VMBPIR-20

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 power up message:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = 0x00
RTR = 0
DLC3...DLC0 = 2 data byte to send
DATABYTE1 = COMMAND_POWER_UP (0xAB)
DATABYTE2 = module address

Transmits real time clock status request:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = H'00'
RTR = 0
DLC3...DLC0 = 1 data byte to send
DATABYTE1 = COMMAND_REALTIME_CLOCK_STATUS_REQUEST (0xD7)

Transmits the real time clock status:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 4 data bytes to send
DATABYTE1 = COMMAND_REALTIME_CLOCK_STATUS (0xD8)
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 data bytes to send
DATABYTE1 = COMMAND_DATE_STATUS (0xB7)
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 data bytes to send
DATABYTE1 = COMMAND_DAYLIGHT_SAVING_STATUS (0xAF)
DATABYTE2 = 0 =disabled / 1 = enabled

Transmits the channel switch status:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 4 data bytes to send
DATABYTE1 = COMMAND_PUSH_BUTTON_STATUS (0x00)
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 = 8 data bytes to send
DATABYTE1 = COMMAND_MODULE_TYPE (0xFF)
DATABYTE2 = VMBPIR-20 type (0x4D)
DATABYTE3 = High byte of serial number
DATABYTE4 = Low byte of serial number
DATABYTE5 = Memory map version
DATABYTE6 = Build year
DATABYTE7 = Build week
DATABYTE8 = Terminator (0 = open / 1 = closed)

Transmits the module status:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 8 data bytes to send
DATABYTE1 = COMMAND_MODULE_STATUS (0xED)
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 l 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 l 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 programl***
B’xxxxxx00’	None
B’xxxxxx01’	Program group 1 (Summer)
B’xxxxxx10’	Program group 2 (Winter)
B’xxxxxx11’	Program group 3 (Holiday)
B’xxxxx0xx’	Clock Alarm 1 off
B’xxxxx1xx’	Clock Alarm 1 on
B’xxxx0xxx’	Local clock alarm 1
B’xxxx1xxx’	Global clock alarm 1
B’xxx0xxxx’	Clock Alarm 2 off
B’xxx1xxxx’	Clock Alarm 2 on
B’xx0xxxxx’	Local clock alarm 2
B’xx1xxxxx’	Global clock 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 data bytes to send
DATABYTE1 = COMMAND_BUSERROR_COUNTER_STATUS (0xDA)
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 data bytes to send
DATABYTE1 = COMMAND_MEMORY_DATA (0xFE)
DATABYTE2 = High memory address
DATABYTE3 = LOW memory address
DATABYTE4 = memory data

Remark: address range: 0x0000 to 0x03FF

Transmits memory data block (4 bytes):

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 7 data bytes to send
DATABYTE1 = COMMAND_MEMORY_DATA_BLOCK (0xCC)
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: 0x0000 to 0x03FC

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 data bytes to send
DATABYTE1 = COMMAND_CLEAR_LED (0xF5)
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 data bytes to send
DATABYTE1 = COMMAND_SET_LED (0xF6)
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 data bytes to send
DATABYTE1 = COMMAND_SLOW_BLINKING_LED (0xF7)
DATABYTE2 = LED bit numbers (1 = slow blink LED)

Transmit the light raw value:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 3 data bytes to send
DATABYTE1 = COMMAND_SENSOR_RAW_DATA (0xA9)
DATABYTE4 = High byte current light value
DATABYTE5 = Low byte current light value

Transmits program step info:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 8 data bytes to send
DATABYTE1 = COMMAND_PROGRAM_STEP_INFO (0xC1)
DATABYTE2 = Program step number (1…80 / 255 step not found)
DATABYTE3 = Program reference

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

DATABYTE4 = Program step month & four least significant bits of day

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

Contents byte6	***Contents byte4***	***Description***
00xxxxxx	0000xxxx	Never
00xxxxxx	0001xxxx	Day 1of the month
00xxxxxx	0010xxxx	Day 2of the month
…	...	…
01xxxxxx	1111xxxx	Day 31of the month
10xxxxxx	0000xxxx	Never
10xxxxxx	0001xxxx	Every Monday
10xxxxxx	0010xxxx	Every Tuesday
...	…	…
10xxxxxx	0111xxxx	Every Sunday
10xxxxxx	1000xxxx	Every weekend (sa & su)
10xxxxxx	1001xxxx	Every working day (mo…fr)
10xxxxxx	1010xxxx	Every day except Sunday
10xxxxxx	1011xxxx	Every day
10xxxxxx	1100xxxx	Never
…	…	…
11xxxxxx	1111xxxx	Never

