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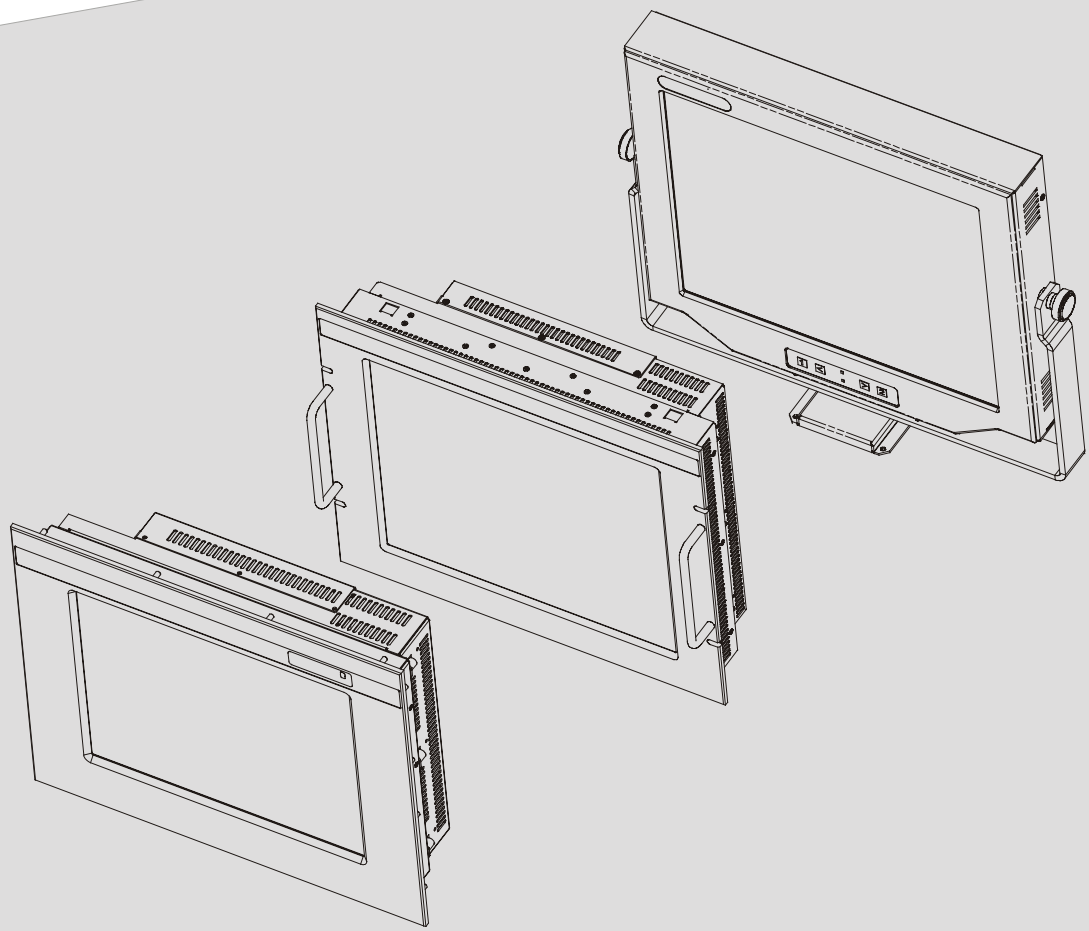
Find the *Rockwell / Allen-Bradley 6185-AAZAAZZ* at our website: *Click HERE*

Industrial 18.1" Flat Panel Monitor

Allen-Bradley

(Bulletin 6185-D, 6185-N, and 6185-V)

Installation and User Manual



Rockwell Automation

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Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. "Safety Guidelines for the Application, Installation, and Maintenance of Solid State Controls" (Publication SGI-1.1) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation with respect to use of the information, circuits, equipment, or software described in this manual.

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Throughout this manual, we use notes to make you aware of safety considerations.



ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

Important: Identifies information that is especially important for successful application and understanding of the product.

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Industrial 18.1" Flat Panel Monitor

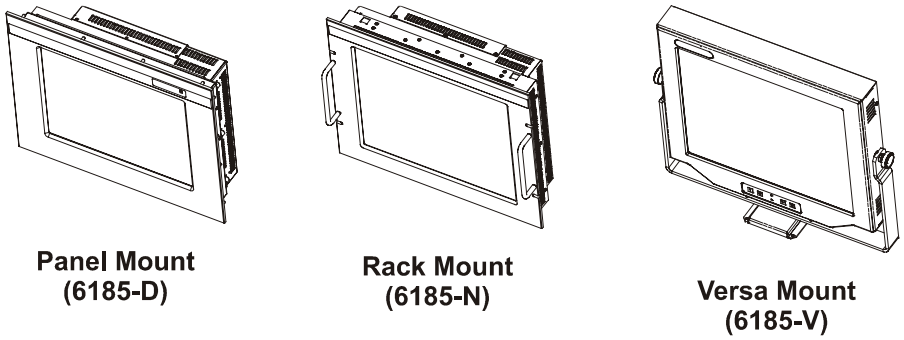
Flat Panel Monitor Models

This manual provides installation, operation, and maintenance instructions for the Allen-Bradley RAC6185 18.1" Flat Panel Monitor.

Rockwell Automation offers the following models of the RAC6185 18.1" Flat Panel Monitor:

- Panel mount (6185-D)
- Rack mount (6185-N)
- Versa mount (6185-V)

Figure 1
Models of the RAC6185 18.1" Flat Panel Monitor



Description

All models of the RAC6185 18.1" Industrial Flat Panel Monitor offer the following capabilities:

- Full color display
- Bright (200 nits) Active Matrix-TFT 1280x1024 display
- Video formats supported from 640x480 to 1280x1024
- 170° viewing angle
- AC or DC power options
- Plug and Play compatible

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The panel mount (6185-D) and rack mount (6185-N) models also offer the following:

- Full-range dimming
- Class 1, Division 2 Hazardous Area Certification



ATTENTION: The equipment described in this document generates, uses, and emits radio frequency energy. The equipment has been tested and found to comply with FCC Rules, Part 15, subpart J, for Class A computing devices.

The use of non-shielded interface or power cords with Allen-Bradley industrial monitors is prohibited.

Available Options

The following options are available for the RAC6185 18.1" Industrial Flat Panel Monitor:

- AC and DC power options
- (6185-D only) NEMA 4/12 options (IP65/IP52 equivalent) or 4X (stainless steel) front panel
- Touchscreen options
- Video cable options
- Power cord options

Catalog Numbers

The catalog number for your particular unit consists of the model number (6185) followed by a seven-digit code indicating the options on your unit.

Example:

6185 -	V	A	C	B	A	A	C
1	2	3	4	5	6	7	8

Following are explanations of the catalog numbers for the various models of the 6185 units.

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Table A
Catalog Number Explanation for 6185-D (Panel Mount) and 6185-N (Rack Mount)

Position	Option	Option Letter	Category Description
2	Display type and size	D	18.1” (1280x1024) (Panel Mount)
		N	18.1” (1280x1024) (Rack Mount)
3	Enclosure type	A	Painted Aluminum Bezel
		B	Stainless Steel Bezel
4	Touchscreen	A	Resistive Polished Touchscreen
		C	Resistive Antiglare Touchscreen
		D	Capacitive Antiglare Touchscreen
		W	Antireflective Tempered Glass Screen Protector
		Z	Polycarbonate Screen Protector
5	Power input	A	85 to 265VAC, Auto-Switching, 6 foot (1.8 meter) USA Power Cord
		B	85 to 265VAC, Auto-Switching, No Power Cord
		C	18 to 32VDC, Screw Terminals
6	External video cable	A	6 foot (1.8 meter) HD15-HD15 Cable
		B	15 foot (4.6 meter) HD15-HD15 Cable
		Z	None
7	Touchscreen cable	A	6 foot (1.8 meter) DB9-DB9 Cable
		B	15 foot (4.6 meter) DB9-DB9 Cable
		D	6 foot (1.8 meter) DB9-DB25 Cable
		Z	None
8	Accessories	Z	None (Dimming Standard on 18.1" and 20.1")

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Table B
Catalog Number Explanation for 6185- V (Versa)

Position	Option	Option Letter	Category Description
2	Display type and size	V	18.1” (1280x1024) (Versa Mount)
3	Enclosure type	A	Painted Aluminum Enclosure
4	Touchscreen	C	Resistive Antiglare Touchscreen
		D	Capacitive Antiglare Touchscreen
		W	Antireflective Tempered Glass Screen Protector
		Z	Polycarbonate Screen Protector
5	Power input	E	12 VDC ±5% input
		F	120/240 VAC, 6 ft USA Power Cord (Remote or Attached)
		G	120/240 VAC, No Power Cord (Remote or Attached)
6	External video cable	A	6 foot (1.8 meter) HD15-HD15 Cable
		B	15 foot (4.6 meter) HD15-HD15 Cable
		K	1 ft (0.3 m) HD15-5 BNC Cable (Separate, Composite, and Sync on Green)
		Z	None
7	Touchscreen cable	A	6 foot (1.8 meter) DB9-DB9 Cable
		B	15 foot (4.6 meter) DB9-DB9 Cable
		Z	None
8	Accessories	B	Benchtop Mount Arm (Bolt or Table Edge Clamp)
		C	Wall Mount Arm (Bolt)
		D	Bench/Wall Mount Yoke Bracket Assembly (Bolt)
		Z	None

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Package Contents

The RAC6185 18.1" Flat Panel Monitor shipping carton contains the following items:

- Monitor
- Monitor adjustment utility on floppy diskette
- Package of mounting hardware
- AC power cord (optional)
- External power supply (6185-V only)
- Video cable (optional)
- This user manual

A RAC6185 18.1" Industrial Flat Panel Monitor with a touchscreen option is shipped with supporting software and manuals and an optional RS-232 serial extension cable.

Unpacking the Unit

Before unpacking a new monitor, inspect the shipping carton for damage. If damage is visible, immediately contact the shipper and request assistance. Otherwise, proceed with unpacking.

Note: Make sure you keep the original packaging for the monitor in case you need to return the monitor for repair.

Hazardous Locations

See the nameplate label on the monitor for certifications.



ATTENTION: In Class I, Division 2 hazardous locations, the panel mount (6185-D) and rack mount (6185-N) must be wired per the National Electric Code and/or Canadian Electric code as it applies to hazardous locations.

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Installing the RAC6185 18.1" Flat Panel Monitor (All Models)

This section describes how to install the RAC6185 18.1" Flat Panel Monitor.

When installing the unit, it is important to consider environmental factors at the site that could affect performance as well as possible effects from equipment operation on personnel and nearby equipment.

Following the guidelines will help ensure that the monitor will provide safe and reliable service.

- Ensure that sufficient **power** is available from a single phase AC outlet at the site.
- Ensure that sufficient **space** is available around air inlets and outlets to provide the circulation necessary for cooling. Never allow air passages to become obstructed.
- Ensure that the **ambient air temperature** will not exceed the specified maximum temperature. A user supplied fan, heat exchanger or air conditioner may be required to meet this condition in some installations.
- Leave the monitor's **enclosure or cover** in place at all times during operation. The cover affords protection against high voltages inside the monitor and inhibits radio-frequency emissions that might interfere with other equipment.
- The Federal Communications Commission has prepared a pamphlet that addresses the problem of **radio frequency interference** to radio and television reception, which should be consulted in case of problems with such interference. This publication, "How to Identify and Resolve Radio/TV Interference Problems" (Stock #004-000-00345-4) may be obtained from the US Government Printing Office, Washington, DC 20402.
- Determine the minimum and maximum ambient **humidity** for the monitor by consulting the specification sheets at the back of this manual. Ensure that the humidity of the ambient air will not exceed these limits. In very dry environments, static charges build up very readily. Proper grounding of the equipment through the AC power cord can help reduce the likelihood of static discharges, which may cause shocks and damage electronic components.
- Following product hose down, a monitor with a capacitive touchscreen may not operate properly until the surface area between the front panel sealing gasket and the touchscreen sensor dries completely. Drying time can vary from 30 minutes to two hours, depending on ambient conditions. Furthermore, the monitor should not be powered up and operational during a hose down.

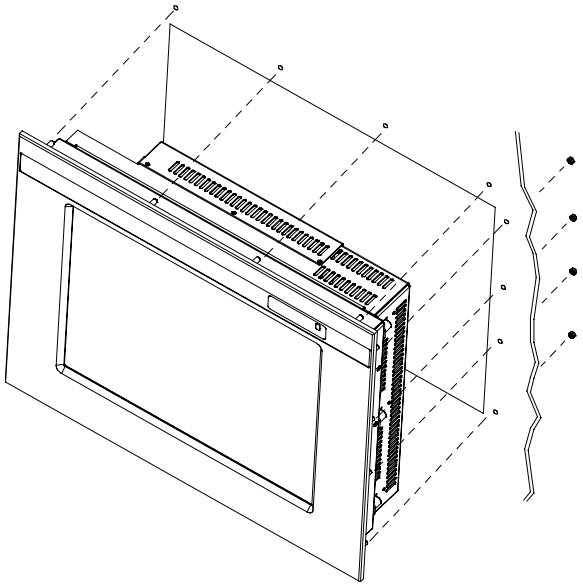
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Panel Mount (6185-D)

The panel mount (6185-D) monitor is designed to provide protection against water and dust to NEMA 4 (IP65) and NEMA 12 (IP52) standards.

No slides or shelves are required because the panel mount (6185-D) monitor is designed to be supported by the panel in which it is installed.

