

FLIR AX8 Thermal Camera - Optics, Field of View and Practical Resolution

Technical supporting information on AX8 thermal resolution, field of view and practical mounting distances in fixed industrial installations.

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This document summarizes the optical and practically usable resolution characteristics of the FLIR AX8 thermal camera. It is general technical supporting information for users who use this camera in their own installations, diagnostic workflows or software solutions.

The FLIR AX8 is not a JC-Technology product component. The notes in this document refer to practical use of the camera itself.

Camera and Lenses

The AX8 contains two different camera/lens systems:

Camera	Resolution	Field of view
Thermal IR camera	80 × 60 px	48° × 37°
Visible-light camera	640 × 480 px	max. 66°, but according to the data sheet aligned with the IR optics

Temperature measurement is performed on the **80 × 60 pixel thermal image**. The **640 × 480 pixel visual camera** mainly supports object identification and interpretation of the thermal image.

Key Practical Consequence

Thermal detail is determined by the thermal IR camera, not by the visual camera.

For industrial diagnostics with the AX8, the critical data is therefore:

IR camera: 80 × 60 px
 IR field of view: 48° × 37°

Thermal Field Of View At Different Distances

The following calculations are based on the **48° × 37°** IR field of view.

Distance	Viewed width	Viewed height	IR resolution X	IR resolution Y
1 m	approx. 89 cm	approx. 67 cm	1.11 cm/px	1.12 cm/px
2 m	approx. 178 cm	approx. 134 cm	2.23 cm/px	2.23 cm/px
3 m	approx. 267 cm	approx. 201 cm	3.34 cm/px	3.35 cm/px
4 m	approx. 356 cm	approx. 268 cm	4.45 cm/px	4.46 cm/px
5 m	approx. 445 cm	approx. 335 cm	5.57 cm/px	5.58 cm/px

Simplified rule of thumb:

Distance	Thermal pixel size
1 m	approx. 1.1 cm / pixel
2 m	approx. 2.2 cm / pixel
3 m	approx. 3.3 cm / pixel
4 m	approx. 4.5 cm / pixel
5 m	approx. 5.6 cm / pixel

Theoretical Image Resolution Of The Visual Camera

If the visual image is aligned with the IR field of view, the same viewed area receives **640 × 480 px**.

Distance	Visual approx. cm/px
1 m	approx. 0.14 cm/px
2 m	approx. 0.28 cm/px
3 m	approx. 0.42 cm/px
4 m	approx. 0.56 cm/px
5 m	approx. 0.70 cm/px

This is **not thermal resolution**. The visual camera can only be used for optical identification and overview.

Practical Working Distance

Practical estimate for AX8 use:

Distance	Usability
0.5-2 m	Very good range for smaller machine parts, connectors, relays, motor bearings and cabinet components
2-4 m	Still useful for larger objects, motors, cabinet sections and pneumatics
above 5 m	More suitable for larger hot spots, larger surfaces and rough trend monitoring
approx. 10 m	Usually already too coarse for industrial diagnostics at 80 × 60 px, except for large objects

Minimum Distance

The AX8 has fixed focus. According to the data sheet, the lower depth-of-field limit is about **0.1 m**.

This does not mean that measurements from 10 cm are automatically reliable. For close measurements, consider for example:

- target size,
- emissivity,
- viewing angle,
- parallax error,
- reflections from shiny or metallic surfaces,
- whether the measured object covers several IR pixels.

Practical Recommendation For Fixed Installations

In fixed installations, the AX8 is most useful at a distance of about **1-3 m**.

This range provides a good compromise:

- sufficiently large field of view,
- still usable thermal detail,
- stable industrial mounting,
- good object identification using the visual camera.

Short Summary

Question	Answer
Does the AX8 have two lenses/cameras?	Yes, one thermal IR camera and one visual camera
Do they have the same resolution?	No. IR: 80 × 60 px, visual: 640 × 480 px
Which camera measures temperature?	The IR camera
Which camera matters most diagnostically?	Primarily the IR camera
Ideal distance	approx. 1-3 m
Usable above 5 m?	Yes, but mainly for larger hot spots and trend monitoring
Recommended around 10 m?	Usually not, except for large objects

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