

A low-angle photograph of a modern building's facade, featuring a grid of windows and balconies. A large, curved teal shape overlays the bottom right portion of the image, containing white text.

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.

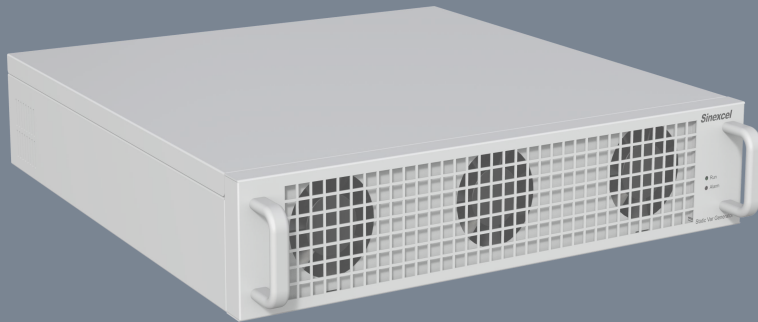
P5 series will release to mass production to market on **March 2023**



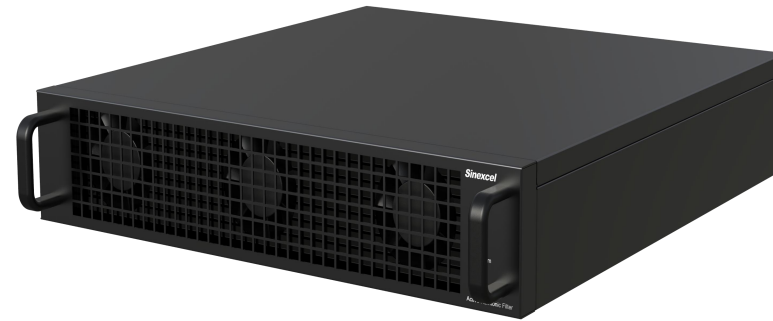
Significant **Innovations** _Support booking

Sinexcel

P5 SERIES



P5 Series SVG 100kVAr



P5 Series AHF 100A&150A



- 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**, 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

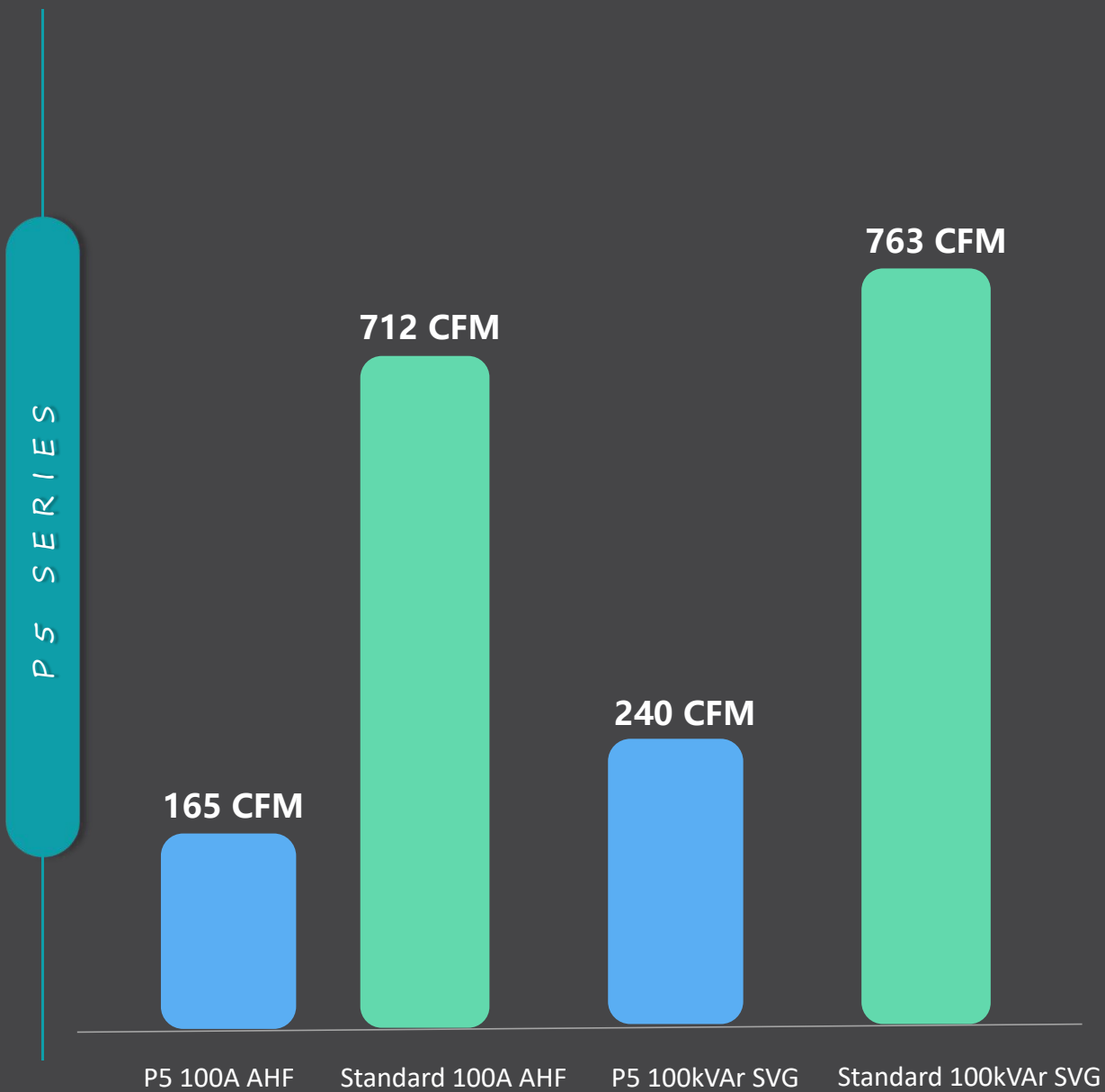
Singapore voltage 415V, $U \cdot I \cdot 1.732 \cdot 0.01 \cdot 24 \cdot 365$

