ProSoft TECHNOLOGY

Where Automation Connects.

MVI56E-AFC / MVI69E-AFC

Enhanced Liquid and Gas Flow Computer

Enron Modbus Specification

February 19, 2022

TECHNICAL NOTE

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MVIxxE-AFC Enron Modbus Specification Technical Note
For public use.

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Contents

1 Preface

1.1 Purpose of this Technical Note

The document serves as the specification for the Enron Modbus Extension implemented in the MVI56E-AFC and MVI69E-AFC. This extension supports the retrieval and acknowledgement of AFC events/alarms, hourly archive, and daily archive records in an Enron Modbus-compatible format.

1.2 Additional Information

The following resources contain additional information that can assist the user with the module installation and operation.

Table 1.1. - Additional Information

Resource	Link
MVI56E-AFC / MVI69E-AFC Reference Guide	www.prosoft-technology.com
MVI56E-AFC / MVI69E-AFC Setup and Configuration Guide	www.prosoft-technology.com

1.3 Support

Technical support will be provided via the Web (in the form of user manuals, FAQ, datasheets, etc.) to assist with installation, operation, and diagnostics.

For additional support the user can use either of the following:

Table 1.2. – Support Details

Resource	Link
Contact Us web link	www.prosoft-technology.com
Support email	www.prosoft-technology.com

2 Overview

2.1 General Enron Modbus Implementation Information

Enron Modbus event/alarm, hourly archive, and daily archive download registers do not adhere to the Modbus protocol standard and are treated as Enron special request windows by the AFC module.

These Enron special address windows must be queried using a function code 0x03 (3) Read Holding Registers with a starting address equal to the specific Enron Modbus event/alarm, hourly archive, or daily archive download register. Per the Enron Modbus protocol, the quantity of registers value in these requests has a special purpose not adhering to the Modbus protocol standard.

Modbus requests spanning one of the Enron special request windows will adhere to the Modbus protocol standard with response data value of 0 for the special window register.

For example a Read Holding Registers requesting address 0-32 would include the Enron Modbus event/alarm download register special window, but with a starting address of 0. The response will not download Enron Modbus event/alarm records but a register value of 0 for address 32.

All 32-bit quantities downloaded in event/alarm, hourly archive, and daily archive records adhere to the AFC module's swap word setting.

The Enron Modbus implementation may be accessed utilizing Modbus TCP or serial channels.

2.2 Supported Meter Types

Type	Type Description	Product Group	Device Type	Primary Input	Metering principle
GSD	Gas Standard Differential	0: Gas	0: Differential	0: Differential Pressure	Differential pressure
GSN	Gas Standard Linear	0: Gas	1: Linear	0: Pulse Count	Pulse count
GID	Gas Integrated Differential	0: Gas	0: Differential	1: Flow Rate	Flow rate
GIN	Gas Integrated Linear	0: Gas	1: Linear	1: Pulse Frequency	Pulse frequency
LSD/ MLSD*	Liquid Standard Differential	> 0: Liquid	0: Differential	0: Differential Pressure	Differential pressure
LSN/ MLSN*	Liquid Standard Linear	> 0: Liquid	1: Linear	0: Pulse Count	Pulse count
LID/ MLID*	Liquid Integrated Differential	> 0: Liquid	0: Differential	1: Flow Rate	Flow rate
LIN/ MLIN*	Liquid Integrated Linear	> 0: Liquid	1: Linear	1: Pulse Frequency	Pulse frequency

** MLSD, MLSN, MLID, and MLIN meters are liquid meters that have mass allocation shrinkage calculations (MASC) enabled.*

3 Data Translation from AFC to Enron Modbus

3.1 Overview

The Enron Modbus protocol requires an IEEE 32-bit floating-point data type for events/alarms and history. To accommodate this, the AFC makes the following conversions when translating data for use in Enron Modbus:

- IEEE 32-bit floating points are translated into a single 32-bit floating point value in Enron Modbus.
- 32-bit unsigned integers are translated into two 32-bit floating-point values in Enron Modbus.

The table below provides examples of the data translation using a portion of the daily archive record for a gas standard differential meter. Following are explanations of the mappings in this table:

- The closing timestamp (offset 0+) is mapped into the first two values in the Enron Modbus record, DATE and TIME.
- Register 811 (cumulative meter active stream) is an unsigned 16-bit integer with a size of one word (two bytes) and is therefore mapped to a single 32-bit floating point value for Enron Modbus. This applies to register 812 as well.
- Register 856+ (flowing period) is an unsigned 32-bit integer that maps to two 32-bit floating point values in Enron Modbus. This also applies to register 854+.
- Registers 350+ and 352+ (accumulator totalizer and residue) are a special case. See the following section for an explanation of how these are mapped to Enron Modbus
- Register 30+ (meter alarms) is a 32-bit unsigned integer that occupies a single offset of two registers (two words total). For Enron Modbus, the AFC translates a meter alarm into two separate values.

AFC Meter Archive					**Enron Modbus example**	
Offset	**Register**	**Contents**	**Data Type**	**Value**	**Offset**	**Value**
0+	I- 0+	Closing timestamp		2021-09-22 17:51:03	DATE	92221
					TIME	175103
2	I- 811	Special archivable items, daily, cumulative meter active streams	UINT16	0001h	0	1
3	I- 812	Special archivable items, daily, meter status and active stream	UINT16	00h,1	1	0
4+	I- 856+	Special archivable items, hourly, flowing period (seconds)	UINT32	3600	2	3600
					3	0

AFC Meter Archive					Enron Modbus example	
Offset	**Register**	**Contents**	**Data Type**	**Value**	**Offset**	**Value**
6+	I- 854+	Special archivable items, hourly, period duration (seconds)	UINT32	3600	4	3600
					5	0
8+	I- 350+	Accumulator, archive period, hourly, totalizer (net) (USG)	UINT32	11	6	11.98161
10+	I- 352+	Accumulator, archive period, hourly, residue (net) (USG)	Float32	0.981607		
12+	I- 30+	Meter alarms	UINT32	00000000h	7	0
					8	0
and so on	…	…	…	…	…	…

3.2 Accumulator Totalizers and Residue

ProSoft's AFC accumulators have higher precision than those of our competitors, with two separate registers for the totalizer and residue.

The totalizer is a 32-bit unsigned integer, and the residue is an IEEE 32-bit floating point value. If we were to follow typical mapping logic, the totalizer would map to two Enron Modbus values, and the residue would map to one Enron Modbus value—a total of three values for each accumulator-totalizer pair.

For customers who will be using multiple accumulators, however, this sort of mapping could consume a large number of Enron Modbus registers. Considering that only 60 values are allowed in each Enron Modbus hourly or daily archive record, we decided on the following method of translating the accumulator totalizer and residue for the Enron Modbus history record:

When a meter archive configuration has consecutive defined registers of a totalizer followed by a residue of the same type, the AFC will collapse these two meter archive items into a single 32-bit floating-point value (with reduced precision) for the Enron Modbus record. This combined totalizer and residue are mapped to a single value in Enron Modbus, as illustrated in the table above (see registers 350+ and 352+ above).

4 Modbus Dictionary Registers

The following tables detail the Modbus dictionary addresses associated with the AFC's Enron Modbus implementation.

4.1 Enron Modbus Event/Alarm Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Coil	0x20 (32)	W	0x05	Bool	Enron Modbus Event/Alarm Log Acknowledgement Register
Holding Register	0x20 (32)	R	0x03	UInt16	Enron Modbus Event/Alarm Log Download Register
Holding Register	0x8FC0 (36800)	R	0x03	UInt16	Event/Alarm Log Record Capacity
Holding Register	0x8FC1 (36801)	R	0x03	UInt16	Enron Modbus Event/Alarm Log Unacknowledged Record Counter
Holding Register	0x8FC2 (36802)	R	0x03	UInt16	Event/Alarm Log Record Total
Holding Register	0x8FC3 (36803)	R	0x03	UInt16	Event/Alarm Log Record Lost Record Counter

4.2 Enron Modbus Meter 01 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FD0 (36816)	R	0x03	UInt16	Meter 1 Daily Archive Record Capacity
Holding Register	0x8FD1 (36817)	R	0x03	UInt16	Meter 1 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FD2 (36818)	R	0x03	UInt16	Meter 1 Hourly Archive Record Capacity
Holding Register	0x8FD3 (36819)	R	0x03	UInt16	Meter 1 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9014 (36884)	R	0x03	UInt16	Meter 1 Enron Daily Archive Download Register
Holding Register	0x9015 (36885)	R	0x03	UInt16	Meter 1 Enron Hourly Archive Download Register

4.3 Enron Modbus Meter 02 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FD4 (36820)	R	0x03	UInt16	Meter 2 Daily Archive Record Capacity
Holding Register	0x8FD5 (36821)	R	0x03	UInt16	Meter 2 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FD6 (36822)	R	0x03	UInt16	Meter 2 Hourly Archive Record Capacity
Holding Register	0x8FD7 (36823)	R	0x03	UInt16	Meter 2 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9016 (36886)	R	0x03	UInt16	Meter 2 Enron Daily Archive Download Register
Holding Register	0x9017 (36887)	R	0x03	UInt16	Meter 2 Enron Hourly Archive Download Register

4.4 Enron Modbus Meter 03 Archive Dictionary Register

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FD8 (36824)	R	0x03	UInt16	Meter 3 Daily Archive Record Capacity
Holding Register	0x8FD9 (36825)	R	0x03	UInt16	Meter 3 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FDA (36826)	R	0x03	UInt16	Meter 3 Hourly Archive Record Capacity
Holding Register	0x8FDB (36827)	R	0x03	UInt16	Meter 3 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9018 (36888)	R	0x03	UInt16	Meter 3 Enron Daily Archive Download Register
Holding Register	0x9019 (36889)	R	0x03	UInt16	Meter 3 Enron Hourly Archive Download Register

4.5 Enron Modbus Meter 04 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FDC (36828)	R	0x03	UInt16	Meter 4 Daily Archive Record Capacity
Holding Register	0x8FDD (36829)	R	0x03	UInt16	Meter 4 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FDE (36830)	R	0x03	UInt16	Meter 4 Hourly Archive Record Capacity
Holding Register	0x8FDF (36831)	R	0x03	UInt16	Meter 4 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x901A (36890)	R	0x03	UInt16	Meter 4 Enron Daily Archive Download Register
Holding Register	0x901B (36891)	R	0x03	UInt16	Meter 4 Enron Hourly Archive Download Register

4.6 Enron Modbus Meter 05 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FE0 (36832)	R	0x03	UInt16	Meter 5 Daily Archive Record Capacity
Holding Register	0x8FE1 (36833)	R	0x03	UInt16	Meter 5 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FE2 (36834)	R	0x03	UInt16	Meter 5 Hourly Archive Record Capacity
Holding Register	0x8FE3 (36835)	R	0x03	UInt16	Meter 5 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x901C (36892)	R	0x03	UInt16	Meter 5 Enron Daily Archive Download Register
Holding Register	0x901D (36893)	R	0x03	UInt16	Meter 5 Enron Hourly Archive Download Register

4.7 Enron Modbus Meter 06 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FE4 (36836)	R	0x03	UInt16	Meter 6 Daily Archive Record Capacity
Holding Register	0x8FE5 (36837)	R	0x03	UInt16	Meter 6 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FE6 (36838)	R	0x03	UInt16	Meter 6 Hourly Archive Record Capacity
Holding Register	0x8FE7 (36839)	R	0x03	UInt16	Meter 6 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x901E (36894)	R	0x03	UInt16	Meter 6 Enron Daily Archive Download Register
Holding Register	0x901F (36895)	R	0x03	UInt16	Meter 6 Enron Hourly Archive Download Register

4.8 Enron Modbus Meter 07 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FE8 (36840)	R	0x03	UInt16	Meter 7 Daily Archive Record Capacity
Holding Register	0x8FE9 (36841)	R	0x03	UInt16	Meter 7 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FEA (36842)	R	0x03	UInt16	Meter 7 Hourly Archive Record Capacity
Holding Register	0x8FEB (36843)	R	0x03	UInt16	Meter 7 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9020 (36896)	R	0x03	UInt16	Meter 7 Enron Daily Archive Download Register
Holding Register	0x9021 (36897)	R	0x03	UInt16	Meter 7 Enron Hourly Archive Download Register

4.9 Enron Modbus Meter 08 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FEC (36844)	R	0x03	UInt16	Meter 8 Daily Archive Record Capacity
Holding Register	0x8FED (36845)	R	0x03	UInt16	Meter 8 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FEE (36846)	R	0x03	UInt16	Meter 8 Hourly Archive Record Capacity
Holding Register	0x8FEF (36847)	R	0x03	UInt16	Meter 8 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9022 (36898)	R	0x03	UInt16	Meter 8 Enron Daily Archive Download Register
Holding Register	0x9023 (36899)	R	0x03	UInt16	Meter 8 Enron Hourly Archive Download Register

4.10 Enron Modbus Meter 09 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FF0 (36848)	R	0x03	UInt16	Meter 9 Daily Archive Record Capacity
Holding Register	0x8FF1 (36849)	R	0x03	UInt16	Meter 9 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FF2 (36850)	R	0x03	UInt16	Meter 9 Hourly Archive Record Capacity
Holding Register	0x8FF3 (36851)	R	0x03	UInt16	Meter 9 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9024 (36900)	R	0x03	UInt16	Meter 9 Enron Daily Archive Download Register
Holding Register	0x9025 (36901)	R	0x03	UInt16	Meter 9 Enron Hourly Archive Download Register

4.11 Enron Modbus Meter 10 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FF4 (36852)	R	0x03	UInt16	Meter 10 Daily Archive Record Capacity
Holding Register	0x8FF5 (36853)	R	0x03	UInt16	Meter 10 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FF6 (36854)	R	0x03	UInt16	Meter 10 Hourly Archive Record Capacity
Holding Register	0x8FF7 (36855)	R	0x03	UInt16	Meter 10 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9026 (36902)	R	0x03	UInt16	Meter 10 Enron Daily Archive Download Register
Holding Register	0x9027 (36903)	R	0x03	UInt16	Meter 10 Enron Hourly Archive Download Register

4.12 Enron Modbus Meter 11 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FF8 (36856)	R	0x03	UInt16	Meter 11 Daily Archive Record Capacity
Holding Register	0x8FF9 (36857)	R	0x03	UInt16	Meter 11 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FFA (36858)	R	0x03	UInt16	Meter 11 Hourly Archive Record Capacity
Holding Register	0x8FFB (36859)	R	0x03	UInt16	Meter 11 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9028 (36904)	R	0x03	UInt16	Meter 11 Enron Daily Archive Download Register
Holding Register	0x9029 (36905)	R	0x03	UInt16	Meter 11 Enron Hourly Archive Download Register

4.13 Enron Modbus Meter 12 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x8FFC (36860)	R	0x03	UInt16	Meter 12 Daily Archive Record Capacity
Holding Register	0x8FFD (36861)	R	0x03	UInt16	Meter 12 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x8FFE (36862)	R	0x03	UInt16	Meter 12 Hourly Archive Record Capacity
Holding Register	0x8FFF (36863)	R	0x03	UInt16	Meter 12 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9029 (36906)	R	0x03	UInt16	Meter 12 Enron Daily Archive Download Register
Holding Register	0x902A (36907)	R	0x03	UInt16	Meter 12 Enron Hourly Archive Download Register

4.14 Enron Modbus Meter 13 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x9000 (36864)	R	0x03	UInt16	Meter 13 Daily Archive Record Capacity
Holding Register	0x9001 (36865)	R	0x03	UInt16	Meter 13 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9002 (36866)	R	0x03	UInt16	Meter 13 Hourly Archive Record Capacity
Holding Register	0x9003 (36867)	R	0x03	UInt16	Meter 13 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x902B (36908)	R	0x03	UInt16	Meter 13 Enron Daily Archive Download Register
Holding Register	0x902C (36909)	R	0x03	UInt16	Meter 13 Enron Hourly Archive Download Register

4.15 Enron Modbus Meter 14 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x9004 (36868)	R	0x03	UInt16	Meter 14 Daily Archive Record Capacity
Holding Register	0x9005 (36869)	R	0x03	UInt16	Meter 14 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9006 (36870)	R	0x03	UInt16	Meter 14 Hourly Archive Record Capacity
Holding Register	0x9007 (36871)	R	0x03	UInt16	Meter 14 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x902D (36909)	R	0x03	UInt16	Meter 14 Enron Daily Archive Download Register
Holding Register	0x902E (36910)	R	0x03	UInt16	Meter 14 Enron Hourly Archive Download Register

4.16 Enron Modbus Meter 15 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x9008 (36872)	R	0x03	UInt16	Meter 15 Daily Archive Record Capacity
Holding Register	0x9009 (36873)	R	0x03	UInt16	Meter 15 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x900A (36874)	R	0x03	UInt16	Meter 15 Hourly Archive Record Capacity
Holding Register	0x900B (36875)	R	0x03	UInt16	Meter 15 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x902F (36911)	R	0x03	UInt16	Meter 15 Enron Daily Archive Download Register
Holding Register	0x9030 (36912)	R	0x03	UInt16	Meter 15 Enron Hourly Archive Download Register

4.17 Enron Modbus Meter 16 Archive Dictionary Registers

Register Type	Register Offset	R/W	Function Code	Data Type	Description of Contents
Holding Register	0x900C (36876)	R	0x03	UInt16	Meter 16 Daily Archive Record Capacity
Holding Register	0x900D (36877)	R	0x03	UInt16	Meter 16 Daily Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x900E (36878)	R	0x03	UInt16	Meter 16 Hourly Archive Record Capacity
Holding Register	0x900F (36879)	R	0x03	UInt16	Meter 16 Hourly Archive Pointer Register. Value represents the index, from 1 to capacity of the stored record.
Holding Register	0x9031 (36913)	R	0x03	UInt16	Meter 16 Enron Daily Archive Download Register
Holding Register	0x9032 (36914)	R	0x03	UInt16	Meter 16 Enron Hourly Archive Download Register

5 Meter Events/Alarms

In Enron Modbus the event log is also referred to as the *operator event log*. The event and alarm log record formats are both the same size and have similar contents. Bit 9 within the operator change bitmap distinguishes if the record is an operator event log or alarm log entry. The event/alarm log record is always 20 bytes in length.

