

## Mini Vehicle Controller (MVC)



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The MCC Mini Vehicle Controller (MVC) was developed to meet the demanding requirements of the mass transit and off-road market. The MVC was designed as a programmable platform that can easily be customized and expanded to suit the customer's requirements.

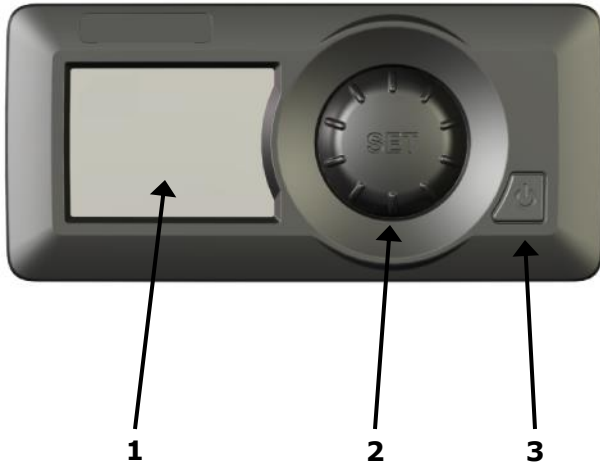
The MVC is an all in one display, controller and diagnostic centre. It is able to regulate cabin temperature automatically by controlling the compressor, heater valve, condenser fans, air circulation of both fresh air and air flow direction.

The MVC's built-in diagnostics are able to detect then report compressor and sensor failures directly on the MVC's display. Compressor protection circuitry is also built in to the MVC module. This results in ease of troubleshooting while also reducing vehicle downtime.



## Features

- Fully automatic climate control
- Compact size
- Easy to use interface
- RS-485 and CANBus (J1939) compatible



### 1. LCD Display

During normal operation, the set-point temperature, blower speed, operation mode and fresh/recirc air selection are displayed. In Test/Diagnostic menu, error messages will be display on screen for troubleshooting.

### 2. SET/SELECT BUTTON

It is used for selecting between menus. In Test/Diagnostic mode, it is used to test and diagnose different components with in the HVAC system.

### 3. Power Button

Turns unit On or OFF

## Control Screens



Main Screen

### Main Screen

When the MVC is powered on, it displays mode, set-point and fan speed. Temperature set-point can be changed in this menu.

