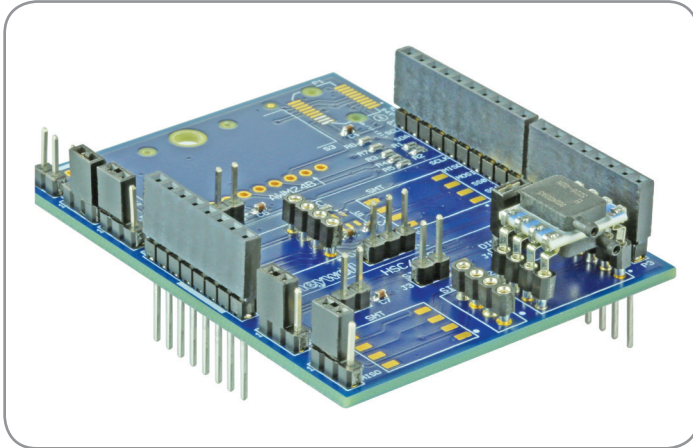**Honeywell**

THE POWER OF **CONNECTED**

Sensor Evaluation Kit, SEK001

For Use with TruStability™ RSC Series and Digital Output Versions
of the HSC Series and SSC Series Board Mount Pressure Sensors

32330034

Issue A

DESCRIPTION

The Sensor Evaluation Kit, SEK001, provides an easier way to demonstrate and evaluate Honeywell's TruStability RSC Series, and the digital output versions (I^2C or SPI) of the HSC Series and SSC Series Board Mount Pressure Sensors. The kit interfaces a selected sensor to an Arduino™ Uno Rev3 Microcontroller Board. Honeywell software, which is provided free and is downloadable at**http://sensing.honeywell.com/ sensors/evaluation-kit**, controls the Arduino Uno Rev3 to take readings from the sensor. Sensor measurements are displayed on the user's PC and can be recorded to a .csv file for further analysis. In addition to being mounted directly on the SEK001, the sensor may also be remotely connected to the SEK001 via wire leads, allowing the sensor to be tested in adverse environments, or in a prototype product for proof of concept testing.

VALUE TO CUSTOMERS

- Quicker, easier TruStability pressure sensor evaluation: The SEK001 and associated Honeywell software simplify sensor evaluation and demonstration by eliminating the need for the customer to develop any code before seeing sensor measurements.
- Remote mounting: In addition to being mounted on the SEK001, the sensor may also be mounted remotely if, for example, it is to be mounted in an oven for testing or in a prototype product for proof-of-concept testing of the customer's end product.
- Cost-effective: Provides a cost-effective way learn about the capabilities of our sensors so customers can make better informed component decisions faster. Customers are then able to perform a thorough evaluation of the sensor without needing to develop additional code.
- Expedites development: As the SEK001 allows customers to test their product, this helps customers to expedite their development process.
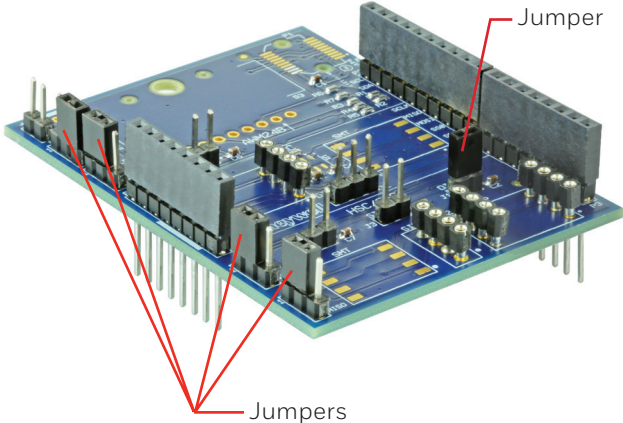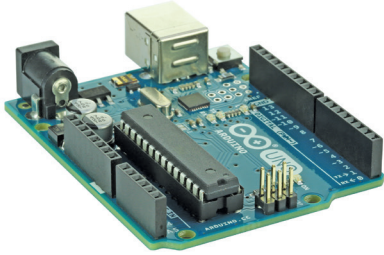
FEATURES

