

Performance. Flexibility. Value.



[www.magritek.com/kea](http://www.magritek.com/kea)

## Kea Spectrometers now with Extended Range

The new generation of Kea spectrometer is now available in a range of models operating from 0 to 400MHz. Kea continues to offer exceptional performance in a compact form factor. A variety of plug-in modules and options provide great user flexibility. Kea uses the same direct digital detection technology found on modern high-field spectrometers but at a fraction of the cost.

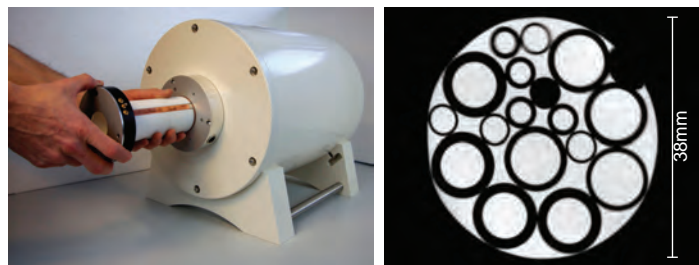
### FEATURES

- Compact and lightweight
- Models from 0 to 400MHz
- Powerful Prospa software
- Optional second transmit channel
- Optional oven controlled oscillator
- Optional imaging module
- External trigger



### Spectroscopy

The new Kea now has an optional oven controlled oscillator with high frequency stability - making it ideal for spectroscopy applications all the way to 400MHz. The system shown uses the Kea with the ultra compact spectroscopy Halbach operating at 30MHz from ACT.



### Imaging

With its optional four channel imaging module and advanced Prospa software, the Kea is ideal for a compact and cost effective imaging system. This image of tubes was obtained using the Kea together with the 20MHz Tomography Halbach magnet from ACT.

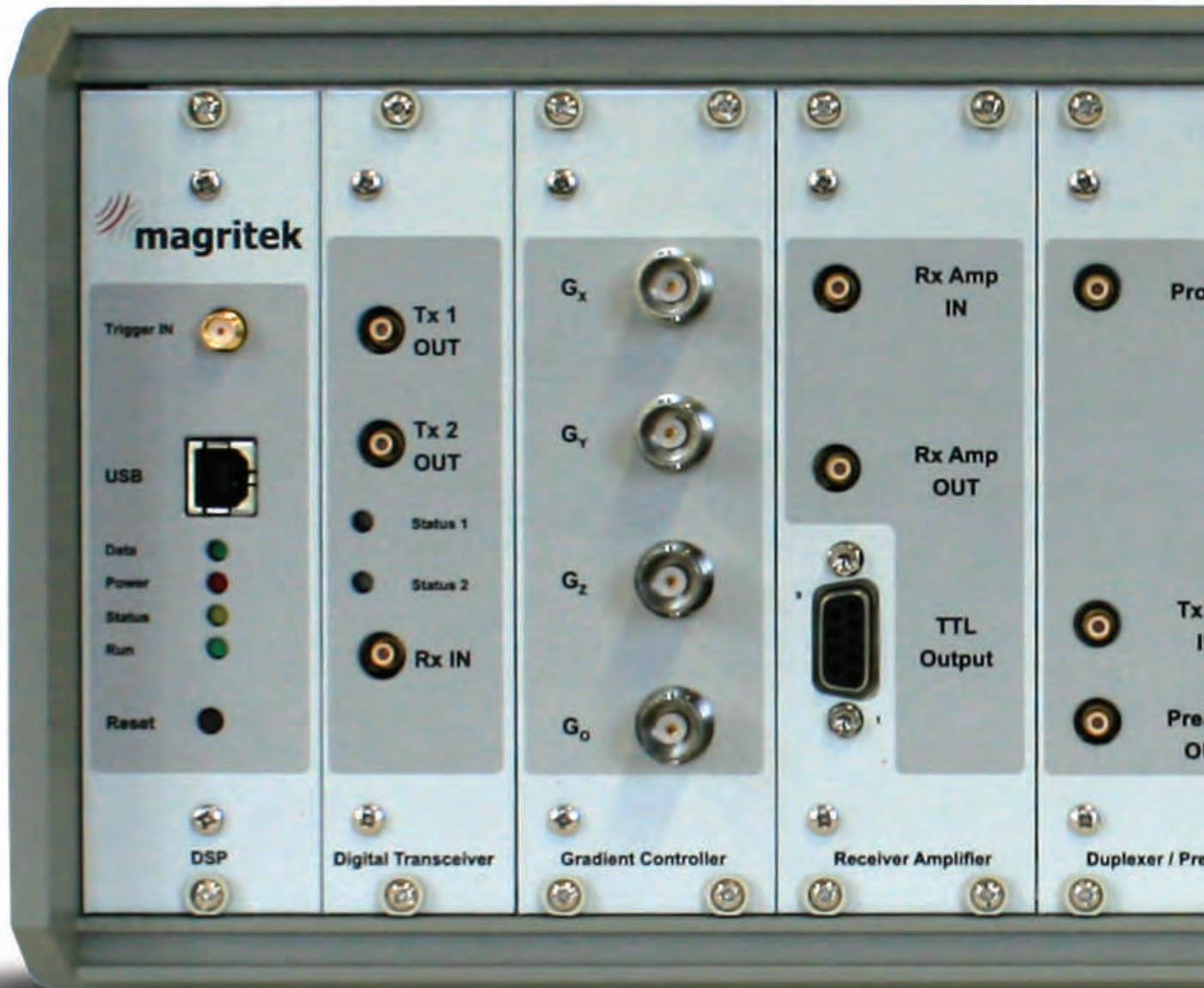
The **Kea** technology platform is modular, which enables a completely customised solution to each problem.

