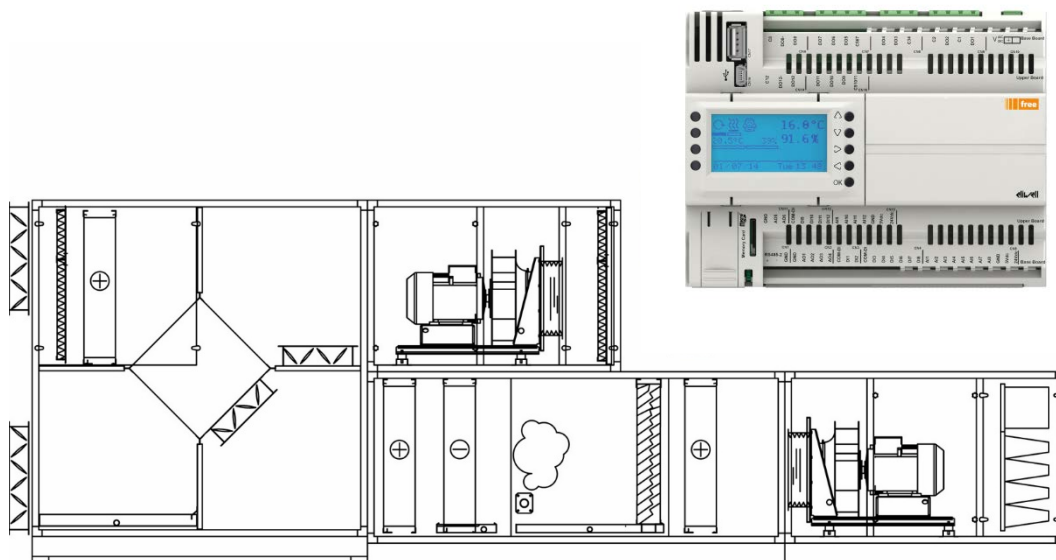


Air Handling Unit FREE Advance



**MANUFACTURER
MANUAL**

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1. INTRODUCTION

1.1. Aim and usage of the manual

This manual is an integral part of the product and is to be **solely** used by the Air Handling Unit (AHU) Manufacturer.

This manual aims to provide all the information needed to:

- correctly carry out all the operations foreseen during the product configuration stages
- guarantee the health safety and protection of staff working on the product in different roles.

This Manual must be read carefully in its entirety before carrying out any operation on the product. If in doubt regarding the correct interpretation of the instructions found herein, contact the Manufacturer for further clarification.

This manual must be stored in a safe place for the entire lifespan of the product. **Only** the Manufacturer can keep it and it must be stored in a place protected against atmospheric agents, heat, humidity and corrosive agents; care must be taken when consulting it to prevent it getting damaged, pages should not be removed nor its content changed in any way.

1.2. Reference documentation

Reference is made further on in this Manual to the following documents.

Document name	Document Code
Air Handling Unit FREE Advance	9MA10026 (ENG) 9MA00276 (ITA)
User Guide FREE Studio	9MA10055 (ENG) 9MA00255 (ITA)
User Guide FREE Advance	9MA10065 (ENG) 9MA00265 (ITA)

Table 1 - Reference documentation

1.3. Consulting the manual

The information in the Manual is arranged as follows:

- chapters,
- sub-chapters,
- paragraphs,
- sub-paragraphs

and these can easily be found by consulting the Index at the start of this Manual.

In order to capture the user's attention so that the product is used properly and safely, the following convention is adopted in the Manual:

NOTE: The symbol is used to supply regulations or updates that are useful to the users.

1.4. Glossary

Term	Meaning	References for further information
Allocation	Assigning specific configurations to inputs and/or outputs of a programmable controller	User Guide FREE Advance Air Handling Unit FREE Advance
Base board	Base board relative to the ADV8400 programmable controller and ADV12600 programmable controller	User Guide FREE Advance
Upper board	Upper board relative to the ADV12600 programmable controller	User Guide FREE Advance
Hidden parameters	Parameters hidden from the user and installer but visible to the Manufacturer	5 Modbus Tables on pag. 35
Visible parameters	Parameters visible to the user, installer and the Manufacturer	Air Handling Unit FREE Advance 5 Modbus Tables on pag. 35
Memory volume (of the controller)	Physical allocation of a memorisation unit relative to a programmable controller	/

Table 2 - Glossary

1.5. Formulation of intellectual property rights

This publication is the exclusive property of the Manufacturer, who completely prohibits any reproduction or distribution if not expressly authorised by the Manufacturer himself.

Every care has been taken in the preparation of this Manual; however the Manufacturer and any person or company involved in its creation and writing cannot accept any liability arising from the use thereof. The Manufacturer reserves the right to make changes or improvements at any time without notice.

2. PRODUCT DESCRIPTION

The product is an AVD controller programmed for application on Air Handling Units (AHU).

The programmed AVD controller can be one of the two described in the following table.

AVD8400	FREE Advance with display, 28 I/Os
AVD12600	FREE Advance with display, 42 I/Os

Table 3 - Programmed AVD controller

The following can be applied to the programmed AVD controller:

- up to two EVE4200 expansions
- up to two remote graphic EVK1000 terminals.

The choice of the programmed AVD controller and the number and kind of devices possibly applied to it is a function of the Air Handling Unit hardware configuration (for further reference see Air Handling Unit FREE Advance).

NOTE: In the continuation of this Manual:

- the programmed AVD controller will be shown with the term “controller”
- the Air Handling Unit will be indicated with the term “AHU” or “UTA” (in \path\ and PLC name)
- the application on AHU with which the controller is programmed will be indicated with the term “applicative”.

Alternatively, the controller can be handled:

- via controller display and keyboard (see User Guide FREE Advance and Air Handling Unit FREE Advance)
- via FREE Studio Device development environment (see **2.2 FREE Studio Device development environment on pag. 8**).

2.1. Configurability in pairs of analogical inputs

The programmed AVD controller is fitted with inputs and outputs that can be configured to handle signals.

Both the AVD8400 and AVD12600 controllers are fitted with the following analogical inputs:

AI1, AI2, AI3, AI4, AI5, AI6, AI7, AI8.

The AVD12600 controller alone is also fitted with the following analogical inputs:

AI9, AI10, AI11, AI12.

As described in the following table, the relative analogical inputs:

- on the base board can be configured in pairs
- on the upper board have a configuration fixed by the applicative.

NOTE: The AVD8400 controller is fitted with the single base board, the AVD12600 controller is fitted with both base board and upper board.

Pairs of analogical inputs	Board on which the analogical input pairs can be found	Configurability of the pairs of analogical inputs
AI1, AI2	Base board	Configurable
AI3, AI4	Base board	Configurable
AI5, AI6	Base board	Configurable
AI7, AI8	Base board	Configurable
AI9, AI10	Upper board	Configurable
AI11, AI12	Upper board	Configurable
AI1, AI2	EVE4200	Fixed equal to NTC (103AT)
AI3, AI4	EVE4200	Fixed equal to 0-10V

Table 4 - Configurability in pairs of analogical inputs

For each pair of configurable analogical inputs, not all signals can be purchased simultaneously (for further information see User Guide FREE Advance).

2.2. FREE Studio Device development environment

In the case of configuration via FREE Studio suite software, the version used must be **3.6 or higher**.

FREE Studio Device development environment allows for:

- the management of previously developed IEC applications
- the IEC applications to be transferred onto the controller (target)
- the controller parameters to be changed by a serial communication port (USB, Ethernet, RS485)
- the volume of the controller to be changed where the applicative is downloaded (see **3.2.1.1. Download of parts of an applicative on pag.11**).

NOTE: At a later date in this Manual, the FREE Studio Device development environment will be indicated with the term "Device".

NOTE: For further information on the Device see the User Guide FREE Studio.

NOTE: The applicative **does not** support the LON (LonWorks) protocol.

3. PRELIMINARY OPERATIONS

The switch-on procedure foresees:

1. power supply of the controller referring to **3.1 Power supply on pag.10**
2. possible programming of the controller referring to **3.2 Programming of the controller on pag.11**
3. authentication with a level 2 password and with reference to **3.3 Authentication with level 2 password on pag.14.**

The controller foresees three different levels of password, depending on the operations permitted to the relative user, as indicated in the following table.

Password level	User	User password (default values)
0	User	-
1	Installer	10
2	Manufacturer	220

Table 5 - Password levels

NOTE: Access to password level 2 is **only** permitted when the AHU is in the OFF status.

NOTE: At a later date in this Manual, the following will respectively be indicated with the term “value camp”:

- for the Device settings, the cell **(1 - Fig 1 - on pag. 9)** of the value column in correspondence with a parameter
- for the controller settings, the data **(2 - Fig 1 - on pag. 9)** shown after a parameter.

A parameter whose value field can be viewed from a drop down menu on Device is normally associated with an enumeration on the controller display.

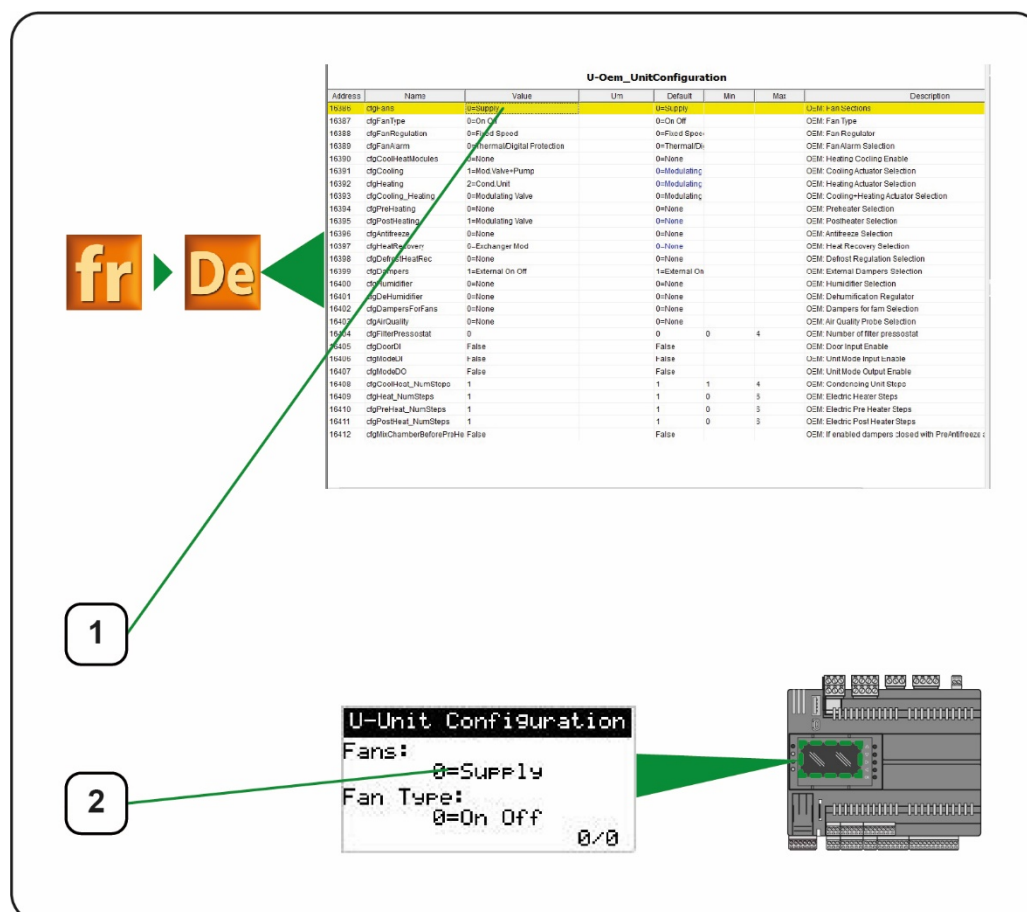


Fig 1 - Value field

3.1. Power supply

In order to power the controller, connect the controller to the PC via a USB cable fitted with the following two connectors at the ends:

- Type-A male connector
- mini-B connector

NOTE: If the controller is powered directly from the PC via the USB cable, during the next configuration (see **4.1 Configuration from Device on pag. 18**) **it is forbidden to** carry out other operations on the controller. As an alternative to the connection via USB cable, it is possible to power the controller via 24 Vac/dc power and connect via Ethernet port or RS485 port.

3.2. Programming the controller

In order to programme from the Device see **3.2.1. Programming from the Device on pag.11.**

In order to programme from the display see **3.2.2. Programming from the display on pag.13.**

3.2.1. Programming from the Device

In the event of further use of the Device, carry out the following operations in this order:

1. start Device
2. open the "UTA.CFN" file
3. connect the controller to the Device
4. activate the Auto refresh mode

NOTE: in the even of de-activation of the Auto refresh mode, it is essential to supply a W written command after changing each value in Device.

5. if you wish to use the datalogging:
 - 5.1. insert a microSD in the relative slot on the controller
 - 5.2. empty the web browser cache
 - 5.3. select the "FileSystem Volumes" folder (see User Guide FREE Advance) in the "UTA/Advance_UTA/BIOS parameters/All parameters" path
 - 5.4. select "1=microSD card" in the value field of the HTTP_volume parameter to save the WebServer on microSD

NOTE: The log data and WebServer need to be saved in the same saving volume: in the event of datalogging activation, both the log data and the WebServer need to be saved on microSD. It is **only** possible to change the file system of the HTTP volume from the Device (for further information see **3.2.1.1 Download of the parts of an applicative on pag. 11).**

3.2.1.1 Download of the parts of an applicative

Each controller applicative is made up of the following parts (**1 - Fig 2 - on pag. 12**):

- PLC
- HMI
- Remote HMI
- Cfg files
- Web site.

It is possible to download each part in one of the two memory volumes (**2 - Fig 2 - on pag. 12**) shown below:

- NOR, memory volume inside the controller
- SD, memory volume on the microSD board out-with the controller.

NOTE: The memories map, NOR and SD, where each part of an applicative is saved following a download onto the controller is defined as "Download settings".

To download the parts of an applicative, carry out the following operations in this order:

1. select "Advance_UTA" in the Device Project panel
2. in the drop down menu of the "Download settings" box:
 - select "Use target settings" (**3 - Fig 2 - on pag. 12**) to use the Download settings defined in the AVD controller
 - select "Use manual settings" (**4 - Fig 2 - on pag. 12**) to manually change the Download settings
3. if "Use manual settings" has already been selected, click the flags that correspond with "NOR" or "SD" to manually select the volume of memory in which each part of the applicative is downloaded
4. click "Download All" to download the applicative parts onto the controller.

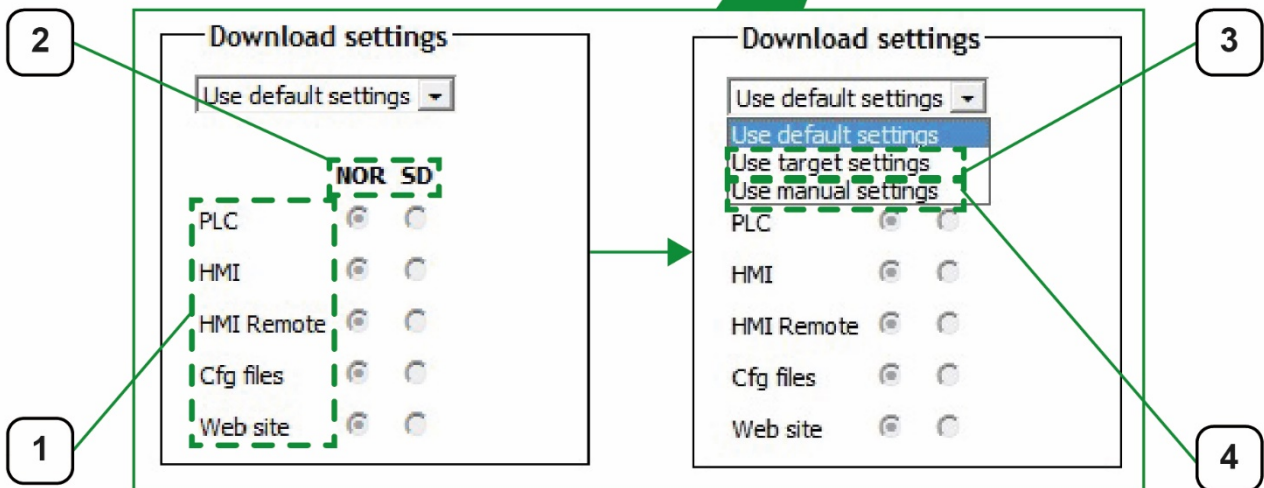
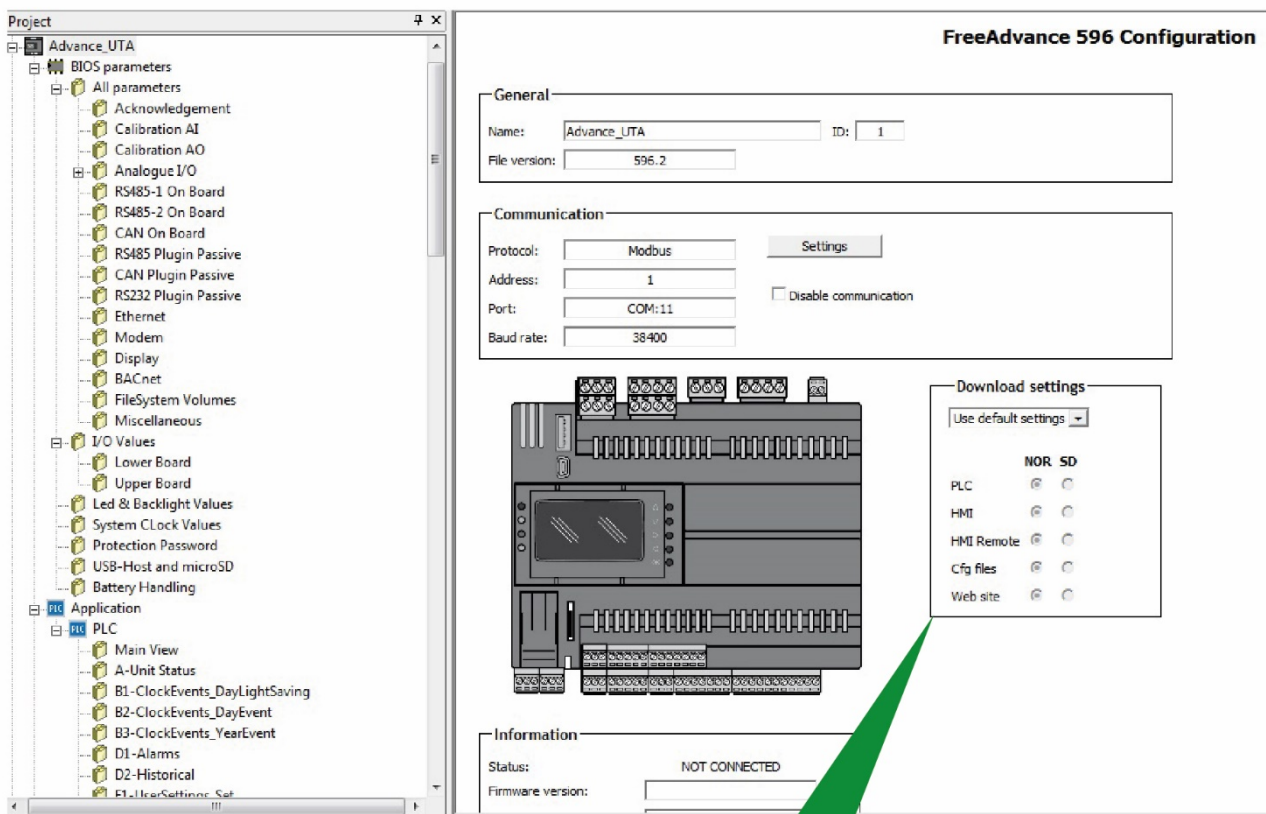


Fig 2 - "Download settings" box

3.2.2. Display programming

Carry out the following operations in order:

1. copy the files found in the USB_AVD8400 or USB_AVD12600 folder onto a USB stick, depending on the controller model
2. insert the USB key in the USB port on the controller
3. wait until automatic download of the files onto the controller is complete.

