TIGER Power Supplies

Fanless Slimline Power Supplies

TGRFXXX-xx series

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CONTENT

01 Main features of TGRFXXX-xx series

Tigers new members of TGRFXXX series

TGRF200-xx

Released

TGRF350-xx

Released

TGRF500-xx

Pending in Q3 2022

TGRF750-xx

Pending in Q4 2022

01 Main features of TGRXXX-xx series

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Using TGRF350-24 as an example

Size(L*W*H): 220*62*31 mm

- **Universal 85 - 305VAC** Input voltage
- Active PFC
- High I/O isolation test voltage up to 4000VAC
- Operating ambient temperature range: **-40**℃ **to +85**℃
- **150% peak load** output for 1 second
- Output voltage adjustable
- Output short circuit, over-current, over-voltage, over-temperature protection
- Operating altitude up to 5000m
- Safety according to EN/UL62368, EN61558, EN60335, GB4943

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2. RANGE HIGHLIGHTS

02 | 305 RAC (Reliable under all conditions)

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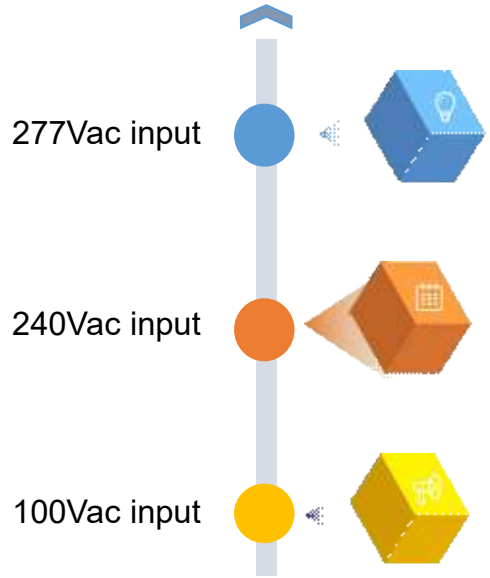
TGRFXXX-xx 305 RAC power supply brings two benefits：

1. Suitable for more applications like power grid are 100Vac, 240Vac or 277Vac.
2. More suitable for grid instability applications such as large harmonic applications and remote area.

