Foxboro Evo™ Process Automation System

Product Specifications

Foxboro®

by Schneider Electric

PSS 31H-4D13

Model H92 and P92 Workstations for Windows 7 Professional Operating System

Critical software processes are often placed onto stand-alone workstations, with redundancy provided through replicating that configuration. This permits continued plant operation during maintenance as well as in the unusual event of a workstation failure. Workstations can be remotely mounted in secure enclosures and/or spaces with the operator interface equipment installed through the use of Remote Graphics Units.

OVERVIEW

The Model H92 workstations can be used with Foxboro Evo™ Control Core Services software as well as Foxboro Evo Control Software, and can also provide a platform for Foxboro®, third-party, and user-written applications.

As multipurpose workstations running the Windows 7 64-bit operating system, these workstations support execution of system applications, data communications for a broad range of applications, file serving capabilities, and display of graphics and text. It also interfaces with corporate networks at a local or worldwide level.

These workstations support a mouse or optional trackball, an alphanumeric keyboard, up to four USB annunciator or annunciator/numeric keyboards, and one to four monitors. The H92 workstations also support an optional USB touchscreen (purchased separately with the monitor) and an optional USB speaker set (purchased separately).

These workstations feature up to two internal serial ATA hard disk drives, which may be optionally configured as RAID1, and comes with 4 GB of ECC RAM memory (expandable to 12 GB). The processor supports an internal DVD+RW drive and an optional external USB floppy drive that may be purchased separately.

Client/server communication is accomplished using the TCP/IP networking protocol with the integrated Ethernet network port or optional Ethernet network interface cards (NICs).

As indicated by the CE logo, the Model H92 workstations conform to the applicable European Union directives.

Workstation Security

Foxboro Evo workstations support optional product features to allow customers to meet plant requirements for enhanced workstation security. Plant requirements for enhanced Foxboro Evo workstation security can be met through a combination of new product security enhancements as well as implementing best security policies, practices, and procedures.

Foxboro Evo workstation enhanced product security requirements are supported in two broad categories, namely, workstation software including passwords and workstation platform hardening.

Workstation software:

- Changeable log-on passwords
- Individual user passwords
- Password lock-out after a user-configurable number of unsuccessful log-in attempts and secured mechanisms to reset login
- Password aging that requires password change on a periodic basis
- Password support of alphanumeric and symbol characters as per Microsoft convention
- Password file protection
- User accounts and McAfee firewalls for Microsoft Windows 7-based workstations managed from a central location through Microsoft Domains and Active Directory
- User account creation, deletion and modification tracking
- User logon/ logoff tracking
- Least privilege file and account access
- Necessary system services running in non-admin accounts where possible
- Security patches from software suppliers including Microsoft supported including patch status reporting
- Anti-virus software including malware protection supported as well as Anti-Spyware software support.

Workstation platform hardening:

- Unnecessary services, software, and programs removed
- Unneeded software ports disabled
- The McAfee Host Intrusion Prevention (HIP, described below) to protect the use of software ports that may be used depending on the software configuration
- Documentation on how to re-enable services and ports where required by special circumstances
- Secure BIOS changes.

Installation Considerations

These new security enhancements are supported only on Microsoft Windows 7 and Windows Server 2008 R2 stations which support the control network and require a software update to the latest Foxboro Evo software release to obtain these security features. The security enhancements can be deployed on a sub-set of workstations to increase security, but in order to maximize security protection, all workstations need to be updated to the latest software release to obtain the full benefits.

McAfee® Software Packages

Additional security enhancements are provided through the following McAfee® software packages.

VirusScan with AntiSpyware Enterprise

The VirusScan with AntiSpyware Enterprise packages check the Model H92 workstations for viruses and spyware continually. Virus and anti-spyware signature files are regularly updated by McAfee.

As well, these products' policies and options can be managed and distributed from the ePO console.

Host Intrusion Prevention (HIP)

Host Intrusion Prevention proactively blocks zero-day and known attacks, and protects against unauthorized viewing, copying, modifying, and deleting of information and the compromising of system and network resources and applications that store and deliver information.

The Host Intrusion Prevention (HIP) package provides features such as:

- a configurable firewall, to control access to TCP and UDP software ports
- application blocking, to allow known applications to run (referred to as "whitelisting") or to block specific applications (such as "blacklisting")
- Intrusion detection, to log messages when unknown devices are plugged into the control network.

Device Control

The Data Loss Prevention package provides control over the access to hardware ports, such as the floppy drive, CD/DVD drive, or USB ports on Windows 7 workstations only.

