Instructions on how to connect the CALMS CAL-EDGE devices to the BEKO BDL data logger

Introduction

In this document are described the instructions how to wire the devices and how to set the correct parameters for successful Modbus RTU communication between the devices. The CAL-EDGE device acts as a MODBUS master and it communicates and reads the values from the BDL data logger that has the sensors connected to it.

Wiring the CAL-EDGE device and BEKO BDL data logger

The CAL-EDGE devices support the Modbus RTU protocol and they act as Modbus masters so they can be connected to any external device and communicate. Depending on what device you have (CAL-EDGE-0 or CAL-EDGE-PERM) the wiring is different. Please refer to the following photos and descriptions to wire the CALMS device and the BEKO BDL properly.

- CAL-EDGE-0 device with the BEKO BDL data logger

To properly wire the CAL-EDGE-0 device to the BEKO BDL data logger, follow the instructions below.

- Power on the CAL-EDGE-0 device by connecting **24VDC to the terminal labeled + on the Power supply connector** and **0VDC to the terminal labeled – on the Power supply connector.** Once the CAL-EDGE-0 device is powered on the **Status LED starts blinking green.**
- To get the device ONLINE, connect an antenna on the port labeled **ANT1** or connect it to LAN, plug in the ethernet cable into the ethernet port on the device labeled with **LAN.**

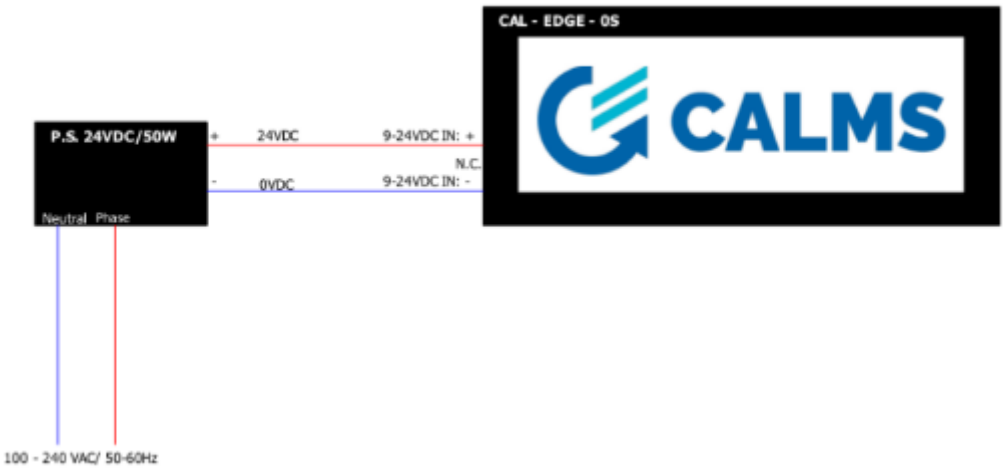
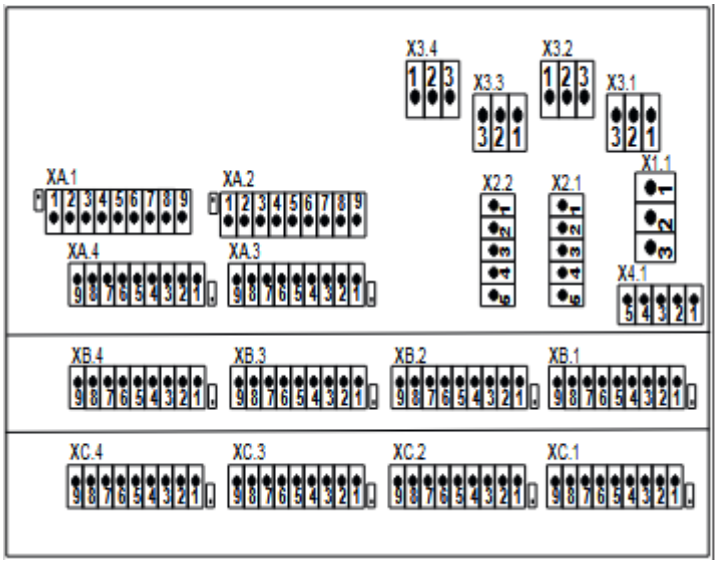


Figure 1 : Power supply for the CAL-EDGE-0 device

- Power on the BEKO BDL data logger. It is powered with **100-240VAC (50-60Hz).** For the power supply the connector labeled **X1.1** is used.