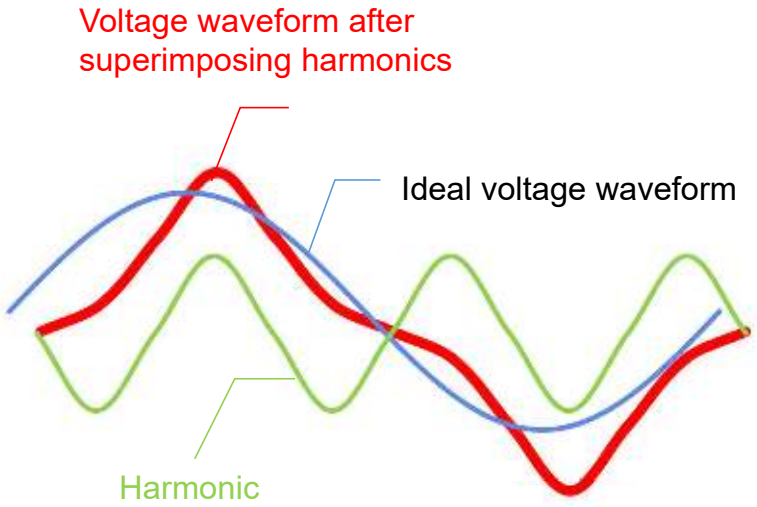
Universal input voltage requirement

- 100-240Vac and 277Vac



Grid voltage fluctuation challenge

- Grid instability and large harmonic applications



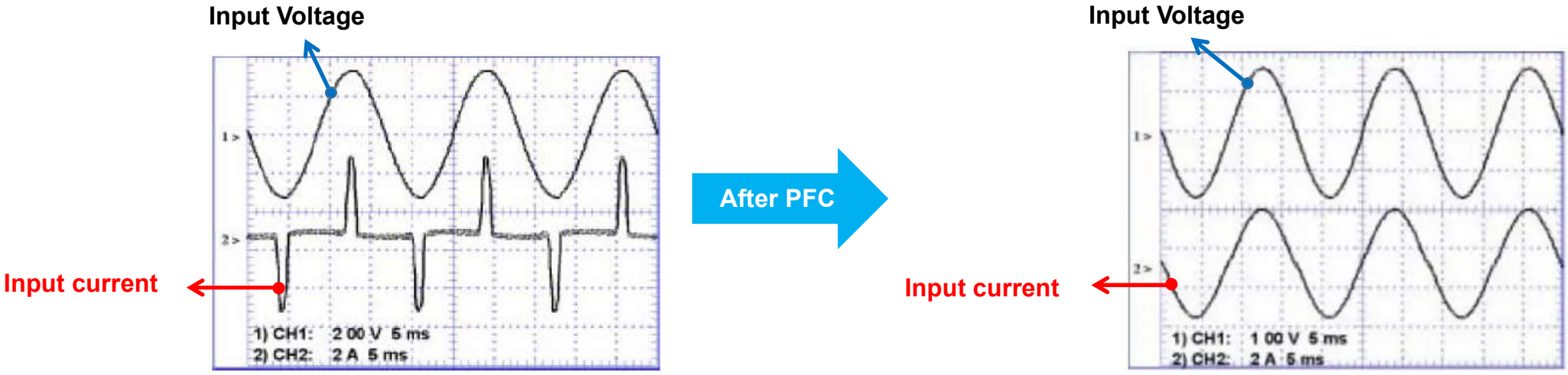
02 PFC function

PFC increased the utilization efficiency of electricity:

PFC (Power Factor Correction) function is used to make the input current in phase with voltage. PF(power factor) value is used to represent the performance.The higher the power factor, the higher the utilization efficiency of electricity

PF = cosϕ = Active Power (W) / Apparent Power (VA)

- P：Active power
- S：Apparent power



Input pulse current, resulting in high Reactive Power

Input current in phase with voltage, higher Active Power

02 Wide working temperature

Leading operating ambient temperature performance:

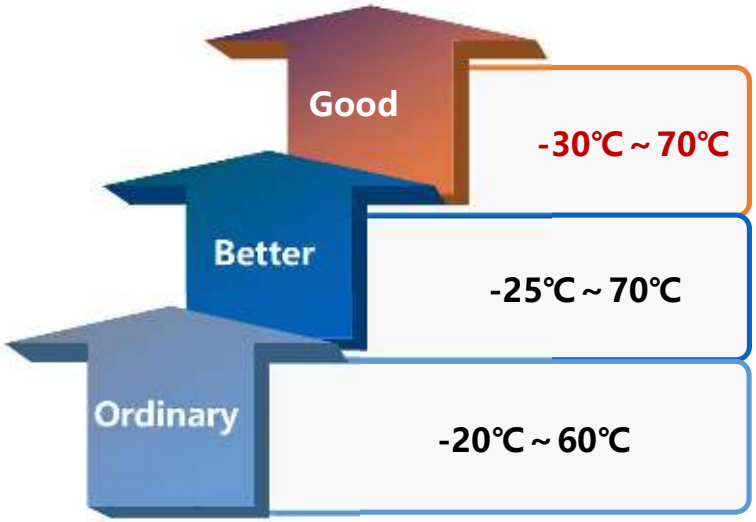
The operating ambient temperature of **Tiger TGRFXXX-xx** power supplies up to 85℃. With this obvious advantage it can face more strict environment applications and are much better than other mainstream enclosed power supplies.

