

Annex to: IECEx EPS 23.0021X Issue No. 0

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.

Ambient temperature range: -20 °C ... +60 °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.

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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.

Ambient temperature range: -20 °C ... +60 °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.

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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.

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