



Thermal Validation And Mapping Solutions For Pharma And Biotech

High Efficiency, Reliability And Accuracy



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Lives International Corp.
1 Chestnut Street
Nashua, NH 03063
United States of America

3 rue Jules Guesde
92300 Levallois Perret
France

235-237 Vauxhall Bridge Road
SW1V 1EJ London
Great Britain

15 Carl-Legien-Str.
Gebäude B, 63073 Offenbach-Waldhof
Germany

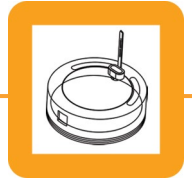
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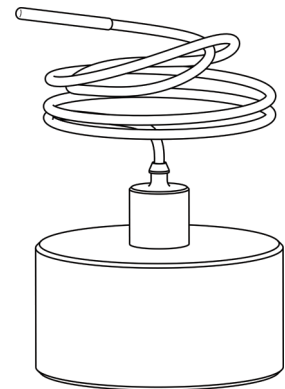
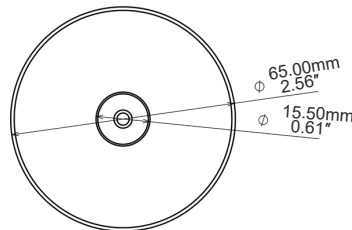
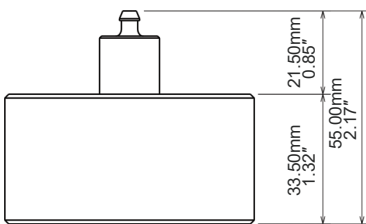
GMPF RF



Real Time Temperature Data Logger -90 to +140°C



- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site
- + Can be remotely activated

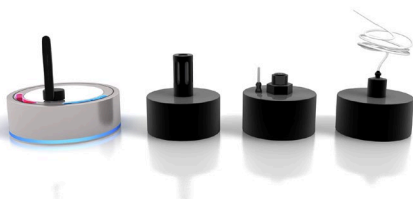


Sensor type	4 wires PT-100
- flexible	480 mm (19")
- customized	Up to 5000 mm (195")
- sensor size	1.5 x 8 mm (0.06 x 0.315")
- cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- body temp.	-90°C to +140°C
- sensor temp.	-200°C to +200°C
Accuracy	±0.1°C from -90 to +140°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers
	Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	115 g (4.06 oz)
- diameter	65 mm (2.56")
- height	55 mm (2.17")
Power	2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers
	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	RF: EN 300440-2 v1.3.1 (2009-03)
	Health & Safety: EN 60950-1/2006

Order Reference:
GMPF_RF

Standard Calibration Points

- -80°C
- 0°C
- 140°C

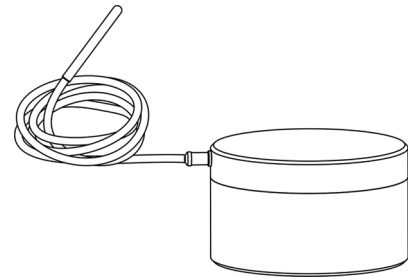
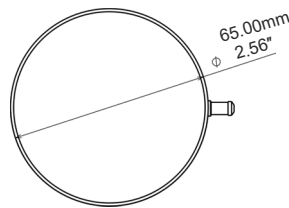
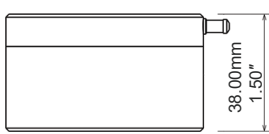


GMPF LP RF

Real Time Temperature Data Logger -90 to +140°C



- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site
- + Can be remotely activated



Sensor type	4 wires PT-100
- flexible	480 mm (19")
- customized	Up to 5000 mm (195")
- sensor size	1.5 x 8 mm (0.06 x 0.315")
- cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- body temp.	-90°C to +140°C
- sensor temp.	-200°C to +200°C
Accuracy	±0.1°C from -90°C to +140°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers
	Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	110 g (3.88 oz)
- diameter	65 mm (2.56")
- height	38 mm (1.5")
Power	2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers
	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	RF: EN 300440-2 v1.3.1 (2009-03)
	Health & Safety: EN 60950-1/2006

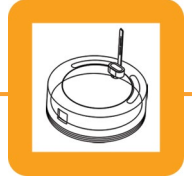
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Standard Calibration Points

- -80°C
- 0°C
- 140°C



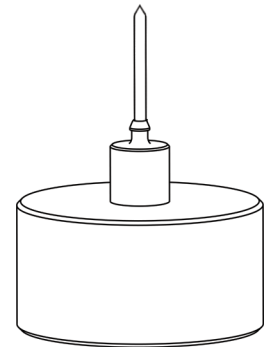
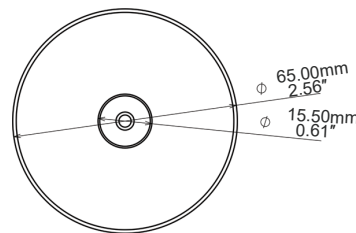
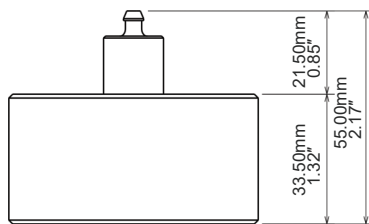
GMP RF



Real Time Temperature Data Logger -90 to +140°C



- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Can be remotely activated



Sensor type	4 wires PT-100
- rigid	20 mm (0.8") / 150 mm (6") available
- customized	available
- sensor size	1.5 x 8 mm (0.06 x 0.315")
- cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- body temp.	-90°C to +140°C
- sensor temp.	-90°C to +140°C
Accuracy	±0.1°C from -90 to +140°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	115 g (4.06 oz)
- diameter	65 mm (2.56")
- height	55 mm (2.17")
Power	2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 RF: EN 300440-2 v1.3.1 (2009-03) Health & Safety: EN 60950-1/2006

Order Reference:
GMP_RF

Standard Calibration Points

- -80°C
- 0°C
- 140°C

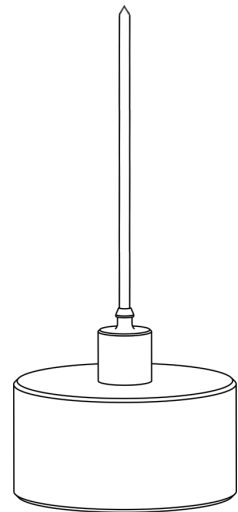
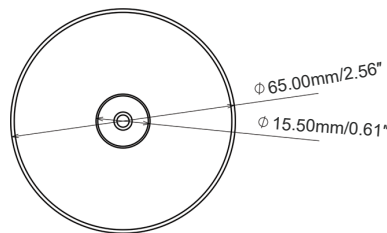
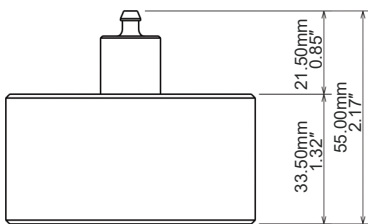


GMPL RF

Real Time Temperature Data Logger -90 to +140°C



- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Can be remotely activated



Sensor type	4 wires PT-100
- rigid	150 mm (6")
- customized	available
- sensor size	1.5 x 8 mm (0.06 x 0.315")
- cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- body temp.	-90°C to +140°C
- sensor temp.	-90°C to +140°C
Accuracy	±0.1°C from -90 to +140°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	115 g (4.06 oz)
- diameter	65 mm (2.56")
- height	55 mm (2.17")
Power	2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 RF: EN 300440-2 v1.3.1 (2009-03) Health & Safety: EN 60950-1/2006

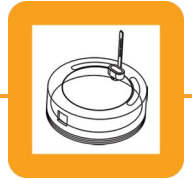
Order Reference:
GMPL_RF

Standard Calibration Points

- -80°C
- 0°C
- 140°C



GMP Custom RF



Real Time Temperature Data Logger -90 to +140°C

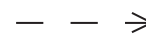
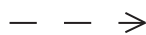


- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11



Sensor type 4 wires PT-100
Accuracy $\pm 0.1^{\circ}\text{C}$ from -90°C to $+140^{\circ}\text{C}$
Resolution 0.01°C
Memory capacity 32,000 data points
Sampling rate 1 sec to 24 hours
Transmission Simultaneous: maximum 20 loggers
 Sequential: unlimited
Internal clock Drift 4 sec / 24 h @ $+ 23^{\circ}\text{C}$
Mechanical
 - material Peek 1000 - FDA compliant
 - enclosure IP-68

Power 2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Wireless range 121 m (400')
Radio frequency 2.4 GHz ISM band
Certification EMC: EN 60601-1-2 / 2007
 RF: EN 300440-2 v1.3.1 (2009-03)
 Health Safety: EN 60950-1/2006



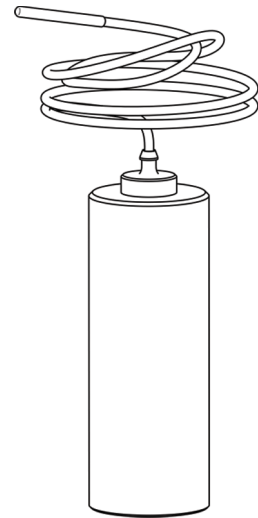
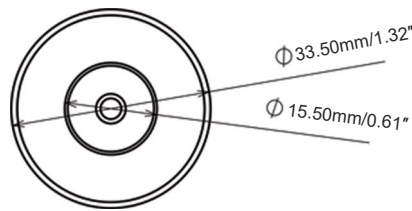
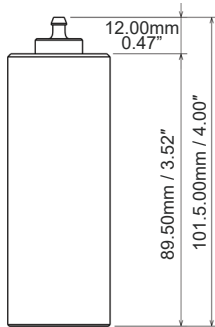
GMPF Bio RF



Real Time Temperature Data Logger -90 to +140°C



- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site
- + Can be remotely activated



Order Reference:
GMP-Bio_RF

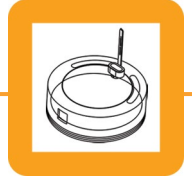
Sensor type	4 wires PT-100
- flexible	480 mm (19") PTFE
- customized	Up to 5000 mm (195")
- sensor size	1.5 x 8 mm (0.06 x 0.315")
- cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- body temp.	-90°C to +140°C
- sensor temp.	-200°C to 200°C
Accuracy	±0.1°C from -90°C to +140°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers
	Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	67 g (2.36 oz)
- diameter	33.5 mm (1.32")
- height	101.5 mm (4.00")
Power	2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers
	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	RF: EN 300440-2 v1.3.1 (2009-03)
	Health & Safety: EN 60950-1/2006

Standard Calibration Points

- -80°C
- 0°C
- 140°C



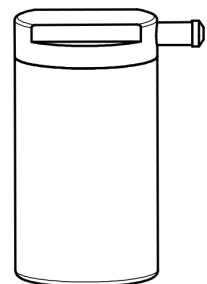
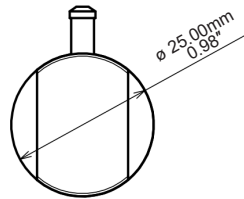
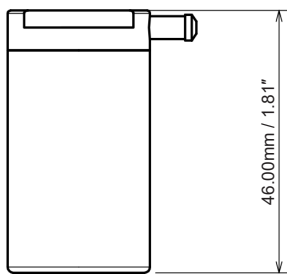
GMPF RF 10R



Real Time Temperature Data Logger -60 to +85°C



- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site
- + Can be remotely activated
- + Recommended for freeze-dryer (lyophilizer) usage



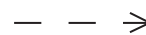
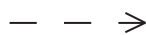
Sensor type	4 wires thin
- flexible	150 mm (6") or custom length
- sensor size	1.2 x 2.8 mm (0.05 x 0.11")
- cross section	1.13 mm ² (0.00175 inch ²)
Operating Range	
- body temp.	-60°C to +85°C
- sensor temp.	-80°C to +140°C
Accuracy	±0.1°C from -60 to +85°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	24 g (0.85 oz)
- diameter	25 mm (0.98")
- height	46 mm (1.81")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable Up to 2 months, based on usage
Battery lifetime	
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 RF: EN 300440-2 v1.3.1 (2009-03) Health & Safety: EN 60950-1/2006

