SFR-L Series
Low-voltage Power Capacitor Module

User Manual

JIANGSU SFERE ELECTRIC CO., LTD.

1. Introduction

1. 1. Compliance with standards

GB/T 15576-2008 Low voltage reactive power compensation assemblies

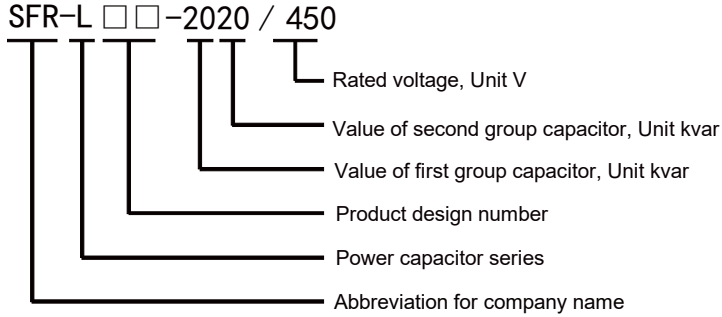
GB/T 22582-2008 Power capacitors—Low-voltage power factor correction banks

JB/T 9663－1999 Low-voltage reactive power automatic compensation controller

1.2. Product description

SFR-L series low voltage intelligent power capacitor modules take two △ type compensation capacitors or one Y type compensation capacitor as main body and are highly integrated with compound switch, microprocessor and other function modules. Due to their modularity structure, they have such advantages as small volume and easy maintenance. SFR-L series power capacitor modules are mainly used for reactive power compensation in the fields where harmonics are not very serious. They are suitable for local compensation, dispersion compensation and centralized compensation. This series of products adopt double zero-crossing switch technology to make sure there is no over voltage or high inrush current during capacitor switching so as to prolong capacitor life and switch life. SFR-L series capacitor modules have many protection functions such as capacitor internal temperature protection, grid harmonic content protection, over current protection, over voltage protection and three phase unbalance protection which make them more reliable. This series of products adopt a using method of building blocks. If many capacitors are used, one of them will become the master automatically, and others will become slaves. Then a reactive automatic control system is built. If some of the slaves fail, they will exit the system automatically without influencing other slaves; if the master fails, it also will exit the system automatically, and then another new master appears and a new control system is built. Meanwhile, SFR-L series capacitor modules are integrated with some functions of power meters which can measure conventional electrical parameters of the power system

2. Model selection



Note: three phase total compensation for rated voltage 450V, and phase separate compensation for rated voltage 250V.

Compensation mode	Capacity (kvar)
Three phase total compensation	25+25
	20+20
	20+10
	10+10
	10+5
	5+5
Phase separate compensation	20
	15
	10
	5

Table 1 Product model list (special specifications can be customized)

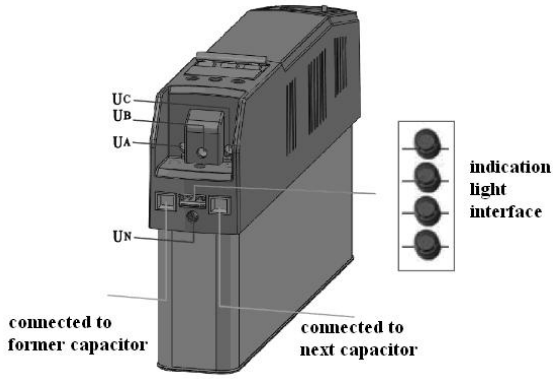
3.Technical parameter

Function	Technical parameter	Feature (accuracy)
Measurement	Current	≤0.5 %（within the range 20%～120% of rated current）
	Voltage	≤0.5 %（within the range 50%～120% of rated voltage）
	Power	≤1%
	Power factor	±0.01
Switching mode		Zero-crossing switch
Compensation operation	Working voltage	AC380V±20%, distortion ≤5%
	Power consumption	≤5VA
	Max. working current	1.35*In
	Switching inrush current	≤ $2\sqrt{2}$ *In
Host protection	Over voltage	1.07*Un （can be set）
	Under voltage	0.75*Un （can be set）
	Harmonic exceeding	0%～100%（can be set)
Local protection	Over current	0～100A (can be set)
	Over temperature	20℃～80℃（can be set）
	Unbalance	0%～200% （can be set）
Control setting	Control parameter	Target power factor, switching threshold, delay time etc.
	Peripheral unit parameters	Current transformer ratio
Network interface		Pluggable data line, internal network protocol.

Mechanical installation	Outline dimension	W (wide)-71.5mm D (depth)-370mm, height is different due to the specific capacity of different specifications
	Installation dimension	Distance between fixing poles: W-85mm*D-315mm
	Weight	≤6.5kg
Environment temperature	Working temperature	-25℃~50℃
	Storage temperature	-25℃~55℃
Altitude		≤2500m

4.Installation and wiring

4.1 Outline dimension

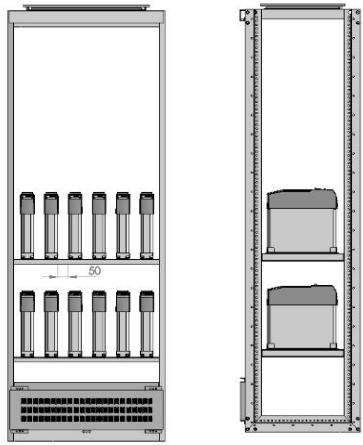


Picture 1

Outline dimension Total compensation series	**Length** (L)mm	**Width** (W)mm	**Height** (H)mm	**Distance between fixing poles** mm Φ7
SFR-L-2525	370	71.5	332	
SFR-L-2020/2010	370	71.5	332	
SFR-L-1010/1005	370	71.5	267	
SFR-L-0505	370	71.5	227	
Separate compensation series	**Length** (L)mm	**Width** (W)mm	**Height** (H)mm	85×315
SFR-L-30				
SFR-L-20	370	71.5	267	
SFR-L-15	370	71.5	267	
SFR-L-10	370	71.5	227	
SFR-L-05	370	71.5	227	

4.2 Installation method

Installation method in compensation cabinet (take GGD cabinet as example)



Picture 2

Cabinet dimension (width*depth*height)	Max. installation number	Max. compensation capacity in one cabinet
800×600×2200	6 modules for one layer, 12 modules in total	480kvar
1000×800×2200	7 modules for one layer, 14 modules in total	560kvar
1200×800×2200	10 modules for one layer, 20 modules in total	800kvar