

# **VMBPIRC**

**Ceiling PIR detector module  
for VELBUS system**

Binary format:

<SOF-SID10...SID0-RTR-IDE-r0-DLC3...0-DATABYTE1...DATABYTE<sub>n</sub>-CRC15...CRC1-CRCDEL-ACK-ACKDEL-EOF7...EOF1-IFS3...IFS1>

<i>bits</i>	<i>Description</i>
SOF	Start Of Frame (always 0)
SID10 & SID9	Priority (00: highest ... 11: lowest priority)
SID8...SID1	Address
SID0	Always 0
RTR	Remote Transmit Request
IDE	Identifier Extension (always 0)
r0	reserved (always 0)
DLC3...DLC0	Data Length Code (0...8)
Databyte1	Command
Databyte2	Parameter
Databyte3	Parameter
Databyte4	Parameter
Databyte5	Parameter
Databyte6	Parameter
Databyte7	Parameter
Databyte8	Parameter
CRC15...CRC1	Cyclic Redundancy Checksum
CRCDEL	CRC Delimiter (always 1)
ACK	Acknowledge slot (transmit 1 readback 0 if received correctly)
ACKDEL	Acknowledge Delimiter (always 1)
EOF7...EOF1	End Of Frame (always 1111111)
IFS3...IFS1	InterFrame Space (always 111)

**The module can transmit the following messages:**

- Channel status
- Module status
- Module type
- Bus error counter status
- Memory data
- Memory data block (4 bytes)
- Real-time clock status
- Date status
- Daylight savings status
- Real-time clock status request
- Clear linked push button led
- Set linked push button led
- Slow blink linked push button led

**The module can receive the following commands:**

- Linked push button status
- Module type request
- Module status request
- Light value request
- Set or clear test mode
- Clear channel led
- Set channel led
- Slow blink channel led
- Fast blink channel led
- Very fast channel led
- Update channel leds
- Read memory data
- Read memory data block (4 bytes)
- Memory dump request
- Write memory data
- Write memory data block (4 bytes)

- Bus error counter status request
- Real-time clock status request
- Set real-time clock
- Set date
- Set daylight savings
- Enable/disable global sunrise/sunset related actions
- Enable/disable local sunrise/sunset related actions
- Set local alarm clock
- Set global alarm clock
- Lock channel
- Unlock channel
- Disable channel program
- Enable channel program
- Select program

**Transmits real time clock status request:**

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = H'00'  
RTR = 0  
DLC3...DLC0 = 1 databyte to send  
DATABYTE1 = COMMAND\_REALTIME\_CLOCK\_STATUS\_REQUEST (H'D7')

**Transmits the real time clock status:**

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 4 databytes to send  
DATABYTE1 = COMMAND\_REALTIME\_CLOCK\_STATUS (H'D8')  
DATABYTE2 = Day

Contents	Day
0	Monday
1	Tuesday
2	Wednesday
3	Thursday
4	Friday
5	Saturday
6	Sunday

DATABYTE3 = Hour (0...23)  
DATABYTE4 = Minute (0...59)

**Transmits the date status:**

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 5 databytes to send  
DATABYTE1 = COMMAND\_DATE\_STATUS (H'B7')  
DATABYTE2 = Day (1...31)  
DATABYTE3 = Month (1...12)  
DATABYTE4 = High byte of Year  
DATABYTE5 = Low byte of Year

**Transmits the daylight savings status:**

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes to send  
DATABYTE1 = COMMAND\_DAYLIGHT\_SAVING\_STATUS (H'AF')  
DATABYTE2 = 0 =disabled / 1 = enabled

**Transmits the channel switch status:**

SID10-SID9 = 00 (highest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 4 databytes to send  
DATABYTE1 = COMMAND\_PUSH\_BUTTON\_STATUS (H'00')  
DATABYTE2 = Channel just pressed  
DATABYTE3 = Channel just released  
DATABYTE4 = Channel long pressed

Contents	Channel number
B'00000001'	Dark output
B'00000010'	Light output
B'00000100'	Motion 1 output
B'00001000'	Light depending motion 1 output
B'00010000'	Motion 2 output
B'00100000'	Light depending motion 2 output
B'01000000'	Absence output

**Transmits the module type:**

SID10-SID9 = 11 (lowest priority)  
 SID8...SID1 = Module address  
 RTR = 0  
 DLC3...DLC0 = 7 databytes to send  
 DATABYTE1 = COMMAND\_MODULE\_TYPE (H'FF')  
 DATABYTE2 = VMBPIRC type (H'2B')  
 DATABYTE3 = High byte of serial number  
 DATABYTE4 = Low byte of serial number  
 DATABYTE5 = Memorymap version  
 DATABYTE6 = Build year  
 DATABYTE7 = Build week

**Transmits the module status:**

SID10-SID9 = 11 (lowest priority)  
 SID8...SID1 = Module address  
 RTR = 0  
 DLC3...DLC0 = 8 databytes to send  
 DATABYTE1 = COMMAND\_MODULE\_STATUS (H'ED')  
 DATABYTE2 = channel status (1 = pressed / 0 = released)

<i>Contents</i>	<i>Channel status</i>
B'xxxxxxx0'	Dark output off
B'xxxxxxx1'	Dark output on
B'xxxxxx0x'	Light output off
B'xxxxxx1x'	Light output on
B'xxxxx0xx'	Motion 1 output off
B'xxxxx1xx'	Motion 1 output on
B'xxxx0xxx'	Light depending motion 1 output off
B'xxxx1xxx'	Light depending motion 1 output on
B'xxx0xxxx'	Motion 2 output off
B'xxx1xxxx'	Motion 2 output on
B'xx0xxxxx'	Light depending motion 2 output off
B'xx1xxxxx'	Light depending motion 2 output on
B'x0xxxxxx'	Absence output off
B'x1xxxxxx'	Absence output on