X1.1:
Power supply

X2.1, X2.2:
For the internal use

X3.1 – X3.4:
Alarm relays 1 – 4

X4.1:
CAN, RS485, R120 connections

XA.1 – XA.4:
Sensor channels 1 – 4
XB.1 – XB.4:
Sensor channels 5 – 8
XC.1 – XC.4:
Sensor channels 9 – 12

Figure 2 : Power supply for the BDL data logger

- To properly connect the devices for a successful MODBUS RTU communication:
  - Connect the terminal labeled **A on the CAL-EDGE-0 device to the terminal 5 on the X 4.1 connector of the BDL.**
  - Connect the terminal labeled **B on the CAL-EDGE-0 device to the terminal 4 on the X 4.1 connector of the BDL.**

Figure 3 : CAL-EDGE-0 (front side)

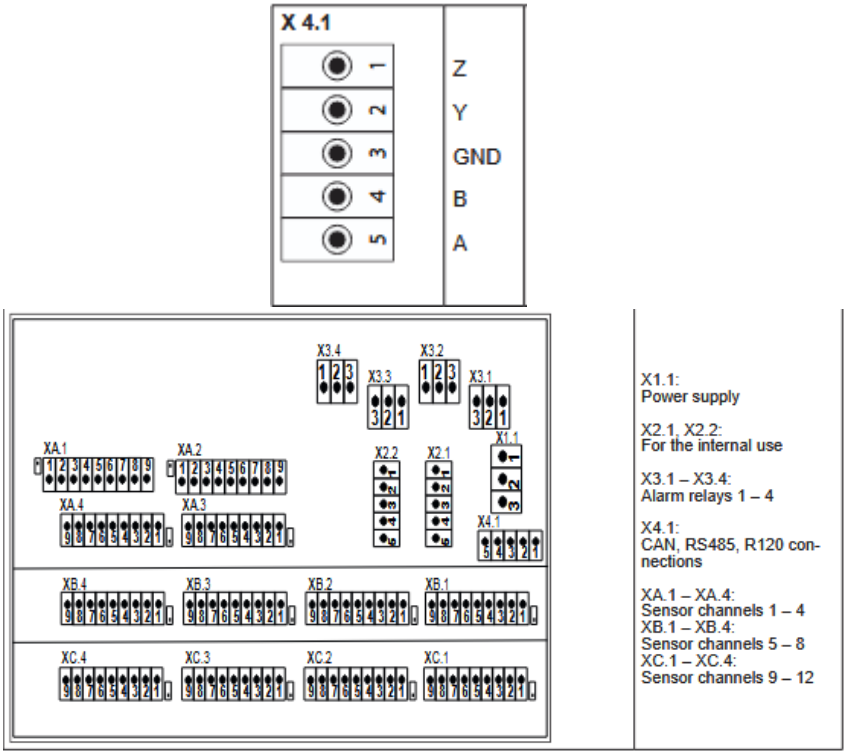


Figure 4 : BDL

After the devices are connected, configuration on the CALMS web application has to be done.

1. Every CAL-EDGE-0 device has its own unique serial number, located on the back of the device. On the web application CALMS the device has to be added in your system. First, you open your system and navigate to the **Setup** page. There you click on »**Add device**« and choose your device.

Figure 5 : How to add a device on CALMS

2. On the **Equipment** page add a sensor on your scheme. To »connect« the sensor to your device you have to again choose your device (serial number) and configure the MODBUS parameters on the CALMS application.
   For each BEKO sensor connected to the BDL a customized configuration opens when the user adds the sensor on the scheme. To correctly configure the sensor the user must know on which **channel and value the sensor is connected to the BDL.** The user than selects the appropriate channel and value for each Input from the drop-down menu.

