



Vaisala Weather Ascii Serial Driver FS-8705-40

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Driver Version: 0.00
Document Revision: 1

TABLE OF CONTENTS

1 VAISALA ASCII DRIVER DESCRIPTION3

2 DRIVER SCOPE OF SUPPLY4

 2.1 SUPPLIED WITH THIS DRIVER4

3 HARDWARE CONNECTIONS.....5

 3.1 BLOCK DIAGRAM.....5

 3.2 CABLE CONNECTIONS.....6

4 CONFIGURING THE FIELDSEVER AS A VAISALA TRANSMITTER ASCII CLIENT7

 4.1 DATA ARRAYS.....8

 4.1.1 *Data Arrays – Example*.....8

 4.2 CLIENT SIDE CONNECTIONS9

 4.2.1 *Client Side Connection Descriptions – Example*.....9

 4.3 CLIENT SIDE NODES10

 4.3.1 *Client Side Nodes – Example*10

 4.4 CLIENT SIDE MAP DESCRIPTORS11

 4.4.1 *FieldServer Related Map Descriptor Parameters*11

 4.4.2 *Driver Related Map Descriptor Parameters*11

 4.5 EXAMPLES.....13

 4.5.1 *Map Descriptor Example 1 – Read Data*13

 4.5.2 *Map Descriptor Example 2 – Reset*15

5 CONFIGURING THE FIELDSEVER AS A VAISALA TRANSMITTERSERVER16

6 SUPPORTED COMMUNICATIONS FUNCTIONS17

7 REVISION HISTORY18

APPENDIX A. ADVANCED TOPICS.....19

 APPENDIX A.1 DRIVER ERROR MESSAGES19

1 Vaisala Ascii Driver Description

This serial driver connects to a trunk of 1 or more Vaisala Weather Transmitters that support the Vaisala Ascii Protocol like the WXT530 transmitter. It is capable of reading operational and status data from each transmitter as well as send reset commands.

The driver is capable of being linked with other FieldServer drivers to form regular FieldServer firmware that can be installed on QuickServer and other FieldServer gateways. Other drivers can access the Vaisala Transmitter data and serve using other protocols such as BACnet and Modbus .

The driver is an active client driver in that it poll's for data – reading or writing data from meters. It cannot be used to simulate a Vaisala transmitter. Because only the client side of the protocol is implemented.



Max Nodes Supported

FIELDSEVER MODE	NODES	COMMENTS
Client	Many	Number of Transmitters is determined by vendor and RS485 limitations. Trunks of dozens of devices supported.
Server	0	Not supported or documented.

