

SINCE 2003

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To Be The First Partners

- Wireless Products



Company Introduction

TRF Co., Ltd, a leading communication components manufacturer in Korea, has provided the products to major Korea wireless service providers including Korea Telecom, SK Telecom and LG Telecom.

High quality and competitive price of TRF products will help your company succeed.

Contact TRF now for your correct and proper wireless communication components.



INNOBIZ



ISO-9001



Letters Patent

• Business Domain

- Heater controller
- automotive signaling device
- Rear view system
- FSK modem
- Navigation system
- Boards for receiver



Electronic Control Device



Wireless System



Consulting

- Relay
- RF module
- Outsourcing
- Repair



RF Passive Components

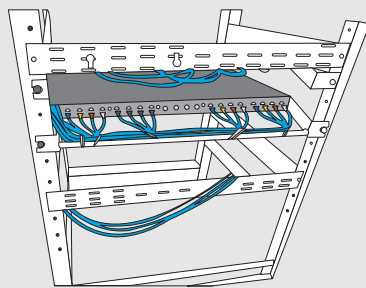
- Power divider
- Coupler
- Arrester
- Filter
- Attenuator
- RF Cable



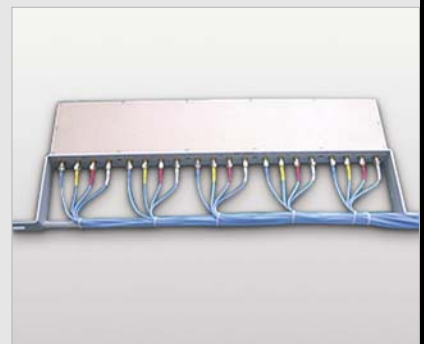
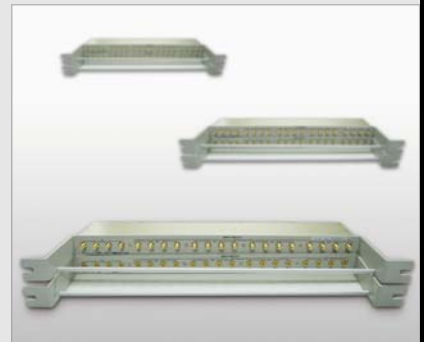
New Products Introduction

RF Distribution Unit (Order No : RDU4S080220/ RDU5S080220)

When coupling optical relays at telecommunication stations to expand mobile communication service, multiple power dividers are combined in general to distribute RF power. However, such method frequently not only causes failures as coupling points increase but also raises installation cost and difficulty in maintenance with many complicated cabling installed. Spiling of the appearance is another problem from the coupling way. TRF's RF distribution unit combines several power dividers into one unit, significantly reducing the installation and maintenance cost.

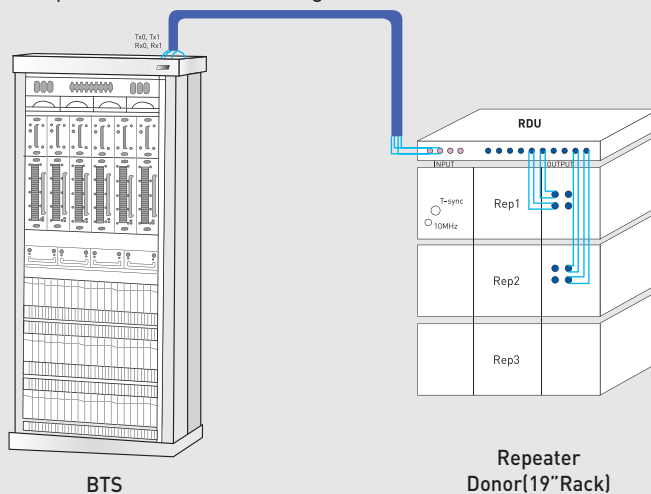


(Installation of 19" Rack)



Multi RF Cable (Order No : MRFC01S080258/ MIFC01S08025)

Many strips of cables are used in dividing RF Power signal at the telecommunication stations. The signals are usually composed of 4 ports (Tx0, Tx1, Rx0, Rx1) or 3 ports (Tx0, Rx0, Rx1), thus four or three strands of cables are required to be installed side by side in order to connect station's equipment with other devices etc. TRF's Multi RF Cable conveniently combines the four or three strands of cables into one group, saving more than 70% of conventional installation cost and ensuring easy maintenance, in addition to help make the surroundings clean.



Power Divider



SMA-Female



SMB-Female



N-Female



Power split

▶ Power Divider

Power Dividers are used in a wide variety of wireless applications where a RF signal needs to be distributed or combined. These dividers cover all wireless bands from cellular through W-CDMA(0.8~2.2GHz) making them ideally suited for In-Building and BTS wireless applications. This power divider series provides minimum insertion loss while delivering high isolation between output ports with outstanding amplitude balance and phase.



