



Year 2023 Launch

New Beginning, New Power Quality Compensation Era

 ***Sinexcel***

P5 Series

Sinexcel had been on the technology summit of power quality industry.

Now, Sinexcel had broken own ceiling again with brilliant innovations.

P5 series will release to mass production to market on **March 2023**



Significant **Innovations** _Support booking

Sinexcel

P 5 S E R I E S

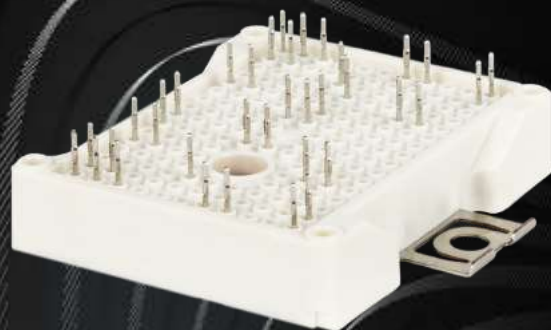


P5 Series SVG 100kVAr



P5 Series AHF 100A&150A

Silicon carbide mosfet



- Ultra-Low Loss
- High Withstand Voltage
- High Power Density
- High Heat Conduction Rate
- High Switching Frequency

Big Breakthrough

Peak Efficiency 99%

Power electronics, every 0.5% increase in efficiency, is a great technological improvement. **Silicon carbide mosfet**, a new and high efficient power component, replaces ordinary silicon devices , Sinexcel has once again made major technology innovations in circuit design and algorithm,

Sinexcel P5



4*0.5% efficiency breakthrough
(compared to standard module)

Energy Saving Benefit

Product	Efficiency	Product	Efficiency	Energy Saving/KWH
AHF 150A P2	97%	AHF 150A P5	99%	18,890KWH→2834USD
ASVG 100k P2	97%	ASVG 100k P5	99%	18,890KWH→2834USD
SVG 100k P2	97%	SVG 100k P5	99%	18,890KWH→2834USD

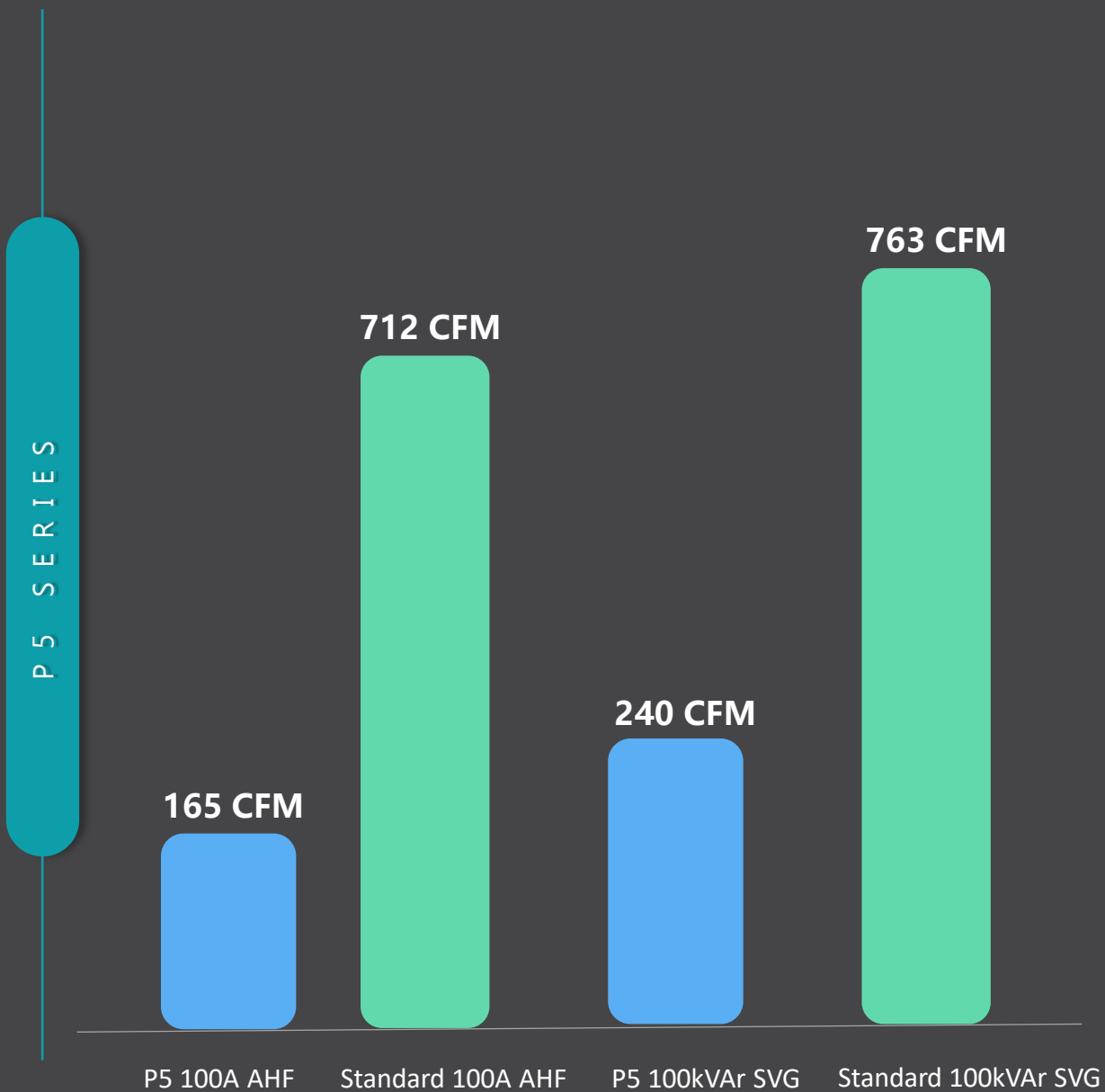
Singapore voltage 415V, $U \cdot I \cdot 1.732 \cdot 0.02 \cdot 24 \cdot 365$

