PRELIMINARY

XLE OCS Model: HE-XE102
12 Digital DC Inputs
4 Analog Inputs (Medium Resolution)
6 Digital Relay Outputs

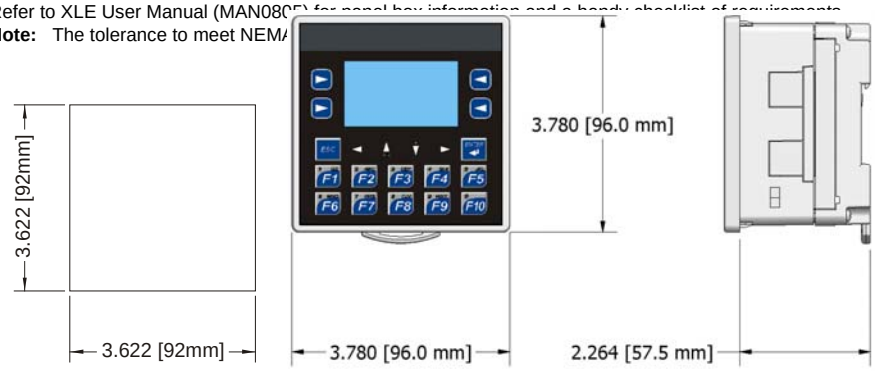
Want More Information?
To download the XLE User Manual (MAN0805), refer to *Technical Support* in this document.

1 SPECIFICATIONS

HE-XE102 Specifications		
Digital DC Inputs		
Inputs per Module	12 including 4 configurable HSC inputs	
Commons per Module	1	
Input Voltage Range	12 VDC / 24 VDC	
Absolute Max. Voltage	35 VDC Max.	
Input Impedance	10 kΩ	
Input Current	Positive Logic	Negative Logic
Upper Threshold	0.8 mA	-1.6 mA
Lower Threshold	0.3 mA	-2.1 mA
Max Upper Threshold	8 VDC	
Min Lower Threshold	3 VDC	
OFF to ON Response	1 ms	
ON to OFF Response	1 ms	
HSC Max. Switching Rate	10 kHz	
Digital Relay Outputs		
Outputs per Module	6 relay	
Commons per Module	6	
Max. Output Current	5 A at 250 VAC, resistive	
Max. Total Current	5 A continuous	
Max. Output Voltage	275 VAC , 30 VDC	
Max. Switched Power	150 W, 1250 VA	
Contact Isolation to XLE ground	1000 VAC	
Max. Voltage Drop at Rated Current	0.5 V	
Expected Life	No load: 5,000,000 Rated load: 100,000	
Max. Switching Rate	300 CPM at no load 20 CPM at rated load	
Type	Mechanical Contact	
Response Time	One update per ladder scan plus 10 ms	
Analog Inputs, Medium Resolution		
Number of Channels	4	
Input Ranges	0 - 10 VDC 0 – 20 mA 4 – 20 mA	
Safe input voltage range	-0.5 V to +12V	
Input Impedance (Clamped @ -0.5 VDC to 12 VDC)	Current Mode: 100 Ω Voltage Mode: 500 k Ω	
Nominal Resolution	10 Bits	
%AI full scale	32,000 counts	
Max. Over-Current	35 mA	
Conversion Speed	All channels converted once per ladder scan	
Max. Error at 25°C	TBD	
Additional error for temperatures other than 25°C	TBD	
Filtering	160 Hz hash (noise) filter 1-128 scan digital running average filter	
General Specifications		
Required Power (Steady State)	130 mA @ 24 VDC	
Required Power (Inrush)	30 A for 1 ms @ 24 VDC	
Primary Power Range	10 – 30 VDC	
Relative Humidity	5 to 95% Non-condensing	
Operating Temperature	0° to 50° Celsius	
Terminal Type	Screw Type, 5 mm Removable	
Weight	12 oz. (340.19 g)	
CE UL	See Compliance Table at http://www.heapg.com/Support/compliance.htm	

2 Panel Cut-Out and Dimensions

Refer to XLE User Manual (MAN080[illegible]) for panel box information and a handy checklist of requirements.
Note: The tolerance to meet NEMA

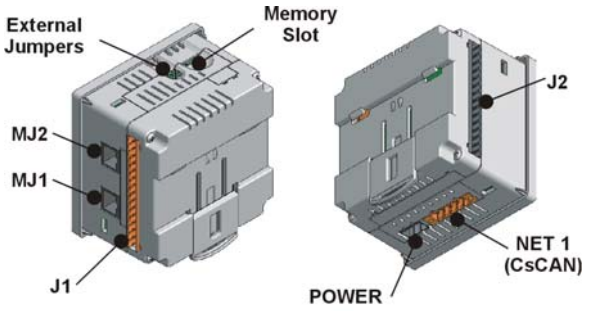


3 Ports / Connectors / Cables

Note: The case of the XLE is black, but for clarity, it is shown in a lighter gray color.

To Remove Back Cover:
Unscrew 4 screws located on the back of the unit.
Lift lid.

CAUTION: Do not overtighten screws when screwing the lid back on.



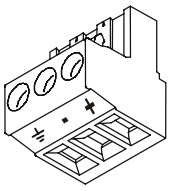
I/O Jumpers: (Not Shown)
I/O Jumpers (JP) are located internally. To access, remove back cover of unit.

The I/O Jumpers, External Jumpers and **Connectors** (J1 / J2) are described in the ***Wiring and Jumpers*** section of this document.

