North American Head Quarters: Lives International Groupe Inc.
1819,Boul Rene-Levesque Ouest , Suite 202 Montreal, PQ H3H 2P5
Tel : + 1 514 281 0197 Fax : + 1 514 289 9594

European Head Quarters : Lives International
3, rue Jules Guesde, F – 92300 Levallois Perret ; France
Tel : + 33 142 708 589 Fax : + 33 142 708 744

www.lives-international.com lives@lives-international.com

Thermal Validation & Mapping Systems

LIVES INTERNATIONAL®

Accuracy & Reliability in Thermal Mapping - Lives International

The reference in Thermal Validation and Mapping

- **9 years experience** in thermal validation systems conception and manufacturing.

Thermal Validation System **XpertVal®**
- thermocouple based system
- data protection (21 CFR part 11).

Wireless thermal mapping & validation systems **XpertLog®**
- data protection (21 CFR part 11).

- **Using the most recent technology** wireless thermal mapping systems are used by major players in pharmaceutical area

- **Lives International** covers Europe and North America through it's Headquarters and distributors.

- **Hot Line** 24h / 7

- **Metrology** laboratories for calibration using traceable to **COFRAC / NIST** equipment

- **Calibration :** **European** users : accredited calibration laboratory
  American users : accredited calibration laboratory in **PA – USA** for both **XpertVal** & **XpertLog** systems

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XpertLog

Temperature, Pressure & Temperature, Humidity & Temperature

XpertLog systems represent the newest technology in wireless data loggers
XpertLog is the most reliable data logger for high accuracy measurements.
Very rugged systems, XpertLog have been developed for working in unfriendly environment in pharmaceutical industry.

Technical Specifications:

Loggers : Temperature Pressure & temperature Humidity & temperature		PT-100, 4 wires High accuracy : 0 à 5 bar abs Capacity sensor	
Range : & accuracy	- Temperature	-60 to +140°C (continuous) -80 to +100 °C (continuous)	± 0.1°C ± 0.1°C
		Extremes: (limited time) no shield: + 175°C with shield - 110 °C + 340 °C	
	- Pressure	0 to 5 bar absolute	± 8 mbar
	- Humidity	20 to 90 %RH	± 2 %RH
Material :		Ketron Peek –FDA compliant	
Battery		Lithium, user replaceable	
Leak free		IP-68	
Data collection interval		1 second to 24 hours	
Memory		16 000 data points	
Internal watch accuracy		< 1 second / month	
Weight		35, 40 or 70 g (battery included)	
Calibration		COFRAC / NIST traceable ITS-90 coefficients included	

Specific applications :

1°: ***-80°C*** freezers : continuous operation @ -80°C for several days cycles - ***no thermal shield needed***

2°: sterilisation **tunnels**: standard operation at up to ***340°C for 15 minutes*** – requires ***thermal shield*** and standard cooling zone – not appropriate in depyrogenetion ovens (250°C for several hours)

USB Docking Station :

- High speed communication
- Customizable : 4, 8, 12, 20
- Reduced dimensions
- Simultaneously programming of unlimited number of loggers

Applications:

- Autoclaves
- Freeze dryer
- Ovens / Stability chambers
- Freezers, Refrigerators
- Cold rooms
- Sterilization tunnels…

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XpertLog

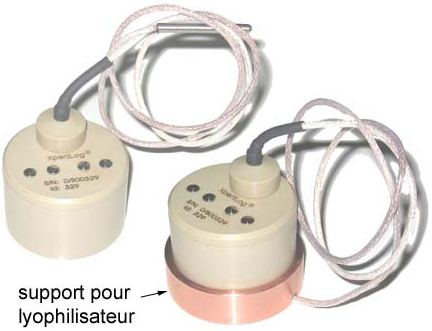
Fixed logger

Diameter : 40 mm
Height (except sensitive element) : 31 mm

Sensitive element : customizable

Ref. : DL_Xlog_TR

Flexible logger



Diameter : 40 mm
Height (except sensitive element): 31 mm

Cable length : max 50 mm
Ref. : DL_Xlog_TF

Shelf Contact Device for freeze dryer
Ref. : SL_Xlog_TF

Humidity and Temperature logger (fixed & flexible)

Diameter : 40 mm
Height : 72 mm

Cable length : max 50 mm

Ref : DL_Xlog_HR
Ref : DL_Xlog_HF

Pressure and Temperature logger

Diameter : 40 mm
Max height : 67 mm

Ref. : DL_Xlog_PF

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XpertVal

XpertVal 21 channels

XpertVal was designed for simplifying validation jobs versus the existing validation systems;
In compliance with FDA and European regulation, this system uses the most recent technology and the most powerful software enhancements.
Reports are generated automatically and data integrity complies with FDA 21 CFR Part 11

XpertVal 60 channels

Technical Specifications :

Regulations		- FDA - EN285 - EN 554 - NFX 15 140 - FDA 21 CFR part 11
Total system accuracy		Better then 0,20°C (after thermocouples calibration) - close loop calibration
Number of channels	- XpertVal FI - XpertVal HP	21 channels 60 channels
Standalone mode		The loggers can be programmed for working with or without computer
Reports		- Generated automatically - Customizable
Sensors		- Thermocouples (T, K, J …) - RTD (PT 100) - 4-20 mA - 0-10 VDC ...
Memory	- XpertVal FI - XpertVal HP	PCMCIA memory card up to 4 Mo 10 000 internal data points