Figure 2
Generic Panel Mount Diagram



Tools Needed

In addition to the tools required to make the panel cutout, you will need the following tools:

- 3/8" deep well socket
- ¼" drive extension – 6" or longer
- ¼" drive ratchet or ¼" drive torque ratchet

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Panel Mounting Guidelines (6185-D)

Observe the following precautions before installing the unit in a panel:

- Confirm that there is adequate space behind the panel. Remember to allow extra space (0.5 in. or 12.7 mm behind and on each side) for air circulation. A cabinet with a minimum depth of 5.12 in. (130 mm) is sufficient.
- Take precautions so that metal cuttings do not enter any components that are already installed in the panel.
- Supporting panels should be at least 14 gauge to ensure proper sealing against water and dust and to provide proper support. The mounting hardware supplied accommodates panels up to 0.25 in. (6.35 mm) thick.

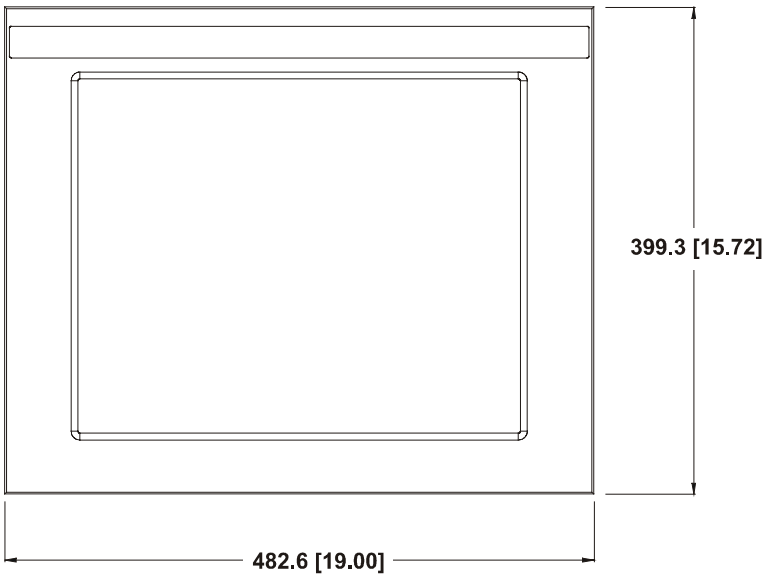
Note: Supporting panels must be cut and drilled to specifications prior to installation.

ATTENTION: Failure to follow these warnings may result in personal injury or damage to the panel components.

Panel Mount Dimensions (6185-D)

This section shows the dimensions of the panel mount unit. Use this information to ensure you have adequate space to install the unit and route cables. Units are in mm [inches].

Figure 3
Panel Mount Dimensions (Front View)



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Figure 4
Panel Mount Dimensions (Side View)

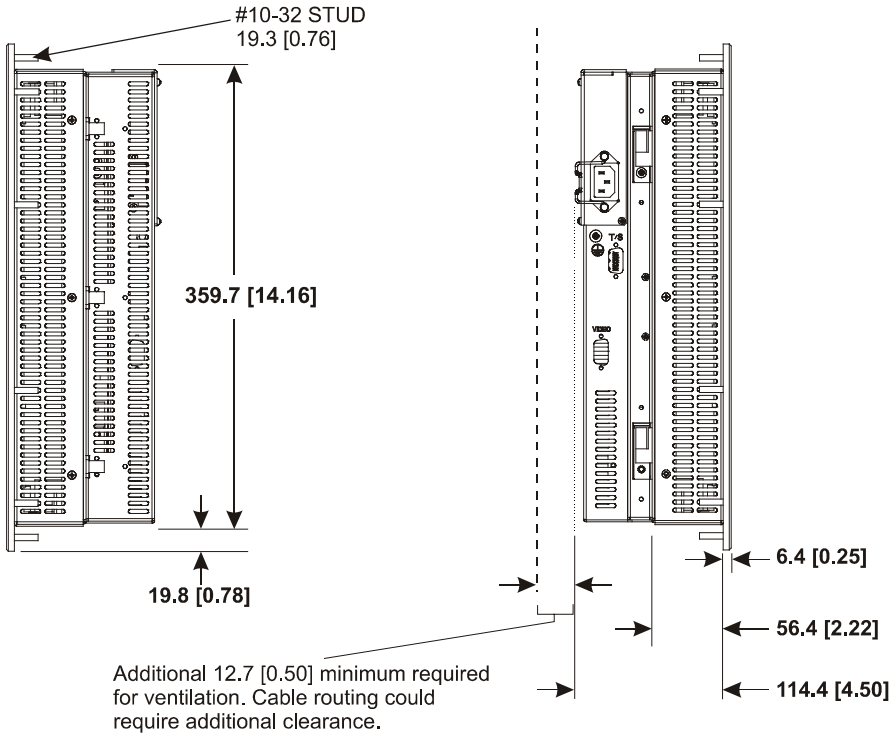
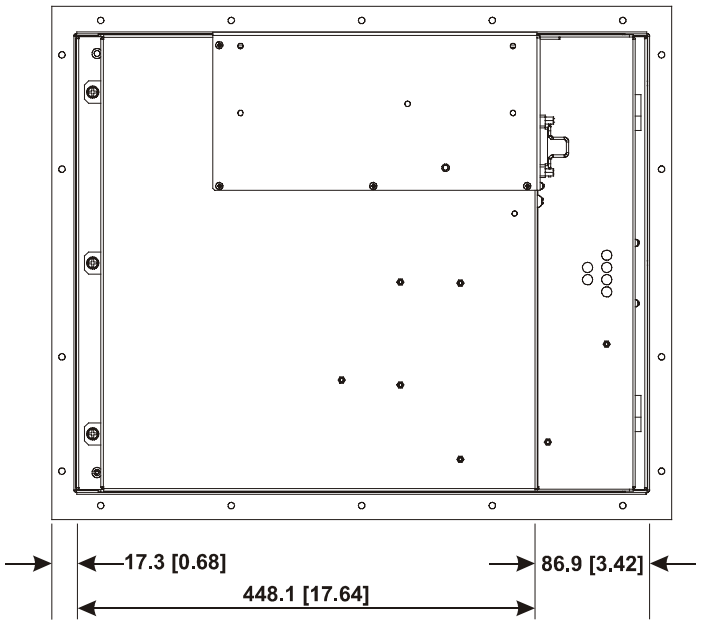


Figure 5
Panel Mount Dimensions (Back View)

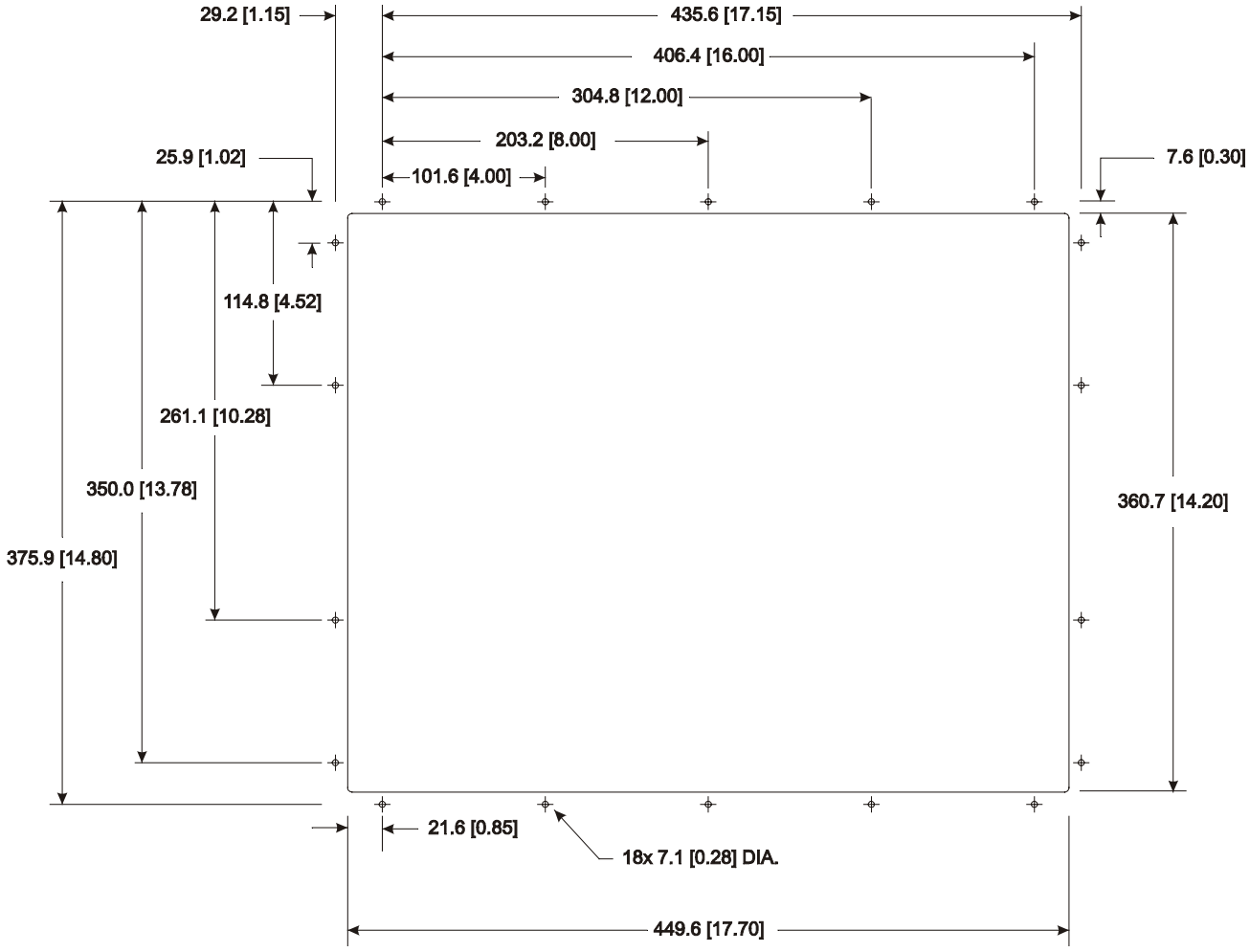


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Panel Mounting Procedure (6185-D)

1. Cut and drill the panel (refer to following figure). Units are in mm [inches].

Figure 6
Panel Mounting Cutout



2. If access to the side of the monitor is not available following installation, attach the power and video cables to the side of the monitor at this time. Refer to the figure on Page 28.

3. Install the monitor in the prepared cutout.

4. Install the lock nuts and washers, supplied with the monitor, behind the holes running along the sides and top/bottom of the cutout in the panel. Extra lock nuts and washers are provided.

Note: Use #10-32 or M5 self-locking nuts for mounting.

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5. Tighten all mounting nuts evenly to a torque of 24 inch-pounds.

ATTENTION: Mounting nuts must be tightened to a torque of 24 inch-pounds to provide panel seal and avoid potential damage. Rockwell Automation assumes no responsibility for water or chemical damage to the monitor or other equipment within the enclosure due to improper installation.

6. Attach the power and video cables to the side of the monitor if you have not already done so. See the figure on Page 28.

Rack Mount (6185-N)

The rack mount (6185-N) monitor is designed for installation in a rack cabinet that conforms to EIA standards for equipment with 19" (483 mm) wide panels.

Tools Needed

You will need the following tools:

- EIA panel mounting hardware
- Phillips screwdriver (medium)

Rack Mounting Guidelines (6185-N)

Observe the following precautions when installing this unit in a rack:

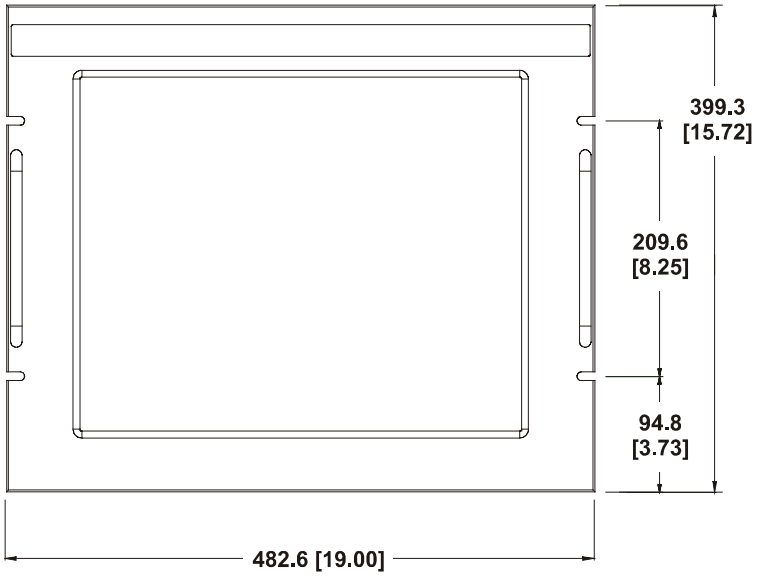
- The cabinet must be tall enough to accommodate the monitor's panel height of nine rack units, 15.75" (400 mm), and deep enough to accommodate the monitor's depth while providing rear clearance for cabling and air flow. A cabinet with depth of 5.0" (127 mm) is sufficient.
- No slides or shelves are required because the rack mount (6185-N) monitor is designed to be supported by the panels in which it is installed.

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Rack Mount Dimensions (6185-N)

This section shows the dimensions of the rack mount unit. Use this information to ensure you have adequate space to install the unit and route cables. Units are in mm [inches].

