

| PART NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DESCRIPTION                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| CCP-18N                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Commercial Normally Open Multi-throw, DC-3GHz, Low PIM |
| <p>These switches have extremely low passive intermodulation for use in narrow bandwidth communications applications.</p> <p>The CCP-18N is a broadband multi-position coaxial switch designed to switch RF signals from one input port to any one of 3 through 6 output ports. It is readily adapted to any 50 Ohms transmission line system. The standard actuator gives individual solenoid control of each position and when de-energized, all positions are open.</p> |                                                        |



| ENVIRONMENTAL AND PHYSICAL CHARACTERISTICS                     |                       |
|----------------------------------------------------------------|-----------------------|
| Operating Temperature                                          | –40°C to 65°C         |
| Vibration (MIL-STD-202 Method 214, Condition D, non-operating) | 10 g's RMS            |
| Shock (MIL-STD-202 Method 213, Condition D, non-operating)     | 500 g's               |
| Standard Actuator Life                                         | 1,000,000 cycles      |
| Connector Type                                                 | Type N                |
| Humidity (Moisture Seal)                                       | Available             |
| Weight                                                         | 9 oz. (255.2g) (max.) |

| ELECTRICAL CHARACTERISTICS        |                                |
|-----------------------------------|--------------------------------|
| Form Factor                       | Multi-Throw, break before make |
| Frequency Range                   | DC–3 GHz                       |
| Characteristic Impedance          | 50 Ohms                        |
| Switching Time                    | 20 ms (max.)                   |
| Actuation Voltage Available       | 12 15 24 28 V                  |
| Actuation Current, max. @ ambient | 600 480 300 270 mA             |

| PERFORMANCE CHARACTERISTICS |          |
|-----------------------------|----------|
| Frequency                   | DC–3 GHz |
| Insertion Loss, dB, max.    | 0.3      |
| Isolation, dB, min.         | 70       |
| VSWR, max.                  | 1.3:1    |
| RF Power (cw), W, max.      | 200      |

| PASSIVE INTERMODULATION CHARACTERISTICS |                        |                     |                     |
|-----------------------------------------|------------------------|---------------------|---------------------|
| Tone 1 Frequency (MHz)                  | Tone 2 Frequency (MHz) | IM3 Frequency (MHz) | PIM Threshold (dBc) |
| 1945                                    | 1990                   | 1900                | -140.0              |
| P1 P2 (dBm)                             | PIM (dBc)              | PEAK PIM (dBc)      |                     |
| 43                                      | -146.7                 | -146.7              |                     |

## PART NUMBERING SYSTEM

| <p style="text-align: center;"><b>CCP-18 N 1 6 C - T**</b></p> <div style="display: flex; justify-content: space-around;"> <div> <p>Series ——— CCP-18</p> <p>Connectors ——— N</p> <p>Actuator Voltage ——— 1</p> </div> <div> <p>Options ——— T**</p> <p>Actuator Type ——— C</p> <p>Number of Positions ——— 6</p> </div> </div> |                         |                     |                          |                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------|--------------------------|------------------------------------------|
| CONNECTOR                                                                                                                                                                                                                                                                                                                     | ACTUATOR VOLTAGE        | NUMBER OF POSITIONS | ACTUATOR TYPE            | OPTIONS                                  |
| N: TYPE N FEMALE                                                                                                                                                                                                                                                                                                              | 1: 28 VDC NORMALLY OPEN | 3: SP3T             | 0: NO INDICATOR CONTACTS | T: TTL DRIVERS WITH DIODES               |
|                                                                                                                                                                                                                                                                                                                               | 2: 15 VDC NORMALLY OPEN | 4: SP4T             | C: INDICATOR CONTACTS    | D: COIL TRANSIENT SUPPRESSION DIODES     |
|                                                                                                                                                                                                                                                                                                                               | 3: 12 VDC NORMALLY OPEN | 5: SP5T             |                          | S: D-SUB CONNECTOR*                      |
|                                                                                                                                                                                                                                                                                                                               | 4: 24 VDC NORMALLY OPEN | 6: SP6T             |                          | TD: DECODERS AND TTL DRIVERS WITH DIODES |
|                                                                                                                                                                                                                                                                                                                               |                         |                     |                          | M: MOISTURE SEAL                         |

\*\*SEE PARTS LIST ON PAGE 10

For additional options, please contact factory.