FEATURES

The Model H92 workstations, available with a Foxboro Evo S10 software license can:

- Host Foxboro Evo control stations
- Support data communications to directly connected process I/O devices
- Serve as an application platform
- Serve as a human to machine interface (HMI) station
- Function on Ethernet control systems.
- Security enhancements provided by the following McAfee® software packages:
    - VirusScan with AntiSpyware Enterprise
    - ePolicy Orchestrator
    - Host Intrusion Prevention
    - Data Loss Prevention (Device Control).

MODEL H92 WORKSTATION

Model H92 Base Configuration

The Model H92 workstation contains the following elements:

- Intel Xeon® processor
- 4 GB DDR-3 ECC RAM (expandable to 12 GB)
- 500 GB SATA hard drive (expandable to up to 1.5 TB with a third hard drive)
- PCI Express™ x16 video slot
- Internal DVD+RW/CD drive
- Dual monitor graphics card - supports one or two monitors, digital only (optional DisplayPort to VGA adapter is available)
- Integrated 10/100/1000BaseT Ethernet port
- Universal Serial Bus (USB) interface ports for:
  - Mouse
  - Keyboard
  - Audio speakers (optional)
  - Touchscreens (optional)
  - Floppy disk drive (optional)
  - USB annunciator keyboard (optional)

Model H92 Additional Options

The Model H92 workstation offers the following options:

- Add up to 12 GB of system RAM
- A second or third SATA hard drive
- An internal SATA RAID1 system with an optional configuration of a hot spare with a third hard drive
- External, 3.5-inch 1.44 MB USB floppy disk drive
- Up to three Ethernet network interface cards
- GPS Time Synchronization card
- USB annunciator keyboards
- Trackball
- Analog monitor graphics card (supports one to four analog monitors).
- A Human Interface extension unit (RGU) up to 150 m (492 ft) servicing the following devices:
  - Up to four video monitors
  - Up to five USB devices.

Mounting Options

With dual or quad PCIe video cards, the Model H92 workstation can be located up to 30 m (100 ft) from the monitor using direct connect, analog video and other human interface cables available from Foxboro.

Two optional Remote Graphics Unit (RGU) offerings are provided for each workstation to enable video, USB, and FireWire devices to be located at a distance from the workstation (refer to "REMOTE GRAPHICS UNIT FOR H92 WORKSTATIONS OVERVIEW" on page 7). Devices that can be remote mounted via the RGU include monitors, the keyboard and mouse (or trackball), audio via USB speakers, USB touchscreens, and external USB floppy drives.

FUNCTIONAL SPECIFICATIONS (H92)

Processor Type

Intel Xeon

Memory

4 GB DDR-3 ECC RAM standard (expandable to 12 GB)

Devices Served

PERIPHERALS

One, two, or three 500 GB SATA hard drives, and DVD+RW (SATA)

VIDEO DISPLAYS (UP TO 4)

19-inch LCD Monitor
20.1-inch LCD Monitor
20.1-inch LCD USB Touchscreen Monitor
23-inch LCD USB Touchscreen Monitor
23-inch LCD Monitor
40-inch LCD Overview Monitor.

INTERFACES TO EXTERNAL DEVICES

USB

Floppy disk drive
Mouse or optional trackball
Alphanumeric keyboard
Up to four USB annunciator keyboards via an optional USB hub, local (up to 1.8 m (6 ft)) or up to 30.5 m (100 ft) away - for these extended connections, refer to the USB extension kits in *Annunciator Keyboard/Panel* (PSS 31H-4E1)
Up to four optional touchscreens (via RGU, hub, or direct)
External speakers

Serial

Customer supplied serial devices

Internal Diagnostics

Self-checking is performed at power-up.

Video

OUTPUT TYPE

Dual Digital DisplayPort with Digital Visual Interface (DVI) adapters (standard)
Quad Digital DisplayPort with Digital Visual Interface (DVI) adapters (optional)
DisplayPort to Analog VGA adapters (optional)

OUTPUT TYPE (CONT.)

Remote Graphics Unit (optional) supports dual or quad analog or DVI graphics

OPTIONAL PCI express VIDEO INTERFACE(1)

Quad card – supports up to four analog monitors

SCREEN PRESENTATION

Refresh Rate

Up to 85 Hz

Colors

Over 65,000(2)

Resolution

Standard (4:3) (Supported by All Monitors)
Up to 1600x1200 pixels (maximum)
Widescreen (16:9) (Supported by 23-Inch LCD Monitor)
Up to 1920x1080 pixels

Serial Interface Ports

No onboard serial ports.

