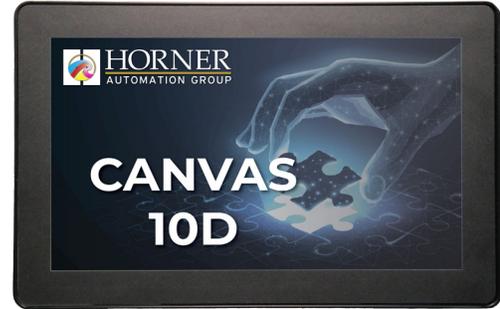


CANVAS 10D QUICK REFERENCE GUIDE

GENERAL SPECIFICATIONS

Primary Voltage Range	10 - 30VDC
Typical Power Backlight at 100%	733mA @ 10VDC (10.17W); 336mA @ 24VDC (10.56W)
Typical Power Backlight at 50%	180mA @ 24VDC (2.66W)
Typical Power Backlight at 0%	171mA @ 24VDC (2.52W) 140mA @ 24V
Inrush Current	25A for < 1ms @ 24VDC, DC switched
Real Time Clock	Battery Backed, Lithium Coin
Clock Accuracy	±20 ppm maximum at 25°C (±1 min/month)
Relative Humidity	5 to 95% Non-condensing
Operating Temperature	-10°C to +60°C
Storage Temperature	-20°C to +60°C
Weight	43.2oz (1225g)
Pollution Degree	2
Altitude	Up to 2000m
Housing Material	Polycarbonate, UL rated
Panel Seal	Silicone rubber
Front Panel	Type 1, 4X indoor use only, 12, 12K and 13
Packaging	100% Recyclable paper fiber materials
Included in Box	Controller, 3 x I/O connectors, 4 x mounting clips, 1 x power connector, 1 x snap on ferrite Stud mounting hardware, Quick Reference Guide

CONTROLLER OVERVIEW

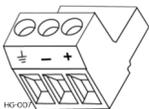


HG-667

1. Touch Screen
2. microSD: Data Storage
3. USB C Port
4. CAN 2 Port
5. MJ 1/2 Port
6. DIP Switches
7. MJ3 Port
8. CAN 1 Port
9. Power In
10. LAN2 Port
11. LAN1 Port
12. Audio Line Out/Mic In
13. USB A Port
14. OCS-I/O Port

NOTE: See Precaution #12 about USB and grounding.

POWER WIRING



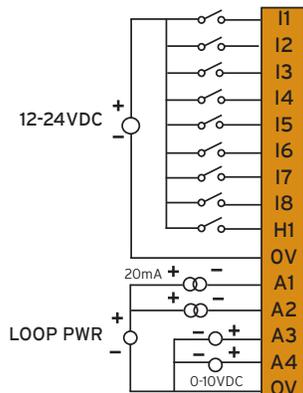
Primary Power Port Pins		
PIN	SIGNAL	DESCRIPTION
1	Ground	Frame Ground
2	DC-	Input Power Supply Ground
3	DC+	Input Power Supply Voltage

NOTE: Primary Power Range: 10-30VDC

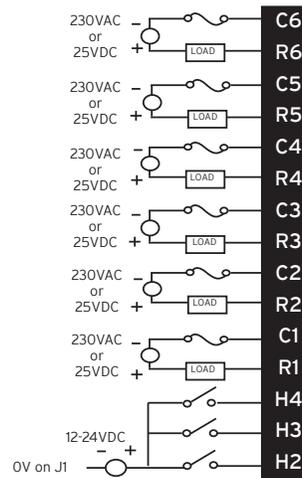
WIRING

MODEL 2: 12 DC In, 6 Relay Out, (4) 12-bit Analog In

J1 (Orange) Name	
I1 (%I1)	Digital In 1
I2 (%I2)	Digital In 2
I3 (%I3)	Digital In 3
I4 (%I4)	Digital In 4
I5 (%I5)	Digital In 5
I6 (%I6)	Digital In 6
I7 (%I7)	Digital In 7
I8 (%I8)	Digital In 8
H1 (%I9)	HSC1/Dig. In 9
OV	Common
A1 (%AI1)	Analog In 1
A2 (%AI2)	Analog In 2
A3 (%AI3)	Analog In 3
A4 (%AI4)	Analog In 4
OV	Common

