

Accessory

Installer Manual

Modbus Split



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Important information



NOTE

This symbol indicates serious danger to person or machine.



CAUTION

This symbol indicates important information about what you should observe when maintaining your installation.



TIP

This symbol indicates tips on how to facilitate using the product.

General

With MODBUS SPLIT, a climate unit can be controlled and monitored by external Modbus-equipped equipment.



CAUTION

The climate unit's software must be the latest recommended version or have a version number greater than 3000.



TIP

To administer Modbus via Microsoft Windows, download and install ModbusManager from www.ait-deutschland.eu.

COMPATIBLE PRODUCTS

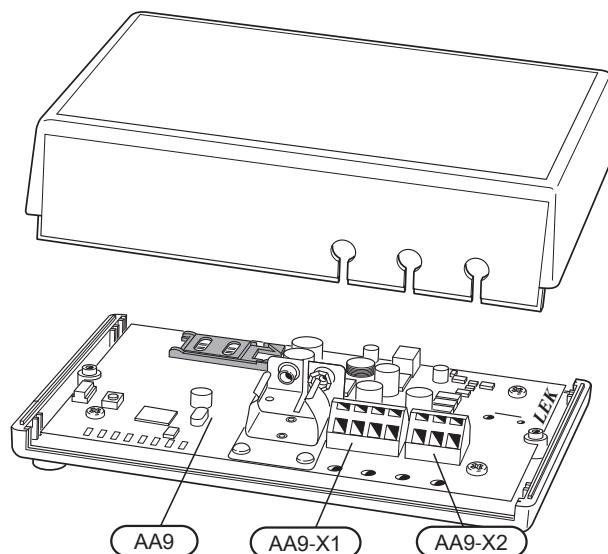
The accessory is suitable to following products from NIBE:

- HT 6 SPLIT
- HT 12 SPLIT

CONTENTS

1 x Unit box
1 x Wall bracket

COMPONENT LOCATION MODBUS SPLIT

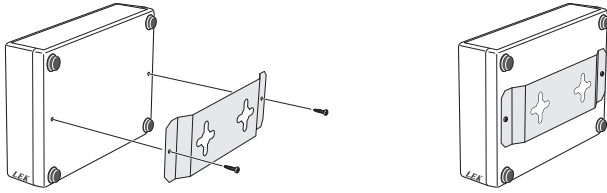


ELECTRICAL COMPONENTS

AA9	Accessory card
AA9-X1	Terminal block, communication
AA9-X2	Terminal block, MODBUS master

Mounting

MODBUS SPLIT can be positioned lying on a flat surface or wall-mounted. Where MODBUS SPLIT is wall-mounted, use the supplied wall bracket.



NOTE

When wall mounting, the hole for the antenna cable must be pointing downwards to prevent water from entering MODBUS SPLIT.

Electrical connection

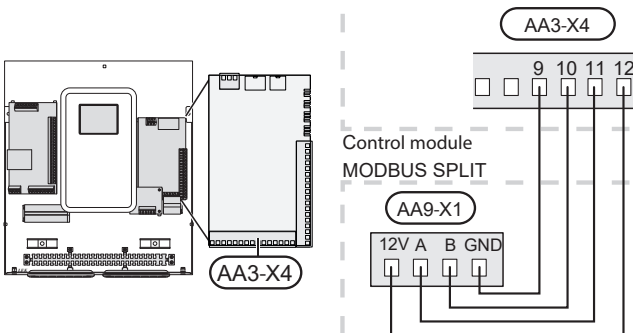


NOTE

All electrical connections must be carried out by an authorised electrician.
Electrical installation and wiring must be carried out in accordance with the stipulations in force.
The climate unit must not be powered when installing MODBUS SPLIT.

SPLIT CONTROLLER

Terminal block X1 on the SMS board (AA9) in MODBUS SPLIT is connected to terminal block X4:9-12 on the input board (AA3) in the control module.

