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# JUMO mTRON T Measuring, Control, and Automation System

## Analog input module 8-channel

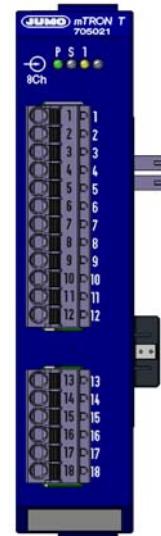
### Brief description

The analog input module 8-channel is equipped with eight analog inputs for RTD temperature probes in 2-wire circuit as well as one digital input (DC 0/24 V). The analog inputs are not electrically isolated from each other. The digitized input values/states are available in the system for further processing.

LEDs are used to indicate applied voltage supply, the module operating status, as well as the digital input status.

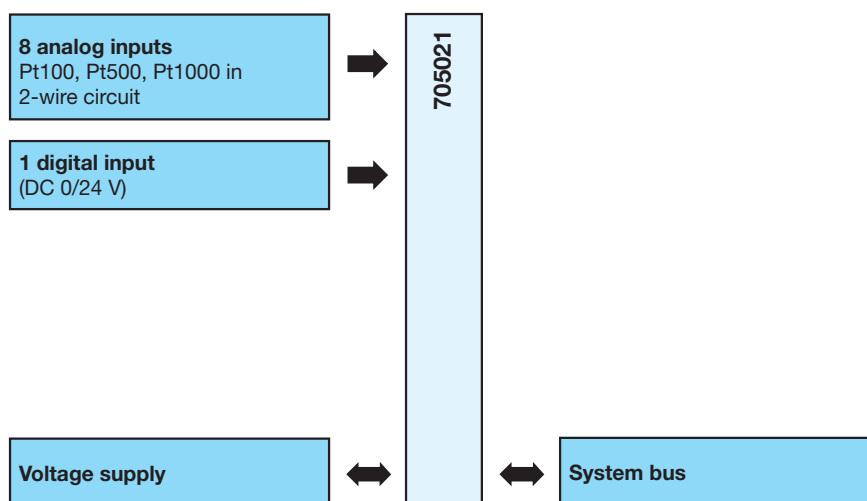
A setup program can be used to comfortably configure the analog input module.

For service work, the module insert can be easily pulled out of the case at the front. The case including the bus PCB remains mounted on the DIN rail.



Type 705021/...

### Block diagram



### Features

- Eight analog inputs for RTD temperature probe in 2-wire circuit
- Limit value monitoring
- One digital input DC 0/24 V
- Automatic configuration after the module insert has been exchanged (Plug and Play)
- Connection of the inputs at the front
- Removable terminal strips with Push-In technology
- Quick wiring of operating voltage and system bus due to easy module connection

Approval/approval marks (see “Technical data”)



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## Description

### Limit value monitoring

For each analog input, two separate alarms (min/max alarm) can be activated; each alarm has its own limit value. Alarm type, event text, collective alarm, alarm suppression, and alarm delay are configurable.

### Analog inputs

The eight analog inputs are measuring inputs for RTD temperature probes in 2-wire circuit. Linearizations for Pt100, Pt500, and Pt1000 are saved. A measured value offset or a fine adjustment can be carried out to compensate for plant-specific deviations. Due to the measuring circuit monitoring, a measuring range that is too high or too low, probe/cable break, and probe/cable short circuit are detected so that the system is switched to an operational safe status in the event of an error.

### Digital input

In addition, a digital input DC 0/24 V is available. The signal status can be used in the system in a flexible manner.

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## Technical data

### Analog inputs

#### General information

Number	8
A/D converter	Resolution 16 bit

#### RTD temperature probe

Designation	Standard	Measuring range	Measuring accuracy <sup>a</sup>	Ambient temperature influence
Pt100 2-wire circuit	DIN EN 60751	-200 to +850 °C	≤ 0.08 %	50 ppm/K
Pt500 2-wire circuit	DIN EN 60751	-200 to +850 °C	≤ 0.08 %	50 ppm/K
Pt1000 2-wire circuit	DIN EN 60751	-200 to +850 °C	≤ 0.08 %	50 ppm/K
Pt100 2-wire circuit	JIS 1604	-200 to +650 °C	≤ 0.08 %	50 ppm/K
Pt100 2-wire circuit	GOST 6651-94	-200 to +850 °C	≤ 0.08 %	50 ppm/K
Measuring current	Pt100 approx. 380 µA, Pt 500, and Pt1000 approx. 150 µA; not constant			
Lead compensation	A lead resistance can be compensated in the software by correcting the process value.			

<sup>a</sup> The accuracy values refer to the maximum measuring range. Smaller measuring ranges lead to reduced linearization accuracy.

#### Measuring circuit monitoring

In the event of an error the digitized output values move to a defined status.

