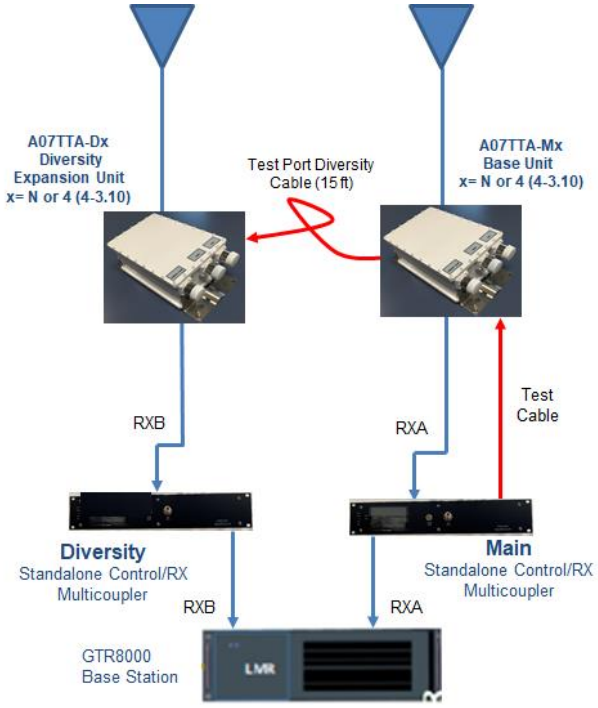
ESS (Expandable Site Subsystem) /SA (Stand Alone) Tower Top Amplifier System (700/800 MHz)



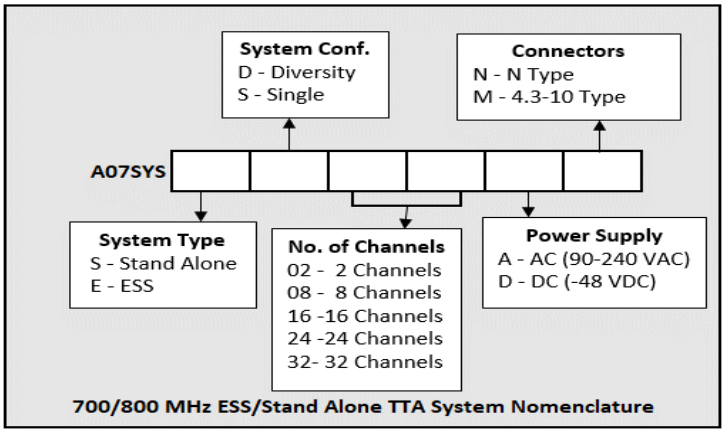
System Specifications

Parameter	Specification
Frequency Band(s)	700 / 800 MHz
System Gain	SA: 23 dB, adjustable to 10 dB or less ESS: 18 dB adjustable to 3 dB.
System Noise Figure	≤ 2.5 dB
System Passband	794 - 824 MHz (30 MHz)
System Gain Flatness	≤ 1.5 dB
Adjustable Attenuation Range	0 dB to 15 dB
Adjustable Attenuation Step Size	0.25 dB
Optional Redundant Power Supply	Yes External 1RU tray is required for Non-diversity applications.
Test Port	Yes
Internal TTA Preselector	Yes
System TX Band Rejection	≥ 110 dB
Internal Termination Test Mode	Yes
RX Antenna Test Mode	Yes
Bypass (Failure) Mode	Yes
Bypass Mode System Loss	-26 dB (Stand alone)
Internal Storage of Test Data	Yes Electronic Data for CU, TTA data entered manually
Auto Rx Overall Gain	Yes
High-Level Carrier Monitor	Yes

