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JUMO Instrument Co. Ltd.
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JUMO Process Control, Inc.
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 E-mail: info.us@jumo.net
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JUMO Wtrans p Pressure Transmitter with Wireless Data Transmission

Brief description

Wtrans p, the pressure transmitter with wireless data transmission, is intended for industrial use. It is used alongside a Wtrans receiver in the stationary or mobile detection of the pressure in liquid or gaseous media. The pressure transmitter works according to the strain gauge measuring principle.

The measured values are transmitted wirelessly to the receiver of the Wtrans system. The measured values are displayed at the receiver and are available in digital form at the RS485 interface and as electrical standard signals at the analog outputs. Optionally, different alarms can be signaled at the receiver with two relay outputs.

The pressure transmitter can be installed in any installation position. It must be ensured that optimal alignment with the receiver is guaranteed. The ambient temperature range in which the device can be used ranges from -30 to +85 °C.

The radio frequency of the Wtrans measuring system is 868.4 MHz (Europe). This frequency is almost impervious to external interferences and allows transmission even in a rough industrial environment. When using the antenna holder for wall mounting with the 3 m antenna cable for the receiver, the open air range is up to 300 m.

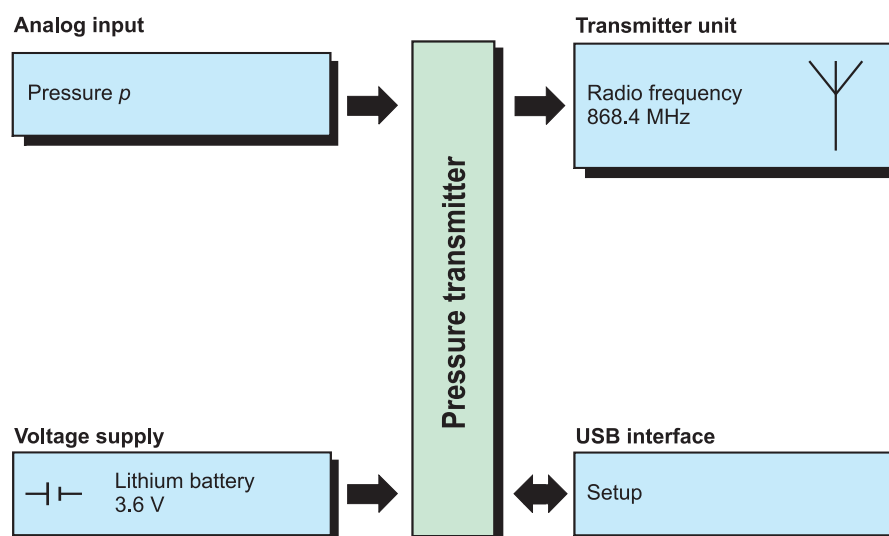
A 3.6 V lithium battery (size C) is used to supply voltage to the pressure transmitter.

A setup program is available as an accessory for easy configuration and parameterization of the pressure transmitter and the Wtrans receiver on the laptop/PC. The OnlineChart function can be used optionally to record the measured values on the laptop/PC.



Type 402060

Block diagram



Special features

- Radio frequency 868.4 MHz (Europe)
- Open air range up to 300 m
- Configurable transmitter detection
- Battery condition monitoring
- High humidity and vibration resistance
- Configurable via easy-to-use setup program
- Customer-specific linearization (pairs of values in table format or fourth order polynomial)
- OnlineChart of the measured values

Other transmitters for temperature and voltage

- Data sheet 902930
- Data sheet 707060

Suitable Wtrans receivers

- Data sheet 902931

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Technical data

Input (measuring range)

