

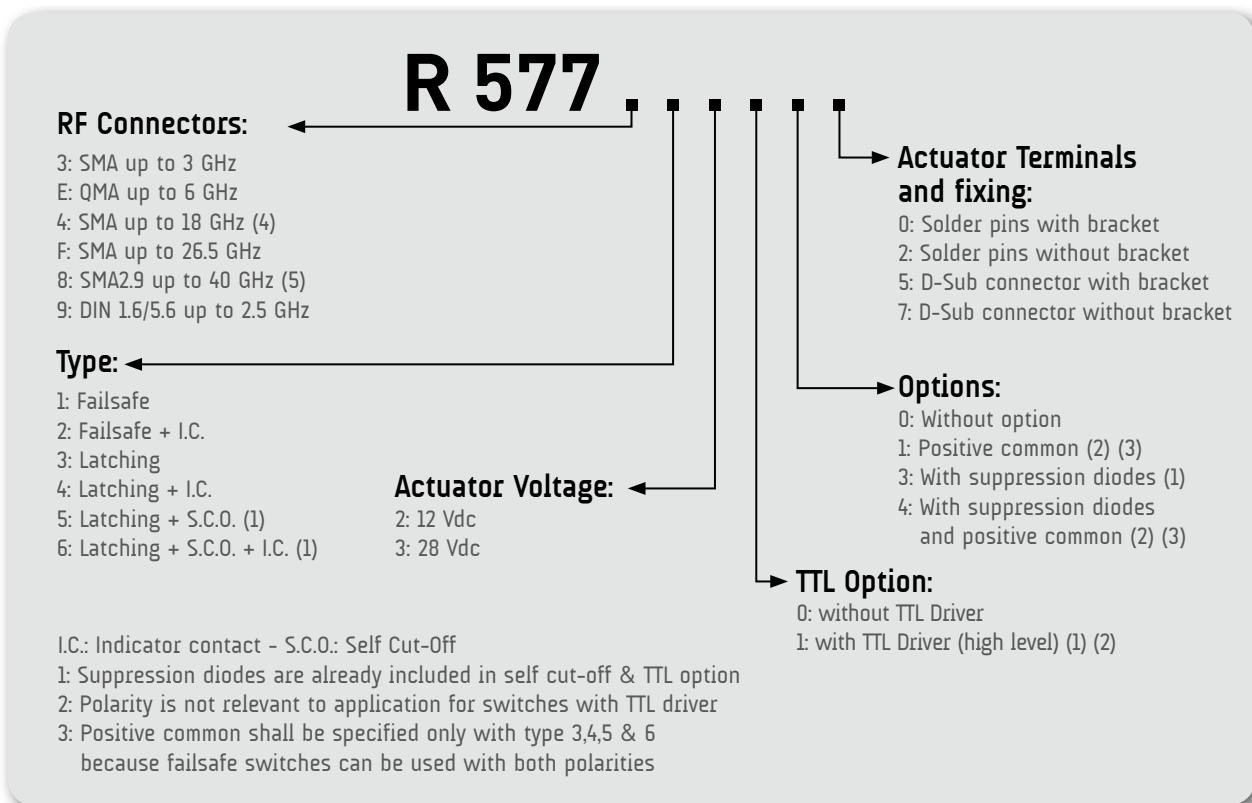
Radiall's DPDT switches offer excellent reliability, high performance and operating frequencies from DC to 40 GHz. Radiall's RAMSES concept guarantees a life span of 2.5 million cycles and provides a full array of options to respond to the needs of our customers.

These relays are well suited to applications across all markets including: Defense, Instrumentation, and Telecom.

Example of P/N:

R577F63105 is a DPDT SMA 26.5 GHz latching with Indicators, Self Cut-Off, 28 Vdc, TTL driver, D-Sub connector.

## PART NUMBER SELECTION



(4): The QLF trademark (Quick Lock Formula®) standard applies to QMA and QN series and guarantees the full intermateability between suppliers using this trademark. Using QLF certified connectors also guarantees the specified level of RF performances.

(5): Connector SMA2.9 is equivalent to "K connector®", registered trademark of Anritsu.



## GENERAL SPECIFICATIONS

Operating mode		Failsafe		Latching							
Nominal operating voltage (across operating temperature)	Vdc	12 (10.2 / 13)	28 (24 / 30)	12 (10.2 / 13)	28 (24 / 30)						
Coil resistance (+/-10%)	$\Omega$	35	200	38	225						
Nominal operating current at 23°C	mA	340	140	320	125						
Average power	See Power Rating Chart page 1-16										
TTL Input	High level	2.5 to 5.5 Volts		800 $\mu$ A max 5.5 Volts							
	Low level	0 to 0.8 Volts		20 $\mu$ A max 0.8 Volts							
Switching time (max)	ms	15									
Life (min)	2.5 million cycles										
Connectors	SMA - SMA2.9 - QMA - DIN 16/5.6										
Actuator terminals	Solder pins or male 9 pin D-Sub connector										
Operating temperature range	DIN 1.6/5.6	-25°C to +70°C									
	SMA - SMA2.9 - QMA	-40°C to +85°C									
Storage temperature range	DIN 1.6/5.6	-40°C to +85°C									
	SMA - SMA2.9 - QMA	-55°C to +85°C									
Vibration (MIL STD 202, Method 204D, cond.C)	10-2000 Hz, 10g			Operating							
Shock (MIL STD 202, Method 213B, cond.G)	50g / 11ms, 1/2 sine			Operating							