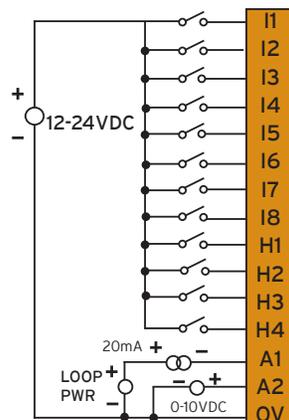


J2 (Black) Name	
C6 (%Q6)	Relay 6 COM
R6 (%Q6)	Relay 6 NO
C5 (%Q5)	Relay 5 COM
R5 (%Q5)	Relay 5 NO
C4 (%Q4)	Relay 4 COM
R4 (%Q4)	Relay 4 NO
C3 (%Q3)	Relay 3 COM
R3 (%Q3)	Relay 3 NO
C2 (%Q2)	Relay 2 COM
R2 (%Q2)	Relay 2 NO
C1 (%Q1)	Relay 1 COM
R1 (%Q1)	Relay 1 NO
H4 (%QI12)	HSC4/Dig. In 12
H3 (%QI11)	HSC3/Dig. In 11
H2 (%QI10)	HSC2/Dig. In 10

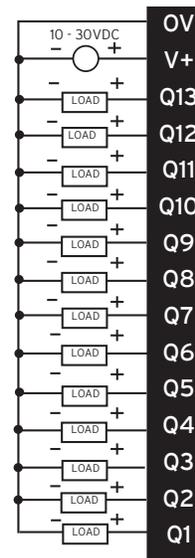


MODEL 3: 12 DC In, 12 DC Out, (2) 12-bit Analog In

J1 (Orange) Name	
I1 (%I1)	Digital In 1
I2 (%I2)	Digital In 2
I3 (%I3)	Digital In 3
I4 (%I4)	Digital In 4
I5 (%I5)	Digital In 5
I6 (%I6)	Digital In 6
I7 (%I7)	Digital In 7
I8 (%I8)	Digital In 8
H1 (%I9)	HSC1/Dig. In 9
H2 (%I10)	HSC1/Dig. In 10
H3 (%I11)	HSC1/Dig. In 11
H4 (%I12)	HSC1/Dig. In 12
A1 (%AI1)	Analog In 1
A2 (%AI2)	Analog In 2
OV	Common

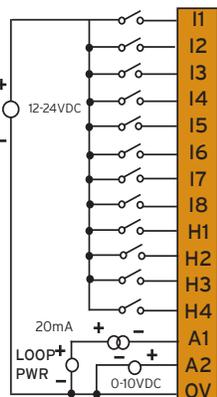


J2 (Black) Name	
OV	Common
V+	V+
NC	No Connect
Q12 (%Q12)	Digital Out 12
Q11 (%Q11)	Digital Out 11
Q10 (%Q10)	Digital Out 10
Q9 (%Q9)	Digital Out 9
Q8 (%Q8)	Digital Out 8
Q7 (%Q7)	Digital Out 7
Q6 (%Q6)	Digital Out 6
Q5 (%Q5)	Digital Out 5
Q4 (%Q4)	Digital Out 4
Q3 (%Q3)	Digital Out 3
Q2 (%Q2)	Dig. Out/PWM2
Q1 (%Q1)	Dig. Out/PWM1

