MODBUS POWER CONTROL INTERFACE REGISTER

WRITE VALUES (without Hybrid EMS) (Function Code 16)

Register	Abbreviation	Description	Unit	Data type	Range	Comment
5000	PPC_P_SET_GRIDOP_REL	Active power setpoint (grid operator)	%	F32	-10,000.000 %...125.000 %	From firmware 15.1.8: 100.000…125.000 From firmware 23.2.11: -10,000.000 … 0.000
5002	PPC_PF_SET	Power factor setpoint		F32	-0.999…1.000	Negative values = underexcited Positive values = overexcited For example: cos φ = -0.95 = 0.95 underexcited cos φ = 0.95 = 0.95 overexcited
5004	PPC_Q_SET_REL	Actual valid reactive power setpoint	%	F32	-100.000…100.000 %	Negative values = underexcited Positive values = overexcited For example: Q = -32.868 = 32.868 underexcited Q = 32.868 = 32.868 overexcited
5006	PPC_P_SET_GRIDOP_ABS	Absolute active power setpoint command (grid operator)	W	F32	unlimited	From firmware 24.3.12
5008	PPC_Q_SET_ABS	Absolute reactive power setpoint command (grid operator)	var	F32	unlimited	From firmware 24.3.12
5010	PPC_P_SET_MODE	Active power setpoint command method		F32	1: Variable fixed value Pvar fix 2: Variable fixed value Pvar DI 3: Variable fixed value Pvar AI 4: Variable fixed value Pvar Modbus	

Register	Abbreviation	Description	Unit	Data type	Range	Comment
5012	PPC_Q_SET_MODE	Reactive power setpoint command method		F32	1: Variable fixed value cos φvar fix 2: Variable fixed value cos φvar DI 3: Variable fixed value cos φvar AI 4: Variable fixed value cos φvar Modbus 5: Characteristic curve cos φvar (P) 6: Characteristic curve cos φvar (V) 7: Variable fixed value Qvar fix 8: Variable fixed value Qvar DI 9: Variable fixed value Qvar AI 10: Variable fixed value Qvar Modbus 11: Characteristic curve Q (P) 12: Characteristic curve Q (V) 13: Characteristic curve Q (tan φ) 14: Voltage control Q (V droop) (*) 15: Characteristic curve Q(V) Modbus (**) 16: Characteristic curve cos φ (P) Modbus (**)	(*) From firmware 12.0.2 (**) From firmware 28.0.2
5014-5015		Reserved. Possible to write / read from firmware 16.0.4 on				The blue'Log ignores the written values. This makes it possible to write several registers in one block.
5016	PPC_V_REF_Q_V_SHIFT	Voltage shift ΔV_Q0 for Q(V) curve	V	F32	-16,800.00…24,200.00 V	-16,800.00…24,200.00 V The voltage shift ΔV_Q0 is added to the nominal voltage V_c to obtain the reference voltage at which the reactive power setpoint is 0 %. Example: With V_c = 20 kV and ΔV_Q0=200 V a reference voltage of 20.2kV is obtained
5018-5019		Reserved. Possible to write / read from firmware 16.0.4 on				The blue'Log ignores the written values. This makes it possible to write several registers in one block.
5020	PPC_V_SET_ABS	Absolute voltage setpoint Vsetpoint	V	F32	Value range depends on the agreed supply voltage Vc and the Vsetpoint,min and Vsetpoint,max settings in method Q (V droop). e.g. Vc = 20 kV, Vsetpoint,min = 0.9 and Vsetpoint,max 1.1: value range is 18,000...22,000 V	From firmware 12.0.2 Negative values = underexcited Positive values = overexcited For example: Q = -1,000.000.000 var = 1.0 Mvar underexcited

Register	Abbreviation	Description	Unit	Data type	Range	Comment
5022	PPC_Q_REF_V_DROOP_SHIFT	Setpoint reference reactive power QΔV0 for parallel shift of the voltage droop sV		F32	-1,000,000,000.000... 1,000,000,000.000 var	From firmware 12.0.2 Negative values = underexcited Positive values = overexcited For example: Q = -1,000.000.000 var = 1.0 Mvar underexcited
5024	PPC_FSM_CMD	FSM on/off signal		F32	0: off 1: on	From firmware 26.0.5
5026	PPC_FSM_P_RANGE	FSM active power range	%	F32	0.001...100%	From firmware 33.1.12 Parameter "active power range" for under- and overfrequency
5028	PPC_FSM_P_RANGE_U	FSM active power range - underfrequency	%	F32	0,001...100%	From firmware 33.1.12 Parameter "active power range" for underfrequency of the FSM curve (required if curve is set asymmetrically)
5030	PPC_FSM_P_RANGE_O	FSM active power range - overfrequency	%	F32	0,001...100%	From firmware 33.1.12 Parameter "active power range" for overfrequency of the FSM curve (required if curve is set asymmetrically)
5032-5040		Reserved. Not possible to write / read				
5042	PPC_P_RRL_CMD	Ramp rate limiter on/ off signal		F32	0: off 1: on	From firmware 26.0.5
5044	PPC_P_RRL_UP	Ramp rate (ramp-up)	%/s	F32	0.0001 %/s...125.000 %/s	From firmware 26.0.5
5046	PPC_P_RRL_DOWN	Ramp rate (ramp-down)	%/s	F32	0.0001 %/s...125.000 %/s	From firmware 26.0.5
5048	PPC_QV_P_IN	Lock-in active power Plock-in for characteristic curve “Q(V) Modbus”	%	F32	10,000,000...125.000 %	
5050	PPC_QV_P_OUT	Lock-out active power Plock-out for characterisic curve “Q(V) Modbus”	%	F32	10,000,000...125.000 %	
5052	PPC_QV_V1	Reference point voltage 1 for characteristic curve “Q(V) Modbus”	V/Vc	F32	0.100...1.500	
5054	PPC_QV_V2	Reference point voltage 2 for characteristic curve “Q(V) Modbus”	V/V_c	F32	0.100...1.500	
5056	PPC_QV_V3	Reference point voltage 3 for characteristic curve “Q(V) Modbus”	V/V_c	F32	0.100...1.500	
5058	PPC_QV_V4	Reference point voltage 4 for characteristic curve “Q(V) Modbus”	V/V_c	F32	0.100...1.500	
5060		Reserved for K factor				
5062	PPC_PFP_V_IN	Lock-In voltage Vlock-in for characteristic curve“cos φ (P) Modbus”	V/V_c	F32	1.00...1.10	
5064	PPC_PFP_V_OUT	Lock-out voltage Vlock-out for characteristic curve“cos φ (P) Modbus”	V/V_c	F32	0.90...1.00	