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

Using 0.15USD/KWH as electricity pricing



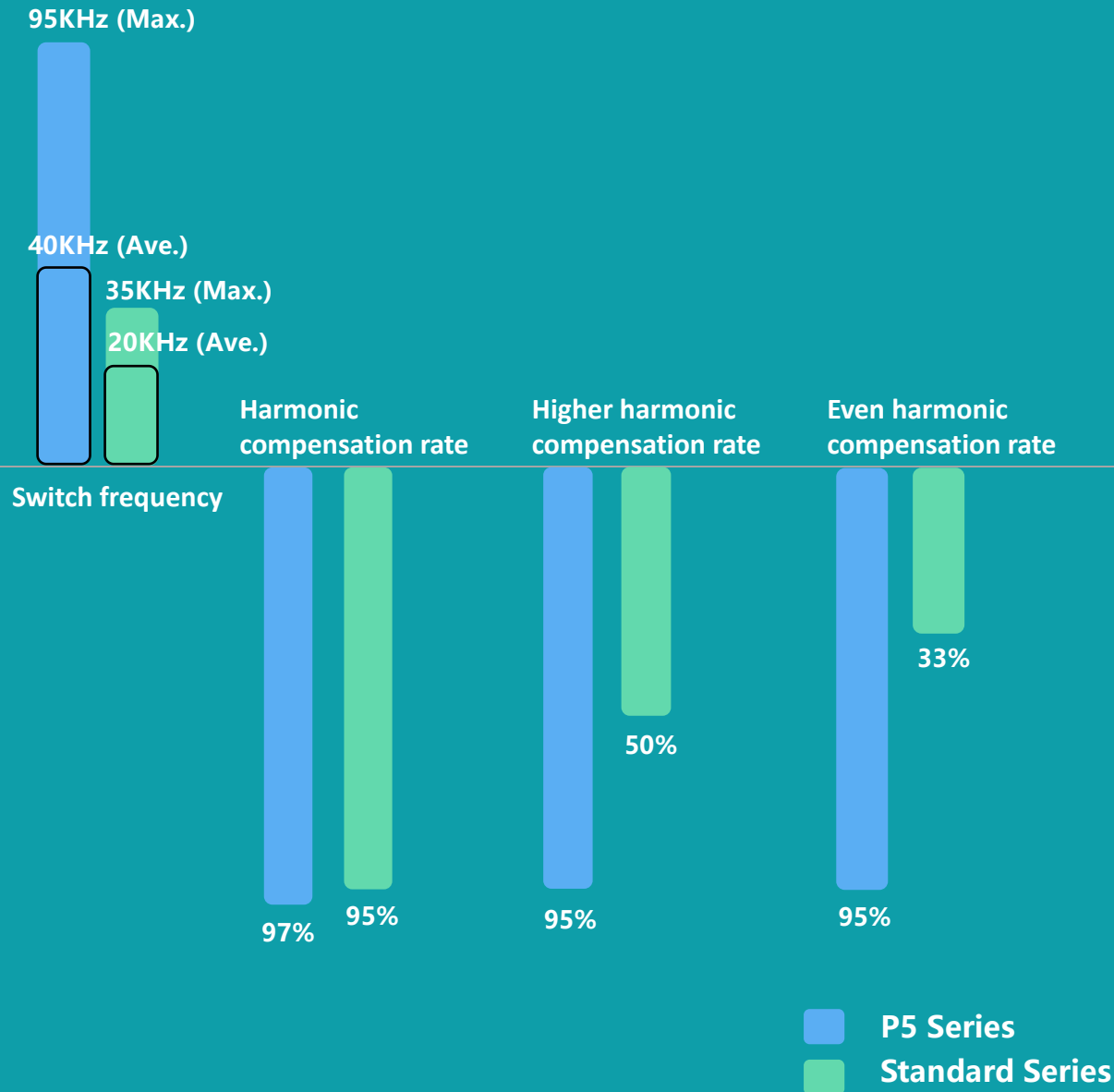
Electricity Fee Saving: 2,834 USD Per Year