Ambient temperature challenge

Easily go to -30℃ in winter

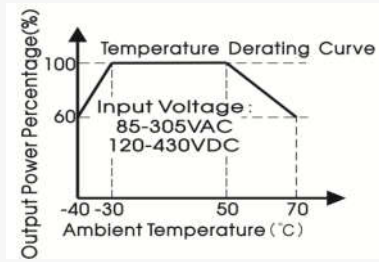
Easily go to +70℃ in summer

Alternative enclosed power solution

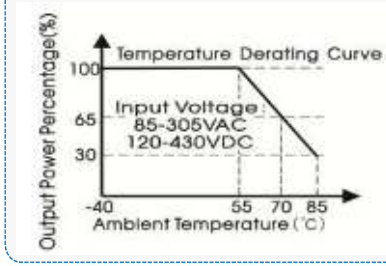


Tiger TGRFXXX-xx solution

TGRF200-xx



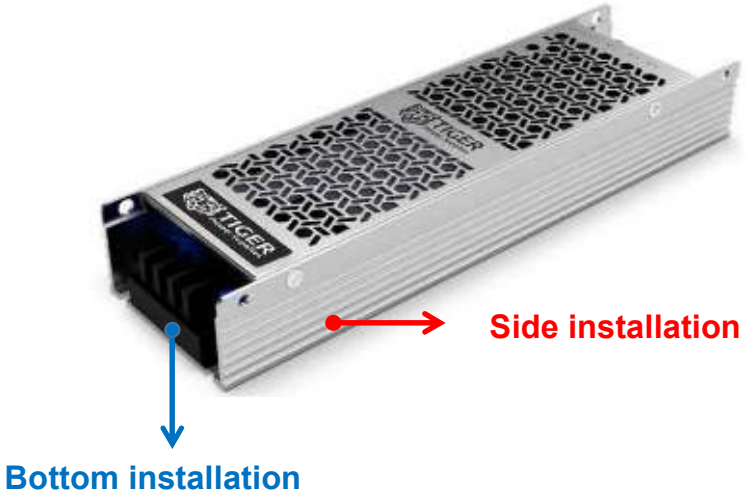
TGRF350-xx

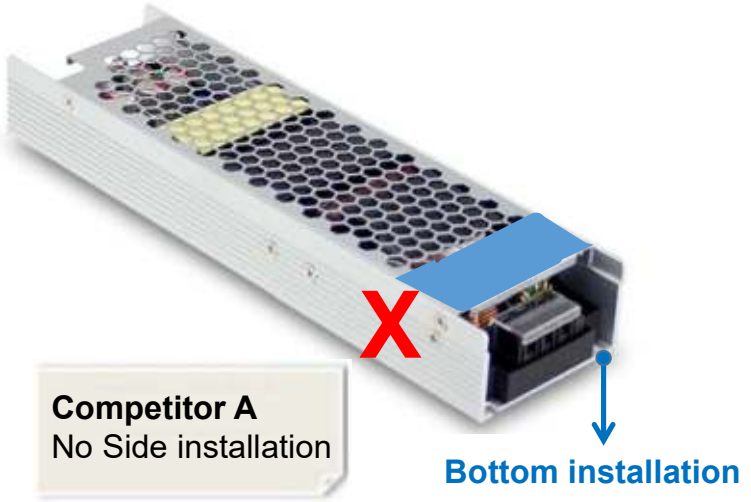


02 Side insulation

More option of installation, brings convenient solutions to more custom

Tiger Power Supplies has taken many customer suggestion and keep side installation on TGRF350-xx, offer customer more choice beside bottom installation.





02 Semi-Potting Process

All series semi-potted to ensure reliability under harsh environment:

With semi-potted the live part of power supply will be fully protected, which ensure the reliability of power supplies under harsh environment, such as Textile industry and EV charging industry.

Textile industry- cotton fibre problem

EV fast charging station- Dust problem

02 Fanless Design

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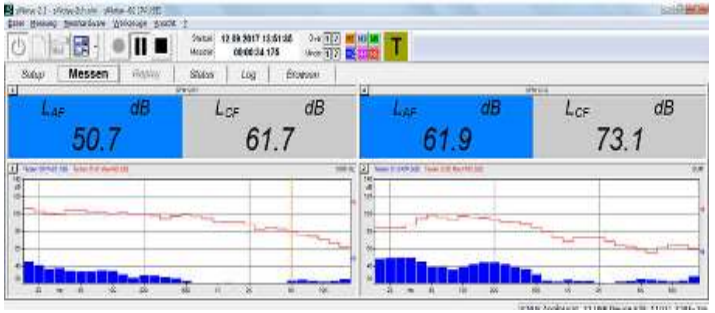
Fanless design lead to low noise and avoid the life shortage of fan:

Use fan to cool power supply is a convenient solution when heat generated. However it will cause noise and life shortage problem. Fanless design obvious not bothered by noise and life shortage of fan.