5.1 Enron Modbus Event Log Record Format

The following table describes the contents of the Enron Modbus-compatible event log record.

<table>
<tr><th>Bytes</th><th>Data Type</th><th>Description of Contents</th></tr>
<tr><td>1-2</td><td>UInt16</td><td>Operator change bitmap bit
Bit 9 is set to 1: Event

<table>
<tr><th>Bit</th><th>Description of Contents</th></tr>
<tr><td>0</td><td>Fixed value</td></tr>
<tr><td>1</td><td>Zero value</td></tr>
<tr><td>2</td><td>Full scale</td></tr>
<tr><td>3</td><td>Operator entry work value</td></tr>
<tr><td>4</td><td>Boolean fixed bit</td></tr>
<tr><td>5</td><td>Fixed/variable flag</td></tr>
<tr><td>6</td><td>Table entry change</td></tr>
<tr><td>7</td><td>System command change</td></tr>
<tr><td>8</td><td>Unassigned. Always 0</td></tr>
<tr><td>9</td><td>Operator change event identification
1: Event
0: Alarm</td></tr>
<tr><td>10</td><td>1: LoLo limit reached</td></tr>
<tr><td>11</td><td>1: Lo limit reached</td></tr>
<tr><td>12</td><td>1: Hi limit reached</td></tr>
<tr><td>13</td><td>1: HiHi limit reached</td></tr>
<tr><td>14</td><td>1: Rate of change limit reached</td></tr>
<tr><td>15</td><td>Set/reset Alarm 1: set
0: reset (clear)</td></tr>
</table>
</td></tr>
</table>

3-4	UInt16	Modbus dictionary address
5-8	Float32	Time stamp (HHMMSS.0)
9-12	Float32	Date stamp (MMDDYY.0)
13-16	Float32	Previous value of Modbus dictionary address
17-20	Float32	Current value of Modbus dictionary address

5.2 Enron Modbus Alarm Log Record Format

The following table describes the contents of the Enron Modbus-compatible alarm log record.

<table>
<tr><th>Bytes</th><th>Data Type</th><th>Description of Contents</th></tr>
<tr><td>1-2</td><td>UInt16</td><td>Operator change bitmap
Bit 9 is set to 0: Alarm

<table><tr><th>Bit</th><th>Description of Contents</th></tr><tr><td>0-8</td><td>Unassigned. Always 0</td></tr><tr><td>9</td><td>Operator change event identification
1: Event
0: Alarm</td></tr><tr><td>10</td><td>1: LoLo limit reached</td></tr><tr><td>11</td><td>1: Lo limit reached</td></tr><tr><td>12</td><td>1: Hi limit reached</td></tr><tr><td>13</td><td>1: HiHi limit reached</td></tr><tr><td>14</td><td>1: Rate of change limit reached</td></tr><tr><td>15</td><td>Set/reset Alarm 1: set
0: reset (clear)</td></tr></table></td></tr>
<tr><td>3-4</td><td>UInt16</td><td>Modbus dictionary address</td></tr>
<tr><td>5-8</td><td>Float32</td><td>Time stamp (HHMMSS.0)</td></tr>
<tr><td>9-12</td><td>Float32</td><td>Date stamp (MMDDYY.0)</td></tr>
<tr><td>13-16</td><td>Float32</td><td>Alarm value of Modbus dictionary address</td></tr>
<tr><td>17-20</td><td>Float32</td><td>Alarm value of Modbus dictionary address (duplicate)</td></tr>
</table>

5.3 Event/Alarm Log Mapping

This section explains how the AFC event log record is translated to an Enron Modbus-compatible event/alarm record.

5.3.1 AFC Event Log Record Format

The format of the AFC event log record is explained in the following table:

<table>
<tr><th>Registers</th><th>Data Type</th><th>Description of Contents</th></tr>
<tr><td>0-1</td><td>UInt32</td><td>Event ID Tag
<table>
<tr><th>BITS</th><th>n</th><th>Description</th></tr>
<tr><td>31-29</td><td>3</td><td>Event Class</td></tr>
<tr><td>28</td><td>1</td><td>PLC offline</td></tr>
<tr><td>27-23</td><td>5</td><td>Meter number (1-based)</td></tr>
<tr><td>22-16</td><td>7</td><td>Stream number (1-based)</td></tr>
<tr><td>15-12</td><td>4</td><td>Datum type</td></tr>
<tr><td>11-08</td><td>4</td><td>Group code</td></tr>
<tr><td>07-04</td><td>4</td><td>Subgroup code</td></tr>
<tr><td>03-00</td><td>4</td><td>Subgroup item code</td></tr>
</table></td></tr>
<tr><td>2-3</td><td>UInt32</td><td>Timestamp of event.
Seconds since Unix epoch of 1970-01-01 00:00:00 UTC.</td></tr>
<tr><td>4-5</td><td>*</td><td>Old item value</td></tr>
<tr><td>6-7</td><td>*</td><td>New item value</td></tr>
<tr><td>8-9</td><td>UInt32</td><td>Additional Information
HIWORD(8): Modbus register address

LOWORD(9): ID of the operator causing the event to be logged; reserved operator IDs are as follows:
<table>
<tr><th>Operator ID</th><th>Privilege</th><th>Operator Description</th></tr>
<tr><td>1</td><td>Administrator</td><td>(AFC)</td></tr>
<tr><td>2</td><td>Administrator</td><td>(backplane)</td></tr>
<tr><td>3</td><td>Administrator</td><td>Default Administrator</td></tr>
<tr><td>100-32767</td><td>Configurable</td><td>Configurable</td></tr>
</table></td></tr>
</table>

*Format depends upon datum type defined in event ID tag.

5.3.2 Mapping Between Enron Modbus Event Log and AFC Event Log

The following table explains the mapping between the Enron Modbus event log record and the AFC event log record.

<table>
<tr><th>Enron Bytes</th><th>Enron Data Type</th><th>Enron Description of Contents</th><th>How the Enron Modbus Contents are Mapped from the AFC Event Log Record</th></tr>
<tr><td>1-2</td><td>UInt16</td><td>Operator change bitmap
Bit 9: 1: Event</td><td>
<table>
<tr><th>Bit</th><th>Mapping</th></tr>
<tr><td>Bit 0: Fixed Value</td><td>Always 0</td></tr>
<tr><td>Bit 1: Zero Scale</td><td>Always 0</td></tr>
<tr><td>Bit 2: Full Scale</td><td>Always 0</td></tr>
<tr><td>Bit 3: Operator entry work value</td><td>Set to 1 if Operator ID not 1 (User).
Operator ID comes from AFC event log record register 9.</td></tr>
<tr><td>Bit 4: Boolean fixed bit</td><td>Always 0</td></tr>
<tr><td>Bit 5: Fixed/variable flag</td><td>Always 0</td></tr>
<tr><td>Bit 6: Table entry change</td><td>Always 0</td></tr>
<tr><td>Bit 7: System command change</td><td>Set to 1 if Event Class 0: Special events</td></tr>
<tr><td>Bit 8: Unassigned</td><td>Always 0</td></tr>
<tr><td>Bit 9: Event/Alarm</td><td>Always 1, identifying record as an event.</td></tr>
<tr><td>Bit 10: LoLo Limit</td><td>Always 0</td></tr>
<tr><td>Bit 11: Lo Limit</td><td>Always 0</td></tr>
<tr><td>Bit 12: Hi Limit</td><td>Always 0</td></tr>
<tr><td>Bit 13: HiHi Limit</td><td>Always 0</td></tr>
<tr><td>Bit 14: Rate of Change Limit</td><td>Always 0</td></tr>
<tr><td>Bit 15: Set/reset Alarm</td><td>Always 0</td></tr>
</table>
</td></tr>
<tr><td>3-4</td><td>UInt16</td><td>Modbus dictionary address</td><td>Mapped from HIWORD(8), Modbus register address, of AFC event log record registers 8-9, Additional Information.</td></tr>
</table>

Enron Bytes	Enron Data Type	Enron Description of Contents	How the Enron Modbus Contents are Mapped from the AFC Event Log Record
5-8	Float32	Time stamp (HHMMSS.0)	Mapped from AFC event log record registers 2-3, UTC Unix Timestamp of event. Values converted from UTC Timestamp to Float32 HHMMSS.0 format.
9-12	Float32	Date stamp (MMDDYY.0) YY is year % 100. Year 2016 converts to 16.	Mapped from AFC event log record registers 2-3, UTC Unix Timestamp of event. Values converted from UTC Timestamp to Float32 MMDDYY.0 format.
13-16	Float32	Previous value of Modbus dictionary address	Mapped from AFC event log record registers 6-7, Old item value Values converted to Float32 based upon Datum type.
17-20	Float32	Current value of Modbus dictionary address	Mapped from AFC event log record registers 7-8, New item value Values converted to Float32 based upon Datum type.

All event Modbus register addresses are holding register addresses per the AFC tag dictionary.

5.3.3 AFC Alarm Log Record Format

The following table describes the contents of the AFC alarm log record.

<table>
<tr><th>Registers</th><th>Data Type</th><th colspan="3">Description of Contents</th></tr>
<tr><td rowspan="10">0-1</td><td rowspan="10">UInt32</td><td colspan="3">Alarm ID Tag</td></tr>
<tr><td>BITS</td><td>n</td><td>Description</td></tr>
<tr><td>31-29</td><td>3</td><td>Alarm Class</td></tr>
<tr><td>28</td><td>1</td><td>PLC offline</td></tr>
<tr><td>27-23</td><td>5</td><td>Meter number (1-based)</td></tr>
<tr><td>22-16</td><td>7</td><td>Stream number (1-based)</td></tr>
<tr><td>15-12</td><td>4</td><td>Datum type</td></tr>
<tr><td>11-08</td><td>4</td><td>Group code</td></tr>
<tr><td>07-04</td><td>4</td><td>Subgroup code</td></tr>
<tr><td>03-00</td><td>4</td><td>Subgroup item code</td></tr>
<tr><td>2-3</td><td>UInt32</td><td colspan="3">Timestamp of event.
Seconds since Unix epoch of 1970-01-01 00:00:00 UTC.</td></tr>
<tr><td>4-5</td><td>UInt32</td><td colspan="3">Previous Alarms</td></tr>
<tr><td>6-7</td><td>UInt32</td><td colspan="3">New Alarms</td></tr>
</table>

Registers	Data Type	Description of Contents
8-9	*	Raw value (of most recent process scan)
10-11	*	Sanitized value (input to calculation scan)

*Format depends upon datum type defined in alarm ID tag.

5.3.4 Mapping Between Enron Modbus Alarm Log and AFC Alarm Log

The following table explains the mapping between the Enron Modbus alarm log record and the AFC alarm log record.

<table>
<tr><th>Enron Bytes</th><th>Enron Data Type</th><th>Enron Description of Contents</th><th>How the Enron Modbus Contents are Mapped from the AFC Alarm Log Record</th></tr>
<tr><td>1-2</td><td>UInt16</td><td>Operator change bitmap Bits 9: 0: Alarm</td><td>
<table>
<tr><th>Bit</th><th>Description</th></tr>
<tr><td>Bits 0-9:</td><td>Always 0, identifying record as an alarm.</td></tr>
<tr><td>Bit 10: LoLo Limit</td><td>Always 0</td></tr>
<tr><td>Bit 11: Lo Limit</td><td>Set if Low Threshold Alarm</td></tr>
<tr><td>Bit 12: Hi Limit</td><td>Set if High Threshold Alarm</td></tr>
<tr><td>Bit 13: HiHi Limit</td><td>Set if both Raw and High Threshold Alarms</td></tr>
<tr><td>Bit 14: Rate of Change Limit</td><td>Always 0</td></tr>
<tr><td>Bit 15: Set/Reset Alarm</td><td>(1 = set, 0 = reset)</td></tr>
</table>
</td></tr>
<tr><td>3-4</td><td>UInt16</td><td>Modbus dictionary address</td><td>Modbus register address
Modbus register address is calculated from the AFC alarm log record detail information to correspond with the dictionary input register address. The meter offset, as noted in the dictionary, is 1000 registers.</td></tr>
<tr><td>5-8</td><td>Float32</td><td>Time stamp (HHMMSS.0)</td><td>Mapped from AFC alarm log record registers 2-3, UTC Unix Timestamp of event.
Values converted from UTC Timestamp to Float32 HHMMSS.0 format.</td></tr>
<tr><td>9-12</td><td>Float32</td><td>Date stamp (MMDDYY.0)
YY is year % 100. Year 2016 converts to 16.</td><td>Mapped from AFC alarm log record registers 2-3, UTC Unix Timestamp of event.
Values converted from UTC Timestamp to Float32 MMDDYY.0 format.</td></tr>
</table>

Enron Bytes	Enron Data Type	Enron Description of Contents	How the Enron Modbus Contents are Mapped from the AFC Alarm Log Record
13-16	Float32	Previous value of Modbus dictionary address	Mapped from AFC Alarm Log record registers 6-7, Old item value Sanitized Values converted to Float32 based upon datum type.
17-20	Float32	Current value of Modbus dictionary address	Mapped from AFC Alarm Log record registers 7-8, New item value Sanitized Values converted to Float32 based upon datum type.

All alarm Modbus register addresses are input register addresses per the AFC tag dictionary.

5.4 Event/Alarm Log Messaging

Enron Modbus event and alarm records are read using Modbus function code 03: Read Holding Registers. In Enron Modbus implementations, the request message's *Data Quantity of Inputs* field is ignored by the slave device. The slave device will respond with up to the maximum number of new event/alarm records that will fit within the Modbus message packet. Since all event/alarm records are 20 bytes in length, a maximum of 12 event/alarm records may be provided by the AFC for each request.

5.4.1 Enron Modbus Event/Alarm Log Example Download Request and Response

Request (Download)

Function Code	Data Register Address	Data Quantity of Inputs
0x03 (3)	0x0020 (32)	0x0001 (1) Ignored

Response (Download success)

Function Code	Data Byte Count	Data Event Record #1	Data Event Record …	Data Event Record #N
0x03 (3)	0x14 * N (20 * N)	See record format	See record format above	See record format above

Response (Download: No Unacknowledged Event/Alarm records)

Function Code	Data Byte Count
0x03 (3)	0x0000 (0)

The AFC maintains separate event and alarm log subsystems managed independently. Enron Modbus, however, assumes both the events and alarms are colocated in a common file with common pointer to track what records have been downloaded.

Upon acknowledgement (see next section), the AFC will copy the event and alarm pre-download pointers to their respective post-download pointer position.

Acknowledging a download tells the AFC module to *purge* the downloaded events/alarms—that is, move its download pointers past the downloaded events/alarms and allow them to be overwritten in their respective logs. Download acknowledgements utilize Modbus function code 05: Write Single Coil. The successful response to a download acknowledgement echoes the data portion of the request.

5.4.2 Enron Modbus Event/Alarm Log Example Download and Acknowledgement

Request (Download)

Function Code	Data Register Address	Data Quantity of Registers
0x03 (3)	0x0020 (32)	0x0001 (1) ignored

Response (Download success)

Function Code	Data Byte Count	Data Event Record #1	Data Event Record …	Data Event Record #N
0x03 (3)	0x14 * N (20 * N)	See record format	See record format above	See record format above

Request (Acknowledgement using Modbus Function Code 06: Write Single Register)

Function Code	Data Register Address	Data Register Value
0x05 (5)	0x0020 (32)	0xFF00 (Coil to be ON)

Response (Acknowledgement using Modbus Function Code 05: Write Single Coil)

Function Code	Data Register Address	Data Register Value
0x05 (5)	0x0020 (Echo of Request)	0xFF00 (Echo of Request)

Notes:

The Enron Modbus event/alarm download request message's *Data Quantity of Registers* value is included to maintain format compatibility but is ignored by the receiving AFC.

The request of the Enron Modbus event/alarm download register opens a download session. Subsequent download requests will download successive event/alarm records.

An Enron Modbus event/alarm download request will be rejected with error code 0x06 (6) "server device busy" if there is an active AFC event or alarm download session in progress on the same channel.

If the Enron Modbus event/alarm download request is successful, the response byte count will be 20 * N, where N is the number of event/alarm records included in the response.

If there are no unacknowledged event/alarm records, the response byte count value will be 0x00.

The Enron Modbus event/alarm download register is a read-only register. Write requests will be rejected with error code 0x01 (1) “illegal function.”

The Enron Modbus acknowledgement coil register 0x0020 (32) is a write-only register (function code 0x05). Read requests will be rejected with error code 0x01 (1) “illegal function.”