3.3. Authentication with level 2 password

In order to authenticate from the Device see 3.3.1. Authentication from the Device on pag.14.

In order to authenticate from the display see 3.3.2. Authentication from the display on pag.16.

3.3.1. Authentication from Device

Carry out the following operations in order:

1. select the “G-Password_Entry” folder in the “UTA/Advance_UTA/Application/PLC” path of the Device Project panel

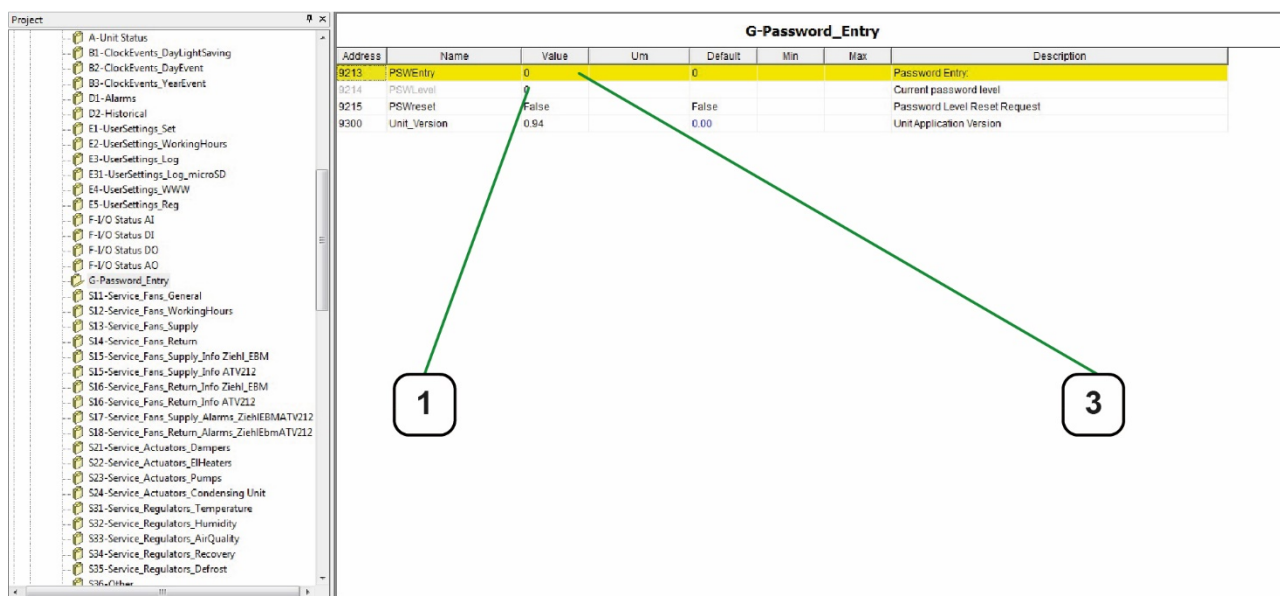


Fig 3 - “G-Password_Entry” Folder

2. visually read the level of current password in the value field of the PSWLevel parameter (1 - Fig 3 - on pag. 14);
3. in the event of a password level that is not 2, select the “W-Oem_Password” folder in the “UTA/Advance_UTA/Application/PLC” path of the Device Project panel

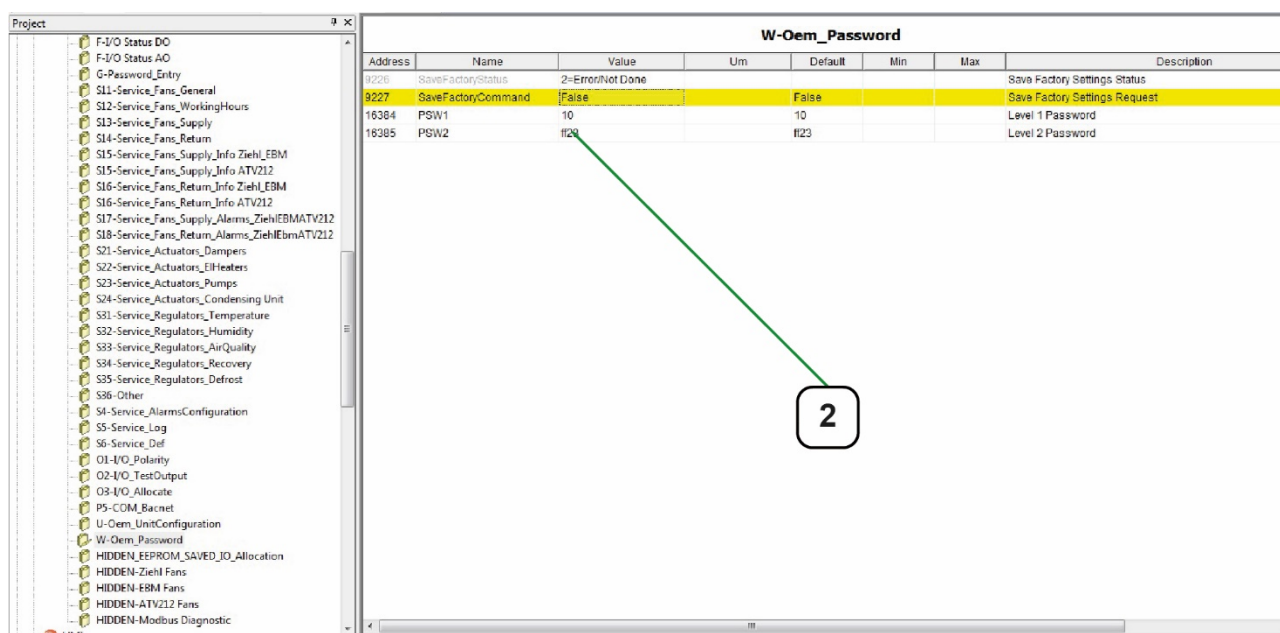


Fig 4 - “W-Oem_Password” Folder

NOTE: The “W-Oem_Password” folder (**Fig 4 - on pag. 14**) allows for the password to be managed and the “Factory.raw” configuration file in the file system to be saved. For further information on “Factory.raw” file, see **3.3.1.1 “Factory.raw” File on pag.15**.

4. visually read the value field of the PSW2 parameter (**2 - Fig 4 - on pag. 14**), visualised in hexadecimal format
5. calculate the **completion** of the value field previously read visually in correspondence with the PSW2 parameter
6. select the “G-Password_Entry” folder
7. edit the value previously calculated on the value field of the PSWEntry parameter (**3 - Fig 3 - on pag. 14**) in decimal format.

NOTE: For example, if the PSW2 parameter value field is equal to “FF23” (hexadecimal), in order to access level 2 password, write “220” (decimal) in the PSWEntry parameter value field.

For further information on the parameters found in the previous folders see the corresponding menus of the controller described in Air Handling Unit FREE Advance.

3.3.1.1 “Factory.raw” File

The “factory.raw” file is a text file with the same formatting as the param.dat files that hold all the configuration parameters. In order to create this file, click “True” in the SaveFactoryCommand in the “W-Oem_Password” folder in the parameter value field. This file is saved in the controller’s internal file system (NOR) and can be used:

- to archive the parameter configuration
- to reset a specific controller configuration.

This file contains the configuration of all the parameters or a sub-group of them if manually created by the Manufacturer.

NOTE: The header of the “factory.raw” file and more generally speaking of the param.dat files, depends on the kind of controller, as this differs between AVD8400 and AVD12600.

For additional information consult the Air Handling Unit FREE Advance.

3.3.2. Authentication from the display

For information on the parameters which are referred to in the different menus of the controller, see Air Handling Unit FREE Advance.
Carry out the following operations in order:

1. select the "G-Password" menu



2. visually read the level of current password in the value field of the PSWLevel parameter
3. if the password level is not 2, select the "W-Password" menu



4. visually read the value field of the PSW2 parameter, visibly displayed in decimal format
5. calculate the **completion** of the value field previously read visually in correspondence with the PSW2 parameter
6. select the "G-Password" menu
7. edit the value previously calculated on the value field of the PSWEntry parameter in decimal format.

NOTE: For example, if the PSW2 parameter value field is equal to "FF23" (hexadecimal), in order to access level 2 password, write "220" (decimal) in the PSWEntry parameter value field.

NOTE: For further information on the parameters found in these menus, see Air Handling Unit FREE Advance.

4. CONTROLLER CONFIGURATION

In order to configure the controller, the following is required:

- that the controller has been previously programmed with the applicative
- **if you wish to use the data-logging, that a microSD has been inserted in the relative controller slot (see 3.2.1 Programming from the Device on pag. 11).**

The controller can be configured with an automatic procedure that allocates the inputs and outputs according to the AHU configuration set; to set the AHU configuration, see **3.2.1 “U-Oem_UnitConfiguration” Folder on pag.19**. After setting the AHU configuration, it is possible to allocate the resources automatically (see **3.2.2 “O3-I/O_Allocate” Folder on pag. 20**).

The controller can be configured in one of the following two ways:

- from the Device
- from the display.

The configuration from the Device foresees the setting of the parameters in the Device Project panel folders (for further information see User Guide FREE Advance and User Guide AHU).

Configuration from the display foresees setting parameters on the controller display, in the menus and sub-menus of the “H-System” menu (for further information see User Guide AHU).

A menu or sub-menu of the “H-System” menu corresponds with each folder in the Project panel, as described in the table below.

Device Project panel folder	Controller menu or sub-menu
G-Password_Entry	G-Password
U-Oem_UnitConfiguration	U-Unit Configuration (sub-menu of the “H-System” menu)
O3-I/O_Allocate	O3-I/O Allocation (sub-menu of the “H-System” menu)
O1-I/O_Polarity	O1-Polarity (sub-menu of the “H-System” menu)
O2-I/O_TestOutput	O2-Test Out (sub-menu of the “H-System” menu)
W-Oem_Password	W-Password (sub-menu of the “H-System” menu)
S5-Service_Log	S5-Data Logger (sub-menu of the “H-System” menu)
S6-Service_Def	S6-Restore Factory (sub-menu of the “H-System” menu)

Table 6 - Correspondence between Device and display

NOTE: The “O3-I/O_Allocate” folder contains the parameters stored in the RAM relative to the allocations of the I/O: to allocate them effectively in the controller, they need to be saved in EEPROM. The I/Os effectively allocated in the controller are relative to the parameters stored in the EEPROM and found in the following folders:

- HIDDEN_EEPROM_SAVED_IO_Allocation
- Lower Board
- Upper board.

For further information see **3.2.7 Folders relative to EEPROM parameters on pag. 26**.

In order to configure the controller from the Device see **4.1 Configuration from the Device on pag. 18**.

In order to configure the controller from the display see **4.2 Configuration from the display on pag. 28**.

4.1. Configuration from the Device

For information on the parameters which are referred to in the different menus of the controller, see Air Handling Unit FREE Advance and User Guide FREE Studio.

The configuration from the Device foresees one or more of the following configurations to be activated:

- A. AHU hardware definition
- B. Allocation and definition of types and controller input and output ranges
- C. Definition of input and output polarities

For each possible kind of configuration to be activated, carry out the following operations in order:

1. select the corresponding folder shown in the following table
2. carry out the operations shown in the reference paragraph of the selected folder

Configuration type	Folder	Folder path (Device Project panel)	Reference paragraph
A	U-Oem_UnitConfiguration	UTA/Advance_UTA/Application/PLC	3.2.1 “U-Oem_UnitConfiguration” Folder on pag. 19
B	O3-I/O_Allocate	UTA/Advance_ UTA /Application/PLC	3.2.2 “O3-I/O_Allocate” Folder on pag. 20
C	O1-I/O_Polarity	UTA/Advance_ UTA /Application/PLC	3.2.3 “O1-I/O_Polarity” Folder on pag. 23

Table 7 - Configuration types

NOTE: It is possible (**but not recommended**) to allocate and define input and output types and ranges on the following folders (see **3.2.7 Folders relative to EEPROM parameters on pag.26**):

- “HIDDEN_EEPROM_SAVED_IO_Allocation” folder
- “Lower Board” folder
- “Upper Board” folder

inside of which are the same parameters of the “O3-I/O_Allocate” folder, but any possible change carried out within this **cannot** be restored.

3. if you wish to carry out tests on the outputs:
 - 3.1. select the “O2-I/O_TestOutput” folder (see **3.2.4 “O2-I/O_TestOutput” Folder on pag. 24**) in the “UTA/Advance_UTA/ Application/PLC” path of the Device Project panel
 - 3.2. carry out the operations shown in the reference paragraph of the selected folder
4. if you wish to create/overwrite the “factory.raw” file:
 - 4.1. select the “W-Oem_Password” folder (see **3.3.1 Authentication from Device on pag. 14**) in the “UTA/Advance_UTA/ Application/PLC” path of the Device Project panel
 - 4.2. select “True” in the value field of the SaveFactoryCommand parameter

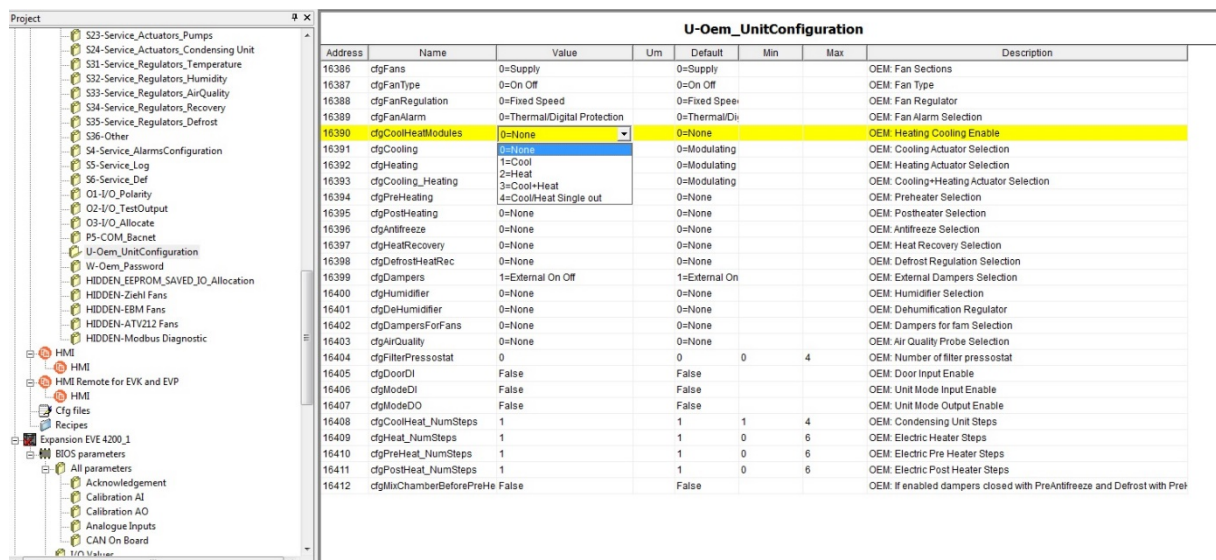
NOTE: For further information on “factory.raw” file, see **3.3.1.1 “Factory.raw” File on pag.15**.

5. if you wish to activate the datalogging:
 - 5.1. select the “S5-Service_Log” folder (see **3.2.5 “S5-Service_Log” Folder on pag. 24**) in the “UTA/Advance_UTA/ Application/PLC” path of the Device Project panel
 - 5.2. select “True” from the parameter value “LogEnable” field to activate the datalogging.
6. if you wish to reset the parameters of the default values:
 - 6.1. select the “S6-Service_Def” folder (see **3.2.6 “S6-Service_Def” Folder on pag. 25**) in the “UTA/Advance_UTA/ Application/PLC” path of the Device Project panel
 - 6.2. select “True” in the value field of the RestoreFactoryCommand parameter.

In **4.3 Example of configuration on pag. 29** a configuration example of the controller from Device is given.

4.1.1. “U-Oem_UnitConfiguration” Folder

The “U-Oem_UnitConfiguration” Folder (**Fig 5 - on pag. 19**) allows for the management of AHU hardware configuration.



