

## B&B HOME Digital Input/output module



### APPLICATION:

16 Channel digital input/output module for controlling  
16 relais outputs + 16 digital inputs or 16 impulse relais outputs with 16 sens contacts.

### TECHNICAL SPECIFICATIES:

#### CONNECTIONS

- 16 x pushbutton inputs (CN2B + CN3B)
- 16 x outputs for controlling relais or impuls relais (CN2A + CN2B)
- 16 x inputs (CN4 + CN5)
- 6 x comfort key inputs (CN7)
- 5 x indicator outputs (CN6 + CN7)
- B&B bus connector (CN1)

#### POWER

- 5V 85mA
- 24V 40mA – 900mA

#### DIMENSIONS

- W21.1 \* H10

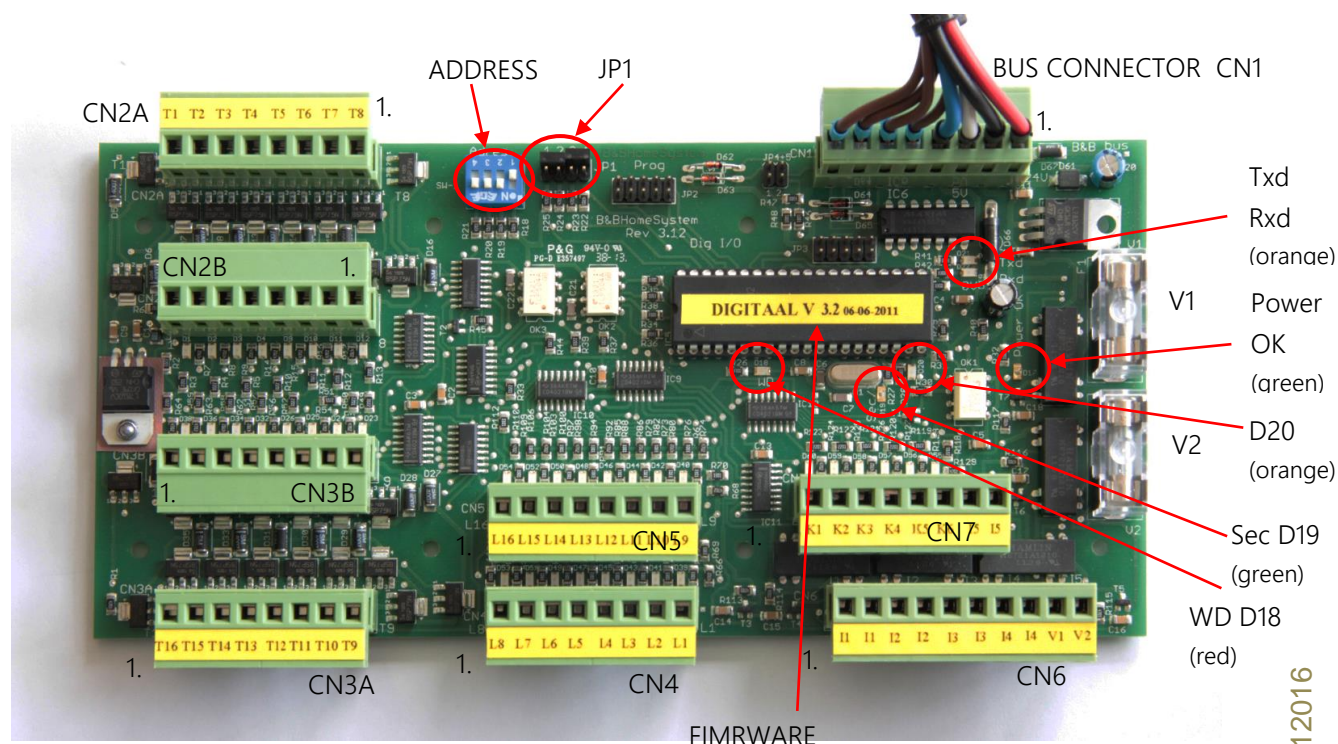


Figure 1

B&B 22012016



## PIN CONNECTIONS

### BUS CONNECTOR

On connector CN1 you can find all the signals and power connections for the B&B bus. Connection and set-up of the B&B bus, see document “BB Bus Connection and set-up”.

