

DATASHEET

Power Rider 150A

Catalog number P/N: RD000112

Power Rider 150A – Protect, Manage and Maintain
Smart, electronic circuit breaker and EPD building block

Functionality:

- Up to 150A circuit breaker
- 8 - 48V DC
- Circuit breaker (fuse), relay, and contactor in the same product
- Two levels of protection:
 - Software – I²t, over-current, over-voltage, over-temperature.
 - Hardware – 1μ second cutoff of over current
- Solid-state-based technology
- Circuit breaker support network
- Configurable – over 20 flexible configuration parameters
- Intuitive GUI, DLL library
- Building block for ‘Power Distribution Unit’
- Measurement of input voltage, output voltage, load current and temperature
- Communication: CAN bus (50kbps-1Mbps - J1939) or RS 422/485
- Advanced reporting and easy maintenance – event logs, graphs, conditional alerts
- Discrete I/O: 4 digital input, 4 digital output (open collector)
- Operation switch with smart indicator light: channel consumption, channel status, fail indicators
- BIT (Power-on and On-the-fly built-in test)
- MTBF – 41.6 Years (24 working hours per day)
- MIL-STD-1275F, MIL-STD-461G
- Comply with MIL-STD 810F



Power Rider 150A Configuration:

#	Functionality	Description
1	Over Current	Parameter controlled by user
2	I ² T	Parameter controlled by user
3	Voltage Error	Parameter controlled by user (low voltage, high voltage)
4	Temperature Error	Parameter controlled by user (low temperature, high temperature)
5	Trip Event (Software)	Trip event software protection.
6	Trip Event (Hardware)	Trip event hardware protection (hard short). Not controlled by user.
7	Trip Recovery	A user can set the number of attempts and at what intervals to perform a recovery.
8	Channel Logic Control	A user can define a logical expression that characterizes the operation of the channel. Possible functionality: digital input, voltage error, temperature error, BIT, trip status, channel status, etc.
9	Digital Output Logic Control	A user can define a logical expression that characterizes the operation of the digital output. Possible functionality: digital input, voltage error, temperature error, BIT, trip status, channel status, etc.
10	Channel Control Timeout.	Parameter controlled by user
11	Digital Output control Timeout.	Parameter controlled by user
12	Status Report Messages	Automatically generated user-defined status report
13	Event Log File	All events are registered on internal memory for event log reporting
14	CAN bus communications baud rate	Parameter controlled by user. Range: 1 Mbps – 50 kbps
15	Serial communications baud rate.	Parameter controlled by user. Range: 1Mbps – 1200 bps

Table 1 Configuration Parameters Table

User Interface Description

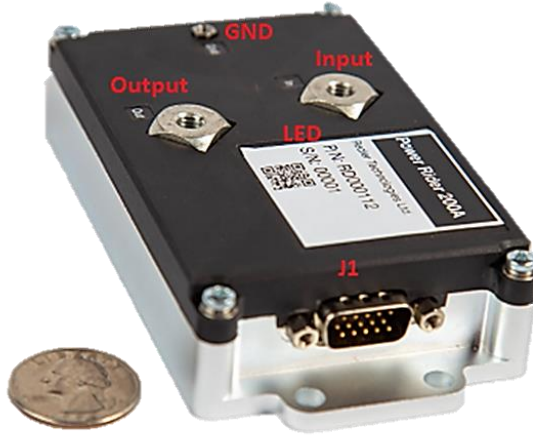


Table 2 User Interface Connection Side

Name	Description	User Interface P/N	Notes
Control Connector	Communication and digital interface	NorComp 197-015-113-1 (Male)	See Table 5
IN	Power Input + (+Vin)	WE-7461059	PRESS-FIT Terminals M6
OUT	Power Output (Load)	WE-7461059	PRESS-FIT Terminals M6
IN/OUT cable end	User Interface Input Terminal Ring	Terminals lug WE 5580616 or WE 5580635	WE5580616 for 8AWG cable or WE5580635 for 10 AWG cable
IN/OUT screw	User Interface IN and OUT screw	M6x12mm	
GND	Power Supply return	RAF M1259-3005-SS	Standoff 4.5 mm Hex Female M3x12
GND cable end	User Interface GND Terminal Ring	Terminals Ring M3 Molex 193240006	
GND cable screw	User Interface GND screw	M3x10mm	

