IP65 Stainless B Series Display with Push Buttons

10.1”/ 15”/ 19”/ 21.5”

Model No.W10L100-SPH1-B
R15L100-SPC3-B
R19L100-SPM1-B
W22L100-SPA3-B

Quick Start Guide

Document Version 1.2
Document Part No. 91521110105T

Please read this instructions before operating the device and retain them for future reference.

Contents

FCC Statement

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

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

This equipment has been tested and found to comply with the limits for a class "B" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at him own expense.

European Union

Electromagnetic Compatibility Directive (2014/30/EU)

- EN55024: 2010/ A1: 2015
  - IEC61000-4-2: 2009
  - IEC61000-4-3: 2006+A1: 2007+A2: 2010
  - IEC61000-4-4: 2012
  - IEC61000-4-5: 2014
  - IEC61000-4-6: 2014
  - IEC61000-4-8: 2010
  - IEC61000-4-11: 2004
- EN55032: 2012/AC:2013
- EN61000-3-2:2014
- EN61000-3-3:2013

Low Voltage Directive (2014/35/EU)

- EN 60950-1:2006/A11:2009/A1:2010/A12:2011/ A2:2013

This equipment is in conformity with the requirement of the following EU legislations and harmonized standards. Product also complies with the Council directions.

Copyright Notice

Trademark Acknowledgement

Disclaimer

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Warranty

Winmate Inc. warranty guarantees that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, we will, at his/her option, repair or replace the defective product at no charge to the customer, provide it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service. If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W19Axxxxxxxx means October of year 2019.

Customer Service

We provide a service guide for any problem by the following steps: First, visit the website of our distributor to find the update information about the product. Second, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance.

You may need the following information ready before you call:

- Product serial number
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

Advisory Conventions

Four types of advisories are used throughout the user manual to provide helpful information or to alert you to the potential for hardware damage or personal injury. These are Notes, Important, Cautions, and Warnings. The following is an example of each type of advisory.

Note:
A note is used to emphasize helpful information

Important:
An important note indicates information that is important for you to know.

Caution A Caution alert indicates potential damage to hardware and explains how to avoid the potential problem.
Attention Une alerte d'attention indique un dommage possible à l'équipement et explique comment éviter le problème potentiel.

Warning! An Electrical Shock Warning indicates the potential harm from electrical hazards and how to avoid the potential problem.
Avertissement! Un Avertissement de Choc Électrique indique le potentiel de chocs sur des emplacements électriques et comment éviter ces problèmes.

Alternating Current ! The Protective Conductor Terminal (Earth Ground) symbol indicates the potential risk of serious electrical shock due to improper grounding.
Mise à le terre ! Le symbole de Mise à Terre indique le risqué potential de choc électrique grave à la terre incorrecte.

Safety Information

Warning! Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.
Avertissement ! Toujours débrancher le cordon d'alimentation du chassis lorsque vous travaillez sur celui-ci. Ne pas brancher de connections lorsque l'alimentation est présente. Des composantes électroniques sensibles peuvent être endommagées par des sauts d'alimentation. Seulement du personnel expérimenté devrait ouvrir ces chassis.

Caution Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.
Attention Toujours verifier votre mise à la terre afin d'éliminer toute charge statique avant de toucher la carte CPU. Les équipements électroniques moderns sont très sensibles aux décharges d'électricité statique. Toujours utiliser un bracelet de mise à la terre comme précaution. Placer toutes les composantes électroniques sur une surface conçue pour dissiper les charge, ou dans un sac anti-statique lorsqu'elles ne sont pas dans le chassis.

Chapter 1: Introduction

1.1 Overview

Congratulations on purchasing Winmate® IP65 Stainless B Series Display.

Winmate B Series Display features stainless SUS 316/ AISI 316 stainless steel corrosion resistant housing and big mechanical push buttons on the front. Push-buttons bring control and indication directly to the work area, eliminating wasted movement and increasing productivity. In addition, the physical buttons are especially needed for critical tasks like emergency shutdowns. When an emergency situation occurs, we don't want to waste time navigating through HMI screens but a simple and quick way to shut down the process. In terms of machine integration, push-button devices are easy to install and wire, and straightforward for understanding the function and use. Averagely the wiring time is saved by over 60%, and the installation cost is reduced by more than 30%.

1.2 Features

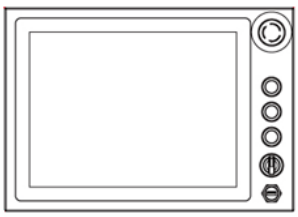
The IP65 Stainless B Series Display features:

- 10.1"/ 15/ 19/ 21.5" LCD with projected capacitive multitouch screen
- A true flat, easy-to-clean front surface with edge-to-edge design
- Full IP65 waterproof enclosure, good corrosion resistance
- Waterproof ports with adapter cables for external connectivity
- Stainless steel housing SUS 316/ AISI 316, corrosion resistant
- Rotary switch adjust different touch mode for Hand/ Rain/ Glove application
- Mechanical push buttons on the front
- VESA mount support

1.3 Package Content

Carefully remove the box and unpack your device. Please check if all the items listed below are inside your package. If any of these items are missing or damaged contact us immediately.

Default:



- **Display**

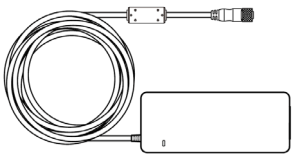
Varies by product specifications

- **Quick Start Guide (Hardcopy)**

Part No. 91521110105T

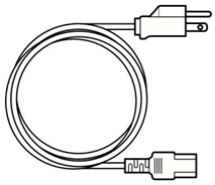
- **Driver CD**

Part No. 917111101104



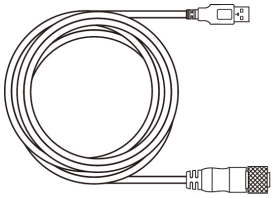
- **AC to DC Adapter 100~240V/ 50W with Waterproof Connector**

Part No.:90PO12050006



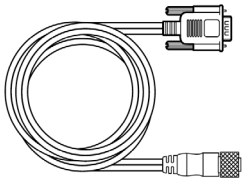
- **Power Cord**

Varies by country



- **External USB Cable with Waterproof Connector for Touchscreen Control**

Part No. 94E0127040K0

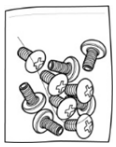


- **External VGA Cable with Waterproof Connector**

Part No. 9441150120Q0

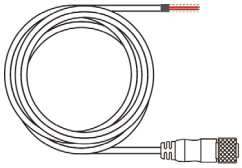
- **Waterproof Caps**

Part No. 60Y031001001



- **VESA Screws**

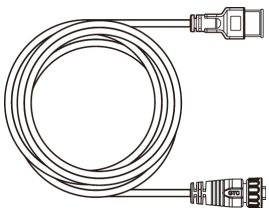
Part No. 913511101101



- **External Cables for CN1 & CN2 with Waterproof Connector**

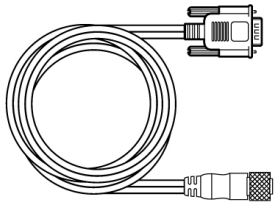
Part No. 94E012L120K1

Optional:



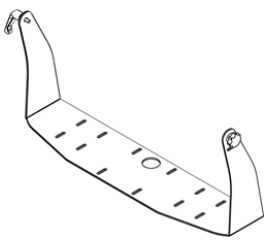
- **External HDMI Cable with Waterproof Connector**