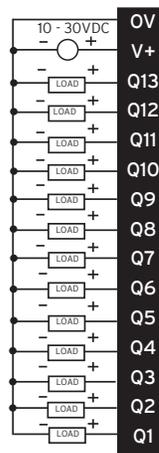


MODEL 4: 24 DC In, 16 DC Out, (2) 12-bit Analog In

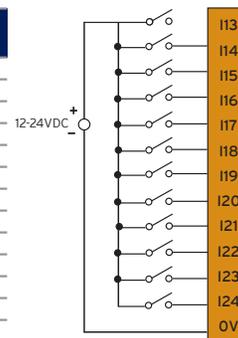
J1 (Orange) Name	
I1 (%I1)	Digital In 1
I2 (%I2)	Digital In 2
I3 (%I3)	Digital In 3
I4 (%I4)	Digital In 4
I5 (%I5)	Digital In 5
I6 (%I6)	Digital In 6
I7 (%I7)	Digital In 7
I8 (%I8)	Digital In 8
H1 (%I9)	HSC1/Dig. In 9
H2 (%I10)	HSC1/Dig. In 10
H3 (%I11)	HSC1/Dig. In 11
H4 (%I12)	HSC1/Dig. In 12
A1 (%AI1)	Analog In 1
A2 (%AI2)	Analog In 2
OV	Common



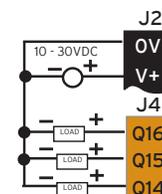
J2 (Black) Name	
OV	Common
V+	V+
Q13 (%Q13)	Digital Out 13
Q12 (%Q12)	Digital Out 12
Q11 (%Q11)	Digital Out 11
Q10 (%Q10)	Digital Out 10
Q9 (%Q9)	Digital Out 9
Q8 (%Q8)	Digital Out 8
Q7 (%Q7)	Digital Out 7
Q6 (%Q6)	Digital Out 6
Q5 (%Q5)	Digital Out 5
Q4 (%Q4)	Digital Out 4
Q3 (%Q3)	Digital Out 3
Q2 (%Q2)	Dig. Out/PWM2
Q1 (%Q1)	Dig. Out/PWM1



J3 (Orange) Name	
I13 (%I13)	Digital In 13
I14 (%I14)	Digital In 14
I15 (%I15)	Digital In 15
I16 (%I16)	Digital In 16
I17 (%I17)	Digital In 17
I18 (%I18)	Digital In 18
I19 (%I19)	Digital In 19
I20 (%I20)	Digital In 20
I21 (%I21)	Digital In 21
I22 (%I22)	Digital In 22
I23 (%I23)	Digital In 23
I24 (%I24)	Digital In 24
OV	Common



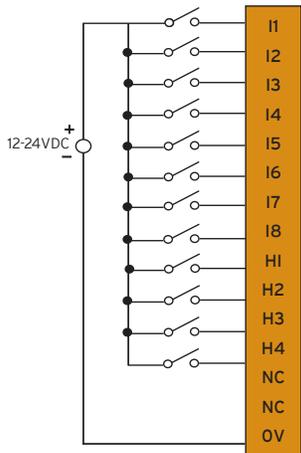
J4 (Orange) Name	
Q16 (%Q16)	Digital Out 16
Q15 (%Q15)	Digital Out 15
Q14 (%Q14)	Digital Out 14



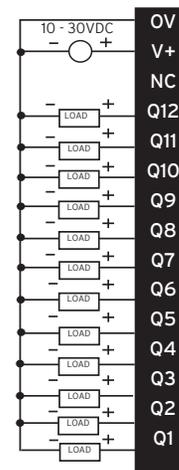
WIRING: I-O continued...

MODEL 5: 12 DC In, 12 DC Out, (2) 14/16-bit Analog In (mA/V/TC/mV/RTD), (2) 12-bit Analog Out

J1 (Orange) Name	
I1 (%I1)	Digital In 1
I2 (%I2)	Digital In 2
I3 (%I3)	Digital In 3
I4 (%I4)	Digital In 4
I5 (%I5)	Digital In 5
I6 (%I6)	Digital In 6
I7 (%I7)	Digital In 7
I8 (%I8)	Digital In 8
H1 (%I9)	HSC1/Dig. In 9
H2 (%I10)	HSC2/Dig. In 10
H3 (%I11)	HSC3/Dig. In 11
H4 (%I12)	HSC4/Dig. In 12
NC	No Connect
NC	No Connect
OV	Common



