

The datasheet of ADXL345 provides a lot of information of SPI connection like 3-Wire or 4-Wire SPI Connection Diagram. We set the DATA_FORMAT register (Address 0x31) to select the 4-wire mode at the init part of the connection. And the sheet also gives the timing diagrams and from that we wrote the functions to read data and write data.

Before reading or writing data, master should firstly output a low level to the CS pin of the accelerometer, and then send an 8 bit data to the accelerometer which contains writing or reading command in the highest bit. And as the sheet recommended, the second highest bit should be set as continuous reading. The rest 6 bits should be the address of register the master wants to read. After sending the command, the master can read the data from the accelerometer. To finish reading data, the master will set the CS pin as high level.