NORDcanopy

## UV 1.1 Cleaning System Guide for Automatics

ETS NORD

Contents

1. UV 1.1 Building automation

UV control unit can be combined with building automation using a PLC. By combining with building automation, it is possible to receive notifications about alarms from the control unit and control the UV control unit(s) by giving them a permission to work when the ventilation or AFS is turned on.

For setup you will need:

1) UV control unit
2) PLC
3) Computer

Connection diagram:
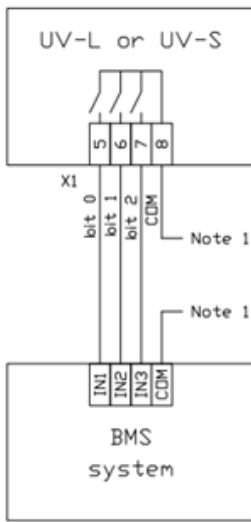
Note 1 – It depends on the BMS input type (PNP, NPN, etc.)

The additional information about the Bit 0, Bit 1 and Bit 2 values:

	Value	Info
Bit 0 (Operation status)	0	The system is not working, there are no active errors (System status is OFF).
Bit 1 (Service status)	0	
Bit 2 (Error status)	0	
Bit 0 (Operation status)	1	The system is working, there are no active errors (System status is ON).
Bit 1 (Service status)	0	
Bit 2 (Error status)	0	
Bit 0 (Operation status)	1	The system is working, the lamp needs maintenance services from ETS NORD technicians (System status is ON).
Bit 1 (Service status)	1	
Bit 2 (Error status)	0	
Bit 0 (Operation status)	1	System is working, there is an active lamp error in the system (System status is ON).
Bit 1 (Service status)	0	
Bit 2 (Error status)	1	
Bit 0 (Operation status)	1	The system is working, the lamp needs maintenance services from ETS NORD technicians and there is an active lamp error in the system (System status is ON).
Bit 1 (Service status)	1	
Bit 2 (Error status)	1	
Bit 0 (Operation status)	0	The system is not working, the lamp needs maintenance services from ETS NORD technicians (System status is OFF).
Bit 1 (Service status)	1	
Bit 2 (Error status)	0	

	Value	Info
Bit 0 (Operation status)	0	The system is not working, there is an active error in the UV system - safety switch has been activated (System state is OFF).
Bit 1 (Service status)	0	
Bit 2 (Error status)	1	
Bit 0 (Operation status)	0	The system is not working, the lamp needs maintenance services from ETS NORD technicians and there is an active error in the UV system - pressure is under 20 Pa or a safety switch has been activated (System state is OFF).
Bit 1 (Service status)	1	
Bit 2 (Error status)	1	

System is operational

System is working, no critical errors that hinder the UV system operation

System is not working, technician intervention is critical if the cause of errors are not resolved by user actions.

2. UV 1.1 Modbus register list

All registers are type Holding and can be scanned through only Modbus TCP/IP network. If the register points listed below are not reflected correctly in the registers, then please contact ETS NORD service technician. At the time of your application, please add the building automation reading result so that we can better understand the situation, hoping for a good cooperation.

2.1. Single UV-L type control unit

When you have physically done AHU/AFS cabling to UV device input socket UI 13 and plan to use it to give work permission to the UV device, then „**Select permission mode control**" reg. **790** value <u>must be 1</u>, „**System work permission**" reg. **521** will display whether the UV system has a work permission from the AHU/AFS or not.

When your are not using a physical AHU/AFS cabling to the UV device to give out work permission but instead wish to use Modbus to do this, then „**Select permission mode control**" reg. **790** value must be **0**, „**Modbus work permission**" reg. **263** is the register into which you'll write **0** to not give a work permission and **1** to give a work permission to the UV device. „**System work permission**" reg. **521** will display whether the UV system has a work permission from the AHU/AFS or not.

„**Operation status**" reg. **222** indicates whether the UV system is operational or not.

„**Service status**" reg. **223** indicates whether the UV system requires service.

„**Error status**" reg. **224** indicates whether the UV system has any active errors or not.

Name	Reg.	Reg. type	Physical type	Data type	Read/Write	Unit	Enum
Safety switch 1.1	252	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 1.2	201	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 1.3	279	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 1.4	203	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 1.1	296	Holding	Analog	S16	R	Pa	
Pressure 1.2	297	Holding	Analog	S16	R	Pa	
Pressure 1.3	298	Holding	Analog	S16	R	Pa	
Pressure 1.4	299	Holding	Analog	S16	R	Pa	
Lamp 1 state	273	Holding	Digital	U16	R		0=Off, 1= On
Lamp 2 state	274	Holding	Digital	U16	R		0=Off, 1= On
Lamp 3 state	275	Holding	Digital	U16	R		0=Off, 1= On
Lamp 4 state	276	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	303	Holding	Analog	S16	R	h	
Lamp 1 start count	302	Holding	Analog	S16	R	clicks	

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Lamp 2 runtime	305	Holding	Analog	S16	R	h	
Lamp 2 start count	304	Holding	Analog	S16	R	clicks	
Lamp 3 runtime	307	Holding	Analog	S16	R	h	
Lamp 3 start count	306	Holding	Analog	S16	R	clicks	
Lamp 4 runtime	309	Holding	Analog	S16	R	h	
Lamp 4 start count	308	Holding	Analog	S16	R	clicks	
Control unit type	227	Holding	Analog	S16	R		1=UV-L 1.1
System state	261	Holding	Analog	S16	RW		0=Off; 1=On; 2=Auto schedule
Select permission mode control	790	Holding	Analog	S16	RW		0=Remote; 1=Local; 2=Not used
Modbus work permission	263	Holding	Digital	U16	RW		0=Disabled; 1=Enabled
System work permission	521	Holding	Digital	U16	R		0=Disabled; 1=Enabled
Operation status	222	Holding	Digital	U16	R		0=Not active; 1=Active
Service status	223	Holding	Digital	U16	R		0=Not active; 1=Active
Error status	224	Holding	Digital	U16	R		0=Not active; 1=Active

Each alarm has its own 16-bit register, where the last number (LSB 1) shows the status of the alarm. In other words the inactive alarm is displayed in the register as such: $36_{10} = 24_{16} = 10010\textbf{0}$ (the red number indicates the alarm status).

