Keysight Technologies
M9170A PXI Attenuator/Switch Driver Module

Configuration Guide

KEYSIGHT TECHNOLOGIES

Unlocking Measurement Insights

Overview

This configuration guide will help you configure your PXI attenuator/switch driver module with the expansive portfolio of Keysight Technologies, Inc., RF and microwave step attenuators and electromechanical switches.

For more detailed product information and specifications, please refer to the following:

- M9170A Data Sheet (literature no. 5991-0130EN)
- M9170A Flyer (literature no. 5991-0053EN)

Key Features and Benefits

The M9170A is a one-slot PXI attenuator/switch driver module that provides drive control for the Keysight Technologies, Inc. RF and microwave step attenuators and electromechanical switches. This cost effective solution offers limitless topologies for creating various configurations for signal routing and signal conditioning, driving external switches and attenuators through its dual 20-pin header.

- Drive up to 12 external SPDT switches, or 4 external SP4T/6T switches, or 12 transfer switches, or 2 external attenuators. Improve testing efficiency while maximizing the PXI chassis slot utilization, which ultimately improves testing efficiency.
- Dual voltage supply of 5V and 24V and dual driving mode for pulse and continuous, ensures biasing compatibility for most switches on the market, hence increasing system flexibility.
- Soft front panel provides a dynamic dashboard view and control of the connected attenuators or switches. Indicated on the front panel is the selected device model and the subsequent switch path or attenuation levels.
- Point-to-point interface cable options are available for connecting driver to switching device. Intuitive and direct configuration for all Keysight switches and attenuators.

Specifications

Drive Power Supply*	M9170A
Voltage	23 ± 10%
	4.5 ± 10%
Current	1.0A for 24V supply
	3.85A for 5V supply

*This refers to the output of the driver module.
TTL drive is not supported
Note 1: Total current limit per bank = 2A
Note 2: Current limit per channel = 0.5A
Note 3 : Drive mode -pulsed (20 ms)
-continuous

Product configurations

This document will serve as a step-by-step guide to configure the point-to-point connection between the M9170A with Keysight's attenuators and electromechanical switches. Please refer to the various figures detailing the type of customized interface cables, switch/attenuator options, and most importantly, the cross-reference tables that provide all the necessary details (i.e. pin numbers, wires colors, etc.) to connect the varied combinations of switches or attenuators to the M9170A module.

Cable option	Part number	Description
Option 001	M9170-20005	20 pin to 6x10 pin interface cable assembly
Option 002	M9170-20008	20 pin to 10 pin interface cable assembly
Option 003	M9170-20009	20 pin to 12 pin Viking interface cable assembly
Option 501	M9170-20007	20 pin to 6x9 pin D-Sub interface cable assembly
Option 601	M9170-20004	20 pin to 2x16 pin interface cable assembly
Option 201	M9170-20006	20 pin to bare wire interface cable assembly

Five Simple Steps to Configure Your Switching System

Step 1. Determine the device's model and option (DC connector)

Example Model: 87104D (SP4T switch)
Option: 100 (solder terminal)

Step 2. Determine the M9170A's interface cable option

Example Model: M9170
Option 201 (20 pin to bare wire interface cable assembly)

Step 3. Use the selection guide, Table 1 for switches and Table 2 for attenuators to determine which configuration table to use for further reference.

Example Selection Guide: Table 1 (for switches)
Configuration Table: Table 5-A

Table 1: Selection guide for switches

Switch family	Switch model number	Switch option	M9170A 002	001	003	501	601	201
Bypass	8763A, 8763B, 8763C	011/024						Table 3-B
	8764A, 8764B, 8764C	011/024						Table 3-C
	N1811TL	202						Table 12-G
		201				Table 12-H		
	N1812UL	202						Table 12-E
		201				Table 12-F		
SPDT	8762A, 8762B, 8762C, 8762F	011/024						Table 3-A
	8765A, 8765B, 8765C, 8765D, 8765F	305/324						Table 4
	N1810UL	202						Table 12-A
		201				Table 12-B		
	N1810TL	202						Table 12-C
		201				Table 12-D		
SP3T	8766K	060			Table 9			
SP4T	87104A, 87104B, 87104C, 87104D	100						Table 5-A
		161					Table 5-B	
	87204A, 87204B, 87204C	100						Table 6
	L7104A, L7104B, L7104C	100						Table 5-A
		161					Table 5-B	

Step 4. Configure your switching system using Table 5-A (page 9) as a reference

Table 5-A. Configuration of M9170A (Option 201) to 87104A/B/C/D, L7104A/B/C and L7204A/B/C SP4T (Option 100)

From M9170A (Option 201) Interface cable		To 87104A/B/C/D, L7104A/B/C and L7204A/B/C SP4T (Option 100)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	1	Vcc for DUT 1	DUT 1
4	Orange	15	GND for DUT 1	
2	Green	5	2 to C closed	
3	Red	7	3 to C closed	
5	Black/Pink	11	5 to C closed	
6	White	13	6 to C closed	
7	Black/Green	1	Vcc for DUT 2	
10	Violet	15	GND for DUT 2	

Step 5. System ready for operation.

Table 1: Selection guide for switches

Switch family	Switch model number	Switch option	M9170A 002	001	003	501	601	201
Bypass	8763A, 8763B, 8763C	011/024						Table 3-B
	8764A, 8764B, 8764C	011/024						Table 3-C
	N1811TL	202						Table 12-G
		201				Table 12-H		
	N1812UL	202						Table 12-E
		201				Table 12-F		
SPDT	8762A, 8762B, 8762C, 8762F	011/024						Table 3-A
	8765A, 8765B, 8765C, 8765D, 8765F	305/324						Table 4
	N1810UL	202						Table 12-A
		201				Table 12-B		
	N1810TL	202						Table 12-C
		201				Table 12-D		
SP3T	8766K	060			Table 9			
SP4T	87104A, 87104B, 87104C, 87104D	100						Table 5-A
		161					Table 5-B	
	87204A, 87204B, 87204C	100						Table 6
	L7104A, L7104B, L7104C	100						Table 5-A
		161					Table 5-B	
	L7204A, L7204B, L7204C	100						Table 5-A
		161					Table 5-B	
	8767K	060			Table 9			
	8767M	No Option	Table 10					
SP5T	8768K	060			Table 9			
	8768M	No Option	Table 10					
SP6T	87106A, 87106B, 87106C, 87106D	100						Table 7-A
		161					Table 7-B	
	87206A, 87206B, 87206C	100						Table 8
	L7106A, L7106B, L7106C	100						Table 7-A
		161					Table 7-B	
	L7206A, L7206B, L7206C	100						Table 7-A
		161					Table 7-B	
Matrix	87406B	100						Table 7-A
		161					Table 7-B	
	87606B	100						Table 8
Transfer	87222C, 87222D, 87222E	100						Table 11-A
		161		Table 11-B				
	L7222C	100						Table 11-A
		161		Table 11-B				

Table 1-A. Switch option descriptions

Option 011	5 Vdc
Option 024	24 Vdc
Option 201	D-submini 9 pin (f)
Option 202	Solder Lug
Option 305	5 Vdc with solder terminals
Option 324	24 Vdc with solder terminals
Option 060	Viking cable connector
Option 100	Solder terminals
Option 161	Ribbon receptacle

