RY Series Minature Relays

DPDT contact / 3A

RY series are general purpose miniature relays with a 3A contact capacity.

See website for details on approvals and standards.

RY Series

Terminal Style	Type	DPDT	
		Part No.	Coil Voltage Code ☐
Standard Terminal	Basic	RY2S-U☐	AC6, AC12, AC24, AC50, AC100, DC6, DC12, DC24, DC48
			DC100, DC110
			AC110, AC115, AC120
			AC200, AC220, AC230, AC240
	With Indicator	RY2S-UL☐	AC6, AC12, AC24, AC50, AC100
			DC6, DC12, DC24, DC48
			DC100, DC110
			AC110, AC115, AC120
			AC200, AC220, AC230, AC240
	Top Bracket Mounting	RY2S-UT☐	AC6, AC12, AC24, AC50, AC100, DC6, DC12, DC24, DC48
			DC100, DC110
			AC110, AC115, AC120
			AC200, AC220, AC230, AC240
	With Diode (DC coil only)	RY2S-UD☐	DC6, DC12, DC24, DC48
			DC100, DC110
	With Indicator and Diode (DC coil only)	RY2S-ULD☐ (Note)	DC6, DC12, DC24, DC48
			DC100, DC110
PC board Terminal	Basic	RY2V-U☐	AC6, AC12, AC24, AC50, AC100, DC6, DC12, DC24, DC48
			AC110, AC115, AC120
	With Indicator	RY2V-UL☐	AC6, AC12, AC24, AC50, AC100
			DC6, DC12, DC24, DC48
			AC110, AC115, AC120

Note) No applicable standards.

Part No. Development

When ordering, specify the Part No. and coil voltage code.

(Example) RY2S-U DC24

Part No. — Coil Voltage Code

Coil Ratings

	Rated Voltage (V)	Rated Current (mA) ±15% at 20°C		Coil Resistance (Ω) ±10% at 20°C	Operation Characteristics (against rated values at 20°C)		
		50Hz	60Hz		Max. Continuous Applied Voltage	Min. Pickup Voltage	Dropout Voltage
	DPDT	DPDT	DPDT	DPDT			
AC (50/60Hz)	6	170	150	18.8	110%	80% maximum	30% minimum
	12	86	75	76.8			
	24	42	37	300			
	50	20.5	18	1,280			
	100	10.5	9	5,220			
	110	9.6	8.4	6,950			
	115	8.9	7.8	7,210			
	120	8.6	7.5	8,100			
	200	5.6	4.9	21,442			
	220	4.7	4.1	25,892			
	230	4.7	4.1	26,710			
	240	4.9	4.3	26,710			
DC	DPDT	DPDT		DPDT	110%	80% maximum	10% minimum
	6	128		47			
	12	64		188			
	24	32		750			
	48	18		2,660			
	100	10		10,000			
	110	8		13,800			

Standard Ratings

RY2

UL Ratings (Standard Contact)

Voltage	Resistive	General use
240V AC	3A	0.8A
120V AC	—	1.5A
100V DC	0.2A	0.2A
30V DC	3A	3A

CSA Ratings (Standard Contact)

Voltage	Resistive	General use
240V AC	3A	0.8A
120V AC	3A	1.5A
100V DC	—	0.2A
30V DC	3A	1.5A

TÜV Ratings (Standard Contact)

240V AC	3A
30V DC	3A

AC cos =1.0,
DC L/R=0ms

Contact Ratings

Maximum Contact Capacity						
Contact	Continuous Current	Allowable Contact Power		Rated Load		
		Resistive Load	Inductive Load	Voltage	Resistive Load	Inductive Load
Standard Contact	3A	660 VA AC 90W DC	176 VA AC 45W DC	110V AC	3A	1.5A
				220V AC	3A	0.8A
				30V DC	3A	1.5A

