



CURTIS



ECS Module

Electronic Code Switch



CE



Electronic Code Switch



The Curtis ECS module is a flexible, easy to implement, operator identification keypad. It ensures only authorized users have access to the machine guaranteeing safe control and secure operation. Operators may identify themselves in multiple ways: through use of a personal PIN code, through compatible RFID tags or a combination of the two. The ECS module is flexible to implement and can easily be integrated into a machines with or without a CANbus. The ECS module incorporates a buzzer and two easy to read status LEDs providing the operator audio and visual feedback regarding identification acceptance and diagnostics.

FEATURES

- ▶ Integrates easily into any system.
 - For CAN based systems: CANopen implementation with an optionally connected CAN termination resistor. Supports CAN baud rates from 100Kbps to 1 Mbps.
 - For non-CAN based systems: output relay will change state to indicate authorized access.
- ▶ Includes one standard RFID tag and two mini RFID tags. Supports ISO 14443A RFID tags.
- ▶ Supports up to 100 individual access PINs or RFID codes.
- ▶ Provides two pre-configured levels of access, supervisor and user, allowing additional configuration options to the supervisor access level.
- ▶ Two LEDs, one green and one red, visualize identification acceptance and errors.
- ▶ An included buzzer provides audio feedback of errors or machine conditions to the operator.
- ▶ Machine power control through authorized RFID/ PIN access or via CAN.
- ▶ Auto machine shutdown based on interlock state and configurable timer.
- ▶ Pass Through Mode: allows the ECS to act as a pass through device, passing through push button inputs and RFID tag information over the CANbus.
- ▶ Diagnostic information accessible with the Curtis Integrated Toolkit.
- ▶ Updateable firmware over the CANbus.
- ▶ Easily operates in demanding conditions with an operational temperature range of -40° to $+70^{\circ}$ C, and electronics sealed to IP65.
- ▶ CE compliance*, UL recognition* and ROHS2 compliance ensure compatibility with global regulatory safety.



*Pending

Electronic Code Switch



SPECIFICATIONS

Electrical

Voltage Ranges:

Nominal	Min	Max
12–96 V	9V	120V

Operating Currents:

System Voltage	Typical (mA)	Max. (mA)
12–96 V	25	302

Baud Rate:

100 Kbps to 1Mbps, 125 Kbps default

Environmental

Operating Temperature:

ECS: –40° to +70° C

RFID Tag: –20° to +50° C

Storage Temperature:

ECS: –40° to +85° C

RFID Tag: –40° to +70° 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 for electronic components and IP54 for connector (mating with TYCO sealed connector).
- ▶ IP65 for electronic components and IP40 for connector (mating with TYCO unsealed connector).

Salt Spray (Fog):

Designed to meet ASTM B 117

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:

- ▶ **Radiated Emission:** EN 12895: 2015
- ▶ **Conducted Emission:** EN 301 489-1 V2.2.1

Immunity:

Designed to meet:

- ▶ EN 12895: 2015
- ▶ EN 301 489-1 V2.2.1

Radio Frequency:

Designed to meet EN 300 330 V2.1.1

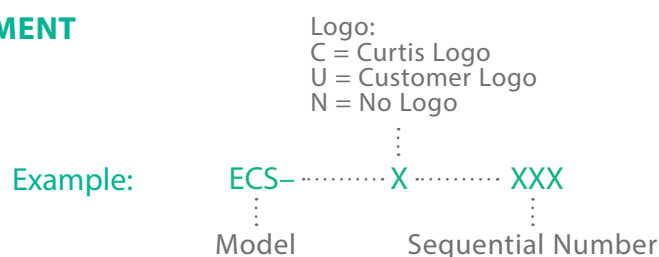
Regulatory Approvals:

***UL:** UL recognition to UL 583

***CE:** The product complies with the requirements of the EMC EN 12895:2015, EN 301489-1 V2.2.1 and RoHS directive 2011/65/EU (RoHS 2).