150A AHF as example, energy consume saving \approx 18,890 KWH per year

Using 0.15USD/KWH as electricity pricing



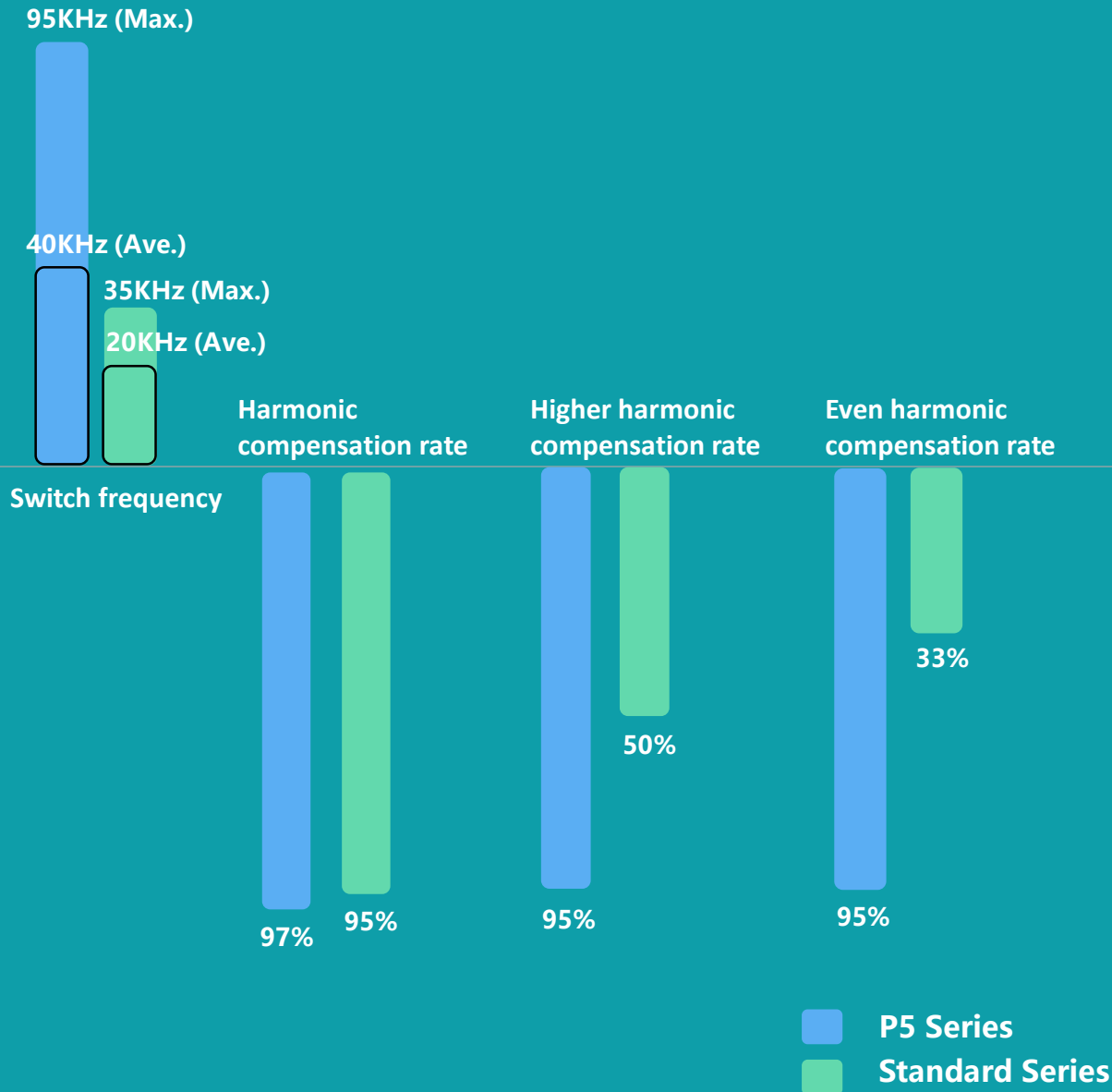
Electricity Fee Saving: 2,834 USD Per Year



