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## Power Quality Products for Reactive Power Compensation and Harmonic Filters

[www.shengye.com](http://www.shengye.com)



SHENG YE ELECTRIC

Five-star Power Quality Solution Expert

Since 1996

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# SAFETY RELIABILITY ASSURANCE

## COMPANY INTRODUCTION

Sheng Ye Electric Co., Ltd. is a high-tech enterprise engaging in the field of power quality and energy-saving, which integrates with research & development, production and sales. "SY", as a famous trademark in Guangdong province, has been awarded "Guangdong Famous-brand Product". The products mainly include: Low voltage reactive compensation/filter capacitor, detuned reactor, thyristor switch, reactive compensation controller, reactive compensation/filter groupware, building block compensation/filter module, Active Power Filter(APF), Static Var Generator(SVG), passive filter device (TSC/MSC), as well as the power quality intelligent optimization device which is dedicated to solving integratedly the problem of "under voltage, three phase unbalance, reactive power compensation and "harmonic elimination".

More than 20 years, Sheng Ye Electric Co., Ltd. always keeps moving with the core of technological innovation. "Keep improving, make customers satisfied" as quality policy, SY constantly provides continued value-added products and services to end users and partners. Nowadays, SY has more than 700 employees and covers an area of over 30,000 square meters. Products have been sold to more than 20 countries and areas, such as Europe, the United States, South America, Southeast Asia, Africa and Middle East.

## ENTERPRISE CULTURE



### VISION

Joining hands with SY people to build the strong business community and share the result together. It's a place where fighters can make their dreams come true.



### MISSION

Carrying the human dreams, taking the lead of development and transformation in the industry, building SY international brand.



### VALUE

Achievement, be grateful, efficient, persisting and innovation.



### QUALITY POLICY

Keep improving, make customers satisfy; Work together and build SY brand.



### MANAGEMENT PRINCIPLE

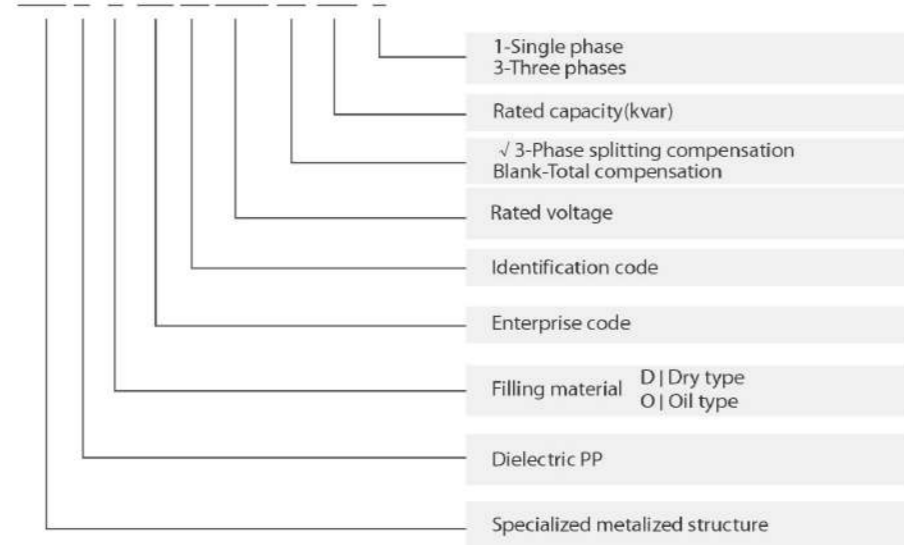
Go to the world, global service provided.

# Reactive Compensation / Filter Capacitors



## 1. Model Illustration

TM P O SY □ 525 □ -50-3



POWER & ELECTRONIC CAPACITOR  
 TMPOSY 525-30-3  
 B5250B0303KJD1R1C1P  
 $C_N=3 \times 115.5\mu F$   $\Delta$  SH  
 $U_N$  525V  $f_N$  50Hz  
 525V 30.0kvar 33.0A  
 Cat.temp -40/D Ins.class 3/-kv Non PCB  
 Oil. Overpressure Interruptor  
 Ref.std IEC/EN 60831  
 GB/T12747-2017  
 UL-810 10000AFC  
 SHENG YE ELECTRIC CO.,LTD  
 00000 WARNING: WAIT 5MINUTES AFTER ISOLATING SUPPLY BEFORE HANDLING

## 2. Product Introduction

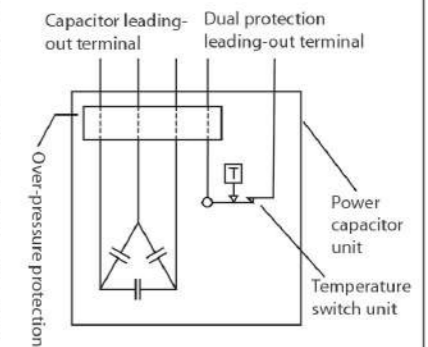
Low voltage power capacitor is also called as "Self-healing Low Voltage Power Shunting Capacitor", which can be comprehended as "a container for storing electricity", the film capacitor is available to repair by itself, that means it can self-healing quickly and renew to work when over pressure destroys the part of medium. Low voltage power capacitor, as one of the core components to improve power quality, is mainly used for reactive power compensation, power factor improvement, inhibiting harmonics when matched with series reactor, decreasing power line loss and improving the ration of devices utilization.

## 3. Product Features

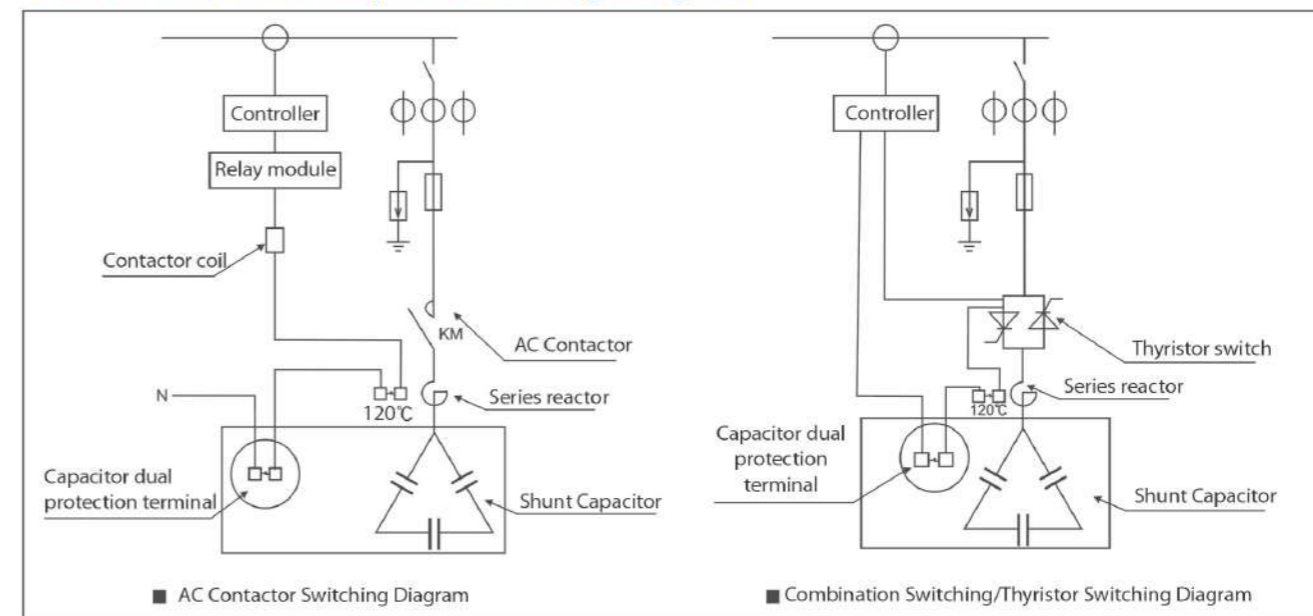
- Cylindrical aluminum housing, with the characteristics of good heat dissipation, light weight, small volume and rust-proofing etc.
- According to different occasions, provides a variety of wiring terminals for customers to choose.
- SY patent—dual protection internal install secondary protective device and over-pressure dis-connector.
- Adopt the most advanced winding machine to make sure the stability and consistency of every product.
- Obtain UL safety certification and TUV product certification.

## 4. Dual Protection Capacitor

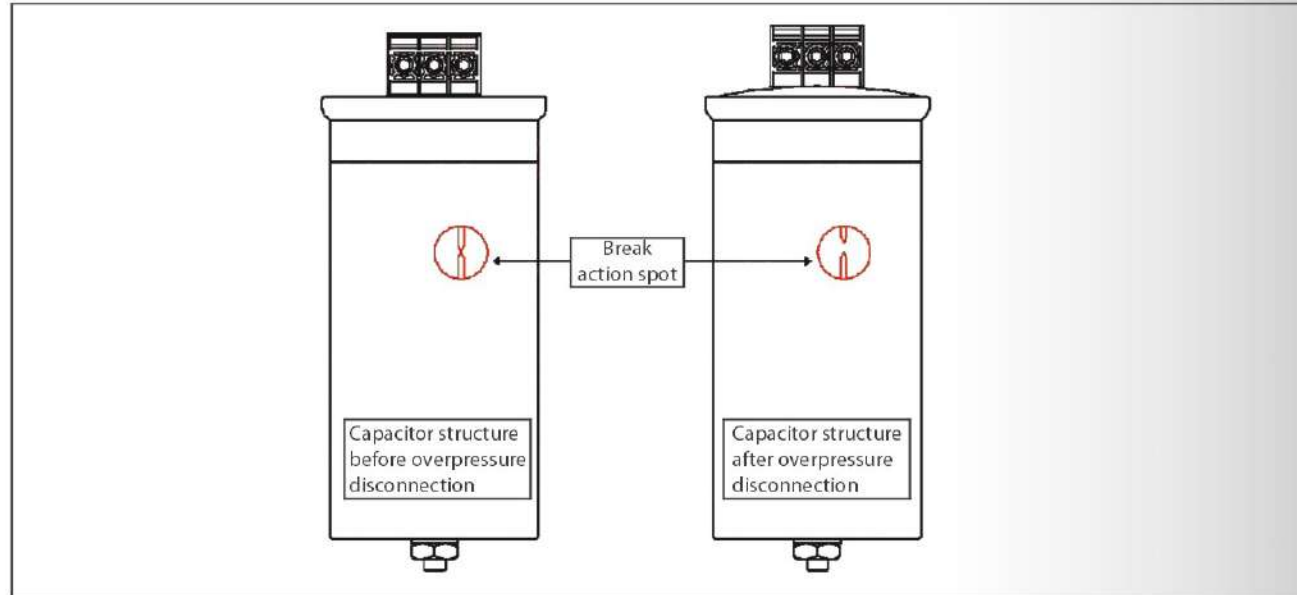
The H terminal capacitor is a new generation product in the world which is produced by Sheng Ye Electric and has a number of patents with the dual protection structure (Patent number: ZL200920052757X, ZL200920052756.5, ZL200930070501.7). The H type capacitor is used for large current and large capacity occasions, maximum to 35mm conductors. By adopting the new type safe explosion protection structure, building block structure and filling with gas internal, the terminal possesses a more beautiful and delicate appearance. It is stable and reliable, with high anti-inrush current capability so as to meet the highest environmental grade requirement. When the capacitor running under over-temperature caused by power grid harmonic and over-voltage in the system, this kind of capacitor will output the control signal, cut off the switch and step into the exceeded temperature protection condition for preventing the capacitor from putting into power grid until the temperature decreased to an acceptable range, then it can switch into the working condition. In order to extend the capacitor and series reactor lifespan in the detuning compensation and tuning filter system, these several capacitors with dual protection can be installed in series to avoid the deviation of tuning causing by the failure of one or more capacitors, which will cause a certain number of harmonic current amplification and result in system breakdown. With the help of dual protection of capacitor it will force the random failure system out of working condition, until the maintenance is finished to prevent the spread of the accident.



