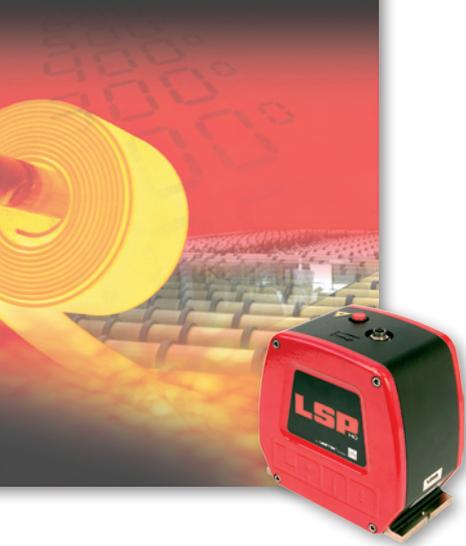


LAND

Thermal Imaging and Temperature Profiles for Continuous Process Monitoring and Quality Control



LSP_{HD} 10

600 to 1400 °C / 1112 to 2552 °F

LSP_{HD} 11

700 to 1500 °C / 1292 to 2732 °F

Compact, high performance linescanners which provide high definition thermal imaging from a combination of fast scan speeds and high resolution optics. The real-time processed data is provided via an industrial ethernet connection which is plug and play, installed by means of a single cable connection, which reduces installation time and costs.

**+industry leading 150 Hz scan speed
1000 samples at all scan frequencies+**

Steel Applications - Key Benefits

- + Process Investigation**
Displays can be used to identify and analyse problems.
- + Process Development**
Process modelling to improve process control
- + Quality Control**
Accurate thermal records are a critical aspect of product quality information
- + Process Control**
Provide real time displays of the product's thermal images in a variety of different display formats.

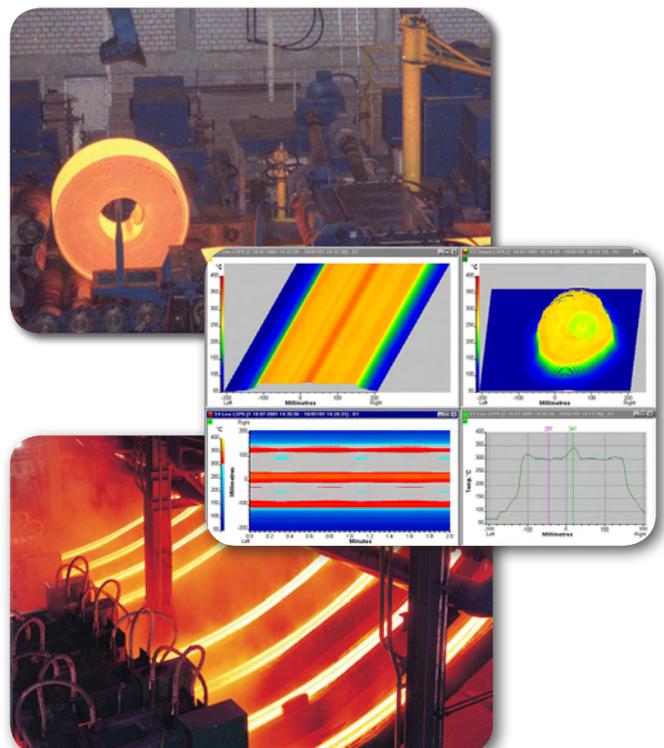
Photos (Top to bottom): Hot Strip Coiler, Thermal map - Hot Strip Mill, Continuous Caster

Key Applications - Steel

- + Continuous Caster
- + Reheat Furnace - Exit
- + Hot Strip Mill -
Roughing Mill Entry/Exit, Coil Box,
Edge Heaters
- + Hot Plate Mill -
Roughing Mill Entry/Exit

LSP_{HD} - Key Features

- + High resolution, optical system
- + Designed for operation in harsh industrial environments
- + Plug and play installation via a single Ethernet cable connection
- + Range of data output formats



Performance Specifications LSP_{HD} 10 (P/No. 804817) / LSP_{HD} 11 (P/No. 804818)

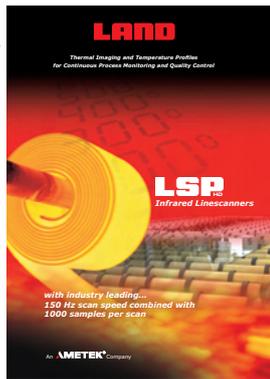
Temperature Range:	LSP_{HD} 10 600 to 1400 °C / 1112 to 2552 °F	LSP_{HD} 11 700 to 1500 °C / 1292 to 2732 °F
Wavelength:	1 µm	
Measurement Accuracy (1):	±2°C / 3.6°F	
Repeatability:	<0.5°C / <0.9°F	
Temp. Resolution typical:	<1°C / <1.8°F	
Drift with ambient temp:	≤ 1° indicated / 10° ambient	
Emissivity:	0.20 to 1.00	
Speed of Response:	≤ 1 µs	
Scan angle:	80° (software adjustable to 40° in 1° steps)	
Scan Speed:	10 to 150 Hz (User adjustable in 10 Hz steps)	
Samples/scan:	1000	
Field of View:	500:1 with user focusable optics (smallest spot size Ø 2mm/0.08 in) <i>static to 95% radiance</i>	
	1118:1 with user focusable optics (smallest spot size Ø 2mm/0.08 in) <i>static to 50% radiance</i>	
Focus Distance:	1m / 39.7 in to infinity (continuously adjustable by the user)	
Connection (signal/power):	Industrial Ethernet via M12 Connector / Power over Ethernet	
Signal Processing:	Up to 14 user configurable zones with min. / max. / average / quantile / average threshold	
Inputs/Outputs:	PoE (IEEE 802.3at) enabled TCP/IP Industrial Ethernet	
Ambient Temperature	5 to 60°C / 41 to 140°F (specified) 5 to 70°C / 41 to 158°F (operating)	
Dimensions (w x h x d):	206 x 209 x 100 mm / 8.1 x 8.2 x 3.9 inches	
Alignment Laser:	Class 2, maximum output 1.0 mW at 635 nm, IEC60825-1:2001 / Indicating scan plane & extent	
Environmental Sealing:	IP65	
EMC:	EN 61326 Class A; Low Voltage Directive EN61010-1	

Notes: (1) Applies 5 to 95% of range

LSP_{HD} Overview

A complete overview of the entire product range, including the key features and benefits of all models.

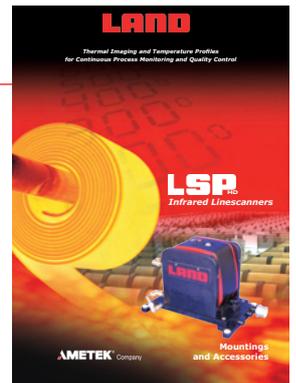
Ref **LSP_{HD} Overview 0210**



LSP_{HD} Mountings and Accessories

A complete overview of the entire range of mountings and accessories for the entire LSP_{HD} product range

Ref. **LSP_{HD} M&A 0210**



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Non-Contact Temperature Measurement Solutions

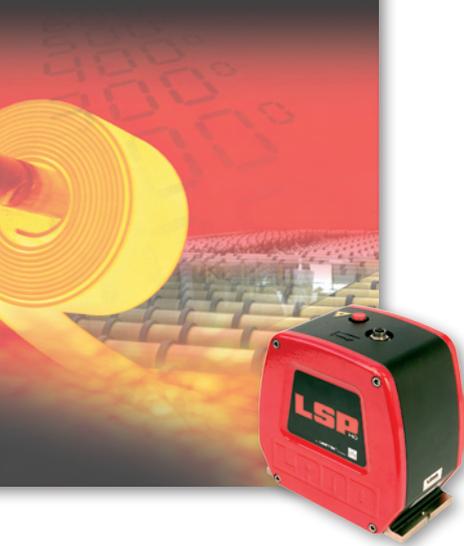


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LSP_{HD} 20

200 to 850 °C / 392 to 1562 °F

LSP_{HD} 21

300 to 1000 °C / 572 to 1832 °F

LSP_{HD} 22

400 to 1200 °C / 752 to 2192 °F

Compact, high performance linescanners which provide high definition thermal imaging from a combination of fast scan speeds and high resolution optics. The real-time processed data is provided via an industrial ethernet connection which is plug and play, installed by means of a single cable connection, which reduces installation time and costs.

**+industry leading 150 Hz scan speed
1000 samples at all scan frequencies+**

Steel Applications - Key Benefits

- + Process Investigation**
Displays can be used to identify and analyse problems.
- + Process Development**
Process modelling to improve process control
- + Quality Control**
Accurate thermal records are a critical aspect of product quality information
- + Process Control**
Provide real time displays of the product's thermal images in a variety of different display formats.

