ATEX Product Range

ATEX II3GD

Safety solenoid valves, one-level
MV ... X, MVD ... X

Differential pressure switch
GGW...A4/2 X
GGW...A4-U/2 X

High-pressure switch
GW...A4/2 HP X

ATEX II3GD

The abbreviation ATEX stands for the French term "Atmosphère explosible" and is used as synonym for the two EU directives concerning explosion protection:

Equipment directive 94/9/EC
Workplace directive 1999/92/EC

ATEX product range
The equipment of the DUNGS ATEX product range complies with equipment group II, category 3 for gas and dust. It may only be used in zones 2 and 22.

Approvals/declaration of conformity
DUNGS issues a manufacturer’s declaration of conformity for all equipment of the ATEX product range. The used equipment has an EC type-examination certificate according to the EC gas appliance directive and EC pressure equipment directive based on the corresponding harmonised EN standards.
The employer/operator shall create an explosion protection document within his risk assessment and divide areas with hazardous, potentially explosive atmosphere into zones. He shall create an Ex zone plan representing the extension of each individual zone and, if necessary, the overall dimensions.

The explosion protection document shall demonstrate in particular:

- that the explosion risks have been determined and assessed
- a list of measures taken in order to prevent explosions
- the division of areas with potentially explosive atmospheres into zones (Ex zone plane)
- compliance with minimum requirements

The form of the explosion protection document is not prescribed. All relevant documentation that might be useful for evaluating an explosion hazard may be added to the explosion protection document:

- Registers of hazardous substances, user manuals of the used equipment according to ATEX Equipment directive 94/9/EC, operating instructions, organisational measures, risk assessments, alarm and risk prevention plan.

The operator is solely responsible for the safety of his installation:

- Creation of the installation-specific explosion protection document
- Determination of the zones
- Use of equipment conform to a certain zone
- Proper installation
- Examination prior to putting into service
- Regular check and maintenance of the installation in order to maintain the proper condition of the overall installation.
**Definition of ATEX terms**

**Equipment**

'Equipment' means machines, apparatus, fixed or mobile devices, control components and instrumentation thereof and detection or prevention systems which, separately or jointly, are intended for the generation, transfer, storage, measurement, control and conversion of energy for the processing of material and which are capable of causing an explosion through their own potential sources of ignition.

**Components**

'Components' means any item essential to the safe functioning of equipment and protective systems but with no autonomous function.

**Equipment groups**

<table>
<thead>
<tr>
<th>Equipment group I</th>
<th>Equipment group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment intended for use in mines, surface and underground parts</td>
<td>Equipment intended for use in other places</td>
</tr>
</tbody>
</table>

**Categories**

<table>
<thead>
<tr>
<th>Category 1</th>
<th>Category 2</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very high level of protection</td>
<td>High level of protection</td>
<td>Requisite level of protection during normal operation</td>
</tr>
</tbody>
</table>

**Explosive atmosphere**

<table>
<thead>
<tr>
<th>Gases, vapours, mists</th>
<th>Dusts</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>D</td>
</tr>
</tbody>
</table>

**Explosion groups**

Gases and vapours are classified in three explosion groups due to their special flammability. Their hazardous nature increases from explosion group IIA to IIC. The higher explosion group, e.g. IIC, includes the lower groups IIB and IIA.

**Temperature classes**

The admissible surface temperatures are divided into 6 temperature classes (T1-T6). Combustible gases and vapours can be classified in these temperature classes based on their ignition points. The following max. allowable surface temperatures of the equipment are valid for the temperature classes. A higher temperature class, e.g. T6, includes any lower temperature classes, e.g. T5...T1.

<table>
<thead>
<tr>
<th>T1 ≤ 450 °C</th>
<th>T2 ≤ 300 °C</th>
<th>T3 ≤ 200 °C</th>
<th>T4 ≤ 135 °C</th>
<th>T5 ≤ 100 °C</th>
<th>T6 ≤ 85 °C</th>
</tr>
</thead>
</table>

**Division into zones**

The operator/employer shall classify all areas of his company, independently of the size of the company, into zones with explosion hazard and document them in the explosion protection document. The zones are defined based on the probability of the formation of explosive atmospheres.

