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MODBUS TCP/IP SUPPORT

The ENVIROMUX is equipped with Modbus TCP/IP support to enable PLC or any software-based controller to read the value/state of some of the sensors and read and command the state of relays. Using the Modbus communication protocol devices can be programmed over TCP/IP to treat the ENVIROMUX as a Modbus slave device reacting to readings from available sensors and controlling relays as needed.

Modbus TCP Function Codes Definition

Function Code	Name	Usage
01	Read Coils	Read the state of Output Relays
02	Read Discrete Inputs	Read the state of Digital Inputs
03	Read Holding Registers	Not Available
04	Read Input Registers	Read Internal/External Sensors/IP Sensors floating point values
05	Write Single Coil	Write data to force Output Relay Active/Inactive
06	Write Single Holding Register	Not Available
15	Write Multiple Coils	Write data to force multiple Output Relays Active/Inactive
16	Write Multiple Holding Registers	Not Available

Starting with firmware version 4.28 the PWR-RMT-RBT-C13 Rebooter is supported as an IP Sensor using Modbus for sensing the status of Digital Inputs and the status and control of the AC and DC Outputs.

Function:

01 Read Coil: Read Rebooter AC or Digital Output relay
02 Read Discrete Inputs: Read Digital Inputs
05 Write Single Coil: Write to Rebooter's single Output relay (change state- ON/OFF)
15 Write Multiple Coils: Write to Rebooter's multiple Output relay's (change state of multiple Output relays- ON/OFF)

Function Code 01 - Read the state of Output Relays

Description:

Function code 01 is used to read the status of Output Relays (Active/Inactive) of the E-xD slave device in a binary data format. Starting with firmware 3.0, Output Relays on E-DI16DO16 are also provided in one contiguous block. As of firmware version 4.28 the AC and Digital Outputs are supported in the PWR-RMT-RBT-C13 Rebooter.

Query:

Device ID (0,1 or 255)	Function Code	Starting Address High	Starting Address Low	Quantity of coils High	Quantity of coils Low	CRC	CRC

Response:

The Relay Outputs status in response message is packed as one Relay Output per bit of data field. The first Relay Output addressed by Starting Address is the LSB. A value of "1" for a bit means that the relay is ACTIVE while "0" means relay INACTIVE.

Direct Output relay status are provided first with 4 addresses reserved for this on each E-xD.

Next Output Relays from E-DI16DO16 are listed one after the other in the order they are connected as a contiguous block. There will be no gaps in between reserved for unconnected ports.

The formula for getting the position of E-DI16DO16 relay is: 4 + 16 * N + P, where N is the zero indexed number of DIDO in order of connection and P is zero indexed position of Output Relay port within that E-DI16DO16.

For example if one E-DI16DO16 is connected at port 2 and second E-DI16DO16 is connected at port 3, the first output relay on second E-DI16DO16 is at address 4 + 16 * 1 + 0 = 20

Mapping:

Coil # (Address)	E-16D	E-5D	E-2D
0	Relay Output #1	Relay Output #1	Relay Output #1
1	Relay Output #2	Relay Output #2	N/A
2	Relay Output #3	N/A	N/A
3	Relay Output #4	N/A	N/A
4	Remote DO #1-1	Remote DO #1-1	Remote DO #1-1
...	...	...	...
19	Remote DO #1-16	Remote DO #1-16	Remote DO #1-16
20	Remote DO #2-1	Remote DO #2-1	Remote DO #2-1
…	...	...	...
35	Remote DO #2-16	Remote DO #2-16	Remote DO #2-16

The formula for getting the address of an AC output relay of a Rebooter that is an IP Sensor is 5000 + (M*3) where M is the zero index of the Rebooter IP Sensor.

The formula for getting the address of a Digital Output Relay on a Rebooter that is an IP Sensor is: 5001 + (M*3) + N
where M is the zero index of the Rebooter IP Sensor and where N is the zero index of the Digital Output relay within the Rebooter.

For example to get the first index of the Digital Output Relay on the second Rebooter, the address is : 5001 + (1*3) + 0.

