EASION
Remote I/O

User Manual

Klemsan®

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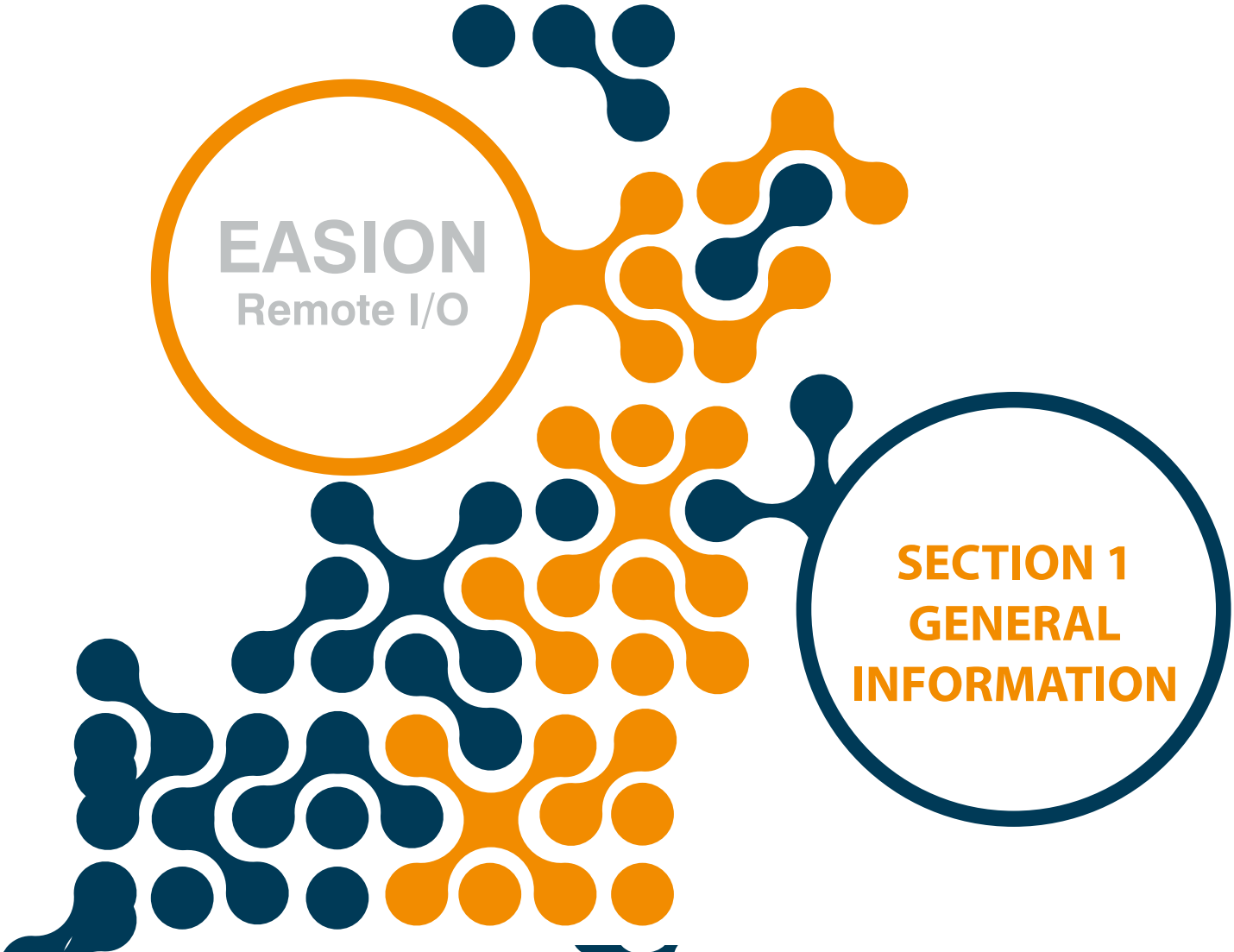

EASION
Remote I/O
SECTION 1
GENERAL
INFORMATION

SECTION 1 GENERAL INFORMATION

1.1 Proper Use and Safety Conditions

- Installation and connections should be established in accordance with the instructions set out in the manual by authorized persons. Unless the connection is built properly, device should not be operated.
- Before wiring the device up, make sure that energy is cut off
- Use a dry cloth to remove the dust from the device/clean the device. Avoid using alcohol, thinner or a corrosive material.
- Device should be engaged only after all the connections are made.
- Do not open the inside of the device. There are no parts which the users can intervene inside.
- Device should be kept away from humid, wet, vibrant and dusty environments.

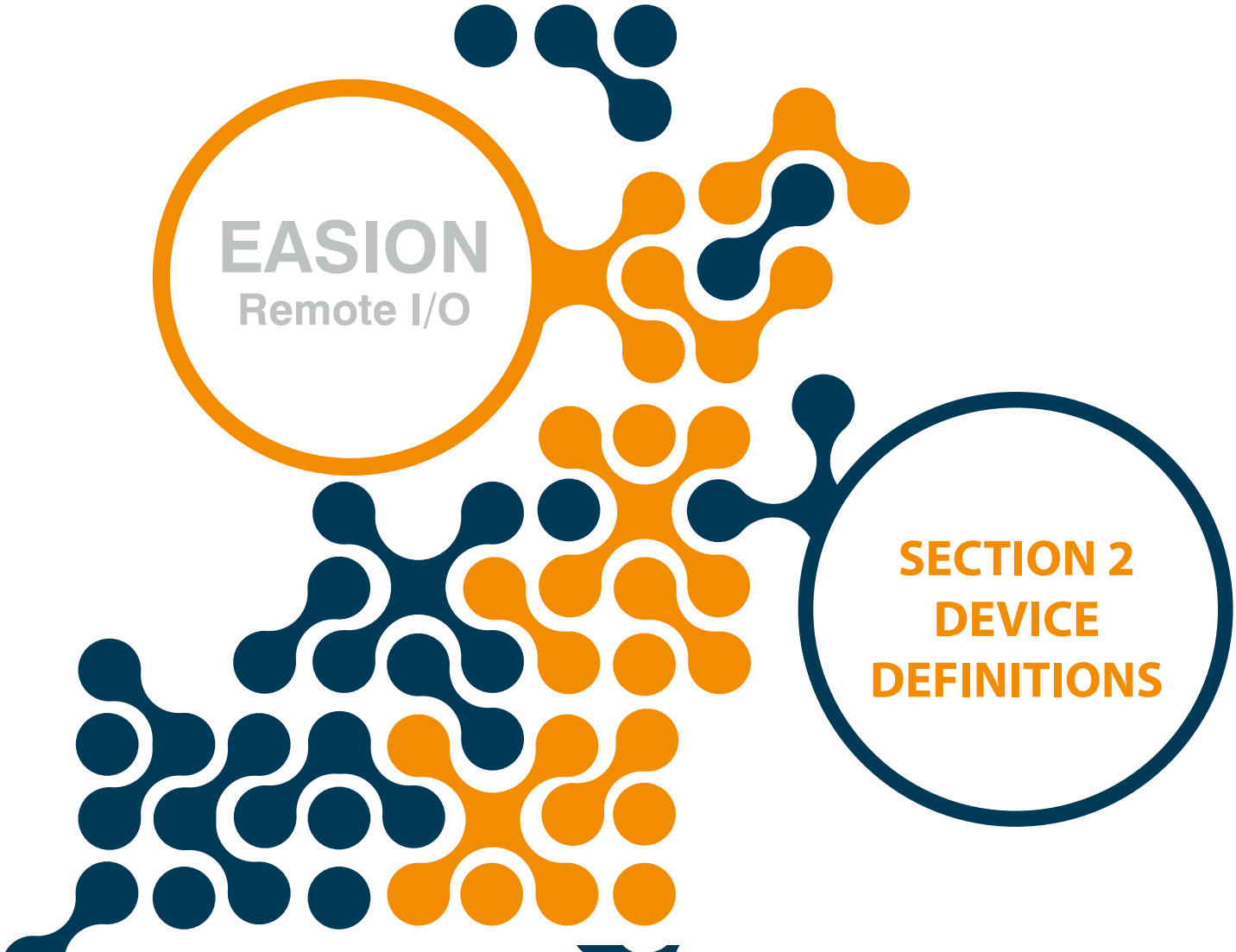
The manufavtoring company may not be kept responsible for unfavorable incidents that arise out of the failure to folow the above cautions.

1.2 General Specifications

EASION is a multi-channel input / output device with Modbus communication and it can keep event records in its memory and perform basic logic operations. EASION offers three different options as 12 input-12 output, 24 input and 24 output. Input channels are designed as active (wet contact) and passive (dry contact) and output channels are designed in two different types as digital output and relay output.

- MODBUS RTU, MODBUS TCP/IP, HTTP REST and MQTT communication protocols are supported.
- Internal battery.
- Real-time clock
- Event logging up to 2047.
- Firmware version can be updated over RS232 and USB interfaces.

	Input Type	24 DI (passive)	24 DI (active)	24 DO	24 RO	12DI (passive) & 12 RO	12DI (active) & 12 DO	12DI (passive) & 12 DO	12DI (active) & 12 RO
EASION-2M*	Stock Code – Order No	1Z111-D (260010)	1Z111 (260011)	11Z11 (260012)	Z1111 (260013)	LL111-D (260014)	1LL11 (260015)	1LL11-D (260016)	LL111 (260017)
EASION-3M**		1Z111-D (260100)	1Z111 (260101)	11Z11 (260102)	Z1111 (260103)	LL111-D (260104)	1LL11 (260105)	1LL11-D (260106)	LL111 (26107)
EASION-4M***		1Z111-D (260200)	1Z111 (260201)	11Z11 (260202)	Z1111 (260203)	LL111-D (260204)	1LL11 (260205)	1LL11-D (260206)	LL111 (260207)
EASION-5M****		1Z111-D (260300)	1Z111 (260301)	11Z11 (260302)	Z1111 (260303)	LL111-D (260304)	1LL11 (260305)	1LL11-D (260306)	LL111 (260307)
* RS485 + RS232 (MODBUS RTU)									
** Ethernet (MODBUS TCP/IP) + USB + RS485 (MODBUS RTU)									
*** Ethernet (MODBUS TCP/IP) + USB (MODBUS RTU)									
**** Ethernet (MQTT + HTTP REST) + USB (HTTP REST)									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DEVICE
DEFINITIONS

SECTION 2 DEVICE DEFINITIONS

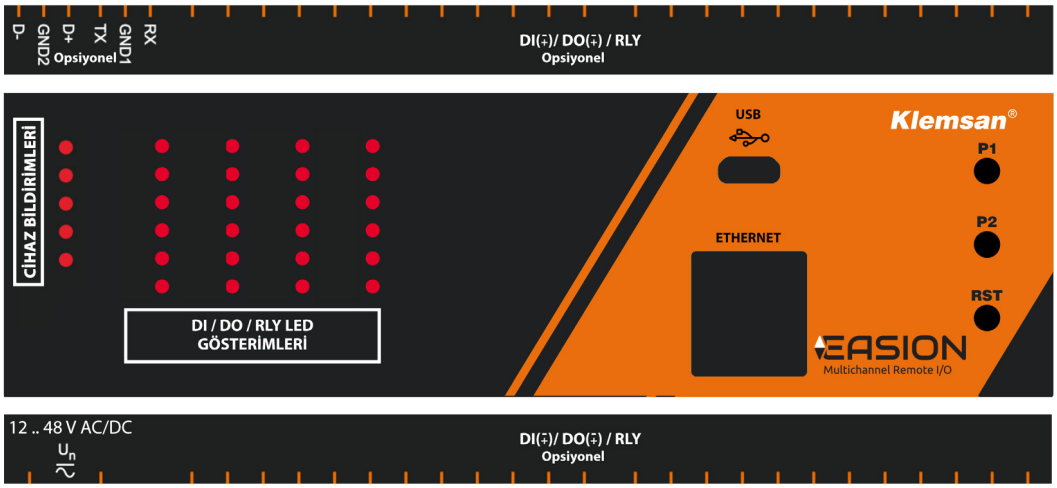


Figure 2-1 EASION General View

NOTE: EasION front panel definitions may vary in different models.

2.2 Cable Connections

Un Terminali:

It is the supply terminal of the device. It can be supplied between 24…48V AC/DC.

Communication Terminals:
Communication protocols vary in EasION series by the different model.

RS485 Interface:

RS485 interface supports MODBUS RTU protocol.

RS232 Interface:

RS232 interface supports MODBUS RTU protocol. Moreover, it allows firmware updating over RS232 interface.

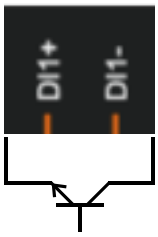
Ethernet+USB:

The device communicates with MODBUS TCP or MQTT protocol over Ethernet. Another difference from devices without Ethernet port is firmware update via USB port.

Ethernet+USB+RS485:

The device can communicate with MODBUS TCP protocol over Ethernet and MODBUS RTU protocol over RS485 and USB. If the two lights of Ethernet port are on, that means the device communicates over Ethernet. USB port on the front panel allows firmware updating.

DIx+ and DIx Terminals(x: 1 ... 24):



The DIx + terminals are located on devices that have active inputs. It is the terminal to which the DC positive voltage end will be connected.The DIx - terminals are located on devices that have active inputs. It is the terminal to which the DC negative voltage end will be connected.

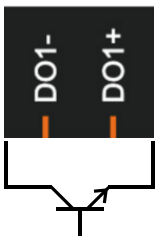
There are 12 or 24 digital inputs depending on the model.

All active inputs are isolated from each other.

DIx – COM Terminals:

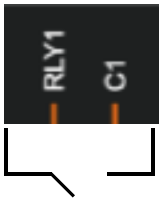
The DIx and COM terminals are located on the devices that have passive inputs. These terminals are activated by short-circuit.

DOx+ and DOx- Terminals (x: 1 ... 24):



The DOx + terminal is the input terminal of the signal to be switched.
The DOx- terminal is the output terminal of the signal that connects to the DOx+ terminal.
There are 12 or 24 digital outputs depending on the model.

Cx and RLY+ Terminals (x: 1 … 24):



5A @ 250V AC

Cx is the common terminal of relay-output products.

The RLYx terminal is the output terminal of the signal that connects to the Cx terminal.

There are 12 or 24 relay outputs depending on the model.

2.2 LED Displays and Buttons on the Device

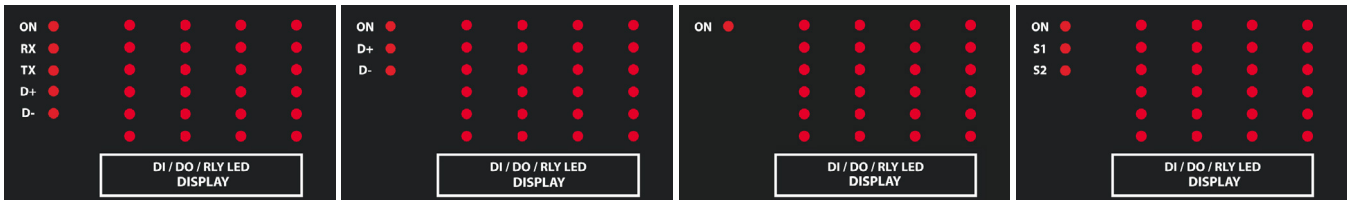


Figure 2-2 LED Displays on the Device

NOTE: EASION görünümü genel olup, modellere göre değişkenlik göstermektedir.

ON:

ON LED is active when the device is energized.

RX and TX:

Indicates that the device sends and receive data over RS232.
Received Data (RX): It is the led notification that is active when the device receives a query.
Transmitted Data (TX): It is the led notification that is active when the device answers the incoming query.

D+ and D- :

Indicates that the device sends data over RS485.

D+: It is the led indication that is active when the device receives a query.

D-: It is the led indication that is active when the device answers the incoming query.

DIx :

DIx LEDs are located on the devices that have digital inputs. The active LEDs indicate that the digital inputs are activated.

DOx :

DOx LEDs are located on the devices that have digital outputs. The active LEDs indicate that the digital outputs are activated.

RLYx :

RLYx LEDs are located on the devices that have relay outputs. The active LEDs indicate that the relay outputs are activated.

S1 (STATUS1) and S2 (STATUS2):

LED indications of the device that provide error information for network and MQTT connections. There are 5 different error reports depending on being active and passive;

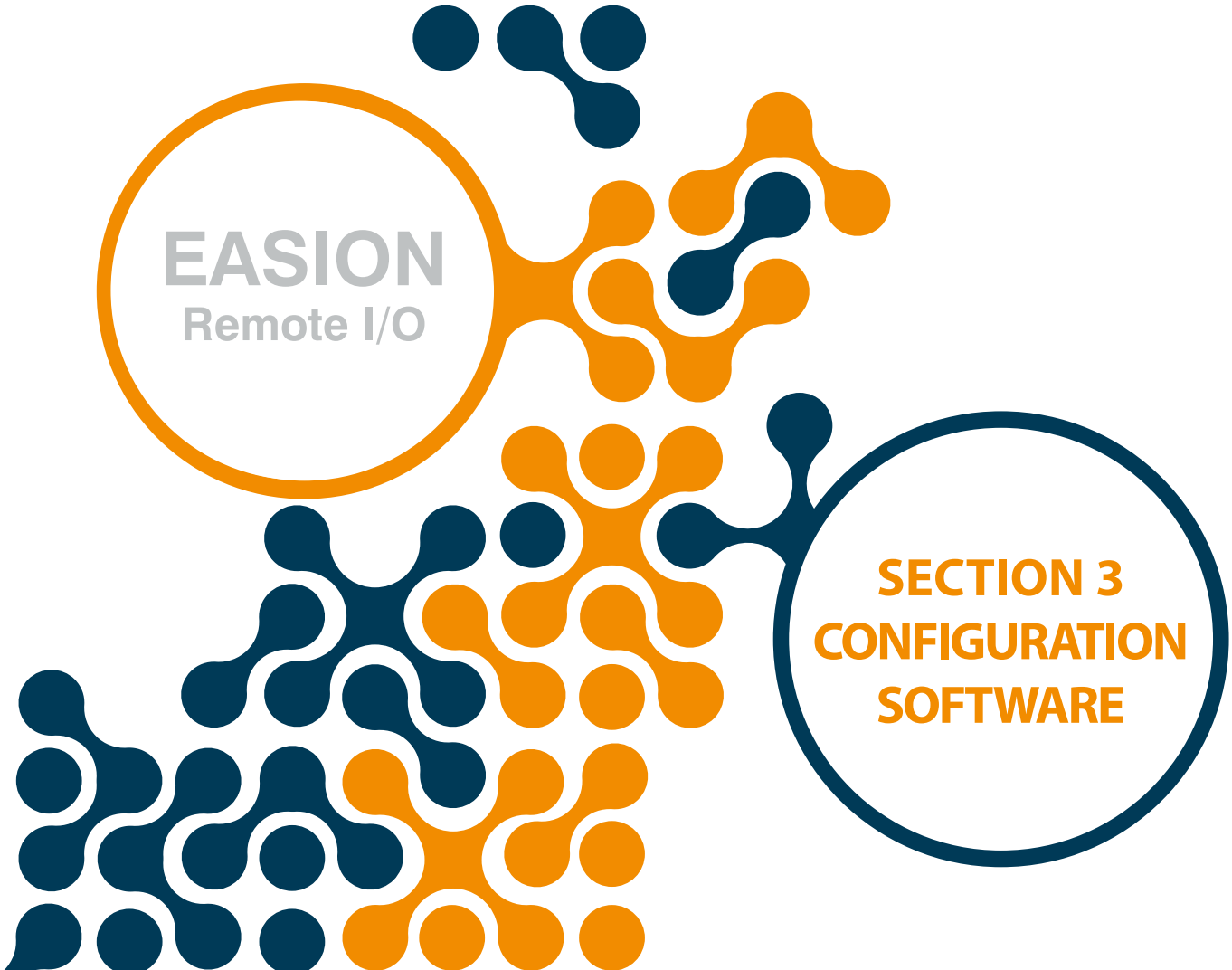
- STATUS1 and STATUS2 flash simultaneously; indicates that the device cannot receive IP. "DNS" or "Broker Name" may have been entered incorrectly.
- If STATUS1 is active, it indicates there is a publish. If it flashes, it indicates there is no publish.
- If STATUS2 is active, it indicates there is a subscribe. If it flashes, it indicates there is no subscribe.
- If STATUS1 is active for 750 msec and passive for 250 msec, It indicates it could not connect to MQTT server (Broker).
- If STATUS2 is active for 750 msec and passive for 250 msec, It indicates it is trying to establish a TCP connection.

Reset Button (RST):

If Reset Button is pressed one time, "ON" LED flashes. If Reset button is pressed for 1<x<5 seconds, the device restarts. If it is pressed for longer than 5 seconds, the factory settings are restored.

Boot Buttons (P1 ve P2):

First of all, press and hold the P1 button, the device is put into boot mode by pressing the P2 button once. The device is restored to normal operation by pressing the P2 button for the second time to end the boot process.


EASION
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SECTION 3
CONFIGURATION
SOFTWARE

SECTION 3 CONFIGURATION SOFTWARE

In order to configure the device with its own user interface software, the related setup file must be downloaded from the Klemsan web page.

3.1 Communication Configuration

3.1.1 Installation of the User Interface Software

EASION interface software downloaded from Klemsan website should be installed. After selecting the desired location for the installation of the software, click “Next” and go to the next step.

