

## ▶ pressure sensor

**PRODUCT:** pressure sensor

**DESIGN:** 35 G1/4A 0 ... 600bar  
36 G1/8 -1 ... +1bar

**intelligent pressure sensor  
operation via membrane  
keyboard or USB opto interface**

- pressure range between - 1 and 600 bar
- new electronics and program architecture
- analog output with adjustable starting and finishing point
- on/off switch delay is separately adjustable
- test function - simulation of the adjusted switching functions in a pressure-free state
- peak hold function for the display
- automatic self-test function: overload, breakage and sensor function

### function

*ipf electronic's* DW35 and DW36 pressure sensors offer a high level of operating comfort.

All devices have 2 outputs. Although output 1 relates to a freely-programmable switching output, for output 2 a selection can be made between an analog output, a switching output or an alarm output.

Devices with a 8-pin connection have both 2 switching outputs and an analog output available.

Among other things, the switching points, release positions, output logic and time delay can be programmed via the membrane keyboard.

### application

The DW35 pressure sensor has a 1/4 inch connection with an outside thread and can be used for pressures up to 600 bar. The media touching parts of the sensor are made of stainless steel.

The DW36 pressure sensor is suitable for low and negative pressure measurements. This sensor has a 1/8 inch connec-



tion. Its pressure pick-up is made of ceramic and is used in a range of - 1 bar to + 1 bar.

### notes

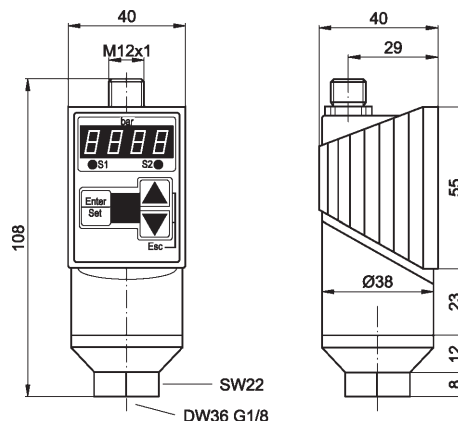
The sensor has an optical interface with which, in addition, all adjustment parameters can be adjusted and changed via a PC or notebook.

For dynamic measurements, the display and the analog output are equipped an adjustable damping action. Following installation, the sensor body can be rotated by 350° and the sensor display can be rotated by 180° by means of the software.

The test function offers a simple and quick possibility to check the function of the device and/or the analyses which have been switched on. In connection with this, each pressure value of the pressure range can be "simulated" through the operating buttons or by operating the PC. The device behaves as if the actual pressure were available.