An Enron Modbus event/alarm acknowledgement of any value will be rejected if there is not an open Enron Modbus download session with error code 0x04 (4) “server device failure.”

A value of 0xFF00 (Coil to be ON) written to the Enron Modbus event/alarm acknowledgement register will purge the downloaded events/alarms.

A value of 0x0000 (Coil to be OFF) written to the Enron Modbus event/alarm acknowledgement register may be written to the module to close the download session but will not purge the downloaded events/alarms.

The AFC will download all unacknowledged alarms prior to any unacknowledged events regardless of record timestamp.

6 Meter Archives

6.1 Archive Adjustments for Enron Modbus Compatibility

The meter hourly and daily archive record formats are configured using the Archive Configuration dialog in EAFC Manager, as explained in the MVI56E-AFC / MVI69E-AFC Reference Guide.

The following table illustrates how the configured archive record is adjusted for Enron Modbus compatibility. All Enron Modbus archive items are converted to IEEE 32-bit floating point values regardless of Modbus Dictionary data type.

A total of 60 points (date, time, and 58 archive items) may be included in each Enron Modbus hourly or daily archive record due to Modbus message size limitations.

The following table describes the format of the Enron Modbus history log record.

Bytes	Data Type	Description of Contents
1-4	Float32	Archive Date Stamp (MMDDYY.0) YY = year modulus 100. For example, the year 2016 converts to 16.
5-8	Float32	Archive Time Stamp (HHMMSS.0) HH is 24 hour format, 0 to 23.
9-12	Float32	Archive Item #1
13-16	Float32	Archive Item #2
17-20	Float32	Archive Item #3
21-24	Float32	Archive Item #4
Etc.		

6.2 Meter Archive Log Messaging

Enron Modbus meter hourly and daily archive records are read from their respective addresses using Modbus function code 03: Read Holding Registers. In Enron Modbus implementations, the request message's *Data Quantity* field represents the index of the requested archive record. Only one daily or hourly archive record may be read per request.

6.2.1 Enron Modbus Hourly Archive Log Example Download Request and Response

Request

Hourly archive download using Modbus function code 03: Read Holding Registers

Function Code	Data Register Address	Data Quantity of Registers
0x03 (3)	0x9015 (36885)	0x0001 (1: Index)

Response

Hourly archive download using Modbus function code 03: Read Holding Registers

Function Code	Data Register Address	Data Register Value
0x03 (3)	0x9015 (Echo of Request)	See record format

Notes:

The Enron Modbus archive download does not adhere to the request's *Data Quantity of Registers* per the Modbus protocol standard. The *Data Quantity of Registers* is used to specify an index pointer representing the requested archive record index.

The archive record type (daily or hourly) is distinguished based upon the data register address.

If there is no archive record for the desired archive record index, the response byte count value will be the size of the archive record and the data register values will all be 0x00 (0).

The valid hourly archive pointer index values are from 1 to maximum hourly archive capacity.

The valid daily archive pointer index values are from 1 to maximum daily archive capacity.

An Enron Modbus archive download request with an invalid archive pointer value will be rejected with error code 0x03 (3) "illegal data value."

The current archive pointer value represents the archive record index of the next archive to be written.

An Enron Modbus archive download register is read only using Modbus function code 03: Read Holding Registers.

A write request to an Enron Modbus archive download register will be rejected with error code 0x02 (2) "illegal data address."

6.3 Supported Product Types

The Enron Modbus history record data is derived from the AFC default archive configuration based upon the product type. The supported product types are as follows.

Type	Type Description	Product Group	Device Type	Primary Input
GSD	Gas Standard Differential	0: Gas	0: Differential	0: Differential Pressure
GSN	Gas Standard Linear	0: Gas	1: Linear	0: Pulse Count
GID	Gas Integrated Differential	0: Gas	0: Differential	1: Flow Rate
GIN	Gas Integrated Linear	0: Gas	1: Linear	1: Pulse Frequency

Type	Type Description	Product Group	Device Type	Primary Input
LSD/ MLSD	Liquid Standard Differential	> 0: Liquid	0: Differential	0: Differential Pressure
LSN/ MLSN	Liquid Standard Linear	> 0: Liquid	1: Linear	0: Pulse Count
LID/ MLID	Liquid Integrated Differential	> 0: Liquid	0: Differential	1: Flow Rate
LIN/ MLIN	Liquid Integrated Linear	> 0: Liquid	1: Linear	1: Pulse Frequency

** MLSD, MLSN, MLID, and MLIN meters are liquid meters that have mass allocation shrinkage calculations (MASC) enabled.*

6.4 Meter Archive Layout

This section details the meter archive layout layout for each product type.

6.4.1 Gas Standard Differential (GSD)

General Information

Type	GSD
Type Description	Gas Standard Differential
Product Group	0: Gas
Device Type	0: Differential
Primary Input	0: Differential Pressure
Metering Principle	Differential pressure
Record Size	100
Accumulator Select	Net volume

Archive #1 (Daily)

AFC			Enron Modbus			
Offset	Register	Data Type	Data Offset	Dictionary Tag Name	Modbus Address	Dictionary Tag Description
0+			Date	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, time (HHMMSS.0)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
2	I- 811	UINT16	0	MkrS.RkvS.Dy.RkvI.AcSm	Mi00811	Cumulative meter active streams, archive period, daily
3	I- 812	UINT16	1	MkrS.RkvS.Dy.RkvI.AcS0	Mi00812.L	Active stream at closing (0-based), archive period, daily
				MkrS.RkvS.Dy.RkvI.Mstt	Mi00812.H	Cumulative meter status, archive period, daily
4+	I- 856+	UINT32	2	MkrS.RkvS.Dy.RkvI.Flsc (Lo)	Mi00856-Mi00857	Flowing period (seconds), archive period, daily
			3	MkrS.RkvS.Dy.RkvI.Flsc (Hi)		
6+	I- 854+	UINT32	4	MkrS.RkvS.Dy.RkvI.Durn (Lo)	Mi00854-Mi00855	Period duration (seconds), archive period, daily
			5	MkrS.RkvS.Dy.RkvI.Durn (Hi)		
8+	I- 350+	UINT32	6	Macm.AcmK.Dy.Totl + Macm.AcmK.Dy.Rsdu	Mi00350-Mi00351	Accumulator, total, archive period, daily
10+	I- 352+	Float32			Mi00352-Mi00353	Accumulator, residue, archive period, daily
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I-80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 130+	Float32	12	Mrsl.Gref	Mi00130-Mi00131	AGA 8, Relative density at reference
22+	I- 124+	Float32	13	Mrsl.Zref	Mi00124-Mi00125	AGA 8, Compressibility at reference

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
24+	I- 132+	Float32	14	Mrsl.Zflw	Mi00132-Mi00133	AGA 8, Compressibility, flowing
26+	I- 140+	Float32	15	Mrsl.Ifpv	Mi00140-Mi00141	AGA 8, Supercompressibility, Fpv
28+	I- 160+	Float32	16	Mrsl.Ixtf	Mi00160-Mi00161	AGA 3, Pressure extension
30+	I- 180+	Float32	17	Mrsl.I3cd	Mi00180-Mi00181	AGA 3, Coefficient of discharge, Cd
32+	I- 178+	Float32	18	Mrsl.I3yy	Mi00178-Mi00179	AGA 3, Expansion factor, Y
34+	I- 208+	Float32	19	Mrsl.Cprm	Mi00208-Mi00209	C-prime
36+	I- 4+	Float32	20	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 842+	Float32	21	MkrS.RkvS.Dy.RkvI.FpAO.Ms	Mi00842-Mi00843	Non-resettable accumulator, mass, archive period, daily, opening timestamp
40+	I- 6+	Float32	22	Mrsl.FpAc.Eg	Mi00006-Mi00007	Non-resettable accumulator, energy, closing timestamp
42+	I- 844+	Float32	23	MkrS.RkvS.Dy.RkvI.FpAO.Eg	Mi00844-Mi00845	Non-resettable accumulator, energy, archive period, daily, opening timestamp
44+	I- 8+	Float32	24	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 846+	Float32	25	MkrS.RkvS.Dy.RkvI.FpAO.Nt	Mi00846-Mi00847	Non-resettable accumulator, net, archive period, daily, opening timestamp
48+	I- 10+	Float32	26	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
50+	I- 848+	Float32	27	MkrS.RkvS.Dy.RkvI.FpAO.Gr	Mi00848-Mi00849	Non-resettable accumulator, gross, archive period, daily, opening timestamp
52+	H- 700+	Float32	28	Scaz.Molf(00)	Mh00700-Mh00701	Molar fraction, component 01 | Methane (C1)
54+	H- 702+	Float32	29	Scaz.Molf(01)	Mh00702-Mh00703	Molar fraction, component 02 | Nitrogen (N2)
56+	H- 704+	Float32	30	Scaz.Molf(02)	Mh00704-Mh00705	Molar fraction, component 03 | Carbon Dioxide (CO2)
58+	H- 706+	Float32	31	Scaz.Molf(03)	Mh00706-Mh00707	Molar fraction, component 04 | Ethane (C2)
60+	H- 708+	Float32	32	Scaz.Molf(04)	Mh00708-Mh00709	Molar fraction, component 05 | Propane (C3)
62+	H- 710+	Float32	33	Scaz.Molf(05)	Mh00710-Mh00711	Molar fraction, component 06 | Water (H2O)
64+	H- 712+	Float32	34	Scaz.Molf(06)	Mh00712-Mh00713	Molar fraction, component 07 | Hydrogen Sulfide (H2S)
66+	H- 714+	Float32	35	Scaz.Molf(07)	Mh00714-Mh00715	Molar fraction, component 08 | Hydrogen (H2)
68+	H- 716+	Float32	36	Scaz.Molf(08)	Mh00716-Mh00717	Molar fraction, component 09 | Carbon Monoxide (CO)
70+	H- 718+	Float32	37	Scaz.Molf(09)	Mh00718-Mh00719	Molar fraction, component 10 | Oxygen (O2)
72+	H- 720+	Float32	38	Scaz.Molf(10)	Mh00720-Mh00721	Molar fraction, component 11 | iso-Butane (iC4)
74+	H- 722+	Float32	39	Scaz.Molf(11)	Mh00722-Mh00723	Molar fraction, component 12 | n-Butane (nC4)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
76+	H- 724+	Float32	40	Scaz.Molf(12)	Mh00724-Mh00725	Molar fraction, component 13 | iso-Pentane (iC5)
78+	H- 726+	Float32	41	Scaz.Molf(13)	Mh00726-Mh00727	Molar fraction, component 14 | n-Pentane (nC5)
80+	H- 728+	Float32	42	Scaz.Molf(14)	Mh00728-Mh00729	Molar fraction, component 15 | Hexane (C6)
82+	H- 730+	Float32	43	Scaz.Molf(15)	Mh00730-Mh00731	Molar fraction, component 16 | Heptane (C7)
84+	H- 732+	Float32	44	Scaz.Molf(16)	Mh00732-Mh00733	Molar fraction, component 17 | Octane (C8)
86+	H- 734+	Float32	45	Scaz.Molf(17)	Mh00734-Mh00735	Molar fraction, component 18 | Nonane (C9)
88+	H- 736+	Float32	46	Scaz.Molf(18)	Mh00736-Mh00737	Molar fraction, component 19 | Decane (C10)
90+	H- 738+	Float32	47	Scaz.Molf(19)	Mh00738-Mh00739	Molar fraction, component 20 | Helium (He)
92+	H- 740+	Float32	48	Scaz.Molf(20)	Mh00740-Mh00741	Molar fraction, component 21 | Argon (Ar)
94+	H- 780+	Float32	49	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
96+	H- 782+	Float32	50	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
98+	H- 784+	Float32	51	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	52	-	-	-
-	-	-	53	-	-	-
-	-	-	54	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

Archive #2 (Hourly)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, time (HHMMSS.0)
2	I- 871	UINT16	0	MkrS.RkvS.Hr.RkvI.AcSm	Mi00871	Cumulative meter active streams, archive period, hourly
3+	I- 872	UINT16	1	MkrS.RkvS.Hr.RkvI.AcS0	Mi00872.L	Active stream at closing (0-based), archive period, hourly
				MkrS.RkvS.Hr.RkvI.Mstt	Mi00872.H	Cumulative meter status, archive period, hourly
4+	I- 916+	UINT32	2	MkrS.RkvS.Hr.RkvI.Flsc (Lo)	Mi00916-Mi00917	Flowing period (seconds), archive period, hourly
			3	MkrS.RkvS.Hr.RkvI.Flsc (Hi)		
6+	I- 914+	UINT32	4	MkrS.RkvS.Hr.RkvI.Durn (Lo)	Mi00914-Mi00915	Period duration (seconds), archive period, hourly
			5	MkrS.RkvS.Hr.RkvI.Durn (Hi)		
8+	I- 354+	UINT32	6	Macm.AcmK.Hr.Totl + Macm.AcmK.Hr.Rsdu	Mi00354-Mi00355	Accumulator, total, archive period, hourly
10+	I- 356+	Float32			Mi00356-Mi00357	Accumulator, residue, archive period, hourly
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I- 80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 130+	Float32	12	Mrsl.Gref	Mi00130-Mi00131	AGA 8, Relative density at reference
22+	I- 124+	Float32	13	Mrsl.Zref	Mi00124-Mi00125	AGA 8, Compressibility at reference
24+	I- 132+	Float32	14	Mrsl.Zflw	Mi00132-Mi00133	AGA 8, Compressibility, flowing
26+	I- 140+	Float32	15	Mrsl.Ifpv	Mi00140-Mi00141	AGA 8, Supercompressibility, Fpv
28+	I- 160+	Float32	16	Mrsl.Ixtf	Mi00160-Mi00161	AGA 3, Pressure extension
30+	I- 180+	Float32	17	Mrsl.I3cd	Mi00180-Mi00181	AGA 3, Coefficient of discharge, Cd
32+	I- 178+	Float32	18	Mrsl.I3yy	Mi00178-Mi00179	AGA 3, Expansion factor, Y
36+	I- 4+	Float32	19	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 902+	Float32	20	MkrS.RkvS.Hr.RkvI.FpAO.Ms	Mi00902-Mi00903	Non-resettable accumulator, mass, archive period, hourly, opening timestamp
40+	I- 6+	Float32	21	Mrsl.FpAc.Eg	Mi00006-Mi00007	Non-resettable accumulator, energy, closing timestamp

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
42+	I- 904+	Float32	22	MkrS.RkvS.Hr.RkvI.FpAO.Eg	Mi00904-Mi00905	Non-resettable accumulator, energy, archive period, hourly, opening timestamp
44+	I- 8+	Float32	23	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 906+	Float32	24	MkrS.RkvS.Hr.RkvI.FpAO.Nt	Mi00906-Mi00907	Non-resettable accumulator, net, archive period, hourly, opening timestamp
48+	I- 10+	Float32	25	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 908+	Float32	26	MkrS.RkvS.Hr.RkvI.FpAO.Gr	Mi00908-Mi00909	Non-resettable accumulator, gross, archive period, hourly, opening timestamp
52+	H- 700+	Float32	27	Scaz.Molf(00)	Mh00700-Mh00701	Molar fraction, component 01 | Methane (C1)
54+	H- 702+	Float32	28	Scaz.Molf(01)	Mh00702-Mh00703	Molar fraction, component 02 | Nitrogen (N2)
56+	H- 704+	Float32	29	Scaz.Molf(02)	Mh00704-Mh00705	Molar fraction, component 03 | Carbon Dioxide (CO2)
58+	H- 706+	Float32	30	Scaz.Molf(03)	Mh00706-Mh00707	Molar fraction, component 04 | Ethane (C2)
60+	H- 708+	Float32	31	Scaz.Molf(04)	Mh00708-Mh00709	Molar fraction, component 05 | Propane (C3)
62+	H- 710+	Float32	32	Scaz.Molf(05)	Mh00710-Mh00711	Molar fraction, component 06 | Water (H2O)
64+	H- 712+	Float32	33	Scaz.Molf(06)	Mh00712-Mh00713	Molar fraction, component 07 | Hydrogen Sulfide (H2S)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
66+	H- 714+	Float32	34	Scaz.Molf(07)	Mh00714-Mh00715	Molar fraction, component 08 | Hydrogen (H2)
68+	H- 716+	Float32	35	Scaz.Molf(08)	Mh00716-Mh00717	Molar fraction, component 09 | Carbon Monoxide (CO)
70+	H- 718+	Float32	36	Scaz.Molf(09)	Mh00718-Mh00719	Molar fraction, component 10 | Oxygen (O2)
72+	H- 720+	Float32	37	Scaz.Molf(10)	Mh00720-Mh00721	Molar fraction, component 11 | iso-Butane (iC4)
74+	H- 722+	Float32	38	Scaz.Molf(11)	Mh00722-Mh00723	Molar fraction, component 12 | n-Butane (nC4)
76+	H- 724+	Float32	39	Scaz.Molf(12)	Mh00724-Mh00725	Molar fraction, component 13 | iso-Pentane (iC5)
78+	H- 726+	Float32	40	Scaz.Molf(13)	Mh00726-Mh00727	Molar fraction, component 14 | n-Pentane (nC5)
80+	H- 728+	Float32	41	Scaz.Molf(14)	Mh00728-Mh00729	Molar fraction, component 15 | Hexane (C6)
82+	H- 730+	Float32	42	Scaz.Molf(15)	Mh00730-Mh00731	Molar fraction, component 16 | Heptane (C7)
84+	H- 732+	Float32	43	Scaz.Molf(16)	Mh00732-Mh00733	Molar fraction, component 17 | Octane (C8)
86+	H- 734+	Float32	44	Scaz.Molf(17)	Mh00734-Mh00735	Molar fraction, component 18 | Nonane (C9)
88+	H- 736+	Float32	45	Scaz.Molf(18)	Mh00736-Mh00737	Molar fraction, component 19 | Decane (C10)
90+	H- 738+	Float32	46	Scaz.Molf(19)	Mh00738-Mh00739	Molar fraction, component 20 | Helium (He)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
92+	H- 740+	Float32	47	Scaz.Molf(20)	Mh00740-Mh00741	Molar fraction, component 21 | Argon (Ar)
94+	H- 780+	Float32	48	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
96+	H- 782+	Float32	49	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
98+	H- 784+	Float32	50	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

