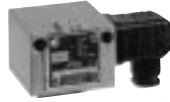


## Technical overview pressure switches

Valid for all pressure switch with microswitches of the DCM, VCM, DNM, DNS, DDC series. The technical data of the component tested units deviate in part slightly. (Please refer to type sheet)

### Normal version Plug connection



...200

### Terminal connection

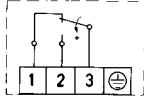
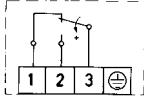


...300

### Ex-version



...700

<b>Switching device</b>	Aluminium diecast GD Al Si 12	Aluminium diecast GD Al Si 12
<b>Pressure connection</b>	G 1/2" external thread (pressure gauge connection) and G 1/4" internal thread. Internal thread G 1/4 at differential pressure switches DDCM.	G 1/2" external thread (pressure gauge connection) and G 1/4" internal thread. Internal thread G 1/4" at differential pressure switches DDCM.
<b>Switching function and connection drawing</b> (applies only for version with microswitch)	Floating change-over contact. With rising pressure switching over single-pole from 3-1 to 3-2 	Floating change-over contact. With rising pressure switching over single-pole from 3-1 to 3-2 
<b>Switching capacity</b> (applies only for version with microswitch)	8 A at 250 VAC 5 A at 250 VAC inductive 8 A at 24 VDC 0.3 A at 250 VDC	3 A at 250 VAC 2 A at 250 VAC inductive 3 A at 24 VDC 0.03 A at 250 VDC
<b>Fitting position</b>	arbitrary, preferably vertical (see data sheet)	vertical
<b>Degree of protection</b> (in vertical position)	IP 54, Terminal connection IP 65	IP 65
<b>Ex degree of protection</b>	-	Ex II 2 G/D EEx de IIC T6 IP65 T80°C
<b>PTB approval</b>	-	PTB 02 ATEX 1121
<b>Electrical connection</b>	200 series: Plug connection 300 series: Terminal connection	Terminal connection
<b>Cable entry plug</b>	Pg 11	
<b>Cable entry terminal connection</b>	M 16 x 1,5	M 16 x 1,5
<b>Ambient temperature</b>	-25 to +70 °C. (with the exception of DA-series -20...+70 °C and DCM 4016, 4025, 1000, VCM 4156)	-15 to +60 °C
<b>Switching point</b>	Adjustable on the spindle. In switching mechanism 300, the terminal box lid must be removed.	Adjustable on the spindle after the terminal box lid is removed.
<b>Switching difference</b>	Adjustable or not adjustable (see type overview)	Not adjustable
<b>Medium temperature</b>	Max. 70 °C, briefly 85 °C Higher medium temperatures are possible if the above limit values at the switching mechanism are ensured by suitable measures (e.g. siphon).	Max. 60 °C

<b>Vacuum</b>	All pressure switches can operate under vacuum, the device is not damaged by this.
<b>Repetition accuracy of the switching points</b>	< 1 % of the working range (for pressure ranges > 1 bar)
<b>Vibration strength</b>	Up to 4 g no noteworthy deviations.
<b>Mechanical life</b>	With sinusoidal pressure application and room temperature, 10 x 10 <sup>6</sup> switching cycles. The expected life time depends strongly upon the type of pressure application, therefore this figure can serve only as rough estimate. With pulsating pressure or pressure impacts in hydraulic systems, pressure surge reduction is recommended.
<b>Isolation values</b>	Overvoltage category III, contamination class 3, reference surge voltage 4000 V. The conformity to DIN VDE 0110 (01.89) will be confirmed.
<b>Oil and grease-free</b>	The parts of all pressure switches in contact with the medium are oil and grease-free (with the exception of series HCD... und DPS...). The sensors are hermetically encapsulated, they contain no seals (see also additional function ZF 1979, special packing).