Address	Name	Value	Um	Default	Min	Max	Description
16386	cdgFans	0=Supply		0=Supply			OEM: Fan Sections
16387	cdgFanType	0=On Off		0=On Off			OEM: Fan Type
16388	cdgFanRegulation	0=Fixed Speed		0=Fixed Speed			OEM: Fan Regulator
16389	cdgFanAlarm	0=Thermal/Digital Protection		0=Thermal/Di			OEM: Fan Alarm Selection
16390	cdgCoolHeatModules	0=None		0=None			OEM: Heating Cooling Enable
16391	cdgCooling	0=Cooling		0=Modulating			OEM: Cooling Actuator Selection
16392	cdgHeating	1=Cool		0=Modulating			OEM: Heating Actuator Selection
16393	cdgCooling_Heating	2=Heat		0=Modulating			OEM: Cooling+Heating Actuator Selection
16394	cdgPreHeating	3=Cool+Heat		0=None			OEM: Preheater Selection
16395	cdgPostHeating	4=Cool+Heat Single out		0=None			OEM: Postheater Selection
16396	cdgAntiFreeze	0=None		0=None			OEM: Antifreeze Selection
16397	cdgHeatRecovery	0=None		0=None			OEM: Heat Recovery Selection
16398	cdgDefrostHeatRec	0=None		0=None			OEM: Defrost Regulation Selection
16399	cdgDampers	1=External On Off		1=External On			OEM: External Dampers Selection
16400	cdgHumidifier	0=None		0=None			OEM: Humidifier Selection
16401	cdgDeHumidifier	0=None		0=None			OEM: Dehumidification Regulator
16402	cdgDampersForFans	0=None		0=None			OEM: Dampers for fan Selection
16403	cdgAirQuality	0=None		0=None			OEM: Air Quality Probe Selection
16404	cdgFilterPressostat	0		0	0	4	OEM: Number of filter pressostat
16405	cdgDoorDI	False		False			OEM: Door Input Enable
16406	cdgModeDI	False		False			OEM: Unit Mode Input Enable
16407	cdgModeDO	False		False			OEM: Unit Mode Output Enable
16408	cdgCoolHeat_NumSteps	1		1	1	4	OEM: Condensing Unit Steps
16409	cdgHeat_NumSteps	1		1	0	6	OEM: Electric Heater Steps
16410	cdgPreHeat_NumSteps	1		1	0	6	OEM: Electric Pre Heater Steps
16411	cdgPostHeat_NumSteps	1		1	0	6	OEM: Electric Post Heater Steps
16412	cdgMixChamberBeforePreHe	False		False			OEM: If enabled dampers closed with Pre-Antifreeze and Defrost with Pre

Fig 5 - “U-Oem_UnitConfiguration” Folder

In order to set each item, according to the kind of parameter, select the drop down menu or edit the number in correspondence with the relative value field.

It is possible to change the parameters in the “U-Oem_UnitConfiguration” folder using the USB stick **only** if the level of password set is 2.

NOTE: For further information on the parameters found in this folder, see the corresponding menus of the controller described in Air Handling Unit FREE Advance.

4.1.2. “O3-I/O_Allocate” Folder

The “O3-I/O_Allocate” Folder (Fig 6 - on pag. 20) allows for the management of the allocations and definition of input and output types and ranges.

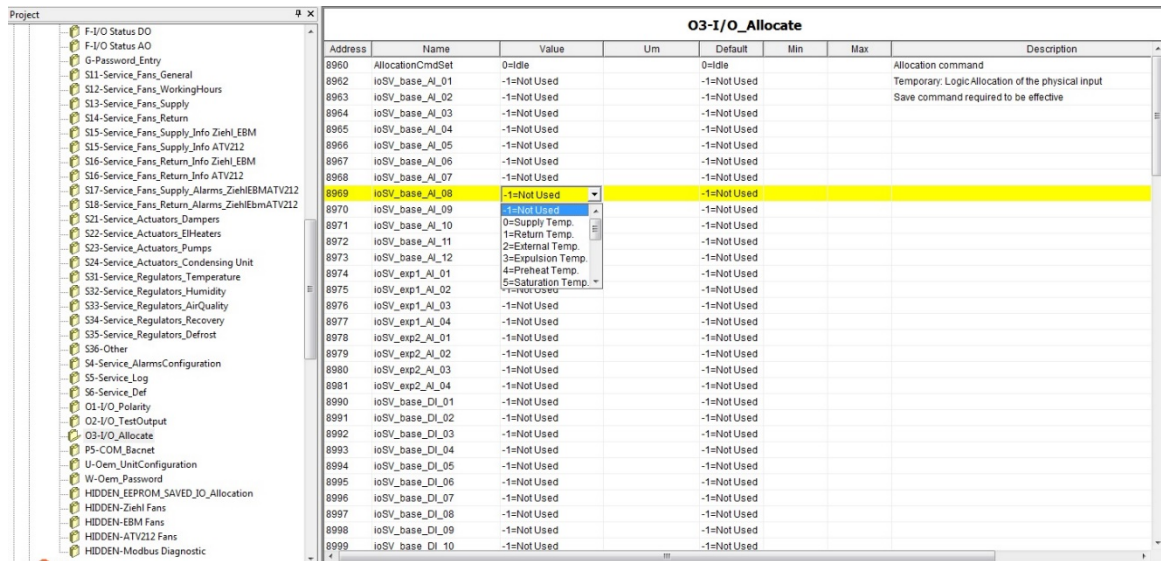


Fig 6 - “O3-I/O_Allocate” Folder

In order to allocate the inputs and/or outputs, carry out the following operations in order:

1. in the central panel, click on the value field of the AllocationCmdSet parameter to view the relative drop down menu described in the following table:

Commands in the drop down menu	Description
1=Load Stored	Load the last configuration of the allocation of the I/Os saved on the controller
2=Auto Allocation	Allocate all the default I/Os requested by the configuration selected automatically
3=Save into Stored	Save the current configuration of the allocation of the I/Os in EEPROM
4=Clear All	Delete the current configuration of the allocation of the I/Os
18=Auto Allocation AI	Allocate all the default analogical inputs requested by the configuration selected automatically
19=Save Allocation AI	Save the current configuration of the allocation of the analogical inputs in EEPROM
20=Clear AI	Delete the current configuration of the allocation of the analogical inputs
34=Auto Allocation DI	Allocate all the default analogical inputs requested by the configuration selected automatically
35=Save Allocation DI	Save the current configuration of the allocation of the digital inputs in EEPROM
36=Clear DI	Delete the current configuration of the allocation of the digital inputs
50=Auto Allocation DO	Allocate all the default digital outputs requested by the configuration selected automatically
51=Save Allocation DO	Save the current configuration of the allocation of the digital outputs in EEPROM
52=Clear DO	Delete the current configuration of the allocation of the digital outputs
66=Auto Allocation AO	Allocate all the default analogical outputs requested by the configuration selected automatically
67=Save Allocation AO	Save the current configuration of the allocation of the analogical outputs in EEPROM
68=Clear AO	Delete the current configuration of the allocation of the analogical outputs

Table 8 - Commands in the drop down menu - “AllocationCmdSet” parameter

NOTE: For further information:

- about the automatic allocation commands described in the previous table, see **3.2.2.1 Automatic allocation commands on pag.22**
 - about the saving commands described in the previous table, see **3.2.2.2 Saving commands in EEPROM on pag.22**
 - about the loading command described in the previous table, see **3.2.2.3 Loading command in RAM on pag.22**.
2. in the previous drop down menu selected, click the command required
 3. wait a few seconds until you see the value "0=Idle" in the value field
 4. in the event of automatic allocation:
 - 4.1. check compatibility of the configuration obtained with the configuration desired and the Configurability in pairs of the analogical inputs (see **2.1 Configurability in pairs of analogical inputs on pag. 7**)
 - 4.2. in the event of incompatibility of the configuration obtained with the desired configuration, manually allocate the inputs and/or outputs until you obtain the required configuration (see User Guide FREE Advance)
 5. for each analogical voltage/ current input, define the relative range of acquisition:
 - edit the start of scale value in correspondence with the value field of the relative parameter with "min" suffix
 - edit the end of scale value in correspondence with the value field of the relative parameter with "max" suffix.

NOTE: It is not necessary to allocate all the inputs and outputs defined by the applicative; for example:

- in the case of hot actuators or cold actuators, it is possible to activate the moto-condensation via the only analogical output or alternatively the only digital output
- in the event of summer/winter mode change, if the relative digital input is allocated, the relative key does not appear on the display (see User Guide FREE Advance and Air Handling Unit FREE Advance).

NOTE: For further information on the parameters found in this folder, see the corresponding menus of the controller described in Air Handling Unit FREE Advance.

4.1.2.1 Automatic allocation commands

The automatic allocation commands described in the previous table:

- 2=Auto Allocation,
- 18=Auto Allocation AI,
- 34=Auto Allocation DI,
- 50=Auto Allocation DO,
- 66=Auto Allocation DO

do not attribute the types of input and/or output according to the kind of sensor. The controller automatic inputs can be configured in pairs (see **2.1 Configurability in pairs of analogical inputs on pag. 7**), so in the case of automatic allocation that regards analogical inputs ("2=Auto Allocation" and "18=Auto Allocation AI" commands) it is always advisable to check the compatibility of the configuration obtained with the configurations issued by the controller.

4.1.2.2 Saving commands in EEPROM

The saving commands described in the previous table allow you to write the value fields of the parameters obtained in the "O3-I/O_Allocate" (RAM) folder in the value fields of the parameters found in the following folders (EEPROM):

- HIDDEN_EEPROM_SAVED_IO_Allocation,
- Lower Board,
- Upper board

NOTE: For further information on the folders relative to the EEPROM parameters see **3.2.7 Folders relative to EEPROM parameters on pag. 26**.

4.1.2.3 Loading commands in RAM

The loading command described in the previous table allows you to write the value fields of the parameters found in the following folders (EEPROM):

- HIDDEN_EEPROM_SAVED_IO_Allocation,
- Lower Board,
- Upper board

in the value fields of the parameters found in the "O3-I/O_Allocate" (RAM) folder.

NOTE: For further information on the folders relative to the EEPROM parameters see **3.2.7 Folders relative to EEPROM parameters on pag. 26**.

4.1.3. “O1-I/O_Polarity” Folder

The “O1-I/O_Polarity” Folder (Fig 7 - on pag. 23) allows for the management of the input and output polarities.

O1-I/O_Polarity							
Address	Name	Value	Um	Default	Min	Max	Description
16586	DI_Polarity_LogIndex_0	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Supply Fan Thermal
16587	DI_Polarity_LogIndex_1	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Return Fan Thermal
16588	DI_Polarity_LogIndex_2	0V=On/Alarm, 24V=Off		0V=On/Alarm, 24V=Off			Polarity - On/Off Input
16589	DI_Polarity_LogIndex_3	0V=Off, 24V=On/Ala		0V=Off, 24V=On/Alarm			Polarity - Fire Alarm
16590	DI_Polarity_LogIndex_4	0V=On/Alarm, 24V=Off		0V=On/Alarm, 24V=Off			Polarity - Mode Input
16591	DI_Polarity_LogIndex_5	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Door
16592	DI_Polarity_LogIndex_6	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Antifreeze
16593	DI_Polarity_LogIndex_7	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Supply Airflow
16594	DI_Polarity_LogIndex_8	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Return Airflow
16595	DI_Polarity_LogIndex_9	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Humidifier Alarm
16596	DI_Polarity_LogIndex_10	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Preheater Alarm
16597	DI_Polarity_LogIndex_11	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Postheater Alarm
16598	DI_Polarity_LogIndex_12	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Rotary Wheel Alarm
16599	DI_Polarity_LogIndex_13	0V=On/Alarm, 24V=Off		0V=On/Alarm, 24V=Off			Polarity - Filter 1 Alarm
16600	DI_Polarity_LogIndex_14	0V=On/Alarm, 24V=Off		0V=On/Alarm, 24V=Off			Polarity - Filter 2 Alarm
16601	DI_Polarity_LogIndex_15	0V=On/Alarm, 24V=Off		0V=On/Alarm, 24V=Off			Polarity - Filter 3 Alarm
16602	DI_Polarity_LogIndex_16	0V=On/Alarm, 24V=Off		0V=On/Alarm, 24V=Off			Polarity - Filter 4 Alarm
16603	DI_Polarity_LogIndex_17	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Supply 2 Fan Th.
16604	DI_Polarity_LogIndex_18	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Return 2 Fan Th.
16605	DI_Polarity_LogIndex_19	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Supply 2 Airflow
16606	DI_Polarity_LogIndex_20	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Return 2 Airflow
16607	DI_Polarity_LogIndex_21	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - Cond. Unit Alarm
16608	DI_Polarity_LogIndex_22	0V=Off, 24V=On/Alarm		0V=Off, 24V=On/Alarm			Polarity - El Heater Alarm
16615	DO_Polarity_LogIndex_0	0=NO		0=NO			Supply Fan - DO Polarity
16616	DO_Polarity_LogIndex_1	0=NO		0=NO			Return Fan - DO Polarity
16617	DO_Polarity_LogIndex_2	0=NO		0=NO			On Off - DO Polarity
16618	DO_Polarity_LogIndex_3	0=NO		0=NO			Alarm - DO Polarity
16619	DO_Polarity_LogIndex_4	0=NO		0=NO			Mode - DO Polarity
16620	DO_Polarity_LogIndex_5	0=NO		0=NO			Ext. Dampers - DO Polarity
16621	DO_Polarity_LogIndex_6	0=NO		0=NO			Bypass Damper - DO Polarity
16622	DO_Polarity_LogIndex_7	0=NO		0=NO			Supply Damper - DO Polarity

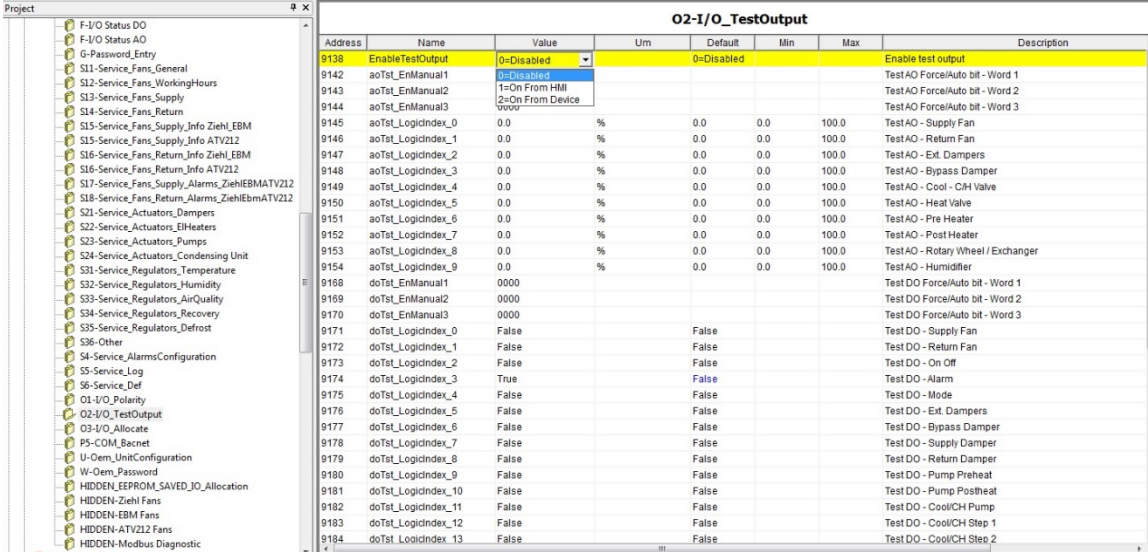
Fig 7 - “O1-I/O_Polarity” Folder

In order to set each item, according to the kind of parameter, select the drop down menu or edit the number in correspondence with the relative value field.

NOTE: For further information on the parameters found in this folder, see the corresponding menus of the controller described in Air Handling Unit FREE Advance.

4.1.4. “O2-I/O_TestOutput” Folder

The “O2-I/O_TestOutput” folder (Fig 8 - on pag. 24) allow for tests to be carried out on the outputs.



Address	Name	Value	Um	Default	Min	Max	Description
9138	EnableTestOutput	0=Disabled		0=Disabled			Enable test output.
9142	aoTst_EnManual1	0=Disabled					TestAO Force/Auto bit - Word 1
9143	aoTst_EnManual2	1=On From HMI					TestAO Force/Auto bit - Word 2
9144	aoTst_EnManual3	2=On From Device					TestAO Force/Auto bit - Word 3
9145	aoTst_LogIndex_0	0.0	%	0.0	0.0	100.0	TestAO - Supply Fan
9146	aoTst_LogIndex_1	0.0	%	0.0	0.0	100.0	TestAO - Return Fan
9147	aoTst_LogIndex_2	0.0	%	0.0	0.0	100.0	TestAO - Ext. Dampers
9148	aoTst_LogIndex_3	0.0	%	0.0	0.0	100.0	TestAO - Bypass Damper
9149	aoTst_LogIndex_4	0.0	%	0.0	0.0	100.0	TestAO - Cool - CH Valve
9150	aoTst_LogIndex_5	0.0	%	0.0	0.0	100.0	TestAO - Heat Valve
9151	aoTst_LogIndex_6	0.0	%	0.0	0.0	100.0	TestAO - Pre Heater
9152	aoTst_LogIndex_7	0.0	%	0.0	0.0	100.0	TestAO - Post Heater
9153	aoTst_LogIndex_8	0.0	%	0.0	0.0	100.0	TestAO - Rotary Wheel / Exchanger
9154	aoTst_LogIndex_9	0.0	%	0.0	0.0	100.0	TestAO - Humidifier
9168	doTst_EnManual1	0000					Test DO Force/Auto bit - Word 1
9169	doTst_EnManual2	0000					Test DO Force/Auto bit - Word 2
9170	doTst_EnManual3	0000					Test DO Force/Auto bit - Word 3
9171	doTst_LogIndex_0	False		False			Test DO - Supply Fan
9172	doTst_LogIndex_1	False		False			Test DO - Return Fan
9173	doTst_LogIndex_2	False		False			Test DO - On Off
9174	doTst_LogIndex_3	True		False			Test DO - Alarm
9175	doTst_LogIndex_4	False		False			Test DO - Mode
9176	doTst_LogIndex_5	False		False			Test DO - Ext. Dampers
9177	doTst_LogIndex_6	False		False			Test DO - Bypass Damper
9178	doTst_LogIndex_7	False		False			Test DO - Supply Damper
9179	doTst_LogIndex_8	False		False			Test DO - Return Damper
9180	doTst_LogIndex_9	False		False			Test DO - Pump Preheat
9181	doTst_LogIndex_10	False		False			Test DO - Pump Postheat
9182	doTst_LogIndex_11	False		False			Test DO - Cool/CH Pump
9183	doTst_LogIndex_12	False		False			Test DO - Cool/CH Step 1
9184	doTst_LogIndex_13	False		False			Test DO - Cool/CH Step 2

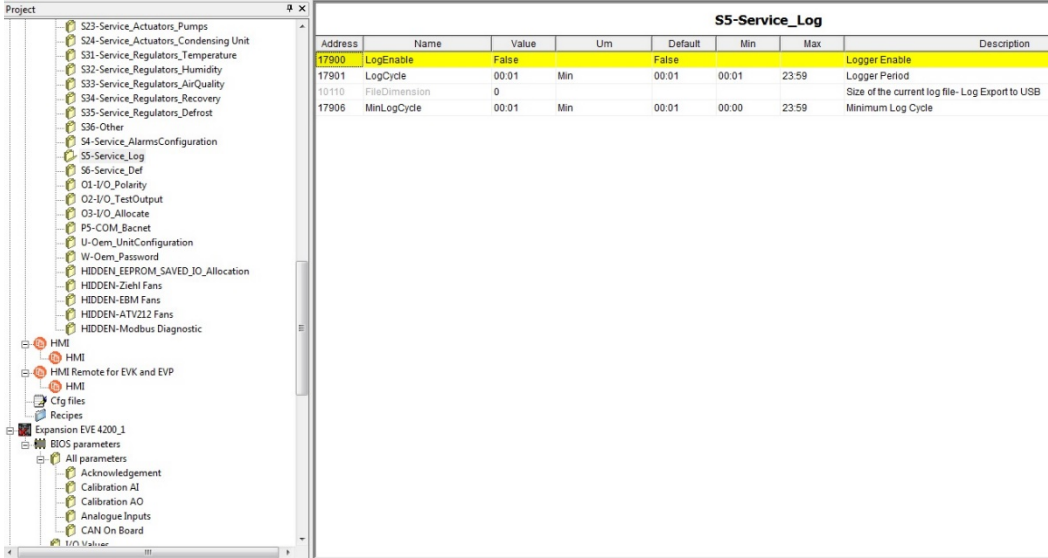
Fig 8 - “O2-I/O_TestOutput” Folder

In order to set each item, according to the kind of parameter, select the drop down menu or edit the number in correspondence with the relative value field.