Part No. 9490191190K0



- **External RS232 Cable with Waterproof Connector**

Part No. 94G0123090Q0



- **Yoke Mount Stand Kit**

Supplied by request

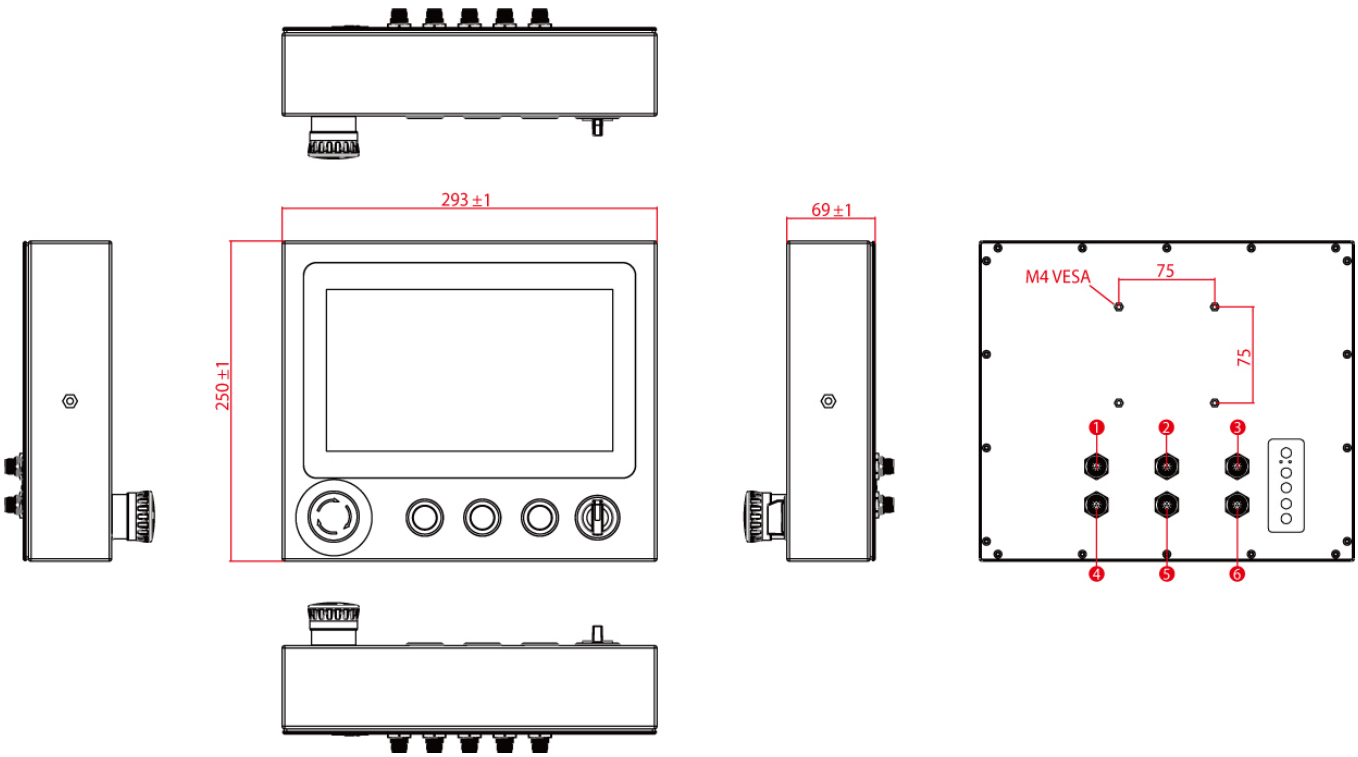
1.4 Product Overview

This section contains mechanical drawing of the IP65 Stainless B Series Display with Push Buttons. Notice that this is a simplified drawing and some components are not marked in detail.

10.1", W10L100-SPH1-B

Unit: mm

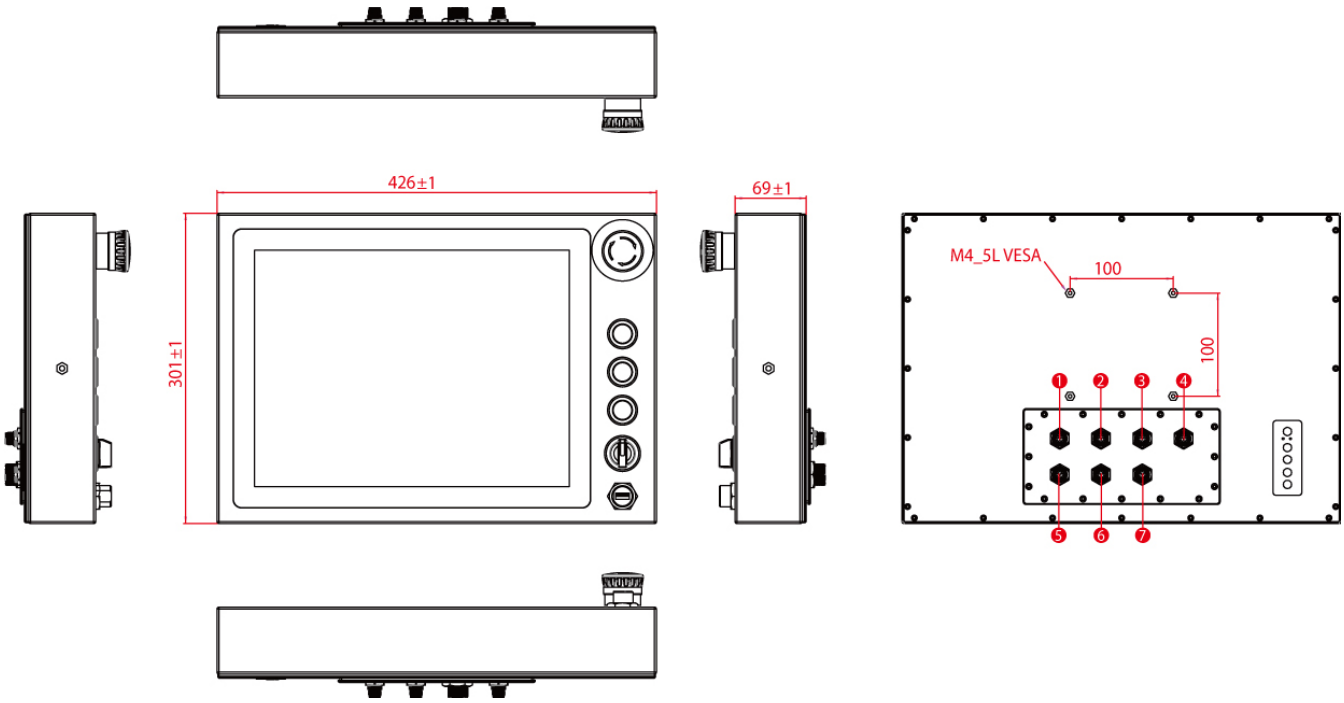
Dimensions: 293 x 250 x 69 mm



№	Description	№	Description
①	USB for Touch	④	RS232 for touch mode select (Optional)
②	VGA	⑤	CN1(For Emergency Stop & Blue Button)
③	Power	⑥	CN2(For Green Button & Red Button)

