



## Digital Sensor Electronics

### CoaxSTACK™ Electronics

Senseker’s CoaxSTACK (Sensor Test And Characterization Kit) electronics supports all focal plane arrays (FPAs) that utilize Senseker digital readout integrated circuits. The CoaxSTACK has been designed with the flexibility to support a wide variety of digital readout-based FPAs from other companies as well.

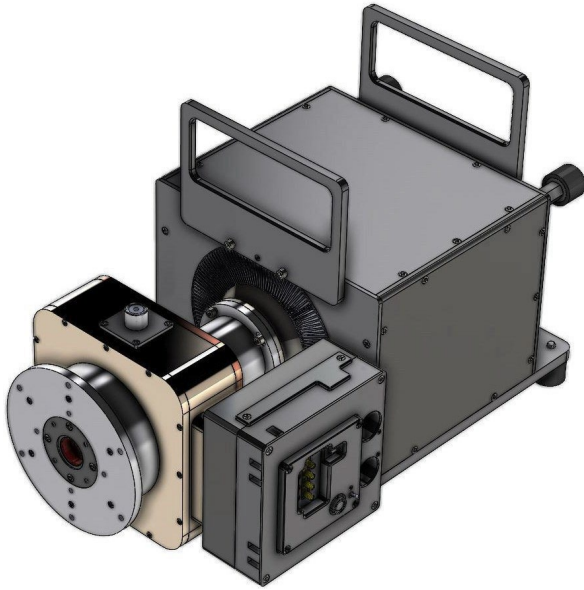
All Senseker Sensor Test Unit (STU) types (LN<sub>2</sub> pour-fill Dewar, Closed-cycle cryocooler and Thermoelectric cooler) are available with the Flex198 interface option for CoaxSTACK electronics integration. These new STU models also incorporate a new Personality Board Assembly (PBA) that accommodates the FPA. The CoaxSTACK is coupled closely with STUs by interfacing through a dual-flex hermetic feed-through to the PBA inside the STU vacuum chamber.

The CoaxSTACK is configured for a specific digital readout integrated circuit (DROIC) by Senseker prior to shipment by unique firmware that will support Senseker DROICs. The same CoaxSTACK can be reused to support different DROICs by reprogramming the STACK firmware which is available under license from Senseker.

### CoaxSTACK™ Electronics Features

Feature	Specification
FPA compatibility	All Senseker digital readout ICs
STU compatibility	All Senseker sensor test units
Maximum number of FPA ports	44 LVDS pairs (differential), 12 AUX lines (single-ended)
Max FPA speed	800 Mbps per port
Digital command/control interface	SenSPI®
Biasing	16 biases, 0-5 V with current limit and readback
STU interface	98-pin connector and 100-pin connector
PC interface	4 x CXP-6 (20 Gbps data)
Software	CamIRa-STACK and Configuration file for DROIC to be used
Power supply	Power over CoaxPress, External 6-60 V, or Fixed 5 V
Dimensions	2.4" W x 4.7" L x 4.9" H

## Sensor Test Unit with Integrated CoaxSTACK™



The illustration above shows a Senseker closed-cycle cryocooler STU with integrated CoaxSTACK electronics.

The large box shown at the rear of the system is the closed-cycle cryocooler. The front facing part is the lid for mounting a lens that is specified at time of order entry. The lid is connected to the vacuum chamber which houses the FPA that is accommodated on a personality board. The FPA is cooled by a cold finger that connects to the cryocooler.

The CoaxSTACK is the first product available in the STACK electronics portfolio. CoaxSTACK electronics uses a Coax-Press® interface that connects to a host PC that should be equipped with a suitable frame grabber card.

CamIRa®-STACK software is available from Senseker to operate with the STACK electronics.

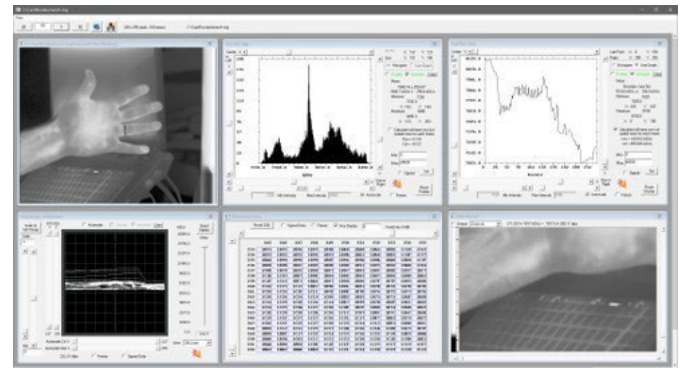
The STU, CoaxSTACK electronics and CamIRa software support all Senseker DROICs and Senseker DROIC-based FPAs. Each of these products must be configured for operation with a particular Senseker DROIC prior to use. This configuration is specified at the time of order entry.

## CamIRa®-STACK Software

The STACK electronics systems operate with windows-based CamIRa® software that is supplied separately.

The CamIRa-STACK software includes all of the resources needed to operate and control FPAs through the hardware. The software is used to setup, control and perform analysis on image data coming from the FPA.

CamIRa-STACK includes 2-point correction, image subtraction, image statistics, FPA parameter setup (including frame rate and integration time), image setup and orientation, image capture functions, display control and many other functions. Image processing filters for creating real-time DirectShow processing chains are included. The filter chain editor allows construction of image processing chains used to evaluate image processing techniques on live and stored data.



*CamIRa application software showing multiple windows open to analyze images and data from an FPA.*

CamIRa-STACK software is sold separately from CoaxSTACK as a complementary product. An additional Configuration file is also required with DROIC personality data.

## Availability and Contact Information

Available to order now  
Contact sales for pricing information:  
[products@senseker.com](mailto:products@senseker.com)