

Temperature/Universal Transmitters

JUMO dTRANS T01/T02/T03/T04



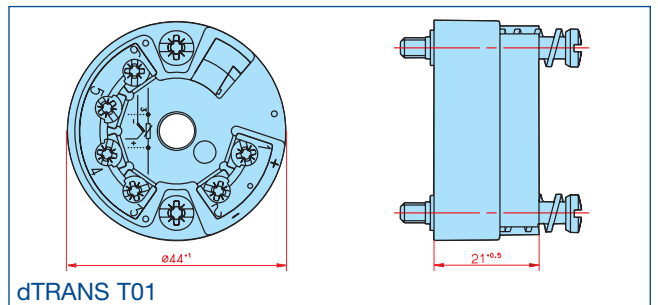
JUMO dTRANS T01

2-wire transmitter

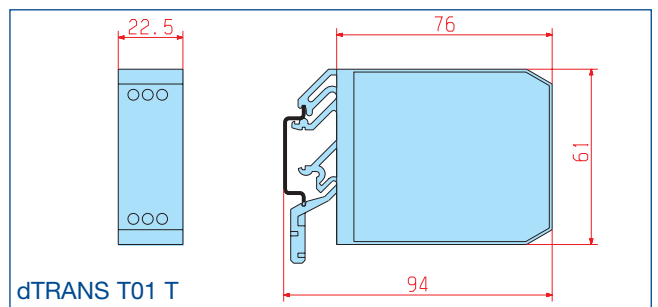


- electrically isolated input and output
- for connection to resistance thermometers and thermocouples
- probe type, range and linearization are freely programmable through the Windows setup program, also to GMA standard
- customized linearization
- detection of probe break and probe short-circuit as per NAMUR NE 43
- EMC to EN 61 326
- output signal can be simulated
- online display of measurement in the setup
- also in Ex version $\text{Ex II 1 EEx ia IIC T6/T5/T4}$

Dimensions

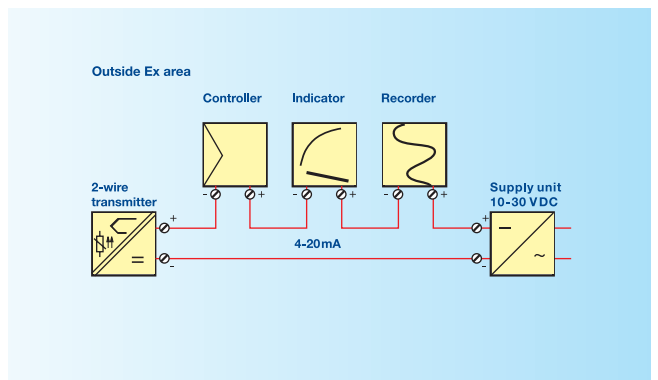
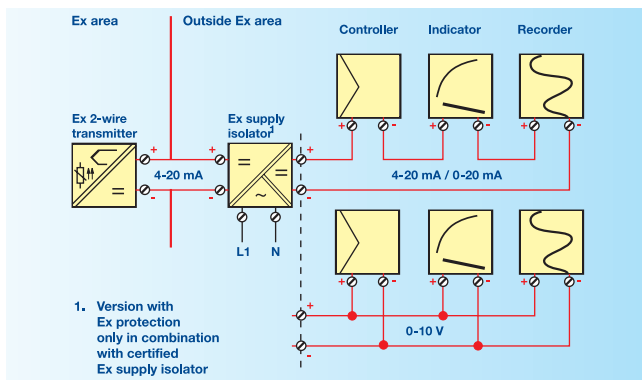


