 0...10 V |
| Duct temperature, Pt 100, IP65 | -30 to +60 °C | TFK-2G3D | Zone 1, 2, 22 | EXL-IMU-1 | DC 0...10 V |
| Immersion temperature, Pt 100, IP65, tube G ½" Ms, 100 mm | -30 to +150 °C | TFT-2G3D | Zone 1, 2, 22 | EXL-IMU-1 | DC 0...10 V |
| Immersion temperature, Pt 100, IP65, tube G ½" VA, 100 mm | -30 to +150 °C | TFT-V4A-2G3D | Zone 1, 2, 22 | EXL-IMU-1 | DC 0...10 V |
| | | | | | |
| Humidity measurement in hazardous areas zone 1, 2 (passive sensors) | | | | | |
| Application | Use | Type | Use | Type | Output |
| | Measuring range | Sensor | Ex-area | Ex-product | Ex-product |
| Room humidity, 0...1 KOhm | 30 to 100 % r.H. | FFR-2G | Zone 1, 2 | EXL-IMU-1 | DC 0...10 V |
| Duct humidity, 0...1 KOhm | 30 to 100 % r.H. | FFK-2G | Zone 1, 2 | EXL-IMU-1 | DC 0...10 V |
| | | | | | |
| Combination of temperature and humidity measurement in hazardous areas zone 1, 2 (passive sensors) | | | | | |
| Application | Use | Type | Use | Type | Output |
| | Measuring range | Sensor | Ex-area | Ex-product | Ex-product |
| Room humidity and temperature, 0...1 KOhm, Pt 100 | 30...100 %rH, -10 bis +60°C | TFFR-2G | Zone 1, 2 | EXL-IMU-1 | DC 0...10 V |
| Duct humidity and temperature, 0...1 KOhm, Pt 100 | 30...100 %rH, -20 bis +60°C | TFFK-2G | Zone 1, 2 | EXL-IMU-1 | DC 0...10 V |
| | | | | | |
| Differential pressure measurement in hazardous areas zone 1, 2, 22 (passive sensors) | | | | | |
| Application | Use | Type | Use | Type | Output |
| | Measuring range | Sensor | Ex-area | Ex-product | Ex-product |
| Differential pressure | up to 700 Pa | DFK-07-2G | Zone 1, 2 | EXL-IMU-1 | DC 0...10 V |
| Differential pressure | up to 1700 Pa | DFK-17-2G | Zone 1, 2 | EXL-IMU-1 | DC 0...10 V |
| Volume control | 0...15 m/s | VFK-07-2G | Zone 1, 2 | EXL-IMU-1 | DC 0...10 V |
| | | | | | |
| Setpoint regulation in hazardous areas zone 1, 2, 22 (passive sensors) | | | | | |
| Application | Use | Type | Use | Type | Output |
| | Measuring range | Sensor | Ex-area | Ex-product | Ex-product |
| Setpoint-(Potentiometer-)sensor, 0...1 KOhm | 0...1 KOhm | SGR-2G3D | Zone 1, 2, 22 | EXL-IMU-1 | DC 0...10 V |
| | | | | | |
| Binary signals in hazardous areas zone 1, 2, 22 (passive sensors) | | | | | |
| Application | Use | Type | Use | Type | Output |
| | Measuring range | Sensor | Ex-area | Ex-product | Ex-product |
| Room thermostat | 0 to +40°C | TBR-2G | Zone 1, 2 | EXL-IRU-1 | Kontakt |
| Room thermostat, IP65 | -30 to + 30°C | TBR-2G3D | Zone 1, 2, 22 | EXL-IRU-1 | Kontakt |
| Duct thermostat, IP65, L=190 mm | 0 to +60°C | TBK-2G3D | Zone 1, 2, 22 | EXL-IRU-1 | Kontakt |
| Duct thermostat, IP65, L=120 mm | 20 to +90°C | TBT-2G3D | Zone 1, 2, 22 | EXL-IRU-1 | Kontakt |
| Frost protection thermostat, Kapillare 6 m | -10 to +12°C | TBK-FR-2G | Zone 1, 2 | EXL-IRU-1 | Kontakt |
| Room humidistat | 35 to 100 % r.H. | FBR-2G | Zone 1, 2 | EXL-IRU-1 | Kontakt |
| Duct humidistat | 35 to 100 % r.H. | FBK-2G | Zone 1, 2 | EXL-IRU-1 | Kontakt |
| Differential pressure control | 20-300/50-500/100-1000 Pa | DBK-2G | Zone 1, 2 | EXL-IRU-1 | Kontakt |
| Differential pressure control, IP65 | 40-125/100-400/350-1400 Pa | DBK-2G3D | Zone 1, 2, 22 | EXL-IRU-1 | Kontakt |
| Air paddle thermostat, paddle in V2A version | 2 to 8 m/s | WFBK-2G | Zone 1, 2 | EXL-IRU-1 | Kontakt |
| Fan belt protection via Namur sensor | up to 20.000 m³/h | NBW-K-2G3D | Zone 1, 2 | EXL-IRU-1 | Kontakt |
| Fan belt protection via Namur sensor | > 20.000 m³/h | NBW-G-2G3D | Zone 1, 2 | EXL-IRU-1 | Kontakt |
| | | | | | |

