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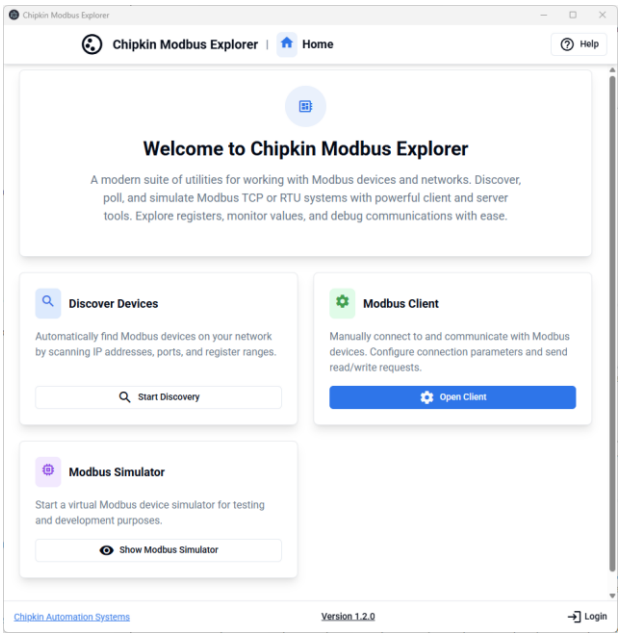
CAS-1000-20 – Chipkin Modbus Explorer

A modern desktop utility for discovering, polling, simulating, and troubleshooting Modbus TCP and Modbus RTU devices. Datasheet – Rev. 1

DESCRIPTION



Chipkin Modbus Explorer is a cross-platform desktop application for commissioning, testing, and diagnosing Modbus TCP and Modbus RTU devices. It integrates a Modbus client, automated device discovery, and a Modbus server simulator into a single utility, enabling engineers and technicians to efficiently connect to devices, read and write registers, and validate Modbus communications during system setup and troubleshooting.

Designed for real-world automation workflows, Chipkin Modbus Explorer supports a wide range of Modbus function codes, data types, and byte/word ordering options to ensure accurate interpretation of register data. Built-in discovery and simulation tools allow users to identify active devices, map available registers, and test client or SCADA applications without requiring live field hardware, making it a practical tool for deployment, verification, and ongoing support.

Features

- Protocols: Modbus TCP (Ethernet) and Modbus RTU (Serial / RS-485)
- Function codes: FC01, FC02, FC03, FC04, FC05, FC06, FC15, FC16
- Data types: INT16, UINT16, INT32, UINT32, INT64, UINT64, FLOAT32, DOUBLE, ASCII strings
- Endianness: Big Endian, Little Endian, and byte/word swapped decoding
- Import/Export register maps via CSV
- Simultaneous view of raw hex and decoded values
- Automatic conversion between public (1-based) and protocol (0-based) addressing
- Device discovery for Modbus TCP using CIDR subnet or IP range scanning
- Device discovery for Modbus RTU with automated baud rate and parity permutation scanning
- Register mapping by scanning address ranges to identify active registers and function codes
- Modbus simulator to emulate a Modbus TCP or RTU server
- Response testing to verify master/client behavior against a compliant server implementation
- Advanced logging to inspect requests and responses during troubleshooting
- Supports Windows 10/11 and Linux (Ubuntu 18.04+)