(1) For information on available monitors, refer to PSS 21H-4D1 B3, *Workstation Components*.
(2) May be limited by specific software specifications.

FUNCTIONAL SPECIFICATIONS (H92) (CONTINUED)

GPS Time Synchronization
Optional card provides GPS support. Refer to *Time Synchronization Overview* (PSS 31H-1TIME).

Ethernet Interface Communications
Up to three PCIe Ethernet network interface cards provide connection to Ethernet data bus (10/100Base-TX or 100Base-FX)
As well, the H92 has one Integrated Ethernet port (10/100/1000Base-T)

Redundant Control Network Interface Communications

TYPE
IEEE 802.3 data bus and EIA RS-232 control bus(3)

Power Requirements

INPUT VOLTAGE
100 or 240 V ac (nominal) @ 8.0 A, auto select
47 to 66 Hz Operating Line Frequency Range

POWER CONSUMPTION
600 W maximum output power supply

ENVIRONMENTAL SPECIFICATIONS (H92)

Operating

TEMPERATURE
5 to 35°C (40 to 95°F)(4)

RELATIVE HUMIDITY
8% to 85%, noncondensing

ALTITUDE
-15.2 to +3,048 m (-50 to 10,000 ft)

DYNAMIC

Shock
Operating: ½-sine: 40g, 2-3ms
NOTE: Values represent individual shock events and do not indicate repetitive shock events.

Vibration
Operating random: 0.5g (rms), 5-300 Hz
NOTE: Values do not indicate continuous vibration.

Storage

TEMPERATURE
-40 to +60 °C (-40 to +140°F)

RELATIVE HUMIDITY
8% to 90%, noncondensing

ALTITUDE
-15.2 to +9,144 m (-50 to +30,000 ft)

DYNAMIC

Non-Operating
½-sine: 160 cm/s, 2-3ms (~100g)
square: 422 cm/s, 20g
NOTE: Values represent individual shock events and do not indicate repetitive shock events.

Non-Operating Random
2.0g (rms), 10-500 Hz
NOTE: Values do not indicate continuous vibration.

Location
UL/UL-C listed as suitable for use in ordinary locations and meets ordinary safety standards for fire and shock hazards.

Contamination
Class G1 (Mild) as defined in ISA Standard S71.04

(3) Refer to PSS 21H-7B6 B4 *Redundant Control Network Interface,* for information on the interface to the Redundant Control Network.
(4) At 35°C (95°F), the maximum operating altitude is 914 m (3,000 ft).

REGULATORY COMPLIANCE (H92)

Safety Certifications

USA
UL® (UL Std 1950)

CANADA
CSA® (CSA C22.2 No. 950)

EUROPE
TUV (CENELEC EN60950)

EMC

USA
FCC Part 15 Class B

CANADA
IC Class B ICES-003

EUROPE
EN55024, EN61000-3-2, EN61000-3-3, and EN55022

PHYSICAL SPECIFICATIONS (H92)

Dimensions

PROCESSOR

Height
447.6 mm (17.63 in)

Width
17.78 mm (7.0 in)

Depth
445.2 mm (17.5 in)

Mounting

Tabletop, Metal Enclosure (1000x1000 mm) or Modular Industrial Enclosure (MIC)

Weight

Exact weights depend upon configuration.

MINIMUM
12.5kg (27.5 lbs)

STANDARD
13.2kg (29.2 lbs)

MAXIMUM
17.7kg (39 lbs)

Heat Dissipation

600 W POWER SUPPLY
Typical: 1365 btu/hr (344 kg-cal/hr)
Maximum: 2354 btu/hr (593 kg-cal/hr)

REMOTE GRAPHICS UNIT FOR H92 WORKSTATIONS OVERVIEW

The H92 workstation can be configured with a Remote Graphics Unit PCIe card that connects to a Remote Graphics Unit (RGU) by way of fiber-optic cabling. The USB keyboard, mouse, trackball, touchscreens, floppy drive, and audio can be connected through the RGU, which may be located at distances from the H92 of up to 70 m (230 ft) with 62.5/125 µm fiber or 150 m (492 ft) with 50/125 µm fiber cable.

The RGU (see Figure 1) features five USB 2.0 ports (one which supports a BIOS level keyboard), and passive (fanless) cooling. The RGU also includes a universal input power supply.

For video connections, the RGU includes four DisplayPort ports, which can directly connect to up to four DisplayPort monitors.

