

PC Requirements

To Run Series III Software

Minimum PC Requirements:

CPU: 386/33DX
Memory: Windows 3.1 - 4MB
Windows 95 - 8MB
Hard Disk: 120M available HD

Recommended PC Requirements:

CPU: 486/66DX
Memory: Windows 3.1 - 4MB
Windows 95 - 8MB
Hard Disk: 850M HD

To Run Series III & Enhanced Graphics

Minimum PC Requirements:

CPU: 486/33DX
Memory: Windows 3.1 - 8MB
Windows 95 - 16MB
Hard Disk: 120M available HD

Recommended PC Requirements:

CPU: Pentium 100MHz
Memory: Windows 3.1 - 8MB
Windows 95 - 16MB
Hard Disk: 850M HD

To Run Energy Billing Software

Minimum PC Requirements:

CPU: 486/66DX
Memory: Windows 3.1 - 12 MB
Windows 95 - 16MB
Hard Disk: 1GB, 19ms

Recommended PC Requirements:

CPU: Pentium 100MHz
Memory: Windows 3.1 - 12MB
Windows 95 - 16MB
Hard Disk: 1GB, 19ms w/ archival capability

Supported Operating Environments

Windows 3.1: All IMPACC Software
Windows 95: Series III version 6.5 and higher
Enhanced Graphics version 5.6 or higher
Waveform Display, Energy Billing, and Modbus Gateway Software

Tested Computer Manufacturers

Compaq Deskpro
Dell
Gateway

IMPAC CONNECTIVITY

Configuration

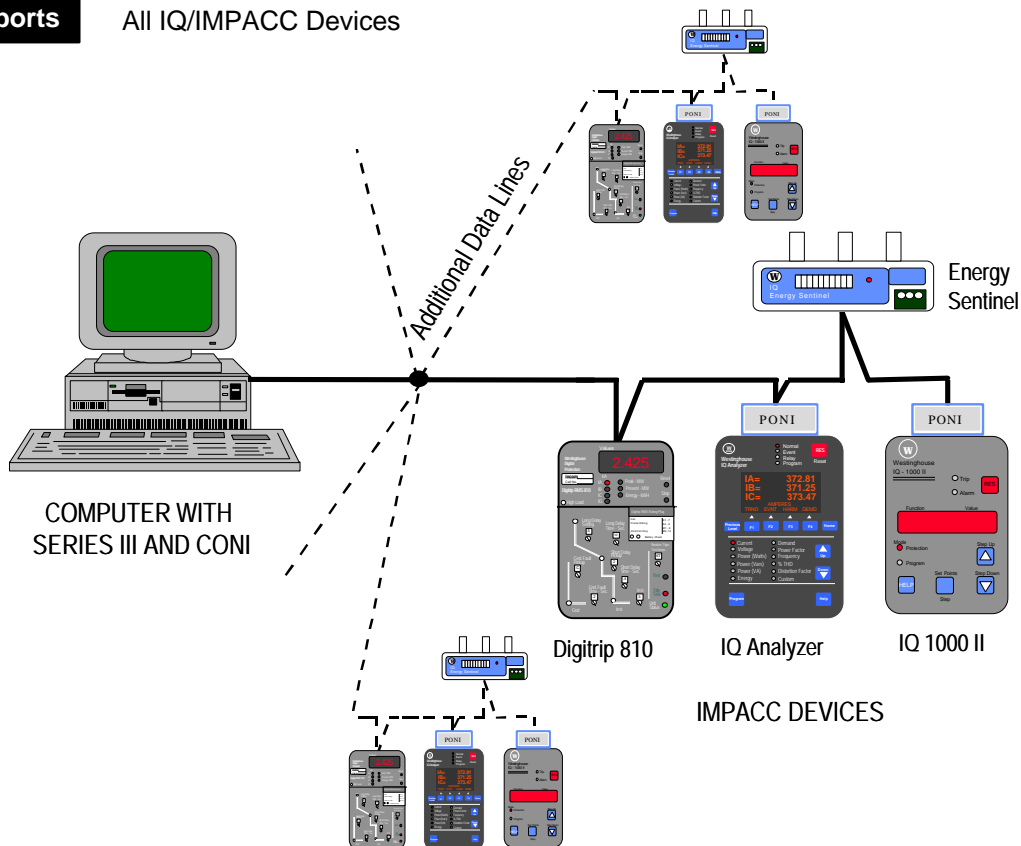
Base System: CONI Card & Twisted Shielded Pair

Application

Remote monitoring and control of Electrical Distribution Equipment from a single computer.

Supports

All IQ/IMPACC Devices



Specifications

- Up to 1,000 devices are supported.
- Devices are daisy chained back to the CONI card using twisted shielded pair. Twisted shielded pair cable is IMPCABLE or any cable in the Belden 9463 family.
- Up to 5 data lines may be started from the computer. An unlimited number of taps, up to 200 ft. in length, may branch from the 5 main runs. Each tap can support up to 64 devices.
- The maximum length of cable on any two main runs, including taps, is 10,000 feet following the wiring guidelines defined in the IMPACC Wiring Specification TD 17513.

Status 6/96

Tested

Bill of Material

- CONI Card
- IMPACC Devices
- PONIs (where necessary)
- Series III Software
- PC with Windows 95 or 3.11
- Communication Cable (IMPCABLE/9463 family)

Contact

Advanced Products Support Center
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Application Note

IMPACC Wiring Specification - TD 17513

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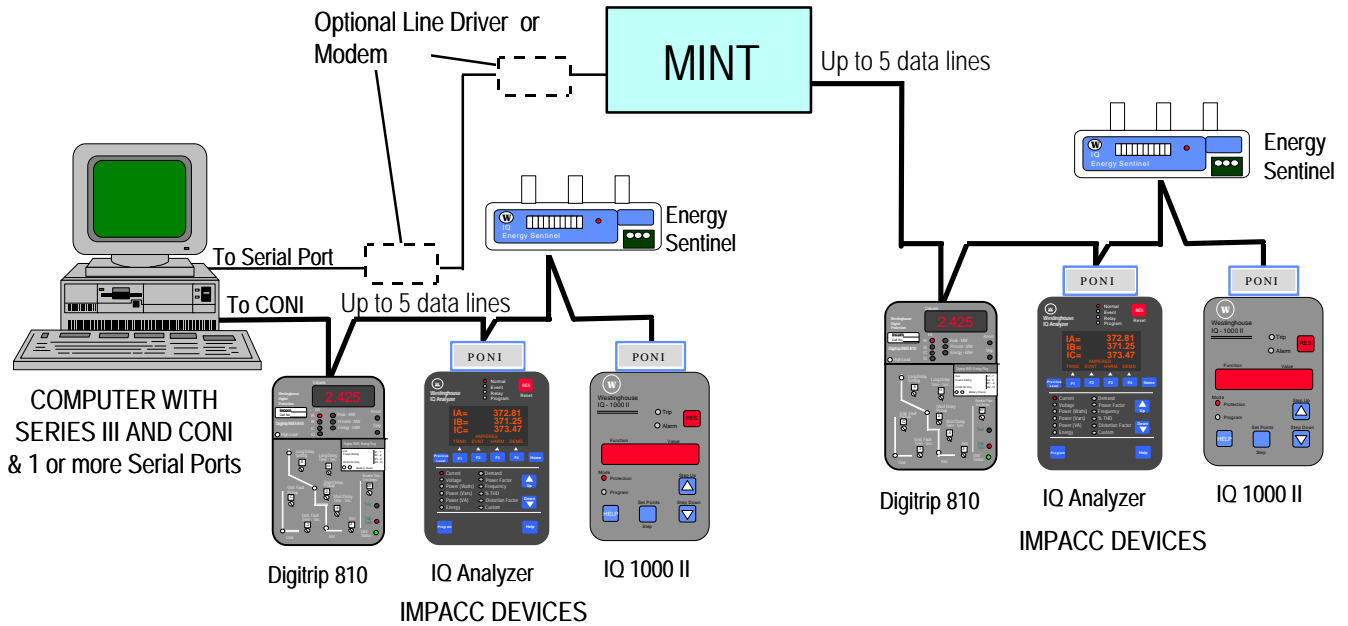
Configuration BASE SYSTEM: CONI Card &/or MINT

Application

- Remote monitoring and control of Electrical Distribution Equipment from a single terminal with long data line runs.
- System allows for utilization of existing spare cable.

