

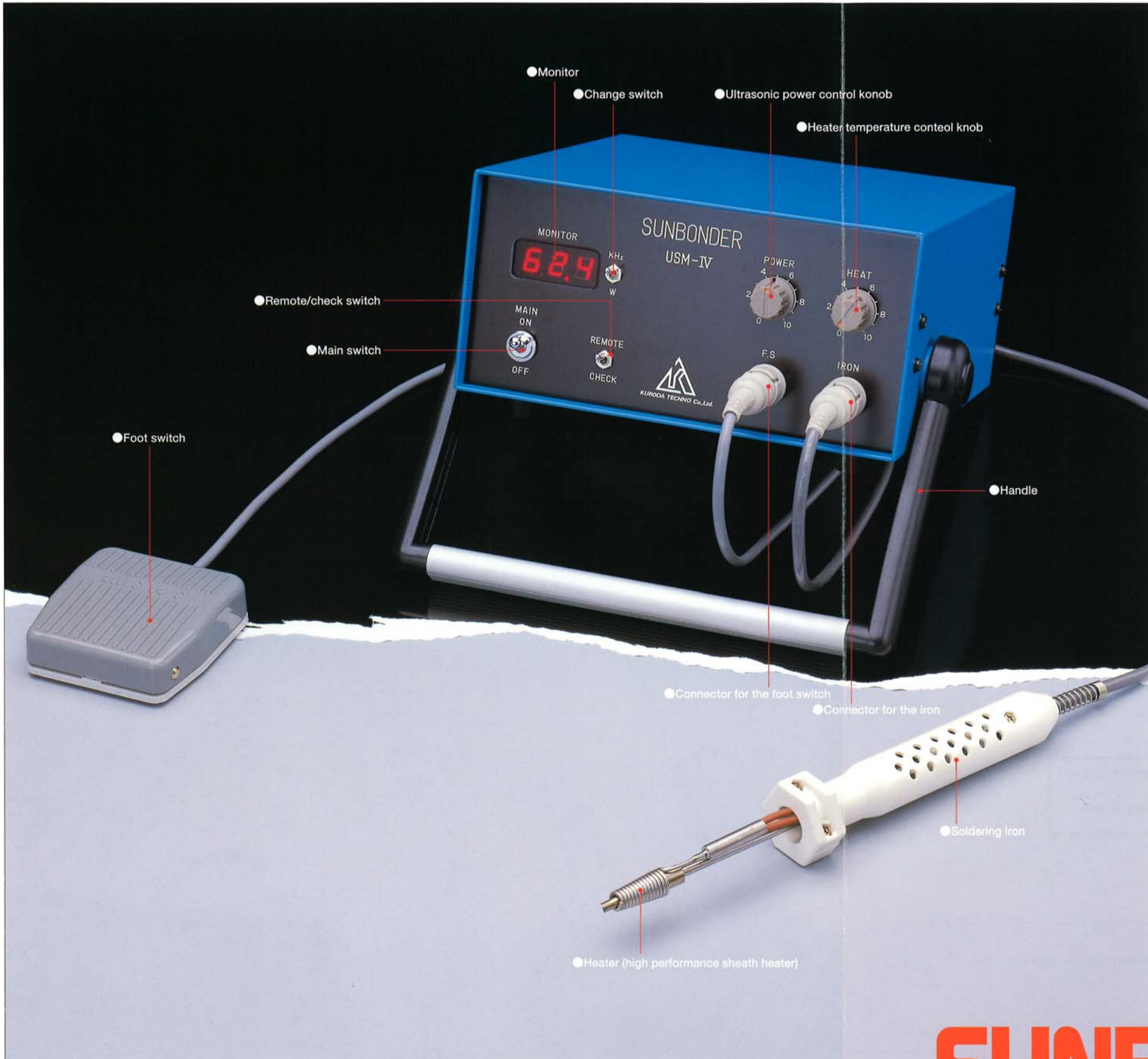


# SUNBONDER

Ultrasonic Soldering Device

USM-IV





# Ultrasonic soldering makes it possible to solder glass, ceramics and hard to solder metals.

SUNBONDER is an ultrasonic soldering device that produces high quality soldering. The unit consists of a high performance sheath heater and oscillation transducer, and supplies heat and ultrasonic vibration to the soldering tip. Using CERASOLZER (a solder especially formulated for use with the SUNBONDER), you can solder easily and directly to glass, ceramic, aluminum, stainless steel and many other difficult to solder materials. SUNBONDER's state of the art technology works well with newly developed materials such as metals, semiconductors, glass and ceramics used in today's diverse production environment.

