Horti Lighting Protocol

Version 1.0.3
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Change Management			
Version	**Date**	**Author(s)**	**Changes**
0.9	5 April 2023	Hoogendoorn, Priva, Ridder	Draft version for comments lamp suppliers
1.0	1 May 2023	Hoogendoorn, Priva, Ridder	Final version based on feedback lamp suppliers
1.0.1	12 June 2023	Hoogendoorn, Priva, Ridder	Mistake corrected with kW vs kWh
1.0.2	18 December 2023	Hoogendoorn, Priva, Ridder	Clarified working ELC module verification mechanism
1.0.3	22 March 2024	Hoogendoorn, Priva, Ridder	Clarified working ELC module verification mechanism; minor clarifications.

Glossary

Definition	
Automation system	Horticulture process control automation system
Channels	Via Channels information can be transmitted over serial lines.
Control area	A defined area controlled as a whole by the Automation system.
General Settings	General settings to read information of the Lighting system or set certain setting of the Lighting system.
Horticulture process control automation system	The system to automatically control a wide range of processes in the greenhouse.
Horticulture Lighting Protocol (HLP)	Description of a Modbus based interface to connect Horticulture lighting systems to Horticulture process control automation systems.
Horticulture lighting system	The gateway and network of the lighting system in the greenhouse.
Lighting system	Horticulture lighting system
Modbus register	The Modbus registers contain process values used to control the Control areas.
Module	The Protocol is set up modular to meet the needs of all kinds of Lighting system technologies. The modules are defined in article 3.2.
Protocol	Horticulture Lighting Protocol (HLP)
Verification register	Via these registers a light recipe can be verified.

Table of Contents

1. Horticulture Lighting Protocol (HLP)

1.1. The Horticulture Lighting Protocol (HLP), hereafter named 'Protocol', describes a Modbus based interface to connect Horticulture lighting systems, hereafter named 'Lighting systems', to Horticulture process control automation systems, hereafter named 'Automation systems'.

2. System architecture

2.1. The Protocol describes how the Lighting system and the Automation system communicate. The Protocol assumes the Lighting system functions as Modbus slave and the Automation system as Modbus master.

2.2. Automation system à Ethernet/RS-485 à Lighting system Gateway à Lighting system network.

3. Modules

3.1. The Protocol is set up modular to meet the needs of all kinds of Lighting system technologies. The most basic way to use the Protocol is to only support the base functionality of communicating setpoints per Control area per channel.

3.2. There are four modules to expand on that functionality:

I. Module System status – Provide feedback to the Automation system about the status of the Lighting system.

II. Module Power – Provide feedback about the actual power usage of the luminaires.

III. Module Exact Light Control – Makes it possible to control the exact output, per spectrum of a Control area in µmol/s (or µmol/s/m^2).

IV. Module Universal Measurements – Makes up to ten free to use measurements per Control area available.

3.3. When a specific Module is supported, all parameters within this Module must be properly supported.

4. Options

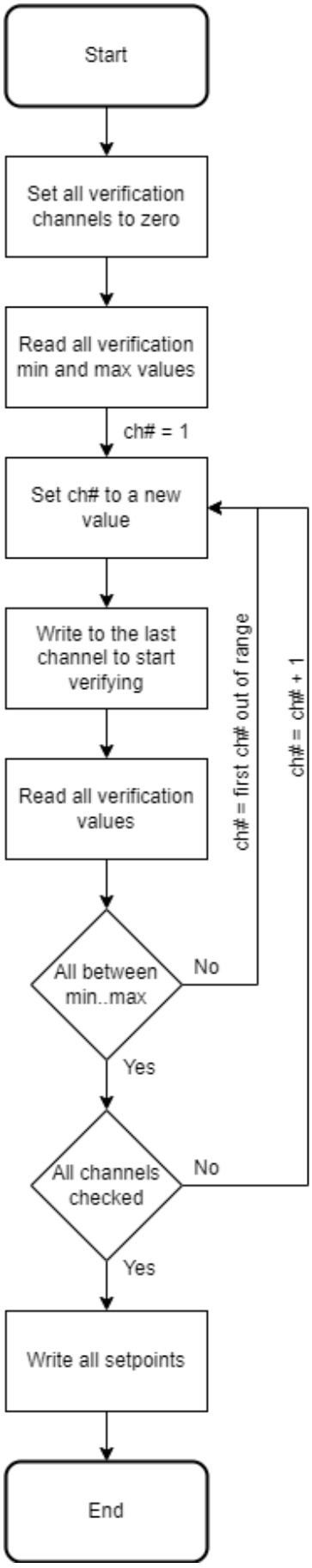
4.1. The Protocol assumes Control areas (groups of lamps) with the same settings. There are 100 Control areas available in the Protocol design. Each control area can have up to eight Channels. Not all channels have to be used.

4.2. All individual Channels can be controlled by percentage or by µmol/s (or µmol/s/m^2). Control using a percentage is the easiest solution, this gives control over each physical Channel of the lamps. The percentage is assumed to be linear to the light output of the lamps.

4.3. In case precise control over the light spectrum is preferred, the lamps should be controlled using µmol/s/m^2 (or µmol/s). In this case verification of the light recipe is necessary, the Protocol provides this option via Verification registers.

