



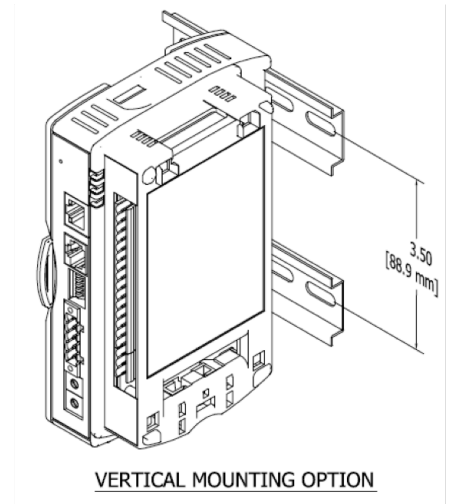
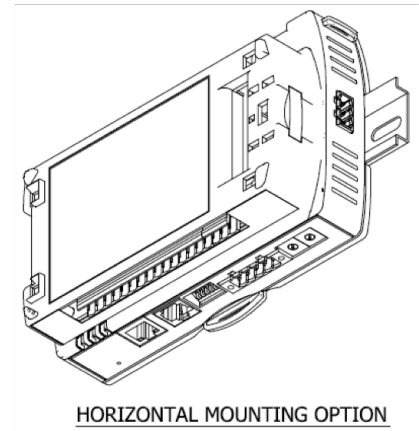
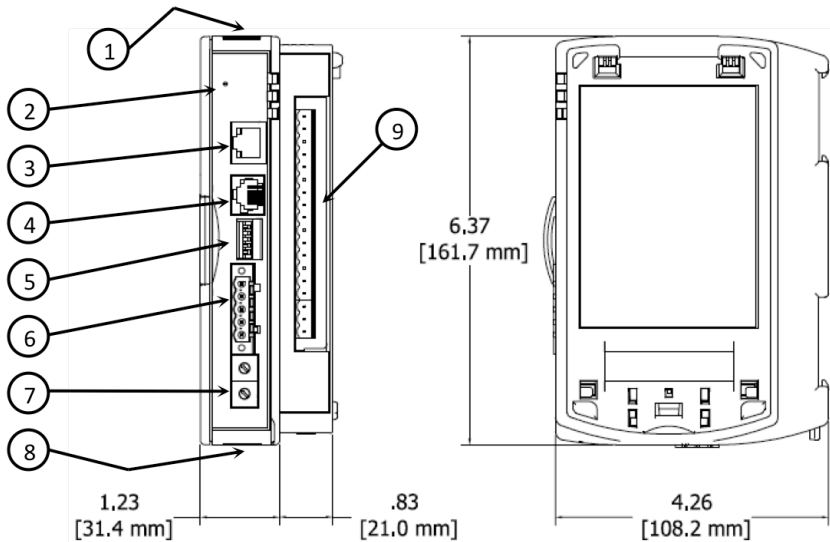
# RCX Controllers: HE-CX116 / HE-CX251

## 1 Specifications

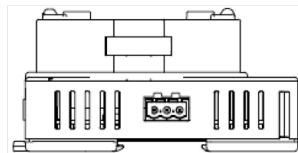
General Specifications		
	HE-CX116	HE-CX251
Required Power (Steady State)	625 mA @ 24 VDC, max	
Required Power (Inrush)	30A for 1 ms @ 24 VDC	
Primary Power Range	10 – 30 VDC	
SmartStack Modules	4 maximum	
Logic Memory	16KB	256KB
Ethernet Support	No	Yes
Relative Humidity	5 to 95% Non-condensing	
Operating Temperature	-10°C to +60°C	
Weight	12 oz. (340.19 g)	
CE & UL	USA	<a href="http://www.heapg.com/Support/compliance.htm">http://www.heapg.com/Support/compliance.htm</a>
	Europe	<a href="http://www.horner-apg.com/en/support/certification.aspx">http://www.horner-apg.com/en/support/certification.aspx</a>