Coil # (Address)	E-xD
5000	Rebooter #1 AC Relay Output #1
5001	Rebooter #1 Digital Output #1
5002	Rebooter #1 Digital Output #2
5003	Rebooter #2 AC Relay Output #1
...	...

Function Code 02 - Read the state of Digital Inputs

Description:

Function code 02 is used to read the status of Digital Inputs (Open/Closed) of the E-xD slave device in a binary data format. Starting with firmware 3.0 Digital Inputs on E-DI16DO16 are also provided in one contiguous block. Starting with firmware 4.20 Digital Inputs on E-Micro/E-1W IP Sensors are available from the address offset 5000. Beginning with firmware version 4.28, PWR-RMT-RBT-C13 IP Sensors are also added.

Query:

Device ID (0,1 or 255)	Function Code	Starting Address High	Starting Address Low	Quantity of inputs High	Quantity of inputs Low	CRC	CRC

Response:

The Digital Input status in response message is packed as one Digital Input per bit of data field. The LSB of the first data byte. The other inputs follow toward the high order end of this byte, and from low order to high order in subsequent bytes. If the returned input quantity is not a multiple of eight, the remaining bits in the final data byte will be padded with zeros (toward the high order end of the byte). The byte count field specifies the quantity of data.

A value of “1” for a bit means that the corresponding Digital Input is “Open”, a value of “0” means it is closed.

Direct Digital Input status are provided first with 8 reserved in each E-xD

Next Digital Inputs from E-DI16DO16 are listed one after the other in the order they are connected as a contiguous block. There will be no gaps in between reserved for unconnected ports

The formula for getting the position of E-DI16DO16 Digital Input is: 4 + 16 * N + P, where N is the zero indexed number of DIDO in order of connection and P is zero indexed position of Digital Input port within that E-DI16DO16.

For example if one E-DI16DO16 is connected at port 2 and second E-DI16DO16 is connected at port 3, the first Digital Input on second E-DI16DO16 is at address 4 + 16 * 1 + 0 = 20

Query:

Device ID (0,1 or 255)	Function Code	Byte Count	Data	Data	….	CRC	CRC

Mapping:

Input # (Address)	E-16D	E-5D	E-2D
0	Digital Input #1	Digital Input #1	Digital Input #1
1	Digital Input #2	Digital Input #2	Digital Input #2
2	Digital Input #3	Digital Input #3	Digital Input #3
3	Digital Input #4	Digital Input #4	Digital Input #4
4	Digital Input #5	Digital Input #5	Digital Input #5
5	Digital Input #6	N/A	N/A
6	Digital Input #7	N/A	N/A
7	Digital Input #8	N/A	N/A
8	Remote DI #1.1	Remote DI #1.1	Remote DI #1.1
…	...	...	...
23	Remote DI #1.16	Remote DI #1.16	Remote DI #1.16
24	Remote DI #2.1	Remote DI #2.1	Remote DI #2.1
…	...	...	...
39	Remote DI #2.16	Remote DI #2.16	Remote DI #2.16

The Formula for getting address of Digital Inputs of IP sensors of E-Micro is: 5000 + 2 * (M) + N
Where M is the zero index of E-Micro IP sensor and N is the zero index of Digital Input within the IP sensor.

For example to get second Digital Input on third E-Micro IP sensor, the address is: 5000 + 2 * 2 + 1

The Formula for getting address of Internal Digital Inputs of IP sensors of E-1W is: 5016 + 26 * (M) + N
Where M is the zero index of **E-1W** IP sensor and N is the zero index of Internal Digital Input within the IP sensor

The Formula for getting address of External Digital Inputs of IP sensors of E-1W is: 5016 + 26 * (M) + 2 + O
Where M is the zero index of **E-1W** IP sensor and O is the zero index of External Digital Input within the IP sensor

For example to get second Digital Input on first E-1W IP sensor, the address is: 5016 + 26 * 0 + 1

The Formula to get address of Digital Inputs of Rebooter IP Sensor is 5120 + (2*M) + N
Where M is the zero value index of the Rebooter and N is the zero value index of a Digital Input within the Rebooter.

