

***Synapse™ “Smart Cable”  
for PC Wedge  
Interface Guide***

*72-50273-01*

*Revision A*

*November 2000*

*For the following Model Configurations:*

STI80-0100

STI80-0200

STI80-0201

STI80-0300

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## Introduction

The Synapse™ “Smart Cable” family provides connection to many host systems by simply changing the Synapse cable, so your scanner can interface to virtually any host.

The Synapse cable you’ve purchased connects Symbol scanners transparently to most PCs. This cable allows you to add barcode reading capability to any PC, without requiring any change to your application. The Synapse cable emulates keyboard keystrokes and the barcode data is received by the PC as if it originated in the keyboard.

## Programming

There are two types of parameters used to program your system: scanner parameters, contained in your scanner programming guide, and interface (Synapse) parameters, provided in this guide. Both types of parameters are stored in the scanner.

The default for each Synapse parameter is identified under the default bar code. If you’re using the default settings, no bar codes need to be scanned to set up Synapse. (If you’re using the LS 9100 scanner, the **Enable LS 9100 Communication** bar code on 5 must be scanned.) The programming bar codes in this guide can not be used to program other Synapse interface cables (cables that are not an STI80-01XX/02XX/03XX).

## Power Supply

Listed below are the terminals supported by your PC Wedge Synapse cable. Because system configurations vary, certain hosts may not provide enough power for the system to operate. These systems will require a power supply. If your host is listed in the first column below, contact your Symbol representative to see if a power supply is needed for your system.

### May Require Power Supply

IBM PC/AT and compatibles  
IBM PS/2 and compatibles  
IBM PC/XT and compatibles  
IBM PS/2-30

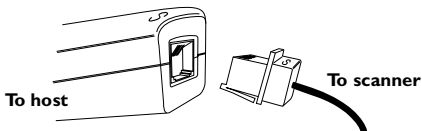
### Will Require Power Supply

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## Setup

Setting up Synapse is easy:

1. First, power down your host.
2. Plug your Synapse module into the scanning cable with the “S”-shaped graphics aligned.



If you need to disconnect the cable from your Synapse module, squeeze the cable at the “S” and pull it from the module.

3. Connect the scanning cable to the scanner.
4. Disconnect the keyboard cable from the host, and plug that end of the cable into the Synapse mate connector.
5. Plug the other Synapse connector to the host, where your keyboard cable was initially connected.
6. If a power supply is required, plug the power supply in the Synapse power jack, and the other end into an AC outlet.
7. Power up your host.
8. If you are using an LS 9100 scanner, scan the **Enable LS 9100 Communication** bar code on 5.

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9. If you are using a host other than the default, scan a host bar code from Host Selection on page 6.
10. If you are not using a North American keyboard, scan the appropriate country bar code from Country Selection on page 8.
11. If you'd like to disable Ignore Unknown Characters, see Ignore Unknown Characters on page 11.
12. To change the Intercharacter Delay, see Intercharacter Delay on page 12.
13. To disable Fast Transmit, see Fast Transmit on page 14.

See Set Synapse Defaults on page 5 to reset defaults. For advanced parameter and default features, see Advanced Features on page 15.

If you're having any problems with your system, see What If... on page 25.

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## Set Synapse Defaults

Scan the bar code below to set defaults for the parameters in this guide. See Set Synapse Defaults (Advanced) on page 17 for advanced Synapse Default options.



**Set Synapse PC Wedge Defaults**

## Enable LS 9100 Communication

If you're using an LS 9100, scan the bar code below to communicate with Synapse. You'll hear a warble beep. If, after using Synapse, a non-Synapse interface is enabled in your LS 9100 scanner, this bar code will need to be scanned again to re-enable the Synapse interface.



**Enable LS 9100 Communication**

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## Host Selection



**IBM PC/AT**  
**IBM PS/2 and compatibles**  
**(Default)**

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**IBM PC/XT**

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**IBM PS/2-30**

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## Country Selection



**North American  
(Default)**

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**German**

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**French**



**French International**

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**Spanish**

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**Italian**



**Swedish**

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**British**

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## Ignore Unknown Characters

Unknown characters are characters the host does not recognize. When Send Bar Codes With Unknown Characters is selected, all bar code data is sent except for unknown characters, and no error beeps are sounded. When Do Not Send Bar Codes With Unknown Characters is selected, no bar code data containing at least one unknown character is sent to the host.

Scan the appropriate bar code to enable or disable this parameter. The default is Send Bar Codes With Unknown Characters.



**Send Bar Codes With Unknown  
Characters (Default)**

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**Do Not Send  
Bar Codes With Unknown Characters**  
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## Intercharacter Delay

Selecting an intercharacter delay gives the host system time to service its receiver and perform other tasks between characters. The default is Short Delay, so if this is your preference, you don’t need to scan this bar code unless you’ve previously selected another option.



