

# Electronics-Salon

## Passive Bistable(Latching) DPDT 8A Power Relay Module

### Version List

One relay without DIN rail mount housing:

MD-D262/5V, MD-D262/12V, MD-D262/24V.

One relay with DIN rail mount housing:

MD-D262T/5V, MD-D262T/12V, MD-D262T/24V.

Two relay without DIN rail mount housing:

MD-D263/5V, MD-D263/12V, MD-D263/24V.

Two relay with DIN rail mount housing:

MD-D263T/5V, MD-D263T/12V, MD-D263T/24V.

Four relay without DIN rail mount housing:

MD-D264/5V, MD-D264/12V, MD-D264/24V.

Four relay with DIN rail mount housing:

MD-D264T/5V, MD-D264T/12V, MD-D264T/24V.

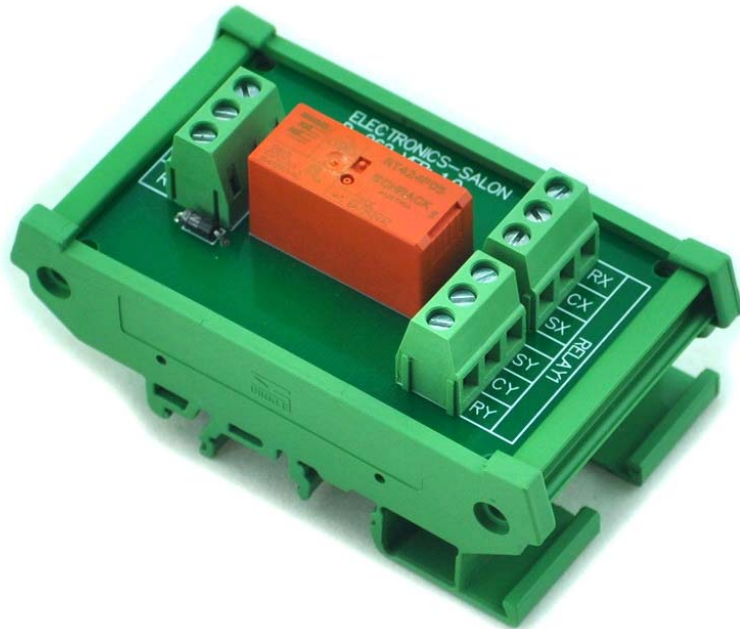
**Module**

**Picture**

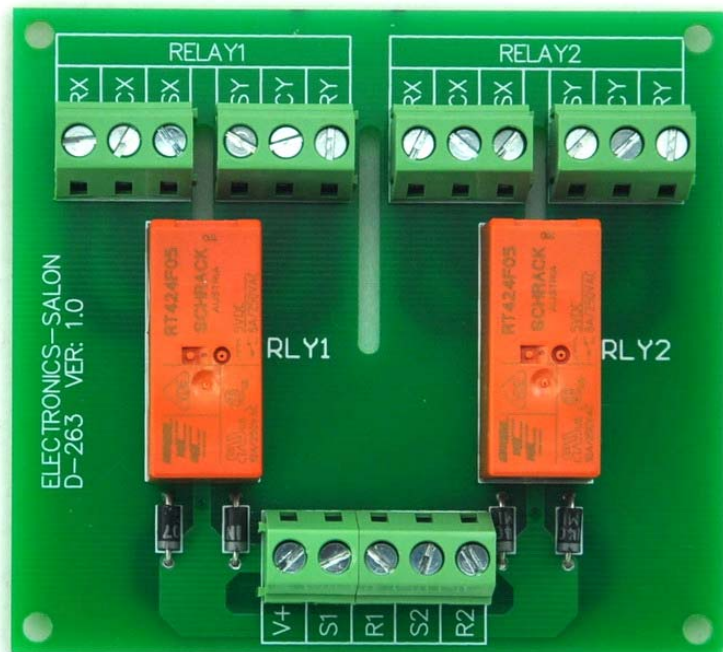
**MD-D262**  
**5V 12V 24V**



**MD-D262T**  
**5V 12V 24V**

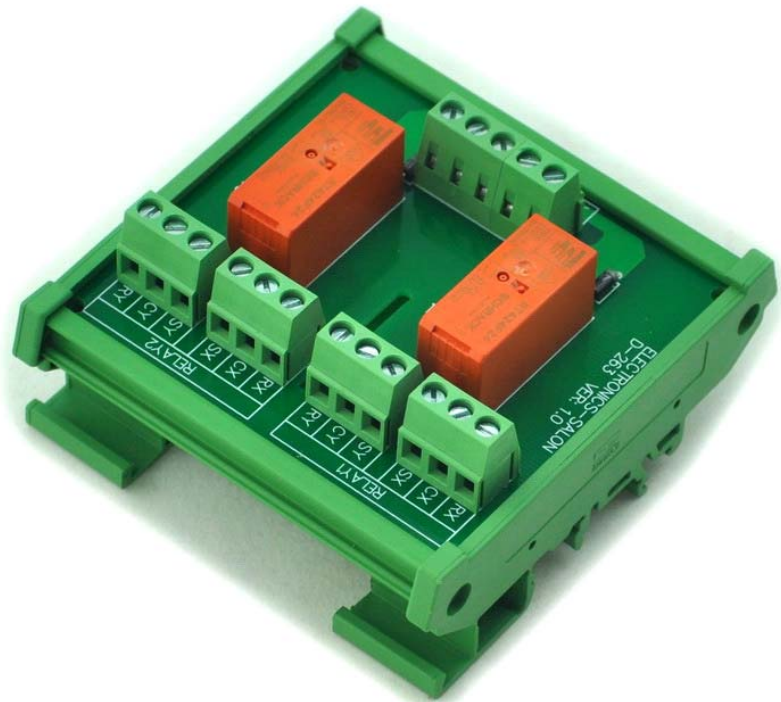