Relative pressure	The measuring ranges begin at 0 bar.									
Measuring range	0.25	0.4	0.6	1	1.6	2.5	4	6	10	bar
Overload range ^a	1	1.6	2.4	4	6.4	10	16	24	40	bar
Burst pressure	1.5	2.4	3.6	6	9.6	15	24	36	60	bar
Relative pressure	The measuring ranges begin at 0 bar.									
Measuring range	16	25	40	60	100	160	250	400	600	bar
Overload range ^a	64	100	160	240	400	320	500	600	900	bar
Burst pressure	96	150	240	360	600	800	1250	1200	1800	bar
Relative pressure	The measuring ranges begin at -1 bar.									
Measuring range	-1 to 0	-1 to +0.6	-1 to +1.5	-1 to +3	-1 to +5	-1 to +9	-1 to +15	-1 to +24		bar
Overload range ^a	4	2.4	6	12	20	36	60	96		bar
Burst pressure	5	3	7.5	15	25	45	75	120		bar
Absolute pressure	The measuring ranges begin at 0 bar.									
Measuring range	0.6	1	1.6	2.5	4	6	10	16	25	bar
Overload range ^a	2.4	4	6.4	10	16	24	40	64	100	bar
Burst pressure	3	5	8	12.5	20	30	50	80	125	bar

^a All pressure transmitters are vacuum-proof.

Output (wireless transmission)

Transmitter detection (transmitter ID)	Max. 5-digit ID, factory set, can be configured according to customer specifications
Transmission interval	Adjustable from 0.5 to 3600 s (factory setting 5 s)
Radio frequency	868.4 MHz (Europe)
Transmission power	+10 dBm
Open air range	Max. 300 m when using the antenna holder for wall mounting for the receiver and the 3 m antenna cable. When mounting the antenna directly on the receiver, a range reduced by approx. 40 % must be taken into account.
Unit of the output signal	bar
Configuration	With setup program
Configurable parameters	Transmitter detection (max. 5-digit ID), transmission interval, and offset

Electrical data

Voltage supply Lithium battery (accessory)	Rated voltage: 3.6 V, rated capacity: 3.6 Ah (size C)
Battery operating life	Approx. 1 year with the factory-set values: Transmission interval = 5 s and at room temperature (approx. 20 °C); shorter transmission interval and high or low ambient temperature reduce the battery operating life.

Environmental influences

Operating temperature range	-30 to +85 °C
Measuring material temperature range	-30 to +85 °C
Storage temperature range	-30 to +85 °C
Climate class	Class 3K8H according to DIN EN 60721-3-3 (Air temperature: -25 to +70 °C, relative humidity: 10 to 100 %)

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Vibration resistance	
Vibration resistance	Max. 5 g, 15 to 2000 Hz according to DIN EN 60068-2-6
Shock resistance	20 g for 11 ms according to DIN EN 60068-2-27 50 g for 1 ms according to DIN EN 60068-2-27
Electromagnetic compatibility (EMC)	DIN EN 61326
Interference emission	Class B
Interference immunity	Industrial requirements
Radio frequency spectrum	ETSI EN 300 220-1 and ETSI EN 300 220-2
Protection type	IP66 or IP67

