

Data Collection Setup

This white paper describes the hardware and software setup for the E2 Shop System Data Collection module. This paper is broken down into 3 sections. Section 1 describes the setup of the TT5A type of terminals. Section 2 details the ET215 and Wireless data collection terminals. Please check the back of your terminal and see the white label for the type of terminal you have purchased. Both of these types of collection terminals may have an optional Bar Code scanner attached. These scanners have proprietary connections that cannot be purchased from other vendors. Section 3 describes configuring the Data Collection applications for use with multiple E2 companies and the requirements for using PC Data Collection.

*****Advisory: The E2 Shop System Data Collection application must run from a computer that can remain turned on and logged in all of the time. For this reason as well as communication or TCP port availability, Shoptech recommends that you run the Data Collection application from a dedicated workstation rather than a server.***

Section 1 TT5A Data Collection Setup

Before beginning installation, check to make sure that you have the following hardware. You should have from Shoptech:

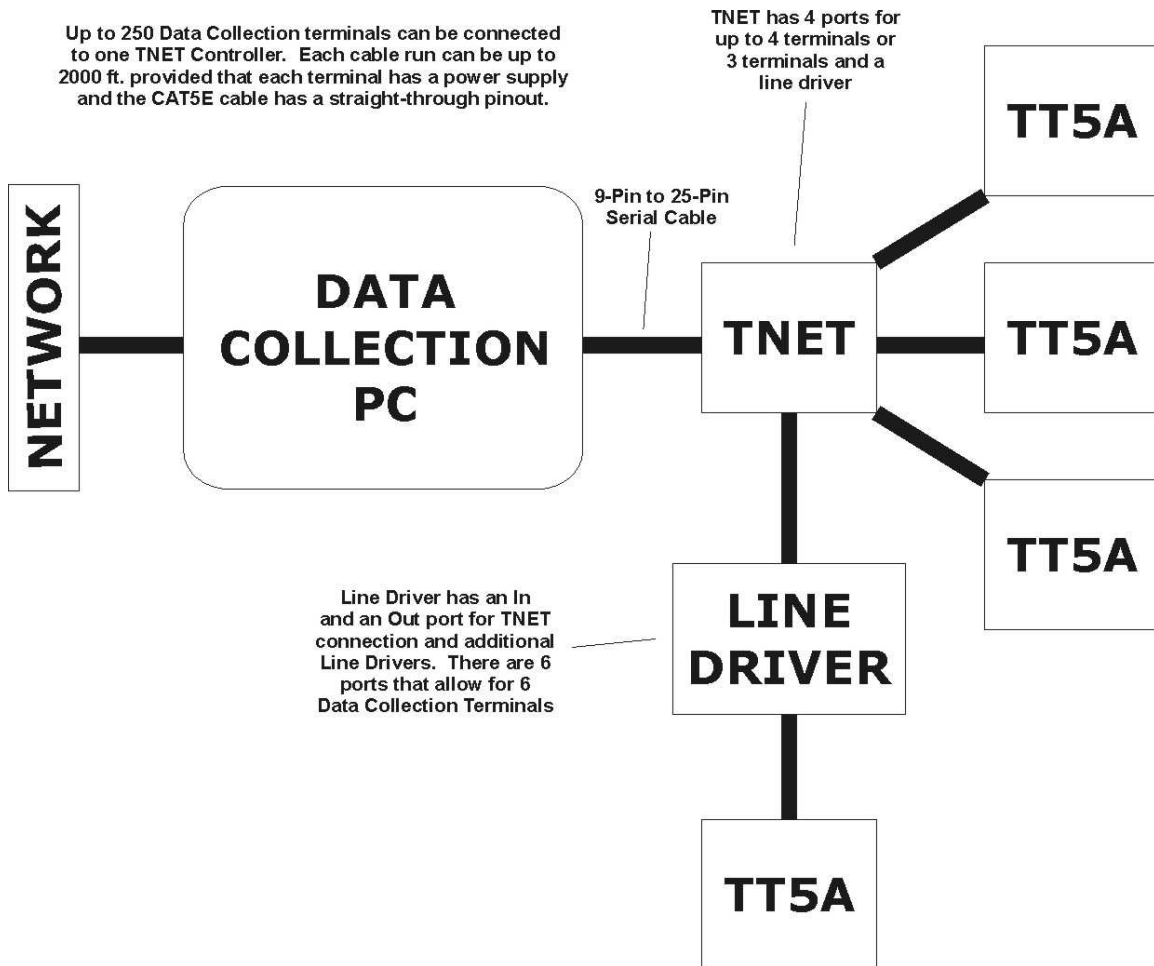
- TNET Controller box with a 1 Amp power supply
- TT5A Data Collection terminal with a 500 mAmp power supply

