Using installed Fieldbus Wiring to carry Ethernet Communications

Modbus Plus, Data Highway, GE Genius, Profibus, ControlNet, DeviceNet, InterbusS and many other RS232 or RS4422 cables

Key Issues when upgrading to Ethernet

Ethernet is replacing many traditional Industrial Communication networks as Automation suppliers move to Ethernet for better performance and openness.

Existing applications targeted for an upgrade usually have devices on one or either side to be replaced, however the location will stay the same as the equipment or process locations will not change.

Some applications of the older Fieldbuses will have distances that can exceed the 300 feet limitation of Ethernet over copper wire and thus will require Fiber optic cabling.

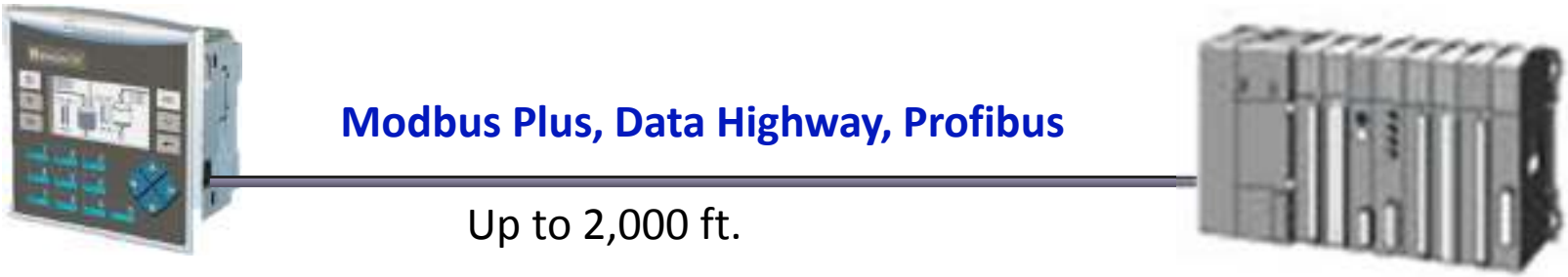
The cost and complexity of running new cabling (especially if Fiber is required) has prevented upgrades of certain application as they are not cost effective.

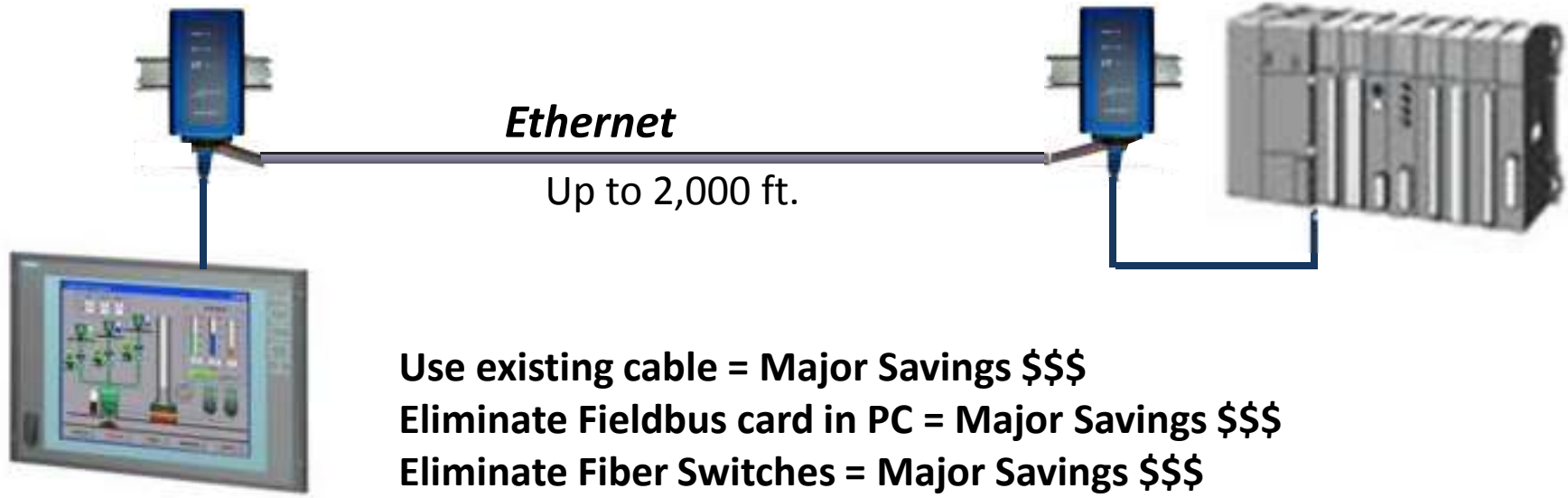
Greatly reduce Cost and Simplify Deployment