4.4. The verification process works in several successive steps.

- Automation system sets at start of verification process all setpoints to zero.
- The Automation system sends one or more values to the Verification registers, the verification setpoint of the last channel in use must be included in one write action.
- The Lighting systems checks these values against the lamp's capabilities.
- The Automation system reads back the minimum and maximum values for each Channel in use.
- The Automation system repeats the steps until setpoints for all channels are calculated.
- The Automation system sets the desired setpoints.
- Keep in mind that to trigger the calculation or execution of the setpoints the last configured channel must be written as well. Refer to paragraph 7.4.



4.5. A gateway of the Lighting system that supports Module III must calculate the Verification registers of a Control area within 800ms of the last change of any Verification setpoint of a Control area.

4.6. When the luminaires have channels that influence each other it is required to either implement Module I (Module System status) or Module III (Module Exact Light Control). In case implementation of Module I is chosen, when the automation system sets a setpoint combination that cannot be realized, the lighting system should apply a setpoint that reflects the setpoint combination from the automation system the most. The automation system can read back the realized level from the lighting system.

5. Modbus

5.1. The Protocol makes use of standard Modbus, either Modbus TCP or Modbus RTU via RS-485 half-duplex wiring. Parameters to control the Lighting systems are exchanged via 16-bit integer holding registers.

5.2. Keeping the large numbers of parameters in mind, Modbus TCP is preferred, especially for Lighting systems with a significant number of Control areas.

5.3. The Protocol uses big-endian byte order.

5.4. When using Modbus TCP, the gateway of the Lighting system uses a static IP address.

5.5. For the Modbus TCP interface port 502 is used.

5.6. The gateway of the Lighting system needs to support a well-documented and always available method to reset the Modbus and IP settings back to default.

6. Modbus registers

6.1. There are two tables attached which describe the available Modbus registers. The first table with General settings provides the option to read information of the Lighting system or set certain settings of the Lighting system.

6.2. Modbus registers 50 up to and including 99 can be implemented freely by the Lighting system manufacturer.

6.3. The second table describes the Modbus registers containing process values, used to control the Control areas.

6.4. The last data in Modbus registers 0..99 and “Power on setpoint Control Area n Channel x” should be stored permanent in the HW of the lighting system. Repeated writes to these Modbus registers should not lead to excessive wear.

6.5. When a value is written to one of the General Settings registers it is required to apply the setting(s) manually. This can be achieved by writing a value to “Apply settings”. Al values written to Modbus registers from the General settings table will be applied at once.

6.6. As there are two options for physical connection with the gateway, Modbus RTU and Modbus TCP, the relevant parameters should be used, 20..24 or 30..43. If both interfaces are available both parameter ranges are active.

6.7. The Modbus registers used in HLP:

- Registers 0 ... 49 are used for current implementation for general settings.
- Registers 50...99 can be used for manufacturer specific implementation within current implementation.
- Registers 100...8999 are used for current implementation for parameter settings.
- Registers 9000...31999 are reserved for future expansion of the protocol.

6.8. There is a 1:1 relation between a channel and a color. Within a control area one channel represents one color or one spectrum. It is not allowed to use multiple channels for the same color.

7. Modbus timing

7.1. To be able to control large amounts of Control areas a decent Modbus response time should be achieved, less than 50ms.

7.2. No specific order of read or writes or 'blocks of writes' should be required, unless explicitly required by this standard.

7.3. A write action should not directly result in traffic over the network of the Lighting system. The gateway is responsible for regulating the timing and the amount of traffic over the (wireless) network of the Lighting system.

7.4. When using the module Exact Light Control only, it is expected that the setpoints of the channels have interdependencies. To make sure that a valid combination of setpoints has been communicated, the lighting system should assume that when the setpoint of the last channel in use of a control area has been written, all setpoint changes within the control area have been communicated and should apply the setpoints of the control area. For example, if a control area uses four channels, when a setpoint to channel four is written all setpoints for that control area must be applied. The same mechanism is used for the verification setpoint option.

8. Modbus functions

8.1. Modbus Function Code 3 is used for reads, and Function Code 16 for writes.

8.2. The "Status Control Area n" register can be used to provide information about the status of the Lighting system. 0 indicates that everything is fine for that specific Control area. Bit 0..7 are reserved for specific use, bits 8..15 may be used by the Lighting system to indicate manufacturer-specific errors. Unresponsive luminaires should not be included in these Modus registers.

8.3. Non-consecutive Modbus registers must be readable and writable. Modbus registers associated with unused control areas must be readable and writable too.

8.4. Modbus has the option to respond to requests with exception responses, exceptions 1 to 4 should be implemented. As described at: modbus.org

9. Lighting system

9.1. When using percentages to control a Control area, a setpoint greater than 0 and lower than the minimum setpoint of a luminaire, the luminaire assumes the minimum setpoint.

9.2. When a setpoint is received at the gateway, the setpoint must be realized within 20 seconds.

9.3. After power on, the gateway must be responsive within 120 seconds.

9.4. After power on of a luminaire, it must be responsive within 180 seconds.

9.5. After power on of a luminaire and doesn't get a setpoint of the gateway the luminaire should fall back to the predefined power on setting setpoint.

9.6. The protocol describes the use up to 100 Control areas and maximum 8 Channels per Control area, these are the limits of the Protocol, the Lighting system can have lower limits.

9.7. The Automation system is expected to support controlling multiple Lighting systems gateways at the same time independently.

10. Modbus registers

10.1. There are multiple Modbus registers per Control area. Al Modbus registers must be implemented and interpreted as described below.

