



Interface specification Profibus/Profinet aicore™ air + GHM pad

Profibus/Profinet parameter specification for the Güntner Motor Management aicore™ air in conjunction with the
Güntner Hydro Management GHM pad
Applicable for interface modules 5215383 & 5215380

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Contents

1	Introduction.....	3
2	Settings.....	4
2.1	aicore™ air + GHM pad.....	4
2.2	Gateway.....	5
2.3	PLC.....	6
3	Data points of the aicore™ air + GHM pad.....	8

1 Introduction

This document describes the Profibus and Profinet Communication of the Güntner Motor Management aicore™ air in conjunction with the Güntner Hydro Management GHM pad. Communication of the Güntner controllers takes place via a gateway from Modbus RTU to Profibus DP or Profinet IO.

The aicore™ air and GHM pad are available via the gateway as 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: 5215383
- Profinet IO: 5215380
- Installation kits (depending on the size of the aicore™ air housing):
 - aicore™ air: 5215425 (200) / 5215426 (300) / 5215427 (400)
 - aicore™ air ec: 5215515 (200) / 5215447 (300) / 5215556 (400)

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

Depending on the housing size of the aicore™ air, the Profibus variant requires a straight Profibus connector for space reasons.

The following GSD files are also needed:

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

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

2 Settings

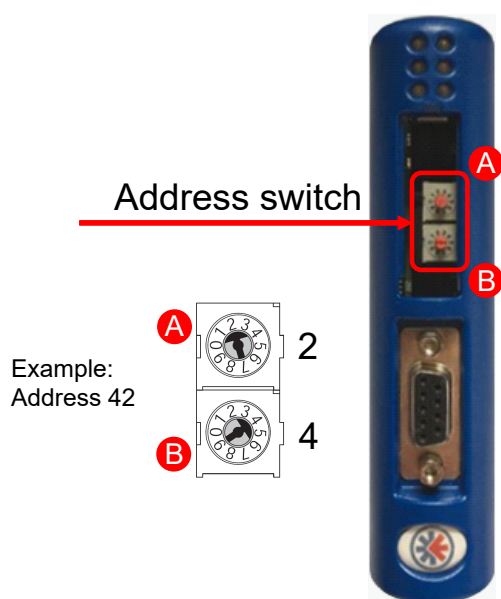
2.1 aicore™ air + GHM pad

Modbus parameters on aicore™ air	see aicore™ air Manual
Modbus address	1
Baud rate	19200
Framing	8,N,1
Data format	16 bit

Modbus parameters on GHM pad	see GHM pad Manual
Modbus address	2
Baud rate	19200
Framing	8,N,1

2.2 Gateway

Profibus parameters at the gateway	
Address	Can be set via address switch (see illustration below)
Protocol	DP-V0



Profibus address = (switch position B * 10) + switch position A

Profinet parameters at the gateway	
Device name	Default "hms", can be set via PLC programming tool
Protocol	DP-V1

