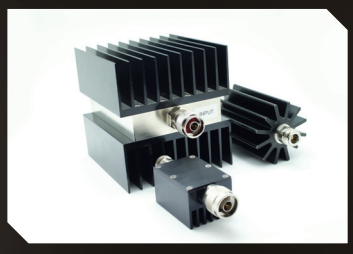
GLOBAL LEADER IN RF COMMUNICTAIONS TELCON

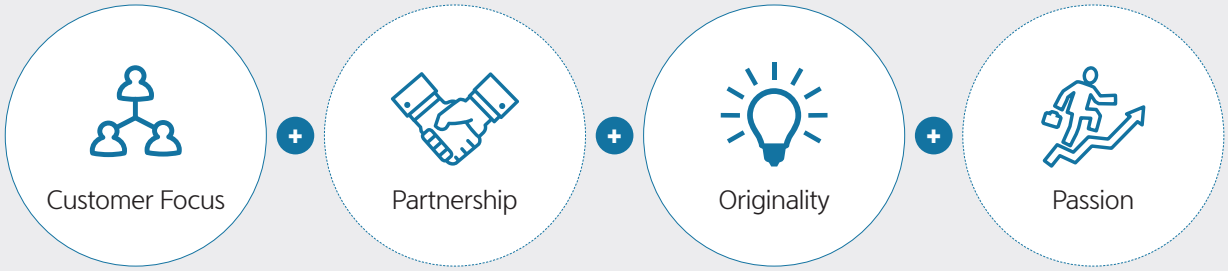


Simple Connectivity Solution

Company Infomation

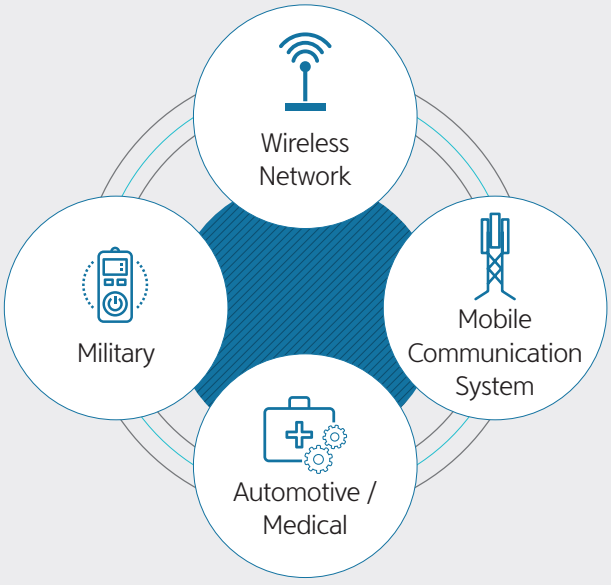
Telcon seeks to develop the best technology by continuous investments in developing wireless communication parts which are essential for ICT business since the founding in 1999. Especially, we offer high-quality services in the fields of wireless communication device, wireless network installation, and communication system.
Moreover, our business area has expanded to automotive and medical equipment with the establishment of local subsidiaries in China and Vietnam, which help us enhance global competitiveness.

Core Values



Vision

Business Area



Contents

RF Connectors

Smaller Design Board to Board Connector

STBM is optimized solusion that has smaller design, and misalignment limit between connectors in the compact, and narrow inside of equipment, it supports stable electrical Performance as well.

- High density interconnection
- Stable electrical and mechanical blind mating interface
- Competitive price

Parameter		Value		
Frequency Range		DC ~8.5GHz		
Impedance		50ohm(Nominal)		
Typical VSWR	Misalignment	3GHz	6GHz	8.5GHz
	Axial +1mm (Radial 0,0.6mm)	1.25	1.3	1.35
	Axial 0mm (Radial 0,0.6mm)	1.18	1.25	1.3
	Axial −1mm (Radial 0,0.6mm)	1.25	1.3	1.35
Insertion loss		> −0.05dB x √ f(GHz)		
Insulation resistance		> 5000MΩ		
Dielectric withstanding		< 750 Vrms 50Hz, sea level		
Working voltage		< 330 Vrms 50Hz, sea level		
Contact Resistance(mOhm)		Inner Contact ≤6.0mΩ		
		Outer Contact ≤3.0mΩ		
Inter−modulation 3rd order		< −150dBc (2x43dBm)		
		< −155dBc (2x40dBm)		
		< −160dBc (2x37dBm)		
Screening Effectiveness		> 70dB@3GHz (Zero, Max tolerance)		
		> 65dB@6GHz (Zero, Max tolerance)		
Input Power		< 100W @2.6GHz, +50℃, CW		
Durability		100matings		
Temperature / Humidity Range		−40℃ ~ +125℃ / 65℃, 80%		
Working Range	Axial	±1.0mm		
	Radial (Misalignment)	±0.6mm		
Material (Finish)		Body : Bs, BeCu(3MAT`L)		
		Inner : BeCu, Bs (Silver)		
		Insulator : PTFE		
		Spring : STS304		

TBM-A

TBM-A is high voltage power transmission connector, and have misalignment limit between connectors in the compact, and narrow inside of equipment, it supports stable electrical Performance as well.

- High voltage power transmission
- Reliable and stable blind mating construction
- Simplified design eliminating adaptor parts.

Parameter		Value		
Frequency Range		DC ~ 8.5GHz		
Impedance		50ohm(Nominal)		
Typical VSWR	Misalignment	3GHz	6GHz	8.5GHz
	Axial +1mm(Radial 0,0.8mm)	1.20	1.25	1.35
	Axial 0mm(Radial 0,0.8mm)	1.18	1.20	1.30
	Axial -1mm(Radial 0,0.8mm)	1.20	1.25	1.35
Insertion loss		> -0.07dB x √ f(GHz)		
Insulation resistance		> 5000MΩ		
Dielectric withstanding		1500 V		
Working voltage		< 330 Vrms 60Hz, sea level		
Contact Resistance(mOhm)		Inner Contact ≤4.0mΩ		
		Outer Contact ≤3.0mΩ		
Inter-modulation 3rd order		< -150dBc @ 1.8GHz (2x43dBm)		
		(Zero, Max tolerance)@ Except PCB Type		
Screening Effectiveness		> 80dB@3GHz (Zero, Max tolerance)		
		> 75dB@6GHz (Zero, Max tolerance)		
Input Power		< 100W @2.6GHz, +50℃, CW		
Durability		100matings		
Temperature / Humidity Range		-40℃ ~ +125℃ / 65℃, 80%		
Working Range	Axial	±1.0mm Typical		
	Radial (Misalignment)	±0.8mm Typical		
Material (Finish)		Body : Bs, BeCu(3MAT`L)		
		Inner : BeCu, Bs (Silver)		
		Insulator : PTFE		
		Spring : STS304		

TBM-P

TBM Push-on type B to B Connector

TBM-P provides you an economical price by applying new contact method and low-cost materials, and applying metal sheet and injection molding, the manufacturing method of major components has provided a more uniform quality of parts and a foundation for massproduction.

- Low-cost
- Increase production capacity
- Reliable performance

Parameter		Value	
Frequency Range		DC ~6.0GHz	
Impedance		50ohm(Nominal)	
Typical VSWR	Misalignment	3GHz	6GHz
	Axial +1mm (Radial 0,0.8mm)	1.2	1.3
	Axial 0mm (Radial 0,0.8mm)	1.15	1.2
	Axial -1mm (Radial 0,0.8mm)	1.2	1.3
Insertion loss		> -0.05dB x √ f(GHz)	
Insulation resistance		> 5000MΩ	
Dielectric withstanding		< 750 Vrms 50Hz, sea level	
Working voltage		< 330 Vrms 50Hz, sea level	
Contact Resistance(mOhm)		Inner Contact ≤4.0mΩ	
		Outer Contact ≤3.0mΩ	
Inter-modulation 3rd order		< -160dBc @1.8GHz (2x43dBm) (zero, Max tolerance)	
Screening Effectiveness		> 80dB@3GHz (Zero, Max tolerance)	
		> 75dB@6GHz (Zero, Max tolerance)	
Input Power		< 350W @2.6GHz, +50℃, CW	
Durability		100matings	
Temperature / Humidity Range		-40℃ ~ +125℃ / 65℃, 80%	
Working Range	Axial	±1.0mm	
	Radial (Misalignment)	±0.6mm	
Material (Finish)		Body : Bs, BeCu(3MAT`L)	
		Inner : BeCu, Bs (Silver)	
		Insulator : PTFE, LCP	

TBM-I

Improved TBM connector

The TBM-I is a TBM connector compatible and has a more seable contacr structure.
The interface is identical to the TBM and the interior structure to the TBM-A.

- Improved TBM plug connector
- Stable contact structure
- TBM jack compatible

Parameter		Value	
Frequency Range		DC ~6.0GHz	
Impedance		50ohm(Nominal)	
Typical VSWR	Misalignment	3GHz	6GHz
	Axial +1mm (Radial 0,0.8mm)	1.25	1.25
	Axial 0mm (Radial 0,0.8mm)	1.15	1.2
	Axial -1mm (Radial 0,0.8mm)	1.25	1.25
Insertion loss		> -0.07dB x √ f(GHz)	
Insulation resistance		> 5000MΩ	
Dielectric withstanding		< 750 Vrms 50Hz, sea level	
Working voltage		< 330 Vrms 50Hz, sea level	
Contact Resistance(mOhm)		Inner Contact ≤4.0mΩ	
		Outer Contact ≤3.0mΩ	
Screening Effectiveness		> 80dB@3GHz (Zero, Max tolerance)	
		> 75dB@6GHz (Zero, Max tolerance)	
Input Power		< 350W @2.6GHz, +50℃, CW	
Durability		100matings	
Temperature / Humidity Range		-40℃ ~ +125℃ / 65℃, 80%	
Working Range	Axial	±1.0mm	
	Radial (Misalignment)	±0.6mm	
Material (Finish)		Body : Bs, BeCu(3MAT`L)	
		Inner : BeCu, Bs (Silver)	
		Insulator : PTFE	
		Spring : STS(Passivity)	

Direct Contact Board to Board Connector

DCCk provide very short distance of Board to board. And misalignment limit between connectors in the compact, and Need only one part inside of equipment, it supports stable electrical Performance as well.

