Operating Manual

Intrinsically safe barcode scanner

iSCAN100

Document Number **316288** (See Last Page for Revision Details)

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1 Introduction

The iSCAN100 is the latest development in barcode scanning technology for Zone 1 and Zone 2 hazardous areas where gas may be present. The unit offers a very high specification but at an affordable price as it is based on the very latest ideas in Ex protection technology.

The scanner is ergonomically designed in an IP55 pistol grip housing that is comfortable to use for an operator, even when wearing gloves. The housing has a rubber protective shield to protect it from dropping on to hard floors.

Supplied with a spiral cable the iSCAN100 can be connected to systems by a PS2 keyboard wedge or an RS232 serial interface. Most popular barcode symbologies are supported by the built-in decoder providing the PC or operator terminal with ASCII data.

A friction free scanning mechanism is designed to be highly reliable and give a long service life. Scanning 72 times per second at up to 33 cm away from the barcode makes this unit very practical to use for demanding applications.

Each type is rigorously checked and tested by Extronics to ensure conformity to the ATEX standards and approvals.

2 Safety Information and Notes

2.1 Storage of this Manual

Keep this user manual safe and in the vicinity of the device. All persons who have to work on or with the device should be advised on where the manual is stored

2.2 Special Conditions for Safe Use

2.2.1 ATEX

No special conditions for safe use exist

2.3 List of Notes

The notes supplied in this chapter provide information on the following.

- Danger / Warning.
  - Possible hazard to life or health.
- Caution
  - Possible damage to property.
- Important
  - Possible damage to enclosure, device or associated equipment.
- Information
  - Notes on the optimum use of the device

Warning	**Installation to be by skilled electricians and instructed personnel in accordance with national legislation, including the relevant standards and, where applicable, in accordance with IEC 79.17 on Electrical Apparatus for Explosive Atmospheres.**

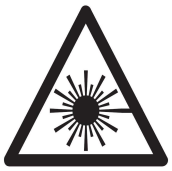
Warning!	**The iSCAN100 can be used in gas zones 2 & 1 BUT NOT 0!**

Warning!	**The iSCAN100 must only be connected and powered from a suitably approved intrinsically safe interface .**

Important	**The technical data indicated on the iSCAN100 must be observed.**

Important	**Changes in the design and modifications to the equipment are not permitted.**

Important	**The iSCAN100 shall be operated as intended and only in undamaged and perfect condition.**



DANGER! RADIATION FROM LIGHT EMITTING DIODES DO NOT LOOK INTO THE BEAM, DO NOT POINT THE BEAM AT PERSONS OR ANIMALS

Light power <1mW

Class 1 Laser product

3 Installation

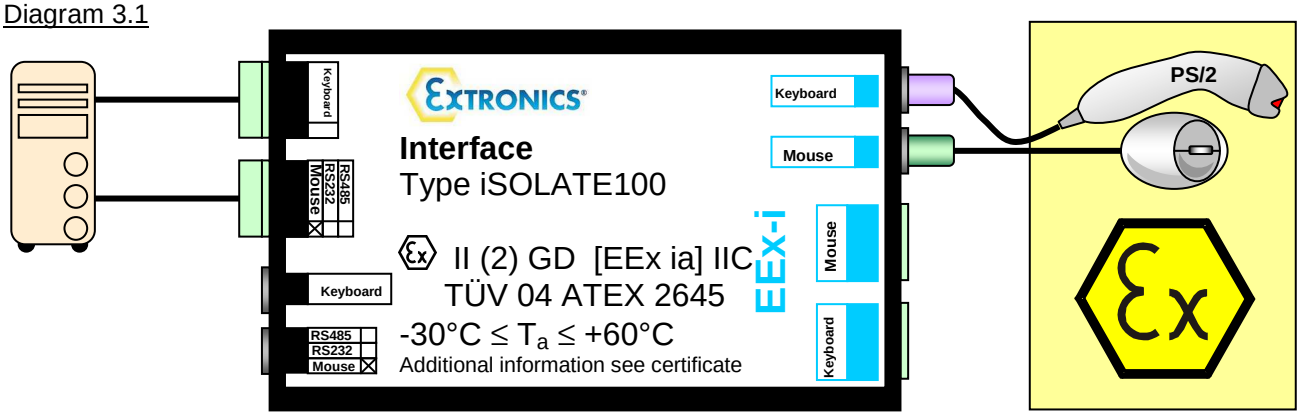
3.1 PS2 Installation

For the PS2 version while power is off, plug the male PS2 connector on the iSCAN100 cable into the female socket on the Extronics iSOLATE100 or similar intrinsically safe interface.

Examples and Connection details for the PS/2 can be found in Diagram 3.1 below

Examples iSCAN100 PS/2 scanner connections using the iSOLATE100 Ex01: Example 1 Without Keyboard.

Diagram 3.1

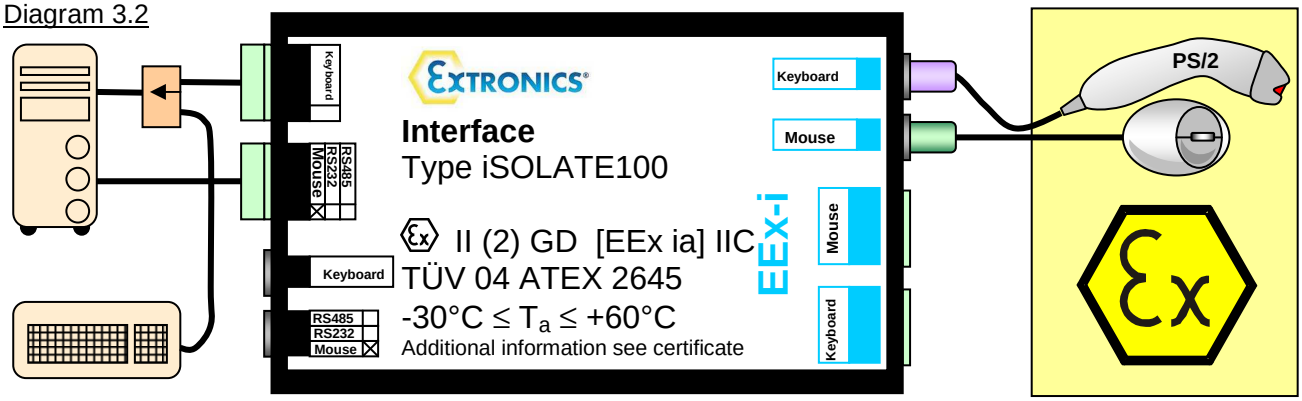


The iSCAN100 PS/2 scanner can be connected on the hazardous side instead of the keyboard. In this configuration the mouse may or may not be connected.