For example to get the second Digital Input on the first Rebooter, the address is 5120 + (2*1) + 0

Mapping:

Input # (Address)	E-xD Modbus Sensor		Input # (Address)	E-xD Modbus Sensor
5000	E-Micro #1 Digital Input #1		5120	Rebooter #1 Digital In #1
5001	E-Micro #1 Digital Input #2		5121	Rebooter #1 Digital In #2
5002	E-Micro #2 Digital Input #1		5122	Rebooter #2 Digital In #1
5003	E-Micro #2 Digital Input #2		5123	Rebooter #2 Digital In #2
…	…			
5016	E-1W #1 Digital Input #1			
5017	E-1W #1 Digital Input #2			
5018	E-1W #1 External Digital Input #1			
5019	E-1W #1 External Digital Input #2			
…	...			
5042	E-1W #2 Digital Input #1			
5043	E-1W #2 Digital Input #2			

Function Code 04 - Read Internal, External Sensors, Power Supply, Siren, Beacon values and status, IP sensor values and status

Description:

Starting with firmware version 3.0 Function code 04 can be used to read the values of Internal Sensors, External Sensors, Power Supply, Tachometer and status of Siren, Beacon and External sensors. Modbus Function code 04 assigns 1 address register for each of 16 bit value. Some responses here use 2 such 16 bit registers as either a 32 bit integer or 32 bit float value. Other responses use 1 such 16 bit register as 16 bit integer.

By default, Modbus addresses are listed in the order in which they are connected to the ENVIROMUX. If a port is left empty, the next port is addressed with the next sequential address number. If a sensor is added after addressing is documented, addresses get re-numbered depending upon where the sensor was connected on the ENVIROMUX. As a result, there is no predicting where the information will lie.

Alternatively, as of firmware version 3.4, the RJ45 sensor ports can have pre-assigned blocks of 200 addresses, enabling up to 100 sensors to be connected per RJ45 sensor and addresses for each RJ45 sensor port would fall within a fixed block of numbers. This option can be found in the web interface under Network Settings -> Server Settings. When enabled each external sensor port (RJ45 sensors) is assigned 200 X 16 bit register blocks.

Starting with firmware version 4.20 IP sensors values and status can be read using Function code 04 as well. Modbus Function code 04 assigns 1 address register for each of 16 bit value. Sensor value responses here use 2 such 16 bit registers as either a 32 bit integer or 32 bit float value. Status responses use 1 such 16 bit register as 16 bit integer. IP sensors addressing mode is always fixed and reserved regardless of the Modbus addressing type selection.

Query:

Device ID (0,1 or 255)	Function Code	Starting Address High	Starting Address Low	Quantity of Inputs High	Quantity of Inputs Low	CRC	CRC

Response:

The Modbus protocol has a single byte count which represents the number of bytes (2 bytes per 16 bit register).

Floating Point Format

The values of all sensors are in IEEE 32-bit Floating Point Little Endian byte-swapped format. For this reason, two 16-bit registers are used to represent the value of each sensor. The format is IEEE 32-bit Floating Point Little Endian with byte-swapped (the order of bytes is 3,4,1,2)

16 Bit Integer Values:

Status of external sensors are provided as 1 16-bit register in unsigned integer format

Device ID (0,1 or 255)	Function Code	Byte Count	Data	Data	….	CRC	CRC

Starting with firmware version 3.0 input register mapping supports reading of internal sensors, external sensors including E-DI16DO16, count of external sensor and E-DI16DO16's connected, Power sensor status and all external sensor status.
If external sensors or IP Sensors are of a contact type, a value of 0.0 will represent a closed contact and a value of 1.0 will represent an open contact.
If external sensor type is of output relay on a E-DI16DO16, the status of output relays on the E-DI16DO16 are shown as "0" if they are active, and "1" if inactive. Please note this is reverse of the value shown for E-DI16DO16 output relays when reading them as coils with function code 01

With default sequential addressing, Sensor Mapping in the response is as follows:

1. 3 Internal Sensors value in 2X16bit registers each as 32bit float little endian byte swap mode are reserved for each E-xD. In E-16D and E-5D, the first sensor value will always be used for the Internal Temperature Sensor. The second sensor value will always be for the Internal Humidity Sensor. The third sensor value will always be the Backup battery voltage sensor.

