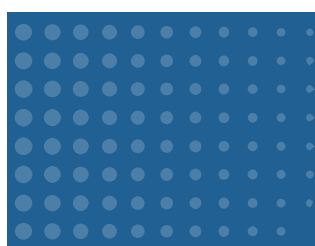


# 2022 POWER METERS



# 2.0 Power Meters & Interfaces

## Power Meter Finder

The table below lists the specs and features of Ophir Power Meters and PC Interfaces



|   | Centauri Single & Dual Channel | StarBright   | Vega         | Nova II      | StarLite   | LaserStar Single & Dual Channel |
|---|--------------------------------|--------------|--------------|--------------|------------|---------------------------------|
| Digital Display   | Yes                            | Yes          | Yes          | Yes          | Yes        | Yes                             |
| Display Color   | Color                          | Color        | Color        | Monochrome   | Monochrome | Monochrome                      |
| Analog Display  | Yes                            | Yes          | Yes          | Yes          | Yes        | No                              |
| Rechargeable Battery                                    | Yes                            | Yes          | Yes          | Yes          | Yes        | Yes                             |
| <b>Detector Support</b> (see compatibility table below) |                                |              |              |              |            |                                 |
| Thermal Sensors   | Yes                            | Yes          | Yes          | Yes          | Yes        | Yes                             |
| Photodiode Sensors                                      | Yes                            | Yes          | Yes          | Yes          | Yes        | Yes                             |
| Pyroelectric Sensors                                    | Yes                            | Yes          | Yes          | Yes          | Yes        | Yes                             |
| BeamTrack Sensors                                       | Yes                            | Yes          | Yes          | Yes          | Yes        | No                              |
| <b>Measurement Options</b>                              |                                |              |              |              |            |                                 |
| Average Power   | Yes                            | Yes          | Yes          | Yes          | Yes        | Yes                             |
| Energy per Pulse (Pyro. Sensors)                        | Yes                            | Yes          | Yes          | Yes          | Yes        | Yes                             |
| Single Shot Energy (Thermal Sensors)                    | Yes                            | Yes          | Yes          | Yes          | Yes        | Yes                             |
| Statistics  | Yes                            | Yes          | Yes          | Yes          | No         | Yes                             |
| Analog Out  | 1V,2V,5V,10V                   | 1V,2V,5V,10V | 1V,2V,5V,10V | 1V,2V,5V,10V | 1V         | 1V                              |
| Trigger input & output                                  | Yes                            | No           | No           | No           | No         | No                              |
| <b>Real-Time Logging</b>                                |                                |              |              |              |            |                                 |
| RS232   | 30Hz                           | 30Hz         | 30Hz         | 30Hz         | N/A        | 30Hz                            |
| GPIO  | N/A                            | N/A          | N/A          | N/A          | N/A        | 1500Hz                          |
| USB   | 25,000Hz                       | 5000Hz       | 2000Hz       | 2000Hz       | 20Hz*      | N/A                             |
| Bluetooth   | N/A                            | N/A          | N/A          | N/A          | N/A        | N/A                             |
| Ethernet  | N/A                            | N/A          | N/A          | N/A          | N/A        | N/A                             |
| On-Board Data Storage                                   | 2GB                            | >10MB**      | 250kB        | 50kB         | No         | 50kB                            |
| Automation Interface                                    | Yes                            | Yes          | Yes          | Yes          | Yes*       | No                              |
| LabVIEW VI's  | Yes                            | Yes          | Yes          | Yes          | Yes*       | Yes                             |
| Part number   | 7Z01700/ 7Z01701               | 7Z01580      | 7Z01560      | 7Z01550      | 7Z01565    | 7Z01600/ 7Z01601                |
| Page in the catalog                                     | 137                            | 139          | 141          | 143          | 145        | 147                             |

\* With USB activation code (see page 146)

\*\* Depends on size of USB Flash Drive

## Compatibility Table

| Meter / Interface   | Centauri | StarBright | Vega/<br>Nova II | StarLite | LaserStar                                   | Nova  | Juno | Juno+ | Juno-RS | EA-1 | Pulsar                                      | Quasar                                      | Legacy<br>USB                               |
|---|----------|------------|------------------|----------|---|---|------|-------|---------|------|---|---|---|
| <b>Sensor</b>   |          |            |                  |          |   |   |      |       |         |      |   |   |   |
| Supports full calibration curve for sensors so calibrated * | yes      | yes        | yes              | yes      | no  | no  | yes  | yes   | yes     | yes  | yes   | yes   | yes   |
| BeamTrack sensors   | yes      | yes        | yes              | yes      | Power/<br>Energy only                       | Power/<br>Energy only   | yes  | yes   | yes     | yes  | Power/<br>Energy only                       | Power/<br>Energy only                       | Power/<br>Energy only                       |
| BC20 sensor   | no       | yes        | yes              | no       | yes   | yes   | yes  | yes   | no      | no   | no  | no  | no  |
| PD300-CIE sensor  | yes      | yes        | yes              | no       | yes   | yes   | yes  | yes   | yes     | no   | no  | no  | no  |
| PD300RM sensors   | no       | yes        | no               | yes      | no  | no  | no   | yes   | yes     | no   | no  | no  | no  |
| PE-C Pyroelectric sensors                                   | yes      | yes        | yes              | yes      | Limited<br>functions.<br>See sensor<br>page | Needs adaptor<br>(P/N 7Z08272)<br>Limited<br>functions.<br>See sensor<br>page | yes  | yes   | yes     | yes  | Limited<br>functions.<br>See sensor<br>page | Limited<br>functions.<br>See sensor<br>page | Limited<br>functions.<br>See sensor<br>page |
| <b>Legacy</b>   |          |            |                  |          |   |   |      |       |         |      |   |   |   |
| LP1 type Thermal sensors                                    | yes      | yes        | yes              | yes      | yes   | yes   | yes  | yes   | yes     | yes  | yes   | yes   | yes   |
| Previous generation Pyroelectric sensors (non PE-C)         | no       | no         | yes              | no       | yes   | yes   | yes  | no    | no      | no   | yes   | yes   | yes   |

\* Some sensors are calibrated with a full spectral curve and the user selects any discreet, specific wavelength within the range. For other sensors, the specified spectral range is divided into regions, and the user is prompted to select the region (such as "<800nm"). For those sensors having the full curve, the table above shows which meters support the curve and prompt the user to select specific discreet wavelengths. When using meters that do NOT support this function, the user will only be able to select a number of specific wavelengths from within the range.



| Nova       | Juno             | Juno+            | Juno-RS         | EA-1       | Pulsar-1/2/4                | Wireless Interface Quasar |
|------------|------------------|------------------|-----------------|------------|-----------------------------|---------------------------|
| Yes        | N/A              | N/A              | N/A             | N/A        | N/A                         | N/A                       |
| Monochrome | N/A              | N/A              | N/A             | N/A        | N/A                         | N/A                       |
| No         | N/A              | N/A              | N/A             | N/A        | N/A                         | N/A                       |
| Yes        | Powered from USB | Powered from USB | 12V             | 12V or PoE | 12V                         | Yes                       |
| Yes        | Yes              | Yes              | Yes             | Yes        | Yes                         | Yes                       |
| Yes        | Yes              | Yes              | Yes             | Yes        | Yes                         | Yes                       |
| Yes        | Yes              | Yes              | Yes             | Yes        | Yes                         | Yes                       |
| No         | Yes              | Yes              | Yes             | Yes        | No                          | No                        |
| Yes        | Yes              | Yes              | Yes             | Yes        | Yes                         | Yes                       |
| Yes        | Yes              | Yes              | Yes             | Yes        | Yes                         | Yes                       |
| Yes        | Yes              | Yes              | Yes             | Yes        | Yes                         | Yes                       |
| 1V         | No               | 1V, 2V, 5V, 10V  | 1V, 2V, 5V, 10V | No         | No                          | No                        |
| No         | No               | No               | No              | No         | Yes                         | No                        |
| 10Hz       | N/A              | N/A              | 30Hz            | N/A        | N/A                         | N/A                       |
| N/A        | N/A              | N/A              | N/A             | N/A        | N/A                         | N/A                       |
| N/A        | 10,000Hz         | 10,000Hz         | N/A             | N/A        | 25,000Hz                    | N/A                       |
| N/A        | N/A              | N/A              | N/A             | N/A        | N/A                         | 500Hz                     |
| N/A        | N/A              | N/A              | N/A             | 25,000Hz   | N/A                         | N/A                       |
| 1kB        | No               | No               | N/A             | N/A        | No                          | No                        |
| No         | Yes              | Yes              | No              | Yes        | Yes                         | No                        |
| Yes        | Yes              | Yes              | Yes             | No         | Yes                         | No                        |
| 7Z01500    | 7Z01250          | 7Z01252          | 7Z01254         | 7Z01240    | 7Z01203 / 7Z01202 / 7Z01201 | 7Z01300                   |
| 149        | 153              | 154              | 154A            | 155        | 156                         | 157                       |

Ophir power meters are true plug-and-play instruments. With all sensor information and calibration stored in the sensor plug, just plug in any one of over 150 Ophir sensors and the instrument is calibrated and configured to measure laser power and energy with that sensor.