Since a scanner does not answer to the PC's request the PC might switch off the keyboard line after booting. In this case please cancel the keyboard test in the BIOS settings of your PC or wire a keyboard in parallel to the scanner.

Example 2 With Keyboard.

Diagram 3.2

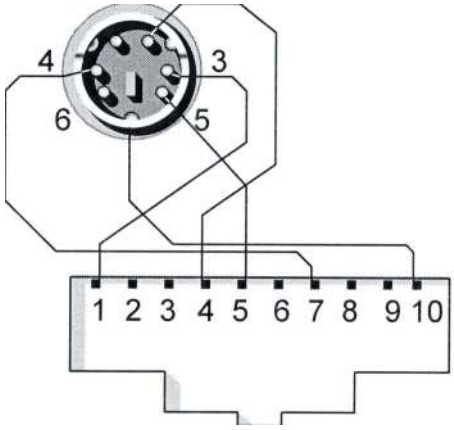


Furthermore you may connect a keyboard with the safe side of iSOLATE100 using its built-in keyboard wedge. Please refer to version Ex02.

iSCAN100 PS2 Connection Details

Diagram 3.2

PS2 Plug (male) of scanner cable



10-Pole RJ45 socket of the scanner

PS2 Nodes	Description	Colour	RJ45 Nodes
1	Data	Yellow	2
2	Not Connected	N/A	N/A
3	Ground	White	3
4	Supply	Brown	4
5	Clock	Green	1
6	Not connected	N/A	N/A
Shield	Not connected	N/A	N/A

Note: If your iSCAN100 has a PS2 plug fitted when purchased cable colours may vary from those indicated in this diagram

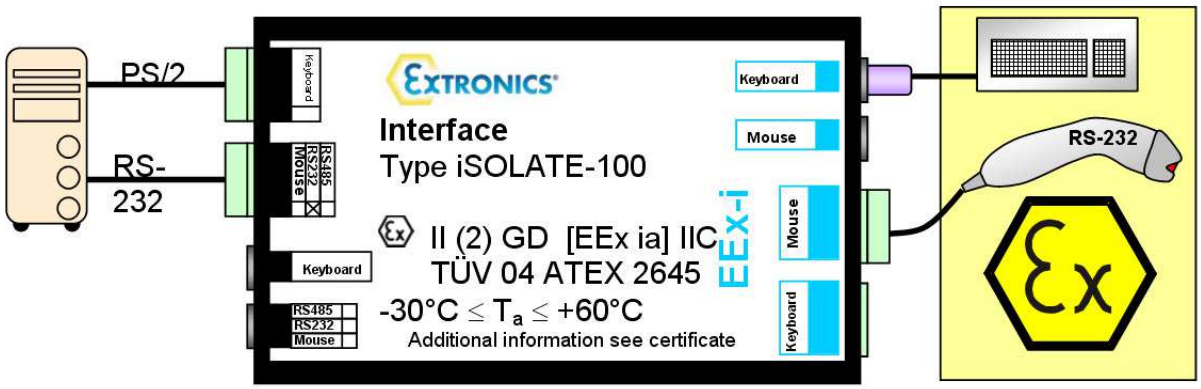
3.2 RS232 Installation

For the RS232 version while power is off wire the cable to the terminals on the iSOLATE100 or similar intrinsically safe interface.

Examples and Connection details for the PS/2 can be found in Diagram 3.4 below

Version Ex03

Diagram 3.4



The iSOLATE100 Ex03 mode allows one keyboard and or one RS-232 scanner device in the EEx i area. The scanner must be connected to one of the mouse terminals at the hazardous side, this is still the case even if there is no keyboard. PS/2 and screw terminals for the hazardous area are wired in parallel.

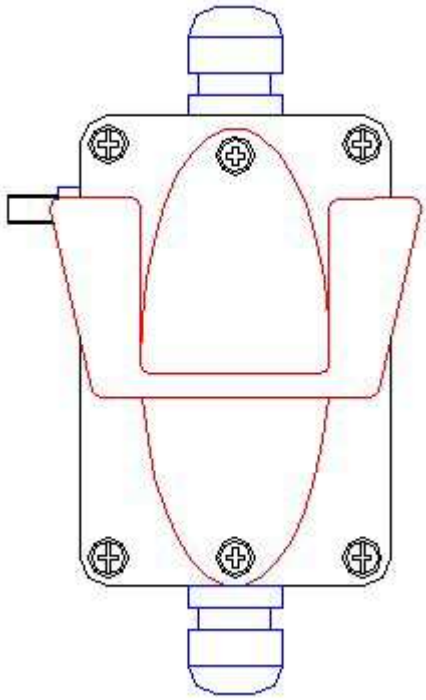
iSCAN100 RS232 Cable Connection Details

Description	Core Colour
TxD	Green
Rxd	Yellow
GND	White
+5V Supply	Brown

3.3 Optional Accessory Kits

3.3.1 Optional iSCAN100 Extender Junction Box – Part number iSCAN100JB

The iSCAN100 Extender Junction Box combines a junction box and wall mounting stand, allowing the ISCAN100 to be connected to the junction box in a hazardous area, and up to 50 metres of cable

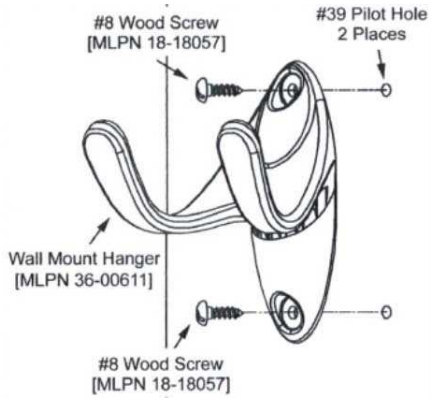


3.3.2 Optional Wall Mount Hanger Kit #46-46508

Contains:

a)	Wall mount hanger (MLPN 36-00611)	Qty 1
b)	Wall mount base (MLPN 36-00812	Qty 1
c)	Self tapping screw (MLPN 18-18233	Qty 2
d)	Double sided tape	Qty 1
e)	#8 wood screw	Qty 2

Wall Mount, Option 1:



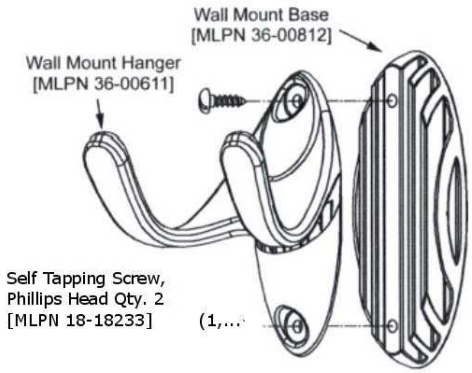
Step 1:

Drill two #39 pilot holes 3.00" apart.

