

Product Information LON-WA4/B

Type Designation · Use

LON-WA4/B

IO module with 4 digital inputs. Suitable for determining the status of potential-free switches.

Specially adapted to monitoring fire dampers with electronic limit switches by means of additional combination options and passing on alarms.



Technical Data

Output:

LON interface, data format Standard Network Variables (SNVT)

Inputs:

4 digital inputs for potential-free switch contacts or voltage inputs with triggering after A1 (24V AC/DC) or after A2 (GND) depending on the jumper J position

Enclosure:

ASA (LURAN S KR 2867 C WU)
159 mm x 120 mm x 41,5 mm, Protection type IP65

Assembly:

Enclosure can be fixed with two bolts

Cable Entry Point:

8 x M12 or M16 connection

Power Supply:

20 – 28V AC/DC

Power Consumption:

Ca. 45mA / 24V DC

Neuron:

3120, 3K EEPROM downloadable

Transceiver:

FTT10A free topology

Connection Clamps:

Spring terminals for nominal area
1.5 mm² single-core
1.0 mm² highly flexible
AWG 16

Operating Temperature:

-5°C...+55°C

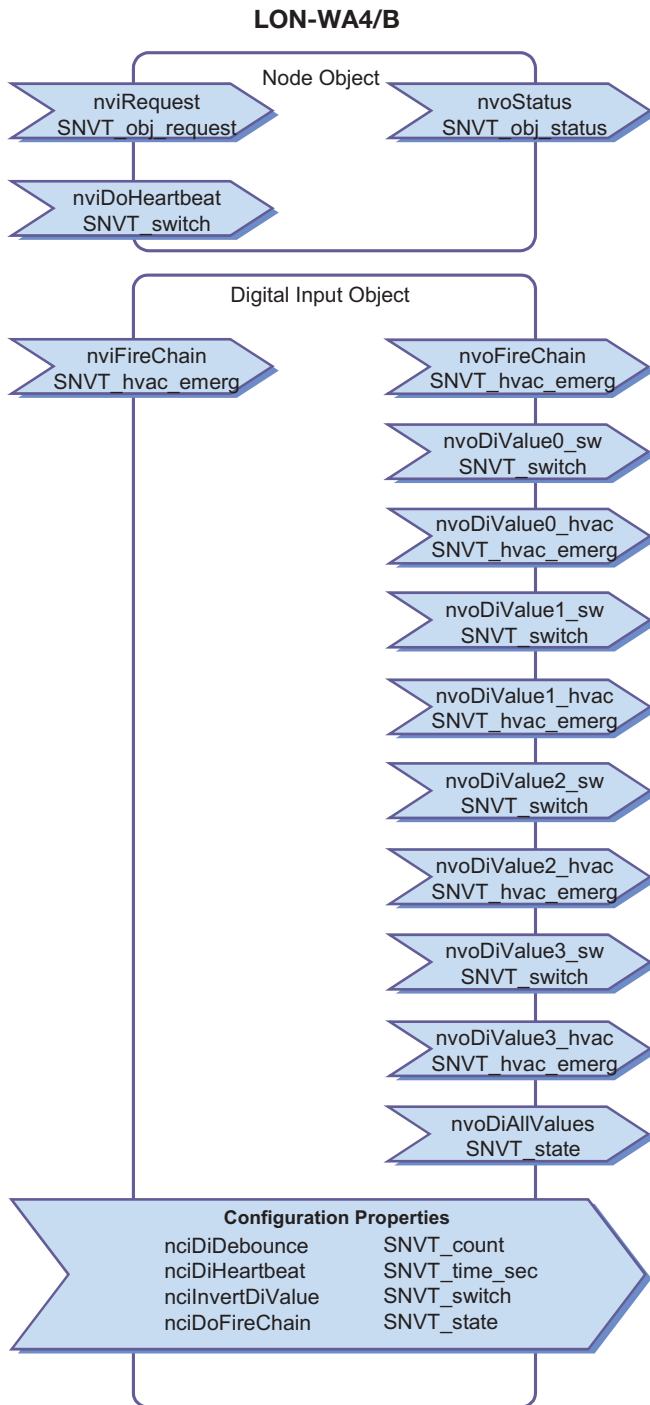
Available Software Application:

LON-WA4/B Plug-In files, xif/xfb files and nxe/apb files can be downloaded from the Internet under www.trox.de

Description of the functionality of the LON-WA4/B

During the definition of a LON node, one differentiates between the node object (#0) and one or more application objects. Both are, in turn, divided into mandatory variables and optional variables. Moreover, there is a range of configuration properties for the parameter setting of the node. All these conventions enable the interoperability of each and every LON node.

