

Modbus Plus



Telemecanique

MODBUS PLUS

Class Will Begin Shortly

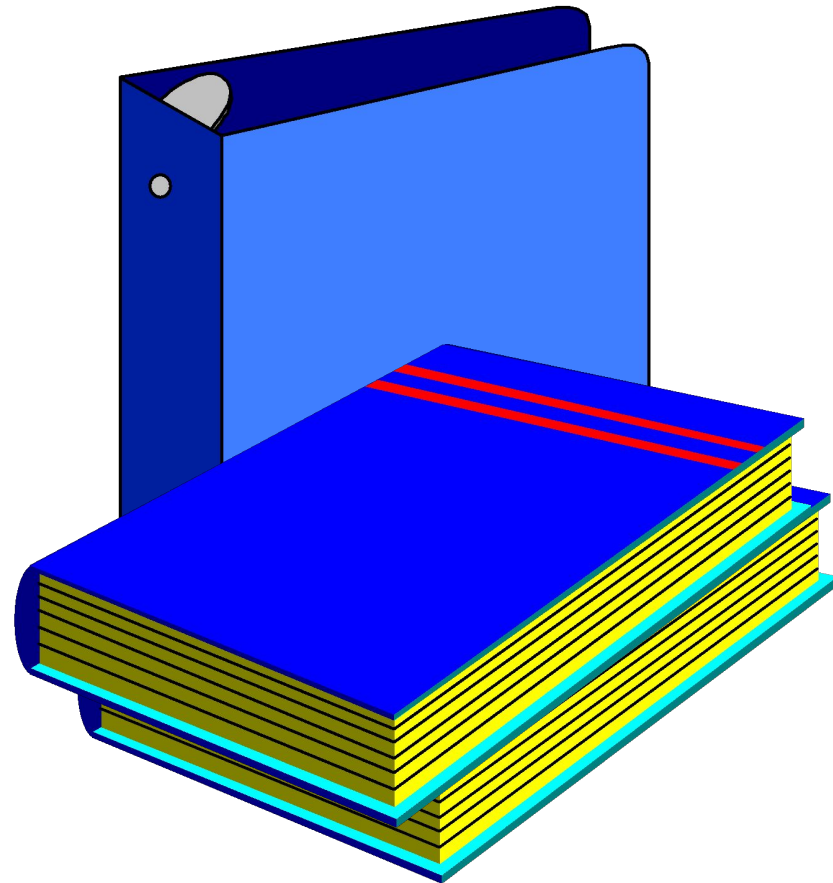
Your Instructor For This Class Is:

Your Name
Training Specialist

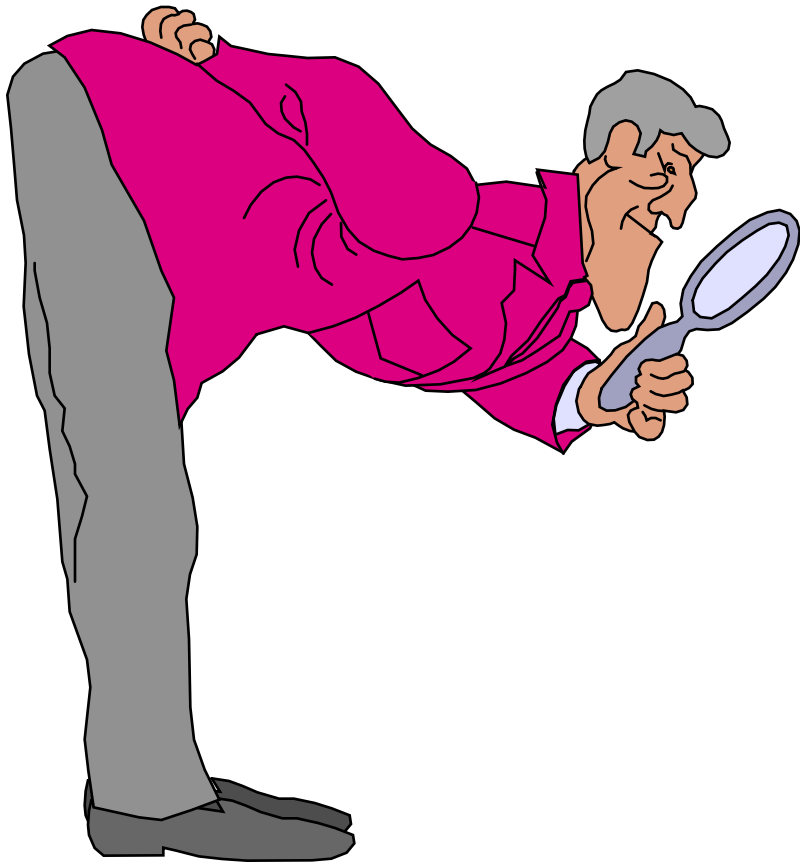


Course Materials

- Student Guide
- User Manuals
- Lab Exercises



Course Evaluation



At the completion of this class,
please take a few minutes to
critique our course.

Your input is very important to
the Training Department.

