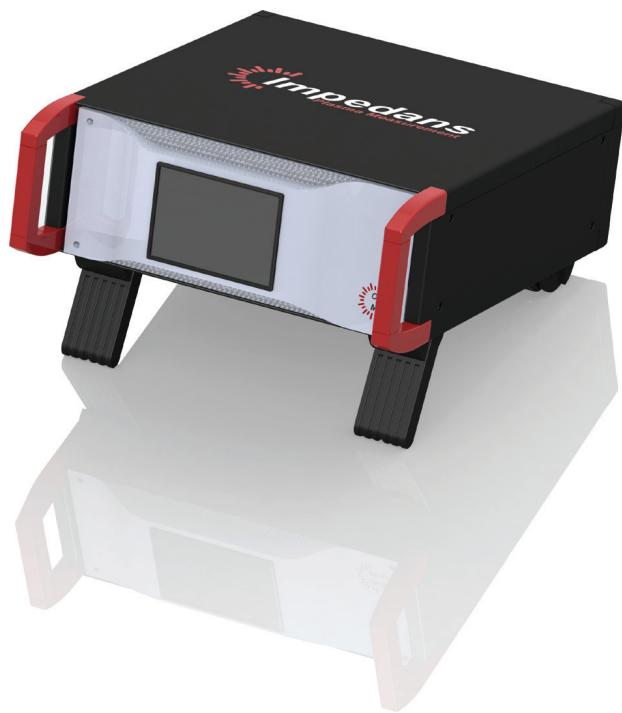




Precision Power, Impedance & VI Sensor



Simultaneous Multi Frequency
Broadband
Frequency Agile
Real Time Pulsed Operation



The **Octiv Poly™** is a precision power and impedance sensor which normally sits after the match unit. It is used to measure the load impedance in applications such as plasma processes. It monitors voltage, current and phase of multiple fundamental frequencies and their harmonics. The **Octiv Poly™** is ideal for accurately monitoring dual frequency and triple frequency plasma systems.

The **Octiv Poly™** is a high precision, high resolution sensor and high speed data acquisition unit combined. The **Octiv Poly™** is the only precision power and impedance sensor with micro second resolution in pulsed applications. The **Octiv Poly™** uses unique patented VI probe technology, designed for reliable operation in simultaneous multi-frequency applications with agile frequency tuning.

The **Octiv Poly™** helps solve issues such as poor production yields, tool matching, fault detection, fingerprinting and classification. The RF parameters are strongly correlated with plasma parameters. The **Octiv Poly™** provides a wide range of parameters suitable for use in multivariate analyses and in end-point applications development. The **Octiv Poly™** allows you to indirectly measure plasma parameters helping you to understand and control the process. It helps to define exact process windows and determines the health of power subsystems. The **Octiv Poly™** helps determine process run to run stability. It gives you the confidence and insight to measure the power delivery parameters and map the plasma state.



Key Indicators

Pulsed Capability	Pulsed Operation, micro second time resolution
Frequency Range	Simultaneous multi-frequency operation
Frequency Fundamentals	Up to 5 fundamental frequencies and 15 harmonics
Frequency Agile	$\pm 5\%$, 1 micro second time resolution
Broadband	350KHz – 300MHz
High speed sampling	10 samples per second
Primary in-line position	Post-match unit
Secondary in-line position	Pre-match unit (high performance pulsed power measurements)

Benefits

- Broadband
- Pulsed Power time profile, micro second resolution
- External triggering for multi frequency pulsed applications
- Simultaneous multi frequency, 5 fundamentals and 15 harmonics at each fundamental
- Frequency agile (follows changes in fundamental frequencies, micro second resolution)
- Measures the V, I and Phase of harmonics
- Measurement of exact harmonic content
- Sits before or after the match unit
- Measures V,I and Phase of a Pulsed Profile
- Standard and custom connectors available
- Connect to PC through USB
- Comes complete with advanced software
- Integrated API for process control applications
- High Speed Data Acquisition
- High Degree of Accuracy $\pm 1\%$
- Cost Effective Solution
- Measures RF parameter trends



Specifications

Meter Specifications	
Dimensions	350 x 200 x 120mm
Display	Touch Screen LCD
Weight	1.5Kg
Display View	RF Parameters
Connections	Analog I/O, Digital I/O, Ethernet, Devicenet

