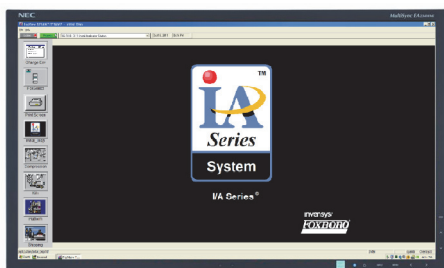
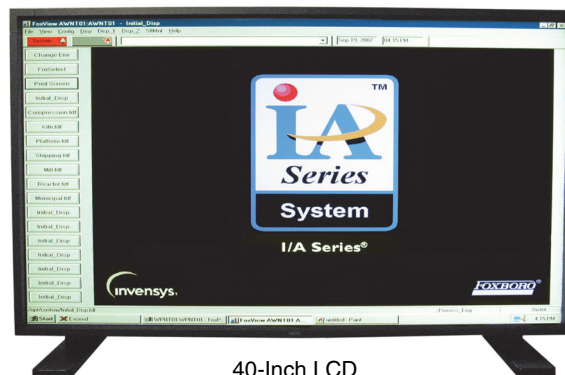


Liquid Crystal Display (LCD) Monitors



23-Inch LCD



40-Inch LCD

The Foxboro Evo™ Process Automation System has advanced visualization software to support plant operators in safely and securely achieving maximum production. Modern high definition liquid crystal display monitors are provided in the high definition aspect ratio.

OVERVIEW

Foxboro Evo systems offer the following sized LCD monitors:

- ▶ 23-Inch LCD monitor
- ▶ 40-Inch LCD monitor.

23-INCH LCD MONITOR

The 23-Inch flat panel LCD monitor (P0928JH/JJ/JK) has a picture matrix of 1920 x 1080 pixels which provides excellent images when driven at its native resolution while producing very good images at off-native resolutions. The monitor is capable of accepting digital DVI-D and DisplayPort and Analog VGA video signals. This monitor can be used with workstations at its full 1920 x 1080 resolution and with workstations at lesser resolutions.

The monitor comes with several options. It can be ordered with or without a protective screen shield or with capacitive touch screens with USB interfaces. The protective shield prevents the LCD element of the screen from being scratched or marred. The monitor can be used for tabletop mounting (see

Figure 1), or workstation console top mounted. The base can also be removed to support pole mounting. As a tabletop unit, the monitor comes with a stand that has swivel, tilt, rotate and height adjustments.

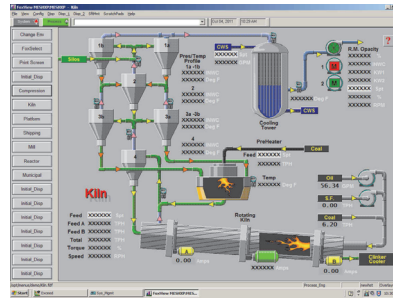


Figure 1. 23-Inch, Tabletop

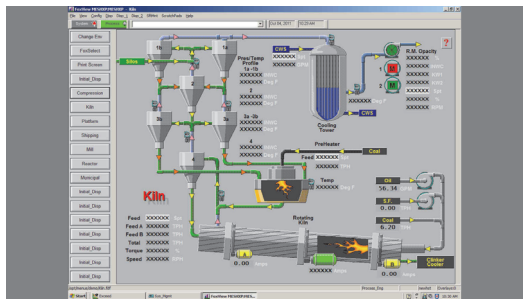
While the previously offered 19-inch and 20-inch monitors had a native 4:3 aspect ratio, the 23-inch monitor has a native 16:9 aspect ratio to support widescreen resolutions, although it can support images at the 4:3 aspect ratio as well.

Workstations require the FoxView/FoxDraw application, version 10.2.4 or later and 1920 x1080 high definition capability to support the 16:9 aspect ratio of the 23-inch monitor. This application is available for workstations which support I/A Series® software version 8.2 to v8.8 and Foxboro Evo Control Core Services software v9.0 and later. It supports displays in both the 4:3 and 16:9 aspect ratio. The application includes a conversion utility to convert displays previously configured for the 4:3 aspect ratio to the 16:9 aspect ratio supported by the 23-inch monitor.