#### CN1

1	+24V
2	GND 24V
3	+5V
4	GND 5V
4	T+
6	T-
7	R+
8	R-

### PUSHBUTTONS

The pushbutton connections are located on the connectors CN2B and CN3B. They are marked individual with T1–T16. T1 stands for button of output 1, T2 for button of output 2, etc.

The second digital print contains T17-T32, etc. One side of the pushbuttons is connected to the corresponding Txx input and the other side is connected to the GND 24V. (Figure 2)

#### CN2B

1	Pushbutton T8
2	Pushbutton T7
3	Pushbutton T6
4	Pushbutton T5
4	Pushbutton T4
6	Pushbutton T3
7	Pushbutton T2
8	Pushbutton T1

#### CN3B

1	Pushbutton T16
2	Pushbutton T15
3	Pushbutton T14
4	Pushbutton T13
5	Pushbutton T12
6	Pushbutton T11
7	Pushbutton T10
8	Pushbutton T9

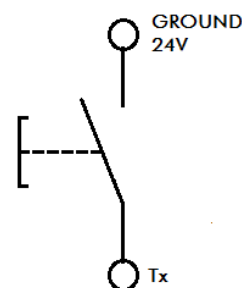


Figure 2 Pushbutton connection

These pushbutton can be used directly as buttons for the corresponding outputs or configured as extra comfort key. As long as the communication between the module and the server is correct these extra comfort keys can be used independent from the outputs. If the communication between the module and the server is interrupted for 20sec these buttons can't be used independent from the outputs. The extra comfort function will not work and the buttons just controls the corresponding outputs. If the communication is restored the extra comfort keys will work again independent from the outputs.

For programming these functions see “Activate extra comfort keys”. If there are extra comfort keys activated in the module, led D20 will turn on.

## 16 OUTPUTS

On the connector CN2A and CN3A there are 16 outputs.

These outputs can be used to connect 24V dc impulse relays or 24V dc relays.

The A1 connection of the relays coil is connected to the V1 power output on connector CN6.

The A2 connection of the relays coil is connected to the corresponding Tx Output.

CN2A		CN3A	
1	Output T8	1	Output T16
2	Output T7	2	Output T15
3	Output T6	3	Output T14
4	Output T5	4	Output T13
4	Output T4	5	Output T12
6	Output T3	6	Output T11
7	Output T2	7	Output T10
8	Output T1	8	Output T9

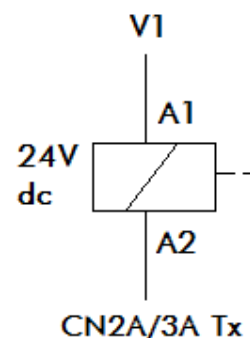


Figure 3 Output connection

Outputs can be:

16x 24Vdc impulse relays, switch output 16A/250V AC

16x 24Vdc relays, double pole switch output 10A/250V AC

16x 24Vdc relays, quad pole switch output 7A/250V AC wired as Shutter/Curtain (see figure 4)

