

COGNEX

RA Triage Procedure

Product: DM8050 & DM8600 series

1.0 Useful Components & Accessories

- 1.1 Cognex Single Port AC PoE Injector (Fig. 1)
- 1.2 USB cable (Fig. 2)
- 1.3 RS232 cable (Fig. 3)
- 1.4 WiFi or Bluetooth Communications Module (Fig. 4)
- 1.5 Ethernet Communications Module (Fig. 5)
- 1.6 USB/RS232 Serial Communications Module (Fig. 6)
- 1.7 Battery (Fig. 7)
- 1.8 PC with the DataMan Setup Tool 5.4.3 installed



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5

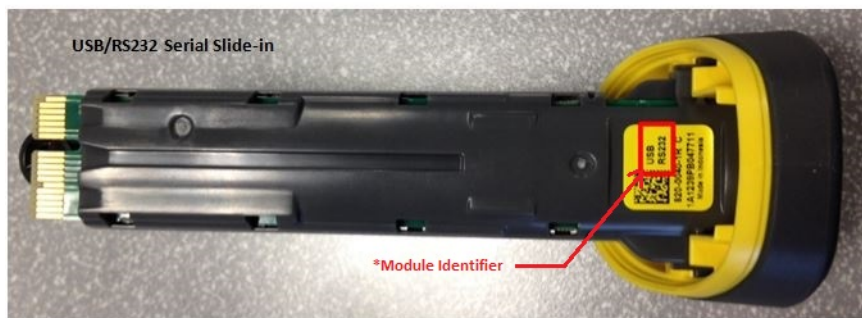


Fig. 6



Fig. 7

2.0 Preparing and Powering up the Reader

Corded Ethernet

- 2.1a Disconnect the Ethernet cable from the bottom of the reader and use an Allen wrench to unscrew and slide out the communications module. Confirm that the module identifier printed on the label says “E-net”.
- 2.2a Use a standard Ethernet cable to connect the 8000 series DataMan to the port labeled OUT on the PoE injector. Use another standard Ethernet cable to connect the port labeled IN on the PoE injector to your PC or network switch. If using a third party PoE injector or if the ports are not labeled, and the reader is not powering on, try switching ports.

Corded USB

- 2.1b Disconnect the USB cable from the bottom of the reader and use an Allen wrench to unscrew and slide out the communications module. Confirm that the module identifier printed on the label says “USB” followed by “RS232” on the line below.
- 2.2b Your USB cable may split-off and have a connector for an external AC to 6V power supply. This is only required if the USB port you’re plugging into isn’t capable of supplying power. If the reader does not power on with just the USB portion connected, then test the port by connecting a different known working device such as your cell phone.

Corded Serial

- 2.1c Disconnect the Serial cable from the bottom of the reader and use an Allen wrench to unscrew and slide out the communications module. Confirm that the module identifier printed on the label says “USB” followed by “RS232” on the line below.
- 2.2c The serial cable should split-off and have a connector for an external AC to 6V power supply. This is required in most cases to provide power to the reader since there is no pin for power on a standard RS232 connector. That being said there is a special cable that we offer for retrofit applications that provides power to the reader using pin 9. The part number for that is **DM8000-RS232-02P (Notice the P at the end)**. If not using this cable then do not apply power on pin 9 or it could damage the reader and void your warranty.

Wireless with WiFi Base

- 2.1d** Unscrew the cap from the bottom of the reader and lightly tap it against your palm to slide out the battery. Use an Allen wrench to undo the screws and slide out the communications module. Confirm that the module identifier printed on the label says “Wi-Fi”.
- 2.2d** Look at the model number on the label located underneath the base station. Confirm that it says IBASE or iBase in some shape or form. If it says C base instead then base station is incompatible. C is for charging only and I is for intelligent.
- 2.3d** The WiFi base station can be powered by either by using PoE or with an AC to 24VDC power converter with barrel style connector. For the data transfer you can either use the Cognex base station USB cable (USB-A to USB-B), RS232 or Ethernet. Refer to step 2.2a for more information about PoE.