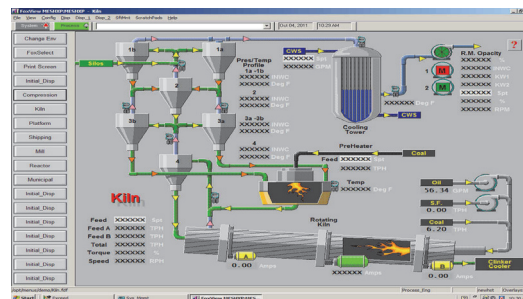
Because the 23-inch monitors also support 4:3 aspect ratio displays, workstations without both 1920 x1080 resolution and FoxView/FoxDraw 10.2.4 or later required for 16:9 displays can still use the 23-inch monitor to replace the previously offered 19-inch or 20-inch monitors with 4:3 displays. While the 23-inch flat panel monitors work best in their 1920 x1080 native resolution and newer workstations have this capability, many older workstations (as noted in *Flat Panel Monitor Software Setup for UNIX and Windows Workstations* (B0193PL)) do not. As a result, 23-inch monitors on workstations with 4:3 aspect ratio displays must have their associated graphics cards set to the specific resolutions listed in the table “Recommended Resolution for Display Devices” in the B0193PL user's guide. Note that a single workstation cannot support a mix of 23-inch and the previously offered 19-inch or 20-inch monitors.



FoxView Display - 4:3 Aspect Ratio on 19"-20" Monitor

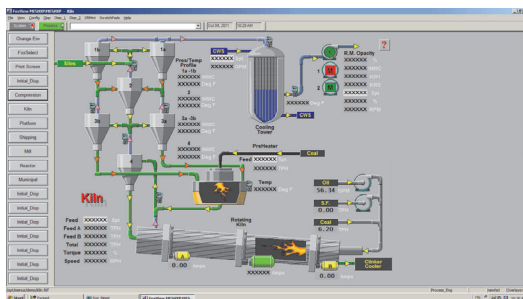


Example 1 - 4:3 Aspect Ratio
Maintained in 16:9 Display
(Grey area not usable)

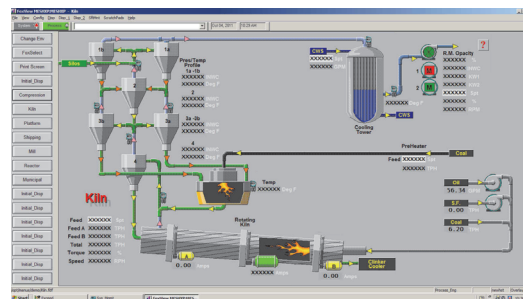


Example 2 - 4:3 Aspect Ratio
Stretched to 16:9 Aspect Ratio
(Stretched with Distortion)

23" Monitor - used with Workstations Without FoxView/FoxDraw V10.2.4 or Later
And Support for 1920 x1080 Resolution



Example 3 - 16:9 Aspect Ratio
View Display on Successful Conversion



Example 3a - 16:9 Aspect Ratio
View Display or Successful Conversion and
Manual Modification of Visual Elements

23" Monitor - used with Workstations with FoxView/FoxDraw v10.2.4 or Later
And Support for 1920 x1080 Resolution

Figure 2. Options for Displaying 4:3 Image on a 16:9 Monitor (Not to Scale)

40-INCH LCD SUPERVISORY DISPLAY

The 40-Inch flat panel LCD monitor displays large direct viewing color images. Designed for multiple user or supervisory displays, this large screen gives unobstructed views of the plant process from great distances. This monitor has a native resolution of 1366 x 768 pixels while supporting many other resolutions with both analog (VGA/BNC) and digital (DVI-D) video signal input capability.

The 40-Inch monitor comes configured for tabletop mounting (see Figure 3), but optional ceiling and wall mounts are available.



Figure 3. 40-Inch, Tabletop

EUROPEAN CERTIFICATION

As symbolized by the CE logo on these monitors, they are in compliance with the applicable European Union directives.