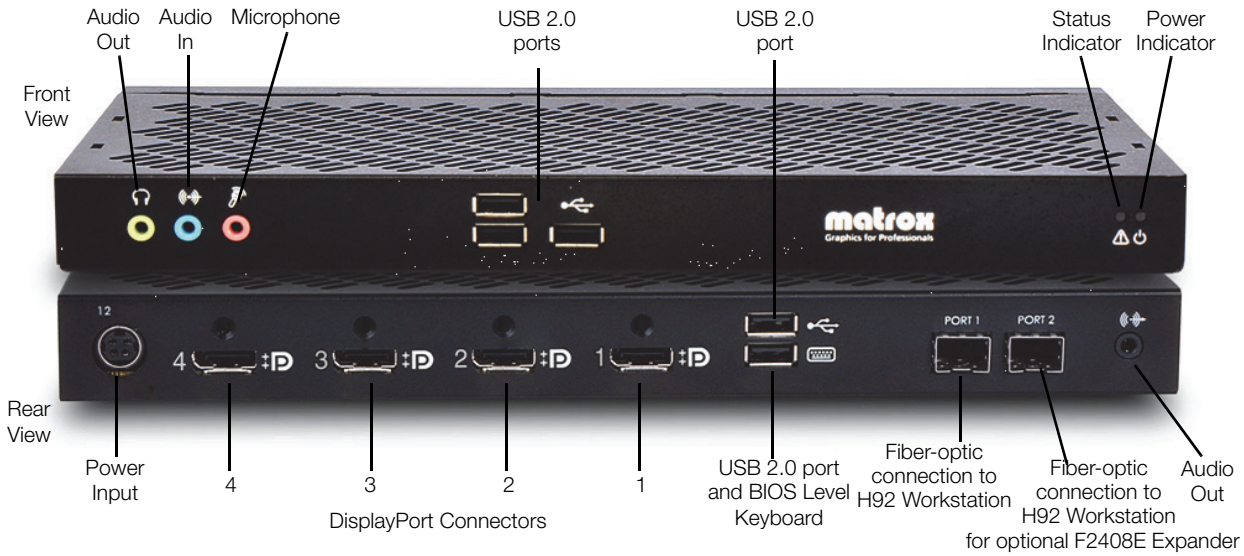

Figure 1. Remote Graphics Unit for H92 Workstation (Front and Rear Views)

RGU (H92) FUNCTIONAL SPECIFICATIONS

Interfaces to External Devices

- Five USB 2.0 ports for mouse, optional trackball, keyboard, USB speakers, floppy drive, or up to four optional touchscreens
- Audio connections, including microphone, audio input, and audio output connections

NOTE

If four USB touchscreens are to be utilized, a USB hub must be selected for use with this server. (Refer to part numbers P0928EH, P0928EJ, P0923FS, P0923FT for the touchscreens.)

- RGU includes four DisplayPort ports, and can directly support connections to up to four DisplayPort monitors.

Distance Specifications

The RGU allows distances between the H92 workstation and attached devices of up to 70 m (230 ft) with 62.5/125 µm fiber or 150 m (492 ft) with 50/125 µm fiber cable. Fiber cable with LC/LC connections greater than 50 m is user-supplied.

Kit Contents

REMOTE GRAPHICS UNIT KIT, DUAL (P0928DU)

Remote Graphics Unit (P0928DS)
PCIe card for RGU (P0928DT)
15 m (50 ft) starter LC/LC fiber cable (P0972TP)

REMOTE GRAPHICS UNIT KIT, QUAD (P0928DV)

Remote Graphics Unit (P0928DS)
PCIe card for RGU (P0928DT)
15 m (50 ft) starter LC/LC fiber cable (P0972TP)

RGU (H92) ENVIRONMENTAL SPECIFICATIONS

Operational

TEMPERATURE (INDOORS, IN CABINET)
0 to 55 °C (32 to 131°F)

RELATIVE HUMIDITY (INDOORS)
20% to 80%, noncondensing

VIBRATION
NEBS level 3 Seismic Zone 4(5)

MAXIMUM ATMOSPHERIC PRESSURE
650hPa (3,580 m / 11,745 ft) to
1013hPa (0 m / 0 ft)

Non-Operational, Storage, and Transportation

TEMPERATURE
-40 to + 75 °C (-40 to +167 °F)

RELATIVE HUMIDITY (IN PACKAGED CONFIGURATION)
5% to 95%

VIBRATION
NEBS level 3 Seismic Zone 4(5)

MAXIMUM ATMOSPHERIC PRESSURE
192hPa (12,000 m / 39,370 ft) to
1020hPa (-50 m / -164 ft)

