



CURTIS

Instrumentation

Digital Instrumentation

Models 3301T and 3401T



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The Curtis models 3301T and 3401T are powerful, easily configurable HMIs suitable for demanding, cost sensitive applications. The HMIs utilize high-bright color displays, allowing operators to clearly view diverse information in any lighting condition. The displays come equipped with easily adjustable, pre-set, user interfaces designed for various markets. For cases where a more custom user interface is desired, the HMIs are easily customizable by Curtis engineers. Operators interface with the displays through integrated push buttons, making it ideal for gloved operators or applications where precise tactile feedback is necessary. The displays incorporate CAN, up to 5 inputs and an output to monitor and control vehicle functions in a single integrated package.

FEATURES

- ▶ Customizable user interface to meet unique market needs in one of two ways:
 - Utilizing one of the pre-set user interfaces. Each interface is unique and designed to meet the needs of a specific market or machine type. Unique market user interfaces are easily selectable by the end user.
 - Full user interface customization using C code.
- ▶ High brightness, high resolution, color LCD makes it easy for operators to view information in any lighting condition.
 - 3301T LCD: 3.5 inch (88.9 mm), 320 x 240 pixels.
 - 3401T LCD: 4.3 inch (109.22 mm), 480 x 272 pixels.
- ▶ IO & CAN functionality enable vehicle management, monitoring and control in a single integrated unit.
- ▶ CANopen, J1939 and an adjustable baud rate allow for seamless communication with any CAN node on the vehicle network.
- ▶ Integrated push buttons allow for gloved use and easy tactile interface to the display.
 - 3301T: 10 integrated push buttons.
 - 3401T: 11 integrated push buttons.
- ▶ Replicates various motor controller programming and monitoring features from Models 1311 and 1313.
- ▶ Innovative Curtis battery monitoring technology provides reliable state-of-charge information.
- ▶ The 3401 optionally supports a real-time clock that provides data logging and real-time event time stamping.
- ▶ Multi-language support for menus and critical faults.
- ▶ Wide 12 to 96 VDC nominal, menu-selectable, operating voltage eliminates the need for multiple hardware variants.
- ▶ Four inputs may be configured independently as analog, digital or frequency type inputs or as a Curtis DC controller fault code input.
- ▶ A buzzer enables audio feedback of errors or machine conditions to the operator.
 - 3301T: Standard Buzzer.
 - 3401T: Optional Buzzer.
- ▶ Easily operates in demanding conditions with an operational temperature range of -40°C to $+70^{\circ}\text{C}$ with the optional heater or -20°C to $+70^{\circ}\text{C}$ without the heater and IP65 front and rear ingress protection.
- ▶ CE compliance*, UL recognition and ROHS 3 compliance ensure compatibility with global regulatory safety.

**pending*



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SPECIFICATIONS

Electrical

Voltage Ranges:

Nominal	Min.	Max.
12V – 96V	9V	120V

Operating Currents 3301T:

B+	LCD Heater Off		LCD Heater On		
	Keyswitch On		Keyswitch Off	Typ.	Max.
	Typ.	Max.			
12V	166mA	209mA	110mA	645mA	685mA
24V	80mA	100mA	54mA	575mA	596mA
36V	56mA	69mA	39mA	536mA	550mA
48V	46mA	54mA	32mA	524mA	530mA
60V	39mA	54mA	28mA	488mA	503mA
72V	36mA	42mA	26mA	482mA	486mA
80V	34mA	40mA	25mA	470mA	475mA
96V	33mA	37mA	24mA	463mA	466mA

Operating Currents 3401T:

B+	LCD Heater Off		LCD Heater On		
	Keyswitch On		Keyswitch Off	Typ.	Max.
	Typ.	Max.			
12V	166mA	207mA	112mA	760mA	801mA
24V	80mA	99mA	56mA	682mA	703mA
36V	56mA	68mA	40mA	650mA	665mA
48V	45mA	53mA	33mA	634mA	642mA
60V	39mA	46mA	29mA	615mA	620mA
72V	36mA	41mA	27mA	596mA	600mA
80V	34mA	39mA	26mA	584mA	588mA
96V	33mA	37mA	25mA	566mA	568mA

Output Driver:

Driver can be configured in current mode, voltage mode, and PWM mode. Max continuous current is limited to 1 amp.

