Purpose:

In those environments that offer retail merchandise with UPC formatted bar codes, speed and accuracy are the easiest ways to justify the use of a scanner.

With the ER-A570/ER-A610 model ECR, when performing programming or X/Z reports involving the UPC file, confusing bar code numbers can be overcome by using the scanner instaed of key entry of a particular code.

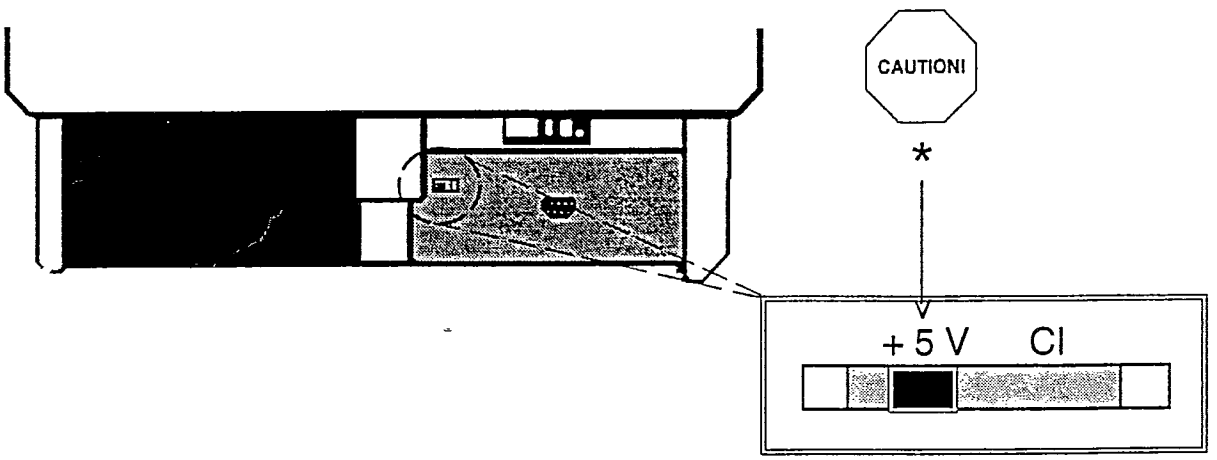
Hardware requirements

- ER-A570/ER-A610 ECR.
- ER-A5RS (only when more than 1 RS232 function is required)
- Cable. (specifications may vary by the third party developer)

STOP *After the installation of the ER-A5RS option board, a Master Reset is recommended.*

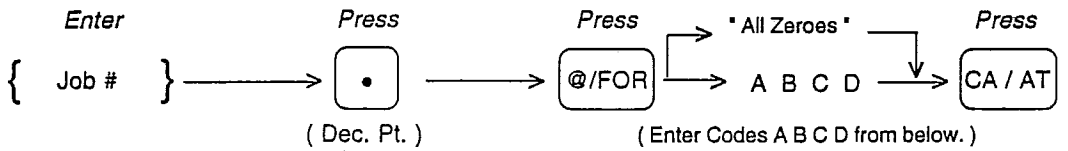
Scanner (+5v) Power Switch:

The standard RS-232C port is a dual purpose port used to supply a (+ 5v) power source at pin #9. This specified source is to only be used in conjunction with those manufactured Hand scanners that do not supply their own power.

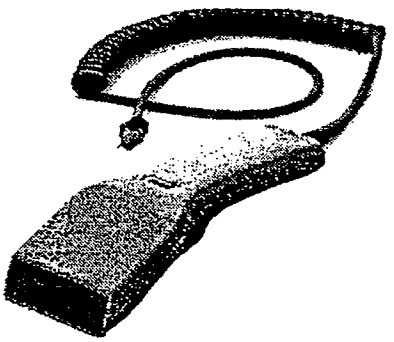


SRV mode programming

The assignment of the RS-232C channel for this function is selected by each device.



946-A - Channel no. assign for Scanner 0~7



Scanner

Programming Jobs that can be used with a Scanner:

The below list of PGM mode jobs are capable of being used with a scanner instead of the manual entry of the UPC code.