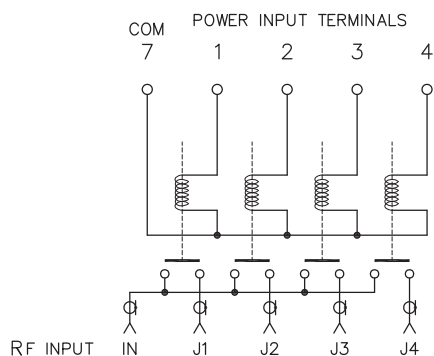
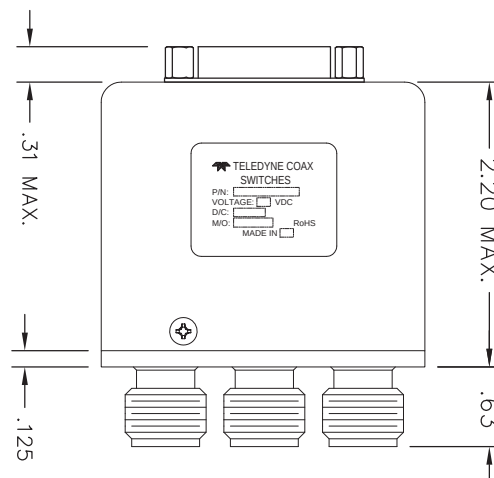
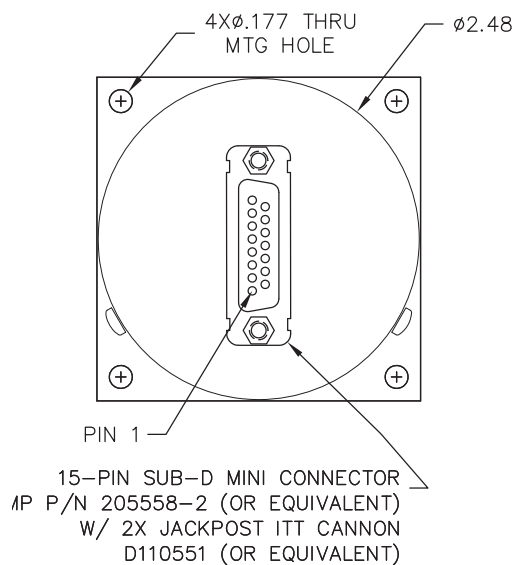
\* 15 pin D-Sub Connector  
(See Connector Pinout page)

# Series CCP-18N

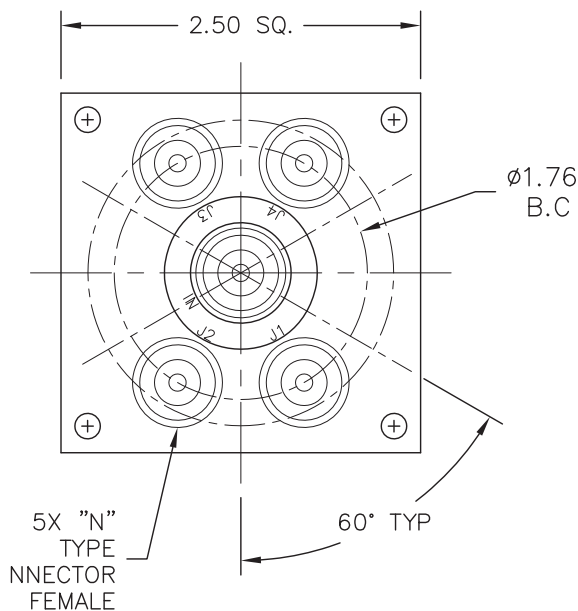
Low PIM Multi-Throw DC-3 GHz  
Normally Open Coaxial Switch



## SCHEMATICS AND MECHANICAL OUTLINE FOR SP3T-SP6T SWITCHES



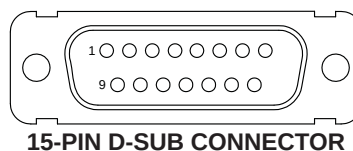
**SCHEMATIC**  
SHOWN IN  
NORMALLY OPEN POSITION



“-S OPTION” 15-PIN D-SUB CONNECTOR (EXAMPLE: CCS-18N160-S)

| CONNECTOR PINOUT FOR NORMALLY OPEN SP3T MULTI-THROW SWITCHES |              |                   |               |                   |                |                   |
|--------------------------------------------------------------|--------------|-------------------|---------------|-------------------|----------------|-------------------|
| EXAMPLE                                                      | CCP-18N130-S | CCP-18N13C-S      | CCP-18N130-TS | CCP-18N13C-TS     | CCP-18N130-TDS | CCP-18N13C-TDS    |
| INDICATOR                                                    |              | YES               |               | YES               |                | YES               |
| TTL                                                          |              |                   | YES           | YES               |                |                   |
| DECODERS & TTL                                               |              |                   |               |                   | YES            | YES               |
| PIN NO.                                                      | 9-PIN        | 9-PIN             | 9-PIN         | 9-PIN             | 9-PIN          | 9-PIN             |
| 1                                                            | PORT 1       | PORT 1            | PORT 1        | PORT 1            | LOGIC 1        | LOGIC 1           |
| 2                                                            | PORT 2       | PORT 2            | PORT 2        | PORT 2            | LOGIC 2        | LOGIC 2           |
| 3                                                            | PORT 3       | PORT 3            | PORT 3        | PORT 3            |                |                   |
| 4                                                            |              | E INDICATOR       |               | E INDICATOR       |                | E INDICATOR       |
| 5                                                            |              | F INDICATOR       |               | F INDICATOR       |                | F INDICATOR       |
| 6                                                            |              | G INDICATOR       |               | G INDICATOR       |                | G INDICATOR       |
| 7                                                            | COMMON       | COMMON            | COMMON        | COMMON            | COMMON         | COMMON            |
| 8                                                            |              |                   | VSW           | VSW               | VSW            | VSW               |
| 9                                                            |              | D INDICATOR (COM) |               | D INDICATOR (COM) |                | D INDICATOR (COM) |

