ZX Series OCS
Controller Datasheet
for
HE-ZX452, HE-ZX752 and HE-ZX1152

| Specifications		
HE-ZX452	**HE-ZX752**	**HE-ZX1152**
Required Power (Steady state)		
3.0 A @ 24VDC	2.75A @ 24VDC	2.75A @ 24VDC
Primary Power Range	10 – 30 VDC	
Relative Humidity	30 to 90% Non-condensing	
Clock Accuracy	+/- 3 min / month	
Operating Temp	0°C to +45°C	
Storage Temp	-20°C to +60°C	
Display Type	7" WVGA TFT (800 nit typical)	15" XGA TFT (350 nit typical)	22" 1080p TFT (300 nit typical)
Aspect Ratio	15:9	4:3	16:9
Screen Resolutions	800x480	1024x768	1920 x 1080
Ladder Memory	1 MB	1 MB	1 MB
Display Memory	130 MB	130 MB	130 MB
Display Life	50,000 hours @ 25°C	
User Keys	5 virtual function keys	7 virtual function keys	7 virtual function keys
Screens supported	1023	
Colours	65536	
Weight	3lb 1oz (1.39Kg)	11lb 9oz (5.25Kg)	18lb 3oz (8.25Kg)
CE / UL		
Connectivity		
Serial	2 Ports 1 - RS232 & 1 - RS485	3 Ports 2 - RS232 & 1 - RS485	3 Ports 2 - RS232 & 1 - RS485
Ethernet	2 - 10/100/1000 Mbit	
USB Port	2 - USB 2.0	4 - USB 2.0.	4 – 2 USB 2.0
Removable Media	2 - USB 2.0 Based Drives.	
CAN	Max 2 Ports (one reserved for future expansion).	
Remote I/O	SmartRail (recommended), SmartStix, SmartBlock or SmartMod.	
Video	VGA Video Out for Mirrored Display.	
Audio	Mic, Line IN, Line Out (Not Active with Current Firmware).	

2   Installation

1. <u>Prior</u> to mounting, observe requirements for the panel layout design and spacing/clearances in the OCS ZX Series Manual (MAN0xxx).

2. Cut the host panel.

3. Insert the OCS into the panel cutout (from the front). The gasket material needs to be between the host panel and the OCS.

> **Caution: Do <u>not</u> force the OCS into the panel cutout. An incorrectly sized panel cutout can damage the touch screen.**

4. Install and tighten the mounting clips (provided with the OCS) until the gasket material forms a tight seal.

5. Connect cables as needed such as communications, programming, power and CsCAN cables to the ports using the provided connectors.

6. Begin configuration procedures.

Note: The ZX1152 and ZX752 also supports standard VESA 75x75 or 100x100 mounting for wall or arm mounting. The ZX452 supports the VESA 75x75 mounting pattern. 4mm screws should be used and are typically supplied with the mount. Do not allow the screws to exceed a depth of 10mm into the unit.
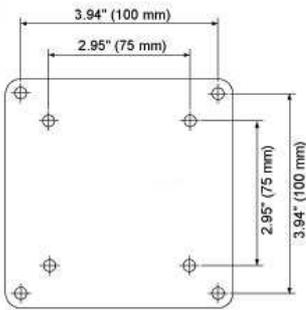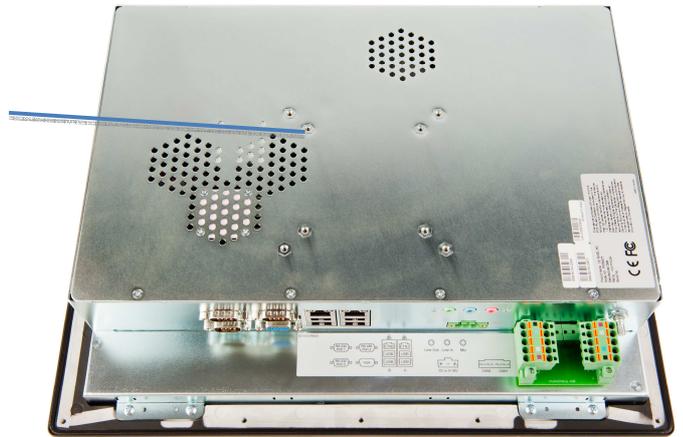

3.1   Panel Cut-Out and Dimensions for HE-ZX1152 (22")

13.74" (349mm)

3.86" (98mm)

21.02" (534mm)

Note: Max. panel thickness: 5 mm.

