PPM 300

4189341251A

PPM 300 Modbus template information for PPM-2 retrofit

Application notes

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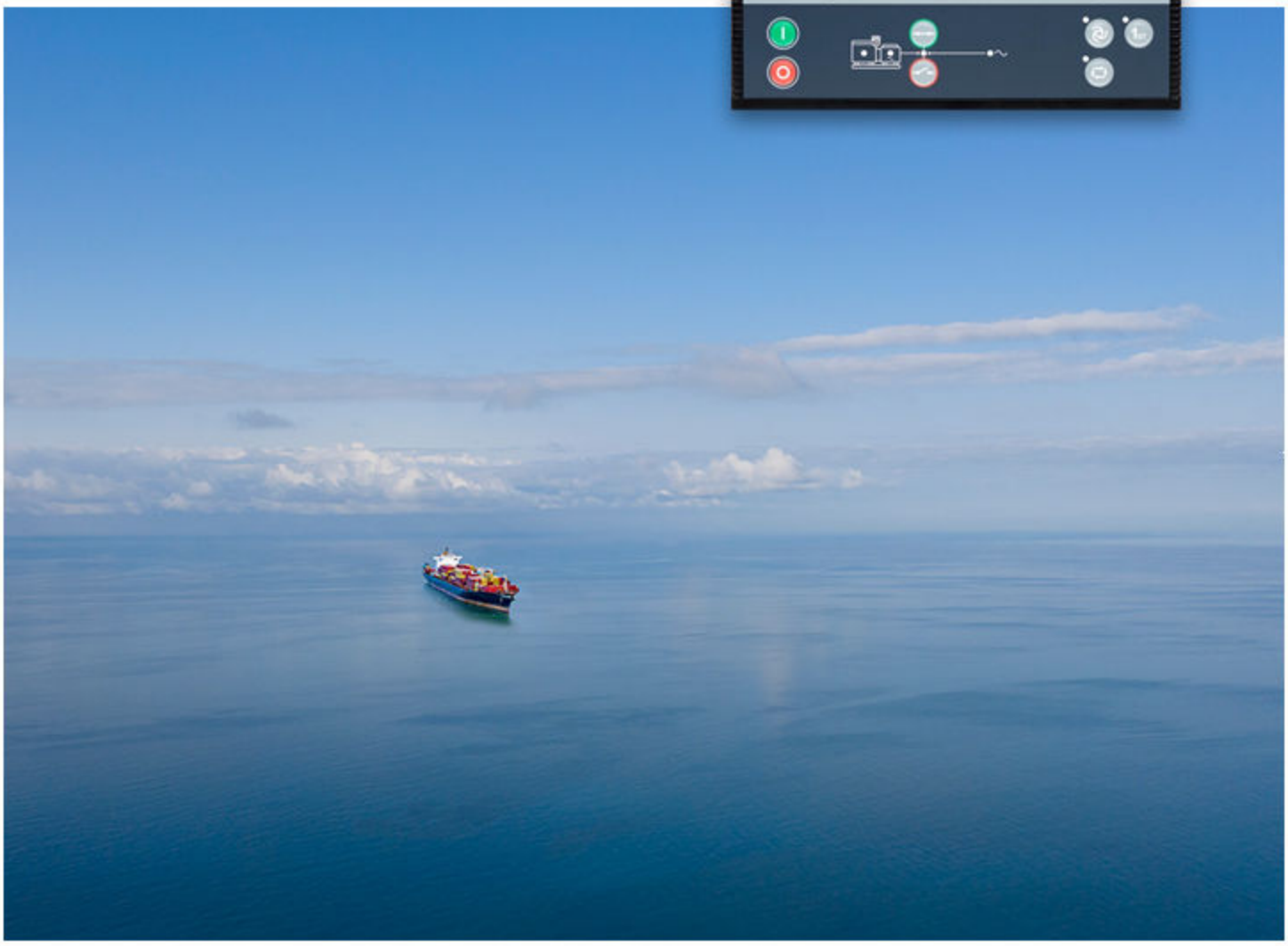

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Contents

1. Introduction

This document shows which PPM-2 Modbus addresses are included in the PPM-2 Modbus template for the PPM 300. The information in this document is meant to be used during the planning stages of a PPM-2 retrofit.