**technical data and article list**

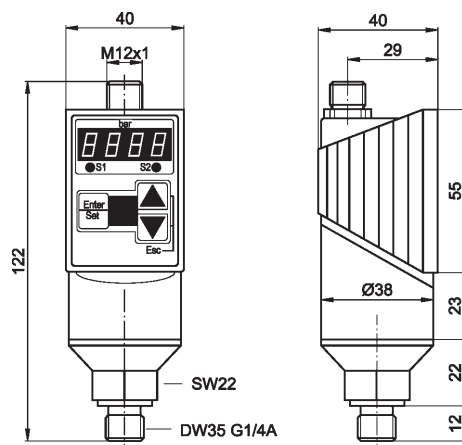
M12 connector 4-pin	DW36311H	DW36311J	DW363110	DW363111
M12 connector 8-pin	DW36312H	DW36312J	DW363120	DW363121
pressure range [bar]	-0.5 ... +0.5	-1 ... +1	-1 ... 0	0 ... +1
overload [bar]	6	6	6	6
recording of the pressure	peak value memory every 2msec	peak value memory every 2msec	peak value memory every 2msec	peak value memory every 2msec
operating voltage	12 ... 32V DC	12 ... 32V DC	12 ... 32V DC	12 ... 32V DC
short-circuit protection	+	+	+	+
reverse polarity protection	+	+	+	+
voltage drop (max. load)	< 2V	< 2V	< 2V	< 2V
current consumption (w/o load)	< 60mA	< 60mA	< 60mA	< 60mA
switching outputs	2 x pnp - switching no/nc 1A	2 x pnp - switching no/nc 1A	2 x pnp - switching no/nc 1A	2 x pnp - switching no/nc 1A
adjustable delay time				
turn-on delay	0 ... 20sec	0 ... 20sec	0 ... 20sec	0 ... 20sec
turn-off delay	0 ... 20sec	0 ... 20sec	0 ... 20sec	0 ... 20sec
adjustment range				
switch-point	1 ... 100% of P <sub>n</sub>	1 ... 100% of P <sub>n</sub>	1 ... 100% of P <sub>n</sub>	1 ... 100% of P <sub>n</sub>
release position	0 ... 99% of P <sub>n</sub>	0 ... 99% of P <sub>n</sub>	0 ... 99% of P <sub>n</sub>	0 ... 99% of P <sub>n</sub>
sampling frequency	max. 125Hz	max. 125Hz	max. 125Hz	max. 125Hz
repeatability	< ±0.1% from final value	< ±0.1% from final value	< ±0.1% from final value	< ±0.1% from final value
analog output	0/4 ... 20mA 20 ... 0/4mA	0/4 ... 20mA 20 ... 0/4mA	0/4 ... 20mA 20 ... 0/4mA	0/4 ... 20mA 20 ... 0/4mA
max. burden RL [V]=	(U <sub>b</sub> -8V)/20mA	(U <sub>b</sub> -8V)/20mA	(U <sub>b</sub> -8V)/20mA	(U <sub>b</sub> -8V)/20mA
error recognition	in case of a line break	in case of a line break	in case of a line break	in case of a line break
analog output				
rise time	5msec (10 ... 90% of P <sub>n</sub> )	5msec (10 ... 90% of P <sub>n</sub> )	5msec (10 ... 90% of P <sub>n</sub> )	5msec (10 ... 90% of P <sub>n</sub> )
adjustable damping	0 ... 20sec	0 ... 20sec	0 ... 20sec	0 ... 20sec
linearity deviation	max. ±0.25% of P <sub>n</sub>	max. ±0.25% of P <sub>n</sub>	max. ±0.25% of P <sub>n</sub>	max. ±0.25% of P <sub>n</sub>
system pressure display	4 x 7 Ssegment LED	4 x 7 segment LED	4 x s Segment LED	4 x s Segment LED
adjustable display damping	0 ... 20sec	0 ... 20sec	0 ... 20sec	0 ... 20sec
switching function display	2 x LED red	2 x LED red	2 x LED red	2 x LED red
operating temperature	-20 ... +80°C	-20 ... +80°C	-20 ... +80°C	-20 ... +80°C
temperature drift	< ±0.2% / 10K (-10 ... +70°C)	< ±0.2% / 10K (-10 ... +70°C)	< ±0.2% / 10K (-10 ... +70°C)	< ±0.2% / 10K (-10 ... +70°C)
connection to pressure system	G1/8, SW 22	G1/8, SW 22	G1/8, SW 22	G1/8, SW 22
sensor head material	stainless steel 1.4435 ceramic	stainless steel 1.4435 ceramic	stainless steel 1.4435 ceramic	stainless steel 1.4435 ceramic
housing material	PA6.6, polyester	PA6.6, polyester	PA6.6, polyester	PA6.6, polyester
system of protection (EN 60529)	IP65	IP65	IP65	IP65
optical interface	opto-adapter on USB	opto-adapter on USB	opto-adapter on USB	opto-adapter on USB