Order Reference:

GMPF_RF_10R_4W_THIN

Standard Calibration Points

- -60°C
- 0°C
- 85°C

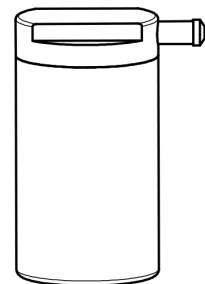
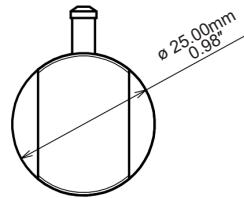
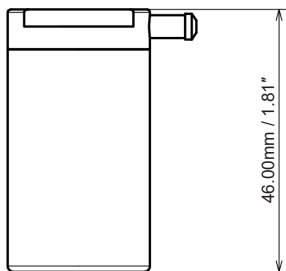


GMMPF RF 10R SS

Real Time Temperature Data Logger -60 to +85°C



- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site
- + Can be remotely activated



Sensor type	4 wires thin
- flexible	150 mm (6") or custom length
- sensor size	1.2 x 2.8 mm (0.05 x 0.11")
- cross section	1.13 mm ² (0.00175 inch ²)
Operating Range	
- body temp.	-60°C to +85°C
- sensor temp.	-80°C to +140°C
Accuracy	±0.1°C from -60 to +85°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers
	Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	24 g (0.85 oz)
- diameter	25 mm (0.98")
- height	46 mm (1.81")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 2 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers
	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	RF: EN 300440-2 v1.3.1 (2009-03)
	Health & Safety: EN 60950-1/2006

Order Reference:

GMMPF_RF_10R_SS_4W_THIN

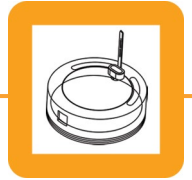
Standard Calibration Points

- -60°C
- 0°C
- 85°C



GMMPF RF 10R SS

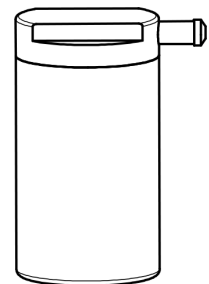
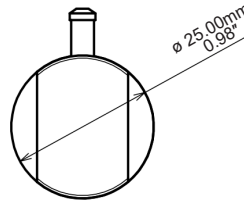
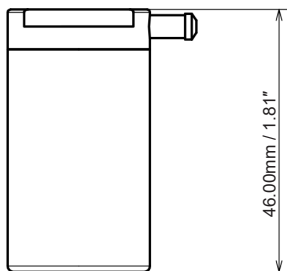
GMPF RF 10RA



Real Time Temperature Data Logger -60 to +85°C



- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site
- + Can be remotely activated
- + Can be sterilized in autoclave at 121°C cycle



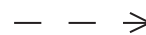
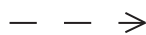
Sensor type	4 wires thin
- flexible	150 mm (6") or custom length
- sensor size	1.2 x 2.8 mm (0.05 x 0.11")
- cross section	1.13 mm ² (0.00175 inch ²)
Operating Range	
- body temp.	-60°C to +85°C
- sensor temp.	-80°C to +140°C
Accuracy	±0.1°C from -60 to +85°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers
	Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	24 g (0.85 oz)
- diameter	25 mm (0.98")
- height	46 mm (1.81")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 2 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers
	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	RF: EN 300440-2 v1.3.1 (2009-03)
	Health & Safety: EN 60950-1/2006

Order Reference:

GMPF_RF_10RA_4W_THIN

Standard Calibration Points

- -60°C
- 0°C
- 85°C

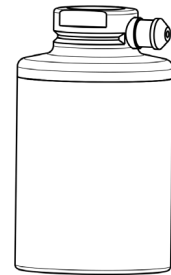
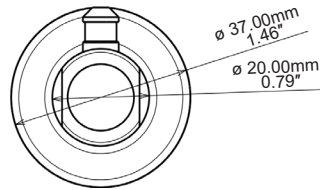
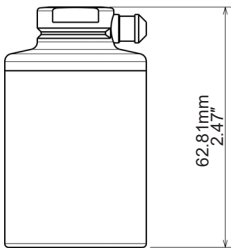


GMPPF RF 30H

Real Time Temperature Data Logger -90 to +140°C



- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site
- + Can be remotely activated



Sensor type	4 wires / 4 wires thin
- flexible	4 wires: 480 mm (19") / 4 wires thin: 150 mm (6") or custom length
- sensor size	4 wires: 1.5 x 8 mm (0.06 x 0.315")
	4 wires thin: 1.2 x 2.8 mm (0.05 x 0.11")
- cross section	4 wires: 1.77 mm ² (0.0027 inch ²)
	4 wires thin: 1.13 mm ² (0.00175 inch ²)
Operating Range	-90°C to +140°C
- body temp.	4 wires: -200°C to +200°C
- sensor temp.	4 wires thin: -90°C to +140°C
Accuracy	±0.1°C from -90 to +140°C
- 4 wires	±0.1°C from -90 to +140°C
- 4 wires thin	0.01°C
Resolution	32,000 data points
Memory capacity	1 sec to 24 hours
Sampling rate	Simultaneous: maximum 20 loggers
Transmission	Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	50 g (1.76 oz)
- diameter	37 mm (1.46")
- height	62.81 mm (2.47")
Power	2 x Lithium batteries, 0.35 g/each Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers
	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	RF: EN 300440-2 v1.3.1 (2009-03)
	Health & Safety: EN 60950-1/2006

Order Reference:

GMPPF_RF_30H_4W

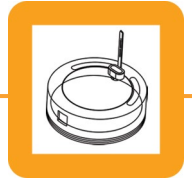
GMPPF_RF_30H_4W_THIN

Standard Calibration Points

- -80°C
- 0°C
- 140°C



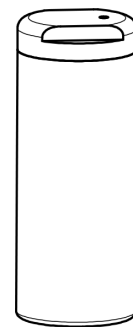
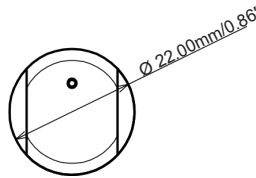
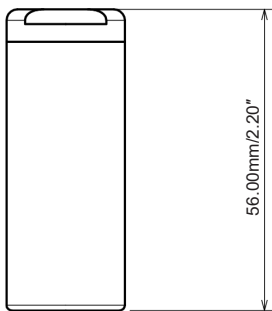
GMPF Mini RF



Real Time Temperature Data Logger -60 to +85°C



- + Collects and transmits real time temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site
- + Can be remotely activated



Sensor type	4 wires thin
- flexible	150 mm (6") or custom length
- sensor size	1.2 x 2.8 mm (0.05 x 0.11")
- cross section	1.13 mm ² (0.00175 inch ²)
Operating Range	
- body temp.	-60°C to +85°C
- sensor temp.	-80°C to +140°C
Accuracy	±0.1°C from -60 to +85°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	19 g (0.67 oz)
- diameter	22 mm (0.86")
- height	56 mm (2.20")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 2 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 RF: EN 300440-2 v1.3.1 (2009-03) Health & Safety: EN 60950-1/2006

Order Reference:

GMPF_RF_Mini_4W_THIN

Standard Calibration Points

- -60°C
- 0°C
- 85°C



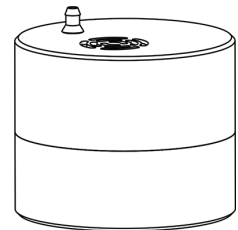
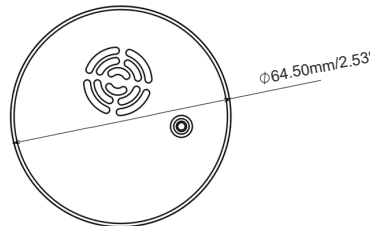
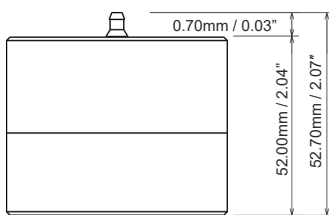
GMPPF CO₂ RF



Real Time CO₂ Data Logger 0-20% CO₂



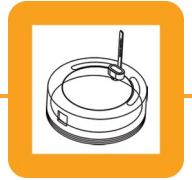
- + Collects and transmits real time CO₂ and temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Can be remotely activated



<p>Sensor type</p> <ul style="list-style-type: none"> - flexible - customized - temp. sensor size - temp. cross section <p>Operating Range</p> <ul style="list-style-type: none"> - CO₂ - body temp. - sensor temp. - pressure <p>Accuracy</p> <ul style="list-style-type: none"> - temperature - CO₂ <p>Resolution</p> <p>Memory capacity</p> <p>Sampling rate</p> <p>Transmission</p> <p>Internal clock Drift</p> <p>Mechanical</p> <ul style="list-style-type: none"> - material - enclosure - weight - diameter - height <p>Power</p> <p>Battery lifetime</p> <p>Antenna</p> <p>Wireless range</p> <p>Radio frequency</p> <p>Access point</p> <p>Calibrations</p> <p>Certification</p>	<p>CO₂ - IR / Temp: 4 wires PT-100 480 mm (19") Up to 5000 mm (195") 1.5 x 8 mm (0.06 x 0.315") 1.77 mm² (0.0027 inch²)</p> <p>0 to 20% CO₂ 0°C to 50°C -200°C to +200°C 300 to 1100 mBar (built-in pressure compensation)</p> <p>±0.1°C from -90°C to +140°C ±0.5% CO₂ from 0 to 10%CO₂ 0.01% CO₂; 0.01°C</p> <p>16,000 data points CO₂ / 16,000 data points temperature</p> <p>2 min to 24 hours</p> <p>Simultaneous: maximum 20 loggers Sequential: unlimited 4 sec / 24 h @ + 23 °C</p> <p>Peek 1000 - FDA compliant IP-30 153 g (5.39 oz) 64.5 mm (2.53") 52 mm (2.04")</p> <p>2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable Up to 6 months, based on usage</p> <p>Internal 121 m (400') 2.4 GHz ISM band USB to computer Programs and reads unlimited number of loggers</p> <p>Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog[®] Software</p> <p>EMC: EN 60601-1-2 / 2007 RF: EN 300440-2 v1.3.1 (2009-03) Health & Safety: EN 60950-1/2006</p>	<p><u>Order Reference:</u> GMPPF-CO2_RF</p> <p><u>Fixed Gas Points</u></p> <ul style="list-style-type: none"> • 2% • 5% • 7.5% • 10% <p><u>Standard Calibration Points</u></p> <ul style="list-style-type: none"> • 0°C • 23°C • 50°C
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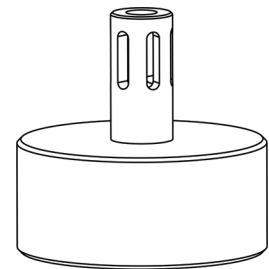
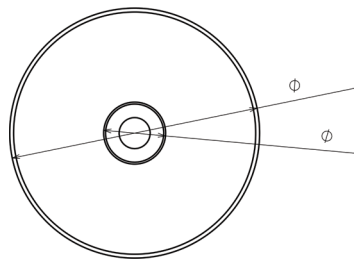
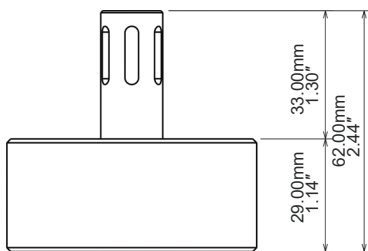
GMP RH RF



Real Time Humidity Data Logger 0-100% RH



- + Collects and transmits real time humidity and temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Can be remotely activated



