



BS-K7D

Day/Night Integrated Observation System

DAY & NIGHT OBSERVATION

20×120 large-aperture optics with high-power zoom, low-light and thermal

BS-K7D is a day/night integrated observation system that combines the BS-K7 20×120 large-aperture binoculars with an EO camera offering up to 480× zoom and a 640×512 LWIR thermal imaging camera. By day, the high-magnification optics and zoom camera handle precise observation. At night the low-light zoom camera takes over, and in bad weather the thermal imaging camera does. A 7-inch IP67 waterproof display keeps surveillance running around the clock.

20×120

Large-Aperture Optics

Ø120 mm objective lens, direct viewing with no power required

40×

40x Optical Zoom

Magnifies target detail day and night, even in low light, with photo and video recording

640×512

LWIR Thermal Imaging

Detects heat from people and vehicles at night and in bad weather

7"

IP67 High-Brightness Touchscreen

Waterproof video observation screen, top-mounted folding design



NIGHT WATCH

Night observation: detect with thermal, confirm with EO zoom

The 640×512 LWIR thermal imaging camera picks up heat from people and vehicles at night. The 40× optical zoom EO camera then magnifies the target for confirmation.

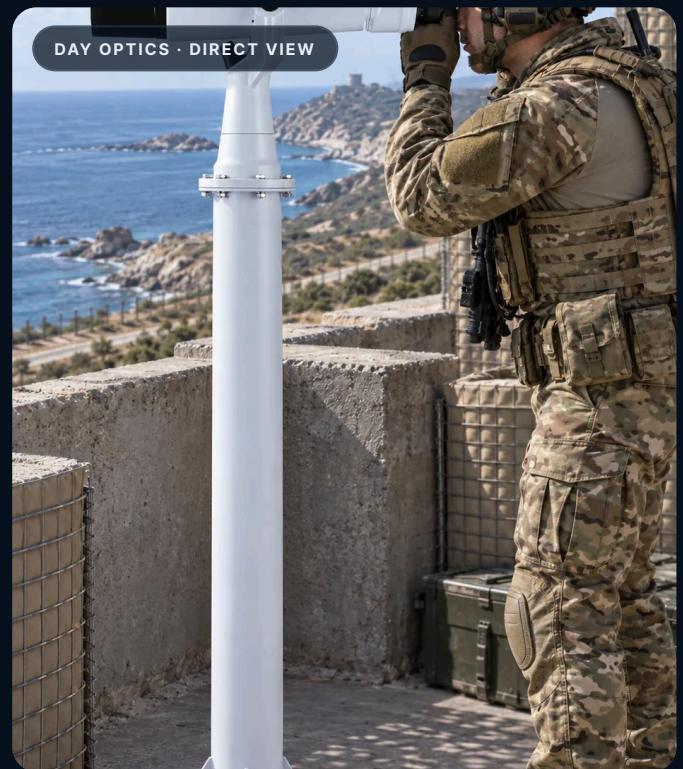
- 640×512 uncooled thermal imaging, 17.5°×14.0° field of view
- Low-light day/night EO, 1080p60 video
- Switch between thermal and EO views, with PIP display

FIELD OPTICS

Direct viewing through the proven BS-K7 20×120 optics

It uses the BS-K7 20×120 optical body already supplied to the Army, Navy, Marine Corps and Coast Guard for security and surveillance. The cameras sit in a separate housing apart from the objective lenses, so they never block your view.

- High-quality optical materials · Porro type prism · AR fully multi-coated
- Aluminum alloy body · STS316 stainless steel parts
- Azimuth 360° · Vertical -30°~+70°
- Designed, assembled, inspected and supported in Korea



ONE DEVICE, FOUR VIEWS

Optics, EO and thermal: four observation modes

01

Daytime Direct View

High-magnification, high-resolution long-range identification with 20×120 optics

02

Daytime Zoom & Record

Zoom in on detail with the 40× EO camera, with photo and video recording

03

Low-Light Video

Low-light EO, paired with the optional 850 nm illuminator

04

Thermal Observation

Detects heat from people and vehicles at night and in haze

OBSERVATION MODES

Compare Views by Sensor

The same night scene in low-light, thermal and thermal color video, plus a distant naval vessel confirmed with the EO optical zoom.



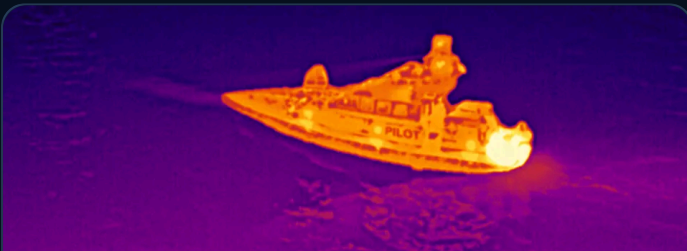
Low-Light Video (LOW-LIGHT)

The low-light EO camera shows night scenes that are hard to make out with the naked eye. You can pair it with the optional 850 nm illuminator.