Refer to the User Manual (MAN0883) for panel box information and a checklist of requirements.

Cut Out

11.81" (300mm)

19.84" (504mm)

Note: The tolerance to meet NEMA standards is ± 0.005" (0.1 mm).

3.2   Panel Cut-Out and Dimensions for HE-ZX752 (15")

12.60"
(320mm)

10.75"
(273mm)

Cut Out

15.75"
(400mm)

14.49" (368.0 mm)

3.15"
(80mm)

Note: Max. panel thickness: 5 mm.

Refer to the User Manual (MAN0883) for panel box information and a checklist of requirements.

Note: The tolerance to meet NEMA standards is ± 0.005" (0.1 mm).

3.3   Panel Cut-Out and Dimensions for HE-ZX452 (7")

6.50"
(165mm)

5.24"
(133mm)

Cut Out

8.58"
(218mm)

7.52" (191.0 mm)

2.19"
(55.5mm)

Note: Max. panel thickness: 5 mm.

Refer to the User Manual (MAN0883) for panel box information and a checklist of requirements.

Note: The tolerance to meet NEMA standards is ± 0.005" (0.1 mm).

4   Connectors and Ports

4.1 ZX1152 Connectors and Ports
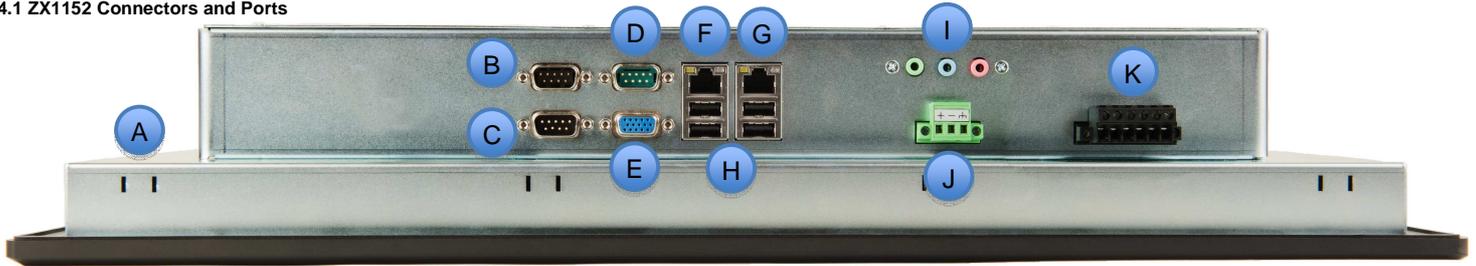
4.2 ZX752 Connectors and Ports
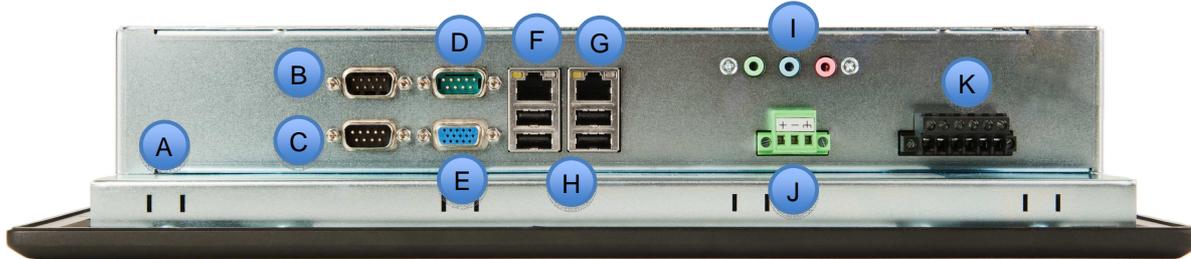
4.3 ZX452 Connectors and Ports
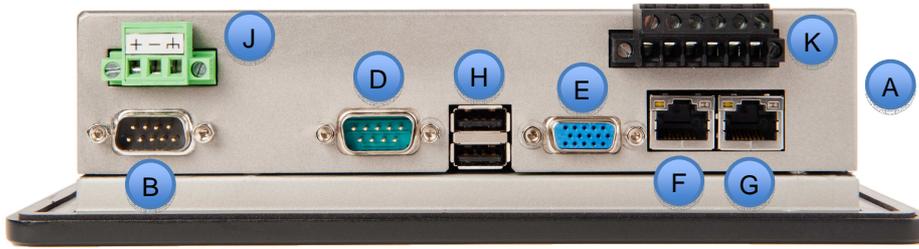
A)   Mounting Clip Location (on the side of the ZX452)

