



Interface specification Profibus/Profinet GMMnext

Profibus/Profinet parameter specification for the Güntner Motor Management GMMnext
Applicable for interface modules 5215381 & 5215378

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1 Introduction

This document describes the Profibus and Profinet communication of the Güntner Motor Management GMMnext. Communication of the Güntner controller takes place via a gateway from Modbus RTU to Profibus DP or Profinet IO.

The GMMnext is 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: 5215381
- Profinet IO: 5215378
- Installation kits (depending on the size of the GMM housing):
 - GMMnext EC: 5215422 (200) / 5215423 (300) / 5215424 (400)
 - GMMnext Rail: 5215514 (200) / 5215446 (300) / 5215554 (400)

Connecting the system to a Profibus/Profinet master requires knowledge of the fieldbuses and of programming the bus master.

The following GSD files are also needed:

- Profibus module: "HMSB1803.gsd"
- Profinet module: "GSDML-V2.3-HMS-ABC_PROFINET_IO-20141127.xml"

The following data point list refers to the Güntner Modbus specification which contains more detailed information regarding the parameters.

2 GMMnext data points

I/O range of the slave on the PLC side				Modbus GMMnext specification			
"Single"				Modbus data address	Modbus data type	Access size	Designator
Block	Input range offset	Output range offset	HW config slot				
1	0.0	0.0	1	265	Coil	Bit	Manual mode: Manual mode on
1	0.1	0.1	1	266	Coil	Bit	Manual mode: Inverse operation
1	0.3	0.3	1	268	Coil	Bit	Night setback: Night setback on
1	1.0	1.0	1	8133	Coil	Bit	Control loop 1 setpoint shift: Setpoint shift on
1	1.1	1.1	1	8134	Coil	Bit	Control loop 2 setpoint shift: Setpoint shift on
2	1.2	1.2	1	8135	Coil	Bit	Control loop 3 setpoint shift: Setpoint shift on
2	1.3	1.3	1	8136	Coil	Bit	Control loop 4 setpoint shift: Setpoint shift on
2	1.4	1.4	1	8137	Coil	Bit	Control loop 5 setpoint shift: Setpoint shift on
1	2.0	-	2	256	Discrete input	Bit	Diagnostics: Fan warning
1	2.1	-	2	257	Discrete input	Bit	Diagnostics: Fan alarm
1	2.2	-	2	258	Discrete input	Bit	Diagnostics: Fan alarm (collective message)
1	2.3	-	2	259	Discrete input	Bit	Diagnostics: Sensor alarm
1	2.4	-	2	260	Discrete input	Bit	Diagnostics alarm message control (Prio 1): Signal level
1	2.5	-	2	261	Discrete input	Bit	Diagnose operating message control: Signal level
1	2.6	-	2	262	Discrete input	Bit	Diagnostics warning message control (Prio 2): Signal level
1	2.7	-	2	263	Discrete input	Bit	Inverse operation: Inverse operation active
1	3.1	-	2	265	Discrete input	Bit	Manual mode: Manual mode active
1	3.3	-	2	267	Discrete input	Bit	Night setback: Night setback active
1	3.5	-	2	269	Discrete input	Bit	Subcooler: Subcooler active
1	4.0	-	2	7171	Discrete input	Bit	Control loop 1: Release active