>70% Ventilation Requirement Reduced

- ✓ Less air conduct, lower noise
- ✓ Less heat generation, longer lifespan
- ✓ Less ventilation, more flexible cabinet configuration





Higher Harmonic Compensation Rate



Highly switch frequency,
Average as **40KHz**, maximum switch frequency up to **95KHz**



Enhanced highly harmonic order compensation performance **>95%**
35th, 37th, 39th and higher harmonic order



Support to compensate **even harmonic >95%**
2nd, 4th, 6th and higher even harmonic order



≈62% Reduce Mechanical Size Weight Drop From 35kg to 18kg

P 5 S E R I E S

Standard AHF 100A_35KG



35KG

P5 AHF 100A_18KG

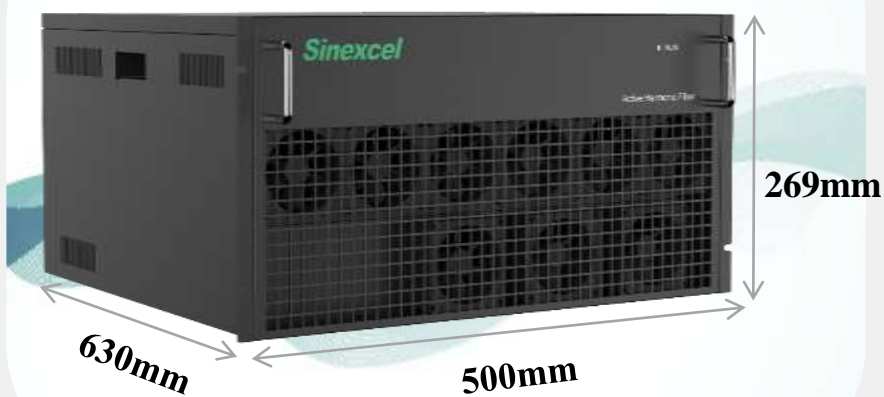


18KG

≈69% Reduce Mechanical Size

Weight Drop From 48kg to 25kg--(P5 AHF rack module only support LED)

Standard AHF 150A_48KG



48KG

P5 AHF 150A_25KG



25KG



Convenient Installation



Three modules installation, total depth are 300mm



Smaller size that more suitable for small area application, more optional and flexible for customer



More convenient installation and connection, only power cables and CTs to be connected

Higher Integrated

P 5 S E R I E S

Saving more space and higher power rating when integrated into the panel.

Less ventilation volume required as less space taken up.



Standard Flex. Cabinet



For Standard cabinet only support 5 standard modules maximum,



For P5 module that support 9 modules inside.

