

INCH-POUND

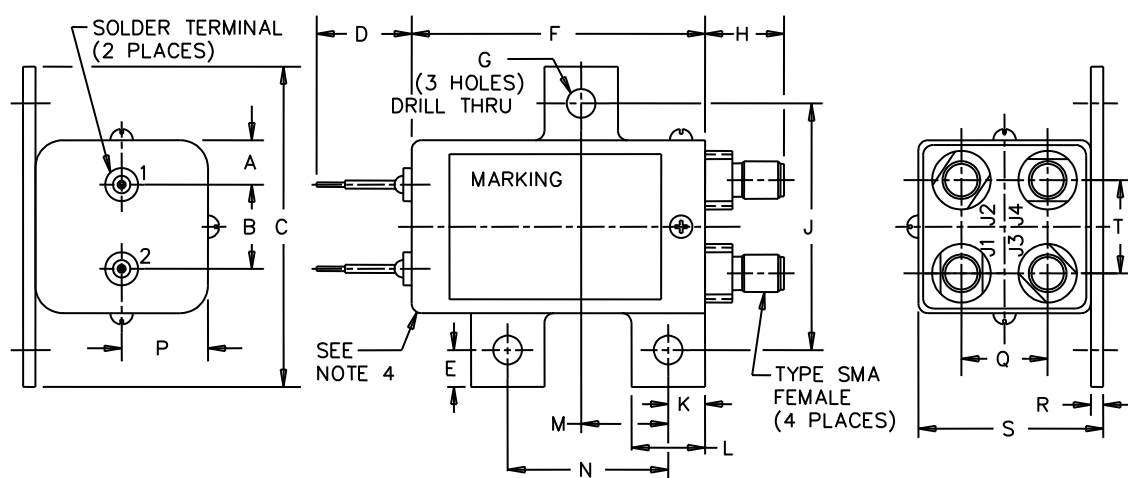
MIL-DTL-3928/19F
14 March 2016
SUPERSEDING
MIL-DTL-3928/19E
15 February 2011

DETAIL SPECIFICATION SHEET

SWITCHES, RADIO-FREQUENCY TRANSMISSION LINE (COAXIAL) (ELECTRICALLY OPERATED) CLASS 5, TR

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

Requirements for acquiring the switch described herein
shall consist of this specification sheet and MIL-DTL-3928.



Dimensions									
Letter	Inches		Millimeters		Letter	Inches		Millimeters	
	Max	Min	Max	Min		Max	Min	Max	Min
A	.35	.29	8.9	7.4	K	.28	.22	7.1	5.6
B	.65	.59	16.5	15.0	L	.53	.47	13.5	11.9
C	2.18	2.14	55.4	54.4	M	.553	.537	14.0	13.6
D	.45	---	11.4	---	N	1.098	1.082	27.89	27.48
E	.22	.16	5.6	4.1	P	.640	.620	16.26	15.75
F	2.15	---	54.6	---	Q	.644	---	16.36	---
G	.154 dia	.144 dia	3.91 dia	3.66 dia	R	.073	.053	1.85	1.35
H	.35	---	8.9	---	S	1.37	---	34.8	---
J	1.788	1.772	45.42	45.01	T	.644	---	16.36	---

NOTES:

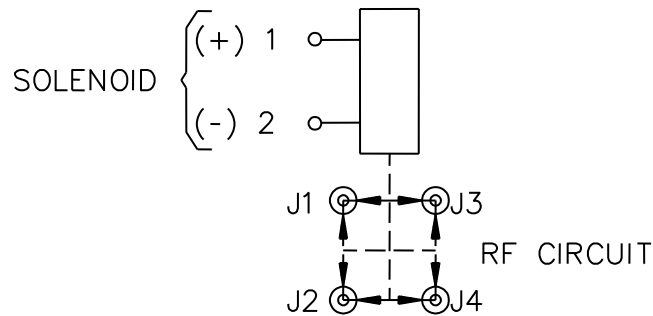
1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 inch = 25.4 mm).
3. Unless otherwise specified, tolerances are $\pm .010$ (± 0.25 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. Round corners of case may be squared.

FIGURE 1. PINs M3928/19-02, M3928/19-08, and M3928/19-13.

AMSC N/A

FSC 5985





POS.1. DEENERGIZED OR FAILSAFE POSITION
J1-J3 AND J2-J4
POS.2. ENERGIZED POSITION, J1-J2 AND J3-J4.

SCHEMATIC (SHOWN IN POSITION 1)

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 inch = 25.4 mm).
3. Unless otherwise specified, tolerances are $\pm .010$ (± 0.25 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. Round corners of case may be squared.

FIGURE 1. PINs M3928/19-02, M3928/19-08, and M3928/19-13 - Continued.

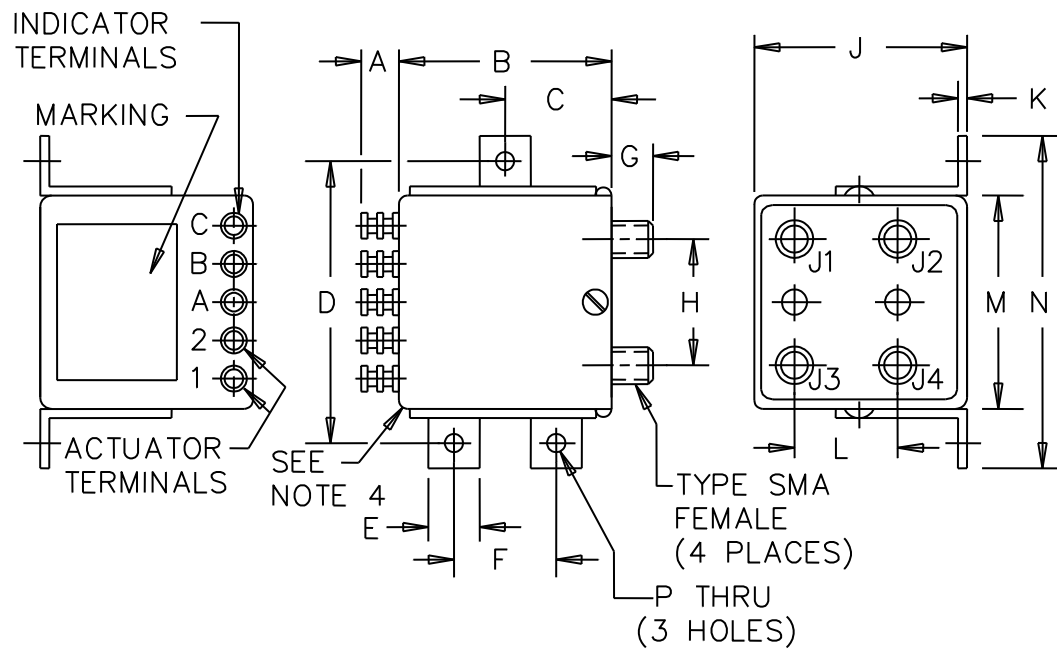
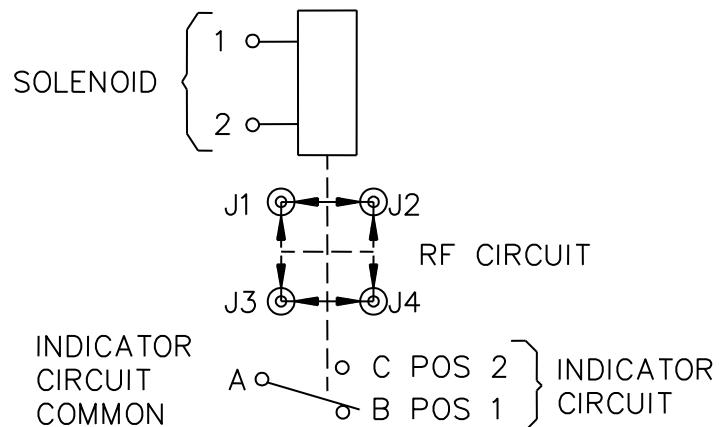