Thermal Imaging (THERMAL · White Hot)

The 640×512 LWIR thermal imaging camera detects heat from vessels, people and vehicles, even in complete darkness.



Thermal Color (IRONBOW)

Temperature differences in the same night scene are shown in color, so heat sources stand out clearly from the background.



EO Optical Zoom (×1 → ×40)

A distant naval vessel is magnified with 40× optical zoom for confirmation. The horizontal field of view narrows from 59.7° to 1.7°.

These are simulated images, not actual sensor footage, and don't represent performance.

APPLICATIONS

Applications



01 · COAST

Coastal & Island

Surveillance

Day and night observation of approaching vessels and coastal activity



02 · NIGHT

Night Security

Detects heat from people and vehicles in complete darkness



03 · VESSEL

Naval Operations

Helps identify nearby waters and vessels, with video recording



04 · FACILITY

Land Perimeter · Key

Facilities

Long-range identification of people and vehicles, port and facility security

SPECIFICATIONS

Specifications

OPT

20×120 Large-Aperture Optical Body

Based on BS-K7 · Direct viewing, no power required

Magnification / Objective Lens	20× / Ø120 mm
Angle of View	3° (52 m at 1,000 m)
Eye Relief	17 mm
Diopter Control	-4D ~ +3D
Interpupillary Distance	58 ~ 78 mm
Prism / Coating	Porro type / AR fully multi-coated
Azimuth / Vertical Angle	360° / -30° ~ +70°
Material	Aluminum alloy body, STS316 stainless steel parts
Waterproofing	Nitrogen-purged, IPX7 (1 m depth, 30 min)
Operating Temperature	-20 ~ +45 °C

Waterproofing and operating temperature are based on the official test report for the BS-K7 optical body. Testing of the complete sensor-integrated system (BS-K7D) is planned.

EO

Day/Night EO Zoom Camera

Detail magnification · Photo and video recording

Optical Zoom	40× (f 4.25 ~ 170 mm), 12× digital zoom, up to 480× total
Horizontal FOV	59.7° ~ 1.7°
Sensor	1/2.9" global shutter
Video Output	1080p · 60 fps
Minimum Illumination	Color 0.01 lx · B/W 0.007 lx
Display Functions	Switch to thermal view · PIP

Target development specifications · Published component supplier values, not measured on the system.

IR

LWIR Thermal Imaging Camera

Heat detection at night and in haze

Resolution	640 × 512
Detector	Uncooled VOx microbolometer · 12 μm
Lens	25 mm · F1.0
Field of View	17.5° × 14.0°
Thermal Sensitivity (NETD)	< 40 mK

Target development specifications · Published component supplier values, not measured on the system.

7"

Display · Options

Video observation screen

Display	7" · 1024 × 600
Brightness	1,000 nit high brightness (readable outdoors in daylight)
Mounting	Folding, on top of the body
Sensor Housing	Integrated case under the body
Illuminator (Option)	850 nm NIR · Adjustable beam angle
Waterproofing	FULL IP 67

The 850 nm illuminator is a Class 3B laser product. If adopted, it will be operated in line with safety standards.

SYSTEM

Optical Body, Digital and Display Units

The EO and thermal imaging cameras sit in a separate housing apart from the objective lenses, so the 20×120 optics keep their full direct-viewing performance.



01

20×120 Optical Body

Daytime direct viewing · No power required

02

40× Zoom EO Camera

Daytime zoom and recording, low-light video

03

640×512 Thermal Imaging Camera

Heat detection at night and in haze

04

Video Processing Unit

EO/thermal switching, PIP display

05

7" High-Brightness Display

Top-mounted folding video observation screen

06

Power Unit · Lower Case

Separate power unit, integrated sensor case under the body

+

850 nm Illuminator **OPTION**

Near-infrared illumination for active night observation

MADE BY BAEKSAN

From Design to A/S, All in Korea

Since 1996, Baeksan Science has designed and built its own large-aperture optical equipment, and it's the only manufacturer of large-aperture binoculars in Korea. Design, machining, assembly, inspection and post-delivery support all happen in Korea.

1996

Founded

50+

In-house molded parts

20_{yrs+}

Outdoor operating experience



Precision objective lens cleaning



Assembly and optical axis alignment



Baeksan Science Inc. · Since 1996

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Mobile Catalog