



# JUMO CANtrans p

## Pressure Transmitter with CANopen output

### Short description

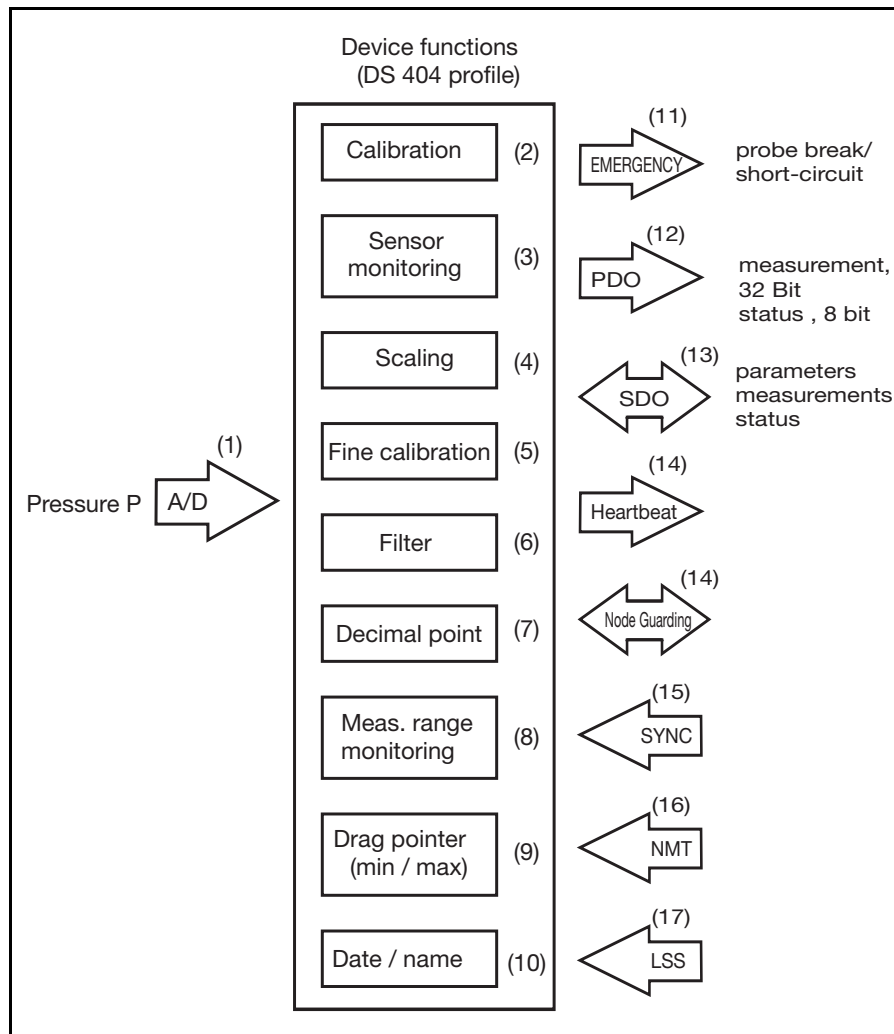
Pressure transmitters are used for measuring relative (gauge) and absolute pressures in liquids and gases. The pressure transmitter operates on the piezoresistive or thin-film strain gauge measuring principle. The pressure measurement is digitized and made available for further processing via the CANopen serial bus protocol (CAN slave). Several useful extra functions are implemented through the DS 404 device profile. All settings can be made using standard CANopen software tools.

Further transmitters with CANopen output: see Data Sheets 402055 and 902910.



Type 402056

### Block diagram



### Operation

- (1) The analog signal from the pressure cell is digitized with 12-bit resolution.
- (2) The pressure signal is digitally calibrated at the factory.
- (3) The sensor monitoring facility continuously checks the correct performance of the sensor signal and triggers high-priority emergency telegrams in the event of an error.
- (4) The pressure measurement can be scaled to any dimensional unit (or in % of range).
- (5) Fine calibration features an auto-zeroing function and a freely adjustable shift of the characteristic.
- (6) Undesirable signal fluctuations can be suppressed through the (adjustable) filter constant.
- (7) The measurement is output with a freely selectable decimal place.
- (8) Range monitoring features freely selectable upper and lower limits. The result is output as a status byte with the measurement in the PDO telegram.
- (9) The drag pointer function stores the minimum and maximum pressure measurements.
- (10) Date and name of the last servicing action can be stored.
- (11) An emergency telegram is triggered in the event of a sensor fault.
- (12) The PDO telegram contains the 32-bit measurement and the 8-bit status. The measurement that is output can be controlled by means of different trigger conditions.