Figure 7
Rack Mount Dimensions (Front View)



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Figure 8
Rack Mount Dimensions (Side View)

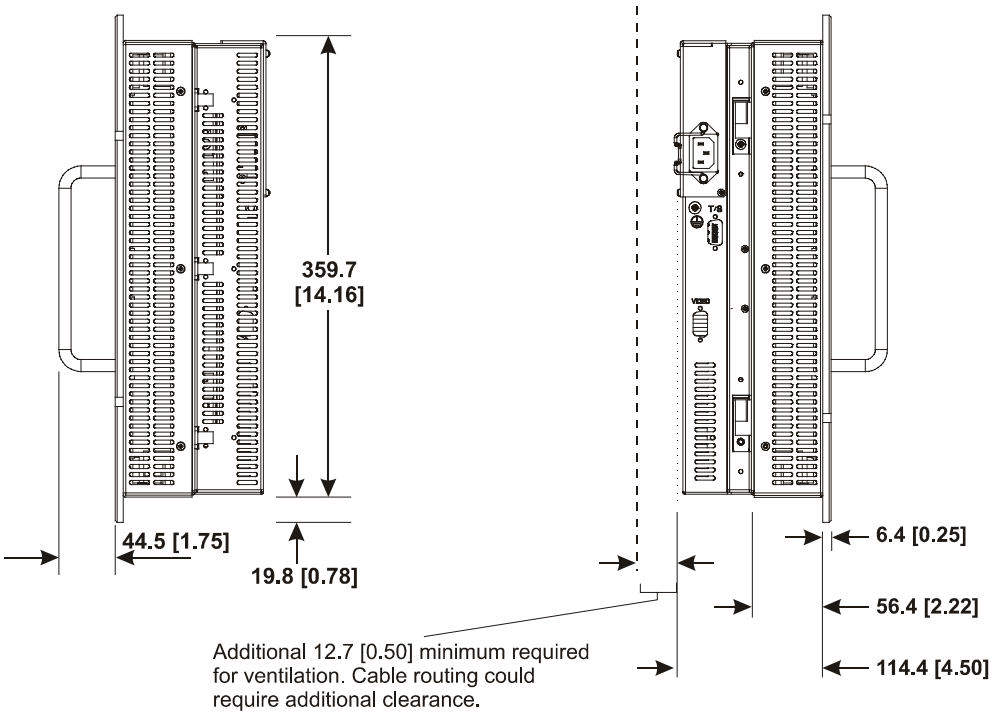
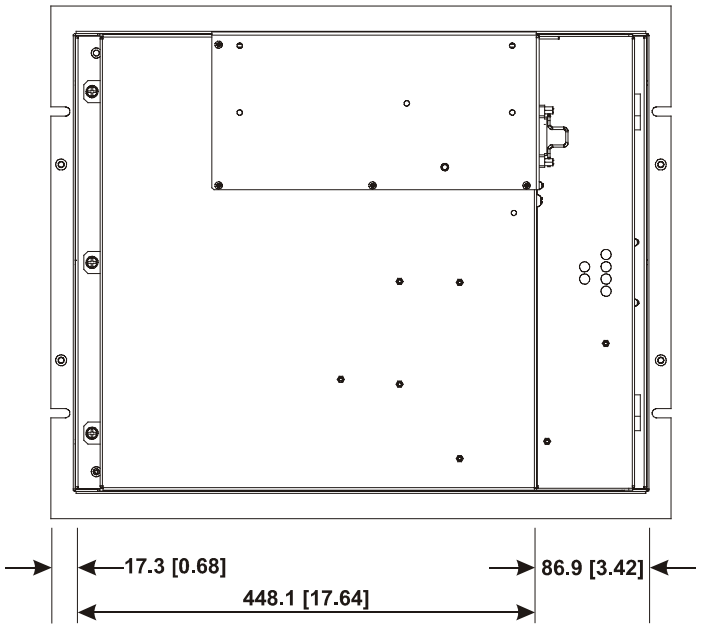


Figure 9
Rack Mount Dimensions (Back View)



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Rack Mounting Procedure (6185-N)

1. Carefully remove the monitor from its packaging.

2. Locate holes in the cabinet front mounting rails corresponding to the holes in the monitor front panel. Install clip nuts behind the holes in the rails if threaded rails are not provided.

   Note: The mounting rails that run vertically along the inside edges of the front opening of an EIA rack cabinet can be of two types:

   - "Wide" rails have holes spaced 0.5"(12.7 mm) and 1.25"(31.8 mm) on centers, in a repeating pattern. Wide rails are prevalent in Europe.
   - "Universal" rails have holes spaced 0.5"(12.7 mm), 0.625"(31.8 mm), and 0.625"(31.8 mm) on centers, in a repeating pattern. Thus, the universal rails have a hole pattern that contains the wide pattern but provides an additional hole at the midpoint of the pattern. Universal rails are most prevalent in the US.

3. Install the monitor into the cabinet from the front.

4. Secure the monitor chassis to the cabinet by installing panel-mounting screws through the holes in the monitor front panel and into the rails behind.

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Versa Mount (6185-V)

The Versa mount (6185-V) monitor is designed to be mounted using VESA FPMPMI 100 mm arm or yoke mounting hardware.

The arm attachment allows you to mount the monitor on a horizontal or a vertical surface, and provides the flexibility to swing the monitor out of the way in tight areas or to reposition it as the operator moves around the workspace.

The yoke bracket assembly allows you to tilt and swivel the monitor to adjust it for optimal viewing.

Tools Needed

You will need a medium Phillips screwdriver for this procedure.

Versa Mount Mounting Guidelines (6185-V)

Observe the following precautions when installing this unit on an arm or in a yoke:

- Ensure that the surface you are mounting the unit on is sturdy enough to support it. The monitor alone weighs approximately 14.0 lb. (6.4 kg). The weight of the entire unit is the monitor weight plus the mounting hardware weight.
- Ensure that the mounting arm used is strong enough to support the unit. The arm should meet VESA FPMPMI 100 mm standards.
- Select a location for mounting that provides clearance for mounting and positioning the adjustable unit as well as routing all cables. See Figures 10-13 below.

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Versa Mount Monitor Dimensions (6185-V)

The figures below show the dimensions of the Versa mount monitor without mounting hardware. Units are in mm [inches].

Figure 10
Versa Mount Monitor Dimensions, Front

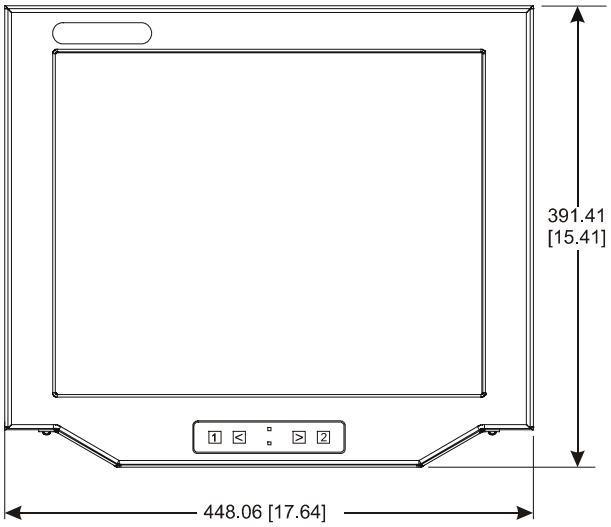
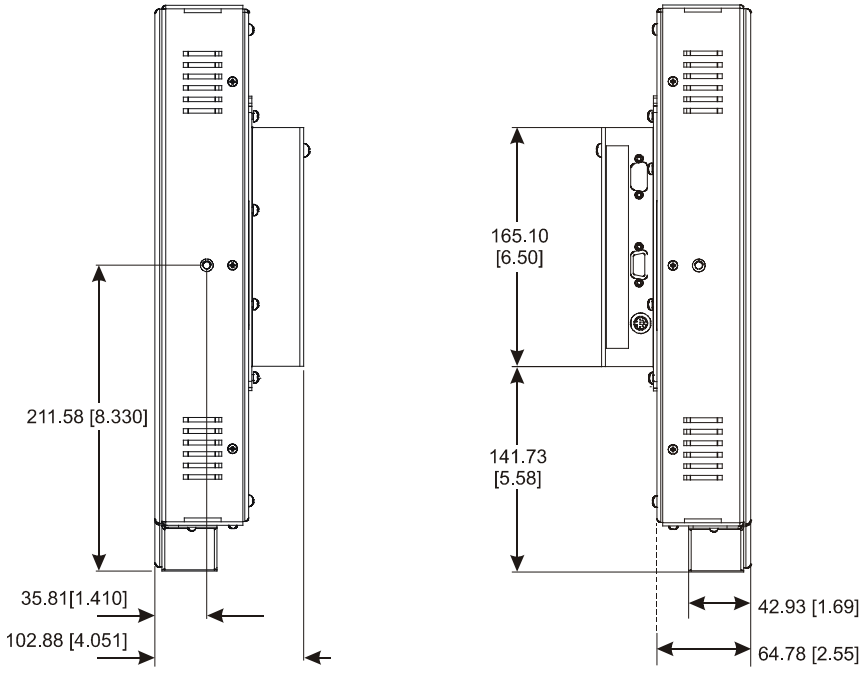


Figure 11
Versa Mount Monitor Dimensions, Side



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Figure 12
Versa Mount Monitor Dimensions, With Power Supply Dimensions

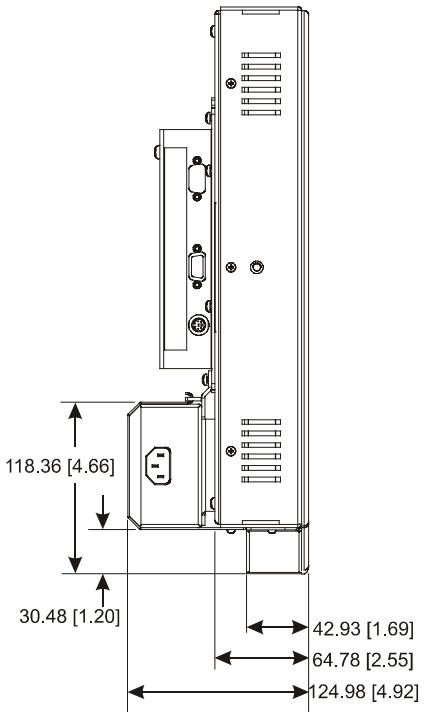
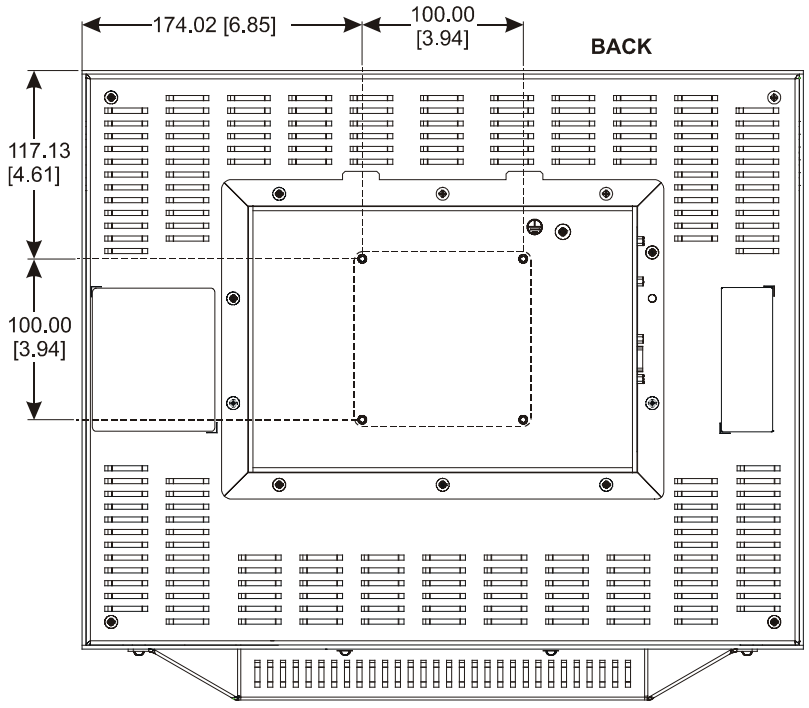


Figure 13
Versa Mount Monitor Dimensions, Back (VESA FPMPMI Mounting Location)



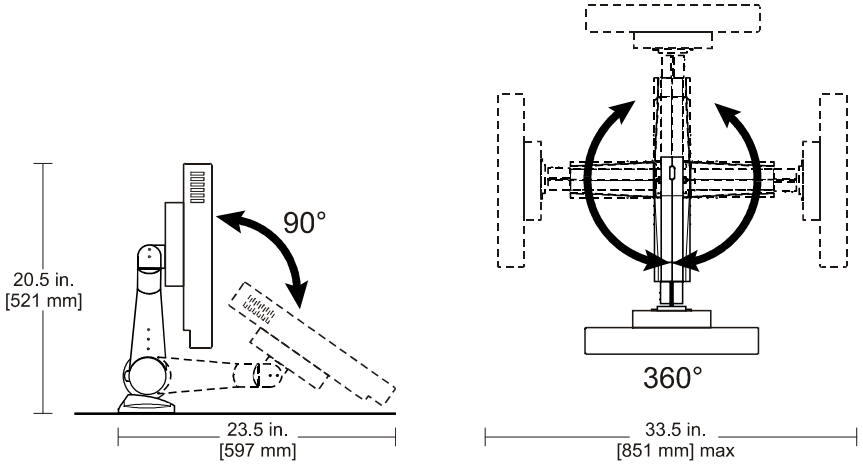
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Mounting Options (6185-V)

There are three main options for mounting the Versa mount monitor.

