

A large, abstract graphic on the left side of the page. It consists of a thick red line that starts at the top left, drops sharply, and then forms a series of peaks and valleys, resembling a signal waveform or a stylized mountain range. The area below this red line is filled with a solid black color, creating a high-contrast, modern design.

RF solutions

for wireless and telecommunication industries

GNI Microwave Co.,Ltd.

About GNI

GNI is a company consisting of the best talent with much experience and the most advanced technology in the wireless communication industries. We have been making efforts to produce better products to satisfy our customers based on our outstanding technology by constant research and development. GNI Microwave is one of the leading suppliers of RF solutions for wireless and telecommunication industries. The company focuses on developing RF devices, modules and subsystems for mobile communication (CDMA, PCS, WCDMA, GSM, Wimax). The company's facility is fully furnished with the state-of-the-art R&D, productions and quality control equipment, including RF design and test equipment, environmental test laboratory, burn-in room, and machining centers. The company is ISO 9001, ISO14001 certified and maintains a strict quality control system in accordance with the international quality standards.

Certification and Industrial property right

CERTIFICATION

- ISO 9001 Certified
- ISO 14001 Certified

STATUS OF CORPORATE ANNEX LABORATORY

- Selected as a INNO-BIZ
- Selected as a promising company
- Selected as a venture company
- Corporate Annex Laboratory
- Certified as a CLEAN Workplace

PATENT CERTIFICATES

- Data transfer device for two-way radio communication and its method
- Three-dimensional stacked circuit device and its manufacturing method
- Structure of very large scale integration circuits for one-dimensional wavelet transform



INNOBIZ



Quality and Environment Policy

“Supplying the best products and service timely to satisfy our customers with the quality-oriented spirit and the environmental spirit”

We, GNI Microwave Inc., understand and appreciate the importance and value of environmental preservation in every field and area and take the lead in preserving the clean natural environment by minimizing environmental impacts caused by management activities through establishment of environmental management systems

Quality Policy	Environment Policy
Zero percent faulty process Zero percent customer complaints Zero percent safety management	20% Reduction of waste 10% Reduction in energy consumption

[Quality Objectives Promotion Strategy]

1. We, GNI Microwave Inc., distribute to the world by “supplying the best products and the best service for our customers in time” as a developer, manufacturer and vendor.
2. Our quality system described in the quality manual follows the requirements of ISO9001:2000, and I. as a representative director of GNI, will continuously improve its efficiency through periodic examination into appropriateness of our quality management system.
3. All our staffs should understand our quality policy and continually improve their relevant work processes for efficient performance.

[Environmental Objectives Promotion Strategy]

1. Our executives and the other staffs establish and carry out environmental improvement objectives and promotion plans by building up environmental management system based on ISO 14001:2004 International Environmental Management Standards to improve environment and to prevent pollution.
2. Our executives and the other staffs take the initiative in preserving our planet, the earth, by enhancing environment friendliness to perform our management activities giving priority to preventing all environmental problems and improving environment

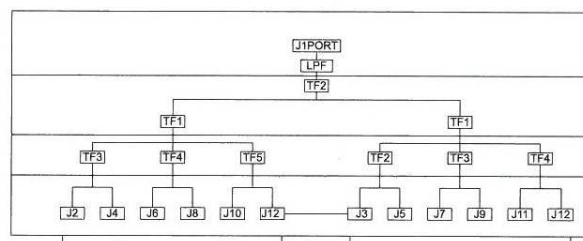
Product

PASSIVE COMPONENTS	ACTIVE MODULES	SUBSYSTEM
FILTER COMBINER SPLITTER COUPLER ARRESTER ATTENUATOR	LNA UDCU RF SWITCH DETECTOR (VSWR)	TMA (Accessories : Bias Tee , Power Distribution Unit) BTS FRONT-END UNIT