dTRANS T01



dTRANS T01 T

Connection examples



Technical data



Designation	JUMO dTRANS T01 JUMO dTRANS T01 Ex	JUMO dTRANS T01 T	JUMO dTRANS T01 JUMO dTRANS T01 HART® / HART® Ex	JUMO dTRANS T01 T HART®
Type	707010/... 707015/... (Ex)	707012/...	707011 (HART®) 707016 (HART® Ex)	707013/...
Special features	flexible application through free configuration and electrical isolation, output simulation, Ex version Ⓢ II 1 G EEx ia IIC T6/T5/T4	flexible application through free configuration and electrical isolation, output simulation, universal mounting on C and G rail	as 707010, in addition: communication with HART® protocol via signal cable, communication inside the Ex area via HART® communicator, Ex version Ⓢ II 1 G EEx ia IIC T6/T5/T4 Ⓢ II 2 G EEx ia IIC T6/T5/T4	as 707012, in addition: communication with HART® protocol via signal cable, universal mounting on C and G rail
Supply	8 – 35V DC Ex version 8 – 30V with reverse-polarity protection	8 – 35V DC with reverse-polarity protection	10 – 35V DC Ex version 10 – 30V with reverse-polarity protection	10 – 35V DC with reverse-polarity protection
Inputs	thermocouple: L, J, U, T, K, E, N, S, R, B, D, C Pt 100, Pt 500, Pt 1000 Ni100, Ni500, Ni1000 in 2-/3- or 4-wire circuit	thermocouple: NiCrNi „K“ Pt 100, Pt 500, Pt 1000 Ni100, Ni500, Ni1000 in Zwei-, Drei- oder Vierleiterschaltung	thermocouple: L, J, U, T, K, E, N, S, R, B, D, C Pt 100, Pt 500, Pt 1000 Ni100, Ni500, Ni1000 in Zwei-, Drei- oder Vierleiterschaltung	thermocouple: NiCrNi „K“ Pt 100, Pt 500, Pt 1000 Ni100, Ni500, Ni1000 in Zwei-, Drei- oder Vierleiterschaltung
Output (can be reversed)	4 – 20 mA			
Transfer characteristic	linear with temperature, customized linearization			
Operation	can be configured entirely through setup program		can be configured entirely through setup program (via HART® communicator)	
Further information	Data Sheet 70.7010			

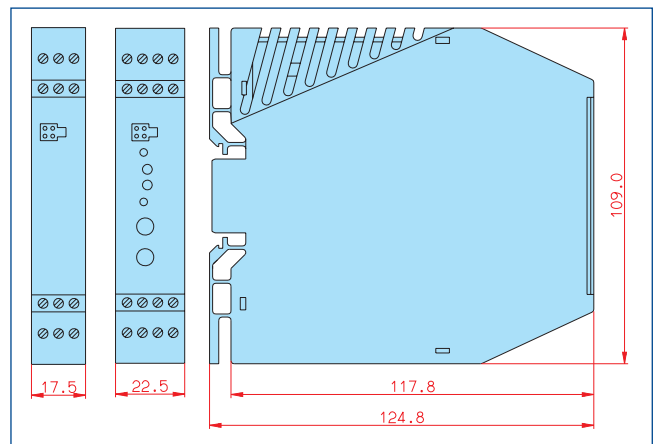
JUMO dTRANS T02

4-wire transmitter



- electrical isolation between measurement input/output/auxiliary voltage
- for connection to resistance thermometers, thermocouples, current or voltage
- probe type, range and linearization are freely programmable through PC setup program, also to GMA standard
- customized linearization
- detection of probe break and probe short-circuit to NAMUR NE 43
- EMC to EN 61 326
- two open-collector outputs for limit monitoring
- current and voltage output available in parallel
- also in Ex version Ⓢ II (1) G D [EEx ia] IIC

Dimensions



Setup program



Setup interface:

(also for JUMO dTRANS T01)

The setup interface serves to configure the transmitter from a PC. The connection is made via the PC interface with TTL/RS232 converter and adapter. It is not permissible to configure the transmitter inside the Ex area.

Technical data



Designation	JUMO dTRANS T02 j	JUMO dTRANS T02 PCP	JUMO dTRANS T02 LCD	JUMO dTRANS T02 Ex
Type	707020	707021	707022	707025
Special features	electrical isolation between measurement input, output and auxiliary voltage, compact design	as 707020, in addition: 2 open collectors, signal output can also be measured via test sockets	as 707021, in addition: on-site actual value indication, can be configured without setup	Ex version Ⓜ II (1) G D [Ex ia] IIC
Housing width	17.5 mm	22.5 mm		
Display	none	2 LEDs	2 LEDs, 1 LC display	2 LEDs
Keys	none	2 keys	3 keys	2 keys
Supply	24V DC + 10 % / -15 %	20 – 53V AC / DC 110 – 240V AC		20 – 53V AC / DC 230V AC ±10 %
Inputs	thermocouple, Pt 100, Pt 500 (restricted), Pt 1000 (restricted), current with external shunt, voltage (mV range)	thermocouple, Pt 100, Pt 500, Pt 1000 resistance transmitter, potentiometer, current (up to ± 20mA), voltage (up to ± 10V)		
Outputs (can be reversed)	0 – 20mA, 4 – 20mA, 0 – 10V	0 – 20mA, 4 – 20mA, 0 – 10V, 2 open collectors		0 – 20mA, 4 – 20mA, 0 – 10V
Transfer characteristic	linear with temperature, customized linearization			
Digital outputs	–	2 limit comparators or 1 limit comparator and 1 frequency output		–
Operation	can be configured entirely through setup program	fine calibration and limits from instrument keys, instrument configuration through setup program	entirely configurable on site from the 3 instrument keys, or through the setup program	fine calibration from instrument keys, instrument configuration through setup program
Further information	Data Sheet 70.7020			

