



Interface specification Profibus/Profinet aicore™ fusion

Profibus/Profinet parameter specification for the Güntner System Controller aicore™ fusion
Valid for interface modules 5215526 & 5215616

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Version history

Version	Information
01.00.00	Document created Valid for interface modules 5215526 & 5215616
01.00.01	Change of product name from "GSCnext" to "aicore™ fusion"

1 Introduction

This document describes the Profibus and Profinet Communication of the Günter System Controller aicore™ fusion. The Güntner controller communicates via a gateway from Modbus RTU to Profibus DP or Profinet IO.

The aicore™ fusion is available via the gateway as a Profibus DP slave or Profinet IO device.

The corresponding modules are available with the following ERP numbers and each consist of the configured gateway and an installation kit:

- Profibus DP: 5215526
- Profinet IO: 5215616
- Installation kit: 5215617

For connection to a Profibus/Profinet master , specialist knowledge is required.

The following GSD files are also needed:

- Profibus module: "HMSA183B.gsd"
- Profinet module: "GSDML-Vx.xx-HMS-Anybus-Communicator-202xxxxx.xml"

These are available on the gateway and can be downloaded via the web interface (see "[Gateway](#)").

2 Settings

2.1 aicore™ fusion

The following parameters must be set on the aicore™ fusion so that communication with the Profibus/Profinet gateway works.

Modbus settings	
Modbus address	1
Baud rate	19200
Framing	8,N,1
Data format	16 bit
Modbus mapping	Standard

2.2 Gateway

The following address setting is possible on the gateway:

Profibus	
Address	Range: 1-126 adjustable via rotary switch

Profinet	
Device name	Default setting: "aicorefusion-pn" adjustable via PLC programming software

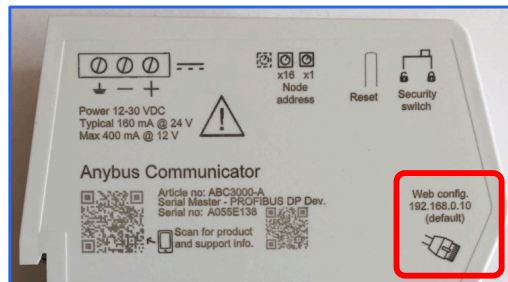
Setting of the Profibus address via rotary switch:

- 1 Disconnect the power supply of the gateway
- 2 Set address with rotary switches (hexadecimal coded, e.g. 126 = 7E)
(rotary switch 1 must always be "0")
When set to "00", the address from the web configuration is used.

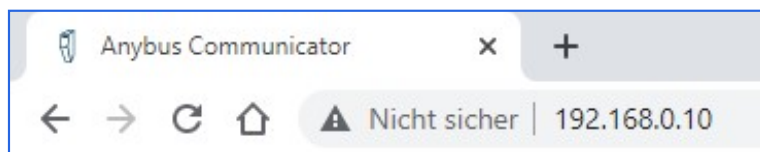


The necessary GSD/GSDML file is included on the gateway and can be downloaded via the web interface:

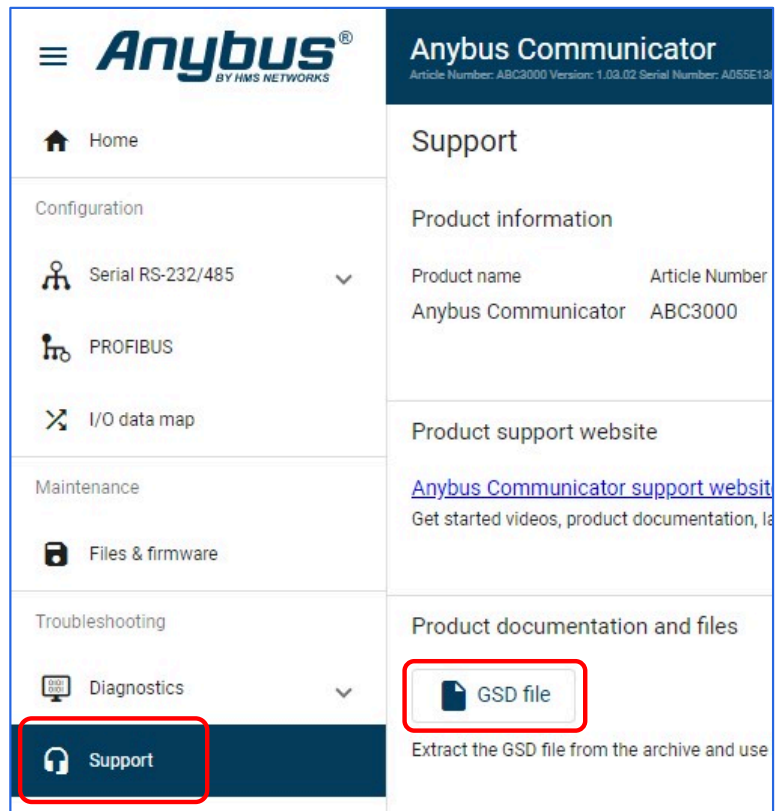
- 1 Connect the power supply of the gateway
- 2 Connection via Ethernet to the configuration port of the gateway