Supports

All IQ/IMPACC Devices



Specifications

- Up to 1000 devices are supported.
- Two serial connections are supported by Series III. The addition of a digiboard allows up to 16 serial connections, (please see page 2-4 for details).
- A simple connection between the computer and MINT is done with RS232 cable and has a distance limitation of 50 feet. This distance limitation can be significantly increased through the introduction of line drivers or modems, (please see pages 2-6 to 2-9 for more details).
- Devices are daisy chained back to CONI or MINT using twisted shielded pair. The twisted shielded pair cable must be IMPCABLE or any cable in the Belden 9463 family.
- Up to 5 data lines may be starred from each master (CONI or MINT). An unlimited number of taps, up to 200 ft. in length, may branch from the 5 main runs. Each tap can support up to 64 devices.
- For each master (CONI or MINT) the maximum length of cable on any two main runs, including taps, is 10,000 feet following the wiring guidelines defined in the IMPACC Wiring Specification TD 17513.

Status 6/96

Tested

Bill of Material

- CONI Card &/or MINT(s)
- IMPACC Devices
- PONIs (where necessary)
- Series III Software
- PC with Windows 95 or 3.11
- Communication Cable (IMPCABLE/9463 family)
- RS 232 Printer Cable
- Recommended Line Drivers/Modems and necessary cable

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Application Note

IMPACC Wiring Specification - TD 17513

IMPACC CONNECTIVITY

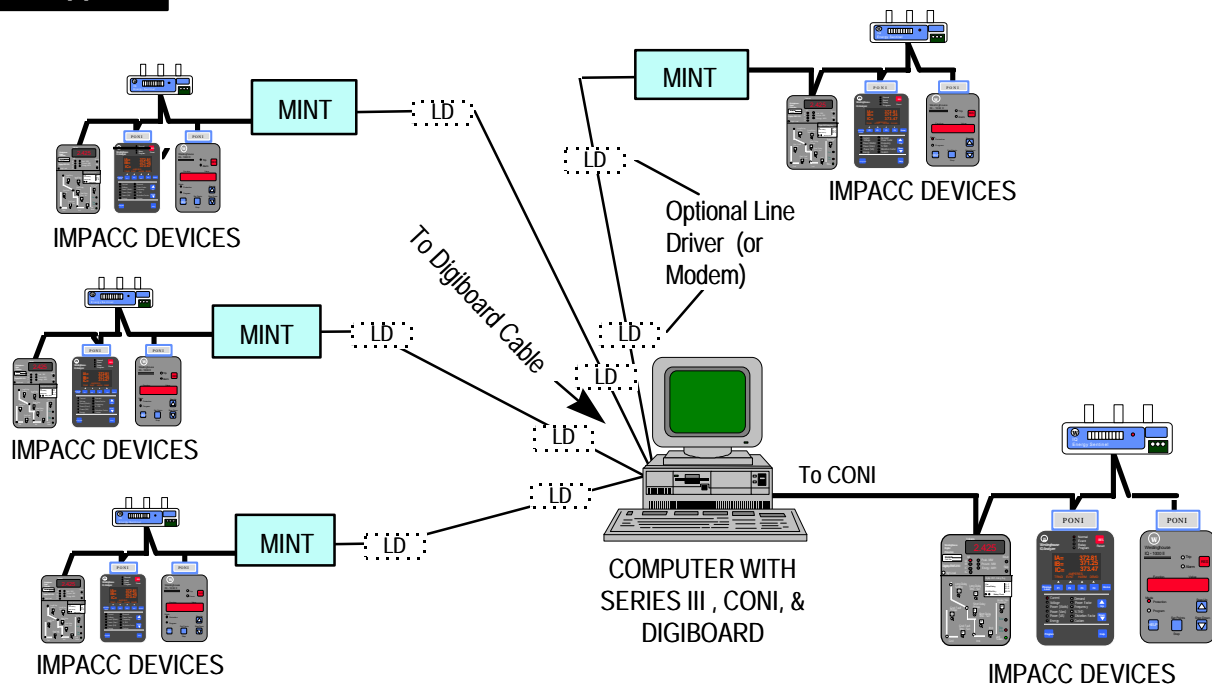
Configuration BASE SYSTEM: Digiboard Application

Application

- Remote monitoring and control of Electrical Distribution Equipment from a single terminal with up to 16 long data line runs.
- System allows for utilization of existing spare cable.

Supports

All IQ/IMPACC Devices



Specifications

- Up to 1000 devices are supported
- The Digiboard allows up to 16 serial connections in addition to the one connection to the CONI. (Digiboards are sold to support 4 or 8 connections and 2 Digiboards can be placed in the PC.)
- A simple connection between the computer and a MINT is done with RS232 cable and has a distance limitation of 50 feet. This distance limitation can be significantly increased through the introduction of line drivers or modems, (please see pages 2-6 to 2-9 for more details).
- Devices are daisy chained back to CONI or MINT using twisted shielded pair. The twisted shielded pair cable must be IMPCABLE or any cable in the Belden 9463 family.
- Up to 5 data lines may be started from each master (CONI or MINT). An unlimited number of taps, up to 200 ft. in length, may branch from the 5 main runs. Each tap can support up to 64 devices.
- For each master (CONI or MINT) the maximum length of cable on any two main runs, including taps, is 10,000 feet per the wiring guidelines defined in the IMPACC Wiring Specification TD 17513.

Status 6/96

Tested

Bill of Material

- CONI Card &/or MINT(s)
- IMPACC Devices (PONIs as required)
- Series III Software
- Digiboard (specify: PC/8 or PC/4)
- PC with Windows 95 or 3.11
- Communication Cable (IMPCABLE/9463 family)
- RS 232 Printer Cable
- Recommended Line Drivers/Modems and necessary cable