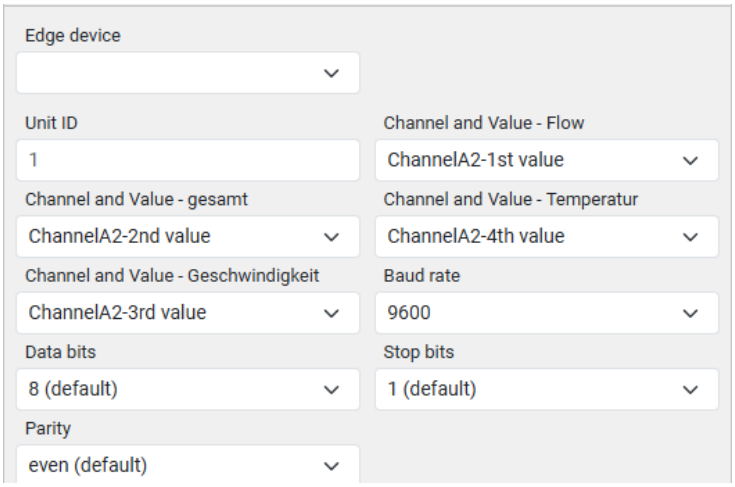


Figure 6 : Example configuration of a BEKO sensor on CALMS

The customer is able to also change the UnitID, the baudrate, parity, data and stop bits.

DISCLAIMER: It is extremely important to choose the MODBUS parameters so they are the same as the MODBUS parameters on the BDL. The CAL-EDGE-0 device reads the values from the BDL data logger.

To change the MODBUS parameters on the BDL the user must navigate to the *Modbus Settings.*
(Main menu -> Settings -> Device settings -> Modbus settings)

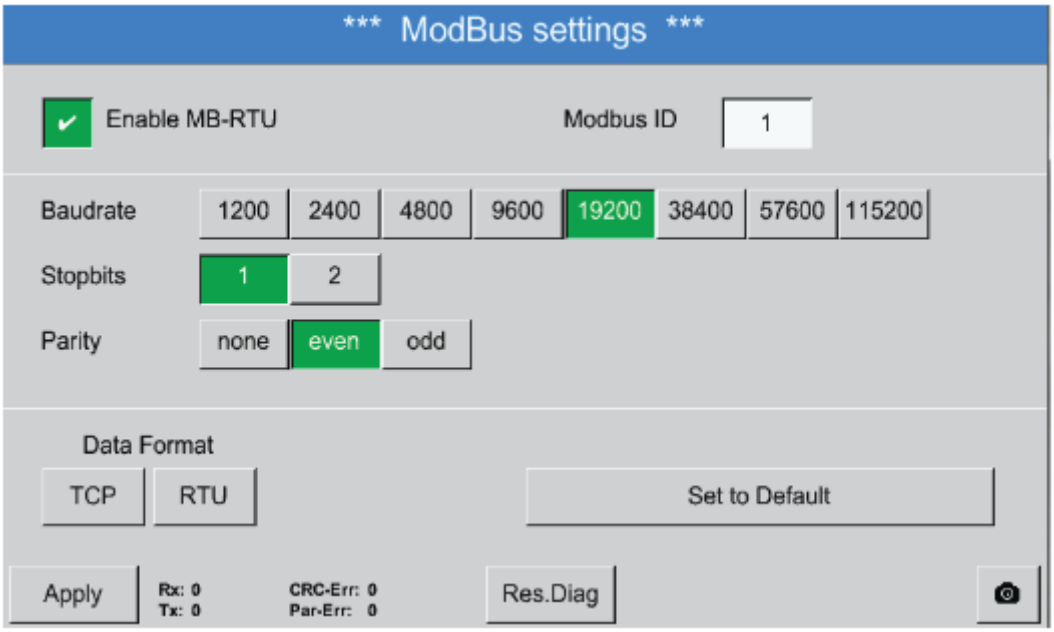


Figure 7 : MODBUS RTU settings on BDL

Another important change is the data format, that needs to be changed from **ABCD to CDAB.**

