



VMB1DM

Dimmer Module PROTOCOL

Binary format:

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

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

The dimmer module can transmit the following commands:

- Updates LEDs on a push button module
- Clears LEDs on a push button module
- Sets LEDs on a push button module
- Blinks LEDs slowly on a push button module
- Blinks LEDs fast on a push button module
- Blinks LEDs very fast on a push button module

The dimmer module can transmit the following messages:

- Dimmer status
- Module type
- Bus error counter status
- First, second and third part of the dimmer name
- Memory data

The dimmer module can receive the following messages:

- Push button status
- Slider status

The dimmer module can receive the following commands:

- Set dimmer value
- Start dimmer timer
- Dimmer status request
- Module type request
- Bus error counter status request
- Dimmer name request
- Read memory data
- Write memory data

Transmit: Updates LEDs on a push button module:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address of the push button module for updating the LEDs
RTR = 0
DLC3...DLC0 = 4 databytes to send
DATABYTE1 = COMMAND_UPDATE_LED (H'F4')
DATABYTE2 = LED continuous on status (1 = LED on)
DATABYTE3 = LED slow blinking status (1 = LED slow blinking)
DATABYTE4 = LED fast blinking status (1 = LED fast blinking)

Remarks:

The continuous on bit overrides the blinking modes.

If the slow and fast blinking bits for a LED are both on, the LED blinks very fast.

Transmit: Clears LEDs on a push button module:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address of the 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 push button module:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address of the 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 push button module:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address of the 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 push button module:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address of the 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)

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

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address of the push button module for very fast blinking LEDs
RTR = 0
DLC3...DLC0 = 2 databytes to send
DATABYTE1 = COMMAND_VERYFAST_BLINKING_LED (H'F9')
DATABYTE2 = LED bit numbers (1 = very fast blink LED)

Transmits the dimmer status:

SID10-SID9 = 11 (lowest priority)

SID8...SID1 = Address set by hex switches

RTR = 0

DLC3...DLC0 = 8 databytes to send

DATABYTE1 = COMMAND_DIMMER_STATUS (H'EE')

DATABYTE2 = Mode setting

<i>Contents</i>	<i>Mode</i>
0	Start/stop timer
1	Staircase timer
2	Dimmer
3	Dimmer with memory
4	Multi step dimmer
5	Slow on dimmer
6	Slow off dimmer
7	Slow on/off dimmer

DATABYTE3 = Dimvalue (0 to 100%)

DATABYTE4 = Led status

<i>Contents</i>	<i>Mode</i>
B'00000000'	LED off
B'10000000'	LED on
B'01000000'	LED slow blinking
B'00100000'	LED fast blinking
B'00010000'	LED very fast blinking

DATABYTE5 = high byte of current delay time

DATABYTE6 = mid byte of current delay time

DATABYTE7 = low byte of current delay time

DATABYTE8 = dimmer configuration

<i>Contents</i>	<i>Contents</i>
B'11xxxxxx'	Zero crossing error
B'1x1xxxxx'	Too inductive load
B'1xx0xxxx'	50Hz
B'1xx1xxxx'	60Hz
B'1xxx0xxx'	For electronic transformer
B'1xxx1xxx'	For ferro transformer
B'1xxxx001'	Last 3 bits = version number

Remark:

[DATABYTE5][DATABYTE6][DATABYTE7] contain a 24-bit time in seconds

Transmits the module type:

SID10-SID9 = 11 (lowest priority)

SID8...SID1 = Address set by hex switches

RTR = 0

DLC3...DLC0 = 7 databytes to send

DATABYTE1 = COMMAND_MODULE_TYPE (H'FF')

DATABYTE2 = DIMMER_MODULE_FOR_ELECTRONIC_TRANSFORMER_TYPE (H'07')

DATABYTE3 = Mode setting

<i>Contents</i>	<i>Mode</i>
0	Start/stop timer
1	Staircase timer
2	Dimmer
3	Dimmer with memory
4	Multi step dimmer
5	Slow on dimmer
6	Slow off dimmer
7	Slow on/off dimmer

