





Mining And Surface Certification (Pty) Ltd

2015/021934/07

THIS CERTIFICATE IS ISSUED AS AN I.A. CERTIFICATE IN TERMS OF THE MINE HEALTH AND SAFETY ACT, ACT NO 29 OF 1996 (AND REGULATIONS), THE OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993) AND REGULATION 17 OF THE ELECTRICAL MACHINERY REGULATIONS

IA CERTIFICATE	MASC S/24-8207X	Issue	0
Issue Date	07 May 2024	Expiry Date	07 May 2027
** Based on Certificate No	IECEX EPS 23.0021X	Issue / Variations / Amendment	1
Requested by	Pepperl+Fuchs (Pty) Ltd Zerwick Forum, 8 Glen Eagle Office Park Cnr Monument Rd and Braambos St, Glen Erasmia, Kempton Park 1619, South Africa		
Manufacturer	Pepperl+Fuchs SE Lilienthalstrasse 200, 68307 Mannheim, Germany		
Description	The intrinsically safe smartphone of type Smart-Ex 03 *** DZ1 is a communication device intended for use in explosive hazardous areas. The device is equipped with a replaceable battery pack unit type Ex-BP S03 or Ex-BP S03s. Ambient temperature range: -20 °C ≤ Ta ≤ +60 °C See Base Certificate** for more information.		
Equipment	Intrinsically safe smartphone	Type	Smart-Ex 03 *** DZ1 and Smart-Ex 03 *** DZ2
MARKING: Original marking as per certificate ** remains applicable. IA number must be added.	Type:	Intrinsically safe smartphone, types: Smart-Ex 03 *** DZ1 and Smart-Ex 03 *** DZ2	
	Ex Marking:	Smart-Ex 03 *** DZ1: Ex ia IIC T4 Gb Ex ia IIIC T135 °C Db Smart-Ex 03 *** DZ2: Ex ic IIC T4 Gc Ex ic IIIC T135 °C Dc	
	IA Number:	MASC S/24-8207X (To be additionally marked on equipment)	
	Warnings:	See Base Certificate ** (original marking must be applied)	
Quality Assurance report (QAR) / Notification (QAN):		DE/PTB/QAR06.0008/20	
Compliance: The equipment as described above has been allocated the rating <u>Explosion Protected 'as above'</u> utilizing the SANS/IEC Standards: <ul style="list-style-type: none"> SANS (IEC) 60079-0: 2019 Equipment - General requirements SANS (IEC) 60079-11: 2012 Equipment protection by intrinsic safety "i" <i>Note: This certificate covers only the listed standards and does not imply compliance to any other standard, related or inferred. It is up to the manufacturer to ensure that the product complies to all relevant standards for the application.</i>			
Special conditions of safe use "X": <ul style="list-style-type: none"> Refer to Annex A below for more details. 			
Conditions of manufacture: <ul style="list-style-type: none"> Refer to Annex A below for more details. 			
 S. JORDAAN TECHNICAL SPECIALIST		 N. VILOJEN TECHNICAL OFFICER	
<small>This certificate covers all units sold as long as the QAR/QAN remains valid. According to the relevant requirements of the MHS Act and the OHS Act, production units of explosion protected equipment are required to comply with third party quality assurance (an approved mark scheme or batch testing by an accredited test laboratory).</small>			

Apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:

- SANS 10086 requirements;
- Any conditions mentioned in the above certificate;
- Any relevant requirements of the MHS Act;

Any restrictions and conditions enforced by the chief inspector of mines, principal inspector (Group I equipment) or chief inspector of factories (Group II equipment).

This certificate may only be reproduced in full
The certificate is not transferable and remains the property of the issuing body.

IA CERTIFICATE: MASC S/24-8207X

Equipment: IS Smartphone, Smart-Ex 03 *** DZ1 and Smart-Ex 03 *** DZ2
(Expiry date: 07 May 2027)

