M E M S C A P
S E N S O R   S O L U T I O N S

TP2000 MINIATURE DIGITAL PRESSURE TRANSDUCER
AEROSPACE GRADE

Memscap high-end sensors transducers and switches offer unique performance for your applications. The high proven quality and reliability of our sensors that match Aerospace and Defence standards offer unmatched results in a wide variety of industry applications ranging from Aviation, Meteorology, Instrumentation as well as R/D programs.

Brief Description:

The Memscap TP2000 series digital-output pressure transducer is a fully calibrated, high precision device. The TP2000 contains a Memscap SP82 sensor, Analog to Digital Converter (ADC) and Electrically Erasable Programmable Read-Only Memory (EEPROM) with compensation data. Temperature and non-linearity effects need to be externally compensated for by using data stored in the EEPROM. More than 400 sets of measurements, covering a wide range of temperature and pressure combinations are used as the input to the compensation data. This 'board to board' solution creates an opportunity to use a pre-calibrated sensor that easily can be integrated into a final product.

A P P L I C A T I O N S

* **Aerospace/Avionics**
* **RVSM Air Data Computers**
* **Standard µC SPI bus**
* **Ground Test Systems, Air Data test sets**
* **RVSM and Standby Altimeters**
* **UAV's/Drones**
* **Multifunctional Probes**
* **Air Speed Instruments**
* **Cabin Pressure Control Systems**
* **Encoders/Transponders**
* **Auxilary Power Units**
* **Navigation systems**
* **Engine Control Systems**
* **Defence**
* **Meteorology**
* **Industrial**
* **Instrumentation**

F E A T U R E S

* **24 bit ADC with SPI & chip select**
* **EEPROM with compensation coefficients**
* **Pressure and temperature output**
* **Available in Absolute, Relative and Diff versions**
* **Board to board configuration**
* **Supplied also as "Plug&Play" evaluation kit**
* **System compliant RTCA DO-178B, level A**
* **Built with Memscap SP82"L" high spec sensor**

B E N E F I T S

* **Very high accuracy and resolution**
* **Excellent long term stability**
* **Complete Evaluation Kit available**
* **Board to board digital SPI interface**
* **No Software, RTCA DO-178B not applicable**
* **MIL STD 883 compliant hermetic sensor**
* **Operating range from -40 to 80°C (105°C)**

MEMScAP®
The Power of a Small World™

TP2000 MINIATURE PRESSURE TRANSDUCER, AEROSPACE GRADE

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SPECIFICATIONS

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Parameter	Min /Typical	Max	Unit
Pressure ranges (absolute, relative or differential)	0 - 0.5	0 - 10	bar
Overpressure	150		% FSO
Power-supply	6.5	20	V
Current consumption	0.75	1.5	mA
Total pressure error (absolute)		±0.05	% FSO
(differential and relative)		±0.1	% FSO
Long term stability (at ambient temp)	±0.03	±0.05	% FSO / year
Repeatability and mechanical hysteresis		±0.005	% FSO
Pressure resolution		<0.00005	
Output noise		±0.002	
Conversion time	22	25	ms
Response time	44	50	ms
Total temperature error		±2	°C
Temperature resolution	<0.0002		°C
Calibration temperature range	-40	80 (105*)	°C
Operating temperature range	-40	105	°C

* Wider temperature range is available on request. This can influence the accuracy.

COMMUNICATION

For detailed description of the communication protocol and commands, please contact MEMScAP for user manual.

The connector is used to power and communicate with the transducer. Table shows the pin functions. A Samtec type: IPS1-105-01-S-D connector is mounted on the TP2000. This board to board connector has 0.76µm gold on contacts and mates with Samtec type: IPT1-105-01-S-D. Versions with cable harness are available on request.

Pin number	Function
1	Power
2	EE_CS
3	EE_WP
4	SCLK
5	MISO
6	VCC_ERR
7	ADC_CS
8	ADC_CLK
9	GND
10	MOSI

Figure 1 – Mechanical dimensions in mm