## 1.1.2.12 Short Exposure High Power Sensors

## 1.1.2.12.2 Ariel

## 200mW to 8000W

## **Features**

- Measures up to 8000W
- Wavelengths: 440 550nm, 900 1100nm, 2.94µm, 10.6µm
- No Water Cooling IP62 rated •
- Only 3 seconds to display measurement •
- High thermal capacity of 14KJ for uninterrupted consecutive measurements
- Field replaceable protective window



The Ariel measures high power industrial lasers of up to 8kW by measuring the energy of a short exposure to this power. The laser is set to deliver a pulse of from 0.05 to several seconds. It then measures the energy and duration of the

laser pulse and calculates the power. Ariel can also measure continues power up to 500W intermittently. It is ideal for usage in tight spaces such as additive manufacturing chambers as well as for production process quality control and R&D.

Use         High over laser measurement by short exposure           Absorber Type         2000W + 8,000W           Power Arage         2000W + 8,000W           Strained Mark Loop Solution (Solution	Model	Ariel				
Absorber Type Power Range 200mW - 8,000W Exposure Time (see table below) Pulsed Mode: 0.05 - 2s, ""CW mode: 105 to continuous depending on power level Window: 440 - 550nm, 900 - 1100nm <sup>16</sup> Window: 440 - 550nm, 940 - 1100nm <sup>16</sup> Window: 440 - 550nm, 940 - 1100nm <sup>16</sup> Window: 440 - 550nm, 940 - 1100nm <sup>16</sup> Window: 440 - 500nm, 920 - 1100nm, <sup>16</sup> Window: 440 - 500nm; <sup>16</sup> Window: 440 - 500nm; <sup>16</sup> Window: <sup>16</sup> Wi	Use	High power laser measurement by short exposure				
Power Range Exposure Time (set table below) Wavelength Range Wirkow: 440 - 550m, 900 - 1100m <sup>16</sup> Wirkow: 440 - 550m, 900 - 1100m <sup>16</sup> Wirkow: 440 - 550m, 900 - 1100m <sup>16</sup> Wirkow: 440 - 550m, 900 - 1100m <sup>16</sup> Wirkow or diffuser: 2.9 4µm <sup>16</sup> , 10.6µm <sup>10</sup> Aperture Calibration Uncertainty ±% 19 Power Accuracy 900 - 1100m, 2.94µm <sup>10</sup> , 10.6µm <sup>10</sup> Wirkow or diffuser: 3.94µm <sup>16</sup> , 10.6µm <sup>10</sup> Maximum Beam Incidence Angle Wirkow diffuser: 3.90 degrees for <12mm Gaussian beam <sup>10</sup> Backscattered Power Wirkow diffuser: 3.90 degrees for <12mm Gaussian beam <sup>10</sup> Backscattered Power Wirkow diffuser: 3.90 degrees for <12mm Gaussian beam <sup>10</sup> H2 absorber: <2200mm: 4%; 2940m: 10%; 10.6µm: 25% Wirko Hiffuser: 2.95% Wirko Hiffuser: 2.95% Hasher Power Healther Hiffuser: 2.95% Wirko Hiffuser: 2.95% Wirko Hiffuser: 2.95% Wirko Hiffuser: 2.95% Wirko Hiffuser: 2.95% Wirko Hiff	Absorber Type	LP2				
Exposure Time (see table below)         Puised Mode: 0.05 - 28, "CW mode: 10s to continuous depending on power level           Wavelength Range         Window: 440 - 550nn, 900 - 1100nm <sup>10</sup> Wavelength Range         Office - 550nn, 900 - 1100 m <sup>10</sup> Aperture         032 mm. Maximum beam diameter for Gaussian beam 20mn.           Calibration Uncertainty ±%         1.9           Power Accuracy         900 - 1100nm, 2.94µm, 10.6µm : ±3%; 440 - 550nm; ±3.5%, <sup>10</sup> II <sup>®</sup> Maximum Power for Puise Width Measurement         440 - 800nm, .>20W; 800 - 1100nm, 2.94µm, 10.6µm : ±3%; 440 - 550nm; moor not available <sup>10</sup> Maximum Beam Incidence Angle         With diffuser: ±20 degrees for <12mm Gaussian beam. <sup>10</sup> Backscattered Power         With diffuser: ±20 degrees for <12mm Gaussian beam. <sup>10</sup> Power Range vs. Irradiation Time         200/mW - 30W: Up to 20s; 1,000W - 8,000W: 0.05 - 1s.           Power Range vs. Irradiation Time         20mW - 30W: Up to 20s; 1,000W - 8,000W: 0.05 - 1s.           Maximum Enceps for Single Puise         24.4k / <sup>10</sup> Maximum Enceps for Cooling Down in         24.4k / <sup>10</sup> Maximum Enceps for Cooling Down in         24.4k / <sup>10</sup> Maximum Enceps for Cooling Down in         24.4k / <sup>10</sup> Maximum Enceps for Cooling Down in         24.4k / <sup>10</sup> Maximum Enceps for Aniel-USB         128.46 pixel LCD Display, Bluetooth 5.1	Power Range	200mW - 8 000W				