Accuracy

Relative and absolute pressure	The measuring ranges begin at 0 bar.								
Measuring range	0.25	0.4	0.6	1	1.6	2.5	4	6	bar
Linearity ^a	0.3	0.3	0.3	0.3	0.25	0.25	0.25	0.25	% of MSP
Accuracy at 20 °C ^b	0.7	0.7	0.6	0.5	0.5	0.5	0.5	0.5	% of MSP
Accuracy at -20 to +80 °C ^c	2.0	1.8	1.8	1.3	1.3	1.2	1.2	1.2	% of MSP
Relative and absolute pressure	The measuring ranges begin at 0 bar.								
Measuring range	10	16	25						bar
Linearity ^a	0.25	0.2	0.2						% of MSP
Accuracy at 20 °C ^b	0.5	0.5	0.5						% of MSP
Accuracy at -20 to +80 °C ^c	1.0	1.0	1.0						% of MSP
Relative pressure	The measuring ranges begin at 0 bar.								
Measuring range	40	60	100	160	250	400	600		bar
Linearity ^a	0.2	0.2	0.2	0.3	0.3	0.3	0.3		% of MSP
Accuracy at 20 °C ^b	0.5	0.5	0.5	0.7	0.7	0.7	0.7		% of MSP
Accuracy at -20 to +80 °C ^c	1.0	1.0	1.0	1.2	1.2	1.2	1.2		% of MSP
Relative pressure	The measuring ranges begin at -1 bar.								
Measuring range	-1 to 0	-1 to +0.6	-1 to +1.5	-1 to +3	-1 to +5	-1 to +9	-1 to +15	-1 to +24	bar
Linearity ^a	0.3	0.3	0.3	0.3	0.25	0.25	0.25	0.2	% of MSP
Accuracy at 20 °C ^b	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	% of MSP
Accuracy at -20 to +80 °C ^c	1.3	1.3	1.2	1.2	1.2	1.0	1.0	1.0	% of MSP
Long-term stability ^d	< 0.2 % of MSP								

^a Linearity according to limit point setting

^b Includes: linearity, hysteresis, repeatability, deviation of measuring range initial value and measuring span (MSP)

^c Includes: linearity, hysteresis, repeatability, deviation of measuring range initial value and measuring span (MSP), thermal effect on measuring range start and measuring span (MSP)

^d EN 61298-1

Mechanical features

Case material	PA, transparent (UV-resistant)
Case seal material	VMQ
Pressure sensor material	Stainless steel 17-4 PH (1.4548) at 0 to 160 bar, 0 to 250 bar, 0 to 400 bar and 0 to 600 bar; Stainless steel 316L (1.4435) in all other pressure ranges
Process connection material	Stainless steel 316Ti (1.4571); Stainless steel 316L (1.4435) with roughness Ra < 0.8 µm for JUMO PEKA with EHEDG certification
Installation position	Any
Weight	Approx. 250 g (with lithium battery and process connection 504: G 1/2 DIN EN 837)

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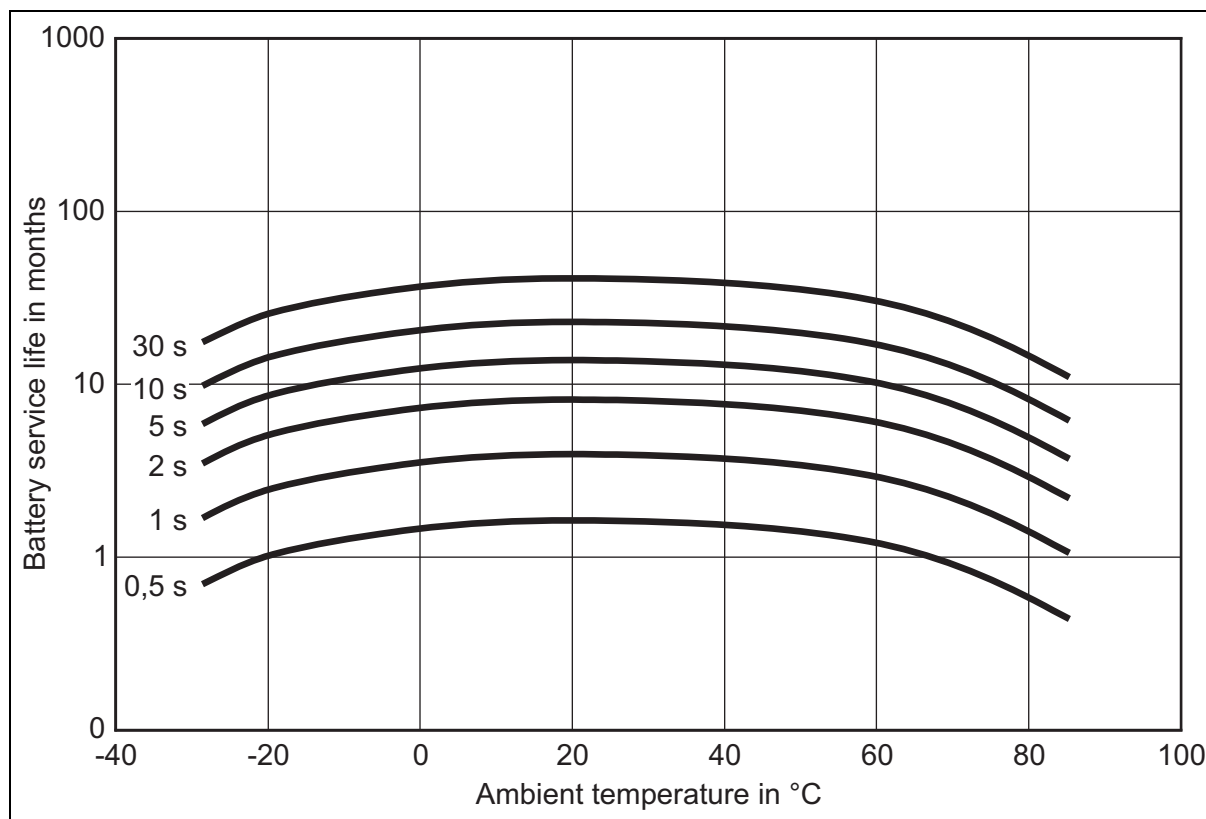
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Battery operating life

