DS2X00N-DS4800 SCANNERS

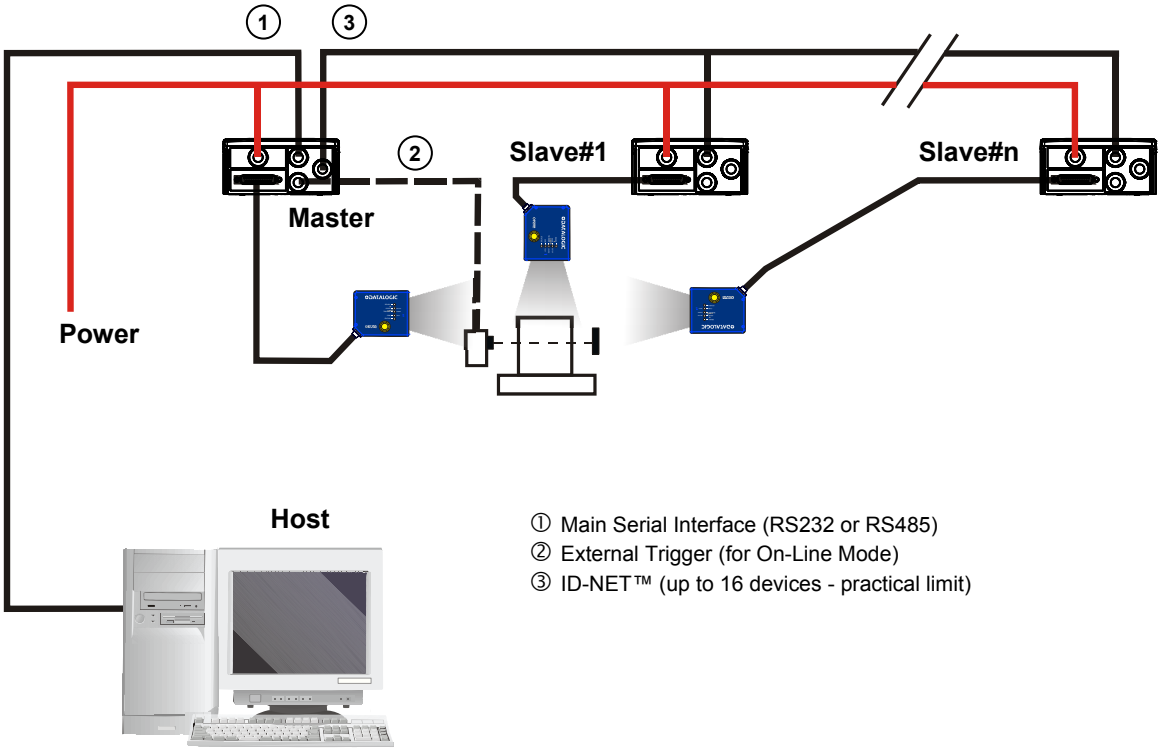
SETUP PROCEDURE USING PROGRAMMING BARCODES

1 ID-NET™ NETWORK SETUP USING PROGRAMMING BARCODES

For any DS2x00N-DS4800 family scanner using Serial or CBX Ethernet TCP/IP interfaces, programming barcodes can be used to setup the ID-NET™ built-in high-speed interface dedicated for high-speed reader interconnection.
ID-NET™ is an additional interface to the Main and Auxiliary serial interfaces.

Following topologies are available:

