

TOWER CONTROL BOX

For Obelux LED Aviation Obstruction Lights

OBELUX
AVIATION LIGHTS

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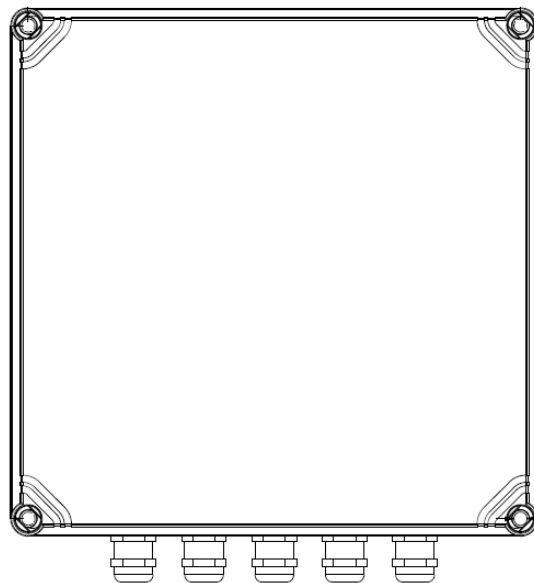
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Mechanical characteristics

- ▶ Shock-resistant polycarbonate enclosure (IP65)
- ▶ Enclosure dimensions (WxHxD): 300 mm x 300 mm x 132 mm
- ▶ Printed circuit board dimensions (WxH) 200 mm x 125 mm
- ▶ Weight <5kg
- ▶ Cable glands: 7 x M20 (8-14 mm cable diameter)

Electrical characteristics

- ▶ Operating voltage 230VAC
- ▶ Output voltage 36VDC
- ▶ Fault monitoring based on power consumption of each output
- ▶ Power consumption <1 W
- ▶ Operating temperature range -40 °C ...+55 °C



Tower Control Box

Obelux Tower Control Box (TCB) is used for controlling and monitoring Obelux aviation obstruction lights. It has 4 independent outputs for monitoring lights at each output. Tower Control Box unit can control the day/night mode for the lights.

Specifications met

ICAO International Standards and Recommended Practices:
Aerodromes Annex 14 Volume 1,
6th Edition, July 2013, Chapter 6

FAA Advisory Circular
AC 150/5345-43G

Several other national standards

Key Features

- ▶ 4 independent outputs with monitoring at each output
- ▶ Provides Day/Night and flashing signal to the lights
- ▶ Terminals to distribute 230VAC power and RS485 data to the next Tower Control Box
- ▶ Long maintenance-free lifetime