   Note: Since the E-2D does not have internal temperature or humidity sensors, first sensor value will be for the backup battery and sensors 2 and 3 are not used

2. Register 6-7 will contain number of external sensors connected including all E-DI16DO16 sensors as 32bit float little endian byte swap mode.

   Note: One E-DI16DO16 unit connected will add up to 33 sensors.

3. Register 8-9 will contain number of E-DI16DO16 Units connected as 32bit float little endian byte swap mode.
4. All external sensors including E-DI16DO16 sensor values follows next as 32 bit float little endian byte swap mode

   Formula for getting external sensor value position as a 16 bit register position is 2 (3 + 2 + N), where N is the zero indexed number of the external sensor position we are interested in, in order, within the external sensors.

   For example, the value of the 5th external sensor value can be found at location 2 (3 + 2 + 4) = 18

5. Next 2 Power supply status values follow each as 32bit float little endian byte swap mode

   Formula for getting power supply status position as a 16 bit register position is 2 (3 + 2 + E + N), where E is the number of external sensors connected (retrieved from point 2) and N is the zero indexed position of power supply we are interested in.

   For example, the status of first power supply status, assuming 10 external sensors are connected, is found at 2 (3 + 2 + 10 + 0) = 30

6. This is followed by the Tach sensor

   Tachometer on Digital Input 1 at address 2 (3 + 2 + E + 2), where E is the number of external sensors connected. Value Format: 32-bit Floating Point Little Endian with byte-swapped (the order of bytes is 3,4,1,2)

7. This is followed by Siren/Beacon Status.

   For an E-16D, the address for Siren status is at address 2 (3 + 2 + E + 2 + 1) and the address for the Beacon status is at 2 (3 + 2 + E + 2 + 2), where E is the number of external sensors connected.

   Value Format: The Siren/Beacon status in data field(s) is packed as 32 bit signed integers. The first field addressed by Starting Address is the LSB. A value of “0” for a bit means that the Siren/Beacon status is INACTIVE while “1” means Siren/Beacon status is ACTIVE.

   For an E-5D, address for "Alarm" status is at address 2 (3 + 2 + E + 2 + 1), where E is the number of external sensors connected.

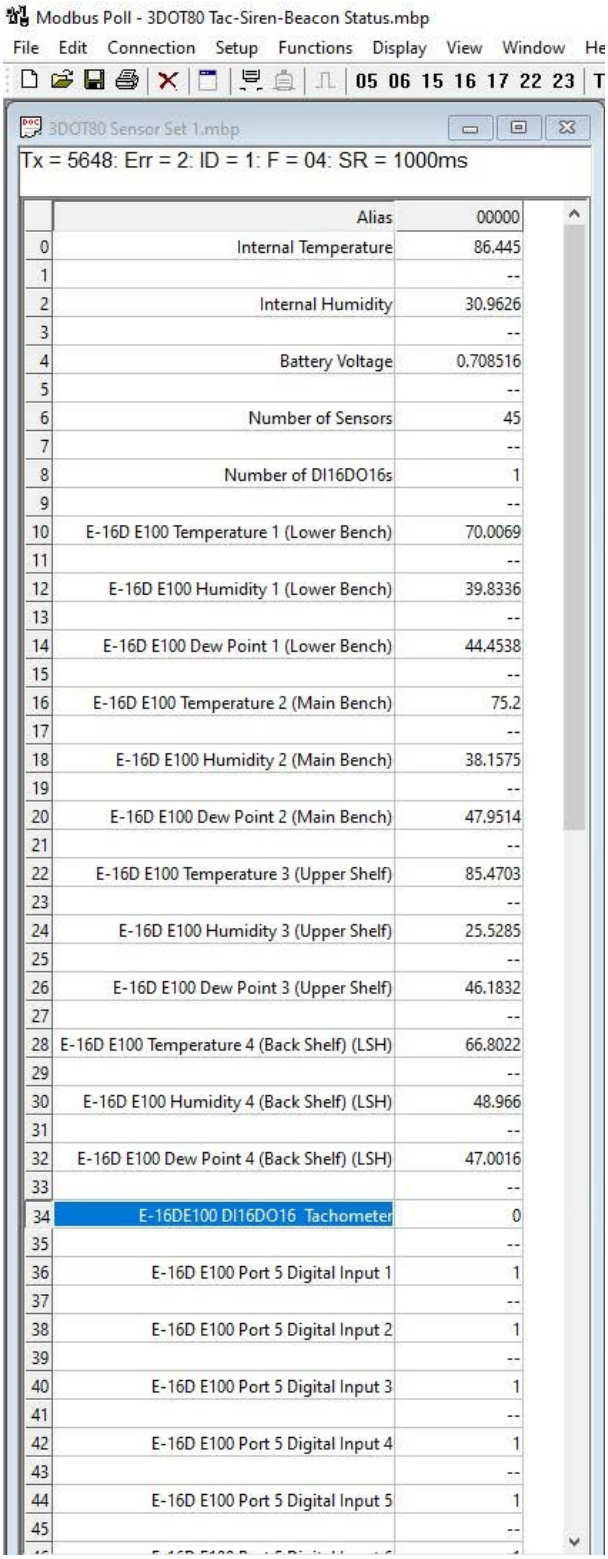
8. This is followed by the Status of all external sensors in 1X16bit registers each as 16bit unsigned integer is given at 16 bit register address 2 (3 + 2 + E + 2 + 3) + N, where E is the number external sensors connected and N is the zero indexed number of external sensor we are interested in.

