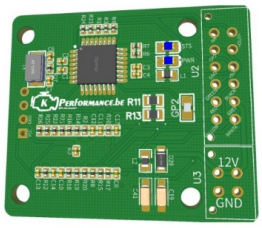

KPERFORMANCE Tiny O2 Controller User Manual

Contents

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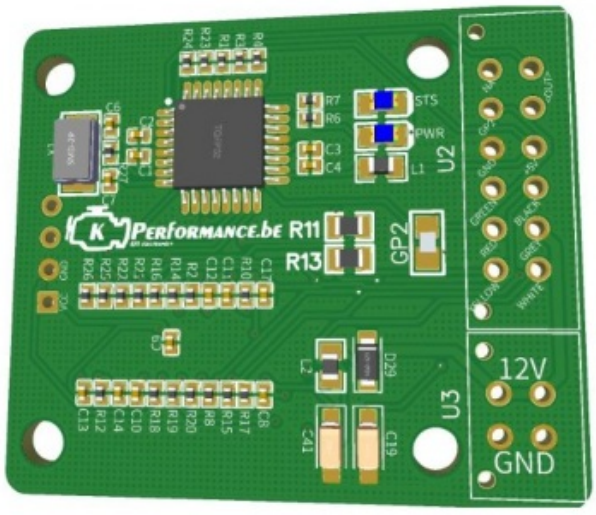


Product Information

The Tiny O2 Controller is a device designed by Kperformance. It is a pre-canbus release version of the controller, which means it does not support canbus communication. The controller comes with an O-LED display (optional) and can be integrated into various projects.
The package contents include the Tiny O2 Controller itself, software, drivers, and the latest information, which can be downloaded from the website **www.Kperformance.be**.
The controller has various electrical connections, including U2 and U3. U2 has color-coded functions for YELLOW, WHITE, GREY, RED, BLACK, GREEN, GND, +5V, GP2, and NA. U3 is responsible for INPUT VOLTAGE (8-18V) and GROUND connections.
The controller also supports the installation of an O-LED display. It supports 1.3 and 0.96 I2C screens without requiring software changes. However, it is important to double-check the VCC and GND pins on aftermarket OLED screens to avoid freezing or hang-ups.
The controller has linear output settings where 0V corresponds to Lambda 10.20 and AFR 22.35, while 5V corresponds to Lambda 0.650 and AFR 9.50.
The controller can be started by grounding GP2 (solder bridge on PCB) or through external start grounding on the molex connector, depending on customer requirements. It also has programmable output functions within a stand-alone ECU.

The operational status of the controller is indicated by three LEDs: STS (Heating sensor status), PWR (Operational measuring status), and STS PWR (Standby and/or error status).

Product Usage Instructions

1. To use the Tiny O2 Controller, first, ensure that you have all the necessary electrical connections properly made according to the provided color-coded functions.
2. If you have an O-LED display, make sure to connect it correctly and verify the VCC and GND pins to avoid any issues.
3. Adjust the linear output settings based on your requirements. The provided values indicate the corresponding Lambda and AFR levels for different voltage outputs.
4. To start the controller, either ground the GP2 pin using the solder bridge on the PCB or use external start grounding on the molex connector. Choose the method that suits your customer requirements or follow the programmable output function within your stand-alone ECU.
5. Monitor the operational status of the controller using the three LEDs. The STS LED indicates the heating sensor status, the PWR LED indicates the operational measuring status, and the STS PWR LED indicates the standby and/or error status.

Warning

- Do not connect or disconnect the Lambda Sensor while powered, only do so when unpowered.
- The Lambda Sensor gets very hot during normal operation, be careful when handling it.
- It takes roughly 30 seconds to 2 minutes to warm up the sensor. Once the sensor is warmed up an engine start could create condensation in the sensor, this may cause thermal shock and damage the sensor. It is best to power off a power source that is “live” when the engine starts.

Package Contents
Tiny Wideband should include the following Items

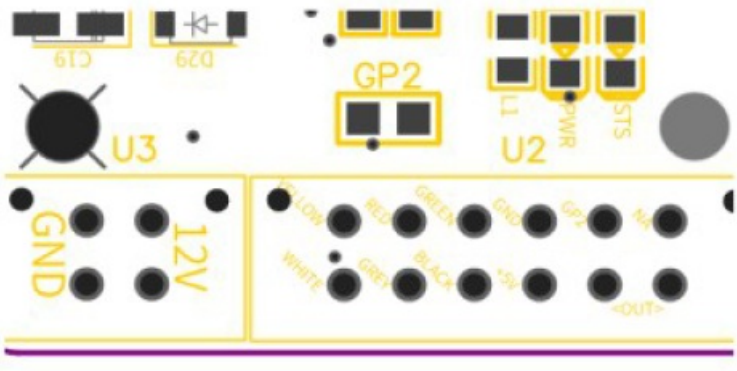
- 1x circuit board with soldered surface mount components
- 2x MicroMolex connectors
- 16x MicroMolex receptacles

- 1x 3d printed case and cap (optional)
- 1x OLED screen(optional)

