PIKKERTON

ZBS-111/112

Interface Control Document

History:

DVers.:	Date	Author	Change	State
1.00	21.07.2011	PI-MH	./.	1st Release
1.01	13.06.2012	PI-LF	Added ZBS-112, removed RGB led	

Direction from Coordinator	Syntax	Parameter	Description	Example
I	GET	./. (no single parameter possible)	Get bulk information package. If the relay or the meter function deactivated, only relay status work and the optional temperature will be send.	see below
		POW	Relay Status	POW=ON
		FREQ	Actual frequency [Hz]	FREQ=50.0000Hz
		VRMS	Voltage rms-value [v]	VRMS=230V
		IRMS	Current rms-value [mA]	IRMS=10mA
		LOAD	Actual load [W]	LOAD=620W
		WORK	Integrated work / energy since last meter reset [kWh]	WORK=12.600kWh
I	DEV	./. (no single parameter possible)	Get bulk device information package from ZBS module	see below
		PID	Product Identification	PID=ZBS-111
		HW	Hardware Version	HW=0100
		SW	Software Version	SW=0100
		SN	Serial Number, also used as node identifier in XBee module, max. 12 bytes	SN=00012345

		ID	ID for customer´s purpose, max. 12 bytes	ID=0815BZ4711
		UB	Inform about the user settable Byte	UB=8
		ST	Inform about the reason of the device information package 1 = dev command 2 = function button pressed once 4 = device reset 8 = connect to a PAN 16 = heartbeat 32 = function button pressed twice 64 = function button pressed 3 times 128 = In1 active 256 = rising edge on In2 512 = falling edge on In2 Several reasons at the same time will added to one value (e.g. reset and PAN connect → ST=12)	ST=16
		EV	Count the send events up to 65535	EV=12

I	NETQUAL	./. (no single parameter possible)	Get bulk netquality information package. Only available with /NQ option.	see below
		VMIN	Counter for the quantity and duration of the VMIN threshold drop. (drop for less than 20ms, drop for less than 50ms, drop for less than 100ms, drop for less than 200ms, drop for less than 500ms, drop for more than 500ms, highest duration of an drop in [*2ms])	VMIN=6,5,4,3,2,1,456
		VPEAK	Counter for the quantity of voltage peaks. (quantity of detected voltage peaks, highest voltage peak value in [V])	VPEAK=1,456V
		IPEAK	Counter for the quantity of current peaks. (quantity of detected current peaks, highest current peak value in [mA])	IPEAK=3,1234mA
O	SET	VMIN	Threshold for voltage drop detection in [V_{RMS}] (0..335), default: 200	SET VMIN=123
O	SET	VPEAK	Threshold for voltage peak detection in [V] (0..490), default: 490	SET VPEAK=456

O	SET	IPEAK	Threshold for current peak detection in [mA] (0..25000), default: 25000	SET IPEAK=13210
O	SET	POW	Sets or resets the 230V relay [ON/OFF] Only available on ZBS-111.	SET POW=OFF
O	SET	LD0	An action of the green LED triggers [cycles, duration on * 100ms, duration off * 100ms]	SET LD0=10,4,1
O	SET	LD1	An action of the red LED triggers [cycles, duration on * 100ms, duration off * 100ms]	SET LD1=15,1,4
O	SET	TXT	TX Time in [s] (1..65000), default: 60	SET TXT=1800
O	SET	HBEAT	Heartbeat Interval in [s] (1..65000), 0 means no heartbeat, default 0	SET HBEAT=3600
O	METER	RESET	Resets the energy meter	METER RESET
O	METER	START	Starts the energy meter	METER START
O	METER	STOP	Stops the energy meter	METER STOP

