



## Building Management System and T-Box integration

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## Modbus Documentation

### Protocol parameters:

1	Standard	RS485
2	Baudrate	9600, 19200, 38400, 57600, 76800, 115200, 230400
3	Data bits	8
4	Parity	Even
5	Stop bits	1
6	Version	Modbus RTU
7	Addressing convention	Register address starting from 0
8	Data type	Unsigned Int16 (if not stated otherwise)

### MODBUS functions:

Read Holding Register	0x03
Read Input Register	0x04
Write Single Register	0x06
Write Multiple Registers	0x10
Read / Write Multiple Register	0x17

### Quick Start (CLICK!):

- [DRV-ELIS & DRV-SLIM](#)
- [DRV-D](#)
- [DRV-KM](#)
- [DRV-V&M](#)
- [DRV-OXEN](#)
- [DRV-R](#)
- [DRV-R KM](#)
- [DRV-EL](#)
- [DRV-R NEXT](#)
- [DRV-R KM NEXT](#)
- [DRV-COOL](#)
- [DRV-CUBE](#)

(version 1.0.35)

## T-BOX settings

Flowair system can be controlled via Building Management System (referred to as BMS) using T-Box as a gate to access all available Flowair devices. There are two different BMS work modes. The option to change BMS work mode is located in Holding Registers under address 0x04.

Holding registers: includes changeable (**if not stated otherwise**) registers.

Input registers: includes non - changeable registers.

### BMS Single driver mode.

Direct access to DRV settings. T-box settings are blocked (it's not possible to manually change system options). All the settings can be changed via BMS for every driver. For example change of antifreeze settings in holding registers (0x07) do not change this setting in other connected drivers to given T-Box.

### How to extract and change single driver registers?

BMS Work parameter has to be set to 0x01. Driver holding and input registers are shifted depending on the address set by the user on DRIVER PCB. The information about the shift can be found in a sub-chapter called Input Registers.

Example:

- DRV - ELIS with address 0x04
- check Drv04GroupId register and its value (can be found in a sub-chapter called Input Registers) it should be equal to 0x03 (DRV - ELIS)

0x14	Drv04GroupId	Single DRV identifier. Modbus address 0x04.									
		<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 30%;">Address space</th> <th style="width: 35%;">First address</th> <th style="width: 35%;">Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x01C0</td> <td>0x01FF</td> </tr> <tr> <td>Holding registers</td> <td>0x01C0</td> <td>0x01FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x01C0	0x01FF	Holding registers	0x01C0	0x01FF
Address space	First address	Last address									
Input registers	0x01C0	0x01FF									
Holding registers	0x01C0	0x01FF									

- first address column contains the information about the starting location of registers used to control driver with address 04
- to calculate shifted address choose a register from DRV documentation and add it to first address e.g.
  - DRV-ELIS Holding Registers Address 0x04 (WorkMode)
  - First address 0x01C0 (Group 4)
  - DRV-ELIS Holding Register Address via BMS T-Box gate 0x04 + 0x01C0 = 0x01C4

### BMS Group mode.

Indirect access to DRV settings via groups. T-Box settings are unblocked and can be freely modified by BMS. Group is a compilation of the same products connected to T-Box (Leo D, Leo V, Leo M, Leo KM, ELIS, DUO, OXeN). Every change in (for example) OXeN group will modify settings for all OXeN's connected to single T-Box.

Single driver settings are read only.

### How to extract and change group registers?

BMS Work parameter has to be set to 0x02. Driver holding and input registers are shifted depending on the group. There can be maximum eight groups (there are eight groups: Leo D, Leo V, Leo M, Leo KM, ELIS, DUO, OXeN. One group 'NON' is control: empty), to identify which driver is assigned to which group read adequate register address.

Example:

- DRV - ELIS with address 0x04, DRV - ELIS with address 0x0A
- check the group identifiers (can be found in a sub-chapter called Input Registers 0x41 - 0x48), DRV - ELIS group is identified by value 0x03

- for the sake of the example let's assume Input Register 0x42 equals 0x03

0x42	Group02Id	Second DRV group identifier.		
		<b>Address space</b>	<b>First address</b>	<b>Last address</b>
		Holding registers	0x1100	0x11FF

- first address column contains the information about the starting location of registers used to control the second group of drivers
- to calculate shifted address chose a register from Group DRV documentation and add it to first address e.g.
  - GroupElis Holding Registers Address 0x04 (WorkMode)
  - First address 0x1100 (Second DRV group)
  - GroupElis Holding Address via BMS T-Box gate  $0x04+0x1100 = 0x1104$

\_Holding registers

Address	Name	Description									
0x00	Rsv	Reserved.									
0x01	SoftType	<p>Enables software setup.</p> <p>Information about program type and it's version. Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; software version</p> <p>0x00 - T-Box</p> <p>&lt;LSB&gt; software programming options (implemented for future use).</p> <table border="1" data-bbox="496 590 959 688"> <thead> <tr> <th>&lt;LSB&gt;</th> <th>Option name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x02</td> <td>MAIN</td> <td>Main software version</td> </tr> </tbody> </table>	<LSB>	Option name	Description	0x02	MAIN	Main software version			
<LSB>	Option name	Description									
0x02	MAIN	Main software version									
0x02	Rsv	Reserved.									
0x03	Rsv	Reserved.									
0x04	BmsMode	<p>BMS work mode.</p> <table border="1" data-bbox="496 873 1474 1018"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x0001</td> <td>BMS_WM_RAW</td> <td>Direct access to DRV settings. T-box settings blocked.</td> </tr> <tr> <td>0x0002</td> <td>BMS_WM_GROUP</td> <td>Indirect access to DRV settings via groups. T-box settings unblocked.</td> </tr> </tbody> </table>	Value	Name	Description	0x0001	BMS_WM_RAW	Direct access to DRV settings. T-box settings blocked.	0x0002	BMS_WM_GROUP	Indirect access to DRV settings via groups. T-box settings unblocked.
Value	Name	Description									
0x0001	BMS_WM_RAW	Direct access to DRV settings. T-box settings blocked.									
0x0002	BMS_WM_GROUP	Indirect access to DRV settings via groups. T-box settings unblocked.									
0x05	Enable	<p>Enables/disables T-Box and DRV.</p> <ul style="list-style-type: none"> <li>• 0 - disable</li> <li>• 1..65535 - enable</li> </ul>									
0x06	Tref	<p>Target reference temperature for all drivers.</p> <table border="1" data-bbox="496 1234 899 1379"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal value	450	45,0	Maximal value
Value	Temperature	Description									
50	5,0	Minimal value									
450	45,0	Maximal value									
0x07	AntifreezeWareHous eEnable	<p>Enables/disables warehouse antifreeze mode.</p> <ul style="list-style-type: none"> <li>• 0 - disable</li> <li>• 1..65535 - enable</li> </ul>									
0x08	AntifreezeWareHous eTempRef	<p>Target temperature to enable warehouse antifreeze.</p> <table border="1" data-bbox="496 1593 899 1738"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal value	150	15,0	Maximal value
Value	Temperature	Description									
50	5,0	Minimal value									
150	15,0	Maximal value									
0x09	TleadSensorSelect	<p>Leading sensor selection.</p> <table border="1" data-bbox="496 1827 1125 1971"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>TSL_TLEAD</td> <td>T-Box leading sensor temperature.</td> </tr> <tr> <td>3</td> <td>TSL_T4</td> <td>DRV sensor temperature (T4 connector)</td> </tr> </tbody> </table>	Value	Name	Description	1	TSL_TLEAD	T-Box leading sensor temperature.	3	TSL_T4	DRV sensor temperature (T4 connector)
Value	Name	Description									
1	TSL_TLEAD	T-Box leading sensor temperature.									
3	TSL_T4	DRV sensor temperature (T4 connector)									

0x0A	Tsl_Tlead_Offset	<p>T-Box temperature sensor offset.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>-10,0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>10,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	-100	-10,0	Minimal value	100	10,0	Maximal value
Value	Temperature	Description									
-100	-10,0	Minimal value									
100	10,0	Maximal value									
0x0B	Tsl_T4_Offset	<p>DRV temperature sensor offset (regards all T4 sensors).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>-10,0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>10,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	-100	-10,0	Minimal value	100	10,0	Maximal value
Value	Temperature	Description									
-100	-10,0	Minimal value									
100	10,0	Maximal value									
0x0C	GasSensorEnable	<p>Enables/disables two-step alarm threshold from CO2 gas detector connected to DRV-KM or DRV-OXeN.</p> <ul style="list-style-type: none"> <li>• 0 - disable</li> <li>• 1..65535 - enable</li> </ul>									
0x0D	GasSensorConnectId	<p>DRV-KM, DRV-OXeN modbus address with two-step threshold CO2 gas detector connected.</p>									
0x0E	DateYear	<p>Set year.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>2014</td> <td>Minimal value</td> </tr> <tr> <td>2100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Description	2014	Minimal value	2100	Maximal value			
Value	Description										
2014	Minimal value										
2100	Maximal value										
0x0F	DateMonth	<p>Set month. Range from 1 to 12.</p>									
0x10	DateDay	<p>Set day. Range from 1 to 31.</p>									
0x11	DateHours	<p>Set hour. Range from 0 to 23.</p>									
0x12	DateMinutes	<p>Set minute. Range from 0 to 59.</p>									
0x13	DateSeconds	<p>Set second. Range from 0 to 59.</p>									

\_Input registers

Address	Name	Description															
0x00	HardwareType	<p>Information about hardware type and it's version.</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; PCB name.</p> <p>0x00 - T-Box</p> <p>&lt;LSB&gt; PCB version.</p> <p>PCB version is described by BCD code. e.g. for 1.0 version &lt;LSB&gt; = 0x10.</p>															
0x01	SoftType	<p>Information about software type.</p> <p>Information about program type and it's version. Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; software version</p> <p>0x00 - T-Box</p> <p>&lt;LSB&gt; software programming options (implemented for future use)</p> <table border="1" data-bbox="516 842 976 940"> <thead> <tr> <th>&lt;LSB&gt;</th> <th>Option name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x02</td> <td>MAIN</td> <td>Main program version</td> </tr> </tbody> </table>	<LSB>	Option name	Description	0x02	MAIN	Main program version									
<LSB>	Option name	Description															
0x02	MAIN	Main program version															
0x02	ConnectionCnt	<p>Connection count. Increased each time register is read. First query always returns value 0x01. If registry value equals 0xFFFF before the query next one will be equal to 0x00. Monitoring this register enables system diagnostics (e.g. if the program was not deployed second time after voltage shortage).</p>															
0x03	SoftVer	<p>Software version.</p> <table border="1" data-bbox="516 1129 850 1371"> <thead> <tr> <th>Bits</th> <th>Range</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0-3</td> <td>0x1 / 0xF</td> <td>TAG</td> </tr> <tr> <td>4-7</td> <td>0x0 / 0xF</td> <td>MINOR</td> </tr> <tr> <td>8-11</td> <td>0x0 / 0xF</td> <td>MAJOR</td> </tr> <tr> <td>12-15</td> <td>0x00</td> <td>Reserved</td> </tr> </tbody> </table>	Bits	Range	Description	0-3	0x1 / 0xF	TAG	4-7	0x0 / 0xF	MINOR	8-11	0x0 / 0xF	MAJOR	12-15	0x00	Reserved
Bits	Range	Description															
0-3	0x1 / 0xF	TAG															
4-7	0x0 / 0xF	MINOR															
8-11	0x0 / 0xF	MAJOR															
12-15	0x00	Reserved															
0x05	TempTBox	<p>Temperature measured by build-in T-Box sensor.</p>															
0x06	TempT4Ave	<p>Mean temperature measured by all T4 sensors connected to DRV.</p> <table border="1" data-bbox="516 1507 1076 1749"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-350</td> <td>35,0</td> <td>Minimal value</td> </tr> <tr> <td>350</td> <td>35,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature	Description	-350	35,0	Minimal value	350	35,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature	Description															
-350	35,0	Minimal value															
350	35,0	Maximal value															
0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x10	DrvCount	<p>DRV count connected to T-Box.</p> <p>Range from 0 to 31</p>															
0x11	Drv01GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x01.</p>															



Value	Name	Description
0x00	Non	No DRV connected
0x01	GroupOxen	DRV - Oxen
0x02	GroupKm	DRV - KM
0x03	GroupElis	DRV - ELIS
0x04	GroupElisDuo	DRV - ELIS DUO
0x05	GroupLeoV	DRV - V
0x06	GroupLeoM	DRV - M
0x07	GroupLeoD	DRV - D
0x0C	GroupRobur	DRV-R
0x0D	GroupRoburKM	DRV-R-KM
0x0E	GroupLeoEL	DRV-EL
0x14	GroupLeoDEC	DRV-D EC
0x15	GroupRoburNext	DRV-ROBUR NEXT
0x16	GroupRoburNextKM	DRV-ROBUR NEXT KM
0x17	GroupLeoCool	DRV-COOL
0x18	GroupCube	DRV-CUBE
0x19	GroupSlim	DRV-SLIM

Address space	First address	Last address
Input registers	0x0100	0x013F
Holding registers	0x0100	0x013F

0x12

Drv02GroupId

Single DRV identifier.  
Modbus address 0x02.

Address space	First address	Last address
Input registers	0x0140	0x017F
Holding registers	0x0140	0x017F

0x13

Drv03GroupId

Single DRV identifier.  
Modbus address 0x03.

Address space	First address	Last address
Input registers	0x0180	0x01BF
Holding registers	0x0180	0x01BF

0x14

Drv04GroupId

Single DRV identifier.  
Modbus address 0x04.

Address space	First address	Last address

		<table border="1"> <tbody> <tr> <td>Input registers</td> <td>0x01C0</td> <td>0x01FF</td> </tr> <tr> <td>Holding registers</td> <td>0x01C0</td> <td>0x01FF</td> </tr> </tbody> </table>	Input registers	0x01C0	0x01FF	Holding registers	0x01C0	0x01FF			
Input registers	0x01C0	0x01FF									
Holding registers	0x01C0	0x01FF									
0x15	Drv05GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x05.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0200</td> <td>0x023F</td> </tr> <tr> <td>Holding registers</td> <td>0x0200</td> <td>0x023F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0200	0x023F	Holding registers	0x0200	0x023F
Address space	First address	Last address									
Input registers	0x0200	0x023F									
Holding registers	0x0200	0x023F									
0x16	Drv06GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x06.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0240</td> <td>0x027F</td> </tr> <tr> <td>Holding registers</td> <td>0x0240</td> <td>0x027F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0240	0x027F	Holding registers	0x0240	0x027F
Address space	First address	Last address									
Input registers	0x0240	0x027F									
Holding registers	0x0240	0x027F									
0x17	Drv07GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x07.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0280</td> <td>0x02BF</td> </tr> <tr> <td>Holding registers</td> <td>0x0280</td> <td>0x02BF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0280	0x02BF	Holding registers	0x0280	0x02BF
Address space	First address	Last address									
Input registers	0x0280	0x02BF									
Holding registers	0x0280	0x02BF									
0x18	Drv08GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x08.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x02C0</td> <td>0x02FF</td> </tr> <tr> <td>Holding registers</td> <td>0x02C0</td> <td>0x02FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x02C0	0x02FF	Holding registers	0x02C0	0x02FF
Address space	First address	Last address									
Input registers	0x02C0	0x02FF									
Holding registers	0x02C0	0x02FF									
0x19	Drv09GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x09.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0300</td> <td>0x033F</td> </tr> <tr> <td>Holding registers</td> <td>0x0300</td> <td>0x033F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0300	0x033F	Holding registers	0x0300	0x033F
Address space	First address	Last address									
Input registers	0x0300	0x033F									
Holding registers	0x0300	0x033F									
0x1A	Drv10GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x0A.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0340</td> <td>0x037F</td> </tr> <tr> <td>Holding registers</td> <td>0x0340</td> <td>0x037F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0340	0x037F	Holding registers	0x0340	0x037F
Address space	First address	Last address									
Input registers	0x0340	0x037F									
Holding registers	0x0340	0x037F									
0x1B	Drv11GroupId	<p>Single DRV identifier.</p>									

		<p>Modbus address 0x0B.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0380</td> <td>0x03BF</td> </tr> <tr> <td>Holding registers</td> <td>0x0380</td> <td>0x03BF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0380	0x03BF	Holding registers	0x0380	0x03BF
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Input registers	0x0380	0x03BF									
Holding registers	0x0380	0x03BF									
0x1C	Drv12GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x0C.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x03C0</td> <td>0x03FF</td> </tr> <tr> <td>Holding registers</td> <td>0x03C0</td> <td>0x03FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x03C0	0x03FF	Holding registers	0x03C0	0x03FF
Address space	First address	Last address									
Input registers	0x03C0	0x03FF									
Holding registers	0x03C0	0x03FF									
0x1D	Drv13GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x0D.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0400</td> <td>0x043F</td> </tr> <tr> <td>Holding registers</td> <td>0x0400</td> <td>0x043F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0400	0x043F	Holding registers	0x0400	0x043F
Address space	First address	Last address									
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Holding registers	0x0400	0x043F									
0x1E	Drv14GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x0E.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0440</td> <td>0x047F</td> </tr> <tr> <td>Holding registers</td> <td>0x0440</td> <td>0x047F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0440	0x047F	Holding registers	0x0440	0x047F
Address space	First address	Last address									
Input registers	0x0440	0x047F									
Holding registers	0x0440	0x047F									
0x1F	Drv15GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x0F.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0480</td> <td>0x04BF</td> </tr> <tr> <td>Holding registers</td> <td>0x0480</td> <td>0x04BF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0480	0x04BF	Holding registers	0x0480	0x04BF
Address space	First address	Last address									
Input registers	0x0480	0x04BF									
Holding registers	0x0480	0x04BF									
0x20	Drv16GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x10.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x04C0</td> <td>0x04FF</td> </tr> <tr> <td>Holding registers</td> <td>0x04C0</td> <td>0x04FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x04C0	0x04FF	Holding registers	0x04C0	0x04FF
Address space	First address	Last address									
Input registers	0x04C0	0x04FF									
Holding registers	0x04C0	0x04FF									
0x21	Drv17GroupId	<p>Single DRV identifier.</p> <p>Modbus address 0x11.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0500</td> <td>0x053F</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0500	0x053F			
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		<table border="1"> <tr> <td>Holding registers</td> <td>0x0500</td> <td>0x053F</td> </tr> </table>	Holding registers	0x0500	0x053F						
Holding registers	0x0500	0x053F									
0x22	Drv18GroupIId	<p>Single DRV identifier. Modbus address 0x12.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0540</td> <td>0x057F</td> </tr> <tr> <td>Holding registers</td> <td>0x0540</td> <td>0x057F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0540	0x057F	Holding registers	0x0540	0x057F
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Input registers	0x0540	0x057F									
Holding registers	0x0540	0x057F									
0x23	Drv19GroupIId	<p>Single DRV identifier. Modbus address 0x13.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0580</td> <td>0x05BF</td> </tr> <tr> <td>Holding registers</td> <td>0x0580</td> <td>0x05BF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0580	0x05BF	Holding registers	0x0580	0x05BF
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Input registers	0x0580	0x05BF									
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0x24	Drv20GroupIId	<p>Single DRV identifier. Modbus address 0x14.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x05C0</td> <td>0x05FF</td> </tr> <tr> <td>Holding registers</td> <td>0x05C0</td> <td>0x05FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x05C0	0x05FF	Holding registers	0x05C0	0x05FF
Address space	First address	Last address									
Input registers	0x05C0	0x05FF									
Holding registers	0x05C0	0x05FF									
0x25	Drv21GroupIId	<p>Single DRV identifier. Modbus address 0x15.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0600</td> <td>0x063F</td> </tr> <tr> <td>Holding registers</td> <td>0x0600</td> <td>0x063F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0600	0x063F	Holding registers	0x0600	0x063F
Address space	First address	Last address									
Input registers	0x0600	0x063F									
Holding registers	0x0600	0x063F									
0x26	Drv22GroupIId	<p>Single DRV identifier. Modbus address 0x16.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0640</td> <td>0x067F</td> </tr> <tr> <td>Holding registers</td> <td>0x0640</td> <td>0x067F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0640	0x067F	Holding registers	0x0640	0x067F
Address space	First address	Last address									
Input registers	0x0640	0x067F									
Holding registers	0x0640	0x067F									
0x27	Drv23GroupIId	<p>Single DRV identifier. Modbus address 0x17.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0680</td> <td>0x06BF</td> </tr> <tr> <td>Holding registers</td> <td>0x0680</td> <td>0x06BF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0680	0x06BF	Holding registers	0x0680	0x06BF
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Input registers	0x0680	0x06BF									
Holding registers	0x0680	0x06BF									
0x28	Drv24GroupIId	<p>Single DRV identifier. Modbus address 0x18.</p>									

		<table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x06C0</td> <td>0x06FF</td> </tr> <tr> <td>Holding registers</td> <td>0x06C0</td> <td>0x06FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x06C0	0x06FF	Holding registers	0x06C0	0x06FF
Address space	First address	Last address									
Input registers	0x06C0	0x06FF									
Holding registers	0x06C0	0x06FF									
0x29	Drv25GroupId	<p>Single DRV identifier. Modbus address 0x19.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0700</td> <td>0x073F</td> </tr> <tr> <td>Holding registers</td> <td>0x0700</td> <td>0x073F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0700	0x073F	Holding registers	0x0700	0x073F
Address space	First address	Last address									
Input registers	0x0700	0x073F									
Holding registers	0x0700	0x073F									
0x2A	Drv26GroupId	<p>Single DRV identifier. Modbus address 0x1A.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0740</td> <td>0x077F</td> </tr> <tr> <td>Holding registers</td> <td>0x0740</td> <td>0x077F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0740	0x077F	Holding registers	0x0740	0x077F
Address space	First address	Last address									
Input registers	0x0740	0x077F									
Holding registers	0x0740	0x077F									
0x2B	Drv27GroupId	<p>Single DRV identifier. Modbus address 0x1B.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0780</td> <td>0x07BF</td> </tr> <tr> <td>Holding registers</td> <td>0x0780</td> <td>0x07BF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0780	0x07BF	Holding registers	0x0780	0x07BF
Address space	First address	Last address									
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Holding registers	0x0780	0x07BF									
0x2C	Drv28GroupId	<p>Single DRV identifier. Modbus address 0x1C.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x07C0</td> <td>0x07FF</td> </tr> <tr> <td>Holding registers</td> <td>0x07C0</td> <td>0x07FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x07C0	0x07FF	Holding registers	0x07C0	0x07FF
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Input registers	0x07C0	0x07FF									
Holding registers	0x07C0	0x07FF									
0x2D	Drv29GroupId	<p>Single DRV identifier. Modbus address 0x1D.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0800</td> <td>0x083F</td> </tr> <tr> <td>Holding registers</td> <td>0x0800</td> <td>0x083F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0800	0x083F	Holding registers	0x0800	0x083F
Address space	First address	Last address									
Input registers	0x0800	0x083F									
Holding registers	0x0800	0x083F									
0x2E	Drv30GroupId	<p>Single DRV identifier. Modbus address 0x1E.</p> <table border="1"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0840</td> <td>0x087F</td> </tr> <tr> <td>Holding registers</td> <td>0x0840</td> <td>0x087F</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0840	0x087F	Holding registers	0x0840	0x087F
Address space	First address	Last address									
Input registers	0x0840	0x087F									
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0x2F	Drv31GroupId	<p>Single DRV identifier. Modbus address 0x1F.</p> <table border="1" data-bbox="513 226 1019 373"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Input registers</td> <td>0x0880</td> <td>0x08BF</td> </tr> <tr> <td>Holding registers</td> <td>0x0880</td> <td>0x08BF</td> </tr> </tbody> </table>	Address space	First address	Last address	Input registers	0x0880	0x08BF	Holding registers	0x0880	0x08BF																																																			
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0x40	GroupCount	DRV group count connected to T-Box.																																																												
0x41	Group01Id	<p>First DRV group identifier.</p> <table border="1" data-bbox="513 556 1073 1430"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>0x00</td><td>Non</td><td>No DRV connected</td></tr> <tr><td>0x01</td><td>GroupOxen</td><td>DRV - Oxen</td></tr> <tr><td>0x02</td><td>GroupKm</td><td>DRV - KM</td></tr> <tr><td>0x03</td><td>GroupElis</td><td>DRV - ELIS</td></tr> <tr><td>0x04</td><td>GroupElisDuo</td><td>DRV - ELIS DUO</td></tr> <tr><td>0x05</td><td>GroupLeoV</td><td>DRV - V</td></tr> <tr><td>0x06</td><td>GroupLeoM</td><td>DRV - M</td></tr> <tr><td>0x07</td><td>GroupLeoD</td><td>DRV - D</td></tr> <tr><td>0x0C</td><td>GroupRobur</td><td>DRV-R</td></tr> <tr><td>0x0D</td><td>GroupRoburKM</td><td>DRV-R-KM</td></tr> <tr><td>0x0E</td><td>GroupLeoEL</td><td>DRV-EL</td></tr> <tr><td>0x14</td><td>GroupLeoDEC</td><td>DRV-D EC</td></tr> <tr><td>0x15</td><td>GroupRoburNext</td><td>DRV-ROBUR NEXT</td></tr> <tr><td>0x16</td><td>GroupRoburNextKM</td><td>DRV-ROBUR NEXT KM</td></tr> <tr><td>0x17</td><td>GroupLeoCool</td><td>DRV-COOL</td></tr> <tr><td>0x18</td><td>GroupCube</td><td>DRV-CUBE</td></tr> <tr><td>0x19</td><td>GroupSlim</td><td>DRV-SLIM</td></tr> </tbody> </table> <table border="1" data-bbox="513 1451 1019 1549"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Holding registers</td> <td>0x1000</td> <td>0x10FF</td> </tr> </tbody> </table>	Value	Name	Description	0x00	Non	No DRV connected	0x01	GroupOxen	DRV - Oxen	0x02	GroupKm	DRV - KM	0x03	GroupElis	DRV - ELIS	0x04	GroupElisDuo	DRV - ELIS DUO	0x05	GroupLeoV	DRV - V	0x06	GroupLeoM	DRV - M	0x07	GroupLeoD	DRV - D	0x0C	GroupRobur	DRV-R	0x0D	GroupRoburKM	DRV-R-KM	0x0E	GroupLeoEL	DRV-EL	0x14	GroupLeoDEC	DRV-D EC	0x15	GroupRoburNext	DRV-ROBUR NEXT	0x16	GroupRoburNextKM	DRV-ROBUR NEXT KM	0x17	GroupLeoCool	DRV-COOL	0x18	GroupCube	DRV-CUBE	0x19	GroupSlim	DRV-SLIM	Address space	First address	Last address	Holding registers	0x1000	0x10FF
Value	Name	Description																																																												
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0x04	GroupElisDuo	DRV - ELIS DUO																																																												
0x05	GroupLeoV	DRV - V																																																												
0x06	GroupLeoM	DRV - M																																																												
0x07	GroupLeoD	DRV - D																																																												
0x0C	GroupRobur	DRV-R																																																												
0x0D	GroupRoburKM	DRV-R-KM																																																												
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Address space	First address	Last address																																																												
Holding registers	0x1000	0x10FF																																																												
0x42	Group02Id	<p>Second DRV group identifier.</p> <table border="1" data-bbox="513 1640 1019 1738"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Holding registers</td> <td>0x1100</td> <td>0x11FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Holding registers	0x1100	0x11FF																																																						
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Holding registers	0x1100	0x11FF																																																												
0x43	Group03Id	<p>Third DRV group identifier.</p> <table border="1" data-bbox="513 1822 1019 1921"> <thead> <tr> <th>Address space</th> <th>First address</th> <th>Last address</th> </tr> </thead> <tbody> <tr> <td>Holding registers</td> <td>0x1200</td> <td>0x12FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Holding registers	0x1200	0x12FF																																																						
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0x44	Group04Id	<p>Fourth DRV group identifier.</p> <table border="1" data-bbox="513 174 1019 268"> <thead> <tr> <th data-bbox="513 174 699 212">Address space</th> <th data-bbox="699 174 862 212">First address</th> <th data-bbox="862 174 1019 212">Last address</th> </tr> </thead> <tbody> <tr> <td data-bbox="513 212 699 268">Holding registers</td> <td data-bbox="699 212 862 268">0x1300</td> <td data-bbox="862 212 1019 268">0x13FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Holding registers	0x1300	0x13FF
Address space	First address	Last address						
Holding registers	0x1300	0x13FF						
0x45	Group05Id	<p>Fifth DRV group identifier.</p> <table border="1" data-bbox="513 354 1019 449"> <thead> <tr> <th data-bbox="513 354 699 392">Address space</th> <th data-bbox="699 354 862 392">First address</th> <th data-bbox="862 354 1019 392">Last address</th> </tr> </thead> <tbody> <tr> <td data-bbox="513 392 699 449">Holding registers</td> <td data-bbox="699 392 862 449">0x1400</td> <td data-bbox="862 392 1019 449">0x14FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Holding registers	0x1400	0x14FF
Address space	First address	Last address						
Holding registers	0x1400	0x14FF						
0x46	Group06Id	<p>Sixth DRV group identifier.</p> <table border="1" data-bbox="513 539 1019 634"> <thead> <tr> <th data-bbox="513 539 699 577">Address space</th> <th data-bbox="699 539 862 577">First address</th> <th data-bbox="862 539 1019 577">Last address</th> </tr> </thead> <tbody> <tr> <td data-bbox="513 577 699 634">Holding registers</td> <td data-bbox="699 577 862 634">0x1500</td> <td data-bbox="862 577 1019 634">0x15FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Holding registers	0x1500	0x15FF
Address space	First address	Last address						
Holding registers	0x1500	0x15FF						
0x47	Group07Id	<p>Seventh DRV group identifier.</p> <table border="1" data-bbox="513 724 1019 819"> <thead> <tr> <th data-bbox="513 724 699 762">Address space</th> <th data-bbox="699 724 862 762">First address</th> <th data-bbox="862 724 1019 762">Last address</th> </tr> </thead> <tbody> <tr> <td data-bbox="513 762 699 819">Holding registers</td> <td data-bbox="699 762 862 819">0x1600</td> <td data-bbox="862 762 1019 819">0x16FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Holding registers	0x1600	0x16FF
Address space	First address	Last address						
Holding registers	0x1600	0x16FF						
0x48	Group08Id	<p>Eight DRV group identifier.</p> <table border="1" data-bbox="513 909 1019 1003"> <thead> <tr> <th data-bbox="513 909 699 947">Address space</th> <th data-bbox="699 909 862 947">First address</th> <th data-bbox="862 909 1019 947">Last address</th> </tr> </thead> <tbody> <tr> <td data-bbox="513 947 699 1003">Holding registers</td> <td data-bbox="699 947 862 1003">0x1700</td> <td data-bbox="862 947 1019 1003">0x17FF</td> </tr> </tbody> </table>	Address space	First address	Last address	Holding registers	0x1700	0x17FF
Address space	First address	Last address						
Holding registers	0x1700	0x17FF						