## Comparison of Hand Held Meters

| Meter  | Centauri                             | StarBright  | Vega        | Nova II     | StarLite         | Nova               |
|--|--------------------------------------|-------------|-------------|-------------|------------------|--------------------|
| <b>Supported Sensors</b>                         |                                      |             |             |             |                  |                    |
| Standard Thermopile, Photodiode, PyroC sensors   | X                                    | X           | X           | X           | X                | "X (with adaptor)" |
| BeamTrack  | X                                    | X           | X           | X           | X                |                    |
| BC20   |                                      | X           | X           | X           |                  | X                  |
| PD300-CIE  | X                                    | X           | X           | X           |                  | X                  |
| PD300RM  |                                      | X           |             |             | X                |                    |
| <b>Measurement Capabilities</b>                  |                                      |             |             |             |                  |                    |
| Parameter Configuration                          | X                                    | X           | X           | X           | X                | X                  |
| Power & Energy                                   | X                                    | X           | X           | X           | X                | X                  |
| Exposure with Pyro                               | X                                    | X           | X           | X           |                  | X                  |
| Position and Size with BeamTrack Sensors         | X                                    | X           | X           | X           | X                |                    |
| Beam Stability with BeamTrack Sensors            | X                                    | X           | X           | X           |                  |                    |
| Power From Pulse                                 | X                                    | X           |             |             |                  |                    |
| Irradiance                                       |                                      | X           |             |             | X                |                    |
| Dosage   |                                      | X           |             |             | X                |                    |
| Exposure with PD                                 | X                                    | X           |             |             |                  |                    |
| FAST Power                                       | X                                    |             |             |             |                  |                    |
| POWER_SYNC (LowFreqPulse)                        | X                                    | X           |             |             |                  |                    |
| Density  | X                                    | X           | X           | X           |                  | X                  |
| Scale Factor                                     | X                                    | X           | X           | X           |                  | X                  |
| Normalize  | X                                    | X           | X           | X           |                  |                    |
| Fixed Offset                                     | X                                    | X           |             |             |                  |                    |
| Mixing Functions Together                        | X                                    | X           |             |             |                  |                    |
| Showing Function Results in Graphical Display    | X                                    | X           | X           | X           | X                |                    |
| <b>PC Communication</b>                          |                                      |             |             |             |                  |                    |
| StarLab Support                                  | X                                    | X           | X           | X           | X                |                    |
| RS232  | X                                    | X           | X           | X           |                  | X                  |
| USB Communication                                | X                                    | X           | X           | X           | X <sup>(a)</sup> |                    |
| LabVIEW Library                                  | X                                    | X           | X           | X           | X                | X                  |
| Max Real Time Delivery (points/s)                | 10,000 X 2 (PD)<br>25,000 X 2 (Pyro) | 5,000       | 2,000       | 2,000       | 20               | 15                 |
| <b>Graphical Displays Available at All Times</b> |                                      |             |             |             |                  |                    |
| Bargraph   | X                                    | X           | X           | X           | X                | X                  |
| Simulated Analog Needle                          | X                                    | X           | X           | X           | X                |                    |
| Pass/Fail  | X                                    | X           | X           | X           |                  |                    |
| Line Graph for Both Power and Energy             | X                                    | X           |             |             |                  |                    |
| Pulse Chart for Both Power and Energy            | X                                    | X           |             |             |                  |                    |
| Real Time Statistics (not just when logging)     | X                                    | X           |             |             |                  |                    |
| <b>Screen Specs</b>                              |                                      |             |             |             |                  |                    |
| Screen Size                                      | 7"                                   | 3.5"        | 3.5"        | 4"          | 3.5"             | 2"                 |
| Color Screen                                     | X                                    | X           | X           |             | X                |                    |
| <b>Other Features</b>                            |                                      |             |             |             |                  |                    |
| Analog Output (in Volts)                         | 1, 2, 5, 10                          | 1, 2, 5, 10 | 1, 2, 5, 10 | 1, 2, 5, 10 | 1                | 1                  |
| Raw Analog Output                                | X                                    |             |             |             |                  |                    |
| External Trigger                                 | X                                    |             |             |             |                  |                    |
| TTL OUT  | X                                    |             |             |             |                  |                    |
| Calibration Reminder                             | X                                    | X           | X           | X           |                  |                    |
| Time Stamp                                       | X                                    | X           |             |             |                  |                    |
| Japanese   | X                                    | X           | X           | X           | X                |                    |
| Russian and Chinese                              | X                                    | X           |             |             | X                |                    |
| French, Spanish, Italian, German, Korean         | X                                    |             |             |             |                  |                    |
| Built in Help                                    |                                      | X           | X           | X           |                  |                    |

Notes: (a) With USB activation code (see page 146)

## Measuring Modes Available: Sensor Type / Device

| Device     | Sensor Type                                       |  |  |
|------------|---|--|--|
|            | Photodiode  | Thermopile / BeamTrack*                  | Pyroelectric                             |
| Centauri   | Power<br>Exposure<br>Fast Power<br>Low Freq Power | Power / Track*<br>Energy<br>Pulsed Power | Power<br>Energy<br>Exposure              |
| StarBright | Power<br>Exposure<br>Low Freq Power               | Power / Track*<br>Energy<br>Pulsed Power | Power<br>Energy<br>Exposure              |
| Juno+      | Power<br>Low Freq Power                           | Power / Track*<br>Energy<br>Pulsed Power | Power<br>Energy<br>Exposure              |
| Juno-RS    | Power<br>Low Freq Power                           | Power / Track*<br>Energy<br>Pulsed Power | Power<br>Energy<br>Exposure              |
| Juno       | Power<br>Low Freq Power                           | Power / Track*<br>Energy<br>Pulsed Power | Power<br>Energy<br>Exposure (PyroC only) |
| EA-1       | Power<br>Low Freq Power                           | Power / Track*<br>Energy                 | Power<br>Energy                          |
| Nova II    | Power   | Power / Track*<br>Energy                 | Power<br>Energy<br>Exposure              |
| Vega       | Power   | Power / Track*<br>Energy                 | Power<br>Energy<br>Exposure              |
| StarLite   | Power   | Power / Track*<br>Energy                 | Power<br>Energy                          |
| Nova       | Power   | Power<br>Energy                          | Power<br>Energy                          |
| LaserStar  | Power   | Power<br>Energy                          | Power<br>Energy                          |
| Pulsar     | Power   | Power<br>Energy                          | Power<br>Energy                          |
| Quasar     | Power   | Power<br>Energy                          | Power<br>Energy                          |

\* BeamTrack is the trademark name of the sensors that measure power, position and size. They include the Track measuring mode.

### Terminology:

**Energy** - Measurements in Joules.

**Exposure** - Used to measure the sum of the energy (for Pyroelectric and Photodiode sensors).

**Fast Power** - Power measurement mode using fast sampling rate; used to measure laser modulation and flicker of LED light sources (for Photodiode sensors).

**Low Freq Power** - Power measurement mode optimized for VCSELs and similar pulsed sources, where low pulse rate and high pulse peak power would cause problems if measuring in regular power mode.

**Power** - Measurements in Watts.

**Pulsed Power** - Can display instantaneous power of a laser pulse. Power is calculated from energy when the length of the pulse is known (for Thermopile sensors).

**Track** - Used to measure beam position and beam size while measuring power (for Thermopile sensors).

## Power Meters and PC Interfaces

Ophir power meters and PC interfaces work on the smart plug principle. This means that almost any Ophir power meter or PC interface can work – plug and play – with almost any of the wide range of Ophir sensors. Ophir power meters are also the most sensitive, lowest noise, most precisely calibrated units on the market thus giving the utmost performance from our smart sensors. As for ease of use, only Ophir power meters have smart keys to give the easiest and most convenient user interface. The units also come with a versatile range of software to use seamlessly either with the Ophir software or the user's own.



**Photodiode Sensors**  
Powers pW to Watts



**Thermal Sensors**  
Powers mW to kW and  
single shot energy



**Pyroelectric Sensors**  
Energies pJ to Joules  
Rep rates to 25kHz

**Power Meters**  
with USB/RS232



**StarBright**  
added features



**Vega**  
color



**Centauri**  
high end



**StarLite**  
basic



**Nova**  
rugged



**Laser Star**  
2 channel

**Computer Interfaces**  
with USB/Bluetooth/Ethernet/RS232



**Juno**  
compact



**Juno+**  
Incl. An Out



**Pulsar**  
1, 2, 4 channels



**Juno-RS**  
RS232



**EA-1**  
Ethernet



**Quasar**  
wireless

**Software Solutions**

StarLab, LabVIEW, StarCom, COM Object & StarViewer



**LabVIEW**



**StarLab Software**



**StarViewer Android Application**

## 2.1 Power Meters

### 2.1.1 Centauri

#### Feature Rich Touchscreen Laser Power/Energy Meter

- Compatible with all standard Ophir Thermal, BeamTrack, Pyroelectric and Photodiode sensors
- Large 7" Full Color Touch Display
- Multilingual interface – English, French, Spanish, Italian, German, Russian, Japanese, Chinese and Korean
- Single and Dual Channel models available
- Various Displays: Bargraph, Analog Needle, Line Plot, Pulse Chart, Pass/Fail, Position, Stability, and Real Time Statistics
- Dual Channel Instrument supports Split and Merged Graphical Displays
- Sophisticated power and energy logging, including logging every pulse at up to 25000Hz with Pyro sensors
- Math functions: Density, Scale Factor, Normalize against base line, etc. Functions can be mixed together, displayed graphically, and can also be logged
- Math Channel allows comparison of two measurements
- Field upgrading of embedded software via USB Flash Drive
- 2GB internal storage and USB Flash Drive for ample data storage <sup>(a)</sup>
- USB and RS232 interfaces with StarLab PC application and User Commands document
- LabVIEW driver and COM Object Interface
- Pulsed Power measurements with Thermopile sensors
- Low Frequency Power with Photodiode sensors - power measurement based on pulse cycle (for VCSEL)
- Fast Power (10kHz) logging with Photodiode sensors
- Exposure measurement (Energy Summing) with Photodiode and Pyroelectric sensors
- Scalable Analog Output, TTL Output and External Trigger Input
- Loudspeaker for Audio Warnings



Centauri is the most feature rich desktop laser power/energy meter on the market. Just plug in one of the many Ophir sensors and you have a whole measurement laboratory at your fingertips. The bright color display gives unparalleled legibility and ease of interpreting information. Centauri has many on board features such as laser tuning, data logging, graphing, normalize, power or energy density, attenuation scaling, max and min limits. Centauri can also display the power or energy as a high resolution simulated analog needle display.



Centauri can be either battery operated or from an AC source with the charger plugged in at all times. Its bright display and user-selectable color format enables ease of use in dark room conditions or when wearing protective glasses.

