

**Digitalizing hazardous areas.  
Enabling connectivity.  
Enhancing mobility.**

Mobile Computing and Communication



Your automation, our passion.



**Notifications**



**Data Capturing**

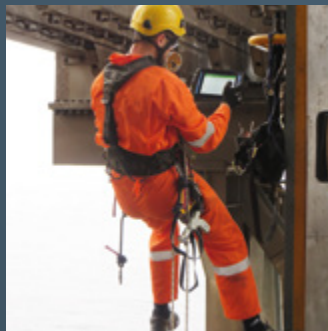


**Drawings and Documents**

**Networked Operations**

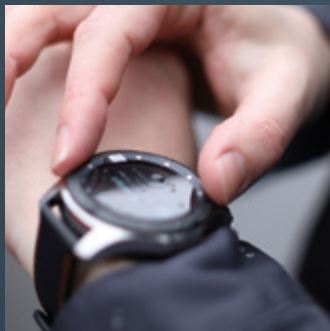
**Lone Worker / Man Down**

**Augmented Reality (AR)**



**Inspection and Repairs**

**Work Orders**



**Operator Rounds**

**Staging / MDM**

**Photo / Video**

**Smart Loggers and Analyzers**



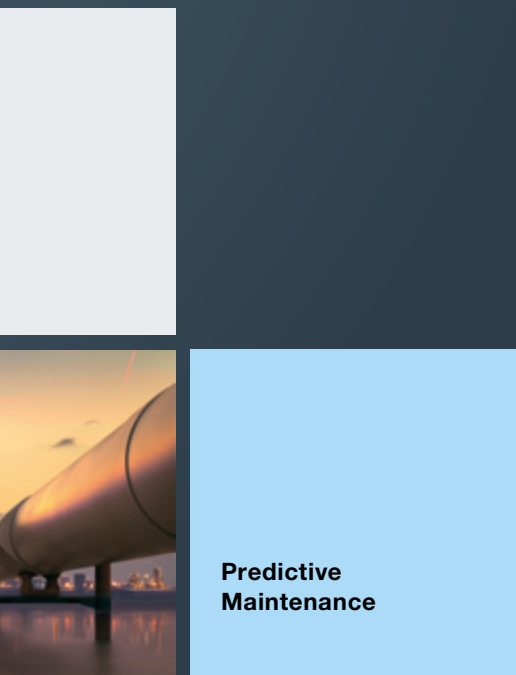
**Asset Management / Localization**

**Push-to-Talk (PTT)**



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**Predictive  
Maintenance**

# Ensuring Safety across the Globe

Explosion protection is a matter of trust. That is why ecom sets the highest standards by collaborating directly with our customers. Only by working together can we tailor our solutions to our customers' exact requirements. Our global service network allows us to integrate this concept into the life cycle of our products. Personalized support is always just a phone call away.



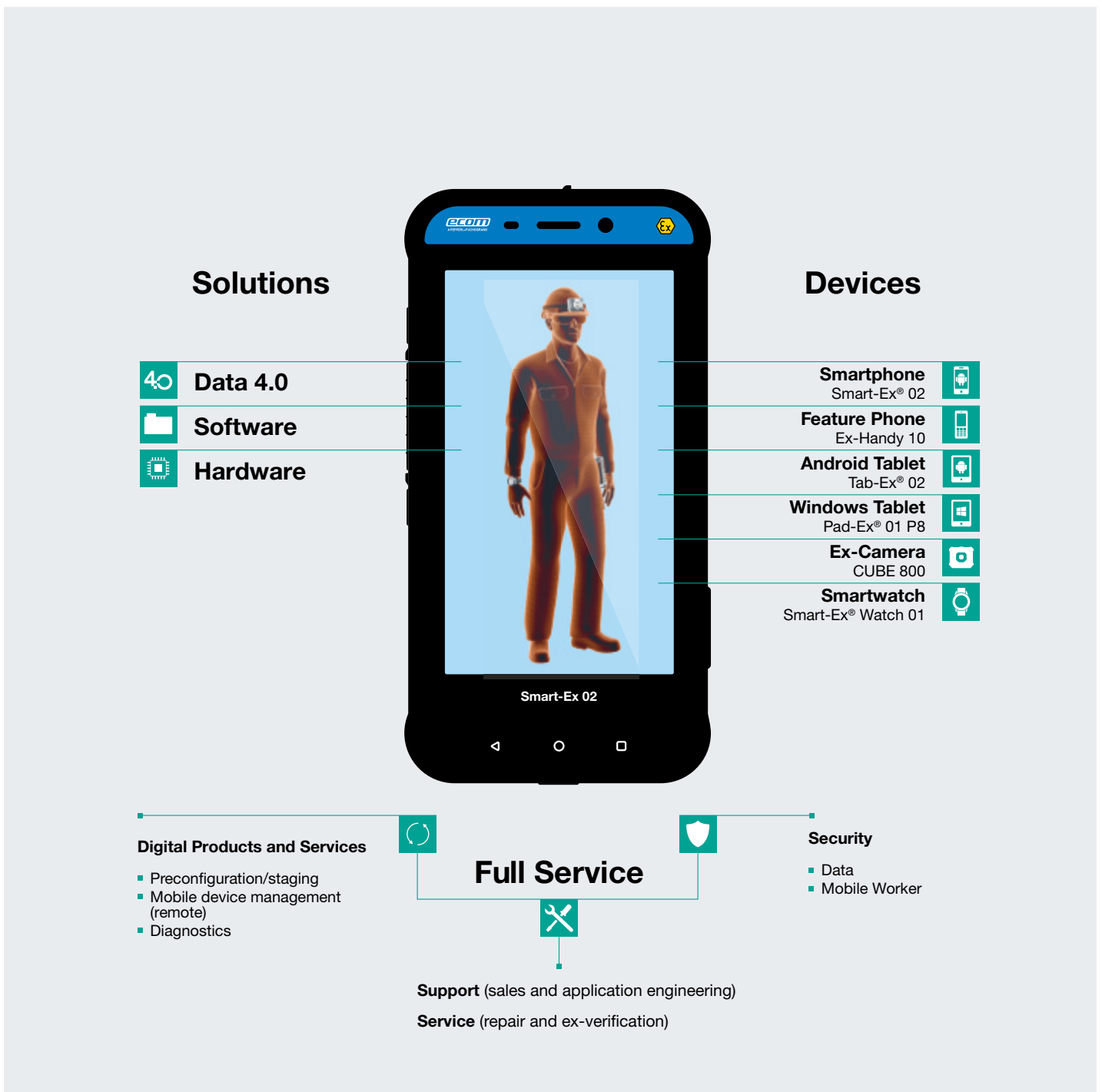
## Efficiency and Connectivity Anytime and Anywhere

Companies from a range of industries are facing mobile workforce challenges including:

- Maximizing workforce productivity
- Providing the right information when and where it is needed
- Accurate data capture for real-time decision-making
- Minimizing time and costs
- Improving knowledge retention

# 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 productivity, data quality, and the speed and accuracy of decision-making. The Internet of Things (IoT) will become increasingly important in the industrial sector and will change the way companies deploy labor to use resources more effectively.



# Customization

## 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 desired.

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—manual configuration is not necessary.

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 desired, device diagnostics and analytics can collect real-time operating data and fault analyses to continuously monitor device status 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.