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Error 500	269	Holding	Digital	U16	R		0=Not active; 1=Active
Error 400	270	Holding	Digital	U16	R		0=Not active; 1=Active
Error 208	408	Holding	Digital	U16	R		0=Not active; 1=Active
Error 207	416	Holding	Digital	U16	R		0=Not active; 1=Active
Error 206	415	Holding	Digital	U16	R		0=Not active; 1=Active
Error 205	228	Holding	Digital	U16	R		0=Not active; 1=Active
Error 204	210	Holding	Digital	U16	R		0=Not active; 1=Active
Error 203	412	Holding	Digital	U16	R		0=Not active; 1=Active
Error 202	411	Holding	Digital	U16	R		0=Not active; 1=Active
Error 201	410	Holding	Digital	U16	R		0=Not active; 1=Active
Error 200	409	Holding	Digital	U16	R		0=Not active; 1=Active
Error 107	435	Holding	Digital	U16	R		0=Not active; 1=Active
Error 106	432	Holding	Digital	U16	R		0=Not active; 1=Active
Error 105	426	Holding	Digital	U16	R		0=Not active; 1=Active
Error 104	423	Holding	Digital	U16	R		0=Not active; 1=Active
Error 103	433	Holding	Digital	U16	R		0=Not active; 1=Active
Error 102	430	Holding	Digital	U16	R		0=Not active; 1=Active
Error 101	424	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	421	Holding	Digital	U16	R		0=Not active; 1=Active
Error 013	429	Holding	Digital	U16	R		0=Not active; 1=Active
Error 012	428	Holding	Digital	U16	R		0=Not active; 1=Active
Error 011	427	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	379	Holding	Digital	U16	R		0=Not active; 1=Active
Error 004	420	Holding	Digital	U16	R		0=Not active; 1=Active
Error 003	419	Holding	Digital	U16	R		0=Not active; 1=Active
Error 002	418	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	417	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	422	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 2 – 10 000 h	425	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 3 – 10 000 h	431	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 4 – 10 000 h	434	Holding	Digital	U16	R		0=Not active; 1=Active
Fire alarm	272	Holding	Digital	U16	R		0=Not active; 1=Active
Ventilation alarm	1011	Holding	Digital	U16	R		0=Not active; 1=Active

Images are for illustrative purposes.
We reserve the right to make changes.

RDT-089-0823

5

2.2. Single UV-S type control unit

When you have physically done AHU/AFS cabling to UV device input socket UI 13 and plan to use it to give work permission to the UV device, then „Select permission mode control" reg. 686 value must be 1, „System work permission" reg. 412 will display whether the UV system has a work permission from the AHU/AFS or not.

When your are not using a physical AHU/AFS cabling to the UV device to give out work permission but instead wish to use Modbus to do this, then „Select permission mode control" reg. 686 value must be 0, „Modbus work permission" reg. 687 is the register into which you'll write 0 to not give a work permission and 1 to give a work permission to the UV device. „System work permission" reg. 412 will display whether the UV system has a work permission from the AHU/AFS or not.

„Operation status" reg. 222 indicates whether the UV system is operational or not.

„Service status" reg. 223 indicates whether the UV system requires service.

„Error status" reg. 224 indicates whether the UV system has any active errors or not.

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Safety switch 1.1	202	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 1.1	227	Holding	Analog	S16	R	Pa	
Lamp 1 state	205	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	231	Holding	Analog	S16	R	h	
Lamp 1 start count	232	Holding	Analog	S16	R	clicks	
Control unit type	229	Holding	Analog	S16	R		1= UV-S 1.1
System state	269	Holding	Analog	S16	RW		0=Off; 1=On; 2=Auto schedule
Select permission mode control	686	Holding	Analog	S16	RW		0=Remote; 1=Local; 2=Not used
Modbus work permission	687	Holding	Digital	U16	RW		0=Disabled; 1=Enabled
System work permission	412	Holding	Digital	U16	R		0=Disabled; 1=Enabled
Operation status	222	Holding	Digital	U16	R		0=Not active; 1=Active
Service status	223	Holding	Digital	U16	R		0=Not active; 1=Active
Error status	224	Holding	Digital	U16	R		0=Not active; 1=Active
Each alarm has its own 16-bit register, where the last number (LSB 1) shows the status of the alarm. In other words the inactive alarm is displayed in the register as such: $36_{10} = 24_{16} = 100100$ (the red number indicates the alarm status).							
Error 500	277	Holding	Digital	U16	R		0=Not active; 1=Active
Error 210	281	Holding	Digital	U16	R		0=Not active; 1=Active
Error 209	278	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	285	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	280	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	279	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	286	Holding	Digital	U16	R		0=Not active; 1=Active
Fire alarm	283	Holding	Digital	U16	R		0=Not active; 1=Active
Ventilation alarm	1011	Holding	Digital	U16	R		0=Not active; 1=Active

2.3. UV system with multiple control units where type UV-L is the Master

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Safety switch 1.1	252	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 1.2	201	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 1.3	279	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 1.4	203	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 1.1	296	Holding	Analog	S16	R	Pa	
Pressure 1.2	297	Holding	Analog	S16	R	Pa	

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Pressure 1.3	298	Holding	Analog	S16	R	Pa	
Pressure 1.4	299	Holding	Analog	S16	R	Pa	
Lamp 1 state	273	Holding	Digital	U16	R		0=Off, 1= On
Lamp 2 state	274	Holding	Digital	U16	R		0=Off, 1= On
Lamp 3 state	275	Holding	Digital	U16	R		0=Off, 1= On
Lamp 4 state	276	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	303	Holding	Analog	S16	R	h	
Lamp 1 start count	302	Holding	Analog	S16	R	clicks	
Lamp 2 runtime	305	Holding	Analog	S16	R	h	
Lamp 2 start count	304	Holding	Analog	S16	R	clicks	
Lamp 3 runtime	307	Holding	Analog	S16	R	h	
Lamp 3 start count	306	Holding	Analog	S16	R	clicks	
Lamp 4 runtime	309	Holding	Analog	S16	R	h	
Lamp 4 start count	308	Holding	Analog	S16	R	clicks	
Control unit type	227	Holding	Analog	S16	R		1=UV-L 1.1
System state	261	Holding	Analog	S16	RW		0=Off; 1=On; 2=Auto schedule
Select permission mode control	790	Holding	Analog	S16	RW		0=Remote; 1=Local; 2=Not used
Modbus work permission	263	Holding	Digital	U16	RW		0=Disabled; 1=Enabled
System work permission	521	Holding	Digital	U16	R		0=Disabled; 1=Enabled
Operation status	222	Holding	Digital	U16	R		0=Not active; 1=Active
Service status	223	Holding	Digital	U16	R		0=Not active; 1=Active
Error status	224	Holding	Digital	U16	R		0=Not active; 1=Active

Each alarm has its own 16-bit register, where the last number (LSB 1) shows the status of the alarm. In other words the inactive alarm is displayed in the register as such: $36_{10} = 24_{16} = 100100$ (the red number indicates the alarm status).

