ClearGain® Dual Inline TMAs

Americas

As mobile usage continues to increase, service providers are faced with the challenge of optimizing and expanding their wireless networks to provide new and existing services. ADC's ClearGain® Tower-Mounted Amplifiers (TMAs) minimize the cost of network expansion and improve the quality of service, allowing carriers to increase profitability from new and existing services.

ClearGain TMAs improve signal quality by boosting the uplink (RX) signal of a mobile system immediately after the antenna. This compensates for the loss in signal strength that occurs when the signal is passed through the coaxial feeder cable to the base transceiver station (BTS) at the base of the tower. These TMAs perform this amplification with the lowest possible noise contribution, resulting in a substantial increase in receiver performance and an improvement in overall coverage. These improvements in quality of service allow mobile subscribers to place more calls, make longer calls, and successfully complete calls in an expanded geographic area, resulting in increased revenue.

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Benefits:

- Small size and low weight. Allows for easy installation with minimal visual impact and in weight-restricted implementations.
- Improved uplink coverage. TMAs enable base stations to receive mobile signals more clearly in a wider coverage area than could otherwise be achieved.
- Increased RF performance. By improving signal quality and/or reducing mobile phone power transmission, TMAs provide more successful call attempts, a reduction in dropped calls, maximized data rate, improved call quality and the extension of handset battery life.
- Fully AISG compliant.

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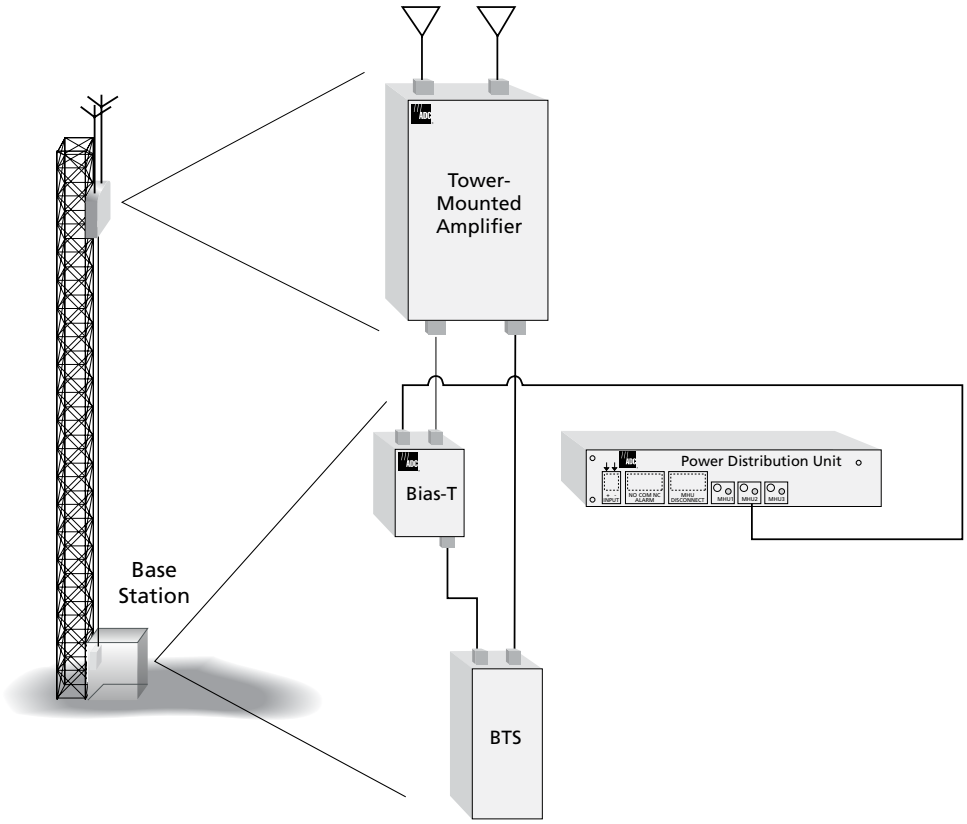
The ClearGain Dual Inline AWS TMA allows for mounting of the equipment to serve two RX paths in one location on the tower, reducing time and expense in mounting the TMA. The inline feature also allows for easier connection of the jumper cables to the antenna.

