VMB7IN

7 channel input 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
- kWh status
- Module type
- Bus error counter status
- First, second and third part of the channel names
- 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
- Fast blink linked push button led

The module can receive the following commands:

- Linked push button status
- Module type request
- Module status request
- Channel name request
- 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)
- Reset counter
- Load counter (Build 1426 or higher)
- kWh counter status request
- 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

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 = VMB7IN type (H'22')
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 = 5 databytes to send
DATABYTE1 = COMMAND_MODULE_STATUS (H'ED')
DATABYTE2 = channel 1 to 8 status (1 = pressed / 0 = released)
DATABYTE3 = enabled/disable channel status (1 = enabled / 0 = disabled)
DATABYTE4 = normal/inverted channel status (1 = normal / 0 = inverted)
DATABYTE5 = locked channel status (0 = unlocked / 1 = locked)
DATABYTE6 = disabled channel program status (0 = program enabled / 1 = program disabled)
DATABYTE7 = alarm & program selection

Contents	***Selected program***
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

Transmits the counter status:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 8 databytes to send
DATABYTE1 = COMMAND_COUNTER_STATUS (H'BE')
DATABYTE2 = counter channel 1 to 4 & number of pulses/Units divide by 100

Contents	***Description***
B'xxxxxx00'	Channel 1
B'xxxxxx01'	Channel 2
B'xxxxxx10'	Channel 3
B'xxxxxx11'	Channel 4
B'000001xx'	100 pulses/Unit
B'000010xx'	200 pulses/Unit
…	…
B'001000xx'	800 pulses/Unit
…	…
B'001010xx'	1000 pulses/Unit
…	…
B'010100xx'	2000 pulses/Unit
…	…

DATABYTE3 = most significant byte of pulse counter
DATABYTE4 = upper byte of pulse counter
DATABYTE5 = high byte of pulse counter
DATABYTE6 = low byte of pulse counter
DATABYTE7 = high byte of period in ms between 2 pulses
DATABYTE8 = low byte of period in ms between 2 pulses

Remark: a period contents of 0xFFFF means overflow
Counter value in Units = DATABYTE[3…6] / (DATABYTE2[pulses_per_Units]*Multiplier)
Power in W = 1000 * 1000 * 3600 / (DATABYTE[7..8] * DATABYTE2[pulses_per_kWH]*Multiplier)
Flow in m^3/h = 1000 * 3600 / (DATABYTE[7..8] * DATABYTE2[pulses_per_m^3]*Multiplier)
Flow in l/h = 1000 * 3600 / (DATABYTE[7..8] * DATABYTE2[pulses_per_l]*Multiplier)

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'03FF'

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'03FC'

Transmits the first part of channel name:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 8 databytes to send
DATABYTE1 = COMMAND_CHANNEL_NAME_PART1 (H'F0')
DATABYTE2 = channel bit

Contents	***Channel***
B'00000001'	channel 1
B'00000010'	channel 2
B'00000100'	channel 3
B'00001000'	channel 4
B'00010000'	channel 5
B'00100000'	channel 6
B'01000000'	channel 7
B'10000000'	channel 8

DATABYTE3 = Character 1 of the channel name
DATABYTE4 = Character 2 of the channel name
DATABYTE5 = Character 3 of the channel name
DATABYTE6 = Character 4 of the channel name
DATABYTE7 = Character 5 of the channel name
DATABYTE8 = Character 6 of the channel name

Transmits the second part of the channel name:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 8 databytes to send
DATABYTE1 = COMMAND_CHANNEL_NAME_PART2 (H'F1')
DATABYTE2 = Channel bit

Contents	*Channel*
B'00000001'	channel 1
B'00000010'	channel 2
B'00000100'	channel 3
B'00001000'	channel 4
B'00010000'	channel 5
B'00100000'	channel 6
B'01000000'	channel 7
B'10000000'	channel 8

DATABYTE3 = Character 7 of the channel name
DATABYTE4 = Character 8 of the channel name
DATABYTE5 = Character 9 of the channel name
DATABYTE6 = Character 10 of the channel name
DATABYTE7 = Character 11 of the channel name
DATABYTE8 = Character 12 of the channel name

Transmits the third part of the channel name:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 6 databytes to send
DATABYTE1 = COMMAND_CHANNEL_NAME_PART3 (H'F2')
DATABYTE2 = channel bit

Contents	*Channel*
B'00000001'	channel 1
B'00000010'	channel 2
B'00000100'	channel 3
B'00001000'	channel 4
B'00010000'	channel 5
B'00100000'	channel 6
B'01000000'	channel 7
B'10000000'	channel 8

DATABYTE3 = Character 13 of the channel name
DATABYTE4 = Character 14 of the channel name
DATABYTE5 = Character 15 of the channel name
DATABYTE6 = Character 16 of the channel name

Remarks:
Unused characters contain H'FF'.

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)

Transmit: Blinks LEDs fast on a linked push button module:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address of the linked push button module for fast blinking LEDs
RTR = 0
DLC3...DLC0 = 2 databytes to send
DATABYTE1 = COMMAND_FAST_BLINKING_LED (H'F8')
DATABYTE2 = LED bit numbers (1 = fast 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 (Build1235 or higher):

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

'Counter status request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 3 databytes received
DATABYTE1 = COMMAND_COUNTER_STATUS_RQ (H'BD')
DATABYTE2 = counter channel 1 to 4

Contents	*Description*
B'xxxxxxx1'	Channel 1
B'xxxxxx1x'	Channel 2
B'xxxxx1xx'	Channel 3
B'xxxx1xxx'	Channel 4

DATABYTE3 = auto send interval
10…255s fixed interval
5…9 = auto send on change with 5s as minimum interval
1…4 = auto send on change disabled
0 = no change on auto send interval

Remark: the auto send interval is common for all channels

'Channel name request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 2 databytes received
DATABYTE1 = COMMAND_CHANNEL_NAME_REQUEST (H'EF')
DATABYTE2 = channel bit

Contents	*Channel*
B'00000001'	channel 1
B'00000010'	channel 2
B'00000100'	channel 3
B'00001000'	channel 4
B'00010000'	channel 5
B'00100000'	channel 6
B'01000000'	channel 7
B'10000000'	channel 8

'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'03FF'

'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'03FC'

'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'03FF'

'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'03FC'

'Reset counter' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 2 databytes received
DATABYTE1 = COMMAND_RESET_COUNTER (H'AD')
DATABYTE2 = counter channel 1 to 4

Contents	*Description*
B'xxxxxx00'	Channel 1
B'xxxxxx01'	Channel 2
B'xxxxxx10'	Channel 3
B'xxxxxx11'	Channel 4

'Load counter' command received (Build 1426 or higher):

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address of the module
RTR = 0
DLC3...DLC0 = 7 databytes received
DATABYTE1 = COMMAND_RESET_COUNTER (H'AD')
DATABYTE2 = counter channel 1 to 4

Contents	*Description*
H'00'	Counter 1
H'01'	Counter 2
H'02'	Counter 3
H'03'	Counter 4

DATABYTE3 = don't care
DATABYTE4 = highest byte of 32-bit counter value
DATABYTE5 = third byte of 32-bit counter value
DATABYTE6 = second byte of 32-bit counter value
DATABYTE7 = lowest byte of 32-bit counter value

'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'	Channel 1
B'00000010'	Channel 2
...	...
B'10000000'	Channel 8

'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'	Channel 1
B'00000010'	Channel 2
...	...
B'10000000'	Channel 8

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 channelwill 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'	Channel 1
B'00000010'	Channel 2
...	...
B'10000000'	Channel 8

'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'	Channel 1
B'00000010'	Channel 2
...	...

B’10000000’	Channel 8

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

Contents	***Selected programl***
0	None
1	Summer
2	Winter
3	Holiday

Memory map for build 1247 or lower:

Address	*Contents*	*Address*	*Contents*
H'0000'	Channel name character 1	H'0001'	Channel 1 name character 2
...	...	...	...
H'000E'	Channel 1 name character 15	H'000F'	Channel 1 name character 16
H'0010'	Channel 2 name character 1	H'0011'	Channel 2 name character 2
...	...	...	...
H'001E'	Channel 2name character 15	H'001F'	Channel 2 name character 16
H'0020'	Channel 3 name character 1	H'0021'	Channel 3 name character 2
...	...	...	...
H'002E'	Channel 3name character 15	H'002F'	Channel 3 name character 16
H'0030'	Channel 4 name character 1	H'0031'	Channel 4 name character 2
...	...	...	...
H'003E'	Channel 4name character 15	H'003F'	Channel 4 name character 16
H'0040'	Channel 5 name character 1	H'0041'	Channel 5 name character 2
...	...	...	...
H'004E'	Channel 5name character 15	H'004F'	Channel 5 name character 16
H'0050'	Channel 6 name character 1	H'0051'	Channel 6 name character 2
...	...	...	...
H'005E'	Channel 6name character 15	H'005F'	Channel 6 name character 16
H'0060'	Channel 7 name character 1	H'0061'	Channel 7 name character 2
...	...	...	...
H'006E'	Channel 7name character 15	H'006F'	Channel 7 name character 16
H'0070'	Channel 8 name character 1	H'0071'	Channel 8 name character 2
...	...	...	...
H'007E'	Channel 8name character 15	H'007F'	Channel 8 name character 16
H'0080'	Channel 1 reaction time	H'0081'	Channel 2 reaction time
...	…	...	...
H'0086'	Channel 7 reaction time	H'0087'	Channel 8 reaction time
H'0088'	Channels inverted/non inverted	H'0089'	Led backlight on/off
H'008A'	Led backlight intensity	H'008B'	Led feedback on/off
H'008C'	Enable/disable slow blinking led feedback	H'008D'	Enable/disable fast blinking led feedback
H'008E'	Enable/disable very fast blinking led feedback	H'008F'	Led intensity
H'0090'	Program selection (none/summer/winter/holiday)	H'0091'	Channel 8…1 prog disable/enable flags
H'0092'	Channel 8…1 locked/unlocked flags	H'0093'	Alarm clock configuration
H'0094'	Wake up 1 hour (0…23)	H'0095'	Wake up 1 minutes (0…59)
H'0096'	Go to bed 1 hour (0…23)	H'0097'	Go to bed 1 minutes (0…59)
H'0098'	Wake up 2 hour (0…23)	H'0099'	Wake up 2 minutes (0…59)
H'009A'	Go to bed 2 hour (0…23)	H'009B'	Go to bed 2 minutes (0…59)
H'009C'	Channel 1 start function	H'009D'	Channel 1 end function
...	…	...	...
H'00AA'	Channel 8 start function	H'00AB'	Channel 8 end function
H'00AC'	Multi function channels 8…1 auto reset enable	H'00AD'	Dual function channels 8…1 enable
H'00AE'	Dual function long pressed time	H'00AF'	Long pressed delay
H'00B0'	Sunrise hour at 21 December (0…23)	H'00B1'	Sunrise minutes at 21 December (0…59)
H'00B2'	Sunrise 21 January – sunrise 5 January (-128'..127')	H'00B3'	Sunrise 5 February – sunrise 21 January (-128'..127')
H'00B4'	Sunrise 21 February – sunrise 5 February (-128'..127')	H'00B5'	Sunrise 5 March – sunrise 21 February (-128'..127')
H'00B6'	Sunrise 21 March – sunrise 5 March (-128'..127')	H'00B7'	Sunrise 5 April – sunrise 21 March (-128'..127')
H'00B8'	Sunrise 21 April – sunrise 5 April (-128'..127')	H'00B9'	Sunrise 5 May – sunrise 21 April (-128'..127')
H'00BA'	Sunrise 21 May – sunrise 5 May (-128'..127')	H'00BB'	Sunrise 5 June – sunrise 21 May (-128'..127')
H'00BC'	Sunrise 21 June – sunrise 5 June (-128'..127')	H'00BD'	Sunrise 5 July – sunrise 21 June (-128'..127')
H'00BE'	Sunrise 21 July – sunrise 5 July (-128'..127')	H'00BF'	Sunrise 5 August – sunrise 21 July (-128'..127')
H'00C0'	Sunrise 21 August – sunrise 5 August (-128'..127')	H'00C1'	Sunrise 5 September – sunrise 21 August (-128'..127')
H'00C2'	Sunrise 21 September – sunrise 5 September (-128..127')	H'00C3'	Sunrise 5 October – sunrise 21 September (-128'..127')
H'00C4'	Sunrise 21 October – sunrise 5 October (-128'..127')	H'00C5'	Sunrise 5 November – sunrise 21 October (-128'..127')
H'00C6'	Sunrise 21 November – sunrise 5 November (-128'..127')	H'00C7'	Sunrise 5 December – sunrise 21 November (-128'..127')
H'00C8'	Sunrise 21 December – sunrise 5 December (-128'..127')	H'00C9'	Sunrise 5 January – sunrise 21 December (-128'..127')

