

# Pressure sensors/pressure switches

## Pressotronik

Monitoring the oil pressure is essential in hydraulic systems and oil supply systems. It's important to monitor both process-related pressure ranges as well as safety shutdowns, load limits or simply to determine if the lubricating pressure is adequate.

The pressure transmitters must meet a variety of requirements with respect to their pressure resistance, signal output, programmability or the plug connection style. A local or status display is often required for safety reasons

The Pressotronik series spans a wide range of pressure transmitters and programmable pressure switches. They cover a broad pressure range, meet high safety requirements and feature different signal types. The easyMont housings of the remote displays can be grouped for easy and space-saving display groups, making them easier to monitor.

Pressure ratings up to 600 bar

Compact size.

Up to four programmable switching outputs

Alternative analogue output (configurable to current or voltage) plus one, two or four programmable switching outputs

Switching outputs characteristics configurable as window or hysteresis

Two switching outputs configurable as window or hysteresis

Direct or external display and control mounting

Virtually any cable length between measuring point and display

Easy to read LED display with status of switching outputs, 270° pivot when direct mounted

Standard menu structure based on VDMA standard sheet 24574 ff.

Min/max memory, logbook function



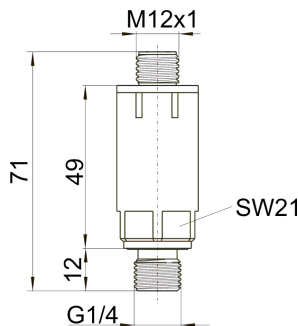
Fluidcontrol

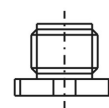
easyMont

IO-Link



**Technical Data Pressotronik 700**
**Pressure transmitter**

| Pressure range                                   |                                                                                                                         | Dimensions Presstronik 700                                                          |          |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------|
|                                                  | 0 - 10 bar<br>0 - 25 bar<br>0 - 100 bar<br>0 - 250 bar<br>0 - 400 bar<br>0 - 600 bar                                    |  |          |
|                                                  | Other pressure ranges available upon request                                                                            |                                                                                     |          |
| Pressure connection                              | G1/4 external thread, DIN 3852 Form E;<br>peak pressure aperture standard for 100 bar and higher                        |                                                                                     |          |
| Overload<br>higher values available upon request | 2.5 x full range at 10 to 600 bar (but max. 900 bar)                                                                    |                                                                                     |          |
| Burst pressure                                   | 2.5 x full range at 6 to 600 bar (but max. 900 bar)                                                                     |                                                                                     |          |
| Higher burst pressure available upon request     | Patented medium stop system to prevent medium leaks when exceeding the bursting pressure range (>40 bar rated pressure) |                                                                                     |          |
| Material / version                               |                                                                                                                         |                                                                                     |          |
| Housing                                          | 1.4305                                                                                                                  |                                                                                     |          |
| Material in contact with media                   | Ceramic, 1.4305, PPS, FPM                                                                                               |                                                                                     |          |
| Weight                                           | approx. 95 g                                                                                                            |                                                                                     |          |
| Temperature                                      |                                                                                                                         |                                                                                     |          |
| Medium                                           | -15 °C to + 125 °C                                                                                                      |                                                                                     |          |
| Ambient temperature                              | max. 85 °C                                                                                                              |                                                                                     |          |
| Temperature influences                           | Within - 40 to +125 °C temperature range                                                                                |                                                                                     |          |
|                                                  | Calibration in bar                                                                                                      | Calibration in psi                                                                  |          |
| TC0 - Temperature zero error                     | < ±0.15 % FS/10 K                                                                                                       | < ±0.25 % FS/10 K                                                                   |          |
| TCE - Temperature full range error               | < ±0.15 % FS/10 K                                                                                                       | < ±0.15 % FS/10 K                                                                   |          |
| Response time                                    | < 2 ms / typically 1 ms                                                                                                 |                                                                                     |          |
| Electrical data                                  |                                                                                                                         | Standard pin assignment Pressotronik 700                                            |          |
| Supply voltage (U <sub>B</sub> )                 | 10 – 30 V DC (nominal voltage 24 V DC)                                                                                  | Plug: 1xM12x1                                                                       |          |
| Degree of protection                             | IP67                                                                                                                    | Pin                                                                                 |          |
| Burden Ω                                         | = (U <sub>B</sub> -8 V) / 0.02 A                                                                                        | 1                                                                                   | +24 V DC |
| Dielectric strength                              | 500 V DC                                                                                                                | 3                                                                                   | 4-20 mA  |



