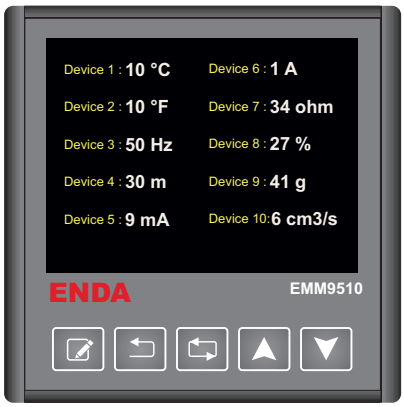
Read this document carefully before using this device. The guarantee will be expired by device damages if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

ENDA EMM9510 Programmable Modbus Master Device

Thank you for choosing **ENDA EMM9510** Programmable Modbus Master Devices

- 96x96mm sized.
- 3,5-inch, 5 Digits graphical TFT display.
- Up to 10 address read.
- Slave registers can be updated via master device.
- Multiple and/or single read value display.
- Baudrate selection.
- CE Marked according to European Norms.



Order Code : EMM9510 - ☐☐☐
1

1 - Supply Voltage
230.....90-250V AC

CE

RoHS Compliant

TECHNICIAL SPECIFICATIONS

ENVIRONMENTAL CONDITIONS	
Ambient-storage temperature	0 ... +50°C/-25 ... +70°C
Relative humidity	80% Relative humidity for temperatures up to 31°C, decreasing linearly to 50% at 40°C.
Protection	According to EN60529 ; Front Panel : IP65 Rear Panel : IP20
Height	Max. 2000m

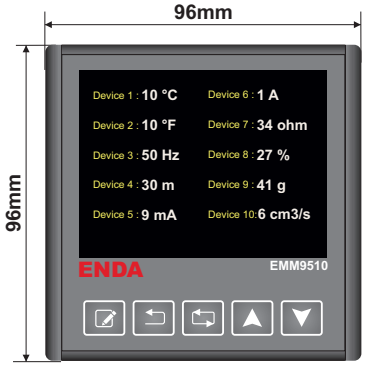
⚠ **KEEP AWAY device from exposed to corrosive, volatile and flammable gases or liquids and DO NOT USE the device in similar hazardous locations.**

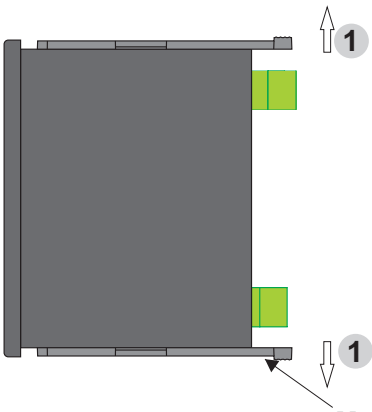
ELECTRICAL SPECIFICATIONS	
Supply Voltage	90-250V AC, 50/60Hz
Power Consumption	Max. 7VA
Connection	Power connection : 2.5mm² screw-terminal, Signal connection : 1,5mm² screw-terminal connections
EMC	EN 61326-1: 2013
Safety Requirements	EN 61010-1: 2010 (Pollution degree 2, overvoltage category II)

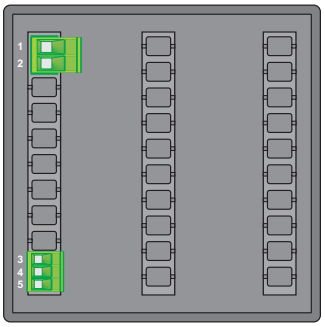
HOUSING	
Housing Type	Suitable for flush-panel mounting according to DIN 43 700.
Dimensions	W96xH96xD81mm
Weight	Approx. 400g (after packing)
Enclosure Material	Self extinguishing plastics

⚠ **Avoid any liquid contact when the device is switched on.**
DO NOT clean the device with solvent (thinner, gasoline, acid etc.) and / or abrasive cleaning agents.

