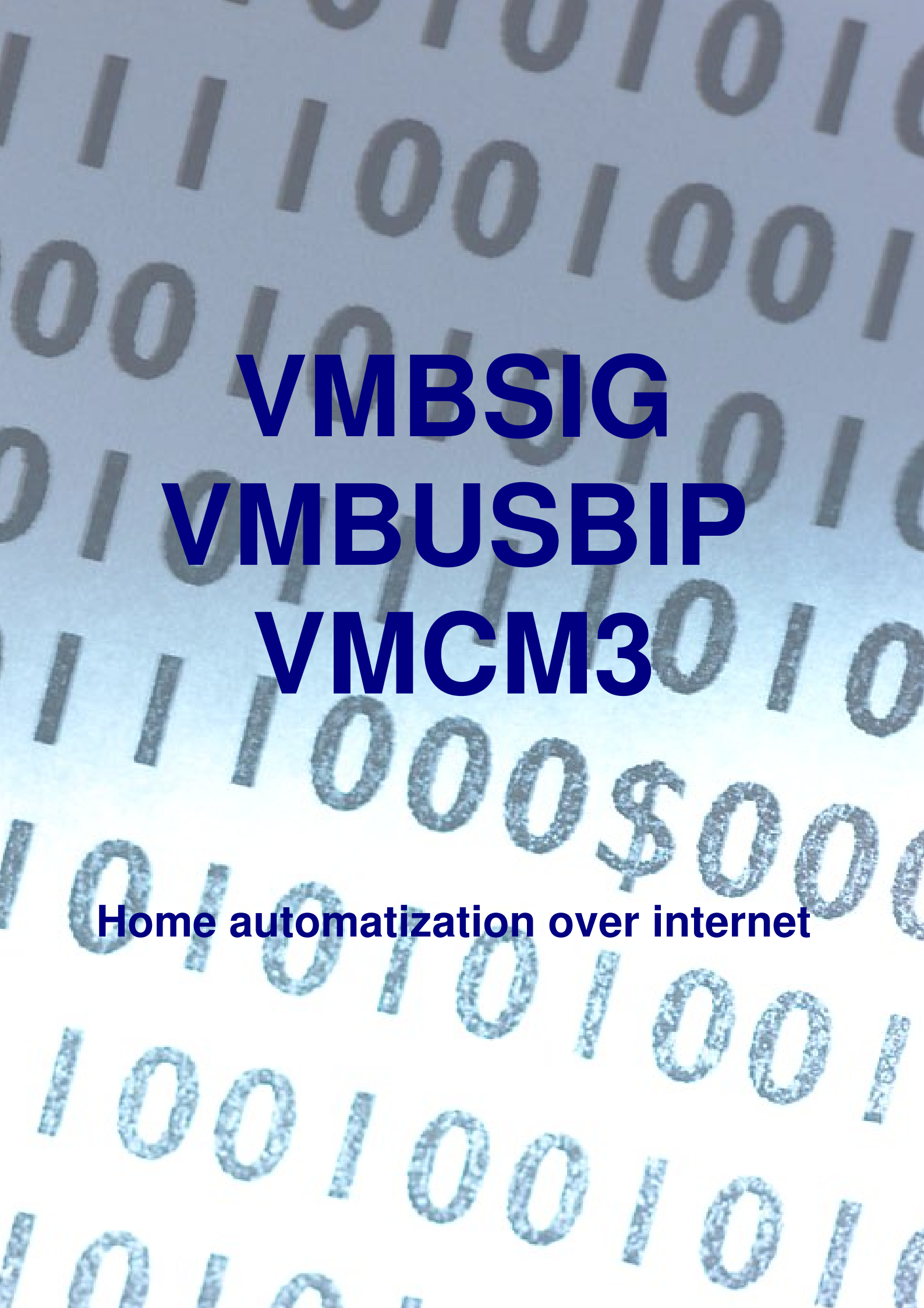

VMBSIG
VMBUSBIP
VMCM3

Home automatization over internet

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: (generated frames)

