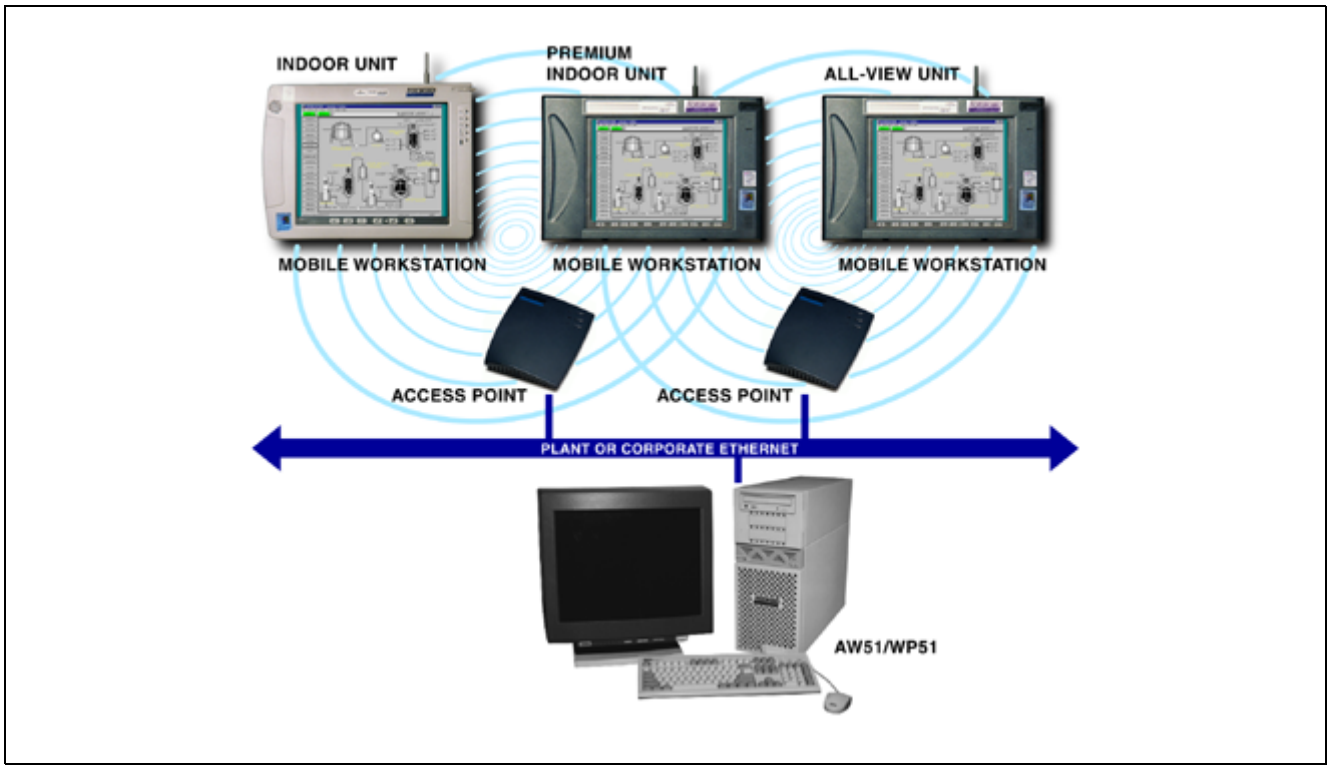
I/A Series® Hardware
Mobile Workstation Overview



The I/A Series Mobile Workstation provides a portable platform that gives users remote access to their I/A Series systems. Data and displays may be accessed from anywhere on the factory floor, and in or around production buildings and offices. Both normal operation and maintenance functions may be performed wherever needed.

THE MOBILE SOLUTION

The Mobile Workstation connects to an I/A Series system using radio communications through access points connected to the wired Ethernet network, as shown in the diagram above. This technology is similar to that used by wireless cellular telephones, but on a smaller scale.