Photos (Top to bottom): Hot Strip Mill - Cooling Section, Galvanising line

Key Applications - Steel

- + Continuous Annealing Lines**
Top of snout before zinc pot
- + Galvanising Lines**
- + Hot Strip Mill - Cooling Section**
- + Hot Plate Mill - Run-out Table**

LSP_{HD} - Key Features

- + High resolution, user focusable optical system**
- + Designed for operation in harsh industrial environments**
- + Plug and play installation via a single Ethernet cable connection**
- + Range of data output formats**



Performance Specifications LSP_{HD} 20 (P/No. 804798) / LSP_{HD} 21 (P/No. 804799) / LSP_{HD} 22 (P/No. 804800)

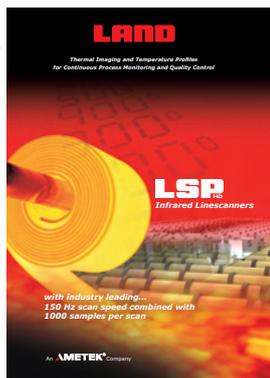
Temperature Range:	LSP_{HD} 20 200 to 850 °C / 392 to 1562 °F	LSP_{HD} 21 300 to 1000 °C / 572 to 1832 °F	LSP_{HD} 22 400 to 1200 °C / 752 to 2732 °F
Wavelength:	2.2 µm	1.9 µm	1.9 µm
Measurement Accuracy(1):	±2°C / 3.6°F		
Repeatability:	<0.5°C / <0.9°F		
Temp. Resolution typical:	≤1°C / ≤1.8°F		
Drift with ambient temp:	≤1° indicated / 10° ambient		
Emissivity:	0.20 to 1.00		
Speed of Response:	≤ 1.5 µs	≤ 1 µs	≤ 1 µs
Scan angle:	80° (software adjustable to 40°)		
Scan Speed:	10 to 150 Hz (User adjustable in 1 Hz steps)		
Samples/scan:	1000		
Field of View:	LSP _{HD} 20 - 300:1 with user focusable optics (smallest spot size Ø 2mm/0.08 in) <i>static to 95% radiance</i> LSP _{HD} 20 -1034:1 with user focusable optics (smallest spot size Ø 2mm/0.08 in) <i>static to 50% radiance</i>		
	LSP _{HD} 21&22 - 500:1 with user focusable optics (smallest spot size Ø 2mm/0.08 in) <i>static to 95% radiance</i> LSP _{HD} 21&22 - 1118:1 with user focusable optics (smallest spot size Ø 2mm/0.08 in) <i>static to 50% radiance</i>		
Focus Distance:	1m / 39.7 in to infinity (continuously adjustable by the user)		
Connection (signal/power):	Industrial Ethernet via M12 Connector / Power over Ethernet		
Signal Processing:	Up to 14 user configurable zones with min. / max. / average / quantile / average threshold		
Inputs/Outputs:	PoE (IEEE 802.3at) enabled TCP/IP Industrial Ethernet		
Ambient Temperature	5 to 60°C / 41 to 140°F (specified) 5 to 70°C / 41 to 158°F (operating)		
Dimensions (w x h x d):	206 x 209 x 100 mm / 8.1 x 8.2 x 3.9 inches		
Alignment Laser:	Class 2, maximum output 1.0 mW at 635 nm, IEC60825-1:2001 / Indicating scan plane & extent		
Environmental Sealing:	IP65		
EMC:	EN 61326 Class A; Low Voltage Directive EN61010-1		

Notes: (1) Applies 5 to 95% of range

LSP_{HD} Overview

A complete overview of the entire product range, including the key features and benefits of all models.

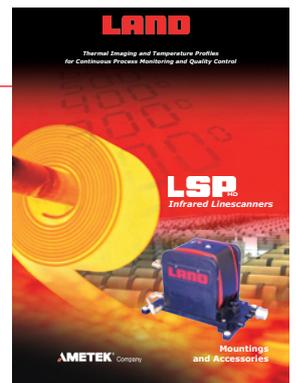
Ref **LSP_{HD} Overview 0310**



LSP_{HD} Mountings and Accessories

A complete overview of the entire range of mountings and accessories for the entire LSP_{HD} product range

Ref. **LSP_{HD} M&A 0310**



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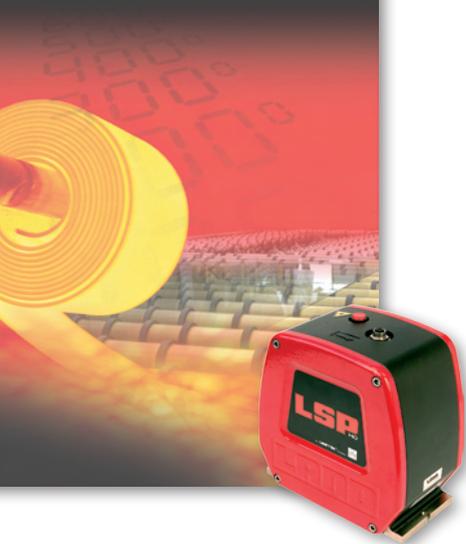


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LSP_{HD} 5FL

150 to 750 °C / 302 to 1382 °F

LSP_{HD} 50

150 to 750 °C / 302 to 1382 °F

LSP_{HD} 52

500 to 1100 °C / 932 to 2012 °F

Compact, high performance linescanners which provide high definition thermal imaging from a combination of fast scan speeds and high resolution optics. The real-time processed data is provided via an industrial ethernet connection which is plug and play, installed by means of a single cable connection, which reduces installation time and costs.

**+industry leading 150 Hz scan speed
1000 samples at all scan frequencies+**

Glass Applications - Key Benefits

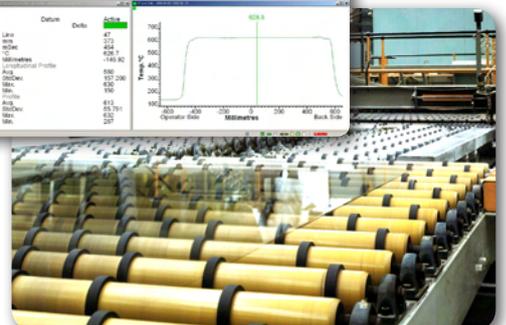
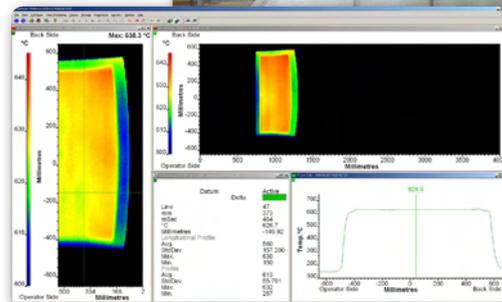
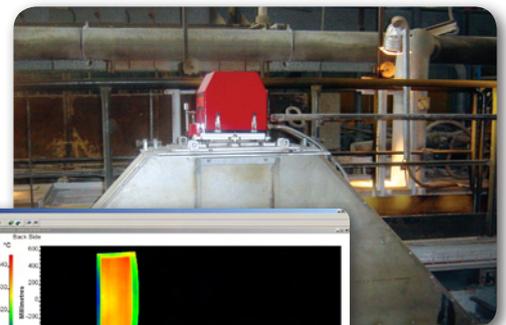
- + Process Investigation**
Displays can be used to identify and analyse problems.
- + Process Development**
Process modelling to improve process control
- + Quality Control**
Accurate thermal records are a critical aspect of product quality information
- + Process Control**
Provide real time thermal displays of the product in a variety of different display formats.

Key Applications - Glass

- + Float Glass Lines (LSP_{HD} 5L
Lehr & Lehr Exit
- + Glass Toughening / Tempering
- + Glass Forming / Bending
- + Glass Coating
- + Solar Panels

LSP_{HD} - Key Features

- + High resolution, optical system
- + Designed for operation in harsh industrial environments
- + Plug and play installation via a single Ethernet cable connection
- + Range of data output formats



Performance Specifications LSP_{HD} 5FL (P/No. 804801) / LSP_{HD} 50 (P/No. 804802) / LSP_{HD} 52 (P/No. 804803)