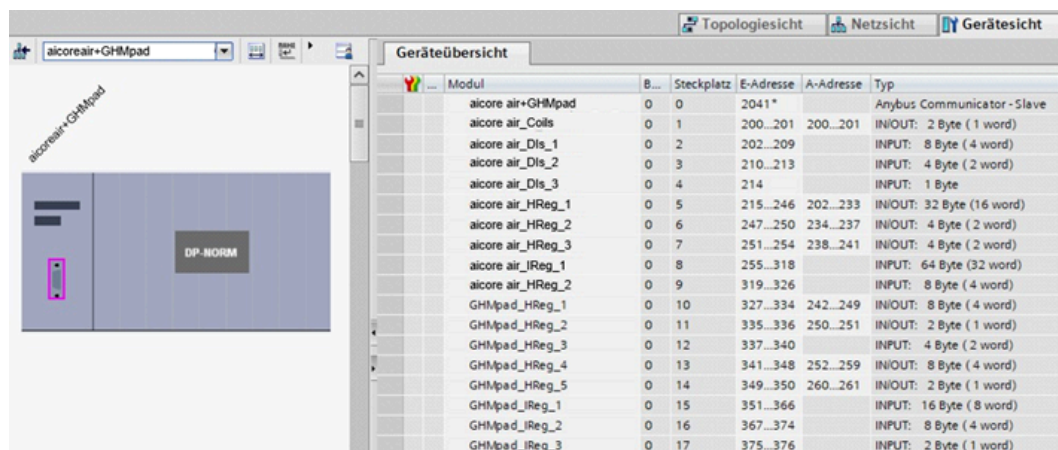
2.3 PLC

Settings on the PLC		
Range	Size	Note
Inputs	177 bytes	Controller for the aicore™ air: – Range: Byte 0-126 – Data: Global parameters as well as control loops 1 & 2 GHM controller pad: – Range: Byte 127-176
Outputs	62 bytes	Controller for the aicore™ air: – Range: Byte 0-41 – Data: Global parameters as well as control loops 1 & 2 GHM controller pad: – Range: Byte 42-61
Diagnostics	1 byte	1) Only available with S7-300-CPU. 2) Is automatically assigned "from above" by S7; is used to read diagnostic files with "DPNRM_DG".

(1) Data are transmitted to the controllers only in the event of a change in the value on the PLC side (and not cyclically). If the connection between the PLC and the gateway is interrupted, the last write values will be retained in the gateway. As a result, these values will be kept in the controllers too.

(2) **ATTENTION:** If the CPU switches to the "Stop" state, all PLC outputs will be set to "0" and written to the controllers!

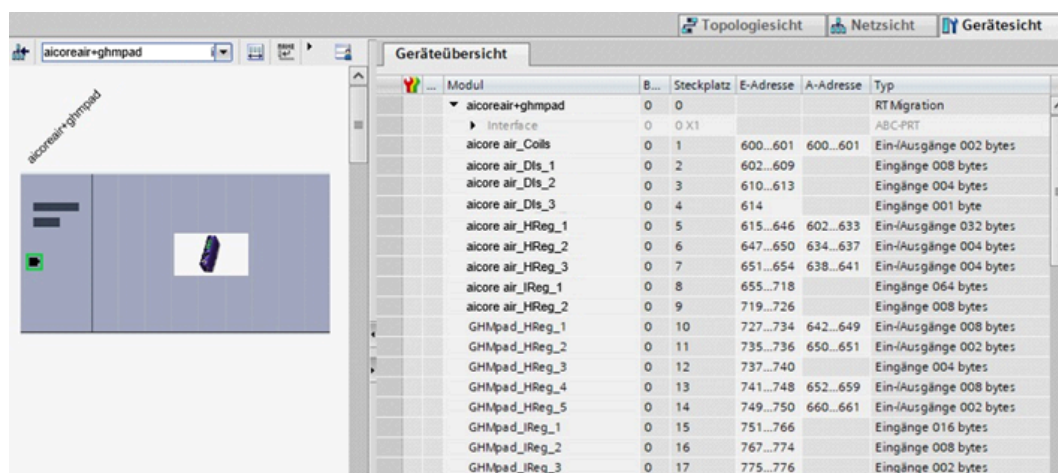
Example PLC settings



Modul	B...	Steckplatz	E-Adresse	A-Adresse	Typ
aicore air+GHMpad	0	0	2041 *		Anybus Communicator - Slave
aicore air_Coils	0	1	200...201	200...201	IN/OUT: 2 Byte (1 word)
aicore air_Dis_1	0	2	202...209		INPUT: 8 Byte (4 word)
aicore air_Dis_2	0	3	210...213		INPUT: 4 Byte (2 word)
aicore air_Dis_3	0	4	214		INPUT: 1 Byte
aicore air_HReg_1	0	5	215...246	202...233	IN/OUT: 32 Byte (16 word)
aicore air_HReg_2	0	6	247...250	234...237	IN/OUT: 4 Byte (2 word)
aicore air_HReg_3	0	7	251...254	238...241	IN/OUT: 4 Byte (2 word)
aicore air_IReg_1	0	8	255...318		INPUT: 64 Byte (32 word)
aicore air_IReg_2	0	9	319...326		INPUT: 8 Byte (4 word)
GHMpad_HReg_1	0	10	327...334	242...249	IN/OUT: 8 Byte (4 word)
GHMpad_HReg_2	0	11	335...336	250...251	IN/OUT: 2 Byte (1 word)
GHMpad_HReg_3	0	12	337...340		INPUT: 4 Byte (2 word)
GHMpad_HReg_4	0	13	341...348	252...259	IN/OUT: 8 Byte (4 word)
GHMpad_HReg_5	0	14	349...350	260...261	IN/OUT: 2 Byte (1 word)
GHMpad_IReg_1	0	15	351...366		INPUT: 16 Byte (8 word)
GHMpad_IReg_2	0	16	367...374		INPUT: 8 Byte (4 word)
GHMpad_IReg_3	0	17	375...376		INPUT: 2 Byte (1 word)