DATABYTE5 = Program step hour & group number

Contents	***Description***
xxx00000	0h
xxx00001	1h
…	…
xxx10111	23h
xx1xxxxx	Program group 1 (Summer program)
x1xxxxxx	Program group 2 (Winter program)
1xxxxxxx	Program group 3 (Holiday program)

DATABYTE6 = Program step minute & every flag & msb of day

Contents	***Description***
xx000000	0min
xx000001	1min
…	…
xx111011	59min

Contents byte6	***Contents byte4***	***Description***
00xxxxxx	0000xxxx	Never
00xxxxxx	0001xxxx	Day 1of the month
00xxxxxx	0010xxxx	Day 2of the month
…	...	…
01xxxxxx	1111xxxx	Day 31of the month
10xxxxxx	0000xxxx	Never
10xxxxxx	0001xxxx	Every Monday
10xxxxxx	0010xxxx	Every Tuesday
...	…	…
10xxxxxx	0111xxxx	Every Sunday
10xxxxxx	1000xxxx	Every weekend (sa & su)
10xxxxxx	1001xxxx	Every working day (mo…fr)
10xxxxxx	1010xxxx	Every day except Sunday
10xxxxxx	1011xxxx	Every day
10xxxxxx	1100xxxx	Never
…	…	…
11xxxxxx	1111xxxx	Never

DATABYTE7 = Program step action

Contents	**Action**
249	Lock
250	Unlock

DATABYTE8 = Channel number

Contents	Channel
1	Dark channel
2	Light channel
3	Motion 1 channel
4	Light depending motion 1 channel
5	Motion 2 channel
6	Light depending motion 2 channel
7	Absence channel

'Linked push button status' received:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = Address of the linked push button module
RTR = 0
DLC3...DLC0 = 4 data bytes received
DATABYTE1 = COMMAND_PUSH_BUTTON_STATUS (0x00)
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)

Power up message' received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = 0x00
RTR = 0
DLC3...DLC0 = 2 data byte received
DATABYTE1 = COMMAND_POWER_UP (0xAB)
DATABYTE2 = module address

'Real time clock status request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 1 data byte to send
DATABYTE1 = COMMAND_REALTIME_CLOCK_STATUS_REQUEST (0xD7)

'Set real time clock' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = H'00'
RTR = 0
DLC3...DLC0 = 4 data bytes to send
DATABYTE1 = COMMAND_SET_REALTIME_CLOCK (0xD8)
DATABYTE2 = Day of week

Contents day of week'	***Description***
0x00	Monday
0x01	Tuesday
0x02	Wednesday
0x03	Thursday
0x04	Friday
0x05	Saterday
0x06	Sunday

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

'Set date' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = 0x00
RTR = 0
DLC3...DLC0 = 5 data bytes to send
DATABYTE1 = COMMAND_SET_REALTIME_DATE (0xB7)
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 = 0x00
RTR = 0
DLC3...DLC0 = 2 data bytes to send
DATABYTE1 = COMMAND_SET_DAYLIGHT_SAVING (0xAF)
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 data bytes to send
DATABYTE1 = COMMAND_ENA_DIS_SUNRISE_SUNSET (0xAE)
DATABYTE2 = Channel (0xFF)
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 data bytes to send
DATABYTE1 = COMMAND_ENA_DIS_SUNRISE_SUNSET (0xAE)
DATABYTE2 = Channel (0xFF)
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 = 0x00
RTR = 0
DLC3...DLC0 = 7 data bytes to send
DATABYTE1 = COMMAND_SET_ALARM_CLOCK (0xC3)
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 data bytes to send
DATABYTE1 = COMMAND_SET_ALARM_CLOCK (0xC3)
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 data bytes received

'Module status request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 2 data bytes received
DATABYTE1 = COMMAND_MODULE_STATUS_REQUEST (0xFA)
DATABYTE2 = don't care

