HORNER
AUTOMATION GROUP

XLE & XLT OCS DATASHEET

MODEL 6
Rev T or Later [**Europe:** XLEe - Rev R or later, XLTe - Rev K or Later]
12 DC In, 12 DC Out, 17-bit Analog In (mA/V/Tc/mV/RTD), 4 – 12-bit Analog Out

1   TECHNICAL SPECIFICATIONS

XLEe and XLTe = Ethernet Versions

1.1 General

Primary Pwr. Range	10-30VDC
Required Power (Steady State)	130mA @ 24VDC
-22 Heater Option	250mA @ 24VDC with Heater Operating *Heater Option - Model# plus "-22
Typical power -backlight 100%	323mA @ 10V (3.23W) 150mA @ 24V (3.59W)
Power Backlight Off	15mA @ 24V (0.36W)
Power Ethernet Models	35mA @ 10V (0.35W) 20mA @ 24V (0.48W)
Inrush Current	30A for < 1ms
Real Time Clock	Battery backed; lithium coin cell CR2450
Clock Accuracy	+/- 90 Secs/Month at 25ºC
Relative Humidity	5 to 95% Non-condensing
Operating Temp.	-10ºC to +60ºC
-22 Heater Option	-40ºC to +50º
Storage Temp.	-20ºC to +60ºC
Weight	0.75 lbs/340 g (without I/O)
Altitude	Up to 2000m
Rated Pollution Degree	Evaluated for Pollution Degree 2 rating
Certifications (UL/CE)	North America Europe

1.2 Connectivity

Serial Ports	RS-232 full handshaking or RS-485 half duplex on first Modular Jack (MJ1) RS-232 or RS-485 on second Modular Jack (MJ2)
USB Mini-B	Programming only
CAN	1 x CAN Port, Isolated 1 kV
CAN Protocols	CsCAN, CANopen, DeviceNet, J1939
Ethernet	Ethernet versions only
Ethernet Protocols	TCP/IP, Modbus TCP, FTP, SRTP, EGD, ICMP, ASCII
Remote I/O	SmartRail, SmartStix, SmartBlock, SmartMod
Removable Memory	microSD, SDHC, SDXC IN FAT32 format, support for 32GB max. Application Updates, Datalogging, and more
Audio (XLT only)	Beeper, System or Software Controlled

1.3 User Interface

Display Type	Transflective LCD Sunlight Readable
Resolution	128 x 64 pixels (XLE) 160 x 128 pixels (XLT)
Color	Monochrome
Built-In Storage	16MB
User-Program. Screens	1023 max pages; 50 Objects per page
Backlight	LED
Backlight Lifetime	30,000+ hrs
Brightness Control	0-100% (XLT) On/Off (XLE) via %SR57
Number of Keys	20 (XLE) 5 (XLT)
Touchscreen (XLTe)	Resistive 1,000,000+ touch life

1.4 Control & Logic

Control Lang. Support	Advanced Ladder Logic Full IEC 61131-3 Languages
Logic Program Size	256kB
Logic Scan Rate	0.7ms/kB (XLE) 0.8ms/kB (XLT)
Digital Inputs	2048
Digital Outputs	2048
Analog Inputs	512
Analog Outputs	512
Gen. Purpose Registers	9,999 (words) Retentive 2,048 (bits) Retentive 2,048 (bits) Non-retentive

1.5 High-Speed Inputs

Number of Counters	4
Maximum Frequency	500kHz each
Accumulator Size	32-bits each
Modes Supported	Totalizer, quadrature, pulse measurement, frequency measurement, set-point controlled outputs

1.6 High-Speed Outputs

Modes Supported	Stepper, PWM
Output Frequency	10kHz or 65kHz with HE-XHSQ

XLEe/XLTe User Manual [MAN0878]

The User Manual includes information on:
- Built-in I/O
- Common %S & %SR Registers
- HSC/PWM/Totalizer/Quadrature & Accumulator Registers
- Resource Limits

Indianapolis, USA | Cork, Ireland | Calgary, Canada | Bangalore, India | Oakleigh, Australia | Tianjin, China | Esteio, Brazil

technical specifications continued...

1.7 Digital DC Inputs

Inputs per Module	12
Commons per Module	1
Input Voltage Range	12-24VDC
Absolute Max. Voltage	30VDC Max.
Input Impedance	10kΩ

Input Current:	Positive Logic	Negative Logic
Upper Threshold	0.8mA	-1.6mA
Lower Threshold	0.3mA	-2.1mA
Max. Upper Threshold	8VDC	
Min. Lower Threshold	3VDC	
OFF to ON Response	1ms	
ON to OFF Response	1ms	
Galvanic Isolation	None	
Logic Polarity	Selectable in Cscape	
I/O Indication	None	
High Speed Counter Inputs*	4 (DIN 9-12)	
High Speed Counter Max Freq*	500kHz	
Connector Type	3.5mm Pluggable Cage Clamp Connector	

