Modbus Master basic info

1.1 Communication Parameters

Parameter	RTU	TCP	Where you get it
Slave / Unit ID	Required	Device dependent; keep the device's required unit identifier	Slave manual / configuration
IP address	Not used	Required	Network configuration
TCP port	Not used	Usually 502	Slave manual / network configuration
Serial port	Required	Not used	AG-702 device interface
Baudrate	Required	Not used	Slave communication settings
Data bits	Required	Not used	Slave communication settings
Parity	Required	Not used	Slave communication settings
Stop bits	Required	Not used	Slave communication settings
Function code	Required per query	Required per query	Slave Modbus map
Start address	Required per query	Required per query	Slave Modbus map
Quantity	Required per query	Required per query	Slave Modbus map
Datatype / byte order	Required for decoded values	Required for decoded values	Slave Modbus map

1.2 Modbus Function Codes Used by This Application

Function code	Standard meaning	How it appears in this UI
`01`	Read Coils	01 — Read/Write Coils
`02`	Read Discrete Inputs	02 — Read Discrete Inputs
`03`	Read Holding Registers	03 — Read/Write Holding Register
`04`	Read Input Registers	04 — Read Input Register

> The application UI exposes these four query options. The Modbus specification defines 01/02/03/04 as read operations; write functions use other standard function codes. Thisguide does not add write configuration that the current UI does not expose.

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2. Supported Hardware & Devices

This section separates OpenWrt gateways that can host Modbus software from field devices that can act as Modbus slaves and provide data to the gateway.

2.1 OpenWrt Modbus Gateways

The following Atreyo gateway models have public product information explicitly listing OpenWrt and Modbus support. This is a platform capability table; the exact Modbus Master UI in the supported-device section is **verified in this guide only on AG-702**.

Gateway	OpenWrt	Modbus capability	Interfaces	Application status
AG-702	OpenWrt 23.05	TCP slave, TCP master, RTU master, RTU gateway	2× Ethernet, RS-485, RS-232	**Verified in this guide**
AG-221	OpenWrt 23.05	TCP slave, TCP master, RTU master, RTU gateway	2× Ethernet, RS-485	**Validate firmware/package**
AG-207	OpenWrt 23.05	TCP slave, TCP master, RTU master, RTU gateway	1x Ethernet, 1x isolated RS-485	**Validate firmware/package**
AG-205	OpenWrt 23.05	TCP slave, TCP master, RTU master, RTU gateway	2× Ethernet, Wi-Fi	**Validate firmware/package**
AG-707	OpenWrt 23.05	TCP slave, TCP master, RTU master, RTU gateway	2× Ethernet, 2× isolated RS-485	**Validate firmware/package**
AG-743	OpenWrt	TCP slave, TCP master, RTU master, RTU gateway	4× Ethernet, RS-485	**Validate firmware/package**
AG-104	OpenWrt	TCP slave, TCP master, RTU master, RTU gateway	1x Ethernet, 1x isolated RS-485	**Validate firmware/package**

2.2 Atreyo Products That Can Act as Modbus RTU Slaves

These products can be placed on the Gateway RS-485 bus as field devices. The Gateway acts as Modbus Master and reads the data exposed by each device according to its own Modbus documentation.

Product	Interface	Role / protocol	Example data for AG-702
Thermolog V3-T	RS-485	Modbus RTU slave	Temperature registers

Product	Interface	Role / protocol	Example data for AG-702
Thermolog V3-TH	RS-485	Modbus RTU slave	Temperature / humidity registers
AMB-4I-4O	RS-485	Modbus RTU I/O module; all Modbus masters	Input status and relay control
AMB-8I-4O	RS-485	Modbus RTU / IEC-60870-5-101	Input status and relay control
AMB-12I-4O	RS-485	Modbus RTU I/O module; all Modbus masters	Input status and relay control
AMB-8I-AC	RS-485	Modbus RTU I/O module; all Modbus masters	Input status
AMB-16I-AC	RS-485	Modbus RTU I/O module; all Modbus masters	Input status
ADI-524	RS-485	Modbus RTU	Input status

> **Physical connection:** These RTU slave devices connect to the Gateway RS-485 port and share the RS-485 bus. They do not connect to the Gateway Ethernet/TCP port.