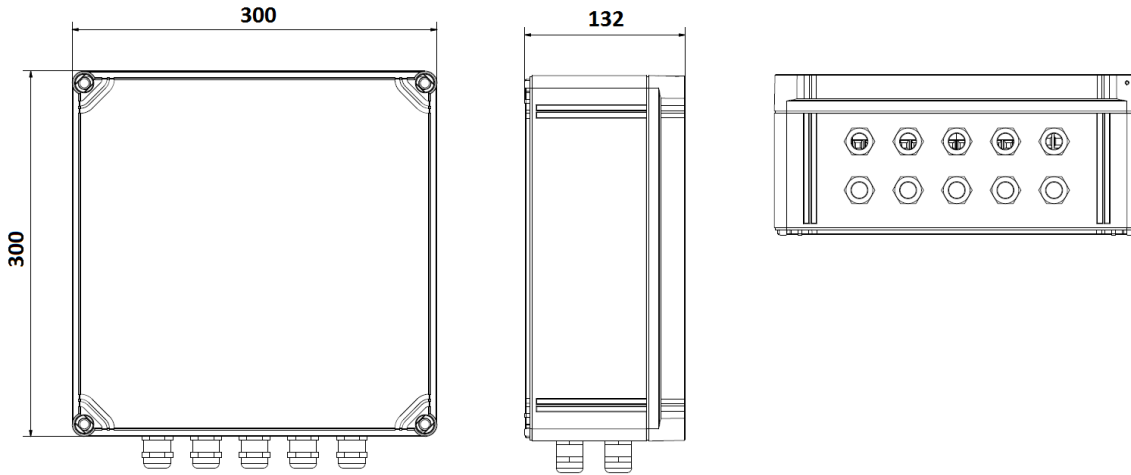
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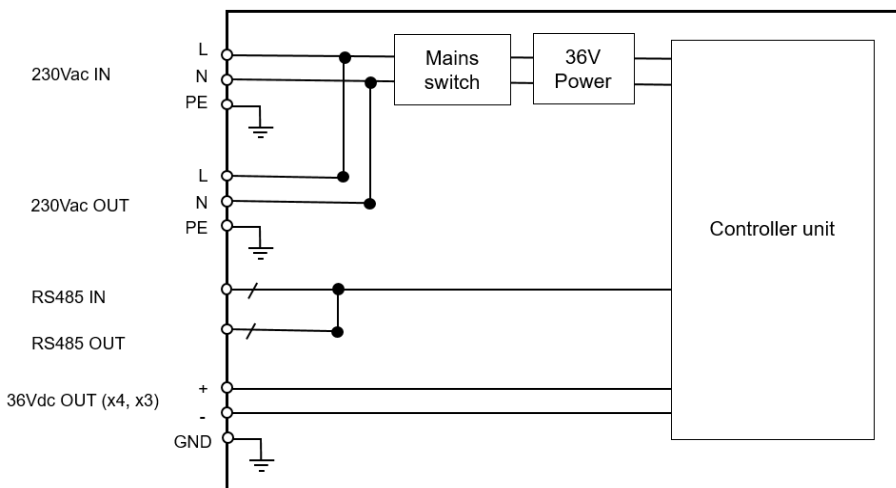
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1 Enclosure dimensions



2 Block diagram of Tower Control Box

Order code	Operating voltage	Power consumption	Output channels	Packing dimensions
TCB-230-DC-TW3	230V	<1W	3	TBD
TCB-230-DC-TW4	230V	<1W	4	TBD

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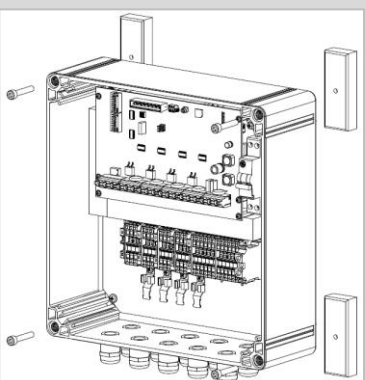
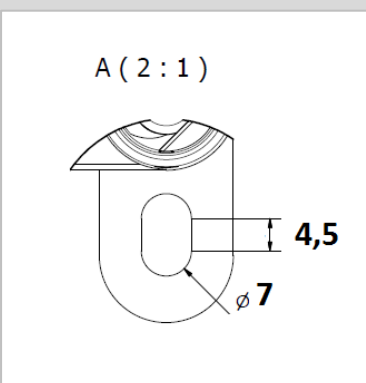
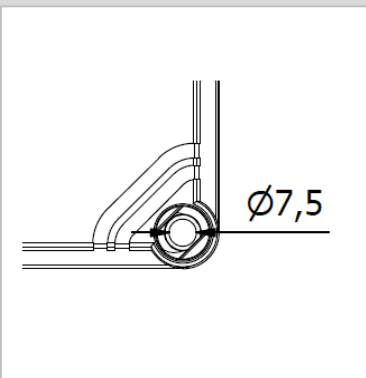
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Installation specifications

