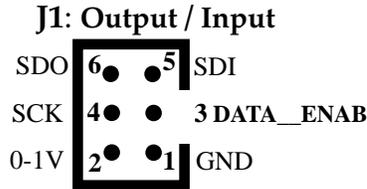
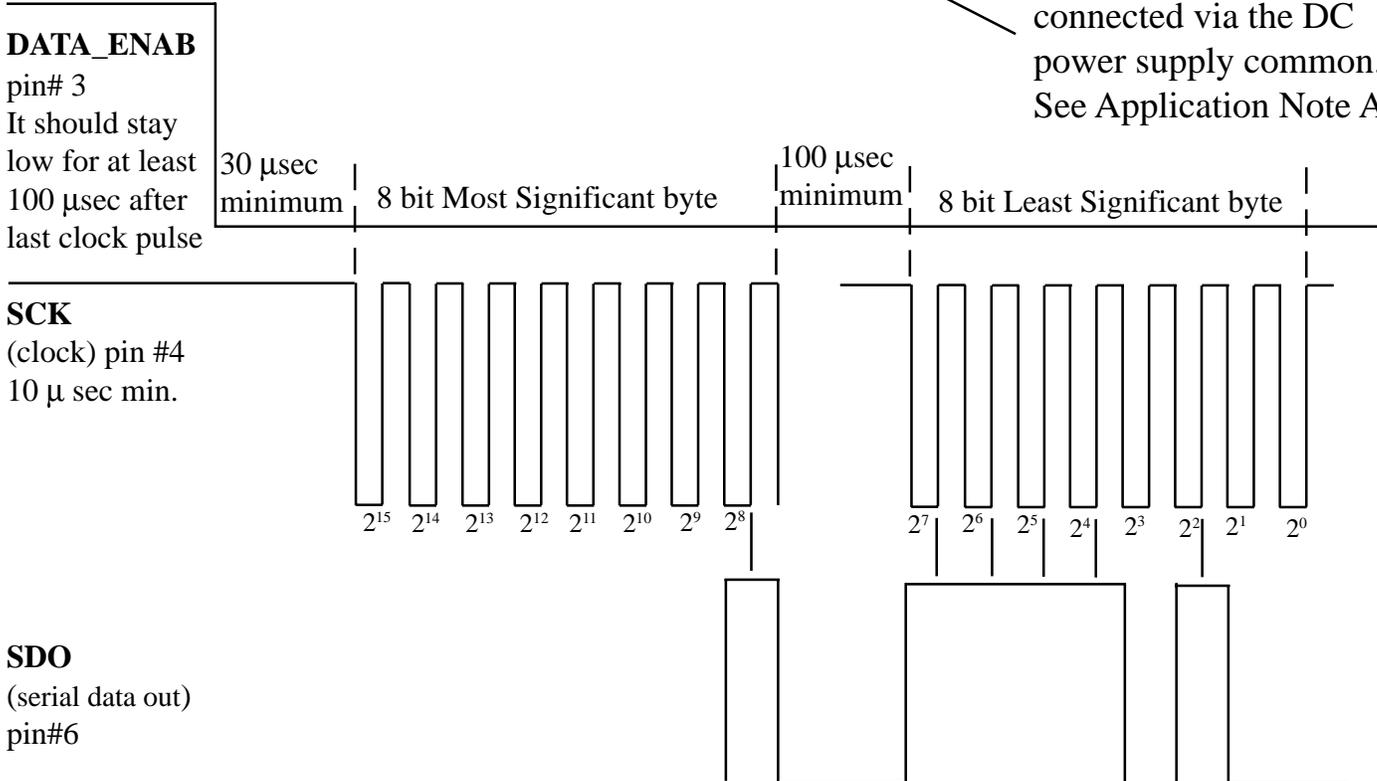


Application Note A64, Model 2005SPI-13 / 2015SPI-13, NH3 **Slave Mode**

Read % gas via SDO (Serial Data Out)



Important Note: Digital ground **Pin# 1** **MUST** be directly connected to the Master Microprocessor's digital ground, **NOT** just connected via the DC power supply common. See Application Note A59.



Decimal 500 = implied **5.00% gas** = binary 0000 0001 **1111** 0100 = $2^8 + 2^7 + 2^6 + 2^5 + 2^4 + 2^2 = 500$ decimal
Divide decimal value by 100 to equal % gas reading on a Model **2005SPI-2**, **2005SPI-13**, **2015SPI-3**, **2015SPI-13** or **2015SPI-NH3** sensor.

The high to low transition of the clock (**SCK**) must occur at least 30 microseconds after the high to low transition of the **DATA_ENAB** control for that sensor. The clock pulse width should not be less than 10 microseconds minimum. In **SLAVE Mode** the clock is controlled by you, the **Master** microprocessor. The **SDO** data output changes on the high to low transition of the clock (**SCK**) and the data should be read on the low to high transition of the clock (**SCK**).

The example in the timing diagram above shows a % **gas** reading of **5.00%** which is equal to a binary output of 0000 0001 **1111** 0100 (bits 2^8 , 2^7 , 2^6 , 2^5 , 2^4 , 2^2 are high "1"). You must wait (stop the clock) a minimum of 100 microseconds between the end of the **MSB** (Most Significant 8 bits) and the beginning of the **LSB** (Least Significant 8 bits).

The **SDI** (Serial Data Input) should remain low (logic '0') while the **SDO** is being read.

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