2.2.7 Quasar Wireless Bluetooth Interface

Straight from your measuring sensor to your PC or Android device with no cables

- Quasar wireless interface connects to any Ophir sensor and broadcasts to your PC or your Android device running StarViewer
- Wireless range of 10-30 meters depending on surroundings
- Operates from rechargeable battery with typically >40 hours lifetime
- Powerful USB interface with StarLab PC application software included or StarViewer Android application
- Converts your PC or your android Device into a complete laser power/energy meter
- Log power and energy, average, statistics, histograms and more (only in PC)
- Monitor up to 7 Quasars simultaneously on one PC (only in PC)

Quasar Bluetooth Wireless Sensor to PC Interface

Quasar module connects to any Ophir sensor, thermal, pyroelectric or photodiode

Any PC, laptop or Android device connects to Quasar module via Bluetooth adapter and operates as a power/energy meter/data logger

Specification

Sensor Compatibility	All Ophir standard sensors, Thermal [a], Photodiode [b] and Pyroelectric
Number of Sensors on One PC	Up to 7 Quasars can operate simultaneously and be displayed at the same time on one PC
Operating Range	10-30 meters depending on surroundings when used with built in laptop Bluetooth or Ophir recommended adapter
Power	Powered by rechargeable NiMH battery. Battery life typical 40 hours, 20 hours for pyro sensors. Automatically goes into sleep mode when not connected to PC. Low batt indication. Charges from 12VDC either polarity. The charger can be ordered from your local distributor.
LED Indicator	LED indicator indicates whether connected, in standby or off
Bluetooth Standard	Bluetooth class 1. Connection to PC is transparent to user. Will work with built in laptop Bluetooth and most add on USB to Bluetooth adapters.
Data Transfer Rate for Pyro Sensors	500Hz
Dimensions	94mm L x 96mm W x 36mm H not including antenna
Weight	0.164 kg
Connections	15 pin D type sensor connector standard Ophir 12V charger input
Compliance	CE, UKCA, China RoHS
Notes:	(a) When operating with BeamTrack sensors, measures Power & Energy only. (b) Not including BC20, PD300-CIE and PD300RM sensors.

Ordering Information

Item	Description	Ophir P/N
Quasar Bluetooth Interface	Module to operate one Ophir sensor from your PC via Bluetooth wireless interface. Comes with software. Max repetition rate for every pulse 500Hz. Powered from built in rechargeable battery. Comes with power supply. Bluetooth adapter required when not available on PC. See next line	7Z01300
Battery Pack for Quasar	Replacement battery pack for Quasar	7E14007A
N Polarity power supply/charger	Power Supply/Charger AC/DC 12V 2A N-2.1x5.5 (1 unit supplied with Quasar)	7E05029

2.2 PC Interfaces

2.2.1 PC Connectivity Options for Power/Energy Measurement

Ophir Pyroelectric, Thermal and Photodiode sensors measure at up to 25,000 points per second

Ophir sensor to USB interfaces with up to 4 channel connectivity

Ophir EA-1 interface with Ethernet connectivity

Ophir Quasar interface with wireless connectivity

Transmit real time data to PC at 500 points per second via Bluetooth

Transmit real time data to PC at up to 25,000 points/s per channel (sensor limited) via USB

Transmit real time data to Android via USB

Transmit real time data to PC at up to >25,000 points/s (sensor limited) via Ethernet

StarLab Software (data transmitted via USB, Ethernet or Bluetooth)

StarViewer Application (data transmitted via Bluetooth and USB)

StarLab Software

StarViewer Android Application

2.2.8 Summary of Computer Options for Ophir Meters and Interfaces

Communications

With Ophir RS232, Bluetooth, USB and Ethernet communication options you can transfer data from the sensor to the computer in real time or offline. You can also control your Ophir power meter from the computer.