Baud Rate:

100 kbps to 1 Mbps.

Environmental

Operating Temperature:

Heater: -40°C to $+70^{\circ}\text{C}$.

No Heater: -20°C to $+70^{\circ}\text{C}$.

Storage Temperature:

-40°C to $+85^{\circ}\text{C}$.

Humidity:

Soak: Designed to meet EN 60068-2-78.

Cyclic: Designed to meet EN 60068-2-30.

Ingress Protection:

Designed to meet EN 60529

- IP65 on front side.
- Electronics sealed to IP65 on rear side.
- Connector sealed to IP40 with unsealed mating connector or IP54 with sealed mating connector.

Salt Spray (Fog):

ASTM B 117 as per SAE J1810.

Shock:

Designed to meet EN 60068-2-27.

Vibration:

General

Designed to meet EN 60068-2-6.

Random

Designed to meet EN 60068-2-64.

Resonance

Designed to meet EN 60068-2-6.

EMC

Emissions:

Designed to meet EN 12895: 2015.

Immunity:

Designed to meet EN 12895: 2015.

Safety

Meets EN 61010-1: 2010 Part 1 General safety requirements for measurement, control and laboratory use.

Regulatory Approvals

UL: UL recognition to UL 583.

CE*: The product complies with the requirements of the EMC Standards and RoHS directive 2015/863/EU (RoHS 3).

