High-powered solutions for RF and microwave applications

Series ATK & MTK Matching Networks & Controllers

RF Impedance Matching Networks & Remote Controllers for Plasma Applications

These RF matching network products provide an economical solution for impedance matching of the plasma load to an RF power generator. They utilize air variable capacitors and fixed tapped inductors to achieve the optimal matching condition.

The Series ATK is a fully automatic unit with the ability to operate as a stand-alone automatic matching network utilizing it own phase magnitude detector circuits. It can also be controlled by a various external methods including the hand held controller, analog user I/Os, or through the front panel controller located on the RF generator.

The Series MTK is a manually adjusted version designed with the same RF circuit components as used in the ATK. Each of the variable capacitors are manually adjusted with velvet touch multi turn dials.

Both models utilize forced air-cooling and silver plated RF inductors for low loss operation.

Typical plasma loads such as magnetron sputtering sources, ion sources, etching electrodes and RF bias capable substrate holders (chucks) are easily matched using the standard unit. Some load impedances may require the use of optional fixed shunt capacitors or multi turn inductors to enable proper matching.

Accessories required to complete your installation include RF input / output coaxial cables, remote controller, control cables, additional fixed capacitor/inductor kit & output power splitters. Contact the factory to discuss your application.

MTK-600 Manual Impedance Matching Network

The images shown above represent the ATK matching network & handheld controller. This controller is designed to interface with the Manitou Systems ATK Series matching networks.

Manitou Systems, Inc
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Model & Order Number	Input Connecto Type	Output Connector Type	Operational Frequency (MHz)	AC Mains Voltage	Circuit topology	DC Bias Probe	Maximum RF Power (Watts)	Price
ATK600-13-L 03-130030-01	N Female	HN Female	10-40	100-240VAC 50/60 Hz 40 VA	"L"	Yes 0-4kV	500	$2,150
ATK600- 13-L-VC 0800078	N Female	HN Female	10-40	100-240VAC 50/60 Hz 40 VA	"L"	Yes 0-4kV	600	$3,150
ATK600-13-PI 03-130030-02	N Female	HN Female	10-40	100-240VAC 50/60 Hz 40 VA	"PI"	Yes 0-4kV	500	$2,150
MTK600-13-L 03-700000-01	N Female	HN Female	10-50	115VAC or 24VDC (1)	"L"	No	500	$ 750
MTK600-13-PI 03-700000-03	N Female	HN Female	10-50	115VAC or 24VDC (1)	"PI"	No	500	$ 750
MTK600-70-L 03-700000-00	N Female	HN Female	50-125 (6)	115VAC or 24VDC (1)	"L"	No	500	$ 750
MTK Shunt Capacitor / Inductor Kit 00001039	This optional kit contains additional fixed shunt capacitors and a high turns ration series Inductor. It is typically used with matching of small sputter sources.							$ 300
Hand Held Controller 03-140000-00	Requires a remote control cable to connect to the Model ATK – see below This unit may also be used to operate the Dressler VM series automatic impedance matching networks.							$ 750
Remote control cable – 10' long 15-700125-01	Other lengths available upon request							$ 75
Coaxial Input/Output cables	We offer many different types of cables for your application. Teflon insulated Cables are recommended for use in all output connections. Contact the factory for more information.							TBD

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Notes
1) The RF circuit in all ATK & MTK models can be field re-configured to enable matching of non-typical plasma loads.
2) MTK models are delivered with a 110VAC input / 24VDC output wall wart power supply. The direct 24VDC input is through a 5.5/2.5mm inline DC power connector. The user may elect to power these units with a +24VDC signal. The typical current draw for the cooling fan is 200mA.
3) All models have a 50-ohm input impedance.
3) Matching of small magnetron cathodes (1” & 2” diameter) may require the installation of the optional high turns ratio series inductor / shunt capacitor kit. Contact the factory for more information.
4) The Model MTK600-13 and ATK600-13 units have the following RF component values: series capacitor (C2) value is 488pF. The shunt capacitor (C1) value is 1000pF. The series inductor value is 0.9uH tapped.
5) The Model MTK600-70-L (50-125 MHz) series capacitor (C2) value is 200pF and the shunt capacitor (C1) value is 488pF.
6) The MTK600-70-L is delivered with a selection of series inductors to enable matching of a wide range of plasma loads. Please note that the output connection cable MUST be 6” or shorter to enable proper matching.
7) All ATK models use a DB-15 female connector for the control I/O. The AC mains connector is an HP (IEC) type
8) The Model ATK600-13-L-VC includes an air variable capacitor for the shunt element & a vacuum variable capacitor fo series element