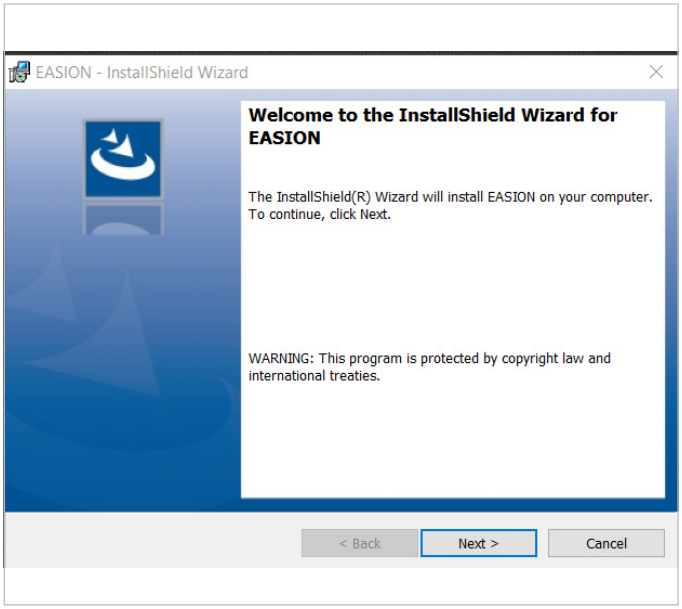


Figure 3-1 Installation-1

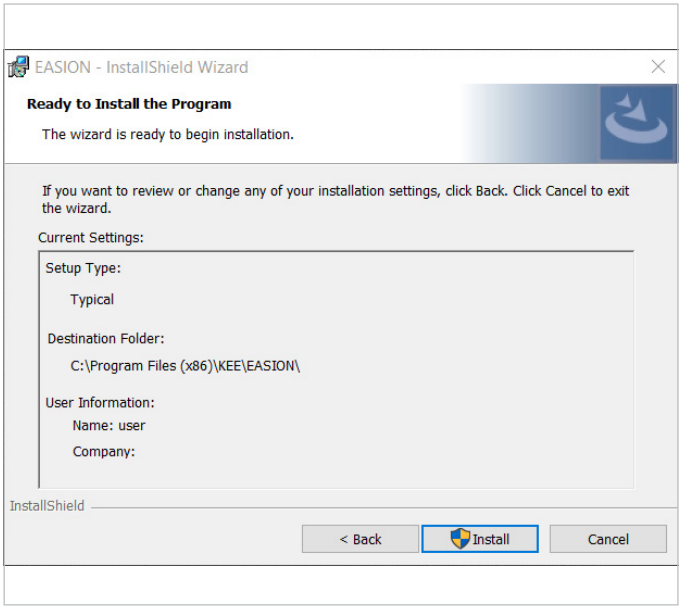


Figure 3-3 Installation-3

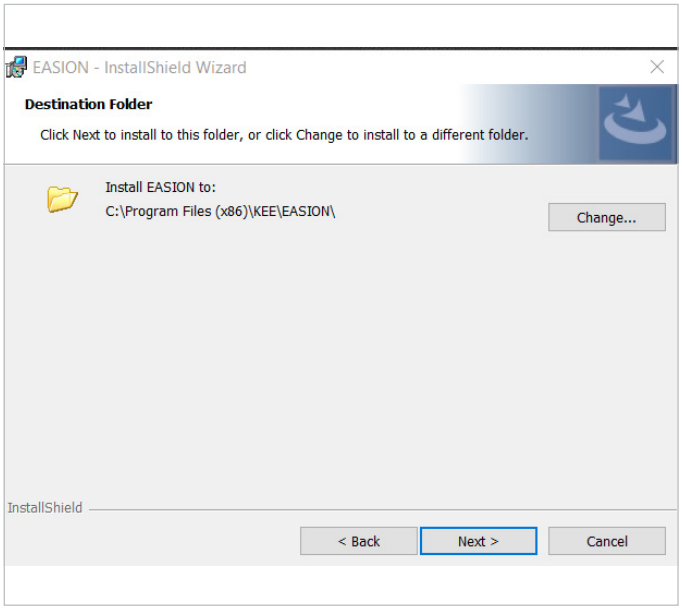


Figure 3-2 Installation-2

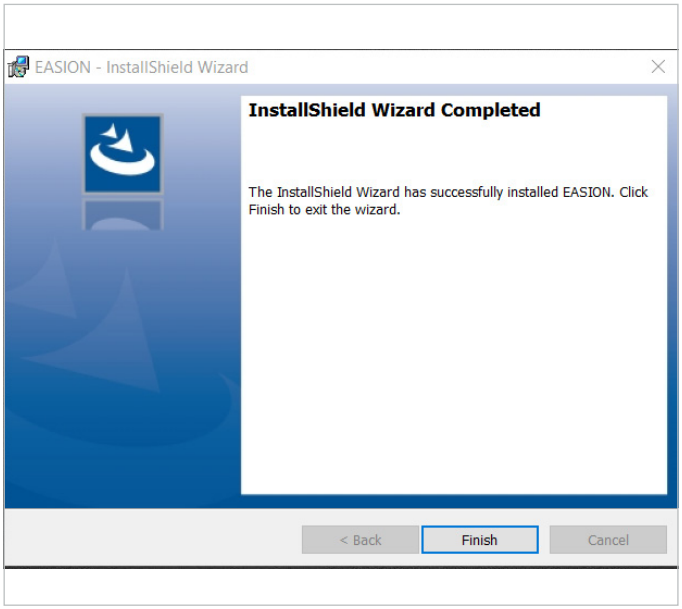


Figure 3-4 Installation-4

The InstallShield Wizard will show a list summarizing the content to be loaded. Installation is started by clicking "Next" again. When the installation is finished, the installation is completed by clicking on "Finish".

3.1.2 Connection with the User Interface Software

After installing the user interface software, device selection is made through the "EASION user interface software".

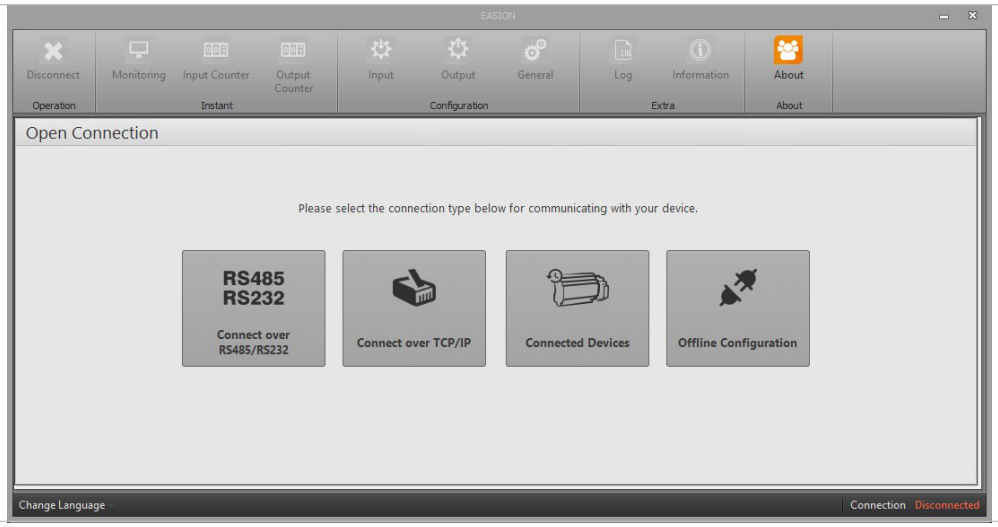


Figure 3-5 Connection Type Selection Screen (2M Series)

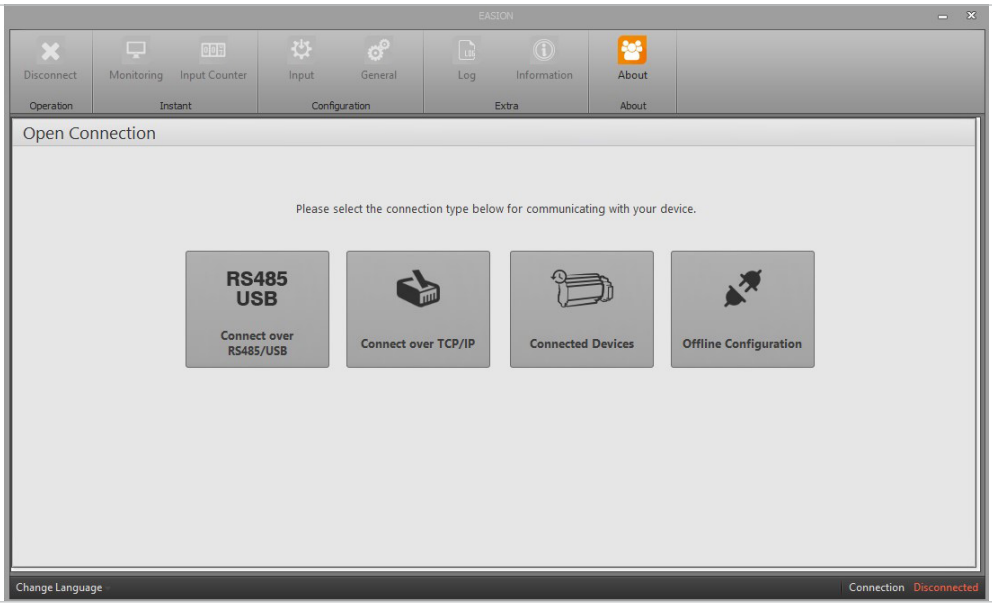


Figure 3-6 Connection Type Selection Screen (3M Series)

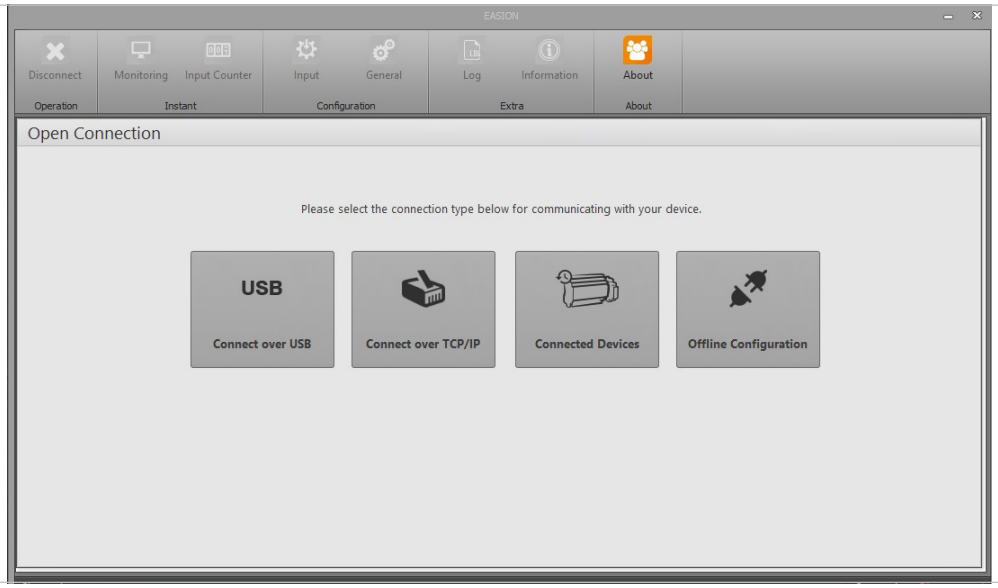


Figure 3-7 Connection Type Selection Screen (4M and 5M Series)

3.1.2.1 Connection over Serial Ports

Connection with USB, RS232 or RS485 interfaces over MODBUS RTU is described in this tab.

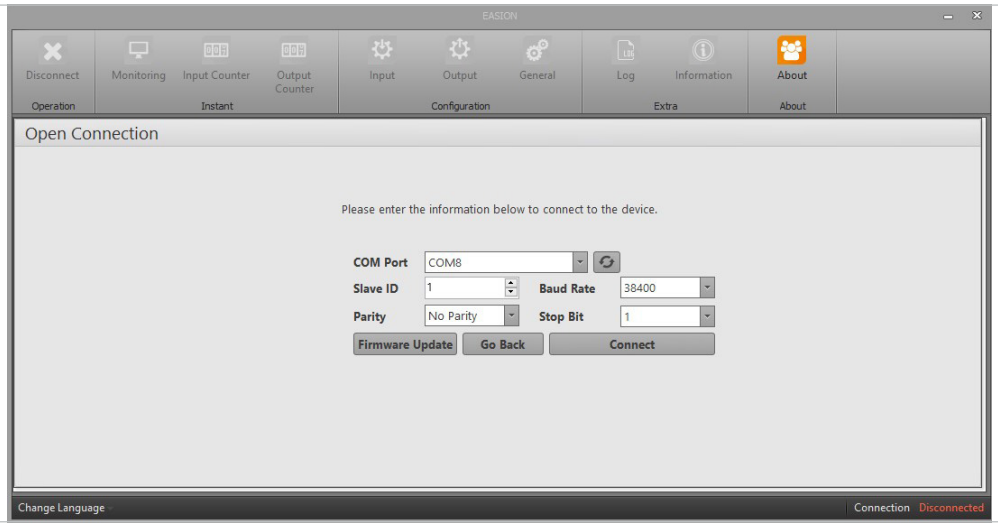


Figure 3-8 Connection over Serial Ports (2M-3M-4M Series)

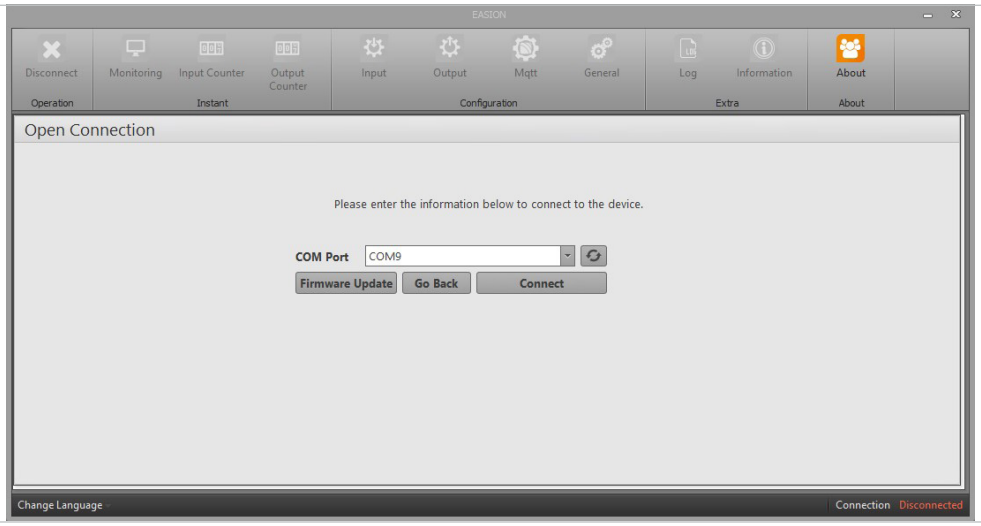


Figure 3-9 Connection over Serial Ports (5M Series)

COM Port: Virtual COM port that the device is connected is listed. If the correct port is not listed, press "Refresh" button to update the list.

Slave ID: It is the address that determines where the query is directed in the serial communication. Slave ID can be set between 1 – 247.

Default value: 1

Baud Rate: It is the data rate sent over serial data line. The device supports 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200 baud rates.

Default value: 38400

"Baud Rate" is fixed and it is "115200" if connected on USB.

Stop Bit: Bit(s) ındicates the end of data to the receiver. It supports 1 and 2 stop bit(s).

Default value: 1

"Stop Bit" is fixed and its value is "1" if connected on USB.

Parite: It is used against the disruption to occur during data transfer. None parity, odd parity and even parity is supported.

Default value: None parity

"Parity bit" is fixed if connected on USB and "None Parity" is selected.

After entering the communication information to which the device is connected, the connection is made by clicking the "Connect" button.

To update the firmware, click on the "Firmware Update" button.

NOTE: Firmware Update process is done only via USB and RS232.

3.1.2.2 Connection over TCP/IP

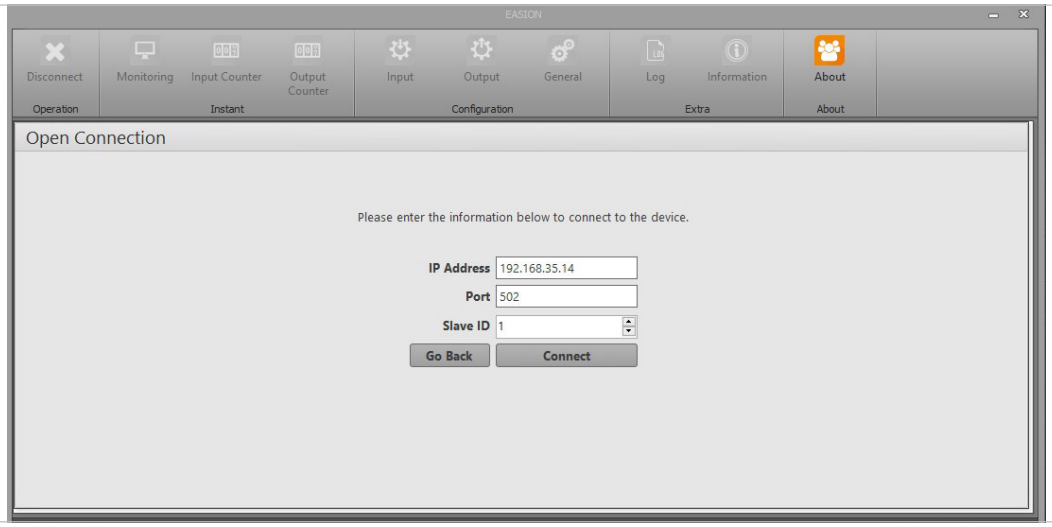


Figure 3-10 Connection over TCP-IP (2M-3M-4M Series)

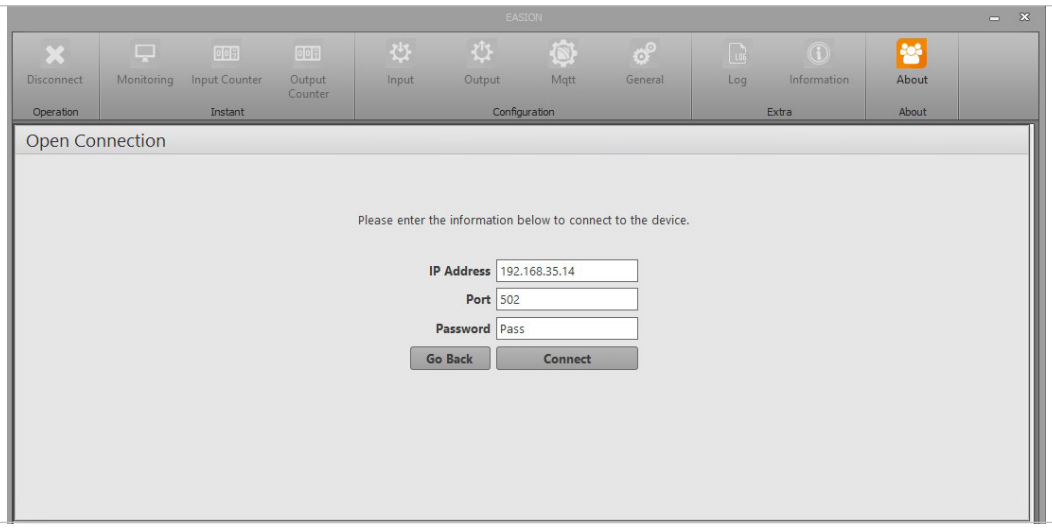


Figure 3-11 Connection over TCP-IP (5M Series)

IP Address: IP address is a specific series of numbers to recognize all devices connecting to Internet network. Typical ID address (IPV4) consists of four numbers separated by the points. (E.g. 192.168.35.15)

(Example: 192.168.35.15)

Default value: 192.168.35.14

Port: The connection point for Modbus communication.

Default value;

- EASION 2M-3M-4M modelleri= 502
- EASION 5M modeli= 503

Şifre: TCP/IP üzerinden bağlantı kurulması için gereken şifredir.

Default value: Pass

3.2 Input Counter

EASION has two different types of input as dry contact and wet contact.

Counter Value: When each input becomes active from passive status, (or reverse) its value increases 1. Default value can be assigned.

Total Time: Total time of being active of the input. Default value can be assigned.

On Time: Time passing after an input becomes active.

Previous Time: It is the previous "On Time". (Note available on EASION 5M.)

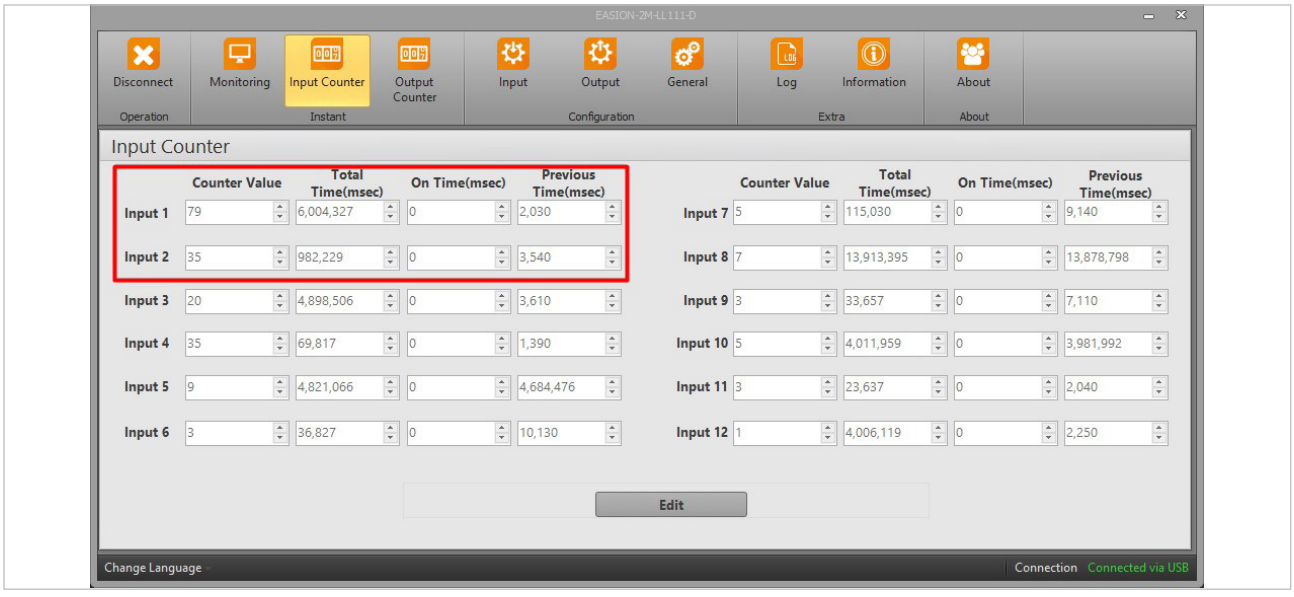


Figure 3-12 Input Counter

"Mode", "Delay Time" and "Log Active" configurations are shown in Figure 3-13.

NOTE: "On Time" and "Previous Time" cannot be changed.

3.3 Input Configuration

Mode: Inputs have 2 different modes as reverse and normal. Input is active in the reverse mode when there is no signal.

Delay Time: It is the time for the device to detect the input. The device detects the input after "Delay Time" ends. "Delay Time" is adjustable. EASION models without Ethernet detect minimum 50 ms and EASION models with Ethernet detect minimum 100 ms inputs.

Log Active: Logging of each channel can be active or passive. If the logging is desired to be activated, the "Log Active" box for each channel under "Input" configuration is checked in the user interface software.

"Mod", "Delay Time" ve "Log Active" konfigürasyonları Figure 3-13'da yer almaktadır.