## Optional function ZF

### Pressure Switches and Pressure Monitors

#### Optional function / connection diagrams

	Plug connection Series 200 (IP 54)	Terminal connection Series 300 (IP 65)	Connection diagrams	Explanation
<b>Normal version (plug connection)</b> microswitch, single pole switching over, switching differential not adjustable.				
<b>Terminal connection housing (Series 300)</b>		...301		
<b>Adjustment of switching difference</b>	...V or ...203			see following pages
<b>Maximum limiter</b> with reclosing lock-out. <b>Interlocking with increasing pressure.</b> see DWR-series	...205			see DWR-series 29
<b>Minimum limiter</b> with reclosing lock-out. <b>Interlocking with falling pressure.</b> see DWR-series	...206			see DWR-series 29
<b>Two microswitches</b> , switching in parallel or in succession. Fixed switching interval. Terminal connection case. <b>Please state circuit diagram.</b> (not possible on every pressure switch)		...307		
<b>Two microswitches, 1 plug</b> switching in succession, adjustable switching interval. <b>Please state circuit diagram.</b> (not possible on every pressure switch)	...217			
<b>Gold-plated contacts</b> Single pole switching over. Cannot be supplied with adjustable switching difference.	...213			Switching capacity: max. 24 VDC, 100 mA min. 5 VDC, 2 mA

#### Switching units / optional functions / Adjustment / Documents

Description	Plug connection Series 200 (IP 54)	Terminal connection Series 300 (IP 65)	Connection diagrams
<b>Plug connector with position indication</b> 12 V–240 VAC/DC			
	ST 218		
<b>Protection type IP 65 and switching housing with surface protection</b> (Chemical version)		...351	

#### Example:

DCM<sub>1</sub>6-205

Code of switching unit (e.g. maximum limiter)  
Code of pressure range  
Sensor system

#### Ordering text:

Pressure switch  
DCM 6–205  
or DCM 6 with ZF 205

## Optional function ZF

### Pressure Switches and Pressure Monitors



#### Optional function for EEx-i equipment ZF 5...

- Housing (300) with terminal connection (IP 65), blue cable entry and blue terminals.
- Partially with resistance combination for line breakage and short circuit monitoring (with isolating switching amplifier Ex 041).

#### Important:

All pressure switches with the optional functions listed here can be operated only together with a suitable isolating switch amplifier.

Optional function in EEx-i equipment	Type	Connection diagram	Isolating switching amplifier
<b>Gold-plated contacts</b> , single-pole switch-over. Switching differential permanent (not adjustable). <b>Switching capacity:</b> max. 24 VDC, 100 mA, min. 5 VDC, 2 mA	...513		<b>EX 011</b>
Normally closed contact with resistance combination, for <b>maximum pressure monitoring</b> . Gold-plated contacts. <b>Housing with surface protection.</b> (Chemical version)	...576		<b>EX 041</b>
<b>Normally closed contact</b> with reclosing lock-out and resistance combination, for <b>maximum pressure monitoring</b> . <b>Housing with surface protection.</b> (Chemical version)	...577		<b>EX 041</b>
<b>Normally closed contact</b> with resistant combination for <b>minimum pressure monitoring</b> . Gold-plated contacts. <b>Housing with surface protection.</b> (Chemical version)	...574		<b>EX 041</b>
<b>Normally closed contact</b> with reclosing lock-out and resistance combination, for <b>minimum pressure monitoring</b> . <b>Housing with surface protection.</b> (Chemical version)	...575		<b>EX 041</b>

Additional optional functions	Plug connection Reihe 200	Terminal connection Reihe 300
<b>Adjustment according to customer's instruction:</b> <b>one</b> switching point <b>two</b> switching points or defined switching differential	...1970* ...1972*	...1970* ...1972*
<b>Adjustment and sealing according to customer's instruction:</b> <b>one</b> switching point <b>two</b> switching points or defined switching differential <b>Label of units</b> according to customer's instruction <b>Special packing</b> for oil and grease-free storage	...1971* ...1973* ...1978 ...1979	– – ...1978 ...1979
<b>Documents:</b> additional documents, e. g. data sheets, mounting instructions, TÜV-, DVGW- or PTB-certificate.	<b>DOKU</b>	<b>DOKU</b>
<b>Certificates according to EN 10 204</b> Test report 2.2, type series certificate	<b>WZ 2.2</b>	<b>WZ 2.2</b>
AZ 3.1 B Inspection certificate, specific product test	<b>AZ 3.1 B</b>	<b>AZ 3.1 B</b>
Inspection certificate for separating membranes FV	<b>AZ 3.1 B-V</b>	<b>AZ 3.1 B-V</b>