>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**



Enhanced highly harmonic order compensation performance **>97%**

35th, 37th, 49th and higher harmonic order 95%



Support to compensate **even harmonic >95%**

2nd, 4th, 6th and higher even harmonic order



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

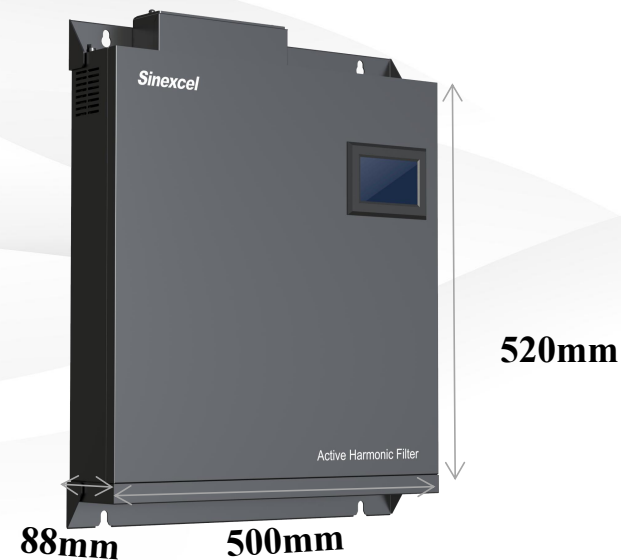
P5 SERIES

Standard AHF 100A_35KG



35KG

P5 AHF 100A_18KG

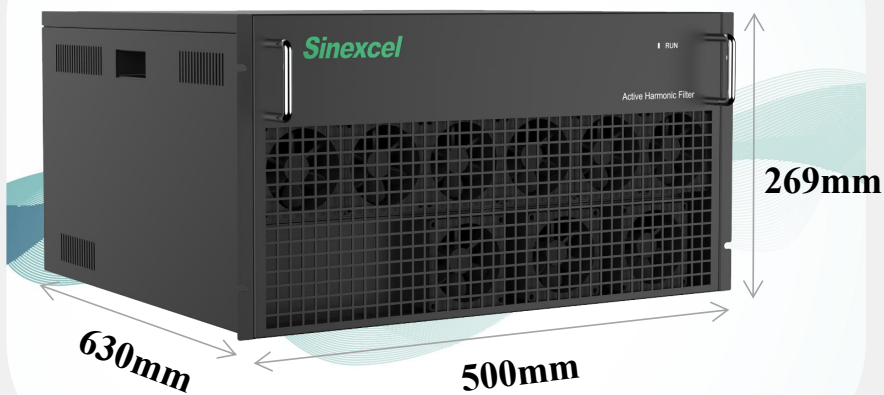


18KG

≈69% Reduce Mechanical Size Weight Drop From 48kg to 25kg

P5 SERIES

Standard AHF 150A_48KG



48KG

P5 AHF 150A_25KG



25KG

Higher Integrated!