Table 2. Selection guide for attenuators

Attenuator model number	Connector type	M9170A	
		002	003
8494G, 8494H	12 pin Viking connector (Option 060)		Table 13
8495G, 8495H			Table 13
8496G, 8496H			Table 13
8495K			Table 13
8497K			Table 13
84904K, 84904L, 84904M	10 pin DIP connector	Table 14	
84905M		Table 14	
84906K, 84906L		Table 14	
84907K, 84907L		Table 14	
84908M		Table 14	

Configuration information for switches

Table 3-A. Configuration of M9170A (Option 201) to 8762A/B/C/F SPDT (Option 011/024)

From M9170A (Option 201) Interface cable		To 8762A/B/C/F SPDT (Option 011/024)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	C	VCC DUT 1	
2	Green	1	1 to C closed, 2 terminated	DUT 1
3	Red	2	2 to C closed, 1 terminated	
1	Yellow	C	VCC DUT 2	
5	Black/Pink	1	1 to C closed, 2 terminated	DUT 2
6	White	2	2 to C closed, 1 terminated	
7	Black/Green	C	VCC DUT 3	
8	Black/Yellow	1	1 to C closed, 2 terminated	DUT 3
9	Black	2	2 to C closed, 1 terminated	
11	Pink	C	VCC DUT 4	
12	Black/Gray	1	1 to C closed, 2 terminated	DUT 4
13	Black/White	2	2 to C closed, 1 terminated	
11	Pink	C	VCC DUT 5	
15	Gray	1	1 to C closed, 2 terminated	DUT 5
16	Black/Blue	2	2 to C closed, 1 terminated	
17	Black/Violet	C	VCC DUT 6	
18	Blue	1	1 to C closed, 2 terminated	DUT 6
19	Black/Red	2	2 to C closed, 1 terminated	

Table 3-B. Configuration of M9170A (Option 201) to 8763A/B/C bypass (Option 011/024)

From M9170A (Option 201) Interface cable		To 8763A/B/C bypass (Option 011/024)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	C	VCC DUT 1	
2	Green	1	1 to 2 closed, 3 to 4 closed	DUT 1
3	Red	2	1 terminated, 2 to 3 closed, 4 open	
1	Yellow	C	VCC DUT 2	
5	Black/Pink	1	1 to 2 closed, 3 to 4 closed	DUT 2
6	White	2	1 terminated, 2 to 3 closed, 4 open	
7	Black/Green	C	VCC DUT 3	
8	Black/Yellow	1	1 to 2 closed, 3 to 4 closed	DUT 3
9	Black	2	1 terminated, 2 to 3 closed, 4 open	
11	Pink	C	VCC DUT 4	
12	Black/Gray	1	1 to 2 closed, 3 to 4 closed	DUT 4
13	Black/White	2	1 terminated, 2 to 3 closed, 4 open	
11	Pink	C	VCC DUT 5	
15	Gray	1	1 to 2 closed, 3 to 4 closed	DUT 5
16	Black/Blue	2	1 terminated, 2 to 3 closed, 4 open	
17	Black/Violet	C	VCC DUT 6	
18	Blue	1	1 to 2 closed, 3 to 4 closed	DUT 6
19	Black/Red	2	1 terminated, 2 to 3 closed, 4 open	

Table 3-C. Configuration of M9170 (Option 201) to 8764A/B/C bypass (Option 011/024)

From M9170A (Option 201) Interface cable		To 8764A/B/C bypass (Option 011/024)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	C	VCC DUT 1	
2	Green	1	1 open, 2 to 3 closed, 4 to 5 closed	DUT 1
3	Red	2	1 to 2 closed, 3 to 4 closed, 5 open	
1	Yellow	C	VCC DUT 2	
5	Black/Pink	1	1 open, 2 to 3 closed, 4 to 5 closed	DUT 2
6	White	2	1 to 2 closed, 3 to 4 closed, 5 open	
7	Black/Green	C	VCC DUT 3	
8	Black/Yellow	1	1 open, 2 to 3 closed, 4 to 5 closed	DUT 3
9	Black	2	1 to 2 closed, 3 to 4 closed, 5 open	
11	Pink	C	VCC DUT 4	
12	Black/Gray	1	1 open, 2 to 3 closed, 4 to 5 closed	DUT 4
13	Black/White	2	1 to 2 closed, 3 to 4 closed, 5 open	
11	Pink	C	VCC DUT 5	
15	Gray	1	1 open, 2 to 3 closed, 4 to 5 closed	DUT 5
16	Black/Blue	2	1 to 2 closed, 3 to 4 closed, 5 open	
17	Black/Violet	C	VCC DUT 6	
18	Blue	1	1 open, 2 to 3 closed, 4 to 5 closed	DUT 6
19	Black/Red	2	1 to 2 closed, 3 to 4 closed, 5 open	

Table 4. Configuration of M9170A (Option 201) to 8765A/B/C/F SPDT (Option 305/324)

From M9170A (Option 201) Interface cable		To 8765A/B/C/F SPDT (Option 305/324)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	2 and 3	VCC DUT 1	
2	Green	1	2 to C closed, 1 open	DUT 1
3	Red	4	1 to C closed, 2 open	
1	Yellow	2 and 3	VCC DUT 2	
5	Black/Pink	1	2 to C closed, 1 open	DUT 2
6	White	4	1 to C closed, 2 open	
7	Black/Green	2 and 3	VCC DUT 3	
8	Black/Yellow	1	2 to C closed, 1 open	DUT 3
9	Black	4	1 to C closed, 2 open	
11	Pink	2 and 3	VCC DUT 4	
12	Black/Gray	1	2 to C closed, 1 open	DUT 4
13	Black/White	4	1 to C closed, 2 open	
11	Pink	2 and 3	VCC DUT 5	
15	Gray	1	2 to C closed, 1 open	DUT 5
16	Black/Blue	4	1 to C closed, 2 open	
17	Black/Violet	2 and 3	VCC DUT 6	
18	Blue	1	2 to C closed, 1 open	DUT 6
19	Black/Red	4	1 to C closed, 2 open	

Table 5-A. Configuration of M9170A (Option 201) to 87104A/B/C/D, L7104A/B/C and L7204A/B/C SP4T (Option 100)

From M9170A (Option 201) Interface cable		To 87104A/B/C/D, L7104A/B/C and L7204A/B/C SP4T (Option 100)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	1	Vcc for DUT 1	DUT 1
4	Orange	15	GND for DUT 1	
2	Green	5	2 to C closed	
3	Red	7	3 to C closed	
5	Black/Pink	11	5 to C closed	
6	White	13	6 to C closed	
7	Black/Green	1	Vcc for DUT 2	DUT 2
10	Violet	15	GND for DUT 2	
8	Black/Yellow	5	2 to C closed	
9	Black	7	3 to C closed	
12	Black/Gray	11	5 to C closed	
13	Black/White	13	6 to C closed	
17	Black /Violet	1	Vcc for DUT 3	DUT 3
20	Brown	15	GND for DUT 3	
15	Gray	5	2 to C closed	
16	Black/Blue	7	3 to C closed	
18	Blue	11	5 to C closed	
19	Black/Red	13	6 to C closed	