Wavelength Range         Window: 440 - 550nm, 900 - 1100nm % Without window or diffuser: 2.94µm %, 10.6µm %           Aperture         Ø32mm. Maximum beam diameter for Gaussian beam 12mm. With diffuser Maximum beam diameter for Gaussian beam 12mm.           Aperture         Ø32mm. Maximum beam diameter for Gaussian beam 12mm. With diffuser #30 degrees for <100m, 210, 1100m, 100, 100	Exposure Time (see table below)	Pulsed Mode: 0.05 - 2s. (a) CW mode: 10s to continuous depending on power level				
Aperture         332mm. Maximum beam diameter for Gaussian beam 12mm. With diffuser Maximum beam diameter for Gaussian beam 12mm.           Calibration Uncertainty ±%         19           Power Acoursey         900 - 1100nm, 2.94µm, 10.6µm; ±3.9%; 440 - 550nm; ±3.5% <sup>(m, in)</sup> Maximum Power for Pulse Width Measurement         440 - 800nm, 20W; 800 - 1100nm, Not available ("           Maximum Beam Incidence Angle         Without diffuser: ±30 degrees for <10mm Gaussian beam ("	Wavelength Range	Window: 440 - 550nm, 900 - 1100nm <sup>(b)</sup> Diffuser: 440 - 550nm, 940 - 1100nm <sup>(b)</sup> Without window or diffuser: 2.94µm <sup>(c)</sup> , 10.6µm <sup>(c)</sup>				
Calibration Uncertainty ±%         1.9           Power Accuracy         900 - 1100mm, 2.94µm, 10.6µm; ±3%; 440 - 550nm; ±3.5% ***           Maximum Power for Pulse Width Measurement         440 - 800nm, >20W; 500 - 1100nm, >10W; >1100m, not available **           Maximum Beam Incidence Angle         Without diffuser: ±3, digrees for <10mm Gaussian beam **	Aperture	Ø32mm. Maximum beam diameter for Gaussian beam 22mm. With diffuser Maximum beam diameter for Gaussian beam 10mm.				
Power Accuracy	Calibration Uncertainty ±%	1.9				
Minimum Power for Pulse Width Measurement 40 - 800nm, 200½, 800 - 1100nm, 510W, 5100m, not available <sup>60</sup> Maximum Beam Incidence Angle Without diffuser: 33, 900 - 1100nm, 510W, 5100nm, not available <sup>60</sup> With biffuser: ±25 degrees for <10mm Gaussian beam. <sup>60</sup> LP2 absorber: <2200nm: 4%; 2940nm: 10%; 10.6µm: 25% With Diffuser: 25% Reproducibility ±1% Power Range vs. Irradiation Time 200mW - 30W: CW; 500W: up to 20s; 1,000W - 8,000W: 0.05 - 1s. Linearity ±1.5% Time to Reading 3s after end of exposure 41.5% Maximum Energy for Single Pulse Aaximum Corporating temperature of 60°C will be reached after exposure to 14kJ (e.g. 10 shots at 2,000W, 0.75 - 1s. Ver Temperature Warning Convection <sup>60</sup> Reater of Ariel USB Advances (e.g. With Bluetooth 4 and above), USB-C Interface for Ariel 128x64 pixel LCD Display, USB-C Operating Temperature 10 - 40°C Permissible Relative Humidity (non-condensing) 10 - 80% Ingress Protection Compatible Class (e.g. With Bluetooth 4 and above), USB-C Interface for Ariel 128x64 pixel LCD Display, USB-C Interface for Ariel 1	Power Accuracy	900 - 1100nm, 2.94um, 10.6um; ±3%; 440 - 550nm; ±3.5% <sup>(a) (b)</sup>				
Maximum Beam Incidence Angle     Without diffuser: ±30 degrees for <12mm Gaussian beam, without diffuser: ±30 degrees for <12mm Gaussian beam (%)       Backscattered Power     LP2 absorber: <2200nm: 4%; 2940nm: 10%; 10.6µm: 25%	Minimum Power for Pulse Width Measurement	440 - 800nm. >20W: 800 - 1100nm. >10W: >1100nm. not available <sup>(a)</sup>				