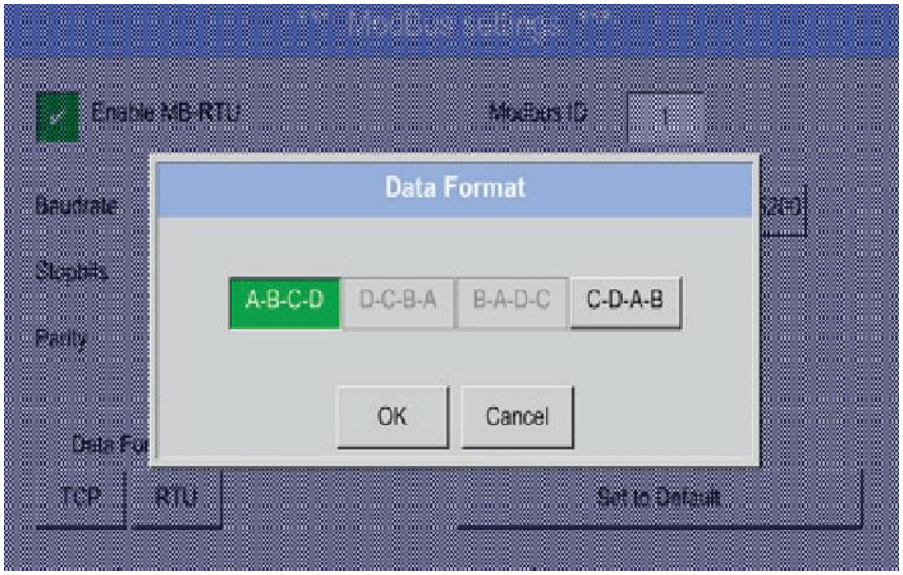


Figure 8 : Changing the data format on the BDL

NOTE: All the parameters on the Modbus settings from the BDL must match the parameters set on CALMS when a user adds a BEKO sensor on the scheme. The user essentially changes the Channel and value for each sensor.

When the MODBUS communication is established successfully, thge **RS485 LED on the CAL-EDGE-0 device blinks red rapidly.**

- CAL-EDGE-PM device with the BEKO BDL data logger

To properly wire the CAL-EDGE-PM device to the BEKO BDL data logger, follow the instructions below.

- The device is powered with **110VAC,60Hz or 230VAC,50Hz.** To power on the device connect **phase, neutral and protective ground to the terminals labeled L,N and PE on the device.** To ensure proper connection, please check the electrical schematic below.
- To get the device ONLINE, connect an antenna on the port labeled **ANT1** on the CAL-EDGE-0 or connect it to LAN, plug in the ethernet cable into the ethernet port on the device labeled with **LAN** on the CAL-EDGE-0**.**