Register	Abbreviation	Description	Unit	Data type	Range	Comment
5066	PPC_PFP_PF1	Reference point cos φ 1 for characteristic curve“ cos φ (P) Modbus”		F32	-0.999 ... 1.000	
5068	PPC_PFP_PF2	Reference point cos φ 2 for characteristic curve“ cos φ (P) Modbus”		F32	-0.999 ... 1.000	
5070	PPC_PFP_PF3	Reference point cos φ 3 for characteristic curve“ cos φ (P) Modbus”		F32	-0.999 ... 1.000	
5072	PPC_PFP_P1	Reference point P 1 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32	0...1	
5074	PPC_PFP_P2	Reference point P 2 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32	0...1	
5076	PPC_PFP_P3	Reference point P 3 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32	0...1	
5078-5098		Reserved				
5100	PPC_V_SIM_TEST	Simulated test voltage	V	F32	0.000...132,000.000 V	From firmware 12.0.2
5102	PPC_F_SIM_TEST	Simulated test frequency	Hz	F32	0.000…70.000 Hz	From firmware 17.1.7

READ VALUES (without Hybrid EMS) (Function Code 03)

Register	Abbreviation	Description	Unit	Data type	Range	Comment
0	PPC_VENDOR	Vendor		U32		From firmware 33.1.12 "mc": meteocontrol hex: 0x6D630000 From firmware 33.1.12
2	PPC_MD	Model		U32		From firmware 33.1.12 "bl": blueLog hex: 0x626C0000
4	PPC_QS_TIMESTAMP	Current timestamp of device	---	U32		This value returns a current timestamp for device health detection. From firmware 34.2.6
6	PPC_P_AV_E	Agreed connected active power P_{AV}	W	F32		
8	PPC_S_AV_E	Agreed connected apparent power S_{AV}	VA	F32		
10	PPC_P_INST	Total installed active power P_{inst}	W	F32		
16	PPC_S_MAX	Total maximum apparent power S_{max}	VA	F32		
18	PPC_V_C	Agreed supply voltage V_c	V	F32		
20-38		Reserved. Not possible to write / read				
40	PPC_BAT_P_CTRL_REL	Active power correction value (battery)	%	F32		From firmware 33.1.12
42	PPC_Q_SET_GRIDOP_REL	Reactive power setpoint (grid operator)	%	F32		Reactive power setpoint which is specified by the grid operator. Example: Q (Modbus)
44	PPC_PF_SET_CTRL	Power factor correction value	-	F32		From firmware 19.2.10. Negative values = underexcited, positive values = overexcited This value corresponds to the PV correction value.
46	PPC_Q_SET_CTRL_REL	Reactive power correction value	%	F32		From firmware 19.2.10. Negative values = underexcited, positive values = overexcited This value corresponds to the PV correction value.
48	PPC_P_SET_CTRL_REL	Active power correction value (PV)	%	F32		From firmware 18.3.5. From firmware 25.0.13. This value corresponds to the PV correction value.
50	PPC_P_SET_GRIDOP_REL	Active power setpoint (grid operator)	%	F32		From firmware 23.2.11. From firmware 15.1.8.
52	PPC_P_SET_ABS	Absolute active power setpoint (grid operator)	W	F32		Negative values = import (demand), positive values = export (generation)

Register	Abbreviation	Description	Unit	Data type	Range	Comment
54	PPC_P_SET_RPC_REL	Active power setpoint (3rd party)	%	F32		From firmware 23.2.11. From firmware 15.1.8.
56	PPC_P_SET_REL	Active power setpoint	%	F32		From firmware 23.2.11. From firmware 15.1.8.
58	PPC_P_SET_MODE	Active power mode for setpoint setting	-	F32	0: No configuration found 1: Variable fixed value Pvar fix 2: Variable fixed value Pvar DI 3: Variable fixed value Pvar AI 4: Variable fixed value Pvar Modbus 5: Remote Power Control (RPC) 100: LFSM-O (*) 101: LFSM-U (*) 102: FSM (**) 112: RPC & FSM (3*) 120: Controller freeze (undervoltage) (4*) 121: Controller freeze (overvoltage) (4*) 200: Fail-safe operation (hold last setpoint) (5*) 201: Fail-safe operation (default setpoint) (5*) 202: Fail-safe operation (system fallback value) (5*) 203: Fail-safe operation (Automatic grid disconnection) (5*)	(*) From firmware 19.2.10 (**) From firmware 28.0.2 (3*) From firmware 33.1.12 (4*) From firmware 34.1.5 (5*) From firmware 12.0.2
60	PPC_PF_SET	Power factor setpoint	-	F32		Negative values = underexcited, positive values = overexcited
62	PPC_Q_SET_REL	Reactive power setpoint	%	F32		Negative values = underexcited, positive values = overexcited
64	PPC_Q_SET_ABS	Absolute reactive power setpoint	var	F32		Negative values = underexcited, positive values = overexcited