## RF PERFORMANCES

Connectors	Frequency Range GHz		V.S.W.R. (max)	Insertion Loss (max) dB	Isolation (min) dB	Impedance Ohms
DIN 1.6/5.6	DC - 2.5	DC - 1	1.20	0.20	80	75
		1 - 2.5	1.30	0.30	70	
QMA	DC - 6	DC - 3	1.20	0.20	80	50
		3 - 6	1.30	0.30	70	
SMA	DC - 3 DC - 18 DC - 26.5	DC - 3	1.20	0.20	80	50
		3 - 8	1.30	0.30	70	
		8 - 12.4	1.40	0.40	65	
		12.4 - 18	1.50	0.50	60	
		18 - 26.5	1.70	0.70	50	
SMA2.9	DC - 40	DC - 6	1.30	0.30	70	50
		6 - 12.4	1.40	0.40	60	
		12.4 - 18	1.50	0.50	60	
		18 - 26.5	1.70	0.80	55	
		26.5 - 40	1.90	1.00	50	

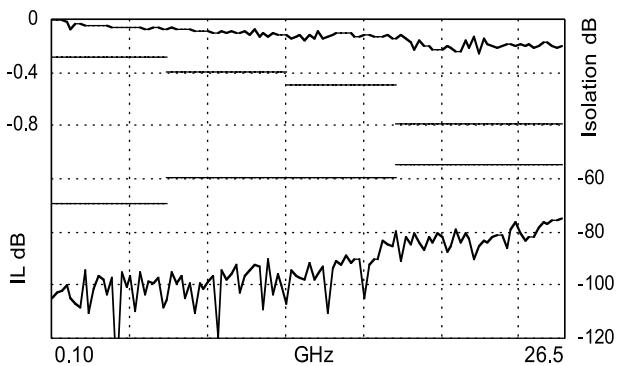
See page 4-4 for typical RF performances

To download technical data sheets, visit [www.radiall.com](http://www.radiall.com) & enter the part number in the Search box.  
For more detailed technical information please consult Radiall customer support.

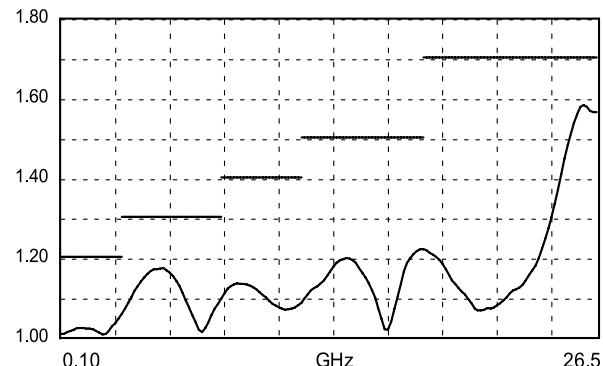
## R577 TYPICAL RF PERFORMANCES

Example: DPDT SMA up to 26.5 GHz

Insertion Loss and Isolation

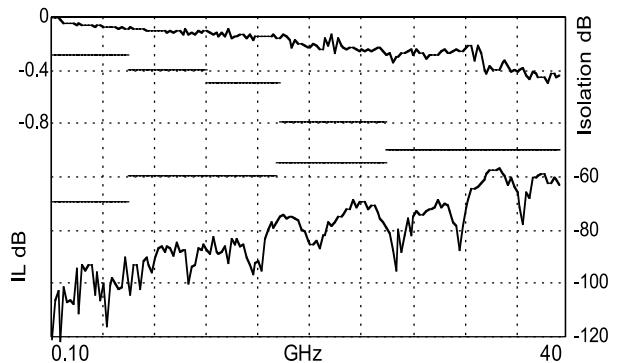


V.S.W.R.