   For example, to get the status of 5th external sensor, assuming

   10 external sensors are connected, the 16 bit register address is

   2 (3 + 2 + 10 + 2 + 3) + 4 = 44 .

A screenshot of the values displayed when polling input registers is shown right. All values shown in second column are displayed in 32 bit float little endian byte swapped format. The integer numbers on the left of each row are the 16 bit register addresses. The first 'Alias' column is shown for user's reference.



	Alias	00000
0	Internal Temperature	86.445
1		--
2	Internal Humidity	30.9626
3		--
4	Battery Voltage	0.708516
5		--
6	Number of Sensors	45
7		--
8	Number of DI16DO16s	1
9		--
10	E-16D E100 Temperature 1 (Lower Bench)	70.0069
11		--
12	E-16D E100 Humidity 1 (Lower Bench)	39.8336
13		--
14	E-16D E100 Dew Point 1 (Lower Bench)	44.4538
15		--
16	E-16D E100 Temperature 2 (Main Bench)	75.2
17		--
18	E-16D E100 Humidity 2 (Main Bench)	38.1575
19		--
20	E-16D E100 Dew Point 2 (Main Bench)	47.9514
21		--
22	E-16D E100 Temperature 3 (Upper Shelf)	85.4703
23		--
24	E-16D E100 Humidity 3 (Upper Shelf)	25.5285
25		--
26	E-16D E100 Dew Point 3 (Upper Shelf)	46.1832
27		--
28	E-16D E100 Temperature 4 (Back Shelf) (LSH)	66.8022
29		--
30	E-16D E100 Humidity 4 (Back Shelf) (LSH)	48.966
31		--
32	E-16D E100 Dew Point 4 (Back Shelf) (LSH)	47.0016
33		--
34	E-16DE100 DI16DO16 Tachometer	0
35		--
36	E-16D E100 Port 5 Digital Input 1	1
37		--
38	E-16D E100 Port 5 Digital Input 2	1
39		--
40	E-16D E100 Port 5 Digital Input 3	1
41		--
42	E-16D E100 Port 5 Digital Input 4	1
43		--
44	E-16D E100 Port 5 Digital Input 5	1
45		--