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- (13) Parameters can be set through SDO telegrams, and measurements and status can be requested.
- (14) The heartbeat signal or Node Guarding can be used to additionally monitor the transmitter function.
- (15) The transmission of measurements can additionally be controlled through the Sync command.
- (16) NMT telegrams serve to control the operational state of the transmitter.
- (17) The CAN module ID and CAN baud rate are set via LSS or SDO, as selected.

## Technical data

### Reference conditions

To DIN 16086 and IEC 770/5.3

### Measurement ranges

See order details

### Overload limit

Ranges 0 to 0.25 bar to 0 to 25 bar  
3 x MSP<sup>1</sup>

Ranges 0 to 40 to 0 to 250 bar  
2 x MSP

Ranges 0 to 400 to 0 to 600 bar  
1.5 x MSP

### Bursting pressure

Ranges 0 to 0.25 bar to 0 to 40 bar  
≤ 4 x MSP

Ranges 0 to 60 to 0 to 100 bar  
8 x MSP

Ranges 0 to 160 to 0 to 400 bar  
5 x MSP

Ranges 0 to 600 bar  
3 x MSP

### Parts in contact with medium

Standard: stainless steel,  
mat. ref. 1.4571/1.4435;

For range ≥ 60 bar, mat. ref. 1.4571/1.4542

### Output

CANopen as per CiA DS 301 V4.02  
Measurement resolution: 12 bit

### Zero offset

≤ 0.3 % MSP

### Thermal hysteresis

≤ ±0.5 % MSP

(within compensated temperature range)

≤ ±1 % for ranges

0 to 0.25 bar

0 to 0.4 bar

0 to 0.6 bar

### Ambient temperature effect

Within range 0 to 100 °C  
(compensated temperature range)

For ranges 0.25 and 0.4 bar

Zero: ≤ 0.03 %/°C typical,  
≤ 0.05 %/°C max.

Span: ≤ 0.02 %/°C typical,  
≤ 0.04 %/°C max.

For ranges above 0.6 bar

Zero: ≤ 0.02 %/°C typical,  
≤ 0.04 %/°C max.

Span: ≤ 0.02 %/°C typical,  
≤ 0.04 %/°C max.

### Deviation from characteristic

≤ 0.5 % MSP (limit point setting)

### Hysteresis

≤ 0.1 % MSP

### Repeatability

≤ 0.05 % MSP

### Cycle time

1 msec

Optionally 0.5 msec (11 bit)

### Stability per year

≤ 0.5 % MSP

### Supply

DC 10 to 30 V

Max. current drawn: approx. 45 mA

### Supply voltage error

≤ 0.03 % per V

### Permissible ambient temperature

-20 to +85 °C

### Storage temperature

-40 to +85 °C

### Permissible temperature of medium

Standard version:

-40 to +125 °C

### Electromagnetic compatibility

EN 61326

Interference emission: Class B<sup>2</sup>

Immunity to interference: to industrial requirements

### Electrical connection

M12

Recommended: screened 5-wire cable

### Mechanical shock

(to IEC 68-2-27)

100 g/5 msec

### Mechanical vibration

(to IEC 68-2-6)

20 g max. at 15 to 2000 Hz

### Enclosure protection

With connector screwed on:

IP67 to EN 60529

### Housing

Stainless steel, mat. ref. 1.4305

### Process connection

See order details;

other connections on request

### Nominal position

Unrestricted

### Weight

95 g with process connection G 1/4

## CANbus

### Protocol

CiA DS 301, V4.02, CANopen slave

### Profile

CiA DS 404, V1.2

Measuring devices and closed-loop controllers

### Baud rate

20 kbaud to 1 Mbaud

Setting via LSS or SDO

### Module (node) ID

1 to 127

Setting via LSS or SDO

### PDO

0 Rx, 1 Tx

### SDO

1 Rx, 1 Tx

### Emergency

Yes

### Heartbeat

Yes

### Node Guarding

Yes

### LSS

Yes

### SYNC

Yes

### Operation and project design

All parameters are accessible via the CANopen object directory (EDS) and can be set using standard CANopen software tools.

### EDS (electronic data sheet)

Yes

Available free of charge at [www.jumo.net](http://www.jumo.net).

### Factory setting

See Operating Instructions B 402055.0.

Available free of charge at [www.jumo.net](http://www.jumo.net).

<sup>2</sup> The product is suitable for industrial use as well as for households and small businesses.

<sup>1</sup> MSP = measuring span

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**Dimensions**

	Basic type extension	Dimension „L“
	000	48

**Process connections**

<b>502</b> G 1/4 DIN EN 837	<b>504</b> G 1/2 DIN EN 837	<b>511</b> 1/4-18NPT DIN EN 837	<b>512</b> 1/2-14NPT DIN EN 837

<b>523</b> G 1/2 DIN 3852-11	<b>562</b> 7/16-20UNF	<b>571</b> G 3/4 front-flush DIN EN ISO 228-1	<b>575</b> G 3/4 front-flush with double gasket

A Profile seal G 1/2

A Profile seal G 3/4

A Profile seal G 3/4  
 B O-ring

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## Connection diagram

The connection diagram in the data sheet provides preliminary information about the connection options. For the electrical connection only use the installation instructions or the operating manual. The knowledge and the correct technical execution of the safety information/instructions contained in these documents are mandatory for installation, electrical connection, startup, and for safety during operation.

