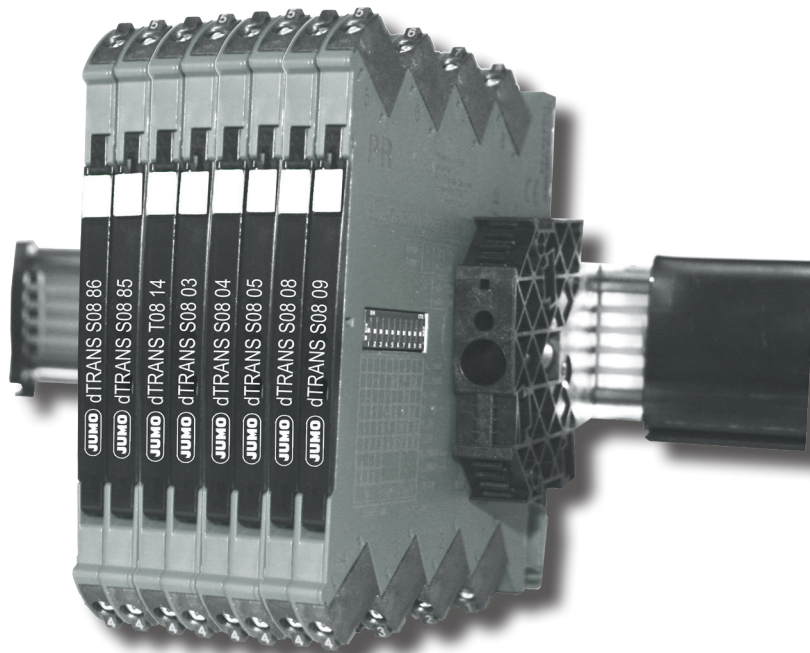


JUMO dTRANS S08 XX

Signal/isolating converter series 6 mm
707203, 707204, 707205, 707208, 707209



Operating Manual

70720300T90Z001K000
V1.00/EN/00698691



Signal/isolating converter series 6 mm

JUMO dTRANS S08 03 / JUMO dTRANS S08 04 /
JUMO dTRANS S08 05 / JUMO dTRANS S08 08 /
JUMO dTRANS S08 09

Table of contents

- Warning 3
- Symbol identification 3
- Safety instructions 3
 - UL installation 4
 - IECEX, ATEX installation in Zone 2 4
- Flexible supply 6
- Mounting and demounting of JUMO dTRANS T/S08 7
- Installation on DIN rail / power rail 8
- Supply of power rail 8
- Marking 8
- Side label 9
- Applications 10
- Product overview 11
- Order 12
- Accessories 12
- Accessories for power rail devices 12
- Technical data 12
- Connections 15
- LED indication 16
- DIP-switch programming 17
 - JUMO dTRANS S08 04 17
 - JUMO dTRANS S08 05 18
 - JUMO dTRANS S08 09 18

Warning



GENERAL

To avoid the risk of electric shock and fire, the safety instructions of this guide must be observed and the guidelines followed. The specifications must not be exceeded, and the device must only be applied as described in the following. Prior to the commissioning of the device, this installation guide must be examined carefully. Only qualified personnel (technicians) should install this device. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. Until the device is fixed, do not connect hazardous voltages to the device.

To avoid explosion and serious injury: Modules having mechanical failures must be returned to JUMO GmbH & Co. KG for repair or replacement.



**HAZARDOUS
VOLTAGE**

Repair of the device must be done by JUMO GmbH & Co. KG only.

In applications where hazardous voltage is connected to in-/outputs of the device, sufficient spacing or isolation from wires, terminals and enclosure - to surroundings (incl. neighboring devices), must be ensured to maintain protection against electric shock.

Potential electrostatic charging hazard. To avoid the risk of explosion due to electrostatic charging of the enclosure, do not handle the units unless the area is known to be safe, or appropriate safety measures are taken to avoid electrostatic discharge.