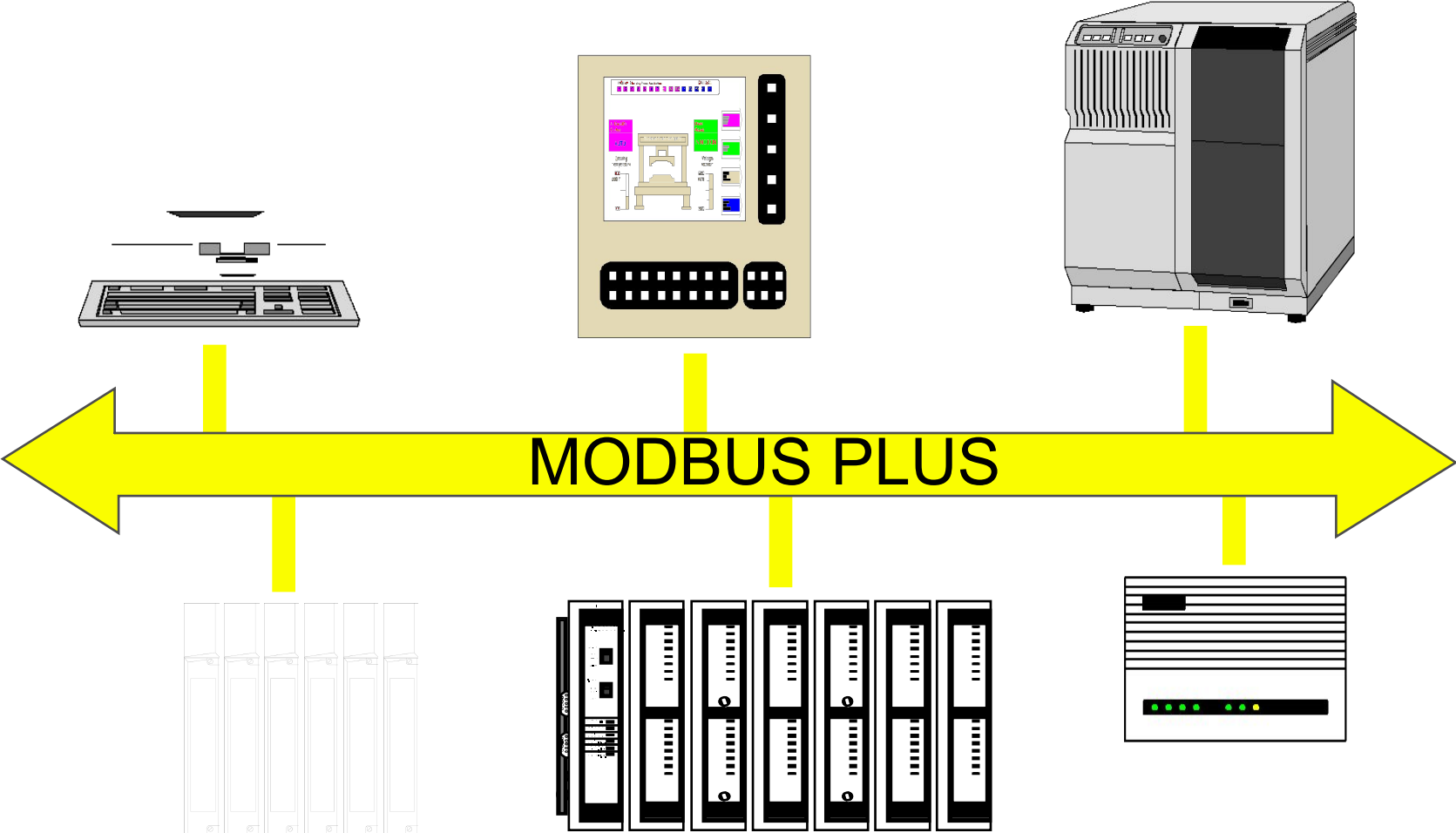
Lesson Objectives

- Upon completion of this lesson, you will be able to:
 - Identify the components of a MODBUS PLUS Network.

Lesson Overview

- This lesson explains the basic components of a MODBUS PLUS network.

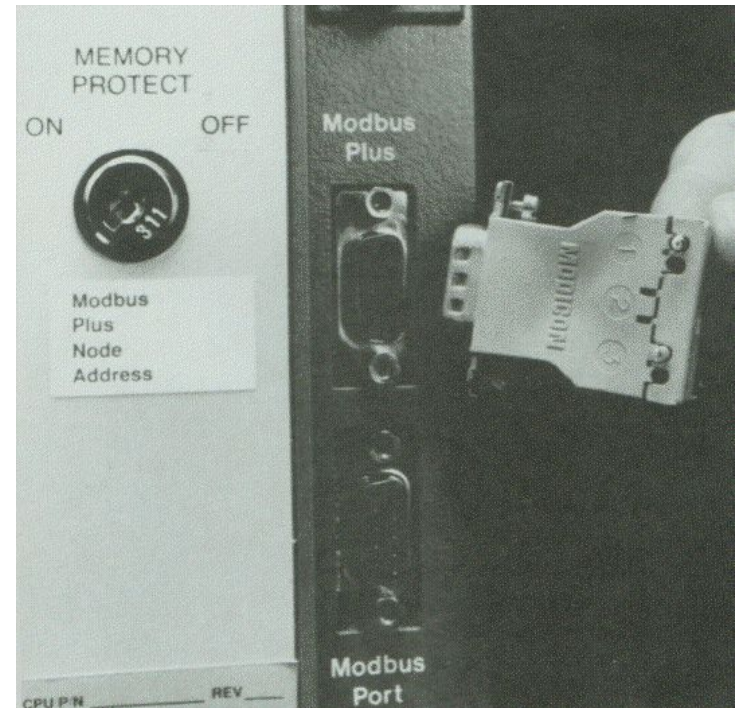
MODBUS PLUS



MODBUS PLUS Overview



- MB+ network applications
 - local and remote programming
 - Supervisory control
 - Data acquisition
 - Human-Machine Interface (HMI)
 - Data exchange between PLC's

