

## Photocell, Fault Monitoring, Switch-Over and Flash Controller Unit - Data Sheet and Installation examples

CEL-CSW-DCW-04-F - Two Output channels

### Key features

- Extremely reliable
- Very low power consumption
- Suitable for solar cell applications
- Integrated photocell
- Main-spare 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 flow through LED lamp
- Potential free relay alarm
- Shock resistant Polycarbonate enclosure (degree of protection IP65)
- Dimensions (LxWxH): 200mm x 200mm x 130mm

### User selectable parameter switches

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

### Indicator LEDs

- Over-current alarm
- Under-current alarm
- Output 1 (Main) ON
- Output 2 (Spare) ON
- Selftest OK

### Electrical characteristics

- Operating voltage range 12 ... 20V<sub>DC</sub>  
With 12V<sub>DC</sub> operating voltage light
- Operating voltage range 23 ... 28V<sub>DC</sub>  
With 24V<sub>DC</sub> operating voltage light
- Operating voltage range 44 ... 59V<sub>DC</sub>  
With 48V<sub>DC</sub> operating voltage light
- Power consumption @12 V<sub>DC</sub> 0,3W
- Power consumption @24 V<sub>DC</sub> 0,7W
- Power consumption @48 V<sub>DC</sub> 1,5W
- Operating temperature range -40 ... +55°C

### Order code:

CSW-DCW-0A5-F (current alarm range 12mA-770mA)  
CSW-DCW-02-F (current alarm range 45mA-2250mA)  
CSW-DCW-04-F (current alarm range 90mA-4120mA)



### Alarm relay characteristics

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

### Flash mode

- Flash 60 FPM, Flash duration 250ms
- Flash 40 FPM, Flash duration 250ms
- Flash 20 FPM, Flash duration 250ms

Option (SW: CSWB 1.06-4\_DE\_40\_60):

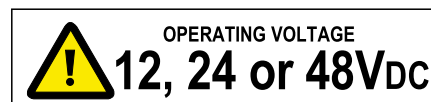
-Flash: 1s on, 0,5s off, 1s on, 1,5 s off \*

\*BMW BW 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 1.06-4\_20\_40\_60.



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# Photocell, Fault Monitoring, Switch-Over and Flash Controller Unit - Data Sheet and Installation examples

## CEL-CSW-DCW-04-F - Two Output channels

### CEL-CSW-DCW-OA5-F, CEL-CSW-DCW-02-F and CEL-CSW-DCW-04-F

#### Description of operation:

The CSW controller measures the current consumption of the operational output every 0,5 seconds. If five consecutive inaccurate measurements are recorded, the output is switched off, an alarm is generated and the second output (if selected) is taken into use. After 30 minutes the CSW controller will attempt to switch the first (faulty) output back on, makes five measurements, and if the fault is cleared, the alarm is turned off. If it is still faulty the alarm stays on and the second output (if selected) is kept on. Alarm is also generated in case of power loss.

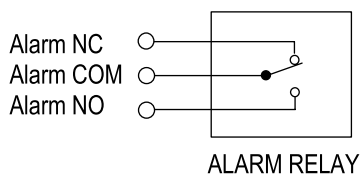
Remember always to check the DIP switch settings that output selections are correctly selected.

The CSW DIP switch settings tables on the following pages, show the selectable current limit ranges for defining the normal current consumption dependent on the types and numbers of LED lights used.

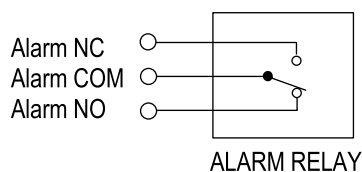
The same table also shows additional functionality such as the photocell operation, country specific flash codes, flash rates, self-test modes and others.