2 Driver Scope of Supply

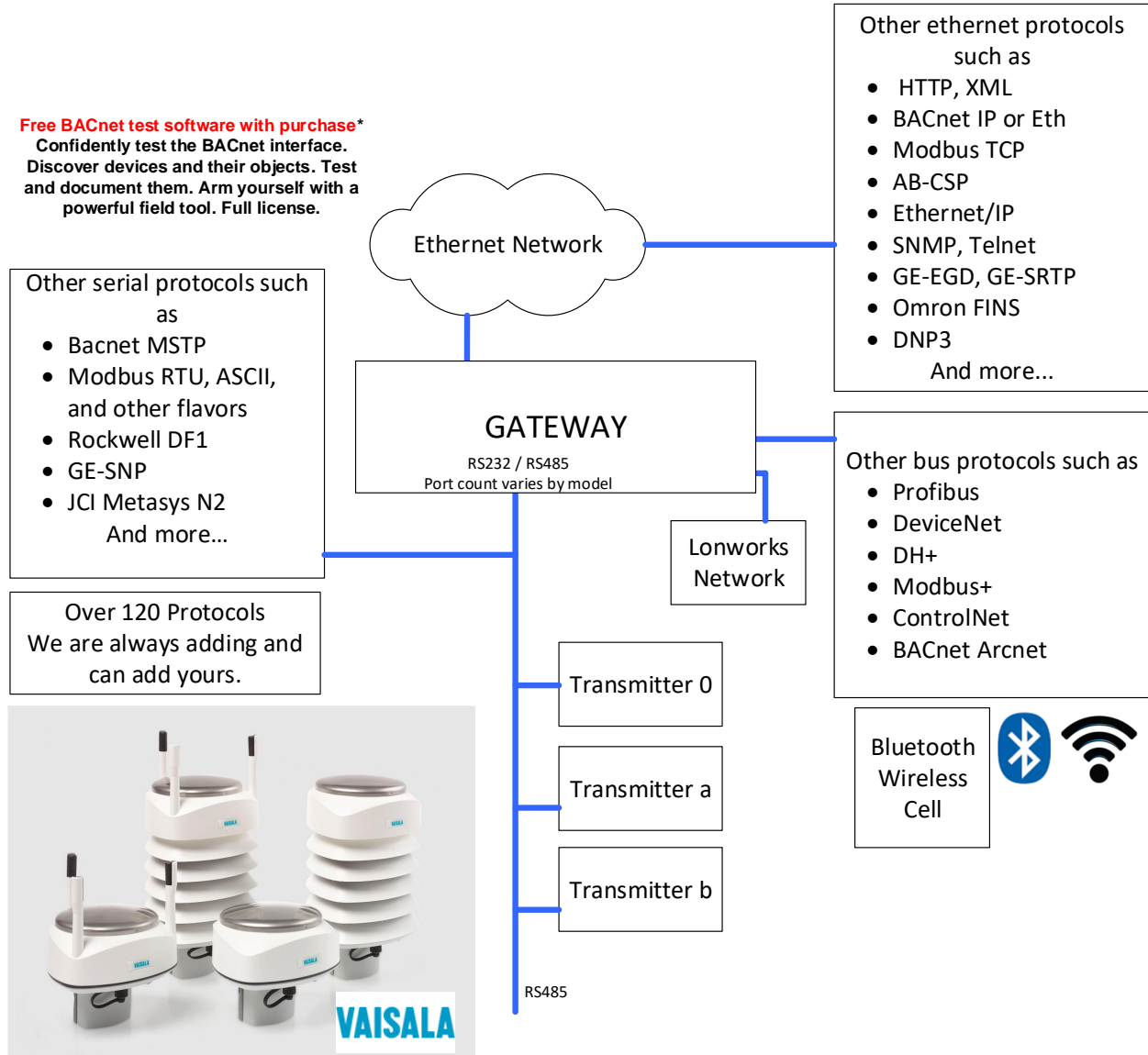
2.1 Supplied with this driver

FIELDSEVER TECHNOLOGIES PART #	DESCRIPTION
Cables	No specific cables are shipped with this driver.
FS-8705-40	Driver Manual.

