

Chapter 1

User's Guide

Scanning Made Easy

Technical innovation and miniature surface mount electronics make LS 2080 scanners the smallest, most compact laser scanners ever developed.

The LS 2080 scanner is a keyboard “wedge” interface which adds efficient bar code reading to your terminal. Since entered scan data is transmitted as keystrokes, no software changes to the host system are necessary.

This scanner is based on the Visible Laser Diode (VLD). This state-of-the-art technology gives the scanner a wider decode zone, greater depth of field, and a visible scan beam. It can read color bar codes and symbols printed on all substrates, and all symbol densities without requiring contact with the bar code. It scans automatically at the rate of 36 scans per second. See *Technical Specifications* on page 1-12 for decode capability.

The LS 2080 scanner weighs 7.5 oz (213 gm) without the cable and is made from a durable plastic. The ergonomic design ensures comfortable use over extended time periods.

Set Up

Unpacking

Remove the scanner from its packing and inspect it for damage. If the scanner was damaged in transit, call the Symbol Services Division at one of the telephone numbers listed in *Symbol Support Center* on page -iv. **KEEP THE PACKING.** It is the approved shipping container and should be used if you ever need to return your equipment for servicing.

Accessories

WK 2080 accessories included in the package are listed below.

Part Number	Description
70-08087-01	WK 2080 Product Reference Guide
25-03894-01	Coil Cable
50-01400-192	Shipping Box
50-01400-193	Shipping Box Insert
20-04436-05	Junction Box (5V Keyboards - requires external p/s)
KT-04690-03	Multi-Mount Stand

Personality cable(s) and junction box:

Terminal/PC	Cable P/N	Junction Box
IBM AT/XT Keyboard Compatible	20-02713-01	20-04436-05
IBM PS/2 Models 25, 30, 30-286, 50, 55SX, 60, 65SX, 70, 80	50-06000-206, 50-06000-207	20-04436-05
COMPAQ 386	50-06000-206, 50-06000-207	20-04436-05

WK 2080 includes one of the following power supplies. Be sure the power supply conforms to local power standards.

Part Number	Description	Frequency
50-04000-030	117V	60 Hz
50-04000-031	220/240V	50 Hz

Software Companies

Below is a list of companies which sell DOS, Windows, and OS/2 compatible software packages designed to facilitate the printing of bar coded labels/documents with your PC and printer.

Company	Telephone	Fax
Bear Rock Technologies	(800) 232-7625	(916) 622-4775
Cobra Systems, Inc.	(714) 525-2092	(714) 525-2581
Integrated Software Design	(508) 339-4928	(508) 339-2257
Perrysburg Software Corp.	(419) 874-8502	(419) 874-9313
StrandWare	(800) 522-2331	(715) 833-1995
Tharo Systems, Inc.	(216) 225-0099	(216) 255-0099
W.H. Brady	(800) 537-8791	(800) 292-2289
Worthington Data Solutions	(800) 345-4220 (408) 458-9938	(408) 458-9964

Contact the above companies directly. Symbol Technologies, Inc. provides this listing for informational purposes only and assumes no responsibility for the products and services provided by these companies.