Ref. No.	Description
1000	UPC code association to Departments
1050	Dynamic UPC code association to Departments
1010	UPC unit price
1060	Dynamic UPC unit price
1011	UPC base quantity
1061	Dynamic UPC base quantity
2010	UPC function programming
2060	Dynamic UPC programming
2011	UPC status programming
2061	Dynamic UPC status programming
2014	UPC text programming
2064	Dynamic UPC text programming
2018	UPC print station assignment
2068	Dynamic UPC print station assignment
1020	UPC stock (add)
1021	UPC stock (subtract)
1022	UPC stock (overwrite)
1023	UPC stock (minimum stock)
2058	UPC IRC control character
2059	Dynamic UPC IRC control character
2000	Lead through programming UPC
2050	Lead through programming Dynamic UPC

SHARP ER-610/570 RS232 SCANNER INTERFACE

QUICK SETUP FOR THE SYMBOL LT-1820 SCANNER: LT 1720 Att: Dave
(order number #SX-1820-0007)

Using the LT1820 Product Reference Guide, turn to the pages listed below and scan the recommended bar code(s) to setup scanner for communications to the Sharp ER-A610/570.

PAGE(S)	BAR CODE(S) TO SCAN
P-25	Set Manufacturers Default Settings
~~P-35&37~~	~~**Convert UPC-E to UPC-A/Enabled/Enter~~ Do NOT USE
P-35&37	Transmit UPC-A Check Digit/Enabled/Enter
P-35&37	**Transmit UPC-E Check Digit/Enabled/Enter
P-36&37	Transmit Code Identifier/Enabled/Enter
P-50&51	Baud Rate/4800/Enter
P-52&53	Parity/Odd/Enter
P-54&55	Hardware Handshaking/RTS-CTS/Enter
P-60&61	Stop Bit Select/1 Stop Bit/Enter
62,63&64	Prefix/STX/Enter

**Note: ~~The ER-A610/570 can convert the UPC-E type to a UPC-A type bar code. Set SHV selection 1 (Yes) to allow this option.~~ The Scanner can convert UPC-E type to a UPC-A type bar code. YES ~~If you select the scanner to NOT convert UPC-E type to a UPC-A type bar codes, set the scanner to NOT transmit the UPC-E Check Digit.~~

INTERFACE CABLE WIRING FOR:

SYMBOL CABLE #25-06858-01 (cable for LT-1820) FOR COMMUNICATIONS TO THE SHARP ER-A610/570 RS232 PORTS

DB25M
25-06753-1

DB25M (PLUGS INTO SYMBOL DB25F #25-06858-01 CABLE)			DB9F (PLUGS INTO ER-A610/570 RS232 PORT)		
RTS	4	———	1	RTS	——— 5 YEL
TXD	2	———	2	TXD	——— 3 WHT
RXD	3	———	3	RXD	——— 2 RED
			4	DSR	
SG (GND)	7	———	5	SG (GND)	——— 7 BLK
DTR	20		6	DTR	
CTS	5	———	7	CTS	——— 4 ORG
			8	NC	
			9	~~VCC +5V~~ NC	

