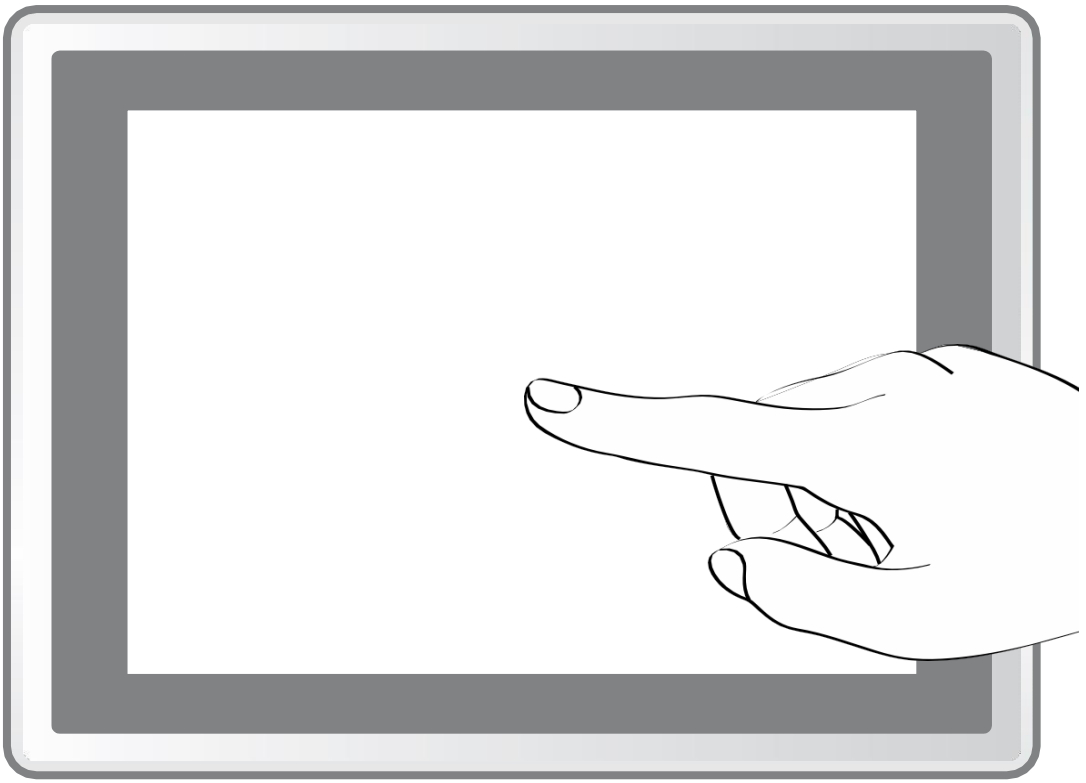
15" Full IP65 Stainless

Class I Division II
Flat Touch Series

R15L600-65EX Display



User Manual

Version 1.2

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 "a" 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.

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Trademark Acknowledgement

Brand and product names are trademarks or registered trademarks of their respective owners.

Disclaimer

We reserve the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s), conveys no license or title under any patent, copyright, or masks work rights to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or warranty that such application will be suitable for the specified use without further testing or modification.

Warranty

Our warranty 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 its option, repair or replace the defective product at no charge to the customer, provided it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in it's 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 1W08Axxxxxxxx means October of year 2008.

Customer Service

We provide the following steps as a service guide for any problems: First, visit the website of our distributor to find the update information on the product. Second, contact 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
- Peripheral attachments
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

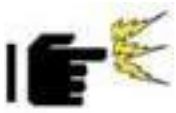
In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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.

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.

Safety Precautions

- Please read these safety instructions carefully.
- Please keep this user's manual for later reference.
- Please disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- Do not touch the LCD panel surface with sharp or hard objects.
- For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- Keep this equipment away from humidity.
- Place this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- All cautions and warnings on the equipment should be noted.
- If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- Never pour any liquid into an opening. This could cause fire or electrical shock.
- Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.

- If any of the following situations arises, get the equipment checked by service personnel:
  - ❒ The power cord or plug is damaged.
  - ❒ Liquid has penetrated into the equipment.
  - ❒ The equipment has been exposed to moisture.
  - ❒ The equipment does not work well, or you cannot get it to work according to the user's manual.
  - ❒ The equipment has been dropped and damaged.
  - ❒ The equipment has obvious signs of breakage.
- Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20°C (-4°F) or above 40°C (104°F). It may damage the equipment.
- **Caution** – Use recommended mounting apparatus to avoid risk of injury.
- **WARNING** – Only use the connection cords which comes along with the product, when in doubt, please contact the manufacturer.
- Provision shall be made to provide transient protection device to be set at a level not exceeding 140% of the rated voltage at the power supply terminals of the apparatus.
- **WARNING** – Explosion Hazard – Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- **WARNING** – Explosion Hazard – Substitution of components may impairsuitability for Class I, Division 2.
- **WARNING** – The equipment should be adequately protected from direct light when installed indoor or outdoor.

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INTRODUCTION

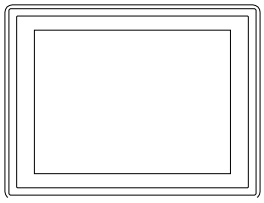
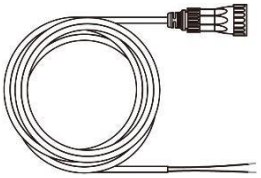
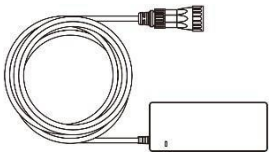
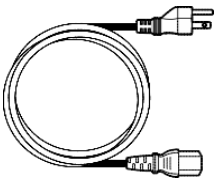
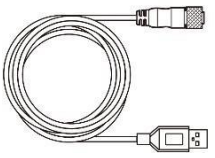
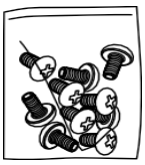
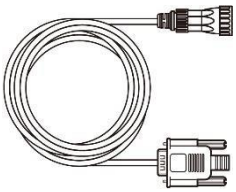
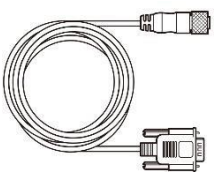
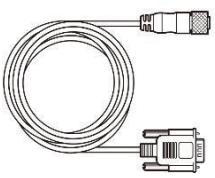
R15L600-65EX is a stainless display with a set of features designed to withstand industrial use in hazardous locations and extreme temperatures while providing high tech solutions that increase productivity, improve safety, and reduce operational costs. The display comes with the option of either a 5-Wire Resistive touchscreen or a projected Capacitive touchscreen.

Features

- Class 1, Division 2 & ATEX Zone 2 device certified for hazardous area application
- Designed with NEMA 4 (IP65) dust poof and water protection
- Rated for wide temperature use of -20˚ to 50˚C (-4° to 122° F)
- Robust and fanless design for reliable operation
- Fanless Cooling System and Ultra Low power consumption
- ELO 5W Resistive Touch or Projected Capacitive Touch (R15L600-65EX)
- 15" 1024 x 768, 550 nits (Optional 1000 nits) LCD Panel

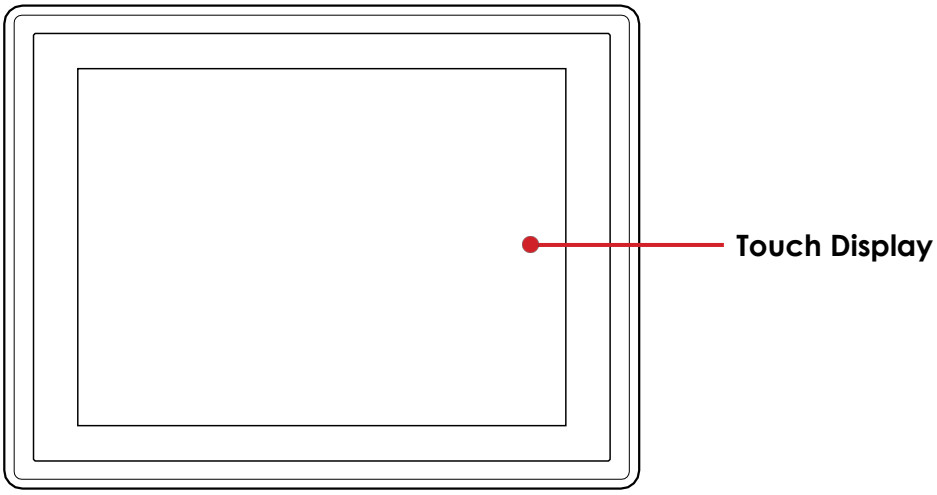
Package Contents

Before using this Display, please make sure that all the items listed below are present in your package:

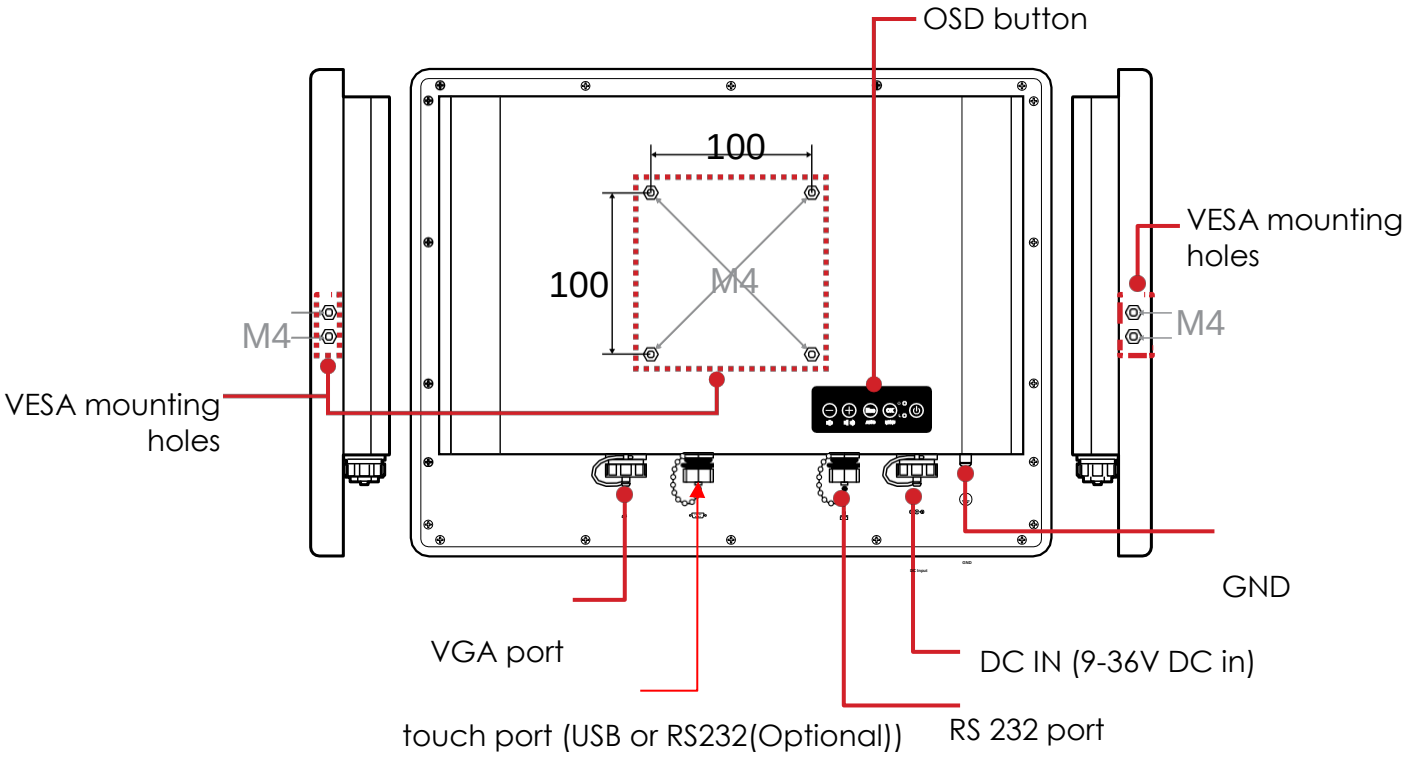
				
Display	**DC Power Cable**	**Power Adapter**	**Power Cord**	**USB for Touch**
				
VESA mounting screws	**VGA Cable**	**RS-232 Cable (For Remote Control)**	**Optional RS-232 Cable (For Touch)**	

Product Overview

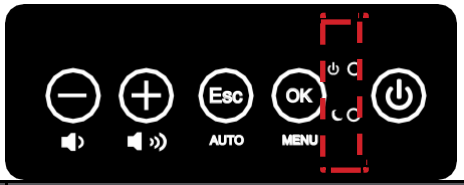
Front View



Side and Rear Views



LED Indicators



LED Type	Status	Description
Power (⏻)	On	Power is on.
	Off	Power is off.

OSD User Controls

The Compact OSD control button is a user friendly interface to remote the display function and dimming VR knob. The OSD button consists several functions that allow user to adjust or set up the display to their preferred setting. It also has hotkey function by clicking two keys simultaneously for easy flipping image and adjusting color balance

Source function

When OSD **Menu** is enabled, press ⊕ to enable input sources of the main display.

BRICONTRAST
Press "+" to increase or "-" to decrease the brightness or contrast.
- *BRIGHTNESS* : Use to adjust the screen brightness
- *CONTRAST* : use to adjust the screen contrast

POSITION
User can adjust the screen's position by Horizontal or vertical manually
- *H-POSITION*: Use to adjust the image to the left or right on the screen
- *V-POSITION*: Use to adjust the image up or down on the screen

IMAGE
User can adjust the value of screen quality
- *AUTO* : Use to choose the best settings for the current input signal
- *CLOCK* : Use to adjust the value of horizontal image
- *PHASE* : Use to adjust the phase control (phase adjustment may be required to optimize the display quality)
- *WHITE BALANCE* : Use to set RGB signal voltage level

COLOR

User can select the screen's color level of the white color field from the default color temp. settings. User can also fine tune the color temp. by USER Option if needed.

- *USER* : Select RED/GREEN/BLUE to set value of color temperature brightness to suit user's preference
- *9300K* : Use to set value of monitor for the CIE coordinate 9300 color temperature
- *6500K* : Use to set value of monitor for the CIE coordinate 6500 color temperature
- *ADC Brightness* : Set value of monitor for ADC Brightness

AUDIO (Optional)

User can adjust the setting of speaker, including volume and mute

- *VOLUME ADJUST* : Use to adjust the volume of speaker
- *SPEAK ON/OFF* : Use to make the speaker work or mute

CHANNEL

User can switch the setting of signal input channel

- ANALOG : Use to change the input signal to analog mode
- DVI : Use to change the input signal to DVI mode
- OPS :Use to change the input signal to Slot module

RECALL

User can recall the factory default setting by selecting "YES". Select "NO" to return to main menu

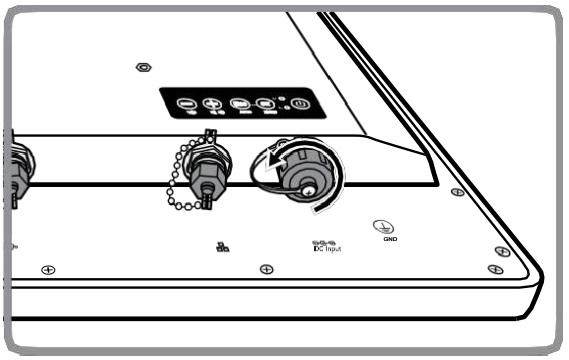
OSD EXIT

User can exit the OSD Menu by selecting "YES". Select "NO" to return to main menu

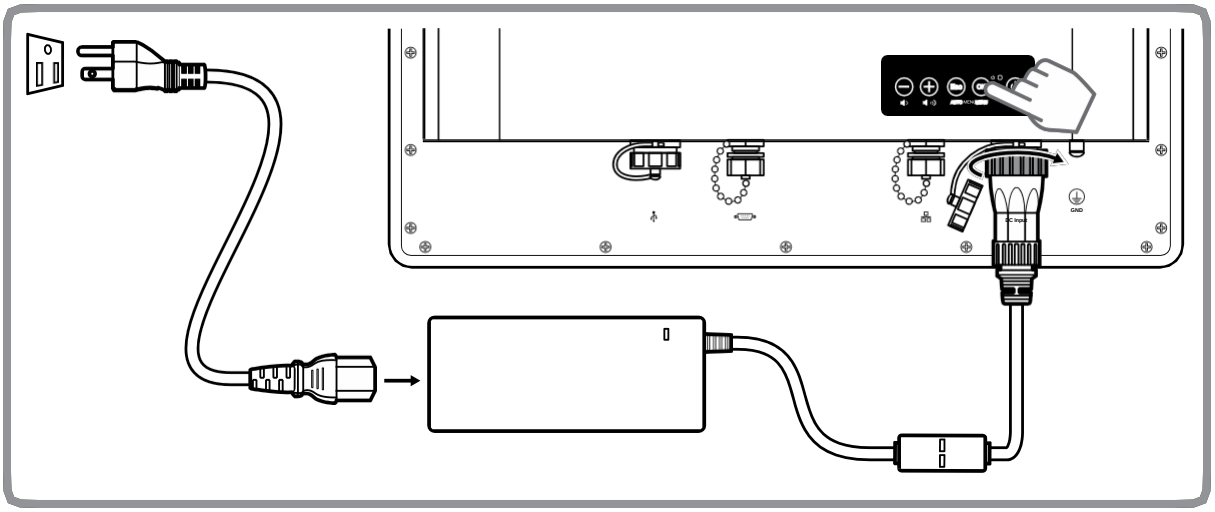
GETTING STARTED

Turning on Your Device

1. Remove the protective cap of the DC IN jack.



2. Plug the AC adapter to the DC-in jack of your device. Make sure the cable fits to the connector, then tighten the O-ring (by turning it clockwise) to secure the connection.



