

**Foxboro Evo™
Process Automation
System**

Product Specifications

Foxboro®

by **Schneider Electric**

PSS 31H-4H92

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

As a multipurpose workstation running the Windows 7 64-bit operating system, the H92 workstation supports 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.

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

The workstation features up to three internal serial ATA hard disk drives, which may be optionally configured as RAID1, and comes with 4 GB of ECC RAM memory (expandable to 16 GB). The processor supports an internal DVD+RW drive.

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 workstation conforms to the applicable European Union directives.

Workstation Security

The Foxboro Evo workstation supports 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 supports:

- ▶ 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 optional McAfee or Symantec 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, with patch status reporting
 - ▶ Anti-virus software, including malware protection supported as well as Anti-Spyware software support

Workstation platform hardening supports:

- ▶ Unnecessary services, software, and programs removed
- ▶ Unneeded software ports disabled
- ▶ Optional host intrusion prevention 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 subset 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.

Optional McAfee® Software Packages

Refer to PSS 31S-4McAfee for the product specifications for the optional McAfee products.

Optional Symantec™ Software Packages

Refer to PSS 31S-4SYMANTC for the product specifications for optional Symantec endpoint protection.

FEATURES

The Model H92 workstation, 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

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 16 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)
 - USB annunciator keyboard (optional)

Model H92 Additional Options

The Model H92 workstation offers the following options:

- ▶ Add up to 16 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
- ▶ 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 WORKSTATION OVERVIEW” on page 8). 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 DDR4 ECC Registered Memory standard (expandable to 16 GB)

Devices Served

PERIPHERALS

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

VIDEO DISPLAYS (UP TO 4)

23-inch LCD USB Touchscreen Monitor

23-inch LCD Monitor

40-inch LCD Overview Monitor.

INTERFACES TO EXTERNAL DEVICES

USB

Mouse or optional trackball

QWERTY

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

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

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

Internal Diagnostics

Self-checking is performed at power-up.

Video

OUTPUT TYPE

Dual Digital DisplayPort with Digital Visual

(1) For information on available monitors, refer to PSS 31H-4VDU, *Liquid Crystal Display (LCD) Monitors*.

(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).

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

525 W maximum output power supply

ENVIRONMENTAL SPECIFICATIONS (H92)

Operating

TEMPERATURE

5° to 35°C (40 to 95°F)⁽³⁾

RELATIVE HUMIDITY

8% to 85%, noncondensing

ALTITUDE

+3,048 m (10,000 ft)

DYNAMIC

Shock

Operating: ½-sine: 40g, 2-3ms (~62 cm/sec)

NOTE: Values represent individual shock events and do not indicate repetitive shock events.

Vibration

Operating random: 0.5g (rms), 5-300 Hz up to 0.0025g²/Hz

NOTE: Values do not indicate continuous vibration.

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.

Storage

COOLING

Above 1524 m (5,000 ft.) altitude, maximum operating temperature is derated by 1°C (1.8° F) per 305 m (1,000 ft.) elevation increase

TEMPERATURE

-40° to +60°C (-40° to +140°F)

RELATIVE HUMIDITY

8% to 90%, noncondensing

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) At 35°C (95°F), the maximum operating altitude is 914 m (3,000 ft).

REGULATORY COMPLIANCE (H92)

Safety Certifications

USA, CANADA

UL Listed to UL 60950-1:2007 and CSA Certified to C22.2 No. 60950-1-07

EUROPE

Complies with the Low Voltage Directive 2014/35/EU and the following Harmonized Standards:

EN 60950-1:2006+A11:2009+A1:2010+A12:2011
EN 60825-1:2007 Class 1

Complies with the following International Standards:

IEC 60950-1:2005 2nd ED+A1:2009+A2:2013
IEC 60825-1:2007 Class 1
GB4943.1-2011 (China)

EMC

USA, CANADA

Complies with FCC Part 15, Class B ICES-003, Issue 5

EUROPE

Complies with the EU EMC Directive 2014/30/EU and the following Harmonized Standards:

EN 55022:2010 / CISPR 22:2008 Class B
EN 55024:2010 / CISPR 24: 2010
EN 61000-3-2:2006+A1:2009+A2:2009
EN 61000-3-3:2013

Other Regulations

Complies with EU Energy Use Regulation (EC) No. 1275/2008 and the Harmonized Standard EN 50564:2011

Complies with EU RoHS Directive 2011/65/EU under the following Harmonized Standard: EN 50581:2012

PHYSICAL SPECIFICATIONS (H92)

Dimensions

PROCESSOR

Height

431 mm (17.0 in)

Width

168.91 mm (6.65 in)

Depth

444.7 mm (17.5 in) measured to the rear of the service panel

Mounting

Tabletop, Metal Enclosure (1000x1000 mm) or Modular Industrial Enclosure (MIC)
4U rack dimensions

Weight

Exact weights depend upon configuration.