**MD-D263**  
**5V 12V 24V**



**MD-D263T**

**5V 12V 24V**



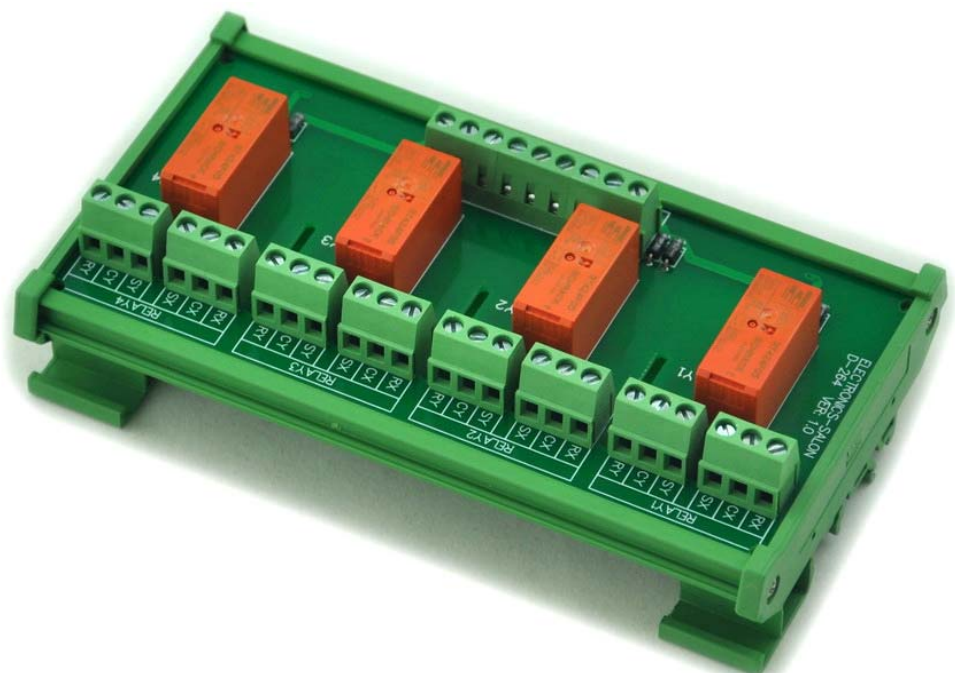
**MD-D264**

**5V 12V 24V**



**MD-D264T**

**5V 12V 24V**



## Passive Bistable(Latching) DPDT 8A Power Relay Module

Bistable(Latching) relay is a special kind of relay. These are also called "impulse", "keep" or "stay" relays. When the current is switched off, the relay remains in its last state. While a conventional relay uses power continuously when its internal switch is to be closed (relay coil energized), a latching relay require only a brief voltage pulse to change state. The relay will maintain its state when the power supply removed.

Typical applications:

Battery powered equipment or applications with "memory function".

