

Heating & Sterilising Focus

Wireless Temperature Control - New 'WirelessTEMP' Products Increase Ease of Use and Flexibility in Laboratories

Many tests in research laboratories involve substantial logistical and financial efforts. Sophisticated and expensive research materials and equipment are often required. Ideally results are obtained quickly and without error. Therefore the process should be monitored completely. It is not convenient to have to abort an experiment or batch process due to variations in the process parameters because of a lack of monitoring capabilities.

For many applications a temperature control unit is an important piece of the entire technical set-up. With the requirement to monitor and control processes, Julabo developed its new 'WirelessTEMP' products. This product series allows wireless communication with almost any Julabo unit, as long as the temperature control unit is equipped with a RS232 interface. Existing Julabo circulators, recirculating coolers and temperature control systems can be controlled and monitored wirelessly with little effort.

Important operational parameters are now accessible through the WirelessTEMP product line and reduce operating expenses.

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APPLICATION EXAMPLE WITH AN ESCO-LABOR AG MIXER

'WirelessTEMP' products can be utilized, for example, in a set-up using a ESCO-Labor AG mixer (Switzerland) in a laboratory or production environment. The application example shows an ESCO-Labor EL-pm-mixer with a Julabo FP50-HE refrigerated circulator which is used in the process of manufacturing lubricants for eye implant patients. The Julabo temperature control unit can be placed outside of a cleanroom, or can be included in the base frame of the mixer, or placed directly next to the mixer (as shown). The 'WirelessTEMP' transmitter simply attaches to the RS232-port of the temperature control unit. The unit is now able to receive control commands, as well as transmit data and status messages and measurements values to the 'WirelessTEMP' remote control. The range of the remote control and the transmitter varies indoors between 10 and 25 meters and increases to a range of approx. 70 meters in an open area. 'WirelessTEMP' allows the user to access the temperature control unit from a remote location outside the area of the application. The display and keyboard of the temperature control unit are transferred to the remote control utilising the WirelessTEMP transmitter for uninterrupted use while the operation of the Julabo unit remains virtually unchanged. The communication with the temperature control unit is permanent, and data exchange with the selected circulators takes place every 0.7 seconds. While in sleep mode the sender/receiver module switches to standby state in order to save energy.

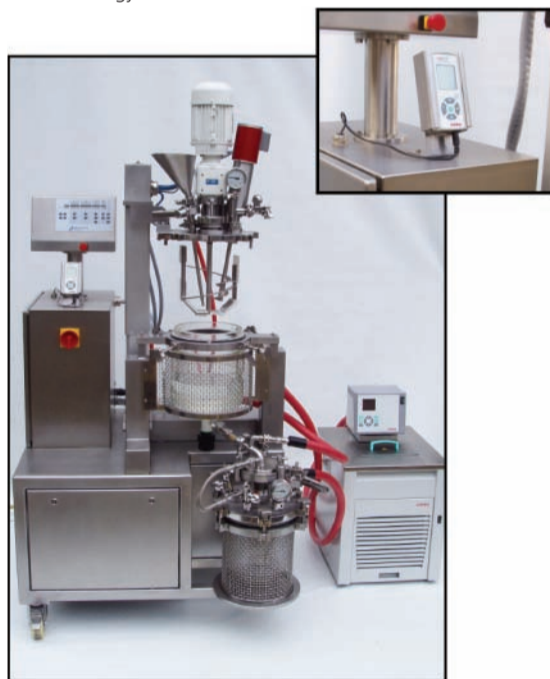


Figure 1. 'WirelessTEMP' products in an application with an EL-pm-mixer

USER ADVANTAGES

The use of 'WirelessTEMP' products provides many advantages for the user: besides the time saving factor in monitoring the devices, 'WirelessTEMP' provides more flexibility in the selection of the temperature control unit's location. In many cases this results in cost reduction by eliminating expensive wiring or cabling. In addition wireless communication eases safety concerns for the end user by minimising entry to the area and could potentially alleviate contamination issues in a cleanroom environment. You can now allow data to be transferred quickly and safely without the expensive wiring and cabling from the lab to your work station. For the laboratory personnel, inspection rounds are reduced to a minimum for laboratory personnel saving valuable time.



