Catalog of
Power Quality Solutions

YDX-GM
Anti-harmonic
Intelligent Capacitor

YDK-APF/SVG
Active Power Filter
Static Var Generator

YD-868
Intelligent Capacitor

Yidek Power
Cloud Platform

YDK-SVGH
High Voltage SVG

JWK5C
Power Factor
Controller

YDKTBBZ
High-Voltage
Smart Capacitor Bank

Cj19
Switch Capacitor
Contactor

Pd354
Multifunction
Power Meter

CONTENTS

CREAT VALUE FOR CUSTOMERS :

● **POWER FACTOR CORRECTION**
  Traditional Compensation Components
  Intelligent Power Capacitor
  Static Var Generator (SVG) & Tuned SVG (TSVG)

● **ELECTRIC POWER HARMONIC MANAGE**
  High-Frequency Harmonic Protector
  Active Power Harmonic Filter (APF)
  Detuned Filter & Compensation Cabinet

● **CURRENT&VOLTAGE MANAGEMENT**
  3-Phase Unbalance Management Device (SPC)
  Phase Changeover Switch
  Terminal Under-Voltage Management Device (AVR)

● **POWER PARAMETER&ENERGY MEASUREMENT**
  Intelligent Multifunction Power Meter
  Multi-User Energy Metering Device
  Electric Energy Management System (EMS)

PRODUCT SELECTION

PWOER GRID SITUATION

PRODUCT SELECTION

POWER SUPPLY 0.4kv

THDu < 3% → YD SERIES INTELLIGENT POWER CAPACITOR

THDu >3% → Loads Power Change Frequency → Change Smoothly: YDX Series Anti-Harmonic Intelligent Capacitor → THDu<10% Select 7% A-H Capacitor / THDu>10% Select 14% A-H Capacitor

Dramatically Change YDK-SVG Static Var Generator

Severe Harmonic Pollution → YDK-APF Active Power Filter

3-Phase Unbalance Current → YDK-SPC Intelligent Power Quality Improvement Device

Grid-Ending Under-Voltage → YDK-AVR Grid-Ending Under-Voltage Management Device

ZHEJIANG YIDEK TECHNOLOGY CO.,LTD

AAA   CNAS   CCC   CE

POWER FACTOR CORRECTION
IMPROVE POWER FACTOR, REDUCE ELECTRIC CHARGE, IMPROVE POWER EFFICIENCY.

WHY TO INCREASE POWER FACTOR

Reduce electricity costs
Reasonable management of reactive power consumption brings economic benefits to power management.
Basing on the energy billing mode of power factor assessment index, power grid company encourages users to reduce the consumption of reactive energy to a minimum.
By installing power factor improvement capacitors in electrical systems, consumers can reduce reactive energy consumption to less than the value of contracts with power supply departments to reduce electricity bills.

Reduce investment and consumption losses on electrical equipment
Increasing the power factor can use less-capacity transformers, switchgear and cables, etc. It also reduces power loss and voltage drop in electrical systems.
Higher power factors can optimize the components of an electrical system. Increasing the power factor can avoid equipments overloading , but to achieve the best results, the compensation position should be as close as possible to the electrical equipment.

Reduced cable size
The following table shows how the cable size changes when the same active power is transmitted and the power factor is reduced from 1 to 0.4.

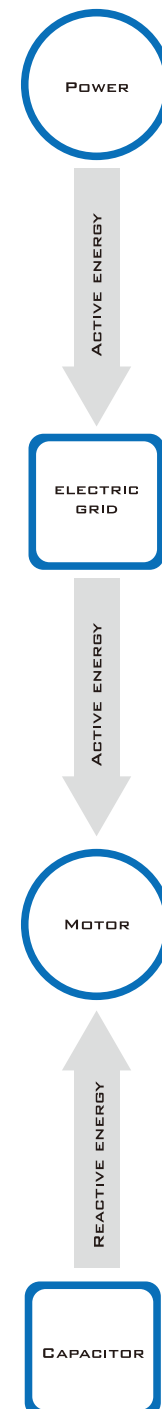| When the power factor value decrease from 1 to 0.4, the cable core cross-sectional area increase gradually.				
Cable core cross-sectional area amplification coefficient	1	1.25	1.67	2.5
cosφ	1	0.8	0.6	0.4

Reduce cable loss
The loss in the cable is directly proportional to the square of the current, which can be measured with an energy meter in the electrical system.
For example, if the total current in the wire is reduced by 10%, the loss will be reduced by nearly 20%.

Reduce voltage drop
Due to improv power factor, capacitors can reduce or even eliminate inductive reactive currents in upstream conductors, thereby reducing or eliminating voltage drops.
（Over-compensation will increase the voltage on the capacitor）

Increase available power
By increasing the power factor of the transformer-powered load and reducing the transformer current, the transformer can drive more loads.

Power
↓
ACTIVE ENERGY
↓
ELECTRIC GRID
↓
ACTIVE ENERGY
↓
Motor
↑
REACTIVE ENERGY
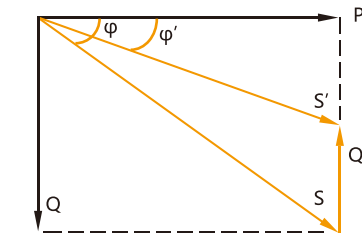↑
Capacitor

DETERMINE SOLUTION

Selecting a power factor correction device(reactive power compensation cabinet) consisting of power capacitors can follow these four steps:
1. Calculate the required reactive power
2. Select the compensation method
*Total(Integrated)
*Branch
*Local(For single load)
3. Select compensation type
*Fixed Value
*Automatic
4. Consider working environment and harmonics

Step 1 Calculate the required reactive power value

Calculation purpose is for making sure the reacvtive power valueQc(kVAR) of required compensation, improving power factor cosφ, and reducing apparent power S.
When φ'<φ, we can see cosφ'>cosφ and tgφ'<tgφ.

From last diagram, we can know how to calculate Qc. Qc=P×(tgφ－tgφ')
Qc: Capacity of capacitor bank
P: Active power
tgφ: Before compensating, φ tangent value
tgφ': After compensating, φ tangent value

Reactive power capacity calculate table

Before Compensating								
tgφ'	0.75	0.62	0.48	0.4	0.33	0.23	0.00
cosφ'	0.80	0.85	0.90	0.925	0.95	0.975	1.000
cosφ	tgφ'							
1.73	0.5	0.98	1.11	1.25	1.32	1.40	1.50	1.73
1.02	0.70	0.27	0.40	0.54	0.61	0.69	0.79	1.02
0.96	0.72	0.21	0.34	0.48	0.55	0.64	0.74	0.96
0.91	0.74	0.16	0.29	0.42	0.50	0.58	0.68	0.91
0.86	0.76	0.11	0.24	0.37	0.44	0.53	0.63	0.86
0.80	0.78	0.05	0.18	0.32	0.39	0.47	0.57	0.80
0.75	0.80		0.13	0.27	0.34	0.42	0.52	0.75
0.70	0.82		0.08	0.21	0.29	0.37	0.47	0.70
0.65	0.84		0.03	0.16	0.24	0.32	0.42	0.65
0.59	0.86			0.11	0.18	0.26	0.37	0.59
0.54	0.88			0.06	0.13	0.21	0.31	0.54
0.48	0.90				0.07	0.16	0.26	0.48

Example:
A 1000 kW motor, cosφ=0.8(tgφ=0.75).
For improving cosφ to 0.95, need to install a reactive power compensation device.
Its capacity is Qc=1000×0.42=420 kVar.

DETERMINE SOLUTION

Step 2: Select Compensation Method

Installation position of low-voltage power capacitor decides the compensation method.

The compensation method can be centralized compensation, branch compensation and local compensation, or branch and local compensation used together.

In reality, technical and economic factors will restrict the choice of compensation methods.

The connection position of the capacitor bank in the power distribution network is determined by the following factors.

*Compensation objects(reduce reactive power loss, reduce transformer and cable loss, avoid voltage drop)

*Operation mode(loads stability)

*Predicting the impact of capacitors in distribution networks
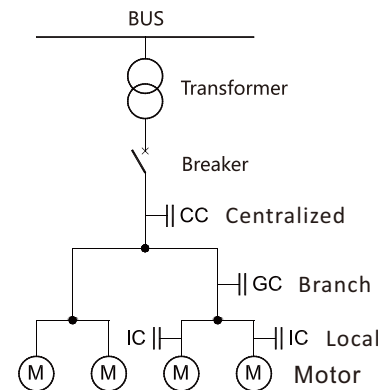
*Equipment cost

Centralized Compensatoin

The capacitor bank is installed at the head of the equipment to be compensated in order to provide reactive power to all the lower equipment. This mode is suitable for a stable and continuous load situation.

Branch Compensation

Capacitor banks are installed at the head of the feed to provide compensation for a particular equipment group. This mode is very convenient for large equipment and is suitable for large-scale workshops with different load factors.

Local Compensation(For Single Load)

The capacitor bank is installed at the incoming side of a single load. This is an ideal model because reactive energy is generated where it is really needed and can be adjusted as needed.

```
                    BUS

                     ⊗  Transformer

                     /  Breaker

                    ┤├CC  Centralized

                       ┤├GC  Branch

              IC┤├        ┤├IC  Local
            Ⓜ    Ⓜ    Ⓜ    Ⓜ   Motor
```

Step 3: Select compensation type

According to requirements of performance and control, select suitable compensation type:

*Fixed value compensation: No adjustment required, install a fixed capacity capacitor bank. Capacitor capacity ≤15％ Sn(Transformer Capacity)

*Automatic compensation: switch capacitors on/off by many different combination modes. Total capacitor bank capacity>15% Sn(Transformer Capacity)

Fixed value compensation

This mode uses one capacitor or several capacitors to provide a fixed compensation value. Control modes:

*Manual: Use breaker or knife switch to swich capacitor on/off

*Semi-automatic: Use contactor to control

*Directly connect to one equopment or load.

These capacitors can be used in:

*Inductive loads(Motors mainly)

*Busbar of many mini motors power supply

Automatic compensation

This method provides automatic control and provides appropriate reactive power to maintain the set cosφ according to load changes. The device is used in situation where active power or reactive power changes relatively. E.g:

At the busbar of the main switchboard

At the end of a large number of feeders

DETERMINE SOLUTION

Step 4: Consider working environment and harmonics

The reactive power compensation system composed of capacitors, its working environment and harmonics will affect the design of the solution.

Consider working environment

Working environment will influence service life of capacitor banks. When choose capacitor banks, must consider following parameters:

*Environment temperature

*Over-current value, relative voltage fluctuation, max over-voltage value

*Max annual switching on/off times

*Required average service life

Harmonic influence

The existence of harmonics will affect service life of capacitors, and even cause resonance between capacitors and power supply system, affecting safety of power supply system. Influence of harmonics can be eliminated by choosing suitable capacitors and matching appropriate reactors to capacitors.

Selection of electrical reactor

When correcting power factor in a non-linear load system which will generate harmonics, reactors is required for capacitors.

Capacitors and reactors are installed in series resonance circuits for tuning, so that the series resonance circuit frequency is lower than the lowest harmonic frequency in the system. The tuning frequency can be expressed by reactor reactance, or by number of tuning times, or directly by frequency.

Common reactance rates include 7% and 14%.

Reactance (%)	Tuning Times	Tuning Frequency Hz
7	3.8	189
14	2.7	134

Selecting rated voltage of power capacitor

The capacitor must be selected based on the system voltage.

Because there may be significant differences between supply voltage and actual power supply voltage, the required capacitors must be able to continue to operate at 1.1 times the system's rated voltage environment.

According to IEC 60681-1, rated voltage of capacitors is defined as a continuously stable operating voltage.

Rated current of capacitors is the current of capacitors at the rated voltage. The capacitor bank should continue to operate at a rms current.

When capacitors are connected in series with reactors, reactors will increase the terminal voltage of capacitors. In this case, the capacitor voltage will be higher than the nominal voltage, so must choose capacitors that can withstand higher voltages.

