LON digital I/O modules

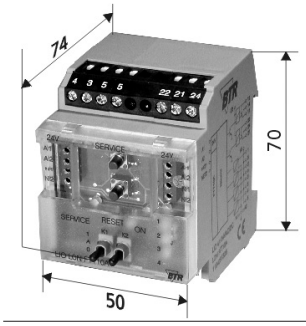
LIO 4/2

24 V AC/DC, 4 digital inputs, 2 relay outputs

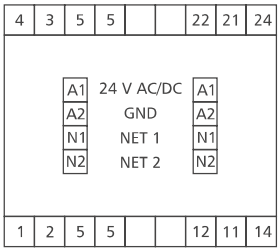
Part Number

110 408 13 26

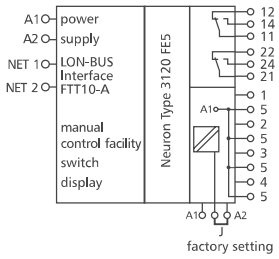
Dimensions - C18 housing



Wiring



Wiring Diagram



Note

The modules can be mounted in series without interspace. The max. number of modules connected in series is 15, each group needs an external power supply.

Use

LON I/O module with 4 digital inputs and 2 relay outputs. Suitable for example to take up light switches and window contacts in a room and to switch two batten luminaires or control window blinds. Or, besides other applications it can control two motor driven fire protection valves.
For high inductive loads it is recommended to protect the relay contacts additionally by a RC element.

Functional description

The inputs can be operated as contact and voltage inputs (A1, 24 VAC/DC, jumper J - A2) or with actuation to GND (A2, jumper J - A1), depending on the position of the jumper J (under the cover plate). In a LON installation these data points can be bound individually or as a whole. The lamp load relays are provided with a manual control, that is only activated in the “Configured Mode”, and furthermore with an adjustable wipe function.

LON interface

transceiver	FTT10A free topology
neuron	3120, 3k EEPROM
data format	standard network variables (SNVT)
transmission rate	78 kBit/s
max. length (see page 7)	
line topology	2700 m / 64 nodes
free topology	500 m / 64 nodes
cabling	twisted pair

Application software

XIF and NXE files are available as downloads under **www.btr-electronic-systems.de.**

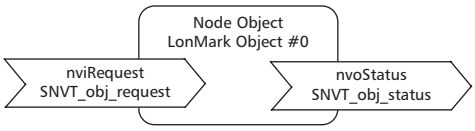
Technical data

Housing	dimensions w*h*l	50 x 70 x 74 mm
	weight	126 g
	mounting position	any
	mounting	DIN rail according to EN 50022
	material	housing + terminal blocks polyamide 6.6 V0 cover plate polycarbonate
	type of protection (DIN 40050)	housing IP40 terminal blocks IP20
Terminal blocks	supply and bus	pluggable terminal block 1,5 mm² (terminal block and jumper plug are included to each packing unit)
	digital inputs and outputs	2.5 mm²
Supply	operating voltage range	20 ... 28 V AC/DC
	current consumption	220 mA (AC) / 90 mA (DC)
	duty cycle	100 %
	recovery time	550 ms
Output	output contact	2 changeover contacts
	switching voltage	250 V AC
	making/breaking current max.	80 A
	nominal current	16 A
	total current for all contacts	max. 25 A
	contact fuse	max. 16 A
	mechanical endurance	30 x 10^6 cycles
	electrical endurance	9 x 10^4 cycles
	permissible switching frequency	6 / min at nominal current
Temperature range	operation	-5 °C ... +55 °C
	storage	-20 °C ... +70 °C
Protective circuitry	operating voltage	polarity reversal protection
Display	operation	green LED
	function	yellow LED for status (service)
	input status	yellow LEDs
	output status	yellow LEDs

LON digital I/O modules

Description of the LonMark objects and network variables

LIO 4/2
LIO 4/2 IP65



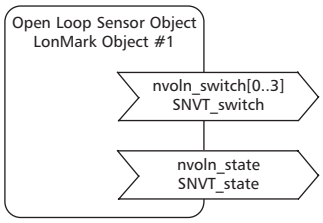
Node Object

The Node Object monitors and controls the functions of the different objects in the device. It supports the basic functions Object-Status and Object-Request required by LonMark.