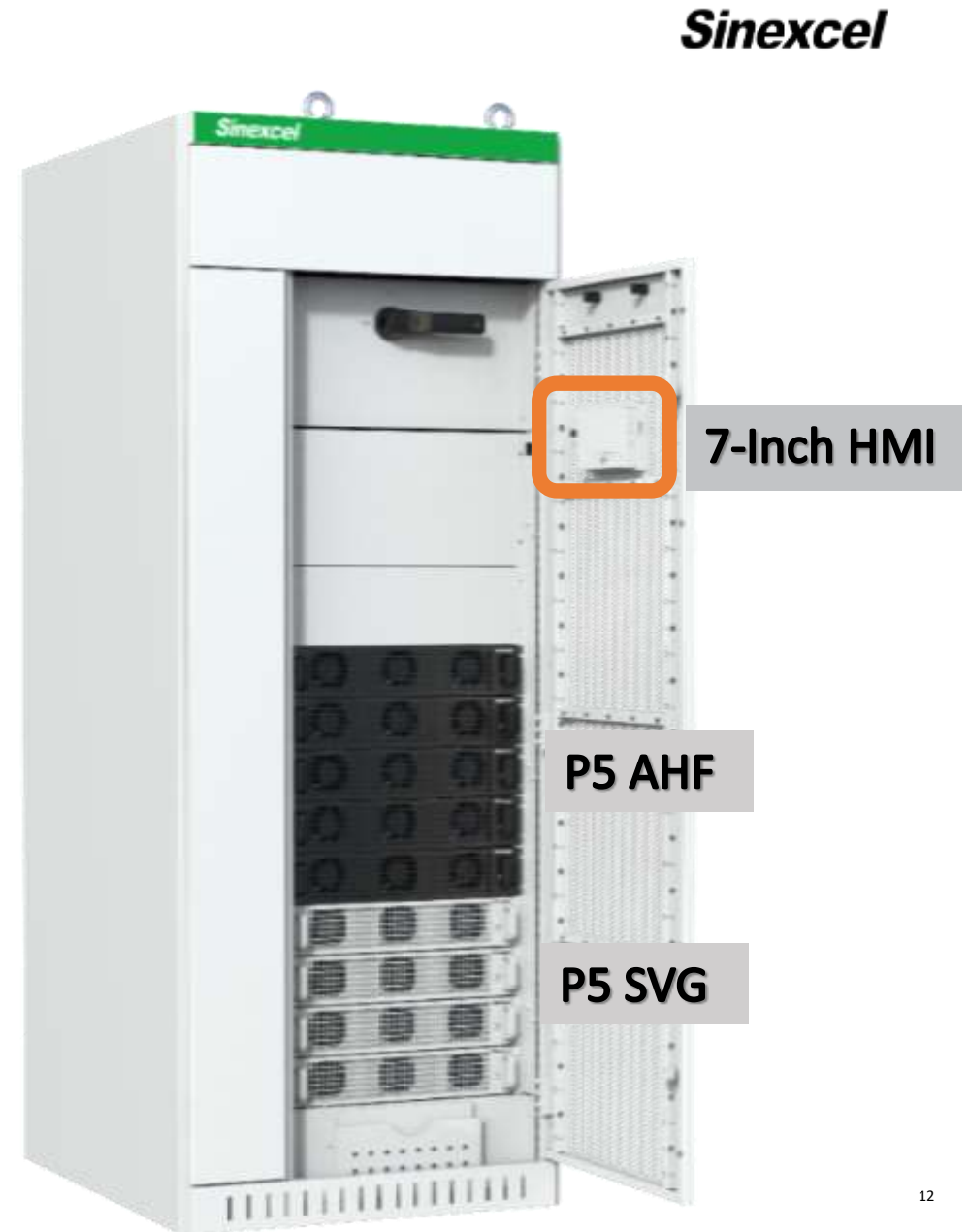


Maximum capacity up high to
1350A AHF/900kVAr SVG

Cabinet Hybrid Solution

Support **AHF+SVG hybrid** installation
only use one 7-inch HMI to control

Support single 7-inch HMI to control
16 modules maximum





Without
Glued



Glued

Highly Protection

All veneers inside the module are fully glued that is more suitable for harsh environment, **like conductive dust, seawater corrosivity industry.**

Maintenance Free

More compact hardware design to achieve module integration, which support to replace damaged module directly, provide better client experience

Software updated

Compatible with three compensation modes

Mode 1

(Regular compensation):

- CTs support to install at load side or grid side
- Support the THDi decreased less than 5% by adjusting Comp. rate and phase angle