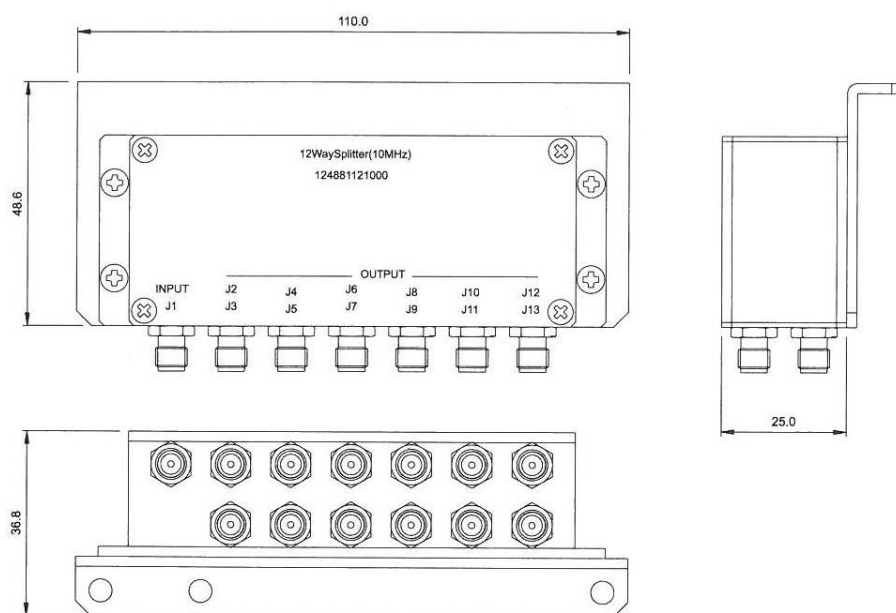
Splitter



BLOCK DIAGRAM



MECHANICAL DIAGRAM



SPECIFICATION

PARAMETER	SPECIFICATION	COMMENT
Frequency Range	8.75MHz ~ 11.25MHz	
Insertion Loss	12.0dB Max.	
Return Loss	16.0dB Min.	
Attenuation	≥50MHz	40.0dB Min.
Isolation		20.0dB Min.
Amplitude Unbalance		0.3dB Max.
Phase Unbalance		4° Max.
Input Power		1W Max.
Operating Temperature		-10℃ ~ +70℃
Connectors		SMA(F)
Size(mm)		110.0 X 48.6 X 25.0

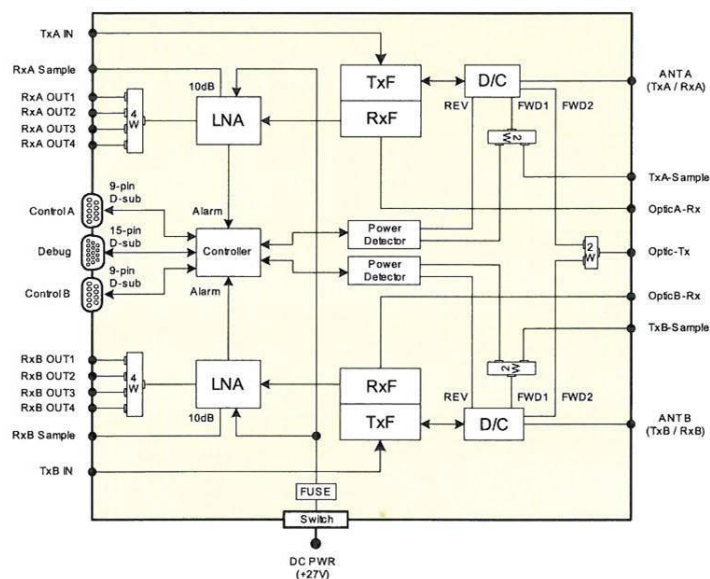
Front-end module



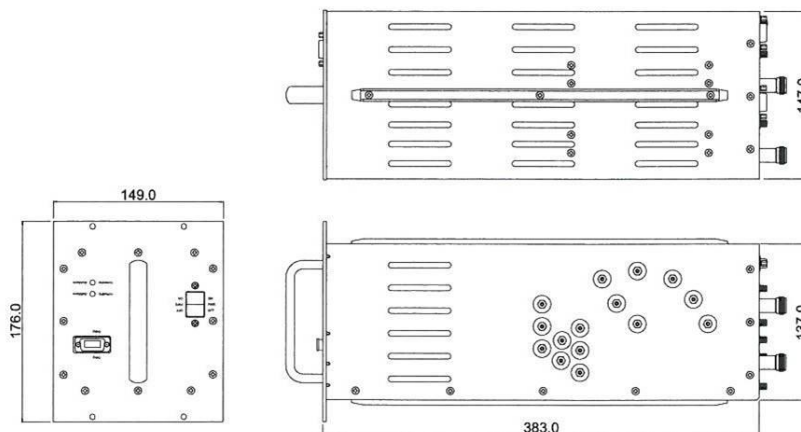
FEATURES

- Broad spectrum of antenna front-end modules
- High-selectivity duplexing and receive diversity
- Low insertion Loss
- Excellent TxA(B) - RxA(B) isolation
- Passband frequency ranges are available
- Reporting the module status and controlling the gain of RF path

