

TRUflex™ PWR Series



a division of WINCHESTER
ELECTRONICS



High Power RF Cable Assemblies

- Broad range of connector and cable combinations
- kW power handling capabilities
- Quick Connect/Disconnect interface technology
- Flexible cable solutions
- Test and adapter solutions available
- Experience in high power design and safety innovations








TRU Corporation offers an extensive line of flexible RF cable assembly and connector solutions for applications that require RF high power/voltage capability as well as reliable, high quality performance. Our long heritage in high power design has made us a premier supplier in high power markets including critical safety applications in the industrial equipment segment.

Specifying the optimal assembly for your application is simplified by the broad selection of straight and right angle connector configurations and interface options, as well as the extensive range of cable choices. Our cables are specifically designed for their power capability and reliability. Our unique TRUtie™ cable termination method provides superior mechanical retention capabilities to eliminate the cable junction as a point of mechanical failure. Our innovative Quick Connect/Disconnect interfaces: TRU-SQS®, TRU-QRM™ and TRU-QDS®, provide highly efficient and repeatable high power solutions without the need for added hand tools to securely mate.

In addition to the broad range of standard configurations in this brochure, TRU can also provide custom design solutions for your challenging applications. Our experienced Application Engineering team is available to personally answer all your technical questions.

Visit our website to find additional support and product information:
trucorporation.com

Coaxial Cable Reference Chart

Cable Diameter (nominal)					
Cable Part Number	TRU-560	TRU RG-217	TRU-500	TRU-450	TRU RG-393
Center Conductor (stranded/solid)	7 strand	solid	7 strand	7 strand	7 strand
Cable Dielectric (construction/material)	Tape-E/PTFE	PE	Tape-E/PTFE	Tape-E/PTFE	PTFE
Shields (number)	2	2	2	3	2
Shields (type)	silver plated copper flat and round	bare copper round	silver plated copper flat and round	silver plated copper flat and round with interlayer	tin plated copper round
Cable Jacket (material/color)	PVC blue	PVC black	FEP blue	FEP blue	FRP brown
Cable Operating Temperature (°C)	-55 to 105	-40 to 85	-55 to 200	-65 to 200	-55 to 200
Cable Minimum Bend Radius (static)	1.70 inch (43,2 mm)	2.75 inch (69,9 mm)	1.50 inch (38,1 mm)	1.50 inch (38,1 mm)	1.50 inch (38,1 mm)
Cable Minimum Bend Radius (dynamic)	2.80 inch (71,1 mm)	N/A	2.45 inch (62,2mm)	2.50 inch (63,5 mm)	N/A
Frequency (maximum)	6 GHz	3 GHz	6 GHz	10 GHz	6 GHz
Impedance (Ohms-nominal)	50	50	50	50	50
Capacitance pF/ft (pF/m)	26.8 (105,0)	32.2 (82,0)	26.8 (87,9)	25.0 (10,3)	32.0 (87,9)
Shielding Effectiveness (dB)	> -75	> -60	> -75	> -90	> -60
Velocity of Propagation (% nominal)	77	66	77	83	70
Weight lbs/ft (Kg/m)	0.240 (0,260)	0.225 (0,270)	0.230 (0,340)	0.180 (0,335)	0.175 (0,354)
Voltage	12 kV	12 kV	12 kV	8 kV	10 kV

Power Rating (kW)*

	TRU-560	TRU RG-217	TRU-500	TRU-450	TRU RG-393
50 MHz	40.00	3.11	40.00	25.52	10.37
100 MHz	28.50	1.80	28.50	16.00	6.00
200 MHz	19.00	1.02	19.00	11.50	4.39
400 MHz	13.50	0.58	13.50	7.20	2.49
500 MHz	12.50	0.50	12.50	6.50	3.00
1,000 MHz	8.30	0.35	8.30	4.20	1.65
2,000 MHz	5.10	0.30	5.10	2.80	1.05
3,000 MHz	4.40	0.25	4.40	2.30	0.80
4,000 MHz	3.50		3.50	1.90	0.69
5,000 MHz	3.20		3.20	1.60	0.60
6,000 MHz	3.00		3.00	1.45	0.50
7,000 MHz				1.30	
8,000 MHz				1.15	
9,000 MHz				1.10	
10,000 MHz				1.05	