## 5. Dual Protection Capacitor Wiring Diagram



## 6. Overpressure Cut-off And Anti-explosion Structure



## 7. Technical Parameters

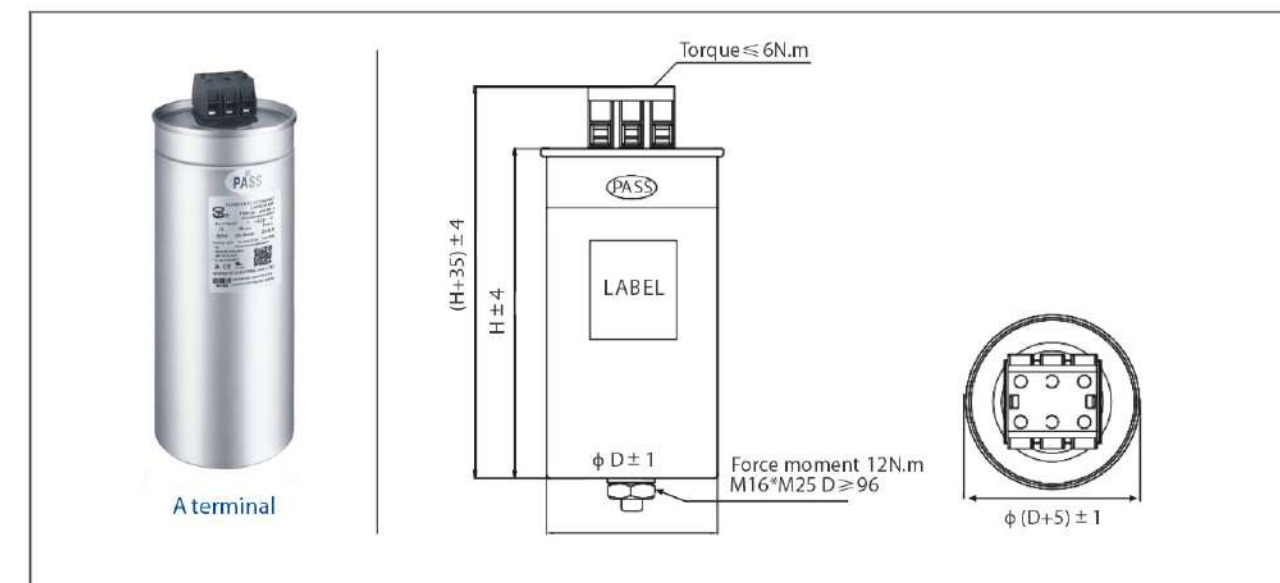
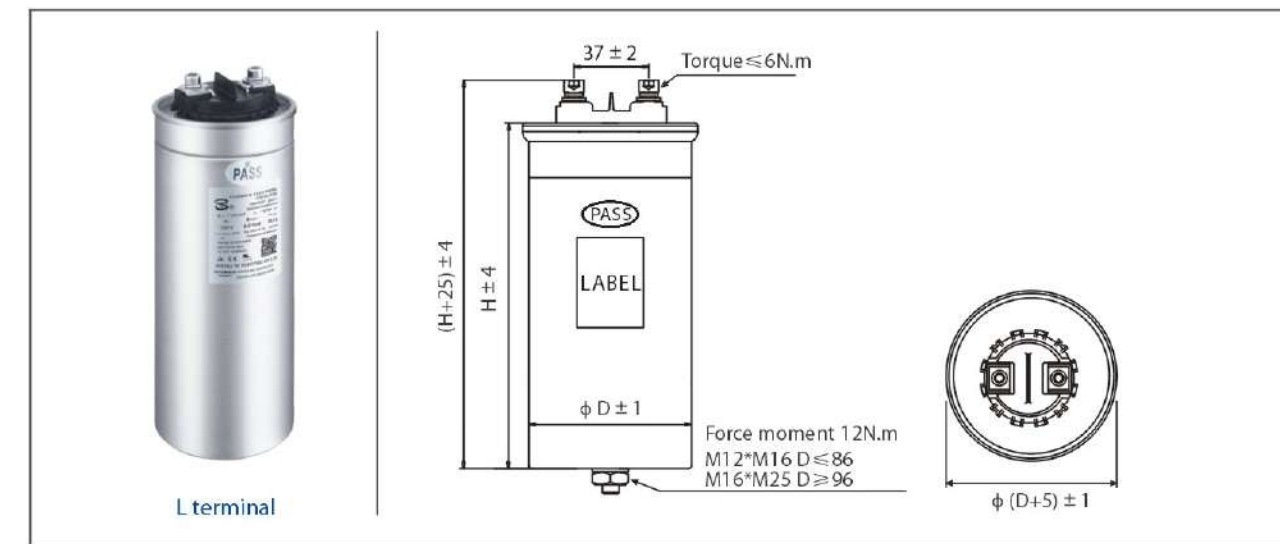
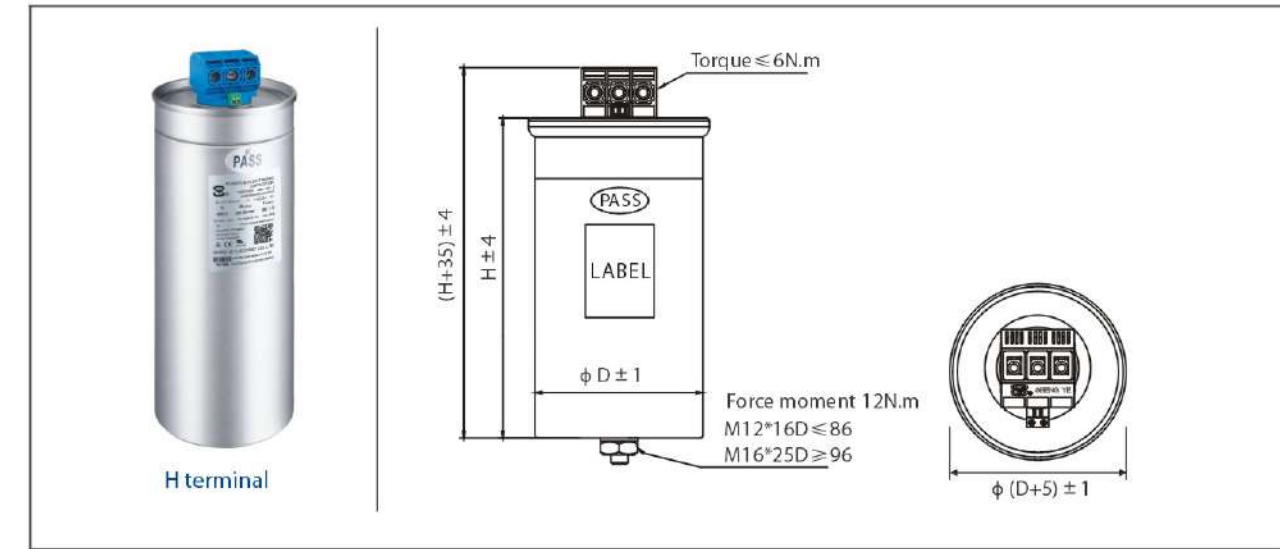
7.1 Environment Conditions		
Ambient temperature		-40/D
Relative humidity		≤90%
Altitude		≤2000m
7.2 General parameters		
Loss		DF ≤ 0.001
Capacity tolerance		-5%~+10%
Withstand voltage between terminal and terminal		2.15Un VAC, 5 Seconds
Withstand voltage between terminal and housing		3600VAC, 2 Seconds
Discharge		Below 75V after power off within 3mins
Sealing performance		90 ± 2°C ,no leakage(Oil filled) within 3h ,Leakage ratio <0.5SCCM(Gas filled)
Safety performance		Has reliable over-pressure and disconnection protection; meets the requirement of destructive test of IEC60831-2 standard and meet the requirement of UL810 standards 10000AFC
7.3 Operation parameters		
Maximum overvoltage		1.1Un
Maximum over current		1.3In
Reliability		The failure rate is <6%/0.5% (1PPM component /hour) when products run 60000/5000 hours under rated voltage and nominal temperature. Meet the requirement of the American Electrical Industry Association standard EIA-456-A
7.4 Standard		
GBT/12747.1-2017 GB/T12747.2-2017		EC60831-1-2017 IEC60831-2-2014
EN60831-1-1998+A1-2003 EN60831-2-1996		EIA-456-A-1989 UL810-2008

## 8. Special Tips

- Capacitors should be installed under the standard of IEC61921 and EN60831, the distance among units should not be less than 30mm.
- Capacitors are non heat-resisting products. In order to increase capacitors lifespan, please keep them away from the heat sources, such as detuned reactors, dynamic switches and another large heat release products.
- The panel should be designed and installed proper cooling fan according to the ambient temperature, so as to meet the temperature inside the cabinet.
- Capacitors should be put on the bottom layer of the panel when installing. It is unsuitable to install with other products. Don't put capacitors upper the detuned reactor, thyristor switch or other heating products.
- Before installing the capacitor, please read carefully the operating manual of TMPDSY, TMPOSY series of metalizing self-healing type low voltage shunt capacitor.



## 9. Product Structure Diagram



### 10. Model List

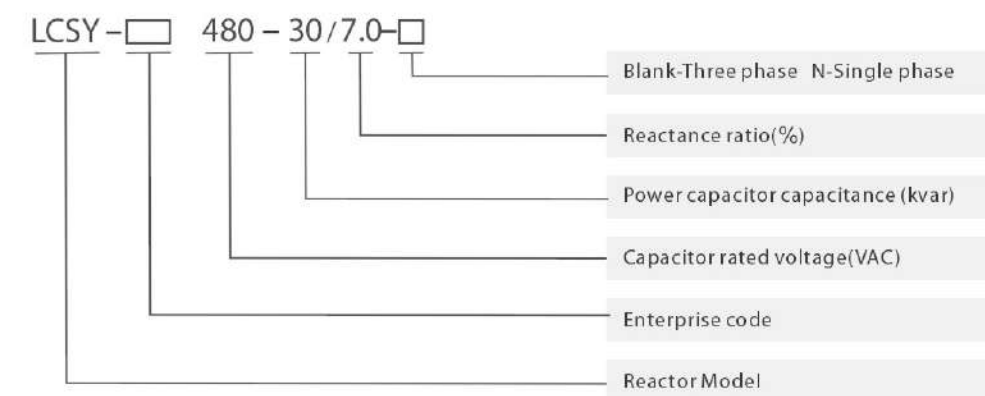
Model	Voltage (v)	Rated capacity (kvar)	Rated capacitance (uF)	Rated current (A)	Dimension (mm)	Application
TMPOSY280-5-1	280	5	203.1	18	Φ76*175-M12*16	Single-phase Adopted 120V system voltage (Matched with 7% reactor)
TMPOSY280-10-1	280	10	406.2	36	Φ86*240-M12*16	
TMPOSY280-15-1	280	15	609.3	54	Φ106*240-M16*25	
TMPOSY280-20-1	280	20	812.4	71	Φ116*240-M16*25	
TMPOSY300-5-1	300	5	176.9	9.6	Φ76*175-M12*16	Single-phase Adopted 220V system voltage (Matched with 14% reactor)
TMPOSY300-10-1	300	10	353.9	19.2	Φ86*240-M12*16	
TMPOSY300-15-1	300	15	530.8	28.9	Φ106*240-M16*25	
TMPOSY300-20-1	300	20	707.7	38.5	Φ116*240-M16*25	
TMPOSY450-5-3	450	5	79	6.5	Φ76*175-M12*16	Three-phase Adopted 400V system voltage for pure compensation (Small harmonic system)
TMPOSY450-10-3	450	10	157.3	12.8	Φ76*240-M12*16	
TMPOSY450-15-3	450	15	236	19.3	Φ86*240-M12*16	
TMPOSY450-20-3	450	20	314.6	25.7	Φ96*240-M16*25	
TMPOSY450-25-3	450	25	393	32.1	Φ106*240-M16*25	
TMPOSY450-30-3	450	30	472	38.5	Φ116*240-M16*25	
TMPOSY480-5-3	480	5	69.1	6.0	Φ76*175-M12*16	Three-phase Adopted 400V system voltage (Matched with 7% reactor)
TMPOSY480-10-3	480	10	138.2	12	Φ76*240-M12*16	
TMPOSY480-15-3	480	15	207.3	18.1	Φ86*240-M12*16	
TMPOSY480-20-3	480	20	276.5	24.1	Φ96*240-M16*25	
TMPOSY480-25-3	480	25	345.6	33.7	Φ106*240-M16*25	
TMPOSY480-30-3	480	30	415	36.1	Φ116*240-M16*25	
TMPOSY480-40-3	480	40	552.9	48.1	Φ116*285-M16*25	Three-phase Adopted 400V system voltage (Matched with 14% reactor)
TMPOSY525-5-3	525	5	57.8	5.5	Φ76*175-M12*16	
TMPOSY525-10-3	525	10	115.5	11	Φ76*240-M12*16	
TMPOSY525-15-3	525	15	173.3	16.5	Φ96*240-M16*25	
TMPOSY525-20-3	525	20	231.1	22	Φ106*240-M16*25	
TMPOSY525-25-3	525	25	288.9	27.5	Φ116*240-M16*25	
TMPOSY525-30-3	525	30	346.6	33	Φ116*285-M16*25	Three-phase Adopted 690V system voltage for pure compensation (Matched with the small harmonics system)
TMPOSY525-33.5-3	525	33.5	387.1	36.8	Φ116*285-M16*25	
TMPOSY690-10-3	690	10	66.9	8.4	Φ76*240-M12*16	
TMPOSY690-15-3	690	15	100.3	12.6	Φ96*240-M16*25	
TMPOSY690-20-3	690	20	133.8	16.7	Φ106*240-M16*25	
TMPOSY690-25-3	690	25	167.2	20.9	Φ116*240-M16*25	
TMPOSY690-30-3	690	30	200.7	25.1	Φ116*285-M16*25	

■ Remarks: the above are the general specifications, please contact us when you have special requirements.

## Series Filter Reactors






### 1. Model Illustration



## 2. Application Range

Capacitor will be affected and easily damaged by harmonic current, inrush current and over voltage in the reactive power harmonic, it is necessary to install the detuned reactor so as to inhibit and absorb harmonics, prevent the current and voltage from affected as well as improve the reliability and stability of Power system.

## 3. Product Features

-  Suppress harmonic amplification and filter a proportion of harmonic.
-  After the precise matching, series reactor is matched with capacitor to be reactive filter, which can eliminate some certain kind of harmonic precisely.
-  Suppress the inrush current when the capacitor switching into the system and protect capacitors other components.

## 4. Technical Parameters

Index	Parameters
Rated voltage of matching capacitors	277V/303V/480V/525V
Reactance ratio	6.0%, 7.0%, 12%~14%
Phase	Single phase, Three-phase
Inductance deviation	$0 \leq L_n \leq 5\%$
Linearity	1.4In - 1.8In
Stable over current	$\leq 1.35I_n$ Long-time running
Withstand voltage	3.0kV/50Hz/5mA/60s No arc breakdown
Temperature rise	Rated current, Coil temperature rise $\leq 75K$
Noise	$\leq 48dB$ ( 1m horizontal distance from reactor)
Protection grade	IP00
Standard	GB19212-2016; GB1094.6-2011

### Operating environment

Environment temperature:  $-25^{\circ}C \sim +55^{\circ}C$

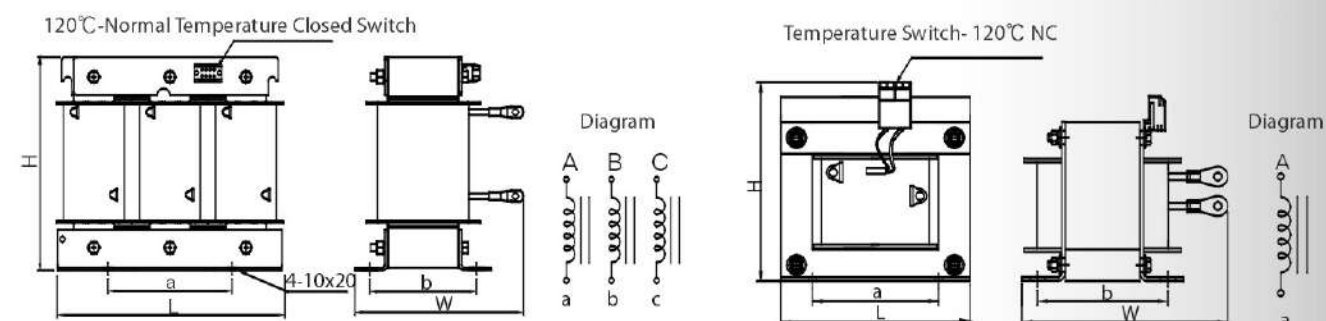
Humidity:  $< 90\%$

Altitude above sea level:  $< 1000m$  (When  $> 1000m$ , automatic derating 1%/100m).

No toxic gas, no flammable and explosive materials around.

Good ventilation around, if installed in the cabinet, ventilation device should be added.

## 5. Diagram



## 6. Model List

No.	Wiring Method	Model	Reactance Ratio (%)	Current (A)	External Dimension (mm) $\pm 5.0mm$			Installation dimension (mm) $\pm 2.0mm$	
					(L)Length	(W)Width	(H)Height	(a) Front Side	(b) Lateral Side
1	Three-phase	480-10/7.0	7	12.03	210	155	165	155	86
2		480-15/7.0	7	18.04	210	155	165	155	86
3		480-20/7.0	7	24.06	210	155	165	155	86
4		480-25/7.0	7	30.07	230	175	185	200	106
5		480-30/7.0	7	36.1	230	175	185	200	106
6		480-40/7.0	7	48.11	230	190	185	200	121
7		480-50/7.0	7	60.14	270	185	200	200	115
8		480-60/7.0	7	72.2	270	185	200	200	115
9		480-67/7.0	7	80.6	285	185	200	200	115
10	Total compensation	480-80/7.0	7	96.2	285	200	260	200	123
11		525-15/14.0	14	15.6	230	175	185	200	106
12		525-20/14.0	14	20.8	230	190	185	200	121
13		525-25/14.0	14	25.9	270	185	200	200	115
14		525-30/14.0	14	31.1	270	185	200	200	115
15		525-40/14.0	14	41.4	285	190	210	200	120
16		525-50/14.0	14	51.8	285	200	210	200	130
17		525-60/14.0	14	62.2	285	200	260	200	123
18		525-74.5/14.0	14	77	285	200	260	90	123
19	Single-phase	280-10/7.0N	7	31.7	135	170	150	115	108
20		280-15/7.0N	7	47.5	165	180	170	115	118
21		280-20/7.0N	7	63.3	165	180	170	115	118
22		Splitting compensation	300-10/14.0N	14	29.8	165	180	170	130
23	300-15/14.0N		14	44.7	193	200	200	130	136
24	300-20/14.0N		14	59.6	193	200	200		136

### SPECIAL TIPS

Product model, capacitor rated voltage, capacity, reactor ratio, operating frequency, dimension and other parameters should be given when place order. Other sizes can be customized, which depends on customer's requirement.