BLOCK DIAGRAM



MECHANICAL DIAGRAM



SPECIFICATION

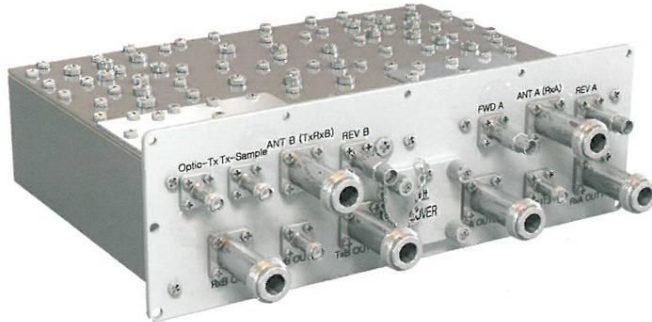
1.1 Tx Path

PARAMETER		SPECIFICATION	COMMENT
Frequency Range		1860.625 ~ 1869.375 MHz	
Insertion Loss (TxA(B) IN → ANT A(B))		0.8dB Max.	
Pass Band Ripple (TxA(B) IN → ANT A(B))		0.3dB Max.	
Return Loss (TxA(B) IN , ANT A(B))		20.0dB Min.	
Attenuation	F _{CF} -16MHz , F _{CL} +16MHz	20.0dB Min.	
	(F _{CL} +19.2MHz) ~ 5GHz	25.0dB Min.	
	9KHz ~ (F _{CF} -19.2MHz)	25.0dB Min.	
	Rx Band	95.0dBc Min.	
Passive IM	3 rd PIM	-140.0dBc Min.	
	5 th PIM	-160.0dBc Min.	
Handling Power	Average	30.0Watts Max.	
	Peak	200.0Watts Max.	
Forward Power Measurement Accuracy	@ 51 ~ 38dBm	± 0.5dBm	
	@ 38 ~ 25dBm	± 0.8dBm	
Reverse Power Measurement Accuracy	@ 51 ~ 25dBm	± 1.0dBm	

1.2. Rx Path

PARAMETER		SPECIFICATION	COMMENT
Frequency Range		1770.0 ~ 1780.0MHz	
Gain	ANT A(B) → RxA(B) OUT 1/2/3/4	34.0 ± 1.5dB	
	ANT A(B) → RxA(B) Sample	30.0 ± 1.5dB	
	OpticA(B)-Rx → RxA(B) OUT 1/2/3/4	-1.0 ± 1.5dB	
Gain Flatness		0.5dB Max.	
Return Loss		20.0dB Min.	
Attenuation	Tx Band	95.0dBc Min.	
Noise Figure		2.2dB	
OIP3		30.0dBm	
P1dB		18.0dBm	

