

## 2.1 Power Meters

### 2.1.1 Vega

#### Color Screen Laser Power/Energy Meter

- Compatible with all 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
- 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, COM Object Interface and ActiveX control (see pages 105-109)
- Soft keys and menu driven functions with on line help
- Many software features such as density, min/max, scaling etc.



The Vega is the most versatile and sophisticated 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. 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, COM Object Interface and ActiveX controls 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

**Standard Power Screen**

- Sensor type and S/N: FL250A 122423
- Range: 30W Menu: Power
- Laser: CO2 Average: NONE
- 7.39 W
- 0 30W
- Energy Zoom Offset Help
- Zoom bar graph can show max/min/ave
- Subtract offset
- Access further functions
- Average period
- Power range
- Detailed help

##### BeamTrack Power/Position/Size Screen

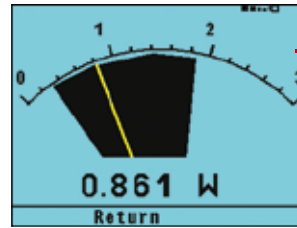
- Monitoring of laser beam size
- Accurate tracking of beam position to fractions of a mm
- Beam position and wander
- All the other features of standard power/energy meters

**BeamTrack Power/Position/Size Screen**

- Sensor type and S/N: 50A-V1 983040
- Range: 30W Menu: Track
- Laser: <.6u Average: NONE
- 2.287 W
- x: 2.8mm
- y: -1.8mm
- size: 8.0mm
- Power
- Help
- Measurement parameters
- Position and size graph
- Soft Keys

### Analog Power Screen

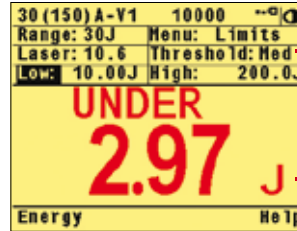
- Perfect for adjusting and maximizing laser power
- Persistent graphical display allows tracking of minimum maximum values measured
- Large analog needle with small digital display as well



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

### 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 threshold

Energy range

### Energy Logging Screen

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



Enlarge variation pulse to pulse

### Additional Functions

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

Choose analog needle screen

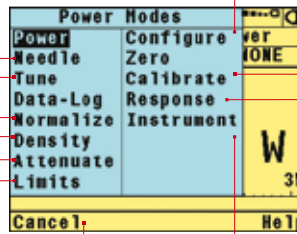
Laser tune screen with continuous graph

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 208mm L x 117mm W x 40mm 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: On Board: Non volatile storage of up to 250,000 data points in up to 10 files. Max data logging rate 4000 <sup>(a)</sup> points/s. Transmitted to PC: Data transmission rate of ~500 points/s. RS232 baud rate of 38400.
Sensor Features	Works with Thermopile, BeamTrack, Pyroelectric and Photodiode sensors. Automatic continuous background cancellation with PD300 sensors Submicrojoule and multikilohertz capability with pulsed energy sensors.
Program Features	Preferred start up configuration can be set by user. User can recalibrate power, energy, response time and zero offset.
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.

### Ordering Information

Item	Description	Ophir P/N
Vega	Vega color universal power meter for thermal, 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	7E14007