

Photocell, fault monitoring, switch-over and flash controller unit
Data Sheet and Installation examples**Key features**

- Extremely reliable
- Very low power consumption
- Suitable for solar cell applications
- Integrated photocell
- Master-slave switch-over
- Flash or steady burn mode
- Alarm output

Benefits

- Long maintenance intervals
- Low battery costs

Characteristics

- User selectable photocell sensitivity
- Microprocessor controlled
- Fault monitoring based on current limits through LED lamp
- Potential free relay alarm
- Shock resistant Polycarbonate enclosure (degree of protection IP65)
- Dimensions (LxWxH): 200 mm x 200 mm x 130 mm

User selectable parameter switches

- Photocell on/off
- Output 1 (Master) only
- Current Alarm level
- Photocell Sensitivity
- Steady burn / Flash mode
- Indicator LEDs on/off

Indicator LEDs

- Over-current alarm
- Under-current alarm
- Output 1 (Master) ON
- Output 2 (Slave) ON
- Self test

Electrical characteristics

- Operating voltage range 12...28 V_{DC}
With 12V_{DC} operating voltage light
- Operating voltage range 23...28 V_{DC}
With 24V_{DC} operating voltage light
- Operating voltage range 44...59 V_{DC}
With 48V_{DC} operating voltage light
- Power consumption @12 V_{DC} 0,3W
- Power consumption @24 V_{DC} 0,7W
- Power consumption @48 V_{DC} 1,5W
- Operating temperature range -40...+55 °C

Order code:

CEL-CSW-F MODEL 2A (current alarm range 45mA-2250mA)**CEL-CSW-F MODEL 4A (current alarm range 90mA-4120mA)****Alarm relay characteristics**

- Two pole contacts: Normally Open (NO) and Normally Closed (NC)
- Active when CSW-F is powered
- Switch voltage (max): 110 V_{DC} / 125 V_{AC}
- Switch current (max): 1 A
- Switch power (max): 30 W
- Contact resistance 0.1 ohm

Flash mode

- Flash 60 FPM , Flash duration 250 ms
- Flash 40 FPM , Flash duration 250 ms
- Flash: 1s on, 0,5s off, 1s on, 1,5 s off *

*BMVBW LS 11/60.01.87-01/5 Va 02, 24. September 2002, Page 15.

NOTE:

Several light units can be connected in parallel, but then separate currents has to be summed up to get the correct current limit. Alarm will only be triggered outside the current limits.

This document is valid for software CSWB 1.06-0 .



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CSW-F

Model 2A and Model 4A

Description of operation:

CSW measures the current consumption of the output in use every 0,5 seconds. If five consecutive measurements give fault, the group is switched off and an alarm is generated, and the second output (if available) is taken in use. After 30 minutes CSW will try to switch the first (faulty) output back on, makes five measurements, and if it is not faulty anymore, the alarm is turned off. If it is still faulty the alarm stays on and the other output (if available) is kept on. Alarm is also generated in case of power loss.

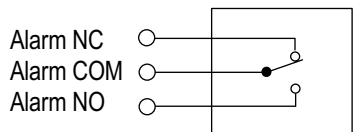
Remember always to check that the output selection is correct: only output 1 in use or both outputs in use.

CSW DIP Switches table shows the available ranges for current alarms for defining the normal current consumption for the system depending on the number and type of LED lights used.

The same table also shows how to set the photocell into use or out of use, and how to define its sensitivity. If photocell is used, CSW-unit must be installed outdoors.

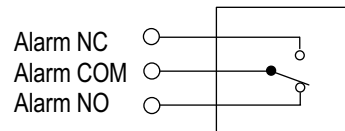
Note! If no slave unit is connected to group 2 as a backup, all LED lights of the failed group are automatically switched off when an alarm is generated.