Noise of Fan



Outdoor applications

02 | 50% peak load for 1 second

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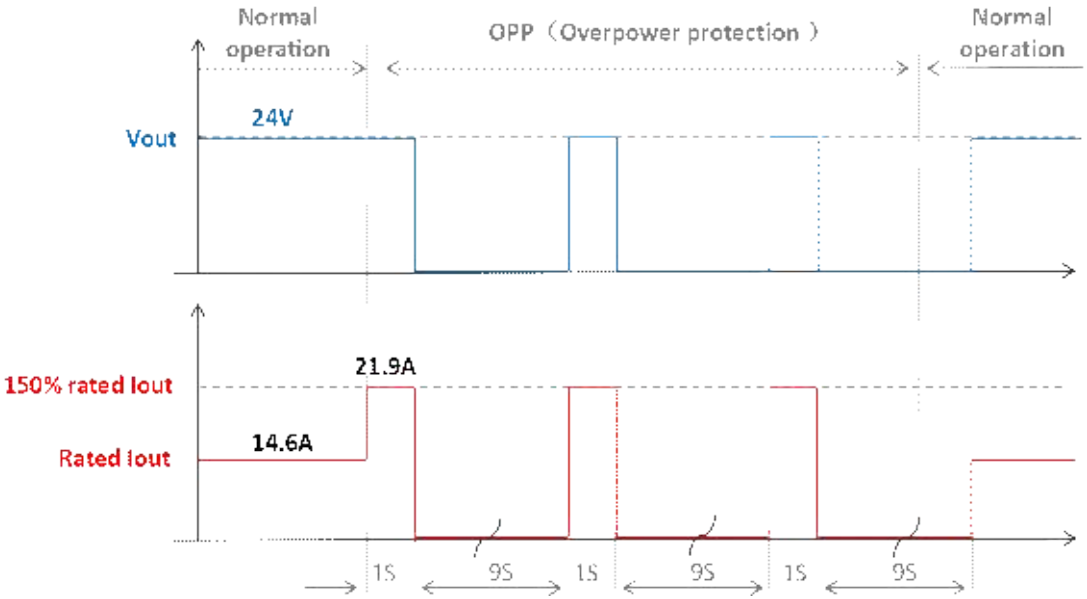
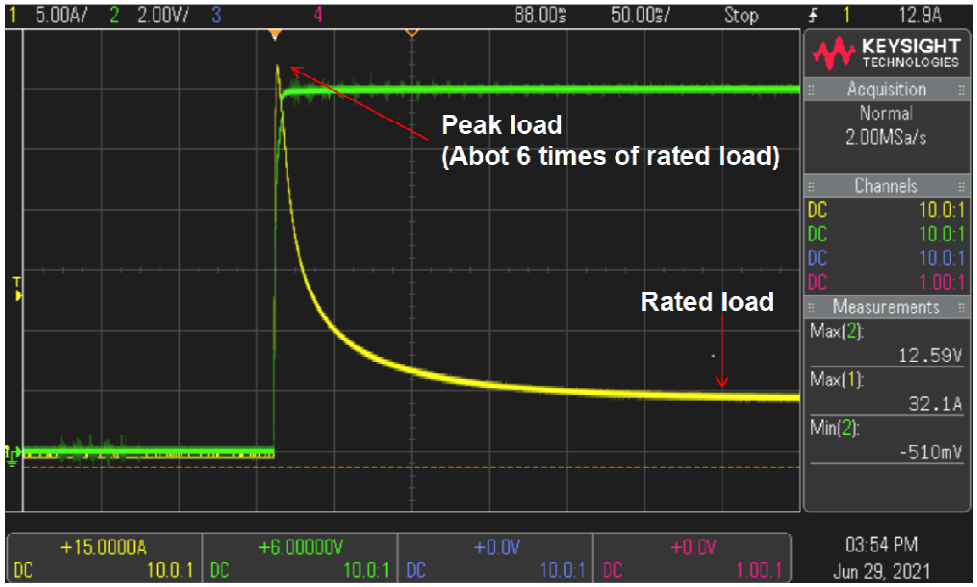
150% peak load for 1 second, strong start ability：

TGRFXXX are perfectly designed for these inductive load applications, where a motor, relay, contractor or other pieces of equipment. These inductive load applications require high current which will last a very short time at start-up.

