QUICK START MANUAL

ICR803
Bar Code Scanner
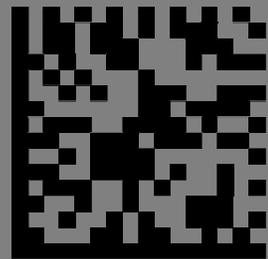
SICK

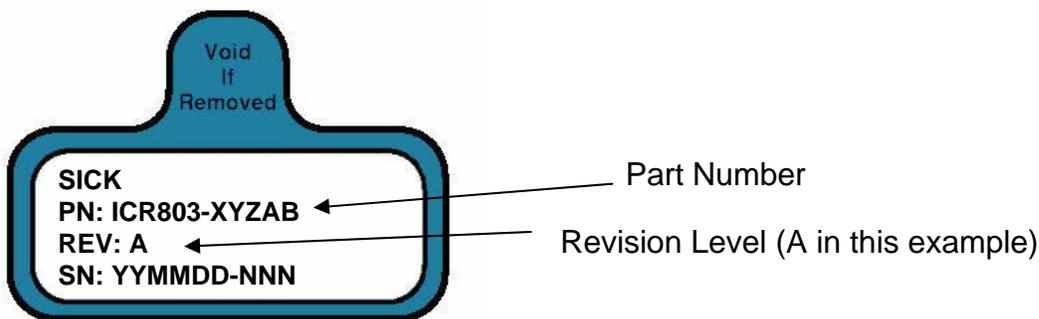# Getting Started

Unpacking Your ICR803

When receiving a ICR803, the product is either shipped as individual scanners or as part of a kit.

A kit includes the ICR803 scanner, RS-232 or USB Cable, Power Supply (for RS-232 version) and a CD containing various documents and information about the ICR803.

Identifying Your Scanner

On the bottom of your scanner you will see a yellow label as shown below:

Void
If
Removed

**SICK
PN: ICR803-XYZAB
REV: A
SN: YYMMDD-NNN**

Part Number

Revision Level (A in this example)

The configurations for the ICR803 are as follows:

ICR803-**XYZAB**

Where:

X =	A for Smart Focus (SF) Reader (see appendix A for details)
	B for Standard Range (SR) Reader (see appendix A for details)
Y =	0 for front reading window
Z =	2 for RJ45 interface connector
A =	0 for True RS232 output
	7 for USB output
B =	1 for 5 Volt Unit

Sick part number cross reference:

SICK P/N	Device name
6034210	ICR803-A0201
6034211	ICR803-B0201
6034212	ICR803-A0271
6034213	ICR803-B0271