## Mechanism of Ultrasonic Soldering

Ordinary soldering needs flux to eliminate surface oxidation on metal and helps wetting and dispersion between the surface and the solder. SUNBONDER uses ultrasonic vibration and eliminates the need for flux. SUNBONDER makes high quality soldering on difficult to solder materials possible. When the vibrating tip comes in contact with the surface, the cavitation effect of the ultrasonic oscillation eliminates surface oxidation and trapped air as well as helps wetting. Applying this technology makes it possible to successfully solder materials which were previously considered difficult or almost impossible to solder.

## Soldering to Glass, Ceramics and Hard to Solder Metals

CERASOLZER is designed for difficult soldering applications. CERASOLZER is a special solder with the addition of Zn, Al, Ti, Si and Cu. SUNBONDER's ultrasonic oscillation along with the catalytic effect of Zinc and Oxygen creates a high quality, high strength bond. This superior bonding provides for an excellent airtight, weatherproof, humidity resistant seal as well as good electro-conductivity. Adhesive strength of the CERASOLZER bond is usually stronger than structural strength of the

glass itself. Metal oxides also work well with CERASOLZER.

## Features of the SUNBONDER

- ① SUNBONDER does not need flux or surface preparation.
- ② With CERASOLZER, the SUNBONDER solders directly to glass, ceramics and hard to solder metals such as aluminum and stainless steel as well as metal oxides which have been previously considered difficult to solder.
- ③ The unique PPL system provides for stable ultrasonic vibration resulting in high quality soldering.
- ④ SUNBONDER's digital display allows for repeated and consistent operating conditions.
- ⑤ SUNBONDER's controls provide for an infinite number of adjustment to set optimum power level for all soldering conditions.
- ⑥ SUNBONDER's compact size and lightweight make it very portable and make it easy to store.
- ⑦ SUNBONDER's design makes it easy to operate.
- ⑧ Power requirement is AC 100-240V allowing SUNBONDER to be used almost anywhere.

## Applications

- Fluxless soldering
- Soldering to glass and ceramics
- Soldering to hard to solder metals
- Lead bonding on super conductive materials
- Lead bonding on solar panels and batteries
- Lead bonding on the surface of display

## SUNBONDER System Components

- ① Supply and Control Unit
- ② Handle with oscillator' heater coil and tip (1.0-4.0 mm diameter tips available)
- ③ Foot Switch
- ④ Power cable with grounding adapter
- ⑤ Wrenches for tip replacement
- ⑥ Soldering iron holder
- ⑦ Fuse

# SUNBONDER

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## Specification (USM-IV model)

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**Ultrasonic Oscillation Frequency:** 60KHz  $\pm$  5KHz  
**Ultrasonic Power Output:** practical effect output 10W (Max.)  
**Tip Temperature:** 450°C (Max.)  
**Ultrasonic Power Control:** infinite number of settings  
**Heater Temperature Control:** infinite number of settings  
**Power Requirements:** AC100-240V 50/60Hz 150W  
**Control Unit Dimensions:** 260 mm (W)  $\times$  110 mm (H)  $\times$  265 mm (D)  
**Control Unit Weight:** approximately 8 kg (18 lb) (Control Unit Only)

**Transducer:** Langevin type (P.Z.T.) 59.5kHz  
**Tip material:** Special stainless steel  
**Heater:** High performance sheath heater  
**Handle Dimensions:** 36mm(Max.)  $\times$  250mm (Iron Handle)  
**Handle Weight:** approximately 210 gram (1/2 lb) with code



### Safety caution

Before operating this device, read manual thoroughly to gain sufficient knowledge for safe and correct operation.

Do not use in water, high humidity, high dust levels or flammable/ combustible liquids and vapors to avoid electric shock, fire or breakdown.

- These specifications are subject to change without notice
- Effective date: January 2001



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