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JUMO mTRON T Measuring, Control, and Automation System

Digital input/output module 12-channel

Brief description

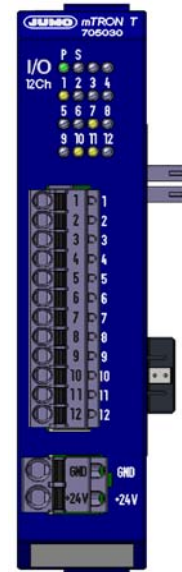
The module is equipped with 12 channels which can optionally be configured as digital inputs or digital outputs. The digitized input states are available in the system for further processing. The digital outputs are actuated via the system bus by digital signals.

The load current of up to 6 A (12 × max. 500 mA) must be provided via the terminals +24V/GND at the front.

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

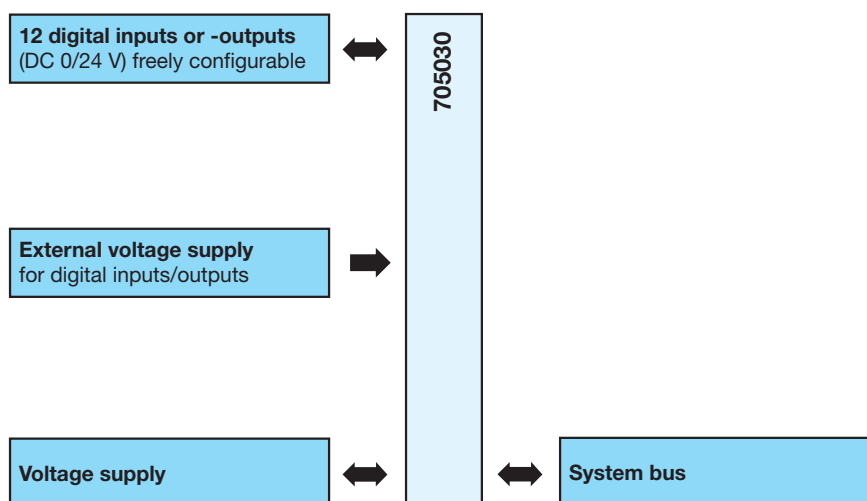
A setup program or the multifunction panel 840 can be used to comfortably configure the digital input/output module.

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 705030/...

Block diagram



Features

- 12 digital inputs or outputs
- Channels are configurable individually as digital input DC 0/24 V or digital output DC 0/24 V / max. 500 mA
- Supply of external voltage for digital inputs/ outputs through terminal at the front
- Automatic configuration after the module insert has been exchanged (hot swappable)
- Connection of the inputs/outputs 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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Technical data

Digital inputs and outputs

Number	12
Digital inputs	
Input signal	DC 0/24 V (PLC level; logical "0" = -3 to +5 V; logical "1" = +15 to +30 V)
Current	Max. 5 mA per input
Digital outputs	
Output signal	DC 0/24 V (depending on external voltage supply)
Current	Max. 500 mA per output, short-circuit proof

Electrical data

Voltage supply	For module electronics
Connection	Lateral (feed via base unit or router module)
Voltage	DC 24 V +25/-20 %
Residual ripple	5 %
External voltage supply	For digital inputs/outputs
Connection	At the front
Voltage	DC 24 V +25/-20 % SELV
Current	Max. 6 A
Current consumption	90 mA (module electronics only; at DC 19.2 V)
Power consumption	2 W (module electronics only)
Inputs or outputs (terminals 1 to 12) and external voltage supply (2-pole terminal GND/+24 V)	At the front (removable terminal strips with Push-In technology)
Conductor cross section on terminals 1 to 12	
Wire or strand without ferrule	Min. 0.14 mm ² , max. 1.5 mm ²
Strand with ferrule	Without plastic collar: Min. 0.25 mm ² , max. 1.5 mm ²
Strand with ferrule	With plastic collar: Min. 0.25 mm ² , max. 0.5 mm ²
Stripping length on terminals 1 to 12	9 mm
Conductor cross section on terminals GND and +24 V	
Wire or strand without ferrule	Min. 1.5 mm ² , max. 2.5 mm ²
Strand with ferrule	Min. 1.5 mm ² , max. 2.5 mm ²
2x strand with twin ferrule with plastic collar	1.5 mm ²
Stripping length on terminals GND and +24 V	10 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

