Key features

- 4 independent outputs with current monitoring at each output
- Integrated photocell, external photocell option (PCE-DCW-F)
- Several flashing modes
- Global flash sequence synchronisation with GPS
- Main/spare switch-over
- Alarm output (dry contact)
- GSM fault monitoring system available (SMS alarms)

Characteristics

- User-selectable operating parameters
- Fault monitoring based on current flow through LED lamp
- Potential-free relay alarm (dry contact)
- Shock-resistant polycarbonate enclosure (IP65)
- Enclosure dimensions (WxHxD): 300 mm x 200 mm x 132 mm
- Printed circuit board dimensions (WxH) 200 mm x 125 mm
- Weight 1.9 kg
- Cable glands: 5 x M25 (9-17 mm cable diameter) and 2 x M16 (4.5-10 mm cable diameter)

Electrical characteristics

- Wide operating voltage range 40 V_{DC} to 59 V_{DC}
- (must be equal to lamp voltage)
- Power consumption <1 W
- Operating temperature range -40 °C ...+55 °C

Photocell sensitivities

- OFF / 400 lx / 800 lx / 1600 lx / external photocell
- Optionally, OFF/ 200 lx / 400 lx / 800 lx / external photocell (values used with previous CSW model)

Flash frequencies

Steady burning / 20 fpm / 40 fpm / 60 fpm

Flash durations

- 100 ms / 250 ms / 500 ms
- CASA compliant flash durations (2/3 ON, 1/3 OFF)

Flash modes

- All outputs simultaneously
- ICAO sequential flash for 3 light units
- FAA sequential flash for 3 light units
- German BMVB flash sequence
- Polish sequential flash for 3 light units

Options

- GPS receiver (with on-board internal antenna)
- GSM modem (for SMS messaging)
- External GPS Antenna (see order codes on last page)

Made in Finland

Order code	Current	GPS	GSM
Obelux CSW-DCW-2-F	4 * 0.5A		
Obelux CSW-DCW-2-GPS	4 * 0.5A	X	
Obelux CSW-DCW-2-GSM	4 * 0.5A		X
Obelux CSW-DCW-2-GSM-GPS	4 * 0.5A	X	X

Order code	Current	GPS	GSM
Obelux CSW-DCW-8+1-F	2 * 4A + 2 * 0.5A		
Obelux CSW-DCW-8+1-GPS	2 * 4A + 2 * 0.5A	X	
Obelux CSW-DCW-8+1-GSM	2 * 4A + 2 * 0.5A		X
Obelux CSW-DCW-8+1-GPS-GSM	2 * 4A + 2 * 0.5A	X	X

Order code	Current	GPS	GSM
Obelux CSW-DCW-8+2-F	2 * 4A + 2 * 1A		
Obelux CSW-DCW-8+2-GPS	2 * 4A + 2 * 1A	X	
Obelux CSW-DCW-8+2-GSM	2 * 4A + 2 * 1A		X
Obelux CSW-DCW-8+2-GPS-GSM	2 * 4A + 2 * 1A	X	X