Sensor type	RH: capacitive / Temp: 4 wires PT-100
- rigid	20 mm (0.8")
- temp. sensor size	1.5 x 8 mm (0.06 x 0.315")
- temp. cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- humidity	0 to 100% RH non condensing
- body temp.	-40°C to +100°C
- sensor temp.	-40°C to +100°C
Accuracy	±2.0% RH, 0% to 100% non condensing at 20°C to 45°C
	±0.1°C from -40 to +100°C
Resolution	0.01% RH; 0.01°C
Memory capacity	16,000 data points humidity / 16,000 data points temperature
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers
	Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-51
- weight	95 g (3.35 oz)
- diameter	65 mm (2.56")
- height	62 mm (2.44")
Power	2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers
	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	RF: EN 300440-2 v1.3.1 (2009-03)
	Health & Safety: EN 60950-1/2006

Order Reference:
GMP-RH_RF

Standard Calibration Points

- 25° C / 20%RH
- 25° C / 45%RH
- 30° C / 65%RH
- 40° C / 75%RH

Upon special request:

- 45° C / 90%RH



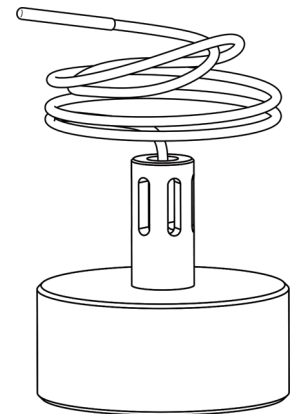
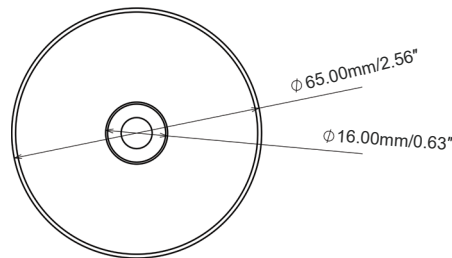
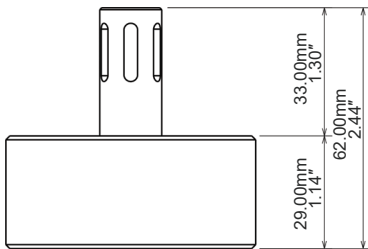
GMPF RH RF



Real Time Humidity Data Logger 0-100% RH



- + Collects and transmits real time humidity and temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Can be remotely activated



Sensor type	RH: capacitive / Temp: 4 wires PT-100
- flexible	480 mm (19")
- customized	Up to 5000 mm (195")
- temp. sensor size	1.5 x 8 mm (0.06 x 0.315")
- temp. cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- humidity	0 to 100% RH non condensing
- body temp.	-40°C to +100°C
- sensor temp.	-200°C to +200°C
Accuracy	±2.0% RH, 0% to 100% non condensing at 20°C to 45°C
	±0.1°C from -40 to +100°C
Resolution	0.01% RH; 0.01°C
Memory capacity	16,000 data points humidity / 16,000 data points temperature
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers
	Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-51
- weight	95 g (3.35 oz)
- diameter	65 mm (2.56")
- height	62 mm (2.44")
Power	2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
	Programs and reads unlimited number of loggers
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog [®] Software
Certification	EMC: EN 60601-1-2 / 2007
	RF: EN 300440-2 v1.3.1 (2009-03)
	Health Safety: EN 60950-1/2006

Order Reference:
GMPF-RH_RF

Standard Calibration Points

- 25° C / 20%RH
- 25° C / 45%RH
- 30° C / 65%RH
- 40° C / 75%RH

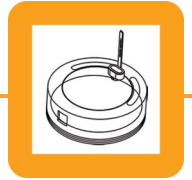
Upon special request:

- 45° C / 90%RH

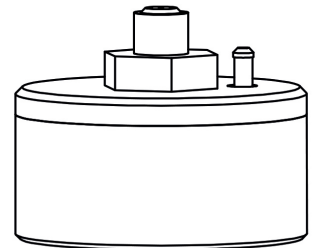
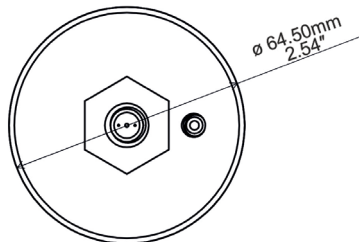
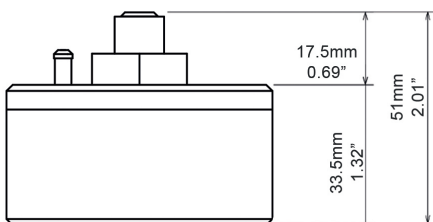


GMP P RF

Real Time Pressure Data Logger 0.01 to 5.0 BarA



- + Collects and transmits real time pressure and temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Can be remotely activated



Sensor type	Absolute pressure / Temp: 4 wires PT-100
- rigid	20 mm (0.8")
- temp. sensor size	1.5 x 8 mm (0.06 x 0.315")
- temp. cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- pressure	0.01 to 5 BarA
- temperature	-40°C to +140°C
Accuracy	±10 mbar ≤ 3 BarA @ 130°C; ±20 mbar ≤ 3 BarA @ 23°C; ±30 mbar > 3 BarA @ 130°C; ±50 mbar > 3 BarA @ 23°C; ±0.1°C from -40 to +140°C
Resolution	0.1 mbar; 0.01°C
Memory capacity	16,000 data points pressure / 16,000 data points temperature
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	122 g (4.30 oz)
- diameter	64.50 mm (2.54")
- height	51.0 mm (2.01")
Power	2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable Up to 6 months, based on usage
Battery lifetime	
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer Programs and reads unlimited number of loggers
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 RF: EN 300440-2 v1.3.1 (2009-03) Health & Safety: EN 60950-1/2006

Order Reference:
GMP-P_RF

Standard Calibration Points

hysteresis at 23°C and 130°C:

- 0.05 BarA
- 0.50 BarA
- 1.00 BarA
- 1.50 BarA
- 2.00 BarA
- 2.50 BarA
- 3.00 BarA
- 3.50 BarA
- 4.00 BarA
- 4.50 BarA
- 5.00 BarA

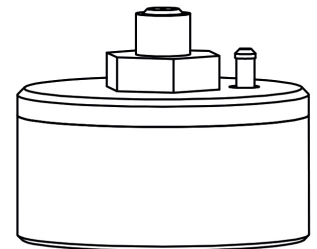
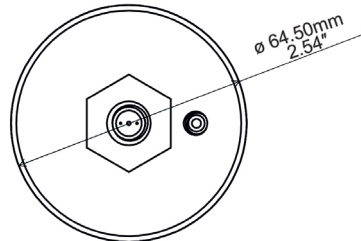
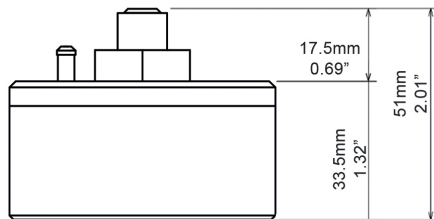


GMPF P RF

Real Time Pressure Data Logger 0.01 to 5.0 BarA



- + Collects and transmits real time pressure and temperature to XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Can be remotely activated



Sensor type	Absolute pressure / Temp: 4 wires PT-100
- flexible	480 mm (19") PTFE/SS
- customized	Up to 5000 mm (195")
- temp. sensor size	1.5 x 8 mm (0.06 x 0.315")
- temp. cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- pressure	0.01 to 5 BarA
- body temp.	-40°C to +140°C
- sensor temp.	-200°C to +200°C
Accuracy	±10 mbar ≤ 3 BarA @ 130°C; ±20 mbar ≤ 3 BarA @ 23°C; ±30 mbar > 3 BarA @ 130°C; ±50 mbar > 3 BarA @ 23°C; ±0.1°C from -40 to +140°C
Resolution	0.1mbar; 0.01°C
Memory capacity	16,000 data points pressure / 16,000 data points temperature
Sampling rate	1 sec to 24 hours
Transmission	Simultaneous: maximum 20 loggers Sequential: unlimited
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	129 g (4.55 oz)
- diameter	64.50 mm (2.54")
- height	51.0 mm (2.01")
Power	2 x Lithium batteries, 0.35 g/each content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Antenna	Internal
Wireless range	121 m (400')
Radio frequency	2.4 GHz ISM band
Access point	USB to computer
Calibrations	Programs and reads unlimited number of loggers Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 RF: EN 300440-2 v1.3.1 (2009-03) Health & Safety: EN 60950-1/2006

Order Reference:
GMPF-P_RF

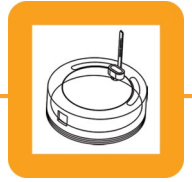
Standard Calibration Points

hysteresis at 23°C and 130°C:

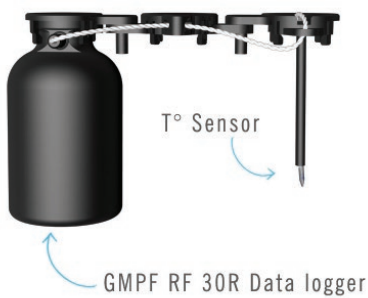
- 0.05 BarA
- 0.50 BarA
- 1.00 BarA
- 1.50 BarA
- 2.00 BarA
- 2.50 BarA
- 3.00 BarA
- 3.50 BarA
- 4.00 BarA
- 4.50 BarA
- 5.00 BarA



LYO CATERPILLAR



ALUS System Data Logger -90 to +140°C



The Lyo Caterpillar system is designed to offer full integration of real time data loggers with the automatic loading and unloading systems used with lyophilizers .

This system is composed of three different parts:

- The first part is the RF real time data logger that stores and transmits the temperature data
- The second part is a buffer vial
- The third piece is the vial containing the product where the temperature is to be measured.

The Lyo Caterpillar holds the three pieces together, allowing the whole system to move freely on the belt during the automatic loading and unloading process.



The temperature sensor is very small and has thin gauge sensor wire which combined result in the absolute minimum of influence on the process during the measurement. The sensor is held securely in position by the sensor holder thus allowing very accurate temperature measurement in the critical location at the bottom of the vial.

The buffer vial between the data logger and the measurement vial eliminates completely the influence of the data logger body during the measurement.



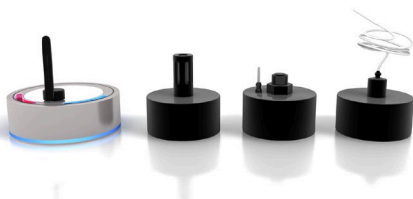
The materials of construction allow the Lyo Caterpillar to be used continuously at temperatures up to 250 °C / 482 °F and can be sterilized in steam autoclaves or in hydrogen peroxide.

The Lyo Caterpillar system comes by in default sizes of 10R or 30R vials and can be customized for different sized vials depending on users requirements.

Order Reference:

GMPF_RF_XX

where XX is the type of vial



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- » Quick response
- » Large equipment inventory

As a manufacturer of advanced validation systems for temperature, humidity and pressure analysis, Lives International holds impressive equipment inventory and can quickly respond to service requests involving large amounts of test points.

With over 15 years of experience in the field, Lives International has the expertise required for any thermal validation project.