- Smallest Board to Board distance
- Stable blind mating construction

Parameter		Value		
Frequency Range		DC ~ 8.5GHz		
Impedance		50ohm(Nominal)		
Typical VSWR	Misalignment	3GHz	6GHz	8.5GHz
	Axial +1mm(Radial 0,0.8mm)	1.20	1.30	1.35
	Axial 0mm(Radial 0,0.8mm)	1.18	1.25	1.30
	Axial −1mm(Radial 0,0.8mm)	1.20	1.30	1.35
Insertion Loss		> −0.07 x √f(GHz)		
Insulation resistance		> 5000MΩ		
Dielectric withstanding Voltage		< 750 Vrms 60Hz, sea level		
Working voltage		< 330 Vrms 60Hz, sea level		
Contact Resistance(mOhm)		Inner Contact ≤4.0mΩ		
		Outer Contact ≤3.0mΩ		
Screening Effectiveness		>75dB@3GHz (Zero, Max tolerance) >70dB@6GHz (Zero, Max tolerance)		
Input Power		< 300W @2.6GHz, +25℃, CW		
Inter−modulation 3rd order		<150dBc @1.8GHz (2x40dBm) (Zero, Max tolerance) @ Except PCB Type		
Durability		100matings		
Temperature / Humidity Range		−40℃ ~ +125℃ / 65℃, 80%		
Misalignment tolerance	Axial	±1.0 mm		
	Radial	±0.4mm (Minimum distance when contrary dimension		
Material (Finish)		Body : Bs, BeCu(TCP) Inner : BeCu, Bs(Ag) Insulator : PTFE, PEEK		

mmWAVE Board to Board Connector

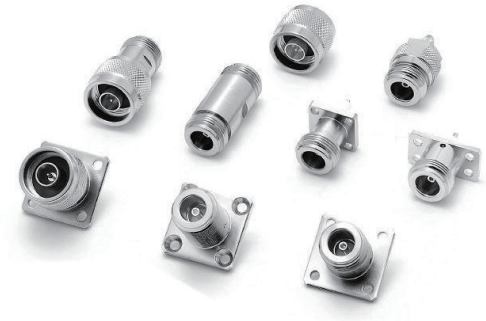
mTBM applicable in mmWAVE equipment, and The guaranteed frequency range is up to 33GHz. misalignment limit between connectors in the compact, and narrow inside of equipment, it supports stable electrical Performance as well.

- High frequency microwave application up to 33ghz
- Board to Board blind-mate construction

Parameter		Value	
Frequency Range		DC ~ 33GHz	
Impedance		50ohm(Nominal)	
Typical VSWR	Misalignment	25GHz	33GHz
	Axial +0.5mm(Radial 0,0.5mm)	1.25	1.35
	Axial 0mm(Radial 0,0.5mm)	1.25	1.35
	Axial −0.5mm(Radial 0,0.5mm)	1.25	1.35
Insertion Loss		> −0.07 x √f(GHz)	
Insulation resistance		< 750 Vrms @60Hz, sealevel	
Dielectric withstanding Voltage		< 330 Vrms @60Hz, sealevel	
Working voltage		> 5000MΩ	
Contact Resistance(mOhm)		Inner Contact ≤4mΩ	
		Outer Contact ≤3mΩ	
Screening Effectiveness		> 80dB@3GHz (Zero tolerance, Max tolerance) > 75dB@6GHz (Zero tolerance, Max tolerance)	
Input Power		< 280W @ 2.6GHz, +25℃, Pulse Duty : 10%	
Durability		< 100 cycles	
Operating Temperature Range		−40℃ ~ +125℃	
Misalignment tolerance	Axial	> ± 0.5mm	
	Radial	> ± 0.5mm	
Material (Finish)		Body : Bs, BeCu(Au) Inner : B eCu, Bs(Au) Insulator : Ultem	

Connector & with Coupler Port Connector

Telcon is passionate and committed to deliver unparalleled technology like the best plating Technology in the name of TCP/TIP which shows unique salt resistance performance in the harsh environment as well as Low PIMD performance Coupler port is installed in the connector body in order to reduce coat, and increase space efficiency.



Parameter		Specifications
Frequency Range		DC ~6.0GHz
Impedance		50ohm(Nominal)
Return loss		< −23.1dBdB(VSWR 1.15)
Coupling Value (Coupler only)		−30.0 ~ 50.0dB
		@3.5GHz (l 1dB Freq. Point, B/W 100MHz)
Insertion loss		> −0.05dB x √ f(GHz)
Insulation resistance		> 5000MΩ
Contact Resistance(mOhm)		Inner Contact ≤1.5mΩ(Max)
		Outer Contact ≤1.0mΩ(Max)
Isolation		< −90dB @1GHz
Input Power		500W @2GHz
PIMD		< −160dBc(+43dBm/2tone)
Durability		100matings
Temperature / Humidity Range		−40℃ ~ +85℃ / 65℃, 80%
Salt spray(5%)		720hrs
Environmrnt Class	Mating sealing	IP67
	Inner sealing	IP67
Material (Finish)		Body : Bs (TIP)
		Inner : BeCu, Bs (Silver)
		Insulator : PTFE
		Gasket : silicone rubber
		Chain : STS(Passivity)

4.1/9.5

Parameter		Value
Frequency Range		dc ~ 6GHz
Impedance		50ohm(Nominal)
Return Loss		< −32.2dB(VSWR 1.05)
Insertion Loss		> −0.05 x √f(GHz)
Insulation resistance		> 5000MΩ
Contact Resistance(mOhm)		Inner Contact ≤1.0mΩ
		Outer Contact ≤1.5mΩ
Isolation		< −90dB@1GHz
Input Power		500W @2GHz
PIMD		< −160dBc(+43dBm/2tone)
Durability		500matings
Temperature / Humidity Range		−40℃ ~ +85℃ / 65℃, 80%
Salt spray(5%)		720hrs
Environment Class	Mating sealing	IP67
	Inner sealing	Airleak 0.15bar 1Min.
Material (Finish)		Body : Bs(TIP) Inner : BeCu, Bs(Silver) Insulator : PTFE Gasket: Silicone rubber

4.3/10

Connector & with Coupler Port Connector

Features of 4.3-10 connectors are compact reduced size than 7/16 Din connector, and offers excellent electrical characteristics, and the best Low PIM performance among of RF connector series.
Three different coupling mechanisms of the plug connectors screw, quick-lock/push-pull and hand-screw types are mateable with all jack connectors.

Parameter		Value
Frequency Range		dc ~ 6GHz
Impedance		50ohm(Nominal)
Return Loss		< -36.6dB(VSWR 1.03) @4GHz < -32.2dB(VSWR 1.05) @6GHz
Coupling Value (Coupler only)		-30.0~-50.0dB @3.5GHz (±1dB Freq. Point, B/W 100MHz)
Insertion Loss		> -0.05 x √f(GHz)
Insulation resistance		> 5000MΩ
Contact Resistance		Inner Contact ≤1.0mΩ
		Outer Contact ≤1.5mΩ
Isolation		< -110dB min. @6GHz, screw type < -90dB min. @3GHz, Hand screw, Quick lock type < -70dB min. @3~ 6GHz, Hand screw, Quick lock type
Input Power		500W @2GHz
PIMD		< -166dBc(+43dBm/2tone) < -160dBc(+46dBm/2tone)
Durability		500matings
Temperature / Humidity Range		-40℃ ~ +85℃ / 65℃, 80%
Salt spray(5%)		720hrs
Environment Class	Mating sealing	IP67
	Inner sealing	IP67

4.3/10 NEXT

Basically Telcon new 4.3/10 Advanced connector is upgrading interface version which prevent 4.3/10 jack connectors from accidently mating with 4.1-9.5 male connector. Moreover Telcon offers special features od mechanical spec with 500 mating durability, and environmental spec with salt spray testing with 720hrs guarantee. This small change make Telcon.

- Eliminating the risk of mating with 4.1-9.5 male connector
- Excellent coating technology
- IEC standard compatible

Parameter		Specifications
Frequency Range		DC ~6.0GHz
Impedance		50ohm(Nominal)
Return loss (VSWR)		< -36.6dBdB(VSWR 1.03) @4GHz
		< -32.2dBdB(VSWR 1.05) @6GHz
Insertion loss		> -0.05dB x √ f(GHz)
Insulation resistance		> 5000MΩ
Contact Resistance(mOhm)		Inner Contact ≤1.0mΩ
		Outer Contact ≤1.5mΩ
Isolation		< -110dB min. @6GHz, screw type
		< -90dB min. @3GHz, Hand screw, Quick lock type
		< -70dB min. @3~6GHz, Hand screw, Quick lock type
PIMD		< -166dBc(+43dBm/2tone)
		< -160dBc(+46dBm/2tone)
Durability		100matings
Temperature / Humidity Range		-40℃ ~ +85℃ / 65℃, 80%
Salt spray(5%)		720hrs
Environmrnt Class	Mating sealing	IP67
	Inner sealing	Air leak 0.15bar 1Min
Material (Finish)		Body : Bs (TIP)
		Inner : BeCu, Bs (Silver)
		Insulator : PTFE
		Gasket : silicone rubber

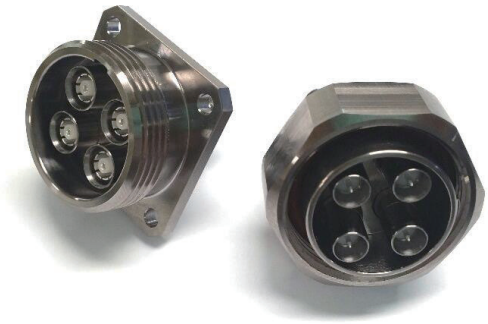
Connector & with Coupler Port Connector

Wireless mobile communication is one of the rapidly growing industries which requires high transmission power and low noise level technology. The 7/16 is a reference to the 7 mm inside diameter of the female inner contact and the corresponding 16 mm ID of the outer contact.
It is designed in consideration of mechanical robustness , and has very stabilization construction.
Telcon use 7/16 Din connector with widely application like outdoor jumper cable, RRH I/O port, and adaptors, and very proud of to be featured in high level plating technology in the name of TCP/TIP enduring more than 720hours in harsh environment.

Parameter		Value
Frequency Range		dc ~ 6GHz
Impedance		50ohm(Nominal)
Return Loss		< −23.1dB(VSWR 1.15)
Coupling Value		−30.0~−50.0dB @3.5GHz (±1dB Freq. Point, B/W 100MHz)
Insertion Loss		> −0.05 x √f(GHz)
Insulation resistance		> 10,000MΩ
Contact Resistance(mOhm)		Inner Contact ≤0.4mΩ
		Outer Contact ≤1.5mΩ
Isolation		< −90dB min. @3GHz
Input Power		500W @2GHz
PIMD		< −165dBc(+43dBm/2tone)
Durability		500matings
Temperature / Humidity Range		−40℃ ~ +85℃ / 65℃, 80%
Salt spray(5%)		720hrs
Environment Class	Mating sealing	IP67
	Inner sealing	Airleak 0.15bar 1Min.
Material (Finish)		Body : Bs(TIP) Inner : BeCu, Bs(Silver) Insulator : PTFE Gasket: Silicone rubber Chain : STS(PASSIVITY)

Multi Port RF Connector

Stable PIM Performance The inner connector implemented with the size of SMA is small but provides stable and low PIM performance (160dBc 3rd).
Economical space Application The DIN (7/16) connector-sized multi-port connector can accommodate 4 RF ports and an AISG port, allowing communication devices to design space more cost-effectively.