Wireless with Bluetooth Base

- 2.1e** Unscrew the cap from the bottom of the reader and lightly tap it against your palm to slide out the battery. Use an Allen wrench to undo the screws and slide out the communications module. Confirm that there is no module identifier.
 - 2.2e** Look at the model number on the label located underneath the base station. Confirm that it says iBaseBT in some shape or form. If it says C base instead then base station is incompatible. C is for charging only and I is for intelligent.
 - 2.3e** The Bluetooth base station can be powered by wiring it to a standard 24VDC power supply or by using an AC to 24VDC power converter with barrel style connector. It cannot be powered using PoE. If using DMA-IBASE-BT-01 then you cannot connect using Ethernet either, only RS232 and USB. If you have DMA-IBASE-BT-02 then you can use any of these 3 data transferring methods.
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- 2.4** Reassemble the reader and connect the cables. On startup the reader’s status LED’s should light up solid green, then after a few seconds the light will turn off and you will hear the reader beep to signify that it has booted up and initialized properly. For the wireless units you may need to squeeze the trigger on the reader first to wake it up from power save mode. The base station’s LED colors can vary depending on the status of the paired reader, so just confirm that there is activity when it is plugged in and left idle.
 - 2.5** Select the unit from the Setup Tool and connect. If using a software version prior to 5.2.0 or prior to the reader's firmware version, then please install a newer version from the Cognex website. **(As of Mar. 2016 all DM8050’s and DM8600’s require Setup Tool version 5.4.3)**

3.0 Pairing the Reader and Base Station

Before proceeding please confirm that your reader and base station firmware are at least 5.4.3 or newer. To do this you will need to connect each device to the Setup Tool to check. Once connected to a device click on the View dropdown menu in the top left corner and choose System Info. Again it is assumed that you are using Setup Tool 5.4.3.

Normally you would not be able to connect to the reader unless it is properly paired to a base station, but if it is docked then it should automatically be able to connect to the base station and Setup Tool through the serial pins on the bottom. If this doesn't seem to be working and the base station firmware is already on 5.4.3 then you may need to temporarily downgrade the firmware on the base station to the previous version and then update the reader to 5.4.3 first. The firmware files normally install with the software to this directory, C:\Program Files (x86)\Common Files\Cognex\DataMan\Firmware. The table below shows which firmware file corresponds to which reader model and firmware version.

Firmware Filename	Model	Firmware Version
<i>DM8000_base_bt_v5.4.3.bin.gz</i>	<i>Bluetooth Base</i>	<i>5.4.3</i>
<i>DM8000_base_v5.4.3.bin.gz</i>	<i>WiFi Base</i>	<i>5.4.3</i>
<i>DM8600_v5.4.3.bin.gz</i>	<i>DM8600 reader</i>	<i>5.4.3</i>
<i>DM8050_v5.4.3.bin.gz</i>	<i>DM8050 reader</i>	<i>5.4.3</i>
<i>DM8000_base_v5.4.0.bin.gz</i>	<i>Bluetooth Base</i>	<i>5.4.0</i>
<i>DM8000_base_v4.2.2_sr3.bin.gz</i>	<i>WiFi Base</i>	<i>4.2.2_SR3</i>

If you need to update the firmware and the software throws you an exception then you may need to download and run the executable linked below. This FUP file contains a license which will authorize the firmware update.

<http://www.cognex.com/support/downloads/File.aspx?d=2842>


You'll know the pairing is successful if you can connect to the reader in the Setup Tool and the scanned codes are showing up, even when the reader is not docked inside the base station. Also the status indicator lights on the base station and reader will not both be red at the same time while the reader is docked.


Force Pair Method (requires Bluetooth model):

1. Scan the Force Pair code printed on the base station.
2. If the reader does not immediately pair then remove power to both devices. On the reader you would do this by removing the battery.
3. Reinsert the battery and screw the cap back on. Power the base station back up with the reader docked inside.
4. If this still isn't working then you may need to manually clear the old pairing data from the reader and base. If this happens the follow the instructions below instead.

