memmert

AtmoWEB

REST INTERFACE

About this manual

Purpose and target group

AtmoCONTROL is the recommended tool to analyse and control the device data. Under some circumstances you may want to have your own programmatic access to the device. AtmoWEB provides a web based interface for that purpose.

If there is something you do not understand, or certain information is missing, ask your superior or contact the manufacturer. Do not do anything without authorisation.

Other documents that have to be observed

Please also read the user manual for the respective appliance or appliances to be operated with AtmoCONTROL and familiarise yourself with it.

Storage and resale

This manual should always be kept in a place where those working with the software have access to it. It is the responsibility of the operator to ensure that persons who work with or will work with the software are informed as to the whereabouts of this user manual. We recommend that it is always stored in a protected location close to the computer on which the software is installed. Make sure that the manual is not damaged by heat or damp.

Contents

1.   Requirements and Setup

1.1   Software Version of Device

This document describes the web based interface to Memmert generation 2012 climate chambers. To use that interface the firmware version of a device has to be at least 02.02.07.

To check the version, push button MENU --> SETUP on the device screen and, on top of the temperature screen, check the entry "RV: xx.xx.xx", where x denotes the 3 components of the software revision resp. version number. Example: RV: 02.04.23.

A device with such a version number has the web based interface enabled, as it is lexicographically greater than the minimal version.
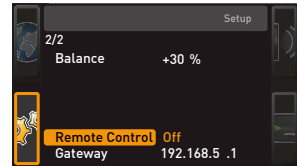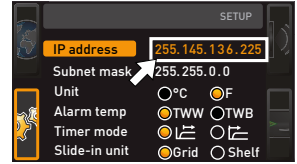
1.2   IP Address of Device

You will also need the IPV4 address of the device. Enter MENU --> SETUP to display the IP address. It should be something like 192.168.100.100. The AtmoWEB service on the device is listening on port 80.

1.3   Enabling AtmoWEB on the Device

You may either control a device using the device screen or via AtmoWEB, but not both. If you have enabled remote control the screen input elements are without effect. And if you have disabled remote control, you cannot use the web interface described in this document.

To enable AtmoWEB on the device push button MENU --> SETUP and, using the universal wheel, scroll down to entry "Remote Control" (resp. "Fernbedienung", "Télécommande", "Telecommando", "Obsluga zdalna", "Dálkové ovládaní", "Távvezérlés", "Telecomando", according to your language). Push the universal button and turn the wheel to select the permission level for remote control.
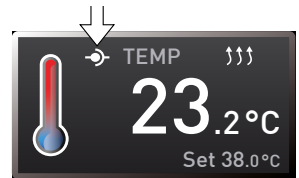
Menu Entry	Description
Off	Remote control is disabled
Read	Only reading data from the device is allowed
Write	Reading and writing is allowed
Write + Alarm	Reading, writing and controlling alarm settings is allowed
---	no permission required
r--	permission to read values
rw	permission to read values and write setpoints
rwa	permission to read values, write setpoints and write alarm limits

If remote control is enabled, a symbol is shown on the temperature screen on the top left corner (see picture above).

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2. Using AtmoREMOTE

2.1 Basics

i **Be careful changing device settings!**

Connect your PC to the device using an Ethernet cable. Be sure not to have sensitive objects stored in the device while experimenting. Typically, you will not enter or query the device settings using a browser, but you may want to write your own application to do it. Such an application is outside the scope of this document. We will show here only the principles of operation.

In the command line of your favorite web browser, enter the following line (for the correct IP address see the setup information above):

Request:
```
http://19.168.100.100/atmoweb?TempSet=20.1&Temp1Read=
```

Push the return key. Your browser should then show something like:

Response:
```
„TempSet": 20.1,
„TempSet_Range": {
    „min": 20.0,
    „max": 200.0
},
„Temp1Read": 23.1,
```

The device should now have set value 20.1 and the current temperature should match the Temp1Read value. Generally, the input format is

Request:
```
http://[IP address of device]/atmoweb?[key1]=[value1]&[key2]=[value2]…
```

After the "atmoweb" keyword and a question mark, any count of key-value pairs may be entered, separated by an ampersand ("&"). The keys should be from the tables on the next pages and the values are used to change settings on the device. If the values are omitted, the current device settings remain unchanged but are returned.