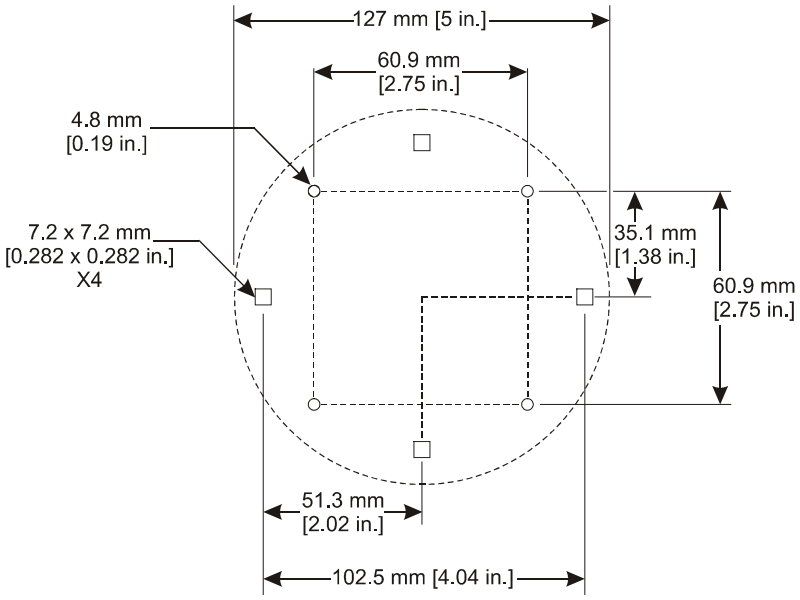
- Bench top mount arm (mounts on horizontal surfaces using bolts or table edge clamp)
- Wall mount arm (mounts on vertical surfaces using bolts)
- Bench or wall mount yoke (mounts on horizontal or vertical surfaces using bolts)

Figure 14
Benchtop Mount Arm (6185-VxxxxxB)
Mounting Clearances



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Figure 15
Benchtop Mount Arm (6185-VxxxxxB)
Mounting Points



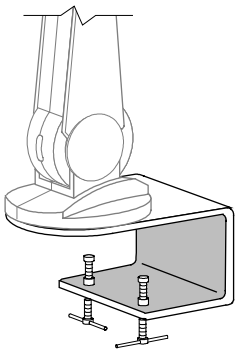
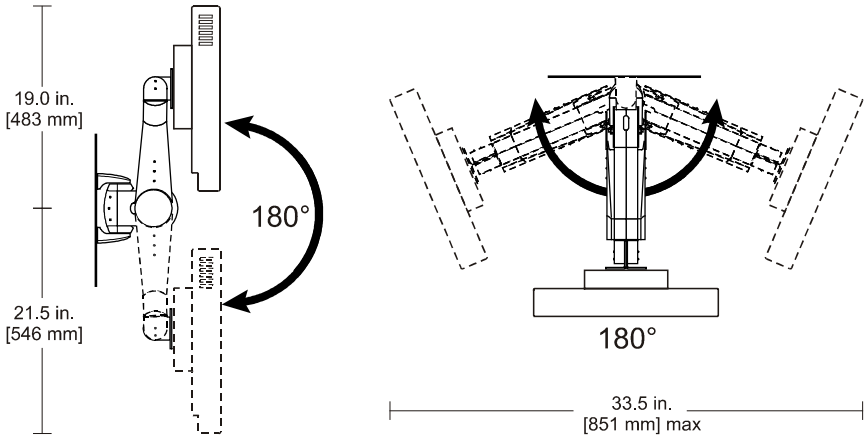


Table Edge Clamp

Figure 16
Wall Mount Arm (6185-VxxxxxC)
Mounting Clearances



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Figure 17
Wall Mount Arm (6185-VxxxxxC)
Mounting Points

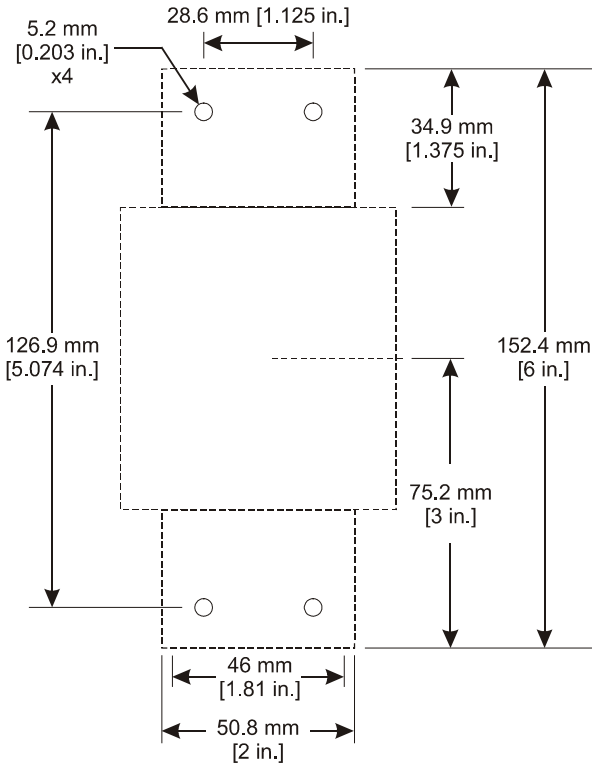
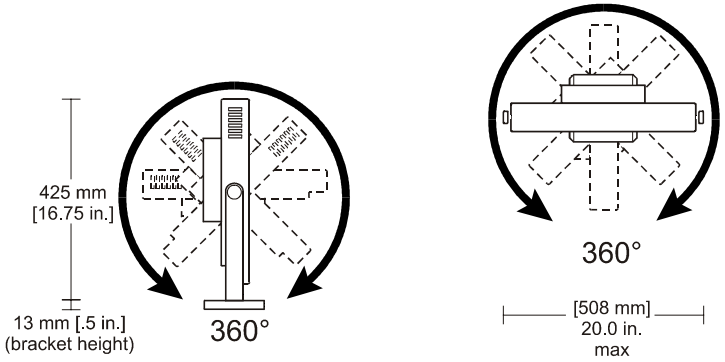
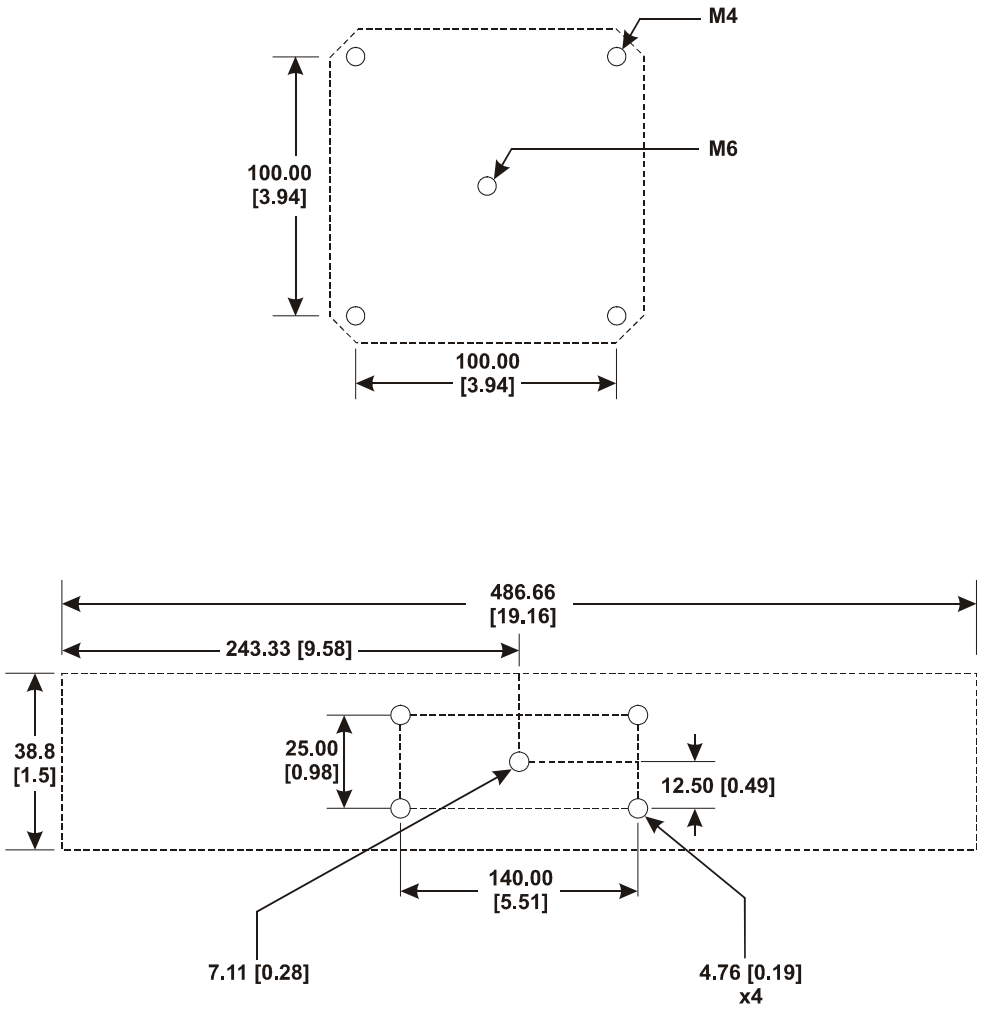


Figure 18
Yoke Mounting Assembly (6185-VxxxxxD)
Mounting Clearances



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Figure 19
Yoke Mounting Assembly (6185-VxxxxxD)
Mounting Points



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Mounting Procedures (6185-V)

The Versa mount unit can be mounted using a jointed arm or a yoke bracket assembly. Both the arm and the yoke allow maximum adjustment of the monitor. The optional AC power supply may be attached to the rear of the monitor for convenience.

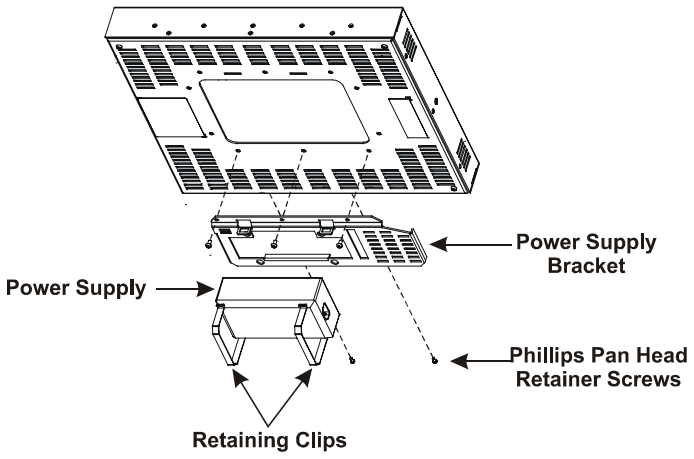
To mount the unit, complete the steps listed below:

1. Attach the power supply to the monitor (optional).
2. Mount the arm or yoke.
3. Mount the monitor on the arm or yoke.

To attach the AC-to-12 VDC power supply to the Versa mount unit (optional):

1. Turn off the main switch or breaker.
2. Remove three screws from the back of the monitor with the Phillips screwdriver.

Figure 20
Attaching the Power Supply to the Monitor



3. Position the bracket on the back of the monitor, insert the three screws through the bracket into the monitor and tighten.
4. Orient the power supply on the bracket so the IEC AC power socket points toward the long end of the mounting bracket and snap the power supply in place.
5. Remove the two Phillips pan-head screws from the bottom of the monitor.

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6. Hook one end of the retaining clip in the hole at the top of the mounting bracket. Then align the other end of the clip over the bottom of the monitor, insert a screw through the clip and into the monitor, and tighten.

7. Repeat step 6 for the second retaining clip.

For information on connecting power to the unit, refer to Page 28.

To mount the monitor (benchtop or wall arm mount):

The Versa mount arm can be bolt mounted directly on a bench or a wall, or you can mount it on a table using the edge clamp provided. For detailed instructions on arm mounting or assembly, refer to the documentation provided with the arm.

1. Mark the location for mounting the arm and drill the mounting holes. Refer to the figures on Pages 21 and 22.

   Note: The horizontal arm-mount unit may also be mounted on a bench using the edge clamp provided.

2. Insert four screws through the arm brackets and secure it to the bench or wall. Tighten the screws.

3. Adjust the pivot controls on the arm. Refer to the arm documentation.

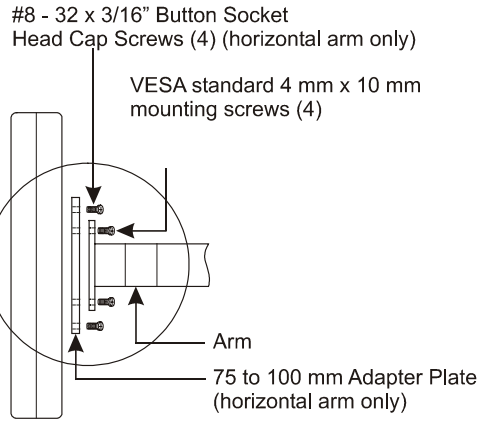
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To attach the monitor to the arm (benchtop or wall arm mount):

1. Place the monitor over the arm. Insert the four M4 x 0.7 screws through the arm brackets and into the monitor.

Note: The horizontal arm has a 75 to 100 mm adapter plate. This adapter plate is already installed.

Figure 21
Attaching the Monitor to the Arm



2. Tighten the screws.

To mount the monitor (yoke mount):

The Versa mount unit can be mounted using a yoke bracket assembly that allows the operator to tilt or swivel the monitor for ideal viewing.

You can mount the yoke directly to the horizontal or vertical surface, allowing the unit to tilt, or you can mount the yoke on a base bracket that allows the unit to swivel (horizontal surface only).