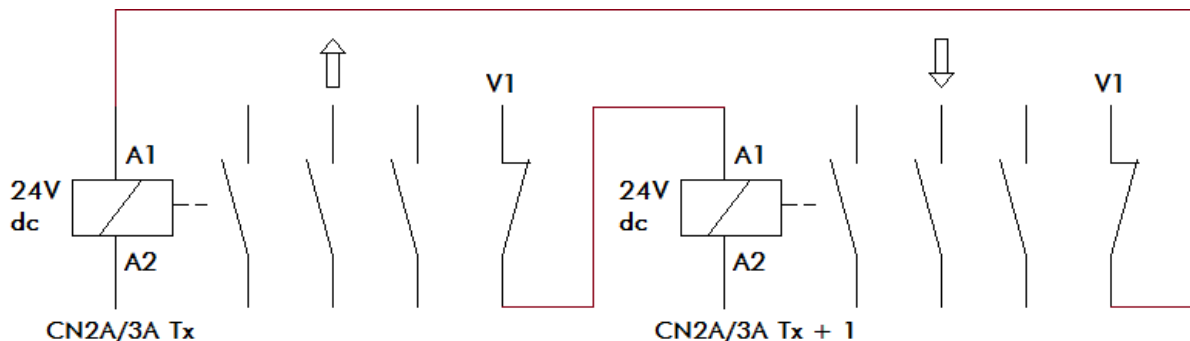


Figure 4 Output connection for Shutter/Curtain

## 16 INPUTS

On the connector CN4 and CN5 there are 16 inputs.

These inputs can be used if the digital input/output card is not set as impulse relais outputs card. When the card is set as impulse relais the inputs are used to sense if the impulse relais is on or off.

One side of the input contact is connected to the V2 power output on connector CN6 and the other side to the corresponding Lx input. (Figure 5)

CN4		CN5	
1	Input L8	1	Input L16
2	Input L7	2	Input L15
3	Input L6	3	Input L14
4	Input L5	4	Input L13
5	Input L4	5	Input L12
6	Input L3	6	Input L11
7	Input L2	7	Input L10
8	Input L1	8	Input L9

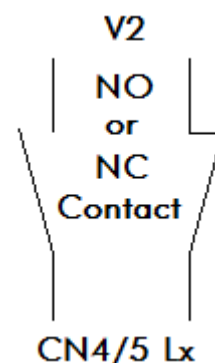


Figure 5 Input connection

Remark: Digital input/output module with address 14 can be used for all the different types of functions, but B&B can't receive inputs from this module. So if the module is configured as relais, simulation impuls relais or shutter/curtain, the inputs can't be used.

## COMFORT KEYS + INDICATOR OUTPUTS

The comfort keys connections are located on the connector CN7. They are marked individual with K1–K6. K1 stands for comfort key 1, K2 for comfort key 2, etc.

The second digital print contains K7-K12, etc. One side of the pushbuttons is connected to the corresponding Kxx input and the other side is connected to the GND 24V. (Figure 6)

CN6		CN7	
1	I1	1	K1
2	I1	2	K2
3	I2	3	K3
4	I2	4	K4
4	I3	5	K5
6	I3	6	K6
7	I4	7	I5
8	I4	8	I5
9	V1		
10	V2		

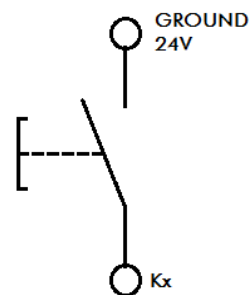


Figure 6 Pushbutton connection

The indicator outputs connection is located on the connector CN6 and CN7.

They are marked individual with I1-I1, I2-I2, I3-I3, I4-I4 and I5-I5.

Comfort key K6 doesn't have an indicator output.

The second digital print contains I7 -> I11, etc.

The indicator outputs are dry contacts:

Switching Voltage Vdc 24V max.

Switching Current 250mA max.

## CONFIGURATION ADDRESS DIP SWITCH

The Address switch is used to set the address of the digital input/output module. After setting/changing the address the module has to be restarted. This is done by disconnecting the bus connector CN1 (right corner) for 10 seconds. See table 1 for correct addressing.