- **ID-NET™ M/S Synchronized**: Single station – multiple scanners



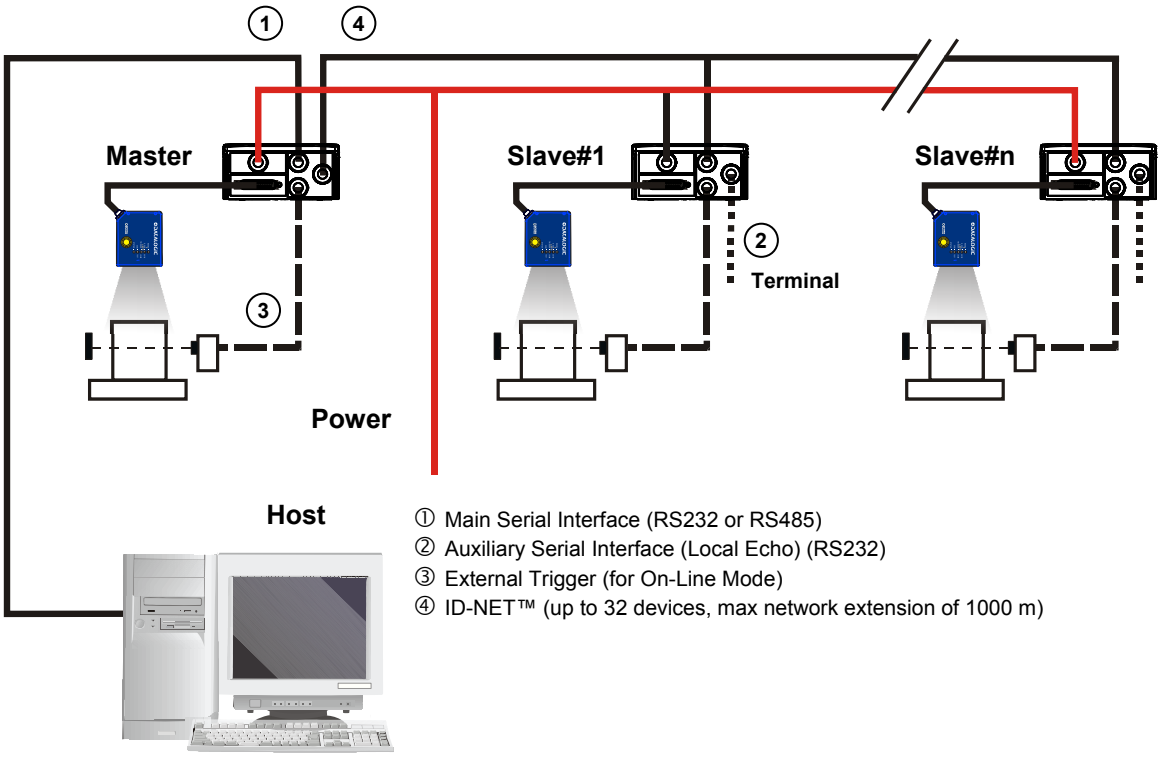
① Main Serial Interface (RS232 or RS485)
② External Trigger (for On-Line Mode)
③ ID-NET™ (up to 16 devices - practical limit)

The ID-NET™ interface allows local connection of multiple scanners that are reading on different sides of the same target. All scanners share a single presence sensor and activate/deactivate simultaneously.

At the end of each reading phase a single data message is transmitted to the host.

Thanks to ID-NET™, data communication among scanners is highly efficient so that an immediate result will be available.

- **ID-NET™ M/S Multidata**: Multiple stations – single scanner

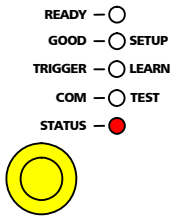
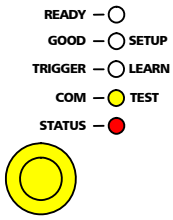
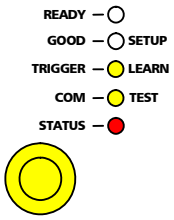
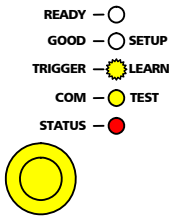


The ID-NET™ interface allows connection of scanners that are reading objects placed on independent conveyors. All scanners are typically located far away from each other and they use a dedicated presence sensor.

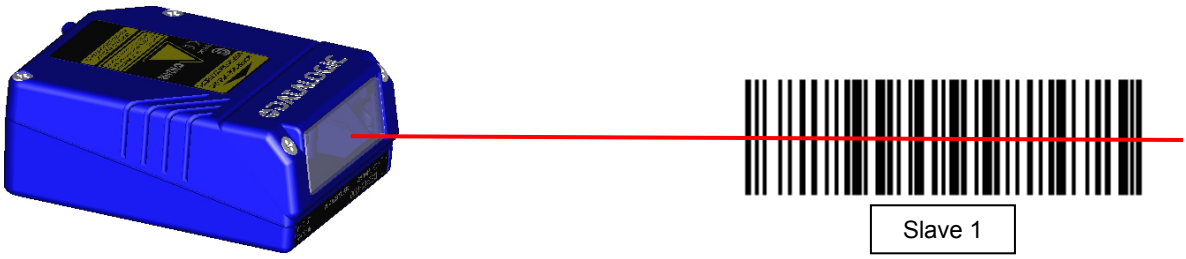
At the end of each reading phase, every scanner transmits its own data message to the host.

Thanks to ID-NET™, data collection among readers is accomplished at a high speed without the need of an external multiplexing device. This leads to an overall cost reduction and to simplified system wiring.

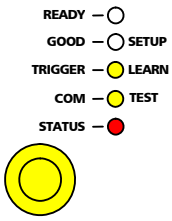
1. Press and hold the X-PRESS™ button to enter the “AutoLearn Mode”. Once button is pressed, the LED cycle appears as follows:

			
Just pressed. ➔	After 2 seconds. ➔	After 4 seconds. Release the button to enter the **AutoLearn Mode.** ➔	The laser beam turns ON and the yellow LEARN LED blinks: the **AutoLearn Mode** is working.

2. Now, put the barcode related to the planned role and address in front of the scanner. The picture below shows, as example, the scanner configuration as “Slave 1” [1] :

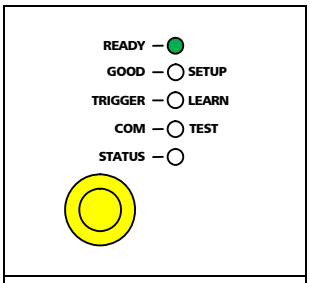


3. Once the scanner has successfully read the code, the LEDs stay on steady for 2 seconds:


Successful reading.

