Operating Instructions

Power supply module
iSCANPS

Revision date: 09.06.2020

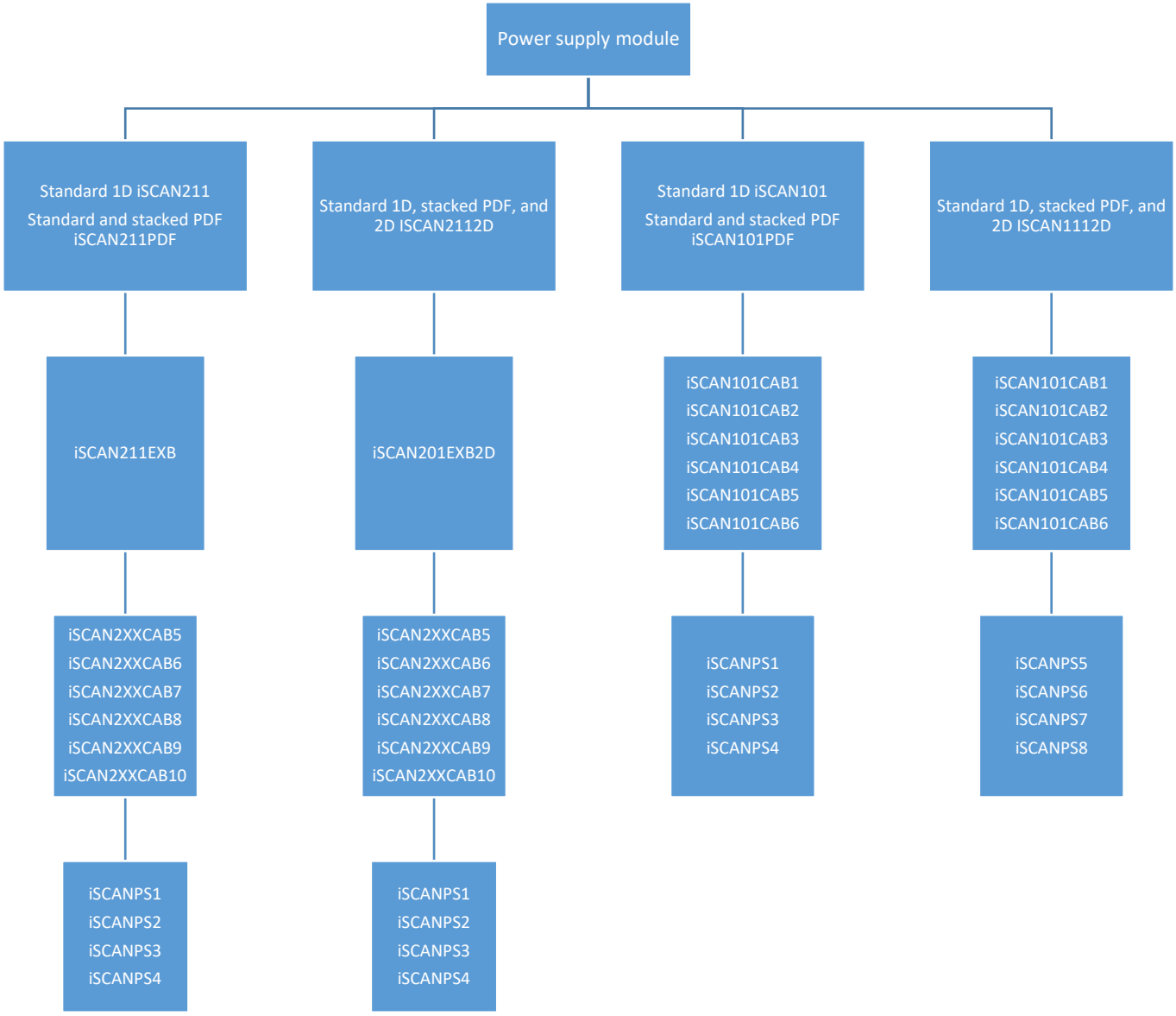
Extronics Limited
1 Dalton Way, Midpoint 18, Middlewich, Cheshire, UK. CW10 0HU
Tel: +44 (0) 845 277 5000 **Fax:** +44 (0)845 277 4000 **E-mail:** info@extronics.com **Web:** www.extronics.com

Contents

Revision control

Document Number **416239, revision 8.** Refer to Extronics DDM for release status.

