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JUMO mTRON

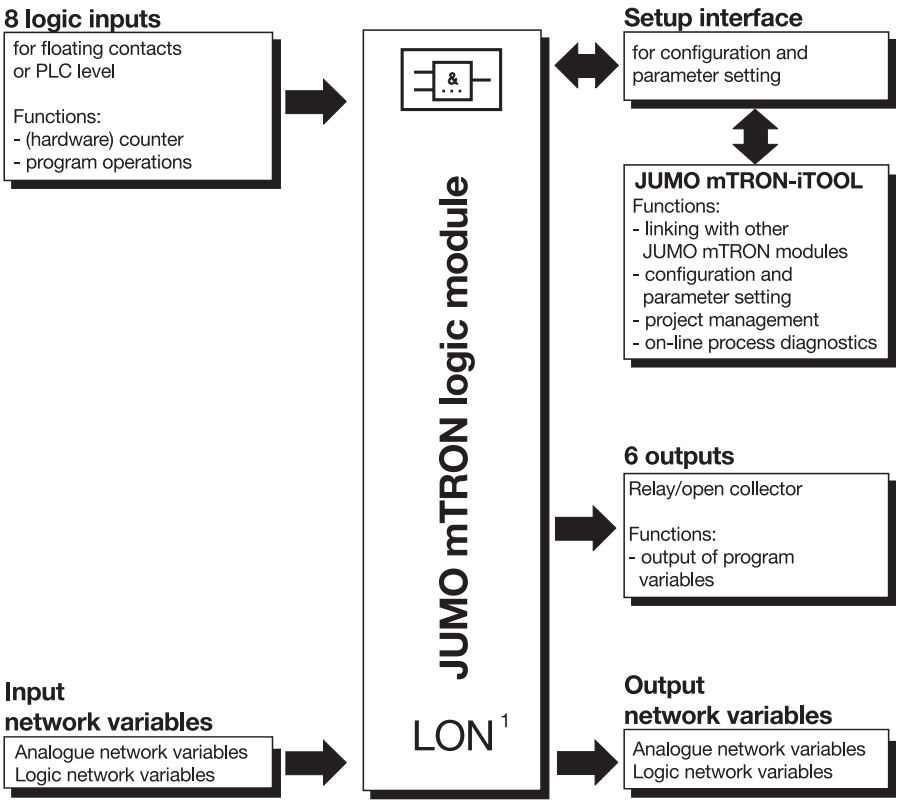
Logic module

Brief description

The unit is a module of the JUMO mTRON control and automation system. The plastic housing measures 91 mm x 85.5 mm x 73.5 mm (W x H x D) and is mounted on a standard rail.
The logic module processes programs which are created according to IEC 1131 Part 3 “Structured text”. It permits logic, arithmetic, bit sequence, comparison and selection operations. A library contains standardised function blocks for timed operations, up/down counters, edge recognition and bistable functions. The module features eight logic inputs (floating contact or PLC level) and six relay or open-collector outputs. A network connection is available for the exchange of data. A screened twisted pair is used as a transmission line. There is a setup interface for module parameter setting and configuration from a PC under the JUMO mTRON-iTOOL project design software. The electrical connections are made through plug-in connectors with screw terminals.

Type 704030/0-...