6.4.2 Gas Standard Linear (GSN)

General Information

Type	GSN
Type Description	Gas Standard Linear
Product Group	0: Gas
Device Type	1: Linear
Primary Input	0: Pulse Count
Metering Principle	Pulse count
Record Size	100
Accumulator Select	Net volume

Archive #1 (Daily)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, time (HHMMSS.0)
2	I- 811	UINT16	0	MkrS.RkvS.Dy.RkvI.AcSm	Mi00811	Cumulative meter active streams, archive period, daily
3	I- 812	UINT16	1	MkrS.RkvS.Dy.RkvI.AcS0	Mi00812.L	Active stream at closing (0-based), archive period, daily
				MkrS.RkvS.Dy.RkvI.Mstt	Mi00812.H	Cumulative meter status, archive period, daily
4+	I- 856+	UINT32	2	MkrS.RkvS.Dy.RkvI.Flsc (Lo)	Mi00856-Mi00857	Flowing period (seconds), archive period, daily
			3	MkrS.RkvS.Dy.RkvI.Flsc (Hi)		
6+	I- 854+	UINT32	4	MkrS.RkvS.Dy.RkvI.Durn (Lo)	Mi00854-Mi00855	Period duration (seconds), archive period, daily
			5	MkrS.RkvS.Dy.RkvI.Durn (Hi)		
8+	I- 350+	UINT32	6	Macm.AcmK.Dy.Totl + Macm.AcmK.Dy.Rsdu	Mi00350-Mi00351	Accumulator, total, archive period, daily

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
10+	I- 352+	Float32			Mi00352-Mi00353	Accumulator, residue, archive period, daily
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I-80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 130+	Float32	12	Mrsl.Gref	Mi00130-Mi00131	AGA 8, Relative density at reference
22+	I- 124+	Float32	13	Mrsl.Zref	Mi00124-Mi00125	AGA 8, Compressibility at reference
24+	I- 132+	Float32	14	Mrsl.Zflw	Mi00132-Mi00133	AGA 8, Compressibility, flowing
26+	I- 140+	Float32	15	Mrsl.Ifpv	Mi00140-Mi00141	AGA 8, Supercompressibility, Fpv
28+	I- 102+	Float32	16	Mrsl.Kfac	Mi00102-Mi00103	K Factor
30+	I- 104+	Float32	17	Mrsl.Mfac	Mi00104-Mi00105	Meter Factor
32+	I- 300+	UINT32	18	Macm.PlsK.Dy (Lo)	Mi00300-Mi00301	Input pulse count, archive reset, daily
			19	Macm.PlsK.Dy (Hi)		
34+	I- 96+	UINT32	20	Mrsl.PlsC (Lo)	Mi00096-Mi00097	Current input pulse count
			21	Mrsl.PlsC (Hi)		

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
36+	I- 4+	Float32	22	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 842+	Float32	23	MkrS.RkvS.Dy.RkvI.FpAO.Ms	Mi00842-Mi00843	Non-resettable accumulator, mass, archive period, daily, opening timestamp
40+	I- 6+	Float32	24	Mrsl.FpAc.Eg	Mi00006-Mi00007	Non-resettable accumulator, energy, closing timestamp
42+	I- 844+	Float32	25	MkrS.RkvS.Dy.RkvI.FpAO.Eg	Mi00844-Mi00845	Non-resettable accumulator, energy, archive period, daily, opening timestamp
44+	I- 8+	Float32	26	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 846+	Float32	27	MkrS.RkvS.Dy.RkvI.FpAO.Nt	Mi00846-Mi00847	Non-resettable accumulator, net, archive period, daily, opening timestamp
48+	I- 10+	Float32	28	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 848+	Float32	29	MkrS.RkvS.Dy.RkvI.FpAO.Gr	Mi00848-Mi00849	Non-resettable accumulator, gross, archive period, daily, opening timestamp
52+	H- 700+	Float32	30	Scaz.Molf(00)	Mh00700-Mh00701	Molar fraction, component 01 | Methane (C1)
54+	H- 702+	Float32	31	Scaz.Molf(01)	Mh00702-Mh00703	Molar fraction, component 02 | Nitrogen (N2)
56+	H- 704+	Float32	32	Scaz.Molf(02)	Mh00704-Mh00705	Molar fraction, component 03 | Carbon Dioxide (CO2)
58+	H- 706+	Float32	33	Scaz.Molf(03)	Mh00706-Mh00707	Molar fraction, component 04 | Ethane (C2)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
60+	H- 708+	Float32	34	Scaz.Molf(04)	Mh00708-Mh00709	Molar fraction, component 05 | Propane (C3)
62+	H- 710+	Float32	35	Scaz.Molf(05)	Mh00710-Mh00711	Molar fraction, component 06 | Water (H2O)
64+	H- 712+	Float32	36	Scaz.Molf(06)	Mh00712-Mh00713	Molar fraction, component 07 | Hydrogen Sulfide (H2S)
66+	H- 714+	Float32	37	Scaz.Molf(07)	Mh00714-Mh00715	Molar fraction, component 08 | Hydrogen (H2)
68+	H- 716+	Float32	38	Scaz.Molf(08)	Mh00716-Mh00717	Molar fraction, component 09 | Carbon Monoxide (CO)
70+	H- 718+	Float32	39	Scaz.Molf(09)	Mh00718-Mh00719	Molar fraction, component 10 | Oxygen (O2)
72+	H- 720+	Float32	40	Scaz.Molf(10)	Mh00720-Mh00721	Molar fraction, component 11 | iso-Butane (iC4)
74+	H- 722+	Float32	41	Scaz.Molf(11)	Mh00722-Mh00723	Molar fraction, component 12 | n-Butane (nC4)
76+	H- 724+	Float32	42	Scaz.Molf(12)	Mh00724-Mh00725	Molar fraction, component 13 | iso-Pentane (iC5)
78+	H- 726+	Float32	43	Scaz.Molf(13)	Mh00726-Mh00727	Molar fraction, component 14 | n-Pentane (nC5)
80+	H- 728+	Float32	44	Scaz.Molf(14)	Mh00728-Mh00729	Molar fraction, component 15 | Hexane (C6)
82+	H- 730+	Float32	45	Scaz.Molf(15)	Mh00730-Mh00731	Molar fraction, component 16 | Heptane (C7)
84+	H- 732+	Float32	46	Scaz.Molf(16)	Mh00732-Mh00733	Molar fraction, component 17 | Octane (C8)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
86+	H- 734+	Float32	47	Scaz.Molf(17)	Mh00734-Mh00735	Molar fraction, component 18 | Nonane (C9)
88+	H- 736+	Float32	48	Scaz.Molf(18)	Mh00736-Mh00737	Molar fraction, component 19 | Decane (C10)
90+	H- 738+	Float32	49	Scaz.Molf(19)	Mh00738-Mh00739	Molar fraction, component 20 | Helium (He)
92+	H- 740+	Float32	50	Scaz.Molf(20)	Mh00740-Mh00741	Molar fraction, component 21 | Argon (Ar)
94+	H- 780+	Float32	51	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
96+	H- 782+	Float32	52	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
98+	H- 784+	Float32	53	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

Archive #2 (Hourly)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, time (HHMMSS.0)
2	I- 871	UINT16	0	MkrS.RkvS.Hr.RkvI.AcSm	Mi00871	Cumulative meter active streams, archive period, hourly
3+	I- 872	UINT16	1	MkrS.RkvS.Hr.RkvI.AcS0	Mi00872.L	Active stream at closing (0-based), archive period, hourly
				MkrS.RkvS.Hr.RkvI.Mstt	Mi00872.H	Cumulative meter status, archive period, hourly
4+	I- 916	UINT32	2	MkrS.RkvS.Hr.RkvI.Flsc (Lo)	Mi00916-Mi00917	Flowing period (seconds), archive period, hourly
			3	MkrS.RkvS.Hr.RkvI.Flsc (Hi)		
6+	I- 914	UINT32	4	MkrS.RkvS.Hr.RkvI.Durn (Lo)	Mi00914-Mi00915	Period duration (seconds), archive period, hourly
			5	MkrS.RkvS.Hr.RkvI.Durn (Hi)		
8+	I- 354+	UINT32	6	Macm.AcmK.Hr.Totl + Macm.AcmK.Hr.Rsdu	Mi00354-Mi00355	Accumulator, total, archive period, hourly
10+	I- 356+	Float32			Mi00356-Mi00357	Accumulator, residue, archive period, hourly
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
18+	I- 80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 130+	Float32	12	Mrsl.Gref	Mi00130-Mi00131	AGA 8, Relative density at reference
22+	I- 124+	Float32	13	Mrsl.Zref	Mi00124-Mi00125	AGA 8, Compressibility at reference
24+	I- 132+	Float32	14	Mrsl.Zflw	Mi00132-Mi00133	AGA 8, Compressibility, flowing
26+	I- 140+	Float32	15	Mrsl.Ifpv	Mi00140-Mi00141	AGA 8, Supercompressibility, Fpv
28+	I- 102+	Float32	16	Mrsl.Kfac	Mi00102-Mi00103	K Factor
30+	I- 104+	Float32	17	Mrsl.Mfac	Mi00104-Mi00105	Meter Factor
32+	I- 302+	UINT32	18	Macm.PlsK.Hr (Lo)	Mi00302-Mi00303	Input pulse count, archive reset, hourly
			19	Macm.PlsK.Hr (Hi)		
34+	I- 96+	UINT32	20	Mrsl.PlsC (Lo)	Mi00096-Mi00097	Current input pulse count
			21	Mrsl.PlsC (Hi)		
36+	I- 4+	Float32	22	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 902+	Float32	23	MkrS.RkvS.Hr.RkvI.FpAO.Ms	Mi00902-Mi00903	Non-resettable accumulator, mass, archive period, hourly, opening timestamp
40+	I- 6+	Float32	24	Mrsl.FpAc.Eg	Mi00006-Mi00007	Non-resettable accumulator, energy, closing timestamp
42+	I- 904+	Float32	25	MkrS.RkvS.Hr.RkvI.FpAO.Eg	Mi00904-Mi00905	Non-resettable accumulator, energy, archive period, hourly, opening timestamp
44+	I- 8+	Float32	26	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
46+	I- 906+	Float32	27	MkrS.RkvS.Hr.RkvI.FpAO.Nt	Mi00906-Mi00907	Non-resettable accumulator, net, archive period, hourly, opening timestamp
48+	I- 10+	Float32	28	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 908+	Float32	29	MkrS.RkvS.Hr.RkvI.FpAO.Gr	Mi00908-Mi00909	Non-resettable accumulator, gross, archive period, hourly, opening timestamp
52+	H- 700+	Float32	30	Scaz.Molf(00)	Mh00700-Mh00701	Molar fraction, component 01 | Methane (C1)
54+	H- 702+	Float32	31	Scaz.Molf(01)	Mh00702-Mh00703	Molar fraction, component 02 | Nitrogen (N2)
56+	H- 704+	Float32	32	Scaz.Molf(02)	Mh00704-Mh00705	Molar fraction, component 03 | Carbon Dioxide (CO2)
58+	H- 706+	Float32	33	Scaz.Molf(03)	Mh00706-Mh00707	Molar fraction, component 04 | Ethane (C2)
60+	H- 708+	Float32	34	Scaz.Molf(04)	Mh00708-Mh00709	Molar fraction, component 05 | Propane (C3)
62+	H- 710+	Float32	35	Scaz.Molf(05)	Mh00710-Mh00711	Molar fraction, component 06 | Water (H2O)
64+	H- 712+	Float32	36	Scaz.Molf(06)	Mh00712-Mh00713	Molar fraction, component 07 | Hydrogen Sulfide (H2S)
66+	H- 714+	Float32	37	Scaz.Molf(07)	Mh00714-Mh00715	Molar fraction, component 08 | Hydrogen (H2)
68+	H- 716+	Float32	38	Scaz.Molf(08)	Mh00716-Mh00717	Molar fraction, component 09 | Carbon Monoxide (CO)
70+	H- 718+	Float32	39	Scaz.Molf(09)	Mh00718-Mh00719	Molar fraction, component 10 | Oxygen (O2)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
72+	H- 720+	Float32	40	Scaz.Molf(10)	Mh00720-Mh00721	Molar fraction, component 11 | iso-Butane (iC4)
74+	H- 722+	Float32	41	Scaz.Molf(11)	Mh00722-Mh00723	Molar fraction, component 12 | n-Butane (nC4)
76+	H- 724+	Float32	42	Scaz.Molf(12)	Mh00724-Mh00725	Molar fraction, component 13 | iso-Pentane (iC5)
78+	H- 726+	Float32	43	Scaz.Molf(13)	Mh00726-Mh00727	Molar fraction, component 14 | n-Pentane (nC5)
80+	H- 728+	Float32	44	Scaz.Molf(14)	Mh00728-Mh00729	Molar fraction, component 15 | Hexane (C6)
82+	H- 730+	Float32	45	Scaz.Molf(15)	Mh00730-Mh00731	Molar fraction, component 16 | Heptane (C7)
84+	H- 732+	Float32	46	Scaz.Molf(16)	Mh00732-Mh00733	Molar fraction, component 17 | Octane (C8)
86+	H- 734+	Float32	47	Scaz.Molf(17)	Mh00734-Mh00735	Molar fraction, component 18 | Nonane (C9)
88+	H- 736+	Float32	48	Scaz.Molf(18)	Mh00736-Mh00737	Molar fraction, component 19 | Decane (C10)
90+	H- 738+	Float32	49	Scaz.Molf(19)	Mh00738-Mh00739	Molar fraction, component 20 | Helium (He)
92+	H- 740+	Float32	50	Scaz.Molf(20)	Mh00740-Mh00741	Molar fraction, component 21 | Argon (Ar)
94+	H- 780+	Float32	51	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
96+	H- 782+	Float32	52	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
98+	H- 784+	Float32	53	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

6.4.3 Gas Integrated Differential (GID)

General Information

Type	GID
Type Description	Gas Integrated Differential
Product Group	0: Gas
Device Type	0: Differential
Primary Input	1: Flow rate
Metering Principle	Flow rate
Record Size	100
Accumulator Select	Net volume

Archive #1 (Daily)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, time (HHMMSS.0)
2	I- 811	UINT16	0	MkrS.RkvS.Dy.RkvI.AcSm	Mi00811	Cumulative meter active streams, archive period, daily
3	I- 812	UINT16	1	MkrS.RkvS.Dy.RkvI.AcS0	Mi00812.L	Active stream at closing (0-based), archive period, daily
				MkrS.RkvS.Dy.RkvI.Mstt	Mi00812.H	Cumulative meter status, archive period, daily
4+	I- 856+	UINT32	2	MkrS.RkvS.Dy.RkvI.Flsc (Lo)	Mi00856-Mi00857	Flowing period (seconds), archive period, daily
			3	MkrS.RkvS.Dy.RkvI.Flsc (Hi)		
6+	I- 854+	UINT32	4	MkrS.RkvS.Dy.RkvI.Durn (Lo)	Mi00854-Mi00855	Period duration (seconds), archive period, daily
			5	MkrS.RkvS.Dy.RkvI.Durn (Hi)		
8+	I- 350+	UINT32	6	Macm.AcmK.Dy.Totl + Macm.AcmK.Dy.Rsdu	Mi00350-Mi00351	Accumulator, total, archive period, daily