DATABYTE3 = light sensor value high byte

DATABYTE4 = light sensor value low byte

DATABYTE5 = test modus or locked channel status (0 = unlocked / 1 = locked)

<i>Contents</i>	<i>Test modus or locked status</i>
B'xxxxxxx0'	Dark output unlocked
B'xxxxxxx1'	Dark output locked
B'xxxxxx0x'	Light output unlocked
B'xxxxxx1x'	Light output locked
B'xxxxx0xx'	Motion 1 output unlocked
B'xxxxx1xx'	Motion 1 output locked
B'xxxx0xxx'	Light depending motion 1 output unlocked
B'xxxx1xxx'	Light depending motion 1 output locked
B'xxx0xxxx'	Motion 2 output unlocked
B'xxx1xxxx'	Motion 2 output locked
B'xx0xxxxx'	Light depending motion 2 output unlocked
B'xx1xxxxx'	Light depending motion 2 output locked
B'x0xxxxxx'	Absence output unlocked
B'x1xxxxxx'	Absence output locked
B'0xxxxxxx'	Normal modus
B'1xxxxxxx'	Test modus

DATA BYTE6 = disabled channel program status (0 = program enabled / 1 = program disabled)

<i>Contents</i>	<i>Program disabled status</i>
B'xxxxxxx0'	Dark output program enabled
B'xxxxxxx1'	Dark output program disabled
B'xxxxxxx0x'	Light output program enabled
B'xxxxxxx1x'	Light output program disabled
B'xxxxx0xx'	Motion 1 output program enabled
B'xxxxx1xx'	Motion 1 output program disabled
B'xxxx0xxx'	Light depending motion 1 output program enabled
B'xxxx1xxx'	Light depending motion 1 output program disabled
B'xxx0xxxx'	Motion 2 output program enabled
B'xxx1xxx'	Motion 2 output program disabled
B'xx0xxxx'	Light depending motion 2 output program enabled
B'xx1xxxx'	Light depending motion 2 output program disabled
B'x0xxxxx'	Absence output program enabled
B'x1xxxxx'	Absence output program disabled

DATA BYTE7 = alarm & program selection

<i>Contents</i>	<i>Selected program</i>
B'xxxxxx00'	None
B'xxxxxx01'	Summer
B'xxxxxx10'	Winter
B'xxxxxx11'	Holiday
B'xxxxx0xx'	Alarm 1 off
B'xxxxx1xx'	Alarm 1 on
B'xxx0xxx'	Local alarm 1
B'xxx1xxx'	Global alarm 1
B'xx0xxxx'	Alarm 2 off
B'xx1xxx'	Alarm 2 on
B'xx0xxxx'	Local alarm 2
B'xx1xxxx'	Global alarm 2
B'x0xxxxx'	Sunrise disabled
B'x1xxxxx'	Sunrise enabled
B'0xxxxxx'	Sunset disabled
B'1xxxxxx'	Sunset enabled

DATA BYTE8 = light value auto send interval time

(Valid range: 10...255s)

(5...9 = auto send on light value change with min interval 5...9s)

(<5 = auto send disabled)

**Transmit: Bus error counter status**

SID10-SID9 = 11 (lowest priority)

SID8...SID1 = Module address

RTR = 0

DLC3...DLC0 = 4 databytes to send

DATA BYTE1 = COMMAND\_BUSERROR\_COUNTER\_STATUS (H'DA')

DATA BYTE2 = Transmit error counter

DATA BYTE3 = Receive error counter

DATA BYTE4 = Bus off counter

**Transmits the memory data:**

SID10-SID9 = 11 (lowest priority)

SID8...SID1 = Module address

RTR = 0

DLC3...DLC0 = 4 databytes to send

DATA BYTE1 = COMMAND\_MEMORY\_DATA (H'FE')

DATA BYTE2 = High memory address

DATA BYTE3 = LOW memory address

DATA BYTE4 = memory data

Remark: address range: H'0000' to H'01FF'

***Transmits memory data block (4 bytes):***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 7 databytes to send  
DATABYTE1 = COMMAND\_MEMORY\_DATA\_BLOCK (H'CC')  
DATABYTE2 = High start address of memory block  
DATABYTE3 = LOW start address of memory block  
DATABYTE4 = memory data1  
DATABYTE5 = memory data2  
DATABYTE6 = memory data3  
DATABYTE7 = memory data4

Remark: address range: H'0000' to H'01FC'

***Transmit: Clears LEDs on a linked push button module:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Address of the linked push button module for clearing LEDs  
RTR = 0  
DLC3...DLC0 = 2 databytes to send  
DATABYTE1 = COMMAND\_CLEAR\_LED (H'F5')  
DATABYTE2 = LED bit numbers (1 = clear LED)

***Transmit: Sets LEDs on a linked push button module:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Address of the linked push button module for setting LEDs on  
RTR = 0  
DLC3...DLC0 = 2 databytes to send  
DATABYTE1 = COMMAND\_SET\_LED (H'F6')  
DATABYTE2 = LED bit numbers (1 = set LED)

***Transmit: Blinks LEDs slowly on a linked push button module:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Address of the linked push button module for slowly blinking LEDs  
RTR = 0  
DLC3...DLC0 = 2 databytes to send  
DATABYTE1 = COMMAND\_SLOW\_BLINKING\_LED (H'F7')  
DATABYTE2 = LED bit numbers (1 = slow blink LED)

***'Linked push button status' received:***

SID10-SID9 = 00 (highest priority)  
SID8...SID1 = Address of the linked push button module  
RTR = 0  
DLC3...DLC0 = 4 databytes received  
DATABYTE1 = COMMAND\_PUSH\_BUTTON\_STATUS (H'00')  
DATABYTE2 = Linked push buttons just pressed (1 = just pressed)  
DATABYTE3 = Linked push buttons just released (1 = just released)  
DATABYTE4 = linked push buttons long pressed (1 = longer than 0.85s pressed)

