



FCS series Capacitor switch

15/27/38kV

single/three Phase

Spring & Magnetic Actuator



Product brochure

2012/8

Zhejiang Farady Powertech Co., Ltd.

ISO9001&ISO14001 certificated enterprise

Committed to be better power

++++General

The Farady's new generation FCS capacitor switch is a special electrical field design on vacuum interrupter and switch body insulation for switching capacitive current. integrated with single or three phase pole mounted capacitor bank to be reactive power compensation

With long mechanical and electrical life design can provides an operational life of over 100,000 maintenance-free operations.

Using the FCS will result in substantial savings from reduced maintenance and maximized bank uptime and will also improve Power Quality.

The FCS all comply with relative standard ANSI C37.66/IEC62271

++++Service condition

Ambient temperature: -40°C~+85°C, day temperature difference: 25°C;

Altitude: Below 2000m(special condition pls contact Farady Technical);

Wind speed no exceeds 35m/s;

No normally intensity vibration

No intensity erosion gas, medium place (for example acid, alkali, smother eg.)

Pollution class: IV class;

Charge temperature -40°C~+85°C。

++++Feature

With optional choice by Normal type and magnetic actuator mechanism.

 <p>Magnetic actuator operate mechanism</p>	<p>This advanced design monostable type magnetic actuator. With mechanical life 100,000 times. Intelligence capacitor switch controller</p>
	<p>Spring mechanism available</p>
<p>Manual trip/Close</p>	<p>Can be manual trip by hook sticker.</p>
<p>Open/Close indicator</p>	<p>Visible from ground</p>

With optional classes for rated current range:

For 15/27/38kV, with 630A, Max 50kA making capacity. Normal current 1250A is optional.

With optional communication protocols & I/O port for user choice:

RS-232 and RS-485 ports supporting.

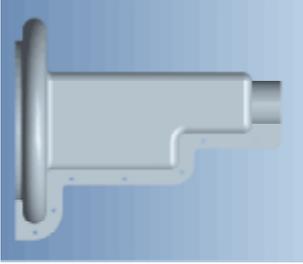
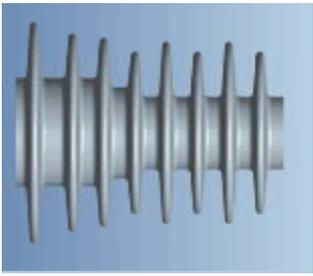
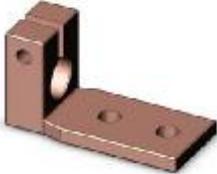
Modbus communication protocol is optional(*need special order)

IEC 60870-5-101 communication protocol support.

The Capacitor switch can communicate through GPRS(Or GSM) modem with English(need *special order)

Note: (*) mean should customized by manufacturer if needed.

++++Accessories of FCS

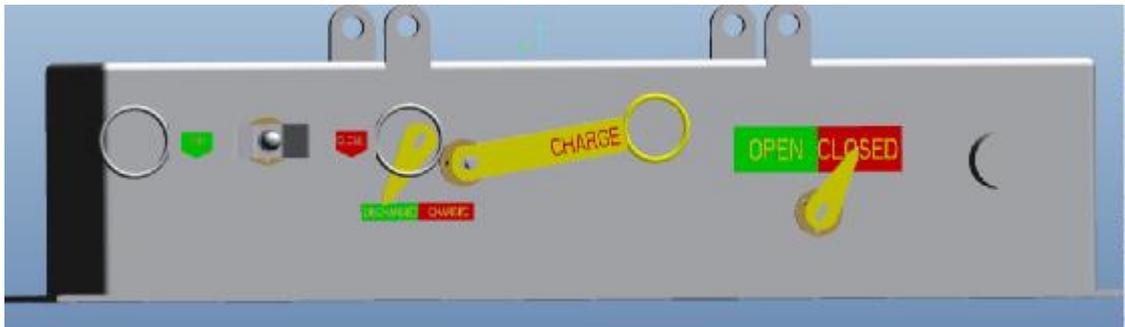
		
Upper terminal Insulator cover 3 pcs/set	Lower terminal Insulator cover 3 pcs/set	Lower expanding bushing 3 pcs/set
		
Upper terminal 3 pcs/set	Lower terminal 3 pcs/set	

Note: Standard made of T2 copper material, for 630A rated current using. With expanding range.