FIGURE 2. PIN M3928/19-03.



POSITION 1. (DEENERGIZED OR FAILSAFE POSITION) J1-J2
AND J3-J4.

POSITION 2. (ENERGIZED POSITION) J1-J3 AND J2-J4.

SCHEMATIC (SHOWN IN POSITION 1)

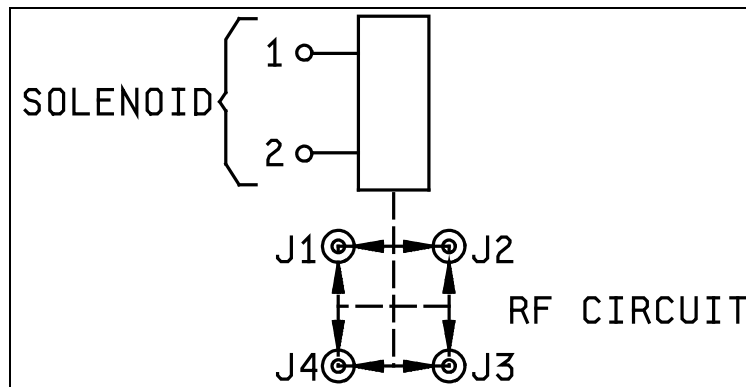
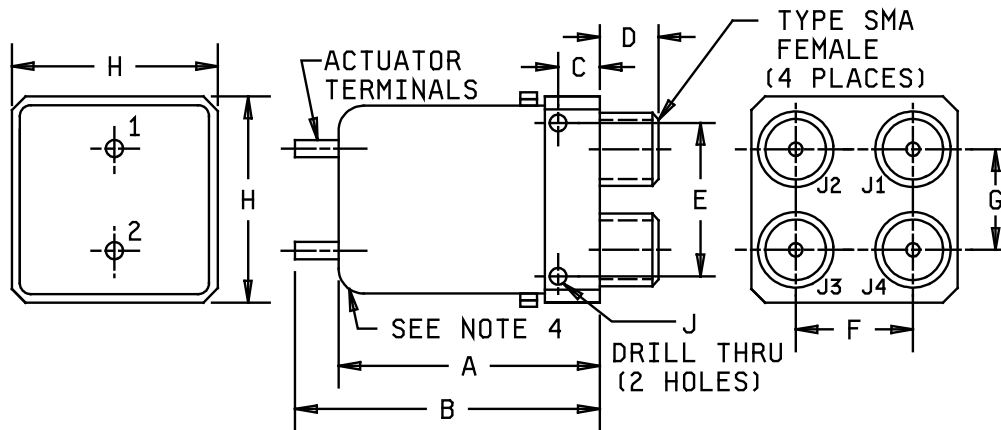
Dimensions									
Letter	Inches		Millimeters		Letter	Inches		Millimeters	
	Max	Min	Max	Min		Max	Min	Max	Min
A	.200	---	5.08	---	H	.644	---	16.36	---
B	1.53	1.47	38.9	37.3	J	1.33	1.27	33.8	32.3
C	.81	.75	20.6	19.1	K	.07	---	1.8	---
D	1.810	1.790	45.97	45.47	L	.644	---	16.36	---
E	.41	.35	10.4	8.9	M	1.30	1.24	33.0	31.5
F	.810	.790	20.57	20.07	N	2.22	2.16	56.4	54.9
G	.30	.24	7.6	6.1					

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 inch = 25.4 mm).
3. Unless otherwise specified, tolerances are $\pm .010$ (± 0.25 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. Round corners of case may be squared.

FIGURE 2. PIN M3928/19-03 - Continued.

MIL-DTL-3928/19F



POS. 1. DEENERGIZED OR FAILSAFE POSITION, J1-J2 AND J3-J4
 POS. 2. ENERGIZED POSITION, J1-J4 AND J2-J3.

SCHEMATIC (SHOWN IN POSITION 1)

Dimensions									
Letter	Inches		Millimeters		Letter	Inches		Millimeters	
	Max	Min	Max	Min		Max	Min	Max	Min
A	2.90	2.84	73.7	72.1	F	.90	.84	22.9	21.3
B	3.25	---	82.5	---	G	.90	.84	22.9	21.3
C	.40	.34	10.2	8.6	H	1.84	1.78	46.7	45.2
D	.41	.35	10.4	8.9	J	.190 dia	.170 dia	4.83 dia	4.32 dia
E	1.46	1.40	37.1	35.6					

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 inch = 25.4 mm).
3. Unless otherwise specified, tolerances are $\pm .010$ (± 0.25 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. Round corners of case may be squared.

FIGURE 3. PIN M3928/19-04.