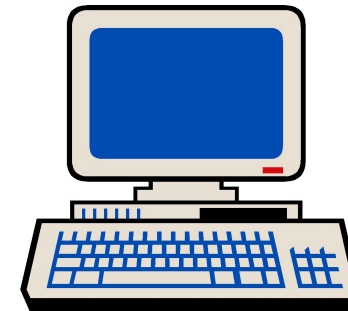
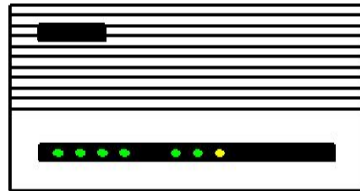
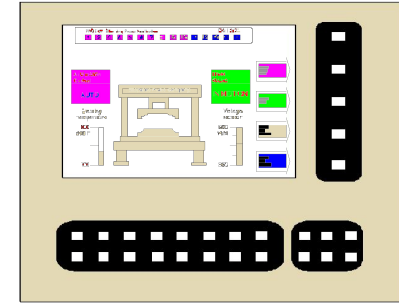
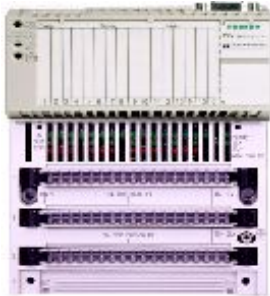


MODBUS PLUS Overview



- MB+ benefits
 - Uses low cost MODBUS PLUS twisted pair wire
 - Troubleshooting with multimeter (VOM)
 - Speed of 1 megabits on twisted pair wire
 - Monitor or modify ladder logic
 - Plug and play high speed network