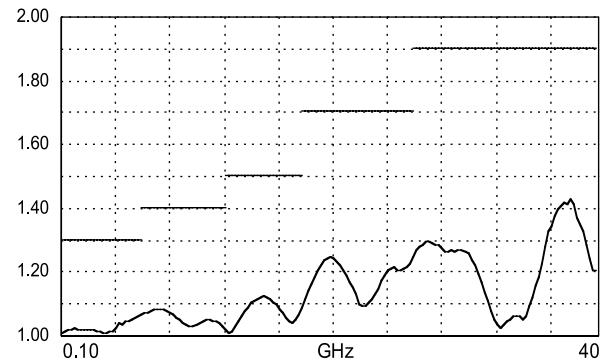


Example: DPDT SMA2.9 up to 40 GHz

Insertion Loss and Isolation



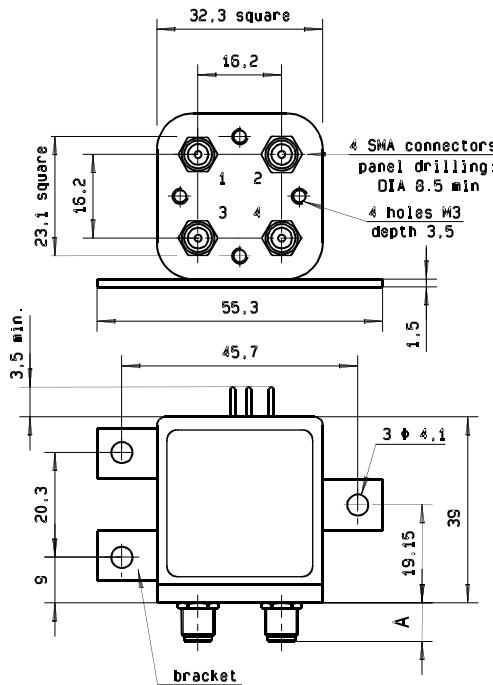
V.S.W.R.



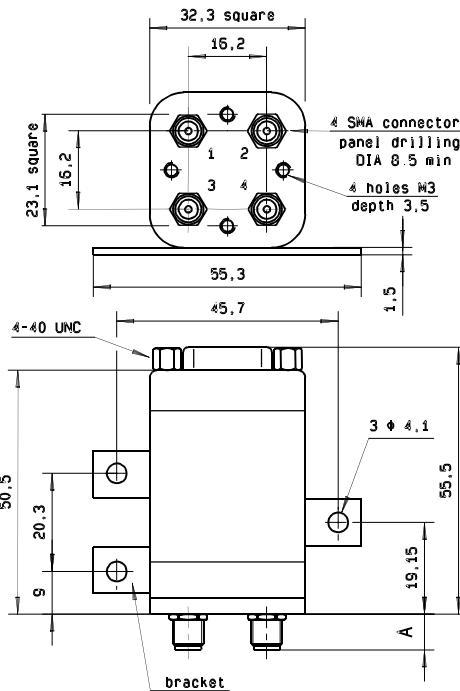
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## TYPICAL OUTLINE DRAWING

With solder pins and bracket



With D-Sub connector and bracket

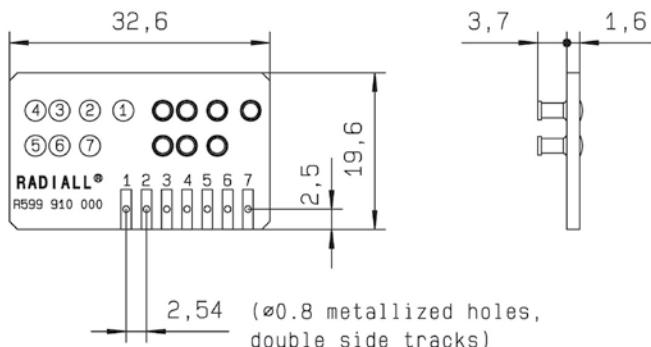
See page  
4-13  
for pin  
allocation

Connectors	SMA	SMA2.9	QMA	DIN 1.6/5.6
A max (mm)	7.4	6.3	10.8	11.5

## ACCESSORIES

A printed circuit board interface connector (ordered separately) has been designed for easy mounting on terminals.

For DPDT model R577 series =&gt; Radiall part number: R599 910 000



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Radiall's DPDT switches offer excellent reliability, high performance and operating frequencies from DC to 12.4 GHz. Radiall's RAMSES concept guarantees a life span of 2.5 million cycles and provides a full array of options to respond to the needs of our customers.

These relays are well suited to applications across all markets including: Defense, Instrumentation, and Telecom.

Example of P/N:

R577122030 is a DPDT N 12.4 GHz, failsafe with Indicators, 12 Vdc, suppression diodes, solder pins with bracket.