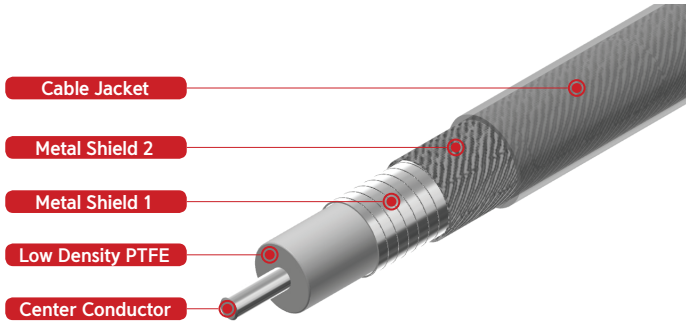


Parameter		Specifications
Frequency Range		DC ~6.0GHz
Impedance		50ohm(Nominal)
Return loss (VSWR)	3GHz	< -26.4dB(VSWR 1.10)
	6GHz	< -23.1dB(VSWR 1.15)
Insertion loss	Multi port connetor(Push-Pull type)	> -0.05dB x √ f(GHz)
	4.3/10 (Push-Pull type)	
	Cable (Flexiform 380 or Others)	> -0.59dB/m @3GHz
		> -0.88dB/m @6GHz
Insulation resistance		> 5000MΩ
Working voltage		< 330Vrms 50Hz, sea level
Screening Effectiveness	Multi port connetor	< -80dB@3GHz, inner connector
	4.3/10	< -90dB@3GHz
	Cable	< -110dB@6GHz
Input Power (@2.6GHz,25℃,CW)	Multi port connetor	< 300W
	4.3/10	< 500W
	Cable	< 150W
PIMD		< -160dBc(+43dBm/2tone)
Durability	Multi port connetor	100matings
	4.3/10	
Environmrnt Class		IP67(mating sealing)
Corrosion resistanse		720Hrs(Salt spray 5%), outside
Temperature / Humidity Range		-40℃ ~ +85℃ / 65℃, 80%
Material (Finish)	Connector	Coupling Nut : Bs (TIP)
		Body : Bs (TIP)
		Inner : BeCu, Bs (Silver)
		Insulator : PTFE
		Gasket : Silicone rubber
	Cable	Inner : SPC (Silver plated copper)
		Outer : tin soaked tin palted copper (beaid)
		Insulator : PTFE
		Jacket : PVC

TLS & TS Series

Available Connectors

- **TLS150**
  - 2.92mm(Plug & Jack)
  - SMA(Plug & Jack)
- **TLS210**
  - 3.5mm(Plug)
  - SMA(Plug)
  - N(Plug)
- **TS180**
  - SMA(Plug)
  - N(Plug)



Key Features of TLS & TS series microwave cable assemblies

- Maximized phase and amplitude stability through operating frequency.
- Minimized both reflective and insertion losses
- Stranded silver platted conductor and shield materials per ASTMB-298 allows outstanding flexibility while performing excellent lower attenuation and accomplishing amplitude stability.
- Low Density PTFE core per MIL-C-17, with dielectric constant 1.7 contributes higer velocity of propagation and electrical stability
- Unique cable jacketing is available for maximized flexibility and protection while electrical stability is still maintained.

PHYSICAL & ENVIRONMENTAL (Mechanical units are in mm)

SPECIFICATIONS	TLS150	TLS210	TS180
Operating Frequency	DC ~ 40GHz	DC ~ 26.5GHz	DC ~ 8.5GHz
Center Condutor	Ø1.00	Ø1.50	Ø1.25
Dielectric Core	Ø2.85	Ø4.05	Ø3.6
Shielding	Ø3.51	Ø4.76	Ø4.05
Outer Diameter	Ø5.5	Ø6.5	Ø5.80
Minimum Bending Radius	20	30	30
Impedance (ohm)	50(Norminal)	50(Norminal)	50(Norminal)
Velocity Of Propagation	76%	76%	76%
Time Delay	4.25 ns/m	4.25 ns/m	4.25 ns/m
RF Leakage	-90dB	-90dB	-90dB
Operating Temp.(℃)	-50℃ ~ 120℃	-50℃ ~ 120℃	-50℃ ~ 120℃
Jacketing	TPU*	TPU	TPU
Phase Stability vs. Flexure (through Operating Frequency)	8°	4°	2°
IL Stability vs. Flexure (dB @ Minumum BR)	-0.1 below	-0.1 below	-0.1 below

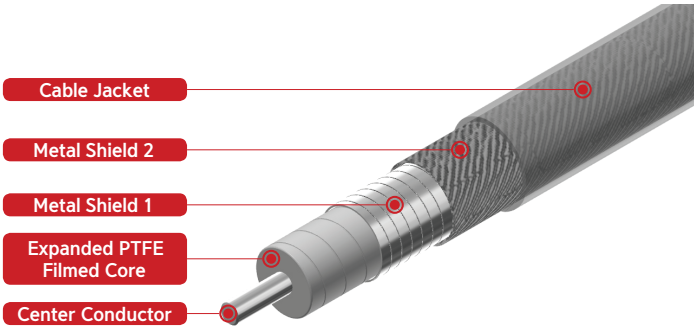
TES Series

Available Connectors

TES140
- 2.92mm(Plug & Jack)
- 3.5mm(Plug & Jack)

TES200
- 3.5mm(Plug)
- N(Plug)

TES310
- SMA(Plug)
- N(Plug)



Key Features of TES series microwave cable assemblies

- Increased phase and amplitude stability axross operating frequency is guaranteed versus flexure cycles and wide spectrum of operating temperature.
- Even lower reflective and insertion losses.
- Solid Silver Platted Conductor and its shield materials per ASTMB-298 and IPC-FC-221 allows outstanding flexibility while performing excellent lower attenuation and accomplishing amplitude and phase stability.
- Expanded PTFE core per MIL-C-17 Type-6, with dielectric constant 1.43 contributes even higher velocity of propagation and electrical stability where aerospace requirement is a must.
- FEP (Fluorinated Ethylene Prolylene) is a excellent jacket because og its high temperature resistance and chemical durability per MIL-T-81490

PHYSICAL & ENVIRONMENTAL (Mechanical units are in mm)

SPECIFICATIONS	TES140	TES200	TES310
Operating Frequency	DC ~ 40GHz	DC ~ 26.5GHz	DC ~ 18GHz
Center Condutor	Ø0.93	Ø1.40	Ø2.3
Dielectric Core	Ø2.5	Ø3.6	Ø6.3
Shielding	Ø3.1	Ø4.2	Ø7.25
Outer Diameter	Ø3.6	Ø5.1	Ø7.9
Minimum Bending Radius	20	30	30
Impedance (ohm)	50(Norminal)	50(Norminal)	50(Norminal)
Velocity Of Propagation	83%	83%	83%
Time Delay	4.0 ns/m	4.0 ns/m	4.0 ns/m
RF Leakage	-90dB	-90dB	-90dB
Operating Temp.(℃)	-50℃ ~ 120℃	-50℃ ~ 120℃	-50℃ ~ 120℃
Jacketing	FEP*	FEP	FEP
Phase Stability vs. Flexure (through Operating Frequency)	4°	3°	5°
IL Stability vs. Flexure (dB @ Minumum BR)	-0.1 below	-0.1 below	-0.1 below

2.2-5 Connector

Telcon RF's line of 2.2-5 connectors are a compact version of the previously released 4.3-10 connector series.
This connector series is lightweight and can accommodate various cable types.

Parameter	Specifications
Frequency Range	DC ~6.0GHz
Impedance	50Ω Nominal
Return loss	< -26.64dB @4GHz
	< -24.94dB @6GHz
Insertion loss	> -0.05dB x √ f f:Frequency(GHz)
Insulation resistance	> 3000MΩ
Dielectric withstanding Voltage	< 1500 Vrms @60Hz, sea level
Screening Effectiveness	> -90dB@3GHz (Screw)
	> -100dB@6GHz (Screw)
PIMD	< -166dBc @1800MHz (2Tone x 43dBm, 3th)
Power Handling	150W @2.6GHz
Durability	100 Cycles
Temperature	-40℃ ~ +85℃
Thermal Shock	MIL-STD-202F, Method 107, Condition B
Corrosion (Salt Mist)	MIL-STD-202F, Method 101
Moisture Resistance	MIL-STD-202F, Method 106
Vibration	MIL-STD-202F, Method 204, Condition A
Material (Finish)	Body : Bs (TIP)
	Pin : BeCu
	Insulator : PTFE
	Gasket : silicone rubber

MOC(multi optical connector)

Telcon's multi optical Connector is designed to provide multiple optical ports within a single connector, and it provides the following advantages.

- Selectable Coupling mechanism_ Push/Pull or Screw type
- Very easy(Fast) installation
- Cable-Saving design
- Robust housing and coupling mechanism
- Stable optical performance

Parameter		Value
Cable diameter		Customizing
Durability		100 matings
Temperature range		-40℃ ~ 80℃
Ingress protection		IP67
Corrosion resistance(salt 5%)		720hrs
UV resistance		Compliant
RoHS		Compliant
Material (Coating)		Brass, TIP
Optic	Composition	4 fibers MAX
	Mating module	1.25mm UPC, Zirconia
	Insertion Loss	-0.4dB @ 1310nm/1550nm, typical
	Return Loss	-45dB @ 1310nm/1550nm, typical

HCC (Hybrid Power & Fiber optic connector)

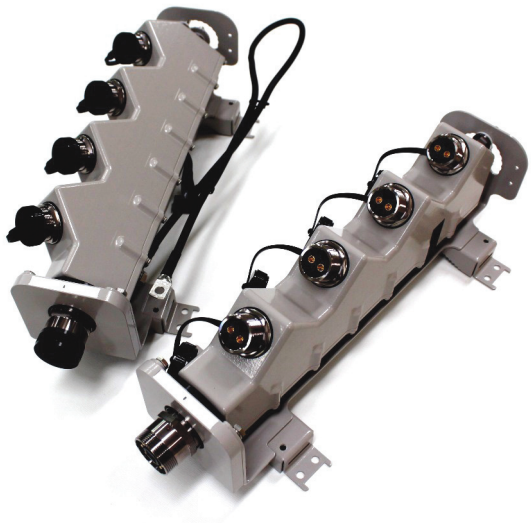
Telcon's Hybrid connector is designed to provide both fiber and power within a single connector, and it provides the following advantages.