P5 SERIES

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

Less ventilation volume required as less space taken up.



Standard Flex. Cabinet

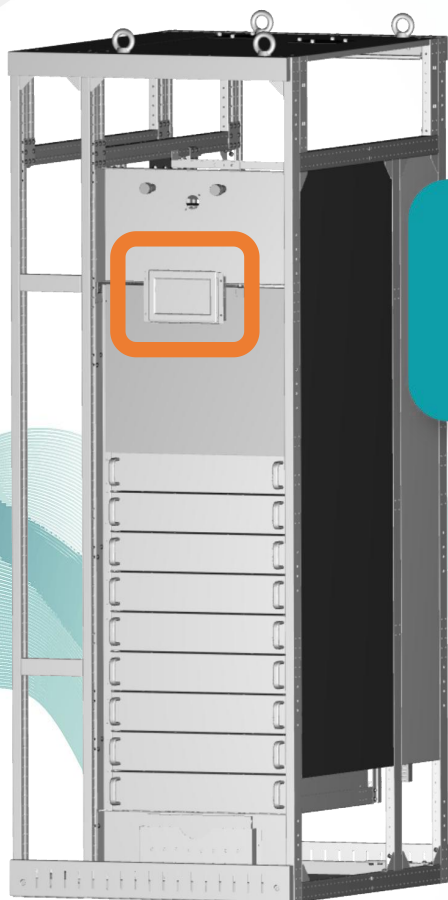
- ✓ For Standard cabinet only support 5 standard modules maximum,
- ✓ For P5 module that support 9 modules inside.



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

Cabinet More **Functional**

P 5 S E R I E S



7-Inch HMI



Support single 7-inch HMI to control
16 modules maximum



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



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

P5 Series AHF Capacity Optional

P 5 S E R I E S



5/10/15A Balde AHF (Had released in 2017 year)
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)
- 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)

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		
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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