VIDEO SCREEN PLACEMENT

The placement of the video display in relation to the workstation can affect your choice of video cables. In general, analog cables are suitable for use up to 100 feet (30 m) whereas digital cables have a maximum limit of 16 feet (4.8 m), but there are exceptions. For example, the Remote Human Interface Extender set used by the P90 Terminal Server can extend the video (analog or digital) as well as USB mouse, USB keyboard, and audio up to 800 feet (250 m) while the on-board video output on the same processor is limited to 8 feet (2.4 m) of analog cable. Because of these obscure limitations, it is recommended that the Foxboro Evo System Configurator be used to assure proper cable selections.

COLOR CONSISTENCY

These monitors are sourced through a global supply chain that treats this category of equipment as a commodity item. As such, minor color inconsistencies among delivered monitors are to be expected. If the application requires color adjustments or strict consistency of color presentation, contact the Global Customer Support center (see page 12) for assistance in selecting monitors of the appropriate capability.

FUNCTIONAL SPECIFICATIONS - 23-INCH MONITOR

Display Characteristics

RESOLUTION (PIXELS)

Native Resolution

1920 H x 1080 V

(usually used at 60 Hz)

VIEWABLE SIZE

510 mm (20.1 in) x 185 mm (11.2 in)

RECOMMENDED OPERATING RESOLUTION

Workstation Models⁽¹⁾ H90 or P90, H91 or P91, H92 or P92, P93 and P95

1920 x 1080 x 60

Input Characteristics

NOTE

The recommended resolution is a function of the graphics card in the system, the monitor that the system originally had and the preference of the operator. Older systems do not have the capabilities to host modern 1920 x 1080 high definition resolutions.

INPUTS CONNECTORS

Analog

15-pin VGA

Digital

DVI-D and DisplayPort

SYNC RANGE

Horizontal (Analog/Digital)

31.5 KHz to 83 KHz

Vertical

56 Hz to 75 Hz

Brightness (Typical)

250 cd/m²

Power Requirements

INPUT VOLTAGE

Auto Select

100 to 240 V ac

LINE FREQUENCY

50 and 60 Hz nominal

INPUT CURRENT

0.80 - 0.45 A (with USB and Audio)

POWER

23 W Typical

HEAT DISSIPATION BTU RATINGS

Maximum BTU Rating

156.96 BTU/hr

Typical BTU Rating

92.13 BTU/hr

Power Saving BTU Rating

1.4 BTU/hr

Touch Screen Options

USB INTERFACE

Windows Server 2008 R2 Standard, and Windows Server 2003 Stations

H90 or P90, H91 or P91

Windows 7 and Windows XP Stations

H92 or P92

(1) Note that Foxboro Control Software (FCS) systems will only operate at 1280 x 1020 resolution.

ENVIRONMENTAL SPECIFICATIONS - 23-INCH MONITOR

Operating Temperatures

5 to 35°C (41 to 95°F)

Storage Temperature

-10 to +60°C (14 to 140°F)

Operating Humidity

20 to 80% (non condensing)

Storage Humidity

10 to 85% (non condensing)

Operating Altitude

0 to 2000 m (0 to 6562 ft)

Storage Altitude

0 to 12192 m (0 to 40,000 ft)

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

PHYSICAL SPECIFICATIONS - 23-INCH MONITOR

Weight

DISPLAY (WITH SWIVEL STAND)

6.4 kg (14.1 lb)

Display (w/o stand)

4.0 kg (8.8 lb)

Mounting

DESKTOP

100 x 100 mm VESA mounting capability

Swivel Stand

SWIVEL RANGE

Side to Side

±170° from center

Up to Down

+30°, -5° from center

Viewing Range

±89° from center

Dimensions

DISPLAY (ALONE)

Width

543.8 mm (21.4 in)

Height

321.6 mm (12.7 in)

Depth

60.5 mm (2.4 in)

DISPLAY (WITH SWIVEL STAND)

Width

543.8 mm (21.4 in)