Table 5-B. Configuration of M9170A (Option 601) to 87104A/B/C/D, L7104A/B/C and L7204A/B/C SP4T (Option 161)

From M9170A (Option 601) Interface cable		To 87104A/B/C/D, L7104A/B/C and L7204A/B/C SP4T (Option 161)	
20 PIN	16-Pin number	RF path	Device under test (DUT)
1	1	Vcc for DUT 1	DUT 1
10	15	GND for DUT 1	
3	5	2 to C closed	
5	7	3 to C closed	
8	11	5 to C closed	
9	13	6 to C closed	
11	1	Vcc for DUT 1	DUT 2
20	15	GND for DUT 1	
13	5	2 to C closed	
15	7	3 to C closed	
18	11	5 to C closed	
19	13	6 to C closed	

Table 6. Configuration of M9170A (Option 201) to 87204A/B/C SP4T (Option 100)

From M9170A (Option 201) Interface cable		To 87204A/B/C SP4T (Option 100)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	1	Vcc for DUT 1	DUT 1
4	Orange	15	GND for DUT 1	
2	Green	5	2 to C closed	
3	Red	6	2 to C open	
5	Black/Pink	7	3 to C closed	
6	White	8	3 to C open	
8	Black/Yellow	11	5 to C closed	
9	Black	12	5 to C open	
12	Black/Gray	13	6 to C closed	
13	Black/White	14	6 to C open	

Table 7-A. Configuration of M9170A (Option 201) to 87106A/B/C/D, L7106A/B/C and L7206A/B/C SP6T (Option 100) and 87406B matrix (Option 100)

From M9170A (Option 201) Interface cable		To 87106A/B/C/D, L7106A/B/C and L7206A/B/C SP6T (Option 100) and 87406B matrix (Option 100)		
20 PIN	Bare wire cable	Solder terminal number	RF Path	Device under test (DUT)
1	Yellow	1	Vcc for DUT 1	DUT 1
10	Violet	15	GND for DUT 1	
2	Green	3	1 to C closed	
3	Red	5	2 to C closed	
5	Black/Pink	7	3 to C closed	
6	White	9	4 to C closed	
8	Black/Yellow	11	5 to C closed	
9	Black	13	6 to C closed	
11	Pink	1	Vcc for DUT	DUT 2
20	Brown	15	GND for DUT 1	
12	Black/Gray	3	1 to C closed	
13	Black/White	5	2 to C closed	
15	Gray	7	3 to C closed	
16	Black/Blue	9	4 to C closed	
18	Blue	11	5 to C closed	
19	Black/Red	13	6 to C closed	

Table 7-B. Configuration of M9170A (Option 601) to 87106A/B/C/D, L7106A/B/C and L7206A/B/C SP6T (Option 161) and 87406B matrix (Option 161)

From M9170A (Option 601) Interface cable		To 87106A/B/C/D, L7106A/B/C and L7206A/B/C SP6T (Option 161) and 87406B matrix (Option 161)	
20 PIN	16-Pin Number	RF path	Device under test (DUT)
1	1	Vcc for DUT 1	DUT 1
10	15	GND for DUT 1	
2	3	1 to C closed	
3	5	2 to C closed	
5	7	3 to C closed	
6	9	4 to C closed	
8	11	5 to C closed	
9	13	6 to C closed	
11	1	Vcc for DUT 1	DUT 2
20	15	GND for DUT 1	
12	3	1 to C closed	
13	5	2 to C closed	
15	7	3 to C closed	
16	9	4 to C closed	
18	11	5 to C closed	
19	13	6 to C closed	

Table 8. Configuration of M9170A (Option 201) to 87206A/B/C SP6T (Option 100) and 87606B matrix (Option 100)

From M9170A (Option 201) Interface cable		To 87206A/B/C SP6T (Option 100) and 87606B matrix (Option 100)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	1	Vcc to DUT 1	DUT 1
4	Orange	15	GND to DUT 1	
2	Green	3	1 to C closed	
3	Red	4	1 to C open	
5	Black/Pink	5	2 to C closed	
6	White	6	2 to C open	
8	Black/Yellow	7	3 to C closed	
9	Black	8	3 to C open	
12	Black/Gray	9	4 to C closed	
13	Black/White	10	4 to C open	
15	Gray	11	5 to C closed	
16	Black/Blue	12	5 to C open	
18	Blue	13	6 to C closed	
19	Black/Red	14	6 to C open	

Table 9. Configuration of M9170A (Option 003) to 8766K, 8767K and 8768K (Option 060)

From M9170A (Option 003) Interface cable		To 8766K, 8767K and 8768K (Option 060)		
		8766K	8767K	8768K
20 PIN	12 pin Viking	RF path	RF path	RF path
1	1	Vcc	Vcc	Vcc
2	5	Bypass 1	Bypass 3	Bypass 4
3	6	1 to C Closed	3 to C closed	4 to C closed
5	7	Bypass 2	Bypass 1	Bypass 2
6	8	2 to Closed	1 to C Closed	2 to Closed
8	9		Bypass 2	Bypass 3
9	10		2 to Closed	3 to C closed
12	11			Bypass 1
13	12			1 to C Closed

Table 10. Configuration of M9170 (Option 002) to 8767M/8768M

From M9170A (Option 002)		To 8767M/8768M	
Interface cable		8767M	8768M
20 PIN	10-Pin Dsub pin number	RF path	RF path
17	10	Vcc	Vcc
2	1	Bypass 3	Bypass 4
3	2	3 to C Closed	4 to C closed
6	5	Bypass 1	Bypass 2
12	8	1 to Closed	2 to C Closed
5	4	Bypass 2	Bypass 3
13	9	2 to Closed	3 to Closed
8	6	–	Bypass 1
9	7	–	1 to Closed

Table 11-A. Configuration of M9170A (Option 201) to L7222C and 87222C/D/E transfer (Option 100)

From M9170A (Option 201) Interface cable		To L7222C and 87222C/D/E transfer (Option 100)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	1	Vcc for DUT 1	DUT 1
4	Orange	9	GND for DUT 1	
2	Green	3	1 to 2 closed, 3 to 4 closed	
3	Red	5	1 to 4 closed, 2 to 3 closed	
1	Yellow	1	Vcc for DUT 2	DUT 2
4	Orange	9	GND for DUT 2	
5	Green	3	1 to 2 closed, 3 to 4 closed	
6	Red	5	1 to 4 closed, 2 to 3 closed	
7	Black/Green	1	Vcc for DUT 3	DUT 3
10	Violet	9	GND for DUT 3	
8	Black/Yellow	3	1 to 2 closed, 3 to 4 closed	
9	Black	5	1 to 4 closed, 2 to 3 closed	
11	Pink	1	Vcc for DUT 4	DUT 4
14	Black/Orange	9	GND for DUT 4	
12	Black/Gray	3	1 to 2 closed, 3 to 4 closed	
13	Black/White	5	1 to 4 closed, 2 to 3 closed	
11	Pink	1	Vcc for DUT 5	DUT 5
14	Black/Orange	9	GND for DUT 5	
15	Gray	3	1 to 4 closed, 2 to 3 closed	
16	Black/Blue	5	1 to 4 closed, 2 to 3 closed	
17	Black/Violet	1	Vcc for DUT 6	DUT 6
20	Brown	9	GND for DUT 6	
18	Blue	3	1 to 4 closed, 2 to 3 closed	
19	Black/Red	5	1 to 4 closed, 2 to 3 closed	