Step 2:

Attach the *Wall Mount Hanger* to the wall with the two #8 wood screws provided.

Wall Mount, Option 2:

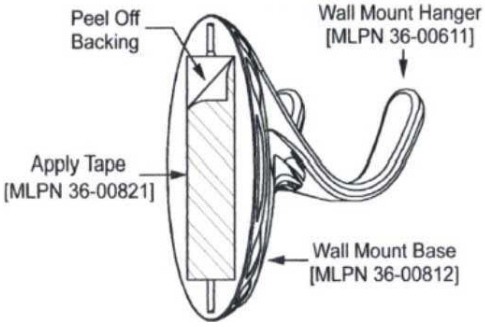


Step 1

Attach the Wall Mount Base to the Wall Mount Hanger with the two 4.8 x 13 mm self-tapping screws.

Step 2

Remove <u>one</u> side of the protective backing from the double-sided adhesive tape



Step 3

Attach the tape to the back of the wall mount base.

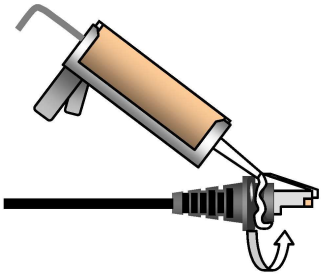
Step 4

Remove the remaining backing from the tape and attach to the wall.

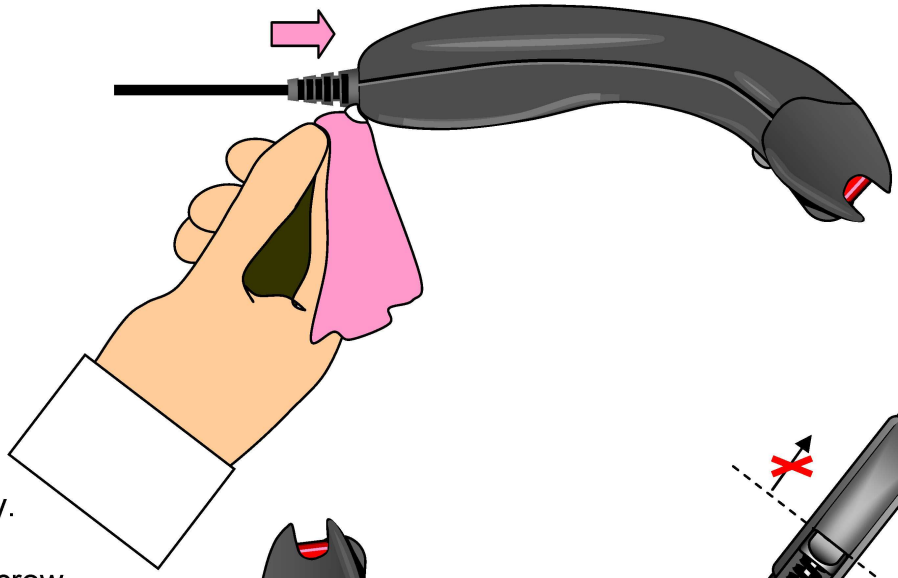
3.4 Changing the iSCAN100 cable

Put a Viton rubber ring 14 x 1,5 mm around the end of the cable

Apply a ring of silicone around the end of the cable. Avoid covering the contacts.

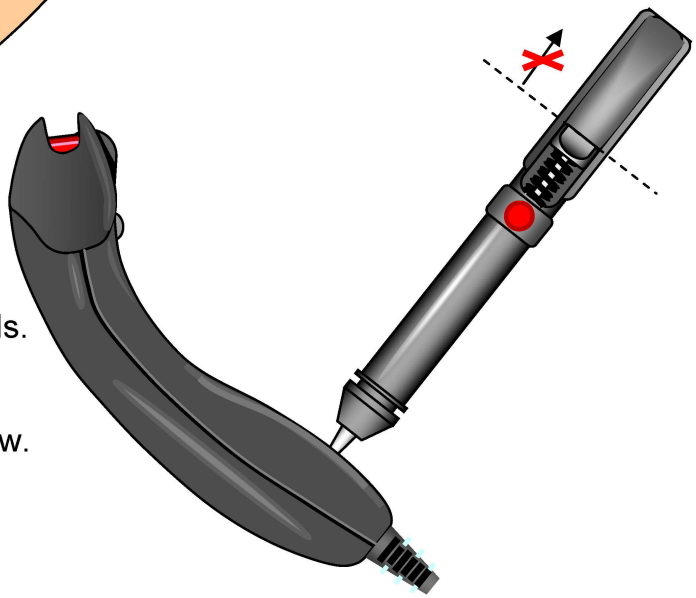


Press the cable into the scanner end. Wipe away surplus silicone.



Let the silicone solidify.

Unscrew the handle screw.
Put a solder pump with a fitting tip into the screw hole and try to extract air. The solder level may jump after triggering, but must stand still afterwards. Otherwise there is a leak somewhere.



Reinstall and re-isolate the handle screw.

3.5 iSCAN100-RS232BCS-GD Quick-config barcodes

These barcodes are only required if the BCS option has been supplied. This option interfaces the iSCAN100 with the Gecma Challenger.

1. Connect the iSCAN100 to the challenger system by use of the Hirschmann plug

2. Scan the following barcodes in turn from top to bottom

Enter/Exit Configuration Mode

Even Parity.

***9600 BAUD Rate**

*** 7 Data Bits.**

*** 2 Stop Bits.**

Enter/Exit Configuration Mode

The iSCAN100 should now function like a keyboard input

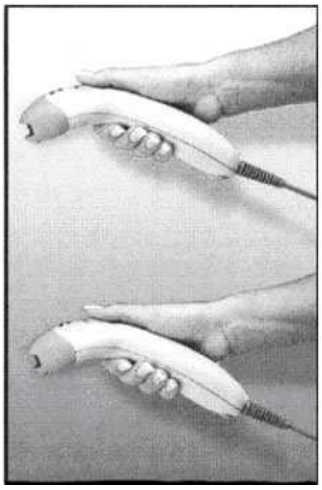
4 Operation

4.1 How to use the iSCAN100

Aim the Scanner at the barcode and follow the instructions below

1

2

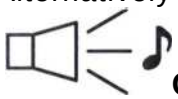


Auto trigger activates the laser

Place the laser on the barcode. Data is automatically transmitted.