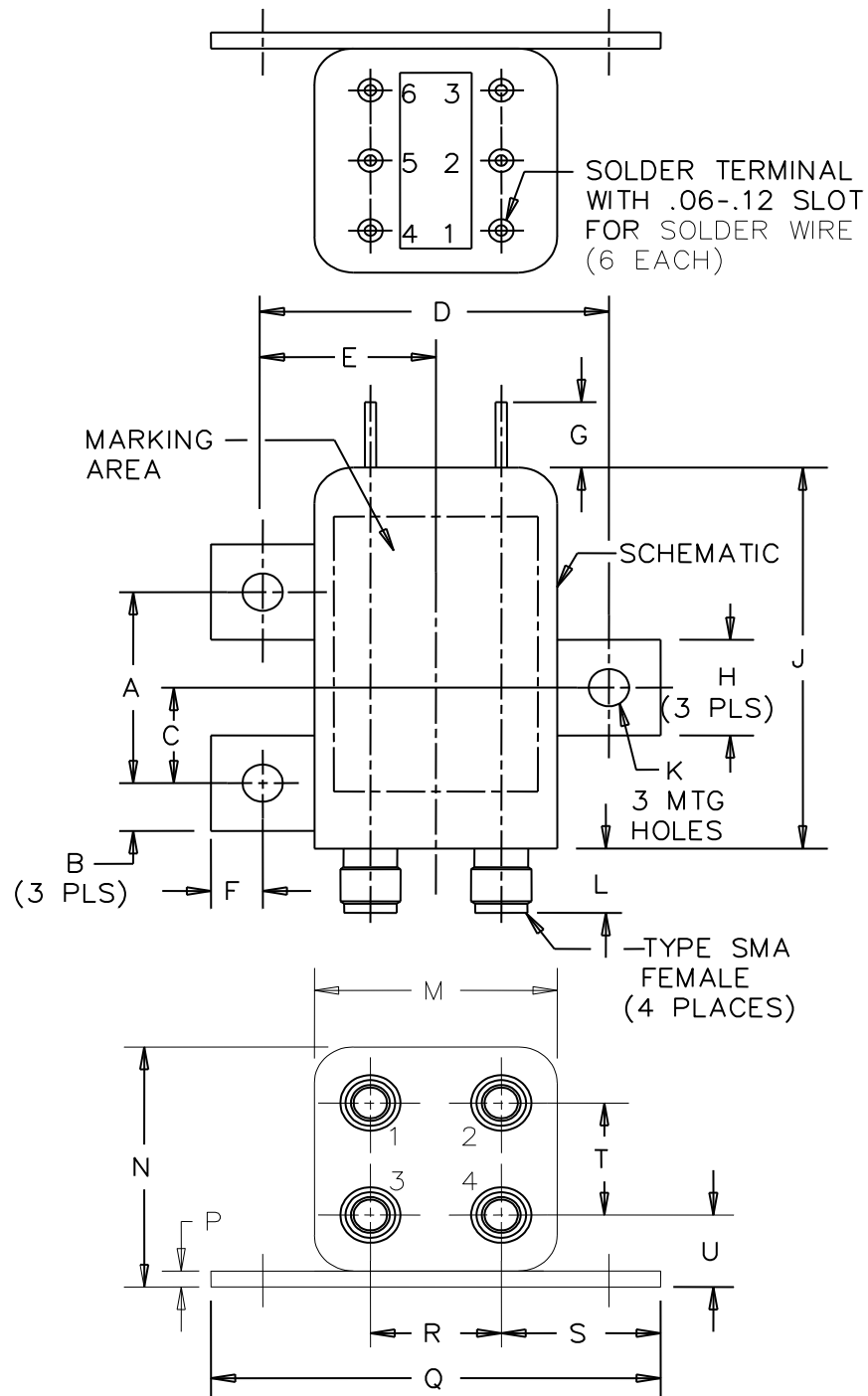
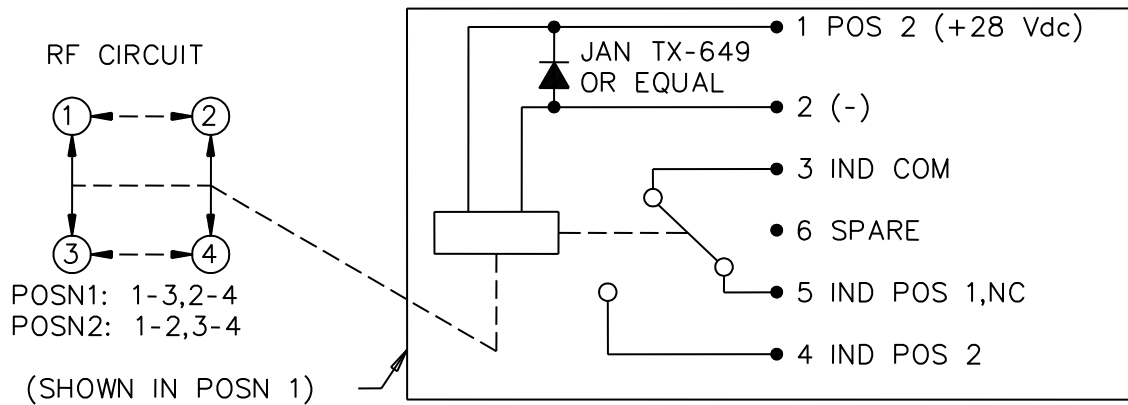


FIGURE 4. PINs M3928/19-05, M3928/19-09, and M3928/19-14

SCHEMATIC



Dimensions									
Letter	Inches		Millimeters		Letter	Inches		Millimeters	
	Max	Min	Max	Min		Max	Min	Max	Min
A	1.098	1.082	27.89	27.48	L	.45	---	11.4	---
B	.28	.22	7.1	5.6	M	1.30	---	33.0	---
C	.553	.537	14.0	13.6	N	1.37	---	34.8	---
D	1.788	1.772	45.4	45.0	P	.073	.053	1.85	1.35
E	.900	.880	22.86	22.35	Q	2.19	2.13	55.6	54.1
F	.22	.16	5.6	4.1	R	.644	---	16.36	---
G	.25	---	6.4	---	S	.79	.73	20.1	18.5
H	.53	.47	13.5	11.9	T	.644	---	16.36	---
J	1.85	---	47.0	---	U	.40	.34	10.2	8.6
K	.159 dia	.139 dia	4.04 dia	3.53 dia					

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 inch = 25.4 mm).
3. Unless otherwise specified, tolerances are $\pm .010$ (± 0.25 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. Round corners of case may be squared.

FIGURE 4. PINs M3928/19-05, M3928/19-09, and M3928/19-14 - Continued.