The following describes the four primary components that make up a Mobile Workstation Solution.

- *I/A Series System* – An Application Workstation Model 51 (AW51) or a Workstation Processor Model 51 (WP51) station running Display Manager or FoxView hosts the remote station. One Display Manager or FoxView per Mobile Workstation is needed.
- *Mobile Workstation* – Three pen-based PC computing tablets are available to meet varying application needs.
- *Networking LAN (wired)* – Either an existing standard Ethernet LAN or a new dedicated Ethernet LAN is connected from the hosting AW or WP to multiple access points, or wireless transceivers.
- *Wireless LAN* – The access points, connected to the AW or WP via a wired LAN, send and receive data through antennas that are positioned to provide a radio coverage umbrella for the roaming Mobile Workstations.

MOBILE WORKSTATIONS

The Mobile Workstation is a portable computer that has a Windows 98 operating system with standard ports for connecting serial and parallel devices and PCMCIA cards. The Mobile Workstation contains a full set of optional peripherals and an optional wireless LAN adapter for communicating to/from the access point. Wireless communications provide access to information stored in I/A Series system stations.

The features of the Mobile Workstation are:

- Remote access to displays for normal operation
- Remote access to displays for maintenance
- Transparent roaming within a scalable coverage area that can encompass a single manufacturing cell or an entire industrial campus
- Pen-based operating system extensions including handwriting recognition to facilitate text entry
- Radio technology
- Display security.

There are three Mobile Workstation units available to support different working environments (such as indoor-viewable versus outdoor-viewable), and user preferences (such as size, processor speed, battery life, optional peripherals, and cost).

- The *Indoor Mobile Workstation* is a basic model with a large screen and offers more mounting options.
- The *Premium Indoor Mobile Workstation* is more compact, has a faster processor, and is equipped with an extremely sharp picture and longer battery life.
- The *All-View Mobile Workstation* is similar to the Premium Indoor unit except for the display. It is the only unit that is viewable outdoors and in high ambient lighting conditions. It can be viewed indoors as well, but is not as vivid as the Premium Indoor unit.

ENVIRONMENTAL CONSIDERATIONS

The Mobile Workstation is designed for use in general purpose areas. It has not been qualified for use in special environments, such as Class 1 Division 2 environments, where intrinsic safety is required. Using a slip case or a harsh environment case offers some protection for the Mobile Workstation against dust and mist, but neither of these cases render the workstation waterproof or submersible.

REMOTE ACCESS TO DISPLAYS FOR NORMAL OPERATION

The Mobile Workstation allows access to I/A Series system displays from numerous locations. Rather than having several fixed stationary workstations, the same areas can be serviced by fewer mobile workstations. The Mobile Workstation provides convenient, unparalleled mobile access to work areas not accessible by fixed workstations. It also can be particularly useful during plant start-ups.

REMOTE ACCESS TO DISPLAYS FOR MAINTENANCE

The Mobile Workstation assists field maintenance operations by allowing access to I/A Series system displays in remote locations. Maintenance operations, which often involve two people, can now be accomplished by one technician with a Mobile Workstation. For example, to perform calibration on a valve, an arrangement normally must be made between personnel in the control room and the technician standing in a remote location at the valve. With a Mobile Workstation, the displays are available at the valve location, enabling a single technician to perform the task – saving time and money and giving flexibility to the technician. The Mobile Workstation also allows instrument technicians to do their work in noisy (audible and electrical) environments where conventional communications with a control room operator are impossible.

SCALABLE COVERAGE AREA

Each access point requires an antenna. There are various types of antennas with different gains and patterns to suit a variety of applications ensuring broadcast coverage of all or essential areas in your plant.

The following describes available antenna types:

- Omnidirectional antennas provide circular patterns around the antenna.
- There are two types of directional antennas that provide coverage in one direction.
  - A patch antenna is a directional antenna that provides a fat, oval shaped pattern with little or no coverage behind it. This type would typically be placed in a high location and provide wide coverage below it.
  - A high-gain directional antenna provides a narrow, oval shaped pattern with little to no coverage behind the unit. These are ideal for bridging the gap between buildings or oddly shaped coverage areas, such as a long corridor.