# The Next Generation of Rugged and Intrinsically Safe Smartphones

Smart-Ex® 02



## Smart-Ex® 02—The Intrinsically Safe Smartphone for Hazardous Areas

The Smart-Ex® 02 is the world's first intrinsically safe smartphone for Zone 1/21 and Div. 1 areas that meets Google's sophisticated Android Enterprise Recommended (AER) validation. In addition, it meets all important global hazardous location and regulatory certifications.

The rugged smartphone has a large, high-resolution display, powerful features, and optimized accessories. Its extended temperature range makes it suitable for even the harshest environments.

Designed to support 21 LTE frequency bands, the Smart-Ex® 02 has no SIM lock and can be connected to different networks worldwide. An Android™ 9 operating system enables the intrinsically safe device to work safely, quickly, and efficiently.

The ergonomic design and intuitive user interface enhance the user experience, and optimized accessories and peripherals ensure total compatibility with current and future ecom products. With the most powerful replaceable battery on market (4400 mAh), longer shifts and 24-hour work coverage are possible.

The Smart-Ex® 02 also sets new standards when it comes to security. The Android Enterprise Recommended certification and regular security updates prevent unauthorized access to confidential personal and company data.

To ensure unlimited, long-term use of the smartphone, ecom offers a three-year service level agreement. Pepperl+Fuchs' global sales and service network provides excellent customer service around the globe. Support from ecom's system engineers and development teams is also available when software requirements change.



**Connectivity**

- WiFi Standard 802.11 a/b/g/n/ac/e/k/r/h  
WiFi 2.4 GHz and 5 GHz support
- Bluetooth® 4.2 incl. BLE
- GPS / A-GPS / Glonass / Beidou / Galileo / NFC

**Band**

- Supports 21 LTE frequency bands
- Dual SIM allows flexible integration in business environments

**Power**

- Replaceable Li-Ion battery 4400 mAh

**2 Cameras**

- 12 MP camera with autofocus and LED flash + 5 MP camera (front)

**Operating system**

- Android™ 9.0

**Memory**

- 3 GB RAM, 32 GB ROM
- Up to 128 GB additional memory with microSD

**Dedicated keys**

- PTT / Alarm / Power / Multifunction / Volume / Hardware buttons for Android features

**Ports**

- Waterproof magnetic USB 2.0 connection

**Highlights**



World's first Android Enterprise Recommended smartphone with ATEX/IECEx for Zone 1/21, Div. 1, Zone 2/22 and Div. 2 and NEC/CEC



Latest Android™ 9.0 operating system: quick, safe, and efficient



Ultra-rugged five-inch multi-touch display which can be operated with gloves



Ergonomic design and an intuitive user interface: dedicated keys like push-to-talk and volume control can be configured individually



21 LTE frequency bands and no SIM lock for flexible use around the world



Individualized service and support around the globe with faster response times



# Smart-Ex® 02



Smart-Ex® 02 DZ1



Smart-Ex® 02 DZ2



Smart 02 (Non-Ex)

## Extensive Range of Accessories and Peripherals from a Single Source





Components such as remote speaker microphone (RSM) and headsets expand the range of applications for the new Smart-Ex® 02 and are perfectly suited for future IIoT applications.

### Accessories

- Travel charger TC S02
- Desktop charger DC S02
- Multi-charger DC-M S02
- USB data cable PC S02

Additional accessories can be found at [www.pepperl-fuchs.com/smart-ex-02](http://www.pepperl-fuchs.com/smart-ex-02)

### Compatible Peripherals

<p><b>Smart-Ex® Watch 01</b></p> <p>Smartwatch</p>		<p><b>Ident-Ex® 01</b></p> <p>Auto ID Scanner</p>	
<p><b>CUBE 800</b></p> <p>Ex-Camera</p>		<p><b>RSM-Ex® 01</b></p> <p>Remote Speakermic</p>	

Technical Data	
<b>Operating system</b>	Android™ 9.0
<b>Chipset</b>	Qualcomm Snapdragon 450 platform
<b>Band</b>	Cellular frequency bands: 4G LTE FDD: B1, B2, B3, B4, B5, B7, B8, B11, B12, B13, B20, B21, B25, B26, B28, B66, B71 4G LTE TDD: B38, B39, B40, B41 3G UMTS: 850 / 900 / 1700 / 1900 / 2100 MHz 2G GSM: 850 / 900 / 1800 / 1900 MHz
<b>WiFi</b>	<ul style="list-style-type: none"> <li>■ WiFi 2.4 GHz and 5 GHz support</li> <li>■ WiFi standards 802.11 a/b/g/n/ac/e/k/r/h</li> </ul>
<b>Memory</b>	3 GB RAM, 32 GB ROM
<b>User memory</b>	SD card up to 128 GB
<b>Applications</b>	Google Play Store certified
<b>Bluetooth® SMS, MMS (text, image, audio, video)</b>	<ul style="list-style-type: none"> <li>■ Bluetooth® 4.2 incl. BLE (Bluetooth Low Energy)</li> <li>■ Support SMS and MMS</li> </ul>
<b>GPS, NFC</b>	GPS / A-GPS / Glonass / Beidou / Galileo / NFC
<b>Email client</b>	EAS, Gmail, POP3, IMAP
<b>Power</b>	Li-Ion 3.7 V / 4400 mAh / 16.28 Wh
<b>Ambient temperature</b>	-20 °C ... +60 °C
<b>Protection class</b>	IP68, MIL-STD-810G
<b>Size</b>	163 x 82 x 22 mm
<b>Weight</b>	approx. 380 g
<b>Dedicated keys</b>	PTT / Alarm / Power / Multifunction / Volume / Control / Hardware buttons for Android features
<b>Ports</b>	<ul style="list-style-type: none"> <li>■ 3.5 mm jack connection with special ecom mounting solution</li> <li>■ Waterproof magnetic USB 2.0 connection</li> </ul>
<b>Display size</b>	12.7 cm (5.0 in)
<b>Display type</b>	Extreme shock- and scratch-resistant Gorilla® Glass with glove touch and wet mode
<b>Microphone</b>	Dual mic solution with three selectable background noise suppression options
<b>Speaker</b>	Loud speaker with Gore® Protective Vents
<b>Camera</b>	12 MP rear with autofocus and LED flash with flashlight function / 5 MP front (optional)
<b>Video streaming</b>	Support MP4, M4V, 3GP, 3G2, TS, WMV, ASF, AVI, FLV, MKV, WEBM
<b>LED flashlight</b>	Yes

# The Next Generation of Rugged and Intrinsically Safe Feature Phones

Ex-Handy 10



## Ex-Handy 10— Flexible Communication in Hazardous Areas

Simple, rugged, and practical: The Zone 1/21 and Div. 1 certified 4G / LTE feature phone is ideal for a wide range of applications—from pure communication and push-to-talk (PTT) to lone worker protection and innovative Industry 4.0 applications.

The Ex-Handy 10 is suitable for global 4G communication, supports 21 LTE bands, and offers both keypad and touch screen operation. The display is made of extremely durable, scratch-resistant Gorilla® Glass (IP68-rated) and can even be operated with gloves. The Ex-Handy 10 is designed for the harshest environments—it is operable in temperatures from -20 °C to +60 °C and has good readability in direct sunlight.

The feature phone has an optional 8 MP camera, which includes autofocus, LED flash, and flashlight. An advanced rechargeable battery and energy management enable outstanding operating times.