The PPM 300 has a default Modbus address for every function, input, output, and so on. The functions associated to Modbus addresses in PPM 300 are not the same as the associations in PPM-2. This means that the Modbus addresses from PPM-2 cannot be directly reused in PPM 300.

The PPM-2 Modbus template for PPM 300 does not include all of the PPM-2 Modbus addresses. Some addresses that are not included in the template can be configured in the PPM 300 onsite during the retrofit. By using the PPM-2 Modbus template and configuring the missing addresses manually, it is possible to retrofit a PPM-2 with a PPM 300 without the need to change the communication addresses in the Alarm Monitoring System (AMS), PLC, and so on.

Info

PPM 300 Modbus communication is based on Modbus TCP/IP, therefore an RS485/TCP convertor is required for the PPM-2 to PPM 300 retrofit.

Note

Before ordering a PPM 300, ensure that the PPM 300 has the required inputs and outputs to cover all of the options that were added to the PPM-2.

1.1 Further reading

More information

See the **Modbus** chapter in the **PPM 300 PICUS manual** for more information about how to import a Modbus template in PICUS and how to configure Modbus addresses using PICUS.

More information

See the **PPM 300 Modbus tables** for a list of all the available default Modbus addresses for PPM 300 and the functions associated to them by default.

1.2 PPM-2 options

The options added to a specific PPM-2 controller are noted on the silver label attached to the controller housing. Descriptions of the options are noted in the PPM-2 data sheet that is available on www.deif.com.

1.3 Conventions

The following conventions are used in this document:

Used in document	Description
	A symbol used to draw attention to extra information or an action that is not mandatory
Y	The Modbus address is included in the template.
N	The Modbus address is not available in the Modbus template, or it is not possible to setup the address using the Modbus configurator in PICUS.
Configure	The Modbus address must be configured manually using the Modbus configurator in PICUS during the retrofit.

2. Data tables

2.1 PMS measurement table (read only)

Address	Content	Description	Available
50010	%	Base load set point	N
50017	P_{Avail}	Total available power [kW]	N
50018	P_{Cons}	Total consumed power [kW]	N
50034	PHC1.1	Requested power of 1st heavy consumer in unit 1 [kW]	N
50035	PHC1.2	Requested power of 2nd heavy consumer in unit 1 [kW]	N
50053	PHC2.1	Requested power of 1st heavy consumer in unit 2 [kW]	N
50054	PHC2.2	Requested power of 2nd heavy consumer in unit 2 [kW]	N
50072	PHC3.1	Requested power of 1st heavy consumer in unit 3 [kW]	N
50073	PHC3.2	Requested power of 2nd heavy consumer in unit 3 [kW]	N
50091	PHC4.1	Requested power of 1st heavy consumer in unit 4 [kW]	N
50092	PHC4.2	Requested power of 2nd heavy consumer in unit 4 [kW]	N
50110	PHC5.1	Requested power of 1st heavy consumer in unit 5 [kW]	N
50111	PHC5.2	Requested power of 2nd heavy consumer in unit 5 [kW]	N
50129	PHC6.1	Requested power of 1st heavy consumer in unit 6 [kW]	N
50130	PHC6.2	Requested power of 2nd heavy consumer in unit 6 [kW]	N
50148	PHC7.1	Requested power of 1st heavy consumer in unit 7 [kW]	N
50149	PHC7.2	Requested power of 2nd heavy consumer in unit 7 [kW]	N
50167	PHC8.1	Requested power of 1st heavy consumer in unit 8 [kW]	N
50168	PHC8.2	Requested power of 2nd heavy consumer in unit 8 [kW]	N
50205	PHC10.1	Requested power of 1st heavy consumer in unit 10 [kW]	N
50206	PHC10.2	Requested power of 2nd heavy consumer in unit 10 [kW]	N

