



## Model 3920 Low Humidity Generation System

### *Safety Information*

#### ***Introduction***

This document supplies safety information for the Model 3920 Low Humidity Generation System (the Product).

#### ***Safety Information***

Important safety guidelines need to be observed when operating this equipment. Precautions are highly advisable so that no personal injury will occur during the operation and maintenance of the system. Observation of local and national regulations must be adhered to regarding safety standards.

#### ***FCC Statement***

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

#### ***Symbols***

The symbols used in the manuals and on the Product are shown below in table 1-1.

A **Warning** identifies hazardous conditions and actions that could cause bodily harm or death.

A **Caution** identifies conditions and actions that could damage the Product, the equipment under test, or cause permanent loss of data.









Symbol	Description
	This symbol is shown from the WEEE directive and indicates do not dispose of this product in any municipal waste area.
	This symbol means Caution and should be observed or important information.
	This symbol indicates a potential shock hazard may exist.
	This symbol means Earth Ground.
	This symbol denotes Heat or Hot Surface, or Gases.
	Symbol means flammable material avoid igniting or open flame or spark.
	This symbol signifies Carefully read all instructions.
	See FCC Statement above.

Table 1-1

 **Warning!**

***To prevent possible electrical shock, fire, or personal injury:***

- Carefully read all instructions.
- Read all safety information before using the Product.
- Read the safety data sheet (SDS) supplied with the purchased methanol and take necessary precautions.
- Use this Product indoors only.
- Do not put the Product where access to the mains power cord is blocked.
- Replace the power cord if the insulation is damaged or if the insulation shows signs of wear.
- Do not use an extension cord or adapter plug.
- Do not alter the Product. Use only as specified, or the protection supplied by the Product can be compromised.
- Do not use the Product if it is altered or damaged.
- Do not use the Product around explosive gas, vapor, or in damp or wet environments.

- Make sure the ground conductor in the power cord is connected to a protective earth ground. Disruption of the protective earth could put voltage on the chassis that could cause death.
- Make sure that the space around the Product meets minimum requirements.
- Use only specified replacement parts.
- Have an approved technician repair the Product.
- Do not operate the Product with covers removed or the case open. Hazardous voltage exposure is possible.

### **Safety Warning: High Pressure**

- High pressure gases are potentially hazardous. Energy stored in these gases can be released suddenly and with extreme force. Proper safety precautions must be taken when applying any pressure to the Product. Before applying pressure to the Product, ensure that all pneumatic connections are properly secured and tightened. Make sure all pressure settings are set to the proper specifications before operation, testing, calibration or maintenance is performed.
- POSSIBLE INJURY! The tubing, valves, and other apparatus attached to the Product must be adequate for the maximum pressure which will be applied, otherwise physical injury to the operator or bystanders is possible.
- USE THE PROPER PRESSURE MEDIUM! Use only clean, dry, gaseous nitrogen or CO2 free air unless otherwise specified by Thunder Scientific.

### **Safety Warning: Methanol**

**Read the safety data sheet (SDS) supplied with the purchased methanol and take necessary precautions.**

  **DANGER: Highly flammable liquid and vapor. Causes damage to organs.**

#### **Prevention:**

- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Keep container tightly closed.
- Ground/bond container and receiving equipment.
- Use explosion-proof electrical/ ventilating/ lighting/ equipment.

- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Do not breathe dust/ fume/ gas/ mist/ vapor/ spray.
- Wash skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**


- IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- IF exposed: Call a POISON CENTER or doctor/ physician.
- In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

**Storage:**

- Store in a well-ventilated place. Keep cool.
- Store locked up.

**Disposal:**

- Dispose of contents/ container to an approved waste disposal plant.

** Safety Warning: This Product contains 16 oz. of R-134a refrigerant and 10 oz. of R-23 refrigerant**

**R-23 EMERGENCY OVERVIEW:** Colorless, volatile liquid with ethereal and faint sweetish odor. Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At higher temperatures, (>250°C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides.

** R-23 POTENTIAL HEALTH HAZARDS**

- SKIN: Irritation would result from a defatting action on tissue. Liquid contact could cause frostbite.
- EYES: Liquid contact can cause severe irritation and frostbite. Mist may irritate.
- INHALATION: R-23 is low in acute toxicity in animals. When oxygen levels in air are reduced to 12-14% by displacement, symptoms of asphyxiation, loss of

coordination, increased pulse rate and deeper respiration will occur. At high levels, cardiac arrhythmia may occur.

- **INGESTION:** Ingestion is unlikely because of the low boiling point of the material. Should it occur, discomfort in the gastrointestinal tract from rapid evaporation of the material and consequent evolution of gas would result. Some effects of inhalation and skin exposure would be expected.

**R-134a EMERGENCY OVERVIEW:** Colorless, volatile liquid with ethereal and faint sweetish odor. Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At higher temperatures, (>250°C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides.



#### **R-134a POTENTIAL HEALTH HAZARDS**

- **SKIN:** Irritation would result from a defatting action on tissue. Liquid contact could cause frostbite.
- **EYES:** Liquid contact can cause severe irritation and frostbite. Mist may irritate.
- **INHALATION:** R-134a is low in acute toxicity in animals. When oxygen levels in air are reduced to 12-14% by displacement, symptoms of asphyxiation, loss of coordination, increased pulse rate and deeper respiration will occur. At high levels, cardiac arrhythmia may occur.
- **INGESTION:** Ingestion is unlikely because of the low boiling point of the material. Should it occur, discomfort in the gastrointestinal tract from rapid evaporation of the material and consequent evolution of gas would result. Some effects of inhalation and skin exposure would be expected.



#### **Caution: Electrostatic Discharge**

**Electrostatic discharge (ESD) could possibly damage or destroy solid-state parts when exposed to static electric discharges. Be aware because electrostatic discharges may not be seen, felt or heard at levels less than 4,000 volts.**

## **Personal Protective Equipment (PPE)**

Safety glasses must be worn when performing maintenance, repairs or calibration when system panels have been removed. The following PPE is required when filling or draining the methanol heat transfer fluid.

- **Gloves:** Butyl rubber or Viton are recommended. **Note:** Nitrile gloves may only provide splash protection and can be permeated in less than a minute depending on thickness.
- **Eye Protection:** Tight-sealing safety goggles are required; a face shield is recommended.
- **Skin/Body Protection:** Chemical-resistant clothing or equivalent lab coat.