The Android™ 8.1 operating system offers regular patches and security updates. To ensure unlimited, long-term use of the smartphone, ecom offers a three-year service level agreement. Pepperl+Fuchs' sales and support network provides excellent customer service around the globe. Support from ecom's system engineers and development teams is also available when software requirements change.



**Connectivity**

- WiFi Standard 802.11 a/b/g/n/e/k/r/h  
WiFi 2.4 GHz and 5 GHz support
- Bluetooth® 4.2 incl. BLE
- GPS / A-GPS / Glonass / Beidou / NFC

**Band**

- Supports 21 LTE frequency bands

**Power**

- Li-Ion battery 3920 mAh
- Up to 600 hours standby

**Camera**

- 8 MP camera with autofocus and LED flash

**Operating system**

- Android™ 8.1

**Memory**

- 2 GB RAM, 16 GB ROM
- Up to 128 GB additional memory with microSD

**Dedicated keys**

- PTT / Alarm / Power / Multifunction / Volume / Hardware buttons for Android features

**Ports**

- Waterproof magnetic USB 2.0 connection

**Highlights**



Global approvals for Zone 1/21 and Div. 1 and Zone 2/22 and Div. 2



21 LTE frequency bands and no SIM lock for flexible use around the world



Extremely rugged dust and waterproof housing with a scratch-resistant display



Supports both keypad and touch screen operation



Powerful Li-Ion battery (3920 mAh)



Made for use in ambient temperatures from -20 °C to +60 °C

# Ex-Handy 10



Ex-Handy 10 DZ1



Ex-Handy 10 DZ2



Handy 10 (Non-Ex)

## Extensive Range of Accessories and Peripherals from a Single Source

Components such as remote speaker microphone (RSM) and headsets expand the range of applications for the new Ex-Handy 10 and are perfectly suited for future IIoT applications.

### Accessories

- Leather case LC H10
- Leather holster LH H10
- Cradle CR H10

Additional accessories can be found at [www.pepperl-fuchs.com/ex-handy-10](http://www.pepperl-fuchs.com/ex-handy-10)

### Compatible Peripherals

#### Smart-Ex® Watch 01



Smartwatch

#### Ident-Ex® 01



Auto ID Scanner

#### CUBE 800



Ex-Camera

#### RSM-Ex® 01

Remote  
Speakermic

Technical Data	
<b>Operating system</b>	Android™ 8.1
<b>Chipset</b>	Qualcomm Snapdragon MSM8909 platform
<b>Band</b>	Cellular frequency bands: 4G LTE FDD: B1, B2, B3, B4, B5, B7, B8, B11, B12, B13, B20, B21, B25, B26, B28, B66, B71 4G LTE TDD: B38, B39, B40, B41 3G UMTS: 850 / 900 / 1700 / 1900 / 2100 MHz 2G GSM: 850 / 900 / 1800 / 1900 MHz
<b>WiFi</b>	<ul style="list-style-type: none"> <li>■ WiFi 2.4 GHz and 5 GHz support</li> <li>■ WiFi standards 802.11 a/b/g/n/e/k/r/h</li> </ul>
<b>Memory</b>	2 GB RAM + 16 GB ROM
<b>User memory</b>	SD card up to 128 GB
<b>Applications</b>	Google Play Store certified
<b>Bluetooth® SMS, MMS (text, image, audio, video)</b>	<ul style="list-style-type: none"> <li>■ Bluetooth® 4.2 incl. BLE (Bluetooth Low Energy)</li> <li>■ Support SMS and MMS</li> </ul>
<b>GPS, NFC</b>	GPS / A-GPS / Glonass / Beidou / NFC
<b>Email client</b>	EAS, Gmail, POP3, IMAP
<b>Power</b>	Li-Ion battery 3.7 V / 3920 mAh / 14.5 Wh
<b>Battery life</b>	Up to 600 hours standby
<b>Ambient temperature</b>	-20 °C ... +60 °C
<b>Protection class</b>	IP68, MIL-STD-810G
<b>Size</b>	148 x 67 x 24 mm
<b>Weight</b>	approx. 330 g
<b>Dedicated keys</b>	PTT / Alarm / Power / Multifunction / Volume / Hardware buttons for Android features
<b>Ports</b>	<ul style="list-style-type: none"> <li>■ 3.5 mm jack connection with special ecom mounting solution</li> <li>■ Waterproof magnetic USB 2.0 connection</li> </ul>
<b>Display size</b>	6.6 cm (2.6 in)
<b>Display type</b>	Extreme shock- and scratch-resistant Gorilla® Glass with glove touch and wet mode
<b>Microphone</b>	Dual mic solution with three selectable background noise suppression options
<b>Speaker</b>	Loud speaker with Gore® Protective Vents
<b>Camera</b>	8 MP rear camera with autofocus and LED flash (optional)
<b>Video streaming</b>	Support MP4, M4V, 3GP, 3G2, TS, WMV, ASF, AVI, FLV, MKV, WEBM
<b>LED flashlight</b>	Yes

# Tablets for Industrial and Hazardous Areas

Tab-Ex® 02 Series

## Successor of the World's First Intrinsically Safe Tablet

ecom's hazardous area tablet, the **Tab-Ex® 02**, leverages Samsung's know-how and brings a new level of customer focused solutions and increased ease of use to mobile workers in the oil and gas, refining, chemical, pharmaceuticals, and other hazardous industries.

Since many tasks are performed in both hazardous and non-hazardous areas, ecom offers an entire family of tablets, peripherals, and accessories suitable for use in Zones 1/21, 2/22, Div.1 / Div.2, and rugged environments.

### Professional

#### Meet the New Tab-Ex® 02

Designed for powerful performance and safe operation, the Tab-Ex 02 is a stylish, portable tablet device that can go anywhere to get the job done. ecom offers customized configurations via its MDM system.

- **Thermal endurance testing**—samples placed within an environmental test chamber and subjected to 4 weeks of extreme heat and humidity and 1 day of extreme cold.
- **Impact tests**—test weights were dropped onto the samples from different heights.
- **Drop tests**—samples were dropped onto a concrete floor from heights of 1 m.
- **Overpressure and flame propagation test**—the samples then underwent hydrostatic overpressure testing to verify the strength and integrity of the enclosure. Following this, an internal explosion of test gases was triggered to ensure that the flames did not spread from the interior to the exterior.
- **Ingress protection**—following the tests above, the objects were tested for resistance to the ingress of water and dust in accordance with IP64.



**2 Cameras**

- 8 MP rear + 5 MP front camera

**Sensors**

- Face recognition, NFC, Accelerometer, Proximity, Light, Gyroscope, Geomagnetic, Hall, GPS

**Operating system**

- Android™ 8.1

**Memory**

- 3 GB RAM, 16 GB ROM
- Up to 256 GB additional memory with microSD

**Power**

- Li-Ion battery 4450 mAh
- Up to 11 hours battery life

**Safety**

- KNOX 2.8
- Face recognition

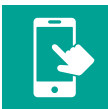
**Highlights**



Global certifications for Zone 1/21 and Div. 1 and Zone 2/22 and Div. 2



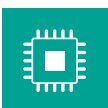
High-performance Android™ Oreo 8.1 operating system



A high-resolution, 8" touch screen, operable with gloves



Rugged design: dust-, water-, and shock-resistant



Fast processor and high storage capacity enable augmented reality applications



Samsung Knox: reliable enterprise mobile data security



# Tab-Ex® 02



Tab-Ex® 02 DZ1



Tab-Ex® 02 DZ2

## Extensive Range of Accessories and Peripherals from a Single Source





Components such as remote speaker microphone (RSM) and headsets expand the range of applications for the new Tab-Ex® 02 and are perfectly suited for future IIoT applications.