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Error 500	269	Holding	Digital	U16	R		0=Not active; 1=Active
Error 400	270	Holding	Digital	U16	R		0=Not active; 1=Active
Error 208	408	Holding	Digital	U16	R		0=Not active; 1=Active
Error 207	416	Holding	Digital	U16	R		0=Not active; 1=Active
Error 206	415	Holding	Digital	U16	R		0=Not active; 1=Active
Error 205	228	Holding	Digital	U16	R		0=Not active; 1=Active
Error 204	210	Holding	Digital	U16	R		0=Not active; 1=Active
Error 203	412	Holding	Digital	U16	R		0=Not active; 1=Active
Error 202	411	Holding	Digital	U16	R		0=Not active; 1=Active
Error 201	410	Holding	Digital	U16	R		0=Not active; 1=Active
Error 200	409	Holding	Digital	U16	R		0=Not active; 1=Active
Error 107	435	Holding	Digital	U16	R		0=Not active; 1=Active
Error 106	432	Holding	Digital	U16	R		0=Not active; 1=Active
Error 105	426	Holding	Digital	U16	R		0=Not active; 1=Active
Error 104	423	Holding	Digital	U16	R		0=Not active; 1=Active
Error 103	433	Holding	Digital	U16	R		0=Not active; 1=Active
Error 102	430	Holding	Digital	U16	R		0=Not active; 1=Active
Error 101	424	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	421	Holding	Digital	U16	R		0=Not active; 1=Active
Error 013	429	Holding	Digital	U16	R		0=Not active; 1=Active
Error 012	428	Holding	Digital	U16	R		0=Not active; 1=Active
Error 011	427	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	379	Holding	Digital	U16	R		0=Not active; 1=Active
Error 004	420	Holding	Digital	U16	R		0=Not active; 1=Active
Error 003	419	Holding	Digital	U16	R		0=Not active; 1=Active

Images are for illustrative purposes. We reserve the right to make changes.

RDT-089-0823

7

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Error 002	418	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	417	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	422	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 2 – 10 000 h	425	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 3 – 10 000 h	431	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 4 – 10 000 h	434	Holding	Digital	U16	R		0=Not active; 1=Active
Fire alarm	272	Holding	Digital	U16	R		0=Not active; 1=Active
Ventilation alarm	1011	Holding	Digital	U16	R		0=Not active; 1=Active
Safety switch 2.1	211	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 2.2	253	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 2.3	254	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 2.4	258	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 2.1	339	Holding	Analog	S16	R	Pa	
Pressure 2.2	340	Holding	Analog	S16	R	Pa	
Pressure 2.3	341	Holding	Analog	S16	R	Pa	
Pressure 2.4	342	Holding	Analog	S16	R	Pa	
Lamp 1 state	312	Holding	Digital	U16	R		0=Off, 1= On
Lamp 2 state	313	Holding	Digital	U16	R		0=Off, 1= On
Lamp 3 state	314	Holding	Digital	U16	R		0=Off, 1= On
Lamp 4 state	338	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	366	Holding	Analog	S16	R	h	
Lamp 1 start count	365	Holding	Analog	S16	R	clicks	
Lamp 2 runtime	368	Holding	Analog	S16	R	h	
Lamp 2 start count	367	Holding	Analog	S16	R	clicks	
Lamp 3 runtime	372	Holding	Analog	S16	R	h	
Lamp 3 start count	371	Holding	Analog	S16	R	clicks	
Lamp 4 runtime	370	Holding	Analog	S16	R	h	
Lamp 4 start count	369	Holding	Analog	S16	R	clicks	
Control unit type	359	Holding	Analog	S16	R		1=UV-L 1.1
Controller 2 address 2 not responding	791	Holding	Digital	U16	R		0=Not active; 1=Active
Error 500	792	Holding	Digital	U16	R		0=Not active; 1=Active
Error 400	806	Holding	Digital	U16	R		0=Not active; 1=Active
Error 208	793	Holding	Digital	U16	R		0=Not active; 1=Active
Error 207	801	Holding	Digital	U16	R		0=Not active; 1=Active
Error 206	800	Holding	Digital	U16	R		0=Not active; 1=Active
Error 205	799	Holding	Digital	U16	R		0=Not active; 1=Active
Error 204	798	Holding	Digital	U16	R		0=Not active; 1=Active
Error 203	797	Holding	Digital	U16	R		0=Not active; 1=Active
Error 202	796	Holding	Digital	U16	R		0=Not active; 1=Active
Error 201	795	Holding	Digital	U16	R		0=Not active; 1=Active
Error 200	794	Holding	Digital	U16	R		0=Not active; 1=Active
Error 107	822	Holding	Digital	U16	R		0=Not active; 1=Active
Error 106	819	Holding	Digital	U16	R		0=Not active; 1=Active
Error 105	816	Holding	Digital	U16	R		0=Not active; 1=Active
Error 104	813	Holding	Digital	U16	R		0=Not active; 1=Active
Error 103	820	Holding	Digital	U16	R		0=Not active; 1=Active
Error 102	817	Holding	Digital	U16	R		0=Not active; 1=Active
Error 101	814	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	811	Holding	Digital	U16	R		0=Not active; 1=Active
Error 013	805	Holding	Digital	U16	R		0=Not active; 1=Active
Error 012	804	Holding	Digital	U16	R		0=Not active; 1=Active
Error 011	803	Holding	Digital	U16	R		0=Not active; 1=Active