O	METER	WORK	Sets the work threshold and defines activity [Wh, MSG/OFF] "MSG" sends message after work threshold has been reached; energy meter keeps on running "OFF" switches off the 230V relay after work threshold has been reached and deactivates the energy meter, only available on ZBS-111.	METER WORK=2500,OFF
O	METER	LOAD	Sets the load threshold and defines activity [W, MSG/OFF] "MSG" sends message when power exceeds the defined threshold; energy keeps on running "OFF" switches off the 230V relay when power exceeds the defined threshold and deactivates the energy meter, only available on ZBS-111.	METER LOAD=500,MSG
I	./.	WORK	Outgoing message in case of exceeded work threshold	WORK
I	./.	LOAD	Outgoing message in case of exceeded load threshold	LOAD
O	RESET	./.	Resets and associates device to the network	RESET

O	DEFAULTS	./.	Loads factory defaults	DEFAULTS
O	!#*	ID	Sets ID (operator / user only)	!*#ID=1234567890
O	!#*	B1	Prepares for firmware update	!#*B1
O	!#*	B2	Erases flash and updates firmware	!#*B2
O	!#*	UB	Set the user byte	!#*UB=8
O	!#*	WRITE	Writes XBee register directly	!#*WRITE=SPG (writes ‘0x67’ to ‘sp’ register)
O	!#*	READ	Reads XBee register directly	!#*READ=NP
I	./.	Register name and value	Separate message for READ result	NP=’0x00’’0x54’
O	!#*	REG1	Reads the ZBS settings	!#*REG1
I	./.		Separate message for REG1 result	TXT=60 HBEAT=0 VMIN=200V VPEAK=456V IPEAK=12345mA

Communication Facts & Features

- Communication Mode Xbee-Module: API
- All incoming messages must be terminated with linefeed character (0x0a)
- All outgoing messages are terminated with double linefeed character
- Maximum incoming message length: 24 bytes including linefeed
- Device acknowledges positive and negative:
- `SET POW=OFF` …will lead to… `ack: set pow=off`
- `METER STARTT` …will lead to… `nack: meter startt`

Firmware Update will affect

- Firmware
- SW-Version
- PID (product identification)

Firmware Update will NOT affect

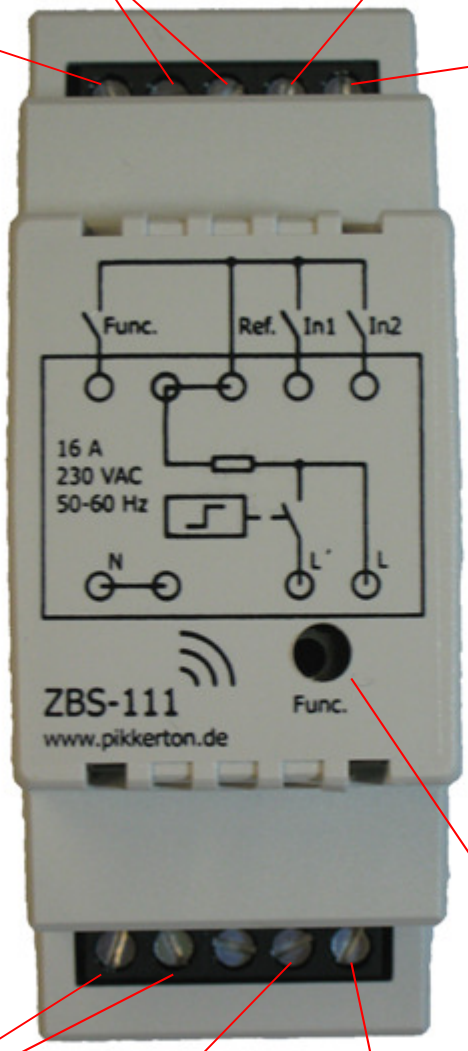
- HW-Version
- ID
- SN

External input, parallel to integrated “Func.” Button

Reference to operate the inputs In1, In2 and Func.

Toggles the relay and sends a DEV package

Sends a DEV package with different causes for falling or rising edges



Neutral input and output

Phase output

Phase input

Function button with bicolor LED

Druck Dat. : 13.06.2012


Function button
with bicolor LED