You need to provide:

- Workstation or Server compliant with Shoptech hardware requirements combined with a serial port for communication. The more Data Collection terminals a network contains, the more robust this computer should be.
- 25-pin to 9-pin cable to go from the serial port of a computer to the parallel port on the TNET Controller.
- CAT5E cable, run from the TNET Controller to the location of the Data Collection Terminal. This cable should have a straight-through pin out and **NOT** be Crossover or Ethernet. This will allow a cable run up to 2000 ft.

Hardware Setup

1. Connect TNET Controller to computer with the 25-Pin to 9-Pin cable.
2. Plug in TNET Controller with power supply.
3. Connect CAT5E cables to TNET Controller.
4. Plug in TT5A Data Collection terminals with power supply.
5. Connect CAT5E cable to TT5A Data Collection terminals.



Software Setup

1. Open the E2 Shop System and go to **File | Company Maintenance**.
2. Select the **Edit** button and select the **Data Collection** tab.
3. Select your company from the Company Code drop down and then hit Tab. If you are on an Access database, your database path will show on the Database Path view. If you are on SQL database, you will not see a Connect String in the Database Path view.
4. Click **OK** to exit.
5. Go to **Tables | Collection Terminals**.
6. Terminal 65 should always be reserved from PC Data Collection and not used for a Data Collection terminal. Start your Data Collection terminals with number 66. Each Data Collection terminal should have its own terminal number. Therefore, if you have 3 terminals, you will have terminal numbers 66, 67 and 68.
7. Select Terminal **66** and select **Edit**.
8. For Terminal Type, select **TT5A**.

9. Select options for Collection Terminal Behavior and Defaults as necessary.
10. Repeat steps 6-9 for each terminal using a different terminal number for each terminal.

Data Collection Terminal Setup

1. Reset the terminal. Unplug the network cable and power supply from the clock, hold down the **S1** and **S2** buttons, then power on the clock while you're still holding down the buttons. Wait for the 3 beeps before releasing the buttons.
2. Reconnect network cable.
3. Now press **S2**, then **S1**, and then **S2**. This puts the terminal in setup mode.
4. Match all of the following:

	1	2	3	4	5	6	7	8
SR1	0	0	0	0	0	0	1	0
SR2	1	0	0	1	1	0	1	0
SR3	0	0	0	0	0	0	0	0
SR4	1	0	1*	0	0	0	0	0
SR5	1	1	1	1	1	1	1	1

(Press **Enter** to commit each entry.)

Operating Mode = 003

Contrast = 005

Unit Address = 066 (PC Data Collection by default uses 065. The first clock should be 066 with every clock installed afterwards increasing by 001. For example: 066, 067, 068...)

Columns = 024

Options = 000

5. Press **S1**, **S2**, **S1** to reboot the clock.

**Changing SR4-3 from a one to a zero will have the clock prompt the user to OK their entry.

Run Data Collection

1. On the computer that the TNET Controller is connected to, go to **Start | Programs | E2 Shop System 7.1 | E2 Shop System Data Collection**.
2. After about 10 seconds, the system should start up and communicate with the terminals. Once the terminals display **Press Action Button**, data collection is running properly.

3. If you receive a COM port error, log into E2 and go to **File | Company Maintenance**. Click **Edit** and select the Data Collection tab. Change your **COM** port and click **OK** and then exit Company Maintenance. Retry the Data Collection software.

