VMBPIRM

Mini PIR detector module
for VELBUS system

Binairy format:

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

bits	Description
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 = VMBPIRM type (H'2A')
    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)

Contents	Channel status
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)

Contents	Test modus or locked status
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'10xxxxxx'	Test modus

DATABYTE6 = disabled channel program status (0 = program enabled / 1 = program disabled)

Contents	Program disabled status
B'xxxxxxx0'	Dark output program enabled
B'xxxxxxx1'	Dark output program disabled
B'xxxxxx0x'	Light output program enabled
B'xxxxxx1x'	Light output 1 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'xxx1xxxx'	Motion 2 output 1 program disabled
B'xx0xxxxx'	Light depending motion 2 output program enabled
B'xx1xxxxx'	Light depending motion 2 output program disabled
B'x0xxxxxx'	Absence output program enabled
B'x1xxxxxx'	Absence output program disabled

DATABYTE7 = alarm & program selection

Contents	Selected progra︅
B'xxxxxx00'	None
B'xxxxxx01'	Summer
B'xxxxxx10'	Winter
B'xxxxxx11'	Holiday
B'xxxxx0xx'	Alarm 1 off
B'xxxxx1xx'	Alarm 1 on
B'xxxx0xxx'	Local alarm 1
B'xxxx1xxx'	Global alarm 1
B'xxx0xxxx'	Alarm 2 off
B'xxx1xxxx'	Alarm 2 on
B'xx0xxxxx'	Local alarm 2
B'xx1xxxxx'	Global alarm 2
B'x0xxxxxx'	Sunrise disabled
B'x1xxxxxx'	Sunrise enabled
B'0xxxxxxx'	Sunset disabled
B'1xxxxxxx'	Sunset enabled

DATABYTE8 = 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
    DATABYTE1 = COMMAND_BUSERROR_COUNTER_STATUS (H'DA')
    DATABYTE2 = Transmit error counter
    DATABYTE3 = Receive error counter
    DATABYTE4 = Bus off counter

Transmits the memory data:
    SID10-SID9 = 11 (lowest priority)
    SID8...SID1 = Module address
    RTR = 0
    DLC3...DLC0 = 4 databytes to send
    DATABYTE1 = COMMAND_MEMORY_DATA (H'FE')
    DATABYTE2 = High memory address
    DATABYTE3 = LOW memory address
    DATABYTE4 = 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

Contents day of week'	Description
H'00'	Monday
H'01'	Tuesday
H'02'	Wednesday
H'03'	Thursday
H'04'	Friday
H'05'	Saterday
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

Contents	Description
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

Contents	Description
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

Contents	Operating mode
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_CONTER_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

Contents	Channel
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

Contents	Dimmer channel
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

Contents	Channel
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

Contents	Channel
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 data bytes received

DATABYTE1 = COMMAND_SELECT_PROGRAM (H'B3')

DATABYTE2 = Program mode

Contents	Selected program
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 cycling protect = off (default external overwrite off)
0x000C	Motion 1 reaction time (default 0s)	0x000D	Motion 1 timer mode = restartable timer
0x000E	Motion 1 timeout (default 2min)	0x000F	Motion 1 flags cycling protect = off (default external overwrite off)
0x0010	Light depending motion 1 reaction time (default 0s)	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 off & external overwrite off)
0x0014	Motion 2 reaction time (default 0s)	0x0015	Motion 2 timer mode = restartable timer
0x0016	Motion 2 timeout (default 2min)	0x0017	Motion 2 flags cycling protect = off (default external overwrite off)
0x0018	Light depending motion 2 reaction time (default 0s)	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 off & 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 = on & 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 = on & external overwrite off
0x0024	Motion sensitivity (default high)	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 0xFF

Do not overwrite the following address location:

0x00F3	Auto send interval of temperature for VMBPIRO
0x00F4	Auto send interval of light value
0x00F5	program selection
0x00F6	program enable/disable flags
0x00F7	locked/unlocked flags
0x00F8	current day of month
0x00F9	current month
0x00FA & 0x00FB	current year
0x00FC	zone address
0x00FD	module address
0x00FE & 0x00FF	module serial number