**Pending*

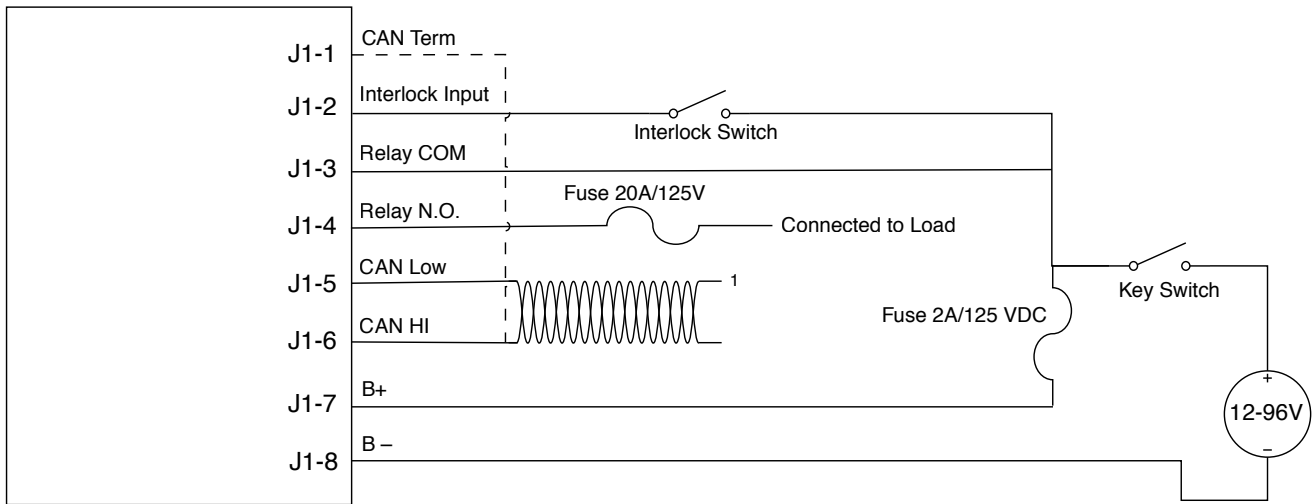
MODEL ENCODEMENT



Electronic Code Switch



TYPICAL WIRING

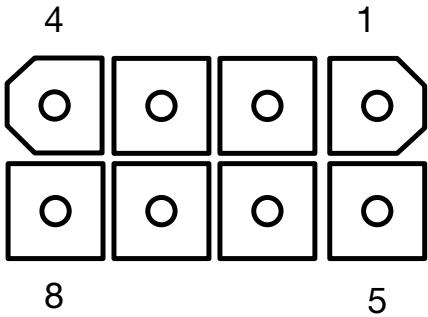


¹ Termination Resistor. Two 120 Ohm termination resistors are required on each bus, one termination resistor at each end of the bus.

CONNECTOR

The signals are assigned as shown in the table below.

Pin	Signal Name	Description
J1-1	CAN Term	CAN termination 120Ω; Short to pin 6 to enable
J1-2	Interlock Input	Interlock Input; 12V to 96V input; Active high
J1-3	Relay COM	Power to relay; 12V to 96V input
J1-4	Relay N.O.	Relay output
J1-5	CAN Low	CANbus low signal
J1-6	CAN HI	CANbus high signal
J1-7	B+	Battery Positive
J1-8	B-	Battery Common



MATING CONNECTOR

The mating connector for the ECS is an 8-pin Mini-Universal MATE-N-LOK housing. The part numbers to assemble a mating assembly are given in the table to the right.

The ingress protection of the ECS connector may be improved to IP54 (from IP40) by replacing the mating connector part numbers in the table above with the following part numbers (shown at the right). The electronic components of the ECS are sealed to IP65.