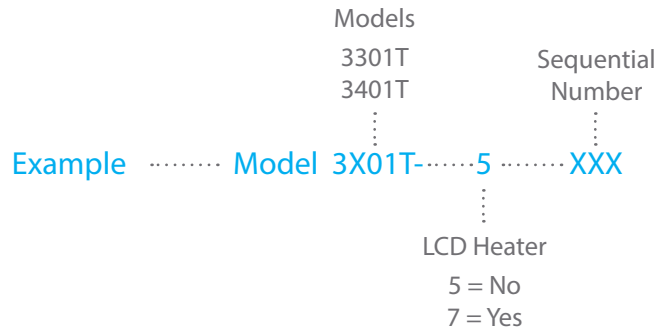
*pending

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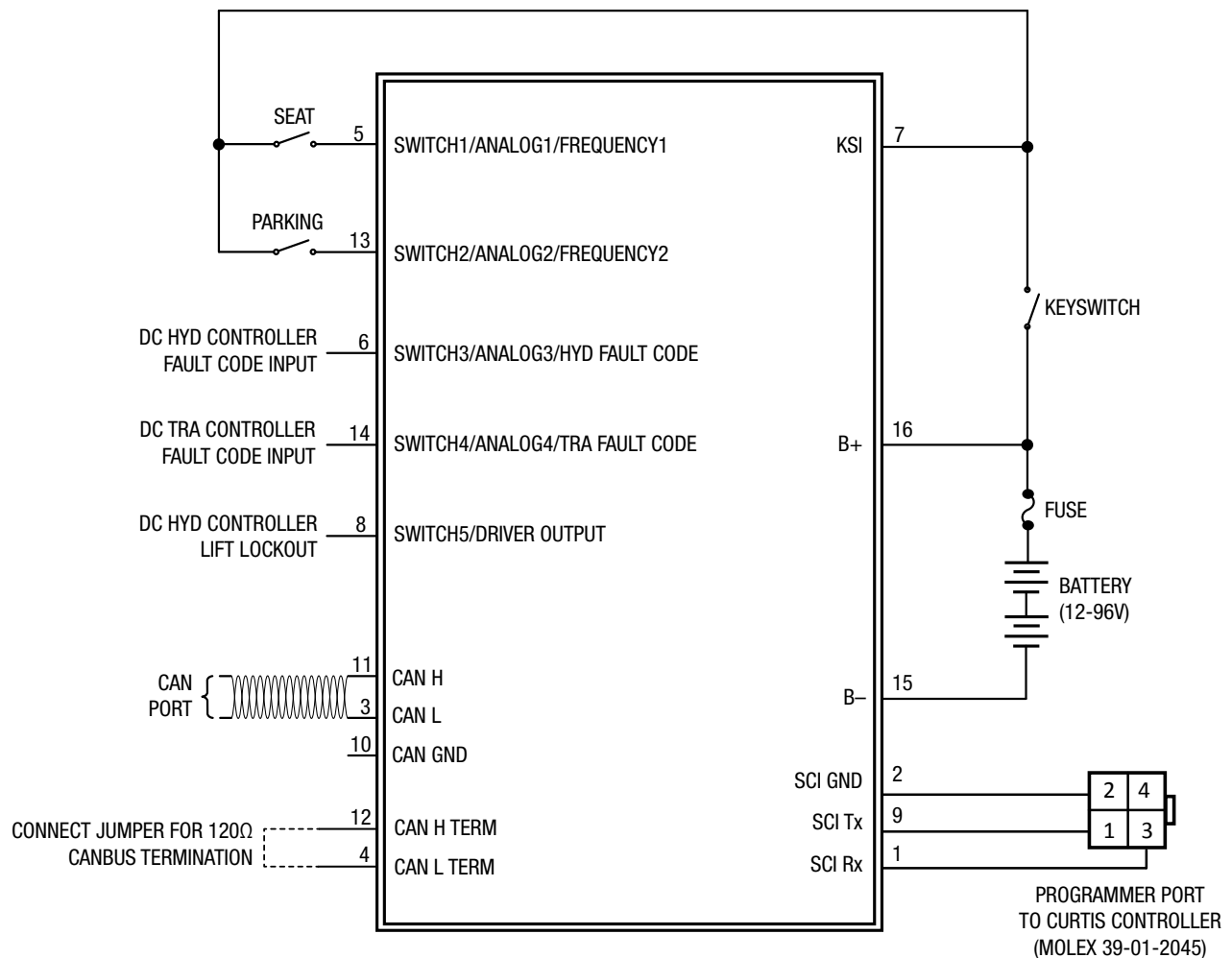


MODEL ENCODEMENT



WIRING DIAGRAM

3301T and 3401T



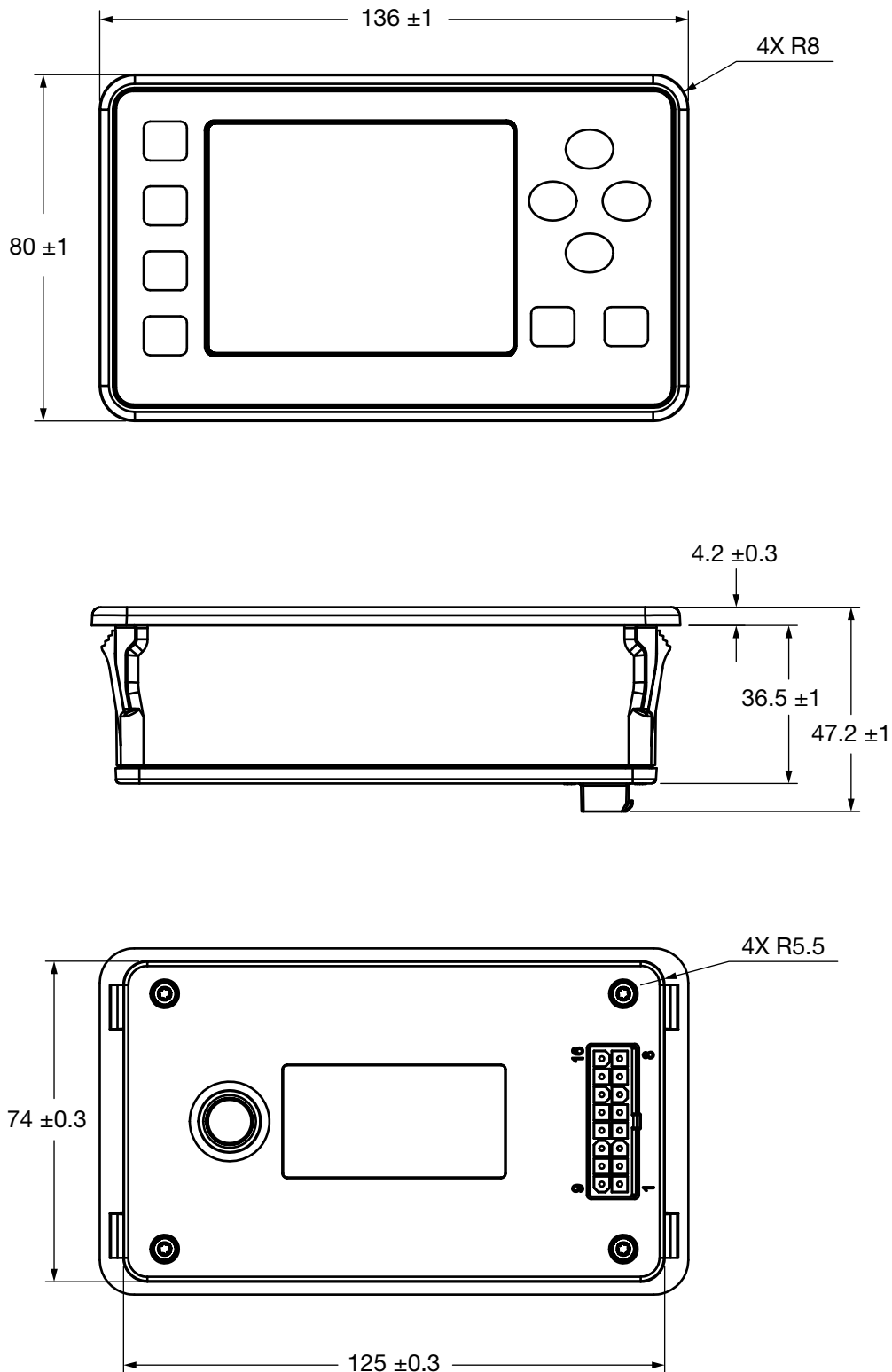
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DIMENSIONS mm

