

# RELAYS

## Solar Energy Systems

FTR-J2 - FTR-K2W - FTR-F4G - FTR-K3-WG - FTR-K2G



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THE POSSIBILITIES ARE INFINITE

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# Solar energy systems

## Relays

Fujitsu Components recognizes the value and importance of protecting the global environment and strives to contribute to the creation of a sustainable environment for future generations.

Not only does Fujitsu endeavour to reduce the environmental impact of the products throughout the product lifecycle, but also designs its products for integration in environment improving appliances. Fujitsu Components' product range contains power relays that are highly recommended to be used in solar energy systems.

With its current relay product range Fujitsu Components Europe has the opportunity to provide multiple solutions for solar energy systems. Fujitsu's solar relays have two target functions within the solar converter. The DC relays, to switch on/off the DC voltage generated by the solar panel, and the AC relays with big contact gap, to switch on/off the provision of the generated electricity to the power grid.

This guide gives an overview of Fujitsu's relay product line up applicable for solar energy systems and its key features.

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## Fujitsu solar relays for a sunny future

# FTR-J2

## Ultra small high voltage DC relay

The FTR-J2 is one of Fujitsu's DC relays suitable to be integrated in the solar converter to switch on/cut off the DC voltage and current generated by the solar panel.

The FTR-J2 relay is capable of switching 450V DC, 10A. Although the relay's capability to switch these high voltages, the relay dimensions are relatively small, the relay measures just 24mm(L)x 23.5mm(W)x27 mm(H).

To be able to switch high DC voltages in these small dimensions, Fujitsu has designed two strong permanent magnets in the relay. This magnetic provision is installed to extinguish the severe breaking arc. These two magnets ensure the safety of the relay. The FTR-J2 is the powerful, compact and reliable solution for solar appliances that need to switch high DC voltage.

The FTR-J2 is a 2 Form A relay that can be used in two different configurations. It can be used in a circuit with a configuration of switching 2x200VDC and with a configuration of switching 1x450VDC.

The FTR-J2 can handle an inrush current of 150A (capacitive load). It offers high insulation between contacts and coil with an insulation distance of clearance/creepage > 6mm, a dielectric strength of 4,000VAC and 10,000V surge strength.



### Application examples

- Solar systems
- UPS
- Fuel Cells
- Battery powered equipment
- Wireless base stations

## FTR-K2W

### DC relay with 2x3.2 mm contact gap

The FTR-K2W is one of Fujitsu's latest relay developments. This brand-new DC relay has a special feature with its big contact gap of > 6mm. This double contact relay is designed with a contact gap of 3.2mm each.

The FTR-K2W enables remote switching and emergency cut-off of the solar panel. The relay is capable of switching 60V DC, 30A. The high insulation that the FTR-K2W offers, is shown in the relay's insulation distance of clearance >8.0mm/creepage >9.5mm, the 5,000VAC dielectric strength and the surge strength of 5,000VAC. Likewise the FTR-J2, the FTR-K2W can be integrated in the solar converter to cut off/pass through the renewable DC energy. The very big contact gap and powerful switching capabilities classify this relay among the safest DC power relays.



#### Application examples

- Solar converters/panels
- Battery powered equipment
- Base stations (Wimax)
- UPS

## FTR-F4G

### New relay with 1.5mm contact gap

After introducing Fujitsu's DC power relay line up oriented on solar energy systems, the coming three pages will highlight the AC relays. These AC relays within Fujitsu's product line up are recommended to be integrated in the solar converter as a switch to turn on/off the provision of the generated electricity to the mains power grid.

First in line is the FTR-F4G, its main special feature is the contact gap of 1.5mm. According to the DIN safety standard VDE 0126-1-1 the circuit break function between the solar converter and the power grid must have a contact gap  $\geq 1.5\text{mm}$  at each pole. For systems that provide galvanic isolation; two relay contacts are needed.

The FTR-F4G has a 2 form A contact configuration. Its switching capability of 250VAC, 5A makes the relay most suitable for the solar energy system type with low power requirements. The relay contact has TV3 inrush capability.



#### Application examples

- Solar power system/inverters
- Power generation systems
- UPS
- Home appliances
- Office equipment

## FTR-K3-WG

### New! FTR-K3 relay with big contact gap

Fujitsu is pleased to introduce the FTR-K3-WG. This relay type has recently been added to the standard FTR-K3 series. With its contact gap of 1.5mm, the relay complies with the DIN standard VDE 0126-1-1 for integration in solar energy appliances.

The FTR-K3-WG is highly recommended to be part of the inverter function as a switch between the converter and the power grid. Compared to the early mentioned FTR-F4G relay, the FTR-K3-WG has a higher contact rating; 25A, 250VAC. Because of its high power the relay is recommended for the larger solar panel systems.

The FTR-K3-WG can handle a carry current of 25A. It offers high insulation between contacts and coil with an insulation distance of clearance > 6.5mm / creepage > 9.5mm, a dielectric strength of 5,000VAC and 8,500V surge strength.



#### Application examples

- Solar energy systems
- Printers
- Copy machines
- OA machines
- Power supply
- Inter-lock functions  
(IEC60950-1 .1.0mm contact gap)

## FTR-K2G

### Power relay with wide contact gap

Last but not least, Fujitsu present the FTR-K2G. The relay has a contact separation of more than 3mm which provides a safe power switching between the mains power lines and the equipment providing full disconnection.

The insulation distance between coil and contacts with a creepage of >8mm offers reinforced insulation. The FTR-K2G features a 1 form A contact and is capable of switching 5000VA with a max switching voltage of 440VAC. Besides these specifications, the relay has a high contact capacity of 20A. This powerful relay is recommended for the large solar panel systems.

Further more has the FTR-K2G contact a TV8 inrush capability. The coil voltage ranges from 5 to 100VDC with a dissipation of 1W. The FTR-K2G relay has been designed based on the need of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated (complies with IEC 60335-1).



#### Application examples

- Photovoltaic inverters
- Washing machines
- Tumble dryers
- Home entertainment systems
- Saunas
- Industrial power supplies
- Copiers (inter lock circuit)

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