Application Objects

These objects contain the functions status record of the digital inputs, setting of the digital outputs and data exchange.

DigitalIn Object



DigitalIn Object

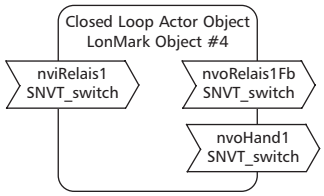
nvoIn_switch[0..3] (index 2..5)

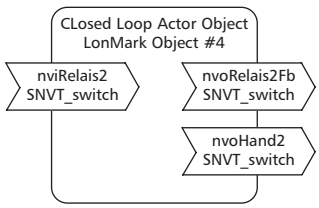
SNVT type	SNVT_switch
Function	Status of the inputs. The output variables are issued at a change of the input status, at the end of the preset obligatory update time (nciMinSendTime) or at a module reset.
Closed contact	nvoIn_switch[0..3] = 100.0 1
Open contact	nvoIn_switch[0..3] = 0.0 0

nvoIn_state (index 6)

SNVT type	SNVT_state
Function	Status of all inputs. The output variable is issued at a change of the input status, at the end of the preset obligatory update time (nciMinSendTime) or at a module reset.
Assignment	nvoIn_state.bit0 = input 1 … nvoIn_state.bit3 = input 4
Closed contact	nvoIn_state.bit[0..3] = 1
Open contact	nvoIn_state.bit[0..3] = 0

R1 and R2 Object





R1 and R2 Object

nviRelais[1..2] (index 7,8)

SNVT type	SNVT_switch
Function	switching of the outputs
nviRelais[1..2] = 100.0 1	relays activated
nviRelais[1..2] = 0.0 0	relays released

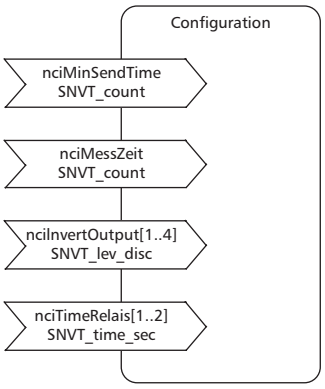
nvoRelais[1..2]Fb (index 10,11)

SNVT type	SNVT_switch
Function	The output variables are issued at a change of the relay status.
nvoRelais[1..2]Fb = 100.0 1	relays activated
nvoRelais[1..2] = 0.0 0	relays released

nvoHand[1..2] (index 9,12)

SNVT type	SNVT_switch
Function	manual feedback
nvoHand[1..2] = 100.0 1	manual switch on automatic mode
nvoHand[1..2] = 0.0 0	manual switch on “1” or “0”

Configuration Variables



Configuration Variables

nciMinSendTime (index 11)

SNVT type	SNVT_count
Function	All output variables described above are issued even without status change at the end of a preset period of time. Thus the device reports periodically to the system.
Time settings	0 timer turned off 1 .. 60 timer time in seconds (factory setting 0)

nciMessZeit (measuring time) (index 12)

SNVT type	SNVT_count
Function	The status of the inputs are scanned within the preset time. Then the output variables nvoIn_switch and nvoIn_state are set and issued at the end of the preset update time (nciMinSendTime).
Measuring time settings	120 .. 60000 measuring time in ms (factory setting 120)

nciInvertOutput[1..4] (index 13..16)

SNVT type	SNVT_lev_disc
Function	
nciInvertOutput[1..4] = ST_ON	open input contact; nvoIn_switch and/or nvoIn_state = set
nciInvertOutput[1..4] = ST_OFF	closed input contact; nvoIn_switch and/or nvoIn_state = set

nciTimeRelais[1..2] (index 17, 18)

SNVT type	SNVT_time_sec
Function	Wipe function. With a preset time and nviRelais[1..2] = 100.0 1 the respective relay releases automatically. It is only reactivated if nviRelais[1..2] is set from 0.0 0 to 100.0 1. The wipe function is turned off during manual operation.
Wipe settings	0 wipe function turned off 0,1 .. 6553,4 s