# Thyristor Switches



## 1. Model Illustration

SY - TS -  - 50 - H2 /

- F-Phase splitting compensation  
Blank-Total compensation
- Structure identification
- Capacity code
- Identification code
- Thyristor switch model
- Enterprise code

## 2. Product Introduction

SY-TS thyristor switch mainly contains components as follows: Trigger circuit, thyristor, diode and ancillary circuit. Trigger circuit will judge whether it will output the control signal (DC12V) or not when voltage before and after zero crossing switching, so as to turn on or off. The trigger circuit can reliably ensure the output of the control signal. Radiator is mainly used for conducting heat and cooling through installed a switch which contains over-temperature protection and cooling fan controller, so as to provide the operation with a safe and good condition. Compared to other thyristor switch, this one has these advantages: no rush current, no touching noises; which is more suitable for those switching frequently occasions, such as lifts, cranes and welding machines.

## 3. Product Features

- Zero-crossing switching and no inrush current and no power grid voltage flicker during switching.
- Built-in cooling fan, automatic control fan start-stop function; internal thermal (80°C) protection.
- LED signal light displaying switching status.
- Integration, small volume and easy installation; Casting structure, sturdy and durable; The terminals have horizontal and vertical interchangeability.
- Photoelectric isolation, high anti-interference ability and high speed responsibility (10ms).
- No noise during operation, no mechanical wear, which can greatly extend the lifespan.

## 4. Technical Parameters

Model	SY-TS-50-H2	SY-TS-30-H3/F
Rated voltage(U)	400V 50Hz	
Drive current(I)	≤30mA	
Rated current(I)	72A	43A
Switching response time	20ms	
Installation position	Indoor	
Controlling signal	DC12V	
Working environment	Temperature : -25℃-55℃	
	Humidity : ≤90%(40℃)	
	No violent shocks and impact	
Fan data(Rated voltage)	AC 380V/50HZ	
Temperature parameters	Overheat protection: air cooling and fan start temperature	
	Overheat protection: Automatic removal of capacitor group when it up to 60℃	

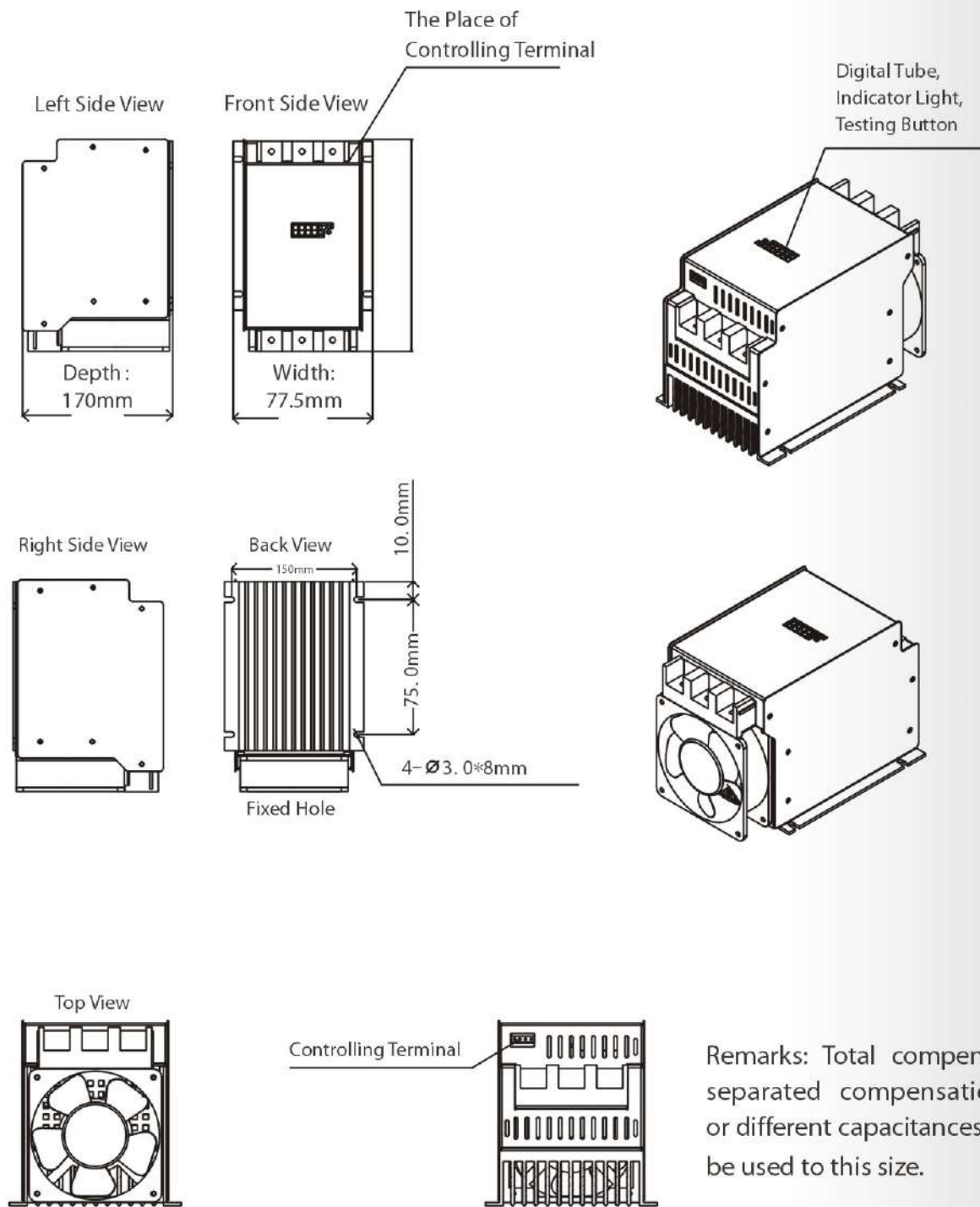
\*Other special sizes can be customized

## 5. Model List

Model Specification	Dimension(mm)			Compensation	Max compensation capacity (400v)	Weight (kg)
	W	H	L			
SY-TS-50-H2	155	170	235	Total compensation	50 kvar	5.15
SY-TS-30-H3/F	155	170	235	Phase splitting compensation	30 kvar	5.18



### 6. Outline Dimension

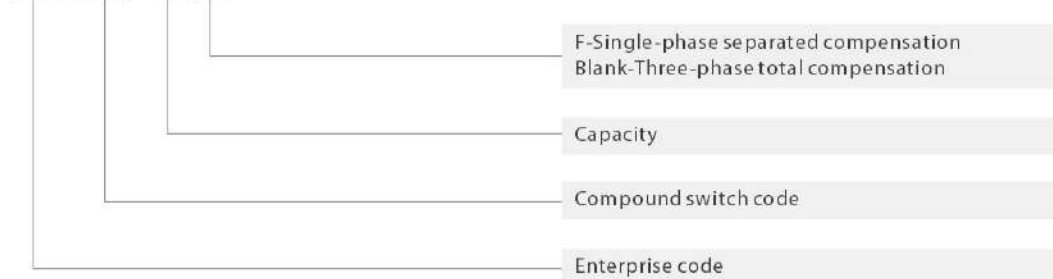


## Intelligent Combination Switches



### 1. Model Illustration

SY - FS - 50 - F



## 2. Product Introduction

So far, SY-FS stands for the highest level of compound switch, consisting of these two advantages: mechanical contact low energy consumption and solid-state relay without operation of arc, which realizes relay connecting circuits without arc, combines the advantages of latching relay and SCR (silicon controlled rectifier), guaranteed voltage zero-crossing and current zero-switching out when switching capacitor, leads small current and no voltage when it switches on or off, helps contactor operating without fires, reduce pressure, energy consumption and harmonics when operating. SY-FS, as a new kind of intelligent and environmental low-voltage switch, has reached the advanced level relying on it technology, quality and reliability, which applies reactive low voltage compensation capacitor, heating wire, lights, motors and resistors to switch.

## 3. Product Features

- KS-F adopts such a top level patented technology: advance zero-crossing triggering capacitor storage, guaranteed the lower current value and solved these problems: large Surge, mechanical contact burning and SCR damaged.
- KS-F also introduces this patented technology, which is no need for trigger transformer, high-voltage electrical SCR conducting surge and no electric arc breaking, eliminates these two disadvantages: zero-crossing zone from contacting transformer and high Voltage electrical switch, damage of voltage switch.
- Compared with similar products, KS-F employs current or voltage feedback and limiting patented technology, theoretically, the value of time for conducting SCR has become the best all around the world among the similar products, possesses a high tolerance of loading malfunction and current stroking, a effective controlling of capacitance self-healing and current discharging, which greatly reduces the probability of switch malfunction.
- Protection function uses microcontroller to control and monitor SCR and the operating state automatically; possesses protection function, voltage malfunction and phase loss protection, preserve power voltage and phase loss protection, self-diagnosis fault protection, no-load protection, electric outage and lock protection (SCR must be put in before magnetic latching switching)

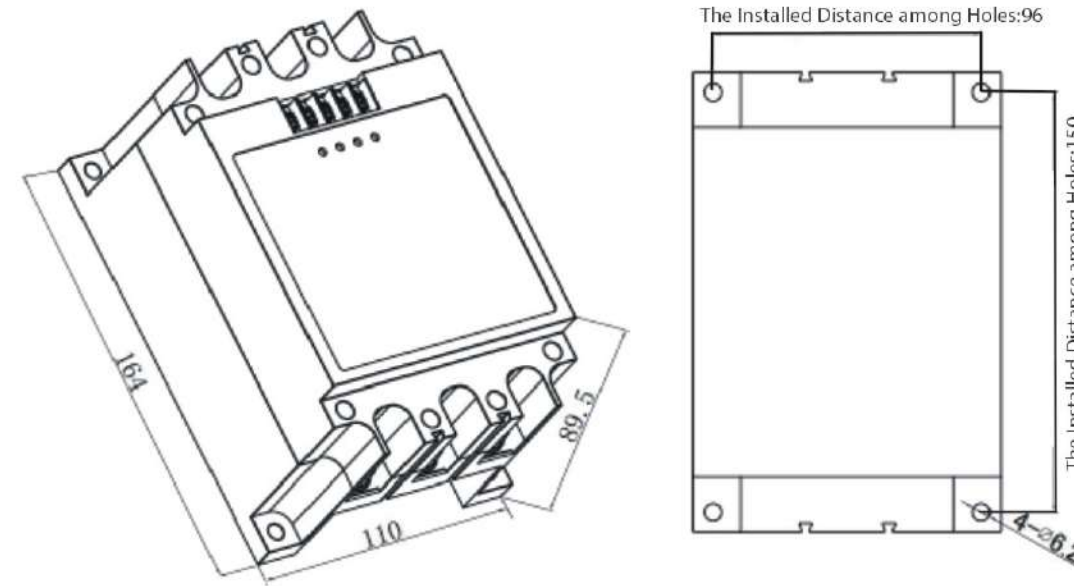
## 4. Technical Parameters

Model	SY-FS-50	SY-FS-45-F
Rated working volatge	450V AC	250V AC
Rated frequency	50/60HZ	
Longevity	10/1 billion frequencies	
Controlling signal	DC12V	
Installation place	Indoor	
The interval connecting twice in a row	≥ 60 seconds	
The interval up and shutdown at a time	≥ 30 seconds	
The interval connecting ten time in a row	≥ 10 mins	

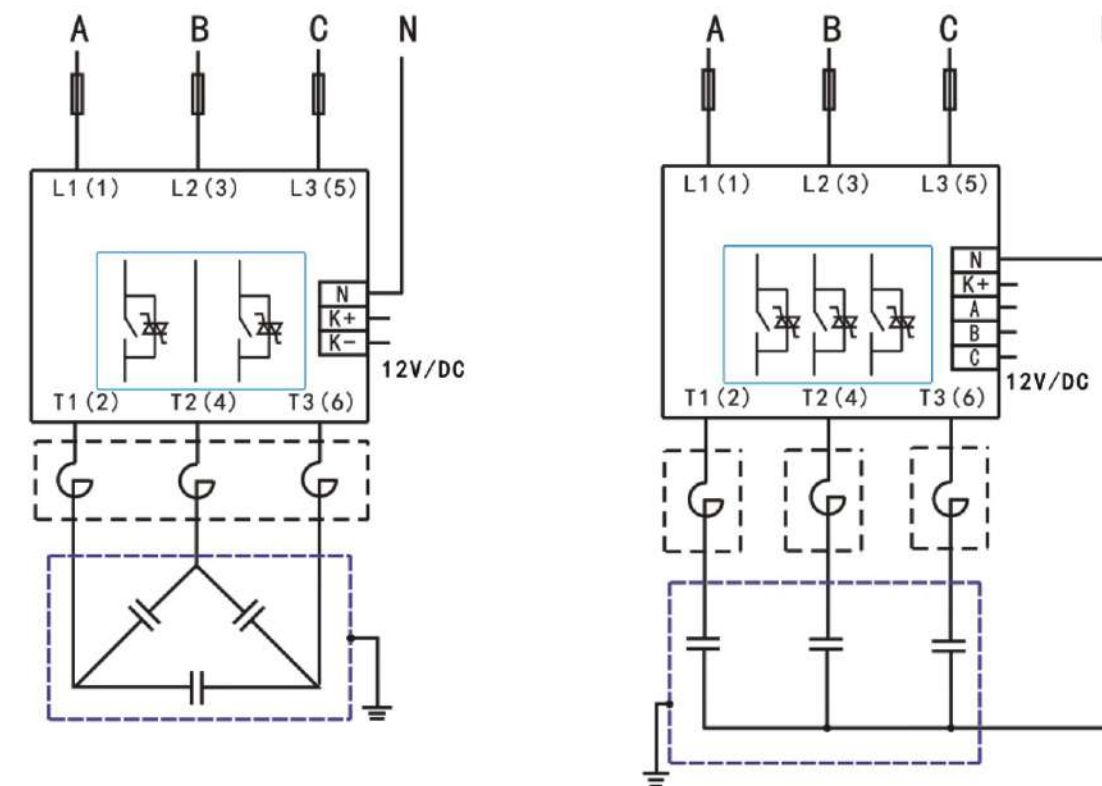
## 5. Selection Table

Model Specification	Compensation Type	Output Capacity	Rated Voltage	Dimension	Installation
SY-FS-45-F	Single-phase compensation	45Kvar	250 √3Vac	164 X 110 X 89.5	150 X 96
SY-FS-50	Angle Total Compensation	50Kvar	450Vac	164 X 110 X 89.5	150 X 96

## 6. Diagram



■ Installation Dimension Diagram



■ Wiring

# Power Factor Controllers



## 1. Model Illustration

SY - JK W □ □ □ □ □ □

- Blank-138\*138 W-Reactive intelligent controller
- Y-Active controller H-Hybrid controller
- T-Communication function blank-no function
- A-Control contactor mode (switch value output)
- B-Control thyristor mode (level voltage value output)
- T-Tele-communication switch mode (485)
- Blank-Output control signal branches (intelligent type: 3 signals/ branch)
- X-Harmonic testing and protection function
- Blank-No function
- Blank-Designing sequence code
- B-Switching function
- F-Phase splitting switching function
- Z-Intelligent type
- Blank-No switching function
- W-Sampling physical quantity for reactive power
- Product category code
- Enterprise code

## 2. Product Features

- The power factor  $\phi$ , voltage, current, active power, reactive power, total voltage & current harmonic distortion rate, frequency, capacitor output and thyristor state display, various ultralimit protection alarm and so on, can be showed.
- The function of capacitor input and disconnection delayed setting separately is helpful for the efficient of compensation; We can preset the excision of input and threshold, to improve the compensation accuracy.
- Possess the function of harmonic voltage and current measurement and protection; the function of manual compensation and automatic compensation; the function of standard fieldbus communication interface, convenient to access to intelligent switchgear system.
- In accordance with such a design philosophy "people-oriented", module assembling, full-digital design, and HMI adopt large screen LCD monitor.
- Signal sampling, strong anti-interference, error avoid, high working reliance; It can judge reactive and active power factor correctly, to avoid vibrated switch.