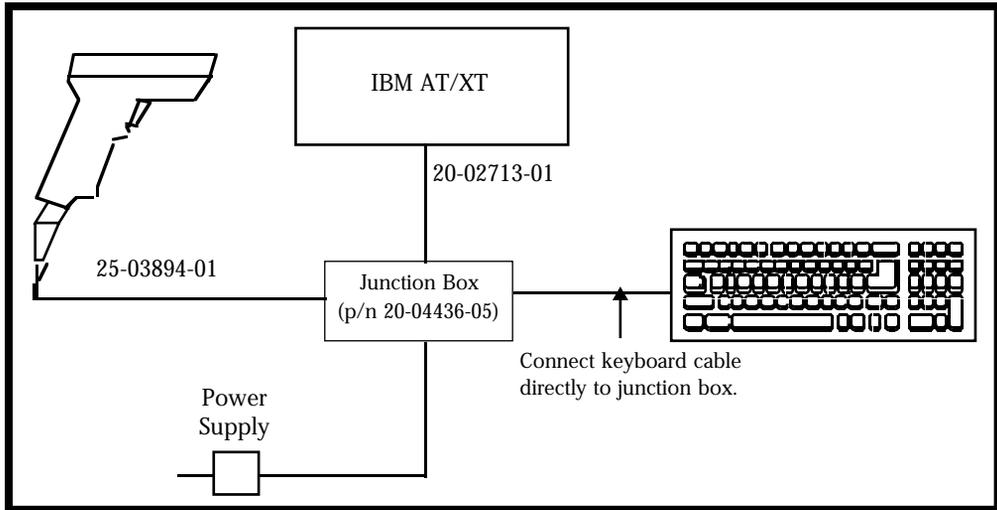
Connecting Your Scanner

Some installations require one cable; others require an additional cable between the keyboard and the junction box (see figures on the following page).

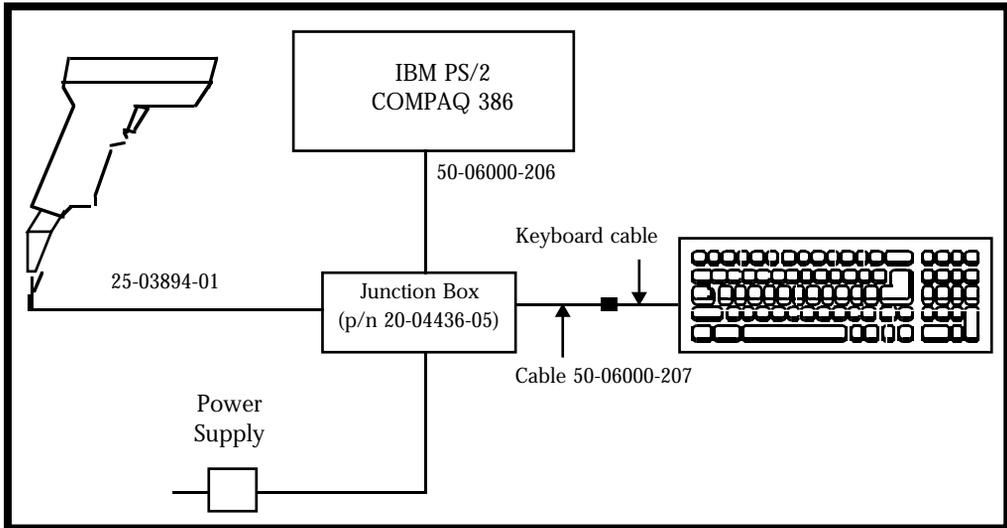
- Switch off the PC and unplug the keyboard connector at the PC.
- Attach cable p/n 25-03894-01 between the LS 2080 and junction box p/n 20-04436-05.
- For PC XT/AT and keyboard compatibles, attach the keyboard cable directly to the junction box. For PS/2 models and COMPAQ 386, attach cable p/n 50-06000-207 between the host keyboard cable and the junction box.
- For PC XT/AT and keyboard compatibles, connect cable p/n 20-02713-01 between the junction box and the host PC. For PS/2 models and COMPAQ 386, connect cable p/n 50-06000-206 between the junction box and the host PC.
- Attach the power supply to the junction box. Connect the power supply input to the appropriate power receptacle (see *Accessories* on page 1-2 for power supply specifications).
- Make sure that all the connections are secure.
- Switch on your host system. You are now ready to program your scanning system using the bar codes in *Chapter 2: Programmer's Guide*.

During scanning, PC compatible host terminals should be in the CAPS LOCK OFF mode.

LS 2080 Configuration: IBM AT/XT:



LS 2080 Configuration: IBM PS/2 & COMPAQ 386:



External Power Connection

The WK-2080 Bar Code Scanning System is configured at the factory to accept power from the external power supply accessory provided with the WK-2080 system. The following table summarizes the power requirements for the WK-2080:

WK-2080 P/N	LS 2080 Scanner P/N	Power Requirement
WK-2080-I100AG (U.S.)	LS-2080-I100AG	115/120 Vac 60 Hz
WK-2080-E103EG (Europe)	LS-2080-E103EG	220/240 Vac 50 Hz

The 115/120 Vac 60 Hz power supply for the WK-2080 is terminated with a standard UL498 3-prong electrical plug (parallel flat blades with round ground pin).