***'Real time clock status request' command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 1 databyte to send  
DATABYTE1 = COMMAND\_REALTIME\_CLOCK\_STATUS\_REQUEST (H'D7')

***'Set real time clock' command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = H'00'  
RTR = 0  
DLC3...DLC0 = 4 databytes to send  
DATABYTE1 = COMMAND\_SET\_REALTIME\_CLOCK (H'D8')  
DATABYTE2 = Day of week

<i>Contents day of week'</i>	<i>Description</i>
H'00'	Monday
H'01'	Tuesday
H'02'	Wednesday
H'03'	Thursday
H'04'	Friday
H'05'	Saturday
H'06'	Sunday

DATABYTE3 = Hours (0...23)  
DATABYTE4 = Minutes (0...59)

***'Set date' command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = H'00'  
RTR = 0  
DLC3...DLC0 = 5 databytes to send  
DATABYTE1 = COMMAND\_SET\_REALTIME\_DATE (H'B7')  
DATABYTE2 = Day (1...31)  
DATABYTE3 = Month (1...12)  
DATABYTE4 = High byte of Year  
DATABYTE5 = Low byte of Year

***'Set daylight savings' command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = H'00'  
RTR = 0  
DLC3...DLC0 = 2 databytes to send  
DATABYTE1 = COMMAND\_SET\_DAYLIGHT\_SAVING (H'AF')  
DATABYTE2 = 0 =disabled / 1 = enabled



***‘Enable/disable global sunrise/sunset related actions’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = H’00’  
RTR = 0  
DLC3...DLC0 = 3 databytes to send  
DATABYTE1 = COMMAND\_ENA\_DIS\_SUNRISE\_SUNSET (H’AE’)  
DATABYTE2 = Channel (FF)  
DATABYTE3 = enable/disable flags

<b><i>Contents</i></b>	<b><i>Description</i></b>
B’xxxxxxx0’	Disable sunrise related actions
B’xxxxxxx1’	Enable sunrise related actions
B’xxxxxx0x’	Disable sunset related actions
B’xxxxxx1x’	Enable sunset related actions

***‘Enable/disable local sunrise/sunset related actions’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 3 databytes to send  
DATABYTE1 = COMMAND\_ENA\_DIS\_SUNRISE\_SUNSET (H’AE’)  
DATABYTE2 = Channel (FF)  
DATABYTE3 = enable/disable flags

<b><i>Contents</i></b>	<b><i>Description</i></b>
B’xxxxxxx0’	Disable sunrise related actions
B’xxxxxxx1’	Enable sunrise related actions
B’xxxxxx0x’	Disable sunset related actions
B’xxxxxx1x’	Enable sunset related actions

***‘Set global clock alarm’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = H’00’  
RTR = 0  
DLC3...DLC0 = 7 databytes to send  
DATABYTE1 = COMMAND\_SET\_ALARM\_CLOCK (H’C3’)  
DATABYTE2 = Alarm number (1 or 2)  
DATABYTE3 = Wake up hour (0...23)  
DATABYTE4 = Wake up minute (0...59)  
DATABYTE5 = Go to bed hour (0...23)  
DATABYTE6 = Go to bed minute (0...59)  
DATABYTE7 = Clock alarm enable flag (0 = disabled / 1 = enabled)

***‘Set local clock alarm’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 7 databytes to send  
DATABYTE1 = COMMAND\_SET\_ALARM\_CLOCK (H’C3’)  
DATABYTE2 = Alarm number (1 or 2)  
DATABYTE3 = Wake up hour (0...23)  
DATABYTE4 = Wake up minute (0...59)  
DATABYTE5 = Go to bed hour (0...23)  
DATABYTE6 = Go to bed minute (0...59)  
DATABYTE7 = Clock alarm enable flag (0 = disabled / 1 = enabled)

***‘Module type request’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 1  
DLC3...DLC0 = 0 databytes received

***'Module status request' command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes received  
DATABYTE1 = COMMAND\_MODULE\_STATUS\_REQUEST (H'FA')  
DATABYTE2 = don't care

***'Light value request' command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes to send  
DATABYTE1 = COMMAND\_LIGHT\_VALUE\_REQUEST (H'AA')  
DATABYTE2 = Auto send interval time into seconds  
(valid range: 10...255s)  
(5...9 = auto send on change)  
(1...4 = auto send disabled)  
(0 = no change on auto send interval time)

***'Set or Clear test mode' command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes received  
DATABYTE1 = COMMAND\_SET\_CLR\_LEARN\_MODE (H'B5')  
DATABYTE2 = Operating mode

<i>Contents</i>	<i>Operating mode</i>
B'00000000'	Normal
B'00000001'	Test mode

Remark:

After changing the operating mode, the module sends his status.  
There is a timeout of 30 minutes for the test mode.