The operating life of the 3.6 Ah battery available in the accessories, depending on the transmission interval (0.5 s, 1 s, 2 s, 5 s, 10 s, and 30 s) and the ambient temperature, are shown in the following figure.



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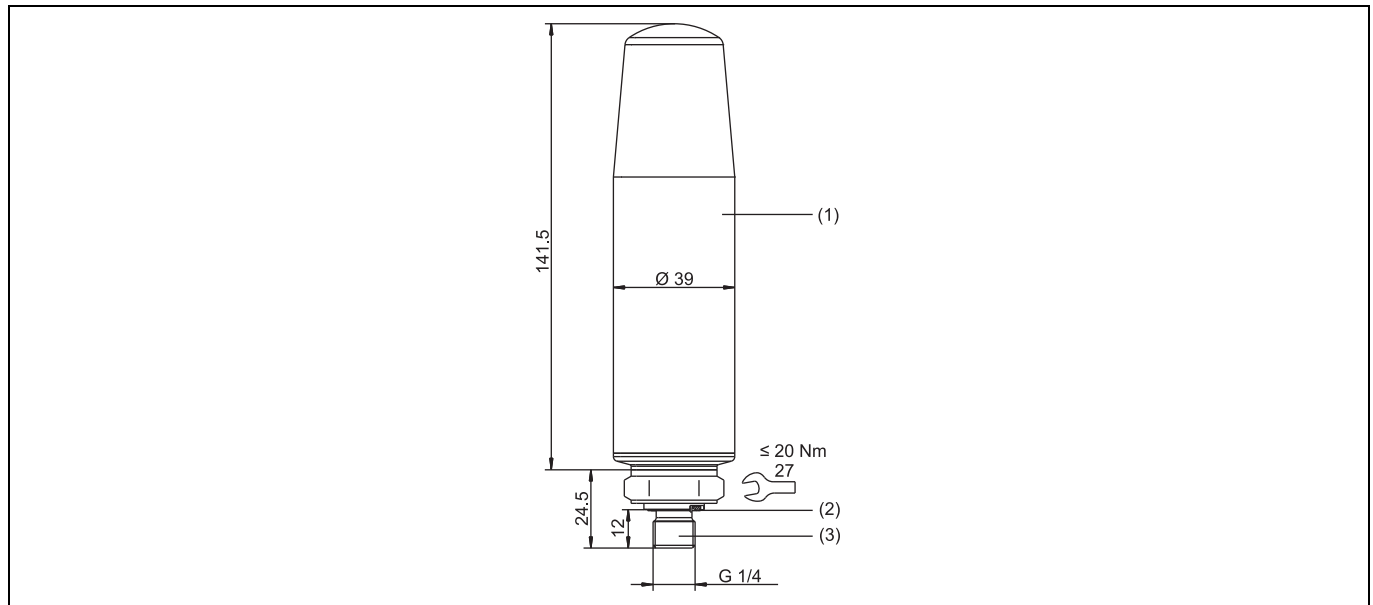
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Dimensions and process connections

