

- Objective                      To advance professionally by working in a field that will allow me to further expand and challenge my skills in component-level and system-level power and analog electronics design engineering while offering directing and/or management opportunities.
- Experience                      Sept 1995–present                      BK Electric                      Bailey, CO  
*Manager / Design Engineer / Sole Proprietor*
- Manage all aspects of establishing and operating small business.
  - Full range of design services - concept, design, prototype, PCB layout, mechanical and enclosure development, pre-production, complete documentation packages, manufacturing.
  - Specific designs include: miniature touch-activated controller for 277V lighting system; 300W 24V-to-110V sine-wave output voltage inverter; generator calibration module for establishing proper voltage, frequency, and wiring polarity; 600W power converter for ultra-high-power car audio amplifier.
  - Design specialization in switch-mode and linear power conversion, power control, magnetic components, AF analog, high-reliability, consideration for US and off-shore manufacture needs, microcontrollers.
- Feb 1994–Nov 1999                      EchoStar Communications                      Englewood, CO  
*Power Systems Design Engineer II*
- Solely responsible for design and development of all switch-mode power supplies used in all models of Dish Network satellite receivers.
  - Solely responsible for design and development of all other power control or conversion sections used in all models of Dish Network satellite receivers.
  - Set new standards for low-cost and high-reliability consumer-grade off-line power supplies by introducing many novel and innovative circuit techniques and topologies.
  - Responsible for continual monitoring of product power system related field-failure rates and trends; extensive foresight has resulted in ongoing design improvements to address potential problems before they become serious.
- Dec 1990–Feb 1994                      EchoStar Communications                      Englewood, CO  
*Power Systems Design Engineer I*
- Solely responsible for all aspects of the design and development of a 20W universal-input (85V to 265V) flyback power converter for use in two different European C/Ku-band satellite receivers.
  - Developed and introduced novel circuit for managing power supply hold-up time during power failure. Circuit offers extended hold-up time with reduced system cost.
  - Responsible for the optimization and re-design of a hybrid switch-mode power supply used on older C/Ku-band satellite receivers to improve field reliability and reduce production cost.
  - Established improved methods of test and design qualification for new power supply development.
  - Gained extensive knowledge of UL, FCC, CSA, VDE, and CE agency requirements for consumer electronic products. Most subsequent power supply designs attained first-pass approval and certification.

# Thomas P. Karnowka

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- Experience (cont) Sept 1987–Dec 1990 Colorado State University Fort Collins, CO  
*Laboratory Technician*
- Teaching assistant for lab class in Biomedical Instrumentation.
  - Repaired electronic test equipment and instruments.
  - Designed and constructed various printed circuit boards to aid in specific experiment set-up.
  - Heavily involved in the design and construction of a high-speed A/D conversion board for the Macintosh NUBUS.
  - Designed and constructed a nanoampere constant-current source for physiological stimulation experiments.
- Computer Skills
- Software: Word, Excel, Orcad, Protel 99, AutoCad, Electronics Workbench.
  - Operating Systems: MSDOS, Windows 95 thru Windows XP.
  - Hardware: PC and PC-clones from XT to Pentium-Class.
- Education
- Bachelor of Science in Electrical Engineering, December 1990, Colorado State University, Fort Collins, Colorado; emphasis in power electronics and conversion, and biomedical electronics and instrumentation.
  - Applied Power Electronics Conference (APEC) - 1993 and 1994.
  - Unitrode Power Supply Design Seminars - 1994, 1995, 1996, 1998,2001
  - Various technical seminars and symposiums.
- Publication
- R. J. Morgan, T. P. Karnowka, and T. N. Solie, 1989. An Analog Data Acquisition Board for the Macintosh II. Proceedings of the 26<sup>th</sup> Annual Rocky Mountain Bioengineering Symposium and the 26<sup>th</sup> International ISA Biomedical Sciences Instrumentation Symposium, Vol. 25, pages 261-265.
- Interests
- Electronics, automobiles, computers, four-wheeling, outdoor / mountains.

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| References | <ul style="list-style-type: none"><li>■ Kirk Lenzie, EchoStar Communications, Englewood CO, (303)-790-4445</li><li>■ Steve Dushane, Venstar Incorporated, Chatsworth CA, (818)-341-8760</li><li>■ Dave Easter, Easter-Owens, Arvada CO, (303)-431-0111</li><li>■ Keith Papulski, Taylor Tools, Denver CO, (303)-371-7667</li><li>■ Leon Oenes, Aqua-Hot Heating Systems, Fort Lupton CO, (303)-659-8221</li></ul> |
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