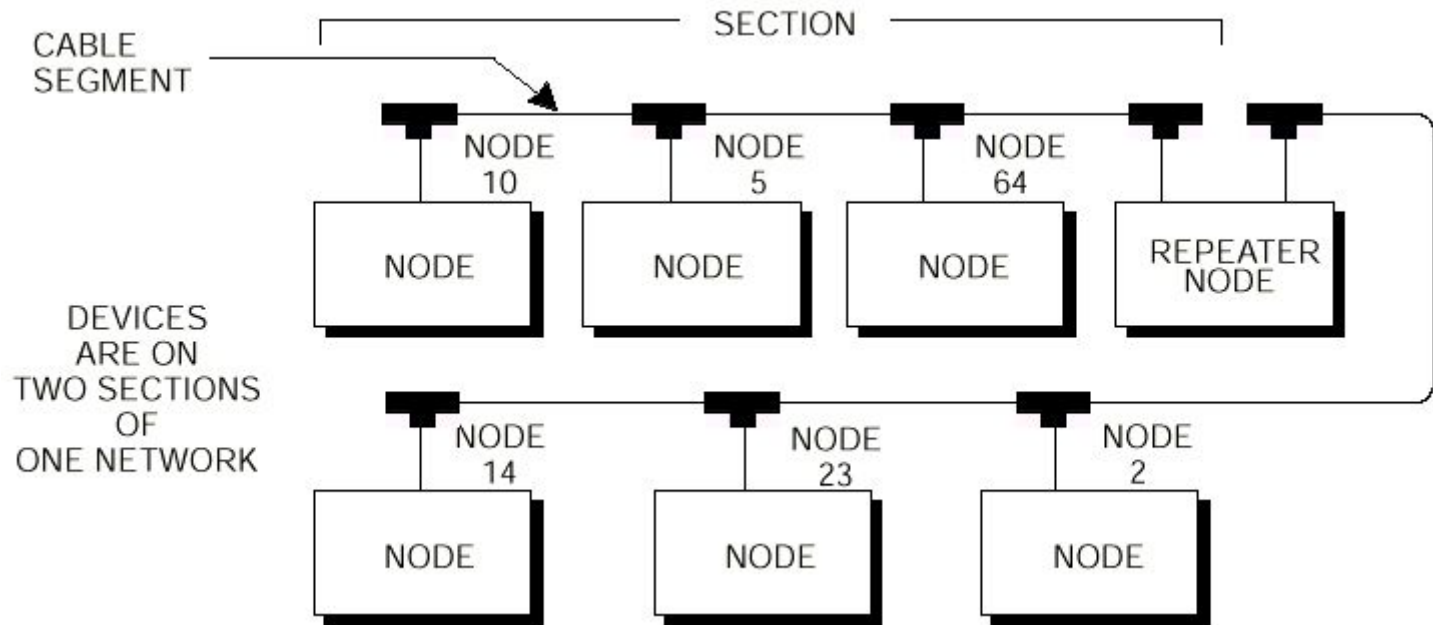
MODBUS PLUS Overview



■ Node

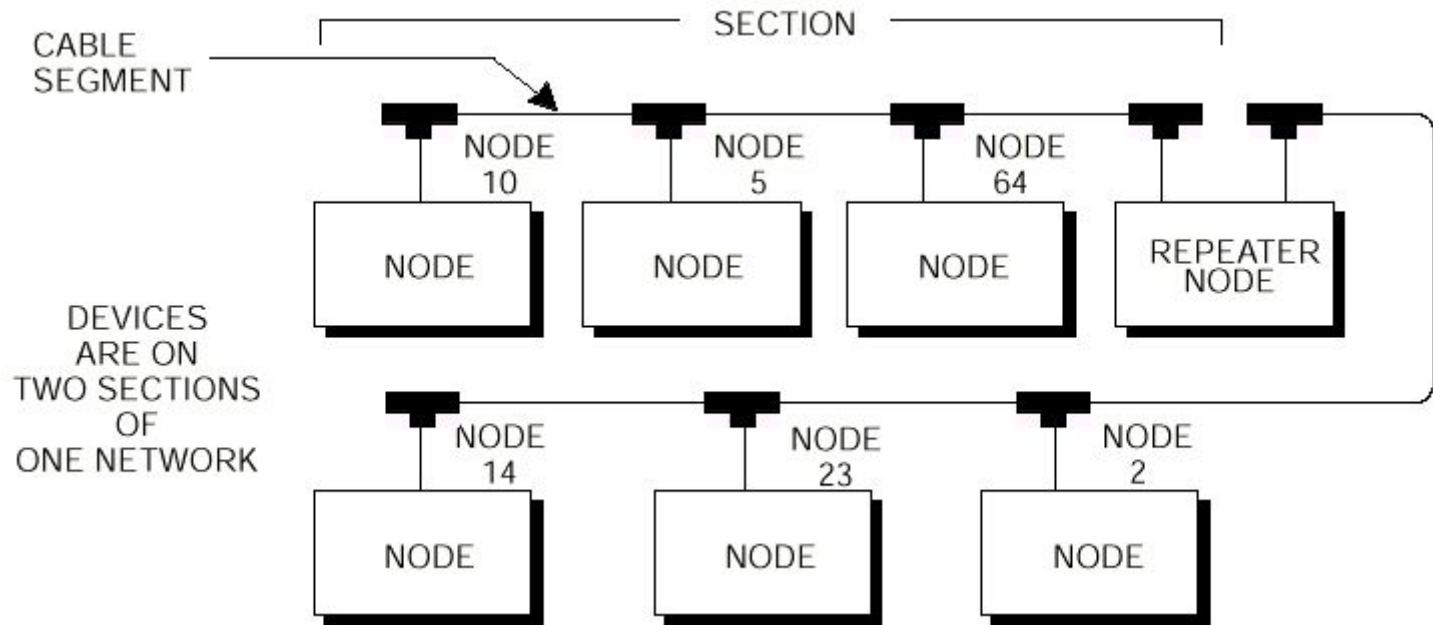
- A node on a MODBUS PLUS network can be described as any device with a MODBUS PLUS port.
- Nodes can be addressable or non-addressable.

MODBUS PLUS Overview



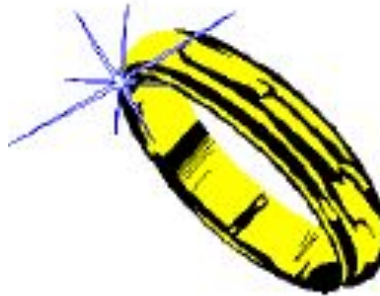
- A node is any device that is physically connected to the MODBUS PLUS cable.
- This example shows a network with seven node devices.
- The term applies to any device, whether it is addressable or not.

MODBUS PLUS Overview



- Some nodes, like programmable controllers, have addresses and can serve as sources or destinations for messages.
- The Repeater is a node on each of two sections, but has no address, serving only to extend the network.

MODBUS PLUS Overview



- MB+ network description
 - The network is wired point to point.
 - The network is a logical ring.
 - The network is called a token ring network.

MODBUS PLUS Overview



- The token is a grouping of bits giving the node permission to initiate messages.
- The token is passed from the lowest addressed node to the next higher node.
- When the highest addressed node is done, it will pass the token to the lowest addressed node.