Order code	Current	GPS	GSM
Obelux CSW-DCW-16-F	4 * 4A		
Obelux CSW-DCW-16-GPS	4 * 4A	X	
Obelux CSW-DCW-16-GSM	4 * 4A		X
Obelux CSW-DCW-16-GSM-GPS	4 * 4A	X	X
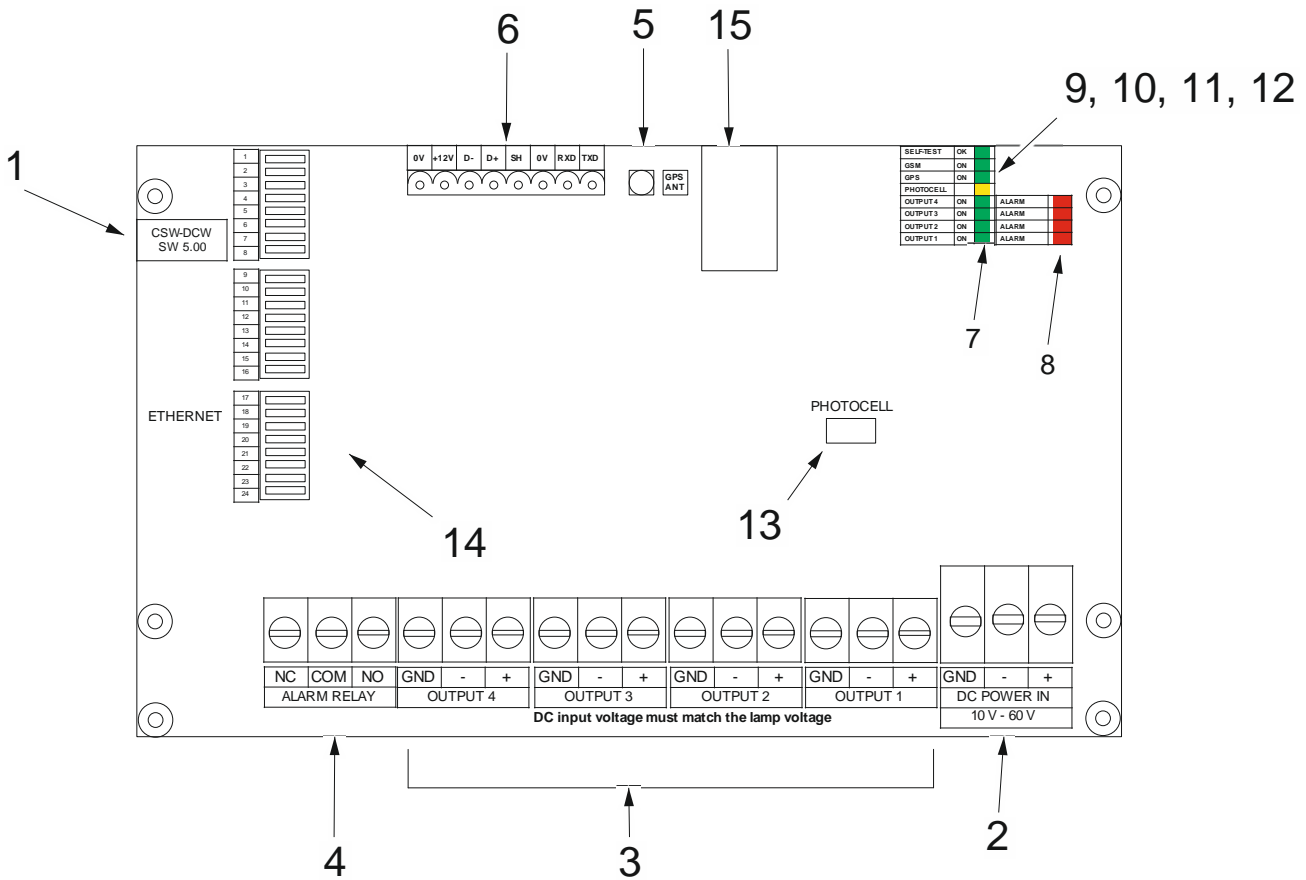
Item	Description
1	CSW Application software version label
2	Supply power (DC input to CSW)
3	Output connectors (four channels)
4	Alarm relay output connector
5	GPS External Antenna connector (Radiall RP-MCX)
6	External photocell I/O and power supply to photocell GSM modem I/O and power supply to GSM modem
7	Output status indicator LEDs [Green]
8	Output alarm indicator LEDs [Red]
9	Photocell status indicator LED [Yellow]
10	GPS synchronization status indicator LED [Green]
11	GSM status indicator LED [Green]
12	Self-test ok status indicator LED [Green]
13	Internal photocell
14	Configuration DIP switches (three switch blocks with eight switches in each)
15	GPS receiver module

Indicator LEDs
- Operation LEDs for all outputs
- Undercurrent and overcurrent alarms for all outputs
- Photocell ON
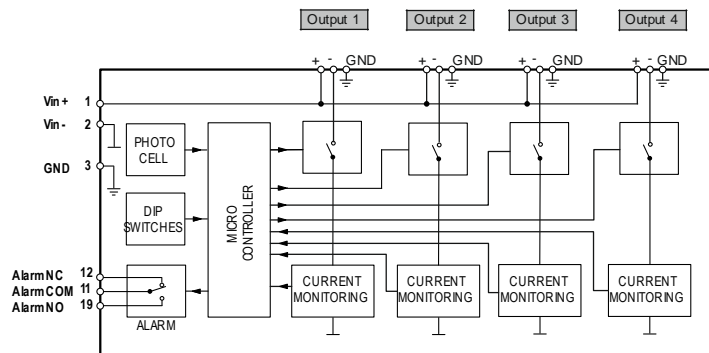- GPS operation
- GSM operation
- Self test OK

Alarm relay characteristics
- Two pole contacts:
  Normally Open (NO) and Normally Closed (NC)
- Active when CSW is powered
- Switch voltage (max): 200 VDC
- Switch current (max): 0.25 A
- Switch power (max): 3 W
- Contact resistance (max) 0.15 ohm

Output current alarm level settings
- User can select from pre-set upper and lower alarm levels

CSW Four-Output Series Block diagram

Description of operation

CSW measures the current consumption of the outputs in use in 250 ms intervals. When five consecutive measurements give overcurrent fault, alarm is generated. If output current exceeds 8 A, faulty output is turned OFF. After 30 minutes CSW will try to switch (faulty) output back on, will make five new measurements, and if the channel is no longer showing fault, this alarm is turned off. If the channel continues to remain in fault the alarm stays on. An alarm is also generated in case of loss of power.