Programming Setup for the RS-232C Metrologic model 951 Hand Scanner

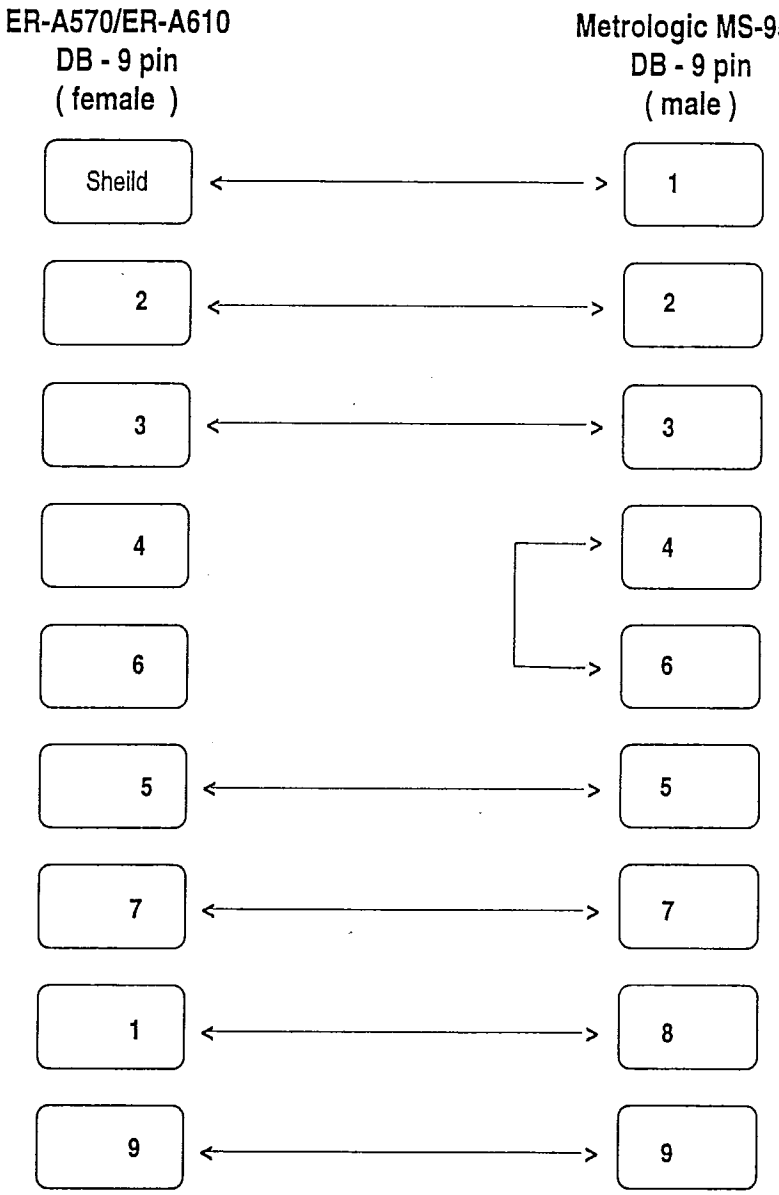
The below list of setup jobs are found in the Metrologic Programming Guide (ML part no. 2336).

Scan each code as follows:

Step #	Ref. Page	Description	Option Code
1	pg. 2	Enter/Exit Program Mode	
2	pg. 2	Recall Defaults	DF 1
3	pg. 9	4800 Baud Rate	BR 6
4	pg. 10	Odd Parity	PA 4
5	pg. 11	Enable RTS / CTS	HH 1
6	pg. 15	LF Off	TR 3
7	pg. 15	STX Prefix On	TR 6
8	pg. 17	Prefix I.D. On	PX 2
9	pg. 17	Enter/Exit Program Mode	

Remove and replace AC power to the Scanner prior to scanning the first bar coded item.

Conversion cable necessary between the ER-A570/ER-A610 and the Scanner



Scanner

SHARP EK-A610/570/450 RS232 SCANNER INTERFACE QUICK SET-UP FOR THE SYMBOL LS-9100 & LS-5700

Page Chptr. 5 Revision A	Page Chptr. 5 Revision B	Bar Code to Scan
1	1	Set all defaults
6	6	RS 232C
16	16	4800 Baud
19	19	Odd
29	29	RTS/CTS Option 1
39	39	Host:High RTS
40	40	1 Stop Bit
42	42	7Bit
152	151	Scan Options
156	155	Prefix-Data-Suffix
157	156	Enter
130	129	Transmit UPC-E Check Digit
138	137	Convert UPC-E to UPC-A
147	146	Symbol Code ID Character
150	149	Scan Prefix
169	167	7
162	160	0
162	160	0
164	162	2
151	150	Scan Suffix
169	167	7
162	160	0
163	161	1
165	163	3
finished	finished	

Notes: Scan in order.
Some scan beeps will sound different, it's all good.