- 3 Calling up the IP address in the web browser (192.168.0.10)



- 4 Open the "Support" menu via the web interface and download the file



2.3 PLC

The following hardware configurations are necessary in the PLC:

Profibus:

- Required GDS file:
 - “HMSA183B.gsd”
- Input modules to be configured (239 bytes):
 - “1 Byte Input Module”
 - “2 Bytes Input Module”
 - “4 Bytes Input Module”
 - “8 Bytes Input Module”
 - “32 Bytes Input Module”
 - “64 Bytes Input Module”
 - “128 Bytes Input Module”
- Output modules to be configured (57 bytes):
 - “1 Byte Output Module”
 - “8 Bytes Output Module”
 - “16 Bytes Output Module”
 - “32 Bytes Output Module”

Profinet:

- Required GSDML file:
 - “GSDML-Vx.xx-HMS-Anybus-Communicator-202xxxxx.xml”
- Input module to be configured (239 bytes):
 - “IN 0239”
- Output module to be configured (57 bytes):
 - “OUT 0057”

The gateway does not send data to the aicore cyclically. It sends them only in the event of a value change on the part of the PLC.™ fusion.

If the connection between PLC and gateway is interrupted, the last data are retained in the gateway and thus also remain in the aicore™ fusion.

3 Data points of the aicore™ fusion

I/O addresses		Designator	Description
E 0.0	-	internal	---
E 0.1	-	not used	---
...			
E 3.7			
E 4.0	A 0.0	Manual mode	0 = off, 1 = on
E 4.1	A 0.1	Manual mode: Inverse run	0 = off, 1 = on
E 4.2	A 0.2	internal	---
E 4.3	A 0.3	Night setback	0 = off, 1 = on
E 4.4	A 0.4	not used	---
...	...		
E 4.7	A 0.7		
E 5.0	A 1.0	Control cycle 1: Setpoint displacement	0 = off, 1 = on
E 5.1	A 1.1	Control cycle 2: Setpoint displacement	0 = off, 1 = on
E 5.2	A 1.2	not used	---
...	...		
E 5.7	A 1.7		
E 6.0	-	Diagnosis: Fan alarm	0 = inactive, 1 = active
E 6.1	-	Diagnosis: Fan alarm (collective message)	0 = inactive, 1 = active
E 6.2	-	Diagnosis: Sensor alarm	0 = inactive, 1 = active
E 6.3	-	Diagnosis: Alarm message (Prio 1)	0 = inactive, 1 = active
E 6.4	-	Diagnosis: Operating message	0 = inactive, 1 = active
E 6.5	-	Diagnosis: Warning message (Prio 2)	0 = inactive, 1 = active
E 6.6	-	Inverse operation active	0 = inactive, 1 = active
E 6.7	-	internal	---
E 7.0	-	Manual mode active	0 = inactive, 1 = active
E 7.1	-	internal	---
E 7.2	-	Night setback active	0 = inactive, 1 = active
E 7.3	-	not used	---
...			
E 7.7			
E 8.0	-	Control cycle 1: enabled	0 = inactive, 1 = active
E 8.1	-	Control loop 2: enabled	0 = inactive, 1 = active
E 8.2	-	not used	---
...			
E 8.7			
E 9.0	-	Maintenance run fan group 1 active	0 = inactive, 1 = active

