

# A Future Vision.



**ecom**  
A PEPPERL+FUCHS BRAND

The unique smart glasses –  
smartphone solution.

Industrial Grade Smart Glasses  
Visor-Ex® 01—Wearables for  
Hazardous Areas

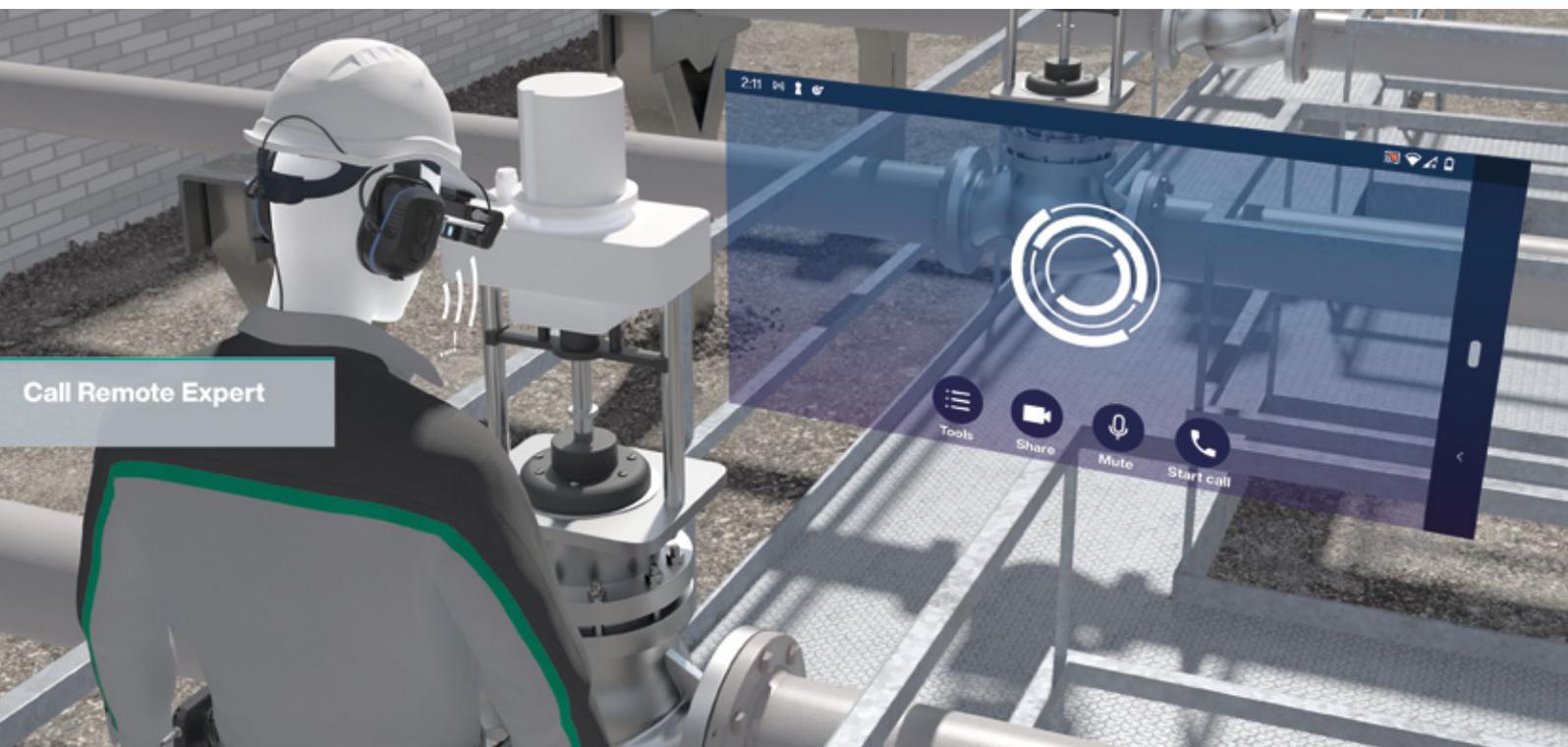


Your automation, our passion.

 **PEPPERL+FUCHS**

# Better informed and fully supported

With Visor-Ex® 01, service technicians enter a totally new world of on-site work and training. They can connect anytime to expert support and have immediate access to all relevant information. Both hands remain free for the work that needs to be done, while digital documents are displayed for reference and consultation. At the same time, the technician is never left on his own and able to contact experts for audiovisual interaction anywhere and anytime. All this is accomplished by these ergonomically designed smart glasses based on well-established technologies.