Pressure transmitter with wireless data transmission

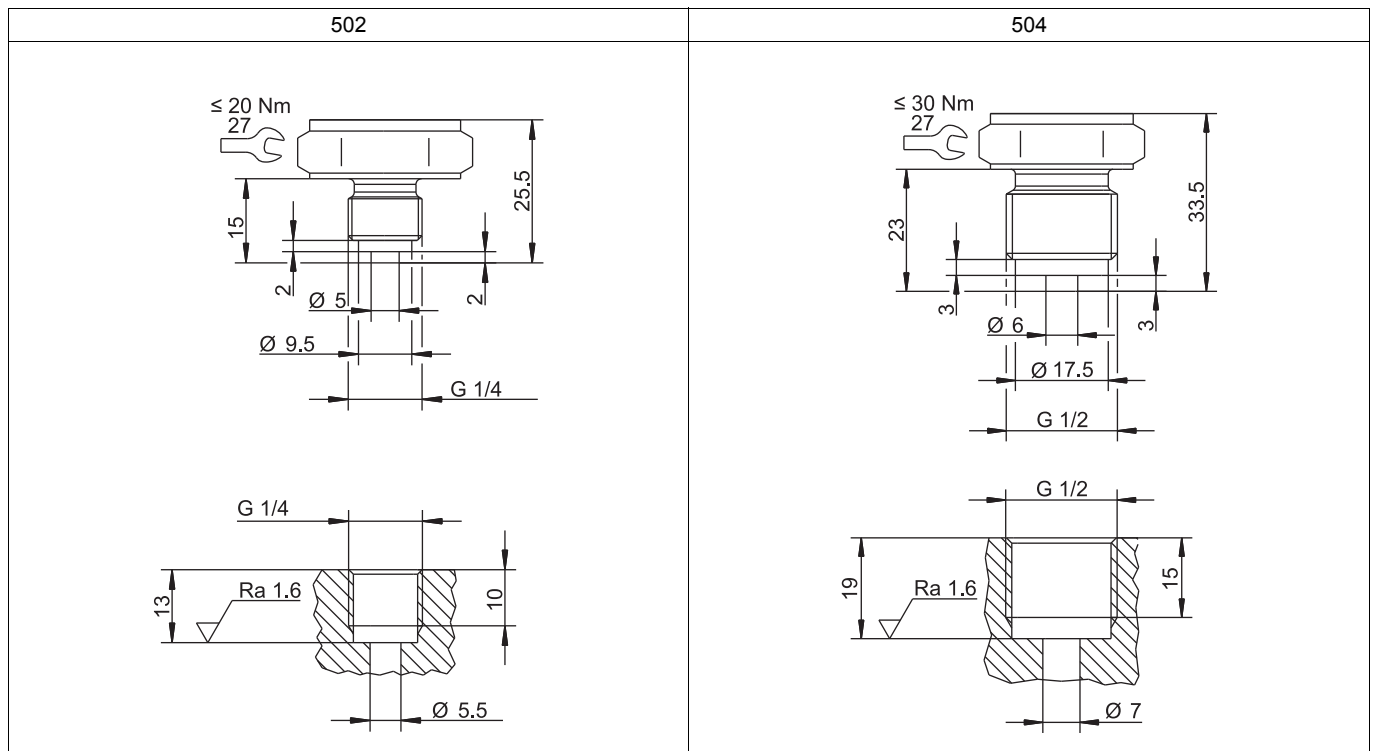


(1) Case – tighten hand-tight (10 ± 5 Nm)