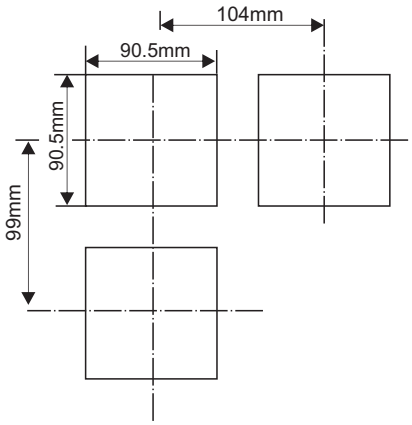
DIMENSIONS



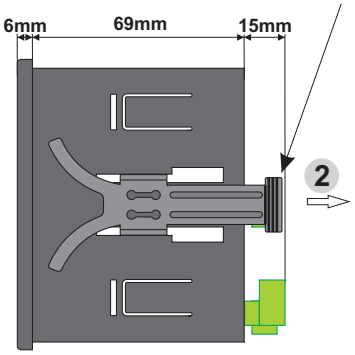




Panel Cut-out



Mounting Clamps



⚠ **For removing mounting clamps ;**
- Push the clamps in direction **1** from inside to outside as shown in the figure.
- Then pull out the clamps in direction **2**

⚠ **Note :**
1) While performing panel mounting, additional space should be allocated for cables.
2) Panel thickness should be maximum **10mm.**
3) If there is no **60mm** free space at back side of the device, it would be difficult to remove it from the panel.

SİSEL MÜHENDİSLİK ELEKTRONİK SAN. VE TİC. A.Ş.
Şerifali Mah. Barbaros Cad. No:18 Y.Dudullu 34775
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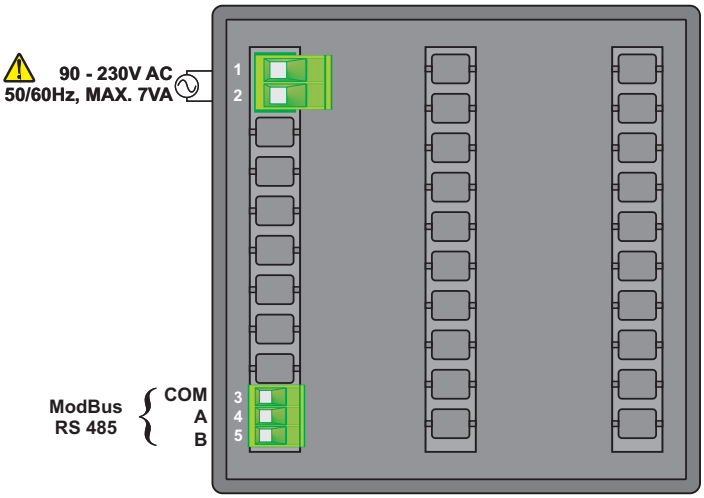
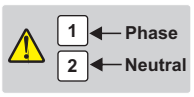
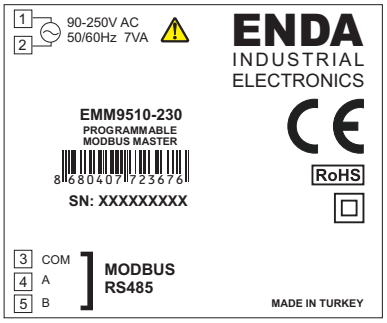
Tel : +90 216 499 46 64 Pbx. Fax : +90 216 365 74 01
url : www.enda.com.tr