Block structure

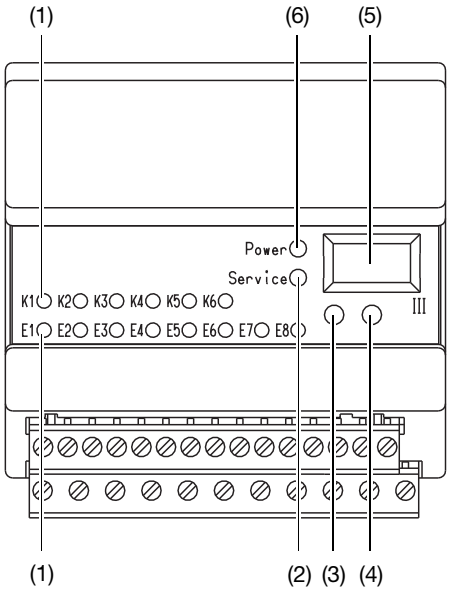


1. LON® = **L**ocal **O**perating **N**etwork
Registered trademark of the
ECHELON Corporation

Features

- **8 logic inputs**
- **6 switching outputs**
- **Real-time clock**
- **Network inputs**
  8 logic, 4 long, 8 real
- **Network outputs**
  8 logic, 4 long, 8 real
  combined alarm
  switching status of inputs/outputs
  date/time
- **2 hardware counters**
  for counting pulses and time measurements via the logic inputs
- **Programming through “Structured text” to DIN 1131**
- **Function blocks to DIN 1131**
- **Debugger**
  for program testing
  (via JUMO mTRON iTOOL)
- **Setup interface**
  For configuration and parameter setting, the module is linked to a PC via a PC interface
- **Plug & Play function**
  Problem-free replacement of modules without re-configuration

Displays and controls



(1)	**Status LED, yellow** for the outputs K1 to K6 and the logic inputs E1 to E8, lights up if the output is active /contact is closed or voltage on the logic input	(4)	**Installation key** the module reports to the JUMO mTRON-iTOOL project design software or the operating unit
(2)	**Service LED, red** - lights up on operating fault - blinks when the mechanical connection to the module from the JUMO mTRON-iTOOL or the operating unit is checked by a test signal (“wink”)	(5)	**Setup interface** for the PC interface line which connects the module to the PC
(3)	**Switch** for the termination resistance of the LON network	(6)	**Power LED, green** lights up when the supply is switched on

Technical data

Hardware inputs

Logic inputs

Activation:
– floating contacts
– PLC level

Functions:
- (hardware) counters
- program operations

Hardware outputs

Switching outputs

Function:
- output of program variables

Relay outputs
Type: (n.o.) make
Nominal voltage: 250V
Nominal current: 3A
Rating: 3A, 250V AC,
resistive load
Life: $5 \cdot 10^5$ operations
with resistive load
Contact material: AgCdO (hard gold plated)
Minimum load: 5V 10mA DC

Open-collector outputs
Rating: 50V 0.5A max.
short-circuit proof

Input network variables

Analogue network variables

- 8 variables “real” type
- 4 variables “long” type

Logic network variables

- 8 variables “bool” type

Output network variables

Analogue network variables

Output cycle: 420msec

- 8 variables “real” type

Logic network variables

Output cycle: event-controlled
every 105 msec, but at least every 6sec

- 8 variables “bool” type

Further network variables

Output cycle: 420 msec
- 4 variables “long” type
- date and time
- combined alarm
- switching status of the inputs
- switching status of the outputs

General data

Electrical safety

as per EN 61010-1
Overvoltage category: II
Pollution degree: 2

Environmental influences

Operating and ambient temperature:
0 to 55°C
Permitted storage temperature:
–40 to +70°C
Relative humidity: rH 80 % max.
Electromagnetic compatibility
as per EN 61326-1
- interference emission:
  Class A - Only for industrial use -
- interference immunity:
  to industrial requirements

Housing

Material: plastic, self-extinguishing
Flammability Class: UL 94 V0
Protection: IP20 (as per EN 60 529)
Mounting: on a standard rail

Supply

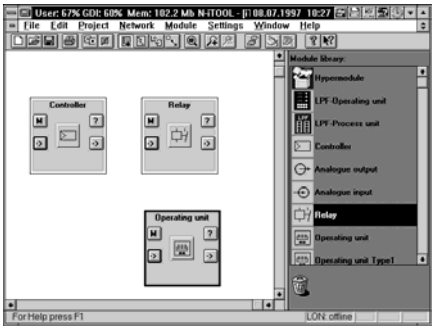
110 — 240V AC +10/–15%, 48 — 63Hz,
or 20 — 53V AC/DC, 48 — 63Hz
Power consumption: 5VA max.