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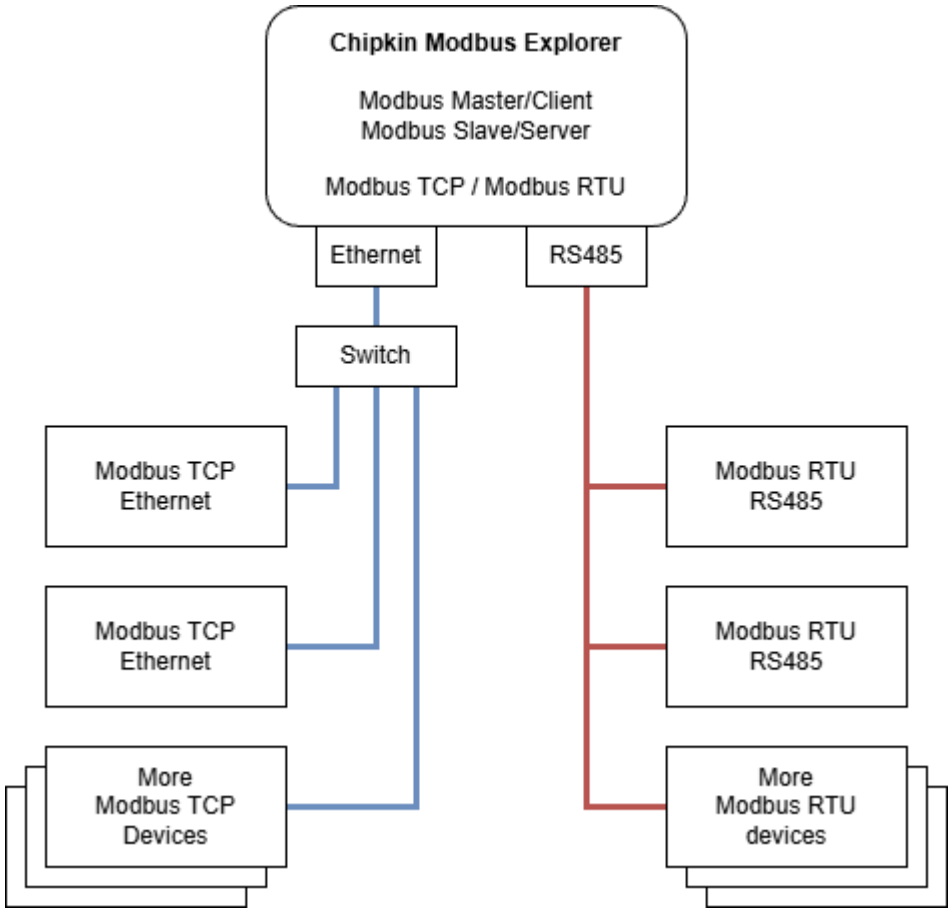
System Requirements

- **OS:**
  - Windows: Windows 10 / Windows 11
  - Linux: Ubuntu 18.04+ (other modern distributions may work)
- **Hardware:** 4GB RAM, ~500MB disk space
- **Interfaces:** Ethernet adapter (Modbus TCP) or Serial/USB-to-Serial adapter (Modbus RTU)
- **Network:** Modbus TCP uses port **502** by default

CONNECTION CONFIGURATIONS

This block diagram shows how the CAS Modbus Explorer connects to Modbus TCP devices over Ethernet and Modbus RTU devices over an RS-485 serial bus.



COMMUNICATION FUNCTIONS

The Chipkin Modbus Explorer operates as a Modbus client (master) for both Modbus TCP and Modbus RTU networks. The application initiates standard Modbus read and write transactions to connected devices and processes responses in accordance with the Modbus protocol, enabling validation and troubleshooting of device communications.

For Modbus TCP, the tool supports polling of configurable IP ranges, ports, and Unit IDs to identify responsive devices and function codes. For Modbus RTU, communication is performed over serial interfaces with configurable baud rate and framing parameters, including automated scanning to locate active nodes. Register values are validated and displayed using selectable data types and byte/word ordering, supporting efficient discovery and diagnostics without prior register documentation.

CUSTOMER SUPPORT

Chipkin Modbus Explorer is developed and supported by Chipkin Automation Systems. Chipkin provides technical support, product guidance, and integration assistance for the Chipkin Modbus Explorer and related Modbus solutions.

For technical support, sales inquiries, or product questions:

- **Toll-Free:** 1-866-383-1657
- **Email:** salesgroup1@chipkin.com
- **Web:** www.chipkin.com

APPENDIX A: DEVICES TESTED

These tables summarize the devices that have been tested. Other devices may be supported.

DEVICE	TESTED (FACTORY/SITE)
Windows 11	Factory
Windows 10	Factory
Ubuntu 20.04 LTS	Factory

REVISION HISTORY

This table summarizes the update history for this protocol data sheet. Please contact Chipkin by phone or email for an updated version of this document.

DATE	RESP.	APPLICATION VERSION	DOCUMENT REVISION	COMMENTS
19 Jan 2026	Chipkin	1.2.0	1	Created