3500/94M VGA Display Monitor

Datasheet

Cordant™

122M3217 Rev. N



Description

The Bently Nevada™ 3500/94M VGA module displays all 3500 machinery protection system information, including:

- System event list
- Alarm event list
- All module and channel data
- Alarm and OK status
- Nine custom display options

Use the 3500 Rack Configuration Software to configure up to nine custom screens. By default, one bar graph screen shows all of the 1X-filtered vibration measurements, while another shows the proximity transducer gap values.

You can organize custom screens into machine train groups. You can also organize system data into any pages on the custom screen.

System Components

The 3500/94M is comprised of:

- The 3500/94M VGA module
- An I/O module
- A 10" or 15" VGA touch screen display

You can mount the VGA display monitor using standard cables up to 6 m (20 ft) from a 3500 rack, or using a supported Keyboard Video Monitor (KVM) Extender, up to 10 km (6.2 miles) from the 3500 rack.

Baker Hughes

Specifications

3500/94M VGA Display Unit

Inputs	
Power consumption	4.6 W max.
High-speed network	Monitor status, data and values
RS232 port (I/0)	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
Front Port	24 Vdc Power out, VGA signal out, Touch commands in.

Environmental Limits

Operating Temperature	-20°C to 65°C (-22°F to 149°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	95%, non-condensing

Compliance and Certifications

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

EMC	Standards EN 61000-6-2 EN 61000-6-4 Directive 2014/30/EU
Electrical Safety	Standards CSA C22.2 61010-1 UL EN 61010-1 Directive 2014/35/EU
RoHS	Directive 2011/65/EU

WARNING



HAZARDOUS VOLTAGE

RISK OF ELECTRIC SHOCK, BURN OR DEATH.

Do not remove cover. No user servicable parts inside.

WARNING



EXPLOSION HAZARD

Refer to User Manual **BEFORE** making connections.

DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

AVERTISSEMENT - RISQUE D'EXPLOSION - AVANT DE DECONNECTER L'EQUIPMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DESIGNE NON DANGEREUX.

Hazardous Area Approvals

For the detailed listing of country and product-specific approvals, refer to the *Approvals Quick Reference Guide (108M1756)*.

For additional technical documentation, please log in to bntechsupport.com and access the Bently Nevada Media Library.

3500/94M VGA Display Module

The following approvals apply to the 3500/94M monitor, its I/O module, and the 3500/94M Display Router Box.

North America	
Approval Option (01)	**Canada** Ex nC [L] IIC T4 Gc: Certified to CSA60079-0, -11, -15 Class I, Division 2, Groups A, B, C and D: Certified to CSA213 **USA** Class I, Zone 2: AEx nC IIC T4 Gc: Conforms to: UL60079-0, -11, -15 Class I, Division 2, Groups A, B, C and D: Conforms to ISA 12.12.01 T4 @ -20°C ≤ Ta ≤ +65°C (-4°F ≤ Ta ≤ +149°F) Per control drawing 149243
ATEX/IECEx	
Approval Option (02)	II 3 G Ex nA nC ic IIC T4 Gc T4 @ -20°C ≤ Ta ≤ +65°C (-4°F ≤ Ta ≤ +149°F) Per control drawing 149243

Advantech 10" Display (AN-D3510)

North America	
Approval Option (01)	**Canada** Ex ic nA IIC T4; Certified to CSA C22.2 60079-0,-11,-15 Class I, Division 2, Groups A, B, C, D T4; Certified to CSA C22.2 213 **USA** Class I, Division 2, Group A, B, C, D T4; Conforms to: ISA 12.12.01 Class I, Zone 2, AEx ic nA IIC T4; Conforms to: UL60079-0, -11, -15
ATEX/IECEx	
Approval Option (02)	II 3G Ex ic nA IIC T4 Gc; -20°C ≤ Ta ≤ +65°C Ex ic nA IIC T4 Gc; IP54; -20°C ≤ Ta ≤ +65°C

The Advantech 15" Display (FPM-8151) is not certified to meet ATEX/IECEx standards.

Physical Characteristics

3500/94M VGA Display 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.)
10" Advantech Display (ANA-D3510-100-A1)	
Dimensions (height x width x depth)	249 mm x 389 mm x 48 mm 9.8 in x 15.3 in x 1.9 in
Touch screen (diagonal)	267 mm (10.5 in)
Weight	4.0 kg (8.78 lb)
15" Advantech Display (FPM-8151)	
Dimensions (width x height x depth)	422 mm x 338 mm x 68 mm 16.61 in x 13.31 in x 2.68 in
Display screen (diagonal)	381 mm (15 in)
Weight	8.5 kg (18.75 lb)

Rack Space Requirements

Monitor Module	
Rack space	1 full-height front slot
I/O Module	
Rack space	1 full-height rear slot
Keyboard Video Monitor (KVM) Extender	
Mounting	Shelf top
Power input	12 Vdc and 5 Vdc
Temperature range	0°C to 45°C (32°F to 113°F)
Humidity	80%, non-condensing
Rating	The SM FO KVM receiver and transmitter are not certified for hazardous area installations. Both the receiver and the transmitter must be installed in a safe area or enclosed in an approved enclosure.
NEMA 4X	Not approved



To install in a hazardous area, see the *3500/94M VGA Display Module Operation and Maintenance Manual* (document 122M3218).

Accessories and Spares

3500/94M Module Accessories and Spares

122M3217	3500/94M VGA Display Monitor Product Datasheet
122M3218	3500/94M VGA Display Module Operation and Maintenance Manual
184826-01	3500/94M Main module
190214-01	3500/94M Normal I/O module
190214-02	3500/94M Power-only I/O module for front-mount display

3500/94M Advantech 10" Display Accessories

For display monitor specifications, See Display Monitor Specifications on page 8.