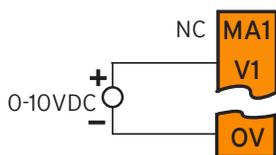
J2 (Black) Name	
OV	Common
V+*	Output Power
NC	No Connect
Q12 (%Q12)	Digital Out 12
Q11 (%Q11)	Digital Out 11
Q10 (%Q10)	Digital Out 10
Q9 (%Q9)	Digital Out 9
Q8 (%Q8)	Digital Out 8
Q7 (%Q7)	Digital Out 7
Q6 (%Q6)	Digital Out 6
Q5 (%Q5)	Digital Out 5
Q4 (%Q4)	Digital Out 4
Q3 (%Q3)	Digital Out 3
Q2 (%Q2)	Dig. Out/PWM2
Q1 (%Q1)	Dig. Out/PWM1



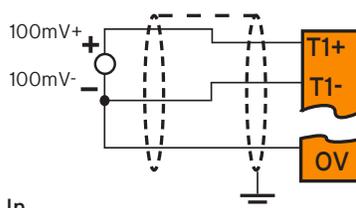
J3 (Orange) Name	
T1+ (%AI1)	TC (1+) or RTD (1+) or 100 mV (1+)
T1- (%AI1)	TC (1-) or RTD (1-) or 100 mV (1-)
T2+ (%AI2)	TC (2+) or RTD (2+) or 100 mV (2+)
T2- (%AI2)	TC (2-) or RTD (2-) or 100 mV (2-)
AQ1 (%AQ9)	10V or 20mA OUT (1)
AQ2 (%AQ10)	10V or 20mA OUT (2)
OV	Common
MA1 (%AI1)	0-20mA IN (1)
V1 (%AI1)	0-10V IN (1)
OV	Common
MA2 (%AI2)	0-20mA IN (2)
V2 (%AI2)	0-10V IN (2)
OV	Common

T1+
T1-
T2+
T2-
AQ1
AQ2
OV
MA1
V1
O1
MA2
V2
OV

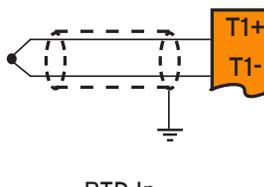
0-10V Analog In



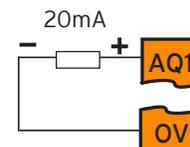
mV In



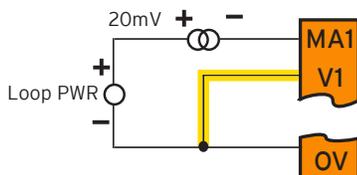
Thermocouple In



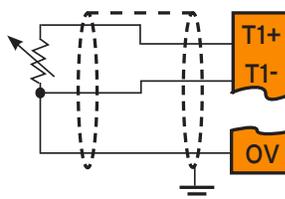
4 - 20 mA Analog Out



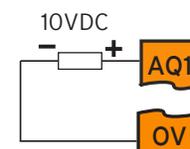
20mA Analog In



RTD In



0 - 10V Analog Out



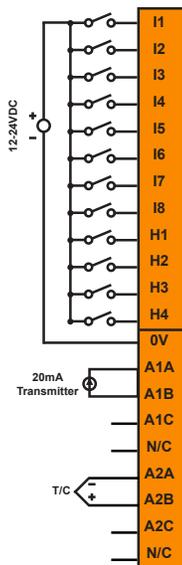
NOTE: Loop power requirements are determined by the transmitter specification.

NOTE: Be sure to wire OV to V1 as shown.

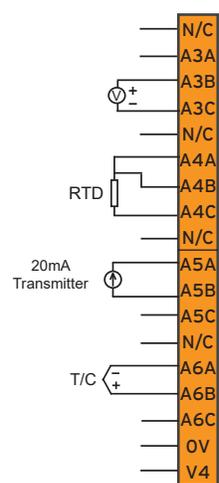
WIRING: I-O continued...