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Error 010	802	Holding	Digital	U16	R		0=Not active; 1=Active
Error 004	810	Holding	Digital	U16	R		0=Not active; 1=Active
Error 003	809	Holding	Digital	U16	R		0=Not active; 1=Active
Error 002	808	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	807	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	812	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 2 – 10 000 h	815	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 3 – 10 000 h	818	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 4 – 10 000 h	821	Holding	Digital	U16	R		0=Not active; 1=Active
Safety switch 3.1	373	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 3.2	374	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 3.3	375	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 3.4	376	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 3.1	400	Holding	Analog	S16	R	Pa	
Pressure 3.2	402	Holding	Analog	S16	R	Pa	
Pressure 3.3	413	Holding	Analog	S16	R	Pa	
Pressure 3.4	414	Holding	Analog	S16	R	Pa	
Lamp 1 state	384	Holding	Digital	U16	R		0=Off, 1= On
Lamp 2 state	385	Holding	Digital	U16	R		0=Off, 1= On
Lamp 3 state	396	Holding	Digital	U16	R		0=Off, 1= On
Lamp 4 state	398	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	449	Holding	Analog	S16	R	h	
Lamp 1 start count	448	Holding	Analog	S16	R	clicks	
Lamp 2 runtime	451	Holding	Analog	S16	R	h	
Lamp 2 start count	450	Holding	Analog	S16	R	clicks	
Lamp 3 runtime	455	Holding	Analog	S16	R	h	
Lamp 3 start count	454	Holding	Analog	S16	R	clicks	
Lamp 4 runtime	453	Holding	Analog	S16	R	h	
Lamp 4 start count	452	Holding	Analog	S16	R	clicks	
Control unit type	442	Holding	Analog	S16	R		1=UV-L 1.1
Device 3 address 3 not responding	823	Holding	Digital	U16	R		0=Not active; 1=Active
Error 500	824	Holding	Digital	U16	R		0=Not active; 1=Active
Error 400	838	Holding	Digital	U16	R		0=Not active; 1=Active
Error 208	825	Holding	Digital	U16	R		0=Not active; 1=Active
Error 207	833	Holding	Digital	U16	R		0=Not active; 1=Active
Error 206	832	Holding	Digital	U16	R		0=Not active; 1=Active
Error 205	831	Holding	Digital	U16	R		0=Not active; 1=Active
Error 204	830	Holding	Digital	U16	R		0=Not active; 1=Active
Error 203	829	Holding	Digital	U16	R		0=Not active; 1=Active
Error 202	828	Holding	Digital	U16	R		0=Not active; 1=Active
Error 201	827	Holding	Digital	U16	R		0=Not active; 1=Active
Error 200	826	Holding	Digital	U16	R		0=Not active; 1=Active
Error 107	854	Holding	Digital	U16	R		0=Not active; 1=Active
Error 106	851	Holding	Digital	U16	R		0=Not active; 1=Active
Error 105	848	Holding	Digital	U16	R		0=Not active; 1=Active
Error 104	845	Holding	Digital	U16	R		0=Not active; 1=Active
Error 103	852	Holding	Digital	U16	R		0=Not active; 1=Active
Error 102	849	Holding	Digital	U16	R		0=Not active; 1=Active
Error 101	846	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	843	Holding	Digital	U16	R		0=Not active; 1=Active
Error 013	837	Holding	Digital	U16	R		0=Not active; 1=Active
Error 012	836	Holding	Digital	U16	R		0=Not active; 1=Active

Images are for illustrative purposes.
We reserve the right to make changes.

RDT-089-0823

9

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Error 011	835	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	834	Holding	Digital	U16	R		0=Not active; 1=Active
Error 004	842	Holding	Digital	U16	R		0=Not active; 1=Active
Error 003	841	Holding	Digital	U16	R		0=Not active; 1=Active
Error 002	840	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	839	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	844	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 2 – 10 000 h	847	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 3 – 10 000 h	850	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 4 – 10 000 h	853	Holding	Digital	U16	R		0=Not active; 1=Active
Safety switch 4.1	456	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 4.2	457	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 4.3	458	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 4.4	459	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 4.1	467	Holding	Analog	S16	R	Pa	
Pressure 4.2	468	Holding	Analog	S16	R	Pa	
Pressure 4.3	469	Holding	Analog	S16	R	Pa	
Pressure 4.4	470	Holding	Analog	S16	R	Pa	
Lamp 1 state	463	Holding	Digital	U16	R		0=Off, 1= On
Lamp 2 state	464	Holding	Digital	U16	R		0=Off, 1= On
Lamp 3 state	465	Holding	Digital	U16	R		0=Off, 1= On
Lamp 4 state	466	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	480	Holding	Analog	S16	R	h	
Lamp 1 start count	479	Holding	Analog	S16	R	clicks	
Lamp 2 runtime	482	Holding	Analog	S16	R	h	
Lamp 2 start count	481	Holding	Analog	S16	R	clicks	
Lamp 3 runtime	486	Holding	Analog	S16	R	h	
Lamp 3 start count	485	Holding	Analog	S16	R	clicks	
Lamp 4 runtime	484	Holding	Analog	S16	R	h	
Lamp 4 start count	483	Holding	Analog	S16	R	clicks	
Control unit type	473	Holding	Analog	S16	R		1=UV-L 1.1
Device 4 address 4 not responding	855	Holding	Digital	U16	R		0=Not active; 1=Active
Error 500	856	Holding	Digital	U16	R		0=Not active; 1=Active
Error 400	870	Holding	Digital	U16	R		0=Not active; 1=Active
Error 208	857	Holding	Digital	U16	R		0=Not active; 1=Active
Error 207	865	Holding	Digital	U16	R		0=Not active; 1=Active
Error 206	864	Holding	Digital	U16	R		0=Not active; 1=Active
Error 205	863	Holding	Digital	U16	R		0=Not active; 1=Active
Error 204	862	Holding	Digital	U16	R		0=Not active; 1=Active
Error 203	861	Holding	Digital	U16	R		0=Not active; 1=Active
Error 202	860	Holding	Digital	U16	R		0=Not active; 1=Active
Error 201	859	Holding	Digital	U16	R		0=Not active; 1=Active
Error 200	858	Holding	Digital	U16	R		0=Not active; 1=Active
Error 107	886	Holding	Digital	U16	R		0=Not active; 1=Active
Error 106	883	Holding	Digital	U16	R		0=Not active; 1=Active
Error 105	880	Holding	Digital	U16	R		0=Not active; 1=Active
Error 104	877	Holding	Digital	U16	R		0=Not active; 1=Active
Error 103	884	Holding	Digital	U16	R		0=Not active; 1=Active
Error 102	881	Holding	Digital	U16	R		0=Not active; 1=Active
Error 101	878	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	875	Holding	Digital	U16	R		0=Not active; 1=Active
Error 013	869	Holding	Digital	U16	R		0=Not active; 1=Active