15”, R15L100-SPC3-B

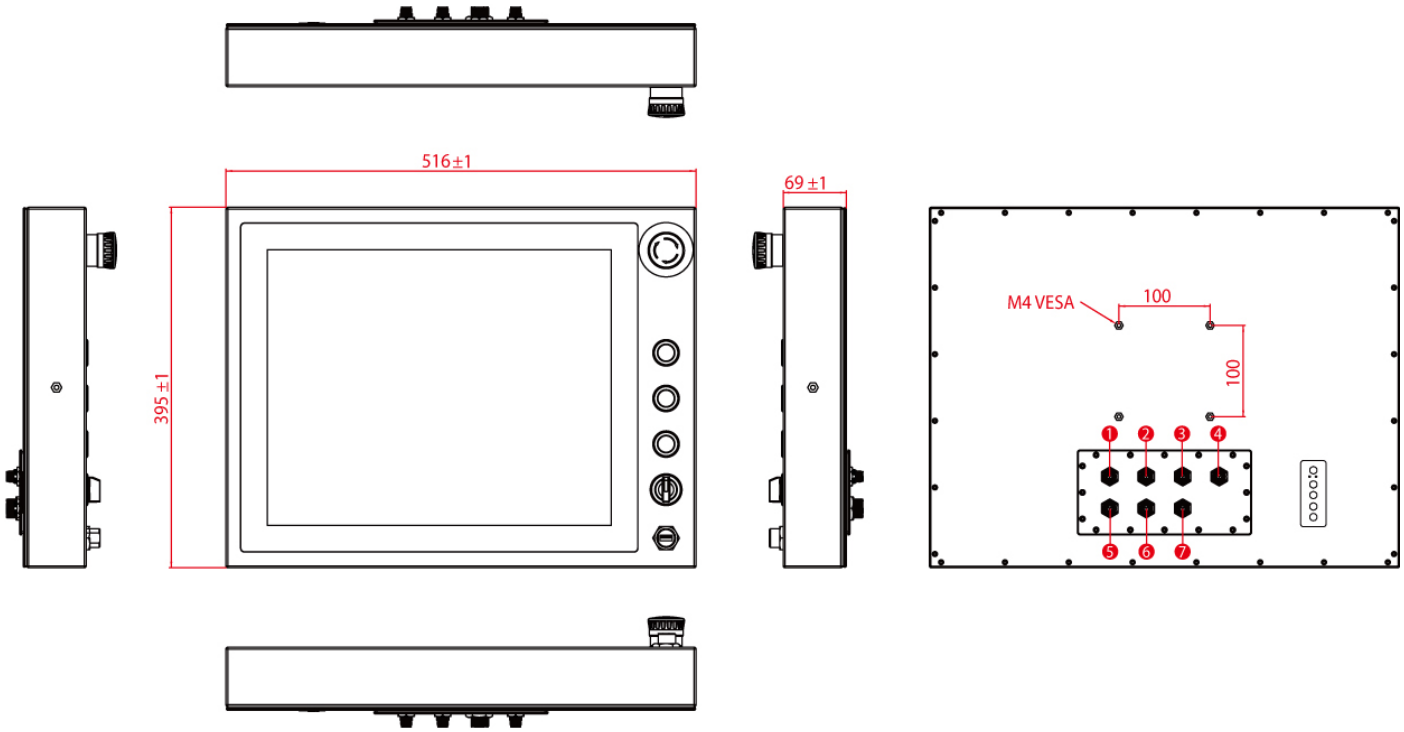
Unit: mm
Dimensions: 426 x 301 x 69 mm



№	Description	№	Description
①	USB for Touch	⑤	RS232 for Touch mode select
②	USB extension	⑥	VGA
③	CN1(For Emergency Stop & Blue Button)	⑦	Power
④	CN2(For Green & Red Button)		

19”, R19L100-SPM1-B

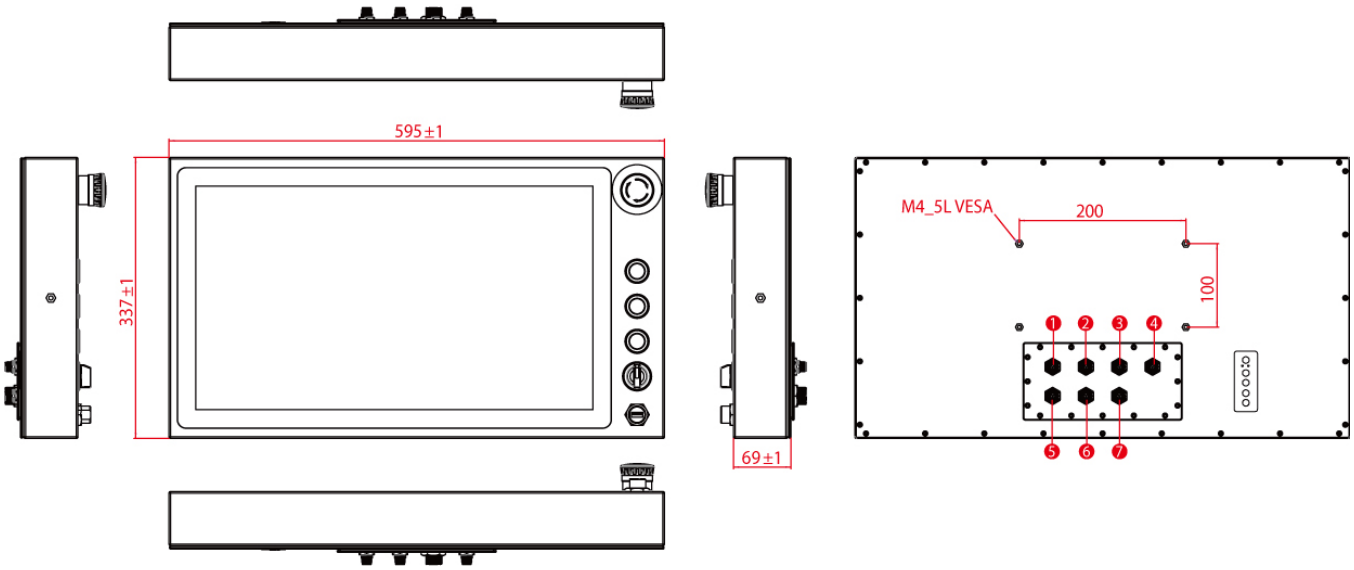
Unit: mm
Dimensions: 516 x 395 x 69 mm



№	Description	№	Description
①	USB for Touch	⑤	RS232 for Touch mode select
②	USB extension	⑥	VGA
③	CN1 (For Emergency Stop & Blue Button)	⑦	Power
④	CN2 (For Green & Red Button)		

21.5”, W22L100-SPA3-B

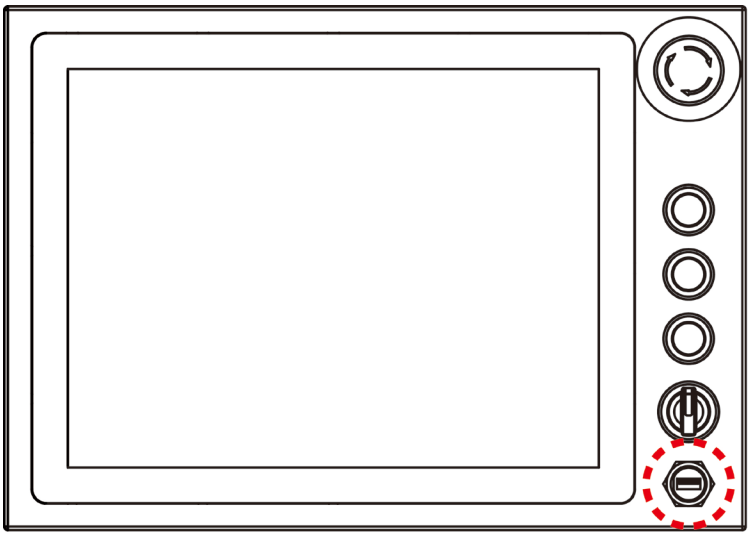
Unit: mm
Dimensions: 595 x 337 x 69 mm



№	Description	№	Description
①	USB for Touch	⑤	RS232 for Touch mode select
②	USB extension	⑥	VGA
③	CN1(For Emergency Stop & Blue Button)	⑦	Power
④	CN2(For Green & Red Button)		

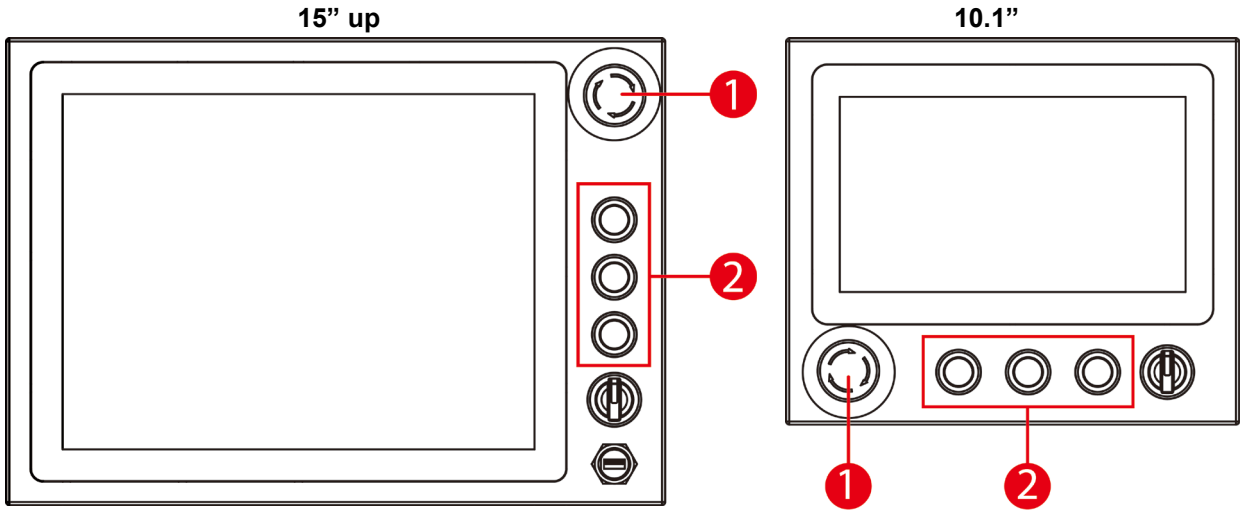
1.5 Front Side USB Type-A Connector

The B Series Display 15” up has one waterproof USB Type-A connector on the front side.