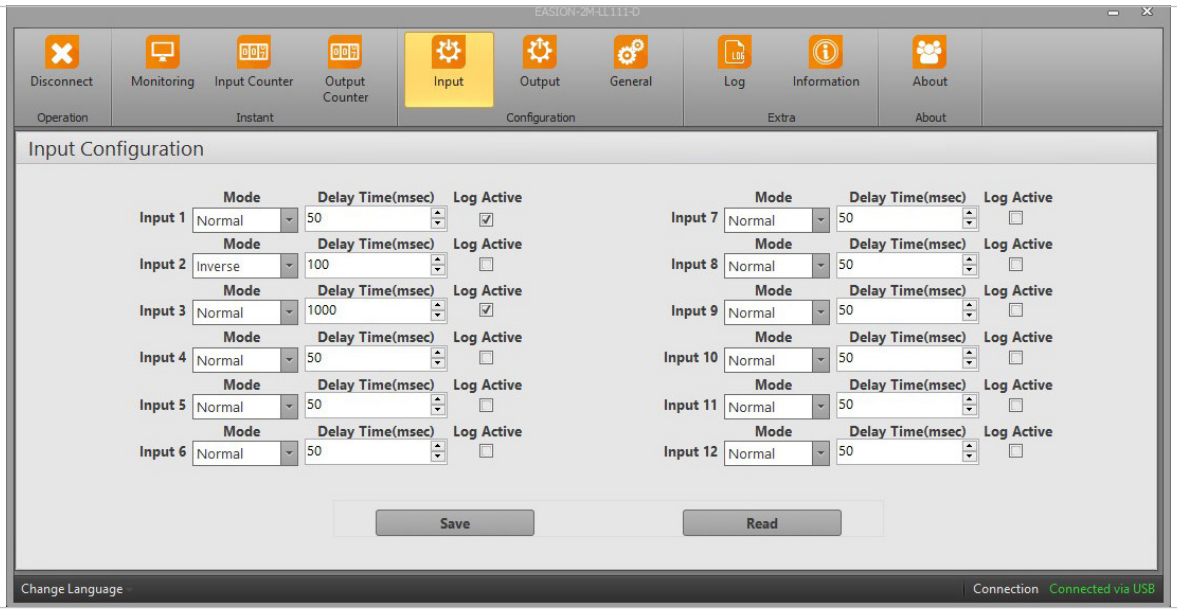


Figure 3-13 Input Configuration

3.4 Output Counter

EasION has two different types of output as digital output and relay output.

Counter Value: When each input becomes active from passive status, (or reverse) its value increases 1. Default value can be assigned.

Total Time: Total time of being active of the input. Default value can be assigned.

On Time: Time passing after an input becomes active.

Previous Time: It is the previous "On Time". (Note available on EASION 5M.)

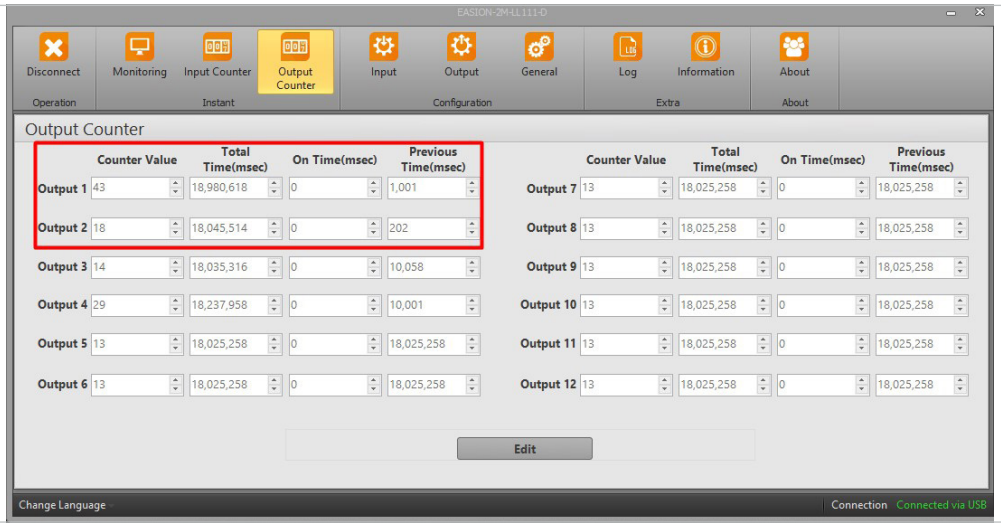


Figure 3-14 Output Counter

Value can be assigned to "Counter Value" and "Total Time" values by clicking the "Edit" button.

NOTE: "On Time" and "Previous Time" cannot be changed.

Force Off: It makes active output channel passive. Regardless of the output role, it is used to deactivate the outputs. LED's of output channels forced off are on for 250 ms and off for 250 ms. Force process can be performed under the tab of "Monitoring" in the configuration program. The feature that can be activated individually for each channel can also be activated for all outputs.

Figure 3-15 Force off

3.5 Output Configuration

Outputs can be adjusted as they will be activated in 3 different roles. These roles are remote, logic and input counter roles. Every output has one of these roles. All outputs have "Remote Role" by default.

Figure 3-16 Output Configuration

3.5.1 Remote Role

Continuous: The output channels are controlled independently of any conditions with this mode. When the user activates or deactivates a channel, it maintains the channel status until it changes again.

Time Dependent: It is the mode that the output is deactivated at the end of "Time" adjusted after activating. In this mode, if the related output is turned off from the "Monitoring" tab before the time is completed, the output becomes passive. Duration adjustment can be made between 10-10000 ms.

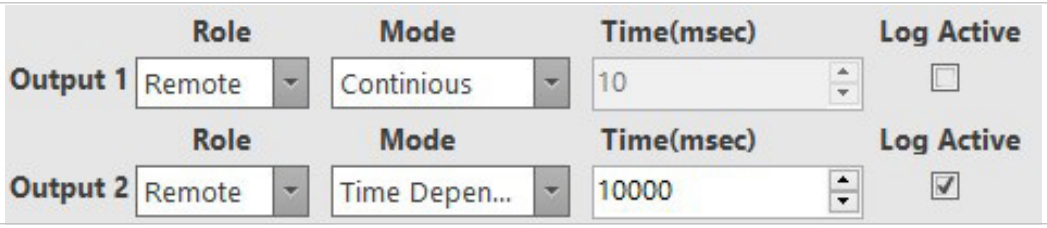


Figure 3-17 Output Configuration (Remote Role)

3.5.2 Logic Role

It is the role in which digital or relay output channels are controlled according to the "and", "or" logical operations of any input or output channels.

Operand: Operations in the logic role.

- INPUT or
- INPUT and
- OUTPUT or
- OUTPUT and logical operations are realized for the output activation.

Pin Nr: When using logical operations, it is the area where the channels to be included in the logic operation are selected.

Depending on the "operator", these pins refer to the input or output channels.

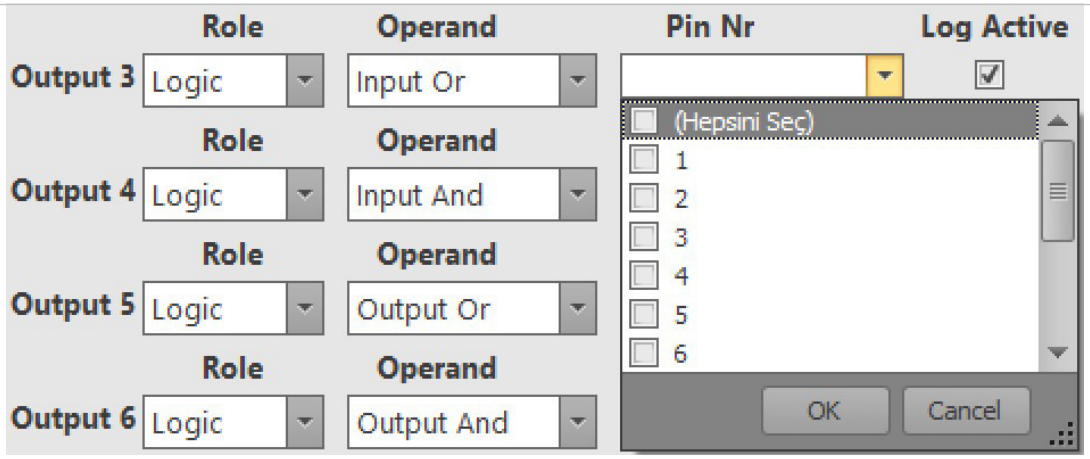


Figure 3-18 Output Configuration (Logic Role)

3.5.3 Input Counter Role

If the input counter role is used, when the total number of inputs perceived by the related channel reaches the set "Counter Value", the output of that channel becomes active.

on/off: "In the Input Counter Role it is the period during which the output will remain active and passive after activated. Activated output becomes deactivated after the set "on/off" time and maintains its position during the on/off time.

For example, for 1. output, when 1. input is as active as 2 and its multiples, output 1 becomes active for 1000ms. Then it becomes passive for 1000ms. The number of counters of related inputs are kept in memory during the 2x (on / off) = 1 period time (ie 2x1000ms for this example) and processed at the end of the period.

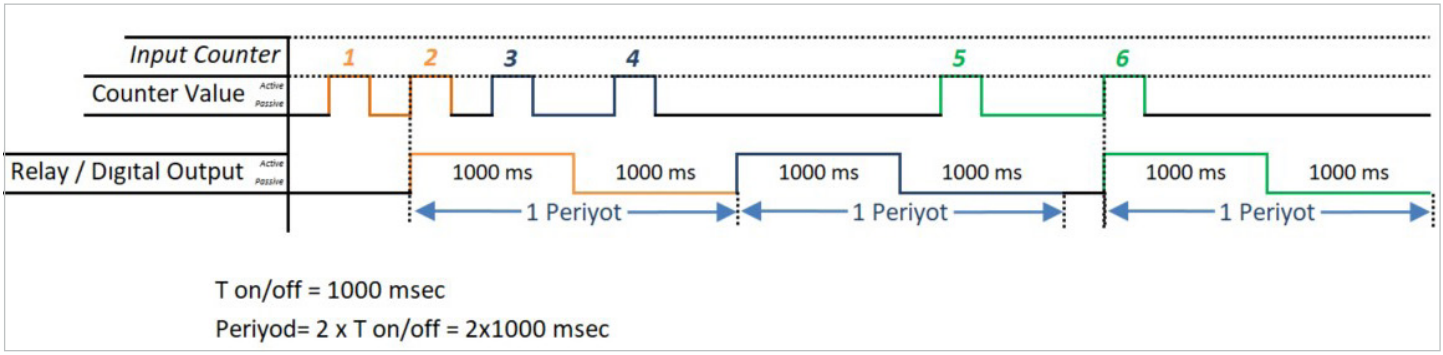


Figure 3-19 On-off Time Diagram

Counter Value: It is the number required for the output channel to be active.

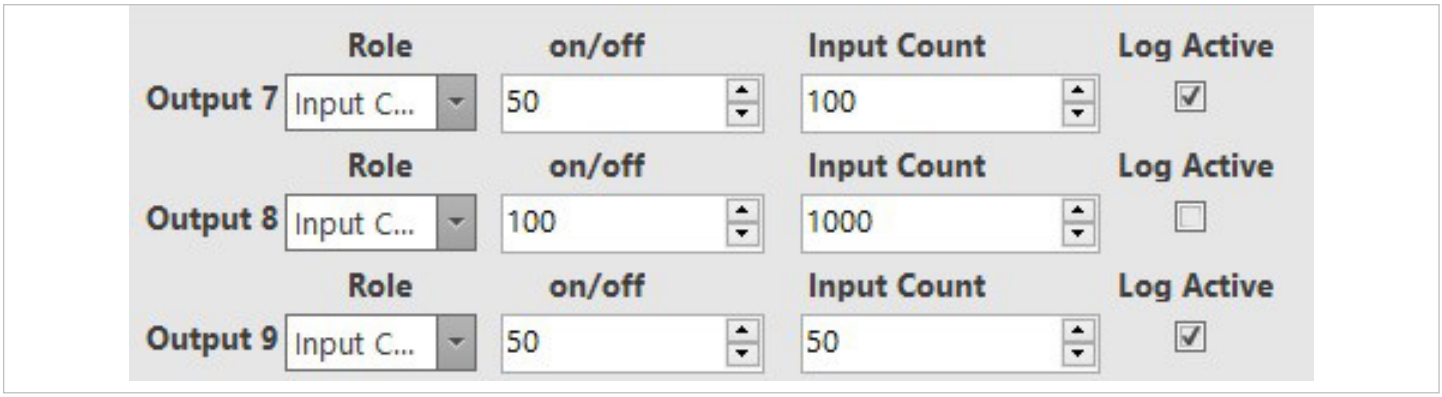


Figure 3-20 Output Configuration (Output Counter)

NOTE: Output configuration data vary by each role and therefore all configuration values of 1 channel should be sent in only one Modbus query.

Example, Configuration for 1. Output channel;

Remote role;

"0" value is entered in 1300. address.

"0" or "1" value should be entered in 1302. address (Tag of address "Mode").

A value between 10-10000 should be entered in 1304. address (Tag of address "Time") of the device is in millisecond.

Logic role;

"1" value is entered in 1300. Address.

4, 5, 6 or 7 value should be entered in 1302. address (Tag of address is "Operand").

A value between 1-4095 is entered in 1304. address (tag of address "Pin Nr").

Input counter role;

Value "2" is entered in 1300. address.

A value between 10-10000 should be entered in 1302. address (Tag of address "on/off time"), the unit is millisecond.

A value between 2-10000 should be entered in 1304. address (tag of address "Counter Value").

Values should be sent to these addresses in the same query. If value other than the specified values are sent, EASION will return an "illegal data value" error.

3.6 Log Activation

It is the activation process required for the input and output of the device to logging in case of being active or passive.

Logging is initiated when "Log Active" button in Figure 3-9, Figure 3-11, Figure 3-12, Figure 3-13 and Figure 3-14 is activated.

NOTE: In the EASION 5M model, only "Log Activation" configuration is possible. Other features that available under the input and output configuration are not available in the 5M series.

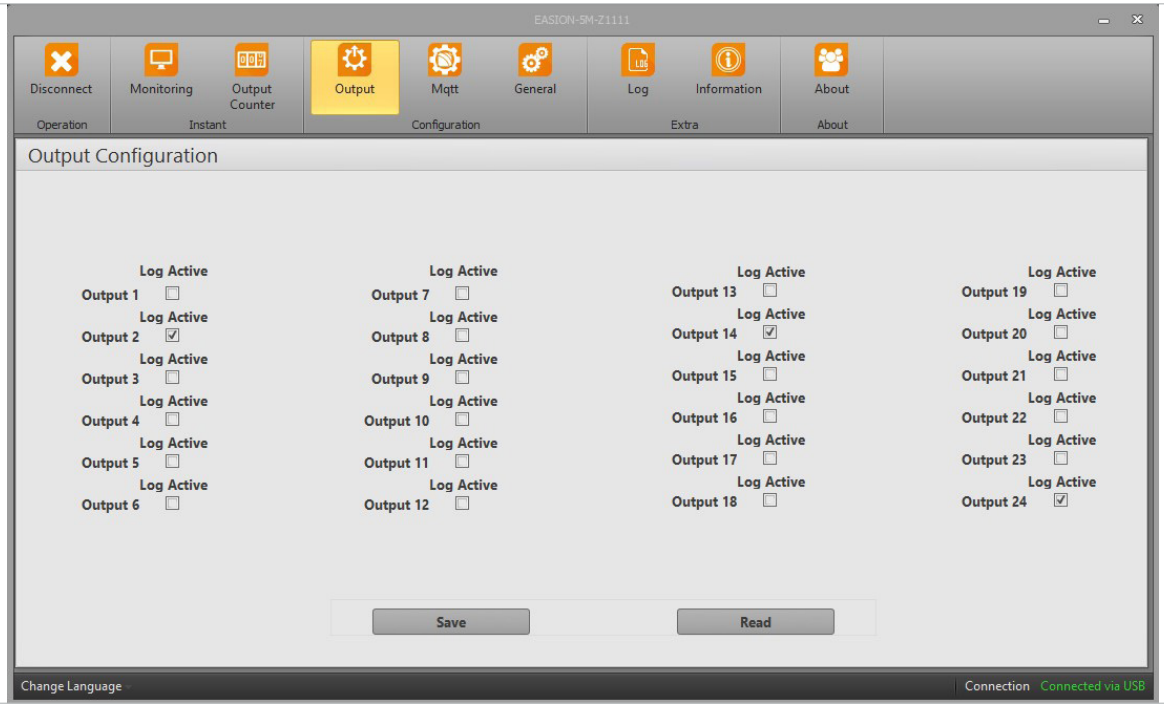


Figure 3-21 Log Activation for 5M Series-1

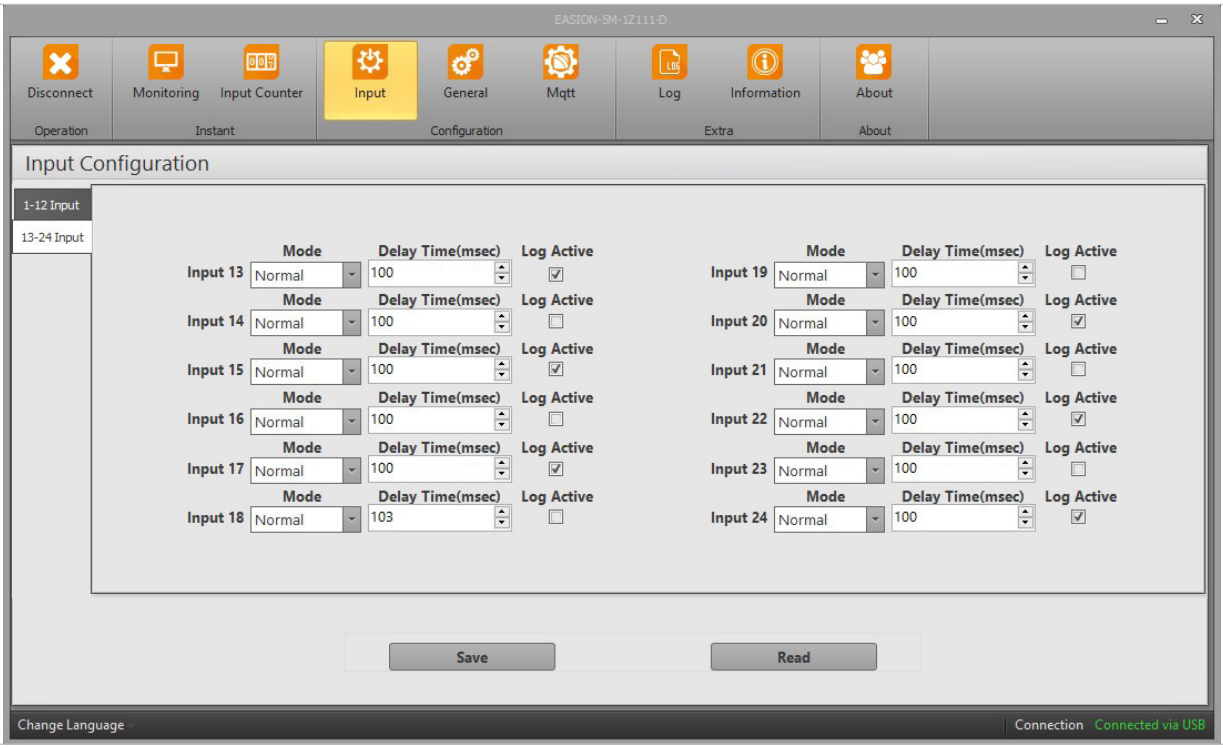


Figure 3-22 Log Activation for 5M Series-2

3.7 Communication Configuration

3.7.1 Serial Connection Configuration

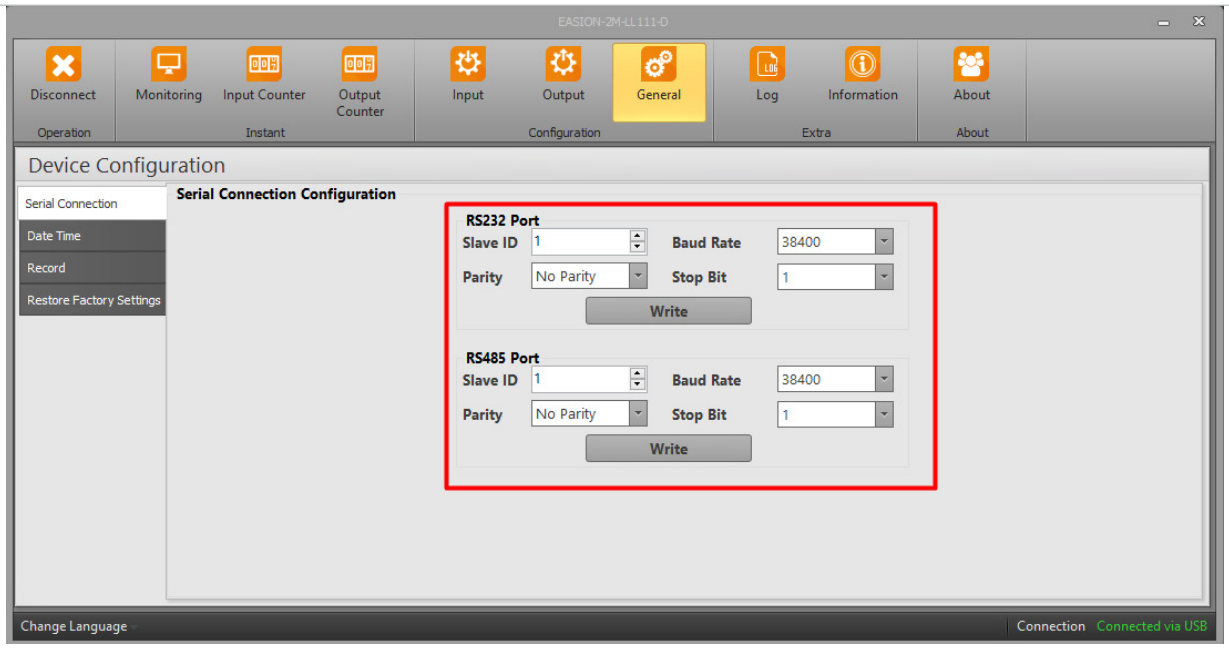


Figure 3-23 Serial Connection Configuration (2M)