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Error 012	868	Holding	Digital	U16	R		0=Not active; 1=Active
Error 011	867	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	866	Holding	Digital	U16	R		0=Not active; 1=Active
Error 004	874	Holding	Digital	U16	R		0=Not active; 1=Active
Error 003	873	Holding	Digital	U16	R		0=Not active; 1=Active
Error 002	872	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	871	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	876	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 2 – 10 000 h	879	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 3 – 10 000 h	882	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 4 – 10 000 h	885	Holding	Digital	U16	R		0=Not active; 1=Active
Safety switch 5.1	490	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 5.1	496	Holding	Analog	S16	R	Pa	
Lamp 1 state	491	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	503	Holding	Analog	S16	R	h	
Lamp 1 start count	504	Holding	Analog	S16	R	clicks	
Control unit type	498	Holding	Analog	S16	R		1= UV-S 1.1
Device 5 address 5 not responding	887	Holding	Digital	U16	R		0=Not active; 1=Active
Error 500	888	Holding	Digital	U16	R		0=Not active; 1=Active
Error 210	889	Holding	Digital	U16	R		0=Not active; 1=Active
Error 209	892	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	893	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	891	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	890	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 service	894	Holding	Digital	U16	R		0=Not active; 1=Active
Safety switch 6.1	506	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 6.1	512	Holding	Analog	S16	R	Pa	
Lamp 1 state	507	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	519	Holding	Analog	S16	R	h	
Lamp 1 start count	520	Holding	Analog	S16	R	clicks	
Control unit type	514	Holding	Analog	S16	R		1= UV-S 1.1
Device 6 address 6 not responding	895	Holding	Digital	U16	R		0=Not active; 1=Active
Error 500	896	Holding	Digital	U16	R		0=Not active; 1=Active
Error 210	897	Holding	Digital	U16	R		0=Not active; 1=Active
Error 209	900	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	901	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	899	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	898	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	902	Holding	Digital	U16	R		0=Not active; 1=Active

2.4. UV system with multiple control units where type UV-S is the Master

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Safety switch 1.1	202	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 1.1	227	Holding	Analog	S16	R	Pa	
Lamp 1 state	205	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	231	Holding	Analog	S16	R	h	
Lamp 1 start count	232	Holding	Analog	S16	R	clicks	
Control unit type	229	Holding	Analog	S16	R		1= UV-S 1.1

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
System state	269	Holding	Analog	S16	RW		0=Off; 1=On; 2=Auto schedule
Select permission mode control	686	Holding	Analog	S16	RW		0=Remote; 1=Local; 2=Not used
Modbus work permission	687	Holding	Digital	U16	RW		0=Disabled; 1=Enabled
System work permission	412	Holding	Digital	U16	R		0=Disabled; 1=Enabled
Operation status	222	Holding	Digital	U16	R		0=Not active; 1=Active
Service status	223	Holding	Digital	U16	R		0=Not active; 1=Active
Error status	224	Holding	Digital	U16	R		0=Not active; 1=Active
Each alarm has its own 16-bit register, where the last number (LSB 1) shows the status of the alarm. In other words the inactive alarm is displayed in the register as such: $36_{10} = 24_{16} = 100100$ (the red number indicates the alarm status).							
Error 500	277	Holding	Digital	U16	R		0=Not active; 1=Active
Error 210	281	Holding	Digital	U16	R		0=Not active; 1=Active
Error 209	278	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	285	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	280	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	279	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	286	Holding	Digital	U16	R		0=Not active; 1=Active
Fire alarm	283	Holding	Digital	U16	R		0=Not active; 1=Active
Ventilation alarm	1011	Holding	Digital	U16	R		0=Not active; 1=Active
Safety switch 2.1	318	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 2.2	319	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 2.3	320	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 2.4	321	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 2.1	329	Holding	Analog	S16	R	Pa	
Pressure 2.2	330	Holding	Analog	S16	R	Pa	
Pressure 2.3	331	Holding	Analog	S16	R	Pa	
Pressure 2.4	332	Holding	Analog	S16	R	Pa	
Lamp 1 state	325	Holding	Digital	U16	R		0=Off, 1= On
Lamp 2 state	326	Holding	Digital	U16	R		0=Off, 1= On
Lamp 3 state	327	Holding	Digital	U16	R		0=Off, 1= On
Lamp 4 state	328	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	342	Holding	Analog	S16	R	h	
Lamp 1 start count	341	Holding	Analog	S16	R	clicks	
Lamp 2 runtime	344	Holding	Analog	S16	R	h	
Lamp 2 start count	343	Holding	Analog	S16	R	clicks	
Lamp 3 runtime	348	Holding	Analog	S16	R	h	
Lamp 3 start count	347	Holding	Analog	S16	R	clicks	
Lamp 4 runtime	346	Holding	Analog	S16	R	h	
Lamp 4 start count	345	Holding	Analog	S16	R	clicks	
Control unit type	335	Holding	Analog	S16	R		1=UV-L 1.1
Controller 2 address 2 not responding	704	Holding	Digital	U16	R		0=Not active; 1=Active
Error 500	705	Holding	Digital	U16	R		0=Not active; 1=Active
Error 400	719	Holding	Digital	U16	R		0=Not active; 1=Active
Error 208	706	Holding	Digital	U16	R		0=Not active; 1=Active
Error 207	712	Holding	Digital	U16	R		0=Not active; 1=Active
Error 206	711	Holding	Digital	U16	R		0=Not active; 1=Active
Error 205	714	Holding	Digital	U16	R		0=Not active; 1=Active
Error 204	713	Holding	Digital	U16	R		0=Not active; 1=Active
Error 203	710	Holding	Digital	U16	R		0=Not active; 1=Active
Error 202	709	Holding	Digital	U16	R		0=Not active; 1=Active