EMC Certifications

Class A (commercial, industrial, or business)

Laser Emissions

850 nm laser compliant to 21CFR, Subpart J, Class 1

RGU Environmental

LOCATION
Is suitable for use in ordinary locations and is designed to meet ordinary safety standards for fire and shock hazards

CONTAMINATION
Class G1 (Mild) as defined in ISA Standard S71.04

(5) Zone 4 = 7.0 to 8.3 on the Richter scale

RGU (H92) PHYSICAL SPECIFICATIONS

Interface Card

F2208 F2408 F2408E EXPANDER
Provided with an OM2 multi-mode 50/125 µm optical cable – 5 m (16 ft).

MONITORS SUPPORTED
2, 4, 4

DIGITAL MONITOR SUPPORT
DVI, DisplayPort

MEMORY
1 GB

MAXIMUM ANALOG RESOLUTION
1920 × 1200 - DisplayPort to HD-15 adapter sold separately.

MAXIMUM DIGITAL (DVI) RESOLUTION
Up to 2048 × 1152

MAXIMUM DISPLAYPORT RESOLUTION
Up to 2048 × 1152, and 2560 × 1600

OPERATING SYSTEMS SUPPORTED
(64-bit) Windows 7, Windows Server 2008 R2, Windows Server 2008, (32-bit) Windows Vista, Windows XP, and Windows Server 2003

DIMENSIONS

Height
29 mm (1.15 in)

Width
300 mm (11.8 in)

Depth
147 mm (5.8 in)

LASER EMISSIONS
850 µm laser compliant to 21CFR, Subpart J, Class 1

EMC CERTIFICATIONS
Class A: ACMA, CE, FCC, VCCI

INTERFACE CARD
Optical

CARD TYPE
PCIe ×1

FORM FACTOR
Low-profile

CABLE TYPE SUPPORTED
LC-LC optical, Duplex

MAXIMUM DISTANCES
OM1 multimode 62.5/125 µm (max. 70 m / 230 ft)
OM2 multi-mode 50/125 µm cable (max. 150 m / 492 ft)
OM3 multi-mode 50/125 µm cable (max. 380 m / 1247 ft)
OM4 multi-mode 50/125 µm cable (max. 400 m / 1312 ft)
Single-mode 9/125 µm cable (max. 1000 m / 3280 ft)*

EMC CERTIFICATIONS
Class A: ACMA, CE, FCC, VCCI

Power Consumption and Supply Voltage

TEMPERATURE, OPERATIONAL
0 to 55 ºC (32 to 131 ºF)

TEMPERATURE, NON-OPERATIONAL, STORAGE AND TRANSPORTATION
-40 to 70 ºC (-40 to 158 ºF)

HUMIDITY, OPERATIONAL (INDOOR)
20 to 80% (non-condensing)

HUMIDITY, NON-OPERATIONAL STORAGE AND TRANSPORTATION
5% to 95% (non-condensing)

ATMOSPHERIC PRESSURE, OPERATIONAL
650hPa (3,580 m / 11,745 ft)
to 1013hPa (0 m / 0 ft)

ATMOSPHERIC PRESSURE, NON-OPERATIONAL AND TRANSPORTATION
192hPa (12,000 m / 39,370 ft)
to 1020hPa (-50 m / -164 ft)

RGU (H92) PHYSICAL SPECIFICATIONS (CONTINUED)

Power Consumption and Supply Voltage (Continued)

ESTIMATED MTBF (MEAN TIME BEFORE FAILURE)

Interface Card
70.81 years @ 40 °C
Extio F2208 Unit
26.87 years @ 40 °C (excluding power supply)
Extio F2408 Unit
23.20 years @ 40 °C (excluding power supply)
Extio F2408E Expander Unit
22.68 years @ 40 °C (excluding power supply)

INTERFACE CARD

Maximum Power Consumption
6.5 W

EXTIO UNIT

Power Requirements
12 V dc, maximum 5 A
(5 A fuse for overcurrent protection)
Power Connector
Mini-DIN 4 female (4-pin)

MAXIMUM POWER CONSUMPTION

Calculated for the following configuration: a USB keyboard and mouse, two other USB devices, and four DisplayPort monitors.

External Power Supply
Input ac Voltage Range
90 to 264 V ac
Input Frequency
47/63 Hz
Input Connector
IEC 60320-C14
Output Voltage
12 V dc
Output Connector
Mini-DIN 4 male (4-pin) with lock
Maximum Power Output
60 W

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