- Selectable Coupling mechanism (Push/Pull or Screw type)
- Easy installation
- Cable-Saving design
- Very robust housing and coupling mechanism
- Working on high power, Stable optical performance

Parameter		Value
Cable diameter		Customizing
Durability		100 matings
Temperature range		-40℃ ~ 80℃
Ingress protection		IP67
Corrosion resistance(salt 5%)		720hrs
UV resistance		Compliant
RoHS		Compliant
Material (Coating)		Brass, TIP
Optic	Composition	4 fibers MAX.
	Mating module	1.25mm UPC, Zirconia
	Insertion Loss	-0.4dB @ 1310nm/1550nm, typical
	Return Loss	-45dB @ 1310nm/1550nm, typical
Power	Composition	1pair, DC(2C) or AC(3C)
	Working current	20A, 30A
	Working voltage	500V
	Cable conductor size	10SQ MAX

Hybrid Distribution Box for 4RRH

Hybrid connector is path-breaking technology for Hybrid junction box, and designed to integrate both fiber and power contact within single connector.
Hybrid distribution box is plug and play solution with factory pre-terminated ports, and designed to support latest composite feeder cable solution.
We used hybrid screw type and push-pull type connector as an input and output ports for fast and easy installation.
It allows also simple short connection between hybrid jumpers and RRU side.



Parameter		Value
Dimension	4way distribute	100(W)x 108(H) X 237(L)
Rotation range	Connector	0 ~ 180°
	Bracket	0 ~ 180°
Connectivity	Main part	8C/12fibers (24fibers MAX.)Hybrid connector - Power, 4pairs(8C), dc - Optic, 12fibers MTP or MPO, APC
	Distribute parts(x 2 or 4)	2C/4fibers Hybrid connector - Power, 1pairs(2C), dc - Optic, 4fibers MAX. 1.25mm UPC, Zirconia
Mounting Pole diameter		< 600mm
Mating durability		100 matings
Temperature range		-40℃ ~ 80℃
Ingress protection		IP67
Corrosion resistance(salt 5%)		720hrs
UV resistance		ok
RoHS compliant		ok
Material (Outside)	Box	AL6061 or ALDC12.1 / Powder Coating
	Connectors	Brass, Special plating
	Brackets & Screws	STS304
Data		
Optic	Insertion Loss	-1.1dB @ 1310nm/1550nm, typical
	Return Loss	-45dB @ 1310nm/1550nm, typical
Power	Working current	20A
	Working voltage	250V

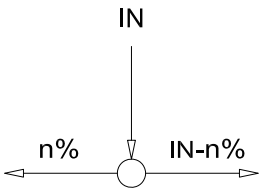
RF Components

POWER SPLITTER

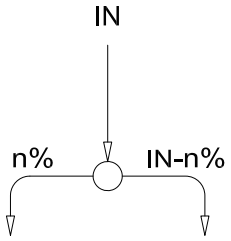
Coaxial Type

Low loss reactive splitters are used to distribute RF signals to multiple transceiver antennas or radiating cables. The RF power is evenly split to all outputs with excellent amplitude and
phase balance. In addition, output ratios up to 90:10 can be applied when uneven power levels are required depending on the transmission segment.

A Right Angle



B In-line



- Average 500Watt RF Power
- Typical -160dBc PIMD
- Typical 0.1dB Insertion Loss
- 50:50 ~ 90:10 Split ratio

Product List

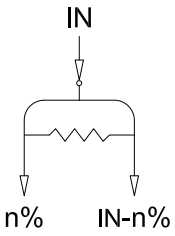
No.	Frequency range(GHz)	Split ratio	VSWR (Input)	Insertion loss (dB)	Connecter [Direction]	Power (Watt)	PIMD (dBc)
1	0.34~2.7	2way(Equal)	<1.25	<3.3	4.3/10	300	<-160
2	0.34~2.7	3way(Equal)	<1.30	<5.2	4.3/10	300	<-160
3	0.34~2.7	4way(Equal)	<1.25	<6.4	4.3/10	300	<-160
4	0.8~2.7	2way (Equal)	<1.2	<3.3	N, 7/16	500	<-150
5	0.8~2.7	2way (70:30)	<1.2	<2.1, <5.8	N, 7/16	500	<-150
6	0.8~2.7	3way (Equal)	<1.2	<5.5	N, 7/16	500	<-150
7	0.8~2.7	3way (50:25:25)	<1.2	<3.5, <6.5, <6.5	N, 7/16	500	<-150
8	0.7~2.7	2way (Equal)	<1.2	<3.2	N, 4.3/10, 7/16	500	<-160
9	0.7~2.7	3way (Equal)	<1.2	<5.0	N, 4.3/10, 7/16	500	<-160
10	0.7~2.7	4way (Equal)	<1.25	<6.3	N, 4.3/10, 7/16	500	<-160
11	0.7~2.7	2way (70:30)	<1.25	<2.1, <5.8	N	300	<-160
12	0.7~2.7	2way (80:20)	<1.25	<1.5, <8.0	N	300	<-160
13	0.7~2.7	2way (90:10)	<1.25	<0.7, <11	N	300	<-160
14	0.7~4.0	2way (Equal)	<1.2	<3.3	N, 4.3/10	500	<-155
15	0.7~4.0	3way (Equal)	<1.25	<5.2	N, 4.3/10	500	<-155
16	0.7~4.0	4way (Equal)	<1.3	<6.5	N, 4.3/10	500	<-155

POWER SPLITTER

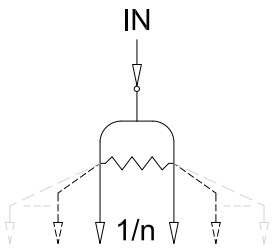
PCB Type

Wilkinson type combiners/splitters is ideally suited for equally combining or dividing low power multi-carrier multi-operator signals.

A



B



- Max. 200Watt RF Power
- 0.4 ~ 6GHz, Max. 20Way
- 50:50 ~ 70:30 Split ratio

Product List

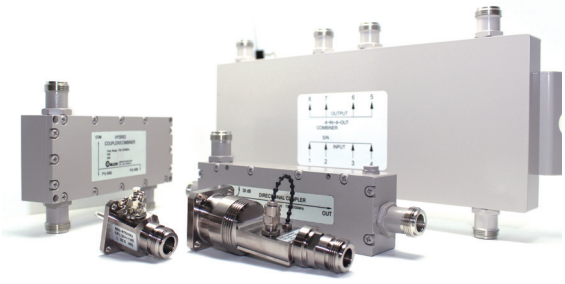
No.	Frequency range(GHz)	Split ratio	VSWR (Input)	Insertion loss (dB)	Isolation (dB)	connecter	Power (Watt)	PIMD (dBc)
1	0.88~0.9	2way(Equal)	<1.3	<3.8	>18	N	50	-
2	0.8~2.7	2way(Equal)	<1.2	<3.5	>20	N	50	<-140
3	0.8~2.7	2way(70:30)	<1.2	<2.2, <5.9	>20	N	50	<-140
4	0.8~2.7	3way(Equal)	<1.2	<6.0	>20	N	50	<-140
5	0.8~2.7	3way(50:25:25)	<1.2	<3.7, <7.0	>20	N	50	<-140
6	0.7~2.7	2way(Equal)	<1.2	<3.5	>20	SMA	50	-
7	0.7~2.7	4way(Equal)	<1.25	<7.0	>20	SMA	50	-
8	0.7~2.7	6way(Equal)	<1.3	<9.3	>20	SMA	50	-
9	0.7~2.7	8way(Equal)	<1.3	<11	>20	SMA	50	-
10	0.7~2.7	16way(Equal)	<1.3	<14	>20	SMA	50	-
11	0.7~2.7	20way(Equal)	<1.4	<15.5	>20	SMA	50	-
12	0.7~2.7	2way(Equal)	<1.2	<3.5	>20	N	50	<-140
13	0.7~2.7	3way(Equal)	<1.3	<5.6	>20	N	50	<-140
14	0.7~2.7	4way(Equal)	<1.3	<7.5	>18	N	50	<-140
15	0.7~2.7	2way(Equal)	<1.2	<3.6	>23	N	200	<-150
16	0.7~2.7	2way(70:30)	<1.2	<2.1,<5.6	>23	N	200	<-150
17	0.7~2.7	3way(Equal)	<1.2	<5.8	>23	N	200	<-150
18	0.7~2.7	3way(50:25:25)	<1.2	<3.6, <7.0, <7.0	>23	N	200	<-150
19	0.7~3.6	3way(Equal)	<1.3	<5.8	>18	N	150	<-150
20	0.7~3.6	4way(Equal)	<1.3	<7.0	>18	N	150	<-150
21	0.4~6.0	2way(Equal)	<1.5	<4.2	>16	SMA	10	-
22	0.7~6.0	4way(Equal)	<1.5	<8.2	>16	SMA	10	-
23	0.7~6.0	6way(Equal)	<1.5	<10.5	>16	SMA	10	-
24	0.7~6.0	8way(Equal)	<1.5	<12.3	>16	SMA	10	-
25	0.7~6.0	16way(Equal)	<1.5	<16.0	>16	SMA	10	-

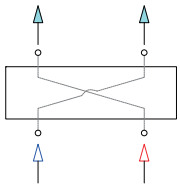
COMBINER

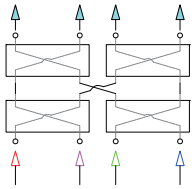
Hybrid Combiner

Hybrid coupler has been designed to meet the special needs of the wireless market.
They are most commonly used to combine wireless carriers in the band to a single antenna feed or distribution cable. You can choose the coverage by referring to PIMDs, IP Classes, installation structures, and topology specifications.