Transducer

All transducer Type EXL-IMU-1 are designed for rail mounting as standard

Switching modules

All switching modules Type EXL-IRU-1 are designed for rail mounting as standard





Sensors

All sensors carry a manufacturers certificate in acc. with ATEX, if used together with EXL-IRU-1 or EXL-IMU-1

ExMax series

Actuators II2G EEx d IIC T6 (gas) and II2D IP65T95°C (dust) for air and fire dampers

Type

| Actuators for use on air and fire dampers | | | |
|---|---|---|--|
| Size S | | Size M | |
| ExMax- 5.10 ... ExMax- 15.30... | ExMax-5.10-F ExMax-15-F | ExMax-50.75 ExMax-100 | ExMax-30-F ExMax-50-F |
|  |  |  |  |
| 5 and 10 Nm 15 and 30 Nm | 5 and 10 Nm 15 Nm | 50 and 75 Nm 100 Nm | 30 Nm 50 Nm |
| 95 ° rotation | 95 ° rotation | 95 ° rotation | 95 ° rotation |
| 3/15/30/60/120 sec | 3/15/30/60/120 sec | 60/90/120/180 sec | 60/90/120/180 sec |
| | Spring return in 3 and 10 sec | | Spring return in 20 sec |

Note: All actuators have a double squared shaft connection, size S = 12 x 12 mm, size M = 16 x 16 mm
Universal clamp for round damper shafts: Additional type KB-S up to max. 30 Nm

Type of actuator

| Type of actuator | | | ExMax-5.10 | ExMax-15.30 | ExMax-50.75 | ExMax-100 |
|--|-------------------|---------------------|---------------|---------------|---------------|--------------|
| | Supply voltage | Control signal | Type | Type | Type | Type |
| Actuators | AC/DC 24... 230 V | On-off, 3-pos | ExMax-5.10 | ExMax-15.30 | ExMax-50.75 | ExMax-100 |
| | Self adjustment | 0..10 VDC, 4..20 mA | ExMax-5.10-Y | ExMax-15.30-Y | ExMax-50.75-Y | ExMax-100-Y |
| Type of actuator | | | ExMax-5.10-F | ExMax-15-F | ExMax-30-F | ExMax-50-F |
| Actuators | AC/DC 24... 230 V | On-off, 3-pos | ExMax-5.10-F | ExMax-15-F | ExMax-30-F | ExMax-50-F |
| | Self adjustment | 0..10 VDC, 4..20 mA | ExMax-5.10-YF | ExMax-15-YF | ExMax-50-YF | ExMax-50-YF |
| Accessories | | | Type suffix | Type suffix | Type suffix | Type suffix |
| Easy grip manual override | | | HV-S | HV-S | HV-M | HV-M |
| External, adjustable aux. switches (2 contacts) | | | ExSwitch | ExSwitch | ExSwitch | ExSwitch |
| EEx-e terminal boxes (different types) | | | ExBox.. | ExBox.. | ExBox.. | ExBox.. |
| Mounting brackets for ExBox diveces directly to the actuator | | | MKK-S | MKK-S | MKK-M | MKK-M |
| Stainless steel version | | | ExMax-.../VA | ExMax-.../VA | ExMax-.../VA | ExMax-.../VA |

ExMax actuators are working from 24 VAC/DC to 230 VAC/DC self adjustable, 50...60 Hz. Motor running times adjustable on site.