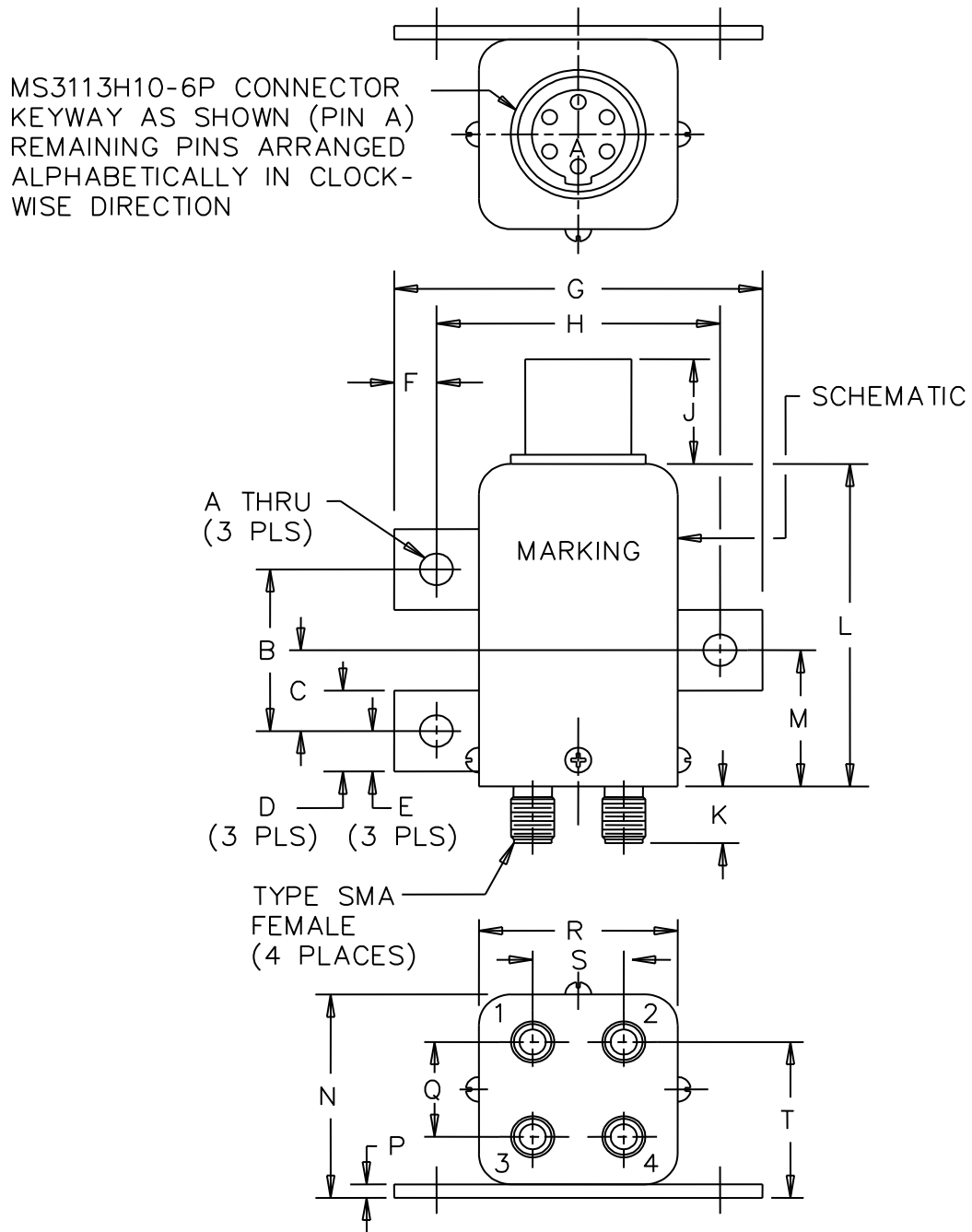
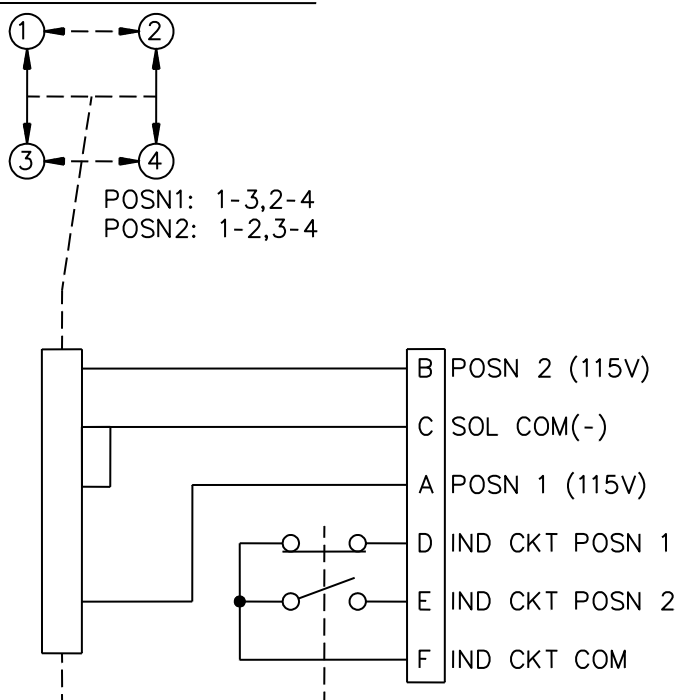


FIGURE 5. PIN M3928/19-06.

RF CIRCUIT SCHEMATIC

SCHEMATIC, CONTROL, AND
INDICATOR CIRCUIT

Dimensions									
Letter	Inches		Millimeters		Letter	Inches		Millimeters	
	Max	Min	Max	Min		Max	Min	Max	Min
A	.154 dia	.144 dia	3.91 dia	3.66 dia	K	.45	---	11.4	---
B	1.098	1.082	27.89	27.48	L	2.32	---	58.9	---
C	.553	.537	14.05	13.64	M	.860	.840	21.8	21.3
D	.53	.47	13.5	11.9	N	1.37	---	34.8	---
E	.28	.22	7.1	5.6	P	.073	.053	1.85	1.35
F	.22	.16	5.6	4.1	Q	.644	---	16.36	---
G	2.18	2.14	55.4	54.4	R	1.30	---	33.0	---
H	1.788	1.772	45.42	45.01	S	.644	---	16.36	---
J	.49	---	12.4	---	T	1.01	.95	25.65	24.13

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 inch = 25.4 mm).
3. Unless otherwise specified, tolerances are $\pm .010$ (± 0.25 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. Round corners of case may be squared.

FIGURE 5. PIN M3928/19-06 - Continued.