## PART NUMBER SELECTION

**R 577**

**RF Connectors:**

- 0: N up to 3 GHz
- 1: N up to 12.4 GHz
- 2: BNC up to 3 GHz
- 5: TNC up to 3 GHz
- 6: TNC up to 12.4 GHz

**Type:**

- 1: Failsafe
- 2: Failsafe + I.C.
- 3: Latching
- 4: Latching + I.C.
- 5: Latching + S.C.O. (1)
- 6: Latching + S.C.O. + I.C. (1)

**Actuator Voltage:**

- 2: 12 Vdc
- 3: 28 Vdc

I.C.: Indicator contact – S.C.O.: Self Cut-Off

- 1: Suppression diodes are already included in self cut-off & TTL option
- 2: Polarity is not relevant to application for switches with TTL driver
- 3: Positive common shall be specified only with type 3,4,5 & 6 because failsafe switches can be used with both polarities

**Actuator Terminals and fixing:**

- 0: Solder pins with bracket
- 2: Solder pins without bracket
- 5: D-Sub connector with bracket
- 7: D-Sub connector without bracket

**Options:**

- 0: Without option
- 1: Positive common (2) (3)
- 3: With suppression diodes (1)
- 4: With suppression diodes and positive common (2) (3)

**TTL Option:**

- 0: without TTL Driver
- 1: with TTL Driver (high level) (1) (2)

## GENERAL SPECIFICATIONS

Operating mode		Failsafe		Latching							
Nominal operating voltage (across operating temperature)	Vdc	12 (10.2 / 13)	28 (24 / 30)	12 (10.2 / 13)	28 (24 / 30)						
Coil resistance (+/-10%)	$\Omega$	35	200	38	225						
Nominal operating current at 23°C	mA	340	140	320	125						
Average power		See Power Rating Chart page 1-16									
TTL Input	High level	2.5 to 5.5 Volts		800 $\mu$ A max 5.5 Volts							
	Low level	0 to 0.8 Volts		20 $\mu$ A max 0.8 Volts							
Switching time (max)	ms	15									
Life (min)	2.5 million cycles										
Connectors	N - BNC - TNC										
Actuator terminals	Solder pins or male 9 pin D-Sub connector										
Operating temperature range	-40°C, +85°C										
Storage temperature range	-55°C, +85°C										
Vibration (MIL STD 202, Method 204D, cond.C)	10-2000 Hz, 10g			Operating							
Shock (MIL STD 202, Method 213B, cond.G)	50g / 11ms, $\frac{1}{2}$ sine			Operating							

## RF PERFORMANCES

Connectors	Frequency Range GHz		V.S.W.R. (max)	Insertion Loss (max) dB	Isolation (min) dB	Impedance Ohms
BNC	DC - 3	DC - 1	1.15	0.15	85	50
		1 - 2	1.20	0.20	80	
		2 - 3	1.25	0.25	75	
N - TNC	DC - 3 DC - 12.4	DC - 1	1.15	0.15	85	50
		1 - 2	1.20	0.20	80	
		2 - 3	1.25	0.25	75	
		3 - 8	1.35	0.35	70	
		8 - 12.4	1.50	0.50	60	

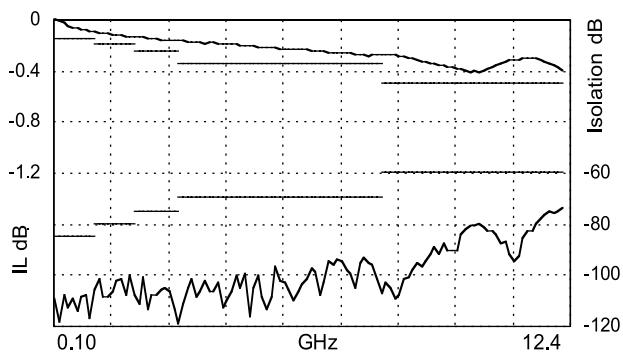
See page 4-8 for typical RF performances

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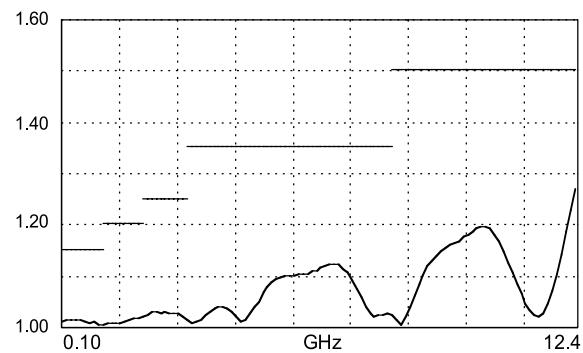
## R577 TYPICAL RF PERFORMANCES

Example: DPDT N/TNC 12.4 GHz

Insertion Loss and Isolation

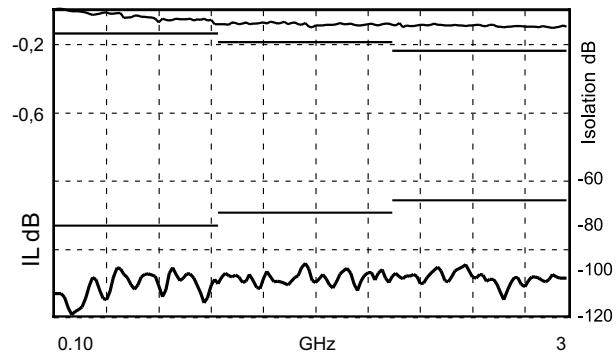


V.S.W.R.