Network (LON interface)

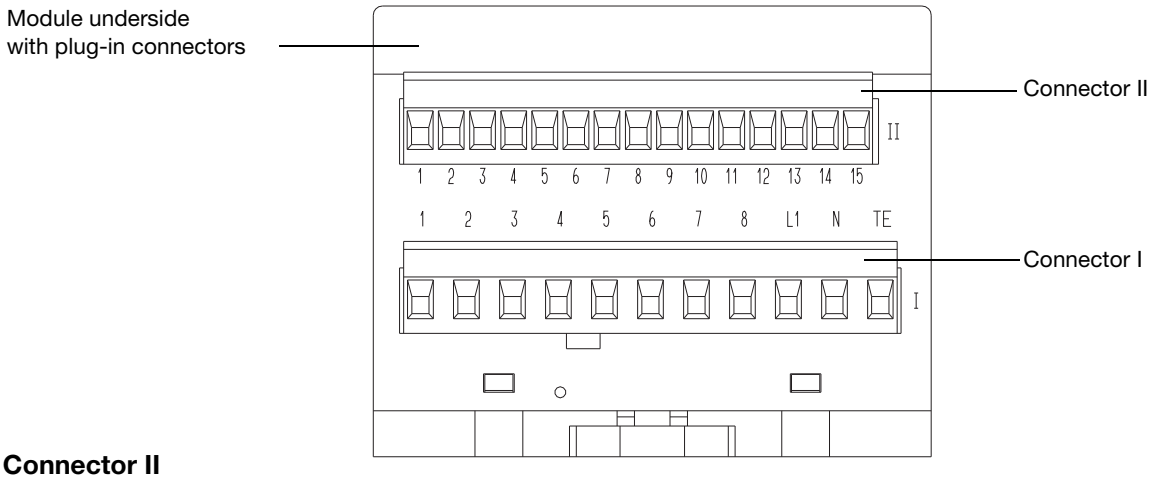
Transceiver: free topology FTT-10A
Topology: ring, star, line or mixed structure
Baud rate: 78 kbaud
Max. lead length
(depending on lead type):
line: 2700m
star: 500m
ring: 500m
mixed: 500m
Max. number of modules: 64

Operation and project design

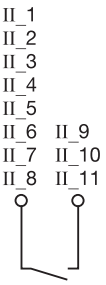
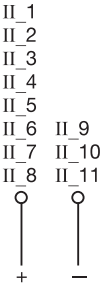
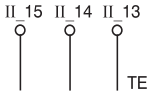
Operation, parameter setting and configuration of JUMO mTRON modules can be carried out from the JUMO mTRON operating unit. The JUMO mTRON-iTOOL project design software permits convenient design and start-up of a JUMO mTRON system. The projects can be archived and documented. Individual modules are linked via LON by assigning network-variable (NV) names.



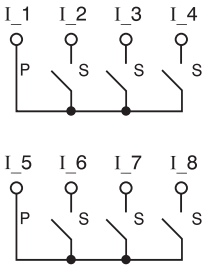
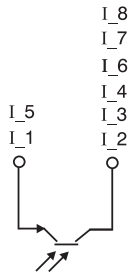
Connection diagram