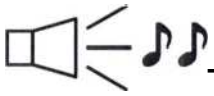
4.2 Audible Indicators

When the iSCAN100 is in operation, it provides audible feedback. These sounds indicate the status of the scanner. Eight settings are available for the tone of the beep (normal, 6 alternate tones and no tone). To change the tone, refer to the MetroSelect® Single-Line Programming Guide included with the scanner. Alternatively see the help files contained in the MetroSet®2 help files.



One Beep

When the scanner *first* receives power, the green LED will turn on, then the red LED will flash and the scanner will beep once. (The red LED will remain on for the duration of the beep.) The scanner is ready to scan.
When the scanner *successfully* reads a bar code, the red LED will flash and the scanner beeps once (if programmed to do so). If the scanner does not beep once and the green light does not flash, then the bar code has *not* been successfully read.



Two Beeps — On Power Up

When there is a Flash ROM upgrade needed, the scanner will beep twice followed by alternating flashing of the green and red LEDs.

Three Beeps - During Operation

When entering configuration mode, the red LED will flash while the scanner simultaneously beeps three times. The red and green LEDs will continue to flash while in this mode. Upon exiting configuration mode, the scanner will beep three times, and the LEDs will stop flashing.

When configured, 3 beeps can also indicate a communications time-out during normal scanning mode.
When using one-code-programming, the scanner will beep three times (the current selected tone), followed by a short pause then by a high tone and a low tone. This tells the user that the single configuration bar code has successfully configured the scanner.

Raspberry Tone\Three Beeps - On Power Up

This is a failure indicator. Refer to "Failure Modes" on page 14.

4.3 Visual Indicators

The iSCAN100 has three LED indicators (green, red and yellow) located on the head of the scanner. The MS9520 has two LED indicators (green and red) located on the head of the scanner. When the scanner is on, the flashing or stationary activity of the LEDs indicates the status of the current scan and the scanner.

Green & red LED's off

The LEDs will not be illuminated if the scanner is not receiving power from the host or transformer. The scanner is stand-by mode, and CodeGate® is enabled. Present a bar code to the scanner and the green LED will turn on when the laser turns on.

Steady Green

When the laser is active, the green LED is illuminated. The green LED will remain illuminated until the laser is deactivated. *(Default Mode Only)*

Steady Green and Single Red Flash

When the scanner successfully reads a bar code, the red LED will flash and the scanner will beep once. If the red LED does not flash or the scanner does not beep once, then the bar code has not been successfully read.
(Default Mode Only)

Steady Green and Steady Red

After a successful scan, the scanner transmits the data to the host device. Some communication modes require that the host inform the scanner when data is ready to be received. If the host is not ready to accept the information, the scanner's red LED will remain on until the data can be transmitted.

Alternating Flashing of Green and Red

This indicates the scanner is program mode. A raspberry tone indicates that an invalid bar code has been scanned while in this mode.
The scanner needs to have a Flash ROM upgrade if the alternating flashing of the red and green LEDs occurs during start-up and is accompanied by three beeps.

Steady Red, Green off

This indicates the scanner may be waiting for communication from the host.

4.4 Failure Modes

Flashing Green and one Raspberry Tone
This indicates the scanner has experienced a laser sub-system failure. Return the unit for repair to an authorized service centre.

Flashing Red and Green with Two Raspberry Tones
This indicates the scanner has experienced a scanning mechanism failure. Return the unit for repair to an authorized service centre.

Continuous Raspberry Tone with all LEDs off
If, upon power up, the scanner emits a continuous raspberry tone, then the scanner has an experienced an electronic failure. Return the unit for repair to an authorized service centre.

Three Beeps – on power up
If the scanner beeps 3 times on power up then the non-volatile memory (NovRAM) that holds the scanner configuration has failed. If the scanner does not respond after reprogramming, return the scanner for repair to an authorized service center.

4.5 Programming Modes

The ISCAN100 has 3 modes of configuration.

- **Bar Codes**
  iSCAN100 can be configured by scanning the bar codes located in the MetroSelect® Single-Line Programming Guide supplied with the scanner. Please refer to this guide for instructions.

- **MetroSet®2**
  This user-friendly Windows-based configuration program allows you to simply `point-and-click' at the desired scanner options. This program can be downloaded for FREE from the following URL: www.europe.metrologic.com/europe/download/software/metroset2install.exe.

- **Serial Programming**
  This mode of programming is ideal for OEM applications. This mode gives the end-user the ability to send a series of commands using the serial port of the host system. The commands are equivalent to the numerical values of the bar codes located in the MetroSelect Single-Line Programming Guide supplied with the scanner.

4.6 Serial Programming

Each command sent to the scanner is the ASCII representation of each numeral in the configuration bar code. The entire numeric string is framed with an ASCII [stx] and an ASCII [etx].

4.6.1 EXAMPLE #1:

Command for Disabling Codabar Command = [stx]100104[etx]
String Sent to Scanner = 02h 31h 30h 30h 31h 30h 34h 03h
(All values are hexadecimal).

If the command sent to the scanner is valid, the scanner will respond with an [ack].

If the command sent to the scanner in invalid, the scanner will respond with a [nak].
NOTE: If this occurs, the end-user must start over at the very beginning of the configuration sequence. Simply re-transmitting the invalid command will not work, you must start over.

During programming, the motor and laser turn off. YOU CANNOT SCAN A BAR CODE WHILE IN SERIAL PROGRAM MODE.

There is a 20 second window between commands. If a 20 second time-out occurs, the scanner will send a [flak] and you must start over.

To enter serial program mode, send the following command [stx]999999[etx].

To exit serial program mode, send the following command [stx]999999[etx], the scanner will respond with an [ack] followed by 3 beeps.

This mode uses the current Baud Rate, Parity, Stop Bits and Data Bits settings that are configured in the scanner. The default settings of the scanner are 9600, Space, 2, 7 respectively. If a command is sent to the scanner to change any of these settings, the change will NOT take effect until after serial program mode is exited.

4.6.2 EXAMPLE #2:

The following example will set the scanner to the factory default settings, Disable Scanning of Code 128 bar codes, change the beeper tone, and add a "G" as a programmable prefix.