- USB on Nova II, Vega, StarBright, Centauri (optional on StarLite) power meters and Juno, Juno+, Pulsar PC interfaces
- Bluetooth wireless on Quasar interface
- RS232 on Nova II, Vega, StarBright, Centauri and Juno-RS optional on Nova
- Ethernet on EA-1 interface and Centauri power meter

Ophir Power Meter and Interface Specifications

Model	Centauri	StarBright	Nova II / Vega	StarLite	Nova	Juno / Juno+	Juno-RS	Pulsar-1, 2 or 4	EA-1	Quasar Bluetooth
Communication method	USB / RS232 / Ethernet	USB / RS232	USB / RS232	USB [c]	RS232	USB	RS232	USB	Ethernet	Bluetooth
Power Measurement										
Power log period	1s to 1000hr.	1s to 1000hr.	12s to 600hr.	N.A	5s to 24hr.	1s to Unlimited	1s to Unlimited	1s to Unlimited	1s to Unlimited	1s to Unlimited
Max points stored onboard	Unlimited	Unlimited	Nova II 5400 Vega 27000	N.A	300	N.A	N.A	N.A	N.A	N.A
Max points direct on PC	Unlimited	Unlimited	Unlimited	N.A	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
Analog output	1V, 2V, 5V, 10V F.S.	1V, 2V, 5V, 10V F.S.	1V, 2V, 5V, 10V F.S.	1V F.S.	1V F.S.	N.A / 1V, 2V, 5V, 10V F.S.	1V, 2V, 5V, 10V	N.A	N.A	N.A
Energy Measurement										
Max logging rate	25,000Hz USB 30Hz RS232	5000Hz USB 30Hz RS232	>2000Hz USB[a] >30Hz RS232	20Hz [c]	>10Hz	10,000Hz [a]	500Hz [a]	25,000Hz [a]	>25,000Hz [a]	500Hz
Max onboard data logging rate	25,000Hz	5000Hz	4000Hz [a]	N.A	>10Hz	N.A	N.A	N.A	N.A	N.A
Max points stored USB/onboard	Unlimited	Unlimited	Nova II 59,400 Vega 250,000	N.A	1000	N.A	N.A	N.A	N.A	N.A
Trigger input and output	Trigger input to synchronize measurement of pulses	N.A	N.A	N.A	N.A	N.A	N.A	BNC trigger input to enable measurement of missing pulses. Can also be configured to give trigger output	N.A	N.A
Timing - time stamp for each pulse	resolution 1µs	resolution 1µs	N.A	N.A	N.A	resolution 1µs	resolution 1µs	resolution 1µs	resolution 1µs	resolution 10ms
General										
Com Object	yes	yes	yes	yes [c]	no	yes	no	yes	yes	no
LabVIEW VIs	yes	yes	yes	yes [c]	yes	yes	no	yes	no	no
Maximum baud rate	115200	115200	38400	N.A	19200 [b]	N.A.	115200	N.A.	N.A.	N.A.
PC file format	Text files, spreadsheet compatible ASCII									
TTL Out	yes	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A
Number of sensors supported	2 / 1 sensors per unit. Can combine several units with software for display of up to 8 sensors on one PC	One sensor per unit. Can combine several units with software for display of up to 8 sensors on one PC	One sensor per unit. Can combine several units with software for display of up to 8 sensors on one PC	One sensor per unit. Can combine several units with software for display of up to 8 sensors on one PC	One sensor per unit	One sensor per unit. Can combine several units with software for display of up to 8 sensors on one PC	One sensor per unit	4 / 2 / 1 sensors per unit. Can combine several units with software for display of up to 8 sensors on one PC	One sensor per unit. Can combine several units with software for display of up to 8 sensors on one PC	One sensor per unit. Can combine several units with software for display of up to 7 Quasars on one PC
Compatible sensors	Supports most Ophir pyroelectric, thermal and photodiode sensors									
Power supply	Powered from internal rechargeable battery power supply	Powered from internal rechargeable battery power supply	Powered from internal rechargeable battery power supply	Powered from internal rechargeable battery power supply	Powered from internal rechargeable battery power supply	Powered from USB	12V wall cube plugs into jack on rear	12V wall cube plugs into jack on rear	12V wall cube plugs into jack or PoE	Powered from internal rechargeable battery power supply
Dimensions	47 x 200 x 130mm	212 x 114 x 40mm	208 x 110 x 43mm / 210 x 109 x 36mm	211 x 114 x 40mm	205 x 95 x 39mm	77 x 55 x 23mm / 105 x 80 x 29mm	114 x 80 x 29mm	103 x 190 x 33mm	93 x 73 x 29mm	94 x 96 x 36mm

