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JUMO

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:
mH_2O, inH_2O, inHg, ftH_2O, mmH_2O, mm Hg, psi, bar, mbar, kg/cm^2, 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/dm^3

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 (96%),
FPM (Viton®),
others on request

Pressure connection
see Order details

Output
4 — 20mA burden $\leq (U_B-11.5V) / 0.022A$
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
≤ 0.01mA

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 I EC770)

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
$\geq 500V_{eff}.$

Housing
aluminium die-casting GDAlSi12

Climatic conditions
$\leq 80\%$ rel. humidity with condensation,
annual mean
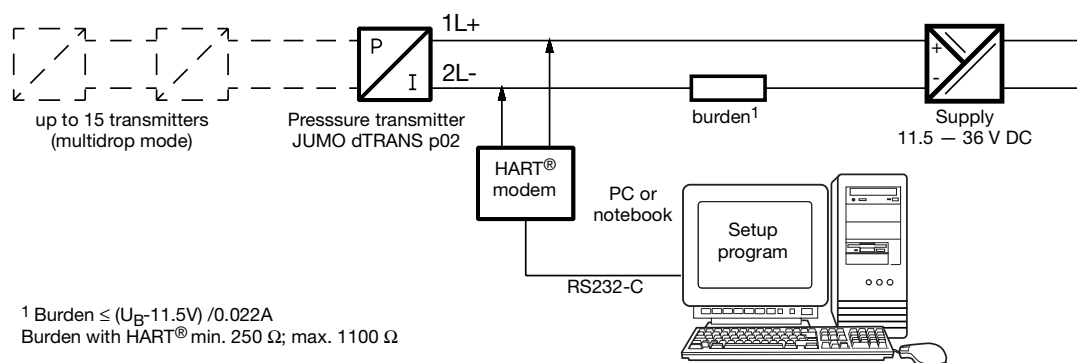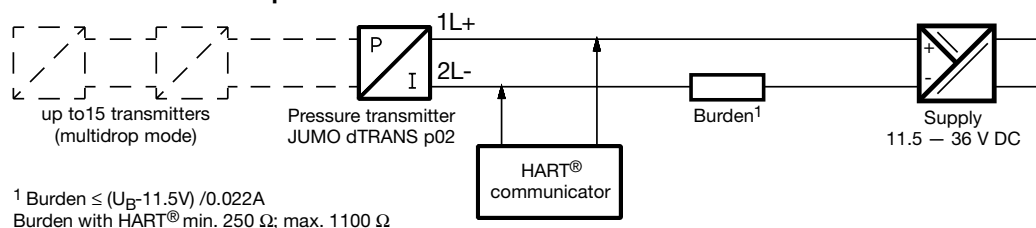
Electrical connection
clamping case with screwed cover, 2 poles
and earthing terminal, plastic cable gland
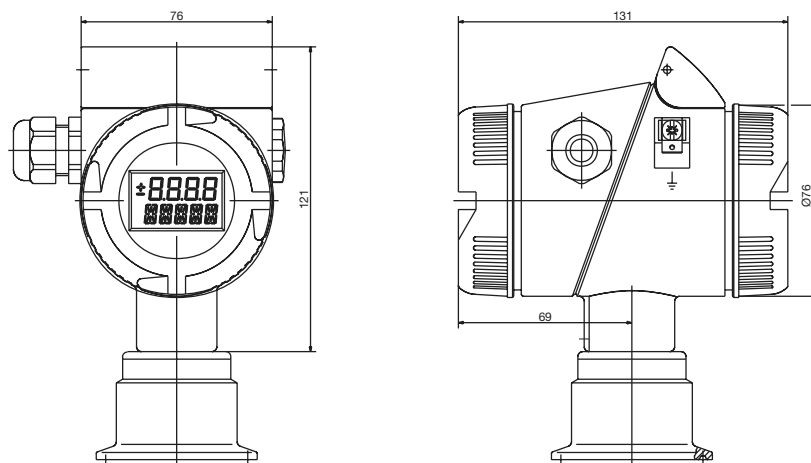M20 x 1.5 for cable diameters 6 to 12mm