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Error 201	708	Holding	Digital	U16	R		0=Not active; 1=Active
Error 200	707	Holding	Digital	U16	R		0=Not active; 1=Active
Error 107	732	Holding	Digital	U16	R		0=Not active; 1=Active
Error 106	735	Holding	Digital	U16	R		0=Not active; 1=Active
Error 105	729	Holding	Digital	U16	R		0=Not active; 1=Active
Error 104	726	Holding	Digital	U16	R		0=Not active; 1=Active
Error 103	730	Holding	Digital	U16	R		0=Not active; 1=Active
Error 102	733	Holding	Digital	U16	R		0=Not active; 1=Active
Error 101	727	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	724	Holding	Digital	U16	R		0=Not active; 1=Active
Error 013	718	Holding	Digital	U16	R		0=Not active; 1=Active
Error 012	717	Holding	Digital	U16	R		0=Not active; 1=Active
Error 011	716	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	715	Holding	Digital	U16	R		0=Not active; 1=Active
Error 004	723	Holding	Digital	U16	R		0=Not active; 1=Active
Error 003	722	Holding	Digital	U16	R		0=Not active; 1=Active
Error 002	721	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	720	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	725	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 2 – 10 000 h	728	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 3 – 10 000 h	734	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 4 – 10 000 h	731	Holding	Digital	U16	R		0=Not active; 1=Active
Safety switch 3.1	349	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 3.2	350	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 3.3	351	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 3.4	379	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 3.1	359	Holding	Analog	S16	R	Pa	
Pressure 3.2	360	Holding	Analog	S16	R	Pa	
Pressure 3.3	361	Holding	Analog	S16	R	Pa	
Pressure 3.4	362	Holding	Analog	S16	R	Pa	
Lamp 1 state	355	Holding	Digital	U16	R		0=Off, 1= On
Lamp 2 state	356	Holding	Digital	U16	R		0=Off, 1= On
Lamp 3 state	357	Holding	Digital	U16	R		0=Off, 1= On
Lamp 4 state	358	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	372	Holding	Analog	S16	R	h	
Lamp 1 start count	371	Holding	Analog	S16	R	clicks	
Lamp 2 runtime	374	Holding	Analog	S16	R	h	
Lamp 2 start count	373	Holding	Analog	S16	R	clicks	
Lamp 3 runtime	378	Holding	Analog	S16	R	h	
Lamp 3 start count	377	Holding	Analog	S16	R	clicks	
Lamp 4 runtime	376	Holding	Analog	S16	R	h	
Lamp 4 start count	375	Holding	Analog	S16	R	clicks	
Control unit type	365	Holding	Analog	S16	R		1=UV-L 1.1
Device 3 address 3 not responding	736	Holding	Digital	U16	R		0=Not active; 1=Active
Error 500	737	Holding	Digital	U16	R		0=Not active; 1=Active
Error 400	751	Holding	Digital	U16	R		0=Not active; 1=Active
Error 208	738	Holding	Digital	U16	R		0=Not active; 1=Active
Error 207	744	Holding	Digital	U16	R		0=Not active; 1=Active
Error 206	743	Holding	Digital	U16	R		0=Not active; 1=Active
Error 205	746	Holding	Digital	U16	R		0=Not active; 1=Active
Error 204	745	Holding	Digital	U16	R		0=Not active; 1=Active
Error 203	742	Holding	Digital	U16	R		0=Not active; 1=Active

Name	Reg.	Reg. type	Physical type	Data type	Read/ Write	Unit	Enum
Error 202	714	Holding	Digital	U16	R		0=Not active; 1=Active
Error 201	740	Holding	Digital	U16	R		0=Not active; 1=Active
Error 200	739	Holding	Digital	U16	R		0=Not active; 1=Active
Error 107	764	Holding	Digital	U16	R		0=Not active; 1=Active
Error 106	767	Holding	Digital	U16	R		0=Not active; 1=Active
Error 105	761	Holding	Digital	U16	R		0=Not active; 1=Active
Error 104	758	Holding	Digital	U16	R		0=Not active; 1=Active
Error 103	762	Holding	Digital	U16	R		0=Not active; 1=Active
Error 102	765	Holding	Digital	U16	R		0=Not active; 1=Active
Error 101	759	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	756	Holding	Digital	U16	R		0=Not active; 1=Active
Error 013	750	Holding	Digital	U16	R		0=Not active; 1=Active
Error 012	749	Holding	Digital	U16	R		0=Not active; 1=Active
Error 011	748	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	747	Holding	Digital	U16	R		0=Not active; 1=Active
Error 004	755	Holding	Digital	U16	R		0=Not active; 1=Active
Error 003	754	Holding	Digital	U16	R		0=Not active; 1=Active
Error 002	753	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	752	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	757	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 2 – 10 000 h	760	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 3 – 10 000 h	766	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 4 – 10 000 h	763	Holding	Digital	U16	R		0=Not active; 1=Active
Safety switch 4.1	380	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 4.2	381	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 4.3	382	Holding	Digital	U16	R		0=Okay; 1=Not okay
Safety switch 4.4	383	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 4.1	391	Holding	Analog	S16	R	Pa	
Pressure 4.2	392	Holding	Analog	S16	R	Pa	
Pressure 4.3	393	Holding	Analog	S16	R	Pa	
Pressure 4.4	394	Holding	Analog	S16	R	Pa	
Lamp 1 state	387	Holding	Digital	U16	R		0=Off, 1= On
Lamp 2 state	388	Holding	Digital	U16	R		0=Off, 1= On
Lamp 3 state	389	Holding	Digital	U16	R		0=Off, 1= On
Lamp 4 state	390	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	405	Holding	Analog	S16	R	h	
Lamp 1 start count	404	Holding	Analog	S16	R	clicks	
Lamp 2 runtime	407	Holding	Analog	S16	R	h	
Lamp 2 start count	406	Holding	Analog	S16	R	clicks	
Lamp 3 runtime	411	Holding	Analog	S16	R	h	
Lamp 3 start count	410	Holding	Analog	S16	R	clicks	
Lamp 4 runtime	409	Holding	Analog	S16	R	h	
Lamp 4 start count	408	Holding	Analog	S16	R	clicks	
Control unit type	397	Holding	Analog	S16	R		1=UV-L 1.1
Device 4 address 4 not responding	768	Holding	Digital	U16	R		0=Not active; 1=Active
Error 500	769	Holding	Digital	U16	R		0=Not active; 1=Active
Error 400	783	Holding	Digital	U16	R		0=Not active; 1=Active
Error 208	770	Holding	Digital	U16	R		0=Not active; 1=Active
Error 207	776	Holding	Digital	U16	R		0=Not active; 1=Active
Error 206	775	Holding	Digital	U16	R		0=Not active; 1=Active
Error 205	778	Holding	Digital	U16	R		0=Not active; 1=Active
Error 204	777	Holding	Digital	U16	R		0=Not active; 1=Active