1.6 Front Side Push Buttons

The B Series Display features mechanical push buttons located on the front side of the display.

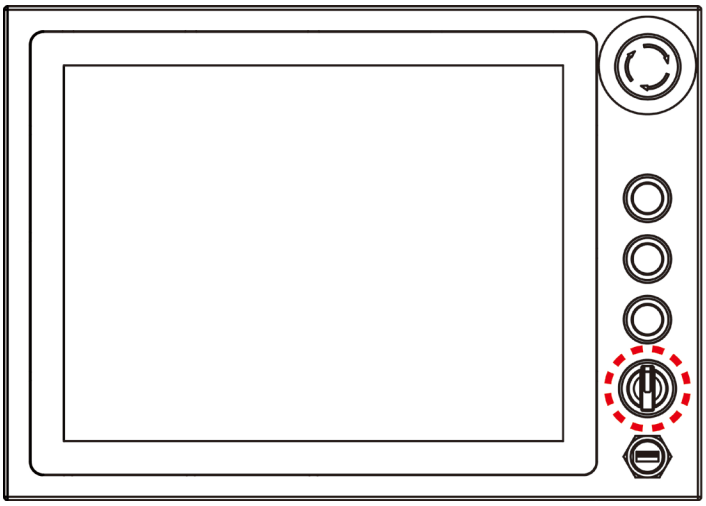


№	Button	Description
1	Emergency Shut Down	Press to shut down the system. Pressing this button stops all operations immediately (motors, valve, etc.). Emergency stop conditions shall be hard wired, withdraw power from everything.
2	Programmable Function Keys	Three programmable function keys, functions to be defined by customer.

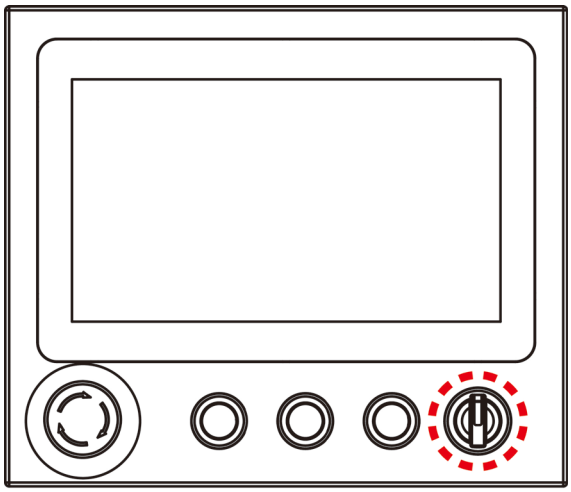
1.7 Rotary Switch for Touch Mode

The IP65 Stainless B Series Display features rotary switch for quick changing a touch mode located on the front side of the display Use rotary switch located in front to switch between modes.

15” up



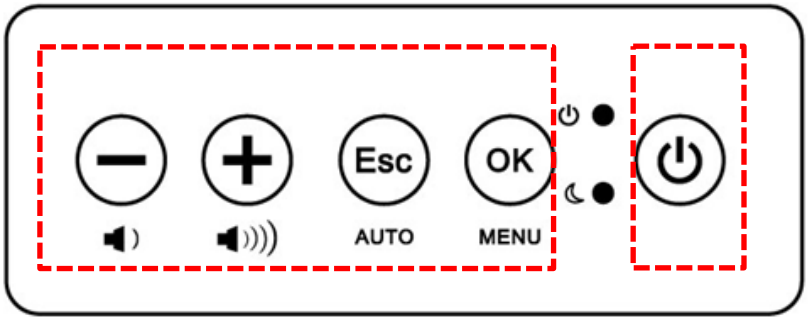
10.1”



Mode	Description
 **Hand (Default)**	In *Hand* mode the touchscreen accepts touch inputs from bare fingertips. *Supports input by:* • *Rubber tip passive stylus* • *Bare fingertips*
 **Rain**	In *Rain* mode the touchscreen rejects false inputs from liquid drops. When the liquid is removed, the touchscreen accepts touch inputs from bare fingertips. *Supports input by:* • *Rubber tip passive stylus* • *Bare fingertips*
 **Glove**	In *Glove* mode, the touchscreen supports inputs while the user is operating the touchscreen with gloves on. *Supports input by:* • *Glove* • *Rubber tip passive stylus* • *Bare fingertips*

1.8 Rear Side Physical Buttons

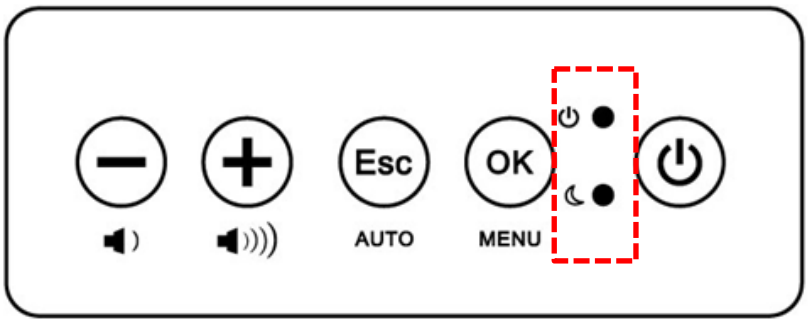
Physical buttons are located on the OSD panel at the rear side of the display.



Icon	Button	Description
	DOWN/ VOLUME DOWN	Press to decrease the volume or volume down when without OSD menu.
	UP/ VOLUME UP	Press to increase the value or volume up when without OSD menu.
	ESC/ AUTO	Press to exit the menu or auto adjustment when without OSD menu.
	OK/ MENU	Press to confirm the action or to call main OSD menu.
	Power On/ Off	Press to power on or power off the device.

1.9 LED Indicators

LED indicators are located on the OSD panel at the rear side of the display.



LED Type	Status	Description
	On	Power is on
	Off	Power is off
	Blinking	Stan by
	Off	Normal

Chapter 2: Installation

Follow this quick installation procedure:

1. Mount your display according to your application requirements (VESA, Yoke).
2. Connect all the cables to the display.
3. Use waterproof caps to cover all not used connectors.
4. To ensure enclosure rating protection make sure the cables is firmly fixed and tightened.

Caution Use waterproof cables to ensure the IP65 rating.
Attention. Utilisez des câbles étanches pour garantir l'indice IP65.

Caution When not in use, cover connector with waterproof cap.
Attention Lorsqu'il n'est pas utilisé, couvrez le connecteur avec un capuchon étanche.

2.1 Mounting

The IP65 Stainless B Series Display devices come with different mounting options suitable for most of the industrial and commercial applications.

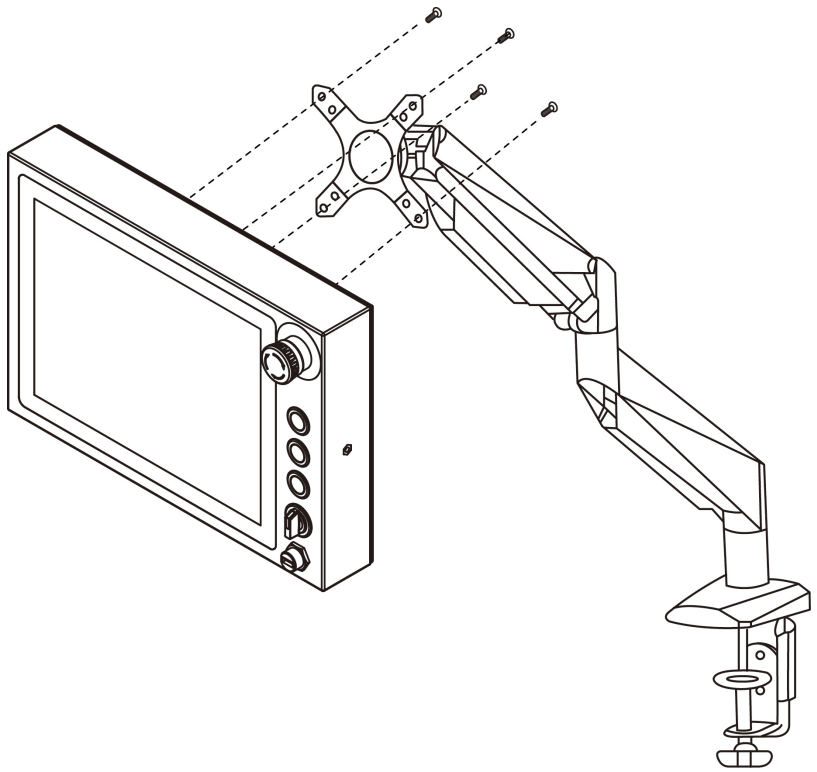
2.1.1 VESA Mount

The Display has VESA mount holes on the rear side. Follow instructions below to mount the unit with VESA Mount bracket (not supplied by Winmate).

