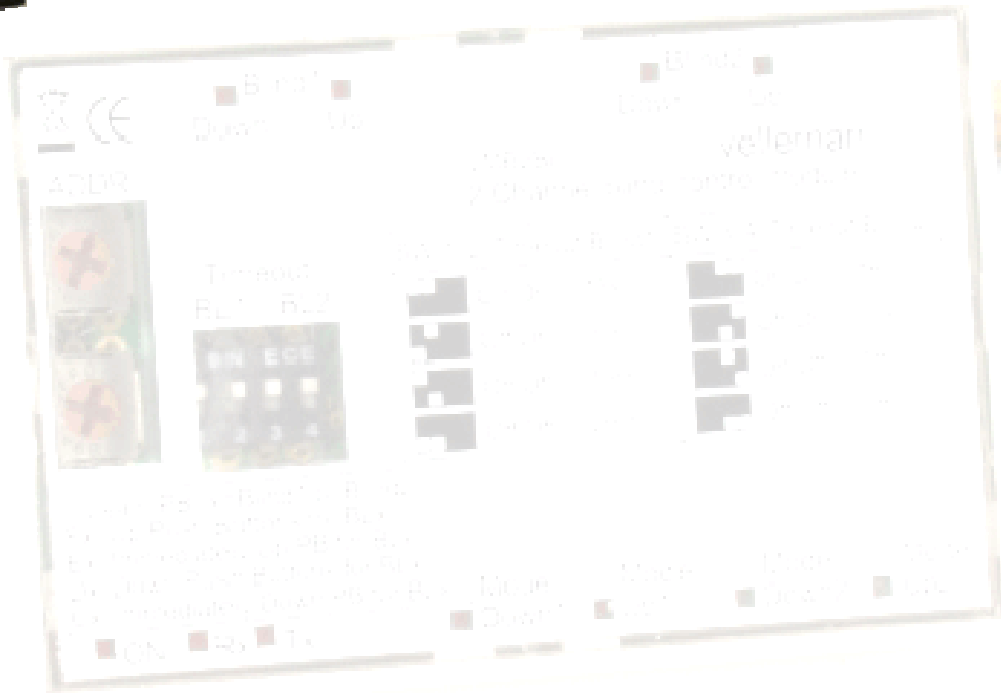


VMB2BL



2-channel Blind Control 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 blind 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 fast on a push button module
- Blinks LEDs very fast on a push button module

The blind module can transmit the following messages:

- Blind status
- Module type
- First, second and third part of the blind name
- Memory data

The blind module can receive the following messages:

- Push button status

The blind module can receive the following commands:

- Switch blind off
- Switch blind up
- Switch blind down
- Blind status request
- Module type request
- Blind 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 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 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

Transmits the blind status:

SID10-SID9 = 11 (lowest priority)
 SID8...SID1 = Address set by hex switches
 RTR = 0
 DLC3...DLC0 = 8 databytes to send
 DATABYTE1 = COMMAND_BLIND_STATUS (H'EC')
 DATABYTE2 = Blind channel

<i>Contents</i>	<i>Blind channel</i>
B'00000011'	Blind 1
B'00001100'	Blind 2

DATABYTE3 = Time out setting

<i>Contents</i>	<i>Time out</i>
H'00'	15s
H'01'	30s
H'02'	1min
H'03'	2min

DATABYTE4 = Blind status

<i>Contents</i>	<i>Blind status</i>
B'00000000'	Blinds off
B'00000001'	Blind 1 up
B'00000010'	Blind 1 down
B'00000100'	Blind 2 up
B'00001000'	Blind 2 down

DATABYTE5 = Led status

<i>Contents</i>	<i>Mode</i>
B'00000000'	LEDs off
B'10000000'	'Down' LED on
B'01000000'	'Down' LED slow blinking
B'00100000'	'Down' LED fast blinking
B'00010000'	'Down' LED very fast blinking
B'00001000'	'Up' LED on
B'00000100'	'Up' LED slow blinking
B'00000010'	'Up' LED fast blinking
B'00000001'	'Up' LED very fast blinking

DATABYTE6 = high byte of current delay time

DATABYTE7 = mid byte of current delay time

DATABYTE8 = low byte of current delay time

Remark:

[DATABYTE6][DATABYTE7][DATABYTE8] contain a 24-bit delay time in seconds

Transmits the module type:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 3 databytes to send
DATABYTE1 = COMMAND_MODULE_TYPE (H'FF')
DATABYTE2 = TWO_CHANNEL_BLIND_MODULE_TYPE (H'09')
DATABYTE3 = time out dip switch setting

<i>Contents</i>	<i>Blind 1 time out</i>
B'0000xx00'	15s
B'0000xx01'	30s
B'0000xx10'	1min
B'0000xx11'	2min

<i>Contents</i>	<i>Blind 2 time out</i>
B'000000xx'	15s
B'000001xx'	30s
B'000010xx'	1min
B'000011xx'	2min

Transmits the first part of the blind name:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 8 databytes to send
DATABYTE1 = COMMAND_BLIND_NAME_PART1 (H'F0')
DATABYTE2 = Blind channel