Register	Abbreviation	Description	Unit	Data type	Range	Comment
66	PPC_Q_SET_MODE	Reactive power mode for setpoint setting	-	F32	0: No configuration found 1: Variable fixed value cos φvar fix 2: Variable fixed value cos φvar DI 3: Variable fixed value cos φvar AI 4: Variable fixed value cos φvar Modbus 5: Characteristic curve cos φ (P) 6: Characteristic curve cos φ (V) 7: Variable fixed value Qvar fix 8: Variable fixed value Qvar DI 9: Variable fixed value Qvar AI 10: Variable fixed value Qvar Modbus 11: Characteristic curve Q (P) 12: Characteristic curve Q (V) 13: Characteristic curve Q (tan φ) 14: Voltage control Q (V droop) (*) 15: Characteristic curve Q(V) Modbus (**) 16: Characteristic curve cos φ (P) (**) 100: Reactive power compensation (*) 120: Controller freeze (undervoltage) (3*) 121: Controller freeze (overvoltage) (3*) 200: Fail-safe operation (hold last setpoint) (*) 201: Fail-safe operation (default setpoint) (*) 202: Fail-safe operation (system fallback value) (*)	(*) From firmware 12.0.2 (**) From firmware 28.0.2 (3*) From firmware 34.1.5
68		Reserved. Possible to read.				
70	PPC_V_SET_ABS	Absolute voltage setpoint	V	F32		From firmware17.1.7
72	PPC_P_SET_LFSMO_REL	Active power setpoint (LFSM-O)	%	F32		From firmware 19.2.10. If LFSM-O is active, this register contains the actual active power setpoint. If LFSM-O is not active, the register contains the value NaN.

Register	Abbreviation	Description	Unit	Data type	Range	Comment
74	PPC_P_REF	Reference active power P_{ref}	W	F32		From firmware 19.2.10 If LFSM-O/LFSM-U/FSM is active, this register contains the currently used reference active power (PAV/P_{inst} or P_{mom}). If LFSM-O/LFSM-U/FSM is not active, this register contains the value NaN.
76	PPC_P_MOM	Momentary active power P_{mom}	W	F32		From firmware 19.2.10. If LFSM-O/LFSM-U/FSM is active, this register contains the momentary active power at the time the frequency threshold is exceeded.
78	PPC_P_SET_LFSMU_REL	Active power setpoint (LFSM-U)	-	F32		From firmware 19.2.10. If LFSM-U is active, this register contains the current active power setpoint value. If LFSM-U is not active, the register contains the value NaN.
80-89		Reserved. Possible to read.				
90	PPC_P_AC	Actual active power (Active power meter)	W	F32		Active power meter: Value from power analyzer. Negative values = import (demand), positive values = export (generation)
92	PPC_PF	Actual power factor cos φ (Active power meter)	-	F32		Active power meter: Value from power analyzer. Negative values = underexcited, positive values = overexcited
94	PPC_Q_AC	Actual reactive power (Active power meter)	var	F32		Active power meter: Value from power analyzer. Negative values = underexcited, positive values = overexcited
96	PPC_S_AC	Actual apparent power (Active power meter)	VA	F32		Value from power analyzer
98	PPC_F_AC	Actual grid frequency (Active power meter)	Hz	F32		Active power meter: Value from power analyzer
100	PPC_V_PHASE_AB	Actual phase voltage $V_{PhA-PhB}$ (Active power meter)	V	F32		Active power meter: Value from power analyzer
102	PPC_V_PHASE_BC	Actual phase voltage $V_{PhB-PhC}$ (Active power meter)	V	F32		Active power meter: Value from power analyzer
104	PPC_V_PHASE_CA	Actual phase voltage $V_{PhC-PhA}$ (Active power meter)	V	F32		Active power meter: Value from power analyzer
106	PPC_I_PHASE_A	Actual current I_{PhA} (Active power meter)	A	F32		Active power meter: Value from power analyzer

Register	Abbreviation	Description	Unit	Data type	Range	Comment
108	PPC_I_PHASE_B	Actual current I_{PhB} (Active power meter)	A	F32		Active power meter: Value from power analyzer
110	PPC_I_PHASE_C	Actual current I_{PhC} (Active power meter)	A	F32		Active power meter: Value from power analyzer
112	PPC_V_PHASE_AN	Line-to-neutral voltage V_{PhA-N} (Active power meter)	V	F32		Active power meter: Value from power analyzer. From firmware 17.1.7
114	PPC_V_PHASE_BN	Line-to-neutral voltage V_{PhB-N} (Active power meter)	V	F32		Active power meter: Value from power analyzer. From firmware 17.1.7
116	PPC_V_PHASE_CN	Line-to-neutral voltage V_{PhC-N} (Active power meter)	V	F32		Active power meter: Value from power analyzer. From firmware 17.1.7
118-198		Reserved. Possible to read.				
200	PPC_GHI	Actual global irradiation	W/m²	F32		Value of a connected sensor. From firmware 23.0.8
202	PPC_T_AMBIENT	Actual ambient temperature	°C	F32		Value of a connected sensor. From firmware 23.0.8
204-252		Reserved. Possible to read.				
254	PPC_P_AC_INV	Inverter active power	W	F32		Value calculated by blue'Log. Corresponds to the sum of PV and battery inverters. This value corresponds to the sum of all inverters connected to the master and slave devices. From firmware 17.1.7
256	PPC_Q_AC_INV	Inverter reactive power	var	F32		Value calculated by blue'Log. Corresponds to the sum of PV and battery inverters. This value corresponds to the sum of all inverters connected to the master and slave devices. From firmware 19.2.10
258	PPC_P_AC_AVAIL	Available theoretical active power	W	F32		Value calculated by blue'Log. From firmware 25.0.13
260	PPC_Q_AC_AVAIL	Available theoretical reactive power	var	F32		Value calculated by blue'Log. From firmware 25.0.13
262	PPC_INV_INST	Number of installed inverters	-	F32		Sum of all inverters connected to the blue'Log (Master+Slave). From firmware 29.0.9
264	PPC_INV_AVAIL	Number of active inverters	-	F32		Sum of all active inverters connected to the blue'Log (Master+Slave). From firmware 29.0.9
266		Reserved. Possible to read.				