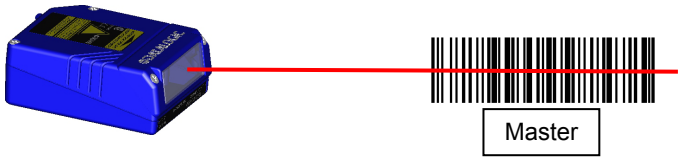
[1] the barcodes shown are examples, only. Use the barcodes in the Network Layout Barcodes paragraph for the actual programming.

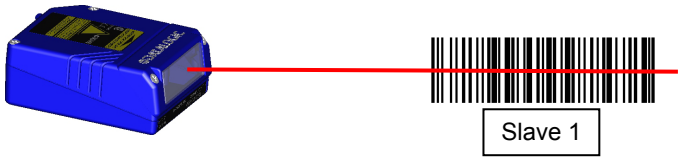
4. The scanner is programmed and the AutoLearn Mode ends. The green “ready” LED is on.

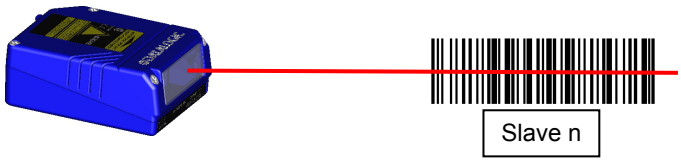


Programming done.

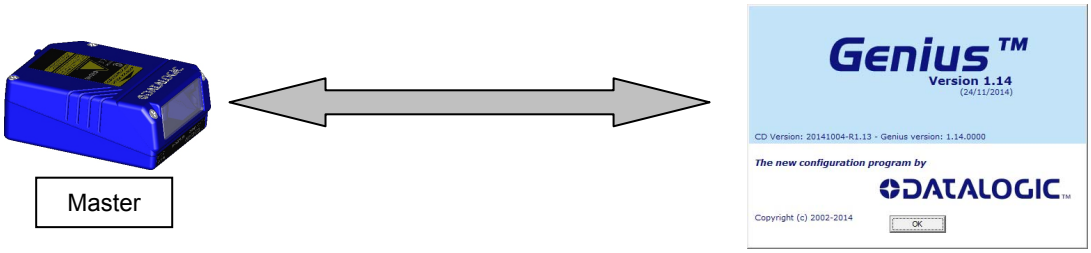
5. Repeat steps 1..3 above to configure all the slaves and master. The maximum number of scanners is 32, including the master.