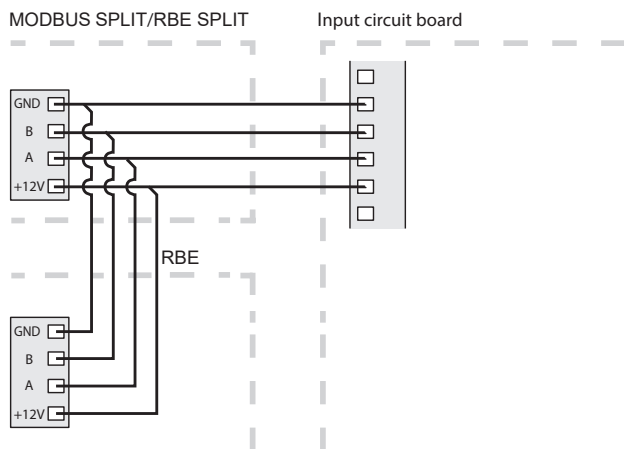
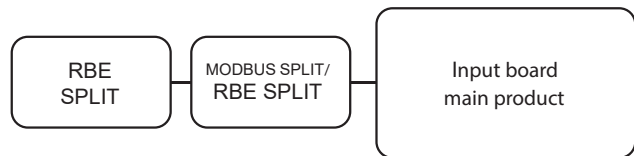


MODBUS SPLIT TOGETHER WITH RBE SPLIT

If MODBUS SPLIT is to be connected with RBE SPLIT, MODBUS SPLIT must be the first unit connected to the climate unit's terminal block.

Connecting to and disconnecting from MODBUS SPLIT occurs in terminal AA9:X1.

No more than two units can be connected to the climate unit.



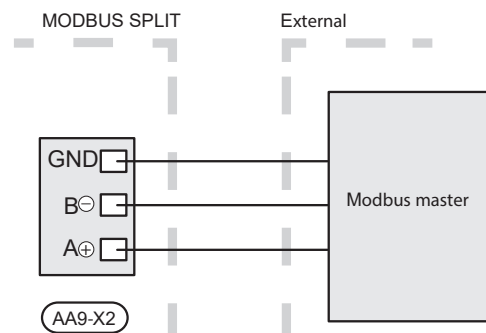
CONNECTING TO MODBUS-MASTER

The external Modbus master is connected to terminal block X2 on the Modbus board (AA9).



NOTE

MODBUS SPLIT uses the communications standard RS485.
Connect the master with a cable according to the recommendations for RS485.



Installation

SETTINGS

MODBUS MASTER

Method	RTU
Speed	9600 baud
Word length	8 bits
Parity	None
Stop bits	1
Address	Fixed 0x01 up to and including Modbus SPLIT v.7. Selectable 1 - 247 from and including Modbus SPLIT v.10.



CAUTION

Software version v.10 in MODBUS SPLIT is required to manage selectable addresses. To check the software version, enter menu 3.1 "Service info" in your climate unit.

CLIMATE UNIT

1. Start the climate unit and select MODBUS SPLIT in menu 5.2.4 "System settings".
2. Enter the address to MODBUS SPLIT in menu 5.3.11. (This menu is only visible if MODBUS SPLIT has software version v.10 or later)
3. In menu 5.3.11, you can also adjust settings for "word swap". (This menu is only visible if MODBUS SPLIT has software version 11 or later).
Factory setting: Big Endian

Communication



TIP

ModbusManager can be downloaded via www.ait-deutschland.eu.

UPDATING MODBUS DATABASE

For ModbusManager there is a database, which contains all the parameters that can be logged/set for the different products. To ensure that you have access to all selectable parameters and products you should update the ModbusManager database. This is done in Modbus Updater that is part of ModbusManager. Modbus Updater is located in the same installation location as ModbusManager. When you have opened Modbus Updater, press "Update database" to start the database update.

READ THE VALUES

There are two ways of reading the values from the climate unit, automatically or manually.

- Automatic reading: can retrieve up to 20 predefined parameters at the same time.
- Manual reading: takes longer and only one value at a time can be retrieved.

AUTOMATIC READING

For smaller installations where 20 or fewer parameters must be retrieved, it is appropriate to connect with a LOG.SET file. In such cases, all parameters are updated twice a second.