The device answers with set and current values. The returned text is in JSON format (Javascript Object Notation) for easy automated processing. If a value returned does not match the transmitted value, it may be outside the valid range, it may have been adjusted to the approbiate precision or the permissions on the device forbids writing setpoint or alarm values.

2.1.1 Example 1

Request:

```
http://192.168.100.100/atmoweb?TempSet=3.4
```

Response:

```
„TempSet": 20.1,
„TempSet_Range": {
   „min": 20.0,
   „max": 200.0
},
```

The value for the temperature is outside the valid range [20, 200] (°C). The set temperature remains unchanged on the device.

2.1.2 Example 2

Request:

```
http://192.168.100.100/atmoweb?TempSet=21.567
```

Response:

```
„TempSet": 21.6,
„TempSet_Range": {
   „min": 20.0,
   „max": 200.0
},
```

The value for the temperature has been rounded up to 1 decimal.

2.1.3 Example 3

Request:

```
http://192.168.100.100/atmoweb?Temp1Read=33.8
```

Response:

```
„Temp1Read„: 21.6,
```

The value for current temperature 1 cannot be changed, it can only be read.

2.2 Special Answers

Response:	Description
N/A	Indicates missing support by your device
N/D	Not defined internally.
null	No value.
PermissionDenied	No permissions for remote control
..._Range	Valid range (min/max) for setpoint values, read-only
	Returned automatically when using setpoint values

2.3 Setpoint

Setpoints can only be set if the manual mode is activated. As soon as a setpoint is set, the oven starts running automatically. With the following command, the current mode can be found out:

Request:
http://[IP address]/atmoweb?CurOp=

There are four different CurOp:

► Program: When a program is running. On the controller, the triangle in the upper right display.

► Idle: Usually at the end of a program, but can also be set manually on the controller. The square must be selected on the top right display of the controller.

► Timer: When a timer is set or when it has run through and has not yet been reset to --hh:--mm.

► Manual: When the manual mode is set. On the controller in the upper right display, it is th hand with the index finger extended.

2.4 Temperature

Parameter / Key	Description	Required permission	Extra information
TempSet	Temperature setpoint	r--, rw-	
TempSet_Range	Valid range of temperatures		
Temp1Read	Temperature measurement value from temperature sensor 1, which is the main temperature sensor. For vacuum devices, this is the current temperature of heating shelf 1	r--	
Temp2Read	Additional temp. sensor or heating shelf 2	r--	
Temp3Read	Analogous to Temp2Read	r--	
Temp4Read	Analogous to Temp2Read	r--	
AlTempLo	Minimal temperature alarm	rwa	

Parameter / Key	Description	Required permission	Extra information
AlCO2Lo_Range	Current alarm limits		
AlCO2Hi	Upper alarm limit	rwa	
AlCO2Hi_Range	Current alarm limits		

2.8 O$_2$

Parameter / Key	Description	Required permission	Extra information
O2Set	Setpoint in %	r--, rw-	
O2Set_Range	Possible range for setpoints		
O2Read	Current O2 level in %	r--	
AlO2Lo	Lower alarm limit	rwa	
AlO2Lo_Range	Current alarm limits		
AlO2Hi	Upper alarm limit	rwa	
AlO2Hi_Range	Current alarm limits		

2.9 Fan

Parameter / Key	Description	Required permission	Extra information
FanSet	Fan rotation speed in 10 % steps	r--, rw-	
FanRead	Current fan rotation speed in rpm	r--	
FanSet_Range	Allowed limits for fan rotation in %		

2.10 Switches

Parameter / Key	Description	Required permission	Extra information
SwASet	Current state of switch A	r--, rw-	0 (open), 1 (closed)
SwBSet	Current state of switch B	r--, rw-	0 (open), 1 (closed)
SwCSet	Current state of switch C	r--, rw-	0 (open), 1 (closed)
SwDSet	Current state of switch D	r--, rw-	0 (open), 1 (closed)

