

DC - 67GHz

RF COAXIAL SWITCHES

High performance, reliable products at a competitive price.





About Us

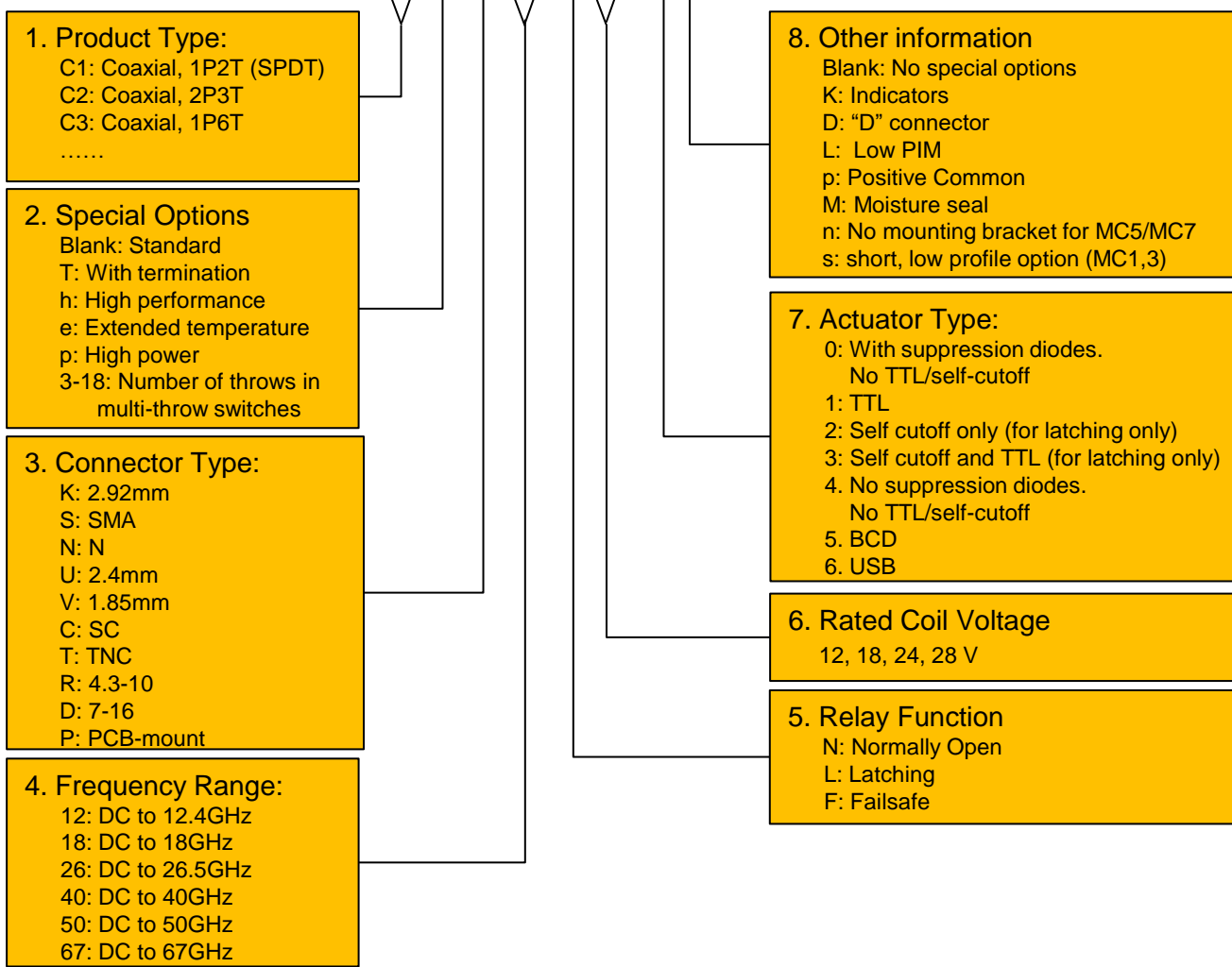
Founded in 2008, Magvention provides products and engineering services for the electrical communication industry.

Magvention is a world leader in micro-magnetic relays. Its main business is in research, development, production, and sales of new generations of micro-magnetic relay products. Its technical expertise includes relays, microelectronics, MEMS, electronic ceramic materials and processes. Its products lead in size, power consumption, and reliability. Its coaxial switch products provide high performance and high reliability at competitive prices.

The company is headquartered in Suzhou (SIP), China.

Numbering Scheme

Example: MC□□-□□□□□□-□□



Code	Type
MC1	SPDT (S,K,U,V,P)
MC2	SPDT (S,K,U) T
	2P3T (S,K,U)
MC3	1P6T (S,K,U)
MC4	SPDT (N,C,T,R,D)
MC5	DPDT (S,K,U)

Code	Type
MC6	1P6T (N,C,T,R)
MC7	DPDT (N)
MC8	1P8T(S,K) T
MC9	1P8T (S)
MC0	1P10T (S,K) T
MCJ	1P10T (S,K)

Code	Type
MCF	1P6T(S,K,U) T
MCL	1P12T (S)
MCH	1P8T (N,C)
MCG	1P12T (N)
MCM	1P12T (S) T
MCR	1P18T (S)

Code	Type
MCD	SPDT (N-Y)
MCV	SPDT (N-V)
MCA	1P4T (N,C,D)
MCK	1P4T (S)
MCP	1P6T (S,P) mini

Ordering

Contact Magvention directly for pricing and delivery information.

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Warranty

Magvention RF switches are warranted against defects in material or workmanship for one full year (12 months) from date of shipment. Magvention's obligation is limited to repair or replacement of defective parts. We assume no liability for defects resulting from improper use, operation beyond ratings or unauthorized repairs. Cosmetic conditions are not covered by this warranty. Magvention is not responsible for consequential damages. Warranty returns require advance authorization. No other warranties are expressed or implied.

For other options not listed here, please contact Magvention sales.

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MC1

SPDT, SMA/K(2.92mm), DC-40GHz

The **MC1** Series features SMA or K connectors and an operation frequency range of DC to 40GHz. This series can be either failsafe or latching type. Available options include TTL, self-cutoff or pulse latching, indicator, and coil suppression, etc.

FAILSAFE



Specifications

Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3,000,000 (Standard) 5,000,000 ("h" option)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	70g

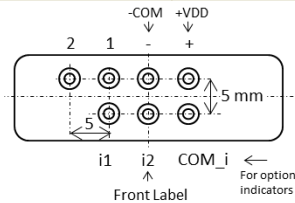
Voltage (VDC)		12	18	24	28
Current (mA)	Failsafe	190	136	98	83

Standard

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.30	0.25	70
12-18	1.40	0.40	60
18-26.5	1.60	0.60	55
26.5-32	1.90	0.80	50
32-40	1.90	0.90	50

High Performance Option ("h")

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-1	1.1	0.10	90
DC-6	1.2	0.15	80
6-12	1.2	0.15	80
12-18	1.3	0.25	70
18-26.5	1.6	0.5	60
26.5-32	1.8	0.5	55
32-40	1.8	0.8	55



Top Solder Pin Arrangements

Note: 1=V1 (or A1), 2=V2 (or A2). A2 (or V2) is unused for Failsafe.

Consult with the factory for the DSUB option.

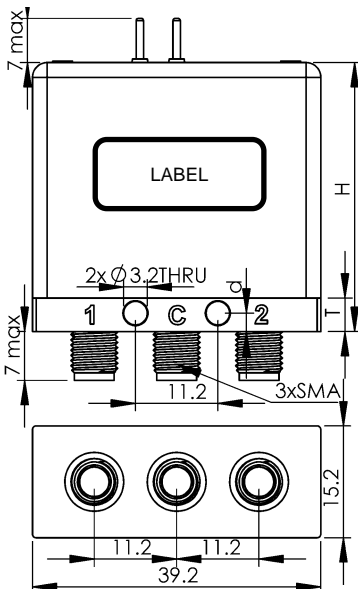
Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

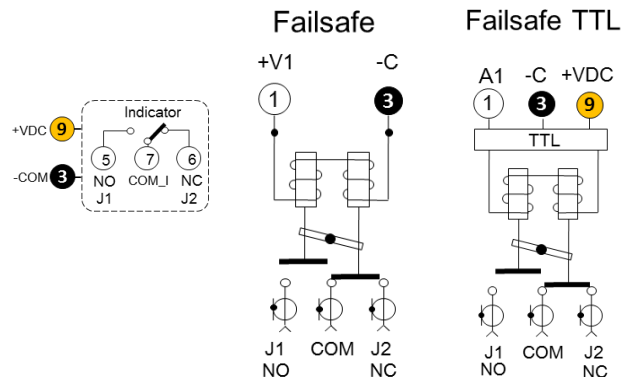
Note: +VDC and -C must be connected to operate.

H (max)	Solder Pin	DSUB
Standard	38	42
TTL	38	52
Indicator	51	62

T = 4.6 (SMA)
= 5.5 (K-type)
d = 2.5 (SMA)
= 2.75 (K-type)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).



MC1

SPDT, SMA/K(2.92mm), DC-40GHz

The **MC1** Series features SMA or K connectors and an operation frequency range of DC to 40GHz. This series can be either failsafe or latching type. Available options include TTL, self-cutoff or pulse latching, indicator, and coil suppression, etc.

LATCHING



Specifications

Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3,000,000 (Standard) 5,000,000 ("h" option)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	70g

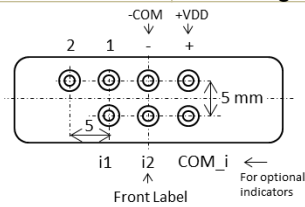
Voltage (VDC)	12	18	24	28
Current (mA)				
Latching	200	119	90	115

Standard

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.30	0.25	70
12-18	1.40	0.40	60
18-26.5	1.60	0.60	55
26.5-32	1.90	0.80	50
32-40	1.90	0.90	50

High Performance Option ("h")

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-1	1.1	0.10	90
DC-6	1.2	0.15	80
6-12	1.2	0.15	80
12-18	1.3	0.25	70
18-26.5	1.6	0.5	60
26.5-32	1.8	0.5	55
32-40	1.8	0.8	55



Top Solder Pin Arrangements

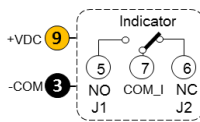
Note: 1=V1 (or A1), 2=V2 (or A2). A2 (or V2) is unused for Failsafe.

Consult with the factory for the DSUB option.

Optional Indicator Specifications

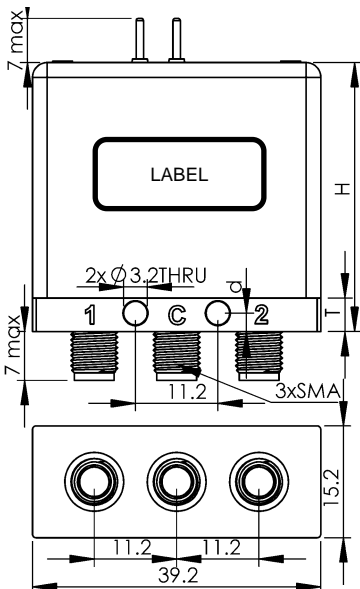
Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

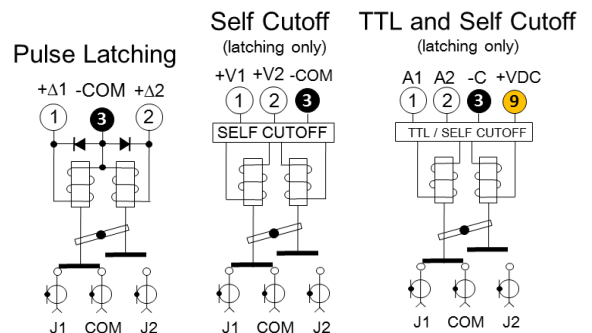


H (max)	Solder Pin	DSUB
Standard	38	42
TTL	38	52
Indicator	51	62

T = 4.6 (SMA)
= 5.5 (K-type)
d = 2.5 (SMA)
= 2.75 (K-type)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).



MC1

SPDT, U(2.4mm), DC-50GHz

FAILSAFE/LATCHING

The **MC1-U50** Series features 2.4mm connectors and an operation frequency range of DC to 50GHz. This series can be either failsafe or latching type. Available options include TTL, self-cutoff or pulse latching, indicator, and coil suppression, etc.

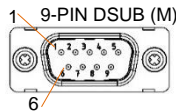
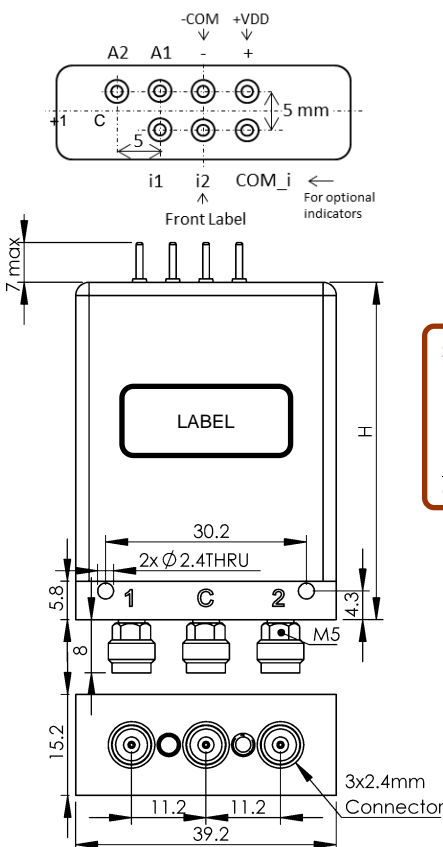


Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3,000,000 (Standard)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	70g

Standard			
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.30	0.25	70
12-18	1.40	0.40	70
18-26.5	1.70	0.70	70
26.5-32	1.90	0.80	60
32-50	2.00	1.00	60

Voltage (VDC)		12	18	24	28
Current (mA)	Failsafe	190	136	98	83
	Latching	200	119	90	115

Solder Pins or DSUB 9

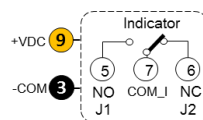


Pin No.	PINOUT
1	A1/V1 (J1-COM)
2	A2/V2 (J2-COM)
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_I (IND.)
8	UNUSED
9	+VDC/+VDCI

Optional Indicator Specifications

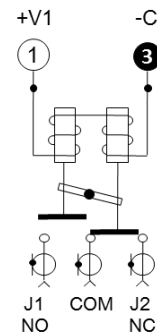
Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

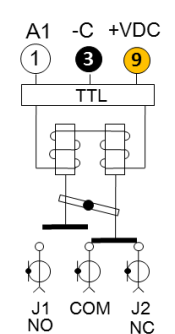


H (max)	Solder Pin	DSUB
Standard	38	42
TTL	38	52
Indicator	51	62

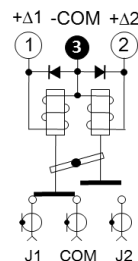
Failsafe



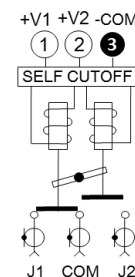
Failsafe TTL



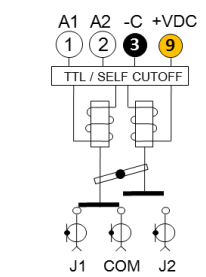
Pulse Latching



Self Cutoff (latching only)



TTL and Self Cutoff (latching only)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MC1

SPDT, V(1.8mm), DC-67GHz

FAILSAFE/LATCHING

The **MC1-V67** Series features 1.8mm connectors and an operation frequency range of DC to 67GHz. This series can be either failsafe or latching type. Available options include TTL, self-cutoff or pulse latching, indicator, and coil suppression, etc.

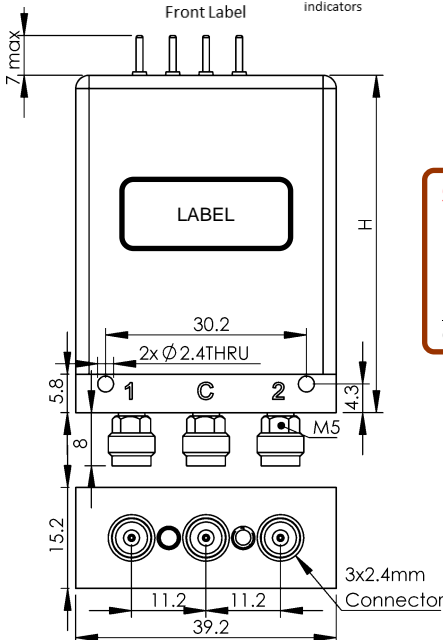
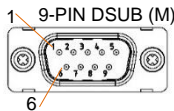
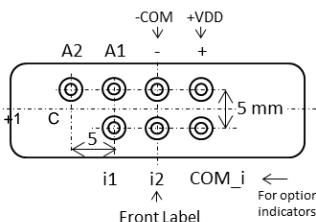


Specifications

Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3,000,000 (Standard)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	70g

Voltage (VDC)		12	18	24	28
Current (mA)	Failsafe	190	136	98	83
	Latching	200	119	90	115

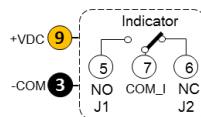
Solder Pins or DSUB 9



Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.



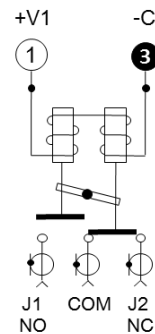
H (max)	Solder Pin	DSUB
Standard	38	42
TTL	38	52
Indicator	51	62

Standard

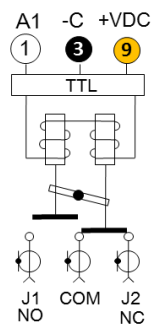
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.30	0.25	70
12-18	1.40	0.40	60
18-26.5	1.70	0.70	55
26.5-32	1.90	0.80	50
32-50	2.00	1.00	50
50-67	2.20	1.20	50

Pin No.	PINOUT
1	A1/V1 (J1-COM)
2	A2/V2 (J2-COM)
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_I (IND.)
8	UNUSED
9	+VDC/+VDCI

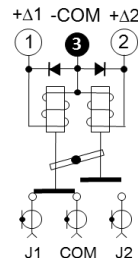
Failsafe



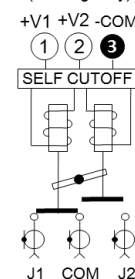
Failsafe TTL



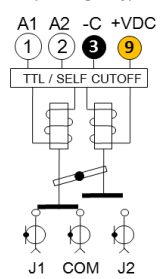
Pulse Latching



Self Cutoff (latching only)



TTL and Self Cutoff (latching only)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

FAILSAFE/LATCHING

The **MC1 (-s)** Series features SMA connectors and an operation frequency range of DC to 40GHz. This model option has a small profile. The series can be either failsafe or latching type. Available options include TTL, self-cutoff or pulse latching, indicator, and coil suppression, etc.



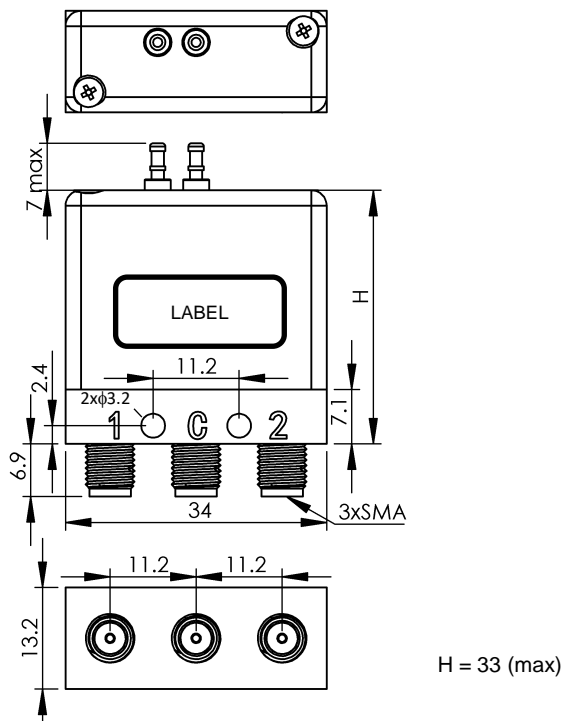
Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3,000,000 (Standard) 5,000,000 ("h" option)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	50g

Voltage (VDC)		12	18	24	28
Current (mA)	Failsafe	190	136	98	83
	Latching	200	119	90	115

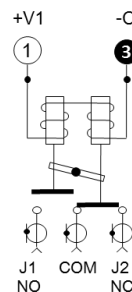
• Contact company if reduced coil current is required. Other coil voltage options are available upon request.

Standard			
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.30	0.25	70
12-18	1.40	0.40	60
18-26.5	1.70	0.70	55
26.5-32	1.90	0.80	50
32-40	1.90	0.90	50

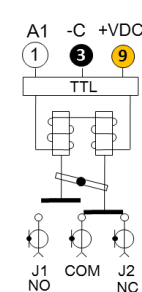
Higher frequency ranges are also available upon request..



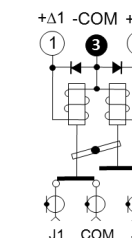
Failsafe



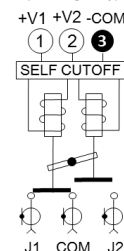
Failsafe TTL



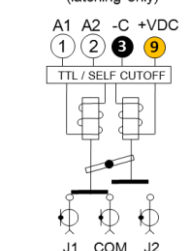
Pulse Latching



Self Cutoff (latching only)



TTL and Self Cutoff (latching only)



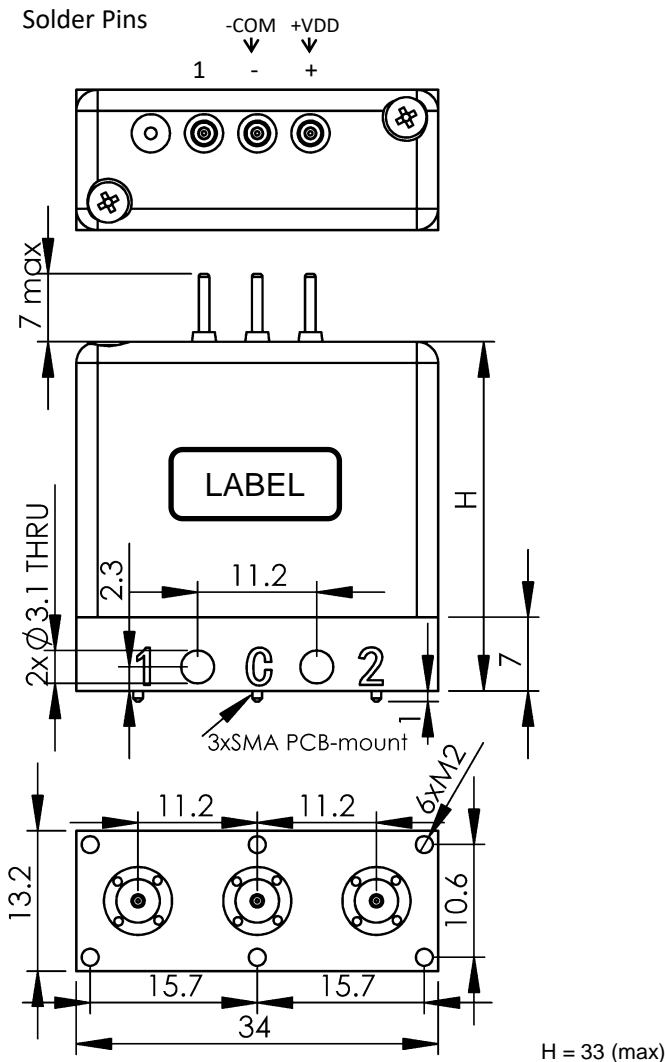
The **MC1-S18 (-s)** Series features SMA connectors and an operation frequency range of DC to 18GHz. This series can be either failsafe or latching type. Available options include TTL, self-cutoff or pulse latching, indicator, and coil suppression, etc.

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	50g



Standard			
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.40	0.40	70
12-18	1.50	0.50	60

Voltage (VDC)		12	18	24	28
Current (mA)	Failsafe	190	136	98	83
	Latching	200	119	90	115



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

Recommended PCB layout.

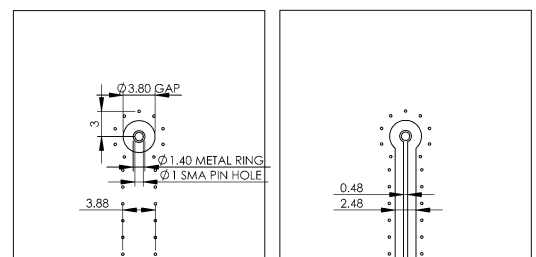
Material: Rogers 4350, 40mil (1mm),

3 layers:

Top and bottom: Ground plans;

Middle: Signal.

Open $\phi=1\text{mm}$ hole for SMA pins.



Top and bottom.

Middle signal layer.

The **MC1 (-s)** Series features SMA connectors and an operation frequency range of DC to 18GHz. This model option has a small profile.

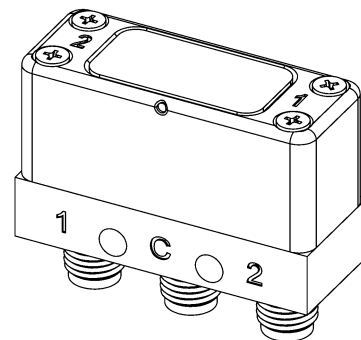
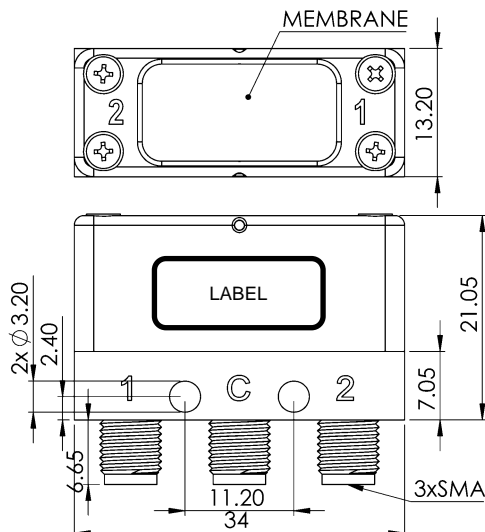


Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard)
	-55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1,000,000 (Standard)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	40g

Standard			
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.30	0.25	70
12-18	1.40	0.40	60

Higher frequency ranges are also available upon request..

