

TRUSTABILITY™ HSC AND SSC SERIES, AND BASIC ABP SERIES BOARD MOUNT PRESSURE SENSORS; FSA SERIES AND FMA SERIES FORCE SENSORS DIAGNOSTICS

Technical Note

The purpose of this Technical Note is to provide information about the optional diagnostic function available on both the digital and analog output versions of the TruStability™ HSC and SSC Series, Basic ABP Series Board Mount Pressure Sensors, and the FSA Series and FMA Series Force Sensors which, if desired, is selected as a part of the catalog listing.

1.0 DIGITAL OUTPUT DIAGNOSTICS

The output is sent when the sensor is given a read command and is a part of the two most significant bits (S1, S0) of data in Byte 1 (see Figure 1).

The digital output diagnostic feature consists of:

- An EEPROM signature used to validate the EEPROM contents during start-up
- Loss of sense element connection
- Short circuit of the sense element or internal interconnects inside the device (wirebonds).

If any of these three conditions is detected, an “11” on the Status Bits is shown in the first two bits of the most significant byte as shown in Table 1.

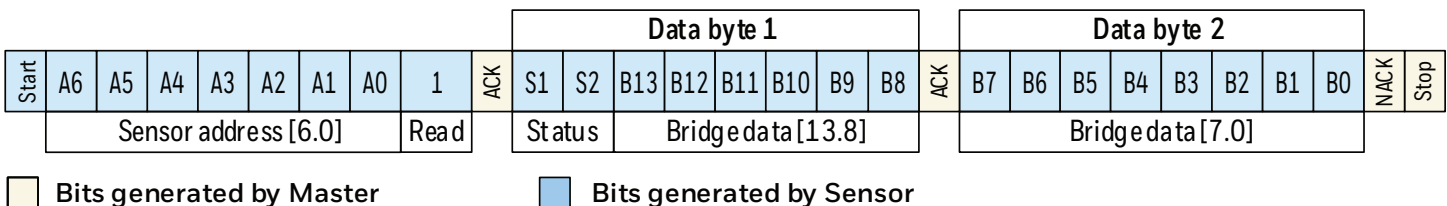
NOTICE

To view the catalog listing nomenclature, please access the product datasheets at sensing.honeywell.com.

TABLE 1. DIAGNOSTICS CONDITION

STATUS BITS		DESCRIPTION
S1	S0	
0	0	Normal operation, valid data
0	1	Device in command mode (shown only during factory calibration)
1	0	Stale data: Data that has already been fetched since the last measurement cycle, or data fetched before the first measurement has been completed
1	1	Diagnostic condition

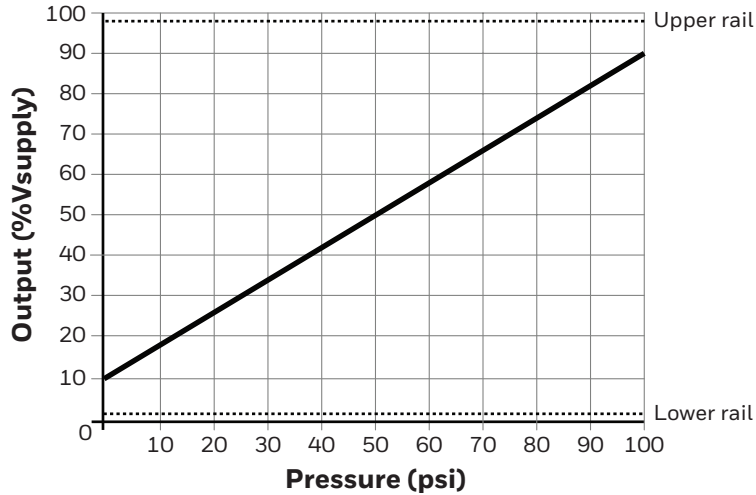
FIGURE 1. TWO BYTE DATA READOUT



2.0 ANALOG OUTPUT DIAGNOSTICS

If an analog diagnostic condition is detected, the output will go to either the upper or lower rail of the device and remain, as shown in Figure 2, thus preventing the sensor from outputting ambiguous data. Table 2 shows the fault condition and resulting output when the analog diagnostic function is specified.

FIGURE 2. TWO BYTE DATA READOUT



WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell’s standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective. **The foregoing is buyer’s sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is buyer’s sole responsibility to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Honeywell assumes no responsibility for its use.

TABLE 2. FAULT CONDITION AND RESULTING OUTPUT	
FAULT CONDITION	ANALOG DIAGNOSTIC RAIL
EEPROM Corrupt	lower rail
Sensor bridge open (any element)	upper rail
Sensor bridge short (any element)	upper rail
Loss of supply voltage	lower rail
Loss of ground connection	upper rail

FOR MORE INFORMATION

Honeywell Sensing and Internet of Things services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing or the nearest Authorized Distributor, visit sensing.honeywell.com or call:

- USA/Canada +1 302 613 4491
- Latin America +1 305 805 8188
- Europe +44 1344 238258
- Japan +81 (0) 3-6730-7152
- Singapore +65 6355 2828
- Greater China +86 4006396841

Honeywell Sensing and Internet of Things

830 East Arapaho Road
Richardson, TX 75081
sensing.honeywell.com

THE
FUTURE
IS
WHAT
WE
MAKE IT

Honeywell