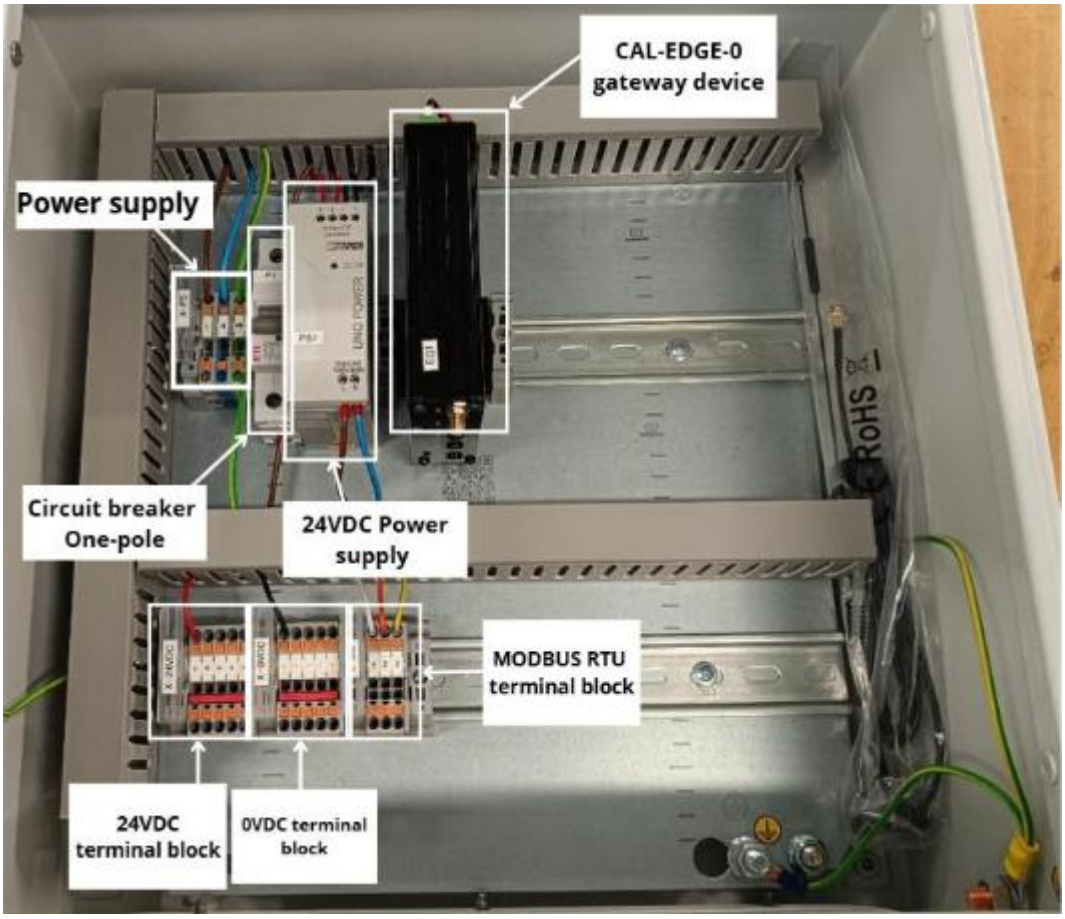


Figure 9 : C AL-EDGE-PM device

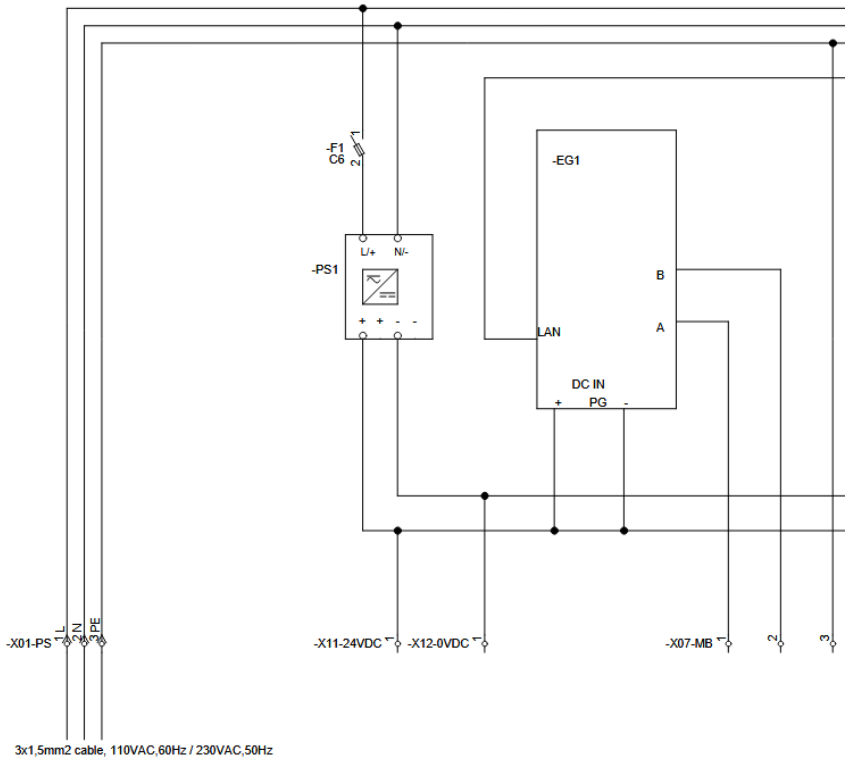


Figure 10 : Power supply for the CAL-EDGE-PM device

- Power on the BEKO BDL data logger. It is powered with **100-240VAC (50-60Hz).** For the power supply the connector labeled **X1.1** is used.