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

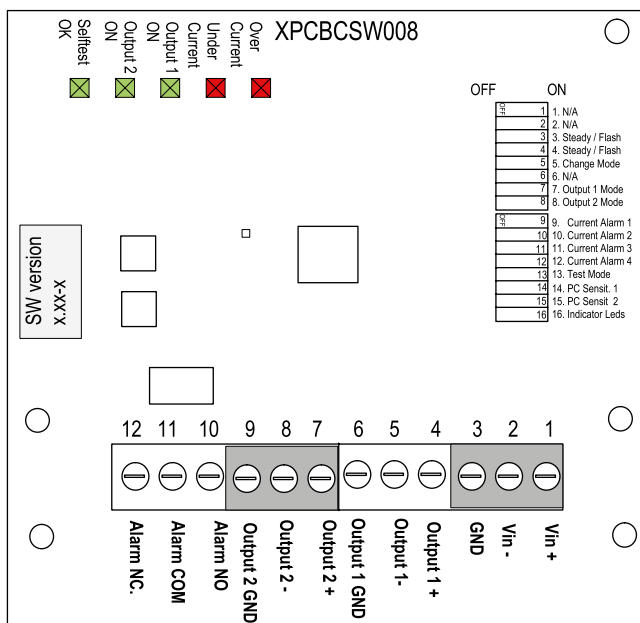
#### ALARM RELAY:



Relay when power connected, no alarm.



Relay when alarm on, or no power.



#### Connectors

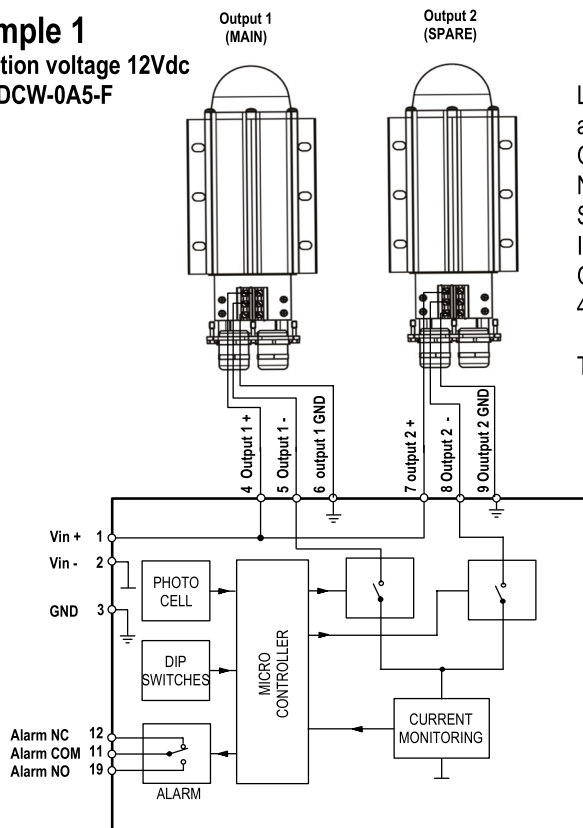
- |                |   |
|----------------|---|
| 1 Vin +        | Power supply, positive input<br>12VDC, 24VDC or 48VDC |
| 2 Vin -        | Power supply, negative input                          |
| 3 GND          | Power supply ground, power supply cable shield.       |
| 4 Output 1 +   | Output 1 (Main) output positive                       |
| 5 Output 1 -   | Output 1 (Main) output negative                       |
| 6 Output 1 GND | Output 1 (Main) cable shield                          |
| 7 Output 2 +   | Output 2 (Spare) output positive                      |
| 8 Output 2 -   | Output 2 (Spare) output negative                      |
| 9 Output 2 GND | Output 2 (Spare) 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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## CEL-CSW-DCW-04-F - Two Output channels

### Example 1

Operation voltage 12Vdc  
CSW-DCW-0A5-F



LED lights (LI-10-DCW-F) connected to both Output 1 (Main) and Output 2 (Spare).

Operation voltage 12Vdc

No Photocell control.

Steady burn.

If main fails, spare is taken into use and an alarm is generated.

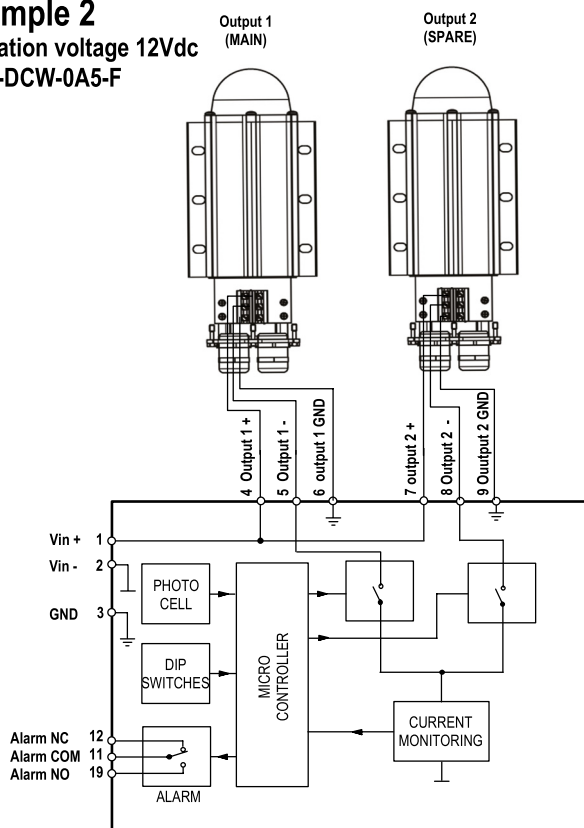
One light takes 70 mA, and the current alarm range is set to 48to 112 mA.