***'Clear channel LED' command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes received  
DATABYTE1 = COMMAND\_CLEAR\_LED (H'F5')  
DATABYTE2 = LEDs to clear (a one clears the corresponding LED of channel 1 to 8)

***'Set channel LED' command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes received  
DATABYTE1 = COMMAND\_SET\_LED (H'F6')  
DATABYTE2 = LEDs to set (a one sets the corresponding LED of channel 1 to 8)

***'Slow blink channel LED' command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes received  
DATABYTE1 = COMMAND\_SLOW\_BLINK\_LED (H'F7')  
DATABYTE2 = LEDs to blink slow (a one blinks slow the corresponding LED of channel 1 to 8)

***‘Fast blink channel LED’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes received  
DATABYTE1 = COMMAND\_FAST\_BLINK\_LED (H’F8’)  
DATABYTE2 = LEDs to blink fast (a one blinks fast the corresponding LED of channel 1 to 8)

***‘Very fast blink channel LED’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes received  
DATABYTE1 = COMMAND\_VERY\_FAST\_BLINK\_LED (H’F9’)  
DATABYTE2 = LEDs to blink very fast (a one blinks very fast the corresponding LED of channel 1 to 8)

***‘Update channel LEDs’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 4 databytes received  
DATABYTE1 = COMMAND\_UPDATE\_LED\_STATUS (H’F4’)  
DATABYTE2 = LEDs to set (a one sets the corresponding LED of channel 1 to 8)  
DATABYTE3 = LEDs to blink slow (a one blinks slow the corresponding LED of channel 1 to 8)  
DATABYTE4 = LEDs to blink fast (a one blinks very fast the corresponding LED of channel 1 to 8)

Remark:

The ‘LEDs to set’ status overrides the blinking modes.  
Very fast blinking if slow & fast blinking are set.

***‘Read data from memory’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 3 databytes received  
DATABYTE1 = COMMAND\_READ\_DATA\_FROM\_MEMORY (H’FD’)  
DATABYTE2 = High memory address  
DATABYTE3 = LOW memory address

Remark: address range: H’0000’ to H’01FF’

***‘Memory dump request’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 1 databytes received  
DATABYTE1 = COMMAND\_MEMORY\_DUMP\_REQUEST (H’CB’)

***‘Read data block from memory’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 3 databytes received  
DATABYTE1 = COMMAND\_READ\_MEMORY\_BLOCK (H’C9’)  
DATABYTE2 = High memory address  
DATABYTE3 = LOW memory address

Remark: address range: H’0000’ to H’01FC’

***‘Write data to memory’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 4 databytes received  
DATABYTE1 = COMMAND\_WRITE\_DATA\_TO\_MEMORY (H'FC')  
DATABYTE2 = High memory address  
DATABYTE3 = LOW memory address (H'00'...H'FF')  
DATABYTE4 = memory data to write

Remark:

Wait at least 10ms for sending a next command on the velbus.

Address range: H'0000' to H'01FF'

***‘Write memory block’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Address of the module  
RTR = 0  
DLC3...DLC0 = 7 databytes received  
DATABYTE1 = COMMAND\_WRITE\_MEMORY\_BLOCK (H'CA')  
DATABYTE2 = High memory address  
DATABYTE3 = LOW memory address  
DATABYTE4 = memory databyte1 to write  
DATABYTE5 = memory databyte2 to write  
DATABYTE6 = memory databyte3 to write  
DATABYTE7 = memory databyte4 to write

Remark:

Wait for 'memory data block' feedback before sending a next command on the velbus.

Address range: H'0000' to H'01FC'

***‘Bus error counter status request’ command received:***

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 1 databytes to send  
DATABYTE1 = COMMAND\_BUS\_ERROR\_COUNTER\_STATUS\_REQUEST (H'D9')

***‘Unlock channel’ command received:***

SID10-SID9 = 00 (highest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes received  
DATABYTE1 = COMMAND\_CANCEL\_FORCED\_OFF (H'13')  
DATABYTE2 = Channel bit

<i>Contents</i>	<i>Channel</i>
B'00000001'	Dark output
B'00000010'	Light output
B'00000100'	Motion 1 output
B'00001000'	Light depending motion 1 output
B'00010000'	Motion 2 output
B'00100000'	Light depending motion 2 output
B'01000000'	Absence output

**‘Lock channel’ command received:**

SID10-SID9 = 00 (highest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 5 databytes received  
DATABYTE1 = COMMAND\_FORCED\_OFF (H’12’)  
DATABYTE2 = Channel bit

<i>Contents</i>	<i>Dimmer channel</i>
B’00000001’	Dark output
B’00000010’	Light output
B’00000100’	Motion 1 output
B’00001000’	Light depending motion 1 output
B’00010000’	Motion 2 output
B’00100000’	Light depending motion 2 output
B’01000000’	Absence output

DATABYTE3 = high byte of delay time  
DATABYTE4 = mid byte of delay time  
DATABYTE5 = low byte of delay time

Remark:

[DATABYTE3][DATABYTE4][DATABYTE5] contain a 24-bit time in seconds  
The command will be skipped when the time parameter contains zero.  
When the time parameter contains H’FFFFFF’ then the channel will be permanently locked.

**‘Enable Channel Program’ command received:**

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 2 databytes received  
DATABYTE1 = COMMAND\_ENABLE\_PROGRAM (H’B2’)  
DATABYTE2 = Channel bit

<i>Contents</i>	<i>Channel</i>
B’00000001’	Dark output
B’00000010’	Light output
B’00000100’	Motion 1 output
B’00001000’	Light depending motion 1 output
B’00010000’	Motion 2 output
B’00100000’	Light depending motion 2 output
B’01000000’	Absence output

**‘Disable Channel Program’ command received:**

SID10-SID9 = 11 (lowest priority)  
SID8...SID1 = Module address  
RTR = 0  
DLC3...DLC0 = 5 databytes received  
DATABYTE1 = COMMAND\_DISABLE\_PROGRAM (H’B1’)  
DATABYTE2 = channel

<i>Contents</i>	<i>Channel</i>
B’00000001’	Dark output
B’00000010’	Light output
B’00000100’	Motion 1 output
B’00001000’	Light depending motion 1 output
B’00010000’	Motion 2 output
B’00100000’	Light depending motion 2 output
B’01000000’	Absence output

DATABYTE3 = high byte of delay time  
DATABYTE4 = mid byte of delay time  
DATABYTE5 = low byte of delay time

Remark:

[DATABYTE3][DATABYTE4][DATABYTE5] contain a 24-bit time in seconds  
The command will be skipped when the time parameter contains zero.  
When the time parameter contains H’FFFFFF’ then the channel program will be permanently disabled.