**Short (5 MS) Delay  
(Default)**

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For systems that can handle faster character transmission, the NO DELAY bar code below can be scanned.



**No (1 MS) Delay**

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**Medium (50 MS) Delay**

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**Long (99 MS) Delay**

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## Fast Transmit

Older systems may require a slower transmission method. If your system still needs additional time to process keyboard data after setting an Inter-character Delay, scan Disable Fast Transmit.



**Enable Fast Transmit  
(Default)**

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**Disable Fast Transmit**

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## **Advanced Features**

### **Select Parameter Set**

This option allows you to store different parameter settings for each place the scanner is used, as well as to select a parameter set once it is programmed.

### **Programming Parameter Sets**

To program the parameter set where the scanner is connected to a host, scan a Select Parameter Set bar code, then scan the parameter options in this guide needed for this set. **Note:** Because Parameter Set 1 is the default, you don't need to scan this bar code - the first group of parameters you select will automatically be designated Parameter Set 1.

### **Enabling a Parameter Set**

To enable the set you'll be using after it's programmed, scan that Select Parameter Set bar code.



**Select Parameter Set 1  
(Default)**

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**Select Parameter Set 2**

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## **Set Synapse Defaults (Advanced)**

Scan the following bar code to set defaults for the current parameter set.



**Set Synapse PC Wedge Defaults:  
Current Parameter Set**

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Scan the bar code below to set defaults for all Synapse cables.



**Set Synapse Defaults:  
All Cables And Parameter Sets**

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## Translation to Control Sequence

The following barcodes allow a special treatment for the following ASCII characters; TAB (09), ESC (27), BS (08) and CR (13). By default these characters are translated by Synapse to the following control sequence, respectively; CTRL-I, CTRL-[ , CTRL-H, CTRL-M.



**Send Control Key Sequence  
Default**

To disable this translation, scan the barcode below. The characters will be sent as the following keystrokes; TAB, ESC, BACKSPACE, Enter. This option is particularly useful when sending scanner data into Windows applications that interpret CTRL keys in a different way.

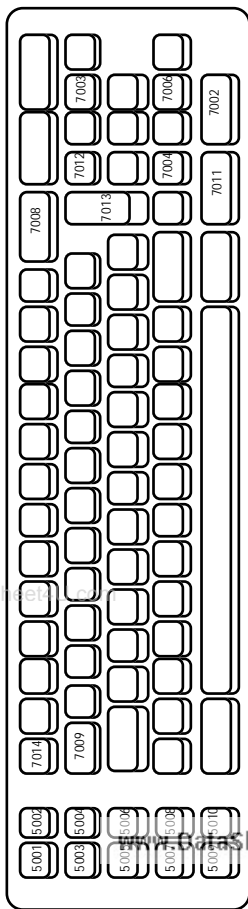


**Send Control Key Codes**

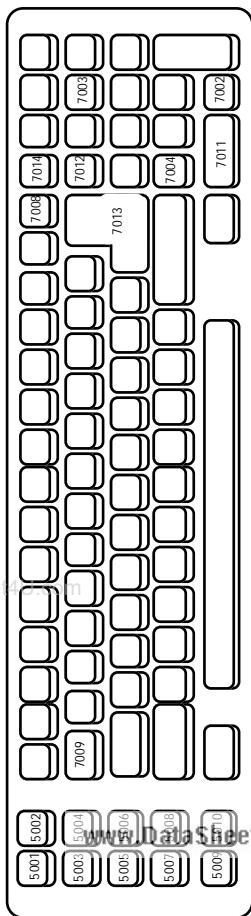
## Keyboard Maps

The keyboard maps on the following pages are provided for prefix/suffix keystroke parameters, and are used only with scanners that support data formatting. To program the prefix/suffix values, refer to your scanner's Programming Guide.

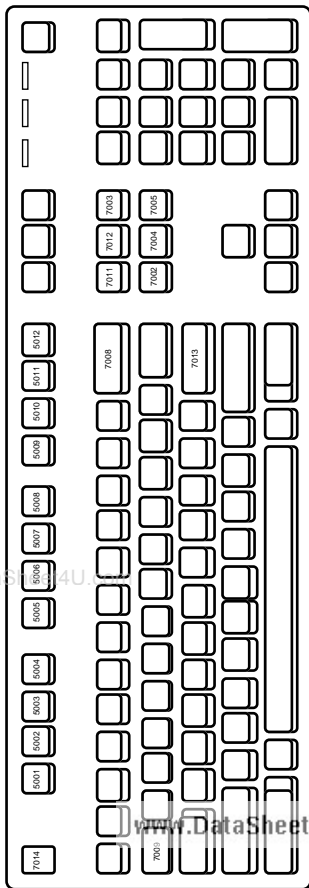
**Note:** If you are programming an LS 1000 scanner, please refer to the *LS 1000 Product Reference Guide* for keyboard values.