NOTE: For further information on the parameters found in this folder, see the corresponding menus of the controller described in Air Handling Unit FREE Advance.

4.1.5. “S5-Service_Log” Folder

The “S5-Service_Log” (Fig 9 - on pag. 24) allows for the enabling and configuring of the sample time of the data-logging.



Address	Name	Value	Um	Default	Min	Max	Description
17900	LogEnable	False		False			Logger Enable
17901	LogCycle	00.01	Min	00.01	00.01	23.59	Logger Period
10110	FileDimension	0					Size of the current log file- Log Export to USB
17905	MinLogCycle	00.01	Min	00.01	00.00	23.59	Minimum Log Cycle

Fig 9 - “S5-Service_Log” Folder

In order to set each item, according to the kind of parameter, select the drop down menu or edit the number in correspondence with the relative value field.

NOTE: For further information on the parameters found in this folder, see the corresponding menus of the controller described in Air Handling Unit FREE Advance.

4.1.6. “S6-Service_Def” Folder

The “S6-Service_Def” folder (**Fig 10 - on pag. 25**) allows for the parameters found in the Factory.raw file to be reset. The command is carried out only if the level 1 password is active.

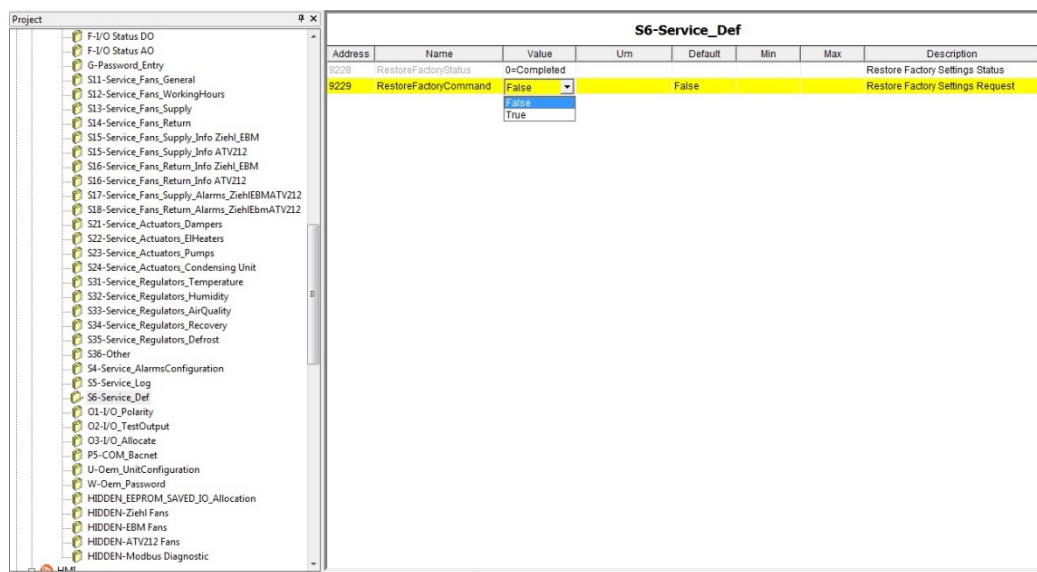


Fig 10 - “S6-Service_Def” Folder

In order to set each item, according to the kind of parameter, select the drop down menu or edit the number in correspondence with the relative value field.

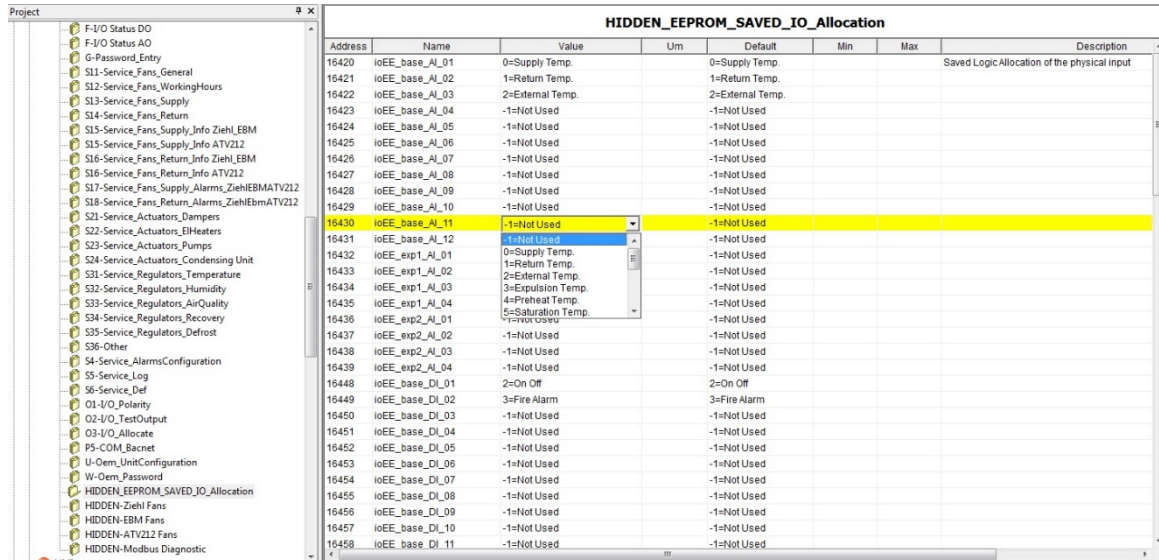
NOTE: For further information on the parameters found in this folder, see the corresponding menus of the controller described in Air Handling Unit FREE Advance.

4.1.7. Folders relative to the EEPROM parameters

Device allows you to view the folders relative to the EEPROM parameters. The following is a description of the folders that allow for the management of the allocations and definition of input and output types and ranges.

4.1.7.1 “HIDDEN_EEPROM_SAVED_IO_Allocation” Folder

The “HIDDEN_EEPROM_SAVED_IO_Allocation” Folder (**Fig 11 - on pag. 26**) allows for the management of the allocations and definition of input and output types with **irreversible** changes.



Address	Name	Value	Um	Default	Min	Max	Description
16420	ioEE_base_AI_01	0=Supply Temp.		0=Supply Temp.			Saved Logic Allocation of the physical input
16421	ioEE_base_AI_02	1=Return Temp.		1=Return Temp.			
16422	ioEE_base_AI_03	2=External Temp.		2=External Temp.			
16423	ioEE_base_AI_04	-1=Not Used		-1=Not Used			
16424	ioEE_base_AI_05	-1=Not Used		-1=Not Used			
16425	ioEE_base_AI_06	-1=Not Used		-1=Not Used			
16426	ioEE_base_AI_07	-1=Not Used		-1=Not Used			
16427	ioEE_base_AI_08	-1=Not Used		-1=Not Used			
16428	ioEE_base_AI_09	-1=Not Used		-1=Not Used			
16429	ioEE_base_AI_10	-1=Not Used		-1=Not Used			
16430	ioEE_base_AI_11	-1=Not Used		-1=Not Used			
16431	ioEE_base_AI_12	-1=Not Used		-1=Not Used			
16432	ioEE_exp1_AI_01	0=Supply Temp.		-1=Not Used			
16433	ioEE_exp1_AI_02	1=Return Temp.		-1=Not Used			
16434	ioEE_exp1_AI_03	2=External Temp.		-1=Not Used			
16435	ioEE_exp1_AI_04	3=Exhaust Temp.		-1=Not Used			
16436	ioEE_exp1_AI_05	4=Preheat Temp.		-1=Not Used			
16437	ioEE_exp2_AI_01	-1=Not Used		-1=Not Used			
16438	ioEE_exp2_AI_02	-1=Not Used		-1=Not Used			
16439	ioEE_exp2_AI_03	-1=Not Used		-1=Not Used			
16440	ioEE_exp2_AI_04	-1=Not Used		-1=Not Used			
16441	ioEE_base_DI_01	2=On Off		2=On Off			
16442	ioEE_base_DI_02	3=Fire Alarm		3=Fire Alarm			
16443	ioEE_base_DI_03	-1=Not Used		-1=Not Used			
16444	ioEE_base_DI_04	-1=Not Used		-1=Not Used			
16445	ioEE_base_DI_05	-1=Not Used		-1=Not Used			
16446	ioEE_base_DI_06	-1=Not Used		-1=Not Used			
16447	ioEE_base_DI_07	-1=Not Used		-1=Not Used			
16448	ioEE_base_DI_08	-1=Not Used		-1=Not Used			
16449	ioEE_base_DI_09	-1=Not Used		-1=Not Used			
16450	ioEE_base_DI_10	-1=Not Used		-1=Not Used			
16451	ioEE_base_DI_11	-1=Not Used		-1=Not Used			

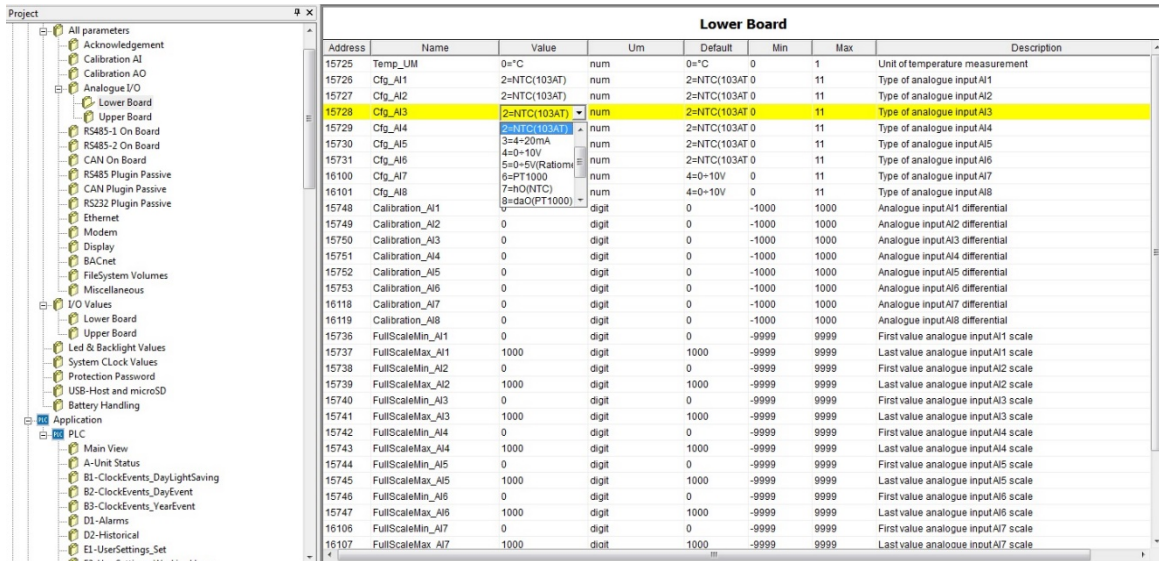
Fig 11 - “HIDDEN_EEPROM_SAVED_IO_Allocation” Folder

In order to set each item, according to the kind of parameter, select the drop down menu or edit the number in correspondence with the relative value field.

NOTE: For further information on the parameters found in this folder, see Air Handling Unit FREE Advance.

4.1.7.2 “Lower Board” folder

The “Lower Board” folder (Fig 12 - on pag. 27) permits the management of base board inputs and outputs.



The screenshot shows the 'Lower Board' folder selected in the project tree. The main window displays a table of parameters for the base board. The table has columns for Address, Name, Value, Unit (Um), Default, Min, Max, and Description. The parameters are listed in ascending order of address.

Address	Name	Value	Um	Default	Min	Max	Description
15725	Temp_UM	0°C	num	0°C	0	1	Unit of temperature measurement
15726	Cfg_AI1	2=NTC(103AT)	num	2=NTC(103AT)	0	11	Type of analogue input A1
15727	Cfg_AI2	2=NTC(103AT)	num	2=NTC(103AT)	0	11	Type of analogue input A2
15728	Cfg_AI3	2=NTC(103AT)	num	2=NTC(103AT)	0	11	Type of analogue input A3
15729	Cfg_AI4	2=NTC(103AT)	num	2=NTC(103AT)	0	11	Type of analogue input A4
15730	Cfg_AI5	3=4-20mA	num	2=NTC(103AT)	0	11	Type of analogue input A5
15731	Cfg_AI6	4=0-10V	num	2=NTC(103AT)	0	11	Type of analogue input A6
16100	Cfg_AI7	5=0-5V(Ratiom)	num	4=0-10V	0	11	Type of analogue input A7
16101	Cfg_AI8	6=PT1000	num	4=0-10V	0	11	Type of analogue input A8
15748	Calibration_AI1	7=ho(NTC)	digit	0	-1000	1000	Analogue input A1 differential
15749	Calibration_AI2	8=daO(PT1000)	digit	0	-1000	1000	Analogue input A2 differential
15750	Calibration_AI3	0	digit	0	-1000	1000	Analogue input A3 differential
15751	Calibration_AI4	0	digit	0	-1000	1000	Analogue input A4 differential
15752	Calibration_AI5	0	digit	0	-1000	1000	Analogue input A5 differential
15753	Calibration_AI6	0	digit	0	-1000	1000	Analogue input A6 differential
16118	Calibration_AI7	0	digit	0	-1000	1000	Analogue input A7 differential
16119	Calibration_AI8	0	digit	0	-1000	1000	Analogue input A8 differential
15736	FullScaleMin_AI1	0	digit	0	-9999	9999	First value analogue input A1 scale
15737	FullScaleMax_AI1	1000	digit	1000	-9999	9999	Last value analogue input A1 scale
15738	FullScaleMin_AI2	0	digit	0	-9999	9999	First value analogue input A2 scale
15739	FullScaleMax_AI2	1000	digit	1000	-9999	9999	Last value analogue input A2 scale
15740	FullScaleMin_AI3	0	digit	0	-9999	9999	First value analogue input A3 scale
15741	FullScaleMax_AI3	1000	digit	1000	-9999	9999	Last value analogue input A3 scale
15742	FullScaleMin_AI4	0	digit	0	-9999	9999	First value analogue input A4 scale
15743	FullScaleMax_AI4	1000	digit	1000	-9999	9999	Last value analogue input A4 scale
15744	FullScaleMin_AI5	0	digit	0	-9999	9999	First value analogue input A5 scale
15745	FullScaleMax_AI5	1000	digit	1000	-9999	9999	Last value analogue input A5 scale
15746	FullScaleMin_AI6	0	digit	0	-9999	9999	First value analogue input A6 scale
15747	FullScaleMax_AI6	1000	digit	1000	-9999	9999	Last value analogue input A6 scale
16106	FullScaleMin_AI7	0	digit	0	-9999	9999	First value analogue input A7 scale
16107	FullScaleMax_AI7	1000	digit	1000	-9999	9999	Last value analogue input A7 scale

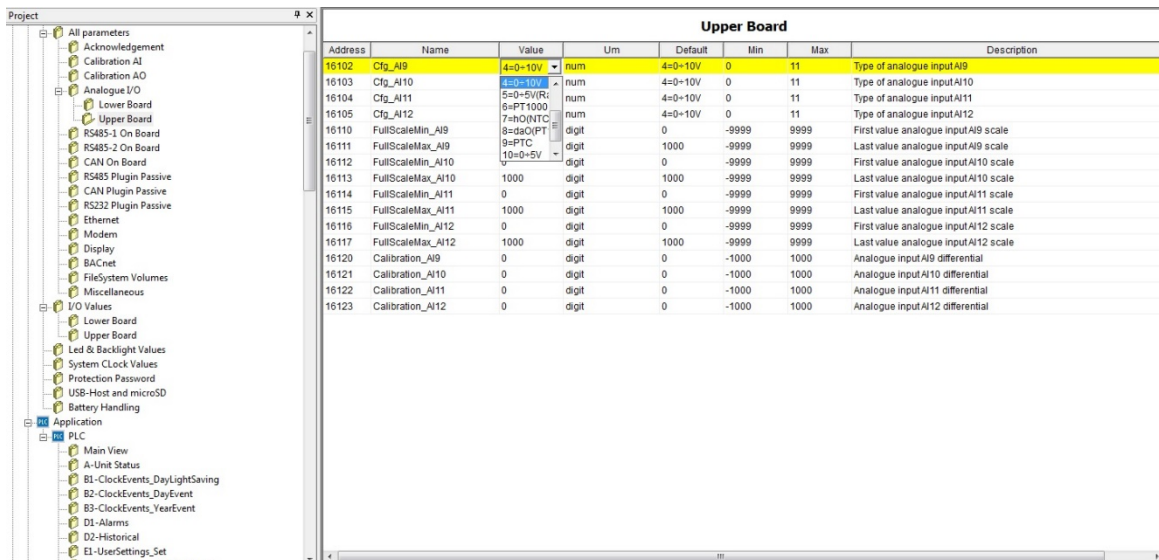
Fig 12 - “Base board” Folder

In order to set each item, according to the kind of parameter, select the drop down menu or edit the number in correspondence with the relative value field.

NOTE: For further information on the parameters found in this folder, see the corresponding controller menu described in the User Guide FREE Advance.

4.1.7.3 “Upper Board” Folder

The “Upper Board” folder (Fig 13 - on pag. 27) permits the management of upper board inputs and outputs.



The screenshot shows the 'Upper Board' folder selected in the project tree. The main window displays a table of parameters for the upper board. The table has columns for Address, Name, Value, Unit (Um), Default, Min, Max, and Description. The parameters are listed in ascending order of address.