3301T



Notes:

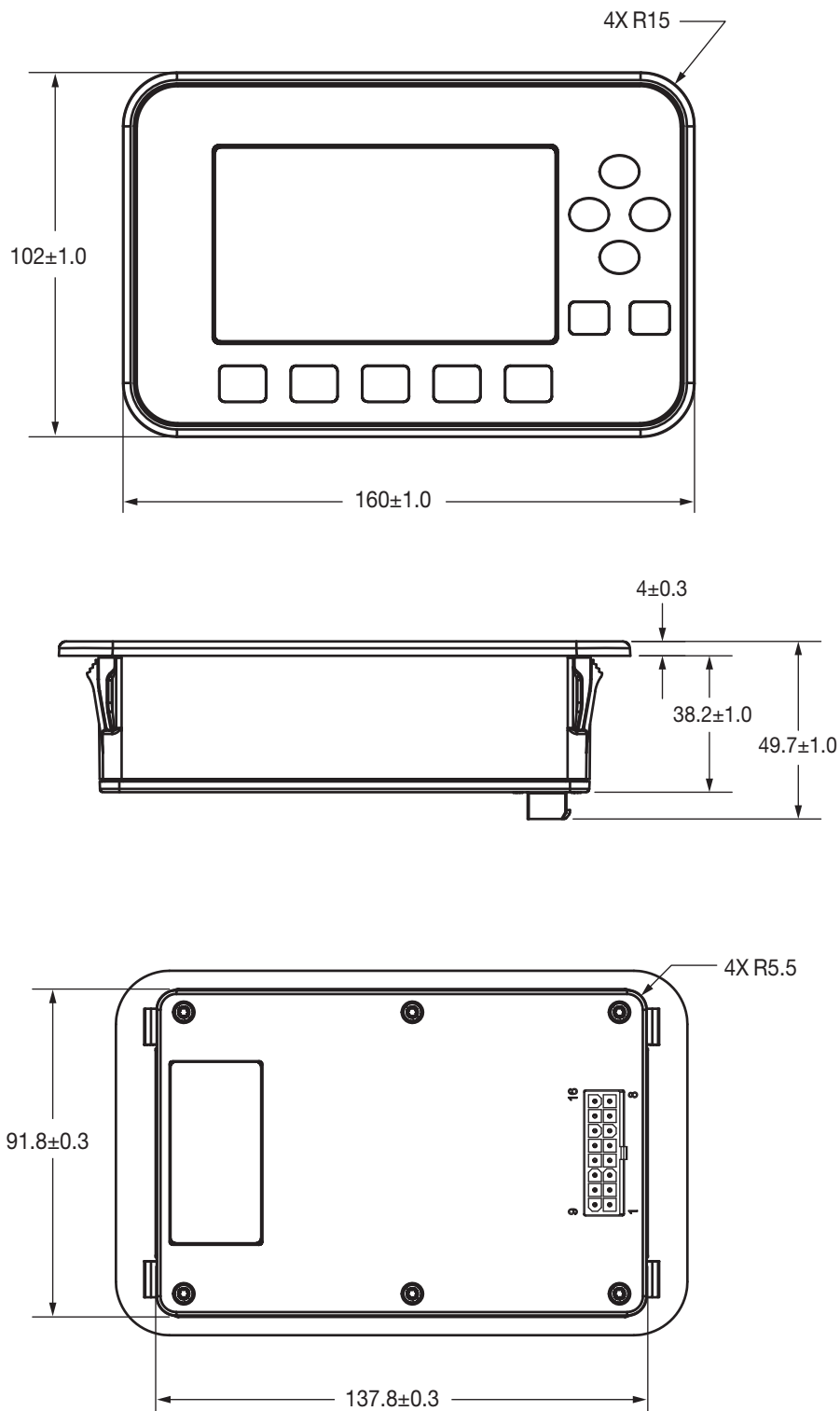
Recommended panel cutout: $74.3+0.8/0$ X $125.3+0.8/0$ mm, panel thickness: 2.0 to 4.0 mm