Troubleshooting

- By default, the TNET Controller should have lights 2 and 3 on constantly and light 5 should flicker. If this is not the case, then you must reset the TNET. To do this:
 1. Shut down the Data Collection software. Unplug all cables and power supply from the TNET Controller.
 2. On the side with the 4 ports, there is a small hole with a reset button.
 3. Take a paper clip and lightly press the button.
 4. As you press the button, connect the power supply to the TNET Controller.
 5. Release the reset button.
 6. The lights should now be correct.
 7. Start up the Data Collection software.
- If a single clock is not working, repeat the steps in the Data Collection Terminal Setup.
- Contact Shoptech Software Support Department with any additional questions or issues at (800) 677-9640 X2 or email at support@shoptech.com

Section 2

ET215/315 Data Collection Setup

Before beginning installation, check to make sure that you have the following hardware. You should have from Shoptech:

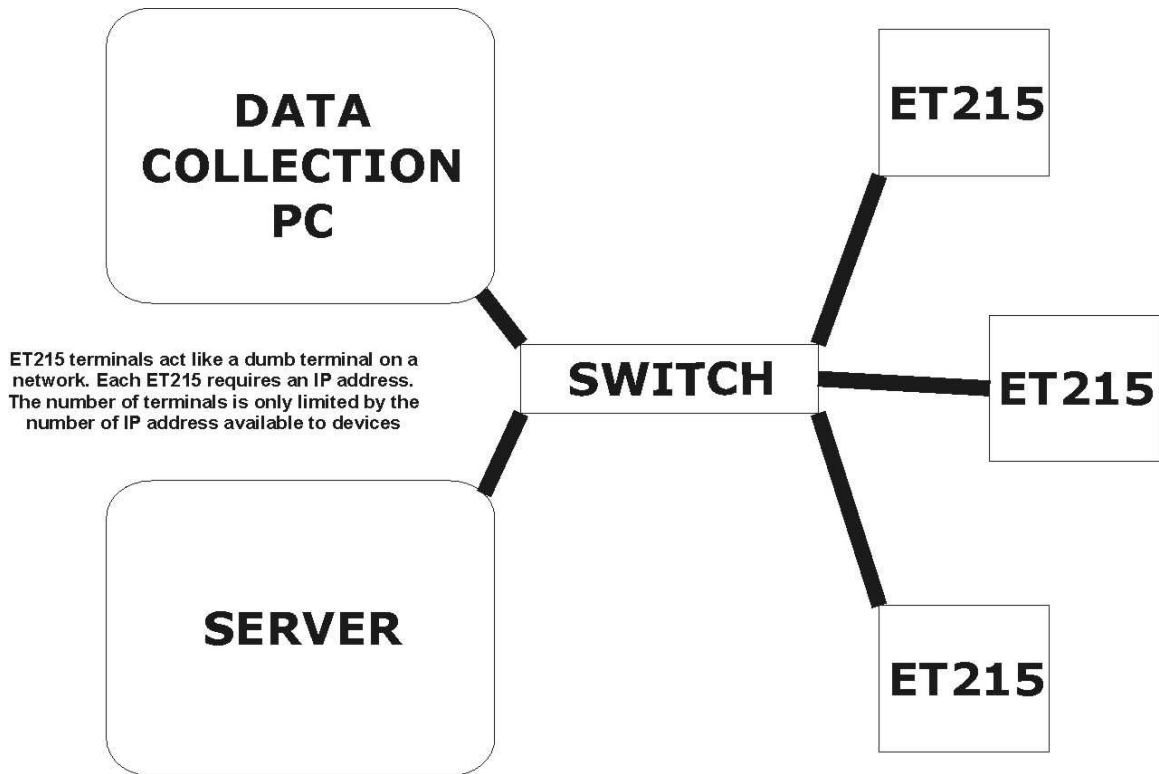
- Data Collection terminal with a 1 Amp power supply

You need to provide:

- Workstation or Server compliant with Shoptech hardware requirements. The more Data Collection terminals a network contains, the more robust this computer should be.
- The computer running Data Collection and all Data Collection terminals should be connected to the main computer network. We recommend CAT5E cable

Hardware Setup

1. Connect the network cable to the terminal.
2. Plug in terminal with power supply.



Software Setup

1. Open the E2 Shop System and go to **File | Company Maintenance**.
2. Select the **Edit** button and select the Data Collection tab.
3. Select your company from the Company Code drop down and then hit **Tab**. If you are on an Access database, your database path will show on the Database Path view. If you are on SQL database, you will not see a Connect String in the Database Path view.
4. Click **OK** to exit.
5. Go to **Tables | Collection Terminals**.
6. Terminal 65 should always be reserved from PC Data Collection and not used for a Data Collection terminal. Start your Data Collection terminals with number 66. Each Data Collection terminal should have its own terminal number. Therefore, if you have 3 terminals, you will have terminal numbers 66, 67 and 68.
7. Select Terminal 66 and select **Edit**.
8. For Terminal Type, select **ET215**.
9. Enter the IP address of the Data Collection Terminal.
10. Leave **1070** as the port number unless you know it needs to be changed.

11. Select options for Collection Terminal Behavior and Defaults as necessary.
12. Repeat steps 6-11 for each terminal using a different terminal number for each terminal.

ET215/315 Data Collection Terminal Setup

1. Plug in the AC Power adapter to give power to the clock. When plugged in, initially it should say offline. Make sure the Network cable is **NOT** plugged in.
2. Hold down the **S1 + S2** keys simultaneously and press **Start Job**. This will put the clock into Network Setup.
3. Before continuing, remember that “.” is actually **S2 + VOID** keys, not the dot on the keypad.
4. Network Setup 1=Defaults, 2=Modify, select option **2**. Next type in your My_IP (IP address you are assigning to this device), the default IP address is 192.168.168.50. Hit **Enter**. You will need to change the default to an address specific to your network.
5. NetMask = **255.255.255.0**. Hit **Enter**. This may need to be changed depending on your network.
6. Gateway. Hit **Enter**. This may need to be changed depending on your network.
7. Hostname = You can input anything up to 20 characters here for this value or leave it blank (recommended). Hit **Enter**.
8. Server IP = Input the IP address for the computer acting as the server for Data Collection. Press **Enter**.
10. TCP Port = **1070** or other value if modified. Hit **Enter**.
11. Aux. Port = (**9600, 0, 8, 1, 1**). Hit **Enter**.
12. Mode = **2**. Hit **Enter**. This will return the operator to the Network Setup menu.
13. Hit **Enter** again to exit the setup mode. The screen will display **Reset (7 = Yes)**.
14. Plug the network cable into the clock.

This information is provided only if the keypad does not match the Shoptech software. It is provided in case of a problem with the keypad mapping.

The Shoptech version of the terminal has a custom overlay (keypad legend) which has a few of the keys moved (for example Enter). These keys can be “remapped” to match the custom overlay by setting a bit in the CONSOLE OPTIONS register (this is set correctly on your units when they are shipped from us). If the value in this register is NOT set to 40 then the standard Computerwise keypad mapping is used instead of the Shoptech mapping. In this case, the “Enter” is labeled “Void” on your overlay.

To check/change this bit press **S1 +S2 + Stop Job** (our standard “F2” key). This will start the CONSOLE CONFIGURATION mode.

Press the **2** key to modify/verify configuration values.

The first parameter presented is **CONSOLE OPTIONS**. This register should be set to **40** to remap the keypad to match your overlay. Press **Enter**. If pressing Enter causes the cursor to backup then re-enter the 0 and press Void (the default enter button) instead.

The rest of the parameters can remain the same. Just hit the **Enter** key to pass through them.

When you return to the **CONSOLE CONFIGURATION** menu screen hit **Enter** to exit the configuration mode. The terminal will reset and use the new parameters.

If you need to reset the clock to Factory Defaults, unplug the power.

