

ZBS-141/144

# Interface Control Document

**History:**

<b>DVers.:</b>	<b>Date</b>	<b>Author</b>	<b>Change</b>	<b>State</b>
1.00	18.10.2012	PI-MH	Born	1st Release
1.10	19.01.2017	PI-LF	Updated: Contact Monitoring Configuration & Feedback	Release

Direction from Coordinator	Syntax	Parameter	Description	Example	
I	GET	./.	(no single parameter possible)	Get bulk sensor information telegram from ZBS module	see below
		TEM1	Temperature in [°C] with decimal point (-10.0..50.0)	TEM1=27.5°C	
		TEM2	Temperature in [°C] with decimal point (-10.0..50.0)	TEM1=23.4°C	
		PC1 or C1	Counted value of pulse counter input 1 (0..655360000)  Contact state input 1	PC1=25  C1=OPENED	
		PC2 or C2	Counted value of pulse counter input 2 (0..655360000)  Contact state input 2	PC2=0  C2=CLOSED	
		PC3 or C3	Counted value of pulse counter input 3 (0..655360000)  Contact state input 3	PC1=655000000  C3=OPENED	
		PC4 or C4	Counted value of pulse counter input 4 (0..655360000)  Contact state input 4	PC1=123456  C4=CLOSED	

		BAT	Battery Status (only if battery is present e.g. ZBS-1xx)  "LOW" if battery is low "OK" if battery is ok	BAT=OK
		UBAT	Battery Voltage in [V] with decimal point	UBAT=3.85V
I	DEV	./.	(no single parameter possible)  Get bulk device information telegram from ZBS module	see below
		PID	Product Identification	PID=ZBS-144
		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
		ST	Cause of DEV telegram  1 = DEV command 2 = Push button 4 = Device reset 8 = PAN connect 16 = Heartbeat  <u>Note:</u> Concurrent causes are added to one value (e.g. Device reset and PAN connect → ST=12)	ST=16

		EV	TX telegram counter (repeatedly counts up to 65535 and restarts from 0)	EV=12
		BAT	Power supply status of the device	BAT=OK
		UBAT	Power supply voltage of the device	UBAT=3.76V
O	SET	TXT	TX Time in [s] (1..65000), default: 60	SET TXT=1800
O	SET	MSI	Measure Interval in [s] (1..65000), 0 means no measuring between TX intervals, default 0	SET MSI=120
O	SET	LOTEM1	Minimum for Temperature Alert in [°C] (0.0..50.0), measures only if "MSI" is set, default 0.0  Must have a decimal point!	SET LOTEM1=18.0
O	SET	HITEM1	Maximum for Temperature Alert in [°C] (0.0..50.0), measures only if "MSI" is set, default 50.0  Must have a decimal point!	SET HITEM1=22.0
O	SET	LOTEM2	Minimum for Temperature Alert in [°C] (0.0..50.0), measures only if "MSI" is set, default 0.0  Must have a decimal point!	SET LOTEM2=12.3

O	SET	HITEM2	Maximum for Temperature Alert in [°C] (0.0..50.0), measures only if "MSI" is set, default 50.0  Must have a decimal point!	SET HITEM2=23.4
O	SET	PFUNC	Mode of input function. 1 <sup>st</sup> value is number of input, second: 0=pulse counter, 1=contact monitoring, default 0	SET PFUNC=1, 0  SET PFUNC=4, 1
O	SET	HBEAT	Heartbeat Interval in [s] (1..65000), 0 means no heartbeat, default 0, sends DEV telegram	SET HBEAT=3600
O	SET	LD0	An action of the green LED triggers [repetitions, duration on * 100ms, duration off * 100ms]	SET LD0=10, 4, 1
O	SET	LD1	An action of the orange LED triggers [repetitions, duration on * 100ms, duration off * 100ms]	SET LD0=10, 4, 1
O	SET	PCSI	Pulse Counter Storage Interval 0 = daily 1 = hourly	SET PCSI=0
O	./.	RSTPC	Reset the pulse counter whose number is given behind the equal (1..4)	RSTPC=2
O	RESET	./.	Resets and associates device to the network	RESET
O	DEFAULTS	./.	Loads factory defaults	DEFAULTS

I	./.	Measurement Alert	If any alert situation comes out of threshold violation (temperature, brightness), the whole "bulk information telegram" is sent, see 1 <sup>st</sup> row in this table	TEM1=8.2°C TEM2=7.4°C PC1=2500000 PC2=0 PC3=1234567 PC4=345 BAT=OK UBAT=3.55V
I	./.	Contact Monitoring Alert	If a contact state changes (when configured to contact monitoring with e.g. SET PFUNC=4, 1), contact and battery state is sent	C4=CLOSED BAT=OK UBAT=3.55V
O	!#*	ID	Sets ID (default is the serial number)	!#*ID=1234567890
O	!#*	B1	Prepares for firmware update	!#*B1
O	!#*	B2	Erases flash and wait for updates	!#*B2
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 first part of the ZBS settings	!#*REG1

I	./.		Separate message for REG1 result	TXT=60 MSI=5 HBEAT=0 PCSI=1
O	!#*	REG2	Reads the second part of the ZBS settings	!#*REG2
I	./.		Separate message for REG2	LOTEM1=0.0 HITEM1=50.0 LOTEM2=0.0 HITEM2=50.0



### 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 TXT=480 ...will lead to... ack: set txt=480
  - SET TXR=480 ...will lead to... nack: set txr=480
- Alerts are getting transmitted immediately after measurement interval "MSI", no matter if TX interval time "TXT" is reached or not
- Motion detection messages are getting transmitted immediately

### Firmware Update will affect

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

### Firmware Update will NOT affect

- HW-Version
- ID
- SN