COGNEX

Tech Tip

Setting up the different types of Ethernet connections offered by the DataMan 200 Series readers

Overview/Summary

By combining unmatched code reading performance of up to 45 reads per second, and ease-of-use in a compact package, Cognex DataMan® image-based ID readers represent a breakthrough in the Auto ID industry. Providing unsurpassed read rates on even the most challenging 1D and 2D barcodes and direct part marks, DataMan fixed-mount readers include lighting, camera, processor, and communications in an exceptionally small, industrial-rated housing suitable for even the most demanding applications.

The DataMan 200 Series ID readers feature:

- Industry-leading 1D and 2D reading performance with patented IDMax® and IDQuick™ algorithms
- Flexible optics
  - > Liquid Lens offers rapid hands-free, software-driven autofocus with no moving parts and increased depth of field
  - > Many models offer the pre-installed Liquid Lens or may be retrofitted on standard models
- Real-time tracking, image download, data transfer and effortless integration with Industrial Ethernet
- Integrated lighting and laser aiming

Ethernet Connections

Industrial Ethernet enables simple DataMan 200 connectivity with both office and industrial factory floor environments and makes the readers very easy to install, set up and integrate. Compared to other communication protocols, Industrial Ethernet provides superior noise immunity and speed and makes integration of multiple readers into existing network environments for data access, control and monitoring of individual readers very easy.

There are several ways to connect to a DataMan 200 Series reader via Ethernet interface. Read on to learn more about these methods.

Setup Tool

DataMan 200 readers can read code symbols right out-of-the-box. Simply connect power and press the read button to read codes within the field of view.

The DataMan Setup Tool allows customization of a DataMan 200 reader for a given application. The DataMan Setup Tool is automatically installed on every standard DataMan model and can be found in the Windows Start Menu under: *Start-> Programs-> Cognex-> DataMan Setup Tool vx.x.x-> Setup Tool*

At startup, the Setup Tool discovers any connected DataMan readers, both on the network and on serial interfaces RS-232 and USB. After connecting to a DataMan reader, the Setup Tool provides an easy-to-use user interface with real-time parameter setup, image download capabilities, and options to load and save configurations, among other functions.

The first step is to power the DataMan 200, then connect it to the network (both DHCP and Link Local are supported, so both network and direct link to PC/laptop work) and launch the DataMan Setup Tool. The DataMan 200 immediately shows up under "Network Devices" in the Setup Tool tree view. The default name is "DM200_" followed by the last six (6) characters of your MAC address which you can find on the label at the bottom of your DataMan 200 reader housing.

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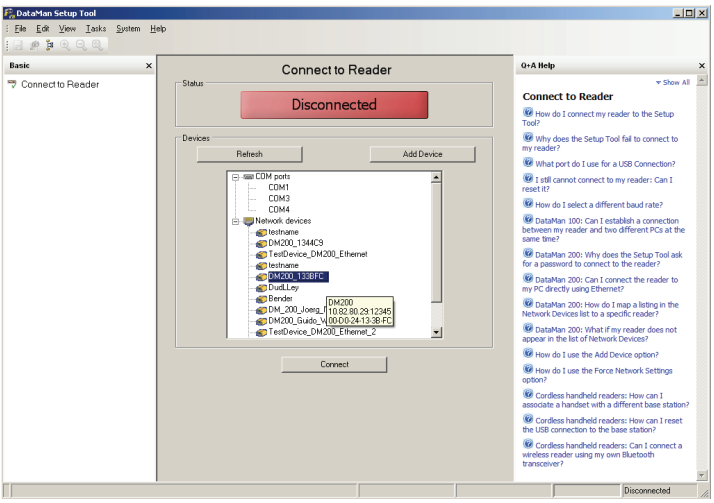
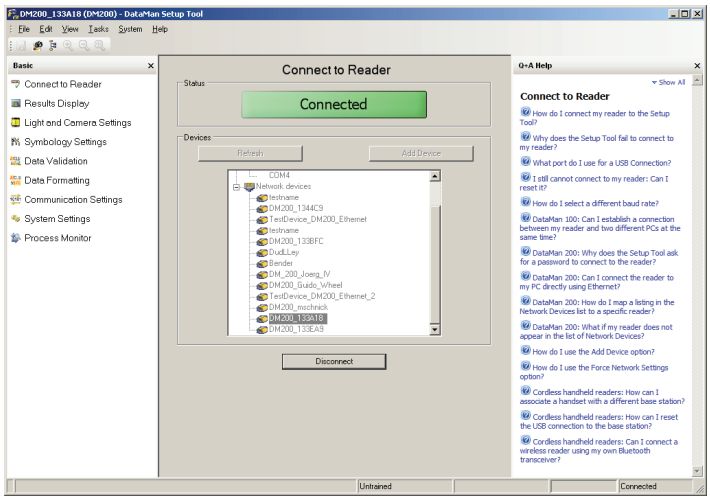


You can connect to a DataMan 200 reader either by double-clicking the item in the tree view or by selecting the item and clicking Connect.