| CONNECTOR PINOUT FOR NORMALLY OPEN SP4T MULTI-THROW SWITCHES |              |                   |               |                   |                |                   |
|--------------------------------------------------------------|--------------|-------------------|---------------|-------------------|----------------|-------------------|
| EXAMPLE                                                      | CCP-18N140-S | CCP-18N14C-S      | CCP-18N140-TS | CCP-18N14C-TS     | CCP-18N140-TDS | CCP-18N14C-TDS    |
| INDICATOR                                                    |              | YES               |               | YES               |                | YES               |
| TTL                                                          |              |                   | YES           | YES               |                |                   |
| DECODERS & TTL                                               |              |                   |               |                   | YES            | YES               |
| PIN NO.                                                      | 9-PIN        | 15-PIN            | 9-PIN         | 15-PIN            | 9-PIN          | 15-PIN            |
| 1                                                            | PORT 1       | PORT 1            | TTL 1         | TTL 1             | LOGIC 1        | LOGIC 1           |
| 2                                                            | PORT 2       | PORT 2            | TTL 2         | TTL 2             | LOGIC 2        | LOGIC 2           |
| 3                                                            | PORT 3       | PORT 3            | TTL 3         | TTL 3             | LOGIC 3        | LOGIC 3           |
| 4                                                            | PORT 4       | PORT 4            | TTL 4         | TTL 4             |                |                   |
| 5                                                            |              |                   |               |                   |                |                   |
| 6                                                            |              |                   |               |                   |                |                   |
| 7                                                            | COMMON       | COMMON            | COMMON        | COMMON            | COMMON         | COMMON            |
| 8                                                            |              |                   | VSW           | VSW               | VSW            | VSW               |
| 9                                                            |              | D INDICATOR (COM) |               | D INDICATOR (COM) |                | D INDICATOR (COM) |
| 10                                                           | N/A          | E INDICATOR       | N/A           | E INDICATOR       | N/A            | E INDICATOR       |
| 11                                                           |              | F INDICATOR       |               | F INDICATOR       |                | F INDICATOR       |
| 12                                                           |              | G INDICATOR       |               | G INDICATOR       |                | G INDICATOR       |
| 13                                                           |              | H INDICATOR       |               | H INDICATOR       |                | H INDICATOR       |
| 14                                                           |              |                   |               |                   |                |                   |
| 15                                                           |              |                   |               |                   |                |                   |



# Series CCP-18N

Low PIM Multi-Throw DC–3 GHz  
Normally Open Coaxial Switch



| CONNECTOR PINOUT FOR NORMALLY OPEN SP5T MULTI-THROW SWITCHES |              |                   |               |                   |                |                   |
|--------------------------------------------------------------|--------------|-------------------|---------------|-------------------|----------------|-------------------|
| EXAMPLE                                                      | CCP-18N150-S | CCP-18N15C-S      | CCP-18N150-TS | CCP-18N15C-TS     | CCP-18N150-TDS | CCP-18N15C-TDS    |
| INDICATOR                                                    |              | YES               |               | YES               |                | YES               |
| TTL                                                          |              |                   | YES           | YES               |                |                   |
| DECODERS & TTL                                               |              |                   |               |                   | YES            | YES               |
| PIN NO.                                                      | 9-PIN        | 15-PIN            | 9-PIN         | 15-PIN            | 9-PIN          | 15-PIN            |
| 1                                                            | PORT 1       | PORT 1            | TTL 1         | TTL 1             | LOGIC 1        | LOGIC 1           |
| 2                                                            | PORT 2       | PORT 2            | TTL 2         | TTL 2             | LOGIC 2        | LOGIC 2           |
| 3                                                            | PORT 3       | PORT 3            | TTL 3         | TTL 3             | LOGIC 3        | LOGIC 3           |
| 4                                                            | PORT 4       | PORT 4            | TTL 4         | TTL 4             |                |                   |
| 5                                                            | PORT 5       | PORT 5            | TTL 5         | TTL 5             |                |                   |
| 6                                                            |              |                   |               |                   |                |                   |
| 7                                                            | COMMON       | COMMON            | COMMON        | COMMON            | COMMON         | COMMON            |
| 8                                                            |              |                   | VSW           | VSW               | VSW            | VSW               |
| 9                                                            |              | D INDICATOR (COM) |               | D INDICATOR (COM) |                | D INDICATOR (COM) |
| 10                                                           | N/A          | E INDICATOR       | N/A           | E INDICATOR       | N/A            | E INDICATOR       |
| 11                                                           |              | F INDICATOR       |               | F INDICATOR       |                | F INDICATOR       |
| 12                                                           |              | G INDICATOR       |               | G INDICATOR       |                | G INDICATOR       |
| 13                                                           |              | H INDICATOR       |               | H INDICATOR       |                | H INDICATOR       |
| 14                                                           |              | K INDICATOR       |               | K INDICATOR       |                | K INDICATOR       |
| 15                                                           |              |                   |               |                   |                |                   |