Address	Name	Value	Um	Default	Min	Max	Description
16102	Cfg_AI9	4=0-10V	num	4=0-10V	0	11	Type of analogue input A9
16103	Cfg_AI10	4=0-10V	num	4=0-10V	0	11	Type of analogue input A10
16104	Cfg_AI11	5=0-5V(Ri)	num	4=0-10V	0	11	Type of analogue input A11
16105	Cfg_AI12	7=ho(NTC)	num	4=0-10V	0	11	Type of analogue input A12
16110	FullScaleMin_AI9	8=daO(PT)	digit	0	-9999	9999	First value analogue input A9 scale
16111	FullScaleMax_AI9	9=PTC	digit	1000	-9999	9999	Last value analogue input A9 scale
16112	FullScaleMin_AI10	10=0-5V	digit	0	-9999	9999	First value analogue input A10 scale
16113	FullScaleMax_AI10	1000	digit	1000	-9999	9999	Last value analogue input A10 scale
16114	FullScaleMin_AI11	0	digit	0	-9999	9999	First value analogue input A11 scale
16115	FullScaleMax_AI11	1000	digit	1000	-9999	9999	Last value analogue input A11 scale
16116	FullScaleMin_AI12	0	digit	0	-9999	9999	First value analogue input A12 scale
16117	FullScaleMax_AI12	1000	digit	1000	-9999	9999	Last value analogue input A12 scale
16120	Calibration_AI9	0	digit	0	-1000	1000	Analogue input A9 differential
16121	Calibration_AI10	0	digit	0	-1000	1000	Analogue input A10 differential
16122	Calibration_AI11	0	digit	0	-1000	1000	Analogue input A11 differential
16123	Calibration_AI12	0	digit	0	-1000	1000	Analogue input A12 differential

Fig 13 - “Upper board” Folder

In order to set each item, according to the kind of parameter, select the drop down menu or edit the number in correspondence with the relative value field.

NOTE: For further information on the parameters found in this folder, see the corresponding controller menu described in the User Guide FREE Advance.

4.2. Configuration from the display

For information on the parameters which are referred to in the different menus of the controller, see Air Handling Unit FREE Advance.

The configuration from the display foresees one or more of the following configurations to be activated:

- A. AHU hardware definition
- B. Allocation and definition of types and controller input and output ranges
- C. Definition of input and output polarities

For each kind of configuration, carry out the following operations in order:

1. select the corresponding menu shown in the following table
2. select the parameter you want to change
3. press OK to enter the edit mode
4. press the controller UP/DOWN keys to increase/decrease the value
5. press the controller OK key to confirm or keep the LEFT key pressed down to cancel

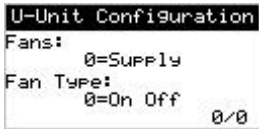

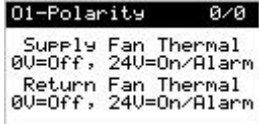
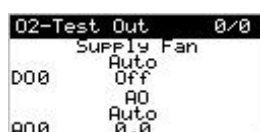
Configuration type	Menu	On-screen display
A	U-Unit Configuration	
B	O3-I/O Allocation	
C	O1-Polarity	

Table 9 - Configuration types

NOTE: It is possible to change the parameters in the “U-Oem_UnitConfiguration” menu using the USB stick **only** if the level of password set is 2.

6. if you wish to carry out tests on the outputs:

- 6.1. select the “O2-I/O_TestOutput” folder

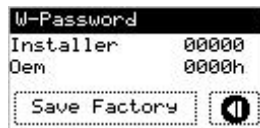


- 6.2. select the parameter you want to change
- 6.3. press OK to enter the edit mode
- 6.4. press the controller UP/DOWN keys to increase/decrease the value
- 6.5. press the controller OK key to confirm or keep the LEFT key pressed down to cancel

NOTE: The configuration stored in the EEPROM memory can be saved on a USB stick to archive or copy it onto another device.

7. if you wish to create/overwrite the "factory.raw" file containing the current configuration:

7.1. select the "W-Password" menu



7.2. press the "Save Factory" key

NOTE: For further information on the "factory.raw" file, see 3.3.1.1 "Factory.raw" File on pag. 15.

8. if you wish to start the data-logging:

8.1. select the "S5-Data Logger" menu

8.2. select "True" from the parameter value "LogEnable" field to activate the datalogging.

9. if you wish to reset the parameters of the default values:

9.1. select the "S6-Service_Def" menu



9.2. press the "Restore" key.

4.3. Example of configuration

The following table provides an example of hardware configuration for each part of the AHU.

AHU components	Hardware configuration
Discharge fan	ON/OFF without back-up
Recovery fan	ON/OFF without back-up
Multi-purpose hot/cold battery	Modulating valve
Post-heating battery	Modulating valve
Recovery unit flows overlapping with the bypass damper	Proportional to batteries
External dampers	ON/OFF

Table 10 - Example of hardware configuration

NOTE: For further information on the AHU hardware configuration, see Air Handling Unit FREE Advance.

The controller software defines the I/Os requested according to the components and the hardware configuration of the AHU. The I/Os requested according to the example of hardware configuration are shown in the following table.

Components of the AHU configuration	DI	AI (NTC)	AI (UNIV)	DO	AO
Discharge fans (in ON/OFF configuration without back-up)	—	—	—	1	—
Recovery fans (in ON/OFF configuration without back-up)	—	—	—	1	—
Multi-purpose hot/cold battery (in configuration modulating valve)	—	—	—	—	1
Post-heating battery (in configuration modulating valve)	—	—	—	—	1
Overlapping flow recovery unit (in configuration proportional to the batteries)	—	—	—	1	1
External dampers	—	—	—	1	—

Table 11 - I/Os requested according to the example of hardware configuration

In order to implement the hardware configuration example via Device, carry out the following operations in order:

1. carry out the switch on procedure from the Device referring to **3.2 Controller programming on pag.11**
2. change the following parameters on the “U-Oem_UnitConfiguration” folder (**Fig 14 - on pag. 31**) compared to the default configuration as indicated in the following table

Address	Name	Value	Um	Default	Min	Max	Description
16389	cfgFans	1=Supply+Return		0=Supply			OEM: Fan Sections
16387	cfgFanType	0=On Off		0=On Off			OEM: Fan Type
16388	cfgFanRegulation	0=Fixed Speed		0=Fixed Speed			OEM: Fan Regulator
16389	cfgFanAlarm	0=Thermal/Digital Protection		0=Thermal/Digital Protection			OEM: Fan Alarm Selection
16390	cfgCoolHeatModules	4=Cool/Heat Single out		0=None			OEM: Heating Cooling Enable
16391	cfgCooling	0=Modulating Valve		0=Modulating Valve			OEM: Cooling Actuator Selection
16392	cfgHeating	0=Modulating Valve		0=Modulating Valve			OEM: Heating Actuator Selection
16393	cfgCooling_Heating	0=Modulating Valve		0=Modulating Valve			OEM: Cooling+Heating Actuator Selection
16394	cfgPreHeating	0=None		0=None			OEM: Preheater Selection
16395	cfgPostHeating	1=Modulating Valve		0=None			OEM: Postheater Selection
16396	cfgAntifreeze	0=None		0=None			OEM: Antifreeze Selection
16397	cfgHeatRecovery	6=Exchanger Mod		0=None			OEM: Heat Recovery Selection
16398	cfgDefrostHeatRec	0=None		0=None			OEM: Defrost Regulation Selection
16399	cfgDampers	1=External On Off		1=External On Off			OEM: External Dampers Selection
16400	cfgHumidifier	0=None		0=None			OEM: Humidifier Selection
16401	cfgDehumidifier	0=None		0=None			OEM: Dehumidification Regulator
16402	cfgDampersForFans	0=None		0=None			OEM: Dampers for fan Selection
16403	cfgAirQuality	0=None		0=None			OEM: Air Quality Probe Selection
16404	cfgFilterPressostat	0		0	0	4	OEM: Number of filter pressostat
16405	cfgDoorDI	False		False			OEM: Door Input Enable
16406	cfgModeDI	False		False			OEM: Unit Mode Input Enable
16407	cfgModeDO	False		False			OEM: Unit Mode Output Enable
16408	cfgCoolHeat_NumSteps	1		1	1	4	OEM: Condensing Unit Steps
16409	cfgHeat_NumSteps	1		1	0	6	OEM: Electric Heater Steps
16410	cfgPreHeat_NumSteps	1		1	0	6	OEM: Electric Pre Heater Steps
16411	cfgPostHeat_NumSteps	1		1	0	6	OEM: Electric Post Heater Steps
16412	cfgMixChamberBeforePreHeat	False		False			OEM: If enabled dampers closed with PreAntifreeze and Defrost with Pre-Heating

Fig 14 - Example of configuration - “U-Oem_UnitConfiguration” folder

Reference	Components of the AHU configuration	Parameter to be configured	Value field selected
1	Discharge fan + recovery fan	cfgFans	1=Supply+Return
2	Hot battery and cold battery (single components)	cfgCoolHeatModules	4=Cool/Heat Single Out
3	Post-heating battery	cfgPostHeating	1=Modulating Valve
4	Overlapping flow recovery unit	cfgHeatRecovery	6=Exchanger mode

Table 12 - Parameter settings relative to the “U-Oem_UnitConfiguration” folder

3. set the parameters in the “O3-I/O_Allocate” folder (Fig 15 - on pag. 32 and Fig 16 - on pag. 33) as indicated in the following table

O3-I/O_Allocate								1
Address	Name	Value	Um	Default	Min	Max	Description	
8980	AllocationCmdSet	0=Idle		0=Idle			Allocation command	
8982	ioSV_base_AI_01	0=Supply Temp.		-1=Not Used			Temporary Logic Allocation of the physical input	
8983	ioSV_base_AI_02	1=Return Temp.		-1=Not Used			Save command required to be effective	
8984	ioSV_base_AI_03	2=External Temp.		-1=Not Used				
8985	ioSV_base_AI_04	-1=Not Used		-1=Not Used				
8986	ioSV_base_AI_05	-1=Not Used		-1=Not Used				2
8987	ioSV_base_AI_06	-1=Not Used		-1=Not Used				
8988	ioSV_base_AI_07	-1=Not Used		-1=Not Used				
8989	ioSV_base_AI_08	-1=Not Used		-1=Not Used				
8990	ioSV_base_AI_09	-1=Not Used		-1=Not Used				
8991	ioSV_base_AI_10	-1=Not Used		-1=Not Used				
8992	ioSV_base_AI_11	-1=Not Used		-1=Not Used				
8993	ioSV_base_AI_12	-1=Not Used		-1=Not Used				
8994	ioSV_exp1_AI_01	-1=Not Used		-1=Not Used				3
8995	ioSV_exp1_AI_02	-1=Not Used		-1=Not Used				
8996	ioSV_exp1_AI_03	-1=Not Used		-1=Not Used				
8997	ioSV_exp1_AI_04	-1=Not Used		-1=Not Used				
8998	ioSV_exp2_AI_01	-1=Not Used		-1=Not Used				
8999	ioSV_exp2_AI_02	-1=Not Used		-1=Not Used				
9000	ioSV_exp2_AI_03	-1=Not Used		-1=Not Used				
9001	ioSV_exp2_AI_04	-1=Not Used		-1=Not Used				
9002	ioSV_base_DI_01	2=On Off		-1=Not Used				4
9003	ioSV_base_DI_02	3=Fire Alarm		-1=Not Used				
9004	ioSV_base_DI_03	0=Supply Fan Th.Prot.		-1=Not Used				
9005	ioSV_base_DI_04	1=Return Fan Th.Prot.		-1=Not Used				
9006	ioSV_base_DI_05	12=Rotary Heat Exch. Alarm		-1=Not Used				
9007	ioSV_base_DI_06	-1=Not Used		-1=Not Used				
9008	ioSV_base_DI_07	-1=Not Used		-1=Not Used				5
9009	ioSV_base_DI_08	-1=Not Used		-1=Not Used				
9010	ioSV_base_DI_09	-1=Not Used		-1=Not Used				
9011	ioSV_base_DI_10	-1=Not Used		-1=Not Used				
9012	ioSV_base_DI_11	-1=Not Used		-1=Not Used				
9013	ioSV_base_DI_12	-1=Not Used		-1=Not Used				
9014	ioSV_exp1_DI_01	-1=Not Used		-1=Not Used				
9015	ioSV_exp1_DI_02	-1=Not Used		-1=Not Used				
9016	ioSV_exp1_DI_03	-1=Not Used		-1=Not Used				6
9017	ioSV_exp1_DI_04	-1=Not Used		-1=Not Used				
9018	ioSV_exp2_DI_01	-1=Not Used		-1=Not Used				
9019	ioSV_exp2_DI_02	-1=Not Used		-1=Not Used				
9020	ioSV_exp2_DI_03	-1=Not Used		-1=Not Used				
9021	ioSV_exp2_DI_04	-1=Not Used		-1=Not Used				
9022	ioSV_base_DO_01	2=On Off		-1=Not Used			Temporary Logic Allocation of the physical output	
9023	ioSV_base_DO_02	3=Alarm		-1=Not Used			Save command required to be effective	
9024	ioSV_base_DO_03	0=Supply Fan		-1=Not Used				7
9025	ioSV_base_DO_04	1=Return Fan		-1=Not Used				
9026	ioSV_base_DO_05	5=Ext. Dampers		-1=Not Used				8

Fig 15 - Example of configuration - “O3-I/O_Allocate”-1 folder

03-I/O_Allocate								14
Address	Name	Value	Um	Default	Min	Max	Description	
9023	ioSV_base_DO_06	-1=Not Used		-1=Not Used				
9024	ioSV_base_DO_07	-1=Not Used		-1=Not Used				
9025	ioSV_base_DO_08	-1=Not Used		-1=Not Used				
9026	ioSV_base_DO_09	-1=Not Used		-1=Not Used				
9027	ioSV_base_DO_10	-1=Not Used		-1=Not Used				
9028	ioSV_base_DO_11	-1=Not Used		-1=Not Used				
9029	ioSV_base_DO_12	-1=Not Used		-1=Not Used				
9030	ioSV_exp1_DO_01	-1=Not Used		-1=Not Used				
9031	ioSV_exp1_DO_02	-1=Not Used		-1=Not Used				
9032	ioSV_exp1_DO_03	-1=Not Used		-1=Not Used				
9033	ioSV_exp1_DO_04	-1=Not Used		-1=Not Used				
9034	ioSV_exp2_DO_01	-1=Not Used		-1=Not Used				
9035	ioSV_exp2_DO_02	-1=Not Used		-1=Not Used				
9036	ioSV_exp2_DO_03	-1=Not Used		-1=Not Used				
9037	ioSV_exp2_DO_04	-1=Not Used		-1=Not Used				
9046	ioSV_base_AO_01	4=Cool / Cool-Heat		-1=Not Used				
9047	ioSV_base_AO_02	7=Post Heater		-1=Not Used				
9048	ioSV_base_AO_03	8=Recovery		-1=Not Used				
9049	ioSV_base_AO_04	-1=Not Used		-1=Not Used				
9050	ioSV_base_AO_05	-1=Not Used		-1=Not Used				
9051	ioSV_base_AO_06	-1=Not Used		-1=Not Used				
9052	ioSV_exp1_AO_01	-1=Not Used		-1=Not Used				
9053	ioSV_exp1_AO_02	-1=Not Used		-1=Not Used				
9054	ioSV_exp2_AO_01	-1=Not Used		-1=Not Used				
9055	ioSV_exp2_AO_02	-1=Not Used		-1=Not Used				
9064	ioSV_base_AI_0102	2=NTC(103AT)		2=NTC(103AT)			Temporary; AI probe configuration Save command required to be effective	
9065	ioSV_base_AI_0304	2=NTC(103AT)		2=NTC(103AT)				
9066	ioSV_base_AI_0508	2=NTC(103AT)		2=NTC(103AT)				
9067	ioSV_base_AI_0708	4=0-10V		4=0-10V				
9068	ioSV_base_AI_0910	4=0-10V		2=NTC(103AT)				
9069	ioSV_base_AI_1112	4=0-10V		4=0-10V				
9070	ioSV_exp1_AI_0102	2=NTC(103AT)						
9071	ioSV_exp1_AI_0304	4=0-10V						
9072	ioSV_exp2_AI_0102	2=NTC(103AT)						
9073	ioSV_exp2_AI_0304	4=0-10V						
9082	ioSV_base_AI01_min	0	digit	0			Temporary; AI ranges Save command required to be effective	
9083	ioSV_base_AI01_max	1000	digit	1000				
9084	ioSV_base_AI02_min	0	digit	0				
9085	ioSV_base_AI02_max	1000	digit	1000				
9086	ioSV_base_AI03_min	0	digit	0				
9087	ioSV_base_AI03_max	1000	digit	1000				
9088	ioSV_base_AI04_min	0	digit	0				
9089	ioSV_base_AI04_max	1000	digit	1000				
9090	ioSV_base_AI05_min	0	digit	0				
9091	ioSV_base_AI05_max	500	digit	1000				
9092	ioSV_base_AI06_min	0	digit	0				
								16

Fig 16 - Example of configuration - "03-I/O_Allocate"-2 folder

Reference	Components of the AHU configuration	Parameter to be configured	Value field selected
1	Temperature discharge probe	ioSV_base_AI_01	0=Supply Temp.
2	Temperature recovery probe	ioSV_base_AI_02	1=Return Temp.
3	Temperature external probe	ioSV_base_AI_03	2=External Temp.
4	Remote ON / OFF input	ioSV_base_DI_01	2=On Off
5	Fire alarm	ioSV_base_DI_02	3=Fire Alarm
6	Discharge fan protection alarm	ioSV_base_DI_03	0=Supply Fan Th.Prot.
7	Recovery fan protection alarm	ioSV_base_DI_04	1=Return Fan Th.Prot.
8	Rotating recovery alarm	ioSV_base_DI_05	12=Rotary Heat Exch. Alarm
9	ON/OFF AHU status	ioSV_base_DO_01	2=On Off
10	Alarm	ioSV_base_DO_02	3=Alarm
11	Discharge fan	ioSV_base_DO_03	0=Supply Fan
12	Recovery fan	ioSV_base_DO_04	1=Return Fan
13	External dampers	ioSV_base_DO_05	5=Ext. Dampers
14	Modulating valve	ioSV_base_AO_01	4=Cool / Cool-Heat
15	Post-heating valve	ioSV_base_AO_02	7=Post Heater
16	Recovery unit	ioSV_base_AO_03	8=Recovery

Table 13 - Settings of parameters relative to the "O3-I/O_Allocate" folder

4. click "Download All".

NOTE: The ON/OFF and Fire inputs and the alarm and ON/OFF alarms are always allocated by default.

NOTE: In the case of a cooling battery in moto-condensation configuration:

- the number of digital outputs allocated by the controller equals the cfgCoolHeat_NumSteps parameter
- the only possible analogical output cannot be allocated automatically but **only** manually.