**Accuracy**

| Parameter                                        | Unit                     |
|--------------------------------------------------|--------------------------|
| Tolerance zero                                   | max. $\pm 0.3$ % FS      |
| Tolerance full range                             | max. $\pm 0.3$ % FS      |
| Resolution                                       | 0.1 % FS                 |
| Sum of linearity, hysteresis and reproducibility | max. $\pm 0.3$ % FS/10K  |
| Long-term stability per DIN EN 60770             | $\pm 1$ % FS             |
| TC zero                                          | max. $\pm 0.15$ % FS/10K |
| TC sensitivity                                   | max. $\pm 0.15$ % FS/10K |

Test conditions: 25 °C, 45 % rF, supply 24 V DC, K0/TCE -40 °C... +125 °C

**Ordering instructions Pressotronik 700**
**Pressotronik 700 - Transmitter only**

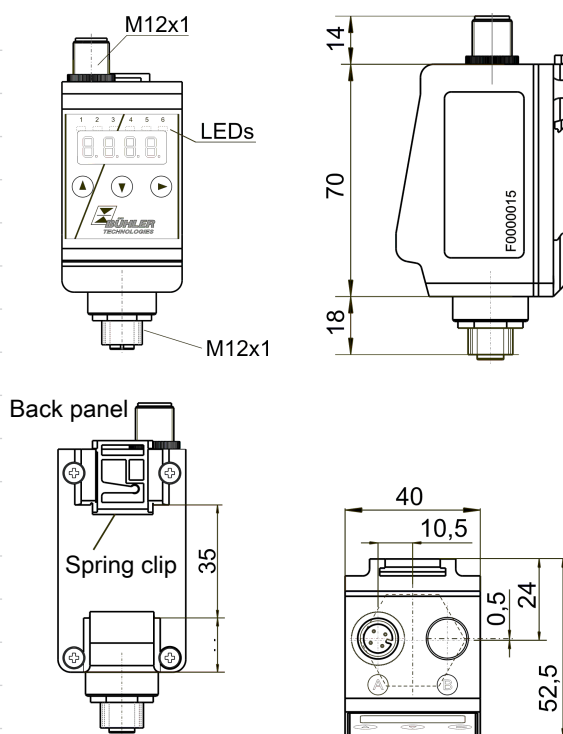
| Item no.  | Description | Pressure range |
|-----------|-------------|----------------|
| 137000100 | PT700-010   | 0 - 10 bar     |
| 137000250 | PT700-025   | 0 - 25 bar     |
| 137001000 | PT700-100   | 0 - 100 bar    |
| 137002500 | PT700-250   | 0 - 250 bar    |
| 137004000 | PT700-400   | 0 - 400 bar    |
| 137006000 | PT700-600   | 0 - 600 bar    |

**Accessories**

| Item no.   | Description                                                              |
|------------|--------------------------------------------------------------------------|
| 9144050010 | Connecting cable M12x1, 4-pin, 1.5 m, angular coupling and straight plug |
| 9144050046 | Connecting cable M12x1, 4-pin, 3.0 m, angular coupling and straight plug |
| 9144050047 | Connecting cable M12x1, 4-pin, 5.0 m, angular coupling and strands       |

**Technical Data Pressotronik 770**
**Remote display version (PT700 pressure transmitter must be ordered separately)**

|                              |                                                                       |
|------------------------------|-----------------------------------------------------------------------|
| Pressure transmitter         | Pressotronik 700                                                      |
| Control unit                 |                                                                       |
| Housing material             | PA                                                                    |
| Mount                        | 35 mm top-hat rail mounting                                           |
| Weight                       | approx. 400 g                                                         |
| Degree of protection         | IP65                                                                  |
| Analysis display electronics |                                                                       |
| Display                      | 4 character 7 segment LED display                                     |
| Operation                    | via 3 keys                                                            |
| Starting current input       | approx. 100 mA for 100 ms                                             |
| Power input during operation | approx. 50 mA                                                         |
| Supply voltage ( $U_B$ )     | 10 - 30 V DC (nominal voltage 24 V DC)<br>18 - 30 V DC (1D1S version) |
| Ambient temperature          | -20 °C to +70 °C                                                      |
| Accuracy                     | ± 1 % from end value                                                  |
| Response time                | < 10 ms                                                               |
| Input values                 |                                                                       |
| Display units                | b (bar), P (psi), °MPa                                                |
| Input signal                 | 4-20 mA                                                               |