10.2. Status Control Area n: Via these Modbus registers issues with a Control area can be communicated. A 0 means everything is okay, any other value means a fault which could result in the luminaires in the whole Control area to be turned off. Luminaires being unresponsive should not be reflected in this Modbus register.

Bit 0	General issue
Bit 1	Gateway configuration issue
Bit 2	Lighting system (wireless) network issue
Bit 3	Reserved
Bit 4	Reserved
Bit 5	Reserved
Bit 6	Reserved
Bit 7	Reserved

Bit 8..15 can be used to indicate additional issues.

10.3. Number of luminaires Control Area n: The number of luminaires that are configured for the given Control area and should be available if the Lighting system is working properly.
10.4. Luminaires Unresponsive Control Area n: The number of luminaires that are not responding to new setpoints or otherwise not functioning as desired, either measured or calculated.
10.5. Current Power Control Area n: The actual power usage of the Control area, either measured or calculated.
10.6. Max Power Control Area n: The maximum power the Control area could draw if all Channels are at maximum and all luminaires are functioning properly.
10.7. Minimum setpoint Control Area n Channel x: The technical minimum setpoint of this Channel of this Control area in percentage. This function is not required for Module Exact Light Control.
10.8. Power on setpoint Control Area n Channel x: The setpoint for this Channel of this Control area when the luminaire is powered on and no setpoint is communicated to the Lighting system or has reached the luminaires after 180 seconds, in percentage. To set power on setting to follow the last setpoint set this value to 6553.5.
10.9. Setpoint Control Area n Channel x: The setpoint for a Channel of a Control area in percentage.
10.10. Realized Control Area n Channel x: The value of the current realized setpoint of the Lighting system of Channel of a Control area in percentage.
10.11. Setpoint in micromole Control Area n Channel x: The setpoint for a Channel of a Control area in µmol/s (or µmol/s/m^2).
10.12. Realized in µmol/s (or µmol/s/m^2)Control Area n Channel x: Value of the current setpoint of the Lighting system of Channel of a Control area in µmol/s (or µmol/s/m^2).
10.13. Verification Control Area n Channel x: A hypothetical setpoint for a Channel of a Control area in µmol/s (or µmol/s/m^2). Writing to these Modbus registers results in the relevant “Verification minimum Control Area n Channel x” and “Verification minimum Control Area n Channel x” being calculated by the Lighting system. When there is a dependency between the Channels within a Control area which results in changed maximum and minimum values for the other Channels this Modbus register can be used to have the Lighting system calculate the maximum and minimum setpoints of the other Channels. Keep in mind that the maximum and minimum setpoint are only valid if just one parameter is changed. If more parameters must be changed a new verification has to be performed.

10.14. Verification minimum Control Area n Channel x: The minimum value a luminaire can output for the given setpoints in “Verification Control Area n Channel x” for this Channel in this Control area.

10.15. Verification maximum Control Area n Channel x: The maximum value a luminaire can output for the given setpoints in “Verification Control Area n Channel x” for this Channel in this Control area.

10.16. Universal Measurement x Control Area n: With these Modbus registers additional measurements can be made available. Implementation of these Modbus registers is not mandatory.

General Settings

Register (Offset)	Parameter name	Data-type	Multiplier	R/W	Range
0	Serial Number first half	U16	1	Read	0..65535
1	Serial Number second half	U16	1	Read	0..65535
2	Product model	U16	1	Read	0..65535
3	Firmware version number Major	U16	1	Read	0..65535
4	Firmware version number Minor	U16	1	Read	0..65535
5	Firmware version number Patch	U16	1	Read	0..65535
6	Hardware version number Major	U16	1	Read	0..65535
7	Hardware version number Minor	U16	1	Read	0..65535
8	Hardware version number Patch	U16	1	Read	0..65535
9	Protocol version Major	U16	1	Read	0..65535
10	Protocol version Minor	U16	1	Read	0..65535
11	Protocol version Patch	U16	1	Read	0..65535

12	Supported Modules	U16	1	Read	Bit 0; System Status; 0=no/1=yes Bit 1; Power; 0=no/1=yes Bit 2; Exact Licht Control; 0=no/1=yes Bit 3; Universal Measurements; 0=no/1=yes Bit 4..15; Reserved
13	Reserved				
14	Reserved				
15	Reserved				
16	Reserved				
17	Reserved				
18	Reserved				
19	Reserved				
20	Node address	U16	1	R/W	1..247, 1 is default
21	Baud rate	U16	0,01 (value should be divided by 100, f.i. 12=1200:)	R/W	1200, 2400, 4800, 9600, default 19200, 38400, 57600, 115200
22	Data bits	U16	1	R/W	1=7/2=8, 2=8 is default
23	Parity	U16	1	R/W	1=N/2=E/3=O, 2=E is default
24	Stop bit	U16	1	R/W	1=1/2=1.5/3=2, 1=1 is default
25	Reserved				
26	Reserved				
27	Reserved				
28	Reserved				
29	Reserved				