### Gases / Vapours / Mists

<table>
<thead>
<tr>
<th>Zone 0</th>
<th>Zone 1</th>
<th>Zone 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 0 is a place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is present continuously or for long periods or frequently.</td>
<td>Zone 1 is a place in which an explosive atmosphere consisting of a mixture with air or flammable substances in the form of gas, vapour or mist is likely to occur in normal operation occasionally.</td>
<td>Zone 2 is a place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapour or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only.</td>
</tr>
</tbody>
</table>

### Dusts

<table>
<thead>
<tr>
<th>Zone 20</th>
<th>Zone 21</th>
<th>Zone 22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 20 is a place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods or frequently.</td>
<td>Zone 21 is a place an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur in normal operation occasionally.</td>
<td>Zone 22 is a place an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normal operation but, if it does occur, will persist for a short period only.</td>
</tr>
</tbody>
</table>

**ATEX zones**

Example "Fuelling"

Times are approximate values...
Technology
Solenoid valves for ATEX requirements II3GD.
Automatic shut-off valve acc. to EN 161 for gas burners and gas burning installations:
- Max. operating pressure up to 200 or 500 mbar
- without current closed
- fast opening
- main flow adjustable
- DC solenoid, rectifier wiring in connector box with connecting cable 5 m
- Pipe thread as per ISO 7/1
- Flange connection acc. to DIN 2633, ISO 7005
- reliably operating, robust and maintenance-free

Media/use
MV ... X
MVD ... X
Suitable for gases of gas families 1, 2 and 3 and other neutral gases as well as air, smoke and exhaust gases.
Version without non-ferrous material (S02) suitable for gases up to max. 0.1 vol. % H₂S, dry.

Approvals
ATEX
Manufacturer's declaration according to ATEX directive 94/9/EC: II3GD
EC type-examination certificate according to the EC gas appliance directive:
CE-0085 AO 3219
EC type-examination certificate according to the EC pressure equipment directive:
CE0036

Function
The safety solenoid valve by DUNGS is an automatic shut-off valve activated by auxiliary power.
The electromagnetic drive opens against the closing spring. The armature stroke can be limited by means of an adjustment screw (D function).
If the auxiliary power (operating voltage) is interrupted, the closing spring closes the valve within 1 s.

MV ... X: solenoid valve, one stage operation, closed without current, fast opening, fast closing.
MVD ... X: solenoid valve, one stage operation, closed without current, fast opening, fast closing.
The gas flow can be limited manually by means of the main flow setting.

Attention!
Read the operating and mounting instructions before putting the device into service.
### Technical data

#### ATEX solenoid valves

**Safety solenoid valves, one stage operation**

<table>
<thead>
<tr>
<th>ATEX</th>
<th>II3GD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX group</td>
<td>II</td>
</tr>
<tr>
<td>ATEX category</td>
<td>3</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>Gas (G) and dust (D)</td>
</tr>
<tr>
<td>Temperature class</td>
<td>T3</td>
</tr>
<tr>
<td>Nominal diameter, DN</td>
<td>10 15 20 25 40 50 65 80 100 125 150</td>
</tr>
<tr>
<td>Pipe thread acc. to DIN 2999, Rp</td>
<td>⅜ ½ ¾ 1 1½ 2</td>
</tr>
<tr>
<td>Flanges</td>
<td>Connection flanges as per DIN 2501 part 1 matching welding neck flanges as per DIN 2633, (PN 16) DN 40 - DN 150, ISO 7005-2 (PN 16)</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>Up to 200 mbar (20 kPa): MV 2...; MVD 2...</td>
</tr>
<tr>
<td></td>
<td>Up to 500 mbar (50 kPa): MV 5...; MVD 5...</td>
</tr>
<tr>
<td>Solenoid valve</td>
<td>Valve acc. to EN 161, class A, group 2, one stage operation</td>
</tr>
<tr>
<td>Closing time</td>
<td>&lt; 1 s</td>
</tr>
<tr>
<td>Opening time</td>
<td>&lt; 1 s at an ambient temperature of +20 °C</td>
</tr>
<tr>
<td>Main flow setting</td>
<td>Manually for MVD X</td>
</tr>
</tbody>
</table>