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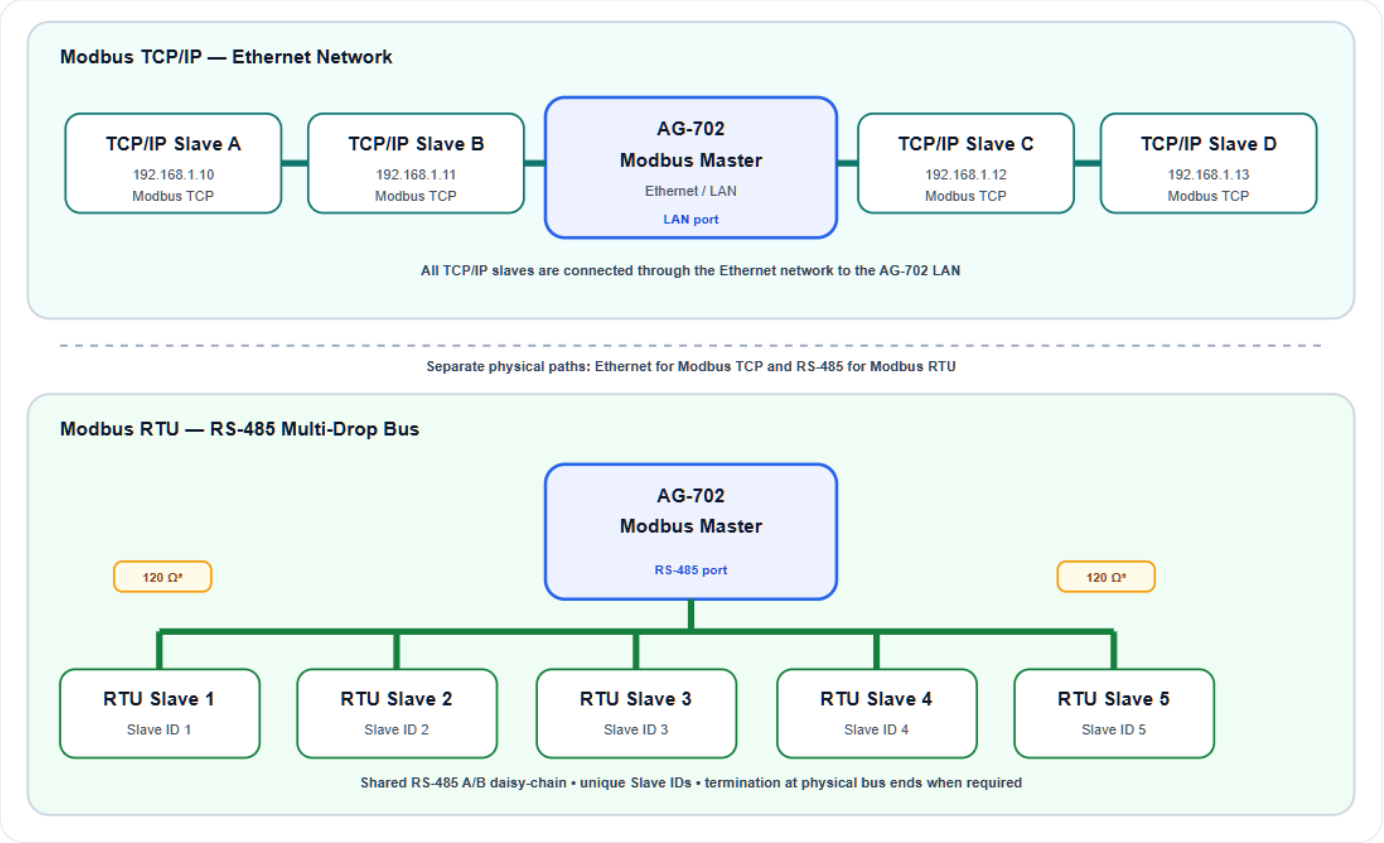
3. Deployment Scenarios

These diagrams show how the AG-702 can collect data from multiple RS-485 Modbus RTU slaves and multiple Modbus TCP/IP slave devices.

3.1 AG-702 Mixed TCP/IP & RS-485 Deployment



In this example the AG-702 is the central Modbus Master. Five RTU slaves share one RS-485 daisy-chain connected directly to the AG-702 RS-485 port: three slaves are shown on the left and two on the right. Four separate TCP/IP slaves connect through the Ethernet network on the AG-702 LAN side.

