Handleiding

NOX Modbus Server

Aanvullende informatie

Versie: 27072014

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1. Modbus Server

Modbus Server over IP for NOX System
NOX System Version >= 8.60

1.1. Communication

The NOX CPU transmits NOX system states on IP using the industry standard Modbus protocol.
The Modbus client must connect to the NOX Modbus server (in the NOX CPU) and the client must query the required states continuously.
The Modbus client must supervise the connection. If the connection fails, he must reconnect to the server.

Supported Modbus messages:

Modbus Message	Description
0x03	Read Holding Registers
0x10	Write Multiple Registers
0x10	Mask Write Register

1.2. Addressing

All areas and detectors (inputs) are available on the Modbus protocol.

1.2.1. Areas

Areas are addressed on register 1 to 999
Area 1 = Register 1, etc.

1.2.2. Detectors (Inputs)

To provide a consistent address also when changes to the NOX are made (e.g. by adding or deleting units), all detectors are not addressed by the input number but by the ID number.
Modules on Bus 1 are addressed by ID number 1000-1999, Bus 2 ID 2000-2999 and Bus 3 ID 3000-3999.
To this ID number, the number of the input is added. Unit open is mapped on register xxxx5, unit missing on register xxxx6
Only IDs up to 6400 are supported.

Example:

Input module 2001, input 2 -> Register address 20012 (2001 + input 2)
Input module 2010, input 3 -> Register address 20103 (2010 + input 3)
Input module 2210 open -> Register address 22105 (2210 + 5)

1.2.3. Picture detectors

Adressing of picture detectors (NOX TXM/TXS/TXO) is from register 60000.
First detector (with ID B0001): register address 60001.

1.3. Area states

All area states are built using a 16 bit value (Modbus Register Value).

bit	Description
0-9	current area state (see below)
10	Last setting failed (area is in blocking time)
11	Last setting failed (no rights)
12	Last setting failed (active detectors in the area)
13	Last setting failed (active alarms in the area)
14	There are active alarms in this area (0=no alarm, 1=one or more active alarms)
15	This area is used by the NOX

Version 1

Possible area states (bit 0-9):

bit	Description
0	Unknown
1	Disarmed
2	Disarmed exit
3	Disarmed exit wait
4	Disarmed entry
5	Armed
6	Partly armed
7-9	Customized

Version 2

Area state is represented as decimal value on bit 0-9.
This is only supported on NOX System version >= 9.71.
If arming or disarming of an area fails, the appropriate bits are set. After querying the state of the
area by the Modbus client, the bit will be cleared. So the answer to an area state change (if failed) is
transmitted only once.

1.4. Input states

All input states are built using a 16 bit value (Modbus Register Value).

bit	Description
0	Current state of the input (0=quiet/ok, 1=movement/open)
1	State of sabotage (0=no sabotage, 1=input is in sabotage)
2	Input deactivation (0=detector is active, 1=detector is deactivated)
3	Detector is in alarm (0=no alarm, 1=detector is in alarm)
4	System >= 9.71: input in state open2 (0=not in state open2, 1=in state open2)
5-14	not used
15	This detector is used by the NOX

From System 9.71: Input state Open2

1.5. Area settings (arm/disarm)

To arm or disarm an area, the register of the area is set to the requested area state.
The result of the area setting can be seen on the next query of the area state. If the setting was successful, the area state changed. If it failed, the reason can be seen in the error-bits.
An area can only be set to area state 1 to 5. Area state 6 (party armed) will only be used (automatically) if the area is a master state.

Example:

Register: 5
Value: 5
-> Arm area 5

Register: 5
Value: 1
-> Disarm area 5

1.6. (De)activation of inputs

To deactivate an input, the Register bit 7 is set (= 1).
To activate this input, bit 7 is cleared (= 0).

Example:

Register: 22103
Set Bit 7 = 1
-> Deactivation of input 2210-3

Register: 22103
Set Bit 7 = 0
-> Activation of input 2210-3

1.7. Acknowledging single alarms

To acknowledge a single alarm, set register bit 6 of the detector to 1.

Example:

Register: 22103
Set Bit 6 = 1
-> All alarms of this detector are acknowledged\\

1.8. Acknowledging all alarms

To acknowledge alarms, Register 1000 is set to 1.
Now all alarms are acknowledged, which are possible to acknowledge. (Like selecting “ack all alarms” on the NOX CPA). If an alarm is not acknowledged, the alarm bit in the input will not be cleared.
In a standard configuration, the input must be in Ok state or the area of the input must be disarmed to acknowledge an alarm of this input.

Example:

Register: 1000
Value: 1
-> All alarms are acknowledged

1.9. Request temperature / humidity of NOX THS / NOX THT

Since NOX THS and NOX THT not only support alarms, but also temperature and humidity, but only have one register, the measurements are mapped on register 7 and 8.

1.9.1. NOX THS

Register	Description
xxxx1	Sensor fault
xxxx2	Temperature alarm
xxxx3	Humidity alarm
xxxx5	Unit open
xxxx6	Unit missing
xxxx7	Temperature
xxxx8	Humidity

xxxx = ID number of the unit

1.9.2. NOX THT

Register	Description
xxxx1	Temperature alarm
xxxx2	Humidity alarm
xxxx6	Unit missing
xxxx7	Temperature
xxxx8	Humidity

xxxx = ID number of the unit

Humidity register
0-100
Measured humidity in % relH

Temperature register
0-2000 = 0-200°C
>2000 = negative value (minus 2000)

Example:

Register xxxx8 = 67 -> 67% rel.H.
Register xxxx7 = 382 -> 38.2°C
Register xxxx7 = 2123 -> -12.3°C
Register xxxx7 = 1 -> 0.1°C