*See I/O info below for detail regarding HSC and PWM

1.8 Digital DC Outputs

| Outputs per Module	12
Commons per Module	1
Output Type	Half-Bridge
Absolute Max. Voltage	30VDC Max
Output Frequency	10kHz or 65kHz with HE-XHSQ
Output Protection	Short Circuit & Overvoltage
Max. Output Current per Point	0.5A
Max. Total Current per Driver (Q1-4, Q5-8, Q9-12)	2A Total Current (All Drivers) UL-Rated
Max. Output Supply Voltage	30VDC
Min. Output Supply Voltage	10VDC
Max. Voltage Drop at Rated Current	0.25VDC
Min. Load	None
I/O Indication	None
Galvanic Isolation	None
OFF to ON Response	150ns
ON to OFF Response	150ns
PWM Out	65kHz
Rise Time	150ns Max
Fall Time	150ns Max
Modes Supported	Stepper, PWM
Output Characteristics	Current Sourcing (Pos. Logic)

1.9 Analog Inputs

Number of Channels	6	Absolute Max. Input Voltage	-0.5 to -12VDC (+/- 30VDC)
Input Ranges (Selectable)	0-20mA; 4-20mA DC; 0-60mV; 0-10VDC T/C (Ungrounded) : J, K, N, T, E, R, S, B RTD: PT100, PT1000	Input Impedance (Clamped @ -0.5 to 10.23VDC)	T/C / RTD / mV > 2MΩ mA: 15Ω + 1.5V V: 1.1MΩ
Galvanic Isolation	None		
Nominal Resolution	17 Bits	Conversion Speed	Min. All Channels Converted in approximately < 250ms or 41ms per channel enabled.
%AI Full Scale	10V, 20mA, 60mV: 32,000 counts full scale RTD / T/C: 10 Counts / °C		

	Input Type:	Range:	Accuracy:
Sensor Range and Accuracy	TC J (Ungrounded)	-120 to 1000°C / -184 to 1832°F	+/- 0.2% of full scale +/- 1°C
	TC K (Ungrounded)	-130 to 1372°C / -202 to 2501.6°F	+/- 0.2% of full scale +/- 1°C
	TC T (Ungrounded)	-130 to 400°C / -202 to 752°F	+/- 0.2% of full scale +/- 1°C
	TC E (Ungrounded)	-130 to 780°C / -202 to 1436°F	+/- 0.2 % of full scale +/- 1°C
	TC N (Ungrounded)	-130 to 1300°C / -202 to 2372°F	+/- 0.2% of full scale +/- 1°C
	TC R, S (Ungrounded)	20 to 1768°C / 68 to 3214.4°F	+/- 0.2% of full scale +/- 3°C
	TC B (Ungrounded)	500 to 1820°C / 932 to 3308°F *Functions below 500°C with reduced accuracy	+/- 0.2% of full scale +/- 3°C
	PT100/1000	-200 to 850°C / -328 to 1562°F	+/- 0.15% of full scale
	0-20mA	0-20mA	+/- 0.15% of full scale
	0-60mV	0-60mV	+/- 0.15% of full scale
	0-10V	0-10V	+/- 0.15% of full scale

1.10 Analog Outputs

Number of Channels	4		Response Time	One Update per program logic scan
Output Ranges	0-10VDC 0-20mA, 4-20mA		Minimum Current Load	400Ω*
			Galvanic Isolation	None
Nominal Resolution	12 Bits		Conversion Speed	Min. All Channels Once per Scan
Maximum Loop Voltage	27V		Addt'l. Error for Temp. Other Than 25°C (mA Mode)	20mA 0.0126%/°C
Max. Error at 25°C (Excluding Zero)	0-20mA 0.1% of full scale		Temperature Drift Error	20mA 0.000143%/°C
	0-10V 0.1 % of full scale			0-10V 0.000151%/°C

*Refer to PUN3043

2/11/2021 | MAN1117-09-EN

2.1 - Overview of XLE and XLT
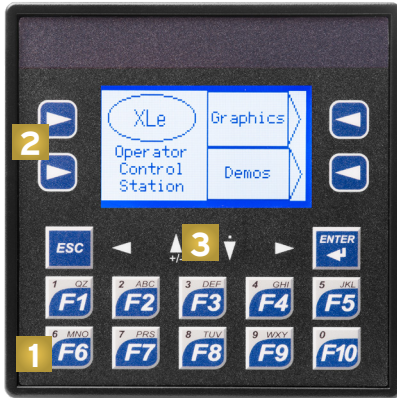
1. Function Keys
2. Softkeys
3. Navigation Keys
4. Touchscreen
5. Wide Range DC Power
6. CAN Port
7. Mounting Clip Locations
8. RS232/RS485 Serial Ports (2)
9. USB Mini-B Port
10. Ethernet LAN Port (optional)
11. Optional Built-In I/O
12. High Capacity microSD Slot
13. Configuration Switches
14. DIN Rail Clip
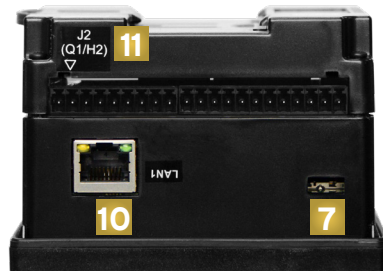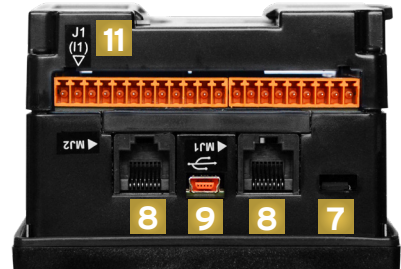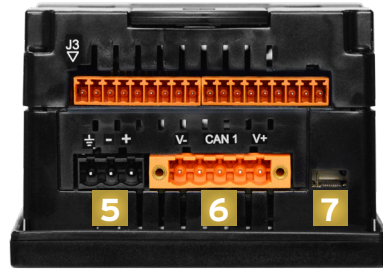
NOTE: See Precaution #12 on page 6 about USB and grounding.