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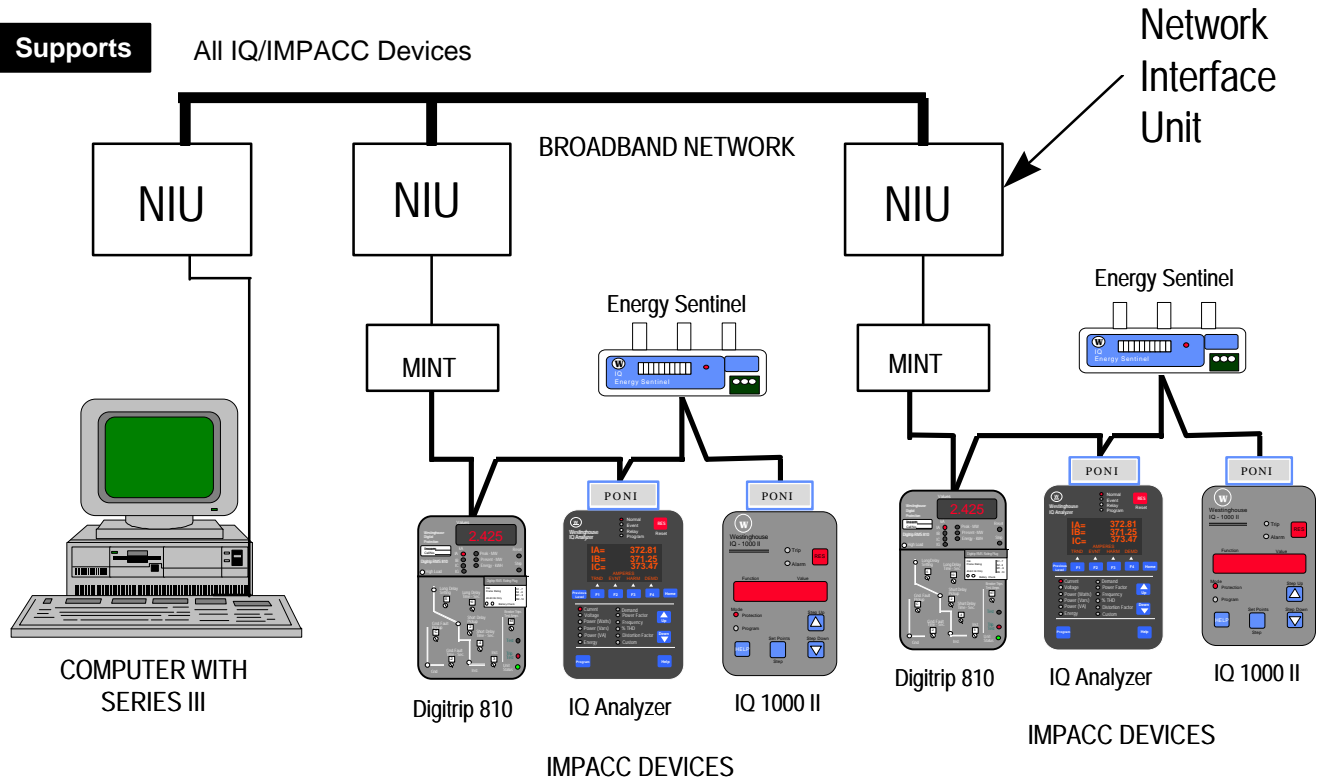
Application Note

IMPACC Wiring Specification - TD 17513

Configuration BASE SYSTEM: Broadband Network Configuration

Application An existing broadband network is to be used as the backbone of the distribution monitoring system.

Supports All IQ/IMPACC Devices



Specifications

- Up to 1000 devices are supported
- From the MINT to the IMPACC devices standard IMPACC wiring rules apply (TD 17513).
- The IMPACC system will require a single dedicated channel on the broadband network.
- The number of Network Interface Units (NIU) the broadband network supports is determined by the physical restrictions of the broadband network. “RS-232 or “Virtual Circuit” broadband networks will limit the number of NIUs to 16(requires Digiboard). Broadcast type broadband support up to 500 NIU’s.
- Separate computers with Series III on multiple channels of the broadband network may be used to run multiple IMPACC systems.

Status 6/96 Tested

Bill of Material

- MINT(s)
- IMPACC Devices
- PONIs (where necessary)
- Series III Software
- PC with Windows 95 or 3.11
- Communication Cable (IMPCABLE/9463 family)

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Application Note

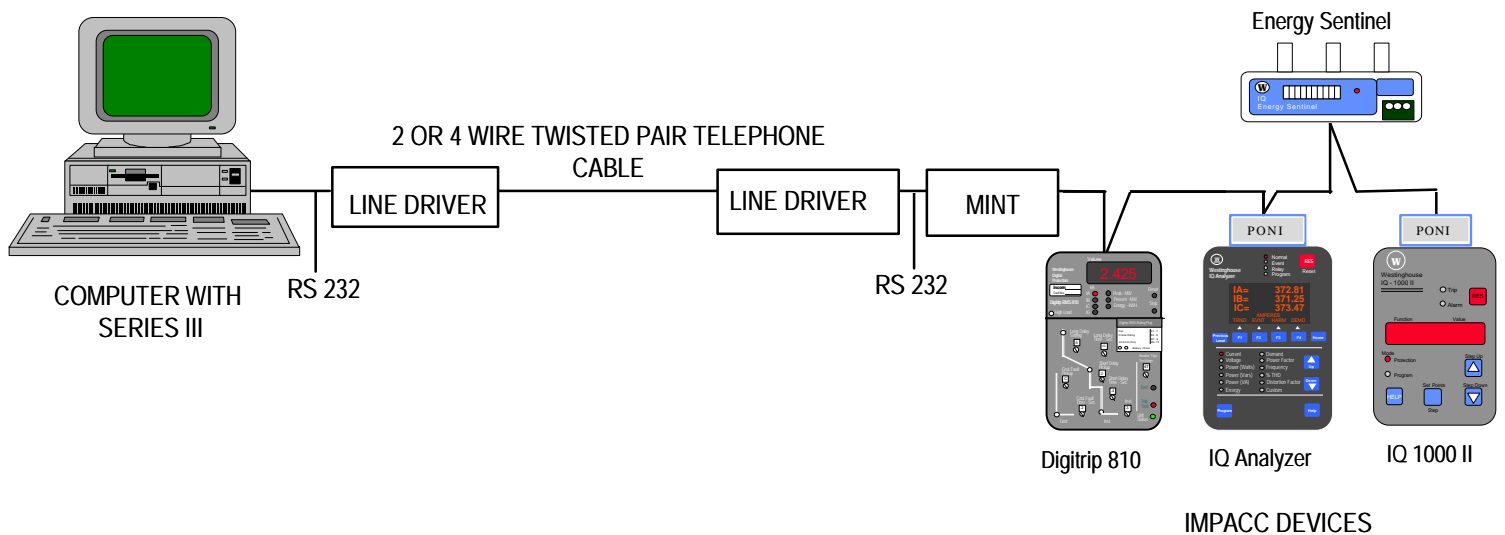
IMPACC Wiring Specification - TD 17513

IMPAC CONNECTIVITY

Configuration SERIAL CONNECTION: Dedicated (Non-Dial Tone) Phone Line Connection

- Application**
- Continuous monitoring and control of up to 16 separate sites from one central location.
 - Remote locations are located less than 4 miles from the monitoring computer.
 - System allows for utilization of existing 2 or 4 wire “metallic” non-dial tone telephone lines.

Supports All IQ/IMPACC Devices



- Specifications**
- From the MINT to the IMPACC devices standard IMPACC wiring rules apply (TD 17513).
 - Between line drivers either a two or four wire metallic connection is required. Wire gauge and number of wires will determine the distance between line drivers and the baud rate. Up to 4.3 miles may be covered.
 - Each remote location requires a separate serial connection. Each connection requires one MINT and one line driver at the remote location, and one line driver within 50 feet of the computer.
 - Two serial connections are supported by Series III. The addition of a digiboard allows for up to 16 serial connections (please see page 2-4 for details.)