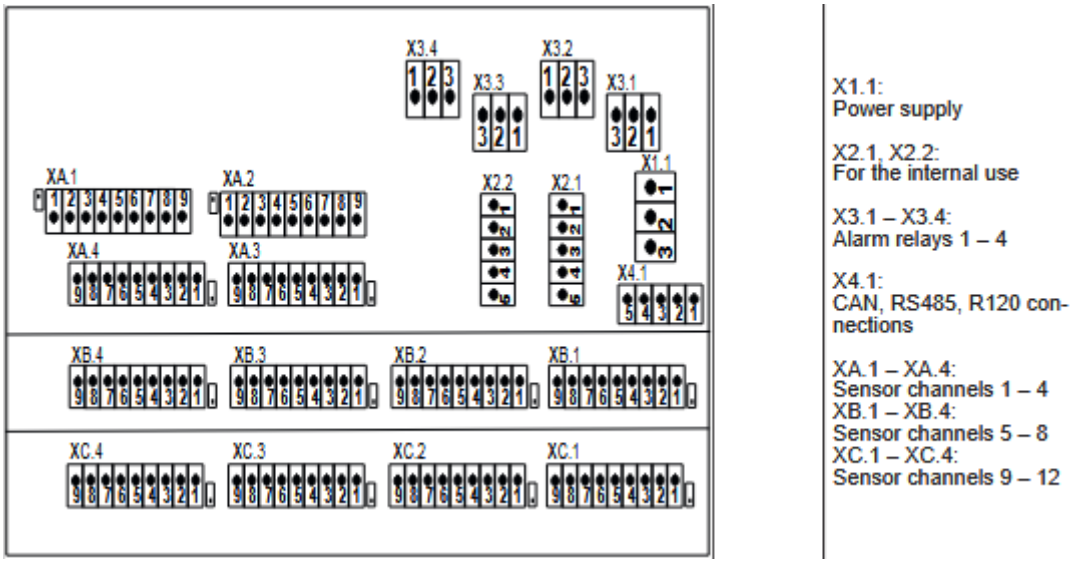


Figure 11 : Power supply for the BDL data logger

- To properly connect the devices for a successful MODBUS RTU communication:
  - Connect the terminal labeled **X07-MB 1 on the CAL-EDGE-PM device to the terminal 5 on the X 4.1 connector of the BDL.**
  - Connect the terminal labeled **X07-MB 2 on the CAL-EDGE-PM device to the terminal 4 on the X 4.1 connector of the BDL.**

After the devices are connected, configuration on the CALMS web application has to be done.

1. Every CAL-EDGE-PM device has its own unique serial number, located on the lid of the device. On the web application CALMS the device has to be added in your system. First, you open your system and navigate to the **Setup** page. There you click on »**Add device**« and choose your device.

Figure 12 :How to add a device on CALMS

2. On the **Equipment** page add a sensor on your scheme. To »connect« the sensor to your device you have to again choose your device (serial number) and configure the MODBUS parameters on the CALMS application.
   For each BEKO sensor connected to the BDL a customized configuration opens when the user adds the sensor on the scheme. To correctly configure the sensor the user must know on which **channel and value the sensor is connected to the BDL.** The user than selects the appropriate channel and value for each Input from the drop-down menu.

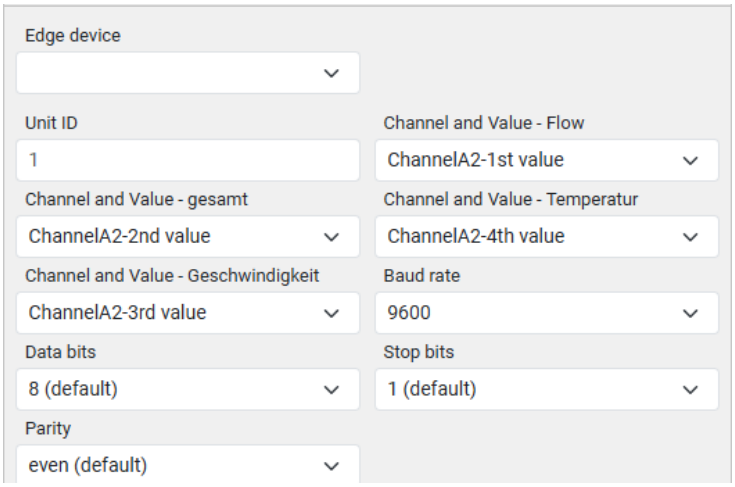


Figure 13 : Example configuration of a BEKO sensor on CALMS

The customer is able to also change the UnitID, the baudrate, parity, data and stop bits.

DISCLAIMER: It is extremely important to choose the MODBUS parameters so they are the same as the MODBUS parameters on the BDL. The CAL-EDGE-PM device reads the values from the BDL data logger.