FEATURE	HOST COMMAND	ASCII REPRESENTATION	SCANNER RESPONSE
Enter Program Mode	[stx]999999[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h
Load Defaults	[stx]999998[etx]	02h 39h 39h 39h 39h 39h 38h 03h	[ack] or 06h
Disable Code 128	[stx]100113[etx]	02h 31h 30h 30h 31h 31h 33h 03h	[ack] or 06h
Alternate Tone 1	[stx]318565[etx]	02h 33h 31h 38h 35h 36h 35h 03h	[ack] or 06h
Prog. Prefix #1	[stx]903500[etx]	02h 39h 30h 33h 35h 30h 30h 03h	[ack] or 06h
Code Byte 0	[stx]0[etx]	02h 30h 03h	[ack] or 06h
Code Byte 7	[stx]7[etx]	02h 37h 03h	[ack] or 06h
Code Byte 1	[stx]1[etx]	02h 31h 03h	[ack] or 06h
Exit Program Mode	[stx]999999[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h

The scanner will beep three times!

The commands sent to the scanner do not include the small superscripted `3' that you see in front of each bar code string in the MetroSelect manual. THE '3' SHOULD NOT BE SENT, IT IS A CODE TYPE DESIGNATION ONLY!

As you will note for commands requiring additional bar codes to be scanned (such as prefixes, suffixes, time-outs, etc.), simply send the code bytes in the same order that you would normally scan the bar codes.

4.6.3 EXAMPLE #3:

The following example shows the events that occur when an invalid bar code is sent. This sample will load the factory default settings and then set the baud rate to 19200.

FEATURE	HOST COMMAND	ASCII REPRESENTATION	SCANNER RESPONSE
Enter Program Mode	[stx]999999[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h
Load Defaults	[stx]99999:[etx]	02h 39h 39h 39h 39h 39h 3Ah 03h	[nak] or 15h
Invalid command was sent, you must start over!			[ack] or 06h
Enter Program Mode	[stx]999999[etx]	02h 39h 39h 39h 39h 39h 39h 03h	
Load Defaults	[stx]999998[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h
19200 Baud Rate	[stx]415870[etx]	02h 34h 31h 35h 38h 37h 30h 03h	[ack] or 06h
Exit Program Mode	[stx]999999[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h

The scanner will beep three times!

This example illustrates two important points.

First, if an invalid command is sent from the host, the scanner responds with a [nak] and the end-user must start over from the beginning.

Second, if a command is sent to change the Baud Rate, the new baud rate does not take effect until after the end-user exits program mode.

ABBREVIATED ASCII TABLE

Character	Hex Value	Decimal Value
[SIX]	02h	2
[ETX]	03h	3
[ACK]	06h	6
[NAK]	15h	21
0	30h	48
1	31 h	49
2	32h	50
3	33h	51
4	34h	52
5	35h	53
6	36h	54
7	37h	55
8	38h	56
9	39h	57

4.7 Upgrading The Flash ROM Firmware

The **Meteor** program is a functional component of Extronics new line of Flash-based scanners. This program allows the user of Extronics scanner to quickly upgrade to a new or custom version of software. It requires the use of a personal computer running under Windows 95 or greater and the use of a communication port. The user merely connects the scanner to a communications port of the PC, launches the **Meteor** program, and blasts off to new software upgrades.

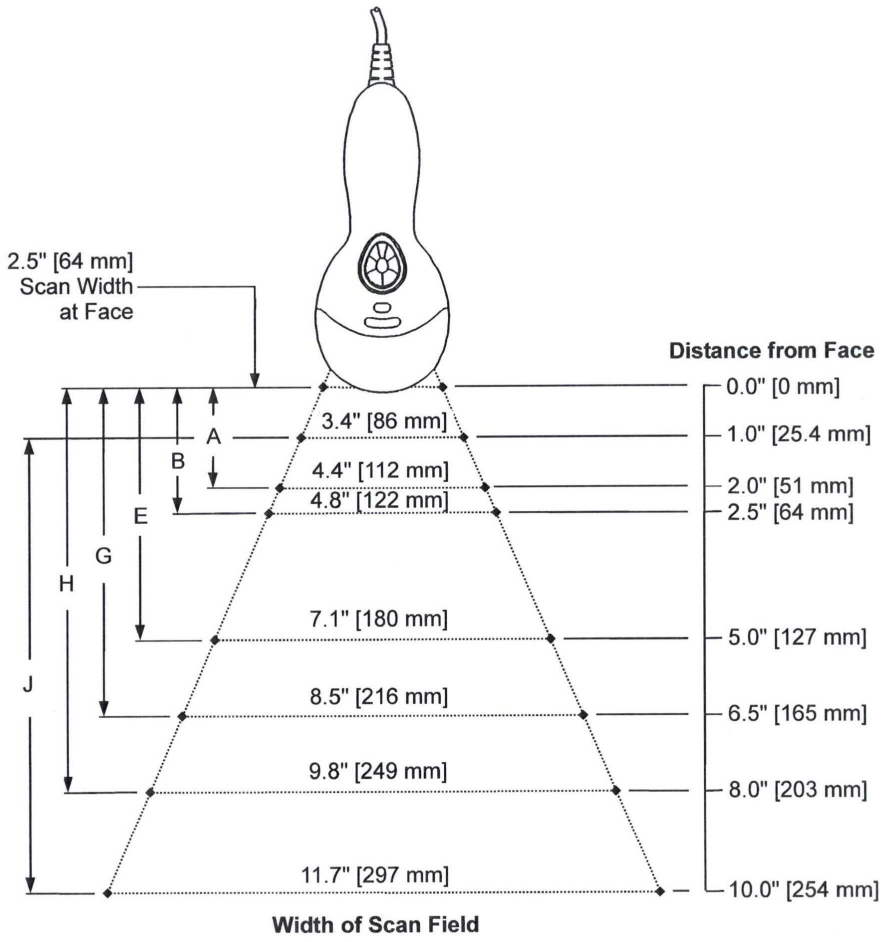
Each MS9500, regardless of the version number or communication protocol, can be upgraded. In other words, all RS232 (-41), keyboard wedge (-47), light pen (-41), laser emulation (-00), OCIA (-9) and IBM 468X/469X (-11) units can be upgraded. To upgrade all units, a power supply and PowerLink cable (MLPN 54-54012) are required.

The upgrades and custom software versions will be supplied by Extronics in files called Motorola S-record files. These files contain all the information needed to upgrade the scanner. Simply add this file to the working directory or retrieve from its current location.

