

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.

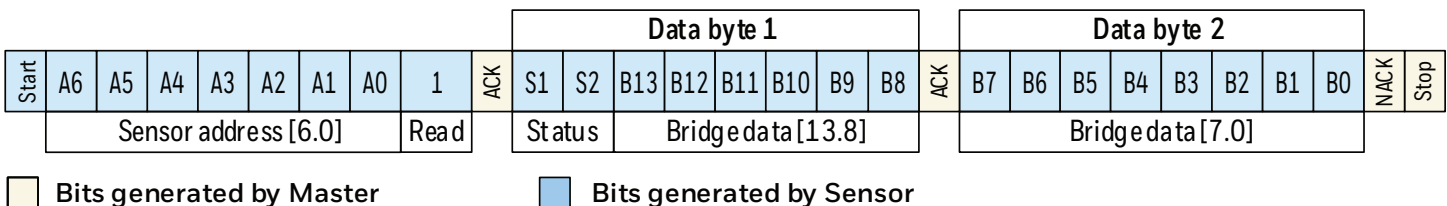
NOTICE

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

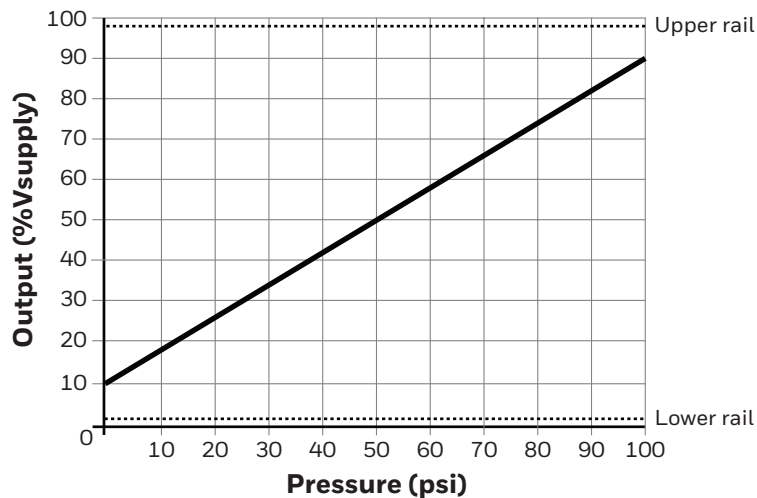
FIGURE 1. TWO BYTE DATA READOUT



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



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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

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