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
10+	I- 352+	Float32			Mi00352-Mi00353	Accumulator, residue, archive period, daily
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I-80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 130+	Float32	12	Mrsl.Gref	Mi00130-Mi00131	AGA 8, Relative density at reference
22+	I- 124+	Float32	13	Mrsl.Zref	Mi00124-Mi00125	AGA 8, Compressibility at reference
24+	I- 132+	Float32	14	Mrsl.Zflw	Mi00132-Mi00133	AGA 8, Compressibility, flowing
26+	I- 140+	Float32	15	Mrsl.Ifpv	Mi00140-Mi00141	AGA 8, Supercompressibility, Fpv
28	-	-	-	-	-	-
29	-	-	-	-	-	-
30	-	-	-	-	-	-
31	-	-	-	-	-	-
32	-	-	-	-	-	-
33	-	-	-	-	-	-
34	-	-	-	-	-	-
35	-	-	-	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
36+	I- 4+	Float32	16	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 842+	Float32	17	MkrS.RkvS.Dy.RkvI.FpAO.Ms	Mi00842-Mi00843	Non-resettable accumulator, mass, archive period, daily, opening timestamp
40+	I- 6+	Float32	18	Mrsl.FpAc.Eg	Mi00006-Mi00007	Non-resettable accumulator, energy, closing timestamp
42+	I- 844+	Float32	19	MkrS.RkvS.Dy.RkvI.FpAO.Eg	Mi00844-Mi00845	Non-resettable accumulator, energy, archive period, daily, opening timestamp
44+	I- 8+	Float32	20	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 846+	Float32	21	MkrS.RkvS.Dy.RkvI.FpAO.Nt	Mi00846-Mi00847	Non-resettable accumulator, net, archive period, daily, opening timestamp
48+	I- 10+	Float32	22	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 848+	Float32	23	MkrS.RkvS.Dy.RkvI.FpAO.Gr	Mi00848-Mi00849	Non-resettable accumulator, gross, archive period, daily, opening timestamp
52+	H- 700+	Float32	24	Scaz.Molf(00)	Mh00700-Mh00701	Molar fraction, component 01 | Methane (C1)
54+	H- 702+	Float32	25	Scaz.Molf(01)	Mh00702-Mh00703	Molar fraction, component 02 | Nitrogen (N2)
56+	H- 704+	Float32	26	Scaz.Molf(02)	Mh00704-Mh00705	Molar fraction, component 03 | Carbon Dioxide (CO2)
58+	H- 706+	Float32	27	Scaz.Molf(03)	Mh00706-Mh00707	Molar fraction, component 04 | Ethane (C2)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
60+	H- 708+	Float32	28	Scaz.Molf(04)	Mh00708-Mh00709	Molar fraction, component 05 | Propane (C3)
62+	H- 710+	Float32	29	Scaz.Molf(05)	Mh00710-Mh00711	Molar fraction, component 06 | Water (H2O)
64+	H- 712+	Float32	30	Scaz.Molf(06)	Mh00712-Mh00713	Molar fraction, component 07 | Hydrogen Sulfide (H2S)
66+	H- 714+	Float32	31	Scaz.Molf(07)	Mh00714-Mh00715	Molar fraction, component 08 | Hydrogen (H2)
68+	H- 716+	Float32	32	Scaz.Molf(08)	Mh00716-Mh00717	Molar fraction, component 09 | Carbon Monoxide (CO)
70+	H- 718+	Float32	33	Scaz.Molf(09)	Mh00718-Mh00719	Molar fraction, component 10 | Oxygen (O2)
72+	H- 720+	Float32	34	Scaz.Molf(10)	Mh00720-Mh00721	Molar fraction, component 11 | iso-Butane (iC4)
74+	H- 722+	Float32	35	Scaz.Molf(11)	Mh00722-Mh00723	Molar fraction, component 12 | n-Butane (nC4)
76+	H- 724+	Float32	36	Scaz.Molf(12)	Mh00724-Mh00725	Molar fraction, component 13 | iso-Pentane (iC5)
78+	H- 726+	Float32	37	Scaz.Molf(13)	Mh00726-Mh00727	Molar fraction, component 14 | n-Pentane (nC5)
80+	H- 728+	Float32	38	Scaz.Molf(14)	Mh00728-Mh00729	Molar fraction, component 15 | Hexane (C6)
82+	H- 730+	Float32	39	Scaz.Molf(15)	Mh00730-Mh00731	Molar fraction, component 16 | Heptane (C7)
84+	H- 732+	Float32	40	Scaz.Molf(16)	Mh00732-Mh00733	Molar fraction, component 17 | Octane (C8)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
86+	H- 734+	Float32	41	Scaz.Molf(17)	Mh00734-Mh00735	Molar fraction, component 18 | Nonane (C9)
88+	H- 736+	Float32	42	Scaz.Molf(18)	Mh00736-Mh00737	Molar fraction, component 19 | Decane (C10)
90+	H- 738+	Float32	43	Scaz.Molf(19)	Mh00738-Mh00739	Molar fraction, component 20 | Helium (He)
92+	H- 740+	Float32	44	Scaz.Molf(20)	Mh00740-Mh00741	Molar fraction, component 21 | Argon (Ar)
94+	H- 780+	Float32	45	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
96+	H- 782+	Float32	46	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
98+	H- 784+	Float32	47	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	48	-	-	-
-	-	-	49	-	-	-
-	-	-	50	-	-	-
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

Archive #2 (Hourly)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, time (HHMMSS.0)
2	I- 871	UINT16	0	MkrS.RkvS.Hr.RkvI.AcSm	Mi00871	Cumulative meter active streams, archive period, hourly
3+	I- 872	UINT16	1	MkrS.RkvS.Hr.RkvI.AcS0	Mi00872.L	Active stream at closing (0-based), archive period, hourly
				MkrS.RkvS.Hr.RkvI.Mstt	Mi00872.H	Cumulative meter status, archive period, hourly
4+	I- 916	UINT32	2	MkrS.RkvS.Hr.RkvI.Flsc (Lo)	Mi00916-Mi00917	Flowing period (seconds), archive period, hourly
			3	MkrS.RkvS.Hr.RkvI.Flsc (Hi)		
6+	I- 914	UINT32	4	MkrS.RkvS.Hr.RkvI.Durn (Lo)	Mi00914-Mi00915	Period duration (seconds), archive period, hourly
			5	MkrS.RkvS.Hr.RkvI.Durn (Hi)		
8+	I- 354+	UINT32	6	Macm.AcmK.Hr.Totl + Macm.AcmK.Hr.Rsdu	Mi00354-Mi00355	Accumulator, total, archive period, hourly
10+	I- 356+	Float32			Mi00356-Mi00357	Accumulator, residue, archive period, hourly
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
18+	I- 80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 130+	Float32	12	Mrsl.Gref	Mi00130-Mi00131	AGA 8, Relative density at reference
22+	I- 124+	Float32	13	Mrsl.Zref	Mi00124-Mi00125	AGA 8, Compressibility at reference
24+	I- 132+	Float32	14	Mrsl.Zflw	Mi00132-Mi00133	AGA 8, Compressibility, flowing
26+	I- 140+	Float32	15	Mrsl.Ifpv	Mi00140-Mi00141	AGA 8, Supercompressibility, Fpv
28	-	-	-	-	-	-
29	-	-	-	-	-	-
30	-	-	-	-	-	-
31	-	-	-	-	-	-
32	-	-	-	-	-	-
33	-	-	-	-	-	-
34	-	-	-	-	-	-
35	-	-	-	-	-	-
36+	I- 4+	Float32	16	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 902+	Float32	17	MkrS.RkvS.Hr.RkvI.FpAO.Ms	Mi00902-Mi00903	Non-resettable accumulator, mass, archive period, hourly, opening timestamp
40+	I- 6+	Float32	18	Mrsl.FpAc.Eg	Mi00006-Mi00007	Non-resettable accumulator, energy, closing timestamp
42+	I- 904+	Float32	19	MkrS.RkvS.Hr.RkvI.FpAO.Eg	Mi00904-Mi00905	Non-resettable accumulator, energy, archive period, hourly, opening timestamp

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
44+	I- 8+	Float32	20	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 906+	Float32	21	MkrS.RkvS.Hr.RkvI.FpAO.Nt	Mi00906-Mi00907	Non-resettable accumulator, net, archive period, hourly, opening timestamp
48+	I- 10+	Float32	22	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 908+	Float32	23	MkrS.RkvS.Hr.RkvI.FpAO.Gr	Mi00908-Mi00909	Non-resettable accumulator, gross, archive period, hourly, opening timestamp
52+	H- 700+	Float32	24	Scaz.Molf(00)	Mh00700-Mh00701	Molar fraction, component 01 | Methane (C1)
54+	H- 702+	Float32	25	Scaz.Molf(01)	Mh00702-Mh00703	Molar fraction, component 02 | Nitrogen (N2)
56+	H- 704+	Float32	26	Scaz.Molf(02)	Mh00704-Mh00705	Molar fraction, component 03 | Carbon Dioxide (CO2)
58+	H- 706+	Float32	27	Scaz.Molf(03)	Mh00706-Mh00707	Molar fraction, component 04 | Ethane (C2)
60+	H- 708+	Float32	28	Scaz.Molf(04)	Mh00708-Mh00709	Molar fraction, component 05 | Propane (C3)
62+	H- 710+	Float32	29	Scaz.Molf(05)	Mh00710-Mh00711	Molar fraction, component 06 | Water (H2O)
64+	H- 712+	Float32	30	Scaz.Molf(06)	Mh00712-Mh00713	Molar fraction, component 07 | Hydrogen Sulfide (H2S)
66+	H- 714+	Float32	31	Scaz.Molf(07)	Mh00714-Mh00715	Molar fraction, component 08 | Hydrogen (H2)
68+	H- 716+	Float32	32	Scaz.Molf(08)	Mh00716-Mh00717	Molar fraction, component 09 | Carbon Monoxide (CO)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
70+	H- 718+	Float32	33	Scaz.Molf(09)	Mh00718-Mh00719	Molar fraction, component 10 | Oxygen (O2)
72+	H- 720+	Float32	34	Scaz.Molf(10)	Mh00720-Mh00721	Molar fraction, component 11 | iso-Butane (iC4)
74+	H- 722+	Float32	35	Scaz.Molf(11)	Mh00722-Mh00723	Molar fraction, component 12 | n-Butane (nC4)
76+	H- 724+	Float32	36	Scaz.Molf(12)	Mh00724-Mh00725	Molar fraction, component 13 | iso-Pentane (iC5)
78+	H- 726+	Float32	37	Scaz.Molf(13)	Mh00726-Mh00727	Molar fraction, component 14 | n-Pentane (nC5)
80+	H- 728+	Float32	38	Scaz.Molf(14)	Mh00728-Mh00729	Molar fraction, component 15 | Hexane (C6)
82+	H- 730+	Float32	39	Scaz.Molf(15)	Mh00730-Mh00731	Molar fraction, component 16 | Heptane (C7)
84+	H- 732+	Float32	40	Scaz.Molf(16)	Mh00732-Mh00733	Molar fraction, component 17 | Octane (C8)
86+	H- 734+	Float32	41	Scaz.Molf(17)	Mh00734-Mh00735	Molar fraction, component 18 | Nonane (C9)
88+	H- 736+	Float32	42	Scaz.Molf(18)	Mh00736-Mh00737	Molar fraction, component 19 | Decane (C10)
90+	H- 738+	Float32	43	Scaz.Molf(19)	Mh00738-Mh00739	Molar fraction, component 20 | Helium (He)
92+	H- 740+	Float32	44	Scaz.Molf(20)	Mh00740-Mh00741	Molar fraction, component 21 | Argon (Ar)
94+	H- 780+	Float32	45	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
96+	H- 782+	Float32	46	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
98+	H- 784+	Float32	47	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	48	-	-	-
-	-	-	49	-	-	-
-	-	-	50	-	-	-
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

6.4.4 Gas Integrated Linear (GIN)

General Information

Type	GIN
Type Description	Gas Integrated Linear
Product Group	0: Gas
Device Type	1: Linear
Primary Input	1: Pulse frequency
Metering Principle	Pulse frequency
Record Size	100
Accumulator Select	Net volume

Archive #1 (Daily)

AFC			Enron Modbus			
Offset	Register	Data Type	Data Offset	Dictionary Tag Name	Modbus Address	Dictionary Tag Description
0+			Date	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, time (HHMMSS.0)
2	I- 811	UINT16	0	MkrS.RkvS.Dy.RkvI.AcSm	Mi00811	Cumulative meter active streams, archive period, daily
3	I- 812	UINT16	1	MkrS.RkvS.Dy.RkvI.AcS0	Mi00812.L	Active stream at closing (0-based), archive period, daily
				MkrS.RkvS.Dy.RkvI.Mstt	Mi00812.H	Cumulative meter status, archive period, daily
4+	I- 856+	UINT32	2	MkrS.RkvS.Dy.RkvI.Flsc (Lo)	Mi00856-Mi00857	Flowing period (seconds), archive period, daily
			3	MkrS.RkvS.Dy.RkvI.Flsc (Hi)		
6+	I- 854+	UINT32	4	MkrS.RkvS.Dy.RkvI.Durn (Lo)	Mi00854-Mi00855	Period duration (seconds), archive period, daily
			5	MkrS.RkvS.Dy.RkvI.Durn (Hi)		
8+	I- 350+	UINT32	6	Macm.AcmK.Dy.Totl + Macm.AcmK.Dy.Rsdu	Mi00350-Mi00351	Accumulator, total, archive period, daily

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
10+	I- 352+	Float32			Mi00352-Mi00353	Accumulator, residue, archive period, daily
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I-80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 130+	Float32	12	Mrsl.Gref	Mi00130-Mi00131	AGA 8, Relative density at reference
22+	I- 124+	Float32	13	Mrsl.Zref	Mi00124-Mi00125	AGA 8, Compressibility at reference
24+	I- 132+	Float32	14	Mrsl.Zflw	Mi00132-Mi00133	AGA 8, Compressibility, flowing
26+	I- 140+	Float32	15	Mrsl.Ifpv	Mi00140-Mi00141	AGA 8, Supercompressibility, Fpv
28+	I- 102+	Float32	16	Mrsl.Kfac	Mi00102-Mi00103	K Factor
30+	I- 104+	Float32	17	Mrsl.Mfac	Mi00104-Mi00105	Meter Factor
32+	I- 300+	UINT32	18	Macm.PlsK.Dy (Lo)	Mi00300-Mi00301	Manufactured pulse count, archive reset, daily
			19	Macm.PlsK.Dy (Hi)		
34+	I- 96+	UINT32	20	Mrsl.PlsC (Lo)	Mi00096-Mi00097	Current manufactured pulse count
			21	Mrsl.PlsC (Hi)		

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
36+	I- 4+	Float32	22	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 842+	Float32	23	MkrS.RkvS.Dy.RkvI.FpAO.Ms	Mi00842-Mi00843	Non-resettable accumulator, mass, archive period, daily, opening timestamp
40+	I- 6+	Float32	24	Mrsl.FpAc.Eg	Mi00006-Mi00007	Non-resettable accumulator, energy, closing timestamp
42+	I- 844+	Float32	25	MkrS.RkvS.Dy.RkvI.FpAO.Eg	Mi00844-Mi00845	Non-resettable accumulator, energy, archive period, daily, opening timestamp
44+	I- 8+	Float32	26	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 846+	Float32	27	MkrS.RkvS.Dy.RkvI.FpAO.Nt	Mi00846-Mi00847	Non-resettable accumulator, net, archive period, daily, opening timestamp
48+	I- 10+	Float32	28	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 848+	Float32	29	MkrS.RkvS.Dy.RkvI.FpAO.Gr	Mi00848-Mi00849	Non-resettable accumulator, gross, archive period, daily, opening timestamp
52+	H- 700+	Float32	30	Scaz.Molf(00)	Mh00700-Mh00701	Molar fraction, component 01 | Methane (C1)
54+	H- 702+	Float32	31	Scaz.Molf(01)	Mh00702-Mh00703	Molar fraction, component 02 | Nitrogen (N2)
56+	H- 704+	Float32	32	Scaz.Molf(02)	Mh00704-Mh00705	Molar fraction, component 03 | Carbon Dioxide (CO2)
58+	H- 706+	Float32	33	Scaz.Molf(03)	Mh00706-Mh00707	Molar fraction, component 04 | Ethane (C2)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
60+	H- 708+	Float32	34	Scaz.Molf(04)	Mh00708-Mh00709	Molar fraction, component 05 | Propane (C3)
62+	H- 710+	Float32	35	Scaz.Molf(05)	Mh00710-Mh00711	Molar fraction, component 06 | Water (H2O)
64+	H- 712+	Float32	36	Scaz.Molf(06)	Mh00712-Mh00713	Molar fraction, component 07 | Hydrogen Sulfide (H2S)
66+	H- 714+	Float32	37	Scaz.Molf(07)	Mh00714-Mh00715	Molar fraction, component 08 | Hydrogen (H2)
68+	H- 716+	Float32	38	Scaz.Molf(08)	Mh00716-Mh00717	Molar fraction, component 09 | Carbon Monoxide (CO)
70+	H- 718+	Float32	39	Scaz.Molf(09)	Mh00718-Mh00719	Molar fraction, component 10 | Oxygen (O2)
72+	H- 720+	Float32	40	Scaz.Molf(10)	Mh00720-Mh00721	Molar fraction, component 11 | iso-Butane (iC4)
74+	H- 722+	Float32	41	Scaz.Molf(11)	Mh00722-Mh00723	Molar fraction, component 12 | n-Butane (nC4)
76+	H- 724+	Float32	42	Scaz.Molf(12)	Mh00724-Mh00725	Molar fraction, component 13 | iso-Pentane (iC5)
78+	H- 726+	Float32	43	Scaz.Molf(13)	Mh00726-Mh00727	Molar fraction, component 14 | n-Pentane (nC5)
80+	H- 728+	Float32	44	Scaz.Molf(14)	Mh00728-Mh00729	Molar fraction, component 15 | Hexane (C6)
82+	H- 730+	Float32	45	Scaz.Molf(15)	Mh00730-Mh00731	Molar fraction, component 16 | Heptane (C7)
84+	H- 732+	Float32	46	Scaz.Molf(16)	Mh00732-Mh00733	Molar fraction, component 17 | Octane (C8)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
86+	H- 734+	Float32	47	Scaz.Molf(17)	Mh00734-Mh00735	Molar fraction, component 18 | Nonane (C9)
88+	H- 736+	Float32	48	Scaz.Molf(18)	Mh00736-Mh00737	Molar fraction, component 19 | Decane (C10)
90+	H- 738+	Float32	49	Scaz.Molf(19)	Mh00738-Mh00739	Molar fraction, component 20 | Helium (He)
92+	H- 740+	Float32	50	Scaz.Molf(20)	Mh00740-Mh00741	Molar fraction, component 21 | Argon (Ar)
94+	H- 780+	Float32	51	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
96+	H- 782+	Float32	52	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
98+	H- 784+	Float32	53	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