I/O addresses		Designator	Description
E 9.1	-	Maintenance run fan group 2 active	0 = inactive, 1 = active (only for 2-row units with 2 control cycles and separate assignment of the control cycles to the fan rows "side-by-side")
E 9.2 E 9.3	-	internal	---
E 9.4	-	Control cycle 1: Setpoint displacement active	0 = inactive, 1 = active
E 9.5	-	Control cycle 2: Setpoint displacement active	0 = inactive, 1 = active
E 9.6 ... E 9.7	-	not used	---
E 10.0	-	Control cycle 1: Threshold value active	0 = inactive, 1 = active
E 10.1	-	Control cycle 2: Threshold value active	0 = inactive, 1 = active
E 10.2 ... E 10.7	-	not used	---
E 11.0	-	Fan 1: Alarm	0 = inactive, 1 = active
E 11.1	-	Fan 2: Alarm	0 = inactive, 1 = active
E 11.2	-	Fan 3: Alarm	0 = inactive, 1 = active
E 11.3	-	Fan 4: Alarm	0 = inactive, 1 = active
E 11.4	-	Fan 5: Alarm	0 = inactive, 1 = active
E 11.5	-	Fan 6: Alarm	0 = inactive, 1 = active
E 11.6	-	Fan 7: Alarm	0 = inactive, 1 = active
E 11.7	-	Fan 8: Alarm	0 = inactive, 1 = active
E 12.0	-	Fan 9: Alarm	0 = inactive, 1 = active
E 12.1	-	Fan 10: Alarm	0 = inactive, 1 = active
E 12.2	-	Fan 11: Alarm	0 = inactive, 1 = active
E 12.3	-	Fan 12: Alarm	0 = inactive, 1 = active
E 12.4	-	Fan 13: Alarm	0 = inactive, 1 = active
E 12.5	-	Fan 14: Alarm	0 = inactive, 1 = active
E 12.6	-	Fan 15: Alarm	0 = inactive, 1 = active
E 12.7	-	Fan 16: Alarm	0 = inactive, 1 = active
E 13.0	-	Fan 17: Alarm	0 = inactive, 1 = active
E 13.1	-	Fan 18: Alarm	0 = inactive, 1 = active
E 13.2	-	Fan 19: Alarm	0 = inactive, 1 = active
E 13.3	-	Fan 20: Alarm	0 = inactive, 1 = active
E 13.4	-	Fan 21: Alarm	0 = inactive, 1 = active
E 13.5	-	Fan 22: Alarm	0 = inactive, 1 = active

I/O addresses		Designator	Description
E 13.6	-	Fan 23: Alarm	0 = inactive, 1 = active
E 13.7	-	Fan 24: Alarm	0 = inactive, 1 = active
E 14.0	-	Analogue input 1: Alarm	0 = inactive, 1 = active
E 14.1	-	Analogue input 2: Alarm	0 = inactive, 1 = active
E 14.2	-	Analogue input 3: Alarm	0 = inactive, 1 = active
E 14.3	-	Analogue input 4: Alarm	0 = inactive, 1 = active
E 14.4	-	Analogue input 5: Alarm	0 = inactive, 1 = active
E 14.5 ... E 14.7	-	not used	---
EW 15	AW 2	System of units	1 = SI (°C, bar, l) 2 = IP (°F, psig, gal)
EW 17	AW 4	Modbus data format	1 = 16 bit (default setting), 2 = 32 bit The 16-bit mode must be active!
EW 19	AW 6	Operating mode	1 = Auto internal 2 = Auto external analogue 3 = Auto external bus 4 = Slave external analogue 5 = Slave external bus
EW 21	AW 8	Inverse run: Max. control value for enabling inverse run	Scaling: 0.01 [%], Value range: 0...99 %
EW 23	AW 10	Manual mode: Control value	Scaling: 0.01 [%], Value range: 0...100 %
EW 25	AW 12	Night setback: Maximum control value	Scaling: 0.01 [%], Value range: 0...100 %
EW 27	AW 14	Control cycle 1: Control value external bus	Scaling: 0.01 [%], Value range: 0...100 %
EW 29	AW 16	Control cycle 2: Control value external bus	Scaling: 0.01 [%], Value range: 0...100 %
EW 31	AW 18	Control cycle 1: Setpoint count	Value range: 1.2
EW 33	AW 20	Control cycle 2: Setpoint count	Value range: 1.2
EW 35	AW 22	Control cycle 1: Pressure setpoint 1	Scaling: 0.01 [bar] / 0.1 [psig], Value range: 0...50 bar / 0...725.188 psig
EW 37	AW 24	Control cycle 2: Pressure setpoint 1	Scaling: 0.01 [bar] / 0.1 [psig], Value range: 0...50 bar / 0...725.188 psig
EW 39	AW 26	Control cycle 1: Pressure setpoint 2	Scaling: 0.01 [bar] / 0.1 [psig], Value range: 0...50 bar / 0...725.188 psig
EW 41	AW 28	Control cycle 2: Pressure setpoint 2	Scaling: 0.01 [bar] / 0.1 [psig], Value range: 0...50 bar / 0...725.188 psig
EW 43	AW 30	Control cycle 1: Temperature setpoint 1	Scaling: 0.01 [°C] / 0.01 [°F], Value range: -30...100 °C / -22...212 °F
EW 45	AW 32	Control cycle 2: Temperature setpoint 1	Scaling: 0.01 [°C] / 0.01 [°F], Value range: -30...100 °C / -22...212 °F