POWER CAPACITOR

It is suitable for forming tuning filter capacitors and harmonic filters to correct power factor and filter harmonics.

AC series YD-G capacitors are dedicated to improving the density of thermally responsive packages. The dielectric material is filled in a vacuum environment, and its high reliability, low cost, and simplified installation reflect the advantages of a cylindrical aluminum case. YD-G capacitors can withstand high surge currents caused by switching operations, and are suitable for forming tuned filter capacitor banks and harmonic filters, etc., to meet application requirements in power factor adjustment and harmonic filtering.

PRODUCT FEATURES

ELECTRIC	MACHINERY&MAINTAINING	SAFETY	ENVIRONMENT
Service life(≥180,000 hours) Withstand high surge current(300IR) Non corona discharge	Installation cost low Easily installat&connection Low weight No maintaining	Self healing High protective terminal Proven technology Discharge resistance	Dry-type design No oil leakage

TECHNICAL PARAMETER

According to IEC60831, EN60831, UL810, GB 12747

Over-Voltage	Vmax	Ue+10% Can last up to 8 hours every day.	
		Ue+15% Can last up to 30 minutes every day.	
		Ue+20% Can last up to 5 minutes every day.	
		Ue+30% Can last up to 1 minute every day.	
Over-Current	Imax	1.8 Ie	
Surge Current	IS	300 Ie	
Loss			
Dielectric		< 0.2 W/kvar Total< 0.45 W/kvar	
Rated Frequency	F	50/60 Hz	
Capacity Deviation		-5% / +10%	
Withstand Volt(Terminals)	VTT	2.15 VR1, AC, 10s	
Withstand Volt(Terminal&Case)	VTC	Ue≤660V, 3000VAC, 10s; Ue > 660V, 6000VAC, 10s	
Average Service Life		Up to 180,000h(TEMP degree-40/C); Up to 130,000h(TEMP degree-40/D)	
Environment Temperature		-40/D, max TEMP 55℃; max daily average TEMP 45℃; max annual TEMP 35℃; min -40℃	
Cooling		Natural cooling&Fan cooling	
Humidity		≤95%	
Altitude		≤2000 meters	
Installation&Grounding		Bolted	
Safety		Dry-type Technology, self healing, max fault current 10,000A, satisfy UL810	
Discharge module		Built-in discharge resistance	
Dielectric Material		Polypropylene Film	
Protective Case		Stamping aluminum cans	
Sealed Package		IP20, indoor; equipping with special case can be used outdoor	

*Subject to actual supply goods.

ORDER SPECIFICATION

Please choose suitable capacitors according to reactive power compensation solution.
Pay more attention to following parameters: rated voltage, rated capacity, three-phase or single phase...

Three-Phase Capacitor(Rated Voltage 480V AC 50Hz)

MODEL	Rated Voltage	Rated Capacity	Rated Current	Rated Capacitance
YD-G480S05	480 V	5kvar	6.0 A	3×23.0 μF
YD-G480S10	480 V	10kvar	12.0 A	3×46.1 μF
YD-G480S15	480 V	15kvar	18.0 A	3×69.1 μF
YD-G480S20	480 V	20kvar	24.1 A	3×92.1 μF
YD-G480S25	480 V	25kvar	30.1 A	3×115.1 μF
YD-G480S30	480 V	30kvar	36.1 A	3×138.2 μF
YD-G480S40	480 V	40kvar	48.1 A	3×184.2 μF

*Can work with 7% electric reactor.

Three-Phase Capacitor(Rated Voltage 525V AC 50Hz)

MODEL	Rated Voltage	Rated Capacity	Rated Current	Rated Capacitance
YD-G525S05	525 V	5kvar	5.5 A	3×19.2 μF
YD-G525S10	525 V	10kvar	11.0 A	3×38.5 μF
YD-G525S15	525 V	15kvar	16.5 A	3×57.7 μF
YD-G525S20	525 V	20kvar	22.0 A	3×77.0 μF
YD-G525S25	525 V	25kvar	27.5 A	3×96.2 μF
YD-G525S30	525 V	30kvar	33.0 A	3×115.5 μF
YD-G525S40	525 V	40kvar	44.0 A	3×154.0 μF

*Can work with 14% electric reactor.

Single-Phase Capacitor(Rated Voltage 280V AC 50Hz)

MODEL	Rated Voltage	Rated Capacity	Rated Current	Rated Capacitance
YD-G280F05	280 V	5kvar	17.9 A	203 μF
YD-G280F10	280 V	10kvar	35.7 A	406 μF
YD-G280F15	280 V	15kvar	53.6 A	609 μF
YD-G280F15	280 V	20kvar	71.4 A	812 μF

*Can work with 7% electric reactor.

Single-Phase Capacitor(Rated Voltage 300V AC 50Hz)

MODEL	Rated Voltage	Rated Capacity	Rated Current	Rated Capacitance
YD-G300F05	300 V	5kvar	16.7 A	177 μF
YD-G300F10	300 V	10kvar	33.3 A	354 μF
YD-G300F15	300 V	15kvar	50.0 A	531 μF
YD-G300F20	300 V	20kvar	66.7 A	707 μF

*Can work with 14% electric reactor.

TIPS: Please ask YIDEK for more capacitor models.

ELECTRIC REACTOR

Reduce capacitor surge and limit influence of harmonic on capacitors and power system

In modern industry, a large number of power electronic equipment is used, and its non-linear harmonic current will influence loads in the power system.
Power factor correction devices or power capacitors forms a resonant circuit with the transformer in parallel. According to experience, natural resonance frequency of this resonance circuit is usually between 250Hz and 500Hz, and the corresponding harmonic frequency is usually 5th and 7th harmonics.
This resonance phenomenon can be avoided by connecting reactors in series in front of reactive compensation capacitors.
By adjusting resonance frequency of compensation branch, branch frequency will be lower than the lowest harmonic frequency of electric power system.

PRODUCT APPLICATION

*Avoid system resonance
*Filter system harmonics
*Reduce system harmonic distortion
*Reduce power loss

PRODUCT FEATURES

*High harmonic filter ability
*High linearity, Avoid magnetic saturation
*Temperature protection
*Low loss
*Low noise
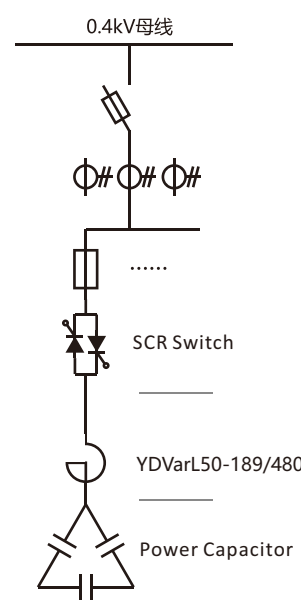*Easy installation
*Long service life

TECHNICAL PARAMETER

Harmonic filter electric reactor, according to EN61558, VDE0532,EN60289, GB/T10229

Harmonic	V3 = 0.5% VR Load power factor=100%
	V5 = 6.0% VR Load power factor=100%
	V7 = 5.0% VR Load power factor=100%
	V11 = 3.5% VR Load power factor=100%
	V13 = 3.0% VR Load power factor=100%
Virtual Current	Irms= $\sqrt{(I_1^2+I_3^2+...+I_n^2)}$
Fundamental Current	I1=1.06 IR
TEMP Protection	Mini switch, normal close connect position.
Frequency	50Hz or 60Hz
Voltage	400, 440, 480, 525V
Output Power	5~100kvar
Tuning Coefficient	7%,14%
Cooling Mode	Natural cooling
Working TEMP	40℃
Protection Degree	I
Sealed Package	IP00

*Subject to actual supply goods.

0.4kV母线

······

SCR Switch

YDVarL50-189/480

Power Capacitor

ORDER SPECIFICATION

Please choose suitable reactors according to reactive power compensation solution.
Pay more attention to following parameters: rated voltage, rated capacity, three-phase or single phase, matched capacitor technical parameters...

Three-Phase Electric Reactor(System voltage 400V, reactance 7%)

MODEL	REACTANCE	TUNING FREQUENCY	INDUCTANCE	MATCHED CAPACITOR
YDVarL15-189/480	7%	189Hz	3.4225 mH	15kvar 480V/50Hz
YDVarL20-189/480	7%	189Hz	2.5669 mH	20kvar 480V/50Hz
YDVarL25-189/480	7%	189Hz	2.0535 mH	25kvar 480V/50Hz
YDVarL30-189/480	7%	189Hz	1.7112 mH	30kvar 480V/50Hz
YDVarL40-189/480	7%	189Hz	1.2834 mH	40kvar 480V/50Hz
YDVarL50-189/480	7%	189Hz	1.0267 mH	50kvar 480V/50Hz
YDVarL60-189/480	7%	189Hz	0.8556 mH	60kvar 480V/50Hz

*Reactance rate 7%, resist 5th order and more than 5th order harmonics.

Three-Phase Electric Reactor(System voltage 400V, reactance 14%)

MODEL	REACTANCE	TUNING FREQUENCY	INDUCTANCE	MATCHED CAPACITOR
YDVarL15-134/525	14%	134Hz	8.1885 mH	15kvar 525V/50Hz
YDVarL20-134/525	14%	134Hz	6.1414 mH	20kvar 525V/50Hz
YDVarL25-134/525	14%	134Hz	4.9131 mH	25kvar 525V/50Hz
YDVarL30-134/525	14%	134Hz	4.0943 mH	30kvar 525V/50Hz
YDVarL40-134/525	14%	134Hz	3.0707 mH	40kvar 525V/50Hz
YDVarL50-134/525	14%	134Hz	2.4566 mH	50kvar 525V/50Hz
YDVarL60-134/525	14%	134Hz	2.0471 mH	60kvar 525V/50Hz

*Reactance rate 14%, resist 3rd order and more than 3rd order harmonics.

Single-Phase Electric Reactor(System voltage 400/$\sqrt{3}$ V)

MODEL	REACTANCE	TUNING FREQUENCY	INDUCTANCE	MATCHED CAPACITOR
YDVarL5-189/280	7%	189Hz	3.4938 mH	5kvar 280V/50Hz
YDVarL10-189/280	7%	189Hz	1.7469 mH	10kvar 280V/50Hz
YDVarL15-189/280	7%	189Hz	1.1646 mH	15kvar 280V/50Hz
YDVarL20-189/280	7%	189Hz	0.8734 mH	20kvar 280V/50Hz
YDVarL5-134/300	14%	134Hz	4.0107 mH	5kvar 300V/50Hz
YDVarL10-134/300	14%	134Hz	2.0054 mH	10kvar 300V/50Hz
YDVarL15-134/300	14%	134Hz	1.3369 mH	15kvar 300V/50Hz
YDVarL20-134/300	14%	134Hz	1.0027 mH	20kvar 300V/50Hz

*According to harmonics situation, select suitable reactance rate electric reactor.
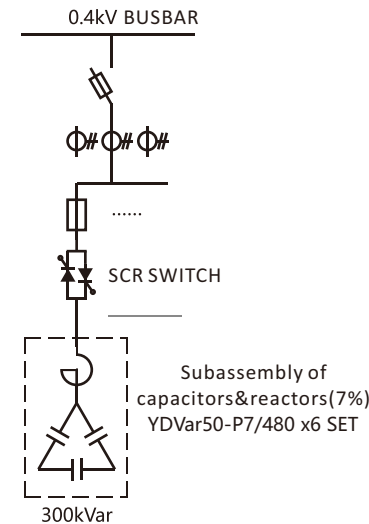
TIPS: Please ask YIDEK for more capacitor models.

COMBINATION OF CAPACITOR AND REACTOR

Combined use of harmonic filter reactor and high-performance capacitor

Capacitors and reactors are used for power factor correction branches, which can avoid resonance and reduce the impact of harmonics on equipment and power systems.
When capacitors and reactors work together, their electrical parameters must be properly matched, otherwise it will cause unpredictable serious accidents. We provide capacitors and reactors components with calculated and audited electrical parameters to avoid capacitor and reactor mismatches.