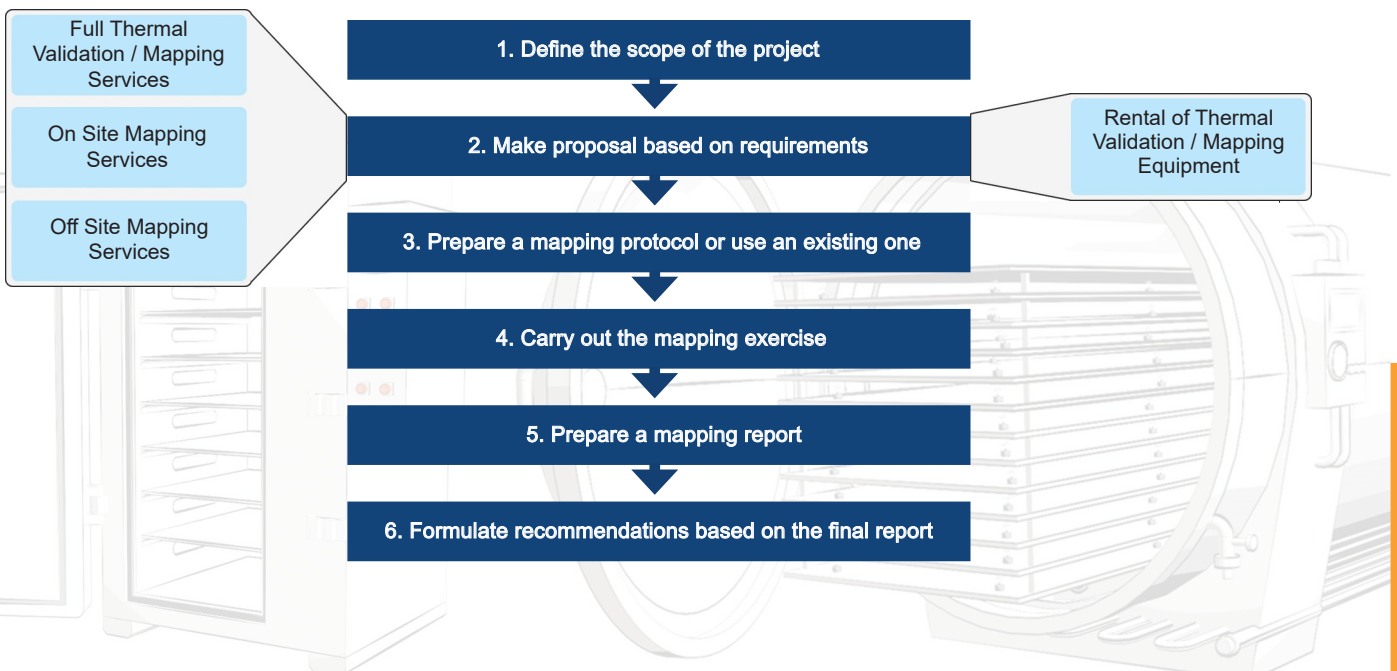
Our validation engineers are trained on Lives proprietary thermal validation system technology, avoiding training cost and providing a fast project turnaround.

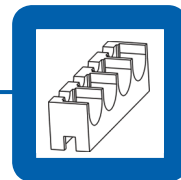
We provide subject matter experts and proprietary technology to perform regulatory compliant thermal validations / mappings of the following equipment (non-exhaustive list):

- Freeze-dryers (Lyophilizers)
- Freezers
- Refrigerators
- Cold rooms
- Warehouses
- Ovens
- Incubators
- Stability chambers
- Autoclaves
- Steam in place (SIP)
- Process line sterilization

GxP

Our Offer:

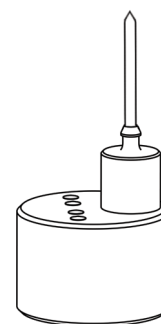
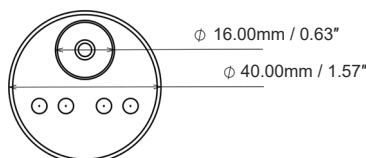
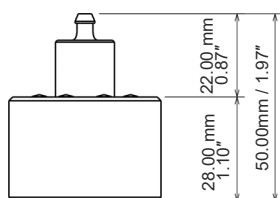




Standard Temperature Data Logger -90 to +140°C



- + Collects and stores temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication



Sensor type	4 wires PT-100
- rigid	20 mm (0.8")
- sensor size	1.5 x 8 mm (0.06 x 0.315")
- cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- body temp.	-90°C to ±140°C
- sensor temp.	-90°C to +140°C
Accuracy	±0.1°C from -90°C to +140°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	44 g (1.55 oz)
- diameter	40.0 mm (1.57")
- height	50.0 mm (1.97")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 12 months, based on usage
Docking station	USB to computer 4, 8, 12 and 20 ports available Programs and reads unlimited number of loggers
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 Health & Safety: EN 60950-1/2006

Order Reference:
GMP

Standard Calibration Points

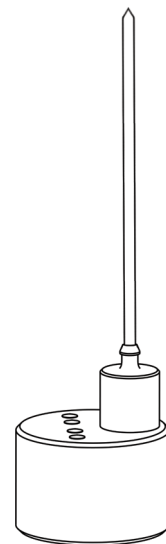
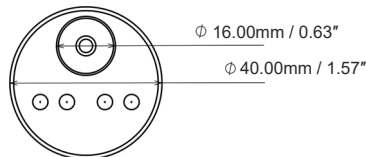
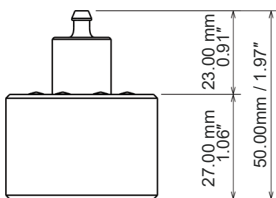
- -80°C
- 0°C
- 140°C



Standard Temperature Data Logger -90 to +140°C



- + Collects and stores temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication



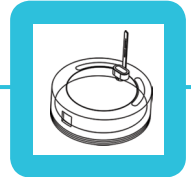
Sensor type	4 wires PT-100
- rigid	150 mm (6")
- customized	available
- sensor size	1.5 x 8 mm (0.06 x 0.315")
- cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- body temp.	-90°C to +140°C
- sensor temp.	-90°C to +140°C
Accuracy	±0.1°C from -90°C to +140°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	50 g (1.76 oz)
- diameter	40.0 mm (1.57")
- height	50.0 mm (1.97")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 12 months, based on usage
Docking station	USB to computer 4, 8, 12 and 20 ports available Programs and reads unlimited number of loggers
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 Health & Safety: EN 60950-1/2006

Order Reference:
GMPL

Standard Calibration Points

- -80°C
- 0°C
- 140°C

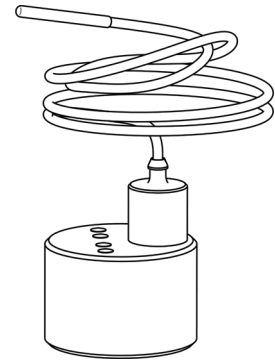
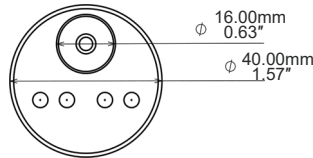
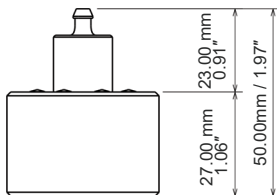




Standard Temperature Data Logger -90 to +140°C



- + Collects and stores temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site

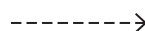


Sensor type	4 wires PT-100
- flexible	480 mm (19") PTFE/SS
- customized	Up to 5000 mm (195")
- sensor size	1.5 x 8 mm (0.06 x 0.315")
- cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- body temp.	-90°C to +140°C
- sensor temp.	-200°C to +200°C
Accuracy	±0.1°C from -90 to +140°C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	44 g (1.55 oz)
- diameter	40.0 mm (1.57")
- height	50.0 mm (1.97")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 12 months, based on usage
Docking station	USB to computer 4, 8, 12 and 20 ports available Programs and reads unlimited number of loggers
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 Health & Safety: EN 60950-1/2006

Order Reference:
GMPF

Standard Calibration Points

- -80°C
- 0°C
- 140°C

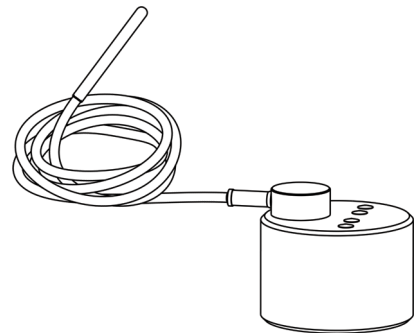
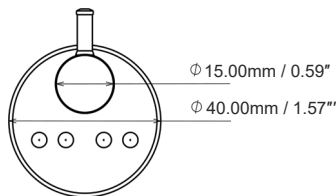
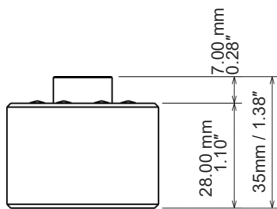


GMPF LP

Standard Temperature Data Logger -90 to +140°C



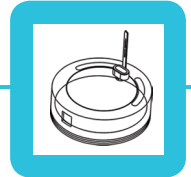
- + Collects and stores temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site



Sensor type	4 wires PT-100	<u>Order Reference:</u> GMPF-LP
- flexible	480 mm (19")	
- customized	Up to 5000 mm (195")	<u>Standard Calibration Points</u>
- sensor size	1.5 x 8 mm (0.06 x 0.315")	
- cross section	1.77 mm ² (0.0027 inch ²)	• -80°C
Operating Range		• 0°C
- body temp.	-90°C to +140°C	• 140°C
- sensor temp.	-200°C to +200°C	
Accuracy	±0.1°C from -90 to +140°C	
Resolution	0.01°C	
Memory capacity	32,000 data points	
Sampling rate	1 sec to 24 hours	
Internal clock Drift	4 sec / 24 h @ + 23 °C	
Mechanical		
- material	Peek 1000 - FDA compliant	
- enclosure	IP-68	
- weight	44 g (1.55 oz)	
- diameter	40.0 mm (1.57")	
- height	35.0 mm (1.38")	
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable	
Battery lifetime	Up to 12 months, based on usage	
Docking station	USB to computer 4, 8, 12 and 20 ports available	
Calibrations	Programs and reads unlimited number of loggers	
	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory	
	User: Closed loop user calibration, using XpertLog [®] Software	
Certification	EMC: EN 60601-1-2 / 2007	
	Health & Safety: EN 60950-1/2006	



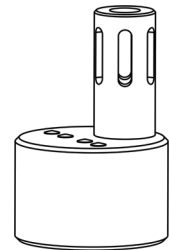
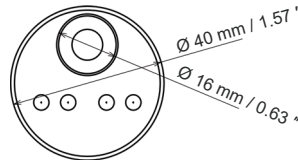
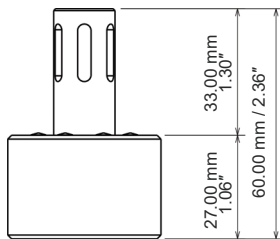
GMP RH



Standard Humidity Data Logger 0-100% RH



- + Collects and stores humidity and temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication



Sensor type	RH: capacitive / Temp: 4 wires PT-100
- rigid	20 mm (0.8")
- temp. sensor size	1.5 x 8 mm (0.06 x 0.315")
- temp. cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- humidity	0 to 100% RH
- body temp.	-40°C to +100°C
- sensor temp.	-40°C to +100°C
Accuracy	±2.0% RH, 0% to 100% non condensing at 20°C to 45°C ±0.1°C from -40°C to +100°C
Resolution	0.01% RH; 0.01°C
Memory capacity	16,000 data points humidity / 16,000 data points temperature
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-51
- weight	43 g (1.52 oz)
- diameter	40.0 mm (1.57")
- height	60.0 mm (2.36")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 12 months, based on usage
Docking station	USB to computer 4, 8, 12 and 20 ports available
Calibrations	Programs and reads unlimited number of loggers Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 Health & Safety: EN 60950-1/2006

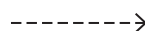
Order Reference:
GMP-RH

Standard Calibration Points

- 25° C / 20%RH
- 25° C / 45%RH
- 30° C / 65%RH
- 40° C / 75%RH

Upon special request:

- 45° C / 90%RH

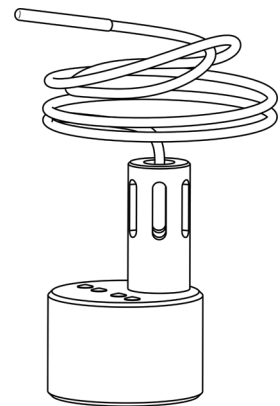
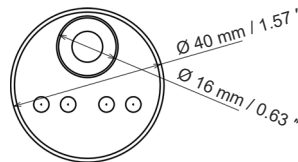
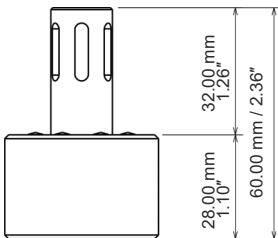


GMPF RH

Standard Humidity Data Logger 0-100% RH



- + Collects and stores humidity and temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication



Sensor type	RH: capacitive / Temp: 4 wires PT-100
- flexible	480 mm (19")
- customized	Up to 5000 mm (195")
- temp. sensor size	1.5 x 8 mm (0.06 x 0.315")
- temp. cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- humidity	0 to 100% RH
- body temp.	-40°C to +100°C
- sensor temp.	-200°C to +200°C
Accuracy	±2.0% RH, 0% to 100% non condensing at 20°C to 45°C
	±0.1°C from -40°C to +100°C
Resolution	0.01% RH; 0.01°C
Memory capacity	16,000 data points humidity / 16,000 data points temperature
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-51
- weight	43 g (1.52 oz)
- diameter	40.0 mm (1.57")
- height	60.0 mm (2.36")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 12 months, based on usage
Docking station	USB to computer
	4, 8, 12 and 20 ports available
Calibrations	Programs and reads unlimited number of loggers
	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	Health & Safety: EN 60950-1/2006

Order Reference:
GMPF-RH

Standard Calibration Points

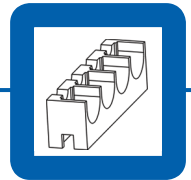
- 25° C / 20%RH
- 25° C / 45%RH
- 30° C / 65%RH
- 40° C / 75%RH

Upon special request:

- 45° C / 90%RH



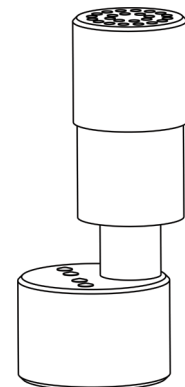
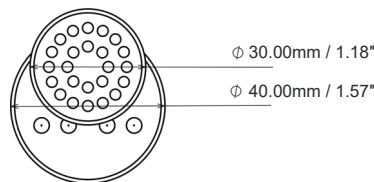
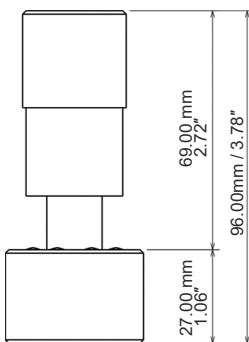
GMP P



Standard Pressure Data Logger 0.01-5.0 BarA



- + Collects and stores pressure and temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication



Sensor type	Absolute pressure / Temp: 4 wires PT-100
- rigid	20 mm (0.8")
- temp. sensor size	1.5 x 8 mm (0.06 x 0.315")
- temp. cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- pressure	0.01 BarA to 5.0 BarA
- body temp.	-40°C to +140°C
- sensor temp.	-40°C to +140°C
Accuracy	±10 mbar ≤ 3 BarA @ 130°C; ±30 mbar > 3 BarA @ 130°C ±20 mbar ≤ 3 BarA @ 23°C; ±50 mbar > 3 BarA @ 23°C ±0.1°C from -40 °C to 140 °C
Resolution	0.1 mbar; 0.01°C
Memory capacity	16,000 data points pressure / 16,000 data points temperature
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	77 g (2.72 oz)
- diameter	40.0 mm (1.57")
- height	96.0 mm (3.78")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 12 months, based on usage
Docking station	USB to computer 4, 8, 12 and 20 ports available Programs and reads unlimited number of loggers
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 Health & Safety: EN 60950-1/2006

Order Reference:
GMP-P

Standard Calibration Points hysteresis at 23°C and 130°C:

- 0.05 BarA
- 0.50 BarA
- 1.00 BarA
- 1.50 BarA
- 2.00 BarA
- 2.50 BarA
- 3.00 BarA
- 3.50 BarA
- 4.00 BarA
- 4.50 BarA
- 5.00 BarA

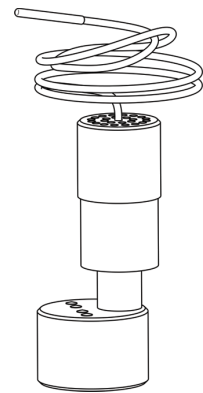
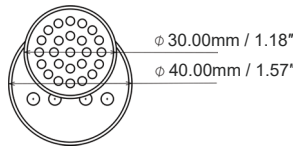
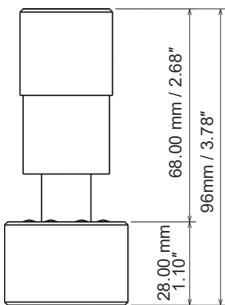


GMPF P

Standard Pressure Data Logger 0.01 to 5.0 BarA



- + Collects and stores pressure and temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication



Order Reference:
GMPF-P

Sensor type	Absolute pressure / Temp: 4 wires PT-100
- flexible	480 mm (19")
- customized	Up to 5000 mm (195")
- temp. sensor size	1.5 x 8 mm (0.06 x 0.315")
- temp. cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- pressure	0.01 to 5.0 BarA
- body temp.	-40°C to +140°C
- sensor temp.	-200°C to +200°C
Accuracy	±10 mbar ≤ 3 BarA @ 130°C; ±20 mbar ≤ 3 BarA @ 23°C
	±30 mbar > 3 BarA @ 130°C; ±50 mbar > 3 BarA @ 23°C
	±0.1°C from -40 °C to 140 °C
Resolution	0.1 mbar; 0.01°C
Memory capacity	16,000 data points pressure / 16,000 data points temperature
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	77 g (2.72 oz)
- diameter	40.0 mm (1.57")
- height	96.0 mm (3.78")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 12 months, based on usage
Docking station	USB to computer
	4, 8, 12 and 20 ports available
Calibrations	Programs and reads unlimited number of loggers
	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	Health & Safety: EN 60950-1/2006

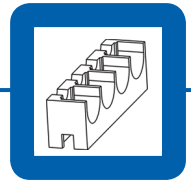
Standard Calibration Points

hysteresis at 23°C and 130°C:

- 0.05 BarA
- 0.50 BarA
- 1.00 BarA
- 1.50 BarA
- 2.00 BarA
- 2.50 BarA
- 3.00 BarA
- 3.50 BarA
- 4.00 BarA
- 4.50 BarA
- 5.00 BarA



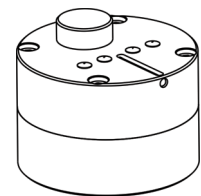
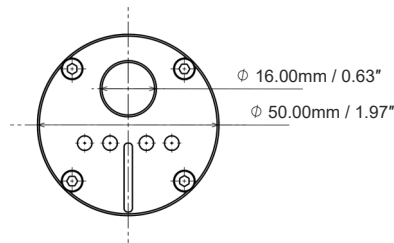
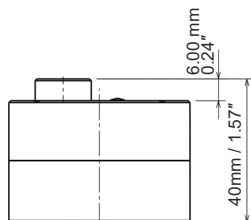
GMP SW



Stopper Washer Temperature Data Logger -40 to +140°C



- + Collects and stores temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication



Sensor type	4 wires PT-100
- rigid	20 mm (0.8")
- sensor size	1.5 x 8 mm (0.06 x 0.315")
- cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- body temp.	-40°C to +140°C
- sensor temp.	-40°C to +140°C
Accuracy	±0.1°C from -40 °C to +140 °C
Resolution	0.01°C
Memory capacity	32,000 data points
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-68
- weight	91 g (3.21 oz)
- diameter	50.0 mm (1.97")
- height	40.0 mm (1.57")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 12 months, based on usage
Docking station	USB to computer 4, 8, 12 and 20 ports available
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007 Health & Safety: EN 60950-1/2006

Order Reference:
GMP_SW

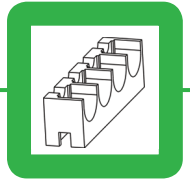
Standard Calibration Points

- -40°C
- 0°C
- 140°C



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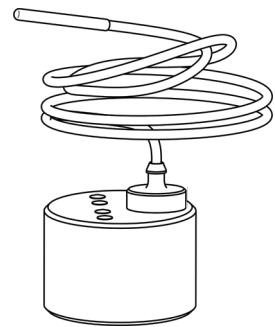
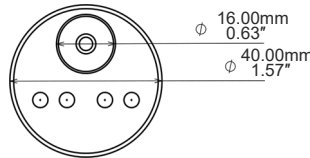
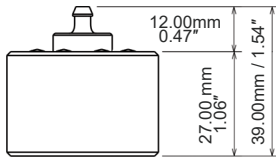
GDPF NBF



Standard Temperature Data Logger -40 to +85°C



- + Collects and stores temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site



Sensor type	4 wires PT-100	<u>Order Reference:</u> GDPF_NBF <u>Standard Calibration Points</u> <ul style="list-style-type: none"> • -40°C • 0°C • 85°C
- flexible	480 mm (19") PTFE/SS	
- customized	Up to 5000 mm (195")	
- sensor size	1.5 x 8 mm (0.06 x 0.315")	
- cross section	1.77 mm ² (0.0027 inch ²)	
Operating Range		
- body temp.	-40°C to +85°C	
- sensor temp.	-40°C to +85°C	
Accuracy	±0.1°C from -40°C to +85°C	
Resolution	0.01 °C	
Memory capacity	32,000 data points	
Sampling rate	1 sec to 24 hours	
Internal clock Drift	4 sec / 24 h @ + 23 °C	
Mechanical		
- material	POM-C; FDA compliant	
- enclosure	IP-67	
- weight	44 g (1.55 oz)	
- diameter	40.0 mm (1.57")	
- height	50.0 mm (1.97")	
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable	
Battery lifetime	Up to 12 months, based on usage	
Docking station	USB to computer 4, 8, 12 and 20 ports available	
Calibrations	Programs and reads unlimited number of loggers Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory User: Closed loop user calibration, using XpertLog® Software	
Certification	EMC: EN 60601-1-2 / 2007 Health & Safety: EN 60950-1/2006	

Standard Calibration Points

- -40°C
- 0°C
- 85°C

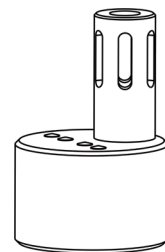
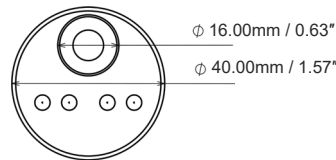
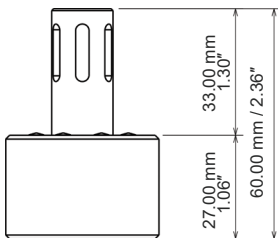


GDP RH

Standard Humidity Data Logger 15 to 95% RH



- + Collects and stores humidity and temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication



Sensor type	RH: capacitive / Temp: 4 wires PT-100
- fixed	20 mm (0.8")
- temp. sensor size	1.5 x 8 mm (0.06 x 0.315")
- temp. cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- humidity	15% to 95% RH
- body temp.	-40°C to +85°C
- sensor temp.	-40°C to +85°C
Accuracy	±2.0% RH @ +23°C (15-60% RH)
	±3.0%RH @ +23°C (60-95% RH)
	±0.1°C from -40 °C to 85 °C
Resolution	0.01% RH
Memory capacity	16,000 data points RH / 16,000 data points temperature
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Mechanical	
- material	POM-C; FDA compliant
- enclosure	IP-51
- weight	45 g (1.58 oz)
- diameter	40.0 mm (1.57")
- height	60.0 mm (2.36")
Power	1 x Lithium battery, 0.35 g Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 12 months, based on usage
Docking station	USB to computer
	4, 8, 12 and 20 ports available
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog [®] Software
Certification	EMC: EN 60601-1-2 / 2007
	Health & Safety: EN 60950-1/2006

Order Reference:
GDP-RH

Standard Calibration Points

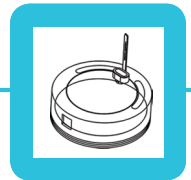
- 25° C / 20%RH
- 25° C / 45%RH
- 25° C / 65%RH
- 25° C / 75%RH

Upon special request:

- 25° C / 90%RH



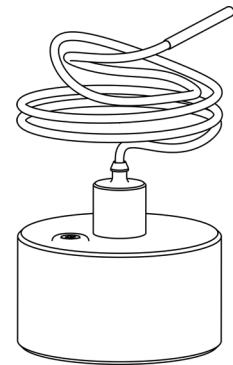
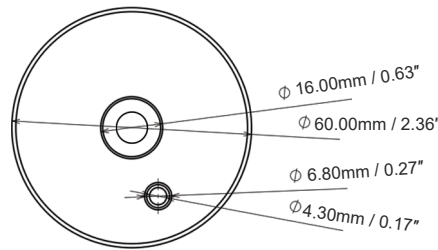
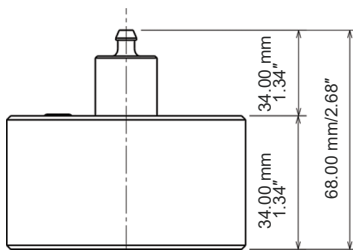
LMS T



Real Time Temperature Data Logger -40 to +85°C



- + Collects and stores temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication
- + Calibration can be performed on site

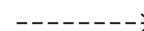
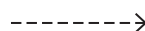


Order Reference:
LMS_T

Sensor type	4 wires PT-100
- flexible	1000 mm (39")
- customized	Up to 3000 mm (118")
- sensor size	1.5 x 8 mm (0.06 x 0.315")
- cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- body temp.	-40°C to +85°C
- sensor temp.	-200°C to +200°C
Accuracy	±0.1°C from -40 °C to 85 °C
Resolution	0.01°C
Memory capacity	32,000 data points temperature
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Logger update rate	5 sec to 24 h - user configurable
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-51
- weight	95 g (3.35 oz)
- diameter	60.0 mm (2.36")
- height	44.0 mm (1.73")
Power	External and internal
	2 x Lithium batteries, 0.35 g/each Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Wireless range	121 m (400')
Radio frequency	2.4 Ghz ISM band
Access point	USB to computer
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	RF: EN 300440-2 v1.3.1 (2009-03)
	Health & Safety: EN 60950-1/2006

Standard Calibration Points

- -40°C
- 0°C
- 85°C

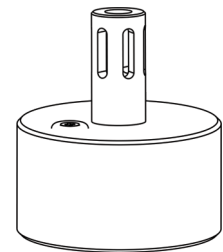
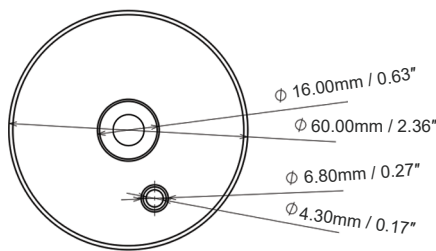
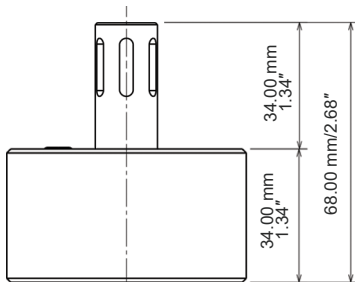


LMS RH

Real Time Humidity Data Logger 15 to 95% RH



- + Collects and stores humidity and temperature information in the internal memory
- + Recover the data through the docking station using XpertLog Software
- + ITS-90 calibration coefficients are stored in the internal memory
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database, active directory authentication



Sensor type	RH: capacitive / Temp: 4 wires PT-100
- rigid	20 mm (0.8")
- temp. sensor size	1.5 x 8 mm (0.06 x 0.315")
- temp. cross section	1.77 mm ² (0.0027 inch ²)
Operating Range	
- humidity	15% to 95% RH
- body temp.	-40°C to +85°C
- sensor temp.	-40°C to +85°C
Accuracy	±2.0% RH @ +23°C (15-60% RH)
	±3.0% RH @ +23°C (60-95% RH)
	±0.1°C from -40°C to +85°C
Resolution	0.01% RH; 0.01°C
Memory capacity	16,000 data points humidity / 16,000 data points temperature
Sampling rate	1 sec to 24 hours
Internal clock Drift	4 sec / 24 h @ + 23 °C
Logger update rate	5 sec to 24 h - user configurable
Mechanical	
- material	Peek 1000 - FDA compliant
- enclosure	IP-51
- weight	93 g (3.28 oz)
- diameter	60.0 mm (2.36")
- height	68.0 mm (2.68")
Power	External and internal
	2 x Lithium batteries, 0.35 g/each Lithium content classified UN3091 under IATA DGR section 3.9.2.6 compliant with ICAO/IATA packing instruction 970 user replaceable
Battery lifetime	Up to 6 months, based on usage
Wireless range	121 m (400')
Radio frequency	2.4 Ghz ISM band
Access point	USB to computer
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory
	User: Closed loop user calibration, using XpertLog® Software
Certification	EMC: EN 60601-1-2 / 2007
	RF: EN 300440-2 v1.3.1 (2009-03)
	Health & Safety: EN 60950-1/2006

Order Reference:

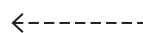
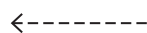
LMS_RH

Standard Calibration Points

- 25° C / 20%RH
- 25° C / 45%RH
- 25° C / 65%RH
- 25° C / 75%RH

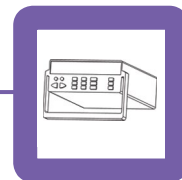
Upon special request:

- 25° C / 90%RH



XpertVal

Thermocouple systems



- + Conventional Tc's based system for thermal mapping and validation
- + 60 (up to 120) channels simultaneously
- + Rugged data logger used in industrial harsh environment, real time data display
- + High accuracy Tc after pre-calibration ($\pm 0.2^{\circ}\text{C}$)
- + Complies with FDA 21 CFR Part 11
- + Network ready: multiple users, centralized, server database

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 $+200^{\circ}\text{C}$ - kapton: -200°C to $+400^{\circ}\text{C}$ - others: up to $+1200^{\circ}\text{C}$
Accuracy	$\pm 0.2^{\circ}\text{C}$ after pre-calibration
Memory capacity	Internal memory: 20 Mb Backup memory: USB storage device compatible
Tc Tip	Teflon: teflon tip to prevent moisture on the wire Kapton: no tip
Sampling rate	120 channels - 5 sec 60 channels - 5 sec 20 channels - 2 sec 12 channels - 1 sec
Software	21 CFR Part 11
Module	Universal input module: 4 - 20 mA / 0-10 V / RTD (PT-100 2, 3 or 4 wires), thermocouples
Communication	USB XpertVal to PC LAN 2.4 GHz, 802.11b/g/n
Close loop calibration	Required when using thermocouples for thermal validation System uses temperature block and reference probe, software controlled reports generated automatically by the software
Reference probes	RTD, Fluke 1502, Lives XpertRTD
Dry blocks	Lives : PTC 125 : -90°C to $+125^{\circ}\text{C}$ / RTC 157 : -45°C to $+155^{\circ}\text{C}$ / RTC 159 : -100°C to $+155^{\circ}\text{C}$ RTC 700 : $+23^{\circ}\text{C}$ to $+700^{\circ}\text{C}$ Fluke 9190: -90°C to $+140^{\circ}\text{C}$; Fluke 9170: -45°C to $+140^{\circ}\text{C}$; Fluke 9172: $+35^{\circ}\text{C}$ to $+425^{\circ}\text{C}$
Calibrations	Factory: NIST / COFRAC
Users	Close loop calibration using XpertLog [®] software

Order Reference:
Lives XpertVal 60

XpertVal[®] Data Logger



Reference Probe
Fluke 1502



Ametek Dry Blocks



Fluke Dry Blocks



Thermocouples



Pressure Transducer



Wireless Module

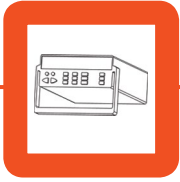


Reference Probe
Xpert RTD

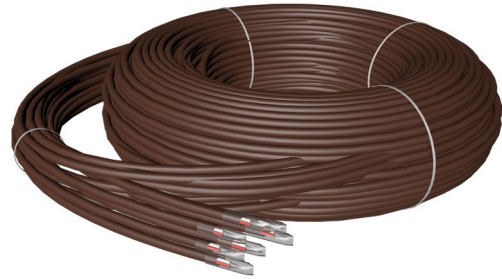
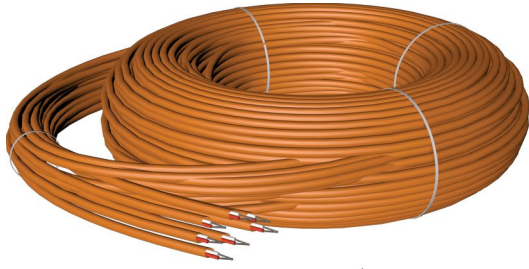


Fluke Oil Baths





Thermocouples



T and J type thermocouples for use with thermocouple systems like XpertVal[®].



Name	Reference	Max. Temp.	Description
Bundle of 20 premium Type T thermocouples, 24 gauge, 7 stranded	T-24-TT-7S-20-10	200 °C	Teflon coated, 32 feet (10 m) length, harnessed, numbered and labeled. One inch Teflon coated welded tip
Bundle of 20 premium Type T thermocouples, 24 gauge	T-24-TT-20-10	200 °C	Teflon coated, 32 feet (10 m) length, harnessed, numbered and labeled. One inch Teflon coated welded tip
Roll of premium Type T thermocouples, 24 gauge	RL-24-TT-1000	200 °C	Teflon coated, 1000 feet (300 m) length
Roll of premium Type T thermocouples, 24 gauge	RL-24-KK-1000	350 °C	Kapton coated, 1000 feet (300 m) length
Bundle of 20 premium Type T 24 gauge, kapton coated	T-24-KK-20-10	350 °C	Kapton coated, 32 feet (10m) length, harnessed, numbered and labeled
Bundle of 20 premium Type J thermocouples, 24 gauge	J-24-KK-20-10	400 °C	Kapton coated, 32 feet (10 m) length, harnessed, numbered and labeled, each thermocouple with welded tip
Bundle of 20 premium Type T thermocouples, 24 gauge (needle tip)	NT-24-TT-20-10	200 °C	Teflon coated, 32 feet (10m) length, harnessed, numbered and labeled, each thermocouple with needle tip
CUSTOM: Bundle of xx premium Type T/J thermocouples, teflon / kapton coated	T-24-TT-xx-yy T-24-KK-xx-yy J-24-KK-xx-yy	200 °C 350 °C 400 °C	Custom teflon / kapton coated, yy m length, harnessed, numbered and labeled, each thermocouple with welded tip

For best performance we recommend XpertVal[®] with wireless capability.



