

Pressure transmitter JUMO dTRANS p02 CERAMIC

Type 404387

General application

The JUMO dTRANS p02 CERAMIC pressure transmitter measures the gauge (relative) or absolute pressure in both corrosive and non-corrosive gases, vapors and liquids. The ceramic-based measuring system in this pressure transmitter operates on the principle of capacitive measurement. The output signal is a DC current that is proportional to the input pressure.

The display can show:

- pressure in 13 different dimensional units, measurement in % or scaled with a freely selectable unit, output current in mA
- sensor temperature in °C or °F
- measurement error, out-of-range measurement
- minimum and maximum pressures (peak-reading indicator)
- pressure and sensor temperatures can be shown simultaneously (on 2 lines)

The keys can be used to set up:

- start and end of measurement, with pressure input
- start and end of measurement, without pressure input (blind setting)
- damping or time constant
- current generator function
- output signal on error
- key inhibit
- reset min. and max. measurements (peak-reading indicator)
- density correction for different measurement media
- display of the media temperature in °C or °F

The JUMO dTRANS p02 CERAMIC pressure transmitter can also be operated through a HART® communicator, or a PC in conjunction with a HART® modem and the JUMO setup program running under Windows®.



Accessories

Setup program

Sales No. 40/00365072

The setup program for all instruments in the JUMO dTRANS p02 series has been created according to the VDI/VDE 2187 user interface. In conjunction with the HART® modem, the program enables convenient operation and parameter setting of the pressure transmitter from a PC.

HART® modem

Sales No. 40/00345666

The HART® modem forms the link between the JUMO dTRANS p02 pressure transmitter and the serial interface of a PC.

Technical data

Reference conditions

as per DIN 16086 and IEC 770/5.3

Nominal input range

see Order details

Range setting

The measurement range can be set from the keys on the pressure transmitter, by using the setup program or a HART® communicator as described below:

Start and end of the measurement range can be continuously adjusted within the nominal range. The span of the measurement should not be less than 10% of the nominal range.



Displayable units

Input pressure:

mH₂O, inH₂O, inHg, ftH₂O, mmH₂O, mm Hg, psi, bar, mbar, kg/cm², kPa, Torr, MPa;

Measurement:

% or scaled with freely adjustable dimensional unit

Output current:

mA

Additional displays

Indication of the sensor temperature, minimum pressure, maximum pressure. Indication of overrange or error

Density correction

adjustable over the range from 0.100 to 5.000 kg/dm³

Overload limits

see Order details

Bursting pressure

for all ranges: 150 bar

Parts in contact with the medium

standard:

stainless steel, Mat. Ref. 1.4571
aluminium oxide Al_2O_3 (99.9%),
FPM,
others on request

Pressure connection

see Order details

Output

4 — 20mA burden $\leq (U_B - 11.5\text{V}) / 0.022\text{A}$
burden with HART® : max. 1100Ω,
min. 250Ω with HART® protocol V 5.3.
Complies with the guidelines of the HCF
(HART® Communication Foundation)

Burden error

< 0.1%

Zero offset / adjustment accuracy $\leq 0.01\text{mA}$ **Ambient temperature error**

over the compensated temperature range
from -20 to +85°C

zero: $\leq 0.005\%$ per °C typical,
 $\leq 0.01\%$ per °C max.
span: $\leq 0.005\%$ per °C typical,
 $\leq 0.01\%$ per °C max.

Deviation from characteristic

for limit point adjustment:

$\leq 0.1\%$ of full scale of nominal range;
as per DIN 16086

Hysteresis $\leq 0.02\%$ of full scale**Reproducibility** $\leq 0.02\%$ of full scale**Response time**

approx. 150msec without damping

Damping

adjustable from 0 — 100 sec

Stability over 1 year

$\leq 0.1\%$ of full scale (for nominal range, and
under reference conditions as per IEC 770)

Supply voltage

11.5 — 36V DC

Note:

at least 17V DC (250Ω) for communication
using the HART® protocol.