IBM PC/XT



**IBM PC/AT**



## IBM PS/2



5001	5002
5003	5004
5005	5006
5007	5008
5009	5010

5011	
1048	5012
	1046

(1048 IF DOUBLE KEY)

1045	5013
5014	5015
1043	5016
5017	5018
7013	5019

(7013 IF DOUBLE KEY)

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1065	1066
1072	1073
1079	1080

5001	5002
5003	5004
5005	5006
5007	5008
5009	5010

1067	1068
1074	1075
1081	1082

5011	
1048	5012
	1046

(1048 IF DOUBLE KEY)

1069	1070	1071
1076	1077	1078
1083	1084	1085

1045	5013	1086
5014	5015	1087
1043	5016	1088
5017	5018	1089
7013	5019	1090

(1043 IF DOUBLE KEY)

## NCR 7052 58-Key

## What If...

What If...	Then...
Synapse parameters are not working?	<p>Make sure you're using the correct Interface Guide.</p> <p>Make sure you've selected the correct parameter set.</p> <p>If you scanned a Set Defaults bar code from your scanner manual, re-enter your Synapse parameters.</p>
No data transmits, or Incorrect data transmits, or you hear a lo/lo/lo/lo beep?	<p>If you're using an LS 9100, scan Enable LS 9100 Interface.</p> <p>Check cable connection to scanner and host.</p> <p>Make sure the correct terminal type and country code parameters are set for the currently attached scanner.</p>
Scanner displays erratic behavior (laser doesn't come on, scanner emits frequent beeps)?	<p>Attach a power supply.</p> <p>Check with scanner's Product Reference Guide to make sure scanner can communicate with Synapse.</p>
Lo/hi/lo/hi beep sequence sounds?	<p>Parameter storage space in the scanner is full. Scan a Set Synapse Defaults bar code from 5 or 17 for cables no longer in use.</p>

See the next page if you're still having trouble.

## Service Information

Before you use the unit, it must be configured to operate in your facility’s network and run your applications.

If you have a problem running your unit or using your equipment, contact your facility’s Technical or Systems Support. If there is a problem with the equipment, they will contact the Symbol Support Center:

United States	1-800-653-5350	Canada	905-629-7226
United Kingdom	0800 328 2424	Asia/Pacific	337-6588
Australia	1-800-672-906	Austria	1-505-5794
Denmark	7020-1718	Finland	9 5407 580
France	01-40-96-52-21	Germany	6074-49020
Italy	2-484441	Mexico	5-520-1835
Netherlands	315-271700	Norway	66810600
South Africa	11-4405668	Spain	9-1-320-39-09
Sweden	84452900		
Latin America Sales Support		1-800-347-0178 Inside US	
		+1-561-483-1275 Outside US	
Europe/Mid-East Distributor Operations		Contact local distributor or call	
		+44 208 945 7360	

## Warranty

Symbol Technologies, Inc. (“Symbol”) manufactures its hardware products in accordance with industry-standard practices. Symbol warrants that for a period of twelve (12) months from date of shipment, products will be free from defects in materials and workmanship.

This warranty is provided to the original owner only and is not transferable to any third party. It shall not apply to any product (i) which has been repaired or altered unless done or approved by Symbol, (ii) which has not been maintained in accordance with any operating or handling instructions supplied by Symbol, (iii) which has been subjected to unusual physical or electrical stress, misuse, abuse, power shortage, negligence or accident or (iv) which has been used other than in accordance with the product operating and handling instructions. Preventive maintenance is the responsibility of customer and is not covered under this warranty.

Wear items and accessories having a Symbol serial number, will carry a 90-day limited warranty. Non-serialized items will carry a 30-day limited warranty.

### **Warranty Coverage and Procedure**

During the warranty period, Symbol will repair or replace defective products returned to Symbol's manufacturing plant in the US. For warranty service in North America, call the Symbol Support Center at 1-800-653-5350. International customers should contact the local Symbol office or support center. If warranty service is required, Symbol will issue a Return Material Authorization Number. Products must be shipped in the original or comparable packaging, shipping and insurance charges prepaid. Symbol will ship the repaired or replacement product freight and insurance prepaid in North America. Shipments from the US or other locations will be made F.O.B. Symbol's manufacturing plant.

Symbol will use new or refurbished parts at its discretion and will own all parts removed from repaired products. Customer will pay for the replacement product in case it does not return the replaced product to Symbol within 3 days of receipt of the replacement product. The process for return and customer's charges will be in accordance with Symbol's Exchange Policy in effect at the time of the exchange.

Customer accepts full responsibility for its software and data including the appropriate backup thereof.

Repair or replacement of a product during warranty will not extend the original warranty term.