Resonance

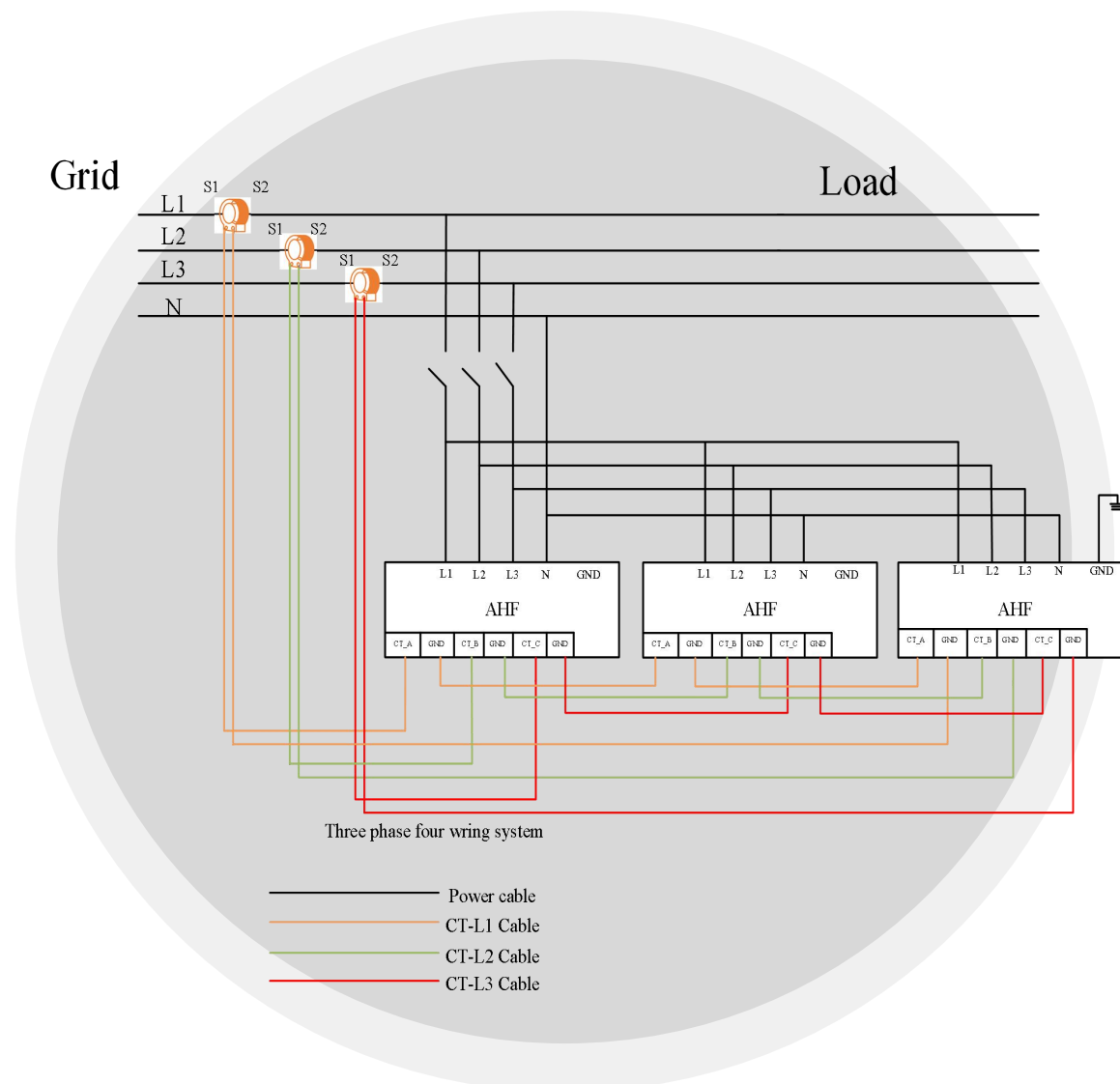


**Mode 3
Compensated**

CT “Close Loop” Design

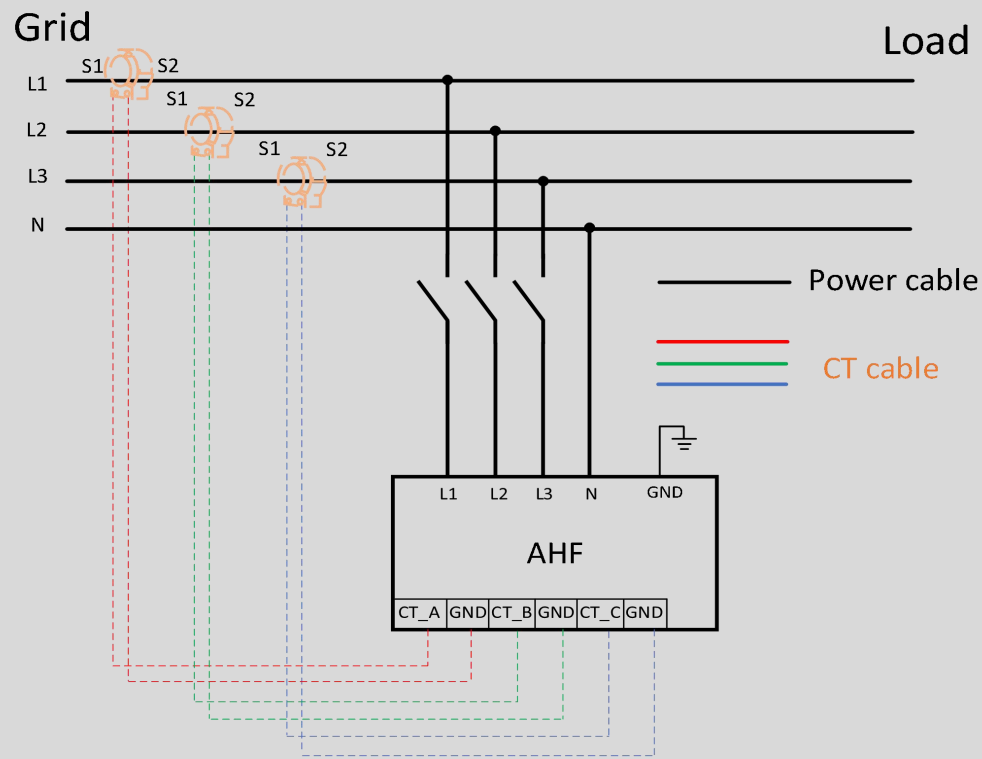
P5 series supports grid side connection, which means only one set of CT is needed on the grid side (load side) even with multiple modules paralleled.