I/O addresses		Designator	Description
EW 47	AW 34	Control cycle 1: Temperature setpoint 2	Scaling: 0.01 [°C] / 0.01 [°F], Value range: -30...100 °C / -22...212 °F
EW 49	AW 36	Control cycle 2: Temperature setpoint 2	Scaling: 0.01 [°C] / 0.01 [°F], Value range: -30...100 °C / -22...212 °F
EW 51	-	Fan group 1: Control value	Scaling: 0.01 [%]
EW 53	-	Fan group 2: Control value	Scaling: 0.01 [%] (only for 2-row units with 2 control cycles and separate assignment of the control cycles to the fan rows "side-by-side")
EW 55	-	Fans: Air volume	Scaling: 0.01 [%]
EW 57	-	Fans: Total power	Scaling: 10 [W]
EW 59	-	Control cycle 1: Fluid dimension	1 = temperature, 2 = pressure
EW 61	-	Control cycle 2: Fluid dimension	1 = temperature, 2 = pressure
EW 63	-	Control cycle 1: Outlet temperature	Scaling: 0.01 [°C] / 0.01 [°F] Only for type "dry cooler"
EW 65	-	Control cycle 2: Outlet temperature	Scaling: 0.01 [°C] / 0.01 [°F] Only for type "dry cooler"
EW 67	-	Control cycle 1: Refrigerant temperature	Scaling: 0.01 [°C] / 0.01 [°F] Only for type "condenser" with defined refrigerant
EW 69	-	Control cycle 2: Refrigerant temperature	Scaling: 0.01 [°C] / 0.01 [°F] Only for type "condenser" with defined refrigerant
EW 71	-	Control cycle 1: Refrigerant pressure	Scaling: 0.01 [bar] / 0.1 [psig] Only for type "condenser"
EW 73	-	Control cycle 2: Refrigerant pressure	Scaling: 0.01 [bar] / 0.1 [psig] Only for type "condenser"
EW 75	-	Control cycle 1: Refrigerant	Only for type "condenser": 1 = bar (not selected), 2 ... = see aicore™ fusion operating instructions
EW 77	-	Control cycle 2: Refrigerant	Only for type "condenser": 1 = bar (not selected), 2 ... = see aicore™ fusion operating instructions
EW 79	-	Control cycle 1: Current pressure setpoint	Scaling: 0.01 [bar] / 0.1 [psig]
EW 81	-	Control cycle 2: Current pressure setpoint	Scaling: 0.01 [bar] / 0.1 [psig]
EW 83	-	Control cycle 1: Current temperature setpoint	Scaling: 0.01 [°C] / 0.01 [°F]
EW 85	-	Control cycle 2: Current temperature setpoint	Scaling: 0.01 [°C] / 0.01 [°F]
EW 87	-	Ambient humidity	Scaling: 0.01 [%]
EW 89	-	Ambient temperature	Scaling: 0.01 [°C] / 0.01 [°F]