RADIO TECHNOLOGY

The Mobile Workstations employ a spread spectrum radio networking technology to provide wireless LAN connections operating in the microwave frequency band. By using a frequency-hopping scheme, the transceiver ensures that the data is transmitted/received correctly. It is not susceptible to typical industrial problems of interference. The service is continuous and does not rely on dialup modems or telephone service.

DISPLAY SECURITY

The I/A Series Display Manager and FoxView both provide configurable environments that can be password-protected. This allows you to decide which I/A Series system functions you want to provide to the Mobile Workstations. For example, you can allow the remote users to view I/A Series displays, but not change the set points. The wireless LAN access points also provide a mechanism for authenticating Mobile Workstation units which are permitted access to the network. Mobile Workstations are not recommended as replacements for operator stations of critical processes because of potential loss of communications or loss of power if the battery runs down.

MOBILE INSTALLATION SERVICES

The configuration of the wireless network is very site-specific. A site survey is necessary to determine the number and location of access points and antenna types required to provide wireless LAN radio coverage in the area specified by the customer. Each access point must have access to a wired Ethernet drop.

Foxboro offers services to assist customers in successfully implementing this wireless solution at their sites. These services include performing the site survey, recommending and providing required components, including the RF equipment (access points and antennas), installation and on-site configuration (such as setting up appropriate security options).

Customers can contact their local Foxboro sales representatives and request a quotation at any location worldwide.

SYSTEM REQUIREMENTS

Additional Display Manager licenses must be purchased for the AW/WP host for each Mobile Workstation.

RELATED PRODUCT SPECIFICATION SHEETS

For more information on the Mobile Workstation and its related products refer to the Product Specification Sheets (PSSs) listed in Table 1.

Table 1. Related Product Specification Sheets

PSS Number	Title
PSS 21H-4W2 B4	Mobile Workstation Indoor Unit
PSS 21H-4W3 B4	Mobile Workstation Premium Indoor and All-View Units

FUNCTIONAL SPECIFICATIONS

Wireless Communications

FREQUENCY-HOPPING SPREAD SPECTRUM (FHSS) RADIO

(See Table 2 “Countries Where FHSS Radio Technology Is Used” for details)

Channels

15

Radio Frequency

2.4000 to 2.4835 GHz

Data Rate

1.6 Mbps (bits per second) maximum per channel

Range (dependent on environment)

61 m (200 ft) nominal indoor range

up to 305 m (1000 ft) in open space outdoors with no obstacles.

Wireless Communications (Cont.)

Transmitter Output Power

500 mW or less

Antennas

OMNIDIRECTIONAL ANTENNA

+ 9.0 dBi

PATCH ANTENNA

+ 12.0 dBi

HIGH-GAIN ANTENNA

+ 15.0 dBi

I/A Series Requirements

Application Workstation, Model 51 with software release 4.0 or later; an Ethernet interface card for plant communications; one or more additional Display Manager(s)

Table 2. Countries* Where FHSS Radio Technology Is Used

Argentina	Luxembourg
Australia	Malaysia
Austria	Mexico
Belgium	Netherlands
Brazil	New Zealand
Canada	Norway
Chile	Papua/New Guinea
China	Peru
Columbia	Philippines
Costa Rica	Poland
Czechoslovakia	Portugal
Denmark	Romania
Estonia	Russia
Finland	Singapore
France	Slovenia
Germany	Spain
Greece	Sweden
Hong Kong	Switzerland
Ireland	South Africa
India	Taiwan
Indonesia	Thailand
Italy	Turkey
Japan**	United Kingdom
Korea	United States

*For countries not listed, contact your local Foxboro representative.

**Requires a special version of the wireless LAN adapter. Contact your local Foxboro representative.

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