Backscattered Power       LP2 absorber: <2200nm: 4%; 2940nm: 10%; 10.6µm: 25%	Maximum Beam Incidence Angle	Without diffuser: ±30 degrees for <12mm Gaussian beam, With diffuser: ±25 degrees for <10mm Gaussian beam <sup>(d)</sup>				
Reproducibility         ±1%           Power Range vs. Irradiation Time         200mW - 30W: CW; 500W: up to 20s; 1,000W - 8,000W: 0.05 - 1s.           Linearity         ±1.5%           Time to Reading         3s after end of exposure           Waiting Time for Next Measurement         12s           Maximum Energy for Single Pulse         2.4kJ <sup>(ii)</sup> Maximum Exposure Before Cooling Down is         Maximum preparature of 60°C will be reached after exposure to 14kJ (e.g. 10 shots at 2,000W, 0.7s) <sup>(iii)</sup> . Cooling down time before another 14kJ series of shots is ~10 minutes <sup>(iii)</sup> .           Over Temperature Warning         Flashing display           Cooling         Convection <sup>(iii)</sup> Necessary.         Rechargeable, 1100mAh, lifetime >15 hours           Battery         Rechargeable, 1100mAh, lifetime >15 hours           Interface for Ariel         128x64 pixel LCD Display, USB-C           Interface for Ariel         128x64 pixel LCD Display, USB-C           Interface for Ariel-USB         10 - 80%           Ingress Protection         10 - 80%           Ingress Protection         10 - 80%           Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W         Recommended Min 1/e <sup>2</sup> beam dia.         Min 1/e <sup>2</sup> beam dia. With diffugmax is 000           Gool         20         4         1         0.3         1 </td <td>Backscattered Power</td> <td colspan="4">LP2 absorber: &lt;2200nm: 4%; 2940nm: 10%; 10.6µm: 25% With window: 5% With Diffuser: 25%</td>	Backscattered Power	LP2 absorber: <2200nm: 4%; 2940nm: 10%; 10.6µm: 25% With window: 5% With Diffuser: 25%				
Power Range vs. Irradiation Time       200mW - 30W: CW; 500W: up to 20s; 1,000W - 8,000W: 0.05 - 1s.         Linearity       ±1.5%         Time to Reading       3s after end of exposure         Waiting Time for Next Measurement       12s         Maximum Exposure Before Cooling Down is	Reproducibility	±1%				
Linearity       ±1.5%         Time to Reading       3s after end of exposure         Waiting Time for Next Measurement       12s         Maximum Energy for Single Pulse       2.4kJ <sup>(m)</sup> Maximum Exposure Before Cooling Down is       2.4kJ <sup>(m)</sup> Nextmax Exposure Before Cooling Down is       2.4kJ <sup>(m)</sup> Vex Temperature Warning       Flashing display         Cooling       Convection <sup>(m)</sup> Battery       Rechargeable, 1100mAh, lifetime >15 hours         Interface for Ariel       128x64 pixel LCD Display, Bluetooth 5.1 (compatible with Bluetooth 4 and above), USB-C         Interface for Ariel       128x64 pixel LCD Display, USB-C         Dimensions (L, W X H)       70 x 70 x 80 mm (see drawing)         Operating Temperature       0.40°C         Permissible Relative Humidity (non-condensing)       10 - 40°C         Ingress Protection       IP62         Compatible Client Applications       Start ab (PC, USB), StarViewer (IOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W         Reposure s       Withou diffuser [mm]         Gaussian Beam Diameters       30       Continuous <sup>(n)</sup> 1         600       2       4       1         1000       1       6       1	Power Range vs. Irradiation Time	200mW - 30W: CW; 500W: up to 20s; 1,000W - 8,000W: 0.05 - 1s.				