I/O addresses		Designator	Description
EW 91	-	Wet bulb temperature	Scaling: 0.01 [°C] / 0.01 [°F]
EW 93	-	Number of fans	Value range: [1- 24]
EW 95	-	Fan 1: Speed	Scaling: 1 [rpm]
EW 97	-	Fan 2: Speed	Scaling: 1 [rpm]
EW 99	-	Fan 3: Speed	Scaling: 1 [rpm]
EW 101	-	Fan 4: Speed	Scaling: 1 [rpm]
EW 103	-	Fan 5: Speed	Scaling: 1 [rpm]
EW 105	-	Fan 6: Speed	Scaling: 1 [rpm]
EW 107	-	Fan 7: Speed	Scaling: 1 [rpm]
EW 109	-	Fan 8: Speed	Scaling: 1 [rpm]
EW 111	-	Fan 9: Speed	Scaling: 1 [rpm]
EW 113	-	Fan 10: Speed	Scaling: 1 [rpm]
EW 115	-	Fan 11: Speed	Scaling: 1 [rpm]
EW 117	-	Fan 12: Speed	Scaling: 1 [rpm]
EW 119	-	Fan 13: Speed	Scaling: 1 [rpm]
EW 121	-	Fan 14: Speed	Scaling: 1 [rpm]
EW 123	-	Fan 15: Speed	Scaling: 1 [rpm]
EW 125	-	Fan 16: Speed	Scaling: 1 [rpm]
EW 127	-	Fan 17: Speed	Scaling: 1 [rpm]
EW 129	-	Fan 18: Speed	Scaling: 1 [rpm]
EW 131	-	Fan 19: Speed	Scaling: 1 [rpm]
EW 133	-	Fan 20: Speed	Scaling: 1 [rpm]
EW 135	-	Fan 21: Speed	Scaling: 1 [rpm]
EW 137	-	Fan 22: Speed	Scaling: 1 [rpm]
EW 139	-	Fan 23: Speed	Scaling: 1 [rpm]
EW 141	-	Fan 24: Speed	Scaling: 1 [rpm]
EW 143	-	Fan 1: Operating hours	Scaling: 1 [h]
EW 145	-	Fan 2: Operating hours	Scaling: 1 [h]
EW 147	-	Fan 3: Operating hours	Scaling: 1 [h]
EW 149	-	Fan 4: Operating hours	Scaling: 1 [h]
EW 151	-	Fan 5: Operating hours	Scaling: 1 [h]
EW 153	-	Fan 6: Operating hours	Scaling: 1 [h]
EW 155	-	Fan 7: Operating hours	Scaling: 1 [h]
EW 157	-	Fan 8: Operating hours	Scaling: 1 [h]
EW 159	-	Fan 9: Operating hours	Scaling: 1 [h]
EW 161	-	Fan 10: Operating hours	Scaling: 1 [h]

I/O addresses		Designator	Description
EW 163	-	Fan 11: Operating hours	Scaling: 1 [h]
EW 165	-	Fan 12: Operating hours	Scaling: 1 [h]
EW 167	-	Fan 13: Operating hours	Scaling: 1 [h]
EW 169	-	Fan 14: Operating hours	Scaling: 1 [h]
EW 171	-	Fan 15: Operating hours	Scaling: 1 [h]
EW 173	-	Fan 16: Operating hours	Scaling: 1 [h]
EW 175	-	Fan 17: Operating hours	Scaling: 1 [h]
EW 177	-	Fan 18: Operating hours	Scaling: 1 [h]
EW 179	-	Fan 19: Operating hours	Scaling: 1 [h]
EW 181	-	Fan 20: Operating hours	Scaling: 1 [h]
EW 183	-	Fan 21: Operating hours	Scaling: 1 [h]
EW 185	-	Fan 22: Operating hours	Scaling: 1 [h]
EW 187	-	Fan 23: Operating hours	Scaling: 1 [h]
EW 189	-	Fan 24: Operating hours	Scaling: 1 [h]
E 191.0	A 38.0	HydroPad manual mode: on	0 = off, 1 = on
E 191.1	A 38.1	HydroPad manual mode: Open drain valve	0 = off, 1 = on
E 191.2	A 38.2	HydroPad external drain: on	0 = off, 1 = on (open drain and control valve)
E 191.3 ... E 191.5	-	internal	---
E 191.6	-	HydroPad water flow full load: Bypass on	0 = inactive, 1 = active
E 191.7	A 38.3 ... A 38.7	not used	---
E 192.0	-	Diagnosis: Motor management alarm message (Prio 1)	0 = inactive, 1 = active
E 192.1	-	Diagnosis: Motor management warning message (Prio 2)	0 = inactive, 1 = active
E 192.2 E 192.3	-	internal	---
E 192.4	-	HydroPad diagnosis: HydroPad alarm message (Prio 1)	0 = inactive, 1 = active
E 192.5	-	HydroPad diagnosis: HydroPad warning message (Prio 2)	0 = inactive, 1 = active
E 192.6	-	HydroPad diagnosis: Operating message wetting active	0 = inactive, 1 = active
E 192.7	-	HydroPad monitoring service interval: Service interval warning message active	0 = inactive, 1 = active

