

# ANGLE FINDING INSTRUCTION MANUAL

## EXPLORE E7, E8 & E9 (XFM, TH & WELD-IN)

### EXPLORE E7, E8 & E9 ANGLING OVERVIEW

The Explore E7, E8 and E9 allows the lights to be internally angled up to 50° in 10° increments to counter the hull shape. This ensures all the light is delivered where required, producing the best possible uniform lighting effect and a complete halo of light around the yacht.

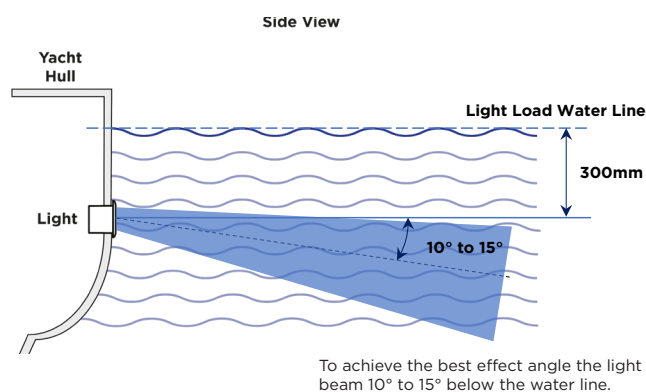
Choice of Angled optics to counter the hull shape:

- 0°, 10°, 20°, 30°, 40° & 50°

\*For the E7 XFM & TH "0°" versions, please use the relevant E6 model.

### OCEANLED LIGHT PLACEMENT RECOMMENDATIONS

- Place lights 300mm (12") below the Light Load Water Line. Lights must always be fully submerged during operation.
- Angle the light beam 10° to 15° below the water line.
- Recommended Spacing:  
E6 & E7: 2.5 - 3m (8 - 10'),  
E8 & E9: 3 - 3.5m (10 - 11.5')
- Check internal clearance and access to allow installation and servicing.



### MEASURING THE HULL ANGLE TO DETERMINE THE BEST E7, E8 or E9 LIGHT ANGLE CHOICE

This instruction manual assumes that position and spacing of the lights have already been decided using the OceanLED light placement recommendation.

For the purpose of this measurement process, the vessel must be out of water, levelled (Stern → Bow, Port → Starboard) and with outside access to the lights' placement positions (transom and one side of the vessel for symmetrical hulls in most of the cases).

#### Items required:

- A tool to measure the angle - in this instructions we will focus on using a Smartphone with a Level measuring app (showing level in degrees) but it can be any other physical tool allowing to correctly measure the angle e.g., Digital Spirit Level.
- Pen/pencil and notepad to record the measured angle of the hull.
- Angle conversion table (provided in this document).

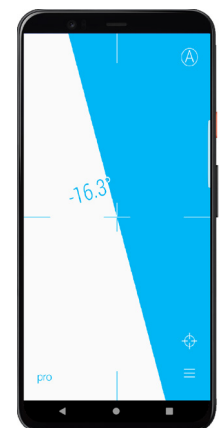
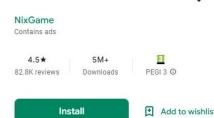
### MEASURING WITH A SMARTPHONE (Android & iPhone)

- ① If not already indicated, mark the position of the lights on the vessel's hull.
- ② If using an **iPhone**, open the "Measure" tool app from the Utilities and select "Level" at the bottom of the screen.



If using **Android** smartphone go to Google Play Store find and install app called "Bubble Level, Spirit Level" from Nix Game (free). Start the app.

### Bubble Level, Spirit Level



- ③ Draw a simple table in the notepad to record the light number, position and measured angle, see the example below.

Light Location Number	Position	Measured hull angle	Converted light angle	Light Orientation
1	Transom PS			
2	Transom PS			
3	Port (PS)			
4	Port (PS)			
5	Port (PS)			
6	Port (PS)			

- ④ Go to light location no.1, place the smartphone in the marked light location with the longer side (edge) of the smartphone against the hull and read the angle shown in the app. Record the measured angle in the table, proceed to the next location and follow the same procedure until last light location is measured.