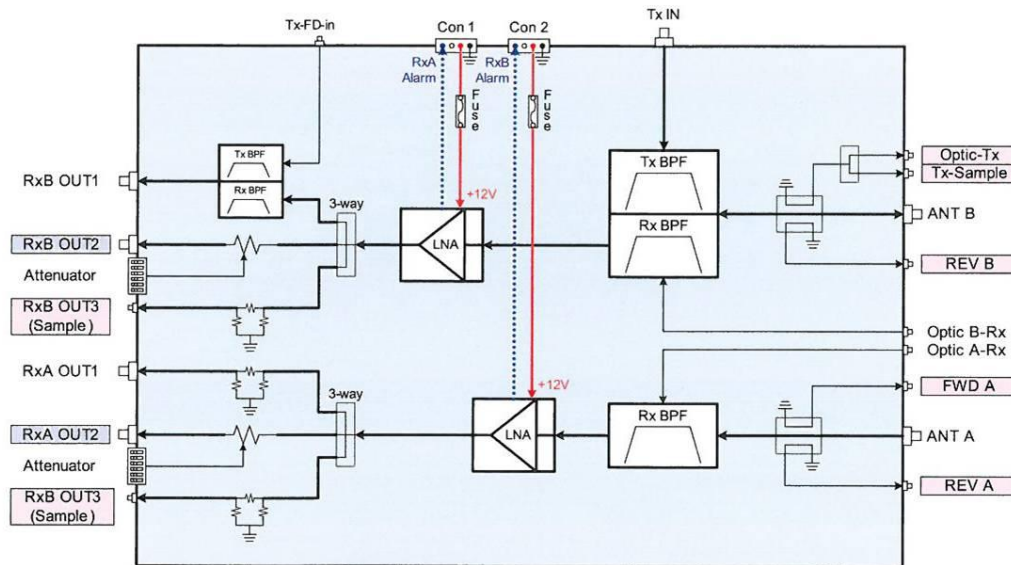
Front-end module



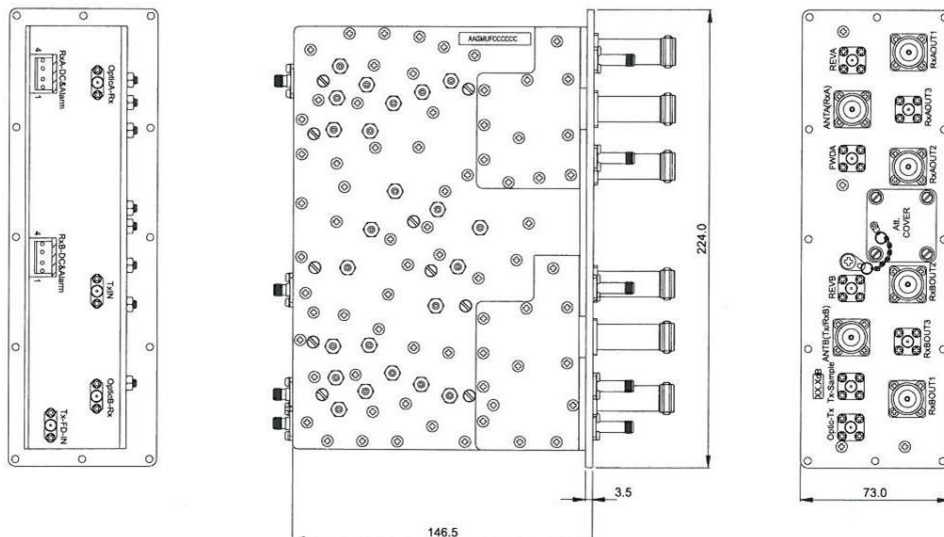
FEATURES

- Broad spectrum of antenna front-end modules
- High-selectivity duplexing and receive diversity
- Low insertion Loss
- Excellent Tx - Rx0, Rx1 isolation
- Passband frequency ranges and gain are available

BLOCK DIAGRAM



MECHANICAL DIAGRAM



SPECIFICATION

1.1 Tx Path

PARAMETER		SPECIFICATION	COMMENT
Frequency Range		1860.625 ~ 1869.375 MHz	
Insertion Loss (Tx IN → ANT B)		0.85dB Max.	
Pass Band Ripple (Tx IN → ANT B)		0.2dB Max.	
Return Loss (Tx IN , ANT B)		13:1 Max.	
Attenuation	F _{CF} -16MHz , F _{CL} +16MHz	20.0dB Min.	
	(F _{CL} +19.2MHz) ~ 5GHz	25.0dB Min.	
	9KHz ~ (F _{CF} -19.2MHz)	25.0dB Min.	
	Rx Band	95.0dB Min.	
Passive IM	3 rd PIM	-140.0dBc Min.	
	5 th PIM	-160.0dBc Min.	
Handling Power	Average	30Watts Max.	
	Peak	200Watts Max.	

1.2 Rx Path

PARAMETER		SPECIFICATION	COMMENT
Frequency Range		1770.0 ~ 1780.0 MHz	
Gain	ANT A → Rx A OUT 1/3	34.0 ± 1.5dB	Attenuation Range: 0.0~31.5dB (0.5dB Step)
	ANT B → Rx B OUT 1/3	34.0 ± 1.5dB	
	ANT A,B → Rx A,B OUT 2	Zero Atten. (①)	
		Full Atten. (②)	
	OpticA-Rx → Rx A OUT 1/3	-1.0 ± 1.5dB	
	OpticB-Rx → Rx B OUT 1/3	-1.0 ± 1.5dB	
Gain Flatness		0.5dB Max.	
Return Loss		18.0dB Min.	
Attenuation	Tx Band (Rx cavity filter)	95.0dB Min.	
DC Power		+12V/1.5A Max.	Fuse, 50V/1A
Function Fail & Power Fail (Alarm)		Normal: <300ohm Alarm: ≥ 300ohm	.Power Fail : <:8V, ≥ 16V

1.3 Feedback Path (Rx B path)

PARAMETER		SPECIFICATION	COMMENT
Frequency Range		1850.0 ~ 1880.0 MHz	
Insertion Loss (Tx-FD-IN → Rx B OUT1)		3.0dB Max.	
Pass Band Ripple (Tx-FD-IN → Rx B OUT1)		0.5dB Max.	
Return Loss (Tx-FD-IN)		16.0dB Min.	
Attenuation	Rx Band	45.0dB Min.	
Isolation	Tx-FD-IN → Rx B OUT2/3	50.0dB Min.	