## Single Devices

Single Drivers register maps.

- Holding registers included in this chapter are meant to be used with BMS work mode parameter set to 0x01.
- Input registers included in this chapter can be read with no regards to BMS work mode.

### Holding Registers - Header

Data:

Address	Name	Description																																																
0x00	Rsv	Reserved.																																																
0x01	SoftType	<p>Enables software setup.</p> <p>Information about program type and it's version. Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; software version</p> <table border="1"> <thead> <tr> <th>&lt;MSB&gt;</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>OXEN</td> <td>Software for OXEN</td> </tr> <tr> <td>0x02</td> <td>CURTAIN</td> <td>Software for curtain</td> </tr> <tr> <td>0x03</td> <td>KM</td> <td>Software for mixing chamber</td> </tr> <tr> <td>0x04</td> <td>LEO</td> <td>Software for heater EC</td> </tr> <tr> <td>0x05</td> <td>DESTRATIFICATION UNIT</td> <td>Software for desertification unit</td> </tr> <tr> <td>0x06</td> <td>CURTAIN_HEATER</td> <td>Software for curtain-heater</td> </tr> <tr> <td>0x07</td> <td>HEATER_AC</td> <td>Software for heater AC</td> </tr> <tr> <td>0x0B</td> <td>LEO COOL</td> <td>Software for cooler AC</td> </tr> <tr> <td>0x0C</td> <td>SLIM</td> <td>Software for curtain</td> </tr> <tr> <td>0x10</td> <td>ROBUR_KM</td> <td>Software for Robur mixing chamber</td> </tr> <tr> <td>0x11</td> <td>ROBUR</td> <td>Software for Robur heater</td> </tr> <tr> <td>0x14</td> <td>PSSENS</td> <td>Software for Psensor</td> </tr> <tr> <td>0x15</td> <td>CUBE</td> <td>Software for Cube</td> </tr> </tbody> </table> <p>&lt;LSB&gt; software programming options (implemented for future use).</p> <table border="1"> <thead> <tr> <th>&lt;LSB&gt;</th> <th>Soft name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x02</td> <td>MAIN</td> <td>Main software version</td> </tr> </tbody> </table>	<MSB>	Name	Description	0x01	OXEN	Software for OXEN	0x02	CURTAIN	Software for curtain	0x03	KM	Software for mixing chamber	0x04	LEO	Software for heater EC	0x05	DESTRATIFICATION UNIT	Software for desertification unit	0x06	CURTAIN_HEATER	Software for curtain-heater	0x07	HEATER_AC	Software for heater AC	0x0B	LEO COOL	Software for cooler AC	0x0C	SLIM	Software for curtain	0x10	ROBUR_KM	Software for Robur mixing chamber	0x11	ROBUR	Software for Robur heater	0x14	PSSENS	Software for Psensor	0x15	CUBE	Software for Cube	<LSB>	Soft name	Description	0x02	MAIN	Main software version
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### Input Registers Header

(READ ONLY)

Data:

Address	Name	Description
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0x00	HardwareType	<p>Information about hardware type and it's version.</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; PCB name.</p> <table border="1" data-bbox="418 285 803 674"> <thead> <tr> <th>&lt;MSB&gt;</th> <th>PCB Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>DRV_OXEN</td> <td>OXEN driver</td> </tr> <tr> <td>0x02</td> <td>DRV_ELIS</td> <td>ELIS driver</td> </tr> <tr> <td>0x03</td> <td>DRV_KM</td> <td>KM driver</td> </tr> <tr> <td>0x04</td> <td>DRV_M</td> <td>M driver</td> </tr> <tr> <td>0x05</td> <td>DRV_V</td> <td>V driver</td> </tr> <tr> <td>0x06</td> <td>PSENS</td> <td>Psensor</td> </tr> <tr> <td>0x07</td> <td>CUBE</td> <td>CUBE driver</td> </tr> </tbody> </table> <p>&lt;LSB&gt; PCB version.</p> <p>PCB version is described by BCD code. e.g. for 1.0 version &lt;LSB&gt; = 0x10.</p>	<MSB>	PCB Name	Description	0x01	DRV_OXEN	OXEN driver	0x02	DRV_ELIS	ELIS driver	0x03	DRV_KM	KM driver	0x04	DRV_M	M driver	0x05	DRV_V	V driver	0x06	PSENS	Psensor	0x07	CUBE	CUBE driver																		
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0x02	ConnectionCnt	<p>Connection count. Increased each time register is read. First query always returns value 0x01. If register value equals 0xFFFF before the query, next one will be equal to 0x00. Monitoring this register enables system diagnostics (e.g. if the program was not deployed second time after voltage shortage).</p>																																										
0x03	SoftVer	<p>Software version.</p>																																										

<b>BIT</b>	<b>Description</b>
0...3	TAG
4...7	MINOR
8...11	MAJOR
12...15	Not in use

## DRV-ELIS &amp; DRV-SLIM

Chapter includes BMS information about air curtains from ELIS and SLIM family in single mode.

**Quick Start in single mode:**

Mode	Address (HR)	Name	Set value	Description
Ventilation	0x04	WorkMode	0x03	Device starts ventilating (fan efficiency - med). Condition: door contact contactors closed.
	0x05	CurtainFanSpeedRef	66	
	0x0D	CurtainProgram	2	Check temperature sensors, fuse, antifreeze otherwise.
Heating mode	0x04	WorkMode	0x02	Device starts heating (fan efficiency - high, opening valve actuator) target temperature to attain = 40°C.
	0x05	CurtainFanSpeedRef	100	
	0x0A	Tref	400	Check temperature sensors, fuse, antifreeze otherwise.

**Single mode using T-BOX as a gate:**

DRV-ELIS 10 (physical address set on a PCB board)

Address shift for device no. 10 -> 0x03C0 (*Input Register 0x1A* from System settings - *\_Input Registers*)

Mode	Shifted address	Value Change
Ventilation	0x0344 (0x04+0x0340)	0x00 -> 0x03
	0x0345 (0x05+0x0340)	0 -> 66
	0x034D (0x0D+0x0340)	0 -> 2

**Input Registers DRV-ELIS & DRV-SLIM**

Data:

(READ ONLY)

Address	Name	Description															
0x04	T3	<p>Temperature measured by T3 sensor (air after water heat exchanger).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-350</td> <td>-35,0</td> <td>Minimal value</td> </tr> <tr> <td>350</td> <td>35,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature	Description	-350	-35,0	Minimal value	350	35,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
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0x05	T4	<p>Temperature measured by T4 sensor (air before water heat exchanger).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-350</td> <td>35,0</td> <td>Minimal value</td> </tr> <tr> <td>350</td> <td>35,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature	Description	-350	35,0	Minimal value	350	35,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
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0x06	CurtainFanSpeed	<p>Curtain fan speed (S1, S2, S3). <i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
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0x07	ValveState	<p>Valve state.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>VALVE_IDLE</td> <td>Valve in stand by mode (for 3-way valves)</td> </tr> <tr> <td>0x01</td> <td>VALVE_OPEN</td> <td>Opening valve</td> </tr> <tr> <td>0x02</td> <td>VALVE_CLOSE</td> <td>Closing valve</td> </tr> </tbody> </table>	Value	Name	Description	0x00	VALVE_IDLE	Valve in stand by mode (for 3-way valves)	0x01	VALVE_OPEN	Opening valve	0x02	VALVE_CLOSE	Closing valve			
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0x08	HeaterFanSpeed	<p>Heater fan speed (S1, S2, S3). <i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
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0x09	ContactDoor	<p>Contact door state.</p> <table border="1"> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>															

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0x0A	HeaterDetect	<p>Heater detection procedure (ELIS-DUO).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>HEATER_DT_NS</td> <td>Detection procedure not commenced</td> </tr> <tr> <td>0x01</td> <td>HEATER_DT_FAIL</td> <td>Heater not detected</td> </tr> <tr> <td>0x02</td> <td>HEATER_DT_PASS</td> <td>Heater detected</td> </tr> </tbody> </table>	Value	Name	Description	0x00	HEATER_DT_NS	Detection procedure not commenced	0x01	HEATER_DT_FAIL	Heater not detected	0x02	HEATER_DT_PASS	Heater detected								
Value	Name	Description																				
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0x01	HEATER_DT_FAIL	Heater not detected																				
0x02	HEATER_DT_PASS	Heater detected																				
0x0B	AntifreezeState	<p>Information about antifreeze (8 bits for respected mode).</p> <table border="1"> <thead> <tr> <th>Value 15..8 bit</th> <th>Value 7..0 bit</th> <th>Antifreeze</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>0x01</td> <td>Warehouse</td> <td>Normal work mode.</td> </tr> <tr> <td>-</td> <td>0x02</td> <td>Warehouse</td> <td>Antifreeze enabled (user parameters overwritten).</td> </tr> <tr> <td>0x01</td> <td>-</td> <td>Water Exchanger</td> <td>Normal work mode.</td> </tr> <tr> <td>0x02</td> <td>-</td> <td>Water Exchanger</td> <td>Antifreeze enabled (user parameters overwritten).</td> </tr> </tbody> </table>	Value 15..8 bit	Value 7..0 bit	Antifreeze	Description	-	0x01	Warehouse	Normal work mode.	-	0x02	Warehouse	Antifreeze enabled (user parameters overwritten).	0x01	-	Water Exchanger	Normal work mode.	0x02	-	Water Exchanger	Antifreeze enabled (user parameters overwritten).
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0x0C	FuseState	<p>Fuse state for 3V fans, information can be read from 4 bits (11..8 bit).</p> <table border="1"> <thead> <tr> <th>Value 11..8 bit</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>Fuse state - working</td> </tr> <tr> <td>0x02</td> <td>Fuse state - blown</td> </tr> </tbody> </table> <p>Example:</p> <p>Fuse state 3V fan: working (0x1) Register value: 0x100</p> <p>Fuse state 3V fan: blown (0x2) Register value: 0x200</p>	Value 11..8 bit	Description	0x00	Read only	0x01	Fuse state - working	0x02	Fuse state - blown												
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Value	Name	L2 output	L1 output																			
0x00	ELECTRIC_POWER_0	OFF	OFF																			
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Holding Registers DRV-ELIS & DRV-SLIM

Data:

Address	Name	Description															
0x04	WorkMode	<p>Work mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_NS</td> <td>Read only</td> </tr> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_HEAT</td> <td>Heat mode</td> </tr> <tr> <td>3</td> <td>WM_VENT</td> <td>Ventilation mode</td> </tr> </tbody> </table>	Value	Work status	Description	0	WM_NS	Read only	1	WM_OFF	Device off	2	WM_HEAT	Heat mode	3	WM_VENT	Ventilation mode
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2	WM_HEAT	Heat mode															
3	WM_VENT	Ventilation mode															
0x05	CurtainFanSpeedRef	<p>Forcing fan speed (S1, S2, S3). DRV switch SW3 = C (curtain). <i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
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0x06	CurtainHeatRef	<p>T input state. DRV switch SW3 = C (curtain). <b>READ ONLY</b></p> <table border="1"> <thead> <tr> <th></th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>HEAT_NS</td> <td>Read only</td> </tr> <tr> <td>1</td> <td>HEAT_ON</td> <td>ON</td> </tr> <tr> <td>2</td> <td>HEAT_OFF</td> <td>OFF</td> </tr> </tbody> </table>		Name	Description	0	HEAT_NS	Read only	1	HEAT_ON	ON	2	HEAT_OFF	OFF			
	Name	Description															
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1	HEAT_ON	ON															
2	HEAT_OFF	OFF															
0x07	HeaterFanSpeedRef	<p>Forcing fan speed (S1, S2, S3). DRV switch SW3 = H (heater). <i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
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0x08	HeaterHeatRef	<p>T input state. DRV switch SW3 = H (heater). <b>READ ONLY</b></p> <table border="1"> <thead> <tr> <th></th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>HEAT_NS</td> <td>Read only</td> </tr> <tr> <td>1</td> <td>HEAT_ON</td> <td>ON</td> </tr> </tbody> </table>		Name	Description	0	HEAT_NS	Read only	1	HEAT_ON	ON						
	Name	Description															
0	HEAT_NS	Read only															
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		<table border="1"> <tr> <td>2</td> <td>HEAT_OFF</td> <td>OFF</td> </tr> </table>	2	HEAT_OFF	OFF												
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0x09	Not used	Not used															
0x0A	Tref	<p>Target temperature.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal Value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal Value	450	45,0	Maximal Value						
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0x0C	TLeadSensorSelect	<p>Lead temperature sensor selection.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>TSL_TLEAD</td> <td>Value sent by ModBus (TLeadVal)</td> </tr> <tr> <td>3</td> <td>TSL_T4</td> <td>DRV temperature sensor (T4 connector)</td> </tr> </tbody> </table>	Value	Name	Description	1	TSL_TLEAD	Value sent by ModBus (TLeadVal)	3	TSL_T4	DRV temperature sensor (T4 connector)						
Value	Name	Description															
1	TSL_TLEAD	Value sent by ModBus (TLeadVal)															
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0x0D	CurtainProgram	<p>Curtain program setting.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Setting</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>CURT_PRG_NS</td> <td>No forcing</td> </tr> <tr> <td>1</td> <td>CURT_PRG_K1</td> <td>Forcing SW3 to value K1</td> </tr> <tr> <td>2</td> <td>CURT_PRG_K2</td> <td>Forcing SW3 to value K2</td> </tr> </tbody> </table>	Value	Setting	Description	0	CURT_PRG_NS	No forcing	1	CURT_PRG_K1	Forcing SW3 to value K1	2	CURT_PRG_K2	Forcing SW3 to value K2			
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1	CURT_PRG_K1	Forcing SW3 to value K1															
2	CURT_PRG_K2	Forcing SW3 to value K2															
0x0E	CurtainFanIdleRef	<p>Stand-by fan operation for curtain.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
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34..66	FAN_SPEED2	Second step															
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0x0F	HeaterFanIdleRef	<p>Stand-by fan operation for heater.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step			
Value	Gear	Description															
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
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		67..100   FAN_SPEED3   Third step									
0x10	FanIdleDelay	<p>Time delay of stand-by fan operation.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0..65534</td> <td>Delay in seconds</td> </tr> <tr> <td>65535</td> <td>Infinite</td> </tr> </tbody> </table>	Value	Description	0..65534	Delay in seconds	65535	Infinite			
Value	Description										
0..65534	Delay in seconds										
65535	Infinite										
0x11	ValveIdleDelay	<p>Time delay of valve in stand-by fan operation.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0..65534</td> <td>Delay in seconds</td> </tr> <tr> <td>65535</td> <td>Infinite</td> </tr> </tbody> </table> <p>Condition: ValveIdleDelay&lt;FanIdleDelay.</p>	Value	Description	0..65534	Delay in seconds	65535	Infinite			
Value	Description										
0..65534	Delay in seconds										
65535	Infinite										
0x12	AntifreezeWareHouseOn	<p>Antifreeze work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>WM_ON</td> <td>ON</td> </tr> <tr> <td>0x02</td> <td>WM_OFF</td> <td>OFF</td> </tr> </tbody> </table>	Value	Name	Description	0x01	WM_ON	ON	0x02	WM_OFF	OFF
Value	Name	Description									
0x01	WM_ON	ON									
0x02	WM_OFF	OFF									
0x13	AntifreezeWareHouseTempRef	<p>Target temperature to enable antifreeze.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal value	150	15,0	Maximal value
Value	Temperature	Description									
50	5,0	Minimal value									
150	15,0	Maximal value									



## DRV-D

Chapter includes BMS information about destratification units from LEO D family in single mode.

### Quick Start in single mode:

Mode	Address (HR)	Name	Set value	Description
<b>Work mode manual</b>	0x04	WorkMode	0x04	Device starts ventilating (fan efficiency - high).
	0x05	FanEffRef	100	Check temperature sensors, fuse otherwise.
	0x0B	WorkModeTempRef	50	

### Single mode using T-BOX as a gate:

DRV-D 20 (physical address set on a PCB board)

Address shift for device no. 20 -> 0x05C0 (*Input Register 0x24* from System settings - *\_Input Registers*)

Mode	Shifted address	Set value
<b>Work mode manual</b>	0x05C4 (0x04+0x05C0)	0x04
	0x05C5 (0x05+0x05C0)	100
	0x05CB (0x0B+0x05C0)	50

Input Registers DRV-D

Data:

(READ ONLY)

Address	Name	Description															
0x04	T3	<p>Temperature measured by T3 sensor (temperature measured near the ceiling).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-350</td> <td>-35,0</td> <td>Minimal value</td> </tr> <tr> <td>350</td> <td>35,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature	Description	-350	-35,0	Minimal value	350	35,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
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350	35,0	Maximal value															
0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x05	T4	<p>Temperature measured by T4 sensor (temperature measured in the room).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-350</td> <td>35,0</td> <td>Minimal value</td> </tr> <tr> <td>350</td> <td>35,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature	Description	-350	35,0	Minimal value	350	35,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
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0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x06	FanEff	<p>Fan speed (S1, S2, S3).</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
0	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
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67..100	FAN_SPEED3	Third step															
0x07	DestStatus	<p>Desertification condition.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Condition (destTemp &gt; Td - Tm) and (Tz &gt; Tm) not met</td> </tr> <tr> <td>0x02</td> <td>Condition (destTemp &gt; Td - Tm) and (Tz &gt; Tm) met</td> </tr> </tbody> </table> <p>Tz - target room temperature (Tref)                      Td - temperature measured near the ceiling (T3 sensor),                      Tm - temperature measured in the room (TLeadVal or T4 sensor - depends on TleadSensorSelect settings).</p>	Value	Description	0x01	Condition (destTemp > Td - Tm) and (Tz > Tm) not met	0x02	Condition (destTemp > Td - Tm) and (Tz > Tm) met									
Value	Description																
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0x02	Condition (destTemp > Td - Tm) and (Tz > Tm) met																
0x08	FuseState	<p>Fuse state for 3V fans, information can be read from 4 bits (11..8 bit).</p> <table border="1"> <thead> <tr> <th>Value 11..8 bit</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>Fuse state - working</td> </tr> </tbody> </table>	Value 11..8 bit	Description	0x00	Read only	0x01	Fuse state - working									
Value 11..8 bit	Description																
0x00	Read only																
0x01	Fuse state - working																

0x02

Fuse state - blown

Example:

Fuse state 3V fan: working (0x1)

Register value: 0x100

Fuse state 3V fan: blown (0x2)

Register value: 0x200

Holding Registers DRV-D

Data:

Address	Name	Description															
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th></th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>WM_OFF</td> <td>Desertification off</td> </tr> <tr> <td>2</td> <td>WM_AUTO_DEPEND</td> <td>Work mode AUTO</td> </tr> <tr> <td>3</td> <td>WM_AUTO_INDEPEND</td> <td>Work mode AUTO</td> </tr> <tr> <td>4</td> <td>WM_MANUAL</td> <td>Work mode MANUAL</td> </tr> </tbody> </table>		Work state	Description	1	WM_OFF	Desertification off	2	WM_AUTO_DEPEND	Work mode AUTO	3	WM_AUTO_INDEPEND	Work mode AUTO	4	WM_MANUAL	Work mode MANUAL
	Work state	Description															
1	WM_OFF	Desertification off															
2	WM_AUTO_DEPEND	Work mode AUTO															
3	WM_AUTO_INDEPEND	Work mode AUTO															
4	WM_MANUAL	Work mode MANUAL															
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Value	Gear	Description															
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0x06	Tref	<p>Target temperature.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal Value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal Value	450	45,0	Maximal Value						
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0x08	TLeadSensorSelect	<p>Lead temperature sensor selection.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>TSL_TLEAD</td> <td>Value sent by ModBus (TLeadVal)</td> </tr> <tr> <td>3</td> <td>TSL_T4</td> <td>DRV temperature sensor (T4 connector)</td> </tr> </tbody> </table>	Value	Name	Description	1	TSL_TLEAD	Value sent by ModBus (TLeadVal)	3	TSL_T4	DRV temperature sensor (T4 connector)						
Value	Name	Description															
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0x0A	DestTempRef	<p>Forcing desertification mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0,0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>10,0</td> <td>Maximal value</td> </tr> </tbody> </table> <p>Condition: DestTempRef &gt; Td - Tm</p>	Value	Name	Description	0	0,0	Minimal value	100	10,0	Maximal value						
Value	Name	Description															
0	0,0	Minimal value															
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		<p>Td - temperature measured near the ceiling (T3 sensor),</p> <p>Tm - temperature measured in the room (TLeadVal or T4 sensor - depends on TLeadSensorSelect settings).</p>									
0x0B	WorkModeTempRef	<p>Target temperature value near the ceiling in manual mode. Condition WorkModeTempRef &gt; Leading sensor value.</p> <table border="1" data-bbox="565 317 971 464"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal value	450	45,0	Maximal value
Value	Temperature	Description									
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450	45,0	Maximal value									

## DRV-KM

Chapter includes BMS information about mixing chamber units from LEO KM family in single mode.

### Quick Start in single mode:

Mode	Address (HR)	Name	Set value	Description
Heating mode	0x04	WorkMode	0x02	Device starts heating (fan efficiency - low / 10%, opening valve actuator) target temperature to attain 40°C.
	0x0B	FenEffRef	10	
	0x0D	Tref	400	Check temperature sensors, fuse, thermostat otherwise.