Notes:
(a) The above refers to the rate for logging every single point in turbo mode. Above that rate, the instrument will sample points but not log every single point.
(b) For pyroelectric sensors, maximum guaranteed baud rate is 9600.
(c) StarLite must be USB enabled in order to work with StarLab. If your StarLite has not been USB enabled, please contact your Ophir distributor in order to obtain a USB Activation Code. Now available: StarLite with USB enabled (P/N 7Z01569)

2.3 Software Solutions

2.3.1 StarLab

StarLab turns your PC into a laser power/energy multi-channel station

Extensive Graphic Display of Data

- Line Plot, Histogram, Bar chart, Simulated Analog Needle
- Multiple data sets on one graph or separate graphs on the same screen

Advanced Measurement Processing

- Power/Energy Density, Scale Factor, Normalize against a reference
- Multi-channel comparisons
- User defined mathematical equations: channels A/B, (A-B)/C etc.
- Position & size measurement with BeamTrack sensors

Data Logging for Future Review

- Can be displayed graphically or saved in text format
- Easily exported to an Excel spreadsheet

Fully supports IPM, Ariel, Centauri, StarBright, StarLite, Vega, Nova II, Pulsar, Juno, Juno+, Juno-RS, Quasar and EA-1 devices with all standard Ophir sensors

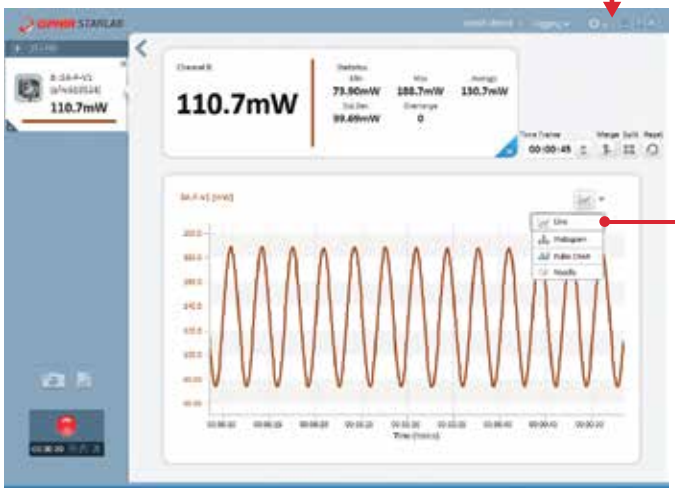
Flexible Display Options with StarLab

Choose which channels to display

Setup screen

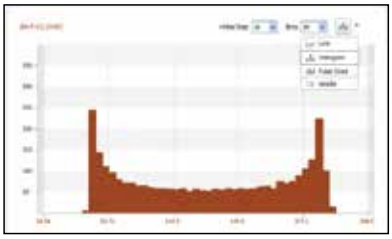
You may choose to display them separately