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Bill of Material

- CONI Card &/or MINT(s)
- IMPACC Devices (PONIs as required)
- Line Drivers (4 wire - Black Box ME800A, 2 wire - Black Box ME755A recommended)
- Series III Software
- PC with Windows 95 or 3.11
- 2 or 4 wire metallic telephone cable
- Communication Cable (IMPCABLE/9463 family)
- RS 232 Printer Cable

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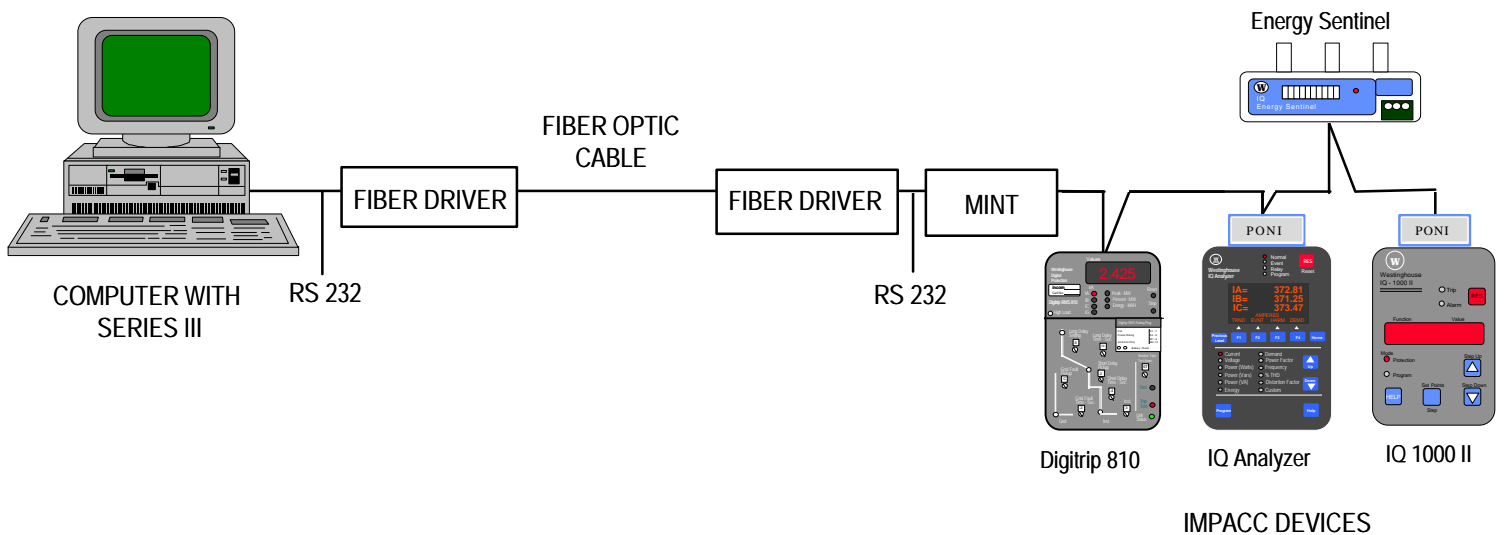
Application Note IMPACC Wiring Specification - TD 17513

IMPAC CONNECTIVITY

Configuration SERIAL CONNECTION: Fiber Optic Connection

- Application**
- Continuous monitoring and control of up to 16 separate sites from one central location.
 - Remote locations are located less than 2.2 miles from the monitoring computer.
 - System allows for utilization of existing fiber optic cable.

Supports All IQ/IMPACC Devices



- Specifications**
- From the MINT to the IMPACC devices standard IMPACC wiring rules apply (TD 17513).
 - Up to 2.2 miles between fiber line drivers.
 - Each remote location requires a separate serial connection. Each connection requires one MINT and one line driver at the remote location, and one line driver within 50 feet of the computer.
 - Two serial connections are supported by Series III. The addition of a digiboard allows for up to 16 serial connections (please see page 2-3 for details.)

Status 6/96 Tested

Bill of Material

- CONI Card &/or MINT(s)
- IMPACC Devices (PONIs as required)
- Fiber Drivers (Black Box MD940A recommended)
- Series III Software
- PC with Windows 95 or 3.11
- Fiber Optic cable
- Communication Cable (IMPCABLE/9463 family)
- RS 232 Printer Cable

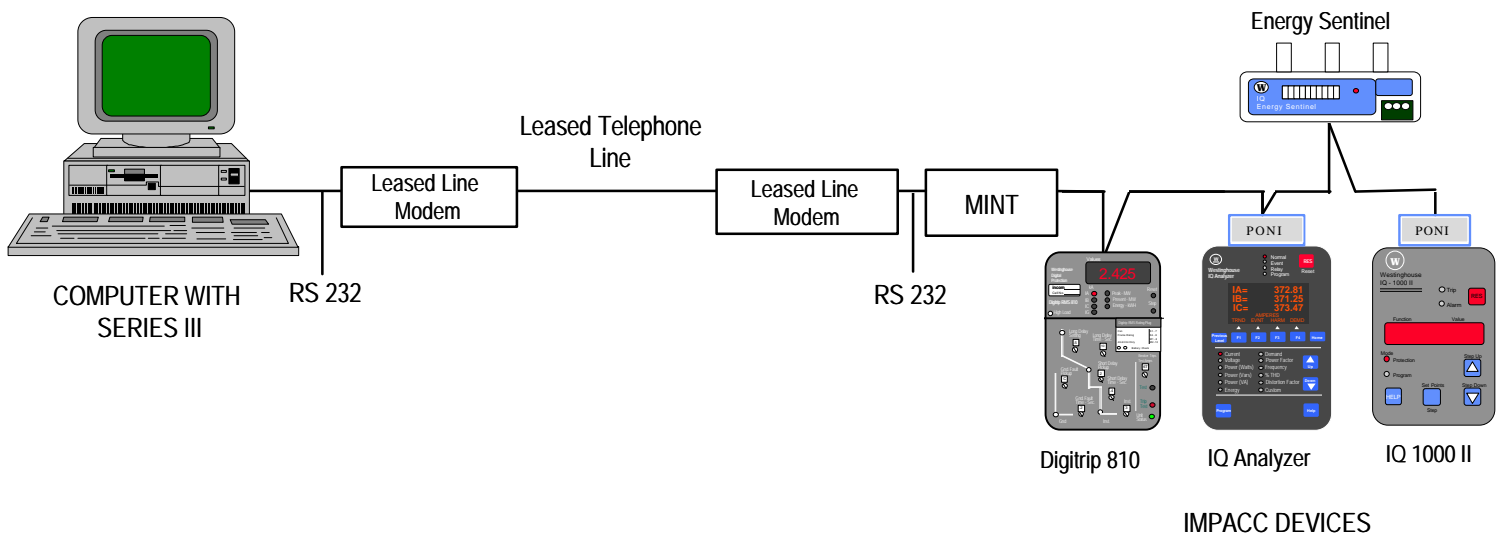
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Application Note IMPACC Wiring Specification - TD 17513

Configuration SERIAL CONNECTION: Leased Line Telephone Connection

- Application**
- Continuous monitoring and control of up to 16 separate sites from one central location.
 - Remote locations are located greater than 4 miles from the monitoring computer.

Supports All IQ/IMPACC Devices



- Specifications**
- From the MINT to the IMPACC devices standard IMPACC wiring rules apply (TD17513).
 - Unlimited distance between modems.
 - Communication to each remote location requires a separate serial connection. Each connection requires one MINT and one leased line modem at the remote location, and one leased line modem within 50 feet of the computer.
 - Two serial connections are supported by Series III. The addition of a digiboard allows for up to 16 serial connections (please see page 2-4 for details.)