ALARM RELAY:



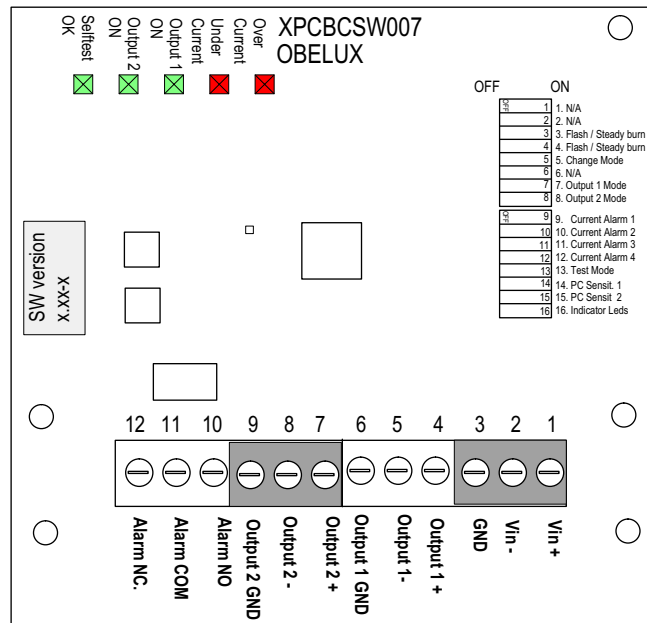
ALARM RELAY

Relay when power connected, no alarm.



ALARM RELAY

Relay when alarm on, or no power.

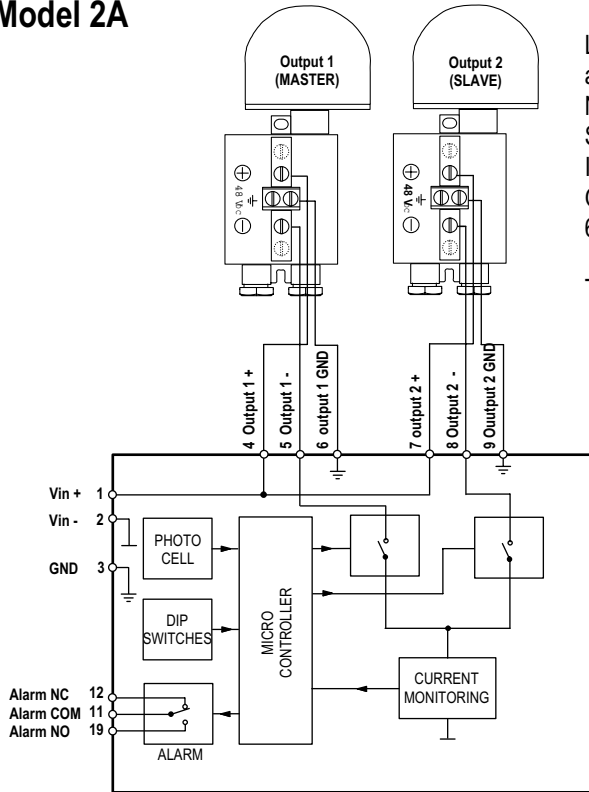


Connectors

- 1 Vin + Power supply, positive input
12VDC, 24VDC or 48VDC
- 2 Vin - Power supply, negative input
- 3 GND Power supply ground, power supply cable shield.
- 4 Output 1 + Output 1 (Master) output positive
- 5 Output 1 - Output 1 (Master) output negative
- 6 Output 1 GND Output 1 (Master) cable shield
- 7 Output 2 + Output 2 (Slave) output positive
- 8 Output 2 - Output 2 (Slave) output negative
- 9 Output 2 GND Output 2 (Slave) cable shield
- 10 Alarm NC External alarm output, Normally Closed
- 11 Alarm NO External alarm output, Normally Open
- 12 Alarm COM External alarm output, COMmon

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Example 1 Model 2A



LED lights (10-48-F) connected to both Output 1 (Master) and Output 2 (Slave).

No Photocell control.

Steady burn.