Clear and re-pair Method:

1. Connect to the base station. In the Bluetooth or WiFi tab click the unassign button to remove the associated reader. Go to the System dropdown and choose Reset Configuration.
2. Scan the Restore Factory Defaults code followed by the Unassigned Base Station from Reader code located below. For reference these are included in the configuration codes document which you can access from the Help menu in the Setup Tool.

	<p>Reset Scanner to Factory Defaults</p> <p>DMAE50 • DM50 • DM60 • DM100 • DM200 • DM300 • DM500 • DM503 • DM700 • DM8000 • DM9500</p>
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	<p>Unassign Reader from Base Station</p> <p>DM8000</p>
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3. Remove power to both devices. On the reader you would do this by removing the battery.
4. Reinsert the battery and screw the cap back on. Power the base station back up with the reader docked inside.

Common Problems related to Pairing and Wireless Communication:

- I. Q: The reader is paired to the base station and it's working, but as soon as it's removed from the base station it loses connection.
 - a. This is because the firmware on your reader and base is not 5.4.3. Please refer to the instructions at the top of section 3.
- II. Q: The base station shows up in the Setup Tool but the reader does not.
 - a. This is an indication that the base and reader are not correctly paired.
- III. Q: The reader shows up in the Setup Tool, but when you attempt to connect you get an error that says the wireless reader is offline.
 - a. This means that the reader is currently in Power Save or Sleep mode and it needs to be woken up before you can connect to it. To do so, just squeeze the trigger on the reader and wait about 8 seconds. Power Save mode is meant to help conserve battery life on the handheld units. This feature can be disabled in the System Settings, Turn Off Timeouts location. Also you can change how long the reader waits before entering power save mode.
- IV. Q: I can't set a static IP address to my reader.
 - a. You need to connect to the base station and then if you look in the network settings location you'll see that there is an option to change the reader's IP address, as well as the bases there. Note the reader will need to reboot before these changes get applied.
- V. Q: I'm connected to the base station and it appears that the reader has more than one IP address or an IP address that I didn't set.
 - a. You can ignore the extra IP addresses. These are just used internally for the reader and base to communicate with each other. They use the ones that you can set for external communications.
- VI. Q: Interference and Effective range considerations?
 - a. The effective range of the wireless readers is 30m. WiFi range typically tends to be longer but Bluetooth is faster to connect generally. In some cases interference can block wireless communication for example maybe there is a really large, noisy machine between the reader and base. Although it's not usually a problem it is something to be aware of. The readers do

have an option to buffer results until the reader gets back in range with the base station which can be useful in some situations.

4.0 Troubleshooting Ethernet Communication

If the reader or base is not showing up in the connection list then follow the steps below for 5.4.3:

- 4.1** Click "Force Network Settings". Type in the MAC address (located on the label on the unit under test).
- 4.2** If this doesn't work, then click "Force Network Settings" again and enter "00" for the MAC address. It should fail find the device, just click ok, then cancel to exit the dialogue. If the reader is not on the same subnet but is still able to communicate to the software, then it should now show up in the list temporarily so that you can change settings.
- 4.3** If it is currently set to a static IP address then enable DHCP and allow the reader to reboot. If it is currently in DHCP, or if DHCP did not work, then select Use Static IP address and move to step 3.4.
- 4.4** To set a static IP address set the subnet mask to be the same as your PC's subnet mask. Set the first 3 numbers of the IP address to be the same as your PC but choose a unique number between 0-255 for the last one. Allow the reader to reboot.

If the reader still doesn't show up in the connection list or fails to connect:

- 4.5** The Setup Tool may be having a hard time determining whether or not the reader is on the same subnet because your network adapter may have multiple IP addresses or you may need to change your adapter priority order. Multiple IP addresses on your local area connection is not a supported configuration, so contact your IP department or skip to step 3.11.
- 4.6** Check to see if the Ethernet status LED on your reader is solid orange/yellow (it's the 4th one from the left but consult the DM300 Quick Start manual if you're unsure).