2.2 Measurement table (read only) (function code 03h)

Address	Bit	Content	Description	Available
0			Application version	N
1		U_{L1-L2}	Generator voltage. Measured in [V]	Y
2		U_{L2-L3}	Generator voltage. Measured in [V]	Y
3		U_{L3-L1}	Generator voltage. Measured in [V]	Y
4		U_{L1-N}	Generator voltage. Measured in [V]	Y
5		U_{L2-N}	Generator voltage. Measured in [V]	Y
6		U_{L3-N}	Generator voltage. Measured in [V]	Y
7		f_{GEN}	Generator frequency. Measured in [Hz/100]	Y
8		I_{L1}	Generator current. Measured in [A]	Y
9		I_{L2}	Generator current. Measured in [A]	Y

Address	Bit	Content	Description	Available
10		I_{L3}	Generator current. Measured in [A]	Y
11		Cos-phi	-99...0...100 Generator cosinus-phi. Measured in cos-phi:100 Negative value means capacitive cos-phi	Y
12		P_{GEN}	Generator active power. Measured in [kW]. Negative value means reverse power	Y
13		Q_{GEN}	Generator reactive power. Measured in [kvar]. Positive value means generated inductive reactive power	Y
14		$U_{BBL1-L2}$	Busbar. Measured in [V]	Y
15		f_{BB}	Busbar frequency L1. Measured in [Hz/100]	Y
16 [HI]		R_{GEN} Export	Reactive energy counter, exported reactive power. Measured in [kvarh]. Max. 300000 Mvarh	Y
17 [LO]		R_{GEN} Export	Reactive energy counter, exported reactive power. Measured in [kvarh]. Max. 300000 Mvarh	Y
18 [HI]		E_{GEN} Export	Energy counter, exported power. Measured in [kWh]. Max. 300000MWh	Y
19 [LO]		E_{GEN} Export	Energy counter, exported power. Measured in [kWh]. Max. 300000MWh	Y
20	0	Alarms	1000. Reverse power 1	Y
	1		1010. Reverse power 2	Y
	2		1020. Reverse power inv.	N
	3		1030. Overcurrent step 1	Y
	4		1040. Overcurrent step 2	Y
	5		1050. Overcurrent step 3	N
	6		1060. Overcurrent step 4	N
	7		1090. Overcurrent inverse	Y
	8		Not used	
	9		1130. Fast overcurrent 1	Y
	10		1140. Fast overcurrent 2	Y
	11		1150. U-DG High step 1	Y
	12		1160. U-DG High step 2	Y
	13		1170. U-DG Low step 1	Y
	14		1180. U-DG Low step 2	Y
	15		1190. U-DG Low step 3	N
21	0	Alarms	1210. f-DG High step 1	Y
	1		1220. f-DG High step 2	Y
	2		1230. f-DG High step 3	N
	3		1240. f-DG Low step 1	Y
	4		1250. f-DG Low step 2	Y
	5		1260. f-DG Low step 3	N
	6		1270. U-BB High step 1	Y