5. MODBUS TABLES

NOTE: In the following tables:

- in the case of XXX.Y format, divide the value found in the relative register by 10
- in the case of XXX.YY format, divide the value found in the relative register by 100.

5.1. Modbus EEPROM table

The following table describes the hidden EEPROM parameters.

NOTE: For visible EEPROM parameters, see chapter on Modbus Tables in Air Handling Unit FREE Advance.

Modbus Register	Name	Device Type	Def	Unit	Description
18499...19499	—	—	—	—	Area reserved for alarm archive
19504	EE_RTCerror	Unsigned 8-bit	0	—	—
19799	ENDINTERNAL	Boolean	0	—	—
19800	UnitHoursE2	Unsigned 32-bit	0	Hours	Unit Hours
19802	FanSupplyHoursE2	Unsigned 32-bit	0	Hours	Fan Supply Running Hours
19804	FanReturnHoursE2	Unsigned 32-bit	0	Hours	Fan Return Running Hours
19806	FanSupplyBckHoursE2	Unsigned 32-bit	0	Hours	Fan Supply Backup Running Hours
19808	FanReturnBckHoursE2	Unsigned 32-bit	0	Hours	Fan Return Backup Running Hours

Table 14 - Modbus EEPROM Table

5.2. Modbus Status Table

The following table describes the hidden Status parameters.

NOTE: Per i parametri Stati di tipo visibile fare riferimento al capitolo Tabelle Modbus in Air Handling Unit FREE Advance.

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
8960	Allocation CmdSet	0 = 0=Idle; 1 = 1=Load Stored; 2 = 2=Auto Allocation; 3 = 3=Save into Stored; 4 = 4=Clear All; 18 = 18=Auto Allocation AI; 19 = 19=Save Allocation AI; 20 = 20=Clear AI; 34 = 34=Auto Allocation DI; 35 = 35=Save Allocation DI; 36 = 36=Clear DI; 50 = 50=Auto Allocation DO; 51 = 51=Save Allocation DO; 52 = 52=Clear DO; 66 = 66=Auto Allocation AO; 67 = 67=Save Allocation AO; 68 = 68=Clear AO	0	—	—	—	—	RW	Allocation command
8961	Allocation NextResReq	Signed 16-bit	-1	—	—	—	—	RW	Used by HMI to get the next available logic resource
8962	ioSV_base_AI_01	-1 = -1=Not Used; 0 = 0=Supply Temp.; 1 = 1=Return Temp.; 2 = 2=External Temp.; 3 = 3=Expulsion Temp.; 4 = 4=Preheat Temp.; 5 = 5=Saturation Temp.; 6 = 6=Antifreeze; 7 = 7=Air Quality CO2; 8 = 8=Air Quality VOC; 9 = 9=Pressure 1; 10 = 10=Pressure 2; 11 = 11=Supply Hum.; 12 = 12=Return Hum.; 13 = 13=External Hum.; 14 = 14=Flow Tuning 1; 15 = 15=Flow Tuning 2	-1	—	—	—	—	RW	Temporary: Logic Allocation of the physical input
8963	ioSV_base_AI_02	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8964	ioSV_base_AI_03	See ioSV_base_AI_01	-1	—	—	—	—	RW	Save command required to be effective

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
8965	ioSV_base_AI_04	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8966	ioSV_base_AI_05	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8967	ioSV_base_AI_06	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8968	ioSV_base_AI_07	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8969	ioSV_base_AI_08	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8970	ioSV_base_AI_09	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8971	ioSV_base_AI_10	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8972	ioSV_base_AI_11	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8973	ioSV_base_AI_12	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8974	ioSV_exp1_AI_01	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8975	ioSV_exp1_AI_02	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8976	ioSV_exp1_AI_03	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8977	ioSV_exp1_AI_04	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8978	ioSV_exp2_AI_01	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8979	ioSV_exp2_AI_02	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8980	ioSV_exp2_AI_03	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8981	ioSV_exp2_AI_04	See ioSV_base_AI_01	-1	—	—	—	—	RW	—
8982	ioSV_free1	Signed 16-bit	0	—	—	—	—	RW	—
8983	ioSV_free2	Signed 16-bit	0	—	—	—	—	RW	—
8984	ioSV_free3	Signed 16-bit	0	—	—	—	—	RW	—
8985	ioSV_free4	Signed 16-bit	0	—	—	—	—	RW	—
8986	ioSV_free5	Signed 16-bit	0	—	—	—	—	RW	—
8987	ioSV_free6	Signed 16-bit	0	—	—	—	—	RW	—
8988	ioSV_free7	Signed 16-bit	0	—	—	—	—	RW	—
8989	ioSV_free8	Signed 16-bit	0	—	—	—	—	RW	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
8990	ioSV_base_DI_01	-1 = -1=Not Used; 0 = 0=Supply Fan Th.Prot.; 1 = 1=Return Fan Th.Prot.; 2 = 2=On Off; 3 = 3=Fire Alarm; 4 = 4=Mode; 5 = 5=Door; 6 = 6=Antifreeze Alarm; 7 = 7=Airflow Alarm Supply; 8 = 8=Airflow Alarm Return; 9 = 9=Humidifier Alarm; 10 = 10=Pre Heater A	-1	—	—	—	—	RW	—
8991	ioSV_base_DI_02	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
8992	ioSV_base_DI_03	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
8993	ioSV_base_DI_04	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
8994	ioSV_base_DI_05	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
8995	ioSV_base_DI_06	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
8996	ioSV_base_DI_07	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
8997	ioSV_base_DI_08	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
8998	ioSV_base_DI_09	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
8999	ioSV_base_DI_10	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
9000	ioSV_base_DI_11	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
9001	ioSV_base_DI_12	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
9002	ioSV_exp1_DI_01	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
9003	ioSV_exp1_DI_02	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
9004	ioSV_exp1_DI_03	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
9005	ioSV_exp1_DI_04	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
9006	ioSV_exp2_DI_01	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
9007	ioSV_exp2_DI_02	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
9008	ioSV_exp2_DI_03	See ioSV_base_DI_01	-1	—	—	—	—	RW	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9009	ioSV_exp2_DI_04	See ioSV_base_DI_01	-1	—	—	—	—	RW	—
9010	ioSV_free9	Signed 16-bit	0	—	—	—	—	RW	—
9011	ioSV_free10	Signed 16-bit	0	—	—	—	—	RW	—
9012	ioSV_free11	Signed 16-bit	0	—	—	—	—	RW	—
9013	ioSV_free12	Signed 16-bit	0	—	—	—	—	RW	—
9014	ioSV_free13	Signed 16-bit	0	—	—	—	—	RW	—
9015	ioSV_free14	Signed 16-bit	0	—	—	—	—	RW	—
9016	ioSV_free15	Signed 16-bit	0	—	—	—	—	RW	—
9017	ioSV_free16	Signed 16-bit	0	—	—	—	—	RW	—
9018	ioSV_base_DO_01	-1 = -1=Not Used; 0 = 0=Supply Fan; 1 = 1=Return Fan; 2 = 2=On Off; 3 = 3=Alarm; 4 = 4=Mode; 5 = 5=Ext. Dampers; 6 = 6=Bypass Damper; 7 = 7=Supply Damper; 8 = 8=Return Damper; 9 = 9=Pump Preheat; 10 = 10=Pump Postheat; 11 = 11=Cool / Cool-Heat Pump; 12 = 12=Cool / Cool-Heat Step 1; 13 = 13=Cool / Cool-Heat Step 2; 14 = 14=Cool / Cool-Heat Step 3; 15 = 15=Cool / Cool-Heat Step 4; 16 = 16=Heat Pump; 17 = 17=Heater Step 1; 18 = 18=Heater Step 2; 19 = 19=Heater Step 3; 20 = 20=Pre Heater Step 1;	-1	—	—	—	—	RW	Temporary: Logic Allocation of the physical output

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9018	ioSV_base_DO_01	21 = 21=Pre Heater Step 2; 22 = 22=Pre Heater Step 3; 23 = 23=Post Heater Step 1; 24 = 24=Post Heater Step 2; 25 = 25=Post Heater Step 3; 26 = 26=Humidifier; 27 = 27=Recovery; 28 = 28=Supply Fan 2; 29 = 29=Return Fan 2; 30 = 30=Supply Damper 2; 31 = 31=Return Damper 2	-1	—	—	—	—	RW	Temporary: Logic Allocation of the physical output
9019	ioSV_base_DO_02	See ioSV_base_DO_01	-1	—	—	—	—	RW	Save command required to be effective
9020	ioSV_base_DO_03	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9021	ioSV_base_DO_04	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9022	ioSV_base_DO_05	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9023	ioSV_base_DO_06	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9024	ioSV_base_DO_07	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9025	ioSV_base_DO_08	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9026	ioSV_base_DO_09	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9027	ioSV_base_DO_10	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9028	ioSV_base_DO_11	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9029	ioSV_base_DO_12	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9031	ioSV_exp1_DO_02	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9030	ioSV_exp1_DO_01	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9032	ioSV_exp1_DO_03	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9033	ioSV_exp1_DO_04	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9034	ioSV_exp2_DO_01	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9035	ioSV_exp2_DO_02	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9036	ioSV_exp2_DO_03	See ioSV_base_DO_01	-1	—	—	—	—	RW	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9037	ioSV_exp2_DO_04	See ioSV_base_DO_01	-1	—	—	—	—	RW	—
9039	ioSV_free18	Signed 16-bit	0	—	—	—	—	RW	—
9038	ioSV_free17	Signed 16-bit	0	—	—	—	—	RW	—
9040	ioSV_free19	Signed 16-bit	0	—	—	—	—	RW	—
9041	ioSV_free20	Signed 16-bit	0	—	—	—	—	RW	—
9042	ioSV_free21	Signed 16-bit	0	—	—	—	—	RW	—
9043	ioSV_free22	Signed 16-bit	0	—	—	—	—	RW	—
9044	ioSV_free23	Signed 16-bit	0	—	—	—	—	RW	—
9045	ioSV_free24	Signed 16-bit	0	—	—	—	—	RW	—
9046	ioSV_base_AO_01	-1 = -1=Not Used; 0 = 0=Supply Fan; 1 = 1=Return Fan; 2 = 2=Ext. Dampers; 3 = 3=By. Damper; 4 = 4=Cool / Cool-Heat; 5 = 5=Heat; 6 = 6=Pre Heater; 7 = 7=Post Heater; 8 = 8=Recovery; 9 = 9=Humidifier	-1	—	—	—	—	RW	—
9047	ioSV_base_AO_02	See ioSV_base_AO_01	-1	—	—	—	—	RW	—
9048	ioSV_base_AO_03	See ioSV_base_AO_01	-1	—	—	—	—	RW	—
9049	ioSV_base_AO_04	See ioSV_base_AO_01	-1	—	—	—	—	RW	—
9050	ioSV_base_AO_05	See ioSV_base_AO_01	-1	—	—	—	—	RW	—
9051	ioSV_base_AO_06	See ioSV_base_AO_01	-1	—	—	—	—	RW	—
9052	ioSV_exp1_AO_01	See ioSV_base_AO_01	-1	—	—	—	—	RW	—
9053	ioSV_exp1_AO_02	See ioSV_base_AO_01	-1	—	—	—	—	RW	—
9054	ioSV_exp2_AO_01	See ioSV_base_AO_01	-1	—	—	—	—	RW	—
9055	ioSV_exp2_AO_02	See ioSV_base_AO_01	-1	—	—	—	—	RW	—
9056	ioSV_free25	Signed 16-bit	0	—	—	—	—	RW	—
9057	ioSV_free26	Signed 16-bit	0	—	—	—	—	RW	—
9058	ioSV_free27	Signed 16-bit	0	—	—	—	—	RW	—
9059	ioSV_free28	Signed 16-bit	0	—	—	—	—	RW	—
9060	ioSV_free29	Signed 16-bit	0	—	—	—	—	RW	—
9061	ioSV_free30	Signed 16-bit	0	—	—	—	—	RW	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9062	ioSV_free31	Signed 16-bit	0	—	—	—	—	RW	—
9063	ioSV_free32	Signed 16-bit	0	—	—	—	—	RW	—
9064	ioSV_base_AI_0102	0 = 0=NTC(NK103); 2 = 2=NTC(103AT); 3 = 3=4...20mA; 4 = 4=0-10V; 5 = 5=Ratiometric; 6 = 6=PT1000; 9 = 9=PTC; 10 = 10=0-5V; 11 = 11=0...20mA	2	—	—	—	—	RW	Temporary: AI probe configuration
9065	ioSV_base_AI_0304	See ioSV_base_AI_0102	2	—	—	—	—	RW	Save command required to be effective
9066	ioSV_base_AI_0506	See ioSV_base_AI_0102	2	—	—	—	—	RW	—
9067	ioSV_base_AI_0708	See ioSV_base_AI_0102	4	—	—	—	—	RW	—
9068	ioSV_base_AI_0910	See ioSV_base_AI_0102	2	—	—	—	—	RW	—
9069	ioSV_base_AI_1112	See ioSV_base_AI_0102	4	—	—	—	—	RW	—
9070	ioSV_exp1_AI_0102	See ioSV_base_AI_0102	—	—	—	—	—	R	—
9071	ioSV_exp1_AI_0304	See ioSV_base_AI_0102	—	—	—	—	—	R	—
9072	ioSV_exp2_AI_0102	See ioSV_base_AI_0102	—	—	—	—	—	R	—
9073	ioSV_exp2_AI_0304	See ioSV_base_AI_0102	—	—	—	—	—	R	—
9074	ioSV_free33	Signed 16-bit	0	—	—	—	—	RW	—
9075	ioSV_free34	Signed 16-bit	0	—	—	—	—	RW	—
9076	ioSV_free35	Signed 16-bit	0	—	—	—	—	RW	—
9077	ioSV_free36	Signed 16-bit	0	—	—	—	—	RW	—
9078	ioSV_free37	Signed 16-bit	0	—	—	—	—	RW	—
9079	ioSV_free38	Signed 16-bit	0	—	—	—	—	RW	—
9080	ioSV_free39	Signed 16-bit	0	—	—	—	—	RW	—
9081	ioSV_free40	Signed 16-bit	0	—	—	—	—	RW	—
9082	ioSV_base_AI01_min	Signed 16-bit	0	—	—	digit	—	RW	Temporary: AI ranges
9083	ioSV_base_AI01_max	Unsigned 16-bit	1000	—	—	digit	—	RW	Save command required to be effective
9084	ioSV_base_AI02_min	Signed 16-bit	0	—	—	digit	—	RW	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9085	ioSV_base_AI02_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9086	ioSV_base_AI03_min	Signed 16-bit	0	—	—	digit	—	RW	—
9087	ioSV_base_AI03_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9088	ioSV_base_AI04_min	Signed 16-bit	0	—	—	digit	—	RW	—
9089	ioSV_base_AI04_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9090	ioSV_base_AI05_min	Signed 16-bit	0	—	—	digit	—	RW	—
9091	ioSV_base_AI05_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9092	ioSV_base_AI06_min	Signed 16-bit	0	—	—	digit	—	RW	—
9093	ioSV_base_AI06_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9094	ioSV_base_AI07_min	Signed 16-bit	0	—	—	digit	—	RW	—
9095	ioSV_base_AI07_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9096	ioSV_base_AI08_min	Signed 16-bit	0	—	—	digit	—	RW	—
9097	ioSV_base_AI08_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9098	ioSV_base_AI09_min	Signed 16-bit	0	—	—	digit	—	RW	—
9099	ioSV_base_AI09_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9100	ioSV_base_AI10_min	Signed 16-bit	0	—	—	digit	—	RW	—
9101	ioSV_base_AI10_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9102	ioSV_base_AI11_min	Signed 16-bit	0	—	—	digit	—	RW	—
9103	ioSV_base_AI11_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9104	ioSV_base_AI12_min	Signed 16-bit	0	—	—	digit	—	RW	—
9105	ioSV_base_AI12_max	Unsigned 16-bit	1000	—	—	digit	—	RW	—
9106	ioSV_exp1_AI01_min	Signed 16-bit	-500	—	—	digit	—	RW	—
9107	ioSV_exp1_AI01_max	Signed 16-bit	1100	—	—	digit	—	RW	—
9109	ioSV_exp1_AI02_max	Signed 16-bit	1100	—	—	digit	—	RW	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9108	ioSV_exp1_AIO2_min	Signed 16-bit	-500	—	—	digit	—	RW	—
9110	ioSV_exp1_AIO3_min	Signed 16-bit	0	—	—	digit	—	RW	—
9111	ioSV_exp1_AIO3_max	Signed 16-bit	1000	—	—	digit	—	RW	—
9112	ioSV_exp1_AIO4_min	Signed 16-bit	0	—	—	digit	—	RW	—
9113	ioSV_exp1_AIO4_max	Signed 16-bit	1000	—	—	digit	—	RW	—
9114	ioSV_exp2_AIO1_min	Signed 16-bit	-500	—	—	digit	—	RW	—
9115	ioSV_exp2_AIO1_max	Signed 16-bit	1100	—	—	digit	—	RW	—
9116	ioSV_exp2_AIO2_min	Signed 16-bit	-500	—	—	digit	—	RW	—
9117	ioSV_exp2_AIO2_max	Signed 16-bit	1100	—	—	digit	—	RW	—
9118	ioSV_exp2_AIO3_min	Signed 16-bit	0	—	—	digit	—	RW	—
9119	ioSV_exp2_AIO3_max	Signed 16-bit	1000	—	—	digit	—	RW	—
9120	ioSV_exp2_AIO4_min	Signed 16-bit	0	—	—	digit	—	RW	—
9121	ioSV_exp2_AIO4_max	Signed 16-bit	1000	—	—	digit	—	RW	—
9122	ioSV_free41	Signed 16-bit	0	—	—	—	—	RW	—
9123	ioSV_free42	Signed 16-bit	0	—	—	—	—	RW	—
9124	ioSV_free43	Signed 16-bit	0	—	—	—	—	RW	—
9125	ioSV_free44	Signed 16-bit	0	—	—	—	—	RW	—
9126	ioSV_free45	Signed 16-bit	0	—	—	—	—	RW	—
9127	ioSV_free46	Signed 16-bit	0	—	—	—	—	RW	—
9128	ioSV_free47	Signed 16-bit	0	—	—	—	—	RW	—
9129	ioSV_free48	Signed 16-bit	0	—	—	—	—	RW	—
9130	ioSV_free49	Signed 16-bit	0	—	—	—	—	RW	—
9131	ioSV_free50	Signed 16-bit	0	—	—	—	—	RW	—
9132	ioSV_free51	Signed 16-bit	0	—	—	—	—	RW	—
9133	ioSV_free52	Signed 16-bit	0	—	—	—	—	RW	—
9134	ioSV_free53	Signed 16-bit	0	—	—	—	—	RW	—
9135	ioSV_free54	Signed 16-bit	0	—	—	—	—	RW	—
9136	ioSV_free55	Signed 16-bit	0	—	—	—	—	RW	—
9137	ioSV_free56	Signed 16-bit	0	—	—	—	—	RW	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9138	EnableTest Output	0 = 0=Disabled; 1 = 1=On From HMI; 2 = 2=On From Device	0	—	—	—	—	RW	Enable test output
9139	aoTst_Visibility1	Unsigned 16-bit	—	—	—	—	%04x	R	Test AO visibility bit - Word 1
9140	aoTst_Visibility2	Unsigned 16-bit	—	—	—	—	%04x	R	Test AO visibility bit - Word 2
9141	aoTst_Visibility3	Unsigned 16-bit	—	—	—	—	%04x	R	Test AO visibility bit - Word 3
9142	aoTst_EnManual1	Unsigned 16-bit	—	—	—	—	%04x	RW	Test AO Force/Auto bit - Word 1
9143	aoTst_EnManual2	Unsigned 16-bit	—	—	—	—	%04x	RW	Test AO Force/Auto bit - Word 2
9144	aoTst_EnManual3	Unsigned 16-bit	—	—	—	—	%04x	RW	Test AO Force/Auto bit - Word 3
9145	aoTst_LogicalIndex_0	Signed 16-bit	0	0	1000	%	XXX.Y	RW	Test AO - Supply Fan
9146	aoTst_LogicalIndex_1	Signed 16-bit	0	0	1000	%	XXX.Y	RW	Test AO - Return Fan
9147	aoTst_LogicalIndex_2	Signed 16-bit	0	0	1000	%	XXX.Y	RW	Test AO - Ext. Dampers
9148	aoTst_LogicalIndex_3	Signed 16-bit	0	0	1000	%	XXX.Y	RW	Test AO - Bypass Damper
9149	aoTst_LogicalIndex_4	Signed 16-bit	0	0	1000	%	XXX.Y	RW	Test AO - Cool - C/H Valve
9150	aoTst_LogicalIndex_5	Signed 16-bit	0	0	1000	%	XXX.Y	RW	Test AO - Heat Valve
9151	aoTst_LogicalIndex_6	Signed 16-bit	0	0	1000	%	XXX.Y	RW	Test AO - Pre Heater
9152	aoTst_LogicalIndex_7	Signed 16-bit	0	0	1000	%	XXX.Y	RW	Test AO - Post Heater
9153	aoTst_LogicalIndex_8	Signed 16-bit	0	0	1000	%	XXX.Y	RW	Test AO - Rotary Wheel / Exchanger
9154	aoTst_LogicalIndex_9	Signed 16-bit	0	0	1000	%	XXX.Y	RW	Test AO - Humidifier
9155	aoTst_free1	Signed 16-bit	0	0	1000	%	XXX.Y	RW	—
9156	aoTst_free2	Signed 16-bit	0	0	1000	%	XXX.Y	RW	—
9157	aoTst_free3	Signed 16-bit	0	0	1000	%	XXX.Y	RW	—
9158	aoTst_free4	Signed 16-bit	0	0	1000	%	XXX.Y	RW	—
9159	aoTst_free5	Signed 16-bit	0	0	1000	%	XXX.Y	RW	—
9160	aoTst_free6	Signed 16-bit	0	0	1000	%	XXX.Y	RW	—
9161	aoTst_free7	Signed 16-bit	0	0	1000	%	XXX.Y	RW	—
9162	aoTst_free8	Signed 16-bit	0	0	1000	%	XXX.Y	RW	—
9163	aoTst_free9	Signed 16-bit	0	0	1000	%	XXX.Y	RW	—
9164	aoTst_free10	Signed 16-bit	0	0	1000	%	XXX.Y	RW	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9165	doTst_Visibility1	Unsigned 16-bit	—	—	—	—	%04x	R	Test DO visibility bit - Word 1
9166	doTst_Visibility2	Unsigned 16-bit	—	—	—	—	%04x	R	Test DO visibility bit - Word 2
9167	doTst_Visibility3	Unsigned 16-bit	—	—	—	—	%04x	R	Test DO visibility bit - Word 3
9168	doTst_EnManual1	Unsigned 16-bit	—	—	—	—	%04x	RW	Test DO Force/Auto bit - Word 1
9169	doTst_EnManual2	Unsigned 16-bit	—	—	—	—	%04x	RW	Test DO Force/Auto bit - Word 2
9170	doTst_EnManual3	Unsigned 16-bit	—	—	—	—	%04x	RW	Test DO Force/Auto bit - Word 3
9171	doTst_LogicIndex_0	Boolean	0	—	—	—	—	RW	Test DO - Supply Fan
9172	doTst_LogicIndex_1	Boolean	0	—	—	—	—	RW	Test DO - Return Fan
9173	doTst_LogicIndex_2	Boolean	0	—	—	—	—	RW	Test DO - On Off
9174	doTst_LogicIndex_3	Boolean	0	—	—	—	—	RW	Test DO - Alarm
9175	doTst_LogicIndex_4	Boolean	0	—	—	—	—	RW	Test DO - Mode
9176	doTst_LogicIndex_5	Boolean	0	—	—	—	—	RW	Test DO - Ext. Dampers
9177	doTst_LogicIndex_6	Boolean	0	—	—	—	—	RW	Test DO - Bypass Damper
9178	doTst_LogicIndex_7	Boolean	0	—	—	—	—	RW	Test DO - Supply Damper
9179	doTst_LogicIndex_8	Boolean	0	—	—	—	—	RW	Test DO - Return Damper
9180	doTst_LogicIndex_9	Boolean	0	—	—	—	—	RW	Test DO - Pump Preheat
9181	doTst_LogicIndex_10	Boolean	0	—	—	—	—	RW	Test DO - Pump Postheat
9182	doTst_LogicIndex_11	Boolean	0	—	—	—	—	RW	Test DO - Cool/CH Pump
9183	doTst_LogicIndex_12	Boolean	0	—	—	—	—	RW	Test DO - Cool/CH Step 1
9184	doTst_LogicIndex_13	Boolean	0	—	—	—	—	RW	Test DO - Cool/CH Step 2
9185	doTst_LogicIndex_14	Boolean	0	—	—	—	—	RW	Test DO - Cool/CH Step 3
9186	doTst_LogicIndex_15	Boolean	0	—	—	—	—	RW	Test DO - Cool/CH Step 4
9187	doTst_LogicIndex_16	Boolean	0	—	—	—	—	RW	Test DO - Heat Pump
9188	doTst_LogicIndex_17	Boolean	0	—	—	—	—	RW	Test DO - Heater Step 1