(2) Profile seal G 1/4

(3) Process connection

Process connections



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511	512
521	523

A = profile seal G 1/4

A = profile seal G 1/2

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562	567
571	574

A = profile seal G 3/4

A = profile seal G 1/2
B = O-ring 14 × 1.78

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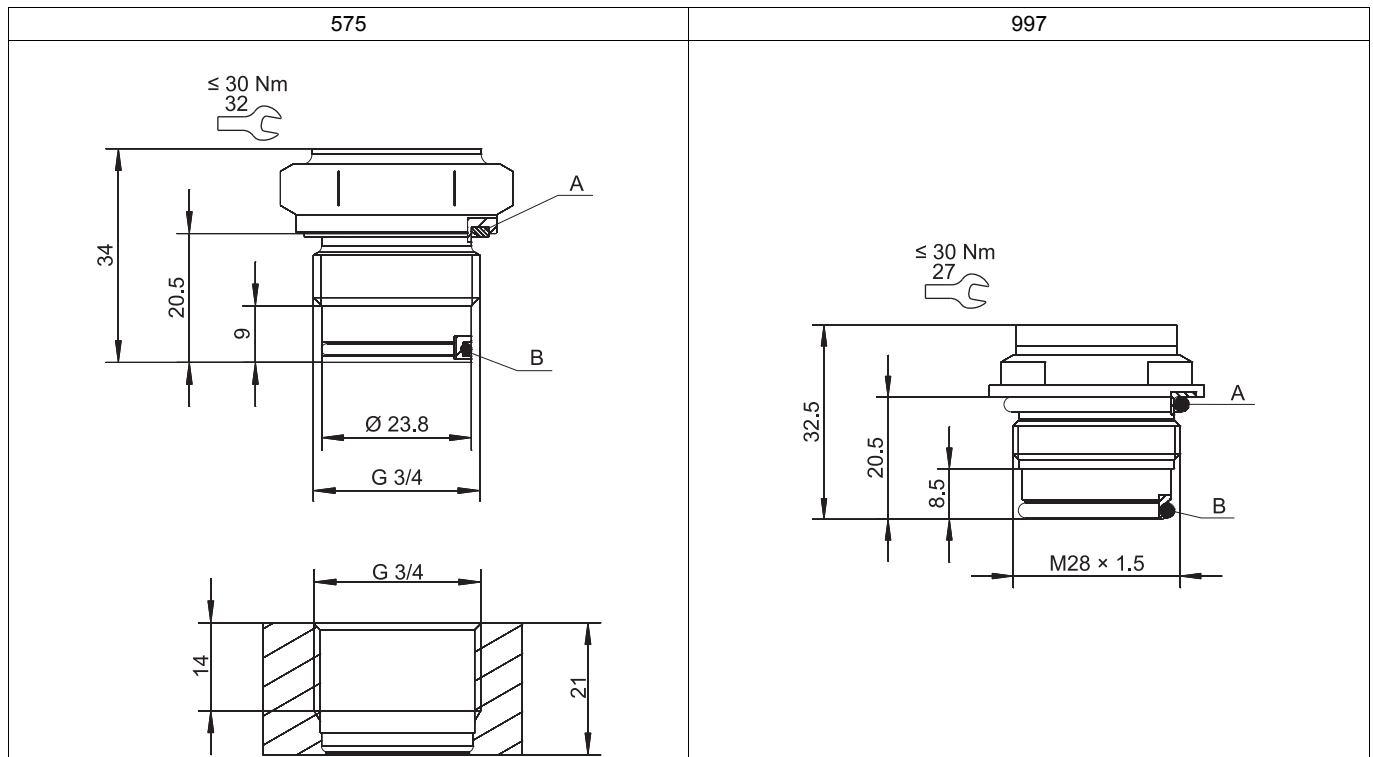
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A = profile seal G 3/4
B = O-ring 20.35 × 1.78