Time to Reading       3s after end of exposure         Waiting Time for Next Measurement       12s         Maximum Energy for Single Pulse       2.4k.J.@         Maximum perating temperature of 60°C will be reached after exposure to 14kJ (e.g. 10 shots at 2,000W,         Over Temperature Warning       Flashing display         Cooling       Convection @         Battery       Rechargeable, 1100mAh, lifetime >15 hours         Interface for Ariel       128x64 pixel LCD Display, Bluetooth 5.1 (compatible with Bluetooth 4 and above), USB-C         Interface for Ariel-USB       128x64 pixel LCD Display, USB-C         Dimensions (L x W x H)       70 x 70 x 80 mm (see drawing)         Weight       0.40°C         Operating Temperature       10 - 40°C         Permissible Relative Humidity (non-condensing)       10 - 80%         Ingress Protection       IP62         Continuous Power Measurement       30       Continuous ®       1 no         Soo0       20 %       4       1         1000       1       6       1	Linearity	±1.5%				
Waiting Time for Next Measurement       12s         Maximum Energy for Single Pulse       2.4k J (*)         Maximum Exposure Before Cooling Down is       Nextexposure Before Cooling Down is         Necessary       0.7s) (*). Cooling down time before another 14kJ series of shots is ~10 minutes (*).         Over Temperature Warning       Flashing display         Cooling       Convection (*)         Battery       Rechargeable, 1100mAh, lifetime >15 hours         Interface for Ariel       128x64 pixel LCD Display, Bluetooth 5.1 (compatible with Bluetooth 4 and above), USB-C         Dimensions (L x W x H)       70 x 70 x 80 mm (see drawing)         Weight       0.8kg         Operating Temperature       10 - 40°C         Permissible Relative Humidity (non-condensing)       10 - 80%         Ingress Protection       IP62         Continuous Power Measurement       StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W       Recommended Exposure s       Min 1/e <sup>2</sup> beam dia.         0       Continuous (*)       1       6       1         000       1       6       1       1         0.00       0.5       16       3.5         0.00       0.3       22       NA.         Op	Time to Reading	3s after end of exposure				
Maximum Energy for Single Pulse       2.4kJ <sup>(in)</sup> Maximum Exposure Before Cooling Down is       Maximum operating temperature of 60°C will be reached after exposure to 14kJ (e.g. 10 shots at 2,000W, O.7s) <sup>(in)</sup> . Cooling down time before another 14kJ series of shots is ~10 minutes <sup>(in)</sup> .         Over Temperature Warning       Flashing display       Convection <sup>(in)</sup> Status       Rechargeable, 1100mAh, lifetime >15 hours       Comparison (Interface for Ariel-USB         Interface for Ariel       128x64 pixel LCD Display, Bluetooth 5.1 (compatible with Bluetooth 4 and above), USB-C         Interface for Ariel-USB       128x64 pixel LCD Display, USB-C         Dimensions (L x W x H)       70 x 70 x 80 mm (see drawing)         Weight       0.49°C         Permissible Relative Humidity (non-condensing)       10 - 80%         Ingress Protection       IP62         Compatible Client Applications       StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>o</sup> Laser Power W       Recommended         Soo       20 <sup>(in)</sup> 4       2         Power Measurement       30       Continuous <sup>(in)</sup> 1.5         Soo       20 <sup>(in)</sup> 4       2         Quotinuous       0.3       22 <sup>(in)</sup> 3.5         Optional Accessories       Ariel Window Replacement Kit (P/N 7	Waiting Time for Next Measurement	12s				
Maximum Exposure Before Cooling Down is Necessary       Maximum operating temperature of 60°C will be reached after exposure to 14kJ (e.g. 10 shots at 2,000W, 0.7s) %. Cooling down time before another 14kJ series of shots is ~10 minutes %.         Over Temperature Warning       Flashing display         Cooling       Convection %         Battery       Rechargeable, 1100mAh, lifetime >15 hours         Interface for Ariel       128x64 pixel LCD Display, USB-C         Interface for Ariel-USB       128x64 pixel LCD Display, USB-C         Dimensions (L, W x H)       70 x 70 x 80 mm (see drawing)         Weight       0.8kg         Operating Temperature       10 - 40°C         Permissible Relative Humidity (non-condensing)       10 - 80%         Ingress Protection       IP62         Continuous Power Measurement       30         500       20 %         44       1         1000       1       6         500       2       4         1000       1       6         2000       0.7       10       1.5         8000       0.3       22       N.A.         Optional Accessories       Ariel Window Replacement KI (PN 7Z08424       2         Compliance       CE, UKCA, China ROHS       -         Version	Maximum Energy for Single Pulse	2.4kJ <sup>(e)</sup>				