MINIMUM

11.0 kg (24.3 lbs.)

STANDARD

13.5 kg (29.8 lbs.)

MAXIMUM

17.5 kg (38.5 lbs.)

Heat Dissipation

525 WATTS WIDE-RANGING, ACTIVE POWER FACTOR CORRECTION, 85% EFFICIENT POWER SUPPLY

Typical: 1311 btu/hr (330 kg-cal/hr)

Maximum: 2185 btu/hr (551 kg-cal/hr)

REMOTE GRAPHICS UNIT FOR H92 WORKSTATION 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 μ m fiber or 150 m (492 ft) with 50/125 μ m fiber cable. Fiber cable with LC/LC connections greater than 50 m (164 ft) is user-supplied.

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.

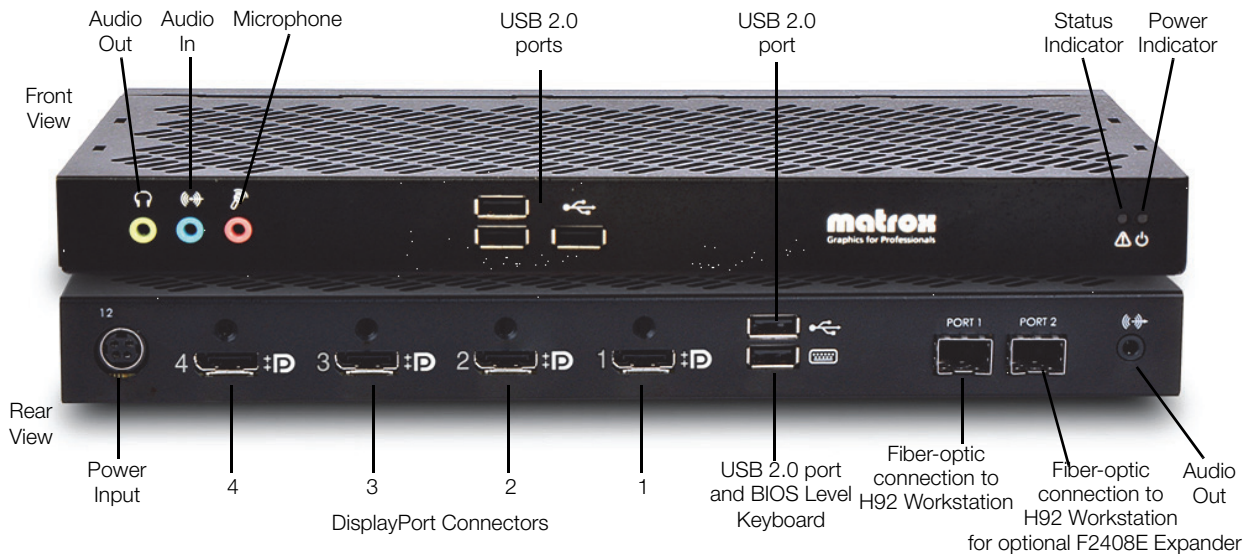


Figure 1. Remote Graphics Unit for H92 Workstation (Front and Rear Views)

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, and 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 (P0928DR)
 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⁽⁴⁾

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⁽⁴⁾

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

(4) 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

NOTE

Fiber cable with LC/LC connections greater than 50 m is user-supplied.

OM1⁽⁵⁾ multimode 62.5/125 µm (max. 70 m / 230 ft)

OM2⁽⁵⁾ multi-mode 50/125 µm cable (max. 150 m / 492 ft)

OM3⁽⁵⁾ multi-mode 50/125 µm cable (max. 380 m / 1247 ft)

OM4⁽⁵⁾ multi-mode 50/125 µm cable (max. 400 m / 1312 ft)

OS1, OS2⁽⁶⁾ 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 °C (32° to 131 °F)

TEMPERATURE, NON-OPERATIONAL, STORAGE AND TRANSPORTATION

-40° to 70 °C (-40° to 158 °F)

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)

(5) OM1, OM2, OM3, and OM4 are Matrox cable kits. You must either order them from Matrox or build equivalent cables to specification.

(6) OS1 and OS2 are Matrox single-mode fiber kits for distances greater than 400 m (1312 ft) that must be user-supplied.

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