MIPS

Modular
Intelligent
Power
Sources

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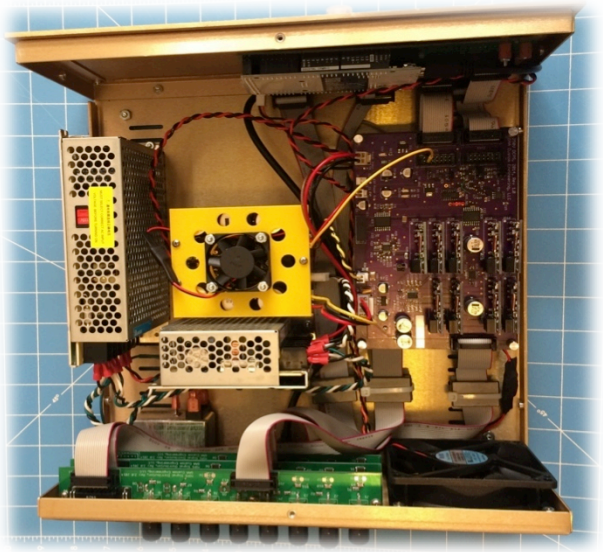
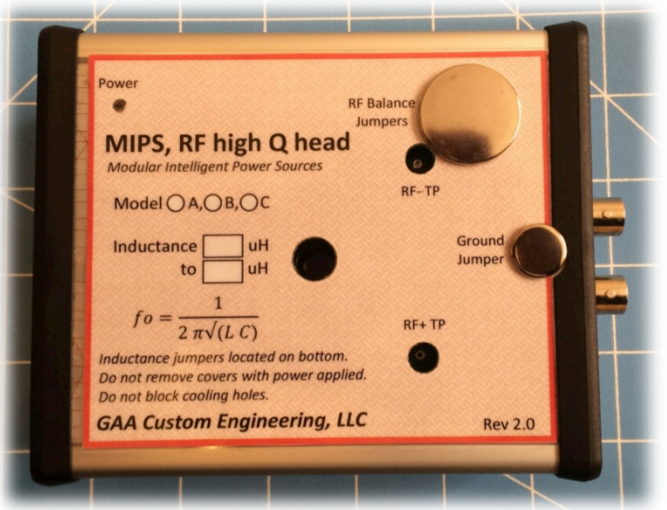
MIPS module options

- Two phase RF generation for ion guides ion funnels etc.
  - 2 channels per module
  - 2 modules can be installed in one MIPS system
- DC bias supplies
  - 8 channels per module
  - 2 modules can be installed in one MIPS system
- Traveling Wave
  - 8 output channels
  - 2 guard supplies
- FAIMS
  - Adjustable to 5.5KV
  - 1 MHz
  - DC bias and cv as well as scan control
- Digital IO
  - 16 outputs
  - 8 inputs



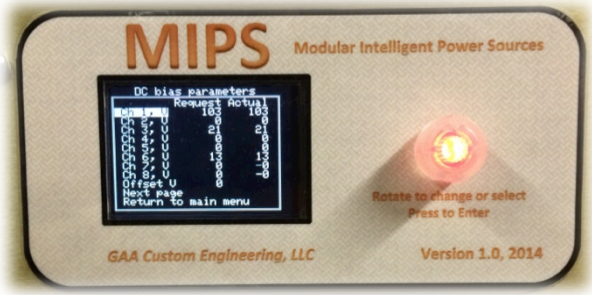
RF module

- Each RF output requires a RF high Q head and RF driver board in MIPS chassis.
- Frequency range 500 KHz to 5 MHz
- Output voltage 400 Vp-p depending on load capacitance and Q
- Adjustable inductance
- Load balance jumpers
- Scope test points
- Inductance range options
- BNC connection to load
- Power monitoring
- Voltage monitoring



DC bias module

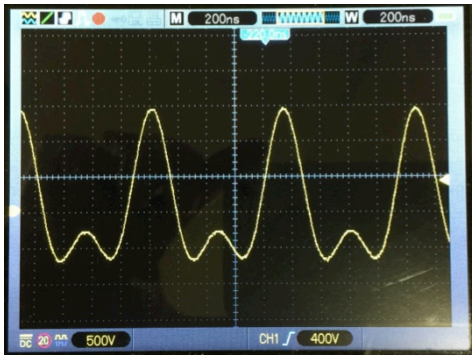
- Each DC bias module provides 8 adjustable output voltages
- Offset control per module
- Externally floatable
- Several voltage range options:
  - +- 50 volts
  - +- 250 volts
  - +- 750 volts
- Output voltage monitor
- BNC outputs for each channel
- Output voltage overload detection and automatic shutdown