Symbol’s Customer Service organization offers an array of service plans, such as on-site, depot, or phone support, that can be implemented to meet customer’s special operational requirements and are available at a substantial discount during warranty period.

### **General**

Except for the warranties stated above, Symbol disclaims all warranties, express or implied, on products furnished hereunder, including without limitation implied warranties of merchantability and fitness for a particular purpose. The stated express warranties are in lieu of all obligations or liabilities on part of Symbol for damages, including without limitation, special, indirect, or consequential damages arising out of or in connection with the use or performance of the product.

Seller’s liability for damages to buyer or others resulting from the use of any product, shall in no way exceed the purchase price of said product, except in instances of injury to persons or property. Some states (or jurisdictions) do not allow the exclusion or limitation of incidental or consequential damages, so the proceeding exclusion or limitation may not apply to you.

### **Regulatory Information**

#### **Radio Frequency Interference Requirements**

This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the Federal Communications Commissions Rules and Regulation. 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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

However, there is no guarantee that interference will not occur in a particular installation. If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC Part 15. 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.

## **Radio Frequency Interference Requirements - Canada**

This device complies with RSS 210 of Industry & Science Canada. 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.

This Class B digital apparatus complies with Industry Canada Standard ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 d'Industrie Canada.

### **Patents**

This product is covered by one or more of the following U.S. and foreign Patents:

U.S. Patent No. 4,460,120; 4,496,831; 4,593,186; 4,603,262; 4,607,156; 4,652,750; 4,673,805; 4,736,095; 4,758,717; 4,816,660; 4,845,350; 4,896,026; 4,897,532; 4,923,281; 4,933,538; 4,992,717; 5,015,833; 5,017,765; 5,021,641; 5,029,183; 5,047,617; 5,103,461; 5,113,445; 5,130,520; 5,140,144; 5,142,550; 5,149,950; 5,157,687; 5,168,148; 5,168,149; 5,180,904; 5,216,232; 5,225,591; 5,230,088;

5,235,167; 5,243,655; 5,247,162; 5,250,791; 5,250,792;  
5,260,553; 5,262,627; 5,262,628; 5,266,787; 5,278,398;  
5,280,162; 5,280,163; 5,280,164; 5,280,498; 5,304,786;  
5,304,788; 5,306,900; 5,321,246; 5,324,924; 5,337,361;  
5,367,151; 5,373,148; 5,378,882; 5,396,053; 5,396,055;  
5,399,846; 5,408,081; 5,410,139; 5,410,140; 5,412,198;  
5,418,812; 5,420,411; 5,436,440; 5,444,231; 5,449,891;  
5,449,893; 5,468,949; 5,471,042; 5,478,998; 5,479,000;  
5,479,002; 5,479,441; 5,504,322; 5,519,577; 5,528,621;  
5,532,469; 5,543,610; 5,545,889; 5,552,592; 5,557,093;  
5,578,810; 5,581,070; 5,589,679; 5,589,680; 5,608,202;  
5,612,531; 5,619,028; 5,627,359; 5,637,852; 5,664,229;  
5,668,803; 5,675,139; 5,693,929; 5,698,835; 5,705,800;  
5,714,746; 5,723,851; 5,734,152; 5,734,153; 5,742,043;  
5,745,794; 5,754,587; 5,762,516; 5,763,863; 5,767,500;  
5,789,728; 5,789,731; 5,808,287; 5,811,785; 5,811,787;  
5,815,811; 5,821,519; 5,821,520; 5,823,812; 5,828,050;  
5,850,078; 5,861,615; 5,874,720; 5,875,415; 5,900,617;  
5,902,989; 5,907,146; 5,912,450; 5,914,478; 5,917,173;  
5,920,059; 5,923,025; 5,929,420; 5,945,658; 5,945,659;  
5,946,194; 5,959,285; 6,002,918; 6,021,947; 6,047,892;  
6,050,491; 6,053,413; 6,056,200; 6,065,678; 6,067,297;  
6,068,190; 6,082,621; 6,084,528; 6,088,482; 6,092,725;  
6,101,483; 6,102,293; 6,104,620; 6,114,712; 6,115,678;  
6,119,944; 6,123,265; 6,131,814; 6,138,180; 6,142,379;  
D305,885; D341,584; D344,501; D359,483; D362,453; D363,700;  
D363,918; D370,478; D383,124; D391,250; D405,077; D406,581;  
D414,171; D414,172; D418,500; D419,548; D423,468; D424,035  
D431,158; D430,159; D431,562.

Invention No. 55,358; 62,539; 69,060; 69,187 (Taiwan); No.

1,601,796; 1,907,875; 1,955,269 (Japan).

European Patent 367,299; 414,281; 367,300; 367,298; UK  
2,072,832; France 81/03938; Italy 1,138,713.

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