Status 6/96 Tested

Bill of Material

- MINT
- IMPACC Devices (PONIs as required)
- Leased Line Modems (contact Phone Co.)
- Series III Software
- PC with Windows 95 or 3.11
- Leased Telephone Line
- Communication Cable (IMPCABLE/9463 family)
- RS 232 Printer Cable

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Application Note IMPACC Wiring Specification - TD 17513

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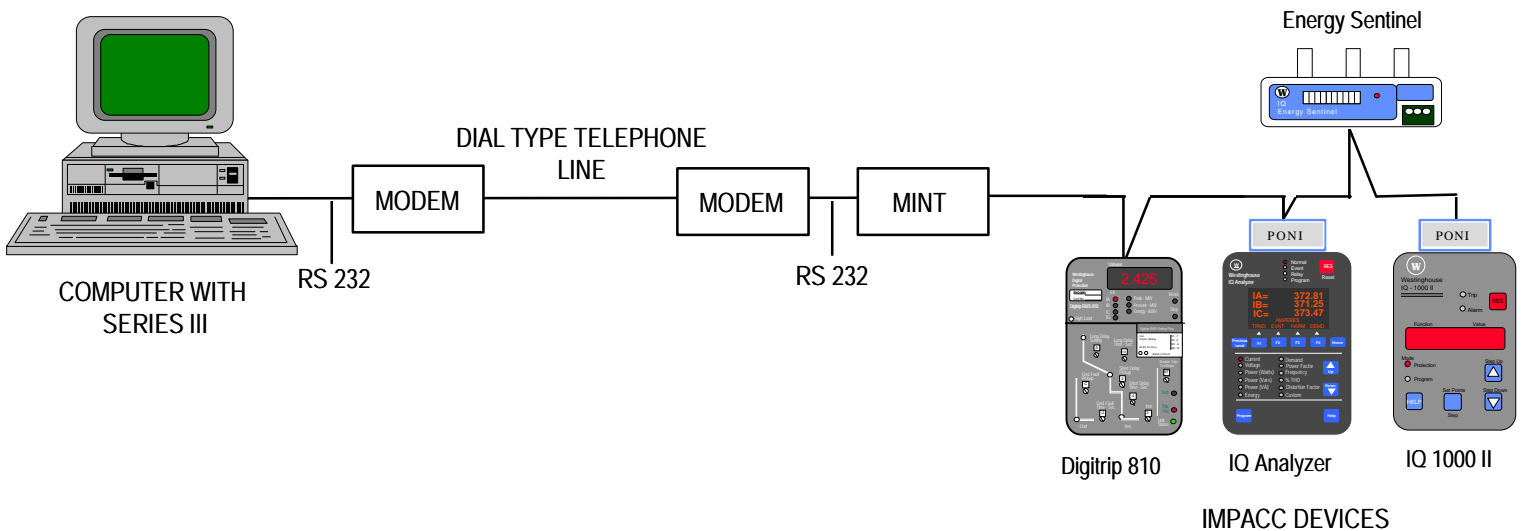
Configuration SERIAL CONNECTION: Dial Up Phone Line Access

Application

- Temporary monitoring of single or multiple sites from one central location.
 - Remote locations are located greater than 4 miles from the monitoring computer.
- OR
- Continuous monitoring of up to two locations where leased line modems and dedicated phone lines are not available.

Supports

All IQ/IMPACC Devices



Specifications

- From the MINT to the IMPACC devices standard IMPACC wiring rules apply (TD 17513).
- Unlimited distance between modems.
- One MINT and one modem is required at each remote location. One or two modems are located within 50 feet of the computer.
- Two locations can be accessed at a time, i.e. two serial connections are supported by Series III. (Dial-up access is not possible through a digiboard.)

Status 6/96

Tested

Bill of Material

- MINT
- IMPACC Devices (PONIs as required)
- Modems(Black Box MD320A-A2 recommended)
- Series III Software
- PC with Windows 95 or 3.11
- Dial-Up Telephone Line
- Terminal Dial-Up Program (Window's Terminal recommended)
- Communication Cable (IMPCABLE/9463 family)
- RS 232 Printer Cable

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Application Note

IMPACC Wiring Specification - TD 17513

IMPAC[©] — C O N N E C T I V I T Y

Configuration

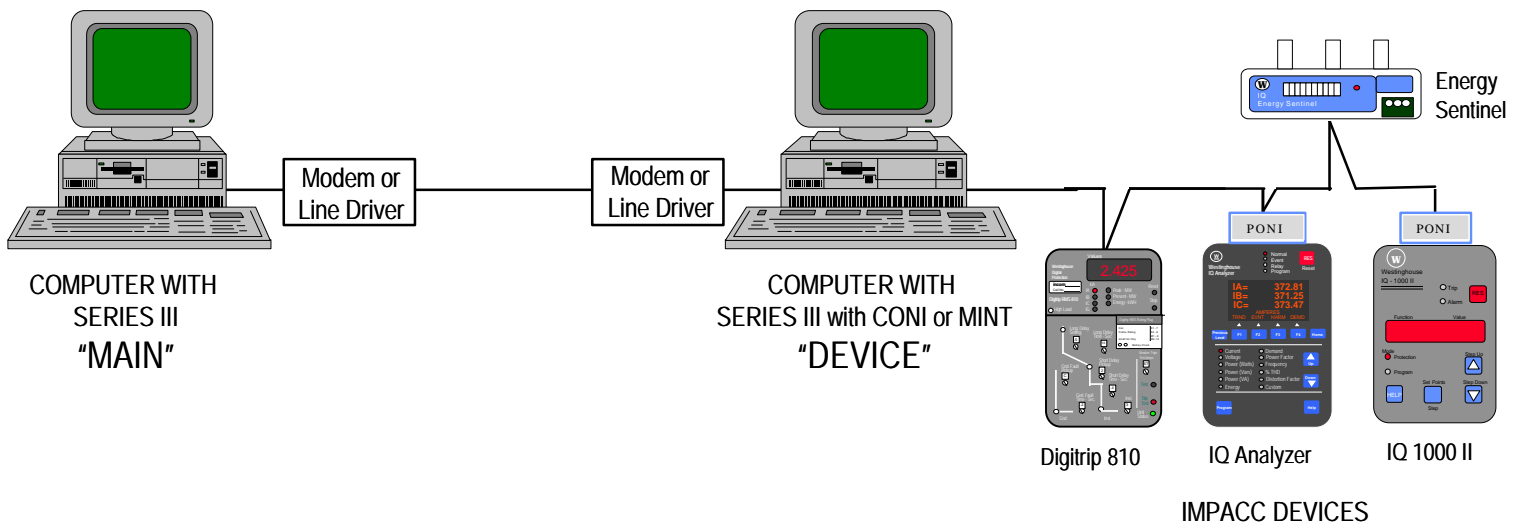
MULTIPLE DISPLAY: Independent Control, Series III Interface

Application

- Independent monitoring and control done both on site and from a remote computer.
- Remote computer has Series III Interface with all logging, alarming, and trending capabilities.