Address	*Contents*	*Address*	*Contents*
H'00CA'	Sunset hour at 21 December (0…23)	H'00CB'	Sunset minutes at 21 December (0…59)
H'00CC'	Sunset 21 January – sunrise 5 January (-128'..127')	H'00CD'	Sunset 5 February – sunrise 21 January (-128'..127')
H'00CE'	Sunset 21 February – sunrise 5 February (-128'..127')	H'00CF'	Sunset 5 March – sunrise 21 February (-128'..127')
H'00D0'	Sunset 21 March – sunrise 5 March (-128'..127')	H'00D1'	Sunset 5 April – sunrise 21 March (-128'..127')
H'00D2'	Sunset 21 April – sunrise 5 April (-128'..127')	H'00D3'	Sunset 5 May – sunrise 21 April (-128'..127')
H'00D4'	Sunset 21 May – sunrise 5 May (-128'..127')	H'00D5'	Sunset 5 June – sunrise 21 May (-128'..127')
H'00D6'	Sunset 21 June – sunrise 5 June (-128'..127')	H'00D7'	Sunset 5 July – sunrise 21 June (-128'..127')
H'00D8'	Sunset 21 July – sunrise 5 July (-128'..127')	H'00D9'	Sunset 5 August – sunrise 21 July (-128'..127')
H'00DA'	Sunset 21 August – sunrise 5 August (-128'..127')	H'00DA'	Sunset 5 September – sunrise 21 August (-128'..127')
H'00DC'	Sunset 21 September – sunrise 5 September (-128'..127')	H'00DC'	Sunset 5 October – sunrise 21 September (-128'..127')
H'00DE'	Sunset 21 October – sunrise 5 October (-128'..127')	H'00DF'	Sunset 5 November – sunrise 21 October (-128'..127')
H'00E0'	Sunset 21 November – sunrise 5 November (-128'..127')	H'00E1'	Sunset 5 December – sunrise 21 November (-128'..127')
H'00E2'	Sunset 21 December – sunrise 5 December (-128'..127')	H'00E3'	Sunset 5 January – sunrise 21 December (-128'..127')
H'00E4'	Pulse per kWh divide by 100 for KWh Counter 1	H'00E5'	Most significant byte of 32bit kWh counter 1
H'00E6'	Upper byte of 32bit kWh counter 1	H'00E7'	High byte of 32bit kWh counter 1
H'00E8'	Low byte of 32bit kWh counter 1	H'00E9'	Pulse per kWh divide by 100 for KWh Counter 2
H'00EA'	Most significant byte of 32bit kWh counter 2	H'00EB'	Upper byte of 32bit kWh counter 2
H'00EC'	High byte of 32bit kWh counter 2	H'00ED'	Low byte of 32bit kWh counter 2
H'00EE'	Pulse per kWh divide by 100 for KWh Counter 3	H'00EF'	Most significant byte of 32bit kWh counter 3
H'00F0'	Upper byte of 32bit kWh counter 3	H'00F1'	High byte of 32bit kWh counter 3
H'00F2'	Low byte of 32bit kWh counter 3	H'00F3'	Pulse per kWh divide by 100 for KWh Counter 4
H'00F4'	Most significant byte of 32bit kWh counter 4	H'00F5'	Upper byte of 32bit kWh counter 4
H'00F6'	High byte of 32bit kWh counter 4	H'00F7'	Low byte of 32bit kWh counter 4
H'00F8'	kWh counter auto send time interval	H'00F9'	Current day (1…31)
H'00FA'	Current month (1…12)	H'00FB'	Current year high byte
H'00FC'	Current year low byte	H'00FD'	Module Address
H'00FE'	Serial number high	H'00FF'	Serial number low

Remark:

Unused locations contain H'FF'

Do not overwrite the following address location:

H'00E5'…H'00E8'	32-bit kWh counter 1
H'00EA'…H'00ED'	32-bit kWh counter 2
H'00EF'…H'00F2'	32-bit kWh counter 3
H'00F4'…H'00F7'	32-bit kWh counter 4
H'0090'	program selection
H'0091'	channel program enable/disable
H'0092'	channel locked/unlocked
H'00F9'	current day of month
H'00FA'	current month
H'00FB' & H'00FC'	current year
H'00FD'	module address
H'00FE' & H'00FF'	module serial number

kWh counter input disabled if 'Pulse per kWh divide by 100' factor equal to zero

Valid reaction times

Contents	*Reaction time*
H'05'	0.065s
H'4C'	1s
H'99'	2s
H'E0'	3s
H'FF'	Channel disabled

Valid long pressed delay (Build 1204 or higher)

Contents	*Reaction time*
H'40'	0.8s
H'80'	1.6s
H'FF'	Default 0.8s

Channels inverted

Contents	*Led feedback*
B'xxxxxxx0'	Channel 1 inverted
B'xxxxxxx1'	Channel 1 not inverted
...	...
B'0xxxxxxx'	Channel 8 inverted
B'1xxxxxxx'	Channel 8 non inverted

Led Backlight on/off

Contents	*Led backlight*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Led backlight intensity

Contents	*Led backlight intensity*
H'01'	Minimum
...	...
H'FF'	Maximum

Led feedback on/off

Contents	*Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Led intensity (Build 1204 or higher)

Contents	*Led intensity*
H'01'	Minimum
...	...
H'40'	Maximum

Slow blinking Led feedback on/off

Contents	*Slow blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Fast blinking Led feedback on/off

Contents	*Fast blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Very fast blinking Led feedback on/off

Contents	*Very Fast blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Program selection

Contents	*Selected program*
0	None
1	Summer
2	Winter
3	Holiday

Channel program disabled

Contents	*Channel program enabled/disabled*
B'xxxxxxx0'	Channel 1 programs enabled
B'xxxxxxx1'	Channel 1 programs disabled
...	...
B'0xxxxxxx'	Channel 8 programs enabled
B'1xxxxxxx'	Channel 8 programs disabled

Channel locked

Contents	*Channel locked/unlocked*
B'xxxxxxx0'	Channel 1 unlocked
B'xxxxxxx1'	Channel 1 locked
...	...
B'0xxxxxxx'	Channel 8 unlocked
B'1xxxxxxx'	Channel 8 locked

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'	Summer time disabled
B'x1xxxxxx'	Summer time enabled

Channel x start/end function

Contents	*Function*
B'00000001'	Channel 1
B'00000010'	Channel 2
...	...
B'01000000'	Channel 7
B'10000000'	Channel 8

Remark:

For a normal one function button, the start and end function channel are the same.

For a multi-function button, the start function channel must be less than the end function. At every press the next channel will be send. When the end function channel is reached, the start channel will be send again at the next press.

For a dual function button, the start function channel will be send at a short press or the end function will be send at a long press.

Multi function auto reset

Contents	*Multi function auto reset*
B'xxxxxxx0'	Channel 1 auto reset disabled
B'xxxxxxx1'	Channel 1 auto reset enabled
...	...
B'0xxxxxxx'	Channel 8 auto reset disabled
B'1xxxxxxx'	Channel 8 auto reset enabled

Remark: When auto reset is enabled, the start function will be loaded again after 3 seconds inactivity of the channel.

Dual function enable

Contents	*Dual function*
B'xxxxxxx0'	Channel 1 dual function disabled
B'xxxxxxx1'	Channel 1 dual function enabled
...	...
B'0xxxxxxx'	Channel 8 dual function disabled
B'1xxxxxxx'	Channel 8 dual function enabled

Remark:
For a dual function button, the start function channel will be send at a short press or the end function will be send at a long press.
The dual function overwrites the multi-function mode.

Valid dual function long pressed times

Contents	*Long pressed time*
H'4C'	1s
H'99'	2s
H'E0'	3s

Pulse per kWh divide by 100

valid range: bits 5…0: 1…63 (100 … 6300 pulses/kWh)
0 = kWh counter input disabled
Bits 7&6: 00 = x1
01 = x10
10 = x0.1
11 = x0.01

kWh counter autosend time interval into seconds

valid range: 10…255s
0…9 = auto send disabled

Address	*Contents*	*Address*	*Contents*
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'0105'	Linked Push button 2 module address
H'0106'	Linked Push button 2 bit number	H'0107'	Linked Push button 2 action
H'0108'	Linked Push button 2 time parameter	H'0109'	Linked Push button 2 channel parameter
H'010A'	…	H'010B'	…
...	...	...	...
...	…	H'01F5'	Linked Push button 50 module address
H'01F6'	Linked Push button 50 bit number	H'01F7'	Linked Push button 50 action
H'01F8'	Linked Push button 50 time parameter	H'01F9'	Linked Push button 50 channel parameter
H'01FA'	Linked Push button 51 module address	H'01FB'	Linked Push button 51 bit number
H'01FC'	Linked Push button 51 action	H'01FD'	Linked Push button 51 time parameter
H'01FE'	Linked Push button 51 channel parameter	H'01FF'	Not used

Remark: Unused locations contain H'FF'

Action

Action number	**Action**	**Time parameter**	**Bit number**
0	No action	-	-
1	Lock channel at closed switch	-	Channel bit
2	Lock channel at opened switch	-	Channel bit
3	Lock channel	Timeout	Channel bit
4	Lock/unlock channel	Timeout	Channel bit
5	Unlock channel	-	Channel bit
6	Disable channel program at closed switch	-	Channel bit
7	Disable channel program at opened switch	-	Channel bit
8	Disable channel program channel	Timeout	Channel bit
9	Disable/enable channel program	Timeout	Channel bit
10	Enable channel program	-	Channel bit
11	Select no programs	-	-
12	Select summer programs	-	-
13	Select winter programs	-	-
14	Select holiday programs	-	-
15	Enable Alarm/Sunrise/Sunset at closed switch	-	Alarm/sunrise/sunset bit
16	Enable Alarm/Sunrise/Sunset at open switch	-	Alarm/sunrise/sunset bit
17	Disable Alarm/Sunrise/Sunset at closed switch	-	Alarm/sunrise/sunset bit
18	Disable Alarm/Sunrise/Sunset at open switch	-	Alarm/sunrise/sunset bit
19	Enable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit
20	Enable/Disable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit
21	Disable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit

Bit Number

Contents	*Bit number*
B'00000001'	Channel 1 or Alarm1
B'00000010'	Channel 2
B'00000100'	Channel 3 or Alarm2
B'00001000'	Channel 4
B'00010000'	Channel 5 or Sunrise
B'00100000'	Channel 6 or Sunset
B'01000000'	Channel 7
B'10000000'	Channel 8

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*
H'0200'	Program step 1 byte1	H'0201'	Program step 1 byte2
H'0202'	Program step 1 byte3	H'0203'	Program step 1 byte4
H'0204'	Program step 1 byte5	H'0205'	Program step 1 byte6
…	..	..	..
H'03F8'	Program step 85 byte1	H'03F9'	Program step 85 byte2
H'03FA'	Program step 85 byte3	H'03FB'	Program step 85 byte4
H'03FC'	Program step 85 byte5	H'03FD'	Program step 85 byte6
H'03FE'	Not used	H'03FF'	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	0s25 Pulse
1	1s Pulse
2	2s Pulse
...	...
119	1min59s Pulse
120	2min Pulse
121	2min15s Pulse
...	...
131	4min45s Pulse
132	5min Pulse
133	5min30s Pulse
...	...
181	29min30s Pulse
182	30min Pulse
183	31min Pulse
...	...
211	59min Pulse
212	1h Pulse
213	1h15min Pulse
...	...
227	4h45min Pulse
228	5h Pulse
229	5h30min Pulse
...	...
237	9h30min Pulse
238	10h Pulse
239	11h Pulse
...	…
246	18h Pulse
247	Press
248	Long Press
249	Release
250	Lock
251	Unlock
252	No action
…	…
255	No action

Contents program byte6	**Channel**
B’00000001’	Channel 1
B’00000010’	Channel 2
B’00000100’	Channel 3
B’00001000’	Channel 4
B’00010000’	Channel 5
B’00100000’	Channel 6
B’01000000’	Channel 7
B’10000000’	Channel 8

Address	*Contents*	*Address*	*Contents*
H'03EC'	kWh 1 'On Alarm value' low byte	H'03ED'	kWh 1 'On Alarm value' high byte
H'03EE'	kWh 1 'Off Alarm value' low byte	H'03EF'	kWh 1 'Off Alarm value' high byte
H'03F0'	kWh 2 'On Alarm value' low byte	H'03F1'	kWh 2 'On Alarm value' high byte
H'03F2'	kWh 2 'Off Alarm value' low byte	H'03F3'	kWh 2 'Off Alarm value' high byte.
H'03F4'	kWh 3 'On Alarm value' low byte	H'03F5'	kWh 3 'On Alarm value' high byte
H'03F6'	kWh 3 'Off Alarm value' low byte	H'03F7'	kWh 3 'Off Alarm value' high byte
H'03F8'	kWh 4 'On Alarm value' low byte	H'03F9'	kWh 4 'On Alarm value' high byte
H'03FA'	kWh 4 'Off Alarm value' low byte	H'03FB'	kWh 4 'Off Alarm value' high byte
H'03FC'	Inverted alarm channels	H'03FD'	Enabled alarm channels
H'03FE'	Not used	H'03FF'	Not used

kWh x 'On alarm' : 0x0000…0xFFFF
The alarm will be set if the instant power is greater than the 'on alarm' power setting.
The 'on alarm value' for storing into the memory map must be calculated :
On_Alarm_value = 1000 * 1000 * 3600 / (On_Alarm_ Power_in_Watt) * Pulses_per_kWh _factor)

kWh x 'Off alarm' : 0x0000…0xFFFF
The alarm will be cleared if the instant power is less than the 'off alarm' power setting.
The 'on alarm value' for storing into the memory map must be calculated :
Off_Alarm_value = 1000 * 1000 * 3600 / (Off_Alarm_ Power_in_Watt) * Pulses_per_kWh _factor)

Remark: 'On alarm power' must be greater than 'Off alarm power'

Inverted alarm channels

Contents	*Bit number*
B'0000xxx0'	kWh 1 alarm not inverted
B'0000xxx1'	kWh 1 alarm inverted
B'0000xx0x'	kWh 2 alarm not inverted
B'0000xx1x'	kWh 2 alarm inverted
B'0000x0xx'	kWh 3 alarm not inverted
B'0000x1xx'	kWh 3 alarm inverted
B'00000xxx'	kWh 4 alarm not inverted
B'00001xxx'	kWh 4 alarm inverted

Enabled alarm channels

Contents	*Bit number*
B'0000xxx0'	kWh 1 alarm disabled
B'0000xxx1'	kWh 1 alarm enabled
B'0000xx0x'	kWh 2 alarm disabled
B'0000xx1x'	kWh 2 alarm enabled
B'0000x0xx'	kWh 3 alarm disabled
B'0000x1xx'	kWh 3 alarm enabled
B'00000xxx'	kWh 4 alarm disabled
B'00001xxx'	kWh 4 alarm enabled

Memory map for build 1324 or higher:

Address	*Contents*	*Address*	*Contents*
H'0000'	Channel name character 1	H'0001'	Channel 1 name character 2
...	...	...	...
H'000E'	Channel 1name character 15	H'000F'	Channel 1 name character 16
H'0010'	Channel 2 name character 1	H'0011'	Channel 2 name character 2
...	...	...	...
H'001E'	Channel 2name character 15	H'001F'	Channel 2 name character 16
H'0020'	Channel 3 name character 1	H'0021'	Channel 3 name character 2
...	...	...	...
H'002E'	Channel 3name character 15	H'002F'	Channel 3 name character 16
H'0030'	Channel 4 name character 1	H'0031'	Channel 4 name character 2
...	...	...	...
H'003E'	Channel 4name character 15	H'003F'	Channel 4 name character 16
H'0040'	Channel 5 name character 1	H'0041'	Channel 5 name character 2
...	...	...	...
H'004E'	Channel 5name character 15	H'004F'	Channel 5 name character 16
H'0050'	Channel 6 name character 1	H'0051'	Channel 6 name character 2
...	...	...	...
H'005E'	Channel 6name character 15	H'005F'	Channel 6 name character 16
H'0060'	Channel 7 name character 1	H'0061'	Channel 7 name character 2
...	...	...	...
H'006E'	Channel 7name character 15	H'006F'	Channel 7 name character 16
H'0070'	Channel 8 name character 1	H'0071'	Channel 8 name character 2
...	...	...	...
H'007E'	Channel 8name character 15	H'007F'	Channel 8 name character 16
H'0080'	Channel 1 reaction time	H'0081'	Channel 2 reaction time
...	…	...	...
H'0086'	Channel 7 reaction time	H'0087'	Channel 8 reaction time
H'0088'	Channels inverted/non inverted	H'0089'	Led backlight on/off
H'008A'	Led backlight intensity	H'008C'	Led feedback on/off
H'008C'	Enable/disable slow blinking led feedback	H'008D'	Enable/disable fast blinking led feedback
H'008E'	Enable/disable very fast blinking led feedback	H'008F'	Led intensity
H'0090'	Program selection (none/summer/winter/holiday)	H'0091'	Channel 8…1 prog disable/enable flags
H'0092'	Channel 8…1 locked/unlocked flags	H'0093'	Alarm clock configuration
H'0094'	Wake up 1 hour (0…23)	H'0095'	Wake up 1 minutes (0…59)
H'0096'	Go to bed 1 hour (0…23)	H'0097'	Go to bed 1 minutes (0…59)
H'0098'	Wake up 2 hour (0…23)	H'0099'	Wake up 2 minutes (0…59)
H'009A'	Go to bed 2 hour (0…23)	H'009B'	Go to bed 2 minutes (0…59)
H'009C'	Channel 1 start function	H'009D'	Channel 1 end function
...	…	...	...
H'00AA'	Channel 8 start function	H'00AB'	Channel 8 end function
H'00AC'	Multi function channels 8…1 auto reset enable	H'00AD'	Dual function channels 8…1 enable
H'00AE'	Dual function long pressed time	H'00AF'	Long pressed delay
H'00B0'	Sunrise hour at 21 December (0…23)	H'00B1'	Sunrise minutes at 21 December (0…59)
H'00B2'	Sunrise 21 January – sunrise 5 January (-128'..127')	H'00B3'	Sunrise 5 February – sunrise 21 January (-128'..127')
H'00B4'	Sunrise 21 February – sunrise 5 February (-128'..127')	H'00B5'	Sunrise 5 March – sunrise 21 February (-128'..127')
H'00B6'	Sunrise 21 March – sunrise 5 March (-128'..127')	H'00B7'	Sunrise 5 April – sunrise 21 March (-128'..127')
H'00B8'	Sunrise 21 April – sunrise 5 April (-128'..127')	H'00B9'	Sunrise 5 May – sunrise 21 April (-128'..127')
H'00BA'	Sunrise 21 May – sunrise 5 May (-128'..127')	H'00BB'	Sunrise 5 June – sunrise 21 May (-128'..127')
H'00BC'	Sunrise 21 June – sunrise 5 June (-128'..127')	H'00BD'	Sunrise 5 July – sunrise 21 June (-128'..127')
H'00BE'	Sunrise 21 July – sunrise 5 July (-128'..127')	H'00BF'	Sunrise 5 August – sunrise 21 July (-128'..127')
H'00C0'	Sunrise 21 August – sunrise 5 August (-128'..127')	H'00C1'	Sunrise 5 September – sunrise 21 August (-128'..127')
H'00C2'	Sunrise 21 September – sunrise 5 September (-128..127')	H'00C3'	Sunrise 5 October – sunrise 21 September (-128'..127')
H'00C4'	Sunrise 21 October – sunrise 5 October (-128'..127')	H'00C5'	Sunrise 5 November – sunrise 21 October (-128'..127')
H'00C6'	Sunrise 21 November – sunrise 5 November (-128'..127')	H'00C7'	Sunrise 5 December – sunrise 21 November (-128'..127')
H'00C8'	Sunrise 21 December – sunrise 5 December (-128'..127')	H'00C9'	Sunrise 5 January – sunrise 21 December (-128'..127')