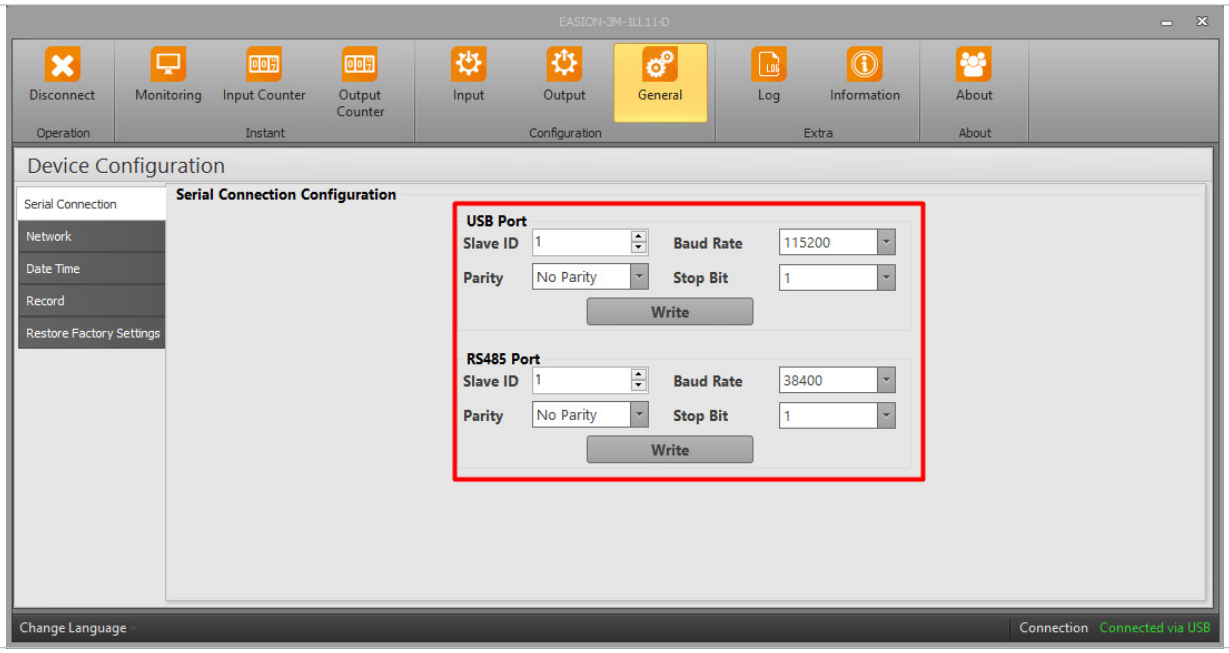


Figure 3-24 Serial Connection Configuration (3M)

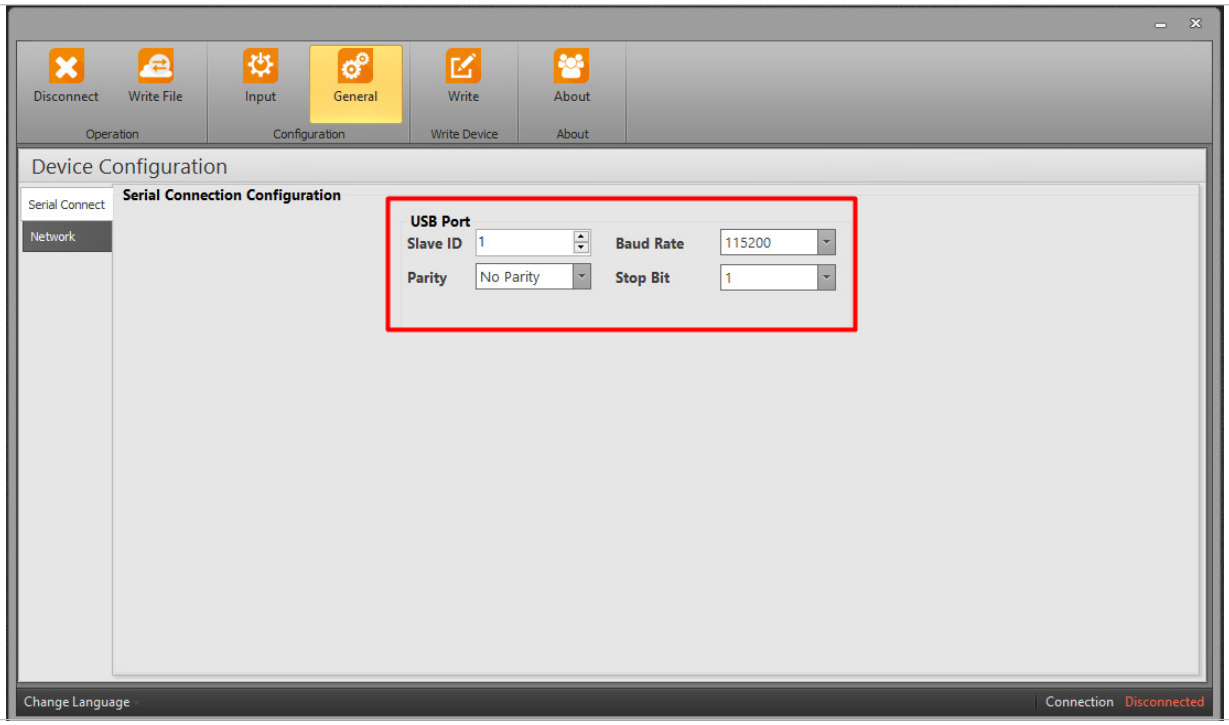


Figure 3-25 Serial Connection Configuration (4M)

3.7.2 Network Configuration

Gateway address: Gateway is a network hardware connected to the local area network (LAN) and wide area network (WAN) at the same time. There are different IP addresses in the local area network and wide area network. Gateway address is the IP address of the gateway in the local area network. Data packages forwarded to this IP address are handled in the gateway and transferred to the wide area network.

Subnet mask: IP addresses and subnet masks are used to determine whether the devices in TCP/IP are on the same network or not.

IP Address: It is the address taken within a network, by a device connected to the network. It is a form of logical addressing but not physical addressing. With the provision that they are in different networks, there can be many devices with the same IP address. IP addresses can be changed by the user. In IPv4 standard, IP addresses are represented by 4 bytes. They are shown in the order of decimal numbers as follows:

Example: 192.168.35.14

DNS: It is a domain name system. DNS allows the machines to communicate with their host names on the Internet by solving the IP address of a given machine name.

Dhcp (Dynamic Host Configuration Protocol) Active: If activated, configurations of IP address, gateway or DNS are performed automatically.

Port: The connection point for Modbus communication.

NOTE: Default "Port" in EASION 5M model: 503 is the connection point to be configured. It is used to connect to the user interface software. Since the device has MQTT communication, the default communication port is "1883".

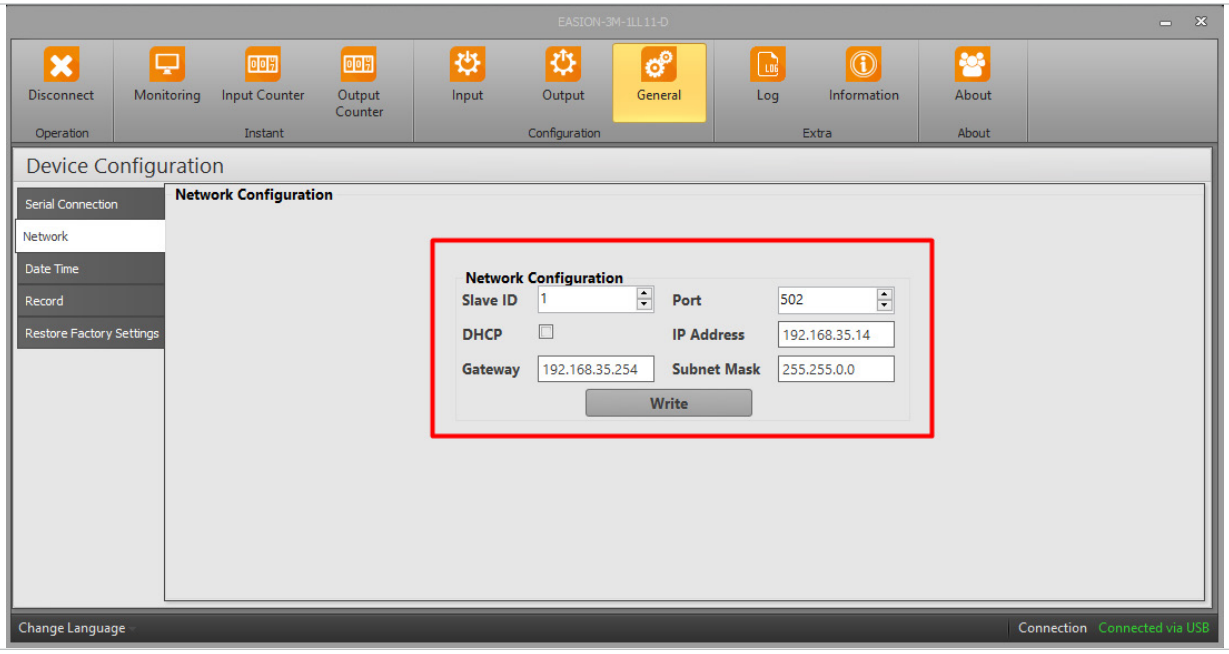


Figure 3-26 Network Configuration (3M-4M)

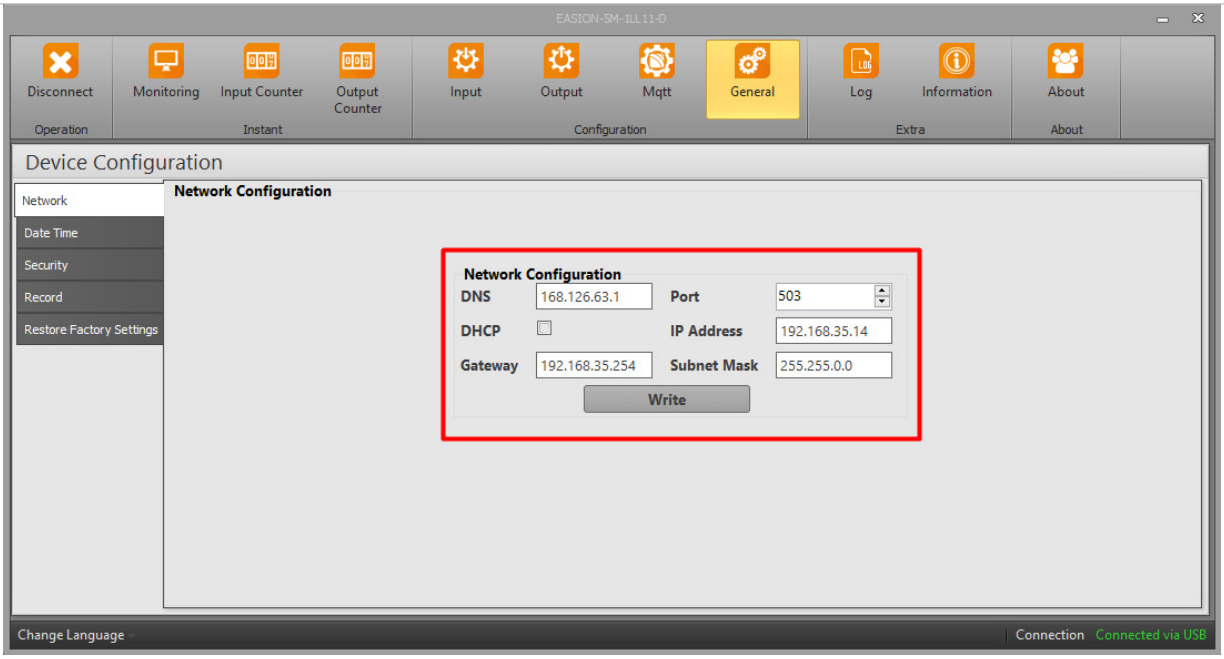


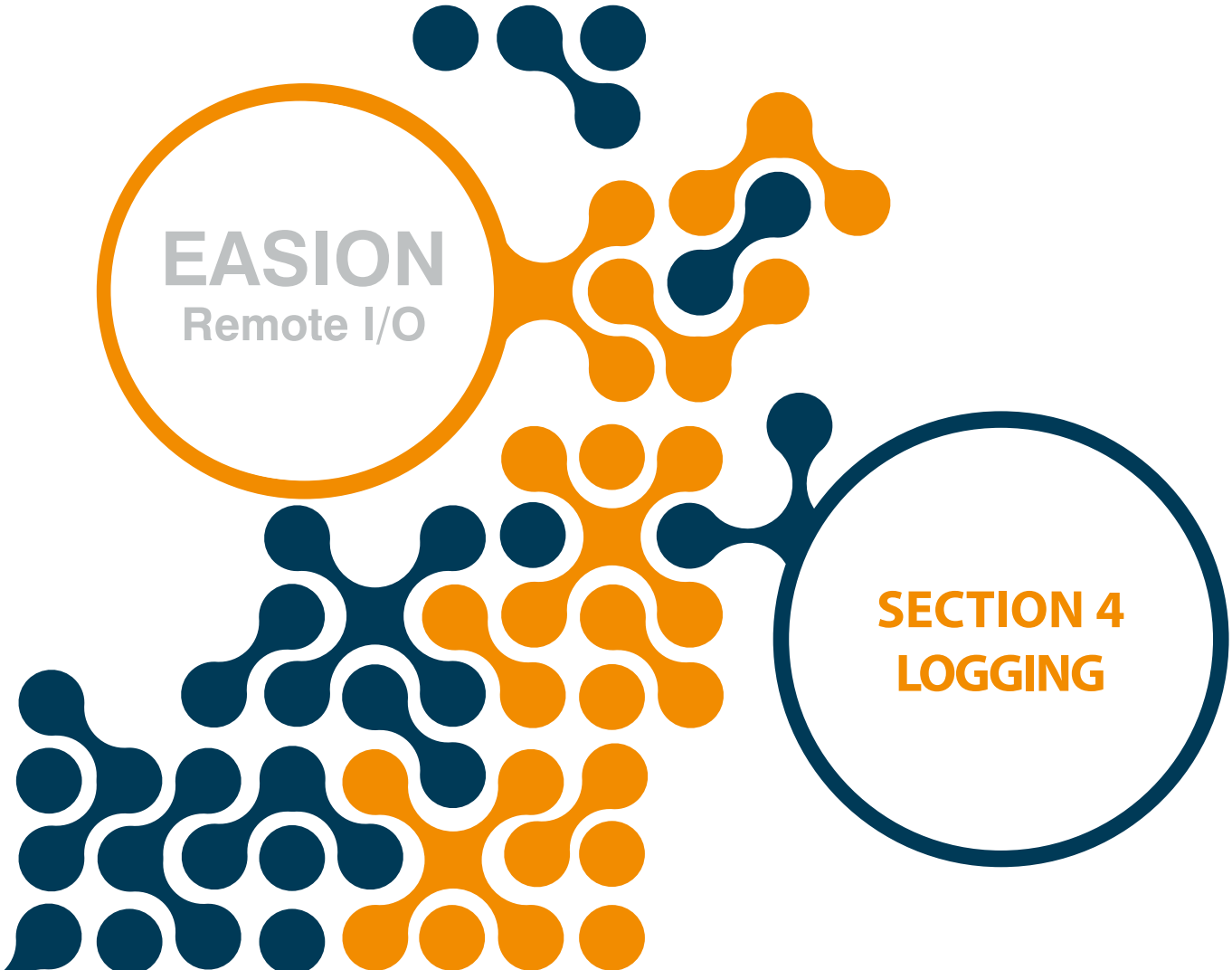
Figure 3-27 Network Configuration (5M)

3.8 Configuration with Modbus Register List

If the device settings are to be made through a different Modbus query program using Modbus register addresses, the save configurations command should be sent within 5 minutes after the configuration data is written to the device. If the save configurations command is not sent within 5 minutes or if the device is de-energized without the save configurations command, the device will return to the previous configuration settings.

NOTE: Products with Ethernet port (3M and 4M) using Modbus protocol, device configuration is done with Modbus TCP protocol via TCP / IP and done with MODBUS RTU protocol via USB and RS485.

NOTE: Device configuration in 5M series is done over Ethernet or USB with Http Rest queries. Detailed descriptions of the queries are described in the JSON RestAPI header.


EASION
Remote I/O
SECTION 4
LOGGING

SECTION 4 LOGGING

4.1 EASION 2M-3M-4M

Cihaz, 2047 adede kadar olay kaydı yapabilmektedir. Input ve çıkışlara ait olay kaydı yapabilmesi için, olay kaydı aktivasyonlarının aktif edilmesi gerekmektedir. Modbus'ta 4000. adresten itibaren 4010. adrese kadar daima en son olay kaydına ait veriler bulunmaktadır. Bir önceki olay kaydı 4010 ile 4020. adresler arasına kayar. Olay kayıtları Modbus'tan Table 2'deki sıralama ile okunacaktır.

NOTE: 1 sn'den kısa Durationn giriş / çıkış olayları kayıt altına alınmaz.

Table 4-1 Olay Kaydı Modbus Verileri

No	Address	Value	Data Type	Function
1	**4000**	Event Number	uint32_t	03H
2	4002	Channel Number	uint32_t	03H
3	4004	Duration	uint32_t	03H
4	4006	Time Info	unix time	03H
5	4008	Output Source	uint32_t	03H
6	**4010**	Event Number	uint32_t	03H
7	4012	Channel Number	uint32_t	03H
8	4014	Duration	uint32_t	03H
9	4016	Time Info	unix time	03H
10	4018	Output Source	uint32_t	03H

Event number: It is the number specifies which event is logging.

Table 4-2 Log info

Event	Event number
Output	2
Input	4
Power Down	8
Power Up	16
Reset Remote	32
Reset Button	64
Configuration Changed	128
Returned to default remote	256
Returned to default button	512
Clear Logs	1024
Firmware Update is activated	2048

Channel number: Channel number specifies input or output channel.

Duration: Indicates the time of being active of input or output. When related channel is active, "0" is written, when it is passive, time of being active is written (The unit is millisecond).

Time Info: Expressed as 32 bit unix time.

Output source: Contains information about the source for output. Explanations of output source numbers are presented in Table 4.

Table 4-3 Output source info

Source	Number of source
If Note an Output Log	0
Remote, Continuous	1
Remote, Time Dependent	2
Logic	3
Input Counter	4

Example: On 29/01/2019 at 16:50:43, 1. output channel was deactivated remotely. "Previous Time" is 1 second. In this case, values to be read in Modbus are shown in Table 5.

Table 4-4 Olay Kaydı Modbus Verileri

Address	Value	Description	Value Adı	Data Type
0	2	Output	Event Number	uint32_t
1	1	1. channel	Kanal Numarası	uint32_t
2	5000	5 second	Duration	uint32_t
4	1548780643	29.01.2019 16:50:43	Zaman Bilgisi	unix time
7	1	Remote, Continuous	Output Source	uint32_t

NOTE: The number of logs in the device is read at address 3050, and if a query is sent to unregistered event logging addresses, the device will send an "illegal data address" error.

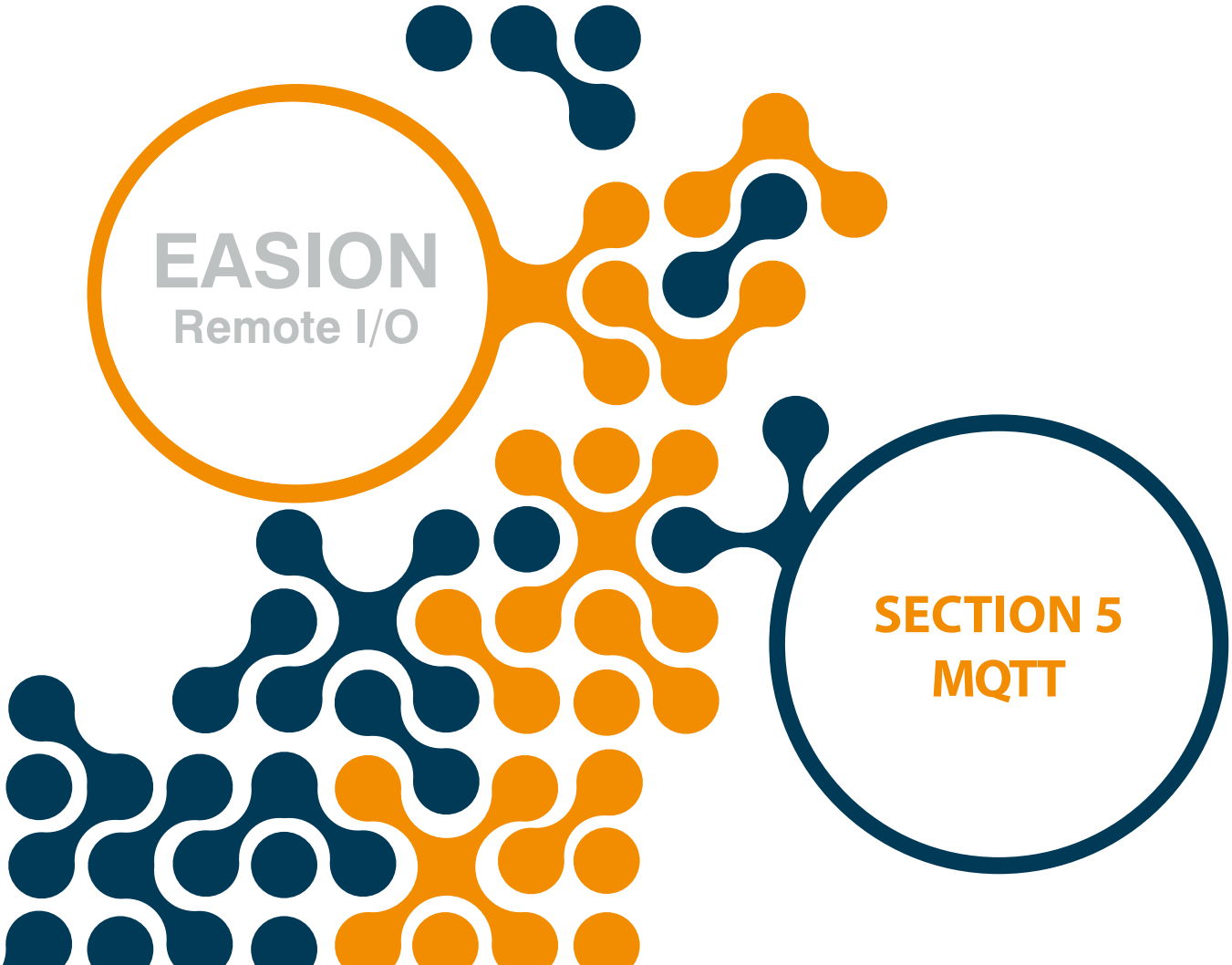
Example: If there are 3 event record register, and 40 registers are inquired from 4000. Address, "illegal data address" error occurs. In the event of 30 register query, 3 event records are read with no problems.