Manual Operation	Port 1 - C	Port 2 - C
Push Left Side	Open	Closed
Push Right Side	Closed	Open



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

The **MC2** Series features SMA or K connectors with or without internal termination and an operation frequency range of DC to 40 GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.



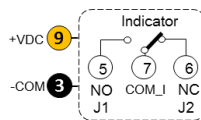
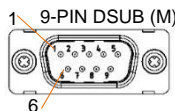
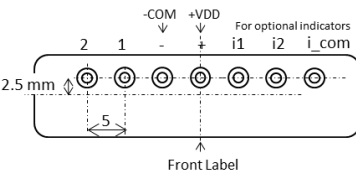
Specifications

Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3,000,000 (Standard)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	88g

Standard

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.30	0.25	70
12-18	1.40	0.40	60
18-26.5	1.60	0.60	55
26.5-32	1.90	0.80	50
32-40	1.90	1.00	50

Voltage (VDC)		12	18	24	28
Current (mA)	Fail-safe	380	280	200	170



Solder Pins or DSUB 9

Pin No.	PINOUT
1	A1/V1 (J1-COM)
2	UNUSED
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM+ (IND.)
8	UNUSED
9	+VDC/+VDCI

Optional Indicator Specifications
 Max withstand voltage: 60V
 Max current capacity: 100mA
 Max "ON" resistance: 16Ω
 Note: +VDC and -C must be connected to operate.

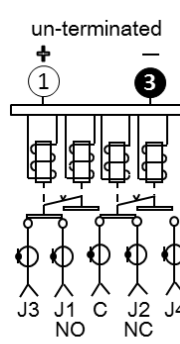
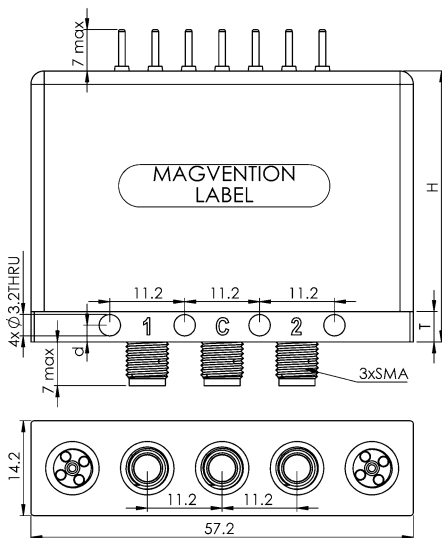


Fig. 1

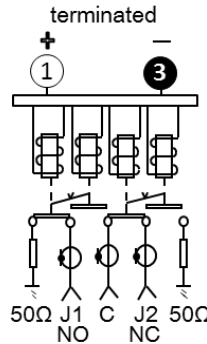


Fig. 2

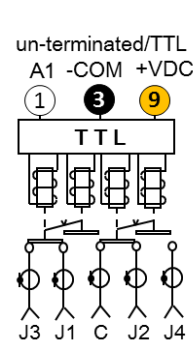


Fig. 3

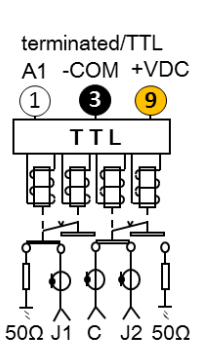


Fig. 4

T = 4.55 (SMA)
 = 6.0 (K-type)
 d = 2.5

H (max)	Solder Pin	DSUB
Standard	43	47
TTL	43	57
Indicator	43	57

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

The **MC2** Series features SMA or K connectors with or without internal termination and an operation frequency range of DC to 40 GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.



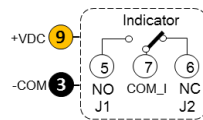
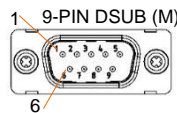
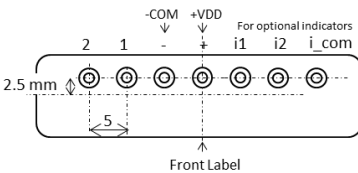
Specifications

Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3,000,000 (Standard)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	88g

Voltage (VDC)	12	18	24	28
Current (mA)				
Latching	400	240	180	230

Standard

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.30	0.25	70
12-18	1.40	0.40	60
18-26.5	1.60	0.60	55
26.5-32	1.90	0.80	50
32-40	1.90	1.00	50



Solder Pins or DSUB 9

Optional Indicator Specifications
 Max withstand voltage: 60V
 Max current capacity: 100mA
 Max "ON" resistance: 16Ω
 Note: +VDC and -C must be connected to operate.

Pin No.	PINOUT
1	A1/V1 (J1-COM)
2	A2/V2 (J2-COM)
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_1 (IND.)
8	UNUSED
9	+VDC/+VDCI

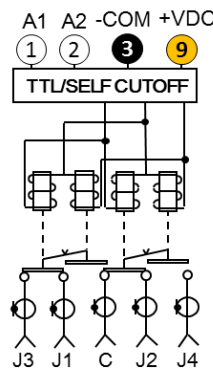
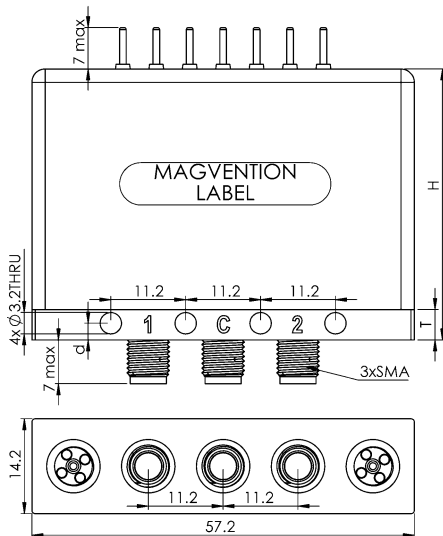


Fig. 5

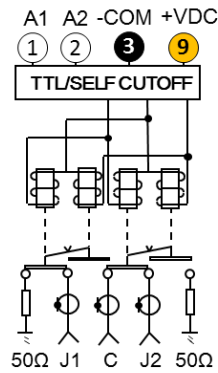


Fig. 6

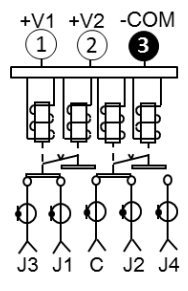


Fig. 7

T = 4.55 (SMA)
 = 6.0 (K-type)
 d = 2.5

H (max)	Solder Pin	DSUB
Standard	43	47
TTL	43	57
Indicator	43	57

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

The **MC2T-U50** Series features U (2.4mm) connectors with or without internal termination and an operation frequency range of DC to 50 GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.

FALISAFE/LATCHING

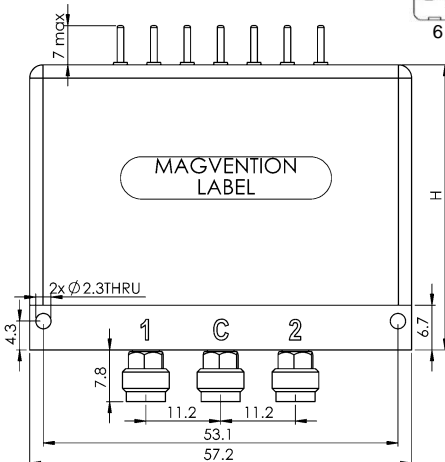
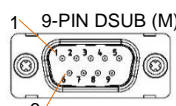
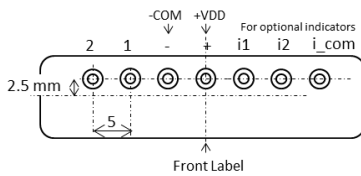
Specifications

Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3,000,000 (Standard)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	88g

Voltage (VDC)		12	18	24	28
Current (mA)	Failsafe	380	280	200	170
	Latching	400	240	180	230



Standard			
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.30	0.25	70
12-18	1.40	0.40	60
18-26.5	1.70	0.70	55
26.5-32	1.90	0.80	50
32-40	2.00	1.00	50
40-50	2.00	1.10	50



Pin No.	PINOUT
1	A1/V1 (J1-COM)
2	A2/V2 (J2-COM)
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_1 (IND.)
8	UNUSED
9	+VDC/+VDCI

H (max)	Solder Pin	DSUB
Standard	43	47
TTL	43	57
Indicator	43	57

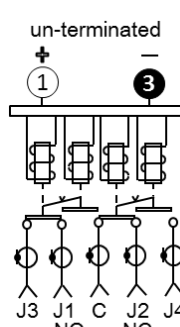


Fig. 1

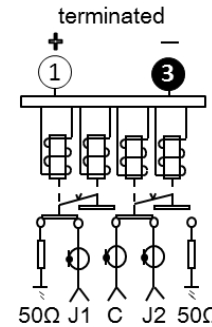


Fig. 2

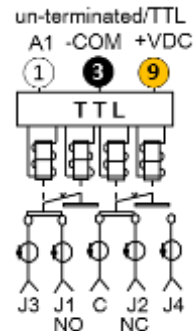


Fig. 3

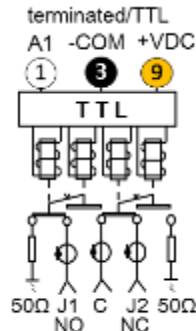


Fig. 4

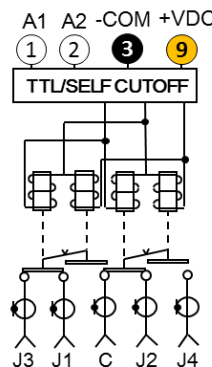


Fig. 5

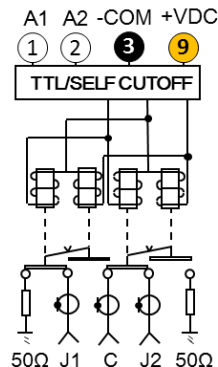


Fig. 6

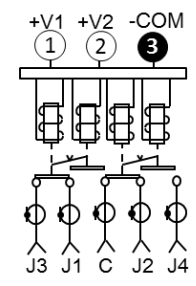


Fig. 7

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MC3-S18

1P6T, SMA, DC-18GHz

MC3n: n=3-6 (e.g., n=6 for 1P6T)

NORMALLY OPEN

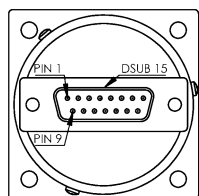
The **MC3-S18** Series features SMA connectors and an operation frequency range of DC to 18 GHz. This series is of normally open type. Options include TTL, coil suppression diodes, indicators etc. The product is typically supplied with a 15-pin male D-sub control interface.



Specifications					
Contact Material	Plated Au				
Switching Sequence	Break before Make				
Switching Time (max)	15msec				
Impedance	50Ω				
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)				
Relative Humidity	5 to 85%				
Operation Life (cycles)	2,000,000 (Standard)				
Vibration (operating)	10G RMS, 20-2000Hz				
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec				
Weight (approx.)	190g				
Voltage (VDC)		12	18	24	28
Current (mA)	NORMALLY OPEN	290	190	150	140

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	70
6-12	1.4	0.4	60
12-18	1.5	0.5	60

Other options are available upon request.



Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

1PnT PORT CONFIGURATIONS

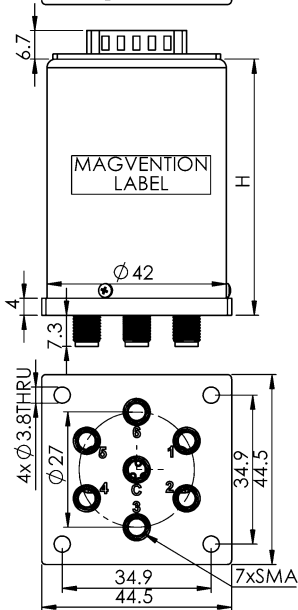
1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	
1P4T	1	2		4	5	
1P3T	1		3		5	

Note: "Blank" represents the unused RF and corresponding control ports.

Height H Table.

DSUB		Solder Pin	
drive	Std "s"	drive	Std "s"
4D	60 50	no K	54 44
Others	70 60	K	58 48

Note: Std=Standard; "s"= short. K=indicator;



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

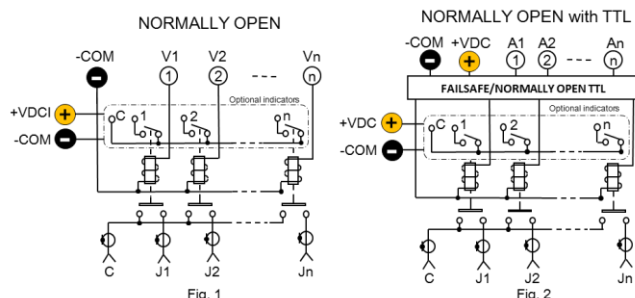
Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

Pin 8-15: For optional INDICATORS only.

Pin 1-6: The corresponding control signal inputs.

Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDC

Pin 8-14: For optional INDICATORS only.



MC3-K40

1P6T, K, DC-40GHz

MC3n: n=3-6 (e.g., n=6 for 1P6T)

NORMALLY OPEN

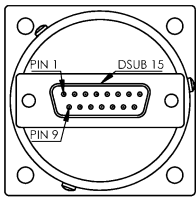
The **MC3-K40** Series features K connectors and an operation frequency range of DC to 40 GHz. This series is of normally open type. Options include TTL, coil suppression diodes, indicators etc. The product is typically supplied with a 15-pin male D-sub control interface.



Specifications					
Contact Material	Plated Au				
Switching Sequence	Break before Make				
Switching Time (max)	15msec				
Impedance	50Ω				
Temperature Range	-25°C to +65°C (Standard)				
	-55°C to +85°C ("e" option)				
Relative Humidity	5 to 85%				
Operation Life (cycles)	2,000,000 (Standard)				
Vibration (operating)	10G RMS, 20-2000Hz				
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec				
Weight (approx.)	190g				
Voltage (VDC)		12	18	24	28
Current (mA)	NORMALLY OPEN	290	190	150	140

Standard			
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	70
6-12	1.4	0.4	60
12-18	1.5	0.5	60
18-26.5	1.9	0.8	50
26.5-40	2	1	50

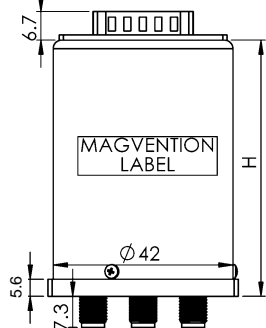
Other options are available upon request.



Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.



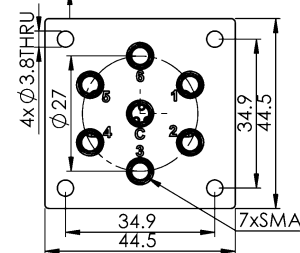
1PnT PORT CONFIGURATIONS						
1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	
1P4T	1	2		4	5	
1P3T	1		3		5	

Note: "Blank" represents the unused RF and corresponding control ports.

Height H Table.

DSUB	drive		Solder Pin	
	Std	"-s"	Std	"-s"
4D	62	52	no K	56
Others	72	62	K	60

Note: Std=Standard; "s"= short. K=indicator;



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

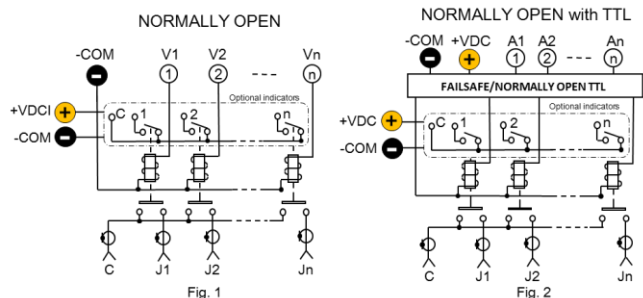
NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

PIN 8-15: For optional INDICAOTRS only.

Pin 1-6: The corresponding control signal inputs.

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDC

PIN 8-14: For optional INDICAOTRS only.



MC3 -S

short, 1P6T, U (2.4mm), DC-50GHz

MC3n-UxxNxx-s: n=3-6 (e.g., n=6 for 1P6T), short (low profile version)

Normally Open

The **MC3-U50** Series features 2.4mm connectors and an operation frequency range of DC to 50 GHz. This series is of normally open type. Options include TTL, coil suppression diodes, indicators etc. The product is typically supplied with a 15-pin male D-sub control interface.

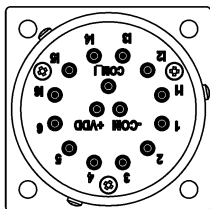


Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	2,000,000 (Standard)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	190g

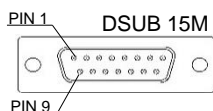
Voltage (VDC)		12	18	24	28
Current (mA)	NORMALLY OPEN	300	210	170	150

Standard			
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.2	70
6-12	1.3	0.3	70
12-18	1.4	0.4	60
18-26.5	1.7	0.7	55
26.5-32	1.9	0.8	50
32-50	2.0	1.2	50

Top Solder Pin arrangements.



Top DSUB arrangements.



Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

1PnT PORT CONFIGURATIONS

1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	
1P4T	1	2		4	5	
1P3T	1		3		5	

Note: "Blank" represents the unused RF and corresponding control ports.

Height H Table.

DSUB	Solder Pin
drive "-s"	drive "-s"
4D	no K
Others	K

Note: Std=Standard; "s"= short. K=indicator;

NORMALLY OPEN 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

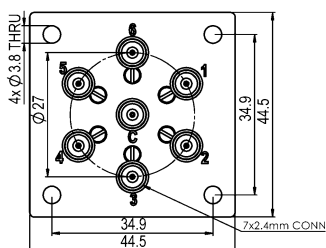
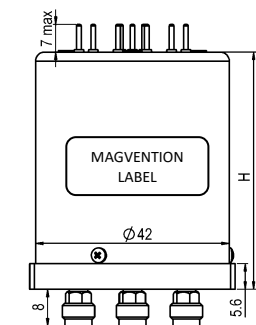
PIN 8-15: For optional INDICATORS only.

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT

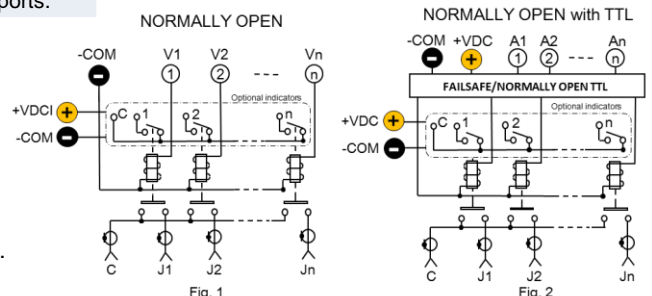
Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDC

PIN 8-14: For optional INDICATORS only.

Pin 1-6: The corresponding control signal inputs.



Mechanical drawings (unit: mm, other tolerance +/-0.5mm).



MCP-S18

mini-1P6T, SMA or PCB, DC-18GHz

MCPn: n=3-6 (e.g., n=6 for 1P6T)

NORMALLY OPEN

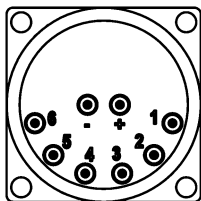
The **MCP-S18** Series is a miniature 1P6T model featuring SMA connectors and an operation frequency range of DC to 18 GHz. This series is of normally open type. Options include TTL, coil suppression diodes, indicators etc. The product is typically supplied with a 15-pin male D-sub control interface.



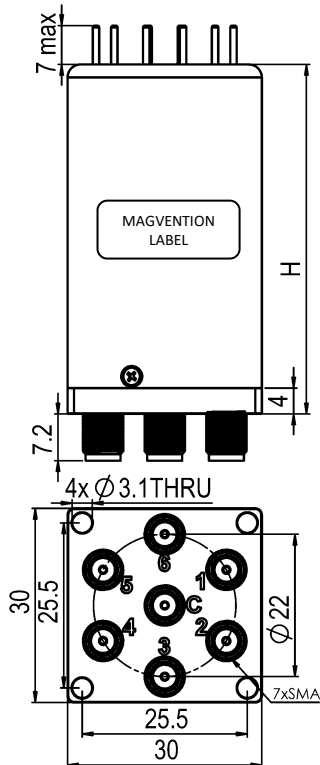
Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	2,000,000 (Standard)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	75 g

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	70
6-12	1.4	0.4	60
12-18	1.6	0.5	60

Voltage (VDC)		12	18	24	28
Current (mA)	NORMALLY OPEN	290	190	150	140



Top Solder Pin Arrangements

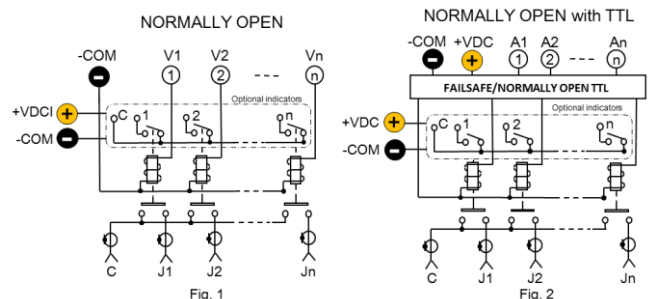


1PnT PORT CONFIGURATIONS						
1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	
1P4T	1	2		4	5	
1P3T	1		3		5	

Note: "Blank" represents the unused RF and corresponding control ports.

H = 54 mm

Mechanical drawings (unit: mm, tolerance +/-0.5mm).



The **MCK4-S18** Series features SMA connectors and an operation frequency range of DC to 18 GHz. This series is of normally open type. Options include TTL, coil suppression diodes, indicators etc. The product is typically supplied with a 9-pin male D-sub control interface.

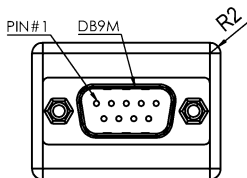


Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1,000,000 (Standard)
Vibration (operating)	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	190g

Voltage (VDC)		12	18	24	28
Current (mA)	NORMALLY OPEN	300	210	170	150

Standard			
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.2	0.2	80
3-6	1.3	0.3	70
6-12	1.4	0.4	60
12-18	1.5	0.5	60

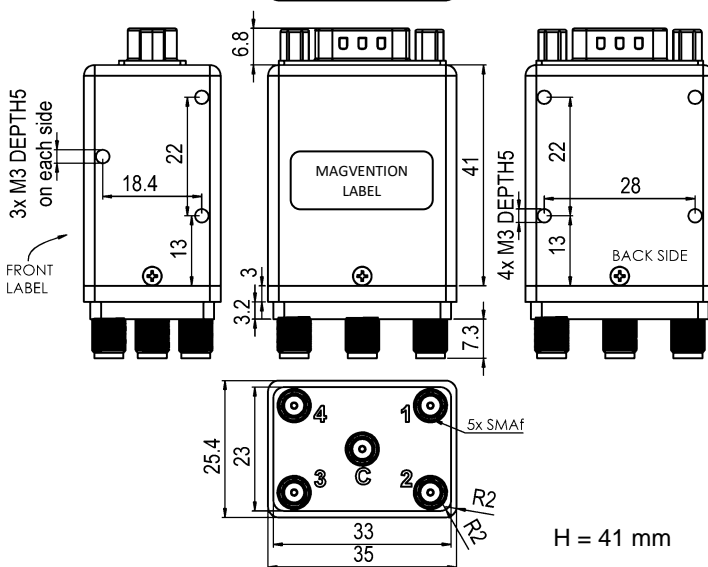
Top DSUB Arrangements



Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.



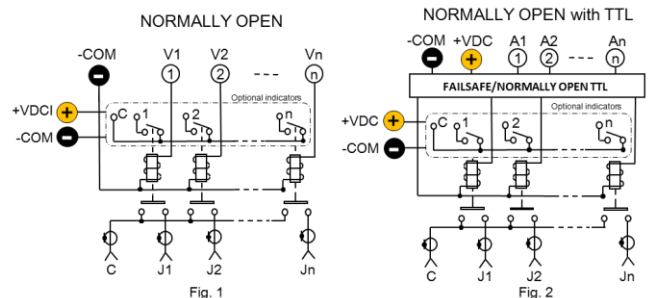
NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

PIN 8-15: For optional INDICATORS only.

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDC

PIN 8-14: For optional INDICATORS only.

Pin 1-6: The corresponding control signal inputs.



Mechanical drawings (unit: mm, other tolerance +/-0.5mm).