Attenuation (dB/100 ft typical)*

	TRU-560	TRU RG-217	TRU-500	TRU-450	TRU RG-393
50 MHz	0.75	1.00	0.75	0.81	1.50
100 MHz	1.05	1.50	1.05	1.20	2.10
200 MHz	1.50	2.20	1.50	1.70	3.38
400 MHz	2.13	3.28	2.13	2.40	5.17
500 MHz	2.40	3.50	2.40	2.30	6.00
1,000 MHz	3.40	5.50	3.40	3.75	9.00
2,000 MHz	5.00	8.50	5.00	5.60	14.00
3,000 MHz	6.30	10.70	6.30	7.00	18.00
4,000 MHz	7.45		7.45	8.40	21.00
5,000 MHz	8.55		8.55	10.00	24.00
6,000 MHz	9.50		9.50	11.00	27.00
7,000 MHz				11.60	
8,000 MHz				12.30	
9,000 MHz				12.90	
10,000 MHz				13.30	

1000 MHz = 1 GHz *Sea level, 40°C, matched load

*20°C, matched load

Selecting a Connector Interface

Mating Style	Attributes	Interface	Maximum Frequency (GHz)	Mating Cycles (Minimum)	Voltage Rating (Vrms)
Threaded	Provides positive mechanical engagement and tight environmental seal when torqued properly. Conforms to standard industry interface specifications.	MEIA™-875	6.0	> 500	2,800
		MEIA™-1625	3.0	> 500	5,100
		LC	1.0	> 500	3,000
		7-16	7.5	> 500	2,700
		HN	4.0	> 500	1,500
		SC	11.0	> 500	1,200
		N	18.0	> 500	1,000
Flange Mount	Direct mechanical attachment using screw/bolt fasteners. Requires tools. Robust connection but labor intensive.	EIA 7/8	6.0	> 500	2,800
		EIA 1-5/8	3.0	> 500	5,100
Quick Connect/Disconnect	Positive-locking interface, hand-mated without the need for tooling. TRU-Redline™ indicator ensures full engagement. Provides safety measure in high power environments. Can be used with interlock safety switches.	TRU-SQS®	0.5	> 2,500	4,000
		TRU-QRM™	1.0	> 2,500	3,500
		TRU-QDS®	6.0	> 2,500	1,200

Power Rating (kW)*

	MEIA™-1625	EIA 1-5/8	MEIA™-875	EIA 7/8	LC	7-16	HN	SC	N	TRU-SQS®	TRU-QRM™	TRU-QDS®
10 MHz	50.00	50.00	18.00	18.00	25.60	17.8	15.00	12.00	10.00	33.00	24.00	12.00
50 MHz	23.00	23.00	8.00	8.00	11.60	7.75	7.00	5.40	4.60	15.50	11.00	5.40
100 MHz	17.00	17.00	5.60	5.60	8.50	5.40	4.80	3.80	3.10	11.00	8.00	3.80
500 MHz	7.00	7.00	2.50	2.50	3.50	2.40	2.10	1.80	1.40	5.00	3.30	1.80
1,000 MHz	4.80	4.80	1.80	1.80	2.50	1.70	1.48	1.30	1.00		2.30	1.30
2,000 MHz	3.50	3.50	1.30	1.30		1.20	1.03	0.90	0.70			0.90
3,000 MHz	2.90	2.90	1.10	1.10		0.98	0.85	0.74	0.59			0.74
4,000 MHz			1.00	1.00		0.88	0.73	0.64	0.50			0.64
5,000 MHz			0.90	0.90		0.80		0.58	0.46			0.58
6,000 MHz			0.84	0.84		0.74		0.52	0.40			0.52
7,000 MHz						0.70		0.48	0.37			
8,000 MHz								0.45	0.34			
9,000 MHz								0.43	0.32			
10,000 MHz								0.40	0.31			
11,000 MHz									0.29			
12,000 MHz									0.28			
13,000 MHz									0.27			
14,000 MHz									0.26			
15,000 MHz									0.25			
16,000 MHz									0.24			
17,000 MHz									0.23			
18,000 MHz									0.22			

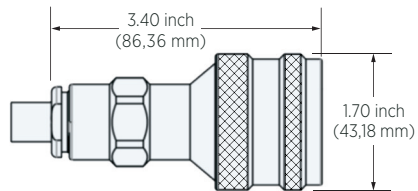
1000 MHz = 1 GHz *Sea level, 40°C, matched load

Specifications subject to change without notice. For additional specifications or other products, visit us online or call us at 1-800-262-9878.