1. Mark the location at which you need to install the yoke. Refer to the figures on Page 23.

2. Drill holes for mounting the yoke or the swivel-base mounting bracket.

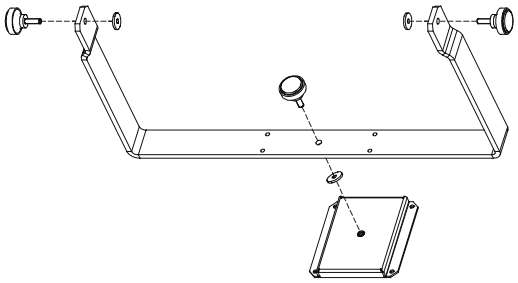
3. Insert four screws through the yoke or the swivel-base mounting bracket and secure it to the mounting surface. Tighten the screws.

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To mount the monitor on the yoke:

1. If the swivel-base mounting bracket is being used, insert one of the three knobs through the bottom hole of the yoke, placing the large washer between the yoke and the mounting plate. Insert the knob into the mounting bracket and tighten.

Figure 22
Mounting the Monitor in the Yoke



2. Insert the other two knobs through the sides of the yoke and place the washers between the yoke and the monitor.

3. Tighten each knob firmly by hand, allowing enough movement to be able to tilt the monitor as needed.

Connecting and Routing Cables to the Monitor

The figure on Page 28 shows the locations for installing the cables to provide power, video, and optional touchscreen input on your Versa unit. Refer to the instructions provided with the arm for detailed information about routing cables.

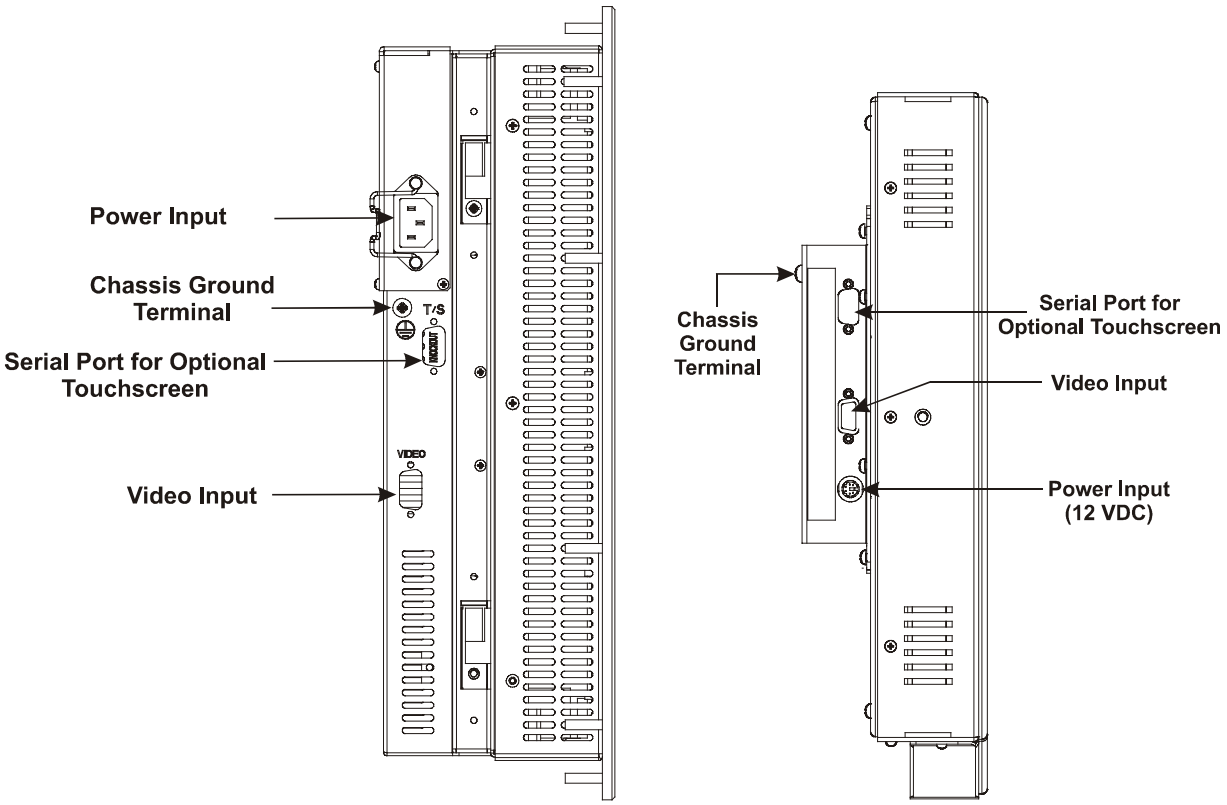
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Connecting the RAC6185 18.1" Flat Panel Monitor (All Models)

The RAC6185 18.1" Flat Panel Monitor has connectors for attaching cables to the monitor. The following figure shows the location of the connectors on the monitor.

Note: Some connectors on your monitor may differ from these illustrations.

Figure 23
Monitor Connections



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Connecting Guidelines (6185-D/6185-N only)

When connecting the RAC6185 18.1" Industrial Flat Panel Monitor, note the following safety considerations for the rack mount and panel mount units:



ATTENTION: EXPLOSION HAZARD! – Substitution of components may impair suitability for Class I, Div. 2.



ATTENTION: EXPLOSION HAZARD! – Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

Connecting AC Power (AC Power Option)

The RAC6185 18.1" Flat Panel Monitor requires a single-phase power supply providing 85-264 VAC at 47-70 Hz. Power must be available at a grounded three-pin outlet located nearby. Whenever possible, connect the monitor to the same AC source that supplies the computer.

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To connect AC power to the panel mount (6185-D) or the rack mount (6185-N) monitor:

1. Turn off the main switch or breaker.

2. Use the ground terminal of the monitor (below the power connector) to establish a chassis-to-earth ground connection. Secure one end of a ground strap to the ground terminal. Connect the other end of the ground strap to a good earth ground.

   The ground terminal is an M5 screw.



ATTENTION: Chassis ground must be connected for safe operation of the monitor. The AC receptacle on the monitor is a 3-wire type with chassis ground pin, and the mating AC cord supplied is a 3-wire type, designed for connection to a grounded 3-pin AC outlet. However, a properly ground AC outlet is not always available, and grounding using a 3-wire cord can easily be defeated. If you fail to ground the monitor properly, the setup may result in personal injury from electrical shock or damage to the equipment.

3. Connect the socket end of the AC power cord to the mating connector on the side of the monitor. See the figure on Page 28.

4. Route the power cord to the AC outlet. Secure the cord with the power cord retainer clip.



ATTENTION: EXPLOSION HAZARD! You must install the power cord retainer clip to ensure safety in hazardous locations.

Failure to secure the power cord with the retainer clip could result in hazardous conditions if the power cord is accidentally disconnected.



ATTENTION: EXPLOSION HAZARD! – Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

5. Connect the plug end of the AC power cord to the main outlet.

6. Restore AC power to the outlet.

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To connect AC power to the Versa mount (6185-V) monitor:

1. Verify that power to the main switch or breaker is turned off.

2. Connect the DIN connector on the external power supply cable to the 12 VDC power input connector on the monitor. See the figure on Page 28.

3. Connect the IEC plug end of the AC power cord to the IEC AC power connector on the power supply.

   Note: If the power supply is attached to the back of the monitor, secure the power supply cable on the back panel of the monitor using the wire ties and the slots in the mounting bracket.

4. Plug the other end of the AC power cord into the main outlet.

5. Restore AC power.

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Connecting DC Power (DC Power Option)

All models of the 6185 Flat Panel Monitor can be run with direct current. Table C below lists the power requirements for each model.

Table C
DC Power Requirements for Model 6185 18" Flat Panel Monitors

Model	Power Requirement
Panel mount (6185-D) Rack mount (6185-N)	24 VDC (18-32 VDC)
Versa mount (6185-V)	12 VDC (±5%)

Note: The Versa mount unit can be directly connected to a power source using a cable with a locking DIN connector provided with your equipment.

To connect DC power to the panel mount (6185-D) or rack mount (6185-N) monitor:

1. Turn off the main switch or breaker.

2. Use the ground terminal on the monitor below the power connector to establish a chassis-to-earth ground connection. Secure one end of a ground strap to the ground terminal. Connect the other end of the ground strap to a good earth ground.

   The ground terminal is an M5 screw.



ATTENTION: Chassis ground must be connected for safe operation of the monitor. The DC screw terminals on the monitor have a chassis ground pin. However, some DC sources may not provide a proper ground path. If you fail to ground the monitor properly, the setup may result in personal injury from electrical shock or damage to the equipment.

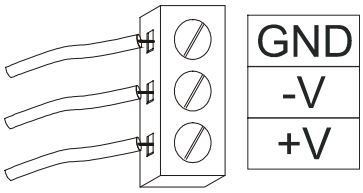


ATTENTION: EXPLOSION HAZARD! – Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

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3. Route the power wires from your 18-32 VDC power supply and connect the leads to the DC input terminal block on the monitor as shown in the following figure. Tighten the screw terminals to ensure a good connection.

Figure 24
Connecting Power to the Terminal Block



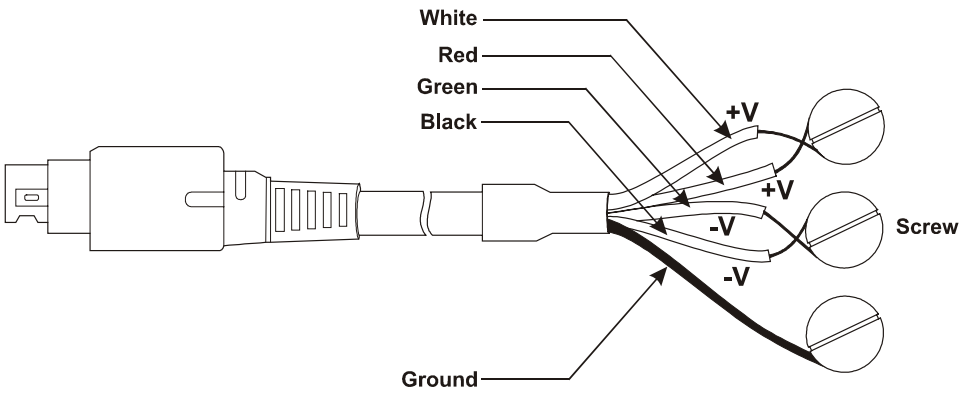
4. Restore DC power.

To connect DC power to the Versa mount (6185-V) monitor:

1. Turn off the main switch or breaker.

2. Connect the power cable to the power supply if it is not already connected. See the figure below.

Figure 25
Connecting Power to the Versa Mount (6185-V)



Note: To reduce voltage drop from the source, connect both +V leads to a +12V source and both -V leads to a -12V source.

3. Connect the locking DIN connector on the power cable to the monitor.

4. Restore DC power.

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Connecting the Video Source to the RAC6185 18.1" Flat Panel Monitor

The video connection to the host is made on the side panel of the RAC6185 18.1" Flat Panel Monitor using either a HD-15 (female) connector a 5-BNC to HD-15 adapter cable. See the figures on Pages 57 and 58.

Note: It may be possible to connect the monitor to video generators that do not conform to VGA standards. The main requirement is that the generator provides analog RGB video signals (0.714V above reference black into 75 ohms) and separate horizontal and vertical sync signals. Please contact your Allen-Bradley representative for more information.

To establish a signal using the HD-15 connector:

1. Obtain a shielded, properly terminated video cable of length as short as possible. Longer cables (up to approximately 50 feet in some cases) may be used, provided they are properly constructed. Your package may include a six-foot video cable, if specified.

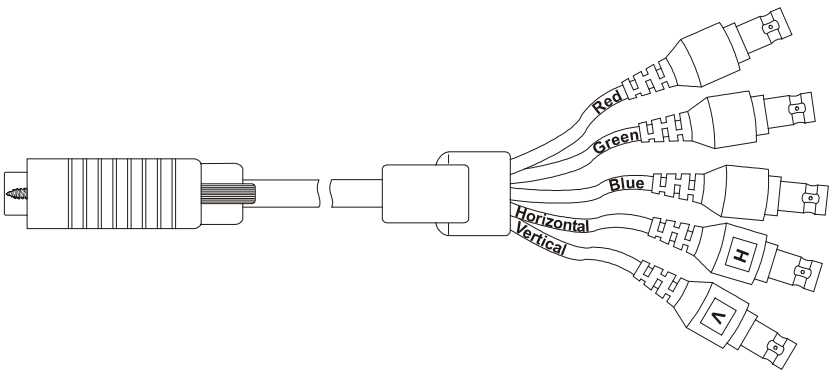
2. Connect one end of the cable to the female HD-15 video input connector on the side panel of the monitor.

3. Connect the other end to the output of any IBM-compatible VGA adapter or other video generator.

To establish a signal using an adapter cable:

1. Attach the HD-15 to 5-BNC adapter cable to the monitor at the HD-15 connector.

Figure 26
5-BNC to HD-15 Adapter Cable



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2. Obtain 75 ohm coaxial cables fitted with BNC connectors. Make sure the cables are of equal length and are of adequate length to provide connections from the video source to the adapter cable.

3. Plug the BNC coax cables into the BNC receptacles on the adapter cable.

   Note: The BNC cables are color coordinated for the red, green, and blue connectors. The horizontal and vertical sync connectors are typically gray and black. The letters H (horizontal sync) and V (vertical sync) are embossed on the plastic covering of the appropriate connector.

4. Connect the other end of the coax connectors to the corresponding output of the video source. For example, connect the red output cable from the host to the red input connector from the monitor.

Connecting the Optional Touchscreen Interface (All Models)

An optional serial touchscreen interface connection to the host can be made through an RS-232 DE-9 (female) D-shell connector located on the side panel.

The optional touchscreen provides a high-resolution touch input system. Driver software included with the package allows the touchscreen to function with many popular DOS and Windows®-based industrial applications as a pointing device (mouse).

Note: Refer to the manual included with the touchscreen option and Appendix A of this manual (Page 54) for additional details on the installation and operation of the touchscreen.

