

## Technical Specification Single-Channel EMAT System

The Single-Channel EMAT System consists of the following components:

- EMAT Transmitter Unit, Type P3109
- Synthesizer-Burst Generator, Type SEB\_SYN
- Preamplifier
- PCUS 11 Pulser/Receiver and A/D Converter, Type DUSK02C
- Search Unit

### EMAT Transmitter Unit

- Output Impedance ..... 12Ω
- Current ..... 30A<sub>pp</sub> (22Ω)
- Output Voltage ..... 1kV<sub>pp</sub>
- Output (short) circuit protection for burst signals

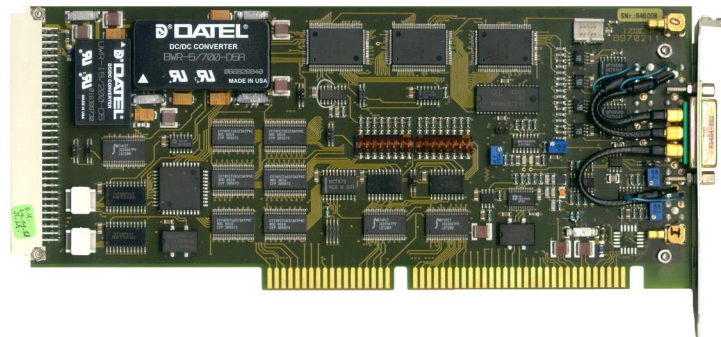
### Synthesizer-Burst Generator

- Burst Duration ..... 1 to 15 Cycles, firmware selectable
- Frequency Range ..... 0.4 to 7MHz, firmware selectable

Burst duration and frequency settings are controlled by the SNB driver software; the software has to be programmed for the application-specific settings.

### Preamplifier

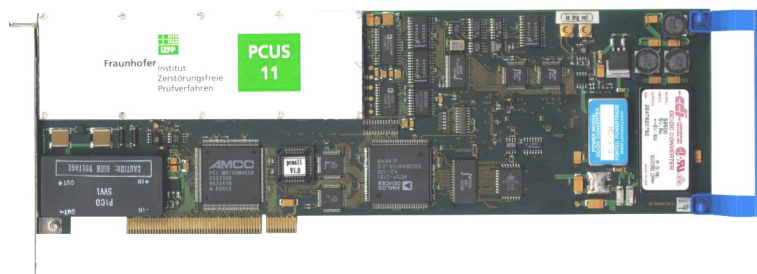
- Pre-Amplification ..... 88dB
- Output Impedance ..... 50Ω
- Input Sensitivity ..... 10μV



SNB Synthesizer-Burst Generator

## PCUS 11 P/R and A/D Converter

Channels:	1 Transmitter, 1Receiver
Frequency Range:	0.5 - 20MHz (-3dB)
Filters	4 narrow band filters, 1MHz (0.5 to 2.0MHz) 2MHz (1.0 to 4.0 MHz), 4.5MHz (2.25 to 9.0 MHz), 10.0MHz (5.0 to 20.0 MHz)
Amplifier Range:	0dB to 90dB including DAC, adjustable in 0.1dB increments
Damping:	20dB, adjustable in 0.1dB increments
Dynamic Range:	110dB
Electronic DAC:	40dB range, adjustable in 0.1dB increments, maximum of 256 editable, equidistant points
Impedance:	50Ω, 300Ω selectable
Transmitter Pulse:	Spike pulse, negative
Pulser:	-300V or -200V (50Ω), -550V or -350V (300Ω)
Pulse Rise time:	<20ns (10% to 90% pulse height)
Pulse width:	<200ns to 700ns, adjustable
Pulse Repetition Rate:	20Hz to max. 4kHz (400Hz maximum when using EMAT P3109)
Sampling Rate:	160, 80, 40, 20, 10MS/s, selectable, 10bit resolution
Data Memory:	64k sample
Averaging:	2, 4, 8, 16, 32, 64, and 128 samples selectable
A-scan Processor:	RF, positive half-wave, negative-half wave, full-wave, and summation of up to 256 samples
Data Output Format:	8bit or 16bit
Sweep Range, 80 MS/s:	max. 2,457mm, longitudinal mode in steel, pulse-echo max. 4,915mm, longitudinal mode in steel, pitch-catch
Sweep Range, 10 MS/s:	max. 19,600mm, longitudinal mode in steel, pulse-echo max. 39,300mm, longitudinal mode in steel, pitch-catch
Power Requirements:	5V (±0.5), 12W typical, 15W maximum, 3.7W in power saving mode
Interface:	PCI-Bus, I/O or Master DMA, 32 bit
Dimension:	1/1 (full) length PCI
Connectors:	Lemo 00 for pulse-echo, transmit and receive; MCX receptacles on board for trigger-in and trigger-out



PCUS 11 Pulser/ Receiver and A/D Converter Board