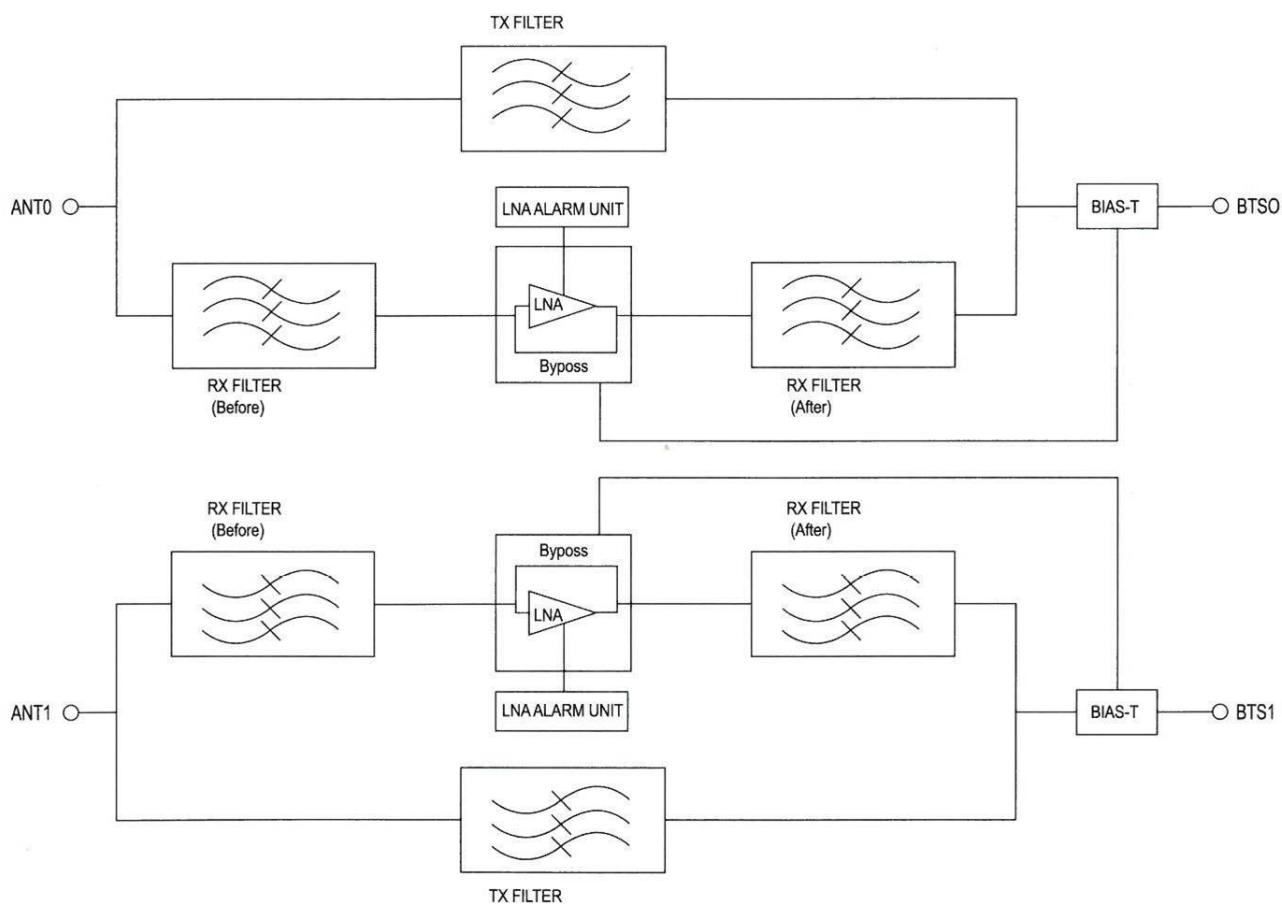
GSM 900MHz Dual TMA



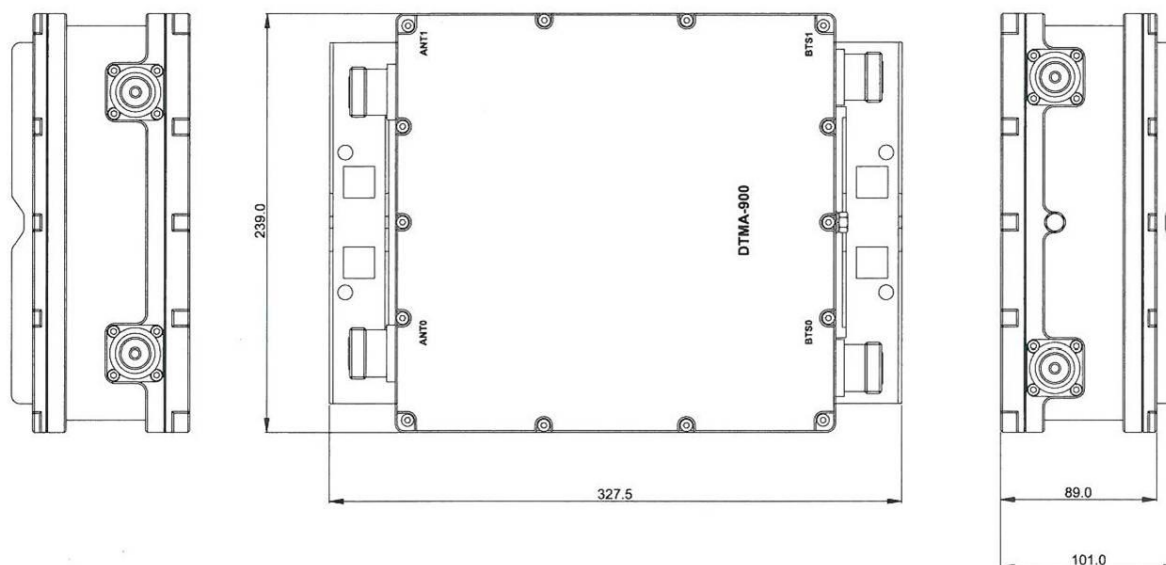
FEATURES

- Balance Uplink and Downlink
- Reduce the system noise figures
- Reduce dropped call and improve call quality
- Enhance the BTS Rx sensitivity and Rx/ Tx isolation
- A bypass switch equipped for a complete failure of both gain stages