The **NetBridge**™ from Aboundi will utilize the existing cable that was used with the previous communication technology by injecting a Broadband communication over the wire and operating at speeds up to 90 MBPS.

- Reduce the cost and potential disruptions when installing new cabling for existing systems
- Eliminate the need to use fiber for communication distances greater than 300 feet
- Keep your multidrop Bus architecture and eliminate Ethernet Switches and complex LLDP, DLR, or Rings

Upgrading Legacy systems





Use existing cable = Major Savings $$$
Eliminate Fieldbus card in PC = Major Savings $$$
Eliminate Fiber Switches = Major Savings $$$

DIN Rail Mounted and Environmentally Hardened

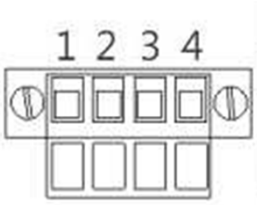
24 VDC Power

Fieldbus Cable

Ethernet

AIA 1803–200-04

- **Used in Long distance applications.**
- **Locally powered**
- **IP 63 Enclosure**

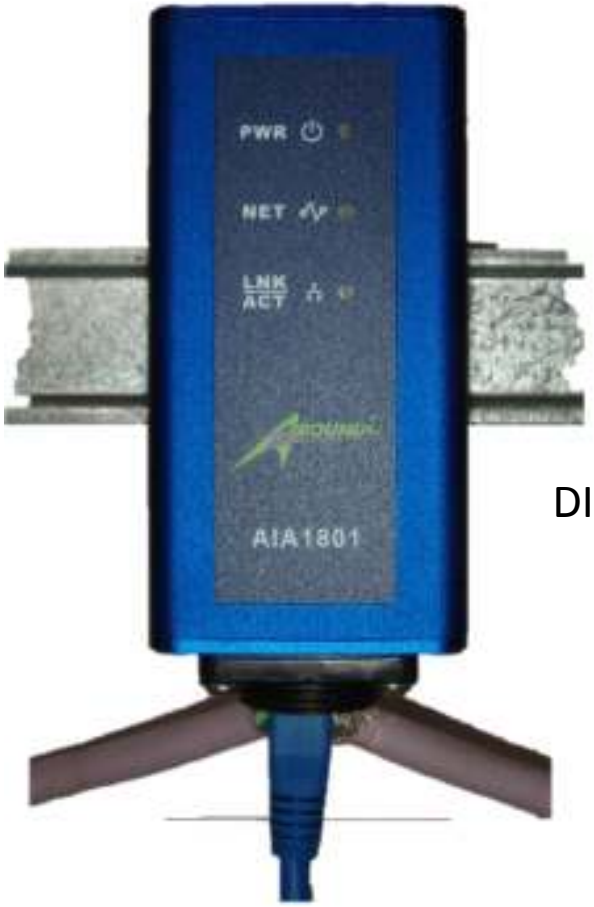


PIN	Definition
1	24Vdc+
2	24Vdc -
3	Data
4	Data

Ethernet Communications over Twisted Pair Cable

Optional IP67 Ethernet Cover

Daisy Chain Wiring



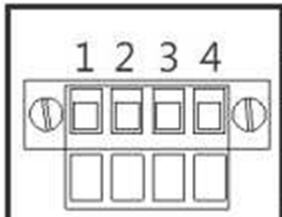
DIN Rail Mount

24 VDC Power and Ethernet over same Wire

Multi-Drop Ethernet Bus Topology

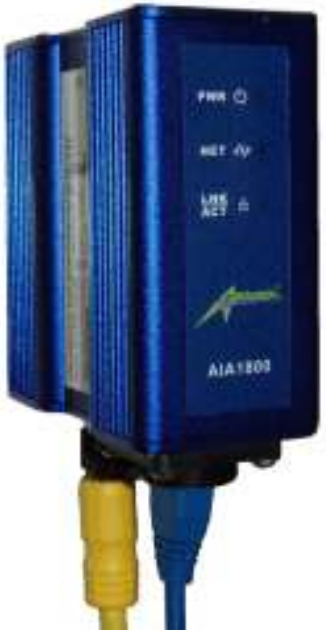
AIA 1801–200-04

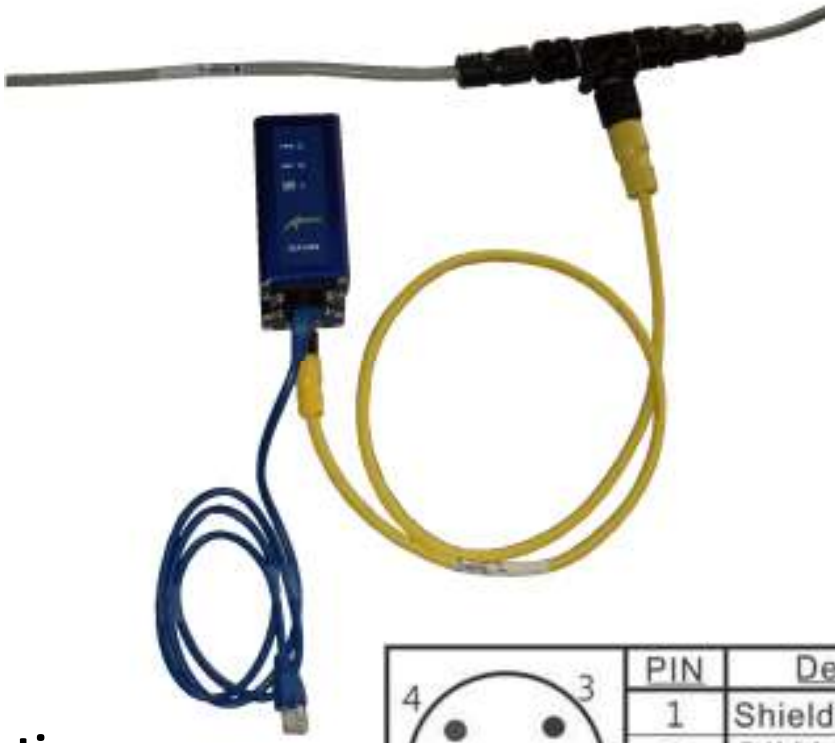
- **Used in MultiDrop applications**
- **Powered over the communication cable**
- **IP 63 Enclosure**



PIN	Definition
1	24Vdc+ , data
2	24Vdc - , data
3	24Vdc+ , data
4	24Vdc - , data

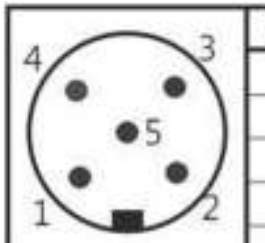
Ethernet Communications over DeviceNet Cable