Size	VESA Plate Dimensions	Screw Hole Diameter
10.1”	75 x 75 mm	VESA M4x5 mm
15”, 19”	100 x 100 mm	VESA M4x5 mm
21.5”	200 x 100 mm	VESA M4x5 mm

Installation Instruction

1. Screw VESA bracket to the fixture (ex. swing arm) with four VESA screws.
2. Place the device on VESA bracket.

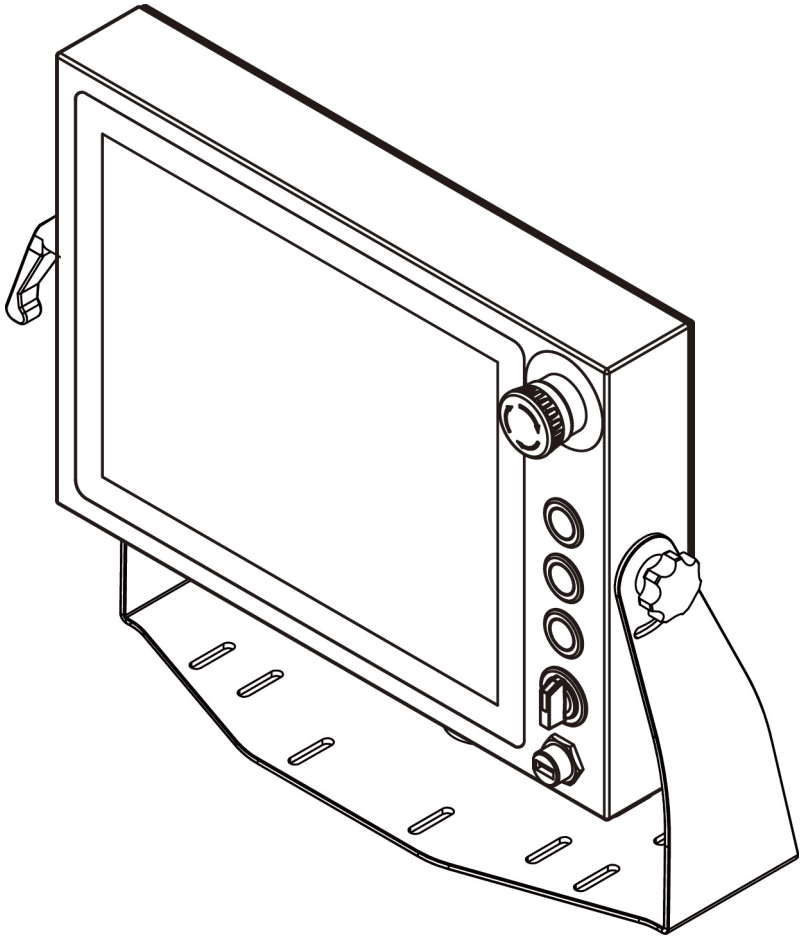


2.1.2 Yoke Mount

The B Series Display has two holes located on both side for Yoke Mount, a solution that allows installing the Display on the yoke stand (supplied by request).

Installation Instruction

1. Place the Display on the bracket stand, aiming screw holes for each other.
2. Secure screws to fix the device upon the bracket stand.
3. Firmly secure the locking handle to the Display.



Note: Yoke stand is not a standard accessory for B Series Display. Winmate supply yoke stand by request. Please contact our sales representative for more information.

2.2 Connecting Peripherals

This B Series Display has waterproof connectors with protection cap with power connector, VGA connector, HDMI connector (Optional) and USB connector for touch. The pin assignment of the connectors is described in this section.

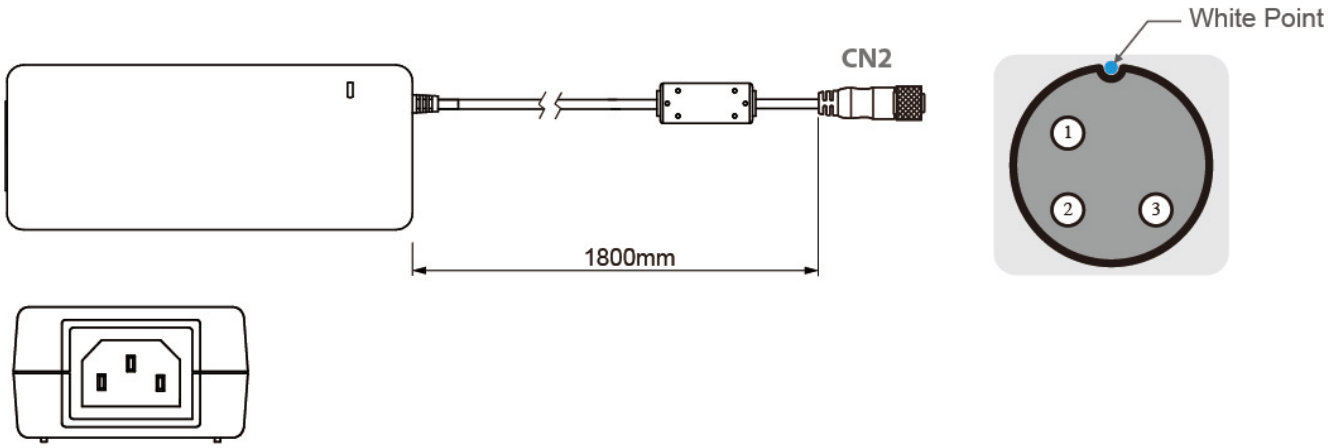
Important: To maintain the IP65 rating of the full unit it is recommended to use only IP65 waterproof cables. You must remember to firmly close all protective caps when connector is not used.

Note:
Notice that input and output connectors vary by product size and specifications.

2.2.1 Power Connector

By default the B Series Display has one M12 waterproof power connector that accepts 12V DC power input based on your order.

Power Cable

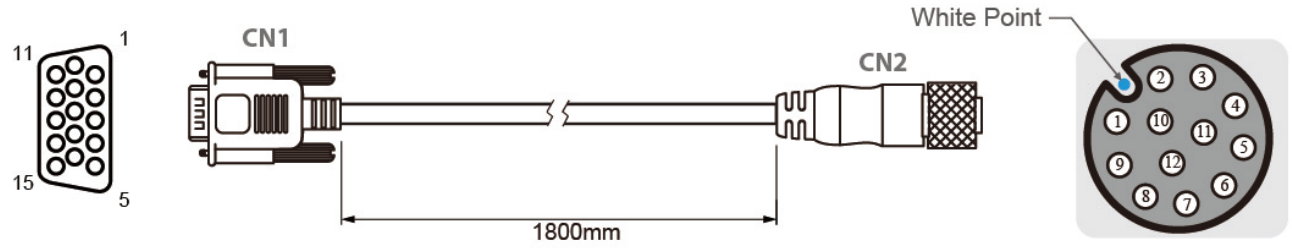


Pin No.	Symbols	Color		Pin No.	Symbols	Color
CN1-1	VIN -	NO ASSIGN	⟷	CN2-1	VCC+	Flow Adapter
CN1-2	VIN -	NO ASSIGN	⟷	CN2-2	GND	Flow Adapter
CN1-3	VIN -	NO ASSIGN	⟷	CN2-3	VCC -	Flow Adapter

2.2.2 VGA Connector

The B Series Display has one M12 connector for VGA input. Use VGA cable to connect external PC system to the display.