RDU



2-way



3-way



4-way

| | | | | | |
|------------------|---------------|------------|----------------------|----------------|-------------------------------------|
| ORDER | PD | 2 | U | N | XXXXXX |
| EXAMPLE : | Power Divider | No. of way | Balance or Unbalance | Connector Type | Frequency Range (start XXX-stopXXX) |

| Production No. | No. of way | Freq.(GHz) | Input power[W] | Isolation[dBc] | VSWR(max.) | Insertion Loss[dB] | Type |
|----------------|------------|------------|----------------|----------------|------------|--------------------|----------|
| PD2UN082265 | 2-way | 0.8~2.6 | 10 | 20 | 1.2 | 3.5 | N(3:7) |
| PD3UN082265 | 3-way | 0.8~2.6 | 10 | 20 | 1.2 | 5.2 | N(3:7) |
| PD3UB082265 | 3-way | 0.8~2.6 | 10 | 20 | 1.2 | 6.5 | N(5:5) |
| PD4UB082265 | 4-way | 0.8~2.6 | 10 | 20 | 1.2 | 7 | N(5:5) |
| PD2DUN002187 | 2-way | 0.2~1.8 | 20 | 23 | 1.2 | 6 | N(3:7) |
| PD3BS188217 | 3-way | 1.8~2.1 | 1 | 23 | 1.2 | 5.3 | SMA(5:5) |
| PD4BS188217 | 4-way | 1.8~2.1 | 1 | 23 | 1.2 | 6.5 | SMA(5:5) |
| PD2BB01 | 2-way | 10MHz | 1 | 23 | 1.2 | 3.5 | SMB(5:5) |
| PD3BB01 | 3-way | 10MHz | 1 | 20 | 1.2 | 5.7 | SMB(5:5) |
| PD4BB01 | 4-way | 10MHz | 1 | 20 | 1.2 | 6.8 | SMB(5:5) |
| PD8BB01 | 8-way | 10MHz | 1 | 20 | 1.2 | 10 | SMB(5:5) |

Directional Couplers

► Directional Couplers

Directional Couplers are used in a wide variety of wireless application where line monitoring, signal mixing, isolation sources and power & reflection measurements are required. These couplers are cover all wireless bands from cellular through W-CDMA(0.8~2.2GHz) making them ideally suited for In-Building and BTS wireless applications. This directional coupler series provides minimum insertion loss while delivering high directivity and outstanding VSWR.



SMA
SMB



Bias Coupler



Multi-Coupler



N/DIN

ORDER CP S 10 D XXXXX
EXAMPLE : Coupler Single or Dual Coupling value Connector Type Frequency Range (start XXX-stopXXX)

| Production No. | Single/Dual | Freq.(GHz) | Coupling Value(dB) | Directivity(dB) | VSWR(max.) | Insertion Loss(dB) | Type |
|----------------|-------------|------------|--------------------|-----------------|------------|--------------------|------|
| CPS10D082265 | Single | 0.8~2.6 | 10 | 20 | 1.2 | 0.8 | DIN |
| CPS07D082265 | Single | 0.8~2.6 | 7 | 20 | 1.2 | 1.4 | DIN |
| CPS07D082265 | Single | 0.8~2.4 | 20 | 20 | 1.2 | 0.3 | DIN |
| HCP03N082217 | Hybrd | 0.8~2.1 | 3 | 18 | 1.2 | 0.8 | N |
| CPD07N082265 | Dual | 0.8~2.6 | 7 | 18 | 1.2 | 2.8 | N |
| CPS10N082265 | Single | 0.8~2.6 | 10 | 20 | 1.2 | 0.8 | N |
| CPS10B018227 | Single | 1.8~2.1 | 10 | 23 | 1.2 | 0.7 | SMB |
| CPD20B082089 | Dual | 824~894MHz | 20 | 23 | 1.2 | 1.2 | SMB |
| CPD10B188217 | Dual | 1.8~2.1 | 10 | 23 | 1.2 | 1.2 | SMA |
| CPS10S082089 | Single | 824~894MHz | 10 | 23 | 1.2 | 0.7 | SMA |



7dB



10dB



20dB



30dB

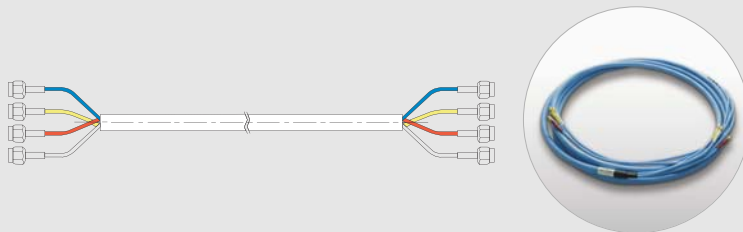
Cable Assemblies



▶ Cable assemblies

Cable assemblies are typically used to the feeder line to the transmission equipment or to the antenna in wireless communication applications. These cable assemblies are ideally suited for application requiring durability, small bending radius and low attenuation.