| CONNECTOR PINOUT FOR NORMALLY OPEN SP6T MULTI-THROW SWITCHES |              |                   |               |                   |                |                   |
|--------------------------------------------------------------|--------------|-------------------|---------------|-------------------|----------------|-------------------|
| EXAMPLE                                                      | CCP-18N160-S | CCP-18N16C-S      | CCP-18N160-TS | CCP-18N16C-TS     | CCP-18N160-TDS | CCP-18N16C-TDS    |
| INDICATOR                                                    |              | YES               |               | YES               |                | YES               |
| TTL                                                          |              |                   | YES           | YES               |                |                   |
| DECODERS & TTL                                               |              |                   |               |                   | YES            | YES               |
| PIN NO.                                                      | 9-PIN        | 15-PIN            | 9-PIN         | 15-PIN            | 9-PIN          | 15-PIN            |
| 1                                                            | PORT 1       | PORT 1            | TTL 1         | TTL 1             | LOGIC 1        | LOGIC 1           |
| 2                                                            | PORT 2       | PORT 2            | TTL 2         | TTL 2             | LOGIC 2        | LOGIC 2           |
| 3                                                            | PORT 3       | PORT 3            | TTL 3         | TTL 3             | LOGIC 3        | LOGIC 3           |
| 4                                                            | PORT 4       | PORT 4            | TTL 4         | TTL 4             |                |                   |
| 5                                                            | PORT 5       | PORT 5            | TTL 5         | TTL 5             |                |                   |
| 6                                                            | PORT 6       | PORT 6            | TTL 6         | TTL 6             |                |                   |
| 7                                                            | COMMON       | COMMON            | COMMON        | COMMON            | COMMON         | COMMON            |
| 8                                                            |              |                   | VSW           | VSW               | VSW            | VSW               |
| 9                                                            |              | D INDICATOR (COM) |               | D INDICATOR (COM) |                | D INDICATOR (COM) |
| 10                                                           |              | E INDICATOR       |               | E INDICATOR       |                | E INDICATOR       |
| 11                                                           |              | F INDICATOR       |               | F INDICATOR       |                | F INDICATOR       |
| 12                                                           |              | G INDICATOR       |               | G INDICATOR       |                | G INDICATOR       |
| 13                                                           |              | H INDICATOR       |               | H INDICATOR       |                | H INDICATOR       |
| 14                                                           |              | K INDICATOR       |               | K INDICATOR       |                | K INDICATOR       |
| 15                                                           |              | L INDICATOR       |               | L INDICATOR       |                | L INDICATOR       |

**TRUTH TABLE Normally Open**  
**CCP-18NX3C-T**

| Logic Input |   |   | RF Path |     |     | Indicator Switches |   |   |
|-------------|---|---|---------|-----|-----|--------------------|---|---|
| 1           | 2 | 3 | J1      | J2  | J3  | E                  | F | G |
| 1           | 0 | 0 | On      | Off | Off | C                  | 0 | 0 |
| 0           | 1 | 0 | Off     | On  | Off | 0                  | C | 0 |
| 0           | 0 | 1 | Off     | Off | On  | 0                  | 0 | C |

**TRUTH TABLE Normally Open**  
**CCP-18NX3C-TD**

| Logic Input |   | RF Path |     |     | Indicator Switches |   |   |
|-------------|---|---------|-----|-----|--------------------|---|---|
| 1           | 2 | J1      | J2  | J3  | E                  | F | G |
| 0           | 0 | On      | Off | Off | C                  | 0 | 0 |
| 1           | 0 | Off     | On  | Off | 0                  | C | 0 |
| 0           | 1 | Off     | Off | On  | 0                  | 0 | C |
| 1           | 1 | Off     | Off | Off | 0                  | 0 | 0 |

**TRUTH TABLE Normally Open**  
**CCP-18NX4C-T**

| Logic Input |   |   |   | RF Path |     |     |     | Indicator Switches |   |   |   |
|-------------|---|---|---|---------|-----|-----|-----|--------------------|---|---|---|
| 1           | 2 | 3 | 4 | J1      | J2  | J3  | J4  | E                  | F | G | H |
| 1           | 0 | 0 | 0 | On      | Off | Off | Off | C                  | 0 | 0 | 0 |
| 0           | 1 | 0 | 0 | Off     | On  | Off | Off | 0                  | C | 0 | 0 |
| 0           | 0 | 1 | 0 | Off     | Off | On  | Off | 0                  | 0 | C | 0 |
| 0           | 0 | 0 | 1 | Off     | Off | Off | On  | 0                  | 0 | 0 | C |

**TRUTH TABLE Normally Open**  
**CCP-18NX4C-TD**

| Logic Input |   |   | RF Path |     |     |     | Indicator Switches |   |   |   |
|-------------|---|---|---------|-----|-----|-----|--------------------|---|---|---|
| 1           | 2 | 3 | J1      | J2  | J3  | J4  | E                  | F | G | H |
| 0           | 0 | 0 | On      | Off | Off | Off | C                  | 0 | 0 | 0 |
| 1           | 0 | 0 | Off     | On  | Off | Off | 0                  | C | 0 | 0 |
| 0           | 1 | 0 | Off     | Off | On  | Off | 0                  | 0 | C | 0 |
| 1           | 1 | 0 | Off     | Off | Off | On  | 0                  | 0 | 0 | C |
| 1           | 1 | 1 | Off     | Off | Off | Off | 0                  | 0 | 0 | 0 |

