REMOTE POWER CONTROL LICENSE (RPC) BLUE'LOG XC

Item no.: 557.122 – 557.129

Switch from the German EEG feed-in tariff to the market premium model by adding our Remote Power Control (RPC) interface to your monitoring system

LICENSE DESCRIPTION

Remote Power Control (RPC) can be used to remotely reduce the feed-in power of a system, such as for energy trading. This is done in parallel with the grid operator's feed-in management without influencing its control commands. The controller interprets the power control setpoints, for example from an energy trader, and prioritizes their transmission to the system. The smaller setpoint command value always takes precedence.

Additionally, RPC facilitates the retrieval of master data and measured values, including legally required data for the current actual feed-in within the context of energy trading.
The Remote Power Control (RPC) license enables this function on the blue'Log XC controller.

FEATURES

+ Communication via Modbus TCP interface
+ Use of existing blue'Log interfaces when switching to energy trading
+ Interface certified according to VDE-AR-N 4110 / 4120
+ Visualization and long-term logging / archiving of power control events in meteocontrol's remote monitoring portal VCOM (Virtual Control Room)
+ Certified plant controller and energy trading interface combined in one device
+ Compatible with a wide range of energy traders
+ Encrypted communication in conjunction with the integrated OpenVPN Client

REQUIREMENTS

+ blue'Log XC controller
+ Active power and feed-in management (power control) are handled by the blue'Log XC controller
+ Firmware ≥ 6.0.2
+ OpenVPN license
+ When using the license, the OpenVPN connection to the energy trader is established directly via the blue'Log. A VPN configuration in the router is therefore not necessary.
+ Remote Power Control (RPC) license

Overview of licenses

The license depends on the maximum AC power of the plant in kW. When ordering, please provide the 14-digit hardware serial number of the blue'Log XC controller.

557.122	Remote Power Control (RPC) license ≤ 200 kW blue'Log XC
557.123	Remote Power Control (RPC) license ≤ 1000 kW blue'Log XC
557.124	Remote Power Control (RPC) license ≤ 3000 kW blue'Log XC
557.125	Remote Power Control (RPC) license ≤ 5000 kW blue'Log XC
557.126	Remote Power Control (RPC) license ≤ 10000 kW blue'Log XC
557.127	Remote Power Control (RPC) license ≤ 20000 kW blue'Log XC
557.128	Remote Power Control (RPC) license ≤ 50000 kW blue'Log XC
557.129	Remote Power Control (RPC) license ≤ 100000 kW blue'Log XC

557.131	Remote Power Control (RPC) Utility blue'Log XC license

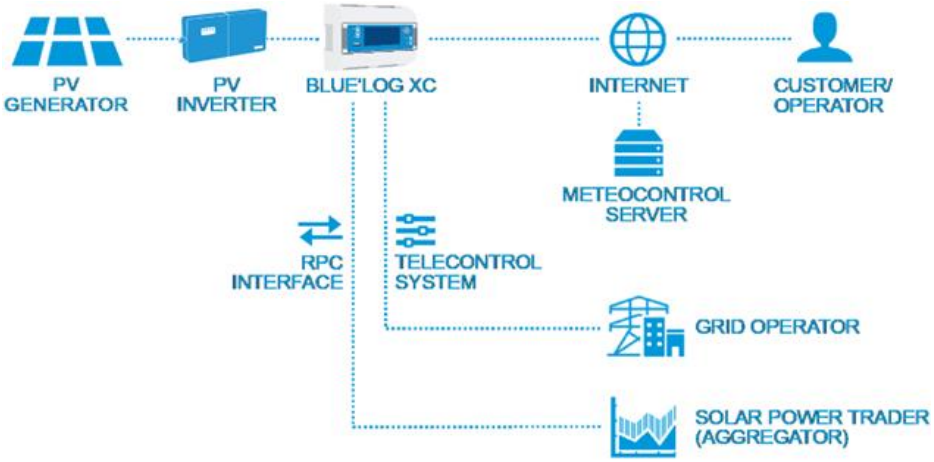
CONFIGURATION

Depending on whether you have installed the Hybrid EMS license or not, remote power control is activated at different locations on the user interface:

+ With Hybrid EMS license:
  + Navigate to **Power control** > **Active power** > **Active power management** > Activate the **RPC** toggle.

+ Without Hybrid EMS license:
  + Navigate to **Power control** > **Active power** > > **Extended controller parameterization** > **Options** > Activate the **RPC** toggle.