### Accessories

- Five-bay desktop charger  
DC T01 X2
- Leather case  
LC T01 X2
- Chest-strap carrying system  
CH T01 X2

Additional accessories can be found at [www.pepperl-fuchs.com/tab-ex-02](http://www.pepperl-fuchs.com/tab-ex-02)

### Compatible Peripherals

<p><b>Smart-Ex® Watch 01</b></p> <p>Smart Watch</p>		<p><b>Ident-Ex® 01</b></p> <p>Auto ID Scanner</p>	
<p><b>CUBE 800</b></p> <p>Ex-Camera</p>		<p><b>RSM-Ex® 01</b></p> <p>Remote Speakermic</p>	

Technical Data	
<b>Operating system</b>	Android™ Oreo 8.1
<b>Chipset</b>	Exynos 7 Octa, 1.6 GHz Octa-Core (Cortex®-A53)
<b>Memory</b>	RAM: 3 GB, Memory: 16 GB, with external microSD (up to 256 GB)
<b>Display</b>	1280 x 800 pixels (WXGA), 20.32 cm (8.0 in), TFT, 480 nit brightness, Operation: also with gloves / in wet conditions and snow
<b>Sensors</b>	Face recognition, NFC, Accelerometer, Proximity, Light, Gyroscope, Geomagnetic, Hall, GPS
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>■ Rugged: 127.6 x 214.7 x 9.9 mm, 415 g (Wi-Fi) / 419 g (LTE)</li> <li>■ DZ2: 127.6 x 214.7 x 9.9 mm, 575 g (Wi-Fi) / 579 g (LTE)</li> <li>■ DZ1: 162.1 x 256.0 x 33.3 mm, ca. 1250 g</li> </ul>
<b>Operating temperature</b>	-20 °C ... +50 °C
<b>Wireless capability with</b>	<ul style="list-style-type: none"> <li>■ LTE Cat. 6 (300 Mbps)—in LTE model</li> <li>■ Wi-Fi 802.11 a/b/g/n/ac (2.4 GHz + 5 GHz)</li> <li>■ Wi-Fi Direct</li> <li>■ Bluetooth® 4.2</li> </ul>
<b>Safety</b>	KNOX 2.8, face recognition
<b>Front and rear camera</b>	8 MP AF + 5 MP
<b>Power</b>	Li-Ion battery 3.8 V / 4450 mAh / 16.91 Wh / up to 11 hours battery life

# Windows Tablet Rugged Mobility at Its Finest for Zone 2 and Div. 2

Pad-Ex® 01 P8

Pad-Ex® 01 P8 redefines the mobile tablet PC with Windows® support. In addition to its incredible ruggedness, Pad-Ex 01 P8 meets all demands and supports the 8th generation Intel® Core™ i5 processor. It also provides battery life up to 7 / 14 hours and Windows® 10 support. The combination of durability, superior performance, and a large display makes the device an ideal addition to or replacement for desktop PCs, laptops, or wall-mounted displays in the field.

## Reliably Rugged: Thin, Light, and Strong

Pad-Ex® 01 P8 is rugged mobility at its finest. Its ultra-thin, lightweight exterior measures only 20 mm in height and 1.2 kg in weight.

With its ultra-compact design, Pad-Ex 01 P8 complies with IP64 and MIL-STD 81 OG for vibration. Additional display protection offers durability in harsh environments and an ergonomic design makes it easy to transport.

## 11.6" Widescreen Display

- Sunlight-readable display
- Capacitive multi-touch screen

## Integrated Options for Various Applications

- Data collection
- 1-D / 2-D barcode scanner
- 5MP autofocus camera with LED flashlight



### 2 Cameras

- 2 MP front-facing camera + 5 MP rear camera with flashlight

### Operating system

- Windows® 10 Pro (64 Bit)

### Power

- Li-Ion battery 3950 mAh
- Up to 7 hours battery life



### Memory

- One DDR3L socket for 8GB

### Connectivity

- WWAN LTE + GPS Combo
- Intel Wireless AC9260 802.11 a/b/g/n/ac
- Bluetooth® 5.0

### VO Ports

- Two USB 3.0
- One headphone-out / mic-in jack
- One docking connector
- One expansion connector for expansion modules
- Two RF pass-through connectors for WWAN and GPS

### Highlights



Global certifications for Zone 2/22 and Div. 2



High-speed Windows® 10 Operating system



Thin, light, and strong design



Sunlight-readable, 11.6" capacitive multi-touch display with an optional display protection



Optional various applications like barcode scanner

Technical Data	
<b>Rugged features</b>	<b>IP64</b> <ul style="list-style-type: none"> <li>■ MIL-STD 810G certified (drop, shock, vibration, altitude, freeze/thaw, high/low temperature, temperature shock, humidity)</li> <li>■ MIL-STD 461F certified</li> <li>■ ANSI/ISA 12.12.10-2000, Class I Division 2</li> </ul>
<b>Environment</b>	<b>Temperature</b> Operating: -10 °C ... +55 °C  <b>Humidity</b> Operating: 5 % to 95 %  <b>Altitude</b> Operating: 15,000 ft (approx. 4572 m)
<b>Operating system</b>	Windows® 10 Pro (64 Bit)
<b>CPU</b>	Intel® Core™ i5 8th Generation
<b>Memory</b>	One DDR3L socket for 8 GB
<b>Storage</b>	M2-SATA SSD 256 GB (extended temperature range)
<b>Display</b>	<ul style="list-style-type: none"> <li>■ 29.46 cm / 11.6" (1920 x 1080) FHD LCD Panel</li> <li>■ Capacitive multi-touch</li> <li>■ Optical, sunlight-readable display</li> </ul>
<b>Audio</b>	Speaker x1 / 70dB Microphone x1
<b>Camera</b>	<ul style="list-style-type: none"> <li>■ 2 MP front-facing camera</li> <li>■ 5 MP rear camera with flashlight</li> </ul>
<b>Communication</b>	<ul style="list-style-type: none"> <li>■ <b>WWAN LTE + GPS Combo</b></li> <li>■ + Intel Wireless AC9260 802.11 a/b/g/n/ac</li> <li>■ + Bluetooth® 5.0</li> </ul>
<b>Data collection</b>	Optional 1-D / 2-D barcode scanner
<b>VO ports</b>	<ul style="list-style-type: none"> <li>■ Two USB 3.0</li> <li>■ One headphone-out / mic-in jack</li> <li>■ One docking connector</li> <li>■ One expansion connector for expansion modules</li> <li>■ Two RF pass-through connectors for WWAN and GPS</li> </ul>
<b>Expansion slots</b>	<ul style="list-style-type: none"> <li>■ One microSD card slot supports SDHC and SDXC</li> <li>■ One SIM card slot for WWAN data communication</li> </ul>
<b>Button</b>	<ul style="list-style-type: none"> <li>■ Power</li> <li>■ Volume</li> <li>■ Windows touch button</li> <li>■ Barcode / camera touch button</li> <li>■ Programmable touch button</li> </ul>
<b>Battery</b>	<ul style="list-style-type: none"> <li>■ One 3950 mAh Li-Polymer battery pack: 7hrs</li> <li>■ Optional (spare part) 7,800 mAh Li-Polymer battery pack: 14hrs</li> </ul>
<b>AC adapter</b>	19 V; 3.42 A; 65 W
<b>Dimension</b>	298 mm x 192 mm x 20 mm
<b>Weight</b>	1.2 kg

# Peripherals for Use in Hazardous Areas



Remote  
Speakermic  
RSM-Ex 01



Ex-Camera  
CUBE 800



Smartwatch  
Smart-Ex® Watch 01



Scanner  
Ident-Ex® 01



BLE Beacon  
Loc-Ex® 01

# CUBE 800: Intrinsically Safe Wearable Camera for Zone 1/21 and Div. 1



## Tailored for Hazardous Areas

Designed for safe operation in Ex-certified and rugged environments, the CUBE 800 brings hands-free collaboration to the world's toughest locations.