Over Temperature Warning       Flashing display         Cooling       Convection %         Battery       Rechargeable, 1100mAh, lifetime >15 hours         Interface for Ariel       128x64 pixel LCD Display, Bluetooth 5.1 (compatible with Bluetooth 4 and above), USB-C         Interface for Ariel-USB       128x64 pixel LCD Display, USB-C         Dimensions (L x W x H)       70 x 70 x 80 mm (see drawing)         Weight       0.8kg         Operating Temperature       10 - 40°C         Permissible Relative Humidity (non-condensing)       10 - 80%         Ingress Protection       IP62         Continuous Power Measurement       Start.ab (PC, USB), StarViewer (iOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W         Recommended Sposure Times and 1/e <sup>2</sup> Laser Power W         Gaussian Beam Diameters       30       Continuous %       1         Continuous Power Measurement       30       Continuous %       1       0.3         Fower Measurement from Short Exposure       500       2       4       1         1000       1       6       1       1         2000       0.7       10       1.5       1         2000       0.3       22       N.A.       2	Maximum Exposure Before Cooling Down is Necessary	Maximum operating temperature of 60°C will be reached after exposure to 14kJ (e.g. 10 shots at 2,000W, 0.7s) <sup>(a)</sup> . Cooling down time before another 14kJ series of shots is ~10 minutes <sup>(b)</sup> .				
Cooling       Convection %         Battery       Rechargeable, 1100mAh, lifetime >15 hours         Interface for Ariel       128x64 pixel LCD Display, Bluetooth 5.1 (compatible with Bluetooth 4 and above), USB-C         Interface for Ariel-USB       128x64 pixel LCD Display, USB-C         Dimensions (L x W x H)       70 x 70 x 80 mm (see drawing)         0.8kg       0.8kg         Operating Temperature       10 - 40°C         Ingress Protection       IP62         Compatible Client Applications       StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W         Gaussian Beam Diameters       StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)         Continuous Power Measurement       30       Continuous %       1       0.3         Food       20 m       4       2       1000       1       6       1         Power Measurement from Short Exposure       Ariel Window Replacement Kit (P/N 7Z08424)       0.3       22       N.A.         Optional Accessories       Ariel Window Replacement Kit (P/N 7Z08424)       -       -         Compliance       CE, UKCA, China ROHS       -       -       -         Version       V2       -       -       -         Model	Over Temperature Warning	Flashing display				
Battery       Rechargeable, 1100mAh, lifetime >15 hours         Interface for Ariel       128x64 pixel LCD Display, Bluetooth 5.1 (compatible with Bluetooth 4 and above), USB-C         Dimensions (L x W x H)       70 x 70 x 80 mm (see drawing)         Weight       0.3kg         Operating Temperature       10 - 40°C         Permissible Relative Humidity (non-condensing)       10 - 80%         Ingress Protection       IP62         Compatible Client Applications       StarLab (PC, USB), StarViewer (IOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W         Baser Power W       Recommended Exposure Times and 1/e <sup>2</sup> Continuous Power Measurement       30       Continuous <sup>n</sup> 500       20 <sup>n</sup> 4       2         Power Measurement from Short Exposure       500       2       4       1         1000       1       6       1       1         Q000       0.7       10       1.5       8000       0.3       22       N.A.         Optional Accessories       Ariel Window Replacement Kit (P/N 7Z08424)       -       -       -         Compliance       CE, UKCA, China RoHS       -       -       -       -         Version       V2       -	Cooling	Convection <sup>(h)</sup>				
Interface for Ariel       128x64 pixel LCD Display, Bluetooth 5.1 (compatible with Bluetooth 4 and above), USB-C         Interface for Ariel-USB       128x64 pixel LCD Display, USB-C         Dimensions (L x W x H)       70 x 70 x 80 mm (see drawing)         Weight       0.8kg         Operating Temperature       10 - 40°C         Permissible Relative Humidity (non-condensing)       10 - 80%         Ingress Protection       IP62         Compatible Client Applications       StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W         Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W         So0       20 °       4         100       1       0.3         Continuous Power Measurement       500       20 °         500       20 °       4       1         1000       1       6       1         1000       0.5       16       3.5         8000       0.3       22       N.A.         Optional Accessories       Ariel Window Replacement Kit (P/N 7Z08424)       Version         Compliance       CE, UKCA, China RoHS       V2       -         Version       V2       -       -         Model	Battery	Rechargeable, 1100mAh, lifetime >15 hours				