Components



1. Node Object

The node object #0 makes mechanisms available that allow the node to be analysed and influenced as a whole. It supervises all other objects of the node and only appears once within a node. It contains no application, but is solely responsible for the node. Counted among its tasks are, for example, network management functions and status reports. The node object monitors and controls the functions of the individual objects in the device. The basic functionality object-status and object request, as set out by LON-MARK, is supported.

Network Variables Node Object:

Manadatory Network Variables

nviRequest

SNVT Type: SNVT_obj_request

Function:

Requesting of diverse information and carrying out actions within the node. The following parameters can be received:

RQ_NORMAL: Initialisation of the node, status resetting

RQ_UPDATE_STATUS: Status retrieval, reply via nvoStatus

RQ_REPORT_MASK: Masks of all possible status-bits

nvoStatus

SNVT Type: SNVT:obj_status

Function:

The output variable contains the reply to a previously made request via nviRequest with the desired status bits:

invalid_id: Incorrect object ID requested or not available

invalid_request: Incorrect parameter requested or not available

nviDoHeartbeat

SNVT Type: SNVT_switch

Function:

Once the input variable has been set (100.1 1), the output variables nvoDiValue[0...3] and nvoDiAllValues are updated and transmitted cyclically after the time set via the configuration parameter nciDiHeartbeat.

2. Application Object

With application objects, one differentiates between the following types:

- Open Loop Sensor
- Closed Loop Sensor
- Open Loop Actuator
- Closed Loop Actuator

The node described here is of the type “Open Loop Sensor”.

The object contains a function for determining the status of the digital inputs and data output.

Network Variables Digital Input Object:

nviFireChain

SNVT Type: SNVT_hvac_emerg

Function:

Input variables for the interlinking of damper nodes. If an update occurs from nviFireChain, then the new value will immediately be passed over and sent to nvoFireChain.

nvoFireChain

SNVT Type: SNVT_hvac_emerg

Function:

Output variable to link fire damper nodes. Irrespective of the input variable nviFireChain, nvoFireChain is also set if the digital inputs recognise one or more closed fire dampers. Different conditions for setting nvoFireChain can be parameterised via the configuration variable nciDoFireChain.

A reset can then only occur via nviFireChain.

The data transmission occurs during an update of the nviFireChain and when the damper is closed depending of the configuration.

nviFireChain / nvoFireChain

SNVT Type: SNVT_hvac_emerg

Function:

1. nvi set ➔ nvo set (pass on command)
2. nvi not set ➔ Conditions for setting the nvo via the configuration variable nciDoFireChain adjustable

Inputs DI 0 to DI 3	SNVT state Bit 0 - Bit 15
DI0 or DI1 or DI2 or DI3	Bit 0 ➔ 1, all other 0
(DI0 and DI1) or DI2 or DI3	Bit 1 ➔ 1, all other 0
(DI0 and DI1 and DI2) or DI3	Bit 2 ➔ 1, all other 0
DI0 and DI1 and DI2 and DI3	Bit 3 ➔ 1, all other 0
(DI0 and DI1) or (DI2 and DI3)	Bit 4 ➔ 1, all other 0
(DI0 or DI1) and (DI2 or DI3)	Bit 5 ➔ 1, all other 0

nvoDiValue_sw[0...3], nvoDiValue_hvac[0...3]

SNVT Type: SNVT_switch, SNVT_hvac_emerg

Function:

Status of the digital inputs. The output variables are distributed after a change in the input status, after expiry of the heartbeat time (nciDiHeartbeat) and after module reset (1s + node number [ms]).

Potential-free contact closed)

nvoDiValue[0...3]_sw = 100.01

nvoDiValue[0...3]_hvac = EMERG_FIRE

Potential-free contact open)

nvoDiValue[0...3]_sw = 0.0 0

nvoDiValue[0...3]_hvac = EMERG_NORMAL

nvoDiAllValues

SNVT Type: SNVT_state

Function:

Status of all digital inputs in a collective Network Variable. It is distributed after a change in the input status, after module reset and after expiry of the heartbeat time (nciDiHeartbeat). nvoDiAllValues.bit0 is allocated to input 1, ..., nvoDiAllValues.bit3 is allocated to input 4.

