

Team Experience

MAGNETICS:

Custom innovative actuators and sensors

MEMS actuators

Navy aircraft launcher and arrestor

Maglev high-speed trains & rocket sleds

Minesweeper and submarine cloaking

Permanent magnet machine signature analysis

Electromagnetic spacecraft launcher

Magnetic motor resolvers

MECHANICAL and ROBOTIC SYSTEMS:

Man/machine force feedback interfaces

Zero backlash 2 DOF joints

Active and passive noise cancellation systems

Active center of mass controls

Proprietary automotive system development

Robotic drive and transmission systems for multi-DOF control

ELECTRONIC SYSTEMS:

Voltage- and Current-mode controllers

350 HP motor controllers

Distributed control and power systems

Commercial switching devices

Electric vehicle components

Microprocessor programming for intelligent peripherals

Electronic control systems for haptics

We are innovation experts

Engineering Matters has helped our clients develop:

- Force feedback devices
- Microcontroller systems
- Sensors & robotics systems
- Electronics for motor control
- Electromagnetic devices from MEMS to Maglev
- Motor/generators and electromagnetic drives

Birth of a Power Supply

Our Transconductance Amplifier Card (voltage IN, current OUT) was originally developed as a high-power high-efficiency power supply for a (patent pending) pseudo-spherical 2 DOF motor. This motor is the heart of the Engineering Matters' Force Feedback Joystick developed under contract to the US Air Force. During pilot training and aircraft studies, subjects are required to make high-force maneuvers in a simulator. The Transconductance Amplifier Card is a versatile, reliable, highly responsive switched mode power supply (SMPS). The high input-impedance and current-controlled output make the card ideal for many uses, including multiphase motors, experiments and prototypes, and commercial applications.

Call: 617-965-8974

Toll Free: 877-202-2246

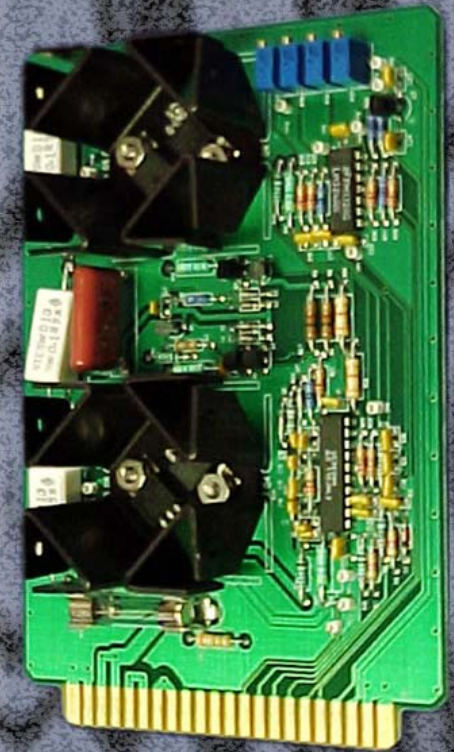
Email: info@engineeringmatters.com

Visit our website:

www.engineeringmatters.com

ENGINEERING MATTERS®

Transconductance Amplifier Card



Transconductance Amplifier Card

Voltage-Controlled Current Source



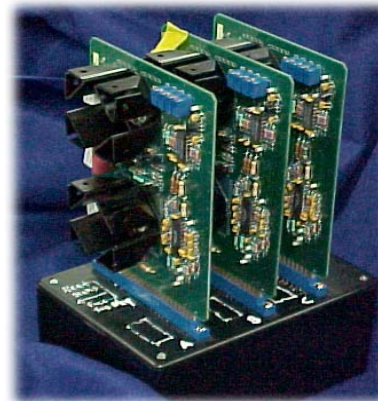
TECHNICAL SPECIFICATIONS

Combination Power and Sensor Card Switched Mode Power Supply (SMPS) Section:

- Transconductance Amplifier (voltage IN, current OUT), 1 Amp per Volt, adjustable
- Power Ranges
 - 100 Watts (5A, 24 Vdc)
 - 200 Watts (5A, 48 Vdc)
- Card outputs can be electrically paralleled
- Wide Input Voltage Range
 - 20V-35V dc (24V nom.)
 - 33V - 60V dc (48V nom.)
- Control Input Range: up to $\pm 30V$
- Bandwidth up to 6 KHz (load dependent)
- Inductive load required (> 0.1 mH)
- Environmental
 - 0 to 85°C operating range
 - 6.1 oz (178 g)
 - 4.5" x 6.5" x 1.25" (D x W x H)
- 44-pin (22 x 2) card edge connector
 - contacts 0.156" centers

Sensor Section:

- Isolated sensor circuit
 - Individual gain and offset controls
- Sensor output is up to ± 15 V
- Regulated ± 5 V dc supply included



3 Phase Power Supply



Engineering Matters has several mounting options for the cards. Shown here is an eight-card cage mounted in an enclosure that also includes a power supply. We can custom-engineer a solution for you.

Applications:

- Laboratory
- DC Motor Drive
- Split Capacitor Motor Drive (variable phase delays)
- 3 phase motor drive (variable frequency)
- Reluctance motors - 4 ,5 ,6 phases
- Audio amplification

There are many other applications, limited only by your imagination. The Transconductance Amplifier Card can be used alone or in N-phase groups.

If you can think it, Engineering Matters can create it!