1. iSCANPS product range overview



2. Important notes on the operating instructions

2.1 Safety information

Warnings are highlighted by a special symbol and a different font colour:

Danger

Non-compliance may result in life-threatening situations.
This warning must be heeded.

Warning

This type of warning concerns dangerous situations that may result in minor injuries.

Info

Important and helpful notes and information.

2.2 Notes on the operating instructions

Before starting up the equipment please read the Manual thoroughly.

The Operating Instructions contain important information on functionality as well as safety rules. If these are not heeded, normal operations within hazardous areas cannot be guaranteed.

The notes contained in this manual are important for starting up and operating the product.

These instructions may be updated at any time. Extronics Limited reserves the right to make changes to this document. Before they use the product, users must ensure that they have the most up-to-date version of the operating instructions. To make sure this is the case, please check Extronics' website, www.extronics.com, or contact one of the company's staff.

The drawings contained in these operating instructions are for illustration purposes only and may differ somewhat from the actual design.

No changes may be made to the device that were not intended or approved by Extronics Limited.

If the handheld scanner is not used properly, the operating permission for hazardous areas may lapse for the device in question.

Non-adherence to the instructions will void any warranty.

For the full commission of the handheld scanner, the programming information contained in the manual issued by SICK AG (www.SICK.com) is also required.

2.3 General notes of caution

Caution / Notes

- The devices may only be operated when fully assembled.
- In hazardous areas, the devices must not be wiped or cleaned with a dry cloth.
- The device must be switched off immediately if it is likely that it can no longer be operated safely as a result of damaging impact or general peculiarities (such as ingress of water or other fluids, temperatures outside of the specified range, etc.).
- General statutory requirements or health and safety rules and accident prevention guidelines and environmental laws must be adhered to (e.g. the German Occupational Health and Safety regulation).
- Users must not open the device.
- Users must not make any changes to the device. Components may not be exchanged or replaced. If non-specified components are used, explosion protection is no longer guaranteed.
- Ensure safe handling with firm footing and sufficient room for movement.
- If the enclosure is in any way damaged the device must be removed from the hazardous area immediately.
- In accordance with IEC 60079-19 and IEC 60079-17, operators of electrical installation in hazardous areas are obliged to have them serviced by qualified electricians.
- Do not insert any sharp objects into the enclosure or any other openings of the handheld barcode scanner. Any openings at the device may not be covered or blocked.
- The device and any accessories must be properly disposed of, i.e. as legally specified, for example by a certified company.

Notes on installation

Caution on laser devices

- Electrical plants are subject to certain regulations concerning installation and operation (e.g. RL 99/92/EG, RL 94/9EG, or the national rules such as IEC 60 079-14 and VDE 0100).
- In the hazardous area it is the operator's responsibility to carry out any repair and maintenance in compliance with applicable rules.

Devices fitted with laser fall under standards US 21 CFR 1040.10 and EN 60825- The laser's classification is stated on a plate affixed to the device. Class 1 lasers are deemed inherently safe during normal use, but users must not look directly into the light source. The following declaration is required by American and international laws:

Usage of control elements, adaptations or the use of procedures that differ from these instructions may result in a dangerous exposure to laser beams. Class 2 lasers use a visible low-voltage LED. As with any source of bright light, such as the sun, the user should avoid looking directly into the light. Brief exposure to a class 2 laser is deemed not dangerous.

Maintenance

Provided the device is operated and assembled according to instructions and the ambient requirements are being met continuous maintenance is not necessary.