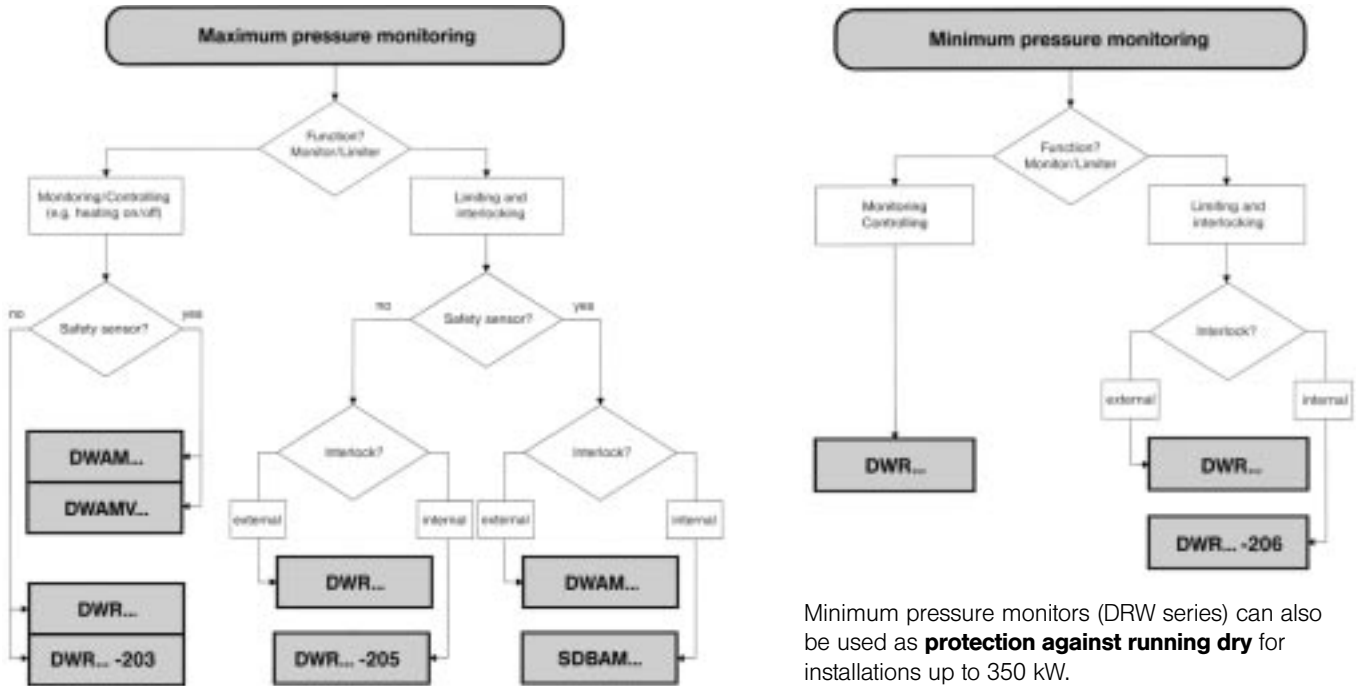
\* Switching point adjustment: please specify switching point **and** direction of action (rising or falling pressure).

## Info

### Selection of the pressure monitors / pressure limiters

for steam and hot water systems according to TRD 604, DIN 4751, P. 2

#### Selection diagrams



## Application sample

### Equipment of a boiler with pressure monitor and pressure limiter

#### Pressure monitor for burner control

**DWAM... or DWR...**

(without adjustable switching differential)

or

**DWAMV... or DWR...-203**

(with adjustable switching difference for controlling function)

#### Maximum / minimum pressure limiter for safety monitoring:

**SDBAM... or DWR...-205**

(with internal interlock, unlocking button on the pressure limiter) or

**DWAM... or DWR...**

(with external interlock in the control cabinet).

Application sample for external interlock see.

Pressure monitor

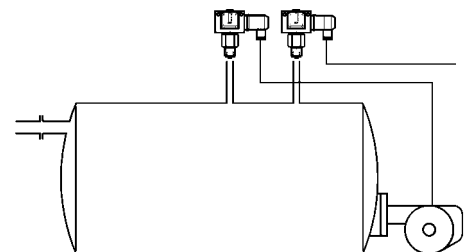
DWAM...

or DWR...

