



Modbus Server User Guide

Using an Aban module as a Modbus RTU server/slave so PLCs, BMS systems, SCADA software, gateways, or another Aban module can read Aban water level values.

Operating mode

Aban is the Modbus RTU server/slave. The external controller is the Modbus master and reads Aban values with function 04 (Read Input Registers).

Protocol	Function	Default baud	Format
Modbus RTU over RS-485	04 Read Input Registers	19200	8N1

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Overview

This guide is for using an Aban module as a Modbus RTU server/slave so another controller can read Aban water level values.

Typical external controllers include PLCs, BMS systems, SCADA software, gateways, or another Aban module configured as a Modbus master.

Serial Settings

The Aban Modbus server uses Modbus RTU over RS-485.

Setting	Value
Baud rate	Configurable, default 19200
Data bits	8
Parity	None
Stop bits	1
Format shorthand	8N1

The app allows baud rates of 9600 and higher. The data bits, parity, and stop bits are fixed in firmware as 8N1.

Bus requirements

All devices on the same RS-485 bus must use the same baud rate and serial format. Each Modbus slave on the bus must have a unique slave ID.

Wiring

- Connect RS-485 A to A and B to B.
- If communication does not work, swap A/B once and test again, because some devices label RS-485 lines differently.
- Use a shared ground when required by the installation.
- Use termination resistors on long cable runs or noisy installations.
- Do not place two Modbus masters on the same RS-485 bus.

App Settings

If the module supports Modbus server mode, the app shows Modbus server in the module settings.

The app exposes:

App field	Meaning
Slave ID	The Modbus slave address used by the external master. Use 1 through 247.
Baud rate	RS-485 speed. Default firmware value is 19200.

After changing settings

After changing the slave ID or baud rate, restart or power-cycle the module before testing from the external controller.

Supported Modbus Functions

Function	Name	Use
04	Read Input Registers	Read mapped Aban water level values

Function 03 (Read Holding Registers) is not used for Aban sensor values. Read sensor values with function 04.

Addressing

Aban uses zero-based Modbus addresses internally.

For example:

Aban address	Many Modbus tools show as
Input register 0	30001

If your Modbus tool asks for a raw address, use the Aban zero-based address. If it asks for a display address such as 30001, use the display address expected by that tool.

Input Registers: Reading Water Level Values

Use function 04 (Read Input Registers) to read mapped water level values.

Input register addresses are configured in the module device configuration. If an input register is not mapped, it reads as 0.

For water level use, the expected mapping is:

Register	Aban value	Scale
0	Raw distance	meters x 1000
1	Water level	percent x 100
2	Volume	liters x 1
3	Signal/power	value x 100
4	Sensor status	packed status word

Example values:

Actual value	Register value
1.234 m raw distance	1234
72.35% water level	7235
450 L volume	450

The exact start register depends on how the module was provisioned.

Value Scaling

When Aban exposes water level values through input registers, it sends unsigned 16-bit integer values.

Value type	Scale
Water level raw distance	meters x 1000
Water level percent	percent x 100
Water level liters	liters x 1
Water level power/signal	value x 100
Status	unscaled packed status word

Water Level Status Register

The water level status register is a packed 16-bit value.

Bits	Meaning
0-3	Sensor status
4-6	Local sensor quality
7-9	Remote communication quality
10	Water level pulse receive error

Sensor status values:

Value	Meaning
0	Not available
1	OK
2	Error
3	Not connected
4	Not found
5	Board error

Quality values:

Value	Meaning
0	Not available
1	0%
2	20%
3	40%
4	60%
5	80%
6	100%

Example Poll

To read an Aban water level value from an external Modbus master:

- 1 Set the external master serial port to the same baud rate as the Aban module, usually 19200 8N1.
- 2 Set the target slave ID to the Aban Modbus server slave ID.
- 3 Use function 04 (Read Input Registers).
- 4 Read from the configured water level register address, for example register 0.
- 5 Decode the returned value using the scale table.

Decoded example

If register 0 returns 1234 for raw distance, the decoded distance is 1.234 m.

Troubleshooting

If the external controller cannot connect:

- Confirm the module supports Modbus server mode and shows Modbus server in the app.
- Confirm slave ID, baud rate, and 8N1 match the external controller.
- Confirm only one Modbus master is on the RS-485 bus.
- Check RS-485 A/B wiring, ground, and termination.
- Restart the module after changing slave ID or baud rate.

If input registers read 0:

- Confirm the register is mapped in the module configuration.
- Confirm you are using function 04, not function 03.
- Confirm the sensor itself has a valid value.
- For water level, confirm tank calibration is saved so percentage and liters can be calculated.