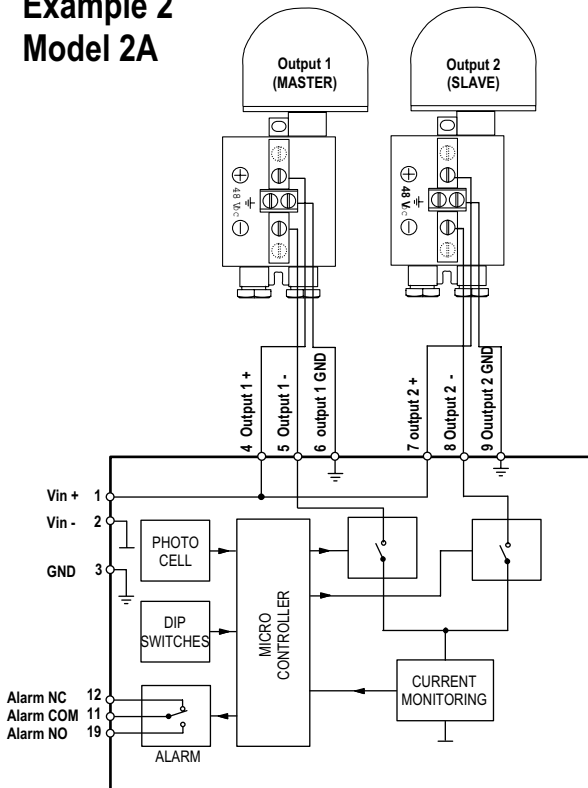
If master fails, slave is taken into use and an alarm is generated.

One light takes 100 mA, and the current alarm range is set to 65 to 195 mA.

The correct DIP switch settings are shown below.

OFF	ON	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Flash / Steady burn
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Flash / Steady burn
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Change Mode
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7. Output 1 Mode
<input type="checkbox"/>	<input checked="" type="checkbox"/>	8. Output 2 Mode
<input type="checkbox"/>	<input checked="" type="checkbox"/>	9. Current Alarm 1
<input type="checkbox"/>	<input checked="" type="checkbox"/>	10. Current Alarm 2
<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. Current Alarm 3
<input type="checkbox"/>	<input checked="" type="checkbox"/>	12. Current Alarm 4
<input type="checkbox"/>	<input checked="" type="checkbox"/>	13. Test Mode
<input type="checkbox"/>	<input checked="" type="checkbox"/>	14. PC Sensit. 1
<input type="checkbox"/>	<input checked="" type="checkbox"/>	15. PC Sensit. 2
<input type="checkbox"/>	<input checked="" type="checkbox"/>	16. Indicator Leds

Example 2 Model 2A



LED lights (10-48-F) connected to both output 1 (Master) and output 2 (Slave).

Photocell control, 200 lux selected.

Steady burn.

If master fails, slave is taken into use and an alarm is generated.

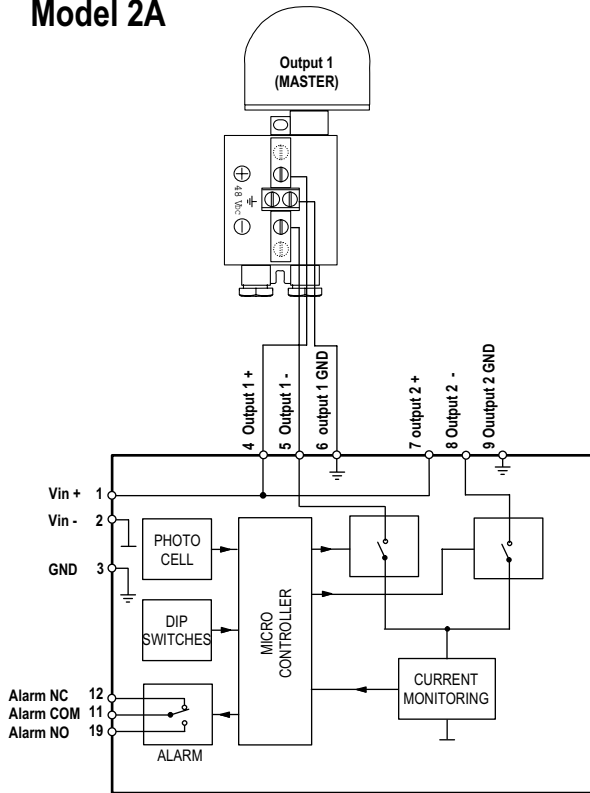
One light takes 100 mA, and the current alarm range is set to 65 to 195 mA.