3. Connect the AC adapter to the power cord.
4. Plug the power cord to an electrical outlet.
5. Plug the **Power** button to turn on the device.

Note

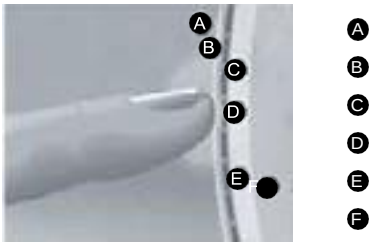
- When the system hangs, press the **Reset** button to restart the device.

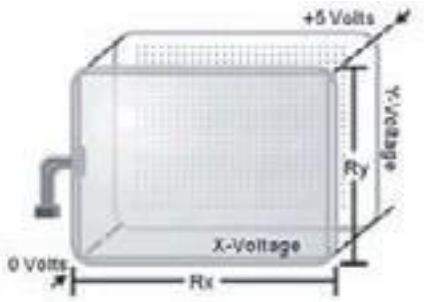
Calibrating Touch Screen

When turning on the device for the first time, it is highly recommended to calibrate the touch screen to ensure touch accuracy. Winmate offers the option of either Five-wire resistive touchscreens or Projected Capacitive Touchscreens for this product.

Five-wire resistive touchscreen

The five-wire resistive touchscreens use a glass panel with a uniform resistive coating. A thick polyester coversheet is tightly suspended over the top of the glass, separated by small, transparent insulating dots. The coversheet has a hard, durable coating on the outer side and a conductive coating on the inner side.





When the screen is touched, the conductive coating makes electrical contact with the coating on the glass. The voltages produced are the analog representation of the position touched. The controller digitizes these voltages and transmits them to the computer for processing. The five-wire technology utilizes the bottom substrate for both X and Y-axis measurements. The flexible coversheet acts only as a voltage-measuring probe. This means the touchscreen will continue working properly even with non-uniformity in the cover sheet's conductive coating. The result is an accurate, durable and reliable touchscreen that offers drift free operation. The touchscreens are sealed against contamination and moisture. The coversheet is sealed to the glass substrate with an industrial grade caulk. This prevents wicking of fluid between the coversheet and glass. Also, the touchscreens are not air vented, thereby preventing fluid ingress through an air vent.

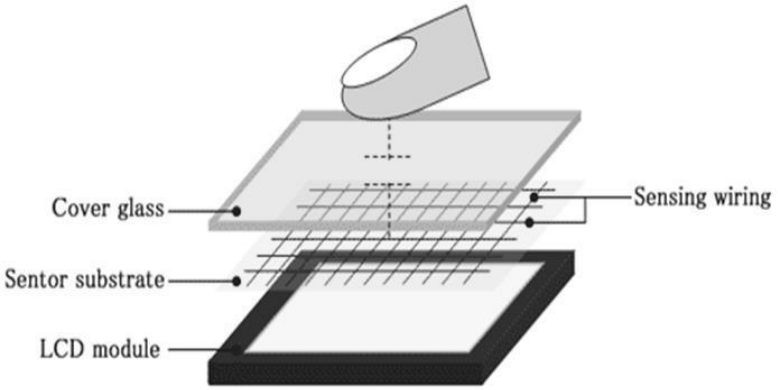
Brief Specifications

Subject	Details
Input Method	Finger, gloved hand, or stylus activation
Positional Accuracy	Standard deviation error is less than 0.080 (2 mm)
Resolution	Touch point density is based on controller resolution of 4096 x 4096
Touch Activation Force	Typically less than 4 ounces (113 grams)
Light Transmission	HL products: 80% +/–5% at 550 nm wavelength Enhanced products: 60% +/–5% at 550 nm wavelength

Update touch-screen driver or new information. Go to www.elotouch.com.

Projected Capacitive Touch Screen

Projected Capacitive Touch (PCAP) technology is a variant of capacitive touch technology. All PCAP touch screens are made up of a matrix of rows and columns of conductive material, layered on sheets of glass. Projected capacitive technology enables touches to be sensed through a protective layer in front of a display, allowing touch monitors to be installed behind store windows or vandal-resistant glass. In addition, the surface material is glass, which is scratch-resistant, durable, and reliable in harsh environments.



The operational theory of a PCAP touch screen begins with two patterned Indium Tin Oxide (ITO) layers under a glass substrate cover which create a X-axis and Y-axis electric field. These electric fields project above the glass surface between adjacent ITO traces. When a finger approaches the glass surface, a new balance in the electric field will be established between the finger and the corresponding X-axis and Y-axis. The controller IC will locate the ITO traces exhibiting capacitance changes to pinpoint the finger touch accurately.

Brief Specifications

Subject	Details
Input Method	Finger, gloved hand
Positional Accuracy	<1.5% of reported position in recommended viewing area.
Resolution	Touch point density is based on controller resolution of 4096 x 4096
Touch Activation Force	No minimum touch activation force is required
Light Transmission	Up to 90% per ASTM D1003-92

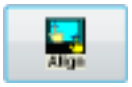
Elo Touch Correction

Winmate ELO Touch driver software provides a consistent software interface among all ELO touch screens and controllers.

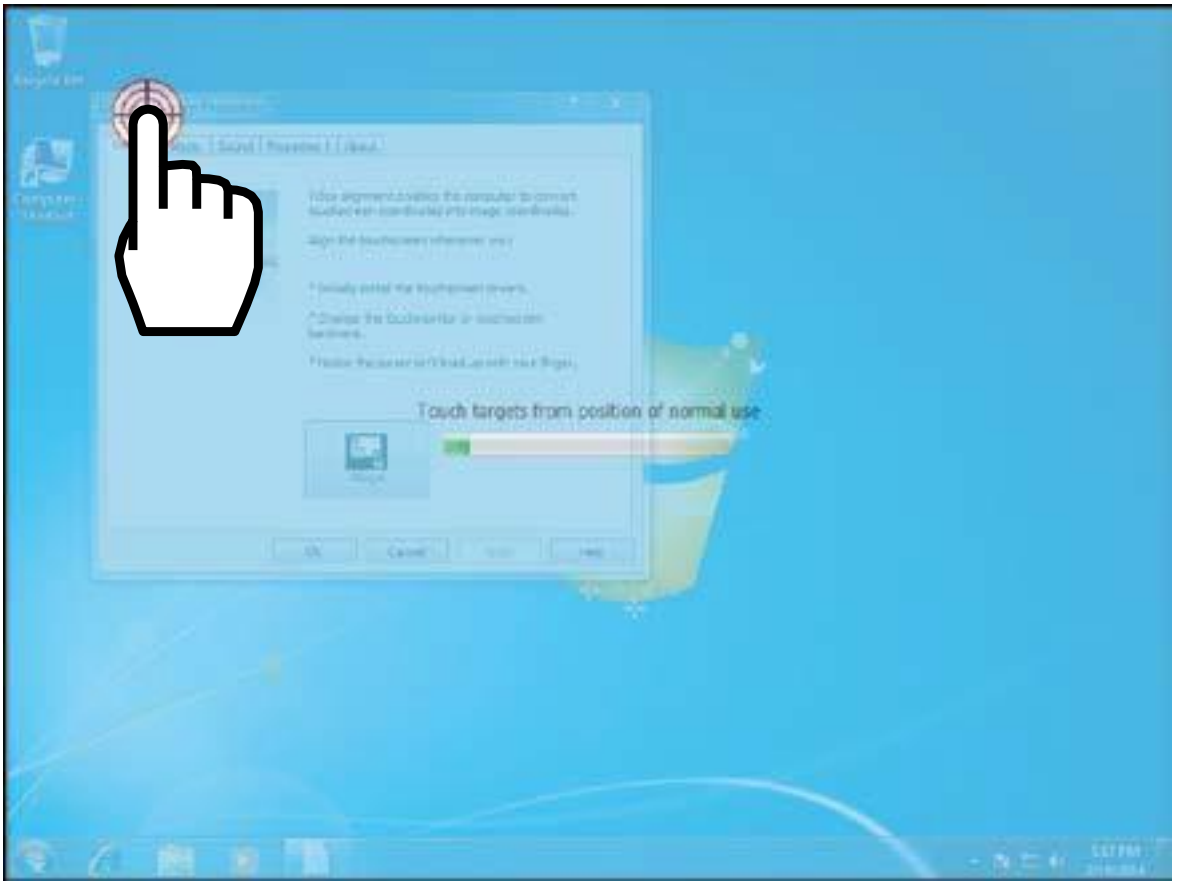
Go to http://support.elotouch.com/Download/Drivers/DriverDownload/Default.aspx for a complete list of available supports.

