

Electronics Serial Communication-SPI

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Serial Communication -SPI

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- Serial Peripheral Interface

Serial Communication -SPI

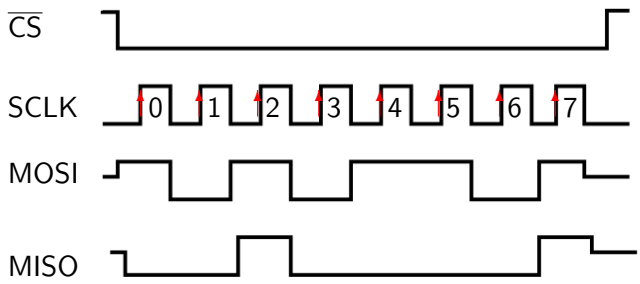
- Serial Peripheral Interface
- Master/slave communication

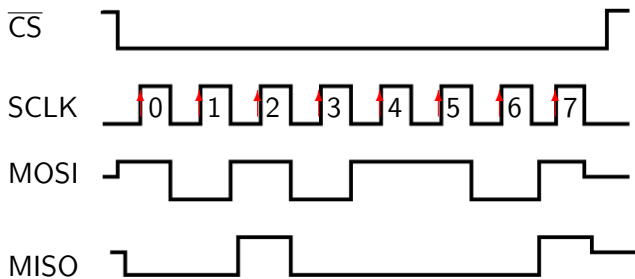
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- Serial Peripheral Interface
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- Uses 3 signals (and Ground),
MISO, MOSI, SCLK
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- Serial Peripheral Interface
- Master/slave communication
- Uses 3 signals (and Ground),
MISO, MOSI, SCLK
and chip selects for each slave device
- Synchronous, so master controls clock rate





SPI transfers can happen in both directions simultaneously.

PySpidev

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create object

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SPI0 has two associated **devices**, selected by **chip selects**

CE0 and **CE1**

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There is normally one SPI **port** on the Raspberry Pi.

It is designated as port **0**

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CE0 and **CE1**

- So, **spi.open(0,0)** means to
connect to the device using CE0 on SPI0

PySpidev

(continued)

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- So, **`spi.max_speed_hz = 5000`** means to limit the SPI clock speed to about 5kHz

PySpidev

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- **`response = spi.xfer2([0xAA])`**
transfer one byte
CS held active between blocks

PySpidev

(continued)

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- **response = spi.xfer2([0xAA])**
transfer one byte
CS held active between blocks
- **response = spi.xfer([values])**
transfer bytes
CS released and reactivated between blocks

PySpidev (continued)

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- **spi.writebytes([values])**
write bytes

PySpidev (continued)

- **spi.writebytes([values])**
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- **spi.readbytes(len)**
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PySpidev (continued)

- **spi.writebytes([values])**
write bytes
- **spi.readbytes(len)**
read *len* bytes
- **spi.cshigh**
get or set active state of CS
- **spi.close()**
close port

PySpidev sample code

PySpidev sample code

```
import spidev
spi = spidev.SpiDev()
spi.open(0,0) #port , device
# use port 0, chip select CE0
spi.max_speed_hz = 5000
while True:
    strval = input("val (0...255, q=quit):")
    if strval == 'q':
        break
    else:
        value = int (strval)
        dummy = spi.xfer2 ([49, value])
spi.close()
```