Advantages :
- Reduced dimensions
- User friendly software
- Automated reports
- Automatic calibration

Applications :

- Autoclaves
- Freeze dryers
- Ovens / stability chambers
- Freezers / refrigerators
- Cold rooms
- Sterilization tunnels …

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XpertVal

Temperature blocks & oil bath

Lives temperature block :

- ATC 156 : -25 to 155°C
- ATC 157 : -45 to 155°C
- ATC 320 : 30 to 320°C
- ATC 650 : 30 to 650°C
- **ATC 125 : -90 à 125 °C**

Oil bath :

- -40 to 140°C
- -80 to 100°C

Reference Probe

Hart Scientific

Ametek

Hart probe :
With external display, accuracy 0.027°C

Lives/ Ametek probe :
To be connected on the front panel of the block – correction coefficients introduced in the block

Pressure / Humidity

Sensitive pressure surface
Clamp connection, 0 to 5 bar absolute.

Humidity transducer
Capacity 0 to 100 % , accuracy ± 1,5 %RH

Accessories

- Validation replaceable insert for block
- Adapter for autoclaves Fedegari …
- Leek free feedtrhough
- Bundle of thermocouples T, J, K…

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Software

Lives' Software: total validation solution, yet user friendly…

CARACTERISTICS

XpertLog & XpertVal Software Advantages

- Intuitive and user friendly – cut half training time
- Secured access, Id of equipment, traceable
- Electronic signatures
- Close loop Verification / Calibration (several points) automatically
- driven by the software
- performed by the user
- Protected raw data and test reports
- Report :
  - Customized
  - Generated automatically
  - Different programming possible for the same cycle
  - **Unlimited number of loggers (XpertLog)**
- Calculations : user customizable
- Languages : Multilanguage

Comply with all Regulations :

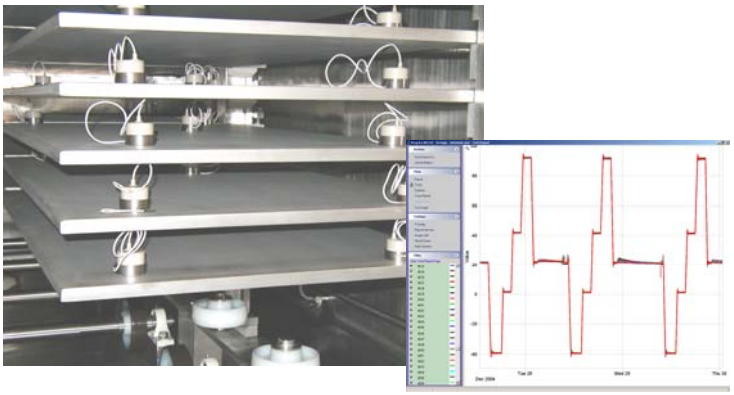
- EN - 554
- EN - 285
- HTM - 2010
- CGMP
- 21 CFR part 11…

- Software validation manual
- IQ & OQ SOP

Applications

Autoclaves

Freeze dryers



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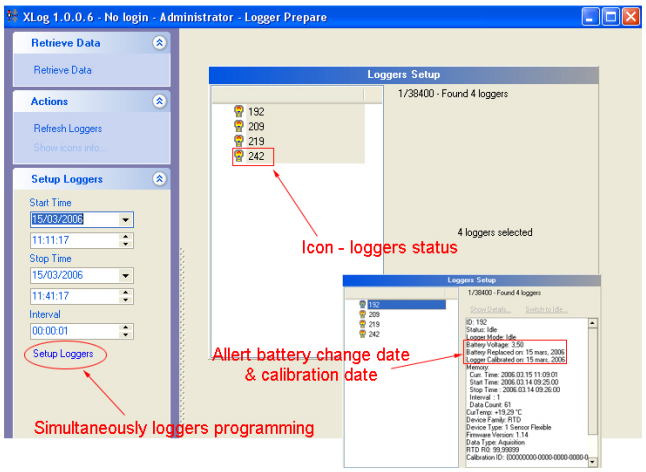
Software

User friendly interface…

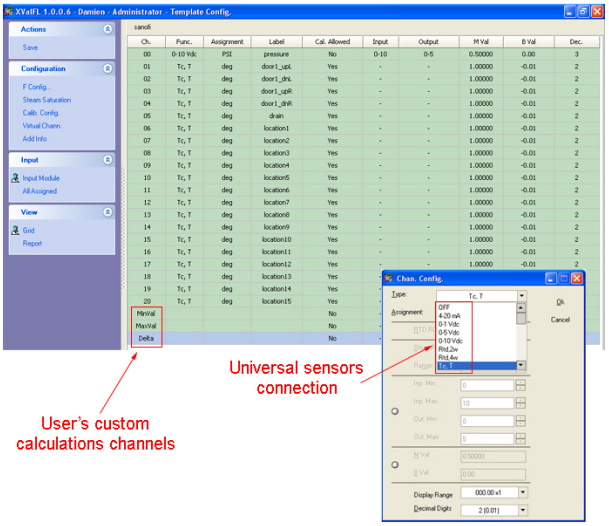
XpertLog

Loggers programming :