PRODUCT FEATURES

*Combined components of filter reactors and high performance capacitors
*Rated Voltage&Frequency
    Un= 230V, 400V, 440V, 480V, 525V
    F=50 Hz / 60Hz
*High harmonic filter ability
*High linearity, Avoid magnetic saturation
*Temperature protection
*Reactance Rate: 7%, 14%......
*Low loss
*Low noise
*Easy installation
*Long service life

0.4kV BUSBAR

SCR SWITCH

Subassembly of capacitors&reactors(7%)
YDVar50-P7/480 x6 SET

300kVar

ORDER SPECIFICATION

MODEL OF C&R	CAPACITY	REACTANCE	CAPACITOR SPECIFICATION		REACTOR SPECIFICATION	
YDVar15-P7/480	15 kvar	7%	YD-G480S15	1 PCS	YDVar15-189/480	1 PCS
YDVar20-P7/480	20 kvar	7%	YD-G480S20	1 PCS	YDVar20-189/480	1 PCS
YDVar25-P7/480	25 kvar	7%	YD-G480S25	1 PCS	YDVar25-189/480	1 PCS
YDVar30-P7/480	30 kvar	7%	YD-G480S30	1 PCS	YDVar30-189/480	1 PCS
YDVar40-P7/480	40 kvar	7%	YD-G480S40	1 PCS	YDVar40-189/480	1 PCS
YDVar50-P7/480	50 kvar	7%	YD-G480S25	2 PCS	YDVar50-189/480	1 PCS
YDVar60-P7/480	60 kvar	7%	YD-G480S30	2 PCS	YDVar60-189/480	1 PCS
YDVar15-P7/525	15 kvar	14%	YD-G525S15	1 PCS	YDVar15-134/525	1 PCS
YDVar20-P14/525	20 kvar	14%	YD-G525S20	1 PCS	YDVar20-134/525	1 PCS
YDVar25-P14/525	25 kvar	14%	YD-G525S25	1 PCS	YDVar25-134/525	1 PCS
YDVar30-P14/525	30 kvar	14%	YD-G525S30	1 PCS	YDVar30-134/525	1 PCS
YDVar40-P14/525	40 kvar	14%	YD-G525S40	1 PCS	YDVar40-134/525	1 PCS
YDVar50-P14/525	50 kvar	14%	YD-G525S25	2 PCS	YDVar50-134/525	1 PCS
YDVar60-P14/525	60 kvar	14%	YD-G525S30	2 PCS	YDVar60-134/525	1 PCS
YDVar5x3-P7/280	15 kvar	7%	YD-G280F05	3 PCS	YDVar5-189/280	3 PCS
YDVar10x3-P7/280	30 kvar	7%	YD-G280F10	3 PCS	YDVar10-189/280	3 PCS
YDVar20x3-P7/280	60 kvar	7%	YD-G280F20	3 PCS	YDVar20-189/280	3 PCS
YDVar5x3-P14/300	15 kvar	14%	YD-G300F05	3 PCS	YDVar5-134/300	3 PCS
YDVar10x3-P14/300	30 kvar	14%	YD-G300F10	3 PCS	YDVar10-134/300	3 PCS
YDVar20x3-P14/300	60 kvar	14%	YD-G300F20	3 PCS	YDVar20-134/300	3 PCS

TIPS: Please ask YIDEK for more models.

SWITCH

Use switch control reactive power compesation branch, providing safe and stable switching solution for compensation.
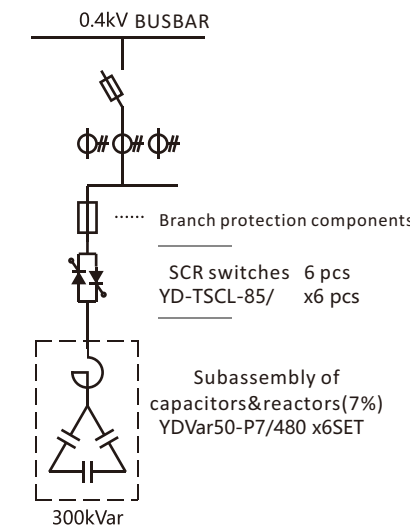
A switch is used to control working state of reactive power compensation branch. Capacitors and reactors are switched on when the voltage crosses zero, and capacitors and reactors are switched off when the current crossed zero.
This control method provides a safe and stable switching solution for the reactive power compensation branch consisted by capacitors and reactors, thereby avoiding the impact caused by transient overvoltage.
Meanwhile, SCR switch responds quickly and can be used in situations where the load fluctuates frequently or changes rapidly.

PRODUCT DEATURES

*Easily install
*Intelligent control technology
*Response time<20ms
*Premanent self-control
*Show operating/fault situation

TECHNICAL PARAMETER

*Voltage: 400V or 690V
*Output power: 2~50 kVAR
*Trigger Signal: 10~24V DC, inner isolation
*Switching time: <20ms
*Control mode: zero-off position control capacitors, non surge

0.4kV BUSBAR

Branch protection components

SCR switches 6 pcs
YD-TSCL-85/   x6 pcs

Subassembly of capacitors&reactors(7%)
YDVar50-P7/480 x6SET

300kVar

ORDER SPECIFICATION

MODEL	MAX CAPACITY	RATED VOLT	CONTROL MODE
YD-TSCL-45/△	25kvar	400V	3-Phase Com
YD-TSCL-60/△	30kvar	400V	3-Phase Com
YD-TSCL-85/△	40kvar	400V	3-Phase Com
YD-TSCL-85/△	50kvar	400V	3-Phase Com
YD-TSCL-45/Y	10kvar×3	400V	3-Phase Com
YD-TSCL-45/Y	15kvar×3	400V	3-Phase Com
YD-TSCL-45/Y	20kvar×3	400V	3-Phase Com
YD-TSCG-60/△	40kvar	690V	3-Phase Com
YD-TSCG-100/△	50kvar	690V	3-Phase Com
YD-TSCG-100/△	60kvar	690V	3-Phase Com

TIPS: Please ask YIDEK for more models.

YDFK
Composite Switch

CJ19
Switch Capacitor Contactor

REACTIVE POWER COMPENSATION CONTROLLER
(POWER FACTOR CONTROLLER)

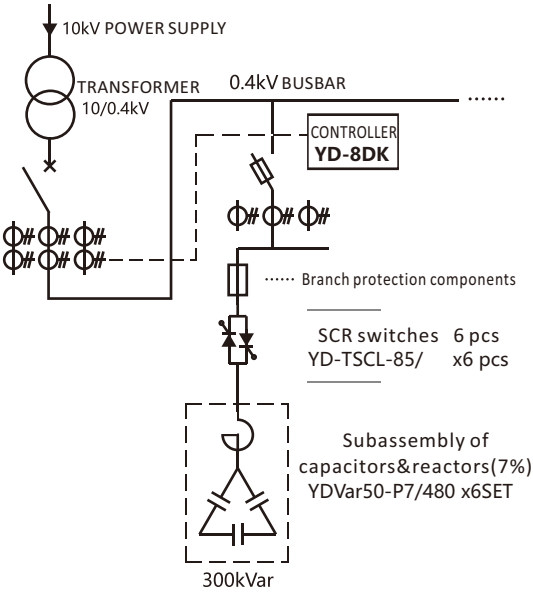Provide solution for automatic switching of reactive power compensation system.

Reactive power compensation controller monitors actual power factor and reactive power vacancy, and controls on/off of capacitors (compensation branch) to correct power factor to a required value. It has three-phase compensation and three-phase mixed compensation control modes, perfect monitoring, control and protection functions, ensuring reliability and stability of compensation system.

Brain of Compensation System

PRODUCT FRATURES

DISPLAY	EXTENDED FUNCTION	OUTPUT	ALARM OUTPUT	Communication
LCD display
Diagram&Word
Intelligent control
self-optimizing control
Button start
Auto initialization
Record data callback
Alarm output	System volt
Active&Reactive power
Frequency
THDu&THDi
Real-time power factor
Power factor aim
Reactive vacancy
Temperature	3-Phase compensation
Split compensation
Dynamic PF control
(SCR control signal)	Under-Compensation
Over-Compensation
Under-Current
Over-Current
Over-Temperature
Harmonic Out-of-Limit
Self-checking fault	RS485 Terminal
Modbus Protocol

10kV POWER SUPPLY

TRANSFORMER 10/0.4kV   0.4kV BUSBAR

CONTROLLER YD-8DK

Branch protection components

SCR switches   6 pcs
YD-TSCL-85/   x6 pcs

Subassembly of capacitors&reactors(7%)
YDVar50-P7/480 x6SET

300kVar

TECHNICAL PARAMETER

*Rated work voltage: 230/400V
*Rated frequency: 50/60Hz
*Power dissipation: <3VA
*Environment TEMP: -20℃~60℃
*Altitude: ≤2500 meters
*IP degree: IP30, panel IP40
*Standard: JBT9663
*Display: LCD display with image
*Control output: relay or SCR
*Alarm/Signal output: 1 delay output
*Communication: RS485, Modbus Protocol

ORDER SPECIFICATION

MODEL	SPECIFICATION
YD-8DKLS-12	Dynamic, DC12V control, 12 circuits, 3-phase compensation
YD-8DKLF-12	Dynamic, DC12V control, 12 circuits, mixed compensation
YD-8DKG	Dynamic, DC12V control, 12 circuits, 660V 3-phase compensation

TIPS: Please ask YIDEK for more models.

SOLUTION DESIGN

When design reactive power compensation solution, need to confirm total system capacity, compensation branch assignment, system harmonic content, selection of capacitors and reactors, branch switch, controller output circuit number, cabinet capacity and installation,etc.

Reference Solution: 400V system, 3-phase compensation, 7% reactance rate(resist 5th and more order harmonics)

Transformer 1000kVA, Compensate 300kVAR	Transformer 2000kVA, Compensate 600kVAR	
	Main cabinet 300kVAR	Auxiliary cabinet 300kVAR
10kV POWER SUPPLY
TRANSFORMER 10/0.4kV   0.4kV BUSBAR
CONTROLLER YD-8DK
SCR SWITCH
YD-TSCL-85/   x5
YD-TSCL-45/   x2
Subassembly of capacitors&reactors(7%)
YDVarF50-P7/480 x5
YDVarF25-P7/480 x2	10kV POWER SUPPLY
TRANSFORMER 10/0.4kV   0.4kV BUSBAR
CONTROLLER YD-8DK
SCR SWITCH
YD-TSCL-85/   x6
Subassembly of capacitors&reactors(7%)
YDVarF50-P7/480 x6	SCR SWITCH
YD-TSCL-85/   x6
Subassembly of capacitors&reactors(7%)
YDVarF50-P7/480 x6
Total compensation 300kVAR
SCR switch, total 7 branches
Capacitors series 7% reactors of same brand-YIDEK	Total compensation 300kVAR
SCR switch, total 6 branches, each branch is 50kVAR
Capacitors series 7% reactors of same brand-YIDEK	Total compensation 300kVAR
SCR switch, total 6 branches, each branch is 50kVAR
Capacitors series 7% reactors of same brand-YIDEK
W×D×H 1000×1000×2200mm	W×D×H 1000×800×2200mm	W×D×H 1000×800×2200mm
Transformer 800kVA, Compensate 250kVAR	Transformer 1600kVA, Compensate 500kVAR	
	Main cabinet 250kVAR	Auxiliary cabinet 250kVAR
10kV POWER SUPPLY
TRANSFORMER 10/0.4kV   0.4kV BUSBAR
CONTROLLER YD-8DK
SCR SWITCH
YD-TSCL-85/   x4
YD-TSCL-45/   x2
Subassembly of capacitors&reactors(7%)
YDVarF50-P7/480 x4
YDVarF25-P7/480 x2	10kV POWER SUPPLY
TRANSFORMER 10/0.4kV   0.4kV BUSBAR
YD-8DK
SCR SWITCH
YD-TSCL-85/   x4
YD-TSCL-45/   x2
Subassembly of capacitors&reactors(7%)
YDVarF50-P7/480 x4
YDVarF25-P7/480 x2	SCR SWITCH
YD-TSCL-85/   x5
Subassembly of capacitors&reactors(7%)
YDVarF50-P7/480 x5
Total compensation 250kVAR
SCR switch, total 6 branches
Capacitors series 7% reactors of same brand-YIDEK	Total compensation 250kVAR
SCR switch, total 6 branches
Capacitors series 7% reactors of same brand-YIDEK	Total compensation 250kVAR
SCR switch, total 5 branches, each branch is 50kVAR
Capacitors series 7% reactors of same brand-YIDEK
W×D×H 1000×800×2200mm	W×D×H 1000×800×2200mm	W×D×H 1000×800×2200mm

TIPS: Please contact YIDEK for more reactive power compensation solutions

INTELLIGENT POWER CAPACITOR

Intelligent&Integrated solution for reactive power compensation

The reactive power compensation system based on YD series capacitors provides users with an intelligent and integrated solution to correct system power factor, improve efficiency of electricity use, and reduce cost of electricity costs. The intelligent reactive power compensation system is more convenient to use, easier to maintain and more informative.