A 2X2 Hybrid Combiner B 4X4 Hybrid Combiner







- Max. 200Watt RF Power
- Typical -160dBc PIMD Product Constitution
- 0.4 ~ 6GHz Wide Band Frequency
- 50:50 ~ 70:30 Split ratio

Product List

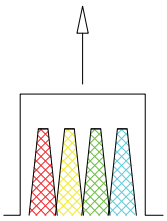
No.	Frequency range(GHz)	Input Output	VSWR (Input)	Insertion loss(dB)	Isolation (dB)	Connector	Power (Watt)	PIMD (dBc)	Phase (Degrees)
1	0.38~0.49	2x2	<1.2	3.1±0.4	>30	N	100	-	90±5
2	0.38~0.49	4x4	<1.2	6.1±0.8	>25	N	100	-	-
3	0.7~2.7	2x1	<1.2	3.1±0.5	>28	N, 7/16	100	<-150	-
4	0.7~2.7	3x1	<1.2	5.0±0.8	>25	N, 7/16	100	<-150	-
5	0.7~2.7	2x2	<1.2	3.1±0.5	>25	N, 7/16	100	<-150	90±5
6	0.7~2.7	2x2	<1.2	3.1±0.5	>28	N, 7/16	250	<-155	90±5
7	0.7~2.7	4x4	<1.2	6.2±0.8	>23	N, 7/16	100	<-150	-
8	0.7~3.6	2x2	<1.2	3.2±0.5	>25	N, 4.3/10	100	<-150	90±5
9	0.7~3.6	3x1	<1.3	< 5.8	>18	N, 4.3/10	20	-	-
10	0.7~3.6	4x1	<1.3	< 7.0	>18	N, 4.3/10	20	-	-
11	0.7~4.0	2x2	<1.25	3.2±0.6	>18	SMA	100	-	90±5
12	2.0~6.0	2x2	<1.25	3.1±0.6	> 20	N	150	<-150	-

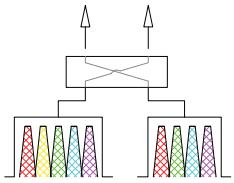
COMBINER

Multiplexer & Combination type

The Cavity filter has a very good separation between different frequency bands, and the insertion loss is excellent as well. In an outdoor environment for multl-carrier, Multl-Antenna deployments, the most suitable product of a combination of signals between multiple spectrum bands and carriers can be provided.

A General Multiplexer B 9x1 Combiner





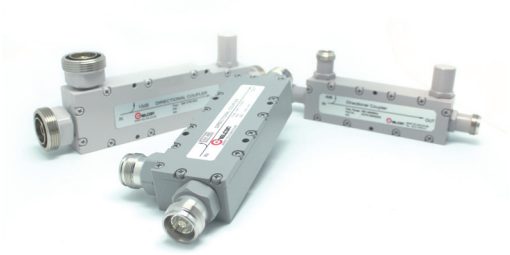
- Max. 200Watt RF Power
- Typical -150dBc PIMD Product Constitution
- 0.4 ~ 6GHz Wide Band Frequency
- 50:50 ~ 70:30 Split ratio

Product List

No.	Frequency range(GHz)	Input Output	VSWR (Input)	Insertion loss(dB)	Isolation (dB)	Connector	14mm	PIMD (dBc)
1	0.80 ~ 0.96 1.71~1.88	2x1	<1.25	<0.5	>50	N	100	-
2	0.80~0.96 1.71~1.88 1.92~2.17	3x1	<1.25	<0.5	>50	N	100	-
3	0.69~0.96 1.71~1.88 1.92~2.17 2.50~2.70	4x1	<1.25	<0.5	>50	N, 7/16	100	<-150
4	0.69~2.70-5port 0.80~2.70-4port	9x1	<1.3	<6.0	>35	N, 7/16	100	<-150

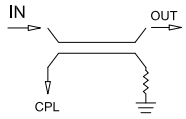
COUPLER

Directional Couplers is a tapered stripline design covering from 698 to 3600 MHz. Units couple off a defined fraction of signal with minimal reflections or loss. Availability in a wide range of coupling values makes this series useful in optimizing the power distribution required in passive inbuilding distributed antenna systems (DAS).

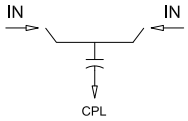


- Max. 500Watt RF Power
- Typical -160dBc PIMD Product Constitution
- Wide Band Frequency

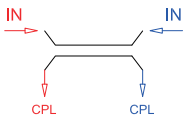
A Directional Coupler



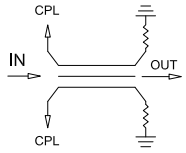
B None Directional Coupler



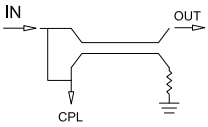
C Bi-Directional Coupler



D Dual Coupler



E DC Pass Coupler



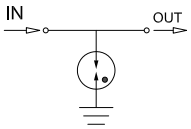
Product List

No.	Frequency range(GHz)	Coupling Ports (dB)		VSWR (Input)	Insertion loss(dB)	Directivity (dB)	Connector (Circuit)	Power (Watts)	PIMD (dBc)
1	0.8~2.7	10, 20, 30, 50 Dual Ports	±1.0	<1.2	<1.2~0.2	>20	N	100	<-150
2	0.7~2.7	5, 6, 7, 8, 10 13, 15, 20, 30, 40	±1.0	<1.2	<2.0~0.3	>20	N, 7/16	100	<-155
3	0.7~3.6	6, 8, 10, 13 15, 20	±1.0	<1.2	<1.6~0.3	>20	N	100	<-150
4	0.7~4.0	6, 10, 15, 20	±1.0	<1.2	<1.6~0.3	>20	N, 4.3/10	100	<-155
5	DC, 0.01 0.4~2.7	10	±1.0	<1.2	<3.0~1.8	>10	N	100	-
6	BW 40MHz	30, 40, 50	±1.0	<1.1	< 0.2	None	N, 4.3/10 7/16	500	-
7	0.7~2.7	6, 10, 15, 20	±1.0	<1.2	<1.2~0.3	None	N, 4.3/10 7/16	500	-

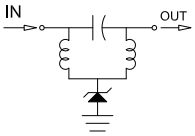
ARRESTOR

Coax surge protectors protect valuable communications equipment in wireless networks. We offer DC-6 GHz, quarter wave styles, and more. These coax surge protector and lightning protectors feature popular connectors including: Type N, DIN 7/16.

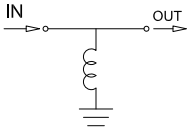
A GDT
(GAS DICHARGED
TUBE)



B Improved GDT



C Shorted Stub



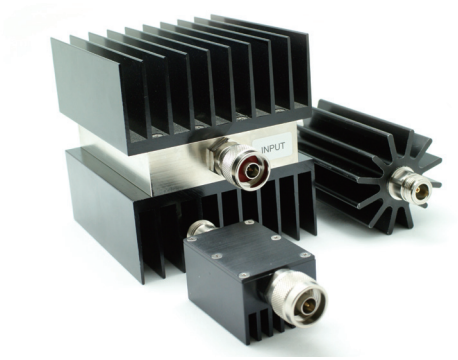
- Max. 500Watt RF Power
- Typical -160dBc PIMD Product Constitution
- DC ~ 6GHz Wide Band Frequency
- Low residual voltage

Product List

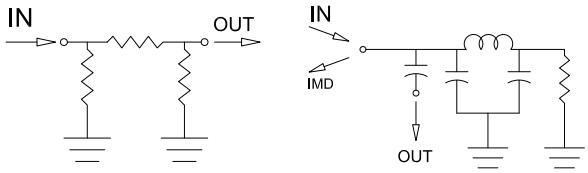
No.	Frequency range(GHz)	DC Spark over Voltage(V)	Max Surge Current(A)	VSWR (Input)	Insertion loss(dB)	Connector	RF Power (Watts)	PIMD (dBc)
1	0.34~0.52	GND SHORT	40K(8/20us)	<1.3	<0.2	4.3/10	500	-
2	1.0~1.8	90	20K(8/20us)	<1.2	<0.3	N	30	-
3	DC~3.0	90, 230	20K(8/20μs)	<1.2	<0.3	N	20	-
4	DC~6.0	90	20K(8/20μs)	<1.3	<0.6	N	20	-
5	0.7~2.7	0 GND SHORT	50K(8/20μs)	<1.2	<0.1	N, 7/16	500	<-150
6	0.7~3.6	0 GND SHORT	50K(8/20μs)	<1.3	<0.2	N, 7/16	500	<-150
7	0.34~4.0	DC BLOCK	-	<1.25	<0.3	4.3/10	300	<-155
8	0.2~6.0	0 GND SHORT	20K(8/20μs)	<1.3	<0.3	N	100	<-150

ATTENUATOR

High power attenuators include a comprehensive range from 1 to 300 Watts with a large choice of connectors available. Designed to cover up to 6 GHz frequency with possibility of fixed attenuation to 1~30 dB, they offer excellent electrical and mechanical performances : reliability and safety are ensured.



A General Attenuator B Low PIMD Attenuator



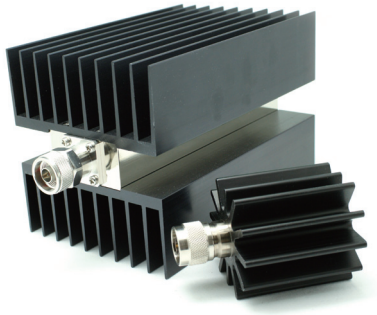
- Max. 300Watt RF Power
- Typical -160dBc PIMD Product Constitution
- DC~6GHz Wide Band Frequency
- 1~60dB, 1dB Step Product Constitution

Product List

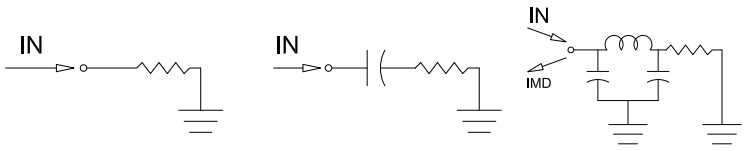
No.	Power (Watts)	Frequency range(GHz)	Attenuation (dB)	VSWR (Input)	Connector	PIMD (dBc)	Note
1	1	DC~3.0	1~60, 1-step	<1.2	SMA, N	-	
2	2	DC~6.0	1~10, 1-step 15, 20, 30	<1.3	SMA, N	-	
3	5	DC~6.0	3, 6, 10, 20, 30	<1.2	SMA, N	-	
4	10	DC~3.0	10, 20, 30	<1.2	N	-	
5	20	DC~4.0	3, 6, 10, 20, 30	<1.2	N	-	
6	50	DC~4.0	3, 6, 10, 20, 30	<1.2	N	-	
7	100	DC~3.0	10, 20, 30	<1.2	N	-	
8	150	DC~3.0	10, 20, 30	<1.2	N,	-	
9	150	0.7~3.6	10, 20, 30	<1.3	N, 7/16, 4.3/10	<-155	LOW PIMD
10	300	0.7~2.7	30	<1.3	N, 7/16	-	
11	150	0.7~5.0	30, 40	<1.5	N	<-160	LOW PIMD

TERMINATION

High Power Terminations include a comprehensive range from 1 to 1000 Watts, with a large choice of connector options available. Designed to cover up to 18 GHz frequency, High Power Terminations offer excellent electrical and mechanical performances and provide reliability and safety.



