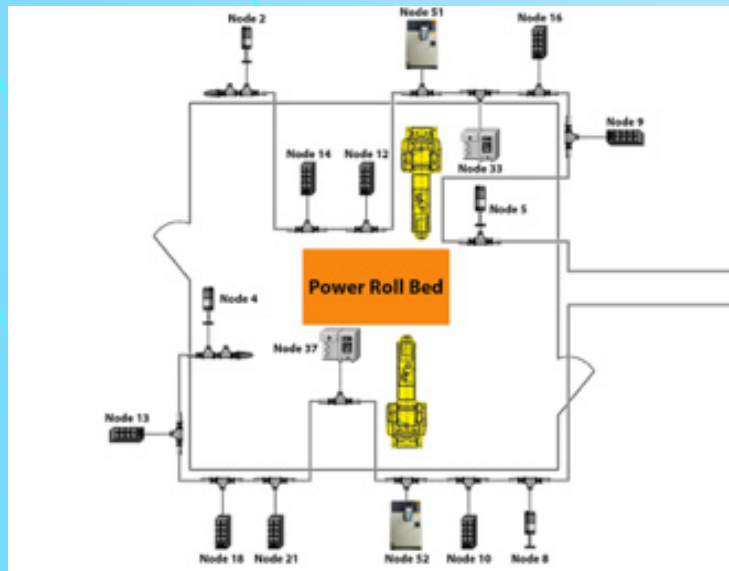
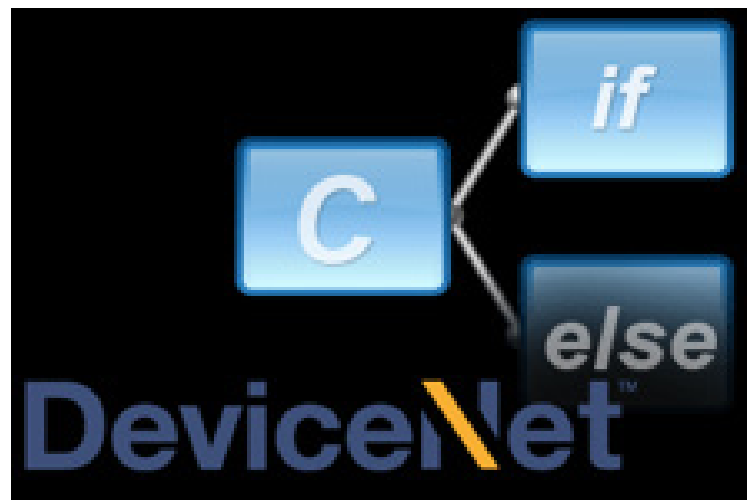


DeviceNet



100 Series

DNET101 - DNET109



Lesson Description

DeviceNet is an open-source, robust, low-cost network system used in the automation industry to interconnect control devices for data exchange. The DeviceNet network is classified as a CAN bus network, whose characteristics are high speed communications using analog signals with diagnostics by the network devices.

Lesson Scope

Learners who successfully complete this lesson should be able to:

1. Describe the history and evolution of DeviceNet.
2. Explain how DeviceNet works.
3. Identify the different technologies used by DeviceNet.



Lesson Description

All DeviceNet networks share the same essential elements for a functioning network.

The network itself can be configured in many different ways, but the components and wiring in the panel are often similar.

Lesson Scope

Learners who successfully complete this lesson should be able to:

1. Identify and locate essential components and wiring of a DeviceNet network.
2. Describe the labeling convention of DeviceNet connectors.



Lesson Description

Auxiliary power provides power to nodes with outputs, such as an ArmorStart. When it fails, those outputs will not have 24 VDC and parts of the DeviceNet network can grind to a halt.

Lesson Scope

Learners who successfully complete this lesson should be able to:

1. Define the purpose of auxiliary power on a DeviceNet network.
2. Identify DeviceNet components that utilize auxiliary power.
3. Describe typical DeviceNet components that cause auxiliary power failure.
4. Perform troubleshooting procedures to determine if auxiliary power has failed on the DeviceNet network.



