

## Announcement on Release of RN Series Power Relays (25 A and 40 A Products)

We would like to thank you for your continued patronage of Fuji products.

We are writing to announce the release of 25 A and 40 A power relays designed for power supply disconnection applications.

Please keep this information as a reference when newly selecting products.

### 1. Background of Release

In recent years, the rated capacity of power relays has been increasing. Magnetic contactors can be applied to various loads such as those for motor operation and power supply switching, but since power relays are designed especially for power supply disconnection applications, they tend to have an extremely compact size. Typical applications that contribute greatly to downsizing equipment are as follows:

- Switches for disconnecting the commercial power supplies used by small capacity power conditioners (PCS) in solar power generation
- Switches for disconnecting the power supply of inverters (servos) typified by air conditioning applications.

We will start supplying power relays (25 A and 40 A capacity) especially designed for these types of applications.

### 2. Model Released

1) Main product unit --- Two products with a rated capacity of 25 A and 40 A respectively will be released as follows:

Rating	Types	Contact arrangement	Contact rating [ ] indicates NC contact rating	Switching life	Coil voltage Type symbol: Indicated by □□	Auxiliary contact Type symbol: Indicated by ΔΔ
25 A	RN2540-□□	4a (4NO)	Resistive load: 220 V, 25[8]A AC 30 V, 25[8]A DC Inductive load: 220 V, 25[8] A AC (cosφ=0.4)	100,000 operations	DB:12 V DC DE:24 V DC A1:100-120 V AC A2:200-240 V AC	None
	RN2531-□□	3a1b (3NO1NC)				None
	RN2522-□□	2a2b (2NO2NC)				None
40 A	RN4040-□□	4a (4NO)	Resistive load: 440 V, 40[25]A AC 110 V, 5[5]A DC Inductive load: 440 V, 22 A AC (cosφ=0.3)	80,000 operations	DB:12 V DC DE:24 V DC	None
	RN4031-□□	3a1b (3NO1NC)				None
	RN4022-□□	2a2b (2NO2NC)				None
40 A with auxiliary	RN4040-□□ΔΔ	4a (4NO)	Resistive load: 440 V, 40[25]A AC 110 V, 5[5]A DC Inductive load: 440 V, 22 A AC (cosφ=0.3)	80,000 operations	DB:12 V DC DE:24 V DC	20:2a (2NO)
	RN4031-□□ΔΔ	3a1b (3NO1NC)				11:1a1b (1NO1NC)
	RN4022-□□ΔΔ	2a2b (2NO2NC)				02:2b (2NO)

2) Accessories --- Accessories for 25 A (RN25) and 40 A (RN40) products are as follows:

Types	Product description	Specifications
RZ25-P1	Mounting bracket for RN25	-
RZ40-A-□□	Auxiliary contact block□□ 20:2a(2NO) 11:1a1b(1NO1NC) 02:2b(2NC)	Resistive load: 440 V 1 A AC / 110 V, 0.5 A DC Inductive load (cosφ=0.3): 440 V, 0.5 A AC

3) For detailed product specifications, please refer to the attached product description.

### 3. Product Features

- 1) The product profile is small. The products have been especially designed to meet the requirements of downsizing.
- 2) RZ25 and RZ40 both support an ambient temperature of 60°C. This enables them to be used in applications characterized by a high panel inside temperature.  
(RZ40 has some limitations when using auxiliary contacts.)
- 3) RZ40 has a built-in terminal cover.

### 4. Start of Sales

Scheduled for the end of August 2019

The products will be provisionally classified as made-to-order following their release.

### 5. Attachments

Product description: D19067\_Power Relay RN Series Product Description

# Power Relays: RN Series Product Description

## (25 A, 40 A rated products)

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Fuji Electric FA Components & Systems Co., Ltd.

Document No. 19067a

# Features of Power Relays

## ◆ Product features

**Contactors:** Applicable to a wide range of loads such as direct-on-line motor applications, resistive loads and power switching. Applicable to 400 V circuits.

**Power relays:** Specification designed especially for power supply disconnection applications. Some products only support 200 V circuit applications. Make/break durability is low since they are for power supply disconnection applications.



Characteristically compact

Power relays are limited in application but characterized by their compactness.  
Launch of RN Series (25 A, 40 A) products

## ◆ Application examples

Application example (1)	Application example (2)
<p>Disconnection application for small-capacity power conditioning systems (PCS) used in solar power generation</p>	<p>Primary side switching application for air conditioner inverters</p>
<p>System (commercial power supply)</p>	

The applied circuit schematic has been simplified.