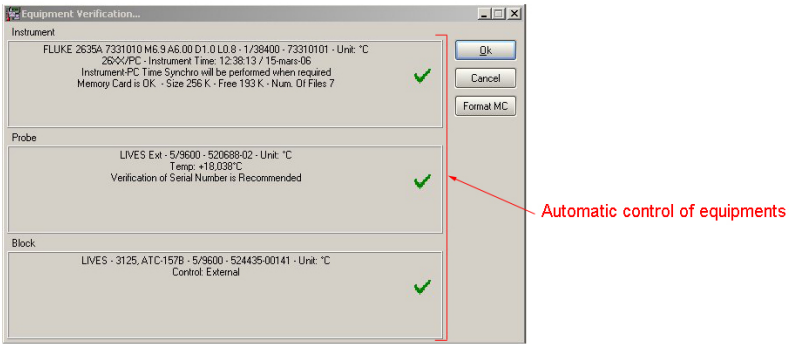


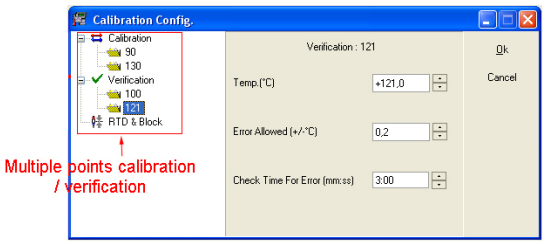
XpertVal

Templates configuration :

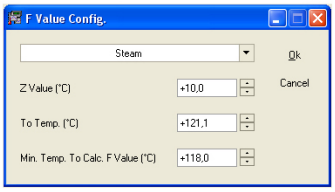


XpertVal & XpertLog





F Value configuration



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XpertVal & XpertLog

Test Report

Page 2 of 2
{D1A1C3A3-62BC-4D2C-BE88-765A4398E44D}
Printed: 15/03/2006 13:34:57, from: C:\LIVES\X\Log 0_1_88_155\hydrex.dxl

Test Data Report

Test: autoclave cycle à vide

XLog 1.0.0.6 - SN: 13319-12032-69240-49817 - Licensed to: Lives International
F Config. - Steam: Z Value= +10,0 °C; To Temp.= +121,0 °C; Min. Temp. To Calc. F Value= +118,0 °C

Date & Time	Action	#183	#195	#197	#200	#201	#202	#204	#205	F183	F195	F197	F200	F201	F202	F204	F205
02/06/05 10:58:30		+122,80	+122,48	+122,21	+122,41	+122,74	+122,13	+122,78	+122,50	19,8	18,3	17,3	18,1	19,5	16,9	19,7	18,6
02/06/05 10:59:00		+122,81	+122,49	+122,21	+122,41	+122,74	+122,14	+122,77	+122,51	20,5	19,0	17,9	18,8	20,3	17,6	20,5	19,3
02/06/05 10:59:30		+122,89	+122,52	+122,27	+122,45	+122,80	+122,19	+122,85	+122,54	21,3	19,7	18,6	19,5	21,0	18,2	21,2	20,1
02/06/05 11:00:00		+122,88	+122,53	+122,26	+122,46	+122,81	+122,19	+122,87	+122,55	22,1	20,5	19,3	20,2	21,8	18,9	22,0	20,8
02/06/05 11:00:30		+122,78	+122,45	+122,16	+122,34	+122,70	+122,07	+122,77	+122,46	22,9	21,2	19,9	20,9	22,5	19,5	22,8	21,5
02/06/05 11:01:00		+122,80	+122,45	+122,18	+122,35	+122,69	+122,10	+122,78	+122,44	23,6	21,9	20,6	21,6	23,3	20,2	23,5	22,2
02/06/05 11:01:30		+122,70	+122,35	+122,07	+122,26	+122,60	+121,99	+122,68	+122,37	24,3	22,5	21,2	22,3	24,0	20,8	24,3	22,9
02/06/05 11:02:00		+122,72	+122,37	+122,10	+122,30	+122,63	+122,05	+122,68	+122,43	25,1	23,2	21,9	22,9	24,7	21,4	25,0	23,6
02/06/05 11:02:30		+122,81	+122,49	+122,20	+122,43	+122,75	+122,15	+122,78	+122,53	25,8	23,9	22,5	23,6	25,5	22,1	25,7	24,3
02/06/05 11:03:00		+122,88	+122,53	+122,27	+122,47	+122,80	+122,20	+122,85	+122,56	26,6	24,6	23,2	24,3	26,2	22,7	26,5	25,0
02/06/05 11:03:30		+122,87	+122,51	+122,23	+122,45	+122,79	+122,15	+122,84	+122,53	27,4	25,3	23,9	25,0	27,0	23,4	27,3	25,7
02/06/05 11:04:00		+122,86	+122,49	+122,23	+122,43	+122,78	+122,15	+122,82	+122,50	28,1	26,1	24,5	25,7	27,7	24,0	28,0	26,4
02/06/05 11:04:30		+122,72	+122,38	+122,10	+122,29	+122,63	+122,03	+122,69	+122,40	28,9	26,8	25,2	26,4	28,5	24,7	28,8	27,1
02/06/05 11:05:00		+122,73	+122,37	+122,10	+122,32	+122,65	+122,03	+122,68	+122,40	29,7	27,5	25,8	27,1	29,2	25,3	29,5	27,8
02/06/05 11:05:30		+122,72	+122,37	+122,10	+122,30	+122,61	+122,02	+122,69	+122,38	30,4	28,1	26,5	27,8	29,9	26,0	30,3	28,5
02/06/05 11:06:00		+122,72	+122,37	+122,11	+122,32	+122,63	+122,05	+122,67	+122,42	31,1	28,8	27,1	28,5	30,7	26,6	31,0	29,2
02/06/05 11:06:30		+122,83	+122,48	+122,22	+122,45	+122,75	+122,16	+122,80	+122,53	31,9	29,5	27,8	29,1	31,4	27,2	31,8	29,9
02/06/05 11:07:00		+122,53	+122,16	+121,88	+122,13	+122,43	+121,84	+122,43	+122,24	32,7	30,2	28,4	29,8	32,1	27,9	32,5	30,6
02/06/05 11:12:00		+110,78	+111,15	+99,97	+102,61	+108,73	+108,35	+110,88	+100,52	33,5	30,8	29,0	30,4	32,8	28,5	33,2	31,2
02/06/05 11:17:00		+105,27	+105,47	+93,92	+91,21	+100,96	+98,89	+104,29	+99,16	33,5	30,8	29,0	30,4	32,8	28,5	33,2	31,2
02/06/05 11:22:00		+109,16	+109,16	+99,94	+96,73	+105,15	+103,54	+108,50	+104,10	33,5	30,8	29,0	30,4	32,8	28,5	33,2	31,2
02/06/05 11:27:00		+111,27	+111,24	+103,43	+101,05	+108,03	+106,51	+110,89	+107,09	33,5	30,8	29,0	30,4	32,8	28,5	33,2	31,2
02/06/05 11:32:00		+112,73	+112,67	+106,03	+103,84	+110,01	+108,61	+112,51	+109,21	33,5	30,8	29,0	30,4	32,8	28,5	33,2	31,2
02/06/05 11:37:00		+113,91	+113,85	+108,19	+106,02	+111,63	+110,35	+113,81	+110,92	33,5	30,8	29,0	30,4	32,8	28,5	33,2	31,2
02/06/05 11:42:00		+114,95	+114,89	+110,02	+107,90	+112,99	+111,84	+114,92	+112,37	33,5	30,8	29,0	30,4	32,8	28,5	33,2	31,2
02/06/05 11:47:00		+115,80	+115,74	+111,54	+109,50	+114,15	+113,09	+115,84	+113,58	33,5	30,8	29,0	30,4	32,8	28,5	33,2	31,2
02/06/05 11:52:00		+116,99	+117,35	+113,22	+111,88	+115,93	+114,74	+117,18	+115,18	33,5	30,8	29,0	30,4	32,8	28,5	33,2	31,2
02/06/05 11:57:00		+120,53	+120,48	+117,01	+115,20	+120,05	+119,32	+120,68	+119,26	37,7	34,7	29,0	30,4	36,1	30,7	37,2	33,7
02/06/05 12:00:00	OFF	+117,78	+116,16	+112,19	+101,45	+112,08	+112,34	+114,85	+111,89	40,2	37,1	29,0	30,4	38,2	32,4	39,6	35,3

