I2C INTERFACE

- ## IIC Device Address

	Device Address							IIC W/R
	Bit7	**Bit6**	**Bit5**	**Bit4**	**Bit3**	**Bit2**	**Bit1**	**Bit0**
Default	1	1	0	1	1	0	**1**	0/1

- ## IIC Protocol
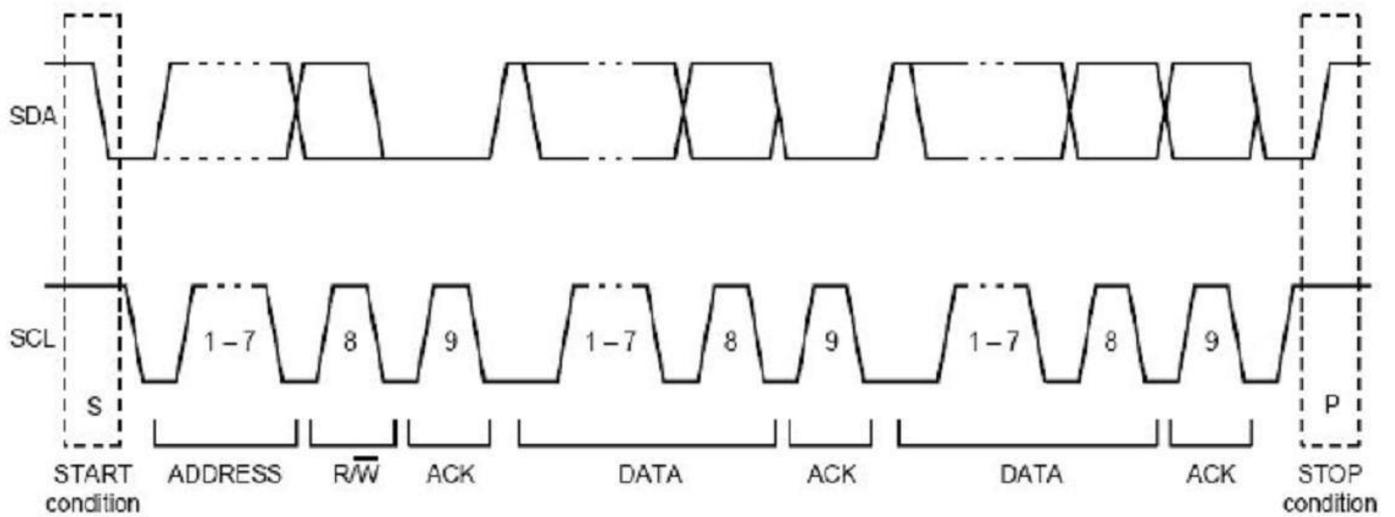
PRESSURE AND TEMPERATURE ORDER

```
┌─────────────────────┐
│        Start        │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Start temperature   │ ◄────┐
│    measurement      │      │
└─────────────────────┘      │
           │  Wait           │
           ▼                 │
┌─────────────────────┐      │
│ Read raw temperature│      │
│        data         │      │
└─────────────────────┘      │
           │                 │
           ▼                 │
┌─────────────────────┐      │
│   Start pressure    │      │
│    measurement      │      │
└─────────────────────┘      │
           │  Wait           │
           ▼                 │
┌─────────────────────┐      │
│  Read raw pressure  │      │
│        data         │      │
└─────────────────────┘      │
           │                 │
           ▼                 │
┌─────────────────────┐      │
│ Calculate pressure  │      │
│ and temperature in  │      │
│   physical units    │      │
└─────────────────────┘      │
           │                 │
           ▼                 │
┌─────────────────────┐      │
│        Delay        │      │
└─────────────────────┘      │
           │                 │
           └─────────────────┘
```

