

PM4I2C I2C bus output transmitter
MAIN FEATURES

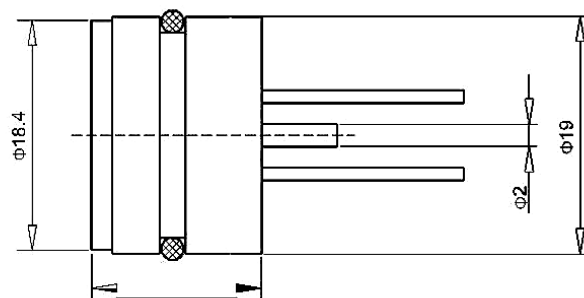
- Digital compensation for sensor offset, sensitivity, temperature drift, and nonlinearity;
- 32-bit customer ID field for module traceability;
- Temperature and pressure are digitally output using I2C bus;
- Fast power on to data output response: 3ms
- Low power consumption, sleep mode operation, as low as 6 μ A. The current consumption depends on the programming sampling rate;
- Working temperature: -40 °C to +85 °C;
- Wide power supply voltage capacity: 3.3V/5V


OVERVIEW

The PM4I2C bus output transmitter digitally outputs temperature, pressure, and liquid level measurement signals in the form of an I2C bus. The interface is fast and accurate, and is used to construct the Internet of Things using microcontrollers. It can read data through microprocessor operation, control power on and off, and reduce power consumption.

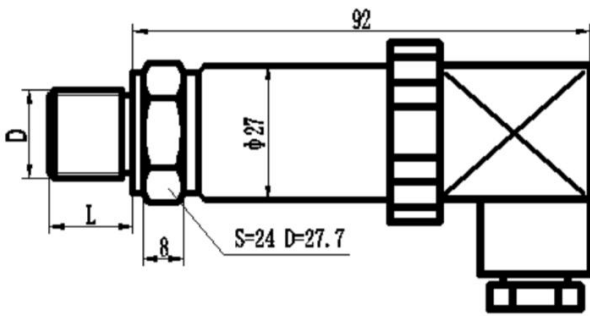
SPECIFICATION

Items	Parameter
Range	-100kPa...0kPa~10kPa...3.5MPa
Overload capability	2 times full scale pressure
Pressure Type	Gauge pressure type, absolute pressure type
Accuracy	Default: $\pm 0.5\%$ FS (pressure) ± 0.5 °C (temperature) Customized: $\pm 0.2\%$ FS (pressure) ± 0.5 °C (temperature)
Long-term stability	$\pm 0.2\%$ FS/year
Compensation temperature	-20°C~60°C
Storage temperature	-40°C~125°C
Power supply	5 \pm 0.1V DC/3.3 \pm 0.1V DC
Power consumption current	<1.3mA (customizable low power consumption<6 μ A)
Communication	I2C factory default address 0x28

SENSOR CORE DIEMENSION


Unit: mm

TYPICAL DIMENSION

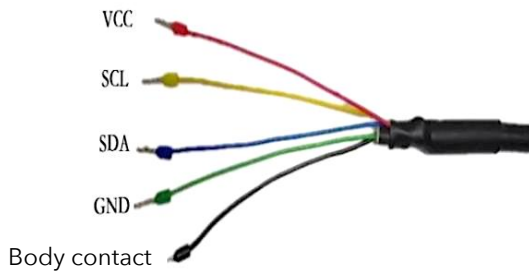


D (Dimension)	L (Length)	D (Dimension)	L (Length)
M22*1.5	15	M10*1	12
G1/2	15	G1/8	12
M20*1.5	15	1/2NPT	18
M18*1.5	15	1/2PT	18
G3/8	15	3/8PT	15
M16*1.5	15	3/8NPT	15
M14*1.5	15	1/4NPT	14
G1/4	14	1/4PT	14
M12*1	14	1/8NPT	12

MORE RECOMMENDATION

MODEL	FEATURE	OUTLINE CONSTRUCTION
412C-1	<ol style="list-style-type: none"> Standard Hirschmann connector The full range of threads can be customized Pressure interface materials can be customized Protection grade IP65. 	
412C-2	<ol style="list-style-type: none"> Waterproof metal joints Flat membrane structure, easy to clean Pressure interface M20 × 1.5, G1/2 optional Protection grade IP66. 	
412C-3	<ol style="list-style-type: none"> Compact type, outer diameter 22mm Pressure interface material can be customized Protection grade IP66 	
412C-4	<ol style="list-style-type: none"> Aviation socket Medium temperature range -40~150°C The number of heat sinks, pressure interface materials can be customized Protection grade IP65. 	
412C-5	<ol style="list-style-type: none"> High reliability liquid level outlet Flat membrane structure, easy to clean Pressure interface M20 × 1.5, G1/2 optional Waterproof rating IP68 	