YD series capacitor adopts integrated design, integrated assembly, and integrated testing, making the integrity of each component better.

Single intelligent capacitor has power capacitor, electric reactor(anti-harmonic type), switching on/off switch, protection components, control module and human-machine interface.

YD series capacitors can be used individually or in parallel. It is connected to a power factor controller through communication mode to form a complete reactive power compensation system. If an intelligent capacitor is abnormal, it will automatically exit the system and give an alarm. This design will not affect operation of other intelligent capacitors in the system and ensure continued operation of reactive power compensation system.

PRODUCT FEATURES

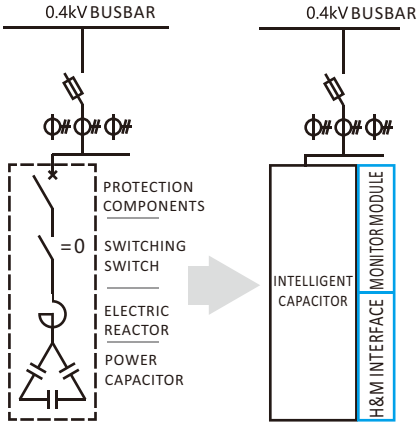| MODULAR	HIGH QUALITY	SWICTH MODULE	PROTECT DESIGN	H&M INTERFACE
Compact structure, easy wiring, convenient maintain, individually or in parallel using, easy extend total capacity	Self-Healing type low voltage power capacitor	Intelligent capacitor built-in on/off switch. Zore-off technology No surge No over-voltage Quick response time	Power-off protection Short circuit protection Phase-lack protection Over-TEMP protection THDu protection Over-volt protection Under-volt protection Under-cur protection Ensure stable and safe operation of capacitor	Display operating parameters. Display situation of capacitor, switch and communication. Convenient for selection of switching different working modes.

CAPACITOR COMPONENTS

Capacitor adopts integrated design, consisting of following parts:

*Power Capacitor
*Reactor
*On/Off Switch
*Protection Components
*Monitor Module
*Human-Machine Interface

0.4kV BUSBAR   0.4kV BUSBAR

PROTECTION COMPONENTS
SWITCHING SWITCH
ELECTRIC REACTOR
POWER CAPACITOR

INTELLIGENT CAPACITOR
MONITOR MODULE
H&M INTERFACE

PRODUCT APPLICATION

*Integrated reactive compensation of distribution system
*Local power factor correction of motors
*Save energy system
*Construction, traffic, factory, government, medical and other industries

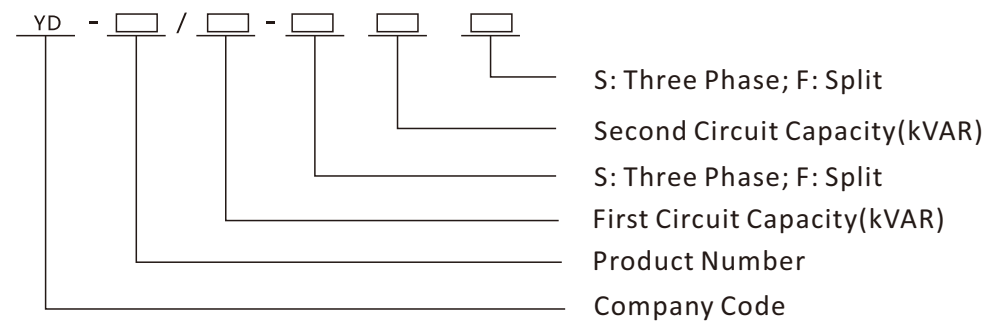## TECHNICAL PARAMETERS

SPECIFICATION	3-Phase Com	35+35,30+30,30+20, 20+20, 10+10
	Split Com	20+20,20+10, 10+10, 5+5
	3-Phase+Split	20+20,20+10, 10+10, 5+5
POWER SUPPLY	Rated Volt	AC230V or AC400V
	Allow Deviation	±20%
	Volt Waveform	Anti-Harmonic support THDu≤10% Ordinary Type ≤3%
SAFETY PROTECTION	ON/OFF Switch	Adopt sync switch or SCR switch
	Zero-Off Switching	Reduce current surge, length switch service life
	Protection Function	Over-TEMP, under-volt, under-cur, harmonic, under-volt and other protection functions
	Breaker	Breaking Capacity ≤15KA
SAMPLING DEVIATION	Voltage	≤0.5%
	Current	≤1.0%
	Time	±0.01s
	Power Factor	≤1.5%
REACTIVE COMPENSATION PARAMETER	Reactive Error	≤10% of capacitor capacity minimum
	Switching Interval	Dynamic ≤10ms Static 5-180ms
	On-Line Number	≤30 Pcs
SERIAL REACTOR	Reactance Selection	5th and more mainly, 7%; 3rd and more mainly, 14%
	Isolation	H Degree
	Phase Error	L<±3%
	Standard	VDE 0570 IEC 96/104/CD
	Isolation Degree	3KV
	TEMP Degree	CLASS C 220℃
DRY-TYPE POWER CAPACITOR	Filler	New type epoxy resin, no leakage, no pollution, anti-explode, anti- flaming
	Standard	GB 12747
	TEMP Range	-40℃~60℃
	Allow Contin O-V	8 hours/day, >110% of rated voltage
	Allow Contin O-L	>150%~200%
	Capacity Error	-5%~+10%
	Discharge Loss	<0.4W/kvar
	Discharge Time	After 3 minutes of switching capacitor off, residual voltage will be less than 50V
ON/OFF SWITCH PARAMETER	Switching Surge	≤1.8 le
	Allow Switching Time	2,000,000 times switch on/off
	Switch Power Loss	<1W

*Subject to actual supply goods.

■ YD Series Intelligent Capacitor Models are as following:

YD - ▢ / ▢ - ▢ ▢ ▢

- S: Three Phase; F: Split
- Second Circuit Capacity(kVAR)
- S: Three Phase; F: Split
- First Circuit Capacity(kVAR)
- Product Number
- Company Code

YD-868	YD-8C	YD-DP

■ YDX Series Intelligent Capacitor(Anti-Harmonic) Models are as following:

YDX ▢ ▢ - GS / ▢ ▢

- Second Circuit Capacity(kVAR)
- First Circuit Capacity(kVAR)
- Product Number
- Reactance Rate(7% or 14%)
- S: Three Phase; F: Split
- Company Code

YDX-GS	YDX	YDX-GM	YD-GD

TIPS: Please contact YIDEK for more models

REACTIVE POWER COMPENSATION CONTROLLER (MATCH WITH INTELLIGENT CAPACITOR)

Matching with YD series intelligent capacitors, form a reactive compensation system by mode of communication.

This controller and capacitor are used together to form a complete intelligent reactive power compensation system. The controller adopts a 32-bit ARM chip design, comprehensively considering voltage, current, power factor and reactive power. It adopts the latest reactive power trend judgment algorithm, which is especially suitable for occasions with large power factor variation.

PRODUCT FEATURES

*The controller exchanges data with intelligent capacitors through communication mode, and automatically controls intelligent capacitors.
*Manual control of intelligent capacitors can be selected through the human-machine interface.
*A single reactive power compensation controller can control 30 sets of three-phase compensation intelligent capacitors or 20 sets of three-phase compensation intelligent capacitors and 10 sets of split compensation intelligent capacitors.
*The reactive power compensation controller can monitor electrical parameters and harmonic distortion rates in real time.
*Has over-voltage protection, under-voltage protection, over-current protection, over-temperature protection, phase lack protection, voltage harmonic protection, etc. When parameters are beyond set values, controller quickly switched off the capacitor bank that has been switched on, and blocks the output to ensure the safe operation of the reactive power compensation system.
*Current, voltage, power factor, reactive power, etc. are comprehensively calculated, and voltage hysteresis participates in the control judgment to make the compensation more accurate and prevent switching oscillation.

TECHNICAL PARAMETERS

Measurement Accurancy

Voltage	±0.5%
Current	±1%
Power Factor	±1.5%
Reactive Power	±2%
Temperature	±1℃

Power Supply

Rated Volt	400V 20% Can be customized
Power Loss	≤3W

Communication Mode

Control	RS485 Communication, work with intelligent capacitor

Environment Condition

Relative Humidity	20%~90% No Condensation
Environment TEMP	-25℃~70℃
Altitude	≤2000m
Others	Installation place not allow explosive media. Surrounding medium should not contain gases and conductive media that corrode metals or damage insulation. It is not allowed to be filled with water vapor and severe molds appear. Installation place shall have facilities to protect against rain, snow, wind, sand and ash.

*Subject to actual supply goods.

ORDER SPECIFICATION

This kind power factor controller only can be used with YD series intelligent capacitors

MODEL	SPECIFICATION
YD-9CKZ	≤30 sets of three-phase intelligent capacitors
YD-9CKH	≤10 sets of split intelligent capacitors, Total number ≤30 sets

TIPS: Please ask YIDEK for more controller models.

JKW5C	YD-9CK	9CK-EC

SOLUTION DESIGN

When design reactive power compensation solution of intelligent capacitos, need to pay attention to followings:

*Calculate the total capacity of reactive power compensation

*According to total capacity, select intelligent capacitor specification and quantity

*Intelligent capacitors with different capacities can be mixed.

*A single intelligent capacitor is equivalent to a reactive power compensation branch, which already contains capacitor, reactor, switching switches and protection components.

*Intelligent capacitors must be used with matched controller, ordinary controllers cannot be used with intelligent capacitors.

*Intelligent capacitors and the controller are connected via communication. Communication wires are sent with the goods.

