Contents

1 - Overview EVIC

Features and Capabilities

EVIC is a compact LCD color display with integrated CAN channel and digital and analog interfaces. EVIC can be configured to show a variety of data sets from battery management systems, motor controllers, chargers, and vehicle control units. EVIC includes the following features:

Features	Descriptions
Display Size	**Diagonal** 7.0" **Active area (mm)** 152.4(H)×91.4 (V)
Display Resolution	800 x 480 WVGA
Color Depth	16-bit
Brightness	300 nits
Input Voltage	9-36 VDC
CAN Channels	1 Configurable baud rates 125, 250, 500 kbps and 1Mbps
CAN Isolation	2.5 kV RMS (ISO1050DUB)
Digital I/O	8, 18V tolerant inputs 8, 2A sinking outputs
Analog Inputs	5, 12-bit resolution
Graphics	Custom boot screen logos and skin graphics
Development Environment	Studio Interface Kit (SIK) software tool for creating and updating HMI skin graphics

Figure 1: Default User Interface

Mechanical Package

EVIC can be mounted onto a system using the 4 holes on the front bezel.

EVIC is packaged with automotive grade connectors.

General:

Do not attempt to open the display as there are no serviceable components. Opening the display will invalidate the warranty.

Note: There are exceptions to terminate and not terminate CAN lines. Please discuss with Andromeda before removing back cover to access CAN termination.

2 - Specifications EVIC

Electrical

Operating	
Working Voltage Limits:	9 - 24 VDC
Input Protection:	Input protected against reverse connection of supply. The nominal current draw of 300 mA @ 12 VDC.
Output Protection	
Reverse Polarity:	SAE J1455 2006 ed.
Inductive Switching:	SAE J1113-11 2006 ed. Test Pulse 1
ESD:	SAE J1113-13 2004 e. Powered and Non-Powered.
CAN Interface	
Protocol:	CAN 2.0B
Isolation:	2.5kV VRMS Isolation (ISO1050DUB)
Baud Rates Supported:	125, 250, 500 kbps and 1 Mbps
Digital Interfaces	
Inputs:	18V tolerant digital inputs, x8
Outputs:	Low-side switching outputs up to 2A, x8
Analog Interfaces	
Inputs:	0-5V 12-bit resolution analog inputs, x5

Mechanical

Operating Environment	
Operating Temperature:	-20°C to 70°C
Non-Operating Temperature:	-30° to +80°C
Humidity:	95%(non-condensing) at 40°C and 2% at 40°C
Ingress of Dust and Water:	IP54
Performance	
Vibration, Random:	designed to meet SAE J1211 standards
Shock:	designed to meet SAE J1211 standards
Weight	
Weight:	1.4 kg

3 - Interfaces EVIC

Connectors

EVIC is equipped with the following 3 interface connectors as shown below.

J1- 20-pin Main Connector - Power, CAN and Digital Inputs
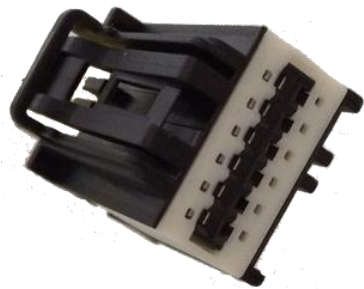
Housing: Molex part number 31408-1200

Terminals: Molex part number 1393366-1

J2 & J3 - 12-pin Secondary Connectors - J2 Analog Inputs and J3 Digital Outputs

Housing: Molex part number 31408-1120

Terminals: Molex part number 1393367-1

J4 - Mini-B USB Connector - Programming cable used for SIK

The cable is provided with the purchase of EVIC.

Harness Connections

J1 - MAIN CONNECTOR PINOUT				
PIN	**Name**	**Type**	**What to Connect**	**Maximum Rating**
1	+12V POWER	Power	Constant power source	+24V
2	GND	Power	Power source return	-
3	IGN	Power	Switch power → Turns the brightness of the screen to OFF	+24V
4	CAN_HIGH	Comm	CAN High	-
5	CAN_LOW	Comm	CAN Low	-
6	DIN 7	Digital Input	Switches, buttons	+18V
7	DIN 6	Digital Input	Switches, buttons	+18V
8	DIN 1	Digital Input	Backlight control → Turns the brightness of the screen to HALF	+18V
9	DIN 2	Digital Input	Switches, buttons	+18V
10	DIN 3	Digital Input	Switches, buttons	+18V
11	DIN 4	Digital Input	Switches, buttons	+18V
12	DIN 5	Digital Input	Switches, buttons	+18V
13	RXD_EXT	Comm	RS-232 (diag only)	
14	TXD_EXT	Comm	RS-232 (diag only)	
15	RTS_EXT	Comm	RS-232 (diag only)	-