Power Factor Controller

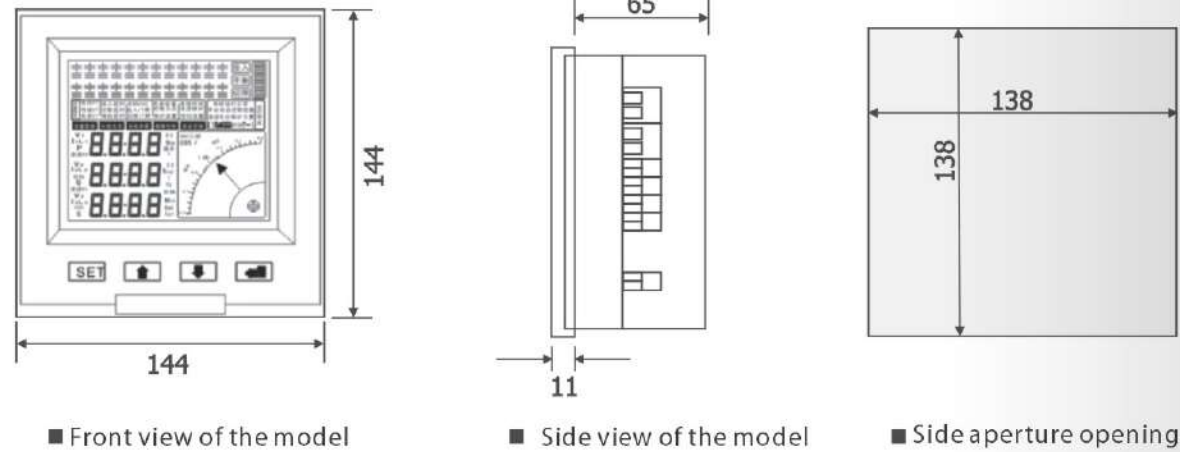
## 3. Technical Parameters

Environmental condition	Height above sea level	≤2500m
	Temperature	-0°C-60°C
Input/output signal	Sampling voltage	No conductive dust, no corrosive gas, no explosive and flammable medium around the controller. The installation site should be no violent vibration and erosion of snow and rain.
	Sampling current	Phase splitting compensation: L1/L2/L3 phase voltage Total compensation: L1/L3 phase
	Control output	Phase splitting compensation: the each phase current of L1/L2/L3 is 0~5A Total compensation: the current of L2 is 0~5A Relay: 5A/250A Thyristor switch: 12V/30mA
Display function		LCD monitor data refresh cycle ≤15
Measurement accuracy	Voltage	±0.5%
	Current	±0.5%
	Power factor	±1%
	Active factor	±1%
	Reactive factor	±1%
	Frequency	±0.1Hz
ID setting	ID number	001-255
	Communication	4800-38400bps
Measurement data	Voltage	100v-290V
	Current	0-6000A
	Sensitivity	50mA(secondary)
	Power factor	Lag0.200~ ahead0.200
	Working power supply	220V±20%
	Testing frequency	47-53Hz
	Active power	0-6553kW
	Reactive power	0~6553kvar
	THD-V	0~100%
	THD-I	0~100%
Communication interface data	Interface protocol	RS485
		MODBUS communication protocol
Setting data	Current transformer ratio	Value: 1~1200
	Delay time	Contactor: 5s~100s; Thyristor switch: 0.1s~30s
	Target power factor	Lag 0.9~ahead 1.0
	Overvoltage	230V-290V or close
	Undervoltage	180V-200V or close
	Off limit	0.5-1.2
	Harmonic voltage protection	1.0%-50% or close
	Harmonic current protection	2.0%-100% or close
	Phase-splitting compensation capacitor branches	0-7
	Three-splitting compensation capacitor branches	0-21
	Capacitor branches	Three times phase-splitting branches+ three branches ≤12
	Capacitor preset	0-999kvar/branch

■ Other sizes can be customized.

## 4. Installation Illustration

### 4.1 SY-JKW□□



## 5. Model List

Model	Branches	Active Circuits	Output mode	Communication interface	Dimension (L*W*H) mm	Size (length*width*depth)
SY-JKW BX-21BT	21	/	Voltages ratio output	Yes	138*138*65	Three-phase compensation
SY-JKW FX-21BT	21	/	Voltages ratio input	Yes	138*138*65	Hybrid compensation (three-phase & phase splitting)
SY-JKW BX-21AT	21	/	Switch value output	Yes	138*138*65	Three-phase compensation
SY-JKW FX-21AT	21	/	Switch value output	Yes	138*138*65	Hybrid compensation (three-phase & phase splitting)

## 6. Intelligent Hybrid Controller's Features

- Full-touching design, alternating current sampling; HMI 10-inch touchable screen; Rich data; comprehensive information; strong Human-computer experience.
- The system voltage, system current, cabinet current, active and reactive power, the total harmonic distortion of voltage and current, frequency, capacity input and switch displaying, IOT background-displaying various ultralimit protection alarm and other useful information can be showed.
- Possess three output controlling modes "static" "dynamic" "communication".
- Variable sampling data from system voltage and cabinet current, the function of controlling switch input and output can be much more comprehensive.
- Has abundant functions, such as background and module communication even in the static or dynamic state, which shows it more practical.



Intelligent Hybrid Controller

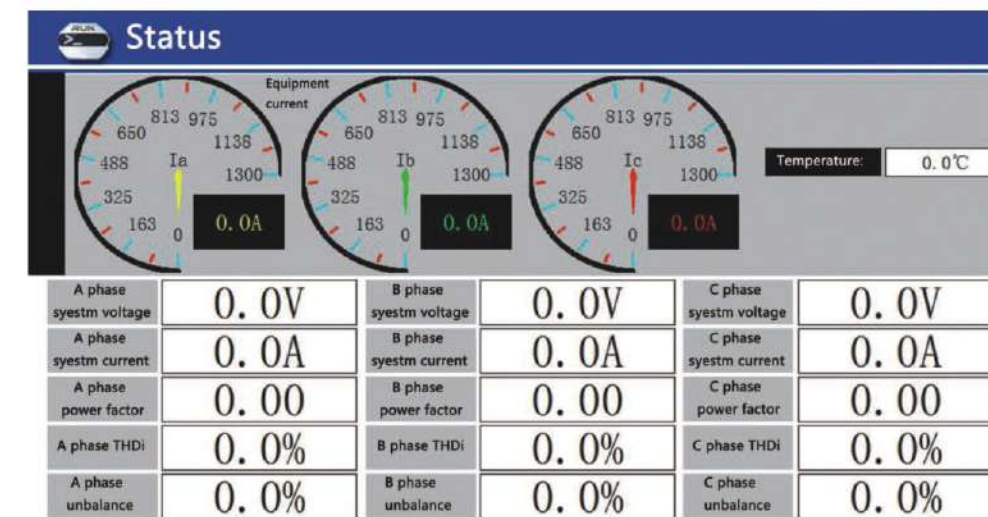
## 7. Operate Interface Of Intelligent Hybrid Controller



Power-up interface: A dopt inch touching screen, more humanistic and comprehensive

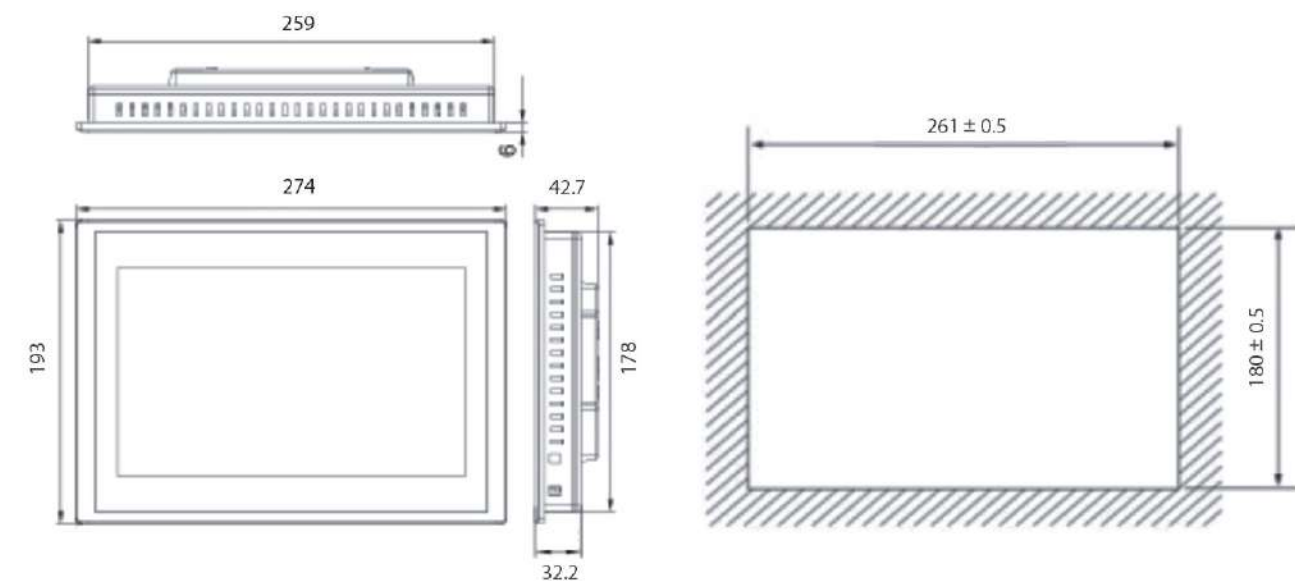


Entering into the main interface, user can operate it in the corresponding disk tools.



Powerful functions, below is the collected data from this controller, which can show how capacitor works.

## 8. The Installation Diagram Of Smart Hybrid Display Screen



■ Dimension size

■ Aperture opening size

# Compensation/Filter Groupwares



## 1. Model Illustration

TMLSYS□-480-33.5/7.0

- Matched Reactance ratio (%)
- (Kvar) Matched capacitor storage
- Nominal voltage(VAC): Total compensation  
Phase splitting compensation
- Enterprise code
- Model

## 2. Product Introduction

TMSLY, compensation/ filter module consists of SY power capacitor and filter reactor, for filtering and restraining the specific frequencies harmonics through the circuits. For example, series reactor, is mainly used for filtering harmonics. As for matching rated reactance ratio and capacitor voltage, depends on power system. Actually, the core technology of measuring a capacitor cabinet, is evidenced by the real match of capacitor and reactor, such as rated voltage of capacitor, temperature rising of reactor, three-phase balance, noises, which determines circuits quality and effects. With mismatching parameters between reactor and capacitor, this module possibly causes harmonics amplification, affects power quality severely. Hence, SY persists on unified companion standard, controlling parameters within a reasonable range; besides, SY provides clients for different thyristor switches to restrain harmonics relying on different occasions, especially in frequented switching occasions. Suggesting that choose SY capacitor, reactor, thyristor switch and power factor controlled to matched and used, not only maximize their advantages, but also avoid the phenomenon of different accessory manufactures making excuses by each other.

## 3. The Method Of Choosing Matched Capacitor And Reactor

### 3.1 The voltage of detuned reactor and capacitor

$$U = \frac{U_c}{1-\lambda} Q_c(1-\lambda)$$

U (VAC) - the unit of capacitor voltage  
 $U_c$ (VAC)-system voltage  
 $\lambda$  (%) -reacting ratio

For example: in the 400V system voltage which is detuned with 7% reactor, the rated voltage of capacitor should be chosen:  
 $U=(400/1-0.07) \times 1.1=473V$ , about 480V.

### 3.2 Capacitor compensation reactive-power convert for different voltage levels

$$U = \frac{U_1^2}{U_2^2} Q_c$$

$Q_1$ -the capacity of U1 voltage  
 $U_1$ -capacitor voltage  
 $Q_2$ -system output capacity  
 $U_2$ -capacitor voltage

For example: the reactor of 480vac-30kvar, with 440vac voltage, its ratio:  
 $Q=440 \times 440 / (480 \times 480) \times 30 = 25.2$ (kvar)

### 3.3 Reated capacity detuned with reactor

$$U = \frac{U_c^2}{U_s^2} Q_c(1-\lambda)$$

$Q_1$ -reated capacity detuned with reactor  
 $U_1$ -serial reactor rated voltage(VAC)  
 $Q_2$ -system output capacity  
 $U_2$ -system voltage (VAC)  
 $\lambda$  (%) -reacting ratio

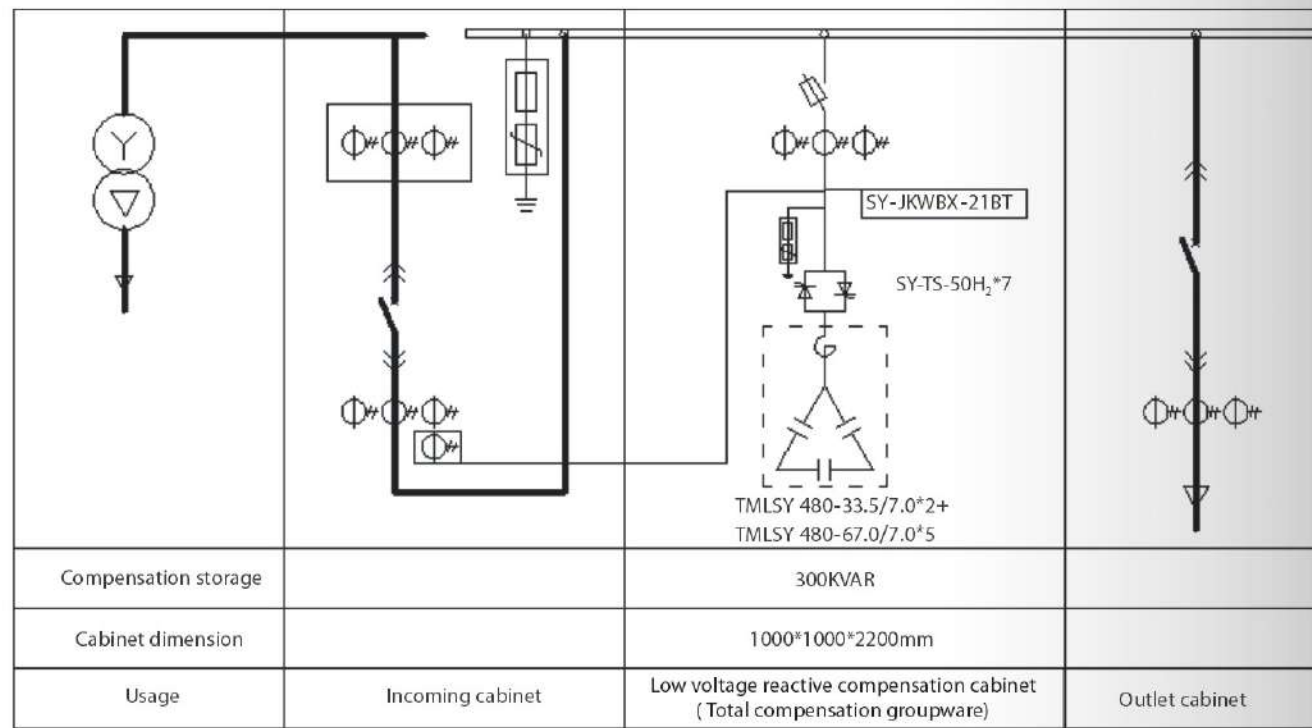
For example: in the capacitor of 400v system voltage and 30kvar output capacity, match with 7% series reactor, chose the capacitor of 480VAC voltage, the rated capacitor should be:  
 $Q=480 \times 480 / (400 \times 400) \times 30(1-7\%)=40.2$ kvar

