NOVATECH
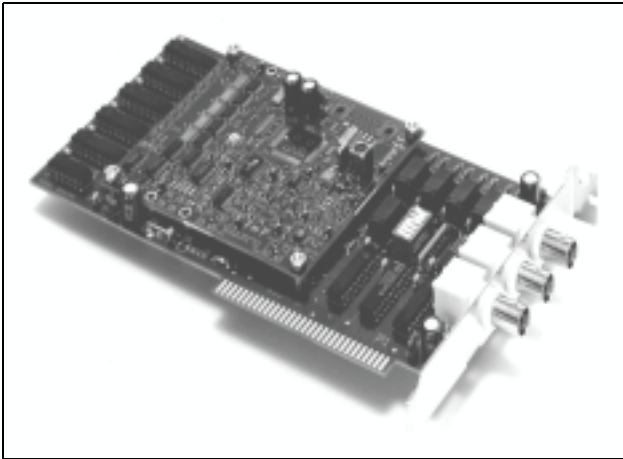## INSTRUMENTS, INC.

PC Compatible 68MHz DDS Signal Generator
Model DDS7pc

The DDS7pc Direct Digital Synthesizer is a 68MHz Signal Generator on an 8-bit PC ISA Bus card compatible with PC AT and later computers. The DDS7pc generates both Sine and ACMOS/TTL output signals simultaneously up to 68MHz in 0.04Hz steps. Supplied software (executables and C source for DOS and Linux) allows "out-of-the-box" operation. Multiple DDS7pc are phase synchronous when used with an external clock source. An on-board step attenuator allows up to 60dB of attenuation of the Sine Output in 4dB steps.

Specifications:

OUTPUT
TYPES: Sine and ACMOS/TTL simultaneously.
IMPEDANCE: 50Ω
RANGE: 100Hz to 68MHz in 0.04Hz steps (internal clock).
SINE AMPLITUDE: approximately +7dBm (0.5Vrms) into 50Ω load, +13dBm into Open Circuit.
FLATNESS: +/-3dB from 100Hz to 68MHz referenced to amplitude at 15MHz, stable to +/-1dB from 18-28 ^{o}C, 0dB attenuation. (-6dB at 50Hz)

STEP ATTENUATOR
Sine output can be attenuated from 0dB to 60dB in 4dB steps, +/-0.5dB per step. Approx. 0.5Vrms to 500µVrms into 50Ω

ACMOS/TTL AMPLITUDE
V_{OL}<0.5V, V_{OH}>3.5V into a series terminated 30pF load. $T_{r,f}$ <5ns. Duty Factor: 45-55%. 50Ω output impedance.

CONTROL
Output frequency, sinewave attenuation and clock source are controlled by 7 data bytes in PC I/O address space starting with a base address set by an on-board DIP switch (338_h default). Software (source and executable) supplied.

ACCURACY AND STABILITY
<+/-10ppm at 18-28 ^{o}C. Stable to an additional +/-5ppm per year, 18-28 ^{o}C.

EXTERNAL CLOCK INPUT
LEVEL: 0.35-2.5Vrms Sine or Square Wave can be applied to the EXT CLK Input BNC. 50Ω
FREQUENCY: 5MHz to 30MHz. x6 Multiplier on board.

SPECTRAL PURITY (Typ. 0dB Attenuation, 50Ω load)
Phase Noise: <-120dBc, 10kHz offset, 5MHz out.

Spurious:	<-60dBc below 10MHz (typ. 200MHz span)
	<-50dBc below 20MHz
	<-45dBc below 50MHz
	<-40dBc below 68MHz
Harmonic:	<-70dBc below 1MHz
	<-60dBc below 10MHz
	<-50dBc below 20MHz
	<-40dBc below 50MHz
	<-35dBc below 68MHz

SWITCHING TIME
NOVATECH INSTRUMENTS, INC. supplied GNU compatible C-language software allows the frequency to be changed in <1ms, depending upon computer and operating system. Attenuation changes in <100ms.

POWER REQUIREMENTS (from ISA slot)
+5V @ <500mA, -5V @ <50mA.

SIZE
8-bit ISA bus card. 200mm long (excluding bracket).

CONNECTORS
BNCs for SINE & ACMOS/TTL OUTs and EXT CLK IN.

30-Jan-99