VGA Cable

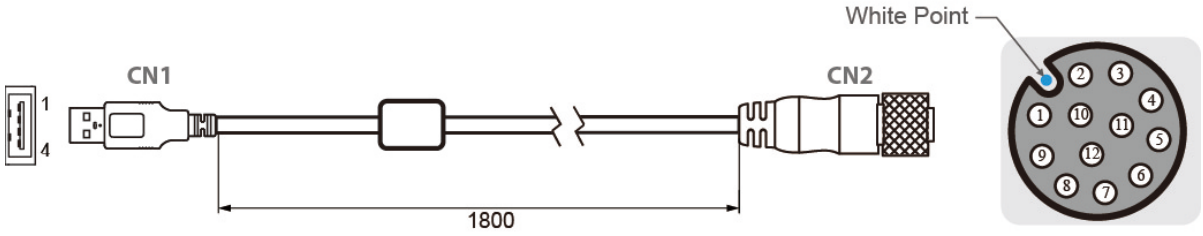


Pin No.	Symbols	Color		Pin No.	Symbols	Color	
CN1-1	R	Red	⟷	CN2-1	R	Red	coaxial
CN1-6	R-GND	Black	⟷	CN2-2	R-GND	Black	
CN1-2	G	Green	⟷	CN2-3	G	Green	coaxial
CN1-7	G-GND	Black	⟷	CN2-4	G-GND	Black	
CN1-3	B	Blue	⟷	CN2-5	B	Blue	coaxial
CN1-8	B-GND	Black	⟷	CN2-6	B-GND	Black	
CN1-12	SDA	Yellow	⟷	CN2-7	SDA	Yellow	
CN1-13	HS	Orange	⟷	CN2-8	HS	Orange	
CN1-14	VS	White	⟷	CN2-9	VS	White	
CN1-15	SCL	Brown	⟷	CN2-10	SCL	Brown	

2.2.3 USB Connector for Touch

The B Series Display has one M12 waterproof connector for touch screen control. Use USB cable to connect display to touch.

USB Cable for Touch



Pin No.	Symbols	Color		Pin No.	Symbols	Color	
CN1-2	VCC	Red	⟷	CN2-1	VCC	Red	
CN1-3	D-	White	⟷	CN2-2	D-	White	Twisted pairs
CN1-4	D+	Green	⟷	CN2-3	D+	Green	
CN1-5	GND	Black	⟷	CN2-4	GND	Black	
CN1-9	GND	Black	⟷	CN2 Shield		Black	

2.2.4 USB Type-A Connector

The B Series Display15”/ 19”/ 21.5” has one waterproof USB Type-A connector located on the front side.

Pin assignment and signal name of USB 2.0 connector for optional touch.

Pin №	Signal Name	Pin №	Signal Name
1	+5V	2	Data-
3	Data+	4	GND

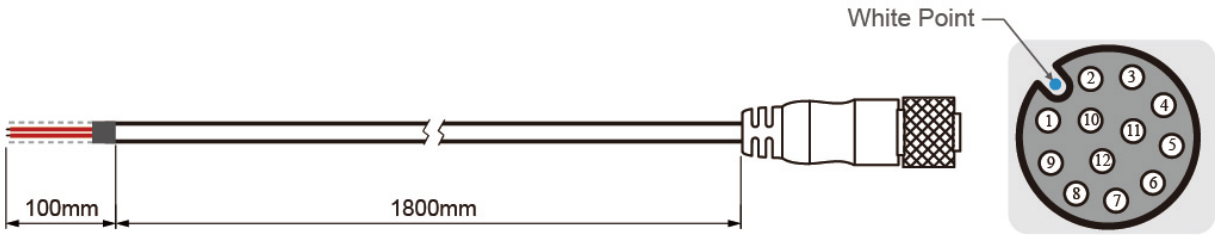
2.2.5 HDMI Connector

Notice that HDMI connector is optional and may not be present in your device.

The B Series Display has one M21 connector for HDMI input. Plug HDMI signal cable to the HDMI connector on the rear side of PC system, and plug the other end to the monitor.

2.2.6 Connector 1 for Push Button Extension

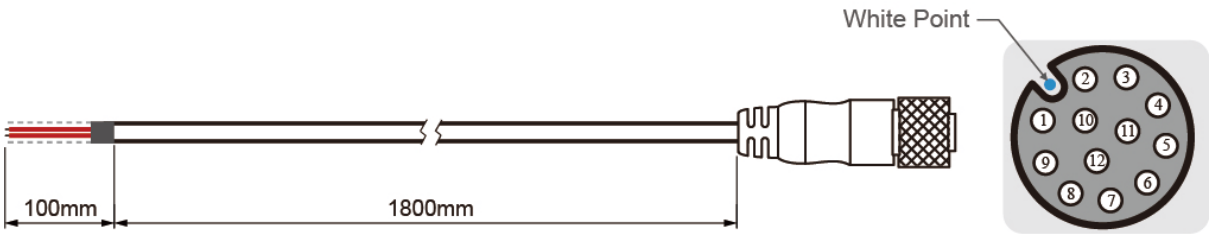
Push Button Extension Cable for Connector 1



Pin No.	Symbols	Color
CN1-1	Emergency NC 2	Emergency Stop
CN1-2	Emergency NC 1	
CN1-3	Emergency NC 2	
CN1-4	Emergency NC 1	
CN1-5	Blue NO 4	Blue Button
CN1-6	Blue NO 3	
CN1-7	Blue NC 2	
CN1-8	Blue NC 1	
CN1-9	N/A	
CN1-10	N/A	
CN1-11	N/A	
CN1-12	N/A	

2.2.7 Connector 2 for Push Button Extension

Push Button Extension Cable for Connector 2



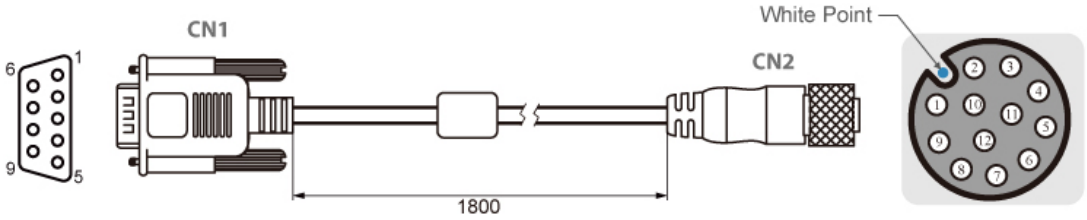
Pin No.	Symbols	Color
CN2-1	Red NO 4	Green Button
CN2-2	Red NO 3	
CN2-3	Red NC 2	
CN2-4	Red NC 1	
CN2-5	Green NO 4	Red Button
CN2-6	Green NO 3	
CN2-7	Green NC 2	
CN2-8	Green NC 1	
CN2-9	N/A	
CN2-10	N/A	
CN2-11	N/A	
CN2-12	N/A	

2.2.8 RS232 Connector for Touch Mode Select

Notice that RS232 connector for touch mode select is optional and may not be present in your device.

The B Series Display has one M12 RS232 connector for touch mode select. Use RS232 cable.

USB Cable for Touch Mode Select



Pin No.	Symbols	Color		Pin No.	Symbols	Color
CN1-1	DCD-CON2	Green	⟷	CN2-1	DCD-CON2	Green
CN1-6	DSR-CON2	Brown	⟷	CN2-2	DSR-CON2	Brown
CN1-2	RXD-CON2	Red	⟷	CN2-3	RXD-CON2	Red
CN1-7	RTS-CON2	Orange	⟷	CN2-4	RTS-CON2	Orange
CN1-3	TXD-CON2	Blue	⟷	CN2-5	TXD-CON2	Blue
CN1-8	CTS-CON2	White	⟷	CN2-6	CTS-CON2	White
CN1-4	DTR-CON2	Purple	⟷	CN2-7	DTR-CON2	Purple
CN1-9	RI-CON2	Yellow	⟷	CN2-8	RI-CON2	Yellow
CN1-5	GND-CON2	Black	⟷	CN2-9	GND-CON2	Black

2.3 Cleaning the Monitor

Note: The IP65 Stainless Display withstands regular intense cleaning with water.

Before cleaning:

- Make sure the device is turned off.
- Disconnect the power cable from any AC outlet.

When cleaning:

- Wipe the screen with a clean, soft, lint-free cloth. This removes dust and other particles.
- The display area is highly prone to scratching. Do not use ketene type material (ex. Acetone), Ethyl alcohol, toluene, ethyl acid or Methyl chloride to clear the panel. It may permanently damage the panel and void the warranty.
- If it is still not clean enough, apply a small amount of non-ammonia, non-alcohol based glass cleaner onto a clean, soft, lint-free cloth, and wipe the screen.
- Don not use oil directly on the display screen. If droplets are allowed to drop on the screen, permanent staining or discoloration may occur.