A General Load B DC Block Load C Low PIMD Load



- Max. 1KW RF Power
- Typical -165dBc Low PIMD Product Constitution
- DC~18GHz Wide Band Frequency
- DC Block Seletable

Product List

No.	Power (Watts)	Frequency range(GHz)	VSWR (Input)	Connector	PIMD (dBc)	Note
1	1	DC~3.0	<1.1	SMA, N	-	
2	1	DC~18.0	<1.22	SMA	-	
3	2	30KHz~3.0	<1.2	N	-	DC BLocK
4	5	DC~3.0	<1.2	N, 7/16	-	
5	10	DC~4.0	<1.2	N, 7/16	-	
6	20	DC~3.0	<1.2	N, 7/16	-	
7	30	DC~4.0	<1.2	N, 7/16	-	
8	50	DC~4.0	<1.2	N, 7/16	-	
9	50	0.7~4.0	<1.3	N, 4.3/10, 7/16	<-155	LOW PIMD
10	100	DC~3.0	<1.2	N, 7/16	-	
11	150	DC~3.0	<1.2	N, 7/16	-	
12	150	0.7~4.0	<1.3	N, 4.3/10, 7/16	<-155	LOW PIMD
13	150	DC~6.0	<1.3	N, 7/16	<-160	LOW PIMD
14	200	DC~6.0	<1.35	N, 7/16	-	
15	250	DC~3.0	<1.2	N, 7/16	-	
16	1000	0.7~2.7	<1.3	N, 7/16	-	

Fiber Optic

Screw type Multi optical connectors

16HEX, 19HX, 26HEX Series

Telcon's Screw type multi optical Connector is designed to provide multiple optical ports within a single connector, and it provides the following advantages.

- Easy installation
- Cable-Saving design
- Very robust housing and coupling mechanism
- Stable optical performance

Parameter			Value
Dimension(Front coupling part)			Φ17.6, 16HEX
			Φ25.0, 19HEX
			Φ27.8, 26HEX
Cable diameter			Customizing
Durability			100 matings
Temperature range			-40℃ ~ 80℃
Ingress protection			IP67
Corrosion resistance(salt 5%)			720hrs
Cable retention force			80 kgf
UV resistance			Compliant
RoHS			Compliant
Material (Coating)			Brass, TIP (Patent)
Optic	Composition	Φ17.6, 16HEX	4 fibers MAX
		Φ25.0, 19HEX	8 fibers MAX
		Φ27.8, 26HEX	12 fibers MAX
	Mating module		1.25mm UPC, Zirconia
	Insertion Loss		-0.4dB @ 1310nm/1550nm, typica
	Return Loss		-45dB @ 1310nm/1550nm, typical

Push/Pull type Multi optical connectors

Telcon's Push/Pull type multi optical Connector is designed to provide multiple optical ports within a single connector, and it provides the following advantages.

- Very easy(Fast) installation
- Cable-Saving design
- Robust housing and coupling mechanism
- Stable optical performance

Parameter		Value
Dimension(Front coupling part)		Φ18.1
Cable diameter		Customizing
Durability		100 matings
Temperature range		-40℃ ~ 80℃
Ingress protection		IP67
Corrosion resistance(salt 5%)		720hrs
Cable retention force		20 kgf
UV resistance		Compliant
RoHS		Compliant
Material (Coating)		Brass, TIP (Patent)
Optic	Composition	4 fibers MAX
	Mating module	1.25mm UPC, Zirconia
	Insertion Loss	-0.4dB @ 1310nm/1550nm, typical
	Return Loss	-45dB @ 1310nm/1550nm, typical

Screw type Hybrid connectors

26HEX Series

Telcon's Screw type hybrid connector is designed to provide both fiber and power within a single connector, and it provides the following advantages

- Easy installation
- Cable-Saving design
- Very robust housing and coupling mechanism
- Stable optical performance

Parameter		Value
Dimension(Front coupling part)		Φ27.8, 26HEX
Cable diameter		Customizing
Durability		100 matings
Temperature range		-40℃ ~ 80℃
Ingress protection		IP67
Corrosion resistance(salt 5%)		720hrs
Cable retention force		80 kgf
UV resistance		Compliant
RoHS		Compliant
Material (Coating)		Brass, TIP (patent)
Optic	Composition	4 fibers MAX.
	Mating module	1.25mm UPC, Zirconia
	Insertion Loss	-0.4dB @ 1310nm/1550nm, typical
	Return Loss	-45dB @ 1310nm/1550nm, typical
Power	Composition	1pair(2C), dc
	Working current	30A
	Working voltage	2500V
	Cable conductor size	10SQ MAX

Screw type Hybrid connectors

32HEX Series

Telcon's Screw type hybrid connector is designed to provide both fiber and power within a single connector, and it provides the following advantages.

- Easy installation
- Cable-Saving design
- Very robust housing and coupling mechanism
- Multi connection design, and Stable optical performance

Parameter		Value
Dimension(Front coupling part)		Φ34.5, 32HEX
Cable diameter		Customizing
Durability		100 matings
Temperature range		-40℃ ~ 80℃
Ingress protection		IP67
Corrosion resistance(salt 5%)		720hrs
Cable retention force		80 kgf
UV resistance		Compliant
RoHS compliant		Compliant
Material (Coating)		Brass, TIP (Patent)
Optic	Composition	4 fibers MAX.
	Mating module	1.25mm UPC, Zirconia
	Insertion Loss	-0.4dB @ 1310nm/1550nm, typical
	Return Loss	-45dB @ 1310nm/1550nm, typical
Power	Composition	1pair(2C), dc
	Working current	40A
	Working voltage	300V
	Cable conductor size	10SQ MAX

Screw type Hybrid connectors

39HEX Series

Telcon's Screw type hybrid connector is designed to provide both a lots of fiber and power within a single connector. And it provides the following advantages.

- Easy installation
- Cable-Saving design
- Very robust housing and coupling mechanism
- Multi connection design, and Stable optical performance

Parameter		Value
Dimension(Front coupling part)		Φ41.6, 39HEX
Cable diameter		Customizing
Durability		100 matings
Temperature range		-40℃ ~ 80℃
Ingress protection		IP67
Corrosion resistance(salt 5%)		720hrs
Cable retention force		150 kgf
UV resistance		Compliant
RoHS compliant		Compliant
Material (Coating)		Brass, TIP (Patent)
Optic	Composition	12 fibers typical
	Mating module	MTP or MPO, APC
	Insertion Loss	-0.7dB @ 1310nm/1550nm, typical
	Return Loss	-50dB @ 1310nm/1550nm, typical
Power	Composition	4pair(8C), dc
	Working current	30A
	Working voltage	250V
	Cable conductor size	10SQ MAX

Push/pull type Hybrid connectors

24mm Series

Telcon's Push/pull type hybrid connector is designed to provide both fiber and power within a single connector. And it provides the following advantages.

- Very easy(Fast) installation
- Cable-Saving design
- Robust housing and coupling mechanism
- Stable optical performance

Parameter		Value
Dimension(Front coupling part)		Φ23.7
Cable diameter		Customizing
Durability		100 matings
Temperature range		-40℃ ~ 80℃
Ingress protection		IP67
Corrosion resistance(salt 5%)		720hrs
Cable retention force		50 kgf
UV resistance		Compliant
RoHS compliant		Compliant
Material (Coating)		Brass, TIP (Patent)
Optic	Composition	4 fibers MAX.
	Mating module	1.25mm UPC, Zirconia
	Insertion Loss	-0.4dB @ 1310nm/1550nm, typical
	Return Loss	-45dB @ 1310nm/1550nm, typical
Power	Composition	1pair(2C), dc
	Working current	15A
	Working voltage	200V
	Cable conductor size	6SQ MAX

Push/pull type Hybrid connectors

26mm Series

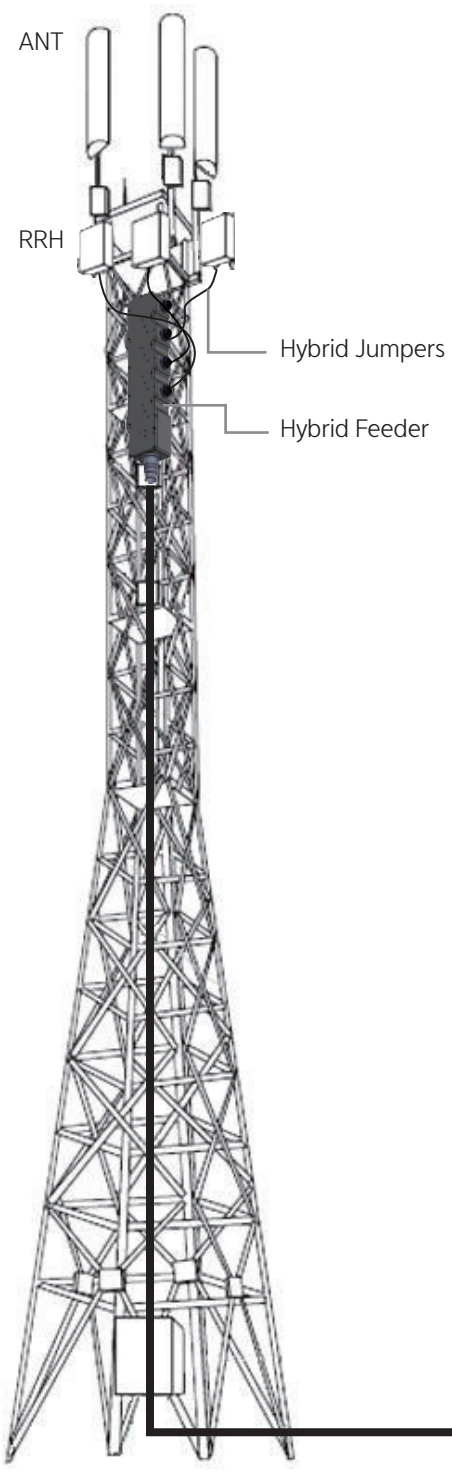
Telcon's Push/pull type hybrid connector is designed to provide both fiber and power within a single connector. And it provides the following advantages.