The built-in USB and RS232 interfaces and StarLab PC software allow display and processing of data either in real time or from previously stored data. Results are displayed graphically on a PC. To support PC interfacing, LabVIEW drivers, a COM Object Interface and demo source code are provided.

The Centauri's dual channel capabilities enable the user to simply plug in any of Ophir's thermal, pyroelectric or photodiode sensors and measure the two channels independently, or a comparison between the two channels.

#### Centauri Screen Layout

The Centauri's 7" touch-screen provides ease-of-use at the tap of a finger. The display is carefully designed to provide easy reading of the laser measurement, quick access to configuration parameters as well as the ability to set up for more advanced work.



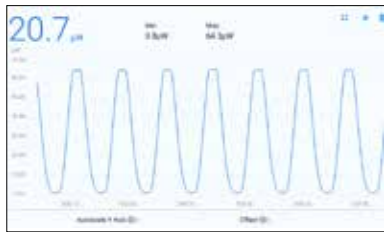
- ➔ Info Panel. Includes channel (A or B), sensor name, and serial number. Tap the menu icon at the right to easily access more functionality.
- ➔ Sensor Settings. Displayed on screen and easily updated. Tap on a parameter to open a window that displays all of the options. Tap on the desired setting to reconfigure and get back to work. Settings are stored in the sensor's memory as the startup settings for the next measurement session.
- ➔ Measurements. Numeric and Graphical display of reading. Tap Offset to reduce ambient environmental effects on the readings. Tap Zoom to focus the bargraph around the present measurement.

(a) USB Flash Drives of up to 32GB and FAT32 format only (Not exFAT nor NTFS formats).

## Selected Screens



Analog needle display of power Persistence and min/max tracking.



Line graph display of power.



Pulse chart display of energy.



Display statistics of the present measurement session.



Pass/Fail screen. Excellent for QA purposes.



Power, Position, and Size measured with a BeamTrack sensor.



Two independent channels of measurement.



Two channels merging into one graph.



Two channels with a math comparison channel.

## Specifications

|                      |   |
|----------------------|---|
| Power Meter Features | Brilliant color touch-screen TFT 1064 x 600 pixel graphics LCD. Large 16mm digits.  |
| I/O's                | Many screen features including power with bargraph, energy, average, exposure, frequency, graphs, scaling, special units, and more.           |
| Screen Refresh       | USB, RS232 and user selectable 1,2,5 and 10 Volt full scale analog output; TTL Output; External Trigger Input; Loudspeaker for Audio Warnings |
| Case                 | 15 times/sec  |
| Size                 | Molded high impact plastic with optimized angle kickstand. Rubberized sides for easy grip and protection against damage.                      |
| Battery              | Compact 47mm L x 200mm W x 130mm H (Weight 1kg)   |
| Multisensor Option   | Rechargeable Li-ion batteries with typically 6 hours between charges. The charger also functions as an AC adapter.                            |
| Data Handling        | Two sensors can be connected and measure independently, and with a mathematical comparison.   |
| Sensor Features      | Data can be viewed on board or transferred to PC:   |
| Program Features     | On Board: Data stored to USB Flash Drive (Thumb Drive) at rates up to 25,000 points/s.  |
| Compliance           | Works with Thermopile, BeamTrack, Pyroelectric (PE-C series) and Photodiode sensors <sup>(a)</sup> .  |
|                      | Preferred start up configuration can be set by user.  |
|                      | CE, UKCA, China RoHS  |

Note: (a) Not including BC20 and PD300RM sensors

## Ordering Information

| Item                                  | Description   | Ophir P/N |
|---------------------------------------|---|-----------|
| Centauri Single Channel               | Centauri high end power meter for Thermal, BeamTrack, Pyroelectric and Photodiode sensors           | 7Z01700   |
| Centauri Dual Channel                 | Dual Channel high end power meter for Thermal, BeamTrack, Pyroelectric and Photodiode sensors       | 7Z01701   |
| Centauri Dual Channel Activation Code | Software activation code to field upgrade a Single Channel Centauri to Dual Channel capabilities    | 7Z11056   |
| Centauri USB Cable                    | USB-A to MICRO-B cable (1 unit supplied with Centauri)  | 7E01279   |
| Centauri RS232 Cable                  | D9 to 3.5mm plug cable (1 unit supplied with Centauri)  | 7E01213   |
| N Polarity Power Supply/Charger       | Power Supply/Charger AC/DC 12V 2A N-2.1x5.5 (1 unit supplied with Centauri)                         | 7E05029   |
| General Purpose I/O Connector         | Used as analog output, external trigger output and TTL output plug (3 units supplied with Centauri) | 7E02008   |

## 2.1.2 StarBright

### Feature Rich Laser Power/Energy Meter

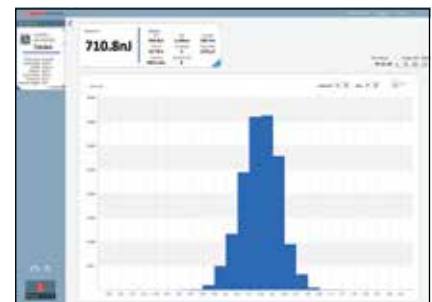
- Compatible only with all standard Ophir thermal, BeamTrack, pyroelectric (PE-C series only) and photodiode sensors
- Brilliant color large size TFT 320x240 display
- Choose between Digital with Bargraph, Analog Needle, Line Plot (for laser tuning), Pulse Chart, Pass/Fail, Position, Stability, Real Time Statistics displays
- Sophisticated power and energy logging, including logging every point at up to 5000Hz with Pyro sensors
- Math functions for advanced processing such as Density, Scale Factor, Normalize against base line, etc.
- Can mix functions together and display the results graphically. Function results can also be logged
- USB Flash Drive for nearly unlimited data storage
- USB and RS232 interfaces with StarLab PC application and User Commands (see User Commands document in website)
- LabVIEW driver and COM Object Interface
- Pulsed Power measurements with Thermopile detectors
- Low Frequency Power - power measurement from pulse cycle energy (for VCSEL)
- Exposure measurement (Energy Summing) with Photodiode and Pyroelectric sensors
- Select between English, Japanese, Russian, and Chinese interfaces
- Soft keys and menu driven functions with context sensitive help
- Compact handheld design with rubberized bumpers and optimized kickstand
- Backlighting and rechargeable battery
- Scalable Analog Output



StarBright is the most feature rich handheld laser power/energy meter on the market. Just plug in one of the many Ophir sensors and you have a whole measurement laboratory at your fingertips. The bright color display gives unparalleled legibility and ease of interpreting information. StarBright has many on board features such as laser tuning, data logging, graphing, normalize, power or energy density, attenuation scaling, max and min limits. StarBright can also display the power or energy as a high resolution simulated analog needle display.

StarBright can be either battery operated or from an AC source with the charger plugged in at all times. Its bright display and user-selectable color format enables ease of use in dark room conditions or when wearing protective glasses.

The built-in USB and RS232 interfaces and StarLab PC software allow display and processing of data either in real time or from previously stored data. Results are displayed graphically on a PC. To support PC interfacing, LabVIEW drivers, a COM Object Interface and demo source code are provided.



### StarBright Screen Layout

StarBright screen ergonomics raise the user experience to new levels. The display is carefully designed to provide easy reading of the laser measurement, quick access to configuration parameters as well as the ability to set up for more advanced work.

Select measurement mode (power, energy, etc.)

Measurement display area. User can select the display type. In this example, the user has chosen large numeric readout with real time statistics.

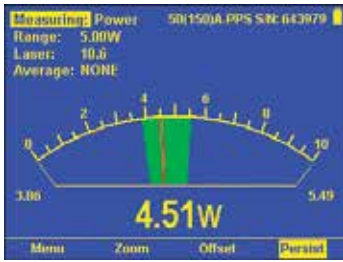
Press the Menu key to access additional StarBright functions including logging, pass/fail inspection and math processing.

Sensor name and serial number

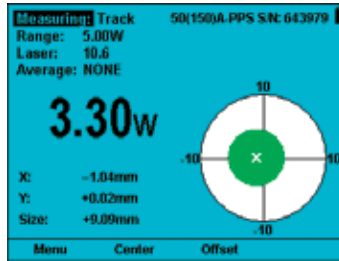
Configuration parameters for laser measurement. These settings are sensor specific and saved in the sensor's memory.

Softkeys for additional display functionality. In this example, press Offset to remove background noise from the measurement. Press Reset to clear the statistics and start over.

## Selected Screens



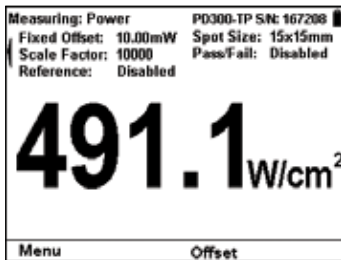
Analog needle display of power Persistence and min/max tracking.



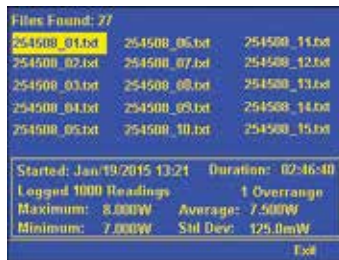
Power, Position, and Size measured with a BeamTrack sensor.



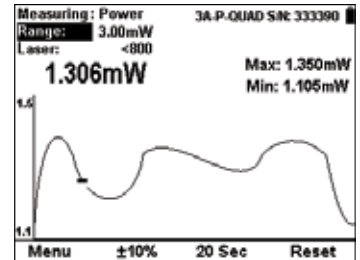
Bargraph display of energy. Colors set for work with protective glasses.



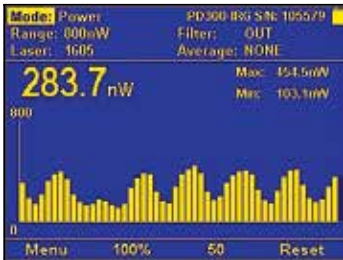
Power density measured after rescaling the power measurement.