- Power up
- Buffer full
- Buffer ready
- Bus off
- Bus active
- Real-time clock status
- Date status
- Daylight savings status
- Module type
- Transmits the memory data
- Transmits memory data block (4 bytes):
- Transmits real time clock status request:
- All other Velbus frames (not generated, just passed through)

The module can transmit the following commands:

- none

The module can receive the following messages:

- Module type request
- Set Time
- Set Date
- Set daylight savings
- Clock request (broadcast address: 0x00)
- Clock request (device address)
- Set Address and serial
- Interface status request
- ‘Read data from memory’ command received
- ‘Read data block from memory’ command received:
- ‘Memory dump request’ command received:
- ‘Write data to memory’ command received:
- ‘Write memory block’ command received:

Changes:

(since build 1908)
(Since build 1912)
(Since build 1948)
(Since build 2220)

TRANSMIT

Power Up message:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = H'00'
RTR = 0
DLC3...DLC0 = 2 databyte to send
DATABYTE1 = COMMAND_POWER_UP (H'AB')
DATABYTE2 = module address

Transmit Buffer Full message:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = H'00'
RTR = 0
DLC3...DLC0 = 1 databyte to send
DATABYTE1 = COMMAND_RX_BUFFER_FULL_STATUS (H'0B')

Transmits Buffer Ready message:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = H'00'
RTR = 0
DLC3...DLC0 = 1 databyte to send
DATABYTE1 = COMMAND_RX_BUFFER_READY_STATUS (H'0C')

Transmit Bus Off message:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = H'00'
RTR = 0
DLC3...DLC0 = 1 databyte to send
DATABYTE1 = COMMAND_BUS_OFF (H'09')

Transmit Bus Active message:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 1 databyte to send
DATABYTE1 = COMMAND_BUS_ACTIVE STATUS (H'0A')

Transmits the real time clock status:

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

Transmits the module type:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 8 databytes to send
DATABYTE1 = COMMAND_MODULE_TYPE (H'FF')
DATABYTE2 = VMBSIG type (H'39') / VMBUSBIP type (H'40') / VMCM3 type (H'3F')
DATABYTE3 = High byte of serial number
DATABYTE4 = Low byte of serial number
DATABYTE5 = Memorymap version
DATABYTE6 = Build year
DATABYTE7 = Build week
DATABYTE8 =

- bit0: CAN Termination (true = terminated, false = open)
- bit1-3: version (0x00 = DS1390 is used, 0x01 = DS3234 is used)
- bit1-3: version (0x00 = DS1390 is used, 0x01 = DS3234 is used), **0x02 NO RTC is used**
- bit4: Connected to USB or CM module port. (0 = VMBSIG/VMBUSBIP/VMCM3 detected on CAN bus)
- bit5-7: unused

In bootloader mode:
DATABYTE6 = 0x00
DATABYTE7 = Bootloader build number. (currently H'00')

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

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')

RECEIVE

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

'Set real time clock' command received: (1)
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: (2)
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: (3)
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 = bit0: 0 = disabled / 1 = enabled

Important is to execute these commands in the following order: (1) – (2) – (3)

Real time clock status request received: (response after minute rollover)
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')

Real time clock status request received: (immediate response)
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')

Interface status request:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = H'00'
RTR = 0
DLC3...DLC0 = 1 databyte to send
DATABYTE1 CMD_INTERFACE_STATUS_REQUEST (H'0E')

Set Address and serial

SID10-SID9 = 01 (firmware priority)
SID8...SID1 = Module address
RTR = 0
DLC3...DLC0 = 7 data bytes to send
DATABYTE1 = Write Address (0x6A)
DATABYTE2 = module type (H'39')
DATABYTE3 = current high serial
DATABYTE4 = current low serial
DATABYTE5 = new master address
DATABYTE6 = new serial number high
DATABYTE7 = new serial number low

'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'1A03'

'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'1A00'

'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')

'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
DATABYTE4 = memory data to write

Remark:
Wait for 'data memory byte' feedback before sending a next command on the velbus.
Address range: H'0000' to H'1A03'
Terminate always with a write command at the last memory location .