Lesson Description

The 1756 DNB module has three indicator lights that identify operation and problems:

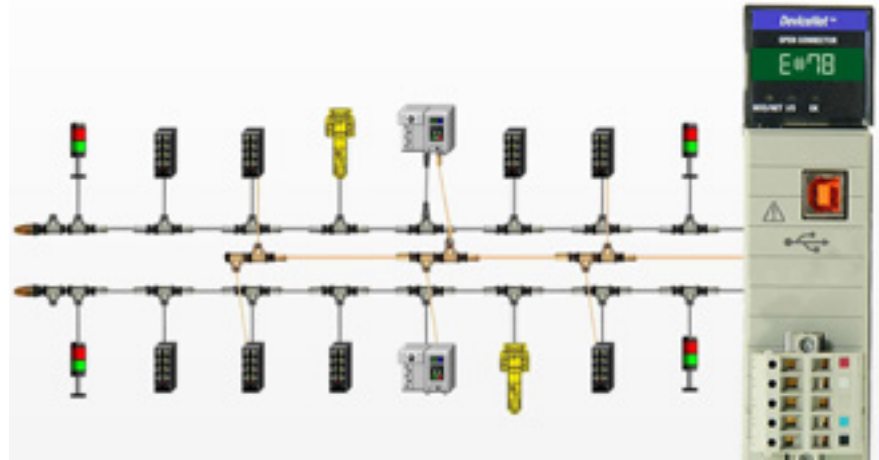
1. MOD/NET
2. I/O
3. OK

Understanding these indicator lights can help you properly troubleshoot a malfunctioning network.

Lesson Scope

Learners who successfully complete this lesson should be able to:

1. Identify the different states of the MOD/NET, I/O, and OK indicator lights on the 1756 DeviceNet Bridge.
2. Describe the status of the different states of the MOD/NET, I/O, and OK indicator lights on the 1756 DeviceNet Bridge.
3. Interpret the meaning of the status for the MOD/NET, I/O, and OK indicator lights on the 1756 DeviceNet Bridge.
4. Apply troubleshooting steps to resolve identified issues with the 1756 DeviceNet Bridge.



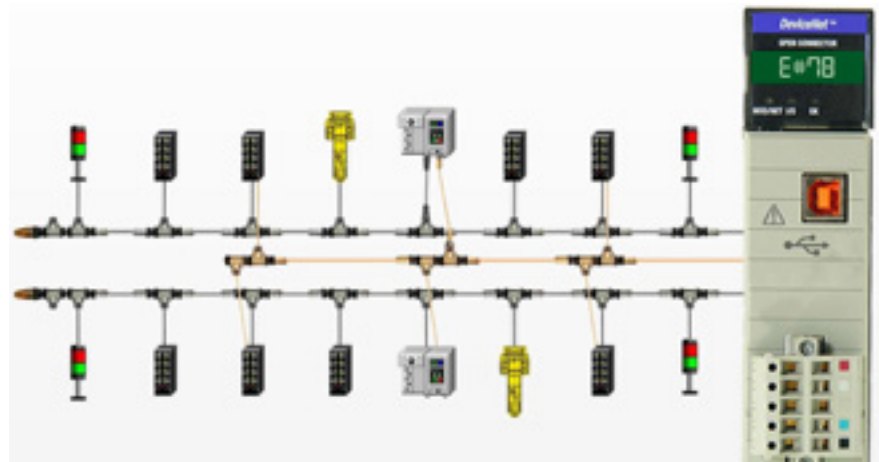
Lesson Description

Error Code E#78 occurs when a node that was programmed into the 1756 DNB Scan List is no longer communicating. It always follows Error Code E#72, which is the first indication of a communication problem with a device. After Error Code E#72 occurs, the 1756 DNB will attempt to communicate with the offending node one more time. If communication is not reestablished, then Error Code E#72 becomes E#78.

Lesson Scope

Learners who successfully complete this lesson should be able to:

1. Recover the DeviceNet 1756-DNB from Error Code E#78: Single Node Failure.
2. Identify troubleshooting methods and correct malfunctions within DeviceNet
3. Utilize the required knowledge to correct potential faults.
4. Understand the equipment's capabilities and how to ensure malfunctions and deficiencies are addressed quickly.



