



SAMCON

Prozessleittechnik GmbH



ExCam[®] IPM2036

Infrared Illumination

Eleonore Adit in Asslar

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1 Introduction

This document contains the results of the measurements regarding infrared light reflections as well as illumination distances of the ExCam IPM2036 at the Eleonore adit in Asslar/Hesse. The results are presented as pictures and can be used as reference.

2 Test set-up

For the test, the **ExCam IPM2036 T08-VA2.1.K1.BOR-LL.N-005.N-P-xx** was used. Altogether, three different lenses (**85°**, **56°** and **41° hFoV**) were tested, the object distance was set at 0.5 m, 1.0 m, 1.5 m, 2.0 m, 3.0 m, 5.0 m, 10.0 m, 15.0 m, 20.0 m 25.0 m and 30.0 m. The illumination was tested with internal as well as external infrared illumination. This document only shows the object distances **0.5 m**, **1.0 m**, **2.0 m**, **5.0 m**, **10.0m**, **20.0 m**, and **30.0m**.

The complete picture documentation is accessible at [ET08IPM2026_36-LE MKII IR Tests \(Stollen Asslar\)](#).

For each lens, all different object distances were tested, reflecting three illumination options: Internal IR LEDs, external IR LEDs, internal and external LEDs.

The **liteServer Ex.micro.24.IR T20-VA0.1.K1.BOR-N.N-005.N-K** was used as the external infrared light source.

Object (scene)

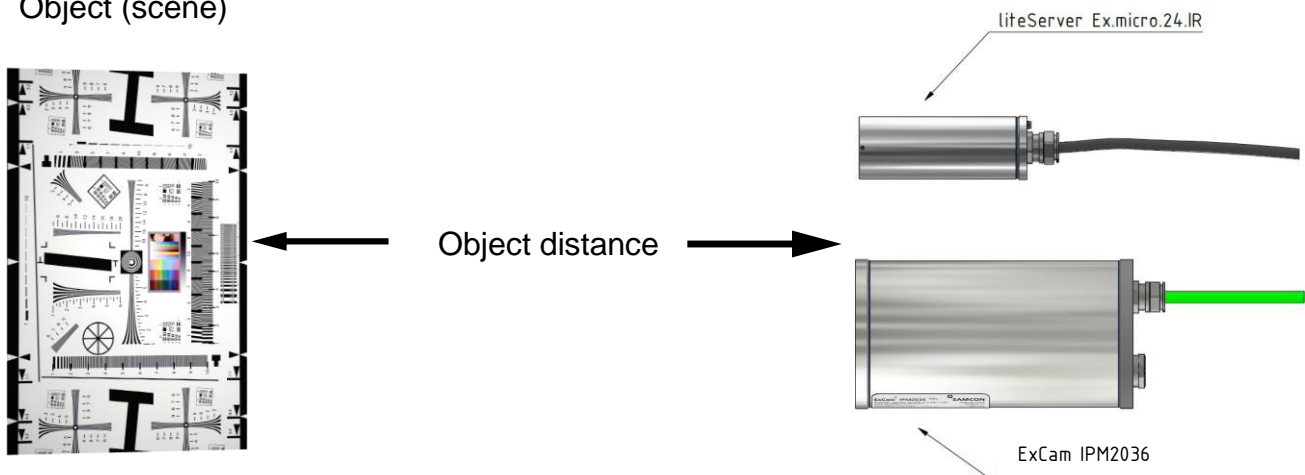


Figure 2-1: Test setup

3 Results

Below, a comparison of the individual pictures is shown:

| ExCam IPM2036 - Objektiv: M12 f3.6 mm, 1/2,7" (ca. 85°) | | | | | | | |
|---|----------------------|-------|-------|-------|--------|--------|--------|
| Light: | Object distance [m]: | | | | | | |
| | 0.5 m | 1.0 m | 2.0 m | 5.0 m | 10.0 m | 20.0 m | 30.0 m |
| Internal IR: OFF External IR: ON | | | | | | n.a. | n.a. |
| Internal IR: ON External IR: OFF | | | | | | n.a. | n.a. |
| Internal IR: ON External IR: ON | n.a. | | | | | n.a. | n.a. |

Figure 3-1: Results 85° lens

| ExCam IPM2036 - Lens: M12 6.0mm F1.9 IR (56°) | | | | | | | |
|---|----------------------|-------|-------|-------|--------|--------|--------|
| Light: | Object distance [m]: | | | | | | |
| | 0.5 m | 1.0 m | 2.0 m | 5.0 m | 10.0 m | 20.0 m | 30.0 m |
| Intern IR: OFF Extern IR: ON | | | | | | | |
| Intern IR: ON Extern IR: OFF | | | | | | | |
| Intern IR: ON Extern IR: ON | | | | | | | |

Figure 3-2: Results 56° lens

| ExCam IPM2036 - Lens: M12 8.0mm F1.8 IR (41°) | | | | | | | |
|---|----------------------|-------|-------|-------|--------|--------|--------|
| Light: | Object distance [m]: | | | | | | |
| | 0.5 m | 1.0 m | 2.0 m | 5.0 m | 10.0 m | 20.0 m | 30.0 m |
| Internal IR: OFF External IR: ON | | | | | | | |
| Internal IR: ON External IR: OFF | | | | | | | |
| Internal IR: ON External IR: ON | | | | | | | |

Figure 3-3: Results 41° lens

4 Conclusion

The maximum object distance at which the internal infrared illumination is effective is 5.0 m. Exceeding this distance, the picture quality suffers and the reflections impede the view resulting into a non-visibility of the object.

The picture quality increases with the usage of an external infrared light source. So when both, the internal as well as the external infrared illumination are active, the object is visible up to a distance of approx. 10.0 m. Exceeding this distance, the object is not visible anymore.

At a sole illumination via an external infrared light, the object is still visible up to a distance of 30.0 m, without any noticeable restrictions regarding the picture quality.

We therefore recommend always using the ExCam IPM2036 in combination with an external infrared light source.