JUMO dTRANS T03 B, J, T

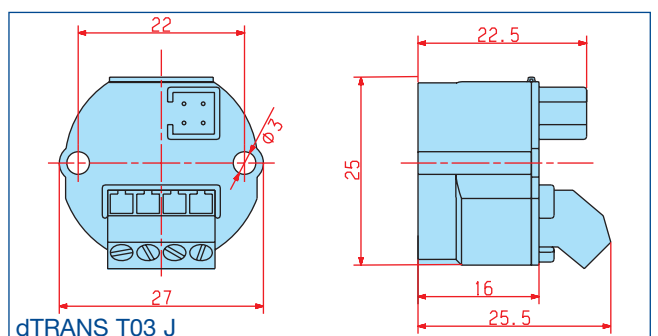
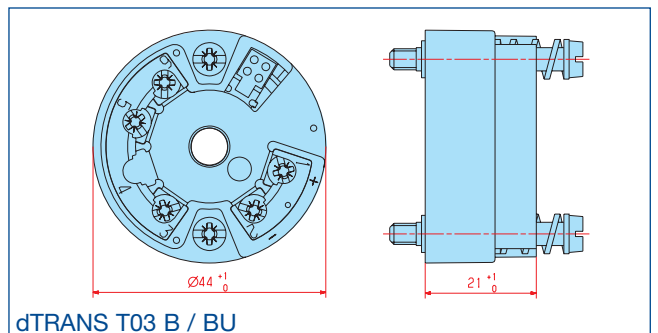
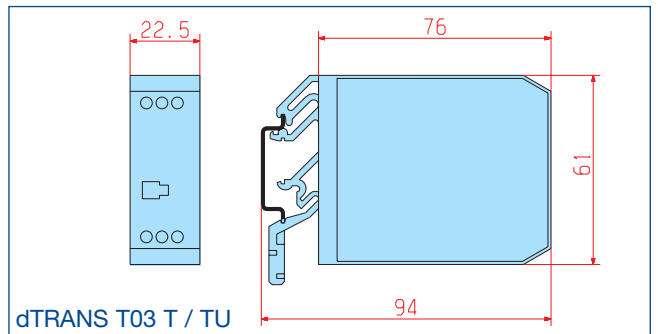
2-/3-wire transmitter



This transmitter series is distinguished by a free selection of the measurement range for analog signals.

- Measurement range is freely configurable through the PC setup program
- extremely short reaction time to a temperature change through continuous analog measurement
- low-noise current/voltage signal, insensitive to interference
- highest precision, also with small ranges, thanks to range-specific setting and amplification
- high damping of ripple in supply voltage means that low-cost power supplies can be used
- detection of probe/cable break as per NAMUR NE 43
- EMC to EN 61 326

Dimensions



Technical data



Designation	JUMO dTRANS T03 J	JUMO dTRANS T03 B / BU	JUMO dTRANS T03 T / TU
Type	707030/...	707031/...(B) 707033/...(BU)	707032/...(T) 707034/...(TU)
Special features	free measurement range selection without adjustment, the first J-head transmitter with this feature.	as 70.7030, in addition: captive terminal screws	as 70.7030, in addition: universal mounting on C and G rail
Supply	7.5 – 30V DC	7.5 – 30V DC (B) 15 – 30V DC (BU)	7.5 – 30V DC (T) 15 – 30V DC (TU)
Input	Pt 100 2-wire –200 to +850 °C	Pt 100 2-wire / 3-wire –200 to +850 °C	
Output (can be reversed)	proportional DC current 4 – 20mA	proportional DC current 4 – 20mA (B) 0 – 10V (BU)	proportional DC current 4 – 20mA (T) 0 – 10V (TU)
Transfer characteristic	linear with temperature		
Operation	range selection and fine adjustment can be made via a PC		
Operating temperature range	–40 to +85 °C		–25 to +70 °C
Transfer accuracy	≤ 0.1 %		
Response time on a temperature change	≤ 10msec		
Further information	Data Sheet 70.7030		