To change the MODBUS parameters on the BDL the user must navigate to the *Modbus Settings.*
(Main menu -> Settings -> Device settings -> Modbus settings)

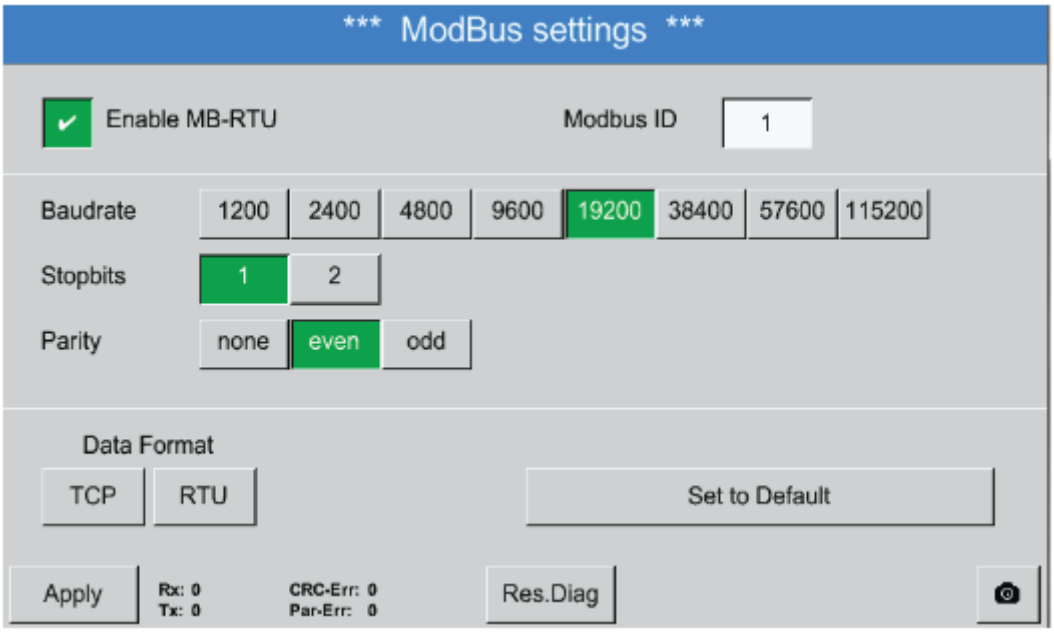


Figure 14 : MODBUS RTU settings on BDL

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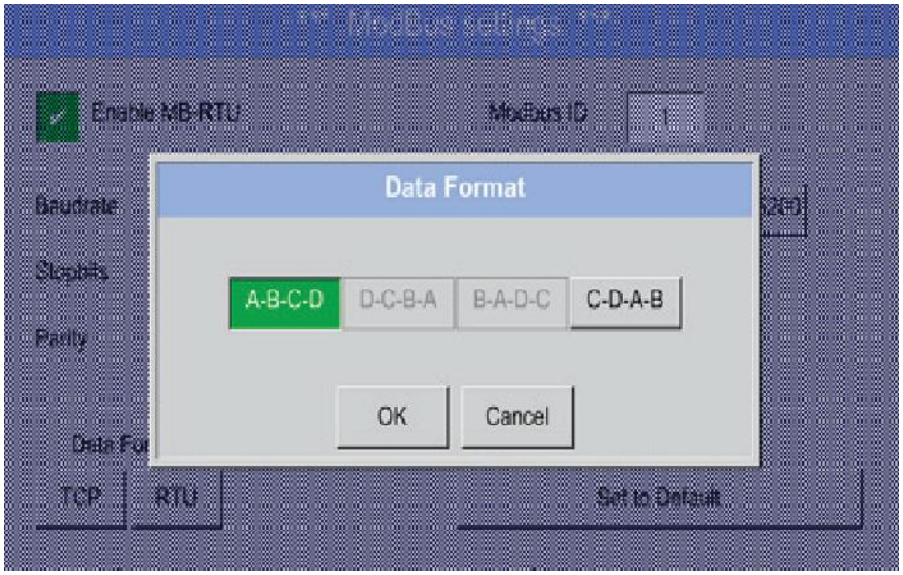

Figure 15 : Changing the data format on the BDL

NOTE: All the parameters on the Modbus settings from the BDL must match the parameters set on CALMS when a user adds a BEKO sensor on the scheme. The user essentially changes the Channel and value for each sensor.

Contact and support

If you experience any issues that cannot be resolved using these instructions, please contact the CALMS support team support@calms.com.

For technical assistance, please, provide the following information when reaching out:

- Serial number (located on the device label)
- Description of the issue
- Steps already taken to resolve the issue

CALMS

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