Piezoresistive Pressure Sensor

Model: TPH505

Tosilon Automation



TPH505 and TPH506 Series Micro type pressure transmitter, nominal external diameter 5mm, is specifically designed for the application associated to hydrodynamic research.

The pressure sensing element of the TPH505 Series adopt the current sophisticated MEMS (Micro-electromechanical Systems) technology, three-dimension integration, double-side processing for sensing element, etc., that keep high accuracy of the linearity. The technology of photolithography adopted on the Wheatstone strain bridge minimize the temperature drift. Based on the finite element analysis by CAD auxiliary, the designs including mechanical construction and layout position are optimized that solve the contradiction between linearity and output sensitivity under lower measuring range. Down to Φ 2mm radial scaled microchip, the measuring range could reach 20kPa while keeping the stable linearity.

Tested by Shock tube, the inherent frequency of the lower measuring sensor is between 60~138 kHz. It has 0~20 kHz utilized bandwidth (Risetime<2us).

Index Class	Accuracy Class ±% F.S	Hysteresis Repeatability % F.S	Zero Temperature Coefficient x10 ^{.4} F.S / Deg. C	Sensitivity Temperature Coefficient x10 ^{.4} F.S / Deg. C	Zero Time-Drift mV/8h
AL	Standard: 0.25 Max.: 0.5	Standard: 0.05	5	5	0.2
JB	Standard: 0.15 Max.: 0.25	Max.: 0.1	2	2	0.1

Performance Index

Item		Spec.	Remark
Zero Position Output	-	0±5 mV	Absolute: 0±10 mV
Full-Span Output	-	40mV (Min.); 80mV (Normal); 120mV (Max.)	It varies from different measuring ranged sensors.
Input / Output Impedance	-	3 k Ω (Min.); 3.5 k Ω (Normal); 4 k Ω (Max.)	
Input Working Current	-	1.5 mA	Constant-Current Source
Storage Tempt. (Deg. C)	-	-40~125	-30~75 (with PVC Socket)
Working Tempt. (Deg. C)	-	-40~120	-20~70 (with PVC Socket)
Compensation Tempt. (Deg. C)	-	10~60	As required
Medium Measured	-	Liquids, Gas	Compatible with materials; not corrosive
Overload Capacity	-	2xF.S	
Acceleration Sensitivity	-	<0.002%FS/g	
Military Customization	-	Available	

Outline Structure



The TPH505 Series

Cable Spec.	Description	Remark
Φ2.2 mm	Shielded; Multicore	Standard Length: 1m
Φ2.5 mm	Double-Shielded; Multicore	Standard Length: 1m
Φ3.0 mm	Double-shielded; Multicore; Gas-Guide Tube	Standard Length: 1m

- The "balance tube (Φ5mm x 18mm)" is adopted at cable outlet end, that is used for sensor signal conditioning and compensation.

As option convenient for the users, the power supply of the sensor could be followed by the constant voltage source. Under this condition, the "balance tube" will be extended to Φ 12mm x 25mm

The Max. Length of the PVC tube could reach 7m. If it is over 7m, the customization will be required or by selecting Ф3 mm cable (Double-shielded; Multicore; Gas-Guide

Tube).

Order Guide

ТРН	xxx Transmitter Selection (e.g.: TPH505					
Model	505					
Range	0~X kPa					
Code	Accuracy Class					
JB	Corresponding to Model					
JA	Corresponding to Model					
MB	Corresponding to Model					
MA	Corresponding to Model					
Code	Power Supply / Output					
S1	24VDC / 4~20mA					
S2	12~24VDC / 0.1~5V					
S3	24VDC / 0.1~10V					
S4	1.2mA / 1.5mA (constant-current source) / mv signal output					
S7	12VDC (constant-current source) / mv signal output					
S11	12~24VDC / 0.1~5V / 20kHz Bandwidth					
S12	±15V / ±12V / 0.1~5V output / 20kHz Bandwidth					
S13	±15V / ±12V / 0.1~5V output / 100kHz Bandwidth					
S14	±15V / ±12V / 0.1~5V output / 200kHz Bandwidth					
Code	Cable Entry					
C1	Direct Connection					
C2	Aviation Connection (used for amplifier transmitter)					
Code	Others (Option)					
Q	User Requirement					