Maximize one of the sources

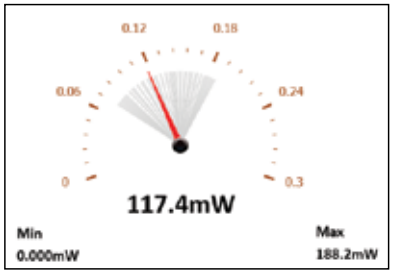


One of the above screens is maximized

Choose line graph



or histogram

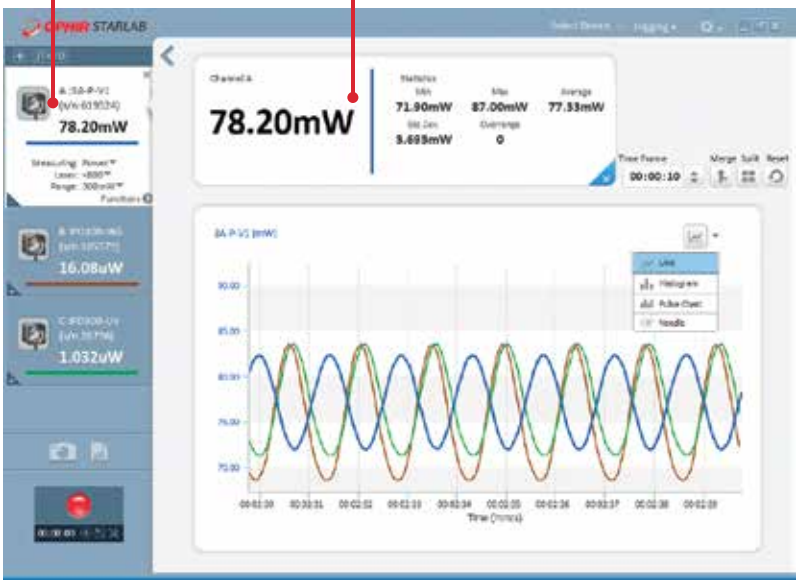


or needle display

Multiple Sensors displayed together

Click on one of the channels

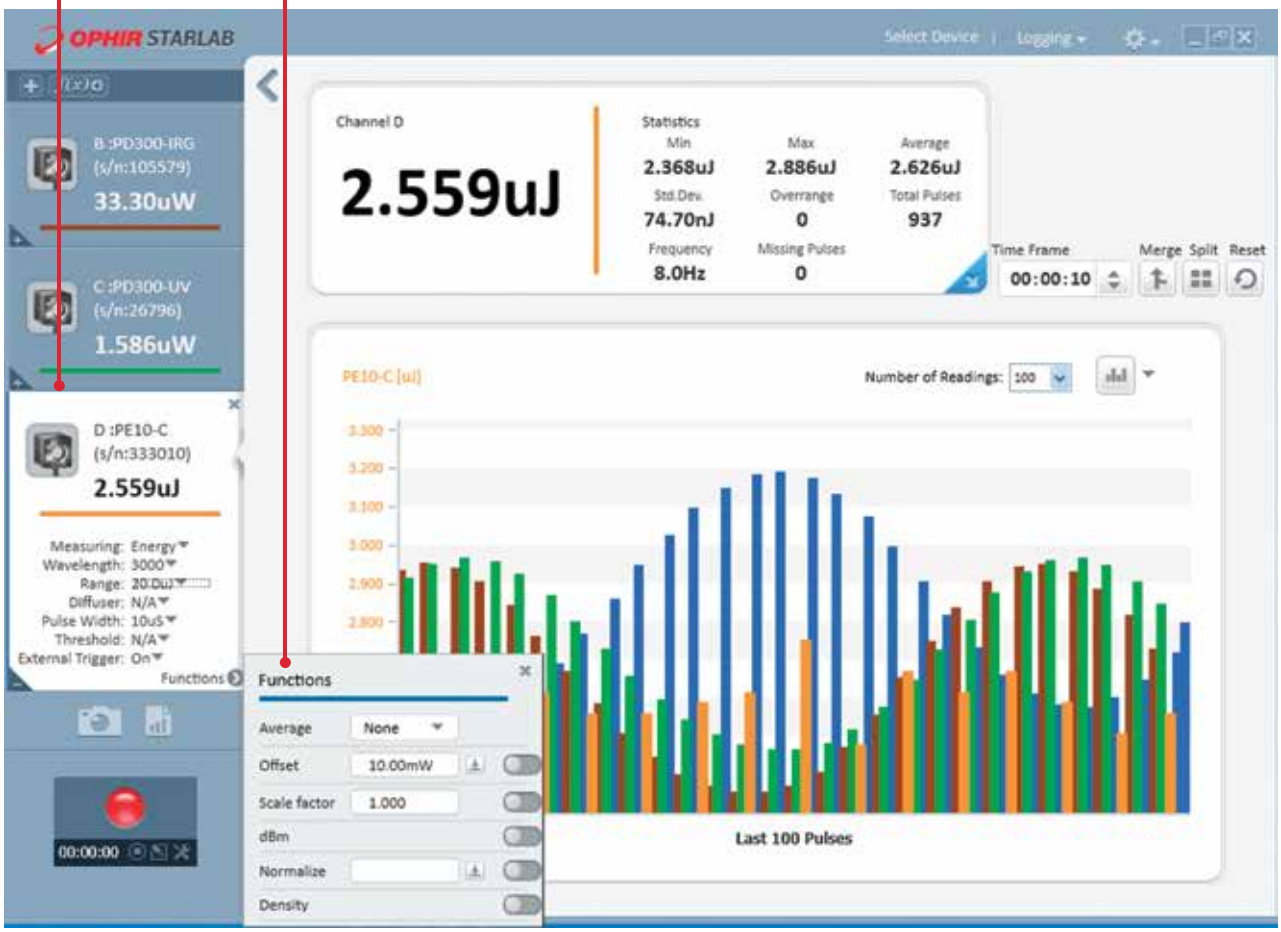
The numerical values are from the channel chosen