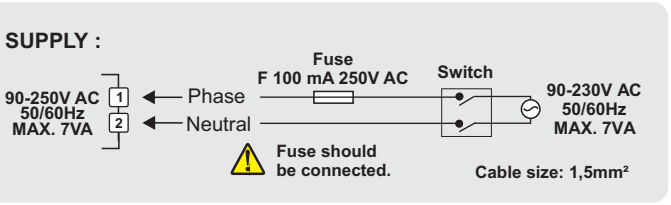
CONNECTION DIAGRAM

ENDA EMM9510 is intended for installation within control panels. Make sure that the device is used only for intended purpose. The shielding must be grounded on the instrument side. During an installation, all of the cables that are connected to the device must be free of electrical power. The device must be protected against inadmissible humidity, vibrations, severe soiling. Make sure that the operation temperature is not exceeded. All input and output lines that are not connected to the supply network must be laid out as shielded and twisted cables. These cables should not be close to the power cables or components. The installation and electrical connections must be carried out by a qualified staff and must be according to the relevant locally applicable regulations.









Note :

1) Mains supply cords shall meet the requirements of **IEC60227** or **IEC60245.**

2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

Holding screw 0.4-0.5Nm.

Equipment is protected throughout by DOUBLE INSULATION

HOME SCREEN

Running Mode

SET Key : In “Programming Mode”, it changes the selected parameter.

Backspace : It's used for returning to previous page.

Enter / Loop Key : It's used for entering to "Programming Mode", to switch to a sub-page, and to navigate between sub-pages (if any) on the open page.

Increment Key : In "Programming Mode", it's used for the selecting a parameter and incrementing to selected parameter value (while a parameter is set, parameter's background will be green).

Decrement Key : In "Programming Mode", it's used for the selecting a parameter and decrementing to selected parameter value (while a parameter is set, parameter's background will be green).

When the device is power-up by holding down the Increment key, device returns to "Default Settings" (entire configuration will be deleted).

USING TAB SECTIONS

Red Tab

In red background, parameter can not be changed

SET Key

To change a tab, SET key should be used.

Green Tab

In green background, parameter can be changed.

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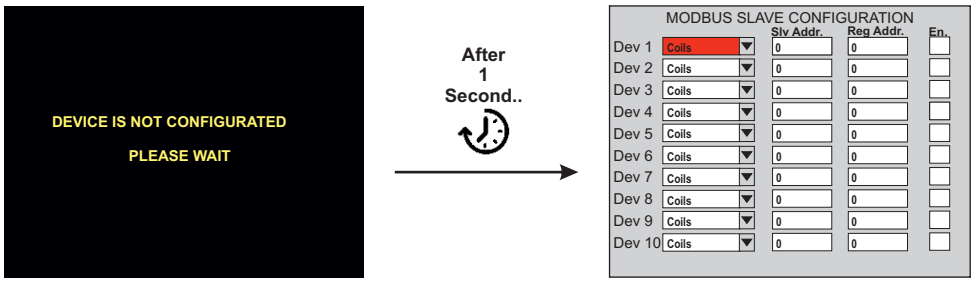
url : www.enda.com.tr