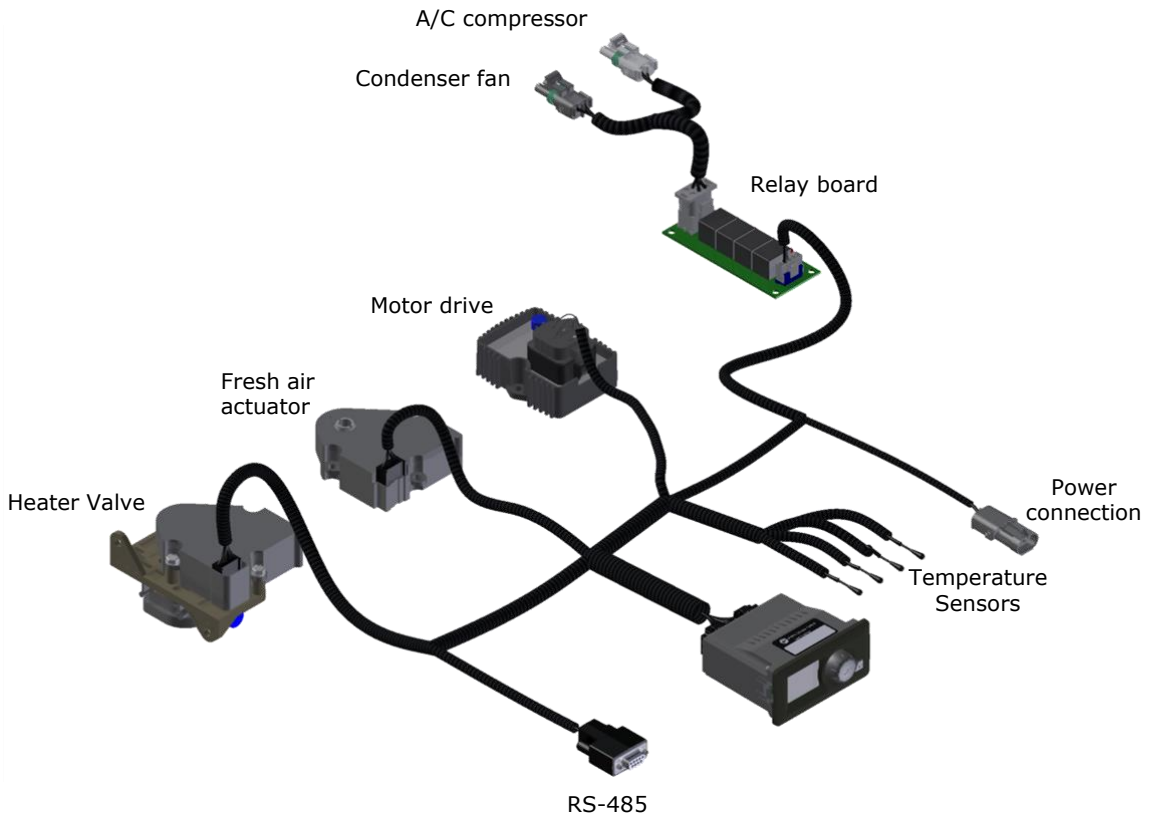


Fan speed Screen

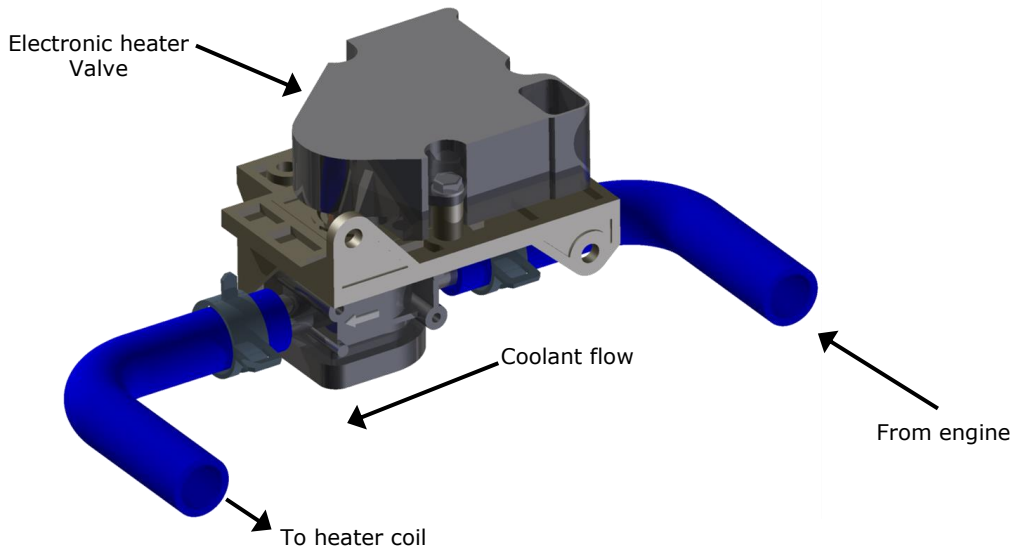
### Fan Speed Screen

To change fan speed, enter the fan speed menu by press the SET knob once then turn knob to decrease or increase fan speed.