Supply voltage error

$\leq 0.1\%$ of full scale per 10V change
(nominal supply voltage 24V DC)

Permissible ambient temperature

-40 to +85°C; as per DIN 16086
(it may be impossible to read the LCD
display at temperatures below -20°C)

Storage temperature

-40 to +85°C

Permissible temperature of medium

-40 to +120°C

Electromagnetic compatibility (EMC)

as per EN 61 326

Mechanical shock

50g/11msec

Mechanical vibration

max. 5g over 10-2000Hz

Protection

with connecting cable
IP65 to EN 60529

Insulation resistance

100MΩ; 50V DC

Breakdown strength $\geq 500V_{\text{eff}}$.**Housing**

aluminium die-casting GDAISi12

Climatic conditions

$\leq 80\%$ rel. humidity with condensation,
annual mean

Electrical connection

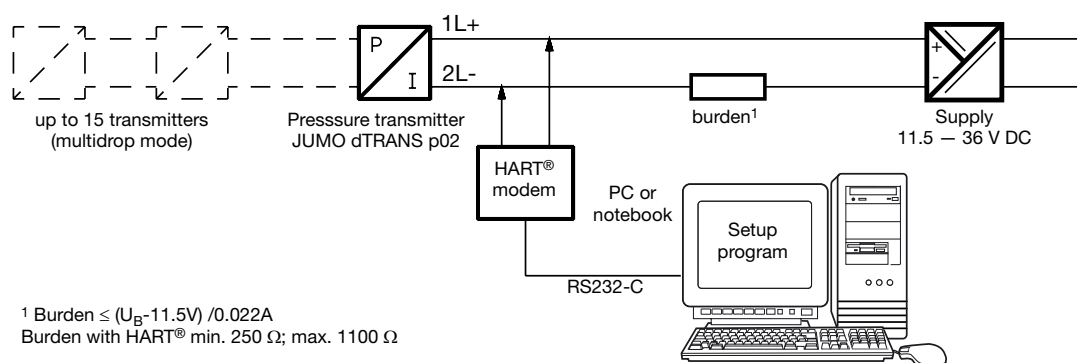
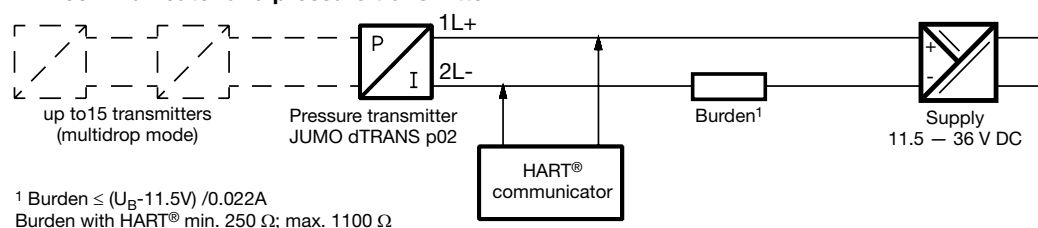
clamping case with screwed cover, 2 poles
and earthing terminal, plastic cable gland
M20 x 1.5 for cable diameters 6 to 12mm

Nominal position

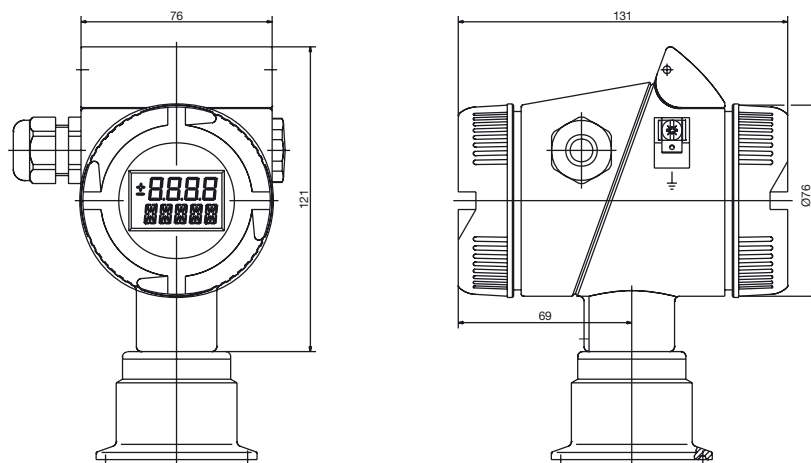
ex-factory, upright vertical
(pressure connection below)
any operating position