CAUTION

Symbol identification



Triangle with an exclamation mark: Read the manual before installation and commissioning of the device in order to avoid incidents that could lead to personal injury or mechanical damage.



The CE mark proves the compliance of the device with the essential requirements of the directives.



Ex devices have been approved acc. to the ATEX directive for use in connection with installations in explosive areas.

Safety instructions

Receipt and unpacking

Unpack the device without damaging it and check whether the device type corresponds to the one ordered. The packing should always follow the device until this has been permanently mounted.

Environment

Avoid direct sun light, dust, high temperatures, mechanical vibrations and shock, and rain and heavy moisture. If necessary, heating in excess of the stated limits for ambient temperatures should be avoided by way of ventilation.

The device can be used for Measurement Category II and Pollution Degree 2.

The device is designed to be safe at least under an altitude up to 2 000 m.

Mounting

Only technicians who are familiar with the technical terms, warnings, and instructions in the manual and who are able to follow these should connect the device.

Should there be any doubt as to the correct handling of the device, please contact your local distributor or, alternatively,
JUMO GmbH & Co. KG
www.jumo.net

Mounting and connection of the device should comply with national legislation for mounting of electric materials, i.e. wire cross section, protective fuse, and location.

Descriptions of input / output and supply connections are shown in this installation guide and on the side label.

The device is provided with field wiring terminals and shall be supplied from a Power Supply having double / reinforced insulation. A power switch should be easily accessible and close to the device. The power switch shall be marked as the disconnecting unit for the device.

JUMO dTRANS T/S08 must be mounted on a DIN rail according to EN 60715.

UL installation

Use 60/75°C copper conductors only.

Wire size AWG 26-12

UL file number E201387

The device is an Open Type Listed Process Control Equipment. To prevent injury resulting from accessibility to live parts the equipment must be installed in an enclosure.

The power supply unit must comply with NEC Class 2, as described by the National Electrical Code® (ANSI / NFPA 70).

IECEX, ATEX installation in Zone 2

IECEX DEK 18.0006 X Ex nA IIC T4 Gc

DEKRA 18ATEX0007 X II 3G Ex nA IIC T4 Gc

For safe installation the following must be observed. The device shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.

Year of manufacture can be taken from the first two digits in the serial number.

The devices shall be installed in a suitable enclosure providing a degree of protection of at least IP54 according to EN60529, taking into account the environmental conditions under which the equipment will be used.

When the temperature under rated conditions exceeds 70°C at the cable or conduit entry point, or 80°C at the branching point of the conductors, the temperature specification of the selected cable shall be in compliance with the actual measured temperature.

Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40%.

For installation on power rail in Zone 2, only Power rail profile (TN: 00697614) supplied by Power connector unit for dTRANS T/S08 XX (TN: 00697612) is allowed.

To prevent ignition of the explosive atmospheres, disconnect power before servicing and do not separate connectors when energised and an explosive gas mixture is present.

Do not mount or remove devices from the power rail when an explosive gas mixture is present.

Cleaning

When disconnected, the device may be cleaned with a cloth moistened with distilled water.

Liability

To the extent the instructions in this manual are not strictly observed, the customer cannot advance a demand against JUMO GmbH & Co. KG that would otherwise exist according to the concluded sales agreement.

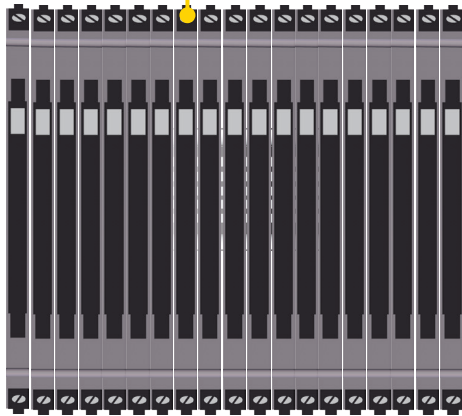
Flexible supply

The technical specifications specifies the maximum required power at nominal operating values, e.g. 24 V supply voltage, 70°C ambient temperature, 600 Ω load, and 20 mA output current.

