



# C-CATS 8000

## Computer-Controlled Amplifier Tracking System



### Applications

- Engine test cell monitoring
- Testing of generators, pumps, compressors, turbo-expanders and other rotating equipment
- R&D lab analysis and testing
- Continuous on-line monitoring of rotating equipment

### Features

- Industry exclusive:
  - \*Manual Operation Module
- Programmable filtering, including tracking, sweep and \*balance mode operations
- Simultaneous tracking and sweep operations
- Up to 14 independent input channels
  - \*Optional

Monitoring Systems

### Description

The modular programmable CEC 8000 Computer-Controlled Amplifier/ Tracking System (C-CATS) offers more power and greater flexibility than ever. It provides continuous online vibration monitoring of rotating equipment for industrial manufacturing engine test cells and other environments requiring precision machine monitoring.

The CEC 8000 is the only system of its type to offer an optional Manual Operation Module (M.O.M.), which allows the user to set up, perform and store specific tests for immediate recall, without the aid of a PC.

Each 8000 amplifier module combines fully selectable transducer, tachometer and filter settings with a complete range of AC, DC and

proportional outputs for unparalleled accuracy and resolution. An 8000 system contains 1 to 14 independent signal amplifiers installed in a 3U or 6U 19-inch chassis mount enclosure. Each amplifier offers two fully programmable alarms using independent SPST relays.

The 8000 C-CATS extends CEC's 60-year tradition of excellence to a new generation of vibration monitoring instrumentation incorporating the latest proven modular technology for today's most advanced analysis and testing installations.



# C-CATS 8000 Computer Controlled Amplifier Tracking System

## Performance Specifications

### Inputs

#### Transducers

A transducer type is selected through the computer interface. The standard C-CATS provides the following transducer input selections.

<b>Accelerometers:</b>	Differential or single-ended for sensitivities of 1 to 110 pC/g.
<b>Velocity Coil:</b>	Differential input for sensitivities of 6 to 1100 mV/ips. Input resistance 10k ohms. Max peak input 10 V peak.
<b>ICP (constant current):</b>	Single-ended input for sensitivities of 6 to 1100 mV. Constant current 6.0 mA @ 22 VDC provided. Input Resistance 100 K ohms min. Max input 10 V peak.
<b>Millivolt:</b>	Single-ended input for sensitivities of 6 to 1100 mV; input resistance 100 K ohms min. Max input 10 V peak. 20-24 VDC @ 50 mA provided to power remote charge converters.

#### Calibration

Single-ended sinusoidal. Input resistance 100 K ohms min. Max input 10 V peak.

#### Tachometers

Four tachometer inputs per system max. 1 V peak min, 100 V peak max. Frequency from 10 Hz to 25 kHz. Input impedance 100 K ohms min. Tachometer ratios are user-programmable from 0.01 to 999.99.

### Filters

#### Fixed

Low-pass cutoff 50 Hz to 25 kHz, user-selectable. Select 1 each low-pass and high-pass cutoff to form bandpass filter. 32 kHz sampling rate or 192 kHz sampling rate. Pass band ripple less than 0.2 dB. 8th order inverse Chebyshev response. Attenuation greater than 60 dB/octave.

#### Variable

Variable frequency digital FIR multi-rate bandpass filter. Center frequency operation from 5 Hz to 5 kHz. Bandwidths from 2 Hz to 100 Hz, 1 Hz increments. 32 kHz sampling rate. Pass band ripple less than 0.2 dB. Attenuation greater than 60 dB/octave. Three possible modes: Variable, Tracking and Sweep.

### General

#### Electrical

85-265 VAC universal input 47-440 Hz. 100 W max.

#### Environmental

##### Temperature

Operating:	+35°F to +158°F (0°C to +70°C)
Storage:	-67°F to +302°F (-55°C to +150°C)

**Humidity:** 0 to 95% RH non-condensing

**Vibration and Shock:** Normal levels encountered in transporting and handling bench-type laboratory equipment

### Outputs

#### Amplifiers/Filters

<b>Broadband:</b>	Output is normalized to 50 mV/g or ips. Max output voltage 10 V peak. Max load 10 k ohms. Frequency response $\pm 5\%$ 2 Hz to 50 kHz.
<b>Filtered AC:</b>	Can be scaled from 1-10 V in 0.1 V increments. Fullscale programmable from 0.1 to 200 units (g, ips or mils). Max output voltage 10 V peak. Max load 10 k ohms. Error less than 0.5 dB 5 Hz - 5 kHz (32 kHz sample rate). Error less than 0.5 dB 25 Hz - 5 kHz (192 kHz sample rate).
<b>Filtered DC:</b>	TRUE RMS conversion of AC output. Can be scaled from 1-10 VDC in 0.1 VDC increments. Max output voltage 10 VDC. Max load 10 K ohms.

#### Accuracy

<b>Acceleration in, Acceleration out:</b>	$\pm 1\%$ 10 Hz - 5 kHz (32 kHz sample rate), $\pm 1\%$ 10 Hz - 25 kHz (192 kHz sample rate)
<b>Velocity in/Velocity out:</b>	$\pm 1\%$ 10 Hz - 5 kHz (32 kHz sample rate), $\pm 1\%$ 10 Hz - 25 kHz (192 kHz sample rate)
<b>Acceleration in, Velocity out:</b>	$\pm 1.5\%$ 10 Hz - 5 kHz (32 kHz sample rate), $\pm 1.5\%$ 10 Hz - 25 kHz (192 kHz sample rate)
<b>Velocity in, Displacement out:</b>	$\pm 2\%$ 20 Hz - 1.5 kHz (32 kHz or 192 kHz sample rate)

#### Actual Frequency DC

0-10 VDC proportional to actual frequency in tracking and sweep modes. Max load 10 K ohms.

#### Peak Frequency DC

0-10 VDC proportional to peak frequency in sweep mode. Max load 10 K ohms.

#### Peak Vibration DC

0-10 VDC proportional to peak frequency in sweep mode. Max load 10 K ohms.

#### Alarms

SPST 200 V @ 250 mA, AC/DC solid state. Trip point, 0 to full scale, ascending or descending. Delay programmable, 0-10 seconds in 1 second increments. Hysteresis programmable, 0 to full scale.

#### Manual Operation Module (M.O.M. Option)

Fully configures the C-CATS system without a PC. Easy to use menu driven program. Stores for instant recall: 25 sensor types, 50 program configurations. Analyzes inputs for 2 alarm conditions per channel. Supports up to 14 amplifier modules. Color-coded keypad for ease of use. Back-lit LCD display. Plugs into chassis without wasting valuable amplifier space. No additional wiring required.

Specifications subject to change without notice.