Lesson Description

Error Code E#78 Multiple Node Failure occurs when nodes that were programmed into the 1756 DNB Scan List are no longer communicating. It always follows Error Code E#72, which is the first indication of a communication problem with a device. After Error Code E#72 occurs, the 1756 DNB will attempt to communicate with the problem nodes one more time. If communication is not reestablished, then Error Code E#72 becomes E#78.

Lesson Scope

Learners who successfully complete this lesson should be able to:

1. Define Error Code E#78 Multiple Node Failure.
2. Describe how to locate faulty nodes on a DeviceNet network.
3. Perform troubleshooting procedures.
4. Explain the difference between consecutive multiple and random multiple node failures.
5. Recommend solutions of how to recover from Error Code E#78 Multiple Node Failure.



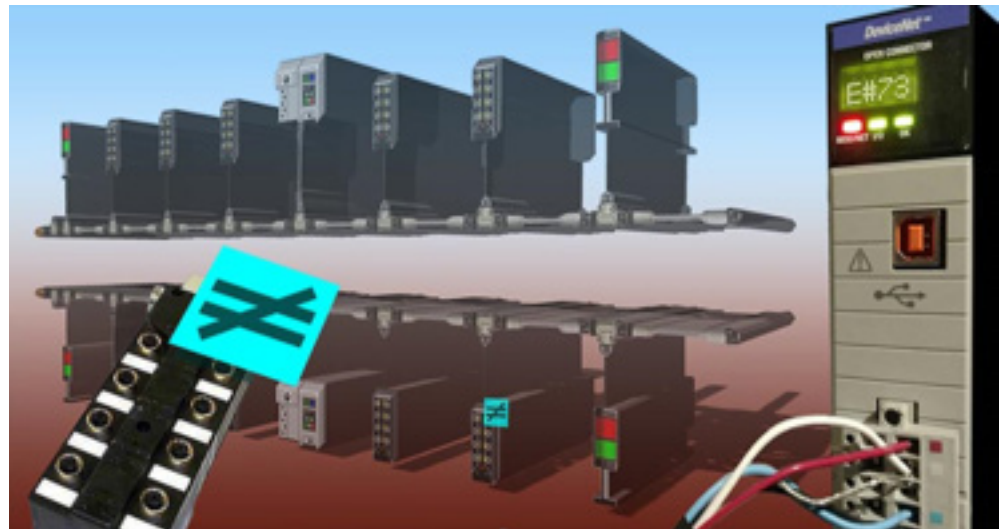
Lesson Description

Bus Off is one of the most difficult errors to troubleshoot on a DeviceNet network. Bus Off occurs when the DeviceNet network becomes unstable and stops communicating. However, there is hope! In this lesson is a simple, easy to follow procedure that systematically breaks down the network to determine the root cause of the Bus Off condition.

Lesson Scope

Learners who successfully complete this lesson should be able to:

1. Define the Error Code E#91 “Bus Off” condition on a DeviceNet network
2. Identify typical causes of an Error Code E#91 “Bus Off”
3. Perform troubleshooting steps to locate the source of the “Bus Off” condition on a DeviceNet network
4. Recommend solutions on how to recover from an Error Code E#91 “Bus Off Condition” on a DeviceNet network.



Lesson Description

This lesson will explain to the learner what Error Code E#73 is and how to use RSNetWorx to identify the node causing it. Step by step procedures will guide the learner through the most efficient process for recovering from Error Code E#73: Hardware Mismatch.

Lesson Scope

Learners who successfully complete this lesson should be able to:

1. Explain what Error Code E#73 means.
2. Identify the node in RSNetWorx that is causing Error Code E#73.
3. Describe the steps to take in RSNetWorx to resolve Error Code E#73.



Lesson Description

The NetMeter monitors network traffic through all network connections on its connected computer. The NetMeter displays real-time graphics for downloading and uploading speeds. It logs network traffic and provides daily, weekly, monthly, and summary traffic reports. The NetMeter sends alerts when the network exceeds a certain amount of bandwidth usage.

Lesson Scope

Learners who successfully complete this lesson should be able to:

1. Describe a NetMeter and its purpose.
2. Explain the meaning of outputs shown on the NetMeter graphic display.
3. Determine the health of a DeviceNet network using the NetMeter.