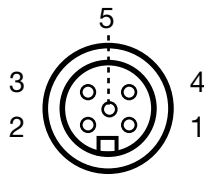
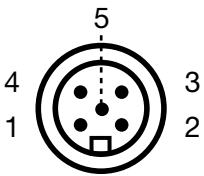
Connection		Terminal assignment		
		M12 connector	Terminal box with moulded cable, part no. 00337625	
Voltage supply DC 10 to 30 V		V+	2	white
		V-	3	blue
Output CANopen		screen	1	brown
		CAN_H	4	black
		CAN_L	5	grey

## Round plug

M12 × 1; 5-pole to IEC 60947-5-2

Plug

Socket



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**Order details**

<b>(1)</b>	<b>Basic type</b>
402056/000	JUMO CANtrans p – Pressure transmitter with CANopen output
402056/004	JUMO CANtrans p – Pressure transmitter with CANopen output for increased medium temperatures up to 200 °C
402056/999	JUMO CANtrans p – Pressure transmitter with CANopen output, special version
<b>(2)</b>	<b>Input</b>
451	0 to 0.25 bar gauge pressure
452	0 to 0.4 bar gauge pressure
453	0 to 0,6 bar gauge pressure
454	0 to 1.0 bar gauge pressure
455	0 to 1.6 bar gauge pressure
456	0 to 2.5 bar gauge pressure
457	0 to 4 bar gauge pressure
458	0 to 6 bar gauge pressure
459	0 to 10 bar gauge pressure
460	0 to 16 bar gauge pressure
461	0 to 25 bar gauge pressure
462	0 to 40 bar gauge pressure
463	0 to 60 bar gauge pressure
464	0 to 100 bar gauge pressure
465	0 to 160 bar gauge pressure
466	0 to 250 bar gauge pressure
467	0 to 400 bar gauge pressure
468	0 to 600 bar gauge pressure
478	-1 to 0 bar gauge pressure
479	-1 to 0.6 bar gauge pressure
480	-1 to 1.5 bar gauge pressure
481	-1 to 3 bar gauge pressure
482	-1 to 5 bar gauge pressure
483	-1 to 9 bar gauge pressure
484	-1 to 15 bar gauge pressure
485	-1 to 24 bar gauge pressure
487	0 to 0.6 bar absolute pressure
488	0 to 1.0 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
999	Special measuring range gauge pressure
<b>(3)</b>	<b>Output</b>
450	CANopen
<b>(4)</b>	<b>Process connections</b>
502	G 1/4 to DIN EN 837
504	G 1/2 to DIN EN 837
511	1/4-18NPT to DIN EN 837
512	1/2-14NPT to DIN EN 837

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523	G 1/2 to DIN 3852-11
562	7/16-20UNF
571	G 3/4 front-flush DIN EN ISO 228-1 <sup>a</sup>
575	G 3/4 front-flush with double gasket <sup>a</sup>
998	Connection for pressure separator
<b>(5)</b>	<b>Process connection material</b>
20	CrNi (stainless steel)
<b>(6)</b>	<b>Electrical connection</b>
36	Round plug M12 × 1
<b>(7)</b>	<b>Extra code</b>
000	None
100	Customer-specific configuration (specifications in plain text)

<sup>a</sup> Front-flush process connections are only available for measuring spans up to 25 bars.

	<b>(1)</b>		<b>(2)</b>		<b>(3)</b>		<b>(4)</b>		<b>(5)</b>		<b>(6)</b>		<b>(7)</b>
<b>Order code</b>	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	/	<input type="text"/>
<b>Order example</b>	402056/000	-	462	-	450	-	502	-	20	-	36	/	000

## Accessories

Designation	Part No.
PC CAN interface for USB interface (configuration software included)	00449941
Termination resistor for CAN bus/digiLine, M12 × 1	00461591
Terminal box, straight, 5-pole, M12 × 1, with moulded cable, length 5 m	00337625
Terminal box, angled, 5-pole, M12 × 1, with moulded cable, length 2 m	00375164
Terminal box, straight, 5-pole, M12 × 1, no cable, assembly by customer	00419130
Terminal box, angled, 5-pole, M12 × 1, no cable, assembly by customer	00419133
Extension cable, length 2 m, 5-pole, with connector and plug M12 × 1	00461589
Tee-piece, 5-pole, M12 × 1	00419129

EDS file	for download
Operating Instructions	for download