Address	*Contents*	*Address*	*Contents*
H'00CA'	Sunset hour at 21 December (0…23)	H'00CB'	Sunset minutes at 21 December (0…59)
H'00CC'	Sunset 21 January – sunrise 5 January (-128'..127')	H'00CD'	Sunset 5 February – sunrise 21 January (-128'..127')
H'00CE'	Sunset 21 February – sunrise 5 February (-128'..127')	H'00CF'	Sunset 5 March – sunrise 21 February (-128'..127')
H'00D0'	Sunset 21 March – sunrise 5 March (-128'..127')	H'00D1'	Sunset 5 April – sunrise 21 March (-128'..127')
H'00D2'	Sunset 21 April – sunrise 5 April (-128'..127')	H'00D3'	Sunset 5 May – sunrise 21 April (-128'..127')
H'00D4'	Sunset 21 May – sunrise 5 May (-128'..127')	H'00D5'	Sunset 5 June – sunrise 21 May (-128'..127')
H'00D6'	Sunset 21 June – sunrise 5 June (-128'..127')	H'00D7'	Sunset 5 July – sunrise 21 June (-128'..127')
H'00D8'	Sunset 21 July – sunrise 5 July (-128'..127')	H'00D9'	Sunset 5 August – sunrise 21 July (-128'..127')
H'00DA'	Sunset 21 August – sunrise 5 August (-128'..127')	H'00DA'	Sunset 5 September – sunrise 21 August (-128'..127')
H'00DC'	Sunset 21 September – sunrise 5 September (-128'..127')	H'00DC'	Sunset 5 October – sunrise 21 September (-128'..127')
H'00DE'	Sunset 21 October – sunrise 5 October (-128'..127')	H'00DF'	Sunset 5 November – sunrise 21 October (-128'..127')
H'00E0'	Sunset 21 November – sunrise 5 November (-128'..127')	H'00E1'	Sunset 5 December – sunrise 21 November (-128'..127')
H'00E2'	Sunset 21 December – sunrise 5 December (-128'..127')	H'00E3'	Sunset 5 January – sunrise 21 December (-128'..127')
H'00E4'	Pulse per kWh divide by 100 for KWh Counter 1	H'00E5'	Most significant byte of 32bit kWh counter 1
H'00E6'	Upper byte of 32bit kWh counter 1	H'00E7'	High byte of 32bit kWh counter 1
H'00E8'	Low byte of 32bit kWh counter 1	H'00E9'	Pulse per kWh divide by 100 for KWh Counter 2
H'00EA'	Most significant byte of 32bit kWh counter 2	H'00EB'	Upper byte of 32bit kWh counter 2
H'00EC'	High byte of 32bit kWh counter 2	H'00ED'	Low byte of 32bit kWh counter 2
H'00EE'	Pulse per kWh divide by 100 for KWh Counter 3	H'00EF'	Most significant byte of 32bit kWh counter 3
H'00F0'	Upper byte of 32bit kWh counter 3	H'00F1'	High byte of 32bit kWh counter 3
H'00F2'	Low byte of 32bit kWh counter 3	H'00F3'	Pulse per kWh divide by 100 for KWh Counter 4
H'00F4'	Most significant byte of 32bit kWh counter 4	H'00F5'	Upper byte of 32bit kWh counter 4
H'00F6'	High byte of 32bit kWh counter 4	H'00F7'	Low byte of 32bit kWh counter 4
H'00F8'	kWh counter auto send time interval	H'00F9'	Current day (1…31)
H'00FA'	Current month (1…12)	H'00FB'	Current year high byte
H'00FC'	Current year low byte	H'00FD'	Module Address
H'00FE'	Serial number high	H'00FF'	Serial number low

Remark:

Unused locations contain H'FF'

Do not overwrite the following address location:

H'00E5'…H'00E8'	32-bit kWh counter 1
H'00EA'…H'00ED'	32-bit kWh counter 2
H'00EF'…H'00F2'	32-bit kWh counter 3
H'00F4'…H'00F7'	32-bit kWh counter 4
H'0090'	program selection
H'0091'	channel program enable/disable
H'0092'	channel locked/unlocked
H'00F9'	current day of month
H'00FA'	current month
H'00FB' & H'00FC'	current year
H'00FD'	module address
H'00FE' & H'00FF'	module serial number

kWh counter input disabled if 'Pulse per kWh divide by 100' factor equal to zero

Valid reaction times

Contents	*Reaction time*
H'05'	0.065s
H'4C'	1s
H'99'	2s
H'E0'	3s
H'FF'	Channel disabled

Valid long pressed delay (Build 1204 or higher)

Contents	*Reaction time*
H'40'	0.8s
H'80'	1.6s
H'FF'	Default 0.8s

Channels inverted

Contents	*Led feedback*
B'xxxxxxx0'	Channel 1 inverted
B'xxxxxxx1'	Channel 1 not inverted
...	...
B'0xxxxxxx'	Channel 8 inverted
B'1xxxxxxx'	Channel 8 non inverted

Led Backlight on/off

Contents	*Led backlight*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Led backlight intensity

Contents	*Led backlight intensity*
H'01'	Minimum
...	...
H'FF'	Maximum

Led feedback on/off

Contents	*Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Led intensity (Build 1204 or higher)

Contents	*Led intensity*
H'01'	Minimum
...	...
H'40'	Maximum

Slow blinking Led feedback on/off

Contents	*Slow blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Fast blinking Led feedback on/off

Contents	*Fast blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Very fast blinking Led feedback on/off

Contents	*Very Fast blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Program selection

Contents	*Selected program*
0	None
1	Summer
2	Winter
3	Holiday

Channel program disabled

Contents	*Channel program enabled/disabled*
B'xxxxxxx0'	Channel 1 programs enabled
B'xxxxxxx1'	Channel 1 programs disabled
...	...
B'0xxxxxxx'	Channel 8 programs enabled
B'1xxxxxxx'	Channel 8 programs disabled

Channel locked

Contents	*Channel locked/unlocked*
B'xxxxxxx0'	Channel 1 unlocked
B'xxxxxxx1'	Channel 1 locked
...	...
B'0xxxxxxx'	Channel 8 unlocked
B'1xxxxxxx'	Channel 8 locked

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'	Summer time disabled
B'x1xxxxxx'	Summer time enabled

Channel x start/end function

Contents	*Function*
B'00000001'	Channel 1
B'00000010'	Channel 2
...	...
B'01000000'	Channel 7
B'10000000'	Channel 8

Remark:

For a normal one function button, the start and end function channel are the same.

For a multi-function button, the start function channel must be less than the end function. At every press the next channel will be send. When the end function channel is reached, the start channel will be send again at the next press.

For a dual function button, the start function channel will be send at a short press or the end function will be send at a long press.

Multi function auto reset

Contents	*Multi function auto reset*
B'xxxxxxx0'	Channel 1 auto reset disabled
B'xxxxxxx1'	Channel 1 auto reset enabled
...	...
B'0xxxxxxx'	Channel 8 auto reset disabled
B'1xxxxxxx'	Channel 8 auto reset enabled

Remark: When auto reset is enabled, the start function will be loaded again after 3 seconds inactivity of the channel.

Dual function enable

Contents	*Dual function*
B'xxxxxxx0'	Channel 1 dual function disabled
B'xxxxxxx1'	Channel 1 dual function enabled
...	...
B'0xxxxxxx'	Channel 8 dual function disabled
B'1xxxxxxx'	Channel 8 dual function enabled

Remark:
For a dual function button, the start function channel will be send at a short press or the end function will be send at a long press.
The dual function overwrites the multi-function mode.

Valid dual function long pressed times

Contents	*Long pressed time*
H'4C'	1s
H'99'	2s
H'E0'	3s

Pulse per kWh divide by 100
valid range: 1…63 (100 … 6300 pulses/kWh)
0 = kWh counter input disabled

kWh counter autosend time interval into seconds
valid range: 10…255s
0…9 = auto send disabled

Address	*Contents*	*Address*	*Contents*
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'0105'	Linked Push button 2 module address
H'0106'	Linked Push button 2 bit number	H'0107'	Linked Push button 2 action
H'0108'	Linked Push button 2 time parameter	H'0109'	Linked Push button 2 channel parameter
H'010A'	…	H'010B'	…
...	...	...	...
...	…	H'01F5'	Linked Push button 50 module address
H'01F6'	Linked Push button 50 bit number	H'01F7'	Linked Push button 50 action
H'01F8'	Linked Push button 50 time parameter	H'01F9'	Linked Push button 50 channel parameter
H'01FA'	Linked Push button 51 module address	H'01FB'	Linked Push button 51 bit number
H'01FC'	Linked Push button 51 action	H'01FD'	Linked Push button 51 time parameter
H'01FE'	Linked Push button 51 channel parameter	H'01FF'	Not used

Remark: Unused locations contain H'FF'

Action

Action number	**Action**	**Time parameter**	**Bit number**
0	No action	-	-
1	Lock channel at closed switch	-	Channel bit
2	Lock channel at opened switch	-	Channel bit
3	Lock channel	Timeout	Channel bit
4	Lock/unlock channel	Timeout	Channel bit
5	Unlock channel	-	Channel bit
6	Disable channel program at closed switch	-	Channel bit
7	Disable channel program at opened switch	-	Channel bit
8	Disable channel program channel	Timeout	Channel bit
9	Disable/enable channel program	Timeout	Channel bit
10	Enable channel program	-	Channel bit
11	Select no programs	-	-
12	Select summer programs	-	-
13	Select winter programs	-	-
14	Select holiday programs	-	-
15	Enable Alarm/Sunrise/Sunset at closed switch	-	Alarm/sunrise/sunset bit
16	Enable Alarm/Sunrise/Sunset at open switch	-	Alarm/sunrise/sunset bit
17	Disable Alarm/Sunrise/Sunset at closed switch	-	Alarm/sunrise/sunset bit
18	Disable Alarm/Sunrise/Sunset at open switch	-	Alarm/sunrise/sunset bit
19	Enable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit
20	Enable/Disable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit
21	Disable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit

Bit Number

Contents	*Bit number*
B'00000001'	Channel 1 or Alarm1
B'00000010'	Channel 2
B'00000100'	Channel 3 or Alarm2
B'00001000'	Channel 4
B'00010000'	Channel 5 or Sunrise
B'00100000'	Channel 6 or Sunset
B'01000000'	Channel 7
B'10000000'	Channel 8

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*
H'0200'	Program step 1 byte1	H'0201'	Program step 1 byte2
H'0202'	Program step 1 byte3	H'0203'	Program step 1 byte4
H'0204'	Program step 1 byte5	H'0205'	Program step 1 byte6
…	..	..	..
H'03E6'	Program step 82 byte1	H'03E7'	Program step 82 byte2
H'03E8'	Program step 82 byte3	H'03E9'	Program step 82 byte4
H'03EA'	Program step 82 byte5	H'03EB'	Program step 82 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	0s25 Pulse
1	1s Pulse
2	2s Pulse
...	...
119	1min59s Pulse
120	2min Pulse
121	2min15s Pulse
...	...
131	4min45s Pulse
132	5min Pulse
133	5min30s Pulse
...	...
181	29min30s Pulse
182	30min Pulse
183	31min Pulse
...	...
211	59min Pulse
212	1h Pulse
213	1h15min Pulse
...	...
227	4h45min Pulse
228	5h Pulse
229	5h30min Pulse
...	...
237	9h30min Pulse
238	10h Pulse
239	11h Pulse
...	…
246	18h Pulse
247	Press
248	Long Press
249	Release
250	Lock
251	Unlock
252	No action
…	…
255	No action

Contents program byte6	**Channel**
B’00000001’	Channel 1
B’00000010’	Channel 2
B’00000100’	Channel 3
B’00001000’	Channel 4
B’00010000’	Channel 5
B’00100000’	Channel 6
B’01000000’	Channel 7
B’10000000’	Channel 8