## 4. Model List

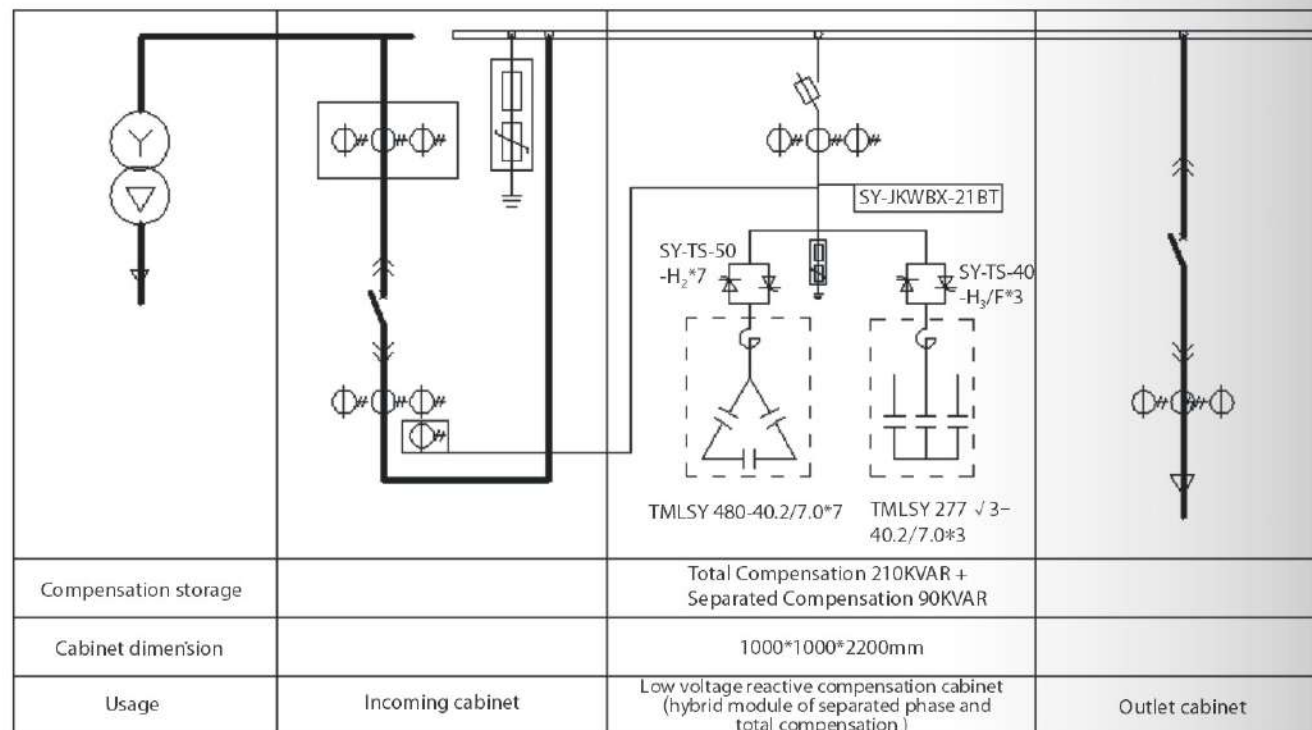
Model	System Output Voltage (400v)	Matched capacitor			Matched reactor			Remark
		Model	Dimension	Quantity	Model	Dimension	Quantity	
TMSLY 480-20.1/7.0	15.0	TMPOSY480-20.1-3	φ 96*240	1	LCSY 480-20.1/7.0	210x155x165	1	Adopted for 5th and 7th harmonics (matched with 7% detuned reactor)
TMSLY 480-30.0/7.0	22.4	TMPOSY480-30.0-3	φ 116*240	1	LCSY 480-30.0/7.0	230x175x185	1	
TMSLY 480-33.5/7.0	25.0	TMPOSY480-33.5-3	φ 116*285	1	LCSY 480-33.5/7.0	230x175x185	1	
TMSLY 480-40.2/7.0	30.0	TMPOSY480-40.2-3	φ 116*285	1	LCSY 480-40.2/7.0	230x190x185	1	
TMSLY 480-50/7.0	37.4	TMPOSY480-25-3	φ 106*240- M16	2	LCSY 480-50/7.0	270x185x200	1	
TMSLY 480-60.0/7.0	44.8	TMPOSY480-50-3	φ 116*240- M16	2	LCSY 480-60.0/7.0	285x190x210	1	
TMSLY 480-67.0/7.0	50.0	TMPOSY480-33.5-3	φ 116*285	2	LCSY 480-67.0/7.0	285x190x210	1	
TMSLY 480-80.4/7.0	60.0	TMPOSY480-40.2-3	φ 116*285	2	LCSY 480-80.4/7.0	285x210x260	1	
TMSLY 277 √ 3-33.5/7.0	25.0	TMPOSY277-11.2-1	φ 96*240- M16	3	LCSY 277 √ 3-33.5/7.0	135x170x150	3	Adopted for 3rd harmonics (matched with 13.5% detuned reactor)
TMSLY 227 √ 3-40.2/7.0	30.0	TMPOSY277-13.4-1	φ 106*240- M16	3	LCSY 227 √ 3-40.2/7.0	165x180x165	3	
TMSLY 525-22.4/13.5	15.0	TMPOSY525-22.4-3	φ 116*240- M16	1	LCSY 525-22.4/13.5	230x175x185	1	
TMSLY 525-30.0/13.5	20.0	TMPOSY525-30.0-3	φ 116*285	1	LCSY 525-30.0/13.5	270x190x210	1	
TMSLY 525-33.5/13.5	25.0	TMPOSY525-33.5-3	φ 116*285- M16	1	LCSY 525-33.5/13.5	285x190x210	1	
TMSLY 525-40/13.5	26.8	TMPOSY525-20-3	φ 106*240- M16	2	LCSY 525-40/13.5	285x190x210	1	
TMSLY 252-44.8/13.5	30.0	TMPOSY525-22.4-3	φ 116*240- M16	2	LCSY 252-44.8/13.5	285x200x260	1	
TMSLY 525-50/13.5	33.6	TMPOSY525-25-3	φ 116*240- M16	2	LCSY 525-50/13.5	285x200x260	1	
TMSLY 525-60/13.5	40.3	TMPOSY525-30-3	φ 116*285- M16	2	LCSY 525-60/13.5	285x210x260	1	
TMSLY 525-67.0/13.5	45.0	TMPOSY525-33.5-3	φ 116*285- M16	2	LCSY 525-67.0/13.5	285x210x260	1	

■ Other sizes can be customized.

### 5. Diagram



■ Compensation / Filter Groupware(Total Compensation)



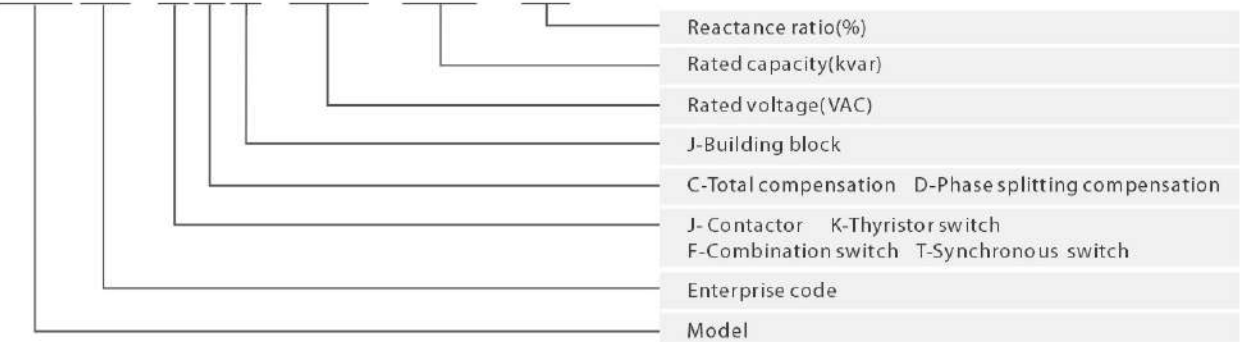
■ Compensation / Filter Groupware(Hybrid Compensation)

## Building Block Compensation / Filter Modules



### 1. Model Illustration

LSY □ -K C J - 480 - 33.5 / 7.0



## 2. Product Introduction

The emergence of module product is a great change for reactive power compensation and filter devices, as well as the mainstream of the future market and a service concept promotion LSY module unit is developed and produced by Sheng Ye Electric. All the accessories selection is calculated, designed, produced and tested precisely by R&D department. Compared with the traditional cabinet, modular structure cabinet has some advantages, such as easy to extend, convenient to install, better compact design, concise and nice layout; with the help of the safety guarantee modular structure, it can extend electric equipment lifespan. Protection measures are complete, such as overvoltage, under voltage, overheating, harmonic and other protections; product quality liability is clear only by Sheng Ye Electric, avoiding the phenomenon of different accessory manufactures making excuses by each other. Select Sheng Ye module product, enjoying the pre-sale, in sale and after-sale services. This is a unified and comprehensive service platform for consultants, complete device factories and end users.

## 3. Product Features

- High dynamic-switching speed; High compensation precision; It can operate even when there are several modules in parallels; Easy to install and convenient to maintain.
- Has voltage, current, temperature, harmonic and other automatic protection functions and matches with extra-low loss components.
- Building block construction, realize function customization and achieve reactive power compensation and filter device integration.

## 4. Technical Parameters

Electric safety	Insulation strength	2500VAC, 60s
	Protection grade	IP00
Work environment	Temperature	-40°C~55°C
	Humidity	≤ 90% (40°C)
	Pressure	86kPa-106kPa
Measuring error	Power supply Voltage	220V
	Current	≤ 0.5% (20%~120%Un)
	Temperature	≤ 1°C
	Power factor	± 0.01
Compensation error	Compensation error	≤ 75% (Minimum power capacity)
	Switching interval	> 10s
	Reactive capacity	Maximum 50kvar the maximum is 32
Filtering parameter	Connection unit	7% (other sizes can be customized)
	Reacting ratio	189Hz
	Tuning frequency	5th, 7th, 11th, 13th, 15th, 17th
Parameter setting	Harmonic frequencies	RS485 protocol
	RS485 protocol	MODBUS-RTU
Reliability	Baud rate	4800~38400bps
	Control accuracy	100%
	Switching allowed times	100000 times
	Capacitor attenuation rate	≤ 0.5%/per year
	Capacitor failure rate	≤ 69% (working for 60000hours)

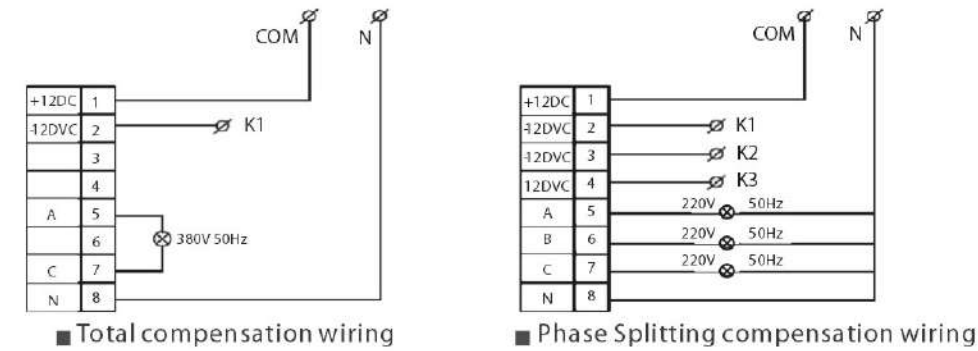
- Voluntary standard: UL810-2008, DL/T842-2003, IEC60831-2002, GB/T12747-2004, DL/T842-2003
- Standard: UL810-2008, DL/T842-2003, IEC60831-2002, GB/T12747-2004, DL/T842-2003 (other size can be customized)

## 5. Model List

Model	System voltage (V)	Compensation capacity (kvar)	Dimension (mm)	480V Output capacity (kvar)	Switching type
LSY-KCJ-480-33.5/7.0	400	25	450*155*420	33.5	Thyristor switch
LSY-KCJ-480-67.0/7.0	400	50	635*550*200	67	Thyristor switch
LSY-KDJ-277 √3-24.5/7.0	230 √3	18	450*155*420	24.5	Thyristor switch
LSY-JCJ-480-33.5/7.0	400	25	450*155*420	33.5	Contactar
LSY-JCJ-480-67.0/7.0	400	50	635*550*200	67	Contactar
LSY-JDJ-277 √3-24.5/7.0	230 √3	18	450*155*420	24.5	Contactar