Electronical signature

Compiled: 02/06/05 14:11:03 by: Domenjoz (Damien)

Created: _____ Reviewed: _____

Verification Report

Page 1 of 1
{34F5EA7F-5170-4C2A-AA32-6D7AF69FFF7B}
Printed: 15/03/2006 13:33:47, from: C:\LIVES\X\Log 0_1_88_155\hydrex.dxl

Verification Report

Verification: Vérification hydrex 1

XLog 1.0.0.6 - SN: 13319-12032-69240-49817 - Licensed to: Lives International
Imported to database \\DAMIEN\C:\LIVES\X\Log 0_1_88_155\hydrex.dxl (15/03/06 13:33:30)

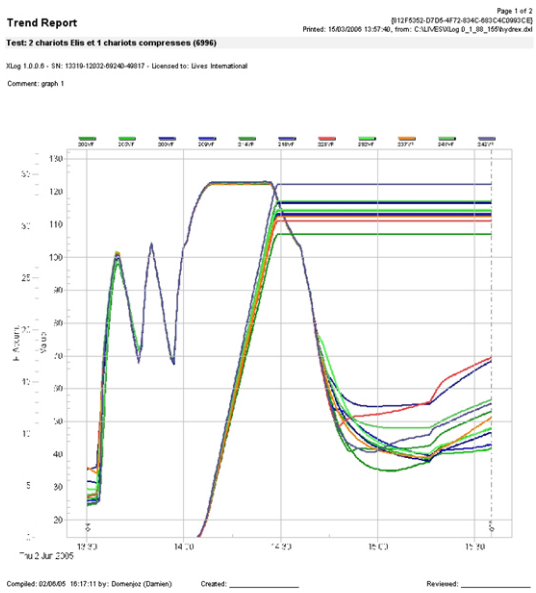
Verify:
121 - Temp. = 121,0°C; Error Allowed = 0,2 (+/-°C); Check Time = 3:00 (mm:ss)
RTD:
Drift Allowed = 0,03 (+/-°C); Dev. From Refer. Allowed = 1,0 (+/-°C); Check Time For Drift = 1:00 (mm:ss)