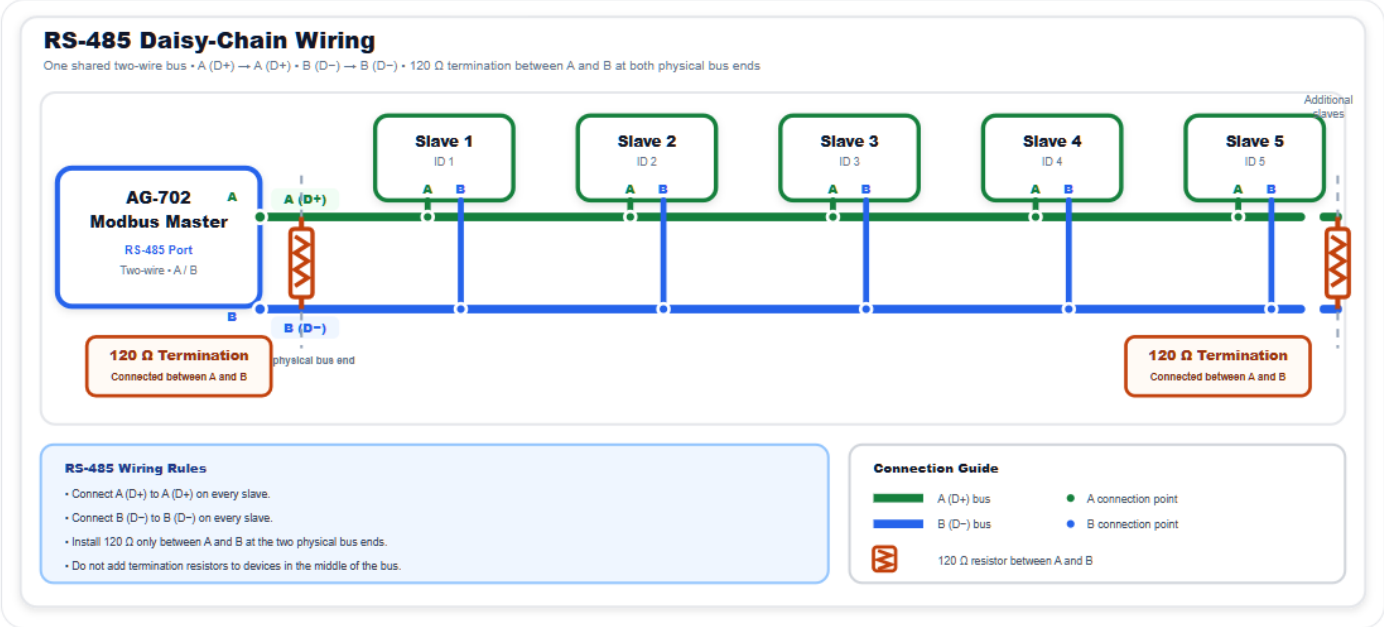
RS-485 side — five RTU slaves	• All five devices connect to the **AG-702 RS-485 port**. • Three slaves are shown on the left and two on the right. • All five share one RS-485 daisy-chain. • Each slave has a unique Slave ID.
Ethernet side — four TCP/IP slaves	• TCP/IP Slave A, B, C and D are **slave devices**. • They connect to the AG-702 LAN through the same Ethernet network. • Each slave has its own reachable IP address. • They are **not gateways** in this example.

Device group	Physical connection	Protocol	Addressing
RTU Slave 1–5	AG-702 RS-485 → shared A/B bus	Modbus RTU	Slave IDs 1–5
TCP/IP Slave A–D	AG-702 LAN → Ethernet network → slave	Modbus TCP	IP address + device/unit identifier as required

> **Important:** RTU slaves are connected to the AG-702 RS-485 port. TCP/IP slaves are connected through the AG-702 Ethernet/LAN port. These are two separate physical communication paths.

3.2 RS-485 Daisy-Chain Wiring — Multi-Slave Field Example

A single AG-702 RS-485 port can serve multiple Modbus RTU slave devices on one shared two-wire bus. Connect **A (D+)** to **A (D+)** and **B (D−)** to **B (D−)** throughout the chain, assign a unique Slave ID to every device, and install a **120 Ω termination resistor between A and B** only at the two physical ends of the bus.



> **Important:** RS-485 is a shared two-wire bus. Keep the topology physically ordered as a daisy-chain, keep drop cables short, connect A to A and B to B consistently, and place 120 Ω termination resistors only at the two physical ends of the bus.

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