### Single mode using T-BOX as a gate:

DRV-KM 10 (physical address set on a PCB board)

Address shift for device no. 10 -> 0x03C0 (*Input Register 0x1A* from System settings - *\_Input Registers*)

Mode	Shifted address	Value Change
Heating mode	0x0344 (0x04+0x0340)	0x02
	0x034B (0x0B+0x0340)	10
	0x034D (0x0D+0x0340)	400

## Holding Registers DRV-KM

## Data:

Address	Name	Description																		
0x04	WorkMode	<p>Work mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_NS</td> <td>Read only</td> </tr> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_HT</td> <td>Heat mode</td> </tr> <tr> <td>3</td> <td>WM_COOL</td> <td>Cool mode</td> </tr> <tr> <td>4</td> <td>WM_VENT</td> <td>Ventilation mode</td> </tr> </tbody> </table>	Value	Name	Description	0	WM_NS	Read only	1	WM_OFF	Device off	2	WM_HT	Heat mode	3	WM_COOL	Cool mode	4	WM_VENT	Ventilation mode
Value	Name	Description																		
0	WM_NS	Read only																		
1	WM_OFF	Device off																		
2	WM_HT	Heat mode																		
3	WM_COOL	Cool mode																		
4	WM_VENT	Ventilation mode																		
0x05	AntiFreezeWareHouseOn	<p>Enables/disables warehouse antifreeze mode.</p> <ul style="list-style-type: none"> <li>• 1 - disable</li> <li>• 2 - enable</li> </ul>																		
0x06	AntifreezeWareHouseTempRef	<p>Target temperature to enable warehouse antifreeze.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal value	150	15,0	Maximal value									
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0x07	DamperForceMode	<p>Damper forcing mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>DAMPER_FMD_NS</td> <td>Read only</td> </tr> <tr> <td>1</td> <td>DAMPER_FMD_OFF</td> <td>Forcing mode off</td> </tr> <tr> <td>2</td> <td>DAMPER_FMD_ON</td> <td>           Depends on air draw temperature:  <i>if</i> (<math>T1 &lt; DamperForceTempRef</math>)            {              <i>DamperLevelRef</i> = <i>DamperForceRef</i>;            }         </td> </tr> </tbody> </table>	Value	Work mode	Description	0	DAMPER_FMD_NS	Read only	1	DAMPER_FMD_OFF	Forcing mode off	2	DAMPER_FMD_ON	Depends on air draw temperature: <i>if</i> ( $T1 < DamperForceTempRef$ ) { <i>DamperLevelRef</i> = <i>DamperForceRef</i> ; }						
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0x0E	TLeadVal	<p>Lead temperature sensor value.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-600</td> <td>-60,0</td> <td>Minimal Value</td> </tr> <tr> <td>600</td> <td>60,0</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Temperature	Description	-600	-60,0	Minimal Value	600	60,0	Maximal Value															
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0x11	FilterTimeCntRst	<p>Filter time reset.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>FLT_CNT_RST_NS</td> <td>Read only - set after filter reset</td> </tr> <tr> <td>0x01</td> <td>FLT_CNT_RST</td> <td>Filter time reset. (FilterWorkTime in Input Registers is set to 0)</td> </tr> </tbody> </table>	Value	Name	Description	0x00	FLT_CNT_RST_NS	Read only - set after filter reset	0x01	FLT_CNT_RST	Filter time reset. (FilterWorkTime in Input Registers is set to 0)															
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0x13	ThermostatModeFanEffRef	<p>Fan efficiency setting for thermostat mode.</p> <p><i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>FAN_SPEED0</td> <td>Fan off</td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value	Value	Gear	Description	0	FAN_SPEED0	Fan off	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
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Input Registers DRV-KM

Data:

(READ ONLY)

Address	Name	Description															
0x04	T1	<p>Temperature measured by T1 sensor (fresh air temperature).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
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0x05	T3	<p>Temperature measured by T3 sensor (air after water heat exchanger).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
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0x10	AntiFreezeState	<p>Information about antifreeze (8 bits for respected mode).</p> <table border="1"> <thead> <tr> <th>Value 15...8</th> <th>Value 7..0 bit</th> <th>Antifreeze</th> <th>Description</th> </tr> </thead> <tbody> </tbody> </table>	Value 15...8	Value 7..0 bit	Antifreeze	Description																				
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0x11	FilterWorkTime	<p>Filter work time.</p> <p>FilterWorkTime = 5 * FilterWorkTime (min)</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work time (min)</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>65535</td> <td>5*65535</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Work time (min)	Description	0	0	Minimal value	65535	5*65535	Maximal Value							
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0x12	FilterPressureSwitchState	<p>Filter pressure state.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Not connected</td> </tr> <tr> <td>0x01</td> <td>Connected - good condition</td> </tr> <tr> <td>0x02</td> <td>Connected - bad condition</td> </tr> </tbody> </table>	Value	Description	0x00	Not connected	0x01	Connected - good condition	0x02	Connected - bad condition								
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0x13	FanEcConnect	<p>Information about EC Fan connection.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Not connected</td> </tr> <tr> <td>0x02</td> <td>Connected</td> </tr> </tbody> </table>	Value	Description	0x01	Not connected	0x02	Connected										
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0x15	ValveState	<p>Valve state.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Value	Name	Description													
Value	Name	Description																

0x00	VALVE_IDLE	Valve in stand by mode (for 3-way valves)
0x01	VALVE_OPEN	Opening valve
0x02	VALVE_CLOSE	Closing valve

## DRV-M&amp;V

Chapter includes BMS information about heat units from LEO M&V family in single mode.

**Quick Start in single mode:**

Mode	Address (HR)	Name	Set value	Description
<b>Ventilation</b>	0x04	WorkMode	0x06	Device starts ventilating (fan efficiency - med / 50%).
	0x07	FanEffRef	50	Check temperature sensors, fuse otherwise.
<b>Manual heating</b>	0x04	WorkMode	0x03	Device starts heating (fan efficiency - low / 20%, opening valve actuator)
	0x07	FanEffRef	20	target temperature to attain = 40°C.
	0x08	Tref	400	Check temperature sensors, fuse otherwise.

**Single mode using T-BOX as a gate:**

DRV-V/M 31 (physical address set on a PCB board)

Address shift for device no. 31 -> 0x0880(*Input Register 0x2F* from System settings - \_Input Registers)

Mode	Shifted address	Set value
<b>Manual heating</b>	0x0884 (0x04+0x0880)	0x03
	0x0887 (0x07+0x0880)	20
	0x0888 (0x08+0x0880)	400

Holding Registers DRV-M&V

Data:

Address	Name	Description																								
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_DEF</td> <td>Default value after power reset</td> </tr> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_HT_AUTO</td> <td>Automatic heating</td> </tr> <tr> <td>3</td> <td>WM_HT_MANUAL</td> <td>Manual heating</td> </tr> <tr> <td>4</td> <td>WM_COOL_AUTO</td> <td>Automatic cooling</td> </tr> <tr> <td>5</td> <td>WM_COOL_MANUAL</td> <td>Manual cooling</td> </tr> <tr> <td>6</td> <td>WM_VENT</td> <td>Ventilation</td> </tr> </tbody> </table>	Value	Work state	Description	0	WM_DEF	Default value after power reset	1	WM_OFF	Device off	2	WM_HT_AUTO	Automatic heating	3	WM_HT_MANUAL	Manual heating	4	WM_COOL_AUTO	Automatic cooling	5	WM_COOL_MANUAL	Manual cooling	6	WM_VENT	Ventilation
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0x05	AntifreezeWareHouseOn	<p>Antifreeze work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>WM_ON</td> <td>ON</td> </tr> <tr> <td>0x02</td> <td>WM_OFF</td> <td>OFF</td> </tr> </tbody> </table>	Value	Name	Description	0x01	WM_ON	ON	0x02	WM_OFF	OFF															
Value	Name	Description																								
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0x06	AntifreezeWareHouseTempRef	<p>Target temperature to enable antifreeze.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal value	150	15,0	Maximal value															
Value	Temperature	Description																								
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0x07	FanEffRef	<p>Fan efficiency setting.</p> <p><i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>FAN_SPEED0</td> <td>Fan off</td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value	Value	Gear	Description	0	FAN_SPEED0	Fan off	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
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0x08	Tref	<p>Target temperature.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Value	Temperature	Description																					
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450	45,0	Maximal Value												
0x09	TLeadVal	<p>Lead temperature sensor value.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-600</td> <td>-60,0</td> <td>Minimal Value</td> </tr> <tr> <td>600</td> <td>60,0</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Temperature	Description	-600	-60,0	Minimal Value	600	60,0	Maximal Value			
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0x0A	TleadSensorSelect	<table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>TSL_TNS</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>TSL_TLEAD</td> <td>Temperature value transmitted via Modbus</td> </tr> <tr> <td>0x03</td> <td>TSL_T4</td> <td>Temperature measured by T4 sensor (air before water heat exchanger)</td> </tr> </tbody> </table>	Value	Name	Description	0x00	TSL_TNS	Read only	0x01	TSL_TLEAD	Temperature value transmitted via Modbus	0x03	TSL_T4	Temperature measured by T4 sensor (air before water heat exchanger)
Value	Name	Description												
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0x03	TSL_T4	Temperature measured by T4 sensor (air before water heat exchanger)												
0x0B	DestModeForce	<p>Forcing destratification mode for destratificator</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>DEST_MDF_OFF</td> <td>Turn Off</td> </tr> <tr> <td>0x02</td> <td>DEST_MDF_ON</td> <td>Turn On</td> </tr> </tbody> </table>	Value	Name	Description	0x01	DEST_MDF_OFF	Turn Off	0x02	DEST_MDF_ON	Turn On			
Value	Name	Description												
0x01	DEST_MDF_OFF	Turn Off												
0x02	DEST_MDF_ON	Turn On												
0x0C	DestMode	<p>Destratification work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Destratification work mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DEST_MD_OFF</td> <td>Off</td> </tr> <tr> <td>2</td> <td>DEST_MD_AUTO_DEPEND</td> <td>Work mode AUTO</td> </tr> <tr> <td>3</td> <td>DEST_MD_AUTO_INDEPEND</td> <td>Work mode AUTO</td> </tr> </tbody> </table>	Value	Destratification work mode	Description	1	DEST_MD_OFF	Off	2	DEST_MD_AUTO_DEPEND	Work mode AUTO	3	DEST_MD_AUTO_INDEPEND	Work mode AUTO
Value	Destratification work mode	Description												
1	DEST_MD_OFF	Off												
2	DEST_MD_AUTO_DEPEND	Work mode AUTO												
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0x0D	DestTempRef	<p>Target value for lunning desertification mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [K]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0,0</td> <td>Minimal value</td> </tr> <tr> <td><b>50</b></td> <td><b>5,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>100</td> <td>10,0</td> <td>Maximal value</td> </tr> </tbody> </table> <p><i>Condition:</i></p> $DestTempRef > Td - Tm$ <p><i>Td</i> – temperature value measured near desertificator (T3 sensor).</p> <p><i>Tm</i> – temperature value measured in the room (TLeadVal or T4 - depends on the <i>TleadSensorSelect</i> register value).</p>	Value	Temperature [K]	Description	0	0,0	Minimal value	<b>50</b>	<b>5,0</b>	<b>Default value</b>	100	10,0	Maximal value
Value	Temperature [K]	Description												
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<b>50</b>	<b>5,0</b>	<b>Default value</b>												
100	10,0	Maximal value												
0x0E	DestStratTimeDelay	Not in use.												
0x0F	ModeAuto_FanEffRefMin	Minimal fan efficiency in AUTO mode.												



		<p><i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value
Value	Fan speed	Description									
0	0%	Minimal value									
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0x10	ModeAuto_FanEffRefMax	<p>Maximal fan efficiency in AUTO mode.</p> <p><i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value
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0x11	ModeManual_FanEffRef	<p>Fan efficiency after attaining target temperature in MANUAL mode.</p> <p><i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value
Value	Fan speed	Description									
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**Input Registers DRV-M&V**

Data:

(READ ONLY)

Address	Name	Description																					
0x04	T3	<p>Temperature measured by T3 sensor (air after water heat exchanger).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected						
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0x05	T4	<p>Temperature measured by T4 sensor (air before water heat exchanger).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected						
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0x06	FanEff	<p>EC Fan - Revolutions per minute (rpm).</p> <table border="1"> <thead> <tr> <th>Value [rpm]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>3000</td> <td>Maximal value</td> </tr> </tbody> </table> <p>AC Fan - 3 steps.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>FAN_SPEED0</td> <td>Fan off</td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value [rpm]	Description	0	Minimal value	3000	Maximal value	Value	Gear	Description	0	FAN_SPEED0	Fan off	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
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0x07	AntifreezeState	<p>Information about antifreeze (8 bits for respected mode).</p> <table border="1"> <thead> <tr> <th>Value 15..8 bit</th> <th>Value 7..0 bit</th> <th>Antifreeze</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>0x01</td> <td>Warehouse</td> <td>Normal work mode.</td> </tr> <tr> <td>-</td> <td>0x02</td> <td>Warehouse</td> <td>Antifreeze enabled (user parameters overwritten).</td> </tr> <tr> <td>0x01</td> <td>-</td> <td>Water Exchanger</td> <td>Normal work mode.</td> </tr> <tr> <td>0x02</td> <td>-</td> <td>Water Exchanger</td> <td>Antifreeze enabled (user parameters overwritten).</td> </tr> </tbody> </table>	Value 15..8 bit	Value 7..0 bit	Antifreeze	Description	-	0x01	Warehouse	Normal work mode.	-	0x02	Warehouse	Antifreeze enabled (user parameters overwritten).	0x01	-	Water Exchanger	Normal work mode.	0x02	-	Water Exchanger	Antifreeze enabled (user parameters overwritten).	
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0x02	-	Water Exchanger	Antifreeze enabled (user parameters overwritten).																				
0x08	DestStatus	<p>Destratification status:                      (destDtemp &gt; Td - Tm) and (Tz &gt; Tm)                      Tz-room setting temp. (value from Tref register)</p>																					

		<p>Td-temp. measured at destratificator (temp. value from T3 sensor)</p> <p>Tm-temp. measured into room (value from TLeadVal or T4 - depending on settings in TLeadSensorSelect register)</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Condition (destDtemp &gt; Td - Tm) and (Tz &gt;Tm) not fulfilled</td> </tr> <tr> <td>0x02</td> <td>Condition (destDtemp &gt; Td - Tm) and (Tz &gt;Tm) fulfilled</td> </tr> </tbody> </table>	Value	Description	0x01	Condition (destDtemp > Td - Tm) and (Tz >Tm) not fulfilled	0x02	Condition (destDtemp > Td - Tm) and (Tz >Tm) fulfilled										
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0x09	FanEcConnect	<p>EC Fan and DRV M connection status.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Fan not connected</td> </tr> <tr> <td>0x02</td> <td>Fan connected</td> </tr> </tbody> </table>	Value	Description	0x01	Fan not connected	0x02	Fan connected										
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Value	Description																	
0x00	Read only																	
0x01	Fuse state - working																	
0x02	Fuse state - blown																	
0x0B	ValveState	<p>Valve state.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>VALVE_IDLE</td> <td>Valve in stand by mode (for 3-way valves)</td> </tr> <tr> <td>0x01</td> <td>VALVE_OPEN</td> <td>Opening valve</td> </tr> <tr> <td>0x02</td> <td>VALVE_CLOSE</td> <td>Closing valve</td> </tr> </tbody> </table>	Value	Name	Description	0x00	VALVE_IDLE	Valve in stand by mode (for 3-way valves)	0x01	VALVE_OPEN	Opening valve	0x02	VALVE_CLOSE	Closing valve				
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## DRV-OXEN

Chapter includes BMS information about ventilation units from OXEN family in single mode.

### Quick Start in single mode:

Mode	Address (HR)	Name	Set value	Description
Ventilation	0x02	FanEffRef_1	100	Device starts ventilating (fan efficiency - 100%).
	0x03	FanEffRef_2	100	Check temperature sensors, fuse, antifreeze otherwise.
	0x04	OxenState	3	

### Single mode using T-BOX as a gate:

DRV-OXEN 10 (physical address set on a PCB board)

Address shift for device no. 10 -> 0x03C0 (*Input Register 0x1A* from System settings - *\_Input Registers*)

Mode	Shifted address	Set value
Ventilation	0x0342 (0x02+0x0340)	100
	0x0343 (0x03+0x0340)	100
	0x0344 (0x04+0x0340)	3

Holding Registers DRV-OXEN

DATA:

Address	Name	Description															
0x00	Config1	<p>Configuration register no. 1.</p> <table border="1"> <thead> <tr> <th>BIT</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Filter work time RST</td> <td> <p>Filter work time reset.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Place holder.</td> </tr> <tr> <td>0x01</td> <td>Reset filter counter (Sets address 0x09 to 0x000).</td> </tr> </tbody> </table> </td> </tr> <tr> <td>2..15</td> <td>-</td> <td>Not used.</td> </tr> </tbody> </table>	BIT	Name	Description	0	Filter work time RST	<p>Filter work time reset.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Place holder.</td> </tr> <tr> <td>0x01</td> <td>Reset filter counter (Sets address 0x09 to 0x000).</td> </tr> </tbody> </table>	Value	Description	0x00	Place holder.	0x01	Reset filter counter (Sets address 0x09 to 0x000).	2..15	-	Not used.
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0x02	FanEffRef_1	<p>Fan efficiency setting in group I (supply fans).</p> <p><i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value						
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0x03	FanEffRef_2	<p>Fan efficiency setting in group II (exhaust fans).</p> <p><i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value						
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0x06	TempRef	Target temperature. <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal Value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal Value	450	45,0	Maximal Value						
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0x09	TempOut	Not used.															
0x0A	RegParam_K	Not used.															
0x0B	RegParam_T	Not used.															
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0x0D	OxenElectricWorkMode	Not used.															
0x0E	OxenElectricPtcPower_ref	Not used.															
0x0F	PtcRegTempLow	Not used.															
0x10	PtcRegTempHi	Not used.															

Input Registers DRV-OXEN

DATA:

(READ ONLY)

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0x00	Staus1	<p>Status register no 1.</p> <table border="1"> <thead> <tr> <th>BIT</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0..3</td> <td>WorkMode</td> <td> <p>Oxen work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>IDLE</td> <td>Initial value after supplying voltage</td> </tr> <tr> <td>0x01</td> <td>INIT</td> <td>Oxen initialization</td> </tr> <tr> <td>0x02</td> <td>READY</td> <td>Oxen ready</td> </tr> </tbody> </table> </td> </tr> <tr> <td>4..5</td> <td>OxenType</td> <td> <p>Oxen Type.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>NONE</td> <td>Type not identified</td> </tr> <tr> <td>0x01</td> <td>COLD</td> <td>Cold OXEN</td> </tr> <tr> <td>0x02</td> <td>ELECTRIC</td> <td>Electric OXEN</td> </tr> <tr> <td>0x03</td> <td>HOT</td> <td>Water OXEN</td> </tr> </tbody> </table> </td> </tr> <tr> <td>6..7</td> <td>AfWaterEx</td> <td> <p>Water exchanger antifreeze information.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>OFF</td> <td>Normal work mode</td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>Antifreeze enabled (user parameters overwritten)</td> </tr> </tbody> </table> </td> </tr> <tr> <td>8..9</td> <td>AfHeatCrossEx</td> <td> <p>Heat cross exchanger antifreeze information.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>OFF</td> <td>Normal work mode</td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>Antifreeze enabled (user parameters overwritten)</td> </tr> </tbody> </table> </td> </tr> <tr> <td>10..15</td> <td>-</td> <td>Not used</td> </tr> </tbody> </table>	BIT	Name	Description	0..3	WorkMode	<p>Oxen work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>IDLE</td> <td>Initial value after supplying voltage</td> </tr> <tr> <td>0x01</td> <td>INIT</td> <td>Oxen initialization</td> </tr> <tr> <td>0x02</td> <td>READY</td> <td>Oxen ready</td> </tr> </tbody> </table>	Value	Name	Description	0x00	IDLE	Initial value after supplying voltage	0x01	INIT	Oxen initialization	0x02	READY	Oxen ready	4..5	OxenType	<p>Oxen Type.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>NONE</td> <td>Type not identified</td> </tr> <tr> <td>0x01</td> <td>COLD</td> <td>Cold OXEN</td> </tr> <tr> <td>0x02</td> <td>ELECTRIC</td> <td>Electric OXEN</td> </tr> <tr> <td>0x03</td> <td>HOT</td> <td>Water OXEN</td> </tr> </tbody> </table>	Value	Name	Description	0x00	NONE	Type not identified	0x01	COLD	Cold OXEN	0x02	ELECTRIC	Electric OXEN	0x03	HOT	Water OXEN	6..7	AfWaterEx	<p>Water exchanger antifreeze information.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>OFF</td> <td>Normal work mode</td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>Antifreeze enabled (user parameters overwritten)</td> </tr> </tbody> </table>	Value	Name	Description	0x00	OFF	Normal work mode	0x01	ON	Antifreeze enabled (user parameters overwritten)	8..9	AfHeatCrossEx	<p>Heat cross exchanger antifreeze information.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>OFF</td> <td>Normal work mode</td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>Antifreeze enabled (user parameters overwritten)</td> </tr> </tbody> </table>	Value	Name	Description	0x00	OFF	Normal work mode	0x01	ON	Antifreeze enabled (user parameters overwritten)	10..15	-	Not used
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0x09	FilterWorkTime	<p>Filter work time.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>[min]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>5 * 0</td> <td>Minimal value</td> </tr> </tbody> </table>	Value	[min]	Description	0	5 * 0	Minimal value																																							
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		<table border="1"> <tr> <td>65534</td> <td>5 * 65534</td> <td>Maximal value</td> </tr> </table>	65534	5 * 65534	Maximal value						
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0x0A	FansEff_1	<p>Fan efficiency in group I (supply fans).  <i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value
Value	Fan speed	Description									
0	0%	Minimal value									
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0x0B	FansEff_2	<p>Fan efficiency setting in group II (exhaust fans).  <i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value
Value	Fan speed	Description									
0	0%	Minimal value									
100	100%	Maximal value									
0x0C	OxenElectric_PtcPower	Not used.									
0x0D	OxenElectric_PtcTk	Not used									

## DRV-R

Chapter includes BMS information about gas heaters units from ROBUR family in single mode.

### Quick Start in single mode:

Mode	Address (HR)	Name	Set value	Description
Ventilation (summer)	0x04	WorkMode	0x02	Device starts ventilating. Check temperature sensors, fuse otherwise.
	0x0E	Tref	400	Check temperature sensors, fuse, thermostat, STB alarm otherwise.
Heating mode (winter)	0x04	WorkMode	0x03	Device starts heating, target temperature to attain 40°C.
	0x0E	Tref	400	Check temperature sensors, fuse, thermostat, STB alarm otherwise.

### Single mode using T-BOX as a gate:

DRV-R 10 (physical address set on a PCB board)


Address shift for device no. 10 -> 0x03C0 (*Input Register 0x1A* from System settings - *\_Input Registers*)

Mode	Shifted address	Set value
Ventilation	0x0344 (0x04+0x0340)	0x02

Holding Registers DRV R

DATA:

Address	Parameter	Description																		
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x00</b></td> <td><b>WM_NS</b></td> <td><b>Read only</b></td> </tr> <tr> <td>0x01</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>0x02</td> <td>WM_SUMMER</td> <td>Summer mode (ventilation)</td> </tr> <tr> <td>0x03</td> <td>WM_WINTER_THERMO</td> <td>Winter mode (heating), thermostatic mode</td> </tr> <tr> <td>0x04</td> <td>WM_WINTER_CONT</td> <td>Winter mode (heating), continuous mode</td> </tr> </tbody> </table>	Value	Work state	Description	<b>0x00</b>	<b>WM_NS</b>	<b>Read only</b>	0x01	WM_OFF	Device off	0x02	WM_SUMMER	Summer mode (ventilation)	0x03	WM_WINTER_THERMO	Winter mode (heating), thermostatic mode	0x04	WM_WINTER_CONT	Winter mode (heating), continuous mode
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0x04	WM_WINTER_CONT	Winter mode (heating), continuous mode																		
0x05	AntifreezeWareHouseOn	<p>Enables/disables warehouse antifreeze mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ON</td> <td>Enable</td> </tr> <tr> <td><b>0x02</b></td> <td><b>OFF</b></td> <td><b>Disable</b></td> </tr> </tbody> </table>	Value	Name	Description	0x01	ON	Enable	<b>0x02</b>	<b>OFF</b>	<b>Disable</b>									
Value	Name	Description																		
0x01	ON	Enable																		
<b>0x02</b>	<b>OFF</b>	<b>Disable</b>																		
0x06	AntifreezeWareHouseTempRef	<p>Target temperature to enable warehouse antifreeze.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td><b>100</b></td> <td><b>10,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal value	<b>100</b>	<b>10,0</b>	<b>Default value</b>	150	15,0	Maximal value						
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<b>100</b>	<b>10,0</b>	<b>Default value</b>																		
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0x0C	GasAlarmReset	<p>Robur gas/flame alarm reset.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x00</b></td> <td><b>RO</b></td> <td><b>Read only</b></td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>Sending reset signal (continuously)</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>Stop sending reset signal</td> </tr> </tbody> </table> <p>Note: default reset time should not exceed 5 seconds (change the register to 0x02 afterwards).</p>	Value	Name	Description	<b>0x00</b>	<b>RO</b>	<b>Read only</b>	0x01	ON	Sending reset signal (continuously)	0x02	OFF	Stop sending reset signal						
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0x0F	TLeadVal	<p>Lead temperature sensor value.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Value	Temperature [C]	Description															
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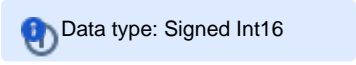
 Data type: Signed Int16

		<table border="1"> <tr> <td>-600</td> <td>-60,0</td> <td>Minimal value</td> </tr> <tr> <td>600</td> <td>60,0</td> <td>Maximal value</td> </tr> </table>	-600	-60,0	Minimal value	600	60,0	Maximal value						
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0x10	TleadSensorSelect	<p>Lead sensor select.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>TSL_TNS</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>TSL_TLEAD</td> <td>Temperature value transmitted via Modbus</td> </tr> <tr> <td><b>0x03</b></td> <td><b>TSL_T4</b></td> <td><b>Temperature measured by T4 sensor (room temperature)</b></td> </tr> </tbody> </table>	Value	Name	Description	0x00	TSL_TNS	Read only	0x01	TSL_TLEAD	Temperature value transmitted via Modbus	<b>0x03</b>	<b>TSL_T4</b>	<b>Temperature measured by T4 sensor (room temperature)</b>
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<b>0x03</b>	<b>TSL_T4</b>	<b>Temperature measured by T4 sensor (room temperature)</b>												
0x12	STBTemperatureAlarmOn	<p>Target temperature to invoke STB alarm state (<i>Input Register 0x12</i>).</p> <p>Alarm occurs when set value is greater than T3 (<i>Input Register 0x05</i>)</p> <p>Default value ensures error occurrence before real STB Robur alarm (which needs manual reset from heater control box).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>810</td> <td>81,0</td> <td>Minimal value</td> </tr> <tr> <td><b>900</b></td> <td><b>90,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>1200</td> <td>120,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	810	81,0	Minimal value	<b>900</b>	<b>90,0</b>	<b>Default value</b>	1200	120,0	Maximal value
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0x13	FilterTimeCntRst	<p>Filter time reset.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x00</b></td> <td><b>FLT_CNT_RST_NS</b></td> <td><b>Read only - set after filter reset</b></td> </tr> <tr> <td>0x01</td> <td>FLT_CNT_RST</td> <td>Filter time reset. (FilterWorkTime in Input Registers is set to 0)</td> </tr> </tbody> </table>	Value	Name	Description	<b>0x00</b>	<b>FLT_CNT_RST_NS</b>	<b>Read only - set after filter reset</b>	0x01	FLT_CNT_RST	Filter time reset. (FilterWorkTime in Input Registers is set to 0)			
Value	Name	Description												
<b>0x00</b>	<b>FLT_CNT_RST_NS</b>	<b>Read only - set after filter reset</b>												
0x01	FLT_CNT_RST	Filter time reset. (FilterWorkTime in Input Registers is set to 0)												
0x14	STBTemperatureAlarmOff	<p>Target temperature to reset STB alarm state (<i>Holding Register 0x0C</i>).</p> <p>Reset is possible If set value is greater than T3 (<i>Input Register 0x05</i>).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>610</td> <td>61,0</td> <td>Minimal value</td> </tr> <tr> <td><b>800</b></td> <td><b>80,0</b></td> <td><b>Maximal value</b></td> </tr> </tbody> </table> <p>Additional condition: STB_T_OFF &lt; STB_T_REF</p>	Value	Temperature [C]	Description	610	61,0	Minimal value	<b>800</b>	<b>80,0</b>	<b>Maximal value</b>			
Value	Temperature [C]	Description												
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0x15	STBAlarmReset	<p>STB Alarm reset.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ON</td> <td>Reset alarm on</td> </tr> <tr> <td><b>0x02</b></td> <td><b>OFF</b></td> <td><b>Reset alarm off</b></td> </tr> </tbody> </table> <p>If STB_T &lt; STB_T_OFF register will be set to 0x02 (OFF)</p> <p>STB_T - T3 (<i>Input Register 0x03</i>)</p> <p>STB_T_OFF - STBTemperatureAlarmOff (<i>Holding Register 0x14</i>)</p>	Value	Name	Description	0x01	ON	Reset alarm on	<b>0x02</b>	<b>OFF</b>	<b>Reset alarm off</b>			
Value	Name	Description												
0x01	ON	Reset alarm on												
<b>0x02</b>	<b>OFF</b>	<b>Reset alarm off</b>												

Input Registers DRV-R

**DATA:**

(READ ONLY)

Address	Parameter	Description															
0x05	T3  	Temperature measured by T3 sensor (air extraction temperature).  <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature [C]	Description															
-500	-50,0	Minimal value															
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0x06	T4  	Temperature measured by T4 sensor (room temperature).  <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
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0x08	ExternalGasDetectTH1	External gas detector signal - first threshold.  <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Gas concentration below threshold</td> </tr> <tr> <td>0x01</td> <td>Gas concentration exceeds threshold</td> </tr> </tbody> </table>	Value	Description	0x00	Gas concentration below threshold	0x01	Gas concentration exceeds threshold									
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0x09	ExternalGasDetectTH2	External gas detector signal - second threshold.  <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Gas concentration below threshold</td> </tr> <tr> <td>0x01</td> <td>Gas concentration exceeds threshold</td> </tr> </tbody> </table>	Value	Description	0x00	Gas concentration below threshold	0x01	Gas concentration exceeds threshold									
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0x01	Gas concentration exceeds threshold																
0x0A	ExternalGasDetectVal	Gas concentration value - 0-10V DC input (gas detector scaling information required).															
0x0F	AntifreezeStateWarehouse	Information about warehouse antifreeze state.  <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Normal work mode</td> </tr> <tr> <td>0x02</td> <td>Antifreeze enabled (user parameters overwritten)</td> </tr> </tbody> </table>	Value	Description	0x01	Normal work mode	0x02	Antifreeze enabled (user parameters overwritten)									
Value	Description																
0x01	Normal work mode																
0x02	Antifreeze enabled (user parameters overwritten)																
0x10	FuseState	Fan roof fuse state.															