The **MC4-N12** Series features N-type connectors and an operation frequency range of DC to 12.4GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	260g

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-2	1.15	0.20	80
2-4	1.20	0.25	80
4-12.4	1.50	0.50	60

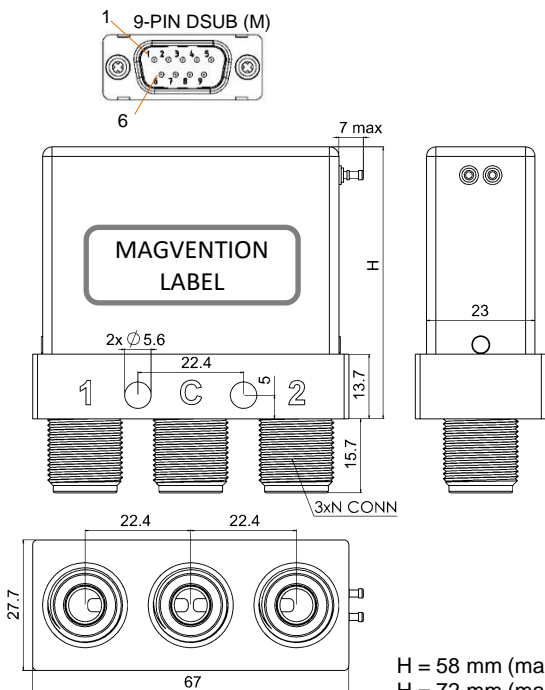
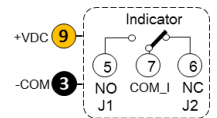
Voltage (VDC)		12	18	24	28
		Current (mA)	Failsafe Latching	275 100	170 80



Optional Indicator Specifications

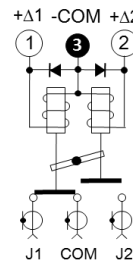
Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

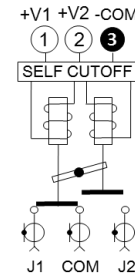


Mechanical drawings (unit: mm, tolerance +/-0.5mm).

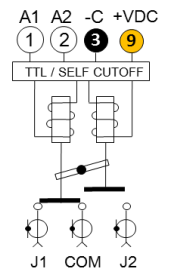
Pulse Latching



Self Cutoff (latching only)

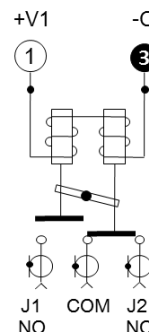


TTL and Self Cutoff (latching only)

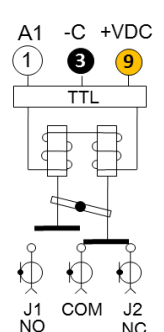


Pin No.	PINOUT
1	A1/V1 (J1-COM)
2	UNUSED
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_1 (IND.)
8	UNUSED
9	+VDC/+VDCI

Failsafe



Failsafe TTL



MC4p-N12

SPDT, N (high power), DC-12.4GHz

FAILSAFE/LATCHING

The **MC4p-N12** Series features N-type connectors (high power) and an operation frequency range of DC to 12.4GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	260g

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-2	1.20	0.20	80
2-4	1.30	0.30	70
4-8	1.40	0.40	60
8-12.4	1.50	0.50	50

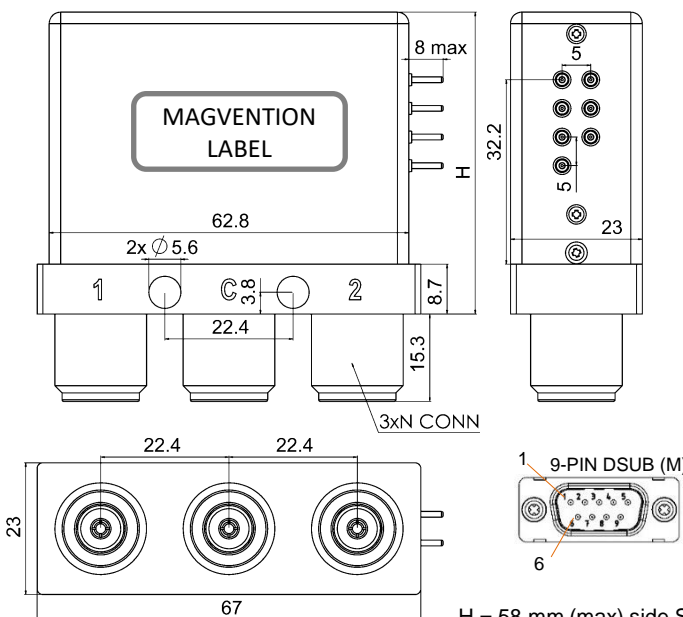
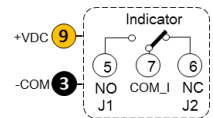
Voltage (VDC)		12	18	24	28
Current (mA)	Failsafe	275	170	130	115
	Latching	100	80	70	60



Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

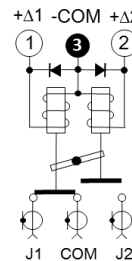
Note: +VDC and -C must be connected to operate.



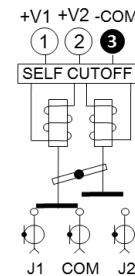
H = 58 mm (max) side Solder Pins
H = 72 mm (max) top DSUB9

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

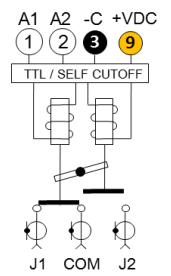
Pulse Latching



Self Cutoff (latching only)

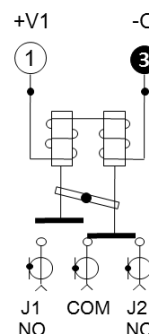


TTL and Self Cutoff (latching only)

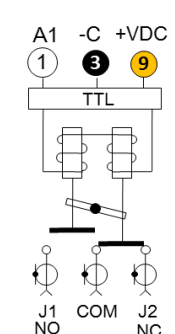


Pin No.	PINOUT
1	A1/V1 (J1-COM)
2	UNUSED
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_1 (IND.)
8	UNUSED
9	+VDC/+VDC1

Failsafe



Failsafe TTL



MC4p-T12

SPDT, TNC (high power), DC-12.4GHz

FAILSAFE/LATCHING

The **MC4p-T12** Series features TNC-type connectors and an operation frequency range of DC to 12.4GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.

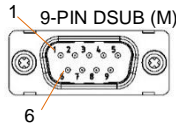
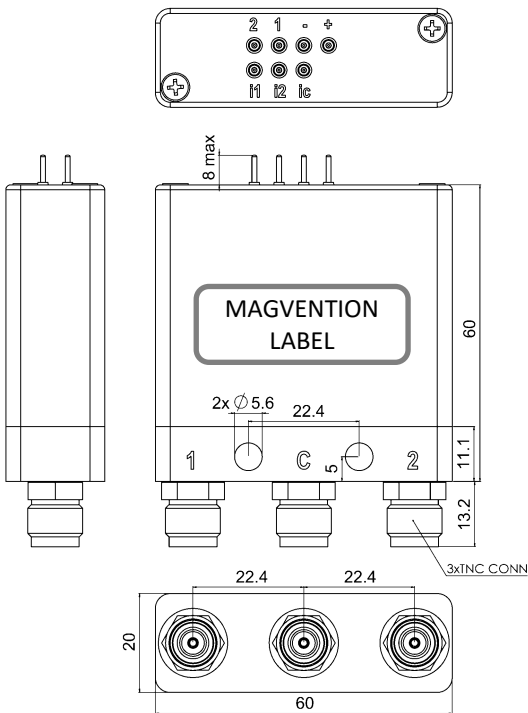
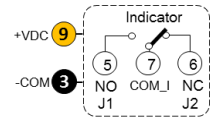


Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	260g

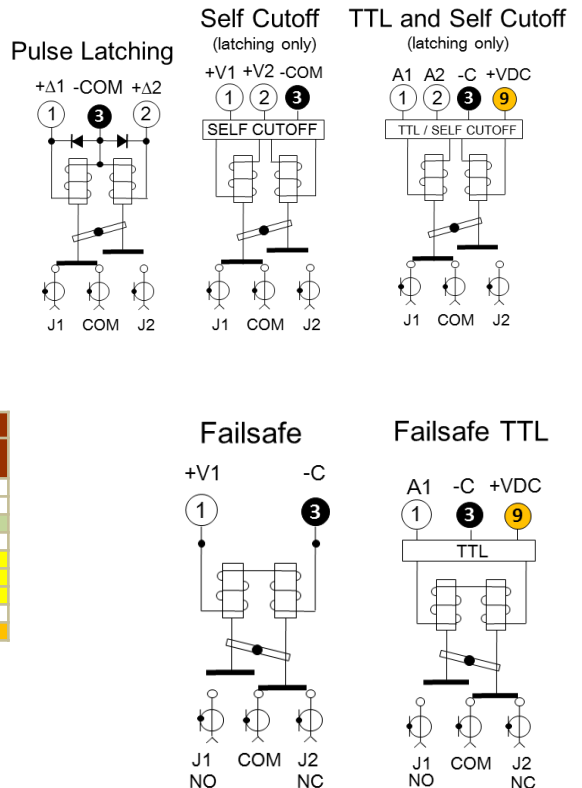
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-2	1.15	0.20	80
2-4	1.20	0.25	80
4-12.4	1.50	0.50	60

Voltage (VDC)	12	18	24	28
Current (mA)	Failsafe 275	170	130	115
	Latching 100	80	70	60

Optional Indicator Specifications
 Max withstand voltage: 60V
 Max current capacity: 100mA
 Max "ON" resistance: 16Ω
 Note: +VDC and -C must be connected to operate.



Pin No.	PINOUT
1	A1/V1 (J1-COM)
2	UNUSED
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_1 (IND.)
8	UNUSED
9	+VDC/+VDCI



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

The **MC4-C06** Series features SC-type connectors and an operation frequency range of DC to 6GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.

FAILSAFE or LATCHING



Photo shown is a standard MC4-N-type.

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range (operating)	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Temperature (storage)	-55° C to +70° C
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	260g

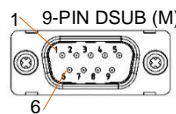
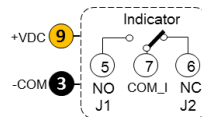
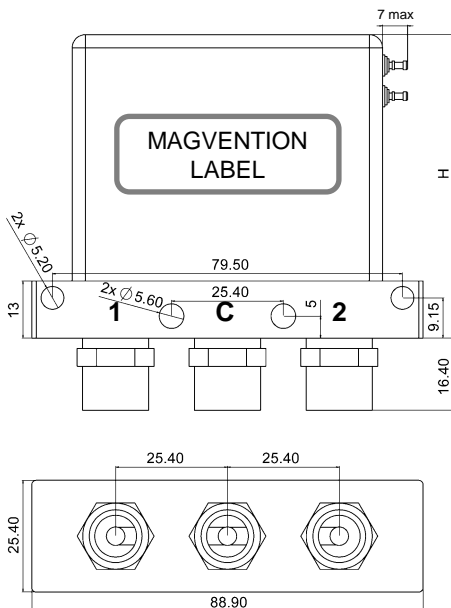
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-2	1.15	0.20	70
2-4	1.30	0.30	60
4-6.5	1.50	0.50	60

Note: The listed RF results are for the model with standard power. Consult with the company for the high-power versions.

Voltage (VDC)		12	18	24	28
Current (mA)	Failsafe	275	170	130	115
	Latching	100	80	70	60

- Contact company if reduced coil current is required. Other coil voltage options are available upon request.

Note: The listed coil currents are for the model with standard power. Consult with the company for the high-power versions.



Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16W

Note: +VDC and -C must be connected to operate.

Solder Pins or DSUB 9

FAILSAFE	
Pin No.	PINOUT
1	A1/V1 (J1-COM)
2	UNUSED
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_I (IND.)
8	UNUSED
9	+VDC+VDCI

LATCHING	
Pin No.	PINOUT
1	A1/V1 (J1-COM)
2	A2/V2 (J2-COM)
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_I (IND.)
8	UNUSED
9	+VDC+VDCI

H = 58 mm (max) side Solder Pins
H = 72 mm (max) top DSUB9

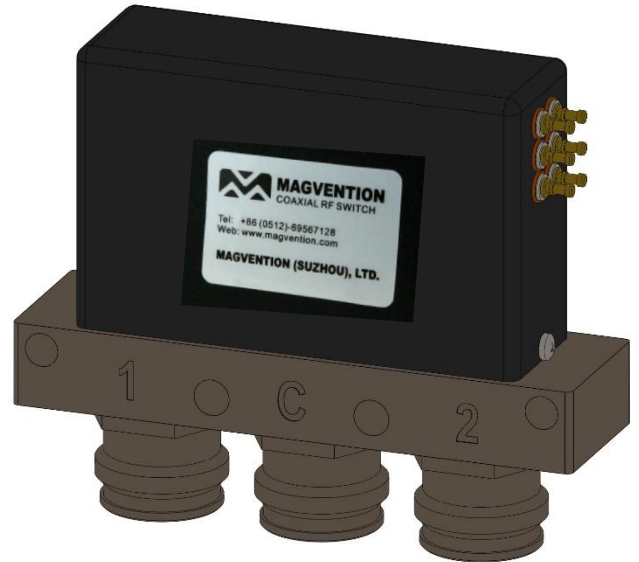
Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MC4-R06

SPDT, 4.3-10, DC-6GHz

The **MC4-R06** Series features 4.3-10-type connectors and an operation frequency range of DC to 6GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.

FAILSAFE or LATCHING

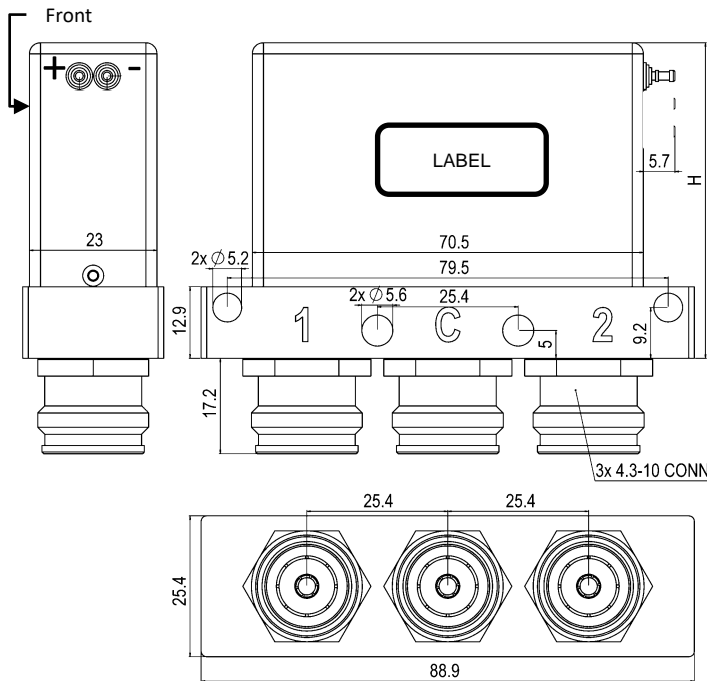


Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	20msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.30	0.30	70
3-4	1.40	0.40	60
4-6	1.50	0.50	60

Voltage (VDC)		12	18	24	28
Current (mA)	Failsafe	275	170	130	115
	Latching	100	80	70	60

Solder Pin Assignments are marked on the product.



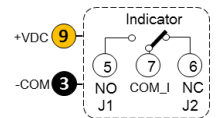
H = 58 mm (max) side Solder Pins
H = 72 mm (max) top DSUB9

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

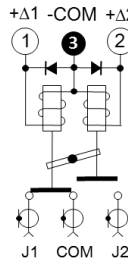
Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

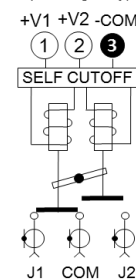
Note: +VDC and -C must be connected to operate.



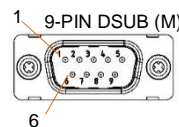
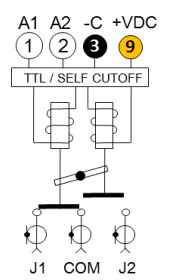
Pulse Latching



Self Cutoff (latching only)

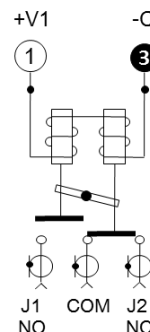


TTL and Self Cutoff (latching only)

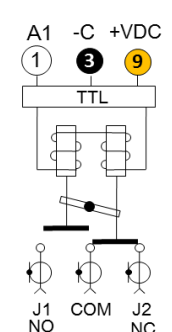


Pin No	PINOUT
1	A1/V1 (J1-COM)
2	UNUSED
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM, I (IND.)
8	UNUSED
9	+VDC/+VDCI

Failsafe



Failsafe TTL



MC4-D04

SPDT, Din 7-16, DC-4GHz

The **MC4-D04** Series features Din 7-16-type connectors and an operation frequency range of DC to 4GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.

FAILSAFE or LATCHING



Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	20msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	

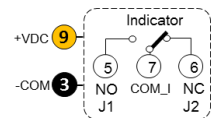
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.30	0.30	70
3-4	1.40	0.40	60

Voltage (VDC)	Current (mA)	12	18	24	28
		Failsafe	270	220	150
	Latching	310	250	170	130

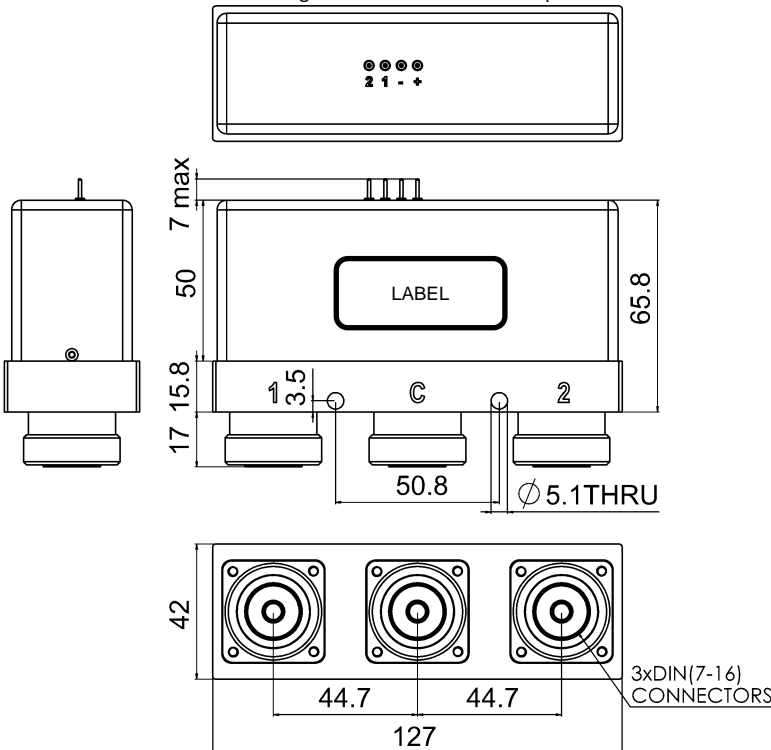
Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

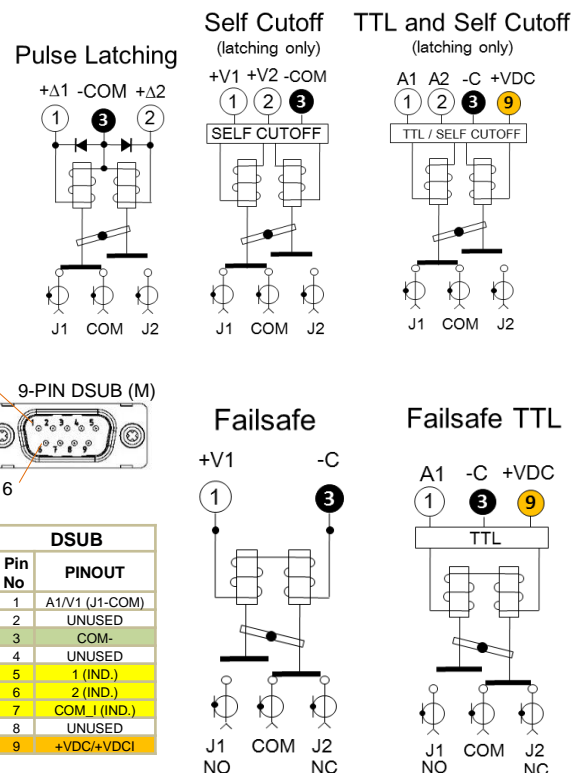
Note: +VDC and -C must be connected to operate.



Solder Pin Assignments are marked on the product.



Mechanical drawings (unit: mm, tolerance +/-0.5mm).



FAILSAFE or LATCHING

The **MCD-N04** series features N-type connectors and an operation frequency range of DC to 4 GHz. The N connectors are arranged in a Y-configuration so that input is on one side and outputs are on the other. This series can be either latching or failsafe type. The options include TTL, SELF CUTOFF, suppression diodes, and indicator contacts.

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Operating Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	95% ± 3% (30~60°C ± 5°C)
Operation Life (cycles)	1,000,000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	

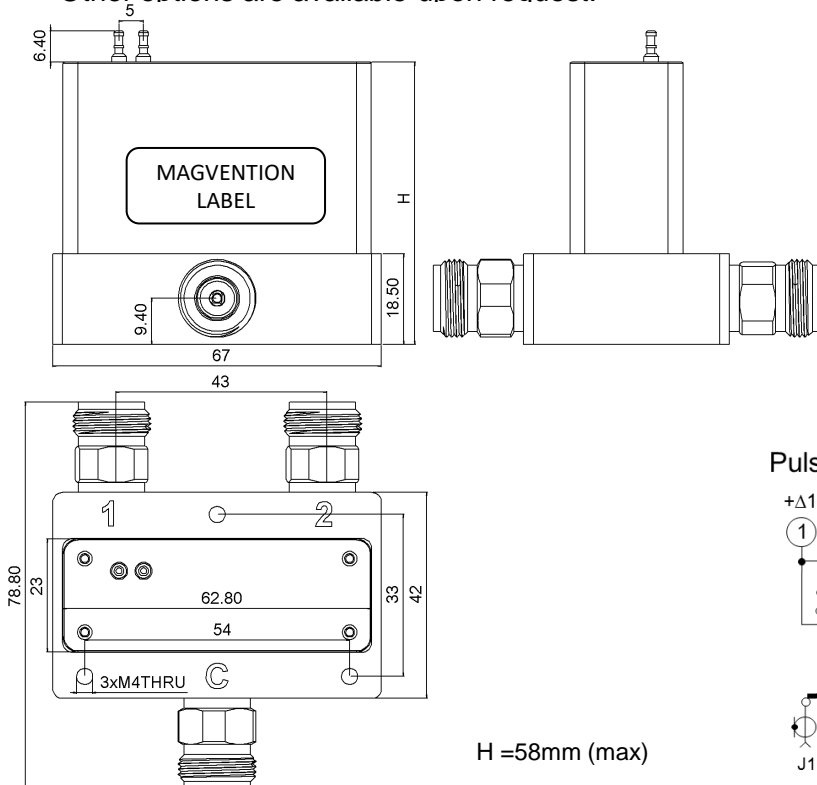
Voltage (VDC)		12	18	24	28
Current (mA)	Failsafe	275	170	130	115
	Latching	100	80	70	60



Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-2	1.15	0.20	80
2-4	1.25	0.25	60

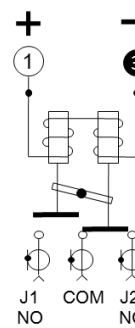
Higher frequency range is available upon request.

Other options are available upon request.

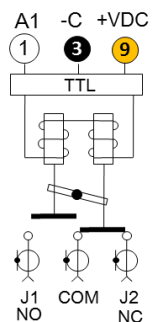


Mechanical drawings (unit: mm, tolerance +/-0.5mm).

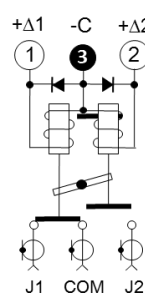
Failsafe



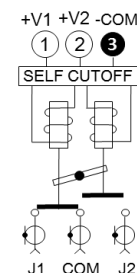
Failsafe TTL



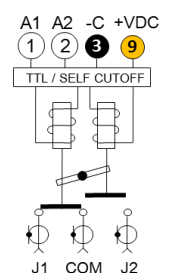
Pulse Latching



Self Cutoff (latching only)



TTL and Self Cutoff (latching only)



MCVpe-N02L28-3KDM-1: 1P2T, ext-T, N-V-type, DC-2GHz, LATCHING, 28VDC, TTL/SELF CUTOFF/INDICATOR, DB9, Moisture Seal, **Strait Mounting Hole**

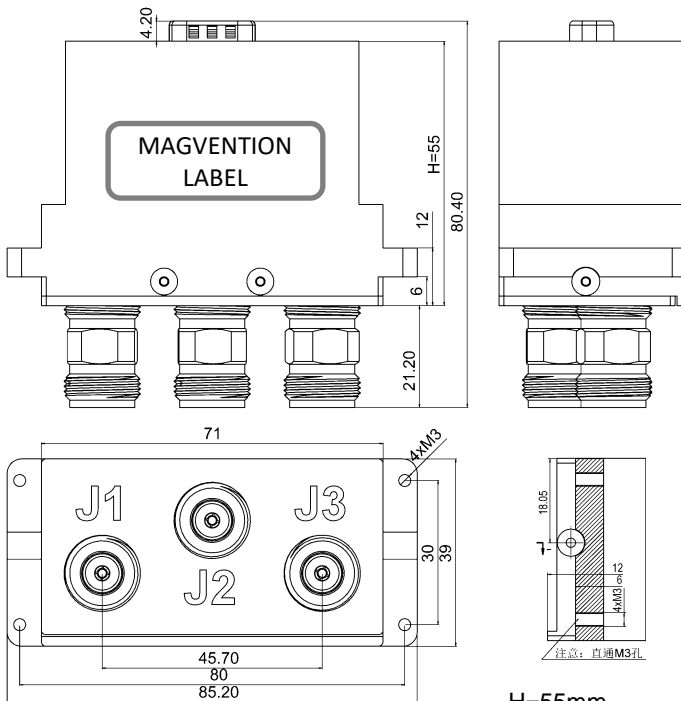
The **MCVpe-N02** series features N-type connectors and an operation frequency range of DC to 2 GHz. The N connectors are arranged in a V-configuration to allow more spacing between them. This series can be either latching or failsafe type. The options include TTL, SELF CUTOFF, suppression diodes, and indicator contacts.

