

# Revolutionise your business with AR



# Captivate and inspire the imagination with AR

Epson Moverio smart glasses, paired with Epson certified independent software vendor (ISV) solutions, are delivering real benefits to a range of industries. Using augmented reality (AR), enhanced communication methods and hands-free heads-up displays, Epson is driving the deployment of smart glasses into key vertical markets.



Moverio smart glasses and Epson ISVs provide commercial markets with bespoke and off-the-shelf solutions, creating a new way of seeing the world. Seamlessly merging the digital and physical, the cutting edge technology is enabling forward-thinking companies to unlock new opportunities and grow their businesses for tomorrow. Harnessing the knowledge of our expert developers' insight from the industries AR can serve best, we're bringing the future of engineering, healthcare and attraction experiences to the present.



BT-40



BT-40S



BT-45C



BT-45CS

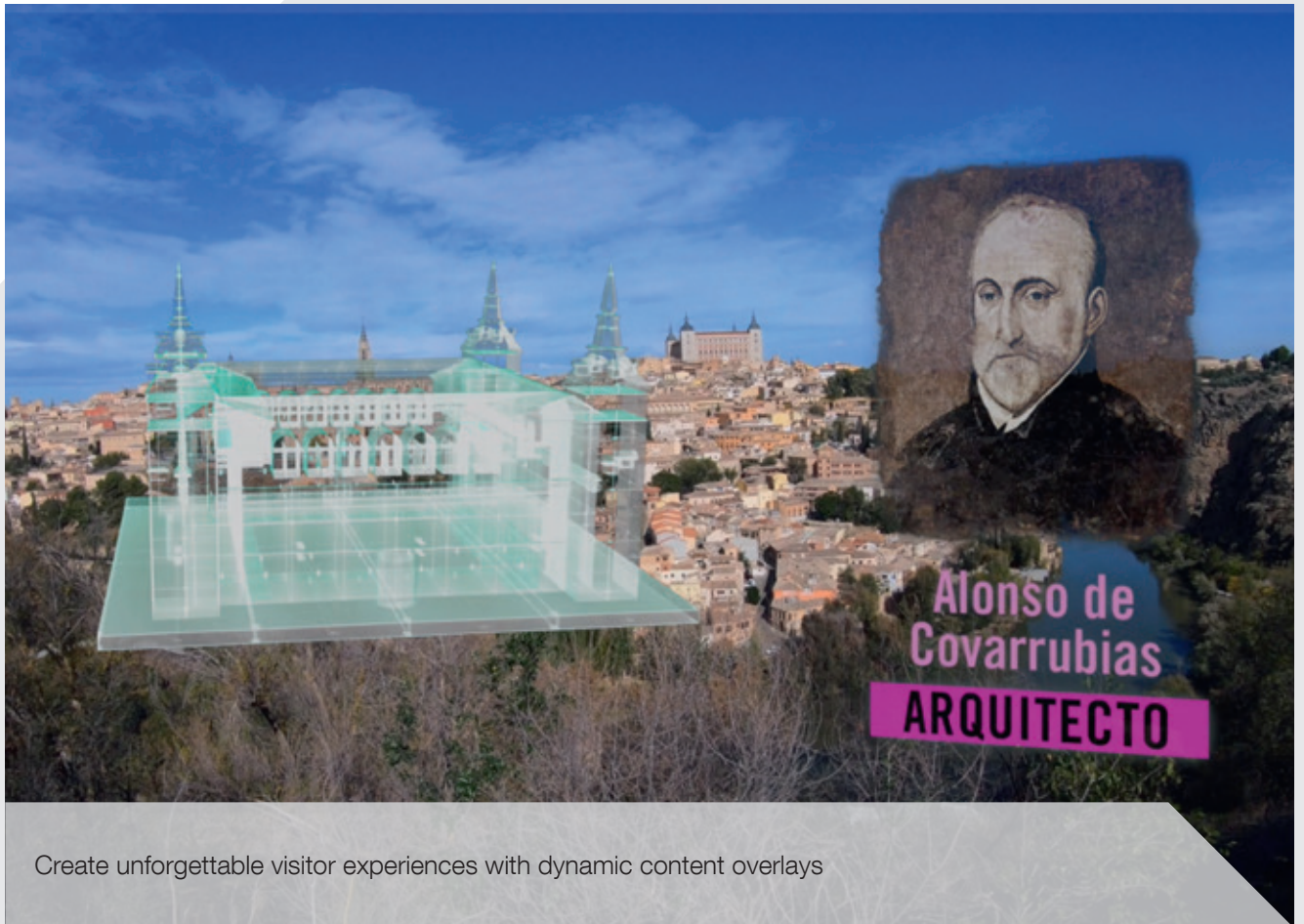


# Bring information to life like no other medium

Epson's own Si-OLED microdisplay technology has been developed to produce sharp detail and vivid colours on a see-through display. Epson's 4th generation optics<sup>1</sup> feature a contrast ratio of 500,000:1 which means unused display space appears truly transparent and with Full HD (1080p) resolution, content can be viewed on top of the real world to create high quality AR experiences. Moverio also supports side-by-side 3D.

Two-way audio and visual communication in real time with access to training materials, annotations and more





Create unforgettable visitor experiences with dynamic content overlays