I/O addresses		Designator	Description
E 193.0	-	HydroPad monitoring service interval operating time: Pre-warning active	0 = inactive, 1 = active
E 193.1	-	HydroPad monitoring service interval operating time: Operating time exceeded	0 = inactive, 1 = active
E 193.2	-	HydroPad monitoring service interval wetting: Pre-warning active	0 = inactive, 1 = active
E 193.3	-	HydroPad monitoring service interval wetting: Wetting time exceeded	0 = inactive, 1 = active
E 193.4	-	HydroPad monitoring water flow deviation: Water volume flow warning message active	0 = inactive, 1 = active
E 193.5	-	HydroPad manual mode: Manual mode active	0 = inactive, 1 = active
E 193.6	-	HydroPad external drainage: External drainage active	0 = inactive, 1 = active
E 193.7	-	internal	---
E 194.0	-	HydroPad pad cleaning: Cleaning run active	0 = inactive, 1 = active
E 194.1	-	HydroPad regulation: Close drain valve (and open feed valve)	0 = inactive, 1 = active
E 194.2 E 194.3	-	internal	---
E 194.4	-	HydroPad operation: Wetting clearance active	0 = inactive, 1 = active
E 194.5	-	internal	
E 194.6	-	HydroPad water flow full load: Full load mode active	0 = inactive, 1 = active
E 194.7	-	HydroPad water flow full load: Full load mode clearance active	0 = inactive, 1 = active
EW 195	AW 39	HydroPad regulation: Standstill time	Scaling: 1 [h], Value range: 1...40 h
EW 197	AW 41	HydroPad manual mode: Water inlet valve setpoint	Scaling: 0.01 [%], Value range: 0...100 %
EW 199	AW 43	HydroPad regulation: Wetting on from fan control value	Scaling: 0.01 [%], Value range: 20...98 %
EW 201	AW 45	HydroPad regulation: Wetting off below fan control value	Scaling: 0.01 [%], Value range: 10...88 %
EW 203	AW 47	HydroPad regulation: Minimum ambient temperature	Scaling: 0.01 [°C] / 0.01 [°F], Value range: 5...45 °C / 41...113 °F
EW 205	AW 49	HydroPad regulation: Frost protection temperature	Scaling: 0.01 [°C] / 0.01 [°F], Value range: 2...15 °C / 35.6...59 °F
EW 207	AW 51	HydroPad water flow setpoint: Base value	Scaling: 1 [l/h] / 0.01 [gal/min] Value range: 10...600 l/h or 0.044...2.642 gal/min

I/O addresses		Designator	Description
EW 209	AW 53	HydroPad water flow setpoint: H ₂ O offset	Scaling: 0,001 [%], Value range: 0.1 ... 2 %
EW 211	AW 55	HydroPad water flow full load: Minimum fan control value	Scaling: 0.01 [%], Value range: 40...100 %
ED 213	-	HydroPad monitoring service interval: Operating time since service	Scaling: 1 [s]
ED 217	-	HydroPad monitoring service interval: Wetting time since service	Scaling: 1 [s]
ED 221	-	HydroPad monitoring service interval: Absolute operating time	Scaling: 1 [s]
ED 225	-	HydroPad monitoring service interval: Absolute wetting time	Scaling: 1 [s]
ED 229	-	Water meter wetting pad: Water consumption in total	Scaling: 0.001 [m ³] / [kgal]
EW 233	-	Water meter wetting pad: Current water flow	Scaling: 1 [l/h] / 0.01 [gal/min]
EW 235	-	HydroPad water flow setpoint: Water flow setpoint	Scaling: 1 [l/h] / 0.01 [gal/min]
EW 237	-	HydroPad regulation wetting valve: Control value	Scaling: 0.01 [%]