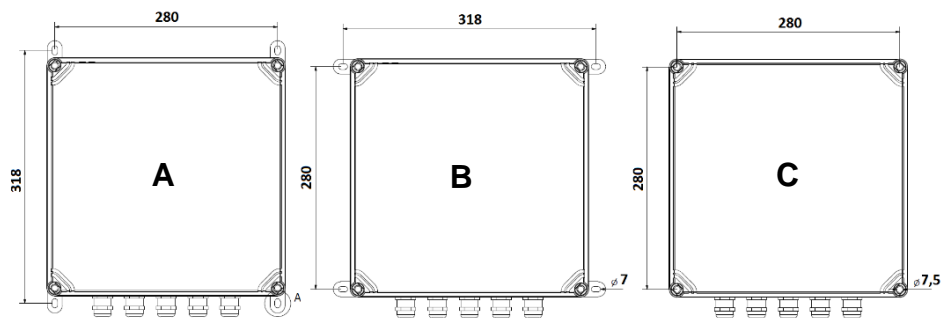
- ▶ Cable glands M20
- ▶ Cable diameter 8-14 mm
- ▶ Power input/output wire diameter 0,2 – 2.5mm²
- ▶ RS485 data input/output – wire diameter 0,2 – 2.5mm²
- ▶ Light head output wire diameter 0,2 – 2.5mm²



4. Mounting points

Installation instructions

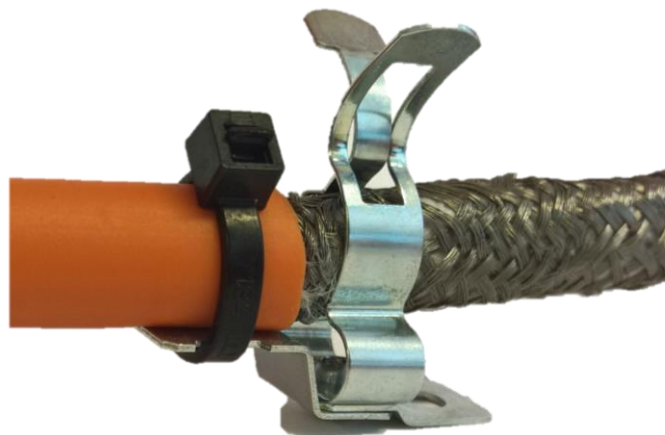
Mount the TCB device to the selected mounting point using quality made fasteners. When the cover door is open, check that there is no inflow of water (incl. hail and snow) into the cabinet. The system must be installed so that the device named TCB2 is installed the furthest from the Local Controller. TCB1 is installed between the Local Controller and TCB2.



If you are using magnets to mount the device, use the mounting points C to attach magnets to the back of the TCB.

Route cables using cable glands on the bottom side of TCB. Connect the cable wires securely to appropriate terminal block connectors. Push the cables in to the metal clips below the terminals and lock them in place with a cable tie. If you are using shielded cables, strip some of the wire to expose the cable shield. Push the cable in to the metal clip so that it is in contact with the exposed shield as seen in figure 3.

Place the cover properly on its place and securely tighten all four screws on all corners of the cover. Make sure that all unused glands or gland holes are plugged shut.



3. Shield connection clip

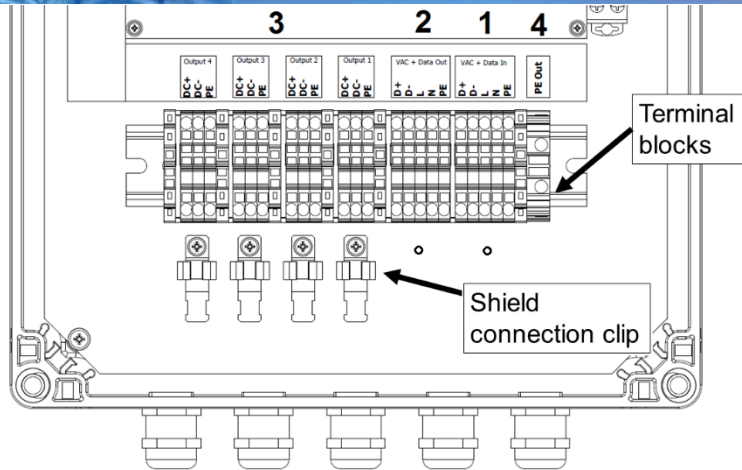
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1 Power and data input