2.11 Flap

Parameter / Key	Description	Required permission	Extra information
FlapSet	Flap position in 10 percent steps	r--, rw-	

2.12 Door

Parameter / Key	Description	Required permission	Extra information
DoorOpen	Indicator for open door.	r--, rw	0=closed 1=open
DoorLock	Door locked or lock/unlock door	r--, rw-	0=unlocked 1=locked

2.13 Light

Parameter / Key	Description	Required permission	Extra information
LightDay	Gets or sets daylight lamps	r--, rw-	0=off, 1=on
LightUV	Gets or sets UV lamps	r--, rw-	0=off, 1=on
LightLED	Sets dimmer or gets it in 1 % steps	r--, rw-	0=off, 100=bright

2.14 Programming Related

Parameter / Key	Description	Required permission	Extra information
CurOp	Current program state	r--	„Program", „Idle", „Timer", „Manual"
InfoTemp	Current temperature ramp name	r--	
InfoHum	Current humidity ramp name	r--	
InfoVac	Current vacuum ramp name	r--	
InfoMsg	Programmed message	r--	
Info	Name of running program	r--	
ProgStart	Name of program to start	r--	
ProgStop	Stop current program	rw-	
ProgExit	Exit currently running program Sets device into manual mode	rw-	

Parameter / Key	Description	Required permission	Extra information
ProgCurrent	Returns the currently active program	r--	
ProgDelete	Deletes a program	rw-	
ProgDuration	Returns the total duration of the currently active program	r--	Return [days] [hours]:[min]:[sec] if no program loaded "-00:00:01" is returned
ProgList	List programs on SD card	r--	"ProgList": ["Test100"]
ProgLoad	Loads a program to allow program info requests (e.g. duration)	r--	
ProgRemain	Returns the rest runtime duration of the currently ative program	r--	See ProgDuration

2.15 Miscellaneous

Parameter / Key	Description	Required permission	Extra information
Defrost	Device is defrosting	r--	
Time	ISO 8601 compliant device time	r--	
TimeZone	Time zone of device	r--	
TimeDST	Daylight saving time	r--	
SWRev	Software version of device	r--	
SN	Serial number of device	r--	
DevType	Device Type	r--	
RC	Remote control permissions as configured in device settings menu	---	r=read, w=write, a=alarm
GasType	If available, current gas type used		Possible answers: "InertGas", "FreshAir", "N/A"

3. Description Syntax „Log.txt"

Read out log data with the following commands:

	Request:
	`http://[Ip-Adresse]/Controller/Config/Log.txt`

Line	Response:
1	Device log V 2.0 SN=B420.0289
2	
3	2020-02-19T13:35:56Z + 304 Door open 29831
4	2020-02-19T13:40:56Z - 304 Door open 29941
5	2020-02-25T11:23:15Z i 111 Restart 03.00.25 12827
6	2020-02-26T07:36:22Z i 801 Start: MyProgram 55509
7	2020-02-27T11:31:23Z + 408 Temp. max alarm 4079
8	2020-02-28T11:44:59Z i 803 End: MyProgram 44873

The logo data is a text file in ASCII coding.

3.1 First line

Head of log.txt

`Device log V [serial number 2-digit] SN=[serial number]`

3.2 Second line

Blankline

3.3 Third line until end

Data lines

Each row contains 5 columns. The columns are separated by tabs.

3.3.1 First column

Date and time

► For devices from serial number 030025: Date and time in UTC

`[year] ‚-' [month] ‚-' [day] ‚T' [hour] ‚:' [minute] ‚:' [second] ‚Z'`

► For devices before this version, the date and time are in local time

`[day] ‚.' [month] ‚.' [year] ‚ , [hour] ‚:' [minute] ‚:' [second]`

Example for older log.txt logs:

`24.10.2019 21:11:11   i   211   Restauration Failed   2356`

It may be that there is no date. This can occur if errors occur before the real-time clock is initialized.