The 220/240 Vac 50 Hz power supply is terminated with a standard IEC 320 male 3-prong electric plug. A suitable adapter cable (not provided with the WK-2080) is required to connect the power supply input to available power.

It is advised that all applicable local standards regarding power connection be observed.

Internal Power Connection

Symbol Technologies, Inc. recommends the use of the power supply provided with the WK-2080 Bar Code Scanning System whenever possible. For installations where external power is not practical, in many instances, the WK-2080 Bar Code Scanning System can be configured to operate from host system power.

If host power is required, the following procedure should be followed:

- The system host must be capable of supplying 300 mA continuous through the system keyboard. The power capacity of the host system typically depends on personal computer model, the power supply capacity of the host system, and the number and type of system peripherals.

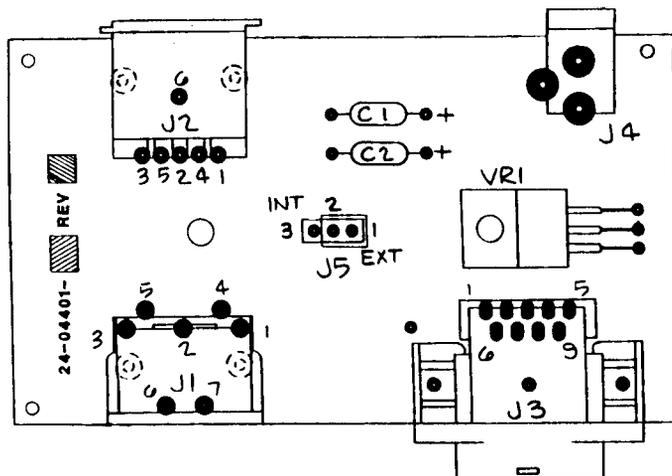
The following personal computer models generally meet this requirement:

IBM PC/XT, PC/AT and most keyboard compatible clones
IBM PS/2 Models 50/55SX/60/70/80

The following personal computer models always require the WK-2080 power supply. Use of host power for these personal computer models is **not** recommended:

IBM PS/2 Models 25/30/30-286

- Using a small Phillips-head screwdriver, disassemble the WK-2080 junction box, p/n 20-04436-05, by removing the two screws at the bottom of the junction box. Be careful to observe industry standard procedures with regard to the handling of electrostatically sensitive electronic components and assemblies.
- Move Jumper J5 located on the junction box printed circuit board from the "EXT" position to the "INT" position (see below). This configures the WK-2080 to draw +5 volt power from the host through the system keyboard.



- Reassemble the junction box and connect the scanner, keyboard and host cables as per the system installation instructions. **Do not** connect external power supply to the junction box. Apply system power. The WK-2080 sounds three beeps and is ready to scan.

- This procedure can be reversed if external power supply operation is required.

Note: Symbol Technologies, Inc. is not responsible for damage to the WK-2080 Bar Code Scanning System or the host system as the result of a deviation from the recommended installation procedure.

Ready, Test, Scan, Program

1. Ready

Make sure connections are secure.

2. Test

Aim the scanner away from you and press the trigger. When you press the trigger, the scanning beam is energized for approximately one second.

3. Scan

Make sure the symbol you want to scan is within the scanning range. See *LS 2080 Decode Zone* on page A-1.

Aim and press the trigger.

- The scan beam and red SCAN LED will light for about 1 second, or until a successful decode.

The scanner has read the symbol when:

- You hear a short, high tone beep indicating a good decode (if the beeper is enabled), followed by two error beeps (if you haven't programmed the correct Host Keyboard Type, see *page 2-4*, and *Keyboard Type* on page 2-19).
- The green DECODE LED lights.

The DECODE LED stays lit until the next trigger pull.