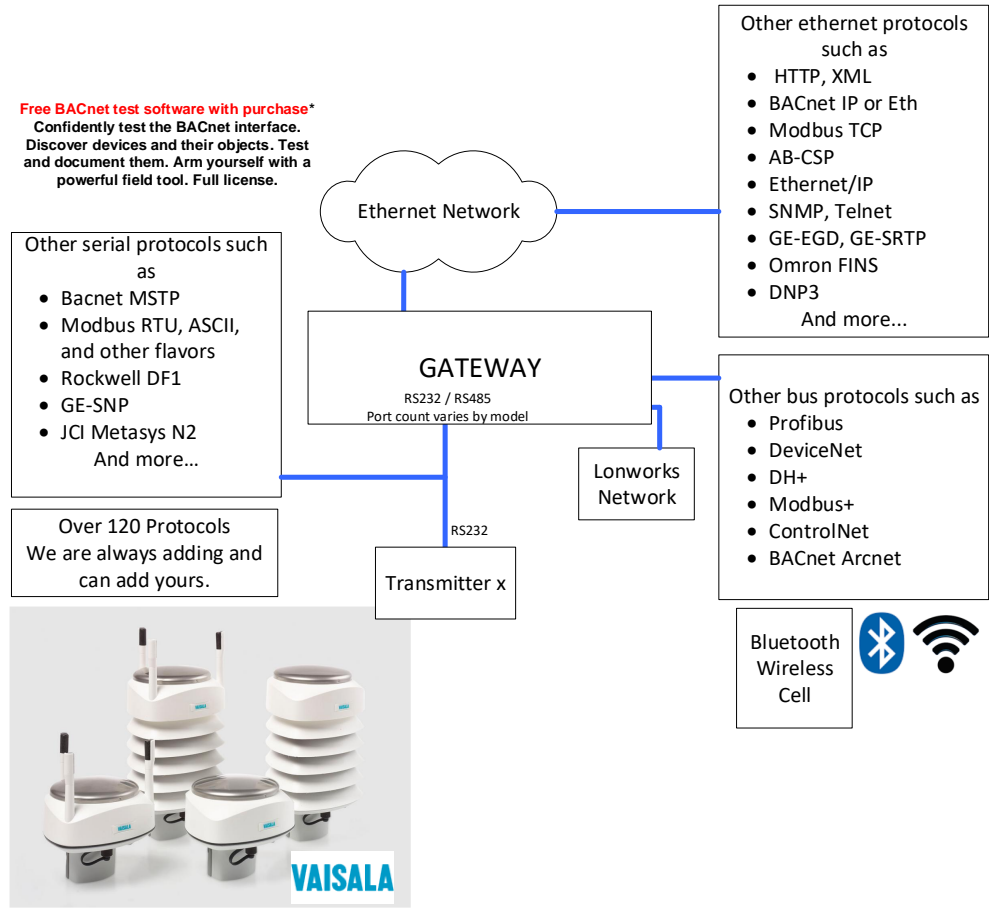
3 Hardware Connections

3.1 Block Diagram

Multiple WorkStation protocols and connection supported. See list of FieldServer Drivers.



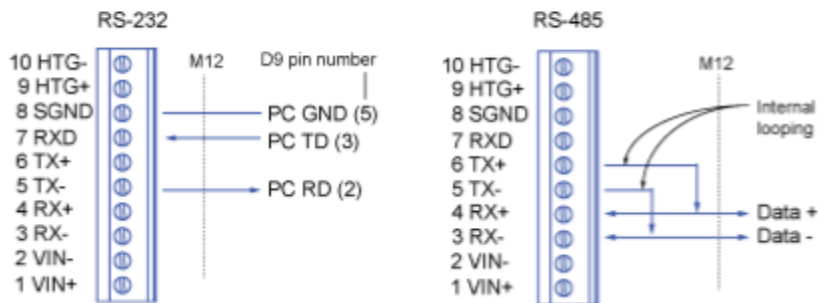
Vaisala Weather Ascii



Vaisala Weather Ascii

3.2 Cable Connections

5.5 Data Communication Interfaces



4 Configuring the FieldServer as a Vaisala Transmitter Ascii Client

For a detailed discussion on FieldServer configuration, please refer to the FieldServer Configuration Manual. The information that follows describes how to expand upon the factory defaults provided in the configuration files included with the FieldServer (See “.csv” sample files provided with the FS).

This section documents and describes the parameters necessary for configuring the FieldServer to communicate with a Vaisala Transmitter system.

The configuration file tells the FieldServer about its interfaces, and the routing of data required. In order to enable the FieldServer for Vaisala Transmitter monitoring, the driver’s independent FieldServer buffers need to be declared in the “Data Arrays” section, the destination device addresses need to be declared in the “Client Side Nodes” section, and the data required from the servers needs to be mapped in the “Client Side Map Descriptors” section. Details on how to do this can be found below.

Note that in the tables, * indicates an optional parameter, with the bold legal value being the default.

4.1 Data Arrays

SECTION TITLE		
Data_Arrays		
COLUMN TITLE	FUNCTION	LEGAL VALUES
Data_Array_Name	Provide name for Data Array	Up to 15 alphanumeric characters
Data_Array_Format	Provide data format. Each Data Array can only take on one format.	Recommended: Bit, UInt16, Also Supported: Float, UInt32, SInt16, Packed_Bit, Byte, Packed_Byte, Swapped_Byte
Data_Array_Length	Number of Data Objects. Must be larger than the data storage area required by the Map Descriptors for the data being placed in this array.	1-10,000

4.1.1 Data Arrays – Example

```
// Data Arrays
Data_Arrays
Data_Array_Name,          Data_Format,          Data_Array_Length,
Vaisala_Stats,           UNT16,                200
DA_DATA,                 FLOAT,                200
```


4.2 Client Side Connections

Create one connection for each trunk of Vaisala Transmitters.