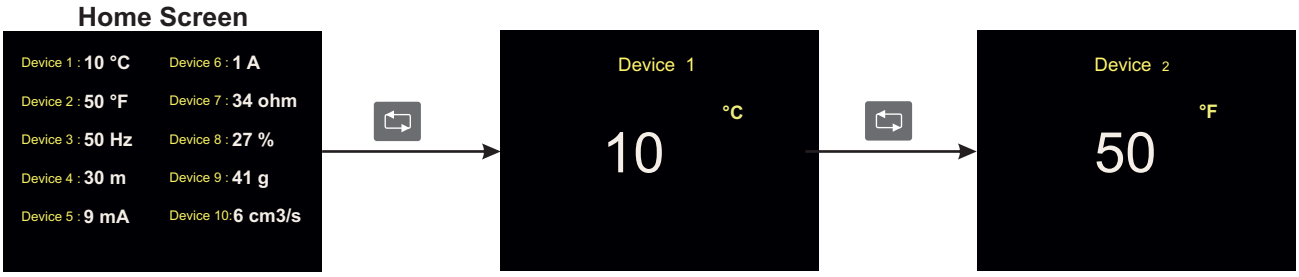
FIRST SETTINGS TO CONFIGURE



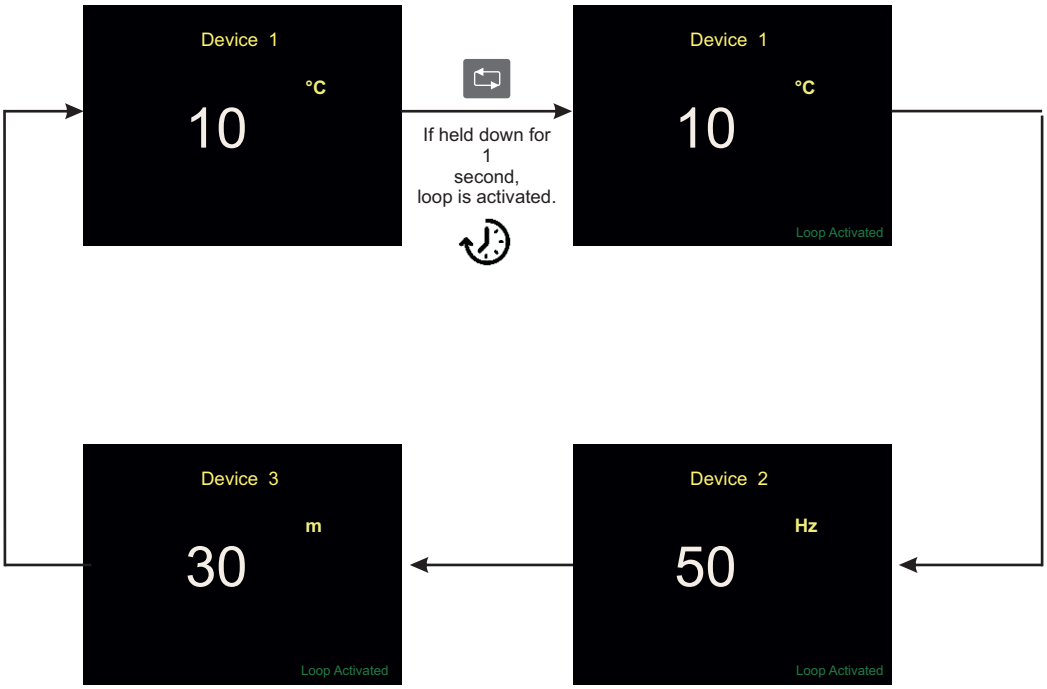
When device is turned on for the first time or the default settings are applied **(*)**, "Device Is Not Configured" message appears on display and after 1 second, it is directed to "Modbus Slave Configuration" page. Programming of this step is explained in page 4.

(*) If device returns to "Default Settings", entire configuration will be deleted.
When the device is power-up by holding down the Increment key, device returns to "Default Settings" (entire configuration will be deleted).

SINGLE DEVICE VIEW AND LOOP SELECTION

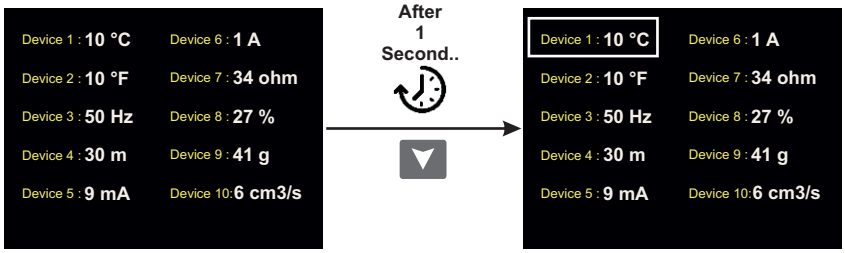


By using to key, all devices can be navigated by regardless of the "Enable / Disable" feature.