Hardware configuration: Profibus

aicore air+ GHMpad = GSD file "Anybus AB 7000" from HMS (Anybus communicator slave): "HMSB1803.gsd"



Modul	B...	Steckplatz	E-Adresse	A-Adresse	Typ
aicoreair+ghmpad	0	0			RT Migration
Interface	0	0 X1			ABC-PR
aicore air_Coils	0	1	600...601	600...601	Ein-/Ausgänge 002 bytes
aicore air_Dis_1	0	2	602...609		Eingänge 008 bytes
aicore air_Dis_2	0	3	610...613		Eingänge 004 bytes
aicore air_Dis_3	0	4	614		Eingänge 001 byte
aicore air_HReg_1	0	5	615...646	602...633	Ein-/Ausgänge 032 bytes
aicore air_HReg_2	0	6	647...650	634...637	Ein-/Ausgänge 004 bytes
aicore air_HReg_3	0	7	651...654	638...641	Ein-/Ausgänge 004 bytes
aicore air_IReg_1	0	8	655...718		Eingänge 064 bytes
aicore air_IReg_2	0	9	719...726		Eingänge 008 bytes
GHMpad_HReg_1	0	10	727...734	642...649	Ein-/Ausgänge 008 bytes
GHMpad_HReg_2	0	11	735...736	650...651	Ein-/Ausgänge 002 bytes
GHMpad_HReg_3	0	12	737...740		Eingänge 004 bytes
GHMpad_HReg_4	0	13	741...748	652...659	Ein-/Ausgänge 008 bytes
GHMpad_HReg_5	0	14	749...750	660...661	Ein-/Ausgänge 002 bytes
GHMpad_IReg_1	0	15	751...766		Eingänge 016 bytes
GHMpad_IReg_2	0	16	767...774		Eingänge 008 bytes
GHMpad_IReg_3	0	17	775...776		Eingänge 002 bytes

Hardware configuration: Profinet

aicoreair+ ghmpad = GSD file "Anybus AB 7013" from HMS (RT migration): "GSDML-V2.3-HMS-ABC_PROFINET_IO-20141127.xml"

3 Data points of the aicore™ air + GHM pad

aicore air

I/O range of the slave on the PLC side			Güntner Modbus aicore air specification			
Input range offset	Output range offset	HW config slot	Modbus data address	Modbus data type	Access size	Designator
0.0	0.0	1	265	Coil	Bit	Manual mode: Manual mode on
0.1	0.1	1	266	Coil	Bit	Manual mode: Inverse operation
0.3	0.3	1	268	Coil	Bit	Night setback: Night setback on
1.0	1.0	1	8133	Coil	Bit	Control cycle 1 setpoint displacement: Setpoint displacement on
1.1	1.1	1	8134	Coil	Bit	Control loop 2 setpoint shift: Setpoint shift on
2.0	-	2	256	Discrete input	Bit	Diagnostics: Fan warning
2.1	-	2	257	Discrete input	Bit	Diagnostics: Fan alarm
2.2	-	2	258	Discrete input	Bit	Diagnostics: Fan alarm (collective message)
2.3	-	2	259	Discrete input	Bit	Diagnostics: Sensor alarm
2.4	-	2	260	Discrete input	Bit	Diagnosis: Control alarm message (Prio 1): Signal level
2.5	-	2	261	Discrete input	Bit	Diagnose operating message control: Signal level
2.6	-	2	262	Discrete input	Bit	Diagnosis: Control warning message (Prio 2): Signal level
2.7	-	2	263	Discrete input	Bit	Inverse operation: Inverse operation active
3.1	-	2	265	Discrete input	Bit	Manual mode: Manual mode active
3.3	-	2	267	Discrete input	Bit	Night setback: Night setback active
3.5	-	2	269	Discrete input	Bit	Subcooler: Subcooler active
4.0	-	2	7171	Discrete input	Bit	Control loop 1: Release active
4.1	-	2	7172	Discrete input	Bit	Control loop 2: Release active
5.0	-	2	7186	Discrete input	Bit	Maintenance run fan group 1: Maintenance run active