Specifications

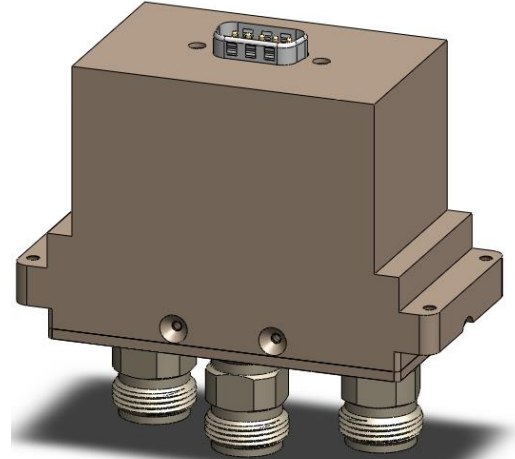
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	20msec
Impedance	50Ω
Operating Temperature Range	-55°C to +85°C ("e" option)
Relative Humidity	95% ± 3% (30~60°C ± 5°C)
Operation Life (cycles)	1,000,000
Vibration Operating	10G RMS, 15-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec

				28
Current (mA) (max)	Latching			300

Other options are available upon request.

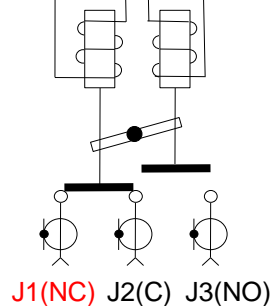
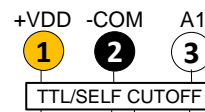
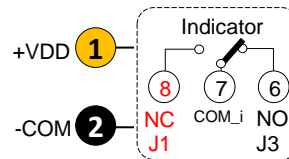


H=55mm
Mechanical drawings. (unit: mm)



Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
0.1 - 2	1.2	0.20	60

The switch is designed to handle CW RF Power of 400W at 2GHz, 500W at 1GHz, 1500W at 225MHz (sea level).



LATCHING TTL/SELFCUT OFF 9-PIN D-SUB	
Pin No.	PINOUT
1	+VDD
2	COM(-)
3	A1 (TTL) (J2-J3)
4	UNUSED
5	UNUSED
6	INDICATOR J3
7	COM_i (INDICATOR)
8	INDICATOR J1
9	UNUSED

Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100 mA
Max "ON" resistance: 16 W

Note: +VDD and COM- must be connected to operate.

MC5-S (or K)

DPDT, SMA (or K), DC-40GHz

FAILSAFE

The **MC5-S (or K)** Series features SMA or K(2.92mm) connectors with internal termination and an operation frequency range of DC to 40 GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.

Specifications

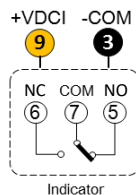
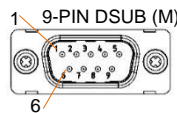
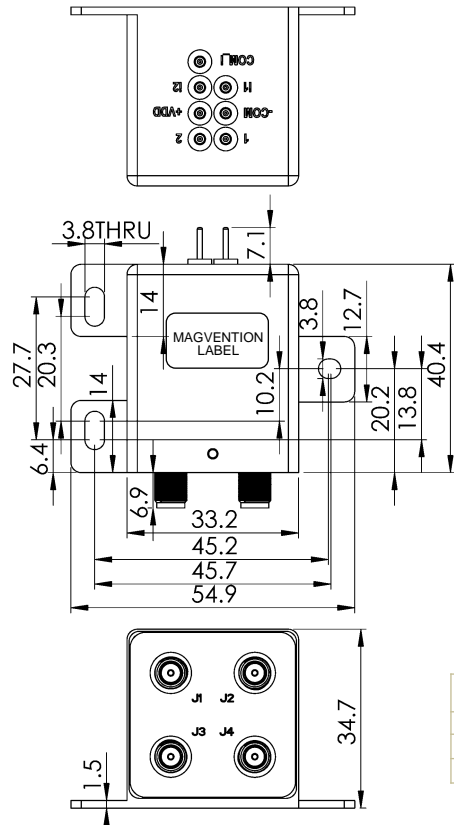
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	120g

Voltage (VDC)		12	18	24	28
Current (mA)	Fail-safe	380	280	200	180

Other options are available upon request.



Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	80
6-12	1.30	0.25	70
12-18	1.35	0.40	60
18-26.5	1.70	0.90	55
26.5-40	2.00	1.30	50



Pin No.	PINOUT
1	A1/V1 (NO: J1-J3, J2-J4)
2	UNUSED
3	COM-
4	UNUSED
5	1 (IND.) (NO: J1-J3, J2-J4)
6	2 (IND.) (NC: J1-J2, J3-J4)
7	COM_1 (IND.)
8	UNUSED
9	+VDC/+VDC I

Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

H (max)	Solder Pin	DSUB
Standard	41	47
TTL	41	57
Indicator	41	57

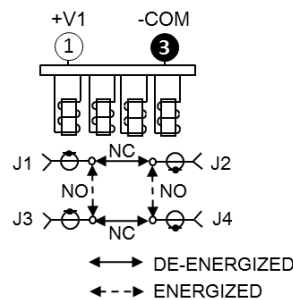


Fig. 1

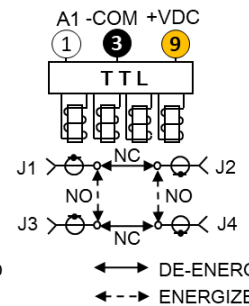


Fig. 2

MC5-S (or K)

DPDT, SMA, DC-40GHz

LATCHING

The **MC5-S (or K)** Series features SMA or K(2.92mm) connectors with internal termination and an operation frequency range of DC to 40 GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.

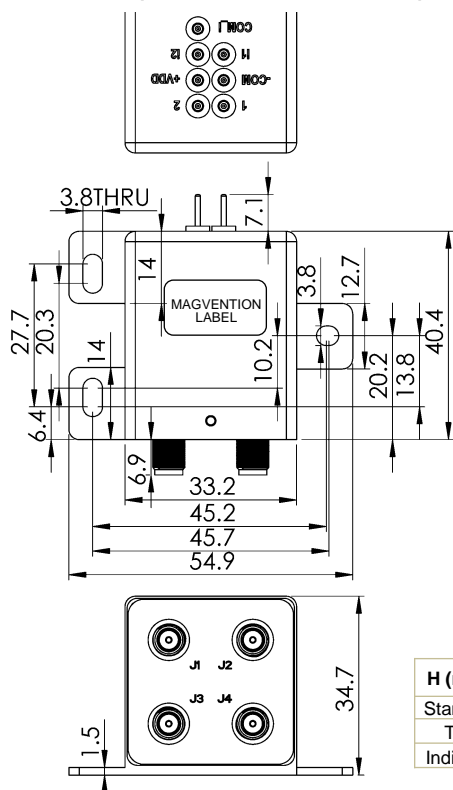
Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	120g



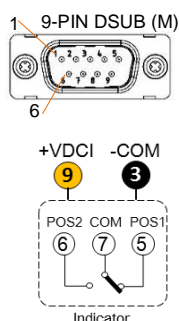
Voltage (VDC)	12	18	24	28
Current (mA)				
Latching	400	240	180	230

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	80
6-12	1.30	0.25	70
12-18	1.35	0.40	60
18-26.5	1.70	0.90	55
26.5-40	2.00	1.30	50

Other options are available upon request.

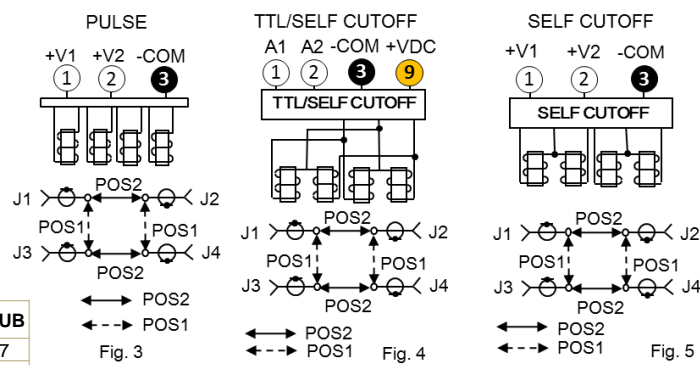


H (max)	Solder Pin	DSUB
Standard	41	47
TTL	41	57
Indicator	41	57



Pin No.	PINOUT
1	A1/V1 (POS1: J1-J3, J2-J4)
2	A2/V2 (POS2: J1-J2, J3-J4)
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_1 (IND.)
8	UNUSED
9	+VDCI/+VDCI

Optional Indicator Specifications
 Max withstand voltage: 60V
 Max current capacity: 100mA
 Max "ON" resistance: 16Ω
 Note: +VDC and -C must be connected to operate.



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

FAILSAFE/LATCHING

The **MC5-U** Series features U(2.4mm) connectors with internal termination and an operation frequency range of DC to 50 GHz. This series is available with failsafe, latching self-cutoff or pulse latching, TTL, and coil suppression options.

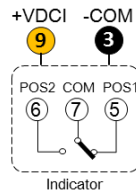
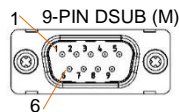
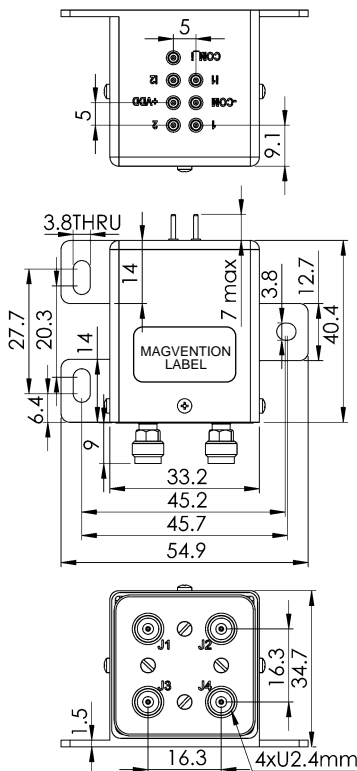


Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	120g

Voltage (VDC)	12	18	24	28
Current (mA)				
Latching	400	240	180	230

Standard			
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.20	0.20	70
6-12	1.30	0.25	70
12-18	1.40	0.40	60
18-26.5	1.70	0.70	55
26.5-32	1.90	0.80	50
32-40	2.00	1.00	50
40-50	2.00	1.20	50

Other options are available upon request.



PINOUT	
Pin No.	PINOUT
1	A1/V1 (POS1: J1-J3, J2-J4)
2	A2/V2 (POS2: J1-J2, J3-J4)
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM_1 (IND.)
8	UNUSED
9	+VDCI/+VDCI

Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

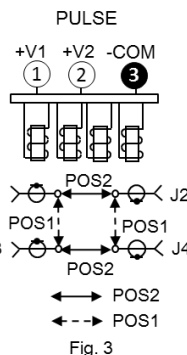


Fig. 3

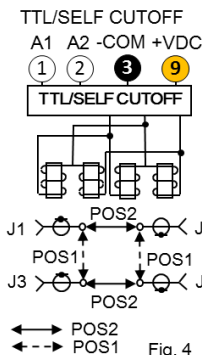


Fig. 4

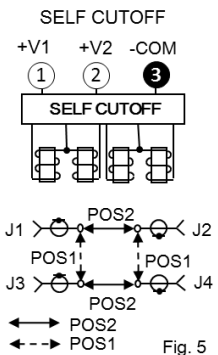


Fig. 5

H (max)	Solder Pin	DSUB
Standard	41	47
TTL	41	57
Indicator	41	57

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MC6-N

1P6T, N, DC-12.4GHz

MC6n: n=3-6 (e.g., n=6 for 1P6T)

NORMALLY OPEN

The **MC6-N** Series features N connectors and an operation frequency range from DC to 12.4 GHz. This series is of **NORMALLY OPEN** type with or without TTL, coil suppression diodes, and indicator options.

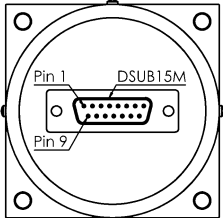


Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1,000,000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	550g

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.3	0.3	70
3-8	1.5	0.5	60
8-12.4	1.7	0.7	50

Voltage (VDC)	12	18	24	28
Current (mA)	150	100	75	65

Other options are available upon request.



Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

1PnT PORT CONFIGURATIONS

1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	
1P4T	1	2		4	5	
1P3T	1		3		5	

Note: "Blank" represents the unused RF and corresponding control ports.

Height H Table.

DSUB		Solder Pin	
drive	Std	drive	Std
4D	65	no K	65
Others	75	K	68

Note: K=indicator;

NORMALLY OPEN 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

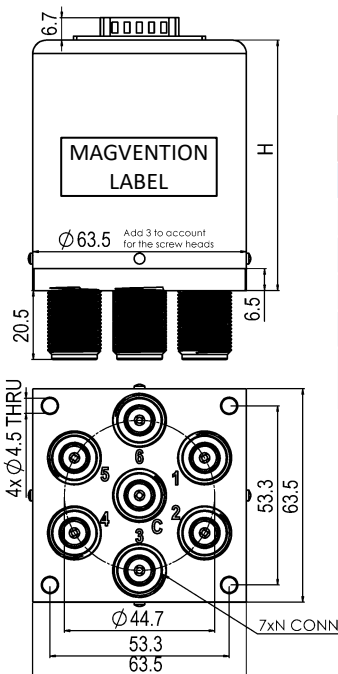
PIN 8-15: For optional INDICATORS only.

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT

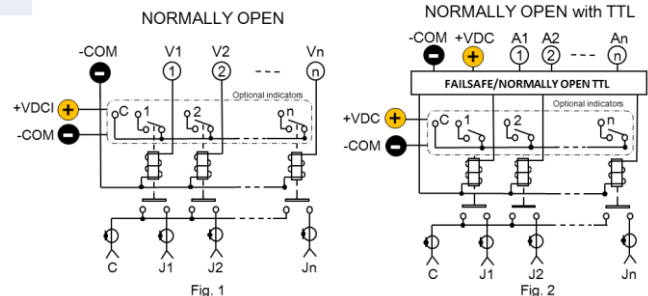
Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDC

PIN 8-14: For optional INDICATORS only.

Pin 1-6: The corresponding control signal inputs.



Mechanical drawings (unit: mm, tolerance +/-0.5mm).



MC6np-N

1P6T, N (high power), DC-12.4GHz

MC6n: n=3-6 (e.g., n=6 for 1P6T)

NORMALLY OPEN

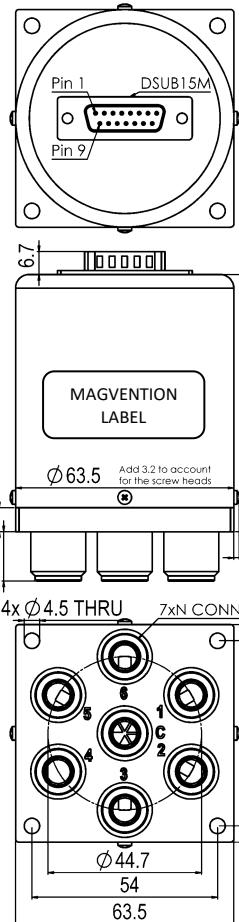
The **MC6-N** Series features N connectors and an operation frequency range from DC to 12.4 GHz. This series is of **NORMALLY OPEN** type with or without TTL, coil suppression diodes, and indicator options.



Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1,000,000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	550g

Voltage (VDC)	12	18	24	28
Current (mA)	240	160	140	120

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.3	0.3	70
3-8	1.5	0.5	60
8-12.4	1.7	0.7	50



Other options are available upon request.

Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

1PnT PORT CONFIGURATIONS

1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	
1P4T	1	2		4	5	
1P3T	1		3	5		

Note: "Blank" represents the unused RF and corresponding control ports.

Height H Table.

DSUB		Solder Pin	
drive	Std	drive	Std
4D	65	no K	65
Others	75	K	68

Note: K=indicator;

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

NORMALLY OPEN 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

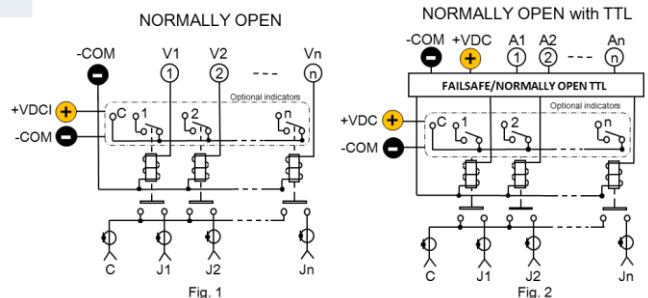
PIN 8-15: For optional INDICATORS only.

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDC

PIN 8-14: For optional INDICATORS only.

Pin 1-6: The corresponding control signal inputs.



MC6-C

1P6T, SC, DC-6.5GHz

MC6n: n=3-6 (e.g., n=6 for 1P6T)

NORMALLY OPEN

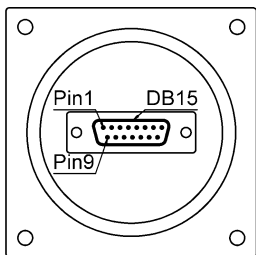
The **MC6-C** Series features SC connectors and an operation frequency range from DC to 6.5 GHz. This series is of **NORMALLY OPEN** type with or without TTL, coil suppression diodes, and indicator options.



Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1,000,000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	580g

Voltage (VDC)	12	18	24	28
Current (mA)	240	160	140	120

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-4	1.25	0.3	70
4-6.5	1.45	0.4	60



Other options are available upon request.

Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

1PnT PORT CONFIGURATIONS

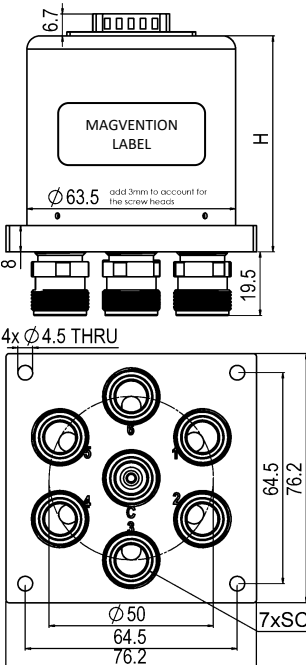
1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	
1P4T	1	2		4	5	
1P3T	1		3	5		

Note: "Blank" represents the unused RF and corresponding control ports.

Height H Table.

DSUB		Solder Pin	
drive	Std	drive	Std
4D	66	no K	66
Others	76	K	69

Note: K=indicator;



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

Note: The listed RF results are for the model with standard power. Consult with the company for the high-power versions.

NORMALLY OPEN 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

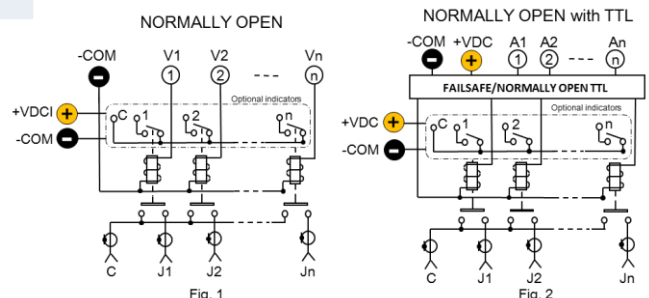
PIN 8-15: For optional INDICATORS only.

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDC

PIN 8-14: For optional INDICATORS only.

Pin 1-6: The corresponding control signal inputs.



MC6-T

1P6T, TNC, DC-16GHz

MC6n: n=3-6 (e.g., n=6 for 1P6T)

NORMALLY OPEN

The **MC6-T** Series features TNC-type connectors and an operation frequency range from DC to 16 GHz. This series is of **NORMALLY OPEN** type with or without TTL, coil suppression diodes, and indicator options.

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C (Standard) -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1,000,000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	500g

Voltage (VDC)		12	18	24	28
Current (mA)	Standard	140	100	70	60



Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.4	0.4	70
6-12.4	1.6	0.6	60
12.4-16	1.8	0.8	50

Other options are available upon request.

Note: The listed RF results are for the model with standard power. Consult with the company for the high-power versions.

Optional Indicator Specifications

Max withstand voltage: 60V
 Max current capacity: 100mA
 Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

- MC63-, 1P3T SWITCH
- MC64-, 1P4T SWITCH
- MC65-, 1P5T SWITCH
- MC66-, 1P6T SWITCH

Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

PIN 8-15: For optional INDICATORS only.

Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDC

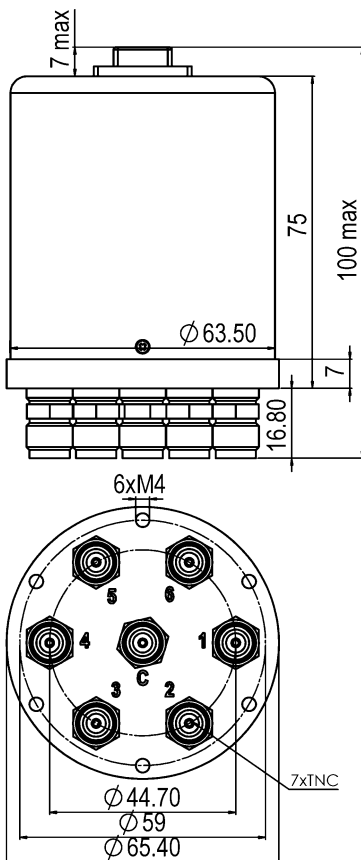
PIN 8-14: For optional INDICATORS only.

Pin 1-6: The corresponding control signal inputs.

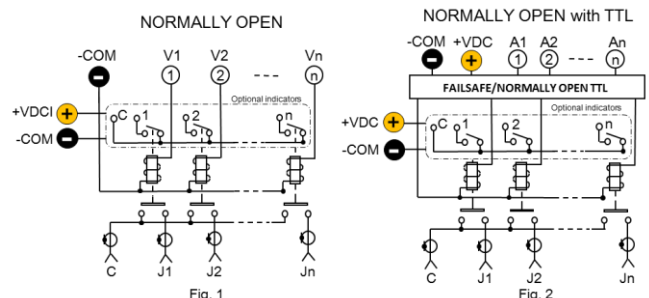
1PnT PORT CONFIGURATIONS	
1PnT	Ports Used
1P6T	1 2 3 4 5 6
1P5T	1 2 3 4 5
1P4T	1 2 4 5
1P3T	1 3 5

Note: "Blank" represents the unused RF and corresponding control ports.

H = 66 mm (max)
 H = 76 mm (max) for options with TTL



Mechanical drawings (unit: mm, tolerance +/-0.5mm).



MC6-R

1P6T, 4.3-10, DC-6GHz

MC6n: n=3-6 (e.g., n=6 for 1P6T)

NORMALLY OPEN

The **MC6-R** Series features 4.3-10 connectors and an operation frequency range from DC to 6 GHz. This series is of **NORMALLY OPEN** type with or without TTL, coil suppression diodes, and indicator options.

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	700g

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.30	0.30	70
3-4	1.40	0.40	60
4-6	1.50	0.50	50

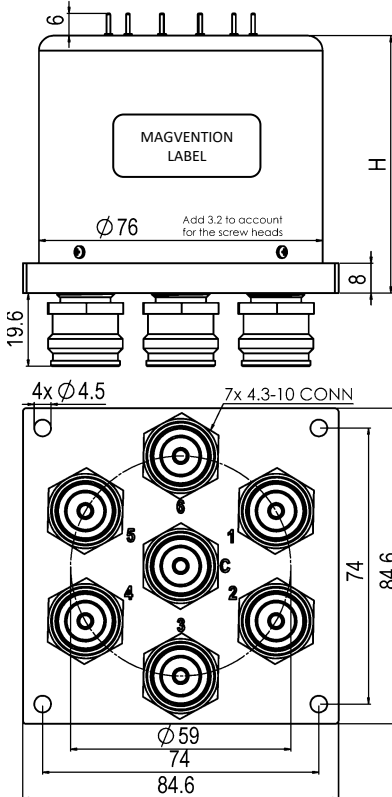
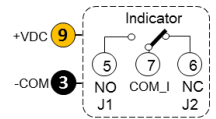
Voltage (VDC)	12	18	24	28
Current (mA)	240	160	140	100



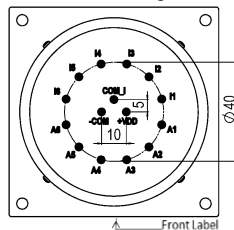
Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.



Top Solder Pin Arrangements



1PnT PORT CONFIGURATIONS

1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	
1P4T	1	2		4	5	
1P3T	1		3		5	

Note: "Blank" represents the unused RF and corresponding control ports.

Height H Table.

DSUB		Solder Pin	
drive	Std	drive	Std
4D	66	no K	66
Others	76	K	69

Note: K=indicator;

NORMALLY OPEN 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8	1 (ind: J1-C)
9	2 (ind: J2-C)
10	3 (ind: J3-C)
11	4 (ind: J4-C)
12	5 (ind: J5-C)
13	6 (ind: J6-C)
14	com_i
15	+VDCI

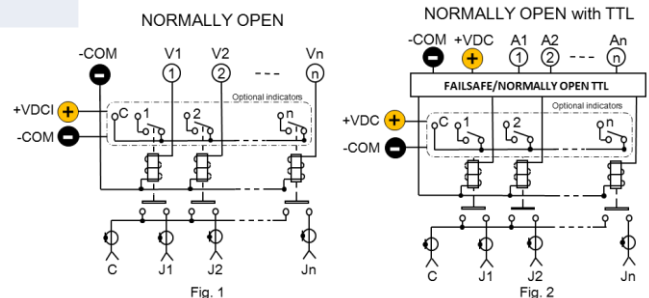
Pin 8-15: For optional INDICATORS only.