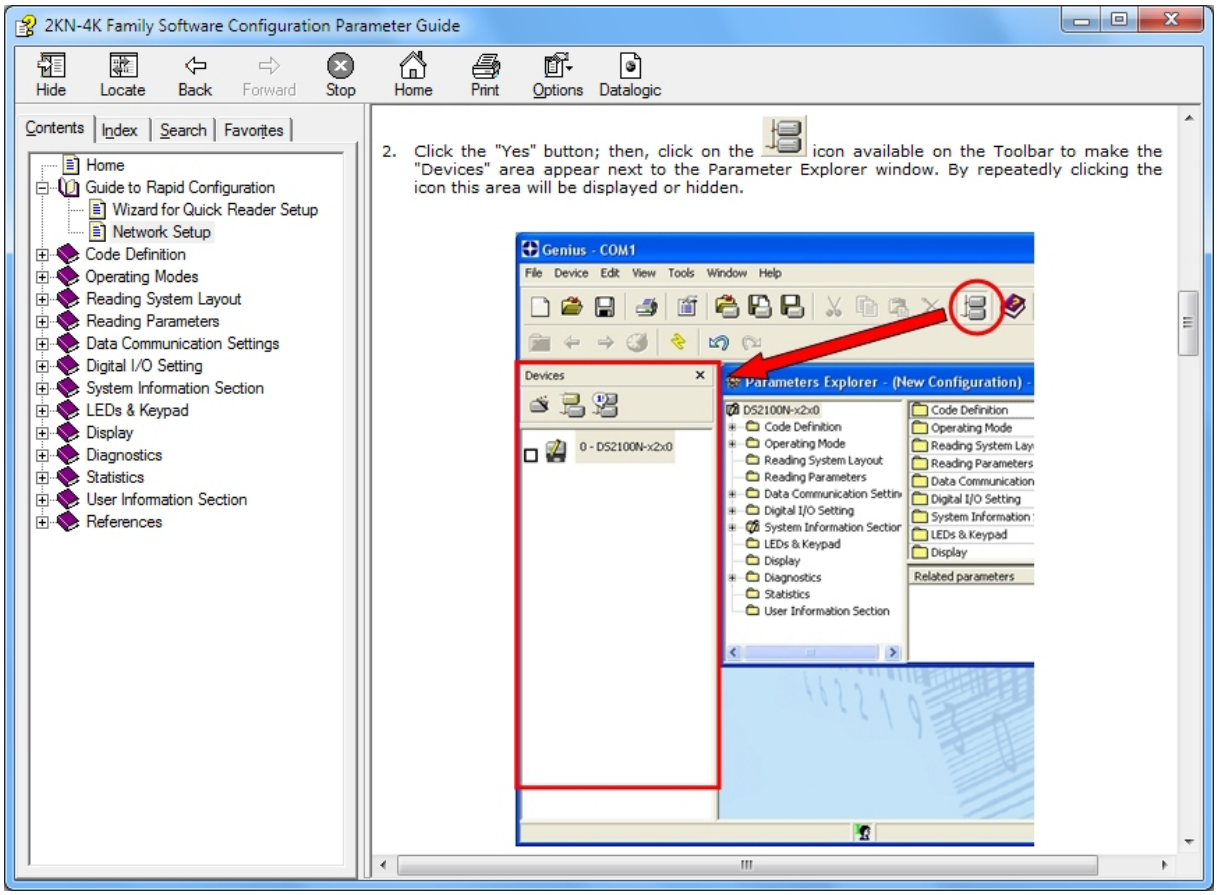




6. Connect the master scanner to a PC by means of the Genius™ configuration software.



7. Start the Genius™ Express Network Setup procedure. Refer to the Help On Line document for details.



NOTES: Any network role can also be programmed using Genius™. Refer to the Help On Line documentation for further details.

NETWORK LAYOUT BARCODES

- **ID-NET™ M/S Synchronized**



Master



Slave 1



Slave 2



Slave 3



Slave 4



Slave 5



Slave 6



Slave 7

- **ID-NET™ M/S Synchronized**



Slave 8



Slave 9



Slave 10



Slave 11



Slave 12



Slave 13



Slave 14



Slave 15

- **ID-NET™ M/S Multidata**



Master



Slave 1



Slave 2



Slave 3



Slave 4



Slave 5



Slave 6



Slave 7

- **ID-NET™ M/S Multidata**



Slave 8



Slave 9



Slave 10



Slave 11



Slave 12



Slave 13



Slave 14



Slave 15

- **ID-NET™ M/S Multidata**



Slave 16



Slave 17



Slave 18



Slave 19



Slave 20



Slave 21



Slave 22



Slave 23

- **ID-NET™ M/S Multidata**



Slave 24



Slave 25



Slave 26



Slave 27



Slave 28



Slave 29



Slave 30

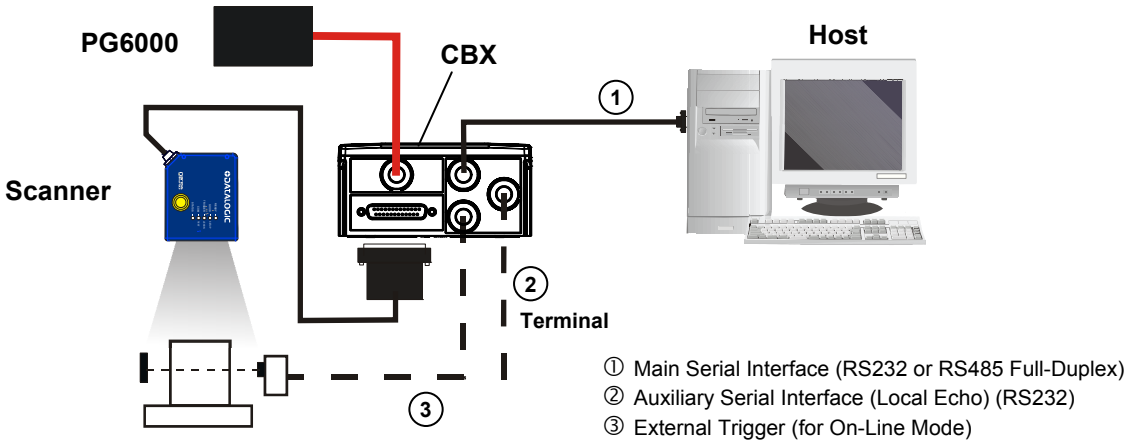


Slave 31

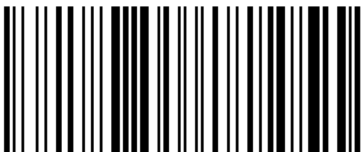
2 STAND-ALONE LAYOUT BARCODE

In order to re-program a network scanner for a stand alone configuration, the following barcode can be used.

- **Stand Alone Layout**



The programming barcode procedure uses the AutoLearn Mode as described in chapter 1.



NOTES: The Stand-Alone configuration can also be programmed using Genius™. Refer to the Help On Line documentation for further details.

3 X-PRESS™ KEY LOCK – UNLOCK BARCODE

The X-PRESS™ key can be locked and unlocked through two different methods:

- by means of the Key Functionality parameter in Genius™
- by the following programming barcode

The programming barcode procedure uses the AutoLearn Mode as described in chapter 1.