In larger installations with multiple parameters, it is appropriate to use a LOG.SET file for the 20 most important parameters, which requires the timeout time to be adjusted to 2,1 seconds. The parameters found in the LOG.SET file are retrieved twice a second, whereas the other parameters are retrieved at 2,1 seconds per parameter.



TIP

Place the most important parameters in the LOG.SET file, alarms and certain temperatures for example. Outdoor temperature, heating curves and other values that are changed less often do not need to be placed in the LOG.SET file.

Visit www.ait-deutschland.eu to read more about LOG.SET.

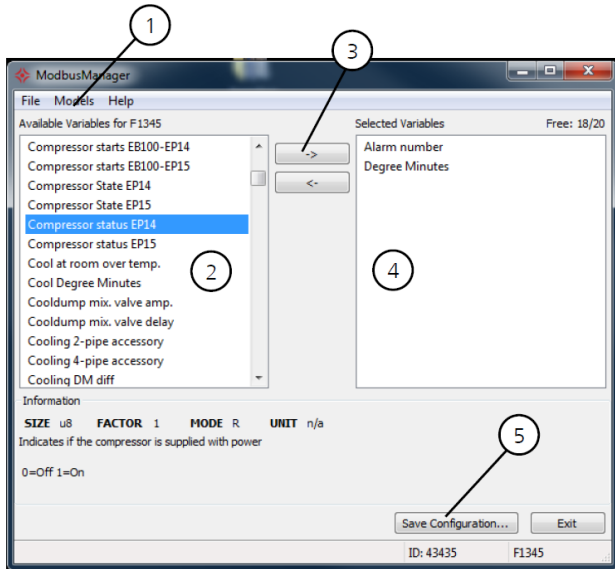
1. Create a LOG.SET file that contains the predefined values that are to be read out. The file is created in ModbusManager. See section "Create a log settings file in ModbusManager" for instructions.
2. Save LOG.SET to a USB-memory.
3. Insert the USB-memory device into the climate unit's display unit.
4. Enter menu USB.
5. Enter menu "logging".
6. Tick "activated".
7. Wait fifteen seconds and then remove the USB-memory device.

Retrieve the values for the Modbus-master by using the "Read holding registers" command with the desired parameter addresses. Use ModbusManager, see LOG.SET in a text editor or see the examples list on page 8 to see which parameter address a value has.

See section The Modbus command on page 8 for further information about different commands.

Create a log settings file in ModbusManager

First install the software ModbusManager on your computer. The software can be downloaded from www.ait-deutschland.eu.



1. Select the first model on the climate unit under the menu "Models".
2. You can scroll between the available parameters for the selected installation in the left-hand column.

Information about the selected parameter is displayed in the box under the list.

The list of parameters can be filtered by optional keywords by selecting „File” - „Apply Filter”.

Make sure to order the list logically. For example:
 EB 100 EP14 BT10 Brine in 40015
 EB 100 EP14 BT11 Brine in 40016
 EB 100 EP15 BT10 Brine in 40100
 EB 100 EP15 BT11 Brine in 40085

Check which value you are reading when using the list.

3. Mark a parameter and click on the right-hand arrow to transfer it to the right-hand column.
4. The right-hand column shows which parameters will be logged. Transfer all parameters you want to log. Use the left arrow to change selection.
5. When you are satisfied with the list, click „Save configuration...”.

A dialogue box appears that asks where you want to save your log settings file.

Save the file on the computer or directly on a USB memory.

Select „Export to file” under the menu „File” if you want to save all heat pump parameters in a document that can be opened in any calculation program.



CAUTION

The file name must be LOG.SET for the climate unit to read the file.

Visit www.ait-deutschland.eu to read more about LOG.SET files.

MANUAL READING



CAUTION

Manual readout is time consuming and only one value at a time can be read, max timeout 2,1 s. The parameter does not have to be included in the LOG.SET file.

Retrieve a value for the Modbus-master by using the “Read holding registers” command with the desired parameter address. Use ModbusManager to see which parameter address a value has. See section The Modbus command on page 8 for further information.

ENTER THE VALUES



CAUTION

Only one value can be entered at a time. The parameter does not have to be included in the LOG.SET file.

