

The Halliburton Device Module operates within the Universal Server architecture and provides comprehensive support for the Halliburton Well Control Unit (WCU) device. The Halliburton Device Module supports both real-time communications and provides full support for collection of Electronic Flow Measurement (EFM) data.

Device Features

Each Halliburton device includes features common to all devices within the Universal Server Architecture:

- Full support for OPC 1.0 and 2.05, SuiteLink, and DDE clients, in any combination.
- Each device may be configured for both a primary and secondary circuit for communications using any of the available circuits defined in the Universal Server. Each device may be configured to use the primary circuit only, secondary circuit only, or alternate between the two. Options also include automatic fail-over between the circuits.
- Available circuits may include direct serial, radios, dialup, CDPD, TCP/IP, UDP/IP, and terminal server connections.
- Each device includes a complete set of standard diagnostic items that may be viewed using the Universal Server remote diagnostics viewer or added to any OPC, SuiteLink, or DDE client.
- Devices may be configured to perform data acquisition automatically, only when clients are connected, or upon demand by client programs only.
- Command items allow complete control of devices from connected clients. Command items include setting device scan status, selecting active circuits, and requesting immediate demand scans.
- User-selectable log options provide comprehensive log messages for system monitoring and troubleshooting. The **Device Diagnostics** screen, below, performs interactive diagnostics and displays streaming device transactions and activity.

Device State:
Comm Status:

Parameter Name	Current	Today	Description
Last Update	03/09/04 12:23:03	03/09/04 12:23:03	Time of Last Diagnostic Update
Last Reset	03/09/04 12:23:03	03/09/04 12:23:03	Time of Last Diagnostic Reset
Total Transactions	0	0	Total Scan Attempts since reset
Good Scans	0	0	Total Successful Scans
% Throughput	0.0	0.0	Percent Throughput 0.0 - 100.0 %
Failed Scans	0	0	Total Failed Scans for this device
Good Outputs	0	0	Total Command Output Transactions
Failed Outputs	0	0	Total Failed Command Outputs
Retries	0	0	Total Number of Transaction Retries
Circuit Failures	0	0	Total Communications Failures
No Connections	0	0	Failed Connection Attempts
Lost Connections	0	0	Lost Connections
Device Timeouts	0	0	Device Timeouts (No Reply)
Invalid Replies	0	0	Invalid Device Responses (Bad CRC's)
Error Responses	0	0	Device Replied with Error Response
Requested Scan Interval	0	0	Current Requested Scan Interval (msec)
Last Scan Interval	0	0	Most Recent Scan Interval (msec)
Max Scan Interval	0	0	Maximum Scan Interval (msec)
Avg Scan Interval	0	0	Average Scan Interval (msec)
Scan Duration	0	0	Last Scan Duration (msec)
Item Count	0	0	Total Client Device Items
Active Items	0	0	Total Active Client Items

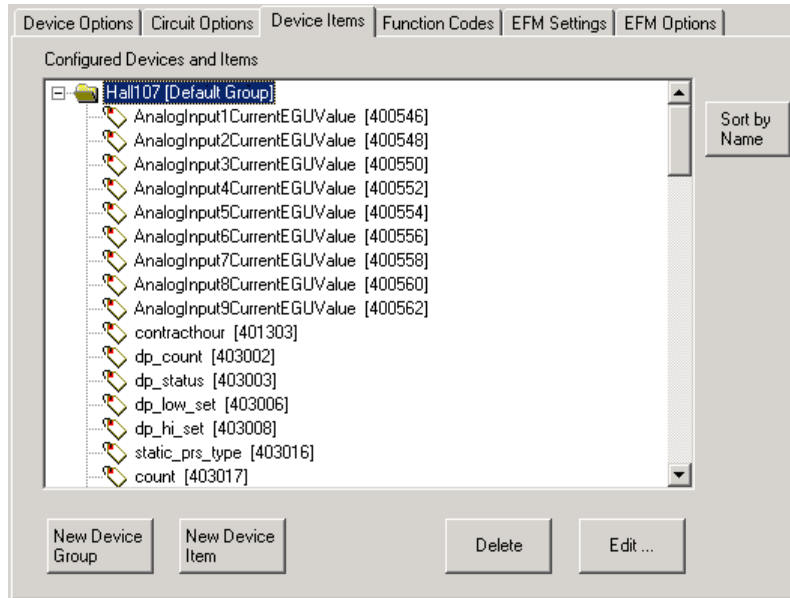
Status:
Update Interval: secs

Last Error:
Last Good Poll:

Real-Time Features

The Halliburton WCU device uses the Modbus Protocol to communicate with the RTU. The device comes pre-configured with seventy-nine of the most common tag names for client access.

