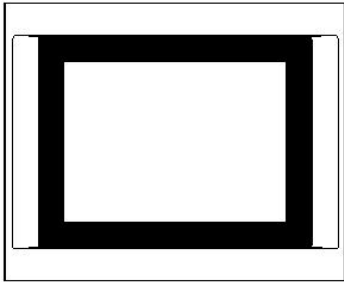


3500/94 VGA Display

Bently Nevada* Asset Condition Monitoring



Description

The 3500/94 VGA Display uses a standard color VGA monitor with “Touch Screen” technology to display 3500 data. This product has two components, the 3500/94 VGA module and its I/O card, and secondly, the VGA display monitor. The display monitor, with standard cabling, can be mounted up to 8 m (25 ft) from the rack.

The 3500/94 displays all 3500 Machinery Protection System information, including:

- System Event List
- Alarm Event List
- All module and channel data
- 3300 style rack view (API-670)
- Current alarm data (quick view)
- Nine custom display options.

All are accessed through a Main Menu using a Touch Screen.

Users configure the 3500/94 modules for language and for the type of VGA display through the 3500 Rack Configuration Software. All other types of data configurations are done locally at the display, giving the operator control over the displayed data. Users may configure nine custom screens locally. As an example, one custom screen may show all the 1X measurements, while another shows all the Gaps, or the custom screens may be organized into train groupings. Users can organize all system data into any specified sets assigned the data to a custom screen. An API-670 compatible screen is also selectable. This screen is similar to a 3300 view of the rack. Each slot shows the Direct or Gap value on the face of the module with OK and Bypass LEDs.

Multiple Rack Feature

Selecting the 3500/94 Display Router Box provides an additional viewing feature. This feature allows users to view a maximum of four racks with one display. Each rack must be individually viewed, but the rack address and alarm status of each rack is always visible in the upper right corner of the screen. The Display Router Box must be located within 6 m (20 ft) of each 3500 rack.

Installation Warning

The old EIA rack mount for the Parker RS Power Station® Monitor will not work with the Advantech FPM-8151H Monitor. Likewise, the EIA rack mount for the Advantech FPM-8151H Monitor will not work with the Parker RS Power Station Monitor.



Display Monitors

Bently Nevada, Inc. offers five approved display monitor types, which are the only types that will properly interface to the 3500/94 VGA modules. Each display is intended to meet different application requirements. It is important that you make the right selection for your application. For outdoor installations, all display types require a hood to block direct sunlight. Each display requires a separate power supply. As an option item, the KVM Extender may be selected for remote sites up to 305 m (1000 ft). While the KVM Extender will meet most viewing requirements, the extender will degrade picture image quality and may be affected by noisy environments. Therefore, users should avoid using the KVM Extender unless the standard 8 m (25 ft) cable length is not adequate.

All display monitor types are "Touch Screen". Because the "Touch Screen" controllers differ, users must configure each display monitor type using the 3500 Rack Configuration Software.

The 3500/94 offers a Display Router Box that allows up to four 3500 racks to drive a single display. The Display Router Box acts as a switch box that allows the operator to switch the display between racks. An important feature of the Display Router Box is its ability to show the alarm and OK status of each connected rack.

Specifications

3500/94 VGA Display Unit

Inputs

Power consumption:

4.6 watts max.

High-speed network:

Monitor status, data and values.

RS232 port (I/O):

Touch controller data.

Outputs

OK LED:

Indicates proper operation of the module.

TX/RX LED:

Indicates communications between other system modules.

VGA port (I/O):

Analog red, green, blue and sync signals to the display.

Environmental Limits

Operating Temperature:

-30 °C to +65 °C
(-22 °F to + 150 °F)

Storage Temperature:

-40 °C to +85 °C
(-40 °F to + 185 °F)

Humidity:

95%, noncondensing.