## OPTIONAL MODULES

### Imaging module

Full independent amplitude control of external gradient amplifiers.

Channels:	4
Output:	$\pm 10$ V
Digital Resolution:	16 bit



### DSP control module and USB interface

The control module features an advanced DSP processor that runs experiments on the spectrometer, collects the data and returns it to your PC.

Interface:	USB 2.0
Memory:	256 k, 24 bit
Timing Resolution:	100 ns

### Digital Transceiver

The transceiver uses direct RF digitization on transmit and receive.

Maximum # Transmit Channels:	2
Maximum Transmit Frequency:	400 MHz
Oven Controlled Oscillator:	optional
Maximum # Receive Channels:	1
Receiver Sampling Rate:	100 MHz
Receiver Resolution:	16 bit

### Duplexer/Preamp

Combined low noise NMR Pre-Amplifier with fixed frequency duplexer to isolate transmit and receive signals.

Gain:	30 - 40 dB
Noise Figure:	<1.5 dB

### Internal Amplifier

Compact internal RF Amplifier option is available; or use external amplifier.

Output to 50 MHz:	100 W
Output to 100 MHz:	30 W

ACTUAL SIZE



## STANDARD MODULES

### Receiver Amplifier

Provides a digitally controlled analogue gain stage for use prior to the digital receiver.

Frequency Range:	0 to 400 MHz
Gain (HF models):	-20 to +70 dB
Independent TTL Outputs:	7

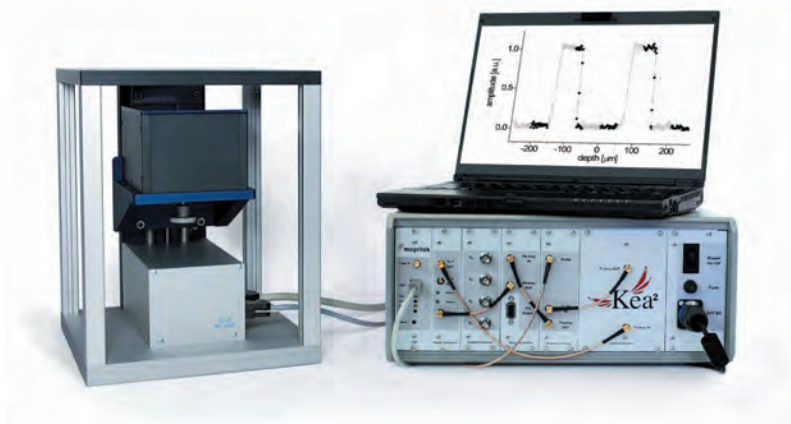
### Power Supply

Specifically designed power module runs on 24 V DC. A universal power adapter is provided for use in a normal laboratory environment. Battery operated in the field.