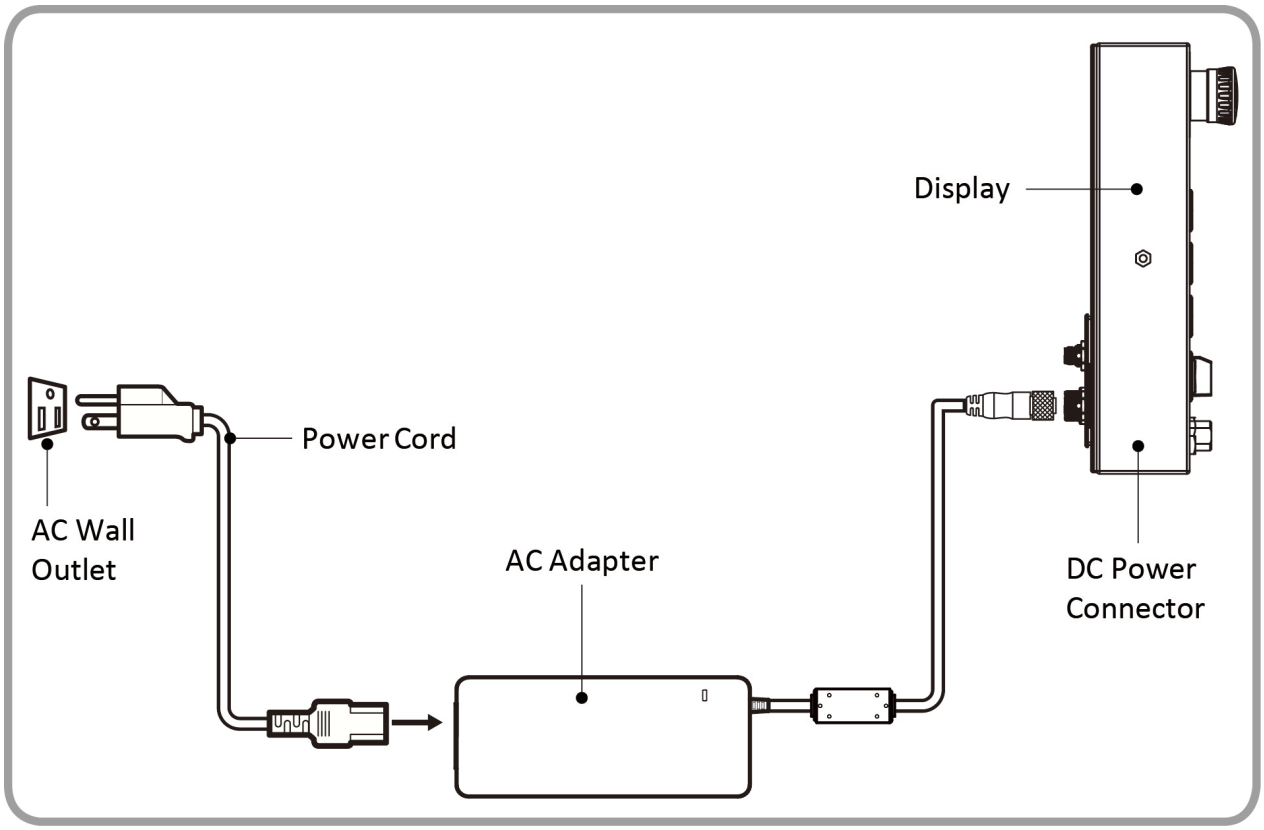
Chapter 3: Getting Started

3.1 Connecting to Power Source

By default B Series Display has one M12 waterproof power connector that accepts 12V DC power input. Check your order specifications before connecting to power source.

Follow the following steps to connect your device to AC power source:

1. Install conduit pipe and I/O cover following the procedure described in the previous sections.
2. Connect open wires to AC adapter.
3. Connect the power cord to AC adapter.
4. Plug the power cord to the AC outlet.

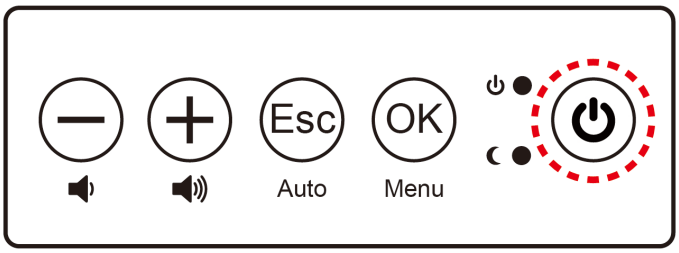


AC Adapter specifications and display power consumption vary by LCD panel size.

Size	10.1”	15”	19”	21.5”
AC Adapter	12V/ 50W	12V/ 50W	12V/ 50W	12V/ 50W
Power Consumption	26W (typ.)	30W (typ.)	36W (typ.)	50W (typ.)

3.2 Turning On/ Off the Device

After connecting your devices to the source of power press **Power Button** located on the rear side of the Display.

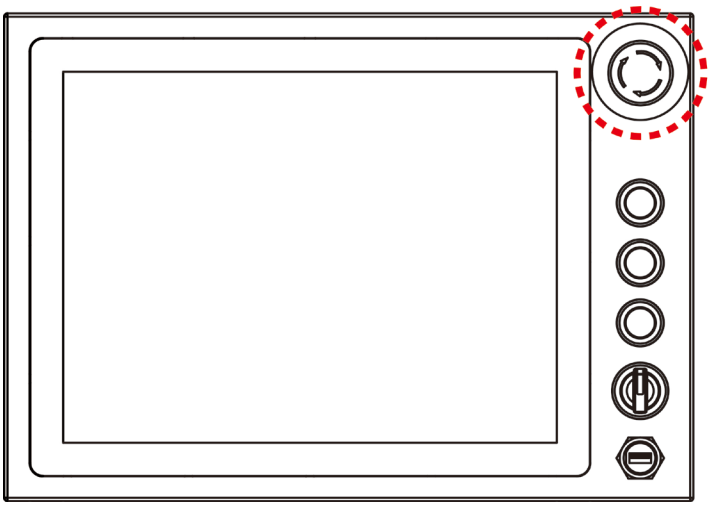


To shut down your device press **Power Button** located on the rear side of the Display and disconnect power. The machine operations stop in sequence, or stop in zero position to be ready to start again immediately on pressing start button.

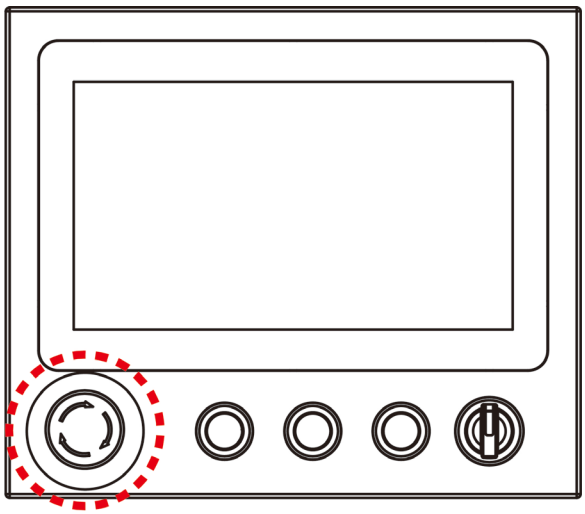
3.3 Emergency Stop

For emergency stop, press **Emergency Shutdown Button** located on the front side of the Display. Pressing this button stops all operations immediately (motors, valve, etc.). Emergency stop conditions shall be hard wired, withdraw power from everything.