Address	Bit	Content	Description	Available
	7		280. U-BB High step 2	Y
	8		1290. U-BB High step 3	N
	9		1300. U-BB Low step 1	Y
	10		1310. U-BB Low step 2	Y
	11		1320. U-BB Low step 3	N
	12		1330. U-BB Low step 4	N
	13		1350. f-BB High step 1	Y
	14		1360. f-BB High step 2	Y
	15		1370. f-BB High step 3	N
22	0	Alarms	1380. f-BB Low step 1	Y
	1		1390. f-BB Low step 2	Y
	2		1400. f-BB Low step 3	N
	3		1410. f-BB Low step 4	N
	4		Reserved	N
	5		Reserved	N
	6		Not used	
	7		1450. Overload step 1	Y
	8		1460. Overload step 2	Y
	9		1470. Overload step 3	N
	10		1480. Overload step 4	N
	11		1490. Overload step 5	N
	12		1500. Unbalance current	Y
	13		1510. Unbalance voltage	Y
	14		1520. Q import	Y
	15		1530. Q export	Y
23	0	Alarms	1540. Gen. neg. sequence current	Y
	1		1550. Gen. neg. sequence voltage	Y
	2		Reserved	N
	3		Reserved	N
	4		Not used	
	5		Not used	
	6		Not used	
	7		Not used	
	8		1900 Overcurrent NEL 1	Y
	9		1910 Overcurrent NEL 2	Y
	10		1920 f-BB Low NEL 1	Y
	11		1930 f-BB Low NEL 2	Y
	12		1940 Overload step 1 NEL 1	Y
	13		1950 Overload step 1 NEL 2	Y

Address	Bit	Content	Description	Available
	14		1960 Overload step 2 NEL 1	Y
	15		1970 Overload step 2 NEL 2	Y
24	0	Alarms	3000. Dig. input term. 23	Configure
	1		3010. Dig. input term. 24	Configure
	2		3020. Dig. input term. 25	Configure
	3		3030. Dig. input term. 26	Configure
	4		3040. Dig. input term. 27	Configure
	5		3050. Dig. input term. 43	Configure
	6		3060. Dig. input term. 44	Configure
	7		3070. Dig. input term. 45	Configure
	8		3080. Dig. input term. 46	Configure
	9		3090. Dig. input term. 47	Configure
	10		3100. Dig. input term. 48	Configure
	11		3110. Dig. input term. 49	Configure
	12		3120. Dig. input term. 50	Configure
	13		3130. Dig. input term. 51	Configure
	14		3140. Dig. input term. 52	Configure
	15		3150. Dig. input term. 53	Configure
25	0	System alarms/status	2100 Sync. window	Configure
	1		2110 Sync. fail. alarm	Y
	2		2120 Phase sequence error alarm	Y
	3		2140 Connection breaker Close failure	Y
	4		2150 Connection breaker Open failure	Y
	5		2160 CB position fail. alarm	Y
	6		2590 Governor regulator fail. alarm	Y
	7		2610 AVR regulator fail. alarm	Y
	8		4940 Battery low voltage alarm	Configure
	9		4950 Battery high voltage alarm	Configure
	10		Not used	
	11		Not used	
	12		Not used	
	13		Not used	
	14		Not used	
	15		Not used	
26	0	Alarm relay status	Relay 0	Configure
	1		Relay 1	Configure
	2		Relay 2	Configure
	3		Relay 3	Configure
	4		Relay 4	Configure

Address	Bit	Content	Description	Available
	5		Not used	
	6		HC 1 acknowledge	Y
	7		HC 2 acknowledge	Y
	8		Relay 8	Configure
	9		Relay 9	Configure
	10		Not used	
	11		Not used	
	12		Not used	
	13		Not used	
	14		Relay 14	Configure
	15		Relay 15	Configure
27	0	Status	Not used	
	1		Not used	
	2		Not used	
	3		Not used	
	4		Not used	
	5		Not used	
	6		Not used	
	7		Start sync./reg.	Configure
	8		Alarm inhibit	Configure
	9		Connection breaker position ON	Configure
	10		Synchronising	Configure
	11		Not used	
	12		Not used	
	13		Not used	
	14		Not used	
	15		Not used	
28	0	Alarm relay status	Relay 16	Configure
	1		Relay 17	Configure
	2		Relay 18	Configure
	3		Relay 19	Configure
	4		Relay 20	Configure
	5		Not used	
	6		Relay 22	Configure
	7		Relay 23	Configure
	8		Relay 24	Configure
	9		Relay 25	Configure
	10		Not used	
	11		Not used	