When the Status indicates Connected, the Setup Tool is properly connected to the DataMan 200 reader. Now you can interact in real time with the reader, e.g., aligning the field of view while having *Live Display* enabled, change the parameter setup, download images, and load or save configurations, etc.

Telnet

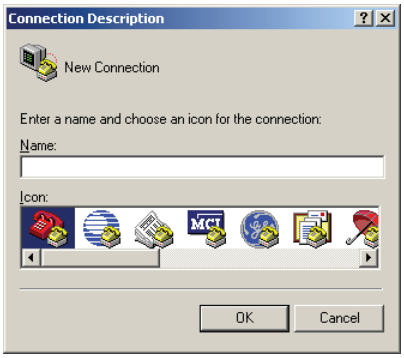
To interface the DataMan 200 reader to any controlling host device (PLC, PC or similar), a Telnet connection can be established. This allows you to read result strings automatically sent down the line, but it is also possible to send programmatic control commands such as trigger, train, calibrate focus or brightness, or read/write settings to the DataMan 200 reader. For full documentation on DMCC (DataMan Control Commands) please see:
Start-> Programs-> Cognex-> DataMan Setup Tool vx.x.x-> Documentation-> DMCC-> Command Reference

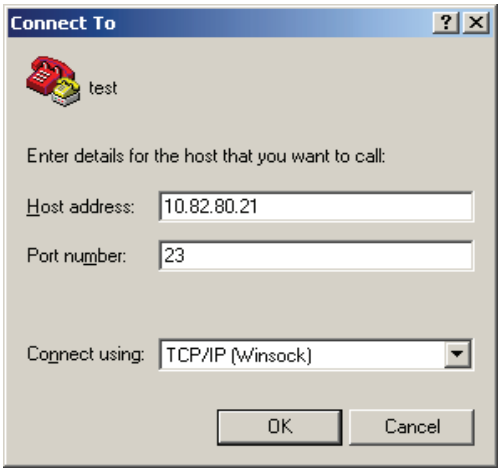
A Telnet connection can be established by running a Telnet client application on your host device. Telnet is a terminal emulation similar to serial interfaces (RS-232, USB-COM).

One simple way of establishing a Telnet connection is to use HyperTerminal which comes with Windows® installations. By using this tool you can easily test and validate the power that is built into the DataMan 200. HyperTerminal can be used to run demos, but only as proof of concept before fully integrating a DataMan 200 into a control system.

To start HyperTerminal, select *Start-> Run…* and enter *hypertrm*.

You may enter any arbitrary connection name in the Name field, though, a meaningful name is recommended.