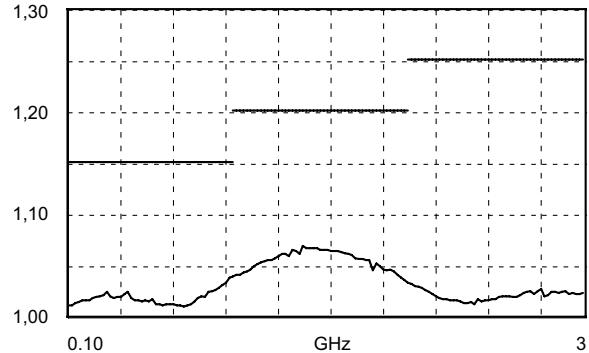


Example: DPDT BNC up to 3 GHz

Insertion Loss and Isolation



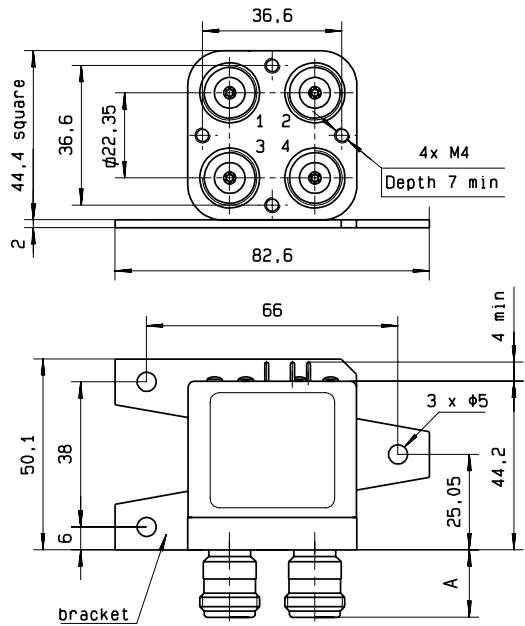
V.S.W.R.



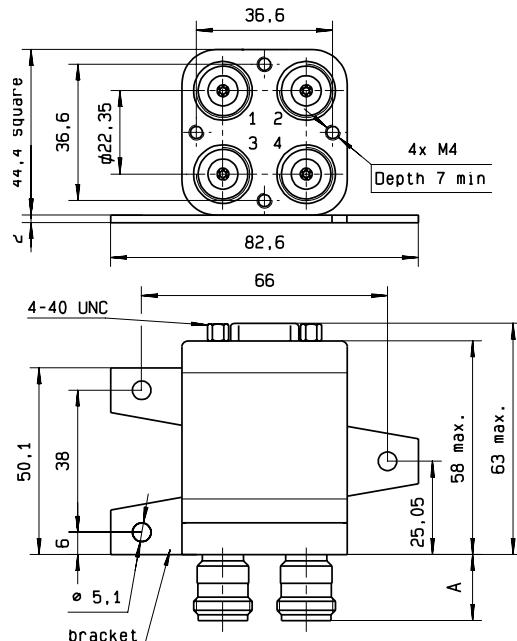
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## **TYPICAL OUTLINE DRAWING**