- The SEK001 has sockets to receive TruStability HSC, SSC Series pressure sensors with I^2C or SPI digital output, as well as the new TruStability RSC Series high resolution pressure sensors. The board is then plugged in as a shield board to the user-provided Arduino Uno Rev3 board. (All sensors are sold separately. Only one sensor may be evaluated at a time.)
- Five jumpers for an HSC Series or SSC Series, I^2C output, 5 Vdc pressure sensor are preconfigured on the board.
- Uses an industry standard Arduino platform
- Sensor Evaluation Boards for other Honeywell sensors are under development
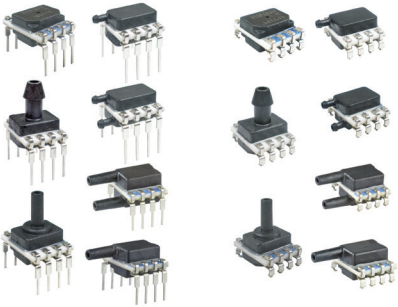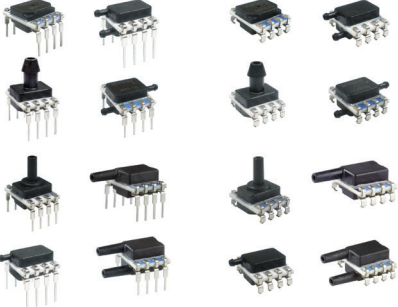
POTENTIAL APPLICATIONS

- Sensor demonstration
- Sensor testing and evaluation
- Proof-of-concept testing

Sensing and Internet of Things

Sensor Evaluation Kit, SEK001

Table 1. Sensor Evaluation Kit Contents and User-Provided Items

Honeywell Sensor Evaluation Kit, SEK001	User-Provided Components
Includes: • Sensor Evaluation Board • Five jumpers for **HSCDRRN001ND2A5** preconfigured on board Jumper Jumpers	Arduino Uno Rev3 Microcontroller Board (A000066)
	USB Interface Cable (Type A Male to Type B Male)
	PC with Internet access *(Note: If using a docking station computer, ensure that the computer is not in its docking station when installing and running the software.)*

Table 2. SEK001 Associated Pressure Sensors

RSC Series—High Resolution, High Accuracy, Compensated/Amplified		HSC Series—High Accuracy, Compensated/Amplified		SSC Series—Standard Accuracy, Compensated/Amplified
24-bit Digital SPI-compatible output DIP, SMT packages		Digital output versions only **SPI, I²C:** DIP, SMT packages **I²C:** SIP packages		Digital output versions only **SPI, I²C:** DIP, SMT packages **I²C:** SIP packages
DIP	SMT	DIP	SMT	SIP

Sensor Evaluation Kit, SEK001

Figure 1. SEK001/Arduino Assembly

HSCDRNN001ND2A5

SEK001

Arduino Uno Rev3
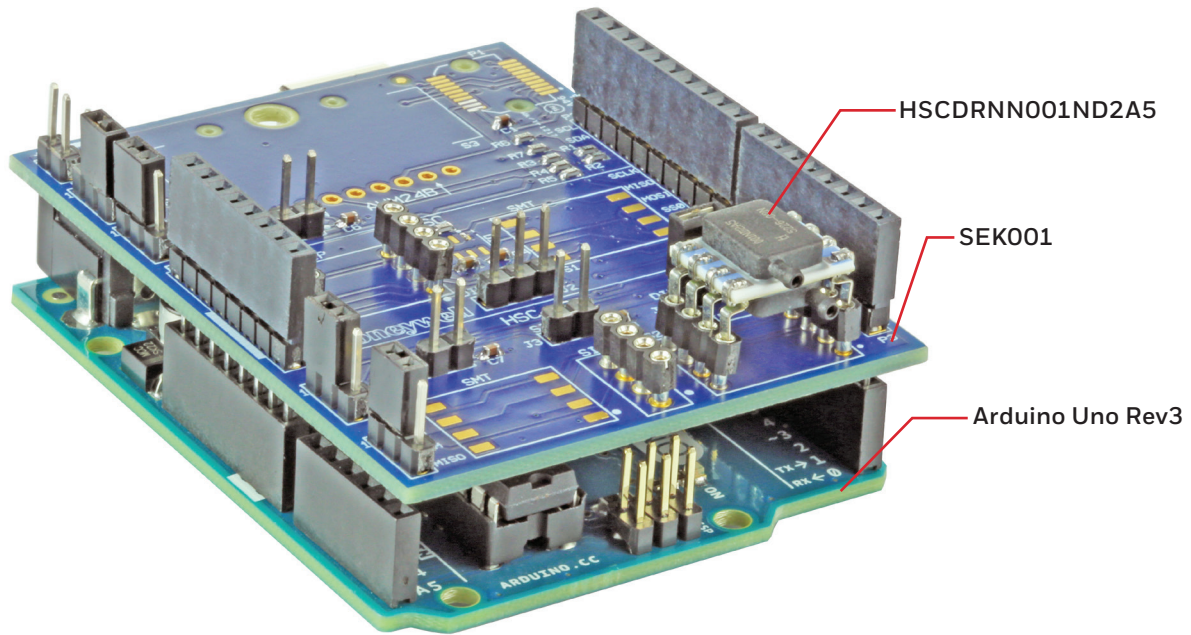
Table 3. SEK001 Specifications