Interface for Ariel-USB         128x64 pixel LCD Display, USB-C           Dimensions (L x W x H)         70 x 70 x 80 mm (see drawing)           Weight         0.8kg           Operating Temperature         10 - 40°C           Permissible Relative Humidity (non-condensing)         10 - 80%           Ingress Protection         IP62           Compatible Cilent Applications         StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)           Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W           Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W           So0         20 <sup>n</sup> Continuous Power Measurement         30           S00         20 <sup>n</sup> 1000         1           1000         1           2000         0.7           1000         1.5           300         Continuous <sup>n</sup> 2000         0.7           1000         1.6           3000         0.3           22         4           1000         1           2000         0.7           1000         1.5           8000         0.3           8000         0.3           8000         0.3 <td>Interface for Ariel</td> <td colspan="4">128x64 pixel LCD Display, Bluetooth 5.1 (compatible with Bluetooth 4 and above), USB-C</td>	Interface for Ariel	128x64 pixel LCD Display, Bluetooth 5.1 (compatible with Bluetooth 4 and above), USB-C				
Dimensions (L x W x H)       70 x 70 x 80 mm (see drawing)         Weight       0.8kg         Operating Temperature       10 - 40°C         Permissible Relative Humidity (non-condensing)       10 - 80%         Ingress Protection       IP62         Compatible Client Applications       StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>2</sup> Gaussian Beam Diameters         Continuous Power Measurement       30       Continuous <sup>(n)</sup> 1       0.3         Form Measurement from Short Exposure       30       Continuous <sup>(n)</sup> 4       2         Power Measurement from Short Exposure       2000       0.7       10       1.5         Quotinal Accessories       Ariel Window Replacement Kit (P/N 7Z08424)       S.5       3.5         Optional Accessories       Ariel Window Replacement Kit (P/N 7Z08424)       -       -         Version       V2       -       -       -         Model       Ariel       Ariel       USB       -         Part number       70 27137       7Z07138       -	Interface for Ariel-USB	128x64 pixel LCD Display, USB-C				
Weight       0.8kg         Operating Temperature       10 - 40°C         Permissible Relative Humidity (non-condensing)       10 - 80%         Ingress Protection       IP62         Compatible Client Applications       StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W         Response s       Without diffuser [mm]         Gaussian Beam Diameters       30         Continuous Power Measurement       30         500       20 %         4       2         500       2         1000       1         0.3       2000         0.3       22         4000       0.5         8000       0.3         0.3       22         Nance       Nance         Arriel Window Replacement Kit (P/N 7Z08424)       Nance         Compliance       CE, UKCA, China RoHS       V2         Version       V2       -         Model       Ariel       USB         Communications       Bluetooth and USB       USB         Part number       7Z07137       7Z07138	Dimensions (L x W x H)	70 x 70 x 80 mm (see drawing)				
Operating Temperature       10 - 40°C         Permissible Relative Humidity (non-condensing)       10 - 80%         Ingress Protection       IP62         Compatible Client Applications       StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W         Gaussian Beam Diameters       30       Continuous <sup>(n)</sup> Continuous Power Measurement       30       Continuous <sup>(n)</sup> 500       20 <sup>(n)</sup> 4       2         Power Measurement from Short Exposure       500       2       4       1         1000       1       6       1       1         2000       0.7       10       1.5       1         2000       0.3       22       N.A.       1         2000       0.7       10       1.5       1         2000       0.3       22       N.A.       2         Optional Accessories       Ariel Window Replacement Kit (P/N 7Z08424)       Version       3.5         Compliance       CE, UKCA, China RoHS       V2       -       -         Model       Ariel       Ariel       USB       -         Communications       Bluetooth and USB       USB       - </td <td>Weight</td> <td colspan="4">0.8kg</td>	Weight	0.8kg				