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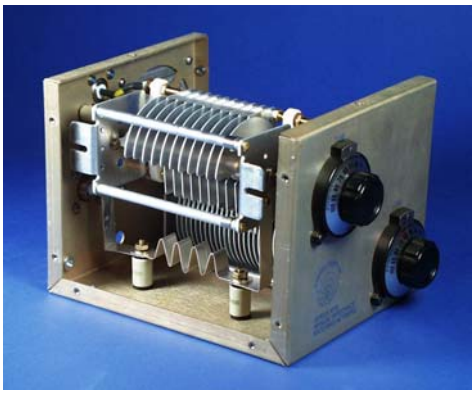
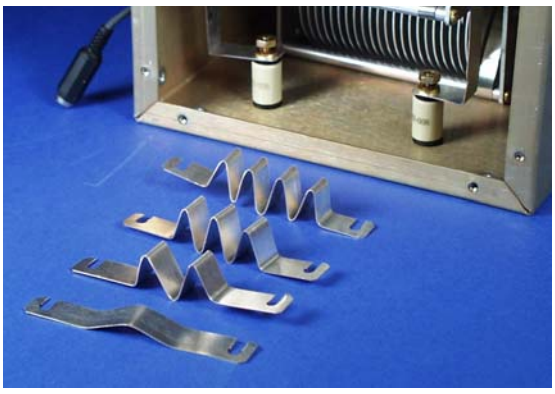
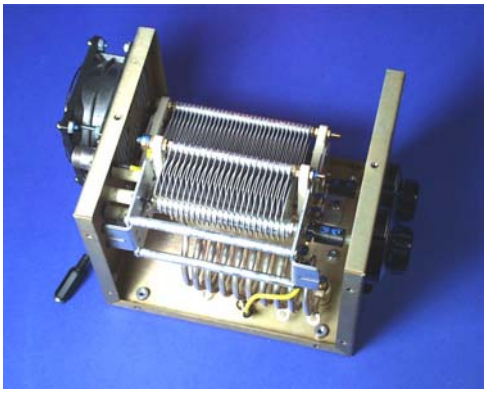
Model MTK rear view showing RF input and output connectors

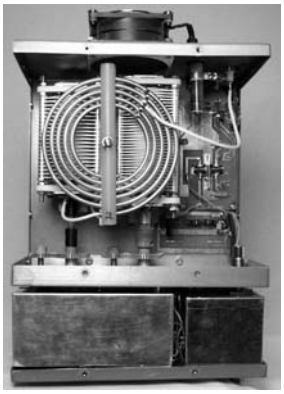




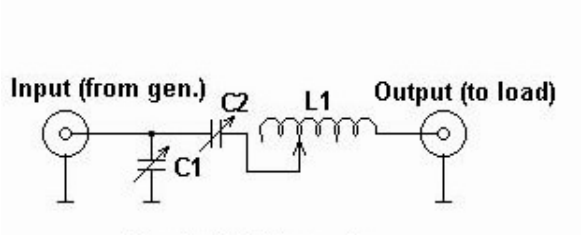
Model MTK600-70-L showing the changeable series inductors



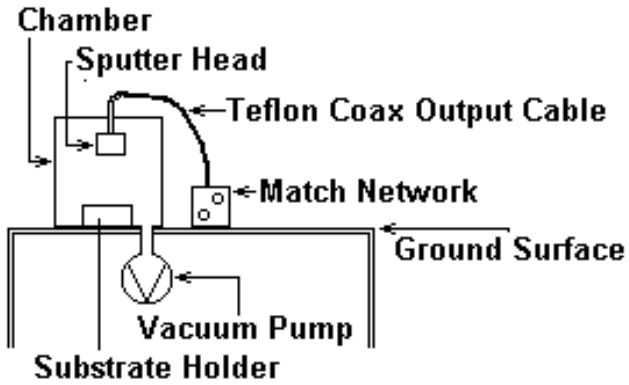
Model MTK-600-L



Model ATK-600-L Top & Rear Views



Typical “L” Topology



Typical plasma system installation

Technical specifications are subject to change without prior notice.
See our web site or contact us directly for the latest specifications. 09.01

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