<i>Contents</i>	<i>Blind</i>
B'00000011'	Blind 1 name
B'00001100'	Blind 2 name

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

Transmits the second part of the blind name:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 8 databytes to send
DATABYTE1 = COMMAND_BLIND_NAME_PART2 (H'F1')
DATABYTE2 = Blind channel

<i>Contents</i>	<i>Blind</i>
B'00000011'	Blind 1 name
B'00001100'	Blind 2 name

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

Transmits the third part of the blind name:

SID10-SID9 = 11 (lowest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 6 databytes to send
DATABYTE1 = COMMAND_BLIND_NAME_PART3 (H'F2')
DATABYTE2 = Blind channel

<i>Contents</i>	<i>Blind</i>
B'00000011'	Blind 1 name
B'00001100'	Blind 2 name

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

Remarks: Unused characters contain H'FF'.

'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)

'Switch blind off' command received:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 2 databytes received
DATABYTE1 = COMMAND_SWITCH_BLIND_OFF (H'04')
DATABYTE2 = Blind channel

<i>Contents</i>	<i>Blind channel</i>
B'00000011'	Blind 1
B'00001100'	Blind 2

'Switch blind up' command received:

SID10-SID9 = 00 (highest priority)
SID8...SID1 = Address set by hex switches
RTR = 0
DLC3...DLC0 = 5 databytes received
DATABYTE1 = COMMAND_BLIND_UP (H'05')
DATABYTE2 = Blind channel

<i>Contents</i>	<i>Blind channel</i>
B'00000011'	Blind 1
B'00001100'	Blind 2

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

Remark:

[DATABYTE3][DATABYTE4][DATABYTE5] contain a 24-bit time out in seconds

If the time parameter contains zero then a time out set by the dip switch on the module is selected.

If the time parameter contains H'FFFFFF' then the blind up output switches permanently on.

'Switch blind down' command received:

SID10-SID9 = 00 (highest priority)

SID8...SID1 = Address set by hex switches

RTR = 0

DLC3...DLC0 = 5 databytes received

DATABYTE1 = COMMAND_BLIND_DOWN (H'06')

DATABYTE2 = Blind channel

Contents	Blind channel
B'00000011'	Blind 1
B'00001100'	Blind 2

DATABYTE3 = high byte of time out

DATABYTE4 = mid byte of time out

DATABYTE5 = low byte of time out

Remark:

[DATABYTE3][DATABYTE4][DATABYTE5] contain a 24-bit time out in seconds

If the time parameter contains zero then a time out set by the dip switch on the module is selected.

If the time parameter contains H'FFFFFF' then the blind down output switches permanently on.

'Blind 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_BLIND_STATUS_REQUEST (H'FA')

DATABYTE2 = Blind channel

Contents	Blind channel
B'00000011'	Blind 1
B'00001100'	Blind 2

'Module type request' command received:

SID10-SID9 = 11 (lowest priority)

SID8...SID1 = Address set by hex switches

RTR = 1

DLC3...DLC0 = 0 databytes received

'Blind 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_BLIND_NAME_REQUEST (H'EF')

DATABYTE2 = Blind channel

Contents	Blind
B'00000001'	Blind 1 name request
B'00001100'	Blind 2 name request

'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:

Address	Contents	Address	Contents
H'0000'	Push button module address	H'0001'	Up push button 1 bit numbers for blind 1
...
H'001A'	Push button module address	H'001B'	Up push button 14 bit numbers for blind 1
H'001C'	Push button module address	H'001D'	Immediately up push button 1 bit numbers for blind 1
...
H'0036'	Push button module address	H'0037'	Immediately up push button 14 bit numbers for blind 1
H'0038'	Push button module address	H'0039'	Down push button 1 bit numbers for blind 1
...
H'0052'	Push button module address	H'0053'	Down push button 14 bit numbers for blind 1
H'0054'	Push button module address	H'0055'	Immediately down push button 1 bit numbers for blind 1
...
H'006E'	Push button module address	H'006F'	Immediately down push button 14 bit numbers for blind 1
H'0070'	Blind 1 name character 1	H'0071'	Blind 1 name character 1
...
H'007E'	Blind 1 name character 15	H'007F'	Blind 1 name character 16
H'0080'	Push button module address	H'0081'	Up push button 1 bit numbers for blind 2
...
H'009A'	Push button module address	H'009B'	Up push button 14 bit numbers for blind 2
H'009C'	Push button module address	H'009D'	Immediately up push button 1 bit numbers for blind 2
...
H'00B6'	Push button module address	H'00B7'	Immediately up push button 14 bit numbers for blind 2
H'00B8'	Push button module address	H'00B9'	Down push button 1 bit numbers for blind 2
...
H'00D2'	Push button module address	H'00D3'	Down push button 14 bit numbers for blind 2
H'00D4'	Push button module address	H'00D5'	Immediately down push button 1 bit numbers for blind 2
...
H'00EE'	Push button module address	H'00EF'	Immediately down push button 14 bit numbers for blind 2
H'00F0'	Blind 2 name character 1	H'00F1'	Blind 2 name character 1
...
H'00FE'	Blind 2 name character 15	H'00FF'	Blind 2 name character 16

Remark: Unused locations contain H'FF'