Table 11-B. Configuration of M9170 (Option 001) to L7222C and 87222C/D/E transfer (Option 161)

From M9170A (Option 001) Interface cable		To L7222C and 87222C/D/E transfer (Option 161)	
20 PIN	10-Pin Dsub pin number	RF path	Device under test (DUT)
1	1	Vcc for DUT 1	DUT 1
4	9	GND for DUT 1	
2	3	1 to 2 closed, 3 to 4 closed	
3	5	1 to 4 closed, 2 to 3 closed	
1	1	Vcc for DUT 2	DUT 2
4	9	GND for DUT 2	
5	3	1 to 2 closed, 3 to 4 closed	
6	5	1 to 4 closed, 2 to 3 closed	
7	1	Vcc for DUT 3	DUT 3
10	9	GND for DUT 3	
8	3	1 to 2 closed, 3 to 4 closed	
9	5	1 to 4 closed, 2 to 3 closed	
11	1	Vcc for DUT 4	DUT 4
14	9	GND for DUT 4	
12	3	1 to 2 closed, 3 to 4 closed	
13	5	1 to 4 closed, 2 to 3 closed	
11	1	Vcc for DUT 5	DUT 5
14	9	GND for DUT 5	
15	3	1 to 2 closed, 3 to 4 closed	
16	5	1 to 4 closed, 2 to 3 closed	
17	1	Vcc for DUT 6	DUT 6
20	9	GND for DUT 6	
18	3	1 to 2 closed, 3 to 4 closed	
19	5	1 to 4 closed, 2 to 3 closed	

Table 12-A. Configuration of M9170A (Option 201) to N1810UL SPDT (Option 202)

From M9170A (Option 201) Interface cable		To N1810UL SPDT (Option 202)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	+V	Vcc for DUT 1	DUT 1
4	Orange	GND	GND for DUT 1	
2	Green	A	1 to C closed, 2 Open	
3	Red	B	2 to C closed, 1 Open	
1	Yellow	+V	Vcc for DUT 2	DUT 2
4	Orange	GND	GND for DUT 2	
5	Black/Pink	A	1 to C closed, 2 Open	
6	White	B	2 to C closed, 1 Open	
7	Black/Green	+V	Vcc for DUT 2	DUT 3
10	Voilet	GND	GND for DUT 2	
8	Black/Yellow	A	1 to C closed, 2 Open	
9	Black	B	2 to C closed, 1 Open	
11	Pink	+V	Vcc for DUT 3	DUT 4
14	Black/Orange	GND	GND for DUT 3	
12	Black/Gray	A	1 to C closed, 2 Open	
13	Black/White	B	2 to C closed, 1 Open	
11	Pink	+V	Vcc for DUT 4	DUT 5
14	Black/Orange	GND	GND for DUT 4	
15	Gray	A	1 to C closed, 2 Open	
16	Black/Blue	B	2 to C closed, 1 Open	
17	Black/Violet	+V	Vcc for DUT 4	DUT 6
20	Brown	GND	GND for DUT 4	
18	Blue	A	1 to C closed, 2 Open	
19	Black/Red	B	2 to C closed, 1 Open	

Table 12-B. Configuration of M9170A (Option 501) to N1810UL SPDT (Option 201)

From M9170A (Option 501)		To N1810UL SPDT (Option 201)	
Interface cable			
20 PIN	9-Pin Dsub pin number	RF path	Device under test (DUT)
1	5	Vcc for DUT 1	DUT 1
4	1	GND for DUT 1	
2	4	1 to C close, 2 Open	
3	3	2 to C close, 1 Open	
1	5	Vcc for DUT 2	DUT 2
4	1	GND for DUT 2	
5	4	1 to C close, 2 Open	
6	3	2 to C close, 1 Open	
7	5	Vcc for DUT 2	DUT 3
10	1	GND for DUT 2	
8	4	1 to C close, 2 Open	
9	3	2 to C close, 1 Open	
11	5	Vcc for DUT 3	DUT 4
14	1	GND for DUT 3	
12	4	1 to C close, 2 Open	
13	3	2 to C close, 1 Open	
11	5	Vcc for DUT 4	DUT 5
14	1	GND for DUT 4	
15	4	1 to C close, 2 Open	
16	3	2 to C close, 1 Open	
17	5	Vcc for DUT 4	DUT 6
20	1	GND for DUT 4	
18	4	1 to C close, 2 Open	
19	3	2 to C close, 1 Open	

Table 12-C. Configuration of M9170A (Option 201) to N1810TL SPDT (Option 202)

From M9170A (Option 201) Interface cable		To N1810TL SPDT (Option 202)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	+V	Vcc for DUT 1	DUT 1
4	Orange	GND	GND for DUT 1	
2	Green	A	1 to C close, 2 terminated	
3	Red	B	2 to C close, 1 terminated	
1	Yellow	+V	Vcc for DUT 2	DUT 2
4	Orange	GND	GND for DUT 2	
5	Black/Pink	A	1 to C close, 2 terminated	
6	White	B	2 to C close, 1 terminated	
7	Black/Green	+V	Vcc for DUT 3	DUT 3
10	Voilet	GND	GND for DUT 3	
8	Black/Yellow	A	1 to C close, 2 terminated	
9	Black	B	2 to C close, 1 terminated	
11	Pink	+V	Vcc for DUT 4	DUT 4
14	Black/Orange	GND	GND for DUT 4	
12	Black/Gray	A	1 to C close, 2 terminated	
13	Black/White	B	2 to C close, 1 terminated	
11	Pink	+V	Vcc for DUT 5	DUT 5
14	Black/Orange	GND	GND for DUT 5	
15	Gray	A	1 to C close, 2 terminated	
16	Black/Blue	B	2 to C close, 1 terminated	
17	Black/Violet	+V	Vcc for DUT 6	DUT 6
20	Brown	GND	GND for DUT 6	
18	Blue	A	1 to C close, 2 terminated	
19	Black/Red	B	2 to C close, 1 terminated	

Table 12-D. Configuration of M9170A (Option 501) to N1810TL SPDT (Option 201)