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
9189	doTst_Logic Index_18	Boolean	0	—	—	—	—	RW	Test DO - Heater Step 2
9190	doTst_Logic Index_19	Boolean	0	—	—	—	—	RW	Test DO - Heater Step 3
9191	doTst_Logic Index_20	Boolean	0	—	—	—	—	RW	Test DO - Pre Heater Step 1
9192	doTst_Logic Index_21	Boolean	0	—	—	—	—	RW	Test DO - Pre Heater Step 2
9193	doTst_Logic Index_22	Boolean	0	—	—	—	—	RW	Test DO - Pre Heater Step 3
9194	doTst_Logic Index_23	Boolean	0	—	—	—	—	RW	Test DO - Post Heater Step 1
9195	doTst_Logic Index_24	Boolean	0	—	—	—	—	RW	Test DO - Post Heater Step 2
9196	doTst_Logic Index_25	Boolean	0	—	—	—	—	RW	Test DO - Post Heater Step 3
9197	doTst_Logic Index_26	Boolean	0	—	—	—	—	RW	Test DO - Humidifier
9198	doTst_Logic Index_27	Boolean	0	—	—	—	—	RW	Test DO - Rotary Wheel / Exchanger
9199	doTst_Logic Index_28	Boolean	0	—	—	—	—	RW	Test DO - Supply Fan 2
9200	doTst_Logic Index_29	Boolean	0	—	—	—	—	RW	Test DO - Return Fan 2
9201	doTst_Logic Index_30	Boolean	0	—	—	—	—	RW	Test DO - Supply Damper 2
9202	doTst_Logic Index_31	Boolean	0	—	—	—	—	RW	Test DO - Return Damper 2
9203	doTst_free1	Boolean	0	—	—	—	—	RW	—
9204	doTst_free2	Boolean	0	—	—	—	—	RW	—
9205	doTst_free3	Boolean	0	—	—	—	—	RW	—
9206	doTst_free4	Boolean	0	—	—	—	—	RW	—
9207	doTst_free5	Boolean	0	—	—	—	—	RW	—
9208	doTst_free6	Boolean	0	—	—	—	—	RW	—
9209	doTst_free7	Boolean	0	—	—	—	—	RW	—
9210	doTst_free8	Boolean	0	—	—	—	—	RW	—
9211	doTst_free9	Boolean	0	—	—	—	—	RW	—
9212	doTst_free10	Boolean	0	—	—	—	—	RW	—
9500... 9518	Area riservata	—	—	—	—	—	—	—	—
13000... 13009	Area riservata	—	—	—	—	—	—	—	—
9700... 9719	Area riservata	—	—	—	—	—	—	—	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10499	SendModbus FanConfiguration	Boolean	0		—	—	—	RW	—
10500	Supply1_Ziehl_Basic_CM ODE	Unsigned 16-bit	—	—	—	—	—	RW	—
10501	Supply1_Ziehl_Basic_D1	Unsigned 16-bit	0	—	—	—	—	RW	—
10502	Supply1_Ziehl_Basic_PIN	Unsigned 16-bit	—	—	—	—	—	RW	—
10503	Supply1_Ziehl_Basic_ControlCmd	Unsigned 16-bit	—	—	—	—	—	R	—
10504	Supply1_Ziehl_Basic_SpeedCmd	Unsigned 16-bit	—	—	—	1/32767	—	R	—
10505	Supply1_Ziehl_Basic_Status	Unsigned 16-bit	—	—	—	hex	%04X	R	—
10506	Supply1_Ziehl_Basic_ErrorStatus	Unsigned 16-bit	—	—	—	hex	%04X	R	Ziehl MB Input Register 13 = error status
10507	Supply1_Ziehl_Basic_ActualSpeed	Unsigned 16-bit	—	—	—	rpm	—	R	—
10508	Supply1_Ziehl_Basic_Current	Unsigned 16-bit	—	—	—	A	XX.YY	R	—
10509	Supply1_Ziehl_Basic_Voltage	Unsigned 16-bit	—	—	—	V	—	R	—
10510	Supply1_Ziehl_Basic_PIN read	Unsigned 16-bit	—	—	—	—	—	R	—
10511	Supply1_Ziehl_Basic_CM ODEread	Unsigned 16-bit	—	—	—	—	—	R	—
10512	Supply1_Ziehl_Basic_D1 read	Unsigned 16-bit	—	—	—	—	—	R	—
10513	Supply1_Ziehl_Basic_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10514	Supply1_Ziehl_Basic_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10515	Supply1_Ziehl_Basic_Dummy3	Unsigned 16-bit	—	—	—	—	—	R	—
10516	Return1_Ziehl_Basic_CM ODE	Unsigned 16-bit	—	—	—	—	—	RW	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10517	Return1_Ziehl_Basic_D1	Unsigned 16-bit	0	—	—	—	—	RW	—
10518	Return1_Ziehl_Basic_PIN	Unsigned 16-bit	—	—	—	—	—	RW	—
10519	Return1_Ziehl_Basic_ControlCmd	Unsigned 16-bit	—	—	—	—	—	R	—
10520	Return1_Ziehl_Basic_SpeedCmd	Unsigned 16-bit	—	—	—	1/32767	—	R	—
10521	Return1_Ziehl_Basic_Status	Unsigned 16-bit	—	—	—	hex	%04X	R	—
10522	Return1_Ziehl_Basic_ErrorStatus	Unsigned 16-bit	—	—	—	hex	%04X	R	Ziehl MB Input Register 13 = error status
10523	Return1_Ziehl_Basic_ActualSpeed	Unsigned 16-bit	—	—	—	rpm	—	R	—
10524	Return1_Ziehl_Basic_Current	Unsigned 16-bit	—	—	—	A	XX.YY	R	—
10525	Return1_Ziehl_Basic_Voltage	Unsigned 16-bit	—	—	—	V	—	R	—
10526	Return1_Ziehl_Basic_PINread	Unsigned 16-bit	—	—	—	—	—	R	—
10527	Return1_Ziehl_Basic_CMODEread	Unsigned 16-bit	—	—	—	—	—	R	—
10528	Return1_Ziehl_Basic_D1read	Unsigned 16-bit	—	—	—	—	—	R	—
10529	Return1_Ziehl_Basic_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10530	Return1_Ziehl_Basic_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10531	Return1_Ziehl_Basic_Dummy3	Unsigned 16-bit	—	—	—	—	—	R	—
10532	Supply2_Ziehl_Basic_CMODE	Unsigned 16-bit	—	—	—	—	—	RW	—
10533	Supply2_Ziehl_Basic_D1	Unsigned 16-bit	0	—	—	—	—	RW	—
10534	Supply2_Ziehl_Basic_PIN	Unsigned 16-bit	—	—	—	—	—	RW	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10535	Supply2_Ziehl_Basic_ControlCmd	Unsigned 16-bit	—	—	—	—	—	R	—
10536	Supply2_Ziehl_Basic_SpeedCmd	Unsigned 16-bit	—	—	—	1/32767	—	R	—
10537	Supply2_Ziehl_Basic_Status	Unsigned 16-bit	—	—	—	hex	%04X	R	—
10538	Supply2_Ziehl_Basic_ErrorStatus	Unsigned 16-bit	—	—	—	hex	%04X	R	Ziehl MB Input Register 13 = error status
10539	Supply2_Ziehl_Basic_ActualSpeed	Unsigned 16-bit	—	—	—	rpm	—	R	—
10540	Supply2_Ziehl_Basic_Current	Unsigned 16-bit	—	—	—	A	XX.YY	R	—
10541	Supply2_Ziehl_Basic_Voltage	Unsigned 16-bit	—	—	—	V	—	R	—
10542	Supply2_Ziehl_Basic_PINread	Unsigned 16-bit	—	—	—	—	—	R	—
10543	Supply2_Ziehl_Basic_CM ODEread	Unsigned 16-bit	—	—	—	—	—	R	—
10544	Supply2_Ziehl_Basic_D1read	Unsigned 16-bit	—	—	—	—	—	R	—
10545	Supply2_Ziehl_Basic_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10546	Supply2_Ziehl_Basic_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10547	Supply2_Ziehl_Basic_Dummy3	Unsigned 16-bit	—	—	—	—	—	R	—
10548	Return2_Ziehl_Basic_CM ODE	Unsigned 16-bit	—	—	—	—	—	RW	—
10549	Return2_Ziehl_Basic_D1	Unsigned 16-bit	0	—	—	—	—	RW	—
10550	Return2_Ziehl_Basic_PIN	Unsigned 16-bit	—	—	—	—	—	RW	—
10551	Return2_Ziehl_Basic_ControlCmd	Unsigned 16-bit	—	—	—	—	—	R	—
10552	Return2_Ziehl_Basic_SpeedCmd	Unsigned 16-bit	—	—	—	1/32767	—	R	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10553	Return2_Ziehl_Basic_Status	Unsigned 16-bit	—	—	—	hex	%04X	R	—
10554	Return2_Ziehl_Basic_ErrorStatus	Unsigned 16-bit	—	—	—	hex	%04X	R	Ziehl MB Input Register 13 = error status
10555	Return2_Ziehl_Basic_ActualSpeed	Unsigned 16-bit	—	—	—	rpm	—	R	—
10556	Return2_Ziehl_Basic_Current	Unsigned 16-bit	—	—	—	A	XX.YY	R	—
10557	Return2_Ziehl_Basic_Voltage	Unsigned 16-bit	—	—	—	V	—	R	—
10558	Return2_Ziehl_Basic_PINread	Unsigned 16-bit	—	—	—	—	—	R	—
10559	Return2_Ziehl_Basic_CMODeread	Unsigned 16-bit	—	—	—	—	—	R	—
10560	Return2_Ziehl_Basic_D1read	Unsigned 16-bit	—	—	—	—	—	R	—
10561	Return2_Ziehl_Basic_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10562	Return2_Ziehl_Basic_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10563	Return2_Ziehl_Basic_Dummy3	Unsigned 16-bit	—	—	—	—	—	R	—
10600	Supply1_EBM_SourceSet Value	Unsigned 16-bit	1	—	—	—	—	RW	D101+1
10601	Supply1_EBM_Running Dir	Unsigned 16-bit	—	—	—	—	—	RW	D102+1
10602	Supply1_EBM_StoreSet Value	Unsigned 16-bit	0	—	—	—	—	RW	D103+1
10603	Supply1_EBM_ControlModeDay	Unsigned 16-bit	2	—	—	—	—	RW	D106+1
10604	Supply1_EBM_ControlModeNight	Unsigned 16-bit	2	—	—	—	—	RW	D107+1
10605	Supply1_EBM_MotorStop EnableDay	Unsigned 16-bit	1	—	—	—	—	RW	D112+1