**'Select Program' command received:**

SID10-SID9 = 11 (lowest priority)

SID8...SID1 = Module address

RTR = 0

DLC3...DLC0 = 2 databytes received

DATABYTE1 = COMMAND\_SELECT\_PROGRAM (H'B3')

DATABYTE2 = Program mode

<i>Contents</i>	<i>Selected programl</i>
0	None
1	Summer
2	Winter
3	Holiday

## Memory map version 1:

Address	Contents	Address	Contents
0x0000	Dark value low byte	0x0001	Dark value high byte
0x0002	Light value low byte	0x0003	Light value high byte
0x0004	Light to dark reaction time (default 1min)	0x0005	Dark timer mode = non restartable timer
0x0006	Dark timeout (default momentary)	0x0007	Dark flags (default cycling protect off & external overwrite off)
0x0008	Dark to light reaction time (default 1min)	0x0009	Light timer mode = non restartable timer
0x000A	Light timeout (default momentary)	0x000B	Light flags (default cycling protect off & external overwrite off)
0x000C	Motion 1 reaction time (default 0s) (range 0, 1, 2, 3s)	0x000D	Motion 1 timer mode = restartable timer
0x000E	Motion 1 timeout (default 2min)	0x000F	Motion 1 flags (default cycling protect off & external overwrite off)
0x0010	Light depending motion 1 reaction time (default 0s) (range 0, 1, 2, 3s)	0x0011	Light depending motion 1 timer mode = restartable timer
0x0012	Light depending motion 1 timeout (default 2min)	0x0013	Light depending motion 1 flags (default cycling protect = on & external overwrite off)
0x0014	Motion 2 reaction time (default 0s) (range 0, 1, 2, 3s)	0x0015	Motion 2 timer mode = restartable timer
0x0016	Motion 2 timeout (default 2min)	0x0017	Motion 2 flags (default cycling protect off & external overwrite off)
0x0018	Light depending motion 2 reaction time (default 0s) (range 0, 1, 2, 3s)	0x0019	Light depending motion 2 timer mode = restartable timer
0x001A	Light depending motion 2 timeout (default 2min)	0x001B	Light depending motion 2 flags (default cycling protect = on & external overwrite off)
0x001C	Light depending motion 1 dark reaction time = 5 sec	0x001D	Light depending motion 1 dark timer mode = non restartable timer
0x001E	Light depending motion 1 dark timeout = momentary	0x001F	Light depending motion 1 dark flags = cycling protect off & external overwrite off
0x0020	Light depending motion 2 dark reaction time = 5 sec	0x0021	Light depending motion 2 dark timer mode = non restartable timer
0x0022	Light depending motion 2 dark timeout = momentary	0x0023	Light depending motion 2 dark flags = cycling protect off & external overwrite off
0x0024	Motion sensitivity (default medium)	0x0025	Not used
0x0026	Light depending motion 1 dark value low byte	0x0027	Light depending motion 1 dark value high byte
0x0028	Light depending motion 1 light value low byte (0.98*motion 1 dark value)	0x0029	Light depending motion 1 light value high byte
0x002A	Light depending motion 2 dark value low byte	0x002B	Light depending motion 2 dark value high byte
0x002C	Light depending motion 2 light value low byte (0.98*motion 2 dark value)	0x002D	Light depending motion 2 light value high byte
0x002E	Absence timeout	0x002F	Absence output mode
0x0030	Not used	0x0031	Alarm clock configuration
0x0032	Wake up 1 hour (0..23)	0x0033	Wake up 1 minutes (0..59)
0x0034	Go to bed 1 hour (0..23)	0x0035	Go to bed 1 minutes (0..59)
0x0036	Wake up 2 hour (0..23)	0x0037	Wake up 2 minutes (0..59)
0x0038	Go to bed 2 hour (0..23)	0x0039	Go to bed 2 minutes (0..59)
0x003A	Sunrise hour at 21 December (0..23)	0x003B	Sunrise minutes at 21 December (0..59)
0x003C	Sunrise 21 January – sunrise 5 January (-128'..127')	0x003D	Sunrise 5 February – sunrise 21 January (-128'..127')
0x003E	Sunrise 21 February – sunrise 5 February (-128'..127')	0x003F	Sunrise 5 March – sunrise 21 February (-128'..127')
0x0040	Sunrise 21 March – sunrise 5 March (-128'..127')	0x0041	Sunrise 5 April – sunrise 21 March (-128'..127')
0x0042	Sunrise 21 April – sunrise 5 April (-128'..127')	0x0043	Sunrise 5 May – sunrise 21 April (-128'..127')
0x0044	Sunrise 21 May – sunrise 5 May (-128'..127')	0x0045	Sunrise 5 June – sunrise 21 May (-128'..127')
0x0046	Sunrise 21 June – sunrise 5 June (-128'..127')	0x0047	Sunrise 5 July – sunrise 21 June (-128'..127')
0x0048	Sunrise 21 July – sunrise 5 July (-128'..127')	0x0049	Sunrise 5 August – sunrise 21 July (-128'..127')
0x004A	Sunrise 21 August – sunrise 5 August (-128'..127')	0x004B	Sunrise 5 September – sunrise 21 August (-128'..127')
0x004C	Sunrise 21 September – sunrise 5 September (-128'..127')	0x004D	Sunrise 5 October – sunrise 21 September (-128'..127')
0x004E	Sunrise 21 October – sunrise 5 October (-128'..127')	0x004F	Sunrise 5 November – sunrise 21 October (-128'..127')
0x0050	Sunrise 21 November – sunrise 5 November (-128'..127')	0x0051	Sunrise 5 December – sunrise 21 November (-128'..127')
0x0052	Sunrise 21 December – sunrise 5 December (-128'..127')	0x0053	Sunrise 5 January – sunrise 21 December (-128'..127')
0x0054	Sunset hour at 21 December (0..23)	0x0055	Sunset minutes at 21 December (0..59)
0x0056	Sunset 21 January – sunrise 5 January (-128'..127')	0x0057	Sunset 5 February – sunrise 21 January (-128'..127')
0x0058	Sunset 21 February – sunrise 5 February (-128'..127')	0x0059	Sunset 5 March – sunrise 21 February (-128'..127')
0x005A	Sunset 21 March – sunrise 5 March (-128'..127')	0x005B	Sunset 5 April – sunrise 21 March (-128'..127')
0x005C	Sunset 21 April – sunrise 5 April (-128'..127')	0x005D	Sunset 5 May – sunrise 21 April (-128'..127')
0x005E	Sunset 21 May – sunrise 5 May (-128'..127')	0x005F	Sunset 5 June – sunrise 21 May (-128'..127')
0x0060	Sunset 21 June – sunrise 5 June (-128'..127')	0x0061	Sunset 5 July – sunrise 21 June (-128'..127')