'Light value request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 2 data bytes to send
DATABYTE1 = COMMAND_LIGHT_VALUE_REQUEST (0xAA)
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 data bytes received
DATABYTE1 = COMMAND_SET_CLR_LEARN_MODE (0xB5)
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 (0xF5)
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 data bytes received
DATABYTE1 = COMMAND_SET_LED (0xF6)
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 data bytes received
DATABYTE1 = COMMAND_SLOW_BLINK_LED (0xF7)
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 data bytes received
DATABYTE1 = COMMAND_FAST_BLINK_LED (0xF8)
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 data bytes received
DATABYTE1 = COMMAND_VERY_FAST_BLINK_LED (0xF9)
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 data bytes received
DATABYTE1 = COMMAND_UPDATE_LED_STATUS (0xF4)
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 data bytes received
DATABYTE1 = COMMAND_READ_DATA_FROM_MEMORY (0xFD)
DATABYTE2 = High memory address
DATABYTE3 = LOW memory address

Remark: address range: 0x0000 to 0x03FF

'Memory dump request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 1 data bytes received
DATABYTE1 = COMMAND_MEMORY_DUMP_REQUEST (0xCB)

'Read data block from memory' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 3 data bytes received
DATABYTE1 = COMMAND_READ_MEMORY_BLOCK (0xC9)
DATABYTE2 = High memory address
DATABYTE3 = LOW memory address

Remark: address range: 0x0000 to 0x03FC

'Write data to memory' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 4 data bytes received
DATABYTE1 = COMMAND_WRITE_DATA_TO_MEMORY (0xFC)
DATABYTE2 = High memory address
DATABYTE3 = LOW memory address
DATABYTE4 = memory data to write

Remark:
Wait at least 10ms for sending a next command on the velbus.
Address range: 0x0000 to 0x01FF
Terminate always with a write command at the last memory location.

'Write memory block' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address of the module
RTR = 0
DLC3...DLC0 = 7 data bytes received
DATABYTE1 = COMMAND_WRITE_MEMORY_BLOCK (0xCA)
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: 0x0000 to 0x03FC
Terminate always with a write command at the last memory location.

'Bus error counter status request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 1 data bytes to send
DATABYTE1 = COMMAND_BUS_ERROR_CONTER_STATUS_REQUEST (0xD9)

'Unlock channel' command received:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 2 data bytes received
DATABYTE1 = COMMAND_CANCEL_FORCED_OFF (0x13)
DATABYTE2 = Channel number 1…7

Contents	Channel
1	Dark channel
2	Light channel
3	Motion 1 channel
4	Light depending motion 1 channel
5	Motion 2 channel
6	Light depending motion 2 channel
7	Absence channel

Remark: channel number = 0xFF for all channels

Lock channel' command received:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 5 data bytes received
DATABYTE1 = COMMAND_FORCED_OFF (0x12)
DATABYTE2 = Channel number 1…7

Contents	Channel
1	Dark channel
2	Light channel
3	Motion 1 channel
4	Light depending motion 1 channel
5	Motion 2 channel
6	Light depending motion 2 channel
7	Absence channel

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

Remark:
Channel number = 0xFF for all channels
[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 0xFFFFFF 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 data bytes received
DATABYTE1 = COMMAND_ENABLE_PROGRAM (0xB2)
DATABYTE2 = Channel number 1…7

Contents	Channel
1	Dark channel
2	Light channel
3	Motion 1 channel
4	Light depending motion 1 channel
5	Motion 2 channel
6	Light depending motion 2 channel
7	Absence channel

Remark: channel number = 0xFF for all channels

'Disable Channel Program' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 5 data bytes received
DATABYTE1 = COMMAND_DISABLE_PROGRAM (0xB1)
DATABYTE2 = Channel number 1…7

Contents	Channel
1	Dark channel
2	Light channel
3	Motion 1 channel
4	Light depending motion 1 channel
5	Motion 2 channel
6	Light depending motion 2 channel
7	Absence channel

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

Remark:
Remark: channel number = 0xFF for all channels
[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 (0xB3)
DATABYTE2 = Program mode

Contents	***Selected program***
0	None
1	Program group 1 (Summer)
2	Program group 2 (Winter)
3	Program group 3 (Holiday)