Start

T_{MIN}=−40℃ T_{MAX}=85℃ T_{REF}=25℃

⇩
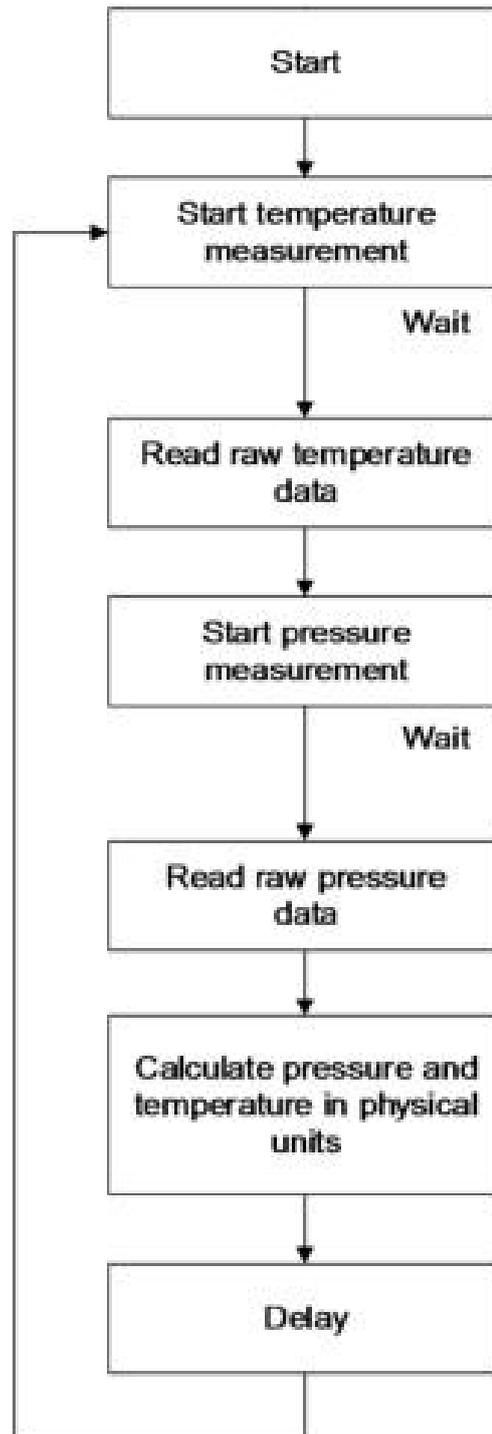
Read digital pressure and temperature data

Reg		Description	R/W	Default
0x30	CMD	0x0A，进行一次输 0x0B，持续输 0x1B，62.5ms 间隔输 0x2B，125ms 间隔输 0xFB，1s 间隔输	W	0x00
0x06	PRESSURE_MSB	Press out<23:16>	R	0x00
0x07	PRESSURE _CSB	Press out<15:8>	R	0x00
0x08	PRESSURE _LSB	Press out<7:0>	R	0x00
0x09	TEMP_MSB	Temp out<15:8>	R	0x00
0x0A	TEMP_LSB	Temp out<7:0>	R	0x00
0x02	STATUS	发送完 CMD 后，轮询 STATUS 的 bit0 值判断转换是否完成，注意该数据被读取后会自动清零	R	0x00

*Reg0x06-Reg0x08: 24 bits ADC output data with an LSB

⇩

Calculate

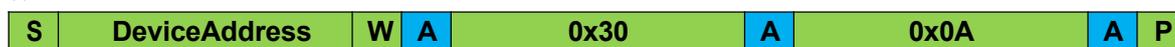|	Size [bit]	Zero Condition	Below Zero	Above Zero

PRESSURE	24	8388608	long ad = PRESSURE_MSB;
			ad << 8; ad |= PRESSURE_CSB;
			ad << 8; ad |= PRESSURE_LSB;
			float v = ad / 8388608;
				long ad = PRESSURE_MSB;
				ad << 8; ad |= PRESSURE_CSB;
				ad << 8; ad |= PRESSURE_LSB;
				float v = (ad − 16777216)/ 8388608;

TEMP	16	32768	long ad = TEMP _MSB;
			ad << 8; ad |= PRESSURE_LSB;
			float v = ad / 256;
				long ad = TEMP _MSB;
				ad << 8; ad |= PRESSURE_LSB;
				float v = (ad −65536)/ 256;

* PRESSURE: It also needs to be converted according to the pressure range, Using the driver C code is strongly recommended. Please contact with WFH for details.

- **IIC timing diagram**

🟩	From master to slave	**S**	Start	☐ **A**	Acknowledge
🟦	From slave to master	**P**	Stop	☐ **N**	Not Acknowledge

Write Data (IIC Write)

(a) conversion command

S	DeviceAddress	W	A	0x30	A	0x0A	A	P

Read Data (IIC Read)

(a) After sending the temperature conversion command, read 16bit data from the output buffer

S	DeviceAddress	W	A	0x09	A			
S	DeviceAddress	R	A	TEMP_MSB	A	TEMP_LSB	N	P

(b) After sending the pressure conversion command, read 24bit data from the output buffer

S	DeviceAddress	W	A	0x06	A					
S	DeviceAddress	R	A	PRESSURE_MSB	A	PRESSURE_CSB	A	PRESSURE_LSB	N	P