Here multi line graph display has been chosen

Settings and functions may be opened to adjust then minimized as needed

Additional functions are available from the "Functions" tab



Here multi line histogram display has been chosen

Functions and Logging

Functions

Click on f(x) to open another trace combining measured values

Define function combining measured values

New trace is now added per defined function

Files are stored here. They may be viewed graphically OR numerically

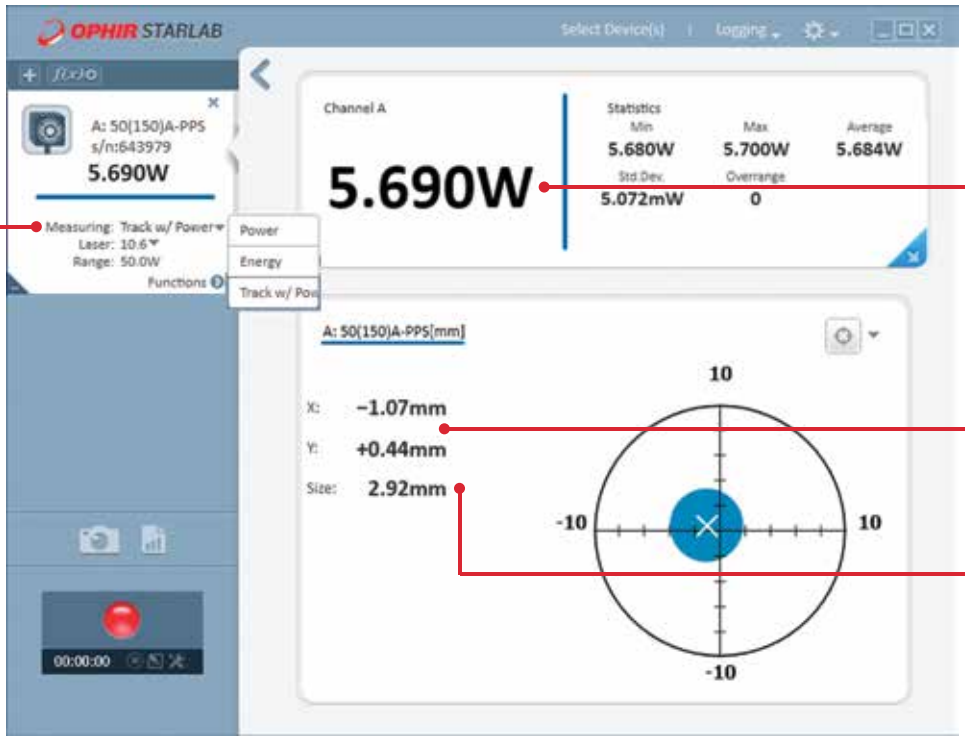
Logging

Click on log button and logging of values starts

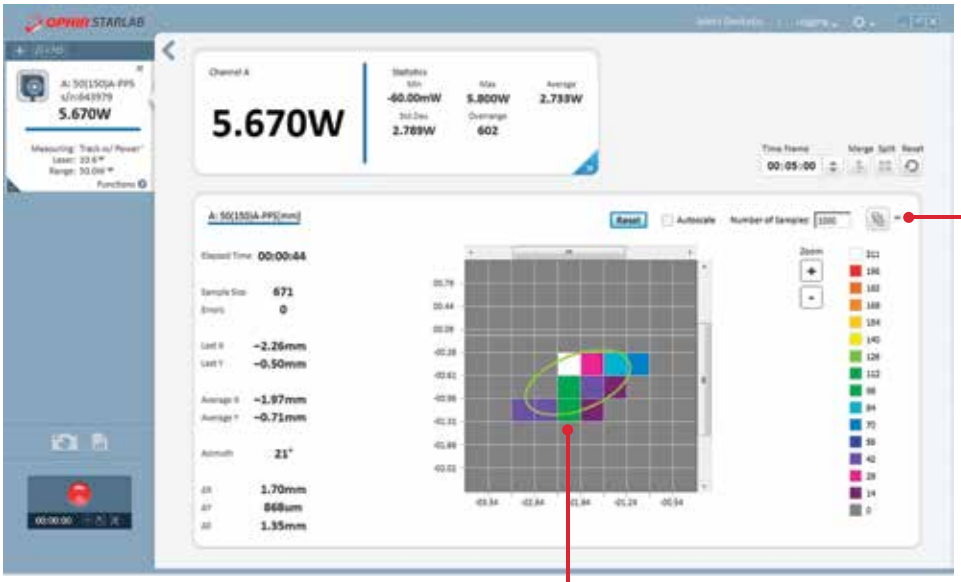

```
;PC Software:StarLab Version 3.00 Build 19
;Logged:25/05/2014 at 09:33:22
;Channel B:Vega Thermopile 3A-P-V1 (s/n:999999)  VG2.31 (s/n:657028)
;Channel A:Juno Photodiode PD300 (s/n:694646)  JN1.24 (s/n:606180)
;Math M:(A-B)^2

;Channel B:Statistics
;Min:3.440mW
;Max:12.22mW
;Average:7.882mW
;Std.Dev.:3.078mW
;Overrange:0

;First Pulse Arrived : 25/05/2014 at 09:33:22.562000
 Timestamp      Channel B      F(B)           Channel A      Math M
         0.000  1.762e-002    6.620e-003
         0.064  1.836e-002    7.360e-003
         0.128  1.911e-002    8.110e-003
         0.136                               1.067e-002     6.554e-006
         0.193  1.986e-002    8.860e-003
         0.203                               8.480e-003     1.444e-007
         0.256  2.057e-002    9.570e-003
         0.269                               6.540e-003     9.181e-006
         0.321  2.123e-002    1.023e-002
         0.354                               4.900e-003     2.841e-005
         0.384  2.182e-002    1.082e-002
         0.406                               3.550e-003     5.285e-005
         0.449  2.232e-002    1.132e-002
         0.865  2.291e-002    1.191e-002
         0.870                               3.400e-004     1.339e-004
         0.928  2.258e-002    1.158e-002
         0.936                               3.600e-004     1.259e-004
         0.993  2.216e-002    1.116e-002
         1.003                               4.800e-004     1.141e-004
         1.056  2.164e-002    1.064e-002
         1.070                               7.600e-004     9.761e-005
         1.120  2.104e-002    1.004e-002
         1.136                               1.340e-003     7.569e-005
         1.184  2.038e-002    9.380e-003
         1.203                               2.370e-003     4.914e-005
         1.664  1.558e-002    4.580e-003
```

BeamTrack Power/Position/Size Screens

Open Measuring type tab and choose Track



Power / Position / Size screen



Position stability screen

Displays beam center wander weighted for dwell time at each position