DIN rail solution - device daisy chain:

The units can be supplied with 24 VDC $\pm 30\%$ via direct wiring and a loop between the devices.

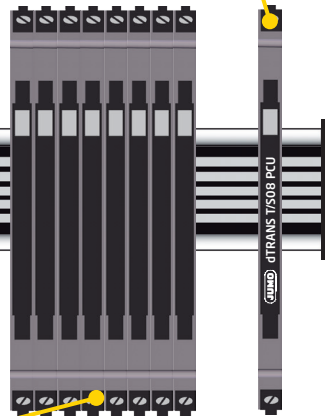
Protective fuse: 2.5 A.



Power rail solution #2:

The JUMO dTRANS T/S08 PCU power connector unit allows easy connection of a 24 VDC / 2.5 A source to the power rail.

Protective fuse: 2.5 A.



Protective fuse: 0.4 A.

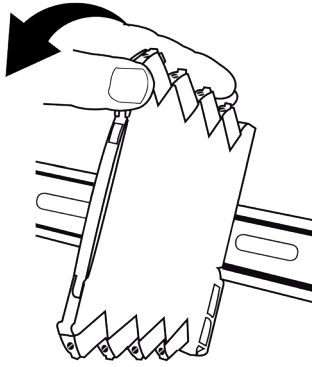
Power rail solution #1:

Alternately, you can connect 24 VDC to any one JUMO dTRANS T/S08 device with power rail connector which will then energize other units on the rail.

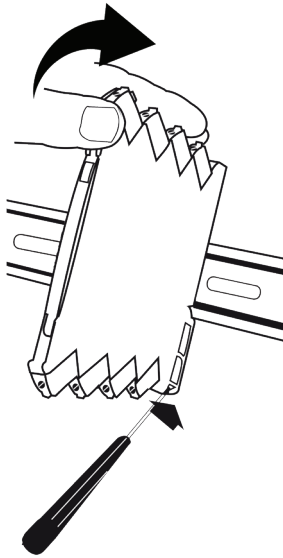
External fuse characteristics:

The 2.5 A fuse must break after not more than 120 seconds at 6.4 A.

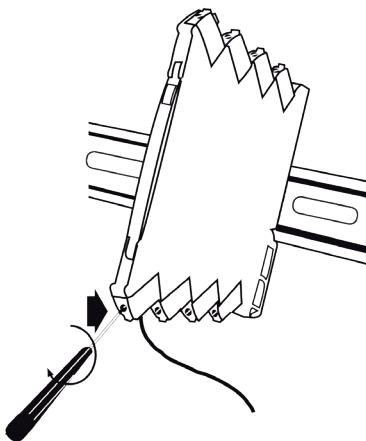
Mounting and demounting of JUMO dTRANS T/S08



Picture 1:
Mounting on DIN rail / power rail.
Click the device onto the rail.