### Advanced wearable display

Epson's binocular display provides a wide field of view right in front of your eyes. The display size is superior to monocular smart glasses<sup>2</sup> and lends itself perfectly to applications in the remote assistance and visitor attraction markets. When compared with monocular smart glasses<sup>2</sup> Epson Moverio smart glasses can improve eye comfort when performing tasks that require longer-term usage and also when performing delicate tasks.

Furthermore, the user can benefit from a comfortable wearable display which cannot be achieved by a smartphone or tablet. The design is ergonomic, and allows the user to keep their hands free to interact with their surroundings.



# Experience the efficiencies of remote assistance

Remote assistance software solutions based on Epson Moverio smart glasses link field engineers and technicians with in-house experts. Information and instructions can be passed visually and verbally using live two-way communication to remedy complex issues.

Whether it's a service, engineering or quality assurance task, the high-quality Moverio camera enables a detailed video feed that can be reviewed and annotated live over the user's field of view. Remote technicians can even send documents and user guides straight to the smart glasses. With the information overlaid right where you need it, remote assistance solutions that use Epson Moverio smart glasses provide an experience unrivalled by monocular and mobile devices<sup>2</sup>. Furthermore, with head-mounted wearability, your hands are kept free to work with greater speed, safety and efficiency.

## **Expand business possibilities**

- Reduced service and travel costs
- Improve first time fix rates
- Reduce skill gaps between junior and senior engineers
- Differentiate service offering
- Improve customer satisfaction