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DIMENSIONS mm

3401T



Notes:

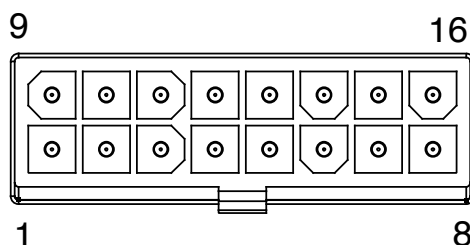
Recommended panel cutout: $92.1 + 0.8/0$ X $138.1 + 0.8/0$ mm, panel thickness: 2.0 to 4.0 mm

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CONNECTOR



Pin	Function	Pin	Function
1	SCI Rx	9	SCI Tx
2	SCI GND	10	CAN_GND
3	CAN_L	11	CAN_H
4	CAN_L Termination	12	CAN_H Termination
5	Switch Input 1/ Analog Input 1/ Frequency Input 1*	13	Switch Input 2/Analog Input 2/ Frequency Input 2*
6	Switch Input 3/Analog Input 3/HYD Fault Code Input*	14	Switch Input 4/Analog Input 4/TRA Fault Code Input*
7	Keyswitch	15	B-
8	Switch Input 5/MOSFET Output*	16	B+

*Function of these pins may be configured in software.

MATING CONNECTOR

The mating connectors for the 3401T & 3301T are 16-pin Mini-Universal MATE-N-LOK housing from Tyco Connectivity. The Tyco part numbers to assemble a mating assembly are given in the table below.

Item	Part	Tyco P/N
1	Connector Housing	770583-1
2	Terminal (18-22 AWG)	770904-X

The ingress protection of the 3401T & 3301T connectors can be improved to IP54 (from IP40) by replacing the mating connector part numbers in the table at left with the following part numbers:

Item	Part	Tyco P/N
1	Connector Housing	794824-1
2	Terminal (18-22 AWG)	770904-X
3	Interface Seal	1-1586362-6
4	Single Wire Seal or Gang Seal	794758-1 or 1-1586359-6
5	Cavity Plug Seal (for unused terminal positions)	794995-1

WARRANTY Two year limited warranty from time of delivery.

The Curtis Difference
You feel it when you drive it



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Specifications subject to change without notice

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