Name	Reg.	Reg. type	Physical type	Data type	Read/Write	Unit	Enum
Error 203	774	Holding	Digital	U16	R		0=Not active; 1=Active
Error 202	773	Holding	Digital	U16	R		0=Not active; 1=Active
Error 201	772	Holding	Digital	U16	R		0=Not active; 1=Active
Error 200	771	Holding	Digital	U16	R		0=Not active; 1=Active
Error 107	796	Holding	Digital	U16	R		0=Not active; 1=Active
Error 106	799	Holding	Digital	U16	R		0=Not active; 1=Active
Error 105	793	Holding	Digital	U16	R		0=Not active; 1=Active
Error 104	790	Holding	Digital	U16	R		0=Not active; 1=Active
Error 103	794	Holding	Digital	U16	R		0=Not active; 1=Active
Error 102	797	Holding	Digital	U16	R		0=Not active; 1=Active
Error 101	791	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	788	Holding	Digital	U16	R		0=Not active; 1=Active
Error 013	782	Holding	Digital	U16	R		0=Not active; 1=Active
Error 012	781	Holding	Digital	U16	R		0=Not active; 1=Active
Error 011	780	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	779	Holding	Digital	U16	R		0=Not active; 1=Active
Error 004	787	Holding	Digital	U16	R		0=Not active; 1=Active
Error 003	786	Holding	Digital	U16	R		0=Not active; 1=Active
Error 002	785	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	784	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	789	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 2 – 10 000 h	792	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 3 – 10 000 h	798	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 4 – 10 000 h	795	Holding	Digital	U16	R		0=Not active; 1=Active
Safety switch 5.1	253	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 5.1	282	Holding	Analog	S16	R	Pa	
Lamp 1 state	257	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	300	Holding	Analog	S16	R	h	
Lamp 1 start count	301	Holding	Analog	S16	R	clicks	
Control unit type	288	Holding	Analog	S16	R		1= UV-S 1.1
Device 5 address 5 not responding	688	Holding	Digital	U16	R		0=Not active; 1=Active
Error 500	689	Holding	Digital	U16	R		0=Not active; 1=Active
Error 210	690	Holding	Digital	U16	R		0=Not active; 1=Active
Error 209	693	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	694	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	692	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	691	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	695	Holding	Digital	U16	R		0=Not active; 1=Active
Safety switch 6.1	303	Holding	Digital	U16	R		0=Okay; 1=Not okay
Pressure 6.1	309	Holding	Analog	S16	R	Pa	
Lamp 1 state	304	Holding	Digital	U16	R		0=Off, 1= On
Lamp 1 runtime	316	Holding	Analog	S16	R	h	
Lamp 1 start count	317	Holding	Analog	S16	R	clicks	
Control unit type	311	Holding	Analog	S16	R		1= UV-S 1.1
Device 6 address 6 not responding	696	Holding	Digital	U16	R		0=Not active; 1=Active
Error 500	697	Holding	Digital	U16	R		0=Not active; 1=Active
Error 210	698	Holding	Digital	U16	R		0=Not active; 1=Active
Error 209	701	Holding	Digital	U16	R		0=Not active; 1=Active
Error 100	702	Holding	Digital	U16	R		0=Not active; 1=Active
Error 010	700	Holding	Digital	U16	R		0=Not active; 1=Active
Error 001	699	Holding	Digital	U16	R		0=Not active; 1=Active
Lamp 1 – 10 000 h	703	Holding	Digital	U16	R		0=Not active; 1=Active

Images are for illustrative purposes.
We reserve the right to make changes.
RDT-089-0823
15

3. Error descriptions

Alarm type and control unit model	Alarm code/ text in the user interface (UI)	Explanation
Safety switch 1 (UV-S & UV-L)	ERROR 001	The safety switch has been activated, i.e. the UV protective plates have been removed for cleaning the UV canopy or they have not been put back correctly.
Safety switch 2 (UV-L)	ERROR 002	If the cover plates have been put back, but the error does not disappear, check:
Safety switch 3 (UV-L)	ERROR 003	1. Are the safety switches visually intact,
Safety switch 4 (UV-L)	ERROR 004	2. Cables and connection points have been visually inspected and apparently everything is fine, but the error does not disappear from the screen, then
		- the continuity of the cable from the control unit should be measured with an ohmmeter.
		a) If it is detected that the switch is interrupted (the switch swing does not reach to register the change), then the switch height should be corrected or the switch should be replaced.
		b) A disconnection of the connection socket of the extraction chamber is detected, if possible, repair work or replacement of the socket should be carried out.
		c) If a cable break is detected along the cable, the entire cable should be replaced. **SPOT REPAIR IS NOT RECOMMENDED!**
		If the error still cannot be identified, you should contact ETS NORD Service department.
Pressure nr. 1 (UV-S & UV-L)	ERROR 010	The pressure has fallen below the normal value of 20Pa in the canopy(s). It is possible to connect 4 pressure sensors per control unit. Their use depends on the configuration of the UV canopies at the customer. Therefore, if, for example, pressure sensors No. 1 and No. 2 are in use, but an error occurs in No. 3, then a wrong configuration type has been selected by the technician in the UV UI, contact the ETS NORD Service department.
Pressure nr. 2 (UV-L)	ERROR 011	
Pressure nr. 3 (UV-L)	ERROR 012	
Pressure nr. 4 (UV-L)	ERROR 013	- The pressure in the ventilation system has dropped due to the fact that the ventilation unit is either stopped or in sleep mode. You should contact the building manager.
		- However, if one pressure sensor shows a pressure difference of less than 20Pa, but the reading is not 0...2Pa and it is a single ventilation system, then you should start by identifying the error of the pressure sensor.
		UV shield X1 and X2 connection connectors (see *UV1.1 installation manual*). It should be analyzed whether the pressure sensors are broken or have been damaged during transport.
		To do this:
		a) Check whether the sensor is correctly connected to the shield (see the *UV1.1 installation manual*).
		b) Measure the voltage on pins X1 and X2 on the X1 and X2 slots of the shield with a voltmeter (see *UV1.1 installation manual* X1 and X2 pressure sensor power pins). If there is 24V +/-1.5V, everything is fine on the shield side.
		If the result is negative, you should contact the ETS NORD Service department.

Alarm type and control unit model	Alarm code/ text in the user interface (UI)	Explanation
Lamp 1 (UV-S & UV-L)	ERROR 100	UV control unit lamp no. 1 shows the status that defines whether the lamp has deteriorated during its working cycle. Possible failures at the site: 1. The lamp is disconnected in the bulb and has not been put back. 2. After washing the bulb: - the lamp is not correctly connected back to the lamp socket and either there is a bad contact - the lamp plug has come loose during operation. 3. The lamp socket has severe corrosion damage, which indicates that the bulb sockets were not covered during washing. If an error has occurred and restarting the system does not eliminate the error, you should contact ETS NORD Service department.
Lamp 2 (UV-L)	ERROR 101	UV control unit lamp no. 2 shows the status that defines whether the lamp has deteriorated during its working cycle. Possible failures at the site: 1. The lamp is disconnected in the bulb and has not been put back. 2. After washing the bulb: - the lamp is not correctly connected back to the lamp socket and either there is a bad contact - the lamp plug has come loose during operation. 3. The lamp socket has severe corrosion damage, which indicates that the bulb sockets were not covered during washing. If an error has occurred and restarting the system does not eliminate the error, you should contact ETS NORD Service department.
Lamp 3 (UV-L)	ERROR 102	UV control unit lamp no. 3 shows the status that defines whether the lamp has deteriorated during its working cycle. Possible failures at the site: 1. The lamp is disconnected in the bulb and has not been put back. 2. After washing the bulb: - the lamp is not correctly connected back to the lamp socket and either there is a bad contact - the lamp plug has come loose during operation. 3. The lamp socket has severe corrosion damage, which indicates that the bulb sockets were not covered during washing. If an error has occurred and restarting the system does not eliminate the error, you should contact ETS NORD Service department..
Lamp 4 (UV-L)	ERROR 103	UV control unit lamp no. 1 shows the status that defines whether the lamp has deteriorated during its working cycle. Possible failures at the site: 1. The lamp is disconnected in the bulb and has not been put back. 2. After washing the bulb: - the lamp is not correctly connected back to the lamp socket and either there is a bad contact - the lamp plug has come loose during operation. 3. The lamp socket has severe corrosion damage, which indicates that the bulb sockets were not covered during washing. If an error has occurred and restarting the system does not eliminate the error, you should contact ETS NORD Service department.