Specifications

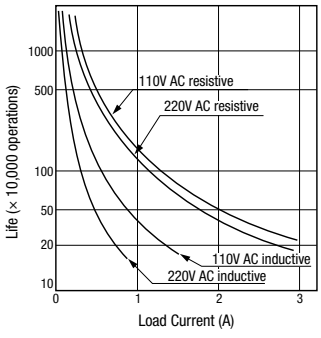
Contact	DPDT
Contact Material	Gold-plated silver
Contact Resistance (*1)	50 mΩ maximum
Minimum Applicable Load	5V DC, 10 mA (reference value)
Operate Time (*2)	20 ms maximum
Release Time (*2)	20 ms maximum
Power Consumption (approx.)	AC: 1.1 VA (50 Hz), 1 VA (60 Hz) DC: 0.8W
Insulation Resistance	100 MΩ minimum (500V DC megger)
Dielectric Strength	Between live and dead parts: 1500V AC, 1 minute Between contact and coil: 1500V AC, 1 minute (*3) Between contacts of different poles: 1500V AC, 1 minute Between contacts of the same pole: 1000V AC, 1 minute
Operating Frequency	Electrical: 1,800 operations/h maximum Mechanical:18,000 operations/h maximum
Vibration Resistance	Damage limits: 10 to 55 Hz, amplitude 0.5 mm Operating extremes: 10 to 55 Hz, amplitude 0.5 mm
Shock Resistance	Damage limits: 1,000 m/s^2 Operating extremes: 100 m/s^2
Mechanical Life	50,000,000 operations
Electrical Life	200,000 operations (220V AC, 3A)
Operating Temperature (*4)	–25 to +50°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Storage Temperature	–55 to +70°C (no freezing)
Storage Humidity	45 to 85% RH (no condensation)
Weight (approx.)	23g

Note: Above values are initial values.
*1) Measured using 5V DC, 1A voltage drop method
*2) Measured at the rated voltage (at 20°C), excluding contact bouncing
Release time of relays with diode: 40 ms maximum
*3) Relays with indicator or diode: 1000V AC, 1 minute
*4) For use under different temperature conditions, refer to Continuous Load Current vs. Operating Temperature Curve.
The operating temperature range of relays with indicator or diode is –25 to +40°C.

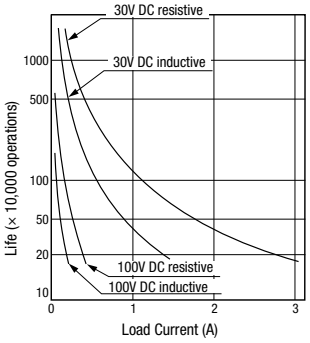
Characteristics (Reference Data)

Electrical Life Curve

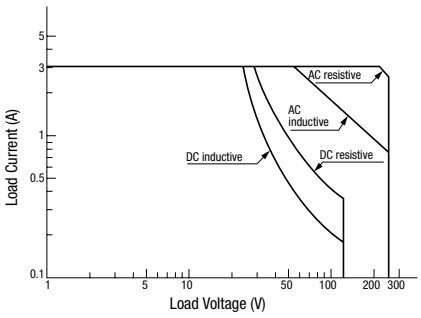
AC Load



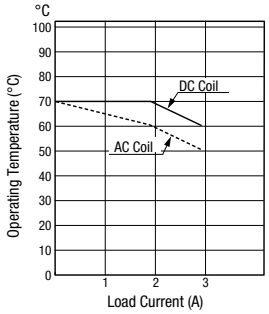
DC Load



Maximum Switching Capacity



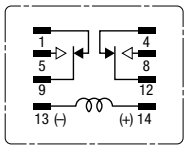
Continuous Load Current vs. Operating Temperature Curve (Basic, With Check Button, and Top Bracket Mounting)



Internal Connection (Bottom View)

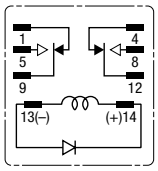
Basic (-U, UT)

DPDT



With Diode (-UD)

DPDT



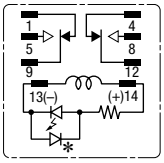
Contains a diode to absorb the counter emf generated when the coil is deenergized. Coil is for DC only. The release time is slightly longer.