Potential-free contact closed)

nvoDiAllValues.bit[0...3] = 1

Potential-free contact open)

nvoDiAllValues.bit[0...3] = 0

SNVT-List LON-WA4/B

Name	SNVT Type	Unit	Description
Application			
nviFireChain	SNVT_hvac_emerg		Interlinking of damper nodes
nvoFireChain	SNVT_hvac_emerg		Interlinking of damper nodes
nvoDiValue_sw[0...3]	SNVT_switch		Status of the individual digital inputs
nvoDiValue_hvac[0...3]	SNVT_hvac_emerg		Status of the individual digital inputs
nvoDiAllValues	SNVT_state		Status of all digital inputs
Configuration			
nciDiDebounce	SNVT_count	ms	Debouncing time for digital inputs
nciDiHeartbeat	SNVT_time_sec	s	Heartbeat interval
nciInvertDiValue	SNVT_switch		Inverting of the output values
nciDoFireChain	SNVT_state		Configuration of nvo FireChain

Components

3. Configuration Parameters:

The configuration variables are carried out as bindable network variables which can be saved on the EEPROM. In this way, a parameter change is also possible without an installation tool.

Note:

An update of the variables writes directly in the non-volatile programme memory of the hardware. The user must guarantee that the total number of writing cycles is smaller than the maximum writable capacity of the non-volatile memory (Size < 10000).

nciDiDebounce

SNVT Type: SNVT_count
 Function:
 Debouncing time for digital inputs (in ms). Pre-set value: 30 ms

nciDiHeartbeat

SNVT Type: SNVT_time_sec
 Function:
 Heartbeat interval. After time expiry of nciDiHeartbeat, digital inputs are retrieved and the output variables nvoDiValue[0...3] and nvoDiAllValues are sent. With input values of <1sec, the heartbeat function is deactivated. Pre-set value: 0 (no heartbeat).

nciInvertDiValue

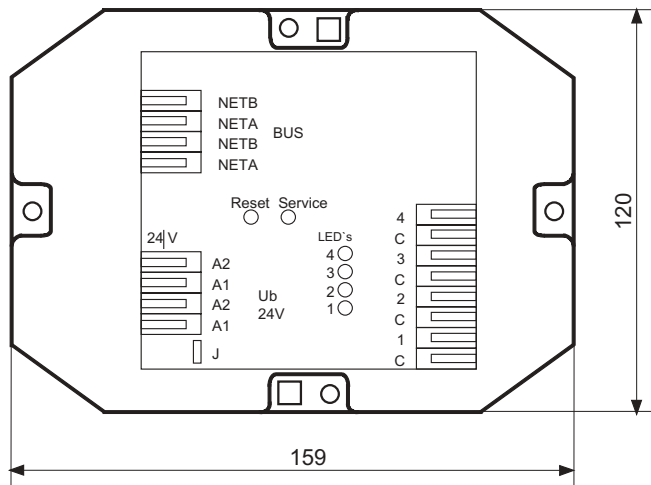
SNVT Type: SNVT_switch
 Function:
 Configuration parameters for inverting the output values.

nciDoFireChain

SNVT Type: SNVT_state
 Function:
 Configuration of the conditions for setting the output variable nvoFireChain to link fire damper nodes.

Inputs DI 0 to DI 3	SNVT state Bit 0 - Bit 15
DI0 or DI1 or DI2 or DI3	Bit 0 ➤ 1, all other 0
(DI0 and DI1) or DI2 or DI3	Bit 1 ➤ 1, all other 0
(DI0 and DI1 and DI2) or DI3	Bit 2 ➤ 1, all other 0
DI0 and DI1 and DI2 and DI3	Bit 3 ➤ 1, all other 0
(DI0 and DI1) or (DI2 and DI3)	Bit 4 ➤ 1, all other 0
(DI0 or DI1) and (DI2 or DI3)	Bit 5 ➤ 1, all other 0

Connection scheme LON-WA4/B



Ordering Key

LON-WA4/B

Call for Tenders Text

LON-WA4/B

LON module with 4 digital inputs, suitable for state-sampling of potential-free switches, equipped with additional combination options and passing on alarms for monitoring fire dampers with electrical limit switches.

Input: 4 inputs digital max. load 5mA/10V or potential-free
 Output: via SNVT_switch and SNVT_hvac_emerg

Transmitter: FTT10A
 Protection Type: IP65
 Power Supply: 20 – 28V AC/DC
 Make: TROX
 Type: LON-WA4/B