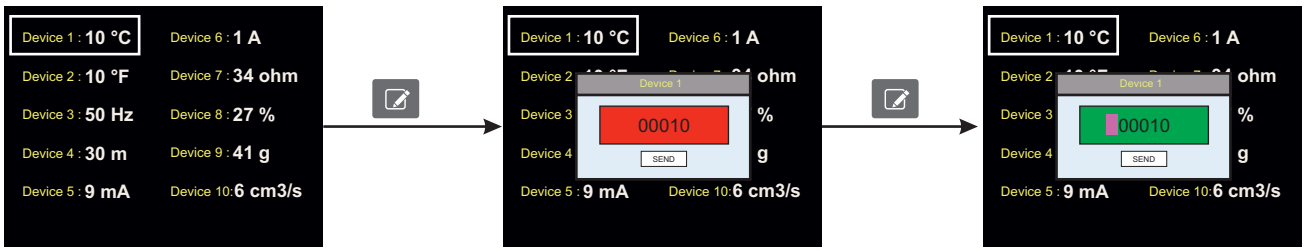


After the loop process has been activated, only the information display of devices with "Enable/Disable" active is displayed for 5 seconds. After every 5 seconds, it switches to the other device if present. To exit the loop mode, is pressed.

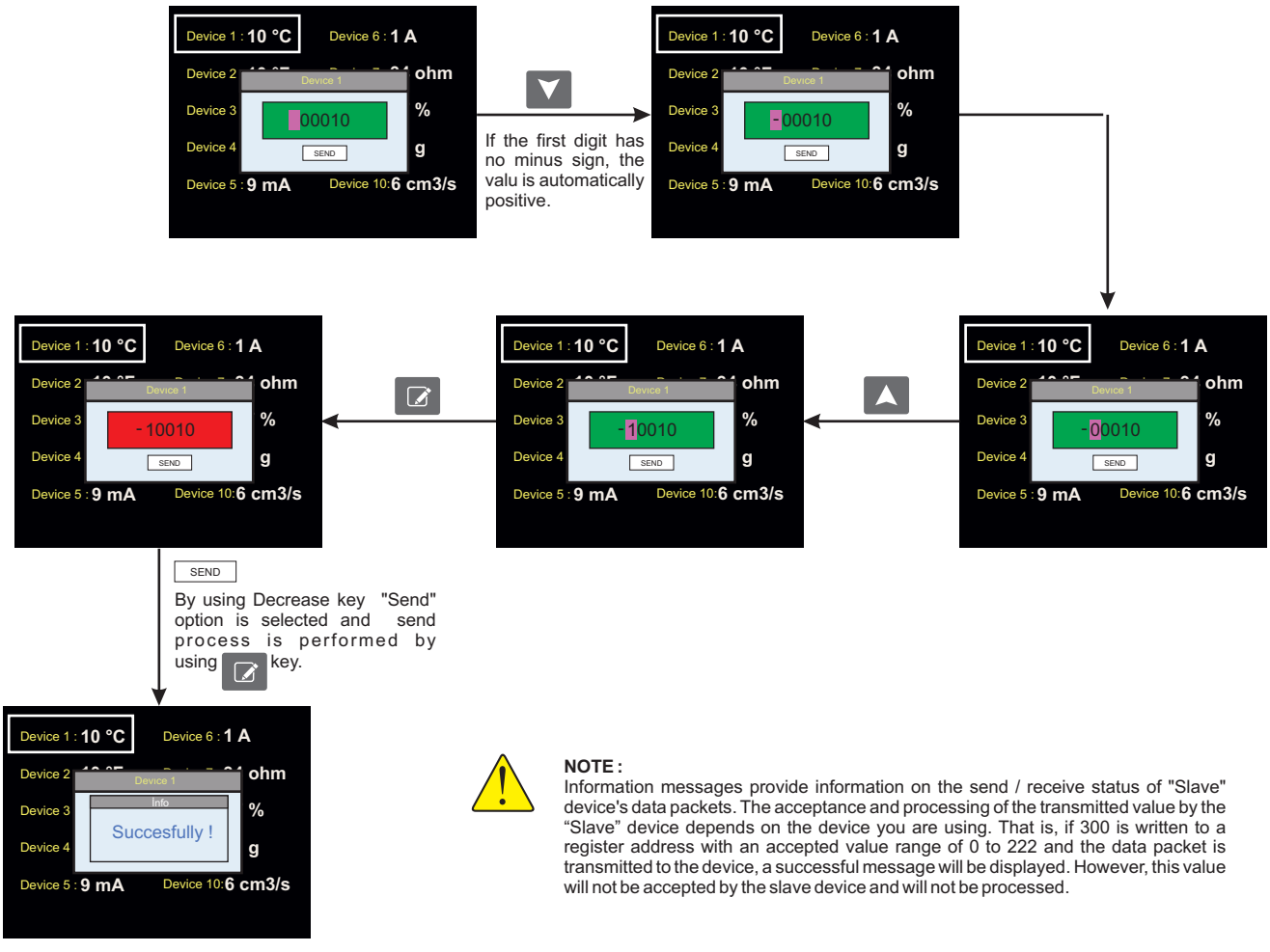
UPDATING MODBUS ADDRESSES FOR REGISTRED DEVICES



Used to update the writable addresses of connected devices that have their configured settings. Only writeable addresses of the defined devices can be updated. To update any connected device, the "Slave Modbus Configuration" page should be used.



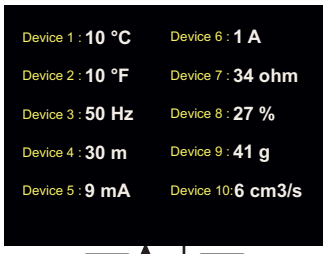
It consists of six digits. The first digit is used for the sign. If the first digit has no minus sign, the value is automatically positive. Other digits are the values to send. It is set with the increase and decrease keys.

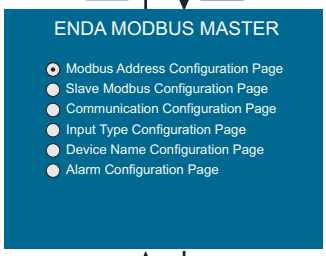


NOTE :