Required data for order and delivery

| |
|--|
| <p>Order information</p> <ol style="list-style-type: none"> 1. Actuator type 2. Type suffix for selected accessories <p>Example: Actuator, 30 Nm, 3-pos, terminal box + mounting bracket for terminal box Actuators type: ExMax-15.30 Accessories: ExBox-3P + MKK-S</p> <p>Delivery Actuators are delivered without EEx e terminal box.</p> <p>Ex-protection in respect of all gases, vapors, mists and dust: II2G EEx d IIC T6 (gas) and II2D IP65T95°C (dust)</p> |
|--|

EX-VENT series

Valve actuators II2G EEx d IIC T6 (gas) and II2D IP65T95°C for fitting to Siemens valves

Type

| Actuators for valves | | | |
|---|---|---|---|
| Type | | | |
| EXV-8... | EXV-8...-F16 | EXV-20... | EXV-45... |
|  |  |  |  |
| 800 N | 800 N | 2000 N | 4500 N |
| 6 sec/mm | 5 sec/mm | 6 sec/mm | 2.5 sec/mm |
| max. 42 mm | max. 30 mm | max. 42 mm | max. 35 / 75 mm |
| | Spring return in 10 ... 16 s | | |

Note: With the spring return version, please indicate the required failsafe position when ordering i.e. spindle retracted when de-energized = .../RI; , spindle extended when de-energized = .../RO

Type

| Actuator type | | | EXV-8 | EXV-8...-F16 | EXV-20... | EXV-45... |
|---|-------------------|----------------|--------------------|--------------------|--------------------|--------------------|
| | Supply voltage | Control mode | Type | Type | Type | Type |
| Actuator | AC 230 V | On-off | EXV-8230 | EXV-8230-F16/R.. | EXV-20230 | EXV-45230* |
| | | 3-pos | EXV-8230 | - | EXV-20230 | EXV-45230* |
| | | 3-pos P 1 KOhm | EXV-8230-P | - | EXV-20230-P | EXV-45230-P* |
| | | DC 2...10 V | EXV-8230-Y | - | EXV-20230-Y | EXV-45230-Y* |
| Actuator | AC/DC 24 V | On-off | EXV-824 | EXV-824-F16/R.. | EXV-2024 | EXV-4524* |
| | | 3-pos | EXV-824 | - | EXV-2024 | EXV-4524* |
| | | 3-pos P 1 KOhm | EXV-824-P | - | EXV-2024-P | EXV-4524-P* |
| | | DC 2...10 V | EXV-824-Y | EXV-824-YF16/R..* | EXV-2024-Y | EXV-4524-Y* |
| Accessories | | | Type suffix | Type suffix | Type suffix | Type suffix |
| Manual override | | | EXV-.../HV | EXV-.../HV | EXV-.../HV | EXV-.../HV |
| External auxiliary switches, fully adjustable | | | EXV-.../HSV | EXV-.../HSV | EXV-.../HSV | EXV-.../HSV |
| EEx-e junction box for auxiliary switches | | | EXC-K/HSV | EXC-K/HSV | EXC-K/HSV | EXC-K/HSV |
| Internal heater for temperature to -20 °C | | | EXV-.../K | EXV-.../K | EXV-.../K | EXV-.../K |
| AISI 316 stainless steel housing | | | EXV-.../VA | EXV-.../VA | EXV-.../VA | EXV-.../VA |

* Items marked with* are only manufactured for AC 24 V / 50 Hz; a DC 24 V version is not available

Required data for order and delivery

Order information

1. Actuator type
2. Type suffix for accessories
3. With spring return, indicate failsafe position
(RI = spindle retracted on loss of power, RO = spindle extended on loss of power)
4. Valve type, size, DN, stroke

Example:

Spring return 800 N force, AC 24 V supply, 0-10 V modulating control, 2 aux. switches, spindle retracted when de-energized:

Actuator type **EXV-824-YF16/2EE/RI**

Valve type **VVG41.15**

Included

Actuators are supplied with an EEx e junction box and linkage to fit the Siemens type VVG 41.15 valves

Explosion protection in respect of all gases, vapors, mists and dusts:

Combinations of actuators II2G EEx d IIC T6 (gas) and II2D IP65T95°C and Siemens valve types

| Siemens valve type compatible with Schischek Ex-actuators | | | | | | | | | | | | | | | | |
|---|-------|------------------------|------------------------|------------------------|------------------------|------------------------|---|------------------------|------------------------|------------------------|--|------------------------|------------------------|------------------------|------------------------|--------------|
| Control mode | | On-off | 3-pos | | | | 3-pos-P (Feedback potentiometer 1000 Ohm) | | | | Continuous control 0(2)...10V-, 0(4)...20 mA | | | | | |
| Spring return (SR) | | SR ~ 16 s | without | | | | without | | | | SR ~ 16 s | None | | | | |
| Force | | 800 N | 800 N | 2000 N ¹⁾ | 2000 N | 4500 N ¹⁾ | 800 N | 2000 N ¹⁾ | 2000 N | 4500 N ¹⁾ | 800 N | 800 N | 2000 N ¹⁾ | 2000 N | 4500 N ¹⁾ | |
| Supply voltage | | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | AC 24 V | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | AC/DC 24 V AC 230 V | |
| Stroke max. | | 20 mm | 20 mm | 20 mm | 40 mm | 40 mm | 20 mm | 20 mm | 40 mm | 40 mm | 20 mm | 20 mm | 20 mm | 40 mm | 40 mm | |
| Ex-actuator type | | EXV-8...-F16 | EXV-8... | EXV-20... | EXV-20... | EXV-45... | EXV-8...-P | EXV-20...-P | EXV-20...-P | EXV-45...-P | EXV-8...-Y-F16 | EXV-8...-Y | EXV-20...-Y | EXV-20...-Y | EXV-45...-Y | |
| Flanged valves 2- and 3-way | | | | | | | | | | | | | | | | |
| 2-way | PN 6 | VVF21 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 | DN 100 | DN 25 - 80 | DN 25 - 80 | DN 100 | DN 100 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 | DN 100 |
| 3-way | PN 6 | VXF21 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 | DN 100 | DN 25 - 80 | DN 25 - 80 | DN 100 | DN 100 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 | DN 100 |
| 2-way | PN 10 | VVF31 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 |
| 3-way | PN 10 | VXF31 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 |
| 2-way | PN 16 | VVF40 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 |
| 3-way | PN 16 | VXF40 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 | DN 25 - 80 | DN 25 - 80 | DN 25 - 80 | DN 100 - 150 | DN 100 - 150 |
| 2-way | PN 16 | VVF41 | DN 50 | DN 50 | DN 50 | DN 65 - 150 | DN 65 - 150 | DN 50 | DN 50 | DN 65 - 150 | DN 65 - 150 | DN 50 | DN 50 | DN 50 | DN 65 - 150 | DN 65 - 150 |
| 3-way | PN 16 | VXF41 | DN 15 - 50 | DN 15 - 50 | DN 15 - 50 | DN 65 - 150 | DN 65 - 150 | DN 15 - 50 | DN 15 - 50 | DN 65 - 150 | DN 65 - 150 | DN 15 - 50 | DN 15 - 50 | DN 15 - 50 | DN 65 - 150 | DN 65 - 150 |
| 2-way | PN 25 | VVF52 | DN 15 - 40 | DN 15 - 40 | DN 15 - 40 | | | DN 15 - 40 | DN 15 - 40 | DN 15 - 40 | DN 15 - 40 | DN 15 - 40 | DN 15 - 40 | DN 15 - 40 | | |
| 2-way | PN 40 | VVF61 ²⁾ | | | DN 15 - 50 | DN 65 - 150 | DN 65 - 150 | | | DN 15 - 50 | DN 65 - 150 | DN 65 - 150 | | DN 15 - 50 | DN 65 - 150 | DN 65 - 150 |
| 3-way | PN 40 | VXF61 ²⁾ | | | DN 15 - 50 | DN 65 - 150 | DN 65 - 150 | | | DN 15 - 50 | DN 65 - 150 | DN 65 - 150 | | DN 15 - 50 | DN 65 - 150 | DN 65 - 150 |
| Screwed valves 2- and 3-way | | | | | | | | | | | | | | | | |
| 2-way | PN 16 | VVG41 | DN 15 - 50 | DN 15 - 50 | DN 15 - 50 | | | DN 15 - 50 | DN 15 - 50 | | | DN 15 - 50 | DN 15 - 50 | DN 15 - 50 | | |
| 3-way | PN 16 | VXG41 | DN 15 - 50 | DN 15 - 50 | DN 15 - 50 | | | DN 15 - 50 | DN 15 - 50 | | | DN 15 - 50 | DN 15 - 50 | DN 15 - 50 | | |