SECTION TITLE		
Connections		
COLUMN TITLE	FUNCTION	LEGAL VALUES
Port	Specify which port the device is connected to the FieldServer	P1-P8
Protocol	Specify protocol used	VaisalaAscii
Baud*	Specify baud rate	Driver Supports : 110; 300; 600; 1200; 2400; 4800; 9600 ; 19200; 28800; 38400; 57600 Baud
Data_Bits *	Specify parity	Driver Supports : 7,8
Stop_Bits*	Specify data bits	Driver Supports : 1,2
Parity *	Specify stop bits	Driver Supports : Odd, Even, None

4.2.1 Client Side Connection Descriptions – Example

```
// Client Side Connections

Connections

Port,      Baud   Parity,   Data_Bits,  Stop_Bits,  Protocol
R1,        9600   None,     8,          1,          VaisalaAscii
```

4.3 Client Side Nodes

Create one Node per FACP in the network only.

SECTION TITLE		
Nodes		
COLUMN TITLE	FUNCTION	LEGAL VALUES
Node_Name	Provide name for node	Up 12 of the max of 32 alphanumeric characters possible to specify the Node name.
Node_ID	Not used directly by the driver	0-255 Commonly omitted. If you are using Node_Status bits then allocate a Node_ID. Give each meter a unique number.
Vaisala_Device_Address	The address of the Vaisala Transmitter.	0..9 a..z A..Z Specify a single char/digit
Protocol	Specify protocol used	VaisalaAscii

4.3.1 Client Side Nodes – Example

```
// Client Side Nodes

Nodes
Node_Name,      Node_ID,      Protocol,      Vaisala_Device_Address,      Connection
Node_a,         0,              VaisalaAscii, a                               R1
```

4.4 Client Side Map Descriptors

4.4.1 FieldServer Related Map Descriptor Parameters

COLUMN TITLE	FUNCTION	LEGAL VALUES
Map_Descriptor_Name	Name of this Map Descriptor	Up to 32 alphanumeric characters
Data_Array_Name	Name of Data Array where data is to be stored in the FieldServer	One of the Data Array names from "Data Array" section above
Data_Array_Offset	Starting location in Data Array	0 to maximum specified in "Data Array" section above
Function	Function of Client Map Descriptor.	Rdbc,wrbc,wrbc

4.4.2 Driver Related Map Descriptor Parameters

COLUMN TITLE	FUNCTION	LEGAL VALUES
Node_Name	Name of Node to fetch data from	One of the node names specified in "Client Node Descriptor" above
Data_Type	This commonly used parameter is not used by this driver.	
Length	Length of Map Descriptor Reserves space in the Data Array.	When reading data set to 24 or greater When resetting, set length to 1
Address	This commonly used parameter is not used by this driver.	
Vaisala_CMD	Specify the command you wish to use. Use one of the strings indicated in the next column	General Reset Counter Reset