Information messages provide information on the send / receive status of "Slave" device's data packets. The acceptance and processing of the transmitted value by the “Slave” device depends on the device you are using. That is, if 300 is written to a register address with an accepted value range of 0 to 222 and the data packet is transmitted to the device, a successful message will be displayed. However, this value will not be accepted by the slave device and will not be processed.

PROGRAMMING

Home Screen
(Running Mode)





If the “Enter / Loop” key is pressed for 2 seconds, "Programming Mode" is entered and entered into the configuration page.

By using these keys, parameter can be selected.

By pressing “Enter / Loop” key, selected parameters configuration menu is entered.

If the “Backspace” key is pressed or no operation is performed for 10 seconds, the parameters are saved and the main screen is displayed.

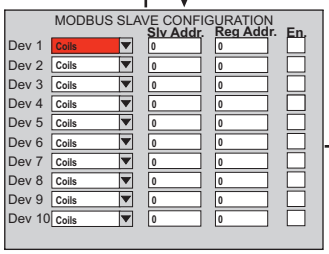
Note :
Parameters cannot be stored in case of power loss.

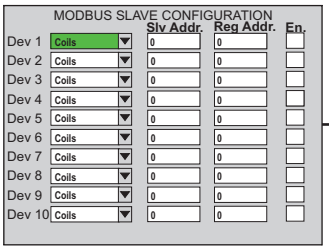
Input Configuration

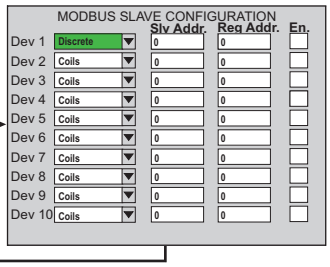
By using these keys, parameter can be selected (selected parameter background is red).