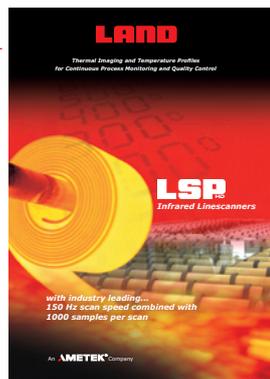
Temperature Range:	LSP_{HD} 5FL 150 to 750 °C / 302 to 1382 °F	LSP_{HD} 50 150 to 750 °C / 302 to 1382 °F	LSP_{HD} 52 500 to 1100 °C / 932 to 2012 °F
Wavelength:	5 µm nominal		
Measurement Accuracy(1):	±2°C / 3.6°F	±2°C / 3.6°F	±3 °C / ±6.4 °F
Repeatability:	<0.5°C / <0.9°F		
Temp. Resolution typical:	< 1 °C / < 1.8 °F	< 1 °C / < 1.8 °F	≤ 2.5 °C / ≤4.5 °F
Drift with ambient temp:	≤ 2° indicated / 10° ambient	≤ 2° indicated / 10° ambient	≤ 3° indicated / 10° ambient
Emissivity:	0.20 to 1.00		
Speed of Response: (Tau- linear output on rising edge)	≤ 5 µs	≤ 5 µs	≤ 5 µs
Scan angle:	80° (software adjustable to 40°)		
Scan Speed:	10 to 150 Hz (User adjustable in 1 Hz steps)		
Samples/scan:	1000		
Field of View:	12mm / 0.5 in for target distance less than 1200mm / 47.2 in 100:1 for target distance greater than 1200mm / 47.2 in <i>static to 95% radiance</i> 300:1 for target distance greater than 1200mm / 47.2 in <i>static to 50% radiance</i>		
Focus Distance:	Fixed Focus at 1200mm / 47.2 in		
Connection (signal/power):	Industrial Ethernet via M12 Connector / Power over Ethernet		
Signal Processing:	Up to 14 user configurable zones with min. / max. / average / quantile / average threshold		
Input/Outputs:	PoE (IEEE 802.3at) enabled TCP/IP Industrial Ethernet		
Ambient Temperature	5 to 60°C / 41 to 140°F (specified) 5 to 70°C / 41 to 158°F (operating)		
Dimensions (w x h x d):	206 x 209 x 100 mm / 8.1 x 8.2 x 3.9 inches		
Alignment Laser:	Class 2, maximum output 1.0 mW at 635 nm, IEC60825-1:2001 / Indicating scan plane & extent		
Environmental Sealing:	IP65		
EMC:	EN 61326 Class A; Low Voltage Directive EN61010-1		

Notes: (1) Applies 5 to 95% of range

LSP_{HD} Overview

A complete overview of the entire product range, including the key features and benefits of all models.

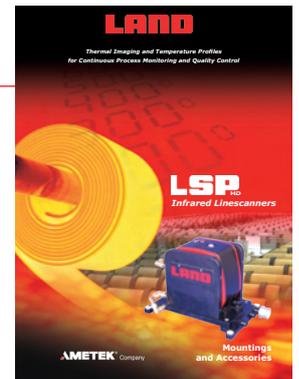
Ref **LSP_{HD}** Overview 0310



LSP_{HD} Mountings and Accessories

A complete overview of the entire range of mountings and accessories for the entire LSP_{HD} product range

Ref. **LSP_{HD}** M&A 0310



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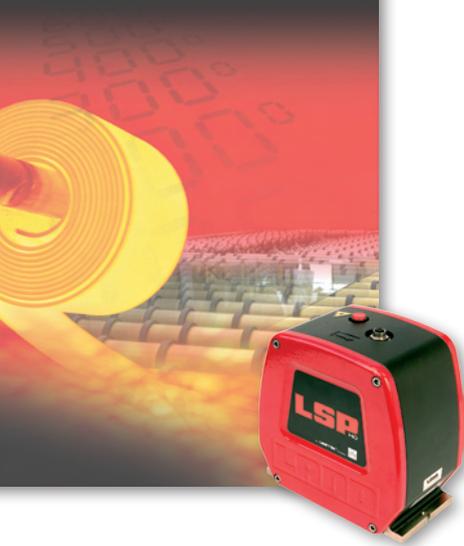


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LSP_{HD} 60

20 to 250 °C / 68 to 482 °F

LSP_{HD} 61

50 to 400 °C / 122 to 752 °F

LSP_{HD} 62

100 to 600 °C / 212 to 1112 °F

Compact, high performance linescanners which provide high definition thermal imaging from a combination of fast scan speeds and high resolution optics. The real-time processed data is provided via an industrial ethernet connection which is plug and play, installed by means of a single cable connection, which reduces installation time and costs.

**+industry leading 150 Hz scan speed
1000 samples at all scan frequencies+**

Key Benefits

- + Process Investigation**
Displays can be used to identify and analyse problems e.g. refractory linings on torpedo cars, hotspot detection on conveyors.
- + Process Development**
Process modelling to improve process control
- + Quality Control**
Accurate thermal records are a critical aspect of product quality information
- + Process Control**
Provide real time thermal displays of the product in different display formats.

Photos (Top to bottom): Coke Conveyor, Damage on a superclendar roll

Key Applications

- + Non-wovens - Paper rolls, webs, coated paper
- + Conveyors - coal, coke, clinker, grains
- + Cement - Rotary Kilns, Dryers
- + Steel - Torpedo cars, Coated steel
- + Thermoforming, Plastic extruders, Galvanising lines (top position)

LSP_{HD} - Key Features

- + High resolution, optical system
- + Designed for operation in harsh industrial environments
- + Plug and play installation via a single Ethernet cable connection
- + Range of data output formats

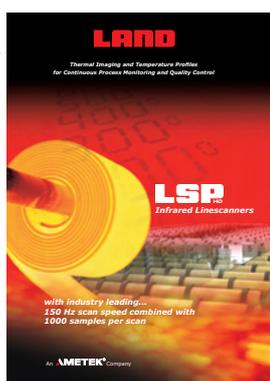


Performance Specifications LSP _{HD} 60 (P/No. 804804) / LSP _{HD} 61 (P/No. 804805) / LSP _{HD} 62 (P/No. 804806)			
Temperature Range:	LSP_{HD} 60 20 to 250 °C / 78 to 482 °F	LSP_{HD} 61 50 to 400 °C / 122 to 752 °F	LSP_{HD} 62 100 to 600 °C / 212 to 1112 °F
Wavelength:	3 to 5 µm	3 to 5 µm	3 to 4.2 µm
Measurement Accuracy(1):	±2°C / 3.6°F		
Repeatability:	<0.5°C / <0.9°F		
Temp. Resolution typical:	< 2 °C / < 3.6 °F	< 1 °C / < 1.8 °F	< 1 °C / < 1.8 °F
Drift with ambient temp:	≤ 1° indicated / 10° ambient	≤ 1° indicated / 10° ambient	≤ 2° indicated / 10° ambient
Emissivity:	0.20 to 1.00		
Speed of Response:	≤ 10 µs	≤ 5 µs	≤ 5 µs
Scan angle:	80° (software adjustable to 40°)		
Scan Speed:	10 to 150 Hz (User adjustable in 1 Hz steps)		
Samples/scan:	1000		
Field of View:	12mm / 0.5 in for target distance less than 1200mm / 47.2 in 100:1 for target distance greater than 1200mm / 47.2 in <i>static to 95% radiance</i> 300:1 for target distance greater than 1200mm / 47.2 in <i>static to 50% radiance</i>		
Focus Distance:	Fixed Focus at 1200mm / 47.2 in		
Connection:	Industrial Ethernet via M12 Connector / Power over Ethernet		
Signal Processing:	Up to 14 user configurable zones with min. / max. / average / quantile / average threshold		
Inputs/Outputs:	PoE (IEEE 802.3at) enabled TCP/IP Industrial Ethernet		
Ambient Temperature	5 to 60°C / 41 to 140°F (specified) 5 to 70°C / 41 to 158°F (operating)		
Dimensions (w x h x d):	206 x 209 x 100 mm / 8.1 x 8.2 x 3.9 inches		
Alignment Laser:	Class 2, maximum output 1.0 mW at 635 nm, IEC60825-1:2001 / Indicating scan plane & extent		
Environmental Sealing:	IP65		
EMC:	EN 61326 Class A; Low Voltage Directive EN61010-1		
Notes: (1) Applies 5 to 95% of range			

LSP_{HD} Overview

A complete overview of the entire product range, including the key features and benefits of all models.

Ref **LSP_{HD} Overview 0310**



LSP_{HD} Mountings and Accessories

A complete overview of the entire range of mountings and accessories for the entire LSP_{HD} product range

Ref. **LSP_{HD} M&A 0310**

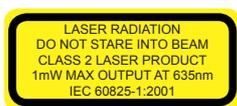


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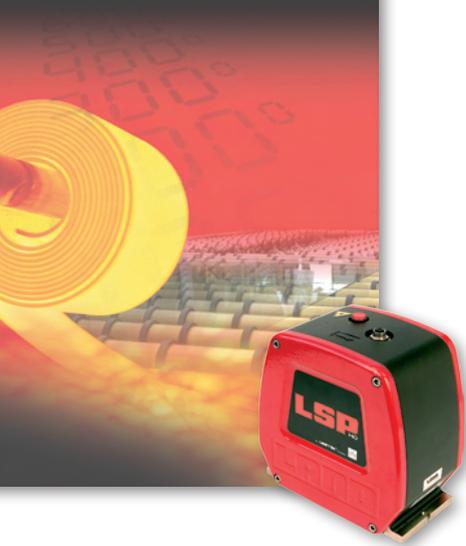
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LSP_{HD} 71 50 to 350 °C / 122 to 662 °F

Compact, high performance linescanners which provide high definition thermal imaging from a combination of fast scan speeds and high resolution optics. The real-time processed data is provided via an industrial ethernet connection which is plug and play, installed by means of a single cable connection, which reduces installation time and costs.