++++Main new advantages of FCS capacitor switch

High reliable manual operation device

High reliable manual closing device



Visible ON/OFF indicator

IP65 class waterproof plug connector

Note:

Farady Supply special design manual closing device technology with own patent, It applied for normal and abnormal situation closing. Its closing speed(time) comply with IEC62271-100

This function can offset from magnetic actuator fault which when actuator can't work will cause the major accident.

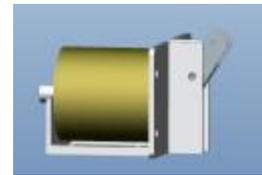


Primary incomer terminal (directly connect to interrupter reduce power lost)

Vacuum interrupter (with APG technology with external silicone rubber mold pressure covering, increasing the whole insulation and weathering performance)

Outlet bushing (external modular design easy for quality control and maintenance)

Apply ANSOFT design the high-performance magnetic actuator, high reliable and free maintenance. Through 35,000 times opening reverse excitation test, the demagnetization rate less than 1%.



Note:

Farady supply special patent modular design mono-stable type magnetic actuator with two coils controlling. Its the best design for vacuum FCS caps witch.

+++++ Main technical parameter

Main technical data of the FCS

No.	Item	Unit	Data
1	Rated voltage	KV	15/27/38
2	Rated current	A	200 up to 630
3	Rated frequency	HZ	50/60
4	Power frequency 1min	Dry	50/70/95
		Wet	45/65/80
5	Lightning impulse withstand voltage(peak value)alternate, opposite/fracture	KV	110/150/170/200
6	Rated short circuit breaking current	KA	12.5/16/20
7	Symmetrical fault-making current	KA	12.5/16/20
8	Rated peak value withstand current	KA	31.5/40/50
9	Symmetrical short time withstand current	KA	12.5/16/20
10	Rated operating circulates		O-0.3S-CO-3S-C (3S minimum)
11	Single capacitor breaking	A	630
12	Back to back capacitor bank breaking	A	400
13	Mechanism life	times	10,000/100,000

14	Secondary loop 1 min power frequency withstand voltage	KV	2
15	Auxiliary voltage	V	240 AC/DC

Note: (*) is meant special for optional. When needed should discuss with our engineer.

Exceeds Electrical Requirements of ANSI C37.66

++++Creepage Distances of FCS capacitor switch

Description	15kV BIL 90kV	27kV BIL 150kV	38kV BIL 170kV	38kV BIL 200kV
T to T*	470	840	1140	1250
T to G/E*	500	1020	1200	1300

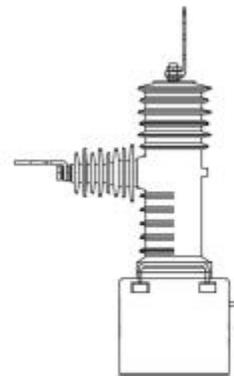
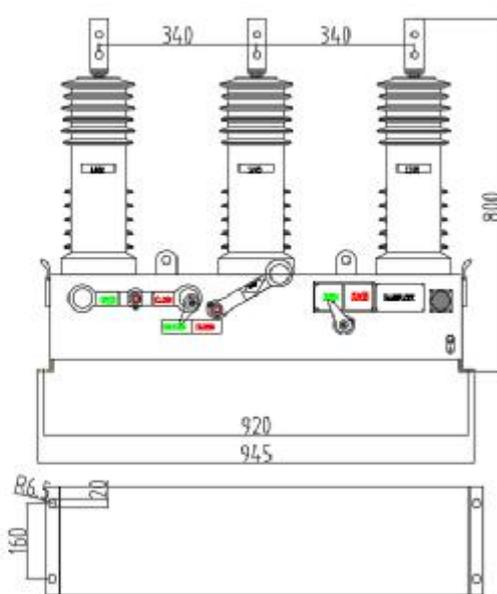
Note:

T to T* -----Terminal to terminal creepage

T to G/E* -----Terminal to ground/earth creepage

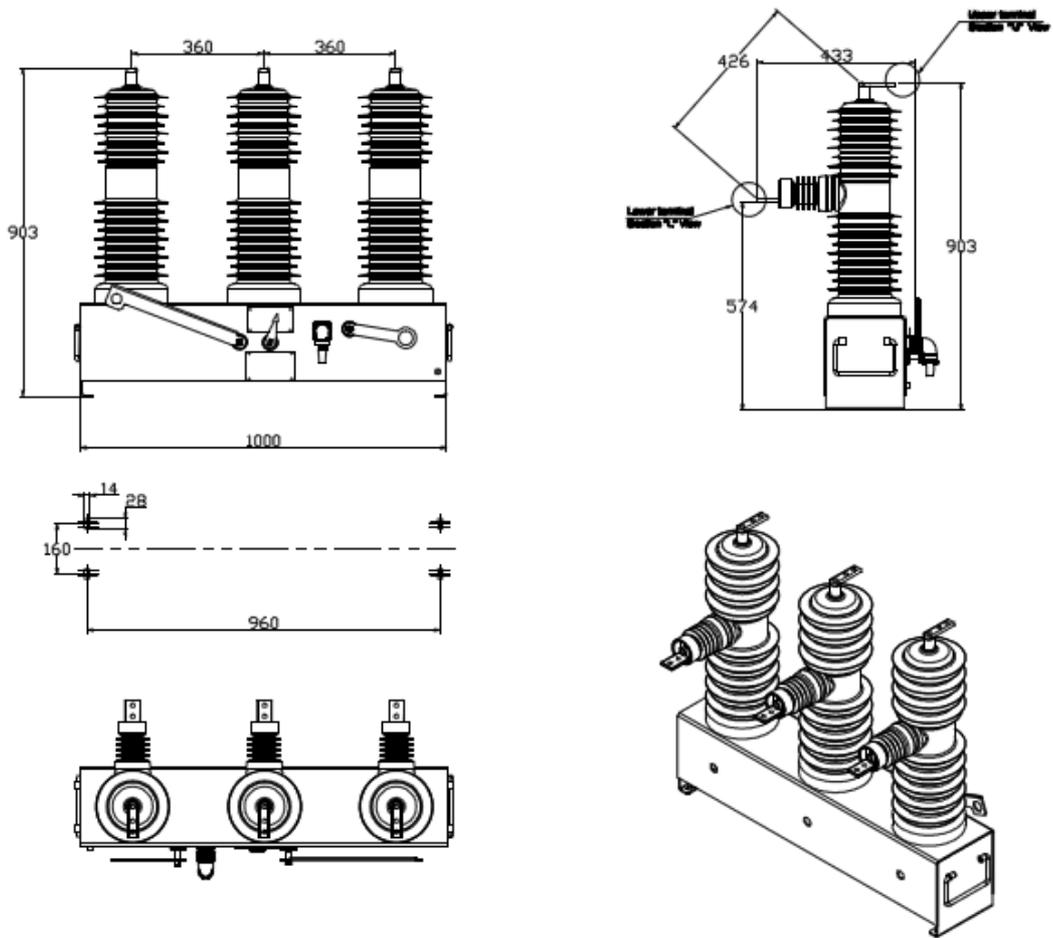
This figure does not include lower expanding bushing

++++Outline & Sizes for FCS



NOTE:
 1. Incoming & outgoing wire clamp --NEMA standard hole and the wire clamp will be copper busbar
 2. With lower expanding bushing

Reference dimensions for 15kV FCS capacitor switches.