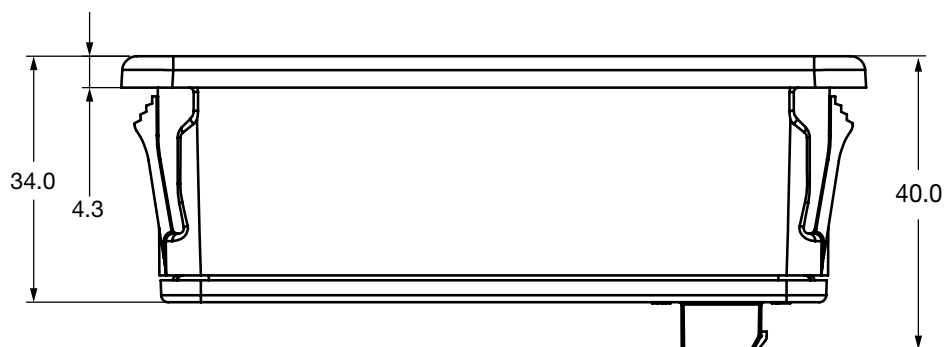
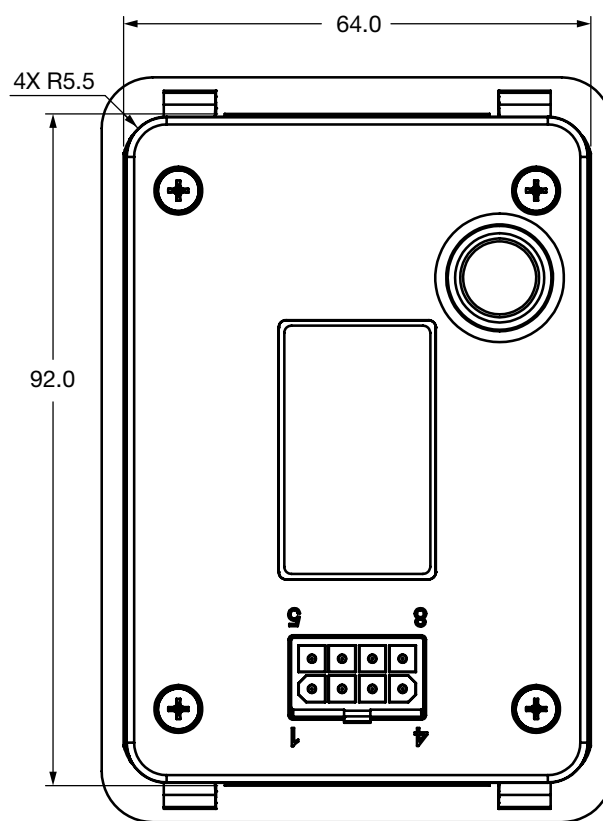
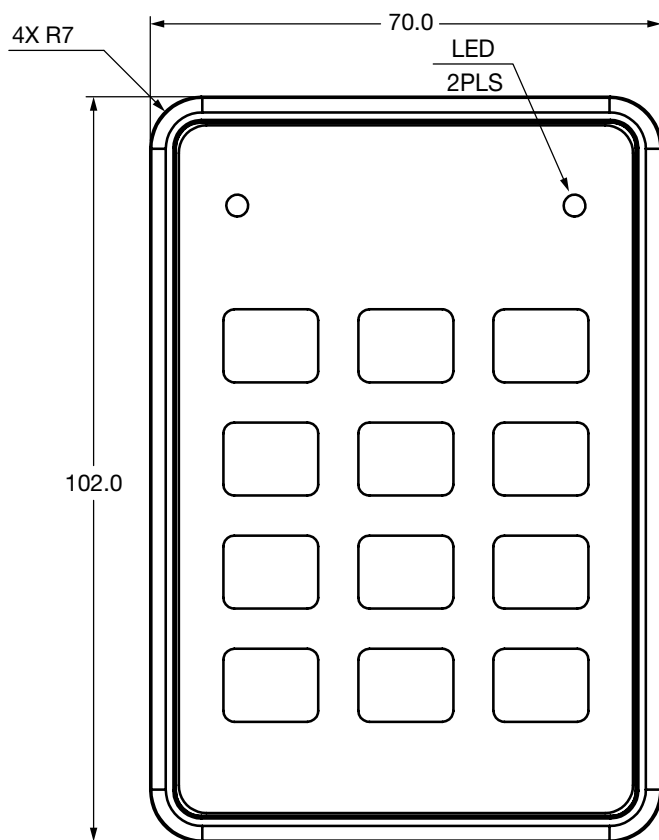
Item	Part Description	Tyco P/N
1	Connector Housing	770579-1
2	Terminal (18 – 22 AWG)	770904-X

Item	Part Description	Tyco P/N
1	Connector Housing	794821-1
2	Terminal (18 – 22 AWG)	770904-X
2	Interface Seal	794772-8
3	Single Wire Seal or Gang Seal	794758-1 or 1586359-8
4	Cavity Plug Seal (for unused terminal positions)	794995-1

Electronic Code Switch



DIMENSIONS mm (typical)



WARRANTY Two year limited warranty from time of delivery.



is a trademark of Curtis Instruments, Inc.

Specifications subject to change without notice

©2021 Curtis Instruments, Inc.

50361 REV B 1/21