PIN	Name	Type	What to Connect	Maximum Rating
J1 - MAIN CONNECTOR PINOUT				
16	CTS_EXT	Comm	RS-232 (diag only)	
17	DIN 8	Digital Input	Switches, buttons	+18V
18	AIN_5_Signal	Analog Input	Sensor signal	+5V
19	BOOT 1	Boot Mode	Short Pins 19 and 20 to place EVIC into boot mode	
20	BOOT 2	Boot Mode	Short Pins 19 and 20 to place EVIC into boot mode	

Pin	Name	Type	What to Connect	Rating
J2 - ANALOG INPUT CONNECTOR PINOUT				
1	AIN_1_Signal	Analog Input	Sensor signal	+5V
2	AIN_1_Reference	Power	5V power output	-
3	AIN_1_Ground	Power	5V reference ground	-
4	AIN_2_Signal	Analog Input	Sensor signal	+5V
5	AIN_2_Reference	Power	5V power output	-
6	AIN_2_Reference	Power	5V reference ground	-
7	AIN_3_Signal	Analog Input	Sensor signal	+5V
8	AIN_3_Reference	Power	5V power output	-
9	AIN_3_Reference	Power	5V reference ground	-
10	AIN_4_Signal	Analog Input	Sensor signal	+5V
11	AIN_4_Reference	Power	5V power output	-
12	AIN_4_Reference	Power	5V reference ground	-
J3 - DIGITAL OUTPUT CONNECTOR PINOUT				
1	DOUT_1	Digital Output	LED's, Relays, Buzzers	2A
2	DOUT_2	Digital Output	LED's, Relays, Buzzers	2A
3	DOUT_3	Digital Output	LED's, Relays, Buzzers	2A

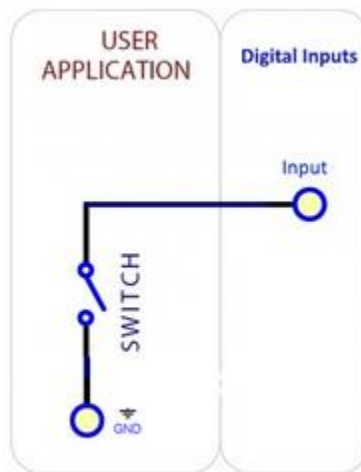| 4	DOUT_4	Digital Output	LED's, Relays, Buzzers	2A
5	DOUT_5	Digital Output	LED's, Relays, Buzzers	2A
6	DOUT_6	Digital Output	LED's, Relays, Buzzers	2A
7	DOUT_7	Digital Output	LED's, Relays, Buzzers	2A
8	DOUT_8	Digital Output	LED's, Relays, Buzzers	2A
9	GND	Power	Power source return	-
10	GND	Power	Power source return	-
11	GND	Power	Power source return	-
12	GND	Power	Power source return	-

Interfaces

Digital Inputs

EVIC is equipped with **8 digital inputs** that can determine input states from switches or buttons. Digital inputs **1 through 7** are triggered by sourcing **+12V**. Digital input 8 is triggered by sinking to **GND**.

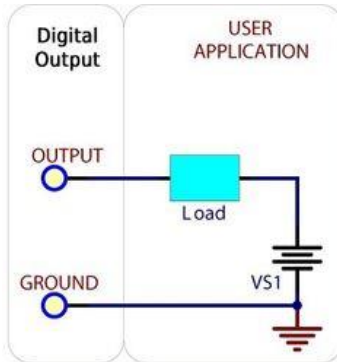**DIN 1 - 7**   **DIN 8**

If you have not correctly mapped the digital inputs to skin graphic labels or images, then nothing will occur when switching these pins.
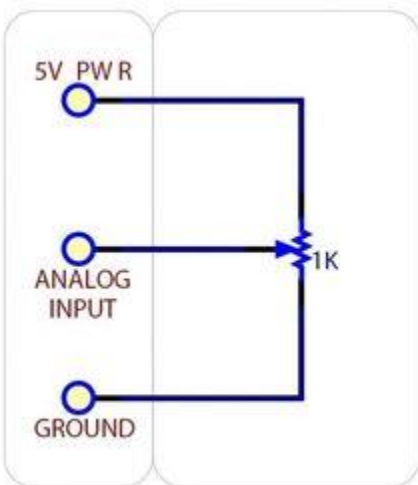
Digital Outputs

EVIC is equipped with **8 digital outputs** that are low-side switches. They are designed for a variety of applications including LEDs, external relays or buzzers.

