PYREDS

Analog MK II Quad TO Interface Board User Manual

 $\label{eq:PY3090-Standalone board} Can be paired with the Analog Evaluation board PY3091 Compatible with Analog TO CO_2 Gas Sensing Evaluation Kit PY0430 \end{tabular}$

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Please note: the information contained in this document is subject to change without further notification.

1 Introduction

This document describes the use of the analog interface board to allow testing of the <u>MK II quad</u> devices. The pinout format for the MK II quads has changed, however the original quad pinout format is also in use. This means that the interface board is required to allow for both pinout formats to.

1.1 Pinout Comparison

The interface board allows easy testing and comparison of devices during system design and testing. Other modifications to enhance performance have also been made but do not affect the electrical connections.



Figure 1: MK II Quad Pinout

The interface board can be used as a standalone device (PY3090), paired with the analog TO-39 evaluation board (PY3091), or as an adaptor board in one of the Pyreos Analog Gas Evaluation Kits.

2 The MK II Quad Interface Board – PY3090

The adaptor board is shown in Figure 2.



Figure 2: MK II Quad Interface Board



The interface board can be used as a standalone device. However, the sensor and external circuits require power and GND and output connections. These are on CONN1, outlined in red in Figure 2, and mapped in Figure 3.



Figure 3: MK II Quad Interface Board Header Connections



3 The Interface Board Paired With the Analog Evaluation Board – PY3091



Figure 4: Paired boards

When paired, CONN1 on the interface board connects with CONN2 (outlined in red in Figure 5) on the analog evaluation board. The evaluation board already contains 9V power supply and micro USB sockets. This product is supplied with the required power supply cable, a micro USB cable and Windows PC software to allow for quick analysis of the sensor signals.



Figure 5: Analog gas demo kit PCB



4 Using the MK II Quad Interface Board as an Adaptor Board



Figure 6: MK II Quad Adaptor board plugged directly into gas kit

The MK II quad interface board has been designed to attach on top of the original Pyreos Analog TO Gas Evaluation Kit.

The emitter board attachment remains the same as when being used with the kit without the interface board.

With the boards connected as shown in Figure 6, the system will connect to the Pyreos Analog TO Gas Evaluation Kit software as normal and the Analog TO Gas Evaluation Kit User Guide can be followed.



5 Interface Board Test Points

For each channel of the Pyreos sensors there are two possible points to take a measurement with an oscilloscope. They can be seen outlined in red on the schematics shown in Figure 7.



Figure 7: Adaptor Board Test Points

The two test points associated with channel 1 of the board are labelled TP1 and TP11. These provide a test point before and after the additional op-amp stage for that channel. Taking a measurement on these two locations results in the following view on an oscilloscope.



Figure 8: Signal before and after external op-amp stage

In



Figure 8, TP1 is represented as CH1, in orange, and TP11 is represented as CH2, in blue. As can be seen the signal after the external op-amp stage (TP11) is amplified as expected.



Figure 9: Adaptor Board Layout

Channel	Pre op-amp test points	Post op-amp test points	Colour code
1	TP1	TP11	
2	TP2	TP12	



3	ТРЗ	TP13	
4	TP4	TP14	

Table 1: Op-Amp Test Points

Mouser Electronics

Authorized Distributor

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Pyreos: <u>PY3090</u> <u>PY3091</u>