Pentek 1420

# DC-20 MHz Direct Digital Frequency

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# Model 1420

# 4-Channel Clock and Sine Synthesizer VME Board

## General Information

Model 1420 is a four-channel synthesized signal source VME board with 20 MHz maximum operating frequency.

This precision four-channel signal generator produces sine and TTL signals with synthesizer accuracy and resolution. Each channel is a separate synthesizer providing a sine wave or TTL pulse programmable to 20 MHz with 0.012 Hz resolution.

Transient-free, phase-continuous frequency switching is ideal for automated calibration, high resolution swept frequency response testing, or multitone test of frequency-agile communications. Phase Shift Keying (PSK) in 8 steps of 45° can be programmed over the VMEbus or from the front panel. Because four synthesizers are packaged on one VMEbus board, both size and cost are minimized.

## Specifications

**Outputs:** four; sine waves +10 dBm into 50 ohms, ±1 dB flatness, output impedance 50 ohms; or TTL square waves

**Output frequency:** DC to 20 MHz with 0.012 Hz resolution (32 bits); accuracy determined by frequency reference

**Frequency reference:** internal ±100 ppm (±3 ppm optional); or 10 MHz external front panel input

**Sine purity:** integrated phase noise is -55 dBc in 30 kHz BW; harmonics are -45 dBc; spurious components -55 dBc

**Phase modulation:** 0–360°, 16-bits (binary) programming; fast PSK mode in 45° steps, 3-bit programmed or via external input

**Frequency switching:** phase continuous, <1 µsec delay; frequency setting by two 32-bit binary registers per channel, selected by program or external line

**Front panel connectors:** sine or TTL out (BNC), ref. in (BNC), PSK and FSK control (male ribbon)

**VMEbus interface:** slave D16 A24; memory-mapped frequency and phase control registers; base address selectable

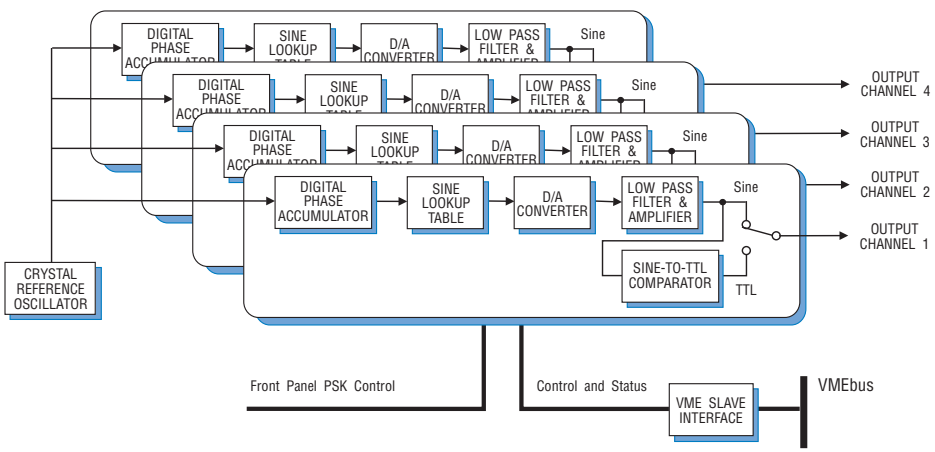
**Power:** 2.5 A at +5 V, 0.3 A at +12 V, 0.2 A at –12 V

**Size:** standard 6U VMEbus board, single slot; board 160 mm (6.3 in.) x 233.5 mm (9.2 in.), panel 0.8 in. wide

## Features

- Single-slot precision synthesized source
- Direct digital synthesis
- Millihertz resolution throughout the range
- Phase-continuous frequency programming

## Block Diagram, Model 1420




## Ordering Information

| Model | Description |
|---|---|
| 1420 | Clock and Sine Synthesizer VME Board |

**Options:**

| | |
|---|---|
| -004 | ±3 ppm int. reference |
| -005 | DC to 4 MHz with 0.0024 Hz resolution |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