	SW-4	SW-3	SW-2	SW-1
1	ON	ON	ON	ON
2	ON	ON	ON	OFF
3	ON	ON	OFF	ON
4	ON	ON	OFF	OFF
5	ON	OFF	ON	ON
6	ON	OFF	ON	OFF
7	ON	OFF	OFF	ON
8	ON	OFF	OFF	OFF
9	OFF	ON	ON	ON
10	OFF	ON	ON	OFF
11	OFF	ON	OFF	ON
12	OFF	ON	OFF	OFF
13	OFF	OFF	ON	ON
14	OFF	OFF	ON	OFF
15	OFF	OFF	OFF	ON
16	OFF	OFF	OFF	OFF

Table 1 Address DIP switch settings

## CONFIGURATION JP1

JP1 is used to specify the function of the digital input/output module. See figure 7 for settings.

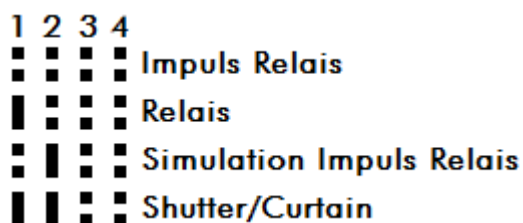


Figure 7 JP1 settings

Remarks: Digital input/output module with address 14 can be used for all the different types of functions, but B&B can't receive inputs from this module. So if the module is configured as relais, simulation impuls relais or shutter/curtain, the inputs can't be used.

If the module is set to shutter/curtain and the firmware version is "Digitaal V 3.3 30-01-2012" or higher it is possible to programming the individual shutter/curtain times in the processor. If a time is programmed inside the module led D20 will turn on. For programming these times see "Programming shutter/curtain times".

## ACTIVATION IN B&amp;B SETUP

Open the B&B Home System setup program. There you can set the “# Digital modules”.

If the card is set to Relais, Simulation Impulse Relais or Shutter/Curtain you can select if the option to receive inputs. This can be done by selecting the correct “Inputs” checkmark in the B&B Home System setup program. With digital input/output card 14 it isn't possible to connect inputs. (See Configuration JP1)

The screenshot shows the 'B&B Home System SETUP' window. The 'B&B BUS' section is highlighted with a green circle. It contains the following settings:

- B&B Port: 4
- # Digital modules: 16
- Inputs: 14 checkboxes, with the first 13 checked and the last one unchecked.
- # Dimmpacks: 0
- Setup button

Other sections visible include:

- AUDIO:** B&O Port: 0, # B&O Rooms: 8, RC5 Port: 0, IR Port: 0, BOSE Port: 0
- STARTUP KOMFORT:** Comfort key: 384,  USB Key
- MP3:** MP3 Active: , Disk: C, Itunes version: < 7
- SOUND:** Output Relais: 96, Sound actief:
- TOUCHSCREEN 5\":** Port Touchscreen: 0, # Touchscreen: 1
- AUDIO ACCESS:** Port: 0, # Zones: 16
- LANGUAGE:** Nederlands
- PASSWORDS:** User: \*\*\*\*\* (masked), Manager: \*\*\* (masked), Service: \*\*\* (masked)

On the right side, there are buttons for: Telephony/GSM, Temperature, Alarm, Proximity, Video, Extern RS232, Extern TCP-IP, EIB..., Log File..., User Data, Cancel, and OK.

Figuur 8 B&B Home System SETUP

## FIRMWARE VERSION

Digitaal V 3.2 06-06-2011 => impulse relais, relais, simulation impulse relais and shutter/curtain without programming the individual shutter/curtain times in the processor.

Digitaal V 3.3 30-01-2012 => shutter/Curtain with possibility of programming the individual shutter/curtain times in the processor.