		<table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>Fuse state - working</td> </tr> <tr> <td>0x02</td> <td>Fuse state - blown</td> </tr> </tbody> </table>	Value	Description	0x00	Read only	0x01	Fuse state - working	0x02	Fuse state - blown				
Value	Description													
0x00	Read only													
0x01	Fuse state - working													
0x02	Fuse state - blown													
0x11	GasAlarmState	<p>Robur alarm (gas/flame). Read from clamp no.6 (connection terminal inside Robur heater).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ON</td> <td>Alarm detected</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>No alarm</td> </tr> </tbody> </table>	Value	Name	Description	0x01	ON	Alarm detected	0x02	OFF	No alarm			
Value	Name	Description												
0x01	ON	Alarm detected												
0x02	OFF	No alarm												
0x12	STBAlarmState	<p>Air extraction temperature alarm (STB).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>NC</td> <td>PT1000 sensor not connected</td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>STB alarm detected ( <math>T3 \geq T\_STB\_REF</math> )</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>STB alarm not detected ( <math>T3 \leq (T\_STB\_REF - 1 [K])</math> )</td> </tr> </tbody> </table>	Value	Name	Description	0x00	NC	PT1000 sensor not connected	0x01	ON	STB alarm detected ( $T3 \geq T\_STB\_REF$ )	0x02	OFF	STB alarm not detected ( $T3 \leq (T\_STB\_REF - 1 [K])$ )
Value	Name	Description												
0x00	NC	PT1000 sensor not connected												
0x01	ON	STB alarm detected ( $T3 \geq T\_STB\_REF$ )												
0x02	OFF	STB alarm not detected ( $T3 \leq (T\_STB\_REF - 1 [K])$ )												
0x13	FilterWorkTime	<p>Filter work time.</p> <p><math>FilterWorkTime = 5 * FilterWorkTime (min)</math></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work time (min)</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>65535</td> <td>5*65535</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Work time (min)	Description	0	0	Minimal value	65535	5*65535	Maximal Value			
Value	Work time (min)	Description												
0	0	Minimal value												
65535	5*65535	Maximal Value												

## DRV-R KM

Chapter includes BMS information about robur mixing chambers units from ROBUR family in single mode.

**Quick Start in single mode:**

Mode	Address (HR)	Name	Set value	Description
<b>Ventilation (summer)</b>	0x04	WorkMode	0x02	Device starts ventilating. Check temperature sensors, fuse otherwise.
	0x0E	Tref	400	Check temperature sensors, fuse, thermostat, STB alarm otherwise.
<b>Heating mode (winter)</b>	0x04	WorkMode	0x03	Device starts heating, target temperature to attain 40°C.
	0x0E	Tref	400	Check temperature sensors, fuse, thermostat, STB alarm otherwise.

**Single mode using T-BOX as a gate:**

DRV-R KM 10 (physical address set on a PCB board)


Address shift for device no. 10 -> 0x03C0 (*Input Register 0x1A* from System settings - *\_Input Registers*)

Mode	Shifted address	Set value
<b>Ventilation (summer)</b>	0x0344 (0x04+0x0340)	0x02




Holding Registers DRV-R KM

DATA:

Address	Parameter	Description																		
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x00</b></td> <td><b>WM_NS</b></td> <td><b>Read only</b></td> </tr> <tr> <td>0x01</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>0x02</td> <td>WM_SUMMER</td> <td>Summer mode (ventilation)</td> </tr> <tr> <td>0x03</td> <td>WM_WINTER_THERMO</td> <td>Winter mode (heating), thermostatic mode</td> </tr> <tr> <td>0x04</td> <td>WM_WINTER_CONT</td> <td>Winter mode (heating), continuous mode</td> </tr> </tbody> </table>	Value	Work state	Description	<b>0x00</b>	<b>WM_NS</b>	<b>Read only</b>	0x01	WM_OFF	Device off	0x02	WM_SUMMER	Summer mode (ventilation)	0x03	WM_WINTER_THERMO	Winter mode (heating), thermostatic mode	0x04	WM_WINTER_CONT	Winter mode (heating), continuous mode
Value	Work state	Description																		
<b>0x00</b>	<b>WM_NS</b>	<b>Read only</b>																		
0x01	WM_OFF	Device off																		
0x02	WM_SUMMER	Summer mode (ventilation)																		
0x03	WM_WINTER_THERMO	Winter mode (heating), thermostatic mode																		
0x04	WM_WINTER_CONT	Winter mode (heating), continuous mode																		
0x05	AntifreezeWareHouseOn	<p>Enables/disables warehouse antifreeze mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ON</td> <td>Enable</td> </tr> <tr> <td><b>0x02</b></td> <td><b>OFF</b></td> <td><b>Disable</b></td> </tr> </tbody> </table>	Value	Name	Description	0x01	ON	Enable	<b>0x02</b>	<b>OFF</b>	<b>Disable</b>									
Value	Name	Description																		
0x01	ON	Enable																		
<b>0x02</b>	<b>OFF</b>	<b>Disable</b>																		
0x06	AntifreezeWareHouseTempRef	<p>Target temperature to enable warehouse antifreeze.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td><b>100</b></td> <td><b>10,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal value	<b>100</b>	<b>10,0</b>	<b>Default value</b>	150	15,0	Maximal value						
Value	Temperature [C]	Description																		
50	5,0	Minimal value																		
<b>100</b>	<b>10,0</b>	<b>Default value</b>																		
150	15,0	Maximal value																		
0x07	DamperForceMode	<p>Damper forcing mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>DAMPER_FMD_NS</td> <td>Read only</td> </tr> <tr> <td><b>0x01</b></td> <td><b>DAMPER_FMD_OFF</b></td> <td><b>Forcing mode off</b></td> </tr> <tr> <td>0x02</td> <td>DAMPER_FMD_ON</td> <td>                     Depends on air draw temperature:  <i>if (T1 &lt; DamperForceTempRef)</i>                      {                        <i>DamperLevelRef = DamperForceRef;</i>                      }                 </td> </tr> </tbody> </table>	Value	Name	Description	0x00	DAMPER_FMD_NS	Read only	<b>0x01</b>	<b>DAMPER_FMD_OFF</b>	<b>Forcing mode off</b>	0x02	DAMPER_FMD_ON	Depends on air draw temperature: <i>if (T1 &lt; DamperForceTempRef)</i> { <i>DamperLevelRef = DamperForceRef;</i> }						
Value	Name	Description																		
0x00	DAMPER_FMD_NS	Read only																		
<b>0x01</b>	<b>DAMPER_FMD_OFF</b>	<b>Forcing mode off</b>																		
0x02	DAMPER_FMD_ON	Depends on air draw temperature: <i>if (T1 &lt; DamperForceTempRef)</i> { <i>DamperLevelRef = DamperForceRef;</i> }																		
0x08	DamperForceTempRef  Data type: Signed Int16	<p>Target temperature to force damper (work mode DamperForceMode == DAMPER_FMD_ON).                      Combined with T1 (fresh air temperature - <i>Input Register 0x04</i>).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>-10,0</td> <td>Minimal value</td> </tr> <tr> <td><b>0</b></td> <td><b>0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-100	-10,0	Minimal value	<b>0</b>	<b>0</b>	<b>Default value</b>	150	15,0	Maximal value						
Value	Temperature [C]	Description																		
-100	-10,0	Minimal value																		
<b>0</b>	<b>0</b>	<b>Default value</b>																		
150	15,0	Maximal value																		

0x09	DamperForceLevelRef	<p>Target temperature value to open damper. (work mode DamperMode == DAMPER_FMD_ON) condition: Temp &lt; DamperForceTempRef</p> <table border="1" data-bbox="511 226 1089 373"> <thead> <tr> <th>Value</th> <th>Damper airflow regulation [%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>10</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Damper airflow regulation [%]	Description	0	0	Minimal value	100	10	Maximal value			
Value	Damper airflow regulation [%]	Description												
0	0	Minimal value												
100	10	Maximal value												
0x0A	DamperLevelRef	<p>Damper position.</p> <table border="1" data-bbox="511 464 792 604"> <thead> <tr> <th>Value[%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value[%]	Description	0	Minimal value	100	Maximal value						
Value[%]	Description													
0	Minimal value													
100	Maximal value													
0x0B	DamperContLevelRef	<p>Damper position when: WorkMode == WM_WINTER_CONT.</p> <table border="1" data-bbox="511 741 792 882"> <thead> <tr> <th>Value[%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value[%]	Description	0	Minimal value	100	Maximal value						
Value[%]	Description													
0	Minimal value													
100	Maximal value													
0x0C	GasAlarmReset	<p>Robur gas/flame alarm reset.</p> <table border="1" data-bbox="511 972 1037 1163"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>RO</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>Sending reset signal (continuously)</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>Stop sending reset signal</td> </tr> </tbody> </table> <p>Note: default reset time should not exceed 5 seconds (change the register to 0x02 afterwards).</p>	Value	Name	Description	0x00	RO	Read only	0x01	ON	Sending reset signal (continuously)	0x02	OFF	Stop sending reset signal
Value	Name	Description												
0x00	RO	Read only												
0x01	ON	Sending reset signal (continuously)												
0x02	OFF	Stop sending reset signal												
0x0D	FanRoofForceEffRef	<p><i>Forcing fan roof ventilator speed (efficiency will be increased by FanRoofForceEffRef).</i></p> <table border="1" data-bbox="511 1276 792 1472"> <thead> <tr> <th>Value[%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>Minimal value</td> </tr> <tr> <td>0</td> <td>Default value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value[%]	Description	-100	Minimal value	0	Default value	100	Maximal value				
Value[%]	Description													
-100	Minimal value													
0	Default value													
100	Maximal value													
0x0E	Tref	<p>Target temperature.</p> <table border="1" data-bbox="511 1560 950 1751"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>250</td> <td>25,0</td> <td>Default value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal value	250	25,0	Default value	450	45,0	Maximal value
Value	Temperature [C]	Description												
50	5,0	Minimal value												
250	25,0	Default value												
450	45,0	Maximal value												
0x0F	TLeadVal	<p>Lead temperature sensor value.</p> <table border="1" data-bbox="511 1871 950 1965"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-600</td> <td>-60,0</td> <td>Minimal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-600	-60,0	Minimal value						
Value	Temperature [C]	Description												
-600	-60,0	Minimal value												

 Data type: Signed Int16

		600	60,0	Maximal value
0x10	TleadSensorSelect	Lead sensor select.		
		<b>Value</b>	<b>Name</b>	<b>Description</b>
		0x00	TSL_TNS	Read only
		0x01	TSL_TLEAD	Temperature value transmitted via Modbus
		<b>0x03</b>	<b>TSL_T4</b>	<b>Temperature measured by T4 sensor (room temperature)</b>
0x11	FanRoofMode	Fan roof work mode.		
		<b>Value</b>	<b>Name</b>	<b>Description</b>
		0x00	FR_MD_NS	Ready only
		<b>0x01</b>	<b>FR_MD_01</b>	<b>Depends on damper position (DamperLevelRef) and fan efficiency settings (FanEffRef)</b>
		0x02	FR_MD_02	Depends on damper position (DamperLevelRef)
0x12	STBTemperatureAlarmOn	Target temperature to invoke STB alarm state ( <i>Inpur Register 0x12</i> ). <i>Alarm occurs when set value is greater then T3 (Input Register 0x05)</i>  Default value ensures error occurrence before real STB Robur alarm (which needs manual reset from heater control box).		
		<b>Value</b>	<b>Temperature [C]</b>	<b>Description</b>
		810	81,0	Minimal value
		<b>900</b>	<b>90,0</b>	<b>Default value</b>
		1200	120,0	Maximal value
0x13	FilterTimeCntRst	Filter time reset.		
		<b>Value</b>	<b>Name</b>	<b>Description</b>
		<b>0x00</b>	<b>FLT_CNT_RST_NS</b>	<b>Read only - set after filter reset</b>
		0x01	FLT_CNT_RST	Filter time reset. (FilterWorkTime in Input Registers is set to 0)
0x14	STBTemperatureAlarmOff	Target temperature to reset STB alarm state ( <i>Holding Register 0x0C</i> ). Reset is possible If set value is greater then T3 ( <i>Input Register 0x05</i> ).		
		<b>Value</b>	<b>Temperature [C]</b>	<b>Description</b>
		610	61,0	Minimal value
		<b>800</b>	<b>80,0</b>	<b>Maximal value</b>
		Additional condition: STB_T_OFF < STB_T_REF		
0x15	STBAlarmReset	STB Alarm reset.		
		<b>Value</b>	<b>Name</b>	<b>Description</b>
		0x01	ON	Reset alarm on

<b>0x02</b>	<b>OFF</b>	<b>Reset alarm off</b>
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If  $STB\_T < STB\_T\_OFF$  register will be set to 0x02 (OFF)


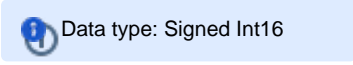
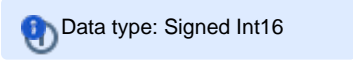
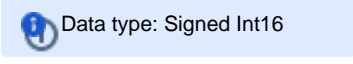
$STB\_T$  - T3 (*Input Register 0x03*)

$STB\_T\_OFF$  - STBTemperatureAlarmOff (*Holding Register 0x14*)

Input Registers DRV-R KM

**DATA:**

(READ ONLY)

Address	Parameter	Description															
0x04	T1 	Temperature measured by T1 sensor (fresh air temperature). <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature [C]	Description															
-500	-50,0	Minimal value															
1000	100,0	Maximal value															
0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x05	T3 	Temperature measured by T3 sensor (air extraction temperature). <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature [C]	Description															
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0x06	T4 	Temperature measured by T4 sensor (room temperature). <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature [C]	Description															
-500	-50,0	Minimal value															
1000	100,0	Maximal value															
0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x07	T5 	Temperature measured by T5 sensor (not used in Robur devices). <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature [C]	Description															
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1000	100,0	Maximal value															
0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x08	ExternalGasDetectTH1	External gas detector signal - first threshold. <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Value	Temperature [C]	Description												
Value	Temperature [C]	Description															

		<table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Gas concentration below threshold</td> </tr> <tr> <td>0x01</td> <td>Gas concentration exceeds threshold</td> </tr> </tbody> </table>	Value	Description	0x00	Gas concentration below threshold	0x01	Gas concentration exceeds threshold
Value	Description							
0x00	Gas concentration below threshold							
0x01	Gas concentration exceeds threshold							
0x09	ExternalGasDetectTH2	<p>External gas detector signal - second threshold.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Gas concentration below threshold</td> </tr> <tr> <td>0x01</td> <td>Gas concentration exceeds threshold</td> </tr> </tbody> </table>	Value	Description	0x00	Gas concentration below threshold	0x01	Gas concentration exceeds threshold
Value	Description							
0x00	Gas concentration below threshold							
0x01	Gas concentration exceeds threshold							
0x0A	ExternalGasDetectVal	Gas concentration value - 0-10V DC input (gas detector scaling information required).						
0x0B	FanRoofTK	<p>Thermocontact signal from fan roof.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Temperature below safe limit</td> </tr> <tr> <td>0x02</td> <td>Temperature above safe limit</td> </tr> </tbody> </table>	Value	Description	0x01	Temperature below safe limit	0x02	Temperature above safe limit
Value	Description							
0x01	Temperature below safe limit							
0x02	Temperature above safe limit							
0x0C	FanRoofEff	<p>Roof fan efficiency.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value	100	Maximal value
Value	Description							
0	Minimal value							
100	Maximal value							
0x0D	DamperLevel	<p>Damper position.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value	100	Maximal value
Value	Description							
0	Minimal value							
100	Maximal value							
0x0E	DamperForceState	<p><i>Forcing state for damper in mode DamperForceMode == DAMPER_FMD_ON</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>T4 &gt;= DamperForceTempRef</td> </tr> <tr> <td>0x02</td> <td>T4 &lt; DamperForceTempRef</td> </tr> </tbody> </table>	Value	Condition	0x01	T4 >= DamperForceTempRef	0x02	T4 < DamperForceTempRef
Value	Condition							
0x01	T4 >= DamperForceTempRef							
0x02	T4 < DamperForceTempRef							
0x0F	AntifreezeStateWarehouse	<p>Information about warehouse antifreeze state.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Normal work mode</td> </tr> <tr> <td>0x02</td> <td>Antifreeze enabled (user parameters overwritten)</td> </tr> </tbody> </table>	Value	Description	0x01	Normal work mode	0x02	Antifreeze enabled (user parameters overwritten)
Value	Description							
0x01	Normal work mode							
0x02	Antifreeze enabled (user parameters overwritten)							
0x10	FuseState	<p>Fan roof fuse state.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> </tbody> </table>	Value	Description				
Value	Description							

		<table border="1"> <tr> <td>0x00</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>Fuse state - working</td> </tr> <tr> <td>0x02</td> <td>Fuse state - blown</td> </tr> </table>	0x00	Read only	0x01	Fuse state - working	0x02	Fuse state - blown						
0x00	Read only													
0x01	Fuse state - working													
0x02	Fuse state - blown													
0x11	GasAlarmState	<p>Robur alarm (gas/flame). Read from clamp no.6 (connection terminal inside Robur heater).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ON</td> <td>Alarm dected</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>No alarm</td> </tr> </tbody> </table>	Value	Name	Description	0x01	ON	Alarm dected	0x02	OFF	No alarm			
Value	Name	Description												
0x01	ON	Alarm dected												
0x02	OFF	No alarm												
0x12	STBAlarmState	<p>Air extraction temperature alarm (STB).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>NC</td> <td>PT1000 sensor not connected</td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>STB alarm detected ( <math>T3 \geq T\_STB\_REF</math> )</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>STB alarm not detected ( <math>T3 \leq (T\_STB\_REF - 1 [K])</math> )</td> </tr> </tbody> </table>	Value	Name	Description	0x00	NC	PT1000 sensor not connected	0x01	ON	STB alarm detected ( $T3 \geq T\_STB\_REF$ )	0x02	OFF	STB alarm not detected ( $T3 \leq (T\_STB\_REF - 1 [K])$ )
Value	Name	Description												
0x00	NC	PT1000 sensor not connected												
0x01	ON	STB alarm detected ( $T3 \geq T\_STB\_REF$ )												
0x02	OFF	STB alarm not detected ( $T3 \leq (T\_STB\_REF - 1 [K])$ )												
0x13	FilterWorkTime	<p>Filter work time.</p> <p><math>FilterWorkTime = 5 * FilterWorkTime</math> (min)</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work time (min)</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>65535</td> <td>5*65535</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Work time (min)	Description	0	0	Minimal value	65535	5*65535	Maximal Value			
Value	Work time (min)	Description												
0	0	Minimal value												
65535	5*65535	Maximal Value												

## DRV-EL

Chapter includes BMS information about electric heaters from LEO EL family in single mode.

**Quick Start in single mode:**

Mode	Address (HR)	Name	Set value	Description
<b>Ventilation</b>	0x04	WorkMode	0x04	Device starts ventilating (fan efficiency - low).
	0x07	FanEffRef	33	Check temperature sensors, fuse, thermostat otherwise.
<b>Manual Heating</b>	0x04	WorkMode	0x03	Device starts heating (fan efficiency - low,
	0x07	FanEffRef	33	heating - first power setting) target temperature
	0x08	Tref	400	to attain 40°C.
	0x0F	ElectricHeaterPTCPower	0x02	Check temperature sensors, fuse, thermostat otherwise.