Xpert RTD



IRTD Display Interface Unit

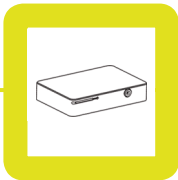


Stand alone display and interface between smart probes and Lives International Systems

- user selectable engineering units display:
°C, F, K and Ohm
- calculates and displays the minimum and maximum temperature values
- USB connection to XpertLog® systems
- radio frequency signal transmission to XpertLog® systems
- radio frequency transmission: 2.4 GHz
- wireless range: 400 feet (121m) line of sight
- automatic address detection of the smart probes
- weight: 0.66 lb. (300 gr.)
- RJ14 connection to Smart Probe / connectable to Validator
- easy-to-read display with perfect overview of the actual status
- state of the art design
- power supply: 12 V DC

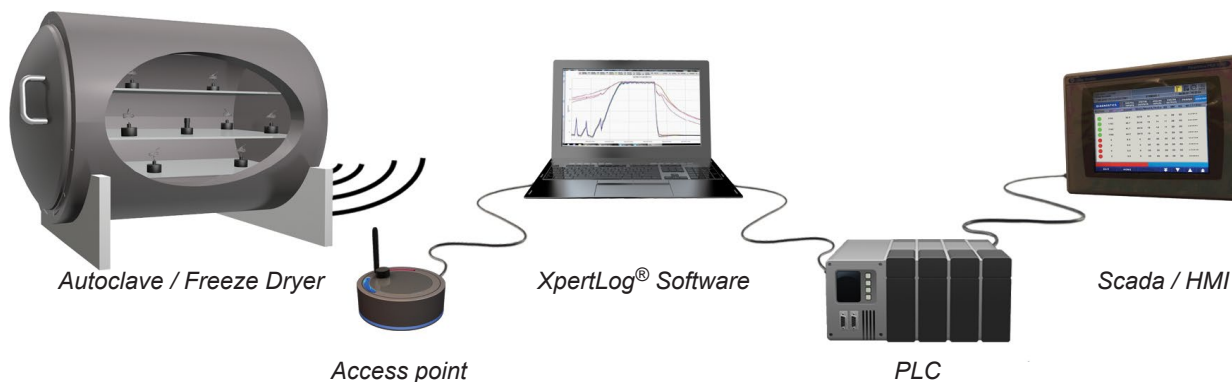
Order Reference:
Xpert-RTD





XpertLog SCADA

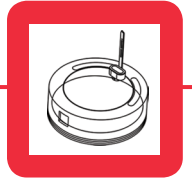
Interface Real Time Data Loggers with SCADA/HMI



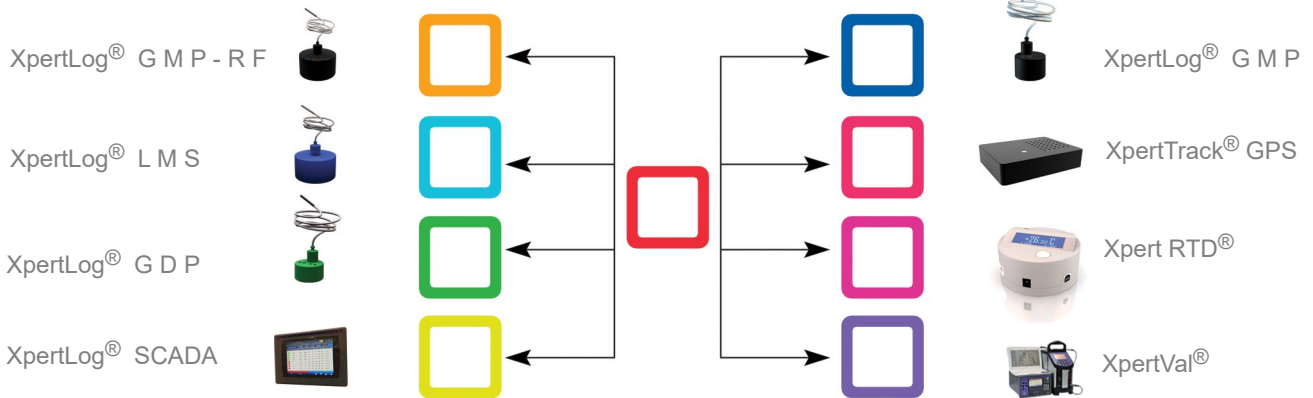
Purpose:	Interface XpertLog® real time data loggers with the SCADA/HMI of any equipment Display XpertLog® real time data on SCADA / HMI	
Applications:	Interface SCADA/HMI of autoclaves, freeze dryers, etc. with XpertLog® real time data loggers inside the equipment. Can be used to control the equipment based on Real Time Wireless Data Loggers*	
Scope:	Help users to meet FDA requirements with regards to Continued Process Verification Gain ongoing assurance during routine production that the process remains in a state of control Minimize time needed for parametric release of a sterile load after sterilization cycle Display real time behavior of the equipment using a third party system - XpertLog® Detect real time anomalies of product probes and allow users to take action	
Functionality:	Collect temperatures/pressures from XpertLog® real time data loggers and display simultaneously with the product probes on the SCADA/HMI * applies under conditions, call to discuss application and implementation	
Minimum recommended acquisition interval	10 sec	
Maximum number of loggers	20	
Accuracy		
- temperature	± 0.1°C	
- pressure	± 10 mbar @ 2 bar abs	
Resolution	0.01°C; 0.1 mbar	
Data integrity	21 CFR Part 11 compliant	
PLC compatibility	Any PLC	
Measurement range		
- temperature	-60 to 140°C	
- pressure	0.01 to 5 bar abs.	
Memory capacity	32,000 data points -16,000 p / 16,000 temp.	
Battery lifetime	Up to 6 months, based on usage	
Internal clock drift	4 sec / 24 h @ +23°C	
Access Point	USB connection	
Material	Peek 1000 - FDA compliant	
Radio frequency	2.4 GHz ISM band	
Enclosure	IP-68	
Calibrations	Factory: Traceable NIST / COFRAC - ITS-90 coefficients stored in the internal memory	
	User: Close loop calibration, using XpertLog® Software	
Certification	EMC: EN 60601-1-2 / 2007	
	RF: EN 300440-2 v1.3.1 (2009-03)	
	Health Safety: EN 60950-1/2006	



XpertLog Software



Connect All Your Equipment To One Software



Features:

- **create reliable reports** - all calculations are performed after the data is downloaded from the loggers
- **split the raw data** stored inside loggers during several tests in as many tests as performed
- **create:**
 - raw data reports and F value reports
 - trend reports
 - statistic reports
 - image reports
 - steam saturation reports
 - calibration certificate report
 - 3D reports
- **assign verifications** at the performed tests
- **create custom calculations** using the "Virtual Channels"
- **add comments** in the header of the reports
- centralized database, active directory authentication

USB communication with:

- data loggers
- temperature blocks
- reference probes

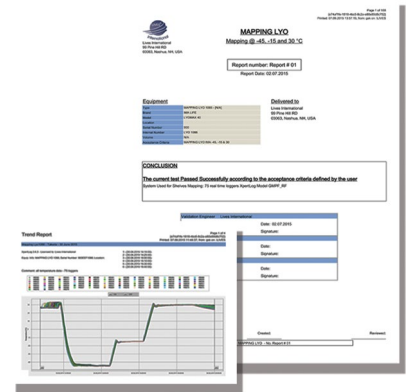
4 access levels:

- administrator
- user
- reporter
- reviewer

Close loop calibration:

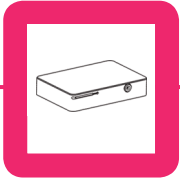
- calibration / verification of the sensors before running a test
- verification of the loggers after running a test
- fully automated calibration - the calibration equipment controlled by the software

- use of templates to create final reports
- create a library of users / organizations
- create acceptance criteria templates
- create a library of equipments
- generate final reports
- all the reports generated by the software merged in one single report
- table of contents
- conclusion of the report in the first page
- acceptance criteria
- summary of the results
- 3D view
- trends
- steam saturation
- images
- raw data
- calibration / verification report
- calibration certificates
- advanced acceptance criteria module



Order Reference:
XpertLogAll





XperTrack

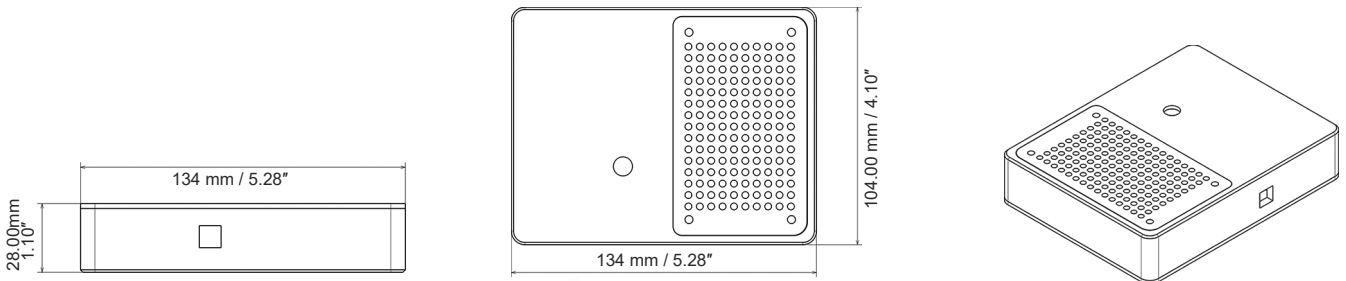
Real Time GPS Tracker -30 to +60°C



Remotely control your cold chain shipments
Prevents drug shortage
Allows you to control shipments integrity



- + Collects and stores temperature, position, light exposure and shocks data in the internal memory
- + Alarms are triggered when your products exceed the allowed temperature, light exposure and shocks during shipments
- + Geo-fencing (user definable)
- + Instantaneously detect if your shipment has been tampered with display the current position and temperature of your container
- + Complies with FDA 21 CFR Part 11



Sensor type
- flexible
- customized
- sensor size
- cross section

4 wires PT-100 / acceleration / light
480 mm (19")
Up to 5000 mm (195")
1.5 x 8 mm (0.06 x 0.315")
1.77 mm² (0.0027 inch²)

Operating Range
- standard
- extended

-30°C to +60°C
-200°C to +200°C (sensor only)

Accuracy
Sensitivity
Memory capacity

±0.1°C
0.01°C
128,000 data points

Data sampling rate
- temperature/position
- shocks
Data update rate

30 sec to 24 hours - user configurable
Instantaneous on event
20 min to 24 h - user configurable
(typically 6 hours)

Mechanical
- material
- enclosure
- weight
- size (L/I/h)

Ertacetal - FDA compliant
IP-30
375 g (13.23 oz)
134/104/28 mm (5.28/4.10/1.10")

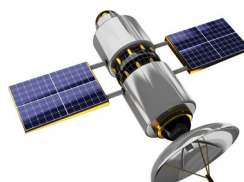
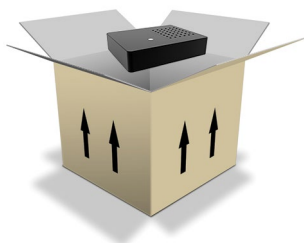
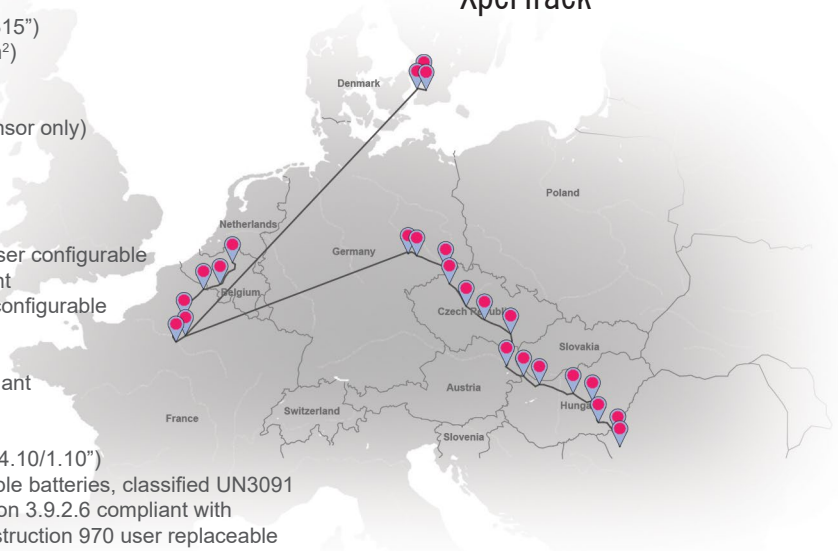
Power

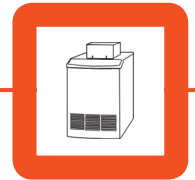
2 x Lithium rechargeable batteries, classified UN3091
under IATA DGR section 3.9.2.6 compliant with
ICAO/IATA packing instruction 970 user replaceable

Antenna
Calibrations

Internal
Factory: Traceable NIST / COFRAC - ITS-90 coefficients reside in the internal memory

Order Reference:
XperTrack





PTC Dry Blocks



The PTC Series matches lab features like a wide temperature range, high accuracy, stability, and speed. The PTC Series features an active dual zone temperature control which provides excellent temperature homogeneity in the well.

This PTC series is included in the close loop calibration feature provided by Xpertlog software.