A ClearGain TMA system is modular, consisting of both a masthead unit (MHU) and a power distribution unit (PDU), providing full compatibility with all base stations. Due to its exposed installation, the TMA is designed to withstand demanding weather conditions and features lightning protection, fault monitoring, and a fail-safe bypass circuitry system.



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AWS Dual Inline Typical Specifications

ELECTRICAL	
Nominal Impedance of RF Inputs and Outputs:	50 Ohm
Frequency Range	
TX:	2110 – 2155MHz
RX:	1710 – 1755MHz
Passband (RX)	
Gain:	12db
Noise Figure:	≤1.4dB
Dynamic Range:	
Input at 1 DB Gain Compression:	+13dBm
0utput IP3:	+25dBm
Bypass Insertion Loss:	≤2.0dB
Isolation in Tx Path:	>50dB
Insertion Loss of TX Path (TX to ANT):	0.5dB
Passband Return Loss	
Tx Band:	18dB
Rx Band:	18dB
Rx Rejection in Tx Band:	>75dB
PHYSICAL	
Dimensions (HxWxD):	210 mm x 166 mm x 81 mm
Weight:	4.5kg
Housing:	Aluminium
CONNECTORS	
Antenna Connector:	7/16 DIN Female
BTS Connector:	7/16 DIN Female
ENVIRONMENTAL	
Operating Temperature:	-40°C to +60°C
Lightning Protection:	BTS Port 10kA 8/20us ANT Port 10kA 8/20us
VIBRATION	
Storage:	ETS3019-1-1
Transport:	ETS3019-1-2
Operation:	ETS3019-1-4 Class 4.1E
REGULATORY	
EMC:	ETS 300 342-3
APPROVALS	
AISG:	AISG 1.1
CE:	Per IEC 61000 and IEC 60950
QUALITY	
MTBF:	500,000 hours

ADC is an active member of the Antenna Interface Standard Group.

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STRB-NF-NM-G-KIT

STRB-NM-NF-G-KIT

STRB-DM-DF-G-KIT

STRB-DF-DM-G-KIT

Bias-T Units

ADC's newly enhanced Bias-T Units can be used indoors and outdoors in conjunction with the ClearGain power distribution unit (PDU). These versatile units, also known as DC current injectors, insert DC power into the coaxial cable and extract alarm and monitoring signals from the coaxial cable.

PRODUCT CONFIGURATION

Main path connectors:	Refer to ordering information for configurations
DC injection/Sample port connector:	TNC jack (female)
Mounting and grounding:	/M8 / brk (MH - bulkhead mounting/ M - screw / brk - bracket)

TECHNICAL DATA

Impedance:	50 ohms
Frequency range:	800 to 2200 MHz
Return loss:	> 19 dB
Insertion loss:	< 0.2 dB
RF CW power:	500 W
PIM 3rd order:	-108 dBm
Surge current handling capability:	3kA single
Operating temperature:	-40°C to + 65°C
Waterproof degree:	IP 65
DC injection / DC bypass current:	< 2 A
DC supply / DC bypass voltage:	< 48 V
MTBF:	600,000 hours
Size:	125 mm x 110 mm x 45 mm (4.9 in x 4.3 in x 1.8 in)
Weight:	0.8 kg (1.8 lbs.)

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Dual Inline Power Distribution Unit

Time and space are important considerations when selecting and installing wireless components at base transceiver station sites. The simple, compact design of ADC's ClearGain Power Distribution Unit (PDU) is intended to help service providers save both. From a compact unit that is easily mounted on a wall or in a rack, the ClearGain PDU provides power and alarming for up to three ClearGain Tower-Mounted Amplifiers.

Features:

- Provides power and alarm functions for on-site monitoring of up to three dual-inline masthead units (MHUs)
- Monitors condition of feeder cable
- Wall or rack-mountable to fit available space
- LED indicators for alarm functions
- Simple, compact design allows for easy installation and connections
- AISG compliant

The ClearGain Dual Inline TMA system is modular, consisting of an MHU and a PDU, providing full compatibility with all base stations.

The ClearGain Dual Inline PDU is an integrated unit that provides power and alarm functions for the ClearGain TMA system. The PDU monitors the current of the MHU. If an MHU fails, the ClearGain Dual Inline PDU gives an alarm indication. The ClearGain Dual Inline PDU also monitors the condition of the feeder cable. Alarm indicators identify failure in the feeder cable or MHUs and in which MHU the failure occurred, providing fast and easy on-site diagnostics.