# Series CCP-18N

Low PIM Multi-Throw DC–3 GHz  
Normally Open Coaxial Switch



TRUTH TABLE Normally Open  
CCP-18NX5C-T

| Logic Input |   |   |   |   | RF Path |     |     |     |     | Indicator Switches |   |   |   |   |
|-------------|---|---|---|---|---------|-----|-----|-----|-----|--------------------|---|---|---|---|
| 1           | 2 | 3 | 4 | 5 | J1      | J2  | J3  | J4  | J5  | E                  | F | G | H | K |
| 1           | 0 | 0 | 0 | 0 | On      | Off | Off | Off | Off | C                  | 0 | 0 | 0 | 0 |
| 0           | 1 | 0 | 0 | 0 | Off     | On  | Off | Off | Off | 0                  | C | 0 | 0 | 0 |
| 0           | 0 | 1 | 0 | 0 | Off     | Off | On  | Off | Off | 0                  | 0 | C | 0 | 0 |
| 0           | 0 | 0 | 1 | 0 | Off     | Off | Off | On  | Off | 0                  | 0 | 0 | C | 0 |
| 0           | 0 | 0 | 0 | 1 | Off     | Off | Off | Off | On  | 0                  | 0 | 0 | 0 | C |

TRUTH TABLE Normally Open  
CCP-18NX5C-TD

| Logic Input |   |   | RF Path |     |     |     |     | Indicator Switches |   |   |   |   |
|-------------|---|---|---------|-----|-----|-----|-----|--------------------|---|---|---|---|
| 1           | 2 | 3 | J1      | J2  | J3  | J4  | J5  | E                  | F | G | H | K |
| 0           | 0 | 0 | On      | Off | Off | Off | Off | C                  | 0 | 0 | 0 | 0 |
| 1           | 0 | 0 | Off     | On  | Off | Off | Off | 0                  | C | 0 | 0 | 0 |
| 0           | 1 | 0 | Off     | Off | On  | Off | Off | 0                  | 0 | C | 0 | 0 |
| 1           | 1 | 0 | Off     | Off | Off | On  | Off | 0                  | 0 | 0 | C | 0 |
| 0           | 0 | 1 | Off     | Off | Off | Off | On  | 0                  | 0 | 0 | 0 | C |
| 1           | 1 | 1 | Off     | Off | Off | Off | Off | 0                  | 0 | 0 | 0 | 0 |

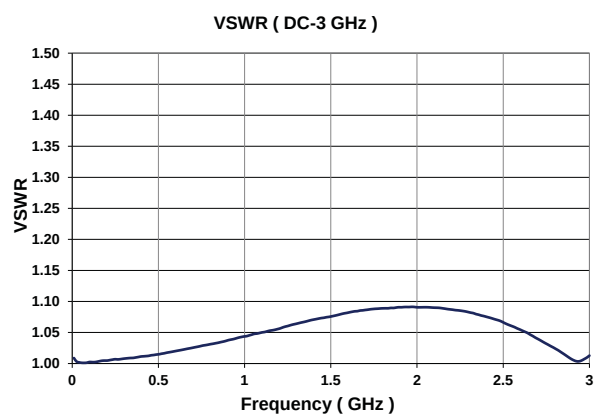
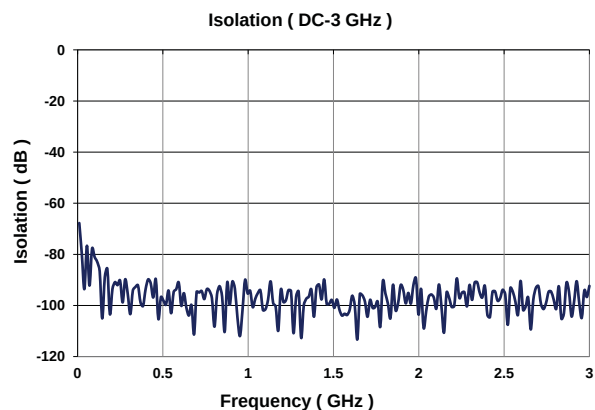
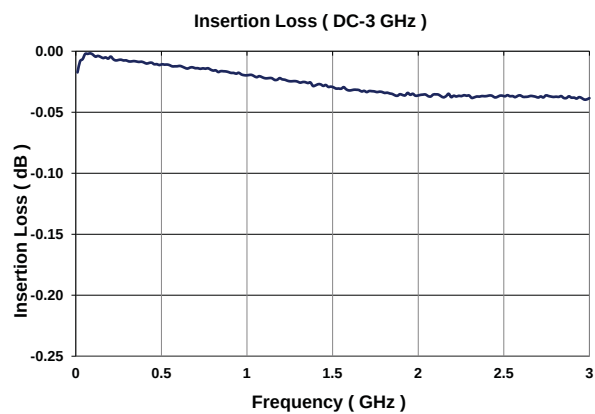
TRUTH TABLE Normally Open  
CCP-18NX6C-T