Please pay attention to the DIP switches so that the output current monitoring window selections are correct.

You may connect several light units in parallel to one output, but kindly note that you must add their currents together to get the correct current limit, and alarm will only happen outside this current limit.

If internal photocell is used, unit must be installed outdoors according to requirements (e.g. facing north on Northern hemisphere).

ICAO/FAA Sequential flash mode for 3-light unit

According to ICAO Aerodrome Design Manual, Part 4, Visual Aids, fourth edition - 2004 and FAA AC 150/5345-43F, 09/12/06:

Some cases, lighting systems requires both a unique, easily recognized, vertically coded flashing sequence, and the marking of two or more structures on either side of the flyway, e.g. river valley, major road, etc. While not absolutely necessary, synchronized flashing of all lighted structures is desirable.

The middle level (output 2) flash first, the top level (output 1) flash second, and the bottom level (output 3) flash last. The interval between the flashing of the top level and bottom level is twice the interval between the middle level and the top level. The interval between the end of one sequence and the beginning of the next is ten times the interval between the middle level and the top level. The time for the completion of one cycle is 1 second.

German BMVB Flash Sequence

According to BMVB LS 11/60.01.87-01/5 Va 02, 24. September 2002, Page 15: 1s on, 0,5s off, 1s on, 1,5 s off

Polish Flash Sequence

Sequential flash mode for 3-light unit: Starting from bottom - middle - top, 20 fpm/light unit, total amount of flashes being 60 fpm.

Multiple CSW's flash synchronization

UTC (Coordinated Universal Time) from GPS receiver maintains CSW real time clock correct time within 20 ms accuracy. When real time clock is locked to UTC, all CSW units start flash sequence exactly at the same time without any intervention.
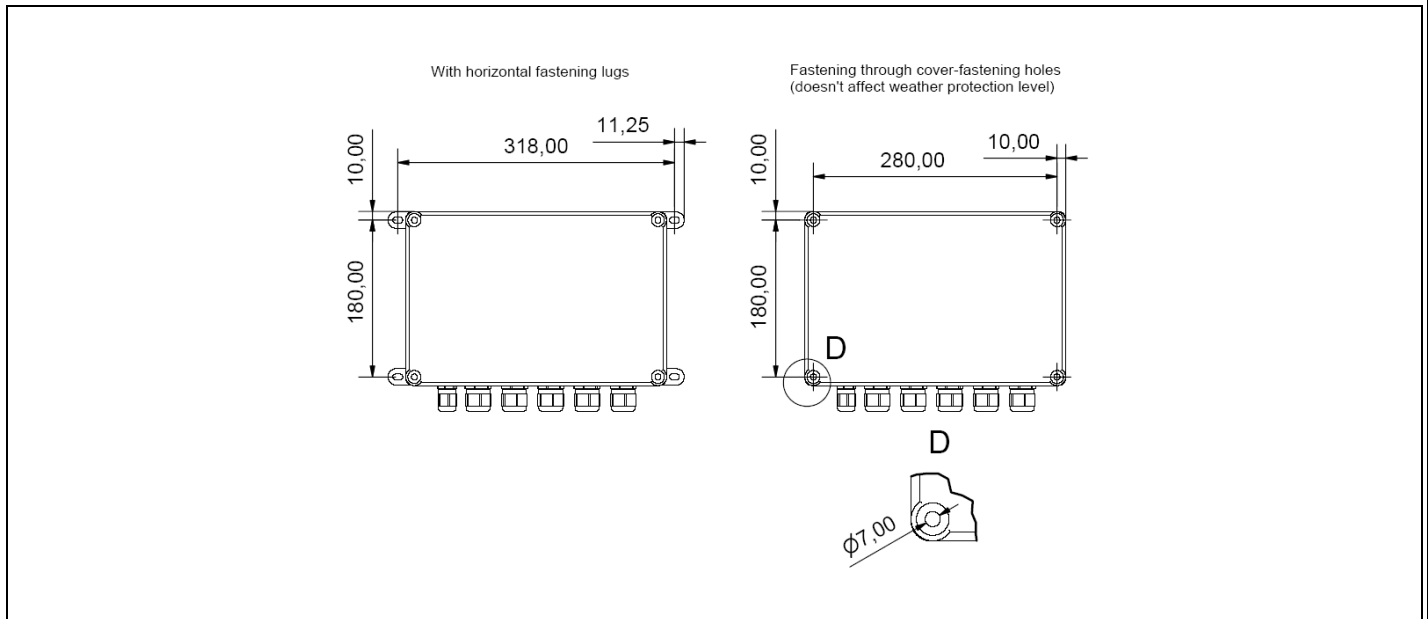
For example flash sequence according BMVB LS 11/60.01.87-01/5 Va 02, 24. September 2002: Flash sequence starts 15 times/minute (on every fourth second), at full seconds below: 0, 4, 8, 12,16 ,20, 24, 28, 32, 36, 40, 44, 48, 52 and 56.