**Single mode using T-BOX as a gate:**

DRV-EL 12 (physical address set on a PCB board)

Address shift for device no. 12 -> 0x03C0 (*Input Register 0x1C* from System settings - *\_Input Registers*)


Mode	Shifted address	Set value
<b>Ventilation</b>	0x03C4 (0x04+0x03C0)	0x04
	0x03C7 (0x07+0x03C0)	33



**Holding Register DRV-EL**

Data:

Address	Name	Description																					
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x00</b></td> <td><b>WM_TS</b></td> <td><b>TS</b></td> </tr> <tr> <td>0x01</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>0x02</td> <td>WM_AUTO</td> <td>Automatic mode</td> </tr> <tr> <td>0x03</td> <td>WM_HEAT</td> <td>Manual heating</td> </tr> <tr> <td>0x04</td> <td>WM_VENT</td> <td>Ventilation</td> </tr> <tr> <td>0x05</td> <td>WM_RAW</td> <td>Raw. <i>Not used.</i></td> </tr> </tbody> </table>	Value	Work status	Description	<b>0x00</b>	<b>WM_TS</b>	<b>TS</b>	0x01	WM_OFF	Device off	0x02	WM_AUTO	Automatic mode	0x03	WM_HEAT	Manual heating	0x04	WM_VENT	Ventilation	0x05	WM_RAW	Raw. <i>Not used.</i>
Value	Work status	Description																					
<b>0x00</b>	<b>WM_TS</b>	<b>TS</b>																					
0x01	WM_OFF	Device off																					
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0x03	WM_HEAT	Manual heating																					
0x04	WM_VENT	Ventilation																					
0x05	WM_RAW	Raw. <i>Not used.</i>																					
0x05	AntifreezeWareHouseOn	<p>Antifreeze work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>WM_ON</td> <td>ON</td> </tr> <tr> <td><b>0x02</b></td> <td><b>WM_OFF</b></td> <td><b>OFF</b></td> </tr> </tbody> </table>	Value	Name	Description	0x01	WM_ON	ON	<b>0x02</b>	<b>WM_OFF</b>	<b>OFF</b>												
Value	Name	Description																					
0x01	WM_ON	ON																					
<b>0x02</b>	<b>WM_OFF</b>	<b>OFF</b>																					
0x06	AntifreezeWareHouseTempRef	<p>Target temperature to enable antifreeze.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td><b>100</b></td> <td><b>10,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal value	<b>100</b>	<b>10,0</b>	<b>Default value</b>	150	15,0	Maximal value									
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0x07	FanEffRef	<p>Fan efficiency setting.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step						
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0x08	Tref	<p>Target temperature.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td><b>250</b></td> <td><b>25,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal value	<b>250</b>	<b>25,0</b>	<b>Default value</b>	450	45,0	Maximal value									
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<b>250</b>	<b>25,0</b>	<b>Default value</b>																					
450	45,0	Maximal value																					
0x09	TLeadVal	<p>Lead temperature sensor value.</p>																					

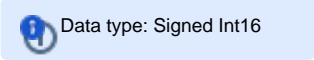
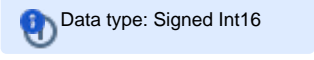
	 Data type: Signed Int16	<table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-600</td> <td>-60,0</td> <td>Minimal value</td> </tr> <tr> <td>600</td> <td>60,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-600	-60,0	Minimal value	600	60,0	Maximal value											
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0x0A	TleadSensorSelect	Lead sensor select. <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>TSL_TNS</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>TSL_TLEAD</td> <td>Temperature value transmitted via Modbus</td> </tr> <tr> <td><b>0x03</b></td> <td><b>TSL_T4</b></td> <td><b>Temperature measured by T4 sensor (room temperature)</b></td> </tr> </tbody> </table>	Value	Name	Description	0x00	TSL_TNS	Read only	0x01	TSL_TLEAD	Temperature value transmitted via Modbus	<b>0x03</b>	<b>TSL_T4</b>	<b>Temperature measured by T4 sensor (room temperature)</b>								
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<b>0x03</b>	<b>TSL_T4</b>	<b>Temperature measured by T4 sensor (room temperature)</b>																				
0x0B	DestModeForce	Forcing destratification mode for destratificator. <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [K]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x01</b></td> <td><b>DEST_MDF_OFF</b></td> <td><b>Turn off</b></td> </tr> <tr> <td>0x02</td> <td>DEST_MDF_ON</td> <td>Turn on</td> </tr> </tbody> </table>	Value	Temperature [K]	Description	<b>0x01</b>	<b>DEST_MDF_OFF</b>	<b>Turn off</b>	0x02	DEST_MDF_ON	Turn on											
Value	Temperature [K]	Description																				
<b>0x01</b>	<b>DEST_MDF_OFF</b>	<b>Turn off</b>																				
0x02	DEST_MDF_ON	Turn on																				
0x0C	DestMode	Destratification work mode. <table border="1"> <thead> <tr> <th>Value</th> <th>Destratification work mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>1</b></td> <td><b>DEST_MD_OFF</b></td> <td><b>Off</b></td> </tr> <tr> <td>2</td> <td>DEST_MD_AUTO_DEPEND</td> <td>Work mode AUTO</td> </tr> <tr> <td>3</td> <td>DEST_MD_AUTO_INDEPEND</td> <td>Work mode AUTO</td> </tr> </tbody> </table>	Value	Destratification work mode	Description	<b>1</b>	<b>DEST_MD_OFF</b>	<b>Off</b>	2	DEST_MD_AUTO_DEPEND	Work mode AUTO	3	DEST_MD_AUTO_INDEPEND	Work mode AUTO								
Value	Destratification work mode	Description																				
<b>1</b>	<b>DEST_MD_OFF</b>	<b>Off</b>																				
2	DEST_MD_AUTO_DEPEND	Work mode AUTO																				
3	DEST_MD_AUTO_INDEPEND	Work mode AUTO																				
0x0D	DestTempRef	Target value for lanching desertification mode. <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [K]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0,0</td> <td>Minimal value</td> </tr> <tr> <td><b>50</b></td> <td><b>5,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>100</td> <td>10,0</td> <td>Maximal value</td> </tr> </tbody> </table> <p>Condition:</p> $DestTempRef > Td - Tm$ <p><i>Td</i> – temperature value measured near desertificator (T3 sensor).</p> <p><i>Tm</i> – temperature value measured in the room (TLeadVal or T4 - depends on the <i>TleadSensorSelect</i> register value).</p>	Value	Temperature [K]	Description	0	0,0	Minimal value	<b>50</b>	<b>5,0</b>	<b>Default value</b>	100	10,0	Maximal value								
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<b>50</b>	<b>5,0</b>	<b>Default value</b>																				
100	10,0	Maximal value																				
0x0E	DestStratTimeDelay	Not in use.																				
0x0F	ElectricHeaterPTCPower	Electric heater power for LEO EL L in manual heating work mode. (SW3.5 = K1) <table border="1"> <thead> <tr> <th>Value</th> <th>L2 State</th> <th>L1 State</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x01</b></td> <td><b>OFF</b></td> <td><b>OFF</b></td> <td><b>Off</b></td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>ON</td> <td>1 heat setting</td> </tr> <tr> <td>0x03</td> <td>ON</td> <td>OFF</td> <td>2 heat setting</td> </tr> <tr> <td>0x04</td> <td>ON</td> <td>ON</td> <td>3 heat setting</td> </tr> </tbody> </table> <p>Electric heater power for LEO EL S in manual heating work mode.</p>	Value	L2 State	L1 State	Description	<b>0x01</b>	<b>OFF</b>	<b>OFF</b>	<b>Off</b>	0x02	OFF	ON	1 heat setting	0x03	ON	OFF	2 heat setting	0x04	ON	ON	3 heat setting
Value	L2 State	L1 State	Description																			
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		(SW3.5 = K2)																				
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Value	L2 State	L1 State	Description																			
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0x03	ON	ON	2 heat setting																			
0x04	ON	ON	2 heat setting																			
0x10	ModeAuto_FanEffRef	<p>Fan efficiency after attaining target temperature in AUTO mode.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>FAN_SPEED0</td> <td>Fan off</td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	FAN_SPEED0	Fan off	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step					
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0x11	ModeManual_FanEffRef	<p>Fan efficiency after attaining target temperature in MANUAL mode</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>FAN_SPEED0</td> <td>Fan off</td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	FAN_SPEED0	Fan off	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step					
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**Inpur Register DRV-EL**

(READ ONLY)

Data:

Address	Name	Description															
0x04	T3 	<p>Temperature measured by T3 sensor (air near the ceiling).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature [C]	Description															
-500	-50,0	Minimal value															
1000	100,0	Maximal value															
0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x05	T4 	<p>Temperature measured by T4 sensor (room temperature).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
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0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x06	FanEff	<p>Fan efficiency.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td><i>FAN_SPEED0</i></td> <td><i>Fan off</i></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	<i>FAN_SPEED0</i>	<i>Fan off</i>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
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1..33	FAN_SPEED1	First step															
34..66	FAN_SPEED2	Second step															
67..100	FAN_SPEED3	Third step															
0x07	AntifreezeState	<p>Information about antifreeze.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Normal work mode.</td> </tr> <tr> <td>0x02</td> <td>Antifreeze enabled (user parameters overwritten).</td> </tr> </tbody> </table>	Value	Description	0x01	Normal work mode.	0x02	Antifreeze enabled (user parameters overwritten).									
Value	Description																
0x01	Normal work mode.																
0x02	Antifreeze enabled (user parameters overwritten).																
0x08	DestStatus	<p>Destratification status:</p> <p>(destDtemp &gt; Td - Tm) and (Tz &gt; Tm)</p> <p>Tz-room setting temp. (value from Tref register)</p> <p>Td-temp. measured at destratificator (temp. value from T3 sensor)</p> <p>Tm-temp. measured into room (value from TLeadVal or T4 - depending on settings in TleadSensorSelect register)</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Condition (destDtemp &gt; Td - Tm) and (Tz &gt; Tm) not fulfilled</td> </tr> <tr> <td>0x02</td> <td>Condition (destDtemp &gt; Td - Tm) and (Tz &gt; Tm) fulfilled</td> </tr> </tbody> </table>	Value	Description	0x01	Condition (destDtemp > Td - Tm) and (Tz > Tm) not fulfilled	0x02	Condition (destDtemp > Td - Tm) and (Tz > Tm) fulfilled									
Value	Description																
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0x09	ThermalContactState	<p>Thermal contact state.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Overheat alarm</td> </tr> <tr> <td>0x02</td> <td>Normal work</td> </tr> </tbody> </table> <p>IF 0x09 = 0x01 user parameters are overwritten:</p> <ul style="list-style-type: none"> <li>• <i>HR 0x07 FanEffRef = 100</i></li> <li>• <i>HR 0x0F ElectricHeaterPTCPower = 0</i></li> </ul> <p>Overwrite discontinues when temperature inside the heater drops below safe limits.</p>	Value	Description	0x01	Overheat alarm	0x02	Normal work																																		
Value	Description																																									
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0x0A	FuseState	<p>Fuse state for EC/3V/Roof fans, information can be read from 4 bits.</p> <table border="1"> <thead> <tr> <th>Bit</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>3..0</td> <td>Roof fan</td> </tr> <tr> <td>4..7</td> <td>EC fan</td> </tr> <tr> <td>8..11</td> <td>3V fan</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>Fuse state - working</td> </tr> <tr> <td>0x02</td> <td>Fuse state - blown</td> </tr> </tbody> </table> <p>Example:</p> <p>Fuse state 3V fan: working (0x1) Register value: 0x100</p> <p>Fuse state 3V fan: blown (0x2) Register value: 0x200</p>	Bit	Description	3..0	Roof fan	4..7	EC fan	8..11	3V fan	Value	Description	0x00	Read only	0x01	Fuse state - working	0x02	Fuse state - blown																								
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0x0B	PTCHeaterPowerState	<p>Electric heater power for LEO EL L in manual heating work mode. (SW3.5 = K1)</p> <table border="1"> <thead> <tr> <th>Value</th> <th>L2 State</th> <th>L1 State</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x01</b></td> <td><b>OFF</b></td> <td><b>OFF</b></td> <td><b>Off</b></td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>ON</td> <td>1 heat setting</td> </tr> <tr> <td>0x03</td> <td>ON</td> <td>OFF</td> <td>2 heat setting</td> </tr> <tr> <td>0x04</td> <td>ON</td> <td>ON</td> <td>3 heat setting</td> </tr> </tbody> </table> <p>Electric heater power for LEO EL S in manual heating work mode. (SW3.5 = K2)</p> <table border="1"> <thead> <tr> <th>Value</th> <th>L2 State</th> <th>L1 State</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x01</b></td> <td><b>OFF</b></td> <td><b>OFF</b></td> <td><b>Off</b></td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>ON</td> <td>1 heat setting</td> </tr> <tr> <td>0x03</td> <td>ON</td> <td>ON</td> <td>2 heat setting</td> </tr> <tr> <td>0x04</td> <td>ON</td> <td>ON</td> <td>2 heat setting</td> </tr> </tbody> </table>	Value	L2 State	L1 State	Description	<b>0x01</b>	<b>OFF</b>	<b>OFF</b>	<b>Off</b>	0x02	OFF	ON	1 heat setting	0x03	ON	OFF	2 heat setting	0x04	ON	ON	3 heat setting	Value	L2 State	L1 State	Description	<b>0x01</b>	<b>OFF</b>	<b>OFF</b>	<b>Off</b>	0x02	OFF	ON	1 heat setting	0x03	ON	ON	2 heat setting	0x04	ON	ON	2 heat setting
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0x04	ON	ON	2 heat setting																																							
0x0C	ElectricHeaterType	<p>Electric heater type.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> <th>SW3.5 position</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>2 heat steps (LEO EL S)</td> <td>K2</td> </tr> </tbody> </table>	Value	Description	SW3.5 position	0x01	2 heat steps (LEO EL S)	K2																																		
Value	Description	SW3.5 position																																								
0x01	2 heat steps (LEO EL S)	K2																																								

0x02	3 heat steps (LEO EL L)	K1
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SW3.5 - 5th pole of dip switch no. 3 (SW3 on PCB Board). Factory set compatible with device.

## DRV-R NEXT

Chapter includes BMS information about gas heaters units from ROBUR NEXT R family in single mode.

### Quick Start in single mode:

Mode	Address (HR)	Name	Set value	Description
Ventilation (summer)	0x04	WorkMode	0x02	Device starts ventilating. Check temperature sensors, fuse otherwise.
	0x0E	Tref	400	Check temperature sensors, fuse, thermostat, STB alarm otherwise.
Heating mode (winter)	0x04	WorkMode	0x03	Device starts heating, target temperature to attain 40°C.
	0x0E	Tref	400	Check temperature sensors, fuse, thermostat, STB alarm otherwise.

### Single mode using T-BOX as a gate:

DRV-R 10 (physical address set on a PCB board)


Address shift for device no. 10 -> 0x03C0 (*Input Register 0x1A* from System settings - *\_Input Registers*)

Mode	Shifted address	Set value
Ventilation	0x0344 (0x04+0x0340)	0x02

Holding Registers DRV-R NEXT

DATA:

Address	Parameter	Description																		
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x00</b></td> <td><b>WM_NS</b></td> <td><b>Read only</b></td> </tr> <tr> <td>0x01</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>0x02</td> <td>WM_HEAT_AUTO</td> <td>Automatic heating</td> </tr> <tr> <td>0x03</td> <td>WM_HEAT_MANUAL</td> <td>Manual heating</td> </tr> <tr> <td>0x04</td> <td>WM_VENTILATION</td> <td>Ventilation</td> </tr> </tbody> </table>	Value	Work state	Description	<b>0x00</b>	<b>WM_NS</b>	<b>Read only</b>	0x01	WM_OFF	Device off	0x02	WM_HEAT_AUTO	Automatic heating	0x03	WM_HEAT_MANUAL	Manual heating	0x04	WM_VENTILATION	Ventilation
Value	Work state	Description																		
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0x03	WM_HEAT_MANUAL	Manual heating																		
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0x05	AntifreezeWareHouseOn	<p>Enables/disables warehouse antifreeze mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ON</td> <td>Enable</td> </tr> <tr> <td><b>0x02</b></td> <td><b>OFF</b></td> <td><b>Disable</b></td> </tr> </tbody> </table>	Value	Name	Description	0x01	ON	Enable	<b>0x02</b>	<b>OFF</b>	<b>Disable</b>									
Value	Name	Description																		
0x01	ON	Enable																		
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0x06	AntifreezeWareHouseTempRef	<p>Target temperature to enable warehouse antifreeze.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td><b>100</b></td> <td><b>10,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal value	<b>100</b>	<b>10,0</b>	<b>Default value</b>	150	15,0	Maximal value						
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0x0C	GasAlarmReset	<p>Robur gas/flame alarm reset.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x00</b></td> <td><b>RO</b></td> <td><b>Read only</b></td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>Sending reset signal (continuously)</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>Stop sending reset signal</td> </tr> </tbody> </table> <p>Note: default reset time should not exceed 5 seconds (change the register to 0x02 afterwards).</p>	Value	Name	Description	<b>0x00</b>	<b>RO</b>	<b>Read only</b>	0x01	ON	Sending reset signal (continuously)	0x02	OFF	Stop sending reset signal						
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0x0F	TLeadVal	<p>Lead temperature sensor value.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Value	Temperature [C]	Description															
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 Data type: Signed Int16




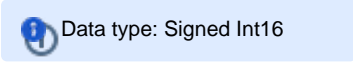
		<table border="1"> <tr> <td>-600</td> <td>-60,0</td> <td>Minimal value</td> </tr> <tr> <td>600</td> <td>60,0</td> <td>Maximal value</td> </tr> </table>	-600	-60,0	Minimal value	600	60,0	Maximal value						
-600	-60,0	Minimal value												
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0x10	TleadSensorSelect	<p>Lead sensor select.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>TSL_TNS</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>TSL_TLEAD</td> <td>Temperature value transmitted via Modbus</td> </tr> <tr> <td><b>0x03</b></td> <td><b>TSL_T4</b></td> <td><b>Temperature measured by T4 sensor (room temperature)</b></td> </tr> </tbody> </table>	Value	Name	Description	0x00	TSL_TNS	Read only	0x01	TSL_TLEAD	Temperature value transmitted via Modbus	<b>0x03</b>	<b>TSL_T4</b>	<b>Temperature measured by T4 sensor (room temperature)</b>
Value	Name	Description												
0x00	TSL_TNS	Read only												
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<b>0x03</b>	<b>TSL_T4</b>	<b>Temperature measured by T4 sensor (room temperature)</b>												
0x12	STBTemperatureAlarmOn	<p>Target temperature to invoke STB alarm state (<i>Input Register 0x12</i>).</p> <p>Alarm occurs when set value is greater than T3 (<i>Input Register 0x05</i>)</p> <p>Default value ensures error occurrence before real STB Robur alarm (which needs manual reset from heater control box).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>810</td> <td>81,0</td> <td>Minimal value</td> </tr> <tr> <td><b>900</b></td> <td><b>90,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>1200</td> <td>120,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	810	81,0	Minimal value	<b>900</b>	<b>90,0</b>	<b>Default value</b>	1200	120,0	Maximal value
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810	81,0	Minimal value												
<b>900</b>	<b>90,0</b>	<b>Default value</b>												
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0x13	FilterTimeCntRst	<p>Filter time reset.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x00</b></td> <td><b>FLT_CNT_RST_NS</b></td> <td><b>Read only - set after filter reset</b></td> </tr> <tr> <td>0x01</td> <td>FLT_CNT_RST</td> <td>Filter time reset. (FilterWorkTime in Input Registers is set to 0)</td> </tr> </tbody> </table>	Value	Name	Description	<b>0x00</b>	<b>FLT_CNT_RST_NS</b>	<b>Read only - set after filter reset</b>	0x01	FLT_CNT_RST	Filter time reset. (FilterWorkTime in Input Registers is set to 0)			
Value	Name	Description												
<b>0x00</b>	<b>FLT_CNT_RST_NS</b>	<b>Read only - set after filter reset</b>												
0x01	FLT_CNT_RST	Filter time reset. (FilterWorkTime in Input Registers is set to 0)												
0x14	STBTemperatureAlarmOff	<p>Target temperature to reset STB alarm state (<i>Holding Register 0x0C</i>).</p> <p>Reset is possible If set value is greater than T3 (<i>Input Register 0x05</i>).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>610</td> <td>61,0</td> <td>Minimal value</td> </tr> <tr> <td><b>800</b></td> <td><b>80,0</b></td> <td><b>Maximal value</b></td> </tr> </tbody> </table> <p>Additional condition: STB_T_OFF &lt; STB_T_REF</p>	Value	Temperature [C]	Description	610	61,0	Minimal value	<b>800</b>	<b>80,0</b>	<b>Maximal value</b>			
Value	Temperature [C]	Description												
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0x15	STBAlarmReset	<p>STB Alarm reset.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ON</td> <td>Reset alarm on</td> </tr> <tr> <td><b>0x02</b></td> <td><b>OFF</b></td> <td><b>Reset alarm off</b></td> </tr> </tbody> </table> <p>If STB_T &lt; STB_T_OFF register will be set to 0x02 (OFF)</p> <p>STB_T - T3 (<i>Input Register 0x03</i>)</p> <p>STB_T_OFF - STBTemperatureAlarmOff (<i>Holding Register 0x14</i>)</p>	Value	Name	Description	0x01	ON	Reset alarm on	<b>0x02</b>	<b>OFF</b>	<b>Reset alarm off</b>			
Value	Name	Description												
0x01	ON	Reset alarm on												
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0x16	ContModeFanSpeedRef	<p>Fan efficiency setting after attaining target temperature.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Value	Description										
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		<table border="1"> <tr> <td>100</td> <td>Fan ON</td> </tr> <tr> <td>0</td> <td>Fan OFF</td> </tr> </table>	100	Fan ON	0	Fan OFF				
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0	Fan OFF									
0x17	GasBurnerLvlRef	<p>Gas burning setting (valid for manual heating).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Read Only</td> </tr> <tr> <td><b>0x01</b></td> <td><b>First step</b></td> </tr> <tr> <td>0x02</td> <td>Second step</td> </tr> </tbody> </table>	Value	Description	0x00	Read Only	<b>0x01</b>	<b>First step</b>	0x02	Second step
Value	Description									
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Input Registers DRV-R NEXT

**DATA:**

(READ ONLY)

Address	Parameter	Description															
0x05	T3  	Temperature measured by T3 sensor (air extraction temperature).  <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
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0x06	T4  	Temperature measured by T4 sensor (room temperature).  <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
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0x7FFF	-	PT1000 sensor not connected															
0x08	ExternalGasDetectTH1	External gas detector signal - first threshold.  <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Gas concentration below threshold</td> </tr> <tr> <td>0x01</td> <td>Gas concentration exceeds threshold</td> </tr> </tbody> </table>	Value	Description	0x00	Gas concentration below threshold	0x01	Gas concentration exceeds threshold									
Value	Description																
0x00	Gas concentration below threshold																
0x01	Gas concentration exceeds threshold																
0x09	ExternalGasDetectTH2	External gas detector signal - second threshold.  <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Gas concentration below threshold</td> </tr> <tr> <td>0x01</td> <td>Gas concentration exceeds threshold</td> </tr> </tbody> </table>	Value	Description	0x00	Gas concentration below threshold	0x01	Gas concentration exceeds threshold									
Value	Description																
0x00	Gas concentration below threshold																
0x01	Gas concentration exceeds threshold																
0x0A	ExternalGasDetectVal	Gas concentration value - 0-10V DC input (gas detector scaling information required).															
0x0F	AntifreezeStateWarehouse	Information about warehouse antifreeze state.  <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Normal work mode</td> </tr> <tr> <td>0x02</td> <td>Antifreeze enabled (user parameters overwritten)</td> </tr> </tbody> </table>	Value	Description	0x01	Normal work mode	0x02	Antifreeze enabled (user parameters overwritten)									
Value	Description																
0x01	Normal work mode																
0x02	Antifreeze enabled (user parameters overwritten)																
0x10	FuseState	Fan roof fuse state.															

		<table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>Fuse state - working</td> </tr> <tr> <td>0x02</td> <td>Fuse state - blown</td> </tr> </tbody> </table>	Value	Description	0x00	Read only	0x01	Fuse state - working	0x02	Fuse state - blown				
Value	Description													
0x00	Read only													
0x01	Fuse state - working													
0x02	Fuse state - blown													
0x11	GasAlarmState	<p>Robur alarm (gas/flame). Read from clamp no.6 (connection terminal inside Robur heater).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ON</td> <td>Alarm detected</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>No alarm</td> </tr> </tbody> </table>	Value	Name	Description	0x01	ON	Alarm detected	0x02	OFF	No alarm			
Value	Name	Description												
0x01	ON	Alarm detected												
0x02	OFF	No alarm												
0x12	STBAlarmState	<p>Air extraction temperature alarm (STB).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>NC</td> <td>PT1000 sensor not connected</td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>STB alarm detected ( <math>T3 \geq T\_STB\_REF</math> )</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>STB alarm not detected ( <math>T3 \leq (T\_STB\_REF - 1 [K])</math> )</td> </tr> </tbody> </table>	Value	Name	Description	0x00	NC	PT1000 sensor not connected	0x01	ON	STB alarm detected ( $T3 \geq T\_STB\_REF$ )	0x02	OFF	STB alarm not detected ( $T3 \leq (T\_STB\_REF - 1 [K])$ )
Value	Name	Description												
0x00	NC	PT1000 sensor not connected												
0x01	ON	STB alarm detected ( $T3 \geq T\_STB\_REF$ )												
0x02	OFF	STB alarm not detected ( $T3 \leq (T\_STB\_REF - 1 [K])$ )												
0x13	FilterWorkTime	<p>Filter work time.</p> <p><math>FilterWorkTime = 5 * FilterWorkTime (min)</math></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work time (min)</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>65535</td> <td>5*65535</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Work time (min)	Description	0	0	Minimal value	65535	5*65535	Maximal Value			
Value	Work time (min)	Description												
0	0	Minimal value												
65535	5*65535	Maximal Value												

## DRV-R KM NEXT

Chapter includes BMS information about robur mixing chambers units from ROBUR NEXT R family in single mode.

**Quick Start in single mode:**

Mode	Address (HR)	Name	Set value	Description
<b>Ventilation (summer)</b>	0x04	WorkMode	0x02	Device starts ventilating. Check temperature sensors, fuse otherwise.
	0x0E	Tref	400	Check temperature sensors, fuse, thermostat, STB alarm otherwise.
<b>Heating mode (winter)</b>	0x04	WorkMode	0x03	Device starts heating, target temperature to attain 40°C.
	0x0E	Tref	400	Check temperature sensors, fuse, thermostat, STB alarm otherwise.

