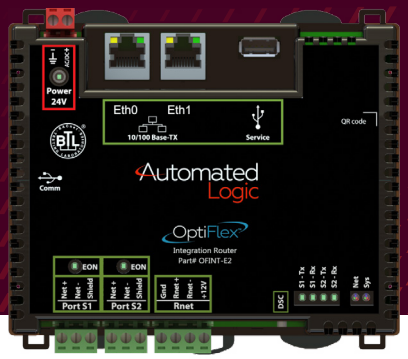
MODBUS Protocol

ON OPTIFLEX™ INTEGRATORS



MODBUS

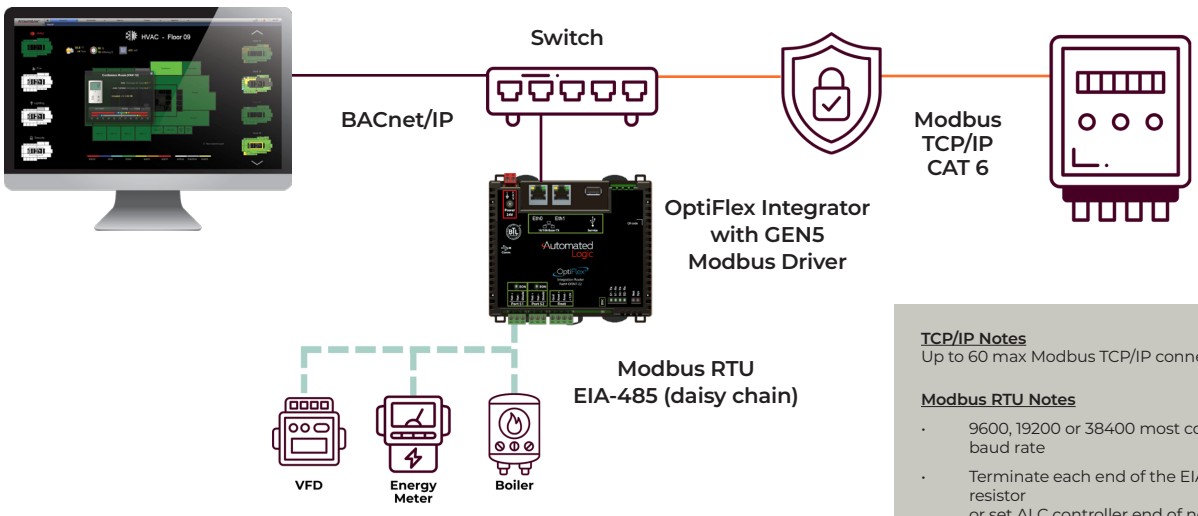
The Modbus protocol is a foundational industrial standard used to exchange data between electronic devices like PLCs, energy meters, Variable Frequency Drives (VFDs), and packaged equipment. By using the dedicated protocol within an Automated Logic® OptiFlex Integrator, you can seamlessly integrate all Modbus-enabled devices with the WebCTRL® system. This integration creates a single, centralized view that enables operators to streamline building operations, unify control over disparate systems, and achieve optimal energy management and performance.

How it Works

The OptiFlex Integrator acts as the Modbus Primary on serial networks (Modbus RTU) and the Modbus Client on IP networks (Modbus TCP/IP), utilizing the protocol to communicate with Modbus Secondary/Server devices to read and write data via registers.

- **Read/Write:** The integrator can query Modbus devices to retrieve operational data, status flags, and performance metrics (e.g., flow, temperature, kW). It can also set values to change setpoints, commanding device operations or changing equipment configurations.
- **Data Mapping:** The structured Modbus data is translated by mapping the unique register addresses (Coils, Holding, Input Registers) directly to WebCTRL control points. This allows the WebCTRL system to process Modbus data as system events, capturing information to alert you to specific occurrences, enabling proactive monitoring and faster response to issues.

MODBUS PROTOCOL



TCP/IP Notes
Up to 60 max Modbus TCP/IP connections

Modbus RTU Notes

- 9600, 19200 or 38400 most commonly used baud rate
- Terminate each end of the EIA-485 with a resistor
  or set ALC controller end of net switch to yes

WebCTRL®

The WebCTRL building automation system gives you the ability to understand your building operations and analyze the results. Integrate environmental, energy, security and safety systems into one powerful management tool that helps you reduce energy consumption, increase occupant comfort, and achieve sustainable building operations.

Specifications

OptiFlex Integrators - Modbus Specifications	
Driver	drv_gen5_108-06-20206.driverx or later
Compatible Part Numbers	All OptiFlex™ line controllers (excluding the OptiFlex™ BACnet Router model)
Protocols Supported	Modbus RTU (Serial) and Modbus TCP/IP (Ethernet)
Max Serial Secondary Devices (RTU)	Up to 254 Modbus Secondaries
Max Ethernet Connections (TCP/IP)	Up to 60 Modbus TCP/IP connections (standard). Can support up to 254 maximum with specific driver settings. A practical limit is approximately 100 devices.
Integrated Points	Up to 800 points per OptiFlex controller
Modbus Registers Supported	Coils (Read/Write), Discrete Inputs (Read Only), Input Registers (Read Only), Holding Registers (Read/Write)
Serial Ports Used (RTU)	S1 or S2
Ethernet Ports Used (TCP/IP)	Gig-E, Eth0, or Eth1
Serial Baud Rates (RTU)	1200 - 115200 bps (Default: 9600)
Maximum Coils/Registers	Base Address Range: 1-65535
Supported Data Types	UINT, Sint, Float, Uint32, Sint32, BITn, Do, Di (64-bit Modbus registers are not supported)
Concurrent Operation	Multiple ports can be used, each with different functionality (e.g., S1 as Serial Primary, Eth0 as Ethernet Client).
Network Media (RTU)	EIA-485 (2-wire shielded twisted pair)
Network Media (TCP/IP)	CAT5 or higher Ethernet cables
Configuration	Driver properties are configurable via the WebCTRL driver page or the controller's Service Port.

Automated Logic

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