#### Material of the gas-bearing parts

**Standard versions**

- Housing: Aluminium, steel, brass
- Seals: NBR

**Versions without non-ferrous material**

- Housing: Aluminium, steel
- Seals: NBR

#### Voltage / frequency

~(AC) 230 V (+10 % -15 %); 50-60 Hz - other voltages on request

#### Power / current consumption

See type overview

#### Duty cycle

Continuous duty

#### International protection

IP 54 as per IEC 529 (EN 60529)

#### Electrical connection

Connecting cable 5 m

#### Duty classification

- MV X, MVD X  Rp ⅜ - Rp 2: max. 100/h
- MV X DN 40 - DN 100: max. 100/h
- MV X DN 125 - DN 150: max. 20/h
- MVD X DN 40 - DN 80: max. 100/h
- MVD X DN 100 - DN 150: max. 20/h

#### Sample and start gas connection

G ¼ DIN ISO 228 on both sides in the supply pressure area, additionally on the input side G ¾, as of DN 40 (flange)

#### Dirt trap

Integrated sieve, mesh size 1 mm

#### Temperature range

- Ambient temperature: -15 °C to +60 °C
- Medium temperature: -15 °C to +60 °C
- Storage temperature: -30 °C to +80 °C

#### Mounting position

Solenoid standing vertically to lying horizontally

#### Limit switch

Mounting not permitted!

#### Valve check system

DSLC pxVx (installation outside of Ex zone)
Flow diagram

- **Gasart (Type of gas)**
  - Erdgas (Natural gas)
  - Stadtgas (City gas)
  - Flüssiggas (LPG)
  - Luft (Air)

- **Dichte des verwendeten Gases (Spec. weight of gas used)**
  - Erdgas: 0.81 [kg/m³]
  - Stadtgas: 0.58 [kg/m³]
  - Flüssiggas: 2.08 [kg/m³]
  - Luft: 1.24 [kg/m³]

- **Dichte Luft (Spec. weight air)**: 1.00 [kg/m³]

- **Vgas used = Vair x f**

- **f = \sqrt{\frac{\text{Dichte des verwendeten Gases}}{\text{Dichte Luft}}}**

- **Ap [mbar]**

- **Vn [m³/h]**
  - Air: 1.00
  - Natural gas: 0.65

- **Based on +15 °C, 1013 mbar, trocken**
### Dimensions [mm]
- MVD 503 X - MVD 520 X
- MVD 2040 S02 X - MVD 2100 S02 X