BLOCK DIAGRAM



MECHANICAL DIAGRAM



ACCESSORIES (Order Separately)

DESCRIPTION	TECHNICAL DATA
Bias Tee	Please see separate data sheet
Power Distribution Unit	Please see separate data sheet
Cable set	It is customized (Length, Cable type, Connector type)

SPECIFICATION

PARAMETER	SPECIFICATION
Frequency Range	Rx: 890 ~ 915MHz Tx : 935 ~ 960MHz
Noise Figure	1.8dB Typ. (2.2dB@Temp.)
Rx Gain	12.0dB $\pm$ 1dB
Bypass insertion loss	1.6dB Typ. (2.0dB @Temp.)
Insertion loss Tx band	0.6dB Typ. (0.7dB@Temp.)
Return Loss, all ports (Tx, Rx)	18.0dB Min.
Return Loss, LNA bypass	15.0dB Min.
1dB Gain compression point (P1)	+10dBm Min.
Output Intercept Point(OIP3)	+23.0dBm Min. (1tone=0dBm)
Lightning protection	5kA, 8/20uS pulse
PIMD @2-tone 20W	150dBc Min.
Continuous average Power	200W
DC Supply Voltage	+12Vdc / 120mA Typ.
Alarm	CWA Handling
Environmental Rating	IP-67
Operating Temperature	-30 ~ +65°C
Connectors	DIN(7/16) (F)
Size (mm)	327.5 X 239.0 X 101.0