The program guides the user with its simplistic one click approach. The user must first select the file; once selected and verified, the file is ready to be used in the upgrade. Press the button to upgrade the scanner, the unit will go into a "flash mode" — both the green and red LEDs will be on. The user can follow the progress of the upgrade by watching the screen for details. When the upgrade is complete, the scanner will respond with its normal one beep on power up. If two beeps occur, the scanner did not upgrade properly. (Contact an Extronics for additional details).

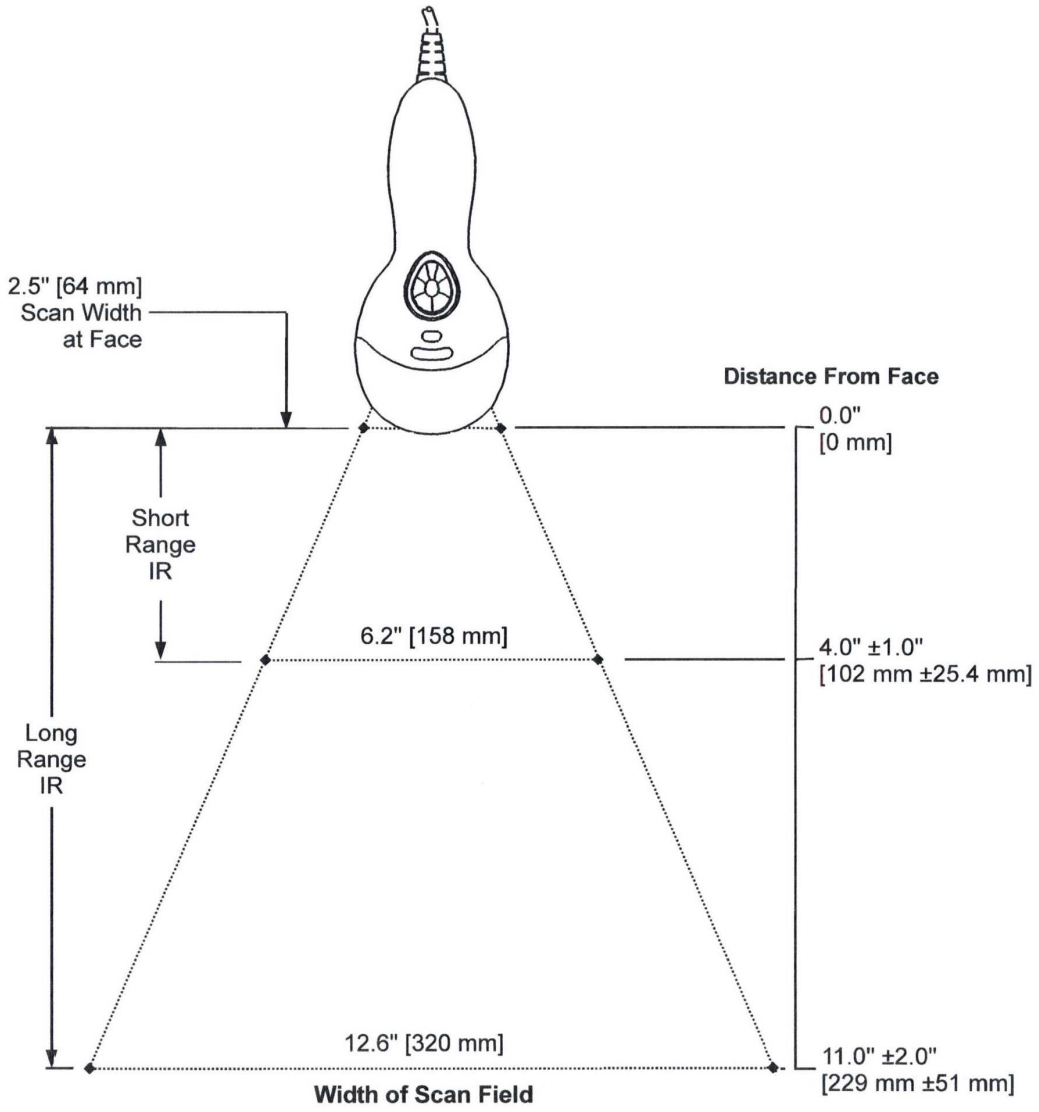
5 Depth of Field and IR Activation

DEPTH OF FIELD



Minimum Bar Code Element Width Code Element										
Width	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	K
mm	0.13	0.15			0.19		0.25	0.33	0.53	-
mils	5.2	5.7			7.5		10	13	21	

IR ACTIVATION



6 Troubleshooting Guide

All Interfaces

iSCAN100 Series Troubleshooting Guide		
Symptoms	**Possible Causes**	**Solution**
No LEDs, beep or laser	No power is being supplied to the Scanner	Check transformer, outlet and power strip. Make sure the cable is plugged into the scanner.
No LEDs, beep, or laser	No power is being supplied to the scanner from host	Some host systems cannot supply enough current to power Voyager. A power supply may be needed.
2 Beeps with alternately flashing LEDs on Power up	Possible ROM failure	Flash ROM Upgrade Required
3 Beeps on power up	Non-volatile RAM failure	Contact an Extronics Representative, if the unit will not hold the programmed configuration.
Continuous razz tone on power up	RAM or ROM failure	Contact an Extronics Representative, if the unit will not function.
Razz tone and green LED flash at power up	VLD failure	Contact an Extronics Representative
Razz tone, red and green LEDs flash at power up	Scanning mechanism failure	Contact an Extronics Representative
Unit scans, Communicates and beeps twice	Same symbol time-out set too short	Adjust same symbol time-out for a longer time.
The unit powers up, but does not scan/or beep	Beeper disabled. No tone selected	Enable beeper. Select tone.

Symptoms	Possible Causes	Solution
The unit powers up, but does not scan and/or beep	Scanning a particular symbology that is not enabled	UPC/EAN, Code 39, interleaved 2 of 5, Code 93, Code 128 and Codabar are enabled by default. Verify that the type of bar code being read has been selected.
The unit powers up, but does not scan and/or beep	The scanner has been programmed for a character length lock, or a minimum length and bar code being scanned does not satisfy the programmed criteria	Verify that the bar code that is being scanned falls into the criteria Typical of Non-UPC/EAN codes) The scanner defaults to a minimum of 3 character bar code.
The unit scans a bar code, but locks up after the first scan red LED stays on	The scanner is configured to support some form of host handshaking but is not receiving the signal	If the scanner is setup to support ACK/NAK, RTS/CTS, XON/XOFF or D/E, verify that the host cable and host are supporting the handshaking properly.
The unit scans, but the data transmitted to the host is incorrect	The scanner's data format does not match the host system requirements	Verify that the scanner's data format matches that required by the host. Most sure that the scanner is connected to the proper host port.
Scanner beeps at some bar codes and NOT for others of the same bar code symbology	The print quality of the bar code is suspect	Check print mode. The type of printer could be the problem. Change print settings. i.e. change to econo mode or high speed.
Scanner beeps at some bar codes and NOT for others of the same bar code symbology	The aspect ratio of the bar code is out of tolerance	Check print mode. The type of printer could be the problem. Change print settings. i.e. change to econo mode or high speed.