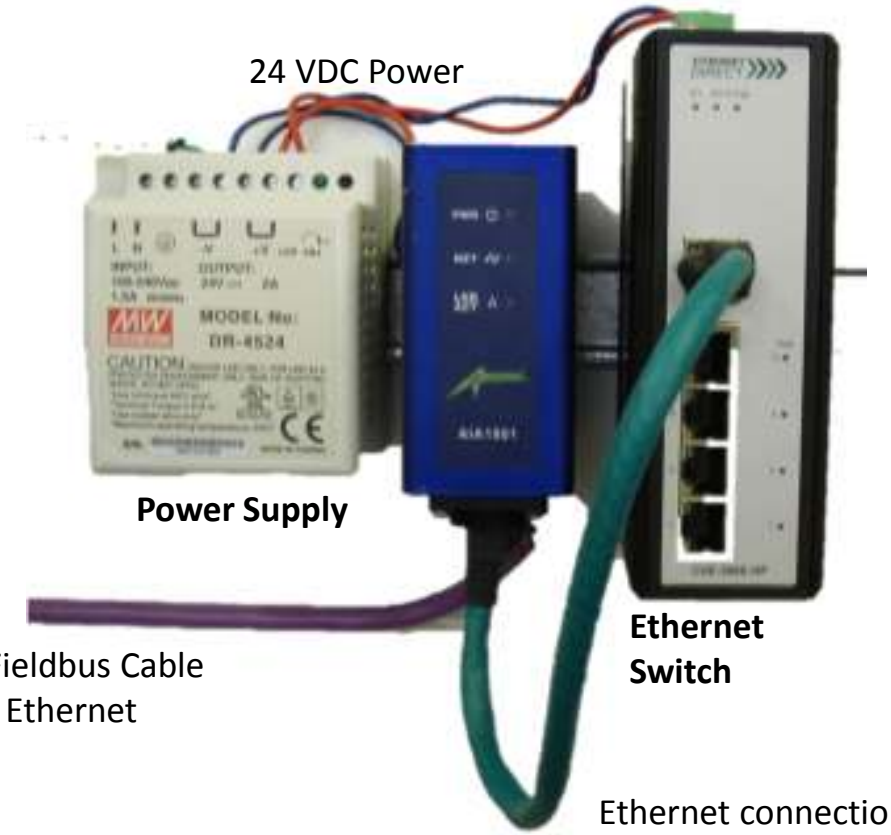
AIA 1802 – 200 - 04

- **Used in MultiDrop applications**
- **Powered and Ethernet communications over the power wire pair of the DeviceNet cable**
- **IP 67 Enclosure**



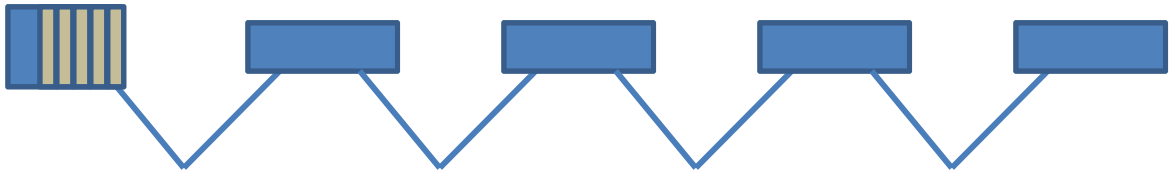
PIN	Definition
1	Shields / Drain
2	24Vdc+ , data
3	24Vdc - , data
4	——
5	——

Adding more IP devices to a remote drop



Connect the output of the NetBridge ™ to a switch to link remote networks.