'Read program step' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 5 data bytes received
DATABYTE1 = COMMAND_READ_PROGRAM_STEP (0xC0)
DATABYTE2 = Start program step number (1…66)
DATABYTE3 = Program group number (1…3)
DATABYTE4 = Channel number1…8, 9 or 18 (9 for temperature sensor name, 18 for open collector output)
DATABYTE5 = Search direction (1 = search for next matched step / 0 = search for previous matched program step)

'Write program step' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 8 data bytes received
DATABYTE1 = COMMAND_WRITE_PROGRAM_STEP (0xC2)
DATABYTE2 = Program step number (1…66)
DATABYTE3 = Program reference

Contents	***Description***
000xxxxx	Disable program step
001xxxxx	Absolute time
010xxxxx	Wake up time 1 + relative time
011xxxxx	Go to bed time 1 + relative time
100xxxxx	Wake up time 2 + relative time
101xxxxx	Go to bed time 2 + relative time

110xxxxx	Sunrise + relative time
111xxxxx	Sunset + relative time
xxx01111	Rel. time = 3h45min
…	
xxx00001	Rel. time = 15min
xxx00000	Rel. time = 0
xxx11111	Rel. time = -15min
…	
xxx10000	Rel. time = -4h

DATABYTE4 = Program step month & four least significant bits of day

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

Contents byte6	***Contents byte4***	***Description***
00xxxxxx	0000xxxx	Never
00xxxxxx	0001xxxx	Day 1of the month
00xxxxxx	0010xxxx	Day 2of the month
…	...	…
01xxxxxx	1111xxxx	Day 31of the month
10xxxxxx	0000xxxx	Never
10xxxxxx	0001xxxx	Every Monday
10xxxxxx	0010xxxx	Every Tuesday
...	…	…
10xxxxxx	0111xxxx	Every Sunday
10xxxxxx	1000xxxx	Every weekend (sa & su)
10xxxxxx	1001xxxx	Every working day (mo…fr)
10xxxxxx	1010xxxx	Every day except Sunday
10xxxxxx	1011xxxx	Every day
10xxxxxx	1100xxxx	Never
…	…	…
11xxxxxx	1111xxxx	Never

DATABYTE5 = Program step hour & group number

Contents	***Description***
xxx00000	0h
xxx00001	1h
…	…
xxx10111	23h
xx1xxxxx	Program group 1 (Summer program)
x1xxxxxx	Program group 2 (Winter program)
1xxxxxxx	Program group 3 (Holiday program)

DATABYTE6 = Program step minute & msb of day & every flag

Contents	***Description***
xx000000	0min
xx000001	1min

…	…
xx111011	59min

Contents byte6	***Contents byte4***	***Description***
00xxxxxx	0000xxxx	Never
00xxxxxx	0001xxxx	Day 1of the month
00xxxxxx	0010xxxx	Day 2of the month
…	...	…
01xxxxxx	1111xxxx	Day 31of the month
10xxxxxx	0000xxxx	Never
10xxxxxx	0001xxxx	Every Monday
10xxxxxx	0010xxxx	Every Tuesday
...	…	…
10xxxxxx	0111xxxx	Every Sunday
10xxxxxx	1000xxxx	Every weekend (sa & su)
10xxxxxx	1001xxxx	Every working day (mo…fr)
10xxxxxx	1010xxxx	Every day except Sunday
10xxxxxx	1011xxxx	Every day
10xxxxxx	1100xxxx	Never
…	…	…
11xxxxxx	1111xxxx	Never

DATABYTE7 = Program step action

Contents	**Action**
250	Lock
251	Unlock

DATABYTE8 = Channel number 1…7

Contents	Channel
1	Dark channel
2	Light channel
3	Motion 1 channel
4	Light depending motion 1 channel
5	Motion 2 channel
6	Light depending motion 2 channel
7	Absence channel

Remark:
Erase program step if channel parameter is equal with zero.

