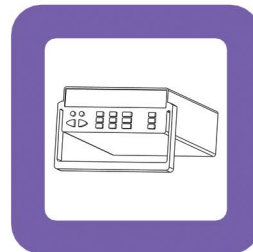


THERMAL VALIDATION SYSTEMS
for the Pharmaceutical / Biotechnology Industry

Thermocouples systems

XpertVal®



XpertVal® is a conventional Tc's based system for thermal mapping and validation:
 Efficient: Tc wires are installed on 3 x 20 channels module with cold junction compensation
 Reliable: Rugged data logger used in industrial harsh environment, real time data display
 Accurate: High accuracy of Tc after pre-calibration ($\pm 0.2^{\circ}\text{C}$)
 Data integrity: FDA 21 CFR Part 11 software

+ Network ready: multiple users may simultaneously share the same database

Suitable applications:

- Autoclaves
- Sterilization tunnels
- Freeze-dryers (lyo cabinets)
- Cold room
- ICH stability rooms
- Ovens, freezers, refrigerators
- Warehouses, incubators
- SIP

Technical Specifications:

System type	60 channels
Sensors	Thermocouples
Sensor length	- standard: 10 m (33 feet) - customizable: custom length
Sensor type	all type of thermocouples, most used : T, J, K
Temperature range	- teflon: -200°C to +200°C - kapton: -200°C to +400°C
Accuracy	$\pm 0.2^{\circ}\text{C}$ after pre-calibration
Memory capacity	no limitation, data is stored in computer backup memory: USB storage device compatible
Tc Tip	teflon: teflon tip to prevent moisture on the wire kapton: no tip
Sampling rate	typical: 10 sec. for 20 channels (high resolution) fast scan: 2 sec. for 20 channels (low resolution)
Software	21 CFR Part 11
Module	the module accepts several inputs: 4 - 20 mA / 0-10 V / RTD (PT-100 2, 3 or 4 wires)
Close loop calibration	always needed when using thermocouples system use temperature block and reference probe, software controlled reports generated automatically by the software
Reference probes	IRTD Hart 1502
Dry blocks	Lives : PTC 125 : -90°C to +125°C / RTC 157 : -45°C to +155°C / RTC 159 : -100°C to +155°C RTC 700 : +23°C to +700°C Fluke 9190: -90°C to +140°C; Fluke 9170: -45°C to +140°C; Fluke 9172: +35°C to +425°C
Calibrations	Factory: NIST / COFRAC User calibration

THERMAL VALIDATION SYSTEMS
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Xpert Val®
Configurations



XpertVal® Data Logger

- 60 channels data logger
- accepts all types of input:
 - thermocouples, voltage, current
- OEM manufactured by Fluke Inc. for Lives International



Reference Probe Xpert RTD

High accuracy secondary reference probe and reader for IRTD probes.
Manufactured by Lives International



Ref. Probe Fluke 1502

High accuracy secondary reference probe.
Manufactured by Fluke Inc.



Dry Blocks Ametek

Temperature range from -100 to 140°C



Dry Blocks Fluke

Temperature range from -95 to 140°C



Oil Baths Fluke

Temperature range from -80 to 140°C



Pressure Transducer

EN285 compliant triclamp pressure transducer to connect on the autoclave during validations



Thermocouples

Custom length teflon or kapton coated 24 gauge thermocouples