

YSI 400 Series and 700 Series Temperature Probes Instructions

GENERAL DESCRIPTION

YSI 400 and 700 Series reusable probes are designed for continuous patient temperature measurement and control with YSI thermometers and other instruments specifically designed for use with either 400 Series or 700 Series temperature probes. They come in many designs for a wide variety of applications. For specific technical information, including tables showing the resistance vs. temperature characteristics of these probes, refer to your YSI catalog or contact the YSI Temperature Customer Support Department.

400 Series probes have one thermistor, and 700 Series probes have a Thermilinear, dual-thermistor composite which linearizes output. In each of these Series the sensors are connected to a 10-foot long vinyl-jacketed lead (unless otherwise specified) and terminated with a 1/4" (7 mm) phone plug. Standard extensions are available in 10-, 25-, and 50-foot lengths (extension connectors are not water-resistant). Probes are constructed with the sensors electrically isolated from the other probe surfaces. However, since this isolation could be lost if the probe is damaged by abuse or mishandling, the instrument with which it is used must provide ground fault isolation (consult instrument specifications). In medical use, the patient should be isolated from accidental electrical grounds.

Some styles of probes have disk-shaped stainless steel tips with epoxy on one side of the disk. Please note that the metal side should be used for making measurements.

YSI PROBE STYLES

401/701	Esophageal/Rectal (Adult)
401/702	Esophageal/Rectal (Pediatric)
408/708	Skin
409B/709B	Skin (Adult)
427/729	Skin (Pediatric)
403/703	.157" dia. S.S. Tubular
406	.125" dia. S.S. Tubular
423	.125" dia. Nylon Tubular
405/705	Air Temperature
441	Airway Temperature

PROBE CHARACTERISTICS

Accuracy and Stability: YSI's unique manufacturing process produces premium thermistors with matching temperature/resistance characteristics. Probes are accurate and interchangeable with any other probe in the same series at specified measurement temperatures. (Series 400 and Series 700 probes are not interchangeable with each other.) Within the measurement range of 0 to 70°C, the accuracy for 400 Series probes is $\pm 0.1^\circ\text{C}$; for 700 Series probes it is $\pm 0.15^\circ\text{C}$. The system accuracy is the sum of the probe and instrument accuracies.

WARNING: All wire-lead patient-connected transducer assemblies are subject to reading error, local heating and possible damage from high-intensity sources of RF energy. Electrosurgical equipment represents one such source since capacitively-coupled currents may seek alternate paths to ground through probe cables and associated instruments. Patient burns may result. If possible, remove the probe from patient contact before activating the surgical unit or other RF source. If probes must be used simultaneously with electrosurgical apparatus, the instruments to which the probes are connected should be checked for adequate isolation from electrical grounds at radio frequencies. Hazards can be reduced by selecting a temperature monitoring point which is remote from the expected RF current path to the ground return pad.

CAUTION: Mishandling of the probes could result in damage to the internal wires and the loss of electrical isolation or improper temperature readings.

RECOMMENDED CLEANING, STERILIZATION, HANDLING & STORAGE

YSI Reusable Temperature Probes are sold **NON-STERILE**.

Cleaning

Probes should be cleaned of bioburden prior to disinfection or sterilization to improve the effectiveness (as recommended in ANSI/AAMI ST35: *Good Hospital Practice: Handling and Biological Decontamination of Reusable Medical Devices*, 1991).

When wiping clean, hold the probe in one hand at the sensing tip and wipe the probe and lead wire toward the plug. Excessive pressure could stretch the cable jacket and break the internal wires, destroying the probe. Continued flexing of lead wires in use and cleaning can also break the internal wires. These failure types are not covered by the warranty.

Avoid contact with strong, aromatic, chlorinated, ketone, ether or ester solvents. Prolonged immersion in alcohols or mild organic solvents, detergent solutions or highly alkaline solutions will cause the vinyl to lose flexibility. The probe plugs should not be immersed.

Disinfection

Probes may be disinfected by washing with 70% isopropanol, activated dialdehyde (Cidex) or sodium hypochlorite (bleach diluted 1:10 minimum in water.) After washing, probes should be rinsed thoroughly with water. Brief immersion of the probe in detergent solutions is not harmful. **Note:** YSI does not make any claims as to the efficacy of these chemicals for infection control. Please consult your hospital's Infection Control Officer for the applicable disinfection policies.

Sterilization

Ethylene oxide is the preferred sterilization method (Follow your manufacturer's recommended procedure for your gas sterilizer.) After sterilization, probes must be safely and thoroughly ventilated before handling or use. Using a generic EtO sterilizing procedure, YSI recommends an aeration time of 12 hours minimum to dissipate residual EtO in the probe below 250 ppm.

NEVER BOIL THE STANDARD YSI 400 SERIES OR 700 SERIES TEMPERATURE PROBE (Gray PVC cable with gray or black phone plugs). YSI does offer a line of 400 Series Autoclavable Reusable Temperature probes which can be steam sterilized—please contact YSI for further information.

Inspection and Recalibration

Visually inspect the probe for cracks, holes, crazing etc. prior to each use. If any such degradation in the cable jacket is discovered, discard probe according to your hospital's procedure for medical waste. In medical applications, the user must determine that a probe style is suitable and sufficiently flexible for esophageal or rectal use.

Probes cannot be "recalibrated" per se, but should be inspected monthly by the hospital Biomedical Equipment group to ensure they are working properly. Probes can be tested by plugging into a compatible monitor (400 or 700 series) and looking for an electrical open or short-circuit, intermittent readings or extremely inaccurate readings which would indicate probe wire damage. The sensor stability is well-documented; probe accuracy should not drift out of tolerance over the normal life of the probe. Dispose of any damaged probes as indicated above.

Storage and Handling

When not in use, probes and leads should be loosely coiled and stored at room temperature. Do not wrap probes around equipment cases to avoid damaging internal wires.

WARRANTY

All 400 and 700 Series standard reusable probes carry a one-year warranty on workmanship, components and accuracy tolerances. Damage through misuse or modification is not covered. Probe life with normal use should exceed one year.

CAUTION: U.S. LAW RESTRICTS THIS DEVICE TO SALE ON OR BY THE ORDER OF A PHYSICIAN.



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