# pressure sensor

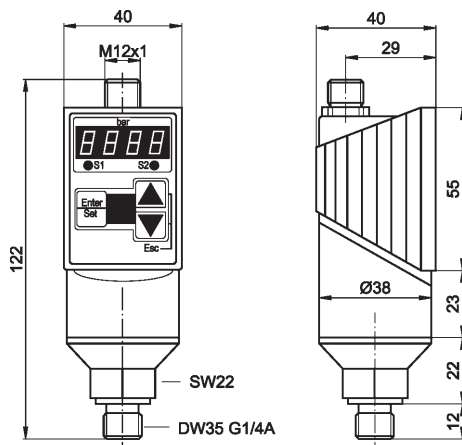
## technical data and article list

M12 connector 4-pin	DW35311D	DW35311K	DW35311F	DW353114
M12 connector 8-pin	DW35312D	DW35312K	DW35312F	DW353124
pressure range [bar]	10	-1 ... 10	50	100
nominal pressure overload (P <sub>n</sub> )	50%	50%	50%	50%
recording of the pressure	peak value memory every 2msec	peak value memory every 2msec	peak value memory every 2msec	peak value memory every 2msec
operating voltage	12 ... 32V DC	12 ... 32V DC	12 ... 32V DC	12 ... 32V DC
short-circuit protection	+	+	+	+
reverse polarity protection	+	+	+	+
voltage drop (max. load)	< 2V	< 2V	< 2V	< 2V
current consumption (w/o load)	< 60mA	< 60mA	< 60mA	< 60mA
switching outputs	2 x pnp - switching no/nc 1A	2 x pnp - switching no/nc 1A	2 x pnp - switching no/nc 1A	2 x pnp - switching no/nc 1A
adjustable delay time				
turn-on delay	0 ... 20sec	0 ... 20sec	0 ... 20sec	0 ... 20sec
turn-off delay	0 ... 20sec	0 ... 20sec	0 ... 20sec	0 ... 20sec
adjustment range				
switch-point	1 ... 100% of P <sub>n</sub>	1 ... 100% of P <sub>n</sub>	1 ... 100% of P <sub>n</sub>	1 ... 100% of P <sub>n</sub>
release position	0 ... 99% of P <sub>n</sub>	0 ... 99% of P <sub>n</sub>	0 ... 99% of P <sub>n</sub>	0 ... 99% of P <sub>n</sub>
sampling frequency	max. 125Hz	max. 125Hz	max. 125Hz	max. 125Hz
repeatability	< ±0.1% from final value	< ±0.1% from final value	< ±0.1% from final value	< ±0.1% from final value
analog output	0/4 ... 20mA 20 ... 0/4mA	0/4 ... 20mA 20 ... 0/4mA	0/4 ... 20mA 20 ... 0/4mA	0/4 ... 20mA 20 ... 0/4mA
max. burden RL [V]=	(U <sub>b</sub> -8V) / 20mA	(U <sub>b</sub> -8V) / 20mA	(U <sub>b</sub> -8V) / 20mA	(U <sub>b</sub> -8V) / 20mA
error recognition	in case of a line break	in case of a line break	in case of a line break	in case of a line break
analog output				
rise time	5msec (10 ... 90% of P <sub>n</sub> )	5msec (10 ... 90% of P <sub>n</sub> )	5msec (10 ... 90% of P <sub>n</sub> )	5msec (10 ... 90% of P <sub>n</sub> )
adjustable damping	0 ... 20sec	0 ... 20sec	0 ... 20sec	0 ... 20sec
linearity deviation	max. ±0.25% of P <sub>n</sub>	max. ±0.25% of P <sub>n</sub>	max. ±0.25% of P <sub>n</sub>	max. ±0.25% of P <sub>n</sub>
system pressure display	4 x 7 segment LED	4 x 7 segment LED	4 x 7 segment LED	4 x 7 segment LED
adjustable display damping	0 ... 20sec	0 ... 20sec	0 ... 20sec	0 ... 20sec
switching function display	2 x LED red	2 x LED red	2 x LED red	2 x LED red
operating temperature	-20 ... +80°C	-20 ... +80°C	-20 ... +80°C	-20 ... +80°C
temperature drift	< ±0.2% / 10K (-10 ... +70°C)	< ±0.2% / 10K (-10 ... +70°C)	< ±0.2% / 10K (-10 ... +70°C)	< ±0.2% / 10K (-10 ... +70°C)
connection to pressure system	G1/4A, SW 22	G1/4A, SW 22	G1/4A, SW 22	G1/4A, SW 22
sensor head material	stainless steel 1.4435	stainless steel 1.4435	stainless steel 1.4435	stainless steel 1.4435
housing material	PA6.6, polyester	PA6.6, polyester	PA6.6, polyester	PA6.6, polyester
system of protection (EN 60529)	IP65	IP65	IP65	IP65
optical interface	opto-adapter on USB	opto-adapter on USB	opto-adapter on USB	opto-adapter on USB