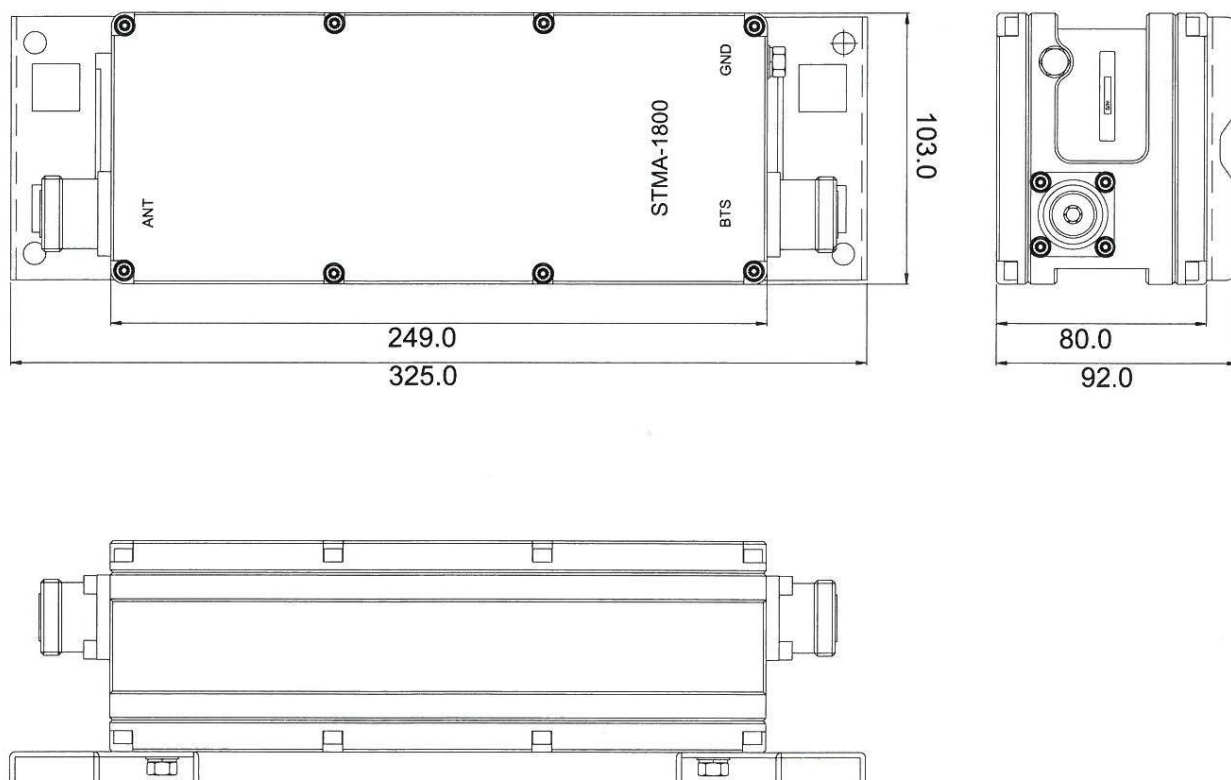
DCS 1800MHz TMA



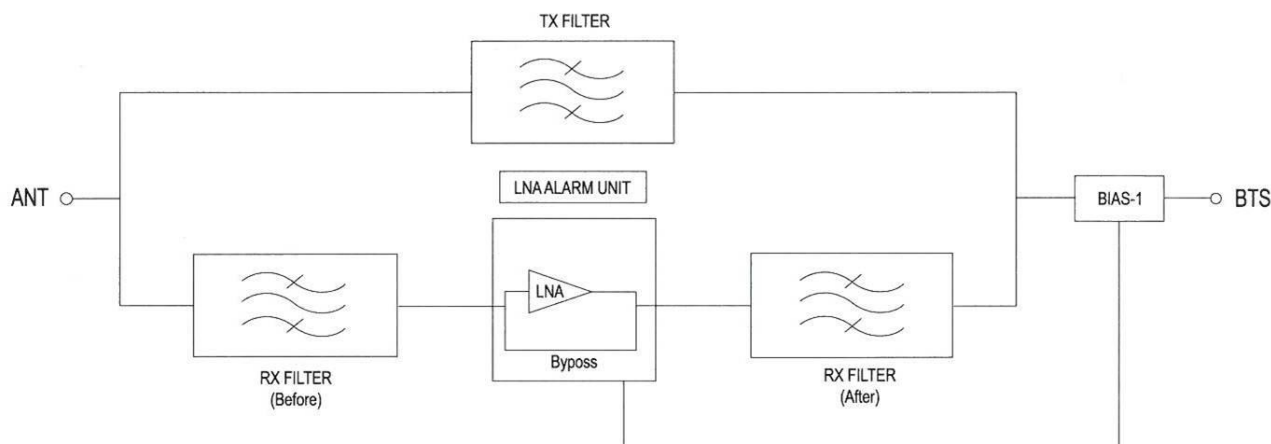
FEATURES

- Balance Uplink and Downlink
- Reduce the system noise figures
- Reduce dropped call and improve call quality
- Enhance the BTS Rx sensitivity and Rx/ Tx isolation
- A bypass switch equipped for a complete failure of both gain stages

MECHANICAL DIAGRAM



BLOCK DIAGRAM



ACCESSORIES (Order Separately)

DESCRIPTION	TECHNICAL DATA
Bias Tee	Please see separate data sheet
Power Distribution Unit	Please see separate data sheet
Cable set	It is customized (Length, Cable type, Connector type)

SPECIFICATION

PARAMETER	SPECIFICATION	COMMENT
Frequency Range Rx(Uplink)	1710.0 ~ 1785.0MHz	
Frequency Range Tx (Downlink)	1805.0 ~ 1880.0MHz	
Noise Figure typical mid band	1.8dB Typ. (2.4dB@Temp.)	
Rx Gain	12.0dB $\pm$ 1dB	
Bypass insertion loss	2.3dB Max.	
Insertion loss (Tx Band)	0.6dB Typ. (0.7dB@Temp.)	
Return Loss, all ports (Tx, Rx)	18.0dB Min.	
Return Loss, LNA bypass	12.0dB Min.	
Input compression point (P1)	+15dBm Min.	
Input Intercept (IP3)	+28.0dBm Min. (1ton=0dBm)	
Lightning protection	5kA, 8/20uS pulse	
IMD @2-tone 20W	160dBc (-117dBm)	
Continuous average Power (peak)	200W	
DC Supply Voltage	+12Vdc / 120mA Typ.	
Alarm	CWA Handling	
Environmental Rating	IP-67	
Operating Temperature	-40 ~ +70 °C	
Connectors	DIN(7/16) (F)	
Size (mm)	325.0 X 103.0 X 92.0	