'Write memory block' command received:

SID10-SID9 = 11 (lowest priority)

SID8...SID1 = Module address
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'1A00'
Terminate always with a write command at the last memory location .

Memory map 1 build before 1908

No memory map

Memory map 2 build 1908 or higher

Address	*Contents*	*Address*	*Contents*
H'0000'	name character 1	H'0001'	name character 2
...	...	...	...
H'003E'	name character 63	H'003F'	name character 64
H'0040'	Update hour (00..23)	H'0041'	Update minute (00..59)
H'0042'	Unused	H'0043'	Enable_masterclock (enabled = 0x01 / disabled = 0x00)
H'03FF'	Write something to apply changes to memory map		

Remark: memory dumps only first 68 bytes.

Default values

Address	*Contents*	*Type*
H'0000'	VMBSIG or VMBUSBIP or VMCM3	64 char (8 bit)
H'0040'	0x03	Hour
H'0041'	0x00	Minute
H'0042'	0xFF	Unused
H'0043'	0x01	True or false

```
    //device name
#ifdef USE_VMBSIG_TYPE
    'V','M','B','S','I','G',0xFF,0xFF,
#endif
#ifdef USE_VMBUSBIP_TYPE
    'V','M','B','U','S','B','I','P',
#endif
#ifdef USE_VMCM3_TYPE
    'V','M','C','M','3',0xFF,0xFF,0xFF,
#endif
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,

    0x03,   //default 3 hour
    0x00,   //default 00 minutes
    0xFF,   //unused
    0x01,   //enable masterclock
```

Memory map 3 build 1948 or higher

Address	*Contents*	*Address*	*Contents*
H'0000'	name character 1	H'0001'	name character 2
...	...	...	...
H'003E'	name character 63	H'003F'	name character 64
H'0040'	Update hour (00..23)	H'0041'	Update minute (00..59)
H'0042'	Timezone hour offset	H'0043'	Timezone minute offset
H'0044'	DST hour offset when active	H'0045'	DST minute offset when active
H'0046'	DST active	H'0047'	Enable_masterclock
H'03FF'	Write something to apply changes to memory map		

Remark: memory dumps only first 72 bytes.

Default values

Address	*Contents*	*Type*
H'0000'	VMBSIG or VMBUSBIP or VMCM3	64 char (8 bit)
H'0040'	0x03	Hour [0–23]
H'0041'	0x00	Minute [0-59]
H'0042'	0x01	Hour [-23-+23]
H'0043'	0x00	Minute [-59-+59]
H'0044'	0x01	Hour [-23-+23]
H'0045'	0x00	Minute [-59-+59]
H'0046'	0x01	True or false
H'0047'	0x01	True or false

```
    //device name
#ifdef USE_VMBSIG_TYPE
    'V','M','B','S','I','G',0xFF,0xFF,
#endif
#ifdef USE_VMBUSBIP_TYPE
    'V','M','B','U','S','B','I','P',
#endif
#ifdef USE_VMCM3_TYPE
    'V','M','C','M','3',0xFF,0xFF,0xFF,
#endif
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,
    0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,0xFF,

    //masterclock params
    0x03,   //default 3 hour clock push         // used together
    0x00,   //default 00 minutes clock push     // used together
    0x01,   //default +1 hour for belgium       //example: -1 = 0xFF!
    0x00,   //default no minutes for belgium

    //dst params
    0x01,   //1 hour offset when dst is active
    0x00,   //no minutes offset when dst is active
    0x01,   //dst is default active
    0x01,   //enable masterclock
```