Take TGRF350-XXXF as an example



Current waveform of inductive load



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3. PRODUCT APPLICATIONS

03 DC fast charging application

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Power supply requirements：

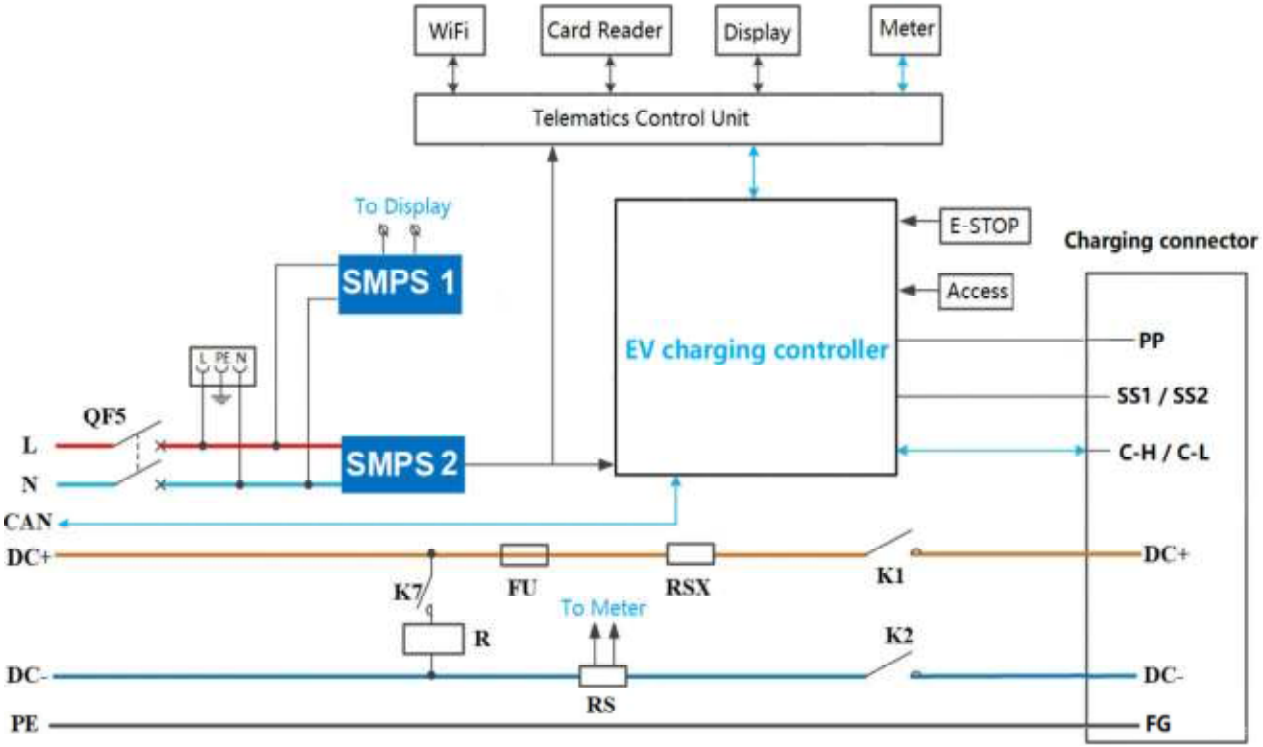
1. Fanless design to meet no air convection environment
2. Narrow size of charging piles required slim small form power supply
3. High voltage input power supply for high power ON/OFF application