### Improve training and workflow

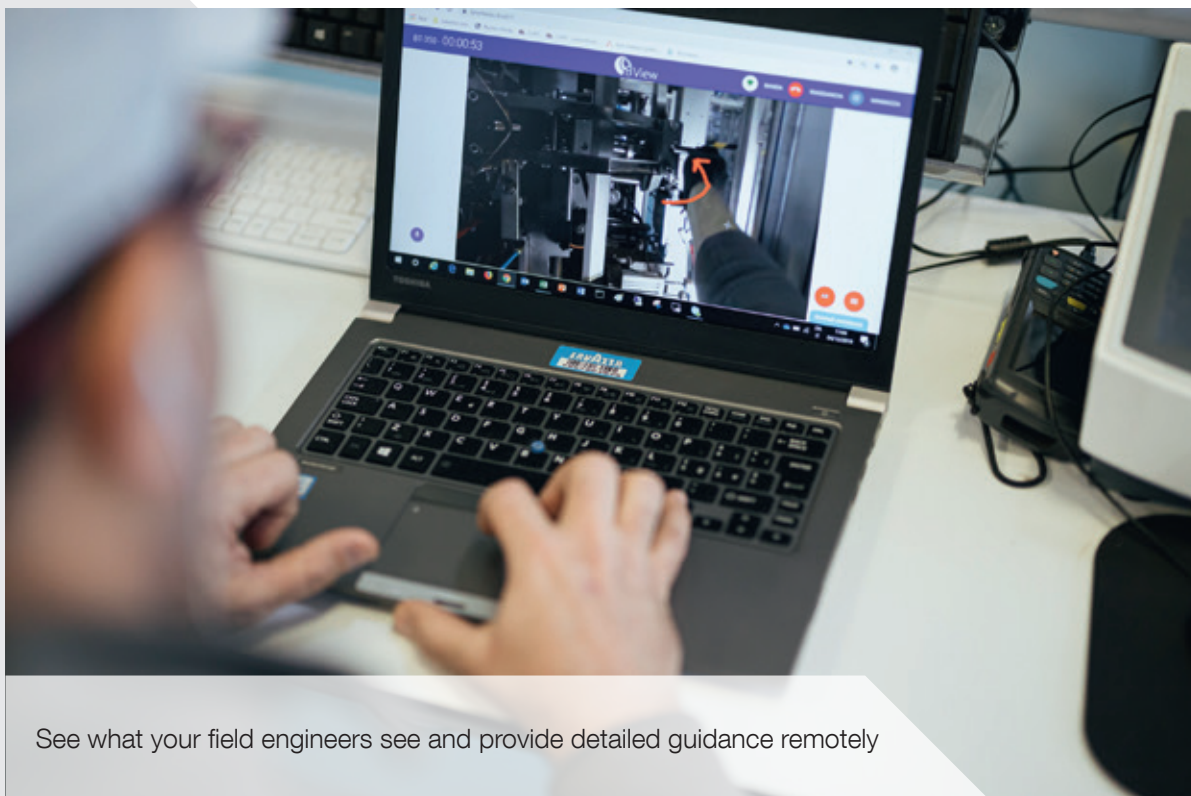
Upskill your workforce using step-by-step guidance overlaid in front of the user's field of view while keeping their hands free to carry out the instructions provided in the smart glasses. This innovative and practical learning method saves time and human resources, while providing training materials in an engaging and memorable format.

### Lavazza

Italian coffee giant Lavazza use Moverio to increase production efficiency, allowing field technicians to have expert guidance anytime, anywhere. The smart glasses use their onboard camera to send a live feed from the technician's location to the expert operator, who may be in a different part of the factory or location. The expert can then guide the technician to perform complex or critical manual activities.

"Now we can have experts by our side even when they are not physically on the premises".

Francesco Daniele  
**Field Technician**



See what your field engineers see and provide detailed guidance remotely

# A new AR standard for industrial applications

Empower your workforce with enhanced knowledge sharing using the Moverio BT-45 Series. With high-quality hands-free display, a centred HD camera and integrated audio, two-way communication is stunningly clear and can be used to complete complex tasks with exceptional speed and efficiency.

Featuring an ergonomic headset for outstanding comfort and compliant with international safety and durability standards, they are ideal for remote assistance, workflow guidance and training applications.

## Hands-free solution

Comfortable and intuitive to wear  
Built-in speaker and noise cancellation microphones - effective in noisy areas  
Centred, front-facing 8MP camera with autofocus  
Connects to compatible USB Type-C devices<sup>3</sup>

## Adaptable design

The Moverio BT-45 Series can be attached to most protective helmets and if additional eye protection is needed, ANSI Z87.1 compliant shades are available. The smart glasses can be easily flipped up out of the way when they're not needed or for safety.



Flip-up design for when the display is not in use





Act hands free while following see through, step by step operational guidance

### Intelligent Controller

Tailor-made for the Moverio BT-45CS, the Intelligent Controller has a touchscreen, camera, flashlight and expandable memory.



### Advanced optics

The Full HD Si-OLED display with frameless rendering, provides excellent colour reproduction and high transparency, designed to seamlessly blend digital content into a real-world environment. Ideal for step-by-step guidance and overlaying instructions, achieving a virtual viewing distance up to 5m.



Virtual viewing distance 5m

### Proven durability

The Moverio BT-45 Series is built for reliability in tough environments. High levels of dust are no problem thanks to a dust resistance rating of IP52, and compliance with the MIL-STD-810H<sup>4</sup> drop test means they are resilient to drops, shocks and vibrations.

120"



# Revolutionise your visitor attraction

Imagine how incredible it would be to see how a 2000-year-old statue looked when it was first created, with an interactive 3D model, right in front of your eyes.