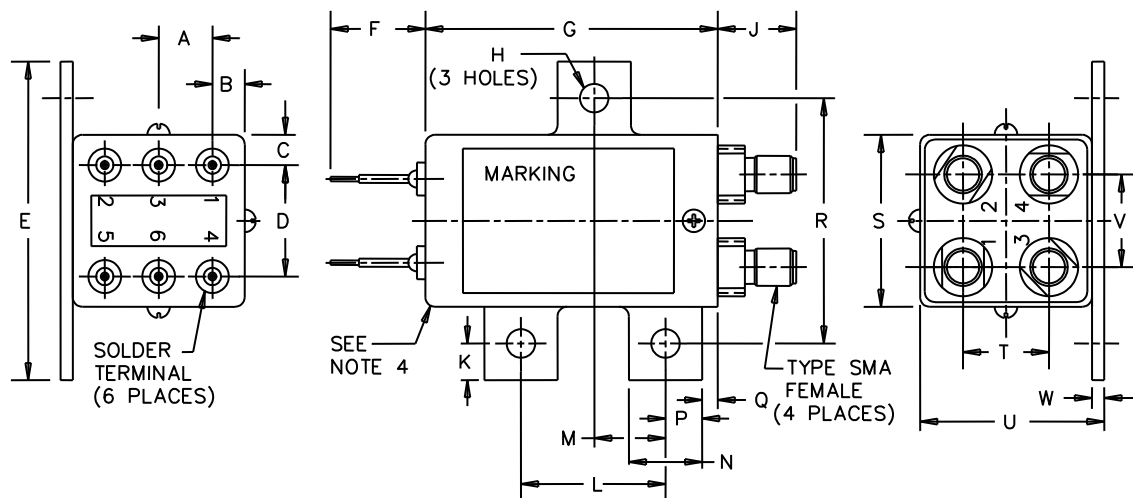
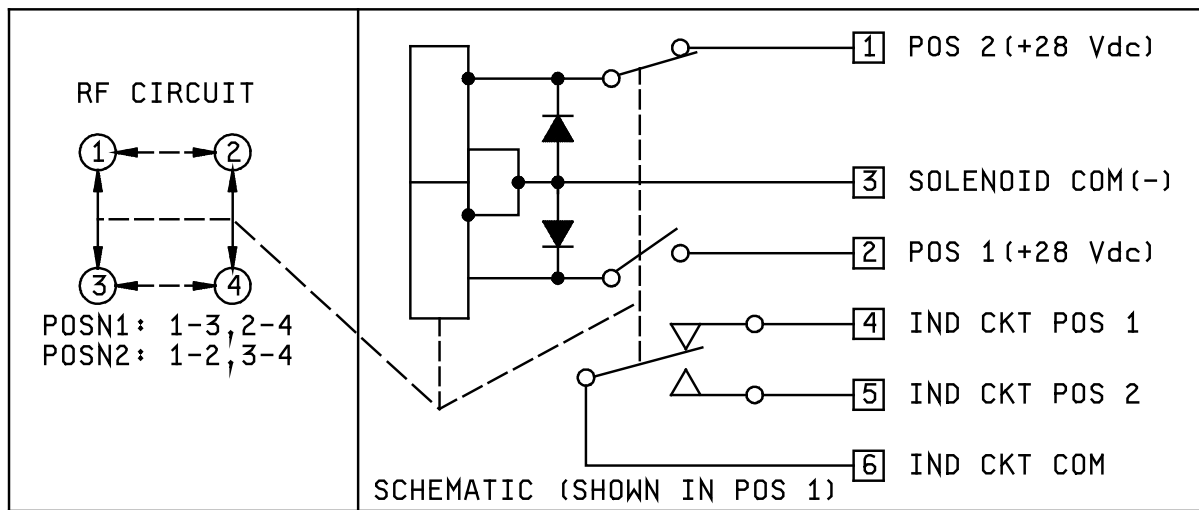


FIGURE 6. PIN M3928/19-07.



Dimensions									
Letter	Inches		Millimeters		Letter	Inches		Millimeters	
	Max	Min	Max	Min		Max	Min	Max	Min
A	.34	.28	8.6	7.1	M	.553	.537	14.05	13.64
B	.35	.29	8.9	7.4	N	.53	.47	13.5	11.9
C	.35	.29	8.9	7.4	P	.28	.22	7.1	5.6
D	.65	.59	16.5	15.0	Q	.015	---	.38	---
E	2.18	2.14	55.4	54.4	R	1.788	1.772	45.4	45.0
F	.30	---	7.6	---	S	1.30	---	33.0	---
G	1.85	---	47.0	---	T	.644	---	16.36	---
H	.154	.144	3.91	3.66	U	1.37	---	34.8	---
J	.35	---	8.9	---	V	.644	---	16.36	---
K	.22	.16	5.6	4.1	W	.066	.060	1.68	1.52
L	1.098	1.082	27.89	27.49					

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 inch = 25.4 mm).
3. Unless otherwise specified, tolerances are $\pm .010$ (± 0.25 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. Round corners of case may be squared.

FIGURE 6. PIN M3928/19-07 - Continued.