Servicing

Operators of electric equipment in hazardous areas are obliged to have them serviced by qualified electricians (IEC 60079-19 and IEC 60079-17).

Repairs

Repairs may only be carried out by the manufacturer or by persons trained and commissioned for this purpose by the manufacturer.

The device is closed ex-factory. It may only be opened in the factory by specifically trained personnel.

Software installation

For instructions on how to install the software at the PC please refer to the manual issued by SICK.

Operation

Before operating the device, you must ensure that all necessary components are available.

Outside Operation

A housing around the iSCANPS is needed if it is used outside.
Notice the regulations concerning installation and operation.

3. Product Information

3.1 Manufacturer

Extronics Limited
1 Dalton Way
Midpoint 18
Middlewich
CW10 0HU

3.2 Certification

iSCANPSx:

II 2 G Ex eb q [ib IIC/IIB] IIC T4 Gb
II 2 D Ex tb [ib] IIIC T135°C Db
Ta=-25°C to 60°C

Test certificate	IBExU15ATEX1082 IECEx IBE 15.0022 Directive 2014/34/EU
	Standards EN IEC 60079-0:2018 EN 60079-5:2015 EN IEC 60079-7:2015/A1:2018 EN 60079-11:2012 EN 60079-31:2014
Protection rating	IP64

3.3 Serial numbers

Serial key:	Year of manufacture (2 numbers)	Serial number (4 numbers)
Example:	19001	

3.4 Technical data

Non-intrinsically safe power supply circuit:

iSCANPS1 and 2:

- rated voltage Un DC +24 V ± 25 %
- power input P = ca. 3.7W (max. 7.1W)

iSCANPS3 and 4:

- rated voltage Un AC 90 V to 253 V, 50 - 60 Hz
- power input P = ca. 4W (max. 16W)

Non-intrinsically safe data circuit:

RS232	±12 V / 4 mA
RS422	+12 V / -7 V / 4 mA
USB	+5 V / 68 mA

Nominal data (RS232):

iSCANPS1 and 3 (RS232 interface, output current 240mA):

- maximum fault voltage Um 253V
- maximum output voltage Uo 4.9V
- maximum output current Io 440mA
- maximum output power Po 1.17W (trapezoidal characteristic)
- maximum external capacitance Co Ex ib IIC: ≤113 µF
Ex ib IIB: ≤1000 µF
- maximum external inductance Lo Ex ib IIC: 0.10 mH (Co=0)
Ex ib IIB: 1.30 mH (Co=0)

iSCANPS5 and 7 (RS232 interface, output current 600mA):

- maximum fault voltage Um 253V
- maximum output voltage Uo 5,3V
- maximum output current Io 1125mA
- maximum output power Po 3.16W (trapezoidal characteristic)
- maximum external capacitance Co Ex ib IIC: <68 µF (Lo=0)
Ex ib IIB: ≤1000 µF (Lo=0)
- maximum external inductance Lo Ex ib IIC: 0.1 mH (Co=0)
Ex ib IIB: 0.53 mH (Co=0)

Nominal data (USB), intrinsically safe supply circuit:
There must be potential equalization, intrinsically safe circuit grounded!

iSCANPS2 and 4 (RS232 interface, output current 240mA):

• maximum fault voltage	Um	253V
• maximum output voltage	Uo	4.9V
• maximum output current	Io	440mA
• maximum output power	Po	1.17W (trapezoidal characteristic)
• maximum external capacitance	Co	Ex ib IIC: <113 µF (Lo=0) Ex ib IIB: ≤1000 µF (Lo=0)
• maximum external inductance	Lo	Ex ib IIC: 0.10 mH (Co=0) Ex ib IIB: 1.30 mH (Co=0)

iSCANPS6 and 8 (RS232 interface, output current 600mA):

Nominal data (USB), intrinsically safe data circuit:

• maximum fault voltage	Um	253V
• maximum output voltage	$U_{O\ D+/D-}$	5,3V
• maximum output current	$I_{O\ D+/D-}$	1125mA
• maximum output power	$P_{O\ D+/D-}$	3.16W (trapezoidal characteristic)
• maximum external capacitance	Co	Ex ib IIC: <68 µF (Lo=0) Ex ib IIB: ≤1000 µF (Lo=0)
• maximum external inductance	Lo	Ex ib IIC: 0.1 mH (Co=0) Ex ib IIB: 0.53 mH (Co=0)

Pin assignment data circuit, non-intrinsically safe data circuit:

RS232	X5 (TxD)	RS232 ± 12V / 4mA
	X4 (GND)	
RS422	X7 (T+)	RS422 ± 12V / -7V / 4mA
	X8 (T-)	
	X6 (TE)	
USB	X5 (screen)	USB +5V / 68 mA
	X4 (GND)	
	X6 (NV)	
	X7 (D+ 2MA)	
	X8 (D- 2MA)	

Pin assignment data circuit, non-intrinsically safe data circuit:	RS232	X9 (RxD)	U_i = 5.5V DC
		X10 (GND)	
	USB	X9 (D+ 2SL)	$U_{O\ D+/\ D-}$ = 4.9 V
		X10 (D- 2SL)	$I_{O\ D+/\ D-}$ = 20 mA per data cable
		X11 (GND/PE)	$P_{O\ D+/\ D-}$ = 24 mW per data cable
			linear characteristic

External connection cable:

Data cable :

USB: 0.2 – 2.5 mm^2, 3-wire

RS232/RS422: 0.2 – 2.5 mm^2 4-wire

Power supply cable :

USB: 1.5 – 2.5 mm^2, 3-wire (miniature circuit breaker has to be connected previously)

The current rating of the connection cables must be checked before use.

Dimensions: 140 mm x 250 mm x 56 mm (W x H x D)

Weight: 3.1 kg without connection cable

Ambient temperature: -25°C to +60°C

3.5 Type numbers

RS232 devices

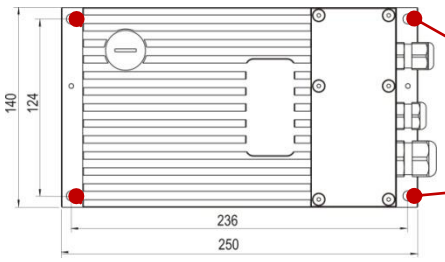
iSCANPS1	DC 24 V with RS232 interface, U_a = 4.9 V / I_a=240 mA
iSCANPS5	DC 24 V with RS232 interface, U_a = 4.9 V / I_a=600 mA
iSCANPS3	AC 90 to 253 V with RS232 interface, U_a = 4.9 V / I_a=240 mA
iSCANPS7	AC 90 to 253 V with RS232 interface, U_a = 4.9 V / I_a=600 mA

USB devices

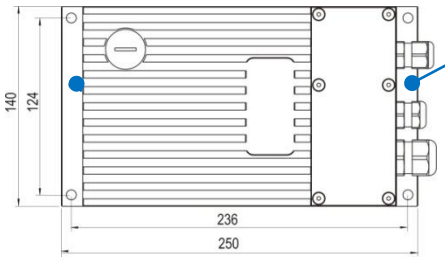
iSCANPS2	DC 24 V with USB interface, U_a = 4.9 V / I_a=240 mA
iSCANPS6	DC 24 V with USB interface, U_a = 4.9 V / I_a=600 mA
iSCANPS4	AC 90 up to 253 V with USB interface, U_a = 4.9 V / I_a=240 mA
iSCANPS8	AC 90 up to 253 V with USB interface, U_a = 4.9 V / I_a=600 mA

4 Operating the power supply module

4.1 Power supply design

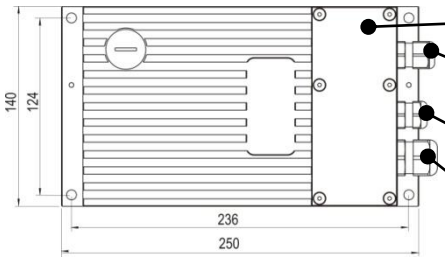


Use the four fixing holes at the corner of the base plate (see diagram) to mount the power supply onto a firm surface.
The holes have a diameter of 7mm each.