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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. 130 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 ^a	Classification acc. to DIN EN 60721-3-3, table 6, class 3M2

^a 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
DNV GL	DNV GL	TAA000016N	Class Guideline DNVGL-CG-0339	all types; a power supply unit with DNV GL or GL type approval is required (e.g. type 705090)

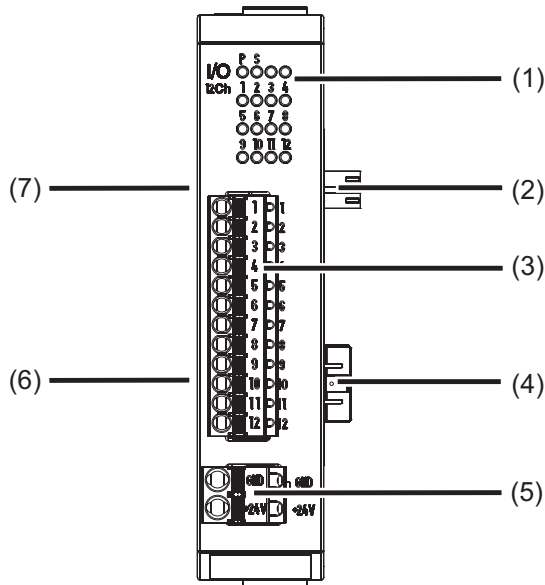
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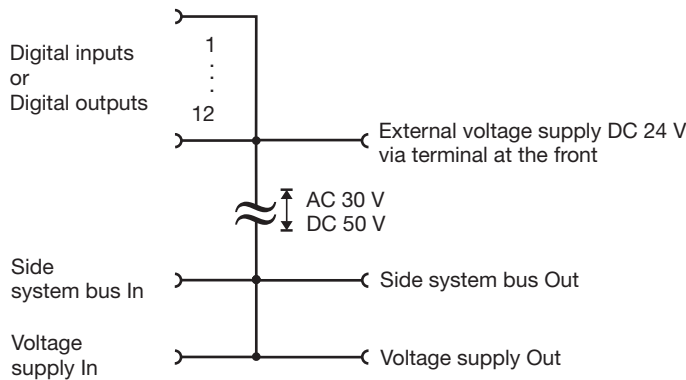


Display and connection elements



- (1) Status displays (LED)
 P = Voltage supply
 S = Status
 1 to 12 = Digital input/output
 (LED is lit: Active)
- (2) Voltage supply Out, DC 24 V
- (3) Digital inputs/outputs
- (4) Side system bus Out
- (5) External voltage supply DC 24 V
- (6) Side system bus In
- (7) Voltage supply In, DC 24 V

Electrical isolation



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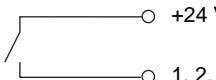


Connection diagram

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.

Digital input

The connection depends on the configuration (input or output).

Connection	Input	Terminals	Symbol and terminal designation
Apply signal DC 0/24 V to terminals 1 to 12	1 2 3	1 and GND 2 and GND 3 and GND	+ ———○ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 U_x - ———○ GND
Ground reference via GND terminal required!	4 5 6 7 8 9 10 11 12	4 and GND 5 and GND 6 and GND 7 and GND 8 and GND 9 and GND 10 and GND 11 and GND 12 and GND	
Or:			
Switch DC 24 V from terminal +24 V to terminals 1 to 12 via floating contact.	1 2 3 4	1 and +24 V 2 and +24 V 3 and +24 V 4 and +24 V	 +24 V 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
External voltage supply DC 24 V via terminals +24 V and GND required!	5 6 7 8 9 10 11 12	5 and +24 V 6 and +24 V 7 and +24 V 8 and +24 V 9 and +24 V 10 and +24 V 11 and +24 V 12 and +24 V	

Digital outputs

The connection depends on the configuration (input or output).

