Explore the next sense

Getting Started Guide
Lens Evaluation Kit

May 2019

Getting Started Guide

The Lenses are delivered as a kit with two different lenses, a cover and a holder. This getting started guide will show you how to setup the lens evaluation kit.

We assume that you already have a sensor evaluation kit (EVK) XC/XR112, or a module EVK XB/XM112 and that you are familiar with how to use it.

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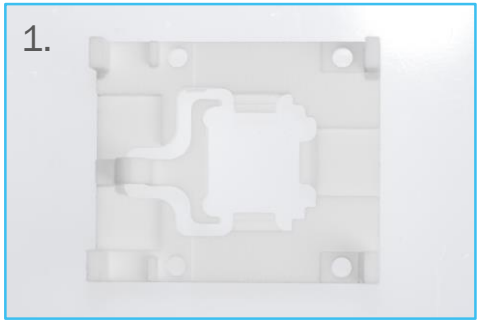
Kit content

The Lens Kit from Acconeer is delivered including 4 parts.

1. Lens and PCB holder
2. HBL Lens (Hyperbolic Lens)
3. FZP Lens (Fresnel Zone Plate)
4. Flat cover



Acconeer apologize for our choice of White on White.

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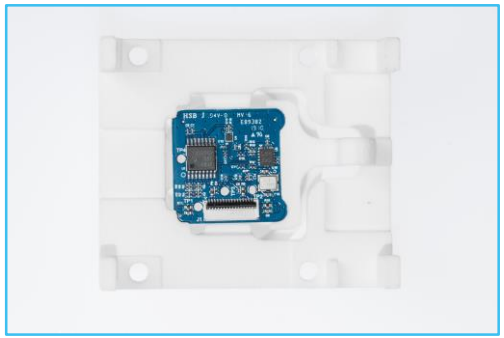
How to Assemble

XR112 in the holder

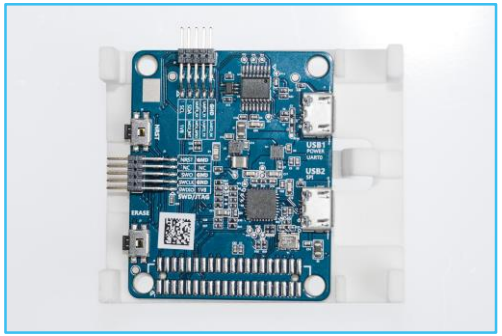


First thing you need to do is to fit the PCB into the Holder, which can be used with Both XR112 (To the left) and Acconeers XB/XM112 (To the right). If using XB/XM112 we recommend to also screw the PCB to the holder. The exact sensor position in relation to the lens will be important for optimal performance.

Link to Screw and Bolt:
https://www.digikey.com/product-detail/en/essentra-components/010632P062/RPC6352-ND/9676366

https://www.digikey.com/products/en?keywords=HN-6-32-01

XM112 in the holder



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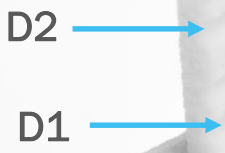
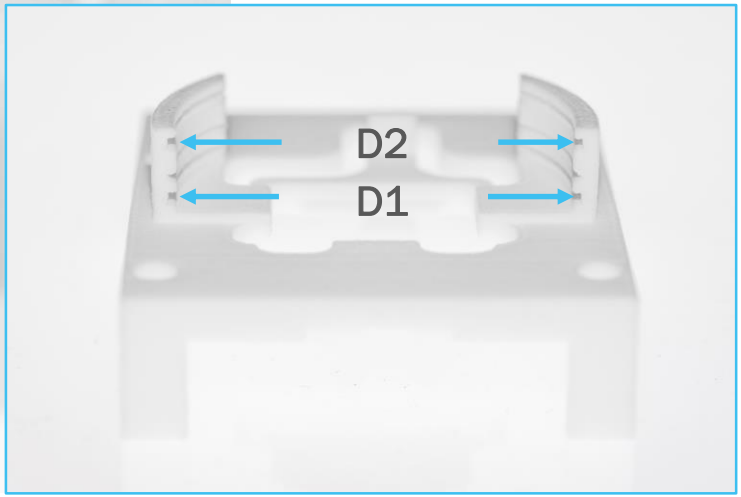
How to Assemble



Both the lenses can be fitted in the holder in 2 different positions. D1 or D2.

The cover is only used in D1.

The two positions will give you slightly different performance. See next 2 pages



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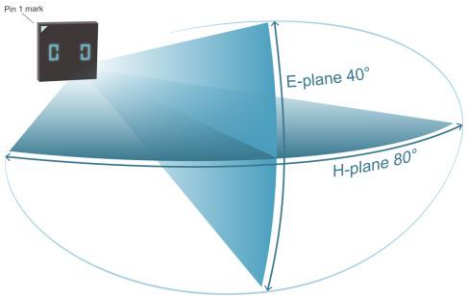
Performance Table

Acconeer has verified both the lenses on both EVK variants. The expected performance can be viewed in the table to the right.

- Max. Gain relative to free space. This is Radar loop gain, the sum of the gain back and forth
- Half Power Beam width E-plane
- Half Power Beam width H-plane



XM112	Max. Gain (dB_{FS})*		HPBW-E (degree)**		HPBW-H (degree)**	
	D1	D2	D1	D2	D1	D2
HBL	5.8	10	22	17	30	15
FZP	5.7	9.1	20	12	27	12

XR112	Max. Gain (dB_{FS})*		HPBW-E (degree)		HPBW-H (degree)	
	D1	D2	D1	D2	D1	D2
HBL	5.4	9.5	15	12	20	12
FZP	5.6	8.5	25	12	12	10

*Maximum gain is relative to the free-space scenario.

**Pre characterization results

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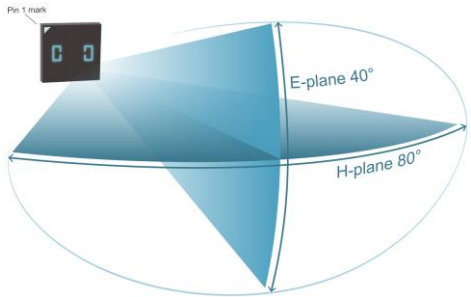
Performance Table

	Max. Gain (dB_{FS})*		HPBW-E (degree)		HPBW-H(degree)	
	XM112	XR112	XM112	XR112	XM112	XR112
FS	0	0	55	40	80	63
Cover**	- 0.15	- 0.15	55	40	80	63

*Maximum gain is relative to the free-space scenario.
**Cover is only placed at D1.



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End Result

HBL Lens in D1

XR112 used

The Correct Assembled Lens EVK should look like one of the examples in the pictures depending on chosen position.

FZP Lens in D1

XM/XB112 used

HBL Lens in D2

XR112 used

Cover, only in D1

XM/XB112 used

FZP Lens in D2

XM/XB112 used

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