NOTE;

- RS485+RS232 (2M Series) supports Modbus RTU protocol.
- Ethernet+USB+RS485 (3M Series) supports Modbus TCP/IP and Modbus RTU protocols.
- Ethernet+USB (4M Series) supports Modbus TCP/IP protocol.
- Modbus addresses are listed on the last page of the User Manual.

4.2 EASION 5M

The device registers up to 2047 logs. To register the logs of input and output, log activations should be activated. In 1 log query, data about the last log are displayed. In other words, if **"/log/query?number=1"** is inquired, last log is displayed. Other details related to the event record are under the "JSON RestAPI" header.


EASION
Remote I/O
SECTION 5
MQTT

SECTION 5 MQTT

MQTT is a telemetry messaging protocol based on publishing and subscription, allowing communication from machine to machine (M2M). It allows publishing or receiving messages over TCP/IP.
Devices performing MQTT communication runs as a client and sends messages on the server called broker they are connected to. Brokers may be private and also brokers such as open source **test.mosquitto.org, iot.eclipse.org** are the most commonly used brokers.

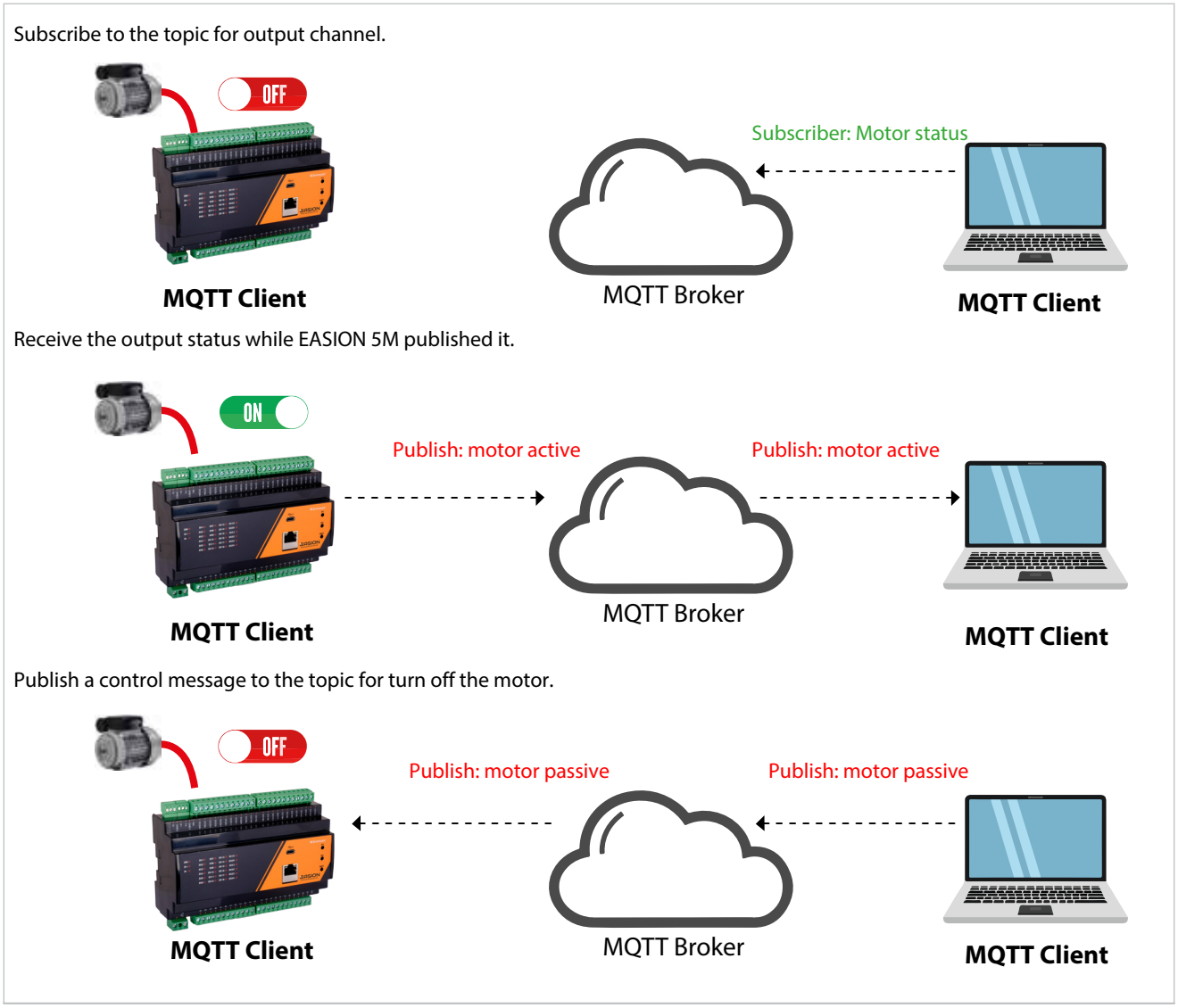


Figure 5-1 MQTT Communication

There are 2 different messaging directions as publishing and subscription in MQTT communication. A device can publish a message on a certain title or subscribe to a title to receive the message. Titles determine the route that the message is received or sent.

QoS (Qualities of Service) parameter setting is used to determine the quality of message transmission in MQTT. This parameter can have the below values:

0: Message is transmitted for one time most. Non-transmission is possible.
1: Message is transmitted but there may be repetitions.
2: Message is transmitted certainly for one time.

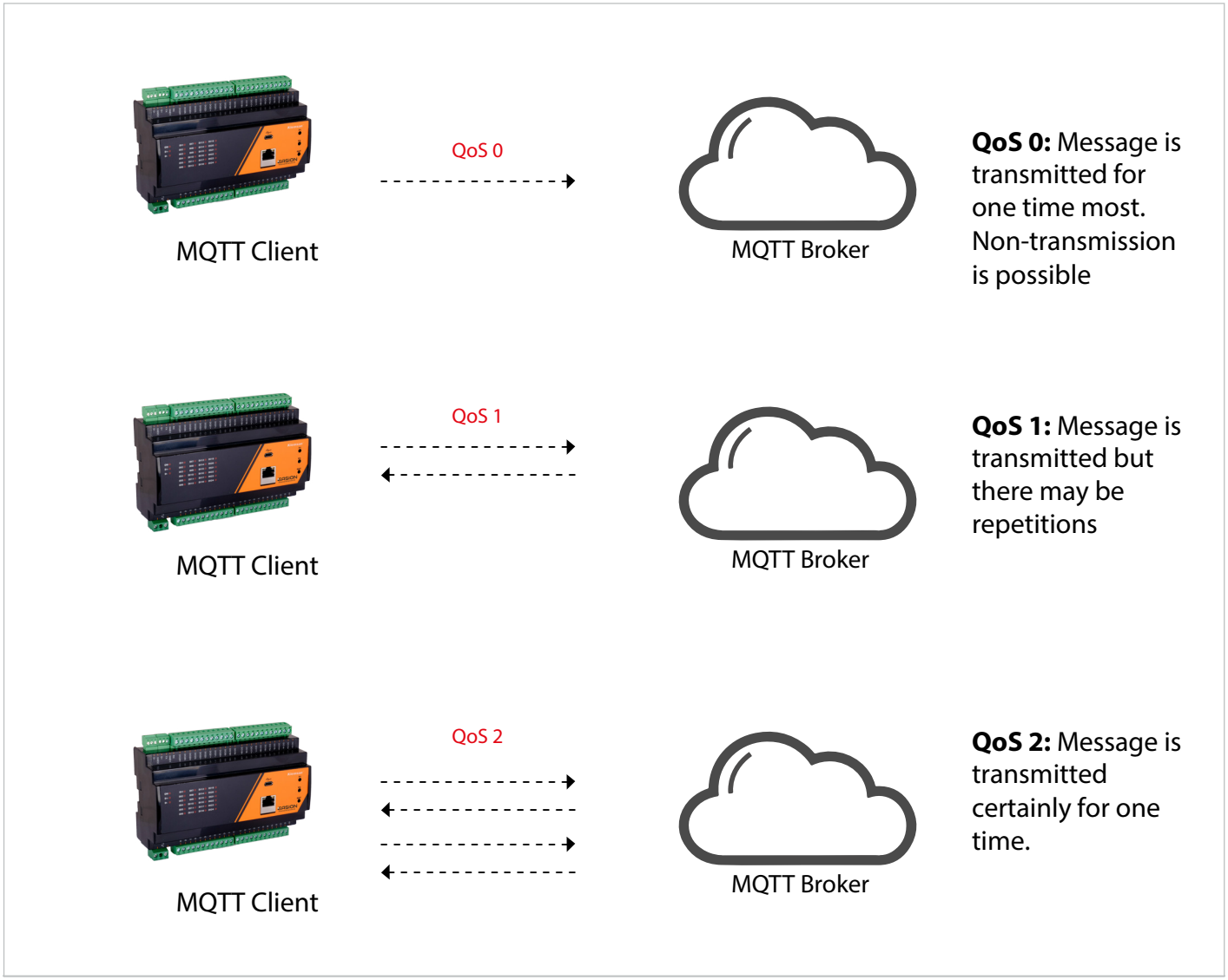


Figure 5-2 MQTT QoS

5.1 MQTT Broker Configuration

Client ID: Every client connected to MQTT server must have different ID values. Client ID of EASION 5M series is the mac address as default but it can be configured.

Username and Password: Depending on the MQTT server to which the device will be connected, "User Name" and "Password" may be requested for security. If requested, it should be written in this section.

MQTT Version: It is version of MQTT protocol. 3 is entered for version 3.1 and 4 is entered for version 3.1.1.

Keep Alive Interval: If there is no data flow in the time indicated, the client (device) sends a ping to the server and waits for the reply, if there is a reply, it is confirmed that the connection is active and it is running.

Clean Session: If it is "ON", the server does not store the information about the client and if the connection of the client disconnects, data resets and re-connection is required. If it is "OFF", re-subscription is not necessary when it connects again since the server is not already signed out

Will Flag: If it is "ON", a will message is sent to the server when the client (device) disconnects.

Will QoS: QoS setting of will message.

Will Retain: If it is "ON", will message is stored in the server.

Will Topic: The topic that will message will be sent.

Will Message: The will message sent to the server when the device disconnects. Disconnection can be notified to the other devices.

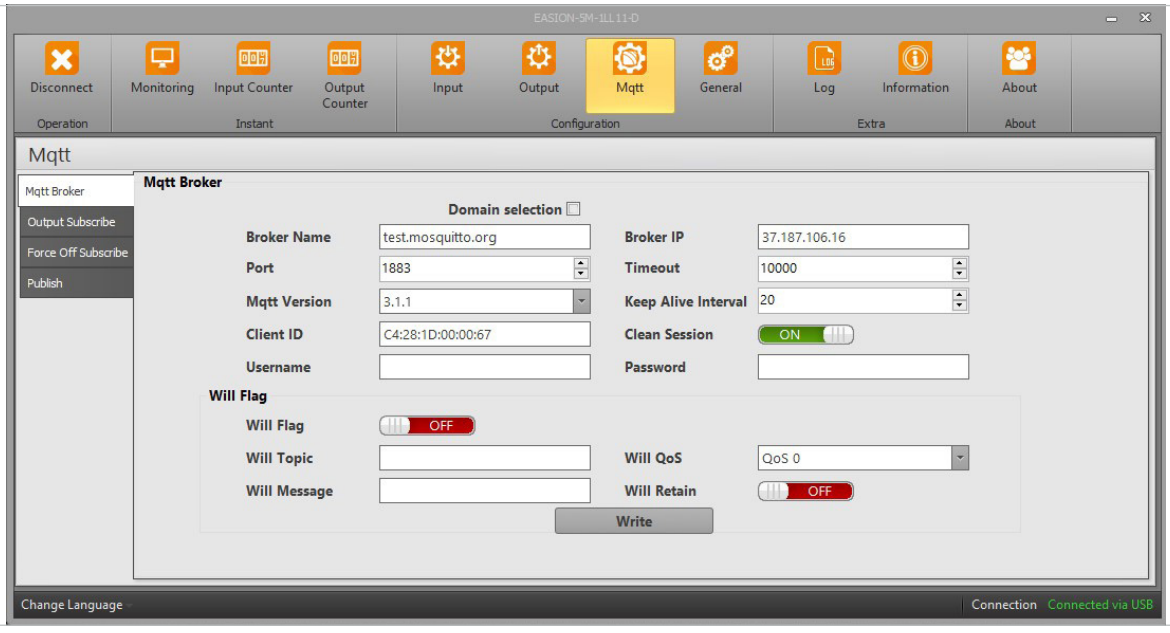


Figure 5-3 MQTT Broker Configuration

5.2 Subscription

EASION 5M series subscribes to the topic in the same number as the output to activate or deactivate the output channels from different devices. Messages which activate and deactivate each topic subscribed and outputs can be configured. These configurable topic names can be maximum 63 characters and message length can be maximum 31 characters. The device uses below topics and messages as default.

Input Event Topic: "EASION/_SerialNumber_/set/output/state/n" (n: channel number)
Active Payload : "state=on"
Passive Payload : "state=off"
QoS: 0

Other topic that the device subscribers to is the "forceoff" command used to force the outputs for deactivation. Output channels are deactivated by forceoff command and even if the channel requires being activated, it cannot.

Input Event Topic: "EasION/_SerialNumber _/set/output/forceall" (not configurable, constant)
Active Payload: "forceoff=active" (not configurable, constant)
Passive payload: "forceoff=deactive" (not configurable, constant)
QoS: 0

5.3 Subscription Configuration

Messages activating/deactivating outputs and every topic subscribed are configurable. These configurable topic names can be maximum 63-characters and message lengths can be maximum 31 characters.
Topics can be customized by the user or topic can be created in accordance with the device information by use of the below labels.

#dn# : Indicates the device name.
#sn# : Indicates the serial number of the device.
#type# : Indicates if it is input or output.
#num# : Indicates the number of input or output channel.

The device uses the below topics and messages as default;

Topic: "#dn#/#sn#/#type#/#num#" ("EASION-5M-1LL11-D/123456/output/1")
Active Payload : "state=on"
Passive Payload : "state=off"
QoS: 0

Other topic that the device is subscriber is the forceoff command used to force the outputs for deactivation. Output channels are deactivated by forceoff command and even if the channel requires being activated, it cannot.

Active Payload: “forceoff=active”
Passive Payload : “forceoff=deactive”
QoS: 0

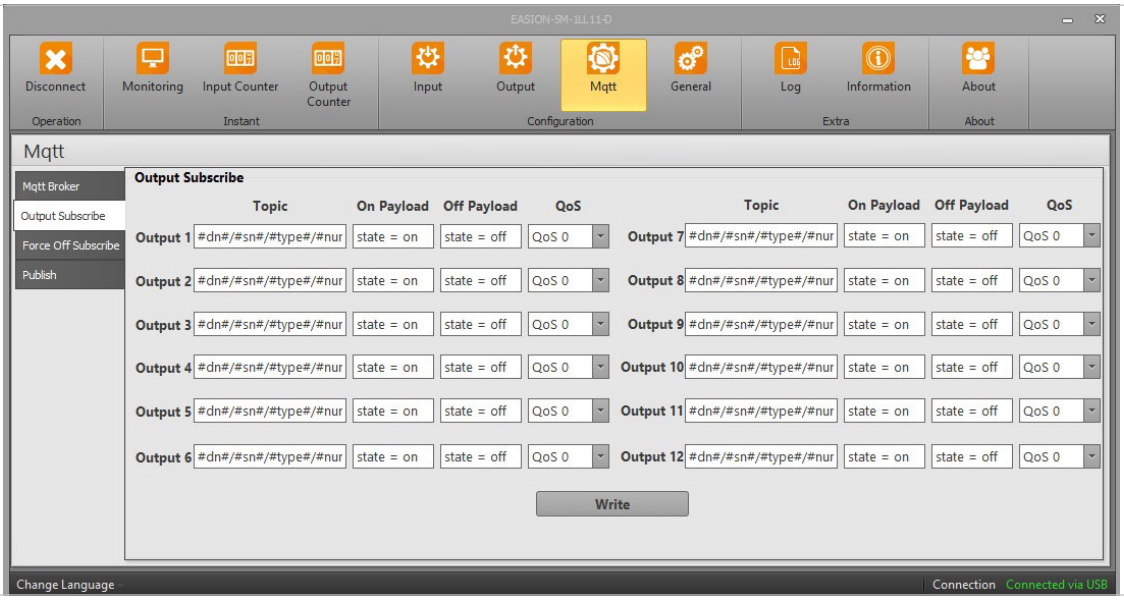


Figure 5-4 Output Subscribe Configuration

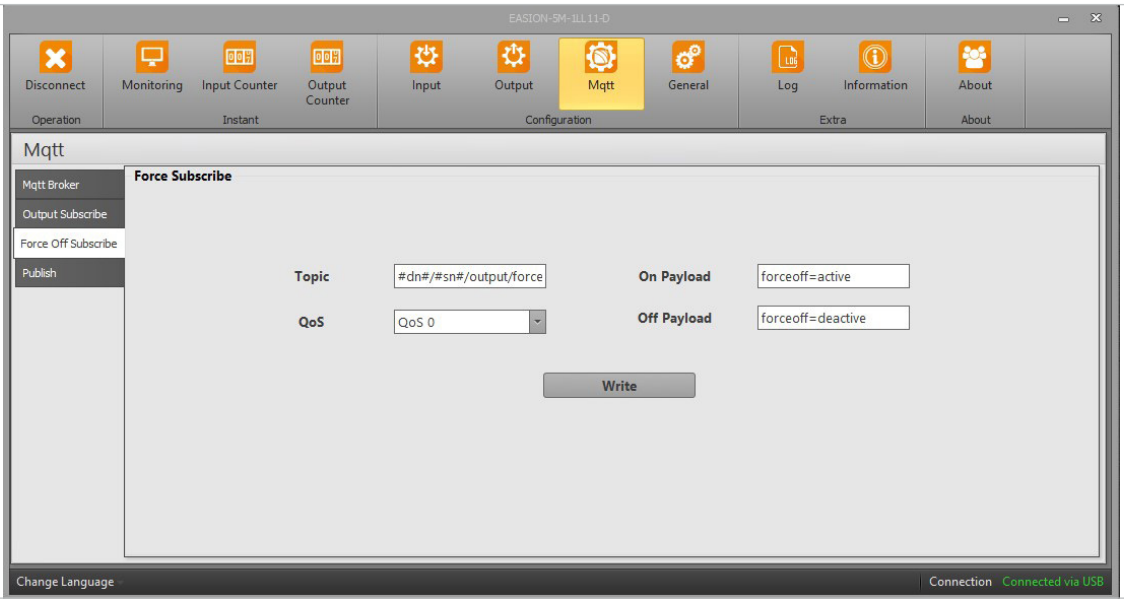


Figure 5-5 Force Off Subscribe Configuration

5.4 Publishing

3 different topics are used to publish information about EASION 5M series, input and output state. Topics published, message content sent to the topics and “QoS” and “retain” parts of the messages can be configured.

Input Publish Topic: The topic that the message containing information about input channels of the device is published. It publishes the status of input channel of the device periodically and when the input status changes.

- Input Event Topic (inputEventTopic) : The topic that input messages of the device are published when the device is changed.
- Input Periodic Topic: The topic that the device publishes input messages periodically.
- Output Publish Topic: The topic that the device publishes the message containing information about the output channels. The device publishes the output periodically.
- Output Periodic Topic: The topic that the device published the input messages periodically.
Payload: Contains information about input/output channels of the device and sends to publishing topics.
State On Payload: Message indicating active status.
State Off payload: Message indicating deactive status.
Publish Period: Indicates periodical publish period.
QoS: Determines QoS setting of the message and set as 0 as default. It is QoS information of the messages of each channel (input and output channels).
Retain: The flag activated for the broker to store the will message. In other words, if the retain flag is activated, the will message published is stored permanently.

5.5 Publish Configuration

All of 3 topics (Input Event Topic, Input Periodic Topic, Output Periodic Topic) published can be configured. These configurable topic names can be maximum 63 characters and message length can be maximum 255 characters.
Topics and messages can be customized by the operator and topic is created in line with the device information by use of below tags.

#dn#: indicates the device name.
#sn#: indicates the serial number of the device.
#type#: indicates if it is input or output.
#per#: indicates that it is periodical.
#num#: indicates the number of input or output channel.
#stat#: indicates the status of input or output channel
#cnt#: indicates the "Counter Value" of input or output channel.
#ont#: indicates the "On Time" of input or output channel.
#tont#: indicates the "Total Time" of input or output channel.
#forc#: indicates the force information of input or output channel.

The device uses below settings as default;

Input Event Topic: "#dn#/#sn#/#type#/#num#" (EasION -5M-1LL11-D /123456/ input/1)

Input Periodic Topic (inputPeriodicTopic): "#dn#/#sn#/#per#/#type#" (EasION -5M-1LL11-D/123456/input/1)

Output Periodic Topic (outputPeriodicTopic): "#dn#/#sn#/#per#/#type" (EasION -5M-1LL11-D /123456/ periodic/output)

Payload: It can be created in the format of Json or text. It defines the content of the message published by configuring with the labels of status of output, time of being active lastly, total time of being active, the number of being active and forceoff information.

Example 1: If a message as shown below is set in the configuration;

```
{
    "state": "#stat#",
    "onTime": "#ont#",
    "totalOnTime": "#tont#",
    "counter": "#cnt#",
    "forceoff": "#forc#"
}
```

Message to be published is below

```
{
    "state": "on*",
    "onTime": 123,
    "totalOnTime": 999,
    "counter": 12345,
    "forceoff": "active"
}
```

şeklindedir.

Example 2: If a message like the following is set in the configuration;

"number: #num#, status: #stat#"

the message to be published is

"number: 1, status: "on*"".

(status information indicated with the label of *: #stat# is indicated based on the active status message and deactive status message settings)

State On Payload: Maximum 7 characters are written. Default is "on".
State Off Payload: Maximum 7 characters are written. Default is "off ".
Publish Period: 60000.

QoS: Determines QoS setting of the message, it is set as 0 as default. It is QoS info of the messages of every channel (input and output channels).
Retain: The flag activated for the broker to store the will message. In other words, if the retain flag is activated, the will message published is stored permanently.