30	IP address first octet	U16	1	R/W	0..255, 192 is default
31	IP address second octet	U16	1	R/W	0..255, 168 is default
32	IP address third octet	U16	1	R/W	0..255, 0 is default
33	IP address fourth octet	U16	1	R/W	1..254, 100 is default
34	Reserved				
35	Netmask first octet	U16	1	R/W	0..255, 255 is default
36	Netmask second octet	U16	1	R/W	0..255, 255 is default
37	Netmask third octet	U16	1	R/W	0..255, 255 is default
38	Netmask fourth octet	U16	1	R/W	0..255, 0 is default
39	Reserved				
40	Gateway first octet	U16	1	R/W	0..255, 192 is default
41	Gateway second octet	U16	1	R/W	0..255, 168 is default
42	Gateway third octet	U16	1	R/W	0..255, 0 is default
43	Gateway fourth octet	U16	1	R/W	1..254, 1 is default
44	Reserved				
45	Appy settings	U16	1	R/W	0..65535, > 0 apply settings. The value returns to 0 after successful application of the settings.
46	Reserved				
47	Reserved				
48	Reserved				

49	Reserved				

Parameters

							Module			
Register (Offset)	**Parameter name**	**Data-type**	**Multiplier**	**R/W**	**Range**	**Base**	**(i)**	**(ii)**	**(iii)**	**(IV)**
100	Status Control Area 1	U16	1	Read	0..65535		x			
101	Status Control Area 2	U16	1	Read	0..65535		x			
102	Status Control Area 3	U16	1	Read	0..65535		x			
…										
199	Status Control Area 100	U16	1	Read	0..65535		x			
200	Number of luminaires Control Area 1	U16	1	Read	0..65535		x			
201	Number of luminaires Control Area 2	U16	1	Read	0..65535		x			
202	Number of luminaires Control Area 3	U16	1	Read	0..65535		x			
…										
299	Number of luminaires Control Area 100	U16	1	Read	0..65535		x			
300	Luminaires Unresponsive Control Area 1	U16	1	Read	0..65535		x			
301	Luminaires Unresponsive Control Area 2	U16	1	Read	0..65535		x			
302	Luminaires Unresponsive Control Area 3	U16	1	Read	0..65535		x			
…										
399	Luminaires Unresponsive Control Area 100	U16	1	Read	0..65535		x			

400	Current Power Control Area 1	U16	10	Read	0.0..6553.5kW			x		
401	Current Power Control Area 2	U16	10	Read	0.0..6553.5kW			x		
402	Current Power Control Area 3	U16	10	Read	0.0..6553.5kW			x		
…										
499	Current Power Control Area 100	U16	10	Read	0.0..6553.5kW			x		
500	Max Power Control Area 1	U16	10	Read	0.0..6553.5kW			x		
501	Max Power Control Area 2	U16	10	Read	0.0..6553.5kW			x		
502	Max Power Control Area 3	U16	10	Read	0.0..6553.5kW			x		
…										
599	Max Power Control Area 100	U16	10	Read	0.0..6553.5kW			x		
600	Minimum setpoint Control Area 1 Channel 1	U16	10	Read	0.0..100.0%		x			
601	Minimum setpoint Control Area 2 Channel 1	U16	10	Read	0.0..100.0%		x			
602	Minimum setpoint Control Area 3 Channel 1	U16	10	Read	0.0..100.0%		x			
…										
699	Minimum setpoint Control Area 100 Channel 1	U16	10	Read	0.0..100.0%		x			

700	Minimum setpoint Control Area 1 Channel 2	U16	10	Read	0.0..100.0%		x			
701	Minimum setpoint Control Area 2 Channel 2	U16	10	Read	0.0..100.0%		x			
702	Minimum setpoint Control Area 3 Channel 2	U16	10	Read	0.0..100.0%		x			
…										
799	Minimum setpoint Control Area 100 Channel 2	U16	10	Read	0.0..100.0%		x			
800	Minimum setpoint Control Area 1 Channel 3	U16	10	Read	0.0..100.0%		x			
801	Minimum setpoint Control Area 2 Channel 3	U16	10	Read	0.0..100.0%		x			
802	Minimum setpoint Control Area 3 Channel 3	U16	10	Read	0.0..100.0%		x			
…										
899	Minimum setpoint Control Area 100 Channel 3	U16	10	Read	0.0..100.0%		x			
900	Minimum setpoint Control Area 1 Channel 4	U16	10	Read	0.0..100.0%		x			
901	Minimum setpoint Control Area 2 Channel 4	U16	10	Read	0.0..100.0%		x			
902	Minimum setpoint Control Area 3 Channel 4	U16	10	Read	0.0..100.0%		x			
…										

999	Minimum setpoint Control Area 100 Channel 4	U16	10	Read	0.0..100.0%		x			
1000	Minimum setpoint Control Area 1 Channel 5	U16	10	Read	0.0..100.0%		x			
1001	Minimum setpoint Control Area 2 Channel 5	U16	10	Read	0.0..100.0%		x			
1002	Minimum setpoint Control Area 3 Channel 5	U16	10	Read	0.0..100.0%		x			
…										
1099	Minimum setpoint Control Area 100 Channel 5	U16	10	Read	0.0..100.0%		x			
1100	Minimum setpoint Control Area 1 Channel 6	U16	10	Read	0.0..100.0%		x			
1101	Minimum setpoint Control Area 2 Channel 6	U16	10	Read	0.0..100.0%		x			
1102	Minimum setpoint Control Area 3 Channel 6	U16	10	Read	0.0..100.0%		x			
…										
1199	Minimum setpoint Control Area 100 Channel 6	U16	10	Read	0.0..100.0%		x			
1200	Minimum setpoint Control Area 1 Channel 7	U16	10	Read	0.0..100.0%		x			
1201	Minimum setpoint Control Area 2 Channel 7	U16	10	Read	0.0..100.0%		x			