The Moverio BT-40S binocular see-through smart glasses provide enriched content, brought to life in stunning Full HD resolution, at exhibits, museums and architectural sites.



Enhance your client's experience on guided tours with enriched digital content tailored to the tour





Bring images to life and enhance the customer journey with additional content



### Brescia Museum

Moverio has enabled the largest archaeological site in Northern Italy to resurrect its historically-significant artistic and monumental estate. Thanks to this solution created by ARtGlass based on the Moverio platform, visitors can now journey through the entire 4,200m<sup>2</sup> site of ancient ruins, experiencing the city as it was 2,000 years ago.

“The augmented reality experience is not only exciting for the visitors, but is very high impact. The Moverio smart glasses play a vital role in providing such a memorable experience.”

Luigi Maria Di Corato  
**Director**

# Create inclusive experiences with subtitling

Ergonomically designed for lightness and comfort, the Moverio BT-40S supports multi-user wearability for crowds of visitors, even if they wear glasses.

By integrating a live captioning software solution based on the Moverio platform, you can expand audiences and make events more accessible. Generate floating subtitles for visitors who are hard of hearing or speak another language, with captions positioned based on the viewer's preference and triggered in time to a live performance.

Deliver automatic and personalised captions to film and theatre enthusiasts





### The National Theatre

Moverio is helping the UK's National Theatre transform the theatre experience for millions of people suffering from hearing loss. The automated subtitling service created by the National Theatre even allows users to customise the typeface size, colour and position of captions to their preferences.

“It is important that all users have a seamless experience, including those who are hard of hearing. We're committed to giving our entire audience the best experience that we are able to deliver and that includes people who are hard of hearing. Moverio smart glasses allow us to deliver a theatre trip that can be enjoyed by all.”

Lisa Burger  
Executive Director and Joint CEO

# Transform dentistry

The Moverio BT-40S is transforming workflows in the dental industry. Bringing 3D intraoral scanning and dental camera views directly into the dentist's field of vision ensures complete focus on the patient and the task at hand.

There's no need to stretch to see a secondary monitor, relieving stress on your body and allowing for a more comfortable working posture.

## Transform your workflows

Maintain a natural and comfortable posture while scanning

Keep your hands free and maintain situational awareness

Improve scanning accuracy and speed

Software solutions compatible with intraoral scanners and cameras



Perform intraoral scanning with greater efficiency

Patient stress levels can be greatly reduced when viewing entertainment



### Reduce patient stress and anxiety

The patient can benefit too, with entertainment solutions that provide the option of listening to music or watching shows and movies while undergoing treatment, greatly reducing stress and anxiety.

Thanks to an advanced display, ease of use and lightweight, ergonomic design, both dentist and patient can benefit from a more comfortable and enjoyable experience that helps to foster an environment of security and trust.

### DTU

“Our clients tell us that our S.V.G. dental scanning solution using Moverio BT-40S smart glasses makes them feel more comfortable as they can work naturally without having to turn their head to view the scanning monitor. S.V.G. facilitates the use of intraoral scanners and reduces the acquisition time with the support of the BT-40S which features a new touch screen controller to interact wirelessly with our high performance computer with ease. S.V.G. has established itself as a device our clients simply can't live without”.

Paolo Molfino  
CEO

# Expand your virtual work life possibilities

Moverio BT-40 smart glasses create a virtual workstation and are ideal for business executives adapting to modern hybrid working styles and working from home. Wearers can display a second screen for privacy, or expand desktops with a virtual second monitor. Connect to compatible<sup>5</sup> smartphones, tablets and computers using USB-C for a widescreen, Full HD 1080p display that's similar to an external monitor or projector, providing the wearer with a personal cinematic experience.

Enhance your viewing experience with a virtual screen size of up to 120 inches viewed at 5m distance







Make viewing entertainment content more personal when flying

#### For business users on-the-go

Frequent business travellers who work on trains, planes and in public spaces can work with privacy and comfort, with personal and private documents kept away from prying eyes.

The see-through, hands-free display allows you to keep your work secure and perform multiple tasks simultaneously, from a natural and comfortable viewing position.