✂ Depending how the user of the phone app approaches the vessel's hull, both Android and iPhone apps can show positive or negative angle values. Therefore where the hull shape angles in, the angle reading on the app should always be treated as positive, and where the hull shape angles out, the angle reading on the app should always be treated as negative. Keep in mind of the above conditions to ensure the correct value is recorded.

## Record the results

Record the measured angle in the table (e.g.):

Light Location Number	Position	Measured hull angle	Converted light angle	Light Orientation
1	Transom PS	0°		
2	Transom PS	0°		
3	Port (PS)	70°		
4	Port (PS)	58°		
5	Port (PS)	31°		
6	Port (PS)	26°		

- ⑤ Look at the Light Angle Conversion table below and find the corresponding angle for the Explore light of your choice. As hulls and light positions are typically symmetrical the table can be mirrored for the rest of the lights. If the vessel/hull was not levelled, you need to either subtract or add the angle offset value before using the conversion table.

Explore Light Angle Conversion Table

Hull Measured Angle	Explore E6/E7 (XFM/TH) Light Angle	Explore E8 (WELD-IN) Light Angle	Explore E9 (WELD-IN) Light Angle	Light Orientation
-43° and over	50° (E7) OR TRY TO FIND DIFFERENT POSITION FOR THE LIGHT	50° (E8) OR TRY TO FIND DIFFERENT POSITION FOR THE LIGHT	50° (E9) OR TRY TO FIND DIFFERENT POSITION FOR THE LIGHT	DOWN
-33° to -42°	50° (E7)	50° (E8)	50° (E9)	DOWN
-23° to -32°	40° (E7)	40° (E8)	40° (E9)	DOWN
-13° to -22°	30° (E7)	30° (E8)	30° (E9)	DOWN
-3° to -12°	20° (E7)	20° (E8)	20° (E9)	DOWN
-2° to 7°	10° (E7)	10° (E8)	10° (E9)	DOWN
8° to 17°	0° (E6)	0° (E8)	0° (E9)	UP
18° to 27°	10° (E7)	10° (E8)	10° (E9)	UP
28° to 37°	20° (E7)	20° (E8)	20° (E9)	UP
38° to 47°	30° (E7)	30° (E8)	30° (E9)	UP
48° to 57°	40° (E7)	40° (E8)	40° (E9)	UP
58° to 67°	50° (E7)	50° (E8)	50° (E9)	UP
68° and over	50° (E7) OR TRY TO FIND DIFFERENT POSITION FOR THE LIGHT	50° (E8) OR TRY TO FIND DIFFERENT POSITION FOR THE LIGHT	50° (E9) OR TRY TO FIND DIFFERENT POSITION FOR THE LIGHT	UP

See the E7 example below:

Light Location Number	Position	Measured hull angle	Converted light angle	Light Orientation
1	Transom PS	0°	10° (E7)	DOWN
2	Transom PS	0°	10° (E7)	DOWN
3	Port (PS)	70°	50° (E7)	UP
4	Port (PS)	58°	50° (E7)	UP
5	Port (PS)	31°	20° (E7)	UP
6	Port (PS)	26°	10° (E7)	UP
7	Starboard (SB)	26°	10° (E7)	UP
8	Starboard (SB)	31°	20° (E7)	UP
9	Starboard (SB)	58°	50° (E7)	UP
10	Starboard (SB)	70°	50° (E7)	UP
11	Transom SB	0°	10° (E7)	DOWN
12	Transom SB	0°	10° (E7)	DOWN

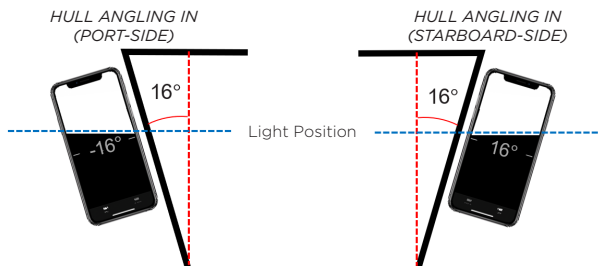
Note: If the vessel was not levelled, for example leaning to Starboard-side with offset 5°, subtract the offset from measured angle (for all transom lights), or in the opposite case add to measured angle. Next proceed with conversion.

If the measured angle was negative e.g., -5° from the conversion table, the recommended light will be 20° (E7) and the light orientation DOWN.