I/O range of the slave on the PLC side				Modbus GMMnext specification			
"Single"				Modbus data address	Modbus data type	Access size	Designator
Block	Input range offset	Output range offset	HW config slot				
1	4.1	-	2	7172	Discrete input	Bit	Control loop 2: Release active
2	4.2	-	2	7173	Discrete input	Bit	Control loop 3: Release active
2	4.3	-	2	7174	Discrete input	Bit	Control loop 4: Release active
2	4.4	-	2	7175	Discrete input	Bit	Control loop 5: Release active
1	5.0	-	2	7186	Discrete input	Bit	Maintenance run fan group 1: Maintenance run active
2	5.1	-	2	7187	Discrete input	Bit	Maintenance run fan group 2: Maintenance run active
1	5.4	-	2	7190	Discrete input	Bit	Control loop 1 setpoint shift: Setpoint shift active
1	5.5	-	2	7191	Discrete input	Bit	Control loop 2 setpoint shift: Setpoint shift active
2	5.6	-	2	7192	Discrete input	Bit	Control loop 3 setpoint shift: Setpoint shift active
2	5.7	-	2	7193	Discrete input	Bit	Control loop 4 setpoint shift: Setpoint shift active
2	6.0	-	2	7194	Discrete input	Bit	Control loop 5 setpoint shift: Setpoint shift active
1	6.1	-	2	7195	Discrete input	Bit	Control loop 1 threshold value: Threshold value active
1	6.2	-	2	7196	Discrete input	Bit	Control loop 2 threshold value: Threshold value active
2	6.3	-	2	7197	Discrete input	Bit	Control loop 3 threshold value: Threshold value active
2	6.4	-	2	7198	Discrete input	Bit	Control loop 4 threshold value: Threshold value active
2	6.5	-	2	7199	Discrete input	Bit	Control loop 5 threshold value: Threshold value active
1	6.6	-	2	7200	Discrete input	Bit	Fan 1: Alarm active
1	6.7	-	2	7201	Discrete input	Bit	Fan 2: Alarm active
1	7.0	-	2	7202	Discrete input	Bit	Fan 3: Alarm active
1	7.1	-	2	7203	Discrete input	Bit	Fan 4: Alarm active

I/O range of the slave on the PLC side				Modbus GMMnext specification			
"Single"				Modbus data address	Modbus data type	Access size	Designator
Block	Input range offset	Output range offset	HW config slot				
1	7.2	-	2	7204	Discrete input	Bit	Fan 5: Alarm active
1	7.3	-	2	7205	Discrete input	Bit	Fan 6: Alarm active
1	7.4	-	2	7206	Discrete input	Bit	Fan 7: Alarm active
1	7.5	-	2	7207	Discrete input	Bit	Fan 8: Alarm active
1	7.6	-	2	7208	Discrete input	Bit	Fan 9: Alarm active
1	7.7	-	2	7209	Discrete input	Bit	Fan 10: Alarm active
1	8.0	-	2	7210	Discrete input	Bit	Fan 11: Alarm active
1	8.1	-	2	7211	Discrete input	Bit	Fan 12: Alarm active
1	8.2	-	2	7212	Discrete input	Bit	Fan 13: Alarm active
1	8.3	-	2	7213	Discrete input	Bit	Fan 14: Alarm active
1	8.4	-	2	7214	Discrete input	Bit	Fan 15: Alarm active
1	8.5	-	2	7215	Discrete input	Bit	Fan 16: Alarm active
1	8.6	-	2	7216	Discrete input	Bit	Fan 17: Alarm active
1	8.7	-	2	7217	Discrete input	Bit	Fan 18: Alarm active
1	9.0	-	2	7218	Discrete input	Bit	Fan 19: Alarm active
1	9.1	-	2	7219	Discrete input	Bit	Fan 20: Alarm active
1	10.6	-	3	7232	Discrete input	Bit	Fan 1: Warning active
1	10.7	-	3	7233	Discrete input	Bit	Fan 2: Warning active
1	11.0	-	3	7234	Discrete input	Bit	Fan 3: Warning active
1	11.1	-	3	7235	Discrete input	Bit	Fan 4: Warning active

I/O range of the slave on the PLC side				Modbus GMMnext specification			
"Single"				Modbus data address	Modbus data type	Access size	Designator
Block	Input range offset	Output range offset	HW config slot				
1	11.2	-	3	7236	Discrete input	Bit	Fan 5: Warning active
1	11.3	-	3	7237	Discrete input	Bit	Fan 6: Warning active
1	11.4	-	3	7238	Discrete input	Bit	Fan 7: Warning active
1	11.5	-	3	7239	Discrete input	Bit	Fan 8: Warning active
1	11.6	-	3	7240	Discrete input	Bit	Fan 9: Warning active
1	11.7	-	3	7241	Discrete input	Bit	Fan 10: Warning active
1	12.0	-	3	7242	Discrete input	Bit	Fan 11: Warning active
1	12.1	-	3	7243	Discrete input	Bit	Fan 12: Warning active
1	12.2	-	3	7244	Discrete input	Bit	Fan 13: Warning active
1	12.3	-	3	7245	Discrete input	Bit	Fan 14: Warning active
1	12.4	-	3	7246	Discrete input	Bit	Fan 15: Warning active
1	12.5	-	3	7247	Discrete input	Bit	Fan 16: Warning active
1	12.6	-	3	7248	Discrete input	Bit	Fan 17: Warning active
1	12.7	-	3	7249	Discrete input	Bit	Fan 18: Warning active
1	13.0	-	3	7250	Discrete input	Bit	Fan 19: Warning active
1	13.1	-	3	7251	Discrete input	Bit	Fan 20: Warning active
1	14.0	-	4	8175	Discrete input	Bit	Analogue input 1: Alarm
1	14.1	-	4	8176	Discrete input	Bit	Analogue input 2: Alarm
1	14.2	-	4	8177	Discrete input	Bit	Analogue input 3: Alarm
1	14.3	-	4	8178	Discrete input	Bit	Analogue input 4: Alarm