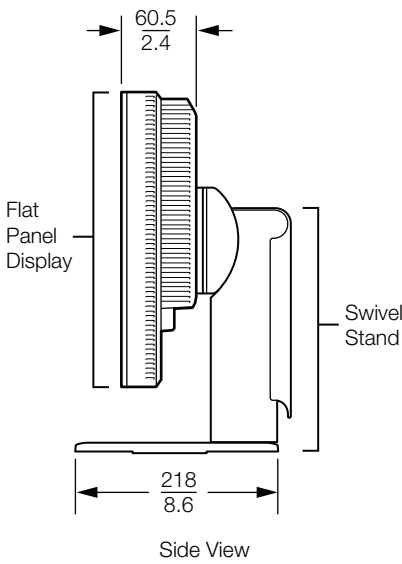
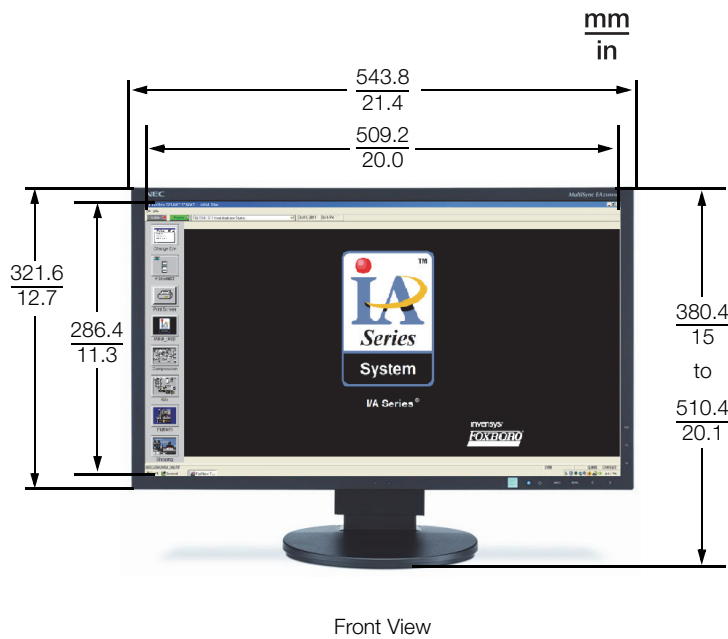
Height

380.4 - 510.4 mm (15.0 - 20.1 in)

Depth

218 mm (8.6 in)

DIMENSIONS NOMINAL - 23-INCH MONITOR



FUNCTIONAL SPECIFICATIONS - 40-INCH MONITOR

Display Characteristics

PRESENTATION

Color

VIEWABLE SIZE

889 mm (35.0 in) x 501 mm (19.7 in), or 40.0 in (diagonal)

RESOLUTION (PIXELS)

Native Resolution

1366H x 768V at 50 Hz to 85 Hz
(usually used at 60 Hz)

COMPATIBLE WORKSTATIONS

Workstation Models H90 or P90, H91 or P91, H92 or P92, P93 and P95

Input Characteristics

INPUTS CONNECTORS

Analog

15-pin VGA or BNCx5

Digital

DVI-D

SYNC RANGE

Horizontal

Analog 31 KHz to 91 KHz

Digital 31 KHz to 91 KHz

Vertical

50 Hz to 85Hz

Luminance

700 cd/m² (maximum), white luminance

500 cd/m² (typical), white luminance

Power Requirements

INPUT VOLTAGE

Auto Select

100 to 120 V ac

220 to 240 V ac

LINE FREQUENCY

50 and 60 Hz nominal

INPUT CURRENT

115 V ac

3.0 A

240 V ac

1.2 A

POWER

210 W @ maximum brightness

130 W @ 50% brightness

HEAT DISSIPATION BTU RATINGS

Typical (Out of Box)

358.27 BTU/hr

Maximum Brightness

460.61 BTU/hr

Maximum Brightness, Speaker Active

563.00 BTU/hr

*Maximum Brightness, Speaker Active,
Option Slot Active*

835.78 BTU/hr

ENVIRONMENTAL SPECIFICATIONS - 40-INCH MONITOR

Operating Temperatures

5 to 20°C at maximum brightness

5 to 40°C at default brightness

Storage Temperature

-20 to +60°C (-4 to 140°F)

Operating Humidity

10 to 80% (non condensing)

Storage Humidity

10 to 90% (non condensing)

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

PHYSICAL SPECIFICATIONS - 40-INCH MONITOR

Weight

DISPLAY (WITH STAND)

