








## Team LIBERO - Technical Specifications

Team LIBERO	Ti1	Ti1-S	Ti1-L	Te1-N	Te1-P	Te1-U	THi1
Picture							
Type	Mobile Temperature / Temperature & Humidity Data Loggers						
Part number	4510	4511	4512	4514	4515	4517-A	4516
Application area	Transport monitoring for cold chain & ambient temperature goods		Standard temperature monitoring	Temperature monitoring for dry ice shipments	Liquid Nitrogen and cooling cabinets temperature monitoring	Temperature monitoring for dry ice shipments	Supply chain temperature & humidity monitoring
Record options	Multiple use	Single use	Multiple use			Single use	Multiple use
Record mode	Start/stop or Loop mode	Start/stop mode	Start/stop or Loop mode	Start/stop or Loop mode		Start/stop mode	Start/stop or Loop mode
Probe type	Internal NTC probe			LIBERO NTC probe with USB connector, not included in device price, cable lengths: 80 cm: 3094-LL008 1.5 m: 3094-LL015 3 m: 3094-LL03	Any PT100 probe, standard class A (IEC751), maximum cable length 3m, not included in device price	LIBERO single use NTC probe with USB connector, flat band cable, length 80cm, included in set 4517-A	Combined internal probe T/rH
Measurement range	-35..70 °C			-80..+85°C	-200..+200°C	-80..+85°C	-35..+70°C 0..100 %rH
Accuracy of device (without any external probe)	+/-0.2° for the range of -10°..+25°C +/-0.5° for the ranges of +25°..+70°C and -10°..-35°C			System accuracy with the ELRPO LIBERO temperature probes: +/- 0.2° -10°..+25°C +/- 0.5° -35°..-10.1°C +/- 0.5° +25.1°..+70°C +/- 1.0° +70.1°..+85°C +/- 1.8° -35°..-80°C	+/-0.3° -10°..+25°C +/-0.5° +25.1°..+200°C +/-0.5° -10.1°..-200°C System accuracy with any PT100 standard (IEC751) class A probe: +/-0.4° -10°..25°C	System accuracy with the ELRPO LIBERO temperature probe: +/- 0.2° -10°..+25°C +/- 0.5° -35°..-10.1°C +/- 0.5° +25.1°..+70°C +/- 1.0° +70.1°..+85°C +/- 1.8° -35.1°..-80°C	+/-0.5° 0°..+25°C +/-1.0° +25.1°..+70°C +/-1.0° +0.1°..-35°C +/- 2% 10.1% .. 90% rH +/- 3% 0% .. 10% rH +/- 3% 90.1%..100% rH

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<b>Resolution of measuring values</b>	1/10°						1/10° resp. 0.1%
<b>Memory capacity</b>	16'000 measuring data points						8'000 each T/rH
<b>Programmable measurement interval and display renewal</b>	1 to 60 minutes, programmable		2 to 60 minutes, programmable		3 to 60 minutes, programmable	2 to 60 minutes, programmable	3 to 60 minutes, programmable
<b>Programmable temperature alarms</b>	<ul style="list-style-type: none"> <li>- 2 alarm limits or</li> <li>- 5 multiple alarm ranges, conform with PDA Technical Report No 39 (Cold Chain Guidance for Medical Products: Maintaining the Quality of Temperature-sensitive Medicinal Products through the Transportation Environment)</li> </ul>						2 alarm limits only
<b>Start-up delay</b>	0 minutes to 1 day						
<b>Display</b>	Multifunction LCD, size: 23.5 x 23.5 mm (0.93 x 0.93 inch)						
<b>Display functionality</b>	<ul style="list-style-type: none"> <li>- Configuration Profile Identification</li> <li>- Current temperature/humidity measurement (last stored value)</li> <li>- Start &amp; End marking functionality with TRANSIT &amp; ARRIVED buttons</li> <li>- Status OK or ALARM at exposure</li> </ul>			<ul style="list-style-type: none"> <li>- Indicator whether and where limit value has been exposed</li> <li>- Remaining battery life in days</li> <li>- Statistical Data (min, max, average, MKT)</li> </ul>			
<b>Accessories, optional</b>	Simple Bracket, PN 4400-A		<ul style="list-style-type: none"> <li>- Simple Bracket, PN 4400-A</li> <li>- Alarm Bracket, PN 4405-A</li> </ul>	<ul style="list-style-type: none"> <li>- Terminal for connecting any NTC or PT100 probe up to 3m cable length, PN 4401-A</li> <li>- Alarm Bracket, PN 4405-A</li> </ul>	Insulation Case for Te1-U, PN 4410-A		<ul style="list-style-type: none"> <li>- Simple Bracket, PN 4400-A</li> <li>- Alarm Bracket, PN 4405-A</li> </ul>
<b>Alarm output to alarm bracket</b>	no		yes, full functionality for audio visual alarms (LED, buzzer) incl. internal relay for passing the alarm to an external system as siren or flash light, telephone or SMS dialing unit or to a Building Management System				
<b>PDF Data Logger</b>	Built-in PDF file generator that automatically establishes an evaluation file in PDF/A format including chart when Libero is plugged into USB port.						
<b>Evaluation report (Adobe® PDF/A)</b>	Includes a text area, a chart visualizing the temperature curve of the current transport section and the raw data of all transport sections. Additional 8 lines at 80 characters available for sender-specific information.						
<b>Battery life</b>	400 days	100 days	3 years			100 days	3 years
<b>Battery specification</b>	3.6 V Lithium						
<b>Interface</b>	USB – PC Universal Serial Bus			USB – PC Universal Serial Bus and connector to LIBERO temperature probes			USB – PC Universal Serial Bus
<b>Case</b>	ABS plastic material						
<b>Protection class</b>	IP 54						IP50
<b>Dimensions</b>	95 x 40 x 12 mm (3.8 x 1.6 x 0.5 inch)		102 x 40 x 19 mm (4.0 x 1.6 x 0.75 inch) without external probe				102 x 40 x 19 mm
<b>Weight</b>	40 g (1.29 oz)		45g (1.45 oz)	45 g (1.45 oz) without external probe			46g (1.48 oz)
<b>Availability</b>	In Stock				January 2010	In Stock	launch date t.b.a.
<b>Accessories, Optional Bracket – Price each</b>	Simple Bracket at \$27.00 ea. PN 4400-A		<ul style="list-style-type: none"> <li>- Simple Bracket PN 4400-A</li> <li>- Terminal Bracket only (No Audible or Visual) PN 4401-A</li> <li>- Alarm Bracket (Includes alarm contact, Audible &amp; Visual) PN 4405-A</li> </ul>				
<b>Datalogger configuration</b>	LIBERO Configuration Utility and LIBERO Smart Start (Pack & Go), available free of charge from <a href="http://www.pdf-logger.com">www.pdf-logger.com</a> .						