Register	Abbreviation	Description	Unit	Data type	Range	Comment
268	PPC_Q_V_LIMIT	Q (V) Lower / upper limit reached		F32		From firmware 18.3.5 on. 0: Q (V) limit not reached. 1: Q (V) lower limit reached. 2: Q (V) upper limit reached
270	PPC_BAT_P_AC_INV	Sum of inverter active power (battery)	W	F32		From firmware 33.1.12 This value corresponds to the sum of all inverters connected to the master and slave device.
272	PPC_PV_P_AC_INV	Sum of inverter active power (PV)	W	F32		From firmware 33.1.12 This value corresponds to the sum of all inverters connected to the master and slave device.
274	PPC_BAT_Q_AC_INV	Sum of inverter reactive power (battery)	var	F32		From firmware 33.1.12 This value corresponds to the sum of all inverters connected to the master and slave device.
276	PPC_PV_Q_AC_INV	Sum of inverter reactive power (PV)	var	F32		From firmware 33.1.12 This value corresponds to the sum of all inverters connected to the master and slave device.
278	PPC_BAT_SOC	State of charge relative	%	F32		From firmware 33.1.12
280	PPC_BAT_SOC_ABS	State of charge absolute	Wh	F32		From firmware 33.1.12
282	PPC_BAT_CAP	Battery capacity	Wh	F32		From firmware 33.1.12
284-298		Reserved.				
300	PPC_FSM_STATUS	Status of Frequency Sensitive Mode (FSM)		F32	0: off 1: on	From firmware 25.0.13. "If "Activation FSM via Modbus" is activated this values corresponds to the value set via Modbus. If "Activation via Modbus" is not activated, this value correponds to the FSM activation toggle in ther user interface.
302	PPC_P_SET_FSM_REL	Active power setpoint (FSM)	%	F32		From firmware 25.0.13
304	PPC_DELTA_P_U_FSM	Active power range $\|\Delta P_1\|$/Pmax - underfrequency	%	F32		From firmware 25.0.13
306	PPC_DELTA_P_O_FSM	Active power range $\|\Delta P_1\|$/Pmax - overfrequency	%	F32		From firmware 25.0.13
308	PPC_DROOP_U_FSM	Frequency threshold sf - underfrequency	%	F32		From firmware 25.0.13
310	PPC_DROOP_O_FSM	Frequency threshold sf - overfrequency	%	F32		From firmware 25.0.13
312	PPC_DB_U_FSM	Dead band Δf_{DB} - underfrequency	Hz	F32		From firmware 25.0.13

Register	Abbreviation	Description	Unit	Data type	Range	Comment
314	PPC_DB_O_FSM	Dead band Δf_{DB} - overfrequency	Hz	F32		From firmware 25.0.13
316	PPC_FSM_DELTA_P	Active power change calculated by FSM curve	%	F32		From firmware 33.1.12 Hybrid EMS only.
318-322		Reserved				
324	PPC_P_RRL_STATUS	Ramp rate limiter status (current status of the control core)			0: off 1: on	From firmware 26.0.5
326	PPC_P_RRL_UP	Ramp rate (ramp-up)	%/s	F32		From firmware 26.0.5
328	PPC_P_RRL_DOWN	Ramp rate (ramp-down)	%/s	F32		From firmware 26.0.5
330	PPC_QV_P_IN	Lock-in active power Plock-in for characterisic curve “Q(V) Modbus”	%	F32		From firmware 28.0.2
332	PPC_QV_P_OUT	Lock-out active power Plock-out for characterisic curve “Q(V) Modbus”	%	F32		From firmware 28.0.2
334	PPC_QV_V1	Reference point voltage 1 for characteristic curve “Q(V) Modbus”	V/V_c	F32		From firmware 28.0.2
336	PPC_QV_V2	Reference point voltage 2 for characteristic curve “Q(V) Modbus”	V/V_c	F32		From firmware 28.0.2
338	PPC_QV_V3	Reference point voltage 3 for characteristic curve “Q(V) Modbus”	V/V_c	F32		From firmware 28.0.2
340	PPC_QV_V4	Reference point voltage 4 for characteristic curve “Q(V) Modbus”	V/V_c	F32		From firmware 28.0.2
342	PPC_QV_STAT	Status Q(V) control		F32	0: off 1: on 2: act	
346	PPC_PFP_V_IN	Lock-in voltage Vlock-in for characteristic curve “cos φ (P) Modbus”	V/V_c	F32		From firmware 28.0.2
348	PPC_PFP_V_OUT	Lock-out voltage Vlock-out for characteristic curve “cos φ (P) Modbus”	V/V_c	F32		From firmware 28.0.2
350	PPC_PFP_PF1	Reference point cos φ 1 for characteristic curve“cos φ (P) Modbus”		F32		From firmware 28.0.2
352	PPC_PFP_PF2	Reference point cos φ 2 for characteristic curve“cos φ (P) Modbus”		F32		From firmware 28.0.2
354	PPC_PFP_PF3	Reference point cos φ 3 for characteristic curve “cos φ (P) Modbus”		F32		From firmware 28.0.2
356	PPC_PFP_P1	Reference point P 1 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32		From firmware 28.0.2
358	PPC_PFP_P2	Reference point P 2 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32		From firmware 28.0.2
360	PPC_PFP_P3	Reference point P 3 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32		From firmware 28.0.2

Register	Abbreviation	Description	Unit	Data type	Range	Comment
362	PPC_PFP_STAT	Status cos φ (P) control			0: off 1: on 2: act	From firmware 28.0.2
364-500		Reserved.				