Archive #2 (Hourly)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, time (HHMMSS.0)
2	I- 871	UINT16	0	MkrS.RkvS.Hr.RkvI.AcSm	Mi00871	Cumulative meter active streams, archive period, hourly
3+	I- 872	UINT16	1	MkrS.RkvS.Hr.RkvI.AcS0	Mi00872.L	Active stream at closing (0-based), archive period, hourly
				MkrS.RkvS.Hr.RkvI.Mstt	Mi00872.H	Cumulative meter status, archive period, hourly
4+	I- 916	UINT32	2	MkrS.RkvS.Hr.RkvI.Flsc (Lo)	Mi00916-Mi00917	Flowing period (seconds), archive period, hourly
			3	MkrS.RkvS.Hr.RkvI.Flsc (Hi)		
6+	I- 914	UINT32	4	MkrS.RkvS.Hr.RkvI.Durn (Lo)	Mi00914-Mi00915	Period duration (seconds), archive period, hourly
			5	MkrS.RkvS.Hr.RkvI.Durn (Hi)		
8+	I- 354+	UINT32	6	Macm.AcmK.Hr.Totl + Macm.AcmK.Hr.Rsdu	Mi00354-Mi00355	Accumulator, total, archive period, hourly
10+	I- 356+	Float32			Mi00356-Mi00357	Accumulator, residue, archive period, hourly
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
18+	I- 80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 130+	Float32	12	Mrsl.Gref	Mi00130-Mi00131	AGA 8, Relative density at reference
22+	I- 124+	Float32	13	Mrsl.Zref	Mi00124-Mi00125	AGA 8, Compressibility at reference
24+	I- 132+	Float32	14	Mrsl.Zflw	Mi00132-Mi00133	AGA 8, Compressibility, flowing
26+	I- 140+	Float32	15	Mrsl.Ifpv	Mi00140-Mi00141	AGA 8, Supercompressibility, Fpv
28+	I- 102+	Float32	16	Mrsl.Kfac	Mi00102-Mi00103	K Factor
30+	I- 104+	Float32	17	Mrsl.Mfac	Mi00104-Mi00105	Meter Factor
32+	I- 300+	UINT32	18	Macm.PlsK.Dy (Lo)	Mi00300-Mi00301	Manufactured pulse count, archive reset, daily
			19	Macm.PlsK.Dy (Hi)		
34+	I- 96+	UINT32	20	Mrsl.PlsC (Lo)	Mi00096-Mi00097	Current manufactured pulse count
			21	Mrsl.PlsC (Hi)		
36+	I- 4+	Float32	22	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 902+	Float32	23	MkrS.RkvS.Hr.RkvI.FpAO.Ms	Mi00902-Mi00903	Non-resettable accumulator, mass, archive period, hourly, opening timestamp
40+	I- 6+	Float32	24	Mrsl.FpAc.Eg	Mi00006-Mi00007	Non-resettable accumulator, energy, closing timestamp
42+	I- 904+	Float32	25	MkrS.RkvS.Hr.RkvI.FpAO.Eg	Mi00904-Mi00905	Non-resettable accumulator, energy, archive period, hourly, opening timestamp
44+	I- 8+	Float32	26	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
46+	I- 906+	Float32	27	MkrS.RkvS.Hr.RkvI.FpAO.Nt	Mi00906-Mi00907	Non-resettable accumulator, net, archive period, hourly, opening timestamp
48+	I- 10+	Float32	28	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 908+	Float32	29	MkrS.RkvS.Hr.RkvI.FpAO.Gr	Mi00908-Mi00909	Non-resettable accumulator, gross, archive period, hourly, opening timestamp
52+	H- 700+	Float32	30	Scaz.Molf(00)	Mh00700-Mh00701	Molar fraction, component 01 | Methane (C1)
54+	H- 702+	Float32	31	Scaz.Molf(01)	Mh00702-Mh00703	Molar fraction, component 02 | Nitrogen (N2)
56+	H- 704+	Float32	32	Scaz.Molf(02)	Mh00704-Mh00705	Molar fraction, component 03 | Carbon Dioxide (CO2)
58+	H- 706+	Float32	33	Scaz.Molf(03)	Mh00706-Mh00707	Molar fraction, component 04 | Ethane (C2)
60+	H- 708+	Float32	34	Scaz.Molf(04)	Mh00708-Mh00709	Molar fraction, component 05 | Propane (C3)
62+	H- 710+	Float32	35	Scaz.Molf(05)	Mh00710-Mh00711	Molar fraction, component 06 | Water (H2O)
64+	H- 712+	Float32	36	Scaz.Molf(06)	Mh00712-Mh00713	Molar fraction, component 07 | Hydrogen Sulfide (H2S)
66+	H- 714+	Float32	37	Scaz.Molf(07)	Mh00714-Mh00715	Molar fraction, component 08 | Hydrogen (H2)
68+	H- 716+	Float32	38	Scaz.Molf(08)	Mh00716-Mh00717	Molar fraction, component 09 | Carbon Monoxide (CO)
70+	H- 718+	Float32	39	Scaz.Molf(09)	Mh00718-Mh00719	Molar fraction, component 10 | Oxygen (O2)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
72+	H- 720+	Float32	40	Scaz.Molf(10)	Mh00720-Mh00721	Molar fraction, component 11 | iso-Butane (iC4)
74+	H- 722+	Float32	41	Scaz.Molf(11)	Mh00722-Mh00723	Molar fraction, component 12 | n-Butane (nC4)
76+	H- 724+	Float32	42	Scaz.Molf(12)	Mh00724-Mh00725	Molar fraction, component 13 | iso-Pentane (iC5)
78+	H- 726+	Float32	43	Scaz.Molf(13)	Mh00726-Mh00727	Molar fraction, component 14 | n-Pentane (nC5)
80+	H- 728+	Float32	44	Scaz.Molf(14)	Mh00728-Mh00729	Molar fraction, component 15 | Hexane (C6)
82+	H- 730+	Float32	45	Scaz.Molf(15)	Mh00730-Mh00731	Molar fraction, component 16 | Heptane (C7)
84+	H- 732+	Float32	46	Scaz.Molf(16)	Mh00732-Mh00733	Molar fraction, component 17 | Octane (C8)
86+	H- 734	Float32	47	Scaz.Molf(17)	Mh00734-Mh00735	Molar fraction, component 18 | Nonane (C9)
88+	H- 736	Float32	48	Scaz.Molf(18)	Mh00736-Mh00737	Molar fraction, component 19 | Decane (C10)
90+	H- 738	Float32	49	Scaz.Molf(19)	Mh00738-Mh00739	Molar fraction, component 20 | Helium (He)
92+	H- 740	Float32	50	Scaz.Molf(20)	Mh00740-Mh00741	Molar fraction, component 21 | Argon (Ar)
94+	H- 780+	Float32	51	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
96+	H- 782+	Float32	52	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
98+	H- 784+	Float32	53	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

6.4.5 Liquid Standard Differential (LSD)

General Information

Type	LSD
Type Description	Liquid Standard Differential
Product Group	> 0: Liquid
Device Type	0: Differential
Primary Input	0: Differential pressure
Metering Principle	Differential pressure
Record Size	100
Accumulator Select	Net volume

Archive #1 (Daily)

AFC			Enron Modbus			
Offset	Register	Data Type	Data Offset	Dictionary Tag Name	Modbus Address	Dictionary Tag Description
0+			Date	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, time (HHMMSS.0)
2	I- 811	UINT16	0	MkrS.RkvS.Dy.RkvI.AcSm	Mi00811	Cumulative meter active streams, archive period, daily
3	I- 812	UINT16	1	MkrS.RkvS.Dy.RkvI.AcS0	Mi00812.L	Active stream at closing (0-based), archive period, daily
				MkrS.RkvS.Dy.RkvI.Mstt	Mi00812.H	Cumulative meter status, archive period, daily
4+	I- 856+	UINT32	2	MkrS.RkvS.Dy.RkvI.Flsc (Lo)	Mi00856-Mi00857	Flowing period (seconds), archive period, daily
			3	MkrS.RkvS.Dy.RkvI.Flsc (Hi)		
6+	I- 854+	UINT32	4	MkrS.RkvS.Dy.RkvI.Durn (Lo)	Mi00854-Mi00855	Period duration (seconds), archive period, daily
			5	MkrS.RkvS.Dy.RkvI.Durn (Hi)		
8+	I- 350+	UINT32	6	Macm.AcmK.Dy.Totl + Macm.AcmK.Dy.Rsdu	Mi00350-Mi00351	Accumulator, total, archive period, daily

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
10+	I- 352+	Float32			Mi00352-Mi00353	Accumulator, residue, archive period, daily
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I-80+	Float32	11	Mrsl.InSc.Pres	Mi000780-Mi00081	Process input, scaled float, pressure
20+	I- 82+	Float32	12	Mrsl.InSc.DnsF	Mi00082-Mi00083	Process input, scaled float, density
22+	I- 84+	Float32	13	Mrsl.InSc.Wtrc	Mi00084-Mi00085	Process input, scaled float, water content
24+	I- 242+	Float32	14	Mrsl.DnsR	Mi00242-Mi00243	API 2540, Density at reference
26+	I- 224+	Float32	15	Mrsl.CtpC	Mi00224-Mi00225	API 2540, Temperature and pressure correction factor, CTPL
28+	I- 160+	Float32	16	Mrsl.Ixtf	Mi00160-Mi00161	AGA 3, Pressure extension
30+	I- 180+	Float32	17	Mrsl.I3cd	Mi00180-Mi00181	AGA 3, Coefficient of discharge, Cd
32	-	-	-	-	-	-
33	-	-	-	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
34+	I- 208+	Float32	18	Mrsl.Cprm	Mi00208-Mi00209	C-prime
36+	I- 4+	Float32	19	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 842+	Float32	20	MkrS.RkvS.Dy.RkvI.FpAO.Ms	Mi00842-Mi00843	Non-resettable accumulator, mass, archive period, daily, opening timestamp
40	-	-	-	-	-	-
41	-	-	-	-	-	-
42	-	-	-	-	-	-
43	-	-	-	-	-	-
44+	I- 8+	Float32	21	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 846+	Float32	22	MkrS.RkvS.Dy.RkvI.FpAO.Nt	Mi00846-Mi00847	Non-resettable accumulator, net, archive period, daily, opening timestamp
48+	I- 10+	Float32	23	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 848+	Float32	24	MkrS.RkvS.Dy.RkvI.FpAO.Gr	Mi00848-Mi00849	Non-resettable accumulator, gross, archive period, daily, opening timestamp
52+	I- 12+	Float32	25	Mrsl.FpAc.St	Mi00012-Mi00013	Non-resettable accumulator, gross standard, closing timestamp
54+	I- 850+	Float32	26	MkrS.RkvS.Dy.RkvI.FpAO.St	Mi00850-Mi00851	Non-resettable accumulator, gross standard, archive period, daily, opening timestamp
56+	I- 14+	Float32	27	Mrsl.FpAc.Wt	Mi00014-Mi00015	Non-resettable accumulator, water, closing timestamp

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
58+	I- 852+	Float32	28	MkrS.RkvS.Dy.RkvI.FpAO.Wt	Mi00852-Mi00853	Non-resettable accumulator, water, archive period, daily, opening timestamp
60+	I- 236+	Float32	29	MrsI.VpsA	Mi00236-Mi00237	API 2540, Vapor pressure, absolute
62	-	-	-	-	-	-
63	-	-	-	-	-	-
64+	H- 780+	Float32	30	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
66+	H- 782+	Float32	31	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
68+	H- 784+	Float32	32	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	33	-	-	-
-	-	-	34	-	-	-
-	-	-	35	-	-	-
-	-	-	36	-	-	-
-	-	-	37	-	-	-
-	-	-	38	-	-	-
-	-	-	39	-	-	-
-	-	-	40	-	-	-
-	-	-	41	-	-	-
-	-	-	42	-	-	-
-	-	-	43	-	-	-
-	-	-	44	-	-	-
-	-	-	45	-	-	-
-	-	-	46	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
-	-	-	47	-	-	-
-	-	-	48	-	-	-
-	-	-	49	-	-	-
-	-	-	50	-	-	-
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

Archive #2 (Hourly)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, time (HHMMSS.0)
2	I- 871	UINT16	0	MkrS.RkvS.Hr.RkvI.AcSm	Mi00871	Cumulative meter active streams, archive period, hourly
3+	I- 872	UINT16	1	MkrS.RkvS.Hr.RkvI.AcS0	Mi00872.L	Active stream at closing (0-based), archive period, hourly
				MkrS.RkvS.Hr.RkvI.Mstt	Mi00872.H	Cumulative meter status, archive period, hourly
4+	I- 916	UINT32	2	MkrS.RkvS.Hr.RkvI.Flsc (Lo)	Mi00916-Mi00917	Flowing period (seconds), archive period, hourly
			3	MkrS.RkvS.Hr.RkvI.Flsc (Hi)		
6+	I- 914	UINT32	4	MkrS.RkvS.Hr.RkvI.Durn (Lo)	Mi00914-Mi00915	Period duration (seconds), archive period, hourly
			5	MkrS.RkvS.Hr.RkvI.Durn (Hi)		
8+	I- 354+	UINT32	6	Macm.AcmK.Hr.Totl + Macm.AcmK.Hr.Rsdu	Mi00354-Mi00355	Accumulator, total, archive period, hourly
10+	I- 356+	Float32			Mi00356-Mi00357	Accumulator, residue, archive period, hourly
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I- 80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 82+	Float32	12	Mrsl.InSc.DnsF	Mi00082-Mi00083	Process input, scaled float, density
22+	I- 84+	Float32	13	Mrsl.InSc.Wtrc	Mi00084-Mi00085	Process input, scaled float, water content
24+	I- 242+	Float32	14	Mrsl.DnsR	Mi00242-Mi00243	API 2540, Density at reference
26+	I- 224+	Float32	15	Mrsl.CtpC	Mi00224-Mi00225	API 2540, Temperature and pressure correction factor, CTPL
28+	I- 160+	Float32	16	Mrsl.Ixtf	Mi00160-Mi00161	AGA 3, Pressure extension
			17	-	-	-
30+	I- 180+	Float32	18	Mrsl.I3cd	Mi00180-Mi00181	AGA 3, Coefficient of discharge, Cd
32	-	-	-	-	-	-
33	-	-	-	-	-	-
34+	I- 208+	Float32	19	Mrsl.Cprm	Mi00208-Mi00209	C-prime
36+	I- 4+	Float32	20	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 902+	Float32	21	MkrS.RkvS.Hr.RkvI.FpAO.Ms	Mi00902-Mi00903	Non-resettable accumulator, mass, archive period, hourly, opening timestamp
40	-	-	-	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
41	-	-	-	-	-	-
42	-	-	-	-	-	-
43	-	-	-	-	-	-
44+	I- 8+	Float32	22	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 906+	Float32	23	MkrS.RkvS.Hr.RkvI.FpAO.Nt	Mi00906-Mi00907	Non-resettable accumulator, net, archive period, hourly, opening timestamp
48+	I- 10+	Float32	24	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 908+	Float32	25	MkrS.RkvS.Hr.RkvI.FpAO.Gr	Mi00908-Mi00909	Non-resettable accumulator, gross, archive period, hourly, opening timestamp
52+	I- 12+	Float32	26	Mrsl.FpAc.St	Mi00012-Mi00013	Non-resettable accumulator, gross standard, closing timestamp
54+	I- 910+	Float32	27	MkrS.RkvS.Hr.RkvI.FpAO.St	Mi00910-Mi00911	Non-resettable accumulator, gross standard, archive period, hourly, opening timestamp
56+	I- 14+	Float32	28	Mrsl.FpAc.Wt	Mi00014-Mi00015	Non-resettable accumulator, water, closing timestamp
58+	I- 912+	Float32	29	MkrS.RkvS.Hr.RkvI.FpAO.Wt	Mi00912-Mi00913	Non-resettable accumulator, water, archive period, hourly, opening timestamp
60+	I- 236+	Float32	30	Mrsl.VpsA	Mi00236-Mi00237	API 2540, Vapor pressure, absolute
62	-	-	-	-	-	-
63	-	-	-	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
64+	H- 780+	Float32	31	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
66+	H- 782+	Float32	32	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
68+	H- 784+	Float32	33	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	34	-	-	-
-	-	-	35	-	-	-
-	-	-	36	-	-	-
-	-	-	37	-	-	-
-	-	-	38	-	-	-
-	-	-	39	-	-	-
-	-	-	40	-	-	-
-	-	-	41	-	-	-
-	-	-	42	-	-	-
-	-	-	43	-	-	-
-	-	-	44	-	-	-
-	-	-	45	-	-	-
-	-	-	46	-	-	-
-	-	-	47	-	-	-
-	-	-	48	-	-	-
-	-	-	49	-	-	-
-	-	-	50	-	-	-
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