Connection	Output	Terminals	Symbol and terminal designation
Output signal: DC 0/24 V / maximum 500 mA	1 2 3	1 and GND 2 and GND 3 and GND	+ ———○ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 U_x - ———○ GND
External voltage supply DC 24 V via terminals +24 V and GND required!	4 5 6 7 8 9 10 11 12	4 and GND 5 and GND 6 and GND 7 and GND 8 and GND 9 and GND 10 and GND 11 and GND 12 and GND	

External voltage supply

Connection	Terminals	Symbol and terminal designation
DC 24 V	GND und +24 V	- ———○ GND U_x + ———○ +24 V

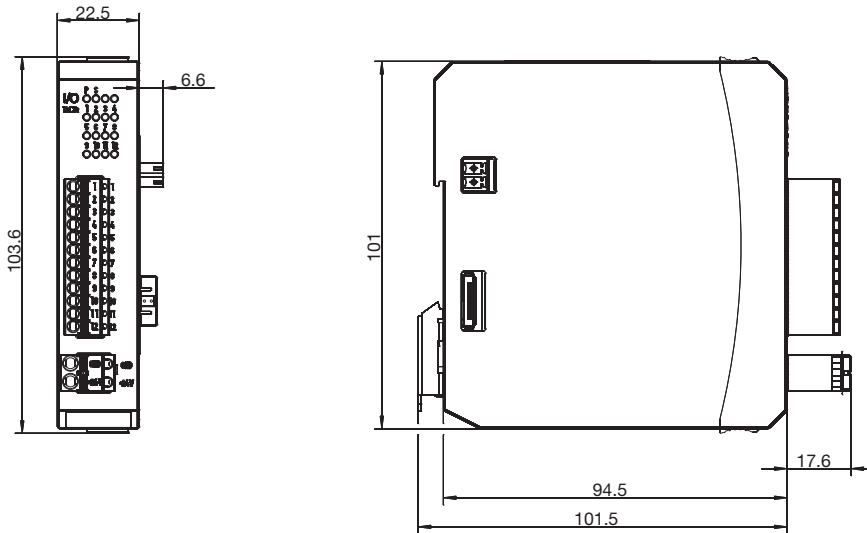
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Dimensions



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
- Analog output module 4-channel
Data sheet 705025
- Digital input/output module 12-channel
Data sheet 705030
- Thyristor power controller type 70906x
Data sheet 709061, 709062, 709063

Special modules

- Router module
Data sheet 705040

Operating, visualization, recording

- Multifunction panel 840
Data sheet 705060
- Operating panels
Data sheet 705065

Power supply units

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

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Order details

(1) Basic type	
705030	Digital input/output module 12-channel
(2) Voltage supply	
36	DC 24 V +25/-20 %
(3) DNV GL approval	
000	Without approval
062	With DNV GL approval ^a

^a The power supply unit used must also have a DNV GL or GL type approval (e.g. type 705090).

Order code	<input type="text" value="(1)"/>	/	<input type="text" value="(2)"/>	/	<input type="text" value="(3)"/>
Order example	705030	/	36	/	000

Scope of delivery

1 digital input/output module, 12-channel
1 Installation Instructions

General accessories

Description	Part no.
JUMO mTRON T system manual, English	00575577
Setup program with program editor JUMO mTRON T (on MiniDVD), incl. USB cable (A-plug to mini-B-plug, 3 m)	00569494
Program editor JUMO mTRON T (on MiniDVD), incl. USB cable (A-plug to mini-B-plug, 3 m)	00622333
PCA3000/PCC JUMO software package	00431884
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	00506252

Content of the Mini-DVD:

- Setup program with program editor JUMO mTRON T in case of part no. 00569494
- Program editor JUMO mTRON T in case of part no. 00622333
- CODESYS programming software (free version)
- CODESYS Repository Package - Operating panels (free version)
- GSD file JUMO mTRON T - CPU (free version)
- PC Evaluation Software PCA3000 (30-day trial version)
- PCA Communication Software PCC (30-day trial version)
- Documentation in PDF format