²⁾ Valves VVF61... and VXF61... from DN 40 to DN 150 must close against the flow! (Please contact us for more details)

| Siemens | Force | Stroke | Schischek |
|---------|--------|--------|-----------|
| SQX | 700 N | 20 mm | EXV-8 |
| SKD | 1000 N | 20 mm | EXV-20 |
| SKB/SKC | 2800 N | 40 mm | EXV-45 |



¹⁾ The combinations in the highlighted (or shaded) columns are to be considered as an alternative to those in the left column and allow higher differential pressures with the same valve types, due to more powerful actuators.

Refer to the relevant Siemens data sheets for the admissible pressure drops for the type VVF/VXF21- 61..., VVG/VXG41 valves...

ExMax size M series

Actuators II2G EEx d IIC T6 (gas) and II2D IP65T95°C (dust)
for butterfly valves

Size

| Actuators for butterfly valves | |
|---|---|
| Size M | Size M |
| ExMax-100 | ExMax-50-F |
|  |  |
| 100 Nm | 50 Nm mit Federrücklauf 20 Sek |
| 95 ° rotation | 95 ° rotation |
| ~ 60/90/120/180 sec. | ~ 60/90/120/180 sec. |
| Double squared shaft connection 16 x 16 mm | Double squared shaft connection 16 x 16 mm |

Type of actuators

| Type of actuators | | ExMax-100 | ExMax-50-F |
|---|-------------------|----------------------|--------------------|
| | Supply voltage | Control mode | Type |
| Actuators | AC/DC 24... 230 V | On-off, 3-pos | ExMax-100 |
| | | 0..10 VDC, 4...20 mA | ExMax-100-Y |
| | | Spring return | ohne |
| Accessories | | Type suffix | Type suffix |
| Manual override | | HV-M | HV-M |
| External auxiliary switches, fully adjustable | | ExSwitch | ExSwitch |
| EEx-e junction box for auxiliary switches | | ExBox-.. | ExBox-.. |
| Internal heater for temperature to -20 °C | | MKK-M | MKK-M |
| AISI 316 stainless steel housing | | ExMax-.../VA | ExMax-.../VA |

Combination with
Siemens butterfly valves

Actuators II2G EEx d IIC T6 (gas) and II2D IP65T95°C (dust)
in combination with Siemens butterfly valves

| Siemens butterfly valves and Schischek Ex-actuators | | | | |
|---|-------------------------|--------------------|-------------------|--------------------|
| Control mode | On-off, 3-pos | DC 0...10 V | On-off, 3-pos | DC 0...10 V |
| Spring return | without | without | 20 sec | 20 sec |
| Torque | 100 Nm | 100 Nm | 50 Nm | 50 Nm |
| Supply voltage | AC/DC 24...230 V | AC/DC 24...230 V | AC/DC 24...230 V | AC/DC 24...230 V |
| Rotation | 95° | 95° | 95° | 95° |
| Ex-actuator type | ExMax-100 | ExMax-100-Y | ExMax-50-F | ExMax-50-YF |
| Flange EN 12116 | Butterfly valves | | | |
| F04 | DN 40 - 65 | DN 40 - 65 | DN 40 - 65 | DN 40 - 65 |
| F05 | DN 80 - 125 | DN 80 - 125 | DN 80 - 125 | DN 80 - 125 |

Note:

For sizes > DN 150 please contact us for assistance.

The permissible pressure drop s in acc. with Siemens data sheet 4136 for VKF46...