Data logs filed to USB Flash Drive. Can be viewed in StarLab or Excel.



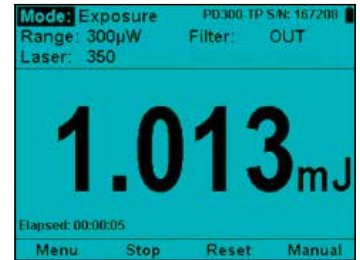
Line graph display of power. Wraps back to start for continuous display.



Pulse chart display of power.



Power measurement of laser pulse. For use with high-power pulsed lasers.



Exposure measurement (energy summing) with photodiode sensor.

## Specifications

|                  |  |
|------------------|--|
| Power Meter      | Brilliant color TFT 320 x 240 pixel graphics LCD. Large 16mm digits.   |
| Features         | Many screen features including power with multicolor bar graph, energy, average, exposure, frequency, graphs, scaling, special units, and more.                            |
| Outputs          | USB, RS232 and user selectable 1, 2, 5 and 10 Volt full scale analog output.   |
| Screen Refresh   | 15 times/sec   |
| Case             | Molded high impact plastic with optimized angle kickstand. Rubberized sides for easy grip and protection against damage.   |
| Size             | Folds to a compact 212mm L x 114mm W x 40mm H  |
| Battery          | Rechargeable Li-ion batteries with typically 8 hours between charges. The charger can be ordered from your local distributor. The charger also functions as an AC adapter. |
| Data Handling    | Data can be viewed on board or transmitted to PC<br>On Board: Data stored to USB Drive (Thumb Drive) at rates up to 5000 points/s.   |
| Sensor Features  | Works with Thermopile, BeamTrack, Pyroelectric (PE-C series) and Photodiode sensors. Works with our PD300RM sensors.   |
| Program Features | Preferred start up configuration can be set by user. User can recalibrate power, energy, response time and zero offset.  |
| Compliance       | CE, UKCA, China RoHS   |

## Ordering Information

| Item                             | Description  | Ophir P/N |
|----------------------------------|--|-----------|
| StarBright                       | StarBright universal power meter for Thermal, BeamTrack, Pyroelectric and Photodiode sensors | 7Z01580   |
| Carrying Case                    | Carrying case 38x30x11 cm. For power meter and up to 3 sensors                               | 1J02079   |
| StarBright USB Cable             | USB-A to MICRO-B cable (1 unit supplied with StarBright)                                     | 7E01279   |
| StarBright RS232 Cable           | D9 to 3.5mm plug cable (1 unit supplied with StarBright)                                     | 7E01213   |
| StarBright Battery Pack          | Replacement battery pack for StarBright  | 7E14008   |
| P Polarity Power Supply/Charger  | Power Supply/Charger AC/DC 12V 2A P-1.35x3.5 (1 unit supplied with StarBright)               | 7E05047   |
| Standard Analog Output Connector | 2.5mm mono jack (1 unit supplied with StarBright)  | 7E02008   |

## 2.1.3 Vega

### Color Screen Laser Power/Energy Meter

- Compatible with all standard Ophir thermal, BeamTrack, pyroelectric and photodiode sensors
- Brilliant color large size TFT 320x240 display
- Compact handheld design with rubberized bumpers and optimized 2 position kickstand
- Choice of digital or analog needle display
- Illuminated keys for working in the dark
- Select between English and Japanese interfaces
- Analog output
- Log every point at up to 4000Hz with pyro sensors
- Non-volatile data storage up to 250,000 points
- Laser tuning screen and power and energy log
- USB and RS232 interfaces with StarLab and StarCom PC applications, LabVIEW driver and COM Object Interface (see pages 159-165)
- Soft keys and menu driven functions with on line help
- Many software features such as density, min/max, scaling etc.



The Vega is a very versatile and sophisticated handheld laser power/energy meter. Just plug in one of the many Ophir sensors and you have a whole measurement laboratory at your fingertips. The bright color display gives unparalleled legibility and ease of interpreting information. The Vega has many on board features such as laser tuning, data logging, graphing, normalize, power or energy density units, attenuation scaling, max and min limits. The Vega can also display the power or energy with a high resolution simulated analog needle display.

The Vega can be operated either by battery or from an AC source with the charger plugged in at all times. Its bright display and backlit keys allow easy use in dark room conditions or with laser glasses on.

The built-in USB and RS232 interfaces and StarLab and StarCom PC software allow on-line processing of data or processing previously stored data; results are displayed graphically on a PC. To support PC interfacing, LabVIEW drivers and COM Object Interface are provided.



StarLab Software

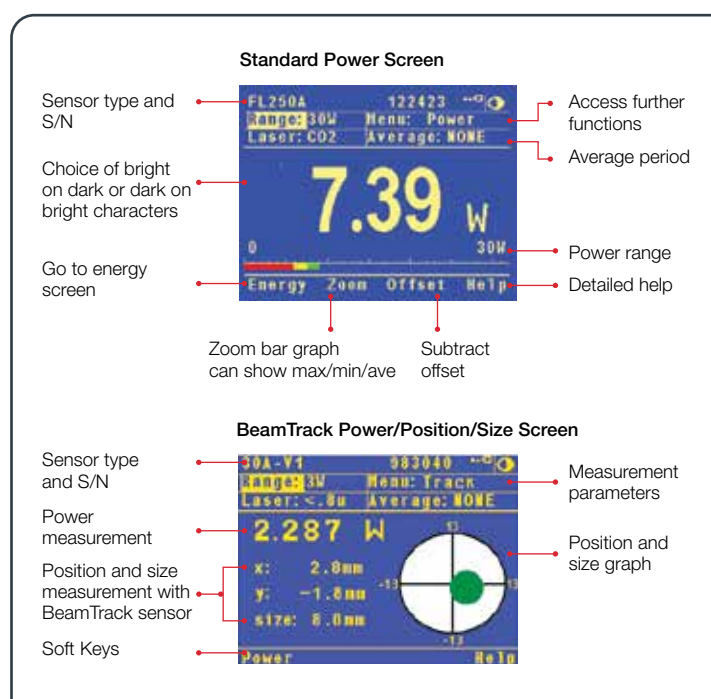
### Selected Screens

#### Digital Power Screen and Color Functions

- Choice of bright on dark or dark on bright characters
- Optimize colors for use with laser eye protection glasses
- Can average over selected period. Useful for unstable lasers
- Bar graph can show max / min / average in different colors

#### BeamTrack Power/Position/Size Screen

- Monitoring of laser beam size
- Accurate tracking of beam position to fractions of a mm
- Beam position and wander
- All the other features of standard power/energy meters



### Analog Power Screen

- Perfect for adjusting and maximizing laser power
- Persistent graphical display allows tracking of minimum maximum values measured
- Large analog needle with small digital display as well

### Energy/Limits Screen

- Pulsed energy sensors (single or repetitive) and thermal sensors (single shot only)
- Frequency measurement with pulsed energy sensors
- Limits screen with bright colored warning

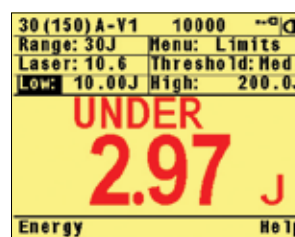
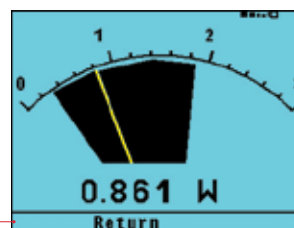
### Energy Logging Screen

- Pyroelectric and thermal sensors
- Continuous scroll with up to 100 points on screen
- Full statistics
- Store data onboard and recall

### Additional Functions

- Press the menu choice on the main screen and many more options pop up as shown

Choice of smaller display with range, menu, laser and average headers.



Energy threshold

Energy range



Enlarge variation pulse to pulse

Choose analog needle screen

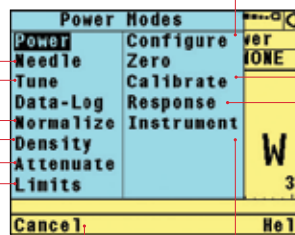
Laser tune screen with continuous graph

Normalize so present reading is 1.00

Enter beam diameter and read in units of W/cm<sup>2</sup> or J/cm<sup>2</sup>

Put in factor to read input power with attenuator or beam splitter

Set for alarm if preset min or max limits exceeded



Set startup configuration

Adjust sensor calibration

Adjust sensor response time

Adjust power meter parameters

Return to previous menu

### Specifications

|                      |   |
|----------------------|---|
| Power Meter Features | Brilliant color TFT 320 x 240 pixel graphics LCD. Large 16mm digits. High resolution analog needle also can be chosen. Many screen features including power with multicolor bar graph, energy, average, exposure, frequency, graphs, scaling, special units, and more. Complete on line context sensitive help screens. |
| Outputs              | USB, RS232 and user selectable 1, 2, 5 and 10 Volt full scale analog output.  |
| Screen Refresh       | 15 times/sec  |
| Case                 | Molded high impact plastic with optimized angle two level kickstand. Rubberized sides for easy grip and protection against damage.  |
| Size                 | Folds to a compact 210mm L x 109mm W x 36mm H   |
| Battery              | Rechargeable NiMH batteries with typically 18 hours between charges. The charger can be ordered from your local distributor. The charger also functions as an AC adapter.   |
| Data Handling        | Data can be viewed on board or transmitted to pc:<br>On Board: Non-volatile storage of up to 250,000 data points in up to 10 files.<br>Max onboard data logging rate 4000 <sup>(a)</sup> points/s and Max data logging rate to the PC 2000 <sup>(a)</sup> points/s.   |
| Sensor Features      | Works with Thermopile, BeamTrack, Pyroelectric (PE-C series) and Photodiode sensors <sup>(b)</sup> .  |
| Program Features     | Preferred start up configuration can be set by user. User can recalibrate power, energy, response time and zero offset.   |
| Compliance           | CE, UKCA, China RoHS  |