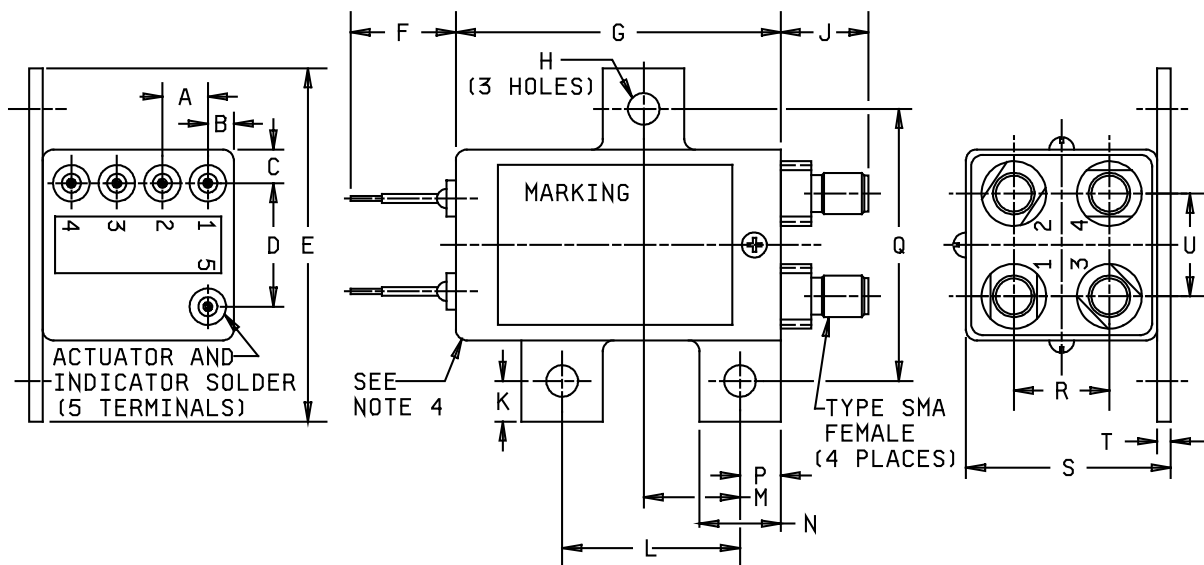
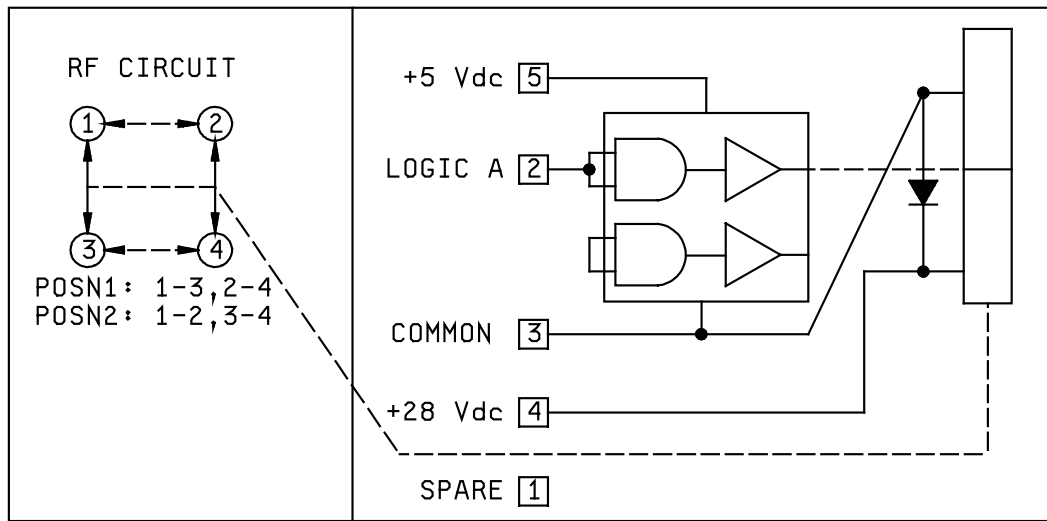


FIGURE 7. PIN M3928/19-10.



Logic truth table	
RF position	Logic signal
Pos 1	0
Pos 2	1

Dimensions									
Letter	Inches		Millimeters		Letter	Inches		Millimeters	
	Max	Min	Max	Min		Max	Min	Max	Min
A	.28	.22	7.1	5.6	L	1.098	1.082	27.89	27.48
B	.28	.22	7.1	5.6	M	.553	.537	14.05	13.64
C	.35	.29	8.9	7.4	N	.53	.47	13.5	11.9
D	.65	.59	16.5	15.0	P	.28	.22	7.1	5.6
E	2.18	2.14	55.4	54.4	Q	1.788	1.772	45.4	45.0
F	.46	---	11.7	---	R	.644	---	16.36	---
G	2.20	---	55.9	---	S	1.37	---	34.8	---
H	.154	.144	3.91	3.66	T	.066	.060	1.68	1.52
J	.43	---	10.9	---	U	.644	---	16.36	---
K	.22	.16	5.6	4.1					

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 inch = 25.4 mm).
3. Unless otherwise specified, tolerances are $\pm .010$ (± 0.25 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. Round corners of case may be squared.

FIGURE 7. PIN M3928/19-10 - Continued.

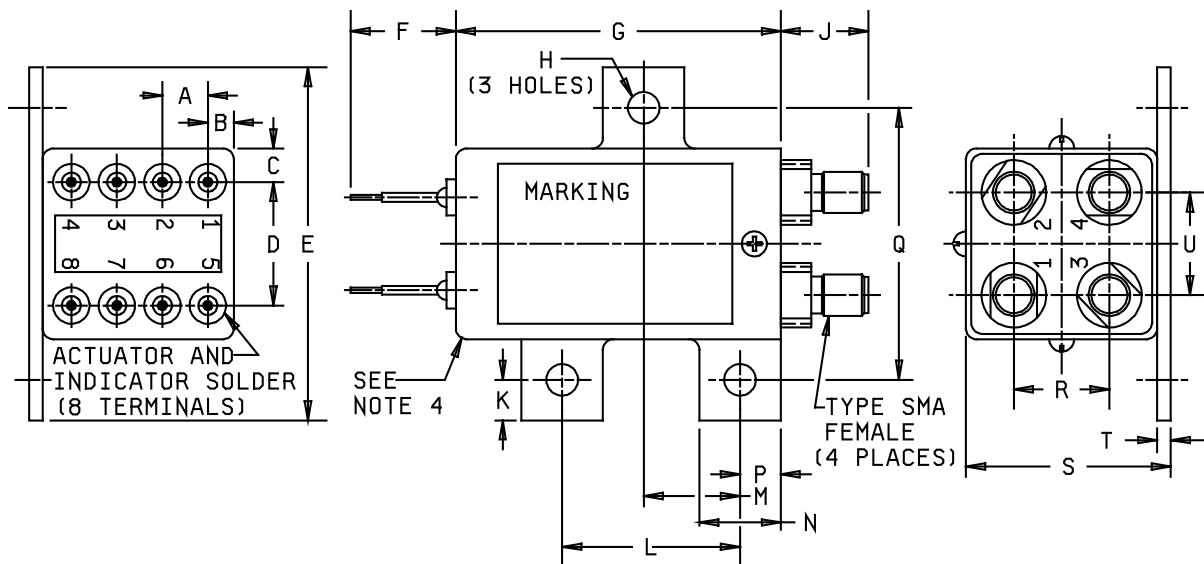
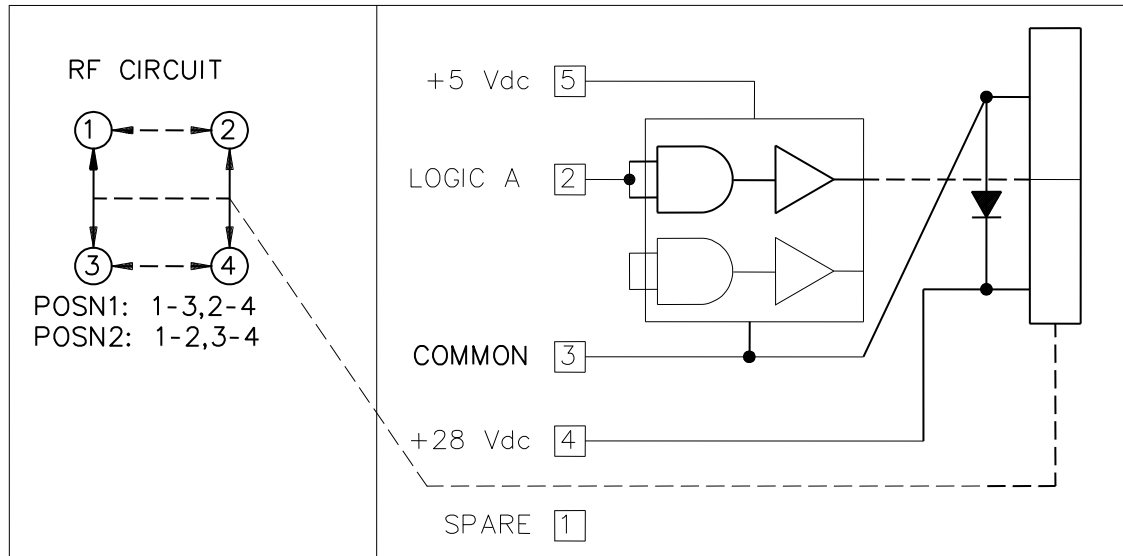