ORDER INFORMATION

**BBDIGITALTEL** Digital input/output module as Impuls Relais  
with 16 impuls relais (1 pole) included  
Dimension Width 21.1cm + 16x 1.8cm = 49.9cm, height 10cm

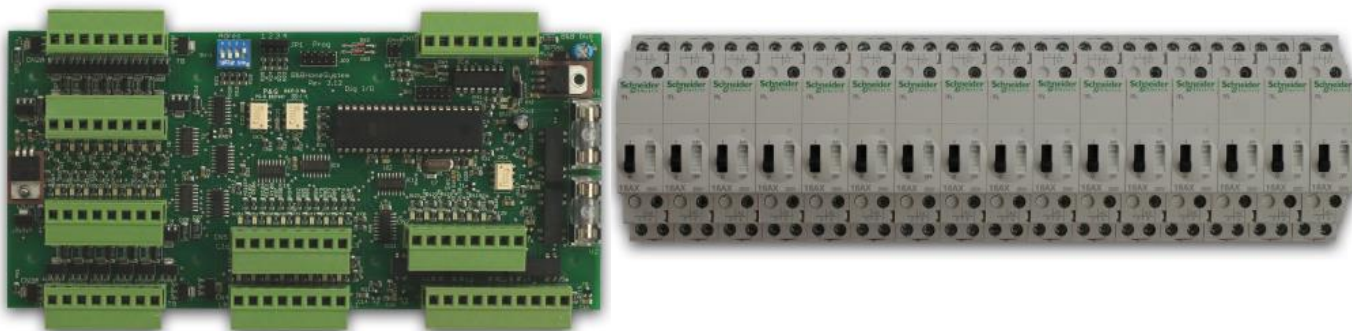


Figure 9 Digital input/output module as "Impuls Relais"

**BBTEL2P** Extra double pole contact  
Dimension Width 0.9cm, height 10cm

**BBDIGITALTELSIM** Digital input/output module as Simulation Impuls Relais  
with 16x 10A/250VAC relais (2 pole) included  
Dimension Width 21.1cm + 16x 1.6cm = 46,7cm, height 10cm

**BBDIGITALREL** Digital input/output module as Relais  
with 16x 10A/250VAC relais (2 pole) included  
Dimension Width 21.1cm + 16x 1.6cm = 46,7cm, height 10cm

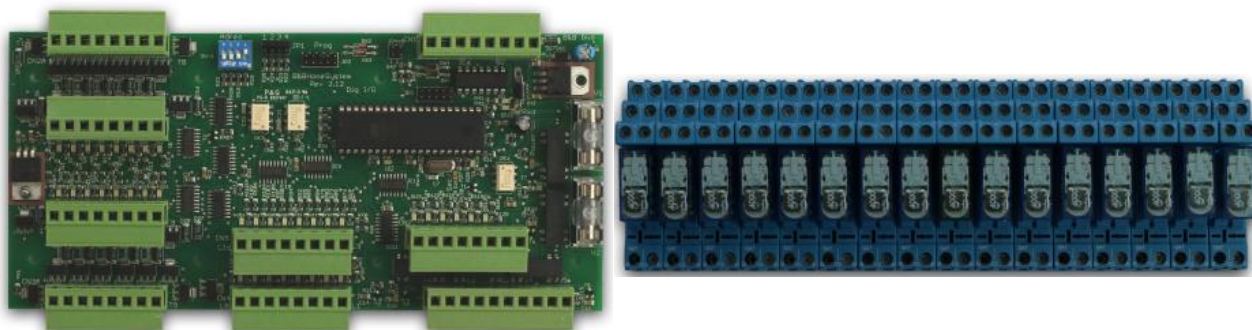


Figure 10 Digital input/output module as "Simulation Impuls Relais" or "Relais"

**BBDIGITALROL** Digital input/output module as Shutter/Curtain  
With 16x 7A/250VAC relais (3 pole) included  
Dimension Width 21.1cm + 16x 2.7cm = 64.3cm, height 10cm

## ACTIVATE EXTRA COMFORT KEYS

To configure the extra comfort keys the B&B home system must be in setup.