Dual cameras allow users to choose between optical and thermal camera modes. The integrated thermal imaging camera provides infrastructure health analysis and trending information, while the optical camera provides HD video and images. The integrated light ring and laser pointer ensures high-quality visuals.

The magnetic auto-latch mount provides an easy and secure way to attach the CUBE 800 to hard hat and headband accessories. Its multipurpose design allows for hands-free, handheld, and monopod use for capturing visuals in hard-to-reach places.

## Optimized for Remote Collaboration

The CUBE 800 can be used to share live videos and images via the Onsight platform or store them locally. Simply pair the CUBE 800 to an Onsight-Connect-enabled mobile device such as the Smart-Ex® 02.

During a live Onsight session, remote participants can control camera settings including lighting, zoom, and camera modes. Remote control allows for a completely hands-free experience for workers.

The CUBE 800 combines the power of the Onsight collaborative platform with a compact camera for effective, hands-free remote communication.

**Thermal imaging camera**

- Longwave infrared, 8 ... 14 μm
- < 50 mK thermal sensitivity
- Auto flat field correction (FFC)
- Typical measurement accuracy:  
Greater of +/- 5 °C or 5% where scene temperature = -10 °C ... +120 °C  
Greater of +/- 10 °C or 10% where scene temperature = +120 °C ... +450 °C

**Storage**

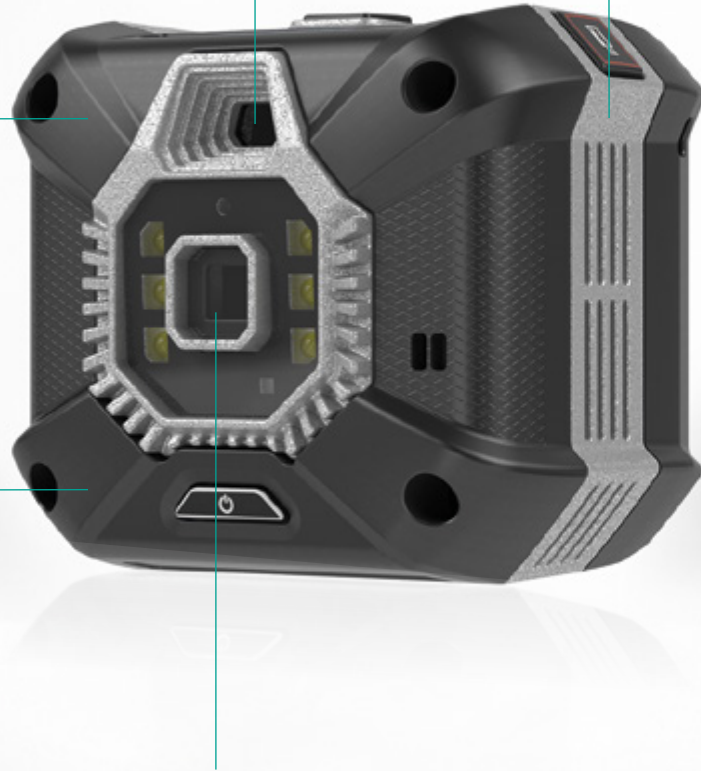
- 48 GB onboard storage

**Communication**

- Configuration and live collaboration using Onsite Connect software iOS 11
- Android™ 5.0 (Lollipop) or higher
- Integrated IEEE 802.11 a/b/g/n
- Dual-band WiFi (2.4 GHz and 5 GHz)
- Bluetooth® 4.1 (LE) for pairing to host device

**Power**

- Rechargeable 2200 mAh Li-Ion battery
- 5 V DC, 1.8 A AC adapter
- Charging from any standard USB port
- Magnetic charging connector
- Up to 4 hours of runtime, depending on media and illumination settings



**Optical performance**

- 13 MP camera (3 x digital zoom)
- 10 cm to infinity focus range
- Automatic focus and white balance
- Integrated LED light
- Class 1 laser pointer

**Highlights**



Global certifications for Zone 1/21 and Div. 1



Dual camera system with HD optics and thermal imaging technology



Compatible with mobile devices such as the Smart-Ex® 02



Allows remote working with experts via Onsite Connect



Flexible design for mounting on a helmet, handheld, or monopod for hands-free work



Storage greater than 3 months maximum +45°C



Technical Data	
<b>Optical performance</b>	<ul style="list-style-type: none"> <li>■ 13 MP camera (3 x digital zoom)</li> <li>■ 10 cm to infinity focus range</li> <li>■ Automatic focus and white balance</li> <li>■ Integrated LED light</li> <li>■ Class 1 laser pointer</li> </ul>
<b>Thermal imaging camera</b>	<ul style="list-style-type: none"> <li>■ Longwave infrared, 8 ... 14 <math>\mu\text{m}</math></li> <li>■ &lt; 50 mK thermal sensitivity</li> <li>■ Auto flat field correction (FFC)</li> <li>■ Typical measurement accuracy: Greater of +/- 5 °C or 5% where scene temperature = -10 °C ... +120 °C Greater of +/- 10 °C or 10% where scene temperature = +120 °C ... +450 °C</li> </ul>
<b>Audio</b>	<ul style="list-style-type: none"> <li>■ Built-in omni-directional microphone for ambient sound</li> <li>■ Built-in speaker for CUBE status alerts</li> </ul>
<b>Video standard</b>	<ul style="list-style-type: none"> <li>■ H.264 / AVC</li> <li>■ HD capture and stream up to 1080 pixel resolution</li> </ul>
<b>Communication</b>	<ul style="list-style-type: none"> <li>■ Configuration and live collaboration using Onsite Connect software iOS 11</li> <li>■ Android™ 5.0 (Lollipop) or higher</li> <li>■ Integrated IEEE 802.11 a/b/g/n</li> <li>■ Dual-band WiFi (2.4 GHz and 5 GHz)</li> <li>■ Bluetooth® 4.1 (LE) for pairing to host device</li> </ul>
<b>Media capture and storage</b>	<ul style="list-style-type: none"> <li>■ 48 GB onboard storage</li> <li>■ USB cable for file transfer</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>■ WLAN network authentication: WPA, WPA2, WPA-PSK, WPA2-PSK, open</li> <li>■ WLAN data encryption: AES, WEP, TKIP, or disabled</li> <li>■ 802.1 x authentication: PEAP</li> <li>■ AES-256 media encryption for file storage</li> </ul>
<b>Rugged features</b>	<ul style="list-style-type: none"> <li>■ 6-foot drop to concrete at 20 °C</li> <li>■ 75 mm (W) x 64 mm (H) x 50 mm (D)</li> <li>■ IP64</li> </ul>
<b>Operating ambient temperature</b>	<ul style="list-style-type: none"> <li>■ Optical camera: -20 °C ... +55 °C</li> <li>■ Thermal imaging: -10 °C ... +55 °C</li> </ul>
<b>Storage temperature</b>	-30 °C ... +60 °C*
<b>Humidity (non-condensing)</b>	<ul style="list-style-type: none"> <li>■ Short-term storage (up to 3 months) minimum 5 %, maximum 85 %</li> <li>■ Operating minimum 5 %, maximum 95 % RH</li> </ul>
<b>Altitude</b>	<ul style="list-style-type: none"> <li>■ Storage (12 °C) minimum 0 ft, maximum 15,000 ft</li> <li>■ Operating (27 °C) minimum 0 ft, maximum 10,000 ft</li> </ul>
<b>Power</b>	<ul style="list-style-type: none"> <li>■ Rechargeable 2200 mAh Li-Ion battery</li> <li>■ 5 V DC, 1.8 A AC adapter</li> <li>■ Charging from any standard USB port</li> <li>■ Magnetic charging connector</li> <li>■ Up to 4 hours of runtime, depending on media and illumination settings</li> </ul>