Reference Solution: 400V system, 3-phase compensation, 7% reactance rate(resist 5th and more order harmonics)

Transformer 1000kVA, Compensate 300kVAR	Transformer 2000kVA, Compensate 600kVAR	
	Main cabinet 300kVAR	Auxiliary cabinet 300kVAR
Total reactive capacity 300kVAR Intelligent capacitor, zero-off, 7% reactor Special controller	Total reactive capacity 300kVAR Intelligent capacitor, zero-off, 7% reactor Special controller	
W×D×H 1000×800×2200mm	W×D×H 1000×800×2200mm	

Transformer 1250kVA, Compensate 400kVAR
Total reactive capacity 400kVAR Intelligent capacitor, zero-off, 7% reactor Special controller
W×D×H 1000×800×2200mm

POWER SUPPLY
TRANSFORMER
BUSBAR
LOAD
CONTROLLER
INTELLIGENTCAPACITOR

Reference Solution: 400V system, 3-phase compensation, 7% reactance rate(resist 5th and more order harmonics)

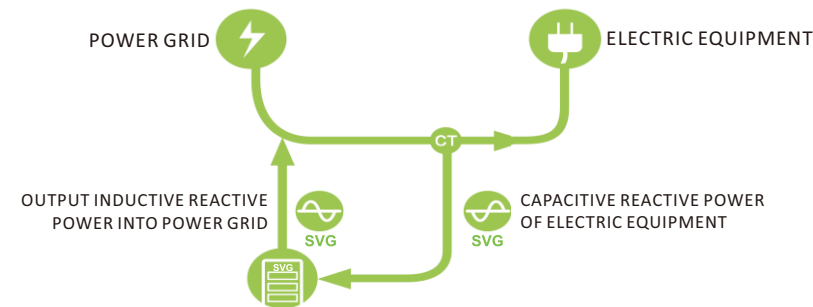| Transformer 800kVA, Compensate 250kVAR	Transformer 1600kVA, Compensate 500kVAR	
	Main cabinet 300kVAR	Auxiliary cabinet 300kVAR
Total reactive capacity 250kVAR Intelligent capacitor, zero-off, 7% reactor Special controller	Total reactive capacity 250kVAR Intelligent capacitor, zero-off, 7% reactor Special controller	Total reactive capacity 250kVAR Intelligent capacitor, zero-off, 7% reactor Special controller
W×D×H 800×800×2200mm	W×D×H 800×800×2200mm	W×D×H 800×800×2200mm

Transformer 630kVA, Compensate 200kVAR	Transformer 1250kVA, Compensate 400kVAR	
	Main cabinet 200kVAR	Auxiliary cabinet 200kVAR
Total reactive capacity 200kVAR Intelligent capacitor, zero-off, 7% reactor Special controller	Total reactive capacity 200kVAR Intelligent capacitor, zero-off, 7% reactor Special controller	Total reactive capacity 200kVAR Intelligent capacitor, zero-off, 7% reactor Special controller
W×D×H 800×800×2200mm	W×D×H 800×800×2200mm	W×D×H 800×800×2200mm

TIPS: Please contact YIDEK for more reactive power compensation solutions.

STATIC VAR GENERATOR(SVG)

Adopts power electronic technology, providing solution for power factor correction.

POWER GRID

ELECTRIC EQUIPMENT

CT

OUTPUT INDUCTIVE REACTIVE POWER INTO POWER GRID
SVG

CAPACITIVE REACTIVE POWER OF ELECTRIC EQUIPMENT
SVG

SVG

YDK-SVG static reactive power generator adopts controllable power electronic components to send out reactive power and reverse filter compensation current, which can realize fast, accurate and bidirectional reactive power compensation.
Quickly and accurately filter harmonics of 13th order and less order harmonics, completely eliminating the risk of system harmonics.
It can also eliminate neutral harmonics and three-phase unbalance.

SOLVE PROBLEMS

Using SVG static var generator can solve following power quality problems:
*Effectively reduce harmonic and reactive power components of the low voltage side of the transformer, thereby reducing heating and losses of distribution equipment such as transformer, main switch and busbar, and improving load capacity.
*Replacing the reactive power compensation of capacitors eliminates the risk of L / C oscillation of capacitors.
*Eliminate the neutral line harmonics and three-phase unbalance, and reduce the neutral line voltage.
*Eliminates voltage fluctuations caused by reactive power fluctuations and reduces voltage fluctuations and flicker.
*Reduce the impact of system harmonics and voltage harmonic distortion rate(THDu).
*Guarantee system power factor higher than reqired value.

WORKING PRINCIPLE

Directly connects the self-commutated bridge type circuit to the grid in parallel through reactors, and adjusts phase and amplitude of the output voltage on the AC side of bridge type circuit or directly controls its AC side current, so that the circuit can input or output reactive and harmonic currents that meet the requirements.
* Not only can compensate reactive power, but also can manage harmonics of 13th order and less orders.
* Quickly analyze sampling current signals, determine contents of each harmonic, and use power execution devices to generate a harmonic current with same amplitude and opposite direction as the harmonic current, thereby counteracting harmonic current generated by non-linear loads.
* No resonance. No overload.
* Can compensate three-phase unbalance and solve dangers caused by unbalance to equipment and systems.

STRUCTURE MODULAR

HIGH RELIABILITY

HIGH ANTI-POLLUTION ABILITY

FLEXIBLE APPLICATION SOLUTION

EASY INSTALLATION MAINTAIN

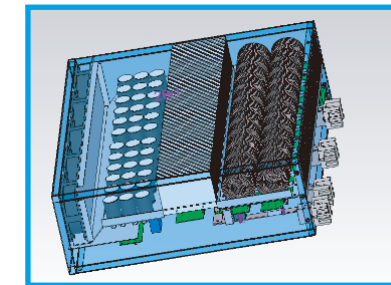## PRODUCT FEATURES

MODULAR STRUCTURE
Power unit(SVG) is designed as an independent unit and can work independently without relying on a central controller.
Multiple power units operate in parallel, which can form a larger capacity SVG system to meet the diverse requirements of users.
If one of the power equipments running in parallel fails, the equipment will automatically exit operation, and the remaining equipment will continue to operate. This design guarantees stability and reliability of SVG system.

HIGH RELIABILITY
Adopting unique patented technology, the suppression speed of interference is improved. Equivalent switch frequency has reached 80kHz, and current loop bandwidth has reached 6kHz, which provides more quick protection and meets the product's requirements for use in harsh environments.

Strong anti-pollution ability
Except for fans, all other conductive components are isolated from the outside, which is suitable for severe occasions such as dust, saline, and wet.
The internal structure of module is shown below:

FLEXIBLE APPLICATION SOLUTION
YDK-SVG static var generators with different capacity and specifications can be arbitrarily matched and used in combination to meet the different demands of users on site.
*Multiple YDK-SVGs can be used in parallel to extend system capacity.
*YDK-SVG is used in combination with active harmonic filter (APF) to solve the problems of reactive power compensation and harmonic management.
*YDK-SVG is used with reactive power compensation components to reduce system cost.
*No matter which kind solution, YDK-SVG will not resonate, ensuring the safety of power grid and equipment.

HEASY INSTALLATION, SIMPLE MAINTAIN
YDK-SVG supports a variety of sampling methods. You can choose system-side sampling or load-side sampling.
Supports rack-mounted installation, can be installed in the power distribution cabinet; also can choose wall-mounted installation, can be installed on the wall of the power distribution room.
The man-machine interface is friendly, the fault information is clear, and the operation data is convenient to consult.
Modular structure design, easy replacement of faulty parts.

MULTI-FUNCTION SOLVE MULTIPLE ELECTRIC POWER PROBLEMS
The basic function of YDK-SVG is to compensate reactive power, and its superior performance can correct the power factor to 1.
At the same time, it can also manage 13th and less orders harmonics to eliminate the harmonics generated by non-linear loads and provide the power quality of power grid.
In addition, it can also solve problems of three-phase unbalance and neutral line over-current.
Multiple functions can be flexibly selected according to capacity to meet different requirements.
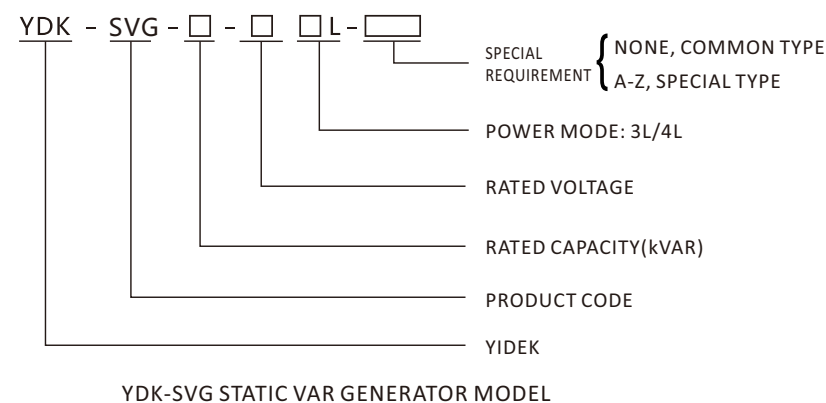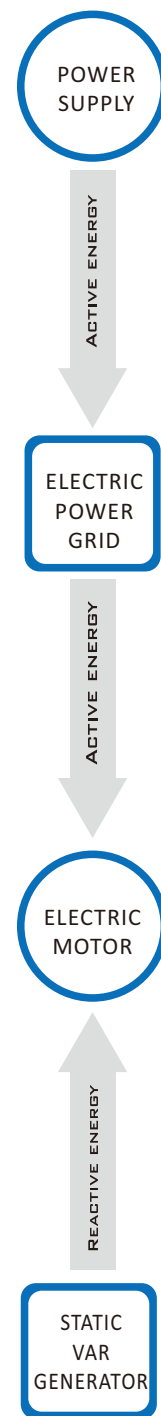
TECHNICAL PARAMETER

Static var generator can support rack-mounted and wall-mounted.

CAPACITY	10, 20, 25, 30, 35, 50, 75, 100, 125(kVAR)
INPUT	
VOLTAGE	400V/690V -20%~+15%
FREQUENCY	50/60Hz -10%~+10%
CT	1~100 times of equipment rated current
FUNCTION	
REACTIVE POWER	Adjust power factor between -1.0 to +1.0
3-PHASE UNBALANCE	Up to 100%
FILTER HARMONIC	13th and less order harmonics, filter rate>70%, optional
PARAMETER	
RESPONSE TIME	<10ms
POWER LOSS	<2.5%
COOLING MODE	Intelligent air cooling
NOISE	<60dB
SAMPLING/CONTROL	200kHz
EQUIVALENT	80kHz
CURRENT LOOP	6.4kHz
PROTECTION	Over-volt, under-volt, over-TEMP, over-cur, etc.
CT POSITION	Load side/Power supply side
LC CIRCUIT NUMBER	No limit
MONITOR/DATA	
COMMUNICATION	RS485, Internet
MODE	Modbus protocol
ALARM	Can record up to 500 alarm event
MONITOR	Individual/Integrated
ENVIRONMENT	
TEMPERATURE	-10℃~+45℃
ALTITUDE	<1500m, -1%/+100m
RELATIVE HUMIDITY	<99%
IP DEGREE	IP20, Higher IP degree can be customized

*Subject to actual supply goods.

ORDER NUMBER

YDK – SVG – □ – □ □L – □

SPECIAL REQUIREMENT { NONE, COMMON TYPE / A-Z, SPECIAL TYPE

POWER MODE: 3L/4L

RATED VOLTAGE

RATED CAPACITY(kVAR)

PRODUCT CODE

YIDEK

YDK-SVG STATIC VAR GENERATOR MODEL

POWER SUPPLY

ACTIVE ENERGY

ELECTRIC POWER GRID

ACTIVE ENERGY

ELECTRIC MOTOR

REACTIVE ENERGY

STATIC VAR GENERATOR

SVG WITH ORDINARY REACTIVE POWER COMPENSATION PRODUCT

Traditional reactive power compensation system adopts low-speed switched to control capacitor on/off.
This mode has two shortcomings: 1. Reactive power output has stage difference so that its accuracy is not enough.
2.The response speed of reactive power output is very low.