### See What I see:

#### Collaboration with remote experts

Complex systems sometimes require the close interaction of experts from different disciplines. One major feature of Visor-Ex® 01 may be described as “See What I See” (SWIS). Two centered cameras of the head unit allow everyone in the team to see exactly the portrait view the on-site technician sees.

This not only supports mutual troubleshooting within a team. It also allows reliable repair and maintenance procedures under the guidance and direction of remote experts. In this way, a completely new way of collaboration comes true. Knowledge can be shared freely among everyone involved and problems can be solved within the shortest possible time.

### Digital teamwork:

#### Saving time and expenses

Large process and manufacturing plants represent huge capital investments. This means, availability is crucial and any unexpected downtime needs to be limited to an absolute minimum.

With Visor-Ex® 01, customer-side service personnel can solve many problems without the need of a manufacturer service technician to take care of the issue. This does not only save costs by eliminating travel expenses. It also leads to faster response times and dramatically speeds up maintenance and repair work, decreasing downtime and increasing plant availability.



**Assisted reality:  
Mastering even complex procedures**

The smart glasses features built-in head-up display that can be used to display any kind of information. By means of assisted reality applications, the wearer of the smart glasses can be provided with precise step-by-step instructions guiding him through possibly complex work procedures or assisting him with additional information.

This facilitates demanding work flows and decreases the possibility of human errors. It also ensures that critical inspections are carried out according to the required procedures. At the same time, the learning curve of untrained workers is accelerated, while digital tracking of procedures results in higher quality and less rework.

**Paperless workflow:  
Connecting to the digital enterprise**

Digitally assisted workflows and remote collaboration are key factors of the digital enterprise of the future. Print-based manuals are replaced by digital formats. Online training, remote assistance and digital workflow solutions reduce time, increase quality and ensure the compliance to established standards.

Visor-Ex's® 01 technology enables handsfree operation in situations where both hands are needed to perform a task. Digital documents are projected directly to the field of view. Mobile workers are fully connected to the enterprise even while at remote locations. Troubleshooting becomes teamwork and information is available whenever it is needed.

# Distributed components in seamless interaction

Visor-Ex® 01 provides a new generation of mobile workers with extensive information and communication capabilities. For this purpose, a uniquely designed set of smart glasses was combined with a versatile smartphone solution to enable a new level of remote interaction within the work environment of a digital enterprise. The lightweight head unit offers high-quality audio and video communication and includes an optical zoom lens for laser scanning on-site.

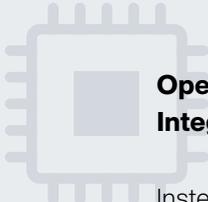


## **Distributed weight: Comfortable to wear and intuitive to use**

Visor-Ex® 01 was designed with a new generation of mobile workers in mind. Instead of integrating all components in the head unit itself, they are distributed into separate units that can be conveniently attached to the body.

The Visor-Ex® 01 head unit can be clamped to the helmet. It works with various headsets for flawless audiovisual communication and serves. It serves as the visual interface between the worker and his digital environment. As the only smart glasses of this type on the market, Visor-Ex® 01 offers an optical zoom lens for laser scanning of product identification.

The pocket unit and the communication and CPU unit Smart-Ex® 02 can be attached to various belts and provide interference-free communication via cables.



## **Open standards: Integration into any system environment**

Instead of using proprietary technologies, Visor-Ex® 01 is an open system that will seamlessly work out-of-the-box with a variety of software applications due to its smartphone integration. The CPU is the smartphone here, which provides a touch display for a facilitated user experience. It enables standard Wi-Fi as well as 3G / 4G wireless communication.



## **Ex certification: Ready for explosion hazardous areas**

Visor-Ex® 01 works flawlessly in any industrial environment from the automotive to chemical and pharmaceutical, to the oil and gas industry, to name a few typical examples. The system even conforms to the demanding requirements of the process industry and offers intrinsic safety for explosion hazardous areas.





### Smart Glasses

- Audiovisual head unit with OLED display, LED light, two cameras, laser, speaker, quad microphone, additional camera with optical zoom for barcode scanning and touch pad.

### Input

- Media of choice: Touch pad, smartphone and voice commands

### Connectivity

- Coiled USB cable for data transmission and connection to the Smart-Ex® 02. Coax cable for power supply and data transmission.