Address	*Contents*	*Address*	*Contents*
H'03EC'	kWh 1 'On Alarm value' low byte	H'03ED'	kWh 1 'On Alarm value' high byte
H'03EE'	kWh 1 'Off Alarm value' low byte	H'03EF'	kWh 1 'Off Alarm value' high byte
H'03F0'	kWh 2 'On Alarm value' low byte	H'03F1'	kWh 2 'On Alarm value' high byte
H'03F2'	kWh 2 'Off Alarm value' low byte	H'03F3'	kWh 2 'Off Alarm value' high byte.
H'03F4'	kWh 3 'On Alarm value' low byte	H'03F5'	kWh 3 'On Alarm value' high byte
H'03F6'	kWh 3 'Off Alarm value' low byte	H'03F7'	kWh 3 'Off Alarm value' high byte
H'03F8'	kWh 4 'On Alarm value' low byte	H'03F9'	kWh 4 'On Alarm value' high byte
H'03FA'	kWh 4 'Off Alarm value' low byte	H'03FB'	kWh 4 'Off Alarm value' high byte
H'03FC'	Inverted alarm channels	H'03FD'	Enabled alarm channels
H'03FE'	Not used	H'03FF'	Not used

kWh x 'On alarm' : 0x0000…0xFFFF
The alarm will be set if the instant power is greater than the 'on alarm' power setting.
The 'on alarm value' for storing into the memory map must be calculated :
On_Alarm_value = 128*1000*1000*3600 / (On_Alarm_ Power_in_Watt) * Pulses_per_kWh _factor * 210)

kWh x 'Off alarm' : 0x0000…0xFFFF
The alarm will be cleared if the instant power is less than the 'off alarm' power setting.
The 'on alarm value' for storing into the memory map must be calculated :
Off_Alarm_value = 128*1000*1000*3600 / (Off_Alarm_ Power_in_Watt) * Pulses_per_kWh _factor * 210)

Remark: 'On alarm power' must be greater than 'Off alarm power'

Inverted alarm channels

Contents	*Bit number*
B'0000xxx0'	kWh 1 alarm not inverted
B'0000xxx1'	kWh 1 alarm inverted
B'0000xx0x'	kWh 2 alarm not inverted
B'0000xx1x'	kWh 2 alarm inverted
B'0000x0xx'	kWh 3 alarm not inverted
B'0000x1xx'	kWh 3 alarm inverted
B'00000xxx'	kWh 4 alarm not inverted
B'00001xxx'	kWh 4 alarm inverted

Enabled alarm channels

Contents	*Bit number*
B'0000xxx0'	kWh 1 alarm disabled
B'0000xxx1'	kWh 1 alarm enabled
B'0000xx0x'	kWh 2 alarm disabled
B'0000xx1x'	kWh 2 alarm enabled
B'0000x0xx'	kWh 3 alarm disabled
B'0000x1xx'	kWh 3 alarm enabled
B'00000xxx'	kWh 4 alarm disabled
B'00001xxx'	kWh 4 alarm enabled

Memory map for build 1350 or higher:

Address	*Contents*	*Address*	*Contents*
H'0000'	Channel name character 1	H'0001'	Channel 1 name character 2
...	...	...	...
H'000E'	Channel 1name character 15	H'000F'	Channel 1 name character 16
H'0010'	Channel 2 name character 1	H'0011'	Channel 2 name character 2
...	...	...	...
H'001E'	Channel 2name character 15	H'001F'	Channel 2 name character 16
H'0020'	Channel 3 name character 1	H'0021'	Channel 3 name character 2
...	...	...	...
H'002E'	Channel 3name character 15	H'002F'	Channel 3 name character 16
H'0030'	Channel 4 name character 1	H'0031'	Channel 4 name character 2
...	...	...	...
H'003E'	Channel 4name character 15	H'003F'	Channel 4 name character 16
H'0040'	Channel 5 name character 1	H'0041'	Channel 5 name character 2
...	...	...	...
H'004E'	Channel 5name character 15	H'004F'	Channel 5 name character 16
H'0050'	Channel 6 name character 1	H'0051'	Channel 6 name character 2
...	...	...	...
H'005E'	Channel 6name character 15	H'005F'	Channel 6 name character 16
H'0060'	Channel 7 name character 1	H'0061'	Channel 7 name character 2
...	...	...	...
H'006E'	Channel 7name character 15	H'006F'	Channel 7 name character 16
H'0070'	Channel 8 name character 1	H'0071'	Channel 8 name character 2
...	...	...	...
H'007E'	Channel 8name character 15	H'007F'	Channel 8 name character 16
H'0080'	Channel 1 reaction time	H'0081'	Channel 2 reaction time
...	…	...	...
H'0086'	Channel 7 reaction time	H'0087'	Channel 8 reaction time
H'0088'	Channels inverted/non inverted	H'0089'	Led backlight on/off
H'008A'	Led backlight intensity	H'008C'	Led feedback on/off
H'008C'	Enable/disable slow blinking led feedback	H'008D'	Enable/disable fast blinking led feedback
H'008E'	Enable/disable very fast blinking led feedback	H'008F'	Led intensity
H'0090'	Program selection (none/summer/winter/holiday)	H'0091'	Channel 8…1 prog disable/enable flags
H'0092'	Channel 8…1 locked/unlocked flags	H'0093'	Alarm clock configuration
H'0094'	Wake up 1 hour (0…23)	H'0095'	Wake up 1 minutes (0…59)
H'0096'	Go to bed 1 hour (0…23)	H'0097'	Go to bed 1 minutes (0…59)
H'0098'	Wake up 2 hour (0…23)	H'0099'	Wake up 2 minutes (0…59)
H'009A'	Go to bed 2 hour (0…23)	H'009B'	Go to bed 2 minutes (0…59)
H'009C'	Channel 1 start function	H'009D'	Channel 1 end function
...	…	...	...
H'00AA'	Channel 8 start function	H'00AB'	Channel 8 end function
H'00AC'	Multi function channels 8…1 auto reset enable	H'00AD'	Dual function channels 8…1 enable
H'00AE'	Dual function long pressed time	H'00AF'	Long pressed delay
H'00B0'	Sunrise hour at 21 December (0…23)	H'00B1'	Sunrise minutes at 21 December (0…59)
H'00B2'	Sunrise 21 January – sunrise 5 January (-128'..127')	H'00B3'	Sunrise 5 February – sunrise 21 January (-128'..127')
H'00B4'	Sunrise 21 February – sunrise 5 February (-128'..127')	H'00B5'	Sunrise 5 March – sunrise 21 February (-128'..127')
H'00B6'	Sunrise 21 March – sunrise 5 March (-128'..127')	H'00B7'	Sunrise 5 April – sunrise 21 March (-128'..127')
H'00B8'	Sunrise 21 April – sunrise 5 April (-128'..127')	H'00B9'	Sunrise 5 May – sunrise 21 April (-128'..127')
H'00BA'	Sunrise 21 May – sunrise 5 May (-128'..127')	H'00BB'	Sunrise 5 June – sunrise 21 May (-128'..127')
H'00BC'	Sunrise 21 June – sunrise 5 June (-128'..127')	H'00BD'	Sunrise 5 July – sunrise 21 June (-128'..127')
H'00BE'	Sunrise 21 July – sunrise 5 July (-128'..127')	H'00BF'	Sunrise 5 August – sunrise 21 July (-128'..127')
H'00C0'	Sunrise 21 August – sunrise 5 August (-128'..127')	H'00C1'	Sunrise 5 September – sunrise 21 August (-128'..127')
H'00C2'	Sunrise 21 September – sunrise 5 September (-128..127')	H'00C3'	Sunrise 5 October – sunrise 21 September (-128'..127')
H'00C4'	Sunrise 21 October – sunrise 5 October (-128'..127')	H'00C5'	Sunrise 5 November – sunrise 21 October (-128'..127')
H'00C6'	Sunrise 21 November – sunrise 5 November (-128'..127')	H'00C7'	Sunrise 5 December – sunrise 21 November (-128'..127')
H'00C8'	Sunrise 21 December – sunrise 5 December (-128'..127')	H'00C9'	Sunrise 5 January – sunrise 21 December (-128'..127')

Address	*Contents*	*Address*	*Contents*
H'00CA'	Sunset hour at 21 December (0…23)	H'00CB'	Sunset minutes at 21 December (0…59)
H'00CC'	Sunset 21 January – sunrise 5 January (-128'..127')	H'00CD'	Sunset 5 February – sunrise 21 January (-128'..127')
H'00CE'	Sunset 21 February – sunrise 5 February (-128'..127')	H'00CF'	Sunset 5 March – sunrise 21 February (-128'..127')
H'00D0'	Sunset 21 March – sunrise 5 March (-128'..127')	H'00D1'	Sunset 5 April – sunrise 21 March (-128'..127')
H'00D2'	Sunset 21 April – sunrise 5 April (-128'..127')	H'00D3'	Sunset 5 May – sunrise 21 April (-128'..127')
H'00D4'	Sunset 21 May – sunrise 5 May (-128'..127')	H'00D5'	Sunset 5 June – sunrise 21 May (-128'..127')
H'00D6'	Sunset 21 June – sunrise 5 June (-128'..127')	H'00D7'	Sunset 5 July – sunrise 21 June (-128'..127')
H'00D8'	Sunset 21 July – sunrise 5 July (-128'..127')	H'00D9'	Sunset 5 August – sunrise 21 July (-128'..127')
H'00DA'	Sunset 21 August – sunrise 5 August (-128'..127')	H'00DA'	Sunset 5 September – sunrise 21 August (-128'..127')
H'00DC'	Sunset 21 September – sunrise 5 September (-128'..127')	H'00DC'	Sunset 5 October – sunrise 21 September (-128'..127')
H'00DE'	Sunset 21 October – sunrise 5 October (-128'..127')	H'00DF'	Sunset 5 November – sunrise 21 October (-128'..127')
H'00E0'	Sunset 21 November – sunrise 5 November (-128'..127')	H'00E1'	Sunset 5 December – sunrise 21 November (-128'..127')
H'00E2'	Sunset 21 December – sunrise 5 December (-128'..127')	H'00E3'	Sunset 5 January – sunrise 21 December (-128'..127')
H'00E4'	Pulse per kWh divide by 100 for KWh Counter 1	H'00E5'	Most significant byte of 32bit kWh counter 1
H'00E6'	Upper byte of 32bit kWh counter 1	H'00E7'	High byte of 32bit kWh counter 1
H'00E8'	Low byte of 32bit kWh counter 1	H'00E9'	Pulse per kWh divide by 100 for KWh Counter 2
H'00EA'	Most significant byte of 32bit kWh counter 2	H'00EB'	Upper byte of 32bit kWh counter 2
H'00EC'	High byte of 32bit kWh counter 2	H'00ED'	Low byte of 32bit kWh counter 2
H'00EE'	Pulse per kWh divide by 100 for KWh Counter 3	H'00EF'	Most significant byte of 32bit kWh counter 3
H'00F0'	Upper byte of 32bit kWh counter 3	H'00F1'	High byte of 32bit kWh counter 3
H'00F2'	Low byte of 32bit kWh counter 3	H'00F3'	Pulse per kWh divide by 100 for KWh Counter 4
H'00F4'	Most significant byte of 32bit kWh counter 4	H'00F5'	Upper byte of 32bit kWh counter 4
H'00F6'	High byte of 32bit kWh counter 4	H'00F7'	Low byte of 32bit kWh counter 4
H'00F8'	kWh counter auto send time interval	H'00F9'	Current day (1…31)
H'00FA'	Current month (1…12)	H'00FB'	Current year high byte
H'00FC'	Current year low byte	H'00FD'	Module Address
H'00FE'	Serial number high	H'00FF'	Serial number low

Remark:

Unused locations contain H'FF'

Do not overwrite the following address location:

H'00E5'…H'00E8'	32-bit kWh counter 1
H'00EA'…H'00ED'	32-bit kWh counter 2
H'00EF'…H'00F2'	32-bit kWh counter 3
H'00F4'…H'00F7'	32-bit kWh counter 4
H'0090'	program selection
H'0091'	channel program enable/disable
H'0092'	channel locked/unlocked
H'00F9'	current day of month
H'00FA'	current month
H'00FB' & H'00FC'	current year
H'00FD'	module address
H'00FE' & H'00FF'	module serial number

kWh counter input disabled if 'Pulse per kWh divide by 100' factor equal to zero

Valid reaction times

Contents	*Reaction time*
H'05'	0.065s
H'4C'	1s
H'99'	2s
H'E0'	3s
H'FF'	Channel disabled

Valid long pressed delay (Build 1204 or higher)

Contents	*Reaction time*
H'40'	0.8s
H'80'	1.6s
H'FF'	Default 0.8s

Channels inverted

Contents	*Led feedback*
B'xxxxxxx0'	Channel 1 inverted
B'xxxxxxx1'	Channel 1 not inverted
...	...
B'0xxxxxxx'	Channel 8 inverted
B'1xxxxxxx'	Channel 8 non inverted

Led Backlight on/off

Contents	*Led backlight*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Led backlight intensity

Contents	*Led backlight intensity*
H'01'	Minimum
...	...
H'FF'	Maximum

Led feedback on/off

Contents	*Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Led intensity (Build 1204 or higher)

Contents	*Led intensity*
H'01'	Minimum
...	...
H'40'	Maximum

Slow blinking Led feedback on/off

Contents	*Slow blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Fast blinking Led feedback on/off

Contents	*Fast blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Very fast blinking Led feedback on/off

Contents	*Very Fast blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Program selection

Contents	*Selected program*
0	None
1	Summer
2	Winter
3	Holiday

Channel program disabled

Contents	*Channel program enabled/disabled*
B'xxxxxxx0'	Channel 1 programs enabled
B'xxxxxxx1'	Channel 1 programs disabled
...	...
B'0xxxxxxx'	Channel 8 programs enabled
B'1xxxxxxx'	Channel 8 programs disabled

Channel locked

Contents	*Channel locked/unlocked*
B'xxxxxxx0'	Channel 1 unlocked
B'xxxxxxx1'	Channel 1 locked
...	...
B'0xxxxxxx'	Channel 8 unlocked
B'1xxxxxxx'	Channel 8 locked

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'	Summer time disabled
B'x1xxxxxx'	Summer time enabled

Channel x start/end function

Contents	*Function*
B'00000001'	Channel 1
B'00000010'	Channel 2
...	...
B'01000000'	Channel 7
B'10000000'	Channel 8

Remark:

For a normal one function button, the start and end function channel are the same.

For a multi-function button, the start function channel must be less than the end function. At every press the next channel will be send. When the end function channel is reached, the start channel will be send again at the next press.

For a dual function button, the start function channel will be send at a short press or the end function will be send at a long press.

Multi function auto reset

Contents	*Multi function auto reset*
B'xxxxxxx0'	Channel 1 auto reset disabled
B'xxxxxxx1'	Channel 1 auto reset enabled
...	...
B'0xxxxxxx'	Channel 8 auto reset disabled
B'1xxxxxxx'	Channel 8 auto reset enabled

Remark: When auto reset is enabled, the start function will be loaded again after 3 seconds inactivity of the channel.

Dual function enable

Contents	*Dual function*
B'xxxxxxx0'	Channel 1 dual function disabled
B'xxxxxxx1'	Channel 1 dual function enabled
...	...
B'0xxxxxxx'	Channel 8 dual function disabled
B'1xxxxxxx'	Channel 8 dual function enabled

Remark:
For a dual function button, the start function channel will be send at a short press or the end function will be send at a long press.
The dual function overwrites the multi-function mode.

Valid dual function long pressed times

Contents	*Long pressed time*
H'4C'	1s
H'99'	2s
H'E0'	3s

Pulse per kWh divide by 100

valid range: bits 5…0: 1…63 (100 … 6300 pulses/kWh)
0 = kWh counter input disabled
Bits 7&6: 00 = x1
01 = x2.5
10 = x0.05
11 = x0.01

kWh counter autosend time interval into seconds

valid range: 10…255s
0…9 = auto send disabled

Address	*Contents*	*Address*	*Contents*
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'0105'	Linked Push button 2 module address
H'0106'	Linked Push button 2 bit number	H'0107'	Linked Push button 2 action
H'0108'	Linked Push button 2 time parameter	H'0109'	Linked Push button 2 channel parameter
H'010A'	…	H'010B'	…
...	...	...	...
...	…	H'01F5'	Linked Push button 50 module address
H'01F6'	Linked Push button 50 bit number	H'01F7'	Linked Push button 50 action
H'01F8'	Linked Push button 50 time parameter	H'01F9'	Linked Push button 50 channel parameter
H'01FA'	Linked Push button 51 module address	H'01FB'	Linked Push button 51 bit number
H'01FC'	Linked Push button 51 action	H'01FD'	Linked Push button 51 time parameter
H'01FE'	Linked Push button 51 channel parameter	H'01FF'	Not used

Remark: Unused locations contain H'FF'

Action

Action number	**Action**	**Time parameter**	**Bit number**
0	No action	-	-
1	Lock channel at closed switch	-	Channel bit
2	Lock channel at opened switch	-	Channel bit
3	Lock channel	Timeout	Channel bit
4	Lock/unlock channel	Timeout	Channel bit
5	Unlock channel	-	Channel bit
6	Disable channel program at closed switch	-	Channel bit
7	Disable channel program at opened switch	-	Channel bit
8	Disable channel program channel	Timeout	Channel bit
9	Disable/enable channel program	Timeout	Channel bit
10	Enable channel program	-	Channel bit
11	Select no programs	-	-
12	Select summer programs	-	-
13	Select winter programs	-	-
14	Select holiday programs	-	-
15	Enable Alarm/Sunrise/Sunset at closed switch	-	Alarm/sunrise/sunset bit
16	Enable Alarm/Sunrise/Sunset at open switch	-	Alarm/sunrise/sunset bit
17	Disable Alarm/Sunrise/Sunset at closed switch	-	Alarm/sunrise/sunset bit
18	Disable Alarm/Sunrise/Sunset at open switch	-	Alarm/sunrise/sunset bit
19	Enable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit
20	Enable/Disable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit
21	Disable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit

Bit Number

Contents	*Bit number*
B'00000001'	Channel 1 or Alarm1
B'00000010'	Channel 2
B'00000100'	Channel 3 or Alarm2
B'00001000'	Channel 4
B'00010000'	Channel 5 or Sunrise
B'00100000'	Channel 6 or Sunset
B'01000000'	Channel 7
B'10000000'	Channel 8

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*
H'0200'	Program step 1 byte1	H'0201'	Program step 1 byte2
H'0202'	Program step 1 byte3	H'0203'	Program step 1 byte4
H'0204'	Program step 1 byte5	H'0205'	Program step 1 byte6
…	..	..	..
H'03E6'	Program step 82 byte1	H'03E7'	Program step 82 byte2
H'03E8'	Program step 82 byte3	H'03E9'	Program step 82 byte4
H'03EA'	Program step 82 byte5	H'03EB'	Program step 82 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	0s25 Pulse
1	1s Pulse
2	2s Pulse
...	...
119	1min59s Pulse
120	2min Pulse
121	2min15s Pulse
...	...
131	4min45s Pulse
132	5min Pulse
133	5min30s Pulse
...	...
181	29min30s Pulse
182	30min Pulse
183	31min Pulse
...	...
211	59min Pulse
212	1h Pulse
213	1h15min Pulse
...	...
227	4h45min Pulse
228	5h Pulse
229	5h30min Pulse
...	...
237	9h30min Pulse
238	10h Pulse
239	11h Pulse
...	…
246	18h Pulse
247	Press
248	Long Press
249	Release
250	Lock
251	Unlock
252	No action
…	…
255	No action

Contents program byte6	**Channel**
B’00000001’	Channel 1
B’00000010’	Channel 2
B’00000100’	Channel 3
B’00001000’	Channel 4
B’00010000’	Channel 5
B’00100000’	Channel 6
B’01000000’	Channel 7
B’10000000’	Channel 8

Address	*Contents*	*Address*	*Contents*
H'03EC'	kWh 1 'On Alarm value' low byte	H'03ED'	kWh 1 'On Alarm value' high byte
H'03EE'	kWh 1 'Off Alarm value' low byte	H'03EF'	kWh 1 'Off Alarm value' high byte
H'03F0'	kWh 2 'On Alarm value' low byte	H'03F1'	kWh 2 'On Alarm value' high byte
H'03F2'	kWh 2 'Off Alarm value' low byte	H'03F3'	kWh 2 'Off Alarm value' high byte.
H'03F4'	kWh 3 'On Alarm value' low byte	H'03F5'	kWh 3 'On Alarm value' high byte
H'03F6'	kWh 3 'Off Alarm value' low byte	H'03F7'	kWh 3 'Off Alarm value' high byte
H'03F8'	kWh 4 'On Alarm value' low byte	H'03F9'	kWh 4 'On Alarm value' high byte
H'03FA'	kWh 4 'Off Alarm value' low byte	H'03FB'	kWh 4 'Off Alarm value' high byte
H'03FC'	Inverted alarm channels	H'03FD'	Enabled alarm channels
H'03FE'	Not used	H'03FF'	Not used

kWh x 'On alarm' : 0x0000…0xFFFF
The alarm will be set if the instant power is greater than the 'on alarm' power setting.
The 'on alarm value' for storing into the memory map must be calculated :
On_Alarm_value = 128*1000*1000*3600 / (On_Alarm_ Power_in_Watt) * Pulses_per_kWh _factor * 210)

kWh x 'Off alarm' : 0x0000…0xFFFF
The alarm will be cleared if the instant power is less than the 'off alarm' power setting.
The 'on alarm value' for storing into the memory map must be calculated :
Off_Alarm_value = 128*1000*1000*3600 / (Off_Alarm_ Power_in_Watt) * Pulses_per_kWh _factor * 210)

Remark: 'On alarm power' must be greater than 'Off alarm power'

Inverted alarm channels

Contents	*Bit number*
B'0000xxx0'	kWh 1 alarm not inverted
B'0000xxx1'	kWh 1 alarm inverted
B'0000xx0x'	kWh 2 alarm not inverted
B'0000xx1x'	kWh 2 alarm inverted
B'0000x0xx'	kWh 3 alarm not inverted
B'0000x1xx'	kWh 3 alarm inverted
B'00000xxx'	kWh 4 alarm not inverted
B'00001xxx'	kWh 4 alarm inverted

Enabled alarm channels

Contents	*Bit number*
B'0000xxx0'	kWh 1 alarm disabled
B'0000xxx1'	kWh 1 alarm enabled
B'0000xx0x'	kWh 2 alarm disabled
B'0000xx1x'	kWh 2 alarm enabled
B'0000x0xx'	kWh 3 alarm disabled
B'0000x1xx'	kWh 3 alarm enabled
B'00000xxx'	kWh 4 alarm disabled
B'00001xxx'	kWh 4 alarm enabled

Memory map version 3 for build 1424 or higher:

Address	*Contents*	*Address*	*Contents*
H'0000'	Channel name character 1	H'0001'	Channel 1 name character 2
...	...	...	...
H'000E'	Channel 1name character 15	H'000F'	Channel 1 name character 16
H'0010'	Channel 2 name character 1	H'0011'	Channel 2 name character 2
...	...	...	...
H'001E'	Channel 2name character 15	H'001F'	Channel 2 name character 16
H'0020'	Channel 3 name character 1	H'0021'	Channel 3 name character 2
...	...	...	...
H'002E'	Channel 3name character 15	H'002F'	Channel 3 name character 16
H'0030'	Channel 4 name character 1	H'0031'	Channel 4 name character 2
...	...	...	...
H'003E'	Channel 4name character 15	H'003F'	Channel 4 name character 16
H'0040'	Channel 5 name character 1	H'0041'	Channel 5 name character 2
...	...	...	...
H'004E'	Channel 5name character 15	H'004F'	Channel 5 name character 16
H'0050'	Channel 6 name character 1	H'0051'	Channel 6 name character 2
...	...	...	...
H'005E'	Channel 6name character 15	H'005F'	Channel 6 name character 16
H'0060'	Channel 7 name character 1	H'0061'	Channel 7 name character 2
...	...	...	...
H'006E'	Channel 7name character 15	H'006F'	Channel 7 name character 16
H'0070'	Channel 8 name character 1	H'0071'	Channel 8 name character 2
...	...	...	...
H'007E'	Channel 8name character 15	H'007F'	Channel 8 name character 16
H'0080'	Channel 1 reaction time	H'0081'	Channel 2 reaction time
...	…	...	...
H'0086'	Channel 7 reaction time	H'0087'	Channel 8 reaction time
H'0088'	Channels inverted/non inverted	H'0089'	Led backlight on/off
H'008A'	Led backlight intensity	H'008C'	Led feedback on/off
H'008C'	Enable/disable slow blinking led feedback	H'008D'	Enable/disable fast blinking led feedback
H'008E'	Enable/disable very fast blinking led feedback	H'008F'	Led intensity
H'0090'	Program selection (none/summer/winter/holiday)	H'0091'	Channel 8…1 prog disable/enable flags
H'0092'	Channel 8…1 locked/unlocked flags	H'0093'	Alarm clock configuration
H'0094'	Wake up 1 hour (0…23)	H'0095'	Wake up 1 minutes (0…59)
H'0096'	Go to bed 1 hour (0…23)	H'0097'	Go to bed 1 minutes (0…59)
H'0098'	Wake up 2 hour (0…23)	H'0099'	Wake up 2 minutes (0…59)
H'009A'	Go to bed 2 hour (0…23)	H'009B'	Go to bed 2 minutes (0…59)
H'009C'	Channel 1 start function	H'009D'	Channel 1 end function
...	…	...	...
H'00AA'	Channel 8 start function	H'00AB'	Channel 8 end function
H'00AC'	Multi function channels 8…1 auto reset enable	H'00AD'	Dual function channels 8…1 enable
H'00AE'	Dual function long pressed time	H'00AF'	Long pressed delay
H'00B0'	Sunrise hour at 21 December (0…23)	H'00B1'	Sunrise minutes at 21 December (0…59)
H'00B2'	Sunrise 21 January – sunrise 5 January (-128'..127')	H'00B3'	Sunrise 5 February – sunrise 21 January (-128'..127')
H'00B4'	Sunrise 21 February – sunrise 5 February (-128'..127')	H'00B5'	Sunrise 5 March – sunrise 21 February (-128'..127')
H'00B6'	Sunrise 21 March – sunrise 5 March (-128'..127')	H'00B7'	Sunrise 5 April – sunrise 21 March (-128'..127')
H'00B8'	Sunrise 21 April – sunrise 5 April (-128'..127')	H'00B9'	Sunrise 5 May – sunrise 21 April (-128'..127')
H'00BA'	Sunrise 21 May – sunrise 5 May (-128'..127')	H'00BB'	Sunrise 5 June – sunrise 21 May (-128'..127')
H'00BC'	Sunrise 21 June – sunrise 5 June (-128'..127')	H'00BD'	Sunrise 5 July – sunrise 21 June (-128'..127')
H'00BE'	Sunrise 21 July – sunrise 5 July (-128'..127')	H'00BF'	Sunrise 5 August – sunrise 21 July (-128'..127')
H'00C0'	Sunrise 21 August – sunrise 5 August (-128'..127')	H'00C1'	Sunrise 5 September – sunrise 21 August (-128'..127')
H'00C2'	Sunrise 21 September – sunrise 5 September (-128..127')	H'00C3'	Sunrise 5 October – sunrise 21 September (-128'..127')
H'00C4'	Sunrise 21 October – sunrise 5 October (-128'..127')	H'00C5'	Sunrise 5 November – sunrise 21 October (-128'..127')
H'00C6'	Sunrise 21 November – sunrise 5 November (-128'..127')	H'00C7'	Sunrise 5 December – sunrise 21 November (-128'..127')
H'00C8'	Sunrise 21 December – sunrise 5 December (-128'..127')	H'00C9'	Sunrise 5 January – sunrise 21 December (-128'..127')

Address	*Contents*	*Address*	*Contents*
H'00CA'	Sunset hour at 21 December (0…23)	H'00CB'	Sunset minutes at 21 December (0…59)
H'00CC'	Sunset 21 January – sunrise 5 January (-128'..127')	H'00CD'	Sunset 5 February – sunrise 21 January (-128'..127')
H'00CE'	Sunset 21 February – sunrise 5 February (-128'..127')	H'00CF'	Sunset 5 March – sunrise 21 February (-128'..127')
H'00D0'	Sunset 21 March – sunrise 5 March (-128'..127')	H'00D1'	Sunset 5 April – sunrise 21 March (-128'..127')
H'00D2'	Sunset 21 April – sunrise 5 April (-128'..127')	H'00D3'	Sunset 5 May – sunrise 21 April (-128'..127')
H'00D4'	Sunset 21 May – sunrise 5 May (-128'..127')	H'00D5'	Sunset 5 June – sunrise 21 May (-128'..127')
H'00D6'	Sunset 21 June – sunrise 5 June (-128'..127')	H'00D7'	Sunset 5 July – sunrise 21 June (-128'..127')
H'00D8'	Sunset 21 July – sunrise 5 July (-128'..127')	H'00D9'	Sunset 5 August – sunrise 21 July (-128'..127')
H'00DA'	Sunset 21 August – sunrise 5 August (-128'..127')	H'00DA'	Sunset 5 September – sunrise 21 August (-128'..127')
H'00DC'	Sunset 21 September – sunrise 5 September (-128'..127')	H'00DC'	Sunset 5 October – sunrise 21 September (-128'..127')
H'00DE'	Sunset 21 October – sunrise 5 October (-128'..127')	H'00DF'	Sunset 5 November – sunrise 21 October (-128'..127')
H'00E0'	Sunset 21 November – sunrise 5 November (-128'..127')	H'00E1'	Sunset 5 December – sunrise 21 November (-128'..127')
H'00E2'	Sunset 21 December – sunrise 5 December (-128'..127')	H'00E3'	Sunset 5 January – sunrise 21 December (-128'..127')
H'00E4'	Pulse per Units divide by 100 for counter 1	H'00E5'	Most significant byte of 32bit counter 1
H'00E6'	Upper byte of 32bit counter 1	H'00E7'	High byte of 32bit counter 1
H'00E8'	Low byte of 32bit counter 1	H'00E9'	Pulse per Units divide by 100 for counter 2
H'00EA'	Most significant byte of 32bit counter 2	H'00EB'	Upper byte of 32bit counter 2
H'00EC'	High byte of 32bit counter 2	H'00ED'	Low byte of 32bit counter 2
H'00EE'	Pulse per Units divide by 100 for counter 3	H'00EF'	Most significant byte of 32bit counter 3
H'00F0'	Upper byte of 32bit counter 3	H'00F1'	High byte of 32bit counter 3
H'00F2'	Low byte of 32bit counter 3	H'00F3'	Pulse per Units divide by 100 for counter 4
H'00F4'	Most significant byte of 32bit counter 4	H'00F5'	Upper byte of 32bit counter 4
H'00F6'	High byte of 32bit counter 4	H'00F7'	Low byte of 32bit counter 4
H'00F8'	Counter auto send time interval	H'00F9'	Current day (1…31)
H'00FA'	Current month (1…12)	H'00FB'	Current year high byte
H'00FC'	Current year low byte	H'00FD'	Module Address
H'00FE'	Serial number high	H'00FF'	Serial number low

Remark:

Unused locations contain H'FF'

Do not overwrite the following address location:

H'00E5'…H'00E8'	32-bit counter 1
H'00EA'…H'00ED'	32-bit counter 2
H'00EF'…H'00F2'	32-bit counter 3
H'00F4'…H'00F7'	32-bit counter 4
H'0090'	program selection
H'0091'	channel program enable/disable
H'0092'	channel locked/unlocked
H'00F9'	current day of month
H'00FA'	current month
H'00FB' & H'00FC'	current year
H'00FD'	module address
H'00FE' & H'00FF'	module serial number

counter input disabled if 'Pulse per Units divide by 100' factor equal to zero

Valid reaction times

Contents	*Reaction time*
H'05'	0.065s
H'4C'	1s
H'99'	2s
H'E0'	3s
H'FF'	Channel disabled

Valid long pressed delay (Build 1204 or higher)

Contents	*Reaction time*
H'40'	0.8s
H'80'	1.6s
H'FF'	Default 0.8s

Channels inverted

Contents	*Led feedback*
B'xxxxxxx0'	Channel 1 inverted
B'xxxxxxx1'	Channel 1 not inverted
...	...
B'0xxxxxxx'	Channel 8 inverted
B'1xxxxxxx'	Channel 8 non inverted

Led Backlight on/off

Contents	*Led backlight*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Led backlight intensity

Contents	*Led backlight intensity*
H'01'	Minimum
...	...
H'FF'	Maximum

Led feedback on/off

Contents	*Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Led intensity (Build 1204 or higher)

Contents	*Led intensity*
H'01'	Minimum
...	...
H'40'	Maximum

Slow blinking Led feedback on/off

Contents	*Slow blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Fast blinking Led feedback on/off

Contents	*Fast blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Very fast blinking Led feedback on/off

Contents	*Very Fast blinking Led feedback*
B'xxxxxxx0'	Channel 1 off
B'xxxxxxx1'	Channel 1 on
...	...
B'0xxxxxxx'	Channel 8 off
B'1xxxxxxx'	Channel 8 on

Program selection

Contents	*Selected program*
0	None
1	Summer
2	Winter
3	Holiday

Channel program disabled

Contents	*Channel program enabled/disabled*
B'xxxxxxx0'	Channel 1 programs enabled
B'xxxxxxx1'	Channel 1 programs disabled
...	...
B'0xxxxxxx'	Channel 8 programs enabled
B'1xxxxxxx'	Channel 8 programs disabled

Channel locked

Contents	*Channel locked/unlocked*
B'xxxxxxx0'	Channel 1 unlocked
B'xxxxxxx1'	Channel 1 locked
...	...
B'0xxxxxxx'	Channel 8 unlocked
B'1xxxxxxx'	Channel 8 locked

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'	Summer time disabled
B'x1xxxxxx'	Summer time enabled

Channel x start/end function

Contents	*Function*
B'00000001'	Channel 1
B'00000010'	Channel 2
...	...
B'01000000'	Channel 7
B'10000000'	Channel 8

Remark:

For a normal one function button, the start and end function channel are the same.

For a multi-function button, the start function channel must be less than the end function. At every press the next channel will be send. When the end function channel is reached, the start channel will be send again at the next press.