Alarm type and control unit model	Alarm code/ text in the user interface (UI)	Explanation
Lamp 1 (UV-L)	ERROR 104	The UV control unit on the lamp shows a state that defines whether the lamp has failed during its start-up cycle. Possible failures at the site: 1. The lamp is disconnected in the bulb and has not been put back. 2. After washing the bulb: - the lamp is not correctly connected back to the lamp socket and either there is a bad contact - the lamp plug has come loose during operation. 3. The lamp socket has severe corrosion damage, which indicates that the bulb sockets were not covered during washing. If an error has occurred and restarting the system does not eliminate the error, you should contact ETS NORD Service department.
Lamp 2 (UV-L)	ERROR 105	
Lamp 3 (UV-L)	ERROR 106	
Lamp 4 (UV-L)	ERROR 107	
Lamp 1 (UV-S & UV-L)	Lamp 1 - 10 000 h	Shows the working hours of the lamp in the UV control unit. When 10,000 working hours are reached, a notification alarm is generated to change the lamp, which does not prevent the system from functioning. For further action, read **the maintenance chapter** from the **UV 1.1. commissioning guide** document.
Lamp 2 (UV-L)	Lamp 2 - 10 000 h	
Lamp 3 (UV-L)	Lamp 3 - 10 000 h	
Lamp 4 (UV-L)	Lamp 4 - 10 000 h	
Control unit relay failure (UV-S)	ERROR 130	UV lamps will not start, contact ETS NORD Service department.
Lamp power supply unit system failure (UV-L)	ERROR 200	If an error has occurred and restarting the system does not eliminate the error, you should contact ETS NORD Service department.
Lamp power supply unit system failure (UV-L)	ERROR 201	Resetting the ballast - error ERROR 201/ERROR 202. In the event of an error, disconnect the supply voltage to the UV control unit with the error message. If the error persists, contact ETS NORD Service department.
Lamp power supply unit warning (UV-L)	ERROR 202	
Lamp power supply unit disruption of data flows (UV-L)	ERROR 203	UV program error and you should contact ETS NORD AS R&D automation department or ETS NORD Service department.
Lamp power supply unit fan temperature (UV-L)	ERROR 204	The alarm is activated when the ballast temperature is either below 0°C or above 55°C, in which case the system stops working (the lamps do not light up). The system waits until the temperature of the power supply unit has normalized, and then the UV system starts working again. If the error persists, contact ETS NORD Service department.
Lamp power supply unit temperature (UV-L)	ERROR 205	

Alarm type and control unit model	Alarm code/ text in the user interface (UI)	Explanation
Lamp power supply unit supply voltage (UV-L)	ERROR 206	There has been a problem with the power supply and there has been either a voltage drop or an overvoltage. The ballast EPS880 should have turned itself off and after the voltage is restored, either ERROR 206 or ERROR 207 should be activated when the UV system is started. To solve the error, make sure that there are no more problems with the power supply and perform ballast reset by disconnecting the supply voltage to the UV control unit with the error message. After resetting the ballast, ERROR 206 or ERROR 207 should no longer be active and the UV system will continue to operate normally. If the error persists, contact the ETS NORD Service department.
Lamp power supply unit adapter voltage (UV-L)	ERROR 207	
Lamp power supply unit not responding (UV-L)	ERROR 208	Contact the ETS NORD Service department.
Lamp power supply unit temperature (UV-S)	ERROR 209	The temperature of the ballast is above 50°C, the UV system switches off and starts when the temperature inside the control unit is below 40°C. The user of the system does not have to do anything. However, the real temperature of the object should be measured with other temperature sensors, in order to understand whether the temp. sensor inside the control unit is faulty.
Controller input UI 1 fault (UV-S)	ERROR 210	Contact the ETS NORD Service department.
AHU/ATS (UV-S & UV-L)	Fire & Ventilation alarm	By default, AHU and ATS notification functionality is disabled. However, if the capability is activated other than ETS NORD or a cooperation partner, an error occurs in the system and the UV system and UV lamps do not work. Cause of the error: there is no work permit from the automatic fire protection system or there is a fault in the cabling.
Controller (UV-S & UV-L)	ERROR 500	If an error occurs, the system will reboot. If the error persists, contact the ETS NORD Service department.
Slave device 2 (UV-S & UV-L)	Controller 2 address 2 not responding	The additional controller devices added under the system main controller are not available. For example, the wrong address was assigned to the controller or the connection was lost for some other reason. Check the correctness of the addresses of the additional controller devices. If the error persists, contact ETS NORD Service department.
Slave device 3 (UV-S & UV-L)	Controller 3 address 3 not responding	
Slave device 4 (UV-S & UV-L)	Controller 4 address 4 not responding	
Slave device 5 (UV-S & UV-L)	Controller 5 address 5 not responding	
Slave device 6 (UV-S & UV-L)	Controller 6 address 6 not responding	

ETS NORD

ETS NORD AS

Address: Peterburi tee 53
              11415 Tallinn
              Estonia

Phone: +372 680 7360

              info@etsnord.ee
              www.etsnord.ee

ETS NORD Finland

Address: Pakkasraitti 4
              04360 Tuusula
              Finland

Phone: +358 40 18 42 842

              info@etsnord.fi
              www.etsnord.fi

ETS NORD Sweden

Address: Järsjögatan 7
              69235 Kumla
              Sweden

Phone: +46 19 554 20 50

              info@etsnord.se
              www.etsnord.se

Address: Pinjegatan 5
              21363 Malmö
              Sweden

Phone: +46 40-94 68 70

              info@etsnord.se
              www.etsnord.se

ETS NORD International

              info@etsnord.com
              www.etsnord.com

Let's move the air **together!**