

INTRODUCTION

The Argus™4 HR320 is the latest generation of the highly successful Argus™ Thermal Imaging Camera (TIC) from e2v technologies.

The Argus™4 HR320 uses a high-resolution 320 x 240 pixel, Amorphous Silicon (ASi) Microbolometer Detector. It has been designed using advanced digital imaging technology for a sharper picture and provides superior performance.

The Argus™4 HR320 offers the same simple-to-operate configuration of the standard Argus™4. It is a robust, self-contained camera, with fully automatic operation, and no control or adjustment is required in use.

The camera has been specifically designed to help fire-fighters to see through smoke, identify and rescue casualties and locate hot spots or the seat and spread of the fire. It has many further applications where temperatures require monitoring such as preventative maintenance and condition monitoring of equipment. It also provides vision where light is unavailable.



CAMERA STANDARD FEATURES

The Argus™4 HR320 comes with the most advanced features available in any Thermal Imaging Camera. These include:

- **Enhanced Dynamic Scene Colourisation (EDSC)**
Colourises the thermal image to allow the fire-fighter to pinpoint the hottest areas within the fire scene. With the Argus™4 HR320 the dynamic scene colourisation has been enhanced to give the user greater information.
- **Direct Temperature Measurement (DTM)**
Displays the temperature of objects within a defined area of the thermal scene.
- **SceneSave™ Digital Image Capture**
The Argus™4 HR320 can capture and store up to 100 images. These can then be viewed or deleted using the remote control supplied. Using the software provided, the captured images can be downloaded to a suitable laptop/PC and exported in various formats.
- **Tri-Mode Sensitivity**
The Argus™4 HR320 now has an expanded third level of sensitivity for very high scene temperatures to enable clear imagery at all temperatures. This expanded temperature range means that temperatures in excess of 1000 °C can be viewed.
- **Customisable Start-up Screen**
Brigade logos or station names can be added to the start-up screen for asset tracking and/or personalisation of the camera.
- **Ambient Temperature Measurement**
A sensor fitted to the front of the camera, which measures the ambient temperature of the local environment. The temperature is displayed on the viewing screen.

- **X2/X4 Zoom**
Allows the user to zoom in on the scene, from a distance, for improved investigation and identification of hot spots and dangers.
- **Time and Date**
The time and date is displayed at the top of the viewing screen.
- **Remote Control**
The Argus™4 HR320 is supplied with a remote control that allows the end user to adjust LCD settings, set the dynamic scene colourisation and set the time and date. Stored images can be reviewed and deleted.

Power for the Argus™4 HR320 is provided by an integral battery pack located on the top of the camera. The camera has a single on/off button with a delayed off operation to prevent accidental power-down during use. The camera will display a start-up screen until a useable thermal image is produced.

The Argus™4 HR320 is constructed from high quality Radel®R-5100, which has been chosen for its strength, resistance to heat, water and impact. Protection from shock is provided by a combination of rugged components, optimum mechanical design and protective bumpers. The camera is sealed to allow short-term total immersion in water (IP67). The camera is supplied with side straps and a removable handle, which provides flexible operation and transfer between users.

No end-user maintenance is required other than recharging of batteries and post-use external cleaning with a soft cloth.

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CAMERA STANDARD ACCESSORIES

The Argus™4 HR320 comes with the following standard accessories:

- Handle
- Soft carry case
- Side straps
- Remote control
- Two rechargeable battery packs
- Battery charger with mains plug (US, UK, Europe)
- Neck strap
- USB Connection Lead for PC/laptop
- User manual
- End-user software



WARRANTY AND SUPPORT

- The camera is supplied with a 24-month warranty as standard.
- Warranty can be extended for up to an additional three years at the time of purchase.

e2v technologies will attempt to repair any camera within 48 hours of receipt at one of their service centres worldwide.

ORDER CODES

- **P7130** – Standard configuration
- **P7130/N** – Camera supplied in alternative hard carry case
- **P7130/A** – Optional analogue output
- **P7130/AN** – Optional analogue output supplied in alternative hard carry case

OPTIONAL CAMERA ACCESSORIES

The Argus™4 HR320 has a complementary range of accessories. These are:

- **Truck Storage Mount and Battery Charger**
Provides secure storage with instant access for the camera and charging facilities for the battery pack.
(Part Number P7030TSMBC)
- **Transmitter Battery Pack**
Allows the transmission of the thermal image from the camera to other personnel outside the fire incident via a radio link.
(Part Number P7030TX)
- **Receiver Station and Kit**
The Receiver Station is a PC based system that allows the viewing of the thermal image transmitted from the camera. The Receiver Station is available as complete solution (PC and receiving card and antenna) or as a kit (receiving card and antenna).
(Part Numbers P7030RRS and P7030RKT)
- **External Power and Video Adaptor**
A module to replace the battery pack to allow live digital video to be viewed and the camera externally powered.
(Part Number P7030EPVA)
- **Hard Carry Case**
An alternative to the soft carry case. Can be supplied with the camera using part number P7130/N or as an after-sale accessory.
(Part Number P7030HC)
- **Mounting Bracket**
The Mounting Bracket provides a solution for the permanent fixing of the camera to any flat surface
(Part Number P7030MB)