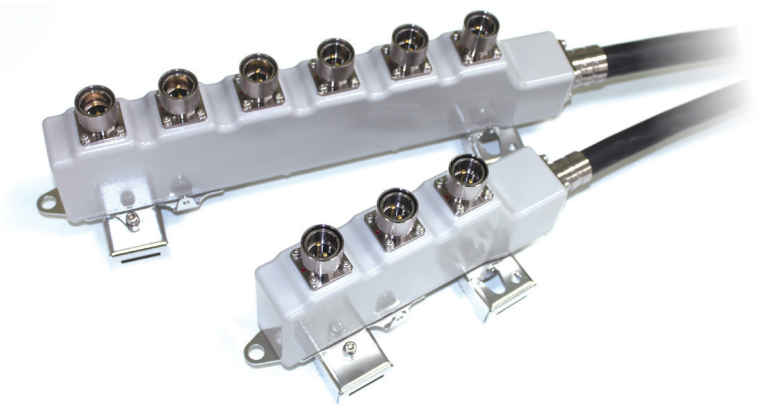
- Very easy(Fast) installation
- Cable-Saving design
- Robust housing and coupling mechanism
- Stable optical performance

Parameter		Value
Dimension(Front coupling part)		Φ25.7
Cable diameter		Customizing
Durability		100 matings
Temperature range		-40℃ ~ 80℃
Ingress protection		IP67
Corrosion resistance(salt 5%)		720hrs
Cable retention force		50 kgf
UV resistance		Compliant
RoHS compliant		Compliant
Material (Coating)		Brass, TIP (Patent)
Optic	Composition	4 fibers MAX.
	Mating module	1.25mm UPC, Zirconia
	Insertion Loss	-0.4dB @ 1310nm/1550nm, typical
	Return Loss	-45dB @ 1310nm/1550nm, typical
Power	Composition	1pair(2C), dc
	Working current	30A
	Working voltage	250V
	Cable conductor size	8SQ MAX

Hybrid Feeder & Jumper assembly

Push/Pull Series (distribute parts)





- Easy, and safety installation
- Robust housing and coupling mechanism
- Compact Design
- Fiber and power output within single connector

Hybrid connector is path-breaking technology for Telcon HTTA solution, and designed to integrate both fiber and power contact within single connector.

In the early days, Fiber to the Antenna designs fiber and power cables were installed separately, but also no flexibility for future expansion. Every time equipment is added to the tower with new power and fiber lines are need to be installed. This method becomes far more expensive, because the cost returns to the site.

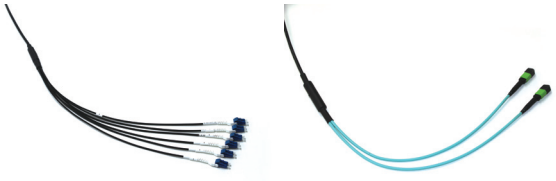
On the other hands, Hybrid feeder & jumpers has a massive advantage over most of its previous solution. This solution provides much flexibility for future expansion, and lower capital labor costs.

Hybrid Feeder & Jumper assembly

Push/Pull Series (distribute parts)

Parameter			Value
Dimension		3way distribute	100(W) x 125(H) x 270(L)
		6way distribute	100(W) x 125(H) x 420(L)
Main cable		3way	3/3 Hybrid cable (6SQ/6C, 6fibers)
		6way	6/6 Hybrid cable (6SQ/12C, 12fibers)
Connectivity of Distribute parts (x 3 or 6)			2C/4fibers Hybrid connector(Push/Pull type) -Power, 1pairs(2C),dc -Optic, 4fibers MAX. 1.25mm UPC, Zirconia
Mounting Pole diameter			< 600mm
Mating durability			100 matings
Pulling force			1500N(short-term during installation)
Temperature range			-40℃ ~ 80℃
Ingress protection			IP67
Corrosion resistance(salt 5%)			720hrs
UV resistance			ok
RoHS compliant			ok
Material (Outside)	Box		AL6061 or ALDC12.1 / Powder Coating
	Connectors		Brass, Special plating
	Brackets & Screws		STS304
Data			
Optic		Insertion Loss	-1.4dB @1310nm/1550nm, typical(with Jumper)
		Return Loss	-45dB @1310nm/1550nm, typical
Power		Working current	23A
		Conductor resistance	3.08Ω/Km @20℃ (nominal)

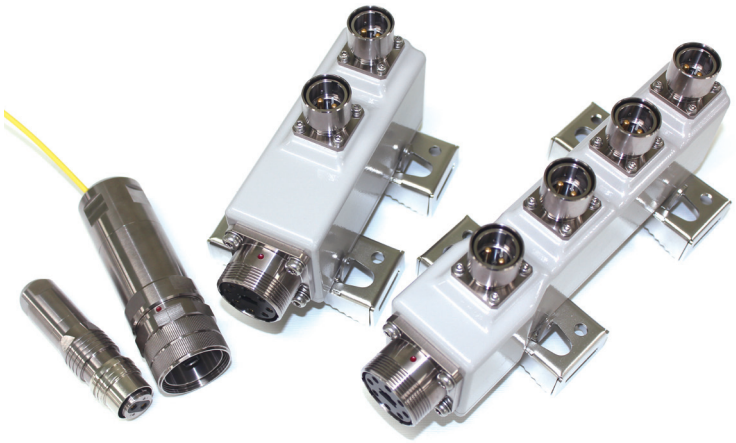
-LC or MPO connector BBU side



-Jumper for RU side

Hybrid Distribution Box

Hybrid connector is path-breaking technology for Hybrid juntion box, and designed to integrate both fiber and power contact within single connector.
Hybrid distribution box is plug and play solution with factory pre-terminated ports, and designed to support latest composite feeder cable solution. We used hybrid screw type and push-pull type connector as an input and output ports for fast and easy installation.
It allows also simple short connection between hybrid jumpers and RRU side.



Hybrid Distribution Box

Screw Series (distribute parts)

- Easy, and safety installation
- Robust housing and coupling mechanism
- Compact Design
- Fiber and power output within single connector

Parameter			Value
Dimension		2way distribute	100(W) x 108(H) x 161(L)
		4way distribute	100(W) x 108(H) x 285(L)
Connectivity		Main part	8C/12fibers Hybrid connector(Screw type) -Power, 4pairs(8C),dc -Optic, 12fibers MTP or MPO, APC
		Distribute parts(x 2 or 4)	2C/4fibers Hybrid connector(Screw type) -Power, 1pairs(2C),dc -Optic, 4fibers MAX. 1.25mm UPC, Zirconia
Mounting Pole diameter			< 600mm
Mating durability			100 matings
Temperature range			-40℃ ~ 80℃
Ingress protection			IP67
Corrosion resistance(salt 5%)			720hrs
UV resistance			Compliant
RoHS compliant			Compliant
Material (Outside)	Box		AL6061 or ALDC12.1 / Powder Coating
	Connectors		Brass, Special plating
	Brackets & Screws		STS304
Data			
Optic		Insertion Loss	-1.1dB @ 1310nm/1550nm, typical
		Return Loss	-45dB @ 1310nm/1550nm, typical
Power		Working current	30A
		Working voltage	250V

Hybrid Distribution Box

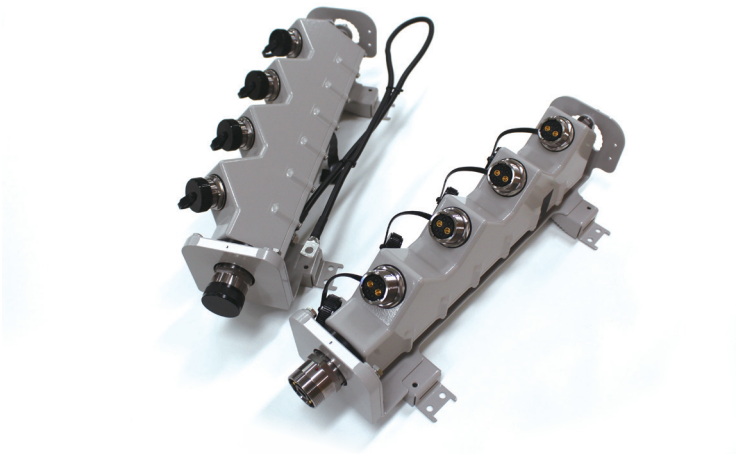
Push/Pull Series (distribute parts)

- Easy, and safety installation
- Robust housing and coupling mechanism
- Compact Design
- Fiber and power output within single connector

Parameter			Value
Dimension		2way distribute	100(W)x 108(H) X 161(L)
		4way distribute	100(W)x 108(H) X 237(L)
Connectivity		Main part	8C/12fibers Hybrid connector(Push/Pull type) -Power, 4pairs(8C),dc -Optic, 12fibers MTP or MPO, APC
		Distribute parts(x 2 or 4)	2C/4fibers Hybrid connector(Push/Pull type) -Power, 1pairs(2C),dc -Optic, 4fibers MAX. 1.25mm UPC, Zirconia
Mounting Pole diameter			< 600mm
Mating durability			100 matings
Temperature range			-40℃ ~ 80℃
Ingress protection			IP67
Corrosion resistance(salt 5%)			720hrs
UV resistance			ok
RoHS compliant			ok
Material (Outside)	Box		AL6061 or ALDC12.1 / Powder Coating
	Connectors		Brass, Special plating
	Brackets & Screws		STS304
Data			
Optic		Insertion Loss	-1.1dB @ 1310nm/1550nm, typical
		Return Loss	-45dB @ 1310nm/1550nm, typical
Power		Working current	30A
		Working voltage	250V

Hybrid Distribution Box

Rotation type



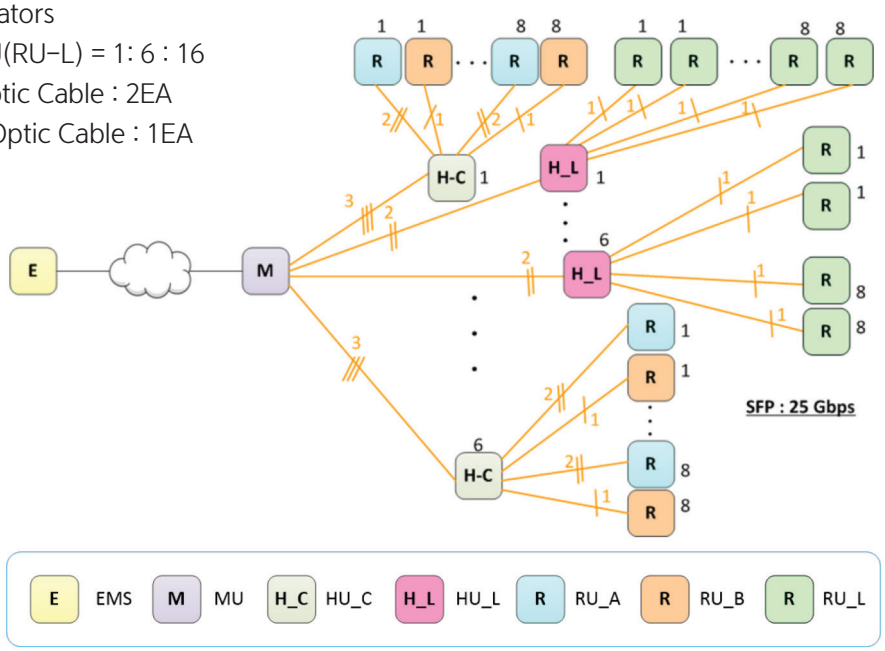
- Easy, and safety installation
- Robust housing and coupling mechanism
- Compact Design
- Fiber and power output within single connector

