

# Smart Harmonic Mitigation Capacitor Bank

## SFR-M

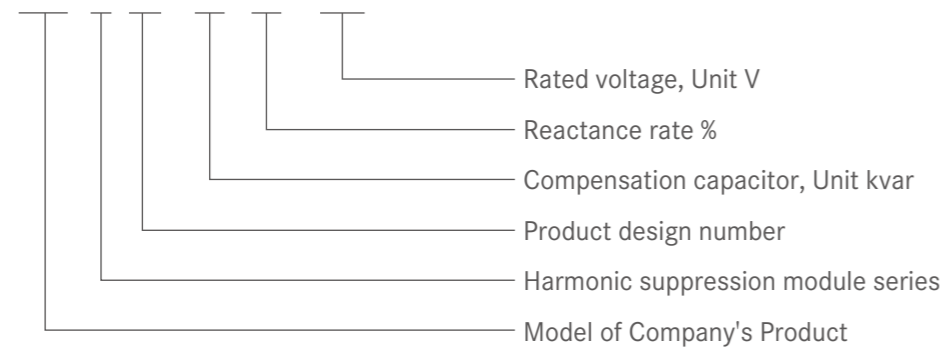
### Overview

SFR-M series LV(low voltage) dynamic harmonic mitigation reactive compensation module is designed for solve the problem of harmonic and power factor in the situation of serious harmonic pollution in 0.4kV low voltage power distribution network. It is used as an integrated reactive power compensation module with functions of power factor enhancement, effective harmonic suppression, reduction of line loss and improvement of power quality.



### Model Description

SFR-M XD - 30 - P7/ 480



### Model Selection

Compensation Mode	Capacity (Kvar)	Model	Application Field
Three-phase Total Compensation	50	SFR-MXD-50-P7/480	It applies at the sites with great amount of non-linear loads such as VFD, UPS, LED lights and switching power supply etc.
	25+25	SFR-MXD-2525-P7/480	
	40	SFR-MXD-40-P7/480	
	20+20	SFR-MXD-2020-P7/480	
	30	SFR-MXD-30-P7/480	
	20+10	SFR-MXD-2010-P7/480	
	20	SFR-MXD-20-P7/480	
	10+10	SFR-MXD-1010-P7/480	
	15	SFR-MXD-15-P7/480	
	10+5	SFR-MXD-1005-P7/480	
Phase Separation Compensation	10	SFR-MXD-10-P7/480	
	30	SFR-MXD-30-P7/280	
	20	SFR-MXD-20-P7/280	
	10	SFR-MXD-10-P7/280	

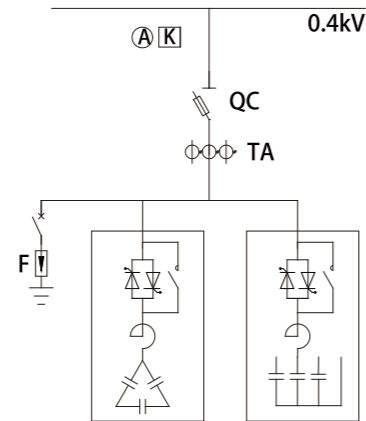
### Technical Parameter

Function	Specification	
Measurement Accuracy	Current	≤1%
	Voltage	0.5% (80%~120%Un)
	Temperature	≤±1℃
Switching Mode	Zero-crossing switch	
Compensation Operation	Working Voltage	AC 380V+20%
	Consumption	≤5VA
	Max.working Current	1.35×In
	Switching Inrush Current	≤2√2×In
Host Protection	Over Voltage	430V (Adjustable)
	Under Voltage	300v (Adjustable)
	Harmonic Exceeding	0%~100% (Adjustable)
Local Protection	Over Current	0~100A (Adjustable)
	Over Temperature	55℃ (Adjustable)
	Unbalance	50%(Adjustable , only for total compensation)
Network Interface	Plug-in data line with RJ45 interface	
Mechanical Installation	Outline Dimension	W-280mm H-290mm, as the capacities of different specifications are slightly different, please consult us for specific product depth
	Installation Dimension	W-295mm, as the capacities of different specifications are slightly different, please consult us for specific installation length.
	Weight	≤45kg
Environment Temperature	Working Temperature	-15C~45℃
	Storage Temperature	-25℃~55℃
Altitude	≤2000m	
Standard	IEC 831-1,2(2000)	

Typical Design

Content	Solution
	Combine compensation, zero-crossing switch,harmonic suppression

Primary Wiring Diagram



Compensation Capacity(Kvar)	Total capacity 240kvar (Total compensation 150kvar+Separate compensation 90kvar)
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Configuration List

Name	Model	Quantity
Knife fuse switch	630A	1
Controller	WGK-31-203-F	1
Status indicator	WGK-31-ZTA	1
Ammeter	PA194I-9X4	1
Current transformer	SHI 500/5	3
Micro circuit breaker	160A	1
Surge protection device	SDX54/4P	1
Total compensation module	SFR-MXD-30-P7/480	5
Separate compensation module	SFR-MXD-30-P7/280	3
Cabinet (GCJ)	1000×1000×2200(mm)	1

The upper example adopts the dynamic harmonic suppression reactive power compensation module configured with WGK-31-203 controller, determines the compensation capacity and reactance coefficient according to the requirement, improves the power factor of the system, and suppresses the harmonic component. The controller can control 32 total compensation modules and separate compensation modules. When the compensation capacity should be added, please add the quantity of dynamic compensation modules and change the specification of knife fuse switch and fuse.

PF Controller

WGK-31-203-G

Compensation mode:  
G indicates three-phase total compensation  
F indicates combined compensation

Product model

Model of Company's Product



Technical Parameter

Items	Parameters	
Voltage	Range	Phase voltage 20~220V or line voltage 20~480V
	Overload	Continuous: 1.2 Un; instantaneous: 2Un
	Power Consumption	<1VA
	Current	Range
Signal Input	Overload	Continuous: 1.2 In; instantaneous: 2In
	Power Consumption	<1VA
	Frequency	45~65 Hz
Power Supply	AC/DC 80~270V	
Communication	Data line connection, physical layer isolation connect up to 32 SFR series modules	
Relay Output	2 programmable alarm relay outputs Capacity 3A/250VAC (3A/30VDC)	
Measurement Accuracy	Current: 0.5(20%~120%), 1.0(5%~20%) Voltage: 0.5(50%~120%), 1.0(5%~50%) Power: 1.0 Frequency: ±0.1Hz Harmonic measurement: B	
Display Mode	128*64 LCD, contrast can be set	
Protection Degree	Panel IP65, case IP30	
Environment	Working temperature: -15~55 °C Storage temperature: -20~75 °C	
Safety	Insulation between signal, power supply, output terminal and case resistor > 100MΩ Withstand voltage between signal input, power supply and output > AC 2kV	
Outline	Outline dimension: 120×120×114mm Weight: 0.6kg	