Pressure limiter

SDBAM... or

DWR...-205



## Type series DWR

### Pressure monitors



DWR 625

#### component tested for steam and hot water, burnable gases and liquid fuels

<b>Component tested for:</b>	<b>Steam</b>	System according to TRD 604
	<b>Hot water</b>	System according to DIN 4751, T.2
	<b>Burnable gases</b>	DVGW work sheet G 260
	<b>Liquid fuels</b>	e.g. fuel oils

**Testing basis:** Pressure 100/1, Issue 4.83  
DIN 3398, T.3, Issue 11.92  
DIN 3398, T.4, Issue 10.86

**Registration No.:** TÜV.DWFS (SDBFS) 00-281  
NG-4347 AQ 1411  
3 CO2 82000  
CE-0035BN0004 according to  
DGR 97/23 EG

**Function:** Pressure monitor or Pressure limiter  
(with internal or external interlock)

**Direction of action:** DWFS, SDBFS for max. pressure  
and min. pressure monitoring



**DVGW**  
Of "Special construction"  
certificate due to test with  
2 million switching cycles.

#### Special features

- "Of special construction" according to pressure standard "Druck 100/1".

- Welded sensor completely made of stainless steel.

- Can be used for maximum pressure and minimum pressure monitoring as monitor and limiting device with internal or external interlock.

- Available in EEx-d or EEx-i version (see also DBS-series).

- Medium and ambient temperature -25 to +70 °C (for Ex-version -15 to +60 °C).

#### Type overview

Range of adjustment (bar)	Switching diff. (Mean values) (bar)	Maximum operating pressure*		Type
		Gas Applications DIN 3398 P.3 (bar)	Other Applications (bar)	

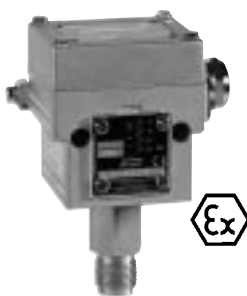
#### Switching differential not adjustable

0.1 – 0.6	0.04	6	6	DWR 06
0.2 – 1.6	0.06	6	6	DWR 1
0.2 – 2.5	0.1	10	16	DWR 3
0.5 – 6	0.2	10	16	DWR 6
0.5 – 6	0.25	20	25	DWR 625
3 – 16	0.5	20	25	DWR 16
4 – 25	1.0	50	63	DWR 25
8 – 40	1.3	50	63	DWR 40

Pressure monitors DWR... can also be used as maximum pressure and minimum pressure limiter with external interlocking.

#### Switching differential adjustable

0.1 – 0.6	0.08– 0.5	6	6	DWR 06-203
0.2 – 1.6	0.15– 0.6	6	6	DWR 1-203
0.2 – 2.5	0.17– 1.2	10	16	DWR 3-203
0.5 – 6	0.3 – 1.4	10	16	DWR 6-203
0.5 – 6	0.4 – 2.5	20	25	DWR 625-203
3 – 16	0.75– 3.15	20	25	DWR 16-203
4 – 25	1.3 – 6.0	50	63	DWR 25-203
8 – 40	2.3 – 6.6	50	63	DWR 40-203



Ex-DWR 16

#### Ex -versions II 2 G/D EEx de IIC T6 IP65 T80°C e.g. for burnable gases (housing 700)

0.1 – 0.6	0.04	6	6	Ex-DWR 06
0.2 – 1.6	0.06	6	6	Ex-DWR 1
0.2 – 2.5	0.1	10	16	Ex-DWR 3
0.5 – 6	0.2	10	16	Ex-DWR 6
0.5 – 6	0.25	20	25	Ex-DWR 625
3 – 16	0.5	20	25	Ex-DWR 16
4 – 25	1.0	50	63	Ex-DWR 25
8 – 40	1.3	50	63	Ex-DWR 40

#### \*Operating pressure

Column A applies for gas applications to DIN 3398 P.3. For other applications column B is applied for.

**EEx-i-version (intrinsically safe)** degree of protection with optional function ZF 513.

Example for ordering: **DWR 16-513**

■ **DWR...-205 and ...-206 with internal interlock see next page**