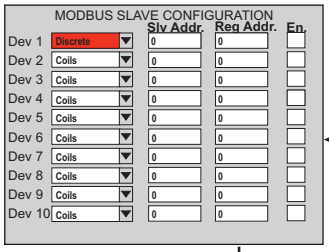
If SET key is pressed, selected parameters background will be changed to green and the parameter can be set to desired value. After the value set, by pressing "Set" key again, parameters background color will be changed to red.

If the “Backspace” key is pressed or no operation is performed for 10 seconds, the parameters are saved and the configuration page is displayed.



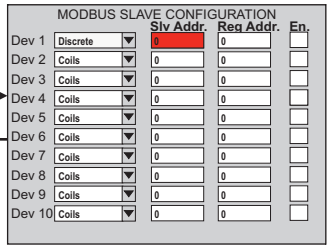






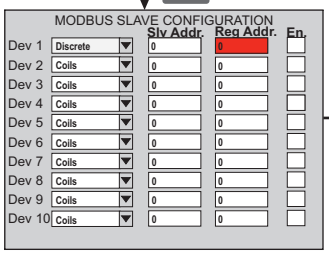
Register Types

Coil, Discrete, Holding and Input Register values can be selected. The address types to be read are selected with the keys.



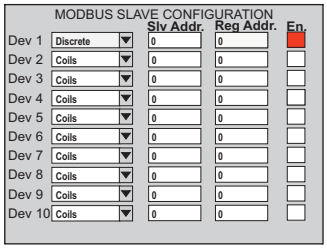
By pressing key, tab is selected and background color is chanced to green.

By using navigation keys, Slave Address value can be set between 0 and 254. If pressed continuously, value changes quickly.



By pressing key, tab is selected and background color is chanced to green.

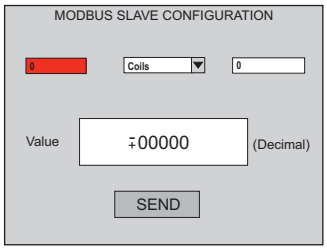
By using navigation keys, register address values can be changed between 0 and 65535. If pressed continuously, value changes quickly.



By pressing key, tab is selected and background color is chanced to green.

By using navigation keys, slave device(s) can be performed to “Disable” or “Enable”. If “Enable” is not selected, device can not be used and no communication can be performed.

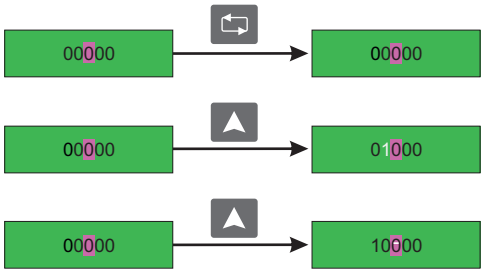
PROGRAMMING



Data Writing via Modbus to Slave Device

ENDA Modbus Master can write data to the "coil" and "holding" registers of any device connected via ModBus. Settings tabs can be navigated by the Increase and Decrease keys. After all settings are finished, "SEND" button is pressed and followed by "Set" button to communication is expected.

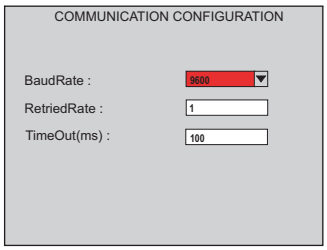
Setting the Value Input



The system consists of six characters in the value input panel. You can switch between characters with the input key.

Value range can be assigned between -32767 and 32767.

To enter a negative number, the six-character number can be selected with the sign character increment or decrement keys which are the first digits of the input system.