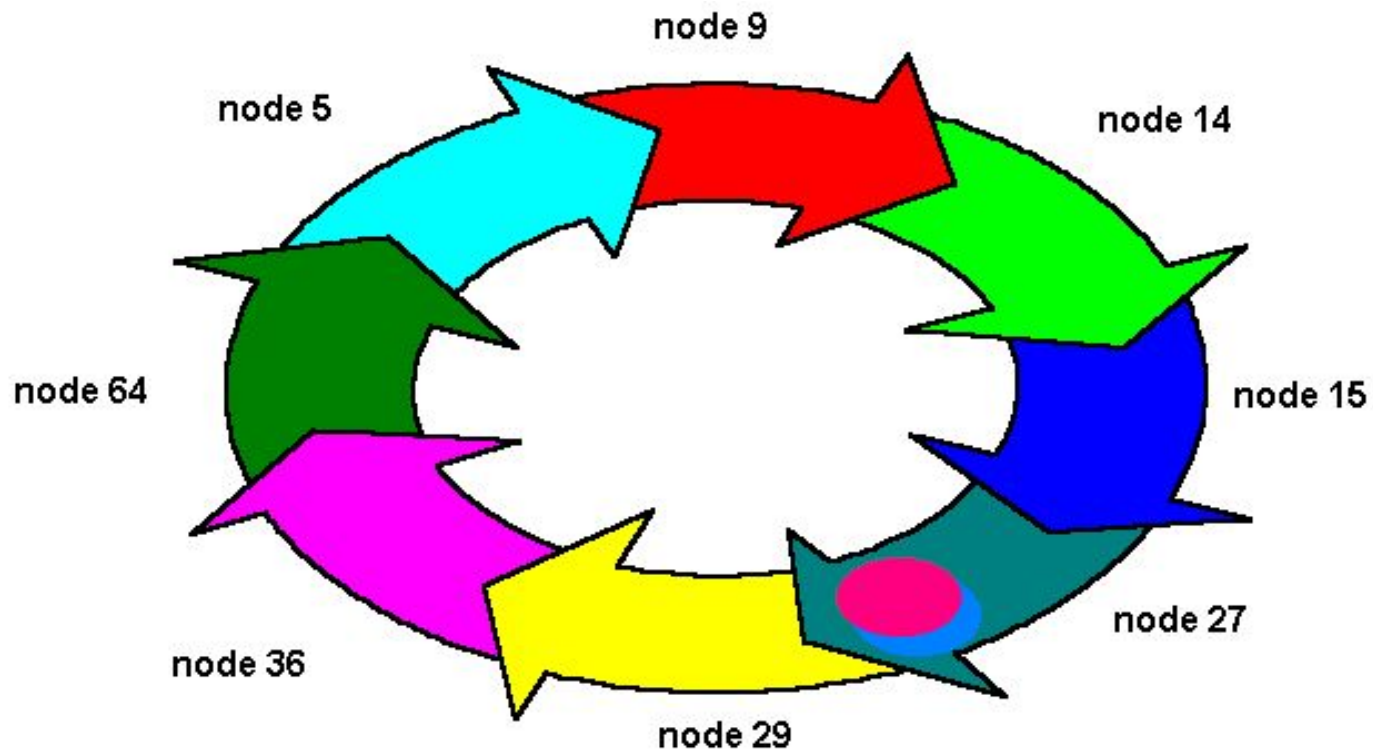
MODBUS PLUS Overview



- A token goes to each addressed node on the network.
- There can be up to 64 nodes or devices on the network.
- A node can be a MB+ port, a PC with a MB+ interface card installed, a MB+ BRIDGE or a MB+ BRIDGE MULTIPLEXER.

