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## RS485\_Steam\_Meter

**Protocol Datasheet:**



**Request(hex):** 2330310D

**(Char):** #01↵

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Start byte[1]** | **Address[2]** | **Stop byte[1]** |
| **Hex** | **23** | **3031** | **0D** |
| **Char** | **#** | **01** | ↵ |

**Reply(Char):** =+026418.47@<CR>

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Start byte[1]** | **Signed[1]** | **Reading[9]** | **Unknown[1]** | **Stop byte[1]** |
| **Hex** | **3D** | **2B** |  | **40** | **0D** |
| **Char** | **=** | **+** | **026418.47** | **@** | ↵ |

**Reading format:**

Reading value = ASCII(Big Endianness)(with decimal point)

Eg. 026418.47(Char) => 26418.47t

\*\* “.”is decimal point.

**AVR program:**

|  |  |
| --- | --- |
| **Start byte** | **‘=’** |
| **Stop byte** | **‘\r’ or ‘\n’** |
| **BAUD** | **9600** |

**Middleware Config:**

|  |  |
| --- | --- |
| **Trim Before** | **1** |
| **Trim After** | **1** |

## RS485\_Electric\_Meter

**Protocol Datasheet:**

****

**Request** **(Char):** !01201X170001G<CR><LF>

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Start byte [1]** | **Msg Len**  **[3]** | **Slave Add**  **[2]** | **Msg Type**  **[1]** | **Msg body**  **[0~246]** | **CheckSum**  **[1]** | **Stop byte**  **[2]** |
| **Hex** | **21** | **303132** | **3031** | **58** |  |  | **0D0A** |
| **Char** | **!** | **012** | **01** | **X** | **170001** | **G** | **<CR><LF>** |

**Reply(Char):** !01601X0100458C1AU<CR><LF>

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Start byte[1]** | **Unknow[8]** | **Reading[8]** | **CheckSum[1]** | **Stop byte[1]** |
| **Hex** | **21** |  |  |  | **0D0A** |
| **Char** | **!** | **01601X01** | **00458C1A** | **U** | <CR><LF> |

**Reading format:**

Reading value = Hex

Eg. 00458C1A(Hex) => 4557850 KWH (Dec)

**AVR program:**

|  |  |
| --- | --- |
| **Start byte** | **‘!’** |
| **Stop byte** | **‘\r’ or ‘\n’** |
| **BAUD** | **9600** |

**Middleware Config:**

|  |  |
| --- | --- |
| **Trim Before** | **8** |
| **Trim After** | **1** |

## RS485\_HF\_Steam\_Meter

**Request(hex):** CA3132 or 213132

|  |  |  |
| --- | --- | --- |
|  | **Start byte[1]** | **Address[2]** |
| **Hex** | **21** | **3132** |
| **Char** | **!** | **12** |

\*\* Initial address of Steam meter in HF is 12.

**Reply(hex):** :<01010000000011470000000000000000000000000000000000:=

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Start byte[2]** | **Unknown[4]** | **Reading[12]** | **Unknown[34]** | **Stop byte[2]** |
| **Char** | **:<** | **0101** | **000000001147** | **00…00** | **:=** |

**Reading format:**

Reading value = ASCII(Big Endianness) / 100

Eg. 000000001147(ASCII) => 11.47m3

**AVR program:**

|  |  |
| --- | --- |
| **Address** | **12** |
| **Start byte** | **‘<’** |
| **Stop byte** | **‘=’** |
| **BAUD** | **9600** |

**Middleware Config:**

|  |  |
| --- | --- |
| **Trim Before** | **4** |
| **Trim After** | **35** |

## RS485\_HF\_Digital\_Water\_Meter

**Protocol Datasheet:**



**Request(hex):** 2A01042E

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Start byte[1]** | **Address[1]** | **Comment[1]** | **Stop byte[1]** |
| **Hex** | **2A** | **01** | **04** | **2E** |

\*\*Comment = 4 means正向总量

**Reply(hex):** 01 04 06 43 00 00 00 04 41 AA

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Address** | **Comment** | **D0** | **D1** | **D2** | **D3** | **D4** | **D5** | **Checksum** | **Stop byte** |
| **Hex** | **01** | **04** | **06** | **43** | **00** | **00** | **00** | **04** | **41** | **AA** |

**Reading format:**

**D0 ~ D4 : Reading**

**D5 : Unit**

D4 = ( D4 >> 4) \*10 + (D4 & 0x0F)

D3 = ( D3 >> 4) \*10 + (D3 & 0x0F)

D2 = ( D2 >> 4) \*10 + (D2 & 0x0F)

D1 = ( D1 >> 4) \*10 + (D1 & 0x0F)

D0 = ( D0 >> 4) \*10 + (D0 & 0x0F)

Total value = 100000000 \* D4 + 1000000 \* D3 + 10000 \* D2 + 100 \* D1 + D0;

|  |  |
| --- | --- |
| **D5** | **4** |
| **Unit** | **0.001m3** |

**\*\* Middleware does not read the value of D5. It just be set in middleware config.**

Reading value = Packed BCD( Little Endianness) / 1000

Eg. 0643000000(D0~D4)(Hex) => 4.306 m3

**AVR program:**

|  |  |
| --- | --- |
| **Start byte** | **0x01** |
| **Stop byte** | **0xAA** |
| **BAUD** | **9600** |

**Middleware Config:**

|  |  |
| --- | --- |
| **Trim Before** | **1** |
| **Trim After** | **2** |
| **Meter Ratio** | **0.001** |

## RS485\_AFT\_Steam\_Meter

**Protocol Datasheet:**



**Request(hex):** 4001010204

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Start byte[1]** | **Address[1]** | **unknown[1]** | **Comment[1]** | **Checksum[1]** |
| **Hex** | **40** | **01** | **01** | **02** | **04** |

\*\*Comment = 0x02 means累积流量

**Reply(hex):** C0 01 04 27 35 43 52 F5

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Start byte[1]** | **Address[1]** | **Unknown[1]** | **Reading[4]** | **Checksum[1]** |
| **Hex** | **C0** | **01** | **04** | **27354352** | **F5** |

**Reading format:**

Reading value = Packed BCD( Big Endianness) / 1000

Eg. 27354352(Hex) => 27354.352 m3 (kg)

**AVR program:**

|  |  |
| --- | --- |
| **Start byte** | **0xC0** |
| **BAUD** | **2400** |

\*\* No Stop byte. Fixed total length = 8

**Middleware Config:**

|  |  |
| --- | --- |
| **Trim Before** | **2** |
| **Trim After** | **0** |
| **Meter Ratio** | **0.001** |