Split EV fast charging system

① Power module stack

② Charging piles

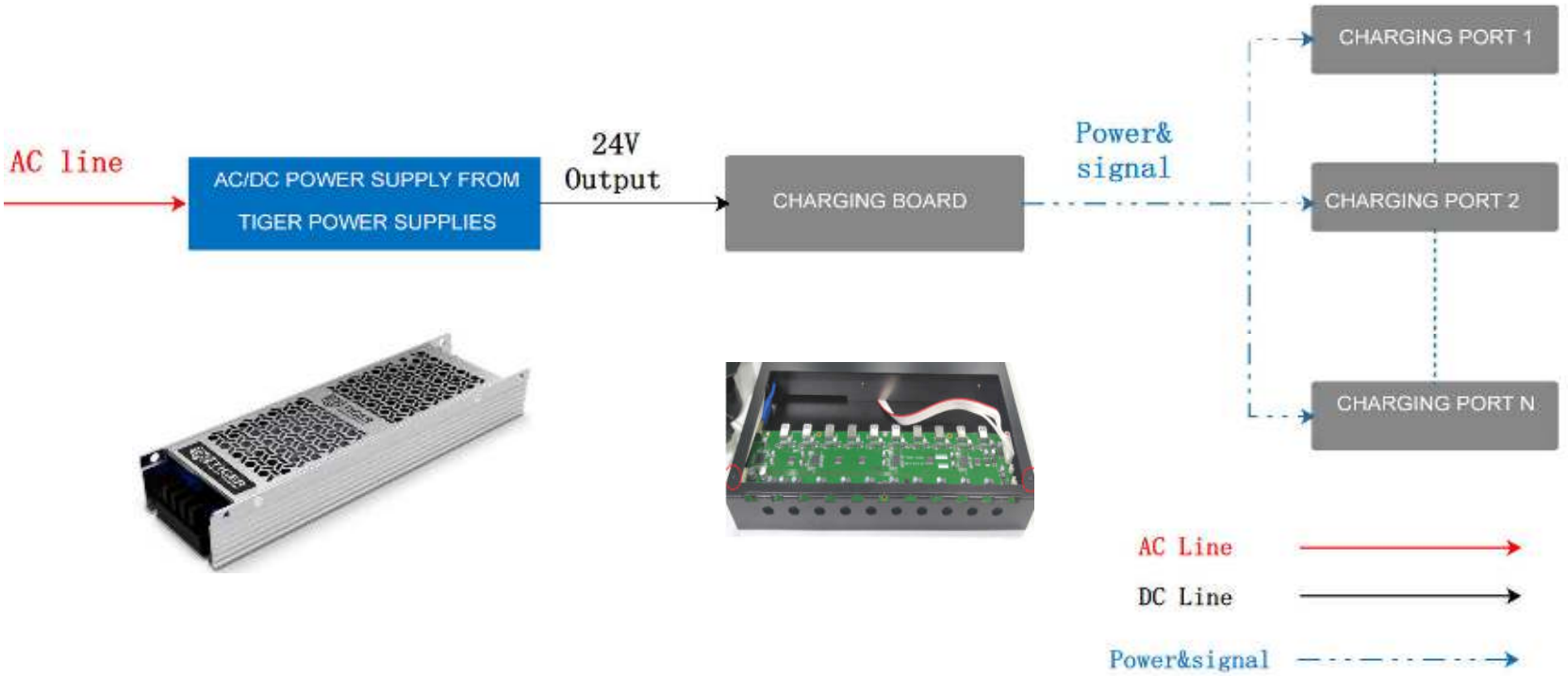
Power solution of charging piles



03 Tablet Charging Station

Power supply requirements：