MODBUS POWER CONTROL INTERFACE REGISTER (HYBRID EMS)

WRITE VALUES (only with Hybrid EMS) (Function Code 16)

Register	Abbreviation	Description	Unit	Data type	Range	Comment
		GRID CONNECTION POINT (ACTIVE POWER)				
10000	PPC_GCP_P_LIM_FEEDIN_REL	Active power feed-in limitation at GCP by grid operator (relative)	%	F32	0…125	GCP = grid connection point, or location of reference meter
10002	PPC_GCP_P_LIM_FEEDIN_ABS	Active power feed-in limitation at GCP by grid operator (absolute)	W	F32	unlimited	
10004	PPC_GCP_P_LIM_IMPORT_REL	Active power import limitation at GCP by grid operator (relative)	%	F32	-125… 0	
10006	PPC_GCP_P_LIM_IMPORT_ABS	Active power import limitation at GCP by grid operator (absolute)	W	F32	unlimited	
10008-10018		Reserved				
		PV (ACTIVE POWER)				
10020	PPC_PV_P_LIM_REL	Active power generation limitation PV by grid operator (relative)	%	F32	0… 125	
10022	PPC_PV_P_LIM_ABS	Active power generation limitation PV by grid operator (absolute)	W	F32	unlimited	
10024-10038		Reserved				
		BATTERY (ACTIVE POWER)				
10040	PPC_BAT_P_LIM_CHARGE_REL	Active power charge limitation battery by grid operator (relative)	%	F32	-125… 0	
10042	PPC_BAT_P_LIM_CHARGE_ABS	Active power charge limitation battery by grid operator (absolute)	W	F32	unlimited	
10044	PPC_BAT_P_LIM_DISCHARGE_REL	Active power discharge limitation battery by grid operator (relative)	%	F32	0… 125	
10046	PPC_BAT_P_LIM_DISCHARGE_ABS	Active power discharge limitation battery by grid operator (absolute)	W	F32	unlimited	
10048-10058		Reserved				
10060-10098		Reserved				

Register	Abbreviation	Description	Unit	Data type	Range	Comment
			GRID CONNECTION POINT (REACTIVE POWER)			
10200	PPC_Q_SET_MODE	Reactive power setpoint command method	-	F32	1: Variable fixed value cos φvar fix 2: Variable fixed value cos φvar DI 3: Variable fixed value cos φvar AI 4: Variable fixed value cos φvar Modbus 5: Characteristic curve cos φvar (P) 6: Characteristic curve cos φvar (V) 7: Variable fixed value Qvar fix 8: Variable fixed value Qvar DI 9: Variable fixed value Qvar AI 10: Variable fixed value Qvar Modbus 11: Characteristic curve Q (P) 12: Characteristic curve Q (V) 13: Characteristic curve Q (tan φ) 14: Voltage control Q (V droop) 15: Characteristic curve Q(V) Modbus 16: Characteristic curve cos φ (P) Modbus	
10202	PPC_PF_SET	Power factor setpoint	-	F32	-0.999…1.0	Negative values = underexcited, positive values = overexcited
10204	PPC_Q_SET_REL	Reactive power setpoint	%	F32	-100… 1000	Negative values = underexcited, positive values = overexcited
10206	PPC_Q_SET_ABS	Reactive power setpoint	var	F32	unlimited	
10208	PPC_V_REF_Q_V_SHIFT	Voltage shift ΔV_{Q0} for Q(V) curve	V	F32	-16,800…24,200	The voltage shift ΔVQ0 is added to the nominal voltage Vc to obtain the reference voltage at which the reactive power setpoint is 0 %. Example: With Vc = 20 kV and ΔVQ0=200 V a reference voltage of 20.2kV is obtained.

Register	Abbreviation	Description	Unit	Data type	Range	Comment
10210	PPC_V_SET_ABS	Absolute voltage setpoint for "Q (V droop)"	V	F32	Value range depends on the agreed supply voltage V_c and the Vsetpoint,min and Vsetpoint,max settings in method Q (V droop). e.g. Vc = 20 kV, Vsetpoint,min = 0.9 and Vsetpoint,max 1.1: value range is 18,000...22,000 V	
10212	PPC_Q_REF_V_DROOP_SHIFT	Setpoint reference reactive power QΔV0 for parallel shift of the voltage droop s_v	var	F32	-1,000,000,000...1,000,000,000	Negative values = underexcited, positive values = overexcited
10214	PPC_QV_P_IN	Lock-in active power Plock-in for characteristic curve “Q(V) Modbus”	%	F32	0...125	
10216	PPC_QV_P_OUT	Lock-out active power Plock-out for characterisic curve “Q(V) Modbus”	%	F32	0...125	
10218	PPC_QV_V1	Reference point voltage 1 for characteristic curve “Q(V) Modbus”	V/V_c	F32	0.1...1.5	
10220	PPC_QV_V2	Reference point voltage 2 for characteristic curve “Q(V) Modbus”	V/V_c	F32	0.1...1.5	
10222	PPC_QV_V3	Reference point voltage 3 for characteristic curve “Q(V) Modbus”	V/V_c	F32	0.1...1.5	
10224	PPC_QV_V4	Reference point voltage 4 for characteristic curve “Q(V) Modbus”	V/V_c	F32	0.1...1.5	
10226		Reserved				
10228	PPC_PFP_V_IN	Lock-In voltage Vlock-in for characteristic curve“cos φ (P) Modbus”	V/V_c	F32	1...1.1	
10230	PPC_PFP_V_OUT	Lock-out voltage Vlock-out for characteristic curve“cos φ (P) Modbus”	V/V_c	F32	0.9...1	
10232	PPC_PFP_PF1	Reference point cos φ 1 for characteristic curve“ cos φ (P) Modbus”	-	F32	-0.999 ... 1	
10234	PPC_PFP_PF2	Reference point cos φ 2 for characteristic curve“ cos φ (P) Modbus”	-	F32	-0.999 ... 1	
10236	PPC_PFP_PF3	Reference point cos φ 3 for characteristic curve“ cos φ (P) Modbus”	-	F32	-0.999 ... 1	
10238	PPC_PFP_P1	Reference point P 1 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32	0...1	
10240	PPC_PFP_P2	Reference point P 2 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32	0...1	
10242	PPC_PFP_P3	Reference point P 3 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32	0...1	
10244-10998		Reserved				