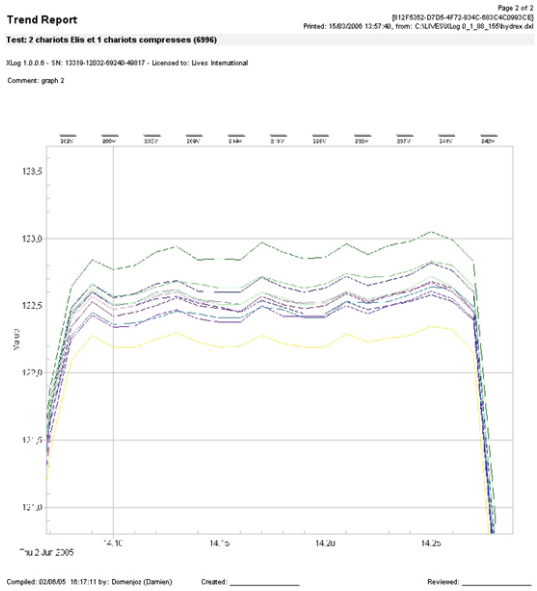
Action	Date & Time	Probe	#196	#201	#204	#207	#210	#211	#216	#219	#228	#239	#242	#243	#244	#250	#252	#256	#265
Func.	(dd/mm/yy hh:mm:ss)		Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C
Set As			Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
	M-Val		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	B-Val		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Label		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Verif. 121	23/11/05 10:02:24	+120,877	+0.06	+0.03	+0.09	+0.05	+0.09	+0.07	+0.11	+0.08	+0.08	+0.06	+0.00	+0.10	+0.01	+0.07	+0.01	+0.06	+0.01
	23/11/05 10:02:24	+120,878	+0.07	+0.02	+0.09	+0.05	+0.09	+0.07	+0.12	+0.09	+0.08	+0.07	+0.02	+0.10	+0.02	+0.07	+0.01	+0.06	+0.01
	23/11/05 10:02:24	+120,877	+0.07	+0.03	+0.08	+0.05	+0.09	+0.07	+0.11	+0.08	+0.06	+0.07	+0.02	+0.10	+0.03	+0.07	+0.00	+0.06	+0.01
	23/11/05 10:02:24	+120,879	+0.05	+0.02	+0.07	+0.05	+0.08	+0.06	+0.11	+0.07	+0.07	+0.05	+0.02	+0.11	+0.02	+0.07	+0.02	+0.04	+0.01
	23/11/05 10:02:24	+120,879	+0.05	+0.02	+0.09	+0.04	+0.10	+0.07	+0.11	+0.07	+0.08	+0.05	+0.01	+0.10	+0.02	+0.07	+0.03	+0.04	+0.01
	23/11/05 10:02:24	+120,879	+0.05	+0.02	+0.08	+0.05	+0.09	+0.06	+0.12	+0.08	+0.08	+0.05	+0.00	+0.10	+0.03	+0.07	+0.00	+0.06	+0.01
	23/11/05 10:02:24	+120,879	+0.06	+0.02	+0.07	+0.04	+0.08	+0.08	+0.10	+0.08	+0.07	+0.06	+0.02	+0.10	+0.03	+0.09	+0.01	+0.06	+0.00
	23/11/05 10:02:24	+120,879	+0.07	+0.02	+0.09	+0.05	+0.09	+0.06	+0.11	+0.10	+0.08	+0.07	+0.01	+0.09	+0.02	+0.09	+0.00	+0.04	+0.01
	23/11/05 10:02:24	+120,879	+0.06	+0.02	+0.07	+0.04	+0.09	+0.06	+0.11	+0.09	+0.07	+0.06	+0.02	+0.09	+0.03	+0.09	+0.02	+0.06	+0.01
	23/11/05 10:02:24	+120,880	+0.07	+0.03	+0.09	+0.03	+0.09	+0.07	+0.11	+0.07	+0.07	+0.07	+0.00	+0.10	+0.02	+0.09	+0.01	+0.07	+0.02
	23/11/05 10:02:24	+120,880	+0.07	+0.02	+0.08	+0.04	+0.08	+0.07	+0.11	+0.08	+0.08	+0.07	+0.01	+0.10	+0.02	+0.07	+0.01	+0.06	+0.00
	23/11/05 10:02:24	+120,880	+0.07	+0.02	+0.08	+0.05	+0.08	+0.06	+0.12	+0.07	+0.07	+0.07	+0.02	+0.10	+0.02	+0.07	+0.03	+0.06	+0.00
	23/11/05 10:02:24	+120,880	+0.05	+0.02	+0.07	+0.05	+0.10	+0.08	+0.11	+0.09	+0.07	+0.05	+0.01	+0.10	+0.02	+0.07	+0.03	+0.07	+0.01
	23/11/05 10:02:24	+120,880	+0.06	+0.01	+0.07	+0.05	+0.09	+0.06	+0.12	+0.09	+0.06	+0.06	+0.02	+0.10	+0.02	+0.09	+0.01	+0.06	+0.00
	23/11/05 10:02:24	+120,880	+0.07	+0.02	+0.07	+0.05	+0.08	+0.08	+0.11	+0.08	+0.08	+0.07	+0.01	+0.10	+0.02	+0.09	+0.02	+0.06	+0.00
	23/11/05 10:02:24	+120,879	+0.07	+0.03	+0.07	+0.04	+0.09	+0.06	+0.11	+0.07	+0.07	+0.07	+0.02	+0.09	+0.03	+0.09	+0.03	+0.06	+0.00
	23/11/05 10:02:24	+120,880	+0.07	+0.02	+0.09	+0.03	+0.09	+0.07	+0.11	+0.08	+0.07	+0.07	+0.00	+0.10	+0.02	+0.07	+0.01	+0.06	+0.00
	23/11/05 10:02:24	+120,880	+0.07	+0.02	+0.07	+0.05	+0.08	+0.06	+0.11	+0.08	+0.06	+0.07	+0.00	+0.10	+0.01	+0.09	+0.01	+0.05	+0.00
	23/11/05 10:02:24	+120,881	+0.07	+0.03	+0.09	+0.05	+0.08	+0.06	+0.11	+0.09	+0.08	+0.07	+0.00	+0.10	+0.02	+0.07	+0.00	+0.07	+0.01
	Min.	+120,877		+0.01	+0.07	+0.03	+0.08	+0.06	+0.10	+0.07	+0.06	+0.05	+0.00	+0.09	+0.01	+0.07	+0.00	+0.04	+0.00
	Avg.	+120,879 3		+0.022	+0.079	+0.045	+0.087	+0.067	+0.112	+0.081	+0.073	+0.064	+0.011	+0.099	+0.022	+0.078	+0.014	+0.058	+0.006
	Max.	+120,881		+0.03	+0.09	+0.05	+0.10	+0.08	+0.12	+0.10	+0.08	+0.07	+0.02	+0.11	+0.03	+0.09	+0.03	+0.07	+0.02
Status			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Performed: 23/11/05 09:49:23 by: Domenjoz (Damien)