From M9170A (Option 501) Interface cable		To N1810TL SPDT (Option 201)	
20 PIN	9-Pin Dsub pin number	RF path	Device under test (DUT)
1	5	Vcc for DUT 1	DUT 1
4	1	GND for DUT 1	
2	4	1 to C close, 2 terminated	
3	3	2 to C close, 1 terminated	
1	5	Vcc for DUT 2	DUT 2
4	1	GND for DUT 2	
5	4	1 to C close, 2 terminated	
6	3	2 to C close, 1 terminated	
7	5	Vcc for DUT 3	DUT 3
10	1	GND for DUT 3	
8	4	1 to C close, 2 terminated	
9	3	2 to C close, 1 terminated	
11	5	Vcc for DUT 4	DUT 4
14	1	GND for DUT 4	
12	4	1 to C close, 2 terminated	
13	3	2 to C close, 1 terminated	
11	5	Vcc for DUT 5	DUT 5
14	1	GND for DUT 5	
15	4	1 to C close, 2 terminated	
16	3	2 to C close, 1 terminated	
17	5	Vcc for DUT 6	DUT 6
20	1	GND for DUT 6	
18	4	1 to C close, 2 terminated	
19	3	2 to C close, 1 terminated	

Table 12-E. Configuration of M9170A (Option 201) to N1812UL bypass (Option 202)

From M9170A (Option 201) Interface cable		To N1812UL bypass (Option 202)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	+V	Vcc for DUT 1	DUT 1
4	Orange	GND	GND for DUT 1	
2	Green	A	1 to open, 2 to 3, 4 to 5	
3	Red	B	1 to 2, 3 to 4, 5 to open	
1	Yellow	+V	Vcc for DUT 2	DUT 2
4	Orange	GND	GND for DUT 2	
5	Black/Pink	A	1 to open, 2 to 3, 4 to 5	
6	White	B	1 to 2, 3 to 4, 5 to open	
7	Black/Green	+V	Vcc for DUT 3	DUT 3
10	Voilet	GND	GND for DUT 3	
8	Black/Yellow	A	1 to open, 2 to 3, 4 to 5	
9	Black	B	1 to 2, 3 to 4, 5 to open	
11	Pink	+V	Vcc for DUT 4	DUT 4
14	Black/Orange	GND	GND for DUT 4	
12	Black/Gray	A	1 to open, 2 to 3, 4 to 5	
13	Black/White	B	1 to 2, 3 to 4, 5 to open	
11	Pink	+V	Vcc for DUT 5	DUT 5
14	Black/Orange	GND	GND for DUT 5	
15	Gray	A	1 to open, 2 to 3, 4 to 5	
16	Black/Blue	B	1 to 2, 3 to 4, 5 to open	
17	Black/Violet	+V	Vcc for DUT 6	DUT 6
20	Brown	GND	GND for DUT 6	
18	Blue	A	1 to open, 2 to 3, 4 to 5	
19	Black/Red	B	1 to 2, 3 to 4, 5 to open	

Table 12-F. Configuration of M9170A (Option 501) to N1812UL bypass (Option 201)

From M9170A (Option 501) Interface cable		To N1812UL bypass (Option 201)	
20 PIN	9-Pin Dsub pin number	RF path	Device under test (DUT)
1	5	Vcc for DUT 1	DUT 1
4	1	GND for DUT 1	
2	4	1 to open, 2 to 3, 4 to 5	
3	3	1 to 2, 3 to 4, 5 to open	
1	5	Vcc for DUT 2	DUT 2
4	1	GND for DUT 2	
5	4	1 to open, 2 to 3, 4 to 5	
6	3	1 to 2, 3 to 4, 5 to open	
7	5	Vcc for DUT 3	DUT 3
10	1	GND for DUT 3	
8	4	1 to open, 2 to 3, 4 to 5	
9	3	1 to 2, 3 to 4, 5 to open	
11	5	Vcc for DUT 4	DUT 4
14	1	GND for DUT 4	
12	4	1 to open, 2 to 3, 4 to 5	
13	3	1 to 2, 3 to 4, 5 to open	
11	5	Vcc for DUT 5	DUT 5
14	1	GND for DUT 5	
15	4	1 to open, 2 to 3, 4 to 5	
16	3	1 to 2, 3 to 4, 5 to open	
17	5	Vcc for DUT 6	DUT 6
20	1	GND for DUT 6	
18	4	1 to open, 2 to 3, 4 to 5	
19	3	1 to 2, 3 to 4, 5 to open	

Table 12-G. Configuration of M9170A (Option 201) to N1811TL bypass (Option 202)

From M9170A (Option 201) Interface cable		To N1811TL bypass (Option 202)		
20 PIN	Bare wire cable	Solder terminal number	RF path	Device under test (DUT)
1	Yellow	+V	Vcc for DUT 1	DUT 1
4	Orange	GND	GND for DUT 1	
2	Green	A	1 to 2, 3 to 4	
3	Red	B	1 terminated, 2 to 3, 4 to open	
1	Yellow	+V	Vcc for DUT 2	DUT 2
4	Orange	GND	GND for DUT 2	
5	Black/Pink	A	1 to 2, 3 to 4	
6	White	B	1 terminated, 2 to 3, 4 to open	
7	Black/Green	+V	Vcc for DUT 3	DUT 3
10	Voilet	GND	GND for DUT 3	
8	Black/Yellow	A	1 to 2, 3 to 4	
9	Black	B	1 terminated, 2 to 3, 4 to open	
11	Pink	+V	Vcc for DUT 4	DUT 4
14	Black/Orange	GND	GND for DUT 4	
12	Black/Gray	A	1 to 2, 3 to 4	
13	Black/White	B	1 terminated, 2 to 3, 4 to open	
11	Pink	+V	Vcc for DUT 5	DUT 5
14	Black/Orange	GND	GND for DUT 5	
15	Gray	A	1 to 2, 3 to 4	
16	Black/Blue	B	1 terminated, 2 to 3, 4 to open	
17	Black/Violet	+V	Vcc for DUT 6	DUT 6
20	Brown	GND	GND for DUT 6	
18	Blue	A	1 to 2, 3 to 4	
19	Black/Red	B	1 terminated, 2 to 3, 4 to open	

Table 12-H. Configuration of M9170A (Option 501) to N1811TL bypass (Option 201)

From M9170A (Option 501) Interface cable		To N1811TL bypass (Option 201)	
20 PIN	**9-Pin Dsub pin number**	**RF path**	**Device under test (DUT)**
1	5	Vcc for DUT 1	DUT 1
4	1	GND for DUT 1	
2	4	1 to 2, 3 to 4	
3	3	1 terminated, 2 to 3, 4 to open	
1	5	Vcc for DUT 2	DUT 2
4	1	GND for DUT 2	
5	4	1 to 2, 3 to 4	
6	3	1 terminated, 2 to 3, 4 to open	
7	5	Vcc for DUT 3	DUT 3
10	1	GND for DUT 3	
8	4	1 to 2, 3 to 4	
9	3	1 terminated, 2 to 3, 4 to open	
11	5	Vcc for DUT 4	DUT 4
14	1	GND for DUT 4	
12	4	1 to 2, 3 to 4	
13	3	1 terminated, 2 to 3, 4 to open	
11	5	Vcc for DUT 5	DUT 5
14	1	GND for DUT 5	
15	4	1 to 2, 3 to 4	
16	3	1 terminated, 2 to 3, 4 to open	
17	5	Vcc for DUT 6	DUT 6
20	1	GND for DUT 6	
18	4	1 to 2, 3 to 4	
19	3	1 terminated, 2 to 3, 4 to open	

Configuration information for attenuators

Table 13. Configuration of M9170A (Option 003) to 8494G/H, 8495G/H, 8496G/H, 8495K and 8497K programmable attenuators (Option 060)