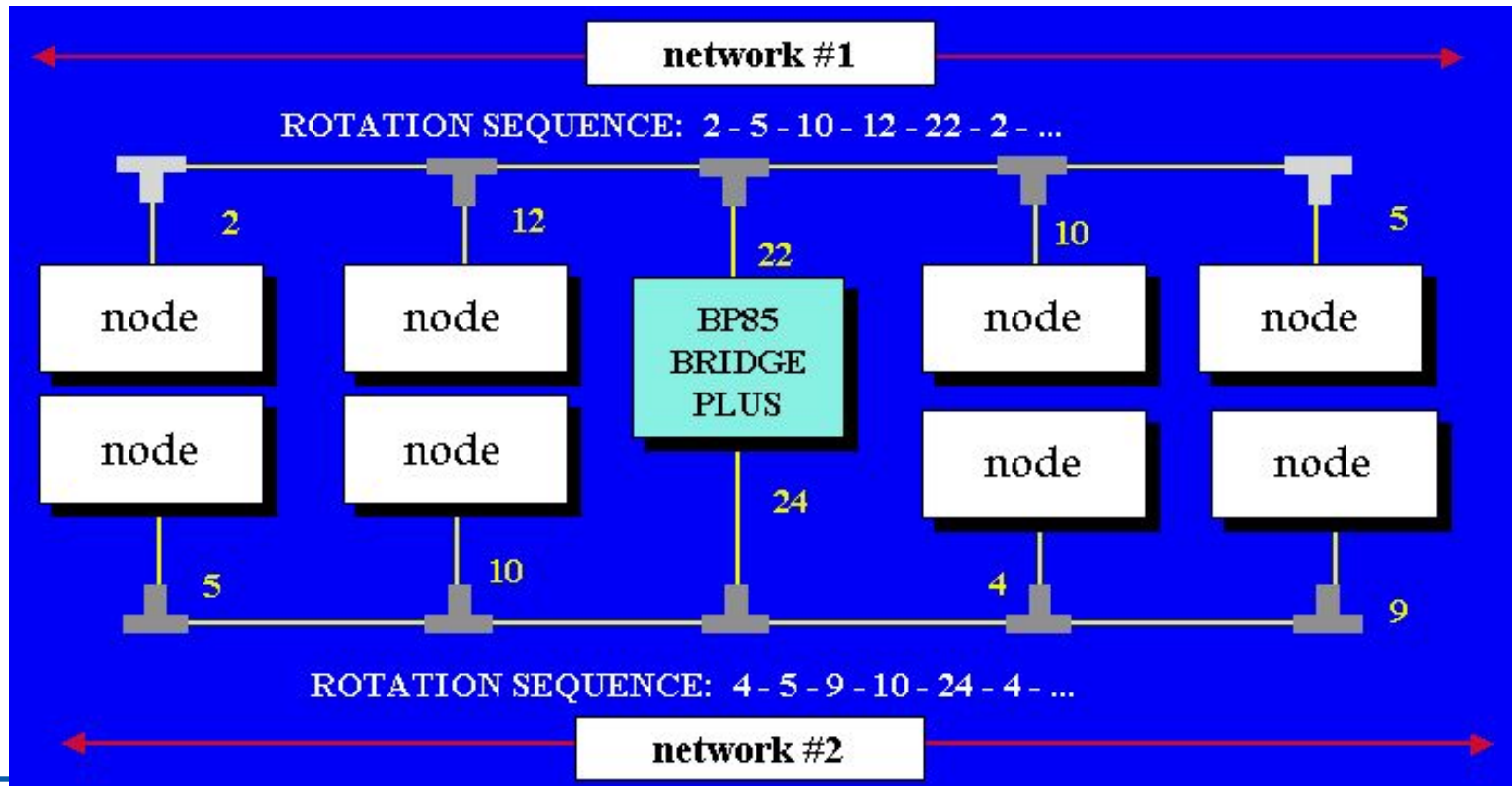
MODBUS PLUS Overview

- Token rotation



MODBUS PLUS Overview

- Rotation sequence



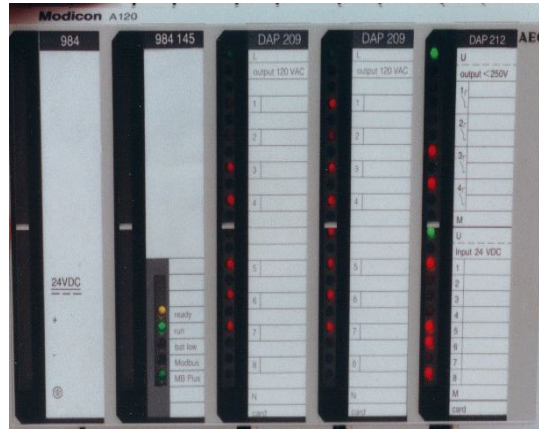
MODBUS PLUS Overview



What can we connect to a MB+ network?

- Personal computer (IBM compatible) with a MB+ card.
 - Support all MB+ network functionality like reading and writing to other nodes.
 - The MODBUS PLUS card comes in two Formats : standard and PCMCIA.

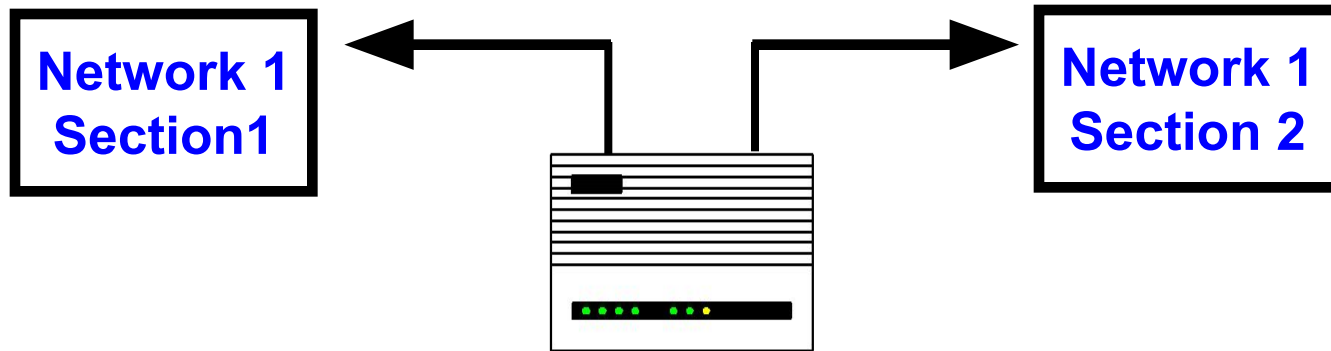
MODBUS PLUS Overview



What can we connect to a MB+ network?

- PLC's :
 - MOMENTUM, COMPACT, PC-0984-385 to 685E/785 or a QUANTUM.

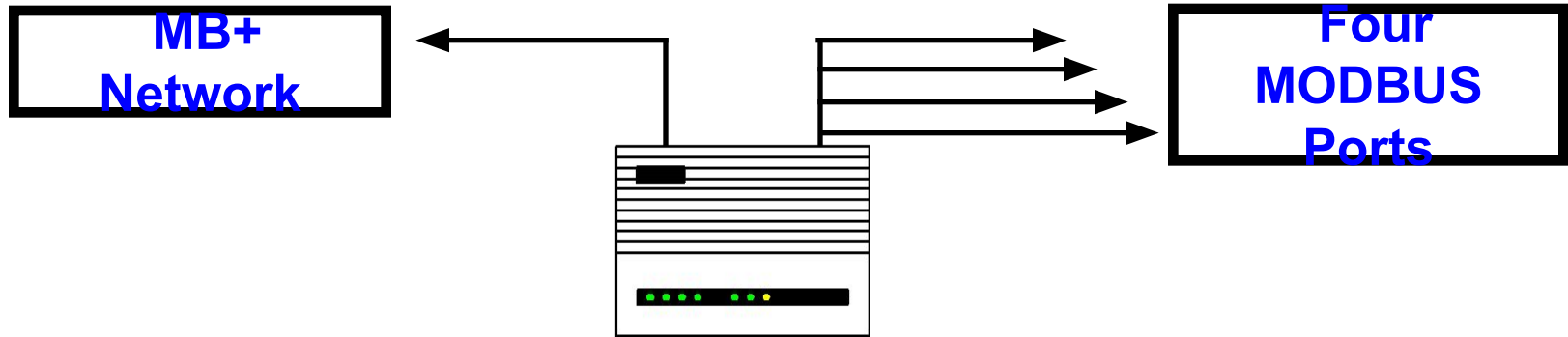
MODBUS PLUS Overview



■ MB+ REPEATER (RR85)