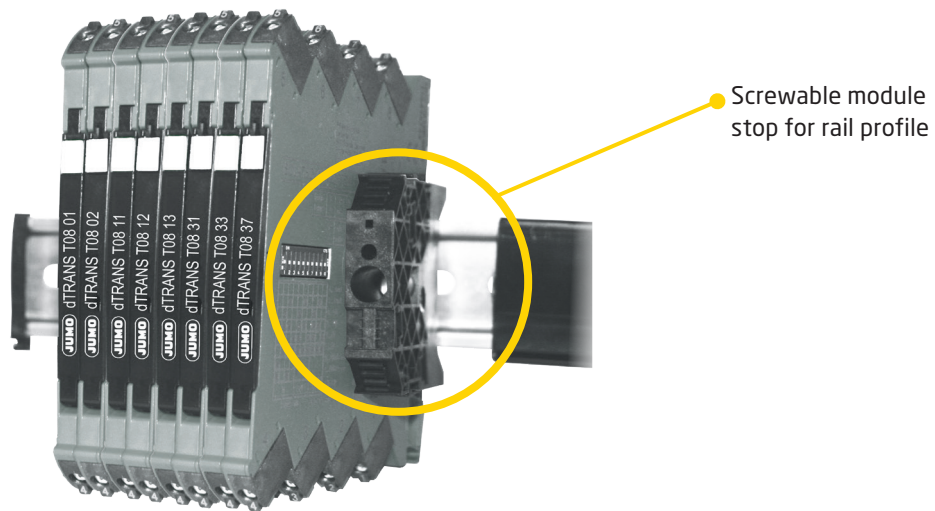


Picture 2:
Demounting from DIN rail / power rail.
First, remember to demount the connectors with hazardous voltages.
Detach the device from the DIN rail by lifting the bottom lock.



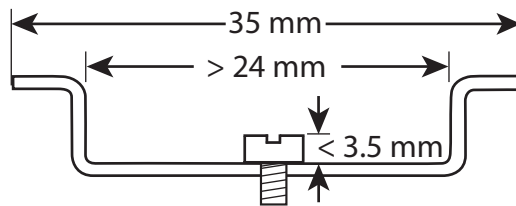
Picture 3:
Wire size AWG 26-12 / 0.13 x 2.5 mm² stranded wire.
Screw terminal torque 0.5 Nm.

Installation on DIN rail / power rail



The devices in the JUMO dTRANS T/S08 series can be installed on a DIN rail or on a power rail. For marine applications the devices must be supported by a module stop (TN: 00697615). Power supply units can be mounted on the power rail according to customer requirements.

If you want to install a JUMO dTRANS T/S08 device with power rail connectors on a standard DIN rail, the head of the screws holding the 7.5 mm DIN rail shall be no more than 3.5 mm high in order to avoid short circuit between the power rail connectors on the device and the screws.

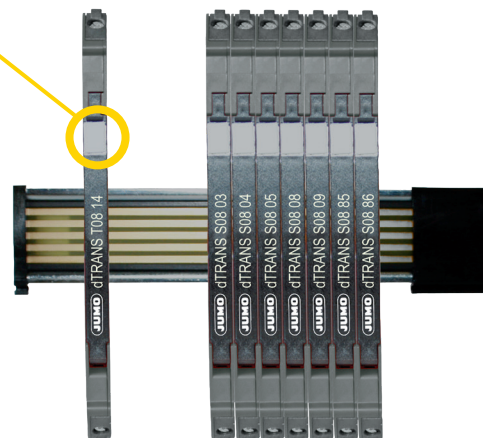


Supply of power rail

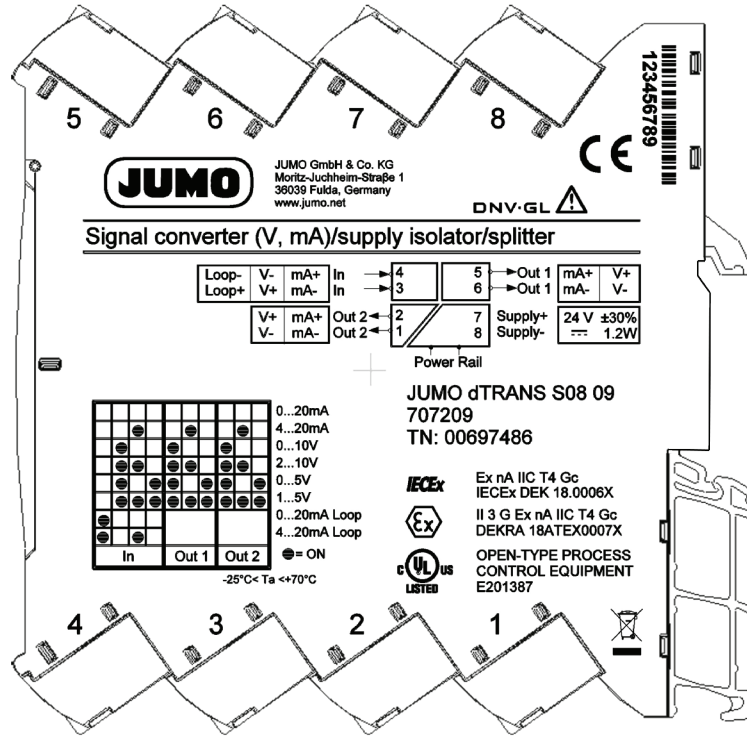
It is possible to supply the power rail via the supply terminals. The terminals can pass a current of max. 400 mA.