\* pending

# Smart-Ex® Watch 01: Safe and Fast Communication Right from Your Wrist



## Connected Everywhere

Hands-free navigation via advanced voice control and wrist gestures simplifies operation. A rotating bezel allows for intuitive, quick, and easy scrolling through apps and instructions, even with gloves. The powerful battery can run for up to five days, and the GPS can be used for up to 28.5 hours.

The rugged Smart-Ex® Watch offers an extended temperature range of -15 °C to +55 °C, and its durable design withstands impact and mechanical vibration.

ecom's Smart-Ex® Watch 01, based on the Samsung Galaxy Watch, is the first smartwatch for Zone 2 and Division 2. The watch can be synced with ecom devices like the Smart-Ex® 02 smartphone. It offers a new form of hands-free communication and enables greater protection for employees.



**Processor**

- Exynos 9110 1.0 GHz CA53 Dual, T720 GPU, 10nm / 8X9.5 FOPLP

**Operating system**

- Tizen-based wearables OS 4.0

**Sensors**

- Accelerometer, Gyro sensor, Barometer, HRM, Ambient light

**Connectivity**

- Wi-Fi 802.11 b/g/n 2.4 GHz
- Bluetooth® A2DP, AVRCP
- GPS, Glonass
- NFC

**Power**

- Li-Ion battery 472 mAh
- Up to five days battery life

**Memory**

- 1.5 GB (LTE) / 768 MB (BT) + 4 GB

**Highlights**



First intrinsically safe smartwatch for Zone 2/22 and Div. 2\*



Durable design withstands impact and mechanical vibration



A rotating bezel allows for intuitive, quick, and easy scrolling, even with gloves



Powerful battery runs for up to five days



GPS can be used for up to 28.5 hours



Extended temperature range from -15 °C to +50 °C

\* pending

Technical Data	
<b>Operating system</b>	Tizen-based wearables OS 4.0
<b>Processor</b>	Exynos 9110 1.0 GHz CA53 Dual, T720 GPU, 10nm / 8X9.5 FOPLP
<b>Memory</b>	1.5 GB (LTE) / 768 MB (BT) + 4 GB
<b>Display</b>	<ul style="list-style-type: none"> <li>■ Gorilla® Glass SR +</li> <li>■ Display size: 33 mm (1.3" ) , 360 x 360 full color AOD</li> <li>■ Display resolution: 216 x 432, 310.7 ppi</li> </ul>
<b>Sensors</b>	Accelerometer, Gyro sensor, Barometer, HRM, Ambient light
<b>GPS, NFC</b>	Yes
<b>Dimension and weight</b>	<ul style="list-style-type: none"> <li>■ 46 mm x 49 mm x 13 mm</li> <li>■ Wristband: 155 mm / 22 mm</li> <li>■ 63 g</li> </ul>
<b>Ambient temperature</b>	-15 °C ... +50 °C
<b>Connectivity</b>	<ul style="list-style-type: none"> <li>■ Wi-Fi 802.11 b/g/n 2.4 GHz</li> <li>■ Bluetooth® A2DP, AVRCP</li> <li>■ GPS, Glonass</li> </ul>
<b>Power</b>	Li-Ion battery 3.85 V / 472 mAh / 1.81 Wh, battery life up to five days

# Ident-Ex® 01: Intrinsically Safe Barcode Scanner and RFID Reader



## Modular Head Design

Using a unique modular design, Ident-Ex® 01 can be specifically configured to the customer's requirements by selecting different head modules. When requirements change, the head module on the unit can be replaced by one of the ecom-approved service centers. For an overview of all currently available head modules, please have a look in the Ident-Ex® 01 configurator on <https://www.ecom-ex.com>.

The device can be connected via Bluetooth® to one of our base products, including Smart-Ex®, Ex-Handy, Tab-Ex® series, and Pad-Ex®, or with any generic device.

**Scan performance**

- RFID<sup>1</sup> = up to 1.5 m
- Barcode = 15 cm to 15 m

**Bluetooth®**

- Class II, up to approx. 10 meters

**Internal storage**

- Offline batch mode  
2 MBytes, 2-D QR barcodes = 500+,  
RFID tags (ID only) = 500+