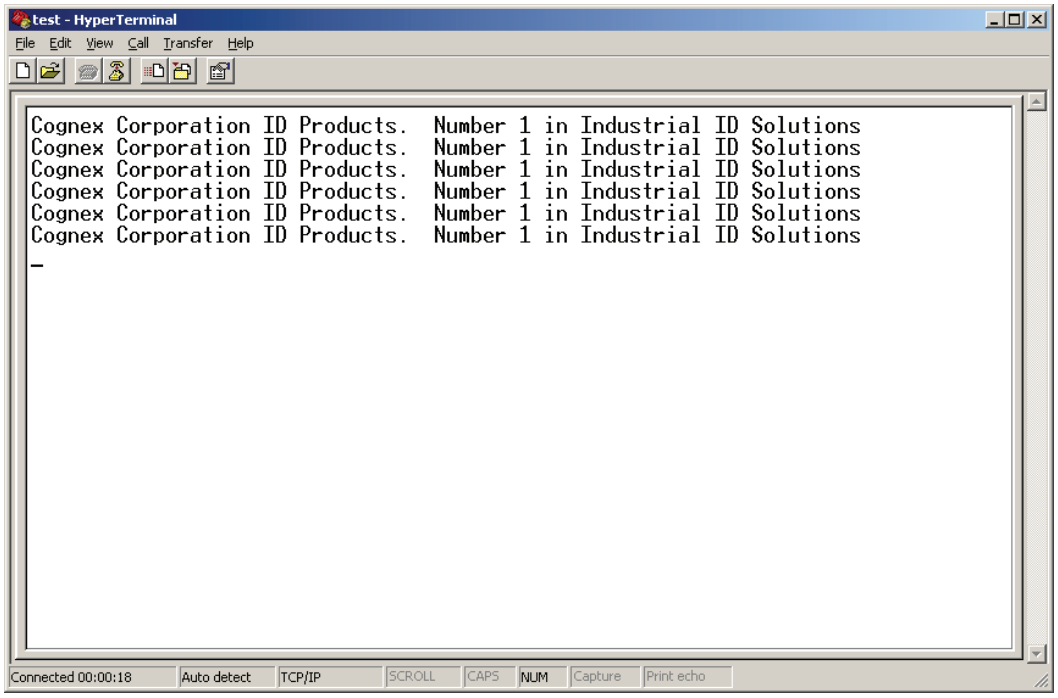


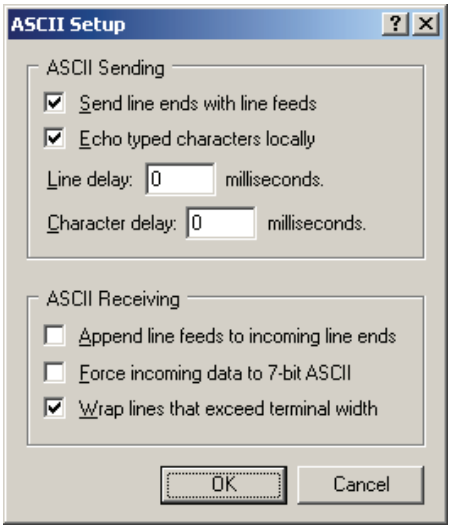
In the next dialog you need to first select TCP/IP (Winsock) under Connect using, then enter a Host address (i.e. the IP address of the DataMan 200 you want to connect to), and the Port number (the default is 23).

To determine the IP address of your DataMan 200, you could hover over the DataMan 200 reader entry in the Setup Tool device tree view as shown here.

After clicking OK the Telnet connection is completed.

When you read codes, the result string is automatically listed in HyperTerminal.

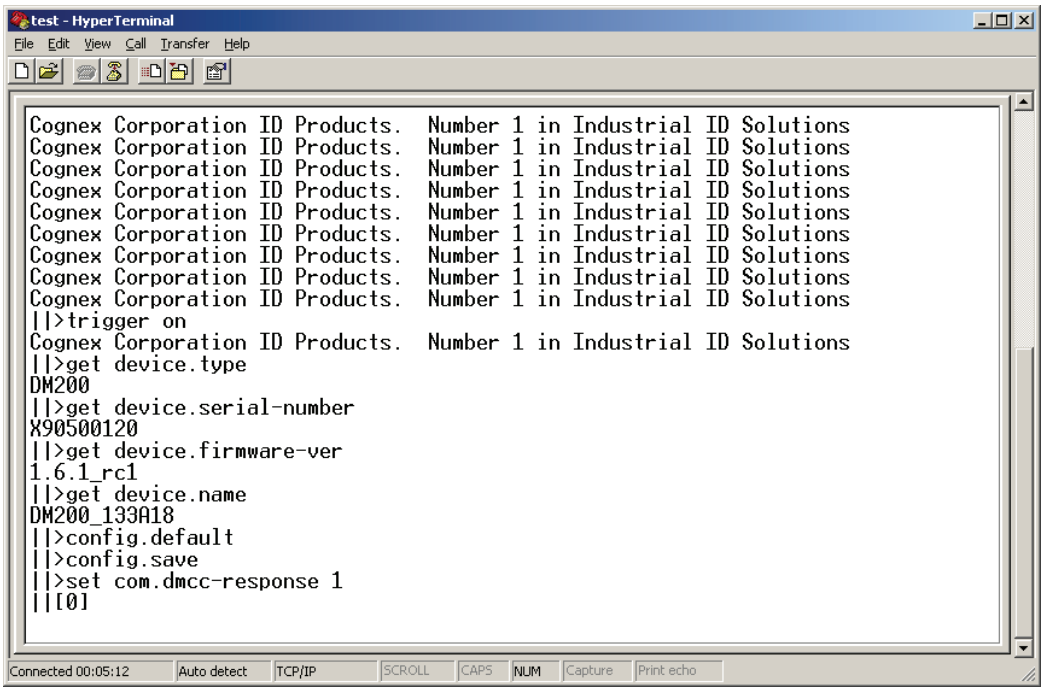




To send commands from HyperTerminal to the DataMan 200 reader, you should alter two additional settings in HyperTerminal. Select *File->Properties* (or select the Toolbar item accordingly), switch to the *Settings* tab, click *ASCII Setup*..., and check both *Send line ends with line feeds* and *Echo typed characters locally*.