Compliance and Certifications

EMC

Standards:
EN 61000-6-2 Immunity for Industrial Environments
EN 61000-6-4 Emissions for Industrial Environments

European Community Directives:
EMC Directive 2004/108/EC

Electrical Safety

Standards:
EN 61010-1

European Community Directives:
2006/95/EC Low Voltage

For further certification and approvals information please visit the following website:

<http://www.GEmeasurement.com>

Hazardous Area Approvals

NOTE: *The following approvals apply to the 3500/94 monitor and I/O only.*

North America


Approval Option (01)

Ex nC [L] IIC: Class I, Div 2
AEx nC IIC: Class I, Div 2
Groups A, B, C, D
T4 @ Ta = -20 °C to +65 °C
(-4 °F to +150 °F)
Per drawing 149243

ATEX

Approval Option (02)

For ATEX agency approval ordering options without internal barriers:

 II 3 G
Ex nA nC IIC T4 Gc
T4 @ Ta = -20 °C to +65 °C
(-4 °F to +150 °F)

NOTE: *The following certification information applies to the VGA display monitors only (both the Parker and the Advantech):*

UL listed
Class I, Division 2 Groups A,B,C,D

Physical

Monitor Module

Dimensions

(Height x Width
x Depth)

241.3 mm x 24.4 mm x 241.8 mm
(9.5 in x 0.96 in x 9.52 in)

Weight:

0.73 kg (1.6 lb.)

I/O Module

Dimensions

(Height x Width
x Depth)

241.3 mm x 24.4 mm x 99.1 mm
(9.50 in x 0.96 in x 3.90 in)

Weight:

0.34 kg (0.75 lb.)

Rack Space Requirements

Monitor Module:

1 full-height front slot

I/O Module:

1 full-height rear slot

KVM Extender

Mounting

Shelf top

Power Input

100 to 240 Vac, 50-60 Hz

Agencies

CE

Temperature Range

0 °C to 40 °C
(32 °F to 104 °F)

Humidity

80%, noncondensing

Class 1, Div 2

Not approved

NEMA 4X

Not approved

3500/94 Display Router Box

Inputs

Power +24vdc +/- 6%:

4.7 watts max.

Input range:

22.5 to 25.5 Vdc input.

VGA inputs (4)

Video image.

RS232 inputs (4):

Touch controller data.

Outputs

OK Status LED:

Indicates proper operation.

VGA Output (1):

Video image.

RS232 Output (1):

Touch control data.

Environmental Limits

Operating

Temperature:

-30 °C to +65 °C

(-22 °F to + 150 °F)

Storage

Temperature:

-40 °C to +85 °C

(-40 °F to + 185 °F)

Humidity:

95%, noncondensing.

Compliance and Certifications

EMC

Standards:

EN 61000-6-2 Immunity for
Industrial Environments
EN 61000-6-4 Emissions for
Industrial Environments

European Community Directives:

EMC Directive 2004/108/EC

Electrical Safety

Standards:
EN 61010-1

European Community Directives:
2006/95/EC Low Voltage

Physical

Monitor Module

Dimensions (Height x Width x Depth)

Module HxWxD:
22.1mm x 127mm x 241.32mm

Weight:

0.41kg (0.90 lb.)

Ordering Considerations

The 3500/94 requires the following (or later) firmware and software revisions:

3500/94 Firmware	Rev P
3500/01 Software (Rack Config)	Rev 4.8
3500/02 Software (Op Display)	Rev 2.21
3500/03 Software (Data Aqu)	Rev 1.22

The recommended display monitor option is the Advantech FPM-8151H. This space-saving and durable display is designed for excellent viewing quality in industrial applications.

The Display Router Box, which allows one display to serve up to 4 racks, may be used to reduce the number of displays required. When connected, the Display Router Box allows the operator to view all racks by switching between them (note that only one rack can be viewed at a time). All 3500 racks must be located within 20ft of the Display Router Box.

We recommend that the user locate the display within 25 feet of the 3500 rack as the video driver circuit is optimized for this range. Cabling lengths greater than 25 feet will degrade the picture quality. When an application requires an extension, the KVM Extender may be used. The KVM Extender will reduce picture quality to some degree, although typically the quality of the picture image will still be acceptable. The KVM Extender must be used indoors and it is not rated for potentially hazardous areas.

Ordering a Display Router Box

AA options 13, 14 and 15 are for the Display Router Box. To order multiple racks with one display, do the following:

1. The first rack must call out an AA option between 01 and 04; this selects the desired display type.
2. The second rack must call out an AA option of 13 or 14; this selects the Display Router Box (including cables for two racks). Option 13 does not include a power supply. If an AA option of 01 through 04 was selected on the first rack, the power supply is already included. If an AA options of 05 through 08 was selected on the first rack, option 14 will be required (on the second rack) to include the power supply for the Display Router Box.
3. The Third rack must call out an AA option of 15; this selects the cables necessary for a third rack.
4. The fourth rack must call out an AA option of 15; this selects the cables necessary for a fourth rack.