FIGURE 8. PIN M3928/19-11.



Logic truth table		
RF position	Logic signal	
	A	B
Pos 1	1	0
Pos 2	0	1

Dimensions									
Letter	Inches		Millimeters		Letter	Inches		Millimeters	
	Max	Min	Max	Min		Max	Min	Max	Min
A	.28	.22	7.1	5.6	L	1.098	1.082	27.89	27.48
B	.28	.22	7.1	5.6	M	.553	.537	14.05	13.64
C	.35	.29	8.9	7.4	N	.53	.47	13.5	11.9
D	.65	.59	16.5	15.0	P	.28	.22	7.1	5.6
E	2.18	2.14	55.4	54.4	Q	1.788	1.772	45.4	45.0
F	.46	---	11.7	---	R	.644	---	16.36	---
G	2.20	---	55.9	---	S	1.37	---	34.8	---
H	.154	.144	3.91	3.66	T	.066	.060	1.68	1.52
J	.43	---	10.9	---	U	.644	---	16.36	---
K	.22	.16	5.6	4.1					

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 inch = 25.4 mm).
3. Unless otherwise specified, tolerances are $\pm .010$ (± 0.25 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. Round corners of case may be squared.

FIGURE 8. PIN M3928/19-11 - Continued.

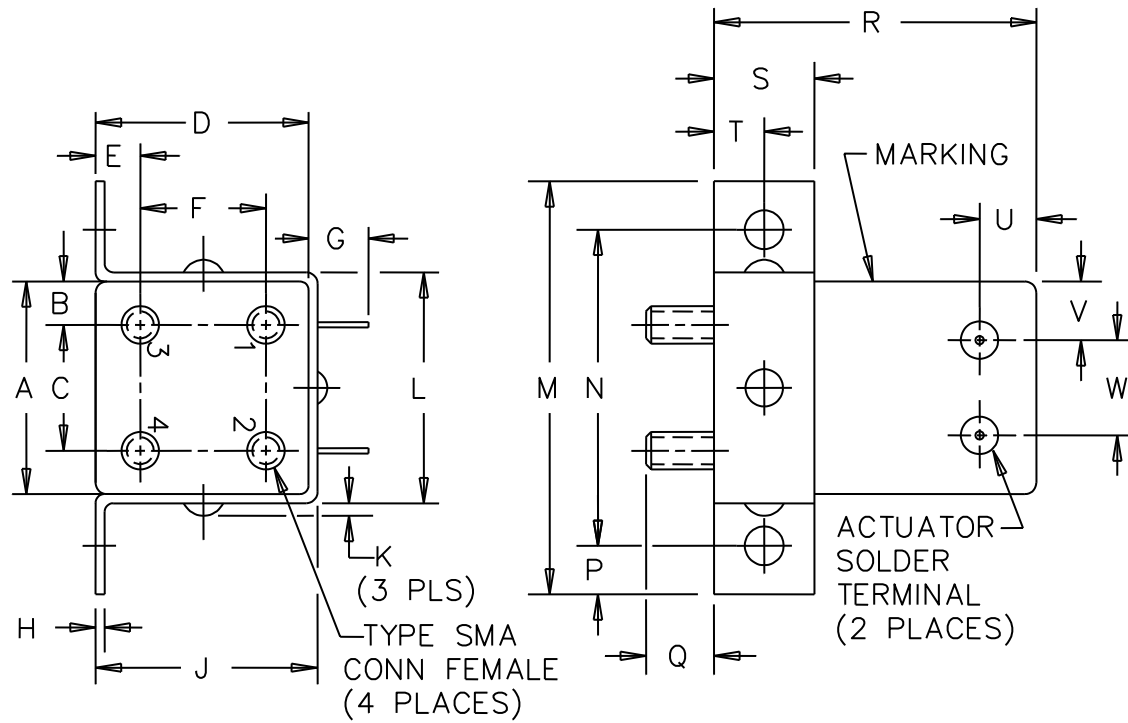
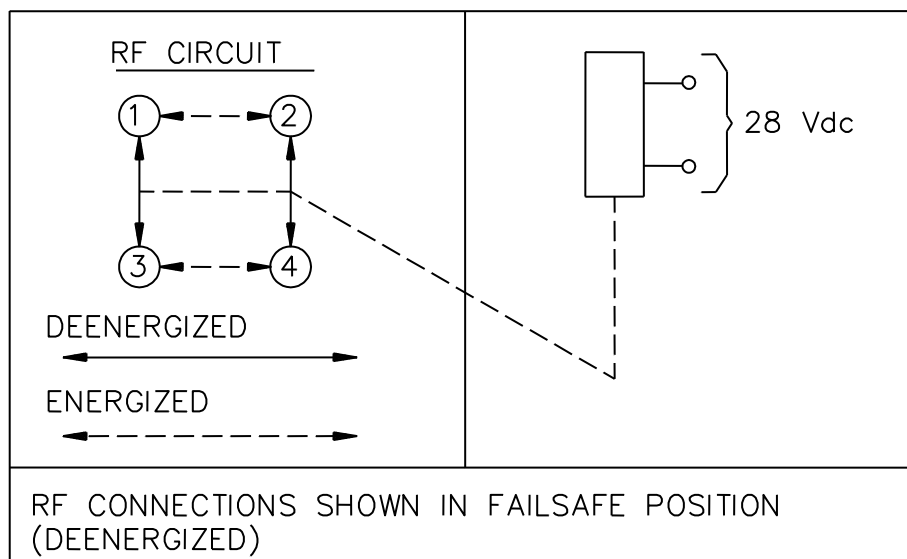


FIGURE 9. PIN M3928/19-12.