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ANNEX A

This document is based on and must be read in conjunction with certificate IECEx EPS 23.0021X	
Description (According to Base Certificate) **	
"Refer to description in Base Certificate ** (and any applicable schedules/issues/variations)."	
Standard compliance	See Base Certificate **
Special conditions of safe use ("X")	<ul style="list-style-type: none">• The device shall be protected against high energy impacts.• When used in group IIC or IIB environments, the device shall not be used in close proximity to processes producing high electrostatic charges.• Charging, SIM-card replacement, and battery pack replacement is only allowed in ordinary (non-hazardous) areas.• The device may only be charged in a temperature range of 0°C to 45 °C.• Charging and wired data-transfer via the USB-C interface is limited to a maximum voltage of 6 V (Um) and a current of 10 A (Im).• It must be ensured that the power plug/supply used for charging and wired data connections via the USB-C port is a non-shock hazard extra low voltage equipment such as SELV, PELV or ES1 as per IEC 62368-1 (former IEC 60950-1) or equivalent.• It must be ensured that the battery cover is mounted properly before entering the hazardous location so that the IP rating of the device is not affected.• Intrinsically safe equipment for use in the hazardous location connected to the audio jack or USB-C interface must fulfill one of the following:<ul style="list-style-type: none">• The combination of the intrinsically safe equipment and the Smart-Ex 03 *** DZ1 must be assessed, and the certificate of the equipment must allow the connection to the Smart-Ex 03 *** DZ1.• The equipment entity parameter must match with the Smart-Ex 03 *** DZ1 entity parameter as indicated above.• The following spare parts are allowed to be replaced by the end user in ordinary non-hazardous locations: a) USB-C Cover b) Audio Jack door c) Battery cover / battery pack• Repairs are only to be conducted by the manufacturer or an authorized service center.
Conditions of manufacture	<ul style="list-style-type: none">• None.
Conditions of Certification	<ul style="list-style-type: none">• This IA Certificate covers all units sold from the date of this document to the expiry date of this certificate.• As per ARP 0108 a maximum three yearly review is required on this IA Certificate (expiry is determined as per the QAR/QAN/QMS expiry date).• The apparatus must be additionally marked with the MASC marking details above.• This approval only covers the equipment as certified above and does not include any scheduled additions or variations / amendments / new issues to the certificate(s), made after the above date.• The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by the certificate on which this IA Certificate is based and any other conditions in this IA Certificate.• The certification on which this IA Certificate is based must remain valid.• The extent of the requirements in the ARP 0108 (or regulations), SANS 10108 and any other applicable regulations on the certification of the equipment must remain unchanged.• The Ex-quality assurance notification/report for the equipment must remain valid.
Conclusion:	<ul style="list-style-type: none">• From the above and the selective examination of the documentation, nothing contrary to the requirements of the applicable standards was found, provided that the equipment / component is used as described in the above document / certificate and according to the MASC conditions below. A MASC IA certificate is issued based on the work done as per the Base Certificate **.• The routine tests for production units according to the Base Certificate ** must be complied with (if applicable).

This document is issued based on Mining And Surface Certification's Standard Contract terms and conditions available on request.

While every endeavour is made to ensure that a test / assessment / inspection is representative and accurately performed, and that a report / certificate is accurate in the quoted results and conclusions drawn from the test / assessment / inspection, MASC or its directors/employees shall in no way be liable for any error made in carrying out the test / assessment or for any erroneous statement, whether in fact or in opinion, contained in a report / certificate issued pursuant to a test / assessment / inspection.

MASC takes no responsibility for any non-conformances, exclusions, or any results / assessments / inspections not in compliance with the standards. By marking the equipment in accordance with the documentation / standard, the manufacturer / applicant attests on his own responsibility that the equipment / installation has been designed and constructed in accordance with the applicable requirements of the relevant standards and documentation, that the routine verifications / routine tests have been correctly completed and the equipment / installation complies with the documentation and standard(s).

This document is only for use and application in South Africa. It is issued based on National interpretations and accepted practices.

This document may only be reproduced in full.

This certificate is not transferable and remains the property of the issuing body.

This document will not be supported by MASC for certification purposes outside the borders of South Africa.

Mining And Surface Certification (Pty) Ltd Reg No: 2015/021934/07
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IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX EPS 23.0021X** Page 1 of 4 [Certificate history:](#)
Issue 0 (2023-11-28)

Status: **Current** Issue No: 1

Date of Issue: 2024-02-26

Applicant: **Pepperl+Fuchs SE**
Lilienthalstrasse 200
68307 Mannheim
Germany

Equipment: **Intrinsically safe smartphone, types: Smart-Ex 03 *** DZ1 and Smart-Ex 03 *** DZ2**

Optional accessory:

Type of Protection: **intrinsic safety "i"**

Marking: Smart-Ex 03 *** DZ1:
Ex ia IIC T4 Gb
Ex ia IIIC T135 °C Db
Smart-Ex 03 *** DZ2:
Ex ic IIC T4 Gc
Ex ic IIIC T135 °C Dc

Approved for issue on behalf of the IECEx
Certification Body:

Ulrich Feike

Position:

Head of Certification

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

Bureau Veritas Consumer Products Services Germany GmbH
Businesspark A96
86842 Türkheim
Germany





IECEX Certificate of Conformity

Certificate No.: **IECEX EPS 23.0021X**

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Date of issue: 2024-02-26

Issue No: 1

Manufacturer: **Pepperl+Fuchs SE**
Lilienthalstrasse 200
68307 Mannheim
Germany

Manufacturing
locations: **ECOM Instruments GmbH**
Industriestrasse 2
97959 Assamstadt
Germany

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-11:2023](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[DE/EPS/ExTR23.0025/01](#)

Quality Assessment Report:

[DE/PTB/QAR06.0008/19](#)



IECEX Certificate of Conformity

Certificate No.: **IECEX EPS 23.0021X**

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Date of issue: 2024-02-26

Issue No: 1

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The intrinsically safe smartphone of type Smart-Ex 03 *** DZ1 and type Smart-Ex 03 *** DZ2 is a communication device intended for use in explosive hazardous areas. The device is equipped with a replaceable battery pack unit type Ex-BP S03 or Ex-BP S03s.

Refer also to attachment.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to attachment.



IECEX Certificate of Conformity

Certificate No.: **IECEX EPS 23.0021X**

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Date of issue: 2024-02-26

Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

additional battery pack Ex-BP S03s

alternate gasket material

Annex:

[Ecom_22TH0346_Smart-Phone 03_IECEX Attachment_1.pdf](#)

Annex to: IECEx EPS 23.0021X Issue No. 1
Applicant: Pepperl+Fuchs SE
Apparatus: Smart-Ex 03 *** DZ1
Smart-Ex 03 *** DZ2

Description of equipment (Model DZ1):

The intrinsically safe smartphone of type Smart-Ex 03 *** DZ1 is a communication device intended for use in explosive hazardous areas. The device is equipped with a replaceable battery pack unit type Ex-BP S03 or Ex-BP S03s.

Ambient temperature range: $-20\text{ °C} \leq T_a \leq +60\text{ °C}$

Electrical interface data for use in hazardous areas:

USB-C				
$U_o = 4.2\text{ V}$	$I_o = 0.8\text{ A}$	$P_o = 0.6\text{ W}$	$C_o = 2\text{ }\mu\text{F}$	$L_o = 8\text{ }\mu\text{H}$
$U_i = 4.4\text{ V}$	$I_i = 1.5\text{ A}$	$P_i = \text{not relevant}$	$C_i = 15\text{ }\mu\text{F}$	$L_i = 2\text{ }\mu\text{H}$

Audio				
$U_o = 3.6\text{ V}$	$I_o = 0.290\text{ A}$	$P_o = 0.210\text{ W}$	$C_o = 2.6\text{ }\mu\text{F}$	$L_o = 730\text{ }\mu\text{H}$
$U_i = 4.5\text{ V}$	$I_i = 0.030\text{ A}$	$P_i = \text{not relevant}$	$C_i = 0\text{ }\mu\text{F}$	$L_i = 0\text{ }\mu\text{H}$

Optional Accessories:

CR-Ex S03	cradle with belt or spring clip
LC-Ex S03	leather case with belt or spring clip
LH-Ex S03	leather holster
RL ID01	retractable lanyard
EXT-C2LCOIL	coil tether
Mini QD Loop	mini disconnect clip with loop
ST 02	stylus pen without tether
ST 01	tether for stylus pen

Reference number (Model DZ1): 22TH0346

Special conditions for safe use (Model DZ1):

The device shall be protected against high energy impacts.

When used in group IIC or IIB environments, the device shall not be used in close proximity to processes producing high electrostatic charges.

Charging, SIM-card replacement and battery pack replacement is only allowed in ordinary (non-hazardous) areas.

The device may only be charged in a temperature range of 0 °C to 45 °C .

Charging and wired data-transfer via the USB-C interface is limited to a maximum voltage of 6 V (U_m) and a current of 10 A (I_m).