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

Contents	Reaction time
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)

Contents	Timer mode
0x00	non restartable timer (for dark & light)
0xFF	restartable timer (for motion & light depending motion)

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

Contents	Timeout
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

Time parameter	Timeout
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'xxxxxxx0'	Cycling protection disabled (default)
B'xxxxxxx1'	Cycling protection enabled
B'xxxxxx0x'	External overwrite disabled (default)
B'xxxxxx1x'	External overwrite enabled

Light flags

Contents	Timer mode
B'xxxxxxx0'	Cycling protection disabled (default)
B'xxxxxxx1'	Cycling protection enabled
B'xxxxxx0x'	External overwrite disabled (default)
B'xxxxxx1x'	External overwrite enabled

Motion flags

Contents	Timer mode
B'xxxxxxx0'	Cycling protection disabled (default)
B'xxxxxxx1'	Cycling protection enabled
B'xxxxxx0x'	External overwrite disabled (default)
B'xxxxxx1x'	External overwrite enabled

Light depending motion flags

Contents	Timer mode
B'xxxxxxx0'	Cycling protection disabled
B'xxxxxxx1'	Cycling protection enabled (default)
B'xxxxxx0x'	External overwrite disabled (default)
B'xxxxxx1x'	External overwrite enabled

Motion sensitivity

Contents	Sensitivity
0x00	Low sensitivity
0xFF	High sensitivity (default)

Alarm clock configuration

Contents	Channel locked/unlocked
B'xxxxxxx0'	Alarm 1 disabled
B'xxxxxxx1'	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

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

Channel program disabled

Contents	Channel program enabled/disabled
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

Contents	Channel locked/unlocked
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

Address	Contents	Address	Contents
0x0100	Linked Push button 1 module address	0x0101	Linked Push button 1 bit number
0x0102	Linked Push button 1 action	0x0103	Linked Push button 1 time parameter
0x0104	Linked Push button 1 channel parameter	...	…
...	...	...	...
0x0178	Linked Push button 25 module address	0x0179	Linked Push button 25 bit number
0x017A	Linked Push button 25 action	0x017B	Linked Push button 25 time parameter
0x017C	Linked Push button 25 channel parameter	0x017D	Not used
0x017E	Not used	0x017F	Not used

Action

Action number	Action	Time parameter	Bit number
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

Contents	Bit 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

Time parameter

Time parameter	Timeout
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

Address	Contents	Address	Contents
0x0180	Program step 1 byte1	0x0181	Program step 1 byte2
0x0182	Program step 1 byte3	0x0183	Program step 1 byte4
0x0184	Program step 1 byte5	0x0185	Program step 1 byte6
…	…	…	…
0x01F8	Program step 21 byte 1	0x01F9	Program step 21 byte2
0x01FA	Program step 21 byte3	0x01FB	Program step 21 byte4
0x01FC	Program step 21 byte5	0x01FD	Program step 21 byte6
0x01FE	Not used	0x01FF	Not used

Contents program byte1	Description
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

Contents program byte2	Description
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

Contents program byte3	Description
B'xxx00000'	0h
B'xxx00001'	1h
…	…
B'xxx10111'	23h
B'xx1xxxxx'	Summer program
B'x1xxxxxx'	Winter program
B'1xxxxxxx'	Holiday program

Contents program byte4	Description
B'xx000000'	0min
B'xx000001'	1min
…	…
B'xx111011'	59min

Contents program byte4	Contents program byte2	Description
B'00xxxxxx'	B'0000xxxx'	Never
B'00xxxxxx'	B'0001xxxx'	Day 1of the month
B'00xxxxxx'	B'0010xxxx'	Day 2of the month
…	…	…
B'01xxxxxx'	B'1111xxxx'	Day 31of 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

Contents program byte5	Action
0	Unlock
1	Lock

Contents program byte6	Channel
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