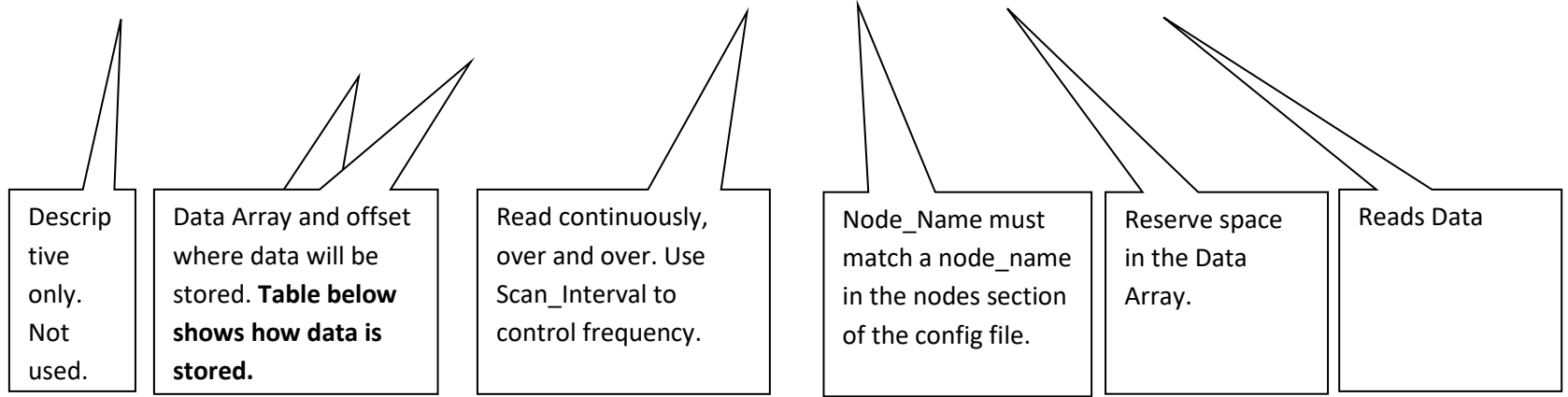
		Intensity Reset Measurement Reset Read Data
--	--	---------------------------------------------------

4.5 Examples

4.5.1 Map Descriptor Example 1 – Read Data

This is the only function available to read energy data from a V3 Meter

```
Map_Descriptors
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Function , Node_Name , Length ,Vasia;a_CMD
Read_Node_a , DA_Data_Node_a , 0 , Rdbc , Node_a , 24 ,Read Data
```



When the data is extracted from the response they are stored in the data array locations indicated below. This is irrespective of the order of these variables in the response payload. Thus you do not need to worry about firmware updates from Vaisala changing things.

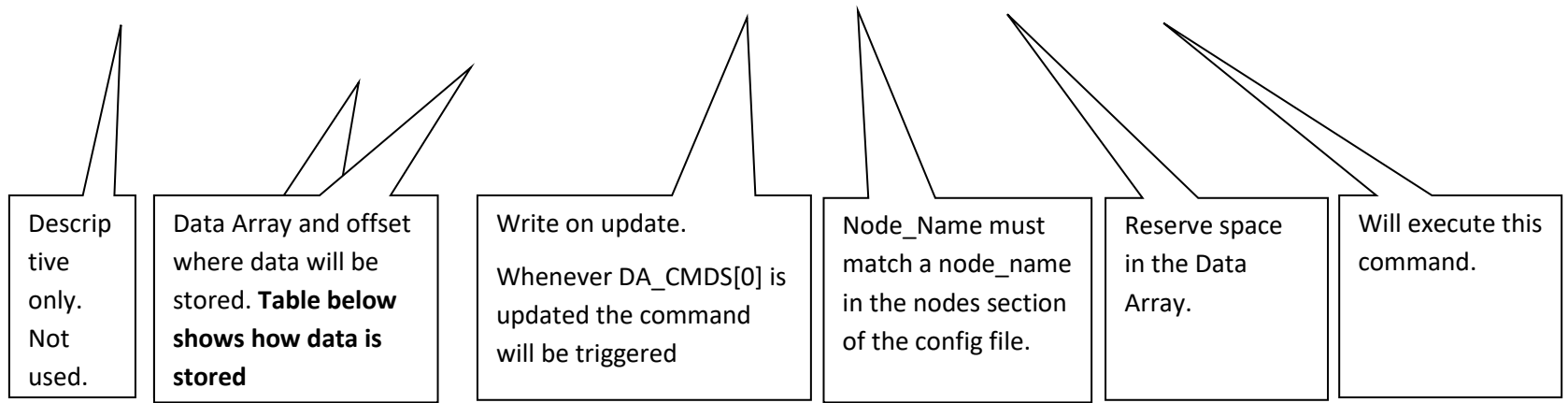
	Variable	Data Array Offset
Sn	Wind speed minimum	1
Sm	Wind speed average	2
Sx	Wind speed maximum	3
Dn	Wind direction minimum	4
	Wind direction average	
Dm	average	5