Parameter			Value
Dimension		2way ,4way distribute	100(W)x 108(H) X 237(L)
Rotation range		Connector	0 ~ 180°
		Bracket	0 ~ 180°
Connectivity		Main part	8C/12fibers (24fibers MAX.)Hybrid connector -Power, 4pairs(8C),dc -Optic, 12fibers MTP or MPO, APC
		Distribute parts(x 2 or 4)	2C/4fibers Hybrid connector -Power, 1pairs(2C),dc -Optic, 4fibers MAX. 1.25mm UPC, Zirconia
Mounting Pole diameter			< 600mm
Mating durability			100 matings
Temperature range			-40℃ ~ 80℃
Ingress protection			IP67
Corrosion resistance(salt 5%)			720hrs
UV resistance			ok
RoHS compliant			ok
Material (Outside)	Box		AL6061 or ALDC12.1 / Powder Coating
	Connectors		Brass, Special plating
	Brackets & Screws		STS304
Data			
Optic		Insertion Loss	-1.1dB @ 1310nm/1550nm, typical
		Return Loss	-45dB @ 1310nm/1550nm, typical
Power		Working current	20A
		Working voltage	250V

DAS & Power AMP

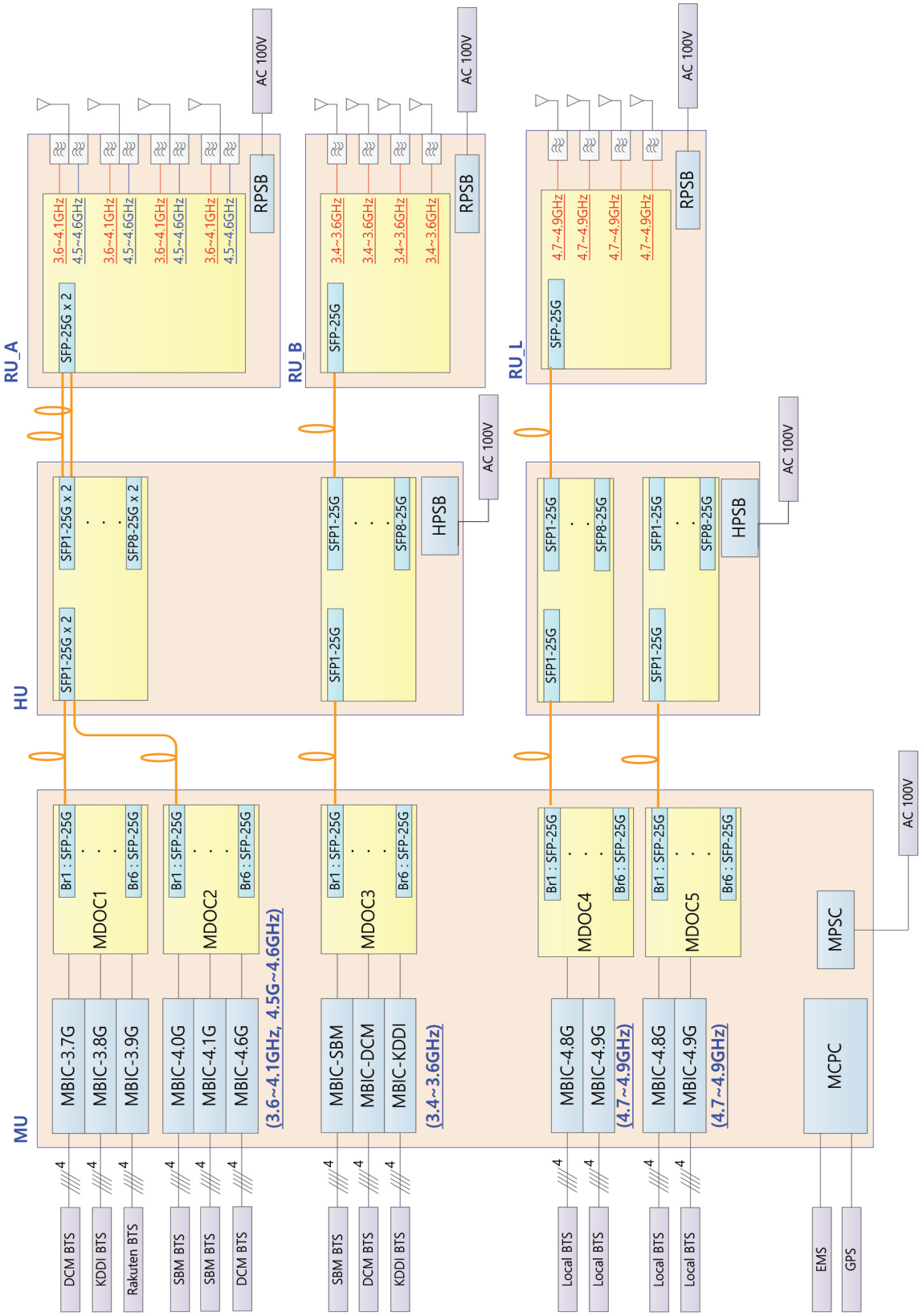
System Schematic

- MU: HU: RU = 1 : 12 : 192 (RU_A(5G): 48, RU_B(4G): 48, RU_L(L5G): 96)
- Carrier Operators
  MU:HU: RU(RU-A, RU-B) = 1: 6 : 8
  MU-HU Optic Cable : 3EA
  HU-RU_A Optic Cable : 2EA
  HU-RU_B Optic Cable : 1EA
- Local Operators
  MU:HU: RU(RU-L) = 1: 6 : 16
  MU-HU Optic Cable : 2EA
  HU-RU_L Optic Cable : 1EA

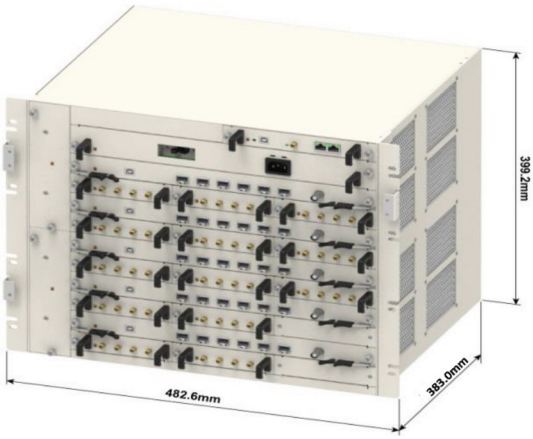


- Multi Operator/Band/4T4R System
- Flexible Structure
- Intelligent management
- 5G/4G & Local5G In-Building Distributed System
- Optimize transmission capacity with IQ compression
- Synchronous detection in signals and comparison between operators

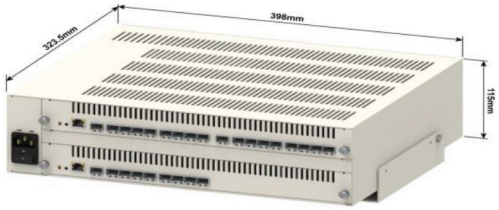
5G/4G, Local 5G Common DAS System Diagram



5G/4G, Local5G DAS System Appearance

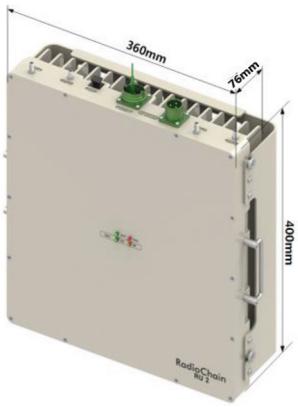


MU



HU

RU-A



RU-B

RU-L

System Output Power

RU Type	Band Name	Frequency	Bandwidth	Output Power/Port	Remark
RU_A	3.7G	3.6 ~ 4.1GHz	500MHz	32dBm/500MHz total	5G (NR) Service
	4.5G	4.5 ~ 4.6GHz	100MHz	27dBm/100MHz total	
RU_B	3.5G	3.4 ~ 3.6GHz	200MHz	27dBm/200MHz total	4G (TD-LTE)Service
RU_L	4.5G	4.7 ~ 4.9GHz	200MHz	30dBm/200MHz total	Local 5G Service

System Specification

Division	Specification
System Delay	8.0us
Passband Flatness	3.0dBp-p (100MHz), 2.5dBp-p (40MHz)
Port Isolation	45dB (DL), 45dB (UL)
DL Gain	3.7G : 35dB, 4.5G : 37dB, 3.5G : 27dB
ACLR	45dBc or -35dBm/1MHz
EVM	3%@256QAM (DL), 3%@64QAM (UL)
VSWR	1.5:1

Division	Specification
Optical Transmission Distance	MU-HU-RU : 5km / Equipment
Delay Control Range/ Control step	0~70us / 10ns
Delay Accuracy	±20ns
Port Delay	50ns
UL Gain	30dB
UL NF	6dB
UL IM3	-55dBc

Maintenance Tool GUI (Graphic User Interface)

- Field-oriented convenient use and lightweight program
- Access and control of all units without up/down structure and device connection position restrictions

Entry	Content
System Requirements	- Resolution (1024x768), OS (Window10 Recommended)
Interface	- Ethernet Access - USB Serial Access
Show Status	-Show device connections in a Tree structure -Icon color to display the latest status of your device
Security Features	- HTTPS, SSH, SFTP use encryption to increase security - Place important items as a hidden feature
Spectrum	- Provides the ability to analyze signal changes in the device - Min/Max Hold, Maker Frequency, Avg. Filter, Capture etc
Report Features	- View alarm and control histories up to 20,000 - Manage your history page by page to output selection (Excel File Output)
Multi-Download	- 17type RDL Files are packaged in 3 categories - System batch download regardless of unit type and file
Power Table	- Power, Temp Compensation, Att Accuracy Table setup and lookup - Table Graphic provision and package Save/Load function
Debugging	- Separate display of communication packets between each unit to improve debugging - AID Analysis providing and Excel file save
File Redundancy	- Image File redundancy enhances system stability

Power AMP

AMP Name	Band Name	Frequency	Bandwidth	Output Power	Remark
2G3G4G	925 Band	925~960	35M	30W or 50W	GSM, WCDMA, LTE
3G	2110 Band	2110~2170	60M	30W	WCDMA
4G	791 Band	791~821	30M	30W	LTE
4G	1805 Band	1805~1880	75M	30W or 50W	LTE
4G	2620 Band	2620~2690	70M	30W	LTE
5G	3300 Band	3300~3600 / 3600~3800	300M / 200M	50W	TD LTE
		3700~3980 / 3760~3980	280M / 220M		
Low	20 Band	20~1000M	980M	100W	CW
5G	5150 Band	5150~5925	775M	1.26W	TD LTE
ISA2007	700 Band	700~2700	2000M	100W	CW
ISA2013	1000 Band	1000~2000	1000M	1000W	CW. Pulse Width 100us. 10%
ISA3001	1215 Band	1215~1261	46M	200W	CW
ISA3002	1550 Band	1550~1610	60M	200W	CW

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