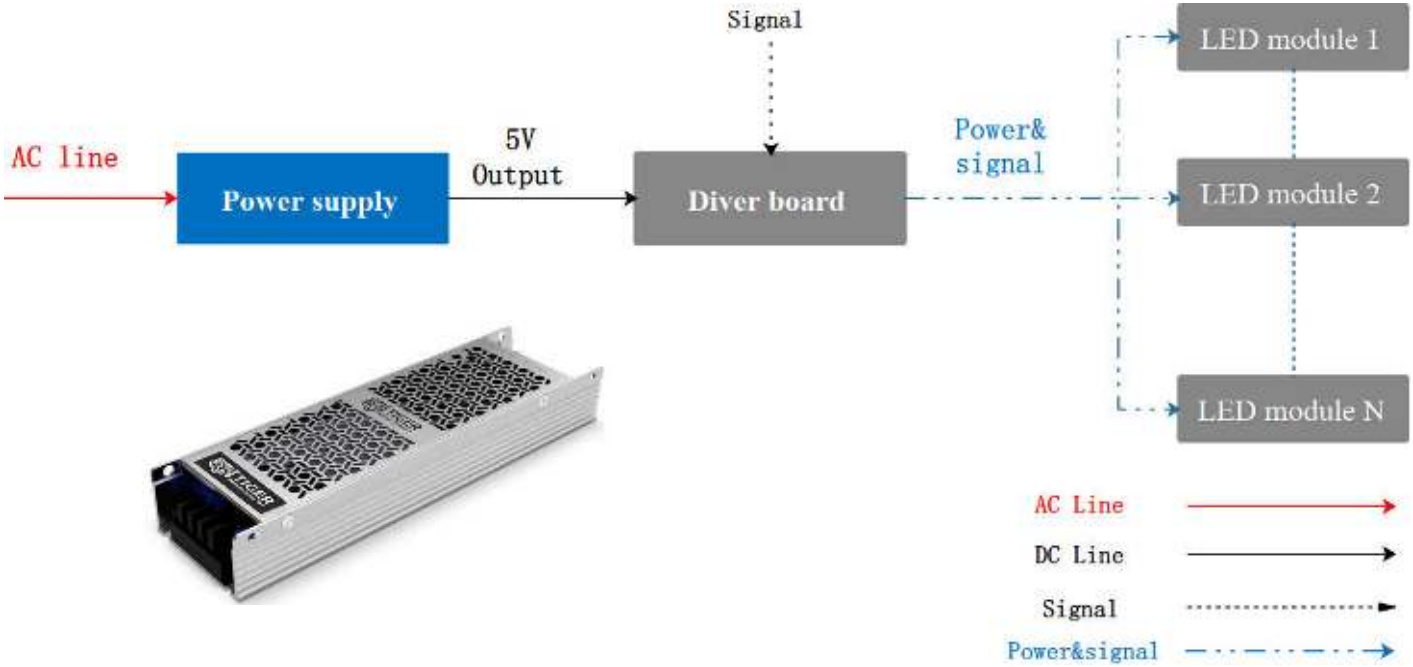
1. Indoor environment, sensitive about noise, friendly fanless design
2. Safety insulation from power grid, reinforced power supply is required