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

Weight
approx. 1.5kg

HART® communication

between PC and pressure transmitter

up to 15 transmitters (multidrop mode)
Presssure transmitter JUMO dTRANS p02
1L+
2L-
HART® modem
PC or notebook
RS232-C
Setup program
burden[1]
Supply 11.5 — 36 V DC

[1] Burden $\leq (U_B-11.5V) /0.022A$
Burden with HART® min. 250 Ω; max. 1100 Ω

between HART® communicator and pressure transmitter

up to15 transmitters (multidrop mode)
Pressure transmitter JUMO dTRANS p02
1L+
2L-
HART® communicator
Burden[1]
Supply 11.5 — 36 V DC

[1] Burden $\leq (U_B-11.5V) /0.022A$
Burden with HART® min. 250 Ω; max. 1100 Ω

Dimensions

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

NTS 504

NTS 515

NTS 570

NTS 606
NTS 607

NTS 615

NTS 653
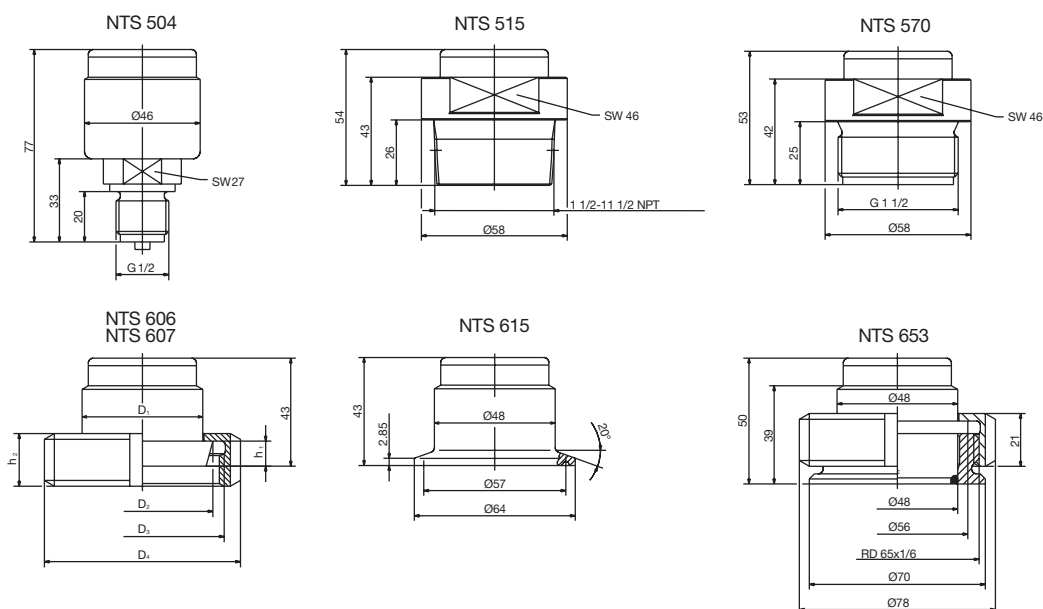
NTS	DN	D_1	D_2	D_3	D_4	h_1	h_2
606	40	Ø48	Ø56	RD 65 x 1/6	Ø78	10	21
607	50	Ø61	Ø68.5	RD 78 x 1/6	Ø92	11	22

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+ 2 L-	proportional current 4 — 20 mA 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
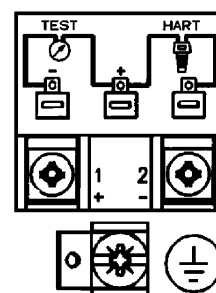
Order details

		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	$1^1/_2$ - $11^1/_2$ 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 (Viton®)
604	FFPM (Kalrez®) on request

Electrical connection

06	screw terminals
99	special electrical connection

404387	/	0	-	☐	-	405	-	☐	-	☐	-	☐	-	☐	**Order code**

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