Input Register Mapping

Input # (Address)	E-16D	E-5D	E-2D
0	Internal Temp Sensor	Internal Temp Sensor	Battery Voltage
2	Internal Humidity Sensor	Internal Humidity Sensor	N/A
4	Battery Voltage	Battery Voltage	N/A
6	Number of External Sensors	Number of External Sensors	Number of External Sensors
8	Number of DI16DO16s	Number of DI16DO16s	Number of DI16DO16s
10	External Sensor #1.1	External Sensor #1.1	External Sensor #1.1
12	External Sensor #1.2	External Sensor #1.2	External Sensor #1.2
14	External Sensor #1.3	External Sensor #1.3	External Sensor #1.3
16	External Sensor #2.1	External Sensor #2.1	External Sensor #2.1
18	External Sensor #2.2	External Sensor #2.2	External Sensor #2.2
20	External Sensor #2.3	External Sensor #2.3	External Sensor #2.3
2 (3 + 2 + N)	External Sensor Value	External Sensor Value	External Sensor Value
2 (3 + 2 + E + N)	Power Supply Status	Power Supply Status	Power Supply Status
2 (3 + 2 + E + 2)	Tachometer Status	Tachometer Status	Tachometer Status
2 (3 + 2 + E + 2 + 1)	Siren Status	Alarm Status	N/A
2 (3 + 2 + E + 2 + 2)	Beacon Status	N/A	N/A
2 (3 + 2 + E + 2 + 3) + N	External Sensor Status	External Sensor Status	External Sensor Status

Where E is the number external sensors connected and N is the zero indexed number of external sensor/power supply we are interested in.

With the pre-assigned block method of addressing, sensor mapping in the response is as follows:

1. 3 Internal Sensors value in 2X16bit registers each as 32bit float little endian byte swap mode are reserved for each E-xD.

   In E-16D and E-5D, the first sensor value will always be used for the Internal Temperature Sensor. The second sensor value will always be for the Internal Humidity Sensor. The third sensor value will always be the Backup battery voltage sensor.

   Note: Since the E-2D does not have internal temperature or humidity sensors, first sensor value will be for the backup battery and sensors 2 and 3 are not used

   Note: If E-RJ8-RS485 Sensor Hubs are used, only the first 100 sensors can be mapped. (I.e. If you connect E-DI16DO(R)16 Digital Expander units to a Sensor Hub, with a capacity of up to 33 sensors per Digital Expander, only the first 100 connected sensors will be mapped.)

2. Register 6-7 will contain number of external sensors connected including all E-DI16DO16 sensors as 32bit float little endian byte swap mode.

   Note: One E-DI16DO16 unit connected will add up to 33 sensors.

3. Register 8-9 will contain number of E-DI16DO16 Units connected as 32bit float little endian byte swap mode.
4. Next the External Sensor on Port 1 will be assigned registers from 10 to 210, each value represented as 32 Bit Float little endian byte swap mode.

   Likewise any external sensor on Port M (RJ45 Sensor Port 1 to 16) with sensor value at position N (1 to 100) is available at address 10 + (M - 1) * 200 + (N - 1).

5. This is followed by 2 Power Supply Status values from addresses 3210 to 3213.
6. This is followed by the Tachometer on Digital Input 1, Siren and Beacon at 3214 3216 and 3218 respectively.

7. This is followed by status of external sensors with 100 registers per port representing the alert status of of each sensor as a 16 bit unsigned integer.

   So the alert status of the possible 100 sensors on RJ45 Sensor Port 1 is at 3220 to 3320.

   Likewise the status of any external sensor on Port M (1 to 16) with sensor value at position N (1 to 100) is available at address 3220 + (M - 1) * 100 + (N - 1)

IP sensors register mapping is always fixed with an offset of 5000 as follows:

1. 3 Internal Sensors (of E-Micro) value of 2X16bit registers each as 32bit float little endian byte swap mode are reserved for an E-Micro IP Sensor.

Formula for getting Internal sensors address for E-Micro IP sensor is: 5000 + 2 * (9 * (M) + N) where M is the zero index of E-Micro IP sensor and N is the zero index of internal sensor.

Example: To get address of 1st internal sensor connected to 7th E-Micro IP sensor: 5000 + 2 * (9 * 6 + 0)

2. Followed by 6 External Sensors value in 2X16 bit registers each for same E-Micro IP Sensor.

Formula for getting External sensors address for E-Micro IP sensor is: 5000 + 2 * (9 * (M) + 3 + N) where M is the zero index of E-Micro IP sensor and N is the zero index of external sensor.

Example: To get address of 2nd external sensor connected to 7th E-Micro IP sensor: 5000 + 2 * (9 * 6 + 3 + 1)

3. Above addresses are reserved for 8 E-Micro IP Sensors followed by 24 External Sensors value of E-1W in 2X16 bit registers for each External Sensor of each E-1W IP sensor.