I/O range of the slave on the PLC side			Güntner Modbus aicore air specification			
Input range offset	Output range offset	HW config slot	Modbus data address	Modbus data type	Access size	Designator
5.4	-	2	7190	Discrete input	Bit	Control cycle 1 setpoint displacement: Setpoint displacement active
5.5	-	2	7191	Discrete input	Bit	Control cycle 2 setpoint displacement: Setpoint displacement active
6.1	-	2	7195	Discrete input	Bit	Control loop 1 threshold value: Threshold value active
6.2	-	2	7196	Discrete input	Bit	Control cycle 2 threshold value: Threshold value active
6.6	-	2	7200	Discrete input	Bit	Fan 1: Alarm active
6.7	-	2	7201	Discrete input	Bit	Fan 2: Alarm active
7.0	-	2	7202	Discrete input	Bit	Fan 3: Alarm active
7.1	-	2	7203	Discrete input	Bit	Fan 4: Alarm active
7.2	-	2	7204	Discrete input	Bit	Fan 5: Alarm active
7.3	-	2	7205	Discrete input	Bit	Fan 6: Alarm active
7.4	-	2	7206	Discrete input	Bit	Fan 7: Alarm active
7.5	-	2	7207	Discrete input	Bit	Fan 8: Alarm active
7.6	-	2	7208	Discrete input	Bit	Fan 9: Alarm active
7.7	-	2	7209	Discrete input	Bit	Fan 10: Alarm active
8.0	-	2	7210	Discrete input	Bit	Fan 11: Alarm active
8.1	-	2	7211	Discrete input	Bit	Fan 12: Alarm active
8.2	-	2	7212	Discrete input	Bit	Fan 13: Alarm active
8.3	-	2	7213	Discrete input	Bit	Fan 14: Alarm active
8.4	-	2	7214	Discrete input	Bit	Fan 15: Alarm active
8.5	-	2	7215	Discrete input	Bit	Fan 16: Alarm active
8.6	-	2	7216	Discrete input	Bit	Fan 17: Alarm active

I/O range of the slave on the PLC side			Güntner Modbus aicore air specification			
Input range offset	Output range offset	HW config slot	Modbus data address	Modbus data type	Access size	Designator
8.7	-	2	7217	Discrete input	Bit	Fan 18: Alarm active
9.0	-	2	7218	Discrete input	Bit	Fan 19: Alarm active
9.1	-	2	7219	Discrete input	Bit	Fan 20: Alarm active
10.6	-	3	7232	Discrete input	Bit	Fan 1: Warning active
10.7	-	3	7233	Discrete input	Bit	Fan 2: Warning active
11.0	-	3	7234	Discrete input	Bit	Fan 3: Warning active
11.1	-	3	7235	Discrete input	Bit	Fan 4: Warning active
11.2	-	3	7236	Discrete input	Bit	Fan 5: Warning active
11.3	-	3	7237	Discrete input	Bit	Fan 6: Warning active
11.4	-	3	7238	Discrete input	Bit	Fan 7: Warning active
11.5	-	3	7239	Discrete input	Bit	Fan 8: Warning active
11.6	-	3	7240	Discrete input	Bit	Fan 9: Warning active
11.7	-	3	7241	Discrete input	Bit	Fan 10: Warning active
12.0	-	3	7242	Discrete input	Bit	Fan 11: Warning active
12.1	-	3	7243	Discrete input	Bit	Fan 12: Warning active
12.2	-	3	7244	Discrete input	Bit	Fan 13: Warning active
12.3	-	3	7245	Discrete input	Bit	Fan 14: Warning active
12.4	-	3	7246	Discrete input	Bit	Fan 15: Warning active
12.5	-	3	7247	Discrete input	Bit	Fan 16: Warning active
12.6	-	3	7248	Discrete input	Bit	Fan 17: Warning active
12.7	-	3	7249	Discrete input	Bit	Fan 18: Warning active