The code below is a “toggle-code”:

- if the key is locked *, the programming code will unlock the key
- if the key is unlocked, the programming code will lock* the key



Lock-Unlock X-PRESS™ key

* “Locked” actually refers to the Partially Locked parameter value in which the X-PRESS™ Key is disabled except for re-reading the Lock-Unlock barcode with the Autolearn procedure to re-enable it.

The scanner will be restarted (software reset) each time the code is read.

4 RESTORE DEFAULT PARAMETERS BARCODE

The programming barcode procedure uses the AutoLearn Mode as described in chapter 1.

The code below allows setting the scanner to its factory default values, Configuration and Environmental Parameters:



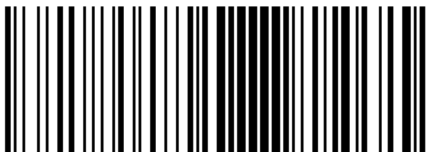
Restore Default Values

5 BACKUP & RESTORE

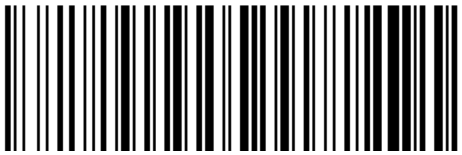
The Backup and Restore functions can also be performed through the programming barcode method for either an ID-NET™ network or for a Stand Alone scanner:

For ID-NET™, the Backup and Restore procedures must be performed by the Master which will then propagate them to all the connected Slaves.

The programming barcode procedure uses the AutoLearn Mode as described in chapter 1.



Perform Backup Procedure



Perform Restore Procedure

6 NETWORK STATUS MONITOR LOCK – UNLOCK BARCODE

For **Master** scanners with display (or connected to a CBX500 with accessory display), the Network Status Monitor shows diagnostic messages regarding the network. It can be enabled/disabled through two different methods:

- by means of a Genius™ parameter
- with a programming barcode

The programming barcode procedure uses the AutoLearn Mode as described in chapter 1.

The code below is a “toggle-code”:

- if the Network Status Monitor is disabled, the programming code enables it.
- if the Network Status Monitor is enabled, the programming code disables it.



Network Status Monitor

Network Status Monitor

On the Master display the following messages are shown:

```
1     Network     15
* * * * * - - - - - - - - - -
16    Network     31
- - - - - - - - - - - - - - -
```

Where:

*	=	Device OK
-	=	Device not detected at startup
?	=	Device detected at startup but not responding to polling
!	=	Device with diagnostic error

The DS4800 has a two-line display and so the messages alternate.

7 CBX ETHERNET TCP/IP INTERFACE TO HOST

For any DS2x00N-DS4800 family scanner having software package 005 or later, connected to either a **QL500** or to a **BM2x0** module (inside a CBX connection box), you can setup the Ethernet TCP/IP communication with programming barcodes.

The programming barcode procedure uses the AutoLearn Mode as described in chapter 1.



CBX Ethernet TCP/IP enabled
DHCP enabled

Read one of these barcodes according to your DHCP choice. **The scanner can now communicate using Ethernet TCP/IP.**

For scanner configuration through Genius™ using Ethernet TCP/IP, follow one of the procedures in the next paragraph: “IP Address Alignment Procedures For Configuration”.



CBX Ethernet TCP/IP enabled
DHCP disabled
(uses static IP Address parameters)

The Factory Default static IP address parameter settings for all DS2x00N-DS4800 Family scanners using CBX Ethernet TCP/IP are:

- IP Address = 172.16.11.0
- Subnet Mask = 255.255.0.0
- Gateway Address = 172.16.0.2

IP ADDRESS ALIGNMENT PROCEDURES FOR CONFIGURATION

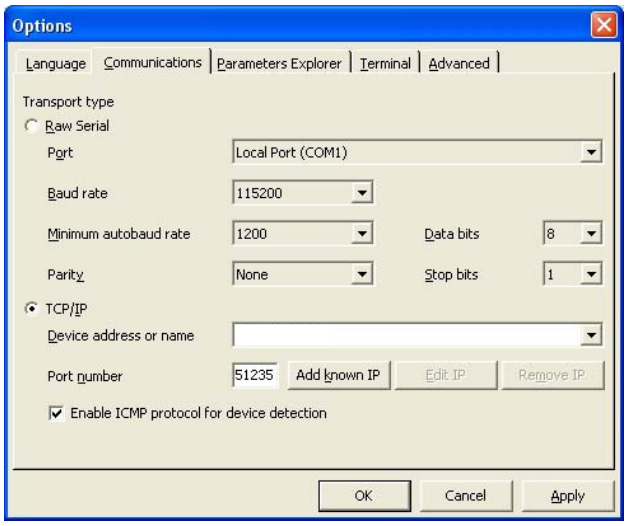
In order to connect a scanner to Genius™ using Ethernet TCP/IP, the Ethernet IP Addressing parameters must be aligned between Genius™ and the scanner. The following procedures can be used:

DHCP Enabled

1. Read the **Ethernet TCP/IP enabled DHCP enabled** barcode using the X-PRESS™ **Autolearn** function (as described in chapter 1).