4. Program

Program the WK-2080 Bar Code Scanning System using the bar code parameters in the *Programmer's Guide*. Note that the correct host keyboard type must be selected in order for decoded data to be properly transmitted to the host PC (see *page 2-4*, and *Keyboard Type* on page 2-19). For Europe model only, make sure the appropriate National Type has been programmed (see *page 2-4*, and *National Type (Europe)* on page 2-21).

Aiming

Scan the Entire Symbol

- Your scan beam must cross every bar and space on the symbol.
- The larger the symbol, the farther away you should hold the scanner.
- A short, high tone beep indicates a good decode.



Hold at an Angle

For best reading performance, do not hold the scanner directly over the bar code. In this position, light can bounce back into the scanner's exit window and prevent a successful decode.

Problems

See *What If...* on page 1-11.

Beeper Definitions

The beeper in the unit provides a variety of messages. See *Chapter 2: Programmer's Guide* for more information.

What If...

Nothing happens when you follow the operating instructions

You Should

- Check the system power; is the host PC powered up?
- Check for loose cable connections.
- Make sure the scanner is programmed to read the type of bar code you are scanning.
- Make sure the scanner is programmed for the PC keyboard type in use.
- Make sure the symbol is not defaced.
- Try scanning test symbols of the same code type.

Scanned data is incorrectly displayed on the terminal.

You Should

- Make sure that the system was programmed for the correct PC keyboard type.
- Make sure that the CAPS LOCK key is off.

Note: If after performing these checks the symbol still does not scan, contact your distributor or call the Symbol Services Division. See *Symbol Support Center* on page -iv for the telephone number.

Maintenance

Cleaning the exit window is the only maintenance required.

- Do not allow any abrasive material to touch the window.
- Remove any dirt particles with a damp cloth.
- Wipe the window using a tissue moistened with ammonia/water.
- Do not spray water or other cleaning liquids directly into the window.

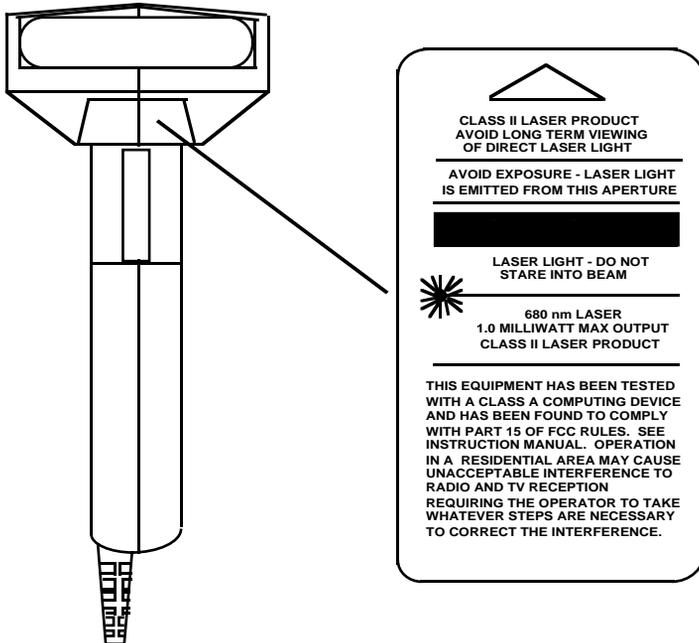
Technical Specifications

ITEM	DESCRIPTION
Power Requirements	5V (nominal); 4.8 (min) to 8.5 VDC (max); 210 mA @5 VDC typical.
Decode Capability	The scanner can be programmed to decode the following code types: UPC/EAN, Code 39, Code 39 Full ASCII, Codabar, Interleaved 2 of 5, Code 128, Discrete 2 of 5, and Code 93. Set one or two code length(s) for any 2 of 5 code type. The LS 2080 can autodiscriminate between all of the above code types except for between Code 39 and Code 39 Full ASCII.
Beeper Operation	User-selectable: Enabled, Disabled.
Scan Repetition Rate	36 (\pm 3) scans/sec (bidirectional)
Skew Tolerance	\pm 65° from normal
Pitch Angle	\pm 55° L/R of normal
Decode Depth of Field	Maximum typical working distance is 24 in. (61.0 cm); minimum element width resolution is .006 in. (.015 cm)
Print Contrast Minimum	25% absolute dark/light reflectance differential, measured at 675 nm.
Ambient Light Immunity	Immune to direct exposure from office-level lighting and direct exposure from sunlight.
Coil Cable Length	8 ft 244 cm
Output Presentation	Host keystroke format
Durability	3-ft drop to concrete
Operating Temperature	32° to 104° F 0° to 40° C