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

0x005A	Sunset 21 January – sunrise 5 January (-128'..127')	0x005B	Sunset 5 February – sunrise 21 January (-128'..127')
0x005C	Sunset 21 February – sunrise 5 February (-128'..127')	0x005D	Sunset 5 March – sunrise 21 February (-128'..127')
0x005E	Sunset 21 March – sunrise 5 March (-128'..127')	0x005F	Sunset 5 April – sunrise 21 March (-128'..127')
0x0060	Sunset 21 April – sunrise 5 April (-128'..127')	0x0061	Sunset 5 May – sunrise 21 April (-128'..127')
0x0062	Sunset 21 May – sunrise 5 May (-128'..127')	0x0063	Sunset 5 June – sunrise 21 May (-128'..127')
0x0064	Sunset 21 June – sunrise 5 June (-128'..127')	0x0065	Sunset 5 July – sunrise 21 June (-128'..127')
0x0066	Sunset 21 July – sunrise 5 July (-128'..127')	0x0067	Sunset 5 August – sunrise 21 July (-128'..127')
0x0068	Sunset 21 August – sunrise 5 August (-128'..127')	0x0069	Sunset 5 September – sunrise 21 August (-128'..127')
0x006A	Sunset 21 September – sunrise 5 September (-128'..127')	0x006B	Sunset 5 October – sunrise 21 September (-128'..127')
0x006C	Sunset 21 October – sunrise 5 October (-128'..127')	0x006D	Sunset 5 November – sunrise 21 October (-128'..127')
0x006E	Sunset 21 November – sunrise 5 November (-128'..127')	0x006F	Sunset 5 December – sunrise 21 November (-128'..127')
0x0070	Sunset 21 December – sunrise 5 December (-128'..127')	0x0071	Sunset 5 January – sunrise 21 December (-128'..127')
0x0072	Not used	0x0073	Not used

Remark:
Unused locations contain 0xFF

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 -> time-out interruptable
B'xxxxxxx1'	Cycling protection enabled -> time-out not interruptable
B'xxxxxx0x'	External overwrite disabled (default)
B'xxxxxx1x'	External overwrite enabled

Light depending motion flags

Contents	*Timer mode*
B'xxxxxxx0'	Cycling protection disabled -> time-out interruptable
B'xxxxxxx1'	Cycling protection enabled -> time-out not interruptable
B'xxxxxx0x'	External overwrite disabled (default)
B'xxxxxx1x'	External overwrite enabled

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*
0x0074	Links in use byte 0 (LSB)	0x0075	Links in use high byte1
0x0076	Links in use low byte 2	0x0077	Links in use low byte 3 (MSB)
0x0078	Linked Push button 1 module address	0x0079	Linked Push button 1 bit number
0x007A	Linked Push button 1 action	0x007B	Linked Push button 1 time parameter
0x007C	Linked Push button 1 channel parameter	...	…
...	...	...	...
0x01DA	…	0x01DB	Linked Push button 72 module address
0x01DC	Linked Push button 72 bit number	0x01DD	Linked Push button 72 action
0x01DE	Linked Push button 72 time parameter	0x01DF	Linked Push button 72 channel parameter

Action

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

Channel Number

Contents	*Bit number*
1	Dark output
2	Light output
3	Motion 1 output
4	Light depending motion 1 output
5	Motion 2 output
6	Light depending motion 2 output
7	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*
0x01E0	Program steps used byte 0 (LSB)	0x01E1	Program steps used byte 1
0x01E2	Program steps used byte 2	0x01E3	Program steps used byte 3 (MSB)
0x01E4	Program step 1 byte1	0x01E5	Program step 1 byte2
0x01E6	Program step 1 byte3	0x01E7	Program step 1 byte4
0x01E8	Program step 1 byte5	0x01E9	Program step 1 byte6
…	…	…	…
0x03B2	Program step 78 byte 1	0x03B3	Program step 78 byte2
0x03B4	Program step 78 byte3	0x03B5	Program step 78 byte4
0x03B6	Program step 78 byte5	0x03B7	Program step 78 byte6

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**
1	Dark output
2	Light output
3	Motion 1 output
4	Light depending motion 1 output
5	Motion 2 output
6	Light depending motion 2 output
7	Absence output

Address	*Contents*	*Address*	*Contents*
0x03B8	Location id low byte	0x03B9	Location id high byte
0x03BA	Group id low byte	0x03BB	Group id high byte
0x03BC	Module name character 1	0x03BD	Module name character 2
…	..	..	..
0x03FA	Module name character 63	0x03FB	Module name character 64
0x03FC	Not used	0x03FD	Not used
0x03FE	Not used	0x03FF	Used for flash writing