JUMO dTRANS T04

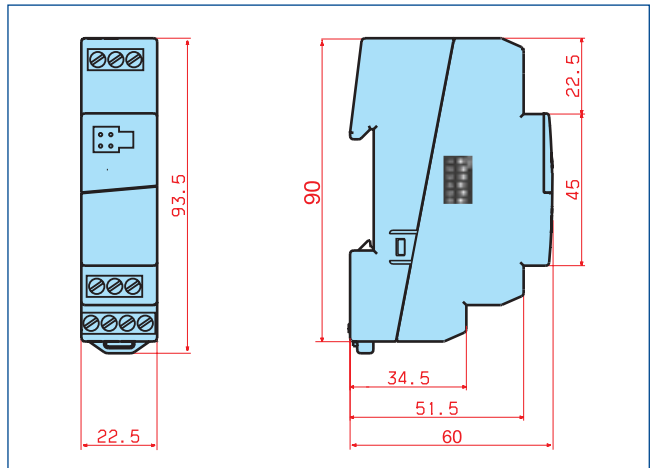
4-wire transmitter with digital adjustment



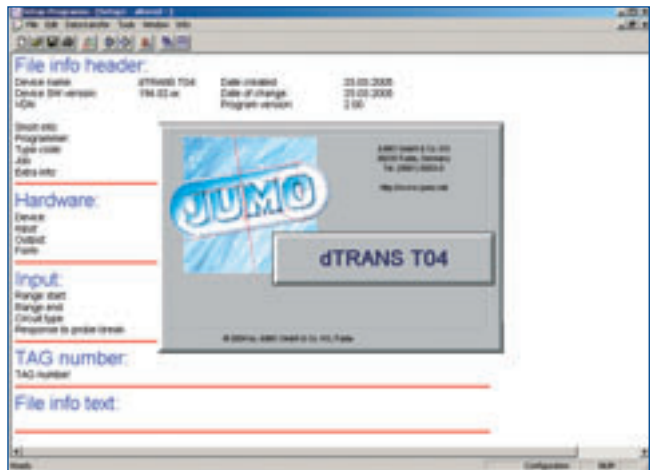
The distinguishing feature of this transmitter series is free selection of the measuring range via DIP switch or PC setup program, with an analog signal path.

- fast configuration of 15 measuring ranges via DIP switch without a PC
- high precision, even with short ranges, no subsequent adjustment necessary
- full measuring range spectrum through setup program
- measurement inputs for Pt100/Pt1000/potentiometer
- choice of output signal: 0/4 – 20mA, 0 – 10V
- fast response to temperature changes, thanks to continuous analog measurement
- low-noise output signal, insensitive to interference
- electrical isolation between input and auxiliary voltage, and output and auxiliary voltage
- detection of probe or lead break to NAMUR NE 43
- EMC to EN 61 326

Dimensions



Setup program



Technical data



Designation	JUMO dTRANS T04	JUMO dTRANS T04	JUMO dTRANS T04
Type	707040/1...	707040/2...	707040/3...
Special features	measuring ranges and output signal adjustable via DIP switch, configurable through PC setup program, compact design, electrical isolation between input and auxiliary voltage, and output and auxiliary voltage		
Housing width	22.5 mm		
Supply	110 – 240V AC +10 %/-15 %, 48 – 63Hz AC/DC 20 – 53V, 48 – 63Hz		
Inputs	Pt100 (Pt1000) 2-/3-wire –200 to 850 °C	potentiometer 2-/3-wire 0 – 11 kΩ	
Outputs	0/4 – 20 mA, 0 – 10V		
Transfer characteristic	linear with temperature		linear with resistance
Operation	measuring ranges and output signals via DIP switch or through setup program		
Operation temperature range	–25 to +55 °C for side-by-side mounting		
Transfer accuracy	≤ 0.1 %		
Settling time on temperature change	≤ 40 ms		
Further information	Data Sheet 70.7040		

Power supply units



Designation	TN-22/...022	TN-22/...055	TN-45/...025	TN-67/...055
Type	707500			
Special features	for rail mounting DIN rail: 35mm x 7.5mm EN 50022 DIN rail: 15mm EN 50045 G rail: EN 50035 for the stabilized supply of power to transmitters, electrically isolated 24V DC supply voltage			
Housing width	22.5mm or 30mm		45mm	75mm
Supply	230V AC +10% / -15% / 115V AC +10% / -15%			
Output	1 x 24V DC 10%, 22mA (stabilized) power consumption approx. 3VA	1 x 24V DC 10%, 55mA	4 x 24V DC 10%, 25mA	4 x 24V DC 10%, 55mA
Operating temperature	-10 to +50°C			
Further information	Data Sheet 70.7500			