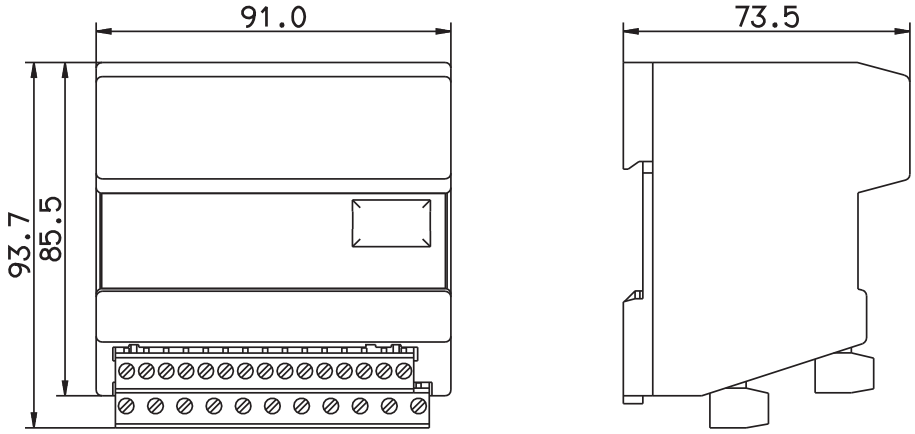
Connector II

Connection for	Terminals								Diagram
Logic inputs	**E1**	**E2**	**E3**	**E4**	**E5**	**E6**	**E7**	**E8**	
Floating contact	II_1 II_9	II_2 II_9	II_3 II_9	II_4 II_9	II_5 II_9	II_6 II_9	II_7 II_9	II_8 II_9	
Voltage -35V to 4.5V -> low 13V to 35V -> high	II_1 + II_9 —	II_2 + II_9 —	II_3 + II_9 —	II_4 + II_9 —	II_5 + II_9 —	II_6 + II_9 —	II_7 + II_9 —	II_8 + II_9 —	
	The terminals II_9, II_10 and II_11 are linked internally.								
LON interface	II_13 = TE						screen		
	II_14 = Net_A II_15 = Net_B						any polarity		
Technical earth	II_13 II_TE								

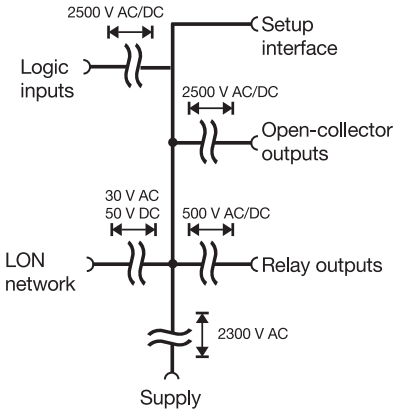
Connector I

Connection for	Terminals						Notes	Diagram
Outputs	K1	K2	K3	K4	K5	K6		
Relay output 3A, 250VAC, resistive load	I_1 I_2	I_1 I_3	I_1 I_4	I_5 I_6	I_5 I_7	I_5 I_8	P = common S = n.o. (make)	
Open-collector output 50V 0.5A max.	I_1 I_2 +	I_1 I_3 +	I_1 I_4 +	I_5 I_6 +	I_5 I_7 +	I_5 I_8 +		
	I_1 and I_5 are not linked internally!							
Supply as label	AC			DC				
	I_L1 line I_N neutral I_TE technical earth			I_L1 I_N } any polarity I_TE technical earth				

Dimensions



Isolation



Ordering details

	(1)		(2)		(3)
704030/0-	. . .	-	. . .	-	. .

(1) Inputs . . .

Inputs	Code
8 logic inputs, volt-free from the system	**178**
8 voltage inputs 0/24V	**188**

(2) Outputs . . .

Outputs	Code
6 logic outputs (relay, n.o. make)	**156**
6 open-collector outputs (transistor) (available from October ´98)	**176**

(3) Supply . . .

Type	Code
110 — 240V AC +10/–15%, 48 — 63Hz	**23**
20 — 53V AC/DC, 48 — 63Hz	**22**

Standard accessory

1 Installation Instructions 70.4030

Accessories

PC interface with TTL/RS232C converter
for connecting the module to a PC; length 2m.
Sales No. 70/00301315

Project design software JUMO mTRON-iTOOL
Using the JUMO mTRON- iTOOL project design software, the modules can be designed graphically on the PC. The user is able to link modules of the JUMO mTRON family and to configure the application-specific parameters.

JUMO mTRON System Manual
Documentation of configuration, parameter setting and installation of the modules.
Sales No. 70/00334336

JUMO mTRON modules

Controller module
Data Sheet 70.4010

Relay module
Data Sheet 70.4015

Analogue input module
Data Sheet 70.4020

Analogue output module
Data Sheet 70.4025

Logic module
Data Sheet 70.4030

Operating unit
Data Sheet 70.4035

Communication module
Data Sheet 70.4040

JUMO mTRON-iTOOL project design software
Data Sheet 70.4090