Measuring element	Out of range	Probe/cable short circuit	Probe/cable break
RTD temperature probe	Is detected	Is detected	Is detected

#### Digital input

Number	1
Input signal	DC 0/24 V (PLC level; logical "0" = -3 to +5 V; logical "1" = +15 to +30 V)

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## Electrical data

Voltage supply	
Connection	Lateral (feed via base unit or router module)
Voltage	DC 24 V +25/-20 %
Residual ripple	5 %
Current consumption	80 mA (at DC 19.2 V)
Power consumption	2 W
Inputs (terminals 1 to 18)	
Connection	At the front (removable terminal strips with Push-In technology)
Conductor cross section on terminals 1 to 18	
Wire or strand without ferrule	Min. 0.14 mm <sup>2</sup> , max. 1.5 mm <sup>2</sup>
Strand with ferrule	Without plastic collar: Min. 0.25 mm <sup>2</sup> , max. 1.5 mm <sup>2</sup> With plastic collar: Min. 0.25 mm <sup>2</sup> , max. 0.5 mm <sup>2</sup>
Stripping length on terminals 1 to 18	9 mm
Electrical safety	Acc. to DIN EN 61010-1 Overvoltage category III, pollution degree 2
Electromagnetic compatibility	Acc. to DIN EN 61326-1
Interference emission	Class A – only for industrial use –
Interference immunity	Industrial requirements

## Case and ambient conditions

Case type	Plastic case for DIN rail mounting in the control cabinet (indoor use); DIN rail acc. to DIN EN 60715, 35 mm x 7.5 mm x 1 mm
Dimensions (W x H x D)	22.5 mm x 103.6 mm x 101.5 mm (without connection elements)
Weight	Approx. 125 g
Protection type	IP20, acc. to DIN EN 60529
Ambient temperature range	-20 to +55 °C
Storage temperature range	-40 to +70 °C
Resistance to climatic conditions	Relative humidity ≤ 90 % annual average without condensation (climatic class 3K3 acc. to DIN EN 60721-3-3 with extended temperature and humidity range)
Site altitude	Up to 2000 m above sea level
Mechanical ambient conditions <sup>a</sup>	Classification acc. to DIN EN 60721-3-3, table 6, class 3M2

<sup>a</sup> Test conditions are listed in the System Descripton B 705000.8.

## Approval/approval marks

Approval mark	Testing agency	Certificate/certification number	Inspection basis	Valid for
c UL us	Underwriters Laboratories	E201387	UL 61010-1 (3. Ed.), CAN/CSA-22.2 No. 61010-1 (3. Ed.)	all types

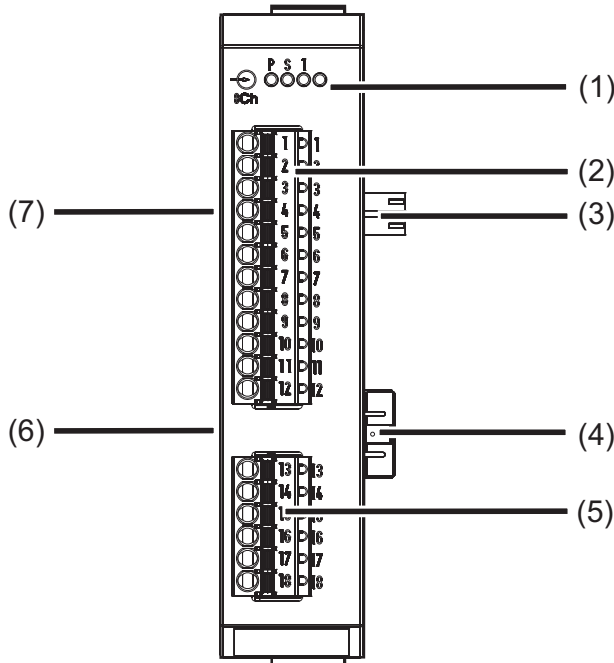
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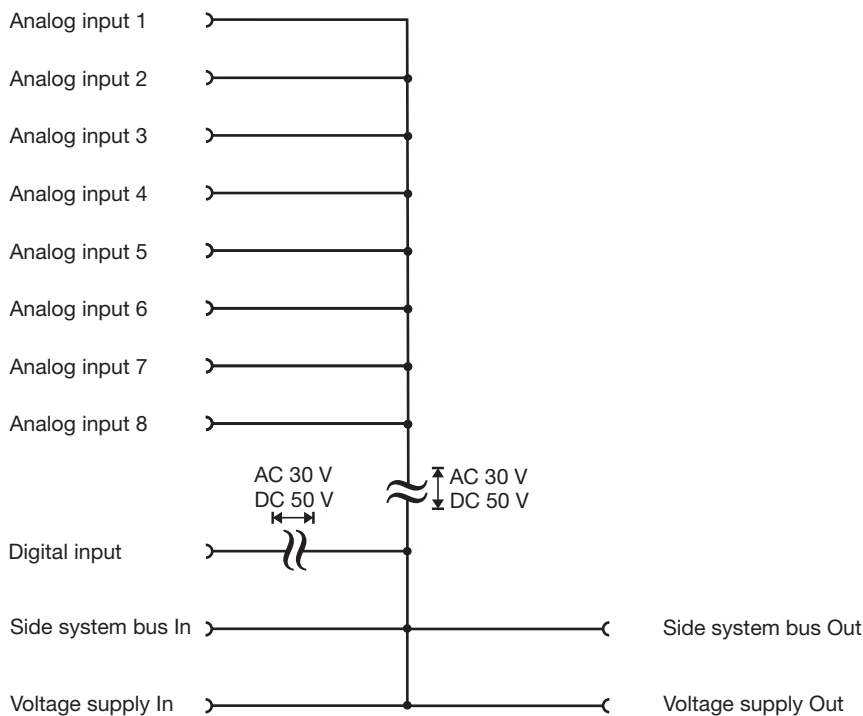