NOTE:
If you see a different part number then you may have a custom scanner. Please consult with SICK AG to determine product configuration.
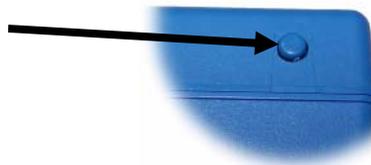
Connecting Your Scanner: RS232 Connection
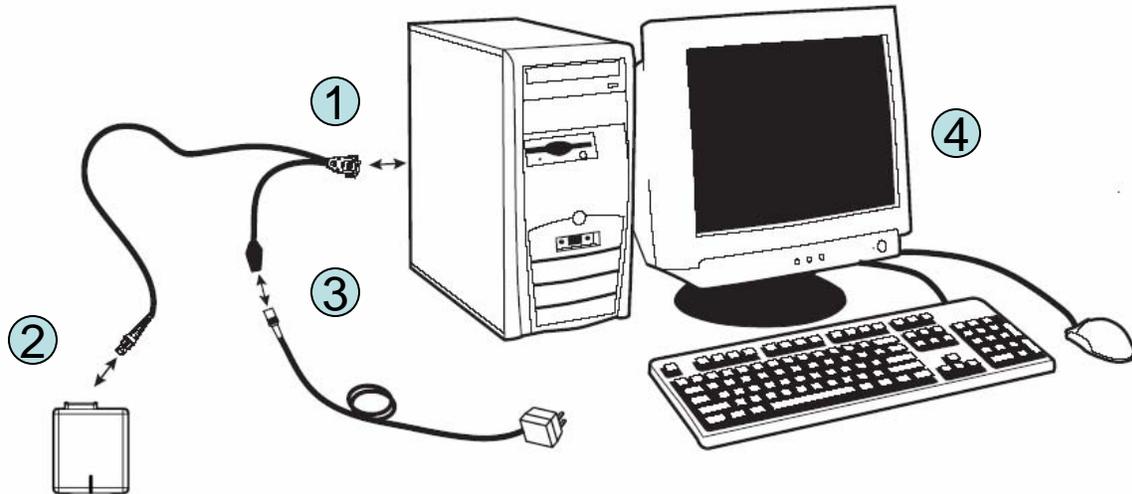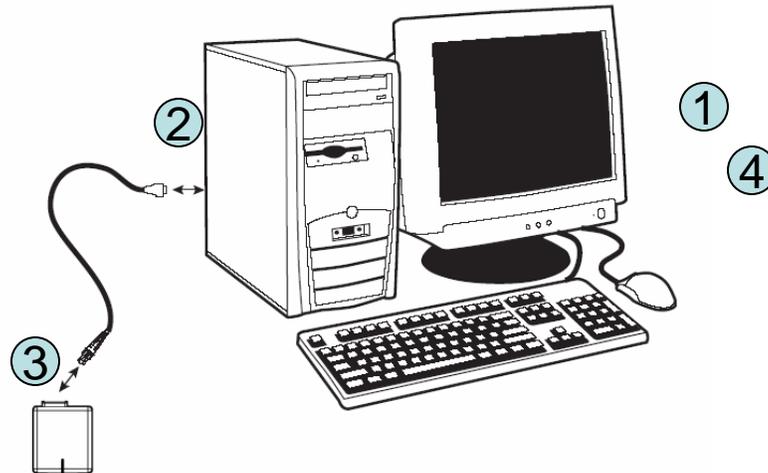

To connect your ICR803 scanner:

1. Connect RS-232 Cable to PC
2. Connect RS-232 Cable to ICR803
3. Connect Power

To Trigger Manually :
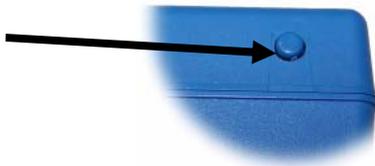Press the button on the side of the
ICR803

Note: See page 9 for other ways to trigger the ICR803

Connecting Your Scanner: USB Cable

To connect your ICR803 scanner:

1, Connect USB Cable to PC

2. Connect USB Cable to ICR803

3. Using the button on the side of the ICR803, scan the configuration code "USB keyboard wedge" below:


Note: For configuration and image acquisition via software, the USB signal has to be emulated into a serial signal (USB Com Port Emulation). For this you can download an USB emulation driver on http://www.sick.com/home/factory/downloads/downloads_auto_ident/en.html

for free. Scan the bar code below to set the ICR803 into USB Com Port Emulation mode:

6

Scanning Technique

Scanning Area

Because the ICR803 is an imaging device it doesn't use a single line to scan bar codes. As such the scanning area used by the ICR803 is rectangular (640 x 480) and grows in size the farther you get from the face of the scanner, as illustrated below:
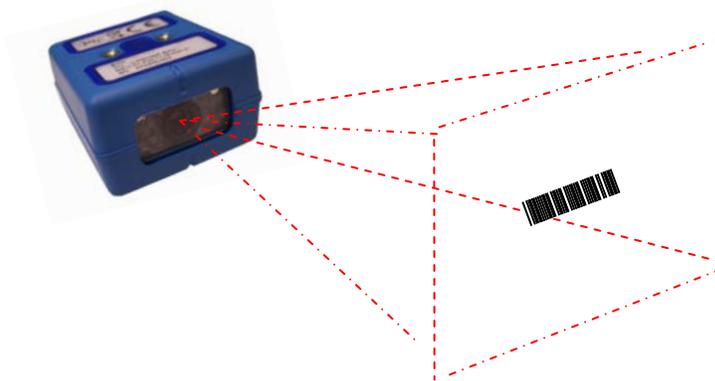
The scan window size is as follows:

Position From Front	Vertical	Horizontal	Tolerance
5.0 inches	2.42 inches	3.8 inches	.1 inch
7.0 inches	3.40 inches	5.3 inches	.17 inch
9.0 inches	4.31inches	6.7 inches	.23 inch

Scanning Orientation

The ICR803 can read in any orientation. To assist with scanning, the ICR803 has a scan line (red or green) that appears in the middle of the imaging area. To scan simply align the aiming line in the general area of the barcode as shown below.

Product Overview:
Scanning Technology

The ICR803 is an area imager, the latest in bar code scanning technology. (Note: area Imagers are also known as: 2D bar code scanners, 2D imagers, or 2D camera readers).

As compared to conventional bar code scanners that draw a single line across a bar code, area imagers take a picture of the bar code when triggered. This technique allows for:

- Reading in any orientation (360 degree reading)
- No moving parts
- Reading of newer bar code symbologies
- Reading of multiple barcodes at once
- Reading of a specific barcode in an area (e.g. only read the barcode in the left half of the image)
- Taking pictures (Application Example: Proof of Delivery)
- Vision Processing (Application Example: Detection the absence or presence of an object)

See the chart below for a comparison of scanning technologies:

Scanner Type	Scanner Technology	Scanning Technique
Wand	No Moving Parts, Contact Only, Linear Bar Codes Only	Swipe Across Bar Code
CCD	No Moving Parts, Contact to Near Contact, Linear and Stacked Linear bar codes (depending on model)	Touch scanner to Code
Laser	Moving Mirror, Near Contact to Far Distance (depending on model), Linear and Stacked Linear (e.g. PDF417) bar codes	Point and Shoot (must be aligned)
Linear Imager	No Moving Parts, Near Contact to Away (depending on model), Linear Bar Codes and Stacked Linear	Point and Shoot (linear) Swipe Up/Down (stacked)
2D Imager	No Moving Parts, Near Contact to 12" (depending on model), Linear, Stacked Linear, 2D (Matrix) bar codes, OCR, and picture taking capability	Point and Shoot, True Omnidirectional scanning

Product Overview: Triggering Modes

There are five different methods that can be used to scan barcodes:

1. Software Trigger

   In this mode a software command is used to trigger the ICR803. The command structure is as follows:

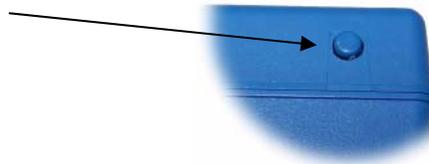 | | |
   |---|---|
   | [SYN] T [CR] | To Trigger (Scanner LED's will turn on and scan barcode. After scanning the LED's will turned back off.) |
   | [SYN] U [CR] | To Turn off Triggering of scanner (only needed if the scanner hasn't scanned a barcode). |

2. Button Trigger

   The IC803 has an integrated button that is useful for manually triggering the scanner.

   To Trigger Manually: Press Button on Side

3. Hardware Trigger

   The ICR803 can be externally triggered via a hardware line (Rev C of product and above). The external trigger is active low. When pin 1 on the modular connector is low the ICR803 will turn on and start scanning. The ICR803 will turn off if the trigger line goes high or if a barcode is decoded (whichever happens first).

Product Overview:
Triggering Modes

4. Scanstand Mode

When set to scanstand mode, the ICR803 will look for the label below. When an object blocks view of the label the scanner will trigger and read the barcode on the object.