B)   Port 1 – RS-232 (see the website for a full list of supported protocols).

C)   Port 3 – RS-232 (see the website for a full list of supported protocols).

D)   Port 2 – RS-485 (see the website for a full list of supported protocols).

E)   VGA Video Output – Allows an external monitor to mirror the images on the ZX display (must support native ZX resolution)

F)   Ethernet Port #2 – Used for remote I/O (Smart Rail Ethernet)

G)   Ethernet port #1 – Used for Internet access (Email, FTP, http…)

H)   USB Ports – Removable media is supported using these USB ports. Up to two drives may be connected. The first drive (A) must be installed on one of the USB ports on the right (top of ZX452). This is used for data log, screen capture, recipes, program loading, graphic object… The second drive (B) must be plugged into the left (bottom of ZX452) USB ports and is supported by the ladder copy, rename and delete function only at this time (See the website for other functions supported on USB).

I)   Audio Inputs and Outputs (not supported with initial firmware)

J)   DC Power Input – 10 to 30 Volts DC

K)   CAN Networking – This 6 pin adapter supports 2 CAN networks. CAN #1 supports programming, peer to peer communications, ladder functions and I/O. CAN port #2 is reserved and will be enabled in the future.

5   Port and Connector Pin-outs

5.1   CAN Network Port and Wiring

6 Pin dual CAN connector
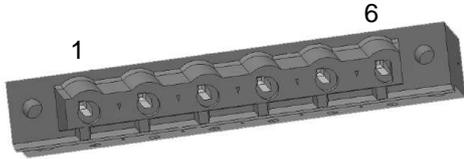
CAN 1 Port Pin Assignments			
Pin	Signal	Signal Description	Direction
1	#1 V-	CAN #1 Ground - Black	–
2	#1 CN_L	CAN #1 Data Low - Blue	In/Out
3	#1 CN_H	CAN #1 Data High-White	In/Out
CAN 2 Port Pin Assignments			
4	#2 V-	CAN #2 Ground - Black	-
5	#2 CN_L	CAN #2 Data Low - Blue	In/Out
6	#3 CN_H	CAN #2 Data High-White	In/Out

5 Pin CAN connector for Adapter Board
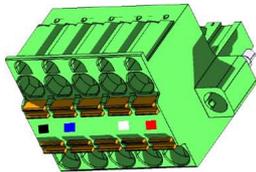
CAN Connector

Use the CAN Connector when
using CsCAN network.

Torque rating 4.5 – 7 Lb-In
(0.50 – 0.78 N-m)

NET Port Pin Assignments			
Pin	Signal	Signal Description	Direction
1	V-	CAN Ground - Black	–
2	CN_L	CAN Data Low - Blue	In/Out
3	SHLD	Shield Ground - None	–
4	CN_H	CAN Data High - White	In/Out
5	V+ (NC)	No Connect - Red	–

5.2   Power Port and Wiring
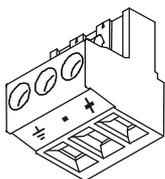

Power Connector

Power Up:

Connect to Earth Ground.
Apply 10 - 30 VDC.
Screen lights up with slight delay.