Marking

The front cover of the JUMO dTRANS T/S08 devices has been designed with an area for affixation of a click-on marker. The area assigned to the marker measures 5 x 7.5 mm. Markers from Weidmüller's MultiCard System, type MF 5/7.5, are suitable.



Side label



Signal/isolating converter series 6 mm

JUMO dTRANS S08 03 / JUMO dTRANS S08 04 / JUMO dTRANS S08 05 / JUMO dTRANS S08 08 / JUMO dTRANS S08 09

The product family JUMO dTRANS S08 03, S08 04, S08 05, S08 08 & S08 09 are slimline isolaters for 24 VDC fixed supply and can be used for different purposes.

- Can be supplied separately or installed on power rail
- Can be delivered with customer parameterisation on request
- Approvals by CE, UL, DNV, GL, ATEX zone 2 and IECEx zone 2
- Possibility of loop supply output

Applications

The JUMO dTRANS S08 isolator family are designed for the automation and process industries. These devices are the result of extensive development and test procedures making them very well suited for conversion and galvanic isolation in the following applications:

- Isolation and 1:1 conversion of current signals in the range 0...20 mA.
- Isolation and conversion of standard DC signals.
- Power supply and signal isolator for 2-wire transmitters.
- Isolation and splitting of standard DC signals.
- Installation in ATEX Ex zone 2 / IECEx zone 2.
- Suitable for environments with high vibration stress, e.g. ships

Product overview

Type no.	JUMO dTRANS S08 03	JUMO dTRANS S08 04	JUMO dTRANS S08 05
Product name	Isolated repeater	Isolated converter	Isolated converter
Description	Fixed loop isolator / repeater.	Loop isolator / converter for standard DC signals. DIP-switch setup.	Loop isolator / converter for standard DC signals. DIP-switch setup. Low cost.
Parameterisation	None	DIP-switch	DIP-switch
Input signal	0...23 mA	0/2...10 V 0/1...5 V 0/4...23 mA	0/2...10 V 0/1...5 V 0/4...23 mA
Loop supply output		>17 V @ 20 mA	
Output signal (active)	0...23 mA (1:1)	0/2...10 V 0/1...5 V 0/4...23 mA	0/2...10 V 0/1...5 V 0/4...23 mA
Approvals	UL, safety, ATEX zone 2, IECEX zone 2, DNV-GL, marine	UL, safety, ATEX zone 2, IECEX zone 2, DNV-GL, marine	UL, safety, DNV, marine, GL, marine

Type no.	JUMO dTRANS S08 08	JUMO dTRANS S08 09
Product name	Isolated repeater / splitter	Isolated converter / splitter
Description	Fixed loop isolator / repeater with dual output.	Loop isolator / converter for standard DC signals. DIP-switch setup. Dual output.
Parameterisation	None	DIP-switch
Input signal	0...23 mA	0/2...10 V 0/1...5 V 0/4...23 mA
Loop supply output		>17 V @ 20 mA
Output signal (active)	0...23 mA (1:1)	0/2...10 V 0/1...5 V 0/4...23 mA
Approvals	UL, safety, ATEX zone 2, IECEX zone 2, DNV-GL, marine	UL, safety, ATEX zone 2, IECEX zone 2, DNV-GL, marine