To create this barcode print a FNC3 character using Code 128.
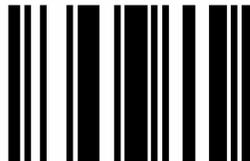
5. Presentation Mode

Presentation mode is similar to Scanstand Mode (above) except the ICR803 does not require a scanstand symbol. The ICR803 will trigger and start scanning upon any changes in the image. This includes changes in ambient light or non-bar coded objects being placed in front of the scanner (e.g. a hand).

Note: LED power must be turned down for this mode.

Depth Of Field:

ICR803-**B** Depth of Field:

Code Size	Near Distance	Far Distance
MaxiCode 35 mil	2 inches (5.1 cm)	13 inches (33 cm)
Data Matrix 15 mil (ECC200)	2.3 inches (5.8 cm)	10.2 inches (25.9 cm)
PDF417 10 mil (ECL4)	3.1 inches (7.9 cm)	9 inches (22.9 cm)
PDF417 8.3 mil (ECL4)	3.3 inches (8.4 cm)	8 inches (20.3 cm)
PDF417 6.6 mil (ECL4)	4.5 inches (11.4 cm)	6.25 inches (15.9 cm)
Code 39 15 mil	2.1 inches (5.3 cm)	12.8 inches (32.5 cm)
Code 39 10 mil	3.2 inches (8.1 cm)	9.2 inches (23.4 cm)
Code 39 8 mil	3.5 inches (8.9 cm)	7.6 inches (19.3 cm)
UPC 13 mil, 100%	2.1 inches (5.3 cm)	13.2 inches (33.5 cm)
Postnet	4 inches (10.2 cm)	5.9 inches (15 cm)
QR Code 15 mil	3.1 inches (7.9 cm)	8.8 inches (22.3 cm)
OCR A,12 pt	2.3 inches (5.8 cm)	9.4 inches (23.9 cm)
OCR B, 12 pt	2.5 inches (6.4 cm)	10 inches (25.4 cm)

ICR803-**A** Depth of Field:

| Code Size	Near Distance	Far Distance
MaxiCode 35 mil	2 inches (5.1 cm)	10 inches (25.4 cm)
Data Matrix 8.3 mil	3.4 inches (8.6 cm)	5.7 inches (14.5 cm)
Data Matrix 15 mil (ECC200)	1.8 inches (4.6 cm)	7.5 inches (19 cm)
PDF417 10 mil (ECL4)	2.2 inches (5.6 cm)	7.6 inches (19.3 cm)
PDF417 8.3 mil (ECL4)	2.4 inches (6.1 cm)	6.8 inches (17.3 cm)
PDF417 6.6 mil (ECL4)	2.8 inches (7.1 cm)	6.0 inches (15.2 cm)
Code 39 15 mil	1.5 inches (3.8 cm)	9.2 inches (23.4 cm)
Code 39 10 mil	2.2 inches (5.6 cm)	7.6 inches (19.3 cm)
Code 39 8 mil	2.3 inches (5.8 cm)	6.8 inches (17.3 cm)
Code 39 7.5 mil	2.5 inches (6.4 cm)	6.5 inches (16.5 cm)
Code 39 5 mil	3.6 inches (9.1 cm)	4.2 inches (10.7 cm)
UPC 13 mil, 100%	2 inches (5.1 cm)	8.9 inches (22.6 cm)

Depth Of Field:

ICR803 Field Of View

Position[1]	Vertical, avg	Horizontal, avg	Tolerance	Resolution
5 inches (12.7 cm)	2.42 inches (6.15 cm)	3.8 inches (9.65 cm)	.1 inch (.25 cm)	195 DPI
7 inches (17.78 cm)	3.4 inches (8.64 cm)	5.3 inches (13.46 cm)	.17 inch (.43 cm)	140 DPI
9 inches (22.86 cm)	4.31 inches (10.95 cm)	6.7 inches (17.02 cm)	.23 inch (.584 cm)	105 DPI

1. Z distance relative to front of engine

Mechanical Dimensions:

All dimensions in mm

24.13

13.97

47.75   44.96

See mounting notes below

21.84

39.9

12.2

22.9
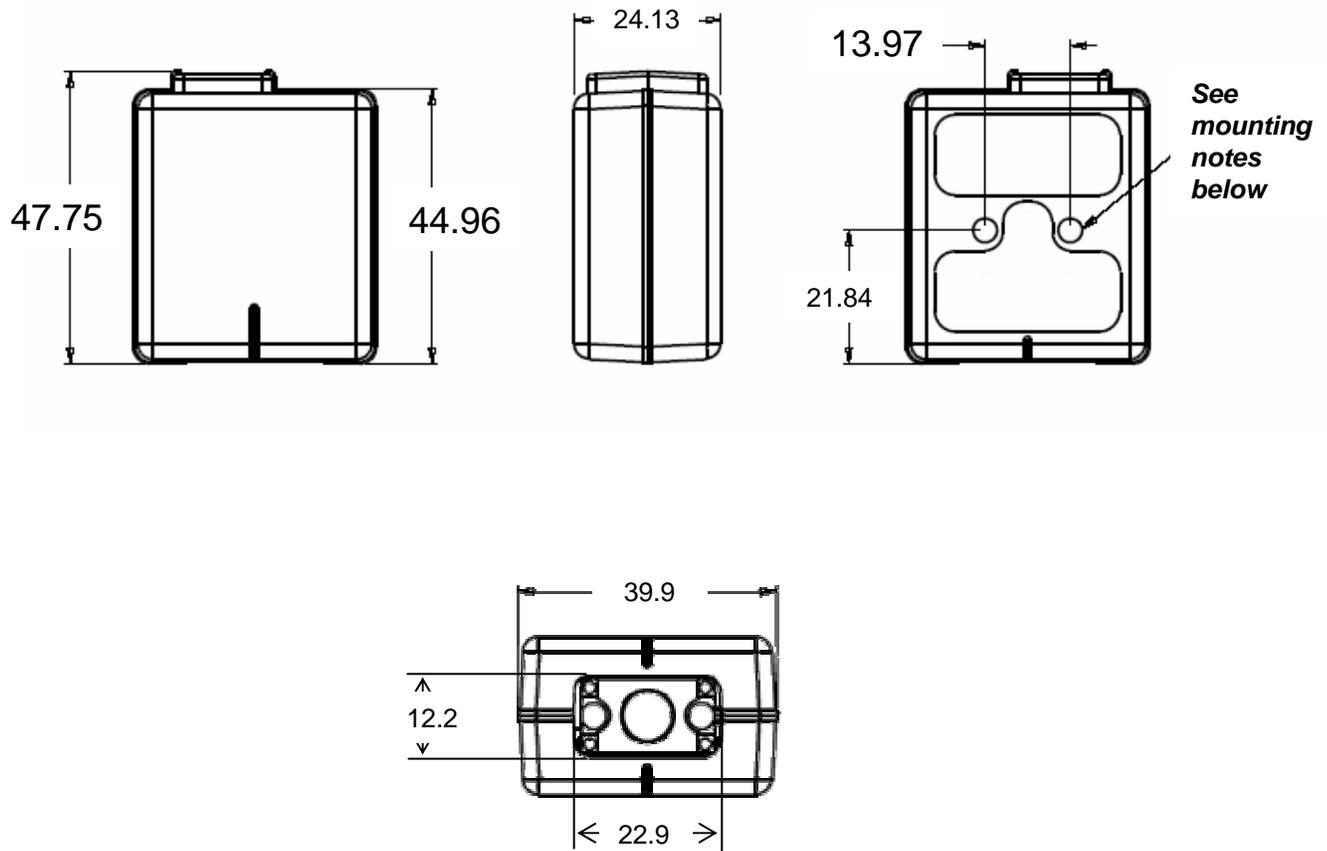
Mounting Notes:
1. Two metric M3 screws used for mounting
2. Length of screw (internal length) should not be longer than 6.3mm
3. Mounting screws should not use a torque force of more than 5"/lbs.