I/O range of the slave on the PLC side				Modbus GMMnext specification			
"Single"				Modbus data address	Modbus data type	Access size	Designator
Block	Input range offset	Output range offset	HW config slot				
1	14.4	-	4	8179	Discrete input	Bit	Analogue input 5: Alarm
1	15	2	5	1	Holding register	Word	Standard protocol: System of units
1	17	4	5	2	Holding register	Word	Standard protocol: Modbus data format
1	19	6	5	305	Holding register	Word	Control: Operating mode
1	21	8	5	3826	Holding register	Word	Control loop 1: Setpoint count
1	23	10	5	3827	Holding register	Word	Control loop 2: Setpoint count
2	127	42	10	3828	Holding register	Word	Control loop 3: Setpoint count
2	129	44	10	3829	Holding register	Word	Control loop 4: Setpoint count
2	131	46	10	3830	Holding register	Word	Control loop 5: Setpoint count
1	25	12	5	4097	Holding register	Word	Inverse operation: Control value
1	29	16	5	4099	Holding register	Word	Manual mode: Fan control value
1	31	18	5	4100	Holding register	Word	Night setback: Maximum control value
1	33	20	5	4101	Holding register	Word	Subcooler: Control value
1	35	22	5	7762	Holding register	Word	Control loop 1 master control value: Master external bus control value
1	37	24	5	7763	Holding register	Word	Control loop 2 master control value: Master external bus control value
2	133	48	10	7764	Holding register	Word	Control loop 3 master control value: Master external bus control value
2	135	50	10	7765	Holding register	Word	Control loop 4 master control value: Master external bus control value
2	137	52	10	7766	Holding register	Word	Control loop 5 master control value: Master external bus control value

I/O range of the slave on the PLC side				Modbus GMMnext specification			
"Single"							
Block	Input range off-set	Output range off-set	HW config slot	Modbus data address	Modbus data type	Access size	Designator
1	39	26	5	7802	Holding register	Word	Control loop 1 setpoint 1: Pressure
1	41	28	5	7803	Holding register	Word	Control loop 2 setpoint 1: Pressure
2	139	54	10	7804	Holding register	Word	Control loop 3 setpoint 1: Pressure
2	141	56	10	7805	Holding register	Word	Control loop 4 setpoint 1: Pressure
2	143	58	10	7806	Holding register	Word	Control loop 5 setpoint 1: Pressure
1	43	30	5	7812	Holding register	Word	Control loop 1 setpoint 1: Temperature
1	45	32	5	7813	Holding register	Word	Control loop 2 setpoint 1: Temperature
2	145	60	10	7814	Holding register	Word	Control loop 3 setpoint 1: Temperature
2	147	62	10	7815	Holding register	Word	Control loop 4 setpoint 1: Temperature
2	149	64	10	7816	Holding register	Word	Control loop 5 setpoint 1: Temperature
1	47	34	6	7822	Holding register	Word	Control loop 1 setpoint 2: Pressure
1	49	36	6	7823	Holding register	Word	Control loop 2 setpoint 2: Pressure
2	151	66	10	7824	Holding register	Word	Control loop 3 setpoint 2: Pressure
2	153	68	10	7825	Holding register	Word	Control loop 4 setpoint 2: Pressure
2	155	70	10	7826	Holding register	Word	Control loop 5 setpoint 2: Pressure
1	51	38	7	7832	Holding register	Word	Control loop 1 setpoint 2: Temperature
1	53	40	7	7833	Holding register	Word	Control loop 2 setpoint 2: Temperature
2	157	72	10	7834	Holding register	Word	Control loop 3 setpoint 2: Temperature
2	159	74	11	7835	Holding register	Word	Control loop 4 setpoint 2: Temperature
2	161	76	11	7836	Holding register	Word	Control loop 5 setpoint 2: Temperature