Ethernet Topology is a major issue in wiring and installation costs

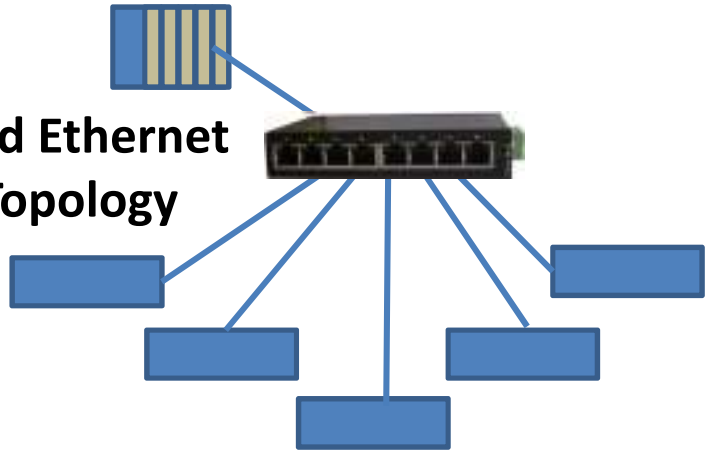


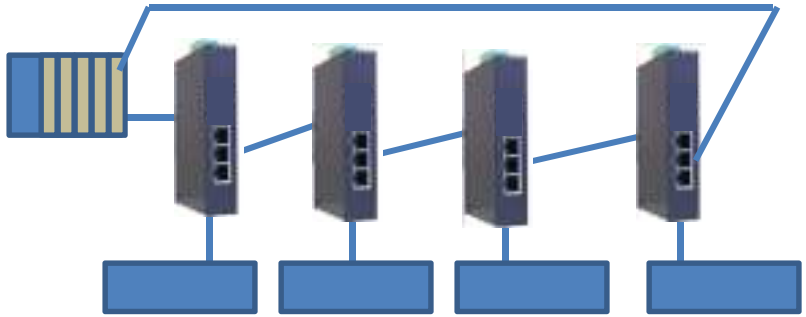
(Remote I/O, Profibus, Modbus+, ControlNet, DeviceNet)

Traditional Fieldbus wiring was optimized to work off a bus or daisy chain wiring

Creating a Bus from a traditional Star tree configuration is a major issue when applying Ethernet in traditional I/O applications with distributed devices.