Input voltage:	24V DC
Power adapter:	110V/220V (50Hz/60Hz)

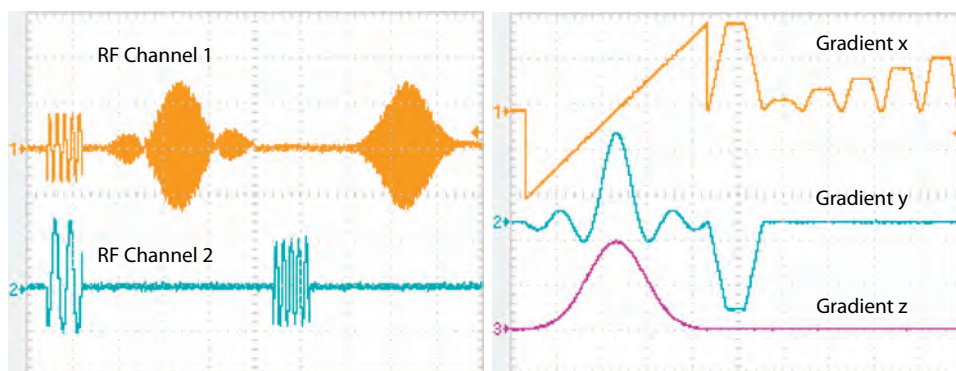
## Time domain measurements

The cost effective and compact Kea is an excellent spectrometer for time domain measurement instruments. The image to the right shows a Kea with a Profile NMR Mouse from ACT. This system uses localized field gradients together with physical scanning to generate high resolution depth profiles.



## Pulse programming

Kea is controlled using the powerful and flexible Prospa software. A feature of Prospa is the ability for the user to easily write their own programming macros for running custom experiments and generating custom user interfaces. The traces on the right show examples of pulses and gradients generated with the pulse programmer.



## Kea specifications

<b>DSP control module:</b>		Variable gain:	-20 to +70 dB, digitally controlled in 3 dB steps (0 to 60 dB for Low Frequency Kea)
Interface:	USB 2.0	Input/output impedance:	50 $\Omega$
Pulse program timing resolution:	100 ns	Analogue filter:	50 MHz blocks (model dependent)
Memory:	128 k waveform memory 128 k data memory 24 - bit words	<b>Preamplifier:</b>	
User Interface:	Prospa software	Gain:	30 - 40 dB (model dependent)
Platform:	Windows 2000, XP or Vista	Noise figure:	<1.5 dB
		Dead time:	<10 $\mu$ s
<b>Digital Receiver:</b>		<b>Power Supply: (included)</b>	
Input impedance:	50 $\frac{1}{2}$	Input:	110 V / 240 V (50 Hz / 60 Hz)
Sample rate:	100 MHz	Output:	24 V DC
Resolution:	16 bit	<b>Dimensions:</b>	
Frequency range:	0 to 400 MHz (model dependent)	Size:	36 x 26 x 16 cm (14.2 x 10.2 x 6.2 in)
Input bandwidth:	50 MHz	Weight:	5 kg (11 lb)
<b>Digital Transmitter:</b>		<b>Imaging Module: (optional)</b>	
Output level:	0 dBm	Number of channels:	4
Output impedance:	50 $\frac{1}{2}$	Maximum output voltage:	$\pm$ 10V
Clock rate:	1 GHz	Digital resolution:	16 bit
Frequency stability:	$\sim$ 1 ppb with optional oven controlled oscillator	<b>High Power Amplifier: (optional)</b>	
Modulation capabilities:	Frequency, phase, amplitude	Input / Output impedance:	50 $\frac{1}{2}$
Maximum update rate:	2 MHz	Output power:	100 W to 50 MHz, 30 W to 100 MHz
<b>Receiver amplifier:</b>			
Operating range:	0 to 400 MHz (model dependent)		

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