Name	References	Range	Stability	Delivered with	Ref. probe
PTC-125A Ultra Cooler Dry Block	PTC-125A_Lives_230A_NON_F PTC-125A_Lives_115B_NON_F	-90 to 125 °C -130 to 257 °F	± 0.03 °C		- Internal
PTC-125C Ultra Cooler Dry Block	PTC_125C_Lives_230A_NON_R_126394-901_HS_CT PTC_125C_Lives_115B_NON_R_126394-901_HS_CT	-90 to 125 °C -130 to 257 °F	± 0.03 °C	- Accredited System Calibration	- External - Internal
PTC-155A Cooler Dry Block	PTC-155A_Lives230A_NON_F_CT PTC-155A_Lives115B_NON_F_CT	-25 to 155 °C -13 to 311°F	± 0.01 °C		- Internal
PTC-155C Cooler Dry Block	PTC-155C_Lives230A_NON_R_126394-901_HS_CT PTC-155C_Lives115B_NON_R_126394-901_HS_CT	-25 to 155 °C -13 to 311°F	± 0.01 °C	- Accredited System Calibration	- External - Internal
PTC-350A Dry Block	PTC-350A_Lives_230A_NON_F PTC-350A_Lives_115B_NON_F	33 to 350 °C 91 to 662 °F	± 0.02 °C		- Internal
PTC-350C Dry Block	PTC-350C_Lives_230A_NON_R2_915_HS_CT PTC-350C_Lives_115B_NON_R2_915_HS_CT	33 to 350 °C 91 to 662 °F	± 0.02 °C	- Accredited System Calibration	- External - Internal
PTC-425A Dry Block	PTC-425A_Lives_230_A_NON_F_CT PTC-425A_Lives_115_B_NON_F_CT	33 to 425 °C 91 to 797 °F	± 0.02 °C		- Internal
PTC-425C Dry Block	PTC-425C_Lives_230_A_NON_R2_915_HS_CT PTC-425C_Lives_115_B_NON_R2_915_HS_CT	33 to 425 °C 91 to 797 °F	± 0.02 °C	- Accredited System Calibration	- External - Internal

All PTC dry blocks are delivered with carrying case with trolley. Insert is not included.

AMETEK blocks

RTC Dry Blocks



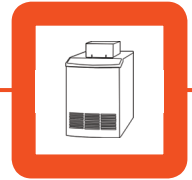
Lives International includes the most advanced and accurate temperature calibrators from Ametek in our thermal validation system. Xpertlog software controls the temperature blocks and reference probes during close loop calibrations. The calibration report is automatically generated after a calibration, contains the Id of the blocks and reference probes.

The RTC Series also feature active dual - and triple - zone temperature control which provides excellent temperature homogeneity in the well.

Name	Reference	Range	Stability	Delivered with	Ref. probe
RTC-156A Dual zone heating dry block	RTC-156A_Lives_230A_NON_CT RTC-156A_Lives_115B_NON_CT	-30 to 155 °C -22 to 311 °F	± 0.005 °C		- Internal
RTC-156C Dual zone heating dry block	RTC-156C_Lives_230A_NON_DLC_R2_915_HS_CT RTC-156C_Lives_115B_NON_DLC_R2_915_HS_CT	-30 to 155 °C -22 to 311 °F	± 0.005 °C	- Accredited System Calibration	- External (-60°C-160°C, DLC sensor STS200A915) & - Internal
RTC-157A Dual zone heating dry block	RTC-157A_Lives_230A_NON_CT RTC-157A_Lives_115B_NON_CT	-45 to 155 °C -49 to 311°F	± 0.005 °C		- Internal
RTC-157C Dual zone heating dry block	RTC-157C_Lives_230A_NON_DLC_R2_915_HS_CT RTC-157C_Lives_115B_NON_DLC_R2_915_HS_CT	-45 to 155 °C -49 to 311°F	± 0.005 °C	- Accredited System Calibration	- External (-60°C-160°C, DLC sensor STS200A915) & - Internal
RTC-158A Dual zone heating dry block & mini oil bath	RTC-158A_Lives_230A_MXX_BAT_F_CT RTC-158A_Lives_115B_MXX_BAT_F_CT	-22 to 155 °C -8 to 311°F	± 0.02 °C		- Internal
RTC-158C Dual zone heating dry block	RTC-158C_Lives_230A_MXX_BAT_DLC_R2_916_HS_CT RTC-158C_Lives_115B_MXX_BAT_DLC_R2_916_HS_CT	-22 to 155 °C -8 to 311°F	± 0.01 °C	- Accredited System Calibration	- External (-60°C-160°C, DLC sensor STS200A926) & - Internal
RTC-159A Ultra Low Cooler Dry Block	RTC-159A_Lives_230A_NON_F RTC-159A_Lives_115B_NON_F	-100 to 155 °C -148 to 311°F	± 0.03 °C		- Internal
RTC-159C Ultra Low Cooler Dry Block	RTC-159C_Lives_230A_NON_DLC_R2_917_HS RTC-159C_Lives_115B_NON_DLC_R2_917_HS	-100 to 155 °C -148 to 311°F	± 0.03 °C	- Accredited System Calibration	- External (-100°C-160°C, DLC sensor STS200A917) & - Internal

All RTC dry blocks are delivered with carrying case with trolley. Insert is not included.

All C models (ex RTC-157C) include an internal ref. probe and an external with 90° angled and 4 mm diameter.



Temperature Calibration Products



Oil baths

Lives International provides temperature calibration and oil bath under OEM agreement with Fluke. They offer unsurpassed stability and uniformity, a large working volume, and flexibility for performing thermometer calibration or calibrating a variety of temperature sensors. Our Calibration temperature baths include: compact, deep-well, hot, cold, resistor, and custom baths.

Name	Reference	Temperature range	Stability	Weight
Hart Oil Bath	7320	-20 °C to 150 °C (-4 °F to 302 °F)	± 0.005 °C	35.4 kg
Hart Oil Bath	7340	-40 °C to 150 °C (-40 °F to 302 °F)	± 0.005 °C	35.4 kg
Hart Oil Bath	7380	-80 °C to 100 °C (-112 °F to 212 °F)	± 0.006 °C	52 kg

Dry blocks

Dry-block calibrators (dry-wells) and Micro-Baths are precision temperature sources that provide stable and uniform temperature environments for calibrating temperature sensors, thermometers, and thermal switches. We offer a variety of dry-block calibrators and Micro-Baths with high accuracy, wide temperature range, speed to temperature, interchangeable inserts, and the ability to read reference probes, thermal switches, and 4-20 mA output from temperature transmitters.

Name	Reference	Temperature range	Stability	Weight
Hart Dry Block 9170	9170-DW-156	-45 °C to 140 °C (-49 °F to 284 °F)	± 0.005 °C	15 kg
Hart Dry Block	9170-R-156	-45 °C to 140 °C (-49 °F to 284 °F)	± 0.005 °C	15 kg
Hart Dry Block 9172	9172-DW-156	35 °C to 425 °C (95 °F to 797 °F)	± 0.005 °C to 0.01 °C	13.2 kg
Hart Dry Block	9172-R-156	35 °C to 425 °C (95 °F to 797 °F)	± 0.005 °C to 0.01 °C	13.2 kg
Hart Dry Block	9190-DW-156	-95 °C to 140 °C (-139 °F to 284 °F)	± 0.015 °C	16 kg
Hart Dry Block	9190-P-156	-95 °C to 140 °C (-139 °F to 284 °F)	± 0.015 °C	16 kg



Feedthrough

Feedthrough assembly to pass 20/30 thermocouples into autoclaves

Order Reference: **PRSET20/ PRSET30**



Shelf for Loggers Calibration

Shelf for data loggers calibration in dry blocks

Order Reference: **DLS**



Y/DN50

Stainless steel Y adapter.
Connects:
- 1 port to the autoclave
- 1 port to a feedthrough
- 1 port to the pressure transducer

Order Reference: **Y/DN50**



Pressure Transducer

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

Order Reference: **PBMH25**



Dry Block Insert

Specific insert for validation in dry blocks.
Insert 20 Loggers/Tc & one reference probe

Order Reference: **AL, BR**



Shelf Mapping Cap

Temperature transfer adapter from the shelf to the logger's sensor during freeze dryers mappings

Order Reference: **LyoPuck_RF, LyoPuck_ST**



Fedegari Adapter

Adapter for Fedegari autoclave to feedthrough

Order Reference: **AD-PREST20**



Pliers

Tools to open loggers for battery replacement

Order Reference: **PL-ST, PL-RF, PL-Bio, PL-LMS**



Bracket

Mounting bracket for data loggers

Order Reference: **BR-RF, BR-ST**



Repeater

Repeater to extend the coverage area of the Access Point

Order Reference: **REX**



GMP Pipe

Adapter to insert data logger's sensor inside pipes

Order Reference: **GMP_1.5_PIPE**
GMP_2_PIPE



XpertVal Module

Module for connecting thermocouples to XpertVal data logger

Order Reference: **2638A-100**



Activation Point

Activates GMP RF and LMS wireless dataloggers

Order Reference: **ActP**



Lyo Caterpillar

Allows to measure product temperature inside a freeze-dryer (lyophilizer) and eliminate the influence from data logger

Order Reference: **VCX-XXR-XXml**



Sensor Holder

Cap with holder for flexible temperature sensor inside the vial
xx = vial neck diameter (mm)
yyy = sensor support length

Order Reference: **CSS-xx-yyy**

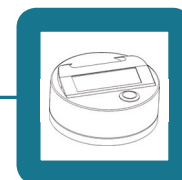


Twin Barel

Cap holders for product measurement inside vials

Order Reference: **TW BC_XXXml**

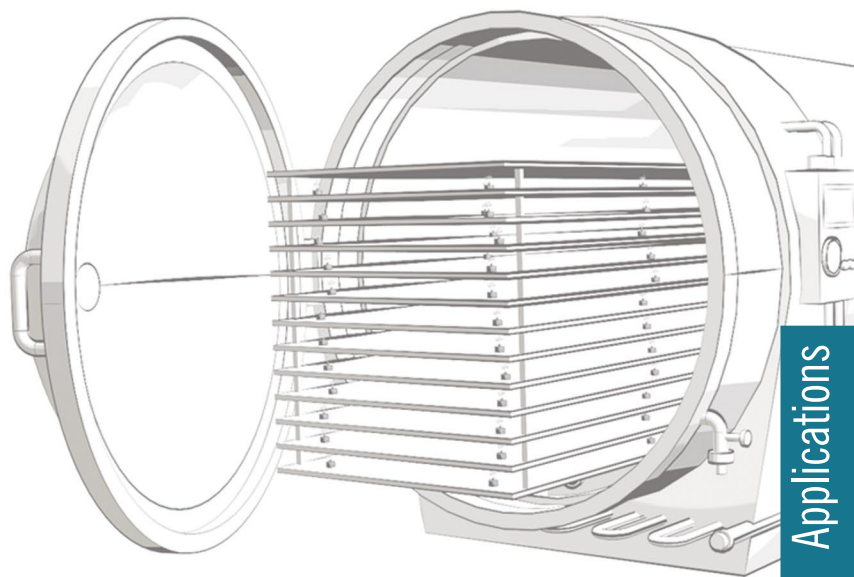
Applications



	Autoclaves	Incubators	Ovens to 140 °C	Steam in place	Stability chambers	Microbial detection systems	Warehouses	Lyophilizers
GMP RF								
GMPL RF								
GMPF RF								
GMPF LP RF								
GMP Custom RF								
GMP Bio RF								
GMPF 10R/SS/A								
GMPF 30R								
GMPF Mini RF								
GMPF CO ₂ RF								
GMP RH RF								
GMPF RH RF								
GMP P RF								
GMPF P RF								
GMP								
GMPL								
GMPF								
GMPF LP								
GMP SW								
GMP RH								
GMPF RH								
GMP P								
GMPF P								
GDPF NBF								
GDP RH								
LMS T								



Freezers -40°C	Ultra low freezers -80°C	Refrigerators	Cold rooms	Cold Chain Shipments	Package integrity	Remote monitoring	Logistics	Stopper washers
✓	✓	✓	✓	✓	—	—	✓	—
✓	✓	✓	✓	✓	—	—	✓	—
✓	✓	✓	✓	✓	—	—	✓	—
✓	✓	✓	✓	✓	—	—	✓	—
✓	✓	✓	✓	✓	—	—	✓	—
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