1202	Minimum setpoint Control Area 3 Channel 7	U16	10	Read	0.0..100.0%		x			
…										
1299	Minimum setpoint Control Area 100 Channel 7	U16	10	Read	0.0..100.0%		x			
1300	Minimum setpoint Control Area 1 Channel 8	U16	10	Read	0.0..100.0%		x			
1301	Minimum setpoint Control Area 2 Channel 8	U16	10	Read	0.0..100.0%		x			
1302	Minimum setpoint Control Area 3 Channel 8	U16	10	Read	0.0..100.0%		x			
…										
1399	Minimum setpoint Control Area 100 Channel 8	U16	10	Read	0.0..100.0%		x			
1400	Power on setpoint Control Area 1 Channel 1	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1401	Power on setpoint Control Area 2 Channel 1	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1402	Power on setpoint Control Area 3 Channel 1	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
…										
1499	Power on setpoint Control Area 100 Channel 1	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1500	Power on setpoint Control Area 1 Channel 2	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		

1501	Power on setpoint Control Area 2 Channel 2	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1502	Power on setpoint Control Area 3 Channel 2	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
…										
1599	Power on setpoint Control Area 100 Channel 2	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1600	Power on setpoint Control Area 1 Channel 3	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1601	Power on setpoint Control Area 2 Channel 3	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1602	Power on setpoint Control Area 3 Channel 3	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
…										
1699	Power on setpoint Control Area 100 Channel 3	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1700	Power on setpoint Control Area 1 Channel 4	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1701	Power on setpoint Control Area 2 Channel 4	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1702	Power on setpoint Control Area 3 Channel 4	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
…										
1799	Power on setpoint Control Area 100 Channel 4	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		

1800	Power on setpoint Control Area 1 Channel 5	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1801	Power on setpoint Control Area 2 Channel 5	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1802	Power on setpoint Control Area 3 Channel 5	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
…										
1899	Power on setpoint Control Area 100 Channel 5	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1900	Power on setpoint Control Area 1 Channel 6	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1901	Power on setpoint Control Area 2 Channel 6	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
1902	Power on setpoint Control Area 3 Channel 6	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
…										
1999	Power on setpoint Control Area 100 Channel 6	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
2000	Power on setpoint Control Area 1 Channel 7	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
2001	Power on setpoint Control Area 2 Channel 7	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
2002	Power on setpoint Control Area 3 Channel 7	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
…										

2099	Power on setpoint Control Area 100 Channel 7	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
2100	Power on setpoint Control Area 1 Channel 8	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
2101	Power on setpoint Control Area 2 Channel 8	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
2102	Power on setpoint Control Area 3 Channel 8	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
…										
2199	Power on setpoint Control Area 100 Channel 8	U16	10	R/W	0.0..100.0% 6553.5=last setpoint			x		
2200	Setpoint Control Area 1 Channel 1	U16	10	R/W	0.0..100.0%	x				
2201	Setpoint Control Area 2 Channel 1	U16	10	R/W	0.0..100.0%	x				
2202	Setpoint Control Area 3 Channel 1	U16	10	R/W	0.0..100.0%	x				
…										
2299	Setpoint Control Area 100 Channel 1	U16	10	R/W	0.0..100.0%	x				
2300	Setpoint Control Area 1 Channel 2	U16	10	R/W	0.0..100.0%	x				
2301	Setpoint Control Area 2 Channel 2	U16	10	R/W	0.0..100.0%	x				
2302	Setpoint Control Area 3 Channel 2	U16	10	R/W	0.0..100.0%	x				
…										
2399	Setpoint Control Area 100 Channel 2	U16	10	R/W	0.0..100.0%	x				

2400	Setpoint Control Area 1 Channel 3	U16	10	R/W	0.0..100.0%	x				
2401	Setpoint Control Area 2 Channel 3	U16	10	R/W	0.0..100.0%	x				
2402	Setpoint Control Area 3 Channel 3	U16	10	R/W	0.0..100.0%	x				
…										
2499	Setpoint Control Area 100 Channel 3	U16	10	R/W	0.0..100.0%	x				
2500	Setpoint Control Area 1 Channel 4	U16	10	R/W	0.0..100.0%	x				
2501	Setpoint Control Area 2 Channel 4	U16	10	R/W	0.0..100.0%	x				
2502	Setpoint Control Area 3 Channel 4	U16	10	R/W	0.0..100.0%	x				
…										
2599	Setpoint Control Area 100 Channel 4	U16	10	R/W	0.0..100.0%	x				
2600	Setpoint Control Area 1 Channel 5	U16	10	R/W	0.0..100.0%	x				
2601	Setpoint Control Area 2 Channel 5	U16	10	R/W	0.0..100.0%	x				
2602	Setpoint Control Area 3 Channel 5	U16	10	R/W	0.0..100.0%	x				
…										
2699	Setpoint Control Area 100 Channel 5	U16	10	R/W	0.0..100.0%	x				
2700	Setpoint Control Area 1 Channel 6	U16	10	R/W	0.0..100.0%	x				
2701	Setpoint Control Area 2 Channel 6	U16	10	R/W	0.0..100.0%	x				
2702	Setpoint Control Area 3 Channel 6	U16	10	R/W	0.0..100.0%	x				