With solder pins and bracket



### With D-Sub connector and bracket



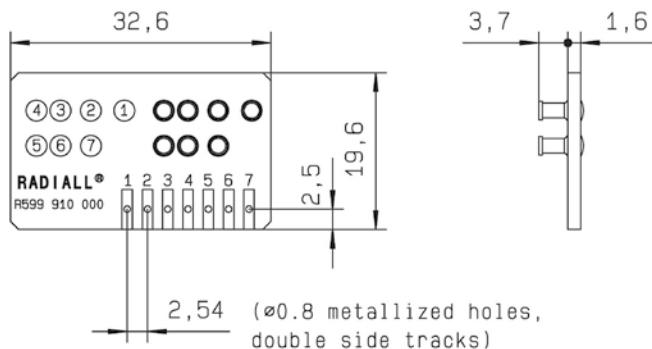
See page  
4-13  
for pin  
allocation

Connectors	N	BNC	TNC
A max (mm)	17.7	11.3	11.3

## ACCESSORIES

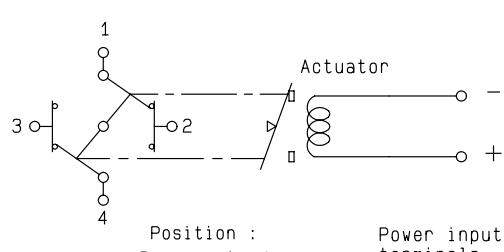
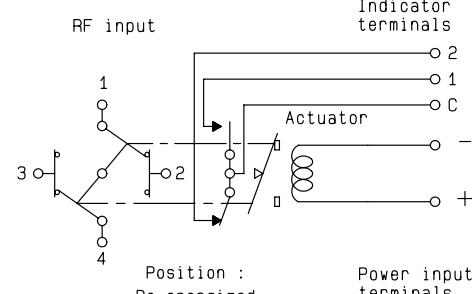
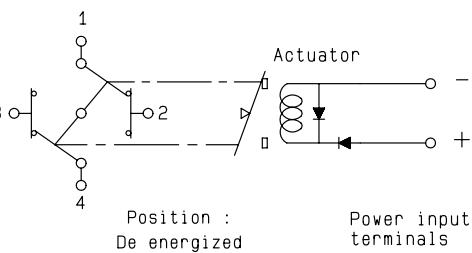
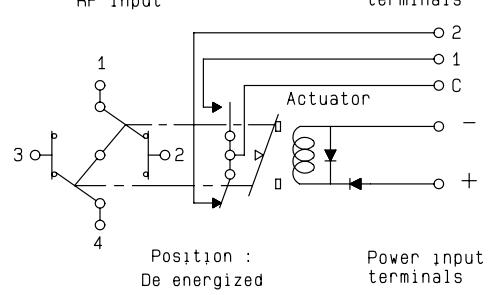
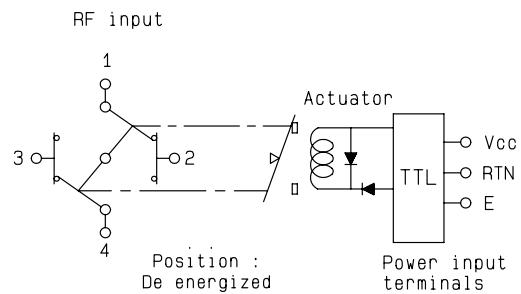
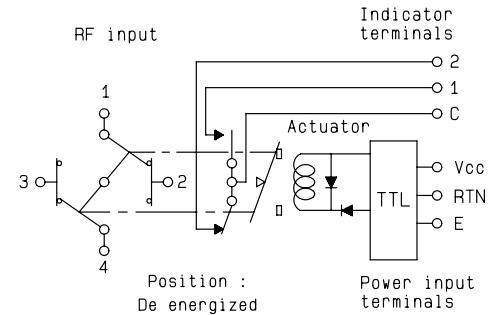
A printed circuit board interface connector (ordered separately) has been designed for easy mounting on terminals.

For DPDT model R577 series => Radial part number: **R599 910 000**



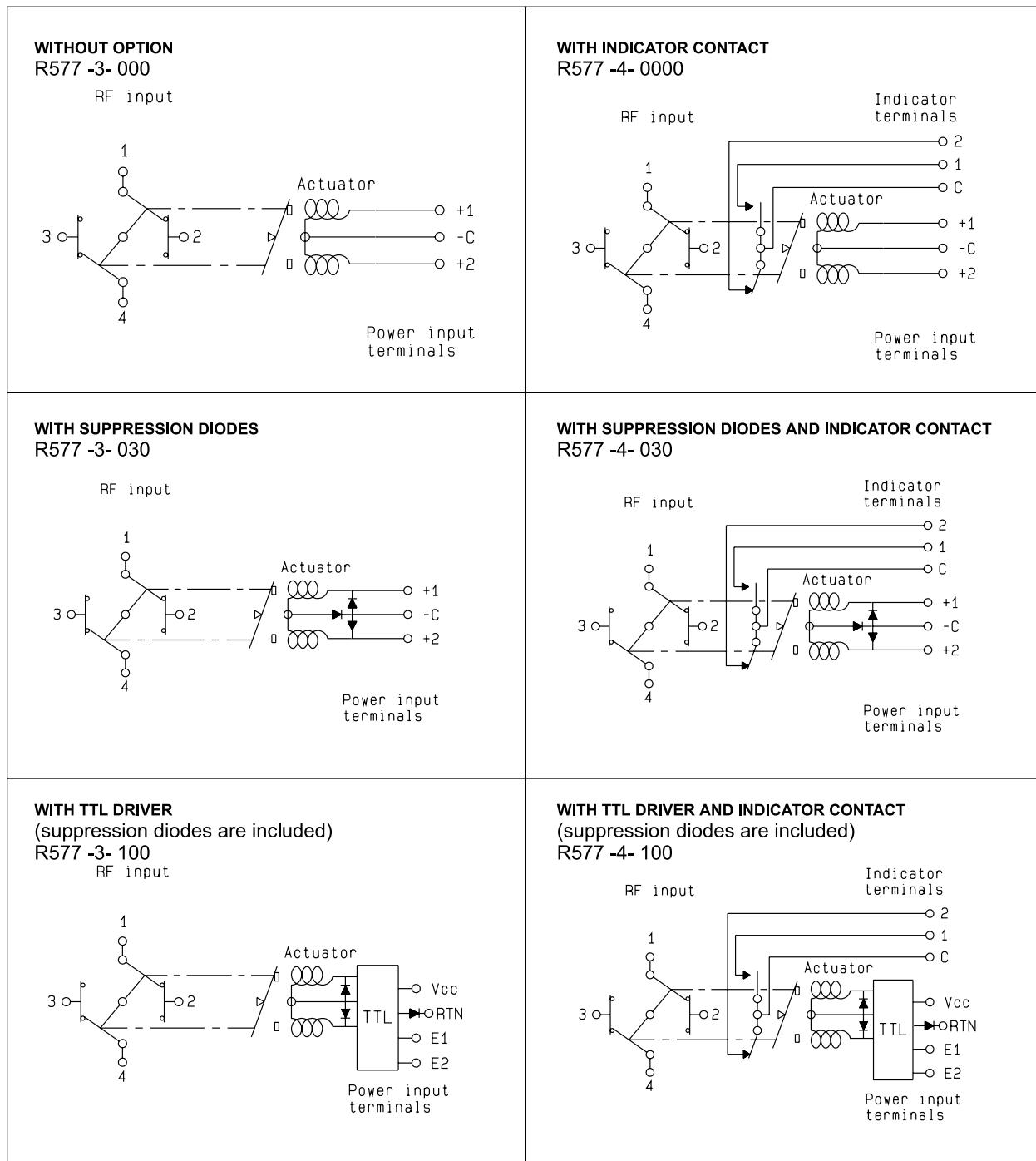
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## FAILSAFE

