



[1] **TYPE EXAMINATION CERTIFICATE - Translation**

[2] for non-electrical products of equipment-groups I and II,
equipment-categories M2 and 2 plus products of equipment-category 3

[3] Type examination certificate number **IBExU19ATEXB010 X** | Issue 0

[4] Product:	Hand scanner iSCAN102	Type iSCAN102X
	Hand scanner iSCAN1092D	Type iSCAN1092D
	Hand scanner iSCAN1022D	Type iSCAN1022D
	Hand scanner iSCAN212	Type iSCAN212X
	Hand scanner iSCAN2022D	Type iSCAN2022D
	Hand scanner iSCAN2122D	Type iSCAN2122D
	Base station iSCAN212EXB	Type iSCAN212EXB
	Base station iSCAN202EXB2D	Type iSCAN202EXB2D
	Supply module SDVM-SD160II^{ex}	Type SD.321.xxxx.xx
	Supply module SDVE-SD160II^{ex}	Type SD.251.xxxx.xx
	Supply cable iSCANPSCABU	Type iSCANPSCABUX
	Supply cable iSCANPSCABR	Type iSCANPSCABRX

[5] Manufacturer: Extronics Ltd

[6] Address: 1 Dalton Way,
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Middlewich
CHESHIRE
CW10 0HU
UNITED KINGDOM

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.

The examination and test results are recorded in the confidential test report IB-19-3-0136.

[9] Compliance with the essential health and safety requirements has been assured by compliance with: EN IEC 60079-0:2018, EN IEC 60079-7:2015/A1:2018, EN 60079-11:2012, EN 60079-18:2015 and EN 60079-31:2014
except in respect of those requirements listed at item [18] of the schedule.

[10] If the sign "X" or "U" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.


[11] This type examination certificate relates only to the design of the specified equipment and not to specific items of equipment subsequently manufactured or supplied.

[12] The marking of the product shall include the following:

Hand scanner with cable:

iSCAN102, iSCAN1092D

 II 3G Ex ic IIC T4 Gc

 II 3D Ex ic IIIC T135 °C Dc
-20 °C ≤ T_{amb} ≤ +50 °C

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iSCAN1022D

II 3G Ex ic IIB T4 Gc
II 3D Ex ic IIIC T135 °C Dc
-20 °C ≤ T_{amb} ≤ +50 °C

Hand scanner, battery operated:

iSCAN212, iSCAN2022D, iSCAN2122D

II 3G Ex ic IIB T4 Gc
II 3D Ex ic IIIC T135 °C Dc
-20 °C ≤ T_{amb} ≤ +50 °C

Base station:

iSCAN212EXB, iSCAN202EXB2D

II 3G Ex ic IIC T4 Gc
II 3D Ex ic IIIC T135 °C Dc
-20 °C ≤ T_{amb} ≤ +50 °C

iSCAN212EXB2D

II 3G Ex ic IIC T4 Gc
II 3D Ex ic IIIC T135 °C Dc
-20 °C ≤ T_{amb} ≤ +50 °C

Supply module:

SDVM-SD160II^{EX}

II (3)G [Ex ic Gc] IIC
II (3)D [Ex ic Dc] IIIC

At type SD.321.xxxx.1x with

-20 °C ≤ T_{amb} ≤ +60 °C

At type SD.321.xxxx.2x (High Power) with

-20 °C ≤ T_{amb} ≤ +50 °C

Supply module:

SDVE-SD160II^{EX}

II 3G Ex ec [ic] IIC T4 Gc

(with SDVM-SD160II^{EX})

II 3D Ex tc [ic] IIIC T135 °C Dc

at type SD.251.xxxx.1x with

-20 °C ≤ T_a ≤ +60 °C

at type SD.251.xxxx.2x (High Power) with

-20 °C ≤ T_a ≤ +50 °C

Supply cable:

iSCANPSCABU and iSCANPSCABR

II 3G Ex mc [ic] IIC T4 Gc
II 3D Ex mc [ic] IIIC T135 °C Dc
-20 °C ≤ T_{amb} ≤ +70 °C

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Certificates without signature and stamp are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2019-09-11

[13]

Schedule

[14]

Certificate number IBExU19ATEXB010 X | Issue 0

[15]

Description of product

The hand scanners are hand-held, intrinsically safe devices and are used to read barcodes in hazardous areas of categories 3G and 3D (Zone 2 or Zone 22).

The types iSCAN102, iSCAN1092D and iSCAN1022D are provided with a cable. Power supply and data transmission are carried out via an exchangeable connecting cable.

The types iSCAN212, iSCAN2022D and iSCAN2122D are battery operated. Power is supplied by an internal battery. Data can be transmitted wirelessly via Bluetooth connection to a base station of type iSCAN212EXB, iSCAN202EXB2D and iSCAN212EXB2D, which is also designed for operation in hazardous areas of categories 3G and 3D.