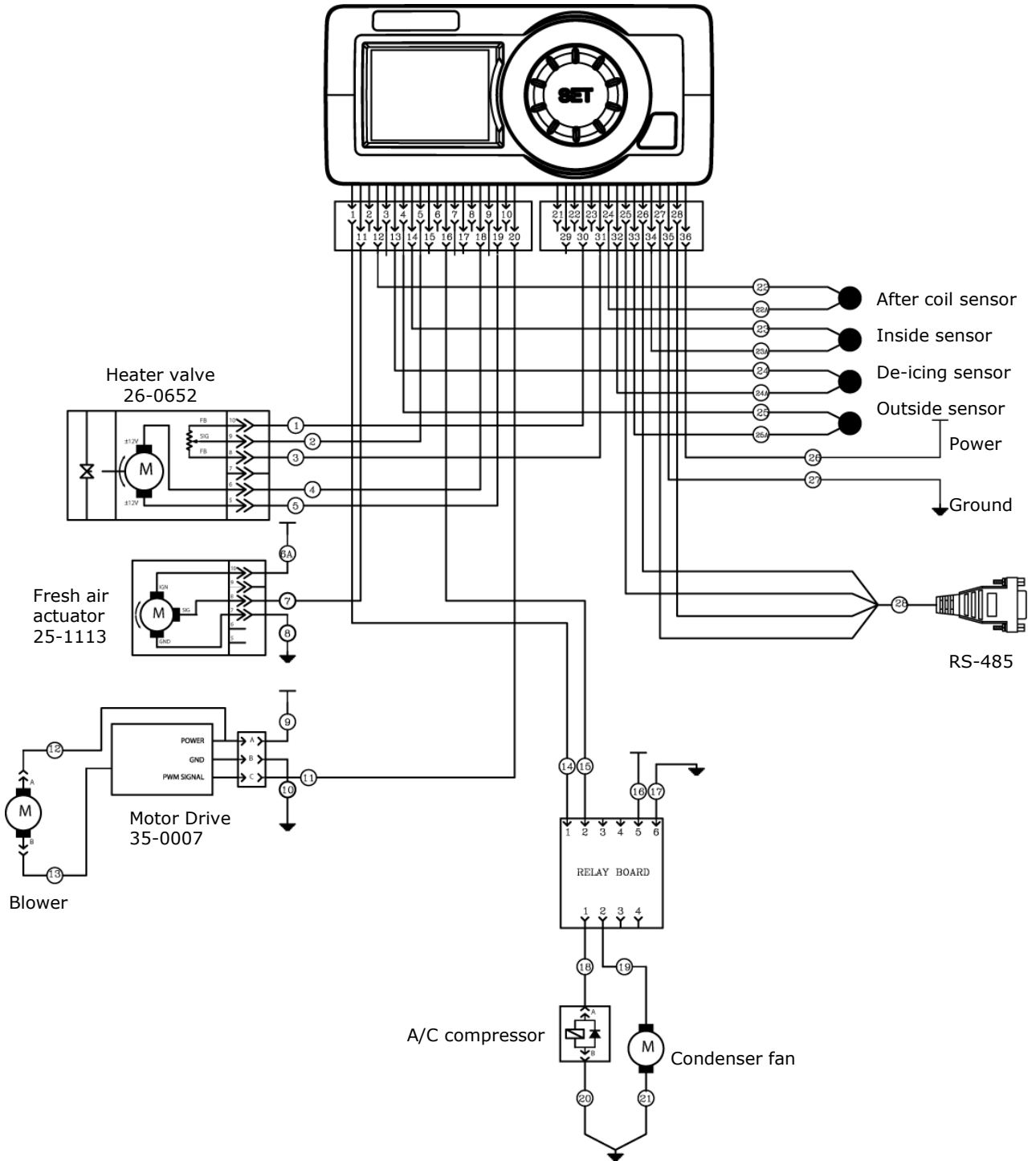
### Typical application



### Heater valve installation



Typical Application schematic



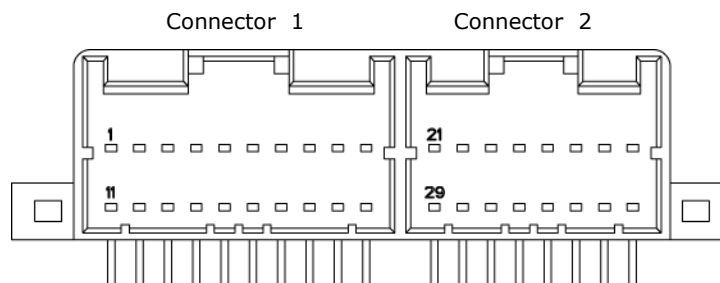
## Specifications

### Electrical specifications

Operating Voltage: +9VDC to 32V DC  
 Operating Temperature: -40°C to 85 °C  
 Inputs: 5 Digital and 9 Analog  
 Outputs: 6 High side, 2 Bidirectional,  
 1 Analog and 2 PWM  
 Communication: RS-485 and CANBus (J1939)

