

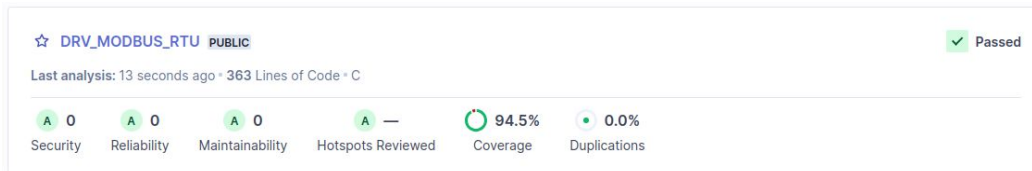
Modbus :: RTU

MODBUS is an application-layer messaging protocol that operates at Layer 7 of the OSI model and enables client-server communication between devices connected to various types of buses or networks.

This library implements Modbus RTU over UART as the data link layer and is compatible with any RS-485 transceiver (e.g., MAX-3485, SN65HVD1781, etc.) at the physical layer, enabling reliable industrial communication across embedded systems.

The software is architected with long-term maintainability, portability across MCU platforms, and adherence to high software quality standards as core design principles.

- ✔ Layered architecture with clear HAL abstraction
- ✔ Conforms to ISO C99 standard
- ✔ Portable across multiple MCU platforms
- ✔ Supports both RTOS and bare-metal environments
- ✔ CMake build system for scalable integration
- ✔ Seamless integration with GCC toolchain
- ✔ Statically analyzed for MISRA, CERT, and CWE compliance



Initialization Interface

```
modbus_rtu_result_t modbus_rtu_init( modbus_rtu_handle_t*,
                                     modbus_rtu_attr_t )
```

Data Retrieval Interface

```
modbus_rtu_result_t modbus_rtu_read( modbus_rtu_handle_t*, ... )
```

Write Interface

```
modbus_rtu_result_t modbus_rtu_write( modbus_rtu_handle_t*, ... )
```

Operation Interface

```
modbus_rtu_result_t modbus_rtu_stop( modbus_rtu_handle_t* )
modbus_rtu_status_t modbus_rtu_get_status( modbus_rtu_handle_t* )
uint16_t modbus_rtu_get_crc( uint8_t*, size_t )
```

Communication Interface:
UART