After the driver installation is complete, do the following to perform touch screen calibration.

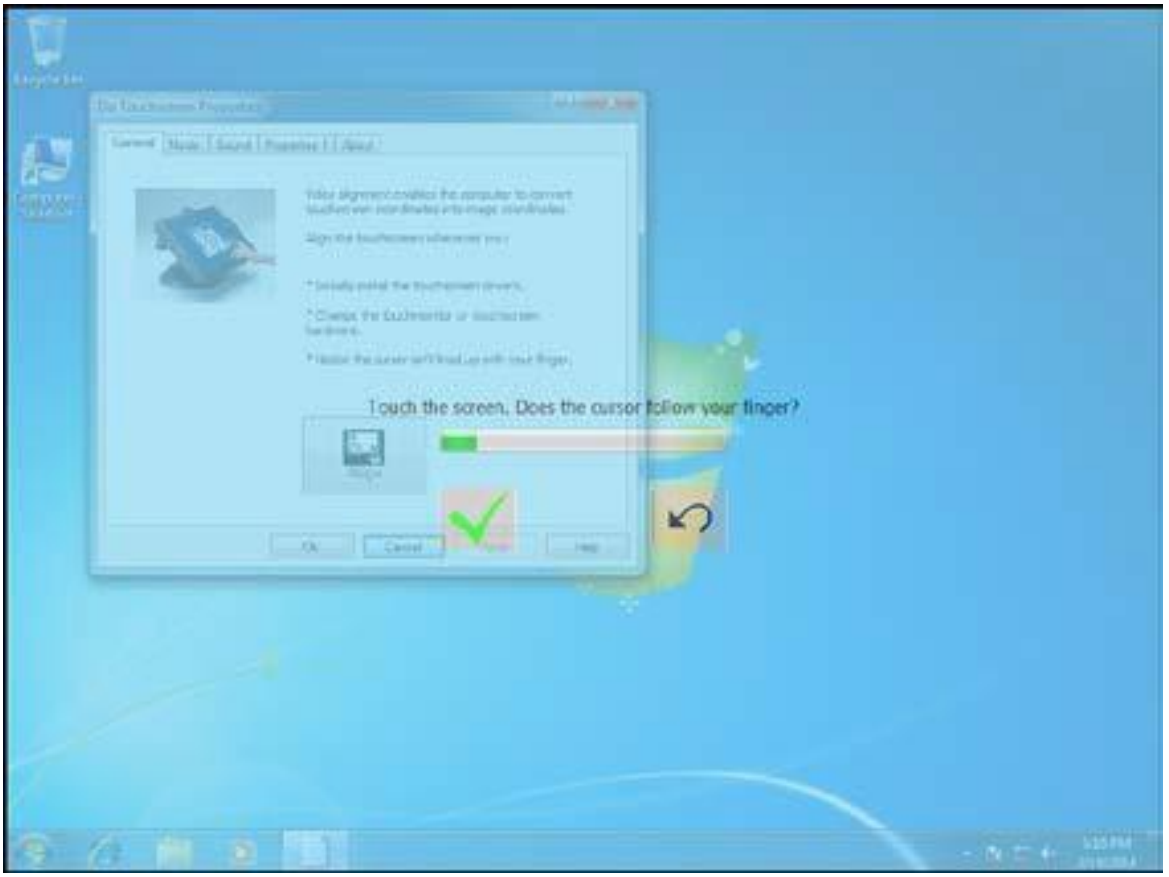
1. Tap the arrow on the system tray to display the hidden icons.
2. Double-tap the icon to display the Elo Touchscreen menu.

3. Double-tap the  icon to proceed to next step.

3. Follow the on-screen instructions to calibrate the touch screen.



4. Tap the ✓ icon if the cursor follows your finger to finish and exit the calibration utility.



INSTALLATION

Wiring Requirements

The following common safety precautions should be observed before installing any electronic device:

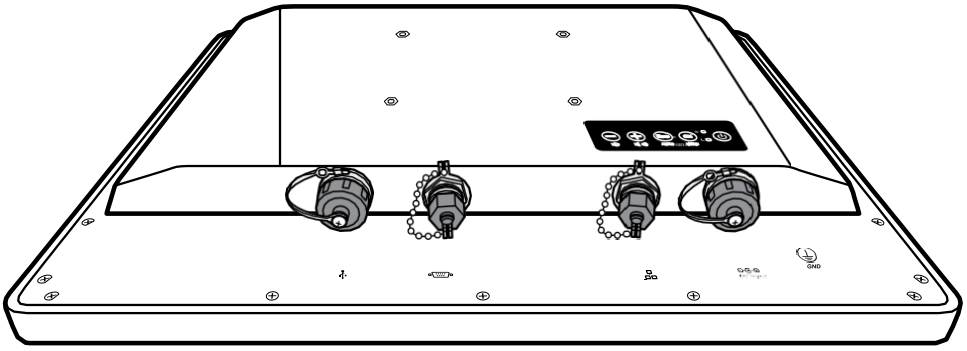
- Strive to use separate, non-intersecting paths to route power and networking wires. If power wiring and device wiring paths must cross make sure the wires are perpendicular at the intersection point.
- Keep the wires separated according to interface. The rule of thumb is that wiring that shares similar electrical characteristics may be bundled together.
- Do not bundle input wiring with output wiring. Keep them separate.
- When necessary, it is strongly advised that you label wiring to all devices in the system.

ATTENTION

- Do not run signal or communication wiring and power wiring in the same conduit. To avoid interference, wires with different signal characteristics (i.e., different interfaces) should be routed separately.
- Be sure to disconnect the power cord before installing and/or wiring your device.
- Verify the maximum possible current for each wire gauge, especially for the power cords. Observe all electrical codes dictating the maximum current allowable for each wire gauge.
- If the current goes above the maximum ratings (80 W), the wiring could overheat, causing serious damage to your equipment.
- Be careful when handling the unit. When the unit is plugged in, the internal components generate a lot of heat which may leave the outer casing too hot to touch.

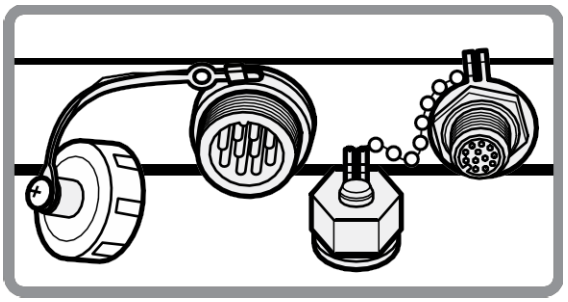
Connecting the Interface

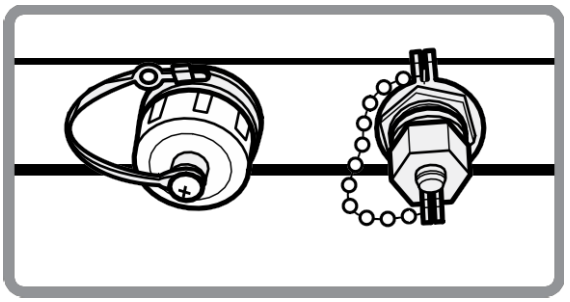
This Display comes with various interfaces located on the bottom panel. All of these connectors have been shipped with protective caps and tethers. If you wish to detach the tethers, the screws securing them to the bottom panel will need to be removed. To ensure the waterproof function can work properly, make sure that the protective caps and the tethers have been securely fastened whenever the connectors are not used.