### Pocket unit

- Power supply for 24/7 operation

### Smart-Ex® 02

- Full-featured Android® 11 smartphone
- CPU, touch screen and interface for Wi-Fi and 3G / 4G wireless communication
- Launch applications via smartphone

# On-body gear for the mobile worker

Especially in the digital field, technical development is fast. What is considered most modern today might be outdated tomorrow. That's why Visor-Ex® 01 is not simply a head unit, but a distributed system that will enable the mobile worker to utilize the latest technologies for remote collaboration and information. All components work with open technologies. They can be upgraded individually over the air and are designed for easy access, intuitive operation and comfortable wear.

## Smart-Ex® 02

This unit provides the processing power for the complete system and contains the communications hardware for hands-free Wi-Fi and cellular communication. The system consists of a belt-mounted and ultra-rugged smartphone with touch operation and visual control via the head unit.

- Qualcomm Snapdragon 450 mobile platform
- Android® 11 operating system
- Wi-Fi, 3G and 4G
- Magnetic USB connector for data transfer and power supply
- Accelerometer, gyroscope and compass
- IP68 water and dust resistance
- Rugged design according to MIL-STD 810G
- Touch pad for additional user input
- 32 GB internal storage, up to 128 GB SD card



## Pocket Unit

The pocket unit represents the central power source of the system. It provides sufficient power for an entire shift or even 24/7 operation. The unit connects to the Smart-Ex® 02 via a special USB cable wiring and to the head unit via coax-cable.

- Li-Ion battery 3.7 V (built-in)
- Capacity: 4,400 mAh / 16.28 Wh
- IP54 water and dust resistance
- Magnetic USB port
- Coax connector

# Connecting with the digital world

The lightway Visor-Ex® 01 is especially designed for industrial applications. Simply attach it to any protective helmet or combine it with various headsets. Equipped with two cameras and one laser-assisted zoom lens for barcode scanning, mobile workers have access to a wide range of digital information.

They are also perfectly equipped for a completely new method of remote expert support, digital work instructions and hands-free audiovisual communication.

## Camera and LED

- Two central 16 MP cameras in a 4:3 aspect ratio
- Natural viewpoint at center of unit
- Torch LED
- Notification LED

## Helm Mount

- Clip for easy attachment and removal
- Adjustable to match user's dominant eye

## Touch pad

- for convenient control even in noisy environments

## Zoom lens "Bionic Eye"

- 6 x optical zoom
- Laser pointing
- Barcode scanner

## Coax Connector

- for pocket unit

## Audio Unit

- 85 dB loudspeaker
- 3.5 mm jack connection

## OLED Display

- Adjustable position
- Wide viewing angle



Unique combined head-mounted solution; industrial grade-certified for hazardous areas



Comfortable to wear due to distributed weight



The increased battery capacity ensure long working shifts



Fast onsite repairs due to 24/7 access to remote experts reduces travel time and costs and increases workplace safety



The lightest and most balanced smart glasses on the market for hazardous areas



The dual-center cameras and the unique optical zoom lens equip the mobile worker with an optimized „See What I see“ functionality

# Full integration into any digital workflow

Visor-Ex® 01 is an open concept matching virtually all collaboration tools such as Zoom or Microsoft Teams as well as a variety of add-on accessories.



### Ready for a collaborative world

Visor-Ex® 01 is an HMI solution that will easily become an integral part of your office and plant environment and seamlessly blend in with your digital workflow. The system can be easily configured and integrated into an existing MDM/EMM or ECOM's eMDM solutions.

### Advanced security

The complete system offers advanced IT security and is backed by standard support procedures. The head unit can be configured by the FOTA/eDS portal. Using Android as the operating system ensures regular updates and security patches. The smart glasses are built on proven industrial-grade Iristick technology. Cable connection between all components ensures reliable operation free from local radio approvals. All components can be serviced, updated and respectively replaced separately.

### Service and support

Pepperl+Fuchs is a market leader in hazardous areas solutions with more than 75 years of experience. Together with the ECOM structure a global team of service and application experts is ready to provide pre and after sales expert service.

### Accessories

Visor-Ex® 01 can be directly combined with a variety of hardware accessories from Pepperl+Fuchs. Additional accessories can be found at [www.ecom-ex.com](http://www.ecom-ex.com) and [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

## Digital Products and Services

Digital Products and Services is a solution that combines automated staging, mobile device management, and device analytics. It can also be used as a full-fledged enterprise mobility management system if required.