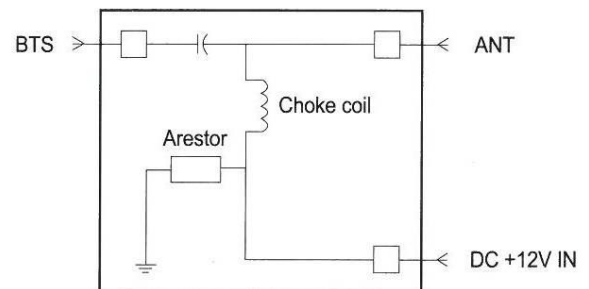
Bias Tee



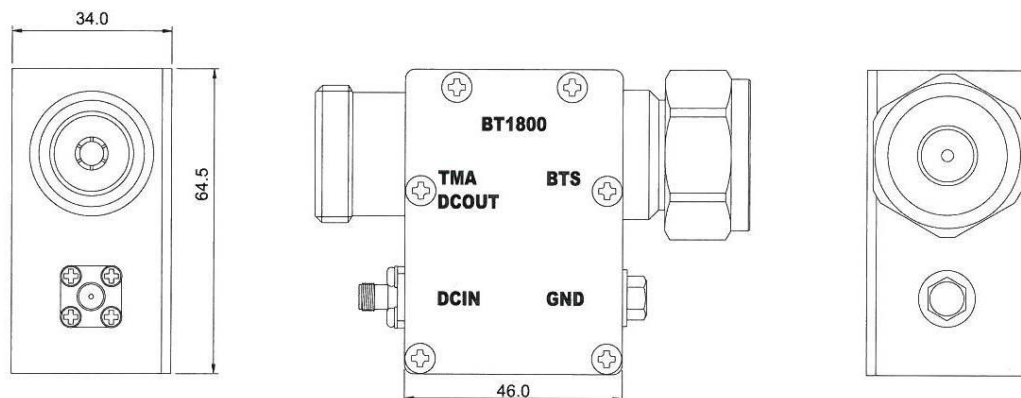
FEATURES

- It is used to inject or to extract DC currents

BLOCK DIAGRAM



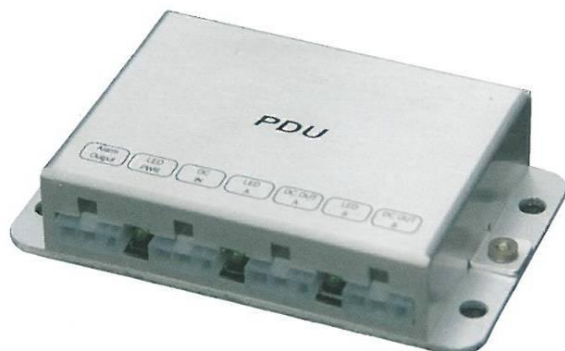
MECHANICAL DIAGRAM



SPECIFICATION

PARAMETER	SPECIFICATION	COMMENT
Frequency Range	800 ~ 2200MHz	
Insertion Loss	0.2dB max	
Return Loss	20.0dB min	
Isolation	50.0dB min	
Lightning Protection	5kA, 8/20us pulse	
PIMD	150dBc min	
Continuous average power(peak)	200W	
DC Supply Voltage	1A max.	
Environmental Rating	IP-67	
Operating Temperature	-40 ~ +70℃	
Connectors	DIN(7/16) (F)(M)_RF SMA(F)_DC	
Size (mm)	64.5X46.0X34.0	Without connector

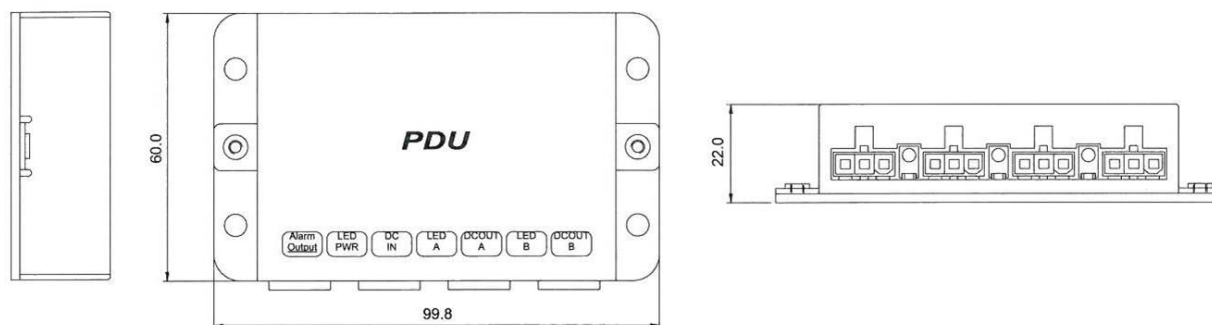
PDU (Power Distribution Unit)



FEATURES

- Provide power to and supervises the status of the TMA
- Isolated input and output ports that cater for polarity independent DC supply
- Compact size and multiple mounting options
- Can be used with the vast majority of base station equipment.

MECHANICAL DIAGRAM



SPECIFICATION

ITEM		SPECIFICATION
Input	Input power and range	25 ~ 60V DC
Output	Rated voltage and Load Current	+12VDC/120mA Typ. 2CH
	Ripple/Spike	< P-P 120mV
	DC Output protection	Auto recovery
	Insulation resistance	≥ 100 MΩ
Function	ALM Operating Range	≤ 60mA(-20mA) or 160mA(+20mA)
	LED Indicator	ALM PORT 1,3 Short, LED OFF

Alarm function

FUNCTION	FAIL	NORMAL
Current	≤ 60mA, > 160mA	120mA
ALARM PIN	1,3 Short	2,3 Short

DCINPUT

PIN NO.	DESCRIPTION
1	NC
2	+INPUT or -INPUT
3	-INPUT or +INPUT

DC OUTPUT

PIN NO.	DESCRIPTION
1	GND
2	GND
3	+12V

LED INDICATOR

LED	FUNCTION	NORMAL	FAIL
INPUT (GREEN)	DC Input	ON	OFF
OUTPUT -2CH (GREEN)	DC Output	ON (60mA~160mA)	OFF