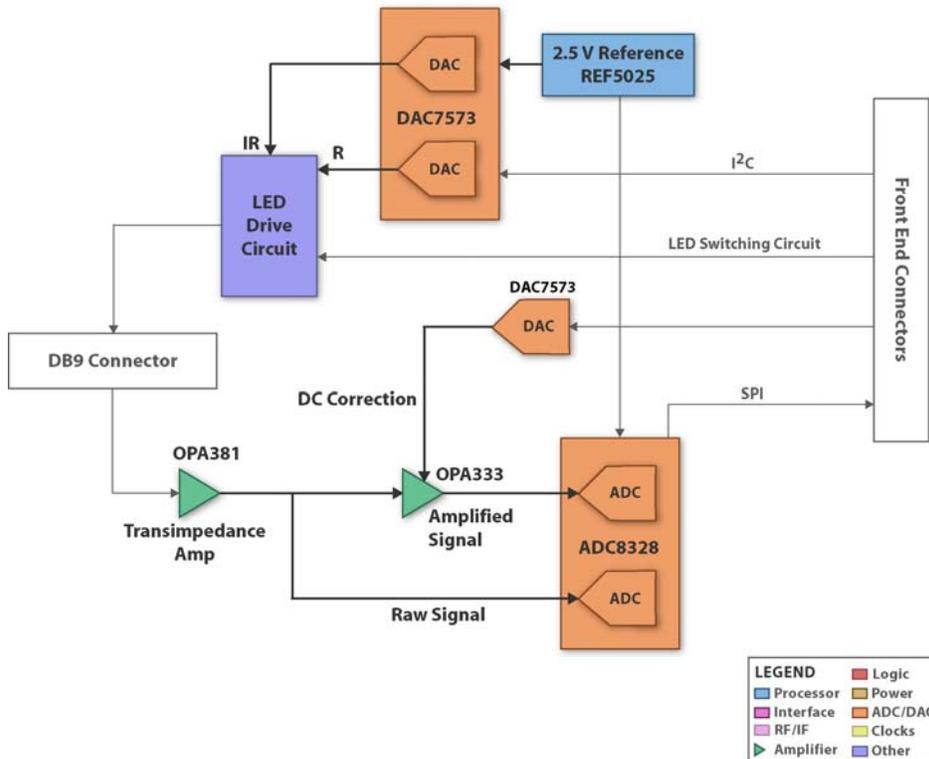


Pulse oximeter (PO or SpO2) analog front end module for the C5505 PO or SpO2 medical development kit

The TMDXMDKPO8328 pulse oximeter (PO or SpO2) analog front end (AFE) module is part of the [PO medical development kit \(MDK\)](#), which consists of the PO AFE module, a processor board (C5505 DSP evaluation module), and a set of collateral and application software source code to implement the PO application. The PO MDK delivers a complete signal chain solution to enable PO developers to build a complete PO system quickly for evaluation and get to production faster.



PO MDK features

- Display of oxygen level percentage ranging from zero to 100 percent
- Display of pulse rate, ranging from 20 to 300 pulses per minute
- Real-time display of plethysmogram on PC
- Sensor-off detection
- Common signal conditioning path for red and infrared signal

PO AFE module key components

- ADS8328 low power, 16 bit, 500-ksps, analog-to-digital converter (ADC)
- DAC7573 quad, 12 bit, low power, voltage output digital-to-analog converter (DAC)
- OPA381 precision, low-power, transimpedance amplifier (current to voltage converter)
- REF5025 low-noise, very low-drift, precision voltage reference

The TMDXMDKPO8328 PO AFE module consists of eight TI components including amplification and feedback networks, to process the signal captured from the PO sensor and to control the LED intensity. The ADS8328 is used for data acquisition and to synchronize with the timer to achieve 500 samples per second

per channel. It includes a 2-to-1 input mux with programmable option of TAG bit output and a 16-bit, capacitor-based SAR ADC with inherent sample and hold.

The LED current drive is controlled via the DAC7573 with micropower operation of 600 uA at 5 V V_{dd}, which meets the needs of portable applications.

To meet the application's high-precision I/V conversion and low-noise signal processing requirements, the OPA381 handles the front end amplification of the nA range input signals, providing a full five decades of dynamic range.

A high-quality reference voltage is essential for achieving the best performance from the ADS8328 and DAC7573. Noise and drift can degrade overall system performance. The REF5025 precision voltage reference provides excellent temperature drift (3ppm/°C), low noise of 3uV_{pp}/V, and 0.05% accuracy.

The PO AFE module can seamlessly connect through standard interface to various processor platforms, such as the [C550x EVM](#) or the OMAP35xx Zoom Development Kit.

EVALUATION BOARD/KIT/MODULE TOOL (“Tool”) WARNINGS, RESTRICTIONS AND DISCLAIMER

For Feasibility Evaluation Only in Laboratory/Development Environments, Not for Medical Diagnostic Use.

This Tool is intended solely for evaluation and development purposes. It is not intended for diagnostic use and may not be used as all or part of an end equipment product.

This Tool should be used solely by qualified engineers and technicians who are familiar with the risks associated with handling electrical and mechanical components, systems and subsystems.

Your Obligations and Responsibilities.

Please consult the User's Guide prior to using the Tool. Any use of the Tool outside of the specified operating range may cause danger to the users and/or produce unintended results, inaccurate operation, and permanent damage to the Tool and associated electronics. You acknowledge and agree that:

- You are responsible for compliance with all applicable Federal, State and local regulatory requirements (including but not limited to Food and Drug Administration regulations, UL, CSA, VDE, CE, RoHS and WEEE,) that relate to your use (and that of your employees, contractors or designees) of the Tool for evaluation, testing and other purposes.
- You are responsible for the safety of you and your employees and contractors when using or handling the Tool. Further, you are responsible for ensuring that any contacts or interfaces between the Tool and any human body are designed to be safe and to avoid the risk of electrical shock.
- You will defend, indemnify and hold TI, its licensors and their representatives harmless from and against any and all claims, damages, losses, expenses, costs and liabilities (collectively, “Claims”) arising out of or in connection with any use of the Tool that is not in accordance with the terms of this agreement. This obligation shall apply whether Claims arise under the law of tort or contract or any other legal theory, and even if the Tool fails to perform as described or expected.