Pin 1-6: The corresponding control signal inputs.

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	1 (ind: J1-C)
9	2 (ind: J2-C)
10	3 (ind: J3-C)
11	4 (ind: J4-C)
12	5 (ind: J5-C)
13	6 (ind: J6-C)
14	com_i
15	+VDC

Pin 8-14: For optional INDICATORS only.



MC7-N

DPDT, N, DC-12.4GHz

The **MC7-N** product features N-type connectors and an operation frequency range of DC to 12.4 GHz. This product can be of latching or failsafe type. The options include TTL, SELF CUTOFF, suppression diodes, and indicators. Higher frequency range is available upon request.

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Operating Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	95% ± 3% (30~60°C ± 5°C)
Operation Life (cycles)	1,000,000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	350g



Voltage (VDC)		12	18	24	28
Current (mA) (max)	Failsafe	550	370	270	240
	Latching	290	220	200	160

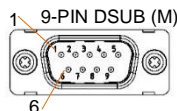
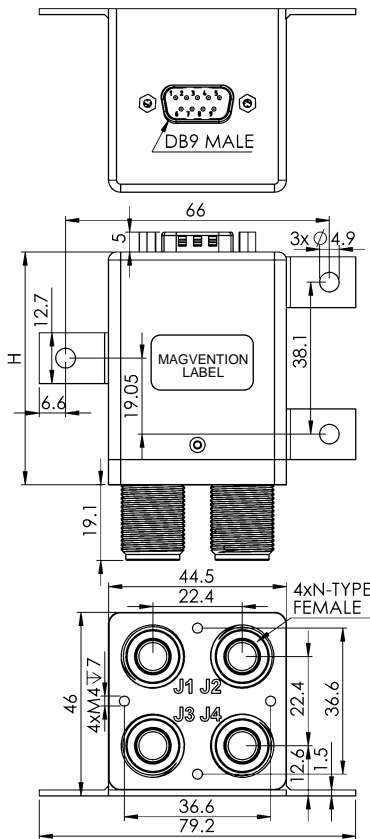
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-2	1.15	0.20	80
2-4	1.20	0.25	70
4-12.4	1.50	0.50	50

Other options are available upon request.

Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.



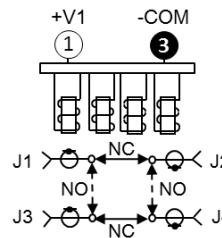
Pin No.	PINOUT
1	A1/V1 (NO: J1-J3, J2-J4)
2	UNUSED
3	COM-
4	UNUSED
5	1 (IND.) (NO: J1-J3, J2-J4)
6	2 (IND.) (NC: J1-J2, J3-J4)
7	COM_1 (IND.)
8	UNUSED
9	+VDC/+VDCI

Pin No.	PINOUT
1	A1/V1 (POS1: J1-J3, J2-J4)
2	A2/V2 (POS2: J1-J2, J3-J4)
3	COM-
4	UNUSED
5	1 (IND.) (POS1: J1-J3, J2-J4)
6	2 (IND.) (POS2: J1-J2, J3-J4)
7	COM_1 (IND.)
8	UNUSED
9	+VDC/+VDCI

H = 64 mm (max)

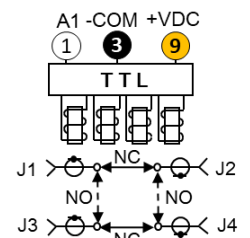
Mechanical drawings (unit: mm, tolerance +/-0.5mm).

FAILSAFE



↔ DE-ENERGIZED
↔- - ENERGIZED

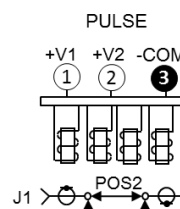
Fig. 1



↔ DE-ENERGIZED
↔- - ENERGIZED

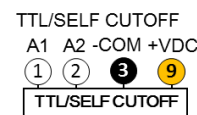
Fig. 2

LATCHING



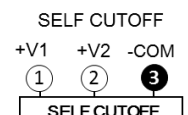
↔ POS2
↔- - POS1

Fig. 3



↔ POS2
↔- - POS1

Fig. 4



↔ POS2
↔- - POS1

Fig. 5

MC7p-N

DPDT, N (high power), DC-12.4GHz

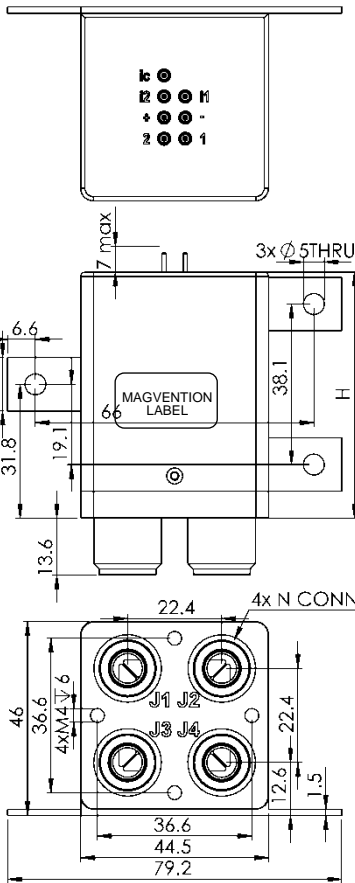
The **MC7-N** product features N-type connectors and an operation frequency range of DC to 12.4 GHz. This product can be of latching or failsafe type. The options include TTL, SELF CUTOFF, suppression diodes, and indicators. Higher frequency range is available upon request.



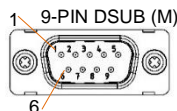
Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Operating Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	95% ± 3% (30~60°C ± 5°C)
Operation Life (cycles)	1,000,000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	350g

Voltage (VDC)		12	18	24	28
Current (mA) (max)	Failsafe	550	370	270	240
	Latching	290	220	200	160

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-2	1.20	0.20	70
2-4	1.25	0.25	60
4-12.4	1.60	0.70	40



Optional Indicator Specifications
 Max withstand voltage: 60V
 Max current capacity: 100mA
 Max "ON" resistance: 16Ω
 Note: +VDC and -C must be connected to operate.



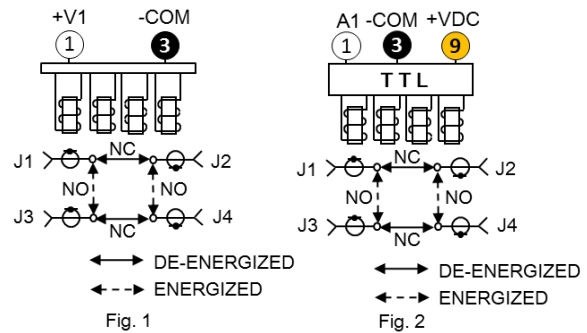
Pin No.	PINOUT
1	A1/V1 (NO: J1-J3, J2-J4)
2	UNUSED
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM+ (IND.)
8	UNUSED
9	+VDC/+VDCI

Pin No.	PINOUT
1	A1/V1 (POS1: J1-J3, J2-J4)
2	A2/V2 (POS2: J1-J2, J3-J4)
3	COM-
4	UNUSED
5	1 (IND.)
6	2 (IND.)
7	COM+ (IND.)
8	UNUSED
9	+VDC/+VDCI

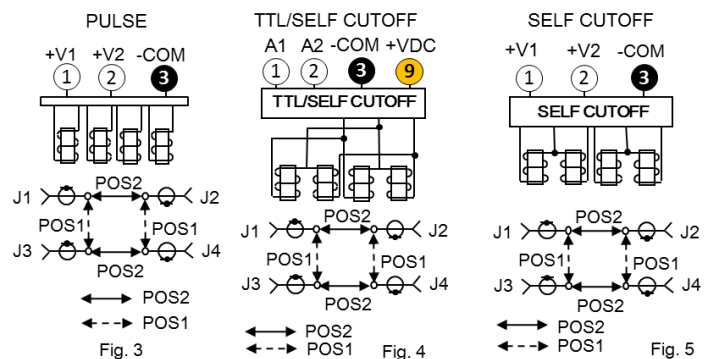
H = 64 mm (max)

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

FAILSAFE



LATCHING



MCFnT: n=3-6 (e.g., n=6 for 1P6T)

**NORMALLY OPEN
or LATCHING**

The **MCFnT-S18** product features SMA connectors and an operation frequency range of DC to 18 GHz. This product can be of normally-open or latching type and comes with internal self-terminations. Options include coils suppression diodes, TTL, and/or self cutoff circuits, and indicators.



Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	240g

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	80
6-12	1.4	0.4	70
12-18	1.5	0.5	60

Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	300	220	167	160
	Latching (set)	350	240	180	160

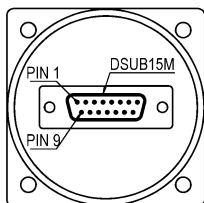
OPTIONAL INDICATOR	
Pin No.	PINOUT
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

Optional Indicator Specifications

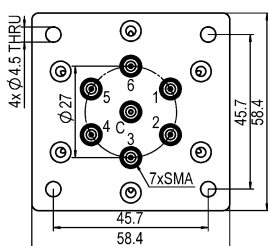
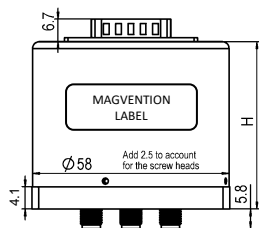
Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

For LATCHING, I(reset) = n x I(set).
Other options are available upon request.



MCF3-, 1P3T SWITCH
MCF4-, 1P4T SWITCH
MCF5-, 1P5T SWITCH
MCF6-, 1P6T SWITCH



1PnT PORT CONFIGURATIONS

1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	
1P4T	1	2		4	5	
1P3T	1		3	5		

Note: "Blank" represents the unused RF and corresponding control ports.

H = 50 (max) (STANDARD)
= 62 (max) (with TTL)

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

**NORMALLY OPEN
15-PIN D-SUB PINOUT**

Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8-15	UNUSED

**NORMALLY OPEN TTL
15-PIN D-SUB PINOUT**

Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8-14	UNUSED
15	+VDC

**LATCHING (PULSE)
15-PIN D-SUB PINOUT**

Pin No.	PINOUT
n=1-6	+ΔVn (Jn-COM)
7	COM(-)
8	+ΔVR (Reset ALL OPEN)
9-15	UNUSED

**LATCHING TTL
15-PIN D-SUB PINOUT**

Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	AR (Reset ALL OPEN)
9-14	UNUSED
15	+VDC

**LATCHING
SELF CUTOFF
15-PIN D-SUB PINOUT**

Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8-15	UNUSED

**LATCHING
TTL&SELF CUTOFF
15-PIN D-SUB PINOUT**

Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8-14	UNUSED
15	+VDC

Pin 1-6: The corresponding control signal inputs.

Note: For the SELF CUTOFF, a "RESET ALL" option is available upon request.

MCFnT: n=3-6 (e.g., n=6 for 1P6T)

**NORMALLY OPEN
or LATCHING**

The **MCFnT-K40** product features K (2.92mm) connectors and an operation frequency range of DC to 40 GHz. This product can be of normally-open or latching type and comes with internal self-terminations. Options include coils suppression diodes, TTL, and/or self cutoff circuits, and indicators.

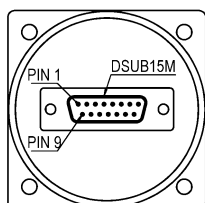


Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	240g

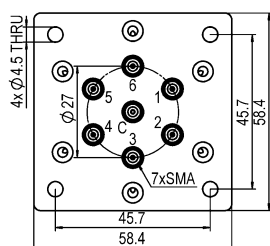
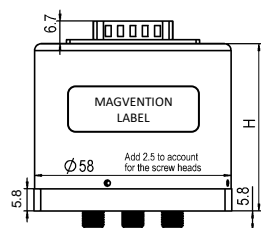
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	70
6-12	1.4	0.4	60
12-18	1.5	0.5	60
18-32	1.9	0.8	55
32-40	2.1	1.3	50

Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	300	220	167	160
	Latching (set)	350	240	180	160

For LATCHING, I(reset) = n x I(set).
Other options are available upon request.



MCF3-,1P3T SWITCH
MCF4-,1P4T SWITCH
MCF5-,1P5T SWITCH
MCF6-,1P6T SWITCH



H = 50 (max) (STANDARD)
= 62 (max) (with TTL)

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

1PnT PORT CONFIGURATIONS	
1PnT	Ports Used
1P6T	1 2 3 4 5 6
1P5T	1 2 3 4 5
1P4T	1 2 4 5
1P3T	1 3 5

Note: "Blank" represents the unused RF and corresponding control ports.

NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8-15	UNUSED

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8-14	UNUSED
15	+VDC

LATCHING (PULSE) 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	+ΔVn (Jn-COM)
7	COM(-)
8	+ΔVR (Reset ALL OPEN)
9-15	UNUSED

LATCHING TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	AR (Reset ALL OPEN)
9-14	UNUSED
15	+VDC

LATCHING SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8-15	UNUSED

LATCHING TTL&SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8-14	UNUSED
15	+VDC

Pin 1-6: The corresponding control signal inputs.

Note: For the SELF CUTOFF, a "RESET ALL" option is available upon request.

OPTIONAL INDICATOR	
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

MCFnT: n=3-6 (e.g., n=6 for 1P6T)

**NORMALLY OPEN
or LATCHING**

The **MCFnT-U50** product features U (2.4mm) connectors and an operation frequency range of DC to 50 GHz. This product can be of normally-open or latching type and comes with internal self-terminations. Options include coils suppression diodes, TTL, and/or self cutoff circuits, and indicators.



Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	240g

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	70
6-12	1.4	0.4	60
12-18	1.5	0.5	60
18-32	1.9	0.8	55
32-40	2.1	1.3	50
40-50	2.1	1.3	50

Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	300	220	167	160
	Latching (set)	350	240	180	160

For LATCHING, I(reset) = n x I(set).
Other options are available upon request.

NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8-15	UNUSED

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8-14	UNUSED
15	+VDC

LATCHING (PULSE) 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	+ΔVn (Jn-COM)
7	COM(-)
8	+ΔVR (Reset ALL OPEN)
9-15	UNUSED

LATCHING TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8	AR (Reset ALL OPEN)
9-14	UNUSED
15	+VDC

LATCHING SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	Vn (Jn-COM)
7	COM(-)
8-15	UNUSED

LATCHING TTL&SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-6	An (Jn-COM)
7	COM(-)
8-14	UNUSED
15	+VDC

Pin 1-6: The corresponding control signal inputs.

Note: For the SELF CUTOFF, a "RESET ALL" option is available upon request.

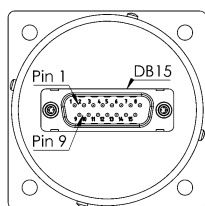
OPTIONAL INDICATOR

Pin No.	PINOUT
8	1 (IND: J1-C)
9	2 (IND: J2-C)
10	3 (IND: J3-C)
11	4 (IND: J4-C)
12	5 (IND: J5-C)
13	6 (IND: J6-C)
14	COM_I
15	+VDCI

Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

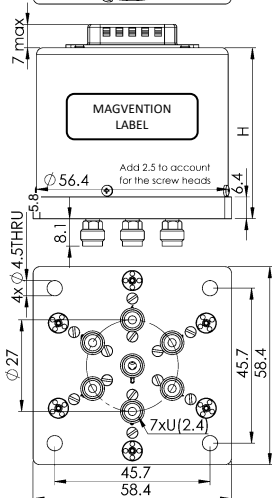


MCF3-,1P3T SWITCH
MCF4-,1P4T SWITCH
MCF5-,1P5T SWITCH
MCF6-,1P6T SWITCH

1PnT PORT CONFIGURATIONS

1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	
1P4T	1	2		4	5	
1P3T	1		3		5	

Note: "Blank" represents the unused RF and corresponding control ports.



H = 51 (max) (STANDARD)
= 63 (max) (with TTL)

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MC9n: n=7-8 (e.g., n=8 for 1P8T)

The **MC9** series features SMA connectors and an operation frequency range of DC to 18 GHz. Higher frequency ranges are available. This product is of normally-open type with a compact design. The product options include TTL, suppression diodes, indicators, etc.

NORMALLY OPEN



Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	2000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	185g

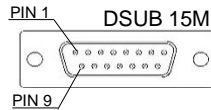
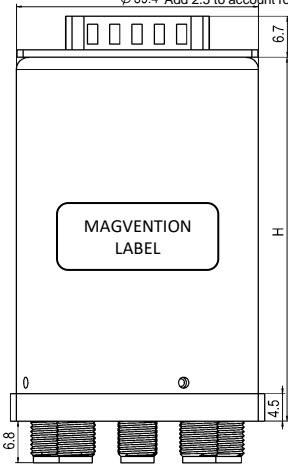
Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	290	190	150	130

Other options are available upon request.

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-4	1.2	0.2	75
4-8	1.3	0.3	65
8-12.4	1.4	0.4	60
12.4-18	1.6	0.6	60

Higher frequency ranges are available upon request.

∅39.4 Add 2.5 to account for the screw heads.



Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

MC97-, 1P7T SWITCH
MC98-, 1P8T SWITCH

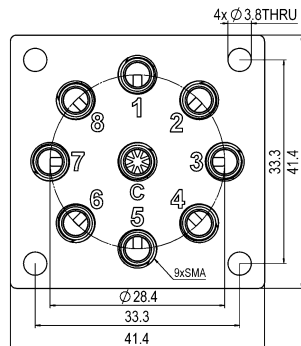
NORMALLY OPEN 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-8	Vn (Jn-COM)
9	COM(-)
10-15	UNUSED

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-8	An (Jn-COM)
9	COM(-)
10-14	UNUSED
15	+VDC

Pin 1-10: The corresponding control signal inputs.

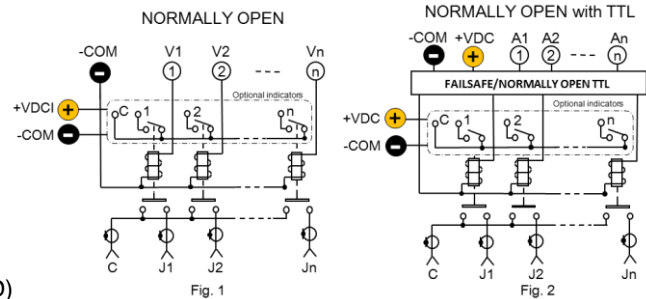


1PnT PORT CONFIGURATIONS

1PnT	Ports Used							
1P8T	1	2	3	4	5	6	7	8
1P7T	1	2	3	4	5	6	7	

Note: "Blank" represents the unused RF and corresponding control ports.

H = 62 (max) (STANDARD)
= 72 (max) (with TTL)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

The **MC9** series features SMA connectors and an operation frequency range of DC to 18 GHz. Higher frequency ranges are available. This product is of normally-open type with a compact design. The product options include TTL, suppression diodes, indicators, etc.

Specifications

Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C
Relative Humidity	5 to 85%
Operation Life (cycles)	2000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	

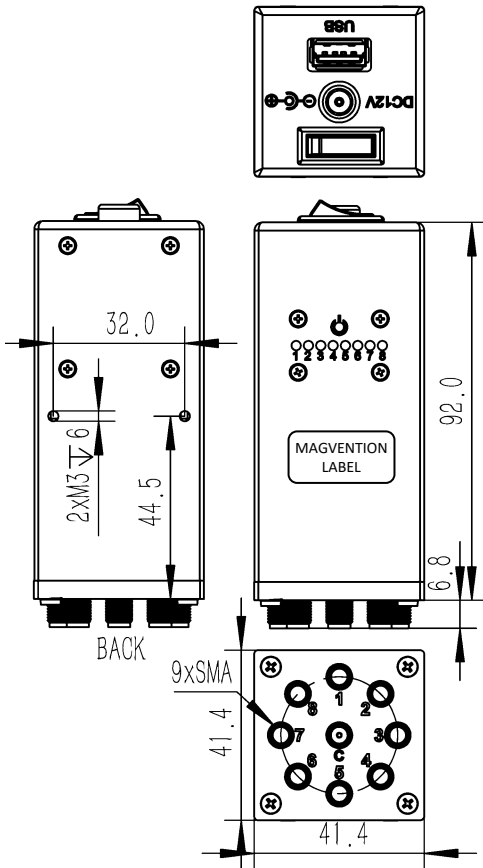


Voltage (VDC)	12			
Current (mA)	Normally Open	290		

Other options are available upon request.

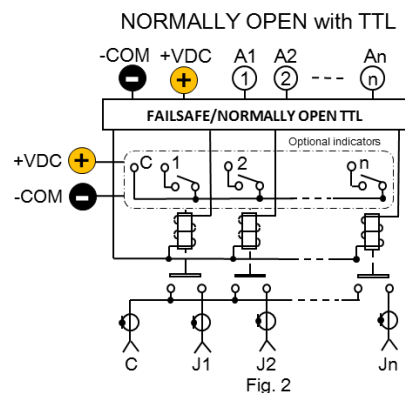
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-4	1.2	0.2	75
4-8	1.3	0.3	65
8-12.4	1.4	0.4	60
12.4-18	1.6	0.6	60

Higher frequency ranges are available upon request.



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

USB controlled



MC8nT: n=7-8 (e.g., n=8 for 1P8T)

**NORMALLY OPEN
or LATCHING**

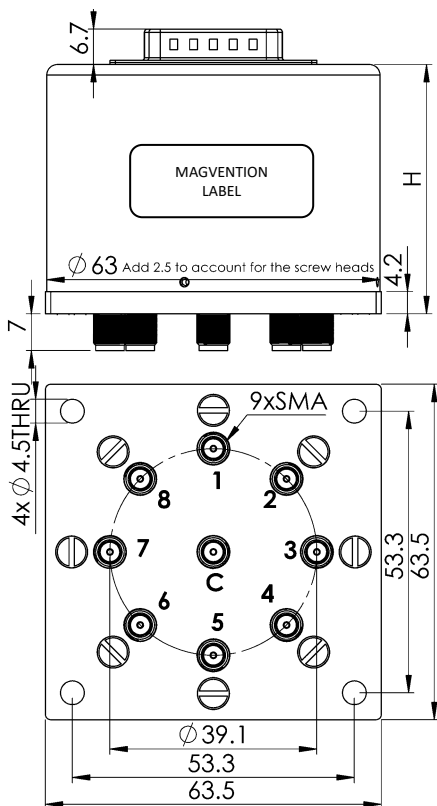
The **MC8nT-S18** product features SMA connectors and an operation frequency range of DC to 18 GHz. This product can be of normally-open or latching type with internal self-terminations. The options include TTL, SELF CUTOFF, indicators, and suppression diodes etc. The product is typically provided with a 15-pin male D-sub connector as the control interface.



Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	285g

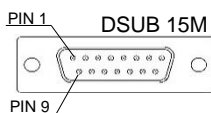
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	80
6-12	1.4	0.4	70
12-18	1.5	0.5	60

Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	330	220	167	140
	Latching (set)	290	225	150	120



For LATCHING,
I(reset) = n x I(set).

Other options are available upon request.



MC88-, 1P8T SWITCH
MC87-, 1P7T SWITCH

1PnT PORT CONFIGURATIONS	
1PnT	Ports Used
1P8T	1 2 3 4 5 6 7 8
1P7T	1 2 3 4 5 6 7

Note: "Blank" represents the unused RF and corresponding control ports.

H = 50 (max) (STANDARD)
= 60 (max) (with TTL)
= 65 (max) (with INDICATORS)

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	Vn (Jn-COM)
9	COM(-)
10-15	UNUSED

NORMALLY OPEN with TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	An (Jn-COM)
9	COM(-)
10-14	UNUSED
15	+VDC

LATCHING (PULSE) 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	+ΔVn (Jn-COM)
9	COM(-)
10	+ΔVR (Reset ALL OPEN)
11-15	UNUSED

LATCHING TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	An (Jn-COM)
9	COM(-)
10	AR (Reset ALL OPEN)
11-14	UNUSED
15	+VDC

LATCHING SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	Vn (Jn-COM)
9	COM(-)
10-15	UNUSED

LATCHING TTL&SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	An (Jn-COM)
9	COM(-)
10-14	UNUSED
15	+VDC

Pin 1-8: The corresponding control signal inputs.

Note: For the SELF CUTOFF, a "RESET ALL" option is available upon request.

For options with INDICAOTRS, a 26PIN DSUB connector will be provided. Contact factory for the corresponding pin outs.

MC88T-K40 1P8T, Terminated, K(2.92mm), DC-40GHz

MC8nT: n=7-8 (e.g., n=8 for 1P8T)

**NORMALLY OPEN
or LATCHING**

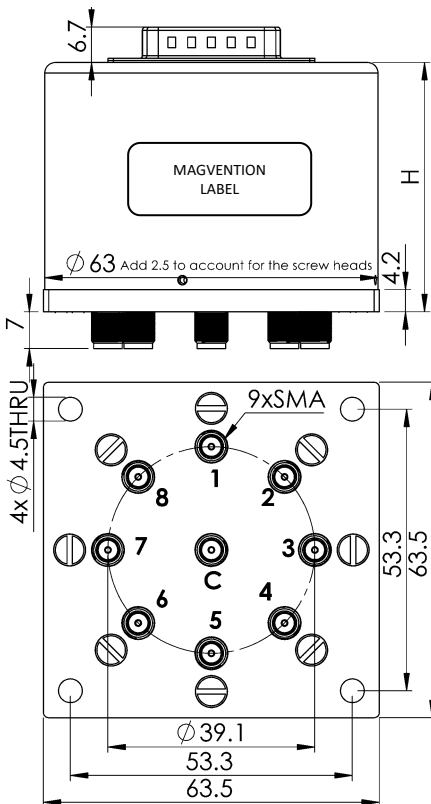
The **MC8nT-K40** product features K(2.92mm) connectors and an operation frequency range of DC to 40 GHz. This product can be of normally-open or latching type with internal self-terminations. The options include TTL, SELF CUTOFF, indicators, and suppression diodes etc. The product is typically provided with a 15-pin male D-sub connector as the control interface.



Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	285g

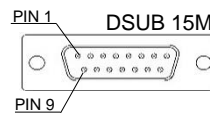
Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	330	220	167	140
	Latching (set)	290	225	150	120

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	80
6-12	1.4	0.4	70
12-18	1.6	0.5	60
18-26.5	1.9	0.8	55
26.5-35	2.0	1.0	50
35-40	2.2	1.5	50



For LATCHING,
I(reset) = n x I(set).

Other options are available upon request.



MC88-, 1P8T SWITCH
MC87-, 1P7T SWITCH

1PnT PORT CONFIGURATIONS	
1PnT	Ports Used
1P8T	1 2 3 4 5 6 7 8
1P7T	1 2 3 4 5 6 7

Note: "Blank" represents the unused RF and corresponding control ports.

H = 50 (max) (STANDARD)
= 60 (max) (with TTL)
= 65 (max) (with INDICATORS)

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	Vn (Jn-COM)
9	COM(-)
10-15	UNUSED

NORMALLY OPEN with TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	An (Jn-COM)
9	COM(-)
10-14	UNUSED
15	+VDC

LATCHING (PULSE) 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	+ΔVn (Jn-COM)
9	COM(-)
10	+ΔVR (Reset ALL OPEN)
11-15	UNUSED

LATCHING TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	An (Jn-COM)
9	COM(-)
10	AR (Reset ALL OPEN)
11-14	UNUSED
15	+VDC

LATCHING SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	Vn (Jn-COM)
9	COM(-)
10-15	UNUSED

LATCHING TTL & SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	An (Jn-COM)
9	COM(-)
10-14	UNUSED
15	+VDC

Pin 1-8: The corresponding control signal inputs.

Note: For the SELF CUTOFF, a "RESET ALL" option is available upon request.

For options with INDICATORS, a 26PIN DSUB connector will be provided. Contact factory for the corresponding pin outs.

MCHn: n=7-8 (e.g., n=8 for 1P8T)

NORMALLY OPEN

The **MCHn-** series features 1P8T with N connectors and an operation frequency range from DC to 8 GHz. This product is of **NORMALLY OPEN** type. The options include TTL and coil suppression diodes etc.



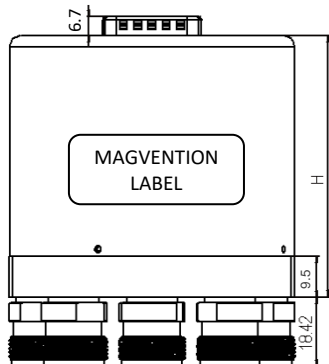
Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	600g

Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	230	160	140	120

Other options are available upon request.

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.3	0.3	70
3-4	1.4	0.4	60
4-8	1.5	0.5	50

Higher frequency ranges are available upon request.



MCH8-,1P8T SWITCH
MCH7-,1P7T SWITCH

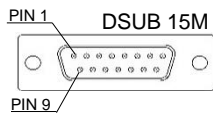
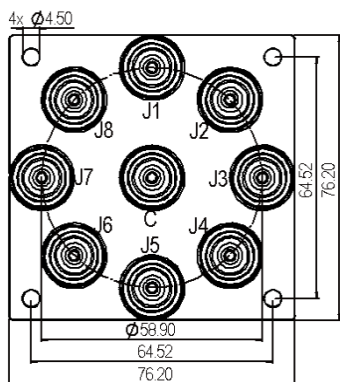
1PnT PORT CONFIGURATIONS								
1PnT	Ports Used							
1P8T	1	2	3	4	5	6	7	8
1P7T	1	2	3	4	5	6	7	

Note: "Blank" represents the unused RF and corresponding control ports.

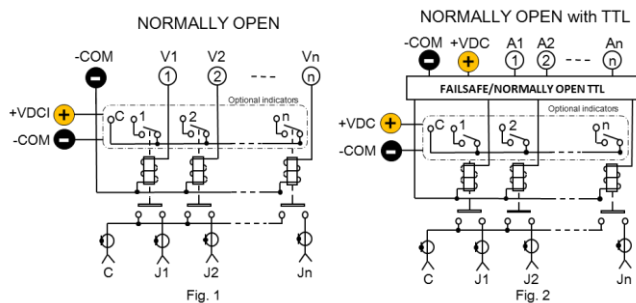
NORMALLY OPEN With TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	Vn (Jn-COM)
9	COM(-)
10-14	UNUSED
15	+VDC

NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	Vn (Jn-COM)
9	COM(-)
10-15	UNUSED

Pin 1-8: The corresponding control signal inputs.



H = 70 mm max (Standard)
= 80 mm (max) (with TTL)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MCH8p-N

1P8T, N (high power), DC-8GHz

MCHnp: n=7-8 (e.g., n=8 for 1P8T)

NORMALLY OPEN

The **MCHnp-** series features 1P8T with N (high power) connectors and an operation frequency range from DC to 8 GHz. This product is of **NORMALLY OPEN** type. The options include TTL and coil suppression diodes etc.

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	600g

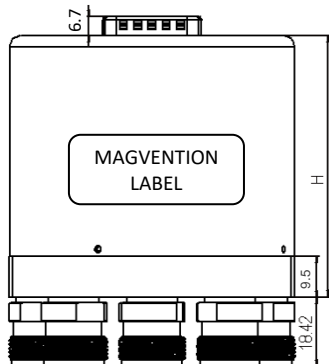


Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.3	0.3	70
3-4	1.4	0.4	60
4-8	1.5	0.5	50

Higher frequency ranges are available upon request.

Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	230	160	140	120

Other options are available upon request.



MCH8-,1P8T SWITCH
MCH7-,1P7T SWITCH

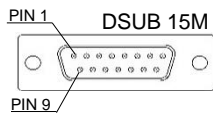
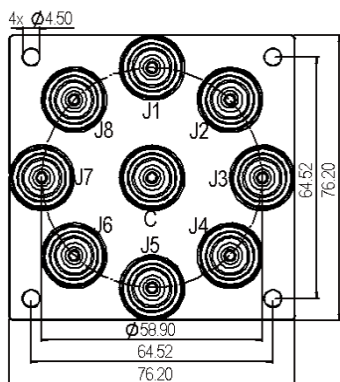
1PnT PORT CONFIGURATIONS								
1PnT	Ports Used							
1P8T	1	2	3	4	5	6	7	8
1P7T	1	2	3	4	5	6	7	

Note: "Blank" represents the unused RF and corresponding control ports.

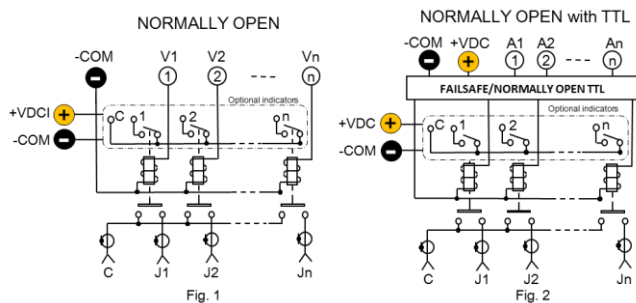
NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	Vn (Jn-COM)
9	COM(-)
10-15	UNUSED

NORMALLY OPEN With TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-8	An (Jn-COM)
9	COM(-)
10-14	UNUSED
15	+VDC

Pin 1-8: The corresponding control signal inputs.



H = 70 mm max (Standard)
= 80 mm (max) (with TTL)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MCHn: n=7-8 (e.g., n=8 for 1P8T)

NORMALLY OPEN

The **MCHn-** series features 1P8T with SC connectors and an operation frequency range from DC to 8 GHz. This product is of **NORMALLY OPEN** type. The options include TTL and coil suppression diodes etc.

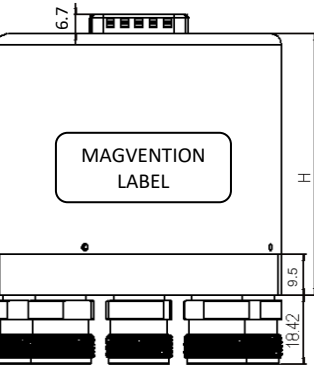
Specifications

Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	600g



Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.3	0.3	70
3-4	1.4	0.4	60
4-8	1.5	0.5	50

Higher frequency ranges are available upon request.



MCH8-,1P8T SWITCH
MCH7-,1P7T SWITCH

1PnT PORT CONFIGURATIONS

1PnT	Ports Used							
1P8T	1	2	3	4	5	6	7	8
1P7T	1	2	3	4	5	6	7	

Note: "Blank" represents the unused RF and corresponding control ports.

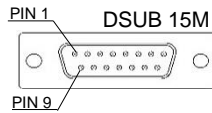
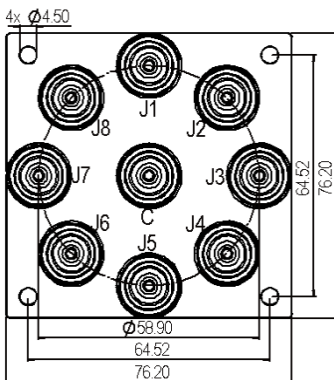
NORMALLY OPEN 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-8	Vn (Jn-COM)
9	COM(-)
10-15	UNUSED

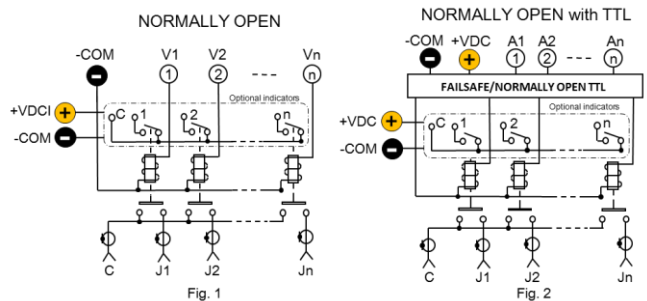
NORMALLY OPEN With TTL 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-8	An (Jn-COM)
9	COM(-)
10-14	UNUSED
15	+VDC

Pin 1-8: The corresponding control signal inputs.



H = 70 mm max (Standard)
= 80 mm (max) (with TTL)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MCJn: n=8-10 (e.g., n=10 for 1P10T)

NORMALLY OPEN

The **MCJ10** series features SMA connectors and an operation frequency range of DC to 18 GHz. Higher frequency ranges are available. This product is of **NORMALLY OPEN** type with a compact design. The product options include TTL, suppression diodes, indicators, etc.



Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-4	1.2	0.2	70
4-8	1.3	0.3	65
8-12.4	1.4	0.4	60
12.4-18	1.6	0.6	55

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	2000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	225g

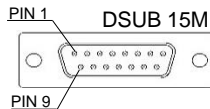
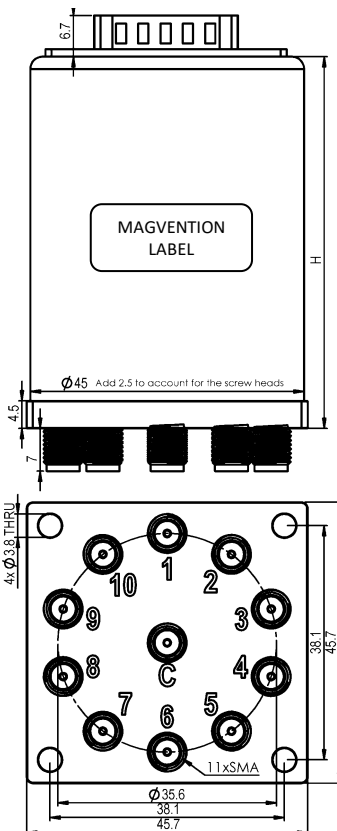
Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	260	160	140	100

Other options are available upon request.

Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.



1PnT PORT CONFIGURATIONS	
1PnT	Ports Used
1P10T	1 2 3 4 5 6 7 8 9 10
1P9T	1 2 3 4 5 6 7 8 9
1P8T	2 3 4 5 7 8 9 10

Note: "Blank" represents the unused RF and corresponding control ports.

NORMALLY OPEN 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-10	Vn (Jn-COM)
11	COM(-)
12-15	UNUSED

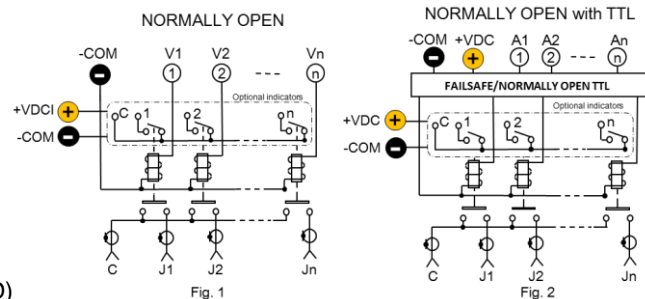
NORMALLY OPEN with TTL 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-10	An (Jn-COM)
11	COM(-)
12-14	UNUSED
15	+VDC

Pin 1-10: The corresponding control signal inputs.

MCJ8-, 1P8T SWITCH
MCJ9-, 1P9T SWITCH
MCJ10-, 1P10T SWITCH

H = 62 (max) (STANDARD)
= 72 (max) (with TTL)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MCJn: n=7-10 (e.g., n=10 for 1P10T)

NORMALLY OPEN

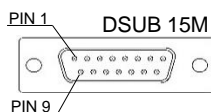
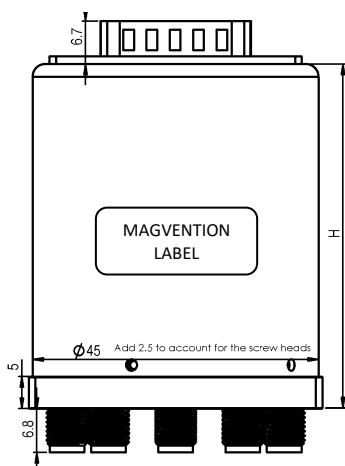
The **MCJ10-K26** series features K connectors and an operation frequency range of DC to 26.5 GHz. Higher frequency ranges are available. This product is of **NORMALLY OPEN** type with a compact design. The product options include TTL, suppression diodes, indicators, etc.



Specifications					
Contact Material	Plated Au				
Switching Sequence	Break before Make				
Switching Time (max)	15msec				
Impedance	50Ω				
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)				
Relative Humidity	5 to 85%				
Operation Life (cycles)	2000000				
Vibration Operating	10G RMS, 20-2000Hz				
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec				
Weight (approx.)	225g				
Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	260	160	140	100

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.3	0.3	85
3-10	1.4	0.4	80
10-18	1.6	0.6	60
18-26.5	1.9	0.8	55

Other options are available upon request.



1PnT PORT CONFIGURATIONS	
1PnT	Ports Used
1P10T	1 2 3 4 5 6 7 8 9 10
1P9T	1 2 3 4 5 6 7 8 9
1P8T	2 3 4 5 7 8 9 10
1P7T	1 2 4 5 7 8 10

Note: "Blank" represents the unused RF and corresponding control ports.

Optional Indicator Specifications

Max withstand voltage: 60V
 Max current capacity: 100mA
 Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

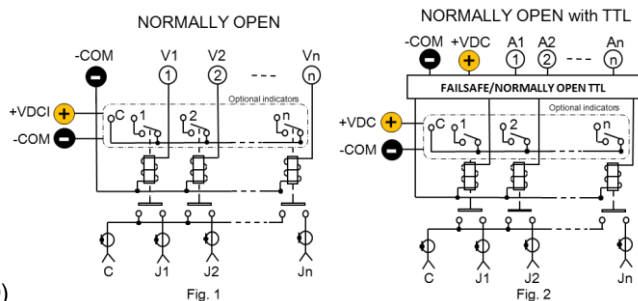
NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	Vn (Jn-COM)
11	COM(-)
12-15	UNUSED

NORMALLY OPEN with TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	An (Jn-COM)
11	COM(-)
12-14	UNUSED
15	+VDC

Pin 1-10: The corresponding control signal inputs.

- MCJ7-, 1P7T SWITCH
- MCJ8-, 1P8T SWITCH
- MCJ9-, 1P9T SWITCH
- MCJ10-, 1P10T SWITCH

H = 62 (max) (STANDARD)
 = 72 (max) (with TTL)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MC0nT: n=9-10 (e.g., n=10 for 1P10T)

**NORMALLY OPEN
or LATCHING**

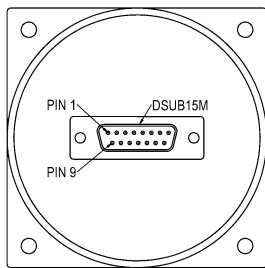
The **MC0nT-S18** product features SMA connectors and an operation frequency range of DC to 18 GHz. This product can be of normally-open or latching type with internal self-terminations. The options include TTL, SELF CUTOFF, and suppression diodes, etc.



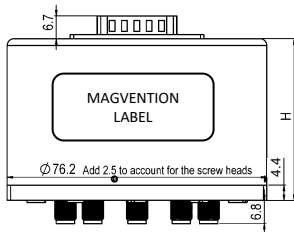
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	80
6-12	1.4	0.4	70
12-18	1.6	0.8	60

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	380g

Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	330	220	167	140
	Latching (set)	290	225	150	120



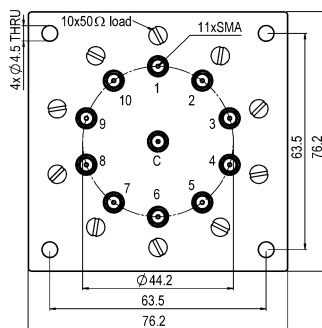
NOTE: For LATCHING, I(reset) = n x I(set). Other options are available upon request.



MC010-,1P10T SWITCH
MC09-,1P9T SWITCH

1PnT PORT CONFIGURATIONS	
1PnT	Ports Used
1P10T	1 2 3 4 5 6 7 8 9 10
1P9T	1 2 3 4 5 6 7 8 9

Note: "Blank" represents the unused RF and corresponding control ports.



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

H = 50 (max) (STANDARD)
= 60 (max) (with TTL)

NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	Vn (Jn-COM)
11	COM(-)
12-15	UNUSED

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	An (Jn-COM)
11	COM(-)
12-14	UNUSED
15	+VDC

LATCHING (PULSE) 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	+ΔVn (Jn-COM)
11	COM(-)
12	+ΔVR (Reset ALL OPEN)
13-15	UNUSED

LATCHING TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	An (Jn-COM)
11	COM(-)
12	AR (Reset ALL OPEN)
13-14	UNUSED
15	+VDC

LATCHING SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	Vn (Jn-COM)
11	COM(-)
12-15	UNUSED

LATCHING TTL&SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	An (Jn-COM)
11	COM(-)
12-14	UNUSED
15	+VDC

Pin 1-10: The corresponding control signal inputs.

Note: For the SELF CUTOFF, a "RESET ALL" option is available upon request.

For options with INDICAOTRS, a 26PIN DSUB connector will be provided. Contact factory for the corresponding pin outs.

MC0nT: n=9-10 (e.g., n=10 for 1P10T)

**NORMALLY OPEN
or LATCHING**

The **MC0nT-K26** product features K connectors and an operation frequency range of DC to 26.5 GHz. This product can be of normally-open or latching type with internal self-terminations. The options include TTL, SELF CUTOFF, and suppression diodes, etc.

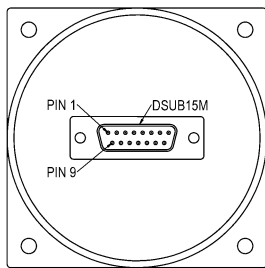


Specifications

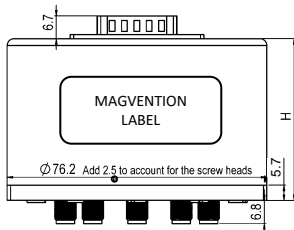
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	380g

Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	330	220	167	140
	Latching (set)	290	225	150	120

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	80
6-12	1.4	0.4	70
12-18	1.6	0.8	60
18-26.5	1.9	0.9	50



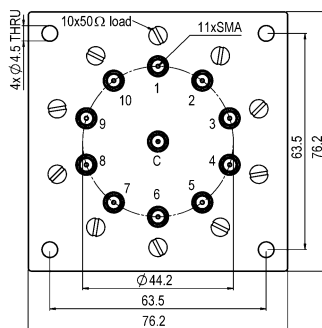
NOTE: For LATCHING, I(reset) = n x I(set). Other options are available upon request.



MC010-, 1P10T SWITCH
MC09-, 1P9T SWITCH

1PnT PORT CONFIGURATIONS	
1PnT	Ports Used
1P10T	1 2 3 4 5 6 7 8 9 10
1P9T	1 2 3 4 5 6 7 8 9

Note: "Blank" represents the unused RF and corresponding control ports.



H = 50 (max) (STANDARD)
= 60 (max) (with TTL)

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	Vn (Jn-COM)
11	COM(-)
12-15	UNUSED

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	An (Jn-COM)
11	COM(-)
12-14	UNUSED
15	+VDC

LATCHING (PULSE) 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	+ΔVn (Jn-COM)
11	COM(-)
12	+ΔVR (Reset ALL OPEN)
13-15	UNUSED

LATCHING TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	An (Jn-COM)
11	COM(-)
12	AR (Reset ALL OPEN)
13-14	UNUSED
15	+VDC

LATCHING SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	Vn (Jn-COM)
11	COM(-)
12-15	UNUSED

LATCHING TTL&SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	An (Jn-COM)
11	COM(-)
12-14	UNUSED
15	+VDC

Pin 1-10: The corresponding control signal inputs.

Note: For the SELF CUTOFF, a "RESET ALL" option is available upon request.

For options with INDICAOTRS, a 26PIN DSUB connector will be provided. Contact factory for the corresponding pin outs.

MCLn: n=11-12 (e.g., n=12 for 1P12T)

NORMALLY OPEN

The **MCL12** product features SMA connectors and an operation frequency range of DC to 16 GHz. Higher frequency ranges are available. This product is of normally-open type with a compact design. The product options include TTL, suppression diodes, indicators, etc.



Specifications

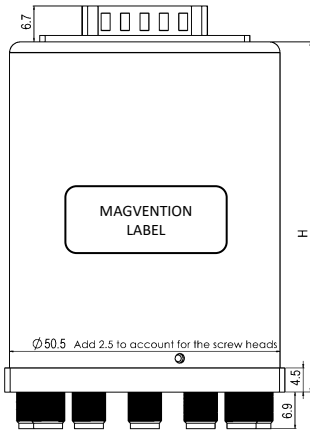
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	2000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	280g

Voltage (VDC)		12	18	24	28
Current (mA)	NORMALLY OPEN	290	190	150	140

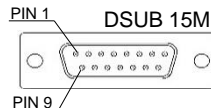
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-4	1.2	0.2	70
4-8	1.4	0.4	65
8-12.4	1.5	0.6	60
12.4-16	1.6	0.6	60

Higher frequency ranges are available upon request.

Other options are available upon request.



MCL11-,1P11T SWITCH
MCL12-,1P12T SWITCH

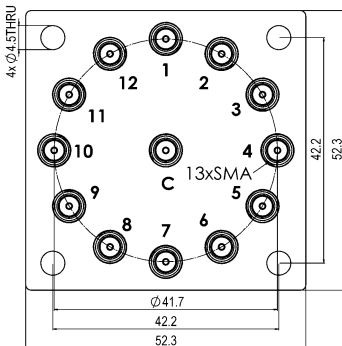


Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

H = 62 (max) (STANDARD)
= 72 (max) (with TTL)



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

1PnT PORT CONFIGURATIONS

1PnT	Ports Used											
1P12T	1	2	3	4	5	6	7	8	9	10	11	12
1P11T	1	2	3	4	5	6	7	8	9	10	11	

Note: "Blank" represents the unused RF and corresponding control ports.

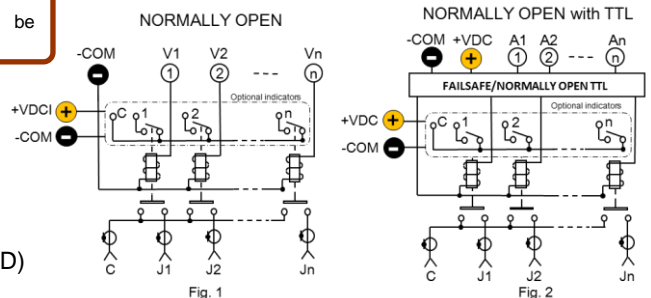
NORMALLY OPEN 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-12	Vn (Jn-COM)
13	COM(-)
14-15	UNUSED

NORMALLY OPEN with TTL 15-PIN D-SUB PINOUT

Pin No.	PINOUT
n=1-12	An (Jn-COM)
13	COM(-)
14	UNUSED
15	+VDC

Pin 1-10: The corresponding control signal inputs.



MCMnT: n=11-12 (e.g., n=12 for 1P12T)

**NORMALLY OPEN
or LATCHING**

The **MCMnT-S18** product features SMA connectors and an operation frequency range of DC to 18 GHz. This product can be of normally-open or latching type with internal self-terminations. The options include TTL, SELF CUTOFF, and suppression diodes, etc.



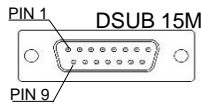
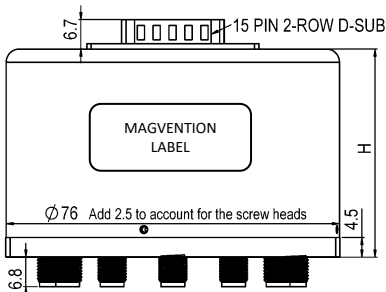
Specifications

Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	3000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	380g

Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	330	220	167	140
	Latching (set)	290	225	150	120

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-6	1.3	0.3	70
6-12	1.5	0.6	60
12-18	1.8	0.8	60

NOTE: For LATCHING, I(reset) = n x I(set).
Other options are available upon request.