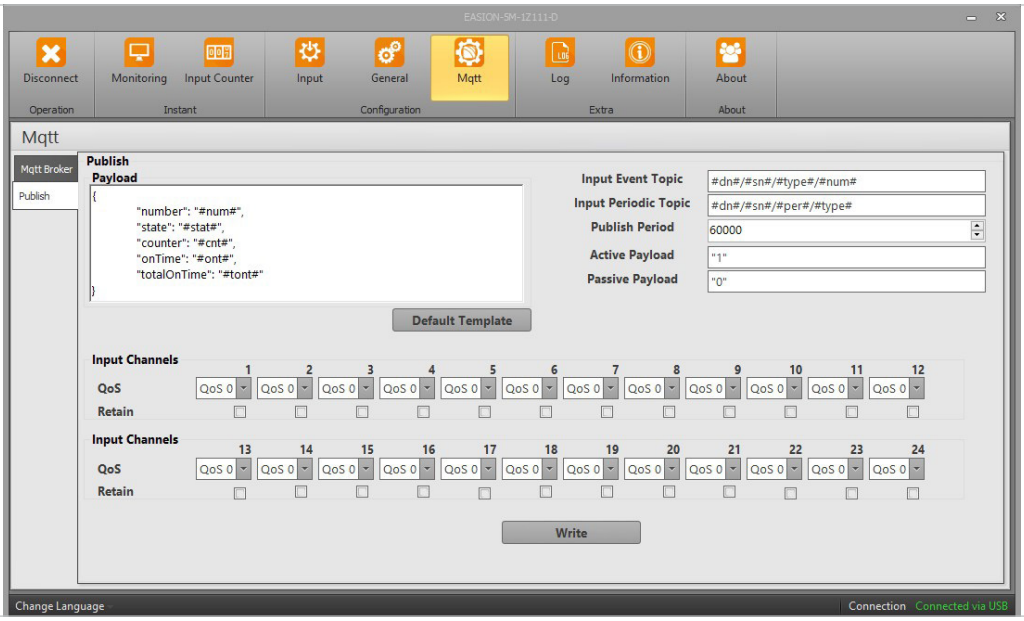


Figure 5-6 Publish Configuration (Device with Only Input)

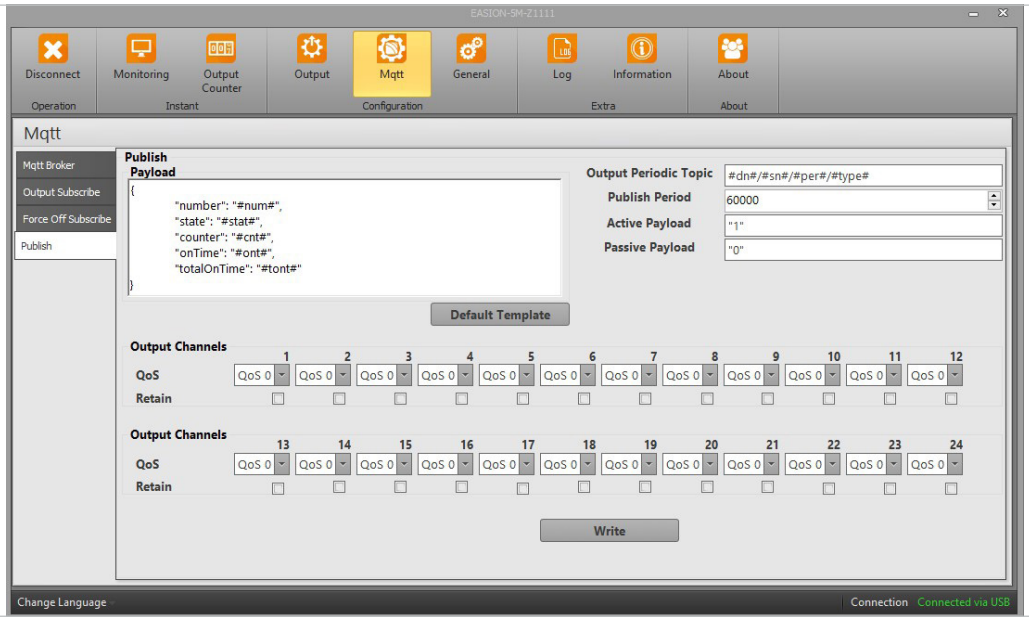


Figure 5-7 Publish Configuration (Device with Only Output)

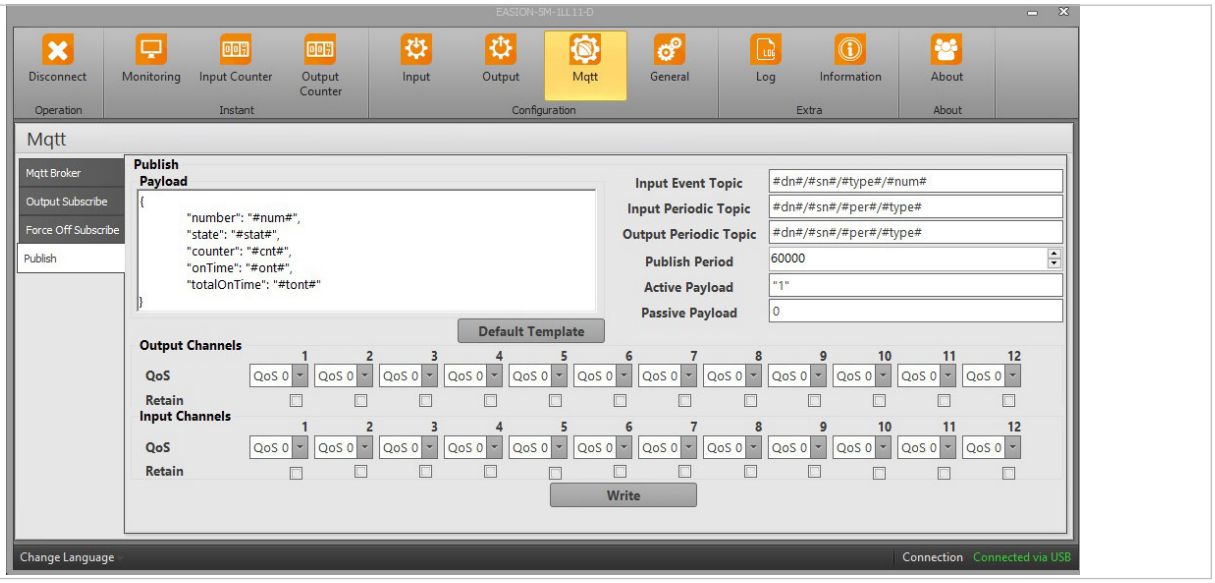


Figure 5-8 Publish Configuration (Device with Input and Output)

NOTE: Publish configuration processes vary by the number of input and output of the device. For instance;

"EasION -5M-1Z111-D (24 inputs) configures the publish on the screen in Figure 5-6.

"EasION -5M-1LL11 (12 inputs & 12 outputs)" configures the publish on the screen in Figure 5-8.

5.6 Wildcards

5.6.1 Topic level separator

Topic level separator is used to introduce the topic name and separate from each other. It is used as "/".

Example; "EasION-5M-1LL11-D/123456/output/1"

5.6.2 Single- level Wildcards

Single-level wildcards separator is used for all optional data in a section separated by a topic level separator. It is used as "+".

Example: If "+" is written instead of "1" in the expression of "EasION-5M-1LL11-D/123456/output/1";
"EasION-5M-1LL11-D/123456/output/+"

All options (all input channels) for this section are listed.

Example: If "+" is written instead of "output" in the expression of "EasION-5M-1LL11-D/123456/output/1"
"EasION-5M-1LL11-D/123456/+/1"

All options (may be input and output) for this section are listed. In other words, both input 1 and output 1 channels are subscribed.

5.6.3 Multi-level Wildcards

If multi-level wildcards are written in a section separated with a topic level separator, options of the expressions separated to follow it are listed. It is used as "#".

Example: If "#" is written instead of "output" in the expression of "EasION-5M-1LL11-D/123456/output/1"

"EasION-5M-1LL11-D/123456/#"

All options in this section and to follow it are listed. In other words, all input and output channels are subscribed.


EASION
Remote I/O
SECTION 6
JSON RestAPI

SECTION 6 JSON RestAPI

It has the interface for reading the device data, reading/writing configuration data and reading/deleting data record without a program. Standard HTTP methods (GET, PUT,POST) are used to read or write data in JSON format.

6.1 Communication Settings

General communication parameter data are explained in this part. The device communicates with two different interfaces. These interfaces are Ethernet ve USB. Unless otherwise stated, all parameters in the document can be used for communication over Ethernet and USB.

- **Authentication:**

Communication security is provided with "Basic" Id authentication algorithm. User name is always "user". The password is determined in the configuration. (default password: "Pass")

- **Mandatory HTTP Header Fields and Values**

HTTP Methods: GET | POST | PUT
HTTP Version: HTTP/1.1 | HTTP/2
Host (valid for only Ethernet connection): Host: AAA.BBB.CCC.DDD:PPP **(IPAddress:** Port Number**)**
URL: Required data shall be defined in the following pages by the topics**.**
Content Type: Content-Type: application / json
Authorization (valid for only Ethernet connection): Basic xxxxxxxxxxxx

- **Successful Request:**

The reply indicating that the query is successful.

Code: 200 OK.

- **Error Request:**

The reply indicating that the query is wrong.

Code: 400 Bad Request. If invalid request, wrong content type, non-supported http methods, void json parameter is sent, this error occurs.
Code: 401 Unauthorized. If wrong user name / password is used, this error occurs.
Code: 404 Note Found. This error occurs if the requested source is not found.

6.2 Output Settings

The section that describes the functions of reading and writing the output settings of the device.

6.2.1 All Output Settings

The query that all output settings of the device can be read and written simultaneously.

- **URL**

/settings/outputs

- **Metod:**

GET

- **Data Parameters**

channels: Can be adjusted in the number of the channel.

logActivation: Activation setting of the logs of output channel. To activate "on", to deactivate "off" is written

```
{
        "channels": [
        {
        "logActivation": "off"
        },
        {
        "logActivation": "off"
        },
        .
        .
        {
        "logActivation": "off"
        }
    ]
}
```

6.2.2 One Output Setting

The query that the identified output channel is read and written.

- **URL**

/settings/output?number=n (n: number of output channel)

- **Metod:**

GET | PUT

- **Data Parameters**

```
{
        "logActivation": "off"
}
```

6.3 Input Settings

The section that describes the functions of reading and writing the input settings of the device.

6.3.1 All Input Settings

The query that all input settings of the device can be read and written simultaneously.

- **URL**

/settings/inputs

- **Metod:**

GET

• **Data Parameters**

channels: Can be adjusted in the number of the channel.

mode: Determines the input detection status of the input channel. It is the setting indicating the activation if it is "normal" input and input activation if there is no "inverse" input.

inputDelay: It is time for detecting the input. 50 msec for 2M, 100 msec for 3M, 4M and 5M series.

logActivation: Setting of the logging function of the output channel. To activate "on", to deactivate "off" is written.

```
{
        "channels": [
        {
                "mode": "normal",
                "inputDelay": 50,
                "logActivation": "off"
        },
        {
                "mode": "normal",
                "inputDelay": 50,
                "logActivation": "off"
        },
        .
        .
        {
                "mode": "normal",
                "inputDelay": 50,
                "logActivation": "off"
        }
    ]
}
```

6.3.2 One Input Setting

The query that the identified input channel is read and written.

• **URL**

/settings/input?number=n (n: number of input channel)

• **Metod:**

GET | PUT

• **Data Parameters**

```
{       "mode": "normal",
        "inputDelay": 50,
        "logActivation": "off"
}
```

6.4 Network Settings

This section describes the settings of the network that the device is connected.

• **URL**
/settings/network
• **Metod:**
GET | PUT
• **Data Parameters**
gatewayAddress: "AAA.BBB.CCC.DDD"
subnetMask: "EEE.FFF.GGG.HHH"
sourceIpAddress: "III.JJJ.KKK.LLL"
dns: "MMM.NNN.PPP.RRR"
dhcp: aktifliği için "enable", pasifliği için "disable" yazılır.

{
"dhcp": "disable",
"gatewayAddress": "192.168.35.254",
"subnetMask": "255.255.0.0",
"sourceIpAddress": "192.168.35.14",
"dns": "168.126.63.1"
}

6.5 Communication Settings

This section describes the communication (Http Rest) settings of the device.

• **URL**
/settings/communicationServer
• **Metod:**
GET | PUT
• **Data Parameters**
communicationPort: integer sayıdır.

{
"communicationPort": 502
}

6.6 Security Settings

This section describes the functions enabling reading and writing the data about security.

• **URL**
/settings/security
• **Metod:**
GET | PUT
• **Data Parameters**
password: max. 12 characters.

{
"password": "Pass"
}

6.7 Product Info Functions

This section describes the functions enabling reading the product info data.

- **URL**

/info/product

- **Metod:**

GET

- **Data Parameters**

mac: "AA:BB:CC:DD:EE:FF"
companyName: Max. 11 characters.
deviceName: Max. 11 characters.
serialNumber: Max. 11 characters.
orderNumber: Max. 11 characters.

6.8 Production Info Functions

This section describes the functions enabling reading the production data info of the product.

- **URL**

/info/production

- **Metod:**

GET

- **Data Parameters**

firmwareVer: Max. 11 characters.
pcbVer: Max. 11 characters.
buildDate: Max. 11 characters.
buildTime: Max. 11 characters.
compilerVer: Integer sayıdır.

```
{
        "firmwareVer": "1.00",
        "pcbVer": "1.00",
        "buildDate": "Sep 20 2019",
        "buildTime": "09:06:09",
        "compilerVer": 8040001
}
```

6.9 All Device Info Functions

This section describes the functions enabling reading all data info of the device.

- **URL**

/ info

- **Metod:**

GET

- **Data Parameters**

product: Parameters are described in detail under the section of "Product Info Functions".
production: Parameters are described in detail under the section of "Product Info Functions".

{
“product”: {
“mac”: “C4:29:1D:50:00:01”,
“companyName”: “Klemsan”,
“deviceName”: “ EASION “,
“serialNumber”: “10036519001”,
“orderNumber”: “260020”
},

“production”: {
“firmwareVer”: “1.00”,
“pcbVer”: “1.00”,
“buildDate”: “Sep 20 2019”,
“buildTime”: “09:06:09”,
“compilerVer”: 8040001
}
}

6.10 Date / Time Info Functions

This section describes the functions enabling reading all data info of the device.

- **URL**

/date

- **Metod:**

GET | PUT

- **Data Parameters**

date: should be entered as “yyyy-mm-dd” or “yyyy-m-d” (y: year, m: month, d: day).
time: should be entered as “hh:mm:ss” (h: hour, m: minute, s: second).

{
“date”:”2019-09-20”,
“time”:”13:06:45”
}

6.11 MQTT Broker Info Functions

This section describes the functions enabling reading and writing all data info of MQTT broker that the device is connected to.

- **URL**

/settings/mqtt/server

- **Metod:**

GET | PUT

- **Data Parameters**

brokerName: Domain name of MQTT broker (e.g: test.mosquitto.org). It is used if domainSelection“name” is selected. Max. 31 characters.
brokerIp: IP address of MQTT broker. It is used if domainSelection“ip”is selected. Its format is as “AAA.BBB.CCC.DDD”.
port: between 1 and 65535.
timeout: betwenn 100 and 429496729. Unit is millisecond. Default: 10000 msec.
protocol: always “tcp”.
domainSelection”: “ip” or “name” is written. If “ip” is written, broker ip is used, if “name is written, domain name is used.

```
{
        “brokerName”: “m24.cloudmqtt.com”,
        “brokerIp”: “108.129.17.116”,
        “port”: 13968,
        “timeout”: 10000,
        “protocol”: “tcp”,
        “domainSelection”: “ip”
}
```

6.12 MQTT Connection Info Functions

This section describes the functions enabling reading and writing all data info about MQTT settings.

- **URL**

/settings/mqtt/connection

- **Metod:**

GET | PUT

- **Data Parameters**

clientId: “C4:29:1D:50:00:01”, max. 31 characters.
username: Max. 15 characters.
password: Max. 15 characters.
mqttVersion: 3 is entered for MQTT version 3.1, and 4 is entered for MQTT ver. 3.1.1
keepAliveInterval: Between 1 and 2147483647. Unit is minute.
cleanSession: “on” or “off ”is written.
willFlag: “on” or “off ” is written.
willQoS: 0, 1 or 2 is written.
willRetain: “on” or “off ” is written.
willTopic: Max. 31 characters.
willMessage: Max. 31 characters.

{
“clientId”: “ C4:29:1D:50:00:01”,
“username”: “”,
“password”: “”,
“mqttVersion”: 4,
“keepAliveInterval”: 20,
“cleanSession”: “on”,
“willFlag”: “off”,
“willQoS”: 0,
“willRetain”: “off”,
“willTopic”: “EASION/123456/lastWillMessage”,
“willMessage”: “testWill”
}

6.13 MQTT Subscription Info Functions

This section describes the functions enabling reading and writing all data info about MQTT subscriber info.

6.13.1 Subscription Info of Output States

- **URL**

/ settings/mqtt/subscribe/output?number=n* (n*: number of output channel)

- **Metod:**

GET | PUT

- **Data Parameters**

topic: Max 63 characters, Tags can be used under the title of MQTT.
payloadOn: Max. 31 characters.
payloadOff: Max. 31 characters.
QoS: 0, 1 or 2 is written.

{
“topic”: “ #dn#/#sn#/#type#/#num#”,
“payloadOn”: “state = on”,
“payloadOff”: “state = off”,
“QoS”: 0
}

6.13.2 Subscription Info of Force Off

This section describes forcing deactivation of outputs.

- **URL**

/ settings/mqtt/subscribe/force

- **Metod:**

GET | PUT

- **Data Parameters**

{
“topic”: “ #dn#/#sn#/output/forceall”,
“payloadOn”: “forceoff=active”,
“payloadOff”: “forceoff=deactive”,
“QoS”: 0
}

6.14 MQTT Publication Info Functions

This section describes the functions enabling reading and writing all data info about MQTT publication info.

- **URL**

/ settings/mqtt/publish

- **Metod:**

GET | PUT

- **Data Parameters**

inputEventTopic: Max. 63-character, tags can be used under the MQTTsection.
inputPeriodicTopic: Max. 63-character, tags can be used under the MQTT section.
outputPeriodicTopic: Max. 63-character, tags can be used under the MQTT section.
payload: Max. 255-character, tags can be used under the MQTT section.
stateOnPayload: Max. 7-character.
stateOffPayload: Max. 7-character.
publishPeriod: Betwenn 3000 and 3600000. Unit is milliseconds
QoS: 0, 1 or 2 is written.
retain: 0 or 1 is written

```
{
        “inputEventTopic”:“#dn#/#sn#/#type#/#num#”,
        “inputPeriodicTopic”:“#dn#/#sn#/#per#/#type#”,
        “outputPeriodicTopic”:“#dn#/#sn#/#per#/#type#”,
        “payload”:“{
                “number”:“#num#”,
                “state”:“#stat#”,
                “counter”:“#cnt#”,
                “onTime”:“#ont#”,
                “totalOnTime”:“#tont#”
        }”,
        “stateOnPayload”:“1”,
        “stateOffPayload”:“0”,
        “publishPeriod”: 60000,
        “QoS”: [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
        “retain”: [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
}
```

Note: QoS and retain is applied separately for each channel. It is applied in order in the same number as the channel number. In 12-input, 12-output models, the first 12 elements of the sequence are used for the output setting and the last 12 elements are used for the input setting.

6.15 Command Functions

Command functions are described.

- **URL**

/ command

- **Metod:**

POST

- **Data Parameters**

command: “save-config” (save the configuration changed in the nonvolatile memory)

{
“command”: “save-config”
}

command: “restart” (restarts the device)

{
“command”: “restart “
}

command:“return-to-default”(default values are restored)

{
“command”: “return-to-default “
}

command: “clear-logs” (clears the logs)

{

“command”: “ clear-logs”
}

command: “clear-all-logs-counters” (clear all counter data and logs)

{
“command”: “ clear-all-logs-counters “
}

command: “clear-DI-switch-counters” (resets input counter values)

{
“command”: “clear-DI-switch-counters”
}

command: “clear-DI-total-hours” (resets input “total Time”)

{
“command”: “ clear-DI-total-hours “
}

command: “clear-DO-switch-counters” (resets output counter values)

{
“command”: “clear-DO-switch-counters”
}

command: “clear-DO-total-hours” (resets output total activation time)

{
“command”: “ clear-DO-total-hours “
}

6.16 Log Functions

Functions enabling reading the logs are described.

6.16.1 Number of Logs

- **URL**

/ log/stat

- **Metod:**

GET

- D**ata Parameters**

recordCount: Shows the number of logs

```
{
        “recordCount”: 2048,
}
```

6.16.2 Reading of Logs

- **URL**

/ log/query?number=1

- **Metod:**

GET

- **Data Parameters**

logEvent: Indicates the source of the log. Log sources will be read in JSON string data as the following statements.

```
{
        “event”: “resetFromButton”,
        “channel”: “-”,
        “duration”: 0,
        “timeStamp”: “2019-9-27 4:35:42”,
}
```

“output”	(Output)
“input”	(Input)
“powerDown”	(Power Down)
“powerUp”	(Power UNp)
“resetFromRemote”	(Reset (Remote))
“resetFromButton”	(Reset (Button))
“configurationChanged”	(Configuration Changed)
“returnedToDefaultFromRemote”	(Return to Default (Remote))
“returnedToDefaultFromButton”	(Return to Default (Button))
“logsCleared”	(Clear Logs)
“firmwareUpdate”	(Firmware update is activated)

channel: Indicates the number of the logged channel, if there is a log. The channel number is for input or output log and the log indicates the number of the input or output. “-” will appear in other logs.
duration: Indicates the “On Time” of the channel.
timeStamp: Indicates the time information of the log.

timeStamp: Durumun kaydedildiği zamanı belirtir.

{
“logEvent”: “resetFromButton”,
“channel”: “-”,
“duration”: 0,
“timeStamp”: “2019-9-27 4:35:42”,
}

6.17 Runtime Data Functions

Runtime ınput / output data functions are described.

6.17.1 Change of output state

- **URL:**

To activate output state: /runtime/output?number=n&state=on
To deactivate output state: /runtime/output?number=n&state=off (n: number of the output channel)

- **Metod:**

POST

6.17.2 Change of Force Off State

- **URL:**

To activate force off state: /runtime/force?number=n&state=on
To deactivate force off state: /runtime/force?number=n&state=off (n*: number of output channel)

- **Metod:**

POST

6.17.3 Reading Output State

- **URL:**

/runtime/output?number=n (n : number of output channel)

- **Metod:**

GET

- **Data Parameters**

indicates output state. If the output is active “on”, otherwise “off ” is read.