2. Launch the Finder program on the Genius™ CD-ROM in *..Doc\Software Utilities\QL500-BM2x0 IP Finder.zip* to determine the IP address assigned to the scanner.

3. Set the Genius™ Tools>Options>Communications window to TCP/IP and in the Device address or name field, input the IP address returned by the finder program. The port number is 51235. Then click **OK**.



4. Perform a Device>Get (configuration) from Genius™.

NOTES: Devices working in DHCP may be assigned different IP addresses at each powerup, therefore steps 2 - 4 of the above procedure may need to be repeated at successive connections between Genius™ and the scanner.

Static IP Addressing (DHCP Disabled)

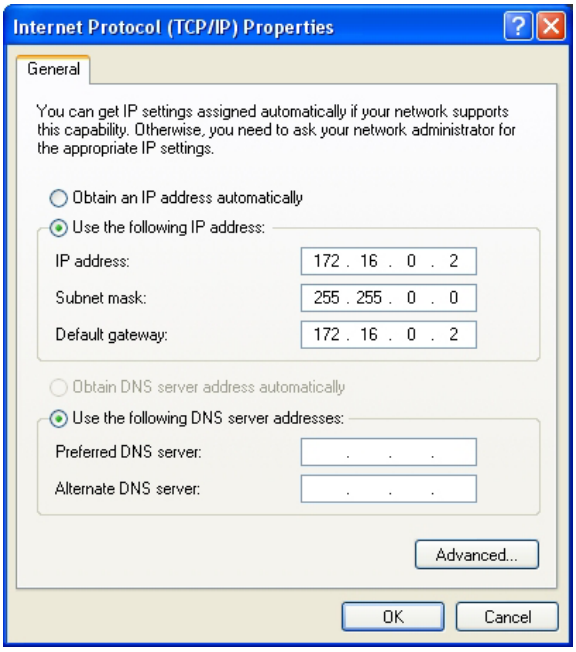
1. Read the **Ethernet TCP/IP enabled DHCP disabled** barcode using the X-PRESS™ **Autolearn** function (as described in chapter 1).

2. Before changing the Ethernet network settings on the PC running Genius™, close any open applications which use network resources (i.e. Outlook, or Web browser).

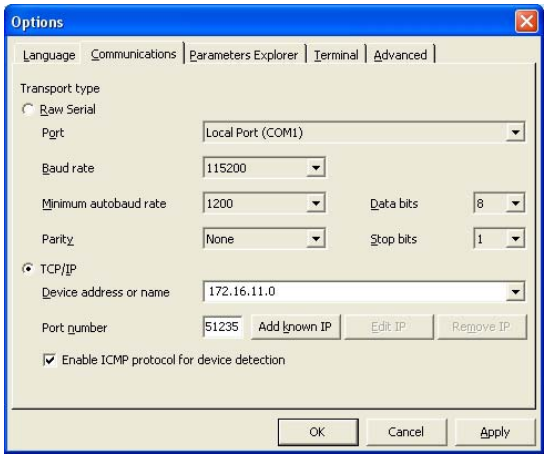
3. On the Configuration PC, from the Control Panel>Network Connections, right-click on the LAN connection icon and open the properties window.

4. Select the Internet Protocol (TCP/IP) item and open the properties window.

5. Set the IP Address fields as follows and click **OK** to save.

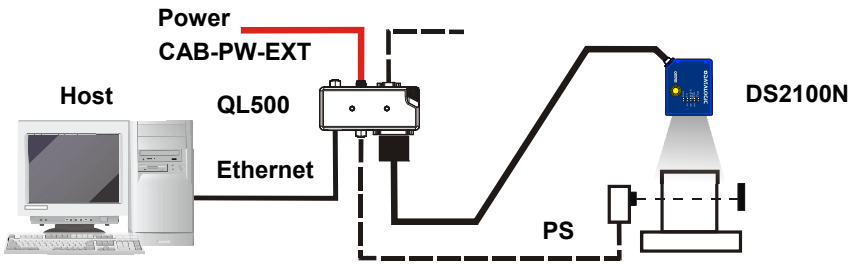


6. Set the Genius™ Tools>Options>Communications window to TCP/IP and in the Device address or name field, input the scanner Factory Default address. The port number is 51235. Then click **OK**.