I/O range of the slave on the PLC side			Güntner Modbus aicore air specification			
Input range offset	Output range offset	HW config slot	Modbus data address	Modbus data type	Access size	Designator
13.0	-	3	7250	Discrete input	Bit	Fan 19: Warning active
13.1	-	3	7251	Discrete input	Bit	Fan 20: Warning active
14.0	-	4	8175	Discrete input	Bit	Analogue input 1: Alarm
14.1	-	4	8176	Discrete input	Bit	Analogue input 2: Alarm
14.2	-	4	8177	Discrete input	Bit	Analogue input 3: Alarm
14.3	-	4	8178	Discrete input	Bit	Analogue input 4: Alarm
14.4	-	4	8179	Discrete input	Bit	Analogue input 5: Alarm
15	2	5	1	Holding register	Word	Standard protocol: System of units
17	4	5	2	Holding register	Word	Standard protocol: Modbus data format
19	6	5	305	Holding register	Word	Control: Operating mode
21	8	5	3826	Holding register	Word	Control loop 1: Number of setpoints
23	10	5	3827	Holding register	Word	Control loop 2: Number of setpoints
25	12	5	4097	Holding register	Word	Inverse operation: Control value
29	16	5	4099	Holding register	Word	Manual mode: Fan control value
31	18	5	4100	Holding register	Word	Night setback: Maximum control value
33	20	5	4101	Holding register	Word	Subcooler: Control value
35	22	5	7762	Holding register	Word	Control cycle 1 master control value: Control value master external bus
37	24	5	7763	Holding register	Word	Control cycle 2 master control value: Control value master external bus
39	26	5	7802	Holding register	Word	Control cycle 1 setpoint 1: Pressure
41	28	5	7803	Holding register	Word	Control loop 2 setpoint 1: Pressure
43	30	5	7812	Holding register	Word	Control loop 1 setpoint 1: Temperature

I/O range of the slave on the PLC side			Güntner Modbus aicore air specification			
Input range offset	Output range offset	HW config slot	Modbus data address	Modbus data type	Access size	Designator
45	32	5	7813	Holding register	Word	Control loop 2 setpoint 1: Temperature
47	34	6	7822	Holding register	Word	Control loop 1 setpoint 2: Pressure
49	36	6	7823	Holding register	Word	Control cycle 2 setpoint 2: Pressure
51	38	7	7832	Holding register	Word	Control cycle 1 setpoint 2: Temperature
53	40	7	7833	Holding register	Word	Control loop 2 setpoint 2: Temperature
55	-	8	3969	Input register	Word	Fan 1: Operating hours
57	-	8	3970	Input register	Word	Fan 2: Operating hours
59	-	8	3971	Input register	Word	Fan 3: Operating hours
61	-	8	3972	Input register	Word	Fan 4: Operating hours
63	-	8	3973	Input register	Word	Fan 5: Operating hours
65	-	8	3974	Input register	Word	Fan 6: Operating hours
67	-	8	3975	Input register	Word	Fan 7: Operating hours
69	-	8	3976	Input register	Word	Fan 8: Operating hours
71	-	8	3977	Input register	Word	Fan 9: Operating hours
73	-	8	3978	Input register	Word	Fan 10: Operating hours
75	-	8	3979	Input register	Word	Fan 11: Operating hours
77	-	8	3980	Input register	Word	Fan 12: Operating hours
79	-	8	3981	Input register	Word	Fan 13: Operating hours
81	-	8	3982	Input register	Word	Fan 14: Operating hours
83	-	8	3983	Input register	Word	Fan 15: Operating hours
85	-	8	3984	Input register	Word	Fan 16: Operating hours

