



MiniFlex Controller Family

The MiniFlex series is a versatile family of controllers designed for a wide range of thermal management and HVAC applications, ensuring both user comfort and system performance. With flexible control options, the series includes models with vibrant color displays, manual knobs, or the MiniFlex Node, which can be packaged anywhere in the vehicle, making it perfect for extreme environments. Each controller integrates advanced CAN communication for seamless system integration and ensures reliable performance. Available in multiple configurations, from the MiniFlex Advance with a full-color display to the MiniFlex Node with a full IP67 rating, these controllers provide optimal control and durability in even the harshest conditions. Whether it's managing electric vehicle batteries, high-performance electronics, or enhancing HVAC systems, the MiniFlex series offers the right solution for every thermal management need.



APPLICATION

MiniFlex controller is a versatile powerhouse, designed to seamlessly integrate with and enhance a variety of HVAC and thermal management systems. It excels in controlling systems like heat pumps and waste heat recovery systems for vehicles, ensuring both user comfort and optimal system performance.

For larger and more complex applications, multiple MiniFlex controllers can be used to reduce the overall system wiring, simplifying installation and minimizing maintenance needs while ensuring efficient operation across the entire system.

FEATURES

- Our modules feature a flexible and modular design, accommodating various features for enhanced customization and simplified product lifecycle maintenance.
- The design will streamline system assembly by minimizing electrical connections and harnesses.
- Utilizes Controller Area Network (CAN) communication, for secure and reliable data transmission.
- Programmable Buttons for different systems requirements
- Capable of flashing Software over CAN using PCAN
- Comes with proprietary diagnostics software over.

SPECIFICATIONS

Power:

- Voltage: 9-32 VDC

Technology:

- Microchip 32-bit processor
- 1 MB memory along with
- 2MB external memory for database

Up to 12 Inputs (12-bit):

- 0-3.3 VDC
- 0-5 VDC
- 0-32 VDC
- Software Selectable:
- 10kΩ Pull Up for Thermistors

Outputs:

- Half Bridge Outputs that can be used individually or used to drive brushed and stepper motors.
- High Side Switch - To drive higher loads.
- Analog Outputs (0-10 VDC)
- 5V output for Sensor Power

Communication:

- CAN Networks with selectable 120ohm resistor
- LIN

Display:

- 1.69Inch Full Color OLED
- 160 x 128 Resolution

Controls:

- Encoder (only available with display)
- Buttons - Can be programmed for various functions, depending on the application.
- Potentiometer - For Temp and Blower Speed Control
- Blower Switch - Used to Control Blower speed through Power

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Dial in and keep pushing forward.



CONTROLLERS I/O:

SPECIFICATIONS (CONTINUED)



Mobile Climate Control

Advance



MiniFlex



Manual



Node



	Advance	MiniFlex	Manual	Node
Supply Voltage (DC)	9-32V	9-32V	9-32V	9-32V
Digital Out	12	12	-	12
High Power Digital Out	2	2	-	4
Analog Out (0-10V)	2	2	-	2
5V Supply Out	2	2	-	2
Sensor GND Input	4	4	-	3
Analog Input (0-5V)	4	4	-	4
Analog Input (0-3.3V)10K Pull Up	3	3	-	4
Configurable Input (0-32V) With Software Selectable Pull Up	3	3	-	4
CAN Networks	2	2	-	3
CAN Software Selectable 1200hm	2	2	-	3
LIN	1	1	-	1
Encoder	Yes	No	-	No
Potentiometer	0	2	1	0
Buttons (With Back light)	3	3	-	0
Display	Yes	No	-	No
Blower Switch	0	0	1	0
Rocker Switch	0	0	1	0
Total Connector Pins	44	44	-	48 Way
PCB Connector	200501-0321 200501-0122	200501-0321 200501-0122	-	500762-0481
IP Rating	IP65 (Front Face) Only	IP65 (Front Face) Only	IP65 (Front Face) Only	IP67 Full Assembly

Backlight:

- Software controlled backlight buttons and Knobs

Data Logger:

- Capable to store key parameters in the field

Software:

- Integrated diagnostics and safety features
- Test software available to simulate different features during testing

Connector:

- Dash Mount: Molex Stak50h
- Node: Molex CMC

IP Rating:

- Dash Mount: Only Front Panel IP65
- Node: Fully IP67

Temperature Range (Operating):

- -40 C to 85 C

Qualifications:

- CISPR 25
- SAE J1113 -13
- SAE J1113 - 4
- SAE J1113 - 11



PRODUCT CONNECTIVITY:

The MiniFlex Advance connects to CAN Cool View software via a CAN adapter, allowing customizable screen interfaces for various systems.