

Tower Mount Amplifiers

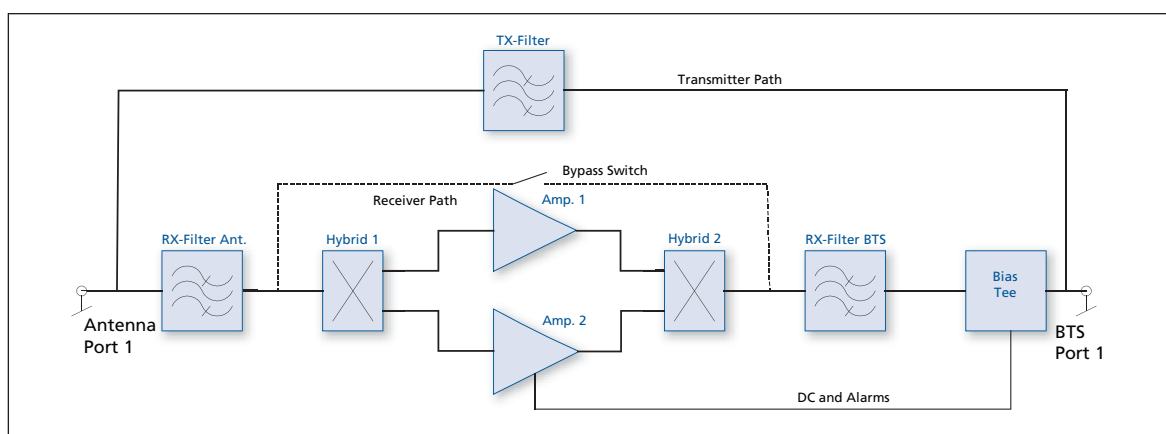
Product Overview

The Standard TMA

The TMA separates the RF uplink (Rx) and downlink (Tx) signals through RF filters. In the uplink path the signal is amplified by redundant low noise amplifiers. If a malfunction occurs, the auto-bypass function is activated and an alarm is reported, ensuring system reliability at all times.

The TMA includes a bias-tee function that injects the DC supply voltage into the amplifier from the inner conductor of the feeder cable.

Standard TMA block diagram for a single TMA



The AISG TMA

The AISG TMA features the same RF functionalities and specifications as the standard TMA and includes communications features compliant with the AISG protocol that allow a remote monitoring of the equipment.

All the AISG TMAs include an AISG output connector to an Antenna Control Unit (ACU) for Remote Electrical Tilt (RET).

The complete AISG TMA system, including the control network interface unit (CNI) and the Bias-T, provides the DC feed and the alarm reporting at the Node B level or the OMC.

The CNI

The Control Network Interface and Power Distribution Unit (CNI-P) is used for the supply of the DC-current and for the reporting of the alarms of the Antenna Line devices (ALD). The CNI-P supports the AISG signalling protocol between the node-B and the ALDs such as AISG TMAs and ACUs.

The CNI-P unit reports the failure of each TMA and provides a summing alarm. Designed as an AISG primary station, the CNI-P can be set up and controlled locally or remotely by software. The Network Element Management software (NEM-ALD) is used for supervision of the ALD and of the antenna tilt.

The CNI-P has PPP or Ethernet output ports for connection to a local PC or to the site Local Area Network (LAN).

The AISG Bias-T

The RFS Bias-T, model number BITA2S, is used to inject or to extract DC currents and the AISG communication signal into the RF feeders. It includes an AISG modem that converts the 2.176 MHz on/off shift keying signal (OOSK) to an RS485 compatible signal.

This Bias-T is compatible with the AISG Protocol.

RFS is a member of the
Antenna Interface Standards Group.



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Power Supplies – Compatibility Matrix

	PDU1906	PDU1906-4	PDU1912-0	PDU1912-1	
Type (No of TMA)	For 6 TMAs	For 6 TMAs	For 6 TMA	For 6 TMAs, low current	
External Interface	output summing relay	output summing relay	output summing relay	output summing relay	
Input Voltage	48 VDC	48 VDC	48 VDC	48 VDC	
ATM901815S-3	•				
ATM901815D-3	•				
ATM181812S-3	•				
ATM181812D-3	•				
ATM801712-0			•		
ATM192012-0			•		
ATM201812D-3P		•			
ATM192012-1				•	
ATM192012T-0			•		
ATM19801712-0			•		
ATM19801712-1			•		
ATM192012B-0			•		
ATM192012BD-0			•		
	PDU2435-1	PDU2435-2	CNI-P1A11	CNI-P2A11	RMC80
Type (No of TMA)	For three branch TMA	For three branch TMA	For three dual TMA	For three dual TMA	For one TTA
External Interface	none	none	AISG 1.1, PPP	AISG 1.1, Ethernet	one output alarm
Input Voltage	48 VDC	48 VDC	48 VDC	48 VDC	48 VDC / 120-240 VAC
ATM201812D-3A11			•	•	
ATM201831D-3A11			•	•	
490104	•	•			
490114	•	•			
TTAS80-0281-24					•

Bias-T – Compatibility Matrix

	716-UC90-07	716-UC90-09	BIT1	BITA2S
Type (No of TMA)	For one TMA	For one TMA	For one TMA	For two TMA
External Interface	standard	standard	standard	AISG 1.1
Input Voltage	12 VDC	12 VDC	12 VDC	24 VDC
ATM901815S-3			•	
ATM901815D-3			•	
ATM181812S-3			•	
ATM181812D-3			•	
ATM801712-0	•	•		
ATM192012-0	•	•		
ATM192012-1	•	•		
ATM192012T-0	•	•		
ATM19801712-0	•	•		
ATM19801712-1	•	•		
ATM192012B-0	•	•		
ATM192012BD-0	•	•		
ATM201812D-3A11				•
ATM201831D-3A11				•
ATM201812D-3P			•	
490104*				
490114*				
TTAS80-0281-24*				