| Logic Input |   |   |   |   |   | RF Path |     |     |     |     |     | Indicator Switches |   |   |   |   |   |
|-------------|---|---|---|---|---|---------|-----|-----|-----|-----|-----|--------------------|---|---|---|---|---|
| 1           | 2 | 3 | 4 | 5 | 6 | J1      | J2  | J3  | J4  | J5  | J6  | E                  | F | G | H | K | L |
| 1           | 0 | 0 | 0 | 0 | 0 | On      | Off | Off | Off | Off | Off | C                  | 0 | 0 | 0 | 0 | 0 |
| 0           | 1 | 0 | 0 | 0 | 0 | Off     | On  | Off | Off | Off | Off | 0                  | C | 0 | 0 | 0 | 0 |
| 0           | 0 | 1 | 0 | 0 | 0 | Off     | Off | On  | Off | Off | Off | 0                  | 0 | C | 0 | 0 | 0 |
| 0           | 0 | 0 | 1 | 0 | 0 | Off     | Off | Off | On  | Off | Off | 0                  | 0 | 0 | C | 0 | 0 |
| 0           | 0 | 0 | 0 | 1 | 0 | Off     | Off | Off | Off | On  | Off | 0                  | 0 | 0 | 0 | C | 0 |
| 0           | 0 | 0 | 0 | 0 | 1 | Off     | Off | Off | Off | Off | On  | 0                  | 0 | 0 | 0 | 0 | C |

TRUTH TABLE Normally Open  
CCP-18NX6C-TD

| Logic Input |   |   | RF Path |     |     |     |     |     | Indicator Switches |   |   |   |   |   |
|-------------|---|---|---------|-----|-----|-----|-----|-----|--------------------|---|---|---|---|---|
| 1           | 2 | 3 | J1      | J2  | J3  | J4  | J5  | J6  | E                  | F | G | H | K | L |
| 0           | 0 | 0 | On      | Off | Off | Off | Off | Off | C                  | 0 | 0 | 0 | 0 | 0 |
| 1           | 0 | 0 | Off     | On  | Off | Off | Off | Off | 0                  | C | 0 | 0 | 0 | 0 |
| 0           | 1 | 0 | Off     | Off | On  | Off | Off | Off | 0                  | 0 | C | 0 | 0 | 0 |
| 1           | 1 | 0 | Off     | Off | Off | On  | Off | Off | 0                  | 0 | 0 | C | 0 | 0 |
| 0           | 0 | 1 | Off     | Off | Off | Off | On  | Off | 0                  | 0 | 0 | 0 | C | 0 |
| 1           | 0 | 1 | Off     | Off | Off | Off | Off | On  | 0                  | 0 | 0 | 0 | 0 | C |
| 1           | 1 | 1 | Off     | Off | Off | Off | Off | Off | 0                  | 0 | 0 | 0 | 0 | 0 |