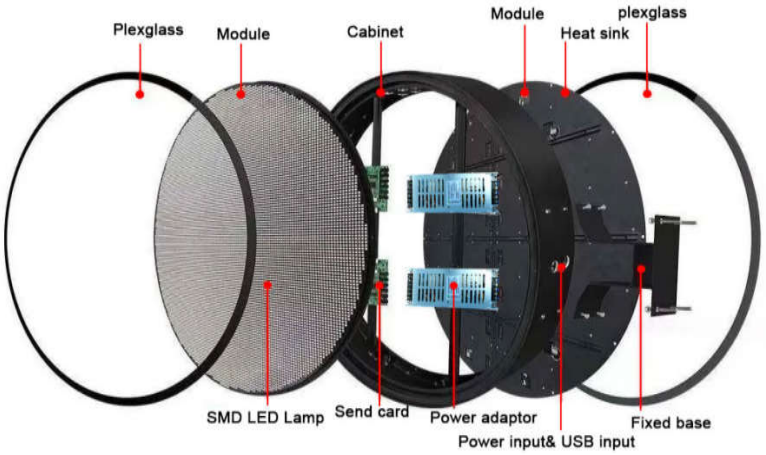


03 LED display

Power supply requirement：

1. Fanless design to meet no air convection environment
2. Ultrathin size to meet system size requirement





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4. COMPARISON REPORT

04 TGRF200-xx VS Closest rival product

	TGRF200	Rival Part
Input voltage range	**85~305Vac**	90~264Vac (300Vac/5s)
Output voltage	5/12/24/36/48V	3.3/4.2/5/12/15/24/36/48/55V
Working temperature	**-40℃~70℃**	-30℃~70℃
Power Factor (Typ.)	PF≥0.95/230VAC PF≥0.98/115VAC at full load	PF≥0.94/230VAC PF≥0.98/115VAC at full load
Inrush Current (Typ.)	Cold start 40A/115VAC 80A/230VAC	Cold start 40A/115VAC 80A/230VAC
Leakage Current	<0.5mA / 240VAC	<0.75mA / 240VAC
Ripple & Noise	5V: 200mV	5V: 200mV
	12/24/36V: 240mV	12/24/36V: 240mV
	48V: 300mV	48V: 300mV
Hold-up Time	10ms/230VAC 10ms/115VAC	10ms/230VAC 10ms/115VAC
Derating Curve	Same	
OPP（Overpower protection ）	**150% for 1S**	/
OLP（Overload protection ）	105% - 200% Io, delay protection, delay time 1s	110~140% rated output power
OTP （Overtemperature protection）	Output voltage turn off, self-recovery after temperature drops	Output voltage turn off, self-recovery after temperature drops
EMI	CISPR32/EN55032 ClassB	CISPR32/EN55032 ClassB
EMS	**ESD: IEC/EN 61000-4-2 Contact ±6KV /Air ±8KV**	ESD: IEC/EN 61000-4-2 Contact ±4KV /Air ±8KV
	EFT: IEC/EN 61000-4-4 ±2KV	EFT: IEC/EN 61000-4-4 ±2KV
	Surge: IEC/EN 61000-4-5 ±2KV/±4KV	Surge: IEC/EN 61000-4-5 ±2KV/±4KV
MTBF	**300K hrs min. MIL-HDBK-217F (25℃)**	257K hrs min. MIL-HDBK-217F (25℃)
Dimension	194*55*26mm (L*W*H)	194*55*26mm (L*W*H)

04 TGRF350 VS Closest Rival Part

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	TGRF350	Closest Rival
Input voltage range	**85~305Vac**	90~264Vac (300Vac/5s)
Output voltage	5/12/24/36/48V	3.3/4.2/5/12/15/24/36/48/55V
Working temperature	**-40℃~85℃**	-30℃~70℃
Power Factor (Typ.)	PF≥0.98/230VAC PF≥0.98/115VAC at full load	PF≥0.94/230VAC PF≥0.98/115VAC at full load
Inrush Current (Typ.)	Cold start 30A/115VAC 60A/230VAC	Cold start 30A/115VAC 60A/230VAC
Leakage Current	<0.5mA / 240VAC	<0.75mA / 240VAC
Ripple & Noise	5V: 200mV	5/12/24/36V: 200mV
	12/24/36/48V: 240mV	48V: 240mV
Hold-up Time	12ms/230VAC 12ms/115VAC	10ms/230VAC 10ms/115VAC
Derating Curve	**Better** (Please refer to the datasheet)	/
OPP（Overpower protection）	**150% for 1S**	/
OLP（Overload protection ）	110% - 200% Io, delay protection, delay time 1s	110~140% rated output power
OTP （Overtemperature protection）	Output voltage turn off, self-recovery after temperature drops	Output voltage turn off, self-recovery after temperature drops
EMI	CISPR32/EN55032 ClassB	CISPR32/EN55032 ClassB
EMS	**ESD: IEC/EN 61000-4-2 Contact ±6KV /Air ±8KV**	ESD: IEC/EN 61000-4-2 Contact ±4KV /Air ±8KV
	EFT: IEC/EN 61000-4-4 ±2KV	EFT: IEC/EN 61000-4-4 ±2KV
	Surge: IEC/EN 61000-4-5 ±2KV/±4KV	Surge: IEC/EN 61000-4-5 ±2KV/±4KV
MTBF	**300K hrs min. MIL-HDBK-217F (25℃)**	253.4K hrs min. MIL-HDBK-217F (25℃)
Dimension	220*62*31mm (L*W*H)	220*62*31mm (L*W*H)

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