Dimensions									
Letter	Inches		Millimeters		Letter	Inches		Millimeters	
	Max	Min	Max	Min		Max	Min	Max	Min
A	1.03	.97	26.2	24.6	M	2.03	1.97	51.6	50.0
B	.30	.24	7.6	6.1	N	1.635	1.615	41.5	41.0
C	.49	.43	12.4	10.9	P	.22	.16	5.6	4.1
D	1.03	.97	26.2	24.6	Q	.40	.34	10.2	8.6
E	.30	.24	7.6	6.1	R	1.65	---	41.9	---
F	.49	.43	12.4	10.9	S	.53	.47	13.5	11.9
G	.35	---	8.9	---	T	.28	.22	7.1	5.6
H	.09	.03	2.3	0.8	U	.41	.35	10.4	8.9
J	1.072	1.052	27.23	26.72	V	.28	.22	7.1	5.6
K	.08	---	2.0	---	W	.53	.47	13.5	11.9
L	1.135	1.115	28.83	28.32					

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only (1.00 inch = 25.4 mm).
3. Unless otherwise specified, tolerances are $\pm .010$ (± 0.25 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. Round corners of case may be squared.

FIGURE 9. PIN M3928/19-12 - Continued.

TABLE I. Electrical and performance characteristics. 1/

PIN M3928/19-	Fig. No.	Hous- ing	Frequen- cy range dc to GHz	VSWR	Insertion loss (dB)	Isolation (dB)	Switch- ing time (ms)	Position indication circuit and rating	Life cycles x 1000	Fail-safe or latching	Operating current (A) <u>2/</u>	Holding current (A) <u>2/</u>	Nominal operating voltage	Pickup voltage	Dropout voltage	Power and indicator connector	Weight (oz)
02N, S	1	E	12.4	<u>Max</u> 1.5:1	<u>Max</u> 0.5	<u>Min</u> 50	<u>Max</u> 20	None	100	F	<u>Max</u> 1.3	<u>Max</u> .35	28 V dc	18 V dc	5 V dc	Solder terminal	<u>Max</u> 6
03N, S	2	E	18	1.5:1	0.5	60	20	Yes	100	F	.175	.06	28 V dc	20 V dc	5 V dc	Solder terminal	10
04N, S <u>4/</u>	3	I	12.4	1.5:1	0.5	60	50	None	1000	F	.30	.30	28 V dc	20 V dc	2 V dc	Solder terminal	14
05N, S <u>3/</u>	4	I	12.4	1.5:1	0.5	60	20	Yes	100	F	2.0	.12	28 V dc	20 V dc	10 V dc	Solder terminal	4
06N, S <u>5/</u>	5	I	18	1.5:1	0.5	60	10	Yes	1000	L	.030	0	115 V ac	N/A	N/A	Solder terminal N/A	2.5
07N, S	6	E	18	1.5:1	0.5	60	20	Yes	100	L	.75	0	28 V dc	20 V dc	---	Solder terminal	6
08N, S	1	E	18	1.5:1	0.5	60	20	None	100	F	1.3	.35	28 V dc	18 V dc	5 V dc	Solder terminal	6
09N, S	4	E	18	1.5:1	0.5	60	20	Yes	100	F	2.0	.12	28 V dc	20 V dc	10 V dc	Solder terminal	4
10N, S <u>6/</u>	7	E	18	1.5:1	0.5	60	20	None	100	F	1.3	.35	28 V dc	18 V dc	5 V dc	Solder terminal	7
11N, S <u>6/</u>	8	E	18	1.5:1	0.5	60	20	Yes	100	L	1.0	0	28 V dc +5 V dc <u>7/</u>	20 V dc	---	Solder terminal	7
12 N, S	9	E	18	1.5:1	0.5	60	20	None	100	F	1.0	.2	28 V dc +5 V dc <u>7/</u>	20 V dc	16 V dc	Solder terminal	4
13 N, S	1	E	20	1.8:1 1.5:1 at 18 GHz 1.3:1	0.7 0.5 at 18 GHz 0.3	40 60 at 18 GHz 70	20	None	100	F	1.3	.95	28 V dc	18 V dc	5 V dc	Solder terminal	6
14N, S	4	E	20	1.8:1 1.5:1 at 18 GHz	0.7 0.5 at 18 GHz	40 60 at 18 GHz	20	Yes	100	F	2.0	.12	28 V dc	20 V dc	5 V dc	Solder terminal	6

1/ M3928/19-01 has been deleted.2/ At nominal V dc and 20 deg C.3/ Transient interference (RFI).4/ Explosion proof. 25 watts at 1 GHz into a 50-ohm load.5/ Switch does not provide self cutoff of operating voltage after switching.6/ Logic voltage: Logic 0 - 0 to 0.4 V dc.

Logic 1 - 2.4 to 5.5 V dc.

7/ +5 voltage deviation: ± 0.5 V dc.

REQUIREMENTS:

Dimensions and configurations: See figures 1 through 9.

RF connectors: Female connectors (4 places) shall meet the requirements of MIL-PRF-39012 and shall mate with SMA type male connectors in accordance with MIL-PRF-39012/55.

Electrical and performance characteristics: See table I.

RF power handling capability (average): 25 watts (minimum).

Nominal impedance: 50 ohms.

Termination: Open.

Vibration: Method I.

Operating temperature: -55 ° C to +85 ° C.

Part or Identifying Number (PIN): M3928/19- (and dash number from table I).

Revision letters are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Referenced documents: In addition to MIL-DTL-3928, this document references the following

MIL-PRF-39012

MIL-PRF-39012/55

MS3113

The margins of this specification sheet are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Army - CR

Navy - EC

Air Force - 85

DLA - CC

Preparing activity:

DLA - CC

(Project 5985-2016-008)

Review activities:

Army - MI

Navy - AS, MC, OS, SH

Air Force - 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil/>.