A = O-ring 26 × 2.5
B = O-ring 21 × 2.2
Process connection for EHEDG-certified adapter system JUMO PEKA
(data sheet 409711)

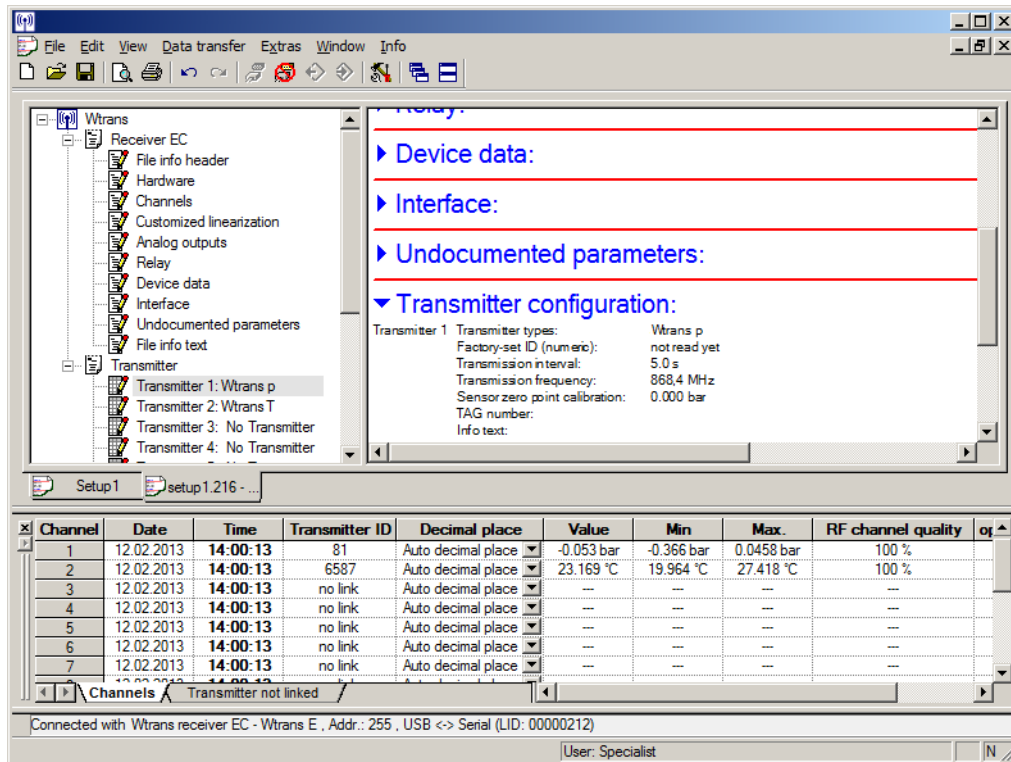
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Setup program



The setup program enables the pressure transmitter to be configured using a PC. The configuration data can be archived on data storage devices and printed.

Configurable parameters	Factory settings
Transmitter detection (transmitter ID)	Transmitter detection (transmitter ID) consecutively
Transmission interval	5 s
Offset	0 bar
TAG number (20-digit)	
Info-Text (40-digit)	
Installation date	current date

The setup program can be used to overwrite changed parameters with the factory settings at any time. The connection between the transmitter and the PC is established via a USB interface.

PC interface

Connection for	Type	Terminal assignment	
USB connection to the PC	USB interface (Mini-B; "Full-Speed")	Standard (5-pin)	

The USB interface is designed only to configure the pressure transmitter. Continuous operation is not admissible.