MODEL 6: 12 DC In, 12 DC Out, (6) 14/17-bit Analog In (mA/V/TC/mV/RTD), (4) 12-bit Analog Out

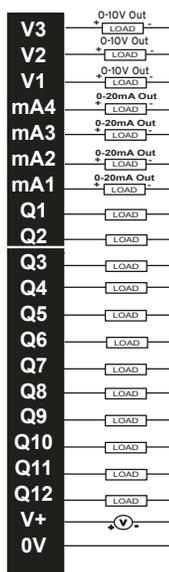
J1 (Orange/Green) Name		
J1A	I1 (%I1)	Digital In 1
	I2 (%I2)	Digital In 12
	I3 (%I3)	Digital In 13
	I4 (%I4)	Digital In 14
	I5 (%I5)	Digital In 15
	I6 (%I6)	Digital In 16
	I7 (%I7)	Digital In 17
	I8 (%I8)	Digital In 18
	H1 (%I9)	HSC1/V Dig. In 9
	H2 (%I10)	HSC2/V Dig. In 10
	H3 (%I11)	HSC3/V Dig. In 11
	H4 (%I12)	HSC4/V Dig. In 12
J1B	OV	Common
	A1A (%AI33)	Univ. AI 1 Pin 1
	A1B (%AI33)	Univ. AI 1 Pin 2
	A1C (%AI33)	Univ. AI 1 Pin 3
	NC	No Connect
	A2A (%AI34)	Univ. AI 2 Pin 1
	A2B (%AI34)	Univ. AI 2 Pin 2
	A2C (%AI34)	Univ. AI 2 Pin 3
	NC	No Connect



J3 (Orange/Green) Name			
Univ. AI	NC	No Connection	
	A3A (%AI35)	Univ. AI 3 Pin 1	
	A3B (%AI35)	Univ. AI 3 Pin 2	
	A3C (%AI35)	Univ. AI 3 Pin 3	
	NC	No Connection	
	A4A (%AI36)	Univ. AI 4 Pin 1	
	A4B (%AI36)	Univ. AI 4 Pin 2	
	A4C (%AI36)	Univ. AI 4 Pin 3	
	NC	No Connection	
	Univ. AI	A5A (%AI37)	Univ. AI 5 Pin 1
		A5B (%AI37)	Univ. AI 5 Pin 2
		A5C (%AI37)	Univ. AI 5 Pin 3
NC		No Connection	
A6A (%AI38)		Univ. AI 6 Pin 1	
A6B (%AI38)		Univ. AI 6 Pin 2	
A6C (%AI38)	Univ. AI 6 Pin 3		
OV	Common		
V4 (%AQ12)	V OUT 4*		



J2 (Black/Green) Name			
J2A	V3 (%AQ11)	V Out 3*	
	V2 (%AQ10)	V Out 2*	
	V1 (%AQ9)	V Out 1*	
	mA4 (%Q4)	mA Out 4*	
	mA3 (%Q3)	mA Out 3*	
	mA2 (%Q2)	mA Out 2*	
	mA1 (%Q1)	mA Out 1*	
	Q1 (%Q1)	Dig. Out 1/PWM1	
	Q2 (%Q2)	Dig. Out 1/PWM2	
	J2B	Q3 (%Q3)	Digital Out 3
		Q4 (%Q4)	Digital Out 4
		Q5 (%Q5)	Digital Out 5
Q6 (%Q6)		Digital Out 6	
Q7 (%Q7)		Digital Out 7	
Q8 (%Q8)		Digital Out 8	
Q9 (%Q9)		Digital Out 9	
Q10 (%Q10)		Digital Out 10	
Q11 (%Q11)		Digital Out 11	
Q12 (%Q12)		Digital Out 12	
V+		V External+	
OV		Common	