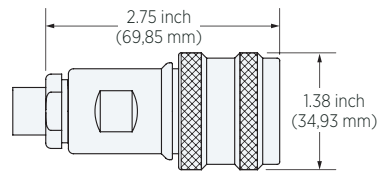
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Quick Connect/Disconnect Connector Configurations

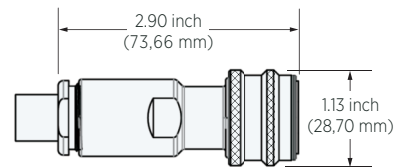
TRU Corporation Quick-Connect/Disconnect RF interface provides reliable mating with fast connect/disconnect capability. These interfaces feature a positive locking mechanism employing a spring-loaded sleeve on the male plug that is drawn back to let self-contained bearings “click” into grooves on the mating female receptacle, and slide forward. A fully mated and safe condition is visually represented with full coverage of our TRU-Redline™ indicator. These designs provide exceptionally fast and reliable hand mating that will not vibrate loose.



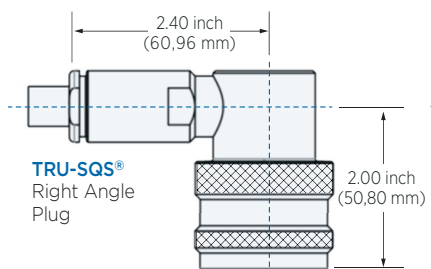
TRU-SQS® Straight Plug



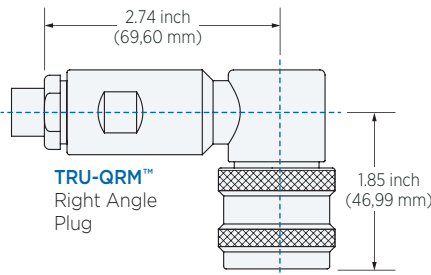
TRU-QRM™ Straight Plug



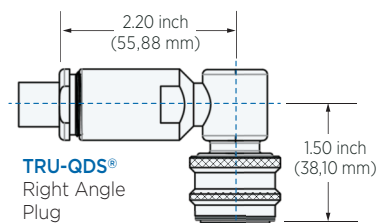
TRU-QDS® Straight Plug



TRU-SQS®
Right Angle
Plug



TRU-QRM™
Right Angle
Plug



TRU-QDS®
Right Angle
Plug

Dimensions shown are reference only.



TRU-SQS® right angle, cable plug and panel mount receptacle shown in unmated condition.

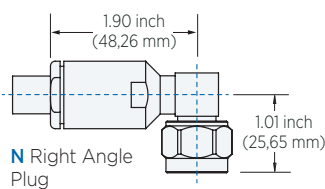
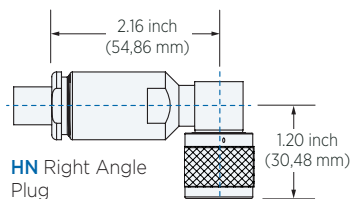
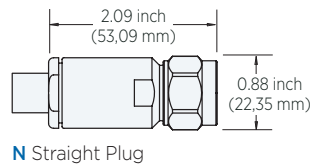
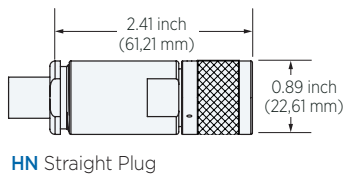
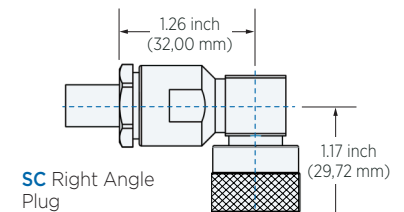
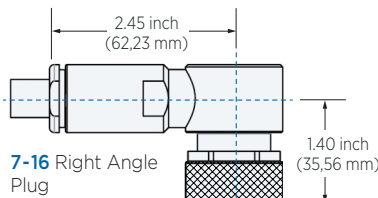
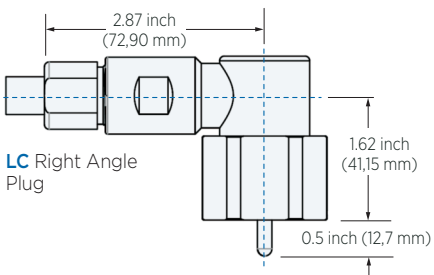
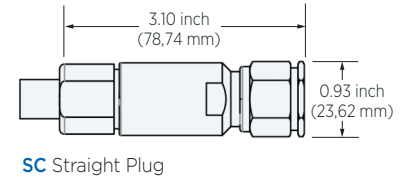
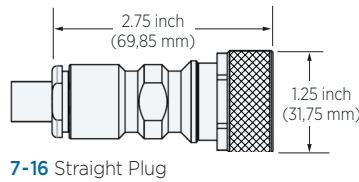
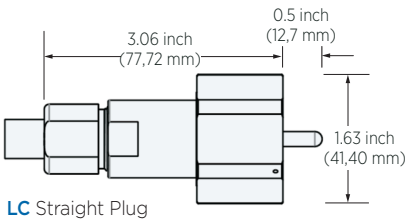
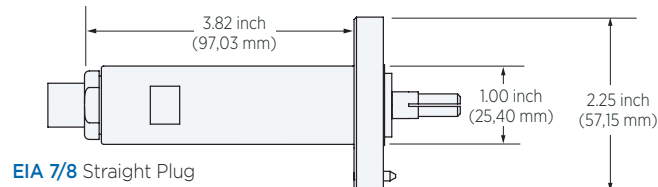
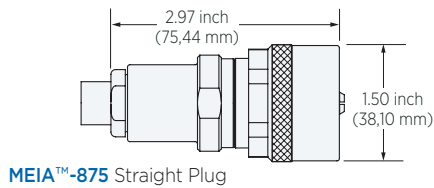
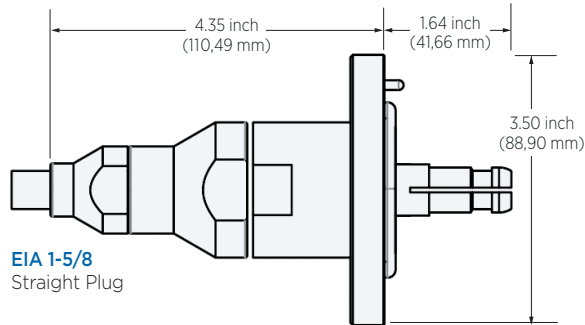
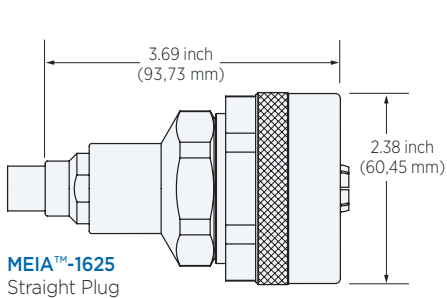