Requires a crossover cable:

9 pin male scanner	9 pin female register
8	1
2	2
3	3
	4 short to pin 6
5	5
	6 short to pin 4
7	7
	8
	9

450 Register programming only:
2690 • @/FOR 2 @/FOR 8000 SBTL CA/AT
Connect to the front port.
570/610 Register Programming:
945 • @/FOR CA/AT 946 • @/FOR 1000 CA/AT

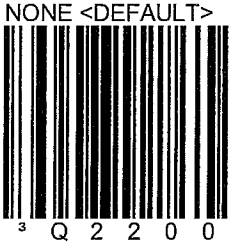
LS1004 p1 of 2

LS1004 with the ER-A570/610
Symbol LS1004 p/n: LS1004-1000-0400R (this may be a kit p/n)
Note: When ordering list Programmers Guide at N/C on the P/O
Symbol Cable part no.: 25-31296-01

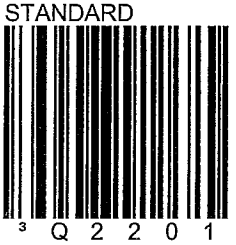
	PAGE REF.	SETTING
Set all defaults	4-8	
SET RS-232C HOST PAGE	4-8	
Convert UPC-E to UPC-A	4-16	Enable or disable
Transmit code identifier (ID character)	4-29	Enable
Baud rate	4-33	4800
Prefix to decode data	4-30	STX (ASCII 02 hex)
Suffix to decode data	4-31	CR/LF (ASCII OD hex)
Parity	4-34	Odd
Data format	4-35	7 data bits (with parity)
Stop bit select	4-35	One
Hardware handshaking **	4-36	RTS/CTS

** There should be two sets of scan codes on 4-36. One for the LS1004-I000 and another set for the LS1004-I100 (this one does not come with the Product Reference guide. There is an added sheet. Use the STANDARD bar code.).

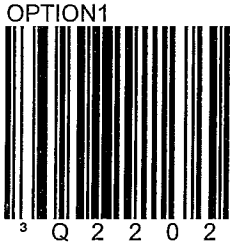
NONE <DEFAULT>



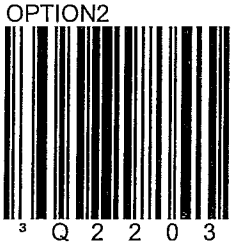
STANDARD



OPTION1



OPTION2



OPTION3

LS1004 p2 of 2

HARDWARE HANDSHAKE
LS1004-I100 (Note the I100 not I000)
Use the STANDARD barcode to set Hardware handshaking for RTS/CTS
Note: These are inserted pictures so you can stretch these out by selecting one and dragging one side.

How the RTS/CTS handshaking works
During the transmission of data, the CTS line should be asserted. If CTS is de-asserted for more than 50ms between characters, the transmission is aborted, the scanner sounds a transmission error, and the data is discarded.

- If the above communications sequence fails, the scanner issues an error indication. in this case, the data is lost and must be rescanned.

note: The DTR signal is jumpered active.

OPTION 1

When RTS/CTS Option 1 is selected, the scanner asserts RTS before transmitting and ignores the state of CTS. The scanner de-asserts RTS when the transmission is complete.

OPTION 2

When Option 2 is selected, RTS always high or low (user- programmed logic level). However, the scanner waits CTS to be asserted before transmitting data. If CTS is not asserted within two seconds, the scanner issues an error indication and discards the data.

OPTION 3

When Option 3 is selected, the scanner asserts RTS prior to any data transmission, regardless of the state of CTS. The scanner waits up to two seconds for CTS to be asserted. If CTS is not asserted during this time, the scanner issues an error indication and discards the data. The scanner de-asserts RTS when transmission is complete.

Metrologic

Programming the Scanner

The scanner is shipped from the factory programmed to a set of default conditions noted in this guide by an asterisk that appears before the brief definition. Since each host system is unique, the scanner has to be configured to match your host system requirements.

1. Connect the scanner to the host system or power source. (Refer to the Installation and User's Guide MLPN 2365.)

2. Scan the ENTER/EXIT PROGRAM MODE bar code. (The unit will beep three times.)

(1) →

Enter/Exit Program Mode

3. Scan by positioning the output window within two inches of each code. (When the first menu selection has been scanned, the laser will stay on until the ENTER/EXIT PROGRAM MODE code is scanned again. If no scanning occurs for 30 seconds while the scanner is in program mode, the unit will beep three times and all changes made will be lost. If this occurs, return to Step 1.)