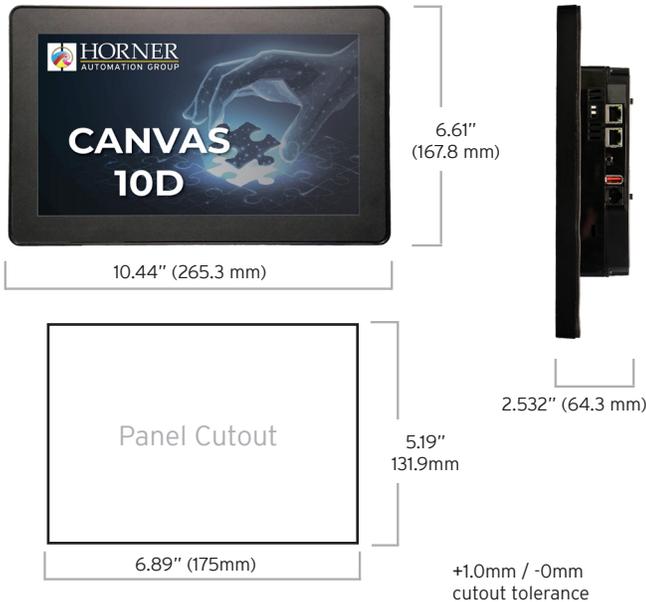


NOTE: * Both mA & V outputs are active for each output channel, however, only the configured output type is calibrated (maximum 4 channels simultaneously).

DIMENSIONS & INSTALLATION

SAFETY

Panel Cutout



Installation Procedure

This equipment is panel mounted and is meant to be installed in an enclosure suitable for the environment, such that the back of the equipment is only accessible with the use of a tool.

This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D; Class II, Division 2 Groups F and G; and Class III Hazardous Locations or Non-Hazardous Locations only.

The Canvas 10D utilizes a clip and stud 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.

1. Select where to mount the Canvas 10D, being sure to leave enough room at the top of the unit for insertion and removal of the microSD™ card.
2. Cut the host panel per the diagram, creating a 175mm x 131.9mm (with a tolerance of +1.0mm/ -0mm) opening into which the Canvas 10D is to 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 10D may not fit through the hole without damage.
3. Remove any burrs/sharp edges and ensure the panel is not warped in the cutting process.
4. Install the stud mounting hardware. Push the studs through the rear gasket at the four concave circles lining the gasket. Ensure that the studs are inserted so that the keyed end is out for tightening with the included hex key. For the perimeter studs, it is recommended to use a thread locker (similar to 242 Blue Loctite). Use supplied lock washers and nut. The recommended torque is 3-4 in-lbs (0.34- 0.45 N·m)
5. Install and tighten the four mounting clips (provided in the box) until the gasket forms a tight seal. The recommended torque is 7-10 in-lbs (0.8 -1.13 N·m).
6. Connect communications cables to the serial port, USB ports, and CAN port as required.

WARNINGS

1. **WARNING** - Do not disconnect while circuit is live unless area is known to be non-hazardous. **AVERTISSEMENT** - Ne pas déconnecter pendant que le circuit est sous tension à moins que la zone ne soit connue pour être non dangereuse.
2. **WARNING** - EXPLOSION HAZARD - Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous. **AVERTISSEMENT** - RISQUE D'EXPLOSION - Ne débranchez pas l'équipement tant que la puissance électrique n'a pas été retirée ou que la zone n'est pas dangereuse.
3. **WARNING** - Do not disconnect while circuit is live unless area is known to be non-hazardous. **AVERTISSEMENT** - Ne débranchez pas lorsque le circuit est sous tension, à moins que la zone ne soit reconnue comme non dangereuse.
4. To avoid the risk of electric shock or burns, always connect the safety (or earth) ground before making any other connections.
5. 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.
6. Replace fuse with the same type and rating to provide protection against risk of fire and shock hazards.
7. 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.
8. 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.
9. If the equipment is used in a manner not specified by Horner APG, the protection provided by the equipment may be impaired.

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

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.