Notes: (a) The above refers to the rate of logging every single point in turbo mode. Above that rate, the instrument will sample points but not log every single point

Notes: (b) Not including PD300RM sensors

### Ordering Information

| Item                             | Description   | Ophir P/N |
|----------------------------------|---|-----------|
| Vega                             | Vega color universal power meter for standard thermal, BeamTrack, pyroelectric and photodiode sensors | 7Z01560   |
| Carrying Case                    | Carrying case 38x30x11 cm. For power meter and up to 3 sensors  | 1J02079   |
| USB Cable for Vega               | USB to mini DIN cable (1 unit supplied with Vega)   | 7E01205   |
| RS232 Cable for Vega             | D9 to mini DIN cable (1 unit supplied with Vega)  | 7E01206   |
| Battery Pack for Vega            | Replacement battery pack for the Vega   | 7E14007A  |
| N Polarity Power Supply/Charger  | Power Supply/Charger AC/DC 12V 2A N-2.1x5.5 (1 unit supplied with Vega)                               | 7E05029   |
| Standard Analog Output Connector | 2.5mm mono jack (1 unit supplied with Vega)   | 7E02008   |

### Versatile Laser Power/Energy Meter

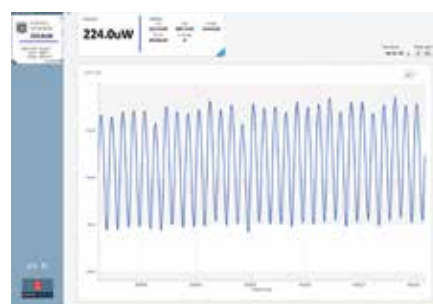
- Compatible with all standard Ophir thermal, BeamTrack, pyroelectric and photodiode sensors
- Large high definition LCD display
- Choice of digital or analog needle display
- 2 position kickstand
- Backlighting and rechargeable battery
- Select between English and Japanese interfaces
- Analog output
- Log every point at up to 4000Hz with pyro sensors
- Non-volatile data storage up to 59,400 points
- Laser tuning screen and power and energy log
- USB and RS232 interfaces with StarLab and StarCom PC applications, LabVIEW driver and COM Object Interface (see pages 159-165)
- Soft keys and menu driven functions with on-line help
- Many software features such as density, min/max, scaling etc.



The Nova II is a very versatile and sophisticated handheld laser power/energy meter. Just plug in one of the many Ophir sensors and you have a whole measurement laboratory at your fingertips. The Nova II has many on-board features such as laser tuning, data logging, graphing, normalize, power or energy density units, attenuation scaling, max and min limits. The Nova II can also display the power or energy with a high resolution simulated analog needle display.

The Nova II can be operated either by battery or from an AC source with the charger plugged in at all times. Its backlight allows illumination of the power meter in low light conditions.

The built-in USB and RS232 interfaces and StarLab and StarCom PC software allow on-line processing of data or processing previously stored data; results are displayed graphically on a PC. To support PC interfacing, LabVIEW drivers and COM Object Interface are provided.



StarLab Software

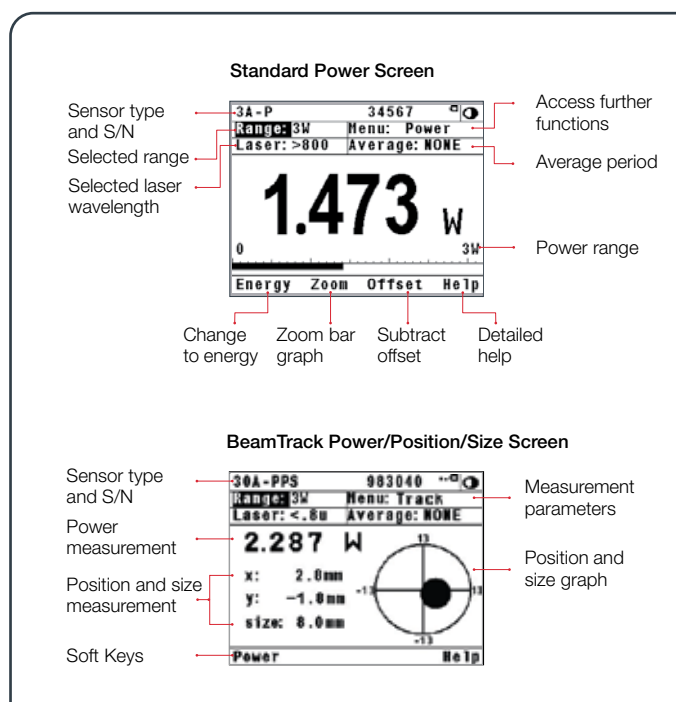
### Selected Screens

#### Digital Power Screen

- CW industrial, medical and scientific lasers
- pW to Multi kW with appropriate sensors
- Can average over selected period. Useful for unstable lasers
- Fast response bar graph

#### BeamTrack Power/Position/Size Screen

- Monitoring of laser beam size
- Accurate tracking of beam position to fractions of a mm
- Beam position and wander
- All the other features of standard power/energy meters



### Analog Power Screen

- Perfect for adjusting and maximizing laser power
- Large analog needle with small digital display as well

### Energy Screen

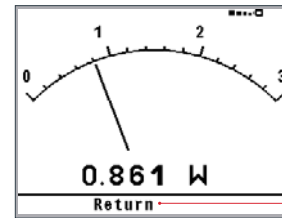
- Pulsed energy sensors (single or repetitive) and thermal sensors (single shot only)
- Frequency measurement with pulsed energy sensors

### Energy Logging Screen

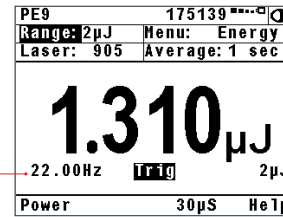
- Pyroelectric and thermal sensors
- Continuous scroll with up to 100 points on screen
- Full statistics
- Store data onboard and recall

### Additional Functions

- Press the menu choice on the main screen and many more options pop up as shown

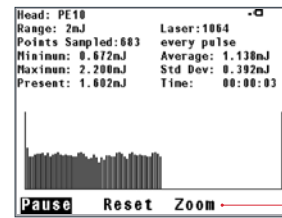


Choice of smaller display with range, menu, laser and average headers



Frequency

Energy range



Enlarge variation pulse to pulse

Choose analog needle screen

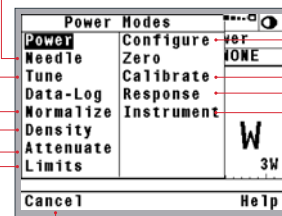
Laser tune screen with continuous graph

Normalize so present reading is 1.00

Enter beam diameter and read in units of W/cm<sup>2</sup> or J/cm<sup>2</sup>

Put in factor to read input power with attenuator or beam splitter

Set for alarm if preset min or max limits exceeded



Return to previous menu

Set startup configuration

Adjust sensor calibration

Adjust sensor response time

Adjust power meter parameters

### Specifications

|                  |   |
|------------------|---|
| Power Meter      | High legibility 320 x 240 pixel graphics LCD with switchable electroluminescent backlight. Large 18mm digits. High resolution analog needle also can be chosen.   |
| Features         | Many screen features including power with bar graph, energy, average, exposure, frequency, graphs, scaling, special units, and more. Complete on line context sensitive help screens.   |
| Outputs          | USB, RS232 and 1, 2, 5 and 10 volt full scale analog output.  |
| Screen Refresh   | 15 times/sec  |
| Case             | Molded high impact plastic with two level kickstand.  |
| Size             | Folds to a compact 208mm Lx 110mm Wx 43mm H   |
| Battery          | Rechargeable NiMH batteries with typically 18 hours between charges. The charger can be ordered from your local distributor. The charger also functions as an AC adapter.   |
| Data Handling    | Data can be viewed on board or transmitted to PC:<br>On Board: Non-volatile storage of up to 54000 data points in up to 10 files.<br>Max onboard data logging rate 4000 <sup>(a)</sup> points/s and Max data logging rate to the PC 2000 <sup>(a)</sup> points/s. |
| Sensor Features  | Works with Thermopile, BeamTrack, Pyroelectric (PE-C series) and Photodiode sensors <sup>(b)</sup> .  |
| Program Features | Preferred startup configuration can be set by user. User can recalibrate power, energy, response time and zero offset.  |
| Compliance       | CE, UKCA, China RoHS  |

Notes: (a) The above refers to the rate of logging every single point in turbo mode. Above that rate, the instrument will sample points but not log every single point

Notes: (b) Not including PD300RM sensors

### Ordering Information

| Item                             | Description  | Ophir P/N |
|----------------------------------|--|-----------|
| Nova II                          | Nova II universal power meter for standard thermal, BeamTrack, pyroelectric and photodiode sensors | 7Z01550   |
| Carrying Case                    | Carrying case 38x30x11 cm. For power meter and up to three sensors                                 | 1J02079   |
| Nova II USB Cable                | USB to mini DIN cable (1 unit supplied with Nova II)   | 7E01205   |
| Nova II RS232 Cable              | D9 to mini DIN cable (1 unit supplied with Nova II)  | 7E01206   |
| Battery Pack                     | Replacement battery pack for the Nova II   | 7E14007A  |
| N Polarity Power Supply/Charger  | Power Supply/Charger AC/DC 12V 2A N-2.1x5.5 (1 unit supplied with Nova II)                         | 7E05029   |
| Standard Analog Output Connector | 2.5mm mono jack (1 unit supplied with Nova II)   | 7E02008   |

## 2.1.5 StarLite

### Low Cost Laser Power / Energy Meter

- Compatible with all standard Ophir Thermal, BeamTrack, Pyroelectric (PE-C series only) and Photodiode sensors
- Brilliant large size TFT 320x240 display
- Compact handheld design with rubberized bumpers and optimized kickstand
- Choice of digital or analog needle display
- Select between English, Japanese, Russian and Chinese interfaces
- Analog output
- Easy to use soft keys
- Easy measurement configuration with context sensitive help
- Backlighting and rechargeable battery
- Single shot energy measurement with thermal sensors
- Power averaging
- Resizable Screen graphics
- EMI rejection
- Optional software package for USB communication with our StarLab PC suite



**StarLite is a low cost power / energy meter capable of measuring** power or energy from pJ and pW to hundreds of Joules and thousands of Watts. It also supports position and size measurement with the BeamTrack family of sensors. StarLite can also display the power or energy with a high resolution simulated analog needle display.