COMMUNICATION SCHEME



VPN ENCRYPTED COMMUNICATION

To ensure secure VPN data transmission to the energy trader, there is no need for an extra VPN router. All that is required is the OpenVPN license to activate the integrated OpenVPN client on the blue'Log XC.If you wish, we will also gladly assist you in requesting the required VPN certificates from the energy trader.

557.005	OpenVPN blue'Log XM/XC license
428.098	Certificate for energy trading system

MODBUS SPECIFICATION

Communication parameter

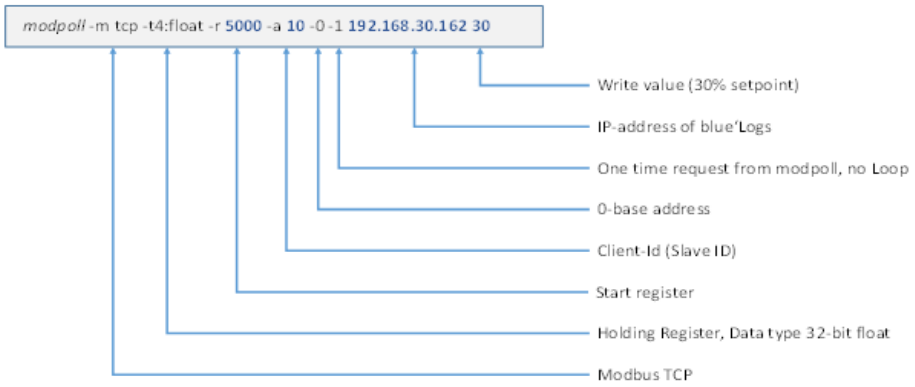
+ Slave-Adresse (Client-ID): 10
+ Port: 502
+ Delay: 1.000 ms

General register definition

+ Missing values int: 0x80000000 | float: 0x7fc00000
+ Read values: Function Code 03 - Read Holding Registers
+ Write values: Function Code 16 - Preset Multiple Registers
+ Register and byte order
  + The word order is LOW register before HIGH register (Little Endian)
  + The byte order is HIGH byte before LOW byte (Big Endian) → 0xCCDDAABB

Write of 30% setpoint command for Remote Power control

Following write command is built with the open soure tool modpoll



Data types

Abbreviation	Description	Missing values
U16	16Bit Unsigned integer	0xFFFF
U32	32Bit Unsigned integer	0xFFFFFFFF
I16	16Bit Signed integer	0x8000
I32	32Bit Signed integer	0x80000000
F32	32Bit Float	0x7FC00000
String	String, ASCII encoding. If the whole length of the field is used, then the end of the string will be filled with 0x00. If a value (for example model name) does not fit in the register, then it will be cut off.	0x00

WRITE AND READ VALUES

Data type: Little-Endian, byte swapped

If the setpoint is written to register 5000, it remains valid for the valid time (register 5006).

A further setpoint command resets the expiration timer and the setpoint command is active again for the valid time (register 5006).

Alternatively, register 5008 (watchdog) can be written instead of sending a new setpoint command to reset the expiration timer.

In case a new value gets written into register 5006 this will reset the expiration timer.

If the watchdog register is written after the valid time has expired, the setpoint remains invalid and a new setpoint command must be set.

Register	Abbreviation	Description	Unit	Data type	Range	Comment
5000	PPC_P_SET_RPC_REL	Relative active power setpoint (3rd party)	%	F32	-10,000…125	Write values between 0...100 % up to firmware 14.0.5. Write values between 0...125 % from firmware 15.1.8. Write values between -10,000...125 % from firmware 23.2.11.
5002	PPC_P_SET_RPC_ABS	Absolute active power setpoint (3rd party)	W	F32		From Firmware 33.0.10
5004-5005		Reserved. Possible to write / read from Firmware 16.0.4.				
5006	PPC_RPC_VALID_TIME		min	F32	1…255 min (Default: 10 min)	
5008	PPC_RPC_WATCHDOG		-	F32	-	