The integrated rechargeable battery is charged after the hand scanner has been placed on the charging charger of the base station. The battery can also be charged outside the hazardous area with a separate charging tray (type iSCAN20XBNOBT2D or iSCAN21XBNOBT, iSCAN211BNOBT2D, iSCAN212BNOBT2D) or using a base station (type iSCAN20XB2D or iSCAN21XB, iSCAN211B2D, iSCAN212B2D)) with power supply unit (type iSCAN2XXBLP) outside the Ex area. Furthermore, the Bluetooth handheld scanners can also be charged with a Zone 1 Bluetooth base station (type iSCAN201EXB2D, iSCAN211EXB, iSCAN211EXB2D) in Zone 2/22.

The wired hand-held scanner and the wired base station are connected to a SDVM-SD160Ilex power supply module via a connection cable. Two different variants of the supply module differ in output power (Low Power / High Power) and thus also in the permissible ambient temperature range.

The SDVM-SD160Ilex power supply module may be installed and operated in hazardous areas of categories 3G and 3D when installed in a separately certified housing. The combination of the power supply module with a housing designed for this purpose is referred to as the SDVE-SD160Ilex power supply unit.

As an alternative to the supply module, a device designated as a supply line can be used, which is also intended for operation in potentially explosive areas of categories 3G and 3D.

The supply cable type iSCANPSCABU and iSCANPSCABR are devices which, in addition to the data connection via USB or via the serial interfaces RS232 or RS422, provide the intrinsically safe power supply for wired hand-held scanners or for the base station with charging cradle. Only cables type SD.Z10.xxxx.xx with a maximum length of 5 m (iSCANPSCABU) or 20 m (iSCANPSCABR) may be used for connection.

Technical data of the devices:

Hand scanner with cable		iSCAN102	iSCAN1092D	iSCAN1022D
Type		iSCAN102X	iSCAN1092D	iSCAN1022D
Supply and data circuit:				
maximum input voltage	U_i	6.5 V	6.5 V	6.5 V
maximum internal inductance	L_i	negligible	negligible	negligible
maximum internal capacitance	C_i	< 150 μ F	< 203 μ F	< 869 μ F
optical radiation	P_{opt}	< 35 mW	< 35 mW	< 35 mW
light source		visible red light, $\lambda = 630$ nm		
Hand scanner BT, battery operated		iSCAN212	iSCAN2022D	iSCAN2122D
Type		iSCAN212X	iSCAN2022D	iSCAN2122D
optical radiation	P_{opt}	< 35 mW	< 35 mW	< 35 mW
light source		visible red light, $\lambda = 630$ nm		
Bluetooth		V4.0 EDR, 20 dBm (100 mW)		
Frequency		2.402 ... 2.483 GHz		
Permitted batteries		type iSCAN201BATT (3.6 V; \leq 2250 mAh)		
		type iSCAN202BATT (3.6 V; \leq 3000 mAh)		
		type iSCAN2X2BATT (3.6 V; \leq 2600 mAh)		

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Base station, Bluetooth		iSCAN212EXB	iSCAN212EXB2D
Type		iSCAN212EXB	iSCAN212EXB2D
Type		iSCAN202EXB2D	
Type		iSCAN202EXB2D	
Supply and data circuit:			
maximum input voltage	U_i	6.5 V	6.5 V
maximum internal inductance	L_i	negligible	negligible
maximum internal capacitance	C_i	< 144 μ F	< 191 μ F
Bluetooth		V4.0 EDR, 20 dBm (100 mW)	
Frequency		2.402 ... 2.483 GHz	

Supply module		SDVM-SD160II^{ex}	
Type		SD.321.xxxx.1x	SD.321.xxxx.2x

Intrinsically safe data and supply circuit (terminals X5...X10):

maximum voltage	U_m	253 V AC	253 V AC
maximum output voltage	U_o	5.5 V DC	5.5 V DC
maximum output current	I_o	440 mA	769 mA
maximum output power	P_o	1.25 W	2.17 W
minimum internal resistance	R_i	25 Ω	14.7 Ω
characteristic		trapezoid	trapezoid
maximum external capacitance	C_o	< 997 μ F ($L_o = 0$)	< 997 μ F ($L_o = 0$)
max. external inductance	L_o	< 0.4 mH ($C_o = 0$)	< 0.11 mH ($C_o = 0$)
max. internal inductance	L_i	negligible	negligible
max. internal capacitance	C_i	< 2.2 μ F	< 2.2 μ F

Non-intrinsically safe data and supply circuit (terminals X1...X4):

Supply circuit		12 V DC \pm 10 %	12 V DC \pm 10 %
		230 mA (xxxx.1x)	360 mA (xxxx.2x)
RS232-output	(TxD)	\pm 12 V, 4 mA	\pm 12 V, 4 mA
Equipotential bonding (shielding)	(PA)	terminal PA	terminal PA