36.1 kg (68.6 lb)

Mounting

Desktop (with included stand)
Ceiling or wall (with optional brackets)

Viewing Range

±89° from center

Dimensions

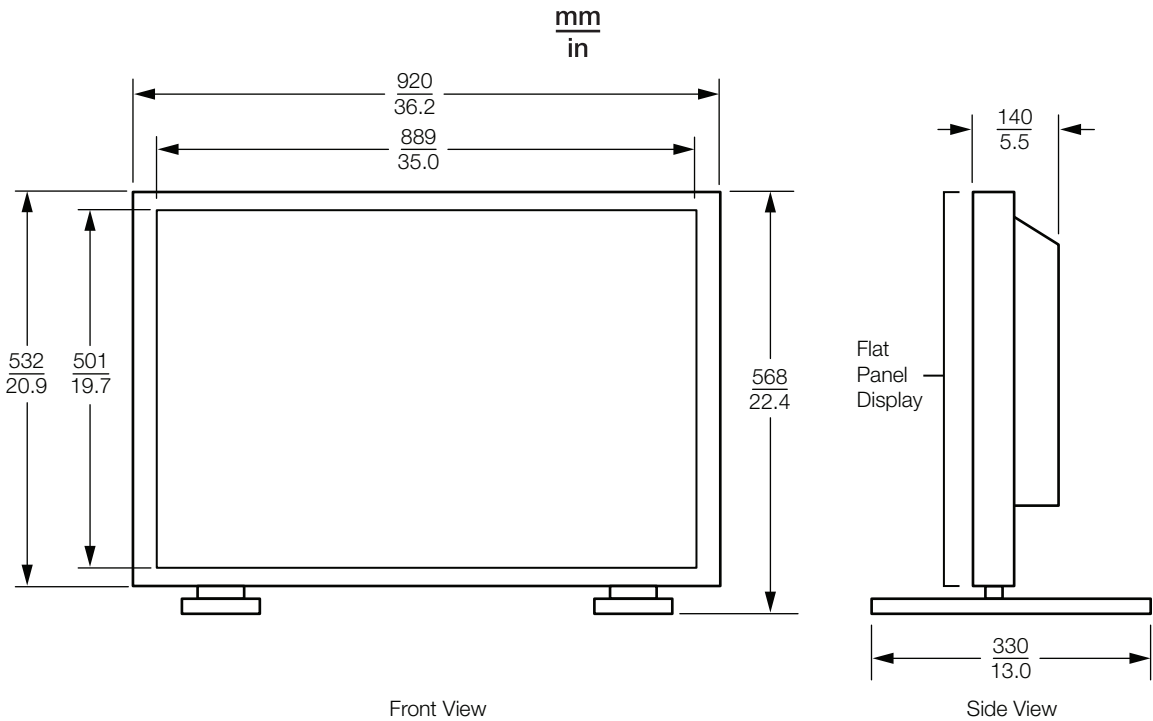
DISPLAY (ALONE)

Width
920 mm (36.2 in)
Height
532 mm (20.9 in)
Depth
140 mm (5.5 in)

DISPLAY (WITH DESK STAND)

Width
920 mm (36.2 in)
Height
568 mm (22.4 in)
Depth
330 mm (13.0 in)

DIMENSIONS NOMINAL - 40-INCH MONITOR



REGULATORY COMPLIANCE (ALL MONITORS IN THIS PSS)

Safety Certifications

US, CANADA

UL® / cUL

EU

Complies with the Low Voltage Directive
2006/95/EC and the following Harmonized
Standards:

EN 60950-

1:2006+A11:2009+A1:2010+A12:2011

EMC

USA, CANADA

Complies with FCC Part 15, Class B

EU

Complies with the EU EMC Directive
2004/108/EC and the following Harmonized
Standards:

EN 55022:2010 Class B

EN 55024:2010

EN 61000-3-2:2006+A1:2009+A2:2009

EN 61000-3-3:2008

OTHER REGULATIONS

Complies with EU ErP Directive 2009/125/EC
and Harmonized Standard EN62301:2005

Complies with EU RoHS Directive 2011/65/EU

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