#### For an enhanced viewing experience

Large format Full HD display for crisp image quality

Work anywhere with total privacy for confidential work

Plug-and-play USB Type-C connectivity<sup>5</sup>

Transparent display for multi-tasking

Comfortable and natural viewing position



BT-40 showing the optional dark shade attachment.

# Solutions for all applications

	BT-40	BT-40S	BT-45C	BT-45CS
<b>Optical</b>				
Panel size	0.45 inch wide panel (16:9)	0.45 inch wide panel (16:9)	0.45 inch wide panel (16:9)	0.45 inch wide panel (16:9)
Pixels	2,073,600 (1,920 x 1,080) x RGB	2,073,600 (1,920 x 1,080) x RGB	2,073,600 (1,920 x 1,080) x RGB	2,073,600 (1,920 x 1,080) x RGB
Field of view	Approx. 34°	Approx. 34°	Approx. 34°	Approx. 34°
Screen size (projected distance)	120 inches at 5m	120 inches at 5m	120 inches at 5m	120 inches at 5m
Colour reproduction	24-bit colour (16.77 million colours)	24-bit colour (16.77 million colours)	24-bit colour (16.77 million colours)	24-bit colour (16.77 million colours)
Refresh rate (Hz)	60	60	60	60
3D support	Side by side	Side by side	Side by side	Side by side
Contrast ratio	500,000:1	500,000:1	500,000:1	500,000:1
<b>Headset</b>				
Camera (pixels)	N/A	N/A	8 million, auto focus	8 million, auto focus
Compass, Gyroscope, Accelerometer, Ambient light sensor	Yes	Yes	Yes	Yes
Connection type	USB Type-C	USB Type-C	USB Type-C	USB Type-C
Audio interface	3.5mm audio jack, 4 pin mini jack (earphones with microphone complying with the CTIA standard)	3.5mm audio jack, 4 pin mini jack (earphones with microphone complying with the CTIA standard)	3.5mm audio jack, 4 pin mini jack (earphones with microphone complying with the CTIA standard)	3.5mm audio jack, 4 pin mini jack (earphones with microphone complying with the CTIA standard)
Built-in speaker and microphone	No	No	80dBA and 92dBA (when using MoverioLink/MoverioLinkPro)	80dBA and 92dBA (when using MoverioLink/MoverioLinkPro)
Dimensions D x W x H (mm)	164 x 194 x 41	164 x 194 x 41	290 x 200 x 57 (without light shielding, headband)	290 x 200 x 57 (without light shielding, headband)
Weight (g)	95 (without light shielding, harness, cables)	95 (without light shielding, harness, cables)	550	550
<b>Controller</b>				
OS Type and OS update	N/A	Android 10, OTA (over-the-air)	N/A	Android 10, OTA (over-the-air)
CPU	N/A	Snapdragon XR1 2.52GHz Octa Core	N/A	Snapdragon XR1 2.52GHz Octa Core
Internal memory	N/A	Flash 64GB, RAM 4GB	N/A	Flash 64GB, RAM 4GB
External memory	N/A	Micro SD (2GB max.), MicroSDHC (32GB max.), MicroSDXC (2TB max.)	N/A	Micro SD (2GB max.), MicroSDHC (32GB max.), MicroSDXC (2TB max.)
Panel size	N/A	2.95 inch wide panel	N/A	2.95 inch wide panel
Pixels	N/A	409,920 (480 x 854)	N/A	409,920 (480 x 854)
Contrast ratio	N/A	800:1	N/A	800:1
Camera (pixels)	N/A	13 million, auto focus	N/A	13 million, auto focus
Built-in speaker and microphone	N/A	Yes	N/A	Yes
Wireless LAN	N/A	IEEE 802.11 a/b/g/n/ac, 2x2 Dual Band	N/A	IEEE 802.11 a/b/g/n/ac, 2x2 Dual Band
Bluetooth	N/A	5	N/A	5
Global navigation satellite system	N/A	GPS, GLONASS, Galileo, QZSS, BDS	N/A	GPS, GLONASS, Galileo, QZSS, BDS
Compass, Gyroscope, Accelerometer, Ambient light sensor, Proximity sensor	N/A	Yes	N/A	Yes
Dimensions D x W x H (mm)	N/A	110 x 55 x 23	N/A	110 x 55 x 23
Power supply voltage	N/A	5V, 2A (when AC adapter connected)	N/A	5V, 2A (when AC adapter connected)
Weight (g)	N/A	183	N/A	183
Connector ports	N/A	Bottom port: USB Type-C DP Alt 3.1 Gen2, USB2.0, USB3.0. Side port: USB2.0.	N/A	Bottom port: USB Type-C DP Alt 3.1 Gen2, USB2.0, USB3.0. Side port: USB2.0.
Audio interface	N/A	3.5mm audio jack 4 pin mini jack (earphones with microphone complying with the CTIA standard)	N/A	3.5mm audio jack 4 pin mini jack (earphones with microphone complying with the CTIA standard)
Touchscreen	N/A	Yes	N/A	Yes
<b>General</b>				
IP rating	IPX2	IPX2 (Headset and controller)	IP52	IP52
Operating temperature	5°C to 35°C, 20% to 80% humidity	5°C to 35°C, 20% to 80% humidity	5°C to 35°C, 20% to 80% humidity	5°C to 35°C, 20% to 80% humidity
Battery type	N/A	Li-Polymer 3,400 mAh	N/A	Li-Polymer 3,400 mAh
Storage temperature	-10°C to 60°C / 10% to 90% (no condensation)	-10°C to 60°C / 10% to 90% (no condensation)	-10°C to 60°C / 10% to 90% (no condensation)	-10°C to 60°C / 10% to 90% (no condensation)