<b>Relay type</b>	<b>TYCO RT2 series bistable power relay.</b> 5V version: RT424F05 12V version: RT424F12 24V version: RT424F24
<b>Operating current (single relay action)</b>	5V version: 119mA 12V version: 50mA 24V version: 27Ma
<b>Operating voltage range</b>	5V version: DC 3.5 ~ 7.5V. 12V version: DC 8.4 ~ 18V. 24V version: 16.8 ~ 36V.
<b>Size (L x W x H)</b> D-262/xx D-262T/xx D-263/xx D-263T/xx D-264/xx D-264T/xx	47.4 x 72.5 x 20 mm 50 x 87 x 41 mm 80 x 72.5 x 20 mm 83 x 87 x 41 mm 150 x 72.5 x 20 mm 153 x 87 x 41 mm

### Switch contact data:

<b>Contact arrangement</b>	<b>DPDT (2 form C)</b>
<b>Rated voltage</b>	<b>250VAC</b>
<b>Max. switching voltage</b>	<b>400VAC</b>
<b>Rated current</b>	<b>8A, UL 10A</b>

Limiting continuous current	8A, UL 10A
Limiting making current (max. 4s )	15A
Breaking capacity max.	2000VA

### Control terminal block:

V+: relay coil common terminal.

R: relay reset action signal input.

S: relay set action signal input.

### Switch terminal blocks:

Rx / Cx / Sx: Switch X.

Ry / Cy / Sy: Switch Y.

When the input trigger signal R is Low(pulse or constant):

Switch X, Rx – Cx is connected and Cx – Sx is disconnected.

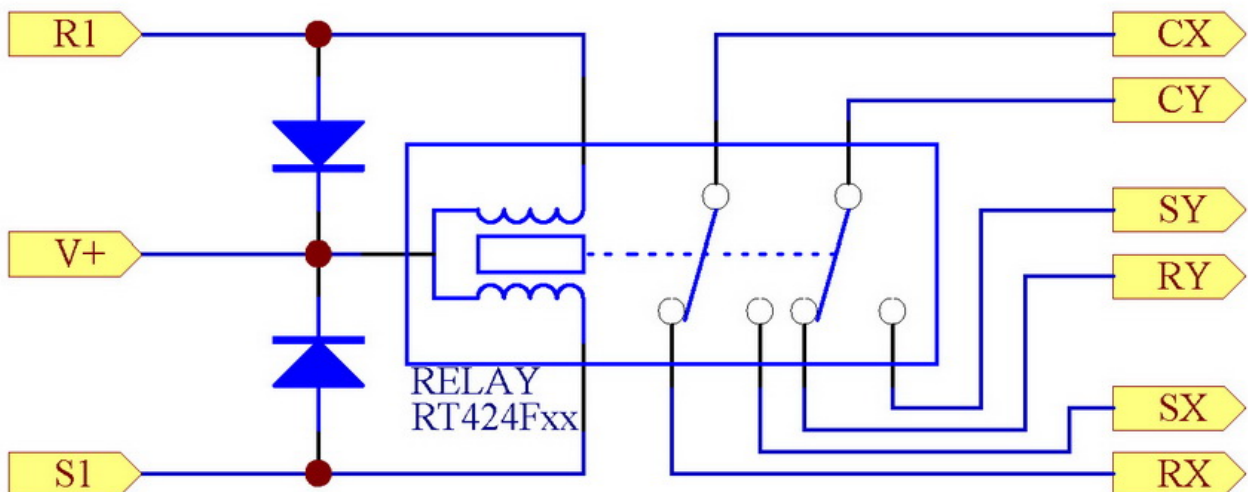
Switch Y, Ry – Cy is connected and Cy – Sy is disconnected.

When the input trigger signal S is Low(pulse or constant):

Switch X, Rx – Cx is disconnected and Cx – Sx is connected.

Switch Y, Rx – Cx is disconnected and Cx – Sx is connected.

### Schematic(one relay):



## Time / State table:

SW state: 0 = disconnected, 1 = connected

Time order	V+	R Signal	S Signal	SW1 R1-C1 / C1-S1	SW2 R2-C2 / C2-S2
0	OFF	H	H	Unknown, but it keeps the state before the power off.	
1	ON	H	H		
2	ON	L	H	1 / 0	1 / 0
3	ON	H	H	1 / 0	1 / 0
4	ON	H	L	0 / 1	0 / 1
5	ON	H	H	0 / 1	0 / 1
6	OFF	H	H	0 / 1	0 / 1
7	OFF	L	H	0 / 1	0 / 1
8	OFF	H	L	0 / 1	0 / 1
9	OFF	H	H	0 / 1	0 / 1

### Note:

1, R and S signal, at the same time, cannot both is Low state.

