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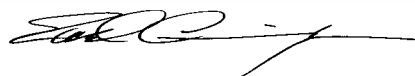
From the CEO:

Let me extend my congratulations to all of you for hanging tough during these turbulent economic times. We hope that the administration in Washington D.C. will lead us out of this crisis and get us back to more prosperous times. Business for us is stable and trending upward for the near-term. International markets have been steady, and our domestic sales are also up. I believe you are also experiencing the same trends as we are here at Ectron.

We recently participated in the Measurement Science Conference in Anaheim, CA and Michael brought some solid leads from that show. Also, if you subscribe to Cal LAB Magazine you will note our ad for the 1140A Thermocouple Simulator-Calibrator. These two recent marketing activities should benefit most all of you for Ectron product sales. In the sales expansion area, we added two new members to the Ectron global sales team. In the Midwest we welcomed Precision Measurement Products (PMP) to the team. In Japan we signed on Ohte Giken Inc. from Tokyo to lead our Japanese sales and marketing efforts.

In closing let me wish all of you sales success during the next quarter and beyond. And just remember what my Uncle Daniel Boone taught me about survival. You have to be fast and strong to make it out there. And we have some of the fastest and strongest guys in the business on our team. Go get 'em guys!

Sincerely,



E. Earl Cunningham, President and CEO

## *Ectron welcomes two new members to the global sales team*

### Ohte Giken



Japan – Ohte Giken (Pictured from left to right)  
Takayoshi Ohte, President  
Michael M. Fontes Ectron Sales  
Akira Ohte, Chairman  
Earl Cunningham, Ectron CEO.

### Precision Measurement Products



Midwest, Texas and Gulf states – Precision Measurement Products. (Pictured from left to right)  
Michael Fontes Ectron Sales Manager  
Ralph Bennett, President PMP  
Blake Benedict, Dennis Suchomski, Dan Hunt, Frank Tarcha, Wallace Scott, and Tim Patrick



## Rescue Microvolts from Volts of Noise

Is your data acquisition system being confused by high-frequency common-mode noise? After hooking up your system do you find excessive noise and dc drift on the output? You improve shielding and eliminate ground loops but the noise is still too high. You then carefully look at the input signal and discover that there is a high-frequency common-mode\* component.

What to do? **The Ectron Model 778 may well be the answer.** This unique bridge conditioning amplifier has high-frequency common-mode rejection (CMR) as well as a wide frequency response and fast rise time. Sources of high-frequency noise include fluorescent lights, nearby radio stations, switching power supplies, motor noise, etc., and the Ectron 778 can reduce high-frequency CM noise well beyond the specification of the typical conditioner amplifier.

The Ectron 776 was developed for use in underground nuclear testing. The Model 778 includes some of this earlier product's design features along with an extended bandwidth. The result is an amplifier and bridge conditioner that has a frequency response from dc to 3 MHz with a rise time of 150 ns as well as a unique wide band CMR specification.

Whereas the usual high-performance amplifier specification is 120 dB at 60 Hz, the specification for the Model 778 is >120 dB for frequencies from dc to 100 kHz and 100 dB to 1 MHz. This means that when noise is picked up as common-mode signals by the input signal leads of the instrumentation amplifier, much of this noise will be rejected before it is mixed with the desired signal.

What applications need the 778?

1. Hopkinson bar testing that involves high strain rates. Reflections in the bars are measured to determine the magnitude of the impact. Many times the environment includes high-frequency noise.
2. Gun barrel tests involving high-frequency materials analysis. Strain gages are used to determine stresses in the barrel of the gun. Again, the environment usually includes many sources of high-frequency noise.
3. Rail Gun testing. Huge current pulses are used to energize the rail gun. Similar to applications involving underground nuclear tests, these pulses generate high-frequency CM voltages. As in nuclear test applications, the desired signals frequently involve measurements immediately following the impulse.
4. Amplifiers operating near AM band radio stations or high-frequency generators, such as SCR power supplies, RF fluorescent lights including CFL types, computer equipment, etc.
5. Current pulse measurements involving high-frequency memory chips.
6. New EMALS aircraft carrier launch systems. Using a linear motor design the Electromagnetic Aircraft Launch System is under development by the U. S. Navy for use on the latest carriers. Again, high-power currents are involved thus high-voltage common-mode signals as well as high-frequency signals are usually involved.