Hold down the 2 buttons on the lower right of the keypad, the dash and the big dot, while plugging the power back in. You will have to redo the CONSOLE CONFIGURATION again to set the keymap to 40.

Ethernet WET215/315 Clock Setup

You will need to have setup a wireless Access Point or a wireless router. When you configured your wireless network, you need the following information for the WET215 clock:

Wireless Channel
Wireless SSID in Upper Case
Security Encryption

To change the Wireless settings on the clock:

1. Select **S1 + S2** keys simultaneously and press **Batch**. This will put the clock in **WLAN Configuration**.
2. Select the number **2** on the keypad to modify the settings.
3. WLAN Channel is the channel that was configured on your wireless router/access point. Just select the number on the keypad and press **Enter**.
4. WLAN SSID is setup on your router/Access Point. If you used a number for this you can use the keypad. If you used any letters, there is a sequence of letters on the keypad. Once you have finished entering the proper SSID select **Enter** to proceed to the next step.

Note – The SSID is case sensitive and the clocks can only be upper case. You will need to setup your SSID on your Router/Access Point as upper case.

Press 1 for the number 1. Press 2 for the number 2 and so on.

Hold down **S1** then select 7 to enter an A.

Hold down **S2** then select 7 to enter a B.

See the chart below for the map to other letters and symbols.

Key	S1	S2
7 =	A	B
8 =	C	D
9 =	E	F
Clear =	G	H
4 =	I	J
5 =	K	L
6 =	M	N
Delete =	O	P
1 =	Q	R
2 =	S	T
3 =	U	V
Enter =	W	X
0 =	Y	Z
If you use additional characters in your SSID		
Start Job =	"	'
Stop Job =	()
Batch =	#	\$
Break =	%	&
Clock In =	=	@
Clock Out =	. (period)	?
Void =	, (comma)	. (period)

5. **Security (0 = Off, 64, 128)** This security is your encryption to your network. This is basically a login for a wireless device to access your wireless network. If you have encryption enabled, type in the bits that was created on your Router/Access Point. If there are any letters use the same process as in step 4. Select **Enter** to go to the next step.
6. It will take you back to the **WLAN Configuration** and select **Enter**. The clock will then reboot.
7. Go to the section above titled **ET215/315 Data Collection Terminal Setup** to configure the WET215 on for your network.

If you need to reset your **WET215/315** back to factory defaults, here is the command:
 Unplug the Power Cable from the device.
 Hold down the - (Dash) and the . (Period) and apply the power connection to the clock. You will hear 3 beeps. This means the clock has been reset successfully.

Run Data Collection

1. On the computer that you've designated as the Data Collection server, go to **Start | Programs | E2 Shop System 7.1 | E2 Shop System Data Collection**.
2. After about 10 seconds, the system should start up and communicate with the terminals. Once the terminals display **Press Action Button**, data collection is running properly.

3. If you receive a COM port error, log into E2 and go to **File | Company Maintenance**. Click **Edit** and select the Data Collection tab. Change your **COM** port and click **OK** and then exit Company Maintenance. Retry the Data Collection software.

Troubleshooting

- The most common issue with the ET215/315 Terminal setup is numbers entered incorrectly. Please double-check your entries before calling Shoptech Support.
- If a single clock is not working, repeat the steps in the ET215/315 Terminal Setup.
- Contact Shoptech Software Support Department with any additional questions or issues at (800) 677-9640 X2 or email at support@shoptech.com

Remote Ethernet Terminals

The information included in this document is advanced and may need to include your IT technician to make the changes recommended here.

If you have 1 Ethernet clock at the remote site then either of the methods listed below should be adequate.

If you have 2 or more Ethernet clocks at the remote site, you must use the VPN Method.

Port Forwarding Method: You will run the Data Collection program on a computer on the same side of the network as the database; we will call it the Main Office. This computer will need to have a static IP address.

Your ET215/315 Data Collection terminal will be located in the remote location. It will have a static IP address as well.

Configure the firewall in the Main Office to forward port 1070 traffic to the IP address of the Data Collection computer.