Connectivity & Features	
All Models (except where noted)	
SmartStack I/O	Snaps on the side of RCX (up to 4). Provides a wide variety of I/O options. Single-sided modules recommended for Vertical mounting option
SmartStix I/O	Connects via CsCAN, DIN-rail mounted up to 500m away. Terminal Block style I/O for easy wiring.
SmartRail I/O	Connects via Ethernet or CsCAN. Traditional I/O style, with up to 8 modules per base.
RS-232 & RS-485 ports	Two simultaneous ports on one RJ-45 connector. MJ1 is RS-232, MJ2 is RS-422 or RS-485 (dip switch)
10/100 Ethernet (CX251 only)	Supports http and FTP. Supports Modbus/TCP master & slave, and more factory protocols. Default IP Address: 192.168.254.128
Portable Memory	microSD up to 2GB for Datalogging
Real-time Clock	+/- 1.53 min/month accuracy @ 25C

## 2 Dimensions & Installation



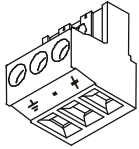
#	Description
1	microSD memory slot (top)
2	Run / Stop Recessed Pushbutton
3	10/100 Ethernet LAN Port
4	RJ-45 RS-232 + RS-422/485 Port
5	Comm Settings Dip Switches
6	CsCAN Port
7	CsCAN Node Rotary Switches
8	10-30Vdc Power In (bottom)
9	SmartStack I/O (one module shown)



### Note on Installing SmartStack I/O with Vertical Mounting Option

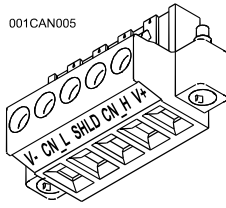
Modules with I/O connectors on one-side only are recommended for convenient wiring access. A plastic stabilizer bracket is included to be installed on the last module in the stack

**3 Wiring**



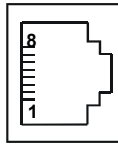
**Power Connector: 10-30Vdc**  
**Torque Rating: 4.5-7.0 Lb-In**  
**(0.50-0.78 N-m)**

001CAN005



**CsCAN: self-powered**

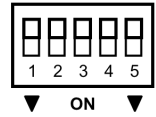
<input type="checkbox"/>	V-	Required
<input type="checkbox"/>	CN_L	Required
<input type="checkbox"/>	SHLD	1 end only*
<input type="checkbox"/>	CN_H	Required
<input type="checkbox"/>	V+	Not Req'd
*per segment		



Pin	MJ1 / MJ2 Pins	
	Signal	Direction
8	TXD	OUT
7	RXD	IN
6	0 V	Ground
5*	+5 60mA	OUT
4	TX-	OUT
3	TX+	OUT
2	RX-	IN
1	RX+	IN

**Serial Ports: 2 ports on 1 connector**

MJ1 RS-232 (pins 6, 7, 8)  
 MJ2 RS-422 (pins 1, 2, 3, 4, 6)  
 MJ2 RS-485\* (pins 1, 2, 6)  
 \*set DIP switches 2 & 3 for RS-485



**Comms DIP Switch**

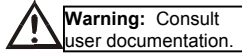
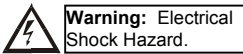
1. RS-485 Termination
2. RS-485 Half-Duplex Mode
3. RS-485 Half-Duplex Mode
4. CAN Baud Rate
5. CAN Baud Rate

**CAN baud-rate settings (sw 4&5)**

- |    |          |
|----|----------|
| 00 | 125kbaud |
| 01 | 250kbaud |
| 10 | 125kbaud |
| 11 | 250kbaud |

**4 Safety**

When found on the product, the following symbols specify:



This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D or Non-hazardous locations only

**WARNING – EXPLOSION HAZARD** – Substitution of components may impair suitability for Class I, Division 2  
**AVERTISSEMENT - RISQUE D'EXPLOSION** - LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIAL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE 1, DIVISION 2

**WARNING – EXPLOSION HAZARD** – Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.  
**AVERTISSEMENT - RISQUE D'EXPLOSION** - AVANT DE DECONNECTER L'EQUIPMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DESIGNÉ NON DANGEREUX.

**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:** 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.

**5 Technical Support**

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

**North America:**  
 (317) 916-4274  
<http://www.heapg.com>  
 email: [techsppt@heapg.com](mailto:techsppt@heapg.com)

**Europe:**  
 (+) 353-21-4321-266  
<http://www.horner-apg.com>  
 email: [techsupport@hornerirl.ie](mailto:techsupport@hornerirl.ie)

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