OXYGEN® RD0092

EVALUATION KIT

RD0092-D080-EK00

8 µm Pitch, 1280 x 720 DROIC Evaluation Kit

Description

The Oxygen® RD0092 Evaluation Kit is a modular system that can be configured for either room temperature evaluation (uncooled) or cryogenic evaluation (cooled).

The kit is intended to simplify evaluation of the Oxygen RD0092 DROIC and expedite the development of infrared imaging systems that are to be developed based upon it.

The same host PC software is used in both cases. The hardware required for uncooled evaluation is a subset of the cooled evaluation hardware, with the exception of an Oxygen RD0092 chip-on-board (COB) module that is plugged into the socket that is otherwise connected to the Dewar for cooled evaluation.

Features

- Modular design that can be configured for cooled and uncooled evaluation of the Oxygen RD0092
- Image acquisition support board based on custom FPGA
- Camera Link and USB interfaces to host PC for configuration, control and image display data transfer
- COB module supplied to be used on image acquisition support board for uncooled evaluation
- Adapter board and cables supplied to interface with DB-37 connectors on Senseeker's SEIR Dewar for cooled testing
- PC-hosted configuration file for Oxygen RD0092 included
- Utilizes efficient Senseeker SenSPI® interface
- Designed for use with industry-standard frame grabber hardware and Senseeker Sensor Test Unit (STU)

Uncooled Evaluation

The evaluation kit configuration for uncooled laboratory testing is shown in the figure below. The Senseeker image acquisition support board includes the Oxygen RD0092 DROIC mounted on a chip-on-board (COB) package and a custom FPGA system.

The support board is connected to a host PC that contains a commercial frame grabber card (not supplied by Senseeker). The EPIX PIXCI 80b frame grabber product has been shown to work well for this purpose.

An Excel file on the host PC contains the configuration data for setting up the Oxygen RD0092 DROIC internal registers. This data is transmitted across USB and utilizes the RD0092 on-chip SenSPI® interface. A Camera Link interface is used to transmit frame data from the DROIC to the host PC for display. Running in 80b mode requires two Camera Link cables .

The PC-hosted software (not including image display software), Camera Link and USB cables are supplied by Senseeker.

The support board is designed to be supplied by an external 5V supply and provides adjustable detector bias voltages. The support board also includes connections for an optional external clock input, as well as numerous digital and analog test points.

Cooled operation

The same basic electronics hardware is used for cryogenic testing, but is configured slightly differently.

The COB module is removed from the support board and is replaced by a Samtec ribbon cable that is connected to an adapter board. The adapter board breaks out the signals to three 37-pin ribbon cables that interface to three DB37 feedthrough connectors on the Dewar. For cooled evaluation, the kit currently supports 8-channel operation through the adapter board.

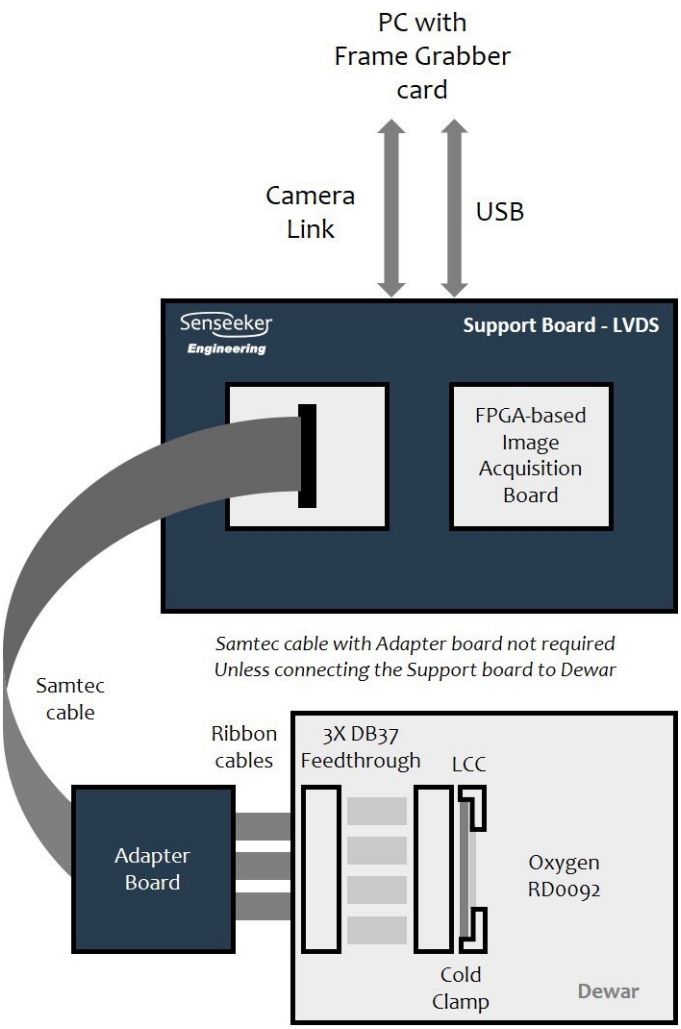
The Senseeker adapter board is designed to be used with a Senseeker Sensor Test Unit (either pour-fill LN2 or closed-cycle cryocooler types).

All of the components that are supplied by Senseeker in the Oxygen RD0092 evaluation kit are shown in the table. Senseeker does not supply the Dewar hardware, frame grabber or host PC that is required to use the Oxygen RD0092 evaluation kit for cooled and uncooled evaluation.

Evaluation kit component	Category
SE image acquisition support board	Hardware
Oxygen RD0092 COB module	Hardware
Adapter board	Hardware
USB cable	Hardware
Camera Link cable (X2}	Hardware
Samtec high data rate cable	Hardware
Ribbon cables with DB37 connectors	Hardware
Oxygen RD0092 configuration excel file	Software

Availability and Contact Information

Part number: RD0092-D080-EK00
Available to order now
Contact sales for pricing information:
products@senseeker.com



Dewar hardware can be sourced directly from Senseeker. The appropriate part numbers are given in the table for an LN2 Pour-Fill STU. Oxygen compatible Cryo-cooler Dewars are also available.

Senseeker STU equipment	Part number
LN2 pour fill Dewar	STU-LN2-LG-84-DB37
Closed-cycle cryocooler STU	STU-CC-LG-CT-84-DB37
Daughter board for 84 pin FPA LCC	DBA-84-SE42-8CH-LG-DB37