Configure the firewall in the Remote office to forward port 1070 traffic to the IP address of the ET215/315 terminal.

In E2, go to Tables | Collection Terminals.

Either create a new Collection Terminal or edit one of the unused existing terminals.

Set the terminal type to ET215/315 and enter the external IP address of the Firewall at the Remote location. The port should default to 1070.

1. Remove the Ethernet cable from the back of the ET215/315 collection terminal at the remote location.
2. On the ET215/315 collection terminal at the Remote site, press the S1 + S2 + Start Job buttons to enter Network Configuration
 - a. Network Setup 1=Defaults, 2=Modify, select option **2**.

- b. Next type in your My_IP (IP address you are assigning to this device), the default IP address is 192.168.168.50. (To input the "." - use the **S2 + VOID** keys.) Press **Enter**. You will need to change the default to an address specific to your network.
 - c. NetMask = **255.255.255.0**. Press **Enter**. This may need to be changed depending on your network.
 - d. Gateway. Press **Enter**. This may need to be changed depending on your network.
 - e. Hostname = You can input anything up to 20 characters here for this value or leave it blank (recommended). Press **Enter**.
 - f. Server IP = Input the External IP address for the firewall at the Main Office. Press **Enter**.
 - g. TCP Port = **1070**. Press **Enter**.
 - h. Aux. Port = (**9600, 0, 8, 1, 1**). Press **Enter**.
 - i. Mode = **2**. Press **Enter**. This will return the operator to the Network Setup menu.
3. Press **Enter** again to exit the setup mode. The screen will display **Reset (7 = Yes)**.
4. At the Main Office, start the Data Collection software. Do this by going to the **Start** button. Click **All Programs/E2 Shop System 7.0/ E2 Shop System 7.0 Data Collection**. Wait until hourglass has gone away before proceeding. Go back to the clock.
 - a. Plug the network cable into the back of the clock.
 - b. The display should still read "Reset (7 = Yes)". Press **7**.
5. The terminal should display Offline, but wait for detection. When detected it will say Press Action Button.
6. Setup is complete.

VPN Method: If you have a VPN (Virtual Private Network) set up between the 2 sites, you should be able to follow the standard setup instructions because the IP addresses at both sites should be recognized as if they are at the same location. The normal ET215/315 instructions should work in this environment.

****Note:** Shoptech recommends that you seek the assistance of a trained network technician to help you set up your firewalls and/or VPN. Shoptech is not responsible for your computers or network.

If you have questions or require further assistance, please contact Shoptech Support at (800) 677-9640 X2 or support@shoptech.com.

Section 3

Multiple Company Setup

How do I collect data for multiple companies?

Data Collection – TT5A Terminal

1. The user will still need a separate TNet controller for each company that will be running data collection or touch screen.
2. The user can hook multiple TNET devices to one data collection computer (one TNET per company) and therefore be able to cut down on the number of data collection computers needed.
3. If you do not specify a command line on either program, the program will function as it has in the past and look up the data collection path and other settings from those stored in the company defaults.
4. Create a shortcut on your desktop to the DATACOLL.EXE as normal.
5. Edit the short cut and add to the end a command line in the following format:
COMPORT|COMPANYCODE|PATHTOACCESSDB|SQLCONNECTSTRING
6. An example of a target for an MSAccess database would be
X:\BLSWIN32\Source\Datacoll.exe 2|SAMPLE|X:\BLSWIN32\DAT\SAMPLE\
7. An example of a target for an SQL database would be
X:\BLSWIN32\Source\Datacoll.exe 2|SAMPLESQL||CONNECTSTRING

PC Data Collection

1. Create a shortcut on your desktop to the TOUCHSCR.EXE as normal.
2. Edit the short cut and add to the end a command line in the following format:
TERMINALNUMBER|COMPANYCODE|PATH|CONNECTSTRING
3. An example of a target for an MSAccess database would be
X:\BLSWIN32\Source\TOUCHSCR.exe 65|SAMPLE|X:\BLSWIN32\DAT\SAMPLE\
4. An example of a target for an SQL database would be
X:\BLSWIN32\Source\TOUCHSCR.exe 65|SAMPLESQL||CONNECTSTRING
(These instructions can be followed to point the PC Data Collection program not only to a different Company, but a different Collection Terminal too. This would allow you to set different Collection Terminal defaults per client PC or per PC Data Collection icon.)

