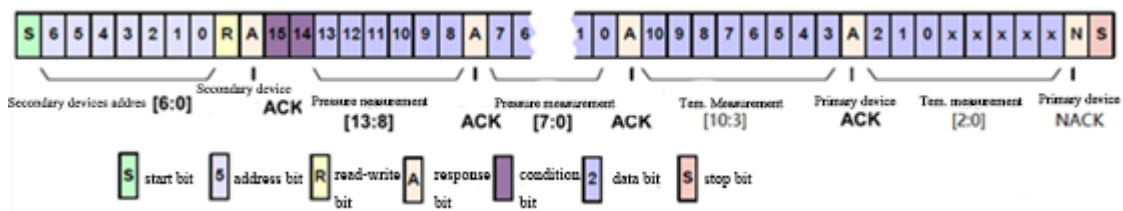


Data reading instructions of IIC bus digital signal output

transmitter and sensor

1. The factory address of IIC signal output transmitter or sensor is 0*28, read data can be divided into normal mode and sleep mode:

1.1 Normal mode:

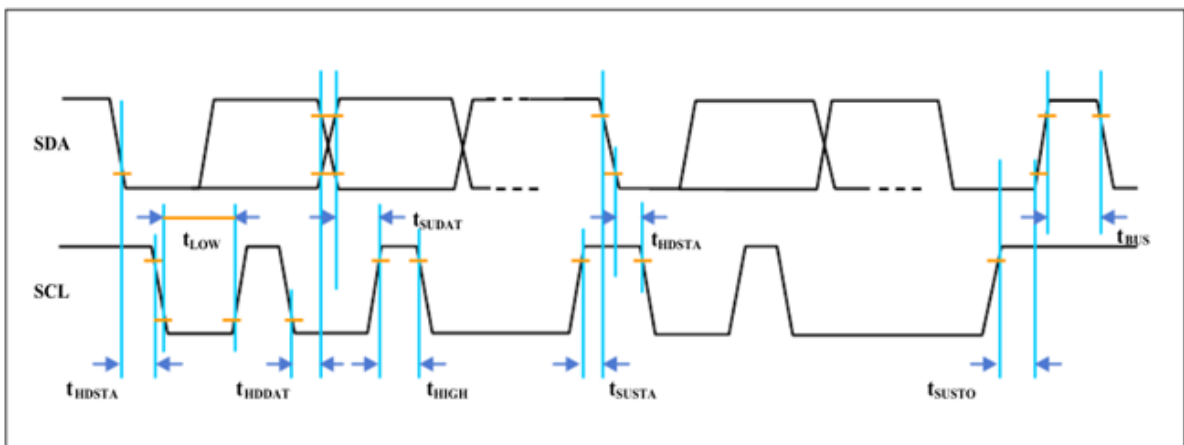


1.2 Sleep mode:



Note: Low power read data format: Order + Read data command + Receiving packet, bus plus start bit when wake up measurement. The procedure is attached to Appendix I.

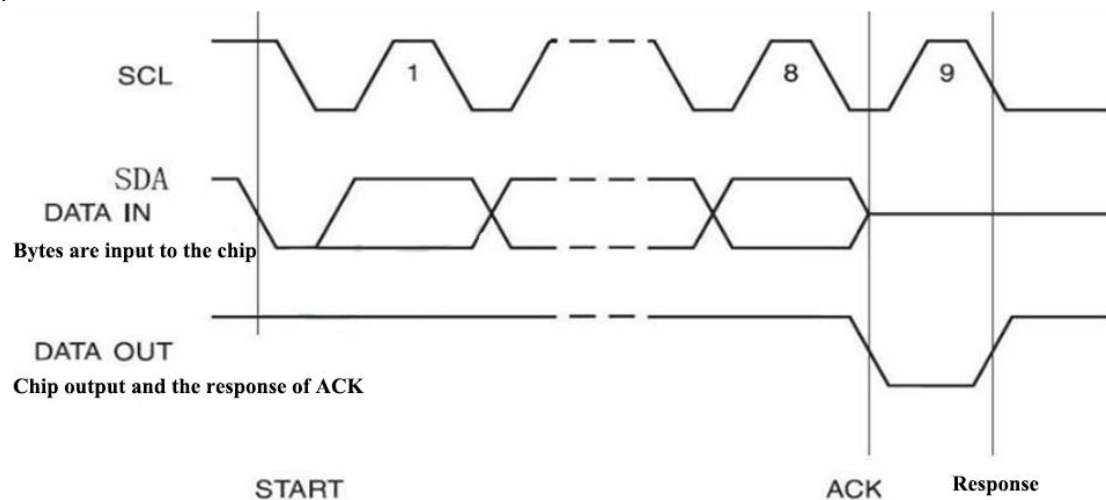
2. The timing of the operations to read data:



The parameter of IIC

Parameter	Symbol	Min.	Typ.	Max.	Units
SCL clock frequency	f_{SCL}	100		400	kHz
Start condition guard hold relative SCL edge time	t_{HDSTA}	0.1			μs
Minimum SCL low level width	t_{LOW}	0.6			μs
Minimum SCL clock height	t_{HIGH}	0.6			μs
Start condition is set to hold relative SCL edge time	t_{SUSTA}	0.1			μs
Data protection time SDA relative to SCL edge	t_{HDDAT}	0			μs
Data establishment time SDA relative to SCL edge	t_{SUDAT}	0.1			μs
Stop condition setting time	t_{SUSTO}	0.1			μs
Idle time between stop condition and start condition	t_{BUS}	2			μs

The sum of the low and high widths is equal to or greater than the minimum SCL period.



3. Status bit description

Status bit	Definition explains
00	If it is correct packet, you can operate it normally
01	In command mode
10	Stale data
11	Diagnostic mode

4. Pressure equation

4.1 Pressure output calculation (10%—90%output, factory default)

$$P = (P_v - 1638) * (P_{max} - P_{min}) / 13110 + P_{min}$$

No.14 Shuangqiao Rd, Qinzhou Dist, Tianshui, Gansu Prov, China

+86-0938-8631926



TIANSHUI HUATIAN SENSOR

IIC Bus Digital Signal Output

Pv: IIC signal output pressure AD value in base 10

Pmax: Full-scale output

Pmin: Zero output

P: Actual pressure value

Pr and P is the same unit.

For example: Full-scale pressure is Pmax=4MPa, zero output Pmin=0, the value collected by IIC is 4916, so the actual pressure value is $P = (4916 - 1638) * (4 - 0) / 13110 + 0 = 1.00015 \text{ MPa}$.

5. Output reference value

Parameter	Typical	Unit
Zero pressure output(5%)	333	hexadecimal
Zero pressure output(10%)	666	hexadecimal
Full-Scale pressure output (90%)	399A	hexadecimal
Full-Scale pressure output (95%)	3CCB	hexadecimal

6. Temperature calculation formula:

$$T = 200 * T_v / 2047 - 50$$

Tv: IIC signal output temperature AD value in base 10

T: Actual temperature, unit is °C.

Appendix I (Low power read format)

Date_Read (0x51); // read pressure

Timer0_Delay (80);

Date_Read (0x51);

The low power consumption reading program increases the reading command + delay on the basis of the normal working program.