| Optional switching out-  | -1D1S                                | -2S                                  | -4S                                  | -6S                                  |
|--------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| puts                     |                                      |                                      |                                      |                                      |
| Plug (base)              | 1 x M12 – 4-pin                      | 1 x M12 – 4-pin                      | 1 x M12 – 8-pin                      | 1 x M12 – 8-pin                      |
| Plug (jack)              | 1 x M12 – 4-pin                      | 1 x M12 – 4-pin                      | 1 x M12 – 4-pin                      | 1 x M12 – 4-pin                      |
| <b>Switching outputs</b> | IO-Link and 1x freely programmable   | 2 x freely programmable              | 4 x freely programmable              | 6 x freely programmable              |
| Alarm memory             | with 1 x assignable to alarm logbook | with 1 x assignable to alarm logbook | with 1 x assignable to alarm logbook | with 1 x assignable to alarm logbook |
| max. switching current   | 0.5 A per output*                    | 0.5 A per output*                    | 0.5 A per output*                    | 0.5 A per output*                    |
| Contact load             | max. 1 A total                       | max. 1 A total                       | max. 1 A total                       | max. 1 A total                       |

\*Output 1 max. 0.2 A.

|                                      | -1S-K                                                    | -2S-K                                                    | -4S-K                                                    |
|--------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| Plug (base)                          | 1 x M12 – 4-pin                                          | 1 x M12 – 5-pin                                          | 1 x M12 – 8-pin                                          |
| Plug (jack)                          | 1 x M12 – 4-pin                                          | 1 x M12 – 4-pin                                          | 1 x M12 – 4-pin                                          |
| <b>Switching outputs</b>             | 1 x freely programmable                                  | 2 x freely programmable                                  | 4 x freely programmable                                  |
| Alarm memory                         | with 1 x assignable to alarm logbook                     | with 1 x assignable to alarm logbook                     | with 1 x assignable to alarm logbook                     |
| max. switching current               | 0.5 A per output*                                        | 0.5 A per output*                                        | 0.5 A per output*                                        |
| Contact load                         | max. 1 A total                                           | max. 1 A total                                           | max. 1 A total                                           |
| <b>Analogue outputs</b>              | 1 x pressure                                             | 1 x pressure                                             | 1 x pressure                                             |
| Programmable as                      | 1 x 4 – 20 mA<br>2 - 10 V DC, 0 - 10 V DC,<br>0 - 5 V DC | 1 x 4 – 20 mA<br>2 - 10 V DC, 0 - 10 V DC,<br>0 - 5 V DC | 1 x 4 – 20 mA<br>2 - 10 V DC, 0 - 10 V DC,<br>0 - 5 V DC |
| max. load $\Omega$ as current output | $(U_B - 8V) / 0.02 A$                                    | $(U_B - 8V) / 0.02 A$                                    | $(U_B - 8V) / 0.02 A$                                    |
| min. input load as voltage input     | 10 k $\Omega$                                            | 10 k $\Omega$                                            | 10 k $\Omega$                                            |

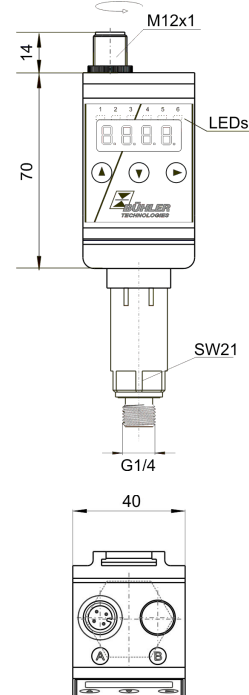
\*Output 1 max. 0.2 A.

## Technical Data Pressotronik 771

### Version with attached transmitter

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Pressure transmitter             | Pressotronik 700                                                                |
| Control unit                     |                                                                                 |
| Housing material                 | PA                                                                              |
| Mount                            | G1/4 directly mounted display rotates 270°                                      |
| Weight                           | approx. 500 g                                                                   |
| Degree of protection             | IP65                                                                            |
| Display electronics              |                                                                                 |
| Display                          | 4 character 7 segment LED display                                               |
| Control                          | via 3 keys                                                                      |
| Starting current input           | approx. 100 mA for 100 ms                                                       |
| Power input during operation     | approx. 50 mA                                                                   |
| Supply voltage (U <sub>B</sub> ) | 10 - 30 V DC (nominal voltage 24 V DC)<br>18 - 30 V DC (1D1S and 1D1A versions) |
| Ambient temperature              | -20 °C to +70 °C                                                                |
| Accuracy                         | ± 1% from full range                                                            |
| Response time                    | < 10 ms                                                                         |
| Input values                     |                                                                                 |
| Display units                    | b (bar), P (psi), °MPa                                                          |

