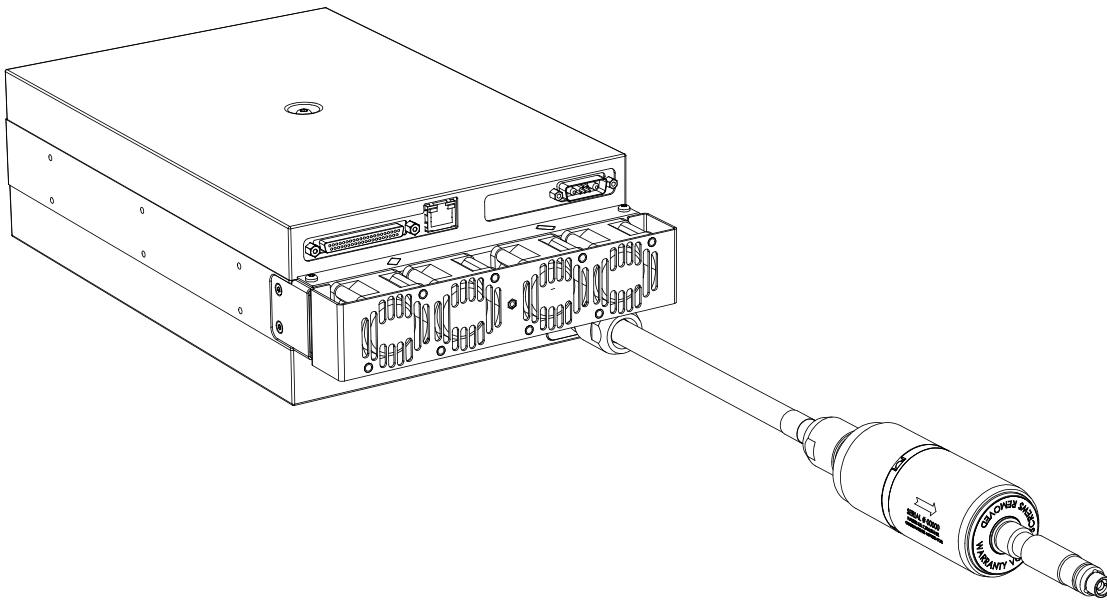


# G4 Pulsed Fibre Laser Specification

## Applicable Part Numbers

| Part number        | Options                            |
|--------------------|------------------------------------|
| SP-040P-A-HS-H-B-N | 3m optical cable, no pilot laser   |
| SP-040P-A-HS-H-B-Y | 3m optical cable, with pilot laser |
| SP-040P-A-HS-H-C-N | 5m optical cable, no pilot laser   |
| SP-040P-A-HS-H-C-Y | 5m optical cable, with pilot laser |



## System Integration Details

| parameter                            | unit | range          |
|--------------------------------------|------|----------------|
| Laser Module type                    |      | A1             |
| Laser Module Dimensions              | mm   | 347 x 201 x 95 |
| Beam delivery type                   |      | ILLK           |
| Control interface version            |      | V8             |
| Power Supply Voltage                 | V DC | 24 ± 2         |
| Logic Power Supply Requirement       | W    | 50             |
| Laser Diode Power Supply Requirement | W    | 200            |
| Operating temperature range          | C    | 0 to +45       |
| Storage temperature range            | C    | -10 to +60     |

## Related Documents

| Document number | Description  |
|-----------------|--|
| SM-S00227       | OEM Safety and System Integration Manual: Module Types A1 and A2 |
| SM-S00360       | V8 Control Interface Manual                                      |
| SM-S00220       | G4 Accessories Datasheet   |

## Laser Characteristics

All parameters specified at wfm 0 (30kHz), rated power, over operating temperature range unless otherwise stated.