***+industry leading 150 Hz scan speed
1000 samples at all scan frequencies+***

Key Benefits

- + Plastic Thermoforming**
 - + Rapid adjustment of heaters for proper heating of sheet
 - + Detect product defects and failing heating elements quickly
 - + Split, merge or override individual heater elements
- + Quality Control**

Accurate thermal records are a critical aspect of product quality information
- + Process Control**

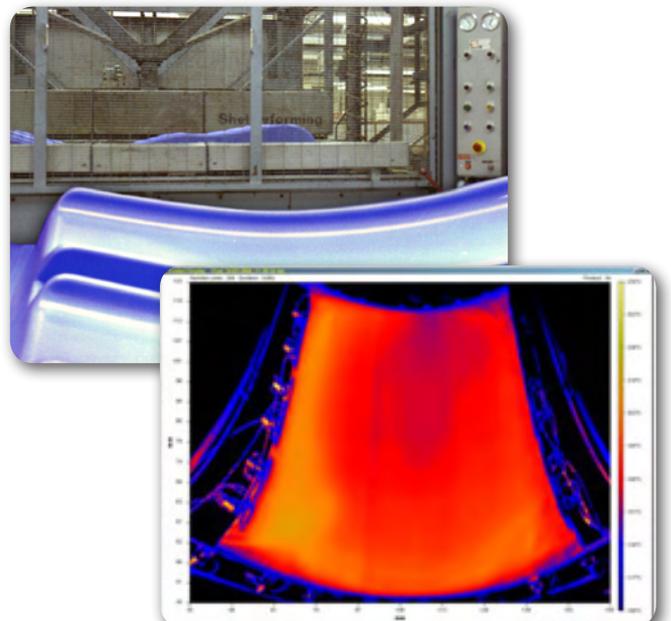
Provide real time thermal displays of the product in different display formats.

Key Applications

- + Non-wovens - Polymers
- + Plastics - Thin plastics, thermoforming
- + Steel - Paint coating lines

LSP_{HD} - Key Features

- + High resolution, optical system
- + Designed for operation in harsh industrial environments
- + Plug and play installation via a single Ethernet cable connection
- + Range of data output formats



Performance Specifications LSP_{HD} 71 (P/No. 804807)

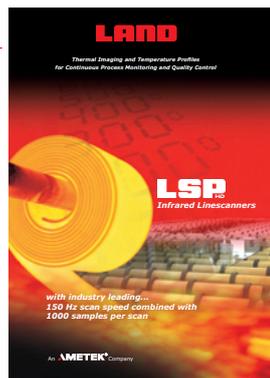
Temperature Range:	50 to 350 °C / 122 to 662 °F
Wavelength:	3.4 µm nominal
Measurement Accuracy(1):	±2°C / 3.6°F
Repeatability:	<0.5°C / <0.9°F
Temp. Resolution typical:	≤ 2 °C / ≤ 3.6 °F
Drift with ambient temp:	≤ 1° indicated / 10° ambient
Emissivity:	0.20 to 1.00
Speed of Response:	≤ 10 µS
Scan angle:	80° (software adjustable to 40°)
Scan Speed:	10 to 150 Hz (User adjustable in 1 Hz steps)
Samples/scan:	1000
Field of View:	12mm / 0.5 in for target distance less than 1200mm / 47.2 in 100:1 for target distance greater than 1200mm / 47.2 in static to 95% radiance 300:1 for target distance greater than 1200mm / 47.2 in static to 50% radiance
Focus Distance:	Fixed Focus at 1200mm / 47.2 in
Connection (signal/power):	Industrial Ethernet via M12 Connector / Power over Ethernet
Signal Processing:	Up to 14 user configurable zones with min. / max. / average / quantile / average threshold
Inputs/Outputs:	PoE (IEEE 802.3at) enabled TCP/IP Industrial Ethernet
Ambient Temperature	5 to 60°C / 41 to 140°F (specified) 5 to 70°C / 41 to 158°F (operating)
Dimensions (w x h x d):	206 x 209 x 100 mm / 8.1 x 8.2 x 3.9 inches
Alignment Laser:	Class 2, maximum output 1.0 mW at 635 nm, IEC60825-1:2001 / Indicating scan plane & extent
Environmental Sealing:	IP65
EMC:	EN 61326 Class A; Low Voltage Directive EN61010-1

Notes: (1) Applies 5 to 95% of range

LSP_{HD} Overview

A complete overview of the entire product range, including the key features and benefits of all models.

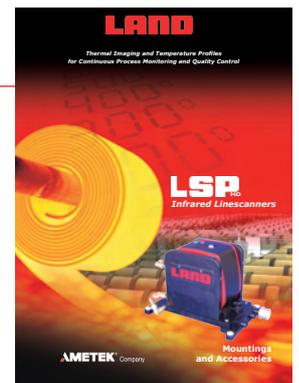
Ref **LSP_{HD}** Overview 0310



LSP_{HD} Mountings and Accessories

A complete overview of the entire range of mountings and accessories for the entire LSP_{HD} product range

Ref. **LSP_{HD}** M&A 0310



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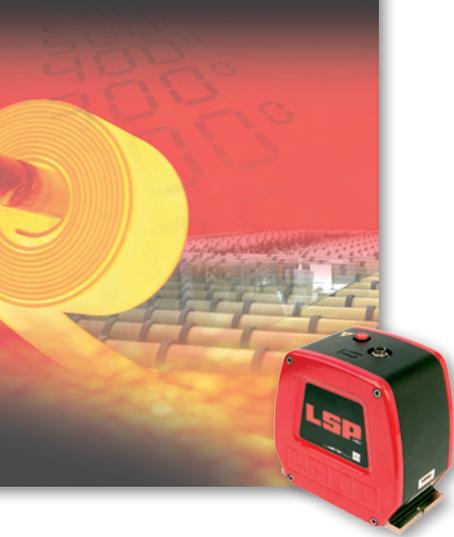


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Applies in the USA

Thermal Imaging and Temperature Profiles for Continuous Process Monitoring and Quality Control