Mark	Description	Information
L	Live terminal	Colour typically brown.
N	Neutral terminal	Colour typically blue.
PE	Protective earth	PE line is typically indicated with yellow/green colour.
D+	Data +	RS485 non-inverting pin
D-	Data -	RS485 inverting pin

Connector is push in terminal block.

2 Power and data output

Mark	Description	Information
L	Live terminal	Colour typically brown.
N	Neutral terminal	Colour typically blue.
PE	Protective earth	PE line is typically indicated with yellow/green colour.
D+	Data +	RS485 non-inverting pin
D-	Data -	RS485 inverting pin

Connector is push in terminal block. This connection block is used to distribute the 230VAC power and data to other Tower Control Boxes.

3 Light Head outputs 1-4

Mark	Description	Information
+	Positive	Connect to light head positive
-	Negative	Connect to light head negative
PE	Ground	Protective earth

Connector is push in terminal block. The positive connector (+) on each output channel is hard-wired to positive connector (+) of supply power connector. Unused output connectors can be left floating i.e. no wiring there is required. They shall not be short-circuited. Leave output 4 empty if using the 3-output version (TCB-230-DC-TW3).

4 Device ground

Connect PE Out to a good ground point.

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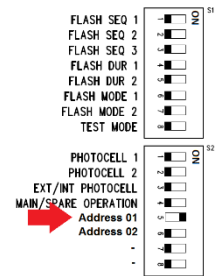
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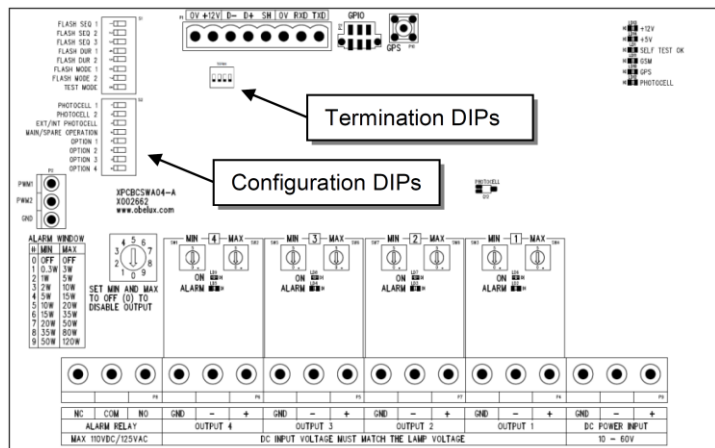
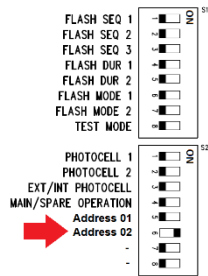
Configuring TCB

Configuration DIP switches 5-6 are used to give the light a Modbus (RS485) address. Duplicate addresses on the same bus are not allowed. Rest of the DIP switches should be left as they are. Address selection must be done when TCB unit is powered down. Select address 01 for TCB1 by switching DIP5 on. Select address 02 for TCB2 by switching DIP6 on. Switch on DIP4 from the termination DIP switches only on the TCB2.

TCB1 Select address 01



TCB2 Select address 02



Make sure that you always use devices named TCB1 and TCB2 in one turbine installation so that there are no RS485 address conflicts. The system must be installed so that the TCB2 is setup the furthest from the Local Controller. TCB1 is installed between the Local Controller and TCB2.

Typical use case for Tower Control Box (TCB) in wind turbine environment