# Power Relay (25 A): RN25 Specifications

[1. Product type number nomenclature] [3. Detailed specifications]

**R N 2 5 4 0 - D E**

Power relay  
25 A model

Contact arrangement  
type

40: 4NO  
31: 3NO+1NC  
22: 2NO+2NC

Coil voltage type

DB: 12 V DC  
DE: 24 V DC  
1: 100-120 V AC  
2: 200-240 V AC

Types	RN25	Remarks
Maximum operating voltage	250 V AC/125 V DC	
Contact arrangement	4-pole (4NO, 3NO+1NC, 2NO+2NC)	
Contact rating	NO contact: Resistive load of 220 V, 25 A AC / 30 V, 25 A DC Inductive load (cosφ=0.4) 220 V, 25 A AC NC contact: Resistive load of 220 V, 8 A AC / 30 V, 8 A DC Inductive load (cosφ=0.4) 220 V, 8 A AC	
Rated through current	NO contact: 25 A; NC contact: 8 A	
Electrical life expectancy	100,000 operations or more	At rated load
Mechanical life expectancy	1,000,000 operations or more	
Max. operating cycles per hour	1,800/hr.	
Operation/reset time	50 ms or less (at ambient temperature of 23°C)	When applying rated voltage
Coil rated voltage	DB: 12 V DC      DE: 24 V DC 1: 100-120 V AC    2: 200-240 V AC	
Coil power consumption	AC coil: About 1.8 VA to 2.6 VA DC coil: About 2.0 W	At ambient temperature of 23°C
Coil voltage operating range	75% to 110%	At ambient temperature of 23°C
Operational ambient temperature	-25°C to 60°C (No freezing or dew condensation)	
Operational ambient temperature	5% RH to 85% RH	
Dielectric strength	4000 V AC for 1 min. (between coil and contacts and between opposite polarity contacts)	
Malfunction vibration	NO contact: 10 Hz to 55 Hz; double amplitude 1.5 mm NC contact: 10 Hz to 26 Hz; double amplitude 1.5 mm	
Malfunction shock	NO contact: 100 m/s <sup>2</sup> NC contact: 20 m/s <sup>2</sup>	
Standards	UL, CSA, CE (EN61810-1 electromagnetic relays)	
Mounting	Screws (2-M4); Optional bracket (requires RZ25-P1)	Mount with the test button on the bottom side
Dimensions (W x H x D) /mass	34.5 x 53.5 x 64 / About 190 g	Including RZ25-P1

[2. Appearance]



RZ25 product body      Mounting bracket RZ25-P1  
(with mounting bracket RZ25-P1)

# Power Relay (40 A): RN40 Specifications (1)

[1. Product type number nomenclature] [3. Detailed specifications]

**R N 4 0 4 0 - D E 2 0**

Power relay  
40 A model

Contact arrangement  
type

40: 4NO  
31: 3NO+1NC  
22: 2NO+2NC

Coil voltage type

DB: 12 V DC  
DE: 24 V DC

Auxiliary contact arrangement type

Blank: No auxiliary contact  
20: 2NO  
11: 1NO+1NC  
22: 2NO+2NC

Types	RN40	Remarks
Maximum operating voltage	480 V AC/125 V DC	Same for auxiliary contacts
Contact arrangement	4-pole (4NO, 3NO+1NC, 2NO+2NC)	
Contact rating	NO contact: Resistive load of 440 V, 40 A AC / 110 V, 5 A DC Inductive load (cosφ=0.3) 440 V, 22 A AC NC contact: Resistive load of 440 V, 25 A AC / 110 V, 5 A DC Inductive load (cosφ=0.3) 440 V, 10 A AC	
Rated through current	NO contact: 40 A *1; NC contact: 25 A *1: Reduce at 0.7 A/°C when using with auxiliary contacts at an ambient temperature of 45°C or higher	
Auxiliary contact arrangement	2-pole (2NO, 1NO+1NC, 2NC)	Both NO contact and NC contact Accessories: RZ40-A□□ is built-in.
Auxiliary contact rating	Resistive load of 440 V, 1 A AC / 110 V, 0.5 A DC Inductive load (cosφ=0.3) 440 V, 0.5 A AC	
Auxiliary contact rated through current	1 A	
Electrical life expectancy	80,000 operations or more	At rated load
Mechanical life expectancy	1,000,000 operations or more	
Max. operating cycles per hour	Mechanical: 1,800/hour; At rated load: 1,200/hour	
Operation/reset time	50 ms or less (at ambient temperature of 23°C)	When applying rated voltage
Coil rated voltage	DB: 12 V DC      DE: 24 V DC	
Coil power consumption	About 3.7 W	At ambient temperature of 23°C
Coil voltage operating range	75% to 110%	At ambient temperature of 23°C
Operational ambient temperature	-25°C to 60°C (No freezing or dew condensation)	
Operational ambient temperature	5% RH to 85% RH	
Dielectric strength	4000 V AC for 1 min. (between coil and contacts and between opposite polarity contacts)	