ITEM	DESCRIPTION	
Storage Temperature	-40° to 140° F	-40° to 60° C
Weight (without cable)	7.5 oz	213 gm
Height	5.8 in.	14.7 cm
Length	4.9 in.	12.4 cm
Width	2.6 in.	6.5 cm

Scanner Labeling - Class 2

The LS 2080 scanner uses a low-power, visible laser diode. As with any very bright light source, such as the sun, the user should avoid staring directly into the light beam. Momentary exposure to a CDRH Class 2 laser is not known to be harmful. The following label is attached to the scanners.

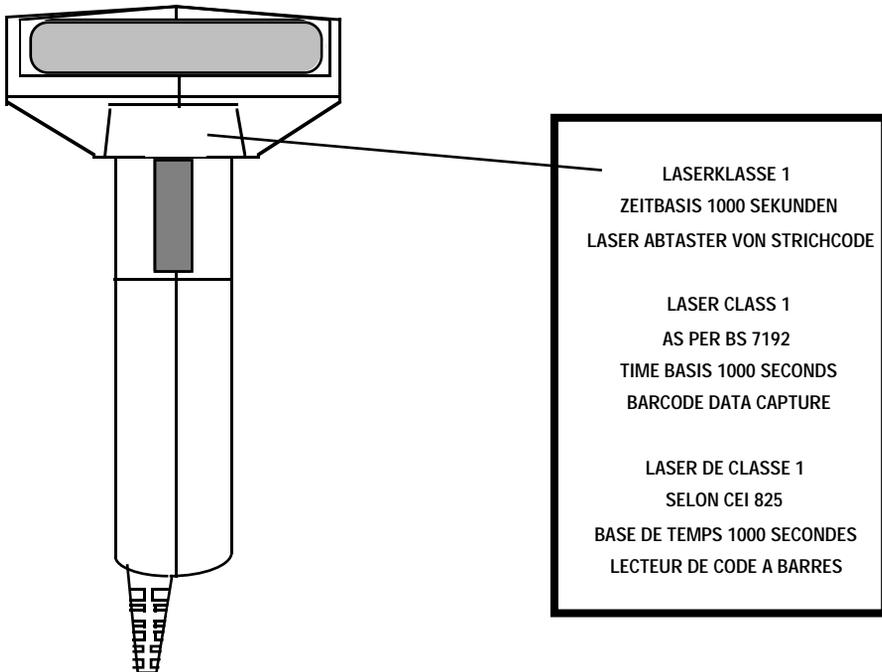


Caution

Use of controls, adjustments, or performance of procedures other than those specified herein may result in hazardous visible light exposure.

Scanner Labeling - Class 1

LS 2080-EOXXE scanners use a low-power visible laser. The scanner is designed for laser safety according to IEC 825 Class 1. Class 1 laser products are inherently safe. Exposure to the laser beam will cause no harm to your eyes or skin. A safety label such as follows appears on the LS 2080 scanner.



Caution

Use of controls, adjustments, or performance of procedures other than those specified herein may result in hazardous visible light exposure.

Gas Tank Operation (Europe)

The following applies only to the Europe version of WK-2080:

The software controlled gas tank in this unit satisfies Class 1 requirements for laser devices.

The gas tank limits the “laser on” time to not more than 90 seconds in any 1000 second time period. If the user exceeds this limitation, the beeper will sound continuously when the trigger is pulled. The user must allow a sufficient “laser off” time period before continuing operation.

On power-up, the unit allows very few unsuccessful scan attempts. It is recommended to always leave the unit on, or to power up a few minutes before using the LS 2080.