Danfoss AK-SM 800A Configuration of Modbus User Guide

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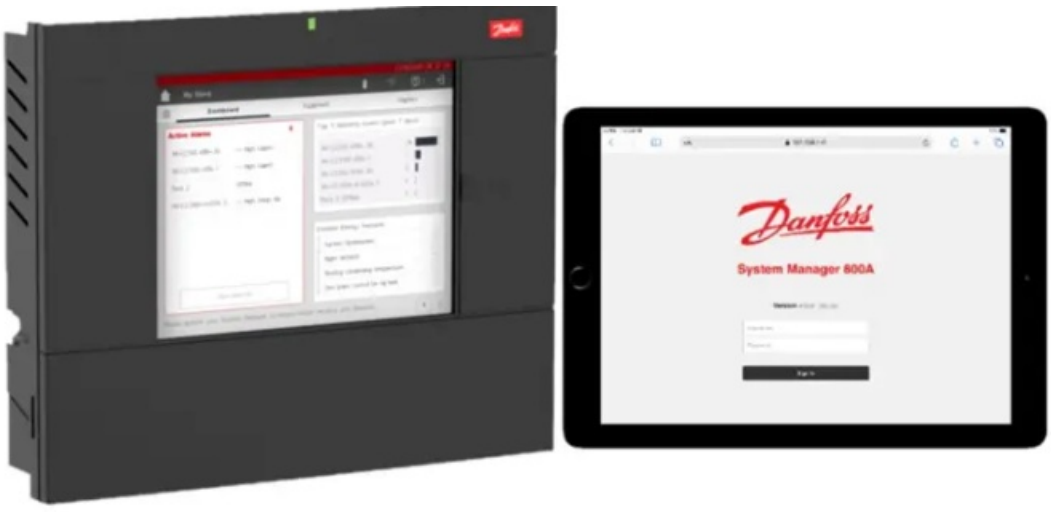


Product Information

The AK-SM 800A is a System Manager device with Modbus communication capabilities. It features two Modbus channels, each with independent configuration properties and workflow.

Specifications

- Number of Polls: Number of times the SM attempts a request during scan
- No. of Modbus Scan Ranges: Up to 3 ranges can be configured
- Baud Rate: Default at 38400, can be changed to 19200

Product Usage Instructions

To configure Modbus Channel 1:

1. Enable the channel for the System Manager to connect to controllers.
2. Set the Number of Polls to determine how many times the SM should attempt a request during scan.
3. Configure the No. of Modbus Scan Ranges to specify the address ranges to be scanned.
4. Adjust the baud rate if needed, keeping in mind that enabling SLV/CSENSE mode reduces it to 19200.

Modbus Channel 2 Configuration

To configure Modbus Channel 2:

1. Enable the channel and set up ranges for scanning.
2. Define configurations with specific settings like Baudrate, Parity, Databits, and Timeout.
3. The System Manager will sequentially scan addresses based on the defined configurations until a device is identified.

FAQ
How do I set up a Gmail connection in an AK-SM 800A?

To set up a Gmail connection:

1. Click on the gear wheel next to the address.
2. In the page that opens, click on the gear wheel again to select the correct controller from the list available to the System Manager.

Operating Guide

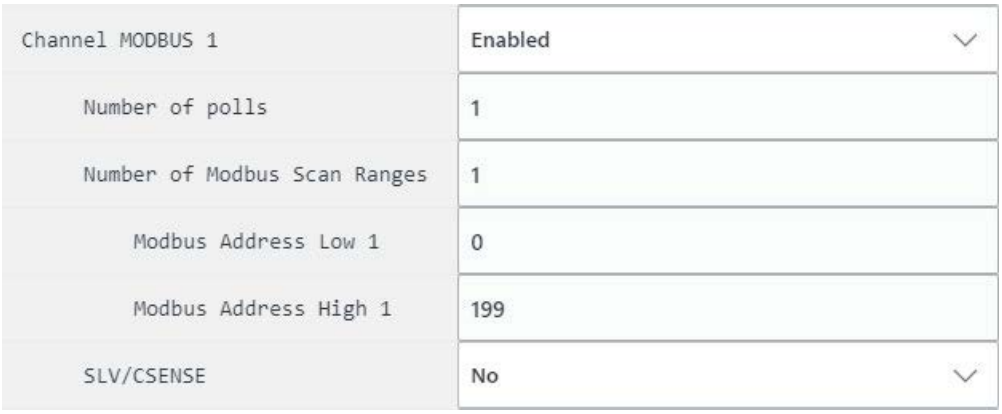
Configuration of Modbus on AK-SM 800A

Description

The AK-SM 800A sw. 3.2.6 is equipped with 2 Modbus channels, where we recommend:

- Modbus Channel 1 for Danfoss products
- Modbus Channel 2 for 3rd party products

They both have independent conguration properties and workow.