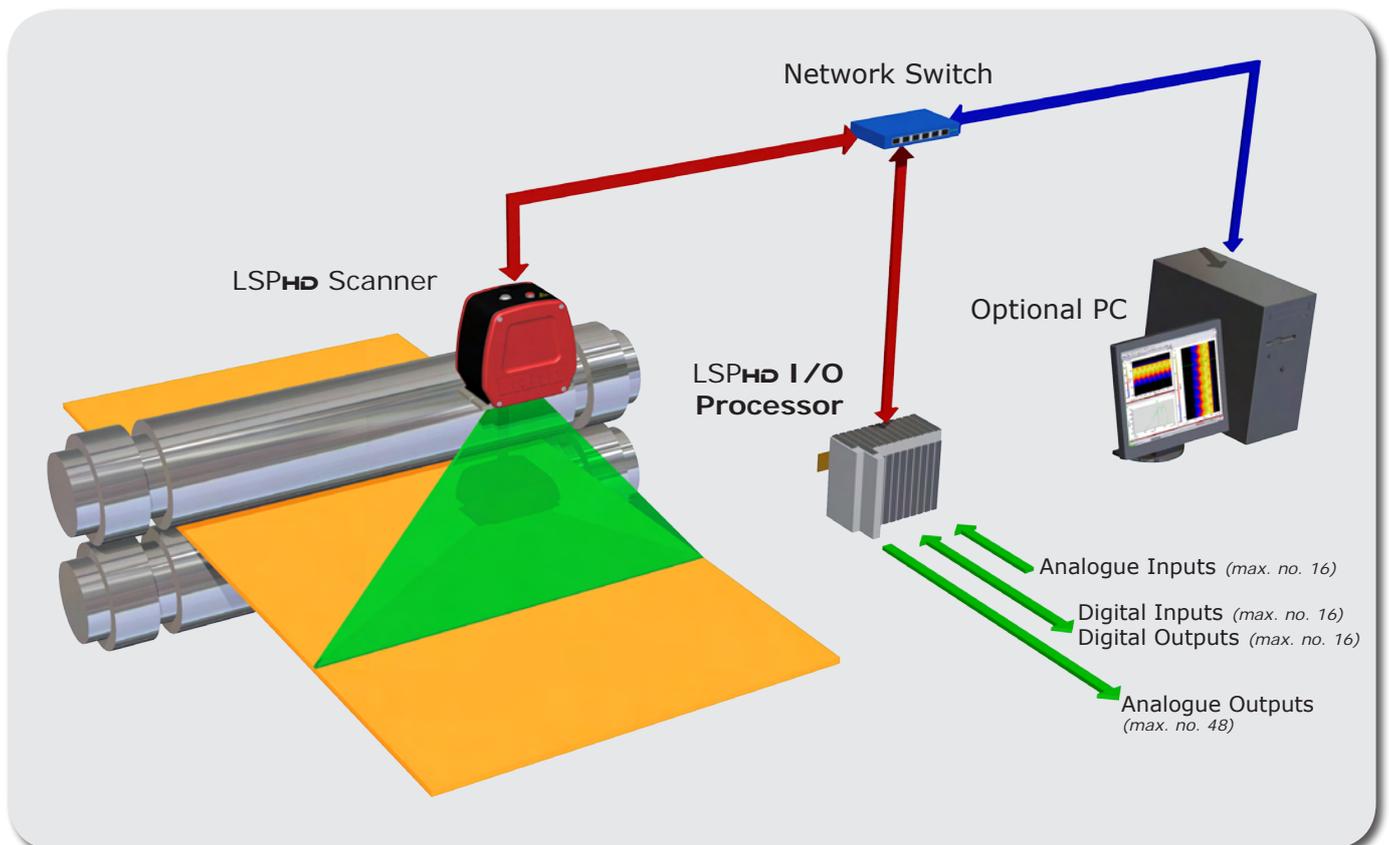


LSP_{HD} I/O Processor

The LSP_{HD} I/O Processor is a configurable system to provide access to processed data in the LSP_{HD} system. Its compact DIN rail mounted footprint combined with a standard ethernet interface allows it be located away from the harsh measurement environment and mounted discretely in existing equipment cabinets.

LSP_{HD} I/O - Key Features

- + Flexible configuration to meet individual plant requirements - a single processor can be interfaced with up to 8 LSP_{HD} heads
- + Independent operation - the processed data is supplied directly from the LSP_{HD} head ensuring data availability independent of PC operation
- + Expansion Capabilities - additional modules can easily be added in the field as the need for additional processed data arises



Performance Specifications LSPHD I/O Processor

LSPHD I/O Processor Core Module

Incoming Data Connection:	RJ45 ETHERNET
Alarms:	System Alarm, Remote Client Alarm
System Status:	Indicated via LED

Analogue Output Module

Number of Outputs:	4
Maximum No. of Modules:	12
Signal Current:	0 to 20mA
Load:	<350 Ω (short-circuit-proof)
Measuring Error:	<0.1% (relative to full scale value)
Resolution:	12 bits
Conversion Time:	~ 250 μ s

Digital Output Module

Number of Digital Outputs per module:	4 x make contacts
Maximum No. of Modules:	4
Rated Load Voltage:	125 V AC / 30 V DV
Ohmic Switching Current:	0.5 A AC/ 2 A DC
Minimum Permitted Load:	10 μ A at 10 mV DC
Operating Cycles Mechanical (minimum):	1 x 10 ⁸
Operating Cycles Electrical (minimum):	2 x 10 ⁵ (1 A/30 V DC)

Digital Input Module

Number of Digital Inputs per module:	4 x make contacts
Maximum No. of Modules:	4
Nominal Voltage:	24 V DC (-15%/+20%)
'0' signal voltage:	-3 to +5 V (EN 61131-2, type 3)
'1' signal voltage::	15 to 30 V (EN 61131-2, type 3)
Input Current Typ.:	3 mA (EN 61131-2, type 3)
Input filter:	3.0 ms

Analogue Input Module

Number of Inputs:	2
Maximum No. of Modules:	8
Signal current:	0 to 20 mA
Internal Resistance:	33 Ω typical + diode voltage
Input Filter Limit Frequency:	33 kHz
Common-mode Voltage U _{cm} :	10 V maximum
Conversion Time:	~ 50 μ s (fast mode ~ 35 μ s)
Resolution:	16 bit (incl. sign)
Measuring Error:	< \pm 0.3% (relative to full scale variant)
Surge Voltage Resistance:	35 V DC

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Non-Contact Temperature
Measurement Solutions

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*Thermal Imaging and Temperature Profiles
for Continuous Process Monitoring and Quality Control*

LSP_{HD}

Infrared Linescanners



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**Mountings
and Accessories**

LSP_{HD} Mountings and Accessories

The following information is intended as a guide to the extensive range of optional mountings and accessories available to ensure that you get the best possible service from the investment you have made when specifying **LSP_{HD}** infrared linescanning systems to monitor and control your manufacturing process.

For specific recommendations on the choice of protection housing, mounting assemblies, water cooling, air purging and cabling requirements to suit your specific industry or installation, contact Land Instruments International for further advise before ordering.

Mountings and Accessories	
Part Name	Part Number
Mountings	
Basic Mounting Plate	031.520
Water Cooled Mounting Plate	031.496
Right Angle Mounting Bracket	031.438
Enhanced Water Cooled Mounting System	800095
Light Industrial Housing	802664
Heavy Industrial Housing	802665
Floatline Mounting with Scanner Protection System	092.732
Floatline Mounting without Scanner Protection System	802663
Power Supplies and Service Panels	
LSP_{HD} Power Supply	805037
LSP_{HD} Desktop Power Supply	805024
LSP_{HD} Floatline Service Panel	805140
Cables	
LSP_{HD} 15m Low Temperature Cable	805038
LSP_{HD} 50m Low Temperature Cable	805039
LSP_{HD} 15m High Temperature Cable	804997
Blowers & Accessories	
Blower Assembly with air filter 230V 50HZ Single Phase	099.471
Blower Assembly with air filter 110V 60HZ Single Phase	099.473
Blower Assembly with air filter 220V 60HZ Single Phase	099.472
Weatherproof Blower Cover	704.374
Air Pre-filter	317.560

Basic Mounting Plate (Part Number: 031.520)

The basic base plate is used in applications where an **LSP_{HD}** linescanner head is to be installed in light industrial environments where the ambient temperatures is within the recommended operating range of the instrument and the atmosphere is relatively free from dust and airborne particles.

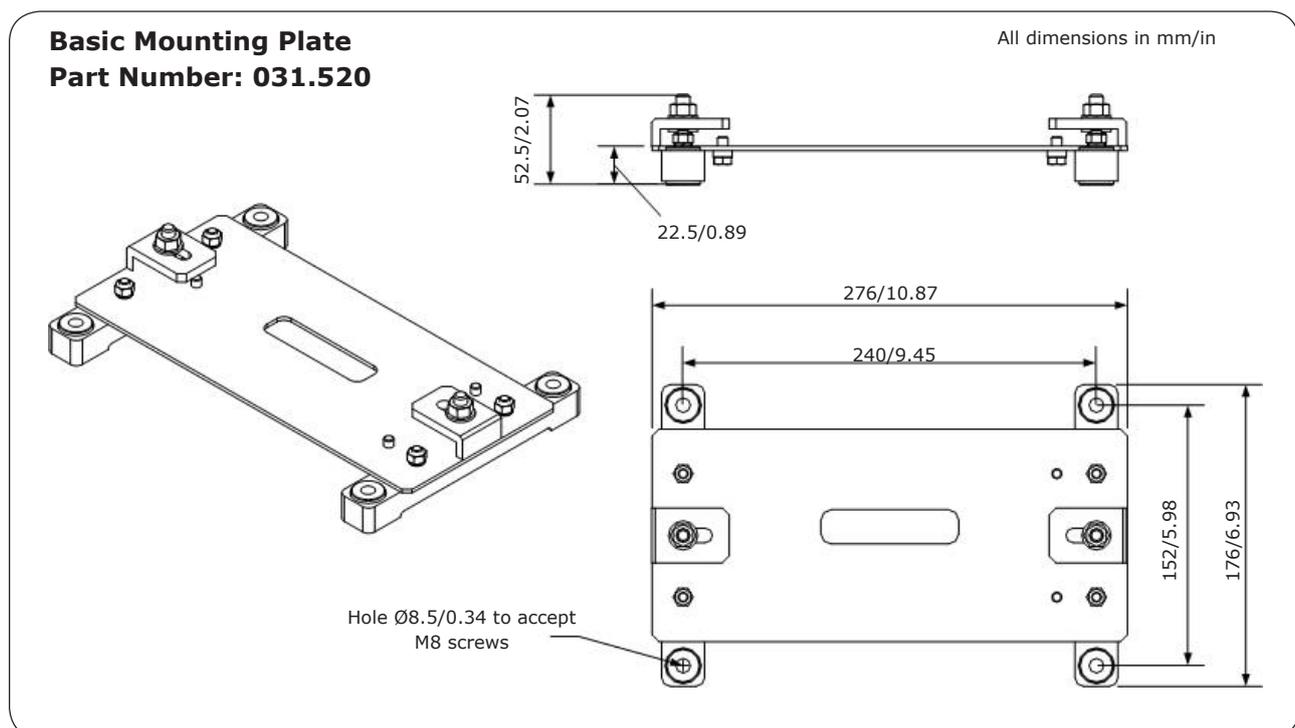


Applications

+ Thermoforming

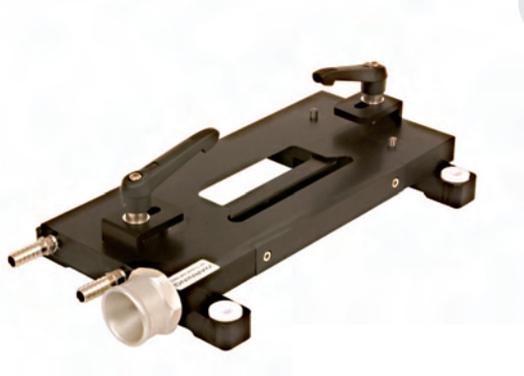
The basic base plate provides a quick release mounting arrangement for the scanner, making realignment a simple and easy operation.

