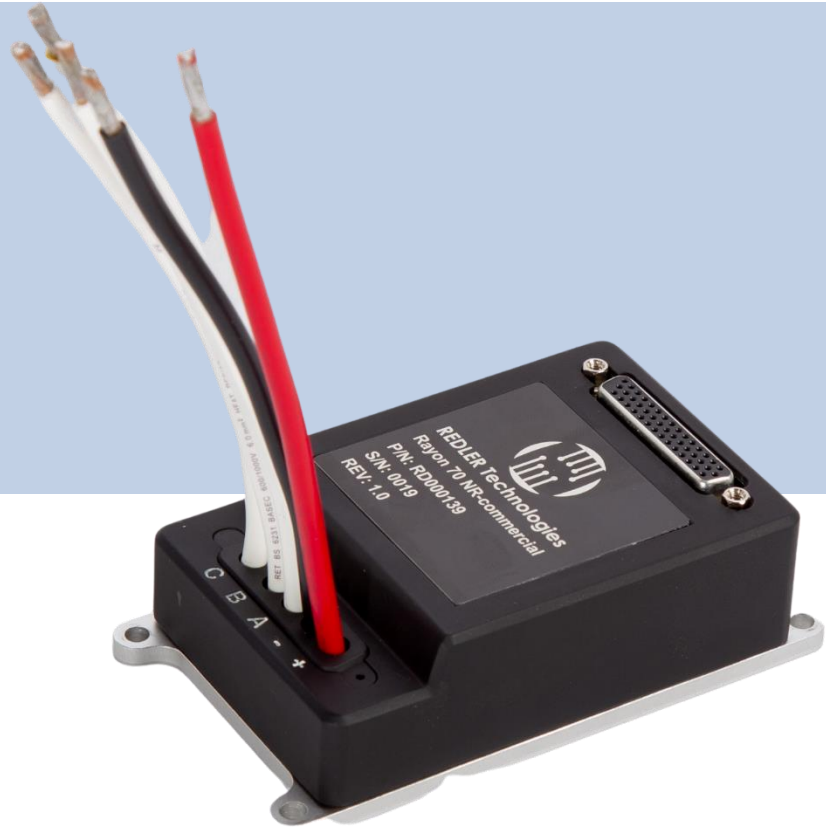
	Document Title:	Rayon_70_Brochure
	Document PN & Revision:	RRBRO000001      REV 1.0
	Project Name	Rayon 70
	Catalog number	RD000139, RD000149




## RAYON 70A

# High performance, High power 70A motor controller driver

## Brochure



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## Drive Features

The Rayon 70A is a motor control driver that can power up to 6000W motors, and supports position, speed, and torque applications.

Full digital control enables fast response and high bandwidth of current and position control loops and enables easy implementation in servo applications.


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

## Key features

- Miniature module, high power density
- Powers motors up to 6000W
- 15–48 VDC recommended operating voltage
- 80A continuous current (55 A<sub>RMS</sub>, 5 sec. 145A overdrive)
- 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
- Dedicated GUI, load/save parameters with real-time signal scope.
- Communication: CAN bus and RS232 (RD000139), RS422(RD000149, RD000115)
- Firmware upgrade via serial
- 3 digital inputs, 2 digital outputs
- Additional digital input or analog  $\pm 10V$  command
- High current, low R<sub>ds(on)</sub>, 100V power MOSFETs
- Protection: over-temperature, over-voltage, over-current, encoder fault, motor stall, Etc.
- Operating temperature -40°C to +85°C, can be extended on request to -55°C.

## Motors

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

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## 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