13

Modular Connector and Electrical Specifications :

Supply Voltage: +5 VDC +/-5%
Peak Current: 350mA (Note; can be reduced with settings)

Connector Type:
The modular jack connector is Stewart Connector Systems Inc. part number: SS-641010S-A-NF. A suggested mating connector is Stewart Connector P/N - 937-SP-36-10-10-031, or 937-SP-36-10-10-037.

Connector Pin Numbering and Orientation.

| Pin 1 | | Pin 10 |
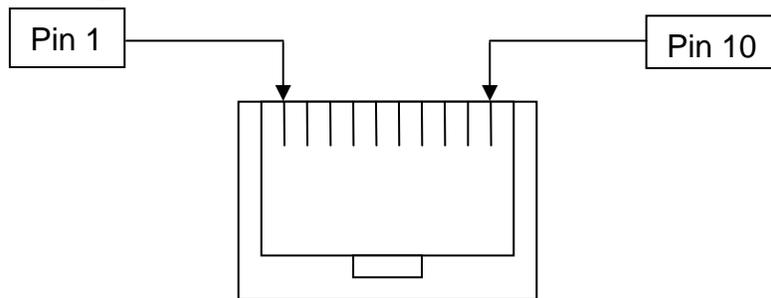
Front View

Pin Number	Pin Function True RS-232	Pin Function USB	Input/Output
1	External Trigger	-	-
2	Shield GND	USB D+	I/O[2]
3	No Connect[4]	No Connect[4]	-
4	GND	GND	-
5	RxD[1]	No Connect	I
6	TxD[1,3]	No Connect	O
7	+5 VDC	VCC	-
8	RTS[1,3]	No Connect	O
9	CTS[1]	No Connect	I
10	No Connect	USB D-	I/O[2]

1. Signal is polarity selectable via menu configuration.
2. USB signal have 22 Ohm series termination resistors and speed select resistor on board I/O – I = Input, O = Output, I/O = bi-directional.
3. Pull up resistors may be applied to these signals. The resistor values should be >10k ohms.
4. No Connection required for ICR803

Statement of Agency Compliance

Statement of Agency Compliance
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Class A Compliance Statement
This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

Operation of this equipment in a residential area may cause harmful interference in which case the user will be required to correct the interference at their own expense.

ITE class A device:

> **Warning**
>
> This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Caution: Any changes or modifications made to this device that are not expressly approved by SICK AG Inc. may void the user's authority to operate the equipment.

Note: To maintain compliance with FCC Rules and Regulations, cables connected to this device must be shielded cables, in which the cable shield wire(s) have been grounded (tied) to the connector shell.

CE Compliance Statement

The CE mark on the product indicates that the system has been tested to and conforms with the following requirements: EN55022:1998/A1:2000/A2:2003 Class A ITE emissions requirements, EN 55024: 1998/A1:2001/A2:2003 ITE – immunity characteristics, and the Low Voltage Directive standard: EN 60950-1:2001 Information Technology Equipment – Safety- Part 1: General Requirements.

LED Safety Statement
This device has been tested in accordance with EN60825-1 LED safety, and has been verified to be under the limits of a Class 1 LED device.

For further information please contact SICK AG. See Technical Support contact on page 19.

SICK shall not be liable for use of our product with equipment (i.e., power supplies, personal computers, etc.) that is not CE marked and does not comply with the Low Voltage Directive.

SICK AG
ICR803 Getting Started – Rev A 04/2007

RoHS & WEEE Compliance

Waste **E**lectrical and **E**lectronic **E**quipment Information:
This product has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment, if not properly disposed. In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems for product disposal. Those systems will reuse or recycle most of the materials of the product you are disposing in a sound way.

The crossed out wheeled bin symbol informs you that the product should not be disposed of along with municipal waste and invites you to use the appropriate separate take-back systems for product disposal. If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

RoHS

The ICR803 Series is in compliance with Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS), dated January, 2003.

SICK
Sensor Intelligence.

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