Specifications	
PARAMETER	
Maximum Ambient Temperature	60 °C / 140 °F
Weight	1.2 kg / 2.6 lb
Dimensions (l x w x d)	276 x 176 x 52.5 mm / 10.87 x 6.93 x 2.07 in
Mounting Holes	Ø 8.5 mm / 0.34 in to accept M8 screws



Water Cooled, Air Purged Base Plate (Part Number: 031.496)

The water cooled, air purged base plate is used in applications where an **LSP_{HD}** scanner is to be installed into environments where the ambient temperatures are in the range of 60 to 100°C/140 to 212°F. It is ideally suited to general industrial applications. The air purge facility should be utilised where the operating environment is dusty and airborne particles could contaminate the scanner viewing window. The plate provides a quick release mounting arrangement for the scanner, making realignment a simple and easy operation.

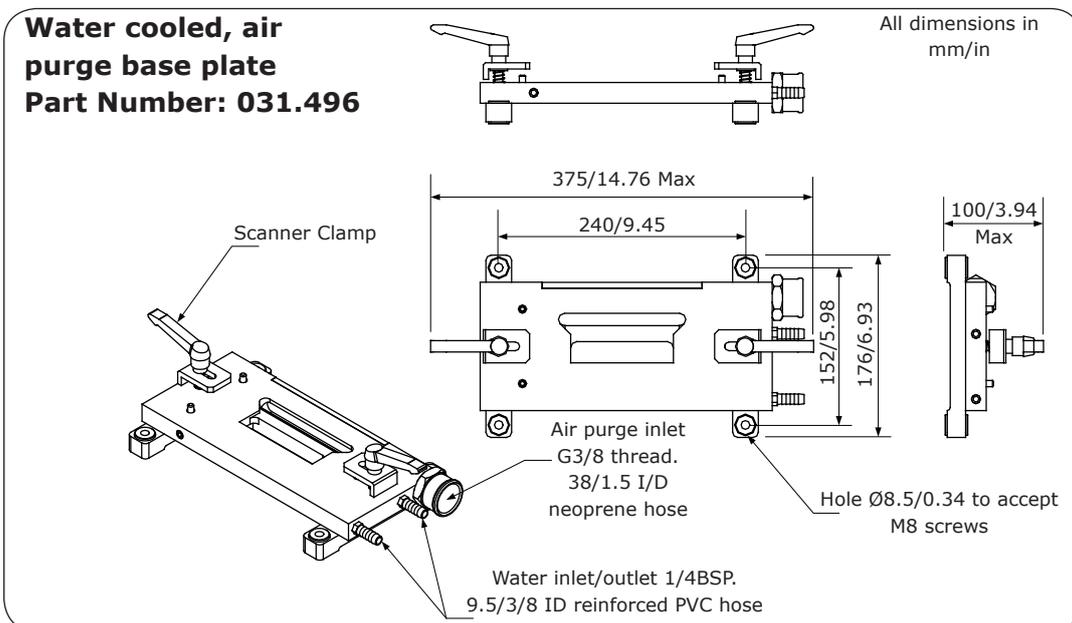


Applications

- + Glass Toughening (check ambient temperature)

Specifications

PARAMETER	
Maximum Ambient Temperature	100 °C / 212 °F
Cooling Water Requirements	1.5 to 2 litre per min / 0.4 to 0.53 USGal per min @ 30 °C / 86 °F
Maximum Water Pressure	5.88 Bar / 85 PSI
Cooling Water Connection	¼" BSP for 9.5mm / 3/8in bore water hose
Air Purge Requirements	300 litre per min / 12.36 cuft per min
Air Purge Connection	G3/8 suitable for 38mm / 1.5in inner diameter neoprene hose
Weight	2.2 kg 4.8 lb
Dimensions (l x w x d)	375 x 176 x 100 mm / 14.76 x 6.93 x 3.94 in
Mounting Holes	Ø 8.5 mm / 0.34 in to accept M8 screws



Right Angle Mounting Plate (Part Number: 031.438)

The right angle mounting plate is a simple design intended for basic **LSP_{HD}** linescanner head mounting.

It is pre-drilled to accept either the **basic mounting plate** or the **water cooled, air purged base plate**.

All fixings are supplied with the plate.

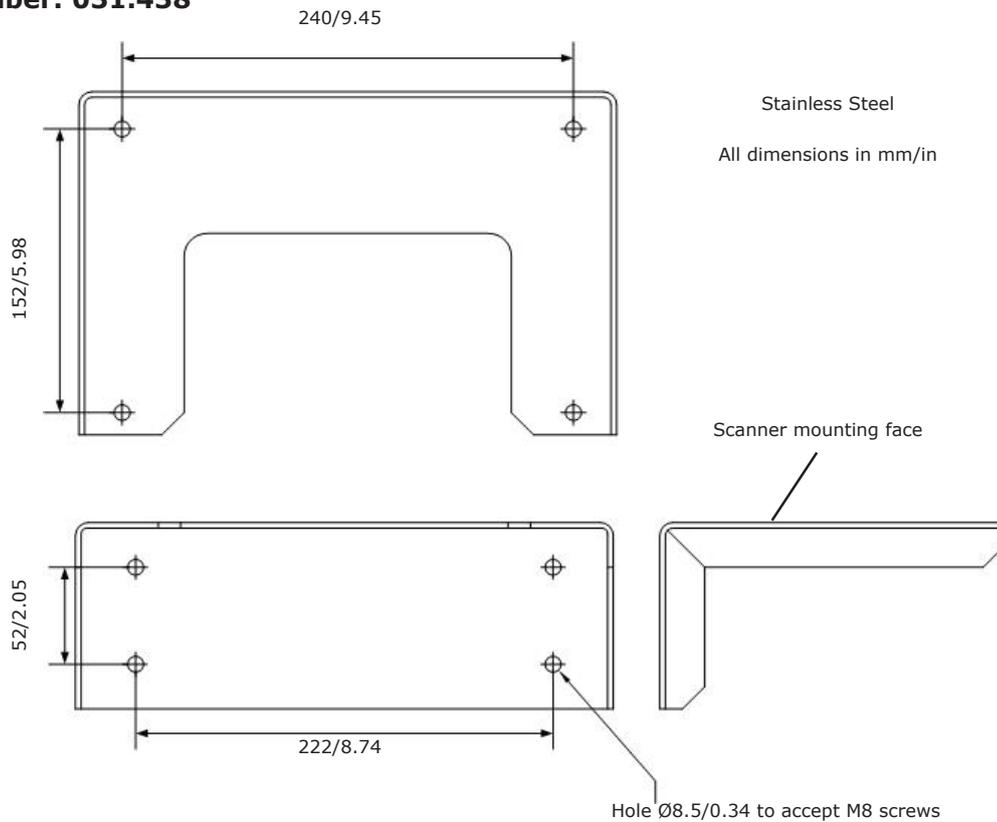


Compatibility

- + Designed for wall mounting of equipment
- + Requires either the **Basic Mounting Plate** or the **Water Cooled Mounting Plate**

Right angle mounting plate

Part Number: 031.438



Enhanced Water Cooled Mounting System (Part Number: 800095)

The water cooled, air purged base plate is used in applications where an **LSP_{HD}** scanner is be installed into environments where the ambient temperatures are in the range of 60 to 120°C/140 to 248°F. It is ideally suited to general industrial applications. The air purge facility should be utilised where the operating environment is dusty and airborne particles

could contaminate the scanner viewing window. The plate provides a quick release mounting arrangement for the scanner, making realignment a simple and easy operation.