IMPORTANT

Please note that when reinstalling the protective cap, it must be fully tightened to ensure the unit is properly sealed to meet the IP65 enclosure rating.

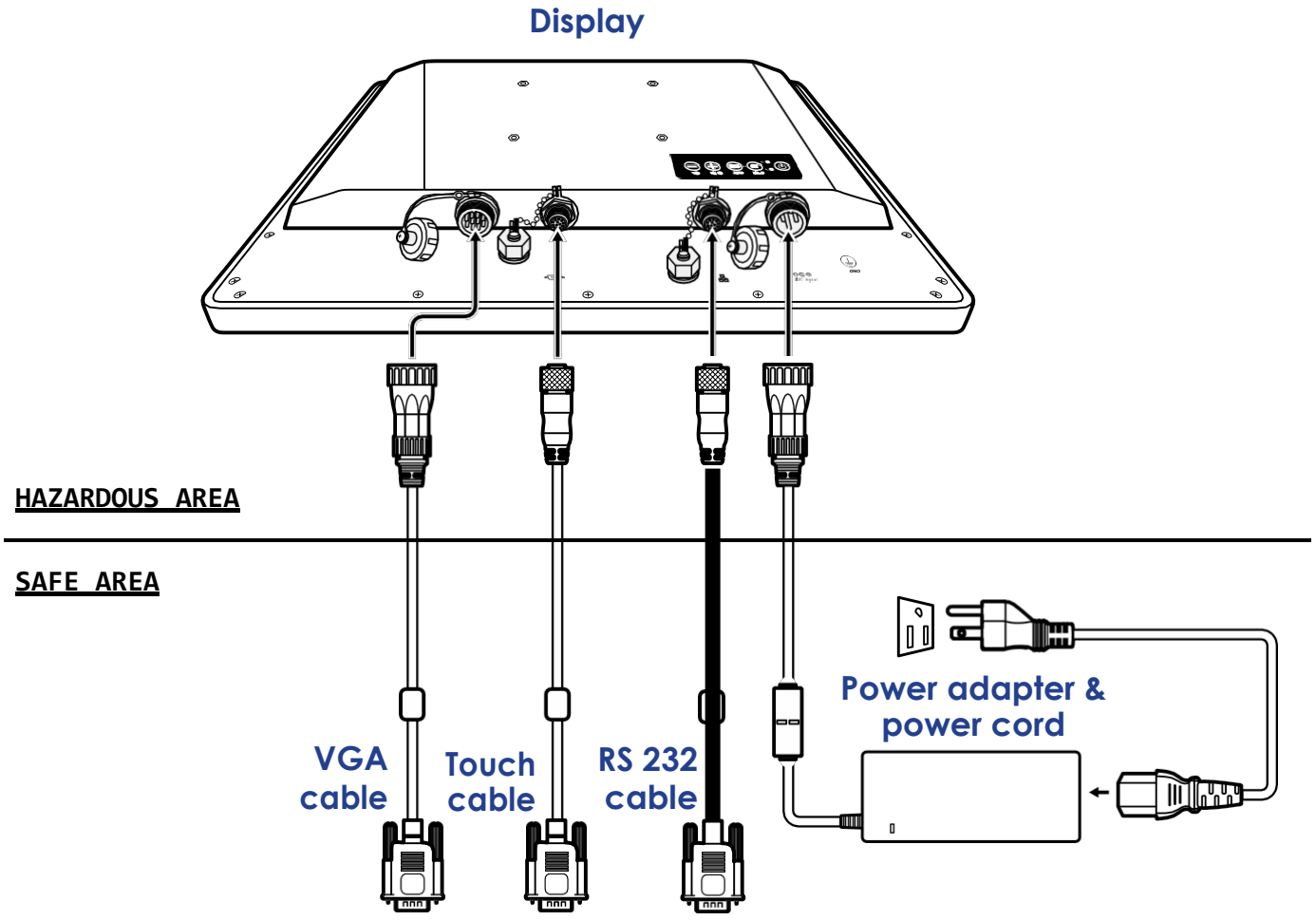




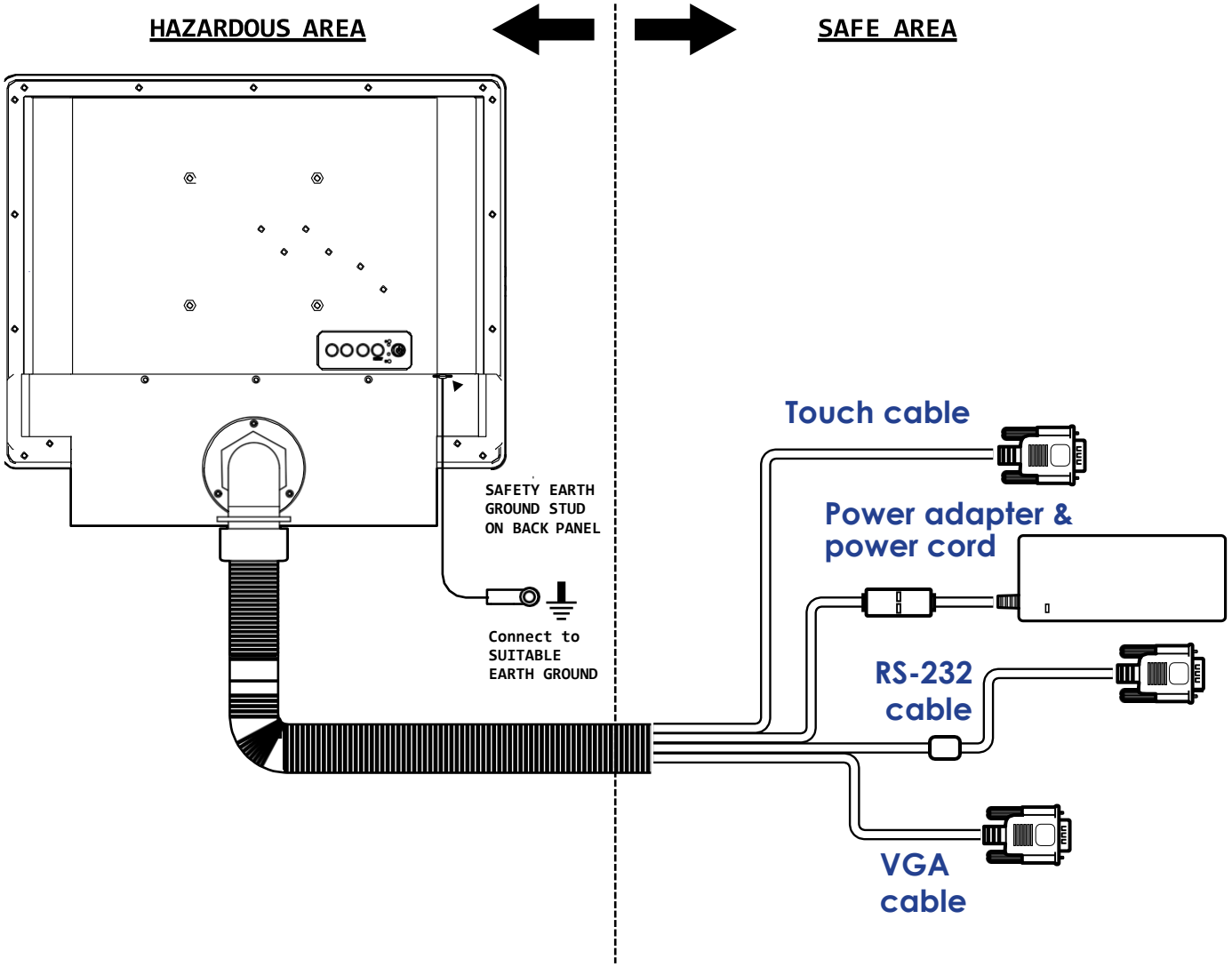
Connecting to Other Devices

Perform the connections as shown below.