TRU-SQS® spring-loaded sleeve is retracted and interfaces engaged. Note TRU-Redline™ indicator is still visible until sleeve is released and a fully mated condition is present.



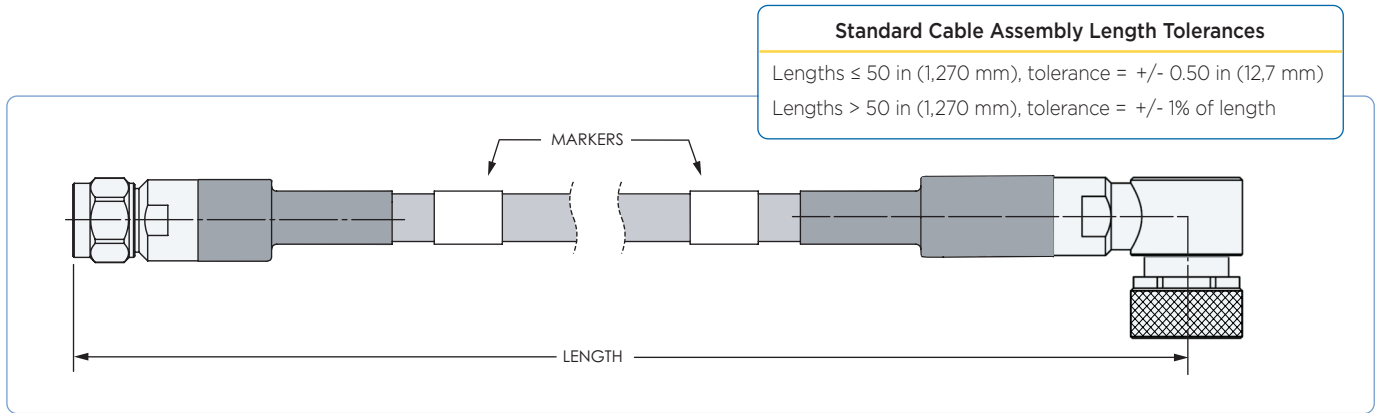
TRU-SQS® interfaces shown in a fully mated condition. The right angle assembly can be mated at any position along a 360° arc offering optimal flexibility in the assembly orientation.

