



## Caution!

**Please carefully read the followings before using the pressure sensor products.**

### **1. Limitation of application liability**

Fujikura suggests that the buyer should apply a fail-safe design, for instance duplicate, anti-ignition or anti-error systems against the failures, breakage or miss-operations of the sensor in the application at the buyer's own risk when the buyer design any products with Fujikura Pressure Sensors. Fujikura and its subcontractors, distributors can NOT guarantee the suitability, the quality and the reliability of the products which are designed with Fujikura Pressure Sensors by the buyer. Fujikura assumes the buyer should implement the qualification and/or reliability tests for its products with Fujikura Pressure Sensors in proper and practical conditions at the buyer's own risk.

Fujikura Pressure Sensors are NOT developed, designed, manufactured, sold, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or other medical devices, or nuclear applications, aerospace, aviation or other transportation, submarine, combustion, or fail-safe applications in which the failures, breakage or miss-operations of the sensors could create a situation where personal injury or death, explosion or fire, or serious social damage may occur. Fujikura and its subcontractors, distributors accept NO responsibility for the buyer's selection and use of Fujikura Pressure Sensors in any such unintended or unauthorized applications and the situation where personal injury or death, explosion or fire, or serious social damage might occur even if Fujikura and its subcontractors, distributors were negligent and/or the sensors had any defects, breakage or errors.

### **2. Others**

1. Fujikura reserves the right to make changes to any sensors and its specifications herein without further notice.
2. Fujikura does NOT accept others to copy or reproduce information herein without Fujikura's approval.
3. Fujikura and its subcontractors, distributors do NOT assume any liability arising out of the application or use of any sensors or related technical all information describe herein, neither do it convey any license under its intellectual or industrial properties of Fujikura nor properties of others.
4. According to the check sheets in the Appendix 1 of the Export and International Trade Administrative Code, which was issued by 'Information Center of the International Trade



Security Foundation' in Japan and 'The Japan Machinery Exporters' Association' in October 1996, (which was supervised by Ministry of International Trade and Industry, International Trade Security Administration Department), Fujikura Pressure Sensors do NOT infringe any limitations or restrictions against the export under the 'Japanese Foreign Exchange and International Trade Administrative Law' .However Fujikura has NEVER gotten any approvals from the Minister of International Trade and Industry under the law. The buyer should confirm the non-infringement at the buyer's own risk or should be qualified when buyer export the sensors to the place where the law or other country's laws limit or restrict.

**Very important information to use Fujikura Pressure Sensors properly, Please review this notes carefully and fulfill them.**

### **1. Usage and Environment for Fujikura Pressure Sensors**

1. Please use the sensors within the absolute maximum ratings that are described in the specification sheets. The sensors may be broken or may NOT keep the performances when the sensors are used in an environment or condition beyond the absolute maximum ratings. Specially, the buyer should take care about the sensor's internal breakage and/or spilling out the materials, for instance a very tiny silicon fragment, if there is a possibility the sensors would be exposed in an environment or conditions beyond the absolute maximum ratings.
2. The sensors do NOT have any protection against water or water drop except that the specification sheets specify the water resistance. Please do NOT use the sensors in a circumstance where water splash on it or the sensors may heavily dew. In addition, there is a possibility that an iced water which had intruded into the sensor would break the inside. And please take care about washing water or washing solvent at any washing processes after the soldering , which may go into the inside and break the inside or affect the performances.
3. Please do NOT wash the sensors with any ultrasonic washing machine. The ultrasonic should break the inside of the sensors.
4. Please do NOT prick into the pressure inlet with a needle or a pin. They may sting the inside and damage it, or may block the pressure inlet.
5. Please do NOT touch the surface of the model FPBS directly. This may give a damage to the inside or affect the performances.
6. Please do NOT block the vent hole which gauge models have. The gauge sensors of which vent hole are blocked should have an error.
7. Please do NOT connect any electrical circuit to the leads except that the pin diagram instructs in the specification sheets. The sensors would be broken or affected by a voltage applied to the



leads.

8. Please solder the sensors under the condition as follows:
  - By soldering machine
    - Temperature : below 260 degree C, Soldering time : within 5 seconds
  - By hand soldering
    - Temperature : below 350 degree C, Soldering time : within 3 seconds
  - Flacks : Non-corrosive rosin
  - Solder : H63A class
9. Please do NOT expose the sensors in vapor of any organic solvent, SO<sub>2</sub> gases or H<sub>2</sub>S gases. Fujikura assume the pressure media and the ambient should clean air or Nitrogen gases, should NOT be contaminated a corrosive gases which damage the material of the sensors. The vapor of any organic solvent, SO<sub>2</sub> gases or H<sub>2</sub>S gases should give a damage to the sensor or affect the performances. Specially, please take care about the storage ambient NOT to be contaminated with such gases which can stain in a short period.
10. Please do NOT contaminate any foreign particles in the pressure media. The foreign particles should block the pressure inlet, break the inside or make an error. Specially, the sensors would pretend to output a proper signal in spite of a low or no sensitivity, or slow response when the particles block the pressure inlet. It is a hard for the buyer to built up a system which can detect such failure in the actual application.
11. The sensors can NOT measure a pressure of Hydrogen gases and Helium gas, because the size of molecules should be relatively smaller than other gases. So those gases can leak from the sensors very easily and make an error.
12. Please introduce your desirable pressure media into the pressure inlet without any leaks. The leakage makes an error.
13. Please fix the sensors mechanically. The mechanical instability would make a leak or suddenly slip and hit a person, who would be injured.
14. Please do NOT stress the package of the sensors, specially after the calibrations. The stress may shift the output or change the performances. Please adjust all parameter after all mechanical set up.
15. Please do NOT light up the sensors in the application or in the calibration process. The light may shift the output or change the performances.
16. Please set Zero-calibration function up your products. The offset voltage may be shifted by some mechanical stress such as mounting, installation and etc. over longtime using.
17. Please keep the sensors sealed using static shielding bags on storage. The pins of the sensor are plated by Ag. If the sensors expose to an atmosphere, the pins will be black by sulfuration.



## **2. Standard warranty terms and Limitation of warranty liability**

The failure is defined as a condition which the sensor cannot satisfy the specifications. If Fujikura Pressure Sensors fail within a period of one year from the ex-factory date and the buyer use it under proper conditions as the specification sheets instructs and fulfill this notes, Fujikura is willing to replace the sensor free of charge or credit it. This warranty does NOT apply to the sensors as follows:

1. There are any defects or faults caused by an improper dealing during the transportation after Fujikura has delivered the sensor to a place where the buyer had instructed.
2. There are any defects or faults caused by the buyer's misuses, abuse or neglect.
3. The buyer fixed or remade the sensors.
4. There are any identical or consequential damages that are given in the usage.
5. There are any defects or faults caused by natural disasters such as fire, earthquake, flood or thunder.

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