Characteristic	Parameter
Temperature range	20°C to 30°C [68°F to 86°F]
Humidity range	30 %RH to 70 %RH

Power supply:
  internal (Arduino)
  external
	
	3.3 V or 5 V
	3.3 V or 5 V

Compatible sensors	RSC Series HSC Series (digital verions only) SSC Series (digital versions only)
Associated software	Sensor Evaluation Kit SEK001 Version 1.0.exe Arduino Firmware SEK001 Version 1.0.zip XLoader.zip

Sensor Evaluation Kit, SEK001

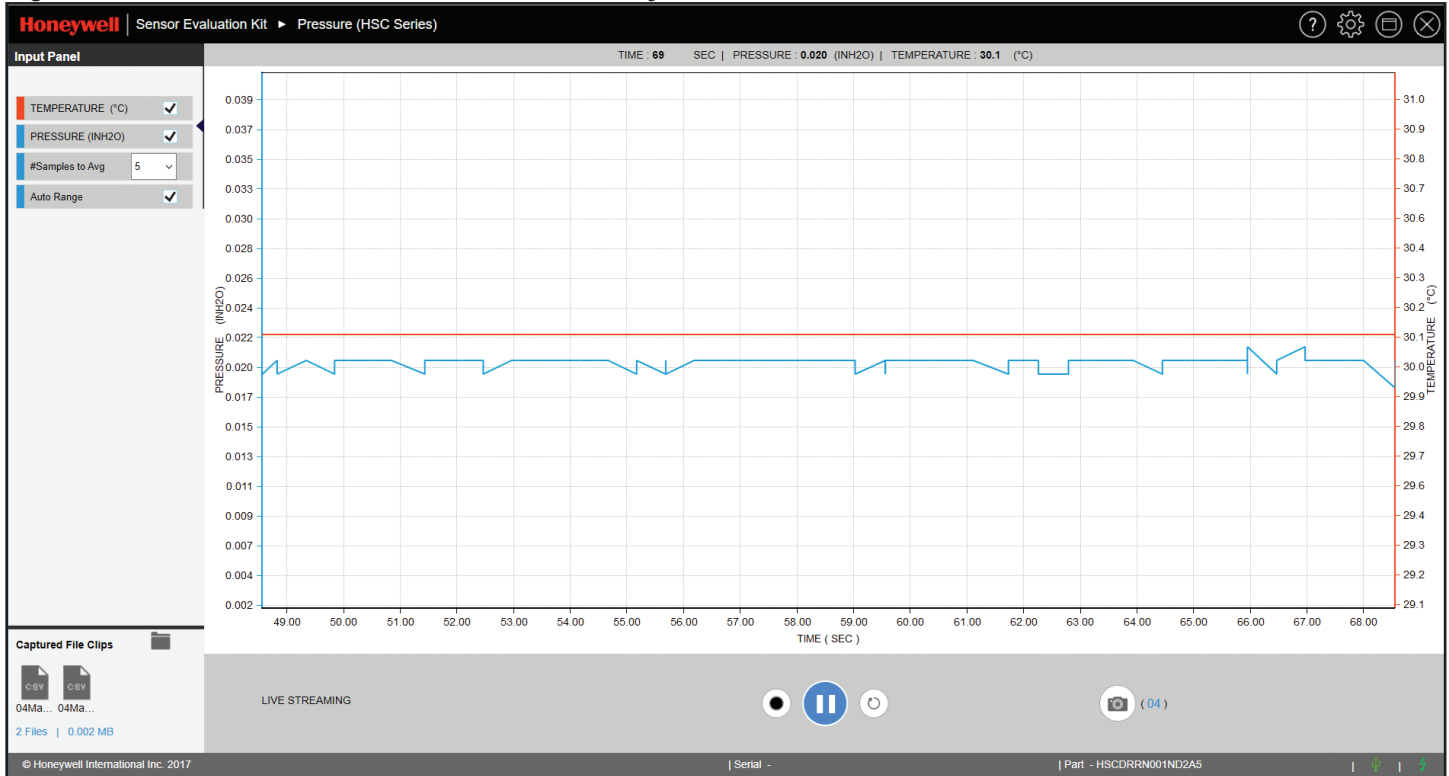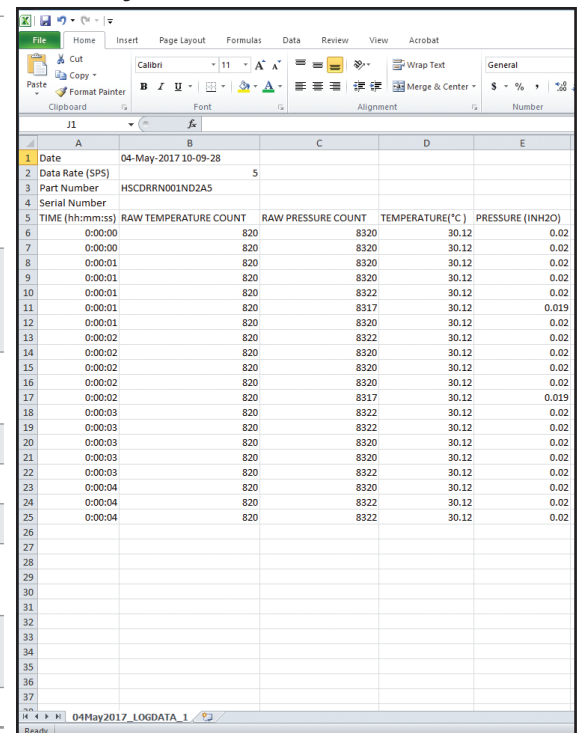**Figure 2. Measurement Screen for HSC, SSC Series Only**

Table 4. Measurement Screen Functions for HSC, SSC Series Only

Function	Description
Input Panel:	Selects the desired graph parameters. Click on the "Play" button after making a selection to restart the evaluation.
Temperature	Displays °C or °F of the sensor's ASIC.
Pressure	Displays the sensor's pressure.
#Samples to Avg.	Select from the given number.
Auto Range	Select to automatically adjust to keep trace on screen.
Play/Pause	Starts/pauses the LIVE STREAMING function. Also used to restart an evaluation after changing any Input Panel characteristics.
Record	Records the measurements in a .cvs file in Excel for offline analysis.
Restart	Resets the time line to 0 sec.
Snap Shot	Saves a screenshot to a selected folder.
Saved Snaps Path	Opens the folder of recent file clips and snap shots.
Captured File Clips	Displays/provides access to recent .cvs files in Excel.
Part	Displays the part number of the sensor currently being evaluated.
Serial	Not displayed.