All StarLite measurement screens can be configured to either show the measurement parameters or to hide them in order to maximize the graphical and numeric displays.

StarLite can be operated either by battery or from an AC source with the charger plugged in at all times. Its backlight allows illumination of the power meter in low light conditions.

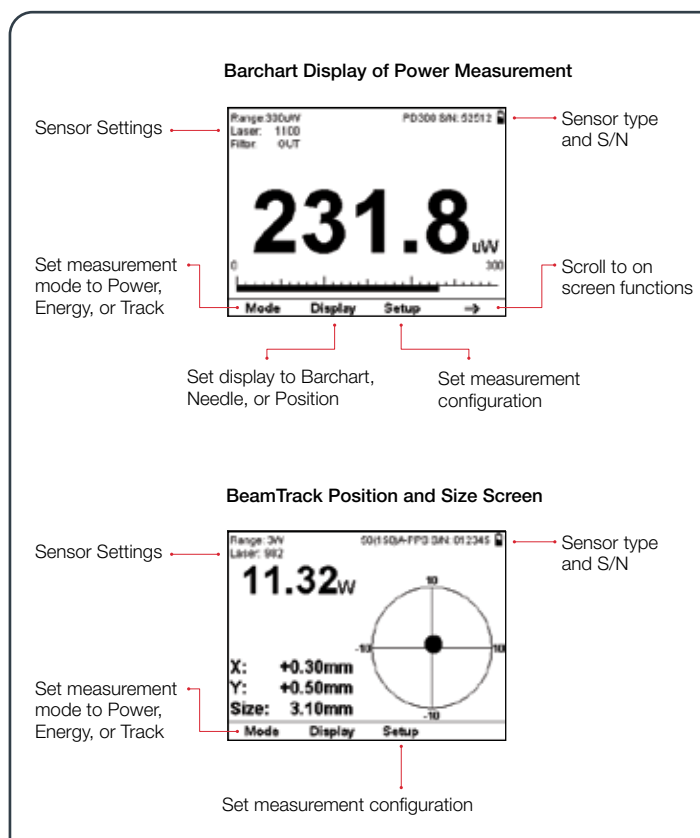
### Selected Screens

#### Digital Power Screen

- CW industrial, medical and scientific lasers
- pW to Multi kW with appropriate sensors
- Can average over selected period. Useful for unstable lasers.
- Fast response bar chart

#### BeamTrack Power/Position/Size Screen

- Monitoring of laser beam size
- Accurate tracking of beam position to fractions of a mm
- Power measured at the same time

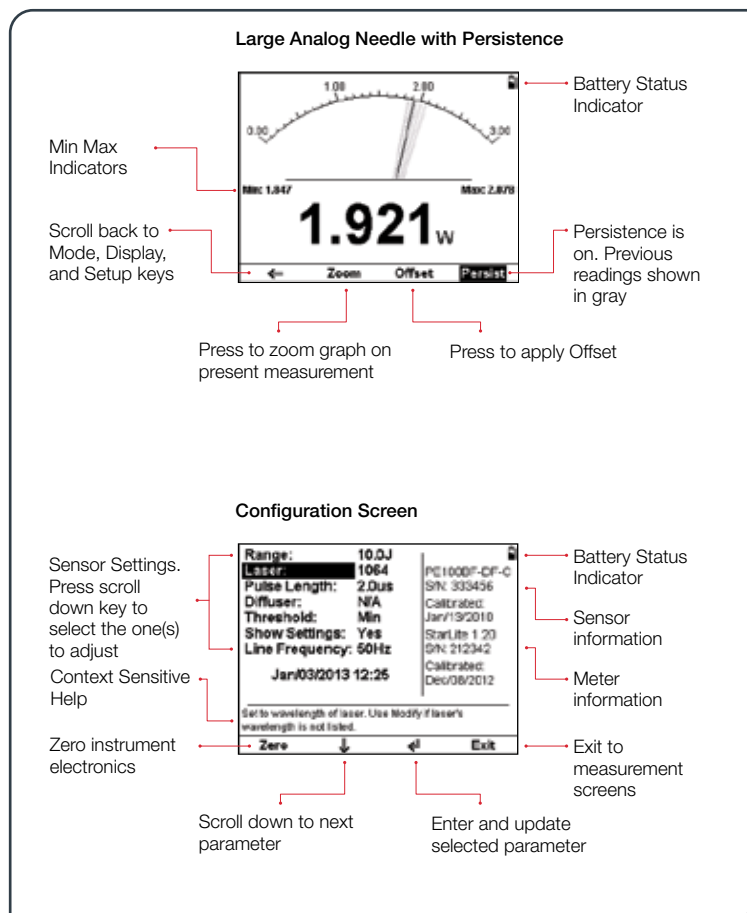


### Analog Needle Screen

- Perfect for adjusting and maximizing laser power or energy
- Persistent graphical display allows tracking of minimum maximum values measured
- Large analog needle with small digital display as well

### Configuration Screen

- Easy adjustment of all measurement configuration parameters
- Context sensitive help for selected parameter
- Sensor and meter information provided



### Specifications

|                      |  |
|----------------------|--|
| Power Meter          | High legibility TFT 320 x 240 pixel graphics LCD. Large 16mm digits. High resolution analog needle also can be chosen.   |
| Features             | Power, single shot energy, energy and frequency of high rep rate lasers, position, and size.   |
| Outputs              | 1V Full Scale analog output.   |
| Screen Refresh       | 15 times/sec   |
| Case                 | Molded high impact plastic with optimized angle kickstand. Rubberized sides for easy grip and protection against damage.   |
| Size                 | Folds to a compact 211mm L x 114mm W x 40mm H  |
| Battery              | Rechargeable Li-ion batteries with typically 8 hours between charges. The charger can be ordered from your local distributor. The charger also functions as an AC adapter. |
| Sensor Features      | Automatic continuous background cancellation with PD300 sensors. Submicrojoule and multikilohertz capability with pulsed energy sensors.                                   |
| Sensor Compatibility | Works with standard Thermopile, BeamTrack, Photodiode and Pyroelectric (PE-C series) <sup>(a)</sup> sensors. Works with our PD300RM sensors.                               |
| Compliance           | CE, UKCA, China RoHS   |

Note: (a) Not including BC20 and PD300-CIE sensors

### Ordering Information

| Item                             | Description  | Ophir P/N |
|----------------------------------|--|-----------|
| StarLite                         | StarLite universal power meter for Thermal, BeamTrack, Pyroelectric and Photodiode sensors                     | 7Z01565   |
| Carrying Case                    | Carrying case 38x30x11 cm. For power meter and up to 3 sensors   | 1J02079   |
| StarLite USB Activation Code     | Software Activation Code that enables the StarLite meter to communicate in USB with our StarLab software suite | 7Z11049   |
| USB Cable for StarLite           | USB-A to MICRO-B cable (1 unit supplied with StarLite)   | 7E01279   |
| Battery Pack for StarLite        | Replacement battery pack for the StarLite  | 7E14008   |
| P Polarity Power Supply/Charger  | Power Supply/Charger AC/DC 12V 2A P-1.35x3.5 (1 unit supplied with StarLite)                                   | 7E05047   |
| Standard Analog Output Connector | 2.5mm mono jack (1 unit supplied with StarLite)  | 7E02008   |

## 2.1.6 LaserStar

### Versatile Laser Power/Energy Meter

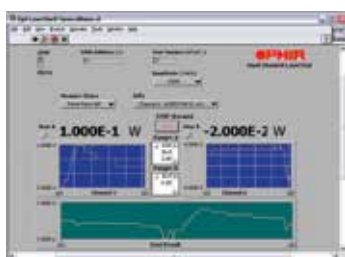
- Two models available: dual and single channel
- Single channel model can be upgraded to dual channel
- Compatible with all standard Ophir thermopile, pyroelectric, photodiode and RP sensors
- Large LCD display
- Backlighting and rechargeable battery
- Screen graphics and statistics (std dev, min, max)
- Analog output
- Built-in RS232 interface
- Log every data point at >1500Hz with pyroelectric sensors
- Non-volatile data storage up to 59,400 points
- Laser tuning screen and power log
- Audio sound for laser tuning and low battery
- RS232 interface with StarCom PC application software and LabVIEW driver (see pages 159-165)
- GPIB option (IEEE488.1)
- NIST traceable
- CE marked
- Soft keys, menu-driven



IEEE 488 GPIB Cable for LaserStar

The LaserStar's dual channel capabilities enable the user to simply plug in any of Ophir's thermal, pyroelectric or photodiode sensors and measure the two channels independently, or a comparison between the two channels.

Up to 10 data files (54,000 points total) can be stored for onboard review or downloading to computer even if LaserStar has been switched off. The built-in RS232 interface and StarCom PC software allow on-line processing of data or processing previously stored data; results are displayed graphically on a PC. To support PC interfacing, LabVIEW drivers are provided.