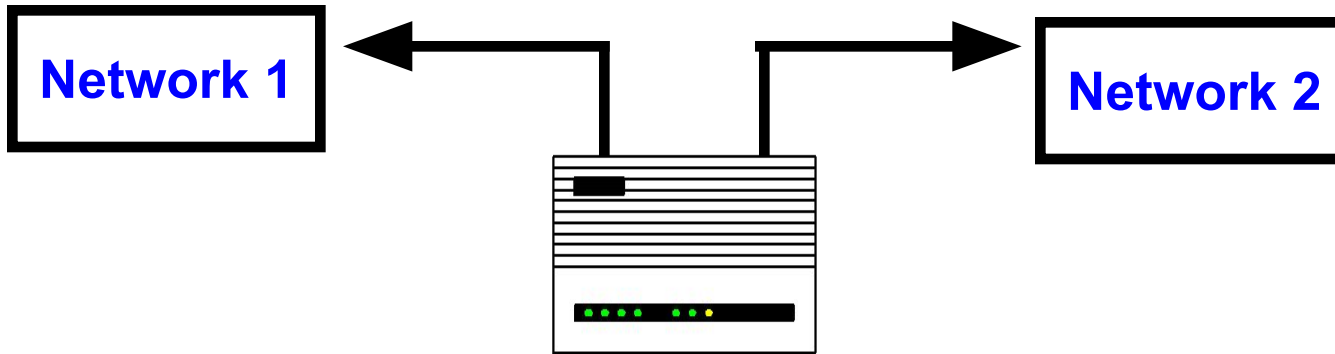
- Maximum of 3 repeaters from the start of the network to the end of the network.
- Each repeater adds 1500 feet of distance.
- One repeater allows 64 nodes.
- Does not have redundant ports.

MODBUS PLUS Overview



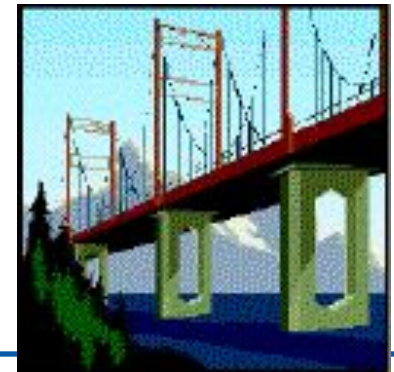
- MB+ "BRIDGE / MULTIPLEXER" (BM85)
 - Allows up to 4 MODBUS devices to connect to a MB+ network.
 - Any node on MB+ can access any BM85 MODBUS port.
- MB + "BRIDGE / MULTIPLEXER" redundant
 - Same thing, but with a redundant port.

MODBUS PLUS Overview



■ MB+ BRIDGE PLUS (BP85)

- Allows the linkage of two MB+ networks.
- Each network linked by a BP85 have their own token.
- A token cannot pass through a BP85.
- A BP85 has a node address on both MB+ networks.
- These addresses could be the same.