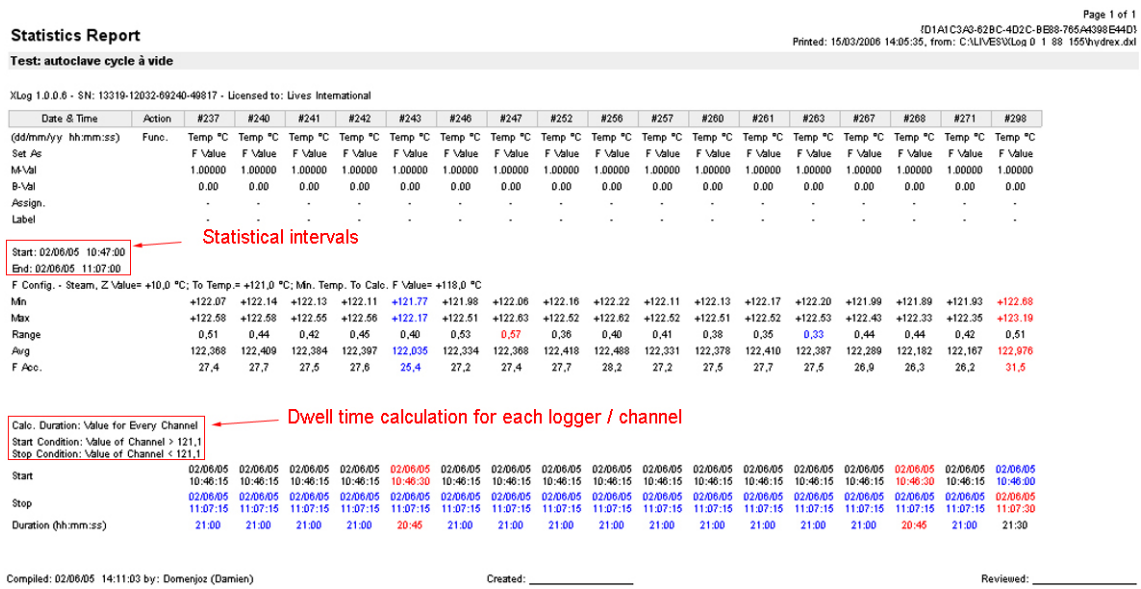
Created: _____ Reviewed: _____

Trend Report





Statistics Report :



Statistics Report

Page 1 of 1
{D1A1C3A3-62BC-4D2C-BE88-765A4398E44D}
Printed: 15/03/2006 14:05:35, from: C:\LIVES\XLog 0_1_88_155\hydrex.dxl

Test: autoclave cycle à vide

XLog 1.0.0.6 - SN: 13319-12032-69240-49817 - Licensed to: Lives International

Date & Time	Action	#237	#240	#241	#242	#243	#246	#247	#252	#256	#257	#260	#261	#263	#267	#268	#271	#298
(dd/mm/yy hh:mm:ss)	Func.	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C	Temp °C
Set As		F Value	F Value	F Value	F Value	F Value	F Value	F Value	F Value	F Value	F Value	F Value	F Value	F Value	F Value	F Value	F Value	F Value
M-Val		1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
B-Val		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Assign.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Label		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Start: 02/06/05 10:47:00																		
End: 02/06/05 11:07:00																		
F Config. - Steam, Z Value= +10,0 °C; To Temp.= +121,0 °C; Min. Temp. To Calc. F Value= +118,0 °C																		
Min		+122,07	+122,14	+122,13	+122,11	+121,77	+121,98	+122,06	+122,16	+122,22	+122,11	+122,13	+122,17	+122,20	+121,99	+121,89	+121,93	+122,68
Max		+122,58	+122,58	+122,55	+122,56	+122,17	+122,51	+122,63	+122,52	+122,62	+122,52	+122,51	+122,52	+122,53	+122,43	+122,33	+122,35	+123,19
Range		0,51	0,44	0,42	0,45	0,40	0,53	0,57	0,36	0,40	0,41	0,38	0,35	0,33	0,44	0,44	0,42	0,51
Avg		122,368	122,409	122,384	122,397	122,035	122,334	122,368	122,418	122,488	122,331	122,378	122,410	122,387	122,289	122,182	122,167	122,976
F Acc.		27,4	27,7	27,5	27,6	25,4	27,2	27,4	27,7	28,2	27,2	27,5	27,7	27,5	26,9	26,3	26,2	31,5
Calc. Duration: Value for Every Channel																		
Start Condition: Value of Channel > 121,1																		
Stop Condition: Value of Channel < 121,1																		
Start		02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:30	02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:15	02/06/05 10:46:30	02/06/05 10:46:15	02/06/05 10:46:00
Stop		02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:15	02/06/05 11:07:30
Duration (hh:mm:ss)		21:00	21:00	21:00	21:00	20:45	21:00	21:00	21:00	21:00	21:00	21:00	21:00	21:00	21:00	20:45	21:00	21:30