2.2 - Power Wiring
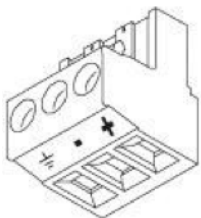
Primary Power Port Pins		
PIN	SIGNAL	DESCRIPTION
1	Ground	Frame Ground
2	DC-	Input Power Supply Ground
3	DC+	Input Power Supply Voltage

DC Input / Frame
Solid/Stranded Wire: 12-24 awg (2.5-0.2mm).
Strip length: 0.28" (7mm).
Torque, Terminal Hold-Down Screws: 4.5 – 7 in-lbs (0.50 – 0.78 N-m).

DC- is internally connected to I/O V-, but is isolated from CAN V-.
A Class 2 power supply must be used.

POWER UP
1. OPTION: Attach ferrite core with a minimum of two turns of the DC+ and DC- signals from the DC supply that is powering the controllers.
2. Connect to earth ground.
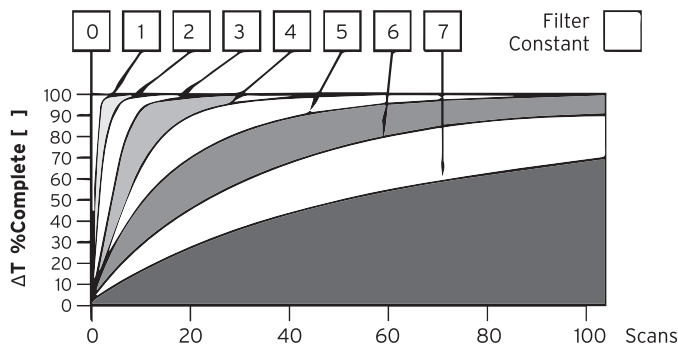3. Apply recommended power.

Indianapolis, USA | Cork, Ireland | Calgary, Canada | Bangalore, India | Oakleigh, Australia | Tianjin, China | Esteio, Brazil
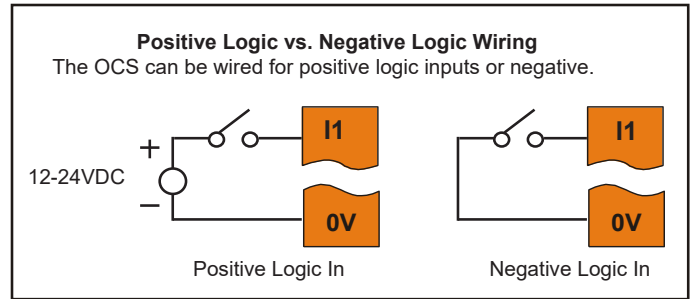
3.1 - Analog Inputs

Raw input values for channels 1 - 4 are found in the registers as Integer-type data with a range from 0 – 32000.

Analog inputs may be filtered digitally with the Filter Constant found in the Cscape Hardware Configuration for Analog Inputs. Valid filter values are 0 – 7 and act according to the following chart.

Data Values	
INPUT MODE:	**DATA FORMAT, 12-bit INT:**
0-20mA, 4-20mA	0-32000
0-10V	0-32000
T/C & RTD	°C or °F may be selected in the Hardware Configuration section in Cscape. The raw value is an integer, so the user should divide by 10.

3.3 - Digital Inputs

Positive Logic vs. Negative Logic Wiring
The OCS can be wired for positive logic inputs or negative.

Positive Logic In   Negative Logic In

Digital inputs may be wired in either a Positive Logic or Negative Logic fashion as shown. The setting in the Cscape Hardware Configuration for the Digital Inputs must match the wiring used in order for the correct input states to be registered. P1 jumper settings are required for Pos/Neg setup When used as a normal input and not for high speed functions, the state of the input is reflected in registers %I1 – %I12.

Digital inputs may alternately be specified for use with High Speed Counter functions, also found in the Hardware Configuration for Digital Inputs. Refer to the XLE/XLT User Manual (MAN0878) for full details.
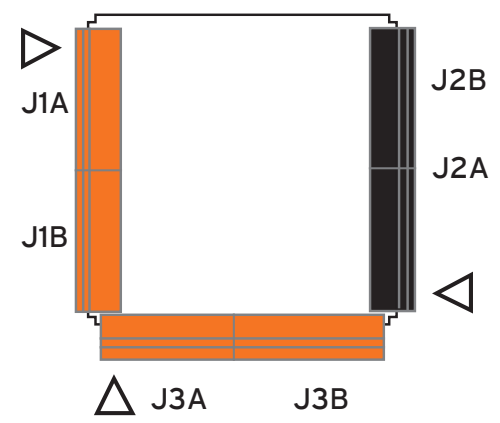
Wiring Details:

Solid/Stranded Wire: 12-24 awg (2.5-0.2mm^2).
Strip Length: 0.28'' (7mm).
Torque, Terminal Hold-Down Screw: 4.5 – 7 in-lbs (0.50 – 0.78 N-m).
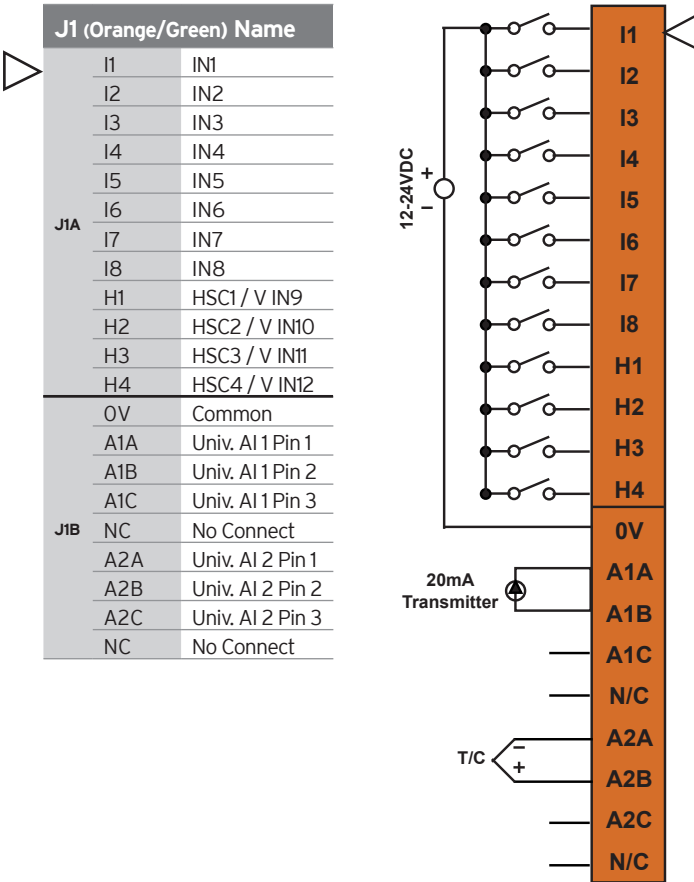
3.2 - Connector Overview
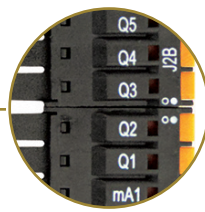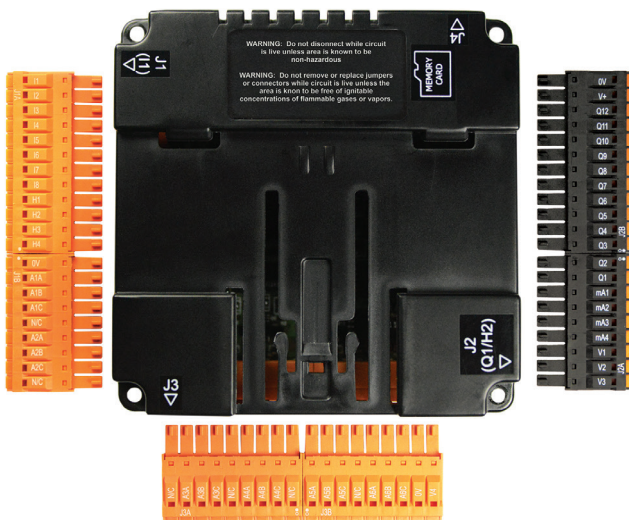
For ease of operability, the high density terminals are divided into more manageable pairs of connectors (J1A + J1B, J2A + J2B, J3A + J3B). To ensure proper installation, connector symbols must match.
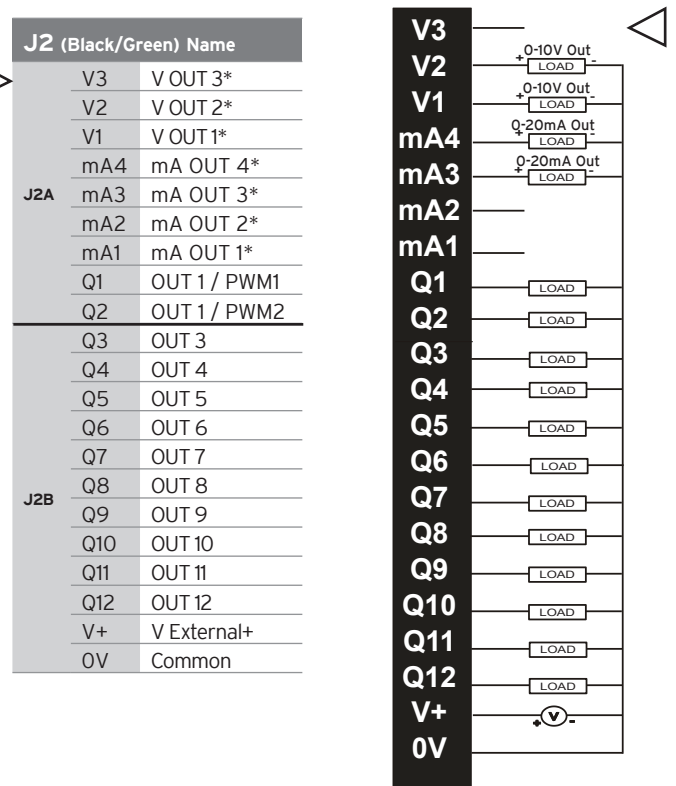
Indianapolis, USA | Cork, Ireland | Calgary, Canada | Bangalore, India | Oakleigh, Australia | Tianjin, China | Esteio, Brazil