Supports

All IQ/IMPACC Devices



Specifications

- “MAIN” computer supports 1000 devices and up to 16 “DEVICE” computers.
- From the “DEVICE” computer to all devices, standard IMPACC wiring rules apply (TD 17513).
- The computer labeled “DEVICE” is configured to use one of its serial ports as a gateway. The modem is attached to the serial port configured as a gateway. The computer labeled “MAIN” has a modem attached to one of its com ports. On the “MAIN” computer IMPACC is setup to look for a MINT on the com port with the modem attached.
- Distance between the “Main” and “Device” computers is dependent on the connection used:

Connection	Via	Distance
Dedicated Phone Line	Line Drivers & 2 or 4 wire “metallic” phone line	4.3 miles
Fiber	Fiber Line Driver & Fiber Optic Cable	2.2 miles
Leased Phone Line	Leased Line Modem & a Leased Telephone Line	Unlimited
Dial Type Phone Line	Modem & Dial Type Telephone Line	Unlimited

Status 6/96

Tested

Bill of Material

- CONI or MINT
- IMPACC Devices (PONIs as required)
- Line Drivers or Modems
- Series III Software for each PC
- Windows 95 or 3.11 for each PC
- Modem/Line Driver Communication Cable or Phone Line
- Communication Cable (IMPCABLE/9463 family)
- RS 232 Printer Cable

Contact

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Application Note

IMPACC Wiring Specification - TD 17513

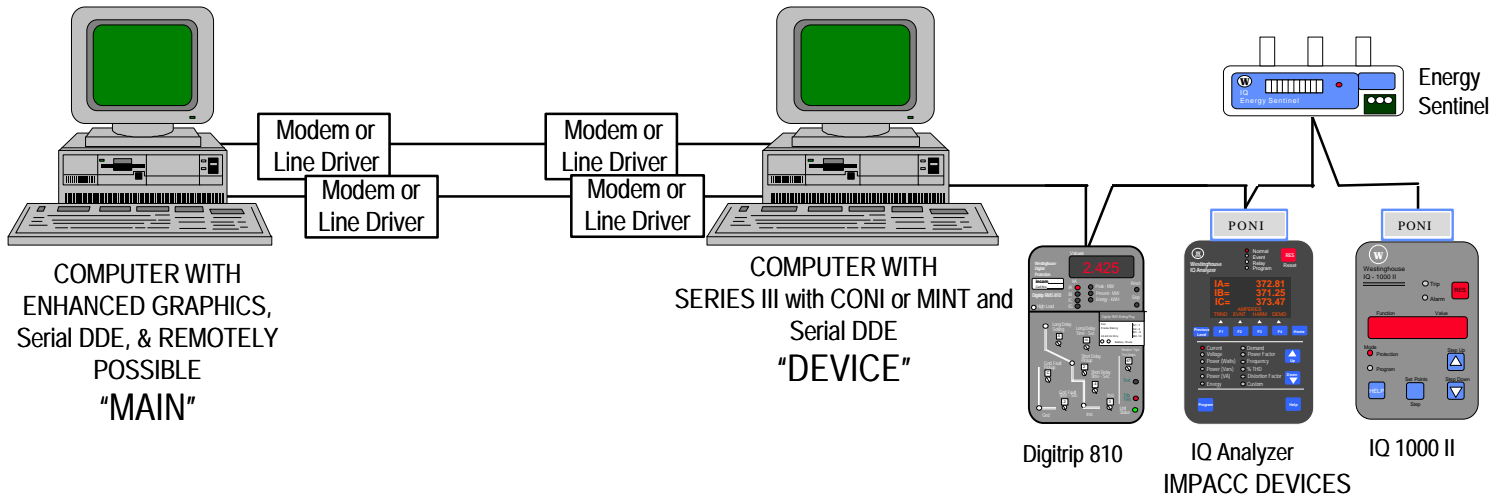
IMPACC CONNECTIVITY

Configuration MULTIPLE DISPLAY: Independent Control, Graphical Interface

Application

- Independent monitoring and control done both on site and from a remote computer.
- Remote computer has Enhanced Graphics Interface.

Supports All IQ/IMPACC Devices



- Specifications**
- "MAIN" computer supports 1000 devices and up to 16 "DEVICE" computers.
 - From the "DEVICE" computer to all devices standard IMPACC wiring rules apply (TD 17513).
 - Monitoring and control on the "MAIN" computer is independent of the operations done on the "DEVICE" computer.
 - Serial DDE allows for the exchange of information via the serial ports on the back of each computer
 - Distance between "MAIN" and "DEVICE" computer is dependent on the connection used:

Connection	Via	Distance
Dedicated Phone Line	Line Drivers & 2 or 4 wire "metallic" phone line	4.3 miles
Fiber	Fiber Line Driver & Fiber Optic Cable	2.2 miles
Leased Phone Line	Leased Line Modem & a Leased Telephone Line	Unlimited
Dial Type Phone Line	Modem & Dial Type Telephone Line	Unlimited

- To configure devices or change trend files on the "DEVICE" computer from the "MAIN" computer without interrupting real time monitoring, Remotely Possible Software at the "MAIN" computer and a second pair of modems or line drivers must be added.

Status 6/96 Tested

Bill of Material

- CONI or MINT
- IMPACC Devices (PONIs as required)
- Line Drivers or Modems
- Series III Software for "Device" computer
- Enhanced Graphics for "Main" computer
- Serial DDE and Windows 95 or 3.11 for each PC
- Modem/Line Driver Communication Cable or Phone Line
- Communication Cable (IMPCABLE/9463 family)
- RS 232 Printer Cable
- Remotely Possible Software & 2 modems/line drivers

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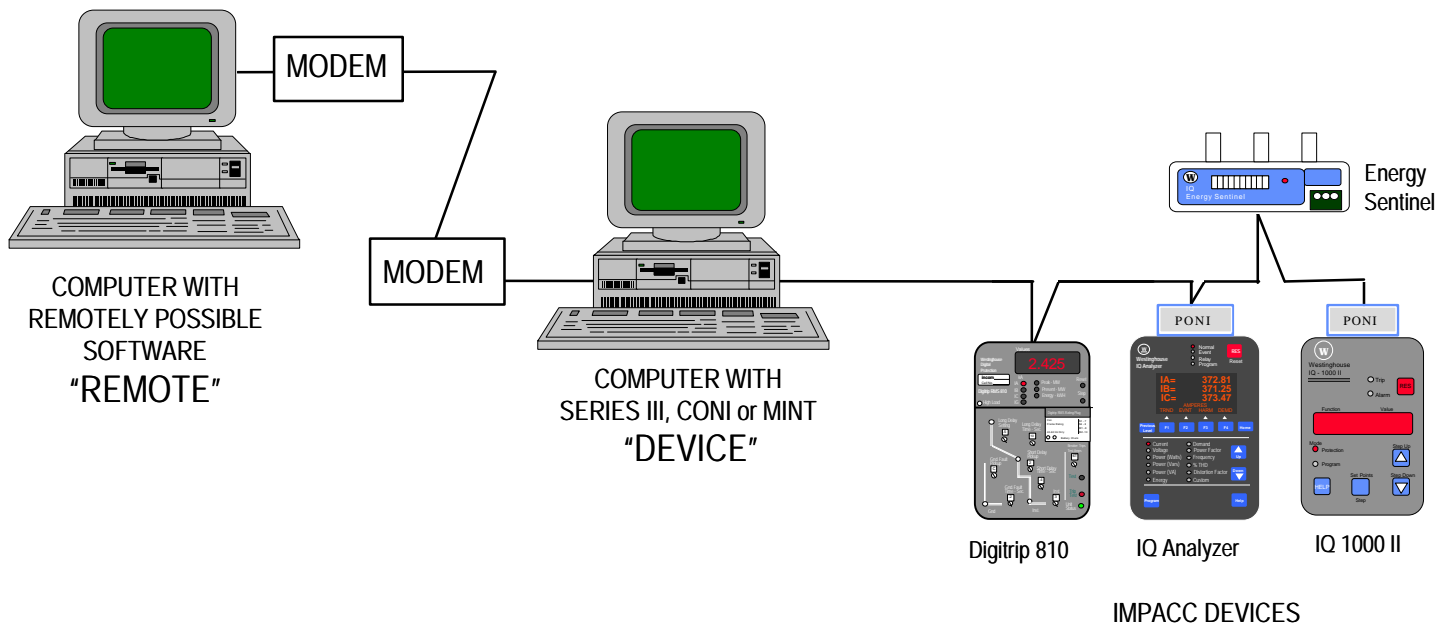
Application Note IMPACC Wiring Specification - TD 17513

IMPAC[©] — C O N N E C T I V I T Y

Configuration MULTIPLE DISPLAY: Dial In

Application Emergency access to connect a second monitoring computer from a mobile or temporary location without running Series III Software.