READ VALUES

Data type: Little-Endian, byte swapped

Register	Abbreviation	Description	Unit	Data type	Range	Comment
0	PPC_P_AC_INV	Inverter active power	W	F32	0… 1,000,000,000.000 W	
2	PPC_P_AC_FEED_IN	Actual feed-in power at grid connection point (actual value)	W	F32	Active power value from selected meter at RPC	From firmware 29.0.9 Negative values = import, positive values = export
4	PPC_P_SET_REL	Active power setpoint	%	F32	-10,000.000 … 125.000 %	Read values between 0...100 % up to firmware 14.0.5. Read values between 0...125 % from firmware 15.1.8. Read values between -10,000...125 % from firmware 23.2.11.
6	PPC_P_SET_GRIDOP_REL	Active power setpoint (grid operator)	%	F32	-10,000.000 … 125.000 %	Read values between 0...100 % up to firmware 14.0.5. Read values between 0...125 % from firmware 15.1.8. Read values between -10,000...125 % from firmware 23.2.11.
8	PPC_P_SET_RPC_REL	Relative active power setpoint (3rd party)	%	F32	-10,000.000 … 125.000 %	Read values between 0...100 % up to firmware 14.0.5. Read values between 0...125 % from firmware 15.1.8. Read values between -10,000...125 % from firmware 23.2.11.
10	PPC_P_AC_GRIDOP_MAX	Maximum active power at power limitation (grid operator)	W	F32	0… 1,000,000,000.000 W	PPC_P_AV x PPC_P_SET_GRIDOP_REL (PAV = 1.000.000 W, PPC_P_SET_GRIDOP_REL = 50 % → PPC_P_AC_GRIDOP_MAX = 500.000 W).
12	PPC_P_AC_RPC_MAX	Maximum active power at power limitation (3rd party)	W	F32	0… 1,000,000,000.000 W	From Firmware 16.0.4 PPC_P_AV x PPC_P_SET_RPC_REL (PAV = 1.000.000 W, PPC_P_SET_RPC_REL = 60 % → PPC_P_AC_RPC_MAX = 600.000 W).

Register	Abbreviation	Description	Unit	Data type	Range	Comment
14	PPC_P_SET_MODUS	Actual active power setpoint mode (*)	-	F32	0: No configuration found 1: Fixed value method without interface (continuous limitation) 2: Fixed value method Pvar DI 3: Fixed value method Pvar AI 4: Fixed value method Pvar Modbus 5: Remote Power Control (RPC) 100: LFSM-O (**) 101: LFSM-U (3*) 102: FSM (4*) 112: RPC & FSM (5*) 200: Fail-safe operation (last valid setpoint) 201: Fail-safe operation (default setpoint) 202: Fail-safe operation (system fallback setpoint) 203: Fail-safe operation (Automatic grid disconnection)	(*) From firmware 16.0.4 (**) From firmware 17.0.11 (3*) From firmware 19.2.10 (4*) From firmware 25.0.13 (5*) From firmware 33.1.12
16	PPC_P_SET_LFSMO_REL	Active power setpoint (LFSM-O)	%	F32		
18	PPC_P_SET_LFSMU_REL	Active power setpoint (LFSM-U)	%	F32		
20	PPC_GHI	Actual global irradiation	W/m²	F32		From Firmware 23.0.8
22	PPC_T_AMBIENT	Actual ambient temperature	°C	F32		From Firmware 23.0.8
24	PPC_P_AC_AVAIL	Available active power	W	F32		From Firmware 25.0.13
26	PPC_Q_AC_AVAIL	Available reactive power	Var	F32		From Firmware 25.0.13
28	PPC_INV_INST	Number of installed inverters	-	F32		From firmware 29.0.9
30	PPC_INV_AVAIL	Number of active inverters	-	F32		From firmware 29.0.9
32	PPC_BAT_SOC	State of charge relative	%	F32		From firmware 33.1.12
34	PPC_BAT_SOC_ABS	State of charge absolute	Wh	F32		From firmware 33.1.12
36	PPC_BAT_CAP	Battery capacity	Wh	F32		From firmware 33.1.12
38	PPC_BAT_P_AC_INV	Sum of inverter active power (battery)	W	F32		From firmware 33.1.12
40	PPC_PV_P_AC_INV	Sum of inverter active power (PV)	W	F32		From firmware 33.1.12
42	PPC_F_AC	Grid frequency	Hz	F32		From firmware 33.1.12
44	PPC_P_SET_RPC_ABS	Absolute active power setpoint (3rd party)	W	F32		From Firmware 33.0.10
46-99		Reserved				
100	PPC_P_AC_INV	Inverter active power	W	I32	0… 1,000,000,000.000 W	