Note: Each 3500 rack requires a 3500/94 VGA module and an I/O card; because of this, each AA option is structured to automatically include them.

Ordering Information

Country specific approvals may be available. Please consult your local Customer Care Representative for more information.

System Display

3500/94-AXX-BXX-CXX

A: Display Monitor Option:

01	FPM-8151H Panel mount DC Supply-Industrial included
02	FPM-8151H 19-inch EIA Rack mount DC Supply-Industrial included
03	FPM-8151H Panel mount Class 1, Division 2 DC Supply-Industrial included
04	FPM-8151H 19-inch EIA Rack mount Class 1, Division 2 DC Supply-Industrial included
05	Discontinued
06	Discontinued

Specifications and Ordering Information
Part Number 148635-01
Rev. P (04/15)

	07	Discontinued	148653-01	
	08	Discontinued		
	09	Discontinued		RS Power Station, class 1, division 2 option
	10	Discontinued		
	11	Discontinued	149356-01	
	12	Discontinued		Display Router Box
	13	Display Router Box (cables included for two racks)		
	14	Display Router Box with +24vdc Supply (cables included for two racks)	149710	
	15	Cables for Display Router Box (one rack)	161087	Split digital cable for the Display Router Box (25ft)
B:	Extender and Cable Length Option:			VGA cable for the Display Router Box (20ft)
	00	None		
	01	KVM Extender 250 Foot (76.25 Meters) PVC cable	163028	
	02	KVM Extender 500 Foot (152.5 Meters) PVC cable		Split digital cable for the Display Router Box (33ft)
	03	KVM Extender 1000 Foot (305 Meters) PVC cable	163029	
C:	Agency Approvals Option:			VGA cable for the Display Router Box (33ft)
	00	None		
	01	CSA/NRTL/C		
	02	ATEX/CSA	161264-01	

Accessories and Spares

148635-01			104M3812-01	
	3500/94 Data sheet			19" EIA mounting plate, FPM-8151H
148636-01			146190-01	
	3500/94 Manual			19" EIA mounting plate, RS Power Station
145988-01			103M7873-01	
	3500/94 Main module			3500/94 KVM Extender
147663-01			148350-0250	
	3500/94 I/O module			CAT5 cable 250 Foot PVC
148637-01			148350-0500	
	VGA Extension cable 20 Foot			CAT5 cable 500 Foot PVC
148638-01			148350-1000	
	Serial Touch Cable 25 Foot			CAT5 cable 1000 Foot PVC
148654-01				
	Spare display — RS Power Station			
102M8950				
	FPM-8151, class 1, division 2			

Display Monitor Specifications

RS Power Station	
Size	15"
Type	LCD
Industrial hardened	Yes
Mounting Styles	Panel mount Or 19" Rack mount
Power	20 to 36 Vdc, 48 W. DC Supply included.
Agencies	CE, UL, CUL
NEMA 4X	Yes
Class 1, Div 2	Optional
Temperature	0 to 65°C for full unit. -30°C to 65°C for bezel and screen. See notes.
Humidity	95% RH
Touch Interface	Resistive
Manufacture	CTC-Parker
Dimensions (whd) inches	16.8x13.3x3.8. Panel cutout 15.90 X 12.45 (wh)
Weight Shipping	7.80 kg (17.2 lb) 10.0 kg (22 lb)
Warranty	2 years
Notes	Recommended for industrial use. Best fit for most applications. The minimum temperature rating is 0°C for the electrical components on the rear of the display. When the screen and bezel is to be exposed to temperatures below 0°C, a heated enclosure is required for the rear components.

FPM-8151H	
Size	15"
Type	LCD
Industrial hardened	Yes
Mounting Styles	Panel mount Or 19" Rack mount
Power	20 Vdc, 57 W. DC Supply included.
Agencies	CE, UL
IP65 compliant	Yes
Class 1, Div 2	Yes
Temperature	0 to 60°C operation temperature
Humidity	95% RH
Touch Interface	Resistive
Manufacture	Advantech
Dimensions (whd) inches	16.61x13.31x2.68. Panel cutout 15.59 X 11.65 (wh)
Weight Shipping	8.50 kg (18.74 lb) 10.0 kg (22 lb)
Warranty	2 years
Notes	Recommended for industrial use. Best fit for most applications. The minimum temperature rating is 0°C for the electrical components on the rear of the display. When the screen and bezel is to be exposed to temperatures below 0°C, a heated enclosure is required for the rear components.

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