I/O range of the slave on the PLC side				Modbus GMMnext specification			
"Single"							
Block	Input range off-set	Output range off-set	HW config slot	Modbus data address	Modbus data type	Access size	Designator
1	55	-	8	3969	Input register	Word	Fan 1: Operating time
1	57	-	8	3970	Input register	Word	Fan 2: Operating time
1	59	-	8	3971	Input register	Word	Fan 3: Operating time
1	61	-	8	3972	Input register	Word	Fan 4: Operating time
1	63	-	8	3973	Input register	Word	Fan 5: Operating time
1	65	-	8	3974	Input register	Word	Fan 6: Operating time
1	67	-	8	3975	Input register	Word	Fan 7: Operating time
1	69	-	8	3976	Input register	Word	Fan 8: Operating time
1	71	-	8	3977	Input register	Word	Fan 9: Operating time
1	73	-	8	3978	Input register	Word	Fan 10: Operating time
1	75	-	8	3979	Input register	Word	Fan 11: Operating time
1	77	-	8	3980	Input register	Word	Fan 12: Operating time
1	79	-	8	3981	Input register	Word	Fan 13: Operating time
1	81	-	8	3982	Input register	Word	Fan 14: Operating time
1	83	-	8	3983	Input register	Word	Fan 15: Operating time
1	85	-	8	3984	Input register	Word	Fan 16: Operating time
1	87	-	8	3985	Input register	Word	Fan 17: Operating time
1	89	-	8	3986	Input register	Word	Fan 18: Operating time
1	91	-	8	3987	Input register	Word	Fan 19: Operating time
1	93	-	8	3988	Input register	Word	Fan 20: Operating time

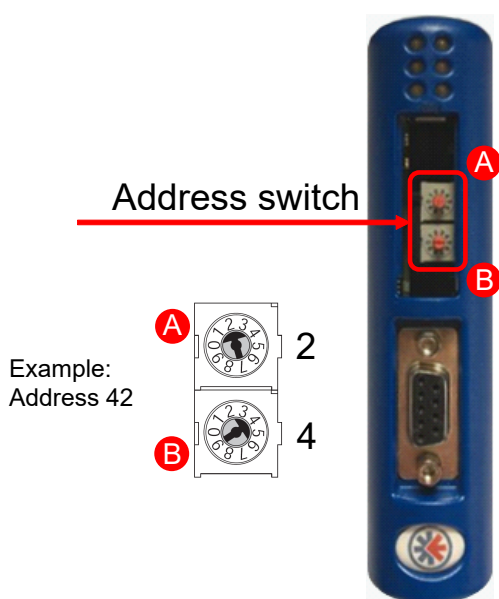
I/O range of the slave on the PLC side				Modbus GMMnext specification			
"Single"				Modbus data address	Modbus data type	Access size	Designator
Block	Input range offset	Output range offset	HW config slot				
1	95	-	8	4001	Input register	Word	Control loop 1: Dimension of the medium
1	97	-	8	4002	Input register	Word	Control loop 2: Dimension of the medium
2	163	-	12	4003	Input register	Word	Control loop 3: Dimension of the medium
2	165	-	12	4004	Input register	Word	Control loop 4: Dimension of the medium
2	167	-	12	4005	Input register	Word	Control loop 5: Dimension of the medium
1	99	-	8	4096	Input register	Word	Ambient humidity: Ambient humidity value
1	101	-	8	4097	Input register	Word	External temperature: Temperature value
1	103	-	8	4098	Input register	Word	Fans: Air volume
1	105	-	8	4099	Input register	Word	Fans: Total power
1	107	-	8	7468	Input register	Word	Control loop 1: Current pressure value
1	109	-	8	7469	Input register	Word	Control loop 2: Current pressure value
2	169	-	12	7470	Input register	Word	Control loop 3: Current pressure value
2	171	-	12	7471	Input register	Word	Control loop 4: Current pressure value
2	173	-	12	7472	Input register	Word	Control loop 5: Current pressure value
1	111	-	8	7478	Input register	Word	Control loop 1: Current pressure setpoint
1	113	-	8	7479	Input register	Word	Control loop 2: Current pressure setpoint
2	175	-	12	7480	Input register	Word	Control loop 3: Current pressure setpoint
2	177	-	12	7481	Input register	Word	Control loop 4: Current pressure setpoint
2	179	-	12	7482	Input register	Word	Control loop 5: Current pressure setpoint
1	115	-	8	7488	Input register	Word	Control loop 1: Current temperature value