3.4 - Connector Wiring

Model 6 - J1 Wiring

J1 (Orange/Green)	Name
I1	IN1
I2	IN2
I3	IN3
I4	IN4
I5	IN5
I6	IN6
I7	IN7
I8	IN8
H1	HSC1 / V IN9
H2	HSC2 / V IN10
H3	HSC3 / V IN11
H4	HSC4 / V IN12
0V	Common
A1A	Univ. AI 1 Pin 1
A1B	Univ. AI 1 Pin 2
A1C	Univ. AI 1 Pin 3
NC	No Connect
A2A	Univ. AI 2 Pin 1
A2B	Univ. AI 2 Pin 2
A2C	Univ. AI 2 Pin 3
NC	No Connect

(J1A = I1–H4, J1B = 0V–NC)

Model 6 - J2 Wiring

J2 (Black/Green)	Name
V3	V OUT 3*
V2	V OUT 2*
V1	V OUT 1*
mA4	mA OUT 4*
mA3	mA OUT 3*
mA2	mA OUT 2*
mA1	mA OUT 1*
Q1	OUT 1 / PWM1
Q2	OUT 1 / PWM2
Q3	OUT 3
Q4	OUT 4
Q5	OUT 5
Q6	OUT 6
Q7	OUT 7
Q8	OUT 8
Q9	OUT 9
Q10	OUT 10
Q11	OUT 11
Q12	OUT 12
V+	V External+
0V	Common

(J2A = V3–mA1, J2B = Q1–0V)

Ex: Universal Input Wiring Schematic

0– 10 V Analog In

mV In

Thermocouple In

4– 20 mA Analog Out

20mA Analog IN - Not Self-Powered

20mA Analog IN - Self-Powered

RTD In

0- 10 V Analog Out
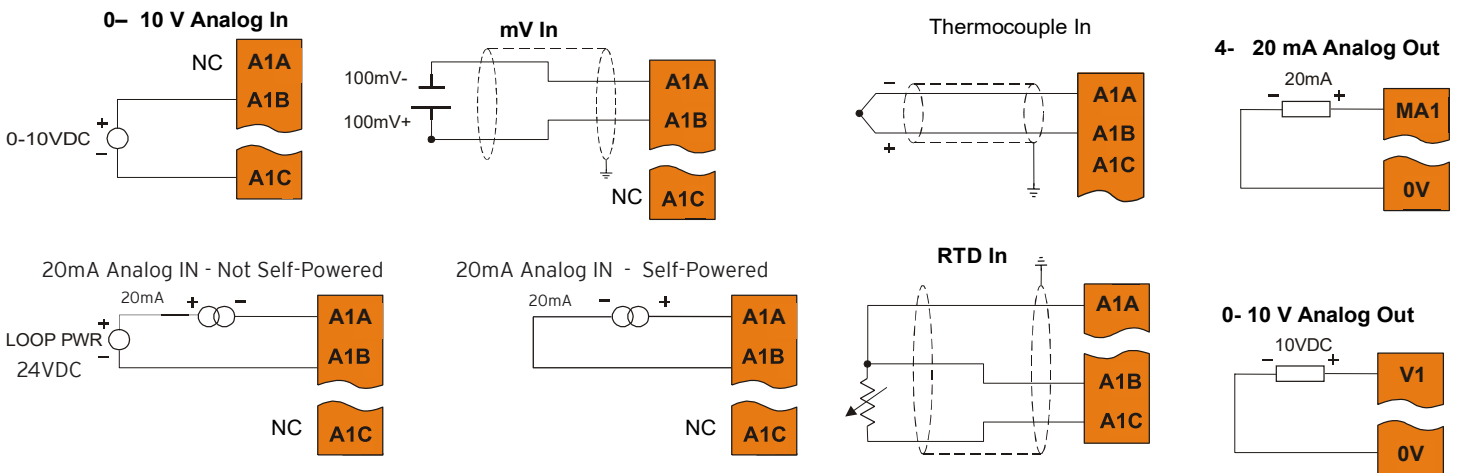
NOTE: Depending on the transmitter, isolated loop power may be required.