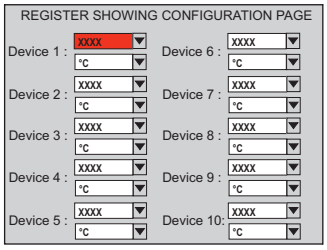
Communication Settings

BaudRate : Serial communication speed can be set to : 1200,9600,19200,38400,115200. Default value is : 9600.

RetriedRate : Number of queries to be repeated in case of failure.

TimeOut(ms) : Timeout duration. Value range can be adjusted between 100ms and 1000ms.

Optimum settings for RetriedRate value is 1ms.
Optimum settings for TimeOut value is 100ms.
Increasing these values may cause the system to slow down.



Displaying Settings

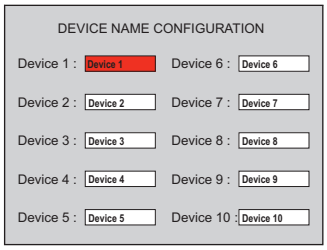
Each device has two configuration tabs for specifying the received values.

XXXX → Decimal point selection.

°C → Unit selection for received value.

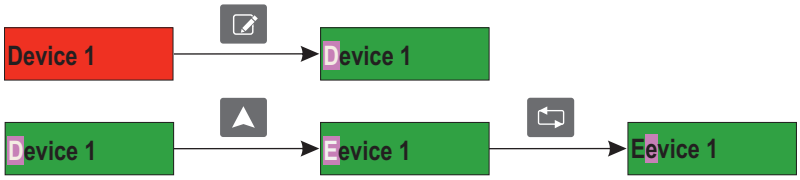
Unit Selection Types :
°C, °F, bar, %RH, Hz, mA, A, mV, V, Ohm, kOhm, %, g, kg, cm, m, m/s, m/min, km/h, cm3/s, m3/h, l/s, l/min, l/h

Decimal Point Selection :
XXXX -> Received Value
XXX.X -> Received Value /10 -- 1 digit, after the point.
XX.XX -> Received Value /100 -- 2 digits, after the point.
X.XXX -> Received Value /1000-- 1 digits, after the point.

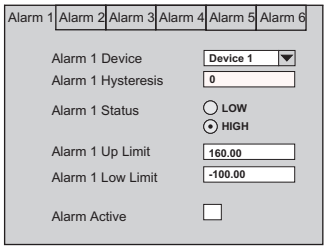


Naming/Renaming the Device(s)

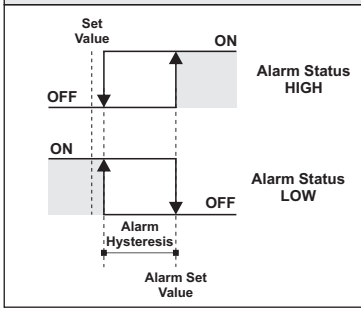
Up to 10 Slave devices can be connected to ENDA Modbus Master device. The default name for all devices are specified as "Device" and is indexing starts with 1 (E.g. : "Device 1", Device 2 ", etc.) . In this panel, the names of the devices can be changed for readability and ease of understanding during data communication and display. The device changes automatically on all pages when the name is changed. Device names can be up to 10 characters long.



- Increment and decrement keys can be used when the character is selected.
- The first character in device naming is big and only Latin characters can be used.
- Except for the first character, a-z, 1-9 and space character can be taken.
- Space must be used for deleting character(s).



Alarm Configuration

Alarm Device :
The device whose alarm status is to be monitored.
Alarm Hysteresis :
Can be adjusted between 0 and 50.
Alarm Status :
“LOW" should be selected in order for the independent alarm to be active below the alarm set value and "HIGH" should be selected in order to be active above the set value.
Alarm Up Limit :
Can be adjusted between “Scale Maximum and “Alarm 1 Low Limit” .
Alarm Low Limit :
Can be adjusted between “Scale Minimum” and “Alarm 1 Up Limit”.
Alarm Active :
Used for activating or deactivating the “Alarm” for current page.

Independent Alarm