Analog Inputs

EVIC is equipped with **5 analog inputs** (**1** on the main connector, **4** on the analog input connector) at **12-bit resolution**. They can be used to read measurements from many sensors such as temperature, potentiometer or brake transducers. There are reference 5V and ground outputs provided on the analog input connector to supply power to sensors if necessary.

AIN 1 - 5

CAN Channel

EVIC can operate as a single node or as a multi-node on the CAN bus network.

EVIC can be configured as either **terminated** or **non-terminated** on the network. EVIC is shipped terminated. You can un-terminate by taking apart EVIC's back cover and removing an internal jumper (**P2**) on the board.

Baud Rate

EVIC is configured by default at **250 kbps** baud rate. EVIC's configurable baud rates are **125, 250, 500** or **1000 kbps**.

Note: If data does not appear or is displayed intermittently, please verify CAN baud rates are set correctly for all components on the network.

4 - Getting Started EVIC

Principle of Operation

Functional Description

EVIC decodes CAN bus data into human-readable form and displays it onto the HMI screen. EVIC is a standalone display device and is configurable with our Studio Interface Kit.
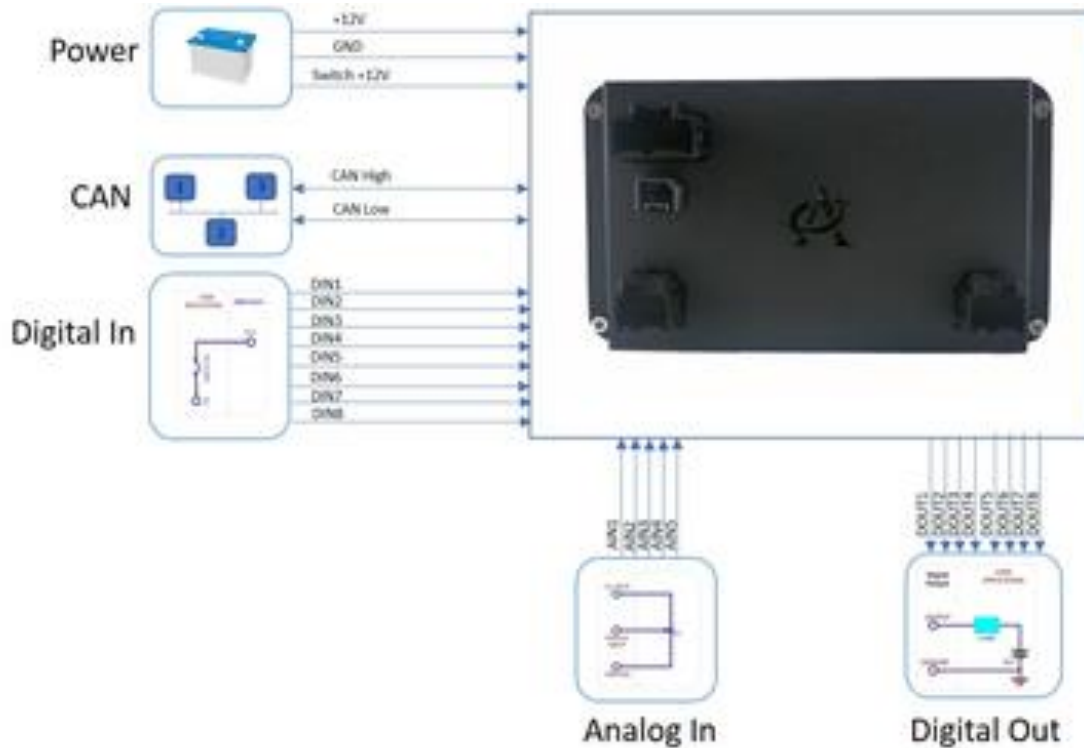
Wiring

EVIC uses the following 3 Molex connectors and crimp terminals:

Connector	Manufacturer	Pins	Connector Part Number	Terminal Part Number
Power / CAN / Digital Input	Molex / Tyco	20	31408-1200	1393366-1
Analog Input	Molex / Tyco	12	31408-1120	1393367-1
Digital Output	Molex / Tyco	12	31408-1120	1393367-1

You can purchase these separately through **Digi-key,** or request for them when you place your order.

This universal crimper tool can be used for the terminals.

General Set-up

To get started, wire **Pins 1** and **3 (VBAT)** to **+12V** or **+24V** and **Pin 2 (GND)** to **Ground**. Once power is applied, the **default splash screen** will be displayed and will transition to the **Graphical User Interface (GUI)** application.

Default Splash

The default splash screen is configurable. To replace the default splash screen image, Andromeda's Flasher Tool is available to make this change.

Graphical User Interfaces

The start-up **GUIs** will appear as shown below. These **GUIs** are configurable through our Studio Interface Kit (SIK).

EVIC.Combo

EVIC.BMS