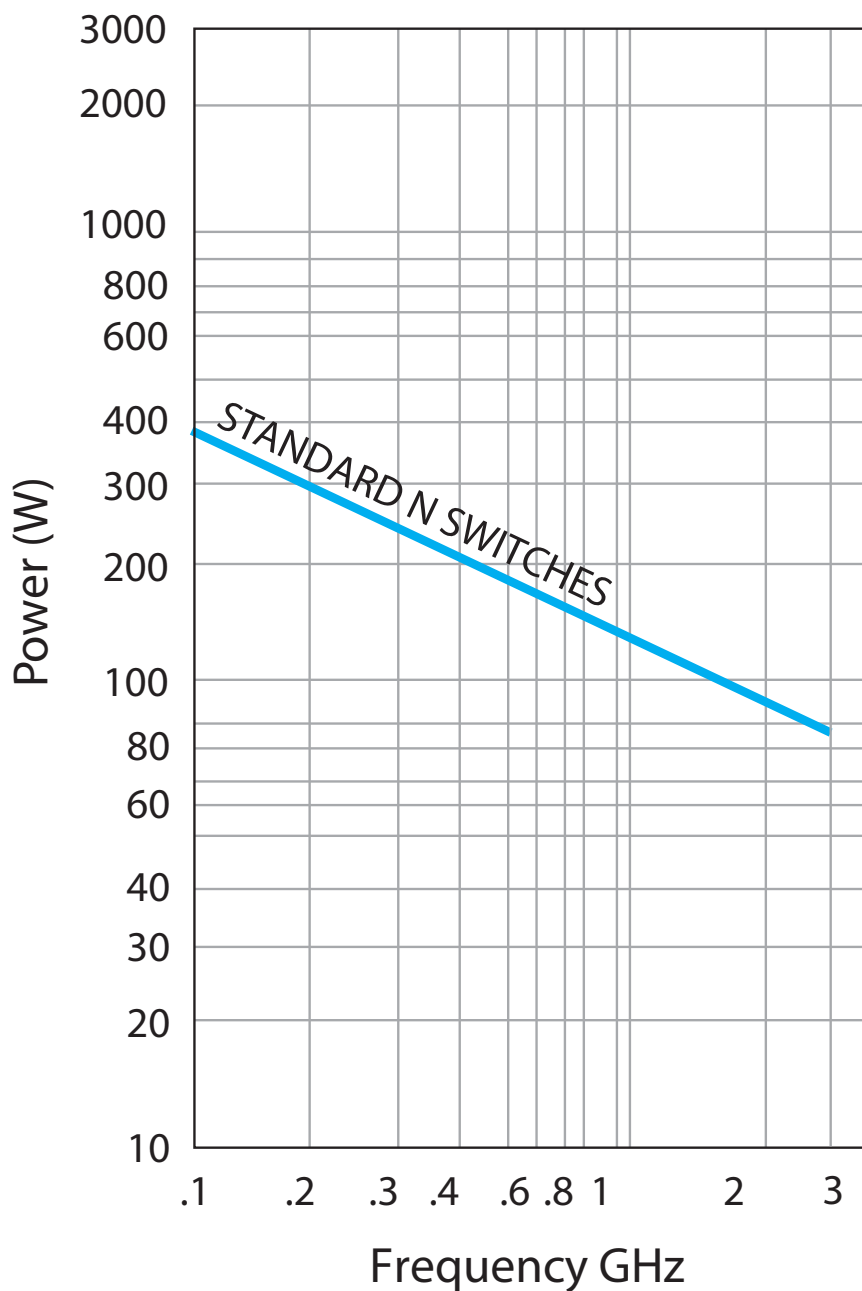
TYPICAL BROADBAND RF PERFORMANCE CURVES



RF NOTES

TYPICAL POWER PERFORMANCE CURVE

## Power Handling vs. Frequency



Estimates based on the following reference conditions:

- Ambient temperature of 40°C or less
- Sea level operation
- Load VSWR of 1.20:1 maximum
- No high-power (hot) switching

Please contact Teledyne Coax Switches for derating factors when applications do not meet the foregoing reference conditions.



## GLOSSARY

### Actuator

An actuator is the electromechanical mechanism that transfers the RF contacts from one position to another upon DC command.

### Arc Suppression Diode

A diode is connected in parallel with the coil. This diode limits the “reverse EMF spike” generated when the coil de-energizes to 0.7 volts. The diode cathode is connected to the positive side of the coil and the anode is connected to the negative side.

### Date Code

All switches are marked with either a unique serial number or a date code. Date codes are in accordance with MIL-STD-1285 Paragraph 5.2.5 and consist of four digits. The first two digits define the year and the last two digits define the week of the year (YYWW). Thus, 1032 identifies switches that passed through final inspection during the 32nd week of 2010.

### Indicator

Indicators tell the system which position the switch is in. Other names for indicators are telemetry contacts or tellback circuit. Indicators are usually a set of internally mounted DC contacts linked to the actuator. They can be wired to digital input lines, status lights, or interlocks. Unless otherwise specified, the maximum indicator contact rating is 30 Vdc, 50 mA, or 1.5 Watts into a resistive load.

### Isolation

Isolation is the measure of the power level at the output connector of an unconnected RF channel as referenced to the power at the input connector. It is specified in dB below the input power level.

### Multi-Throw Switch

A multi-throw switch is a switch with one input and three or more output ports. The CCS-18 can switch a microwave signal to any of 2,3,4,5 or 6 output from a single common input.

### Switching Time

Switching time is the total interval beginning with the arrival of the leading edge of the command pulse at the switch DC input and ending with the completion of the switch transfer, including contact bounce. It consists of three parts: (1) inductive delay in the coil, (2) transfer time of the physical movement of the contacts, and (3) the bounce time of the RF contacts.

### TTL Switch Driver Option

As a special option, switch drivers can be provided for both failsafe and latching switches, which are compatible with industry-standard low-power Schottky TTL circuits.

### TD-Option

This option includes a decoder. The 3-bit parallel command is decoded to internally select the appropriate position. See the logic tables. The TD-Option increases the Vsw supply current demand by 50mA max at 28Vdc and +20°C.

### Performance Parameters vs Frequency

Generally speaking, the RF performance of coaxial switches is frequency dependent. With increasing frequency, VSWR and insertion loss increase while isolation decreases. All data sheets specify these three parameters as “worst case” at the highest operating frequency. If the switch is to be used over a narrow frequency band, better performance can be achieved.

### Actuator Current vs Temperature

The resistance of the actuator coil varies as a function of temperature. There is an inverse relationship between the operating temperature of the switch and the actuator drive current. For switches operating at 28 VDC, the approximate actuator drive current at temperature, T, can be calculated using the equation:

$$I_T = \frac{I_A}{[1 + .00385 (T-20)]}$$

Where:

$I_T$  = Actuator current at temperature, T

$I_A$  = Room temperature actuator current – see data sheet

T = Temperature of interest in °C

### Magnetic Sensitivity

An electro-mechanical switch can be sensitive to ferrous materials and external magnetic fields. Neighboring ferrous materials should be permitted no closer than 0.5 inches and adjacent external magnetic fields should be limited to a flux density of less than 5 Gauss.