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10606	Supply1_EB M_MotorStop EnableNight	Unsigned 16-bit	1	—	—	—	—	RW	D113+1
10607	Supply1_EB M_SourceSet ValueRead	Unsigned 16-bit	—	—	—	—	—	R	D101+1
10608	Supply1_EB M_Running DirRead	Unsigned 16-bit	—	—	—	—	—	R	D102+1
10609	Supply1_EB M_StoreSet ValueRead	Unsigned 16-bit	—	—	—	—	—	R	D103+1
10610	Supply1_EB M_ControlMo deDayRead	Unsigned 16-bit	—	—	—	—	—	R	D106+1
10611	Supply1_EB M_ControlMo deNightRead	Unsigned 16-bit	—	—	—	—	—	R	D107+1
10612	Supply1_EB M_MotorStop EnableDay Read	Unsigned 16-bit	—	—	—	—	—	R	D112+1
10613	Supply1_EB M_MotorStop EnableNight Read	Unsigned 16-bit	—	—	—	—	—	R	D113+1
10614	Supply1_EB M_MaxSpeed	Unsigned 16-bit	—	—	—	rpm	—	R	D119+1
10615	Supply1_EB M_Reset	Unsigned 16-bit	—	—	—	—	—	R	—
10616	Supply1_EB M_Specified Set	Unsigned 16-bit	—	—	—	1/640 00	—	R	—
10617	Supply1_EB M_ActualSpe ed	Unsigned 16-bit	—	—	—	1/640 00	—	R	—
10618	Supply1_EB M_MotorStat us	Unsigned 16-bit	—	—	—	hex	%04X	R	EBM D011+1 : Motor status
10619	Supply1_EB M_Warning	Unsigned 16-bit	—	—	—	hex	%04X	R	—
10620	Supply1_EB M_DCLinkVo ltage	Unsigned 16-bit	—	—	—	1/256 Uz	—	R	—
10621	Supply1_EB M_DCLinkCu rrent	Unsigned 16-bit	—	—	—	1/256 Iz	—	R	—
10622	Supply1_EB M_DCLinkV Ref	Unsigned 16-bit	—	—	—	20mV	—	R	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10623	Supply1_EB M_DCLinkC Ref	Unsigned 16-bit	—	—	—	2mA	—	R	—
10624	Supply1_EB M_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10625	Supply1_EB M_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10626	Return1_EB M_SourceSet Value	Unsigned 16-bit	1	—	—	—	—	RW	D101+1
10627	Return1_EBM _RunningDir	Unsigned 16-bit	—	—	—	—	—	RW	D102+1
10628	Return1_EB M_StoreSet Value	Unsigned 16-bit	0	—	—	—	—	RW	D103+1
10629	Return1_EB M_ControlMo deDay	Unsigned 16-bit	2	—	—	—	—	RW	D106+1
10630	Return1_EB M_ControlMo deNight	Unsigned 16-bit	2	—	—	—	—	RW	D107+1
10631	Return1_EB M_MotorStop EnableDay	Unsigned 16-bit	1	—	—	—	—	RW	D112+1
10632	Return1_EB M_MotorStop EnableNight	Unsigned 16-bit	1	—	—	—	—	RW	D113+1
10633	Return1_EB M_SourceSet ValueRead	Unsigned 16-bit	—	—	—	—	—	R	D101+1
10634	Return1_EB M_Running DirRead	Unsigned 16-bit	—	—	—	—	—	R	D102+1
10635	Return1_EB M_StoreSet ValueRead	Unsigned 16-bit	—	—	—	—	—	R	D103+1
10636	Return1_EB M_ControlMo deDayRead	Unsigned 16-bit	—	—	—	—	—	R	D106+1
10637	Return1_EB M_ControlMo deNightRead	Unsigned 16-bit	—	—	—	—	—	R	D107+1
10638	Return1_EB M_MotorStop EnableDay Read	Unsigned 16-bit	—	—	—	—	—	R	D112+1
10639	Return1_EB M_MotorStop EnableNight Read	Unsigned 16-bit	—	—	—	—	—	R	D113+1
10640	Return1_EBM _MaxSpeed	Unsigned 16-bit	—	—	—	rpm	—	R	D119+1

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10641	Return1_EB M_Reset	Unsigned 16-bit	—	—	—		—	R	—
10642	Return1_EB M_Specified Set	Unsigned 16-bit	—	—	—	1/640 00	—	R	—
10643	Return1_EBM _ActualSpeed	Unsigned 16-bit	—	—	—	1/640 00	—	R	—
10644	Return1_EBM _MotorStatus	Unsigned 16-bit	—	—	—	hex	%04X	R	EBM D011+1 : Motor status
10645	Return1_EB M_Warning	Unsigned 16-bit	—	—	—	hex	%04X	R	—
10646	Return1_EB M_DCLinkVo ltage	Unsigned 16-bit	—	—	—	1/256 Uz	—	R	—
10647	Return1_EB M_DCLinkCu rrent	Unsigned 16-bit	—	—	—	1/256 Iz	—	R	—
10648	Return1_EB M_DCLinkV Ref	Unsigned 16-bit	—	—	—	20mV	—	R	—
10649	Return1_EB M_DCLinkC Ref	Unsigned 16-bit	—	—	—	2mA	—	R	—
10650	Return1_EB M_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10651	Return1_EB M_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10652	Supply2_EB M_SourceSe tValue	Unsigned 16-bit	1	—	—	—	—	RW	D101+1
10653	Supply2_EB M_Running Dir	Unsigned 16-bit	—	—	—	—	—	RW	D102+1
10654	Supply2_EB M_StoreSet Value	Unsigned 16-bit	0	—	—	—	—	RW	D103+1
10655	Supply2_EB M_ControlMo deDay	Unsigned 16-bit	2	—	—	—	—	RW	D106+1
10656	Supply2_EB M_ControlMo deNight	Unsigned 16-bit	2	—	—	—	—	RW	D107+1
10657	Supply2_EB M_MotorStop EnableDay	Unsigned 16-bit	1	—	—	—	—	RW	D112+1
10658	Supply2_EB M_MotorStop EnableNight	Unsigned 16-bit	1	—	—	—	—	RW	D113+1
10659	Supply2_EB M_SourceSet ValueRead	Unsigned 16-bit	—	—	—	—	—	R	D101+1

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10660	Supply2_EB M_Running DirRead	Unsigned 16-bit	—	—	—	—	—	R	D102+1
10661	Supply2_EB M_StoreSet ValueRead	Unsigned 16-bit	—	—	—	—	—	R	D103+1
10662	Supply2_EB M_ControlMo deDayRead	Unsigned 16-bit	—	—	—	—	—	R	D106+1
10663	Supply2_EB M_ControlMo deNightRead	Unsigned 16-bit	—	—	—	—	—	R	D107+1
10664	Supply2_EB M_MotorStop EnableDay Read	Unsigned 16-bit	—	—	—	—	—	R	D112+1
10665	Supply2_EB M_MotorStop EnableNight Read	Unsigned 16-bit	—	—	—	—	—	R	D113+1
10666	Supply2_EB M_MaxSpeed	Unsigned 16-bit	—	—	—	rpm	—	R	D119+1
10667	Supply2_EB M_Reset	Unsigned 16-bit	—	—	—	—	—	R	—
10668	Supply2_EB M_Specified Set	Unsigned 16-bit	—	—	—	1/640 00	—	R	—
10669	Supply2_EB M_ActualSpe ed	Unsigned 16-bit	—	—	—	1/640 00	—	R	—
10670	Supply2_EB M_MotorStat us	Unsigned 16-bit	—	—	—	hex	%04X	R	EBM D011+1 : Motor status
10671	Supply2_EB M_Warning	Unsigned 16-bit	—	—	—	hex	%04X	R	—
10672	Supply2_EB M_DCLinkVo ltage	Unsigned 16-bit	—	—	—	1/256 Uz	—	R	—
10673	Supply2_EB M_DCLinkCu rrent	Unsigned 16-bit	—	—	—	1/256 Iz	—	R	—
10674	Supply2_EB M_DCLinkV Ref	Unsigned 16-bit	—	—	—	20mV	—	R	—
10675	Supply2_EB M_DCLinkC Ref	Unsigned 16-bit	—	—	—	2mA	—	R	—
10676	Supply2_EB M_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10677	Supply2_EB M_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10678	Return2_EB M_SourceSet Value	Unsigned 16-bit	1	—	—	—	—	RW	D101+1
10679	Return2_EB M_Running Dir	Unsigned 16-bit	—	—	—	—	—	RW	D102+1
10680	Return2_EB M_StoreSet Value	Unsigned 16-bit	0	—	—	—	—	RW	D103+1
10681	Return2_EB M_ControlMo deDay	Unsigned 16-bit	2	—	—	—	—	RW	D106+1
10682	Return2_EB M_ControlMo deNight	Unsigned 16-bit	2	—	—	—	—	RW	D107+1
10683	Return2_EB M_MotorStop EnableDay	Unsigned 16-bit	1	—	—	—	—	RW	D112+1
10684	Return2_EB M_MotorStop EnableNight	Unsigned 16-bit	1	—	—	—	—	RW	D113+1
10685	Return2_EB M_SourceSet ValueRead	Unsigned 16-bit	—	—	—	—	—	R	D101+1
10686	Return2_EB M_Running DirRead	Unsigned 16-bit	—	—	—	—	—	R	D102+1
10687	Return2_EB M_StoreSet ValueRead	Unsigned 16-bit	—	—	—	—	—	R	D103+1
10688	Return2_EB M_ControlMo deDayRead	Unsigned 16-bit	—	—	—	—	—	R	D106+1
10689	Return2_EB M_ControlMo deNightRead	Unsigned 16-bit	—	—	—	—	—	R	D107+1
10690	Return2_EB M_MotorStop EnableDay Read	Unsigned 16-bit	—	—	—	—	—	R	D112+1
10691	Return2_EB M_MotorStop EnableNight Read	Unsigned 16-bit	—	—	—	—	—	R	D113+1
10692	Return2_EBM _MaxSpeed	Unsigned 16-bit	—	—	—	rpm	—	R	D119+1
10693	Return2_EB M_Reset	Unsigned 16-bit	—	—	—	—	—	R	—
10694	Return2_EB M_Specified Set	Unsigned 16-bit	—	—	—	1/640 00	—	R	—

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10695	Return2_EB M_ActualSpeed	Unsigned 16-bit	—	—	—	1/64000	—	R	—
10696	Return2_EB M_MotorStatus	Unsigned 16-bit	—	—	—	hex	%04X	R	EBM D011+1 : Motor status
10697	Return2_EB M_Warning	Unsigned 16-bit	—	—	—	hex	%04X	R	—
10698	Return2_EB M_DCLinkVoltage	Unsigned 16-bit	—	—	—	1/256 Uz	—	R	—
10699	Return2_EB M_DCLinkCurrent	Unsigned 16-bit	—	—	—	1/256 Iz	—	R	—
10700	Return2_EB M_DCLinkVRef	Unsigned 16-bit	—	—	—	20mV	—	R	—
10701	Return2_EB M_DCLinkCRef	Unsigned 16-bit	—	—	—	2mA	—	R	—
10702	Return2_EB M_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10703	Return2_EB M_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10800	Supply1_AT V212_CM0D	Unsigned 16-bit	2	—	—	—	—	RW	ATV212: 3+1
10801	Supply1_AT V212_FM0D	Unsigned 16-bit	4	—	—	—	—	RW	ATV212: 4+1
10802	Supply1_ATV 212_Timeout	Unsigned 16-bit	10	—	—	sec	—	RW	ATV212: 2051+1
10803	Supply1_AT V212_F732	Unsigned 16-bit	1	—	—	—	—	RW	ATV212: 1842+1
10804	Supply1_AT V212_CM0D read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 3+1
10805	Supply1_AT V212_FM0D read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 4+1
10806	Supply1_ATV 212_Timeout read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 2051+1
10807	Supply1_AT V212_F732 read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 1842+1
10808	Supply1_ATV 212_FreqMin	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 19+1
10809	Supply1_ATV 212_FreqMax	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 20+1
10810	Supply1_AT V212_Comm and	Unsigned 16-bit	—	—	—	—	%04x	R	ATV212: 64000+1 FA00

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10811	Supply1_AT V212_Cmd Freq	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 64001+1 FA01
10812	Supply1_ATV 212_Current Freq	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 64768+1 Fd00
10813	Supply1_AT V212_Status	Unsigned 16-bit	—	—	—	hex	%04x	R	ATV212: 64769+1 Fd01
10814	Supply1_AT V212_Trip	Unsigned 16-bit	—	—	—	hex	%04X	R	ATV212: 64656+1 FC90
10815	Supply1_AT V212_Alarm	Unsigned 16-bit	—	—	—	hex	%04X	R	ATV212: 64657+1 FC91
10816	Supply1_AT V212_DCVoltage	Unsigned 16-bit	—	—	—	%	XX.YY	R	ATV212: 65028+1 FE04
10817	Supply1_ATV 212_Current	Unsigned 16-bit	—	—	—	%	XX.YY	R	ATV212: 65027+1 FE03
10818	Supply1_ATV 212_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10819	Supply1_ATV 212_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10820	Supply1_ATV 212_Dummy3	Unsigned 16-bit	—	—	—	—	—	R	—
10821	Supply1_ATV 212_Dummy4	Unsigned 16-bit	—	—	—	—	—	R	—
10822	Return1_AT V212_CM0D	Unsigned 16-bit	2	—	—	—	—	RW	ATV212: 3+1
10823	Return1_AT V212_FM0D	Unsigned 16-bit	4	—	—	—	—	RW	ATV212: 4+1
10824	Return1_ATV 212_Timeout	Unsigned 16-bit	10	—	—	sec	—	RW	ATV212: 2051+1
10825	Return1_AT V212_F732	Unsigned 16-bit	1	—	—	—	—	RW	ATV212: 1842+1
10826	Return1_AT V212_CM0D read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 3+1
10827	Return1_AT V212_FM0D read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 4+1
10828	Return1_ATV 212_Timeout read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 2051+1
10829	Return1_AT V212_F732 read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 1842+1
10830	Return1_ATV 212_FreqMin	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 19+1
10831	Return1_ATV 212_FreqMax	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 20+1

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10832	Return1_AT V212_Comm and	Unsigned 16-bit	—	—	—		%04x	R	ATV212: 64000+1 FA00
10833	Return1_AT V212_Cmd Freq	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 64001+1 FA01
10834	Return1_ATV 212_Current Freq	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 64768+1 Fd00
10835	Return1_AT V212_Status	Unsigned 16-bit	—	—	—	hex	%04x	R	ATV212: 64769+1 Fd01
10836	Return1_AT V212_Trip	Unsigned 16-bit	—	—	—	hex	%04X	R	ATV212: 64656+1 FC90
10837	Return1_AT V212_Alarm	Unsigned 16-bit	—	—	—	hex	%04X	R	ATV212: 64657+1 FC91
10838	Return1_AT V212_DCVol tage	Unsigned 16-bit	—	—	—	%	XX.YY	R	ATV212: 65028+1 FE04
10839	Return1_ATV 212_Current	Unsigned 16-bit	—	—	—	%	XX.YY	R	ATV212: 65027+1 FE03
10840	Return1_ATV 212_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10841	Return1_ATV 212_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10842	Return1_ATV 212_Dummy3	Unsigned 16-bit	—	—	—	—	—	R	—
10843	Return1_ATV 212_Dummy4	Unsigned 16-bit	—	—	—	—	—	R	—
10844	Supply2_AT V212_CM0D	Unsigned 16-bit	2	—	—	—	—	RW	ATV212: 3+1
10845	Supply2_AT V212_FM0D	Unsigned 16-bit	4	—	—	—	—	RW	ATV212: 4+1
10846	Supply2_ATV 212_Timeout	Unsigned 16-bit	10	—	—	sec	—	RW	ATV212: 2051+1
10847	Supply2_AT V212_F732	Unsigned 16-bit	1	—	—	—	—	RW	ATV212: 1842+1
10848	Supply2_AT V212_CM0D read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 3+1
10849	Supply2_AT V212_FM0D read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 4+1
10850	Supply2_ATV 212_Timeout read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 2051+1
10851	Supply2_AT V212_F732 read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 1842+1
10852	Supply2_ATV 212_FreqMin	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 19+1

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10853	Supply2_ATV 212_FreqMax	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 20+1
10854	Supply2_AT V212_Comm and	Unsigned 16-bit	—	—	—	—	%04x	R	ATV212: 64000+1 FA00
10855	Supply2_AT V212_Cmd Freq	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 64001+1 FA01
10856	Supply2_ATV 212_Current Freq	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 64768+1 Fd00
10857	Supply2_AT V212_Status	Unsigned 16-bit	—	—	—	hex	%04x	R	ATV212: 64769+1 Fd01
10858	Supply2_AT V212_Trip	Unsigned 16-bit	—	—	—	hex	%04X	R	ATV212: 64656+1 FC90
10859	Supply2_AT V212_Alarm	Unsigned 16-bit	—	—	—	hex	%04X	R	ATV212: 64657+1 FC91
10860	Supply2_AT V212_DCVol tage	Unsigned 16-bit	—	—	—	%	XX.YY	R	ATV212: 65028+1 FE04
10861	Supply2_ATV 212_Current	Unsigned 16-bit	—	—	—	%	XX.YY	R	ATV212: 65027+1 FE03
10862	Supply2_ATV 212_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10863	Supply2_ATV 212_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10864	Supply2_ATV 212_Dummy3	Unsigned 16-bit	—	—	—	—	—	R	—
10865	Supply2_ATV 212_Dummy4	Unsigned 16-bit	—	—	—	—	—	R	—
10866	Return2_AT V212_CM0D	Unsigned 16-bit	2	—	—	—	—	RW	ATV212: 3+1
10867	Return2_AT V212_FM0D	Unsigned 16-bit	4	—	—	—	—	RW	ATV212: 4+1
10868	Return2_ATV 212_Timeout	Unsigned 16-bit	10	—	—	sec	—	RW	ATV212: 2051+1
10869	Return2_AT V212_F732	Unsigned 16-bit	1	—	—	—	—	RW	ATV212: 1842+1
10870	Return2_AT V212_CM0D read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 3+1
10871	Return2_AT V212_FM0D read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 4+1
10872	Return2_ATV 212_Timeout read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 2051+1
10873	Return2_AT V212_F732 read	Unsigned 16-bit	—	—	—	—	—	R	ATV212: 1842+1

Modbus Register	Name	Device type	Def	Min	Max	Unit	Format	RW	Description
10874	Return2_ATV 212_FreqMin	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 19+1
10875	Return2_ATV 212_FreqMax	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 20+1
10876	Return2_AT V212_Comm and	Unsigned 16-bit	—	—	—	—	%04x	R	ATV212: 64000+1 FA00
10877	Return2_AT V212_Cmd Freq	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 64001+1 FA01
10878	Return2_ATV 212_Current Freq	Unsigned 16-bit	—	—	—	Hz	XX.YY	R	ATV212: 64768+1 Fd00
10879	Return2_AT V212_Status	Unsigned 16-bit	—	—	—	hex	%04x	R	ATV212: 64769+1 Fd01
10880	Return2_AT V212_Trip	Unsigned 16-bit	—	—	—	hex	%04X	R	ATV212: 64656+1 FC90
10881	Return2_AT V212_Alarm	Unsigned 16-bit	—	—	—	hex	%04X	R	ATV212: 64657+1 FC91
10882	Return2_AT V212_DCVol tage	Unsigned 16-bit	—	—	—	%	XX.YY	R	ATV212: 65028+1 FE04
10883	Return2_ATV 212_Current	Unsigned 16-bit	—	—	—	%	XX.YY	R	ATV212: 65027+1 FE03
10884	Return2_ATV 212_Dummy1	Unsigned 16-bit	—	—	—	—	—	R	—
10885	Return2_ATV 212_Dummy2	Unsigned 16-bit	—	—	—	—	—	R	—
10886	Return2_ATV 212_Dummy3	Unsigned 16-bit	—	—	—	—	—	R	—
10887	Return2_ATV 212_Dummy4	Unsigned 16-bit	—	—	—	—	—	R	—

Table 15 - Modbus Status Table