Memory Slot:
Uses **Removable Memory** for data logging, screen captures, program loading and recipes.
Horner Part No.: HE-MC1

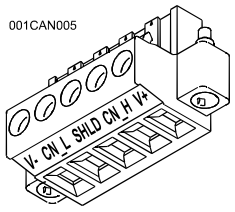
Serial Communications:
MJ1: Use for Cscape programming and Application-Defined Communications.

MJ2: Use for Application-Defined Communications



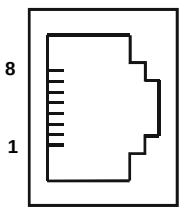
Power Connector

Power Up:
Connect to Earth Ground.
Apply 10 - 30 VDC.
Screen lights up.



CAN Connector

Use the CAN Connector when using CsCAN network.



Pin	MJ1 Pins		MJ2 Pins	
	Signal	Direction	Signal	Direction
8	TXD	OUT	TXD	OUT
7	RXD	IN	RXD	IN
6	0 V	Ground	0 V	Ground
5	NC	No Connect	NC	No Connect
4	CTS	OUT	TX-	OUT
3	RTS	IN	TX+	OUT
2	RX- / TX-	IN / OUT	RX-	IN
1	RX+ / TX+	IN / OUT	RX+	IN

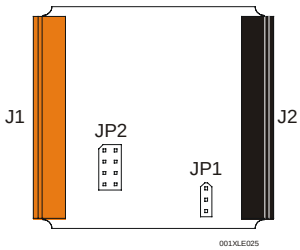
4 Wiring and Jumpers

Wire according to the type of inputs / outputs used, and select the appropriate jumper option.

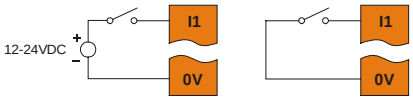
Wiring Specifications

- For I/O wiring (discrete), use the following wire type or equivalent: Belden 9918, 18 AWG or larger.
- For shielded Analog I/O wiring, use the following wire type or equivalent: Belden 8441, 18 AWG or larger.
- For CAN wiring, use the following wire type or equivalent: Belden 3084, 18 AWG or larger.

Location of I/O jumpers (JP) and wiring connectors (J1 and J2).



Positive Logic vs. Negative Logic Wiring
The XLE can be wired for Positive Logic inputs or Negative Logic inputs.

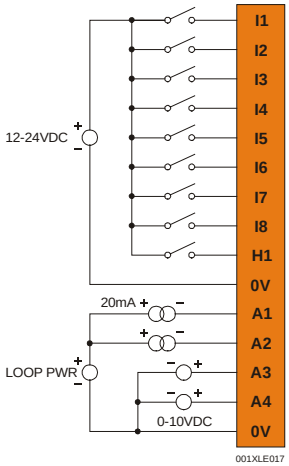


Positive Logic In Negative Logic In

a. Wiring Examples

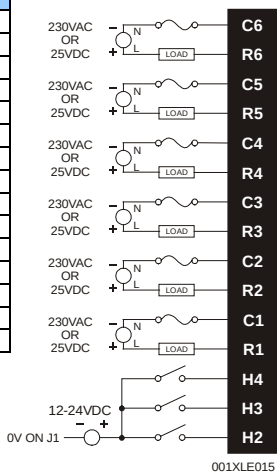
J1 Orange Terminal Connector	XE102 Name
I1	IN1
I2	IN2
I3	IN3
I4	IN4
I5	IN5
I6	IN6
I7	IN7
I8	IN8
H1	HSC1 /IN9
0V	Ground
A1	Analog IN1
A2	Analog IN2
A3	Analog IN3
A4	Analog IN4
0V	Ground

XE102 J1 Orange
Positive Logic In
Digital In / 20 mA Analog In



J2 Black Terminal Connector	XE102 Name
C6	Relay 6 COM
R6	Relay 6 NO
C5	Relay 5 COM
R5	Relay 5 NO
C4	Relay 4 COM
R4	Relay 4 NO
C3	Relay 3 COM
R3	Relay 3 NO
C2	Relay 2 COM
R2	Relay 2 NO
C1	Relay 1 COM
R1	Relay 1 NO
H4	HSC4 / IN12
H3	HSC3 / IN11
H2	HSC2 / IN10

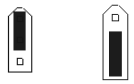
XE102 J2 Black
Positive Logic
Digital In / Relay Out



b. I/O Jumpers Settings (JP1 - JP2)

JP1 Digital DC In / HSC

Positive Logic | Negative Logic



Default 001XLE026

JP2 Analog In (A1 – A4)

Current (20 mA) | Voltage (10 V)

Default 001XLE027

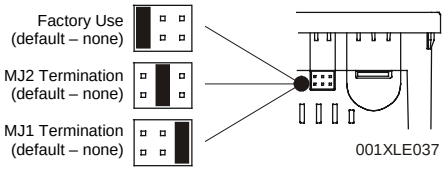
Note: The Cscape Module Setup configuration must match the selected I/O (JP) jumper settings.

c. External Jumpers Settings

The External Jumpers are used for termination of the RS-485 ports. The XLE is shipped unterminated.

To terminate, select one of the jumpers shipped with the product and insert it based upon the option that is desired.

As seen when looking at the top of the XLE unit. Refer to Section 3 for the location of the External Jumpers.



5 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: 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.

- 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.