<b>WITHOUT OPTION</b> <b>R577 -1- 000</b> <p>RF input</p>  <p>Position : De energized</p> <p>Power input terminals</p>	<b>WITH INDICATOR CONTACT</b> <b>R577 -2- 000</b> <p>RF input</p>  <p>Position : De energized</p> <p>Power input terminals</p> <p>Indicator terminals</p>
<b>WITH SUPPRESSION DIODES</b> <b>R577 -1- 030</b> <p>RF input</p>  <p>Position : De energized</p> <p>Power input terminals</p>	<b>WITH SUPPRESSION DIODES AND INDICATOR CONTACT</b> <b>R577 -2- 030</b> <p>RF input</p>  <p>Position : De energized</p> <p>Power input terminals</p> <p>Indicator terminals</p>
<b>WITH TTL DRIVER</b> (suppression diodes are included) <b>R577 -1- 100</b> <p>RF input</p>  <p>Position : De energized</p> <p>Power input terminals</p>	<b>WITH TTL DRIVER AND INDICATOR CONTACT</b> (suppression diodes are included) <b>R577 -2- 100</b> <p>RF input</p>  <p>Position : De energized</p> <p>Power input terminals</p> <p>Indicator terminals</p>

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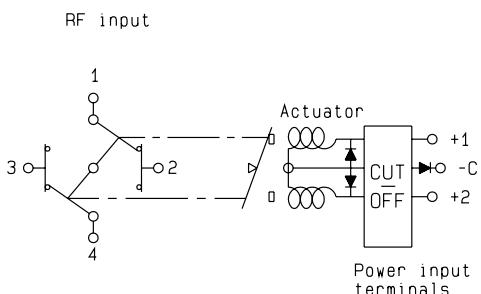
## LATCHING



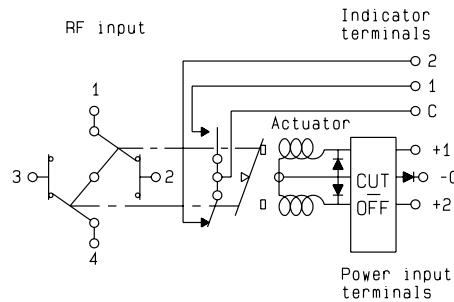
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## LATCHING

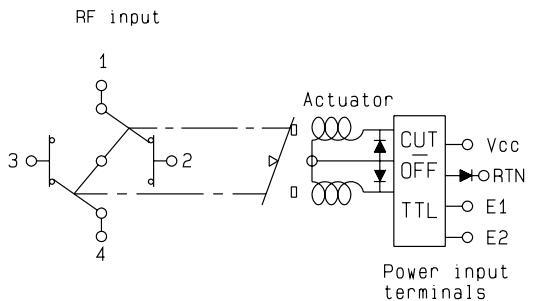
## WITH CUT-OFF

(suppression diodes are included)  
R577 -5- 000

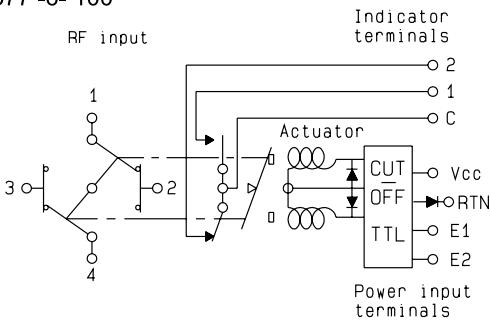
## WITH CUT-OFF AND INDICATOR CONTACT

(suppression diodes are included)  
R577 -6- 000

## WITH CUT-OFF AND TTL DRIVER

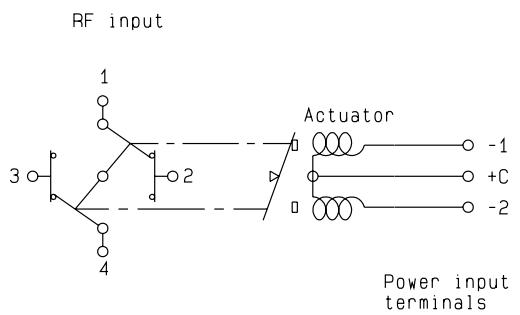
(suppression diodes are included)  
R577 -5- 100