	Wind direction	
Dx	maximum	6
Pa	Air pressure	7
Ta	Air temperature	8
Tp	Internal temperature	9
Ua	Relative humidity	10
Rc	Rain accumulation	11
Rd	Rain duration	12
Ri	Rain intensity	13
Rp	Rain peak intensity	14
Hc	Hail accumulation	15
Hd	Hail duration	16
Hi	Hail intensity	17
Hp	Hail peak intensity	18
Th	Heating temperature	19
Vh	Heating voltage	20
Vs	Supply voltage	21
Vr	3.5 V ref. voltage	22
Id	Info	N/A

4.5.2 Map Descriptor Example 2 – Reset

Sends the General Reset command.

```
Map_Descriptors
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Function , Node_Name , Length , Vasia;a_CMD
General Reset , DA_CMDS , 0 , wrbx , Node_a , 1 , General Reset
```



5 Configuring the FieldServer as a Vaisala TransmitterServer

This driver cannot be used to emulate an Vaisala Transmitter. If you want to use another energy meter and you want it to appear like an EKM meter then you would need this emulation. Ask our sales department if you need this functionality.

6 Supported Communications functions

Always check the Data Sheet for an accurate and up to date list.

PROTOCOL SERVICE	SUPPORTED
Reset This command performs software reset on the device.	Yes
Precipitation Counter Reset This command resets the rain and hail accumulation and duration parameters Rc, Rd, Hc, and Hd.	Yes
Precipitation Intensity Reset This command resets the rain and hail intensity parameters Ri, Rp, Hi, and Hp	Yes
Measurement Reset This command interrupts all ongoing measurements except rain measurement and restarts them	Yes
Combined Data Message This command requests all individual messages aR1, aR2, aR3, and aR5 with one command.	Yes
Wind Data Message	Yes as part of the combined data message
Pressure, Temperature and Humidity Data Message	Yes as part of the combined data message
Precipitation Data Messag	Yes as part of the combined data message Note 1
Composite Data Message Query	No. Use Combined Data Message Instead
Automatic Mode	Not supported. If you need this feature ask our sales dept.

7 Revision History

DATE	RESP	FORMAT	DRIVER VER.	DOC. REV.	COMMENT
Oct 2019	PMC		0.00	0	Created.
30 Apr 2021	YC		0.00	1	Updated to new template

Appendix A. Advanced Topics

Appendix A.1 Driver Error Messages

ERROR MESSAGE	EXPLANATION AND CORRECTIVE ACTION
<p>We have shown place holders for the parts of the message which change.</p> <p>%s is a place holder for a text string.</p> <p>%d is a place holder for a number</p> <p>%c is a place holder for an alpha character.</p>	<p><i>FYI messages are informational and do not require a corrective action. Simply use them to confirm configuration / behaviors are what you expect.</i></p>
01	<p>The length of the map descriptor must be 24 or greater since a minimum of 24 elements is needed.</p> <p>Correct the map descriptor length in the configuration. Download and restart.</p>
02	<p>This problem will occur under the following conditions;</p> <p>Noise on the line</p> <p>Baud, parity, data and stop bits don't correspond to the device.</p> <p>Other reasons are possible. Take a log and contact tech support.</p>
03	
04	<p>Correct the configuration, download and restart.</p> <p>Valid addresses are one character from the following address range</p> <p>0..9</p> <p>a..z</p> <p>A..Z</p>

05	<p>The parameter 'vaisala_device_addre' must be specified in the config. See section on client node parameters for more info.</p> <p>Correct the configuration, download and restart.</p> <p>Valid addresses are one character from the following address range</p> <p>0..9</p> <p>a..z</p> <p>A..Z</p>
06	<p>The configuration needs correction. One of the Vaisala_function's are not recognized. See the section on client map descriptor parameters for more info. Correct the configuration, download and restart.</p>
07	<p>The map descriptor parameter 'vasala_function' is not defined. It should be.</p> <p>See section on client mapdesc parameters for more info.</p> <p>Correct the configuration, download and restart.</p>