0x0062	Sunset 21 July – sunrise 5 July (-128'..127')	0x0063	Sunset 5 August – sunrise 21 July (-128'..127')
0x0064	Sunset 21 August – sunrise 5 August (-128'..127')	0x0065	Sunset 5 September – sunrise 21 August (-128'..127')
0x0066	Sunset 21 September – sunrise 5 September (-128'..127')	0x0067	Sunset 5 October – sunrise 21 September (-128'..127')
0x0068	Sunset 21 October – sunrise 5 October (-128'..127')	0x0069	Sunset 5 November – sunrise 21 October (-128'..127')
0x006A	Sunset 21 November – sunrise 5 November (-128'..127')	0x006B	Sunset 5 December – sunrise 21 November (-128'..127')
0x006C	Sunset 21 December – sunrise 5 December (-128'..127')	0x006D	Sunset 5 January – sunrise 21 December (-128'..127')
0x006E	Not used	0x006F	Not used
...	...	...	...
0x00AA	Not used	0x00AB	Module terminator
0x00AC	Location id low byte	0x00AD	Location id high byte
0x00AE	Group id low byte	0x00AF	Group id high byte
0x00B0	Module name character 1	0x00C1	Module name character 2
...	..	..	..
0x00EE	Module name character 63	0x00EF	Module name character 64
0x00F0	Not used	0x00F1	Not used
0x00F2	Not used	0x00F3	Not used (Auto send interval temperature for VMBPIRO)
0x00F4	Auto send interval of light value	0x00F5	Program selection (none/summer/winter/holiday)
0x00F6	Program disable/enable flags	0x00F7	Locked/unlocked flags
0x00F8	Current day (1...31)	0x00F9	Current month (1...12)
0x00FA	Current year high byte	0x00FB	Current year low byte
0x00FC	Zone address	0x00FD	Module Address
0x00FE	Serial number high	0x00FF	Serial number low

**Remark:**

Unused locations contain H'FF'

Do not overwrite the following address location:

H'00F3'	Auto send interval of temperature for VMBPIRO
H'00F4'	Auto send interval of light value
H'00F5'	program selection
H'00F6'	program enable/disable flags
H'00F7'	locked/unlocked flags
H'00F8'	current day of month
H'00F9'	current month
H'00FA' & H'00FB'	current year
H'00FC'	zone address
H'00FD'	module address
H'00FE' & H'00FF'	module serial number

**Reaction time (light to dark, dark to light, motion & light depending motion)**

<i>contents</i>	<i>Reaction time</i>
0	0s (factory default for motion & light depending motion)
1	1s
2	2s
...	
59	59s
60	1min (factory default for light to dark & dark to light)
61	1min1s
...	
...	
119	1min59s
120	2min
121	2min15s
...	
131	4min45s
132	5min
133	5min30s
...	
181	29min30s
182	30min
183	31min
...	
211	59min
212	1h



**Timer mode (dark, light, motion & light depending motion)**

<b>Contents</b>	<b>Timer mode</b>
H'00'	non restartable timer (for dark & light)
H'FF'	restartable timer (for motion & light depending motion)

**Timeout (light to dark, dark to light, motion & light depending motion)**

<b>Contents</b>	<b>Timeout</b>
0	0 = momentary (factory default for dark, light & motion)
1	1s
2	2s
...	
119	1min59s
120	2min (factory default for light depending motion)
121	2min15s
...	
131	4min45s
132	5min
133	5min30s
...	
181	29min30s
182	30min
183	31min
...	
211	59min
212	1h
213	1h15min
...	
227	4h45min
228	5h
229	5h30min
...	
237	9h30min
238	10h

**Absence timeout**

<b>Time parameter</b>	<b>Timeout</b>
60	1min
61	1min1s
62	1min2s
...	
119	1min59s
120	2min
121	2min15s
...	
131	4min45s
132	5min
133	5min30s
...	
152	15min (default)
...	
181	29min30s
182	30min
183	31min
...	
211	59min
212	1h
213	1h15min
...	
227	4h45min
228	5h
229	5h30min
...	

