

## Specifications

| Spectral Measurement                                                                  |                                                                                            |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Wavelength range                                                                      | 1250 to 1650 nm                                                                            |
| Resolution bandwidth(FWHM) <sup>2</sup>                                               | 0.038 nm                                                                                   |
| Abs. wavelength accuracy <sup>2</sup>                                                 | ± 0.01 nm                                                                                  |
| Wavelength reference                                                                  | internal, physical constant                                                                |
| Wavelength recalibration period                                                       | internal recalibration (no factory recalibration required)                                 |
| Readout resolution                                                                    | 0.001 nm                                                                                   |
| Measurement samples                                                                   | 120,000                                                                                    |
| Power Measurement                                                                     |                                                                                            |
| Dynamic range <sup>3</sup>                                                            | –70 to +23 dBm                                                                             |
| Absolute accuracy <sup>2,4</sup>                                                      | ±0.5 dB                                                                                    |
| Total safe power <sup>5</sup>                                                         | +23 dBm                                                                                    |
| Readout resolution                                                                    | 0.01 dB                                                                                    |
| Linearity <sup>6</sup>                                                                | ±0.1 dB                                                                                    |
| Flatness <sup>2</sup>                                                                 | ±0.25 dB                                                                                   |
| WDM Measurement                                                                       |                                                                                            |
| Optical rejection ratio2 (OSA-500 only)                                               |                                                                                            |
| At ±0.2 nm (for 50 GHz ch-spacing)                                                    | 45 dBc                                                                                     |
| At ±0.4 nm (for 100 GHz ch-spacing)                                                   | 50 dBc                                                                                     |
| Optical rejection ratio2 (OSA-500M/501M/500R/500RS only)                              |                                                                                            |
| At ±0.2 nm (for 50 GHz ch-spacing)                                                    | 40 dBc                                                                                     |
| At ±0.4 nm (for 100 GHz ch-spacing)                                                   | 47 dBc                                                                                     |
| Channel spacing                                                                       | 25 to >200 GHz, CWDM                                                                       |
| Number of optical channels                                                            | 256                                                                                        |
| Data signals                                                                          | up to 1 TBps                                                                               |
| Modulation formats (Such as NRZ/RZOOK, DB, PSBT, CSRZ, DPSK, BPSK, QPSK, and PM QPSK) | All formats supported                                                                      |
| Scanning time (including WDM analysis)<br>Full band<br>C-band                         | <5 s<br>1 s                                                                                |
| Measurement Modes                                                                     |                                                                                            |
| Analysis                                                                              | WDM, Drift, DFB, LED, FPL, EDFA in-band OSNR (OSA-500R/500RS only) ch-drop (OSA-501M only) |
| Display                                                                               | Graph, WDM table, graph and table                                                          |
| Channel Drop Option (OSA-501M only)                                                   |                                                                                            |
| Wavelength range                                                                      | 1300 to 1650 nm                                                                            |
| Data rates                                                                            | up to 12.5 Gbps                                                                            |
| Spectral filter bandwidth                                                             | >20 GHz                                                                                    |
| Insertion loss <sup>7</sup>                                                           | <12 dB                                                                                     |
| Tracking mode                                                                         | auto wavelength control                                                                    |
| In-band OSNR (OSA-500R, OSA-500RS only)                                               |                                                                                            |
| I-OSNR dynamic range                                                                  | up to >30 dB                                                                               |
| PMD tolerance <sup>8</sup>                                                            | up to 25 ps                                                                                |
| Measurement accuracy <sup>9</sup>                                                     | ±0.5 dB                                                                                    |
| Data signals <sup>10</sup>                                                            | up to 100 Gbps                                                                             |
| Measurement time <sup>11</sup>                                                        | < 30 s                                                                                     |

| Optical Interfaces |                                      |
|--------------------|--------------------------------------|
| Optical port       | universal SM-PC, universal SM-APC    |
| Connectors         | FC, SC, ST, LC, DIN                  |
| ORL <sup>12</sup>  | >35 dB                               |
| Dimensions         |                                      |
| Weight (module)    | 2.2 kg (4.6 lb)                      |
| Size (module)      | 50 x 250 x 305 mm (20 x 98 x 120 in) |
| Temperature        |                                      |
| Operating          | +0 to +45°C (32 to 113°F)            |
| Storage            | –20 to +60°C (–4 to 140°F)           |
| Relative humidity  | 0 to 95% noncondensing               |

Notes:

1. Unless otherwise specified, all specifications are based on a temperature of 23°C ±2°C with an FC/PC connector after warm-up
2. Typical for 1520 to 1565 nm at 18 to 28°C
3. Max. power per channel +15 dBm
4. At –10 dBm, including PDL
5. +20 dBm for OSA-500R
6. Signal power from –40 dBm to +10 dBm
7. Typical for 1520 to 1620 nm at 23°C
8. For data rates up to 10 Gbps
9. Typ ±0.5 dB for OSNR <25 dB, signal power >–25 dBm, PMD <25 ps  
Typ. ±1 dB for data rates ≥40 Gbps with ch-spacing ≥100 GHz
10. Except for dual pol-mux and fast polarization scrambled signals
11. For OSA-500RS 20 nm scan and 40 channels
12. At 1550 nm

## Ordering Information

| Description                                | Part Number |
|--------------------------------------------|-------------|
| Standard OSA-500M                          |             |
| OSA-500M, PC-version                       | 2281/91.20  |
| OSA-500M, APC-version                      | 2281/91.30  |
| Standard OSA-500M                          |             |
| OSA-501M, PC-version                       | 2281/91.23  |
| High Dynamic Range OSA-500                 |             |
| OSA-500, PC-version                        | 2281/91.51  |
| ROADM, In-Band OSNR OSA-500R               |             |
| OSA-500R, PC-version                       | 2281/91.55  |
| OSA-500R, APC-version                      | 2281/91.65  |
| ROADM, High-Speed In-Band OSNR OSA-500RS   |             |
| OSA-500RS, PC-version                      | 2281/91.57  |
| OSA-500RS, APC-version                     | 2281/91.67  |
| Application Software for Report Generation |             |
| Optical fiber trace software               | EOFS100     |
| Optical fiber cable software               | EOFS200     |