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Order details

(1) Basic type	
402060	Wtrans p – pressure transmitter with wireless data transmission
(2) Basic type extension	
000	Without
999	Special version
(3) Input (measuring range)	
451	0 to 250 mbar relative pressure
452	0 to 400 mbar relative pressure
453	0 to 600 mbar relative pressure
454	0 to 1 bar relative pressure
455	0 to 1.6 bar relative pressure
456	0 to 2.5 bar relative pressure
457	0 to 4 bar relative pressure
458	0 to 6 bar relative pressure
459	0 to 10 bar relative pressure
460	0 to 16 bar relative pressure
461	0 to 25 bar relative pressure
462	0 to 40 bar relative pressure
463	0 to 60 bar relative pressure
464	0 to 100 bar relative pressure
465	0 to 160 bar relative pressure
466	0 to 250 bar relative pressure
467	0 to 400 bar relative pressure
468	0 to 600 bar relative pressure
478	-1 to 0 bar relative pressure
479	-1 to +0.6 bar relative pressure
480	-1 to +1.5 bar relative pressure
481	-1 to +3 bar relative pressure
482	-1 to +5 bar relative pressure
483	-1 to +9 bar relative pressure
484	-1 to +15 bar relative pressure
485	-1 to +24 bar relative pressure
487	0 to 600 mbar absolute pressure
488	0 to 1 bar absolute pressure
489	0 to 1.6 bar absolute pressure
490	0 to 2.5 bar absolute pressure
491	0 to 4 bar absolute pressure
492	0 to 6 bar absolute pressure
493	0 to 10 bar absolute pressure
494	0 to 16 bar absolute pressure
495	0 to 25 bar absolute pressure
998	Special measuring range absolute pressure

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999	Special measuring range relative pressure
(4) Radio frequency	
10	868.4 MHz (Europe)
(5) Process connection	
502	G 1/4 DIN EN 837
504	G 1/2 DIN EN 837
511	1/4-18 NPT DIN EN 837
512	1/2-14 NPT DIN EN 837
521	G 1/4 DIN 3852-11
523	G 1/2 DIN 3852-11
562	7/16-20 UNF
567	G 1/4 inside
571	G 3/4 flush-mounted ^a
574	G 1/2 flush-mounted with double seal ^b
575	G 3/4 flush-mounted with double seal ^c
997	JUMO PEKA with EHEDG certificate ^d
998	Suitable for connection to pressure separator
999	Other process connections on request
(6) Process connection material	
20	Stainless steel
(7) Extra codes	
000	Without
100	Customer-specific configuration (specification in plain text) ^e
591	Choke in the pressure channel
634	TAG number

^a The process connection 571 can only be supplied for inputs (measuring range) up to 25 bar.

^b The process connection 574 can only be supplied for inputs (measuring range) of 1 to 60 bar.

^c The process connection 575 can only be supplied for inputs (measuring range) up to 25 bar.

^d The process connection 997 can only be supplied for inputs (measuring range) up to 100 bar.

^e The customer-specific configuration only applies to the transmission interval (0.5 to 3600 s, factory setting 5 s). The transmission interval can also be set using the setup program (see accessories).

Order code (1) (2) (3) (4) (5) (6) (7) , ...^a
 / - - - - - /

Order example 402060 / 000 - 465 - 10 - 502 - 20 / 634

^a List extra codes in sequence, separated by commas.

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Scope of delivery

1 pressure transmitter with wireless data transmission in the version ordered
1 operating manual B 402060.0

Accessories

Article	Part no.
Lithium battery Rated voltage: 3.6 V, rated capacity: 3.6 Ah (size C) (not available in the scope of delivery, please order separately)	00593497
USB cable, type A USB connector on mini B USB connector, length 3 m ^a	00506252
Setup program on CD-ROM, multilingual ^a	00488887
Setup program incl. OnlineChart on CD-ROM, multilingual ^a	00549067
OnlineChart activation	00549188

^a Configuration using a computer is only possible with the USB cable and one of the two setup programs.