It must be ensured that the power plug/supply used for charging and wired data connections via the USB-C port is a non-shock hazard extra low voltage equipment such as SELV, PELV or ES1 as per IEC 62368-1 (former IEC 60950-1) or equivalent.

It must be ensured that the battery cover is mounted properly before entering the hazardous location so that the IP rating of the device is not affected.

(continuation see following page)



Special conditions for safe use (Model DZ1): (continuation)

Intrinsically safe equipment for use in the hazardous location connected to the audio jack or USB-C interface must fulfill one of the following:

- The combination of the intrinsically safe equipment and the Smart-Ex 03 *** DZ1 must be assessed, and the certificate of the equipment must allow the connection to the Smart-Ex 03 *** DZ1.
- The equipment entity parameter must match with the Smart-Ex 03 *** DZ1 entity parameter as indicated above.

The following spare parts are allowed to be replaced by the end user in ordinary non-hazardous locations:

a) USB-C Cover b) Audio Jack door c) Battery cover / battery pack

Repairs are only to be conducted by the manufacturer or an authorized service center.

Description of equipment (Model DZ2):

The intrinsically safe smartphone of type Smart-Ex 03 *** DZ2 is a communication device intended for use in explosive hazardous areas. The device is equipped with a replaceable battery pack unit type Ex-BP S03 or Ex-BP S03s.

Ambient temperature range: $-20\text{ °C} \leq T_a \leq +60\text{ °C}$

Electrical interface data for use in hazardous areas:

USB-C				
$U_o = 4.2\text{ V}$	$I_o = 0.8\text{ A}$	$P_o = 0.6\text{ W}$	$C_o = 7\text{ }\mu\text{F}$	$L_o = 18\text{ }\mu\text{H}$
$U_i = 4.4\text{ V}$	$I_i = 1.5\text{ A}$	$P_i = \text{not relevant}$	$C_i = 15\text{ }\mu\text{F}$	$L_i = 2\text{ }\mu\text{H}$

Audio				
$U_o = 3.6\text{ V}$	$I_o = 0.290\text{ A}$	$P_o = 0.210\text{ W}$	$C_o = 3.9\text{ }\mu\text{F}$	$L_o = 1100\text{ }\mu\text{H}$
$U_i = 4.5\text{ V}$	$I_i = 0.030\text{ A}$	$P_i = \text{not relevant}$	$C_i = 0\text{ }\mu\text{F}$	$L_i = 0\text{ }\mu\text{H}$

Optional Accessories:

CR-Ex S03	cradle with belt or spring clip
LC-Ex S03	leather case with belt or spring clip
LH-Ex S03	leather holster
RL ID01	retractable lanyard
EXT-C2LCOIL	coil tether
Mini QD Loop	mini disconnect clip with loop
ST 02	stylus pen without tether
ST 01	tether for stylus pen

Reference number (Model DZ2): 22TH0346

Special conditions for safe use (Model DZ2):

The device shall be protected against high energy impacts.

When used in group IIC or IIB environments, the device shall not be used in close proximity to processes producing high electrostatic charges.

Charging, SIM-card replacement and battery pack replacement is only allowed in ordinary (non-hazardous) areas.

The device may only be charged in a temperature range of 0 °C to 45 °C .

Charging and wired data-transfer via the USB-C interface is limited to a maximum voltage of 6 V (U_m) and a current of 10 A (I_m).

It must be ensured that the power plug/supply used for charging and wired data connections via the USB-C port is a non-shock hazard extra low voltage equipment such as SELV, PELV or ES1 as per IEC 62368-1 (former IEC 60950-1) or equivalent.

It must be ensured that the battery cover is mounted properly before entering the hazardous location so that the IP rating of the device is not affected.

(continuation see following page)



Special conditions for safe use (Model DZ2): (continuation)

Intrinsically safe equipment for use in the hazardous location connected to the audio jack or USB-C interface must fulfill one of the following:

- The combination of the intrinsically safe equipment and the Smart-Ex 03 *** DZ2 must be assessed, and the certificate of the equipment must allow the connection to the Smart-Ex 03 *** DZ2.
- The equipment entity parameter must match with the Smart-Ex 03 *** DZ2 entity parameter as indicated above.

The following spare parts are allowed to be replaced by the end user in ordinary non-hazardous locations:

a) USB-C Cover b) Audio Jack door c) Battery cover / battery pack

Repairs are only to be conducted by the manufacturer or an authorized service center.

--- end of attachment ---