*Bias-T included in the base equipment

TMA for GSM 900 and 1800

	ATM901815S-3	ATM901815D-3	ATM181812S-3	ATM181812D-3
Frequency Band, MHz	880-960	880-960	1710-1880	1710-1880
Bandwidth, MHz	8 to 25	8 to 25	15, 25 or 30	15, 25 or 30
Gain, dB	15 ± 1	15 ± 1	12 ± 1	12 ± 1
Noise Figure, typ @ 25°C, dB	1.6	1.6	1.5	1.5
Tx Insertion Loss, typ, dB	0.5	0.5	0.4	0.4
OIP3, dBm	20	20	20	20
Automatic By-Pass Function	Yes	Yes	Yes	Yes
Connector Placement	Bottom	Bottom	Bottom	Bottom
Weight, kg (lb)	3.1 (6.5)	6.2 (13.0)	2.5 (5.5)	4.0 (8.8)

Single band TMA for cellular 850 and PCS 1900

	ATM801712-0	ATM192012-0	ATM192012-1	ATM192012T-0
TMA types	Single TMA	Single TMA	Single TMA, low current	Twin TMA
Frequency Band, MHz	824-894	1850-1990	1850-1990	1850-1990
Bandwidth, MHz	25	60	60	60
Gain, dB	12 ± 1	12 ± 1	12 ± 1	12 ± 1
Noise Figure, typ @ 25°C, dB	1.4	1.6	1.6	1.6
Tx Insertion Loss, typ, dB	0.5	0.5	0.5	0.5
Peak Tx Power, W	5000	3000	3000	3000
OIP3, dBm	25	25	25	25
Automatic By-Pass Function	Yes	Yes	Yes	Yes
Connector Placement	Bottom	Bottom	Bottom	Bottom
Weight, kg (lb)	5.9 (13.0)	5.0 (11.0)	5.0 (11.0)	8.6 (19)

Dual band TMA for cellular 850 and PCS 1900 band

	ATM19801712-0	ATM19801712-1
TMA types	Diplexed dual band	Dual band
Frequency Band one, MHz	824-894	824-894
Frequency Band two, MHz	1850-1990	1850-1990
Gain, dB	12 ± 1	12 ± 1
Noise Figure, typ @ 25°C, dB	1.4 & 1.6	1.4 & 1.6
Tx Insertion Loss, typ, dB	0.5	0.5
Peak Tx Power, W	3000	3000
OIP3, dBm	25	25
Automatic By-Pass Function	Yes	Yes
Connector Placement	Bottom	Bottom
Weight, kg (lb)	8.6 (19.0)	8.6 (19.0)

TMA for PCS band with cellular 850 bypass

	ATM192012B-0	ATM192012BD-0
TMA types	Single TMA	Twin TMA
Frequency Band, main, MHz	1850-1990	1850-1990
Frequency Band, bypass, MHz	824-894	824-894
Gain, dB	12 ± 1	12 ± 1
Cellular 850 bypass loss, dB	< 0.4	< 0.4
Noise Figure, typ @ 25°C, dB	1.6	1.6
Tx Insertion Loss, typ, dB	0.5	0.5
Peak Tx Power, W	3000	3000
OIP3, dBm	25	25
Automatic By-Pass Function	Yes	Yes
Connector Placement	Bottom	Bottom
Weight, kg (lb)	5.0 (11.0)	8.6 (19)

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TMA for UMTS band

	ATM201812D-3A11	ATM201831D-3A11	ATM201812D-3P
Frequency Band, MHz	1920-2170	1920-2170	1920-2170
Bandwidth, MHz	60	60	60
Gain, dB	12 ± 1	31 ± 1	12 ± 1
Noise Figure, typ @ 25°C, dB	1.8	1.8	1.8
Tx Insertion Loss, typ, dB	0.4	0.4	0.4
Peak Tx Power, W	4000	4000	4000
OIP3, dBm	25	34	25
Alarm system	AISG 1.1	AISG 1.1	Standard
Automatic By-Pass Function	Yes	Yes	Yes
Connector placement	In-Line	In-Line	In-Line
Weight, kg (lb)	3.3 (7.3)	3.3 (7.3)	3.3 (7.3)

Three branch TTA for SMR

	490104	490114
Frequency Band, MHz	806 - 866	806 - 824
Bandwidth, MHz	18	18
Gain, dB	15.3	16.5
Noise Figure, typ @ 25°C, dB	2.8	2.2
Tx Insertion Loss, typ, dB	1.5	no TX pass
Tx Power handling, W	400	
OIP3, dBm	+36	17
Automatic By-Pass Function	No	Yes
Test Signal Port	Yes	No
Connector placement	Bottom	Bottom
Weight, kg (lb)	49.9(110)	25.9(57)

TMA for SMR

	490144	TTAS80-0281-24
Frequency Band, MHz	806 - 824	806 - 824
Bandwidth, MHz	18	18
Gain, dB	16	21
Noise Figure, typ @ 25°C, dB	2.2	2.0
OIP3, dBm	33	35.5
Automatic By-Pass Function	Yes	No
Test Signal Port	Yes	Yes
Connector placement	Bottom	Bottom
Weight, kg (lb)	16(35)	8(18)