Figure 2. The transmitter sends unit data, status messages and measurements values directly to the remote control.

Important operational parameters are now accessible through the WirelessTEMP product line and reduce operating expenses. Overall, the wireless solution provides more comfort throughout the day.

CONTROLS UP TO EIGHT SYSTEMS SIMULTANEOUSLY

The remote control can manage a maximum of eight Julabo units (with RS232 interface). Each unit has to be equipped with a transmitter. After being switched-on the remote control searches for the transmitters within range. The temperature control units are then allocated to the memory spaces N1...N8. The sequence is saved and maintained when the remote control is reactivated the next time.

The configuration software included with the wireless device allows the end user to set-up network of several independent groups of units. Thus undisturbed operation is possible even in neighbouring laboratories. The 'WirelessTEMP' products include Transmitter, Remote Control, Wireless USB-sticks and Routers.



WIRELESSTEMP IN ACTION

"As a manufacturer of mixers for superior custom-made solutions, we once again were able to rely on Julabo's HighTech series of refrigerated & heating circulators (FP50-HE). In combination with the very comfortable remote control device for the temperature control units, we can place the units either within the base frame or outside of a clean room whilst our system is within. Due to the large display we can easily recall the most important unit parameters like current temperature. Along with the EasyTemp software, which allows performing temperature ramps, the remote operation permits access to the program sequence even when working at some distance away from the Julabo unit. We consider the WirelessTemp products as a necessary complement to the Julabo program."

Digital Hot Plates and Stirrers



Stirrer speeds can be set from 100 to 1500 rpm. The built-in timer can be set to 99 hours and is readable to one second. These units have an audible alarm with user settable auto-off for turning off the heater and stirrer when the timer counts down to zero. The units are supplied with an immersion probe for controlling solution temperatures directly. All units are available in 100, 115, and 230 VAC, 50/60 Hz models.

Circle no. 603

Torrey Pines Scientific has announced its new EchoTherm™ Digital Hot Plates and Digital Stirring Hot Plates.

The EchoTherm™ Models HP51 and HS51 Digital Hot Plates and Digital Stirring Hot Plates are rugged and designed for large samples. The units feature a membrane keyboards and full function liquid crystal displays where all parameters are continuously visible. These units can store two of the user's favourite settings in memory for instant recall and use at any time.

They are ideal for use with large samples in chemical, pharmaceutical, environmental, biochemical, electronic and other laboratories where temperature accuracy, ease of use, and reproducible sample preparations are a must.

Tops are available in a choice of Chemically Resistant Ceramic or Milled-Flat Cast Aluminium.

Both tops are 12" by 12" square. The Ceramic top has a 1400-watt heater. The Aluminium top has a 1200 watt heater and is recommended for working with solids directly on the heater plate surface. Temperatures can be set up to 450°C on the ceramic topped units and to 400°C on cast aluminium tops. The units are readable and settable to 1°C. Accuracy is 1% over the entire temperature range. Temperature control is by PID software and is controlled to $\pm 1^\circ\text{C}$ or $^\circ\text{F}$.

The Effluent Society

Astell has introduced a range of contaminated liquid waste containment and treatment plants for Category 3 and 4 laboratories including veterinary and medical research, pharmaceutical manufacturing and healthcare. Current legislation requires that all wastewater from sinks, washrooms, sanitary installations and similar facilities within these designated areas have to be sterilised prior to discharge to sewer. The Astell units cover capacities from 100 to 5000 litres of liquid waste per day.

In the standard batch processing unit, liquid waste is collected in a stainless steel jacketed containment tank. When the radar level controller detects that the tank is full, the heat sterilisation sequence starts automatically. Heating is by steam supplied either from the unit's integral steam generator or from an external source. Once the sequence is complete, the sterilised effluent is discharged to sewer using compressed air.

Continuous processing units are provided with two tanks. The first tank is filled as in the batch operation, and commences sterilisation. Influent liquid waste is then diverted to the second tank. When the sterilisation sequence is complete, the tank remains idle until the second tank is full. In this way effluent collection is continuous so there is no delay to laboratory operations.

