

28000-ACCEL/VEL/DISP4

Acceleration to Velocity & Displacement Integrators



INTRODUCTION

Often in measurements of rotating machinery, it is desired to measure velocity and/or displacement of an article under test. While this can be achieved computationally by real-time or post processing software acting on the acceleration measurement, it is sometimes advantageous to have a dedicated analog representation of velocity and displacement which can be directly measured by any arbitrary recording device.

The 28000-ACCEL/VEL/DISP4 contains an analog acceleration to velocity integrator followed by a velocity to displacement integrator intended to convert the front panel acceleration signals of the 28304/324 charge amplifier, to analog velocity and displacement signals. The 28000-ACCEL/VEL4 output module mates to the front panel DIN connector of a 28304/324 card and provides velocity and displacement outputs for each of the cards 4 channels via industry standard 15-pin D-shell type connectors.



Installing adapters on 28304/324 cards

The 28000-ACCEL/VEL/DISP4 modules contain internal power on inrush controllers and can be "hot inserted" on to 28304/324 cards while power is applied to the cards.

SPECIFICATIONS

(Assumes acceleration input scaled for 10 mV/g)

Velocity Output:

Velocity Scaling: 100 mV/IPS

Full-Scale Velocity Output: 100 IPS peak

Linear Range: ± 10 Vpk

Unity Gain Frequency (Re. Acceleration input): 614.5 Hz

Conformance to Curve (-6.02 dB/Octave):

10 Hz-20 Hz: $\pm 1\%$

20 Hz-20 kHz: $\pm 0.5\%$

Low Frequency Roll-off: -6 dB/Octave below 7 Hz

Displacement Output:

Displacement Scaling: 100 mV/mil

Full-Scale Displacement Output: 100 mil peak

Linear Range: ± 10 Vpk

Unity Gain Frequency (Re. Velocity output): 159.2 Hz

Unity Gain Frequency (Re. Acceleration input): 312.8 Hz

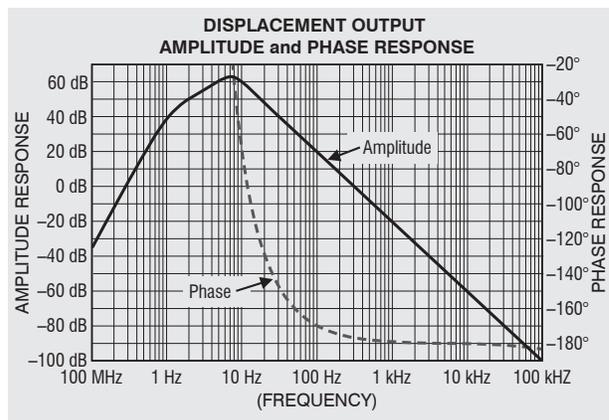
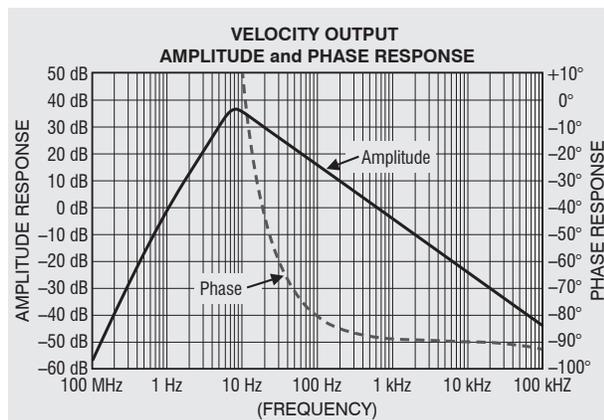
Conformance to Curve (-12.04 dB/Octave):

10 Hz-20 kHz: $\pm 1\%$

20 Hz-10 kHz: $\pm 0.5\%$

Low Frequency Roll-off:

-6 dB/Octave below 7 Hz, -12 dB/Octave below 1 Hz



Output Characteristics

Type:

Fully buffered single-ended

Output Connectors:

Separate 15-pin D-shell Connector for Velocity and Displacement output. High, Low, & Shield per channel

Impedance:

Output Impedance: 10 Ω // 100 pF

Max Out:

± 10 Vpk, ± 5 mA pk with short circuit protection

DC Offset: ± 5 mV

Noise: 100 kHz bandwidth

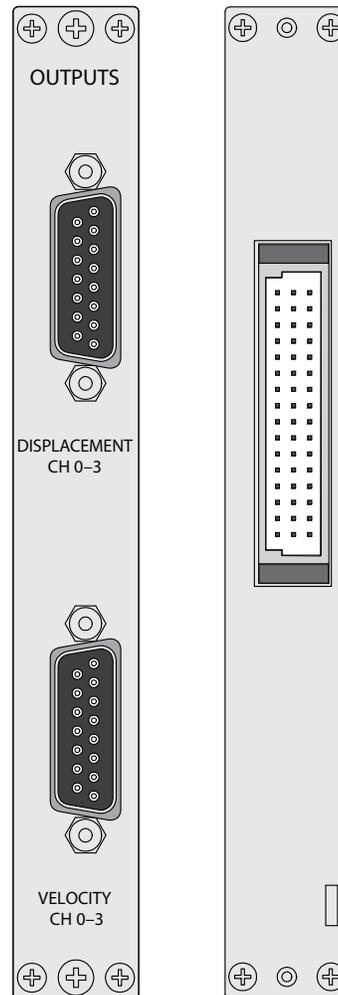
Velocity Output: 50 μ V RMS

Displacement Output: 1.4 mV RMS

Mating Connectors

CONN-OUT-15D: 15-Pin mating output connector, with crimp pins and strain relief backshell. PF pn A6862G2.

CONN-OUT-15D-SC: 15-Pin mating output connector, with solder cup pins and strain relief backshell. PF pn A6862G4.



28000-ACCEL/VEL/DISP4 Front and Rear Panels