Required data for order
and delivery

| |
|---|
| <p>Order information:</p> <ol style="list-style-type: none"> 1. Actuator type 2. Type of suffix for accessories <p>Example: Rotary actuator, 50 Nm, 3-pos, spring return Actuator type ExMax-50-F Valve type VKF46.100</p> <p>Delivery: Actuators are delivered without an EEx e terminal box.</p> <p>Explosion protection in respect of all gases, vapors, mists and dusts: II 2 G EEx d IIC T6 (and II 2 D EEx d IIC T6 in preparation)</p> |
|---|

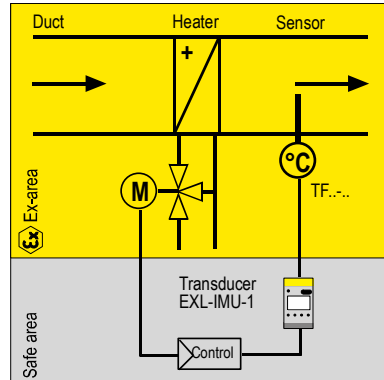
Installation

| | |
|---|---|
| <i>Preliminary remarks</i> | Ensure that these notes are available and have been read prior to installation. |
| Applicable standard | <p>The installation of electrical systems in Group II explosive atmospheres is governed by the regulations in IEC 60 079-14 (EN60071-14).</p> <p>For installation in a safe area, the normal industry standards should be observed. However, for hazardous areas, special measures must be taken. This applies in particular to intrinsically safe (IS) electric circuits.</p> |
| Electrical circuits, protection types d, e, q, o, m, p | Installation in the control panel is as "normal", but account must be taken of the special characteristics of the connected EEx equipment. This includes, for example, voltages, currents, fuses and motor protection equipment etc. The requirements for specific products are described in the associated test certificates, standards, and regulations, and the operator manuals. Never work on circuits in a potentially explosive atmosphere (e.g. when connecting a junction box), unless the equipment has been isolated (voltage/current disconnected). Always disconnect EEx-e junction boxes from the power supply before opening them. |
| Electrical circuits, protection type „i“ intrinsically safe | <p>Intrinsically safe and non intrinsically safe circuits must be routed separately. Minimum distances between conductors must be observed and no inadmissible external inductance or capacitance may be produced by cables. The maximum permissible electrical limits of EEx-i equipment must be observed at all times. There should be no links between intrinsically safe and non intrinsically safe circuits. However, links between two different intrinsically safe circuits are allowed, provided the maximum rating is calculated in advance. Intrinsically safe circuits should be clearly marked as such.</p> <p>Intrinsically safe circuits should be identified by the color light blue. This color is recommended for all intrinsically safe circuits in order to avoid confusion or accidental connection to non intrinsically safe circuits, e.g. conductors, cables, trunking, terminals, connection boxes, etc.</p> <p>A distance of 50 mm between intrinsically safe and non intrinsically safe circuits must be allowed, and the distance between two intrinsically safe circuits should be 6 mm. On installation, the cables of intrinsically safe and non intrinsically safe circuits must be routed separately.</p> <p>In acc. with ATEX sensors for zone 1, 2 and 22 need a manufacturers certificate, for zone 21 sensors must be tested by an official authority..</p> |
| Suggestion for the layout of a switching and control system | A clear separation between intrinsically safe and non intrinsically safe equipment is necessary. It is recommended that sufficient distance be allowed between intrinsically safe and non intrinsically safe equipment during the planning stage, as the cost of remedying the situation later can be considerable. Large transformers, frequency converters, large relays and other electrical equipment which may influence intrinsically safe circuits by inductance or capacitance must be installed at a sufficient distance apart. As a precaution, the EEx-i devices should be provided with a suitable cover to protect them from inappropriate operation. All relevant standards and regulations must be observed. |

Applications in hazardous areas zones 1, 2, 21 and 22 (examples)

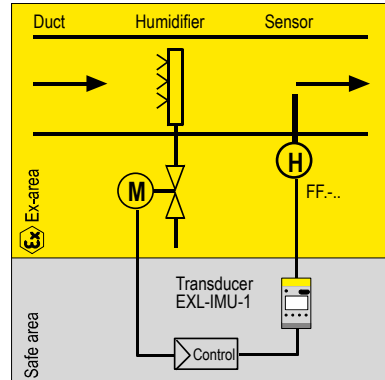
Temperature and humidity control

Heating/Cooling



Sensor (TF...) in Ex-area
Transducer (EXL-IMU-1) in safe area
Controller (analog/digital) in safe area
Actuator (motorized valve) in Ex-area