Reference dimensions for 27kV FCS capacitor switches.

++++Capacitor switch controller features



Offering:

- 1, ON/OFF signal light
- 2, Alarm(fault) light
- 3, Open&Close push button
- 4, Batteries
- 5, Capacitor
- 6, MCB
- 7, power Inverter
- 8, Intelligence Control device
- 9, Rotate switch
- 10, Auxiliary switch contacts
- 11, Cable connector
- 12, Terminals
- 13, Others

Specification of components:

- 1, **ON&OFF signal light**
ON signal light red color, OFF light Green.
Power from inner controller.
- 2, **Alarm(fault)light**
Yellow color. Power from inner controller
Power from inner controller.
Power from inner controller.
- 3, **Open&Close push button**
Open push button Green color.
Close push button Red color.
Power from inner controller.

Note:

For remote controlling can set additional circuit loop, power from outside. detail see secondary diagram.

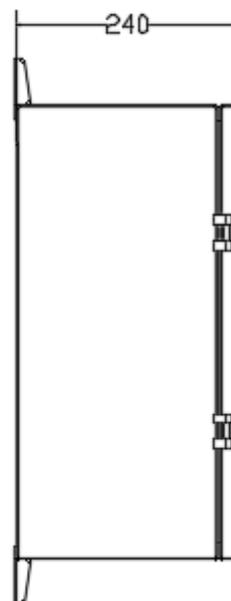
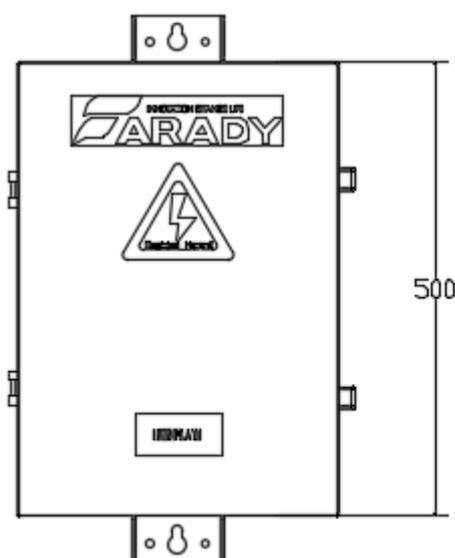
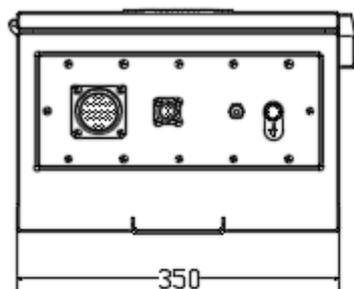
- 4, **Batteries, 2pcs**
12Vdc, 7AH/pcs
Close push button Red color.
Power from inner controller.
- 5, **Capacitor, 1pcs**
250Vdc, 22000uF.
- 6, **MCB, 2poles 1pcs, 1poles 1pcs.**
AC220Vac, 16A.
for protection and switching.
- 7, **Power inverter, capacitive battery /1pcs.**
Capacitive type, 24Vdc exchange to 250Vdc..
battery inverter accordingly outside power.
- 8, **Intelligence control device 1pcs.**
For switching controlling coils.
- 9, **Rotate switch, 220Vac 1pcs.**
Control for remote circuit or local circuit.
- 10, **Auxiliary switch contacts**
Backup for clients. 220Vac, 10A.

Note:

Others pls contact with Farady's Engineers.

Note: (*) Standard equipped with only terminal or ON/OFF controller, special design must be customized

++++Outline & Sizes for FCS capacitor switch controller



++++Before order pls clear of your requirement.

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