For a dual function button, the start function channel will be send at a short press or the end function will be send at a long press.

Multi function auto reset

Contents	*Multi function auto reset*
B'xxxxxxx0'	Channel 1 auto reset disabled
B'xxxxxxx1'	Channel 1 auto reset enabled
...	...
B'0xxxxxxx'	Channel 8 auto reset disabled
B'1xxxxxxx'	Channel 8 auto reset enabled

Remark: When auto reset is enabled, the start function will be loaded again after 3 seconds inactivity of the channel.

Dual function enable

Contents	*Dual function*
B'xxxxxxx0'	Channel 1 dual function disabled
B'xxxxxxx1'	Channel 1 dual function enabled
...	...
B'0xxxxxxx'	Channel 8 dual function disabled
B'1xxxxxxx'	Channel 8 dual function enabled

Remark:
For a dual function button, the start function channel will be send at a short press or the end function will be send at a long press.
The dual function overwrites the multi-function mode.

Valid dual function long pressed times

Contents	*Long pressed time*
H'4C'	1s
H'99'	2s
H'E0'	3s

Pulse per Units divide by 100

valid range: bits 5…0: 1…63 (100 … 6300 pulses/Units)
0 = counter input disabled
Bits 7&6: 00 = x1
01 = x2.5
10 = x0.05
11 = x0.01

Counter auto send time interval into seconds

valid range: 10…255s fixed interval
5…9 = auto send on change with 5s as minimum interval
1…4 = auto send on change disabled
0 = no change on auto send interval

Address	*Contents*	*Address*	*Contents*
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'0105'	Linked Push button 2 module address
H'0106'	Linked Push button 2 bit number	H'0107'	Linked Push button 2 action
H'0108'	Linked Push button 2 time parameter	H'0109'	Linked Push button 2 channel parameter
H'010A'	…	H'010B'	…
...	...	...	...
...	…	H'01F5'	Linked Push button 50 module address
H'01F6'	Linked Push button 50 bit number	H'01F7'	Linked Push button 50 action
H'01F8'	Linked Push button 50 time parameter	H'01F9'	Linked Push button 50 channel parameter
H'01FA'	Linked Push button 51 module address	H'01FB'	Linked Push button 51 bit number
H'01FC'	Linked Push button 51 action	H'01FD'	Linked Push button 51 time parameter
H'01FE'	Linked Push button 51 channel parameter	H'01FF'	Not used

Remark: Unused locations contain H'FF'

Action

Action number	**Action**	**Time parameter**	**Bit number**
0	No action	-	-
1	Lock channel at closed switch	-	Channel bit
2	Lock channel at opened switch	-	Channel bit
3	Lock channel	Timeout	Channel bit
4	Lock/unlock channel	Timeout	Channel bit
5	Unlock channel	-	Channel bit
6	Disable channel program at closed switch	-	Channel bit
7	Disable channel program at opened switch	-	Channel bit
8	Disable channel program channel	Timeout	Channel bit
9	Disable/enable channel program	Timeout	Channel bit
10	Enable channel program	-	Channel bit
11	Select no programs	-	-
12	Select summer programs	-	-
13	Select winter programs	-	-
14	Select holiday programs	-	-
15	Enable Alarm/Sunrise/Sunset at closed switch	-	Alarm/sunrise/sunset bit
16	Enable Alarm/Sunrise/Sunset at open switch	-	Alarm/sunrise/sunset bit
17	Disable Alarm/Sunrise/Sunset at closed switch	-	Alarm/sunrise/sunset bit
18	Disable Alarm/Sunrise/Sunset at open switch	-	Alarm/sunrise/sunset bit
19	Enable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit
20	Enable/Disable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit
21	Disable Alarm/Sunrise/Sunset	-	Alarm/sunrise/sunset bit

Bit Number

Contents	*Bit number*
B'00000001'	Channel 1 or Alarm1
B'00000010'	Channel 2
B'00000100'	Channel 3 or Alarm2
B'00001000'	Channel 4
B'00010000'	Channel 5 or Sunrise
B'00100000'	Channel 6 or Sunset
B'01000000'	Channel 7
B'10000000'	Channel 8

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*
H'0200'	Program step 1 byte1	H'0201'	Program step 1 byte2
H'0202'	Program step 1 byte3	H'0203'	Program step 1 byte4
H'0204'	Program step 1 byte5	H'0205'	Program step 1 byte6
…	..	..	..
H'039E'	Program step 70 byte1	H'039F'	Program step 70 byte2
H'03A0'	Program step 70 byte3	H'03A1'	Program step 70 byte4
H'03A2'	Program step 70 byte5	H'03A3'	Program step 70 byte6
H'03A4'	Not used	H'03A5'	Not used
H'03A6'	Not used	H'03A7'	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	0s25 Pulse
1	1s Pulse
2	2s Pulse
...	...
119	1min59s Pulse
120	2min Pulse
121	2min15s Pulse
...	...
131	4min45s Pulse
132	5min Pulse
133	5min30s Pulse
...	...
181	29min30s Pulse
182	30min Pulse
183	31min Pulse
...	...
211	59min Pulse
212	1h Pulse
213	1h15min Pulse
...	...
227	4h45min Pulse
228	5h Pulse
229	5h30min Pulse
...	...
237	9h30min Pulse
238	10h Pulse
239	11h Pulse
...	…
246	18h Pulse
247	Press
248	Long Press
249	Release
250	Lock
251	Unlock
252	No action
…	…
255	No action

Contents program byte6	**Channel**
B’00000001’	Channel 1
B’00000010’	Channel 2
B’00000100’	Channel 3
B’00001000’	Channel 4
B’00010000’	Channel 5
B’00100000’	Channel 6
B’01000000’	Channel 7
B’10000000’	Channel 8

Address	*Contents*	*Address*	*Contents*
H’03A8’	Location id low byte	H’03A9’	Location id high byte
H’03AA’	Group id low byte	H’03AB’	Group id high byte
H’03AC’	Module name character 1	H’03AD 1’	Module name character 2
…	..	..	..
H’03EA’	Module name character 63	H’03EB’	Module name character 64

Address	*Contents*	*Address*	*Contents*
H'03EC'	Counter 1 'On Alarm value' low byte	H'03ED'	Counter 1 'On Alarm value' high byte
H'03EE'	Counter 1 'Off Alarm value' low byte	H'03EF'	Counter 1 'Off Alarm value' high byte
H'03F0'	Counter 2 'On Alarm value' low byte	H'03F1'	Counter 2 'On Alarm value' high byte
H'03F2'	Counter 2 'Off Alarm value' low byte	H'03F3'	Counter 2 'Off Alarm value' high byte.
H'03F4'	Counter 3 'On Alarm value' low byte	H'03F5'	Counter 3 'On Alarm value' high byte
H'03F6'	Counter 3 'Off Alarm value' low byte	H'03F7'	Counter 3 'Off Alarm value' high byte
H'03F8'	Counter 4 'On Alarm value' low byte	H'03F9'	Counter 4 'On Alarm value' high byte
H'03FA'	Counter 4 'Off Alarm value' low byte	H'03FB'	Counter 4 'Off Alarm value' high byte
H'03FC'	Inverted alarm channels	H'03FD'	Enabled alarm channels
H'03FE'	Counter units	H'03FF'	Module terminator

Power x 'On alarm'in Watt: 0x0001…0xFFFF
The alarm will be set if the instant power is greater than the 'on alarm' power setting.
The 'on alarm value' for storing into the memory map must be calculated :
On_Alarm_value = 128*1000*1000*3600 / (On_Alarm_ Power_in_Watt) * Pulses_per_kWh _factor *Multiplier* 210)

Flow x 'On alarm' in m^3/h : 0x0001…0xFFFF
The alarm will be set if the instant flow is greater than the 'on alarm' flow setting.
The 'on alarm value' for storing into the memory map must be calculated :
On_Alarm_value = 128*1000*3600 / (On_Alarm_ Flow_in_m^3perhour) * Pulses_per_m^3 _factor *Multiplier* 210)

Flow x 'On alarm' in l/h : 0x0001…0xFFFF
The alarm will be set if the instant flow is greater than the 'on alarm' flow setting.
The 'on alarm value' for storing into the memory map must be calculated :
On_Alarm_value = 128*1000*3600 / (On_Alarm_ Flow_in_literperhour) * Pulses_per_m^3 _factor *Multiplier* 210)

Power x 'Off alarm' in Watt: 0x0001…0xFFFF
The alarm will be cleared if the instant power is less than the 'off alarm' power setting.
The 'on alarm value' for storing into the memory map must be calculated :
Off_Alarm_value = 128*1000*1000*3600 / (Off_Alarm_ Power_in_Watt) * Pulses_per_kWh _factor *Multiplier* 210)

Flow x 'Off alarm' in m^3/h: 0x0001…0xFFFF
The alarm will be cleared if the instant flow is less than the 'off alarm' flow setting.
The 'on alarm value' for storing into the memory map must be calculated :
Off_Alarm_value = 128*1000*3600 / (Off_Alarm_ Flow_in_m^3perhour) * Pulses_per_m^3 _factor * Multiplier*210)

Flow x 'Off alarm' in l/h: 0x0001…0xFFFF
The alarm will be cleared if the instant flow is less than the 'off alarm' flow setting.
The 'on alarm value' for storing into the memory map must be calculated :
Off_Alarm_value = 128*1000*3600 / (Off_Alarm_ Flow_in_lperhour) * Pulses_per_l _factor * Multiplier*210)

Remark: 'On alarm power' must be greater than 'Off alarm power'

Inverted alarm channels

Contents	*Bit number*
B'0000xxx0'	Counter 1 alarm not inverted
B'0000xxx1'	Counter 1 alarm inverted
B'0000xx0x'	Counter 2 alarm not inverted
B'0000xx1x'	Counter 2 alarm inverted
B'0000x0xx'	Counter 3 alarm not inverted
B'0000x1xx'	Counter 3 alarm inverted
B'00000xxx'	Counter 4 alarm not inverted
B'00001xxx'	Counter 4 alarm inverted

Enabled alarm channels

Contents	*Bit number*
B’0000xxx0’	Counter 1 alarm disabled
B’0000xxx1’	Counter 1 alarm enabled
B’0000xx0x’	Counter 2 alarm disabled
B’0000xx1x’	Counter 2 alarm enabled
B’0000x0xx’	Counter 3 alarm disabled
B’0000x1xx’	Counter 3 alarm enabled
B’00000xxx’	Counter 4 alarm disabled
B’00001xxx’	Counter 4 alarm enabled

Counter units

Contents	*Counter unit*
B’xxxxxx00’	Counter 1: reserved
B’xxxxxx01’	Counter 1: liter
B’xxxxxx10’	Counter 1: m^3
B’xxxxxx11’	Counter 1: kWh (default)
B’xxxx00xx’	Counter 2: reserved
B’xxxx01xx’	Counter 2: liter
B’xxxx10xx’	Counter 2: m^3
B’xxxx11xx’	Counter 2: kWh (default)
B’xx00xxxx’	Counter 3: reserved
B’xx01xxxx’	Counter 3: liter
B’xx10xxxx’	Counter 3: m^3
B’xx11xxxx’	Counter 3: kWh (default)
B’00xxxxxx’	Counter 4: reserved
B’01xxxxxx’	Counter 4: liter
B’10xxxxxx’	Counter 4: m^3
B’11xxxxxx’	Counter 4: kWh (default)