### Dimensions [mm]
- MV 5125 X
- MV 2150 S02 X Viton
- MV 5150 X
- MVD 5100 X
- MVD 2125 S02 X
- MVD 2150 S02 X

<table>
<thead>
<tr>
<th>Type</th>
<th>ATEX Solenoid valves II3GD</th>
<th>P_{max} [mbar]</th>
<th>DN / Rp</th>
<th>Solenoid number</th>
<th>Order number</th>
<th>P_{max} [VA]</th>
<th>I_{max} [A]</th>
<th>(AC)230 V Opening time</th>
<th>Dimensions [mm]</th>
<th>Weight [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVD 503 X</td>
<td></td>
<td>500</td>
<td>Rp ¾</td>
<td>100X</td>
<td>253011</td>
<td>15</td>
<td>0.08</td>
<td>&lt; 1 s</td>
<td>øa b c d e f g h</td>
<td>50 60 90 75 113 190 20</td>
</tr>
<tr>
<td>MVD 505 X</td>
<td></td>
<td>500</td>
<td>Rp ½</td>
<td>100X</td>
<td>253012</td>
<td>15</td>
<td>0.08</td>
<td>&lt; 1 s</td>
<td>75 110 135 90 165</td>
<td>190 20 23</td>
</tr>
<tr>
<td>MVD 507 S02 X</td>
<td></td>
<td>500</td>
<td>Rp ¾</td>
<td>200X</td>
<td>253013</td>
<td>25</td>
<td>0.15</td>
<td>&lt; 1 s</td>
<td>75 100 135 80 160</td>
<td>190 25</td>
</tr>
<tr>
<td>MVD 510 X</td>
<td></td>
<td>500</td>
<td>Rp 1</td>
<td>200X</td>
<td>253014</td>
<td>25</td>
<td>0.15</td>
<td>&lt; 1 s</td>
<td>75 110 135 90 165</td>
<td>190 30</td>
</tr>
<tr>
<td>MVD 515 X</td>
<td></td>
<td>500</td>
<td>Rp 1½</td>
<td>300X</td>
<td>253015</td>
<td>60</td>
<td>0.30</td>
<td>&lt; 1 s</td>
<td>95 150 175 116 210</td>
<td>255 35</td>
</tr>
<tr>
<td>MVD 520 X</td>
<td></td>
<td>500</td>
<td>Rp 2</td>
<td>400X</td>
<td>253016</td>
<td>90</td>
<td>0.48</td>
<td>&lt; 1 s</td>
<td>115 170 190 130 235</td>
<td>300 45</td>
</tr>
<tr>
<td>MVD 2040 S02 X</td>
<td></td>
<td>200</td>
<td>DN 40</td>
<td>300X</td>
<td>253017</td>
<td>60</td>
<td>0.30</td>
<td>&lt; 1 s</td>
<td>95 200 170 150 230</td>
<td>255 40</td>
</tr>
<tr>
<td>MVD 2050 S02 X</td>
<td></td>
<td>200</td>
<td>DN 50</td>
<td>300X</td>
<td>253018</td>
<td>60</td>
<td>0.30</td>
<td>&lt; 1 s</td>
<td>95 230 170 165 230</td>
<td>255 45</td>
</tr>
<tr>
<td>MVD 2065 S02 X</td>
<td></td>
<td>200</td>
<td>DN 65</td>
<td>400X</td>
<td>253019</td>
<td>90</td>
<td>0.48</td>
<td>&lt; 1 s</td>
<td>115 290 215 185 275</td>
<td>320 55</td>
</tr>
<tr>
<td>MVD 2080 S02 X</td>
<td></td>
<td>200</td>
<td>DN 80</td>
<td>500X</td>
<td>253020</td>
<td>80</td>
<td>0.42</td>
<td>&lt; 1 s</td>
<td>130 310 250 200 305</td>
<td>360 70</td>
</tr>
<tr>
<td>MVD 2100 S02 X</td>
<td></td>
<td>200</td>
<td>DN 100</td>
<td>550X</td>
<td>253021</td>
<td>90</td>
<td>0.48</td>
<td>&lt; 1 s</td>
<td>150 350 310 240 395</td>
<td>480 85</td>
</tr>
<tr>
<td>MVD 2125 S02 X</td>
<td></td>
<td>200</td>
<td>DN 125</td>
<td>61EX</td>
<td>253022</td>
<td>90*</td>
<td>10**</td>
<td>&lt; 1 s</td>
<td>170 400 406 290 531</td>
<td>514 112</td>
</tr>
<tr>
<td>MVD 2150 S02 X</td>
<td></td>
<td>200</td>
<td>DN 150</td>
<td>61EX</td>
<td>253023</td>
<td>90*</td>
<td>10**</td>
<td>&lt; 1 s</td>
<td>170 480 439 290 582</td>
<td>547 125</td>
</tr>
<tr>
<td>MVD 5100 S02 X</td>
<td></td>
<td>500</td>
<td>DN 100</td>
<td>61EX</td>
<td>253031</td>
<td>90*</td>
<td>10**</td>
<td>&lt; 1 s</td>
<td>170 350 360 240 418</td>
<td>600 85</td>
</tr>
<tr>
<td>MV 5125 X</td>
<td></td>
<td>500</td>
<td>DN 125</td>
<td>61EX</td>
<td>253032</td>
<td>90*</td>
<td>10**</td>
<td>&lt; 1 s</td>
<td>170 400 406 290 531</td>
<td>514 112</td>
</tr>
<tr>
<td>MV 5150 X</td>
<td></td>
<td>500</td>
<td>DN 150</td>
<td>61EX</td>
<td>253033</td>
<td>90*</td>
<td>10**</td>
<td>&lt; 1 s</td>
<td>170 480 439 290 582</td>
<td>547 125</td>
</tr>
</tbody>
</table>

*Electrical power when open

f = Space required for mounting the solenoid

** Switch-on current for approx. 3 s

pmax. = Max. width
Technology
Adjustable pressure switches for ATEX requirements II3GD. The pressure switches are suitable for activating, deactivating or switching a circuit if the actual value of the pressure changes compared to the set nominal value. The nominal value (switching point) is set by means of a setting wheel with scale.