From M9170A (Option 003)		To 8494G/H,8495G/H, 8496G/H,8495K and 8497K programmable attenuators (Option 060)				
Interface cable		8494G/H	8495G/H	8496G/H	8495K	8497K
20 PIN	12 PIN Viking connector pin	Attenuation (dB)				
1	1	Vcc	Vcc	Vcc	Vcc	Vcc
2	5	0	0	0	0	0
3	6	1	10	10	10	10
5	7	0	0	0	0	0
6	8	2	20	20	20	20
8	9	0	0	0	0	0
9	10	4	40	40	20	30
12	11	0	–	0	0	0
13	12	4	–	40	20	30

Table 14. Configuration of M9170A (Option 002) to 84904K/L/M, 84906K/L, 84907K/L, 84905M, 84908M programmable attenuators

From M9170A (Option 002)		To 84904K/L/M, 84906K/L, 84907K/L, 84905M, 84908M programmable attenuators				
Interface cable		84904K/L/M	84906K/L	84907K/L	84905M	84908M
20 PIN	10 Pin	Attenuation (dB)				
17	10	Vcc	Vcc	Vcc	Vcc	Vcc
2	1	0	0	0	0	0
3	2	1	10	10	10	5
6	5	0	0	0	0	0
12	8	2	20	20	20	10
5	4	0	0	0	0	0
13	9	4	30	40	30	20
8	6	0	0	–	–	0
9	7	4	30	–	–	30

Table 15. Generic bare wire connection

Bare wire can be used to drive the switch when no connector option available.

Coaxial wire color	Drive control	From P1
Yellow	Vcc 1	1
Green	Drive 1	2
Red	Drive 2	3
Orange	GND 1	4
Black/Pink	Drive 3	5
White	Drive 4	6
Black/Green	Vcc 2	7
Black/Yellow	Drive 5	8
Black	Drive 6	9
Violet	GND 2	10
Pink	Vcc 3	11
Black/Gray	Drive 7	12
Black/White	Drive 8	13
Black/Orange	GND 3	14
Gray	Drive 9	15
Black/Blue	Drive 10	16
Black/Violet	Vcc 4	17
Blue	Drive 11	18
Black/Red	Drive 12	19
Brown	GND 4	20