DATABYTE4 = Time switch setting

<i>Contents</i>	<i>Time</i>
0	Momentary
1	5s
2	10s
3	15s
4	30s
5	1min
6	2min
7	5min
8	10min
9	15min
A	30min
B	1h
C	2h
D	5h
E	1day
F	No timer or max dimspeed

DATABYTE5 = dimmer configuration

<i>Contents</i>	<i>Contents</i>
B'11xxxxx'	Zero crossing error
B'1x1xxxx'	Too inductive load
B'1xx0xxxx'	50Hz
B'1xx1xxxx'	60Hz
B'1xxx0xxx'	For electronic transformer
B'1xxx1xxx'	For ferro transformer
B'1xxxx001'	Last 3 bits = version number

DATABYTE6 = Build Year

DATABYTE7 = Build Week

Transmit: Bus error counter status

SID10-SID9 = 11 (lowest priority)

SID8...SID1 = Address set by hex switches

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

NET EXP. CHD. ALL



NET EXP. CHD. ALL



NET EXP. CHD. ALL



NET EXP. CHD. ALL

Transmits the first part of the dimmer name:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 8 databytes to send
DATABYTE1 = COMMAND_DIMMER_NAME_PART1 (H'F0')
DATABYTE2 = Dimmer bit number (B'00000001')
DATABYTE3 = Character 1 of the dimmer name
DATABYTE4 = Character 2 of the dimmer name
DATABYTE5 = Character 3 of the dimmer name
DATABYTE6 = Character 4 of the dimmer name
DATABYTE7 = Character 5 of the dimmer name
DATABYTE8 = Character 6 of the dimmer name

Transmits the second part of the dimmer name:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 8 databytes to send
DATABYTE1 = COMMAND_DIMMER_NAME_PART2 (H'F1')
DATABYTE2 = Dimmer bit number (B'00000001')
DATABYTE3 = Character 7 of the dimmer name
DATABYTE4 = Character 8 of the dimmer name
DATABYTE5 = Character 9 of the dimmer name
DATABYTE6 = Character 10 of the dimmer name
DATABYTE7 = Character 11 of the dimmer name
DATABYTE8 = Character 12 of the dimmer name

Transmits the third part of the dimmer name:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 6 databytes to send
DATABYTE1 = COMMAND_DIMMER_NAME_PART3 (H'F2')
DATABYTE2 = Dimmer bit number (B'00000001')
DATABYTE3 = Character 13 of the dimmer name
DATABYTE4 = Character 14 of the dimmer name
DATABYTE5 = Character 15 of the dimmer name
DATABYTE6 = Character 16 of the dimmer name

Remarks:

Unused characters contain H'FF'.

Transmits the memory data:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 4 databytes to send
DATABYTE1 = COMMAND_MEMORY_DATA (H'FE')
DATABYTE2 = High memory address (must be H'00')
DATABYTE3 = LOW memory address (H'00'...H'FF')
DATABYTE4 = memory data

'Push button status' received:

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

'Slider status' received:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = Address of the slider module
RTR = 0
DLC3...DLC0 = 4 databytes received
DATABYTE1 = COMMAND_SLIDER_STATUS (H'0F')
DATABYTE2 = Slider channel
DATABYTE3 = Slider status (0...100%)
DATABYTE4 = Slider channel long pressed (1 = longer than 0.85s pressed)

'Set dimvalue' command received:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 5 databytes received
DATABYTE1 = COMMAND_SET_DIMVALUE (H'07')
DATABYTE2 = Dimmer bit number (B'00000001')
DATABYTE3 = Dimvalue (0 to 100%)
DATABYTE4 = high byte of dimspeed
DATABYTE5 = low byte of dimspeed

Remark:

[DATABYTE4][DATABYTE5] contains a 16-bit time in seconds needed for dimming from 0 to 100%.
If the dimspeed parameter contains zero then the dimspeed set by the hex switches on the dimmer module is chosen.
If the dimspeed parameter contains H'FFFF' then the fastest dimspeed (1.5s) is chosen.