Symptoms	Possible Causes	Solution
Scanner beeps at some bar codes and NOT for others of the same bar code symbology	The bar code may have been printed incorrectly	Check if it is a check digit/character/or border problem.
Scanner beeps at some bar codes and NOT for others of the same bar code symbology	The scanner is not configured correctly for this type of bar code	Check if check digits are set properly.
Scanner beeps at some bar codes and NOT for others of the same bar code symbology	The minimum symbol length setting does not work with the bar code	Check if the correct minimum symbol length is set.
The unit scans the bar code but there is no data	Configuration is not correct	Make sure the scanner is configured for the appropriate mode.
The unit scans but the data is not correct	Configuration is correct	Make sure that the proper PC type AT, PS2 or XT is selected. Verify correct country code and data formatting are selected. Adjust inter-character delay symptom.
The unit is transmitting each character twice	Configuration is not correct	Increase interscan code delay setting. Adjust whether the FO break is transmitted. It may be necessary to try this in both settings.

Symptoms	Possible Causes	Solution
Alpha characters show as lower case	Computer is in Caps Lock mode	Enable Caps Lock detect setting of the scanner to detect whether the PC is operating in Caps Lock.
Everything works except for a couple of characters	These characters may not be supported by that country's key look up table	Try operating the scanner in Alt mode.
Power-up OK and scans OK but does not communicate properly to the host	Corn port at the host is not working or configured properly	Check to make sure that the baud rate and parity of the scanner and the communication port match and the program is looking for "RS-232" data.
Power-up OK and scans OK but does not communicate properly to the host	Cable not connected to the proper corn port	Check to make sure that the baud rate and parity of the scanner and the communication port match and the program is looking for "RS-232" data.
Power-up OK and scans OK but does not communicate properly to the host	Cable not connected to the proper corn port	Check to make sure that the baud rate and parity of the scanner and the communication port match and the program is looking for "RS-232" data.
The host is receiving data but the data does not look correct	The scanner and host may not be configured for the same interface parameters	Check that the scanner and the host are configured for the same interface parameters
Characters are being dropped	Inter-character delay needs to be added to the transmitted output	Add some inter-character delay to the transmitted output by using the MetroSelect Single-Line Programming Guide MLPN 00-02544.

7 Intended Purpose Usage

Important	**Before setting the units to work, read the technical documentation carefully.**

Important	**The latest version of the technical documentation or the corresponding technical supplements is valid in each case.**

The iSCAN100 is built using modern components and is extremely reliable in operation; however it must only be used for its intended purpose. Please note that the intended purpose also includes compliance with the instructions issued by the manufacturer for installation, setting up and service.
Any other use is regarded as conflicting with the intended purpose. The manufacturer is not liable for any subsequent damage resulting from such inadmissible use. The user bears the sole risk in such cases.

Transportation and Storage
All iSCAN100 devices must be so transported and stored that they are not subjected to any excessive mechanical stresses.

Authorized Persons
Only persons trained for the purpose are authorized to handle the iSCAN100; they must be familiar with the unit and must be aware of the regulation and provisions required for explosion protection as well as the relevant accident prevention regulations.

Cleaning and Maintenance
The iSCAN100 and all its components require periodic inspection. All work on the iSCAN100 by personnel who are not expressly qualified for such activities will cause the Ex approval and the guarantee to become void.

The scanner may be cleaned with a damp cloth or a brush. The laser window may be cleaned from periodically with a very soft cloth. The scanner must not be cleaned within the Ex area due to potential charging of the cleaning tool

The protective conducting layer must not be damaged. If there is visible damage of significant areas of the layer the scanner must not be used inside of Ex areas until it has been repaired by the manufacturer

Safety Precautions
Important For the installation, maintenance and cleaning of the units, it is absolutely necessary to observe the applicable regulations and provisions concerned with explosion protection (EN 50014, EN 60079-14:2003) as well as the Accident Prevention Regulations.

Cleaning and Maintenance Intervals
The cleaning intervals depend on the environment where the system is installed.

Aggressive substances and environments
The iSCAN100 is not designed to come into contact with aggressive substances or environments, please be aware that additional protection may be required.

Exposure to external stresses
The iSCAN100 is not designed to be subjected to excessive stresses e.g. vibration, heat, impact. Additional protection is required to protect against these external stresses.

The iSCAN100 will require additional protection if it is installed in a location where it may be subjected to damage

8 Technical Data

Certification Number	TUV 04 ATEX 2644
Certification Type	II 2G EEx ib IIC T4 II 2 D T 70°C
Dimensions	198mm x 102mm x 40mm (h x w x d)
IP Rating	IP65
Ambient Operating Temperature	-30°C to +50°C
Storage temperature	-40°C to +60°C
Humidity	95% non-condensing
Light levels	Up to 4842 Lux
Shock	Designed to withstand 1.5 m drops
Weight	149 g
Material	Plastic housing with protective rubber shield
Power Supply	5V 165mA drawn from iSOLATE100. PS2, power from the PS2 port on PC. RS232, power from separate supply to iSOLATE100
Cable	0.9m coiled - >3m extended (with standard cable)
Interface	RS232 or PS2 (selected at time of purchase)
Barcode Compatibility	Auto discriminates all standard bar codes. For other Symbologies please contact Extronics.
Scan System	Laser diode, 650 nm friction free mechanism
Scanning Range	Up to 297mm (barcode dependant)
Scan Speed	72 scan lines per second
Scan Pattern	Single scan line
Minimum Bar Width	0.127 mm
Infrared Activation	Long Range: 0 mm — 279 mm ± 51 mm Short Range: 0 mm — 102 mm ± 25 mm
Print Contrast	35% minimum reflectance difference
Number of Characters	Up to 80 data characters
Roll, Pitch, Yaw	42°, 68°, 52°

9 Type Codes

Intrinsically Safe Barcode Scanner **Please Specify—[#1] Interface Type**	**iSCAN100 - [#1] - GD**
PS2 interface	PS2
RS232 interface	RS232
RS232 interface complete with Plug suitable for connection to Challenger BCS option	RS232BCS

Accessories:

iSCAN100 Wall Mounted Holster	4646508
Holder with termination enclosure	iSCAN100JB
Extronics to fit iSCAN100CBL to iSCAN100	J010547
Extra long spiral cable for use with RS232 iSCAN100, flying leads for wiring to plugs and sockets etc. 1.8m coiled, >7m extended	iSCAN100-CBL-RS232
Extra long spiral cable for use with PS2 iSCAN100, flying leads for wiring to plugs and sockets etc. 1.8m coiled, >7m extended	iSCAN100-CBL-PS2

Extended cables should be specified when ordered, otherwise they must be retro-fitted by Extronics only. Contact Extronics for custom cable lengths

10 Warranty Information

The Customer shall carry out a thorough inspection of the delivered project or equipment with 21 days of delivery and shall give immediate written notification to the Company of any omissions, defects or faults.