MCM11-, 1P11T SWITCH
MCM12-, 1P12T SWITCH

1PnT PORT CONFIGURATIONS	
1PnT	Ports Used
1P12T	1 2 3 4 5 6 7 8 9 10 11 12
1P11T	1 2 3 4 5 6 7 8 9 10 11

Note: "Blank" represents the unused RF and corresponding control ports.

H = 50 (max) (STANDARD)
= 60 (max) (with TTL)

Mechanical drawings (unit: mm, tolerance +/-0.5mm).

NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-12	Vn (Jn-COM)
13	COM(-)
12-15	UNUSED

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-12	An (Jn-COM)
13	COM(-)
14	UNUSED
15	+VDC

LATCHING (PULSE) 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-12	+ΔVn (Jn-COM)
13	COM(-)
14	+ΔVR (Reset ALL OPEN)
15	UNUSED

LATCHING TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-10	An (Jn-COM)
13	COM(-)
14	AR (Reset ALL OPEN)
15	+VDC

LATCHING SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-12	Vn (Jn-COM)
13	COM(-)
14-15	UNUSED

LATCHING TTL & SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-12	An (Jn-COM)
13	COM(-)
14	UNUSED
15	+VDC

Pin 1-12: The corresponding control signal inputs.

Note: For the SELF CUTOFF, a "RESET ALL" option is available upon request.

For options with INDICAOTRS, a 26PIN DSUB connector will be provided. Contact factory for the corresponding pin outs.

MCGn: n=9-12 (e.g., n=12 for 1P12T)

NORMALLY OPEN

The **MCG12-N** product features 1P12T with N-type connectors and an operation frequency range from DC to 1 GHz. This product is of normally-open type. The options include TTL, suppression diodes, indicators, and low PIM. The product typically comes with a DB15M socket.



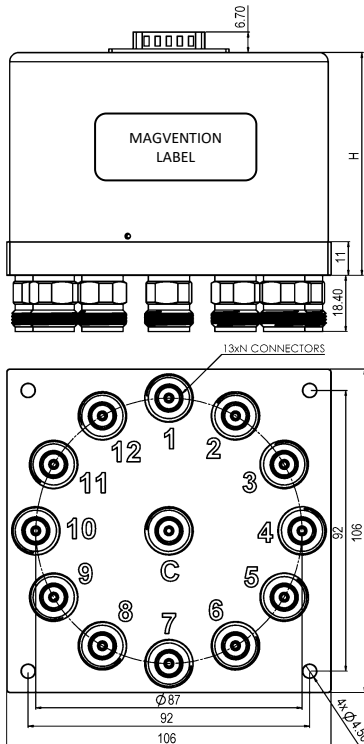
Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-1	1.2	0.20	70

Higher frequency ranges are available upon request.

Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C
	-55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	

Voltage (VDC)		12	18	24	28
Current (mA)	NORMALLY OPEN	120	90	70	60

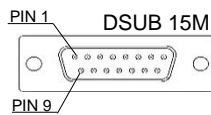
Other options are available upon request.



1PnT PORT CONFIGURATIONS												
1PnT	Ports Used											
1P12T	1	2	3	4	5	6	7	8	9	10	11	12
1P11T	1	2	3	4	5	6	7	8	9	10	11	
1P10T	1	2	3		5	6	7	8	9		11	12
1P9T	1	2	3		5	6	7		9	10	11	

Note: "Blank" represents the unused RF and corresponding control ports.

MCG12-,1P12T SWITCH
MCG11-,1P11T SWITCH
MCG10-,1P10T SWITCH
MCG9-,1P9T SWITCH



H= 75 mm max (no TTL)

Optional Indicator Specifications

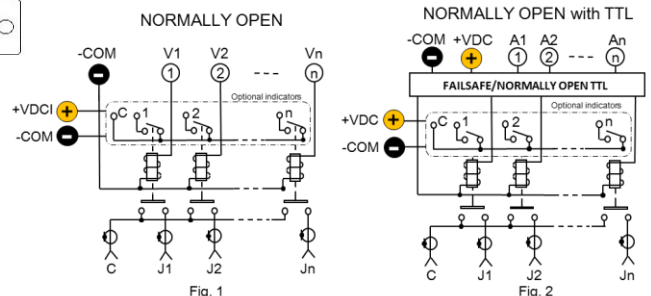
Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-12	Vn (Jn-COM)
13	COM(-)
14-15	UNUSED

NORMALLY OPEN with TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-12	An (Jn-COM)
13	COM(-)
14	UNUSED
15	+VDC

Pin 1-12: The corresponding control signal inputs.



Mechanical drawings (unit: mm, tolerance +/-0.5mm).

MCRn: n=13-18 (e.g., n=18 for 1P18T)

NORMALLY OPEN

The **MCR18** product features SMA connectors and an operation frequency range of DC to 3 GHz. Higher frequency ranges are available. This product is of normally-open type with a compact design. The product options include TTL, BCD, suppression diodes, indicators, etc.



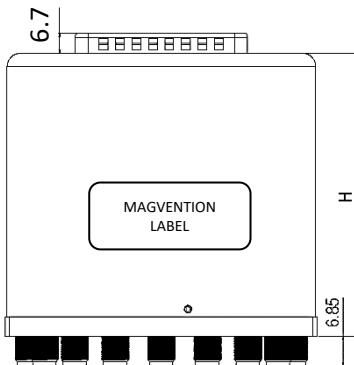
Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	2000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	450g

Voltage (VDC)		12	18	24	28
Current (mA)	NORMALLY OPEN	290	190	150	140

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-1	1.15	0.15	90
1-3	1.30	0.30	80

Other options are available upon request.

Higher frequency ranges are available upon request.

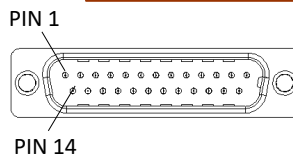
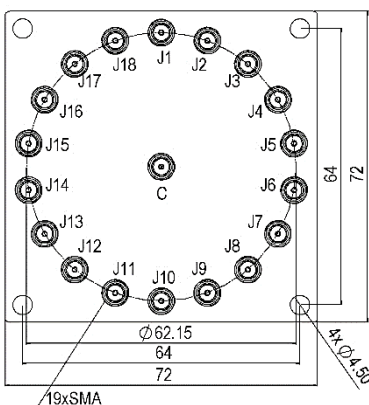


1PnT PORT CONFIGURATIONS																		
1PnT	Ports Used																	
1P18T	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1P17T	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1P16T	1	2	3	4	5	6	7	8		10	11	12	13	14	15	16	17	
1P15T	1	2	3	4	5		7	8	9	10	11		13	14	15	16	17	
1P14T	1	2	3		5	6	7	8		10	11	12	13		15	16	17	
1P13T	1	2		4	5	6		8	9	10		12	13	14		16	17	

Note: "Blank" represents the unused RF and corresponding control ports.

25-PIN D-SUB PINOUT	
Pin No.	PINOUT
1	B1
2	B2
3	B3
4	B4
5	B5
6	B6
7	B7
8	B8
9	COM(-)
10-24	UNUSED
25	+VDC

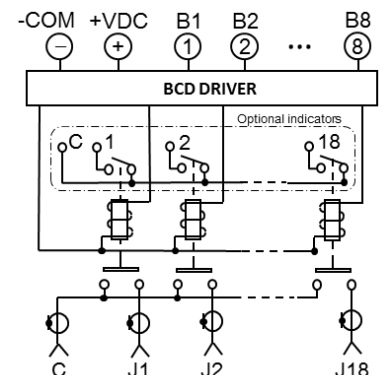
A 2-row 25-pin D-sub male connector will be provided.



A BCD DRIVING INTERFACE WILL BE PROVIDED FOR THE "-5" OPTION.

H = 71 (max) (with TTL)

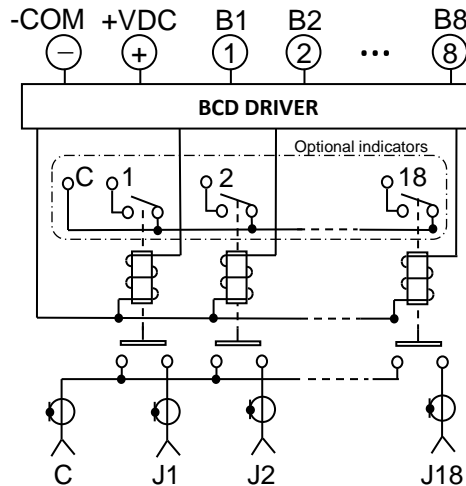
Mechanical drawings (unit: mm, tolerance +/-0.5mm).



HIGH LOGIC BCD TRUTH TABLE								
B8	B7	B6	B5	B4	B3	B2	B1	Position Activated
1	1	1	1	0	0	0	0	1
1	1	1	1	0	0	0	1	2
1	1	1	1	0	0	1	0	3
1	1	1	1	0	0	1	1	4
1	1	1	1	0	1	0	0	5
1	1	1	1	0	1	0	1	6
1	1	1	1	0	1	1	0	7
1	1	1	1	0	1	1	1	8
1	1	1	1	1	0	0	0	9
0	0	0	0	1	1	1	1	10
0	0	0	1	1	1	1	1	11
0	0	1	0	1	1	1	1	12
0	0	1	1	1	1	1	1	13
0	1	0	0	1	1	1	1	14
0	1	0	1	1	1	1	1	15
0	1	1	0	1	1	1	1	16
0	1	1	1	1	1	1	1	17
1	0	0	0	1	1	1	1	18
1	1	1	1	1	1	1	1	None
Open	Open	Open	Open	Open	Open	Open	Open	None

NOTE: Logic input B(n): low "0" = 0.0V – 1.5V(max); high "1" = 3.5V(min) – 5.5V.

NOTE: All BCD inputs shown in the Pin-Out Table must be controlled. Switch will not function if any BCD inputs are floating.



MCA4-C05

1P4T, SC, DC-5GHz

MCA_n: n=3-4 (e.g., n=4 for 1P4T)

NORMALLY OPEN or LATCHING

The **MCA4-C05** product features SC connectors and an operation frequency range of DC to 5 GHz. This product can be of normally-open or latching type. The options include TTL, SELF CUTOFF, and suppression diodes, etc.

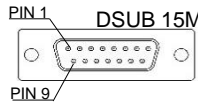
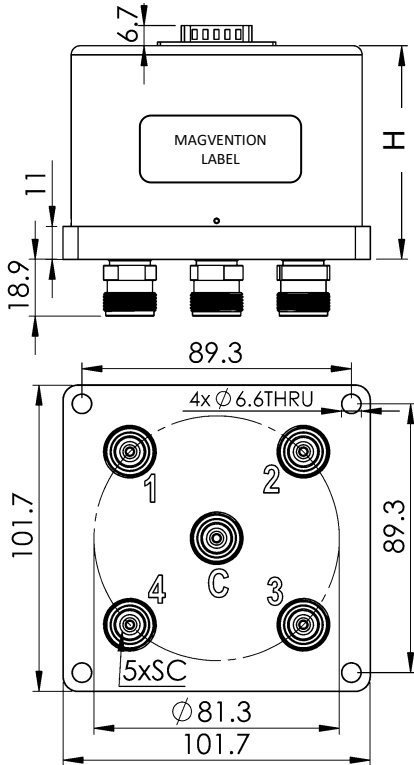


Specifications	
Contact Material	Plated Au
Switching Sequence	Break before Make
Switching Time (max)	15msec
Impedance	50Ω
Temperature Range	-25°C to +65°C -55°C to +85°C ("e" option)
Relative Humidity	5 to 85%
Operation Life (cycles)	1000000
Vibration Operating	10G RMS, 20-2000Hz
Mechanical Shock (non-operating)	50G, 1/2 Sine, 11msec
Weight (approx.)	

Voltage (VDC)		12	18	24	28
Current (mA)	Normally Open	310	250	170	130
	Latching (set)	380	300	210	180

Frequency Range (GHz)	VSWR (max)	Insertion Loss (dB) (max)	Isolation (dB) (min)
DC-3	1.3	0.3	70
3-5	1.5	0.5	60

Other options are available upon request.



MCA4-,1P4T SWITCH
MCA3-,1P3T SWITCH

1PnT PORT CONFIGURATIONS				
1PnT	Ports Used			
1P4T	1	2	3	4
1P3T	1	2	3	

Note: "Blank" represents the unused RF and corresponding control ports.

OPTIONAL INDICATOR	
Pin No.	PINOUT
7	1 (IND: J1-C)
8	2 (IND: J2-C)
9	3 (IND: J3-C)
10	4 (IND: J4-C)
11	COM_I
15	+VDCI

Optional Indicator Specifications

Max withstand voltage: 60V
Max current capacity: 100mA
Max "ON" resistance: 16Ω

Note: +VDC and -C must be connected to operate.

NORMALLY OPEN 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-4	V _n (J _n -COM)
5	COM(-)
6-15	UNUSED

NORMALLY OPEN TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-4	A _n (J _n -COM)
5	COM(-)
6	UNUSED
15	+VDC

LATCHING (PULSE) 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-4	+ΔV _n (J _n -COM)
5	COM(-)
6	+ΔV _R (Reset ALL OPEN)
7-15	UNUSED

LATCHING TTL 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-4	A _n (J _n -COM)
5	COM(-)
6	AR (Reset ALL OPEN)
7-14	UNUSED
15	+VDC

LATCHING SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-4	V _n (J _n -COM)
5	COM(-)
6-15	UNUSED

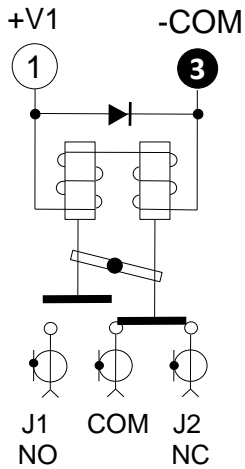
LATCHING TTL & SELF CUTOFF 15-PIN D-SUB PINOUT	
Pin No.	PINOUT
n=1-4	A _n (J _n -COM)
5	COM(-)
6-14	UNUSED
15	+VDC

Pin 1-4: The corresponding control signal inputs.

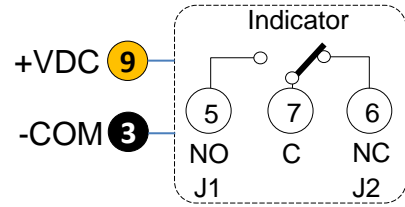
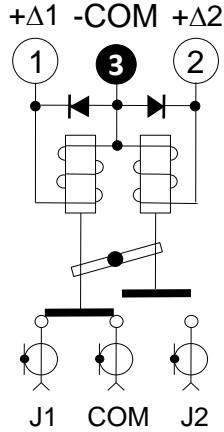
Mechanical drawings (unit: mm, tolerance +/-0.5mm).

SP2T

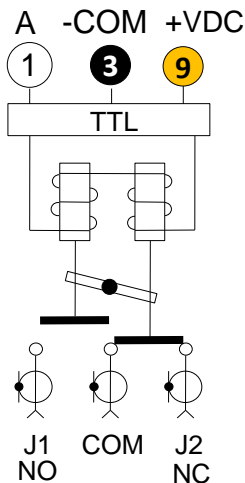
Failsafe



Pulse Latching

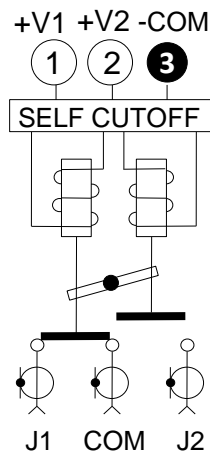


Failsafe TTL



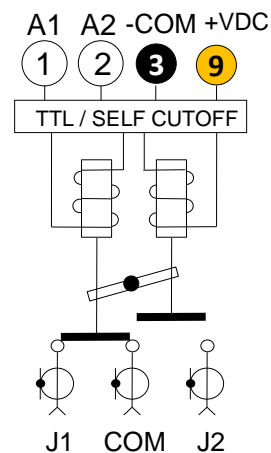
Self Cutoff

(latching only)



TTL and Self Cutoff

(latching only)



NOTE: (1) TTL logic: low "0" = 0.0V – 0.8V; high "1" = 2.4V – 5.5V.

(2) –C = GROUND; +VDC = +Rated Voltage.

(3) Optional: +VDCI= +RATED VOLTAGE (for optional optoelectronic indicators).

(4) "T"=50Ω termination.

(5) "NC"=Normally Closed; "NO"=Normally Open.

(6) Consult the factory for the positive COM option.

FAILSAFE

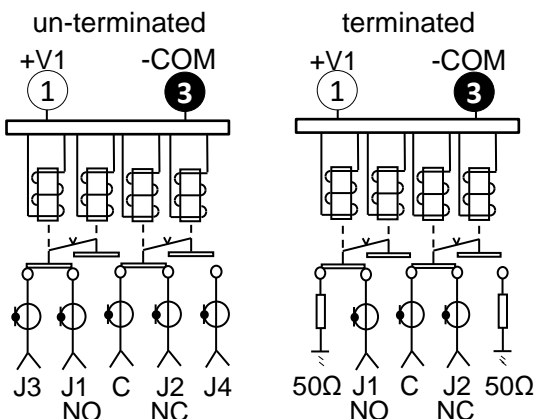
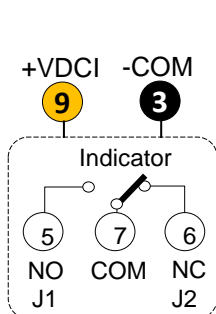


Fig. 1

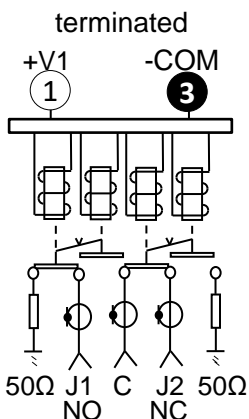


Fig. 2

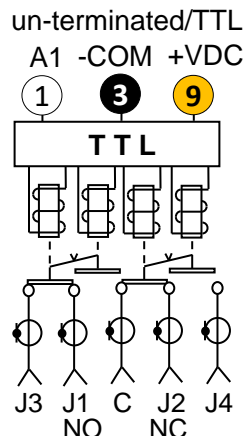


Fig. 3

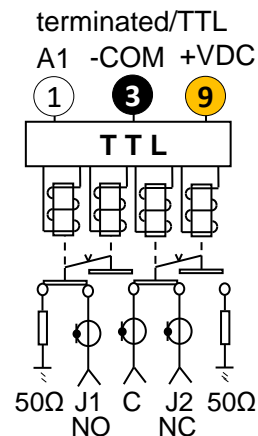


Fig. 4

LATCHING

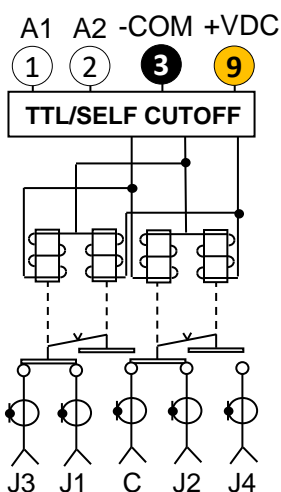
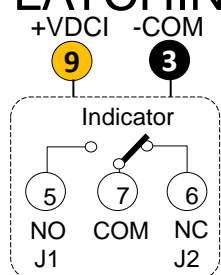


Fig. 5

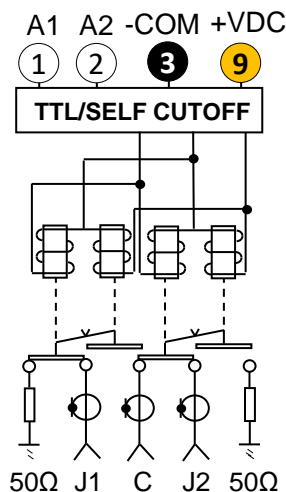


Fig. 6

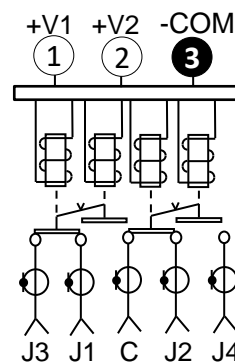


Fig. 7

LOGIC TRUTH TABLE

FAILSAFE (Figs. 1 and 2)

RF PATH	+V1	-COM
J1-C, J2-J4(T)	+VDC	GND
J2-C, J1-J3(T)	0	GND

NOTE: +VDC=Positive rated voltage.

PULSE LATCHING (Fig. 7)

RF PATH	+V1	+V2
J1-C, J2-J4(T)	+ΔV	0
J2-C, J1-J3(T)	0	+ΔV

NOTE: +ΔV=Positive rated voltage pulse.

FAILSAFE TTL (Figs. 3 and 4)

RF PATH	A
J1-C, J2-J4(T)	1
J2-C, J1-J3(T)	0

LATCHING TTL/SELF CUTOFF (Figs. 5-6)

RF PATH	A1	A2
J1-C, J2-J4(T)	1	0
J2-C, J1-J3(T)	0	1

NOTE: +ΔV=Positive rated voltage pulse.

NOTE: (1) TTL logic: low "0" = 0.0V – 0.8V; high "1" = 2.4V – 5.5V.

(2) –C = GROUND; +VDC = +Rated Voltage.

(3) Optional: +VDCI= +RATED VOLTAGE (for optional optoelectronic indicators).

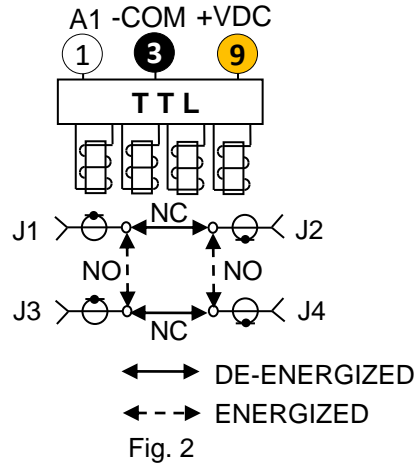
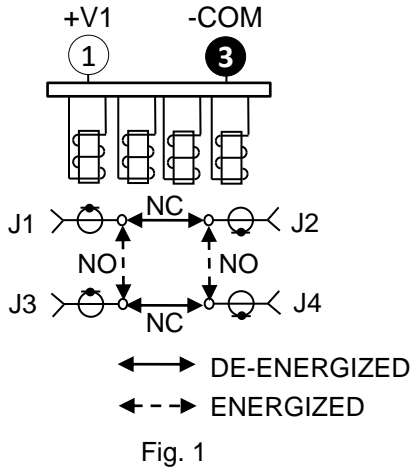
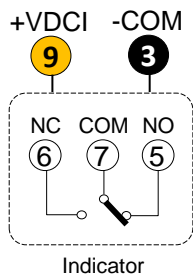
(4) "T"=50Ω termination.

(5) "NC"=Normally Closed; "NO"=Normally Open.

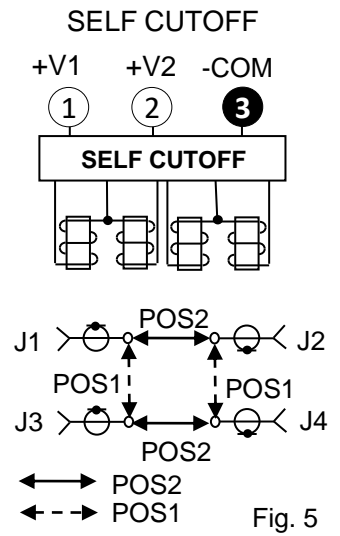
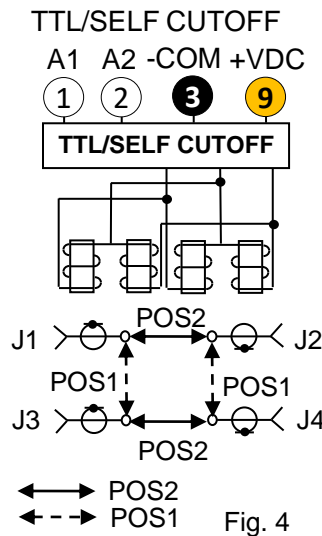
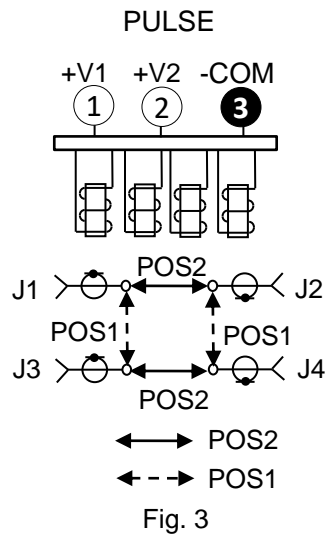
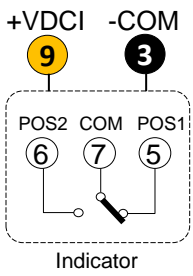
(6) Consult the factory for the positive COM option.

MC5, MC7

FAILSAFE



LATCHING



LOGIC TRUTH TABLE

FAILSAFE (Figs. 1)

	RF PATH	+V1	-COM
POS1	J1-J3, J2-J4	0	GND
POS2	J1-J2, J3-J4	+VDC	GND

NOTE: +VDC=Positive rated voltage.

PULSE LATCHING (Fig. 3)

	RF PATH	+V1	+V2
POS1	J1-J3, J2-J4	+ΔV	0
POS2	J1-J2, J3-J4	0	+ΔV

NOTE: +ΔV=Positive rated voltage pulse.