- Diode Characteristics
  Reverse withstand voltage: 1,000V
  Forward current: 1A

With Indicator (-UL)

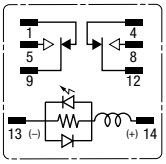
DPDT

Below 24V AC/DC



24V AC/DC and over

DPDT

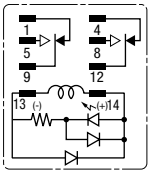


When the relay is energized, the indicator lights on.

With Indicator and Diode (-ULD)

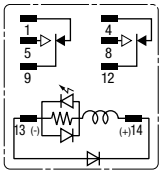
DPDT

Below 24V DC



24V AC/DC and over

DPDT



Contains an operation indicator and a surge absorber, and has the same height as the basic type.

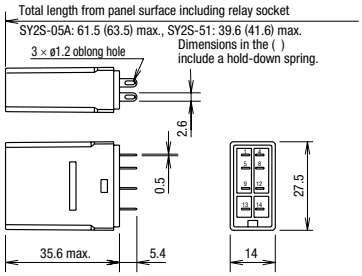
Dimensions

Dimensions in mm.

Plug-in Terminal

RY2S-U / RY2S-UL
RY2S-UD

(Photo: RY2S-U)



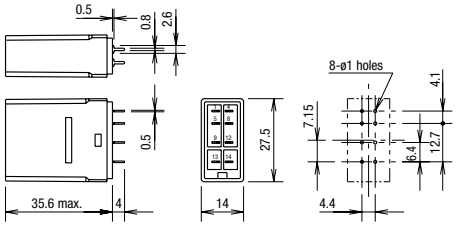
Applicable Socket and Hold-down Spring

	Item	Part No.
For surface wiring	Socket	SY2S-05
	Hold-down spring	SFA-202
		SFA-101
For rear wiring	Solder terminal	SY2S-51
	PC board terminal	SY2S-61
	Hold-down spring	SY4S-51F1
		SFA-302
		SFA-301

PC Board Terminal

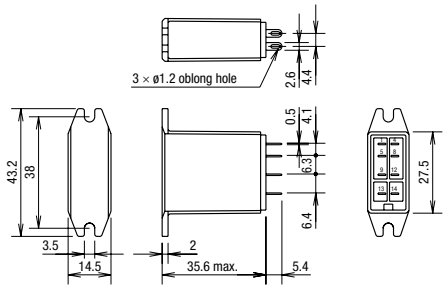
RY2V-U / RY2V-UL

(Photo: RY2V-U)



Top Bracket Mounting (Solder Terminal)

RY2S-UT



Ordering Terms and Conditions

Thank you for using IDEC Products.

By purchasing products listed in our catalogs, datasheets, and the like (hereinafter referred to as "Catalogs") you agree to be bound by these terms and conditions. Please read and agree to the terms and conditions before placing your order.

1. Notes on contents of Catalogs

(1) Rated values, performance values, and specification values of IDEC products listed in this Catalog are values acquired under respective conditions in independent testing, and do not guarantee values gained in combined conditions.
Also, durability varies depending on the usage environment and usage conditions.

(2) Reference data and reference values listed in Catalogs are for reference purposes only, and do not guarantee that the product will always operate appropriately in that range.

(3) The specifications / appearance and accessories of IDEC products listed in Catalogs are subject to change or termination of sales without notice, for improvement or other reasons.

(4) The content of Catalogs is subject to change without notice.

2. Note on applications

(1) If using IDEC products in combination with other products, confirm the applicable laws / regulations and standards.
Also, confirm that IDEC products are compatible with your systems, machines, devices, and the like by using under the actual conditions. IDEC shall bear no liability whatsoever regarding the compatibility with IDEC products.