Mounting with vertical fastening lugs
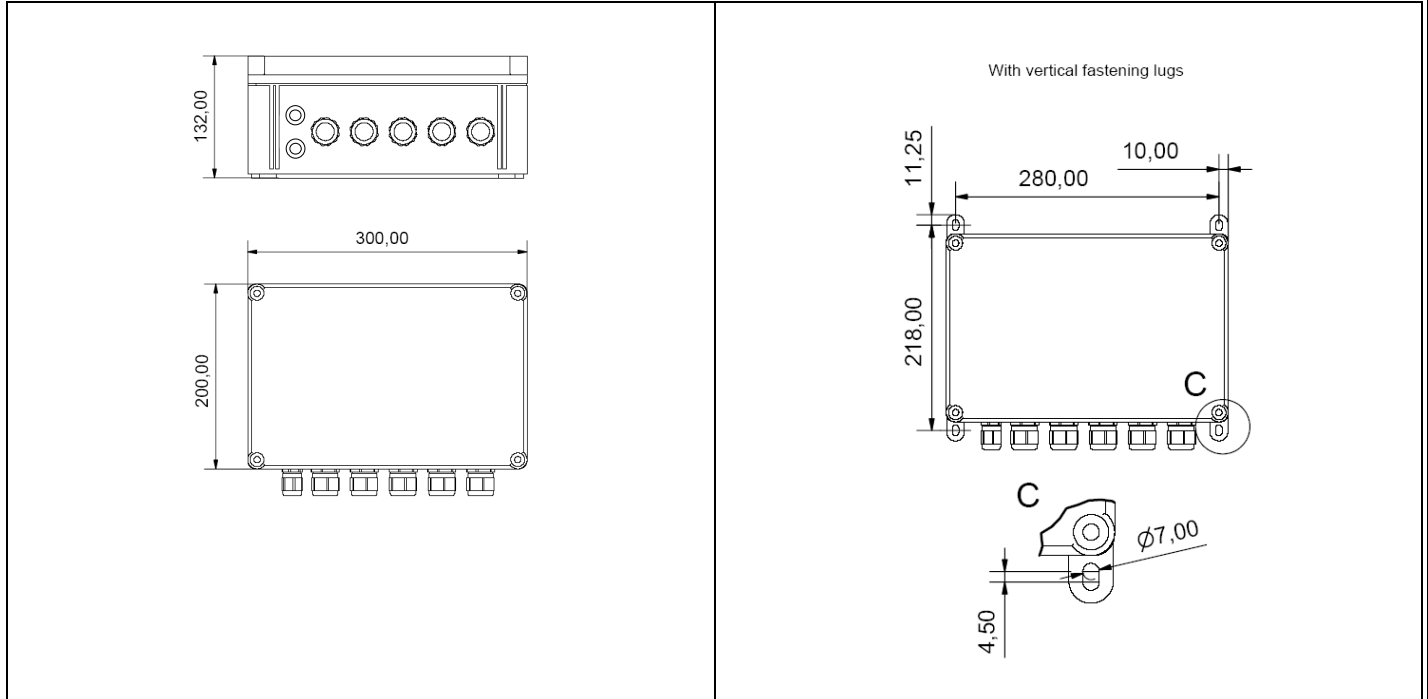
Mounting with horizontal fastening lugs

External antennas for GPS:

Order code	Cable length
Obelux OPT-GPS-3m	3 m
Obelux OPT-GPS-5m	5 m
Obelux OPT-GPS-10m	10 m