Register	Abbreviation	Description	Unit	Data type	Range	Comment
102	PPC_P_AC_FEED-IN	Actual feed-in power at grid connection point (actual value)	W	I32	Active power value from selected meter at RPC	Negative values = import, positive values = export. From Firmware 32.0.6. In previous versions, the value came from the selected meter at power control.
104	PPC_P_SET_REL	Active power setpoint	%	I32	-10,000.000 … 125.000 %	Read values between 0...100 % up to firmware 14.0.5. Read values between 0...125 % from firmware 15.1.8. Read values between -10,000...125 % from firmware 23.2.11.
106	PPC_P_SET_GRIDOP_REL	Relative active power setpoint (grid operator)	%	I32	-10,000.000 … 125.000 %	Read values between 0...100 % up to firmware 14.0.5. Read values between 0...125 % from firmware 15.1.8. Read values between -10,000...125 % from firmware 23.2.11.
108	PPC_P_SET_RPC_REL	Relative active power setpoint (3rd party)	%	I32	-10,000.000 … 125.000 %	Read values between 0...100 % up to firmware 14.0.5. Read values between 0...125 % from firmware 15.1.8. Read values between -10,000...125 % from firmware 23.2.11.
110	PPC_P_AC_GRIDOP_MAX	Maximum active power at power limitation (grid operator)	W	I32	0… 1,000,000,000.000 W	PPC_P_AV x PPC_P_SET_GRIDOP_REL (PAV = 1.000.000 W, PPC_P_SET_GRIDOP_REL = 50 % → PPC_P_AC_GRIDOP_MAX = 500.000 W).
112	PPC_P_AC_RPC_MAX	Maximum active power at power limitation (3rd party)	W	I32	0… 1,000,000,000.000 W	PPC_P_AV x PPC_P_SET_RPC_REL (PAV = 1.000.000 W, PPC_P_SET_RPC_REL = 60 % → PPC_P_AC_RPC_MAX = 600.000 W).

Register	Abbreviation	Description	Unit	Data type	Range	Comment
114	PPC_P_SET_MODUS	Actual active power setpoint mode (*)	-	I32	0: No configuration found 1: Fixed value method without interface (continuous limitation) 2: Fixed value method via DI 3: Fixed value method via AI 4: Fixed value method via Modbus 5: Remote Power Control (RPC) 100: LFSM-O (**) 101: LFSM-U (3*) 102: FSM (4*) 112: RPC & FSM (5*) 200: Fail-safe operation (last valid setpoint) 201: Fail-safe operation (default setpoint) 202: Fail-safe operation (system fallback setpoint) 203: Fail-safe operation (Automatic grid disconnection)	(*) From Firmware 16.0.4 (**) From Firmware 17.0.11 (3*) From firmware 19.2.10 (4*) From firmware 25.0.13 (5*) From firmware 33.1.12
116	PPC_P_SET_LFSMO_REL	Active power setpoint (LFSM-O)	%	I32		
118	PPC_P_SET_LFSMU_REL	Active power setpoint (LFSM-U)	%	I32		
120	PPC_GHI	Actual global irradiation	W/m²	I32		
122	PPC_T_AMBIENT	Actual ambient temperature	°C	I32		From Firmware 23.0.8
124	PPC_P_AC_AVAIL	Available active power	W	I32		From Firmware 25.0.13
126	PPC_Q_AC_AVAIL	Available reactive power	Var	I32		From Firmware 25.0.13
128	PPC_INV_INST	Number of installed inverters	-	I32		From Firmware 23.0.8
130	PPC_INV_AVAIL	Number of active inverters	-	I32		From firmware 29.0.9
132	PPC_BAT_SOC	State of charge	%	I32		From firmware 33.1.12
134	PPC_BAT_SOC_ABS	State of charge absolute	Wh	I32		From firmware 33.1.12
136	PPC_BAT_CAP	Battery capacity	Wh	I32		From firmware 33.1.12
138	PPC_BAT_P_AC_INV	Sum of inverter active power (battery)	W	I32		From firmware 33.1.12
140	PPC_PV_P_AC_INV	Sum of inverter active power (PV)	W	I32		From firmware 33.1.12
142	PPC_F_AC	Grid frequency	Hz	I32		From firmware 33.1.12
144	PPC_P_SET_RPC_ABS	Absolute active power setpoint (3rd party)	W	I32		From Firmware 33.0.10
146-3999		Reserved				
4000	PPC_P_AV	Agreed connected active power PAV	W	F32	0… 1,000,000,000.000 W	