Supply module		SDVE-SD160II^{ex}	
Type		SD.251.xxxx.1x	SD.251.xxxx.2x

Intrinsically safe data and supply circuit (terminals X5...X10):

maximum voltage	U_m	253 V AC	253 V AC
maximum output voltage	U_o	5.5 V DC	5.5 V DC
maximum output current	I_o	440 mA	769 mA
maximum output power	P_o	1.25 W	2.17 W
minimum internal resistance	R_i	25 Ω	14.7 Ω
characteristic		trapezoid	trapezoid
maximum external capacitance	C_o	< 997 μ F ($L_o = 0$)	< 997 μ F ($L_o = 0$)
max. external inductance	L_o	< 0.4 mH ($C_o = 0$)	< 0.11 mH ($C_o = 0$)
max. internal inductance	L_i	negligible	negligible
max. internal capacitance	C_i	< 2.2 μ F	< 2.2 μ F

Non-intrinsically safe data and supply circuit (terminals X1...X4):

Supply circuit		12 V DC \pm 10 %	12 V DC \pm 10 %
		230 mA (xxxx.1x)	360 mA (xxxx.2x)
RS232-output	(TxD)	\pm 12 V, 4 mA	\pm 12 V, 4 mA
Equipotential bonding (shielding)	(PA)	terminal PA	terminal PA

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Supply cable USB
Type

iSCANPSCABU
iSCANPSCABUX

Intrinsically safe supply circuit (terminals X8...X10):

maximum voltage	U_m	253 V AC
maximum output voltage	U_o	6.38 V DC
maximum output current	I_o	1.071 A
maximum output power	P_o	6.83 W
characteristic		rectangular

Intrinsically safe data circuit (terminals X6, X7):

maximum voltage	U_m	253 V AC
maximum output voltage	U_o	4.82 V DC
max. output current / sum	I_o	39.2 mA
maximum output current / D+	I_o	19.6 mA
maximum output current / D-	I_o	19.6 mA
maximum output power	P_o	47.1 mW

intrinsically safe circuit (in total) (terminals X6 ... X10):

maximum voltage	U_m	253 V AC
maximum output voltage	U_o	6.38 V DC
max. output current / sum	I_o	1.11 A
maximum output power	P_o	6.88 W
max. internal capacitance	C_i	< 4.53 μ F
max. internal inductance	L_i	negligible
maximum external capacitance	C_o	< 265 μ F ($L_o = 0$) (for IIC) < 1500 μ F ($L_o = 0$) (for IIB)
max. external inductance	L_o	< 0.06 mH ($C_o = 0$) (for IIC and IIB)

Non-intrinsically safe data and supply circuit (terminals X1 ... X5):

Supply circuit	5 V DC \pm 10 % (USB2.0)
USB-circuit	\pm 5 V, D+: 68 mA (X1), D-: 68 mA (X2)
Equipotential bonding (shielding)	terminal X3

Serial supply cable
Type

iSCANPSCABR
iSCANPSCABRX

Intrinsically safe supply circuit (terminals X8...X10):

maximum voltage	U_m	253 V AC
maximum output voltage	U_o	6.38 V DC
max. output current	I_o	1.071 A
maximum output power	P_o	6.83 W
characteristic		rectangular

Intrinsically safe data circuit (terminals X10, X11):

maximum voltage	U_m	253 V AC
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intrinsically safe circuit (in total) (terminals X8 ... X11):

maximum voltage	U_m	253 V AC
maximum output voltage	U_o	6.38 V DC
max. output current / sum	I_o	1.071 A
maximum output power	P_o	6.83 W
max. internal capacitance	C_i	126.2 nF
max. internal inductance	L_i	negligible
maximum external capacitance	C_o	< 280 μ F ($L_o = 0$) (for IIC) < 1500 μ F ($L_o = 0$) (for IIB)
max. external inductance	L_o	< 0.068 mH ($C_o = 0$) (for IIC and IIB)

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Non-intrinsically safe data and supply circuit (terminals X1 ... X7):	
Supply circuit	8 ... 30 V DC (terminals X5, X7)
Data circuits	RS232 TxD: ± 12 V, 4 mA (X1) RS422: +12 V / -7 V T+: 4 mA (X3), T-: 4 mA (X4)
Equipotential bonding (shielding)	terminal X6

[16] Test report

The test results are recorded in the confidential test report IB-19-3-0136 of 2019-09-10. The test documents are part of the test report and they are listed there.

Summary of the test results

The equipment mentioned under [4] fulfils the requirements for electrical equipment of type of protection intrinsic safety in addition with several types of protection for group II, category 3G and 3D.

Safety advice:

- The specified values for the maximum connectable capacitance C_o and inductance L_o must not be combined with each other, but apply exclusively.
- The interconnection and connection of intrinsically safe circuits must be verified separately. The characteristics of the intrinsically safe circuits are specified in the operating instructions.

[17] Specific conditions of use

- The ambient temperature range depends on the equipment used and is maximum -20 °C up to $+70$ °C.

The following conditions are valid only for the supply cable:

- Cleaning is permitted only with a damp cloth.
- The intrinsically safe parameter as well as the electrical parameter are mentioned in the instructions.
- The intrinsically safe circuit is grounded.
- The non-intrinsically safe USB connection as well as the free cable ends of the serial supply cable have to be connected outside of the hazardous area.
- The device has to be removed from the hazardous area immediately after detecting damage.

[18] Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:

None

[19] Drawings and Documents

The documents are listed in the test report.

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By order



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Freiberg, 2019-09-11