Setting											
SYSTEM			COMM.			HARMO.		PREFER.		DEBUG	
Load Curr.(A)	18.0	18.7	18.1	Grid THDU(%)	1.8	2.0	1.8				
Load THDI(%)	38.4	37.5	38.7	Grid THDI(%)	4.5	4.3	4.0				
S/N	Comp. rate	Phase angle	Mode		Grid THDI	Load THDI					
3	100%	0.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1.0%	5.0%					
5	100%	-0.7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2.0%	28.2%					
7	100%	-0.5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1.0%	20.2%					
9	100%	-0.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.0%	0.0%					
11	100%	0.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.0%	10.1%					
Odd harm.			Even harm.			< Page UP		Page OFF >			

Software updated

Compatible with three compensation modes

Setting								SYSTEM	COMM.	HARMO.	PREFER.	DEBUG
Load Curr.(A)	18.0	18.7	18.1	Grid THDU(%)	1.8	2.0	1.8					
Load THDI(%)	38.4	37.5	38.7	Grid THDI(%)	4.5	4.3	4.0					
S/N	Comp. rate	Phase angle	Mode	Grid THDI	Load THDI							
3	100%	0.0	<input checked="" type="checkbox"/>	1.0%	5.0%							
5	100%	0.0	<input checked="" type="checkbox"/>	2.0%	28.2%							
7	100%	0.0	<input checked="" type="checkbox"/>	1.0%	20.2%							
9	100%	0.0	<input checked="" type="checkbox"/>	0.0%	0.0%							
11	100%	0.0	<input checked="" type="checkbox"/>	0.0%	10.1%							

Mode 2: (Automatically Adjustment Compensation Performance By Software)

- CT installed at supply side, support one set of CT connection
- Support the THDi decreased to 3~5% by software automatically to adjust , no need any manual intervention
- Resonance suppression

Mode 3: (Resonance suppression & Compensate THDU)

- Resonance suppression algorithm
- Support no CT connection to compensate the THDU

Setting								SYSTEM	COMM.	HARMO.	PREFER.	DEBUG
Load Curr.(A)	18.0	18.7	18.1	Grid THDU(%)	1.8	2.0	1.8					
Load THDI(%)	38.4	37.5	38.7	Grid THDI(%)	4.5	4.3	4.0					
S/N	Comp. rate	Phase angle	Mode			Grid THDI	Load THDI					
3	100%	0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1.0%	5.0%					
5	100%	0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2.0%	28.2%					
7	100%	0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1.0%	20.2%					
9	100%	0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0%	0.0%					
11	100%	0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0%	10.1%					