**Single mode using T-BOX as a gate:**


DRV-R KM 10 (physical address set on a PCB board)


Address shift for device no. 10 -> 0x03C0 (*Input Register 0x1A* from System settings - \_Input Registers)

Mode	Shifted address	Set value
<b>Ventilation (summer)</b>	0x0344 (0x04+0x0340)	0x02

Holding Registers DRV-R KM NEXT

DATA:

Address	Parameter	Description																		
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x00</b></td> <td><b>WM_NS</b></td> <td><b>Read only</b></td> </tr> <tr> <td>0x01</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>0x02</td> <td>WM_HEAT_AUTO</td> <td>Automatic heating</td> </tr> <tr> <td>0x03</td> <td>WM_HEAT_MANUAL</td> <td>Manual heating</td> </tr> <tr> <td>0x04</td> <td>WM_VENTILATION</td> <td>Ventilation</td> </tr> </tbody> </table>	Value	Work state	Description	<b>0x00</b>	<b>WM_NS</b>	<b>Read only</b>	0x01	WM_OFF	Device off	0x02	WM_HEAT_AUTO	Automatic heating	0x03	WM_HEAT_MANUAL	Manual heating	0x04	WM_VENTILATION	Ventilation
Value	Work state	Description																		
<b>0x00</b>	<b>WM_NS</b>	<b>Read only</b>																		
0x01	WM_OFF	Device off																		
0x02	WM_HEAT_AUTO	Automatic heating																		
0x03	WM_HEAT_MANUAL	Manual heating																		
0x04	WM_VENTILATION	Ventilation																		
0x05	AntifreezeWareHouseOn	<p>Enables/disables warehouse antifreeze mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ON</td> <td>Enable</td> </tr> <tr> <td><b>0x02</b></td> <td><b>OFF</b></td> <td><b>Disable</b></td> </tr> </tbody> </table>	Value	Name	Description	0x01	ON	Enable	<b>0x02</b>	<b>OFF</b>	<b>Disable</b>									
Value	Name	Description																		
0x01	ON	Enable																		
<b>0x02</b>	<b>OFF</b>	<b>Disable</b>																		
0x06	AntifreezeWareHouseTempRef	<p>Target temperature to enable warehouse antifreeze.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td><b>100</b></td> <td><b>10,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal value	<b>100</b>	<b>10,0</b>	<b>Default value</b>	150	15,0	Maximal value						
Value	Temperature [C]	Description																		
50	5,0	Minimal value																		
<b>100</b>	<b>10,0</b>	<b>Default value</b>																		
150	15,0	Maximal value																		
0x07	DamperForceMode	<p>Damper forcing mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>DAMPER_FMD_NS</td> <td>Read only</td> </tr> <tr> <td><b>0x01</b></td> <td><b>DAMPER_FMD_OFF</b></td> <td><b>Forcing mode off</b></td> </tr> <tr> <td>0x02</td> <td>DAMPER_FMD_ON</td> <td>                     Depends on air draw temperature:  <i>if (T1 &lt; DamperForceTempRef)</i>                      {                        <i>DamperLevelRef = DamperForceRef;</i>                      }                 </td> </tr> </tbody> </table>	Value	Name	Description	0x00	DAMPER_FMD_NS	Read only	<b>0x01</b>	<b>DAMPER_FMD_OFF</b>	<b>Forcing mode off</b>	0x02	DAMPER_FMD_ON	Depends on air draw temperature: <i>if (T1 &lt; DamperForceTempRef)</i> { <i>DamperLevelRef = DamperForceRef;</i> }						
Value	Name	Description																		
0x00	DAMPER_FMD_NS	Read only																		
<b>0x01</b>	<b>DAMPER_FMD_OFF</b>	<b>Forcing mode off</b>																		
0x02	DAMPER_FMD_ON	Depends on air draw temperature: <i>if (T1 &lt; DamperForceTempRef)</i> { <i>DamperLevelRef = DamperForceRef;</i> }																		
0x08	DamperForceTempRef  Data type: Signed Int16	<p>Target temperature to force damper (work mode DamperForceMode == DAMPER_FMD_ON).                      Combined with T1 (fresh air temperature - <i>Input Register 0x04</i>).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>-10,0</td> <td>Minimal value</td> </tr> <tr> <td><b>0</b></td> <td><b>0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-100	-10,0	Minimal value	<b>0</b>	<b>0</b>	<b>Default value</b>	150	15,0	Maximal value						
Value	Temperature [C]	Description																		
-100	-10,0	Minimal value																		
<b>0</b>	<b>0</b>	<b>Default value</b>																		
150	15,0	Maximal value																		

0x09	DamperForceLevelRef	<p>Target temperature value to open damper. (work mode DamperMode == DAMPER_FMD_ON) condition: Temp &lt; DamperForceTempRef</p> <table border="1" data-bbox="511 226 1089 373"> <thead> <tr> <th>Value</th> <th>Damper airflow regulation [%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>10</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Damper airflow regulation [%]	Description	0	0	Minimal value	100	10	Maximal value			
Value	Damper airflow regulation [%]	Description												
0	0	Minimal value												
100	10	Maximal value												
0x0A	DamperLevelRef	<p>Damper position.</p> <table border="1" data-bbox="511 464 792 604"> <thead> <tr> <th>Value[%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value[%]	Description	0	Minimal value	100	Maximal value						
Value[%]	Description													
0	Minimal value													
100	Maximal value													
0x0B	DamperContLevelRef	<p>Damper position when: WorkMode == WM_WINTER_CONT.</p> <table border="1" data-bbox="511 741 792 882"> <thead> <tr> <th>Value[%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value[%]	Description	0	Minimal value	100	Maximal value						
Value[%]	Description													
0	Minimal value													
100	Maximal value													
0x0C	GasAlarmReset	<p>Robur gas/flame alarm reset.</p> <table border="1" data-bbox="511 972 1037 1165"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>RO</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>Sending reset signal (continuously)</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>Stop sending reset signal</td> </tr> </tbody> </table> <p>Note: default reset time should not exceed 5 seconds (change the register to 0x02 afterwards).</p>	Value	Name	Description	0x00	RO	Read only	0x01	ON	Sending reset signal (continuously)	0x02	OFF	Stop sending reset signal
Value	Name	Description												
0x00	RO	Read only												
0x01	ON	Sending reset signal (continuously)												
0x02	OFF	Stop sending reset signal												
0x0D	FanRoofForceEffRef	<p><i>Forcing fan roof ventilator speed (efficiency will be increased by FanRoofForceEffRef).</i></p> <table border="1" data-bbox="511 1276 792 1470"> <thead> <tr> <th>Value[%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>Minimal value</td> </tr> <tr> <td>0</td> <td>Default value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value[%]	Description	-100	Minimal value	0	Default value	100	Maximal value				
Value[%]	Description													
-100	Minimal value													
0	Default value													
100	Maximal value													
0x0E	Tref	<p>Target temperature.</p> <table border="1" data-bbox="511 1560 950 1753"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>250</td> <td>25,0</td> <td>Default value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal value	250	25,0	Default value	450	45,0	Maximal value
Value	Temperature [C]	Description												
50	5,0	Minimal value												
250	25,0	Default value												
450	45,0	Maximal value												
0x0F	<p>TLeadVal</p> <div data-bbox="240 1871 488 1948" style="background-color: #e1f5fe; padding: 5px; border: 1px solid #cfe2f3;">  Data type: Signed Int16                 </div>	<p>Lead temperature sensor value.</p> <table border="1" data-bbox="511 1871 950 1965"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-600</td> <td>-60,0</td> <td>Minimal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-600	-60,0	Minimal value						
Value	Temperature [C]	Description												
-600	-60,0	Minimal value												

		600	60,0	Maximal value
0x10	TleadSensorSelect	Lead sensor select.		
		<b>Value</b>	<b>Name</b>	<b>Description</b>
		0x00	TSL_TNS	Read only
		0x01	TSL_TLEAD	Temperature value transmitted via Modbus
		<b>0x03</b>	<b>TSL_T4</b>	<b>Temperature measured by T4 sensor (room temperature)</b>
0x11	FanRoofMode	Fan roof work mode.		
		<b>Value</b>	<b>Name</b>	<b>Description</b>
		0x00	FR_MD_NS	Ready only
		<b>0x01</b>	<b>FR_MD_01</b>	<b>Depends on damper position (DamperLevelRef) and fan efficiency settings (FanEffRef)</b>
		0x02	FR_MD_02	Depends on damper position (DamperLevelRef)
0x12	STBTemperatureAlarmOn	Target temperature to invoke STB alarm state ( <i>Inpur Register 0x12</i> ). <i>Alarm occurs when set value is greater then T3 (Input Register 0x05)</i>  Default value ensures error occurrence before real STB Robur alarm (which needs manual reset from heater control box).		
		<b>Value</b>	<b>Temperature [C]</b>	<b>Description</b>
		810	81,0	Minimal value
		<b>900</b>	<b>90,0</b>	<b>Default value</b>
		1200	120,0	Maximal value
0x13	FilterTimeCntRst	Filter time reset.		
		<b>Value</b>	<b>Name</b>	<b>Description</b>
		<b>0x00</b>	<b>FLT_CNT_RST_NS</b>	<b>Read only - set after filter reset</b>
		0x01	FLT_CNT_RST	Filter time reset. (FilterWorkTime in Input Registers is set to 0)
0x14	STBTemperatureAlarmOff	Target temperature to reset STB alarm state ( <i>Holding Register 0x0C</i> ). Reset is possible If set value is greater then T3 ( <i>Input Register 0x05</i> ).		
		<b>Value</b>	<b>Temperature [C]</b>	<b>Description</b>
		610	61,0	Minimal value
		<b>800</b>	<b>80,0</b>	<b>Maximal value</b>
		Additional condition: STB_T_OFF < STB_T_REF		
0x15	STBAlarmReset	STB Alarm reset.		
		<b>Value</b>	<b>Name</b>	<b>Description</b>
		0x01	ON	Reset alarm on


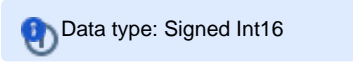
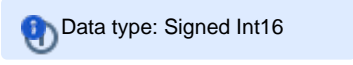
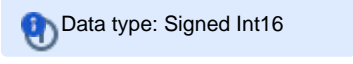


		<table border="1"> <tr> <td><b>0x02</b></td> <td><b>OFF</b></td> <td><b>Reset alarm off</b></td> </tr> </table> <p>If STB_T &lt; STB_T_OFF register will be set to 0x02 (OFF)</p> <p>STB_T - T3 (<i>Input Register 0x03</i>)</p> <p>STB_T_OFF - STBTemperatureAlarmOff (<i>Holding Register 0x14</i>)</p>	<b>0x02</b>	<b>OFF</b>	<b>Reset alarm off</b>					
<b>0x02</b>	<b>OFF</b>	<b>Reset alarm off</b>								
0x16	ContModeFanSpeedRef	<p>Fan efficiency setting after attaining target temperature.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>Fan ON</td> </tr> <tr> <td>0</td> <td>Fan OFF</td> </tr> </tbody> </table>	Value	Description	100	Fan ON	0	Fan OFF		
Value	Description									
100	Fan ON									
0	Fan OFF									
0x17	GasBurnerLvlRef	<p>Gas burning setting (valid for manual heating).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Read Only</td> </tr> <tr> <td><b>0x01</b></td> <td><b>First step</b></td> </tr> <tr> <td>0x02</td> <td>Second step</td> </tr> </tbody> </table>	Value	Description	0x00	Read Only	<b>0x01</b>	<b>First step</b>	0x02	Second step
Value	Description									
0x00	Read Only									
<b>0x01</b>	<b>First step</b>									
0x02	Second step									

Input Registers DRV-R KM NEXT

**DATA:**

(READ ONLY)

Address	Parameter	Description															
0x04	T1 	Temperature measured by T1 sensor (fresh air temperature). <table border="1" data-bbox="633 441 1226 682"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature [C]	Description															
-500	-50,0	Minimal value															
1000	100,0	Maximal value															
0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x05	T3 	Temperature measured by T3 sensor (air extraction temperature). <table border="1" data-bbox="633 819 1226 1060"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature [C]	Description															
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1000	100,0	Maximal value															
0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x06	T4 	Temperature measured by T4 sensor (room temperature). <table border="1" data-bbox="633 1197 1226 1438"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature [C]	Description															
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0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x07	T5 	Temperature measured by T5 sensor (not used in Robur devices). <table border="1" data-bbox="633 1575 1226 1816"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected
Value	Temperature [C]	Description															
-500	-50,0	Minimal value															
1000	100,0	Maximal value															
0x7000	-	Short circuit															
0x7FFF	-	PT1000 sensor not connected															
0x08	ExternalGasDetectTH1	External gas detector signal - first threshold. <table border="1" data-bbox="633 1942 1096 1963"> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>															

		<table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Gas concentration below threshold</td> </tr> <tr> <td>0x01</td> <td>Gas concentration exceeds threshold</td> </tr> </tbody> </table>	Value	Description	0x00	Gas concentration below threshold	0x01	Gas concentration exceeds threshold
Value	Description							
0x00	Gas concentration below threshold							
0x01	Gas concentration exceeds threshold							
0x09	ExternalGasDetectTH2	<p>External gas detector signal - second threshold.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Gas concentration below threshold</td> </tr> <tr> <td>0x01</td> <td>Gas concentration exceeds threshold</td> </tr> </tbody> </table>	Value	Description	0x00	Gas concentration below threshold	0x01	Gas concentration exceeds threshold
Value	Description							
0x00	Gas concentration below threshold							
0x01	Gas concentration exceeds threshold							
0x0A	ExternalGasDetectVal	Gas concentration value - 0-10V DC input (gas detector scaling information required).						
0x0B	FanRoofTK	<p>Thermocontact signal from fan roof.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Temperature below safe limit</td> </tr> <tr> <td>0x02</td> <td>Temperature above safe limit</td> </tr> </tbody> </table>	Value	Description	0x01	Temperature below safe limit	0x02	Temperature above safe limit
Value	Description							
0x01	Temperature below safe limit							
0x02	Temperature above safe limit							
0x0C	FanRoofEff	<p>Roof fan efficiency.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value	100	Maximal value
Value	Description							
0	Minimal value							
100	Maximal value							
0x0D	DamperLevel	<p>Damper position.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value	100	Maximal value
Value	Description							
0	Minimal value							
100	Maximal value							
0x0E	DamperForceState	<p><i>Forcing state for damper in mode DamperForceMode == DAMPER_FMD_ON</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>T4 &gt;= DamperForceTempRef</td> </tr> <tr> <td>0x02</td> <td>T4 &lt; DamperForceTempRef</td> </tr> </tbody> </table>	Value	Condition	0x01	T4 >= DamperForceTempRef	0x02	T4 < DamperForceTempRef
Value	Condition							
0x01	T4 >= DamperForceTempRef							
0x02	T4 < DamperForceTempRef							
0x0F	AntifreezeStateWarehouse	<p>Information about warehouse antifreeze state.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Normal work mode</td> </tr> <tr> <td>0x02</td> <td>Antifreeze enabled (user parameters overwritten)</td> </tr> </tbody> </table>	Value	Description	0x01	Normal work mode	0x02	Antifreeze enabled (user parameters overwritten)
Value	Description							
0x01	Normal work mode							
0x02	Antifreeze enabled (user parameters overwritten)							
0x10	FuseState	<p>Fan roof fuse state.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> </tbody> </table>	Value	Description				
Value	Description							

		<table border="1"> <tr> <td>0x00</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>Fuse state - working</td> </tr> <tr> <td>0x02</td> <td>Fuse state - blown</td> </tr> </table>	0x00	Read only	0x01	Fuse state - working	0x02	Fuse state - blown						
0x00	Read only													
0x01	Fuse state - working													
0x02	Fuse state - blown													
0x11	GasAlarmState	<p>Robur alarm (gas/flame). Read from clamp no.6 (connection terminal inside Robur heater).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ON</td> <td>Alarm dected</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>No alarm</td> </tr> </tbody> </table>	Value	Name	Description	0x01	ON	Alarm dected	0x02	OFF	No alarm			
Value	Name	Description												
0x01	ON	Alarm dected												
0x02	OFF	No alarm												
0x12	STBAlarmState	<p>Air extraction temperature alarm (STB).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>NC</td> <td>PT1000 sensor not connected</td> </tr> <tr> <td>0x01</td> <td>ON</td> <td>STB alarm detected ( <math>T3 \geq T\_STB\_REF</math> )</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>STB alarm not detected ( <math>T3 \leq (T\_STB\_REF - 1 [K])</math> )</td> </tr> </tbody> </table>	Value	Name	Description	0x00	NC	PT1000 sensor not connected	0x01	ON	STB alarm detected ( $T3 \geq T\_STB\_REF$ )	0x02	OFF	STB alarm not detected ( $T3 \leq (T\_STB\_REF - 1 [K])$ )
Value	Name	Description												
0x00	NC	PT1000 sensor not connected												
0x01	ON	STB alarm detected ( $T3 \geq T\_STB\_REF$ )												
0x02	OFF	STB alarm not detected ( $T3 \leq (T\_STB\_REF - 1 [K])$ )												
0x13	FilterWorkTime	<p>Filter work time.</p> <p><math>FilterWorkTime = 5 * FilterWorkTime</math> (min)</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work time (min)</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>65535</td> <td>5*65535</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Work time (min)	Description	0	0	Minimal value	65535	5*65535	Maximal Value			
Value	Work time (min)	Description												
0	0	Minimal value												
65535	5*65535	Maximal Value												

## DRV-COOL

Chapter includes BMS information about cooling units from LEO COOL family in single mode.

### Quick Start in single mode:

Mode	Address (HR)	Name	Set value	Description
<b>Ventilation</b>	0x04	WorkMode	0x06	Device starts ventilating (fan efficiency - med / 50%).
	0x07	FanEffRef	50	Check temperature sensors, fuse otherwise.
<b>Manual cooling</b>	0x04	WorkMode	0x05	Device starts cooling (fan efficiency - low / 20%, opening valve actuator)
	0x07	FanEffRef	20	target temperature to attain = 20°C.
	0x08	Tref	200	Check temperature sensors, fuse otherwise.

### Single mode using T-BOX as a gate:

DRV-COOL 31 (physical address set on a PCB board)

Address shift for device no. 31 -> 0x0880(*Input Register 0x2F* from System settings - \_Input Registers)

Mode	Shifted address	Set value
<b>Manual cooling</b>	0x0884 (0x04+0x0880)	0x05
	0x0887 (0x07+0x0880)	20
	0x0888 (0x08+0x0880)	200

Holding Registers DRV-COOL

Data:

Address	Name	Description																								
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_DEF</td> <td>Default value after power reset</td> </tr> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_HT_AUTO</td> <td>Automatic heating</td> </tr> <tr> <td>3</td> <td>WM_HT_MANUAL</td> <td>Manual heating</td> </tr> <tr> <td>4</td> <td>WM_COOL_AUTO</td> <td>Automatic cooling</td> </tr> <tr> <td>5</td> <td>WM_COOL_MANUAL</td> <td>Manual cooling</td> </tr> <tr> <td>6</td> <td>WM_VENT</td> <td>Ventilation</td> </tr> </tbody> </table>	Value	Work state	Description	0	WM_DEF	Default value after power reset	1	WM_OFF	Device off	2	WM_HT_AUTO	Automatic heating	3	WM_HT_MANUAL	Manual heating	4	WM_COOL_AUTO	Automatic cooling	5	WM_COOL_MANUAL	Manual cooling	6	WM_VENT	Ventilation
Value	Work state	Description																								
0	WM_DEF	Default value after power reset																								
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4	WM_COOL_AUTO	Automatic cooling																								
5	WM_COOL_MANUAL	Manual cooling																								
6	WM_VENT	Ventilation																								
0x05	AntifreezeWareHouseOn	<p>Antifreeze work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>WM_ON</td> <td>ON</td> </tr> <tr> <td>0x02</td> <td>WM_OFF</td> <td>OFF</td> </tr> </tbody> </table>	Value	Name	Description	0x01	WM_ON	ON	0x02	WM_OFF	OFF															
Value	Name	Description																								
0x01	WM_ON	ON																								
0x02	WM_OFF	OFF																								
0x06	AntifreezeWareHouseTempRef	<p>Target temperature to enable antifreeze.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal value	150	15,0	Maximal value															
Value	Temperature	Description																								
50	5,0	Minimal value																								
150	15,0	Maximal value																								
0x07	FanEffRef	<p>Fan efficiency setting. <i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>FAN_SPEED0</td> <td>Fan off</td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	FAN_SPEED0	Fan off	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step									
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0x08	Tref	<p>Target temperature.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal Value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal Value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal Value	450	45,0	Maximal Value															
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0x09	TLeadVal	<p>Lead temperature sensor value.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Value	Temperature	Description																					
Value	Temperature	Description																								

		<table border="1"> <tr> <td>-600</td> <td>-60,0</td> <td>Minimal Value</td> </tr> <tr> <td>600</td> <td>60,0</td> <td>Maximal Value</td> </tr> </table>	-600	-60,0	Minimal Value	600	60,0	Maximal Value									
-600	-60,0	Minimal Value															
600	60,0	Maximal Value															
0x0A	TleadSensorSelect	<table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>TSL_TNS</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>TSL_TLEAD</td> <td>Temperature value transmitted via Modbus</td> </tr> <tr> <td>0x03</td> <td>TSL_T4</td> <td>Temperature measured by T4 sensor (air before water heat exchanger)</td> </tr> </tbody> </table>	Value	Name	Description	0x00	TSL_TNS	Read only	0x01	TSL_TLEAD	Temperature value transmitted via Modbus	0x03	TSL_T4	Temperature measured by T4 sensor (air before water heat exchanger)			
Value	Name	Description															
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0x0B	Reserved	Not used.															
0x0C	Reserved	Not used.															
0x0D	Reserved	Not used.															
0x0E	Reserved	Not used.															
0x0F	ModeAuto_FanEffRefMin	<p>Minimal fan efficiency in AUTO mode.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>															
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0x10	ModeAuto_FanEffRefMax	<p>Maximal fan efficiency in AUTO mode.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
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0x11	ModeManual_FanEffRef	<p>Fan efficiency after attaining target temperature in MANUAL mode.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
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## Input Registers DRV-COOL

Data:

(READ ONLY)

Address	Name	Description																
0x04	Reserved	Not used.																
0x05	T4	Temperature measured by T4 sensor (air before water heat exchanger). <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-500</td> <td>-50,0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>100,0</td> <td>Maximal value</td> </tr> <tr> <td>0x7000</td> <td>-</td> <td>Short circuit</td> </tr> <tr> <td>0x7FFF</td> <td>-</td> <td>PT1000 sensor not connected</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-500	-50,0	Minimal value	1000	100,0	Maximal value	0x7000	-	Short circuit	0x7FFF	-	PT1000 sensor not connected	
Value	Temperature [C]	Description																
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0x07	AntifreezeState	Warehouse antifreeze state. <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Normal work mode.</td> </tr> <tr> <td>0x02</td> <td>Antifreeze enabled (user parameters overwritten).</td> </tr> </tbody> </table>	Value	Description	0x01	Normal work mode.	0x02	Antifreeze enabled (user parameters overwritten).										
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0x08	Reserved	Not used.																
0x09	Reserved	Not used.																
0x0A	FuseState	Fuse state for EC/3V/Roof fans, information can be read from 4 bits. <table border="1"> <thead> <tr> <th>Bit</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>3..0</td> <td>Roof fan</td> </tr> <tr> <td>4..7</td> <td>EC fan</td> </tr> <tr> <td>8..11</td> <td>3V fan</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>Fuse state - working</td> </tr> <tr> <td>0x02</td> <td>Fuse state - blown</td> </tr> </tbody> </table>	Bit	Description	3..0	Roof fan	4..7	EC fan	8..11	3V fan	Value	Description	0x00	Read only	0x01	Fuse state - working	0x02	Fuse state - blown
Bit	Description																	
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		<p>Example:</p> <p>Fuse state 3V fan: working (0x1)</p> <p>Register value: 0x100</p> <p>Fuse state 3V fan: blown (0x2)</p> <p>Register value: 0x200</p>												
0x0B	ValveState	<p>Valve state.</p> <table border="1" data-bbox="560 466 1242 661"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>VALVE_IDLE</td> <td>Valve in stand by mode (for 3-way valves)</td> </tr> <tr> <td>0x01</td> <td>VALVE_OPEN</td> <td>Opening valve</td> </tr> <tr> <td>0x02</td> <td>VALVE_CLOSE</td> <td>Closing valve</td> </tr> </tbody> </table>	Value	Name	Description	0x00	VALVE_IDLE	Valve in stand by mode (for 3-way valves)	0x01	VALVE_OPEN	Opening valve	0x02	VALVE_CLOSE	Closing valve
Value	Name	Description												
0x00	VALVE_IDLE	Valve in stand by mode (for 3-way valves)												
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0x02	VALVE_CLOSE	Closing valve												

## DRV-CUBE

Chapter includes BMS information about rooftop units CUBE family in single mode.

### Quick Start in single mode:

Address (HR)	Name	Set value	Description
0x04	WorkMode	0x02	Device starts ventilating (fan efficiency - 100%).
0x05	fan_eff	100	Recirculation mode- AUTO.
0x08	recirculation_mode	0x00	Work mode NW - AUTO.
0x0C	work_mode_NW	0x00	Target temperature settings - 22°C.
0x01	temperature_ref	220	Check temperature sensors, fuse otherwise.

### Single mode using T-BOX as a gate:

DRV-CUBE 31 (Cube devices addressing is being done by service during first startup)

Address shift for device no. 31 -> 0x0880(*Input Register 0x2F* from System settings - *\_Input Registers*)

Shifted address	Set value
0x0884 (0x04+0x0880)	0x02
0x0885 (0x05+0x0880)	100
0x0888 (0x08+0x0880)	0x00

## Holding Registers DRV-CUBE

Data:

Address	Name	Description												
0x04	WorkMode	<p>Work mode settings</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; Work mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_ON</td> <td>Device on</td> </tr> <tr> <td>3</td> <td>WM_THERM</td> <td>Device Therm</td> </tr> </tbody> </table>	Value	Work status	Description	1	WM_OFF	Device off	2	WM_ON	Device on	3	WM_THERM	Device Therm
Value	Work status	Description												
1	WM_OFF	Device off												
2	WM_ON	Device on												
3	WM_THERM	Device Therm												
0x05	fan_eff	<p>Fan efficiency setting - variable in range 0 - 100%</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan efficiency</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan efficiency	Description	0	0%	Minimal value	100	100%	Maximal value			
Value	Fan efficiency	Description												
0	0%	Minimal value												
100	100%	Maximal value												
0x06	fan_eff_CO2_I	<p>Fan efficiency settings for CO2 sensor stage 1 - variable in range 0 - 100%</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan efficiency</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan efficiency	Description	0	0%	Minimal value	100	100%	Maximal value			
Value	Fan efficiency	Description												
0	0%	Minimal value												
100	100%	Maximal value												
0x07	fan_eff_CO2_II	<p>Fan efficiency settings for CO2 sensor stage 2 - variable in range 0 - 100%</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan efficiency</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan efficiency	Description	0	0%	Minimal value	100	100%	Maximal value			
Value	Fan efficiency	Description												
0	0%	Minimal value												
100	100%	Maximal value												
0x08	recirculation_mode	<p>Recirculation mode settings</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; Recirculation mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Recirculation Mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>RM_AUTO</td> <td>Auto mode</td> </tr> <tr> <td>1</td> <td>RM_MANUAL</td> <td>Manual mode</td> </tr> </tbody> </table>	Value	Recirculation Mode	Description	0	RM_AUTO	Auto mode	1	RM_MANUAL	Manual mode			
Value	Recirculation Mode	Description												
0	RM_AUTO	Auto mode												
1	RM_MANUAL	Manual mode												

0x09	recirculation_value	<p>Recirculation value - <i>variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Recirculation value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Recirculation value	Description	0	0%	Minimal value	100	100%	Maximal value
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0x0A	recirculation_value_CO2_I	<p>Recirculation value for CO2 sensor stage 1 - <i>variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Recirculation value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Recirculation value	Description	0	0%	Minimal value	100	100%	Maximal value
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100	100%	Maximal value									
0x0B	recirculation_value_CO2_II	<p>Recirculation value for CO2 sensor stage 2 - <i>variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Recirculation value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Recirculation value	Description	0	0%	Minimal value	100	100%	Maximal value
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0x0C	work_mode_NW	<p>Work mode NW (swirl diffuser)</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; Work mode NW</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work Mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_NW_AUTO</td> <td>Auto mode</td> </tr> <tr> <td>1</td> <td>WM_NW_MANUAL</td> <td>Manual mode</td> </tr> </tbody> </table>	Value	Work Mode	Description	0	WM_NW_AUTO	Auto mode	1	WM_NW_MANUAL	Manual mode
Value	Work Mode	Description									
0	WM_NW_AUTO	Auto mode									
1	WM_NW_MANUAL	Manual mode									
0x0D	swirl_diffuser_level	<p>Swirl diffuser level</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Swirl diff. level</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Swirl diff. level	Description	0	0%	Minimal value	100	100%	Maximal value
Value	Swirl diff. level	Description									
0	0%	Minimal value									
100	100%	Maximal value									
0x0E	Htg_swirl_diffuser_level	<p>Swirl diffuser level in heating mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Swirl diff. level</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Swirl diff. level	Description	0	0%	Minimal value	100	100%	Maximal value
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0x0F	Clg_swirl_diffuser_level	<p>Swirl diffuser level in cooling mode</p> <table border="1" data-bbox="607 226 1029 369"> <thead> <tr> <th>Value</th> <th>Swirl diff. level</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Swirl diff. level	Description	0	0%	Minimal value	100	100%	Maximal value			
Value	Swirl diff. level	Description												
0	0%	Minimal value												
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0x10	temperature_ref	<p>Target temperature settings</p> <table border="1" data-bbox="607 506 1045 648"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal value	450	45,0	Maximal value			
Value	Temperature [C]	Description												
50	5,0	Minimal value												
450	45,0	Maximal value												
0x11	temperature_room	<p>Room temperature</p> <table border="1" data-bbox="607 785 1045 928"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	50	5,0	Minimal value	450	45,0	Maximal value			
Value	Temperature [C]	Description												
50	5,0	Minimal value												
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0x12	room_sensor_selection	<p>Room sensor selection</p> <table border="1" data-bbox="607 1062 1484 1356"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>TSL_PREFERRED_TLEAD</td> <td>Temperature value transmitted via Modbus (when CUBE local sensor is enabled)</td> </tr> <tr> <td>0x02</td> <td>TSL_TLEAD</td> <td>Temperature value transmitted via Modbus (only when CUBE local sensor is disabled)</td> </tr> <tr> <td>0x03</td> <td>TSL_PREFERRED_LOCAL</td> <td>Temperature measured by the Cube sensor (when CUBE local sensor is enabled)</td> </tr> </tbody> </table>	Value	Name	Description	0x01	TSL_PREFERRED_TLEAD	Temperature value transmitted via Modbus (when CUBE local sensor is enabled)	0x02	TSL_TLEAD	Temperature value transmitted via Modbus (only when CUBE local sensor is disabled)	0x03	TSL_PREFERRED_LOCAL	Temperature measured by the Cube sensor (when CUBE local sensor is enabled)
Value	Name	Description												
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0x13	CO2_status	<p>Status CO2</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; CO2 status</p> <table border="1" data-bbox="607 1625 1032 1818"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>CO2_STAT_OK</td> <td>CO2 status OK</td> </tr> <tr> <td>0x01</td> <td>CO2_STAT_L1</td> <td>CO2 level 1</td> </tr> <tr> <td>0x02</td> <td>CO2_STAT_L2</td> <td>CO2 level 2</td> </tr> </tbody> </table>	Value	Name	Description	0x00	CO2_STAT_OK	CO2 status OK	0x01	CO2_STAT_L1	CO2 level 1	0x02	CO2_STAT_L2	CO2 level 2
Value	Name	Description												
0x00	CO2_STAT_OK	CO2 status OK												
0x01	CO2_STAT_L1	CO2 level 1												
0x02	CO2_STAT_L2	CO2 level 2												
0x14	CO2_source	<p>Source CO2</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p>												