I/O range of the slave on the PLC side			Güntner Modbus aicore air specification			
Input range offset	Output range offset	HW config slot	Modbus data address	Modbus data type	Access size	Designator
87	-	8	3985	Input register	Word	Fan 17: Operating hours
89	-	8	3986	Input register	Word	Fan 18: Operating hours
91	-	8	3987	Input register	Word	Fan 19: Operating hours
93	-	8	3988	Input register	Word	Fan 20: Operating hours
95	-	8	4001	Input register	Word	Control loop 1: Dimension of the fluid
97	-	8	4002	Input register	Word	Control loop 2: Dimension of the fluid
99	-	8	4096	Input register	Word	Ambient humidity: Ambient humidity value
101	-	8	4097	Input register	Word	External temperature: Temperature value
103	-	8	4098	Input register	Word	Fans: Air volume
105	-	8	4099	Input register	Word	Fans: Total power
107	-	8	7468	Input register	Word	Control loop 1: Current pressure value
109	-	8	7469	Input register	Word	Control loop 2: Current pressure value
111	-	8	7478	Input register	Word	Control loop 1: Current pressure setpoint
113	-	8	7479	Input register	Word	Control loop 2: Current pressure setpoint
115	-	8	7488	Input register	Word	Control loop 1: Current temperature value
117	-	8	7489	Input register	Word	Control loop 2: Current temperature value
119	-	9	7498	Input register	Word	Control loop 1: Current temperature setpoint
121	-	9	7499	Input register	Word	Control loop 2: Current temperature setpoint
123	-	9	7508	Input register	Word	Control loop 1 fans: Control value
125	-	9	7509	Input register	Word	Control loop 2 fans: Control value

GHM pad

Interface specification – Profibus/Profinet aicore™ air + GHM pad
V04.00.06

I/O range of the slave on the PLC side			Güntner Modbus GHM pad specification			
Input range offset	Output range offset	HW config slot	Modbus data address	Modbus data type	Access size	Designator
127	42	10	53251	Holding register	Word	Draining standstill
129	44	10	53252	Holding register	Word	Frost protection temperature
131	46	10	53253	Holding register	Word	Humidification – external temperature
133	48	10	53256	Holding register	Word	Fan control value for starting humidification
135	50	11	53257	Holding register	Word	Fan control value for stopping humidification
137	-	12	53263	Holding register	Word	Water costs
139	-	12	53264	Holding register	Word	Electricity costs
141	52	13	53269	Holding register	Word	Sufficiency Mode
143	54	13	53270	Holding register	Word	Fan control value for transition to full load mode
145	56	13	53271	Holding register	Word	Manual mode
147	58	13	53272	Holding register	Word	Manual mode: Control value for humidification valve
149	60	14	53273	Holding register	Word	Manual mode draining
151	-	15	53520	Input register	Word	Status of the digital inputs
153	-	15	53521	Input register	Word	Status of the digital outputs
155	-	15	53525	Input register	Word	Scaled value of AI1
157	-	15	53526	Input register	Word	Scaled value of AI2
159	-	15	53528	Input register	Word	Scaled value of AI4
161	-	15	53529	Input register	Word	Raw value output AO1
163	-	15	53536	Input register	Word	Calculated amount of water
165	-	15	53537	Input register	Word	Recorded water flow
167	-	16	53538	Input register	Word	Status info 1

I/O range of the slave on the PLC side			Güntner Modbus GHM pad specification			
Input range offset	Output range offset	HW config slot	Modbus data address	Modbus data type	Access size	Designator
169	-	16	53539	Input register	Word	Status info 2
171	-	16	53540	Input register	Word	Absolute operating hours
173	-	16	53542	Input register	Word	Relative operating hours
175	-	17	53544	Input register	Word	Counter status for water consumption