237	9h30min
238	10h
239	11h
...	
251	23h
252	1d

Absence output mode

Contents	Absence output mode
0x00	Momentary (default)
0xFF	1 second pulse

Dark flags

Contents	Timer mode
B'xxxxxxxx0'	Cycling protection disabled (default)
B'xxxxxxxx1'	Cycling protection enabled
B'xxxxxxxx0x'	External overwrite disabled (default)
B'xxxxxxxx1x'	External overwrite enabled

Light flags

Contents	Timer mode
B'xxxxxxxx0'	Cycling protection disabled (default)
B'xxxxxxxx1'	Cycling protection enabled
B'xxxxxxxx0x'	External overwrite disabled (default)
B'xxxxxxxx1x'	External overwrite enabled

Motion flags

Contents	Timer mode
B'xxxxxxxx0'	Cycling protection disabled (default)
B'xxxxxxxx1'	Cycling protection enabled
B'xxxxxxxx0x'	External overwrite disabled (default)
B'xxxxxxxx1x'	External overwrite enabled

Light depending motion flags

Contents	Timer mode
B'xxxxxxxx0'	Cycling protection disabled (default)
B'xxxxxxxx1'	Cycling protection enabled
B'xxxxxxxx0x'	External overwrite disabled (default)
B'xxxxxxxx1x'	External overwrite enabled

Motion sensitivity

Contents	Sensitivity
0x00	Low sensitivity
0x01	Medium sensitivity (default)
0x02	High sensitivity

Alarm clock configuration

Contents	Channel locked/unlocked
B'xxxxxxxx0'	Alarm 1 disabled
B'xxxxxxxx1'	Alarm 1 enabled
B'0xxxxx0x'	Local alarm 1
B'1xxxxx1x'	Global alarm 1
B'xxxxx0xx'	Alarm 2 disabled
B'xxxxx1xx'	Alarm 2 enabled
B'xxxx0xxx'	Local alarm 2
B'xxxx1xxx'	Global alarm 2
B'xxx0xxxx'	Sunrise disabled
B'xxx1xxxx'	Sunrise enabled
B'xx0xxxxx'	Sunset disabled
B'xx1xxxxx'	Sunset enabled
B'x0xxxxxx'	Daylight savings disabled
B'x1xxxxxx'	Daylight savings enabled

**Program selection**

<i>Contents</i>	<i>Selected program</i>
0	None
1	Group 1 (eg. Summer programs)
2	Group 2 (eg. Winter programs)
3	Group 3 (eg. Holiday programs)

**Channel program disabled**

<i>Contents</i>	<i>Channel program enabled/disabled</i>
B'xxxxxxx0'	Dark program enabled
B'xxxxxxx1'	Dark program disabled
B'xxxxxx0x'	Light program enabled
B'xxxxxx1x'	Light program disabled
B'xxxxx0xx'	Motion 1 program enabled
B'xxxxx1xx'	Motion 1 program disabled
B'xxxx0xxx'	Light depending motion 1 program enabled
B'xxxx1xxx'	Light depending motion 1 program disabled
B'xxx0xxxx'	Motion 2 program enabled
B'xxx1xxxx'	Motion 2 program disabled
B'xx0xxxxx'	Light depending motion 2 program enabled
B'xx1xxxxx'	Light depending motion 2 program disabled

**Channel locked**

<i>Contents</i>	<i>Channel locked/unlocked</i>
B'xxxxxxx0'	Dark output unlocked
B'xxxxxxx1'	Dark output locked
B'xxxxxx0x'	Light output unlocked
B'xxxxxx1x'	Light output locked
B'xxxxx0xx'	Motion 1 output unlocked
B'xxxxx1xx'	Motion 1 output locked
B'xxxx0xxx'	Light depending motion 1 output unlocked
B'xxxx1xxx'	Light depending motion 1 output locked
B'xxx0xxxx'	Motion 2 output unlocked
B'xxx1xxxx'	Motion 2 output locked
B'xx0xxxxx'	Light depending motion 2 output unlocked
B'xx1xxxxx'	Light depending motion 2 output locked

<i>Address</i>	<i>Contents</i>	<i>Address</i>	<i>Contents</i>
H'0100'	Linked Push button 1 module address	H'0101'	Linked Push button 1 bit number
H'0102'	Linked Push button 1 action	H'0103'	Linked Push button 1 time parameter
H'0104'	Linked Push button 1 channel parameter	...	...
...	...	...	...
H'0178'	Linked Push button 25 module address	H'0179'	Linked Push button 25 bit number
H'017A'	Linked Push button 25 action	H'017B'	Linked Push button 25 time parameter
H'017C'	Linked Push button 25 channel parameter	H'017D'	Not used
H'017E'	Not used	H'017F'	Not used

#### Action

<b>Action number</b>	<b>Action</b>	<b>Time parameter</b>	<b>Bit number</b>
0	Lock channel at closed switch	-	Channel bit
1	Lock channel at opened switch	-	Channel bit
2	Lock channel	Timeout	Channel bit
3	Lock/unlock channel	Timeout	Channel bit
4	Unlock channel	-	Channel bit
5	Disable channel program at closed switch	-	Channel bit
6	Disable channel program at opened switch	-	Channel bit
7	Disable channel program channel	Timeout	Channel bit
8	Disable/enable channel program	Timeout	Channel bit
9	Enable channel program	-	Channel bit
10	Select no programs	-	-
11	Select program group 1 (e.g. summer programs)	-	-
12	Select/deselect program group 1 (e.g. summer programs)	-	-
13	Select program group 2 (e.g. winter programs)	-	-
14	Select/deselect program group 2 (e.g. winter programs)	-	-
15	Select program group 3 (e.g. holiday programs)	-	-
16	Select/deselect program group 3 (e.g. holiday programs)	-	-
17	Enable Alarm 1 at closed switch	-	-
18	Enable Alarm 1 at open switch	-	-
19	Disable Alarm 1 at closed switch	-	-
20	Disable Alarm 1 at open switch	-	-
21	Enable Alarm 1	-	-
22	Enable/Disable Alarm 1	-	-
23	Disable Alarm 1	-	-
24	Enable Alarm 2 at closed switch	-	-
25	Enable Alarm 2 at open switch	-	-
26	Disable Alarm 2 at closed switch	-	-
27	Disable Alarm 2 at open switch	-	-
28	Enable Alarm 2	-	-
29	Enable/Disable Alarm 2	-	-
30	Disable Alarm 2	-	-
31	Enable Sunrise at closed switch	-	-
32	Enable Sunrise at open switch	-	-
33	Disable Sunrise at closed switch	-	-
34	Disable Sunrise at open switch	-	-
35	Enable Sunrise	-	-
36	Enable/Disable Sunrise	-	-
37	Disable Sunrise	-	-
38	Enable Sunset at closed switch	-	-
39	Enable Sunset at open switch	-	-
40	Disable Sunset at closed switch	-	-
41	Disable Sunset at open switch	-	-
42	Enable Sunset	-	-
43	Enable/Disable Sunset	-	-
44	Disable Sunset	-	-
45	Reset absence timer at closed switch	-	-

