

INTRODUCTION

The Argus™4 Thermal Imaging Camera is the latest generation of the Argus™ Thermal Imaging Camera from e2v technologies.

The Argus™4 uses the highly successful Amorphous Silicon (ASi) Microbolometer Detector that is in use by many of the world's fire brigades.

The Argus™4 is a simple-to-operate, robust, self-contained camera, with fully automatic operation; no control or adjustment is required in use. The camera has been specifically designed to help firefighters 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 comes with the most advanced features available in any Thermal Imaging Camera. These include:

- **Dynamic Scene Colourisation (DSC)**
Colorises the thermal image to allow the firefighter to pinpoint the hottest areas within the fire scene.
- **Direct Temperature Measurement (DTM)**
Displays the temperature of objects within a defined area of the thermal scene.
- **SceneSave™ Digital Image Capture**
The Argus™4 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 *.bmp format.
- **Tri-Mode Sensitivity**
Microbolometer cameras have two modes of sensitivity, high and low, Argus™4 now has a third level of sensitivity for very high scene temperatures to enable clear imagery at all temperatures.
- **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 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 is supplied with a remote control that allows the end user to adjust LCD settings, set the dynamic scene colorisation and set the time and date. Stored images can be reviewed and deleted.

Power for the Argus™4 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 usable thermal image is produced.

The Argus™4 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.

CAMERA STANDARD ACCESSORIES

The Argus™4 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 five years at the time of purchase.

e2v technologies have repair/service centres worldwide and will attempt to repair any camera within 48 hours of receipt at one of these centres.

SPARES PROVISION

A range of parts is available to support end-users. These include external components such as bumpers, handle, neck strap and batteries. For a full listing, contact your local distributor.

CAMERA SPECIFICATION

Compliance Data

RFI/EMC	Conducted Emissions -	BS EN 61000-6-3:2001 Class B FCC CFR-47 Part 15 BS EN 61000-6-3:2001 Class B
	Radiated Emissions -	Class B FCC CFR-47 Part 15 BS EN 61000-6-1:2001 Class B
	Electrostatic Discharge -	IEC 60950-1 and related national standards
Safety		BS EN 60721-3-2 Class 2M3.
Vibration/Shock		
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">• 30 minutes at 60 °C (140 °F)• 15 minutes at 150 °C (300 °F)• 7 minutes at 260 °C (500 °F)• 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 -	160 x 120
Spectral response -	7 – 14 µm
MDTD -	< 0.1 °C
(Minimum Discernable Temp Difference)	
Dynamic range -	-40 °C to 1200 °C (-40 °F to 2200 °F) using 3 ranges with auto-switching between ranges.
Refresh rate -	9 Hz
Spot temperature range -	-40 °C to 1200 °C (-40 °F to 2200 °F)
Ambient temperature range -	-15 °C to 150 °C (5 °F to 300 °F)

Lens

Lens material -	Germanium
Focal length -	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 (H x W x D) -	130 mm x 185 mm x 185 mm (5.1 x 7.2 x 7.2 inch) (nominal)
including handle (H x W x D) -	295 mm x 185 mm x 185 mm (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) 65 °C (150 °F) can be tolerated
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

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