By using the “Write multiple registers” command with the desired parameter address, a value can be updated, if the heat pump/indoor module permits it. The values that can be updated are in ModbusManager. See section The Modbus command below for more information.

EXAMPLE OF PARAMETER ADDRESSES

Parameter	Register address
Outdoor temperature (BT1)	40004
Supply temperature (BT2)	40008
Return temperature (BT3)	40012
Hot water, top (BT7)	40013
Hot water middle (BT6)	40014
Brine in (BT10)	40015
Brine out (BT11)	40016
Room temperature (BT50)	40033
Degree minutes	43005

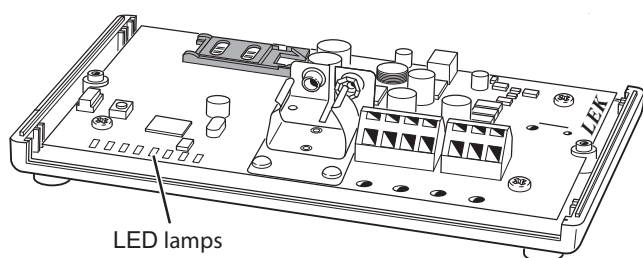
THE MODBUS COMMAND

Function ID	Description	Register address	No. of registers	Max timeout
0x03	Read holding registers	[40001-65534] included in LOG.SET	[1-20]	0,5 s
		40001-65534 not included in LOG.SET	[1-2]*	2,1 s
0x10	Write multiple registers	[40001-65534]	[1-2]*	2,1 s
0x2B	Read device identification**	N/A	N/A	0,5 s

* Two Modbus-registers are used to retrieve 32-bit parameters.

** Returns label (e.g. 'NIBE'), product code (e.g. 'F1245') and software version (e.g. 5539).

Troubleshooting



The accessory board (AA9) in MODBUS SPLIT has eight status LED lamps for easy control and troubleshooting.

Designation	LED status	Explanation
VCC	The LED lights continuously	Voltage to MODBUS SPLIT
SYNK	-	No function
COM2	The LED flashes	Active communication between MODBUS SPLIT and external control
LEV	-	No function
-	-	No function
COM1	The LED flashes	
RUN	-	No function
BATT	-	No function

MODBUS SPLIT HAS NO CONTACT WITH THE CLIMATE UNIT (DOES NOT RESPOND)

- MODBUS SPLIT is not activated in heat pump/indoor module menu 5.2.4.
- Incorrectly connected cables between MODBUS SPLIT and heat pump/indoor module. Gives a communication alarm in the heat pump's/indoor module's display.
- Incorrect software in the heat pump. The software version in the heat pump must be higher than 3000. See section "General" on page 4.
- Modbus SPLIT incorrectly connected to Modbus master. Check that A is connected to + and B to -.

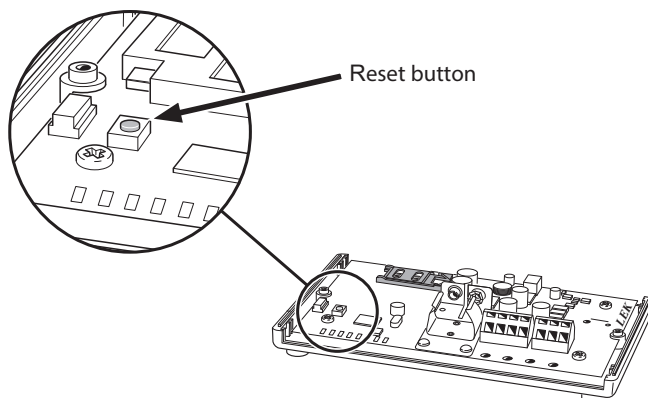


NOTE

Find more information about MODBUS SPLIT at www.ait-deutschland.eu.

RESETTING MODBUS 4SPLIT

To reset the device, press the reset button as illustrated. The device then restarts. Settings in the climate system and Modbus master are not affected by the reset.



Technical data

TECHNICAL SPECIFICATIONS

MODBUS SPLIT	
Rated voltage	12 VDC 45-80 mA
Dimensions	154 x 108 x 40 mm
Part No.	15213601



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