First of all the channel has to be enabled for the System Manager to connect to controllers. Once this is done the settings related to this will be presented for the user to choose.

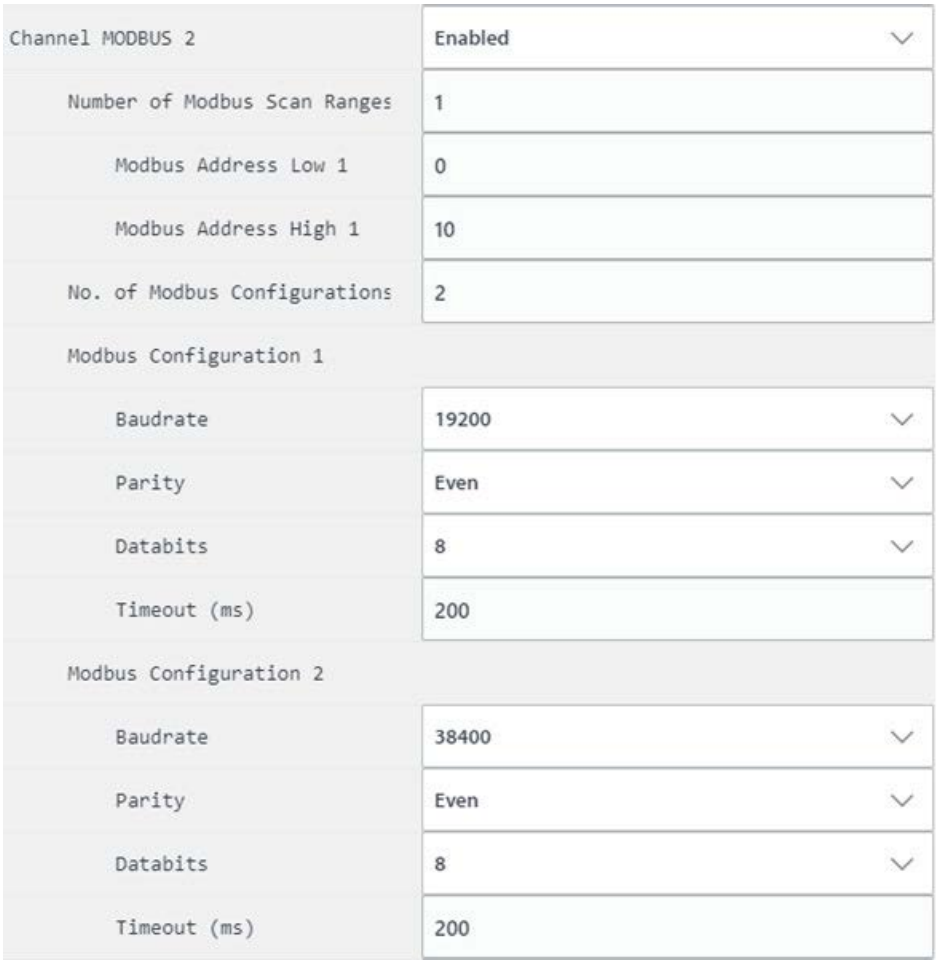
Number of Polls:
Number of times the SM should try to attempt a request during scan

No. of Modbus Scan Ranges:

To reduce the amount of time taken when scanning it is possible to set up the ranges of address that is used at the site. It is possible to configure up to 3 ranges, and only these will be scanned by System Manager. Once the user choses to set up a range, it is the possible to configure a Low and high end for that range.
By default, the AK-SM 800 Modbus 1 channels has a set of attributes it is programmed with, for the user it is only possible to change the baud rate from 38400 to 19200 baud.
When SLV/CSENSE mode is enabled, the baud rate of this Modbus channel will be reduced to 19200.

Modbus channel 2

The Modbus channel 2 is only available in the later versions of AK-SM 800A, the unit used in this guide is of application version 3.2.6. And the intention is to use the Modbus 2 channel for 3rd party products that might have different communication attributes than the standard used in Danfoss ADAP-KooL® family.