ELECTRIC CONNECTION



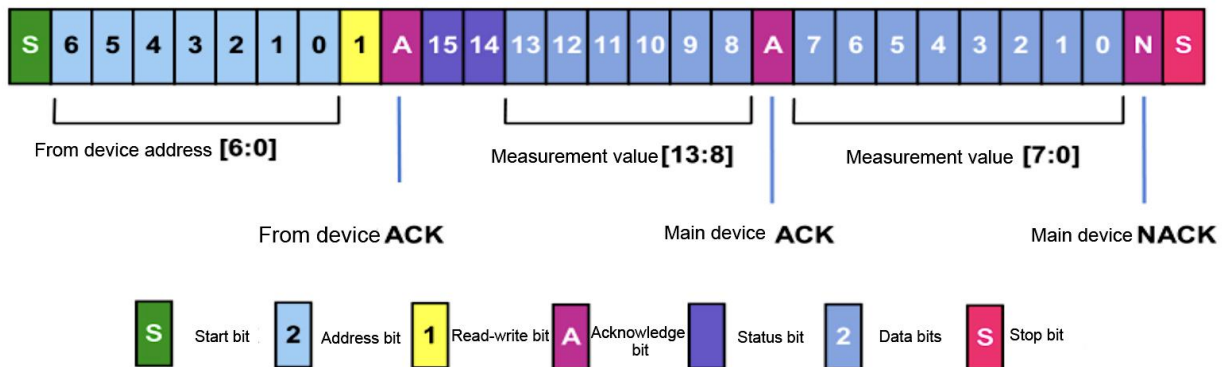
Name	VCC	SCL	SDA	GND	Body contact
Transmitter	RED	YELLOW	BLUE	GREEN	BLACK
Sensor	RED	YELLOW	BLUE	GREEN	

DATA MEASUREMENT ACQUISITION OPERATION

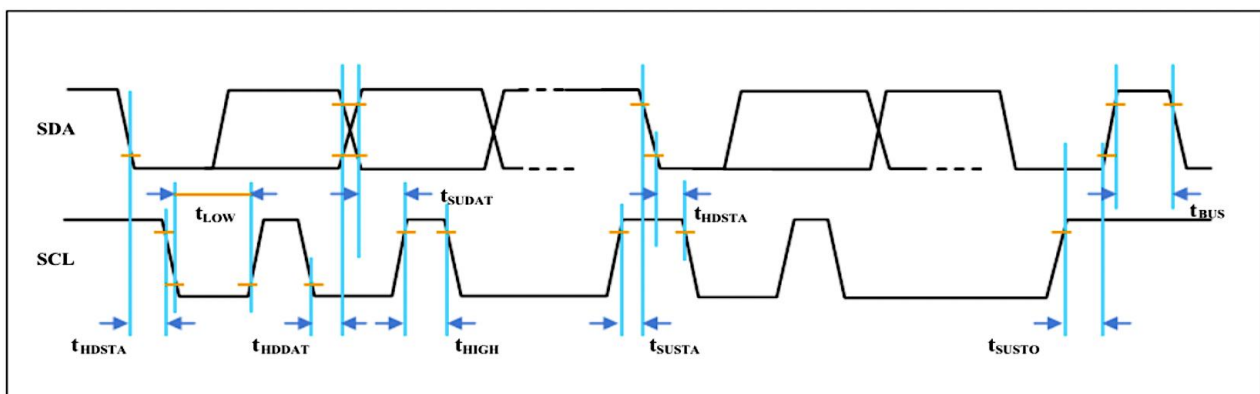
1. I2C transmitter and core factory address 0x28, temperature and pressure integrated pressure value address 0x28, temperature value address 0x29 when connected to platinum resistor

2. Reading data sequence diagram:

2.1. For the read operation, the command of the main control device is activated, and as a slave device, a confirmation (ACK) is sent to indicate success. As a slave device, the factory address is 0x28, and the communication sequence is shown in the following figure:



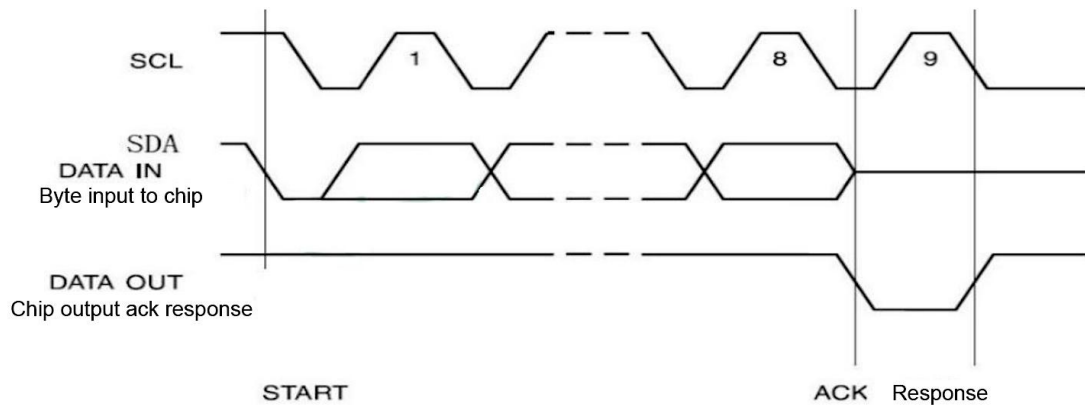
2.2. The timing of I2C data reading is as follows



I2C parameters

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
SCL clock frequency	F _{scl}	100		400	kHz
Starting condition protection holding relative SCL edge time	t _{HDSTA}	0.1			μs
Minimum SCL clock low-level width	t _{LOW}	0.6			μs
Minimum SCL clock width	t _{HIGH}	0.6			μs
Starting condition setting relative to SCL edge time	t _{SUSTA}	0.1			μs
Data protection holding 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 SCL	t _{SUSTO}	0.1			μs
Bus idle time between stop and start conditions	t _{BUS}	2			μs

The combination of low and high widths must equal or exceed the minimum SCL cycle



3. Pressure calculation formula:

$$P = (P_v P_o) * P_r / 13110$$

P_v: I2C output pressure digital value;

P_o: Digital value of I2C output pressure at product zero point;

P_r: Product range;

P: Actual pressure value;

P_r and P are the same unit.

4. Read typical pressure values

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

ORDER CODE

Code:	A	-	B	-	C	-	D	-	E	-	F	-	G
Model:	PM4I2C	-	G	-	0-5bar	-	S	-	L	-	G 1/2	-	IC

Model	Code A
Standard Hirschmann connector	4I2C-1
Direct cable connection, flat membrane	4I2C-2
Direct cable, small body	4I2C-3
Aviation socket, high temperature -40~150°C	4I2C-4
Flat membrane, fully sealed with IP68	4I2C-5
Pressure type	Code B
Gauge pressure	G
Absolute pressure	A
Pressure Range(X=specific range)	Code C
-100kpa ~3.5MPa	X MPa
-1Bar ~35Bar	X Bar
-15psi ~508psi	X psi
Accuracy	Code D
0.2%(typical)	T
0.5%(standard)	S
Interface material	Code E
SS304	SS
316L	L
Other customized	C

Process connection	Code F
Null	N
M22*1.5	M22
G1/2	G1/2
M20*1.5	M20
M18*1.5	M18
G3/8	G3/8
M16*1.5	M16
M14*1.5	M14
G1/4	G1/4
M12*1	M12
M10*1	M10
G1/8	G1/8
1/2NPT	1/2NPT
1/2PT	1/2PT
3/8PT	3/8PT
3/8NPT	3/8NPT
1/4NPT	1/4NPT
1/4PT	1/4PT
1/8NPT	1/8NPT
More customized	C
Output signal	Code G
I2C	IC
More output customized	C

Remarks:

1. The structure and types of this series are so much. In order to recommend the most suitable product for you, please specify the use environment and measurement media when consulting.
2. The cable materials are available in PVC, PUR, PE, and ZRPVC. The default is PVC material. If you have special requirements, please specify when ordering.
3. Flat membrane product joint material is 316L, joints are always equipped with M20 × 1.5, G1/2 two types joints. Please consult for special requirements.
4. More other size except above mentioned could be customized according to the drawings provided.
5. LOGO print is available once authorized.