Specifications	
Frequency Range	350 kHz - 300 MHz
Fundamental Frequency Range	350kHz – 100 MHz
Frequency Resolution	100 Hz
Frequency Accuracy	± 1 kHz
Harmonics	15 maximum, up to 300 MHz
Number of fundamentals (F0)	Maximum of 5 simultaneously
Digital Output	Voltage, current, phase, frequency, impedance, power at F0 frequencies
Update Rates	10 Hz
RF Power, Max	12.5 kW (limited by connector)
Operating Temperature	0 to +40 °C (32 to 104 °F)
Storage Temperature	-20 to +80 °C (-4 to +176 °F)
Humidity, Max	95% Non-condensing

Accuracy		Range		Resolution	
Voltage Accuracy	± 1%	Voltage	20 – 3000 Vrms	Voltage	0.25 V
Current Accuracy	± 1%	Current	0.1 – 100 Arms	Current	10 mA
Phase Accuracy	± 1°	Phase	± 180°	Phase	0.01°

Other Specifications	
Uniformity	2% Maximum
Speed	10 Readings per Second
Harmonic Content	Measured (No Limit within Range)
Insertion Loss	<0.05dB
Connectors	All Standard Connectors Available
Sensor Impedance	50 Ω
Dimensions	70mm x 70mm x 55mm
Weight	400g
Altitude	3000m
Certification	CE mark
Calibration Cycle	12 Months



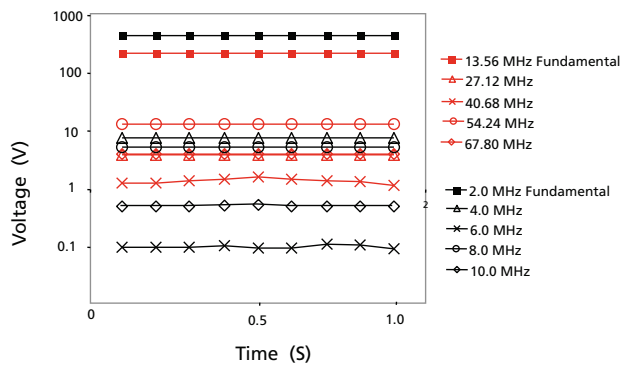
Product Operating Parameter Table

High	500 - 5000 Ω	>1000 KHz	> 10,000 V	>1,000 A		Microwave (3 GHz - 20 GHz)
	100 - 500 Ω	100 - 1000KHz	5,000 - 10,000 V	500 - 1,000 A		Microwave (1 GHz - 3 GHz)
	50 - 100 Ω	10 -100KHz	3,000 - 5,000 V	100 - 500 A		UHF (100 MHz - 1 GHz)
Medium	10 - 50 Ω	1 - 10 KHz	500 - 3,000 V	10 - 100 A	$\pm 180^\circ$	RF (1 MHz - 100 MHz)
	1 - 10 Ω	100 - 1000Hz	200 - 500 V	1 - 10 A	$\pm 90^\circ$	MF (350 kHz - 1 MHz)
	0.1 - 1 Ω	10 - 100 Hz	20 - 200 V	0.1 - 1 A		LF (0 - 350 kHz)
Low	0 - 0.1 Ω	0- 10 Hz	0 - 20 V	0 - 0.1 A		DC (0 kHz)
	Impedance	Pulsed Repetition Frequency	Voltage	Current	Phase	Power Frequency

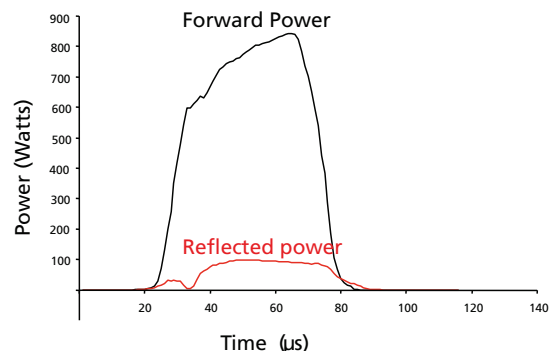
System Operating Parameters
 Beyond Operating Parameters

Graphical Data

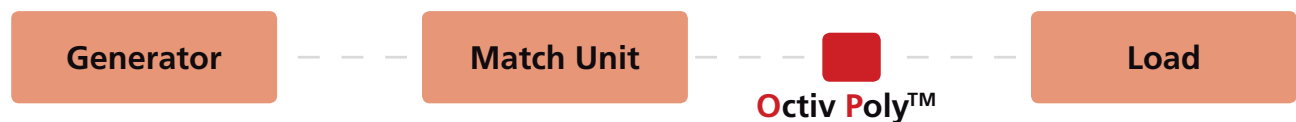
Voltage Time Trend of Multiple Simultaneous Frequencies using Octiv Poly™



Profile of Pulsed Plasma Measured Pre-Match Using Octiv Poly™



Octiv Poly™ Post Match





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