I/O range of the slave on the PLC side				Modbus GMMnext specification			
"Single"							
Block	Input range off-set	Output range off-set	HW config slot	Modbus data address	Modbus data type	Access size	Designator
1	117	-	8	7489	Input register	Word	Control loop 2: Current temperature value
2	181	-	12	7490	Input register	Word	Control loop 3: Current temperature value
2	183	-	12	7491	Input register	Word	Control loop 4: Current temperature value
2	185	-	12	7492	Input register	Word	Control loop 5: Current temperature value
1	119	-	9	7498	Input register	Word	Control loop 1: Current temperature setpoint
1	121	-	9	7499	Input register	Word	Control loop 2: Current temperature setpoint
2	187	-	12	7500	Input register	Word	Control loop 3: Current temperature setpoint
2	189	-	12	7501	Input register	Word	Control loop 4: Current temperature setpoint
2	191	-	12	7502	Input register	Word	Control loop 5: Current temperature setpoint
1	123	-	9	7508	Input register	Word	Control loop 1 fans: Control value
1	125	-	9	7509	Input register	Word	Control loop 2 fans: Control value
2	193	-	12	7510	Input register	Word	Control loop 3 fans: Control value
2	195	-	13	7511	Input register	Word	Control loop 4 fans: Control value
2	197	-	13	7512	Input register	Word	Control loop 5 fans: Control value

3 Settings Gateway/PLC

Modbus parameters on GMMnext	See GMMnext manual
Modbus address "Single"	1
Baud rate	19200
Framing	8,N,1
Data format	16 bit

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

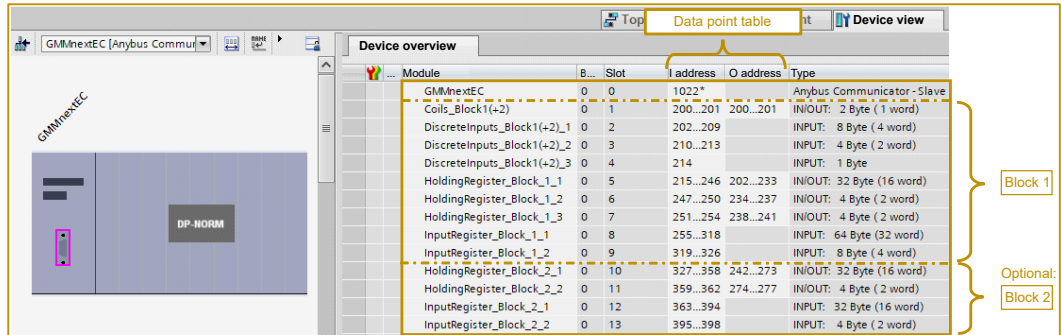
Profinet parameters at the gateway	
Device name	Default "hms", can be set via PLC programming tool
Protocol	DP-V1

Settings on the PLC		
Range	Size	Note
"Single" inputs	127 bytes (only "Block 1") 199 bytes ("Block 1" & "Block 2")	Block 1: Global parameters as well as control loops 1 & 2 Block 2: Control loops 3 - 5
"Single" outputs	42 bytes (only "Block 1") 78 bytes ("Block 1" & "Block 2")	Block 1: Global parameters as well as control loops 1 & 2 Block 2: Control loops 3 - 5
Diagnostics	1 byte	(1) Only available with S7-300-CPU (2) If "from above" is automatically assigned by S7, "DPNRM_DG" is used to read diagnostic files

(1) Data are transmitted to the GMMnext 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 GMMnext too.

(2) **IMPORTANT** (only in the case of the "Single" solution): If the CPU switches to the "Stop" state, all PLC outputs will be set to "0" and written to the GMMnext!