Address	Bit	Content	Description	Available
	12		Not used	
	13		Not used	
	14		Not used	
	15		Not used	
29		U_{DG-max}	Generator max. voltage. Measured in [V]	Y
30		U_{DG-min}	Generator min. voltage. Measured in [V]	Y
31		$U_{BBL2-L3}$	Busbar voltage. Measured in [V]	Y
32		$U_{BBL3-L1}$	Busbar voltage. Measured in [V]	Y
33		U_{BB-max}	Busbar max. voltage. Measured in [V]	Y
34		U_{BB-min}	Busbar min. voltage. Measured in [V]	Y
35		U_{BBL1-N}	Busbar voltage. Measured in [V]	Y
36		U_{BBL2-N}	Busbar voltage. Measured in [V]	Y
37		U_{BBL3-N}	Busbar voltage. Measured in [V]	Y
38		Running time	Hour	Y
39		RPM	RPM	Y
40		S_{GEN}	Generator apparent power. Measured in [kVA]	Y
41		VDO 1	Not available	Configure
42		VDO 2	Not available	Configure
43		VDO 3	Not available	Configure
44		$PHI_{BBL1-L2}$	0...359 busbar phase angle. Measured in [deg.]	Y
45		$PHI_{BBL1-DGL1}$	0...359 busbar/generator phase angle. Measured in [deg.]	Configure
46		CB_{oper}	Circuit breaker operations counter	Y
47		U_{SUPPLY}	Supply voltage. Measured in [V/10]	N
48		PT100 (1)	Not available	Configure
49		PT100 (2)	Not available	Configure
50		Not used		
51		Not used		
52		Not used		
53		Not used		
54		Not used		
55			Analogue input no. 1 (scaled)	Configure
56			Analogue input no. 2 (scaled)	Configure
57			Analogue input no. 3 (scaled)	Configure
58			Analogue input no. 4 (scaled)	Configure
59			Analogue input no. 5 (scaled)	Configure
60			Analogue input no. 6 (scaled)	Configure
61			Analogue input no. 7 (scaled)	Configure
62			Analogue input no. 8 (scaled)	Configure
63			No. of alarms	N

Address	Bit	Content	Description	Available
64			No. of unacknowledged alarms	N
65		Not used		
66		Not used		
67		Not used		
68		Not used		
69		Not used		
70	0	Alarms	3180. Dig. input term. 91	Configure
	1		3190. Dig. input term. 92	Configure
	2		3200. Dig. input term. 93	Configure
	3		3210. Dig. input term. 94	Configure
	4		3220. Dig. input term. 95	Configure
	5		3230. Dig. input term. 96	Configure
	6		3240. Dig. input term. 97	Configure
	7		3250. VDO input term. 104	Configure
	8		3260. VDO input term. 105	Configure
	9		3270. VDO input term. 106	Configure
	10		3280. Dig. input term. 110	Configure
	11		3290. Dig. input term. 111	Configure
	12		3300. Dig. input term. 112	Configure
	13		3310. Dig. input term. 113	Configure
	14		3320. Dig. input term. 114	Configure
	15		3330. Dig. input term. 115	Configure
71	0	Alarms	3340. Dig. input term. 116	Configure
	1		3350. Dig. input term. 117	Configure
	2		3360. Dig. input term. 118	Configure
	3		Not available	
	4		Not available	
	5		Not available	
	6		Not available	
	7		Not available	
	8		Not available	
	9		Not available	
	10		Not used	
	11		Not used	
	12		Not used	
	13		Not used	
	14		Not used	
	15		Not used	
72	0	Alarms	4000. 4-20mA input no. 91.1	Configure