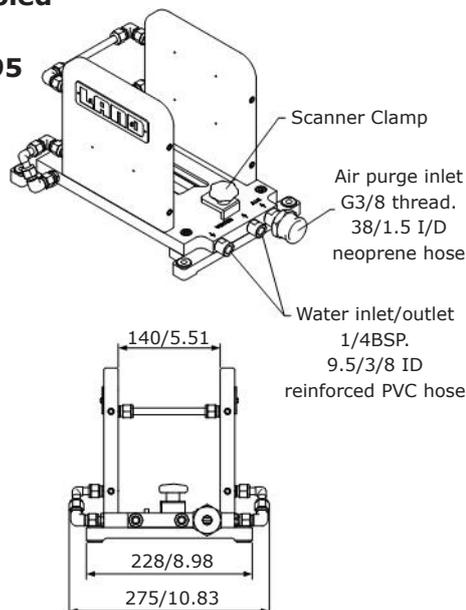
Applications

+ Glass Toughening

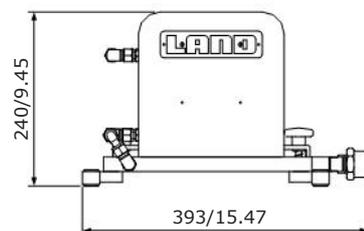
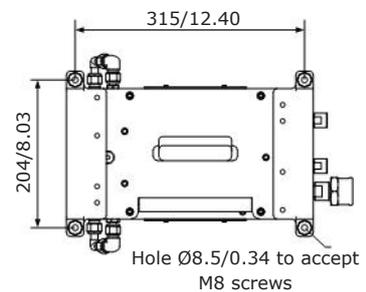
Specifications

PARAMETER	
Maximum Ambient Temperature	120 °C / 248 °F
Cooling Water Requirements	1.5 to 2 litre per min / 0.4 to 0.53 USGal per min @ 30 °C / 86 °F
Maximum Water Pressure	5.88 Bar / 85 PSI
Cooling Water Connection	¼" BSP for 9.5mm / 3/8in bore water hose
Air Purge Requirements	300 litre per min / 12.36 cuft per min
Air Purge Connection	G3/8 suitable for 38mm / 1.5in inner diameter neoprene hose
Weight	8.4 kg / 18.5 lb
Dimensions (l x w x d)	393 x 275 x 240 mm / 15.47 x 10.83 x 9.45 in
Mounting Holes	Ø 8.5 mm / 0.34 in to accept M8 screws

Enhanced Water Cooled Mounting System Part Number: 800095



All dimensions in mm/in



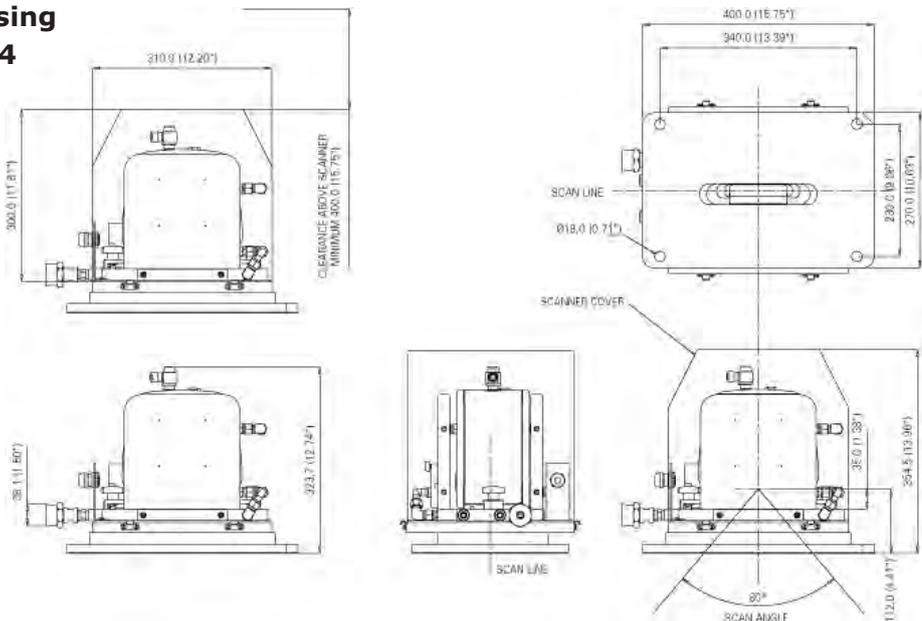
Light Industrial Housing (Part Number: 802664)

The light industrial housing is used in applications where an **LSP_{HD}** scanner needs to be enclosed for additional protection due to airborne particulates. It can be installed into environments where the ambient temperatures are up to 150°C / 302°F. The air purge facility should be utilised where the operating environment is dusty and airborne particles could contaminate the scanner viewing window. A quick release mounting arrangement is included for the scanner, making realignment a simple and easy operation.



Specifications	
PARAMETER	
Maximum Ambient Temperature	150 °C / 302 °F
Cooling Water Requirements	1.5 to 2 litre per min / 0.4 to 0.53 USGal per min @ 30 °C / 86 °F
Maximum Water Pressure	5.88 Bar / 85 PSI
Cooling Water Connection	¼" BSP for 9.5mm / 3/8in bore water hose
Air Purge Requirements	300 litre per min / 12.36 cuft per min
Air Purge Connection	G3/8 suitable for 38mm / 1.5in inner diameter neoprene hose
Weight	14.4 kg / 32 lb
Dimensions (l x w x d)	393 x 275 x 240 mm / 15.47 x 10.83 x 9.45 in
Mounting Holes	Ø 8.5 mm / 0.34 in to accept M8 screws

Light Industrial Housing Part Number: 802664



Heavy Industrial Housing (Part Number: 802665)

The heavy industrial housing is used in applications where an **LSP_{HD}** scanner needs to be enclosed for additional protection due to airborne particulates or for outdoor operation. It can be installed into environments where the ambient temperatures are up to 150°C / 302°F. The air purge facility should be utilised where the operating environment is dusty and airborne particles could contaminate the scanner viewing window. A quick release mounting arrangement is included for the scanner, making realignment a simple and easy operation.

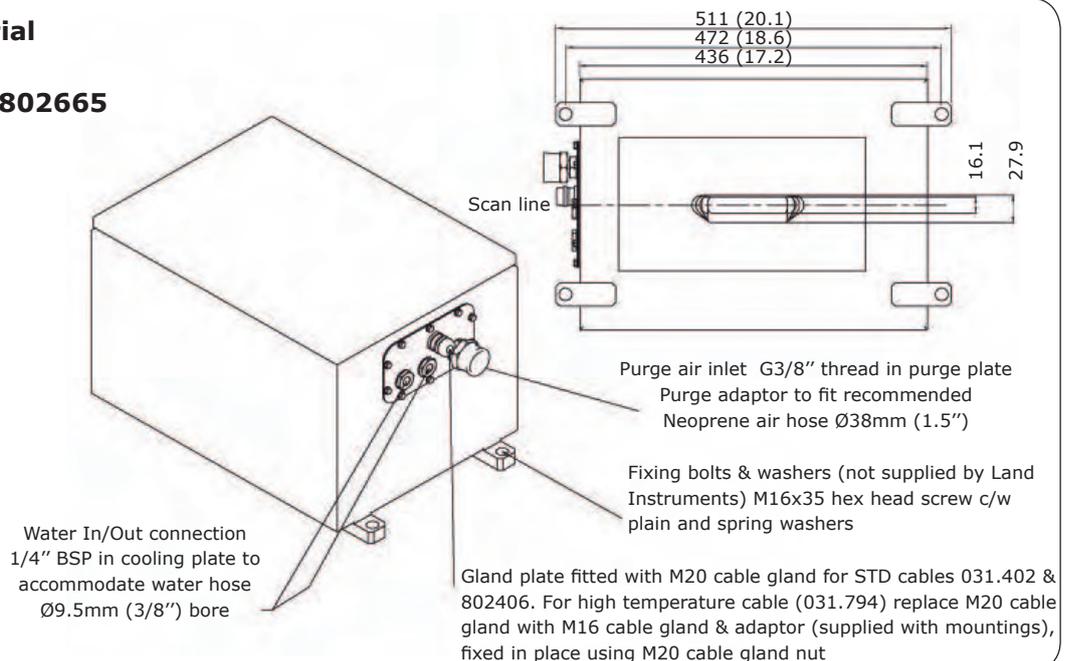


Applications

- + Strip Mill
- + Plate Mill
- + Rolling Mill
- + Outdoor Applications

Specifications	
PARAMETER	
Maximum Ambient Temperature	150 °C / 302 °F
Cooling Water Requirements	1.5 to 2 litre per min / 0.4 to 0.53 USGal per min @ 30 °C / 86 °F
Maximum Water Pressure	5.88 Bar / 85 PSI
Cooling Water Connection	¼" BSP for 9.5mm / 3/8in bore water hose
Air Purge Requirements	300 litre per min / 12.36 cuft per min
Air Purge Connection	G3/8 suitable for 38mm / 1.5in inner diameter neoprene hose
Weight	29 kg / 64 lb
Dimensions (l x w x d)	511 x 320 x 296.2 mm / 20.12 x 12.8 x 11.67 in
Mounting Holes	Ø 18 mm / 0.71 in to accept M16 screws

Heavy Industrial Housing Part Number: 802665



Floatline Mounting with Scanner Protection System (Part Number: 092.732)

The Floatline Mounting with Scanner Protection System provides protection for the **LSP_{HD}** scanner against the high ambient temperatures and heavy contamination associated with the float glass environment. The design incorporates a shutter system to isolate and protect the scanner from hot Lehr gasses in the event of a failure of the cooling or purge system. This is recommended for installations on Lehr Zones A - C.