SVG uses power electronics technology to generate the compensation current, thereby achieving the goal of power factor correction, with high accuracy and fast output speed.
YDK-SVG can be seamlessly connected with the conventional reactive power compensation system. The SVG is used to adjust the stage difference of reactive power output to improve the compensation accuracy and output speed.
SVG can be used in parallel with any form of C, TSC and LC.
In practical applications, users use a variety of power factor correction solutions, including capacitor C in series with a reactor, TSC with 0.4% to 14% reactors in series.
SVG uses methods such as suppressing harmonics and shielding the output of specified harmonics to ensure reliable operation in parallel with any passive device.
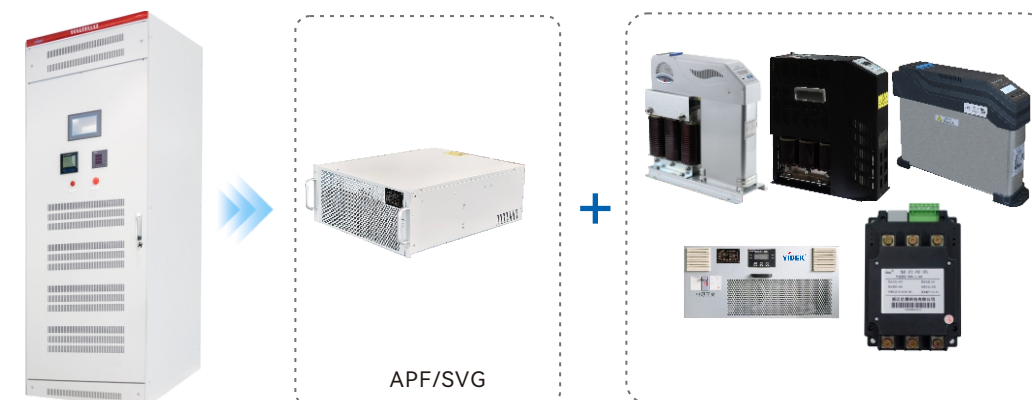
Traditional Reactive System Output Diagram

After Using With YDK-SVG Together

DIFFERENT SOLUTIONS COMPARISON

FUNCTION	TSC	SVG+C	SVG
REACTIVE OUTPUT	STAGE TYPE	LINEAR TYPE	LINEAR TYPE
RESULT	>0.9	>0.95	1
RESPONSE	>100ms	>30ms	<10ms
HARMONIC	NO	SOME ORDER	2~13 ORDER
UNBALANCE	NO	CAN	COMPLETELY SOLVE
SUPPORT VOLT	NO	SOME SOLUTIONS	ALL CAN
PRICE	LOW	APPROACH TO TSC	HIGHER THAN TSC

UNLIMITED COMBINATION

APF, SVG and TSC can be used in any combination to meet different requirements of users.
SVG can also be used with third-party capacitors, for example, 100A APF + 50A APF + 50kVAR SVG + 100kVAR TSC. And no matter what form the third-party capacitors and passive filter devices appear in, YDK-APF/SVG will not resonate with them, ensuring the safe and reliable operation of the power supply system.
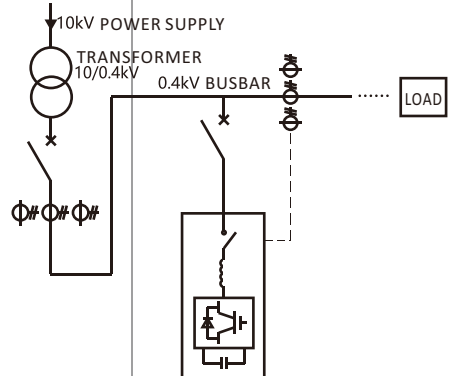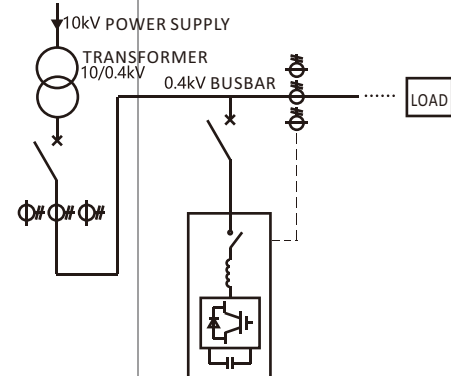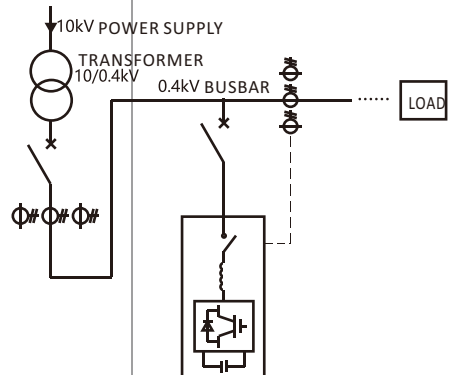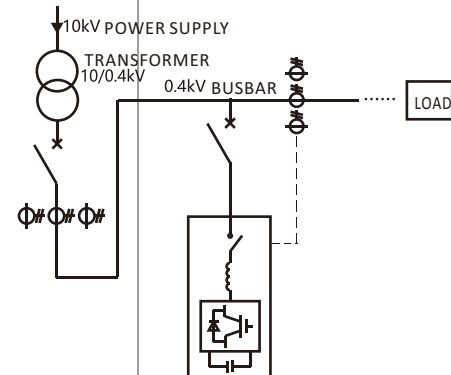
APF/SVG

+

SOLUTION DESIGN

When use YDK-SVG static var generator to design reactive power compensation solution, need to pay attention for following events:
*Calculate total capacity of compensation system.
*According to total capacity, select single capacity and number of SVG. Suggest to choose 100kVAR, 75kVAR and 50kVAR SVGs.
*Sampling CT of compensation system is suggested to be installed in load side.
*If need to filter harmonic, need to calculate the output harmonic current of SVG system.
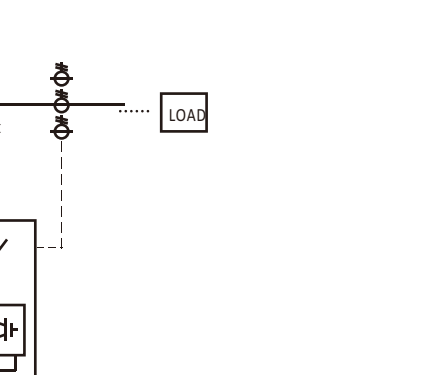*5 SVGs can be installed into single one 2200mm height cabinet.

Reference Solution: 400V system, correct power factor to 1, filter 2~13 order harmonics

Transformer 630kVA, Compensate 200kVAR	Transformer 800kVA, Compensate 250kVAR
10kV POWER SUPPLY TRANSFORMER 10/0.4kV 0.4kV BUSBAR LOAD	10kV POWER SUPPLY TRANSFORMER 10/0.4kV 0.4kV BUSBAR LOAD
YDK-SVG-100 2PCS	YDK-SVG-100 2PCS YDK-SVG-50 1PCS
Static var generator Reactive 200kVAR, harmonic 150A Correct PF to 1, modular structure	Static var generator Reactive 250kVAR, harmonic 175A Correct PF to 1, modular structure
W×D×H 800×800×2200mm	W×D×H 800×800×2200mm
Transformer 1000kVA, Compensate 300kVAR	**Transformer 1250kVA, Compensate 400kVAR**
10kV POWER SUPPLY TRANSFORMER 10/0.4kV 0.4kV BUSBAR LOAD	10kV POWER SUPPLY TRANSFORMER 10/0.4kV 0.4kV BUSBAR LOAD
YDK-SVG-100 3PCS	YDK-SVG-100 4PCS
Static var generator Reactive 300kVAR, harmonic 225A Correct PF to 1, modular structure	Static var generator Reactive 400kVAR, harmonic 300A Correct PF to 1, modular structure
W×D×H 800×800×2200mm	W×D×H 800×800×2200mm

TIPS: Please contact YIDEK for more reactive power compensation solutions.

Reference Solution: 400V system, correct power factor to 1, filter 2~13 order harmonics

Transformer 1600kVA, Compensate 500kVAR	Transformer 2000kVA, Compensate 600kVAR	
	Main cabinet 300kVAR	Auxiliary cabinet 300kVAR
10kV POWER SUPPLY TRANSFORMER 10/0.4kV 0.4kV BUSBAR LOAD	10kV POWER SUPPLY TRANSFORMER 10/0.4kV 0.4kV BUSBAR LOAD	
YDK-SVG-100 5PCS	YDK-SVG-100 3PCS	YDK-SVG-100 3PCS
Static var generator Reactive 500kVAR, harmonic 375A Correct PF to 1, modular structure	Static var generator Reactive 300kVAR, harmonic2255A Correct PF to 1, modular structure	Static var generator Reactive 300kVAR, harmonic2255A Correct PF to 1, modular structure
W×D×H 800×800×2200mm	W×D×H 800×800×2200mm	W×D×H 800×800×2200mm

TIPS: Please contact YIDEK for more reactive power compensation solutions.

YDK-SVG CAN SOLVE THREE POWER QUALITY PROBLEMS

LOW POWER FACTOR | HARMONIC POLLUTION | THREE-PHASE UNBALANCE

CORRECT POWER FACTOR TO 0.99...	FILTER 2~13 ORDER HARMONIC	COMPENSATE UNBALANCE	MODULAR STRUCTURE	HIGH RELIABILITY	STRONG ANTI-POLLUTION ABILITY

ACTIVE POWER FILTER(APF)

Basing on application of power electronic technique, APF is the best soltion for filtering harmonics.

YDK-APF is suitable for multi application accasions. We can design the most suitable installation solution for industrial occasions, distribution rooms, machine rooms etc. Because of flexible installation and convenient operation, our active power filters bring huge conveniences for solution design, on-site installation and after-slae maintaining.

HARM OF HARMONIC

When sine-wave voltage is applied on non-linear load circuits, electric current will becometo be non-sinusoidal. Then non-sinusoidal current will produce voltage drop in electric network resistance so that voltage wave also will become to be non-sinusoidal wave. By Fourier series decomposition of non-sinusoidal waves, the component whose frequency is as same as power frequency is known as fundamental wave.The component whose frequency is greater than power frequency is known as harmonic wave.

There are many non-linear loads have been widely used now, such as rectifier, frequency converter, UPS, elevator, air condition, energy saving lamp, duplicator, household appliances etc. These loads will produce and send a large number of harmonics into electric network, causing electric network voltage waves distorted. This phenomenon will damage electric network and users' benefit.

In addition, impact and fluctacting loads such as electric-arc furnace, welding equipment and so on will not only produce amounts of higher harmonics but also make voltage fluctaction, flicker, three phases imbalance and other electric power quality problems, affecting the normal operation of electric network.
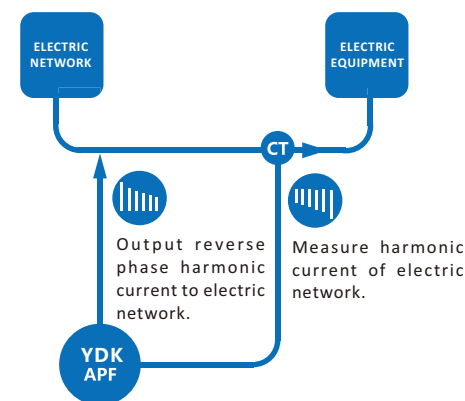
Harmonic harms are including as followings.

*Increase line loss, causing cables overheated, insulation aging and reducing efficiency of power supply.

*Make capacitors overload, overheated, breakdown and accelerated aging.

*Cause electric equipments malfunction and no response and power outage.

*Induce electric network syntony and cause harmonic over-voltage and over-current.

*Affect effeciency and normal operation of electric motors, producing vibration and noise and reducing service life.

*Damage sensitive devices in electric network and cause production equipments operate unsteadily.

*Interference communication and electronic equipments, causing control system failure.

*Zero-sequence harmonic will cause neutral current too high.Neutral lines will heating and burn up.

OPERATING PRINCIPLE

When APF connects to electric network in parallel, it will measure harmonics and generate reverse compensation current to filtering harmonics by inverting.

APF measures the real-time current signals by external CT, analyzing and getting data of harmonic content. According to measured data, APF will control IGBT to generate compensating current which has the same value and the reverse phase of electric network system's harmonics, realizing the function of filtering harmonics.

Because APF's compensating current outputs activly with the changing of system harmonic content, it will not be over compensated. Meanwhile, APF has a function of limiting input capacity which will protect YDK-APF to avoid over-load outputing effectively.

ELECTRIC NETWORK

ELECTRIC EQUIPMENT

CT

Output reverse phase harmonic current to electric network.

Measure harmonic current of electric network.

YDK APF

PRODUCT FEATURES

Compare to traditional harmonic filters, YDK-APF has more advanced features due to the advanced data control and power electronic technologies. Therefore, YDK-APF owns a shorter response time, a flexible construction and a better performance, improving electric power quality more quickly.