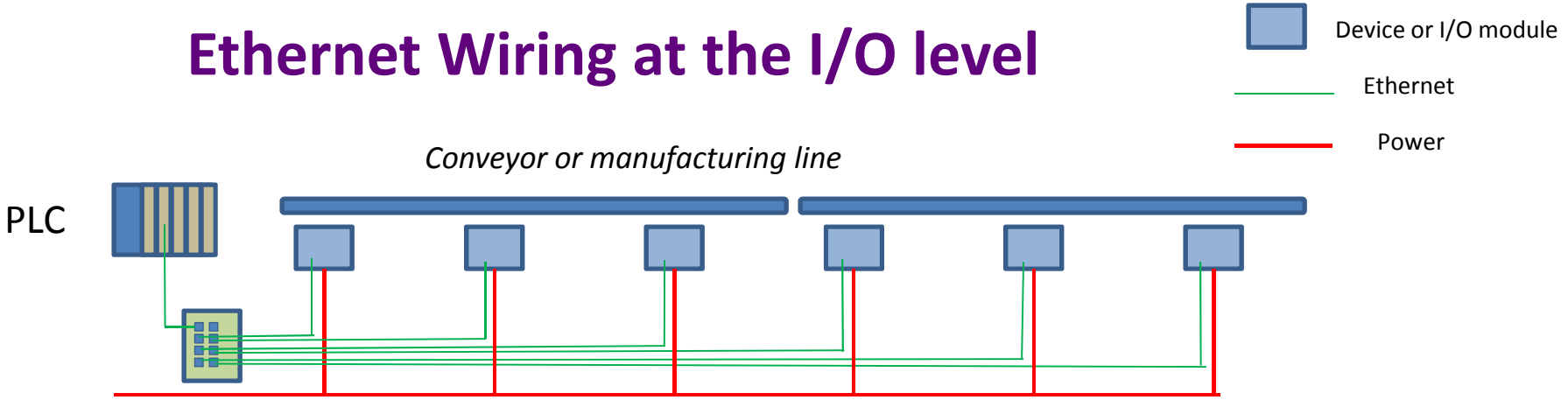
Standard Ethernet Star Topology



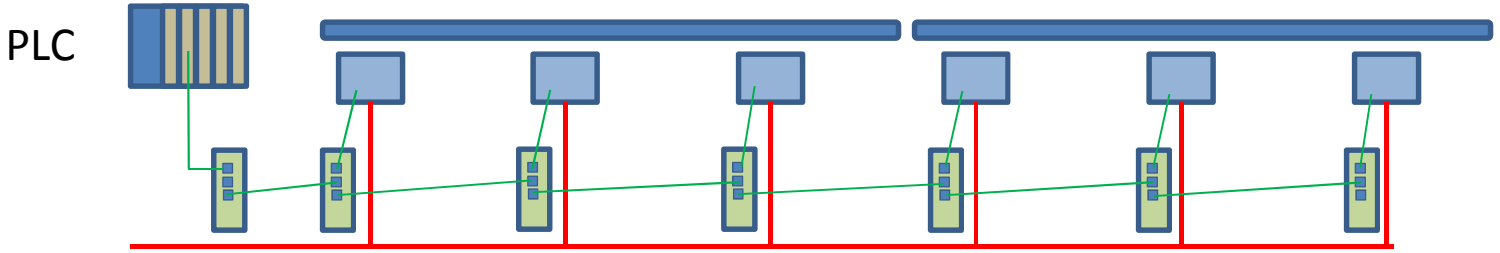


Ethernet switches creating a Bus Topology or Ring

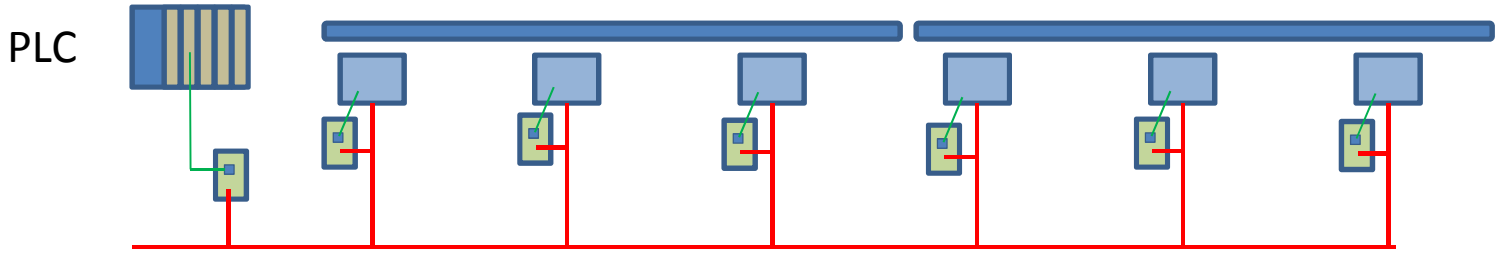
Ethernet Wiring at the I/O level



Traditional Switch architecture



Low port count Switches in a Bus architecture or ring "DLR"



NetBridge ™ configuration with Ethernet over Power "EoP"

ABOUNDI NetBridge ™ Products:

1. Layer Ethernet over High Frequency (Broadband) communication over the common power wires (AC or DC voltages) and thus eliminates a need for a separate communication wire in I/O networks.

2. Operates at a 90 Mbps UDP which is two to four times faster than Wireless without issues of security and dead zones.

3. Can extend wired communications to 600 meters (2,000 ft.) without requiring expensive Fiber-optic cabling

4. Can create Isolated channels and allow VLAN type communications over a common wire by dividing broadcast frequencies into different channels

5. Can inject communication with magnetic coupling to eliminate the need to splice into existing wires