6.4.6 Liquid Standard Linear (LSN)

General Information

Type	LSN
Type Description	Liquid Standard Linear
Product Group	> 0: Liquid
Device Type	1: Linear
Primary Input	0: Pulse count
Metering Principle	Pulse count
Record Size	100
Accumulator Select	Net volume

Archive #1 (Daily)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, time (HHMMSS.0)
2	I- 811	UINT16	0	MkrS.RkvS.Dy.RkvI.AcSm	Mi00811	Cumulative meter active streams, archive period, daily
3	I- 812	UINT16	1	MkrS.RkvS.Dy.RkvI.AcS0	Mi00812.L	Active stream at closing (0-based), archive period, daily
				MkrS.RkvS.Dy.RkvI.Mstt	Mi00812.H	Cumulative meter status, archive period, daily
4+	I- 856+	UINT32	2	MkrS.RkvS.Dy.RkvI.Flsc (Lo)	Mi00856-Mi00857	Flowing period (seconds), archive period, daily
			3	MkrS.RkvS.Dy.RkvI.Flsc (Hi)		
6+	I- 854+	UINT32	4	MkrS.RkvS.Dy.RkvI.Durn (Lo)	Mi00854-Mi00855	Period duration (seconds), archive period, daily
			5	MkrS.RkvS.Dy.RkvI.Durn (Hi)		
8+	I- 350+	UINT32	6	Macm.AcmK.Dy.Totl + Macm.AcmK.Dy.Rsdu	Mi00350-Mi00351	Accumulator, total, archive period, daily

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
10+	I- 352+	Float32			Mi00352-Mi00353	Accumulator, residue, archive period, daily
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I-80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 82+	Float32	12	Mrsl.InSc.DnsF	Mi00082-Mi00083	Process input, scaled float, density
22+	I- 84+	Float32	13	Mrsl.InSc.Wtrc	Mi00084-Mi00085	Process input, scaled float, water content
24+	I- 242+	Float32	14	Mrsl.DnsR	Mi00242-Mi00243	API 2540, Density at reference
26+	I- 224+	Float32	15	Mrsl.CtpC	Mi00224-Mi00225	API 2540, Temperature and pressure correction factor, CTPL
28+	I- 102+	Float32	16	Mrsl.Kfac	Mi00102-Mi00103	K Factor
30+	I- 104+	Float32	17	Mrsl.Mfac	Mi00104-Mi00105	Meter Factor
32+	I- 300+	UINT32	18	Macm.PlsK.Dy (Lo)	Mi00300-Mi00301	Input pulse count, archive reset, daily
				Macm.PlsK.Dy (Hi)		

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
34+	I- 96+	UINT32	19	Mrsl.PlsC (Lo)	Mi00096-Mi0009	Current input pulse count
				Mrsl.PlsC (Hi)		
36+	I- 4+	Float32	20	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 842+	Float32	21	MkrS.RkvS.Dy.RkvI.FpAO.Ms	Mi00842-Mi00843	Non-resettable accumulator, mass, archive period, daily, opening timestamp
40	-	-	-	-	-	-
41	-	-	-	-	-	-
42	-	-	-	-	-	-
43	-	-	-	-	-	-
44+	I- 8+	Float32	22	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 846+	Float32	23	MkrS.RkvS.Dy.RkvI.FpAO.Nt	Mi00846-Mi00847	Non-resettable accumulator, net, archive period, daily, opening timestamp
48+	I- 10+	Float32	24	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 848+	Float32	25	MkrS.RkvS.Dy.RkvI.FpAO.Gr	Mi00848-Mi00849	Non-resettable accumulator, gross, archive period, daily, opening timestamp
52+	I- 12+	Float32	26	Mrsl.FpAc.St	Mi00012-Mi00013	Non-resettable accumulator, gross standard, closing timestamp
54+	I- 850+	Float32	27	MkrS.RkvS.Dy.RkvI.FpAO.St	Mi00850-Mi00851	Non-resettable accumulator, gross standard, archive period, daily, opening timestamp
56+	I- 14+	Float32	28	Mrsl.FpAc.Wt	Mi00014-Mi00015	Non-resettable accumulator, water, closing timestamp

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
58+	I- 852+	Float32	29	MkrS.RkvS.Dy.RkvI.FpAO.Wt	Mi00852-Mi00853	Non-resettable accumulator, water, archive period, daily, opening timestamp
60+	I- 236+	Float32	30	MrsI.VpsA	Mi00236-Mi00237	API 2540, Vapor pressure, absolute
62	-	-	-	-	-	-
63	-	-	-	-	-	-
64+	H- 780+	Float32	31	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
66+	H- 782+	Float32	32	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
68+	H- 784+	Float32	33	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
70+			34	-	-	-
72+			35	-	-	-
74+			36	-	-	-
76+			37	-	-	-
78+			38	-	-	-
80+			39	-	-	-
82+			40	-	-	-
84+			41	-	-	-
86+			42	-	-	-
88+			43	-	-	-
90+			44	-	-	-
92+			45	-	-	-
94+			46	-	-	-
96+			47	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
98+			48	-	-	-
-	-	-	49	-	-	-
-	-	-	50	-	-	-
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

Archive #2 (Hourly)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, time (HHMMSS.0)
2	I- 871	UINT16	0	MkrS.RkvS.Hr.RkvI.AcSm	Mi00871	Cumulative meter active streams, archive period, hourly
3+	I- 872	UINT16	1	MkrS.RkvS.Hr.RkvI.AcS0	Mi00872.L	Active stream at closing (0-based), archive period, hourly
				MkrS.RkvS.Hr.RkvI.Mstt	Mi00872.H	Cumulative meter status, archive period, hourly
4+	I- 916	UINT32	2	MkrS.RkvS.Hr.RkvI.Flsc (Lo)	Mi00916-Mi00917	Flowing period (seconds), archive period, hourly
			3	MkrS.RkvS.Hr.RkvI.Flsc (Hi)		
6+	I- 914	UINT32	4	MkrS.RkvS.Hr.RkvI.Durn (Lo)	Mi00914-Mi00915	Period duration (seconds), archive period, hourly
			5	MkrS.RkvS.Hr.RkvI.Durn (Hi)		
8+	I- 354+	UINT32	6	Macm.AcmK.Hr.Totl + Macm.AcmK.Hr.Rsdu	Mi00354-Mi00355	Accumulator, total, archive period, hourly
10+	I- 356+	Float32			Mi00356-Mi00357	Accumulator, residue, archive period, hourly
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I- 80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 82+	Float32	12	Mrsl.InSc.DnsF	Mi00082-Mi00083	Process input, scaled float, density
22+	I- 84+	Float32	13	Mrsl.InSc.Wtrc	Mi00084-Mi00085	Process input, scaled float, water content
24+	I- 242+	Float32	14	Mrsl.DnsR	Mi00242-Mi00243	API 2540, Density at reference
26+	I- 224+	Float32	15	Mrsl.CtpC	Mi00224-Mi00225	API 2540, Temperature and pressure correction factor, CTPL
28+	I- 102+	Float32	16	Mrsl.Kfac	Mi00102-Mi00103	K Factor
30+	I- 104+	Float32	17	Mrsl.Mfac	Mi00104-Mi00105	Meter Factor
32+	I- 302+	UINT32	18	Macm.PlsK.Hr (Lo)	Mi00302-Mi00303	Input pulse count, archive reset, hourly
				Macm.PlsK.Hr (Hi)		
34+	I- 96+	UINT32	19	Mrsl.PlsC (Lo)	Mi00096-Mi00097	Current input pulse count
				Mrsl.PlsC (Hi)		
36+	I- 4+	Float32	20	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 902+	Float32	21	MkrS.RkvS.Hr.RkvI.FpAO.Ms	Mi00902-Mi00903	Non-resettable accumulator, mass, archive period, hourly, opening timestamp
40	-	-	-	-	-	-
41	-	-	-	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
42	-	-	-	-	-	-
43	-	-	-	-	-	-
44+	I- 8+	Float32	22	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 906+	Float32	23	MkrS.RkvS.Hr.RkvI.FpAO.Nt	Mi00906-Mi00907	Non-resettable accumulator, net, archive period, hourly, opening timestamp
48+	I- 10+	Float32	24	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 908+	Float32	25	MkrS.RkvS.Hr.RkvI.FpAO.Gr	Mi00908-Mi00909	Non-resettable accumulator, gross, archive period, hourly, opening timestamp
52+	I- 12+	Float32	26	Mrsl.FpAc.St	Mi00012-Mi00013	Non-resettable accumulator, gross standard, closing timestamp
54+	I- 910+	Float32	27	MkrS.RkvS.Hr.RkvI.FpAO.St	Mi00910-Mi00911	Non-resettable accumulator, gross standard, archive period, hourly, opening timestamp
56+	I- 14+	Float32	28	Mrsl.FpAc.Wt	Mi00014-Mi00015	Non-resettable accumulator, water, closing timestamp
58+	I- 912+	Float32	29	MkrS.RkvS.Hr.RkvI.FpAO.Wt	Mi00912-Mi00913	Non-resettable accumulator, water, archive period, hourly, opening timestamp
60+	I- 236	Float32	30	Mrsl.VpsA	Mi00236-Mi00237	API 2540, Vapor pressure, absolute
62	-	-	-	-	-	-
63	-	-	-	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
64+	H- 780+	Float32	31	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
66+	H- 782+	Float32	32	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
68+	H- 784+	Float32	33	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	34	-	-	-
-	-	-	35	-	-	-
-	-	-	36	-	-	-
-	-	-	37	-	-	-
-	-	-	38	-	-	-
-	-	-	39	-	-	-
-	-	-	40	-	-	-
-	-	-	41	-	-	-
-	-	-	42	-	-	-
-	-	-	43	-	-	-
-	-	-	44	-	-	-
-	-	-	45	-	-	-
-	-	-	46	-	-	-
-	-	-	47	-	-	-
-	-	-	48	-	-	-
-	-	-	49	-	-	-
-	-	-	50	-	-	-
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

6.4.7 Liquid Integrated Differential (LID)

General Information

Type	LID
Type Description	Liquid Integrated Differential
Product Group	> 0: Liquid
Device Type	0: Differential
Primary Input	1: Flow rate
Metering Principle	Flow rate
Record Size	100
Accumulator Select	Net volume

Archive #1 (Daily)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, time (HHMMSS.0)
2	I- 811	UINT16	0	MkrS.RkvS.Dy.RkvI.AcSm	Mi00811	Cumulative meter active streams, archive period, daily
3	I- 812	UINT16	1	MkrS.RkvS.Dy.RkvI.AcS0	Mi00812.L	Active stream at closing (0-based), archive period, daily
				MkrS.RkvS.Dy.RkvI.Mstt	Mi00812.H	Cumulative meter status, archive period, daily
4+	I- 856+	UINT32	2	MkrS.RkvS.Dy.RkvI.Flsc (Lo)	Mi00856-Mi00857	Flowing period (seconds), archive period, daily
			3	MkrS.RkvS.Dy.RkvI.Flsc (Hi)		
6+	I- 854+	UINT32	4	MkrS.RkvS.Dy.RkvI.Durn (Lo)	Mi00854-Mi00855	Period duration (seconds), archive period, daily
			5	MkrS.RkvS.Dy.RkvI.Durn (Hi)		
8+	I- 350+	UINT32	6	Macm.AcmK.Dy.Totl + Macm.AcmK.Dy.Rsdu	Mi00350-Mi00351	Accumulator, total, archive period, daily

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
10+	I- 352+	Float32			Mi00352-Mi00353	Accumulator, residue, archive period, daily
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I-80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 82+	Float32	12	Mrsl.InSc.DnsF	Mi00082-Mi00083	Process input, scaled float, density
22+	I- 84+	Float32	13	Mrsl.InSc.Wtrc	Mi00084-Mi00085	Process input, scaled float, water content
24+	I- 242+	Float32	14	Mrsl.DnsR	Mi00242-Mi00243	API 2540, Density at reference
26+	I- 224+	Float32	15	Mrsl.CtpC	Mi00224-Mi00225	API 2540, Temperature and pressure correction factor, CTPL
28	-	-	-	-	-	-
29	-	-	-	-	-	-
30	-	-	-	-	-	-
31	-	-	-			
32	-	-	-			

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
33	-	-	-	-	-	-
34	-	-	-	-	-	-
35	-	-	-	-	-	-
36+	I- 4+	Float32	16	MrsI.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 842+	Float32	17	MkrS.RkvS.Dy.RkvI.FpAO.Ms	Mi00842-Mi00843	Non-resettable accumulator, mass, archive period, daily, opening timestamp
40	-	-	-	-	-	-
41	-	-	-	-	-	-
42	-	-	-	-	-	-
43	-	-	-	-	-	-
44+	I- 8+	Float32	18	MrsI.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 846+	Float32	19	MkrS.RkvS.Dy.RkvI.FpAO.Nt	Mi00846-Mi00847	Non-resettable accumulator, net, archive period, daily, opening timestamp
48+	I- 10+	Float32	20	MrsI.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 848+	Float32	21	MkrS.RkvS.Dy.RkvI.FpAO.Gr	Mi00848-Mi00849	Non-resettable accumulator, gross, archive period, daily, opening timestamp
52+	I- 12+	Float32	22	MrsI.FpAc.St	Mi00012-Mi00013	Non-resettable accumulator, gross standard, closing timestamp
54+	I- 850+	Float32	23	MkrS.RkvS.Dy.RkvI.FpAO.St	Mi00850-Mi00851	Non-resettable accumulator, gross standard, archive period, daily, opening timestamp

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
56+	I- 14+	Float32	24	Mrsl.FpAc.Wt	Mi00014-Mi00015	Non-resettable accumulator, water, closing timestamp
58+	I- 852+	Float32	25	MkrS.RkvS.Dy.RkvI.FpAO.Wt	Mi00852-Mi00853	Non-resettable accumulator, water, archive period, daily, opening timestamp
60+	I- 236+	Float32	26	Mrsl.VpsA	Mi00236-Mi00237	API 2540, Vapor pressure, absolute
62	-	-	-	-	-	-
63	-	-	-	-	-	-
64+	H- 780+	Float32	27	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
66+	H- 782+	Float32	28	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
68+	H- 784+	Float32	29	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
70+	-	-	30	-	-	-
72+	-	-	31	-	-	-
74+	-	-	32	-	-	-
76+	-	-	33	-	-	-
78+	-	-	34	-	-	-
80+	-	-	35	-	-	-
82+	-	-	36	-	-	-
84+	-	-	37	-	-	-
86+	-	-	38	-	-	-
88+	-	-	39	-	-	-
90+	-	-	40	-	-	-
92+	-	-	41	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
94+	-	-	42	-	-	-
96+	-	-	43	-	-	-
98+	-	-	44	-	-	-
-	-	-	45	-	-	-
-	-	-	46	-	-	-
-	-	-	47	-	-	-
-	-	-	48	-	-	-
-	-	-	49	-	-	-
-	-	-	50	-	-	-
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

Archive #2 (Hourly)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, time (HHMMSS.0)
2	I- 871	UINT16	0	MkrS.RkvS.Hr.RkvI.AcSm	Mi00871	Cumulative meter active streams, archive period, hourly
3+	I- 872	UINT16	1	MkrS.RkvS.Hr.RkvI.AcS0	Mi00872.L	Active stream at closing (0-based), archive period, hourly
				MkrS.RkvS.Hr.RkvI.Mstt	Mi00872.H	Cumulative meter status, archive period, hourly
4+	I- 916	UINT32	2	MkrS.RkvS.Hr.RkvI.Flsc (Lo)	Mi00916-Mi00917	Flowing period (seconds), archive period, hourly
			3	MkrS.RkvS.Hr.RkvI.Flsc (Hi)		
6+	I- 914	UINT32	4	MkrS.RkvS.Hr.RkvI.Durn (Lo)	Mi00914-Mi00915	Period duration (seconds), archive period, hourly
			5	MkrS.RkvS.Hr.RkvI.Durn (Hi)		
8+	I- 354+	UINT32	6	Macm.AcmK.Hr.Totl + Macm.AcmK.Hr.Rsdu	Mi00354-Mi00355	Accumulator, total, archive period, hourly
10+	I- 356+	Float32			Mi00356-Mi00357	Accumulator, residue, archive period, hourly
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I- 80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 82+	Float32	12	Mrsl.InSc.DnsF	Mi00082-Mi00083	Process input, scaled float, density
22+	I- 84+	Float32	13	Mrsl.InSc.Wtrc	Mi00084-Mi00085	Process input, scaled float, water content
24+	I- 242+	Float32	14	Mrsl.DnsR	Mi00242-Mi00243	API 2540, Density at reference
26+	I- 224+	Float32	15	Mrsl.CtpC	Mi00224-Mi00225	API 2540, Temperature and pressure correction factor, CTPL
28	-	-	-	-	-	-
29	-	-	-	-	-	-
30	-	-	-	-	-	-
31	-	-	-	-	-	-
32	-	-	-	-	-	-
33	-	-	-	-	-	-
34	-	-	-	-	-	-
35	-	-	-	-	-	-
36+	I- 4+	Float32	16	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 902+	Float32	17	MkrS.RkvS.Hr.RkvI.FpAO.Ms	Mi00902-Mi00903	Non-resettable accumulator, mass, archive period, hourly, opening timestamp
40	-	-	-	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
41	-	-	-	-	-	-
42	-	-	-	-	-	-
43	-	-	-	-	-	-
44+	I- 8+	Float32	18	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 906+	Float32	19	MkrS.RkvS.Hr.RkvI.FpAO.Nt	Mi00906-Mi00907	Non-resettable accumulator, net, archive period, hourly, opening timestamp
48+	I- 10+	Float32	20	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 908+	Float32	21	MkrS.RkvS.Hr.RkvI.FpAO.Gr	Mi00908-Mi00909	Non-resettable accumulator, gross, archive period, hourly, opening timestamp
52+	I- 12+	Float32	22	Mrsl.FpAc.St	Mi00012-Mi00013	Non-resettable accumulator, gross standard, closing timestamp
54+	I- 910+	Float32	23	MkrS.RkvS.Hr.RkvI.FpAO.St	Mi00910-Mi00911	Non-resettable accumulator, gross standard, archive period, hourly, opening timestamp
56+	I- 14+	Float32	24	Mrsl.FpAc.Wt	Mi00014-Mi00015	Non-resettable accumulator, water, closing timestamp
58+	I- 912+	Float32	25	MkrS.RkvS.Hr.RkvI.FpAO.Wt	Mi00912-Mi00913	Non-resettable accumulator, water, archive period, hourly, opening timestamp
60+	I- 236	Float32	26	Mrsl.VpsA	Mi00236-Mi00237	API 2540, Vapor pressure, absolute
62	-	-	-	-	-	-
63	-	-	-	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
64+	H- 780+	Float32	27	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
66+	H- 782+	Float32	28	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
68+	H- 784+	Float32	29	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	30	-	-	-
-	-	-	31	-	-	-
-	-	-	32	-	-	-
-	-	-	33	-	-	-
-	-	-	34	-	-	-
-	-	-	35	-	-	-
-	-	-	36	-	-	-
-	-	-	37	-	-	-
-	-	-	38	-	-	-
-	-	-	39	-	-	-
-	-	-	40	-	-	-
-	-	-	41	-	-	-
-	-	-	42	-	-	-
-	-	-	43	-	-	-
-	-	-	44	-	-	-
-	-	-	45	-	-	-
-	-	-	46	-	-	-
-	-	-	47	-	-	-
-	-	-	48	-	-	-
-	-	-	49	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
-	-	-	50	-	-	-
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