**Power**

- Li-Ion rechargeable; 12+ hours;
- 10,000+ scans with one battery charge



<sup>1</sup> Tag and environment dependent

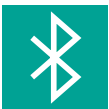
**Highlights**



Global certifications for Zone 1/21 and Div. 1



Rugged design and easy to use



Can be connected via Bluetooth® to any device



Flexible on- and offline scanning and changeable head modules

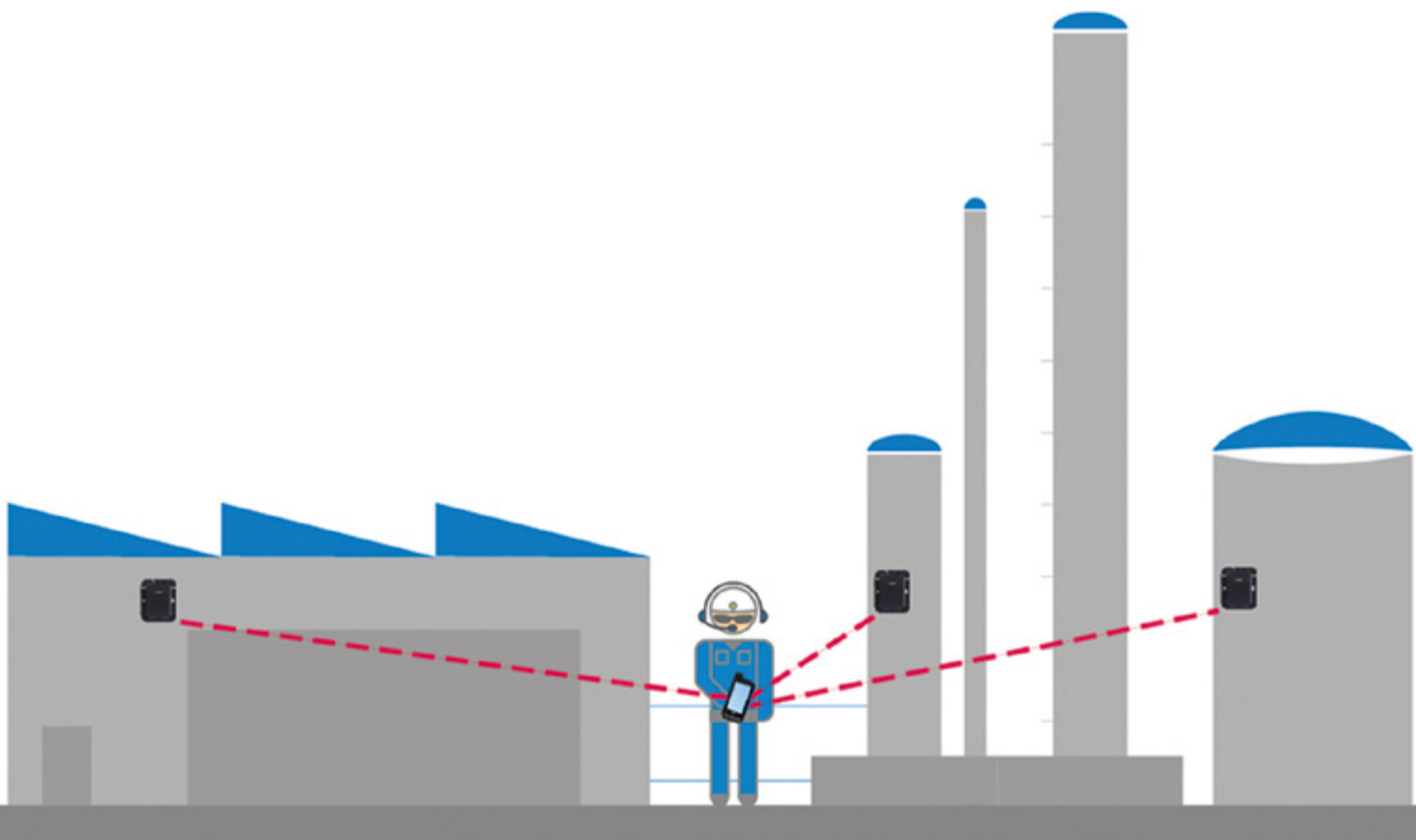


Powerful battery for 12-hour shifts

Technical Data	
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>■ 235 x 84 x 58 mm (with Ex-25 head module)</li> <li>■ 221 x 84 x 58 mm (remaining head modules)</li> </ul>
<b>Weight</b>	425 g to 560 g (depends on head module)
<b>Battery</b>	<ul style="list-style-type: none"> <li>■ Li-Ion rechargeable; 12+ hours;</li> <li>■ 10,000+ scans with one battery charge</li> </ul>
<b>Ambient temperature</b>	-20 °C ... +50 °C
<b>Internal storage</b>	<ul style="list-style-type: none"> <li>■ Offline batch mode</li> <li>■ 2 MBytes, 2-D QR barcodes = 500+,</li> <li>■ RFID tags (ID only) = 500+</li> </ul>
<b>Bluetooth®</b>	Class II, up to approx. 10 meters
<b>Scan performance</b>	<ul style="list-style-type: none"> <li>■ RFID<sup>1</sup> = up to 1.5 m</li> <li>■ Barcode = 15 cm to 15 m</li> </ul>

<sup>1</sup> Tag and environment dependent

# Loc-Ex® 01: Intrinsically Safe Bluetooth® Beacon



## Description

BLE beacons are small radio beacons that emit a signal at periodic intervals. The Bluetooth® 4.0 standard makes the beacons compatible with most smartphones and tablets, and they can be recognized at distances up to 200 m (geolocation).

Mobile devices can evaluate beacon signals and interact with the user or other programs by using special applications. They can be mounted directly onto a suitable surface or with the optional mounting base.

## For Use Inside and Outside of Hazardous Areas

The beacons are available for ATEX / IECEx Zone 1/21 and Div. 1 (Loc-Ex® 01) and for non-hazardous areas (Loc 01 HC and Loc 01 SC). Their UV-resistant housing makes it possible for them to be used indoors and outdoors.

## Benefits

- Indoor localization
- Lone worker protection
- Physical access control
- Guard control system
- Guiding visitors
- BLE beacon as replacement for NFC beacon



**Operating time**

- approx. 4 years (factory settings)  
(Loc-Ex® 01 / Loc 01 HC—continuous operation)
- approx. 2 years (factory settings)  
(Loc 01 SC—continuous operation)

**Power**

- 2 x LS14500 (Loc-Ex® 01 / Loc 01 HC)
- 2 x AA / LR6 (Loc 01 SC)



**Safety**

- CE0102

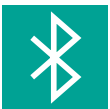
**Highlights**



Global certifications for Zone 1/21 and Div. 1



Up to 30 m range inside and up to 200 m outside buildings



Compatible with Bluetooth® Low Energy from version 4.0



Rugged, UV-resistant enclosure with IP64 rating



Operating parameters can be programmed remotely



Open firmware for individual BLE profile development

Technical Data	
<b>Ambient temperature Ta</b>	-20 °C ... +55 °C
<b>Storage temperature</b>	-30 °C ... +30 °C
<b>Power supply</b>	<ul style="list-style-type: none"> <li>■ 2 x LS14500 (Loc-Ex® 01 / Loc 01 HC)</li> <li>■ 2 x AA / LR6 (Loc 01 SC)</li> </ul>
<b>Operating time</b>	<ul style="list-style-type: none"> <li>■ approx. 4 years (factory settings) (Loc-Ex® 01 / Loc 01 HC—continuous operation)</li> <li>■ approx. 2 years (factory settings) (Loc 01 SC—continuous operation)</li> </ul>
<b>Transmission power</b>	max. 8 dBm
<b>Dimensions</b>	48 x 111 x 102 mm (H x L x W)
<b>Weight</b>	approx. 180 g (with batteries)
<b>CE-designation</b>	CE0102

# RSM-Ex 01: Remote Speaker Microphone for Use in Hazardous Areas



## Effective Communication in Harsh Environments

The RSM-Ex 01 comes with an IP65/67 rating and a built-in noise reduction function. It is able to produce clear, high volume audio (up to 103 dB). The RSM is intuitive and easy to use, even when wearing gloves.

The new 3.5 mm plug is intended for industrial applications and offers a rugged design, a safety screw for attaching the plug to a smartphone, and compatibility with current and future ecom products.

Additional headsets can be connected using the standard 3.5 mm plug.