TECHNICAL SUPPORT

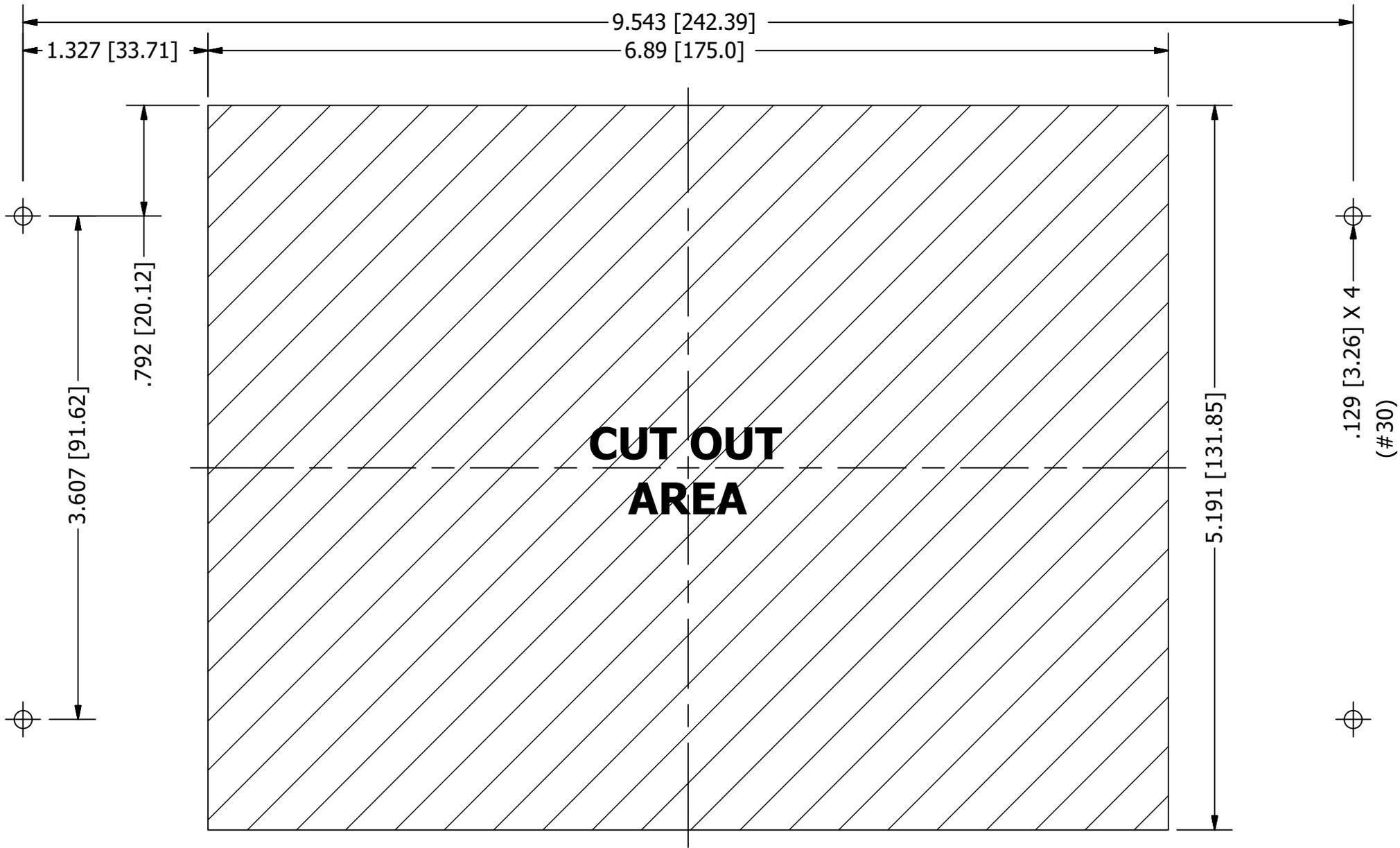
For assistance and manual updates, contact Technical Support at the following locations:

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(317) 916-4274
www.hornerautomation.com
techsppt@heapg.com

Europe

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



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