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Software updated

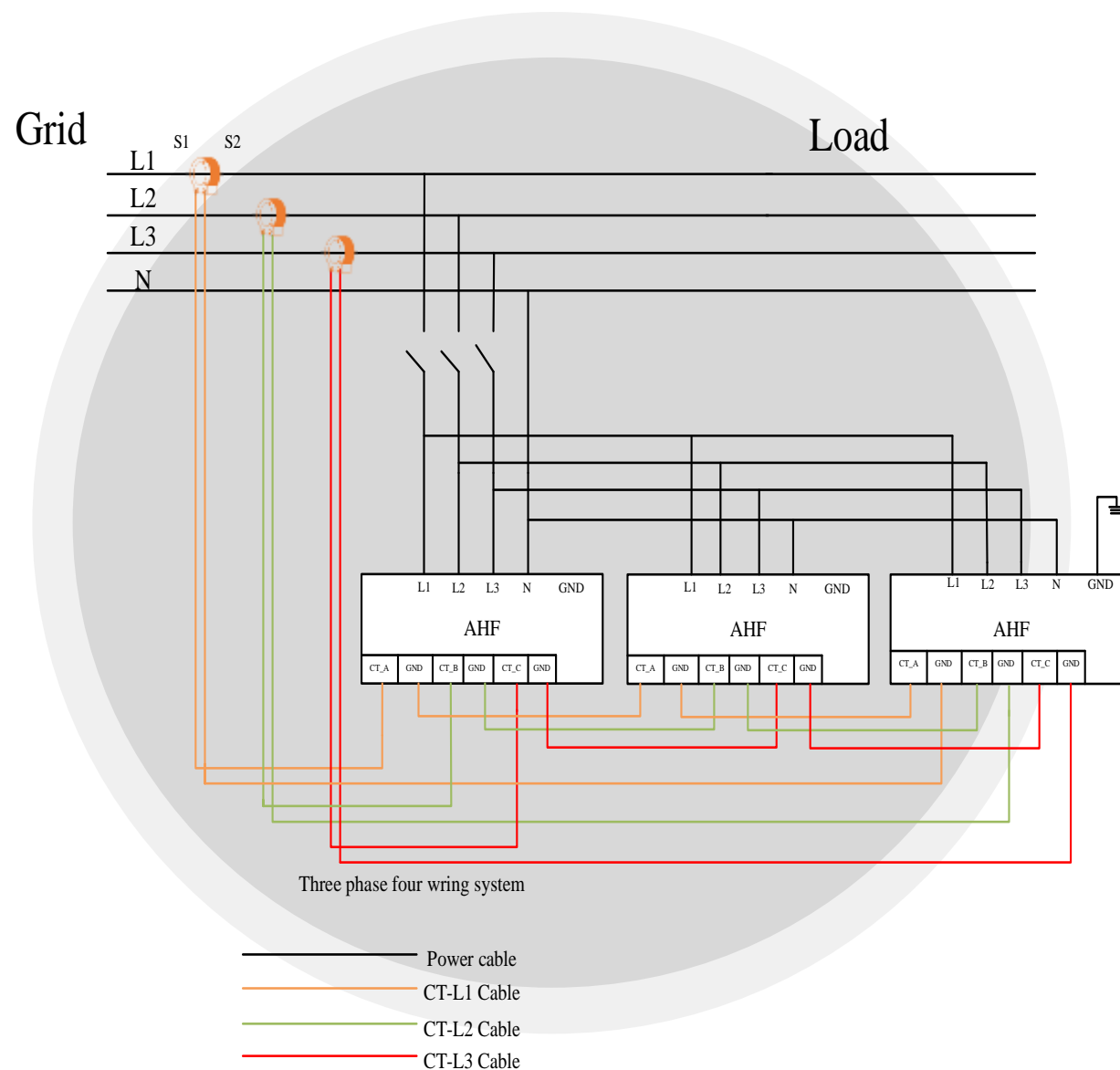
Compatible with three compensation modes



CT “Close Loop” Design

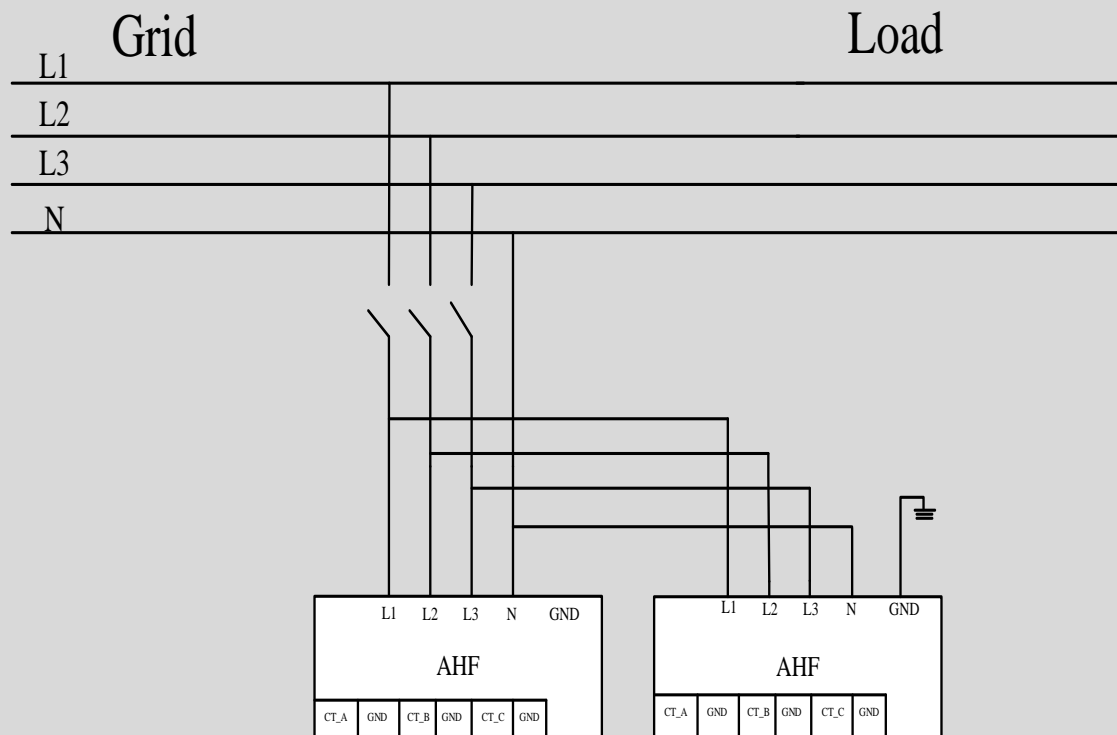
P5 series supports grid side connection, which means only one set of CT is needed on the grid side (load side) even with multiple modules paralleled.