Supports All IQ/IMPACC Devices



Specifications

- From the "DEVICE" computer to all devices standard IMPACC wiring rules apply (TD 17513).
- The "DEVICE" computer must have a modem attached to the serial port.
- The "REMOTE" computer must be equipped with a dial type modem and "dials up" the "DEVICE" computer and "takes control" of the IMPACC machine. The "REMOTE" computer then "duels" with Series III for system control.
- All options available to an individual at the "DEVICE" computer are available to the remote user.

Status 6/96 Tested

Bill of Material

- CONI or MINT
- IMPACC Devices (PONIs as required)
- Modems
- Series III Software
- Remotely Possible Software
- Windows 95 or 3.11 for each PC
- Communication Cable (IMPCABLE/9463 family)
- RS 232 Printer Cable

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Application Note IMPACC Wiring Specification - TD 17513

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Configuration

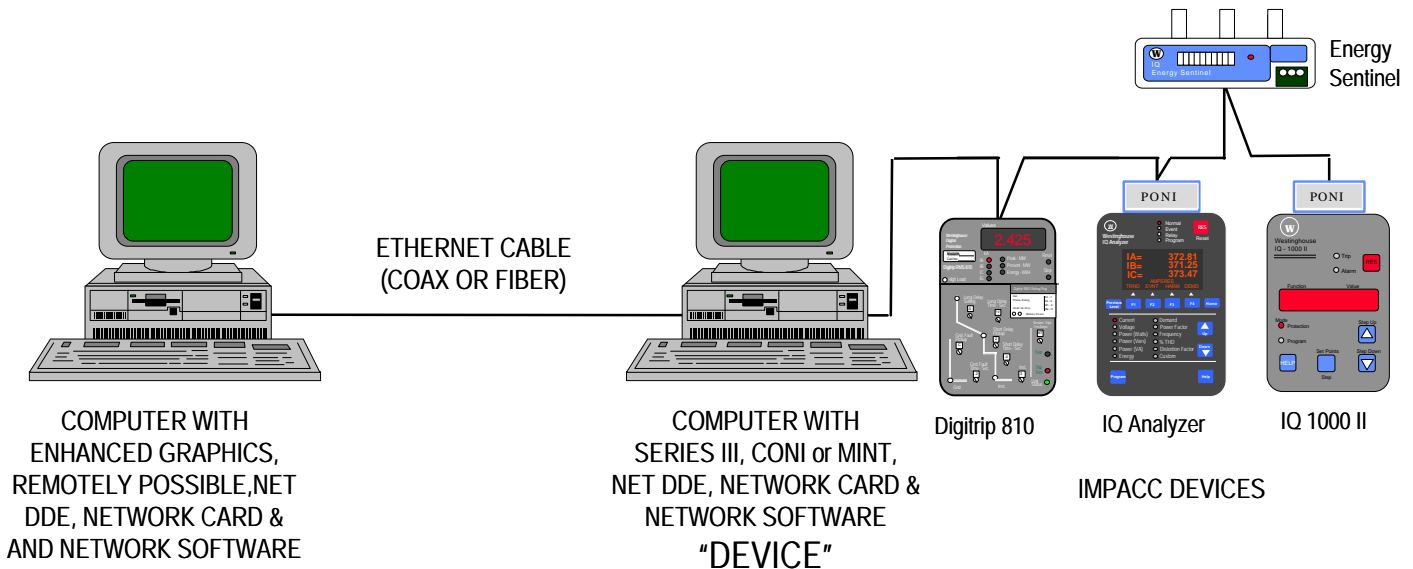
MULTIPLE DISPLAY: Stations on a Local Area Network.

Application

- Independent monitoring and control on computers attached to a LAN
- A graphical user interface
- Fastest data update times possible.

Supports

All IQ/IMPACC Devices



Specifications

- From the "DEVICE" computer to all devices standard IMPACC wiring rules apply (TD 17513).
- Additional displays may be added to any computer attached to the customers LAN running Enhanced Graphics software.
- Data is exchanged over any network supporting TCP/IP, NetBIOS, or DECnet protocol. Such network platforms include Microsoft Windows for Workgroups and Microsoft Windows 95.
- Data exchange rates are dependent on network speeds up to 100 Megabaud.

Status 6/96

Tested

Bill of Material

- CONI or MINT
- IMPACC Devices (PONIs as required)
- Series III Software
- Enhanced Graphics & Remotely Possible
- Net DDE and Network Card & Software for each PC
- Windows 95 or 3.11 for each PC
- Communication Cable (IMPCABLE/9463 family)
- Ethernet Cable