Class I, Division 2

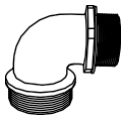


ATEX


HAZARDOUS AREA
SAFE AREA
SAFETY EARTH
GROUND STUD
ON BACK PANEL
Connect to
SUITABLE
EARTH GROUND
Touch cable
Power adapter &
power cord
RS-232
cable
VGA
cable

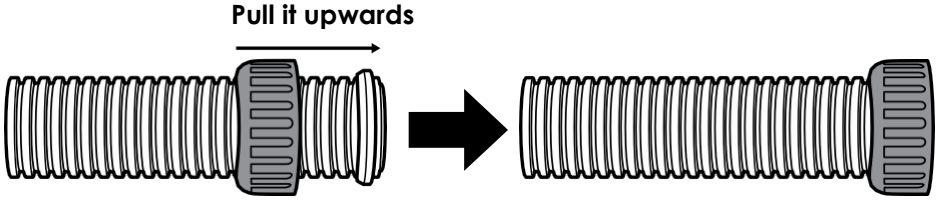
How to install the Pipe

Before you start installing the pipe, be sure that you have the following components:

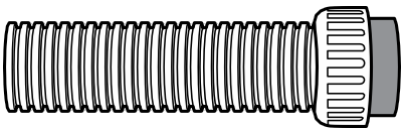
	Slip Nut To secure "L" fitting adaptors.
	Stopper Plugs To close unused cable entry holes in explosion protected equipment.
	O-Ring Rubber / Gasket To maintain the IP Rating between equipment and cable.
	Conversion reducers To convert thread forms and size between equipment and cable entry devices.
	Locknuts To secure adaptors / reducers, and stopper plugs into equipment.
	**Threaded 90-degree bends** To protect cables when installed in confined spaces where the cable may be bending. This threaded 90-degree bends are available with male connection threads.

To install the pipe, perform the following:

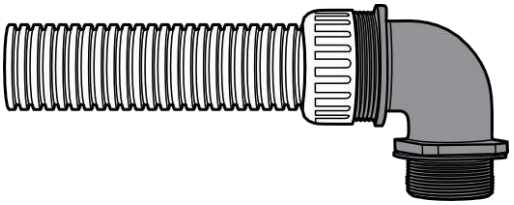
1. Insert the slip nut followed by the O-ring rubber/ gasket into the tube.
2. Adjust the location of O-ring rubber and pull the slip nut into the O-ringrubber and tighten up to ensure the waterproof seal.



3. Install the conversion reducers.



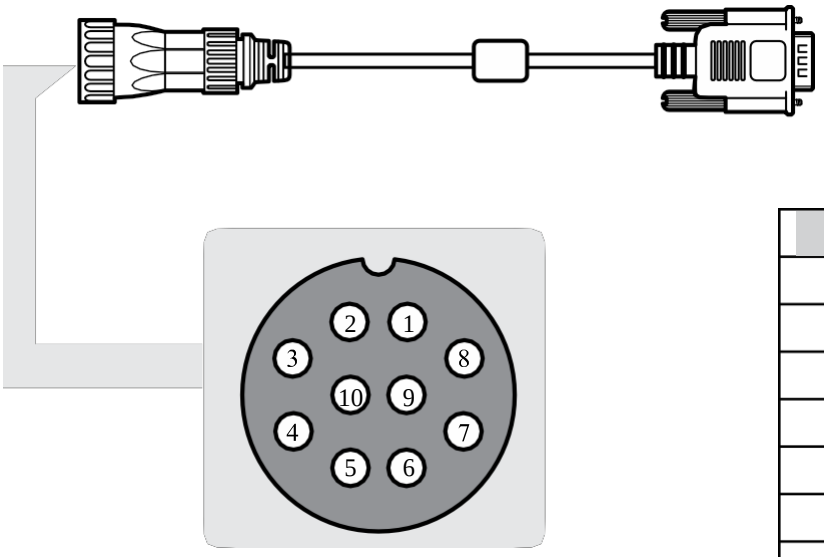
4. Place the threaded 90-degree bends into the slip nut and then fasten it.



Connector Pin Assignments

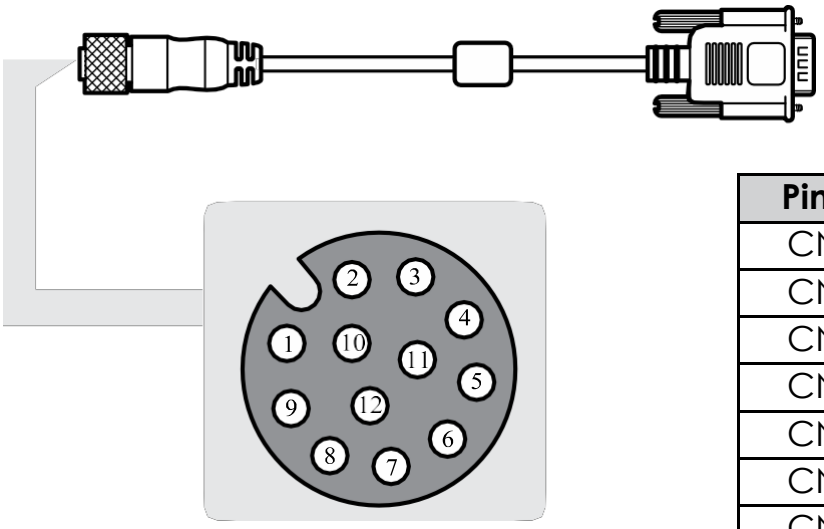
This Display is equipped with four connectors which are IP65 level and fool-proofing design. Use only the cables that are included in the package. The pin assignments of the cables are as follows:

VGA cable



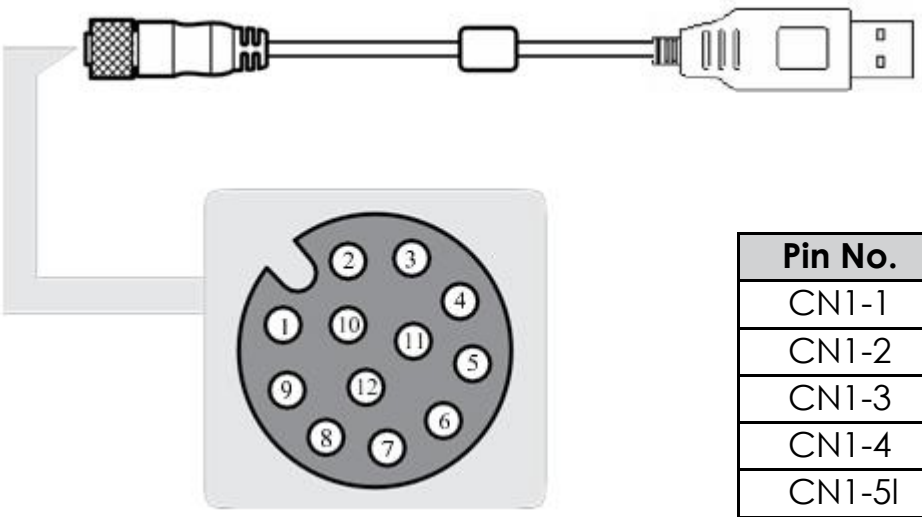
Pin No.	Symbols	Color
CN2-1	R	RED
CN2-6	R-GND	BLACK
CN2-2	G	GREEN
CN2-7	G-GND	BLACK
CN2-3	B	BLUE
CN2-8	B-GND	BLACK
CN2-12	SDA	YELLOW
CN2-13	HS	ORANGE
CN2-14	VS	WHITE
CN2-15	SCL	BROWN

RS-232 cable (Remote Control)



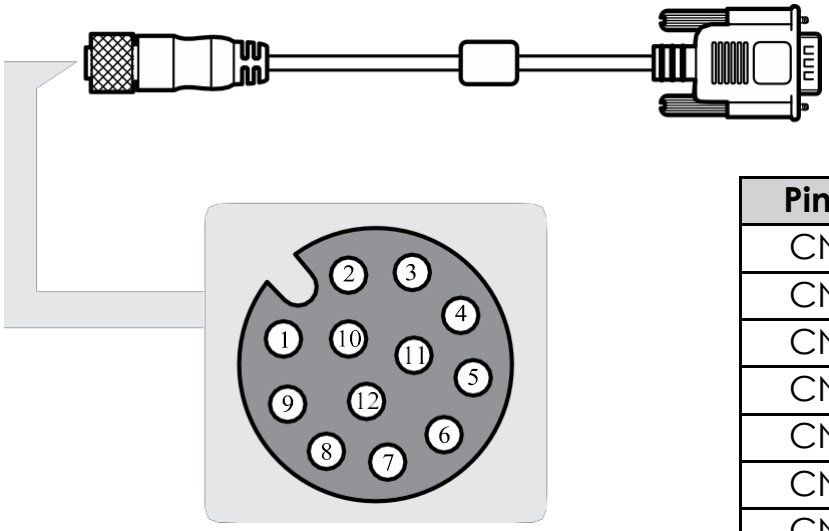
Pin No.	Symbols	Color
CN2-1	DCD-CON2	Green
CN2-2	DSR-CON2	Brown
CN2-3	RXD-CON2	Red
CN2-4	RTS-CON2	Orange
CN2-5	TXD-CON2	Blue
CN2-6	CTS-CON2	White
CN2-7	DTR-CON2	Purple
CN2-8	RI-CON2	Yellow
CN2-9	GND-CON2	Black

Touch cable (USB Interface.)