Media/use
GW…A4 HP/2 X
GGW…A4/2 X
GGW…A4-U/2 X
Suitable for gases of gas families 1, 2 and 3 and other neutral gases as well as air, flue and exhaust gases. Version without non-ferrous material, suitable for gases up to max. 0.1 vol.% H₂S, dry.

Approvals
ATEX
Manufacturer's declaration according to ATEX directive 94/9/EC: II3GD

EC type-examination certificate according to the EC gas appliance directive:
CE-0085 AO 3220

EC type-examination certificate according to the EC pressure equipment directive:
CE0036

Attention!
Read the operating and mounting instructions before putting the device into service.

Switching function

With increasing pressure:
1 NC opens, 2 NO closes.

With decreasing pressure:
1 NC closes, 2 NO opens.

High-pressure switch for gas, air, flue and exhaust gases
ATEX II3GD EEx nC IIIB
T 75 °C - 15 °C ≤ Ta ≤ 70 °C
GW…A4/2 HP X

Differential pressure switch for gas, air, flue and exhaust gases
ATEX II3GD EEx nC IIIB
T 75 °C - 15 °C ≤ Ta ≤ 70 °C
GGW…A4/2 X
GGW…A4-U/2 X

Function

Overpressure switch

Only GW…A4 HP/2 X
All gas-bearing parts are made of stainless steel 1.4541 and are suitable for:
- Biogas applications
- Aggressive media such as sulfuric acid with concentrations up to 1.0 vol. %

Differential pressure switch function

GGW…A4/2 X and
GGW…A4-U/2 X

Differential pressure switch in overpressure and negative pressure range.
The differential pressure acts on the micro switch via the membrane against the force of the adjusting spring. The pressure switch works without auxiliary power.

Device selection

GGW…A4/2 X and
GGW…A4-U/2 X
If the lower pressure p₂ (upper chamber) is a positive pressure compared to the atmosphere, type GGW…A4/2 X must be used.
If the lower pressure p₂ (upper chamber) is a negative pressure compared to the atmosphere, type GGW…A4-U/2 X must be used.

Overpressure switch

GGW…A4/2 X
Pressure connection G ¼
The control unit reacts on overpressure, which connects, disconnects or switches a circuit when exceeding or falling below a set nominal value. Simply acting pressure switch in overpressure range. The G ¼ pressure connection must not be closed.