To connect the touchscreen:

1. For units with the touchscreen option, make sure you have one of the optional serial cables.

2. Connect one end of the touchscreen serial cable to the T/S port connector on the side of the monitor.

3. Connect the other end to any communications port on the host computer.

4. Tighten the captive screws on the cable connector to secure it.

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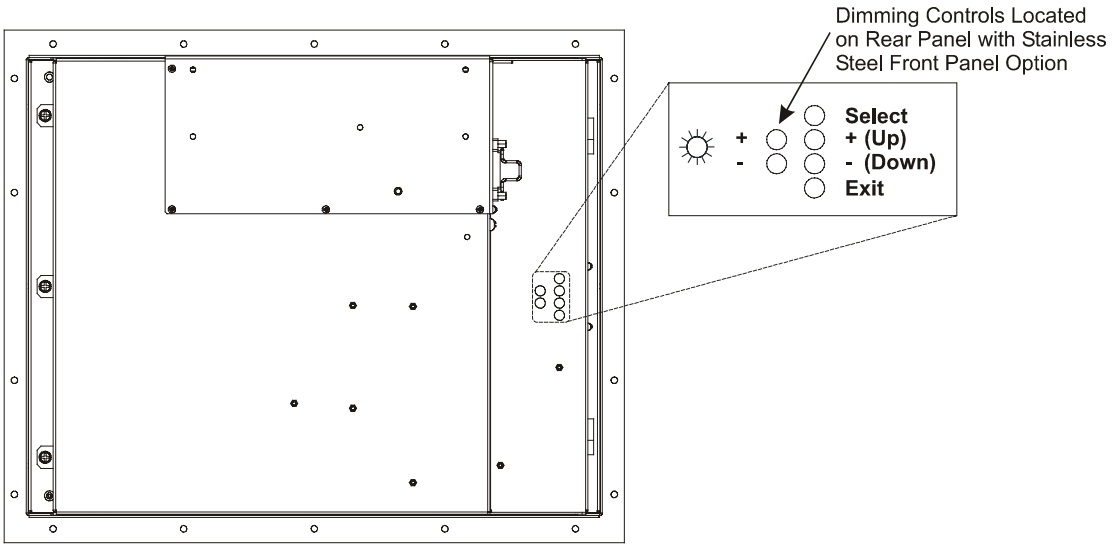
Operating the 6185 18.1" Flat Panel Monitor

This section describes how to operate the 6185 18.1" Flat Panel Monitor. In addition, instructions for adjusting the luminance controls and calibrating the video gain are provided for the 6185-D and 6185-N models.

Control Identification

The figures below depict the location of the controls on the panel mount (6185-D), rack mount (6185-N), and Versa mount (6185-V) units.

Figure 27
Back Panel Controls on the Panel Mount (6185-D) and Rack Mount (6185-N) Units



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Figure 28
Controls on the Versa Mount (6185-V) Unit

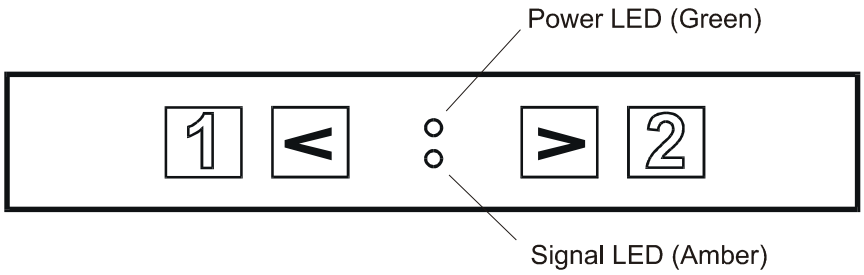


Table D
Control Keys for the Versa Mount Unit

Control	Description
1 (Select)	This operation key: • Displays the main menu. • Displays the control box for the highlighted selection when the main menu is displayed. • Toggles between the control box and any of its secondary control boxes. • Answers “Yes” to questions.
< > (Down, Up)	Arrow keys have two functions: • If the main menu is displayed, pressing these keys moves the cursor to desired selection that needs adjusting. • If a control box is displayed, may be used to adjust the value for the control.
2 (Exit)	This operation key: • Records changes made to the selection when the control box for a desired selection is displayed. The control box closes and the main menu is displayed. • Exits the main menu. This action memorizes any settings and completes the adjustments. • Answers “No” to questions.

For information on adjusting the controls to achieve the best screen image, refer to the workstation setup information on Page 41.

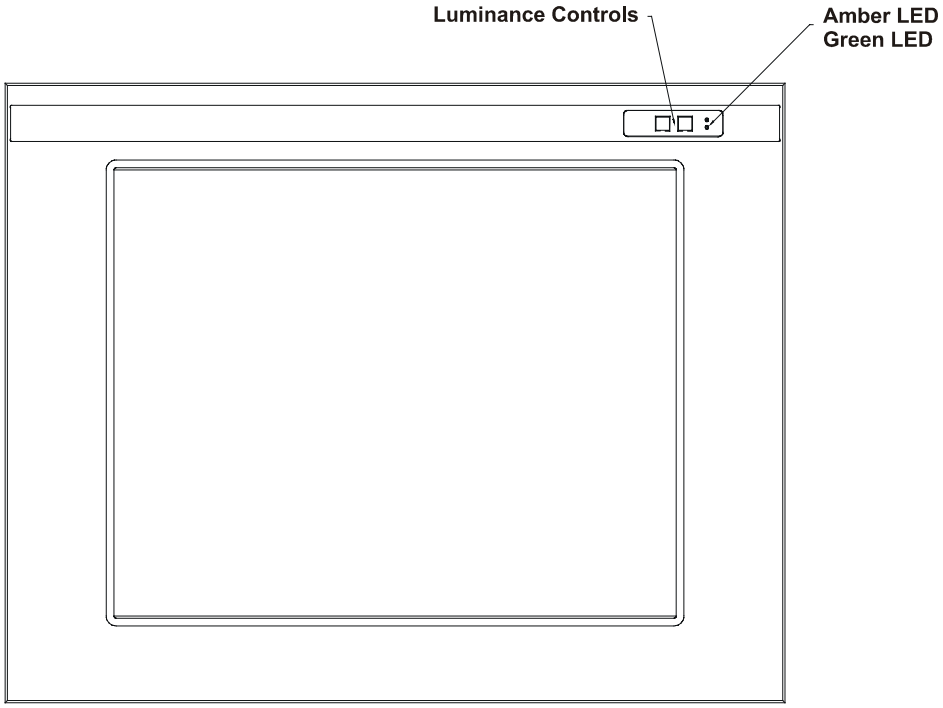
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Luminance Controls (6185-D and 6185-N Only)

The luminance control buttons adjust the level of light emitted by the flat panel monitor's backlights. You may want to reduce the luminance of the monitor in low light conditions.

Luminance is different from *brightness*. *Luminance controls* affect the amount of light *passing through* the display from the backlights. *Brightness controls* affect the appearance of the image displayed.

Figure 29
Luminance Control (6185-D and 6185-N)



Note: The luminance controls are located on the rear of the panel mount (6185-D) monitor with the optional stainless steel front panel.

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To adjust the luminance of the monitor:

Press and hold either one of the luminance buttons until the luminance is adjusted as desired.

- The left luminance button reduces the luminance and the right button increases it.
- The green LED blinks fast when you first press the button and slows down as you reach the end of the adjustment range.
- When you release the luminance button for three seconds, the amber LED blinks twice to indicate that your changes have been saved and will be used each time the monitor is powered ON.

Table E
Interpreting the Luminance LEDs

Green LED	Amber LED	Condition
On	Off	Normal Operation - The monitor is receiving a valid video signal.
Off	On	Signal Not Received - The monitor is not receiving a valid video signal.
On (blinking slowly)	Off	Backlight Off - The monitor is still ON but the backlight is powered OFF. Hold down both buttons for 2 seconds to disable the backlight. Press either button to enable the backlight.
On (blinking fast then slow)	Off	Changing Luminance Setting - When you are pressing one of the luminance buttons, the LED blinks fast and slows down as you reach the end of the possible luminance adjustments in that direction. The light stops blinking when you stop pressing the button, and the amber LED blinks twice when the change has been saved. Once a luminance setting has been saved, it will be used each time the monitor is powered ON.
On	On (blinking slowly)	Calibration Mode - See instructions below.

To turn off the monitor without turning off the power:

1. Press and hold both buttons for 2 seconds, until the monitor's backlight is turned OFF.

2. Press either button to turn the backlight back ON.

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Calibrating the Video Gain (6185-D and 6185-N only)

The panel mount (6185-D) and rack mount (6185-N) monitors have a calibration mode to allow you to compensate for abnormal video signal levels. Many PC video cards drive the video signal above the .714V as defined by the VGA standard. You may need to calibrate the video gain if you see “ghosting” (shadows to the right of the image) or washed out colors.

To calibrate the monitor:

1. Start the flat panel adjustment utility included with the monitor. For instructions on starting the utility, refer to Page 45.

2. Press and hold down both luminance buttons for eight seconds.

   Note: The screen will go blank after two seconds and will come back on after eight seconds.

   The amber LED blinks slowly to indicate that you are in calibration mode.

3. Use the left luminance button to lower the contrast until the white bar stays white and the first light gray bar changes back to light gray. This is the optimal setting for the video gain. (See the figure on Page 49.)

4. Press and hold down both luminance buttons for two seconds to exit calibration mode.

The amber light blinks twice when the calibration is complete.

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Initial Video Setup (All Models)

The RAC6185 18.1" Flat Panel Monitor is configured at the factory, but typically requires initial adjustments to ensure the best screen image. Rockwell Automation provides the Flat Panel Monitor Adjustment Utility with each flat panel monitor to assist you in adjusting the monitor settings.

Workstation Setup

There are three important aspects of your workstation setup that affect the screen image of the RAC6185 18.1" Flat Panel Monitor:

- Monitor type
- Video resolution
- Video refresh rate

You need to verify that your workstation is using the appropriate settings for these before you begin to adjust the monitor itself.

Note: Verify and change these settings for your workstation using the Windows Control Panel. Select the Start button and select Settings to access Control Panel. In Control Panel, select Display to access monitor settings. The options on the Control Panel screens may vary depending on your video driver.

Monitor Type

If you are using Windows 95 or Windows 98 and your video card supports it, you should enable your workstation to detect Plug & Play monitors and select Plug and Play as the monitor type. To access these settings from Control Panel, select the Settings tab and select either Change Display Type or Advanced Properties. Windows will detect the flat panel monitor and configure your workstation with the appropriate settings.

If your video card does not support Plug and Play, or if you are using Windows NT, you should select “Super VGA 1280x1024” from the list of standard monitor types.

Note: This monitor has a flat panel display, but it uses the workstation’s analog VGA interface. Because of this, some setup screens may indicate that the monitor is operating as a CRT (analog) device, rather than a flat panel (digital) device.

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Video Resolution

Flat panel monitors are fixed resolution devices and the image looks best when operated at their native resolution. If you switch the resolution of this monitor from 1280x1024 resolution, the display may look slightly distorted due to replication techniques to display the full screen.

The following table lists the amount of video memory you need to run to each video mode:

Table F
Video Memory Requirements

Resolution	Color Mode	Video Memory
640x480	256 colors (8 bit)	0.4 Mb
	High color (16 bit color)	0.7 Mb
	True Color (24 bit color)	1.0 Mb
800x600	256 colors (8 bit)	0.6 Mb
	High color (16 bit color)	1.0 Mb
	True Color (24 bit color)	1.5 Mb
1024x768	256 colors (8 bit)	0.9 Mb
	High color (16 bit color)	1.7 Mb
	True Color (24 bit color)	2.4 Mb
1280x1024	256 colors (8 bit)	1.5 Mb
	High color (16 bit color)	2.6 Mb
	True Color (24 bit color)	4 Mb

Note: The RAC6185 18.1" Flat Panel Monitor displays images up to Full Color or True Color mode. The monitor will support all other color modes, but you must select at least True Color 24-bit mode within the Control Panel to utilize the full color range of the monitor.

Video Refresh Rate

Unlike CRT monitors, there is no benefit to operating a flat panel monitor at higher vertical refresh rates. It is best to select 60 Hz.

Changing the Resolution and Refresh Rate

You can verify and change the video settings for your workstation using the Windows Control Panel. Select the Start button and select Settings to access Control Panel. Then select Display from Control Panel to access display settings.

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Common Flat Panel Video Adjustments

The RAC6185 18.1" Flat Panel Monitor provides controls to adjust the following settings for the monitor video display:

- Brightness
- Contrast
- Position Information

It is important that you make initial adjustments to these settings to ensure that the screen image on the flat panel monitor is set up correctly.

Brightness

Adjusts the overall intensity of the monitor. After allowing the backlight to warm up, adjust for the least amount of brightness needed to achieve black at ambient lighting conditions.

Contrast

Adjusts the difference between the monitor's light and dark elements. With a suitable image displayed on the screen, adjust the contrast control to achieve the best balance between image brightness and fine detail rendition.

Position Information

Adjusts the image position of the monitor, and includes the following adjustments:

- Horizontal Size
- Clock Phase
- Horizontal and Vertical Position
- Reset

Importance of Correctly Setting Up the Monitor

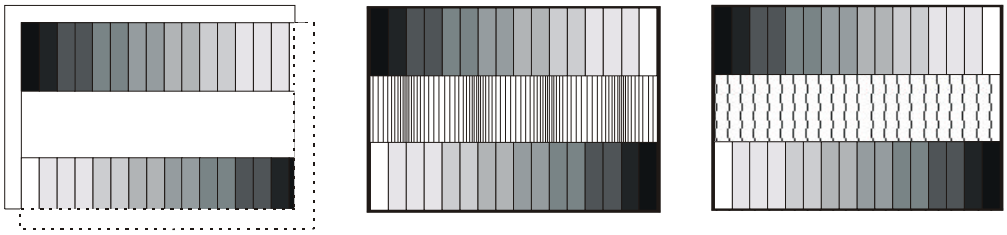
If you do not correctly set up the flat panel monitor, the image may appear correct when you view the Windows Desktop (the screen displayed when Windows starts). However, when you display an application with certain colors or patterns, you may notice noisy video or jitter problems at that time.