4. Upon completing the scanning of the appropriate configuration options, scan the ENTER/EXIT PROGRAM MODE bar code again. (The new options will be saved and the scanner is ready for normal operation.)

Note: While in program mode, the scanner will make a "razz" sound when:

- the bar code it is scanning is <u>not</u> a program mode code type;
- the feature is <u>not</u> currently supported in the firmware;
- the feature is <u>not</u> supported on the scanner's hardware configuration.

The sound serves as an audible indication that the scanner will not support that feature.

(2) →

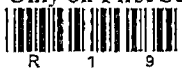
Recall Defaults

Enter Program Mode

****Ability to Enter Program Mode After Any Scan**

When this option is selected, programming can be entered by scanning the ENTER/EXIT PROGRAM MODE bar code after power up or during normal scanning operation.

Enter Program Mode Only on First Scan



When this option is selected, the scanner will only enter program mode after power-up. Scan the ENTER/EXIT PROGRAM MODE bar code immediately after the scanner first receives power. This option prevents the scanner from accidentally entering program mode during normal scanning operation.

Recall Defaults

If during programming of the scanner, there is a need to return to the original factory settings, scan the RECALL DEFAULTS bar code. Any settings selected during that session or a previous session will be lost.

Recall Defaults

Enter/Exit Program Mode

Audible Indicators for Communication Timeouts

Two Second Timeout

O C 5

When this option is selected, the scanner will timeout if it does not transmit its data to the host after two seconds during communication. This is only valid in modes where some type of handshaking is involved.

**** No Two Second Timeout**

O C 6

Razz Beep on Timeout

O C 7

When this option is selected, the scanner will produce an audible razzberry tone when communications have timed out.

**** No Tone On Timeout**

O C 8

Three Beep on Timeout

O C 9

When this option is selected, the scanner will beep three times when communications have timed out.

**** Beep Before Transmit**

R 5 0

When this option is chosen, the scanner will beep before each label is transmitted.

Beep After Transmit

R 5 1

When this option is chosen, the scanner will beep after each label is transmitted. Generally used in conjunction with 2 second communications time out. Especially useful with OCIA and IBM [illegible] applications.

Recall Defaults

D F 1

RS-232 Interface

**** Enable RS-232 Interface**

L P 2

RS-232 Parameter - Baud Rate

A baud rate is a unit that measures the speed with which information is transferred. The baud rate of the scanner must equal the baud rate of the host device. The available baud rates range from 300 to 38400.

300 Baud Rate

B R 2

600 Baud Rate

B R 3

1200 Baud Rate

B R 4

2400 Baud Rate

B R 5

4800 Baud Rate

B R 6

**** 9600 Baud Rate**

B R 7

19200 Baud Rate

B R 8

38400 Baud Rate

B R 1

Enter/Exit Program Mode

RS-232 Parameter - Parity

Parity is an additional digit that makes the number of bits in the ASCII code odd or even. The scanner's parity must match the host's parity.

****Space Parity** — Select this option to make the parity bit always 0.

Even Parity — Select this option to make the additional parity bit either a 0 or 1 to guarantee an even number of bits.

Mark Parity — Select this option to make the parity bit always 1.

Odd Parity — Select this option to make the additional parity bit either a 0 or 1 to guarantee an odd number of bits.

RS-232 Parameter - Data Bits

RS-232 serial communication requires ASCII data to be transmitted in either 7 or 8 data bits. In addition, one parity bit will be transmitted. If necessary, scan the appropriate bar code that matches your host de-vice's requirements.

8 Data Bits

Generally, if 7 data bits are selected, 2 stop bits are transmitted. If 8 data bits are selected, 1 stop bit is transmitted . Stop bits are actually just an idle transmit line. From the scanners perspective, they are only important if the scanner is receiving more than 1 byte of information at a time. For most applications, the scanner is a transmit only device.

**** 7 Data Bits**

Recall Defaults

RS-232 Parameter - Hardware Handshaking

To prevent scanned information from being lost during transmission, your host device may require an RTS/CTS signal. When the RTS/CTS (Request To Send/Clear To Send) is enabled, the scanner will output an RTS signal and wait for a CTS signal before any data is transmitted. The default setting of RTS/CTS is disabled. If necessary, scan the ENABLE RTS/CTS bar code.