2, Due to the mechanical characteristics of the relay, I suggest that the best high state consistently greater than 300 milliseconds.

**This is a simple circuit, but my description is very long-winded, I even worried that readers would misunderstand. if you still do not understand, please feel free to tell me:**

[Jianglily2005@gmail.com](mailto:Jianglily2005@gmail.com)

The following two pages is the Tyco relay datasheet:

**Power PCB Relay RT2 bistable**

- 2 pole 8A, 2 form C (CO) contacts
- Polarized bistable version with 1 or 2 coils
- 5kV/10mm coil-contact
- Reinforced insulation

Typical applications  
Battery powered equipment or applications with "memory function".



**Approvals**

VDE REG.-Nr. 6106, UL E214025, cCSAus 14385  
Technical data of approved types on request.

**Contact Data**

Contact arrangement	2 form C (CO)
Rated voltage	250VAC
Max. switching voltage	400VAC
Rated current	8A, UL: 10A
Limiting continuous current	8A, UL: 10A
Limiting making current, max. 4s, duty factor 10%	15A
Breaking capacity max.	2000VA
Contact material	AgNi 90/10
Frequency of operation, with/without load	900/72000h <sup>-1</sup>
Operate/Reset time max.	10/5ms
Bounce time max., form A/form B	4/9ms

**Contact ratings**

Type	Contact	Load	Cycles
<b>IEC 61810</b>			
RT444	A (NO)	8A, 250VAC resistive, 85°C	100x10 <sup>3</sup>
RT424	C (CO)	8A, 250VAC resistive, 85°C	30x10 <sup>3</sup>
<b>UL 508</b>			
RT424	A/B (NO/NC)	10A, 250VAC, general purpose, 85°C	20x10 <sup>3</sup>
RT424	A/B (NO/NC)	1/2hp, 240VAC, 85°C	1x10 <sup>3</sup>
RT424	A/B (NO/NC)	Pilot duty, B300, R300, 85°C	6x10 <sup>3</sup>

Mechanical endurance >2x10<sup>6</sup> operations

**Coil Data, bistable coils**

	1 coil	2 coils
Magnetic system	polarized, bistable	
Coil voltage range	3 to 24VDC	
Operative range, IEC 61810	2	
Limiting voltage, % of rated coil voltage	120%	150%
Min./Max. energization duration	30ms/1min at <10% duty factor	
Coil insulation system according UL	class F	

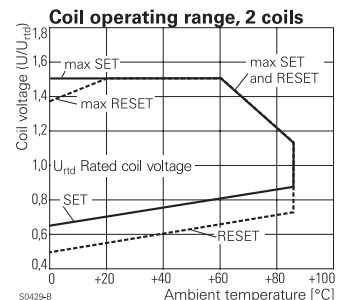
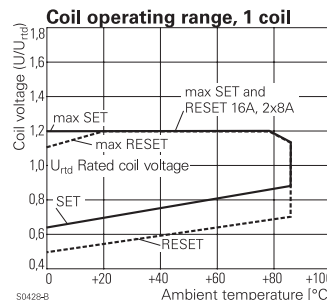
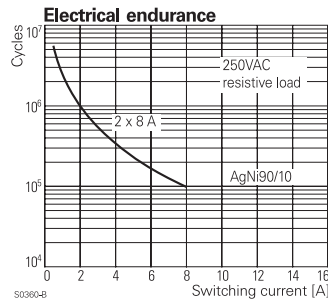
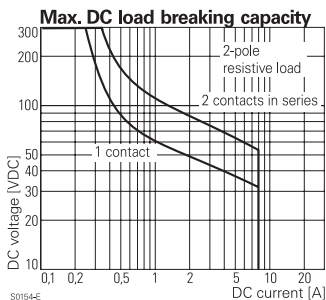
**Coil versions, bistable coil**

Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Coil resistance Ω±10%	Rated coil power mW
<b>bistable 1 coil</b>					
A03	3	2.1	1.7	21	429
A05	5	3.5	2.8	62	403
A06	6	4.2	3.3	90	400
A12	12	8.4	6.6	360	400
A24	24	16.8	13.2	1440	400
<b>bistable 2 coils</b>					
F03	3	2.1	1.7	15	600
F05	5	3.5	2.8	42	595
F06	6	4.2	3.3	55	655
F12	12	8.4	6.6	240	600
F24	24	16.8	13.2	886	650

All figures are given for coil without pre-energization, at ambient temperature +23°C. Other coil voltages on request.