## Display and connection elements



- (1) Status displays (LED)  
 P = Voltage supply  
 S = Status  
 1 = Digital input  
 (LED is lit: Active)
- (2) Analog input 1 to 6
- (3) Voltage supply Out, DC 24 V
- (4) Side system bus Out
- (5) Analog input 7, 8;  
 digital input
- (6) Side system bus In
- (7) Voltage supply In, DC 24 V

## Electrical isolation



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## Connection diagram

The connection diagram included in the data sheet provides initial information about the connection options. Only use the installation instructions or the operating manual for the electrical connection. The know-how and the correct technical implementation of the safety warnings/instructions contained in these documents are the prerequisite for the installation, electrical connection, and initial start as well as for the safety during operation.

### Analog inputs

Connection	Input	Terminals	Symbol and terminal designation
RTD temperature probe 2-wire circuit	1 2 3 4 5 6 7 8	1 and 2 3 and 4 5 and 6 7 and 8 9 and 10 11 and 12 13 and 14 15 and 16	

### Digital input

Connection	Input	Terminals	Symbol and terminal designation
Digital input DC 0/24 V	1	17 and 18	

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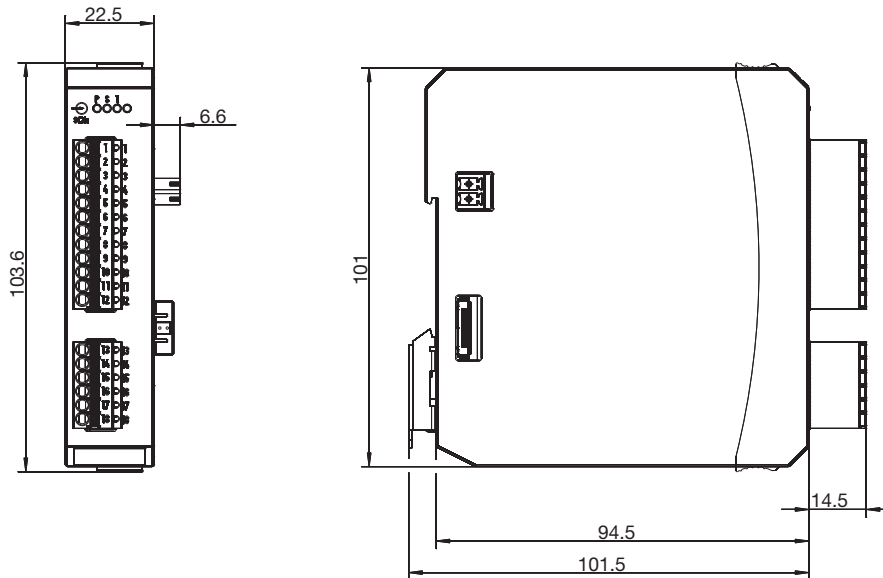
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## Dimensions



## Module overview

### Base units

- Central processing unit  
Data sheet 705001

### Input/output modules

- Multichannel controller module  
Data sheet 705010
- Relay module 4-channel  
Data sheet 705015
- Analog input module 4-channel  
Data sheet 705020
- Analog input module 8-channel  
Data sheet 705021
- Digital input/output module 12-channel  
Data sheet 705030

### Special modules

- Router module  
Data sheet 705040

### Operating, visualization, recording

- Multifunction panel 840  
Data sheet 705060

### Power supply units

- 705090/05-33  
Data sheet 705090
- 705090/10-33  
Data sheet 705090

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## Order details

<b>(1) Basic type</b>	
705021	Analog input module 8-channel
<b>(2) Voltage supply</b>	
36	DC 24 V +25/-20 %

Order code  /   
Order example 705021 / 36

## Scope of delivery

1 analog input module, 8-channel
1 Installation Instructions B 705021.4

## General accessories

Article	Part no.
JUMO mTRON T system manual, English	00575577
MiniDVD with setup program (full version), programming software CODESYS V3, and detailed documentation; incl. USB cable	00569494
PC Evaluation Software PCA3000	00431882
Release automatic print for PC Evaluation Software PCA3000	00505548
PCA Communication Software PCC	00431879
Plant Visualization Software JUMO SVS3000: See data sheet 700755	-
USB cable A-plug mini-B-plug 3 m	00506265