Housing swivels 270 °C



| Optional switching outputs             | -1D1A                                                     | -1D1S                                | -2S                                  | -4S                                  |
|----------------------------------------|-----------------------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| Plug (base)                            | 1 x M12 – 4-pin                                           | 1 x M12 – 4-pin                      | 1 x M12 – 4-pin                      | 1 x M12 – 8-pin                      |
| Switching outputs                      | IO-Link and 1x freely programmable                        | IO-Link and 1x freely programmable   | 2 x freely programmable*             | 4 x freely programmable*             |
| Alarm memory                           | with 1 x assignable to alarm logbook                      | with 1 x assignable to alarm logbook | with 1 x assignable to alarm logbook | with 1 x assignable to alarm logbook |
| max. switching current                 | 0.5 A per output*                                         | 0.5 A per output**                   | 0.5 A per output**                   | 0.5 A per output**                   |
| Contact load                           | max. 1 A total                                            | max. 1 A total                       | max. 1 A total                       | max. 1 A total                       |
| Analogue outputs                       | 1 x pressure                                              | -                                    | -                                    | -                                    |
| Programmable as                        | 1 x 4 – 20 mA,<br>2 - 10 V DC, 0 - 10 V DC,<br>0 - 5 V DC | -                                    | -                                    | -                                    |
| Max. load Ω as current output          | (U <sub>B</sub> – 8V) / 0.02 A                            | -                                    | -                                    | -                                    |
| Min. input resistance as voltage input | 10 kΩ                                                     | -                                    | -                                    | -                                    |

\*also programmable as frequency output

\*\*Output 1 max. 0.2 A.

|                                        | -6S                                  | -1S-K                                                     | -2S-K                                                     |
|----------------------------------------|--------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|
| Plug (base)                            | 1 x M12 – 8-pin                      | 1 x M12 – 4-pin                                           | 1 x M12 – 5-pin                                           |
| <b>Switching outputs</b>               | 6 x freely programmable*             | 1 x freely programmable                                   | 2 x freely programmable                                   |
| Alarm memory                           | with 1 x assignable to alarm logbook | with 1 x assignable to alarm logbook                      | with 1 x assignable to alarm logbook                      |
| max. switching current                 | 0.5 A per output**                   | 0.5 A per output*                                         | 0.5 A per output*                                         |
| Contact load                           | max. 1 A total                       | max. 1 A total                                            | max. 1 A total                                            |
| <b>Analogue outputs</b>                | -                                    | 1 x pressure                                              | 1 x pressure                                              |
| Programmable as                        | -                                    | 1 x 4 – 20 mA,<br>2 - 10 V DC, 0 - 10 V DC,<br>0 - 5 V DC | 1 x 4 – 20 mA,<br>2 - 10 V DC, 0 - 10 V DC,<br>0 - 5 V DC |
| Max. load $\Omega$ as current output   | -                                    | ( $U_B - 8V$ ) / 0.02 A                                   | ( $U_B - 8V$ ) / 0.02 A                                   |
| Min. input resistance as voltage input | -                                    | 10 k $\Omega$                                             | 10 k $\Omega$                                             |

\*\*Output 1 max. 0.2 A.

## Ordering instructions Pressotronik 770/771

### Model key Pressotronik 770/771

| Model designation                  | PT-XXX-XXX-XXX | Output card                                           |
|------------------------------------|----------------|-------------------------------------------------------|
| Version                            |                | -1D1A** IO-Link<br>1 x PNP analogue output            |
| 770 Remote display for transmitter |                | -1D1S IO-Link<br>1 x PNP switching output             |
| 771 Transmitter built into display |                | -2S 2 x PNP switching output                          |
|                                    |                | -4S 4 x PNP switching output                          |
|                                    |                | -6S 6 x PNP switching output                          |
|                                    |                | -1S-K 1 x PNP switching output<br>1 x analogue output |
|                                    |                | -2S-K 2 x PNP switching output<br>1 x analogue output |
|                                    |                | -4S-K 4 x PNP switching output<br>1 x analogue output |
| Pressure range (PT771 only)*       |                |                                                       |
| 010 0 - 10 bar                     |                |                                                       |
| 025 0 - 25 bar                     |                |                                                       |
| 100 0 - 100 bar                    |                |                                                       |
| 250 0 - 250 bar                    |                |                                                       |
| 400 0 - 400 bar                    |                |                                                       |
| 600 0 - 600 bar                    |                |                                                       |

\*on PT770 the pressure range can be preset at the factory.