…										
2799	Setpoint Control Area 100 Channel 6	U16	10	R/W	0.0..100.0%	x				
2800	Setpoint Control Area 1 Channel 7	U16	10	R/W	0.0..100.0%	x				
2801	Setpoint Control Area 2 Channel 7	U16	10	R/W	0.0..100.0%	x				
2802	Setpoint Control Area 3 Channel 7	U16	10	R/W	0.0..100.0%	x				
…										
2899	Setpoint Control Area 100 Channel 7	U16	10	R/W	0.0..100.0%	x				
2900	Setpoint Control Area 1 Channel 8	U16	10	R/W	0.0..100.0%	x				
2901	Setpoint Control Area 2 Channel 8	U16	10	R/W	0.0..100.0%	x				
2902	Setpoint Control Area 3 Channel 8	U16	10	R/W	0.0..100.0%	x				
…										
2999	Setpoint Control Area 100 Channel 8	U16	10	R/W	0.0..100.0%	x				
3000	Realized Control Area 1 Channel 1	U16	10	Read	0.0..100.0%		x			
3001	Realized Control Area 2 Channel 1	U16	10	Read	0.0..100.0%		x			
3002	Realized Control Area 3 Channel 1	U16	10	Read	0.0..100.0%		x			
…										
3099	Realized Control Area 100 Channel 1	U16	10	Read	0.0..100.0%		x			
3100	Realized Control Area 1 Channel 2	U16	10	Read	0.0..100.0%		x			

3101	Realized Control Area 2 Channel 2	U16	10	Read	0.0..100.0%		x			
3102	Realized Control Area 3 Channel 2	U16	10	Read	0.0..100.0%		x			
…										
3199	Realized Control Area 100 Channel 2	U16	10	Read	0.0..100.0%		x			
3200	Realized Control Area 1 Channel 3	U16	10	Read	0.0..100.0%		x			
3201	Realized Control Area 2 Channel 3	U16	10	Read	0.0..100.0%		x			
3202	Realized Control Area 3 Channel 3	U16	10	Read	0.0..100.0%		x			
…										
3299	Realized Control Area 100 Channel 3	U16	10	Read	0.0..100.0%		x			
3300	Realized Control Area 1 Channel 4	U16	10	Read	0.0..100.0%		x			
3301	Realized Control Area 2 Channel 4	U16	10	Read	0.0..100.0%		x			
3302	Realized Control Area 3 Channel 4	U16	10	Read	0.0..100.0%		x			
…										
3399	Realized Control Area 100 Channel 4	U16	10	Read	0.0..100.0%		x			
3400	Realized Control Area 1 Channel 5	U16	10	Read	0.0..100.0%		x			
3401	Realized Control Area 2 Channel 5	U16	10	Read	0.0..100.0%		x			
3402	Realized Control Area 3 Channel 5	U16	10	Read	0.0..100.0%		x			
…										

3499	Realized Control Area 100 Channel 5	U16	10	Read	0.0..100.0%		x			
3500	Realized Control Area 1 Channel 6	U16	10	Read	0.0..100.0%		x			
3501	Realized Control Area 2 Channel 6	U16	10	Read	0.0..100.0%		x			
3502	Realized Control Area 3 Channel 6	U16	10	Read	0.0..100.0%		x			
…										
3599	Realized Control Area 0 Channel 7	U16	10	Read	0.0..100.0%		x			
3600	Realized Control Area 1 Channel 7	U16	10	Read	0.0..100.0%		x			
3601	Realized Control Area 2 Channel 7	U16	10	Read	0.0..100.0%		x			
3602	Realized Control Area 3 Channel 7	U16	10	Read	0.0..100.0%		x			
…										
3699	Realized Control Area 100 Channel 7	U16	10	Read	0.0..100.0%		x			
3700	Realized Control Area 1 Channel 8	U16	10	Read	0.0..100.0%		x			
3701	Realized Control Area 2 Channel 8	U16	10	Read	0.0..100.0%		x			
3702	Realized Control Area 3 Channel 8	U16	10	Read	0.0..100.0%		x			
…										
3799	Realized Control Area 100 Channel 8	U16	10	Read	0.0..100.0%		x			
3800	Universal Measurement 1 Control Area 1	U16	1	Read	0..65535					x

3801	Universal Measurement 1 Control Area 2	U16	1	Read	0..65535					x
3802	Universal Measurement 1 Control Area 3	U16	1	Read	0..65535					x
…										
3899	Universal Measurement 1 Control Area 100	U16	1	Read	0..65535					x
3900	Universal Measurement 2 Control Area 1	U16	1	Read	0..65535					x
3901	Universal Measurement 2 Control Area 2	U16	1	Read	0..65535					x
3902	Universal Measurement 2 Control Area 3	U16	1	Read	0..65535					x
…										
3999	Universal Measurement 2 Control Area 100	U16	1	Read	0..65535					x
4000	Universal Measurement 3 Control Area 1	U16	1	Read	0..65535					x
4001	Universal Measurement 3 Control Area 2	U16	1	Read	0..65535					x
4002	Universal Measurement 3 Control Area 3	U16	1	Read	0..65535					x
…										
4099	Universal Measurement 3 Control Area 100	U16	1	Read	0..65535					x

