

ULT90

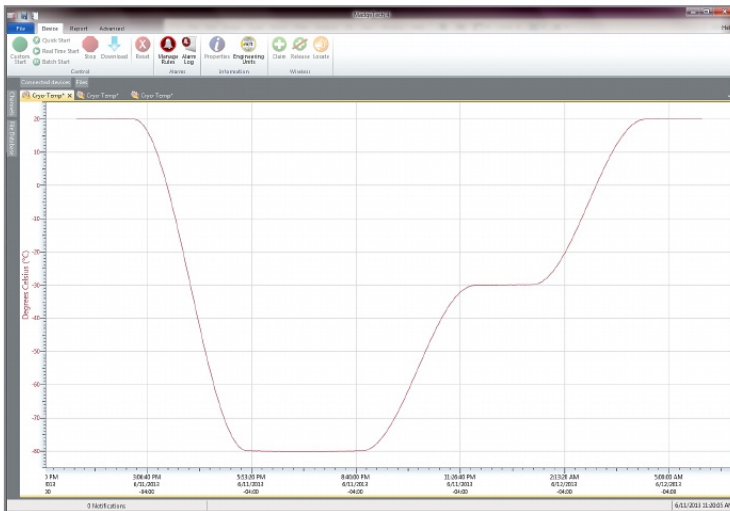
超低温冰箱验证系统

特点 MadgeTech 的超低温冰箱验证系统可以测量和记录温度低至 -86°C (-122°F)。它可以放置在小型和大型冷冻柜中不同的配置。

ULT90 包括一个带 6 英尺电缆 (IFC300) 的 USB 扩展坞、CryoTemp 数据 • 符合 FDA 21 CFR Part 11 标准 • IQ/OQ/PQ 验证协议记录器和 MadgeTech 的 FDA 21 CFR Part 11 安全软件和 • 提供 9 或 15 种防溅 IQ/OQ/PQ 验证协议。

该系统提供完整的独立温度测绘和验证冷冻机解决方案，以确保统一的储存和测试条件。对于较大的冷冻机、记录仪可以绘制在一张图表中，以显示不同部分的差异冰箱。

MadgeTech 4 软件功能



图表视图

- 多图叠加 • 平均动力学温度
- 统计 • 全时区支持
- 数字校准 • 数据注释
- 放大/缩小 • 最小/最大/平均线



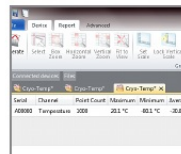
- ISO17025 认可校准证书

CryoTemp 数据记录仪

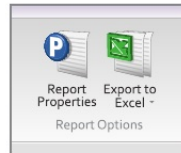
- -86°C 至 $+35^{\circ}\text{C}$ (-122°F 至 $+95^{\circ}\text{F}$) 温度范围
- -80°C (-112°F) 时电池寿命为 1 年
- 用户可编程温度带 LED 的警报 (正常、警告和警报)
- 硬件和软件密码保护
- 同时启动、内存换行
- 用户可编程的开始时间、采样间隔、记录器描述、唯一 ID

应用领域

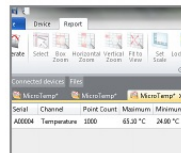
- 超低温冰箱验证
- 超低温冻室映射
- 超低温冻稳定性研究
- 温度测量
 - 揭示空气分层
 - 揭示热点



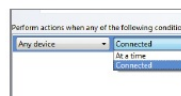
统计数据



导出到 Excel - 显示冷却系统中的异常情况



表格数据视图



SPECIFICATIONS

EO: sales@eofirm.com | www.eofirm.com | 0755-84200058

TEMPERATURE	
Temperature Sensor	NTC Thermistor
Temperature Range	-86 °C to +35 °C (-122.8 °F to +95 °F)
Temperature Resolution	0.1 °C (0.18 °F)
Calibrated Accuracy	±1.0 °C (1.8 °F)
Specified Accuracy Range	-86 °C to +35 °C (-122.8 °F to +95 °F)

GENERAL	
Start Modes	Software programmable immediate start Delay start up to 30 days in advance Manual start with magnetic switch
Memory	32,767 readings
Wrap Around	Yes
Reading Rate	1 reading every 5 seconds up to 1 reading every 30 minutes
Password Protection	An optional password may be programmed into the device to restrict access to configuration options. Data may be read out without the password.
Temperature Alarm	User selectable high and low limits
Alarm Delay	Software programmable time delay for warn/alarm limits
LEDs	2 status and 1 alarm LED
Calibration	Digital calibration through software
Calibration Date	Automatically recorded within device
Battery Type	3.6 V lithium battery
Battery Life	2 years typical @ +25 °C, 1 min. reading intervals 1 year typical @ -80 °C, 1 min. reading intervals
Data Format	Date and time stamped °C, K, °F or °R
Time Accuracy	±2 minutes/month max at +20 °C to +30 °C ±5 minutes/month max at -80 °C
Computer Interface	IFC300 USB docking station (required); 38,400 baud
Operating System Compatibility	Windows XP SP3 or later
Operating Environment	-86 °C to +35 °C (-122.8 °F to +95 °F) 0 %RH to 100 %RH
IP Rating	IP64 (splash resistant, not submersible)
Dimensions	3.3 in x 2.1 in x 0.4 in (83 mm x 54 mm x 11 mm)
Weight	1.4 oz (40 g) ULT90-9 total – 50.9 oz (1443 g) ULT90-15 total – 59.3 oz (1681 g)
Material	ABS plastic, white, polycarbonate labeling
Approvals	CE

BATTERY WARNING: FIRE, EXPLOSION, AND SEVERE BURN HAZARD. DO NOT SHORT CIRCUIT, CHARGE, FORCE OVER DISCHARGE, CRUSH, PENETRATE, OR INCINERATE. BATTERY MAY LEAK OR EXPLODE IF HEATED ABOVE 100 °C (212 °F).

Ordering Information

ULT90-9	PN 901807-00	Ultra Low Freezer Validation System includes 9 CryoTemp data loggers with calibration certificates, IFC300 docking station, MadgeTech's FDA 21 CFR Part 11 Secure Software and IQ/OQ/PQ validation protocols.
ULT90-15	PN 901805-00	Ultra Low Freezer Validation System includes 15 CryoTemp data loggers with calibration certificates, IFC300 docking station, MadgeTech's FDA 21 CFR Part 11 Secure Software and IQ/OQ/PQ validation protocols.
IFC300	PN 900315-00	USB docking station