Data Collection – Ethernet Clock

1. Each company will have to have its own computer acting as the data collection server.

2. Create shortcuts on the desktops of each PC that will act as a data collection server.
3. Edit the short cuts and add the following to the target.

COMPORT|COMPANYCODE|PATH|CONNECTSTRING|LISTENINGPORT
(Access companies will only use paths and SQL companies will only use connect strings. All values are separated by "pipe" symbols. If a value doesn't apply, such as connect string, just leave it blank, but still put in the proper number of pipe symbols as placeholders).

4. An example of a target for an MSAccess database would be
X:\BLSWIN32\Source\Datacoll.exe 2|SAMPLE|X:\BLSWIN32\DAT\SAMPLE||1070
5. An example of a target for an SQL database would be
X:\BLSWIN32\Source\Datacoll.exe 2|SAMPLESQL||CONNECTSTRING|1070

Hardware recommendations for PC Data Collection/Data Collection

Windows Vista and Windows 7 (Business edition recommended)

- 1.2 GHz Processor
- 1 GB RAM
- Free space should always be greater than 15% of total space
- 800 X 600 resolution or greater
- 100 Mb wired network connection recommended
- Internet connection for product update and high-level support

Windows XP (Professional recommended) and Windows 2000

- 500 MHz Processor
- 512 MB RAM
- Free space should always be greater than 15% of total space
- 800 X 600 resolution or greater
- 100 Mb wired network connection recommended
- Internet connection for product update and high-level support

USB or PS/2 (wedge) bar code scanners can be purchased from a variety of vendors including Shoptech. The scanners should read Code 39 bar codes that may be between 1 and 30 characters. Shoptech sells the Symbol LS2208. Please contact your sales person at (800) 525-2143 for a quote.

Additional Resources

TT5A + Tnet Collection Terminals (Trans Term):

TT5A Data sheet – http://client.shoptech.com/faq/Hardware/Data_collection/HardwareSetup/tt5.pdf

TT5A Instruction Manual -
http://client.shoptech.com/faq/Hardware/Data_collection/HardwareSetup/tt5man.pdf

Tnet Cabling Information -
http://client.shoptech.com/faq/Hardware/Data_collection/HardwareSetup/tnet_cabling_info.pdf

Multiple Clock Configuration Diagram -
http://client.shoptech.com/faq/Hardware/Data_collection/HardwareSetup/multipleclockconfiguration.pdf

External Relays (sounding device) -
http://client.shoptech.com/faq/Hardware/Data_collection/HardwareSetup/External_Relays.pdf

ET215 Collection Terminals (Ethernet):

ET215 Data sheet -
http://client.shoptech.com/faq/Hardware/Data_collection/HardwareSetup/Et215.pdf

ET215 Instruction Manual -
http://client.shoptech.com/faq/Hardware/Data_collection/HardwareSetup/Et215def.pdf

Using ET215 terminals on a wireless network -
http://client.shoptech.com/faq/Hardware/Data_collection/HardwareSetup/wirelessdatacollection.pdf

Bar Code Scanners:

Symbol LS2280 -
http://client.shoptech.com/faq/Hardware/Data_collection/scanners/ProgrammingLS2208.pdf

IS4500 (Wand CE) –
http://client.shoptech.com/faq/Hardware/Data_collection/scanners/ProgrammingIS4500.pdf

DataLogic QS2500 –
http://client.shoptech.com/faq/Hardware/Data_collection/scanners/ProgrammingQS2500.pdf

PSC QuickScan 6000 and Plus –
http://client.shoptech.com/faq/Hardware/Data_collection/scanners/ProgrammingQS6000.pdf