Example PLC settings



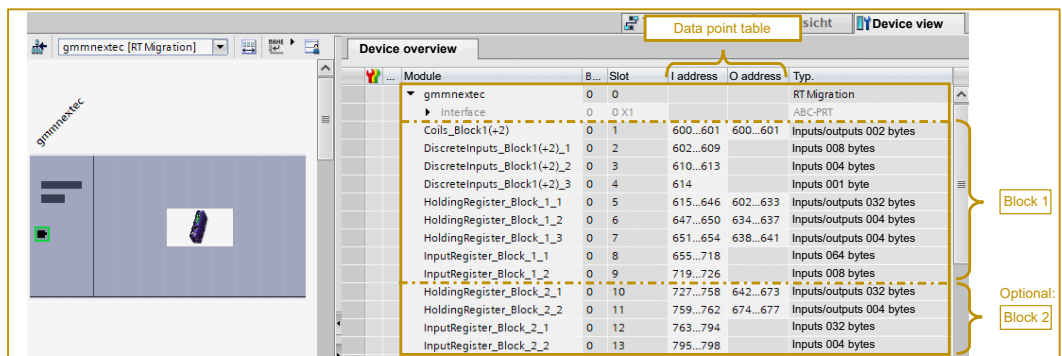
Module	B...	Slot	I address	O address	Type
GMMnextEC	0	0	1022*		Anybus Communicator-Slave
Coils_Block1(+2)	0	1	200...201	200...201	IN/OUT: 2 Byte (1 word)
DiscreteInputs_Block1(+2)_1	0	2	202...209		INPUT: 8 Byte (4 word)
DiscreteInputs_Block1(+2)_2	0	3	210...213		INPUT: 4 Byte (2 word)
DiscreteInputs_Block1(+2)_3	0	4	214		INPUT: 1 Byte
HoldingRegister_Block_1_1	0	5	215...246	202...233	IN/OUT: 32 Byte (16 word)
HoldingRegister_Block_1_2	0	6	247...250	234...237	IN/OUT: 4 Byte (2 word)
HoldingRegister_Block_1_3	0	7	251...254	238...241	IN/OUT: 4 Byte (2 word)
InputRegister_Block_1_1	0	8	255...318		INPUT: 64 Byte (32 word)
InputRegister_Block_1_2	0	9	319...326		INPUT: 8 Byte (4 word)
HoldingRegister_Block_2_1	0	10	327...358	242...273	IN/OUT: 32 Byte (16 word)
HoldingRegister_Block_2_2	0	11	359...362	274...277	IN/OUT: 4 Byte (2 word)
InputRegister_Block_2_1	0	12	363...394		INPUT: 32 Byte (16 word)
InputRegister_Block_2_2	0	13	395...398		INPUT: 4 Byte (2 word)

Block 1

Optional: Block 2

Hardware configuration: Profibus

GMMnextEC = GSD file "Anybus AB 7000" from HMS (Anybus communicator slave): "HMSB1803.gsd"



Module	B...	Slot	I address	O address	Typ.
gmmnextec	0	0			RT Migration
Interface	0	0 X1			ABC-PROT
Coils_Block1(+2)	0	1	600...601	600...601	Inputs/outputs 002 bytes
DiscreteInputs_Block1(+2)_1	0	2	602...609		Inputs 008 bytes
DiscreteInputs_Block1(+2)_2	0	3	610...613		Inputs 004 bytes
DiscreteInputs_Block1(+2)_3	0	4	614		Inputs 001 byte
HoldingRegister_Block_1_1	0	5	615...646	602...633	Inputs/outputs 032 bytes
HoldingRegister_Block_1_2	0	6	647...650	634...637	Inputs/outputs 004 bytes
HoldingRegister_Block_1_3	0	7	651...654	638...641	Inputs/outputs 004 bytes
InputRegister_Block_1_1	0	8	655...718		Inputs 064 bytes
InputRegister_Block_1_2	0	9	719...726		Inputs 008 bytes
HoldingRegister_Block_2_1	0	10	727...758	642...673	Inputs/outputs 032 bytes
HoldingRegister_Block_2_2	0	11	759...762	674...677	Inputs/outputs 004 bytes
InputRegister_Block_2_1	0	12	763...794		Inputs 032 bytes
InputRegister_Block_2_2	0	13	795...798		Inputs 004 bytes

Block 1

Optional: Block 2

Hardware configuration: Profinet

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