INTRODUCTION

Often in measurements of rotating machinery, it is desired to measure velocity. While this can be achieved computationally by real-time or post processing software, it is sometimes advantageous to have a dedicated analog velocity signal which can be directly measured by any arbitrary recording device. The 28000-ACCEL/VEL4 is an Acceleration to Velocity integrator intended to convert the front panel acceleration signals of the 28304/324 charge amplifier, to analog signals representative of velocity. The 28000-ACCEL/VEL4 output module mates to the front panel DIN connector of a 28304/324 card and provides velocity outputs for each of the card's 4 channels. Two output connector types are provided to allow BNC or industry standard 15-pin D-shell type connection.

Often complex measurement systems are comprised of multiple measurement devices and signals can be routed long distances to remote recording or real-time monitoring devices. If the remote device has a single-ended input, a large ground loop will occur which in severe conditions could corrupt the measurement signal. The 28000-ACCEL/VEL4 output stage has a output-ground-sense circuit which breaks the ground loop and references the velocity output signal to the ground of the remote device.

SPECIFICATIONS

(Assumes acceleration input scaled for 100 mV/g)

- Velocity Scaling: 100 mV/IPS
- Unity Gain Frequency (Vin = Vout): 61.45 Hz
- Full Scale Velocity Level: 100 IPS peak
- Linear range: ±10 Vpk
- Accuracy: 0.2% at 61.45 Hz
- Gain Stability: 50 ppm/°C
- Bandwidth: 10 Hz to 50 kHz
- Phase Response:
  - –90 deg @ 61.45 Hz
  - –85 deg @ 10 Hz
- Low Frequency Roll-off: –6 dB/Octave below 0.5 Hz
Output Characteristics

Type:
Fully buffered, DC coupled, single ended with selectable output sense

Output Connectors:
Multi-pin Connectors: High, Low, Shield (3-wire)
BNC Connectors: High and Low (2-wire)

Output Ground Sense:
The low output should be grounded for driving differential loads and "sense" for driving grounded loads. An externally accessible rocker switch selects the per-channel sense termination.

Impedance:

Hi Output:
10 Ω // 100 pF

Low Output (Sense Input):
1000 Ω // 100 pF or ground selectable per-channel via an externally accessible rocker switch.

Max Out:
±10 Vpk, ±5 mA pk with short circuit protection

Noise:
10 µV (100 kHz Bandwidth)

DC Offset:
5 µV

DC Offset Stability:
20 µV/°C

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.