Order

Type	Product name	Description	Order code
707203	JUMO dTRANS S08 03	Signal isolator (mA)	00697481
707204	JUMO dTRANS S08 04	Signal converter (V, mA)/ supply isolator	00697482
707205	JUMO dTRANS S08 05	Eco signal converter (V, mA)	00697484
707208	JUMO dTRANS S08 08	Signal isolator/splitter (mA)	00697485
707209	JUMO dTRANS S08 09	Signal converter (V, mA)/ supply isolator/splitter	00697486

Accessories

TN: 00697615 = Screwable module stop for rail profile

Accessories for power rail devices

TN: 00697612 = Power connector unit for dTRANS T/S08 XX

TN: 00697614 = Power rail profile (7.5 mm / 750 mm)

Technical data

Environmental conditions:

Operating temperature -25°C to +70°C
Operating temperature, JUMO dTRANS S08 05 0 to +70°C
Storage temperature -40°C to +85°C
Calibration temperature. 20...28°C
Relative humidity < 95% RH (non-cond.)
Protection degree IP20
Installation in pollution degree 2 & overvoltage category II.

Mechanical specifications:

Dimensions (HxWxD) 113 x 6.1 x 115 mm
Weight approx. 70 g
DIN rail type. DIN EN 60715 - 35 mm
Wire size. 0.13...2.5 mm² / AWG 26...12 stranded wire
Screw terminal torque. 0.5 Nm
Vibration. IEC 60068-2-6
2...25 Hz. ±1.6 mm
25...100 Hz. ±4 g

Common electrical specifications:

Supply voltage, DC. 16.8...31.2 VDC

Power requirements:

Type	Max. power dissipation	Max. required power
JUMO dTRANS S08 03	0.60	0.65
JUMO dTRANS S08 04	0.55	1.20
JUMO dTRANS S08 05	0.52	0.80
JUMO dTRANS S08 08	0.48	0.75
JUMO dTRANS S08 09	0.60	1.20

Max. required power is the maximum power needed at power supply terminals or rail connector.

Max. power dissipation is the maximum power dissipated at nominal operating values.

Isolation voltage, test. 2.5 kVAC

Isolation voltage working. 300 VAC (reinforced) /
250 VAC (Zone 2, Div. 2)

Double isolation Input / output 1 / output 2 / supply

Signal dynamics, input / output Analog signal chain

Signal / noise ratio. Min. 60 dB

Cut-off frequency (3 dB) > 100 Hz

Response time (0...90%, 100...10%):

 mA / V input < 7 ms

Accuracy. < ±0.05% of span

Accuracy, JUMO dTRANS S08 05 < ±0.2% of span

Temperature coefficient. < ±0.01% of span / °C

Temperature coefficient, JUMO dTRANS S08 05 < ±0.015% of span / °C

EMC immunity influence	< ±0.5% of span
----------------------------------	-----------------

Extended EMC immunity:

NAMUR NE 21, A criterion, burst	< ±1% of span
---	---------------

Auxiliary supplies:

2-wire supply (terminal 3 and 4) > 17 VDC / 20 mA

Current input:

Measurement range 0...23 mA

Programmable measurement ranges 0...20 and 4...20 mA

Input voltage drop < 1.5 VDC

Input resistance Nom. 20 Ω + PTC 50 Ω

Voltage input:

Measurement range 0...10.25 VDC

Programmable measurement ranges 0...10 / 2...10 / 0...5 / 1...5 VDC

Input resistance ≥ 500 kΩ

Current output:

Signal range (span) 0...23 mA

Programmable signal ranges 0...20 / 4...20 mA

Load, JUMO dTRANS S08 03, S08 04 & S08 05. ≤ 600 Ω

Load, JUMO dTRANS S08 08 & S08 09. ≤ 300 Ω per channel

Load stability < 0.002% of span / 100 Ω

Current limit. ≤ 28 mA

Voltage output:

Signal range. 0...10 VDC

Programmable signal ranges 0...10 / 2...10 / 0...5 / 1...5 VDC

Load (min.) >10 kΩ

of span = of the selected range

Observed authority requirements:

EMC	2014/30/EU
LVD	2014/35/EU
RoHS	2011/65/EU

Approvals:

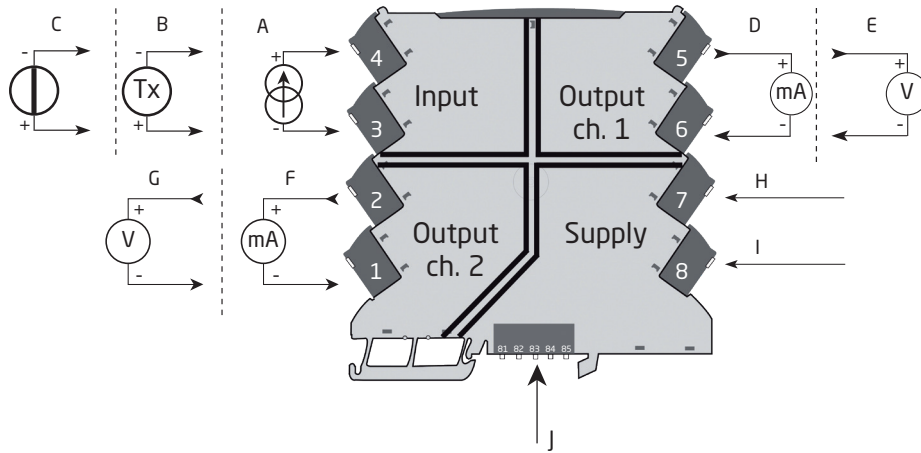
DNV-GL, Ships & Offshore	DNVGL-CG-0339
UL, Standard for Safety	UL 61010-1
Safe Isolation	EN 61140

I.S. / Ex approvals:

*ATEX 2014/34/EU	DEKRA 18ATEX0007 X
*IECEX	DEK 18.0006 X

* Does not apply to JUMO dTRANS S08 05

Connections



	Input signals	JUMO dTRANS S08 03	JUMO dTRANS S08 04	JUMO dTRANS S08 05	JUMO dTRANS S08 08	JUMO dTRANS S08 09
A	Current	x	x	x	x	x
B	Tx		x			x
C	Voltage		x	x		x

	Input signals	JUMO dTRANS S08 03	JUMO dTRANS S08 04	JUMO dTRANS S08 05	JUMO dTRANS S08 08	JUMO dTRANS S08 09
D	Current 1	x	x	x	x	x
E	Voltage 1		x	x		x
F	Current 2				x	x
G	Voltage 2					x

	Supply	JUMO dTRANS S08 03	JUMO dTRANS S08 04	JUMO dTRANS S08 05	JUMO dTRANS S08 08	JUMO dTRANS S08 09
H	Supply +	x	x	x	x	x
I	Supply -	x	x	x	x	x
J	Power rail connections	x	x	x	x	x

LED indication

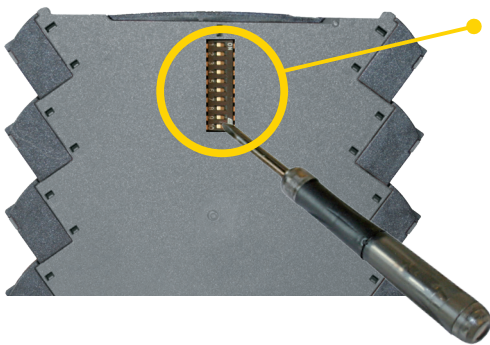
The device is equipped with a green power LED in the front to indicate the operation status, see the table below.



Condition	LED	Output and loop supply	Action required
No supply / device error	OFF	De-energized	Connect supply / replace device
Power-up or restart	1 Flash (0.5 s OFF + 0.5 s ON)	De-energized	-
Device OK	Flashing 13 Hz (15 ms ON)	Energized	-
Incorrect DIP-switch setting	Flashing 1 Hz (15 ms ON)	De-energized	Correct setting and re-power device
Restarting due to: Supply error/hardware. RAM or program flow error	Flashing 1 Hz (0.5 s ON)	De-energized	Adjust supply / replace device

DIP-switch programming

The devices JUMO dTRANS S08 04, S08 05 and S08 09 can be configured via DIP-switches. The DIP-switches are located on the side of the device and can be adjusted with a small screwdriver or other implement.