Table 3 User Interface Table

Control Connector Signal description:

Pin No	Signal Type	Signal Name - Signal Description
1	Ground	Signal Ground
2	D-out 3	Open drain 0.25 Ampere output.
3	DIN 2	GP* Digital Input Leave open to “0” logic, connect to pin1 to “1”
4	DIN 4	GP Digital Input Leave open to “0” logic, connect to pin1 to “1”
5	ADD 2	Unit address 2 Leave open to “0” logic, connect to pin1 to “1”
6	CAN_H / RS-485 D-	Communication CANBUS channel / Communication RS-485 channel
7	Host ON/OFF	Apply GND to Shut Down state.
8	DIN 2	GP Digital Input Leave open to “0” logic, connect to pin1 to “1”
9	ADD 0	Unit address 0 Leave open to “0” logic, connect to pin1 to “1”
10	VCC Control	VCC for unit control.
11	CAN_L / RS-485 D+	Communication CAN bus channel / Communication RS-485 channel
12	D-out 1	Open drain 0.25 Ampere output.
13	D-out 4	Open drain 1 Ampere protection output.
14	ADD 1	Unit address 1 Leave open to “0” logic, connect to pin1 to “1”
15	D-out 2	Open drain 0.25 Ampere output.

Table 4 Control Connector Table

*GP = General Purpose

Electrical Interface:

Power Supply Parameter	Parameter	Unit
Input Voltage	8-48	V
Power consumption (operating)	30	mA
Total channel Current	0-150	A

General Purpose Interface Parameter	Remarks	Parameter	Unit
Digital Output Voltage	open collector	0-50	V
Digital Output Current	open collector	0.25	A
Digital Input Voltage	active low	3-32	V
Digital Input Current	active low	<30	mA

Communications:

Communication Parameter	Test conditions	Min	Max	Unit
CAN bus (J1939)	CAN 2.0B	50	1000	Kbit/sec
RS-422/485			614400	Bit/sec

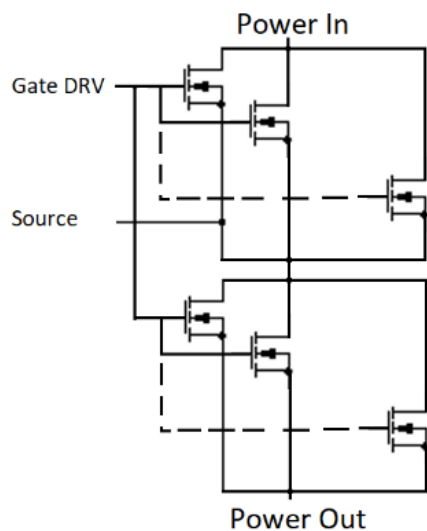
Temperature:

Temperature Parameter	Min	Max	Unit
Operating Temperature	-40	+71	C
Storage Temperature	-50	+85	C

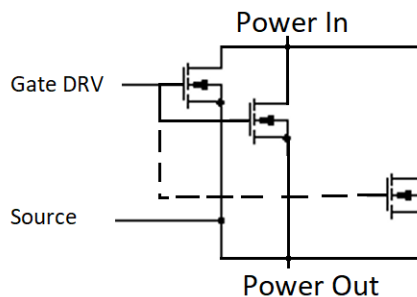
Heat distribution description:

- Power dissipated from Power Rider 150A is $\text{Current}^2 \times (\text{RDS} + \text{other serial elements})$
- For single row (RDS+ other serial elements) $7\text{m}\Omega$ (typical)
- For Dual row (RDS+ other serial elements) $12\text{m}\Omega$ (typical)

Current [A]	Single Row Power Dissipation [W]	Temperature elevation [°C]	Dual Row Power Dissipation [W]	Temperature elevation [°C]
25	5	<5	7.5	<10
50	17.5	15	30	30
75	39	25	67	Use Heatsink
100	70	Use Heatsink	120	Use Heatsink
125	109	Use Heatsink	187	Use Heatsink
150	158	Use Heatsink	270	Use Heatsink