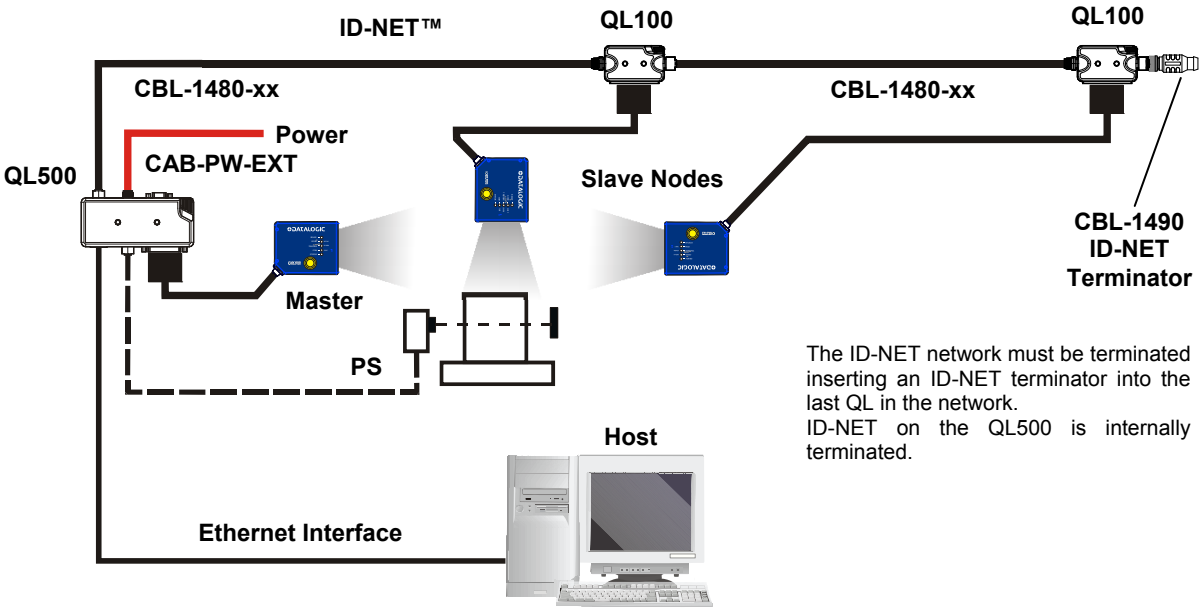
7. Perform a Device>Get (configuration) from Genius™.

The following figures are examples of these layouts:



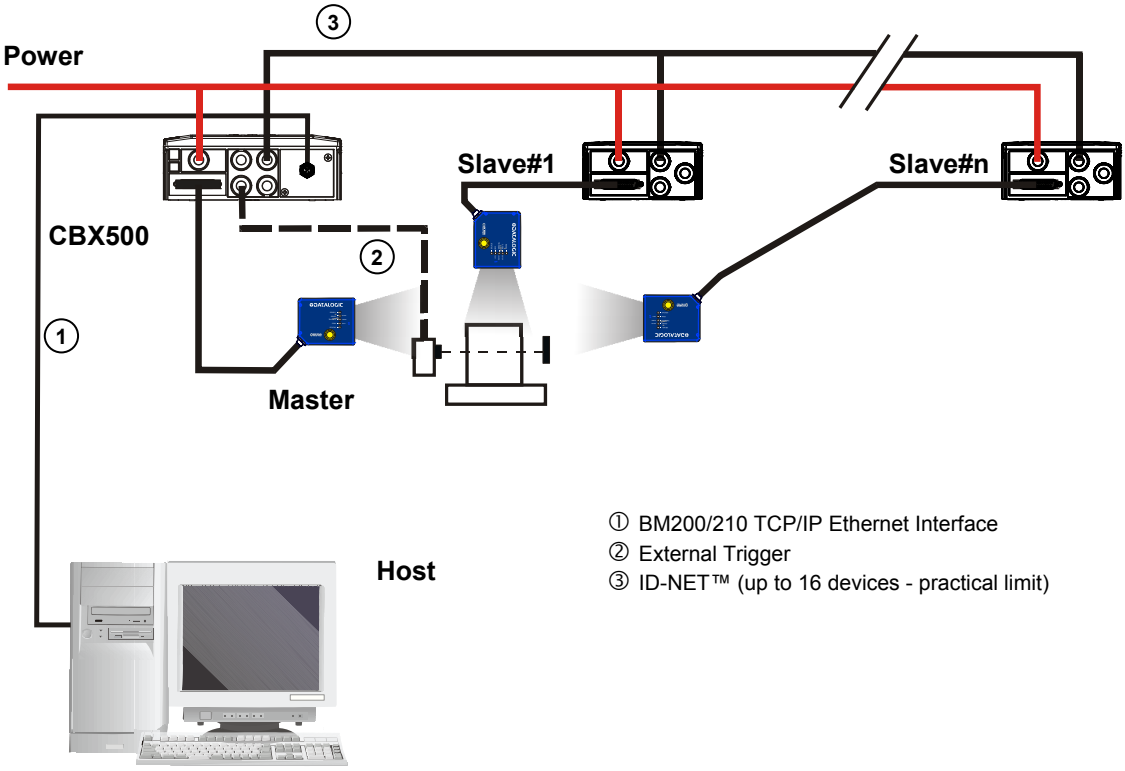
Point to Point - DS2x00N with QL500 (Ethernet to Host)

The Point-to-Point reader must be configured for Ethernet communication using the specific programming barcode.