The correct DIP switch settings are shown below.

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

### Example 2

Operation voltage 12Vdc  
CSW-DCW-0A5-F



LED lights (LI-DCW-F) connected to both output 1 (Main) and output 2 (Spare).

Operation voltage 12Vdc

Photocell control, 200 lux selected.

Steady burn.

If main fails, spare is taken into use and an alarm is generated.

One light takes 70 mA, and the current alarm range is set to 48 to 112 mA.

The correct DIP switch settings are shown below.

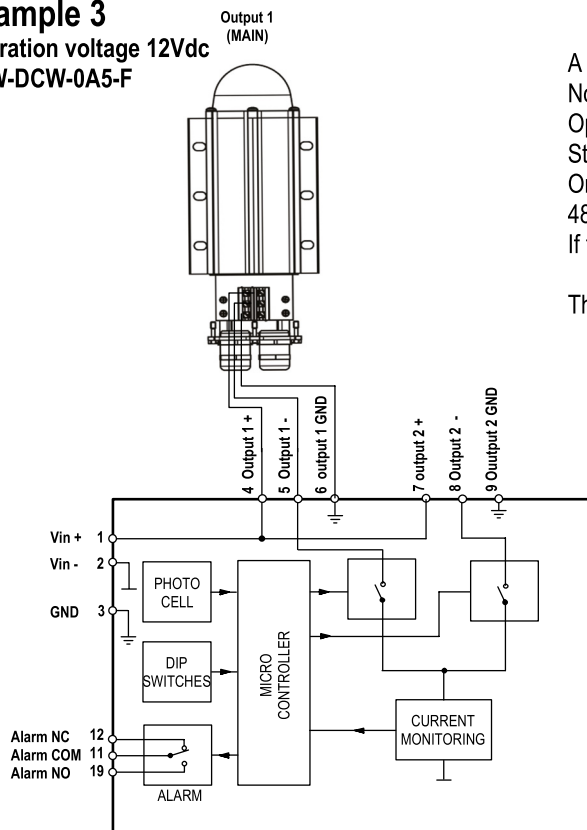
OFF	ON
<input type="checkbox"/>	<input type="checkbox"/> 1. N/A
<input type="checkbox"/>	<input type="checkbox"/> 2. N/A
<input type="checkbox"/>	<input type="checkbox"/> 3. Flash / Steady burn
<input type="checkbox"/>	<input type="checkbox"/> 4. Flash / Steady burn
<input type="checkbox"/>	<input type="checkbox"/>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