Address	Bit	Content	Description	Available
	1		4010. 4-20mA input no. 91.2	Configure
	2		4020. Wire break failure 91	Configure
	3		4030. 4-20mA input no. 93.1	Configure
	4		4040. 4-20mA input no. 93.2	Configure
	5		4050. Wire break failure 93	Configure
	6		4060. 4-20mA input no. 95.1	Configure
	7		4070. 4-20mA input no. 95.2	Configure
	8		4080. Wire break failure 95	Configure
	9		4090. 4-20mA input no. 97.1	Configure
	10		4100. 4-20mA input no. 97.2	Configure
	11		4110. Wire break failure 97	Configure
	12		4120. 4-20mA input no. 98.1	Configure
	13		4130. 4-20mA input no. 98.2	Configure
	14		4140. Wire break failure 98	Configure
	15		4150. 4-20mA input no. 100.1	Configure
73	0	Alarms	4160. 4-20mA input no. 100.2	Configure
	1		4170. Wire break failure 100	Configure
	2		4180. 4-20mA input no. 102.1	Configure
	3		4190. 4-20mA input no. 102.2	Configure
	4		4200. Wire break failure 102	Configure
	5		Not available	
	6		Not available	
	7		Not available	
	8		Not used	
	9		Not used	
	10		Not used	
	11		Not used	
	12		Not used	
	13		Not used	
	14		Not used	
	15		Not used	
78	0	Alarms	Not available	
	1		Not available	
	2		Not used	
	3		Not available	
	4		Not available	
	5		Not used	
	6		4750. Overspeed 1	Configure
	7		4760. Overspeed 2	Configure

Address	Bit	Content	Description	Available
	8		Not used	
	9		Not used	
	10		Not used	
	11		Not used	
	12		Not used	
	13		Not used	
	14		Not used	
	15		Not used	
79	0	Alarms	4420. VDO input 104.1	Configure
	1		4430. VDO input 104.2	Configure
	2		4480. Wire break failure 104	Configure
	3		4570. VDO input 105.1	Configure
	4		4580. VDO input 105.2	Configure
	5		4610. Wire break failure 105	Configure
	6		4720. VDO input 106.1	Configure
	7		4730. VDO input 106.2	Configure
	8		4740. Wire break failure 106	Configure
	9		Not used	
	10		Not used	
	11		Not used	
	12		Not used	
	13		Not used	
	14		Not used	
	15		Not used	
80		PAvail	Total available power. Measured in [kW]	Y
81		PCons	Total consumed power. Measured in [kW]	Y
106	0	Status	PMS control	Y
	1		DG ready	Y
	2		DG running	Y
	3		Connection breaker position ON	Y
	4		Synchronising	Y
	5		Ramp down	Y
	6		Voltage/frequency OK	Y
	7		Not used	
	8		Base load	Configure
	9		Not used	
	10		Not used	
	11		Not used	
	12		Not used	

Address	Bit	Content	Description	Available
	13		Not used	
	14		Not used	
	15		Not used	
107	0	Status	Fail class WARNING	Y
	1		Fail class PREWARNING / SAFETY STOP	Y
	2		Fail class BLOCK	Y
	3		Fail class CB TRIP	Y
	4		Fail class CB TRIP AND STOP	Y
	5		Fail class SHUTDOWN	Y
	6		Fail class SHORT CIRCUIT	Y
	7		Fail class SYSTEM ALARM	Y
	8		Not used	
	9		Not used	
	10		Not used	
	11		Not used	
	12		Not used	
	13		Not used	
	14		Not used	
	15		Not used	

2.3 PMS status register table (read only) (function code 03h)

Address	Content	Description	Available
50000	Plant mode	0, means that the plant mode is in Semi-Auto mode 1, means that the plant mode is in Auto mode 2, means that the plant mode is in Shaft/Shore mode 3, means that the plant mode is in Split mode	Configure
50013	Base load ON	The base load function is active	Configure

2.4 Control register table (write only) (function code 10h)

Address	Content	Description	Available
4370	Priority transmit	Transmit the selected priority to the master unit	Configure
4371	1st priority	Select the 1st priority	Configure
4372	2nd priority	Select the 2nd priority	Configure
4373	3rd priority	Select the 3rd priority	Configure
4374	4th priority	Select the 4th priority	Configure
4375	5th priority	Select the 5th priority	Configure
4376	6th priority	Select the 6th priority	Configure