- Less CTs, less material cost
- Simplified wiring, less operating charges



NO-CT Technology compensates THDu

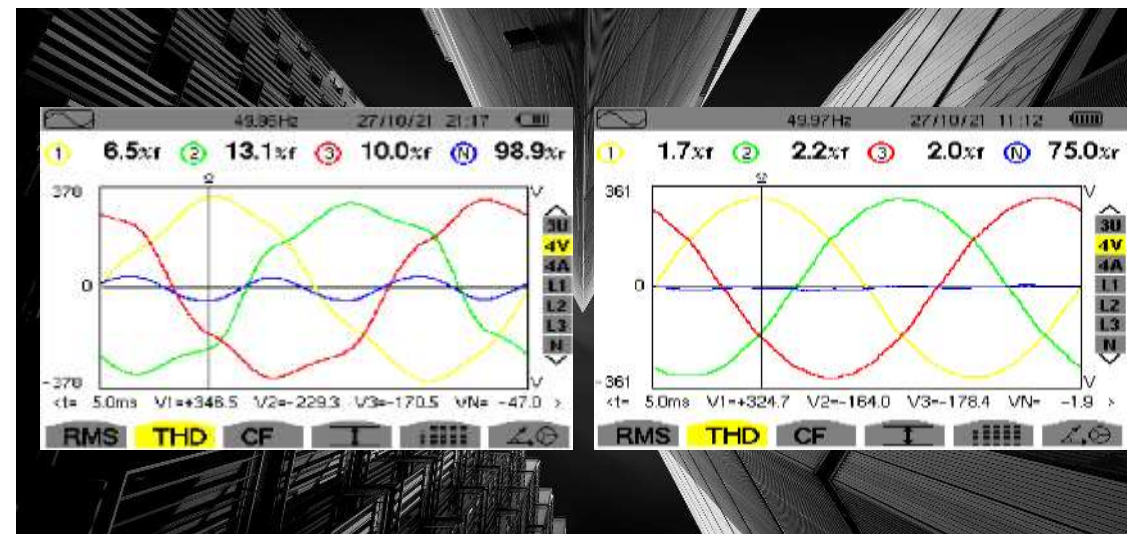
Inspired by Germany, convenience goes into industry



Only power cables connection, do not need the CTs

Harmonic voltage compensation technology

In 2022, No-CT technology of Sinexcel applied in the Beijing Winter Olympics officially that govern THDu from 13.1% to 2%.



P5 Series AHF Capacity Optional



- **5/10/15A Balde AHF**

Had released in 2017 year, first manufacturer applied the Sic in AHF

- **25/35/50/75A AHF**

Will be released in October 2023 year

- **100/150A AHF**

Will be mass production in March 2023 year

400V supports 3P3W&3P4W AHF (CE certification)

Compatible 380~480V supports 3P3W (ETL certification)

P5 Series SVG Capacity Optional



- **10kVAr Balde SVG**

Had released in 2017 year, first manufacturer applied the Sic in SVG

- **15/30/50kVAr SVG**

Will be released in October 2023 year

- **100kVAr SVG**

Will be mass production in March 2023 year

400V supports 3P3W&3P4W (CE certification)

Compatible 380~480V supports 3P3W (ETL certification)



Reshape

power quality compensation business
model from **industrial** to **commercial**



- Fast suppression of harmonics generated by transformer, VFD and distributed loads
- Excellent compensation capability even the system happens resonance

Sinexcel P5 AHF provides resonance suppression function

- Sinexcel P5 AHF unique self learn algorithm automatically to adjust compensation performance to reach $THDi < 5\%$
- More engineering power quality solution
- 19-25KG product weight

Easier to move, lower transportation cost, and save more warehouse space





THANK YOU

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