Electrical connections

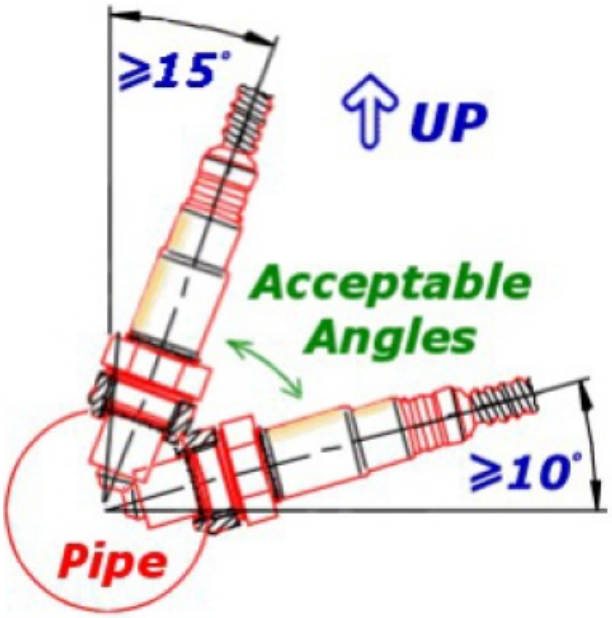
U2	Color	Function
YELLOW	YELLOW	LSU YELLOW
WHITE	WHITE	LSU WHITE
GREY	GREY	LSU GREY
RED	RED	LSU RED
BLACK	BLACK	LSU BLACK
GREEN	GREEN	LSU GREEN
GND		GROUND
+5V		EXTRA +5V SUPPLY MAX 500mA
GP2		EXTERNAL GROUND ACTIVATING
NA		/
<OUT>		ANALOG OUTPUT 0-5V

U3		Function
12V	2X	INPUT VOLTAGE 8-18V
GND	2X	GROUND

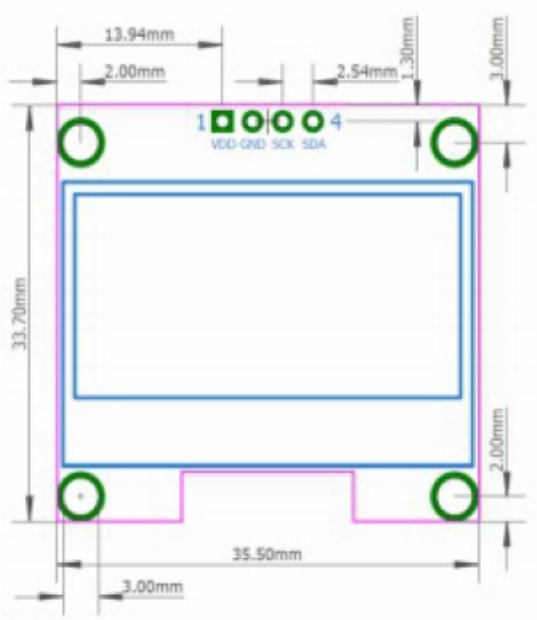


Sensor Exhaust Installation

- The Lambda Sensor should be installed between the 10 o'clock and the 2 o'clock position, less than 60 degrees from vertical, this will allow gravity to remove water condensation from the sensor.
- For all Oxygen sensor installations the sensor must be installed before the catalytic converter.
- Avoid running the sensor to hot!
- Never leave an un-powered sensor in the exhaust system



LED Display(Optional)
1.3 and 0.96 I2C are supported without software changes.
Double check VCC&GND pins on aftermarket OLED-screens! Low budget/quality screens can cause freeze and hang up of Tiny Wideband Controller!



Initial stand-by screen will show

- Icon Sensor connection
- Icon GP2 ground status (GP2 not grounded= NO START)
- Icon Battery voltage

After succesfull start, the screen will show

- Temperature value
- Lambda value

Starting and operating

Linear output settings

- **0V** = Lambda
- **10.20** = AFR 22.35
- **5V** = Lambda
- **0.650** = AFR 9.50

Starting of the controller can be done by grounding “GP2” (solder bridge on PCB) or external start grounding on molex connector, with customer requirements setting.
Ie:start lambda controller only after engine starts. (programmable output function within stand-alone ECU)
Not grounding of pin “GP2” will result in a standby lambda controller! Blinking LED.

Operational led Status

LED	Status	Function
STS	Solid	Heating sensor status
PWR	Blinking Fast	
STS	Solid	Operational measuring status
PWR	Blinking Slow	
STS	Blinking	Standby and/or error status
PWR	Blinking	

PCB Layout
For easy integration we’ll share the layout so the controllers can be integrated in to own projects.

- Tiny O2 Controller r2.0 User Manual Kperformance
- User Remarques and info

Documents / Resources

	KPERFORMANCE Tiny O2 Controller [pdf] User Manual Tiny O2 Controller, Tiny, O2 Controller, Controller
	KPERFORMANCE Tiny O2 Controller [pdf] User Manual CAN-bus v1.4, CAN-bus v1.2, Tiny O2, Tiny O2 Controller, Controller

References

- KPerformance