# Custom AR glasses made easy

Use our proven technology to create your own custom-made augmented reality products. Suitable for AR glasses, helmets or any wearable display device, our Optical Engine Module utilises revolutionary Epson Si-OLED technology with frameless rendering to seamlessly blend digital content into a real-world environment.

It delivers high image quality and patented advanced optical engine for developing and commercialising the custom-made, binocular see-through, head-mounted displays you demand.

With easy development in mind, our solution offers you an embedded display control circuit and motion and light sensor, with an extension port for adding functionality.

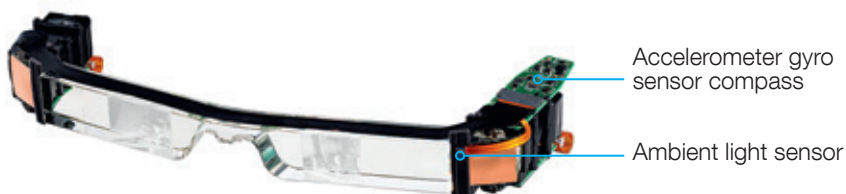
## Market-leading binocular display

Full HD 1080p resolution, equivalent to viewing a 120" screen from 5m

High-density, flicker-free, distortion free

Durable and scalable plastic composite glasses

## Optical engine module



## Your trusted partner

Epson has been developing smart glasses for over a decade. Each new generation is driven by improvements based on extensive research, development, testing and user feedback. The result is market-leading display quality and wearability that will take your products to the next level.

# Start something special

Every pair of Moverio glasses comes with a two-year warranty as standard, with additional warranties available to purchase. It's time to experience the world in new ways, unlock every opportunity and grow into the future.

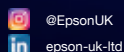
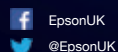
Discover more at [epson.eu/moverio](https://epson.eu/moverio)



1. Applies to Moverio BT-40 and BT-40S only.
2. Based on the specification data available on the websites of leading monocular smart glasses manufacturers as of January 2022.
3. The Moverio BT-45C/BT-45CS supports video output via USB Type-C with devices that support DisplayPort Alternate Mode. Please check your device specifications, visit Epson's FAQ pages or contact an Epson representative for device compatibility details.
4. MIL-STD-810H drop test applies to the BT-45C/BT-45CS headset and measures drops from 122cm in 26 directions. It measures compliance in the test environment and does not guarantee there will be no damage or failure.
5. The Moverio BT-40 supports video output via USB Type-C with devices that support DisplayPort Alternate Mode. Please check your device specifications, visit Epson's FAQ pages or contact an Epson representative for device compatibility details.

For more information please contact:

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Business users\*: 0871 42 37766  
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\* 10p per minute plus network extras.

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