Other sizes can be customized and designed as per requirement

## 6. Controlling Terminal Wiring Diagram: External Wiring Instruction As Below



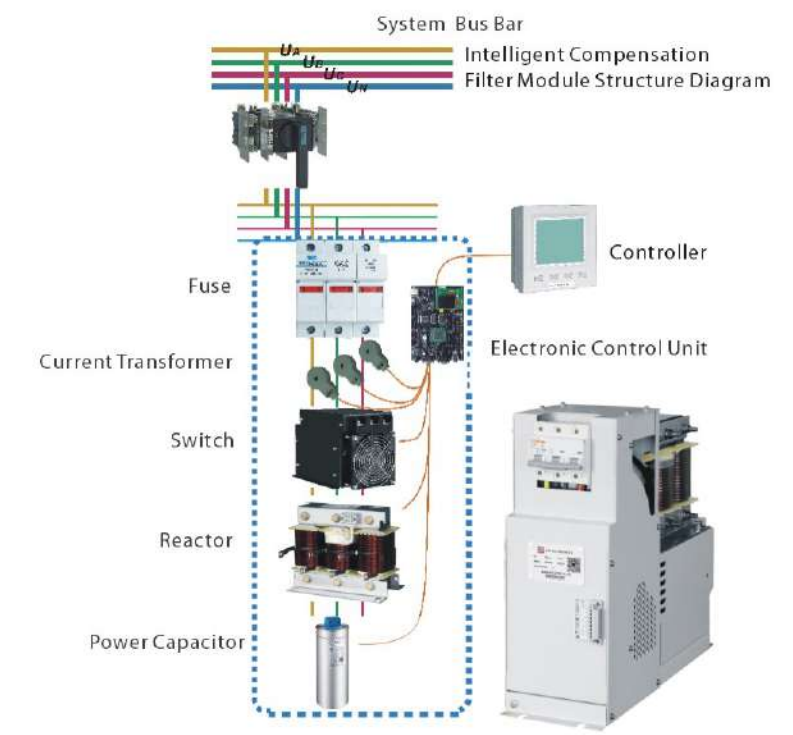
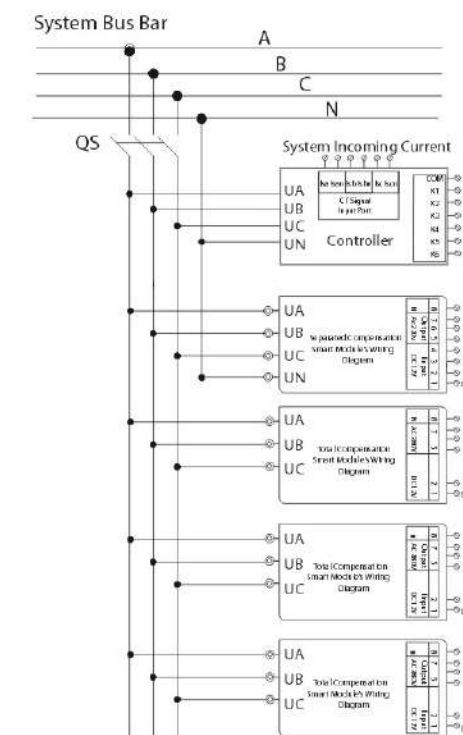
## 7. Total Compensation Module Wiring Terminal Instruction

Terminal instruction	Status	Instruction	Remarks
1/2/8	input	DC12V/N input	controlling signal input
3/4/6	blank	blank	blank
5/7	output	AC380V output	

## 8. Phase Splitting Compensation Module Wiring Terminal Instruction

Terminal instruction	Status	Instruction	Remarks
1/2/3/4	Input	DC12V/N Input	controlling signal input
5/6/7/8	Output	AC220V Output	switching signal output

- RS-485 communication interface A and B should be connecting with the product port A and B correspondingly.
- RS-485 network normally adopts terminal-matching bus structure and it doesn't support ring and star network. It's better to series connect with each junction with one bus and does not allow cross and short-circuit connection.
- RS-485 uses international and domestic standards communication cables: International cable standard 18awg; Chinese standard: RVVP1x2x0.5mm<sup>2</sup>.

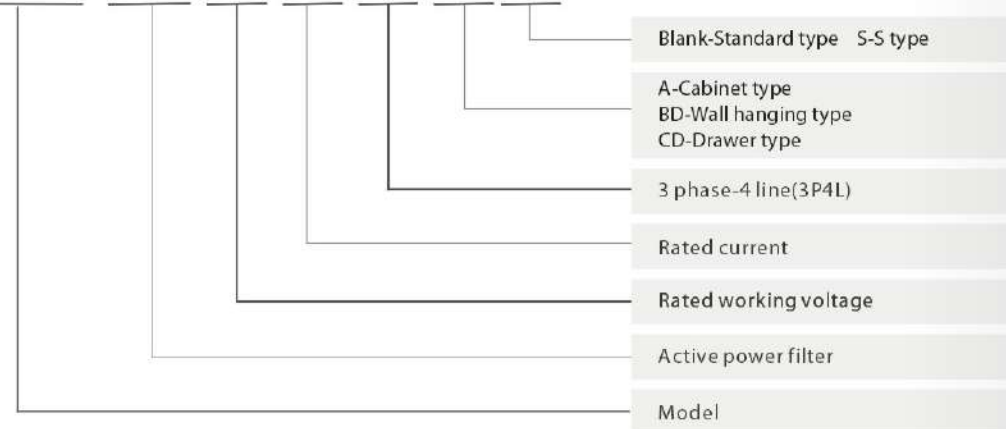


# Active Harmonic Filters (AHF)



## 1. Model Illustration

SYICD - APF - 0.4 / □ - 3P4L - □ □

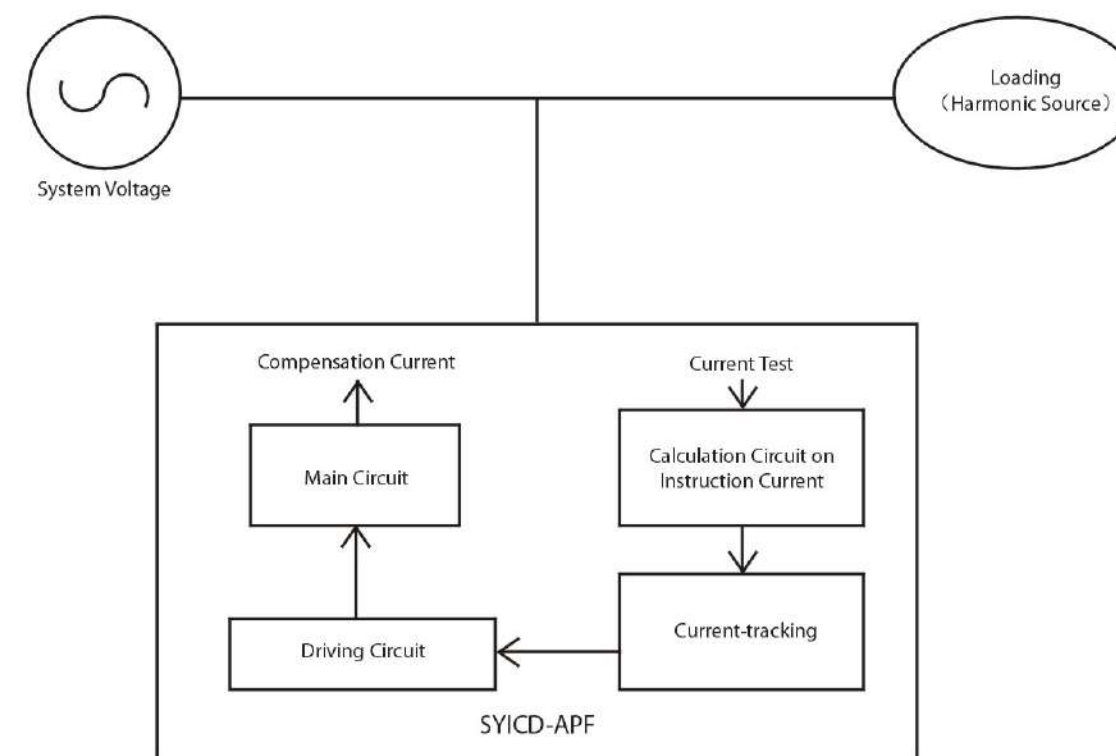


## 2. Product Introduction

SYICD- APF (Active Power Filter) is a new kind of electric device being used to restrain harmonics and reactive compensation, which can overcome those disadvantages of conventional harmonics suppression and reactive compensation from LC filter. It is available to provide compensation for the changeable harmonics and reactive power. Simultaneously, SYICD-APF, as the first-choice device to optimize power quality, adopted advanced controlling technology and obtained the realization of full-automatic control as well as the model experimental report and test report by authoritative agencies.

## 3. Working Principle

APF, as a new type device which is dedicated to eliminating electrical harmonics, is adopted modern power electronic technology and DSP Technology (digital signal processing technology) which is based on the high-speed DSP units. It mainly consists of two parts: calculating circuit in directive current and generating circuit in compensation current. Calculating circuit tests the current in full-time, and converts the analog current signal into the digital signal, sends it to DSP to process, separate harmonics from fundamental waves. Moreover, by means of PWM signal, APF sends driving pulses to the generating circuits, drives IGBT power modules to generate compensation current which is equal to the harmonic current but has the opposite polar into power network, to compensate or counteract the harmonic current so as to eliminate the power harmonic initiatively.



## 4. Product Features




- Extensive filter range: 2-50 harmonics controlled concurrently or compensate specifically.
- Comprehensive protection to improve the stability of application for consumers.
- Independent from the power grid and system impedance, the automatic inhibition to overloading and no risk about harmonic oscillation.
- Versatility: can be used into harmonics treatment, reactive compensation and three-phase unbalance concurrently.
- Adopt module design, easy to expend, simple and flexible to apply, convenient to install and maintain, can be also matched with other electric system.
- Rapid response time, harmonic compensation current full-response time is less than 10ms.



### 5. Technical Parameters

Technical Index	Specific parameter
Working voltage	380 ± 20%
Working frequency	50/60Hz
Wiring type	3P4L
Filter range	2~50 frequency
Filter efficiency	Available to 90%
Full-response time	< 10ms
Reactive compensation	Available
Target power factor setting	Can be set
Protection type	Short circuit, under voltage, over voltage, over current protection and so on.
Cooling way	Forced air cooling
Machine efficiency	≥97%
Noises	< 65dB
IP protection grade	IP20 (can be customized)
Working environment temperature	-5~40°C
Working environment humidity	90%RH, no condensation
Storage environment temperature	-40~70°C
Altitude above sea level	≤2000m; > 2000m, automatic de-rating 1%/100m
Installation type	Wall hanging type, drawer type, cabinet type
Installation environment	It should be indoor installation, no fire, no explosion, no chemical corrosion, no conductive dust and keep away from the vibration

### 6. Model List

	Model (cabinet)	Compensation current (A)	Dimension (W x D x H) mm
	SYICD-APF 0.4/50-3P4L-A	50A	800*1000*2200 (Custom-made is available)
	SYICD-APF 0.4/100-3P4L-A	100A	
	SYICD-APF 0.4/150-3P4L-A	150A	
	SYICD-APF 0.4/200-3P4L-A	200A	
	SYICD-APF 0.4/300-3P4L-A	300A	
SYICD-APF 0.4/400-3P4L-A	400A		
	Model (Wall hanging type)	Compensation current (A)	Dimension (W x D x H) mm
	SYICD-APF0.4/50-3P4L-BD	50A	Custom-made (details are provided in the manual)
	SYICD-APF0.4/100-3P4L-BD	100A	
SYICD-APF0.4/150-3P4L-BD	150A		
	Model (Drawer type)	Compensation current(A)	Dimension (W x D x H) mm
	SYICD-APF 0.4/50-3P4L-CD	50	440*575*200
	SYICD-APF 0.4/100-3P4L-CD	100	525*625*245
	SYICD-APF 0.4/150-3P4L-CD	150	550*670*248

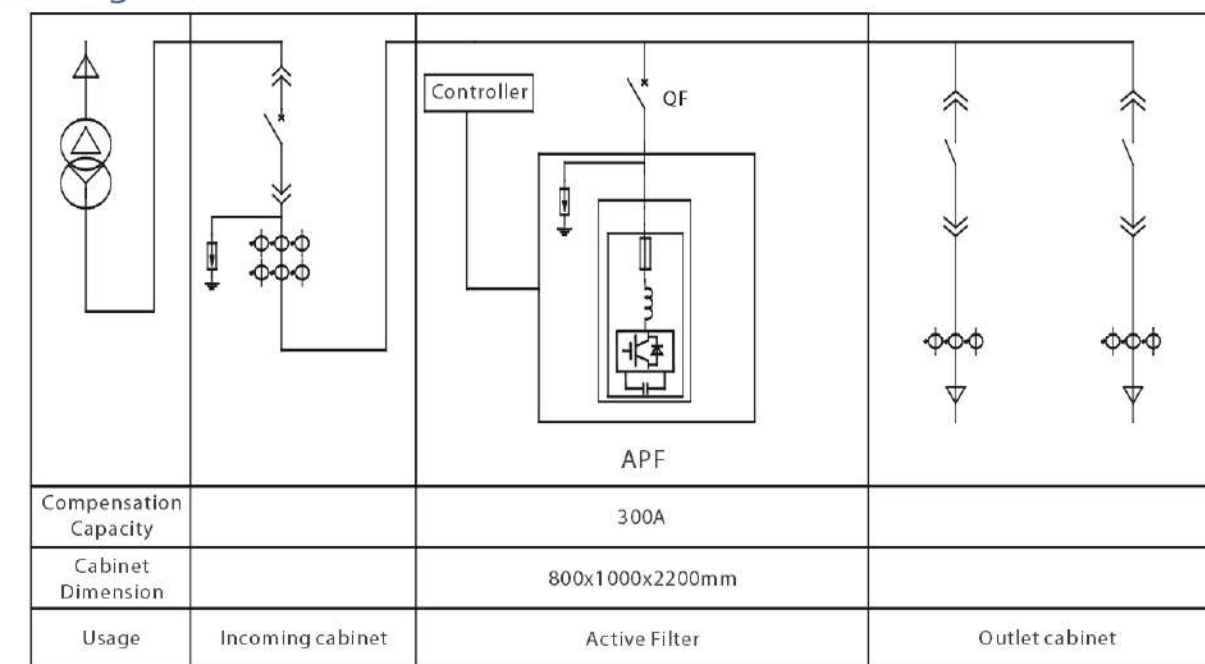
### 7. Different Industries' THDi Checklist

Industry type	THDi reference	Main harmonic source
Medical industry	15%	Nuclear magnetic resonance equipment, CT, X-ray machine, UPS
Steel industry	30%	Welding machine, cold and hot rolling mill
Petrochemical	35%	Oil pumps, water p, inverter, electric
Office building	15%	Stamping equipment, spot welding machine
Car manufacturing	30%	Crane, motor, VFD
Port, ship building	25%	VFD, motor
Coal industry	25%	VFD, internal mixer, adjustable speed motors
Rubber industry	25%	Central air conditioning, UPS
Public industry	25%	Switching power supply, high power UPS
Communication room	35%	Central air conditioning, energy saving lamps, elevators, computer

### 8. Nonlinear Load's THDi Checklist

Load type	THDi reference
Switching power supply	40%
Client elevator	30%
Variable frequency air conditioner	34%
Electronic ballast	18%
LED light	20%
Electric welding machine	25%-58%
Medical equipment	30%
Central air-conditioning	15%
Intermediate frequency induction furnace	35%
Three phase UPS	35%
Six pulse rectifier	30%
Six pulse rectifier	15%
Central air conditioning	15%

### 9. Diagram



■ Active Power Filter

# Static Var Generators (SVG)



## 1. Model Illustration

SYICD - SVG 0.4 / □ - 3P4L - □ □

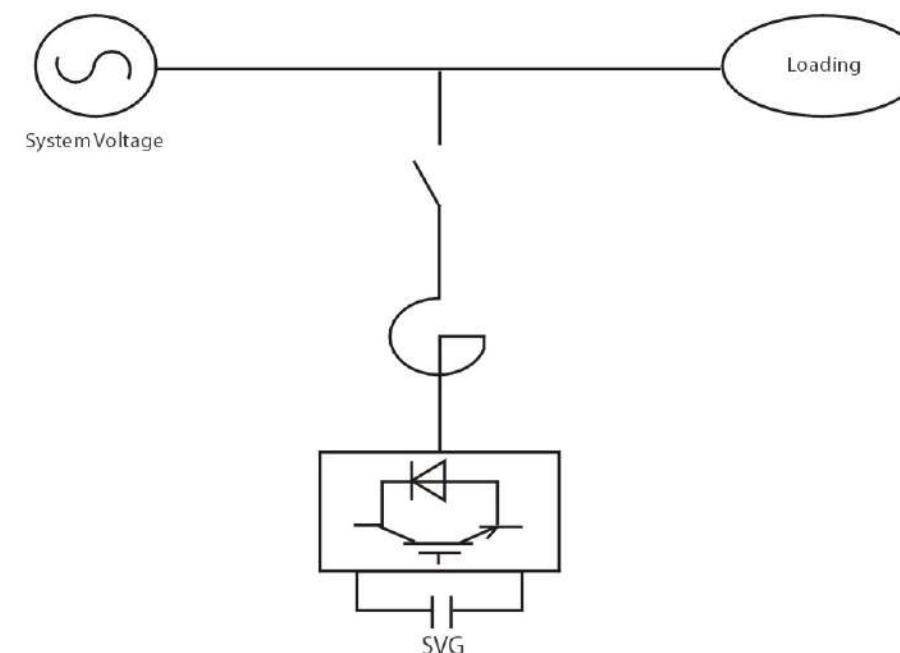
- Blank-Standard type S-S type
- A- Cabinet type  
B-Wall hanging type  
C-Drawer type
- Static Var Generator Wiring Mode:3P4L
- Rated compensation capacity
- Rated voltage
- Static Var Generator
- Model

## 2. Production Introduction

SYICD-SVG is a new type electronic device, adopted to improve low voltage dynamic compensation and three-phase unbalance compensation, which can overcome the disadvantages of conventional capacitor and reactor. It is available to provide compensation for the changeable reactive power. Simultaneously, as the first-choice device to optimize power quality, SYICD-SVG series products employ the advanced controlling technology to realize automatic control, which has obtained model experimental report and testing report from domestic authoritative agencies.