Register	Abbreviation	Description	Unit	Data type	Range	Comment
		TESTING COMMANDS				
11000	PPC_V_SIM_TEST	Simulated test voltage	V	F32	0 … 132,000	
11002	PPC_F_SIM_TEST	Simulated test frequency	Hz	F32	0 … 70	

READ VALUES (only with Hybrid EMS) (Function Code 03)

Register	Abbreviation	Description	Unit	Data type	Range	Comment
		DEVICE DATA				
1000	PPC_VENDOR	Vendor		U32		"mc": meteocontrol hex: 0x6D630000
1002	PPC_MD	Model		U32		"bl": blueLog hex: 0x626C0000
1004	PPC_QS_TS	Current timestamp of device	-	U32		This value returns a current timestamp for device health detection.
1006-1016		Reserved				
		PLANT DATA				
1018	PPC_P_AV_E	Agreed connected active power P_{AV}	W	F32		
1020	PPC_S_AV_E	Agreed connected apparent power S_{AV}	VA	F32		
1022	PPC_P_INST	Total installed active power P_{inst}	W	F32		
1024	PPC_P_INST_PV	Installed active power PV $P_{inst,PV}$	W	F32		
1026	PPC_P_INST_BAT	Installed active power battery $P_{inst,bat}$	W	F32		
1028	PPC_S_MAX	Total maximum apparent power S_{max}	VA	F32		
1030	PPC_V_C	Agreed supply voltage V_c	V	F32		
1028-1048		Reserved				
		GRID CONNECTION POINT (ACTIVE POWER)				
1050	PPC_GCP_P_LIM_FEEDIN_REL	Active power feed-in limitation at GCP by grid operator (relative)	%	F32		GCP = grid connection point or location of reference meter
1052	PPC_GCP_P_LIM_FEEDIN_ABS	Active power feed-in limitation at GCP by grid operator (absolute)	W	F32		
1054	PPC_GCP_P_LIM_IMPORT_REL	Active power import limitation at GCP by grid operator (relative)	%	F32		GCP = grid connection point or location of reference meter
1056	PPC_GCP_P_LIM_IMPORT_ABS	Active power import limitation at GCP by grid operator (absolute)	W	F32		
1058-1062		Reserved				
1064	PPC_RPC_GCP_P_SET_REL_ACT	Activation "Active power setpoint at GCP by trader (relative)"	-	F32		0: off 1: on
1066	PPC_RPC_GCP_P_SET_REL	Active power setpoint at GCP by trader (relative)	%	F32		
1068	PPC_RPC_GCP_P_SET_ABS_ACT	Activation "Active power setpoint at GCP by trader (absolute)"	-	F32		0: off 1: on
1070	PPC_RPC_GCP_P_SET_ABS	Active power setpoint at GCP by trader (absolute)	W	F32		
1072-1198		Reserved				

Register	Abbreviation	Description	Unit	Data type	Range	Comment
		GRID CONNECTION POINT (REACTIVE POWER)				
1200	PPC_Q_SET_MODE	Reactive setpoint command mode				0: No configuration found 1: Variable fixed value cos φvar fix 2: Variable fixed value cos φvar DI 3: Variable fixed value cos φvar AI 4: Variable fixed value cos φvar Modbus 5: Characteristic curve cos φ (P) 6: Characteristic curve cos φ (V) 7: Variable fixed value Qvar fix 8: Variable fixed value Qvar DI 9: Variable fixed value Qvar AI 10: Variable fixed value Qvar Modbus 11: Characteristic curve Q (P) 12: Characteristic curve Q (V) 13: Characteristic curve Q (tan φ) 14: Voltage control Q (V droop) 15: Characteristic curve Q(V) Modbus 16: Characteristic curve cos φ (P) Modbus 100: Reactive power compensation 200: Fail-safe operation (hold last setpoint) 201: Fail-safe operation (default setpoint) 202: Fail-safe operation (system fallback value)
1202	PPC_PF_SET	Power factor setpoint	-	F32		negative values = underexcited, positive values = overexcited
1204	PPC_Q_SET_REL	Reactive power setpoint	%	F32		negative values = underexcited, positive values = overexcited
1206	PPC_Q_SET_ABS	Absolute reactive power setpoint	var	F32		negative values = underexcited, positive values = overexcited
1208		Reserved				
1210	PPC_V_SET_ABS	Absolute voltage setpoint for "Q (V droop)"	V	F32		
1212		Reserved				
1214	PPC_Q_V_LIMIT	Lower / upper limit reached "Q(V)"		F32		0: Q (V) limit not reached. 1: Q (V) lower limit reached. 2: Q (V) upper limit reached