Weight

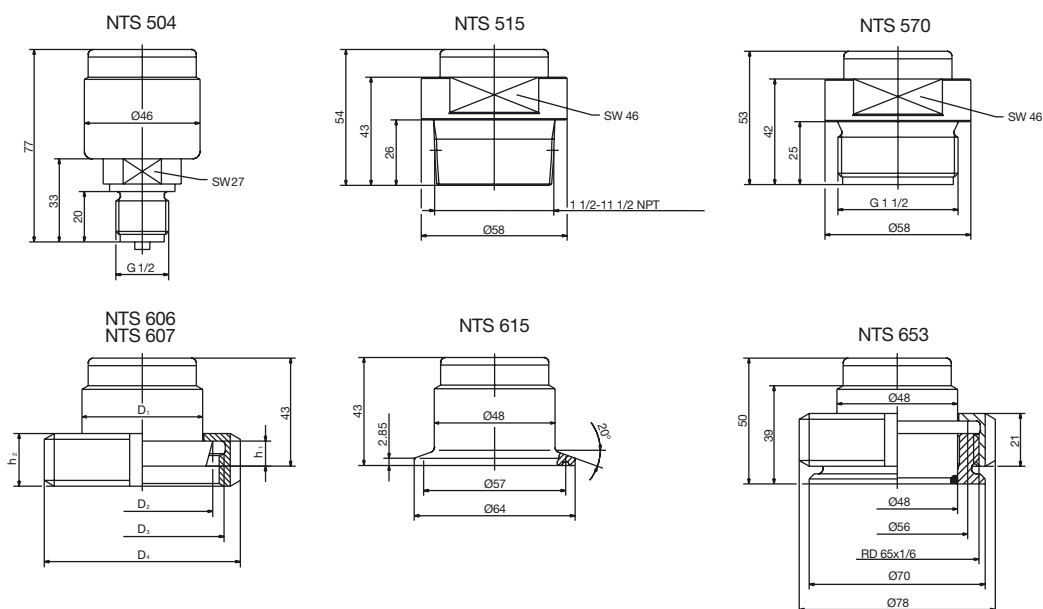
approx. 1.5kg

HART® communication**between PC and pressure transmitter****between HART® communicator and pressure transmitter**

Dimensions



SW = a/f in mm
G = pipe fitting in "



NTS	DN	D ₁	D ₂	D ₃	D ₄	h ₁	h ₂
606	40	Ø48	Ø56	RD 65 x 1/6	Ø78	10	21
607	50	Ø61	Ø68.5	RD 78 x 1/6	Ø92	11	22

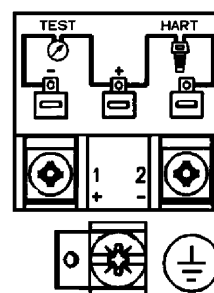
Electrical connection

Connection		Terminals
Supply 11.5 — 36 V DC, 11.5 — 30 V DC for intrinsically safe version		1 L+ 2 L-
Output 4 — 20 mA 2-wire		1 L+ proportional current 4 — 20 mA 2 L- in supply
Test connection, current output	internal resistance of ammeter ≤ 10 Ω	TEST + TEST -
Test connection, HART®		TEST + HART®
Shielding		

Caution:

Earth the instrument!
(pressure connection and shielding)

Terminals



Order details

Basic type

404387 Pressure transmitter dTRANS p02 CERAMIC with capacitive-ceramic measuring system

Basic type extensions

0 none

Nominal input range

414	-100 to 100	mbar	gauge pressure	(overload limits -1 and 6 bar)
453	-0.6 to 0.6	bar	gauge pressure	(overload limits -1 and 10 bar)
457	-1 to 4	bar	gauge pressure	(overload limits -1 and 40 bar)
461	-1 to 25	bar	gauge pressure	(overload limits -1 and 60 bar)
487	0 to 0.6	bar	absolute pressure	(overload limits -1 and 10 bar)
491	0 to 4	bar	absolute pressure	(overload limits -1 and 40 bar)
495	0 to 25	bar	absolute pressure	(overload limits -1 and 60 bar)

Output

405 4 — 20 mA with HART® protocol

Process connection

504	1/2" pipe to EN 837
515	1 1/2 - 1 1/2 NPT
570	1 1/2" pipe to DIN 3852
606	taper connection with ring nut DN40 to DIN 11851
607	taper connection with ring nut DN50 to DIN 11851
616	clamp connection DN50 to DIN 32676
653	tank connection with ring nut DN40

Material for process connection

20	stainless steel, Mat. Ref. 1.4571
99	special material for process connection

Seal

601	FPM
604	FFPM on request

Electrical connection

06	screw terminals
99	special electrical connection

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Factory setting:

Please specify the range to be set and the dimensional unit in plain text.