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Application Note

IMPACC Wiring Specification - TD 17513

IMPACC CONNECTIVITY

Configuration

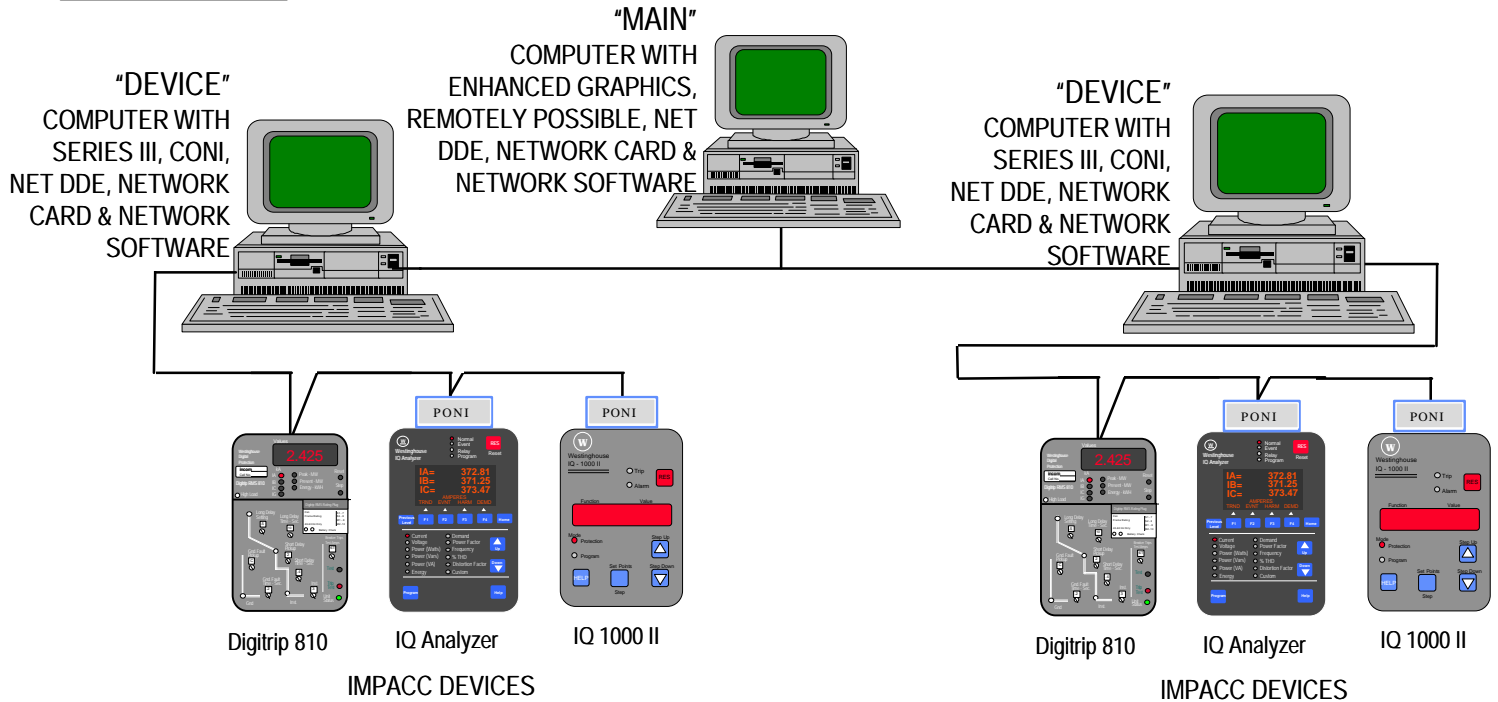
MULTIPLE SYSTEMS: Local Area Network

Application

- A LAN is to be used to network multiple IMPACC systems together with one or more remote monitoring computers.
- Independent monitoring and control done both on site and at the remote computer(s)
- A graphical user interface at remote monitoring computer(s)
- Fastest data update times possible.

Supports

All IQ/IMPACC Devices



Specifications

- Each "DEVICE" Computer supports up to 1000 devices.
- From the "DEVICE" computers to all devices standard IMPACC wiring rules apply (TD 17513).
- The remote monitoring computers may be linked together on a LAN system running at speeds up to 100 Megabaud.
- Trending data can be recorded to any location on the network as supported by the network software. Data can be viewed from all IMPACC networks at any drop on the network running Enhanced Graphics Software.
- Data is exchanged over any network supporting TCP/IP, NetBIOS, or DECnet protocol. Such network platforms include Microsoft Windows for Workgroups and Microsoft Windows 95.
- Data exchange rates are dependent on network speed, typically between one and ten Megabaud.

Status 6/96

Tested

Bill of Material

- CONI Card or MINT at each "Device" PC
- IMPACC Devices (PONIs as required)
- Enhanced Graphics and Remotely Possible Software for each "MAIN" PC
- Series III Software for each "DEVICE" PC
- NET DDE and Network Card & Software for each PC
- Communication Cable (IMPCABLE/9463 family)

Contact

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Application Note

IMPACC Wiring Specification - TD 17513

Configuration

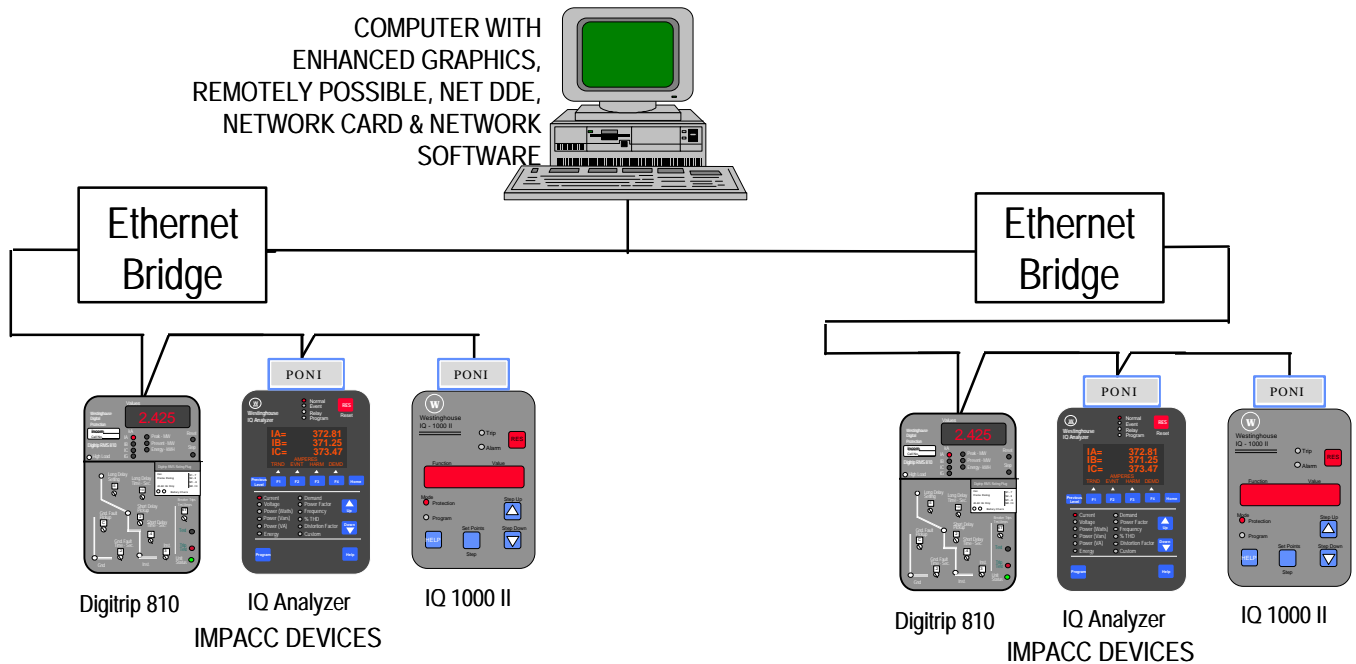
MULTIPLE SYSTEMS: Local Area Network, Remote Monitoring Only

Application

- A LAN is to be used to network multiple IMPACC systems together with one or more remote central monitoring computers.
- Monitoring and control done only at remote computer(s).
- A graphical user interface at remote monitoring computer(s)
- Fastest data update times possible.

Supports

All IQ/IMPACC Devices



Specifications

- Each Ethernet Bridge supports up to 1000 devices.
- From the Ethernet Bridges standard IMPACC wiring rules apply (TD 17513).
- The remote monitoring computers may be linked together on a LAN system running at speeds up to 100 Megabaud.
- Trending data can be recorded to any location on the network as supported by the network software. Data can be viewed from all IMPACC networks at any drop on the network running Enhanced Graphics Software.
- Data is exchanged over any network supporting TCP/IP, NetBIOS, or DECnet protocol. Such network platforms include Microsoft Windows for Workgroups and Microsoft Windows 95.
- Data exchange rates are dependent on network speed, typically between one and ten Megabaud.

Status 6/96

Tested

Bill of Material

- Ethernet Bridge(s)
- IMPACC Devices (PONIs as required)
- Enhanced Graphics & Remotely Possible Software for each remote PC
- Net DDE & Network Card & Software for each remote PC
- Communication Cable (IMPACABLE/9463 family)

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Application Note

IMPACC Wiring Specification - TD 17513