



Model 951/952 Bath Controllers Summary Description

The 95X-Series (951/952) temperature controllers are PID microprocessor-based with an integrated process timer. The 95X has two set-points for process parameter control. Both set-points receive signals from the primary process sensor, an RTD. An optional J-type thermocouple is available. Whichever sensor is chosen, IMTEC supplies it pre-shaped, stainless-steel armored and Teflon encapsulated to plug directly into the controller.

The 95X-Series controllers come equipped with 20 Amp solid state power relays that can directly drive most baths. Bath units drawings over 20 Amps require an external relay. Optionally, the 95X controller can be ordered with 24 VAC driving a similar external relay package avoiding all high voltage in the headcase and meeting the Underwriters Laboratory requirements and IBM specifications.

On the 95X-Series controller, the primary temperature set-point controls under PID protocol. The secondary temperature set-point activates an on/off switch. The 951 controller, while having second set-point, multi-amp switching capability, has no higher capacity relay unless a relay is specially ordered. Therefore, if the second set-point is to operate power devices, a relay must either be provided by the user or ordered from IMTEC as an option.

The Model 952 controller is a dedicated nitride etch controller. It is not suitable for general purpose temperature control. Its purpose is to maintain the desired boiling point of phosphoric acid. The controller, using a proprietary algorithm, adjusts the acid concentration to provide the desired boiling point and adjusts the BTU input to maintain a moderate boil.

The 95X-Series controllers have an additional set-point dedicated to over-

temperature shutdown protection. The safety circuit senses from a J-type thermocouple, located on the outer wall of the quartz chamber. It is an independent circuit that, when sensing an over-temperature condition, shuts down the internal power relay. This, in turn, shuts the high-amperage (20 Amp) main power relay. As a final over-temperature protection device, IMTEC also equips each of its baths with an open-on-rise thermostatic snap switch: the 95X-Series controllers have an additional independent input which, upon sensing a snap-switch open circuit, interrupts the main relay.

95X-Series controller timers may be set for count-down or count-up. The timer also "counts through" while sounding a continuous alarm. The controllers will accept either 50 or 60 Hz power and have an attention-demanding pre-alarm whose period is also user-settable.

There are two primary digital displays. They continuously display the timing status and sensed bath temperature during normal operations. During set-up or when a non-standard condition exists, these same displays may show other information.

There are twelve indicator (LED) displays associated with various alarm, system status and control parameter functions. The indicator displays frequently function in connection with the digital displays.

There are twelve flush key switches on the face of the controller. They are used for various system set-up, nitration and termination functions. All controller/operator interface functions but one are actuated or adjusted through these membrane switches. The one exception is the redundant high temperature limit, which is set by adjusting a calibrated pot, located on the rear panel.

All process parameter values, controller tuning constants and the polarity of a number of program-settable switches are entered through the use of front-panel membrane switches. Entry is aided by parameter name and value listings called up to the digital displays. To prevent unauthorized or inadvertent changes, a two-level hierarchical security lock-out system is provided.

The controller is supplied with a number of receptacles, depending on the options and accessories ordered with the bath. Typically, a three-pin primary RTD sensor receptacle is positioned on a standoff panel mounted to the controller's rear panel. Also typically, a six-pin power receptacle is mounted on an auxiliary standoff panel. This receptacle directly couples to the power cable from the ACCUBATH unit, which contains the over-temperature thermocouple and the over-temperature thermostat. (See Figure 1.)

The 952 Controller also contains a third (two-pin) receptacle supplying power to the DI makeup water solenoid which accompanies the ACCUBATH QN-series Nitride Etch baths.

Two level sense connectors are also typically installed on the main standoff panel.

To save space due to the depth limitations of some wet system headcases, or for special configurations, the rear standoff panel may be omitted and wiring done directly to the connector strips on the rear controller panel. In this case, any pig-tailed connectors will be consistent in function to that described in the above paragraphs. For 15-20 amp connections, the back panel is omitted and the bath wired directly to the mounting strip. For higher current control requirements, a remote switching unit is needed.

Because modern wet systems all provide suitable over-ampage protection for each dedicated circuit, the 95X-Series controllers contain no circuit breaker.

For more information or to order, please call IMTEC Customer Service at 510-770-1800 or fax inquiries to 510-770-1400

Make sure your wet system has IMTEC inside!

Figure 1.