At the customer's request, ECOM's mobile devices can ship from the factory with predefined custom configurations such as security settings, applications, and wireless setup. This allows devices to be used anywhere in the world immediately upon delivery.

The devices can be managed via the ECOM online platform and updated remotely at any time during operation without having to be sent to local IT staff or the head office.

Cloud servers hosted in Germany meet the highest data protection standards and guarantee high data availability and security.

One-time staging and enrolling can also be done internally via ECOM's production servers. If required, device diagnostics and analytics can collect real-time operational data and fault analyses to continuously monitor device statuses and fix malfunctions preventively or immediately.

Additionally, the platform analyzes historical data to detect critical software events, installations, and other safety-critical processes. A statistical accumulation of events can be used to establish correlations and causalities between software errors, geographical data, and Wi-Fi coverage, for example.

Digital Products and Services is a ready-to-use service that ensures quality and security for all devices. This saves time and valuable resources.

Find out more:  
[www.pepperl-fuchs.com/pf-visor](http://www.pepperl-fuchs.com/pf-visor)



### Staging and Enrolling

eCSL – Custom Service Load

- Custom device preconfiguration
- Delivered ready-to-use



### Configuring and Management

eMDM – Mobile Device Management

- Update devices around the world simultaneously

### Device Diagnostics

- Analytics help avoid problems and correct errors



# Innovative Solutions from a Single Source

Pepperl+Fuchs offers a range of coordinated peripherals, accessories, and software solutions as an ideal complement to the Visor-Ex® 01.

## Exploring Mobility

Organizations are starting to realize how mobility solutions can benefit their business. Today, the focus is on technologies that reduce costs and improve efficiency. Game-changing breakthroughs in mobile computing and communication technologies are enabling industries to improve workforce safety and productivity, data quality, and the speed and

accuracy of decision-making. The Internet of Things (IoT) has become increasingly important in the field of industry and will change the way companies deploy labor to use resources more effectively.



### Applications 4.0

- Inspection / Maintenance
- Asset management / Tracking
- Collaborative working
- Scanning / Auto ID
- Process automation / Operations
- Lone worker protection / Localization (GeoIP)
- Engineering / Installation
- Augmented reality (AR)
- Security / Safety
- Push-to-Talk (PTT)



### Hardware

#### Peripherals

- Scanner
- Camera
- Headset
- Radio speaker microphone

#### Certification

- Ex certifications
- Regulatory
- Wireless certifications

#### Accessories

- Desktop charger / Docking
- Spare battery
- Case
- Cradles



### Software

- User management
- Customized roles and rights
- Android Enterprise Recommended (AER)
- Android zero-touch
- Kiosk mode
- APKs
- API / 3rd party



### Safety

- Mobile worker
- Assets
- Data



### Support

- Sales and application engineering
- Service level agreements
- Service with repair and Ex testing



### Digital Products and Services

- Preconfiguration / Staging
- Mobile device management (over-the-air)
- Device analytics

## Accessories and Peripherals

Components such as desktop charger, remote speaker microphone (RSM), and headsets expand the range of applications for the new Visor-Ex® and are perfectly suited for future IIoT solutions.

Accessories can be found at [www.ecom-ex.com](http://www.ecom-ex.com) and [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

### SM1P

Bluetooth® Headset



### RSM-Ex 01

Loudspeaker microphone



## Optimal Service, Global Support

Jointly developed with our cooperation partner iristick, the Visor-Ex® 01 as well as the industry-proven Smart-Ex® 02 stand for tested quality, compatibility, and ease of use.

The smartphone, which offers absolute safety and an extended range of applications, is based on more than 35 years of experience and a high level of application expertise.

Pepperl+Fuchs' extensive sales and service network provides support around the globe. Specialized technicians are available near you. Further support with software integration is available via our engineering and development teams.



Visor-Ex® 01 DZ1



Visor-Ex® 01 DZ2

# Your automation, our passion.

## Explosion Protection

- Intrinsic Safety Barriers
- Signal Conditioners
- FieldConnex® Fieldbus Infrastructure
- Remote I/O Systems
- Electrical Explosion Protection Equipment
- Purge and Pressurization Systems
- HMI Systems
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

## Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- Industrial Ethernet
- AS-Interface
- IO-Link
- Identification Systems
- Displays and Signal Processing
- Connectivity

[www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

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