MODULAR CONSTRUCTION

Power unit was designed to be an individual unit which can work individually without the cetral controller.

Content of single power unit contains 10A, 20A, 30A, 50A, 75A, 100A, 150A and other specifications. Multi power units can operate in parallel so that customers can get a new APF system with a larger capacity, satisfying more spot applications.

When some unit goes wrong, the one will stop operating and break away automatically. Other units will go on operating so that APF system can keep its stability and reliability.
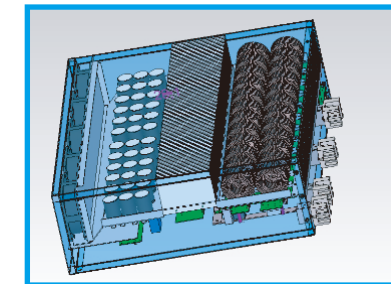
HIGH RELIABILITY

Adpots the particular patent technologies, improving speed of restraining interference. Equivalent switches's frequent can reach 80kHz and current loop bandwidth can reach 6kHz so that our products can operate stably in severe environment.

STRONG ANTI-POLLUTION ABILITY

Besides fans, other conductive components are isolated from external environment, applying to occasion with dust , saline-alkali and humid.

Diagram of module inner construction.

FLEXIBLE APPLICATION SOLUTION

YDK-APF of different capacity specifications can be matched and combined arbitrarily, satisfying different demands of customers.

*Multi YDK-APF Active Power Filter can be used in parallel, realizing the expansion of system capacity.

*YDK-APF can be combined and operated with YDK-SVG so that users can solve the problems of reactive power compensating and power quality managing at same time.

*No matter adpoting which kind of combination solution, YDK-APF will not take resonance place, ensuring safety of electric network and equipments.

EASY INSTALLATION, SIMPLE MAINTAINING

YDK-APF supports multi sampling modes on electric network side or load side.

Supports rack mounted type which is convenient to install APF in distribution cabinets, and wall-mounted type which is convenient to install APF on wall of distribution rooms.

Friendly man-machine interface, clear fault information display and easy operation data checkup.

Adopting modular construction design, it's convenient to replace faulted units.

OWN MULTI FUNCTIONS, SOLVE MULTI PROBLEMS

The foundational function of APF is filtering harmonics.

Its response time is less than 10ms and harmonic filtering rate is more than 97%.

Meanwhile, it can also compensate reactive power shortage and improve power factor to the required value.

In addition, it can solve problems of three-phase imbalance and neutral line over-current.

These functions can be chosen flexibly.

CONFIRM APF MANAGEMENT MODE

When using YDK-APF Active Harmonic Filter, you can choose different management modes (installation positions) according to the actual situation of the load and distribution system and the effect you want to achieve, in order to achieve the best filtering effect and investment effect.
Users can choose three management modes of Centralized Management, Part Management and Local Management according to the difference of installation positions.
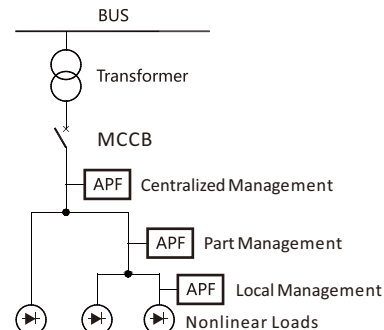
Centralized Management Solution
In a hybrid mode distribution system, it's applied of centralized management solution when there are many nonlinear loads and capacity of single nonlinear load is low.

Part Management Solution
When non-linear loads of the power distribution system is on one or several branches, it is suitable to adopt the part governance solution.

Local Management Solution
When non-linear loads of the power distribution system is on one branches, it is suitable to adopt the local management solution.
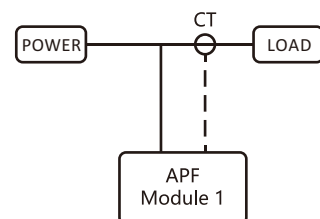
APF SAMPLING CT POSITION

In the use of APF, APF sampling CT can be installed on the load side-the open loop control solution. The sampling CT can also be installed on the power supply side-the closed loop control solution.

YDK-APF Active Power Filter can support the open loop solution and the closed loop solution.
Suggested Application Solution: Install sampling CT on the load side.
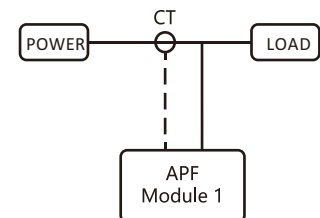
Install CT on Load Side
The sampling current transformer is placed on the top busbar of the cabinet, and its installation point is between the load and the access point of the APF. This is the CT installed on the load side, which is also called "open loop control mode".

Install CT on Power Supply Side
The sampling current transformer is placed on the top busbar of the cabinet, and its installation point is between the power supply and the access point of the APF. This is the CT installed on the power side, which is also called "closed loop control mode".

CALCULATION EXAMPLE

Example: one 1000kVA transformer has a load rate of 75% and the THDi of its loads is 20%.

Estimate harmonic current: $I_h = 0.75 \times \dfrac{1000 \times 1000}{1.732 \times 400} \times \dfrac{0.2}{\sqrt{1+0.2^2}}$

$\approx 212\ A$

Considering the redundancy, calculate the capacity of APF.

$I_{APF} = 212 \times 1.2 = 254.4\ A$

According to above data, the capacity of selected APF is 250A.

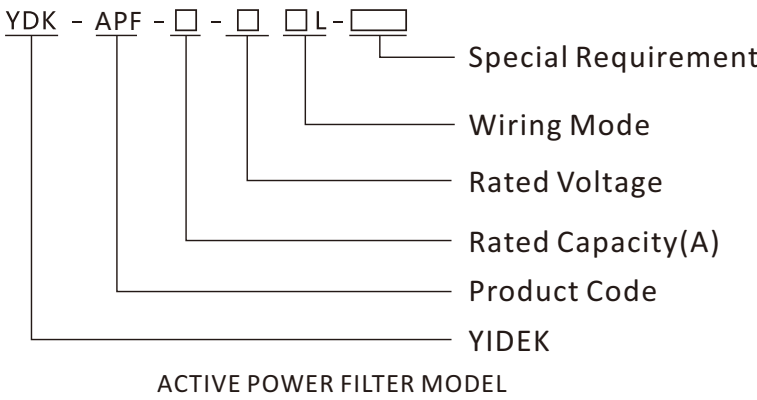## OPTIONAL SOLUTION: AC 400V SYSTEM. LOAD RATE 75%, THDi 20%.

Transformer 1000kVA, Filter 250A	Transformer 2000kVA, Filter 250A
YDK-APF-100 1PCS YDK-APF-150 1PCS	YDK-APF-100 2PCS YDK-APF-150 2PCS
Active Power Filter APF Modular APF, Capacity 250A; Filter 2nd-50th harmonic, efficiency>97%; Reserve Expansion Space in Cabinet.	Active Power Filter APF Modular APF, Capacity 500A; Filter 2nd-50th harmonic, efficiency>97%; Reserve Expansion Space in Cabinet.
CABINET W×D×H 800×800×2200mm	CABINET W×D×H 800×800×2200mm
Transformer 800kVA, Filter 200A	Transformer 1600kVA, Filter 400A
YDK-APF-100 2PCS	YDK-APF-100 1PCS YDK-APF-150 2PCS
Active Power Filter APF Modular APF, Capacity 200A; Filter 2nd-50th harmonic, efficiency>97%; Reserve Expansion Space in Cabinet.	Active Power Filter APF Modular APF, Capacity 400A; Filter 2nd-50th harmonic, efficiency>97%; Reserve Expansion Space in Cabinet.
CABINET W×D×H 800×800×2200mm	CABINET W×D×H 800×800×2200mm

TECHNICAL PARAMETERS

SPECIFICATION	MODULE SPECIFICATION	10, 20, 30, 50, 75, 100, 150
	MAX PARALLEL NUMBER	12(Rack-Mounted Type and Wall-Mounted Type); 8 (Mini Type)
INPUT	OPERATING VOLTAGE	400V/690V (-20%~+15%)
	OPERATING FREQUENCY	50Hz (-10%~+10%)
	CURRENT TRANSFORMER	1~100 times the rating value
FUNCTION	HARMONIC COMPENSATING	2nd~50th Harmonic
	HARMONIC FILTERING RATE	> 97%
	REACTIVE POWER COMPENSATION	-1~+1
	THREE-PHASE IMBALANCE ADJUST	100%
COMMUNICATION PROTOCOL	COMMUNICATION MODE	Modbus Protocol, TCP/IP OPTIONAL
	COMMUNICATION PORT	RS485, Internet Port
	HOST SOFTWARE	All parameters can be set by host.
	FAULT ALARM	Up to 500 alarm information can be recorded.
	MONITOR	Support independent monitoring/centralized monitoring.
TECHNICAL DATA	RESPONSE TIME	< 10ms
	POWER CONSUMPTION	< 2.5%
	HEAT DISSIPATION MODE	Intelligent air cooling.
	NOISE	< 60dB
	SAMPLING/CONTROL FREQUENCY	200kHz
	EQUIVALENT SWITCH FREQUENCY	80kHz
	CURRENT LOOP CUT-OFF FREQUENCY	6.4kHz
	PROTECTION FUNCTION	Over-volt, under-volt, over-current, short-circuit and other more than 20 protections.
	CT INSTALLATION POSITION	Load Side/Transformer Side
	NUMBER OF PARALLEL CAPACITOR	No limit.
ENVIRONMENT REQUIREMENT	OPERATING TEMPERATURE	-10℃~+45℃
	ALTITUDE	< 1500M (Derating Ratio: 1%/100M)
	RELATIVE HUMIDITY	< 99%
	IP GRADE	IP20 (Higher IP Grade can be customized.)

*Due to technology development and construction improvement, parameters may not match existing product.

MODEL SPECIFICATION

YDK – APF –□–□ □L-□□

- Special Requirement
- Wiring Mode
- Rated Voltage
- Rated Capacity(A)
- Product Code
- YIDEK

ACTIVE POWER FILTER MODEL

SOLUTION DESIGN

Modular APF is suggested to a new project of APF system.
1. Harmonic current value can't be calculated accurately. Only can estimate the value according to experience or equipment parameters.
When the capacity of the initially designed APF system is too small to meet the harmonic control requirements caused by load increase or change, the modular APF is convenient to expand system capacity.
2. When designing and installing a modular APF system, it is only necessary to reserve the installation location in the cabinet so that users can expand the system capacity easily in the future.

When users want to design a harmonic control solution with YDK-APF, following problems need to be confirmed.
*Confirm system voltage, choosing a APF matched to the system voltage level. Nominal voltage of APF must be as same as rated system voltage.
*Confirm harmonic current calue of harmonic source.
 * New Project: Estimate harmonic current according to experience.
 * Renovation Project: Measure harmonic current by professional equipment.
*According to the harmonic current value, the specification and quantity of the APF are selected according to a multiple of 1.1 to 1.2 of the value. Modular APFs of different capacities can be mixed.
*According to site installation space and equipements installation status, confirm the installation position of APF and CT.

HARMONIC CURRENT CALCULATION

In the new project, can't acquire harmonic parameters by measuring on site. Users can get estimated harmonic parameters by calculating.