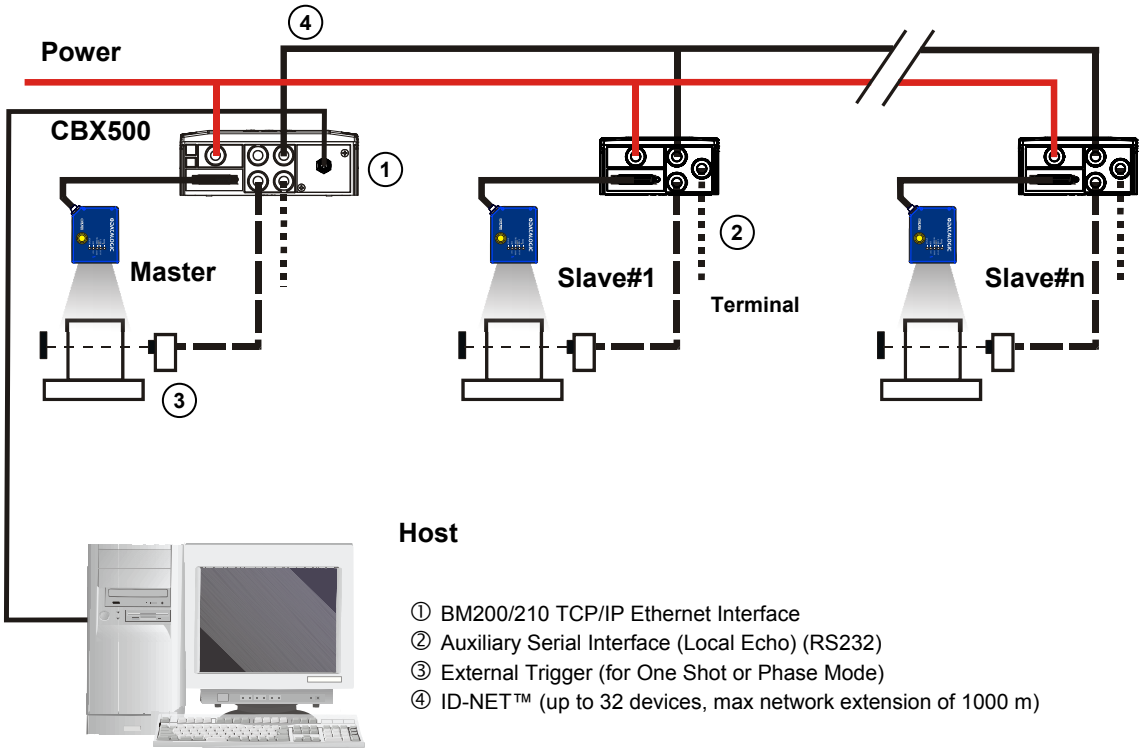
ID-NET™ M/S Synchronized Layout with QL500 TCP/IP Ethernet Interface to Host

The Master reader must be configured for Ethernet communication using the specific programming barcode.



① BM200/210 TCP/IP Ethernet Interface
② External Trigger
③ ID-NET™ (up to 16 devices - practical limit)

ID-NET™ M/S Synchronized Layout with BM200/210 TCP/IP Ethernet Interface to Host



① BM200/210 TCP/IP Ethernet Interface
② Auxiliary Serial Interface (Local Echo) (RS232)
③ External Trigger (for One Shot or Phase Mode)
④ ID-NET™ (up to 32 devices, max network extension of 1000 m)

ID-NET™ M/S Multidata Layout with BM200/210 TCP/IP Ethernet Interface to Host

8 PARAMETER SETTING SUMMARY

The network setup through programming barcodes **automatically sets** all the necessary parameters in order to produce a consistent and correct configuration.

The following table summarizes the modified values and the related programming actions.

Programmed Code	Modified Parameters
Stand Alone	Topology Role = Other Reading System Layout/Local Device Alternative Network Setting = Alone or Id-Net
Master Synchronized	Topology Role = Master Synchronized Operating Mode/ Operating Mode Selection = On Line *
Slave Synchronized	Topology Role = Slave Synchronized Slave Address = xx Operating Mode/ Operating Mode Selection = On Line *
Master Multidata	Topology Role = Master Multidata
Slave Multidata	Topology Role = Slave Multidata Slave Address = xx
Ethernet TCP/IP DHCP Enabled	CBX Gateway>Host Interface Type = Ethernet TCP/IP IP Addressing = DHCP
Ethernet TCP/IP DHCP Disabled	CBX Gateway>Host Interface Type = Ethernet TCP/IP IP Addressing = Static Assignment (uses static IP address parameters) **

* This setting only occurs if the starting Operating Mode is Continuous or Automatic

** The Factory Default static IP Address parameter settings are:

IP Address = 172.16.11.0

Subnet Mask = 255.255.0.0

Gateway Address = 172.16.0.2