Statistical intervals

Dwell time calculation for each logger / channel

Compiled: 02/06/05 14:11:03 by: Domenjoz (Damien)
Created:
Reviewed:

temperature

Advanced Temperature Calibrators

ATC-125 ultra cooler

The coolest dry-block in the world!

The ATC-125 ultra cooler is the first dry-block calibrator on the market offering the widest temperature range ever for cooling dry-blocks from 125°C down to -90°C!

The unique technology sets new standards for optimum temperature calibrations in frozen and deep frozen applicatons.

Wide temperature range

ATC-125 ultra cooler:
-90°C to 125°C / -130°F to 257°F

Portable calibration at low temperature

State of the art cooling technology ensures energy efficiency, environmental friendliness and portable calibration

High accuracy

Using the internal reference or the external reference probe. 4-wire True-Ohm-Measurement technology is used

Improved temperature homogeneity

Unique dual-zone block ensures good temperature homogeneity in the critical calibration zone

Cost effective calibration system

Stand-alone operation eliminates the need for secondary equipment and PC. Universal inputs handle multiple type temperature sensors

Timesaving features

Up- and download complete calibration tasks. Auto-stepping, switch testing and many more features make the daily use smooth and fast

Documentation made easy

RS232 communication and JOFRACAL calibration software are included in the standard delivery

ISO 9001 Manufacturer

PRODUCT DESCRIPTION

The ATC-125 ultra cooler features a unique technology for optimum performance and superior temperature homogeneity throughout the block at very low temperatures. The ATC-125 has a performance equivalent to a liquid temperature bath and features the widest temperature range for any cooling dry-block on the market today.

The ATC-125 ultra cooler calibrator may be used to perform fully automatic calibration routines without using an external computer. It is also possible to use the computer for full upload and download capabilities. The ATC-125 may also be supplied with inputs for external reference sensors and for sensors-under-test. All ATC calibrators feature RS232 serial communication and the standard delivery also includes the JOFRACAL calibration PC software.

The ATC-125 ultra cooler is part of a serie of calibrators, that includes the ATC-140 (-20 to 140°C) and the ATC-250 (28 to 250°C) available as liquid bath or large diameter dry-block calibrators, and the ATC-156, ATC-157, ATC-320 and ATC-650 dry-block calibarators covering temperature ranges between -45°C and 650°C.

See more about the other ATC-series calibrators at page 5 or at www.jofra.com

FUNCTIONAL COMPARISON

ATC series		ATC-125 A	ATC-125 B	ATC-140 A	ATC-140 B	ATC-156 A	ATC-156 B	ATC-157 A	ATC-157 B	ATC-250 A	ATC-250 B	ATC-320 A	ATC-320 B	ATC-650 A	ATC-650 B
Temperature range @ ambient 23°C / 73°F															
-90 to 125°C	-130 to 257°F	X	X												
-20 to 140°C	-4 to 284°F			X	X										
-24 to 155°C	-11 to 311°F					X	X								
-45 to 155°C	-49 to 311°F							X	X						
28 to 250°C	82 to 482°F									X	X				
33 to 320°C	91 to 608°F											X	X		
33 to 650°C	91 to 1202°F													X	X
Temperature stability															
±0.01°C	±0.018°F					S	S	S	S			S	S		
±0.02°C	±0.036°F			X	X					X	X			S	S
±0.03°C	±0.054°F	X	X												
Accuracy incl. external STS reference sensor															
±0.04°C	±0.07°F				X [1]		X [1]		X [1]						
±0.06°C	±0.11°F	X	X												
±0.07°C	±0.13°F										X [1]		X [1]		
±0.11°C	±0.2°F														X [1]
Accuracy with internal reference sensor															
±0.10°C	±0.18°F					S	S								
±0.13°C	±0.23°F							S	S						
±0.18°C	±0.32°F			S	S										
±0.20°C	±0.36°F											S	S		
±0.28°C	±0.50°F									S	S				
±0.30°C	±0.54°F	X	X												
±0.35°C	±0.63°F													S	S
Immersion depth															
185 mm	7.3 in	X	X												
180 mm	7.1 in			X [2]	X [2]										
160 mm	6.3 in					X	X	X	X						
150 mm	5.9 in			X [3]	X [3]					X [4]	X	X	X	X	X
Insertion tube diameter															
63.5 mm	2.5 in			X	X					X	X				
30 mm	1.2 in	X	X			X	X					X	X	X	X
20 mm	0.8 in							X	X						