4100	Universal Measurement 4 Control Area 1	U16	1	Read	0..65535					x
4101	Universal Measurement 4 Control Area 2	U16	1	Read	0..65535					x
4102	Universal Measurement 4 Control Area 3	U16	1	Read	0..65535					x
…										
4199	Universal Measurement 4 Control Area 100	U16	1	Read	0..65535					x
4200	Universal Measurement 5 Control Area 1	U16	1	Read	0..65535					x
4201	Universal Measurement 5 Control Area 2	U16	1	Read	0..65535					x
4202	Universal Measurement 5 Control Area 3	U16	1	Read	0..65535					x
…										
4299	Universal Measurement 5 Control Area 100	U16	1	Read	0..65535					x
4300	Universal Measurement 6 Control Area 1	U16	1	Read	0..65535					x
4301	Universal Measurement 6 Control Area 2	U16	1	Read	0..65535					x
4302	Universal Measurement 6 Control Area 3	U16	1	Read	0..65535					x
…										

4399	Universal Measurement 6 Control Area 100	U16	1	Read	0..65535					x
4400	Universal Measurement 7 Control Area 1	U16	1	Read	0..65535					x
4401	Universal Measurement 7 Control Area 2	U16	1	Read	0..65535					x
4402	Universal Measurement 7 Control Area 3	U16	1	Read	0..65535					x
…										
4499	Universal Measurement 7 Control Area 100	U16	1	Read	0..65535					x
4500	Universal Measurement 8 Control Area 1	U16	1	Read	0..65535					x
4501	Universal Measurement 8 Control Area 2	U16	1	Read	0..65535					x
4502	Universal Measurement 8 Control Area 3	U16	1	Read	0..65535					x
…										
4599	Universal Measurement 8 Control Area 100	U16	1	Read	0..65535					x
4600	Universal Measurement 9 Control Area 1	U16	1	Read	0..65535					x
4601	Universal Measurement 9 Control Area 2	U16	1	Read	0..65535					x

4602	Universal Measurement 9 Control Area 3	U16	1	Read	0..65535					x
…										
4699	Universal Measurement 9 Control Area 100	U16	1	Read	0..65535					x
4700	Universal Measurement 10 Control Area 1	U16	1	Read	0..65535					x
4701	Universal Measurement 10 Control Area 2	U16	1	Read	0..65535					x
4702	Universal Measurement 10 Control Area 3	U16	1	Read	0..65535					x
…										
4799	Universal Measurement 10 Control Area 100	U16	1	Read	0..65535					x
5000	Setpoint in micromole Control Area 1 Channel 1	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5001	Setpoint in micromole Control Area 2 Channel 1	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5002	Setpoint in micromole Control Area 3 Channel 1	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
5099	Setpoint in micromole Control Area 100 Channel 1	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5100	Setpoint in micromole Control Area 1 Channel 2	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	

5101	Setpoint in micromole Control Area 2 Channel 2	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5102	Setpoint in micromole Control Area 3 Channel 2	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
5199	Setpoint in micromole Control Area 100 Channel 2	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5200	Setpoint in micromole Control Area 1 Channel 3	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5201	Setpoint in micromole Control Area 2 Channel 3	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5202	Setpoint in micromole Control Area 3 Channel 3	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
5299	Setpoint in micromole Control Area 100 Channel 3	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5300	Setpoint in micromole Control Area 1 Channel 4	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5301	Setpoint in micromole Control Area 2 Channel 4	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5302	Setpoint in micromole Control Area 3 Channel 4	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
5399	Setpoint in micromole Control Area 100 Channel 4	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	

5400	Setpoint in micromole Control Area 1 Channel 5	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5401	Setpoint in micromole Control Area 2 Channel 5	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5402	Setpoint in micromole Control Area 3 Channel 5	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
5499	Setpoint in micromole Control Area 100 Channel 5	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5500	Setpoint in micromole Control Area 1 Channel 6	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5501	Setpoint in micromole Control Area 2 Channel 6	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5502	Setpoint in micromole Control Area 3 Channel 6	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
5599	Setpoint in micromole Control Area 100 Channel 6	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5600	Setpoint in micromole Control Area 1 Channel 7	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5601	Setpoint in micromole Control Area 2 Channel 7	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5602	Setpoint in micromole Control Area 3 Channel 7	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										

5699	Setpoint in micromole Control Area 100 Channel 7	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5700	Setpoint in micromole Control Area 1 Channel 8	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5701	Setpoint in micromole Control Area 2 Channel 8	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5702	Setpoint in micromole Control Area 3 Channel 8	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
5799	Setpoint in micromole Control Area 100 Channel 8	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
5800	Realized in micromole Control Area 1 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
5801	Realized in micromole Control Area 2 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
5802	Realized in micromole Control Area 3 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
5899	Realized in micromole Control Area 100 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
5900	Realized in micromole Control Area 1 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
5901	Realized in micromole Control Area 2 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	

5902	Realized in micromole Control Area 3 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
5999	Realized in micromole Control Area 100 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6000	Realized in micromole Control Area 1 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6001	Realized in micromole Control Area 2 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6002	Realized in micromole Control Area 3 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
6099	Realized in micromole Control Area 100 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6100	Realized in micromole Control Area 1 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6101	Realized in micromole Control Area 2 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6102	Realized in micromole Control Area 3 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
6199	Realized in micromole Control Area 100 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6200	Realized in micromole Control Area 1 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	