Interface Cable Drawings

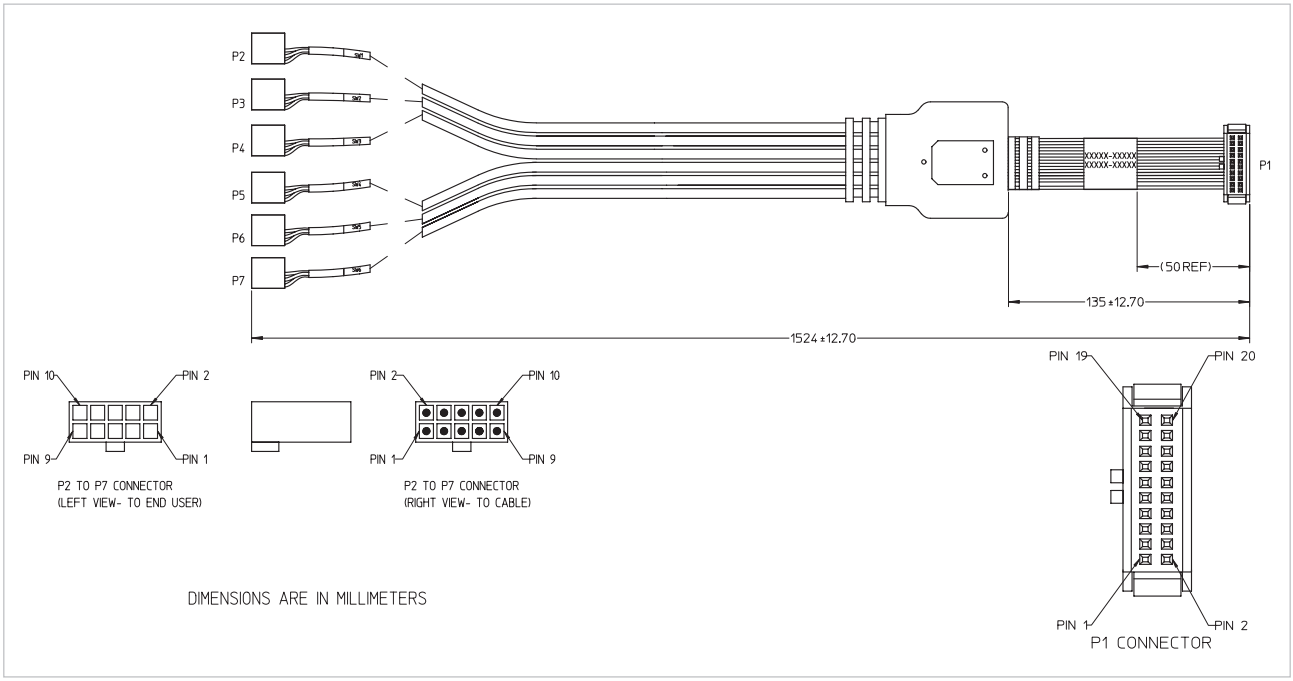

Figure 1. Option 001 - 20 pin to 6x10 pin interface cable assembly

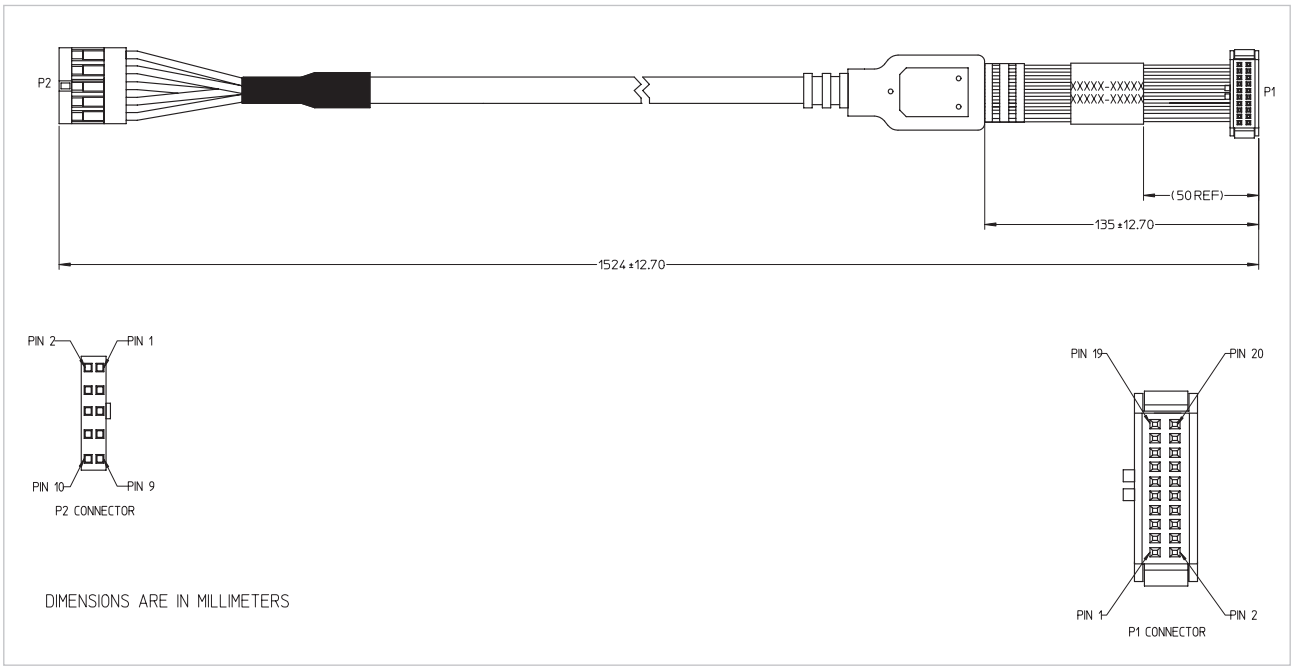

Figure 2. Option 002 - 20 pin to 10 pin interface cable assembly

Interface Cable Drawings *(CONT)*

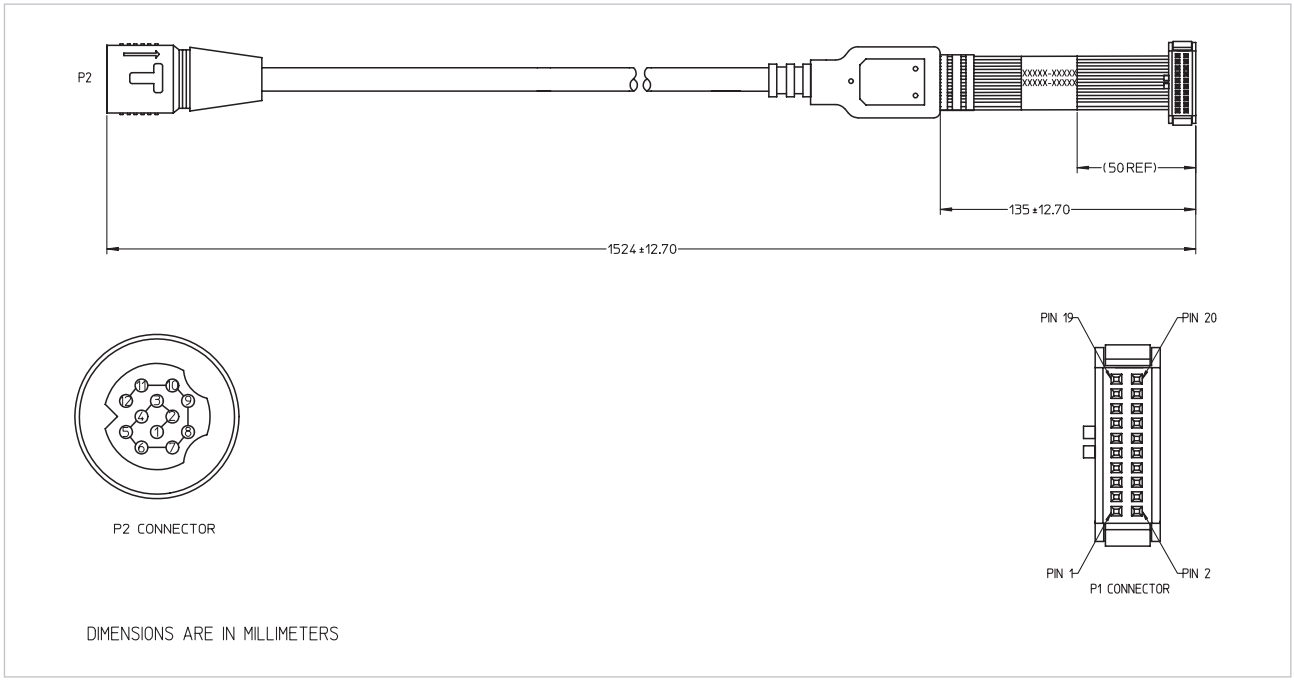

Figure 3. Option 003 - 20 pin to 12 Pin Viking interface cable assembly

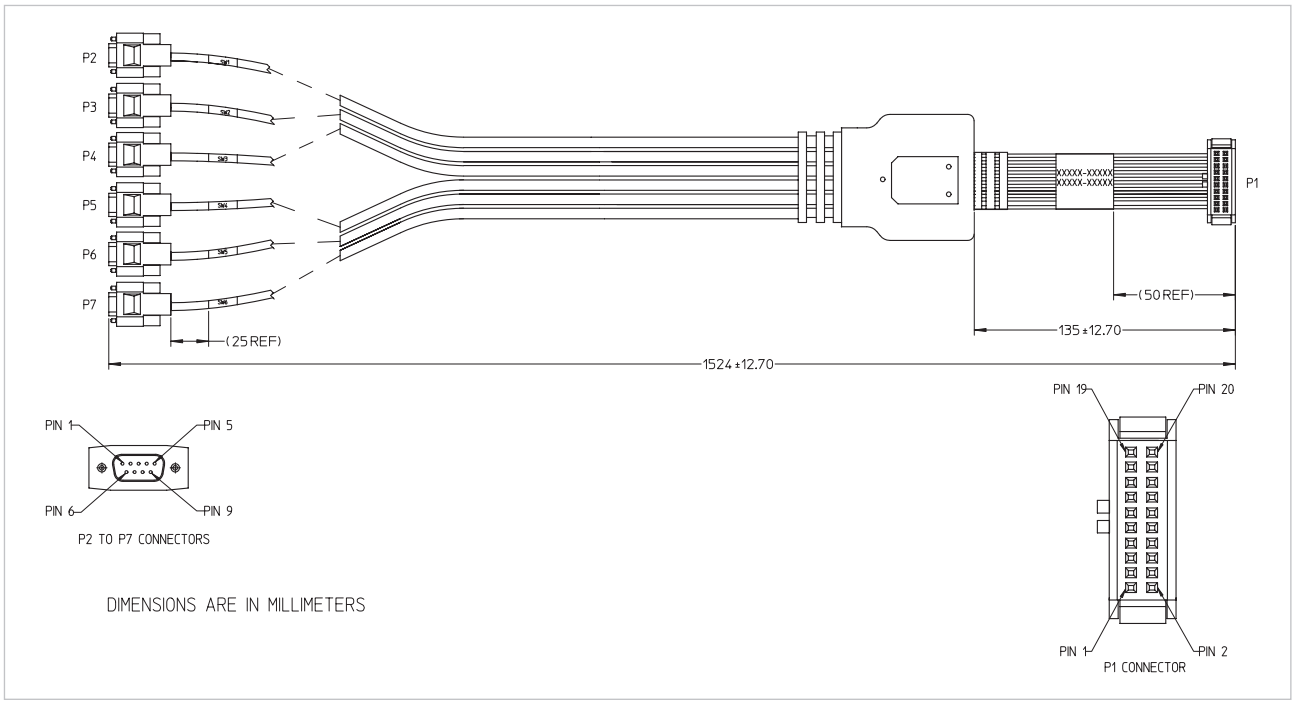

Figure 4. Option 501 - 20 pin to 6x9 pin-D-Sub interface cable assembly