	Model A	Model B
Dual-zone heating/cooling block	•	•
MVI - Mains Variance Immunity (or similar)	•	•
Stability indicator	•	•
Automatic step function	•	•
JOFRACAL Calibration software included as standard	•	•
SYNC output (for external recording device)	•	•
Display resolution 0.01°	•	•
Graphical LCD display	•	•
Programmable max. temperature	•	•
Input for RTD, TC, V, mA		•
4-20 mA transmitter input incl. 24 VDC supply		•
All inputs scalable to temperature		•
Automatic switch test (open, close and hysteresis)		•
External precision reference probe input		•
Download of calibration work orders from PC		•
Upload of calibration results (as found & as left)		•
"SET" follows "TRUE"		•

140 and ATC-250

For a wider product description of the ATC-140 and ATC-250 please see specification sheet SS-CP-2284, which is to be found at www.jofra.com

X = Delivered as standard
S = Improved specifications (from October 01, 2006)

1 Using an external STS reference sensor connected to the reference probe input
2 Immersion depth for ATC-140 as dry-block
3 Immersion depth for ATC-140 as liquid bath
4 Immersion depth for ATC-250 as dry-block and as liquid bath

ATC-156/157/320/650

For a wider product description of the ATC-156, ATC-157, ATC-320 and ATC-650 please see specification sheet SS-CP-2285, which is to be found at www.jofra.com

FUNCTIONAL SPECIFICATIONS

Mains specifications

ATC-125 ..... 115V(90-127) / 230V(180-254)
Frequency, non US deliveries ..... 50 Hz ±5, 60 Hz ±5
Frequency, US deliveries ..... 60 Hz ±5
Power consumption (max.) ATC-125 ..... 300 VA

Temperature range

ATC-125 Maximum ..... 125°C / 257°F
Minimum @ ambient temp. 0°C / 32°F ..... -90°C / -130°F
Minimum @ ambient temp. 23°C / 73°F ..... -90°C / -130°F
Minimum @ ambient temp. 40°C / 104°F ..... -73°C / -99°F

Stability

ATC-125 ..... ±0.03°C / ±0.054°F

Measured after the stability indicator has been on for 10 minutes. Measuring time is 30 minutes.

Accuracy (model B) with external STS reference sensor

ATC-125 B ..... ±0.06°C / ±0.11°F

12 month period. Relative to reference standard. Specifications by use of the external JOFRA STS-100 reference sensor (see specification sheet SS-CP-2290, which can be found at www.jofra.com)

Accuracy (model A+B) with internal reference sensor

ATC-125 A+B ..... ±0.3°C / ±0.54°F

Resolution (user-selectable)

All temperatures ..... 1° or 0.1° or 0.01°

Radial homogeneity (difference between holes)

ATC-125 ..... 0.01°C / 0.02°F

Immersion depth

ATC-125 ..... 185 mm / 7.3 in

Heating time

-90 to 125°C / -130 to 257°F ..... 40 minutes
23 to 125°C / 73 to -257°F ..... 20 minutes

Cooling time

125 to 23°C / 212 to 73°F ..... 25 minutes
23 to -80°C / 73 to -112°F ..... 70 minutes
-80 to -90°C / -112 to -130°F ..... 30 minutes

SYNC output (dry contact)

Switching voltage ..... Maximum 30 VDC
Switching current ..... Maximum 100 mA

INPUT SPEC'S (B MODELS ONLY)

All input specifications apply to the calibrator's dry-block running at the respective temperature (stable plus an additional 20 minutes period). Where the input measuring range is out of the calibrator's range, the SET temperature is either MIN. or MAX.

Transmitter supply

Output voltage ..... 24VDC +10%
Output current ..... Maximum 25 mA

Transmitter input mA

Range ..... 0 to 24 mA
Accuracy (12 months) ..... ±(0.01% Rdg. ±0.015% F.S.)

Voltage input VDC

Range: ..... 0 to 12 VDC
Accuracy (12 months) ..... ±(0.005% Rdg. ±0.015% F.S.)

Switch input

Switch dry contacts
Test voltage ..... Maximum 5 VDC
Test current ..... Maximum 2.5 mA

Lives International

Distributors :

- Canada: Lives Groupe International Inc.
- Ireland : ITL
- Portugal : Activeng
- Spain : Gometrics
- Italy : Delta Strumenti
- Switzerland : Techniserv
- Romania: Medisol
- Jordan, Syria: Startech
- Egypt : MYMSA

References :

- Pfizer - France
- Pfizer – Ireland
- MSD - France
- LFB
- Organogenesis - USA
- Innothera
- Usifroid
- Validapro - Canada
- Serono - France
- Transgene
- Lab Assistance
- Ciba Vision
- Hydrex
- Trinity Biotech - Ireland
- Merck – USA
- Merck Mexico
- Hikma -Jordan
- Validapro - France
- Weleda
- Assystem
- Techniserv
- Abbott
- Genzyme - USA
- Sanofi Pasteur
- Merck Santé
- Organon
- Septodont
- GSK
- Ingerop
- Serono Suisse
- Biomérieux
- Delpharm
- Axcell Technologies
- Sofresid
- Human Genome - USA
- Hikma Germany
- Hikma - Portugal
- Trust Pharma - Algeria
- Pierre Fabre
- Weleda
- Confarma
- Pharma Frontier - Korea

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