

## RDC Series



- 72 & 110 VDC Input for Railway Applications
- Single and Dual Outputs
- 1500 VAC Basic Isolation
- High Efficiency – Up to 88%
- Remote On/Off
- Complies with EN50155
- EN50121-3-2 EMC for Railway Applications
- 3 Year Warranty

## Specification

## Input

Input Voltage Range	• 72 V (36-140 VDC), 110 V (55-176 VDC)
Input Current	• See table
Input Reflected Ripple	• 20 mA pk-pk through 12 $\mu$ H inductor
Input Filter	• Pi network
Undervoltage Lockout	• 72 V models: ON 33.5 V, OFF 30.5 V typ. 110 V models: ON 52.5 V, OFF 48.5 V typ.
Input Surge	• 72 V models 150 VDC for 100 ms 110 V models 185 VDC for 100 ms

## Output

Output Voltage	• See table
Output Voltage Trim	• $\pm 10\%$ on single outputs models only
Minimum Load	• No minimum load required
Line Regulation	• $\pm 0.2\%$ max
Load Regulation	• Single output models: $\pm 0.5\%$ max, Dual output models: $\pm 1\%$ max balanced outputs
Cross Regulation	• $\pm 5\%$ (see note 2)
Setpoint Accuracy	• $\pm 1\%$
Start Up Time	• 30 ms typical
Ripple & Noise	• 100 mV or 1% pk-pk for single output models, 150 mV or 1% pk-pk for dual output model, whichever is greater, 20 MHz bandwidth (see note 3)
Transient Response	• 4% max deviation, recovery to within 1% in $< 500 \mu$ s for a 25% load change
Temp. Coefficient	• 0.02%/°C
Overvoltage Protection	• 3.3 V models: 3.9 V typical, 5 V models: 6.2 V typical, 12 V models: 15 V typical 15 V models: 18 V typical, $\pm 5$ V models: $\pm 6.2$ V typical, $\pm 12$ V models: $\pm 15$ V typical $\pm 15$ V models: $\pm 18$ V typical
Overload Protection	• $> 150\%$ of full load
Short Circuit Protection	• Trip & restart (hiccup mode), auto recovery
Overtemperature Protection	• 115 °C typical
Remote On/Off	• On = Logic High ( $> 3.0$ ) or Open Off = Logic Low ( $< 1.2$ V) or short pin 2 to 3
Maximum Capacitive Load	• See table

## General

Efficiency	• See table
Isolation Voltage	• 1500 VAC Input to Output 1600 VDC Input to Case 1600 VDC Output to Case
Isolation Capacitance	• 2000 pF
Switching Frequency	• 270 kHz typical
Power Density	• 25 W/in <sup>3</sup>
MTBF	• 400 kHrs min to MIL-HDBK-217F at 25 °C, GB

## Environmental

Operating Temperature	• -40 °C to +85 °C (see derating curve)
Case Temperature	• +105 °C max
Cooling	• Convection-cooled
Operating Humidity	• 5-95% RH, non-condensing
Storage Temperature	• -40 °C to +125 °C

## EMC

General	• Complies with EN50121-3-2, Railway Applications - Electromagnetic Compatibility for Rolling Stock Apparatus Complies with EN50155
Emissions	• EN55011, 79 dB $\mu$ V (0.15-0.5 MHz) 73 dB $\mu$ V (0.5-30 MHz)
ESD Immunity	• EN61000-4-2, level 3, Perf Criteria A
Radiated Immunity	• EN61000-4-3 20 V/m Perf Criteria A*
EFT/Burst	• EN61000-4-4 level 3, Perf Criteria A*
Surge	• EN61000-4-5 level 2, Perf Criteria A
Conducted Immunity	• EN61000-4-6 10 V/rms, Perf Criteria A
Magnetic Field	• EN61000-4-8 10 A/m, Perf Criteria A
Safety Approvals	• EN62368-1, CE (Meets all applicable directives), UKCA (Meets all applicable legislation)

\*External input capacitor required 220  $\mu$ F/250 V