## 3. Working Principle

SVG, as a new type device which is dedicated to eliminating electrical harmonics, is adopted modern power electronic technology and DSP Technology (digital signal processing technology) which is based on the high-speed DSP units. It mainly consists of two parts: calculating circuit in directive current and generating circuit in compensation current. Calculating circuit tests the current in full-time, and converts the analog current signal into the digital signal, sends it to DSP to process, separates harmonics from fundamental waves, controls PWM signal generator to satisfy rated reactive compensation current basing on the setting value, output driving pulse to compensation current, drives IGBT power module, compensate system reactive current and improves power factor.



## 4. Product Features

- Intelligent control, maintenance-free, no attended.
- Adopt module design, easy to expend, simple and flexible to apply, convenient to maintain, can also be matched with other electronic system;
- Stable compensation capacity, efficiently maintain the system voltage without any over or under voltage;
- As the converter basing on IGBT technology, SVG is safe and stable enough to suppress harmonics and oscillations.
- Versatility: reactive power compensation and three-phase unbalance can be held simultaneously;
- Extensive compensation range, regulate optionally and switch quickly from capacitor to reactor;
- Fast response speed, reactive compensation response time is less than 10m/s

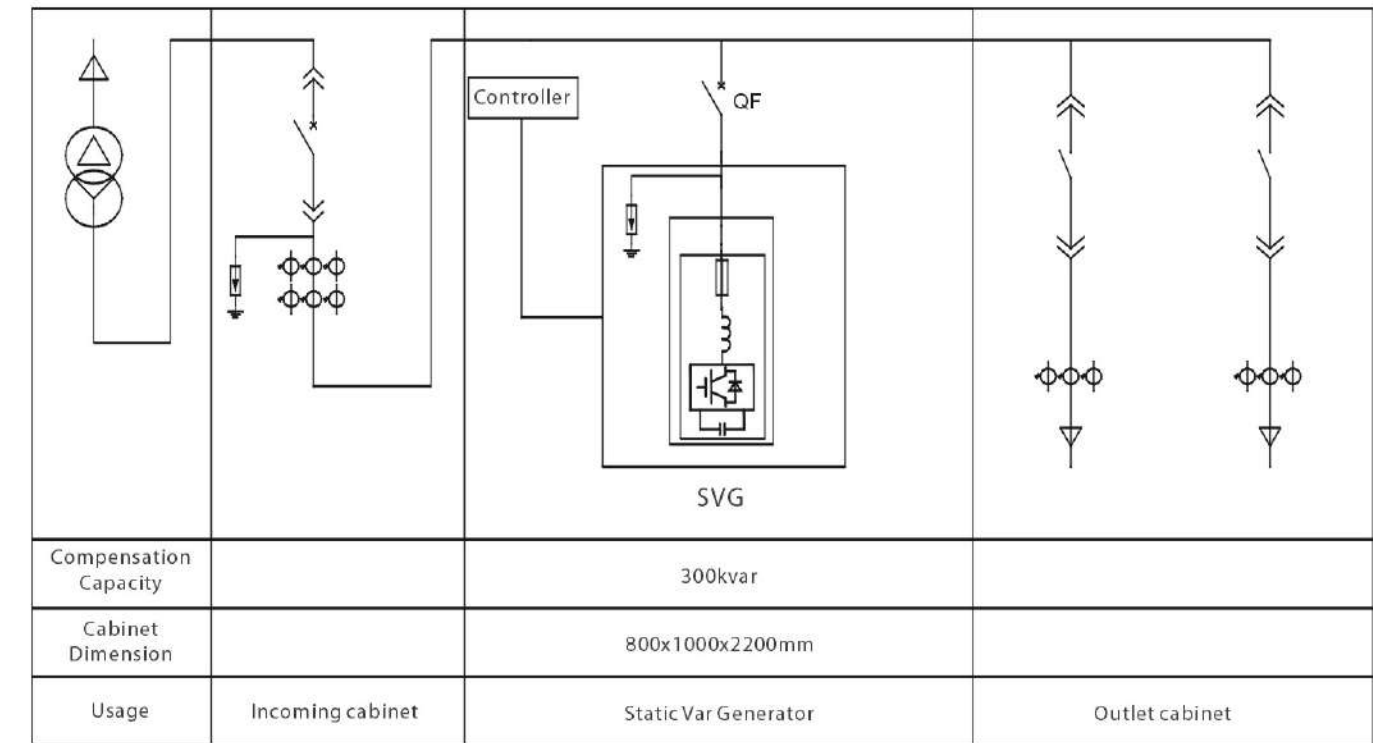
### 5. Technical Parameters

Index	Specific parameter
Working voltage	380V ± 20%
Working frequency	50HZ/60Hz
Wiring method	3P4L
Target power factor	Can be set, -1~1
Reactive compensation method	Dynamic continuously and automatically regulate
Full-response time	< 10ms
Three-phase unbalance compensation	Support
Filter function	Can be chose and matched, compensation frequencies is from 2~13
Protection type	Overvoltage, under voltage, short circuit, over current protection and so on
Cooling mode	Forced air cooling
Total machine efficiency	≥ 97%
Noise	< 65dB
Working environment temperature	-5℃~40℃
Working environment humidity	90% RH, no condensation
Installation environment temperature	-40~70℃
Altitude above sea level	≤ 2000m; > 2000m, automatic derating 1%/ 100m
Installation method	Wall hanging type, cabinet type, drawer type
Installation environment	In door installation, no fire, explosion, chemical corrosion, conductive dust and keepaway from the vibration

### 6. Model List

Model(Cabinet type)	Compensation current(kvar)	Dimension (W x D x H) mm
SYICD-SVG 0.4/50-3P4L-A	50	800*1000*2200 (customized is available)
SYICD-SVG 0.4/100-3P4L-A	100	
SYICD-SVG 0.4/200-3P4L-A	200	
SYICD-SVG 0.4/300-3P4L-A	300	
SYICD-SVG 0.4/400-3P4L-A	400	
Model(Wall hanging type)	Compensation current(kvar)	Dimension (W x D x H) mm
SYICD-SVG 0.4/50-3P4L-BD	50	Customized (details are provided in the manual)
SYICD-SVG 0.4/75-3P4L-BD	75	
SYICD-SVG 0.4/100-3P4L-BD	100	
Model(Drawer type)	Compensation current(kvar)	Dimension (W x D x H) mm
SYICD-SVG 0.4/35-3P4L-CD	50	440*575*200
SYICD-SVG 0.4/75-3P4L-CD	75	525*630*245
SYICD-SVG 0.4/100-3P4L-CD	100	600*670*248

### 7. Technical Parameter

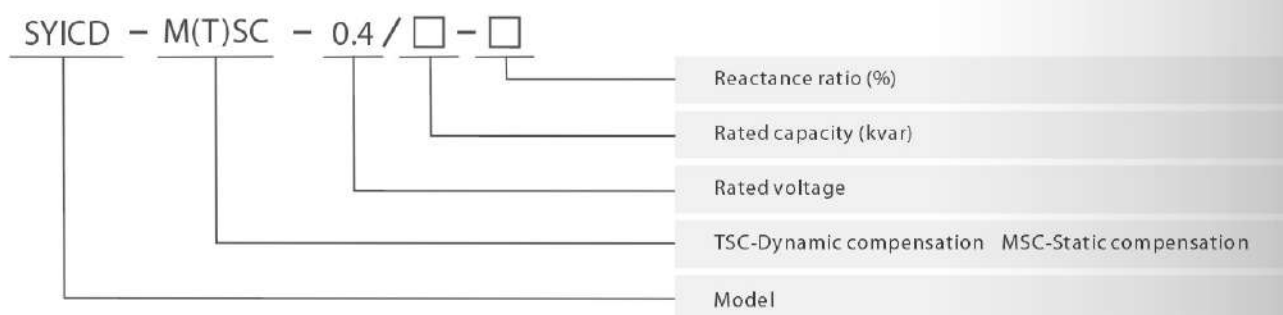


■ Static Var Generator(SVG)

# Mechanical/Thyristor Switch Capacitor Bank (MSC/TSC)



## 1.Model Illustration



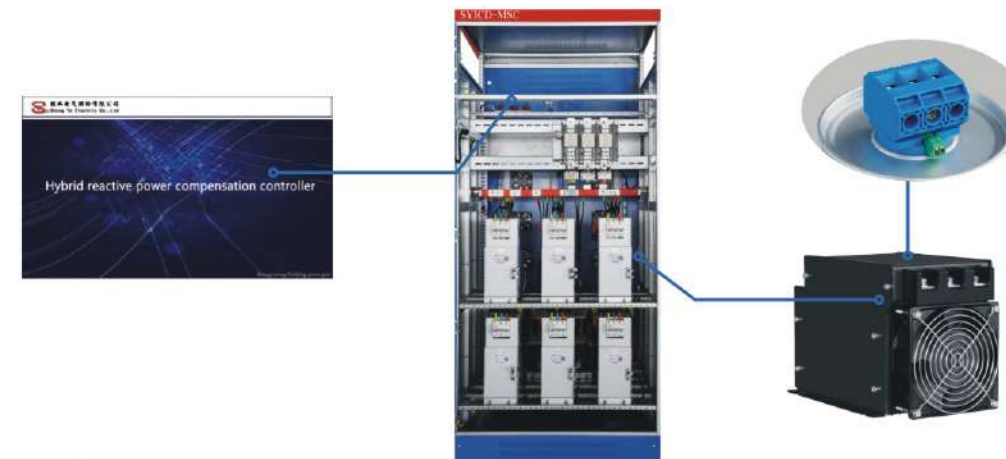
## 2.Product Introduction

The non-linear load, such as rectifier, converter and switch powering supply, these electronic devices are used extensively. Harmonic, as one of the most factors to affect power quality, when being large, it can damage electrical plant directly, especially power capacity and switch, produce harmonic oscillation, burnt distribution room and damage transformer, which makes users inconvenient and power factors reduced. In order to solve this problem, besides series filter reactor with conventional capacitor to absorb a portion of harmonics, SY compensation power filter improve temperature-control function, to greatly increase its longevity.

## 3.Production Features

Super intelligent controlling system:

- 10-inch LCD touching monitor create a real digital experience.
- Voltage ratio, switch and digital communication these three switching signals as well as 485 communication function.
- Comprehensive collection of these data: capacity, operating current, temperature, conditions, switching times and total input time from every branch.
- Show system voltage, current and temperature
- Achieve single-node communication and upload the operating information of every electronic branch to background.
- Intelligent module design, install over-temperature protection in the core devices, it can monitor, regulate automatically, realize the online-offline service of power monitoring network traffic.
- Dynamic switch, optical isolation, strong anti-interference.



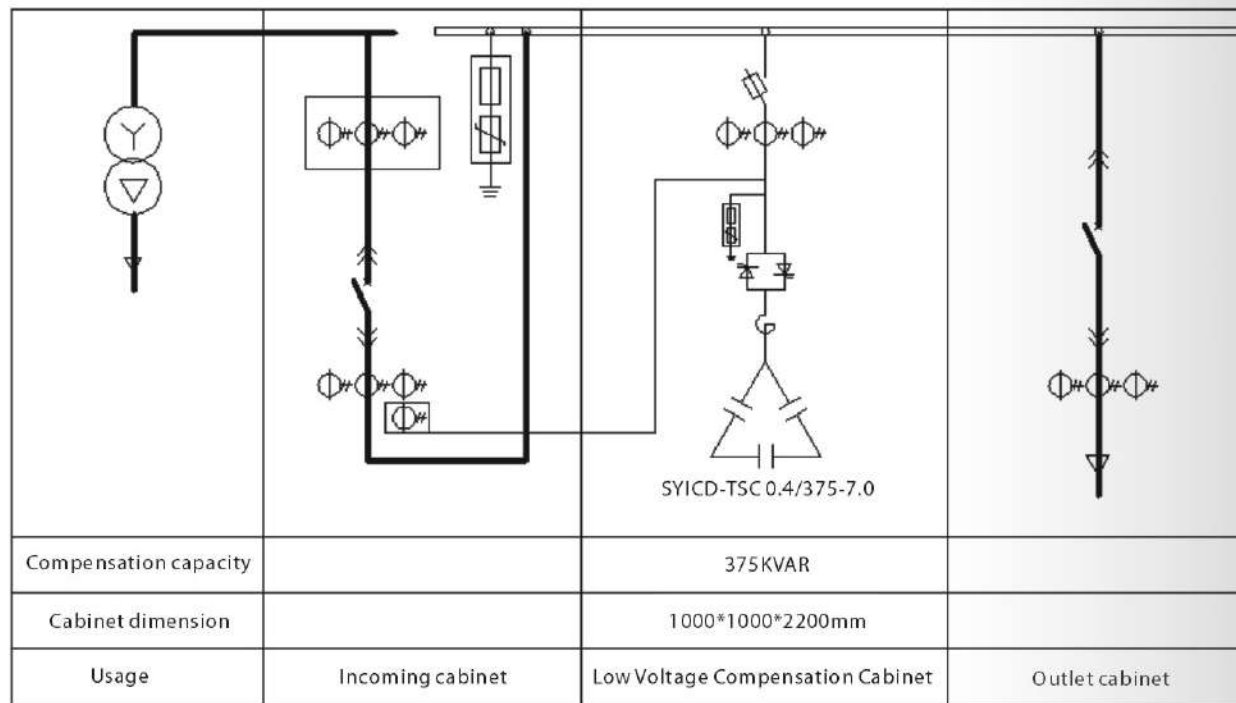
## 4.Technical Parameters

Electrical parameters	Electrical parameters	AC380V ± 10%
	Compensation capacity	67~574kvar
	Work frequency	50HZ
	Response time	Thyristor ≤ 20ms, synchronous switch ≤ 1s, AC contactor ≤ 3s
	Overload capacity	Voltage overload 1.1 times, current overload 1.3 times
	Target power factor	0.8~1.0 (can be set)
Control characteristics	Compensation type	Total compensation, phase splitting compensation and hybrid compensation are optional.
	Control branches	1~21 branches
	Control type	Manual and automatic switching modes
	Switching algorithm	Cycle switching and code switching
	Protection function	Over voltage/ under voltage/ phase loss/ short circuit etc
	Protection grade	IP30
Structural characteristics	Color	RAL7035 (can be customized)
	Installation way	Indoor installation
Environmental condition	Environment temperature	-5°C~40°C
	Humidity	When up to +40°C, ≤ 90%
	Height above sea level	≤ 2000m (need to be customized when exceed)