To take advantage of the Model 778's CMR requires good shielding of the input signal so that conversion from CM to NM (normal-mode signals) in the cabling is minimized.

For example, what if the CM signal is just 1 V at 1 MHz, from a nearby SCR power supply? The typical amplifier in a data system will have a rejection of perhaps 10 dB at this frequency so the 1 V "noise" is reduced to 0.3 V; thus the output will include 0.3 V times gain. At a gain of  $\times 100$  this amount of "noise" will lock up the typical amplifier. If it still functions, the average amplifier will also convert some amount of this CM signal to dc causing an offset in addition to the added noise at the output. A pre-filter causes problems of added input impedance, distortion of the desired signal, etc. **The Model 778 is the answer, providing over 100 dB attenuation of the CM signal at 1 MHz thus reducing a 1 V interference signal to 0.0001 V.**



\* Common-mode signals are those common to both input leads of an amplifier as opposed to differential (normal mode) signals that are the desired signal. Imagine a thermocouple welded to the heating coil of an electric heater. The differential signal is the output of the thermocouple while the common-mode signal is the power line. Common-mode rejection is the ability of the amplifier to reject the power line signal and amplify only the thermocouple signal.



## *Personnel Announcements*

### Ectron Employment Anniversaries

Alonso Peña – Quality, 24 years  
Ruth Garcia - Purchasing, 26 years  
Carol Morris Smith – Finance, 18 years

### New Hires

Jessie Rogers, Engineering Technician

### Births

Damien M. Elswood, 1/16/2008  
Joel E. Fontes, 3/3/2008

## Series 400 Conditioners and Conditioner-amplifiers

The Series 400 family of signal conditioners and transducer conditioner amplifiers provides a unique combination of high performance despite harsh environmental conditions. Enclosed in miniature steel cases, these instruments ignore the effects of shock, vibration, and temperature extremes to produce precise data in a variety of severe applications.

The Models 428 and 416 are true differential amplifiers with transformer isolation between input, output, and the power source. Power can be from 10.5 V to 32 V for automotive applications or airborne systems. In addition to the high performance dc amplifier, these models include wide range input zero suppression ( $\pm 40$  mV) plus integral strain gage excitation supplies. Transformer coupling contributes to high common mode rejection and the chopper design results in superior zero stability. A rigorous testing cycle including final ATE testing ensures long-term reliable operation even when used under harsh temperature, vibration, and shock conditions.

The Model 428 provides gains from 0.01 to 2500 with a dual range switch and vernier control. This amplifier offers autozero by front panel or remote control plus three steps of excitation of 5, 7, or 10 V. Both the 416 and the 428 provide  $0.5 \mu\text{V}/^\circ\text{C}$  stability, unequaled in the industry for a poor environment miniature conditioner-amplifier. This stability provides precise output data over wide and abrupt temperature excursions. This temperature stability along with 100 g shock and 20 g vibration specifications makes these conditioning amplifiers the perfect choice for applications involving the worst environmental conditions.

Other models in the 400 series products include the Models 441A and 441AL frequency-to-voltage conditioners, and the Model 451 high-accuracy LVDT/RVDT conditioner.

Current applications include:

- Model 416 on-board launch vehicle rocket for precise conditioning and amplification of thermocouple and strain gage signals
- Model 416 on-board commercial helicopter monitoring mast vibration
- Model 428 used for automotive test on test tracks and crash testing
- Model 441A used to analyze sports car transaxle problems
- Model 441A used to monitor overspeed of gas turbine engine
- Model 451 used to monitor the positioning jacks on a theme park ride