**Bistable coils - operation**

Version	1 coil		2 coils		
Coil terminals	A1	A2	A1	A3	A2
Operate	+	-	+	+	-
Reset	-	+	-	+	+
Contact position not defined at delivery					





**Power PCB Relay RT2 bistable** (Continued)

**Insulation Data**

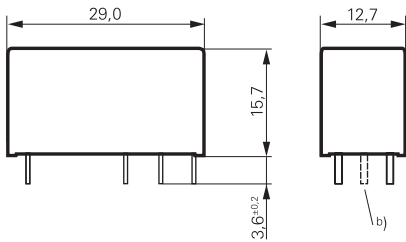
Initial dielectric strength	
between open contacts	1000V <sub>rms</sub>
between contact and coil	5000V <sub>rms</sub>
between adjacent contacts	2500V <sub>rms</sub>
Clearance/creepage	
between contact and coil	≥10/10mm
between adjacent contacts	≥ 3/4mm
Material group of insulation parts	
IIIa	
Tracking index of relay base	
PTI 250V	

**Other Data**

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at [www.te.com/customersupport/rohssupportcenter](http://www.te.com/customersupport/rohssupportcenter)

Ambient temperature	
bistable 1 coil	-10 to 85°C
bistable 2 coils	-40 to 85°C
Category of environmental protection	
IEC 61810	RTII - flux proof
Vibration/shock resistance (functional), opening B contact	
	3/5g
opening closed A contact	
	6/15g
Shock resistance (destructive)	
	100g

**Dimensions**



a) Indicated contact position while or after coil energization with reset voltage.

b) for 2 coil version only

**Other Data** (continued)

Terminal type	PCB-THT, plug-in <sup>1)</sup>
Weight	13g
Resistance to soldering heat THT	
IEC 60068-2-20	270°C/10s
Packaging/unit	tube/20 pcs., box/500 pcs.

1) socket available for 1 coil version only, see Accessories.

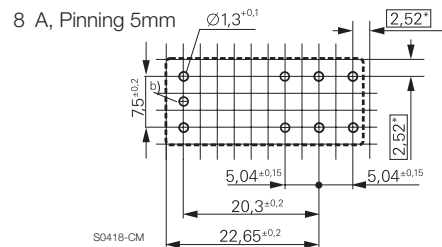
**Accessories**

For 1 coil version, details see datasheet [Accessories Industrial Power Relay RT](#)

NOTE: indicated contact ratings and electrical endurance data for direct wiring of relays (according IEC 61810-1); for relays mounted on sockets deratings may apply.

**PCB layout / terminal assignment**

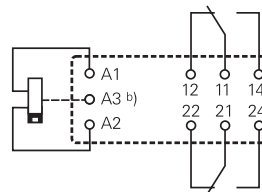
Bottom view on solder pins



\*) With the recommended PCB hole sizes a grid pattern from 2.5mm to 2.54mm can be used.

2 form C (CO) contacts

a)



**Product code structure**

Typical product code **RT 4 2 4 F24**

<b>Type</b>	RT Power PCB Relay RT2 bistable			
<b>Version</b>	4 8A, pinning 5mm, flux proof	E 8A, pinning 5mm, wash tight		
<b>Contact configuration</b>	2 2 form C (CO) contacts			
<b>Contact material</b>	4 AgNi 90/10			
<b>Coil</b>	Coil code: please refer to coil versions table			

Product code	Version	Contacts	Contact material	Coil version	Coil	Part number
RT424A05	8A,	2 form C (CO) contacts	AgNi 90/10	Bistable 1 coil	5VDC	4-1393243-4
RT424A12	pinning 5mm, flux proof			Bistable 2 coils	12VDC	4-1393243-6
RT424F05					5VDC	5-1393243-2
RT424F12					12VDC	5-1393243-4
RT424F24					24VDC	5-1393243-6
RTE24F24	8A pinning 5mm wash tight	2 form C (CO) contacts	AgNi 90/10	Bistable 2 coils	24VDC	8-1415541-7

This list represents the most common types and does not show all variants covered by this datasheet. Other types on request.