Register	Abbreviation	Description	Unit	Data type	Range	Comment
1216	PPC_QV_P_IN	Lock-in active power Plock-in for characterisic curve “Q(V) Modbus”	%	F32		
1218	PPC_QV_P_OUT	Lock-out active power Plock-out for characterisic curve “Q(V) Modbus”	%	F32		
1220	PPC_QV_V1	Reference point voltage 1 for characteristic curve “Q(V) Modbus”	V/V_c	F32		
1222	PPC_QV_V2	Reference point voltage 2 for characteristic curve “Q(V) Modbus”	V/V_c	F32		
1224	PPC_QV_V3	Reference point voltage 3 for characteristic curve “Q(V) Modbus”	V/V_c	F32		
1226	PPC_QV_V4	Reference point voltage 4 for characteristic curve “Q(V) Modbus”	V/V_c	F32		
1228	PPC_QV_STAT	Status Q(V) control	-	F32		0: off 1: on 2: act
1230		Reserved				
1232	PPC_PFP_V_IN	Lock-in voltage Vlock-in for characteristic curve “cos φ (P) Modbus”	V/V_c	F32		
1234	PPC_PFP_V_OUT	Lock-out voltage Vlock-out for characteristic curve “cos φ (P) Modbus”	V/V_c	F32		
1236	PPC_PFP_PF1	Reference point cos φ 1 for characteristic curve“cos φ (P) Modbus”		F32		
1238	PPC_PFP_PF2	Reference point cos φ 2 for characteristic curve“cos φ (P) Modbus”		F32		
1240	PPC_PFP_PF3	Reference point cos φ 3 for characteristic curve “cos φ (P) Modbus”		F32		
1242	PPC_PFP_P1	Reference point P 1 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32		
1244	PPC_PFP_P2	Reference point P 2 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32		
1246	PPC_PFP_P3	Reference point P 3 for characteristic curve “cos φ (P) Modbus”	P/P_{ref}	F32		
1248	PPC_PFP_STAT	Status cos φ (P) control		F32		0: off 1: on 2: act
1250-1298		Reserved				
		PV (ACTIVE POWER)				
1300	PPC_PV_P_LIM_REL	Active power generation limitation PV by grid operator (relative)	%	F32		

Register	Abbreviation	Description	Unit	Data type	Range	Comment
1302	PPC_PV_P_LIM_ABS	Active power generation limitation PV by grid operator (absolute)	W	F32		
1304	PPC_RPC_PV_P_SET_REL_ACT	Activation "Active power setpoint PV by trader (relative)"	-	F32		0: off 1: on
1306	PPC_RPC_PV_P_SET_REL	Active power setpoint PV by trader (relative)	%	F32		
1308	PPC_RPC_PV_P_SET_ABS_ACT	Activation "Active power setpoint PV by trader (absolute)"	-	F32		0: off 1: on
1310	PPC_RPC_PV_P_SET_ABS	Active power setpoint PV by trader (absolute)	W	F32		
1312-1318		Reserved				
1320	PPC_PV_LFSMO_P_SET_REL	Active power setpoint (LFSM-O)	%	F32		
1322-1330		Reserved				
1332	PPC_PV_LFSMU_P_SET_REL	Active power setpoint (LFSM-U)	%	F32		
1334-1342		Reserved				
1344	PPC_PV_FSM_P_SET_REL	Active power setpoint (FSM)	%	F32		
1346	PPC_PV_FSM_STATUS	Status of Frequency Sensitive Mode (FSM)	-	F32		0: off 1: on If "Activation FSM via Modbus" is activated this values corresponds to the value set via Modbus. If "Activation via Modbus" is not activated, this value correponds to the FSM activation toggle in ther user interface.
1348	PPC_PV_FSM_DELTA_P	Active power change calculated by FSM curve	%	F32		
1350	PPC_PV_FSM_DELTA_P_U	Active power range $\|\Delta P_1\|/P_{inst}$ - underfrequency	%	F32		Configuration parameter for FSM charactersitic curve
1352	PPC_PV_FSM_DELTA_P_O	Active power range $\|\Delta P_1\|/P_{inst}$ - overfrequency	%	F32		Configuration parameter for FSM charactersitic curve
1354	PPC_PV_FSM_DROOP_U	Frequency droop s_f - underfrequency	%	F32		Configuration parameter for FSM charactersitic curve
1356	PPC_PV_FSM_DROOP_O	Frequency droop s_f - overfrequency	%	F32		Configuration parameter for FSM charactersitic curve
1358	PPC_PV_FSM_DB_U	Dead band Δf_{DB} - underfrequency	Hz	F32		Configuration parameter for FSM charactersitic curve
1360	PPC_PV_FSM_DB_O	Dead band Δf_{DB} - overfrequency	Hz	F32		Configuration parameter for FSM charactersitic curve

Register	Abbreviation	Description	Unit	Data type	Range	Comment
1362	PPC_PV_P_REF	Reference active power P_{ref} for frequency control P(f)	W	F32		If LFSM-O/LFSM-U/FSM is active, this register contains the currently used reference active power. If LFSM-O/LFSM-U/FSM is not active, this register contains the value NaN.
1364	PPC_PV_P_MOM	Momentary active power P_{mom} for frequency control P(f)	W	F32		If LFSM-O/LFSM-U/FSM is active, this register contains the momentary active power when crossing the frequency threshold. If LFSM-O/LFSM-U/FSM is not active, this register contains the value NaN.
1366	PPC_PV_P_CTRL_REL	Active power correction value PV	%	F32		
1368	PPC_PV_P_AC_INV	Sum of inverter active power PV	W			This value corresponds to the sum of all inverters connected to the master and slave device.
1370-1400		Reserved				
		PV (REACTIVE POWER)				
1402	PPC_PV_Q_CTRL_REL	Reactive power correction value PV	%	F32		
1404	PPC_PV_PF_CTRL	Power factor correction value PV	-	F32		
1406	PPC_PV_Q_AC_INV	Sum of inverter reactive power (PV)	var	F32		This value corresponds to the sum of all inverters connected to the master and slave device.
1408-1420		Reserved				
		PV (OTHER)				
1422	PPC_PV_INV_INST	Number of installed inverters (PV)	-	F32		
1424	PPC_PV_INV_AVAIL	Number of active inverters (PV)	-	F32		
1426-1450		Reserved				
		BATTERY (ACTIVE POWER)				
1452	PPC_BAT_P_LIM_CHARGE_REL	Active power charge limitation battery by grid operator (relative)	%			
1454	PPC_BAT_P_LIM_CHARGE_ABS	Active power charge limitation battery by grid operator (absolute)	W			
1456	PPC_BAT_P_LIM_DISCHARGE_REL	Active power discharge limitation battery by grid operator (relative)	%			
1458	PPC_BAT_P_LIM_DISCHARGE_ABS	Active power discharge limitation battery by grid operator (absolute)	W			
1460	PPC_RPC_BAT_P_SET_REL_ACT	Activation "Active power setpoint battery by trader (relative)"	-			
1462	PPC_RPC_BAT_P_SET_REL	Active power setpoint battery by trader (relative)	%			