technical data and article list

	DW35311G	DW353116	DW353117
M12 connector 4-pin	DW35311G	DW353116	DW353117
M12 connector 8-pin	DW35312G	DW353126	DW353127
pressure range [bar]	200	400	600
overload [bar]	50% of the nominal pressure (P <sub>n</sub> )	50% of the nominal pressure (P <sub>n</sub> )	50% of the nominal pressure (P <sub>n</sub> )
recording of the pressure	peak value memory every 2msec	peak value memory every 2msec	peak value memory every 2msec
operating voltage	12 ... 32V DC	12 ... 32V DC	12 ... 32V DC
short-circuit protection	+	+	+
reverse polarity protection	+	+	+
voltage drop (max. load)	< 2V	< 2V	< 2V
current consumption (w/o load)	< 60mA	< 60mA	< 60mA
switching outputs	2 x pnp - switching no/nc 1A	2 x pnp - switching no/nc 1A	2 x pnp - switching no/nc 1A
adjustable delay time			
turn-on delay	0 ... 20sec	0 ... 20sec	0 ... 20sec
turn-off delay	0 ... 20sec	0 ... 20sec	0 ... 20sec
adjustment range			
switch-point	1 ... 100% of P <sub>n</sub>	1 ... 100% of P <sub>n</sub>	1 ... 100% of P <sub>n</sub>
release position	0 ... 99% of P <sub>n</sub>	0 ... 99% of P <sub>n</sub>	0 ... 99% of P <sub>n</sub>
sampling frequency	max. 125Hz	max. 125Hz	max. 125Hz
repeatability	< ±0.1% from final value	< ±0.1% from final value	< ±0.1% from final value
analog output	0/4 ... 20mA 20 ... 0/4mA	0/4 ... 20mA 20 ... 0/4mA	0/4 ... 20mA 20 ... 0/4mA
max. burden R <sub>L</sub> [V]=	(U <sub>b</sub> -8V) / 20mA	(U <sub>b</sub> -8V) / 20mA	(U <sub>b</sub> -8V) / 20mA
error recognition	in case of a line break	in case of a line break	in case of a line break
analog output			
rise time	5msec (10 ... 90% of P <sub>n</sub> )	5msec (10 ... 90% of P <sub>n</sub> )	5msec (10 ... 90% of P <sub>n</sub> )
adjustable damping	0 ... 20sec	0 ... 20sec	0 ... 20sec
linearity deviation	max. ±0.25% of P <sub>n</sub>	max. ±0.25% of P <sub>n</sub>	max. ±0.25% of P <sub>n</sub>
system pressure display	4 x 7 segment LED	4 x 7 segment LED	4 x 7 segment LED
adjustable display damping	0 ... 20sec	0 ... 20sec	0 ... 20sec
switching function display	2 x LED red	2 x LED red	2 x LED red
operating temperature	-20 ... +80°C	-20 ... +80°C	-20 ... +80°C
temperature drift	< ±0.2% / 10K (-10 ... +70°C)	< ±0.2% / 10K (-10 ... +70°C)	< ±0.2% / 10K (-10 ... +70°C)
connection to pressure system	G1/4A, SW 22	G1/4A, SW 22	G1/4A, SW 22
sensor head material	stainless steel 1.4435	stainless steel 1.4435	stainless steel 1.4435
housing material	PA6.6, polyester	PA6.6, polyester	PA6.6, polyester
system of protection (EN 60529)	IP65	IP65	IP65
optical interface	opto-adaptor on USB	opto-adaptor on USB	opto-adaptor on USB



## ▶ pressure sensor



### comfortable software

From the first moment on, all functions can be seen straight away and are quickly changeable.

### graphical interface

The software user interface is graphically shown very well; this makes it possible to operate easily.