Figure 3. Captured File Clip Sample for HSC, SSC Series Only

Sensor Evaluation Kit, SEK001

Figure 4. Measurement Screen for RSC Series Only

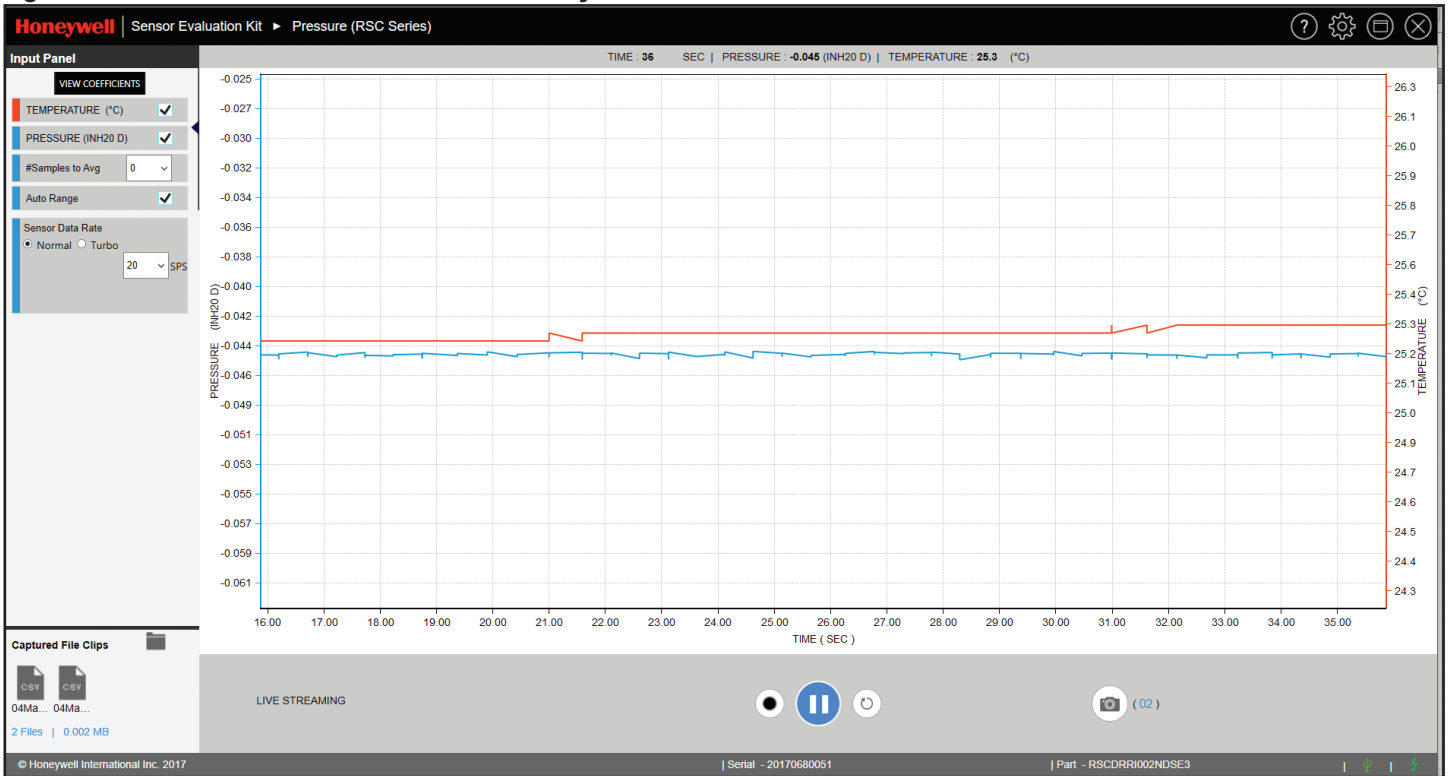

Table 5. Measurement Screen Functions for RSC Series Only

Function	Description
Input Panel:	Selects the desired graph parameters. Click on the "Play" button after making a selection to restart the evaluation.
VIEW COEFFICIENTS	Displays 12 coefficients, as well as other data (see Figure 10).
Temperature	Displays temperature in °C or °F of the sensor's ASIC.
Pressure	Displays the sensor's pressure.
#Samples to Avg	Select from a given number.
Auto Range	Select to automatically adjust scale to keep trace on screen.
Sensor Data Rate	Select from a given number the rate at which the sensor is programmed to make successive readings.
Play/Pause	Starts/pauses the LIVE STREAMING function. Also used to restart an evaluation after changing any Input Panel characteristics.
Record	Records the measurements in a .cvs file in Excel for offline analysis.
Restart	Resets the time line to 0 sec.
Snap Shot	Saves a screen shot to a selected folder.
Saved Snaps Path	Opens the folder of recent file clips and snap shots.
Captured File Clips	Displays/provides access to recent .cvs files in Excel format.
Part	Displays the part number of the sensor currently being evaluated.
Serial	Displays the serial number of the sensor currently being evaluated.