Permissible Relative Humidity (non-condensing) 10 - 80% Ingress Protection Compatible Client Applications Recommended Exposure Times and 1/e <sup>2</sup> Gaussian Beam Diameters Continuous Power Measurement Continuous Power Measurement Power Measurement from Short Exposure Power Measurement	Operating Temperature	10 - 40°C				
Ingress Protection       IP62         Compatible Client Applications       StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)         Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W       Recommended       Min 1/e <sup>2</sup> beam dia.       (max dia. is 10mm) [mm]         Gaussian Beam Diameters       30       Continuous <sup>®</sup> 1       0.3         Continuous Power Measurement       30       Continuous <sup>®</sup> 1       0.3         Food       20 <sup>®</sup> 4       2       1         Power Measurement from Short Exposure       500       2       4       1         1000       1       6       1       1         2000       0.7       10       1.5       1         4000       0.5       16       3.5       1         0mpliance       CE, UKCA, China RoHS       V2       -       -         Version       V2       -       -       -         Model       Ariel       USB       USB       -         Part number       7207137       7207138       7207138	Permissible Relative Humidity (non-condensing)	10 - 80%				
StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)       Min 1/e² beam dia.       With out diffuser [mm]       Min 1/e² beam dia.       Min 1/e² beam dia. <tht< td=""><td>Ingress Protection</td><td colspan="4">1262</td></tht<>	Ingress Protection	1262				
Recommended Exposure Times and 1/e <sup>2</sup> Laser Power W       Recommended Exposure s       Min 1/e <sup>2</sup> beam dia.       Without diffuser [mm]       Min 1/e <sup>2</sup> beam dia.       Without diffuser [max dia. is 10mm) [mm]         Continuous Power Measurement       30       Continuous <sup>®</sup> 1       0.3       2       4       1         Power Measurement from Short Exposure       2000       0.7       10       1.5       1	Compatible Client Applications	StarLab (PC, USB), StarViewer (iOS or Android, Bluetooth)				
30         Continuous (%)         1         0.3           500         20 %         4         2           20 %         4         2           August 1000         2         4         1           Power Measurement from Short Exposure         500         2         4         1           1000         1         6         1         1           2000         0.7         10         1.5           4000         0.5         16         3.5           8000         0.3         22         N.A.           Optional Accessories         Ariel Window Replacement Kit (P/N 7Z08424)         Version           Compliance         CE, UKCA, China RoHS         V           Version         V2         -           Model         Ariel         Ariel           Communications         Bluetooth and USB         USB           Part number         7207137         7207138	Recommended Exposure Times and 1/e <sup>2</sup> Gaussian Beam Diameters	Laser Power W	Recommended Exposure s	Min 1/e <sup>2</sup> beam dia. Without diffuser [mm]	Min 1/e <sup>2</sup> beam dia. With diffuser (max dia. is 10mm) [mm]	
Continuous Power Measurement         500         20 fb         4         2           Power Measurement from Short Exposure         500         2         4         1           1000         1         6         1         1           2000         0.7         10         1.5           4000         0.5         16         3.5           8000         0.3         22         N.A.           Optional Accessories         Ariel Window Replacement Kit (P/N 7Z08424)	Orational Down Management	30	Continuous (f)	1	0.3	
500         2         4         1           Power Measurement from Short Exposure         500         1         6         1           2000         0.7         10         1.5           4000         0.5         16         3.5           8000         0.3         22         N.A.           Optional Accessories         Ariel Window Replacement Kit (P/N 7Z08424)         V           Compliance         CE, UKCA, China RoHS         -           Version         V2         -         -           Model         Ariel         Ariel-USB         -           Communications         Bluetooth and USB         USB         -           Part number         7Z07137         7Z07138         -	Continuous Power Measurement	500	20 <sup>(f)</sup>	4	2	