### Pin out

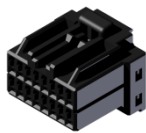
Connector 1 (20 Position)					
Pin	Description	Specifications	Pin	Description	Specifications
1	Digital Output 3	2.5A	11	PWM 2	0% to 100% 0.25A
2	Digital Output 4	2.5A	12	Temperature Sensor	NTC4k7/10kΩ
3	Digital Output 5	0.5A	13	Temperature Sensor	NTC4k7/10kΩ
4	Temperature Sensor	NTC4k7/10kΩ	14	Temperature Sensor	NTC4k7/10kΩ
5	Analog Output	0V to 5V DC	15	Backlight	0V to Supply voltage
6	Analog Output	0V to Supply voltage	16	Digital Output 2	High side switch 0.5A
7	Digital Output 7	0.5A	17	Digital Output 6	High side switch 0.5A
8	Digital Input	>9V=High <2.4V=Low	18	Digital Output 0	High side switch 0.5A
9	Digital Input		19	Digital Output 1	High side switch 0.5A
10	Digital Input		20	PWM 1	0% to 100% 0.25A
Connector 2 (16 Positions)					
Pin	Description	Specifications	Pin	Description	Specifications
21	J1939 SHIELD	Communication Shield	29	Analog output	0V to Supply voltage 0.25mA
22	J1939 SHIELD L	Communication	30	Vref 2	+3.3V(35-0720)/+5V (35-1007)
23	J1939 SHIELD H		31		Ground
24		Ground	32		Ground
25	RS-485 POS	Communication	33		Ground
26	RS-485 NEG		34		Ground
27		Ground	35		Ground
28	Vref 1	+3.3V(35-0720)/+5V (35-1007)	36	BAT	Supply Voltage



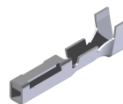
### Mating connectors and terminal



MCC P/N: 31-1681  
 TE P/N: 174047-2

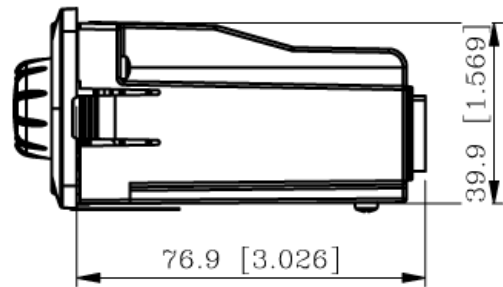
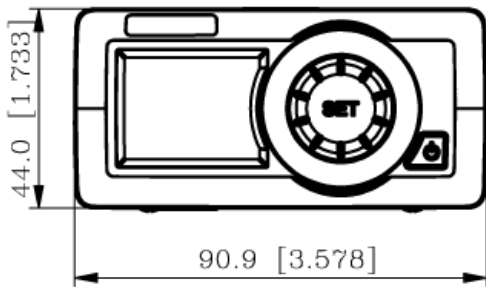
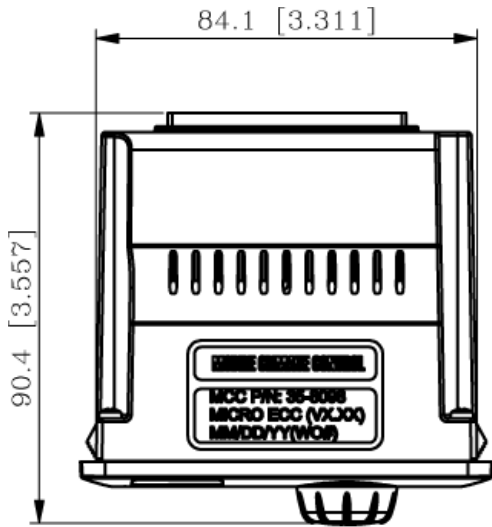


MCC P/N: 31-1680  
 TE P/N: 174046-2

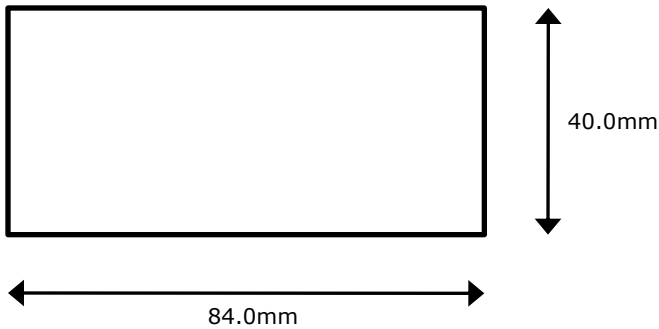


MCC P/N: 31-1679  
 TE P/N: 175062-1

**Dimensions:** mm [in]



**Recommended cutout size**



Minimum material mounting thickness: 2mm [0.079 in]