These settings are important to correctly terminate entered commands when pressing the <*Enter*> key, and to obtain local echo of what you have typed.

Now you can send arbitrary DMCC (DataMan Control Commands) sequences.



FTP

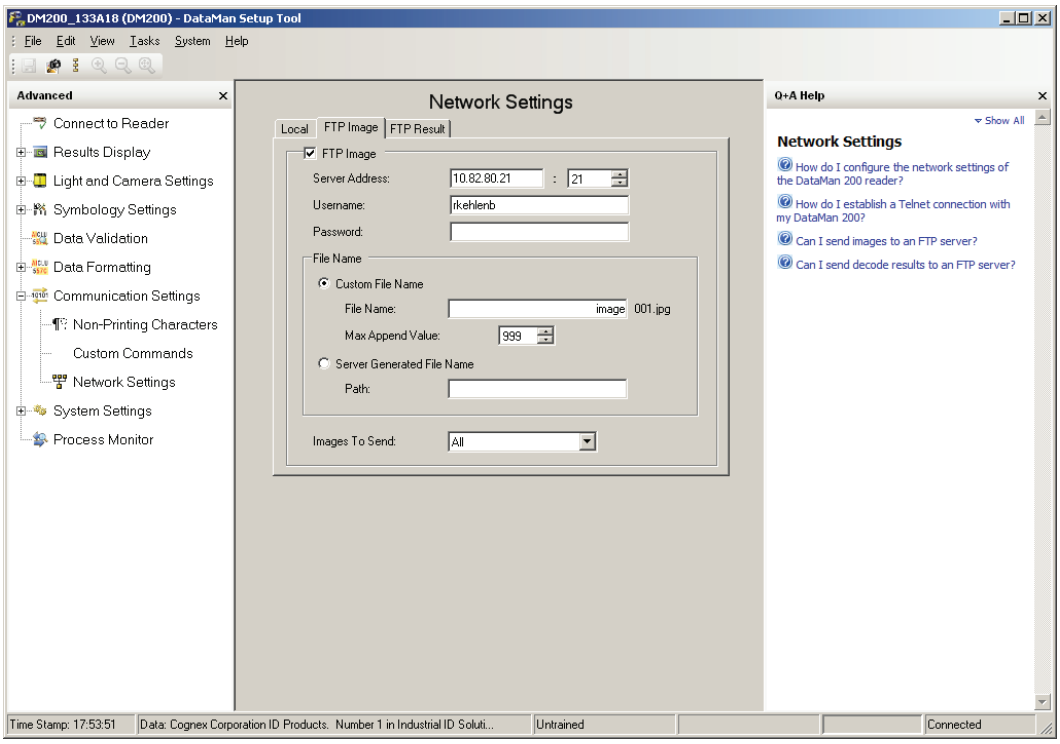
An FTP connection can be used to store read results or images (or both) from a DataMan 200 reader installed and in operation on a production line.

In addition to collecting read string data from a DataMan 200 reader, FTP connectivity can provide you with direct feedback from a reader mounted in a production line on the factory floor. If the DataMan 200 reader does not read a part, the associated no-read image is the best feedback you can archive for further analysis. It can be as simple as a missing barcode or that the code was not within the field of view, but it may also be the result of very poorly marked code. Without collecting this data, you will never know.

There are various FTP server clients available as open source or for pay. By using such a tool, you can install and setup an FTP server client on any Windows, Mac, or Linux system.

In order to establish the FTP connection, the DataMan 200 reader needs to receive the appropriate connection information from the FTP server to link to via the DataMan Setup Tool.

You need to enter the *Server Address* (i.e., IP address of the FTP server) and port number (default is 21). In addition, a *Username* and *Password* (if enabled) is required.



Once a connection has been successfully established, there are options which allow you to specify which images you wish to store (e.g., all or no-reads only), as well as how to define the filenames for both results and images.

Note that FTP data transfer is considered a lower priority, so within high-speed applications the images are not guaranteed delivery in the case of communication traffic bottlenecks. In normal applications, however, where the task is to only save no-read images, this should not be an issue.

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