# Emtron ED10M Pinout

Date: May 2023
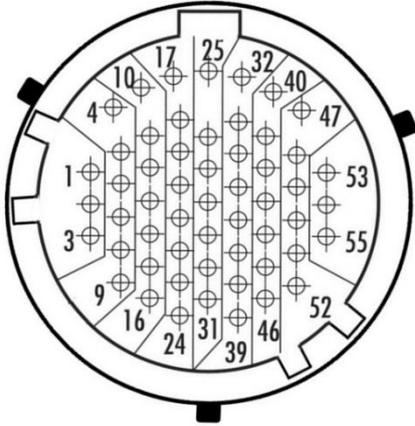
# Connector 8D0C17Z35PN
**(5.0A continuous current. Shell size 17, 55 Pin. 22 AWG)**

**Looking into Connector**
Mating Connector 8DA5-17Z35SN

| Pin | Channel Name | Pin | Channel Name |
|---|---|---|---|
| 1 | 14V Switched Supply | 29 | CAN 3 Low |
| 2 | Ground | 30 | CAN 4 High |
| 3 | Gigabit Ethernet Shield | 31 | CAN 4 Low |
| 4 | 12V Regulated Output | 32 | Analog Input Channel 5 |
| 5 | 14V Backup Supply | 33 | Analog Input Channel 6 |
| 6 | Gigabit Ethernet +Tx/Rx Pair 1 | 34 | Analog Input Channel 7 |
| 7 | Gigabit Ethernet -Tx/Rx Pair 1 | 35 | Analog Input Channel 8 |
| 8 | Gigabit Ethernet +Tx/Rx Pair 3 | 36 | Headphone LH |
| 9 | Gigabit Ethernet -Tx/Rx Pair 3 | 37 | Headphone RH |
| 10 | Sensor Supply:  5.0V | 38 | Mic Input LH |
| 11 | Sensor Supply:  5.0V | 39 | Mic Input RH |
| 12 | Sensor Supply:  5.0V | 40 | RS232 Transmit Output |
| 13 | Gigabit Ethernet +Tx/Rx Pair 2 | 41 | RS232 Receive Input |
| 14 | Gigabit Ethernet -Tx/Rx Pair 2 | 42 | RS232 0V Reference |
| 15 | Gigabit Ethernet +Tx/Rx Pair 4 | 43 | Video Input 1 |
| 16 | Gigabit Ethernet -Tx/Rx Pair 4 | 44 | Video Input 2 |
| 17 | Analog Input Channel 1 | 45 | Video Input 3 |
| 18 | Analog Input Channel 2 | 46 | Mic 0V Reference |
| 19 | Analog Input Channel 3 | 47 | Speed Input 1 |
| 20 | Analog Input Channel 4 | 48 | Speed Input 2 |
| 21 | CAN 1 High | 49 | Speed Input 3 |
| 22 | CAN 1 Low | 50 | Speed Input 4 |
| 23 | CAN 2 High | 51 | Video Input 4 |
| 24 | CAN 2 Low | 52 | Video 0V Reference |
| 25 | Analog Input 0V Reference | 53 | LIN Bus |
| 26 | Analog Input 0V Reference | 54 | Speed 0V Reference |
| 27 | Headphone 0V Reference | 55 | ED10M Recovery |
| 28 | CAN 3 High | | |

# Function Pin Assignment

**Power:**

| Pin | Channel Name |
|-----|--------------|
| **1** | 14V Supply + |
| **2** | Ground - |
| **5** | 14V Backup Supply + |

**Sensor Supply :**

| Pin | Channel Name |
|-----|--------------|
| **10** | Sensor Supply:  5.0V |
| **11** | Sensor Supply:  5.0V |
| **12** | Sensor Supply:  5.0V |
| **4** | 12V Regulated Output |

**Gigabit Ethernet Communications T-568A Standard :**

| Emtron Pin | RJ45 Pin T-568A | Description | Cat5e Wire Colour |
|------------|-----------------|-------------|-------------------|
| 3 | ------ | Ethernet Shield | ------ |
| 6 | 1 | Ethernet Tx/Rx + Pair 1 | Green/White |
| 7 | 2 | Ethernet Tx/Rx  - Pair 1 | Green |
| 13 | 3 | Ethernet Tx/Rx + Pair 2 | Orange/White |
| 14 | 6 | Ethernet Tx/Rx  - Pair 2 | Orange |
| 8 | 4 | Ethernet Tx/Rx + Pair 3 | Blue |
| 9 | 5 | Ethernet Tx/Rx  - Pair 3 | Blue/White |
| 15 | 7 | Ethernet Tx/Rx + Pair 4 | Brown/White |
| 16 | 8 | Ethernet Tx/Rx  - Pair 4 | Brown |