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



NO-CT Technology compensates THDu

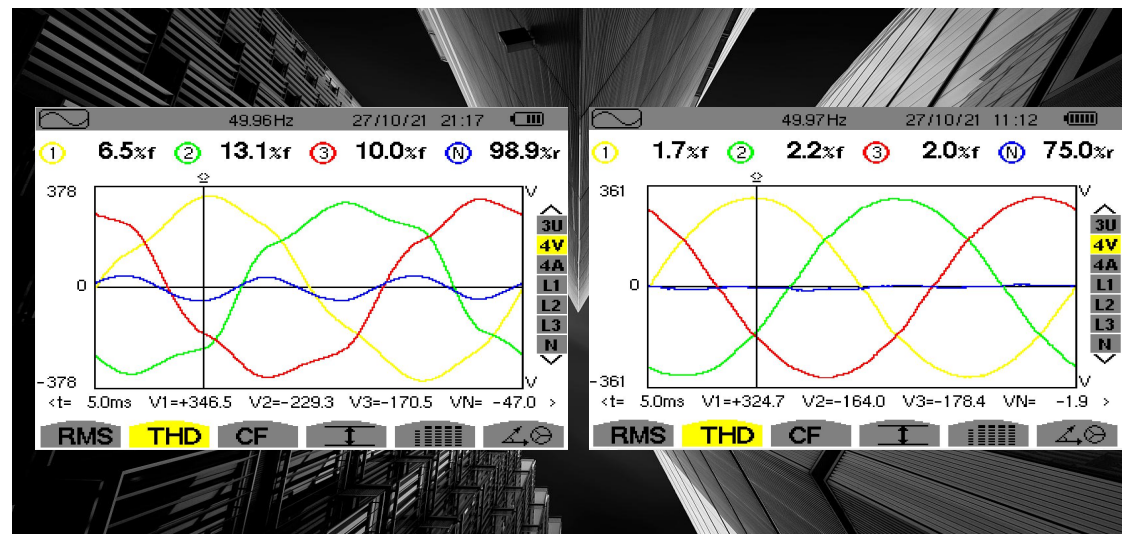
Inspired by Germany, convenience goes into industry

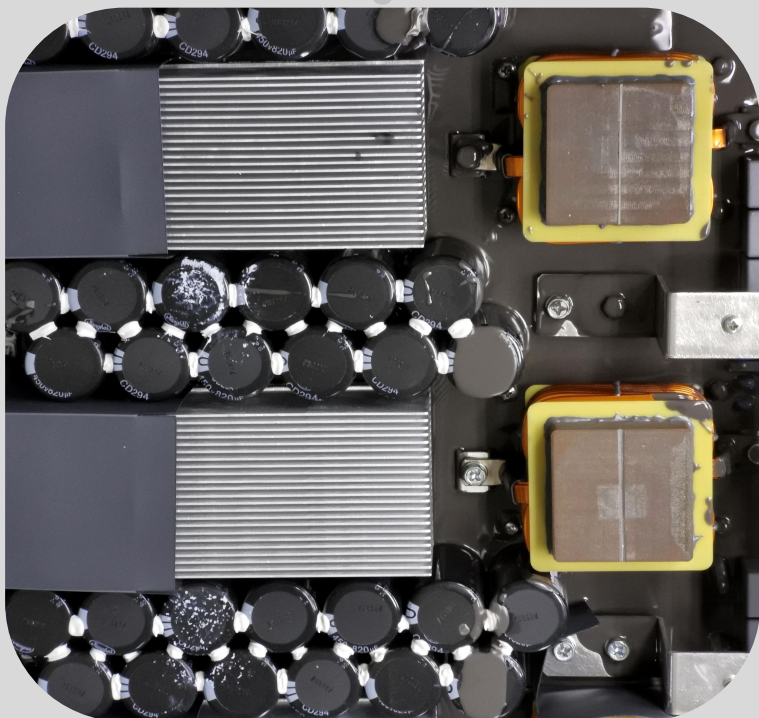


Do not need the CTs

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%.