Indianapolis, USA | Cork, Ireland | Calgary, Canada | Bangalore, India | Oakleigh, Australia | Tianjin, China | Esteio, Brazil

Model 6 - J3 Wiring - Universal Analog Input

J3 (Orange/Green)		Name
▷	NC	No Connection
Univ. AI	A3A	Univ. AI 3 Pin 1
	A3B	Univ. AI 3 Pin 2
	A3C	Univ. AI 3 Pin 3
	NC	No Connection
	A4A	Univ. AI 4 Pin 1
	A4B	Univ. AI 4 Pin 2
	A4C	Univ. AI 4 Pin 3
	NC	No Connection
Univ. AI	A5A	Univ. AI 5 Pin 1
	A5B	Univ. AI 5 Pin 2
	A5C	Univ. AI 5 Pin 3
	NC	No Connection
	A6A	Univ. AI 6 Pin 1
	A6B	Univ. AI 6 Pin 2
	A6C	Univ. AI 6 Pin 3
	0V	Common
	V4	V OUT 4*

Connector pins (top to bottom): N/C, A3A, A3B, A3C, N/C, A4A, A4B, A4C, N/C, A5A, A5B, A5C, N/C, A6A, A6B, A6C, 0V, V4

RTD, 20mA Transmitter, T/C wiring shown.
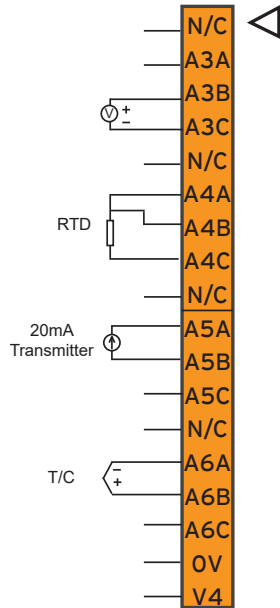
NOTE: * Both mA & V outputs are active for each output channel, however, only the configured output type is calibrated (maximum 4 channels simultaneously).
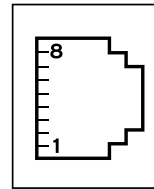
4   COMMUNICATIONS

4.1 - CAN Communications
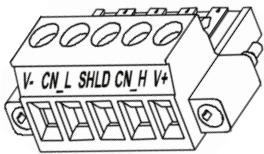
CAN Pin Assignments		
PIN	SIGNAL	DESCRIPTION
1	V−	CAN Ground – Black
2	CN L	CAN Data Low – Blue
3	SHLD	Shield Ground – None
4	CN H	CAN Data High – White
5	V+ (NC)	No Connect – Red

Connector labels: V− CN_L SHLD CN_H V+

CAN
Solid/Stranded Wire: 12-24 awg (2.5-0.2mm).
Strip Length: 0.28″ (7mm).
Locking spring-clamp, two-terminators per conductor.
Torque, Terminal Hold-Down Screws: 4.5 – 7 in-lbs (0.50 – 0.78 N-m).

V+ pin is not internally connected, the SHLD pin is connected to Earth ground via a 1MΩ resistor and 10 nF capacitor.
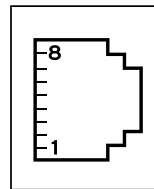
4.2 - Serial Communications

MJ1 PINS		
PIN	SIGNAL	DIRECTION
8	TXD	OUT
7	RXD	IN
6	0V	GROUND
5	+5V @ 60mA	OUT
4	RTS	OUT
3	CTS	IN
2	RX-/TX-	IN/OUT
1	RX+/TX+	IN/OUT

MJ1: RS-232 w/full handshaking or RS-485 half-duplex

RS-485 termination via switches; biasing via software

MJ2 PINS		
PIN	SIGNAL	DIRECTION
8	232 TXD	OUT
7	232 RXD	IN
6	0V	Ground
5	+5V @ 60mA	OUT
4	485 TX-	OUT
3	485 TX+	OUT
2	485 RX- or RX/TX-	IN or IN/OUT
1	485 RX+ or RX/TX+	IN or IN/OUT

MJ2 SERIAL PORT
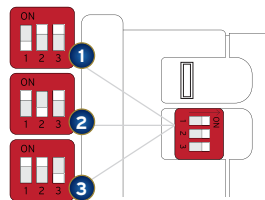
MJ2: RS-232 or RS-485 half or full-duplex, software selectable

RS-485 termination via switches; biasing via software

Attach optional ferrite core with a minimum of two turns of serial cable. See website for more details. [Part #: HE-FBD001]

4.3 - Dip Switches

The DIP switches are used to provide a built-in termination to both the MJ1 port and MJ2 port if needed. The termination for these ports should only be used if this device is located at either end of the multidrop/daisy-chained RS-485 network.

DIP SWITCHES			
PIN	NAME	FUNCTION	DEFAULT
1	MJ1 RS-485 Termination	ON = Terminated	OFF
2	MJ2 RS-485 Termination	ON = Terminated	OFF
3	Bootload	Always Off	OFF

4.4 - Ethernet Communications
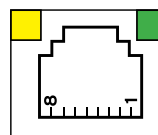
Green LED indicates link – when illuminated, data communication is available.

Yellow LED indicates activity – when flashing, data is in transmission.