Register	Abbreviation	Description	Unit	Data type	Range	Comment
1464	PPC_RPC_BAT_P_SET_ABS_ACT	Activation "Active power setpoint battery by trader (absolute)"	-			
1466	PPC_RPC_BAT_P_SET_ABS	Active power setpoint battery by trader (absolute)	W			
1468-1480		Reserved				
1482	PPC_BAT_LFSMO_P_SET_REL	Active power setpoint (LFSM-O)	%	F32		
1484-1494		Reserved				
1494	PPC_BAT_LFSMU_P_SET_REL	Active power setpoint (LFSM-U)	%	F32		
1496-1506		Reserved				
1508	PPC_BAT_FSM_P_SET_REL	Active power setpoint (FSM)	%	F32		
1510	PPC_BAT_FSM_STATUS	Status of Frequency Sensitive Mode (FSM)	-	F32		0: off 1: on If "Activation FSM via Modbus" is activated this values corresponds to the value set via Modbus. If "Activation via Modbus" is not activated, this value correponds to the FSM activation toggle in ther user interface.
1512	PPC_BAT_FSM_DELTA_P	Active power change calculated by FSM curve	%	F32		
1514	PPC_BAT_FSM_DELTA_P_U	Active power range $\|\Delta P_1\|/P_{inst}$ - underfrequency	%	F32		Configuration parameter for FSM charactersitic curve
1516	PPC_BAT_FSM_DELTA_P_O	Active power range $\|\Delta P_1\|/P_{inst}$ - overfrequency	%	F32		Configuration parameter for FSM charactersitic curve
1518	PPC_BAT_FSM_DROOP_U	Frequency droop s_f - underfrequency	%	F32		Configuration parameter for FSM charactersitic curve
1520	PPC_BAT_FSM_DROOP_O	Frequency droop s_f - overfrequency	%	F32		Configuration parameter for FSM charactersitic curve
1522	PPC_BAT_FSM_DB_U	Dead band Δf_{DB} - underfrequency	Hz	F32		Configuration parameter for FSM charactersitic curve
1524	PPC_BAT_FSM_DB_O	Dead band Δf_{DB} - overfrequency	Hz	F32		Configuration parameter for FSM charactersitic curve
1526	PPC_BAT_P_REF	Reference active power P_{ref} for active P(f) mode	W	F32		If LFSM-O/LFSM-U/FSM is active, this register contains the currently used reference active power. If LFSM-O/LFSM-U/FSM is not active, this register contains the value NaN.

Register	Abbreviation	Description	Unit	Data type	Range	Comment
1528	PPC_BAT_P_MOM	Momentary active power P_{mom} for frequency control P(f).	W	F32		If LFSM-O/LFSM-U/FSM is active, this register contains the momentary active power when crossing the frequency threshold. If LFSM-O/LFSM-U/FSM is not active, this register contains the value NaN.
1530	PPC_BAT_P_CTRL_REL	Active power correction value battery	%	F32		
1532	PPC_BAT_P_AC_INV	Sum of inverter active power battery	W	F32		This value corresponds to the sum of all inverters connected to the master and slave device.
1534-1566		Reserved				
		BATTERY (REACTIVE POWER)				
1568	PPC_BAT_Q_CTRL_REL	Reactive power correction value battery	%			
1570	PPC_BAT_PF_CTRL	Power factor correction value battery	-			
1572	PPC_BAT_Q_AC_INV	Sum of inverter reactive power battery	var			
1574-1584		Reserved				
		BATTERY (OTHER)				
1586	PPC_BAT_SOC	State of charge relative	%			
1588	PPC_BAT_SOC_ABS	State of charge absolute	Wh			
1590	PPC_BAT_CAP	Battery capacity	Wh			
1592-2998		Reserved				
		MEASURED DATA (METER)				
3000	PPC_P_AC	Actual active power	W	F32		
3002	PPC_PF	Actual power factor cos φ	-	F32		
3004	PPC_Q_AC	Actual reactive power	var	F32		
3006	PPC_S_AC	Actual apparent power	VA	F32		
3008	PPC_F_AC	Actual grid frequency	Hz	F32		
3010	PPC_V_PHASE_AB	Actual phase voltage $V_{PhA-PhB}$	V	F32		
3012	PPC_V_PHASE_BC	Actual phase voltage $V_{PhB-PhC}$	V	F32		
3014	PPC_V_PHASE_CA	Actual phase voltage $V_{PhC-PhA}$	V	F32		
3016	PPC_I_PHASE_A	Actual current I_{PhA}	A	F32		
3018	PPC_I_PHASE_B	Actual current I_{PhB}	A	F32		
3020	PPC_I_PHASE_C	Actual current I_{PhC}	A	F32		
3022	PPC_V_PHASE_AN	Line-to-neutral voltage V_{PhA-N}	V	F32		
3024	PPC_V_PHASE_BN	Line-to-neutral voltage V_{PhB-N}	V	F32		

Register	Abbreviation	Description	Unit	Data type	Range	Comment
3026	PPC_V_PHASE_CN	Line-to-neutral voltage V_{PhC-N}	V	F32		
3028-3078		Reserved				
MEASURED DATA (USED FOR SPECIFIC POWER CONTROL MODES)						
3080	PPC_F_AC_PF	Frequency used for frequency control modes: LFSM-U, LFSM-O, FSM	Hz	F32		
3082-3118		Reserved				
MEASURED DATA (OTHER)						
3120	PPC_GHI	Actual global irradiation	W/m²	F32		
3122	PPC_T_AMBIENT	Actual ambient temperature	°C	F32		
3124-4998		Reserved				