

Compact Pressure Transmitter With I²C Digital Output

- 0 to 4 bar
- Piezo-resistive silicon micro-machined sensor
- Gauge type pressure sensor
- I²C interface
- Resolution : 0.3mmH₂O / 100~2,100Count
- Temperature Compensation : 0 ~ 50°C
- Operating voltage 5.0V
- RoHS compliant and Halogen-free

The P-20D is the pressure sensor which measures gauge pressures. It consists of a silicon micro-machined sensing element chip and a signal conditioning ASIC. The pressure sensor element and the ASIC are mounted inside a system-in-package and wire-bonded to appropriate contacts. The P-20D provides the digital output data with the format of I²C interface. It can achieve ESD robustness, fast response time, high accuracy and linearity as well as long-term stability. All measurement data is fully calibrated and temperature compensated. In addition, it allows for easy system integration. Pressure transmitter has a variable semiconductor sensing element with a programmable ASIC and a hybrid circuit for reliable signal conditioning and maximum electronic integration.



TYPICAL APPLICATIONS

- ✓ Pressure Control
- ✓ Petrochemical
- ✓ Transmissions
- ✓ Compressors & Pumps
- ✓ Water Management
- ✓ Environment control systems

□ General Specification

- 2-1. Sensing Mechanism ----- Piezo-resistive silicon micro-machined gauge type pressure sensor
- 2-2. Pressure Range ----- 0 bar ~ 4 bar
- 2-3. Operating voltage ----- 5.0V ± 0.5V
- 2-4. Ambient Temperature Range, Operating Range ----- 20°C ~ 80°C
- 2-5. Storage Temperature range ----- -30°C ~ 100°C (No Condensing)
- 2-6. Pressure accuracy ----- ±1.0% of F.S (25°C)
- 2-7. Output ----- I²C Interface (12bit Resolution)
- 2-8. Resolution ----- 0.002 bar / LSB
- 2-9. Proof Pressure ----- 2 x F.S
- 2-10. Burst Pressure ----- 3 x F.S
- 2-11. Operating Current ----- 2.0mA
- 2-12. Operating Voltage ----- 5.5VDC
- 2-13. Pressure Hysteresis ----- ±0.50% of F.S
- 2-14. Pressure Non-Linearity ----- ±0.50% of F.S
- 2-15. Temperature effect ----- ±0.01% of Vcc/°C
- 2-16. Total Error band ----- ±1.0% of Vcc (25°C) / ±1.5% of Vcc (0 ~ 50°C)
- 2-17. Digital output value ----- 100 ~ 2,100 Count
- 2-18. Input and output Resistance ----- 4,000 ~ 6,000Ω
- 2-19. Response Time ----- Max 40mSec
- 2-20. Output ripple ----- 0.2% of F.S
- 2-21. Life cycle ----- 500,000 cycle

□ ASIC Electrical Characteristics [VDD = 5.0V]

Parameter	VDD	Conditions	MIN	TYP	MAX	UNIT	Symbol
Operating Voltage	-	-	4.5	5	5.5	V	V _{DD}
Operating Current	5.0V	-	-	1.7	2	mA	I _{DD}
Standby Current	5.0V	System standby	-	0.1	1	μA	I _{STB1}
Proof pressure	-	-	-	-	30	bar	P _{PRO}
Operating Pressure Range	-	-	0	-	4	bar	P _{OP}
Compensation Temp.	-	-	0	-	50	°C	T _{CMP}
Pressure Sensitivity	5.0V	P: 0 ~4bar	-	0.002	0	bar/LSB	P _{SEN}
Pressure Resolution	5.0V	P: 0 ~4bar	-	11	0	Bits	P _{PRES}
Data Update Time	5.0V	T: 25°C	-	-	100	mS	T _{UPDATE}
Human Body Mode	5.0V	MIL-STD-883E Method 3015.7	-	2	-	kV	ESD
Absolute Accuracy (At absolute pressure)	5.0V	T: 25°C P: 0 ~4bar	-0.040	-	+0.040	bar	P _{ACC}
		T: 0°C ~ 50°C P: 0 ~4bar	-0.060	-	+0.060	bar	