### test function

The test function offers a simple and quick possibility to check the function of the device and/or the analyses which have been switched on. In connection with this, each incidence of pressure can be simulated by the operating buttons or the PC software.

### opto USB interface

Even during the running operation, you can communicate with the pressure sensor via the opto USB interface (galvanically separated).

### self-critical

The pressure sensor's automatic self-test indicates the following functions:

Overshooting or undershooting within the measuring range, a short circuit – output 1 / output 2, a pressure sensor defect, an internal fault, as well as an open analog output. The onward transmission of the faults to the control can take place via the alarm or analog output.

### very fast

Quick detection of the peak pressures is possible within 2msec.

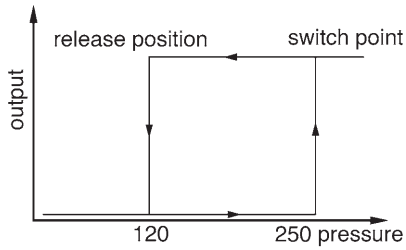
### tamper proof

The keypad lock can be adjusted via the membrane keyboard or as a hard lock. The hardlock can only be operated via the software.

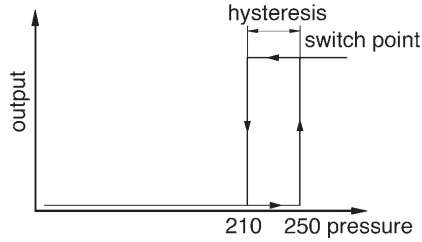


**programmable switching functions**

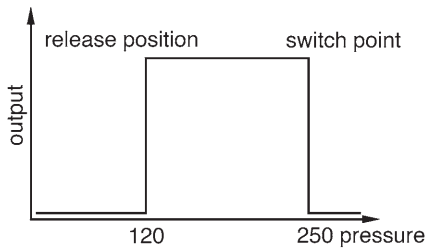
switch-point with release position



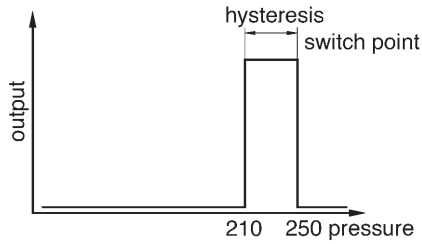
switch-point with hysteresis



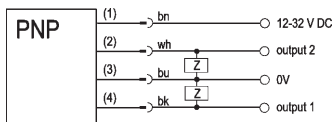
window function with release position



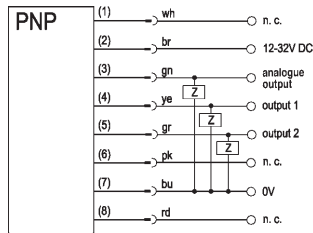
window function with hysteresis



**connection 4-pin**



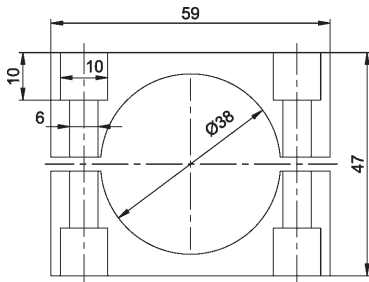
**8-pin**



output 2 can be switched between switching output, analogue output and alarm output

**wire colours:** wh = white (1), br = brown (2), gr = green (3), ye = yellow (4), gy = grey (5), pk = pink (6), bu = blue (7), rd = red (8), n. c. not connected

**mounting clip AY000060**



PRODUCT: accessories		
article-no.	description 1	description 2
AD000011	optical interface	USB connection, software, 1.5m cable
AY000060	mounting clip	

The list of articles contains the standard DC-(pnp) versions only. Kindly request the availability of other output functions.

We will be pleased to supply the matching cable socket for your devices with connector, e.g. VK205A21. Please refer to the list in chapter 14 of our catalogue, data sheet "ipf-SENSORFLEX®" cable sockets".

**Warning:** Never use these devices in applications where the safety of a person depends on their functionality.