{
“state”: “off”
}

6.17.4 Reading Output States

- **URL:**

/runtime/outputs

- **Metod:**

GET

- **Data Parameters**

state: Output states are indicated in a sequence in the same number as the output. Active one is shown as 1, non-active is shown as 0

{
"state": [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
}

6.17.5 Reading Force off State

- **URL:**

/runtime/force?number=n* (n* : number of output channel)

- **Metod:**

GET

- **Data Parameters**

force: indicates force off state. If the force is active, "on" if it is not "off" is read.

{
"force": "off"
}

6.17.6 Reading Force off States

- **URL:**

/runtime/outputs/force

- **Metod:**

GET

- **Data Parameters**

force: Force off states are indicated in a sequence in the same number as the output. Active one is shown as 1, non-active is shown as 0.

{
"force": [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
}

6.17.7 Reading Output Counter States

- **URL:**

/runtime/inputs

- **Metod:**

GET

- **Data Parameters**

counter: Output counter states are indicated in a sequence in the same number as the output.

{
" counter ": [125, 5697, 0, 0, 0, 1, 0, 151551, 0, 0, 0, 0]
}

6.17.8 Reading Output On Times

- **URL:**

/runtime/outputs/onTime

- **Metod:**

GET

- **Data Parameters**

onTime: Output "On Time" is indicated in a sequence in the same number as the output.

```
{
      " onTime ": [ 1150850, 0, 1537225, 0, 0, 50, 0, 0, 0, 0, 0, 0]
}
```

6.17.9 Reading Output Total Times

- **URL:**

/runtime/outputs/totalOnTime

- **Metod:**

GET

- **Data Parameters**

totalOnTime: : Output "Total Time" is indicated in a sequence in the same number as the output. In the example below, the "Total Times" of the device with 12 outputs can be read in a sequence. Its unit is milliseconds.

```
{
      " totalOnTime ": [1555225, 0, 1537225, 0, 0, 50, 0, 0, 0, 0, 0, 5150]
}
```

6.17.10 Reading of Input State

- **URL:**

/runtime/input?number=n* (n* : number of input channel)

- **Metod:**

GET

- **Data Parameters**

state: indicates input state. If the input is active, "on" if it is not "off" is read.

```
{
 "state": "off"
}
```

6.17.11 Reading of Input States

- **URL:**

/runtime/inputs/state

- **Metod:**

GET

- **Data Parameters**

state: Input states are indicated in a sequence in the same number as the output. Active one is shown as 1, non-active is shown as 0

```
{
      "state": [ 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
}
```

6.17.12 Reading Input Counter States

- **URL:**

/runtime/inputs/counter

- **Metod:**

GET

- **Data Parameters**

counter: Input counter states are indicated in a sequence in the same number as the output.

```
{
      " counter ": [ 125, 5697, 0, 0, 0, 1, 0, 151551, 0, 0, 0, 0]
}
```

6.17.13 Reading Input On Times

- **URL:**

/runtime/inputs/totalOnTime

- **Metod:**

GET

- **Data Parameters**

onTime: Input "On Time" is indicated in a sequence in the same number as the output.

```
{
      " onTime ": [ 1150850, 0, 1537225, 0, 0, 50, 0, 0, 0, 0, 0, 0]
}
```

6.17.14 Toplam Input Durationlerini Okuma

- **URL:**

/runtime/inputs/totalOnTime

- **Metod:**

GET | PUT

- **Data Parameters**

totalOnTime: Inputin toplamda aktif olma Timeni giriş sayısı kadar bir dizide belirtir.

```
{
      " totalOnTime ": [1555225, 0, 1537225, 0, 0, 50, 0, 0, 0, 0, 0, 5150]
}
```

6.18 Other Commands

6.18.1 Power Up Counter

- **URL:**

/powerUpCounter

- **Metod:**

GET | PUT

- **Data Parameters**

powerUpCounter: It counts number of power up.

```
{
      " powerUpCounter": "12"
}
```

6.18.2 Reset Button Value

- **URL:**

/resetButtonValue

- **Metod:**

GET | PUT

- **Data Parameters**

resetButton: If reset button is pressed, it becomes “1”.

```
{
      “ resetButton”: “1”
}
```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SECTION 7
TECHNICAL
SPECIFICATIONS

SECTION 7 TECHNICAL SPECIFICATIONS

7.1 EASION 2M

Table 7-1 Technical Specifications (2M)

Technical Specifications			
Supply voltage	24 – 48 V AC, 12 – 48 V DC		
Frequency	45-65 Hz		
Power consumption	AC <13VA		
	DC <7W		
Input			
	Active input		
		Input signal	12 - 230 V AC/DC (Min = 8V AC/DC Max = 350V AC & 290 V DC)
		Input current	1 mA at 5V AC/DC
			2,5 mA at 24V AC/DC
			4 mA at 230V AC/DC
		Insulation	5000Vrms optic insulation
	Dry contact input		
		Insulation	1500Vrms optic and galvanic insulation
Output			
	Digital output		
		Switching voltage	5-30V DC
		Switching current	50mA
		Insulation	5000Vrms optic insulation
		Contact shut-off time	18µs
		Contact on time	18µs
	Relay Output		
		Max. Switching voltage	250VAC / 30VDC
		Max. Switching current	5A
		Max switching power	1250VA
		Mechanical life time	5 x 106 switching
		Electrical life time	1,2 x 105 switching
		Max. Contact shut-off time	10 ms
		Max. Contact on time	10 ms
		Insulation	Coil and contacts 4000Vrms (1 minute)
			Open contacts 1000Vrms (1 minute)
Communication			
		Communication interface	Insulated RS485 and insulated RS232
		Insulation voltage	2500Vrms (1 minute)
		Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
		Communication protocol	Modbus RTU

7.2 EASION 3M-4M

Table 7-2 Technical Specifications (3M – 4M)

Technical Specifications			
Supply voltage	24 – 48 V AC, 12 – 48 V DC		
Frequency	45-65 Hz		
Power consumption	AC <13VA		
	DC <7W		
Input			
	Active Input		
		Input signal	12 - 230 V AC/DC (Min = 8V AC/DC Max = 350V AC & 290 V DC)
		Input current	1 mA at 5V AC/DC
			2,5 mA at 24V AC/DC
			4 mA at 230V AC/DC
		Insulation	5000Vrms optic insulation
	Dry contact input		
		Insulation	1500Vrms optic and galvanic Insulation
Output			
	Digital output		
		Switching voltage	5-30V DC
		Switching current	50mA
		Insulation	5000Vrms optic insulation
		Contact shut-off time	18µs
		Contact on time	18µs
	Relay		
		Max. Switching voltage	250VAC / 30VDC
		Max. Switching current	5A
		Max. switching current	1250VA
		Mechanical strength	5 x 10^6 Switching
		Electrical strength	1,2 x 10^5 Switching
		Max. Contact shut-off time	10 ms
		Max. Contact on time	10 ms
		Insulation	Coil and contacts 4000Vrms (1 minute)
			Open contacts 1000Vrms (1 minute)
Communication			
	TCP / IP		
		Communication interface	Ethernet (10 / 100 Base – T X)
		Insulation voltage	1500VAC or 2250VDC
		Communication protocol	Modbus TCP
	Serial communication		
		Comunication interface	Insulated RS485
		Insulation voltage	2500Vrms (1 minute)
		Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
		Communication protocol	Modbus RTU
		Communication interface	USB
		Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
		Communication protocol	Modbus RTU

7.3 EASION 5M

Table 7-3 Technical Specifications (5M)

Technical Specifications			
Supply voltage	24 – 48 V AC, 12 – 48 V DC		
Frequency	45-65 Hz		
Power consumption	AC <13VA		
	DC <7W		
Input			
	Active Input		
		Input Signal	12 - 230 V AC/DC (Min 8V AC/DC Max 350V AC & 290 V DC)
		Input current	1 mA at 5V AC/DC
			2,5 mA at 24V AC/DC
			4 mA at 230V AC/DC
		Insulation	5000Vrms optic insulation
	Dry contact input		
		Insulation	1500Vrms optic or galvanic insulatin
Output			
	Digital output		
		Switching voltage	5-30V DC
		Switching current	50mA
		Insulation	5000Vrms optic insulation
		Contact shut-off time	18µs
		Contact on time	18µs
	Relay		
		Max. Switching voltage	250VAC / 30VDC
		Max. Switching current	5A
		Max. switching current	1250VA
		Mechanical strength	5 x 106 Switching
		Electrical strength	1,2 x 105 Switching
		Max. Contact shut-off time	10 ms
		Max. Contact on time	10 ms
		Insulation	Coil and contacts 4000Vrms (1minute)
			Open contacts 1000Vrms (1 minute)
İletişim			
	TCP / IP		
		Communication interface	Ethernet (10 / 100 Base – TX)
		Insulation voltage	1500VAC or 2250VDC
		Communication protocol	MQTT, HTTP REST
	Serial communication		
		Communication interface	USB
		Baud rate	38400
		Communication protocol	HTTP REST

Dimensions

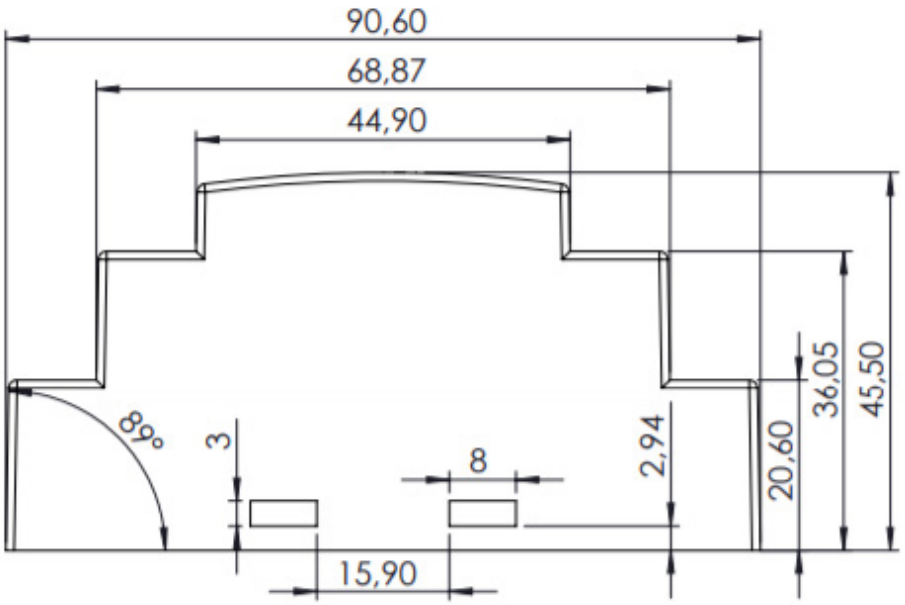


Figure 7-1 Dimensions

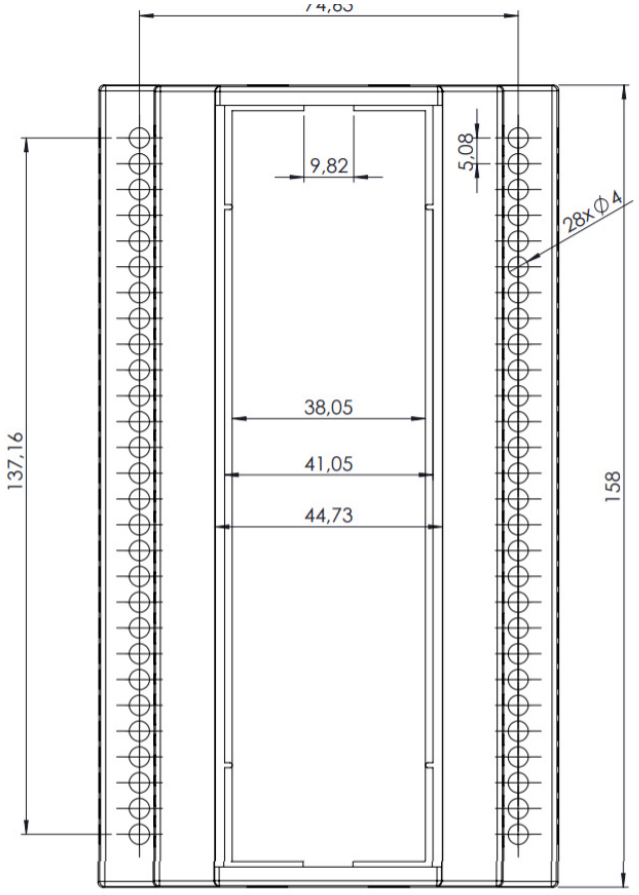
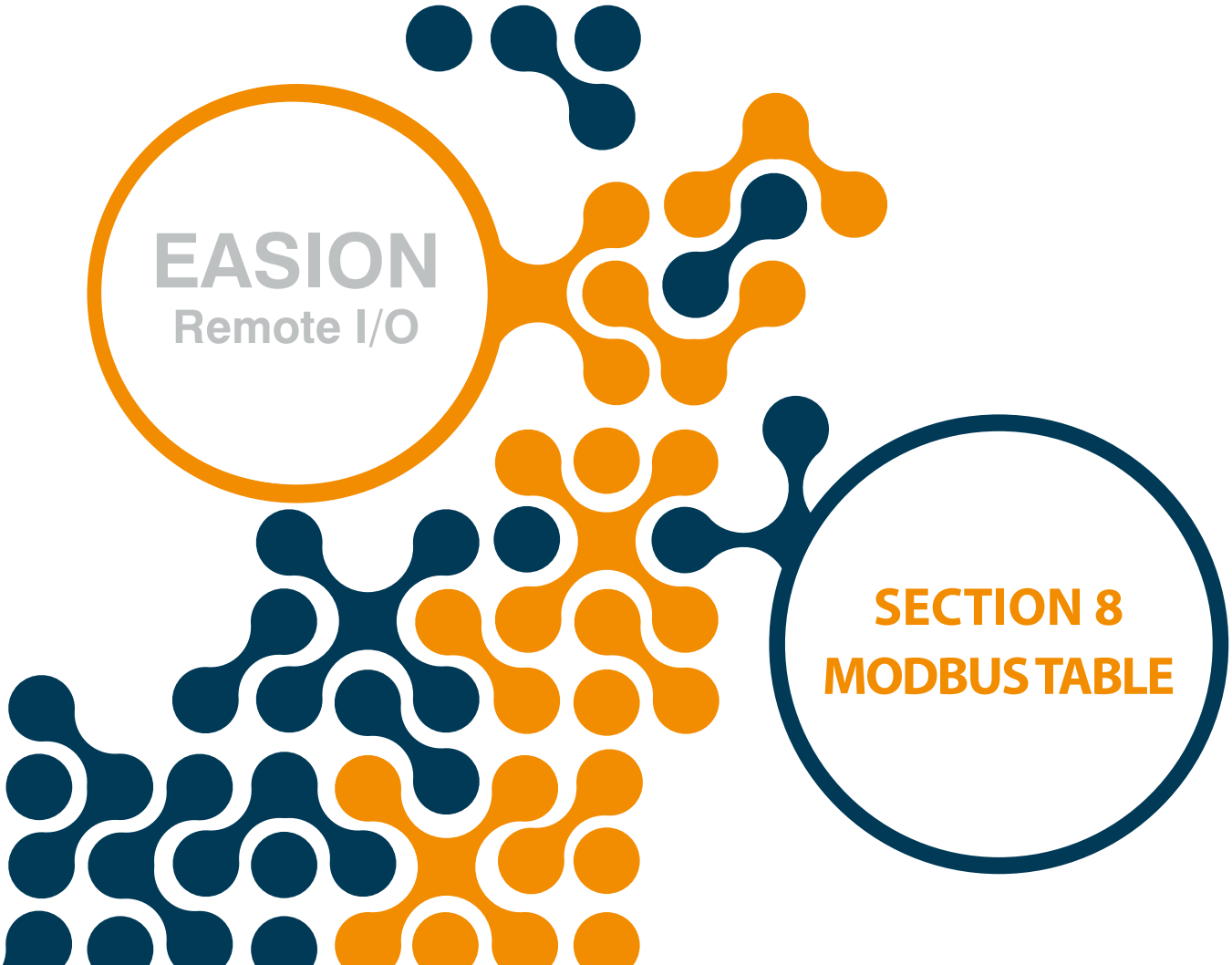


Figure 7-2 Dimensions (2) Technical Specifications


EASION
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SECTION 8
MODBUS TABLE

SECTION 8 MODBUS TABLE

8.1 Input

Table 8-1 Modbus Table

Input Status Info						
Article	Address	Value	Data Type	Reading / Writing	Function	Description
1	0	DI_1	uint16_t	R	02H-03H	0-Passive,1-Active
2	1	DI_2	uint16_t	R	02H-03H	0-Passive,1-Active
3	2	DI_3	uint16_t	R	02H-03H	0-Passive,1-Active
4	3	DI_4	uint16_t	R	02H-03H	0-Passive,1-Active
5	4	DI_5	uint16_t	R	02H-03H	0-Passive,1-Active
6	5	DI_6	uint16_t	R	02H-03H	0-Passive,1-Active
7	6	DI_7	uint16_t	R	02H-03H	0-Passive,1-Active
8	7	DI_8	uint16_t	R	02H-03H	0-Passive,1-Active
9	8	DI_9	uint16_t	R	02H-03H	0-Passive,1-Active
10	9	DI_10	uint16_t	R	02H-03H	0-Passive,1-Active
11	10	DI_11	uint16_t	R	02H-03H	0-Passive,1-Active
12	11	DI_12	uint16_t	R	02H-03H	0-Passive,1-Active
13	12	DI_13	uint16_t	R	02H-03H	0-Passive,1-Active
14	13	DI_14	uint16_t	R	02H-03H	0-Passive,1-Active
15	14	DI_15	uint16_t	R	02H-03H	0-Passive,1-Active
16	15	DI_16	uint16_t	R	02H-03H	0-Passive,1-Active
17	16	DI_17	uint16_t	R	02H-03H	0-Passive,1-Active
18	17	DI_18	uint16_t	R	02H-03H	0-Passive,1-Active
19	18	DI_19	uint16_t	R	02H-03H	0-Passive,1-Active
20	19	DI_20	uint16_t	R	02H-03H	0-Passive,1-Active
21	20	DI_21	uint16_t	R	02H-03H	0-Passive,1-Active
22	21	DI_22	uint16_t	R	02H-03H	0-Passive,1-Active
23	22	DI_23	uint16_t	R	02H-03H	0-Passive,1-Active
24	23	DI_24	uint16_t	R	02H-03H	0-Passive,1-Active
Counter Value Info						
25	50	Counter Value_1	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
26	52	Counter Value_2	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
27	54	Counter Value_3	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
28	56	Counter Value_4	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
29	58	Counter Value_5	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
30	60	Counter Value_6	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
31	62	Counter Value_7	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
32	64	Counter Value_8	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
33	66	Counter Value_9	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
34	68	Counter Value_10	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
35	70	Counter Value_11	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Counter Value Info						
36	72	Counter Value_12	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
37	74	Counter Value_13	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
38	76	Counter Value_14	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
39	78	Counter Value_15	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
40	80	Counter Value_16	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
41	82	Counter Value_17	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
42	84	Counter Value_18	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
43	86	Counter Value_19	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
44	88	Counter Value_20	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
45	90	Counter Value_21	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
47	94	Counter Value_23	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
48	96	Counter Value_24	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
Total Time Info						
49	100	Total Time_1	uint32_t	R/W	03H/10H	0 - 4294967295 msn
50	102	Total Time_2	uint32_t	R/W	03H/10H	0 - 4294967295 msn
51	104	Total Time_3	uint32_t	R/W	03H/10H	0 - 4294967295 msn
52	106	Total Time_4	uint32_t	R/W	03H/10H	0 - 4294967295 msn
53	108	Total Time_5	uint32_t	R/W	03H/10H	0 - 4294967295 msn
54	110	Total Time_6	uint32_t	R/W	03H/10H	0 - 4294967295 msn
55	112	Total Time_7	uint32_t	R/W	03H/10H	0 - 4294967295 msn
56	114	Total Time_8	uint32_t	R/W	03H/10H	0 - 4294967295 msn
57	116	Total Time_9	uint32_t	R/W	03H/10H	0 - 4294967295 msn
58	118	Total Time_10	uint32_t	R/W	03H/10H	0 - 4294967295 msn
59	120	Total Time_11	uint32_t	R/W	03H/10H	0 - 4294967295 msn
60	122	Total Time_12	uint32_t	R/W	03H/10H	0 - 4294967295 msn
61	124	Total Time_13	uint32_t	R/W	03H/10H	0 - 4294967295 msn
62	126	Total Time_14	uint32_t	R/W	03H/10H	0 - 4294967295 msn
63	128	Total Time_15	uint32_t	R/W	03H/10H	0 - 4294967295 msn
64	130	Total Time_16	uint32_t	R/W	03H/10H	0 - 4294967295 msn
65	132	Total Time_17	uint32_t	R/W	03H/10H	0 - 4294967295 msn
66	134	Total Time_18	uint32_t	R/W	03H/10H	0 - 4294967295 msn
67	136	Total Time_19	uint32_t	R/W	03H/10H	0 - 4294967295 msn
68	138	Total Time_20	uint32_t	R/W	03H/10H	0 - 4294967295 msn
69	140	Total Time_21	uint32_t	R/W	03H/10H	0 - 4294967295 msn
70	142	Total Time_22	uint32_t	R/W	03H/10H	0 - 4294967295 msn
71	144	Total Time_23	uint32_t	R/W	03H/10H	0 - 4294967295 msn
72	146	Total Time_24	uint32_t	R/W	03H/10H	0 - 4294967295 msn

Article	Address	Value	Data Type	Reading / Writing	Function	Description
On Time Info						
73	150	On Time_1	uint32_t	R	03H	msn
74	152	On Time_2	uint32_t	R	03H	msn
75	154	On Time_3	uint32_t	R	03H	msn
76	156	On Time_4	uint32_t	R	03H	msn
77	158	On Time_5	uint32_t	R	03H	msn
78	160	On Time_6	uint32_t	R	03H	msn
79	162	On Time_7	uint32_t	R	03H	msn
80	164	On Time_8	uint32_t	R	03H	msn
81	166	On Time_9	uint32_t	R	03H	msn
82	168	On Time_10	uint32_t	R	03H	msn
83	170	On Time_11	uint32_t	R	03H	msn
84	172	On Time_12	uint32_t	R	03H	msn
85	174	On Time_13	uint32_t	R	03H	msn
86	176	On Time_14	uint32_t	R	03H	msn
87	178	On Time_15	uint32_t	R	03H	msn
88	180	On Time_16	uint32_t	R	03H	msn
89	182	On Time_17	uint32_t	R	03H	msn
90	184	On Time_18	uint32_t	R	03H	msn
91	186	On Time_19	uint32_t	R	03H	msn
92	188	On Time_20	uint32_t	R	03H	msn
93	190	On Time_21	uint32_t	R	03H	msn
94	192	On Time_22	uint32_t	R	03H	msn
95	194	On Time_23	uint32_t	R	03H	msn
96	196	On Time_24	uint32_t	R	03H	msn
Previous Time Info						
97	200	Previous Time_1	uint32_t	R	03H	msn
98	202	Previous Time_2	uint32_t	R	03H	msn
99	204	Previous Time_3	uint32_t	R	03H	msn
100	206	Previous Time_4	uint32_t	R	03H	msn
101	208	Previous Time_5	uint32_t	R	03H	msn
102	210	Previous Time_6	uint32_t	R	03H	msn
103	212	Previous Time_7	uint32_t	R	03H	msn
104	214	Previous Time_8	uint32_t	R	03H	msn
105	216	Previous Time_9	uint32_t	R	03H	msn
106	218	Previous Time_10	uint32_t	R	03H	msn
107	220	Previous Time_11	uint32_t	R	03H	msn
108	222	Previous Time_12	uint32_t	R	03H	msn
109	224	Previous Time_13	uint32_t	R	03H	msn
110	226	Previous Time_14	uint32_t	R	03H	msn