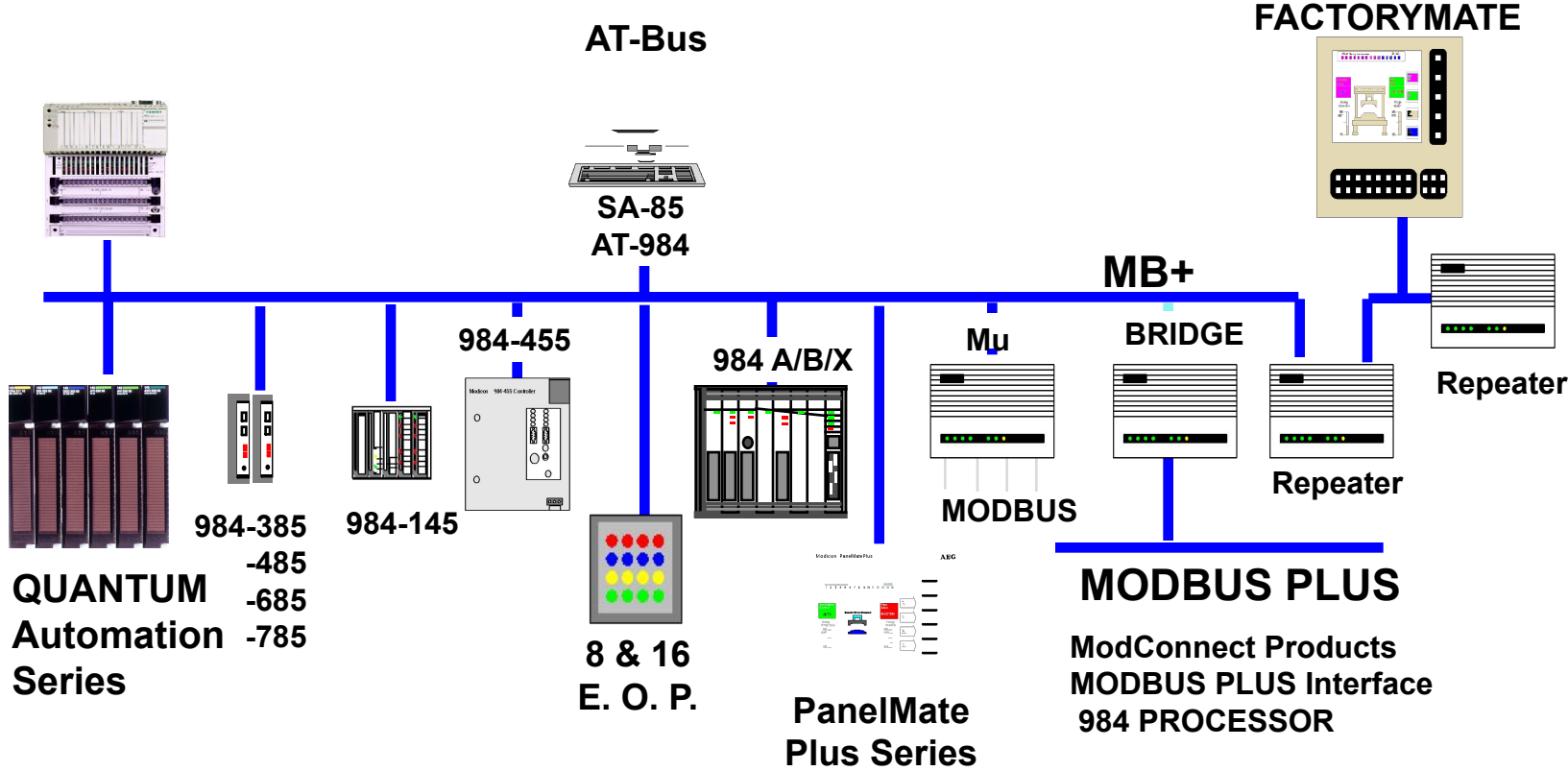


MODBUS PLUS Overview



- MB+ network adapters
 - There are many adapters to connect special devices on MB+ like MicroVaxII and III.
 - MODCONNECT partners.

MODBUS PLUS Overview



■ What can we put on a MB+ network ?

MODBUS PLUS Overview



- The MB+ indicator lamp:
 - Six flashes per second:
 - Normal operating state.
 - One flash per second:
 - The node is offline just after power-up.
 - Two flashes, then off for two seconds:
 - The node is hearing, but never receiving the token.

MODBUS PLUS Overview

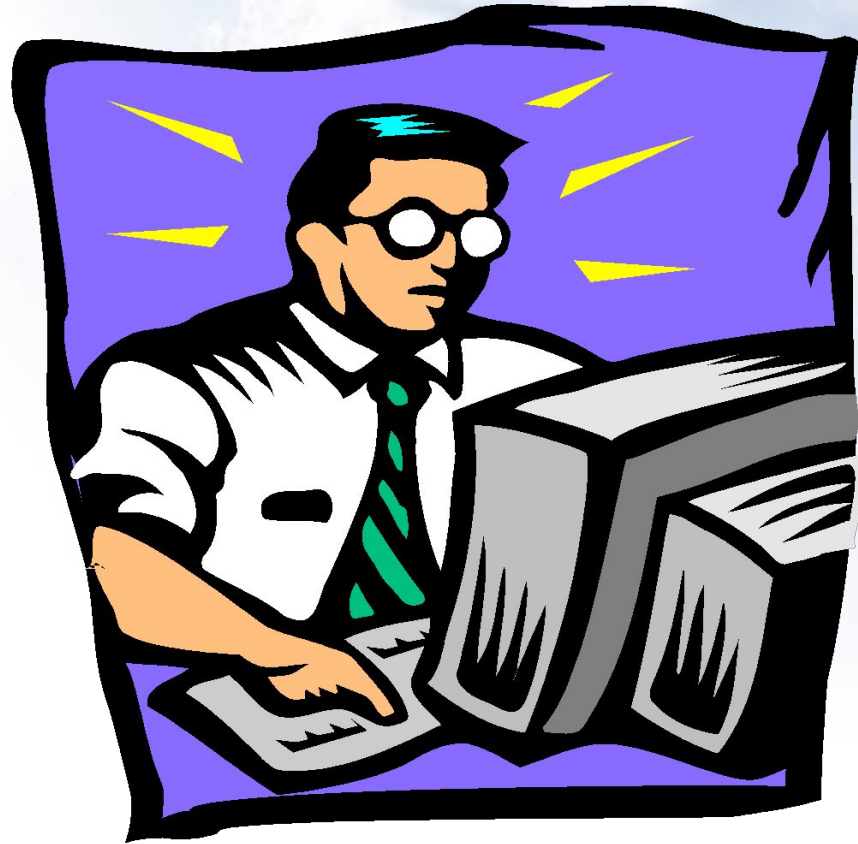
- The MB+ indicator lamp:

- Three flashes, then off for 1.7 seconds:
 - The node is not hearing any other nodes.
- Four flashes, then off for 1.4 seconds:
 - Another node has the same address.



Practice Exercise

Answer the questions that follow



Practice Question 1

The transmission medium of a MODBUS PLUS network is a:

MODBUS PLUS twisted pair cable

Practice Question 2

The cable layout is:

point to point