120M8155-01	ANA-D3510-100-A1, Advantech 10” display. Does not include mounting screws.
Front Mounting Accessories and Spares	
122M3368-01	94M face mount for Advantech 10” display
122M4631-AA	Mounting standoff for face mount display with threaded mounting holes for 19" EIA rack. **AA**: mounting hole thread size. Choose one: **01** – M6 x 1 **02** – 10-32 **03** – M5 x 0.8
107M3696-01	3 ft (.91 m) v Video, serial, and power cable from front of rack-mounted 3500/94M Module to the 10" Advantech display. Note that cable assembly 119M6503-03 is also required from the 3500/94M IO Module (190214-02) to an industrial 24 VDC power supply.
119M6509-03	Power supply cable for 10" Advantech Display that connects the rear of a rack-mounted 3500/94M IO module (190214-02) to an industrial 24 VDC power supply. 10 ft (3.05 m). Note that cable assembly 107M3696-01 is also required from the front of the 3500/94M Module to the display.
02200794	24V DIN mount power supply with no cable
Other Mounting Accessories	
122M3369-01	94M rack mount for Advantech 10” display
122M3370-01	94M panel mount for Advantech 10” display
122M3371-01	94M independent mount for Advantech 10” display
119M6509-01	Power supply cable only for 10" Advantech Display that connects from the display to an industrial 24 VDC power supply. 10 ft (3.05 m).
119M6509-02	
161087-AA-00	VGA male-male cable for display to 3500/94M I/O **AA**: cable length. Choose one: **10** - 10 ft (3.05 m) **20** - 20 ft (6.1 m)

Graphs and Figures

The examples in this section show included components and installation arrangements for various ordering options.

Ordering options are structured as 3500/94M-AA-BB-CC, where:

- AA = Display size and mounting
- BB = KVM Extender, router box and cables
- CC = Agency approvals

In addition to these options, all purchasing options automatically include a 3500/94M VGA display module and appropriate I/O module. Separate components are available individually. 11



Figure 1: Single Rack with One Face Mount Display

Ordering Option	Description
3500/94M-01-00-00	10" display with hinged face mount for EIA 19" rack

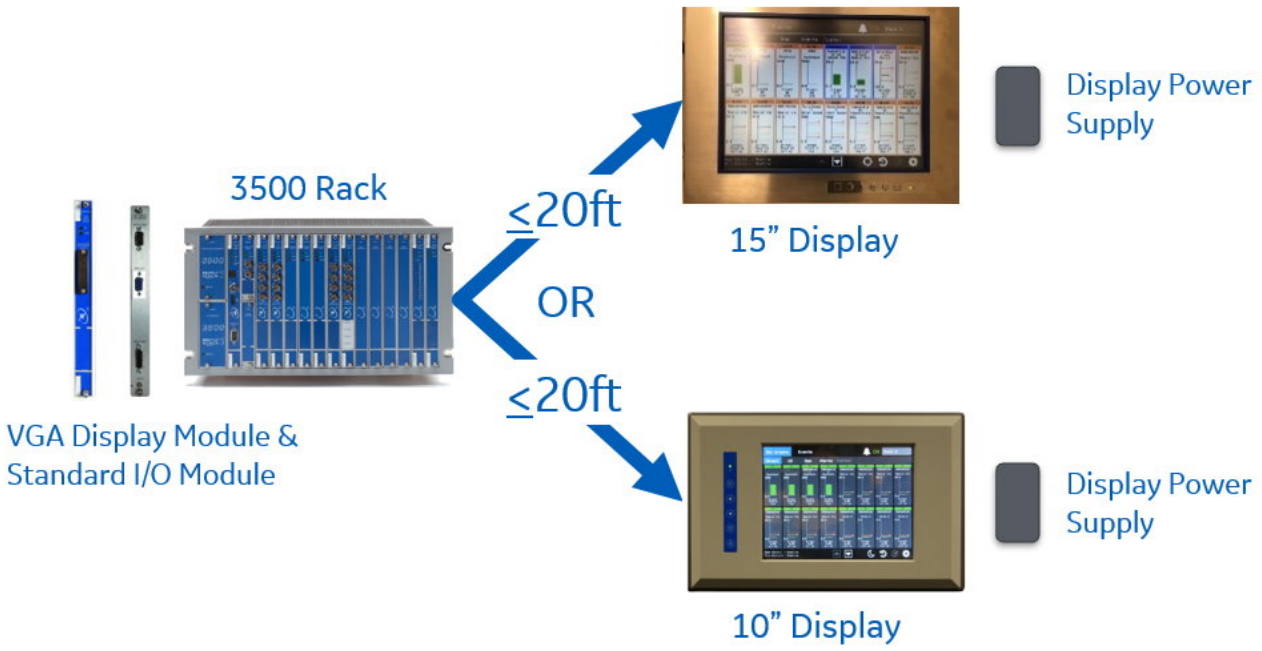


Figure 2: Single Rack with One Display

Ordering Option	Description
3500/94M-02-00-(00/01/02)	10" display for mounting in 19" EIA rack
3500/94M-03-00 (00/01/02)	10" display, panel mount (installation hardware included)
3500/94M-04-00-(00/01/02)	10" display with independent mounting hardware
3500/94M-05-00-(00/01)	15" display for mounting in EIA 19" Rack
3500/94M-06-00-(00/01)	15" display, panel mount (installation hardware included)