Reference Formula:

$$I_h = k \times I_N \times \frac{THD_i}{\sqrt{1+THD_i^2}}$$

I_N: Rated Current of Equipment
K: Load Rate
THDi: Load Current Distortion Rate

Harmonic Distortion Rate of Some Industries

INSDUSTRY	HARMONIC SOURCE	THDi	SUGGESTIONS
OFFICE BUILDINGS	Among the nonlinear loads, the common ones are:Video display devices (CRT and LCD display devices), computers, air conditioners, all kinds of energy-saving lighting fixtures, office-type electrical equipment (printers, photocopies, scanners, projectors, etc.), speed control drive equipment (frequency pump, air conditioning and large elevator).	General: 10%-15% Serious:15%-20%	Harmonic sources are relatively scattered, so suggest to adopt a harmonic centralized control solution. Suggested THDi:15%
MEDICAL INDUSTRY	Among the nonlinear loads, the common ones are:Video display devices (CRT and LCD display devices), computers, air conditioners, all kinds of energy-saving lighting fixtures, office-type electrical equipment (printers, photocopies, scanners, projectors, etc.), speed control drive equipment (frequency pump, air conditioning and large elevator).	General: 15%-20% Serious:20%-25%	Harmonic sources are relatively scattered, so suggest to adopt a harmonic centralized control solution. Suggested THDi:20%
COMMUN-ICATIONS	The communication room uses a large number of UPS and DC switching power supplies, and UPS equipment with different rectification technologies. Their harmonic pollution is different at different load rates.	Supply: 40%-50% 2nd Side:20%-30%	Adopt a harmonic centralized control solution. Suggested THDi:20%-25%
PUBLIC BUILDINGS	Public buildings include sports venues, convention centers, and performing arts centers. Common harmonic sources in these places are: thyristor dimming system, UPS, central air conditioning, etc.	General: 20%-25% Serious:25%-30%	Adopt a harmonic centralized control solution. Suggested THDi:25%
FINANCIAL BANKS	A large number of UPS and switching power supplies in the machine rooms of banks and securities systems generate large amounts of harmonics. Inverter-controlled elevators and air conditioners also generate harmonics.	General: 15%-20% Serious:20%-25%	Adopt a harmonic centralized control solution. Suggested THDi:20%
MANUFAC-TURERS	Rectification technology is widely used in production equipment and power equipment in the manufacturing industry, and these devices are harmonic sources.	General: 15%-20% Serious:20%-25%	Adopt a harmonic centralized control solution. Suggested THDi:20%
WATER TREATMENT PLANT	Water treatment plants use a large number of power electronics, such as UPS, frequency converters, soft starters and so on. These devices are the main source of harmonics.	General: 30%-40% Serious:40%-60%	Manage the branches with more concentrated installation of the inverter.

*ONLY FOR REFERENCE.

OPTIONAL SOLUTION: AC 400V SYSTEM. LOAD RATE 75%, THDi 20%.

Transformer 630kVA, Filter 150A	Transformer 1250kVA, Filter 300A
10kV Power Supply Transformer 10/0.4kV 0.4kV Bus LOAD ◇#◇#◇# YDK-APF-150 1PCS	10kV Power Supply Transformer 10/0.4kV 0.4kV Bus LOAD ◇#◇#◇# YDK-APF-150 2PCS
Active Power Filter APF Modular APF, Capacity 150A; Filter 2nd-50th harmonic, efficiency>97%; Reserve Expansion Space in Cabinet.	Active Power Filter APF Modular APF, Capacity 300A; Filter 2nd-50th harmonic, efficiency>97%; Reserve Expansion Space in Cabinet.
CABINET W×D×H 800×800×2200mm	CABINET W×D×H 800× 0 ×2200mm

High-Voltage Smart Capacitor Bank

High-Voltage Reactive Power Compensation Complete Set (YDKTBBZ) provides solutions for high-voltage compensation.

YDKTBBZ is suitable for **6~35kV** systems, providing solutions for power factor correction, improving voltage quality, and reducing line losses. YDKTBBZ **consists of** shunt capacitors, series reactors, zinc oxide arresters, discharge coils, vacuum contactors, disconnector switches, fuses, a power factor controller, and combined main and control circuits.

Assembly Composition

employ single-star or double-star main wiring configurations.

includes: vacuum contactor, shunt capacitor, series reactor, discharge coil, zinc oxide arrester, expulsion fuse, etc.

Composed of an incoming line cabinet and grouped compensation cabinets.
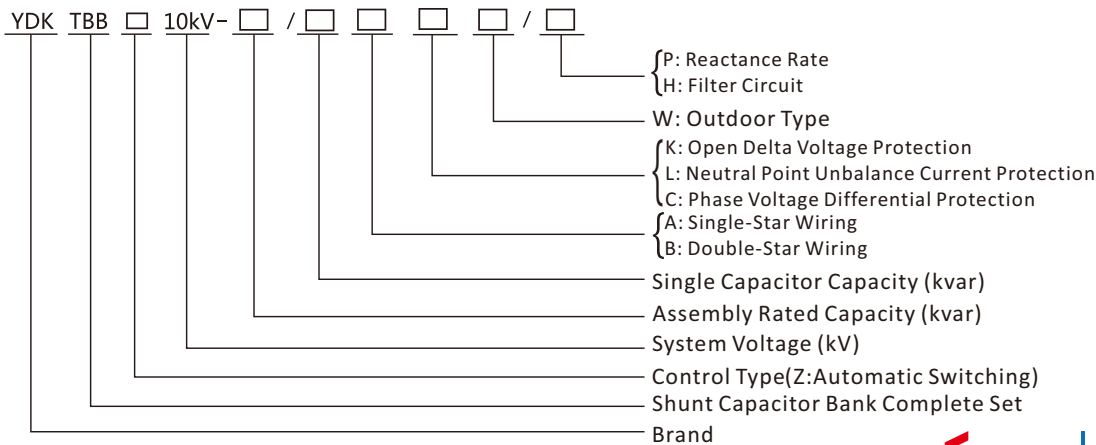
Operating Environment

● **Site Altitude:** < 1000 m

● **Ambient Temperature:** -40 ~ +45 °C

● **Relative Humidity:** < 85% (at 20±5 °C)

● **Inclination of installation surface:** ≤ 5 degrees

● Installation site shall be free from severe vibration, harmful gases/vapors, and conductive/explosive dust particles.

● Indoor installations require adequate ventilation.

● The switching device for this assembly utilizes high-quality vacuum circuit breakers or vacuum contactors.

● The upstream system should be equipped with over-voltage, under-voltage, over-current, and short-circuit relay protection.

Technical Characteristics

Capacitance Tolerance: -3% ~ +5%. Deviation between series segments < 1%. Phase-to-phase deviation < 3%.

Operating Voltage: Capable of continuous operation under 1.10 Un power-frequency steady-state voltage. Under this condition, the peak value including all harmonic components shall be ≤ 1.2 Un.

Current Rating: Permitted current up to **1.43 In.**

Capacitor Protection: Utilizes both internal and external fuse protection.

Switching Logic: Cyclic switching of capacitor banks (first-on, last-off sequence) with configurable switching delays.

Brand

Vacuum Contactor: Features frequent operation capability, fast bounce-free closing/opening, low re-ignition rate during interruption, reliable operation, minimal maintenance, and long service life.

Model Number

YDK TBB ☐ 10kV-☐ / ☐ ☐ ☐ ☐ / ☐

{ P: Reactance Rate
H: Filter Circuit

W: Outdoor Type

{ K: Open Delta Voltage Protection
L: Neutral Point Unbalance Current Protection
C: Phase Voltage Differential Protection

{ A: Single-Star Wiring
B: Double-Star Wiring

Single Capacitor Capacity (kvar)

Assembly Rated Capacity (kvar)

System Voltage (kV)

Control Type(Z:Automatic Switching)

Shunt Capacitor Bank Complete Set

Brand

High Voltage Static Var Generator

The **YDK-SVGH** High-Voltage SVG offers the optimal solution for dynamic reactive power compensation.
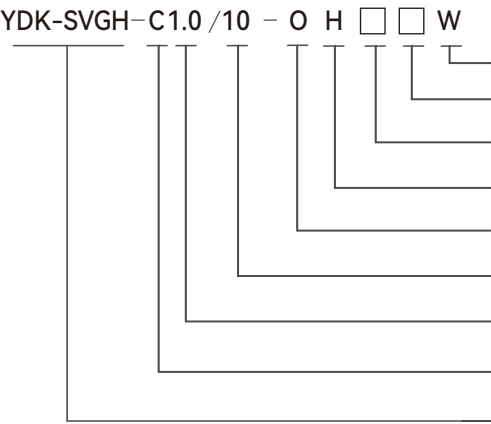
The YDK-SVGH Series High Voltage Static Var Generator is an IGBT-based SVG compensation system. The SVG represents the latest development direction in reactive power compensation technology for power systems. It can rapidly and continuously provide capacitive and inductive reactive power, enabling precise voltage and reactive power control to ensure stable, efficient, and high-quality operation of the power system.

TECHNICAL PARAMETERS

Specification	3KV/6KV/10KV/35KV
Rated Capacity	±1Mvar ~ ±100Mvar
System Voltage	3kV、6kV、10kV、35kV
Frequency	50Hz
Functions	
Reactive Power Compensation	Power factor correction, continuously adjustable from -1.0 to +1.0
Three-Phase Unbalance Compensation	100% unbalance fully adjustable
Harmonic Compensation	Up to the 13th order, filtering efficiency >70%
Functions	
Response Time	≤5ms
Power Loss	≤0.8%
Cooling Method	Intelligent Air Cooling / Water Cooling
Total Harmonic Current Distortion (THDi)	≤3%
Control Power Supply	380VAC, 220VAC, or 220VDC
Reactive Power Regulation Mode	Automatic, continuous, and smooth adjustment (Capacitive/Inductive)
Minimum Compensation Power	5kvar
Compensation Current Resolution	0.5A
Monitoring & Communication	
Communication Interfaces	Ethernet, RS485, CAN, High-speed Fiber Optic
Communication Protocols	MODBUS_RTU, ProfiBUS, Power CDT91, IEC 61850-103/104, CANOPEN, User-defined
Parallel Operation	Supports multi-unit parallel operation and multi-busbar comprehensive compensation
Environmental Requirements	
Operating Temperature	-10℃ ~ +40℃
Altitude	≤2000m (Special design required for >2000m)
Relative Humidity	Monthly average ≤90% (at 25℃), non-condensing
Ingress Protection (IP) Rating	Ip40 (Indoor), IP44 (Outdoor)

Product Model

YDK-SVGH－C1.0 /10 － O H □ □ W

Cooling: W-Water Cooling; Blank-Air Cooling

Phase: 2-Single Phase; Blank-Three Phase

Connection: T-Delta; Blank-Star

Harmonic Compensation: H-With; Blank-Without

Enclosure: O-Outdoor; Blank-Indoor

6KV、10KV、35KV

Power Rating (Mvar), e.g.: 1.0-100 Mvar

Installation: C-Direct Connection; Blank-Step-down

YIDEK High-Voltage SVG

Model Specifications

6kV Series:

Product Model	SVG Capacity (Mvar)	Rated Output Current (A)	Cooling Method
YDK-SVGH-C2.0/6	±2	192	Air Cooled
YDK-SVGH-C3.0/6	±3	288	Air Cooled
YDK-SVGH-C5.0/6	±5	480	Air Cooled

10kV Series:

Product Model	SVG Capacity (Mvar)	Rated Output Current (A)	Cooling Method
YDK-SVGH-C2.0/10	±2	115	Air Cooled
YDK-SVGH-C3.0/10	±3	173	Air Cooled
YDK-SVGH-C5.0/10	±5	288	Air Cooled
YDK-SVGH-C8.0/10	±8	480	Air Cooled
YDK-SVGH-C10/10	±10	576	Air Cooled
YDK-SVGH-C15/10	±15	864	Air Cooled
YDK-SVGH-C20/10	±20	1154	Water Cooled
YDK-SVGH-C30/10	±30	1735	Water Cooled

35kV Series:

Product Model	SVG Capacity (Mvar)	Rated Output Current (A)	Cooling Method
YDK-SVGH-C8.0/35	±8	132	Air Cooled
YDK-SVGH-C16/35	±16	264	Air Cooled
YDK-SVGH-C30/35	±30	495	Water Cooled
YDK-SVGH-C40/35	±40	660	Water Cooled
YDK-SVGH-C50/35	±50	825	Water Cooled
YDK-SVGH-C75/35	±75	1237	Water Cooled
YDK-SVGH-C100/35	±100	1650	Water Cooled