(2) The usage examples and application examples listed in Catalogs are for reference purposes only. Therefore, when introducing a product, confirm the performance and safety of the instruments, devices, and the like before use. Furthermore, regarding these examples, IDEC does not grant license to use IDEC products to you, and IDEC offers no warranties regarding the ownership of intellectual property rights or non-infringement upon the intellectual property rights of third parties.

(3) When using IDEC products, be cautious when implementing the following.

i. Use of IDEC products with sufficient allowance for rating and performance

ii. Safety design, including redundant design and malfunction prevention design that prevents other danger and damage even in the event that an IDEC product fails

iii. Wiring and installation that ensures the IDEC product used in your system, machine, device, or the like can perform and function according to its specifications

(4) Continuing to use an IDEC product even after the performance has deteriorated can result in abnormal heat, smoke, fires, and the like due to insulation deterioration or the like. Perform periodic maintenance for IDEC products and the systems, machines, devices, and the like in which they are used.

(5) IDEC products are developed and manufactured as general-purpose products for general industrial products. They are not intended for use in the following applications, and in the event that you use an IDEC product for these applications, unless otherwise agreed upon between you and IDEC, IDEC shall provide no guarantees whatsoever regarding IDEC products.

i. Use in applications that require a high degree of safety, including nuclear power control equipment, transportation equipment (railroads / airplanes / ships / vehicles / vehicle instruments, etc.), equipment for use in outer space, elevating equipment, medical instruments, safety devices, or any other equipment, instruments, or the like that could endanger life or human health

ii. Use in applications that require a high degree of reliability, such as provision systems for gas / waterworks / electricity, etc., systems that operate continuously for 24 hours, and settlement systems

iii. Use in applications where the product may be handled or used deviating from the specifications or conditions / environment listed in the Catalogs, such as equipment used outdoors or applications in environments subject to chemical pollution or electromagnetic interference
If you would like to use IDEC products in the above applications, be sure to consult with an IDEC sales representative.

3. Inspections

We ask that you implement inspections for IDEC products you purchase without delay, as well as thoroughly keep in mind management/maintenance regarding handling of the product before and during the inspection.

4. Warranty

(1) Warranty period

The warranty period for IDEC products shall be one (1) year after purchase or delivery to the specified location. However, this shall not apply in cases where there is a different specification in the Catalogs or there is another agreement in place between you and IDEC.

(2) Warranty scope

Should a failure occur in an IDEC product during the above warranty period for reasons attributable to IDEC, then IDEC shall replace or repair that product, free of charge, at the purchase location / delivery location of the product, or an IDEC service base. However, failures caused by the following reasons shall be deemed outside the scope of this warranty.

i. The product was handled or used deviating from the conditions / environment listed in the Catalogs

ii. The failure was caused by reasons other than an IDEC product

iii. Modification or repair was performed by a party other than IDEC

iv. The failure was caused by a software program of a party other than IDEC

v. The product was used outside of its original purpose

vi. Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and Catalogs

vii. The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from IDEC

viii. The failure was due to other causes not attributable to IDEC (including cases of force majeure such as natural disasters and other disasters)

Furthermore, the warranty described here refers to a warranty on the IDEC product as a unit, and damages induced by the failure of an IDEC product are excluded from this warranty.

5. Limitation of liability

The warranty listed in this Agreement is the full and complete warranty for IDEC products, and IDEC shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to an IDEC product.

6. Service scope

The prices of IDEC products do not include the cost of services, such as dispatching technicians. Therefore, separate fees are required in the following cases.

(1) Instructions for installation / adjustment and accompaniment at test operation (including creating application software and testing operation, etc.)

(2) Maintenance inspections, adjustments, and repairs

(3) Technical instructions and technical training

(4) Product tests or inspections specified by you

The above content assumes transactions and usage within your region. Please consult with an IDEC sales representative regarding transactions and usage outside of your region. Also, IDEC provides no guarantees whatsoever regarding IDEC products sold outside your region.

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