Torque rating 4.5 – 7 Lb-In
(0.50 – 0.78 N-m)

Pin	Signal	Description
1	Ground	Frame Ground
2	V-	Input Power Supply Ground
3	V+	Input Power Supply Voltage

5.3   Ethernet Port

Speeds	10 BaseT Ethernet (10-Mbps) 100 BaseTx Fast Ethernet (100-Mbps) 1000 Base Tx Fast Ethernet (1000-Mbps)
Modes	Half or Full Duplex
Auto-Negotiation	10/100/1000-Mbps and Half/Full Duplex
Connector Type	Shielded RJ-45
Cable Type (Recommended)	CAT5 (or better) UTP
Port	Auto MDI/MDI-X

5.4   Serial Ports 1, 2 and 3
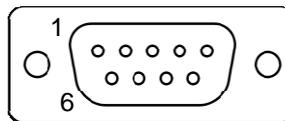
Serial Port 1&3 Pin Assignments RS-232			
Pin	Signal	Signal Description	Direction
1	CD	Carrier Detect	
2	RX	Receive	IN
3	TX	Transmit	OUT
4	DTR	Data Terminal Ready	
5	GND	Ground	-
6	DSR	Data Set Ready	
7	RTS	Ready to Send	
8	CTS	Clear to Send	
9	RI	Ring Indicate	

Serial Port 2 Pin Assignments RS-485			
Pin	Signal	Signal Description	Direction
1	TX/RX -	Receive/Transmit -	In/Out
2	TX/RX +	Receive/Transmit +	In/Out
3	NC	Do Not Connect	-
4	NC	Do Not Connect	-
5	GND	Ground	-
6	DSR	Data Set Ready	
7	RTS	Ready to Send	
8	CTS	Clear to Send	
9	RI	Ring Indicate	

5.5   VGA Port

The VGA port allows the items displayed on the internal display to be mirrored to an external display or projects. The connector uses standard analog VGA signaling and should work with a variety of monitors, displays and projects. The external display should support the native resolution of the ZX unit.

5.6   USB Ports

The ZX units have two (ZX351) or four (ZX751 & ZX1151) standard USB ports supporting high speed USB 2.0. These ports will support external drives **(up to 2 drives)** for data storage such as data logging, screen captures, program loading… Drives larger than 2 gigabytes are supported and should be formatted with FAT-32. Future firmware updates will allow other peripherals to be connected to these ports

6   Technical Support

For assistance and manual updates, contact Technical Support at the following locations:

North America:
Tel: 317 916-4274
Fax: 317 639-4279
Web: http://www.heapg.com
Email: techsppt@heapg.com

Europe:
Tel: +353-21-4321266
Fax: +353-21-4321826
Web: http://www.horner-apg.com
Email: tech.support@horner-apg.com

7   **Safety**

When found on the product, the following symbols specify:

Warning: Electrical Shock Hazard.

Warning: Consult user documentation.

WARNING: To avoid the risk of electric shock or burns, always connect the safety (or earth) ground before making any other connections.

WARNING: To reduce the risk of fire, electrical shock, or physical injury it is strongly recommended to fuse the voltage measurement inputs. Be sure to locate fuses as close to the source as possible.

WARNING: Replace fuse with the same type and rating to provide protection against risk of fire and shock hazards.

WARNING: In the event of repeated failure, do not replace the fuse again as a repeated failure indicates a defective condition that will not clear by replacing the fuse.

WARNING - Battery May Explode If Mistreated. Do Not Recharge, Disassemble or Dispose Of In Fire

WARNING: Only qualified electrical personnel familiar with the construction and operation of this equipment and the hazards involved should install, adjust, operate, or service this equipment. Read and understand this manual and other applicable manuals in their entirety before proceeding. Failure to observe this precaution could result in severe bodily injury or loss of life.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

⬩ All applicable codes and standards need to be followed in the installation of this product.
⬩ Adhere to the following safety precautions whenever any type of connection is made to the module:

▪ Connect the safety (earth) ground on the power connector first before making any other connections.
▪ When connecting to electric circuits or pulse-initiating equipment, open their related breakers.
▪ Do not make connections to live power lines.
▪ Make connections to the module first; then connect to the circuit to be monitored.
▪ Route power wires in a safe manner in accordance with good practice and local codes.
▪ Wear proper personal protective equipment including safety glasses and insulated gloves when making connections to power circuits.
▪ Ensure hands, shoes, and floor are dry before making any connection to a power line.
▪ Make sure the unit is turned OFF before making connection to terminals.
▪ Make sure all circuits are de-energized before making connections.
▪ Before each use, inspect all cables for breaks or cracks in the insulation. Replace immediately if defective.