   Formula for getting External sensors address for E-1W IP sensor is: 5000 + 2 * (9 * 8 + 24 * M + N) where M is the zero index of E-1W IP sensor and N is the zero index of external sensor.

   Example: To get address of 2nd external sensor connected to 1st E-1W IP sensor:

   5000 + 2 * (9 * 8 + 24 * 0 + 1)

4. This is followed by status of internal, external sensors of E-Micro and then followed by status of external sensors of E-1W

   Formula to get status of internal sensor of E-Micro IP Sensor: 5000 + 2 * (9 * 8 + 24 * 4) + M * 9 + N

   Formula to get status of external sensor of E-Micro IP Sensor: 5000 + 2 * (9 * 8 + 24 * 4) + M * 9 + 3 + N

   Formula to get status of external sensor of E-1W IP Sensor: 5000 + 2 * (9 * 8 + 24 * 4) + 8 * 9 + 24 * M + N

   Where M is the zero index of E-Micro or E-1W IP sensor and N is zero index of internal/external sensor within that IP Sensor.

   For example to get status of 3rd external sensor of 5th E-Micro IP sensor: 5000 + 2 * (9 * 8 + 24 * 4) + 4 * 9 + 3 + 2

IP Sensor Input Register Mapping

Input # (Address)	E-xD Modbus Sensor
5000	E-Micro #1 Internal Sensor #1
5002	E-Micro #1 Internal Sensor #2
5004	E-Micro #1 Internal Sensor #3
5006	E-Micro #1 External Sensor #1
5008	E-Micro #1 External Sensor #2
5010	E-Micro #1 External Sensor #3
5012	E-Micro #1 External Sensor #4
5014	E-Micro #1 External Sensor #5
5016	E-Micro #1 External Sensor #6
5018	E-Micro #2 Internal Sensor #1
5020	E-Micro #2 Internal Sensor #2
5000 + 2 * (9 * (M) + N)	...
5142	E-Micro #8 External Sensor #6
5144	E-1W #1 External Sensor #1
5144 + 2 * (24 * M + N)	E-1W #(M + 1) External Sensor #(N + 1)
...	...
5336	E-Micro #1 Internal Sensor #1 Status
5337	E-Micro #1 Internal Sensor #2 Status
5338	E-Micro #1 Internal Sensor #3 Status
5339	E-Micro #1 External Sensor #1 Status
5336 + M * 9 + N	E-Micro #(M + 1) Internal Sensor #(N + 1) Status
...	...
5408	E-1W #1 External Sensor # 1 Status
5408 + 24 * M + N	E-1W #(M + 1) External Sensor # (N + 1) Status
...	...

Regardless of the addressing method, status values of power supplies, external sensors and IP sensors are as below:

Meaning	Value
NOT CONNECTED	0
NORMAL	1
WARNING	2
ALERT	3
ACKNOWLEDGED	4
DISMISSED	5
DISCONNECTED	6

Write data to force multiple Output Relays Active/Inactive

Description:

Function code 15 is used to force the status of Multiple Output Relays (Active/Inactive) of the E-xD slave device in a binary data format.

Function code 5 can also be used to set single output relay.

Format for Function code 15 is below.

Query:

Device ID (0,1 or 255)	Function Code	Starting Address High	Starting Address Low	Quantity of coils High	Quantity of coils Low	Byte Count (N)	Data	

	Data	Data	CRC	CRC

N in Byte Count field is Quantity of Coils / 8 (if the remainder is different of 0, add 1).

The Relay Outputs status in data field(s) is packed as one Relay Output per bit of data field. The first Relay Output addressed by Starting Address is the LSB. A value of “0” for a bit means that the relay is INACTIVE while “1” means relay ACTIVE.

Response:

The Relay Outputs status in response message has the following format:

Function Code	Starting Address High	Starting Address Low	Quantity of Inputs High	Quantity of Inputs Low	CRC	CRC

Mapping:

The mapping of output relays is the same as for Function Code 01

For the complete E-xD product manual with all features and functions, click here.

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