Interface Cable Drawings *(CONT)*

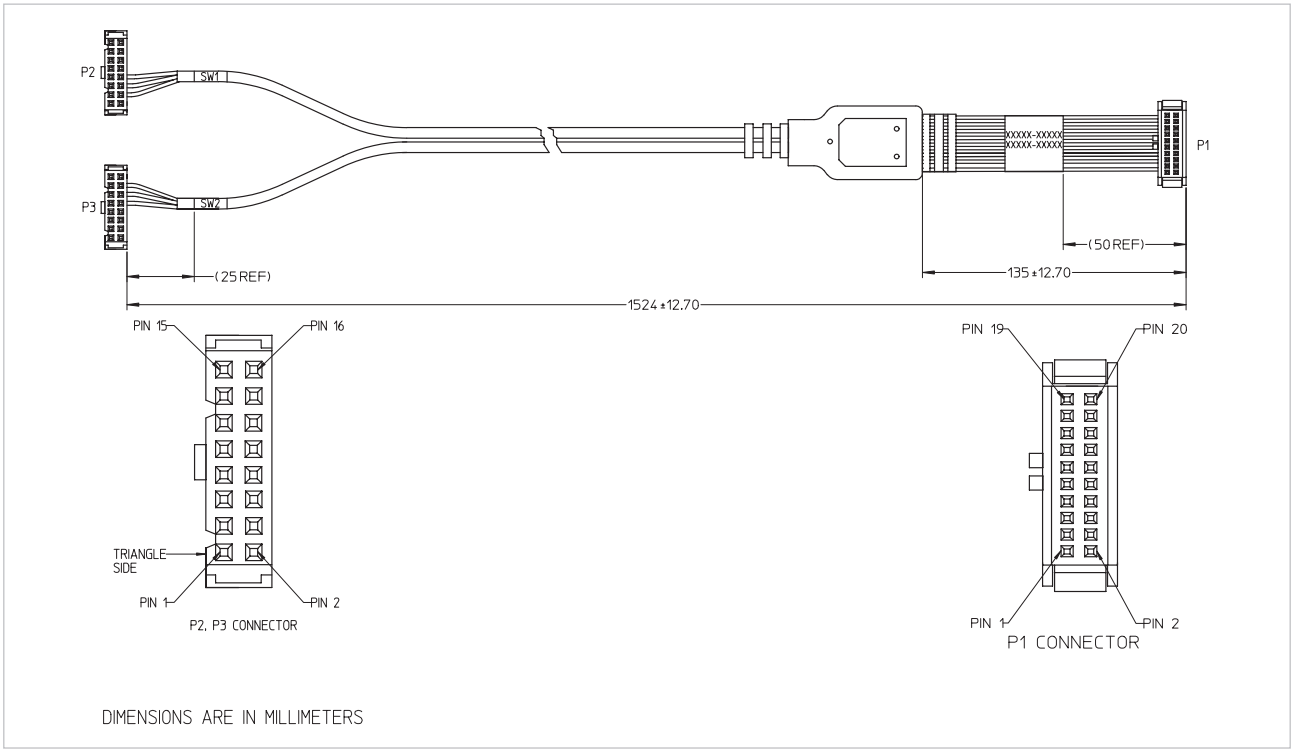

Figure 5. Option 601 - 20 pin to 2x16 pin interface cable assembly

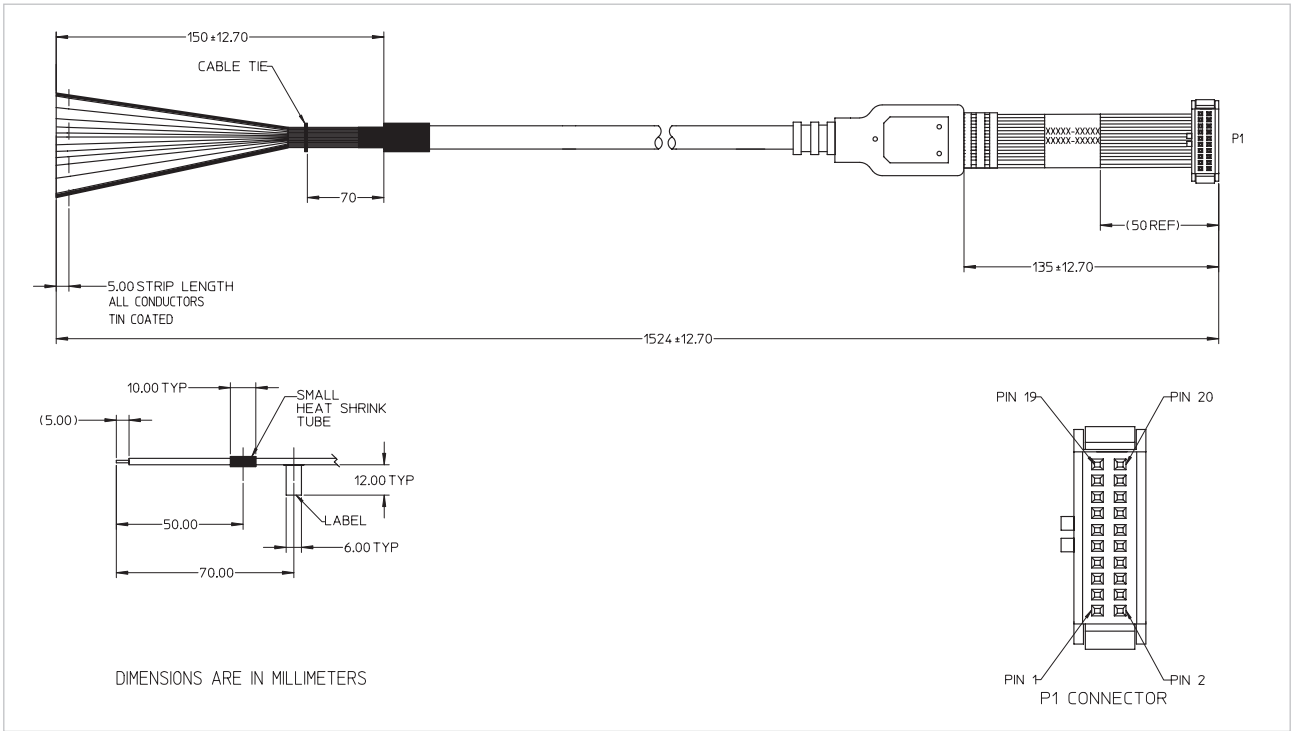

Figure 6. Option 201 - 20 pin to bare wire interface cable assembly

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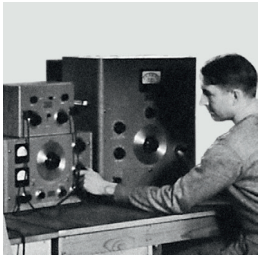
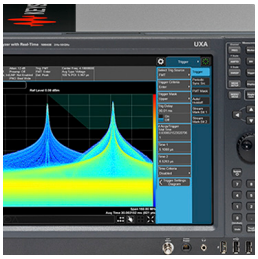


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