[2. Appearance]



Product without auxiliary contact



Product with auxiliary contact

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# Power Relay (40 A): RN40 Specifications (2) & Accessories

## [3. Detailed specifications (cont.)]

Types	RN40	Remarks
Malfunction vibration	NO contact: 10 Hz to 55 Hz; double amplitude 1.0 mm NC contact: 10 Hz to 32 Hz; double amplitude 1.0 mm	
Malfunction shock	NO contact: 100 m/s <sup>2</sup> NC contact: 20 m/s <sup>2</sup>	
Standards	UL, CSA, CCC, CE, TUV(EN60947-4-1 magnetic contactor)	
Mounting	Screws (2-M4: Mount with coil terminal facing upward) or rails	Please refer to the catalog and instruction manual for details on arc space, etc.
Dimensions (W x H x D) /mass	Product without auxiliary contact: 45 x 62 x 60 / About 330 g Product with auxiliary contact: 45 x 62 x 84 / About 350 g	

## [4. Accessory type number nomenclature]

R Z 4 0 - A 2 0

RN40 accessories  
Auxiliary contact block

Auxiliary contact arrangement type

20: 2NO

11: 1NO+1NC

22: 2NO+2NC

## [6. Detailed specifications]

Types	RZ40-A□□	Remarks
Maximum operating voltage	480 V AC/125 V DC	
Auxiliary contact arrangement	2-pole (2NO, 1NO+1NC, 2NC)	
Auxiliary contact rating	Resistive load of 440 V, 1 A AC /110 V, 0.5 A DC Inductive load (cosφ=0.3) 440 V, 0.5 A AC	
Auxiliary contact rated through current	1 A	
Minimum load	5 V DC, 1 mA	Reference value
Electrical life expectancy	80,000 operations or more	At rated load
Mechanical life expectancy	1,000,000 operations or more	
Max. operating cycles per hour	Mechanical: 1,800/hour; At rated load: 1,200/hour	
Operational ambient temperature	-25°C to 60°C (No freezing or dew condensation)	
Operational ambient temperature	5% RH to 85% RH	
Dimensions (W x H x D)/mass	Product without auxiliary contact: 13 x 47 x 30 / About 18 g	

## [5. Appearance]



RZ40-A□□

# [Usage Precautions]

## 1. Product scope of application

- (1) The product descriptions in this document are provided to facilitate product selection. Before using the product, carefully read the "Instruction Manual." Make sure to use the product correctly.
- (2) The products described in this document have been designed and manufactured as general-purpose products for general industries. The special usages described below are in no way applicable or guaranteed with respect to the products.
  - (a) Applications that require high safety (e.g., nuclear control equipment, combustion equipment, disaster prevention equipment, aviation and aerospace equipment, railway equipment, elevator and lifting equipment, entertainment equipment, medical equipment, safety equipment, automobiles (including motorcycles), and other applications that can pose a risk to life and body)
  - (b) Applications that require high reliability (e.g., gas, water and electricity supply systems, 24-hour continuous operation systems, payment systems, applications dealing in rights and property, etc.)
  - (c) Applications requiring harsh conditions or environments (e.g., equipment installed outdoors where the product is exposed to wind and rain, equipment subject to chemical contamination, equipment subject to electromagnetic interference, equipment susceptible to strong vibration or shock, etc.)
  - (d) Applications requiring conditions or environments not described in the product specifications, etc.
- (3) Our company offers no warranties regarding damages caused by failure to comply with the following matters.
  - (a) Use the product in compliance with ratings, performance and other operating conditions.
  - (b) Carefully check the compatibility, availability, etc. (Our company makes no guarantees at all regarding compatibility, etc.)
  - (c) Check the proper power distribution and installation of the product in advance.
  - (d) Prepare a safety design that minimizes danger in the event of product failure during operation.
  - (e) Construct systemwide safety measures for notifying users of dangers.
  - (f) Perform regular maintenance for the product and its applications.

## 2. Disclaimer regarding warranty liabilities such as loss of opportunities

We disclaim any warranties regarding loss of opportunities, compensation for damages to other company equipment, and all other liabilities to compensate for damages that you or your customers may incur due to the failure of our products, regardless of whether such failure falls under the warranty period.