LabVIEW



StarCom Software

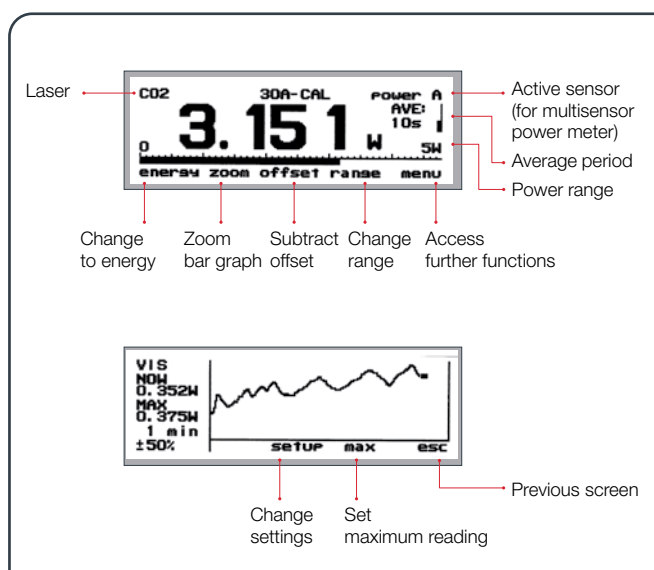
### Selected Screens

#### Digital Power Screen

- CW industrial, medical and scientific lasers
- pW to multi kW with appropriate sensors
- Can average over selected period. Useful for unstable lasers
- Fast response bar graph

#### Laser Tuning Screen or Power Log Screen (not shown)

- Maximizing laser power
- User selected time period and zoom
- Option of audio tune tone for maximizing laser power



### Energy Measurement Screen

- Pyroelectric and thermal sensors - single pulse
- Pyroelectric frequency measurement

### Energy Log Screen

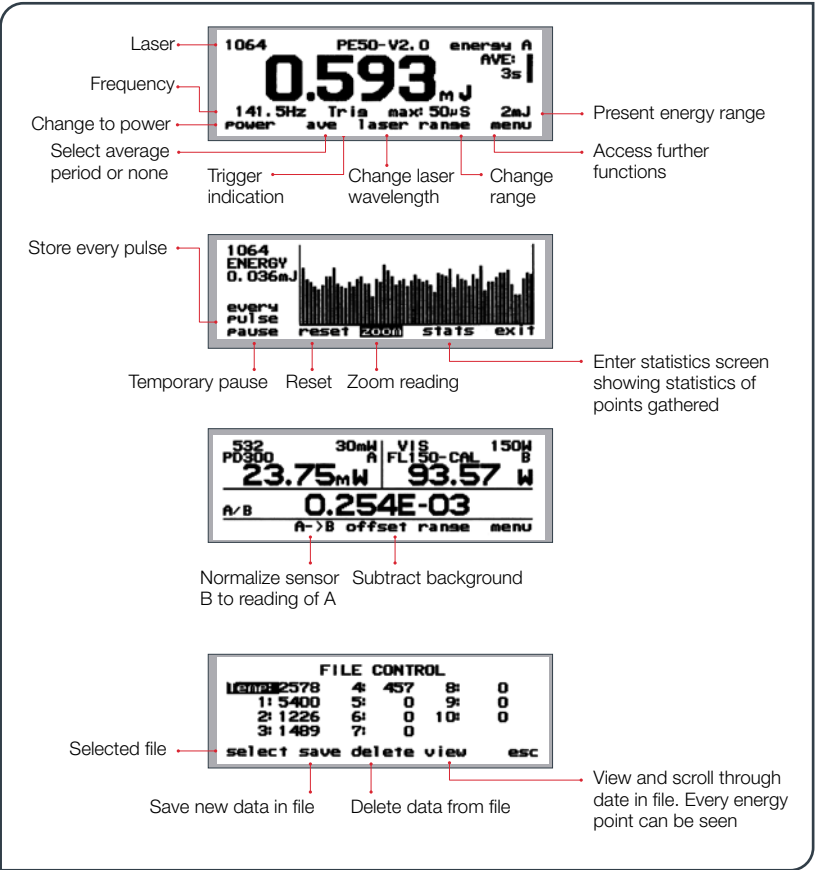
- Pulsed energy sensors
- Thermal sensors - successive single pulses
- Continuous scroll
- Energy statistics

### Ratio Screen

- Two independent sensors
- Measure ratio, sum, difference
- Normalize one sensor to the other

### Data Storage and Transmission

- Non-volatile storage of power and energy logging data
- Store in up to 10 files and transmit to PC
- PC using StarCom Windows program provided



### Specifications

|  |   |
|--|---|
| Power Meter  | High legibility 64 x 240 pixel graphics supertwist LCD with switchable, electroluminescent backlight which operates from charger or battery. Large 17mm digits. Screen refresh 15Hz.  |
| Features   | Many screen features including: power with bargraph, energy, average, exposure, frequency, graphs and more.   |
| Outputs  | RS232 and analog output 1V f.s.   |
| Screen Refresh   | 15 times /sec   |
| Case   | Molded high-impact plastic with swivel display and EMI conductive shielding, to allow use even in proximity to pulsed lasers.   |
| Size   | Folds to a compact 194mm L x 228mm W x 57mm H.  |
| Battery  | Rechargeable 18 hours between charges. The charger can be ordered from your local distributor. The charger also functions as AC adapter.  |
| Multisensor Option   | Two sensors can be connected and measure independently, or with a mathematical comparison. Also the ratio, sum or difference of the two can be displayed.   |
| Data Handling  | Data can be viewed on board or transmitted to PC:<br>On Board: Non-volatile storage of up to 54,000 data points in up to 10 files. Max data logging rate >1500 points/s.<br>Transmitted to PC: Data transmission rate of ~500 points/s. RS232 baud rate of 38400. |
| Sensor Features  | Works with standard Thermal <sup>(a)</sup> , Pyroelectric <sup>(b)</sup> , Photodiode <sup>(c)</sup> and RP sensors.  |
| Program Features   | Preferred startup configuration can be set by user. User can recalibrate power, energy, response time and zero offset.  |
| Compliance   | CE, UKCA, China RoHS  |
| Notes: (a) When operating with BeamTrack sensors, measures Power & Energy only |   |
| Notes: (b) Limited functions for new Pyroelectric (PE-C series) sensors        |   |
| Notes: (c) Not including PD300RM sensors                                       |   |

### Ordering Information

| Item                                     | Description   | Ophir P/N              |
|--|---|------------------------|
| LaserStar                                | LaserStar single channel universal power meter for thermal, pyroelectric, photodiode and RP sensors | 7Z01600                |
| LaserStar 2 Channel                      | LaserStar with dual channel capability including ratio and difference measurement                   | 7Z01601                |
| RS232 Cable for LaserStar                | Cable RS232 D9 - D25 (1 unit supplied with LaserStar)   | 7E01121                |
| LaserStar Battery Pack                   | LaserStar NiMH Battery update Kit   | 7Z14006A               |
| LaserStar IEEE Option                    | IEEE GPIB adapter for LaserStar (see page 151)  | 7Y78300 <sup>(a)</sup> |
| N Polarity Power Supply/Charger          | Power Supply/Charger AC/DC 12V 2A N-2.1x5.5 (1 unit supplied with LaserStar)                        | 7E05029                |
| LaserStar Analog Output Connector        | Analog Output plug for LaserStar (1 unit supplied with LaserStar)                                   | 7Z11004                |
| Note: (a) P/N 7Y78300 replaces P/N 78300 |   |                        |

### Compact and Durable Power / Energy Meter

- Compact and durable
- Compatible with all standard Ophir sensors: thermal, pyroelectric\* and photodiode
- Single shot energy measurement with thermal sensors
- Optional RS232 interface with StarCom PC application and LabVIEW driver (see pages 159-165)
- Power and energy logging with graphical display and statistics
- Power averaging
- Easy to use soft keys, menu-driven
- Screen graphics
- Backlight and rechargeable battery
- Analog output
- EMI rejection

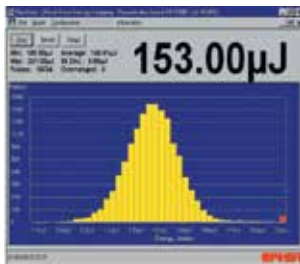


RS232 cable for Nova

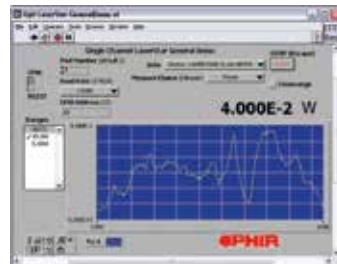
Compatible with the complete range of Ophir thermal (power and energy), pyroelectric and photodiode sensors, Nova is truly versatile: measuring power or energy from pJ and pW to hundreds of Joules and thousands of Watts. With the optional scope adapter, you can connect your pyro sensor to an oscilloscope and see every pulse up to the maximum frequency permitted by the sensor. Smart connector sensors automatically configure and calibrate Nova when plugged in. Soft keys guide you through the screen graphics. Finished working? Your configuration can be saved for future use.

Nova's autoranging tune screen displays laser power graphically and displays maximum power. Zoom and time scale can be adjusted by user.

The optional RS232 interface and StarCom PC software allow on-line processing of data or processing previously stored data; results are displayed graphically on a PC. To support PC interfacing, LabVIEW drivers are provided.



StarCom Software



LabVIEW

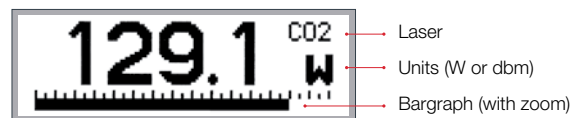
### Selected Screens

#### Digital Power Screen

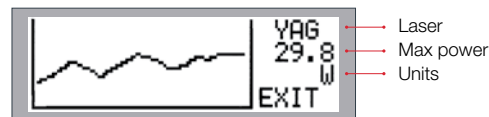
- CW industrial, medical and scientific lasers
- pW to multi kW with appropriate sensors

#### Laser Tuning Screen or Power Log Screen (not shown)

- Maximizing laser power
- User selected time period and zoom



Press Menu button or soft keys to make legends visible (not shown).



Press Menu button or soft keys to make legends visible.



\* PE-C series of pyroelectric sensors are compatible with Nova, when used with an additional adapter (P/N 7Z08272) – see page 110.