If it is not solid orange/yellow then it indicates that communication is not occurring between the reader and the network device it is connected to. Power cycle the other

network device. If it is an Ethernet switch then try switching to another port and confirm that the switch is working correctly. If it is solid orange/yellow the reader is functioning as intended and there is probably a conflict with your PC or network settings.

- 4.7** Try to do a hard reset to restore the reader to factory defaults. To do this simply power down the reader by unplugging the cable, then press and continue to hold down the trigger button as you plug the cable back in. You should see the status LEDs flash green/red to indicate that this was successful. Note that this only works on corded units, not wireless.
- 4.8** A firewall, antivirus program, or managed switch can be blocking the DataMan's communications. Port 1069 is the port used by the software for camera discovery. Please disable your firewall, antivirus software, and be sure that this port isn't being blocked by another application.
- 4.9** If you have a spare Ethernet cable try switching the cable, ensure that the cable you currently using is securely connected, if you are going to a network switch then try connecting directly to your PC's Ethernet port and repeat steps 3.1 - 3.4.
- 4.10** While Ethernet to USB converters may work under certain circumstances, we cannot guarantee that they will always work with Cognex DataMan products. If you are attempting to use one and it's not working then this is most likely the problem. Try connecting directly to a PC's Ethernet port to confirm whether or not it's a problem with the camera.
- 4.11** If you are using a virtual machine or have a complicated network setup such that you can ping the reader, but it doesn't show up in the network list then you will have to connect using a host table entry.
- This permanently adds the DataMan to your network list at the desired IP address so you can attempt a blind connection regardless of whether the software can detect the reader or not. To do this simply click the add network device button.
- *4.12*** Optional: You can download the Cognex Explorer software from the support section of the Cognex website, which shows all DataMan readers on the network and allows you to easily configure the IP settings.



5.0 Troubleshooting Serial (RS-232) Connection

- 5.1 Connect the reader to the setup tool using COM port that the reader is detected on. If you're not sure which one it is then try them all.
- 5.2 The baud rate for the reader defaults to 115200 bps, parity none, data bits 8, and stop bits 1. If the connection fails default the reader (or use the scan codes in the configuration codes pdf to change these settings), then go to the device manager on your PC and ensure the COM port settings match.
- 5.3 If using a custom cable then check the pinout. Make sure you are running a ground wire to the ground pin on your serial port and try crossing over the TxD and RxD lines.
- *5.4* Optional: If you are connecting the reader up to a machine and the output from the reader appears to be jumbled or does not match what you expect, then usually this means the baud rate is not set the same way on the two devices. Please connect to the reader using a third party serial client like HyperTerminal or PuTTY and verify the output. Also please check and make sure that the Data Formatting settings on the reader are disabled.

6.0 Troubleshooting Serial (USB) Connection

- 6.1 Connect the reader to the setup tool using COM port that the reader is detected on. If you're not sure which one it is then try them all.
- 6.2 The drivers for the reader and base station are installed with the setup tool so make sure that you are using the newest version. You should also be able to install the drivers from our website separately.
- 6.3 Go to the device manager on your PC which you can get to from the control panel and plug the reader in. It should show up as a new COM Port or Keyboard. If you see

in the Setup Tool that the reader or base is in HID mode then this means it is currently acting as a keyboard and you would need to scan the code below revert it back to regular USB Com mode in order to connect. Make sure to use the base station code if your unit is wireless and reboot the reader/base.

	<p>*USB-COM/RS-232</p> <p>DMAE50 • DM50 • DM60 • DM100 • DM700 • DM8000</p>
<p>*Disable USB Keyboard for the base station</p> <p><i>Reboot needed after disabling USB keyboard for the base station!</i></p> <p>DM8000Base</p>	

6.4 If this still doesn't help and if the reader does not show up as either a keyboard or Com Port in the windows device manager then it's possible that problem could just be caused by a bad cable or USB port. Please try using a different USB port and swap the cable if you have a second one you can try using it with.