# Photocell, Fault Monitoring, Switch-Over and Flash Controller Unit - Data Sheet and Installation examples

## CEL-CSW-DCW-04-F - Two Output channels

### Example 3

Operation voltage 12Vdc  
CSW-DCW-0A5-F



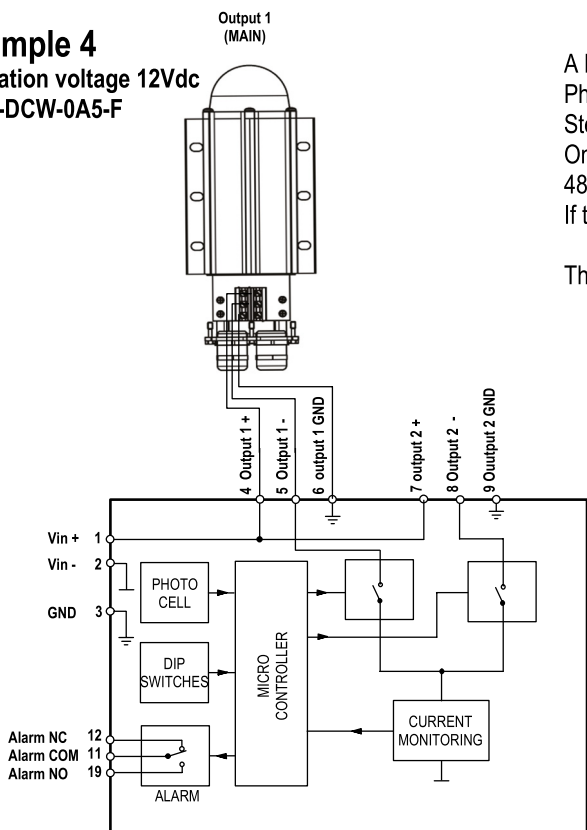
A LED light (LI-10-DCW-F) connected to Output 1 (Main).  
No Photocell control  
Operation voltage 12Vdc.  
Steady burn.  
One light takes 70 mA, and the current alarm range is set to 48 mA to 112 mA.  
If the current consumption is outside this range, an alarm is generated.

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 4

Operation voltage 12Vdc  
CSW-DCW-0A5-F



A LED light (LI-10-DCW-F) connected to Output 1 (Main).  
Photocell control, 200 lux selected.  
Steady burn.  
One light takes 70 mA, and the current alarm range is set to 48 to 112 mA.  
If the current consumption is outside this range, an alarm is generated.

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. Output2 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

# Photocell, Fault Monitoring, Switch-Over and Flash Controller Unit - Data Sheet and Installation examples

## CEL-CSW-DCW-04-F - Two Output channels

Switch	CSW-DCW-04-F switches					
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 20 FPM , Flash duration 250 ms			
5	Change mode					
	off Must be always off					
6	not used					
7	Photocell ON /OFF					
	on Photocell on. Day and night switch in use					
	off Photocell off					
8	Output 1-2					
	on A led light connected to Output 1 (Main) only					
	off Led lights connected to both Output 1 (Main) and Output 2 (Spare)					
9 to 12	Current alarm range				CSW-DCW-04-F	
	9	10	11	12	low limit[mA]	high limit[mA]
	on	on	on	on	90	250
	on	on	on	off	120	360
	on	on	off	on	160	460
	on	on	off	off	180	550
	on	off	on	on	230	710
	on	off	on	off	320	960
	on	off	off	on	370	1100
	on	off	off	off	400	1230
	off	on	on	on	460	1370
	off	on	on	off	500	1510
	off	on	off	on	550	1650
	off	on	off	off	590	1780
	off	off	on	on	730	2200
	off	off	on	off	910	2730
	off	off	off	on	1190	3570
	off	off	off	off	2250	4120
13	Photocell test mode					
	on - light switched on after 3 seconds delay and off after 3 seconds delay					
	off - light 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)			
	OUTPUT 1 ON		Output 1 (Main) used (Green LED)			
	OUTPUT 2 ON		Output 2 (Spare) used (Green LED)			
	Self test OK		Steady green, when everything is OK			

# Photocell, Fault Monitoring, Switch-Over and Flash Controller Unit - Data Sheet and Installation examples

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CEL-CSW-DCW-04-F - Two Output channels

## light unit current consumptions:

Type:	Voltage dc	Current (mA):	CSW -DCW-XX-F	CSW- XX - YY -F
10-12-F	12	200	02	12 - 16
32-12-F	12	750	02	12 - 16
30-12-CST	12	830	02	12 - 16
10-24-F	24	190	02	24 - 16
32-24-F	24	380	02	24 - 16
30-24-CST	24	420	02	24 - 16
150-24-CST	24	1600	04	24 - 16
10-48-F	48	100	02	48 - 16
32-48-F	48	190	02	48 - 16
30-48-CST	48	210	02	48 - 16
LI-10-DCW-F	12	70	0A5	12 - 02
LI-10-DCW-F	24	40	0A5	24 - 02
LI-10-DCW-F	48	23	0A5	48 - 02
LI-32-DCW-F	12	216	0A5	12 - 02
LI-32-DCW-F	24	110	0A5	24 - 02
LI-32-DCW-F	48	58	0A5	48 - 02
MI-IF-024	24	2400	04	24 - 16
MI-IF-048	48	1000	04	48 - 16

Example ordering codes for CSW:

CSW-DCW-02-F

CSW-24-16-F

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CEL-CSW-DCW-04-F - Two Output channels