For example, if the horizontal or vertical position of the display is not adjusted correctly, one edge of the screen image may extend beyond the side of the monitor screen.

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The horizontal size and clock phase adjustments are especially important for flat panel monitors. If the horizontal size setting is not properly adjusted, the screen image may contain vertical shaded bars or the image may be too wide or too narrow for the screen. If the clock phase setting is not properly adjusted, the screen image may be "jittery" when certain images are displayed.

Figure 30
Monitor Video Adjustments



Horizontal and Vertical Position Adjustment Required

Vertical Shaded Bards (Horizontal Size Adjustment Required)

Screen Jitter (Clock Phase Adjustment Required)

You may also need to adjust the brightness or contrast of the screen image based on the physical location of the monitor.

Note: The adjustment utility delivered with the RAC6185 18.1" Flat Panel Monitor is designed to present the "worst case" scenario for graphic display. It shows a range of colors and presents a pattern you can use to ensure that the monitor is adjusted properly.

Note: Flat panel monitors are not susceptible to magnetic interference in the same way that CRT monitors are. However, all monitors are susceptible to ground loop problems between the computer and the monitor. Ground loops occur when two or more devices with different ground potentials are connected with cables and ground currents flow between them. These currents may cause vertical or horizontal noise bars to move through the display screen.

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Adjusting Settings

Use this procedure to adjust the monitor settings for a specific resolution and refresh rate. Once you have adjusted the monitor, the monitor settings will automatically be saved. If you need to run the monitor at a different resolution or refresh rate, you must adjust the settings again. Then you can toggle back and forth between these settings as needed. The 6185 Flat Panel Monitor will save up to 16 settings for your video screen.

Note: The location and labeling of the control keys for the panel mount and rack mount units (6185-D/6185-N) are different than those for the Versa mount unit (6185-V). For ease of reference, these instructions are written with the rack mount and panel mount keys first and the Versa mount keys in parentheses.

For graphics displaying the location and operation of the controls on the monitor, see Page 36.

Important: The on-screen menu closes automatically approximately ten seconds after you stop pressing controls. The monitor automatically saves any changes you have made to the settings when it closes.

Step 1 - Start the Adjustment Utility

1. Insert the diskette provided with the monitor in the floppy drive of the host computer.

   Note: The adjustment utility is designed for 32-bit operating systems only (Windows 95/98/2000 or Windows NT 4.0 or greater).

2. Start the Flat Panel Monitor Adjustment utility using the instructions on the diskette label.

   The utility displays an image on the screen to assist you in adjusting the monitor settings.

   Note: The utility may take several seconds to display the screen image.

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Step 2 - Display the on-screen menu and verify workstation settings

1. Press Select (1) on the monitor to display the on-screen menu. Refer to Page 36.

2. Highlight the Information option using the up and down keys and press Select (1) to select it.

3. Verify that you are running with the desired resolution and a vertical refresh rate of 60 or 75Hz.

4. If necessary, change the resolution or video refresh rate for the workstation using the Windows Control Panel. Refer to Page 41 for more information.

Note: If the Control Panel display settings indicate a resolution of 1280x1024, but the on-screen display indicates 640x480 resolution, your video interface board is operating in 1280x1024 Interlaced mode. You need to change the video board to Non-Interlaced mode. Consult the documentation for your video board for details.

Step 3 - Adjust the horizontal size

1. Highlight the Position option on the on-screen menu and press the Select (1) key.

2. Highlight the Horizontal Size option and press Select (1).

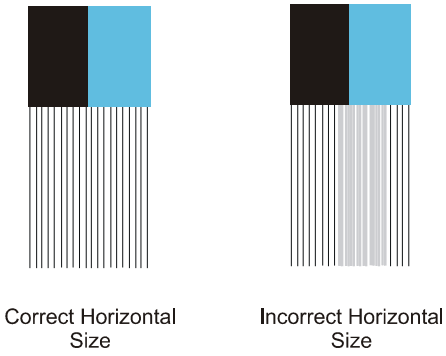
3. Adjust the horizontal size until the pattern of vertical shaded bars disappears. You should see each individual vertical line in the setup image across the screen. See the figure below.

Note: If you are running the monitor with a resolution other than 1280x1024 (native mode), you will see individual lines in all cases. This is a result of the replication techniques used to display the full image.

You can use the white border around the setup screen to set up the horizontal size correctly.

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Figure 31
Horizontal Size Adjustment



Note: Since you have not yet adjusted the clock phase of the monitor, it is possible that the lines may appear consistently fuzzy across the image. You may need to complete the adjustment process before the vertical lines are sharp and crisp.

4. Use the up and down keys to adjust the horizontal size until the vertical shaded bars disappear and the screen image fits the display precisely. Then press the Select key.

5. Press Exit (2) to return to the position options.

Note: The vertical size is set automatically by the monitor to maintain proper video aspect ratio. (1280x1024 resolution has a 5:4 ratio; all others have 4:3.)

Step 4 - Adjust the horizontal position

1. Highlight the Horizontal Position option on the on-screen menu and press Select (1).

2. Adjust the horizontal screen position so that the white border line is visible on both sides of the image.

   If the horizontal size and position are adjusted correctly, you should be able to adjust the horizontal position one adjustment to the left or right and the white border line should move off the edge of the screen. If this does not occur, you may need to repeat the horizontal size adjustment step.

3. Press Exit (2) to return to the position options.

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Step 5 - Adjust the vertical position

1. Highlight the Vertical Position option on the on-screen menu and press Select (1).

2. Adjust the vertical screen position so that the white border line is visible on the top and bottom of the image.

3. Press Exit (2) to return to the position options.

Step 6 - Adjust the clock phase

1. Highlight the Clock Phase option on the on-screen menu and press Select (1).

2. Adjust the clock phase until the screen image is sharp and there is no screen "jitter." The change should be most apparent in the vertical lines of the screen.

3. Press Exit (2) twice to return to the on-screen menu.

Step 7 - Adjust the brightness

To obtain the best display, first set the brightness control to the appropriate setting under the lighting conditions in which the monitor will be used.

Note: Allow time for the backlight on the monitor to warm up completely before you adjust the brightness control.

1. Highlight the Brightness option and on the on-screen menu and press Select (1).

2. Select the White Sub Brightness setting and press the Select (1) key.

3. Adjust the brightness value to its lowest setting.

4. Adjust the brightness until the black bar at the top of the screen changes from black to dark gray.

5. Adjust the brightness down until the bar changes back to black. This is the optimal brightness setting given the current lighting conditions.

6. Press Exit (2) to return to the main options menu.

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Step 8 - Adjust the contrast

1. Highlight the Contrast option on the on-screen menu and press Select (1).

2. Adjust the contrast value up to its highest setting. The gray bars on the bottom of the screen image change to white.

3. Adjust the contrast down until the white bar stays white and the first light gray bar changes back to light gray. This is the optimal contrast setting given the current lighting conditions.

Figure 32
Contrast Adjustment



4. Press Exit (2) to return to the main options menu.

Step 9 - Exiting the Menu

Press Exit (2) to close the on-screen menu and save your changes.

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Routine Maintenance (All Models)

Cleaning

Occasionally clean the display panel and cabinet with a soft cloth dampened (not soaked) with a mild (non-abrasive) glass cleaner. Keep turning a fresh side of the cloth toward the screen surface to avoid scratching it with accumulated grit.

Note: The solvent should be applied only to the cloth, and not directly on the monitor screen.

Do not use paper products as they may scratch the surface. To minimize the risk of abrasion, allow the screen to stand dry.

Special care should be taken when cleaning a touchscreen or polycarbonate shield that is installed over the screen. Abrasive and certain chemical cleaners can easily damage the surface.

Note: For best results cleaning a monitor with the optional antireflective tempered glass display shield, a solution of denatured alcohol is recommended to thoroughly clean the display.

Never use alcoholic or ammoniac cleaners to clean the polycarbonate shield or a touchscreen.

Replacing a Line Cord

To avoid shock and fire hazards, the monitor's power cord should be replaced if the insulation becomes broken or if it develops a loose internal connection.

Substitution of Components

When connecting the panel mount (6185-D) and rack mount (6185-N) models of the RAC6185 18.1" Flat Panel Monitor, note the following safety considerations:



ATTENTION: EXPLOSION HAZARD! – Substitution of components may impair suitability for Class I, Div. 2 hazardous locations.

Other Maintenance

Qualified service personnel should perform all maintenance, except for the power cord replacement described above.

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Troubleshooting (All Models)

You can refer to this table to help identify the cause and offer a solution to a problem. This table lists typical problems you may encounter.

Table G
Troubleshooting Table

Symptom	Possible Problem	Action
Front panel status LED does not come on.	Power cord not connected.	Connect the power cord.
	No power available at outlet.	Test outlet by plugging in a lamp or other known good device.
	Power cord faulty.	Replace power cord.
	Monitor faulty.	Have monitor serviced.
Screen is blank.	Screen saver activated.	Check the status LED using the table provided on Page 39. Disable screen saver by activating an input to the host system.
	Brightness control not properly adjusted.	Turn brightness control UP.
	Video cable problem	Check for proper installation of video cable(s). Refer to installation instructions. Replace suspected faulty cable(s).
Image is too bright or white.	Brightness control not properly adjusted.	Turn brightness control DOWN.
No image visible even when brightness control is set full UP.	Monitor is out of adjustment or faulty.	Have monitor serviced.
Image is dim, even with brightness and contrast controls set full UP.	Video cable problem	Check for proper installation of video cable(s). Refer to installation instructions. Replace suspected faulty cable(s).
	Fault in video source	Test video source by connecting to another monitor that is known to be operational.
	Fault in monitor	Have monitor serviced.
Image is not centered.	Position controls are not properly adjusted.	Reset the horizontal and vertical positioning using the on-screen menu (Page 45). Also, check to ensure that video source is operating within the monitor's range.
Image will not adjust.	Video timing outside of range.	Use the on-screen menu to adjust the Clock Setting (Page 45). Make sure timing is within VESA.
	Not operating in native resolution.	When not in native mode (1280x1024, 5:4 aspect ratio) black bands appear at the top and bottom of the screen.
Image position changes are not saved.	Position mode not saved correctly.	Reposition the image using the on-screen menu. Wait 5 seconds for the changes to be saved before you turn off power.
Image is not stable.	Monitor is not synched to video source.	Refer to installation instructions. Check for proper video cable installation. Replace suspected faulty cable. Check to ensure that video source is operating within the display's range. Adjust the Phase control (Page 45).
Image not properly centered or sized.	Size and position controls incorrectly adjusted.	Adjust controls for proper size and position of image (Page 45)
Vertical shaded bars on screen image.	Horizontal size not properly adjusted.	Adjust horizontal size settings (Page 45).

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Symptom	Possible Problem	Action
Color(s) are missing.	Video cable problem	Check for proper video cable installation. Replace suspected faulty cable.
	Fault in monitor	Have monitor serviced.
Screen jitter or noisy video.	Monitor clock phase not properly adjusted.	Adjust monitor clock phase settings (Page 45).
	Video cable problem.	Check for proper video cable installation. Replace suspected faulty cable.
	Electrical noise interference from nearby equipment.	Check for proper video cable routing and installation. Reroute cables or replace suspected faulty cables. Check host and monitor grounding.
Slight distortion in text or graphics.	Not operating monitor in native resolution.	Change the video source to 1280x1024 resolution.
Display is present, but “bars” appear across it or roll through it.	“Noise” generated by other equipment in the environment is present at the video inputs. Ground loop problems between computer and monitor.	Consult the application note that discusses methods of eliminating noise. Eliminate ground loops by connecting monitor and computer to the same power source location or installing an AC isolation transformer.
Image has blurry streaks or “ghosting” to the right of objects on the screen.	Contrast set too high.	Adjust brightness and contrast settings (Page 45).
	Video cable problem.	Check for proper video cable installation. Replace suspected faulty cable.
The background looks acceptable but text and icons seem to be missing rows of pixels.	Video is running in Interlaced mode.	Change the video mode to Non-Interlaced (Page 46). Consult the documentation for your video board.

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Allen-Bradley Support

Allen-Bradley offers support services worldwide, with over 75 Sales/Support Offices, 512 authorized Distributors and 260 authorized Systems Integrators located throughout the United States alone, plus Allen-Bradley representatives in every major country in the world.

Local Product Support

Contact your local Allen-Bradley representative for:

- Sales and order support
- Product technical training
- Warranty support
- Support service agreements

Refer to the Rockwell Automation/Allen-Bradley Internet site at http://www.ab.com for local contact information.

Technical Product Assistance

If you need to contact Allen-Bradley for technical assistance, please review the information in the Troubleshooting section first. Then call your local Allen-Bradley representative or contact Allen-Bradley technical support at (440) 646-5800.

For additional product information and a description of the technical services available, visit the Rockwell Automation/Allen-Bradley Internet site listed above.

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Appendix A: Touchscreen Serial Interface

Description

All touch controllers are configured by default to provide serial communications at 9600 baud, 8 data bits, 1 stop bit, no parity.

For Allen-Bradley monitors equipped with touchscreens, a serial communications cable is required. A suitable cable can be obtained from Rockwell Automation or you can create one. The cable is a straight-wired serial (RS-232) cable with a male DE-9 D-shell connector on the monitor end.