### Energy Measurement Screen

- Pyroelectric and thermopile sensors-single pulse
- Pyroelectric frequency measurement (not shown)

### Energy Log Screen

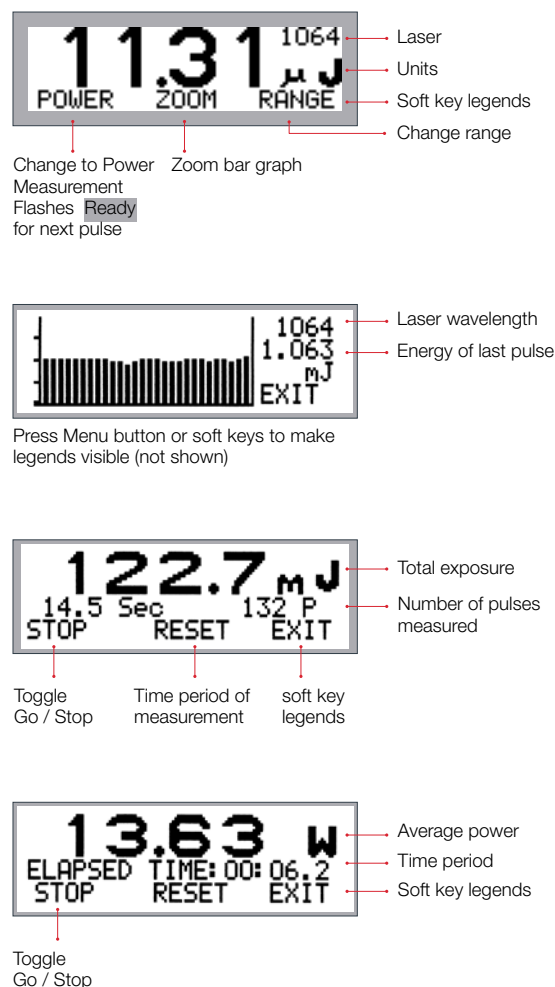
- Pyroelectric sensors
- Thermopile sensors-successive single pulses
- Continuous scroll
- Energy statistics

### Pyroelectric Exposure Screen

- Sum or average energies over user selected time period / number of pulses
- Medicine, photolithography

### Average Screen

- Thermopile, photodiode and pyroelectric sensors (Does not operate with PE-C series of pyroelectric sensors)
- Periodic (1/3 sec to 30 sec) or continuous (10 sec to 1 hour) average for fast-changing or slow-changing laser



### Specifications

|                  |  |
|------------------|--|
| Power Meter      | High legibility 32 x 122 pixel graphics supertwist LCD with switchable electroluminescent backlight. Large 12mm digits.  |
| Features         | Many screen features: including power with bar graph, energy, average, exposure, frequency, graphs, and more.  |
| Outputs          | RS232 and analog output 1V f.s. (optional)   |
| Screen Refresh   | 15 times / sec.  |
| Case             | Molded high-impact plastic with kickstand and EMI conductive shielding, to allow use even in proximity to pulsed lasers.   |
| Size             | Very compact: 205mm L x 95mm W x 39mm H.   |
| Battery          | Rechargeable 12 volts. 22 hours use between charges. The charger can be ordered from your local distributor. The charger also functions as AC adapter.                                   |
| Data Handling    | Data can be viewed on board or transmitted to PC:<br>On Board: Max data logging rate >10 points/s<br>Transmitted to PC: Data transmission rate of ~50 points/s. RS232 baud rate of 19200 |
| Sensor features  | Works with standard Thermal <sup>(a)</sup> , Pyroelectric <sup>(b)</sup> and Photodiode <sup>(c)</sup> sensors.  |
| Program features | Preferred startup configuration can be set by user. User can recalibrate power or energy. Response time. Zero offset.  |
| Compliance       | CE, UKCA, China RoHS   |

Notes: (a) When operating with BeamTrack sensors, measures Power & Energy only

Notes: (b) In order to operate with the new Pyroelectric (PE-C series) sensors, Nova needs an adapter (see ordering information below)

Notes: (c) Not including PD300RM sensors

### Ordering Information

| Item   | Description   | Ophir P/N              |
|--|---|------------------------|
| Nova   | Nova power meter for standard thermal, pyroelectric and photodiode sensors  | 7Z01500                |
| Nova PE-C Adapter  | Adapter to allow Nova to operate with PE-C series pyroelectric sensors. Plugs between Nova D15 socket and PE-C D15 plug | 7Z08272                |
| Carrying Case  | Carrying case 38x30x11cm. For display and up to three sensors   | 1J02079                |
| <b>Nova RS232 assemblies - allow Nova power meter to communicate with PC and be controlled by PC</b> |   |                        |
| Nova RS232 Assembly  | RS232 adapter with standard 2 meter cable (including software) (see page 151)   | 7Y78105 <sup>(a)</sup> |
| Nova RS232 Assembly  | RS232 adapter with 5 meter cable (including software)   | 7Y71052 <sup>(b)</sup> |
| Nova RS232 Assembly  | RS232 adapter with 8 meter cable (including software)   | 7Y71051 <sup>(c)</sup> |
| Battery Pack   | Replacement battery pack for Nova   | 7E14005A               |
| N Polarity Power Supply/Charger  | Power Supply/Charger AC/DC 12V 2A N-2.1x5.5 (1 unit supplied with Nova)   | 7E05029                |
| Standard Analog Output Connector   | 2.5mm mono jack (1 unit supplied with Nova)   | 7E02008                |

Note: (a) P/N 7Y78105 replaces P/N 78105

Note: (b) P/N 7Y71052 replaces P/N 781052

Note: (c) P/N 7Y71051 replaces P/N 781051

## 2.1.8 Accessories

### Power Supply/Charger

Negative Polarity Power Supply/Charger for Centauri, Vega, Nova II, LaserStar, Nova, EA-1, Pulsar and Quasar  
Positive Polarity Power Supply/Charger for StarBright and StarLite & Power Supply/Charger for Juno-RS.



### Analog Output Connectors & Cables

Replacement standard analog output plug for most Ophir meters.  
Replacement analog output plug for LaserStar and for Juno-RS.



Juno-RS Analog Output Cable



Standard Analog Output Connector



LaserStar Analog Output Connector

### StarLite USB Activation Code

Software Activation Code that enables the StarLite meter to communicate in USB with our StarLab software suite.



### Centauri Dual Channel Activation Code

Software activation code to field upgrade a Single Channel Centauri to Dual Channel capabilities.



### USB Cables for Meters & Interfaces

Cables for communicating with the PC in USB – for use with our StarLab application, COM Objects, LabVIEW and to upgrade Firmware files.



### Ethernet Cable for EA-1

Ethernet cross cable for communicating with an Ethernet network or direct to a PC for initial setup of the device – can be used with our StarLab or OphirEthernetApp applications or with customer's own software.



### RS232 Cables for Meters & Interfaces

Cables for communicating with the PC in RS232 – for use with our StarCom application or to use our RS232 command set.



### RS232 Module for Nova

Plug in module allows transfer of power and energy data to PC and remote control of power meters from PC. Includes manual and StarCom application program (refer to page 164).



### IEEE488 GPIB for LaserStar

Option available with LaserStar power meter allowing LaserStar to operate with GPIB protocol. The option comes with StarCom software and also LabVIEW VIs to build LabVIEW applications.



### Carrying Cases

Carrying case for StarBright, StarLite, Vega, Nova II or Nova power meters and up to 3 sensors.



### Ordering Information

| Item   | Description  | Ophir P/N                                  |
|--|--|--|
| N Polarity Power Supply/Charger                                | Power Supply/Charger AC/DC 12V 2A N-2.1x5.5  | 7E05029                                    |
| P Polarity Power Supply/Charger                                | Power Supply/Charger AC/DC 12V 2A P-1.35x3.5   | 7E05047                                    |
| Juno-RS Power Supply/Charger                                   | Power Supply/Charger AC/DC 12V 2A 2.5x5.5x13.8 S   | 7E05093                                    |
| Standard Analog Output Connector                               | 2.5mm mono jack  | 7E02008                                    |
| LaserStar Analog Output Connector                              | Analog Output plug for LaserStar   | 7Z11004                                    |
| Juno-RS Analog Output Cable                                    | Cable Coax BNC-M to SMA-M RG-174 2 meter   | 7E01541                                    |
| StarLite USB Activation Code                                   | Software Activation Code that enables the StarLite meter to communicate in USB with our StarLab software suite | 7Z11049                                    |
| Centauri Dual Channel Activation Code                          | Software activation code to field upgrade a Single Channel Centauri to Dual Channel capabilities               | 7Z11056                                    |
| Centauri / StarBright / StarLite USB Cable                     | USB-A to MICRO-B cable   | 7E01279                                    |
| Nova II / Vega USB Cable                                       | USB to mini DIN cable  | 7E01205                                    |
| Juno / Juno+ / EA-1 USB Cable                                  | USB-A to MINI-B Cable  | 7E01217                                    |
| Pulsar USB Cable   | USB-A to B cable   | 7E01202                                    |
| EA-1 Ethernet Cable  | Ethernet Cross Cable   | 7E01192                                    |
| Juno-RS RS232 Cable  | D9 Male/Female 1.8-2 meter   | 7E11216                                    |
| Centauri / StarBright RS232 Cable                              | D9 to 3.5mm plug cable   | 7E01213                                    |
| Nova II / Vega RS232 Cable                                     | D9 to mini DIN cable   | 7E01206                                    |
| Nova RS232 Module  | RS232 adapter with 2 / 5 / 8 meter cable (including software)  | 7Y78105 / 7Y71052 / 7Y71051 <sup>(a)</sup> |
| LaserStar RS232 Cable  | RS232 D9 to D25 Cable  | 7E01121                                    |
| LaserStar IEEE Option  | IEEE GPIB adapter for LaserStar  | 7Y78300 <sup>(a)</sup>                     |
| Carrying Case for StarBright, StarLite, Vega, Nova II and Nova | Carrying case 38x30x11 cm. For Power Meter and up to three sensors   | 1J02079                                    |

Note: (a) 7Y78105 (was 78105), 7Y71051 (was 781051), 7Y71052 (was 781052), 7Y78300 (was 78300)