Enable RTS/CTS

**** Disable RTS/CTS**

**** Character RTS/CTS** — When this option is chosen, the scanner will activate and deactivate its RTS signal on each character that it transmits.

Message RTS/CTS — When this option is chosen, the scanner will activate and deactivate its RTS signal on each message that it transmits. This mode should normally be enabled for Sanyo registers.

RS-232 Parameter - Software Handshaking

For control of the data transmission process, use ACK/NAK or XON/XOFF instead of or in addition to the RTS/CTS hardware handshaking option.

Enable ACK/NAK — When this option is enabled, the scanner will not scan again unless an ACK (ASCII 06H) is received after transmission of a bar code. If an NAK (ASCII 15H) is received, the scanner will retransmit the bar code.

**** Disable ACK/NAK**

Enter/Exit Program Mode

Longitudinal Redundancy Check (LRC)

A Longitudinal Recundancy Check (LRC) is an error checking character that is calculated across a sequence of data characters. It is determined by eXclusive ORing (XOR) the characters to be checked, starting with an initial value of 00H. The result, an "LRC byte" is then transmitted following the data stream and used by the receiving computer to determine if the information was received correctly. In the scanner's case, XOR is performed prior to adding parity bits.

When the LRC is enabled, the scanner defaults to starting the LRC on the second byte of information transmitted. Optionally, the calculation can start on the first byte transmitted.

Enable LRC Calc+ Transmit RS232
R 5 8

****Disable LRC Calc+ Transmit RS232**
R 5 9

Start LRC on First RS232 Byte
R A 0

****Start LRC on Second RS232 Byte**
R 9 9

Record Header/Terminator Select

**** CR On**
T R 2

When this option is on, the scanner will transmit a Carriage Return after each bar code.

CR Off
T R 1

Recall Defaults
D F 1

**** LF On**
T R 4

When this option is on, the scanner will transmit a Line Feed after each bar code.

(6)

LF Off
T R 3

(7)

STX Prefix On
T R 6

When this option is on, the scanner will transmit a Start of TeXt (ASCII 02H) before each bar code.

**** STX Prefix Off**
T R 5

ETX Suffix On
T R 8

When this option is on, the scanner will transmit an End of TeXt (ASCII 03H) after each bar code.

**** ETX Suffix Off**
T R 7

Tab Prefix On
T B 2

When this option is on, the scanner will transmit a TAB (ASCII 09H) before each bar code.

**** Tab Prefix Off**
T B 1

(9)

Enter/Exit Program Mode

Tab Suffix On

When this option is on, the scanner will transmit a TAB (ASCII 09H) after each bar code.

** Tab Suffix Off

(8)

UPC/EAN Identifiers

Prefix ID On

When this option is on, the scanner will transmit a prefix before any UPC/EAN bar codes. The prefixes are A (UPC-A), E0 (UPC-E), F (EAN-13), and FF (EAN-8).

** Prefix ID Off

Suffix ID On

When this option is on, the scanner will transmit a suffix after any UPC/EAN bar codes. The suffixes are A (UPC-A), E (UPC-E), F (EAN-13), and F (EAN-8).

** Suffix ID Off

MS951

Recall Defaults

Keyboard Wedge (KB) Interface

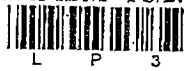
Scan the ENABLE KB WEDGE INTERFACE bar code if your communication requirement is keyboard emulation. The scanner will provide keyboard emulation by converting the scanned bar code data to the PC keyboard scan code equivalent. The keyboard settings will only work with a Version 47 (KBWEDGE) MS951 scanner.

Enable Keyboard Wedge Interface

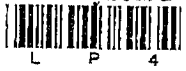
KB Parameter - Keyboard Type

The following bar codes are used to define the type of keyboard in use. If necessary, scan the appropriate bar code.

** AT Keyboard (includes IBM® PS/2: Models 50, 55, 60, 80)



XT Keyboard



Enable IBM PS/2 Keyboard (Models 30, 70, 8556)

** Disable IBM PS/2 Keyboard (Models 30, 70, 8556)

Enable Single-Ended Keyboard Emulation