**NOTE:** The Orange/White and Brown/White can often look very similar in colour so make sure the correct wire is used.

## CAN Communications :

| Pin | Channel Name |
|-----|--------------|
| 21 | CAN 1 High |
| 22 | CAN 1 Low |
| 23 | CAN 2 High |
| 24 | CAN 2 Low |
| 28 | CAN 3 High |
| 29 | CAN 3 Low |
| 30 | CAN 4 High |
| 31 | CAN 4 Low |

## RS232/LIN Communications :

| Pin | Channel Name |
|-----|--------------|
| 40 | RS232 Transmit Output |
| 41 | RS232 Receive Input |
| 42 | RS232 0V Reference |
| 53 | LIN Bus |

## Analog Inputs :

| Pin | Channel Name |
|-----|--------------|
| 17 | Analog Input Channel 1 |
| 18 | Analog Input Channel 2 |
| 19 | Analog Input Channel 3 |
| 20 | Analog Input Channel 4 |
| 32 | Analog Input Channel 5 |
| 33 | Analog Input Channel 6 |
| 34 | Analog Input Channel 7 |
| 35 | Analog Input Channel 8 |
| 25 | Analog Input 0V Reference |
| 26 | Analog Input 0V Reference |

## Speed Inputs :

| Pin | Channel Name |
|-----|--------------|
| 47 | Speed Input 1 |
| 48 | Speed Input 2 |
| 49 | Speed Input 3 |
| 50 | Speed Input 4 |
| 54 | Speed 0V Reference |

## Video Inputs :

| Pin | Channel Name |
|-----|--------------|
| 43 | Video Input 1 |
| 44 | Video Input 2 |
| 45 | Video Input 3 |
| 51 | Video Input 4 |
| 52 | Video 0V Reference |

**Audio :**

| Pin | Channel Name |
|-----|-------------|
| 36 | Headphone Output LH |
| 37 | Headphone Output RH |
| 27 | Headphone 0V Reference |
| 38 | Mic Input LH |
| 39 | Mic Input RH |
| 46 | Mic 0V Reference |

Important Notes

**14V Switched Supply (Pin 1)**

This is a switched 14V supply. Constant power should not be supplied on this pin.

**14V Backup Supply (Pin 5)**

A Constant 14V supply should be wired to this pin. When the power is removed from pin "14V Switched Supply" the ED10M automatically switches to the " 14V Backup Supply" to keep itself powered.  This will allow the ED10M to complete critical tasks before shutting itself down (for example data logging storage).

NOTE: When the "14V Backup Supply" is wired to the ED10M, no additional current is drawn when the device is OFF.

**Analog Sensor 0V Reference (Pin 25, 26)**

As the name indicates these should be connected directly to the 0V (Ground) pin on any low current analog sensor, for example Pressure or Temperature.

- **DO NOT** connect these pins directly to the Engine Block or ED10M Ground. These are dedicated and specialised ground outputs for all analog channels and should be connected directly to the sensor.
- **DO NOT** connect speed-based sensors to this ground, use the Speed 0V Reference Pin 51.

**Mic 0V Reference (Pin 46)**

This is a dedicated 0V reference for the microphone. Do not share this pin!

**Video Input Config**

x1 RBG Input (Component) - Y input on AIN1; Pb input on AIN2, Pr input on AIN3)
x2 S-Video - Y input on AIN1; C input on AIN2), (Y input on AIN3; C input on AIN4)

**RS232**

Pin 40 is the ED10M RS232 Transmit Output.  As the name suggests this is an output and should be connect to the Receive Input of the wired external device.
Pin 41 is the ED10M RS232 Receive Input.  As the name suggests this is an input and should be connect to the Transmit Output of the wired external device.

**ED10M Recovery (Pin 55)**

In the unlikely event the SOM becomes bricked after a software update, grounding this pin at power-on allows the device to be recovered by loading software through the USB Port.(Normally this would be done over Ethernet)