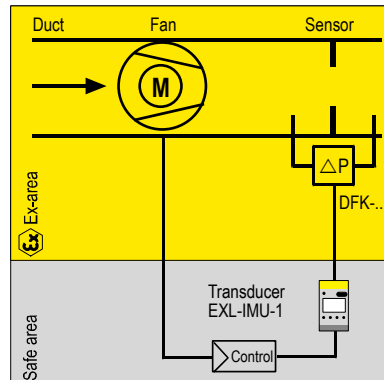
Humidity control



Sensor (FF...) in Ex-area
Transducer (EXL-IMU-1) in safe area
Controller (analog/digital) in safe area
Actuator (motorized valve) in Ex-area

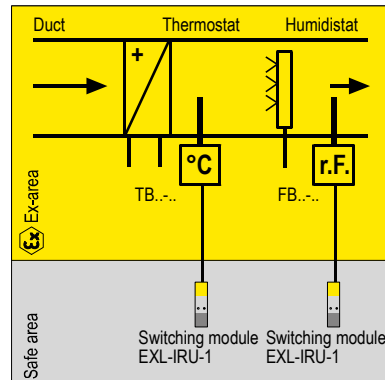
Pressure control, thermostats, hygrometers

Pressure or volume control



Sensor (DFK...) in Ex-area
Transducer (EXL-IMU-1) in safe area
Controller (analog/digital) in safe area

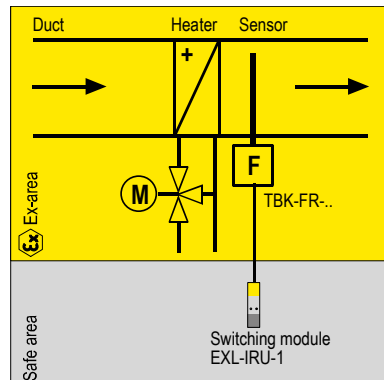
Temperature and humidity thermostats



Thermostat/Hygromat in Ex-area
Switching module (EXL-IRU-1) in safe area

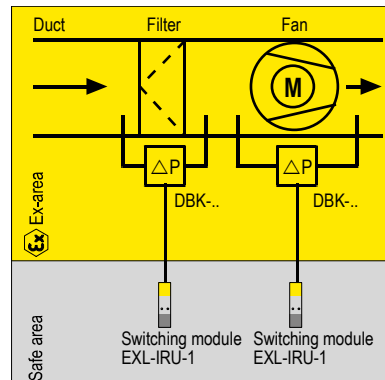
Frost protection and differential pressure

Frost protection



Frost protection thermostat in Ex-area
Switching module (EXL-IRU-1) in safe area

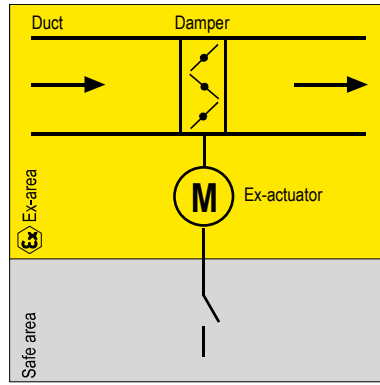
Filter and drive belt monitoring



Differential pressure sensor in Ex-area
Switching module (EXL-IRU-1) in safe area

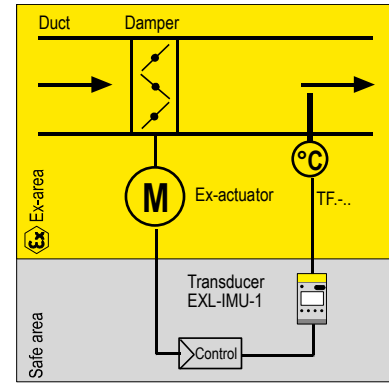
Damper control with and without feedback

On-off control



Actuator in Ex-area

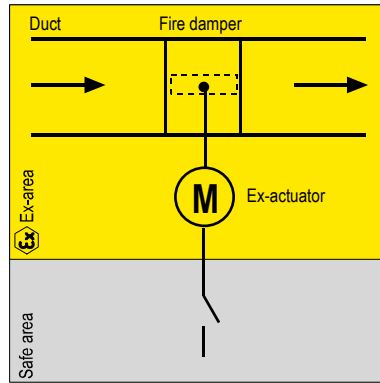
Automatic control



Sensor (TF...) in Ex-area
Transducer (EXL-IMU-1) in safe area
Controller (analog/digital) in safe area
Actuator (damper actuator) in Ex-area

Safety and fire dampers

Safety and fire dampers



Spring return actuator in Ex-area