The flexible design of the ClearGain Dual Inline PDU allows it to be rack-mounted or mounted indoors on the wall or on the side of a BTS cabinet.

An external Bias-T unit is used in conjunction with the Dual Inline PDU and is designed to connect directly into the BTS coaxial connector. Bias-T units are available with various connector types, with gas tube arrestors for lightning protection on the ANT and MHU ports. Quarter wave stub lightning protection is integrated on the BTS port of the Bias-T units.

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Dual Inline Power Distribution Unit Typical Specifications

ELECTRICAL	
Input Voltage:	20-56 Vdc positive/negative ground
Output Voltage:	3x16 Vdc each
Maximum Current Draw:	3A
PHYSICAL	
Dimensions (HxWxD):	43 x 196 x 103 mm
Weight:	1 kg
Color:	Silver
CONNECTORS	
Output for MHUs:	SMB, male (qty 3)
Power Connector:	4-pin male
General Alarm Connector:	3-pin male
General Communications Connector:	3-pin male
INDICATORS	Green OK/NOK LEDs Red General Alarm LED
ALARM OUTPUT	Alarm output is isolated 3-pin relay connection. Normally open and normally closed connection available.
ENVIRONMENT	
Storage:	ETS3019-1-1
Transportation:	ETS3019-1-2
Operation:	ETS3019-1-3
Housing:	IP40
Temperature Range (Indoor Use):	-20°C to +65°C
Lightning Protection:	IEC 1000-4-5 EMC
APPROVALS	CE
QUALITY	MTBF 250,000 Manufactured under ISO 9001 quality system
ACCESSORIES	
Basic Accessories:	Power supply cable (10 m), alarm cable (10 m), communications cable (10 m), grounding cable (2 m) and wall mounting screws
Optional Accessories:	Mounting hardware for 19" rack mount

ADC is an active member of the Antenna Interface Standard Group.

Ordering Information

Description	Catalog Number
ClearGain Masthead Unit	CG0AWSDD155DT00
Bias-T Kits*	
7/16 DIN male to BTS, 7/16 DIN female to ANT	STRB-DM-DF-G-KIT
7/16 DIN female to BTS, 7/16 DIN male to ANT	STRB-DF-DM-G-KIT
N female to BTS, N male to ANT	STRB-NF-NM-G-KIT
N male to BTS, N female to ANT	STRB-NM-NF-G-KIT
Dual Inline Power Distribution Unit – Includes power cable and grounding cable	CG0000000000PFM

*Bias-T, DC Cable 4.25 meters (SMB to TNC), Grounding Cable 1.5 meters (one end terminated)
Approved for use with ADC supplied Masthead Units only.

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Creating a Bill of Materials

A typical site includes three components in various quantities.

You have one TMA option:

1. CG0AWSDDI55DT00 AWS Dual Inline TMA

The TMAs include:
- Mounting hardware
- Grounding cable/strap (length 1.5 meters)

Ordering information: Order one per sector

You have four Bias-T options (based on connector type and orientation):

1. STRB-DF-DM-G-KIT DIN Female to BTS Port, DIN Male to ANT Port
2. STRB-DM-DF-G-KIT DIN Male to BTS Port, DIN Female to ANT Port
3. STRB-NF-NM-G-KIT N Female to BTS Port, N Male to ANT Port
4. STRB-NM-NF-G-KIT N Male to BTS Port, N Female to ANT Port

The Bias-Ts include:
- Grounding cable/strap (length 1.5 meters)
- Bias-T cable; go from Bias-T to the PDU (length 14 feet)

Ordering information: Order one per sector

You have one PDU option:

1. CG0000000000PFM Dual Inline PDU

The PDU includes:
- Mounting Hardware
- Power Cable (length 10 meters)
- Alarm Cable (length 10 meters)
- Grounding Cable/strap (length 1.5 meters)

Ordering information: Order one per site

Optional Accessories:
Longer Bias-T Cable CG-PDU-30CABLE (30 foot Bias-T cable)
PDU Rack Mounting Brackets AUX-000076 (19" rack mounting bracket)
AUX-000076 & EB-17P (23" mounting bracket)
AUX-000084 (Siemens cabinet mounting bracket)

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