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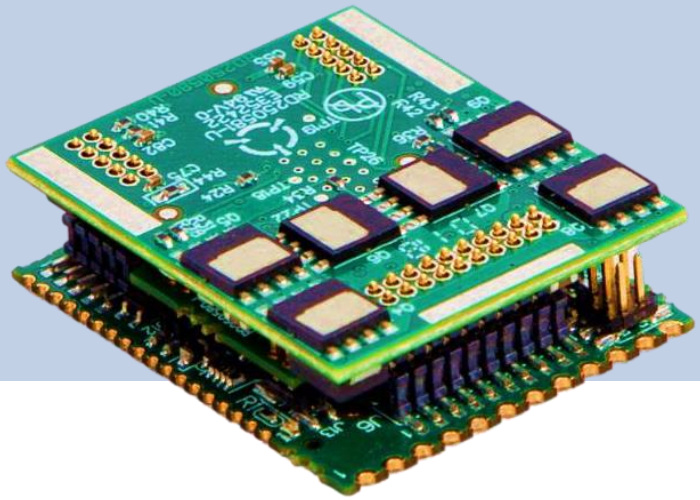

MICRO RAYON

Tiny Motor Controller
Tremendous Drive Power

Brochure

REDLER Technologies

Catalog number: RD000135

Drive Features

The Micro Rayon is a complete and highly efficient motor control drive that can power up to 700W motors, and supports position, speed, and torque applications.

The Micro Rayon is a PCB-mounted controller that can be easily integrated in multi-axis robotic applications.

Full digital control enables fast response and high bandwidth of current and position control loops.

A dedicated GUI provides automatic control loop parameters for fast application setup, load/read parameters, and a high-speed, Realtime graph monitor.

Key features

- PCB surface-mount technology (SMT)
- Miniature module, high power density
- Powers motors up to 700W.
- 12–48 VDC recommended operating voltage
- 10A continuous current (RMS), 15A sinusoidal
- 20A peak current 3 second (RMS), 30A sinusoidal
- Sinusoidal, flux-oriented current IQ ID vector control
- Motor calibration wizard
- Motor feedback: Hall, incremental, SSI, sin/cos absolute/incremental
- PID closed loop modes: position, speed, current, stepper.
- Autotuning and manual tuning for PID and filters
- Dedicated GUI, load/save parameters with real-time signal scope.
- RS232/422 communication (CAN optional)
- Firmware upgrade via serial
- Digital or analog ±10V command
- 5 digital inputs, 3 digital outputs
- Protection: over-temperature, over-voltage, over-current, encoder fault, motor stall, and more
- Operating temperature -40°C to +85°C

Motors

- Brushed motors
- Brushless motors with Hall – six step commutations
- Brushless motors with Hall and incremental encoder – sinusoidal commutation
- Brushless motors with absolute SSI encoder – sinusoidal commutation

Current control

- Fully digital, closed loop PI at 20 kHz.
- 20kHz PWM
- Sinusoidal commutation with vector control (PID) or trapezoidal commutation with encoder and/or digital Hall sensors
- 20 kHz sample rate, 12-bit current loop resolution
- DC bus power supply compensation
- Autotuning

Speed control

- Closed loop PID at 4 kHz.
- Programmable PID
- Feed forward
- Control filters
- Gain scheduling
- Autotuning

Position control

- Closed loop PID at 2 kHz.
- Programmable notch and low-pass filters
- External position feedback loop

Communication

Two communication options:

- RS232 serial communication with CAN, for fast communication in a multi-axis distributed environment.
- RS422 serial communication

Feedback

- Incremental encoder – up to 1 MHz counts per second (250 kHz channel input), differential or single-ended encoder inputs.
- Digital Hall sensors – up to 12 kHz counts per second (2 kHz channel inputs)
- Absolute analog (sine/cosine) – up to 12 bits.
- Interpolated analog (sine/cosine) encoder – up to 250 kHz (analog signal)
  - Internal interpolation – up to 12 bits
  - Signals offset calibration.