15” up



10.1”



3.4 On-Screen Display (OSD) Menu

OSD Icon	Sub-menu	Settings	Note
BRICONTRAST	**BRIGHTNESS**	**slider bar**	Default 50
	Use to adjust the screen's brightness. Range 0 to 100		
	CONTRAST	**slider bar**	Default 50
	Use to adjust the screen's contrast. Range 0 to 100		
POSITION	**H POSITION**	**slider bar**	Default 50
	Use to adjust the image to the left or right on the screen. Range 0 to 100		
	V POSITION	**slider bar**	Default 50
	Use to adjust the image up or down on the screen. Range 0 to 100		
IMAGE	**AUTO**	**Select and execute**	
	Use to choose the best settings for the current input signal		
	CLOCK	**slider bar**	
	Use to adjust the value of horizontal image.		
	PHASE	**slider bar**	
	Use to adjust the phase control (May be required to optimize the display quality)		
	WHITE BALANCE	**Select and execute**	
	Use to set RGB signal voltage level		
COLOR	**USER**	**R.G.B slider bar**	
	Choose RED/GREEN/BLUE to set value of color temperature brightness.		
	9300K	**Select and execute**	
	Use to set value of monitor for the CIE coordinate 9300 color temperature		
	6500K	**Select and execute**	
	Use to set value of monitor for the CIE coordinate 6500 color temperature		
	ADC RIGHTNESS	**slider bar**	Default 50
	Set value of monitor for ADC Brightness. Range 0 to 100		
GAMMA	**GAMMA 0**	**Select and execute**	Default GAMMA0
	Choose the parameter of GAMMA 0 as default setting.		
	GAMMA 1	**Select and execute**	
	Choose the parameter of GAMMA 1 as default setting.		
	GAMMA 2	**Select and execute**	
	Choose the parameter of GAMMA 2 as default setting.		
CHANNEL	**AUTO SCAN**	**Select and execute**	Default mode
	Auto detect the input source		
	ANALOG	**Select and execute**	
	Switch the setting of signal input to Analog mode		
	DVI	**Select and execute**	
	Switch the setting of signal input to DVI mode		
RECALL	**YES**	**Select and execute**	
	Recall the factory default setting		
	NO	**Select and execute**	
	Return to main menu		
EXIT	**YES**	**Select and execute**	

Chapter 4: Troubleshooting

4.1 Basic Troubleshooting

Problem	Solution
There is a black dot or dead pixel dot on the screen	A missing pixel does not constitute an out of spec. defective product
Cannot turn power on	Turn off the power supply, and check that the AC cord or DC cord are securely inserted. After checking, turn on the power supply again.
It takes time for image to appear	Since the monitor processes various signals digitally to reproduce beautiful images, it may take time before images appear when it is turned on, input is switched, or when the mode is switched to “Multi Window”.
There are spots on the screen	There may be electrical distortion from vehicles, trains, high voltage lines or fluorescent lamps.
Bad color	Color density or tint control may not be adjusted properly (Check the adjusted value of image.)
Image appears and disappears	Input may not be connected properly.
When changing the screen size, the top and bottom part of the screen does not show images	When using a video software program (such as a cinema size program) with a screen wider than one in the 16:9 mode, blank areas separate from the images are formed at the top and bottom of the screen.
Image contour flickers	Due to the characteristics of the display control, contour of animated parts of images may seem to flicker, but that is not a breakdown.
Color is extremely bad	Input configuration “RGB”/“YPBPR” may not be selected properly.
The Power indicator is flashing orange	After checking the number of flashes, turn off the power and contact the dealer where the monitor was purchased.

Appendix

Appendix A: Hardware Specifications

	Model Name			
	W10L100-SPH1-B	R15L100-SPC3-B	R19L100-SPM1-B	W22L100-SPA3-B
Display				
Size	10.1”	15”	19”	21.5”
Resolution	1024 x 600	1024 x 768	1280 x 1024	1920 x 1080
Brightness	800:1	2000:1	1000:1	3000:1
Contrast Ratio	450 nits	300 nits	250 nits	250 nits
Viewing Angle	75,80,80,80	88,88,88,88	85,85,80,80	89,89,89,89
Max Colors	16.7M	16.7M	16.7M	16.7M
Touch	Projected capacitive multitouch screen	Projected capacitive multitouch screen	Projected capacitive multitouch screen	Projected capacitive multitouch screen
Interface				
USB	1 x M12 waterproof connector for touch screen control	1 x M12 waterproof connector for touch screen control, 1 x M12 waterproof connector for Front waterproof USB type-A	1 x M12 waterproof connector for touch screen control, 1 x M12 waterproof connector for Front waterproof USB type-A	1 x M12 waterproof connector for touch screen control, 1 x M12 waterproof connector for Front waterproof USB type-A
HDMI	1x M21 connector for HDMI input (Optional)	1x M21 connector for HDMI input (Optional)	1x M21 connector for HDMI input (Optional)	1x M21 connector for HDMI input (Optional)
VGA	1x M12 connector for VGA input	1x M12 connector for VGA input	1x M12 connector for VGA input	1x M12 connector for VGA input
COM	1 x RS232 connector for touch mode select (Optional)	1 x RS232 connector for touch mode select (Optional)	1 x RS232 connector for touch mode select (Optional)	1 x RS232 connector for touch mode select (Optional)
Power Input	1 x M12 waterproof connector for 12V DC	1 x M12 waterproof connector for 12V DC	1 x M12 waterproof connector for 12V DC	1 x M12 waterproof connector for 12V DC
Expansion Port	CN1 and CN2 for front button control	CN1 and CN2 for front button control	CN1 and CN2 for front button control	CN1 and CN2 for front button control
Keyboard and Input				
Physical Buttons	Rear side: 1 x Power Button 1 x Adjust up button 1 x Adjust down button 1 x ESC (Auto) button 1 x OK (Menu) button	Rear side: 1 x Power Button 1 x Adjust up button 1 x Adjust down button 1 x ESC (Auto) button 1 x OK (Menu) button	Rear side: 1 x Power Button 1 x Adjust up button 1 x Adjust down button 1 x ESC (Auto) button 1 x OK (Menu) button	Rear side: 1 x Power Button 1 x Adjust up button 1 x Adjust down button 1 x ESC (Auto) button 1 x OK (Menu) button
	Front side: 1 x Emergency Button & 3 x Flat Button for CN1 & CN2 M12 connector	Front side: 1 x Emergency Button & 3 x Flat Button for CN1 & CN2 M12 connector	Front side: 1 x Emergency Button & 3 x Flat Button for CN1 & CN2 M12 connector	Front side: 1 x Emergency Button & 3 x Flat Button for CN1 & CN2 M12 connector
LED Indicators	1 x LED Indicator for power 1 x LED Indicator for status	1 x LED Indicator for power 1 x LED Indicator for status	1 x LED Indicator for power 1 x LED Indicator for status	1 x LED Indicator for power 1 x LED Indicator for status
Power Management				
Power Input	Default 12V DC input 9~36V DC input for optional	Default 12V DC input 9~36V DC input for optional	Default 12V DC input 9~36V DC input for optional	Default 12V DC input 9~36V DC input for optional
Power Consumption	26 W (typ.)	30 W (typ.)	36 W (typ.)	50 W (typ.)
AC Adapter	100~240V AC to DC Adapter with waterproof connector	100~240V AC to DC Adapter with waterproof connector	100~240V AC to DC Adapter with waterproof connector	100~240V AC to DC Adapter with waterproof connector

	Model Name			
	W10L100-SPH1-B	R15L100-SPC3-B	R19L100-SPM1-B	W22L100-SPA3-B
Mechanical Specification				
Dimensions	293 x 250 x 69 mm	426 x 301 x 69 mm	516 x 395 x 69 mm	595 x 337 x 69 mm
Housing	Stainless steel SUS 316/ AISI 316	Stainless steel SUS 316/ AISI 316	Stainless steel SUS 316/ AISI 316	Stainless steel SUS 316/ AISI 316
Mounting	VESA mount (100x100mm)	VESA mount (100x100mm)	VESA mount (100x100mm)	VESA mount (100x200mm)
Environmental Consideration				
Operating Temperature	0 ºC to 45 ºC	0 ºC to 45 ºC	0 ºC to 45 ºC	0 ºC to 45 ºC
Storage Temperature	-20 ºC to 60 ºC	-20 ºC to 60 ºC	-20 ºC to 60 ºC	-20 ºC to 60 ºC
Operating Humidity	10% to 90% (non-condensing)	10% to 90% (non-condensing)	10% to 90% (non-condensing)	10% to 90% (non-condensing)
IP Rating	Full IP65	Full IP65	Full IP65	Full IP65
Standards and Certification				
EMC	CE, FCC	CE, FCC	CE, FCC	CE, FCC

Appendix B: Frequency Table

Signal Name	Vertical Frequency(Hz)	VGA	HDMI
1024 x 600	60	✔	✔
	72	✔	✔
	75	✔	✔
1024 x 768	60	✔	✔
	72	✔	✔
	75	✔	✔
1280 x 1024	60	✔	✔
	72	✔	✔
	75	✔	✔
1920 x 1080	60	✔	✔
	72	✔	✔
	75	✔	✔

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