<MSB> ignored

<LSB> CO2 source

Value	Name	Description
0x00	CO2_SOURCE_LOCAL	CO2 local source - Cube sensor
0x01	CO2_SOURCE_TBOX	CO2 Tbox source

## Input Registers DRV-CUBE

Data:

(READ ONLY)

Address	Name	Description									
0x09	ambient_temp_value	Outside temperature <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-640</td> <td>-64,0</td> <td>Minimal value</td> </tr> <tr> <td>640</td> <td>64,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-640	-64,0	Minimal value	640	64,0	Maximal value
Value	Temperature [C]	Description									
-640	-64,0	Minimal value									
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0x0A	supply_temp_value	Supply air temperature <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-640</td> <td>-64,0</td> <td>Minimal value</td> </tr> <tr> <td>640</td> <td>64,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-640	-64,0	Minimal value	640	64,0	Maximal value
Value	Temperature [C]	Description									
-640	-64,0	Minimal value									
640	64,0	Maximal value									
0x0B	return_temp_value	Exhaust air temperature <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-640</td> <td>-64,0</td> <td>Minimal value</td> </tr> <tr> <td>640</td> <td>64,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-640	-64,0	Minimal value	640	64,0	Maximal value
Value	Temperature [C]	Description									
-640	-64,0	Minimal value									
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0x0C	water_temp_value	Water exchanger temperature <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [C]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-640</td> <td>-64,0</td> <td>Minimal value</td> </tr> <tr> <td>1500</td> <td>150,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [C]	Description	-640	-64,0	Minimal value	1500	150,0	Maximal value
Value	Temperature [C]	Description									
-640	-64,0	Minimal value									
1500	150,0	Maximal value									
0x0D	recirculation_damper_level	Recirculation damper level <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value	100	Maximal value			
Value	Description										
0	Minimal value										
100	Maximal value										
0x0E	swirl_diffuser_position	Swirl diffuser position <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value					
Value	Description										
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		<table border="1"> <tr> <td>100</td> <td>Maximal value</td> </tr> </table>	100	Maximal value										
100	Maximal value													
0x0F	not used	not used												
0x10	rotary_level	<p>Rotary heat exchanger level</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value	100	Maximal value						
Value	Description													
0	Minimal value													
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0x11	fan_supply_flow	<p>Fan supply flow</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value	100	Maximal value						
Value	Description													
0	Minimal value													
100	Maximal value													
0x12	gas_heating_value	<p>Gas heating value</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value	100	Maximal value						
Value	Description													
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0x13	CO2_status	<p>Status CO2</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; CO2 status</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>CO2_STAT_OK</td> <td>CO2 status OK</td> </tr> <tr> <td>0x01</td> <td>CO2_STAT_L1</td> <td>CO2 level 1</td> </tr> <tr> <td>0x02</td> <td>CO2_STAT_L2</td> <td>CO2 level 2</td> </tr> </tbody> </table>	Value	Name	Description	0x00	CO2_STAT_OK	CO2 status OK	0x01	CO2_STAT_L1	CO2 level 1	0x02	CO2_STAT_L2	CO2 level 2
Value	Name	Description												
0x00	CO2_STAT_OK	CO2 status OK												
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0x02	CO2_STAT_L2	CO2 level 2												
0x14	Rooftop_work_mode	<p>Rooftop work mode</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; Work mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>RT_WM_VENT</td> <td>Ventilation</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Value	Work status	Description	1	RT_WM_VENT	Ventilation						
Value	Work status	Description												
1	RT_WM_VENT	Ventilation												



		<table border="1"> <tr> <td>2</td> <td>RT_WM_HTG</td> <td>Heating</td> </tr> <tr> <td>3</td> <td>RT_WM_HTGREC</td> <td>Heating with recovery</td> </tr> <tr> <td>4</td> <td>RT_WM_CLG</td> <td>Cooling</td> </tr> <tr> <td>5</td> <td>RT_WM_CLGREC</td> <td>Cooling with recovery</td> </tr> </table>	2	RT_WM_HTG	Heating	3	RT_WM_HTGREC	Heating with recovery	4	RT_WM_CLG	Cooling	5	RT_WM_CLGREC	Cooling with recovery																								
2	RT_WM_HTG	Heating																																				
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4	RT_WM_CLG	Cooling																																				
5	RT_WM_CLGREC	Cooling with recovery																																				
0x15	Rooftop_current_work_mode	<p>Rooftop current work mode</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; Current work mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>WM_STOP</td> <td>Stop</td> </tr> <tr> <td>2</td> <td>WM_FREEZ</td> <td>Freez</td> </tr> <tr> <td>3</td> <td>WM_OFF</td> <td>Off</td> </tr> <tr> <td>4</td> <td>WM_STARTUP</td> <td>StrtUp</td> </tr> <tr> <td>5</td> <td>WM_ECO</td> <td>Eco</td> </tr> <tr> <td>6</td> <td>WM_CMFRT</td> <td>Cmfrt</td> </tr> <tr> <td>7</td> <td>WM_CO2</td> <td>CO2</td> </tr> <tr> <td>7</td> <td>WM_THMST</td> <td>Thmst</td> </tr> <tr> <td>9</td> <td>WM_NGHTCLG</td> <td>NghtClg</td> </tr> <tr> <td>10</td> <td>WM_OVRRUN</td> <td>OvrRun</td> </tr> <tr> <td>11</td> <td>WM_DEFROST</td> <td>DeFrost</td> </tr> </tbody> </table>	Value	Work status	Description	1	WM_STOP	Stop	2	WM_FREEZ	Freez	3	WM_OFF	Off	4	WM_STARTUP	StrtUp	5	WM_ECO	Eco	6	WM_CMFRT	Cmfrt	7	WM_CO2	CO2	7	WM_THMST	Thmst	9	WM_NGHTCLG	NghtClg	10	WM_OVRRUN	OvrRun	11	WM_DEFROST	DeFrost
Value	Work status	Description																																				
1	WM_STOP	Stop																																				
2	WM_FREEZ	Freez																																				
3	WM_OFF	Off																																				
4	WM_STARTUP	StrtUp																																				
5	WM_ECO	Eco																																				
6	WM_CMFRT	Cmfrt																																				
7	WM_CO2	CO2																																				
7	WM_THMST	Thmst																																				
9	WM_NGHTCLG	NghtClg																																				
10	WM_OVRRUN	OvrRun																																				
11	WM_DEFROST	DeFrost																																				
0x16	Alarm	<p>Alarm</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; Alarms</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>AL_OK</td> <td>OK</td> </tr> <tr> <td>1</td> <td>AL_MAINTENANCE</td> <td>Maintenance</td> </tr> <tr> <td>2</td> <td>AL_WARNING</td> <td>Warning</td> </tr> <tr> <td>3</td> <td>AL_FAULT</td> <td>Fault</td> </tr> <tr> <td>4</td> <td>AL_DANGER</td> <td>Danger</td> </tr> </tbody> </table>	Value	Work status	Description	0	AL_OK	OK	1	AL_MAINTENANCE	Maintenance	2	AL_WARNING	Warning	3	AL_FAULT	Fault	4	AL_DANGER	Danger																		
Value	Work status	Description																																				
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3	AL_FAULT	Fault																																				
4	AL_DANGER	Danger																																				
0x17	room_temp_sensor_status	<p>Room temp sensor status</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>OK</td> </tr> </tbody> </table>	Value	Description	0	OK																																
Value	Description																																					
0	OK																																					

		1	no sensor
		5	Short circuit

## Device Groups

### Modbus Holding Registers Header

Address	Name	Description						
0x00	DrvGroup_Id	Group identifier.  <b>Read only</b>						
0x01	Zone_Id	Zone group identifier. <table border="1"> <thead> <tr> <th>Value</th> <th>Zone</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>Zone01</td> <td></td> </tr> </tbody> </table> <b>Read only</b>	Value	Zone	Description	0x01	Zone01	
Value	Zone	Description						
0x01	Zone01							
0x02	Rsv	Reserved  <b>Read only</b>						
0x03	Rsv	Reserved  <b>Read only</b>						

This chapter is meant to be used with BMS work mode parameter set up to 0x02.

Indirect access to DRV settings via groups. T-Box settings are unblocked and can be freely modified by BMS. Group mean types of products connected to T-Box (Leo D, Leo V, Leo M, Leo KM, ELiS, DUO, OXeN). Every change in (for example) OXeN group will modify settings for all OXeN's connected to single T-Box.

Single driver settings are read only.

Every single device group controlled by T-Box is identified by group identifier.

### GroupId

Value	Name	Description
0x00	Non	No DRV connected
0x01	GroupOxen	DRV - Oxen
0x02	GroupKm	DRV - KM
0x03	GroupElis	DRV - ELIS
0x04	GroupElisDuo	DRV - ELIS DUO
0x05	GroupLeoV	DRV - V
0x06	GroupLeoM	DRV - M
0x07	GroupLeoD	DRV - D
0x0C	GroupRobur	DRV-R
0x0D	GroupRoburKM	DRV-R-KM
0x0E	GroupLeoEL	DRV-EL

0x14	GroupLeoDEC	DRV-D EC
0x15	GroupRoburNext	DRV-ROBUR NEXT
0x16	GroupRoburNextKM	DRV-ROBUR NEXT KM
0x17	GroupLeoCool	DRV-COOL
0x18	GroupCube	DRV-CUBE
0x19	GroupSlim	DRV-SLIM

Group DRV-ELIS

Modbus Holding Registers

Data:

Address	Name	Description															
0x04	WorkMode	<p>Work mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_NS</td> <td>Read only</td> </tr> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_HEAT</td> <td>Heat mode</td> </tr> <tr> <td>3</td> <td>WM_VENT</td> <td>Ventilation mode</td> </tr> </tbody> </table>	Value	Work status	Description	0	WM_NS	Read only	1	WM_OFF	Device off	2	WM_HEAT	Heat mode	3	WM_VENT	Ventilation mode
Value	Work status	Description															
0	WM_NS	Read only															
1	WM_OFF	Device off															
2	WM_HEAT	Heat mode															
3	WM_VENT	Ventilation mode															
0x05	CurtainFanSpeedRef	<p>Forcing fan speed (S1, S2, S3). <i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
34..66	FAN_SPEED2	Second step															
67..100	FAN_SPEED3	Third step															
0x06	CurtainHeatRef	<p>Forcing T input (only for curtain setup).</p> <p><b>Read only</b></p>															
0x07	ContactDoor	<p>Forcing DC input</p> <p><b>Read only</b></p>															
0x08	CurtainProgram	<p>Curtain program setting.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Setting</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>CURT_PRG_NS</td> <td>No forcing</td> </tr> <tr> <td>1</td> <td>CURT_PRG_K1</td> <td>Forcing SW3 to value K1</td> </tr> <tr> <td>2</td> <td>CURT_PRG_K2</td> <td>Forcing SW3 to value K2</td> </tr> </tbody> </table>	Value	Setting	Description	0	CURT_PRG_NS	No forcing	1	CURT_PRG_K1	Forcing SW3 to value K1	2	CURT_PRG_K2	Forcing SW3 to value K2			
Value	Setting	Description															
0	CURT_PRG_NS	No forcing															
1	CURT_PRG_K1	Forcing SW3 to value K1															
2	CURT_PRG_K2	Forcing SW3 to value K2															
0x09	CurtainFanIdleRef	<p>Stand-by fan operation.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
34..66	FAN_SPEED2	Second step															
67..100	FAN_SPEED3	Third step															

0x0A	FanIdleDelay	<p>Time delay of stand-by fan operation.</p> <table border="1" data-bbox="475 201 766 344"> <thead> <tr> <th data-bbox="475 201 581 247">Value</th> <th data-bbox="581 201 766 247">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="475 247 581 294">0..65534</td> <td data-bbox="581 247 766 294">Delay in seconds</td> </tr> <tr> <td data-bbox="475 294 581 340">65535</td> <td data-bbox="581 294 766 340">Infinite</td> </tr> </tbody> </table>	Value	Description	0..65534	Delay in seconds	65535	Infinite
Value	Description							
0..65534	Delay in seconds							
65535	Infinite							
0x0B	ValveIdleDelay	<p>Time delay of valve in stand-by fan operation.</p> <table border="1" data-bbox="475 436 766 579"> <thead> <tr> <th data-bbox="475 436 581 483">Value</th> <th data-bbox="581 436 766 483">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="475 483 581 529">0..65534</td> <td data-bbox="581 483 766 529">Delay in seconds</td> </tr> <tr> <td data-bbox="475 529 581 575">65535</td> <td data-bbox="581 529 766 575">Infinite</td> </tr> </tbody> </table> <p>Condition: ValveIdleDelay&lt;FanIdleDelay</p>	Value	Description	0..65534	Delay in seconds	65535	Infinite
Value	Description							
0..65534	Delay in seconds							
65535	Infinite							

Group DRV-ELIS Duo

Modbus Holding Registers

Data:

Address	Name	Description															
0x04	WorkMode	<p>Work mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_NS</td> <td>Read only</td> </tr> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_HEAT</td> <td>Heat mode</td> </tr> <tr> <td>3</td> <td>WM_VENT</td> <td>Ventilation mode</td> </tr> </tbody> </table>	Value	Work status	Description	0	WM_NS	Read only	1	WM_OFF	Device off	2	WM_HEAT	Heat mode	3	WM_VENT	Ventilation mode
Value	Work status	Description															
0	WM_NS	Read only															
1	WM_OFF	Device off															
2	WM_HEAT	Heat mode															
3	WM_VENT	Ventilation mode															
0x05	CurtainFanSpeedRef	<p>Forcing curtain fan speed (S1, S2, S3). <i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
34..66	FAN_SPEED2	Second step															
67..100	FAN_SPEED3	Third step															
0x06	CurtainHeatRef	<p>Forcing T input (only for curtain setup).</p> <p><b>Read only</b></p>															
0x07	HeaterFanRef	<p>Forcing heater fan speed (S1, S2, S3). <i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
34..66	FAN_SPEED2	Second step															
67..100	FAN_SPEED3	Third step															
0x08	ContactDoor	<p><b>Forcing DC input</b></p> <p><b>Read only</b></p>															
0x09	CurtainProgram	<p>Curtain program setting.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Setting</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>CURT_PRG_NS</td> <td>No forcing</td> </tr> <tr> <td>1</td> <td>CURT_PRG_K1</td> <td>Forcing SW3 to value K1</td> </tr> <tr> <td>2</td> <td>CURT_PRG_K2</td> <td>Forcing SW3 to value K2</td> </tr> </tbody> </table>	Value	Setting	Description	0	CURT_PRG_NS	No forcing	1	CURT_PRG_K1	Forcing SW3 to value K1	2	CURT_PRG_K2	Forcing SW3 to value K2			
Value	Setting	Description															
0	CURT_PRG_NS	No forcing															
1	CURT_PRG_K1	Forcing SW3 to value K1															
2	CURT_PRG_K2	Forcing SW3 to value K2															

0x0A	CurtainFanIdleRef	<p>Stand-by fan operation (curtain).</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1" data-bbox="475 247 878 491"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
0	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
34..66	FAN_SPEED2	Second step															
67..100	FAN_SPEED3	Third step															
0x0B	HeaterFanIdleRef	<p>Stand-by fan operation (heater).</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1" data-bbox="475 625 878 869"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
0	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
34..66	FAN_SPEED2	Second step															
67..100	FAN_SPEED3	Third step															
0x0C	FanIdleDelay	<p>Time delay of stand-by fan operation.</p> <table border="1" data-bbox="475 957 768 1100"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0..65534</td> <td>Delay in seconds</td> </tr> <tr> <td>65535</td> <td>Infinite</td> </tr> </tbody> </table>	Value	Description	0..65534	Delay in seconds	65535	Infinite									
Value	Description																
0..65534	Delay in seconds																
65535	Infinite																
0x0D	ValveIdleDelay	<p>Time delay of valve in stand-by fan operation.</p> <table border="1" data-bbox="475 1188 768 1331"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0..65534</td> <td>Delay in seconds</td> </tr> <tr> <td>65535</td> <td>Infinite</td> </tr> </tbody> </table> <p>Condition: ValveIdleDelay&lt;FanIdleDelay</p>	Value	Description	0..65534	Delay in seconds	65535	Infinite									
Value	Description																
0..65534	Delay in seconds																
65535	Infinite																



Group DRV-D

## Modbus Holding Registers

## Data:

Address	Name	Description															
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th></th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>WM_OFF</td> <td>Desertification off</td> </tr> <tr> <td>2</td> <td>WM_AUTO_DEPEND</td> <td>Work mode AUTO</td> </tr> <tr> <td>3</td> <td>WM_AUTO_INDEPEND</td> <td>Work mode AUTO</td> </tr> <tr> <td>4</td> <td>WM_MANUAL</td> <td>Work mode MANUAL</td> </tr> </tbody> </table>		Work state	Description	1	WM_OFF	Desertification off	2	WM_AUTO_DEPEND	Work mode AUTO	3	WM_AUTO_INDEPEND	Work mode AUTO	4	WM_MANUAL	Work mode MANUAL
	Work state	Description															
1	WM_OFF	Desertification off															
2	WM_AUTO_DEPEND	Work mode AUTO															
3	WM_AUTO_INDEPEND	Work mode AUTO															
4	WM_MANUAL	Work mode MANUAL															
0x05	FanEffRef	<p>Fan efficiency setting.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
34..66	FAN_SPEED2	Second step															
67..100	FAN_SPEED3	Third step															
0x06	DestTempRef	<p>Target value for lanching desertification mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [K]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0,0</td> <td>Minimal value</td> </tr> <tr> <td><b>50</b></td> <td><b>5,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>100</td> <td>10,0</td> <td>Maximal value</td> </tr> </tbody> </table> <p><i>Condition:</i></p> <p><math>DestTempRef &gt; Td - Tm</math></p> <p><i>Td</i> – temperature value measured near desertificator (T3 sensor).</p> <p><i>Tm</i> – temperature value measured in the room (TLeadVal or T4 - depends on the <i>TleadSensorSelect</i> register value).</p>	Value	Temperature [K]	Description	0	0,0	Minimal value	<b>50</b>	<b>5,0</b>	<b>Default value</b>	100	10,0	Maximal value			
Value	Temperature [K]	Description															
0	0,0	Minimal value															
<b>50</b>	<b>5,0</b>	<b>Default value</b>															
100	10,0	Maximal value															
0x07	WorkModeTempRef	<p>Target value for desertification in MANUAL mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>450</td> <td>45,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal value	450	45,0	Maximal value						
Value	Temperature	Description															
50	5,0	Minimal value															
450	45,0	Maximal value															

Group DRV-KM

Modbus Holding Registers

Data:

Address	Name	Description																		
0x04	WorkMode	<p>Work mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_NS</td> <td>Read only</td> </tr> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_HT</td> <td>Heat mode</td> </tr> <tr> <td>3</td> <td>WM_COOL</td> <td>Cool mode</td> </tr> <tr> <td>4</td> <td>WM_VENT</td> <td>Ventilation mode</td> </tr> </tbody> </table>	Value	Work mode	Description	0	WM_NS	Read only	1	WM_OFF	Device off	2	WM_HT	Heat mode	3	WM_COOL	Cool mode	4	WM_VENT	Ventilation mode
Value	Work mode	Description																		
0	WM_NS	Read only																		
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2	WM_HT	Heat mode																		
3	WM_COOL	Cool mode																		
4	WM_VENT	Ventilation mode																		
0x05	DamperForceMode	<p>Damper forcing mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>DAMPER_FMD_NS</td> <td>Read only</td> </tr> <tr> <td>1</td> <td>DAMPER_FMD_OFF</td> <td>Forcing mode off</td> </tr> <tr> <td>2</td> <td>DAMPER_FMD_ON</td> <td>                     Depends on air draw temperature:  <i>if (T1 &lt; DamperForceTempRef)</i>                      {  <i>DamperLevelRef = DamperForceRef;</i>                      }                 </td> </tr> </tbody> </table>	Value	Work mode	Description	0	DAMPER_FMD_NS	Read only	1	DAMPER_FMD_OFF	Forcing mode off	2	DAMPER_FMD_ON	Depends on air draw temperature: <i>if (T1 &lt; DamperForceTempRef)</i> { <i>DamperLevelRef = DamperForceRef;</i> }						
Value	Work mode	Description																		
0	DAMPER_FMD_NS	Read only																		
1	DAMPER_FMD_OFF	Forcing mode off																		
2	DAMPER_FMD_ON	Depends on air draw temperature: <i>if (T1 &lt; DamperForceTempRef)</i> { <i>DamperLevelRef = DamperForceRef;</i> }																		
0x06	DamperForceTempRef	<p>Target temperature value to open damper in forcing mode.                      (work mode <i>DamperForceMode</i> == <i>DAMPER_FMD_ON</i>).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>5,0</td> <td>Minimal value</td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature	Description	50	5,0	Minimal value	150	15,0	Maximal value									
Value	Temperature	Description																		
50	5,0	Minimal value																		
150	15,0	Maximal value																		
0x07	DamperForceLevelRef	<p>Target temperature value to open damper. (work mode <i>DamperMode</i> == <i>DAMPER_FMD_ON</i>) condition:                      Temp &lt; <i>DamperForceTempRef</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Damper airflow regulation [%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Damper airflow regulation [%]	Description	0	0	Minimal value	100	100	Maximal value									
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0x08	DamperLevelRef	<p>Damper settings:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Damper airflow regulation [%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Minimal value</td> </tr> </tbody> </table>	Value	Damper airflow regulation [%]	Description	0	0	Minimal value												
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0x0A	FanRoofForceEffRef	<p>Forcing fan roof efficiency (FanRoofForceEffRef will be added to FanEffRef).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan efficiency</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>-100</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>			Value	Fan efficiency	Description	-100	-100	Minimal value	100	100	Maximal value															
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0x0C	ThermostatModeState	<p>Thermostatic mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>THERMO_MD_ON</td> <td>Thermostatic mode on</td> </tr> <tr> <td>2</td> <td>THERMO_MD_OFF</td> <td>Thermostatic mode off</td> </tr> </tbody> </table>			Value	Work mode	Description	1	THERMO_MD_ON	Thermostatic mode on	2	THERMO_MD_OFF	Thermostatic mode off															
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0x0D	ThermostatModeFanEffRef	<p>Fan settings for thermostatic mode.</p> <p><i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>FAN_SPEED0</td> <td>Fan off</td> </tr> </tbody> </table>			Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value	Value	Gear	Description	0	FAN_SPEED0	Fan off									
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Group DRV-M

## Modbus Holding Registers

## Data:

Address	Name	Description																								
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0	0%	Minimal value									
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Group DRV-V

Modbus Holding Registers

Data:

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0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_DEF</td> <td>Default value after power reset</td> </tr> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_HT_AUTO</td> <td>Automatic heating</td> </tr> <tr> <td>3</td> <td>WM_HT_MANUAL</td> <td>Manual heating</td> </tr> <tr> <td>4</td> <td>WM_COOL_AUTO</td> <td>Automatic cooling</td> </tr> <tr> <td>5</td> <td>WM_COOL_MANUAL</td> <td>Manual cooling</td> </tr> <tr> <td>6</td> <td>WM_VENT</td> <td>Ventilation</td> </tr> </tbody> </table>	Value	Work state	Description	0	WM_DEF	Default value after power reset	1	WM_OFF	Device off	2	WM_HT_AUTO	Automatic heating	3	WM_HT_MANUAL	Manual heating	4	WM_COOL_AUTO	Automatic cooling	5	WM_COOL_MANUAL	Manual cooling	6	WM_VENT	Ventilation
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0x0A	ModeManual_FanEffRef	Fan efficiency after attaining target temperature in MANUAL mode.  <i>AC Fan - 3 steps.</i>															
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Group DRV-OXEN

Modbus Holding Registers

Data:

Address	Name	Description															
0x04	FansEffRef_1	<p>Fan efficiency setting in group I. <i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table> <p>Note: FansEffRef_1 = FansEffRef_2</p>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value						
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0x05	FansEffRef_2	<p>Fan efficiency setting in group II. <i>EC Fan - speed variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan speed</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan speed	Description	0	0%	Minimal value	100	100%	Maximal value						
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1	OXEN_MD_WINTER	Winter adjustment (bypass off)															
2	OXEN_MD_SUMMER	Summer adjustment (bypass on)															
0x08	RegParam_K	<p>Adjustment (regulator) gain (OXEN HOT).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td>1000</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value	1000	Maximal value									
Value	Description																
0	Minimal value																
1000	Maximal value																
0x09	RegParam_T	<p>Doubling time for adjustment (regulator) (OXEN HOT).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> </tbody> </table>	Value	Description	0	Minimal value											
Value	Description																
0	Minimal value																