Bit Number

<i>Contents</i>	<i>Bit number</i>
B'00000001'	Dark output
B'00000010'	Light output
B'00000100'	Motion 1 output
B'00001000'	Light depending motion 1 output
B'00010000'	Motion 2 output
B'00100000'	Light depending motion 2 output
B'01000000'	Absence output

Time parameter

<b>Time parameter</b>	<b>Timeout</b>
0	0s (No timer)
1	1s
2	2s
...	
119	1min59s
120	2min
121	2min15s
...	
131	4min45s
132	5min
133	5min30s
...	
181	29min30s
182	30min
183	31min
...	
211	59min
212	1h
213	1h15min
...	
227	4h45min
228	5h
229	5h30min
...	
237	9h30min
238	10h
239	11h
...	
251	23h
252	1d
253	2d
254	3d
255	infinite

<i>Address</i>	<i>Contents</i>	<i>Address</i>	<i>Contents</i>
H'0180'	Program step 1 byte1	H'0181'	Program step 1 byte2
H'0182'	Program step 1 byte3	H'0183'	Program step 1 byte4
H'0184'	Program step 1 byte5	H'0185'	Program step 1 byte6
...	...	...	...
H'01F8'	Program step 21 byte 1	H'01F9'	Program step 21 byte2
H'01FA'	Program step 21 byte3	H'01FB'	Program step 21 byte4
H'01FC'	Program step 21 byte5	H'01FD'	Program step 21 byte6
H'01FE'	Not used	H'01FF'	Not used

<i>Contents program byte1</i>	<i>Description</i>
B'000xxxxx'	Disable program step
B'001xxxxx'	Absolute time
B'010xxxxx'	Wake up time 1 + relative time
B'011xxxxx'	Go to bed time 1 + relative time
B'100xxxxx'	Wake up time 2 + relative time
B'101xxxxx'	Go to bed time 2 + relative time
B'110xxxxx'	Sunrise + relative time
B'111xxxxx'	Sunset + relative time
B'xxx01111'	Rel. time = 3h45min
...	
B'xxx00001'	Rel. time = 15min
B'xxx00000'	Rel. time = 0
B'xxx11111'	Rel. time = -15min
...	
B'xxx10000'	Rel. time = -4h

**Remark:** Wake up, Go to bed, sunrise & sunset time are only allowed for weekly programs

<i>Contents program byte2</i>	<i>Description</i>
B'xxxx0000'	Weekly program
B'xxxx0001'	January
B'xxxx0010'	February
B'xxxx0011'	March
B'xxxx0100'	April
B'xxxx0101'	May
B'xxxx0110'	June
B'xxxx0111'	July
B'xxxx1000'	August
B'xxxx1001'	September
B'xxxx1010'	October
B'xxxx1011'	November
B'xxxx1100'	December
B'xxxx1101'	Monthly program
B'xxxx1110'	Monthly program
B'xxxx1111'	Monthly program

<i>Contents program byte3</i>	<i>Description</i>
B'xxx00000'	0h
B'xxx00001'	1h
...	...
B'xxx10111'	23h
B'xx1xxxxx'	Summer program
B'x1xxxxxx'	Winter program
B'1xxxxxxx'	Holiday program

<i>Contents program byte4</i>	<i>Description</i>
B'xx000000'	0min
B'xx000001'	1min
...	...
B'xx111011'	59min

<i>Contents program byte4</i>	<i>Contents program byte2</i>	<i>Description</i>
B'00xxxxxx'	B'0000xxxx'	Never
B'00xxxxxx'	B'0001xxxx'	Day 1 of the month
B'00xxxxxx'	B'0010xxxx'	Day 2 of the month
...	...	...
B'01xxxxxx'	B'1111xxxx'	Day 31 of the month
B'10xxxxxx'	B'0000xxxx'	Never
B'10xxxxxx'	B'0001xxxx'	Every Monday
B'10xxxxxx'	B'0010xxxx'	Every Tuesday
...	...	...
B'10xxxxxx'	B'0111xxxx'	Every Sunday
B'10xxxxxx'	B'1000xxxx'	Every weekend (sa & su)
B'10xxxxxx'	B'1001xxxx'	Every working day (mo...fr)
B'10xxxxxx'	B'1010xxxx'	Every day except Sunday
B'10xxxxxx'	B'1011xxxx'	Every day
B'10xxxxxx'	B'1100xxxx'	Never
...	...	...
B'11xxxxxx'	B'1111xxxx'	Never

<i>Contents program byte5</i>	<b>Action</b>
0	Unlock
1	Lock

<i>Contents program byte6</i>	<b>Channel</b>
B'00000001'	Dark output
B'00000010'	Light output
B'00000100'	Motion 1 output
B'00001000'	Light depending motion 1 output
B'00010000'	Motion 2 output
B'00100000'	Light depending motion 2 output
B'01000000'	Absence output