The correct DIP switch settings are shown below.

OFF	ON	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Flash / Steady burn
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Flash / Steady burn
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Change Mode
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7. Output 1 Mode
<input type="checkbox"/>	<input checked="" type="checkbox"/>	8. Output 2 Mode
<input type="checkbox"/>	<input checked="" type="checkbox"/>	9. Current Alarm 1
<input type="checkbox"/>	<input checked="" type="checkbox"/>	10. Current Alarm 2
<input type="checkbox"/>	<input checked="" type="checkbox"/>	11. Current Alarm 3
<input type="checkbox"/>	<input checked="" type="checkbox"/>	12. Current Alarm 4
<input type="checkbox"/>	<input checked="" type="checkbox"/>	13. Test Mode
<input type="checkbox"/>	<input checked="" type="checkbox"/>	14. PC Sensit. 1
<input type="checkbox"/>	<input checked="" type="checkbox"/>	15. PC Sensit. 2
<input type="checkbox"/>	<input checked="" type="checkbox"/>	16. Indicator Leds

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Example 3 Model 2A

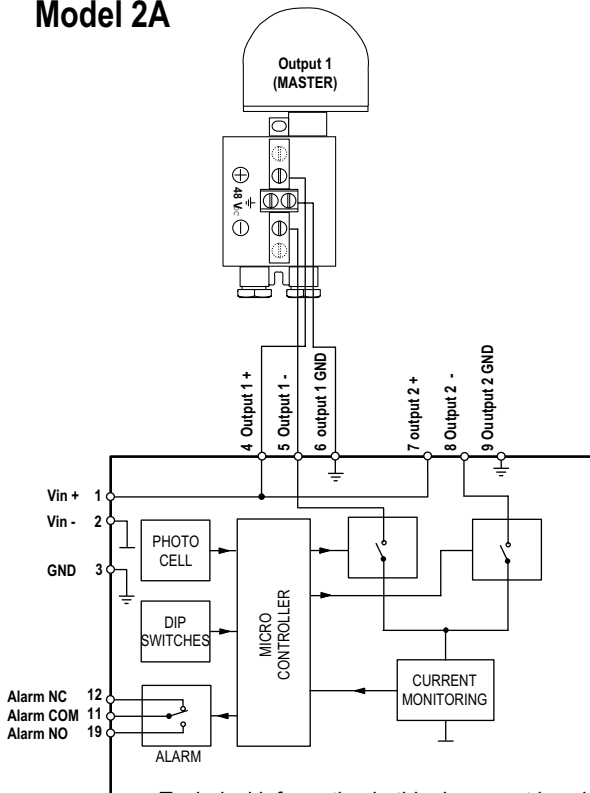


A LED light (10-48-F) connected to Output 1 (Master).
No Photocell control.
Steady burn.
One light takes 100 mA, and the current alarm range is set to 65 mA to 195 mA.
If the current consumption is outside this range, an alarm is generated.

The correct DIP switch settings are shown below.

OFF	ON	
OFF	1	1. N/A
OFF	2	2. N/A
OFF	3	3. Flash / Steady burn
OFF	4	4. Flash / Steady burn
OFF	5	5. Change Mode
OFF	6	6. N/A
OFF	7	7. Output 1 Mode
OFF	8	8. Output 2 Mode
OFF	9	9. Current Alarm 1
OFF	10	10. Current Alarm 2
OFF	11	11. Current Alarm 3
OFF	12	12. Current Alarm 4
OFF	13	13. Test Mode
OFF	14	14. PC Sensit. 1
OFF	15	15. PC Sensit. 2
OFF	16	16. Indicator Leds

Example 4 Model 2A



A LED light (10-48-F) connected to Output 1 (Master).
Photocell control, 200 lux selected.
Steady burn.
One light takes 100 mA, and the current alarm range is set to 65 to 195 mA.
If the current consumption is outside this range, an alarm is generated.

