

# Foxboro Evo™ Process Automation System

## Product Specifications

# Foxboro®

by Schneider Electric

PSS 31H-4H92-10

## Model H92 Workstation for Windows 10 Operating System



*Vital 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 workstation unavailability. Workstations can be remotely mounted in secured 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 10 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 10-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
- ▶ Security-related BIOS changes

### **Installation Considerations**

These new security enhancements are supported only on Microsoft Windows 10 and Windows Server 2016 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
- ▶ 8 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
- ▶ 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

8 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

### 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<sup>(1)</sup>

Quad card – supports up to four analog monitors

#### SCREEN PRESENTATION

##### Refresh Rate

Up to 85 Hz

##### Colors

Over 65,000<sup>(2)</sup>

##### 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

(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)

### 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)<sup>(3)</sup>

#### 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 0.0025g<sup>2</sup>/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

### 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

<sup>(3)</sup> 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  $\mu$ m fiber or 150 m (492 ft) with 50/125  $\mu$ 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.



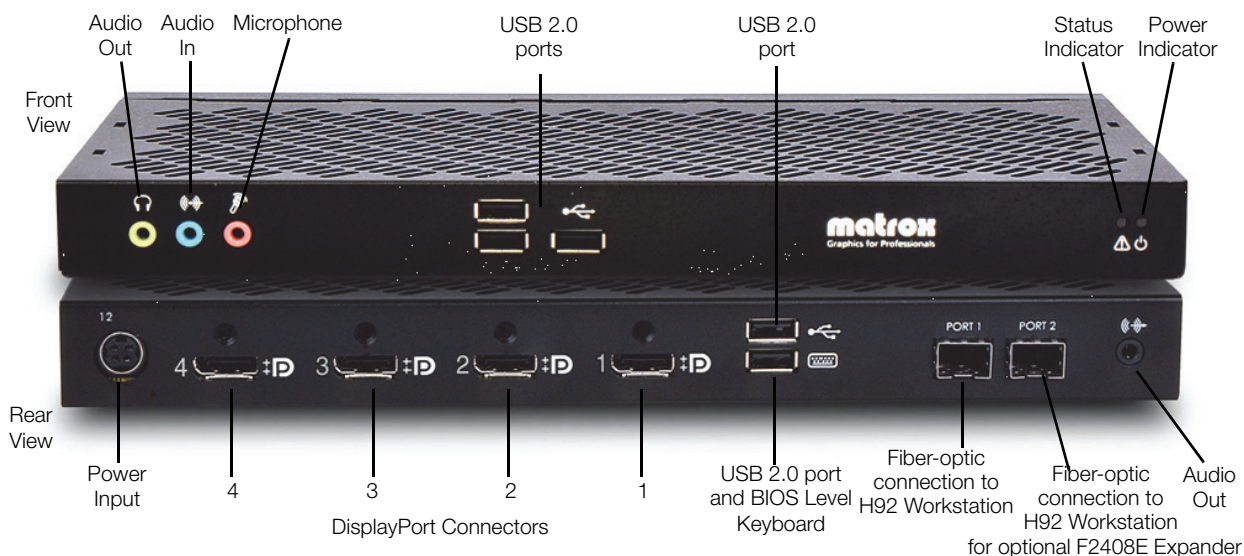


Figure 1. Remote Graphics Unit for H92 Workstation (Front and Rear Views)

## 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  $\mu\text{m}$  fiber or 150 m (492 ft) with 50/125  $\mu\text{m}$  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<sup>(4)</sup>

#### 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<sup>(4)</sup>

#### 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  $\mu\text{m}$  optical cable – 5 m (16 ft).

#### MONITORS SUPPORTED

2, 4, 4

#### DIGITAL MONITOR SUPPORT

DVI, DisplayPort

#### MEMORY

1 GB

#### MAXIMUM ANALOG RESOLUTION

1920  $\times$  1200 - DisplayPort to HD-15 adapter sold separately.

#### MAXIMUM DIGITAL (DVI) RESOLUTION

Up to 2048  $\times$  1152

#### MAXIMUM DISPLAYPORT RESOLUTION

Up to 2048  $\times$  1152, and 2560  $\times$  1600

#### OPERATING SYSTEMS SUPPORTED

(64-bit) Windows 10, Windows Server 2016, 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  $\mu\text{m}$  laser compliant to 21CFR, Subpart J, Class 1

#### EMC CERTIFICATIONS

Class A: ACMA, CE, FCC, VCCI

#### INTERFACE CARD

Optical

#### CARD TYPE

PCIe  $\times$ 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<sup>(5)</sup> multimode 62.5/125  $\mu\text{m}$  (max. 70 m / 230 ft)

OM2<sup>(5)</sup> multi-mode 50/125  $\mu\text{m}$  cable (max. 150 m / 492 ft)

OM3<sup>(5)</sup> multi-mode 50/125  $\mu\text{m}$  cable (max. 380 m / 1247 ft)

OM4<sup>(5)</sup> multi-mode 50/125  $\mu\text{m}$  cable (max. 400 m / 1312 ft)

OS1, OS2<sup>(6)</sup> Single-mode 9/125  $\mu\text{m}$  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