Indianapolis, USA | Cork, Ireland | Calgary, Canada | Bangalore, India | Oakleigh, Australia | Tianjin, China | Esteio, Brazil

5.1 - Status Registers

Status Registers	
Selectable Range	**Description**
%Rx*	Bit-wise status register enable: Set %Rx.1 - %Rx.9 high to enable for registers %R(x+1) to %R(x+9).
%R(x+1)	Firmware version
%R(x+2)	Watchdog count - cleared on power-up.
%R(x+3)	Status Bits: (see detail below)
%R(x+4)	Scan rate of the 106 board (average) in units of 100 μs.
%R(x+5)	Scan rate of the 106 board (max) in units of 100 μs.
%R(x+6)	Channel Status (see detail below)
%R(x+7)	Channel Status (see detail below)
%R(x+8)	Channel Status (see detail below)
%R(x+9...14)	Reserved

%R(x+3) Status Bits:

16...4	3	2	1
Reserved	Normal	Config	Calibration

%R(x+6) Channel Status:

Channel 2				Channel 1			
8	7	6	5	4	3	2	1
Open RTD	Out of Limits	Shorted RTD	Open Sensor	Open RTD	Out of Limits	Shorted RTD	Open Sensor

%R(x+7) Channel Status:

Channel 4				Channel 3			
8	7	6	5	4	3	2	1
Open RTD	Out of Limits	Shorted RTD	Open Sensor	Open RTD	Out of Limits	Shorted RTD	Open Sensor

%R(x+8) Channel Status:

Channel 6				Channel 5			
8	7	6	5	4	3	2	1
Open RTD	Out of Limits	Shorted RTD	Open Sensor	Open RTD	Out of Limits	Shorted RTD	Open Sensor

*Example: %Rx= %R500, %R(x+1) = %R501, %R(x+2) = %R502, ...

5.2 - Built-in I/O for Model 6

The I/O is mapped into OCS Register space, in three separate areas: Digital/Analog I/O, High-Speed Counter I/O, and High-Speed Output I/O. Digital/Analog I/O location is fixed starting at 1, but the high-speed counter and high-speed output references may be mapped to any open register location. For more details, see the XLE/XLT OCS User's Manual (MAN0878).

Digital and Analog I/O Function	
Digital Inputs	%I1-12
Reserved	%I13-31
ESCP Alarm	%I32
Digital Outputs	%Q1-12
Reserved	%Q13-24
Analog Inputs	%AI33-38
Reserved	%AI1-32
Analog Outputs	%AQ9-12
Reserved	%AQ1-8

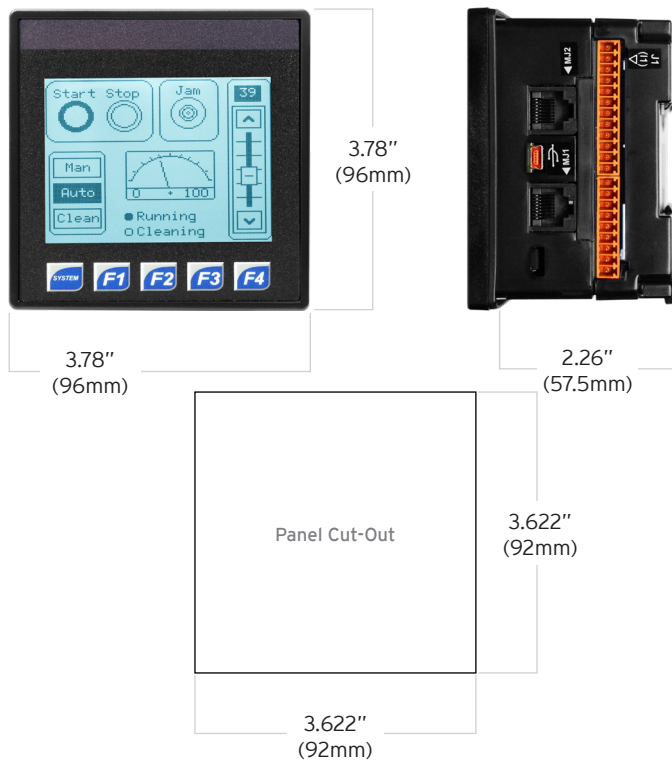**XLEe/XLTe User Manual [MAN0878]**

The User Manual includes extensive information on:
- Built-in I/O
- Common %S & %SR Registers
- HSC/PWM/Totalizer/Quadrature & Accumulator Registers
- Resource Limits

Indianapolis, USA | Cork, Ireland | Calgary, Canada | Bangalore, India | Oakleigh, Australia | Tianjin, China | Esteio, Brazil

6 INSTALLATION DIMENSIONS

6.1 - Dimensions

3.78″
(96mm)

3.78″
(96mm)

2.26″
(57.5mm)

Panel Cut-Out

3.622″
(92mm)

3.622″
(92mm)

* +/- 0.1mm cutout tolerance

6.2 - Installation Procedure

- The XLE/XLT utilizes a clip installation method to ensure a robust and watertight seal to the enclosure. Please follow the steps below for the proper installation and operation of the unit.
- This equipment is suitable for Class I, Division 2, Groups A, B, C and D or non-hazardous locations only.
- Digital outputs shall be supplied from the same source as the operator control station.
- Jumpers on connector JP1 shall not be removed or replaced while the circuit is live unless the area is known to be free of ignitable concentrations of flammable gases or vapors.