“Mode” -> “Setup” -> password

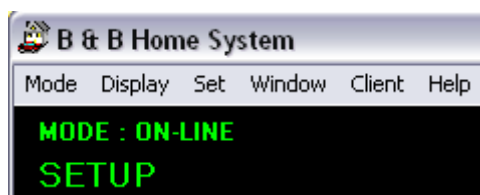


Figure 11 Mode Setup

“Set” -> “Inputs”

“Mode” -> “Extra Comfort Buttons”

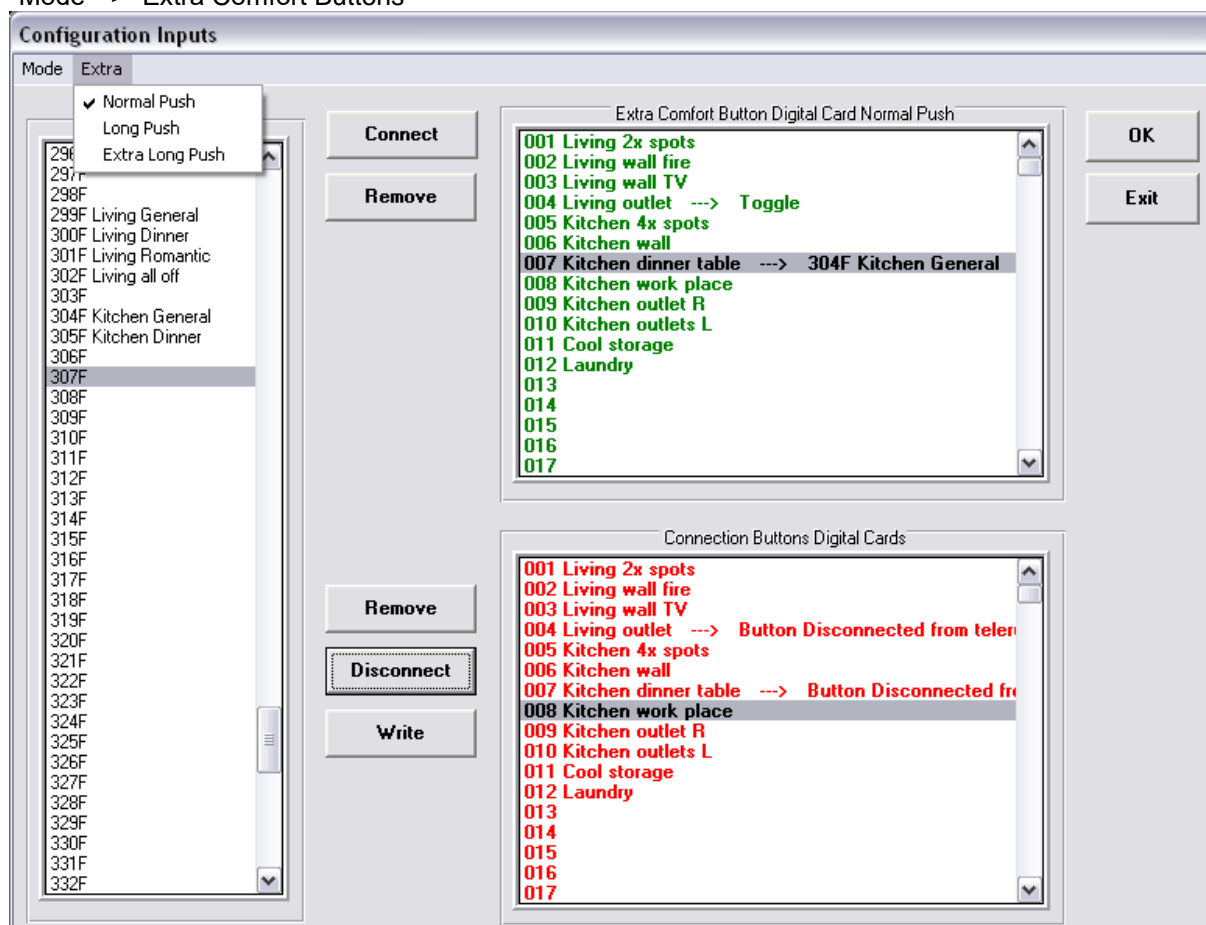


Figure 12 Programming Extra Comfort Buttons

In the left screen you can choose the function or comfort key to connect with the push button.