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Previous Time Info						
111	228	Previous Time_15	uint32_t	R	03H	msn
112	230	Previous Time_16	uint32_t	R	03H	msn
113	232	Previous Time_17	uint32_t	R	03H	msn
114	234	Previous Time_18	uint32_t	R	03H	msn
115	236	Previous Time_19	uint32_t	R	03H	msn
116	238	Previous Time_20	uint32_t	R	03H	msn
117	240	Previous Time_21	uint32_t	R	03H	msn
118	242	Previous Time_22	uint32_t	R	03H	msn
119	244	Previous Time_23	uint32_t	R	03H	msn
120	246	Previous Time_24	uint32_t	R	03H	msn

8.2 Output

Output Status Info						
Article	Address	Value	Data Type	Reading / Writing	Function	Description
1	250	DO_1	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
2	251	DO_2	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
3	252	DO_3	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
4	253	DO_4	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
5	254	DO_5	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
6	255	DO_6	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
7	256	DO_7	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
8	257	DO_8	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
9	258	DO_9	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
10	259	DO_10	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
11	260	DO_11	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
12	261	DO_12	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
13	262	DO_13	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
14	263	DO_14	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
15	264	DO_15	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
16	265	DO_16	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
17	266	DO_17	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
18	267	DO_18	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
19	268	DO_19	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
20	269	DO_20	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
21	270	DO_21	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
22	271	DO_22	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
23	272	DO_23	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On
24	273	DO_24	uint16_t	R/W	01H-03H/05H-06H-0FH-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Counter Value Info						
25	300	Counter Value_1	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
26	302	Counter Value_2	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
27	304	Counter Value_3	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
28	306	Counter Value_4	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
29	308	Counter Value_5	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
30	310	Counter Value_6	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
31	312	Counter Value_7	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
32	314	Counter Value_8	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
33	316	Counter Value_9	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
34	318	Counter Value_10	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
35	320	Counter Value_11	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
36	322	Counter Value_12	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
37	324	Counter Value_13	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
38	326	Counter Value_14	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
39	328	Counter Value_15	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
40	330	Counter Value_16	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
41	332	Counter Value_17	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
42	334	Counter Value_18	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
43	336	Counter Value_19	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
44	338	Counter Value_20	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
45	340	Counter Value_21	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
46	342	Counter Value_22	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
47	344	Counter Value_23	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
48	346	Counter Value_24	uint32_t	R/W	03H/10H	0 - 4294967295 pcs.
Total Time Info						
49	350	Total Time_1	uint32_t	R/W	03H/10H	0 - 4294967295 msn
50	352	Total Time_2	uint32_t	R/W	03H/10H	0 - 4294967295 msn
51	354	Total Time_3	uint32_t	R/W	03H/10H	0 - 4294967295 msn
52	356	Total Time_4	uint32_t	R/W	03H/10H	0 - 4294967295 msn
53	358	Total Time_5	uint32_t	R/W	03H/10H	0 - 4294967295 msn
54	360	Total Time_6	uint32_t	R/W	03H/10H	0 - 4294967295 msn
55	362	Total Time_7	uint32_t	R/W	03H/10H	0 - 4294967295 msn
56	364	Total Time_8	uint32_t	R/W	03H/10H	0 - 4294967295 msn
57	366	Total Time_9	uint32_t	R/W	03H/10H	0 - 4294967295 msn
58	368	Total Time_10	uint32_t	R/W	03H/10H	0 - 4294967295 msn
59	370	Total Time_11	uint32_t	R/W	03H/10H	0 - 4294967295 msn
60	372	Total Time_12	uint32_t	R/W	03H/10H	0 - 4294967295 msn
61	374	Total Time_13	uint32_t	R/W	03H/10H	0 - 4294967295 msn
62	376	Total Time_14	uint32_t	R/W	03H/10H	0 - 4294967295 msn

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Total Time Info						
63	378	Total Time_15	uint32_t	R/W	03H/10H	0 - 4294967295 msn
64	380	Total Time_16	uint32_t	R/W	03H/10H	0 - 4294967295 msn
65	382	Total Time_17	uint32_t	R/W	03H/10H	0 - 4294967295 msn
66	384	Total Time_18	uint32_t	R/W	03H/10H	0 - 4294967295 msn
67	386	Total Time_19	uint32_t	R/W	03H/10H	0 - 4294967295 msn
68	388	Total Time_20	uint32_t	R/W	03H/10H	0 - 4294967295 msn
69	390	Total Time_21	uint32_t	R/W	03H/10H	0 - 4294967295 msn
70	392	Total Time_22	uint32_t	R/W	03H/10H	0 - 4294967295 msn
71	394	Total Time_23	uint32_t	R/W	03H/10H	0 - 4294967295 msn
72	396	Total Time_24	uint32_t	R/W	03H/10H	0 - 4294967295 msn
* Çıkış aktif etmek için, 10H ile tek seferde yazma yapabilmek için remote olmayan kanallara 0xEE (238) gönderilerek illegal data value hatasının önüne geçilebilir. Çünkü remote modda olmayan kanallar 0 veya 1 değerini kabul etmemektedir.						
On Time Info						
73	400	On Time_1	uint32_t	R	03H	msec
74	402	On Time_2	uint32_t	R	03H	msec
75	404	On Time_3	uint32_t	R	03H	msec
76	406	On Time_4	uint32_t	R	03H	msec
77	408	On Time_5	uint32_t	R	03H	msec
78	410	On Time_6	uint32_t	R	03H	msec
79	412	On Time_7	uint32_t	R	03H	msec
80	414	On Time_8	uint32_t	R	03H	msec
81	416	On Time_9	uint32_t	R	03H	msec
82	418	On Time_10	uint32_t	R	03H	msec
83	420	On Time_11	uint32_t	R	03H	msec
84	422	On Time_12	uint32_t	R	03H	msec
85	424	On Time_13	uint32_t	R	03H	msec
86	426	On Time_14	uint32_t	R	03H	msec
87	428	On Time_15	uint32_t	R	03H	msec
88	430	On Time_16	uint32_t	R	03H	msec
89	432	On Time_17	uint32_t	R	03H	msec
90	434	On Time_18	uint32_t	R	03H	msec
91	436	On Time_19	uint32_t	R	03H	msec
92	438	On Time_20	uint32_t	R	03H	msec
93	440	On Time_21	uint32_t	R	03H	msec
94	442	On Time_22	uint32_t	R	03H	msec
95	444	On Time_23	uint32_t	R	03H	msec
96	446	On Time_24	uint32_t	R	03H	msec

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Previous Time Info						
97	450	Previous Time_1	uint32_t	R	03H	msn
98	452	Previous Time_2	uint32_t	R	03H	msn
99	454	Previous Time_3	uint32_t	R	03H	msn
100	456	Previous Time_4	uint32_t	R	03H	msn
101	458	Previous Time_5	uint32_t	R	03H	msn
102	460	Previous Time_6	uint32_t	R	03H	msn
103	462	Previous Time_7	uint32_t	R	03H	msn
104	464	Previous Time_8	uint32_t	R	03H	msn
105	466	Previous Time_9	uint32_t	R	03H	msn
106	468	Previous Time_10	uint32_t	R	03H	msn
107	470	Previous Time_11	uint32_t	R	03H	msn
108	472	Previous Time_12	uint32_t	R	03H	msn
109	474	Previous Time_13	uint32_t	R	03H	msn
110	476	Previous Time_14	uint32_t	R	03H	msn
111	478	Previous Time_15	uint32_t	R	03H	msn
112	480	Previous Time_16	uint32_t	R	03H	msn
113	482	Previous Time_17	uint32_t	R	03H	msn
114	484	Previous Time_18	uint32_t	R	03H	msn
115	486	Previous Time_19	uint32_t	R	03H	msn
116	488	Previous Time_20	uint32_t	R	03H	msn
117	490	Previous Time_21	uint32_t	R	03H	msn
118	492	Previous Time_22	uint32_t	R	03H	msn
119	494	Previous Time_23	uint32_t	R	03H	msn
Force Off Info						
121	500	Force Off_1	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
122	501	Force Off_2	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
123	502	Force Off_3	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
124	503	Force Off_4	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
125	504	Force Off_5	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
126	505	Force Off_6	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
127	506	Force Off_7	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
128	507	Force Off_8	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
129	508	Force Off_9	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
130	509	Force Off_10	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
131	510	Force Off_11	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
132	511	Force Off_12	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
133	512	Force Off_13	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
134	513	Force Off_14	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
135	514	Force Off_15	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Force Off Info						
136	515	Force Off_16	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
137	516	Force Off_17	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
138	517	Force Off_18	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
139	518	Force Off_19	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
140	519	Force Off_20	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
141	520	Force Off_21	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
142	521	Force Off_22	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
143	522	Force Off_23	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff
144	523	Force Off_24	uint16_t	R/W	03H/05H-06H-0FH-10H	0 - Normal, 1 - ForceOff

8.3 Configuration

Serial Connection Configuration						
Article	Address	Value	Data Type	Reading / Writing	Function	Description
1	1000	Slave ID 485	uint32_t	R/W	03H-10H	Min Value = 1 Max Value = 247
2	1002	Baud Rate 485	uint32_t	R/W	03H-10H	1200 2400 4800 9600 19200 38400 57600 115200
3	1004	Stop Bit 485	uint32_t	R/W	03H-10H	1 = Stop Bit 1 2 = Stop Bit 2
4	1006	Parite 485	uint32_t	R/W	03H-10H	0 = None 1 = Odd 2 = Even
5	1008	Slave ID RS232 / USB	uint32_t	R/W	03H-10H	Min Value = 1 Max Value = 247
6	1010	Baud Rate RS232 / USB	uint32_t	R/W	03H-10H	1200 2400 4800 9600 19200 38400 57600 115200
7	1012	Stop Bit RS232 / USB	uint32_t	R/W	03H-10H	1 = Stop Bit 1 2 = Stop Bit 2
8	1014	Parity RS232 / USB	uint32_t	R/W	03H-10H	0 = None 1 = Odd 2 = Even
NOTE: The Modbus addresses above differ according to the serial communication interfaces in the products.						

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Network Configuration						
1	1050	Mac address high	uint32_t	R	03H-10H	MSB of the MAC Adress
2	1052	Mac address low	uint32_t	R	03H-10H	LSB of the MAC Adress
3	1054	Gateway Address	uint32_t	R/W	03H-10H	Default Value: 192.168.35.254
4	1056	Subnet Mask	uint32_t	R/W	03H-10H	Default Value: 255.255.255.0
5	1058	Source IP	uint32_t	R/W	03H-10H	Default Value: 192.168.35.254
6	1060	DHCP Enable	uint32_t	R/W	03H-10H	0 = Disable 1 = Enable
7	1062	Gateway Address (DHCP)	uint32_t	R	03H	
8	1064	Subnet Mask (DHCP)	uint32_t	R	03H	
9	1066	Source IP (DHCP)	uint32_t	R	03H	
10	1068	Modbus Port	uint32_t	R/W	03H-10H	Min Value = 1 Max Value = 247
11	1070	Unit ID	uint32_t	R/W	03H-10H	Min Value = 1 Max Value = 247
Input 1						
1	1100	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
2	1102	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
3	1104	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 2						
4	1106	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
5	1108	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
6	1110	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 3						
7	1112	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
8	1114	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
9	1116	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 4						
10	1118	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
11	1120	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
12	1122	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 5						
13	1124	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
14	1126	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
15	1128	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 6						
16	1130	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
17	1132	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
18	1134	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Input 7						
19	1136	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
20	1138	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
21	1140	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 8						
22	1142	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
23	1144	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
24	1146	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 9						
25	1148	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
26	1150	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
27	1152	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 10						
28	1154	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
29	1156	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
30	1158	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 11						
31	1160	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
32	1162	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
33	1164	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 12						
34	1166	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
35	1168	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
36	1170	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 13						
37	1172	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
38	1174	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
39	1176	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 14						
40	1178	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
41	1180	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
42	1182	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 15						
43	1184	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
44	1186	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
45	1188	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 16						
46	1190	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
47	1192	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
48	1194	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Input 17						
49	1196	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
50	1198	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
51	1200	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 18						
52	1202	Mod	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
53	1204	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
54	1206	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 19						
55	1208	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
56	1210	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
57	1212	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 20						
58	1214	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
59	1216	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
60	1218	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 21						
61	1220	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
62	1222	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
63	1224	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 22						
64	1226	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
65	1228	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
66	1230	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 23						
67	1232	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
68	1234	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
69	1236	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Input 24						
70	1238	Mode	uint32_t	R/W	03H-10H	0 - Normal, 1 - Inverse
71	1240	Delay Time	uint32_t	R/W	03H-10H	100-10000 ms
72	1242	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Output 1						
1	1300	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
2	1302	(Role = 0) Mode (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1 4 = Input Or 5 = Input Ve 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
3	1304	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
4	1306	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 2						
5	1308	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
6	1310	(Role = 0) Mode (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1 4 = Input Or 5 = Input Ve 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
7	1312	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
8	1314	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 3						
9	1316	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
10	1318	(Role = 0) Mode (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1 4 = Input Or 5 = Input Ve 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
11	1320	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
12	1322	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Output 4						
13	1324	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
14	1326	(Role = 0) Mode (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
15	1328	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
16	1330	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 5						
17	1332	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
18	1334	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
19	1336	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
20	1338	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 6						
21	1340	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
22	1342	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
23	1344	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
24	1346	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Output 7						
25	1348	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
26	1350	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
27	1352	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
28	1354	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 8						
29	1356	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
30	1358	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
31	1360	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
32	1362	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 9						
33	1364	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
34	1366	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
35	1368	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
36	1370	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Output 10						
37	1372	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
38	1374	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
39	1376	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
40	1378	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 11						
41	1380	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
42	1382	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
43	1384	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
44	1386	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 12						
45	1388	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
46	1390	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
47	1392	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
48	1394	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Output 13						
49	1396	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
50	1398	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
51	1400	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
52	1402	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 14						
53	1404	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
54	1406	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
55	1408	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
56	1410	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 15						
57	1412	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
58	1414	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
59	1416	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
60	1418	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Output 16						
61	1420	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
62	1422	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
63	1424	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W		(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
64	1426	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 17						
65	1428	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
66	1430	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
67	1432	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
68	1434	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 18						
69	1436	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
70	1438	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
71	1440	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
72	1442	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Output 19						
73	1444	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
74	1446	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
75	1448	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
76	1450	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 20						
77	1452	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
78	1454	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
79	1456	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
80	1458	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 21						
81	1460	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
82	1462	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
83	1464	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
84	1466	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

Article	Address	Value	Data Type	Reading / Writing	Function	Description
Output 22						
85	1468	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
86	1470	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
87	1472	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
88	1474	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 23						
89	1476	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
90	1478	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
91	1480	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
92	1482	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On
Output 24						
93	1484	Rol	uint32_t	R/W	03H-10H	0- Remote 1- Logic 2- Input Counter
94	1486	(Role = 0) Mod (Role = 1) Operand (Role = 2) on/off	uint32_t	R/W	03H-10H	(Role = 0) 0 = Continious 1 = Time Dependent (Role = 1) 4 = Input Or 5 = Input And 6 = Output Or 7 = Output And (Role = 2) 10 - 10000
95	1488	(Role = 0) Time (Role = 1) Pin Nr (Role = 2) Input Count	uint32_t	R/W	03H-10H	(Role = 0) 10 - 10000 (Role = 1) 1 - 4095 (Role = 2) 2 - 10000
96	1490	Log Active	uint32_t	R/W	03H-10H	0 - Off, 1 - On

8.4 Real Time Clock

Article	Address	Value	Data Type	Reading / Writing	Function	Description
1	1500	Day	uint16_t	R/W	03H-10H	0-31
2	1501	Month	uint16_t	R/W	03H-10H	1-12
3	1502	Year	uint16_t	R/W	03H-10H	0-99
4	1503	Hour	uint16_t	R/W	03H-10H	0-12
5	1504	Minute	uint16_t	R/W	03H-10H	0-59
6	1505	Second	uint16_t	R/W	03H-10H	0-59

8.5 Commands

Address	Data Type	Okuma / Yazma
2000	uint16_t	W

Value	Command
1000	Save Configuration
1050	Return to Defults
1100	Restart
1150	Clear Logs
1200	Clear Logs + "Counter Value" Info for All Inputs and Outputs
1250	Clear "Counter Value" Info of All Inputs
1300	Clear "Total Time" Info of All Inputs
1350	Clear "Counter Value" Info of All Outputs
1400	Clear "Total Time" Info of All Outputs

8.6 Minimum Record Time

Article	Address	Value	Data Type	Reading / Writing	Function	Description
1	3046	Power Up Counter	uint32_t	R	3H	
Article	Address	Value	Data Type	Reading / Writing	Function	Description
1	3050	Log Counter	uint32_t	R	3H	

8.7 Record

		Article	Address	Value	Data Type	Reading / Writing	Function	Description
1	Log-1	1	4000	Event Number	uint32_t	R	03H	TABLE 1*
		2	4002	Channel Number	uint32_t	R	03H	Input and/or Output Channel
		3	4004	Duration	uint32_t	R	03H	When related channel is active, "0" is written, when it is passive, time of being active is written (The unit is msec).
		4	4006	Time Info	uint32_t	R	03H	Unix time
		5	4008	Output Source	uint32_t	R	03H	TABLE 2*
2	Log-2	6	4010	Event Number	uint32_t	R	03H	
		7	4012	Channel Number	uint32_t	R	03H	
		8	4014	Duration	uint32_t	R	03H	
		9	4016	Time Info	uint32_t	R	03H	Unix time
		10	4018	Output Source	uint32_t	R	03H	
1632	Log-1632	8156	20310	Event Number	uint32_t	R	03H	
		8157	20312	Channel Number	uint32_t	R	03H	
		8158	20314	Duration	uint32_t	R	03H	
		8159	20316	Time Info	uint32_t	R	03H	Unix time
		8160	20318	Output Source	uint32_t	R	03H	
2047	Log-2047	10231	24460	Event Number	uint32_t	R	03H	
		10232	24462	Channel Number	uint32_t	R	03H	
		10233	24464	Duration	uint32_t	R	03H	
		10234	24466	Time Info	uint32_t	R	03H	Unix time
		10235	24468	Output Source	uint32_t	R	03H	

TABLE 1	
Event	Event Number
Output	2
Input	4
Power Down	8
Power Up	16
Reset (Remote)	32
Reset (Button)	64
Configuration Changed	128
Returned to Default (Remote)	256
Returned to Default (Button)	512
Clear Logs	1024
Firmware Update is Activated	2048

TABLE 2	
Source	Source Number
If Not an Output Log	0
Remote Continuous	1
Remote Time Dependent	2
Logic	3
Input Counter	4

Example: 29/01/2019'da 16:50:43'de 1. output kanalı uzaktan aktif edilir. 5 sn sonra deaktif edilirse log aşağıdaki gibidir.

Article	Address	Value	Description
1	0	2	Output
2	2	1	1. channel
3	4	5000	5 second
4	6	1548780643	unix_time
5	8	1	Remote Continuous

Description: 1. Output kanalı uzaktan 29.01.2019 16:50:43' te aktive edildi ve 5000 ms sonra kapatıldı.

8.8 Product Info

Reading of Product Info with 0x11 Function (2M Series)		
Byte	Adı	Valuei
0	Slave ID	Depending on the Configuration (1 Byte, uint8)
1	Function	0x11 (1 Byte, uint8)
2	Byte Count	Depending on the Device (1 Byte, uint8)
3-14	Firmware Version	Depending on the Device (12 Byte, char)
15-26	PCB Version	Depending on the Device (12 Byte, char)
27-38	Production Date	Depending on the Device (12 Byte, char)
39-50	Production Time	Depending on the Device (12 Byte, char)
51-54	Compiler Version	7070001 (4 Byte, uint32 LE)
55-66	Manufacturer Name	Depending on the Device (12 Byte, char)
67-90	Product Name	Depending on the Device (24 Byte, char)
91-102	Serial Number	Depending on the Device (12 Byte, char)
103-114	Order Number	Depending on the Device (12 Byte, char)
115-118	Product Model	0: 12-Input 12-Output , 1: 24-Input, 2: 24-Output (4 Byte, uint32 LE)
119	Run Indicator Status	0xFF (1 Byte, uint8)
120-121	CRC	Depending on the Device (2 Byte, uint16)

Reading of Product Info with 0x11 Function (3M-4M-5M Series)		
Byte	Adı	Valuei
0	Slave ID	Depending on the Configuration (1 Byte, uint8)
1	Function	0x11 (1 Byte, uint8)
2	Byte Count	Depending on the Device (1 Byte, uint8)
3-14	Firmware Version	Depending on the Device (12 Byte, char)
15-26	PCB Version	Depending on the Device (12 Byte, char)
27-38	Production Date	Depending on the Device (12 Byte, char)
39-50	Production Time	Depending on the Device (12 Byte, char)
51-54	Compiler Version	7070001 (4 Byte, uint32 LE)
55-66	Manufacturer Name	Depending on the Device (12 Byte, char)
67-90	Product Name	Depending on the Device (24 Byte, char)
91-102	Serial Number	Depending on the Device (12 Byte, char)
103-114	Order Number	Depending on the Device (12 Byte, char)
115-134	MAC Address	Depending on the Device (20 Byte, char)
135-138	Product Model	0: 12-Input 12-Output , 1: 24-Input, 2: 24-Output (4 Byte, uint32 LE)
139	Run Indicator Status	0xFF (1 Byte, uint8)
140-141	CRC	Depending on the Device (2 Byte, uint16)

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