Address	Content	Description	Available
4377	7th priority	Select the 7th priority	Configure
4378	8th priority	Select the 8th priority	Configure

2.4.1 Date and time setting

Address	Content	Description	Available
19000	Year setting	2003...2099	N
19001	Month setting	1...12	N
19002	Date setting	1...31	N
19003	Day setting	1...7 (1 = Monday, 7 = Sunday)	N
19004	Hour setting	0...23	N
19005	Second setting	0...59	N

2.5 PMS command register table (write only) (function code 10h)

Address	Content	Description	Available
52200	Semi-Auto	Set the plant mode to Semi-Auto	Configure
52201	Auto	Set the plant mode to Auto	Configure
52202	Shaft	Set the plant mode to Shaft	Configure
52203	Split	Set the plant mode to Split	N
52204	Base load ON	Activates the base load function	Configure
52205	Base load OFF	Deactivates the base load function	Configure
52206	Secured ON	Activates the secured function	Configure
52207	Secured OFF	Deactivates the secured function	Configure

2.6 Command flags table (write only) (function code 0Fh)

Address	Content	Description	Available
0		Not used	
1		Not used	
2		Not used	
3		Not used	
4		Not used	
5		Not used	
6		Not used	
7		Not used	
8		Not used	
9	Alarm ackn.	Acknowledgement of all alarms	Configure

Address	Content	Description	Available
10		Not used	
11		Not used	
12		Not used	
13	Start	Semi-Auto start command	Configure
14	CB ON	Semi-Auto connection breaker ON command	Configure
15	CB OFF	Semi-Auto connection breaker OFF command	Configure
16	Stop	Semi-Auto stop command	Configure

2.7 PMS status flags table (read only) (function code 01h)

Address	Content	Description	Available
50018	Secured ON	The secured function is active	Configure
50069	HC 1.1 connected	Deactivates the base load function	Configure
50070	HC 1.2 connected	The 2nd heavy consumer from unit 1 is connected	Configure
50109	HC 2.1 connected	The 1st heavy consumer from unit 2 is connected	Configure
50110	HC 2.2 connected	The 2nd heavy consumer from unit 2 is connected	Configure
50149	HC 3.1 connected	The 1st heavy consumer from unit 3 is connected	Configure
50150	HC 3.2 connected	The 2nd heavy consumer from unit 3 is connected	Configure
50189	HC 4.1 connected	The 1st heavy consumer from unit 4 is connected	Configure
50190	HC 4.2 connected	The 2nd heavy consumer from unit 4 is connected	Configure
50229	HC 5.1 connected	The 1st heavy consumer from unit 5 is connected	Configure
50230	HC 5.2 connected	The 2nd heavy consumer from unit 5 is connected	Configure
50269	HC 6.1 connected	The 1st heavy consumer from unit 6 is connected	Configure
50270	HC 6.2 connected	The 2nd heavy consumer from unit 6 is connected	Configure
50309	HC 7.1 connected	The 1st heavy consumer from unit 7 is connected	Configure
50310	HC 7.2 connected	The 2nd heavy consumer from unit 7 is connected	Configure
50349	HC 8.1 connected	The 1st heavy consumer from unit 8 is connected	Configure
50350	HC 8.2 connected	The 2nd heavy consumer from unit 8 is connected	Configure
50429	HC 10.1 connected	The 1st heavy consumer from unit 10 is connected	Configure
50430	HC 10.2 connected	The 2nd heavy consumer from unit 10 is connected	Configure

3. Parameter table

Only a selection of PPM-2 parameters is available in the PPM 300. Because the PPM 300 also includes parameters that are not available in PPM-2 and the parameters in PPM 300 are configured in a different way, none of the PPM-2 parameter addresses are included in the Modbus template.