\*\*only for version PT771.

| Item no. 4-pin | Item no. 5-pin | Item no. 8-pin | Description                                                       |
|----------------|----------------|----------------|-------------------------------------------------------------------|
| 9144050010     | 9144050016     | 9144050048     | Connecting cable M12x1, 1.5 m, angular coupling and straight plug |
| 9144050046     | 9144050017     | 9144050049     | Connecting cable M12x1, 3.0 m, angular coupling and straight plug |
| 9144050047     | 9144050018     | 9144050033     | Connecting cable M12x1, 5.0 m, angular coupling and strands       |

### Ordering example

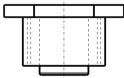
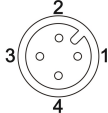
You require: Pressure transmitter with 400 bar; 4 programmable PNP switching outputs; remote display; 3 m connecting cable

Order: Pressotronik 700 (item no.: 13700 4000)  
Connecting cable (item no.: 9144 05 0046)  
Pressotronik 770 display and controller (item no.: 1377 000)

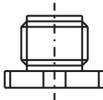
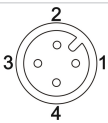
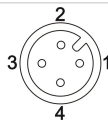
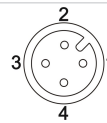
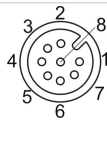
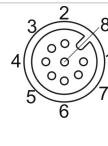
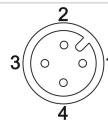
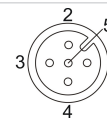
## Standard pin assignment Pressotronik 770

### Pin assignment Pressotronik 770

For the pressure transmitter assignment, see **Pressotronik 700 standard pin assignment**

| Panel jack | 1x M12x1<br>4-pin                                                                   |
|------------|-------------------------------------------------------------------------------------|
|            |  |
| Panel jack |  |
| Pin        |                                                                                     |
| 1          | +24 V DC                                                                            |
| 3 / 4      | 4 - 20 mA                                                                           |

## Standard pin assignment Pressotronik 770 and 771

| Version    | -1D1A                                                                               | -1D1S                                                                               | -2S                                                                                 | -4S                                                                                 | -6S                                                                                 | -1S-K                                                                                 | -2S-K                                                                                 | -4S-K                                                                                 |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Panel plug | 1x M12x1                                                                            |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|            | 4-pin                                                                               | 4-pin                                                                               | 4-pin                                                                               | 8-pin                                                                               | 8-pin                                                                               | 4-pin                                                                                 | 5-pin                                                                                 | 8-pin                                                                                 |
|            |   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
| Panel plug |  |  |  |  |  |  |  |  |
| Pin        |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
| 1          | +24 V DC                                                                            | +24 V DC                                                                            | +24 V DC                                                                            | +24 V DC                                                                            | +24 V DC                                                                            | +24 V DC                                                                              | +24 V DC                                                                              | +24 V DC                                                                              |
| 2          | Analogue (out)                                                                      | S2 (PNP)                                                                            | S2 (PNP)                                                                            | S2 (PNP)                                                                            | S2 (PNP)                                                                            | Analogue (out)                                                                        | S2 (PNP)                                                                              | S2 (PNP)                                                                              |
| 3          | GND                                                                                 | GND                                                                                 | GND                                                                                 | GND                                                                                 | GND                                                                                 | GND                                                                                   | GND                                                                                   | GND                                                                                   |
| 4          | C/Q (IO-Link)                                                                       | C/Q (IO-Link)                                                                       | S1 (PNP)                                                                            | S1 (PNP)                                                                            | S1 (PNP)                                                                            | S1 (PNP)                                                                              | S1 (PNP)                                                                              | S1 (PNP)                                                                              |
| 5          |                                                                                     |                                                                                     |                                                                                     | S3 (PNP)                                                                            | S3 (PNP)                                                                            |                                                                                       | Analogue (out)                                                                        | S3 (PNP)                                                                              |
| 6          |                                                                                     |                                                                                     |                                                                                     | S4 (PNP)                                                                            | S4 (PNP)                                                                            |                                                                                       |                                                                                       | S4 (PNP)                                                                              |
| 7          |                                                                                     |                                                                                     |                                                                                     |                                                                                     | S5 (PNP)                                                                            |                                                                                       |                                                                                       | Analogue (out)                                                                        |
| 8          |                                                                                     |                                                                                     |                                                                                     |                                                                                     | S6 (PNP)                                                                            |                                                                                       |                                                                                       |                                                                                       |