Sensor Evaluation Kit, SEK001

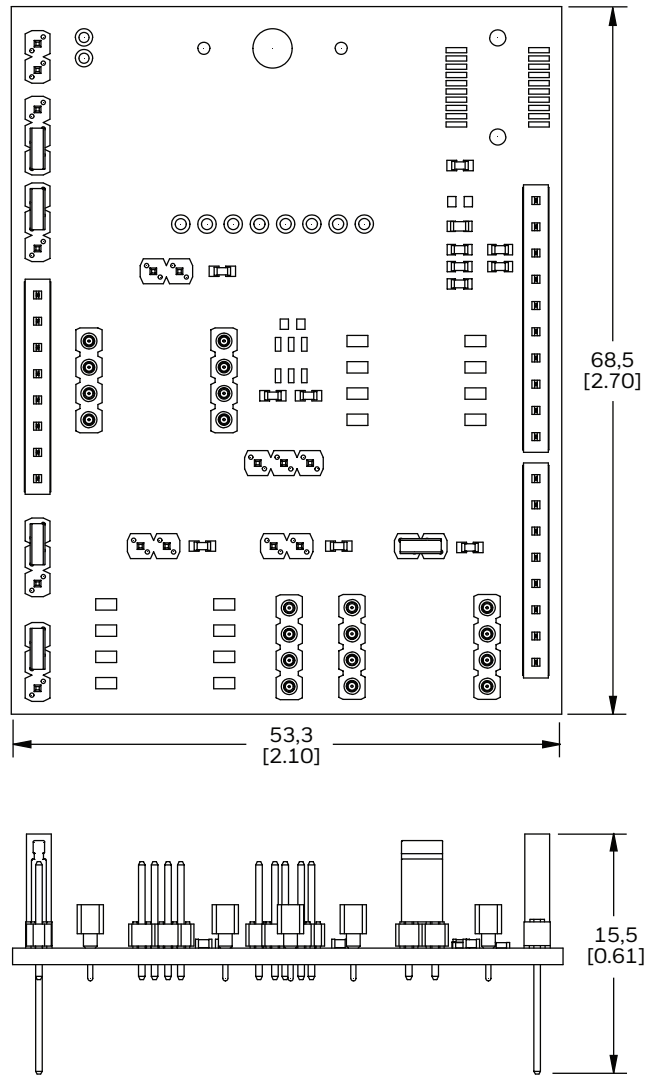**Figure 5. Captured File Clip Sample for RSC Series Only**

Figure 6. View Coefficients Screen for RSC Series Only

Sensor Evaluation Kit, SEK001

Figure 7. SEK001 Dimensions (For reference only: mm/[in].)

68,5
[2.70]

53,3
[2.10]

15,5
[0.61]

Figure 8. SEK001 Board Layout *(Note: The AWM24B set of receiving sockets is not currently used.)*

Front (no jumpers shown)

Back

SENSOR EVALUATION KIT-1

SEKOO1

32327303
REV A

COMMON INTERFACE BOARD-1
REV 3

BBT
250V

TABLE:1
SENSOR ENABLE JUMPER CONFIG

J1	1-2	HSC/SSC DIP ENABLE
J2	1-2	RSC SMT ENABLE

J2	2-3	RSC DIP ENABLE
J3	1-2	HSC/SSC SIP ENABLE
J4	1-2	AWM24B SENSOR ENABLE
J5	1-2	HSC/SSC SMT ENABLE
J8	1-2	HSC/SSC I2C ENABLE
J8	2-3	HSC/SSC SPI ENABLE
J9	1-2	HSC/SSC I2C ENABLE
J9	2-3	HSC/SSC SPI ENABLE

TABLE:2
VOLTAGE SUPPLY JUMPER CONFIG

J6	1-2	EXTERNAL PS
J6	2-3	INTERNAL PS
J7	1-2	INTERNAL PS 5V
J7	2-3	INTERNAL PS 3.3V
P4	1-2	EXTERNAL PS CONN