Parameters, digital input and digital output addresses must be configured manually during the retrofit of the PPM-2.

3.1 Parameter table

None of the parameters listed in the PPM-2 H2 Parameter table are added to the PPM-2 Modbus template. These parameters must be configured manually.

More information

See the **PPM 300 Modbus tables** for a list of all the available default Modbus addresses for PPM 300 and the functions associated to them by default.

3.2 Digital input table (read only 01h)

Note

The functions of the addresses marked as not available must be programmed in CustomLogic using PICUS (ML 300 PC utility software).

Address	Content	Description	Available
3001 - 3007		Not available	
3008	91	Dig. input term. 91 (option M16)	Configure
3009	92	Dig. input term. 92 (option M16)	Configure
3010	93	Dig. input term. 93 (option M16)	Configure
3011	94	Dig. input term. 94 (option M16)	Configure
3012	95	Dig. input term. 95 (option M16)	Configure
3013	96	Dig. input term. 96 (option M16)	Configure
3014	97	Dig. input term. 97 (option M16)	Configure
3015 - 3028		Not available	Configure
3029	43	Dig. input term. 43	Configure
3030	44	Dig. input term. 44	Configure
3031	45	Dig. input term. 45	Configure
3032	46	Dig. input term. 46	Configure
3033	47	Dig. input term. 47	Configure
3034	48	Dig. input term. 48	Configure

Address	Content	Description	Available
3035	49	Dig. input term. 49	Configure
3036	50	Dig. input term. 50	Configure
3037	51	Dig. input term. 51	Configure
3038	52	Dig. input term. 52	Configure
3039	53	Dig. input term. 53	Configure
3040	54	Breaker position off	Configure
3041	55	Breaker position on	Configure
3042	23	Dig. input term. 23	Configure
3043	24	Dig. input term. 24	Configure
3044	25	Dig. input term. 25	Configure
3045	26	Dig. input term. 26	Configure
3046	27	PMS/SWBD control	Configure
3047 - 3074		Not available	Configure
3075	110	Dig. input term. 110	Configure
3076	111	Dig. input term. 111	Configure
3077	112	Dig. input term. 112	Configure
3078	113	Dig. input term. 113	Configure
3079	114	Dig. input term. 114	Configure
3080	115	Ready for operation	Configure
3081	116	Running	Configure
3082	117	Remote start	Configure
3083	118	Remote stop	Configure

3.3 Digital output table (read only 01h)

Address	Content	Description	Available
4000	65/66	Governor up	Configure
4001	67/68	Governor down	Configure
4002	69/70	Relay 12/AVR up	Configure
4003	71/72	Relay 13/AVR down	Configure
4004	132/133	Not available	Configure
4005	130/131	Not available	Configure
4006	128/129	Not available	Configure
4007	126/127	Not available	Configure
4008	96/97	Relay 17 (option M18)	Configure
4009	94/95	Relay 16 (option M18)	Configure
4010	92/93	Relay 15 (option M18)	Configure
4011	90/91	Relay 14 (option M18)	Configure
4012 - 4015		Not available	Configure

Address	Content	Description	Available
4016	57/58	Relay 6	Configure
4017	59/60	Relay 7	Configure
4018	61/62	Relay 8	Configure
4019	63/64	Relay 9	Configure
4020-4024		Not available	Configure
4025	5/6/7	Relay 1	Configure
4026	8/9/10	Relay 2	Configure
4027	11/12/13	PMS alarm	Configure

4. Glossary

4.1 Terms and abbreviations

AMS	Alarm Management System
PPM	Protection and power management

4.2 Units

Unit	Unit Name	Quantity name	US unit	US name	Conversion	Alternative units
A	ampere	Current				
Hz	hertz	Frequency (cycles per second)				
V	volt	Voltage				
var	volt-ampere reactive	Reactive power				
V AC	volt (alternating current)	Voltage (alternating current)				
V DC	volt (direct current)	Voltage (direct current)				
W	watt	Power				