3.3.2 Second column

Type of entry
Possible values:

Identifier	Meaning
i	Information
+	event occurred
-	event finished

3.3.3 Third column

Event code
For numbers and meaning, see the AtmoCONTROL or AtmoCONTROL FDA operating instructions, chapter 8 „event codes of the log file Log.txt"

3.3.4 Fourth column

Information, partly with parameters

3.3.5 Fifth column

Line checksum

4.   Returning all Parameters

Request:

```
http://[IP address]/commands.cgi
```

Example:

```
„AlCO2Hi": „N/A",
„AlCO2Lo": „N/A",
„AlHumHi": „N/A",
„AlHumLo": „N/A",
„AlO2Hi": „N/A",
„AlO2Lo": „N/A",
„AlTempHi": 210.0,
„AlTempHi_Range": {
   „min": 10.0,
   „max": 210.0
},
„AlTempLo": 10.0,
„AlTempLo_Range":
   {„min": 10.0,
    „max": 210.0
},
„AlVacHi": 1100.0,
„AlVacHi_Range": {
   „min": 5.0,
   „max": 1100.0
},
„AlVacLo": 1.0,
„AlVacLo_Range": {
   „min": 5.0,
   „max": 1100.0
},

„CO2Read": „N/A",
„CO2Set": „N/A",
„CurOp": „Manual",
„Defrost": „N/A",
„DevType": „VO101",
„DoorLock": „N/A",
„DoorOpen": „N/A",
„FanRead": „N/A",
„FanSet": „N/A",
„FlapSet": „N/A",
„GasType": „N/A",
„HumRead": „N/A",
„HumSet": „N/A",
„Info": null,
„InfoHum": null,
„InfoMsg": null,
„InfoTemp": null,
„InfoVac": null,
„LightDay": „N/A",
„LightLED": „N/A",
„LightUV": „N/A",
„O2Read": „N/A",
„O2Set": „N/A",
„ProgExit": 0.0,
„ProgStart": null,
„ProgStop": null,
„RC": „rwa",

„SN": „S618.0005",
„SwASet": „N/A",
„SwBSet": „N/A",
„SwCSet": „N/A",
„SwDSet": „N/A",
„SWRev": „02.04.23",
„Temp1Read": 23.1,
„Temp2Read": „N/A",
„Temp3Read": „N/A",
„Temp4Read": „N/A",
„TempSet": 30.2,
„TempSet_Range": {
   „min": 20.0,
   „max": 200.0
},
„Time": „2019-04-
01T15:14:59+01:00",
„TimeDST": 0.0,
„TimeZone": „+01:00",
„VacRead": 966.9,
„VacSet": 999.0,
„VacSet_Range": {
„min": 5.0,
   „max": 1100.0
},
```

5.   Examples

5.1   Read Values

Read current temperature and set value:

Request:

```
http://[IP address]/atmoweb?Temp1Read=&TempSet=
```

Response:

```
„Temp1Read": 64.4,
„TempSet": 65,
„TempSet_Range": {
   „max": 70.0,
   „min": 0.0
},
```

5.2   Write Values

Write TempSet and read Temp1Read:

Request:

```
http://[IP address]/atmoweb?TempSet=37.0&Temp1Read=
```

Response:

```
„TempSet": 37.0,
„Temp1Read": 64.3,
„TempSet_Range": {
   „max": 70.0,
   „min": 0.0
},
```

5.3   Start a program

Starts a program, please enter the program name:

Request:
`http://[IP address]/atmoweb?ProgStart=MyProgram`

Response:
`{ „ProgStart": „MyProgram" }`

5.4   Stop a program

Stops current program, please enter the program name:

Request:
`http://[IP address]/atmoweb?ProgStop=MyProgram`

Response:
`{ „ProgStop": „MyProgram" }`

5.5   Exit a program

Exit currently running program (sets device into manual mode):

Request:
`http://[IP address]/atmoweb?ProgExit=`

Response:
`{ „ProgExit": 1 }`

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