The correct DIP switch settings are shown below.

OFF	ON	
OFF	1	1. N/A
OFF	2	2. N/A
OFF	3	3. Flash / Steady burn
OFF	4	4. Flash / Steady burn
OFF	5	5. Change Mode
OFF	6	6. N/A
OFF	7	7. Output 1 Mode
OFF	8	8. Output2 Mode
OFF	9	9. Current Alarm 1
OFF	10	10. Current Alarm 2
OFF	11	11. Current Alarm 3
OFF	12	12. Current Alarm 4
OFF	13	13. Test Mode
OFF	14	14. PC Sensit. 1
OFF	15	15. PC Sensit. 2
OFF	16	16. Indicator Leds

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**Photocell, fault monitoring, switch-over and flash controller unit
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Switch	CSW DIP switches				04.08.2005			
1 to 2	not used							
3 to 4	Steady burn / Flash mode							
	3	4						
	on	on	Steady burn					
	on	off	Flash 60 FPM , Flash duration 250 ms					
	off	on	Flash 40 FPM , Flash duration 250 ms					
	off	off	Flash: 1s on, 0,5s off, 1s on, 1,5 s off *					
	BMVBW LS 11/60.01.87-01/5 Va 02, 24. September 2002, Page 15.							
5	Change mode							
	off Must be always off							
6	not used							
7	Output mode 1, Photocell ON / OFF							
	on Photocell on. Day and night switch in use							
	off Photocell off							
8	Output mode 2							
	on A LED light connected to Output 1 (Master) only							
	off LED lights connected to both Output 1 (Master) and Output 2 (Slave)							
9 to 12	Current alarm range				Model 2A		Model 4A	
	9	10	11	12	low limit [mA]	high limit [mA]	low limit [mA]	high limit [mA]
	on	on	on	on	45	135	90	250
	on	on	on	off	65	195	120	360
	on	on	off	on	85	255	160	460
	on	on	off	off	100	300	180	550
	on	off	on	on	130	390	230	710
	on	off	on	off	175	525	320	960
	on	off	off	on	200	600	370	1100
	on	off	off	off	225	675	400	1230
	off	on	on	on	250	750	460	1370
	off	on	on	off	275	825	500	1510
	off	on	off	on	300	900	550	1650
	off	on	off	off	325	975	590	1780
	off	off	on	on	400	1200	730	2200
	off	off	on	off	500	1500	910	2730
	off	off	off	on	650	1950	1190	3570
	off	off	off	off	750	2250	2250	4120
13	Test mode							
	on Photocell switched on after 3 seconds delay and off after 3 seconds delay							
	off Photocell switched on after 3 seconds delay and off after 3 minutes delay							
14 to 15	Photocell sensitivity							
	14	15						
	on	on	100 lux on, 400 lux off					
	on	off	100 lux on, 100 lux off					
	off	on	200 lux on, 200 lux off					
	off	off	400 lux on, 400 lux off					
16	Indicator LEDs on/off							
	on Indicator LEDs in use							
	off Indicator LEDs not used							
LEDs								
Over Current			Current too high (red LED)					
Under Current			Current too low (red LED)					
OUTPUT1 ON			Output 1 (master) used (Green LED)					
OUTPUT2 ON			Output 2 (slave) in use (Green led)					
Self test OK			Steady green, when everything is OK. The operation of the processor is monitored continuously. In case of any malfunction, the green LED is switched off.					

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Type:	Current (mA):	CSW model:
10-12-F	200	2A
32-12-F	750	2A
30-12-CST	830	2A
10-24-F	190	2A
32-24-F	380	2A
30-24-CST	420	2A
150-24-CST	1600	2A or 4A
MI-IF-024	2000	2A, 4A or CSW-32-48-F, CSW-32-48-GPS
10-48-F	100	2A
32-48-F	190	2A
30-48-CST	210	2A
MI-IF-048	1000	2A , 4A or CSW-32-48-F, CSW-32-48-GPS