1000         1         6         1           Power Measurement from Short Exposure         1000         0.7         10         1.5           2000         0.7         10         1.5           4000         0.5         16         3.5           8000         0.3         22         N.A.           Optional Accessories         Ariel Window Replacement Kit (P/N 7208424)         N.A.           Compliance         CE, UKCA, China RoHS         -           Version         V2         -         -           Model         Ariel         Ariel         Ariel-USB           Communications         Bluetooth and USB         USB         -           Part number         7207137         7207138         -	Power Measurement from Short Exposure	500	2	4	1	
Power Measurement from Short Exposure         2000         0.7         10         1.5           4000         0.5         16         3.5           000         0.3         22         N.A.           Optional Accessories         Ariel Window Replacement Kit (P/N 7Z08424)         N.A.           Compliance         CE, UKCA, China RoHS         -           Version         V2         -           Model         Ariel         Ariel           Communications         Bluetooth and USB         USB           Part number         7207137         7207138		1000	1	6	1	
4000         0.5         16         3.5           000         0.3         22         N.A.           Optional Accessories         Ariel Window Replacement Kit (P/N 7Z08424)		2000	0.7	10	1.5	
8000     0.3     22     N.A.       Optional Accessories     Ariel Window Replacement Kit (P/N 7Z08424)		4000	0.5	16	3.5	
Optional Accessories       Ariel Window Replacement Kit (P/N 7Z08424)         Compliance       CE, UKCA, China RoHS         Version       V2         Model       Ariel         Communications       Bluetooth and USB         Part number       7Z07137         Notes: (a) The power is calculated by measuring the pulse energy and exposure time. A rectangular pulse is assumed for this calculation. Diffuser mode is calibrated with protective		8000	0.3	22	N.A.	
Compliance       CE, UKCA, China RoHS         Version       V2         Model       Ariel         Communications       Bluetooth and USB         Part number       7207137         Notes: (a) The power is calculated by measuring the pulse energy and exposure time. A rectangular pulse is assumed for this calculation. Diffuser mode is calibrated with protective	Optional Accessories	Ariel Window Replacement Kit (P/N 7Z08424)				
Version         V2         -           Model         Ariel         Ariel-USB           Communications         Bluetooth and USB         USB           Part number         7207137         7207138           Notes: (a) The power is calculated by measuring the pulse energy and exposure time. A rectangular pulse is assumed for this calculation. Diffuser mode is calibrated with protective	Compliance	CE, UKCA, China RoHS				
Model     Ariel     Ariel-USB       Communications     Bluetooth and USB     USB       Part number     7207137     7207138       Notes: (a) The power is calculated by measuring the pulse energy and exposure time. A rectangular pulse is assumed for this calculation, Diffuser mode is calibrated with protective	Version	V2 -				
Communications         Bluetooth and USB         USB           Part number         7207137         7207138           Notes: (a) The power is calculated by measuring the oulse energy and exposure time. A rectangular pulse is assumed for this calculation. Diffuser mode is calibrated with protective	Model	Ariel		Ariel-USB		
Part number 7207137 7207138 Notes: (a) The power is calculated by measuring the pulse energy and exposure time. A rectangular pulse is assumed for this calculation. Diffuser mode is calibrated with protective	Communications	Bluetooth and USB		USB		
Notes: (a) The power is calculated by measuring the pulse energy and exposure time. A rectangular pulse is assumed for this calculation, Diffuser mode is calibrated with protective	Part number	7Z07137		7Z07138	7Z07138	
	Notes: (a) The power is calculated by measuring the pulse	energy and exposure time. A rectangular pulse is assumed for this calculation. Diffuser mode is calibrated with protective				

window, working without window may have small effect on measurement results.
(b) May be used in the 550 - 900nm range with decreased accuracy and higher reflection (up to 10%).
(c) Use without window or diffuser. The sensor oldes not measure pulse width above 1100nm. For pulsed power measurement at >1100nm, a short pulse with known duration should be applied. A pulse energy measurement is performed and divided by the known pulse width to obtain the power. When working without window and without diffuser, the sensor is not sealed against dust or water.
(d) With diffuser, reading will be up to 10% lower than vertical beam and beam should be offset from center in opposite direction to beam incidence by ~10mm.
(e) At room temperature.
(f) Faster cooling can be achieved by attaching the Ariel to a heat sink using the mounting threads at the bottom.

\* For drawings and pictures please see page 107

Ariel