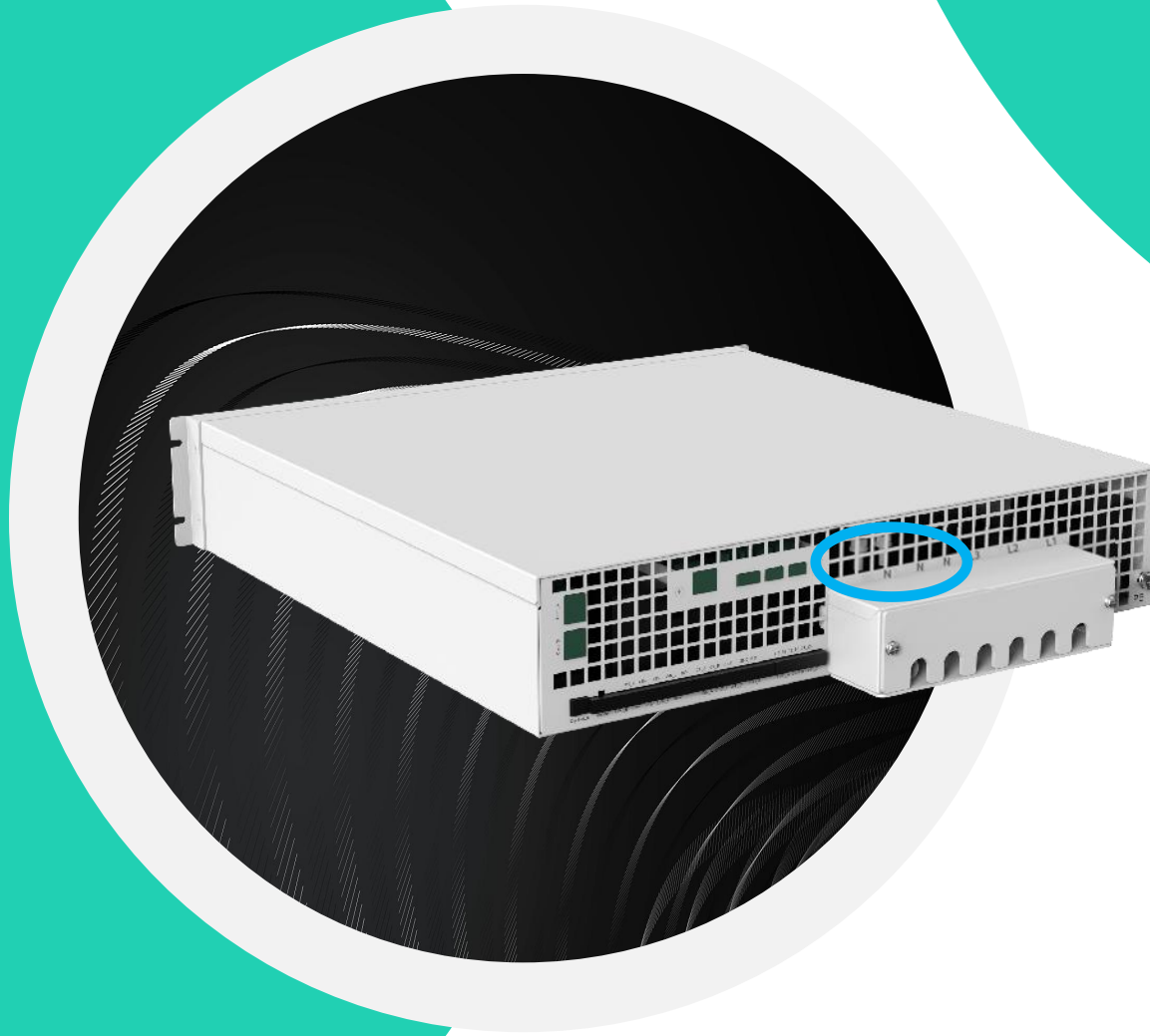
Hardware Updated

Friendly design, better user experience

Highly protection **IV** level

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

Three N cables connection



N N N L3 L2 L1

Enhanced triple zero-sequence harmonic compensation capability



THANK YOU

New Beginning, New Power Quality Compensation Era

 ***Sinexcel***