**Power**

- Li-Ion 2200 mAh

**Buttons**

- PTT button operable with thick gloves
- Front-facing multi-function button
- Volume up / down
- SOS button (optional)

**Loudspeaker performance**

- Up to 103 dB

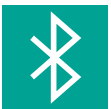
**Highlights**



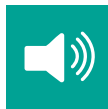
Global certifications for Zone 1/21 and Div. 1



Rugged design and easy to use



Wired connection or wireless (Bluetooth® version planned)



Outstanding volume and sound performance—up to 103 dB



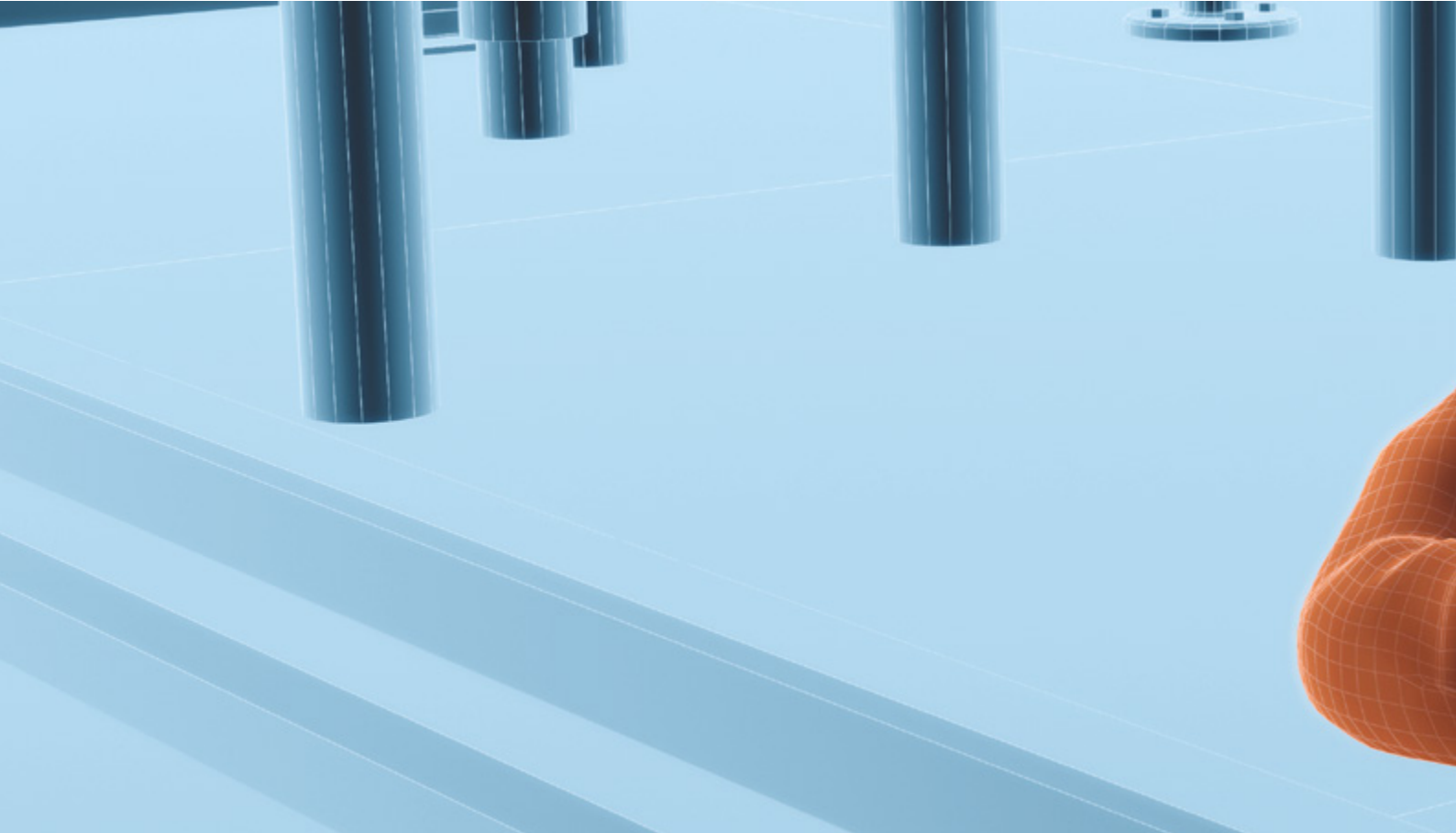
Extremely long operating times with high voice volume—up to 78 hours



Good operability, even with gloves

Technical Data				
<b>Loudspeaker performance</b>	Up to 103 dB			
<b>Power supply</b>	Li-Ion 2200 mAh			
<b>Charging</b>	<ul style="list-style-type: none"> <li>■ Charging cable and docking station with magnetic charging plug: similar concept to Smart-Ex® 02 or Ident-Ex® 01. A docking station without any electronics and a mounting option for the charging plug.</li> <li>■ Optical charging level indication (multiple LEDs)</li> </ul>			
<b>Plug</b>	<ul style="list-style-type: none"> <li>■ 3.5 mm 4-pin headset jack with locking mechanism for Smart-Ex® 01 /201 and Ex-Handy 09 / 209 versions</li> <li>■ 3.5 mm 4-pin headset jack with locking mechanism for ecom Next Generation Phones (Ex-Handy 10; Smart-Ex® 02)</li> <li>■ 3.5 mm 4-pin headset jack for Standard Android and Windows devices</li> </ul>			
<b>Buttons</b>	<ul style="list-style-type: none"> <li>■ PTT button operable with thick gloves</li> <li>■ Front-facing multi-function button</li> <li>■ Volume up / down</li> <li>■ SOS button (optional)</li> </ul>			
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Lone worker ready (optional SOS button)</li> <li>■ IOT ready (4 standard Google intents usable and/or optional 4 additional Android intent)</li> <li>■ Build in NFC Technology</li> </ul>			
<b>Run times</b>	<b>Use time in % with typical user profiles</b>	<b>Noisy areas with sound level above 100 dB</b>	<b>Noisy areas with sound level between 84 and 100 dB</b>	<b>Noisy areas with sound level up to 84 dB</b>
	5 / 5 / 90	-> 47 h	-> 60 h	-> 78 h
	25 / 25 / 50	-> 16 h	-> 27 h	-> 45 h
	50 / 50 / 0	-> 9 h	-> 16 h	-> 30 h
		Highest noise level (8/8)*	Very high noise (4/8)*	High noise level (2/8)*
	<p>*There are 8 different volume levels possible.  **determined runtimes on the Smart-Ex® 01 based on RSM-Ex 01 software version V 16</p>			
<b>Standby time</b>	Approx. 80 hours after commissioning via the 3.5 mm jack of an Android or Windows device			
<b>Temperature range</b>	-20 ... +55°C			
<b>IP rating</b>	IP 64 following EN/IEC 60079-0 (ATEX/ IECEx) IP 65 / 67 following EN/IEC 60529 (industrial standard)			

# Digitalizing hazardous areas. Enabling connectivity. Enhancing mobility.



The Pepperl+Fuchs brand ecom is a leading manufacturer of comprehensive solutions for intrinsically safe mobile computing and industrial communication in hazardous areas.

Since 1986, ecom has played a key role in pioneering explosion protection for mobile devices. The company has demonstrated its technological expertise with a number of innovations and tried-and-tested mobile solutions—from intrinsically safe smartphones, cell phones, and tablets to accessories like wireless headsets and barcode scanners. ecom's new Digital Products and Services platform completes the portfolio, offering automated staging during device production, mobile device management, and device analytics; the platform can also be used as a full-fledged enterprise mobility management system.

Each of ecom's solutions combines uncompromised security with the highest level of functionality, and includes all necessary approvals and certificates for global use. A global sales and support network with service centers in Germany, the US, Singapore, and the United Arab Emirates completes the range of products.



Customers around the world know the Pepperl+Fuchs Group as a pioneer and innovator in electrical explosion protection and sensor technology. Building on decades of experience and technical leadership, the company develops components and solutions tailored to the needs of its customers. Solutions for mobile safety and communication from the Pepperl+Fuchs brand ecom enable customer applications to be digitalized quickly and easily. This opens up completely new possibilities and increases the safety, efficiency, and transparency of operations in both conventional and Industry 4.0 applications.

For more information about ecom, visit:

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

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### Pepperl+Fuchs Quality

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