Threaded and Flange Mount Connector Configurations



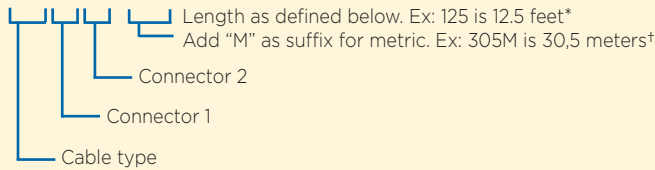
Dimensions shown are reference only.

Specifying High Power RF Cable Assemblies



Ordering Specifications

TRU - XXX XXX - XXX



Note on Length

Assemblies are generally measured from end to end for straight connectors, or from the centerline of right angle connectors.

* Specify length in 0.5 foot increments

† Specify length in 0,1 meter increments

Cable Codes	Description
217	TRU RG-217
393	TRU RG-393
45B	TRU-450
50B	TRU-500
56B	TRU-560
Connector Codes**	Description
17	TRU-SQS® straight (m)
67	TRU-SQS® right angle (m)
19	TRU-QRM™ straight (m)
69	TRU-QRM™ right angle (m)
21	TRU-QDS® straight (m)
71	TRU-QDS® right angle (m)
11	N straight (m)
61	N right angle (m)
25	HN straight (m)
75	HN right angle (m)
23	SC straight (m)
73	SC right angle (m)
13	7-16 straight (m)
63	7-16 right angle (m)
27	LC straight (m)
77	LC right angle (m)
29	MEIA™-875 straight (m)
31	MEIA™-1625 straight (m)
15	EIA 7/8 straight (m)
16	EIA 1-5/8 straight (m)

** Designate the lower number connector code **first** in the part number specification sequence. Example: TRU-XXX0711-XXX

Find your cable assembly solution everywhere you are

Environment
Application: Industrial equipment
Frequency: DC - 250 MHz
Length of Cable: 3 feet

Connector A
7-16 Male (Straight)

Cable
Cable: TRU RG-217

Connector B
QRm R/A Male (Right Angle)

Performance Review and Quote

Details

Connector A	7-16 Male
Cable	TRU RG-217
Connector B	QRm R/A Male
Length	3 feet
Operating Temperature	Room Temperature
Operating Altitude	Sea Level
Mechanical Conditions	None Specified
Environmental Conditions	None Specified
Minimum Bend Radius	2.75" (static)

Performance Analysis

Frequency Range of Assembly	DC - 250 MHz	DC - 250 MHz	
Max Return Loss (or VSWR)	TRU Standard	VSWR 1.25 : 1 @ 250 MHz	VSWR
Min Shielding Effectiveness (dB)	TRU Standard	-60 dB	
Power Handling (watts)	TRU Standard	850 watts @ 250 MHz	280
Total Attenuation/Insertion Loss (dB)	TRU Standard	0.20 dB @ 250 MHz	0.

Please Specify any Additional Requirements

Start Over **Save this Assembly** **Request Assistance** **Request Quote**

SIMPLE NAVIGATION

With the new TRU online **Cable Configurator** you can build the right cable assembly for your specific requirements.

The **Cable Configurator** takes you through a series of filtered fields where you specify your **Primary Application, Length and Frequency**.

Choose either **TRU Standard** specs or specify your own **electrical, mechanical or environmental** specs.

From there you specify **connector** and **cable** types.

It's an easy to follow, prompted process that results in a completed review from which you can **Request Assistance** from an applications engineer or **Request a Quote**.

ADAPTS FOR USE ON LAPTOPS AND MOBILE DEVICES



Build cables to your specifications

trucorporation.com/cable_configurator

Winchester Electronics, established in 1941, is a leader in the design, development, and deployment of interconnect technologies globally.

Why we do it: We like to make things better TODAY

How we do it: We solve problems in real time

*What we do: We make connectors and cable assemblies—
we transmit light and energy*

- | | | |
|---------------------|--|---|
| Markets | <ul style="list-style-type: none"> - Data Infrastructure - Medical - Semiconductor - Military /Aerospace | <ul style="list-style-type: none"> - Test & Measurement - Broadcast - Marine-Oil-Gas - Rail Mass Transit |
| Products | <ul style="list-style-type: none"> - RF cable assemblies and connectors - Industrial cable assemblies and connectors | <ul style="list-style-type: none"> - Hermetic interconnects - Multi-pin connectors - Engineered cable assemblies - Fiber optic solutions |
| Capabilities | <ul style="list-style-type: none"> - Engineering design and development - Flexible manufacturing—high mix/low volume - 3-D modeling - Field technical services | <ul style="list-style-type: none"> - Electrical, environmental, and mechanical qualification testing - Field technical services - Supply chain solutions - ANSYS simulation packages: electrical, structural, thermal |

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