At the right top screen you can choose the push button to connect the extra comfort function.

In “Extra” you can select if this function must be connected with the “Normal Push”, “Long Push” or “Extra Long Push” of the push button.

At the right bottom screen you can choose the push button that must be activated for extra comfort function. Select the push button and then “Disconnect” to activated the extra comfort function and disconnect it from directly be connected to the corresponding output. The extra comfort function can work. Select the push button and then remove to deactivated the extra comfort function and connect the button back to the corresponding output.

After changing the connection you must “Write” the settings to the digital input/output module.

When the settings are written to the digital input/output card led D20 will turn on if there is a push button disconnected from his corresponding output. If there is no push button of the Digital Card disconnected from his corresponding output led D20 will turn off.



## PROGRAMMING SHUTTER/CURTAIN TIMES

To program the shutter/curtain times into the digital input/output module the B&B Home application must be turned off and the program "Time Screen.exe" must be activated.

	1/4 sec		
049 Living screen 1 Up	180	45 sec	Test
050 Living screen 1 Dn	180	45 sec	Test
051 Living screen 2 Up	600	2 m 30 s	Test
052 Living screen 2 Dn	600	2 m 30 s	Test
053 Kitchen screen Up	240	1 m	Test
054 Kitchen screen Dn	240	1 m	Test
055 Dining screen Up	132	33 s	Test
056 Dining screen Dn	132	33 s	Test
057 Office screen Up	180	45 sec	Test
058 Office screen Dn	180	45 sec	Test
059 Master room scr Up	228	57 s	Test
060 Master room scr Dn	228	57 s	Test
061 Bedroom 1 scr Up	228	57 s	Test
062 Bedroom 2 scr Dn	228	57 s	Test
063 Bathroom screen Up	40	10 s	Test
064 Bathroom screen Dn	40	10 s	Test

Figure 13 Time settings for Shutter/Curtain Cards

Choose the shutter/curtain card u wishes to program.

Select "Screen Card" and then Save. No it is possible to program the time of each individual shutter/curtain output. The time is ¼ sec accurate.

After changing the settings press the "Save" button and "Write Page" or "Write All" to send the programming to the digital input/output module.

## ERROR SOLVING

WD18 Error	Power OK	Sec D19 Heartbeat	TX data	RX data	D20 Extra	B&B Bus Monitor
Red	Green	Green	Orange	Orange	Orange	
OFF	ON	Flash	Flash	Flash	OFF	Everything is OK
OFF	ON	Flash	Flash	Flash	ON	Everything is OK + extra programming in module
OFF	ON	Flash	Flash	Flash	-	Bus Address Fault
OFF	ON	Flash	Flash	Flash	-	Check DIP-switch for same addresses
-	ON	Flash	Flash	Flash	-	TX data connection to server isn't correct
-	OFF	Flash	Flash	Flash	-	Check B&B bus cabling
OFF	ON	Flash	Flash	Flash	-	Powersupply +5V/24V OK
ON	OFF	Flash	Flash	Flash	-	No bus connected stand along operation
ON	ON	Flash	Flash	Flash	-	5V OK, 24V not connected or Fuse V1 or V2 defect
ON	ON	Flash	Flash	Flash	-	No bus connected stand along operation
ON	ON	Flash	Flash	Flash	-	5V not connected or processor error
ON	ON	Flash	Flash	Flash	-	24V not connected or Fuse V1 or V2 defect
ON	ON	Flash	Flash	Flash	-	Bus Address Fault
ON	ON	Flash	Flash	Flash	-	Check DIP-switch or setup or B&B bus cabling
ON	ON	Flash	Flash	Flash	-	Bus Fault B&B
ON	ON	Flash	Flash	Flash	-	Check B&B bus cabling or settings B&B RS232 port number

Figuur 8 Error solving