Dual Row
(for airborne)



Single Row
(for ground)

Mechanical dimensions:

(in mm unless otherwise noted)

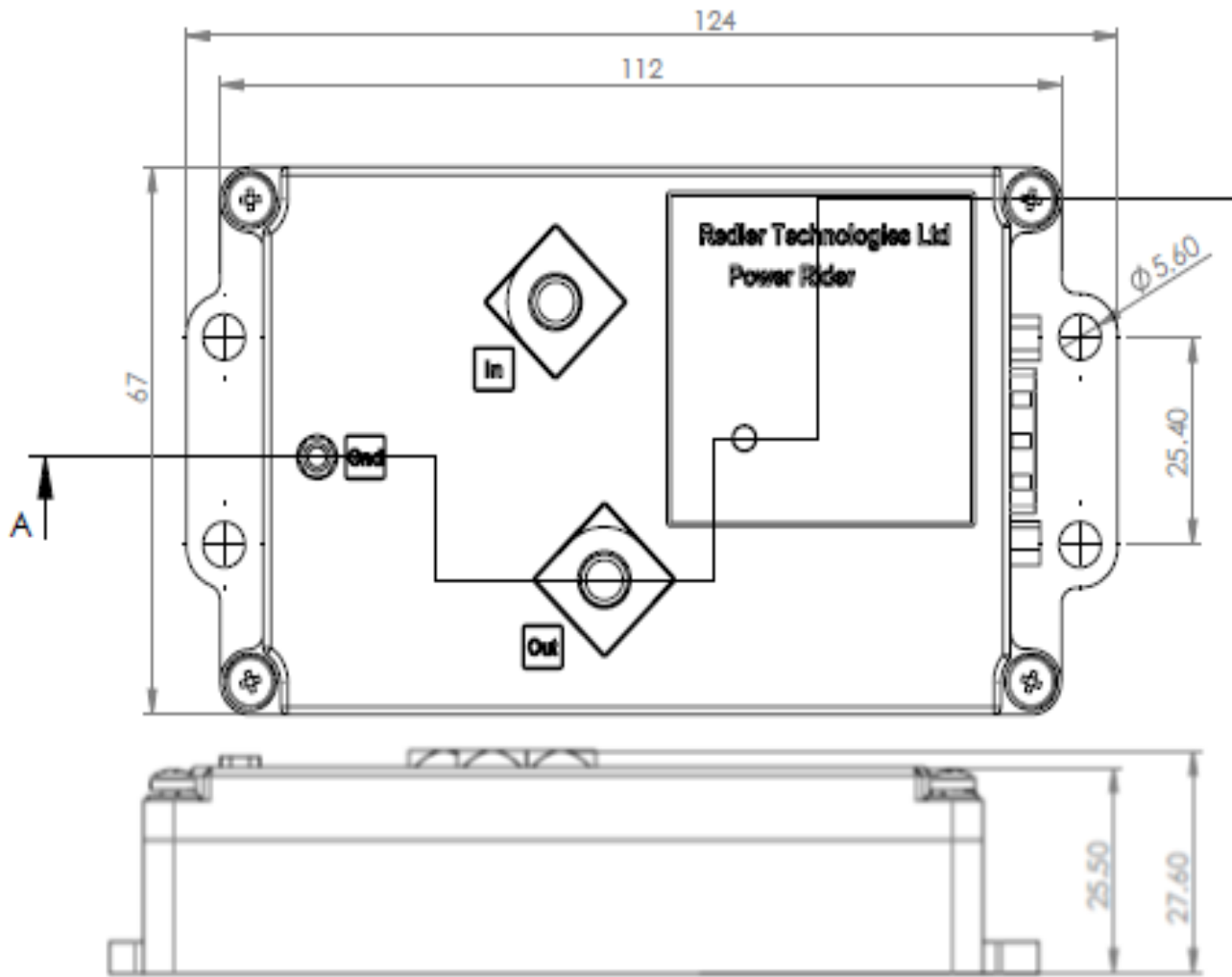


Figure 1 Mechanical Dimension

Unit weight: 300g