Grouped cables combine four or five stands of cables into one cable, providing many benefits in installation and maintenance.



ORDER EXAMPLE : **MRFC** **01** **B** **XXXXXX**
 Cable Type Cable Length (m) Connector Type Frequency Range (start XXX~stopXXX)

| Production No. | Diameter(mm) | Freq.(GHz) | VSWR | Cable Loss(dB/m) | Impedance(Ω) | Type |
|----------------|--------------|------------|-------|------------------|--------------|------|
| MRFC01B080250 | 4.2 | 0.8~2.5 | 1.2:1 | 0.7 | 50 | SMB |
| MIFC04B006013 | 9.2 | 65~135MHz | 1.2:1 | 0.5 | 50 | SMB |
| MIFC01S006013 | 3 | 65~135MHz | 1.2:1 | 0.5 | 50 | SMA |
| MRFC03A080250 | 11.6 | 0.8~2.5 | 1.2:1 | 0.7 | 50 | SMA |
| W2000S080220 | 5.6 | 0.8~2.2 | 1.2:1 | 0.7 | 50 | SMA |

RF Components

► Filter

BPF, LPF and HPF are mainly used as TRF's filters and ensures stability with minimum return loss. TRF produces various filter products ranged from 2W to 150W.

EXAMPLE : F Filter CA Cavity or Celamic M Multiplexer N Connector Type XXXXXX Frequency Range (start XXX-stopXXX)



| Production No. | Input Power(W) | Freq.(GHz) | Bandwidth(dB) | Return Loss(dB) | Insertion Loss(dB) | Type |
|----------------|----------------|------------|---------------|-----------------|--------------------|-----------|
| FCAMN192215 | 150 | 1.9~2.1 | 39.32 | 20 | 1.3 | N(Female) |
| FCAMN082213 | 50 | 0.8~2.1 | 39.32 | 20 | 1.2 | N(Female) |
| FCEMS082265 | 2 | 0.8~2.6 | 20 or 25 | 18 | 2.7/2.0 | SMA |

► RDU/IDU

RDU/IDU divide IF and RF signals transmitted from stations to relays. RDU/IDU are mainly used at BTS type stations and TRF's maximizes the availability of 19" rack by making the product compact.

EXAMPLE : IDU IF Distribution Unit 5 No. of Output S Connect or Type XXXXXX Frequency Range (start XXX-stopXXX)



| Production No. | Input Power(W) | Freq.(GHz) | VSWR | Isolation(dB) | Insertion Loss(dB) | Type |
|----------------|----------------|------------|-------|---------------|--------------------|------|
| IDU5S006013 | 1 | 65~135MHz | 1.2:1 | 20 | 7.8 | SMA |
| IDU4S006013 | 1 | 65~135MHz | 1.2:1 | 20 | 6.8 | SMA |
| RDU5S080220 | 1 | 0.8~2.2 | 1.2:1 | 20 | 8 | SMA |
| RDU4S080220 | 1 | 0.8~2.2 | 1.2:1 | 20 | 7.8 | SMA |

► Attenuators

Attenuators are used to balance out transmission lines that otherwise would have unequal signal levels. Also its main function is to adjust the signal level within the dynamic range of common test equipment.

EXAMPLE : AT Attenuator 10 Attenuation S Connect or Type XXXXXX Frequency Range (start XXX-stopXXX)



| Production No. | Attenuation(dB) | Freq.(GHz) | Power(W) | VSWR(max.) | Insertion Loss(dB) | Type |
|----------------|-----------------|------------|----------|------------|--------------------|------|
| AT10S000400 | 10 | DC~0.3 | 1 | 1.2 | 1 | SMA |
| AT30N000400 | 30 | DC~0.4 | 30 | 1.2 | 1 | N |
| AT20N000400 | 20 | DC~0.4 | 30 | 1.2 | 1 | N |
| AT10N000400 | 10 | DC~0.4 | 30 | 1.2 | 1 | N |

► Arrester(Lighting Protects)

Arrester is used to protect multiple strike capability. These products deliver high levels of lightning protection and optimize RF performance system. New quarter wave surge protectors with built-in High-pass Filter provide excellent lightning protection and outstanding RF performance.

EXAMPLE : AR Arrester Q Quarterwave type D Connector Type XXXXXX Frequency Range (start XXX-stopXXX)



| Production No. | Surge current(KA) | Freq.(GHz) | Power Rating(W) | VSWR(max.) | Insertion Loss(dB) | Type |
|----------------|-------------------|------------|-----------------|------------|--------------------|-------------|
| ARQD082265 | 30 | 0.8~2.6 | 300 | 1.2 | 0.3 | 7/16 DIN(M) |
| ARQD080090 | 30 | 0.8~0.9 | 300 | 1.2 | 0.1 | 7/16 DIN(F) |