Isolating amplifiers

Supply isolators



Designation	TT-45/4 ...	956056/... (with Ex protection)
Type	707510	707520
Special features	for supplying power to two-wire transmitters, and for additional electrical isolation of standard signals (600V)	for supplying power to Ex two-wire transmitters inside the Ex area, and for additional electrical isolation of standard signals Ex version: ⊕ II (1) G D [EEx ia] IIC or [EEx ia] IIB ⊕ II (2) G D [EEx ib] IIC or [EEx ib] IIB
Supply	230V/115V AC +10/-15%, 48 – 63Hz 24V DC +/-15%	24V (230V) AC +10/-15%, 48 – 63Hz 18 – 32V DC +0/-0%
Input	0 – 20mA, $R_i = 15\Omega$ 4 – 20mA, $R_i = 15\Omega$ 0 – 10V / $R_i = 100\Omega$	0 – 10V / $R_i = 100k\Omega$
Output signal	0(4) – 20mA plug changeover 0 – 10V	0 – 20mA or 4 – 20mA 0 – 10V or 2 – 10V
Output (supply for 2-wire transmitters)	$\geq 15V$ DC at 20mA	approx. 14V at 20mA
Electrical isolation	between input and output V_{rms} 600V AC/DC between output and supply V_{rms} AC/DC 300V (only with 230/115V AC)	between intrinsically safe input and output, up to 375V (sum of the peak values of the rated voltages)
Transfer characteristic	linear	
Calibration accuracy	$\leq 0.2\%$	$\leq 0.15\%$
Operating temperature range	-10 to +55°C	-20 to +65°C
Further information	Data Sheet 70.7510	Data Sheet 70.7520

High-profile products and services

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Analytical Measurement

- pH/redox: sensors and transmitters/ controllers
- Conductivity instrumentation: conductive and inductive
- Dissolved oxygen measurement
- Chlorine, chlorine dioxide, ozone, hydrogen peroxide and peracetic acid instrumentation
- Fittings and accessories



Controllers, Power units, System/ Recording technology

- Process controls and programmers
- Automation software
- Electronic thermostats/microstats
- Safety temperature monitor/limiter
- Digital indicators
- Process controller
- Recording instruments
- Temperature transmitters
- Thyristor power switches/power units
- Software and accessories



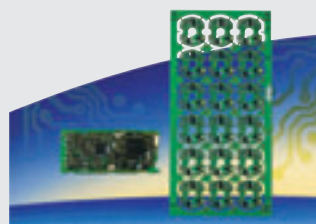
Thermostats and Dial Thermometers

- Panel and surface mounting thermostats in TR, TW, TB, STW and STB versions
- Room thermostats
- Warm-air thermostats
- Ex thermostats (ATEX)
- Electronic thermostats
- Dial thermometers as indicating and control instruments
- Bimetallic temperature switches
- Electronic temperature indicators with transmitter



Pressure measurement technology

- Pressure transmitters
- Level probes
- Pressure gauge
- Pressure switch
- Pressure cells
- Chemical seals and accessories



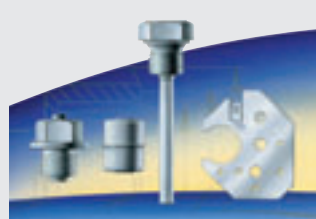
Electronic modules

- CAD layouting
- Component procurement
- THT and SMD placing
- AOI-testing
- In-circuit testing
- Functional testing
- Run-In
- Final assembly
- Final instrument test



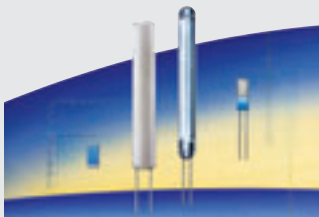
Transducers for Temperature and Humidity

- Thermocouples
- Resistance thermometers
- Ex temperature probes (ATEX)
- Wireless temperature probe
- Humidity measuring instruments
- DKD (German Calibration Service) laboratory
- Nationally accredited testing station for heat



Metalworking

- Stamping and forming systems
- Tool manufacture
- Flexible sheet metal working
- Welding, jointing and assembly systems
- Surface engineering
- Machining
- Float
- Materials laboratory



Platinum temperature sensors

in wirewound technology:

- Glass
- Glass with glass extension
- Ceramic
- Foil

in thin-film technology:

- Chip with connecting wires
- Chip in SMD style on epoxy board
- Chip with terminal clamps
- Chip in cylindrical style
- Chip in SMD style



Service

- Planning and project design for automation solutions
- German Calibration Service (DKD) for temperature
- Support during commissioning and optimization
- Worldwide service network
- Technical support line
- Seminars and workshops
- Fieldbus center
- Technical literature
- JUMO home page: www.jumo.net



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