The equipotential bonding connection (M 5 x 10) is located at the front and back of the power supply.

Equipotential bonding is required for the entire installation of the intrinsically safe circuits.

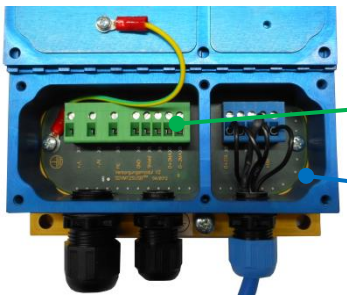


Terminal connection box underneath cover.

Cable gland M16 x 1.5 for appliance.

Cable gland M16 x 1.5 for data transfer.

Cable gland M20 x 1.5 for voltage supply.



Ex e connection box for connection of voltage supply.

Ex i connection box for connection of appliances.

Do not remove the breather!
The flat seal of the Ex e connection box has to be reinstalled after it was opened.

4.2 Pin assignment in the Ex e connection box

Pin assignment for the supply with RS232 interface:

Terminal definition	Terminal number	Description	Type numbers
+ / - L	X1	L = AC 100 V to 250 V + = DC24 V	iSCANPS1 iSCANPS5 iSCANPS3 iSCANPS7
- / N	X2	N Neutral conductor - minus	iSCANPS1 iSCANPS5 iSCANPS3 iSCANPS7
PE	X3	PE	
GND	X4	RS232	
TxD	X5	RS232	
Shield	X6	RS232/RS422	
T+	X7	RS422	
T-	X8	RS422	

Pin assignment of supply with USB interface:

Terminal definition	Terminal number	Description	Type numbers
+ / - L	X1	L = AC 100 V to 250 V + = DC24 V	iSCANPS2 iSCANPS6 iSCANPS4 iSCANPS8
- / N	X2	N Neutral conductor - minus	iSCANPS2 iSCANPS6 iSCANPS4 iSCANPS8
PE	X3	PE	
GND	X4	USB	
Shield	X5	USB	
NC	X6		
D+	X7	USB	
D-	X8	USB	

4.3 Pin assignment in the Ex i connection box with RS232 interface

The terminal assignment is located underneath the removable cover at the front of the power supply.

Caution! Do not open enclosure in hazardous area!
Before operating the device in a hazardous area, you have to ensure that the enclosure has been closed fully, the flat seal is reinstalled and all screws have been tightened.

Any changes to the wiring may only be carried out by trained staff.

Pin assignment in the Ex i connection box RS232:

Power supply Type: iSCANPS1, 3, 5, 7			
Prepared Connection coupling		Connection box	
Pin	**Wire**	**Definition**	**Number**
3	3	RxD	X9
		GND	X10
		PE	X11
2	2	GND	X12
1	1	+UB	X13

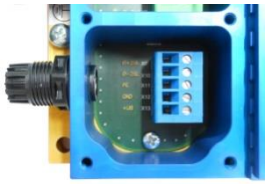
4.4 Pin assignment in the Ex i connection box with RS232 interface

The terminal assignment is located underneath the removable cover at the front of the power supply.

Caution! Do not open enclosure in hazardous area!
Before operating the device in a hazardous area you have to ensure that the enclosure has been closed fully, the flat seal is reinstalled and all screws have been tightened.

Any changes to the wiring may only be carried out by trained staff.

Pin assignment in the Ex i connection box USB:



Power supply Type: iSCANPS2, 4, 6, 8			
Prepared Connection coupling		Connection box	
Pin	**Wire**	**Definition**	**Number**
3	3	D+	X9
2	4	D-	X10
		PE	X11
4	2	GND	X12
1	1	+UB	X13