| parameter   | unit    | range       |
|---|---------|-------------|
| Average Output Power                                    | W       | > 40        |
| Output Power Stability                                  | % p-p   | < 5         |
| Maximum Pulse Energy                                    | mJ      | > 1.3       |
| Maximum Peak Power                                      | kW      | >20         |
| Pulse Width Range (see pulse waveform table)            | ns      | 10 – 240    |
| Pulse-to-Pulse Energy Stability (at stable temperature) | % rms   | < 3         |
| CW Mode   |         | Yes         |
| Central Emission Wavelength                             | nm      | 1059 – 1065 |
| Emission Bandwidth                                      | nm      | < 12        |
| Fraction of power within $\lambda_0 \pm 20$ nm          | %       | > 90        |
| $M^2$   |         | 2.5 – 3.5   |
| Full-angle divergence                                   | mrad    | 90 – 120    |
| Circularity   | %       | > 90        |
| Beam pointing error                                     | mrad    | < 10        |
| Beam offset   | mm      | < 0.1       |
| Astigmatism   | $1/z_R$ | < 0.3       |
| Degree of polarisation                                  | %       | < 20        |

## Pulse Waveform Table

| wfm   | PRFO (kHz)       | PRFmax (kHz) | Max. pulse energy, $E_{max}$ (mJ) | Typ. FWHM pulse width at $E_{max}$ (ns) | Pulse width at 10% (ns) | Typ. peak power at $E_{max}$ (kW) |
|-------|------------------|--------------|-----------------------------------|---|-------------------------|-----------------------------------|
| 0     | 30               | 1000         | 1.33                              | 20                                      | 240                     | 28                                |
| 1     | 47               | 1000         | 0.85                              | 24                                      | 120                     | 21                                |
| 2     | 76               | 1000         | 0.53                              | 28                                      | 50                      | 18                                |
| 3     | 145              | 1000         | 0.28                              | 17                                      | 20                      | 16                                |
| 4     | 230              | 1000         | 0.17                              | 10                                      | 15                      | 15                                |
| 5     | 250              | 1000         | 0.16                              | 10                                      | 10                      | 14                                |
| 6     | 250              | 1000         | 0.16                              | 10                                      | 10                      | 14                                |
| 7     | 250              | 1000         | 0.16                              | 10                                      | 10                      | 14                                |
| 8     | 250              | 1000         | 0.16                              | 10                                      | 10                      | 14                                |
| 9     | 250              | 1000         | 0.16                              | 10                                      | 10                      | 14                                |
| 10    | 250              | 1000         | 0.16                              | 10                                      | 10                      | 14                                |
| 11    | 30               | 1000         | 1.33                              | 23                                      | 240                     | 28                                |
| 12    | 32               | 1000         | 1.25                              | 24                                      | 220                     | 26                                |
| 13    | 34               | 1000         | 1.18                              | 24                                      | 210                     | 25                                |
| 14    | 38               | 1000         | 1.05                              | 23                                      | 190                     | 23                                |
| 15    | 41               | 1000         | 0.98                              | 24                                      | 160                     | 22                                |
| 16    | 43.5             | 1000         | 0.92                              | 24                                      | 140                     | 22                                |
| 17    | 47               | 1000         | 0.85                              | 24                                      | 120                     | 21                                |
| 18    | 51               | 1000         | 0.78                              | 24                                      | 100                     | 20                                |
| 19    | 54               | 1000         | 0.74                              | 25                                      | 90                      | 20                                |
| 20    | 58               | 1000         | 0.69                              | 25                                      | 80                      | 19                                |
| 21    | 62               | 1000         | 0.65                              | 26                                      | 70                      | 19                                |
| 22    | 69               | 1000         | 0.58                              | 26                                      | 60                      | 18                                |
| 23    | 76               | 1000         | 0.53                              | 28                                      | 50                      | 18                                |
| 24    | 89               | 1000         | 0.45                              | 27                                      | 40                      | 17                                |
| 25    | 108              | 1000         | 0.37                              | 22                                      | 30                      | 17                                |
| 26    | 145              | 1000         | 0.28                              | 17                                      | 20                      | 16                                |
| 27    | 230              | 1000         | 0.17                              | 10                                      | 15                      | 15                                |
| 28    | 250              | 1000         | 0.16                              | 10                                      | 10                      | 14                                |
| 29-63 | Repeats of wfm28 |              |                                   |   |                         |                                   |