Each tank is fully contained and all connections are above liquid level eliminating dangerous and costly leaks. A vent filter ensures that no microbial contaminants can be discharged with air or vapour. Access to the fully programmable controller is via Astell's PIN protected, full colour touch screen which displays cycle information and has facilities for data archiving and ethernet monitoring.

Astell offers full project assistance including an initial site survey to ascertain the volume of waste and advise the best treatment method, detailed engineering proposals, manufacture, delivery and installation of the equipment and IQ and OQ validation packages.

Circle no. 604

Saves Time, Space and System Cost

Watlow® has introduced the EZ-ZONE® RM – a configurable multi-loop temperature/process controller. The EZ-ZONE RM is the first industrial controller to integrate an entire assembly of control loop functionality in one space-saving, DIN-rail mounted package.

EZ-ZONE RM can be used as a PID temperature/process controller, an over/under limit controller or these functions can be combined into an integrated controller. Other control functions can be integrated as well, such as high amperage power controller output, creating a complete and integrated thermal loop controller all in one package.

EZ-ZONE RM can be configured with between 1 to 16 modules controlling from 1 to 64 loops. Because the controller is single-loop scalable, customer's pay only for what they need – exact loop count.

Utilising an integrated controller solution reduces wiring time and termination complexity, improves overall system reliability, reduces termination and installation costs and eliminates compatibility issues encountered when using many different components and brands. In addition, integrated controllers reduce troubleshooting time and downtime costs since the system can specifically identify to the operator if there are any problems with a sensor, controller, solid state relay (SSR) power output or heater load.

EZ-ZONE RM allows for many optional integrated controller functions to be combined together or ordered in different quantities, including: PID temperature/process controller; over/under temperature limit control loops; 10 or 15 ampere power output/heater driver options; on-board data logging; current measurement input; sequencer start up and control function; programmable timer and counter functions; programmable math and logic options; multiple communication protocol options; mobile configuration with removable secure digital flash card; and SPLIT-RAIL™ configuration to isolate low voltage input modules from high voltage output modules.

EZ-ZONE RM offers current monitoring for the entire system, on-board data logging, sensor back-up capability and TRU-TUNE®+ adaptive control, which provides tighter control for demanding applications.

Its communications capabilities feature a range of protocol choices including USB (Universal Serial Bus) device port, EtherNet/IP™, Modbus® RTU, Modbus® TCP, DeviceNet™ and Profi®Bus making integration to a larger PLC based system architecture seamless.

Circle no. 605



Compact, Fast Heating Dry Baths Save Time and Space



A new range of compact, rapid-heating microprocessor controlled dry baths that save time, space and money have recently been introduced by **Cleaver Scientific Ltd** (CSL).

These digital dry baths are suitable for a wide range of tasks in most laboratories, including clinical, histology and molecular biology applications. They provide users with a heating speed of ambient temperature to 100°C in just 12 minutes and so reduce inconvenient waiting times. With dimensions of just 15cm x 15cm x 13.5cm, they also save on valuable laboratory bench space.

They offer precise, accurate control of the integral high wattage heaters thanks to the easy-to-use digital microprocessor control panel.

Also, there is no need to check or re-adjust the thermometer afterwards. With the block chamber constructed from moulded aluminium, these baths offer improved heat uniformity because of the perfect contact with the base of the interchangeable blocks whilst also retaining heating efficiency because the moulded construction does not warp over time.

A user calibration function allows easy calibration to suit in-house standards and requirements as and when required, while an RS232 port records block temperature activity. A data-logging software package that links to a PC can also be supplied.

Another important feature is the stainless steel block chamber within the unit that acts as a heat sink and promotes uniform transfer of heat from the heating elements to all the interchangeable blocks. This results in optimum consistency for all the samples because they are subjected to the same temperature, regardless of their position in the block. A wide choice of different types of block for different types of tube, are available.

Moreover CSL dry baths provide users with added versatility because they can also be used as water baths, which is achieved simply by removing the block and filling with distilled water.

Two inter-compatible models are available in the range, a single block unit, which will accept all of the standard blocks and a dual unit, which will accept two standard blocks or one specially designed block to suit a specific application. Both models are supplied with a block filter as standard.

Circle no. 606