The **Device Items** screen for the Halliburton Module is displayed below.



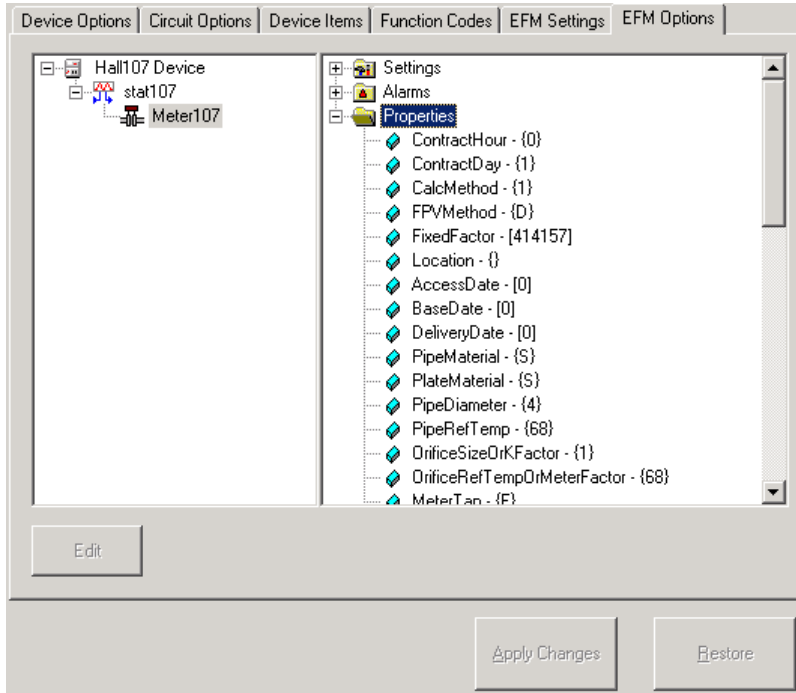
Standard features of the Halliburton Module include:

- Interactive wizards to create tag names for Halliburton (Modbus) address items for client access. All tag names are available in any OPC Browser.
- Client programs may access Halliburton items by direct Modbus address or with user-defined tag names.
- The tag creation process permits custom conversion of data acquired from the device, including data type conversion (integer, float, string, etc), engineering units scaling, byte and word ordering, and special bit test operations.
- Supports in-line modifiers for direct Modbus address items to allow client programs to specify a full range of custom conversions on each Halliburton (Modbus) address.
- Tag items may be designated as autoscan to force data acquisition of the item upon startup with no client connected.
- Real-time acquisition may be set to occur at any time period, at a specific time of day, or upon client demand only.
- Optimized device scanning to minimize the number of messages required for data acquisition for current active items.
- Automatic retries of failed device IO transactions with user-configurable retries and response delays.
- Prioritized processing of output commands and demand read transactions.
- Supports full import/export of single device or all Modbus devices to/from CSV format to permit creation of large systems or to make global configuration changes.

Electronic Flow Measurement

The Halliburton Device Module includes standard support for automatically uploading EFM data from the WCU RTU, as well as collection of history data for Hourly, Daily, Alarms, and Events. All uploaded EFM data is forwarded to the EFM Server for storage and reporting. Refer to the Electronic Flow Measurement (EFM) datasheet for information concerning EFM data storage and reporting.

The **EFM Options** screen for the Halliburton Module is displayed below.



Specifications

<p><u>Hardware Requirements</u></p> <p>Minimum:</p> <ul style="list-style-type: none"> • PIII 900 MHz Processor • 100 MB Hard Disk • 64 MB RAM 	<p>Recommended:</p> <ul style="list-style-type: none"> • P4 1.4 GHz Processor • 500 MB Hard Disk • 128 MB RAM 	<p><u>Software Requirements</u></p> <ul style="list-style-type: none"> • Windows 2000 SP4 or greater • Windows XP SP1 or greater
---	---	---



MTL Open System Technologies LP

2450 South Shore Blvd., Suite 210
 League City, TX 77573
 Phone: (281) 334-9111 Fax: (281) 334-4324
info@mtlmost.com
www.mtlmost.com