# Series CCP-18N

Low PIM Multi-Throw DC–3 GHz  
Normally Open Coaxial Switch



## NORMALLY OPEN CCP-18N PART NUMBER LIST

|    | PART No.        |    | PART No.        |     | PART No.        |
|----|-----------------|----|-----------------|-----|-----------------|
| 1  | CCP-18NX3C      | 43 | CCP-18NX40      | 85  | CCP-18NX6C      |
| 2  | CCP-18NX3C-D    | 44 | CCP-18NX40-D    | 86  | CCP-18NX6C-D    |
| 3  | CCP-18NX3C-DM   | 45 | CCP-18NX40-DM   | 87  | CCP-18NX6C-DM   |
| 4  | CCP-18NX3C-M    | 46 | CCP-18NX40-M    | 88  | CCP-18NX6C-M    |
| 5  | CCP-18NX3C-MS   | 47 | CCP-18NX40-MS   | 89  | CCP-18NX6C-MS   |
| 6  | CCP-18NX3C-S    | 48 | CCP-18NX40-S    | 90  | CCP-18NX6C-S    |
| 7  | CCP-18NX3C-T    | 49 | CCP-18NX40-T    | 91  | CCP-18NX6C-T    |
| 8  | CCP-18NX3C-TD   | 50 | CCP-18NX40-TD   | 92  | CCP-18NX6C-TD   |
| 9  | CCP-18NX3C-TDM  | 51 | CCP-18NX40-TDM  | 93  | CCP-18NX6C-TDM  |
| 10 | CCP-18NX3C-TDMS | 52 | CCP-18NX40-TDMS | 94  | CCP-18NX6C-TDMS |
| 11 | CCP-18NX3C-TDS  | 53 | CCP-18NX40-TDS  | 95  | CCP-18NX6C-TDS  |
| 12 | CCP-18NX3C-TM   | 54 | CCP-18NX40-TM   | 96  | CCP-18NX6C-TM   |
| 13 | CCP-18NX3C-TMS  | 55 | CCP-18NX40-TMS  | 97  | CCP-18NX6C-TMS  |
| 14 | CCP-18NX3C-TS   | 56 | CCP-18NX40-TS   | 98  | CCP-18NX6C-TS   |
| 15 | CCP-18NX30      | 57 | CCP-18NX5C      | 99  | CCP-18NX60      |
| 16 | CCP-18NX30-D    | 58 | CCP-18NX5C-D    | 100 | CCP-18NX60-D    |
| 17 | CCP-18NX30-DM   | 59 | CCP-18NX5C-DM   | 101 | CCP-18NX60-DM   |
| 18 | CCP-18NX30-M    | 60 | CCP-18NX5C-M    | 102 | CCP-18NX60-M    |
| 19 | CCP-18NX30-MS   | 61 | CCP-18NX5C-MS   | 103 | CCP-18NX60-MS   |
| 20 | CCP-18NX30-S    | 62 | CCP-18NX5C-S    | 104 | CCP-18NX60-S    |
| 21 | CCP-18NX30-T    | 63 | CCP-18NX5C-T    | 105 | CCP-18NX60-T    |
| 22 | CCP-18NX30-TD   | 64 | CCP-18NX5C-TD   | 106 | CCP-18NX60-TD   |
| 23 | CCP-18NX30-TDM  | 65 | CCP-18NX5C-TDM  | 107 | CCP-18NX60-TDM  |
| 24 | CCP-18NX30-TDMS | 66 | CCP-18NX5C-TDMS | 108 | CCP-18NX60-TDMS |
| 25 | CCP-18NX30-TDS  | 67 | CCP-18NX5C-TDS  | 109 | CCP-18NX60-TDS  |
| 26 | CCP-18NX30-TM   | 68 | CCP-18NX5C-TM   | 110 | CCP-18NX60-TM   |
| 27 | CCP-18NX30-TMS  | 69 | CCP-18NX5C-TMS  | 111 | CCP-18NX60-TMS  |
| 28 | CCP-18NX30-TS   | 70 | CCP-18NX5C-TS   | 112 | CCP-18NX60-TS   |
| 29 | CCP-18NX4C      | 71 | CCP-18NX50      |     |                 |
| 30 | CCP-18NX4C-D    | 72 | CCP-18NX50-D    |     |                 |
| 31 | CCP-18NX4C-DM   | 73 | CCP-18NX50-DM   |     |                 |
| 32 | CCP-18NX4C-M    | 74 | CCP-18NX50-M    |     |                 |
| 33 | CCP-18NX4C-MS   | 75 | CCP-18NX50-MS   |     |                 |
| 34 | CCP-18NX4C-S    | 76 | CCP-18NX50-S    |     |                 |
| 35 | CCP-18NX4C-T    | 77 | CCP-18NX50-T    |     |                 |
| 36 | CCP-18NX4C-TD   | 78 | CCP-18NX50-TD   |     |                 |
| 37 | CCP-18NX4C-TDM  | 79 | CCP-18NX50-TDM  |     |                 |
| 38 | CCP-18NX4C-TDMS | 80 | CCP-18NX50-TDMS |     |                 |
| 39 | CCP-18NX4C-TDS  | 81 | CCP-18NX50-TDS  |     |                 |
| 40 | CCP-18NX4C-TM   | 82 | CCP-18NX50-TM   |     |                 |
| 41 | CCP-18NX4C-TMS  | 83 | CCP-18NX50-TMS  |     |                 |
| 42 | CCP-18NX4C-TS   | 84 | CCP-18NX50-TS   |     |                 |

\* X = 1 (28Vdc), 2 (15Vdc), 3 (12Vdc) and 4 (24Vdc)