## WITH CUT-OFF, TTL AND INDICATOR CONTACT

(suppression diodes are included)  
R577 -6- 100

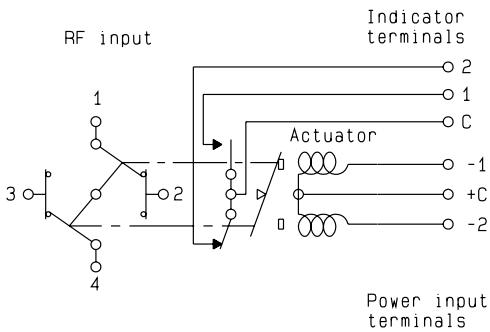
## WITH POSITIVE COMMON, NO OPTION

R577 -3- 010



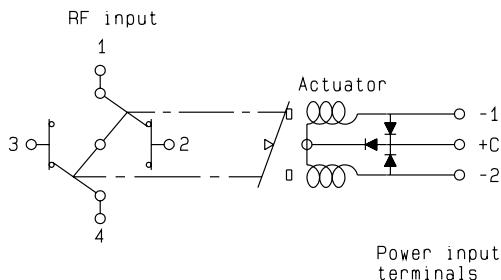
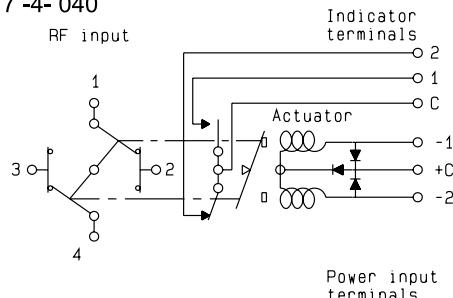
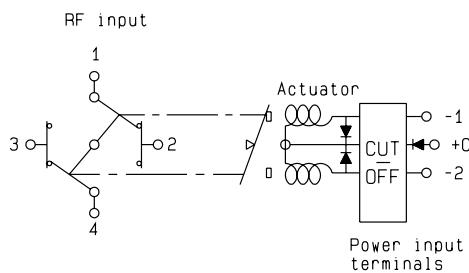
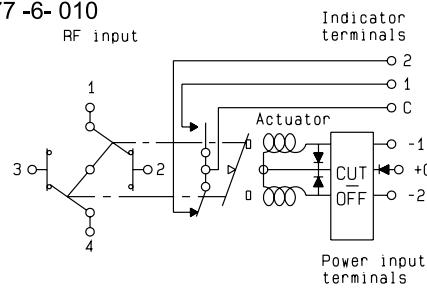
## WITH POSITIVE COMMON AND INDICATOR CONTACT

R577 -4- 010



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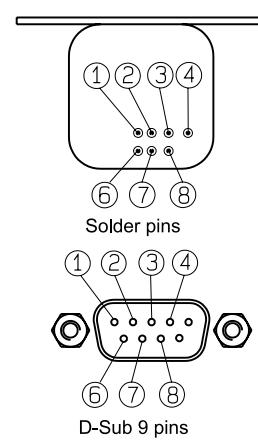
## LATCHING

WITH POSITIVE COMMON AND SUPPRESSION DIODES  
R577 -3- 040WITH POSITIVE COMMON, SUPPRESSION DIODES AND  
INDICATOR CONTACT  
R577 -4- 040WITH POSITIVE COMMON AND CUT-OFF  
(suppression diodes are included)  
R577 -5- 010WITH POSITIVE COMMON, CUT-OFF AND  
INDICATOR CONTACT  
(suppression diodes are included)  
R577 -6- 010

## PIN IDENTIFICATION

Type	PIN							
	1	2	3	4	5	6	7	8
Failsafe	+		-					
Failsafe + I.C.	+		-			1	2	C
Failsafe + TTL	E		RTN	VCC				
Failsafe + I.C. + TTL	E		RTN	VCC		1	2	C
Latching	-1 or +1	-2 or +2	+C or -C					
Latching + Cut-off	-1 or +1	-2 or +2	+C or -C					
Latching + I.C.	-1 or +1	-2 or +2	+C or -C			1	2	C
Latching + I.C. + Cut-off	-1 or +1	-2 or +2	+C or -C					
Latching + Cut-off	E2	E1	RTN	VCC				
Latching + Cut-off + I.C.	E2	E1	RTN	VCC		1	2	C
Latching + TTL + I.C.	E2	E1	RTN	VCC				

## Bottom view



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