'Start dimmer timer' command received:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 5 databytes received
DATABYTE1 = COMMAND_START_DIMMER_TIMER (H'08')
DATABYTE2 = Dimmer bit number (B'00000001')
DATABYTE3 = high byte of time-out time
DATABYTE4 = mid byte of time-out time
DATABYTE5 = low byte of time-out time

Remark:

[DATABYTE3][DATABYTE4][DATABYTE5] contains a 24-bit time-out time in seconds.
If the time-out parameter contains zero then the timer starts for a time set by the hex switches on the dimmer module.
If the time-out parameter contains H'FFxxx' then the light switches permanently on (no time-out).

'Dimmer status request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 2 databytes received
DATABYTE1 = COMMAND_DIMMER_STATUS_REQUEST (H'FA')
DATABYTE2 = Dimmer bit number (B'00000001')

'Module type request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 1
DLC3...DLC0 = 0 databytes received

'Bus error counter status request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 1 databytes to send
DATABYTE1 = COMMAND_BUS_ERROR_COUNTER_STATUS_REQUEST (H'D9')

'Dimmer name request' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 2 databytes received
DATABYTE1 = COMMAND_DIMMER_NAME_REQUEST (H'EF')
DATABYTE2 = Dimmer bit number (B'00000001')

'Read data from memory' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 3 databytes received
DATABYTE1 = COMMAND_READ_DATA_FROM_MEMORY (H'FD')
DATABYTE2 = High memory address (must be H'00')
DATABYTE3 = LOW memory address (H'00'...H'FF')

'Write data to memory' command received:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 4 databytes received
DATABYTE1 = COMMAND_WRITE_DATA_TO_MEMORY (H'FC')
DATABYTE2 = High memory address (must be H'00')
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.

Memory map:

<i>Address</i>	<i>Contents</i>	<i>Address</i>	<i>Contents</i>
H'0000'	Push button module address	H'0001'	Clear push button 1 bit numbers
...
H'001A'	Push button module address	H'001B'	Clear push button 14 bit numbers
H'001C'	Push button module address	H'001D'	Set push button 1 bit numbers
...
H'0036'	Push button module address	H'0037'	Set push button 14 bit numbers
H'0038'	Push button module address	H'0039'	Toggle push button 1 bit numbers
...
H'0052'	Push button module address	H'0053'	Toggle push button 14 bit numbers
H'0054'	Push button module address	H'0055'	Dim push button 1 bit numbers
...
H'006E'	Push button module address	H'006F'	Dim push button 14 bit numbers
H'0070'	Slider module address	H'0071'	Slider 1 bit numbers
...
H'008A'	Slider module address	H'008B'	Slider 14 bit numbers
H'008C'	Push button module address	H'008D'	Dim up push button 1 bit numbers
...
H'00A6'	Push button module address	H'00A7'	Dim up push button 14 bit numbers
H'00A8'	Push button module address	H'00A9'	Dim down push button 1 bit numbers
...
H'00C2'	Push button module address	H'00C2'	Dim down push button 14 bit numbers
H'00C4'	Push button module address	H'00C5'	Atmospheric push button 1 bit numbers
...
H'00DE'	Push button module address	H'00DF'	Atmospheric push button 14 bit numbers
H'00E0'	Atmospheric dimvalue 1	H'00E1'	Atmospheric dimvalue 2
...
H'00EC'	Atmospheric dimvalue 13	H'00ED'	Atmospheric dimvalue 14
H'00EE'	Unused	H'00EF'	Unused
H'00F0'	Dimmer name character 1	H'00F1'	Dimmer name character 2
...
H'00FE'	Dimmer name character 15	H'007F'	Dimmer name character 16

Remark: Unused locations contain H'FF'