The cable provides a communications channel between the touchscreen controller, which is mounted inside the monitor, and an RS-232-C serial port on the host computer. Because the touch controller obtains power from the monitor's power supply, no external touch power connections are necessary.

Software supplied with the touchscreen must be loaded on the host computer to handle communications with the touch controller over the channel.

Because the touchscreen emulates a mouse, there may be compatibility issues involving how the touchscreen emulates mouse buttons, especially multiple buttons. For a complete discussion of these issues and how to troubleshoot them, refer to the touchscreen documentation.

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Setting Up the Touchscreen Interface

This section describes how to set up the touchscreen system using the RAC6185 18.1" Flat Panel Monitor. Setup involves the following:

- Enabling the touchscreen interface
- Installing the software on the host computer that will handle communications with the touchscreen controller
- Performing a calibration

Enabling the Touchscreen Interface

The RAC6185 18.1" Flat Panel Monitor provides a female DE-9 connector on the side panel. This connector provides the serial interface for the touch controller.

Interconnecting wiring to the host serial port connection is shown in the following table.

Table H
Touchscreen Interface

Monitor (DCE Device) DE-9 (Female)	Signal Description	Host (DTE Device) DE-9 (Male)	Host (DTE Device) DB-25 (Male)
1	Not Connected (DCD)	1	8
2	Transmit Data (TXD)	2	3
3	Receive Data (RXD)	3	2
4	Data Terminal Ready (DTR)	4	20
5	Common Signal Return (SG)	5	7
6	Not Connected (DSR)	6	6
7	Request To Send (RTS)	7	4
8	Clear To Send (CTS)	8	5
9	Not Connected	9	22

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Installing the Touchscreen Driver Software

To install the touchscreen driver software correctly, obtain the following information about the host hardware:

- The COM port in use for the touchscreen. Ensure that the RS-232 cable is properly installed between the monitor port and the host's COM port.
- The baud rate at which the controller is operating. You will need to match the baud rate at the COM port. The controller baud rate is factory set at 9600.

Note: If you are using older touchscreen software, you may be prompted for the type of touchscreen controller being used. The RAC6185 18.1" Flat Panel Monitor uses the following controllers:

- Resistive: Elo TouchSystems model E271-2210.
- Capacitive: MicroTouch model SMT-3.

Once you have obtained this information, install the software using the installation disks found in the touchscreen accessory package.

Note: Before installation, you may want to check the touchscreen manufacturer's site on the World Wide Web for the latest software drivers. Enter these addresses in your Internet browser:

- www.elotouch.com for resistive touchscreens
- www.microtouch.com for capacitive touchscreens.

Performing a Calibration

After installing the driver software, follow the instructions in the touchscreen documentation.

Following installation of the touchscreen software and calibration, the touchscreen is ready to use.

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Appendix B: Video Cables

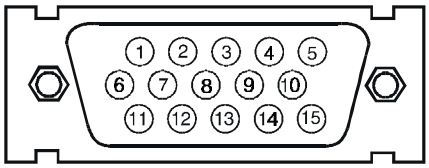
You can use an HD-15 connector (all models) or a BNC adapter cable (6185-V only) to connect the RAC6185 18.1" Flat Panel Monitor to the host computer.

HD-15 Connector

The HD-15 video cable you use with this monitor is equipped with a conventional HD-15 connector at each end.

Note: The following figure is the view looking into the pin end of the male connector or solder term end of the female connector.

Figure 33
HD-15 Video Connector



The following table provides the pin numbers and corresponding pin assignments for the HD-15 video connector with the DDC2B capability:

Table I
Standard HD-15 Video Cable

Monitor (Female)	Signal Description	Host (Male)
1	Red Video	1
2	Green Video	2
3	Blue Video	3
4	Not Used	4
5	Return	5
6	Red Video Ground	6
7	Green Video Ground	7
8	Blue Video Ground	8
9	Not Used (6185-D and 6185-N) DDC +5V (6185-V)	9
10	Sync Ground	10
11	Not Used	11
12	Bi-Directional Data	12
13	Horizontal Sync	13
14	Vertical Sync (VCLK)	14
15	Data Clock (SCL)	15

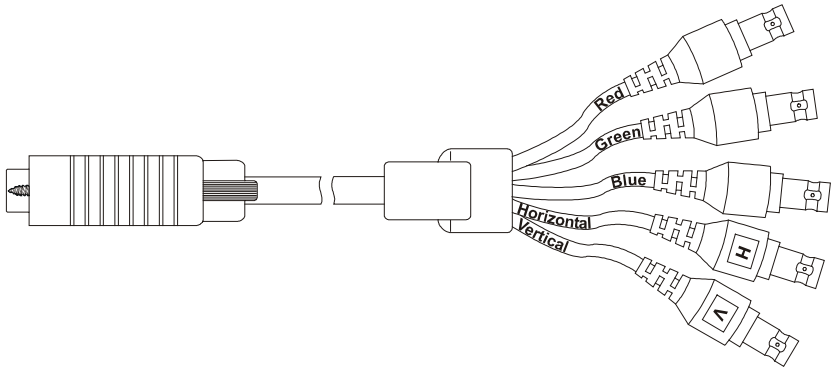
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BNC Adapter Cable

A 5-BNC-to-HD-15 adapter cable is available. The functions of the cables are described below.

- **R**, **B**, and **G**: Red, Green, and Blue input connectors to establish color. These are used for RS-343 analog signals.
- **HS/CS**: Separate horizontal/composite sync signal from the video source.
- **VS**: Separate vertical sync signal from the video source.

Figure 34
BNC Adapter Cable



This table describes the signal types you can use with the connectors:

Table J
BNC Signal Types

BNC Signal Type	Description	R	G	B	HS/ CS	VS
Sync-on-Green	Use the three video connectors. Horizontal and vertical syncs are supplied on the green video line.	X	X	X		
Composite Sync	Use the three video connectors plus the horizontal sync/composite sync input.	X	X	X	X	
Separate Horizontal and Vertical Sync	Use the three video connectors plus the horizontal sync/composite sync and vertical sync input.	X	X	X	X	X

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Specifications (6185-D and 6185-N)

Display	
Type	Active Matrix Color Thin Film Transistor (TFT) LCD
Backlight	
Type	Cold Cathode Tubes (CCT) (8 bulbs)
Life Expectancy	50,000 hours (mean for 1/2 brightness point)
Field Replaceable	No
Nominal Display Area	
Diagonal	18.1 in. (460 mm)
Horizontal	14.1 in. (359 mm)
Vertical	11.3 in. (287 mm)
Resolution	1280x1024 pixels, full color
Viewing Angle (CR ≥ 10)	
Horizontal (typical)	+/-85 deg.
Vertical (typical)	+/-85 deg.
Luminance (typical)	200 nit, 58 fL (screen overlay option will reduce luminance)
Contrast Ratio (typical)	150:1
CIE coordinates - White	x=0.315, y=0.329
Response Time	45 msec (typical)

Video	
Supported Standards	720x400 at 70 Hz (VGA text) 640x480 at 60 Hz and 75 Hz 800x600 at 60 Hz and 75 Hz 1024x768 at 60 Hz and 75 Hz 1280x1024 at 60 Hz and 75 Hz (native)
Video Input Signal	RGB analog (white level = 0.714V above ref. Black, into 75 Ohms
Sync Input Signals	H and V separate (TTL levels, positive or negative), Composite
Input Connection	Female HD-15 5-BNC connector support through cable adapter

Controls and Indicators	
Front Panel	Luminance, status LEDs
Back Panel	Access on-screen menu to adjust screen display
On-Screen Menu	Horizontal size, vertical position, horizontal position, contrast, brightness, clock phase, color balance

Operator Input	Touchscreen Option - Resistive or capacitive touchscreen, with serial controller and DOS and Windows 95/98/2000 drivers. Other OS drivers are available.

Electrical	
Line Voltage	85 to 264 VAC, 18 to 32 VDC
Line Frequency	47-70 Hz or DC

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Electrical	
Ground Leakage	1.0 uA max at 1.5 KVDC
Power Consumption	65W max, 75 VA

Environmental	
Panel Mount Option Rating	NEMA 4/12 (built to IP65 or IP53 standards), NEMA 4X optional
Rack Mount Option Rating	NEMA 1 (IP30 equivalent)
Operating Temperature	0C to 50C
Storage Temperature	-20C to 60C
Relative Humidity	10% to 85% non-condensing
Operating Altitude	Sea level to 10,000 ft (3048m)
Non-Operating Altitude	Sea level to 25,000 ft (7620m)
Operating Electrostatic Discharge	8.0K VDC (IEC 801-2, level 3)
Non-Operating Electrostatic Discharge	20.0K VDC
Operating Shock	20g (1/2 sine, 11 msec)
Non-Operating Shock	30g (1/2 sine, 11 msec)
Operating Vibration	0.015 in. p-p, 5-53 Hz sine, 2.0g peak, 53-640 Hz sine
Non-Operating Vibration	0.015 in. p-p, 5-53 Hz sine, 2.0g peak, 53-640 Hz sine

Physical (without handles)	
Bezel Dimensions (W x H x D)	19.0 in. x 15.75 in. x 0.25 in. (483 mm x 400 mm x 6 mm)
Rear Chassis Dimensions (from rear surface of front panel to back) (W x H x D)	17.7 in. x 14.2 in. x 4.4 in. (450 mm x 361 mm x 112 mm)
Net Weight	17.0 lb. (7.7 kg)

Certifications - Agency Approvals		
CLASS I, DIVISION 2 GROUPS A,B,C, & D INDUSTRIAL FLAT PANEL MONITOR c UL us LISTED 63DM		UL 1604 Listed UL/C-UL Industrial Flat Panel Monitor
UL LISTED IND. CONT. EQ. 7F44 c UL		UL Listed when mounted in appropriate enclosure
		UL 1950 Recognized Component, C-UL 950 Recognized Component
CE	LVD (73/23/EEC)	EN 60950 (per UL 1950 3rd ed. without D3 dev.)
	EMC (89/336/EEC)	
	Emissions	EN 50081-2
	Immunity	EN 50082-2
N223		Australian C-Tick
		FCC Class A

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Specifications (6185-V)

Display	
Type	Active Matrix Color Thin Film Transistor (TFT) LCD
Backlight	
Type	Cold Cathode Tubes (CCT) (8 bulbs)
Life Expectancy	50,000 hours (mean for 1/2 brightness point)
Field Replaceable	No
Nominal Display Area	
Diagonal	18.1 in. (460 mm)
Horizontal	14.1 in. (359 mm)
Vertical	11.3 in. (287 mm)
Resolution	1280x1024 pixels, full color
Viewing Angle (CR ≥ 10)	
Horizontal (typical)	+/-85 deg.
Vertical (typical)	+/-85 deg.
Luminance (typical)	200 nit, 58 fL (screen overlay option will reduce luminance)
Contrast Ratio (typical)	150:1
CIE coordinates - White	x=0.315, y=0.329
Response Time	45 msec (typical)

Video	
Supported Standards	720x400 at 70 Hz (VGA text) 640x480 at 60 Hz and 75 Hz 800x600 at 60 Hz and 75 Hz 1024x768 at 60 Hz and 75 Hz 1280x1024 at 60 Hz and 75 Hz (native)
Video Bandwidth	135 MHz (max video dot clock)
Video Input Signal	RGB analog (white level = 0.714V above ref. black, into 75 Ohms, single ended)
Sync Input Signals	Separate horizontal and vertical sync (TTL signal levels), sync on green (0.285V below ref. black), or composite sync.
Input Connection	Female HD-15 5-BNC connector support through cable adapter

Controls and Indicators	
On-Screen Display	Horizontal size, vertical position, horizontal position, contrast, brightness, clock phase, color balance, and video information

Operator Input	Touchscreen Option - Resistive or capacitive touchscreen, with serial RS-232 interface controller and DOS and Windows 95/98/2000 or NT drivers. Other OS drivers are available.

Electrical	
Line Voltage	90 to 264 VAC or 12 VDC
Line Frequency	47-70 Hz or DC

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Electrical	
Ground Leakage	1.0 uA max at 1.5 KVDC
Power Consumption	65W max, 75 VA max

Environmental	
Versa Mount Option Rating	NEMA 1 (IP30 equivalent)
Operating Temperature	0C to 40C
Storage Temperature	-20C to 65C
Relative Humidity	10% to 85% non-condensing
Operating Altitude	Sea level to 10,000 ft (3048m)
Non-Operating Altitude	Sea level to 25,000 ft (7620m)
Operating Electrostatic Discharge	8.0K VDC (IEC 801-2, level 3)
Non-Operating Electrostatic Discharge	20.0K VDC
Operating Shock	10g (1/2 sine, 11 msec)
Non-Operating Shock	20g (1/2 sine, 11 msec)
Operating Vibration	0.003 in. p-p, 10-57 Hz sine, 0.5g peak, 57-640 Hz sine
Non-Operating Vibration	0.006 in. p-p, 10-57 Hz sine, 1.0g peak, 57-640 Hz sine

Physical	
Overall Dimensions (W x H x D)	17.64 in. x 15.41 in. x 4.05 in. (448.1 mm x 391.4 mm x 102.9 mm)
Net Weight	14.0 lb. (6.4 kg)

Certifications - Agency Approvals		
LISTED UL 1950 78F5 c UL		UL 1950 Listed, C-UL 1950 Listed
CE	LVD (73/23/EEC)	EN 60950 (per UL 1950 3rd ed. without D3 dev.)
	EMC (89/336/EEC)	
	Emissions	EN 50081-2
	Immunity	EN 50082-2
N223		Australian C-Tick
		FCC Class A

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