		1000	Maximal value
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Group DRV-EL

## Modbus Holding Registers

## Data:

Address	Name	Description																					
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0x00</b></td> <td><b>WM_TS</b></td> <td><b>TS</b></td> </tr> <tr> <td>0x01</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>0x02</td> <td>WM_AUTO</td> <td>Automatic mode</td> </tr> <tr> <td>0x03</td> <td>WM_HEAT</td> <td>Manual heating</td> </tr> <tr> <td>0x04</td> <td>WM_VENT</td> <td>Ventilation</td> </tr> <tr> <td>0x05</td> <td>WM_RAW</td> <td>Raw. Not used.</td> </tr> </tbody> </table>	Value	Work status	Description	<b>0x00</b>	<b>WM_TS</b>	<b>TS</b>	0x01	WM_OFF	Device off	0x02	WM_AUTO	Automatic mode	0x03	WM_HEAT	Manual heating	0x04	WM_VENT	Ventilation	0x05	WM_RAW	Raw. Not used.
Value	Work status	Description																					
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0x05	FanSpeedRef	<p>Fan efficiency setting.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step						
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1..33	FAN_SPEED1	First step																					
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0x06	DestModeForce	<p>Destratification work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Destratification work mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>1</b></td> <td><b>DEST_MD_OFF</b></td> <td><b>Off</b></td> </tr> <tr> <td>2</td> <td>DEST_MD_AUTO_DEPEND</td> <td>Work mode AUTO</td> </tr> <tr> <td>3</td> <td>DEST_MD_AUTO_INDEPEND</td> <td>Work mode AUTO</td> </tr> </tbody> </table>	Value	Destratification work mode	Description	<b>1</b>	<b>DEST_MD_OFF</b>	<b>Off</b>	2	DEST_MD_AUTO_DEPEND	Work mode AUTO	3	DEST_MD_AUTO_INDEPEND	Work mode AUTO									
Value	Destratification work mode	Description																					
<b>1</b>	<b>DEST_MD_OFF</b>	<b>Off</b>																					
2	DEST_MD_AUTO_DEPEND	Work mode AUTO																					
3	DEST_MD_AUTO_INDEPEND	Work mode AUTO																					
0x07	DestTempRef	<p>Target value for lanching desertification mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [K]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0,0</td> <td>Minimal value</td> </tr> <tr> <td><b>50</b></td> <td><b>5,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>100</td> <td>10,0</td> <td>Maximal value</td> </tr> </tbody> </table> <p><i>Condition:</i></p> <p><math>DestTempRef &gt; Td - Tm</math></p> <p><math>Td</math> – temperature value measured near desertificator (T3 sensor).</p> <p><math>Tm</math> – temperature value measured in the room (TLeadVal or T4 - depends on the <i>TleadSensorSelect</i> register value).</p>	Value	Temperature [K]	Description	0	0,0	Minimal value	<b>50</b>	<b>5,0</b>	<b>Default value</b>	100	10,0	Maximal value									
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<b>50</b>	<b>5,0</b>	<b>Default value</b>																					
100	10,0	Maximal value																					

0x08	DestStratTimeDelay	<p>Maximal start time delay of a heater after desertification condition is met.</p> <p><i>Not used.</i></p>																				
0x09	Electric heater PTC power EL L	<p>Electric heater power for LEO EL L in manual heating work mode.</p> <p>(SW3.5 = K1)</p> <table border="1" data-bbox="521 338 915 533"> <thead> <tr> <th>Value</th> <th>L2 State</th> <th>L1 State</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>OFF</td> <td>OFF</td> <td>Off</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>ON</td> <td>1 heat setting</td> </tr> <tr> <td>0x03</td> <td>ON</td> <td>OFF</td> <td>2 heat setting</td> </tr> <tr> <td>0x04</td> <td>ON</td> <td>ON</td> <td>3 heat setting</td> </tr> </tbody> </table>	Value	L2 State	L1 State	Description	0x01	OFF	OFF	Off	0x02	OFF	ON	1 heat setting	0x03	ON	OFF	2 heat setting	0x04	ON	ON	3 heat setting
Value	L2 State	L1 State	Description																			
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0x04	ON	ON	3 heat setting																			
0x0A	Electric heater PTC power EL S	<p>Electric heater power for LEO EL S in manual heating work mode.</p> <p>(SW3.5 = K2)</p> <table border="1" data-bbox="521 680 915 875"> <thead> <tr> <th>Value</th> <th>L2 State</th> <th>L1 State</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>OFF</td> <td>OFF</td> <td>Off</td> </tr> <tr> <td>0x02</td> <td>OFF</td> <td>ON</td> <td>1 heat setting</td> </tr> <tr> <td>0x03</td> <td>ON</td> <td>ON</td> <td>2 heat setting</td> </tr> <tr> <td>0x04</td> <td>ON</td> <td>ON</td> <td>2 heat setting</td> </tr> </tbody> </table>	Value	L2 State	L1 State	Description	0x01	OFF	OFF	Off	0x02	OFF	ON	1 heat setting	0x03	ON	ON	2 heat setting	0x04	ON	ON	2 heat setting
Value	L2 State	L1 State	Description																			
0x01	OFF	OFF	Off																			
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0x04	ON	ON	2 heat setting																			
0x0B	ModeAuto_FanEffRefMin	<p>Minimal fan efficiency and fan efficiency after attaining target temperature in AUTO mode.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1" data-bbox="521 1024 888 1245"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td><b>FAN_SPEED0</b></td> <td><i>Fan off</i></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	<b>FAN_SPEED0</b>	<i>Fan off</i>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step					
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67..100	FAN_SPEED3	Third step																				
0x0C	ModeManual_FanEffRef	<p>Fan efficiency after attaining target temperature in MANUAL mode.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1" data-bbox="521 1394 888 1614"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td><b>FAN_SPEED0</b></td> <td><i>Fan off</i></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	0	<b>FAN_SPEED0</b>	<i>Fan off</i>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step					
Value	Gear	Description																				
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## Group DRV-R NEXT

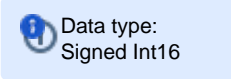
## Holding Registers

Address	Parameter	Description																		
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>NS</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>OFF</td> <td>Device off</td> </tr> <tr> <td>0x02</td> <td>HEAT_AUTO</td> <td>Automatic mode</td> </tr> <tr> <td>0x03</td> <td>HEAT_MANUAL</td> <td>Manual heating</td> </tr> <tr> <td>0x04</td> <td>VENT</td> <td>Ventilation mode</td> </tr> </tbody> </table>	Value	Work state	Description	0x00	NS	Read only	0x01	OFF	Device off	0x02	HEAT_AUTO	Automatic mode	0x03	HEAT_MANUAL	Manual heating	0x04	VENT	Ventilation mode
Value	Work state	Description																		
0x00	NS	Read only																		
0x01	OFF	Device off																		
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0x03	HEAT_MANUAL	Manual heating																		
0x04	VENT	Ventilation mode																		
0x0C	STB Temperature Alarm On	<p>Target temperature to invoke STB alarm state (<i>Inpur Register 0x12</i>). If &gt; T3 alarm occurs.</p> <p>Default value ensures error occurrence before real STB Robur alarm (which needs manual reset from heater control box).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [K]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>810</td> <td>81,0</td> <td>Minimal value</td> </tr> <tr> <td><b>900</b></td> <td><b>90,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>1200</td> <td>120,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [K]	Description	810	81,0	Minimal value	<b>900</b>	<b>90,0</b>	<b>Default value</b>	1200	120,0	Maximal value						
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<b>900</b>	<b>90,0</b>	<b>Default value</b>																		
1200	120,0	Maximal value																		
0x0D	STB Temperature Alarm Off	<p>Target temperature to reset STB alarm state (<i>Inpur Register 0x12</i>). If &gt; T3 alarm occurs.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [K]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>610</td> <td>61,0</td> <td>Minimal value</td> </tr> <tr> <td><b>800</b></td> <td><b>80,0</b></td> <td><b>Maximal value</b></td> </tr> </tbody> </table> <p>Additional condition: STB_T_OFF &lt; STB_T_REF</p>	Value	Temperature [K]	Description	610	61,0	Minimal value	<b>800</b>	<b>80,0</b>	<b>Maximal value</b>									
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<b>800</b>	<b>80,0</b>	<b>Maximal value</b>																		
0x0E	Continuous Mode Fan Speed Ref	<p>Fan speed after attaining target temperature</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>Fan on</td> </tr> <tr> <td>0</td> <td>Fan off</td> </tr> </tbody> </table>	Value	Description	100	Fan on	0	Fan off												
Value	Description																			
100	Fan on																			
0	Fan off																			
0x0F	Gas Burner Level Ref	<p>Gas heater power in manual heating work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>Read only</td> </tr> <tr> <td>0x01</td> <td>Gas burner first step</td> </tr> <tr> <td>0x02</td> <td>Gas burner second step</td> </tr> </tbody> </table>	Value	Description	0x00	Read only	0x01	Gas burner first step	0x02	Gas burner second step										
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Group DRV R KM NEXT

Holding Registers

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Value	Work state	Description																		
0x00	NS	Read only																		
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<b>0x03</b>	<b>HEAT_MANUAL</b>	<b>Manual heating mode</b>																		
0x04	VENT	Ventilation mode																		
0x05	DamperForceMode	<p>Damper forcing mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>DAMPER_FMD_NS</td> <td>Read only</td> </tr> <tr> <td><b>0x01</b></td> <td><b>DAMPER_FMD_OFF</b></td> <td><b>Forcing mode off</b></td> </tr> <tr> <td>0x02</td> <td>DAMPER_FMD_ON</td> <td>Depends on air draw temperature: <i>if (T1 &lt; DamperForceTempRef)</i> {   <i>DamperLevelRef = DamperForceRef;</i> }</td> </tr> </tbody> </table>	Value	Name	Description	0x00	DAMPER_FMD_NS	Read only	<b>0x01</b>	<b>DAMPER_FMD_OFF</b>	<b>Forcing mode off</b>	0x02	DAMPER_FMD_ON	Depends on air draw temperature: <i>if (T1 &lt; DamperForceTempRef)</i> { <i>DamperLevelRef = DamperForceRef;</i> }						
Value	Name	Description																		
0x00	DAMPER_FMD_NS	Read only																		
<b>0x01</b>	<b>DAMPER_FMD_OFF</b>	<b>Forcing mode off</b>																		
0x02	DAMPER_FMD_ON	Depends on air draw temperature: <i>if (T1 &lt; DamperForceTempRef)</i> { <i>DamperLevelRef = DamperForceRef;</i> }																		
0x06	DamperForceTempRef 	<p>Target temperature to force damper (work mode DamperForceMode == DAMPER_FMD_ON). Combined with T1 (fresh air temperature - <i>Input Register 0x04</i>).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [K]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>-10,0</td> <td>Minimal value</td> </tr> <tr> <td><b>0</b></td> <td><b>0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>150</td> <td>15,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [K]	Description	-100	-10,0	Minimal value	<b>0</b>	<b>0</b>	<b>Default value</b>	150	15,0	Maximal value						
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<b>0</b>	<b>0</b>	<b>Default value</b>																		
150	15,0	Maximal value																		
0x07	DamperForceLevelRef	<p>Target temperature value to open damper. (work mode DamperMode == DAMPER_FMD_ON) condition: Temp &lt; DamperForceTempRef</p> <table border="1"> <thead> <tr> <th>Value [%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>Minimal value</b></td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value [%]	Description	<b>0</b>	<b>Minimal value</b>	100	Maximal value												
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100	Maximal value																			
0x08	DamperLevelRef	<p>Damper position.</p> <table border="1"> <thead> <tr> <th>Value[%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td><b>100</b></td> <td><b>Maximal value</b></td> </tr> </tbody> </table>	Value[%]	Description	0	Minimal value	<b>100</b>	<b>Maximal value</b>												
Value[%]	Description																			
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0x09	DamperContLevelRef	<p>Damper position when: WorkMode == WM_WINTER_CONT.</p> <table border="1"> <thead> <tr> <th>Value[%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Minimal value</td> </tr> <tr> <td><b>30</b></td> <td><b>Default value</b></td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value[%]	Description	0	Minimal value	<b>30</b>	<b>Default value</b>	100	Maximal value				
Value[%]	Description													
0	Minimal value													
<b>30</b>	<b>Default value</b>													
100	Maximal value													
0x0A	FanRoofForceEffRef	<p>Forcing fan roof ventilator speed (efficiency will be increased by FanRoofForceEffRef).</p> <table border="1"> <thead> <tr> <th>Value[%]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>-100</td> <td>Minimal value</td> </tr> <tr> <td><b>0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>100</td> <td>Maximal value</td> </tr> </tbody> </table>	Value[%]	Description	-100	Minimal value	<b>0</b>	<b>Default value</b>	100	Maximal value				
Value[%]	Description													
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100	Maximal value													
0x0B	FanRoofMode	<p>Fan roof work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0x00</td> <td>FR_MD_NS</td> <td>Ready only</td> </tr> <tr> <td><b>0x01</b></td> <td><b>FR_MD_01</b></td> <td><b>Depends on damper position (DamperLevelRef) and fan efficiency settings (FanEffRef)</b></td> </tr> <tr> <td>0x02</td> <td>FR_MD_02</td> <td>Depends on damper position (DamperLevelRef)</td> </tr> </tbody> </table>	Value	Name	Description	0x00	FR_MD_NS	Ready only	<b>0x01</b>	<b>FR_MD_01</b>	<b>Depends on damper position (DamperLevelRef) and fan efficiency settings (FanEffRef)</b>	0x02	FR_MD_02	Depends on damper position (DamperLevelRef)
Value	Name	Description												
0x00	FR_MD_NS	Ready only												
<b>0x01</b>	<b>FR_MD_01</b>	<b>Depends on damper position (DamperLevelRef) and fan efficiency settings (FanEffRef)</b>												
0x02	FR_MD_02	Depends on damper position (DamperLevelRef)												
0x0C	STBTemperatureAlarm On	<p>Target temperature to invoke STB alarm state (<i>Inpur Register 0x12</i>). If &gt; T3 alarm occurs. Default value ensures error occurrence before real STB Robur alarm (which needs manual reset from heater control box).</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [K]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>810</td> <td>81,0</td> <td>Minimal value</td> </tr> <tr> <td><b>900</b></td> <td><b>90,0</b></td> <td><b>Default value</b></td> </tr> <tr> <td>1200</td> <td>120,0</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Temperature [K]	Description	810	81,0	Minimal value	<b>900</b>	<b>90,0</b>	<b>Default value</b>	1200	120,0	Maximal value
Value	Temperature [K]	Description												
810	81,0	Minimal value												
<b>900</b>	<b>90,0</b>	<b>Default value</b>												
1200	120,0	Maximal value												
0x0D	STBTemperatureAlarm Off	<p>Target temperature to reset STB alarm state (<i>Inpur Register 0x12</i>). If &gt; T3 alarm occurs.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Temperature [K]</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>610</td> <td>61,0</td> <td>Minimal value</td> </tr> <tr> <td><b>800</b></td> <td><b>80,0</b></td> <td><b>Maximal value</b></td> </tr> </tbody> </table> <p>Additional condition: STB_T_OFF &lt; STB_T_REF</p>	Value	Temperature [K]	Description	610	61,0	Minimal value	<b>800</b>	<b>80,0</b>	<b>Maximal value</b>			
Value	Temperature [K]	Description												
610	61,0	Minimal value												
<b>800</b>	<b>80,0</b>	<b>Maximal value</b>												
0x0E	Continuous Mode Fan Speed Ref	<p>Fan speed after attaining target temperature.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>Fan on</td> </tr> </tbody> </table>	Value	Description	100	Fan on								
Value	Description													
100	Fan on													



		0	Fan off
0x0F	Gas Burner Level Ref	Gas heater power in manual heating work mode.	
		<b>Value</b>	<b>Description</b>
		0x00	Read only
		0x01	Gas burner first step
		0x02	Gas burner second step

Group DRV-COOL

Modbus Holding Registers

Data:

Address	Name	Description																								
0x04	WorkMode	<p>Work mode.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work state</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_DEF</td> <td>Default value after power reset</td> </tr> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_HT_AUTO</td> <td>Automatic heating</td> </tr> <tr> <td>3</td> <td>WM_HT_MANUAL</td> <td>Manual heating</td> </tr> <tr> <td>4</td> <td>WM_COOL_AUTO</td> <td>Automatic cooling</td> </tr> <tr> <td>5</td> <td>WM_COOL_MANUAL</td> <td>Manual cooling</td> </tr> <tr> <td>6</td> <td>WM_VENT</td> <td>Ventilation</td> </tr> </tbody> </table>	Value	Work state	Description	0	WM_DEF	Default value after power reset	1	WM_OFF	Device off	2	WM_HT_AUTO	Automatic heating	3	WM_HT_MANUAL	Manual heating	4	WM_COOL_AUTO	Automatic cooling	5	WM_COOL_MANUAL	Manual cooling	6	WM_VENT	Ventilation
Value	Work state	Description																								
0	WM_DEF	Default value after power reset																								
1	WM_OFF	Device off																								
2	WM_HT_AUTO	Automatic heating																								
3	WM_HT_MANUAL	Manual heating																								
4	WM_COOL_AUTO	Automatic cooling																								
5	WM_COOL_MANUAL	Manual cooling																								
6	WM_VENT	Ventilation																								
0x05	FanEffRef	<p>Fan efficiency setting.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step									
Value	Gear	Description																								
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>																								
1..33	FAN_SPEED1	First step																								
34..66	FAN_SPEED2	Second step																								
67..100	FAN_SPEED3	Third step																								
0x06	Reserved.	Not used.																								
0x07	Reserved.	Not used.																								
0x08	Reserved.	Not used.																								
0x09	ModeAuto_FanEffRefMin	<p>Minimal fan efficiency and fan efficiency after attaining target temperature in AUTO mode.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step									
Value	Gear	Description																								
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>																								
1..33	FAN_SPEED1	First step																								
34..66	FAN_SPEED2	Second step																								
67..100	FAN_SPEED3	Third step																								
0x0A	ModeManual_FanEffRef	<p>Fan efficiency after attaining target temperature in MANUAL mode.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>																		
Value	Gear	Description																								
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>																								

	1..33	FAN_SPEED1	First step
	34..66	FAN_SPEED2	Second step
	67..100	FAN_SPEED3	Third step

## Group DRV-SLIM

## Modbus Holding Registers

## Data:

Address	Name	Description															
0x04	WorkMode	<p>Work mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_NS</td> <td>Read only</td> </tr> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_HEAT</td> <td>Heat mode</td> </tr> <tr> <td>3</td> <td>WM_VENT</td> <td>Ventilation mode</td> </tr> </tbody> </table>	Value	Work status	Description	0	WM_NS	Read only	1	WM_OFF	Device off	2	WM_HEAT	Heat mode	3	WM_VENT	Ventilation mode
Value	Work status	Description															
0	WM_NS	Read only															
1	WM_OFF	Device off															
2	WM_HEAT	Heat mode															
3	WM_VENT	Ventilation mode															
0x05	CurtainFanSpeedRef	<p>Forcing fan speed (S1, S2, S3). <i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
34..66	FAN_SPEED2	Second step															
67..100	FAN_SPEED3	Third step															
0x06	CurtainHeatRef	<p>Forcing T input (only for curtain setup).</p> <p><b>Read only</b></p>															
0x07	ContactDoor	<p>Forcing DC input</p> <p><b>Read only</b></p>															
0x08	CurtainProgram	<p>Curtain program setting.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Setting</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>CURT_PRG_NS</td> <td>No forcing</td> </tr> <tr> <td>1</td> <td>CURT_PRG_K1</td> <td>Forcing SW3 to value K1</td> </tr> <tr> <td>2</td> <td>CURT_PRG_K2</td> <td>Forcing SW3 to value K2</td> </tr> </tbody> </table>	Value	Setting	Description	0	CURT_PRG_NS	No forcing	1	CURT_PRG_K1	Forcing SW3 to value K1	2	CURT_PRG_K2	Forcing SW3 to value K2			
Value	Setting	Description															
0	CURT_PRG_NS	No forcing															
1	CURT_PRG_K1	Forcing SW3 to value K1															
2	CURT_PRG_K2	Forcing SW3 to value K2															
0x09	CurtainFanIdleRef	<p>Stand-by fan operation.</p> <p><i>AC Fan - 3 steps.</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Gear</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0</b></td> <td><b>FAN_SPEED0</b></td> <td><b>Fan off</b></td> </tr> <tr> <td>1..33</td> <td>FAN_SPEED1</td> <td>First step</td> </tr> <tr> <td>34..66</td> <td>FAN_SPEED2</td> <td>Second step</td> </tr> <tr> <td>67..100</td> <td>FAN_SPEED3</td> <td>Third step</td> </tr> </tbody> </table>	Value	Gear	Description	<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>	1..33	FAN_SPEED1	First step	34..66	FAN_SPEED2	Second step	67..100	FAN_SPEED3	Third step
Value	Gear	Description															
<b>0</b>	<b>FAN_SPEED0</b>	<b>Fan off</b>															
1..33	FAN_SPEED1	First step															
34..66	FAN_SPEED2	Second step															
67..100	FAN_SPEED3	Third step															

0x0A	FanIdleDelay	<p>Time delay of stand-by fan operation.</p> <table border="1" data-bbox="475 201 766 344"> <thead> <tr> <th data-bbox="475 201 581 247">Value</th> <th data-bbox="581 201 766 247">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="475 247 581 294">0..65534</td> <td data-bbox="581 247 766 294">Delay in seconds</td> </tr> <tr> <td data-bbox="475 294 581 340">65535</td> <td data-bbox="581 294 766 340">Infinite</td> </tr> </tbody> </table>	Value	Description	0..65534	Delay in seconds	65535	Infinite
Value	Description							
0..65534	Delay in seconds							
65535	Infinite							
0x0B	ValveIdleDelay	<p>Time delay of valve in stand-by fan operation.</p> <table border="1" data-bbox="475 436 766 579"> <thead> <tr> <th data-bbox="475 436 581 483">Value</th> <th data-bbox="581 436 766 483">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="475 483 581 529">0..65534</td> <td data-bbox="581 483 766 529">Delay in seconds</td> </tr> <tr> <td data-bbox="475 529 581 575">65535</td> <td data-bbox="581 529 766 575">Infinite</td> </tr> </tbody> </table> <p>Condition: ValveIdleDelay&lt;FanIdleDelay</p>	Value	Description	0..65534	Delay in seconds	65535	Infinite
Value	Description							
0..65534	Delay in seconds							
65535	Infinite							

## Group DRV-CUBE

## Modbus Holding Registers

## Data:

Address	Name	Description												
0x04	work_mode	<p>Work mode settings</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; Work mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>WM_OFF</td> <td>Device off</td> </tr> <tr> <td>2</td> <td>WM_ON</td> <td>Device on</td> </tr> <tr> <td>3</td> <td>WM_THERM</td> <td>Device Therm</td> </tr> </tbody> </table>	Value	Work status	Description	1	WM_OFF	Device off	2	WM_ON	Device on	3	WM_THERM	Device Therm
Value	Work status	Description												
1	WM_OFF	Device off												
2	WM_ON	Device on												
3	WM_THERM	Device Therm												
0x05	fan_eff	<p>Fan efficiency setting - <i>variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan efficiency</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan efficiency	Description	0	0%	Minimal value	100	100%	Maximal value			
Value	Fan efficiency	Description												
0	0%	Minimal value												
100	100%	Maximal value												
0x06	fan_eff_CO2_I	<p>Fan efficiency settings for CO2 sensor stage 1 - <i>variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan efficiency</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan efficiency	Description	0	0%	Minimal value	100	100%	Maximal value			
Value	Fan efficiency	Description												
0	0%	Minimal value												
100	100%	Maximal value												
0x07	fan_eff_CO2_II	<p>Fan efficiency settings for CO2 sensor stage 2 - <i>variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Fan efficiency</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Fan efficiency	Description	0	0%	Minimal value	100	100%	Maximal value			
Value	Fan efficiency	Description												
0	0%	Minimal value												
100	100%	Maximal value												
0x08	recirculation_mode	<p>Recirculation mode settings</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; Recirculation mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Recirculation Mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>RM_AUTO</td> <td>Auto mode</td> </tr> </tbody> </table>	Value	Recirculation Mode	Description	0	RM_AUTO	Auto mode						
Value	Recirculation Mode	Description												
0	RM_AUTO	Auto mode												

		<table border="1"> <tr> <td>1</td> <td>RM_MANUAL</td> <td>Manual mode</td> </tr> </table>	1	RM_MANUAL	Manual mode						
1	RM_MANUAL	Manual mode									
0x09	recirculation_value	<p>Recirculation value - <i>variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Recirculation value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Recirculation value	Description	0	0%	Minimal value	100	100%	Maximal value
Value	Recirculation value	Description									
0	0%	Minimal value									
100	100%	Maximal value									
0x0A	recirculation_value_CO2_I	<p>Recirculation value for CO2 sensor stage 1 - <i>variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Recirculation value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Recirculation value	Description	0	0%	Minimal value	100	100%	Maximal value
Value	Recirculation value	Description									
0	0%	Minimal value									
100	100%	Maximal value									
0x0B	recirculation_value_CO2_II	<p>Recirculation value for CO2 sensor stage 2 - <i>variable in range 0 - 100%</i></p> <table border="1"> <thead> <tr> <th>Value</th> <th>Recirculation value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Recirculation value	Description	0	0%	Minimal value	100	100%	Maximal value
Value	Recirculation value	Description									
0	0%	Minimal value									
100	100%	Maximal value									
0x0C	work_mode_NW	<p>Work mode NW (swirl diffuser)</p> <p>Description is split between &lt;MSB&gt; &lt;LSB&gt;.</p> <p>&lt;MSB&gt; ignored</p> <p>&lt;LSB&gt; Work mode NW</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Work Mode</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>WM_NW_AUTO</td> <td>Auto mode</td> </tr> <tr> <td>1</td> <td>WM_NW_MANUAL</td> <td>Manual mode</td> </tr> </tbody> </table>	Value	Work Mode	Description	0	WM_NW_AUTO	Auto mode	1	WM_NW_MANUAL	Manual mode
Value	Work Mode	Description									
0	WM_NW_AUTO	Auto mode									
1	WM_NW_MANUAL	Manual mode									
0x0D	swirl_diffuser_level	<p>Swirl diffuser level</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Swirl diff. level</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td>100</td> <td>100%</td> <td>Maximal value</td> </tr> </tbody> </table>	Value	Swirl diff. level	Description	0	0%	Minimal value	100	100%	Maximal value
Value	Swirl diff. level	Description									
0	0%	Minimal value									
100	100%	Maximal value									
0x0E	Htg_swirl_diffuser_level	<p>Swirl diffuser level in heating mode</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Swirl diff. level</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0%</td> <td>Minimal value</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Value	Swirl diff. level	Description	0	0%	Minimal value			
Value	Swirl diff. level	Description									
0	0%	Minimal value									

		100	100%	Maximal value
0x0F	Clg_swirl_diffuser_level	Swirl diffuser level in cooling mode		
		<b>Value</b>	<b>Swirl diff. level</b>	<b>Description</b>
		0	0%	Minimal value
		100	100%	Maximal value