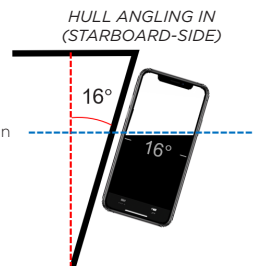
Please note that in the conversion table for the E7 light there is no 0° light, please use the compatible E6 (0°) instead. E.g.; if measured angle is 10° from the conversion table the recommended light will be E6 (0°).

- ⑥ Please contact your OceanLED representative to receive a quote and/or place an order.

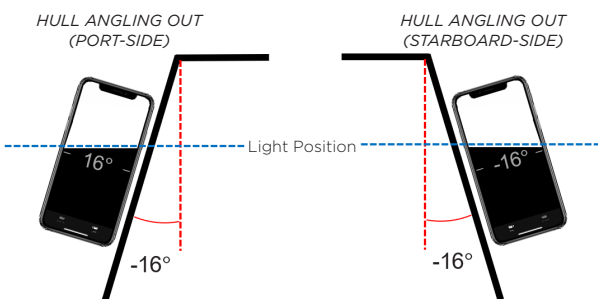
## MEASURING WITH iPhone App



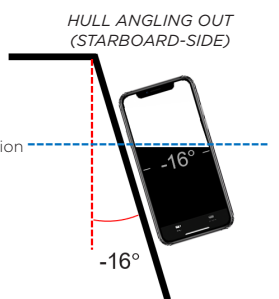
If measuring the Port-side, the angle on the app will read negative. In such case discard the "-" and record as positive.



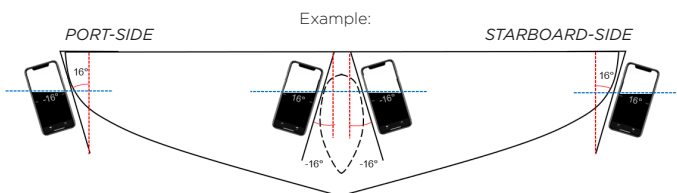
If measuring the Starboard-side, the angle on the app will read positive and record as positive.



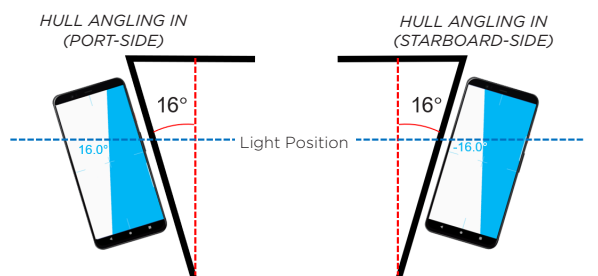
If measuring the Port-side, the angle on the app will read positive. In such case add the "-" to record as negative.



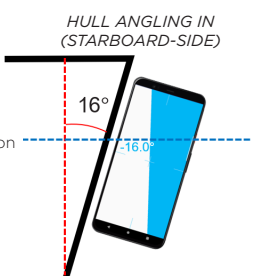
If measuring the Starboard side, the angle on the app will read negative and record as negative.



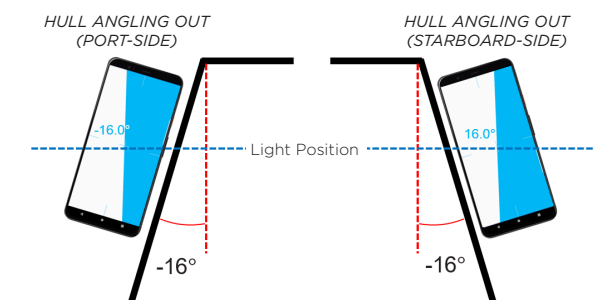
## MEASURING WITH Android App



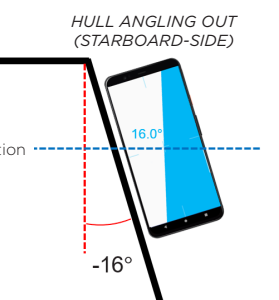
If measuring the Port-side, the angle on the app will read positive and record as positive.



If measuring the Starboard-side, the angle on the app will read negative. In such case discard the "-" and record as positive.



If measuring the Port side, the angle on the app will read negative and record as negative.



If measuring the Starboard-side, the angle on the app will read positive. In such case add the "-" to record as negative.