



Overview

The TRC-2k is a conversion kit to replace a GE C2xxx series rectifier with a telecom grade rectifier. Telecom rectifiers offer higher power density, high reliability, and significantly lower price. The TRC conversion adapter provides power and communication interface between GE connector in the application and a telecom rectifier, while preserving almost all original functionality.

TRC Adapter

Key Features

- Mechanically and electrically compatible with GE rectifier connector on application side.
- Mechanically and electrically compatible with various telecom rectifier on rectifier side.
- Built-in controller for command and telemetry translation from GE protocol.
- High mechanical and thermal stability.
- Analogue and digital control.
- PM Bus supported.
- Analogue control and status signals supported.

Telecom Rectifier

Key Features

- Grid voltage range: 85–290 V AC
- Operating temperature range
–10°C to +75°C
- Full digital or analogue control
- Hot swappable
- Supports a smart electricity meter
- Supports LED alarm display
- Supports voltage adjustment, current limiting and current equalization
- Disconnects above 300 V AC

Mechanical Specification

Dimensions (H x W x D)	41.5 mm x 96.9 mm x 230 mm
Weight	≤ 1.5 kg
Cooling mode	Built-in fan (with linear speed regulation)

Environment Specification

Operating temperature	–10°C to +75°C
Storage temperature	–40°C to +75°C
Relative humidity	5%–95% RH (non-condensing)
Altitude	≤ 4000 m

Electrical Specification

INPUT	
Operating voltage range	85–290 V AC
AC input frequency	45–66 Hz Rated frequency: 50/60 Hz
Max. Input current	≤ 12 A
Power factor	≥ 0.95 (220 V AC, load 30 A)
THD	≤ 10% (220 V AC, load 30-100%)
OUTPUT	
Output voltage	18–58V DC
Output power	1766 W (176–290 V AC) 800 W (85–175 V AC)
Regulated voltage precision	≤ ±0.6 % Vo
Ripple and noise	≤ 200 mVp-p (bandwidth 20 MHz, @25 °C)
Standby power	≤ 5 W
Efficiency	≥ 94 % (40% to 60%)

Other Features

PROTECTION	
Input overvoltage protection	AC protection threshold: > 300 V AC AC recovery range: < 290 V AC
Input undervoltage protection	AC protection threshold: < 80 V AC AC recovery range: 80–90 V AC
Output overvoltage protection	Protection range: 58.5–60.5 V DC (can be set on the monitoring module) 1. If overvoltage occurs inside a rectifier, the rectifier will latch off 2. If the external voltage is greater than 63 V for more than 500 ms, the rectifier will latch off.
Output current limiting protection	See Figure 1.
Output short-circuit protection	A long-term short circuit is allowed. It can be automatically restored after the short-circuit disappears.
Overtemperature protection	The rectifier protects against overtemperature.
SAFETY/EMC	
Safety certification	CE certifications EN 62368-1 IEC 62368-1
EMC	EN 55032 Class A EN 55035 IEC 61000-3-2 IEC 61000-3-3
RELIABILITY	
MTBF	> 500,000 hours (25 °C)
AUDIBLE NOISE	
Specification	≤ 55 dB (25 °C)

Output Feature Plots

Figure 1: Output V-A characteristic

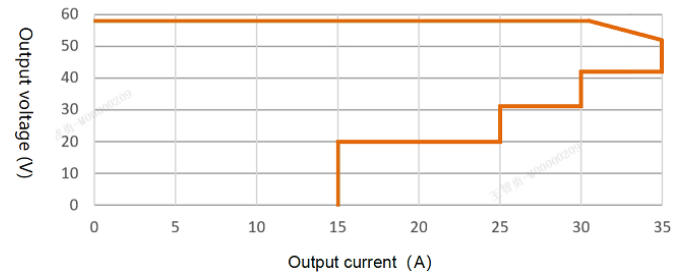


Figure 2: Output efficiency characteristic

($V_{OUT} = 53.5V$; $T_a = 25^\circ C$)

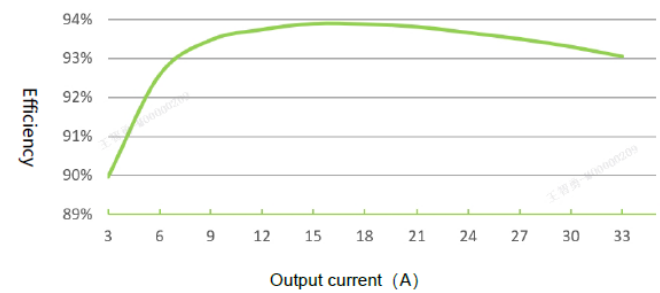
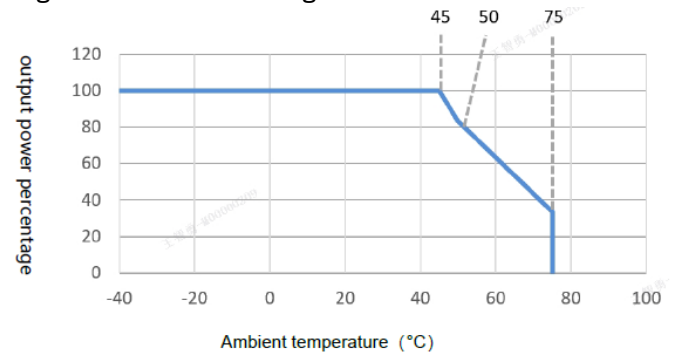
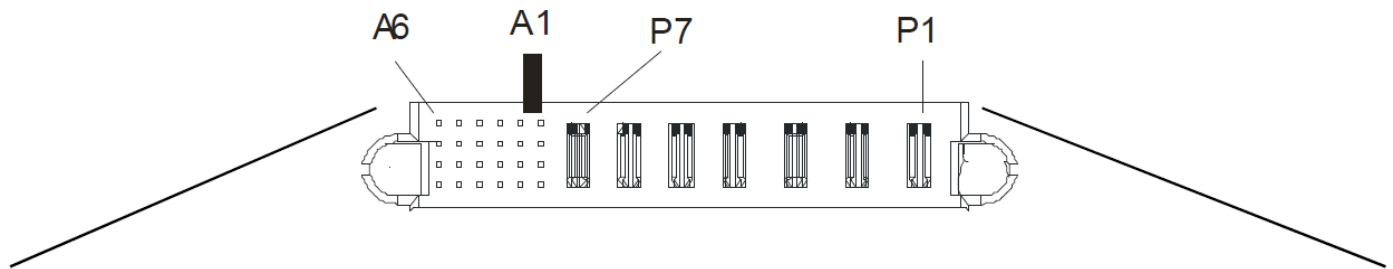


Figure 3: Power derating characteristic



Output connector



Manufacturer part numbers: FCI 51939-568

	SIGNAL						OUTPUT POWER				INPUT POWER		
	6	5	4	3	2	1	P7	P6	P5	P4	P3	P2	P1
A	SCL_0	MOD_PRES	PFW	LOGIC_GRD	RS_485+	UNIT_ADDR					EARTH (GND)	LINE-2	LINE-1
B	SCL_1	OTW	Alert#_0	Alert#_1	RS_485-	N/C	V_OUT (-)	V_OUT (+)	V_OUT (+)	V_OUT (-)		(Neutral)	(HOT)
C	SDA_0	Margin	Enable	Reset	Ishare	Protocol							
D	SDA_1	Fault	SVA	Power_Cap	ON/OFF	SHELF_ADDR							

Note1: Connector is viewed from the rear positioned inside the rectifier

Note2: All signal pins columns 1 to 6 are referenced to V_OUT-