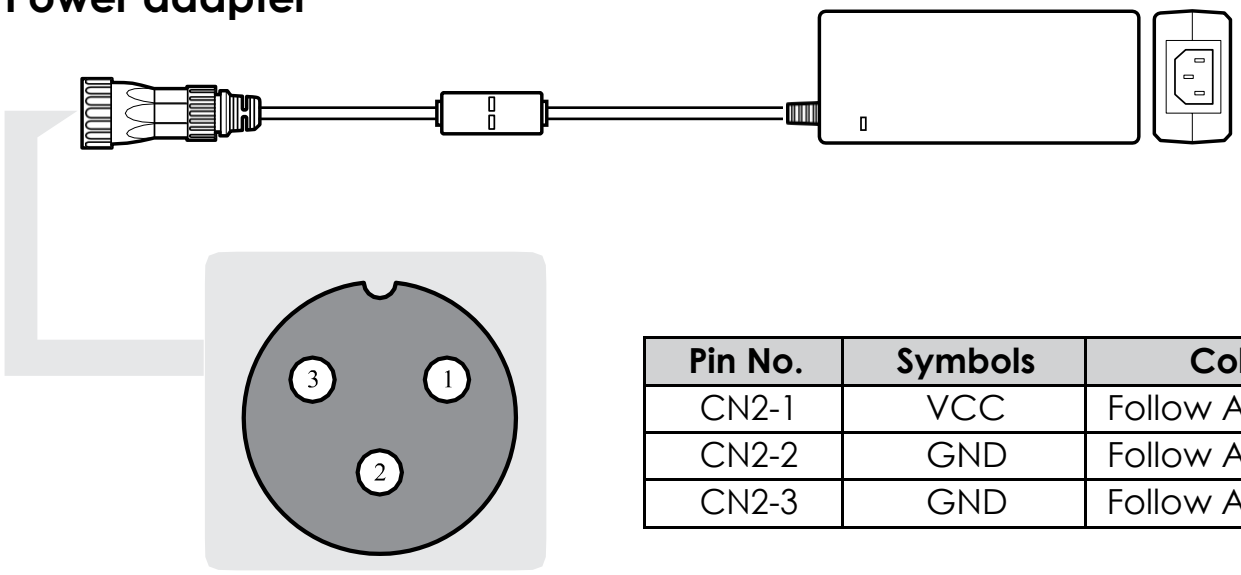
Pin No.	Symbols	Color
CN1-1	VCC	Red
CN1-2	VCC	Red
CN1-3	D-	White
CN1-4	D-	White
CN1-5l	D+	Green
CN1-6	D+	Green
CN1-7	GND	Black
CN1-8	GND	Black
CN1-9	Braid	

Touch cable (RS232 Interface. Optional)



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

Power adapter

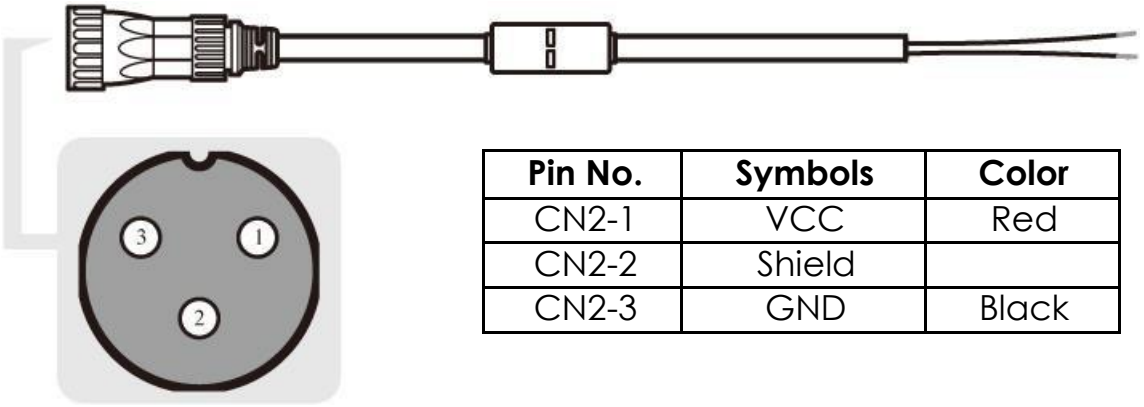


Pin No.	Symbols	Color
CN2-1	VCC	Follow Adapter
CN2-2	GND	Follow Adapter
CN2-3	GND	Follow Adapter

Note

- This adapter was certified by UL, CUL TUV/GS CE, FCC, BSMI, EK, DOIR+C-TICK, CCC, PSE.

DC Power Cable



Pin No.	Symbols	Color
CN2-1	VCC	Red
CN2-2	Shield	
CN2-3	GND	Black

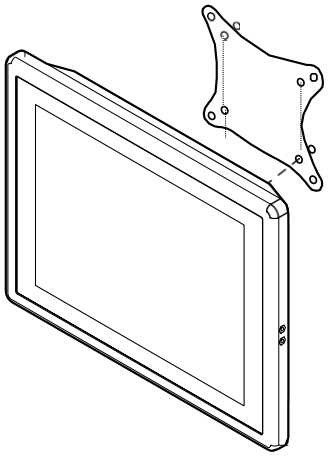
WARNING

Ensure that the external power source is OFF before connecting or disconnecting the DC IN jack.

Mounting Solution

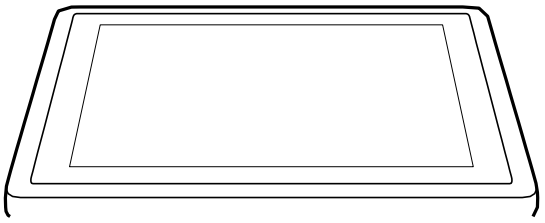
VESA Mount

- **Dimensions**: 100 x 100mm
- **Screw Hole Diameter**: M4 x 5 mm
- **Direction**:
  Compatible with swimming arms mounting kits.

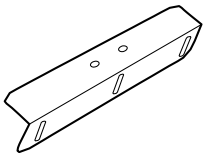


Rear Mount

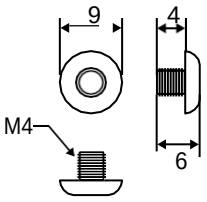
Before you start installing the rear mount, be sure that you have the following components:



15" Stainless Steel LCD



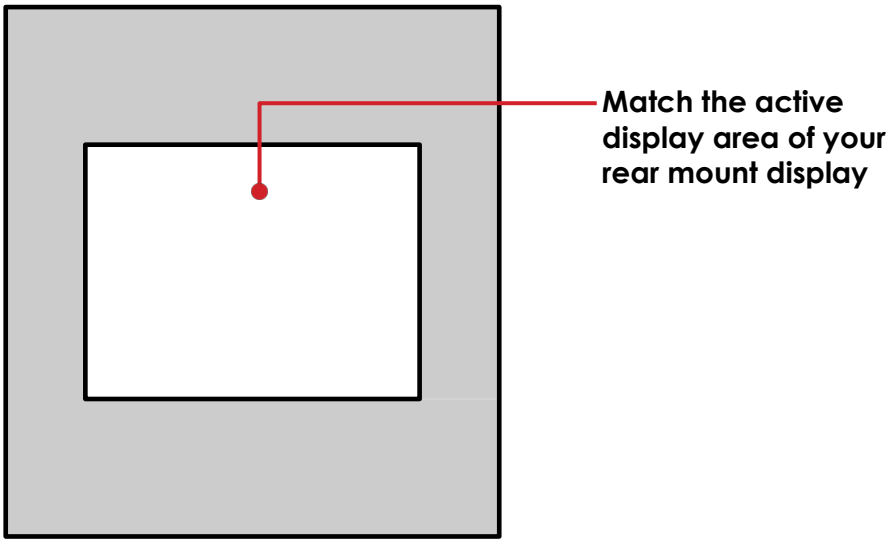
2 x Bracket



M4, 4mm Screws

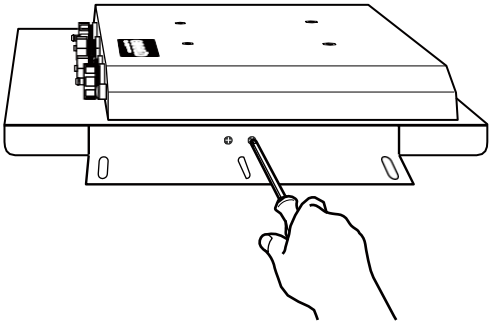
To install the rear mount, perform the following:

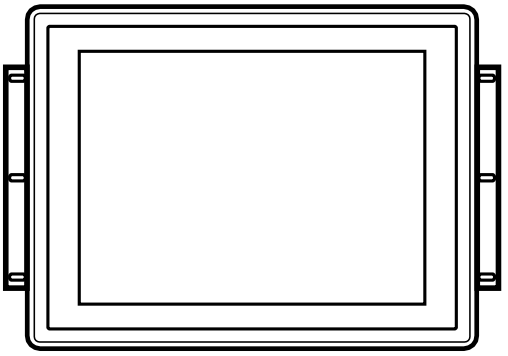
1. Prepare a customized fixture for 15" panel pc/display.



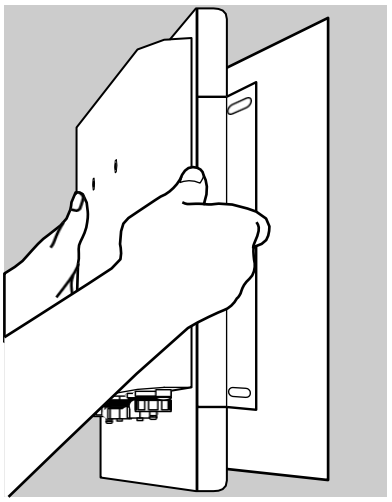
Stainless Flat Touch Series User's Manual

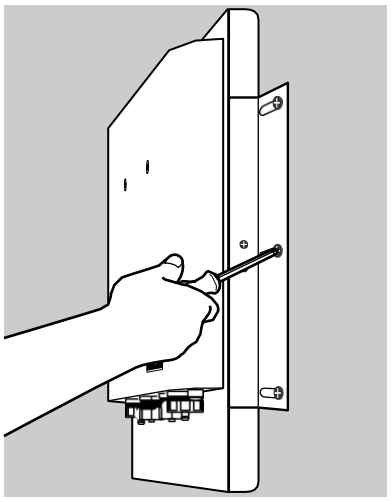
2. Screw the brackets on both sides of your device.



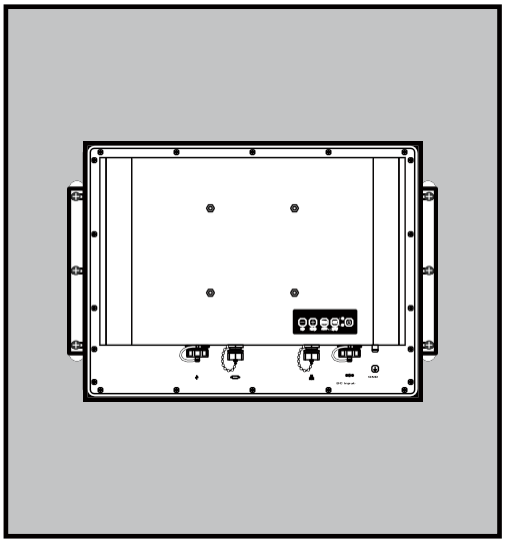


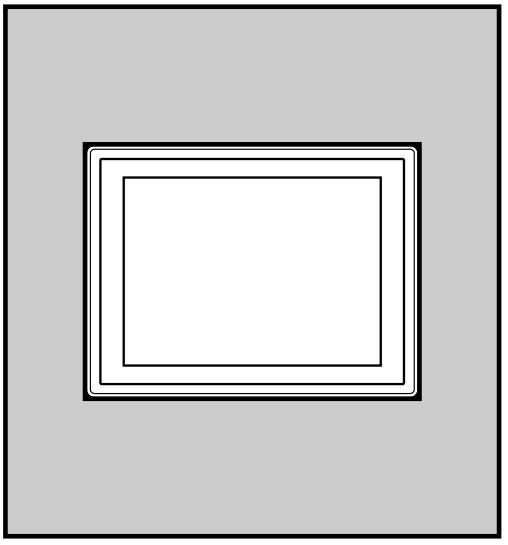
3. Secure the display from the back side first, so the outer frame can be fully covered to ensure the safety of your display.





4. Make sure your screws are tight and on the right position.





SPECIFICATIONS

Hardware Specifications - R15L600-65EX Display

Item	Specifications
Display	
Panel Size	15-inch 1024 x 768, 8-550 nit, optional 1000 nit LED backlight LCD
Contrast Ratio	700:1
Response Time	8ms
Viewing Angles	• Horizontal: 160 degree (left to right) • Vertical: 140 degree (up to down)
Max Colors	16.2M, 8-bits
Touch (options)	5-Wire Resistive Touch (Explosion Proof)/ Projected Capacitive Touch
Power Requirements	
Input Voltage	9-36V DC with isolation protection
Power Consumption	20W
Physical Characteristics	
Housing	Stainless steel
Dimensions	396 x 310 x 49mm (W x H x D)
Mounting	Mounting hole for VESA 100 x 100
Gross Weight	11 kg (24.25 lbs)
Net Weight	11.5 kg (25.35 lbs)
Environment Limits	
Operating Temperature	-20°C to 50°C (-4° to 122° F)
Ambient Relative Humidity	10% to 95% RH, non-condensing
Anti-Shock	MIL-STD-810F/G Method 516.6
Anti-Drop	MIL-STD-810F/G Method 516.6
Anti-Vibration	MIL-STD-810F/G Method 514.6
Standard and Certification	
Safety	FCC, CE, UL60950-1, CSA C22.2 No. 60950-1-07, EN60950-1, IEC60950-1

Hazardous Environments	• UL Class I, Div.2, Groups ABCD T4 • ANSI/ISA12.12.01 • CAN/CSA C22.2 No.213-M1987 • ATEX Zone 2 EX II 3 G Ex ic nA IIC Gc
Accessories:	
1 x DC Power Cable 1 x Power Adapter to IP65 Connector 1 x RS232 Remote Control Cable (M12, rated IP65) 1 x RS232 for Touch Cable (M12, rated IP65. Optional) 1 x USB for Touch Cable (M12, rated IP65) 1 x VGA Cable (M21, rated IP65) VESA Mounting Screws	

APPENDIX

Appendix A: Cleaning the Monitor

Before cleaning:

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

When cleaning:

- Never spray or pour any liquid directly on the screen or case.
- 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 water or oil directly on the display screen. If droplets are allowed to drop on the screen, permanent staining or discoloration may occur.

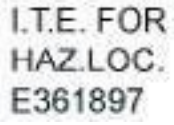
Appendix B: Statement of Regulatory Approval

Refer the following descriptions for various approvals and certifications.

N. A. Safety for Information Technology Equipment

Certification by Underwriter's Laboratories to UL60950-1, 2nd Edition standard and equivalent CSA C22.2 No 60950-1-07, 2nd Edition Standard

N. A. Safety for Hazardous Locations Class I, Div. 2, Groups A, B, C, D



Certification by Underwriter's Laboratories to ANSI/ISA-12.12.01 -2012 standard and equivalent CAN/CSA C22.2 No 213-M1987 Standard

Explosive Atmospheres Directive

Certification with ATEX Directive 94/9/EC; Independent 3rd party assessment (Notified Body: DEMKO)

Low Voltage Directive European Safety for Industrial Control Equipment

Self-Declaration in accordance with European LVD Directive 2006/95/EC; Independent 3rd party assessment (Accredited by IEC 17025)

Electromagnetic Compatibility Directive European EMC for Industrial Control Equipment

Self-Declaration in accordance with EMC Directive 2004/108/EC; Independent 3rd party assessment (Accredited by IEC 17025)