6201	Realized in micromole Control Area 2 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6202	Realized in micromole Control Area 3 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
6299	Realized in micromole Control Area 100 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6300	Realized in micromole Control Area 1 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6301	Realized in micromole Control Area 2 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6302	Realized in micromole Control Area 3 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
6399	Realized in micromole Control Area 100 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6400	Realized in micromole Control Area 1 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6401	Realized in micromole Control Area 2 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6402	Realized in micromole Control Area 3 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
6499	Realized in micromole Control Area 100 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	

6500	Realized in micromole Control Area 1 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6501	Realized in micromole Control Area 2 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6502	Realized in micromole Control Area 3 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
6599	Realized in micromole Control Area 100 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
6600	Verification Control Area 1 Channel 1	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
6601	Verification Control Area 2 Channel 1	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
6602	Verification Control Area 3 Channel 1	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
6699	Verification Control Area 100 Channel 1	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
6700	Verification Control Area 1 Channel 2	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
6701	Verification Control Area 2 Channel 2	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
6702	Verification Control Area 3 Channel 2	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
6799	Verification Control Area 100 Channel 2	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
6800	Verification Control Area 1 Channel 3	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	

6801	Verification Control Area 2 Channel 3	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
6802	Verification Control Area 3 Channel 3	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
6899	Verification Control Area 100 Channel 3	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
6900	Verification Control Area 1 Channel 4	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
6901	Verification Control Area 2 Channel 4	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
6902	Verification Control Area 3 Channel 4	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
6999	Verification Control Area 100 Channel 4	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7000	Verification Control Area 1 Channel 5	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7001	Verification Control Area 2 Channel 5	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7002	Verification Control Area 3 Channel 5	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
7099	Verification Control Area 100 Channel 5	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7100	Verification Control Area 1 Channel 6	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7101	Verification Control Area 2 Channel 6	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7102	Verification Control Area 3 Channel 6	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										

7199	Verification Control Area 100 Channel 6	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7200	Verification Control Area 1 Channel 7	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7201	Verification Control Area 2 Channel 7	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7202	Verification Control Area 3 Channel 7	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
7299	Verification Control Area 100 Channel 7	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7300	Verification Control Area 1 Channel 8	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7301	Verification Control Area 2 Channel 8	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7302	Verification Control Area 3 Channel 8	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
7399	Verification Control Area 100 Channel 8	U16	10	R/W	0.0..6553.5 µmol/s/m² or µmol/s				x	
7400	Verification minimum Control Area 1 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7401	Verification minimum Control Area 2 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7402	Verification minimum Control Area 3 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
7499	Verification minimum Control Area 100 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	

7500	Verification minimum Control Area 1 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7501	Verification minimum Control Area 2 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7502	Verification minimum Control Area 3 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
7599	Verification minimum Control Area 100 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7600	Verification minimum Control Area 1 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7601	Verification minimum Control Area 2 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7602	Verification minimum Control Area 3 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
7699	Verification minimum Control Area 100 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7700	Verification minimum Control Area 1 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7701	Verification minimum Control Area 2 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7702	Verification minimum Control Area 3 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										

7799	Verification minimum Control Area 100 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7800	Verification minimum Control Area 1 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7801	Verification minimum Control Area 2 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7802	Verification minimum Control Area 3 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
7899	Verification minimum Control Area 100 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7900	Verification minimum Control Area 1 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7901	Verification minimum Control Area 2 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
7902	Verification minimum Control Area 3 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
7999	Verification minimum Control Area 100 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8000	Verification minimum Control Area 1 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8001	Verification minimum Control Area 2 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	

8002	Verification minimum Control Area 3 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
8099	Verification minimum Control Area 100 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8100	Verification minimum Control Area 1 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8101	Verification minimum Control Area 2 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8102	Verification minimum Control Area 3 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
8199	Verification minimum Control Area 100 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8200	Verification maximum Control Area 1 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8201	Verification maximum Control Area 2 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8202	Verification maximum Control Area 3 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
8299	Verification maximum Control Area 100 Channel 1	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8300	Verification maximum Control Area 1 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	

8301	Verification maximum Control Area 2 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8302	Verification maximum Control Area 3 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
8399	Verification maximum Control Area 100 Channel 2	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8400	Verification maximum Control Area 1 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8401	Verification maximum Control Area 2 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8402	Verification maximum Control Area 3 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
8499	Verification maximum Control Area 100 Channel 3	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8500	Verification maximum Control Area 1 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8501	Verification maximum Control Area 2 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8502	Verification maximum Control Area 3 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
8599	Verification maximum Control Area 100 Channel 4	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	

8600	Verification maximum Control Area 1 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8601	Verification maximum Control Area 2 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8602	Verification maximum Control Area 3 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
8699	Verification maximum Control Area 100 Channel 5	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8700	Verification maximum Control Area 1 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8701	Verification maximum Control Area 2 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8702	Verification maximum Control Area 3 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
8799	Verification maximum Control Area 100 Channel 6	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8800	Verification maximum Control Area 1 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8801	Verification maximum Control Area 2 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8802	Verification maximum Control Area 3 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										

8899	Verification maximum Control Area 100 Channel 7	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8900	Verification maximum Control Area 1 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8901	Verification maximum Control Area 2 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
8902	Verification maximum Control Area 3 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	
…										
8999	Verification maximum Control Area 100 Channel 8	U16	10	Read	0.0..6553.5 µmol/s/m² or µmol/s				x	