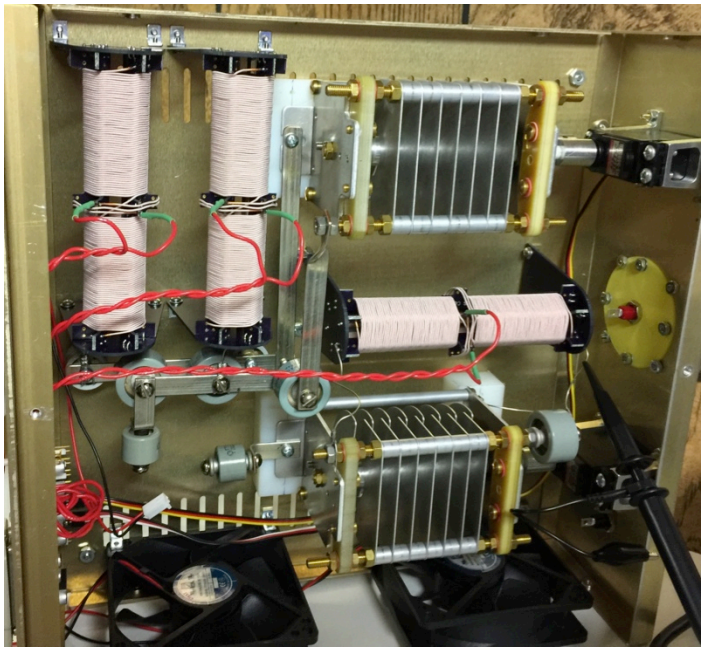
Traveling Wave module

- 8 pulse outputs with user programmable sequence
- Adjustable frequency
- 0 to 100 volt pulse and guard voltage adjustment
- Power MOSFET output drivers on each channel
- Floatable
- External sync input

FAIMS



- Adjustable bisinusoidal waveform
  - 1MHz
  - 5.5 KV maximum DV
- DC bias and cv
  - User programmable scan
- All operating parameters monitored
  - RF deck power
  - Output voltage
- Safety monitoring
  - Power limits
  - Arc detection and shutdown
- Optional support for field driven FAIMS
- Customized to your research needs



Digital IO module

- 16 digital outputs
- 8 digital inputs
  - External clock
  - External trigger
- All outputs can be controlled with pulse sequence generation capability
- BNC inputs and outputs with input protection

MIPS architecture

- 84 MHz ARM processor
  - Arduino Due
- Microcontroller uses TWI and SPI interface to control each module
- Modules plug into the controller with two 14 pin IDC cables
- Modules are built on 6” x 4” PC cards
- Cards are stackable
- Firmware developed in C++

MIPS key features

- Simple one control user interface
- Color multiline graphics display
- All parameters controlled and monitored through user interface
- USB host computer interface for full remote control
- Each module has non volatile memory used to save calibration data and set points
- Macro programming
- Automatic macro play on power up or by command
- Pulse sequence generation using “table” commands
- Field upgradable firmware

MIPS support

- All technical data provided with system
  - Schematics
  - PC board designs
  - Parts list
  - Software
- Each system customized to meet customers needs
- Custom module development at competitive rates
- Comprehensive operations manual
- Free installation training
- One year warrantee

MIPS developments

- FAIMS module in development now
  - 5+ KV at 1.3 MHz
  - Bias and compensation voltage generation
- High power high Q RF head supporting high frequency at higher voltages
  - AMPS compatible
- +- 750 volt DC bias supply in development now
- Source control
  - ESI supply
  - Heater control

MIPS pricing

- MIPS chassis including DIO module
  - $1495
- Modules
  - RF driver supports 2 high Q heads, $595
  - +- 50 volt DC bias module, $595
  - +- 250 volt DC bias supply, $895
  - +- 750 volt DC bias supply, $1095
  - Traveling wave module, $1295
- High Q RF heads
  - $395
- High power High Q RF head
  - $495
- FAIMS
  - FAIMS MIPS module, $995
  - FAIMS RF deck, $995