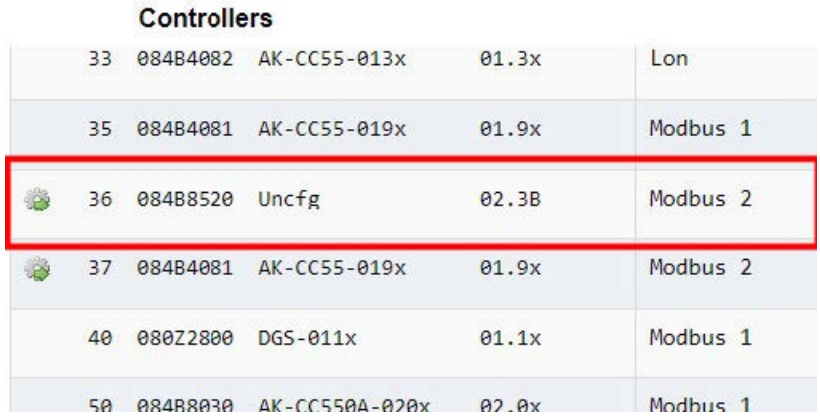
Like the Modbus 1 channel, this one also has to be enabled and it also possible to setup ranges, and they will be used for each configuration that is used on this channel.
The special part regarding the Modbus 2 channel is that, the user can define what configuration should be used. It is possible to configure up to 5 different ones.

Example:
The user configures 2 configurations with the following details:

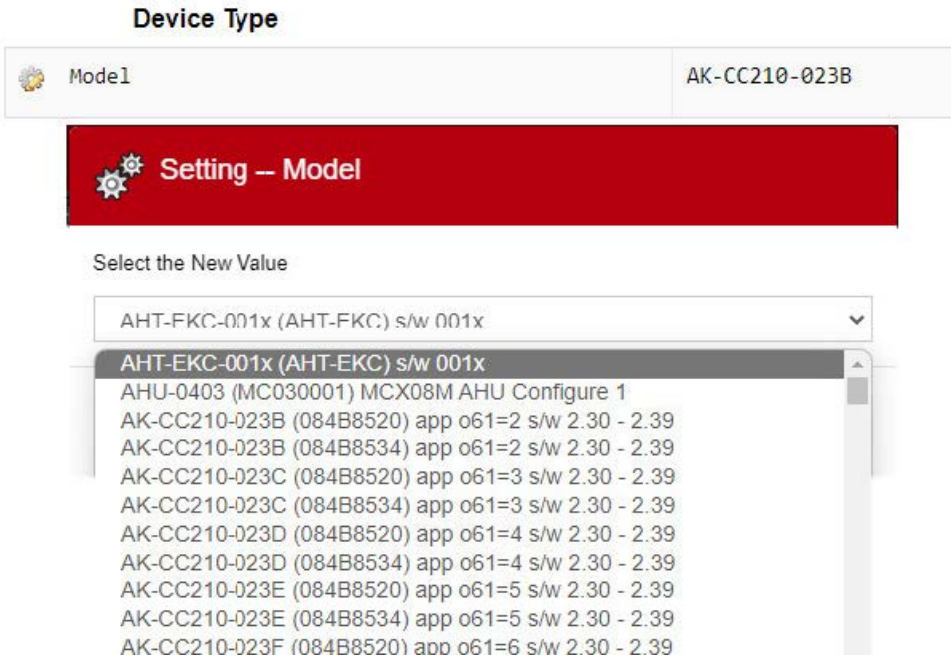
	Modbus Configuration 1	**Modbus Configuration 2**
Baudrate	38400	19200
Parity	Even	None
Databits	8	8
Timeout (ms)	200	100

With this setup the System Manager will scan address 1 on the first configuration, then on the second configuration, and so on. Once it has either found a device or if no device has responded to the scan messages it will move on to the next address.
If a device has responded with an error message, it means that it is not the expected device type.
In this case several messages are sent to try and positively identify the device type. If it can't be identified, it will be marked as an unknown device. This can then manually be changed in the scan status, where an ed3 file can be selected to use for this device. This however only applies to generic third-party devices, i.e. device types that are not normally supported.

1. Click on the gear wheel next to the address



2. On the page that opens click on the gear wheel again to get the list of controllers that are available to that particular System Manager and select the correct one.



The Modbus settings that a device was discovered on is stored, so that any subsequent messages to this device are sent using the correct Modbus settings.
Because there is some overhead with switching Modbus configurations, it is recommended to use the least number of configurations needed for the system.

Note

- Schneider meters works only on Modbus channel 1, at 19200 for the moment.
- Do not use Danfoss controllers with auto baud rate detection Modbus 2 channel with more than one configuration, as the controllers will respond to both configurations.

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Documents / Resources

	Danfoss AK-SM 800A Configuration of Modbus [pdf] User Guide AK-SM 800A, AK-SM 8xxA, AK-SM 800A Configuration of Modbus, AK-SM 800A, Configuration of Modbus, Modbus

References

- User Manual