FAILSAFE TTL (Figs. 2)

	RF PATH	A
POS1	J1-J3, J2-J4	0
POS2	J1-J2, J3-J4	1

LATCHING TTL/SELF CUTOFF (Fig. 4)

	RF PATH	A1	A2
POS1	J1-J3, J2-J4	1	0
POS2	J1-J2, J3-J4	0	1

LATCHING SELF CUTOFF (Fig. 5)

	RF PATH	IND PATH	+V1	+V2
POS1	J1-J3, J2-J4	IND1-C	+VDC	0
POS2	J1-J2, J3-J4	IND2-C	0	+VDC

NOTE: (1) TTL logic: low "0" = 0.0V – 0.8V; high "1" = 2.4V – 5.5V.
 (2) "NC"=Normally Closed; "NO"=Normally Open.
 (3) Consult the factory for the positive COM option.

MC3, MC6, MC9, MCH, MCJ, MCG, MCL, MCR

NORMALLY OPEN

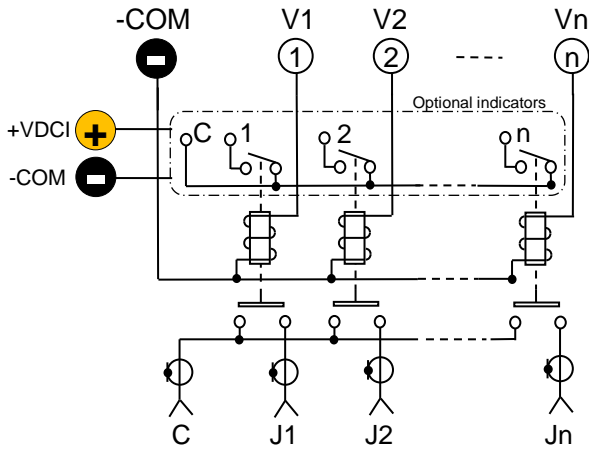


Fig. 1

NORMALLY OPEN with TTL

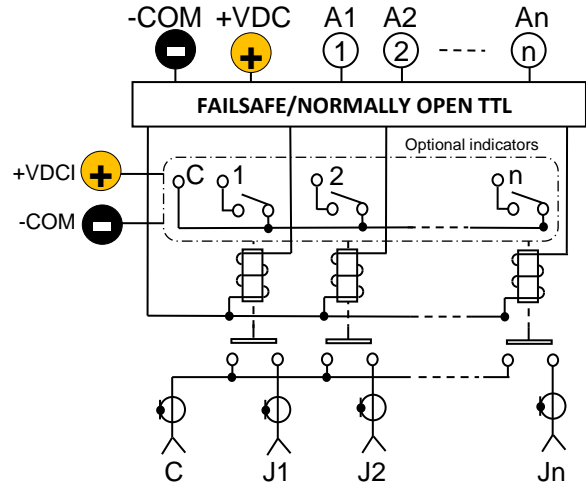


Fig. 2

LOGIC TRUTH TABLE

NORMALLY OPEN (Fig. 1)

RF PATH	V(n)	COM
J(n)-C	Rated +V	GND
J(n) Open	0	GND

NORMALLY OPEN with TTL (Fig. 2)

RF PATH	A(n)	+VDC	COM
J(n)-C	1	Rated +V	GND
J(n) Open	0	Rated +V	GND

NOTE: (1) TTL logic input A(n): low "0" = 0.0V – 0.8V; high "1" = 2.4V – 5.5V.

NORMALLY OPEN (Fig. 1)

15-PIN D-SUB PINOUT	
Pin No.	PINOUT
1	V1 (J1-COM)
2	V2 (J2-COM)
3	V3 (J3-COM)
4	V4 (J4-COM)
5	V5 (J5-COM)
6	V6 (J6-COM)
7	V7 (J7-COM)
8	V8 (J8-COM)
9	V9 (J9-COM)
10	V10 (J10-COM)
11	V11 (J11-COM)
12	V12 (J12-COM)
13	COM(-)
14-15	UNUSED

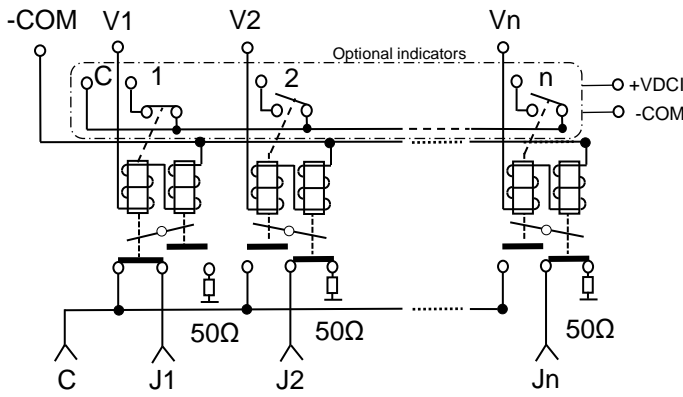
NORMALLY OPEN with TTL (Fig. 2)

15-PIN D-SUB PINOUT	
Pin No.	PINOUT
1	A1 (J1-COM)
2	A2 (J2-COM)
3	A3 (J3-COM)
4	A4 (J4-COM)
5	A5 (J5-COM)
6	A6 (J6-COM)
7	A7 (J7-COM)
8	A8 (J8-COM)
9	A9 (J9-COM)
10	A10 (J10-COM)
11	A11 (J11-COM)
12	A12 (J12-COM)
13	COM(-)
14	UNUSED
15	+VDC

with or without Terminations

MCF, MC8, MC0, MCM (NORMALLY OPEN)

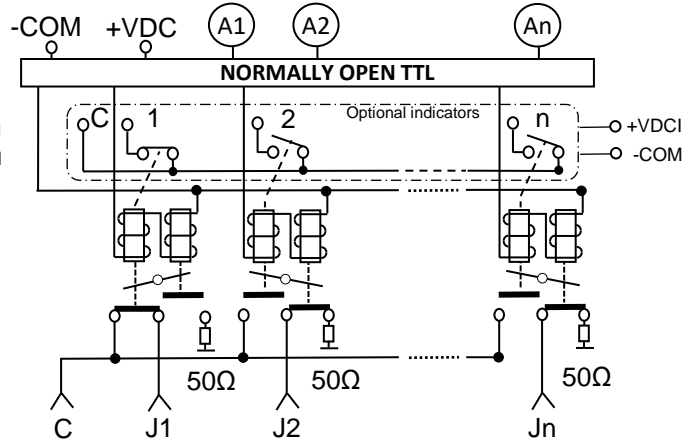
NORMALLY OPEN



Normally open on each unused position.

Fig. 1

NORMALLY OPEN with TTL



Normally open on each unused position.

Fig. 2

LOGIC TRUTH TABLE

NORMALLY OPEN (Fig. 1)

RF PATH	V(n)	COM
J(n)-C	+VDC	GND
J(n)-T or Open	0	GND

NORMALLY OPEN with TTL (Fig. 2)

RF PATH	A(n)	+VDC	COM
J(n)-C	1	Rated +V	GND
J(n)-T or Open	0	Rated +V	GND

NOTE: (1) TTL logic input A(n): low "0" = 0.0V – 0.8V; high "1" = 2.4V – 5.5V.
 (2) +VDC=Rated voltage.

with or without Terminations

MCF, MC8, MC0, MCM (LATCHING)

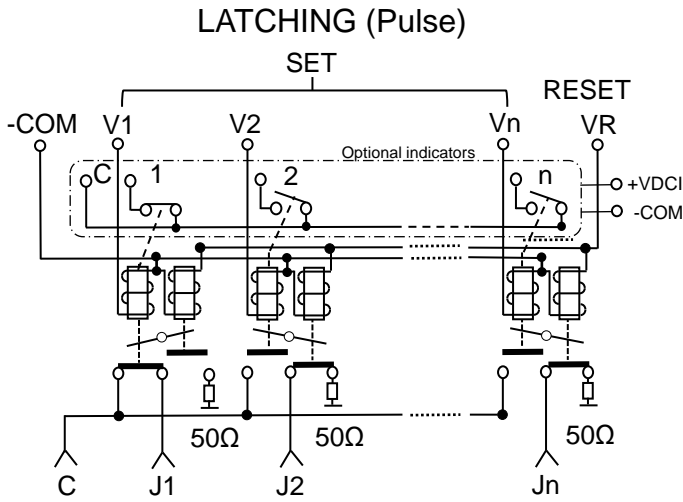


Fig. 1

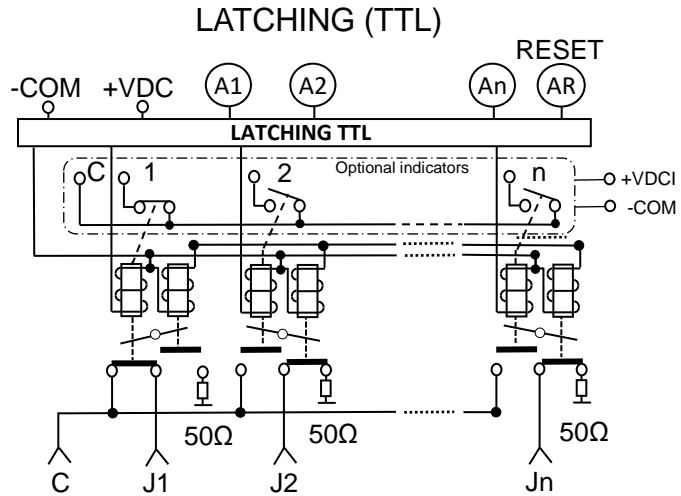


Fig. 2

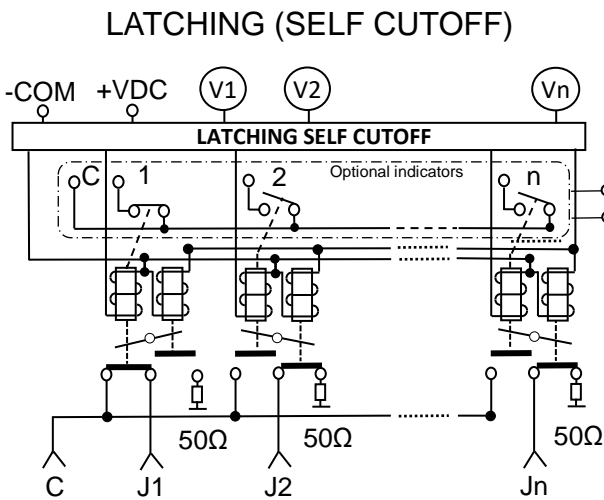


Fig. 3

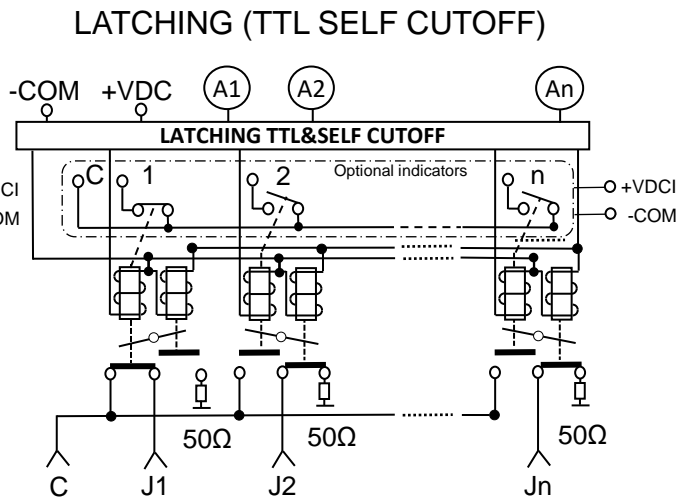


Fig. 4

LOGIC TRUTH TABLE

LATCHING (Pulse) (Fig. 1)

RF PATH	V(n)	VR
J(n)-C	+ΔV	GND
ALL J(n)-T or Open	GND	+ΔV

LATCHING (SELF CUTOFF) (Fig. 3)

RF PATH	V(n)
J(n)-C	+VDC
J(n)-T or Open	GND

LATCHING with TTL (Fig. 2)

RF PATH	A(n)	AR
J(n)-C	1	0
ALL J(n)-T or Open	0	1

LATCHING with TTL & SELF CUTOFF (Fig. 4)

RF PATH	A(n)
J(n)-C	1
J(n)-T or Open	0

NOTE: (1) TTL logic input A(n): low "0" = 0.0V – 0.8V; high "1" = 2.4V – 5.5V.
 (2) +VDC=Rated voltage; +ΔV=Pulse of rated voltage.

PIN OUT TABLE

SOLDER/DSUB PIN CONNECTION TABLE			MC1/MC2/MC4: 1P2T / 2P3T								
			PIN NUMBER								
INDEX	5. RELAY FUNCTION	7. ACTUATOR TYPE	1	2	3	4	5	6	7	8	9
A	F (or N): FAILSAFE	0,4: NO TTL	+V1			-COM		INDICATOR			+VDCI
B		1: TTL	A1			-COM					+VDC
C	L: LATCHING	0,4: NO TTL	+ΔV1	+ΔV2		-COM	1	2	COM_I		+VDC
D		1: TTL	ΔA1	ΔA2		-COM					+VDC
E		2: SELF CUTOFF	+V1	+V2		-COM					+VDC
F		3: TTL&SELF CUTOFF	A1	A2		-COM					+VDC

DSUB OR SOLDER PIN CONNECTION TABLE			MC5/MC7: 2P2T								
			PIN NUMBER								
INDEX	5. RELAY FUNCTION	7. ACTUATOR TYPE	1	2	3	4	5	6	7	8	9
A	F (or N): FAILSAFE	0,4: NO TTL	+V1			-COM		INDICATOR			+VDC
B		1: TTL	A1			-COM					+VDC
C	L: LATCHING	0,4: NO TTL	+ΔV1	+ΔV2		-COM	1	2	COM_I		+VDC
D		1: TTL	ΔA1	ΔA2		-COM					+VDC
E		2: SELF CUTOFF	+V1	+V2		-COM					+VDCI
F		3: TTL&SELF CUTOFF	A1	A2		-COM					+VDC

DSUB OR SOLDER PIN CONNECTION TABLE			MC3/MCF/MC6: 1P6T														
			PIN NUMBER														
INDEX	5. RELAY FUNCTION	7. ACTUATOR TYPE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	N: N. OPEN	0,4: NO TTL	+V1	+V2	+V3	+V4	+V5	+V6	-COM	INDICATOR (OPTIONAL)						+VDCI	
B		1: TTL	A1	A2	A3	A4	A5	A6	-COM								+VDC
C	L: LATCHING	0,4: NO TTL	+ΔV1	+ΔV2	+ΔV3	+ΔV24	+ΔV5	+ΔV6	-COM	1	2	3	4	5	6	COM_I	+VDCI
D		1: TTL	ΔA1	ΔA2	ΔA3	ΔA4	ΔA5	ΔA6	-COM								+VDC
E		2: SELF CUTOFF	+V1	+V2	+V3	+V4	+V5	+V6	-COM								+VDCI
F		3: TTL&SELF CUTOFF	A1	A2	A3	A4	A5	A6	-COM								+VDC

DSUB OR SOLDER PIN CONNECTION TABLE			MC8/MC9/MCH: 1P8T														
			PIN NUMBER														
INDEX	5. RELAY FUNCTION	7. ACTUATOR TYPE	1	2	3	4	5	6	7	8	9	10	11-14	15			
A	N: N. OPEN	0,4: NO TTL	+V1	+V2	+V3	+V4	+V5	+V6	+V7	+V8	-COM			+VDCI			
B		1: TTL	A1	A2	A3	A4	A5	A6	A7	A8	-COM			+VDC			
C	L: LATCHING	0,4: NO TTL	+ΔV1	+ΔV2	+ΔV3	+ΔV24	+ΔV5	+ΔV6	+ΔV7	+ΔV8	-COM	+ΔVR		+VDCI			
D		1: TTL	ΔA1	ΔA2	ΔA3	ΔA4	ΔA5	ΔA6	ΔA7	ΔA8	-COM	ΔAR		+VDC			
E		2: SELF CUTOFF	+V1	+V2	+V3	+V4	+V5	+V6	+V7	+V8	-COM			+VDCI			
F		3: TTL&SELF CUTOFF	A1	A2	A3	A4	A5	A6	A7	A8	-COM			+VDC			

DSUB OR SOLDER PIN CONNECTION TABLE			MC0/MCJ: 1P10T														
			PIN NUMBER														
INDEX	5. RELAY FUNCTION	7. ACTUATOR TYPE	1	2	3	4	5	6	7	8	9	10	11	12-14	15		
A	N: N. OPEN	0,4: NO TTL	+V1	+V2	+V3	+V4	+V5	+V6	+V7	+V8	+V9	+V10	-COM		+VDCI		
B		1: TTL	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	-COM		+VDC		
C	L: LATCHING	0,4: NO TTL	+ΔV1	+ΔV2	+ΔV3	+ΔV24	+ΔV5	+ΔV6	+ΔV7	+ΔV8	+ΔV9	+ΔV10	-COM		+VDCI		
D		1: TTL	ΔA1	ΔA2	ΔA3	ΔA4	ΔA5	ΔA6	ΔA7	ΔA8	ΔA9	ΔA10	-COM		+VDC		
E		2: SELF CUTOFF	+V1	+V2	+V3	+V4	+V5	+V6	+V7	+V8	+V9	+V10	-COM		+VDCI		
F		3: TTL&SELF CUTOFF	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	-COM		+VDC		

DSUB OR SOLDER PIN CONNECTION TABLE			MCL/MCG/MCM: 1P12T														
			PIN NUMBER														
INDEX	5. RELAY FUNCTION	7. ACTUATOR TYPE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	N: N. OPEN	0,4: NO TTL	+V1	+V2	+V3	+V4	+V5	+V6	+V7	+V8	+V9	+V10	+V11	+V12	-COM		+VDCI
B		1: TTL	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	-COM		+VDC
C	L: LATCHING	0,4: NO TTL	+ΔV1	+ΔV2	+ΔV3	+ΔV24	+ΔV5	+ΔV6	+ΔV7	+ΔV8	+ΔV9	+ΔV10	+ΔV11	+ΔV12	-COM	+ΔVR	+VDCI
D		1: TTL	ΔA1	ΔA2	ΔA3	ΔA4	ΔA5	ΔA6	ΔA7	ΔA8	ΔA9	ΔA10	ΔA11	ΔA12	-COM	ΔAR	+VDC
E		2: SELF CUTOFF	+V1	+V2	+V3	+V4	+V5	+V6	+V7	+V8	+V9	+V10	+V11	+V12	-COM		+VDCI
F		3: TTL&SELF CUTOFF	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	-COM		+VDC

+Vn = RATED +VDC

An = LOGIC INPUT

+ΔVR = RATED +VDC PULSE FOR RESET

+ΔVn = RATED +VDC PULSE

ΔAn = LOGIC INPUT PULSE

ΔAR = LOGIC INPUT PULSE FOR RESET

Note: -COM=GROUND; +VDC= +RATED VOLTAGE; Optional: +VDCI= +RATED VOLTAGE (for optional optoelectronic indicators).

A 26-pin DSUB connector may be used for multi-position 1PnT (n>6) switches with the indicator option. Contact factory for its corresponding pinouts.

DC - 67GHz

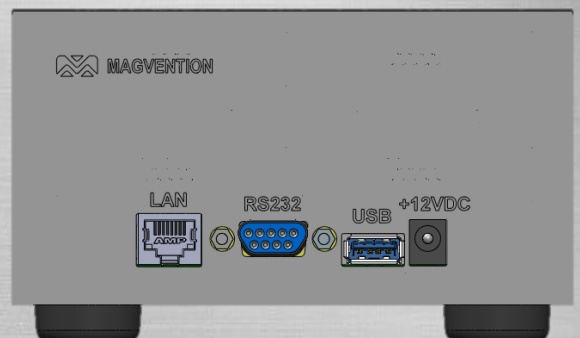
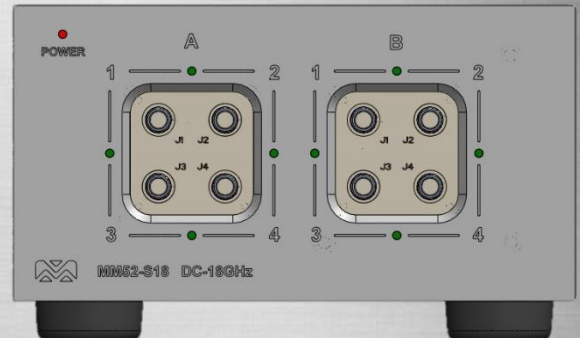
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High performance, reliable products at competitive prices.

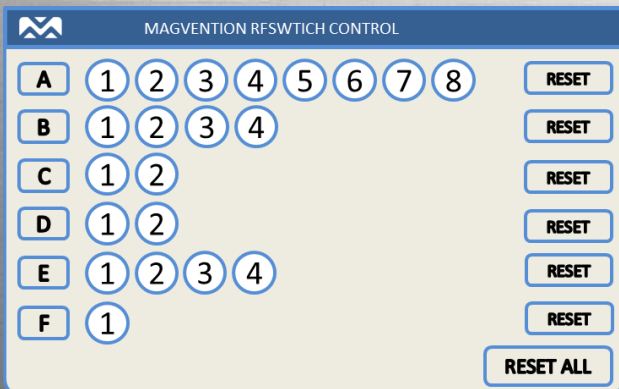
USB or Ethernet Controlled



STANDARD or CUSTOM DESIGN



CONTROL PANEL EXAMPLE



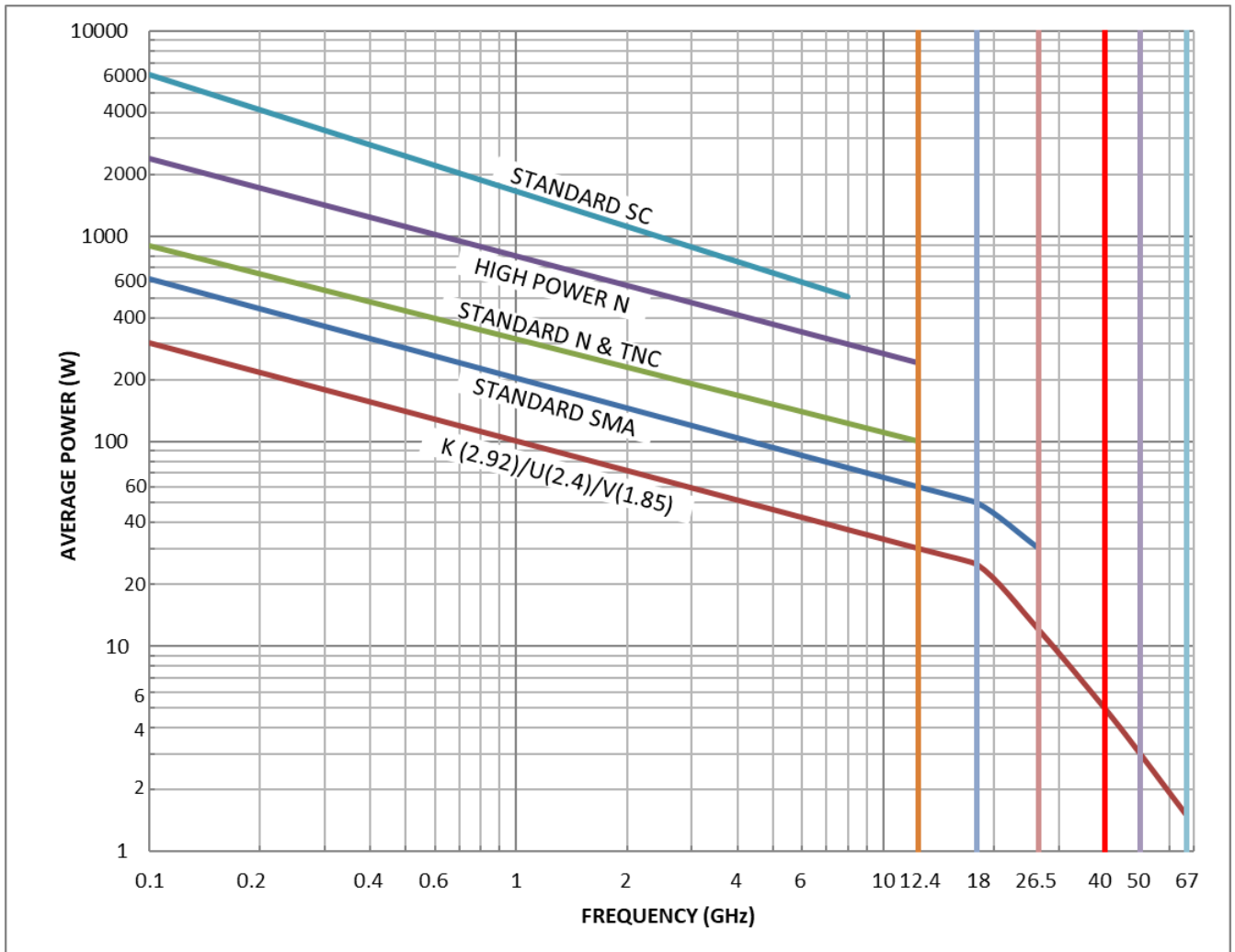
MAGVENTION

POWER CHART

POWER CAPACITY VS. FREQUENCY GRAPH

This graph is based on the following conditions:

Ambient temperature 20°C, sea level, VSWR=1:1 and cold switching



VSWR	DERATING FACTOR
1.5 : 1	0.96
2.0 : 1	0.88
2.5 : 1	0.84
3.0 : 1	0.75

VSWR	DERATING FACTOR
3.5 : 1	0.70
4.0 : 1	0.64
4.5 : 1	0.60
5.0 : 1	0.56



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