Minimum pressure switch

GGW…A4-U/2 X
Pressure connection G ½
The control unit reacts on negative pressure, which connects, disconnects or switches a circuit when exceeding or falling below a set nominal value. Simply acting pressure switch in negative pressure range. The G ½ pressure connection must not be closed.
<table>
<thead>
<tr>
<th>Technical data</th>
<th>GW...A4/2 HP X</th>
<th>GGW...A4/2 X</th>
<th>GGW...A4-U/2 X</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX pressure switch</td>
<td>Overpressure switch</td>
<td>Differential pressure switch</td>
<td></td>
</tr>
<tr>
<td>ATEX group</td>
<td>II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEX category</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atmosphere</td>
<td>Gas (G) and dust (D)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosionsgruppe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grenzspaltweite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. surface temperature</td>
<td>+75 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>GW 500 A4 HP X; $p_{\text{max}} = 2$ bar (Gas) @ Einstellbereich 0.1-0.5 bar</td>
<td>GGW 3 A4/2 X up to $p_{\text{max}} = 5$ bar (Gas) @ Einstellbereich 0.15-0.5 bar</td>
<td>GGW 3 A4-U/2 X up to $p_{\text{max}} = 8$ bar (Gas) @ Einstellbereich 0.15-0.5 bar</td>
</tr>
<tr>
<td></td>
<td>GW 2000 A4 HP X; $p_{\text{max}} = 5$ bar (Gas)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GW 6000 A4 HP X; $p_{\text{max}} = 8$ bar (Gas)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure connection</td>
<td>$p$+: in the centre of the underside of the housing</td>
<td>$p$+: in the centre of the underside of the housing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G ¼-female thread as per ISO 228:</td>
<td>G ¼-female thread as per ISO 228:</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Gas or air</strong></td>
<td><strong>Gas or air</strong></td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>Ambient temperature: -15 °C to +70 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium temperature: -15 °C to +70 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Storage temperature: -30 °C to +80 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Bottom part of the housing</td>
<td>Bottom part of the housing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aluminium diecast</td>
<td>Aluminium diecast</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Switch part: Polycarbonate</td>
<td>Switch part: Polycarbonate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metal bellows: 1.4541 (stainless steel)</td>
<td>Membrane: NBR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hood</td>
<td>Hood</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zinc diecast, powder-coated</td>
<td>Zinc diecast, powder-coated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Switching contact</td>
<td>Switching contact</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard: AG gilded (Au), suitable for DDC applications: DC 24 V; 0.02 A</td>
<td>Standard: Gilded Ag (Au), suitable for DDC applications: DC 24 V; 0.02 A</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Switching voltage</td>
<td>AC eff. min. 24 V, max. 250 V</td>
<td>AC eff. min. 5 V, max. 24 V</td>
<td>AC eff. min. 20 mA, max. 6 A with cos $\varphi$ 1</td>
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<tr>
<td></td>
<td>DDC-Anwendung</td>
<td>DDC-Anwendung</td>
<td>DC eff. min. 3 A with cos $\varphi$ 0.6</td>
</tr>
<tr>
<td></td>
<td>DC min. 24 V, max. 48 V</td>
<td></td>
<td>DC eff. min. 20 mA, max. 1 A</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>DC eff. min. 5 mA, max. 20 mA</td>
</tr>
<tr>
<td>Rated current</td>
<td>DDC-Anwendung</td>
<td></td>
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<tr>
<td></td>
<td>AC eff. 10 A</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>DC 20 mA</td>
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<tr>
<td>Switching current</td>
<td>AC eff. min. 20 mA, max. 6 A with cos $\varphi$ 1</td>
<td>AC eff. min. 3 A, max. 6 A with cos $\varphi$ 0.6</td>
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</tr>
<tr>
<td></td>
<td>AC eff. min. 20 mA, max. 1 A</td>
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<td></td>
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<tr>
<td></td>
<td>DC eff. min. 5 mA, max. 20 mA</td>
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</tr>
<tr>
<td>Electrical connection</td>
<td>on screw-type terminals via cable entry ATEX M20x1.5</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Line diameter 5 mm - 10 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International protection</td>
<td>IP 65 as per IEC 529 (EN 60529)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustment</td>
<td>With increasing pressure in vertical mounting position.</td>
<td>With increasing pressure in vertical mounting position.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optionally increasing or decreasing setting on site.</td>
<td>Optionally increasing or decreasing setting on site.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Observe the change of the switching point with deviating mounting position.</td>
<td>Observe the change of the switching point with deviating mounting position.</td>
<td></td>
</tr>
<tr>
<td>Adjustment tolerance</td>
<td>±15 % deviation of the switching point compared to the nominal value and</td>
<td>±15 % deviation of the switching point compared to the nominal value and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>installation in vertical mounting position</td>
<td>installation in vertical mounting position</td>
<td></td>
</tr>
</tbody>
</table>
Dimensions [mm]

**GW...A4/2 HP X**

81 x 38.2 x 67.6

- SW 21

4 self-tapping cap screws M3 x 14
- longitudinal slot 0.8 and recessed head DIN 7902-72

**Dimensions [mm]**

**GGW...A4/2 X**

**GGW...A4-U/2 X**

38.2 x 114

- SW 21
- Screw plug G ¼ with sealing ring
- Screw plug with longitudinal slot 1.0

4 self-tapping cap screws M3 x 14
- longitudinal slot 0.8 and recessed head DIN 7902-72

**Mounting positions** (observe the change of the switching point if mounting position differs from standard)

**Standard mounting position**

The pressure switch is activated at a **higher** pressure when mounted horizontally:

- GW 500 A4/2 HP X approx. + 10 mbar
- GW 2000 A4/2 HP X approx. + 20 mbar
- GW 6000 A4/2 HP X approx. + 80 mbar
- GGW ... A4/2 X approx. + 0.5 mbar
- GGW ... A4-U/2 X approx. + 0.5 mbar

The pressure switch is activated at a **lower** pressure if mounted horizontally overhead:

- GW 500 A4/2 HP X approx. - 10 mbar
- GW 2000 A4/2 HP X approx. - 20 mbar
- GW 6000 A4/2 HP X approx. - 80 mbar
- GGW ... A4/2 X approx. - 0.5 mbar
- GGW ... A4-U/2 X approx. - 0.5 mbar

If mounted in intermediate mounting position, the pressure switch is activated at a max. higher or lower pressure compared to the set nominal value.
<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>( P_{max} ) [mbar]</th>
<th>Order number</th>
<th>Adjustment range [mbar]</th>
<th>Switching difference ( \Delta p ) [mbar]</th>
<th>International protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX Pressure control device [II3GD]</td>
<td>GW 500 A4/2 HP X</td>
<td>2000 @ 100-500</td>
<td>251984</td>
<td>100 — 500</td>
<td>( \leq 30 )</td>
<td>IP 65</td>
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<tr>
<td></td>
<td>GW 2000 A4/2 HP X</td>
<td>4000</td>
<td>251985</td>
<td>400 — 2000</td>
<td>( \leq 50 @ 400-1000 ) ( \leq 100 @ 1000-2000 )</td>
<td>IP 65</td>
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<td>GW 6000 A4/2 HP X</td>
<td>8000</td>
<td>251986</td>
<td>1000 — 6000</td>
<td>( \leq 300 )</td>
<td>IP 65</td>
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<tr>
<td>Differential pressure switch (overpressure) [Au-M-MS9-V0-VS3]</td>
<td>GGW 3 A4/2 X</td>
<td>500</td>
<td>245810</td>
<td>0.4 — 3.0</td>
<td>( \leq 0.3 )</td>
<td>IP 65</td>
</tr>
<tr>
<td></td>
<td>GGW 10 A4/2 X</td>
<td></td>
<td>248694</td>
<td>1.0 — 10.0</td>
<td>( \leq 0.5 )</td>
<td>IP 65</td>
</tr>
<tr>
<td></td>
<td>GGW 50 A4/2 X</td>
<td></td>
<td>245811</td>
<td>2.5 — 50</td>
<td>( \leq 1 )</td>
<td>IP 65</td>
</tr>
<tr>
<td></td>
<td>GGW 150 A4/2 X</td>
<td></td>
<td>248695</td>
<td>30 — 150</td>
<td>( \leq 3 )</td>
<td>IP 65</td>
</tr>
<tr>
<td>Differential pressure switch (negative pressure) [Au-M-MS9-V0-VS3]</td>
<td>GGW 3 A4-U/2 X</td>
<td>500</td>
<td>248390</td>
<td>-0.4 — -3.0</td>
<td>( \leq 0.3 )</td>
<td>IP 65</td>
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<td>GGW 10 A4-U/2 X</td>
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<td>248391</td>
<td>-1.0 — -10.0</td>
<td>( \leq 0.5 )</td>
<td>IP 65</td>
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<td>GGW 50 A4-U/2 X</td>
<td></td>
<td>246180</td>
<td>-2.5 — -50</td>
<td>( \leq 1 )</td>
<td>IP 65</td>
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<tr>
<td></td>
<td>GGW 150 A4-U/2 X</td>
<td></td>
<td>248392</td>
<td>-30 — -150</td>
<td>( \leq 3 )</td>
<td>IP 65</td>
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</tbody>
</table>

Accessories

- Gauge connection G ¼ with sealing ring (5x) 230398 only for GGW ... A4/2 X, GGW ... A4-U/2 X
- Mounting bracket, metal 230288
ATEX Product Range
ATEX II3GD

Safety solenoid valve, one stage operation
MV ... X, MVD ... X

Differential pressure switch
GGW ... A4/2 X
GGW ... A4-U/2 X

High-pressure switch
GW ... A4/2 HP X

ATEX conformity certificate
The original can be found under www.dungs.com

Subject to technical modification in the interest of technical progress.