The Company warrants that the project or equipment delivered shall accord with the Quotation or Pricing Schedule and related Company specifications, but it does not warrant its fitness for any other purpose.

Extronics will make good, by repair or at Extronics option by the supply of a replacement, defects which, under proper use in accordance with specifications and manufacturer's instructions, appear in the goods within a period of twelve calendar months after the goods have been delivered and arise solely from faulty design, materials or workmanship, provided always that defective parts have been returned to Extronics if Extronics shall have so required.

The warranty of any goods is based upon a return to Extronics factory (Return to Base Warranty) which will be at the Customers cost. The repaired or new parts will be delivered by Extronics carriage paid. If you allege that goods are totally unfit for their purpose they must be returned within 7 days of receipt. Site Warranty is expressly excluded from these terms and conditions unless agreement is made in writing between the parties it.

Extronics liability under this clause shall be in lieu of any warranty or condition implied by law as to the quality or fitness for any particular purpose of the goods, and save as provided in this clause Extronics shall not be under any liability, whether in contract, or otherwise, in respect of defects in goods delivered or for any injury other (than personal injury caused by Extronics negligence as defined in Section 1 of the Unfair Contract Terms Act, 1977), damage or loss resulting from such defects or from any work done in connection therewith, provided however that nothing in this clause shall operate to exclude any warranty or condition implied by law as to the quality of the goods in the event that the goods when sold by you or when sold by any person or persons to whom you may sell the goods shall become the subject of a consumer sale as defined in the Supply of Goods (Implied Terms) Act, 1973 except that any claim under such warranty or condition shall have arisen from any act or omission by you or by any person or persons selling the goods by way of a consumer sale.

11 EC Declaration of Conformity

Hazardous Area Specialists

EC Declaration of Conformity

Extronics Ltd, 1 Dalton Way, Midpoint 18, Middlewich, CW10 0HU, UK

Declare under sole responsibility that the product,

iSCAN100 Intrinsically Safe Barcode Scanner

To which this declaration relates is in accordance with the provision of the following directives

94/9/EC	Equipment and protective systems intended for use in potentially explosive atmospheres
2006/95/EC	Low Voltage Directive
2004/108/EC	CE marking for Electromagnetic Compatibility Directive
2002/95/EC	Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)
2002/96/EC	Waste Electrical and Electronic Equipment Directive (WEEE)

EC type Examination Certificate	**TUV 04 ATEX 2644**
Provisions of Directive fulfilled by the equipment	**EX II 2 G EEx ib IIC T4** **EX II 2 D T 70°C** **-30°C ≤ Tamb ≤ +50°C**
Notified Body for EC Type Examination	**SIRA, 0518, Sira, Chester, UK**
Notified Body for production	**SIRA, 0518, Sira, Chester, UK**

And is in conformity with the following standards or other nominative documents

EN 50014:1997 + A1 +A2	Electrical apparatus for potentially explosive atmospheres. General requirements
EN 50020:2002	Electrical apparatus for potentially explosive atmospheres. Intrinsic safety 'I'
EN 50281-1-1:1998+A1	Electrical apparatus for use in the presence of combustible dust. Electrical apparatus protected by enclosures. Construction and testing
EN 55022: 1998, Class B	Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement
EN 55024: 1999	Information technology equipment. Immunity characteristics. Limits and methods of measurement
EN 60950-1:2006+A1:2010	Information technology equipment. Safety. General requirements
EN 60825-1:2007	Safety of laser products. Equipment classification and requirements

Signed

Ben Seaby

Date: 08/10/2012

Ben Seaby
Senior Development Engineer
Document 334254_01

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12 ATEX Certificate

TÜV NORD

(1) **EC-TYPE EXAMINATION CERTIFICATE**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(3) EC-Type Examination Certificate Number

TÜV 04 ATEX 2644

(4) Equipment: Single-Line Hand Held Laser Scanner type iSCAN 100

(5) Manufacturer: EXTRONICS LIMITED

(6) Address: Meridian House, Roe Street, Congleton, Cheshire CW12 1PG, UK

(7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report N° 04 YEX 551721 G.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014:1997+A1+A2 EN 50020:2002 EN 50281-1-1:1998+A1

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment or protective system must include the following:

Ex II 2 G EEx ib IIC T4 resp. II 2 D T 70 °C

TÜV NORD CERT GmbH & Co. KG
Am TÜV 1
30519 Hannover
Tel.: 0511 986-1470
Fax: 0511 986-2555

Hannover, 2005-05-17

Head of the Certification Body

Seite 1/2

(13) **SCHEDULE**

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 04 ATEX 2644**

(15) Description of equipment

The Single-Line Hand Held Laser Scanner type iSCAN 100 serves for reading and processing barcodes in explosive areas that require apparatus of category 2 resp. 3.

The permissible ambient temperature range is -30 °C to +50 °C.

Electrical Data:

Supply (D-Sub-connector)	in type of protection Intrinsic Safety EEx ib IIC only for the connection to certified intrinsically safe circuits Maximum values: U_i = 5,45 V P_i = 1,3 W The effective inner capacitance and inductance are negligibly small.
Data circuit (D-Sub-connector)	in type of protection Intrinsic Safety EEx ib IIC Maximum values: U_O = ±5,45 V I_O = 54 mA Max. permissible outer capacitance: 65µF Max. permissible outer inductance : 13 mH

(16) Test documents are listed in the test report N° 04 YEX 551721 G.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

13 Manual Revision History

Revision	Description	Date	By
01	Initial release	August 2007	DR
02	Revised D of C, added warranty information	27th Oct 2012	BTS