Adjustment of DIP-switches.

Default factory settings are:

Input = 0...20 mA

Output = 0...20 mA

All DIP-switches in the OFF position

The tables below show the configuration based on DIP-switch settings.

NA = no function of DIP-switch.

JUMO dTRANS S08 04

Input setup					Output setup							
	1	2	3	4		5	6	7	8	9	10	
0...20 mA	OFF	OFF	OFF	OFF	0...20 mA	OFF	OFF	OFF	NA	NA	NA	
4...20 mA	OFF	OFF	ON	OFF	4...20 mA	OFF	ON	OFF	NA	NA	NA	
0...10 V	OFF	ON	OFF	OFF	0...10 V	ON	OFF	OFF	NA	NA	NA	
2...10 V	OFF	ON	ON	OFF	2...10 V	ON	ON	OFF	NA	NA	NA	
0...5 V	OFF	ON	OFF	ON	0...5 V	ON	OFF	ON	NA	NA	NA	
1...5 V	OFF	ON	ON	ON	1...5 V	ON	ON	ON	NA	NA	NA	
0...20 mA Tx	ON	OFF	OFF	OFF								
4...20 mA Tx	ON	OFF	ON	OFF								

JUMO dTRANS S08 05

Input setup					Output setup						
	1	2	3	4		5	6	7	8	9	10
0...20 mA	NA	OFF	OFF	OFF	0...20 mA	OFF	OFF	OFF	NA	NA	NA
4...20 mA	NA	OFF	ON	OFF	4...20 mA	OFF	ON	OFF	NA	NA	NA
0...10 V	NA	ON	OFF	OFF	0...10 V	ON	OFF	OFF	NA	NA	NA
2...10 V	NA	ON	ON	OFF	2...10 V	ON	ON	OFF	NA	NA	NA
0...5 V	NA	ON	OFF	ON	0...5 V	ON	OFF	ON	NA	NA	NA
1...5 V	NA	ON	ON	ON	1...5 V	ON	ON	ON	NA	NA	NA

JUMO dTRANS S08 09

Input setup					Output setup						
					Channel 1			Channel 2			
	1	2	3	4		5	6	7	8	9	10
0...20 mA	OFF	OFF	OFF	OFF	0...20 mA	OFF	OFF	OFF	OFF	OFF	OFF
4...20 mA	OFF	OFF	ON	OFF	4...20 mA	OFF	ON	OFF	OFF	ON	OFF
0...10 V	OFF	ON	OFF	OFF	0...10 V	ON	OFF	OFF	ON	OFF	OFF
2...10 V	OFF	ON	ON	OFF	2...10 V	ON	ON	OFF	ON	ON	OFF
0...5 V	OFF	ON	OFF	ON	0...5 V	ON	OFF	ON	ON	OFF	ON
1...5 V	OFF	ON	ON	ON	1...5 V	ON	ON	ON	ON	ON	ON
0...20 mA Tx	ON	OFF	OFF	OFF							
4...20 mA Tx	ON	OFF	ON	OFF							



JUMO GmbH & Co. KG

Street address:

Moritz-Juchheim-Straße 1
36039 Fulda, Germany

Delivery address:

Mackenrodtstraße 14
36039 Fulda, Germany

Postal address:

36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.

JUMO House

Temple Bank, Riverway
Harlow, Essex, CM20 2DY, UK

Phone: +44 1279 63 55 33

Fax: +44 1279 62 50 29

Email: sales@jumo.co.uk

Internet: www.jumo.co.uk

JUMO Process Control, Inc.

6733 Myers Road
East Syracuse, NY 13057, USA

Phone: +1 315 437 5866

Fax: +1 315 437 5860

Email: info.us@jumo.net

Internet: www.jumousa.com