Applications

- + Glass floatline on the lehr

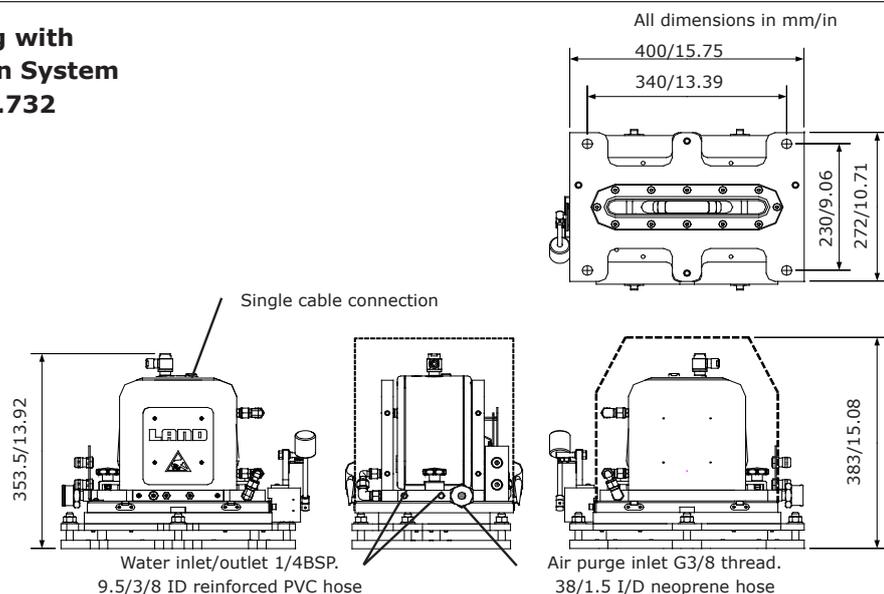
Compatibility

- + Requires **LSP_{HD}** Floatline Service Panel

Specifications

PARAMETER	
Maximum Ambient Temperature	150 °C / 302 °F
Scanner Protection System	Shutter mechanism activated on: Over Temperature Low/High Purge Pressure
Cooling Water Requirements	1.5 to 2 litre per min / 0.4 to 0.53 USGal per min @ 30 °C / 86 °F
Maximum Water Pressure	5.88 Bar / 85 PSI
Cooling Water Connection	¼" BSP for 9.5mm / 3/8in bore water hose
Air Purge Requirements	300 litre per min / 12.36 cuft per min @ less than 40 °C / 104 °F
Air Purge Connection	G3/8 suitable for 38mm / 1.5in inner diameter neoprene hose
Weight	N/A
Dimensions (l x w x d)	383 x 400 x 272 mm / 15.08 x 15.75 x 10.71 in
Mounting Holes	Ø 8.5 mm / 0.34 in to accept M8 screws

Floatline Mounting with Scanner Protection System Part Number: 092.732



Power Supplies & Service Panels

LSP_{HD} Industrial Power Supply (Part Number 805037)

A terminal box which allows connection of the incoming **LSP_{HD}** connection cable via an M12 industrial ethernet port, incoming mains power and the downstream data connection via either CAT 5 / 6 cable or multi-mode fibre optic.



Specifications	
PARAMETER	
Input Power Supply	100 to 240 V a.c.
LSP_{HD} Connection	M12 4 pin D-Coded Industrial Ethernet Socket
Downstream Connections	1 x Multi-Mode Fibre Optic with 3 x RJ45 Terminations
Environmental Rating	IP65
Maximum Ambient Temperature	50°C / 120 °F
Dimensions (h x w x d)	380 x 380 x 260 mm / 15 x 15 x 10 in

LSP_{HD} Desktop Power Supply (Part Number 805024)

An unsealed power supply for use in clean environments to provide power for the **LSP_{HD}**.



Specifications	
PARAMETER	
Input Power Supply	100 to 240 V a.c.
Instrument Connection	1 x RJ45 termination
Downstream Connections	1 x RJ45 termination
Supplied with	M12 to RJ45 Adaptor Cable
Maximum Ambient Temperature	55°C / 131 °F
Dimensions (h x w x d)	166 x 80 x 43.6 mm / 6.48 x 3.15 x 1.72 in

LSP_{HD} Floatline Service Panel (Part Number 805140)

The **LSP_{HD}** linescanner float line system service panel provides mains power to all components of the **LSP_{HD}** system, isolation facilities for servicing access and real-time system status information.

The display panel can be supplied with a choice of languages to suit the local application.

It provides a real-time indication of system status, including:

Power On (24V) -	status indication
Over Temperature -	warning indication
Low Purge Pressure -	warning indication
High Purge Pressure -	warning indication
Shutter Not Open -	status indication
Manual Close -	status indication
Push For Manual Close -	manual operation

Any chosen installation site for the service panel must have low vibration, low contamination and must be within ambient temperature specification at all times (max. 50°C/90°F).

The maximum cable run between the service panel installation site and the float line mountings should not exceed 15m, taking into account the safe routing of the cable.



Specifications	
PARAMETER	
Input Power Supply	100 to 240 V a.c.
LSP_{HD} Connection	M12 4 pin D-Coded Industrial Ethernet Socket
Downstream Connections	4 x RJ45 terminations 1 x Multi-Mode Fibre Optic with SC Terminations Service Panel Alarm Over Temperature Alarm Purge Pressure Alarm Shutter Not Open Alarm
Maximum Ambient Temperature	50 °C / 120 °F
Dimensions (h x w x d)	510 x 510 x 250 mm / 20 x 20 x 10 in

Cables

Connection cables between the **LSP_{HD}** scanner and the **LSP_{HD}** Power Supply unit; pre-terminated with M12 industrial ethernet connectors this single cable provides both data and Power-over-Ethernet connections.

Specifications				
PARAMETER				
	LSP_{HD} 15m Low Temperature	LSP_{HD} 50m Low Temperature	LSP_{HD} 15m High Temperature	System Cable for Floatline Mounting with Scanner Protection 15m
Part Number	805038	805039	804977	031.795
Length	15 m / 49 ft	50 m / 164 ft	15 m / 49 ft	15 m / 49 ft
Maximum Ambient Temperature	105 °C / 220 °F	105 °C / 220 °F	200 °C / 390 °F	200 °C / 390 °F

Blowers & Accessories

The plate mounted blower unit provides air to the **LSP_{HD}**. Each specific application may require a controlled air supply. Optical air purging may be required in order to maintain a clear sighting window.

Each blower can support up to two scanners.

Specifications			
PARAMETER			
	Option 1	Option 2	Option 3
Power Supply:	230V a.c.	110V a.c.	220V a.c.
Frequency:	50Hz	60Hz	60Hz
Power consumption:	400W	500W	500W
Circuit breaker (type C):	10A	16A	10A
Operating Temperature:	-20 to 50°C/-4 to 122°F (-40 to 50°C/-40 to 122°F with optional air heater fitted)		
Environmental Rating:	IP55/NEMA 4 (IP55/NEMA 4X (with weatherproof cover fitted))		
CE marking:	89/336/CEE; 73/23/CEE		
Weather proofing:	In accordance with EN 60034-5		

Accessories

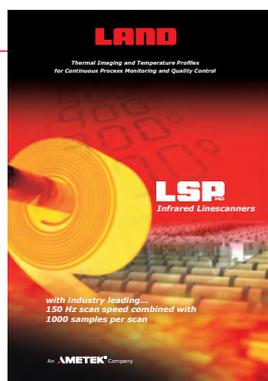
- + A Weatherproof Blower Cover is available. This is only required for outdoor use
- + Air Pre-filter



LSP_{HD} Overview

A complete overview of the entire product range, including the key features and benefits of all models.

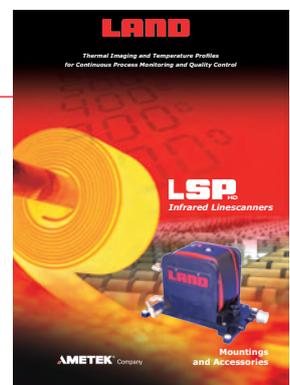
Ref **LSP_{HD}** Overview 0210



LSP_{HD} Mountings and Accessories

A complete overview of the entire range of mountings and accessories for the entire LSP-E product range

Ref. **LSP_{HD}** M&A 0210



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Non-Contact Temperature Measurement Solutions

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