1. Carefully locate an appropriate place to mount the XLE/XLT. Be sure to leave enough room at the top of the unit for insertion and removal of the microSD™ card.
2. Carefully cut the host panel per the diagram on Page 1, creating a 92mm x 92mm +/-0.1mm opening into which the XLE/XLT may be installed. If the opening is too large, water may leak into the enclosure, potentially damaging the unit. If the opening is too small, the OCS may not fit through the hole without damage.
3. Remove any burrs and or sharp edges and ensure the panel is not warped in the cutting process.
4. Remove all Removable Terminals from the XLE/XLT. Insert the XLE/XLT through the panel cutout (from the front). The gasket must be between the host panel and the XLE/XLT.
5. Install and tighten the four mounting clips (provided in the box) until the gasket forms a tight seal (NOTE: Max torque 0.8 to 1.13 Nm, 7-10 in-lbs).
6. Reinstall the XLE/XLT I/O Removable Terminal Blocks. Connect communications cables to the serial port, USB ports, Ethernet port, and CAN port as required.

7 BATTERY MAINTENANCE

The XLE/XLT uses a replaceable non-rechargeable 3V Lithium coin-cell battery (CR2450) to run the Real-Time Clock and to keep the retained register values. This battery is designed to maintain the clock and memory for 7 to 10 years. Please reference MAN0878 providing instructions on how to replace the battery.

8 ACCESSORIES

8.1   Backup Battery: HE-BAT009
The XLE and XLT use a lithium battery [CR2450] to run the Real-Time Clock and to maintain the retained register values. This battery is designed to maintain the clock and memory for 7-10 years.

8.2   Programming Cables Kit: HE-XCK
This programming cable kit includes the following adapter cables:
- USB to MiniUSB
- USB to RS-232 Serial
- RS-232 Serial to RJ45 Ethernet

8.3   2/4 Channel Analog Output Kit
- HE-XDAC007 - 2 Channel Analog Output I/O Kit
- HE-XDAC107 - 4 Channel Analog Output I/O Kit

Visit the Horner Website to purchase accessories.

9 SAFETY

9.1 - WARNINGS

1. To avoid the risk of electric shock or burns, always connect the safety (or earth) ground before making any other connections.
2. To reduce the risk of fire, electrical shock, or physical injury, it is strongly recommended to use the voltage measurement inputs. Be sure to locate fuses as close to the source as possible.
3. Replace fuse with the same type and rating to provide protection against risk of fire and shock hazards.
4. In the event of repeated failure, do NOT replace the fuse again as repeated failure indicates a defective condition that will NOT clear by replacing the fuse.
5. 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.
6. **WARNING** - Battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.
7. **WARNING** - **EXPLOSION HAZARD** - Batteries must only be changed in an area known to be non-hazardous.

9.2 - FCC COMPLIANCE

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

9.3 - PRECAUTIONS

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:
   1. Connect the safety (earth) ground on the power connector first before making any other connections.
   2. When connecting to the electric circuits or pulse-initiating equipment, open their related breakers.
   3. Do NOT make connection to live power lines.
   4. Make connections to the module first; then connect to the circuit to be monitored.
   5. Route power wires in a safe manner in accordance with good practice and local codes.
   6. Wear proper personal protective equipment including safety glasses and insulated gloves when making connections to power circuits.
   7. Ensure hands, shoes, and floor are dry before making any connection to a power line.
   8. Make sure the unit is turned OFF before making connection to terminals.
   9. Make sure all circuits are de-energized before making connections.
   10. Before each use, inspect all cables for breaks or cracks in the insulation. Replace immediately if defective.
   11. Use copper conductors in Field Wiring only, 60/75°C.
   12. Use caution when connecting controllers to PCs via serial or USB. PCs, especially laptops,may use "floating power supplies" that are ungrounded. This could cause a damaging voltage potential between the laptop and controller. Ensure the controller and laptop are grounded for maximum protection. Consider using a USB isolator due to voltage potential differences as a preventative measure.

10 PART NUMBER BUILDER

GLOBAL MODEL NUMBERS

screen	Ethernet	I/O

HE-XL [____] 1 [____] [____]

E (no touchscreen)
T (touchscreen)

O (no Ethernet)
E (Ethernet)

0 (model 0)
2 (model 2)
3 (model 3)
4 (model 4)
5 (model 5)
6 (model 6)

EUROPEAN MODEL NUMBERS

screen	Ethernet	CAN option	I/O	overlay type

HEX [____] [____] C [____] [____] - [____]

E22
(no touchscreen)
T24
(touchscreen)

0 (no Ethernet)
1 (Ethernet)

0 (no CAN*)
1 (CsCAN)
2 (CANopen)
4 (DeviceNet)
5 (J1939)

00 (model 0)
12 (model 2)
13 (model 3)
14 (model 4)
15 (model 5)
16 (model 6)

00 (dark colour)
01 (light colour)
02 (blank)
03-99 (custom)

*No CAN is only available on XLE

11 TECHNICAL SUPPORT

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

North America
+1 (317) 916-4274
(877) 665-5666
www.hornerautomation.com
techsppt@heapg.com

Europe
+353 (21) 4321-266
www.hornerautomation.eu
technical.support@horner-apg.com

Indianapolis, USA | Cork, Ireland | Calgary, Canada | Bangalore, India | Oakleigh, Australia | Tianjin, China | Esteio, Brazil

2/11/2021 | MAN1117-09-EN