6.4.8 Liquid Integrated Linear (LIN)

General Information

Type	LIN
Type Description	Liquid Integrated Linear
Product Group	> 0: Liquid
Device Type	1: Linear
Primary Input	1: Pulse frequency
Metering Principle	Pulse frequency
Record Size	100
Accumulator Select	Net volume

Archive #1 (Daily)

AFC			Enron Modbus			
Offset	Register	Data Type	Data Offset	Dictionary Tag Name	Modbus Address	Dictionary Tag Description
0+			Date	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Dy.Tstp	Mi00600-Mi00601	Archive period, daily, closing timestamp, time (HHMMSS.0)
2	I- 811	UINT16	0	MkrS.RkvS.Dy.RkvI.AcSm	Mi00811	Cumulative meter active streams, archive period, daily
3	I- 812	UINT16	1	MkrS.RkvS.Dy.RkvI.AcS0	Mi00812.L	Active stream at closing (0-based), archive period, daily
				MkrS.RkvS.Dy.RkvI.Mstt	Mi00812.H	Cumulative meter status, archive period, daily
4+	I- 856+	UINT32	2	MkrS.RkvS.Dy.RkvI.Flsc (Lo)	Mi00856-Mi00857	Flowing period (seconds), archive period, daily
			3	MkrS.RkvS.Dy.RkvI.Flsc (Hi)		
6+	I- 854+	UINT32	4	MkrS.RkvS.Dy.RkvI.Durn (Lo)	Mi00854-Mi00855	Period duration (seconds), archive period, daily
			5	MkrS.RkvS.Dy.RkvI.Durn (Hi)		
8+	I- 350+	UINT32	6	Macm.AcmK.Dy.Totl + Macm.AcmK.Dy.Rsdu	Mi00350-Mi00351	Accumulator, total, archive period, daily

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
10+	I- 352+	Float32			Mi00352-Mi00353	Accumulator, residue, archive period, daily
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I-80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 82+	Float32	12	Mrsl.InSc.DnsF	Mi00082-Mi00083	Process input, scaled float, density
22+	I- 84+	Float32	13	Mrsl.InSc.Wtrc	Mi00084-Mi00085	Process input, scaled float, water content
24+	I- 242+	Float32	14	Mrsl.DnsR	Mi00242-Mi00243	API 2540, Density at reference
26+	I- 224+	Float32	15	Mrsl.CtpC	Mi00224-Mi00225	API 2540, Temperature and pressure correction factor, CTPL
28+	I- 102+	Float32	16	Mrsl.Kfac	Mi00102-Mi00103	K Factor
30+	I- 104+	Float32	17	Mrsl.Mfac	Mi00104-Mi00105	Meter Factor
32+	I- 300+	UINT32	18	Macm.PlsK.Dy (Lo)	Mi00300-Mi00301	Manufactured pulse count, archive reset, daily
			19	Macm.PlsK.Dy (Hi)		

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
34+	I- 96+	UINT32	20	Mrsl.PlsC (Lo)	Mi00096-Mi00097	Current manufactured pulse count
			21	Mrsl.PlsC (Hi)		
36+	I- 4+	Float32	22	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 842+	Float32	23	MkrS.RkvS.Dy.RkvI.FpAO.Ms	Mi00842-Mi00843	Non-resettable accumulator, mass, archive period, daily, opening timestamp
40	-	-	-	-	-	-
41	-	-	-	-	-	-
42	-	-	-	-	-	-
43	-	-	-	-	-	-
44+	I- 8+	Float32	24	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 846+	Float32	25	MkrS.RkvS.Dy.RkvI.FpAO.Nt	Mi00846-Mi00847	Non-resettable accumulator, net, archive period, daily, opening timestamp
48+	I- 10+	Float32	26	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 848+	Float32	27	MkrS.RkvS.Dy.RkvI.FpAO.Gr	Mi00848-Mi00849	Non-resettable accumulator, gross, archive period, daily, opening timestamp
52+	I- 12+	Float32	28	Mrsl.FpAc.St	Mi00012-Mi00013	Non-resettable accumulator, gross standard, closing timestamp
54+	I- 850+	Float32	29	MkrS.RkvS.Dy.RkvI.FpAO.St	Mi00850-Mi00851	Non-resettable accumulator, gross standard, archive period, daily, opening timestamp
56+	I- 14+	Float32	30	Mrsl.FpAc.Wt	Mi00014-Mi00015	Non-resettable accumulator, water, closing timestamp

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
58+	I- 852+	Float32	31	MkrS.RkvS.Dy.RkvI.FpAO.Wt	Mi00852-Mi00853	Non-resettable accumulator, water, archive period, daily, opening timestamp
60+	I- 236+	Float32	32	Mrsl.VpsA	Mi00236-Mi00237	API 2540, Vapor pressure, absolute
62	-	-	-	-	-	-
63	-	-	-	-	-	-
64+	H- 780+	Float32	33	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
66+	H- 782+	Float32	34	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
68+	H- 784+	Float32	35	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
70+	-	-	36	-	-	-
72+	-	-	37	-	-	-
74+	-	-	38	-	-	-
76+	-	-	39	-	-	-
78+	-	-	40	-	-	-
80+	-	-	41	-	-	-
82+	-	-	42	-	-	-
84+	-	-	43	-	-	-
86+	-	-	44	-	-	-
88+	-	-	45	-	-	-
90+	-	-	46	-	-	-
92+	-	-	47	-	-	-
94+	-	-	48	-	-	-
96+	-	-	49	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
98+	-	-	50	-	-	-
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-
-	-	-	54	-	-	-
-	-	-	55	-	-	-
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

Archive #2 (Hourly)

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
0+			Date	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, date (MMDDYY.0)
			Time	MkrS.Rkiv.Hr.Tstp	Mi00700-Mi00701	Archive period, hourly, closing timestamp, time (HHMMSS.0)
2	I- 871	UINT16	0	MkrS.RkvS.Hr.RkvI.AcSm	Mi00871	Cumulative meter active streams, archive period, hourly
3+	I- 872	UINT16	1	MkrS.RkvS.Hr.RkvI.AcS0	Mi00872.L	Active stream at closing (0-based), archive period, hourly
				MkrS.RkvS.Hr.RkvI.Mstt	Mi00872.H	Cumulative meter status, archive period, hourly
4+	I- 916	UINT32	2	MkrS.RkvS.Hr.RkvI.Flsc (Lo)	Mi00916-Mi00917	Flowing period (seconds), archive period, hourly
			3	MkrS.RkvS.Hr.RkvI.Flsc (Hi)		
6+	I- 914	UINT32	4	MkrS.RkvS.Hr.RkvI.Durn (Lo)	Mi00914-Mi00915	Period duration (seconds), archive period, hourly
			5	MkrS.RkvS.Hr.RkvI.Durn (Hi)		
8+	I- 354+	UINT32	6	Macm.AcmK.Hr.Totl + Macm.AcmK.Hr.Rsdu	Mi00354-Mi00355	Accumulator, total, archive period, hourly
10+	I- 356+	Float32			Mi00356-Mi00357	Accumulator, residue, archive period, hourly
12+	I- 30+	UINT32	7	Mrsl.Malm (Lo)	Mi00030	Meter Alarms
			8	Mrsl.Malm (Hi)	Mi00031	Meter Alarms
14+	I- 76+	Float32	9	Mrsl.InSc.DifP	Mi00076-Mi00077	Process input, scaled float, differential pressure
				Mrsl.InSc.Pfrq	Mi00076-Mi00077	Process input, scaled float, pulse frequency

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
				Mrsl.InSc.Frat	Mi00076-Mi00077	Process input, scaled float, flow rate
16+	I- 78+	Float32	10	Mrsl.InSc.Temp	Mi00078-Mi00079	Process input, scaled float, temperature
18+	I- 80+	Float32	11	Mrsl.InSc.Pres	Mi00080-Mi00081	Process input, scaled float, pressure
20+	I- 82+	Float32	12	Mrsl.InSc.DnsF	Mi00082-Mi00083	Process input, scaled float, density
22+	I- 84+	Float32	13	Mrsl.InSc.Wtrc	Mi00084-Mi00085	Process input, scaled float, water content
24+	I- 242+	Float32	14	Mrsl.DnsR	Mi00242-Mi00243	API 2540, Density at reference
26+	I- 224+	Float32	15	Mrsl.CtpC	Mi00224-Mi00225	API 2540, Temperature and pressure correction factor, CTPL
28+	I- 102+	Float32	16	Mrsl.Kfac	Mi00102-Mi00103	K Factor
30+	I- 104+	Float32	17	Mrsl.Mfac	Mi00104-Mi00105	Meter Factor
32+	I- 302+	UINT32	18	Macm.PlsK.Hr (Lo)	Mi00302-Mi00303	Manufactured pulse count, archive reset, hourly
			19	Macm.PlsK.Hr (Hi)		
34+	I- 96+	UINT32	20	Mrsl.PlsC (Lo)	Mi00096-Mi00097	Current manufactured pulse count
			21	Mrsl.PlsC (Hi)		
36+	I- 4+	Float32	22	Mrsl.FpAc.Ms	Mi00004-Mi00005	Non-resettable accumulator, mass, closing timestamp
38+	I- 902+	Float32	23	MkrS.RkvS.Hr.RkvI.FpAO.Ms	Mi00902-Mi00903	Non-resettable accumulator, mass, archive period, hourly, opening timestamp
40	-	-	-	-	-	-
41	-	-	-	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
42	-	-	-	-	-	-
43	-	-	-	-	-	-
44+	I- 8+	Float32	24	Mrsl.FpAc.Nt	Mi00008-Mi00009	Non-resettable accumulator, net, closing timestamp
46+	I- 906+	Float32	25	MkrS.RkvS.Hr.RkvI.FpAO.Nt	Mi00906-Mi00907	Non-resettable accumulator, net, archive period, hourly, opening timestamp
48+	I- 10+	Float32	26	Mrsl.FpAc.Gr	Mi00010-Mi00011	Non-resettable accumulator, gross, closing timestamp
50+	I- 908+	Float32	27	MkrS.RkvS.Hr.RkvI.FpAO.Gr	Mi00908-Mi00909	Non-resettable accumulator, gross, archive period, hourly, opening timestamp
52+	I- 12+	Float32	28	Mrsl.FpAc.St	Mi00012-Mi00013	Non-resettable accumulator, gross standard, closing timestamp
54+	I- 910+	Float32	29	MkrS.RkvS.Hr.RkvI.FpAO.St	Mi00910-Mi00911	Non-resettable accumulator, gross standard, archive period, hourly, opening timestamp
56+	I- 14+	Float32	30	Mrsl.FpAc.Wt	Mi00014-Mi00015	Non-resettable accumulator, water, closing timestamp
58+	I- 912+	Float32	31	MkrS.RkvS.Hr.RkvI.FpAO.Wt	Mi00912-Mi00913	Non-resettable accumulator, water, archive period, hourly, opening timestamp
60+	I- 236	Float32	32	Mrsl.VpsA	Mi00236-Mi00237	API 2540, Vapor pressure, absolute
62	-	-	-	-	-	-
63	-	-	-	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
64+	H- 780+	Float32	33	Musr.Favg[0]	Mh00780-Mh00781	User-specified archivable flow-averaged float #1
66+	H- 782+	Float32	34	Musr.Favg[1]	Mh00782-Mh00783	User-specified archivable flow-averaged float #2
68+	H- 784+	Float32	35	Musr.Favg[2]	Mh00784-Mh00785	User-specified archivable flow-averaged float #3
-	-	-	36	-	-	-
-	-	-	37	-	-	-
-	-	-	38	-	-	-
-	-	-	39	-	-	-
-	-	-	40	-	-	-
-	-	-	41	-	-	-
-	-	-	42	-	-	-
-	-	-	43	-	-	-
-	-	-	44	-	-	-
-	-	-	45	-	-	-
-	-	-	46	-	-	-
-	-	-	47	-	-	-
-	-	-	48	-	-	-
-	-	-	49	-	-	-
-	-	-	50	-	-	-
-	-	-	51	-	-	-
-	-	-	52	-	-	-
-	-	-	53	-	-	-
-	-	-	54	-	-	-
-	-	-	55	-	-	-

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name**	**Modbus Address**	**Dictionary Tag Description**
-	-	-	56	-	-	-
-	-	-	57	-	-	-
-	-	-	58	-	-	-
-	-	-	59	-	-	-

6.5 MASC Default Archive Configuration

When mass allocation shrinkage calculation (MASC) is enabled, you have the option to reinitialize the archive configuration files to the MASC default archive configuration. If you choose to do so, the following data points will be added to the daily and hourly default archive configuration.

Note: MASC archive configuration applies only to liquid meters.

AFC			Enron Modbus			
Offset	**Register**	**Data Type**	**Data Offset**	**Dictionary Tag Name***	**Modbus Address**	**Dictionary Tag Description**
70+	I- 1906+	Float32	33	MasR[00].CDOS	Mh00786-Mh00787	EOS oil density at standard conditions corrected
72+	I- 1908+	Float32	34	MasR[00].CDNS	Mh00788-Mh00789	EOS NGL density at standard conditions corrected
74+	I- 1892+	Float32	35	MasR[00].RgoS	Mh00790-Mh00791	EOS gas-oil ratio, standard
76+	I- 1932+	Float32	36	MasR[00].RaGS	Mh00792-Mh00793	Flash gas separator meter volume rolling average accumulation
78+	I- 1664+	Float32	37	MasR[00].MaAM.DyPv.OilM.FpAc	Mh00794-Mh00795	MASC accumulators, previous day, oil, volume, collapsed (bbl)
80+	I- 1670+	Float32	38	MasR[00].MaAM.DyPv.NglM.FpAc	Mh00796-Mh00797	MASC accumulators, previous day, NGL, volume, collapsed (bbl)
82+	I- 1676+	Float32	39	MasR[00].MaAM.DyPv.FGsM.FpAc	Mh00798-Mh00799	MASC accumulators, previous day, flash gas, volume, collapsed (bbl)

Note: In the tag name, "[00]" refers to Meter 1. This value can be [00] through [15] depending on the meter number.

7 Support, Service & Warranty

7.1 Contacting Technical Support

ProSoft Technology, Inc. is committed to providing the most efficient and effective support possible. Before calling, please gather the following information to assist in expediting this process:

- Product Version Number
- System architecture
- Network details

If the issue is hardware related, we will also need information regarding:

- Module configuration and associated ladder files, if any
- Module operation and any unusual behavior
- Configuration/Debug status information
- LED patterns
- Details about the interfaced serial, Ethernet or Fieldbus devices

Note: For technical support calls within the United States, ProSoft's 24/7 after-hours phone support is available for urgent plant-down issues.

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For additional ProSoft Technology contacts in your area, please visit:

https://www.prosoft-technology.com/About-Us/Contact-Us.

7.2 Warranty Information

For complete details regarding ProSoft Technology's TERMS & CONDITIONS OF SALE, WARRANTY, SUPPORT, SERVICE AND RETURN MATERIAL AUTHORIZATION INSTRUCTIONS, please see the documents at:
www.prosoft-technology/legal