### 5.Model List

No.	Transformer capacity (KVA)	System voltage (KV)	Model	Reactive Compensation current(A)	Compensation capacity (kvar)	Cabinet quantity	DimensionWidth* depth*height(mm)
1	315	0.4	SYICD-TSC0.4/100-7.0	145	100	1	800*1000*2200
2	400	0.4	SYICD-TSC0.4/125-7.0	181	125	1	800*1000*2200
3	500	0.4	SYICD-TSC0.4/150-7.0	217	150	1	800*1000*2200
4	630	0.4	SYICD-TSC0.4/175-7.0	253	175	1	800*1000*2200
5	800	0.4	SYICD-TSC0.4/250-7.0	361	250	1	800*1000*2200
6	1000	0.4	SYICD-TSC0.4/300-7.0	434	300	1	1000*1000*2200
7	1250	0.4	SYICD-TSC0.4/375-7.0	542	375	1	1000*1000*2200
8	1600	0.4	SYICD-TSC0.4/475-7.0	686	475	1	1000*1000*2200
9	2000	0.4	SYICD-TSC0.4/300-7.0	434	300	2	1000*1000*2200
10	2500	0.4	SYICD-TSC0.4/375-7.0	542	375	2	1000*1000*2200

### 6.Diagram

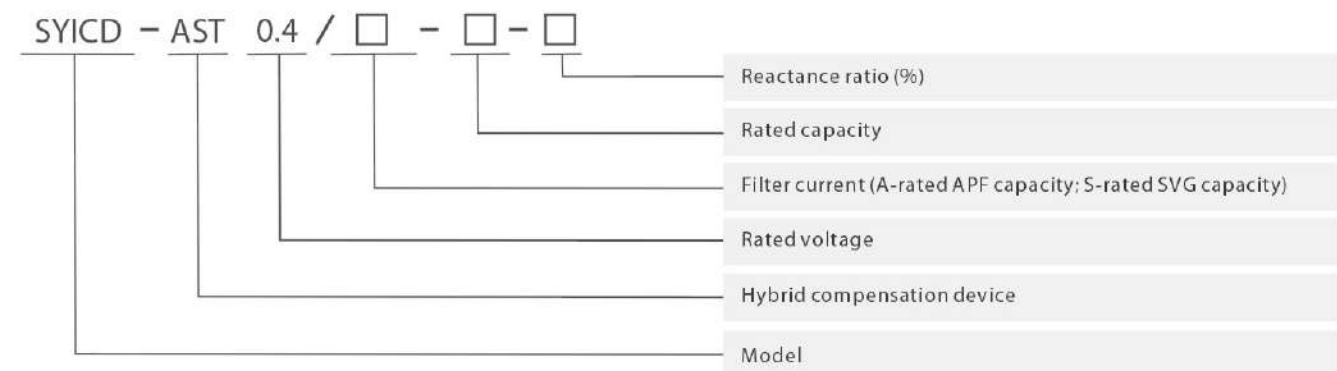


■ Thyristor Switched Cabinet (TSC)

## Intelligent Power Quality Treatment Devices (AST)



### 1.Model Illustration



## 2.Product Introduction

Based on the development of IOT, SY invented Intelligent Power Quality Comprehensive Treatment Device, which can solve low power quality one-time: complete realization of reactive power, harmonic and active three-phase unbalance compensation function; can realize function assignment automatically basing on the operation, without any alteration; besides, can make precise harmonic filter treatment and rectify active three-phase unbalance, to realize comprehensive treatment on power quality.

## 3.Working Principle

- Precise and rapid compensation; accurate harmonic treatment; rectify three-phase unbalance intelligent control
- Intelligent communication of overall unit, matched with the function of background or remote monitoring, network interface, providing RS-485, GPRS and WLAN interface as well as PC service platform.
- Overload, over current, over temperature, over or under voltage, short circuit, phase loss and some other protecting function.
- No attended, can self-test and self-repair.
- The cabinet configured with 10-inch touching screen, monitor how every module operates.
- The touchable screen can show the number of output current and switching, users can real-time trace and analyze its situation to make a warning plan.

## 4.Application Range

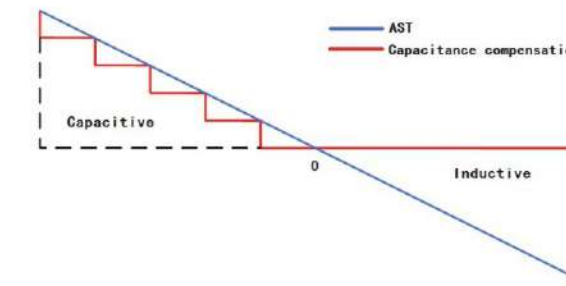
- Occasions of frequent voltage vibration (such as lifting and punching machine)
- Occasions which have high demands to power quality (such as hospital, data center and bank)
- Occasions which need reactive and harmonic compensation (large plant and factories, skyscrapers and municipal engineering and so on.)

## 5.Technical Parameters

Technical data	Specific parameter/requirement
Working voltage	380V ± 15%
Working frequency	50Hz
Working environment temperature	-5~40℃
Working environment humidity	≤90%RH, no condensation
Height above sea level	≤2000m, 2000m-3000m derating 1%/100m
Installation and operation environment	Indoor installation, no fire, no explosion, chemical corrosion, conductive dust and keep away from the vibration
Harmonic range	2-50 frequencies
Target power factor of reactive compensation	Can be set, PF > 0.95
Three-phase unbalance compensation functions	Support for three-phase unbalance compensation
Human-machine interface	Standard matched with 10-inch touchable screen and human-machine interface
Dilation way	Module design, support multi modules dilation in series
Communication way	CIRS-485 electric communication
Protocol	MODBUS
Display function	Power quality parameters, internal unit parameters and so on

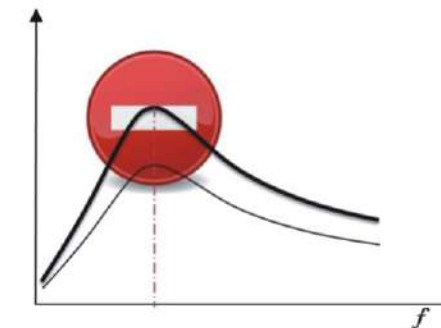
## 6.Product Features

### No.1- High Accuracy Linear- compensation Technology



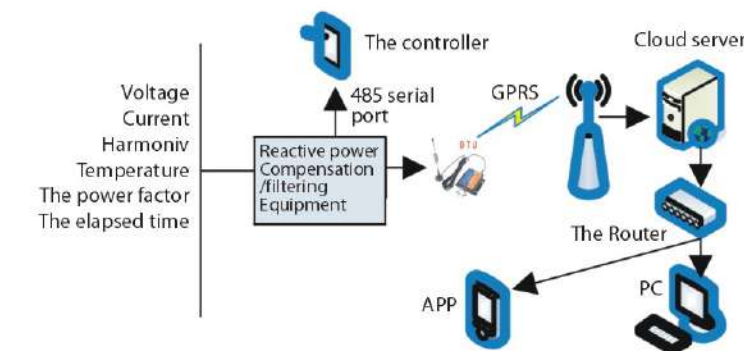
**Compensation effect**  
 PF0.99 grade-continuous reactive compensation accuracy  
 The compensation range of capacity load - x~1  
**Stability**  
 Compensation in real-time, full response time is less than 10ms  
 Dynamic response time is less than 50us  
 No over-compensation, under compensation and harmonic oscillation

### No.2- Safe Mixed Compensation Technology with No Harmonic Oscillation



- Our products are optimized, especially in output, monitoring system current and voltage in real-time, regulating output when needed, eliminating the harmonic oscillation which is caused of the impedance changes in the low voltage system.
- Capacitor, reactor, dynamic compensation module, controller and switch, they all choose those capacitors whose parameters are strict and precise.

### No.3- Internet + Cloud Service Communication Background System



- Based on Alibaba, products provide a long-term stable service for customers;
- Relying on the communication network, the flexible and convenient monitoring system helps customers saving costs.
- The realization of the synchronization of data sharing between PC and Mobile, the system operations between the interface and Mobile.

### No.4- Intelligent Controller

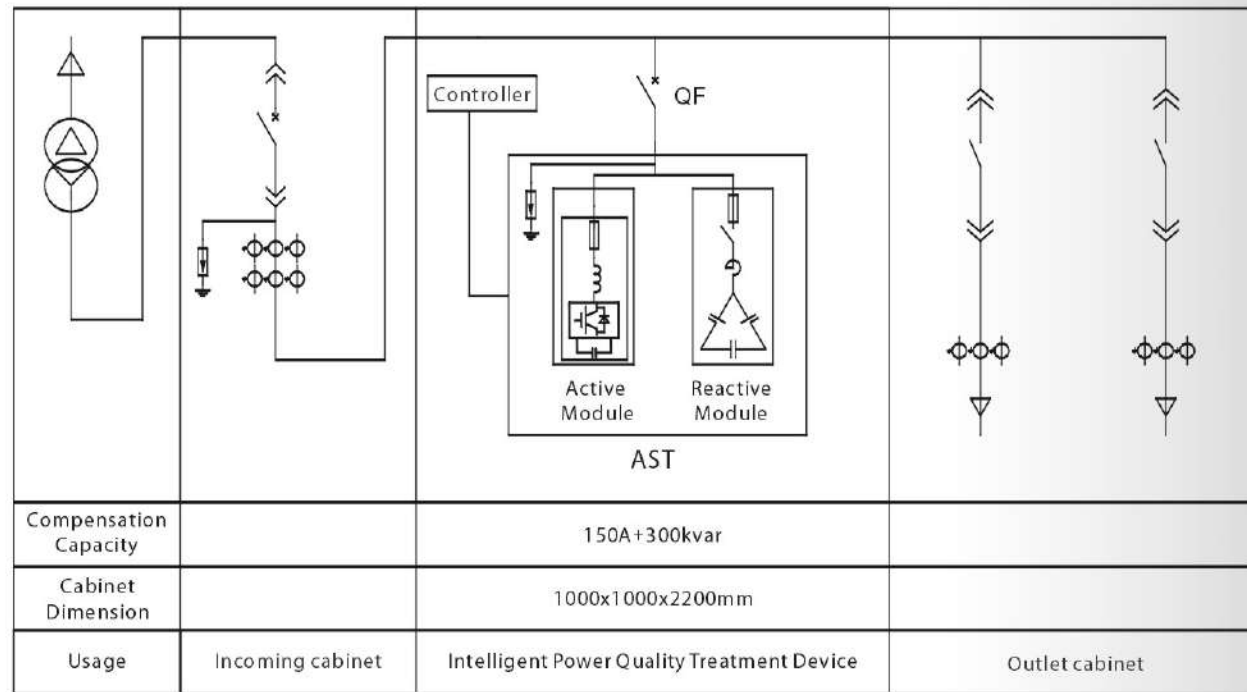


Through the powerful intelligent controller, help completing real-time data collection and historical data storage, providing an electrical environment that can be tracked and traced back, offering power quality analysis and data-support to customers, beside it can provide efficiency assessment and some other services.

### 7. Model List

No.	Transformer capacity (KVA)	System voltage (KV)	Model	Reactive Compensation current(A)	Compensation capacity (kvar)	Cabinet quantity	Dimension Width*depth*height (mm)
1	315	0.4	SYICD-AST0.4/50+100	50	100	1	800*1000*2200
2	400	0.4	SYICD-AST0.4/50+125	50	125	1	800*1000*2200
3	500	0.4	SYICD-AST0.4/75+150	75	150	1	800*1000*2200
4	630	0.4	SYICD-AST0.4/100+175	100	175	1	800*1000*2200
5	800	0.4	SYICD-AST0.4/100+200	100	250	1	800*1000*2200
6	1000	0.4	SYICD-AST0.4/150+300	150	300	1	1000*1000*2200
7	1250	0.4	SYICD-AST0.4/150+375	150	375	1	1000*1000*2200
8	1600	0.4	SYICD-AST0.4/100+250	100	475	1	800*1000*2200
9	2000	0.4	SYICD-AST0.4/150+300	150	300	2	1000*1000*2200
10	2500	0.4	SYICD-AST0.4/150+375	150	375	2	1000*1000*2200

### 8. Diagram



■ Power Quality Solution Device(AST)

## Projects and Achievements



Data Center

Tianjin Branch of China Telecom  
 Chinese Academy of Sciences Super Cloud Computing  
 Beijing-Tianjin-Hebei Data Center  
 Beijing Ruiyun Cloud Computing Center



Petrochemical Industry

China National Petroleum Corporation Harbin Petrochemical Company  
 China National Petroleum Corporation Eastern Pipeline  
 Sino - Burmese Gas Pipeline Project  
 West-East Gas Transmission Project - Duwu Project



Medical Industry

General Electric CE Medical Project - Tianjin Project  
 Shenzhen Futian People's Hospital  
 Shenzhen University Hospital



Factory Industries

Hunan University High-tech Industry Park  
 Beijing Capital Airlines No.2 Mechanical Distribution  
 Maoming Petrochemical Manufacturing Co., Ltd



Architectural Engineering

Central Party School of CPC  
 Beijing Public Security Bureau, Fire Department  
 GDSC (Guangdong Science Center)  
 Shenzhen Liantang Port  
 Walmart in Wuzhou Zhengda Park



Metallurgy, Mining and Smelting Industry

DRC Copper Process Company  
 Sino - Kazakhstan - Khorgos Project  
 Capital Steel - Peru Project



Watering and Dewatering Projects

Beijing Drainage Pumping Station  
 Beijing Qingshui River Water Recycling Plant  
 Jiangxi Province Sewage Treatment Plant



Traffic and Transportation

Shenzhen Metro Line 9 & Line 4  
 Aviation Industry Corp. of China  
 Air China - Beijing Base  
 Ethiopia Railway Project



Shipping and Automobile Manufacturing Industries

FAW - Truck Plant  
 SVW Manufacturing Plant  
 Great Wall Motor Co., Ltd  
 GSI (Guangzhou Shipyard International Co. Ltd)