CAMERA SPECIFICATION

Compliance Data

RFI/EMC	Emissions -	BS EN 61000-6-3:2001
	Immunity -	BS EN 61000-6-2:2005
Safety		IEC 60950-1 and related national standards
Vibration/Shock		BS EN 60721-3-2 Class 2M3.
Restriction of the use of Hazardous Substances in electrical and electronic equipment (RoHS)		All parts of the system are compliant with EU directive 2002/95/EC

Environmental Data

Thermal conditions -	The camera has been designed to operate for:
	<ul style="list-style-type: none">• 45 minutes at 80 °C (176 °F)• 15 minutes at 150 °C (300 °F)• 5 minutes at 260 °C (500 °F)
	<ul style="list-style-type: none">• Minimum operating temperature is -10 °C (14 °F)
Sealing -	The camera is sealed to allow short-term immersion in water (IP67)
Impact -	The camera has been designed to withstand a drop from a height of 2 metres (78 inches)
Vibration -	The camera has been design to withstand transportation vibration defined by BS EN 60721-3-2 Class 2M3
Storage -	The camera can be stored for extended periods. It is recommended that for maximum effective operational life, the storage temperature is kept between -10 °C and +40 °C (14 °F and 104 °F) and the camera is retained in its carry case when not in use.

Optical Data

Detector

Sensor type -	Uncooled Microbolometer
Sensor material -	Amorphous Silicon (ASi)
Resolution -	320 x 240
Spectral response -	8 – 14 µm
MDTD -	< 0.1 °C
(Minimum Discernible Temp Difference)	
Dynamic range -	-40 °C to 1000 °C (-40 °F to 1832 °F) using 3 ranges with auto-switching between ranges.
Refresh rate -	60 Hz
Spot temperature range -	-40 °C to 1000 °C (-40 °F to 1832 °F)
Ambient temperature range -	-15 °C to 150 °C (5 °F to 300 °F)

Lens

Lens material -	Germanium
Focal length -	8.6 mm
Focal distance -	1 m to infinity, optimised at 4 m (3 feet to infinity, optimised at 13 feet)
Horizontal aperture -	f/1.0
Field of view -	50° horizontal

Viewing

Display type -	Transflective, active matrix colour TFT
Display size -	90 mm (3.5 inches)
Backlight -	White LED

Mechanical Data

Overall dimensions	130 mm x 185 mm x 185 mm
(H x W x D) -	(5.1 x 7.2 x 7.2 inch) (nominal)
including handle	295 mm x 185 mm x 185 mm
(H x W x D) -	(11.5 x 7.2 x 7.2 inch) (nominal)
Weight without battery -	< 1.2 kg (2.6 pounds)
with battery -	< 1.5 kg (3.3 pounds)
with battery and handle -	< 1.7 kg (3.7 pounds)

Materials

Outer camera case -	Radel®R-5100
Rear bumper -	Multiflex®
Front bumper -	Multiflex®
Neck strap -	Nomex®
Side straps -	Nomex®
Handle -	Radel®R-5100 overmoulded in Santoprene®

Electrical Data

Power supply	Power consumption -	3 W typical
	Start-up time -	5 seconds typical

RECHARGEABLE BATTERY AND CHARGER SPECIFICATION

Battery

- Type - Ni-MH Rechargeable Battery
- Capacity - 2300 mAH
- Battery life - 4 hours @ ambient temperature (22 °C, 72 °F)
- Charge time - 2 hours nominal
- Recharge cycles - 500 @ 80% capacity
- Length - 125 mm (4.8 inches) nominal
- Width - 55 mm (2.2 inches) nominal
- Height - 50 mm (2 inches) nominal
- Net weight - 220 g (0.1 pounds) nominal
- Charging temperature - 0 °C – 40 °C (32 °F – 104 °F)
- Sealing - IP56

Charger

- Power requirements - 100 – 240 VAC, 50/60 Hz, 1 A max
- Length - 105 mm (4 inches) nominal
- Width - 65 mm (2.5 inches) nominal
- Height - 35 mm (1.4 inches) nominal
- Net weight - 220 g (0.1 pounds) nominal
- Operating temperature - 0 °C – 40 °C (32 °F – 104 °F)
- Protection - Over-voltage and over-temperature protection built into the charger and battery.
- Compliance - EMC Directive 89/336/EEC
Low Voltage Directive 73/23/EEC
BS EN60335 Part 1 and Part 2-29
- RoHS - All parts of the system are compliant with EU directive 2002/95/EC
- Sealing - IP20

Charging Shoe

- Length - 150 mm (5.8 inches) nominal
- Width - 70 mm (2.75 inches) nominal
- Height - 50 mm (2 inches) nominal
- Net weight - 200 g (0.1 pounds)
- Operating temperature - 0 °C – 40 °C (32 °F – 104 °F)
- Sealing - IP20