System Features and Benefits

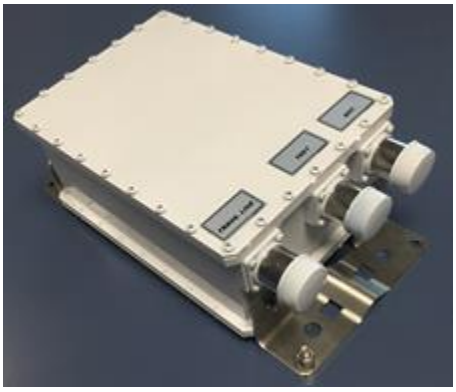
- Full Redundant Amplifiers in each TTA and Control/RX Multicoupler unit.
- System Low Noise Figure Performance of 2.5 dB or less.
- Models available for diversity or non-diversity deployment.
- Single Branch systems can be easily upgraded to diversity operation in the field.
- Test port for accurate receiver sensitivity with ability to switch between the antenna and a load.
- RX Antenna Test – Allows return loss testing of Receive Antenna for site baseline measurements.
- Monitors site spectrum for high levels carriers and provides SNMP or dry contact alarms if levels exceed -35 dBm (Stand Alone) or -40 dBm (ESS).
- Auto RX Gain Setup in user interface.

Ordering Information (System Level)



700/800 MHz ESS/Stand Alone TTA System Nomenclature

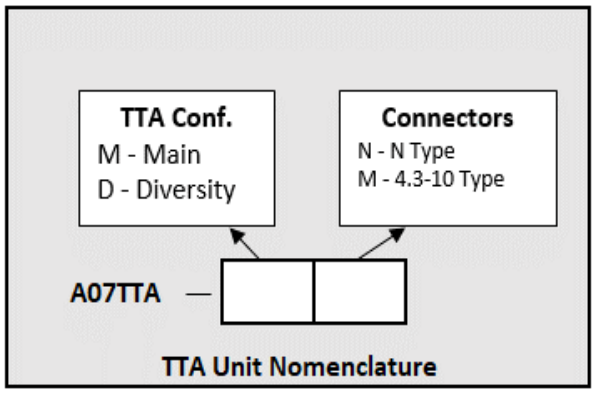
ESS (Expandable Site Subsystem) /SA (Stand Alone) Tower Top Amplifier System (700/800 MHz)



TTA Features and Benefits

- Dual redundant quadrature-coupled LNA's
- Low Noise Figure Performance of 2.0 dB or less.
- Test port standard for accurate receiver sensitivity testing.
- Automatic Switching between Amp A & B.
- Automatic or Manual Amp Bypass during alarm event or loss of power.
- Compact weatherproof housing
- Lightning protection on all ports.
- Use with A07CU RX Multicoupler series.

Ordering Information



TTA (Top Unit Only) Specifications	
Type of Amplifier	Quadrature -Coupled
Amplifier Redundancy	2 independent quadrature-coupled LNA's
Amplifier Switching	Automatic upon failure detection
Type of Amplifier/Test Mode Switching	Relay
Amplifier Input 3rd Order Intercept Point	> +13 dBm
Return Loss on all RF Ports	> 14 dB
Power Requirements	Power derived from Main RX and Test port RF cables , 18-24 VDC for main and 6 VDC for Test Port
Operating Temp. Range (full Specs)	-30° C to + 60° C
Operating Temp. Range (degraded Specs)	+60° C to + 70° C Gain degrades by 1 dB
Lightning Protection	20kA IEC 61000-4-5 8/20 uS multiple strikes. 3 kA 10/350 uS slow pulse waveform
Grounding Studs	(2) ¼" -20 studs for 2-hole lugs with 3/4" center to center spacing
Test Port Coupling (Test input to Antenna input)	30 dB ± 2 dB (low directivity)
Test Port Coupling Flatness	≤ 0.5 dB
Test Port Balance	± 0.25 dB (dual branch only)
Branch to Branch Isolation	≥ 50 dB (dual branch only)
Internal Termination Accuracy	< ±5% or 32 dB RL (VSWR 1.05)
Connector Type (all Ports)	N or 4.3-10 female
Connector Spacing (X and Y planes)	1.9" center to center minimum
Enclosure	NEMA 3X minimum
Size (H x W x D)	13.0" x 6.5" x 4.4" including mounting brackets.
Weight Maximum	9.5 lbs. (Single) / 19 lbs. (dual branch)
TTA Unit Test Record	Yes, Factory entered in CU if ordered as system plus hard copy.

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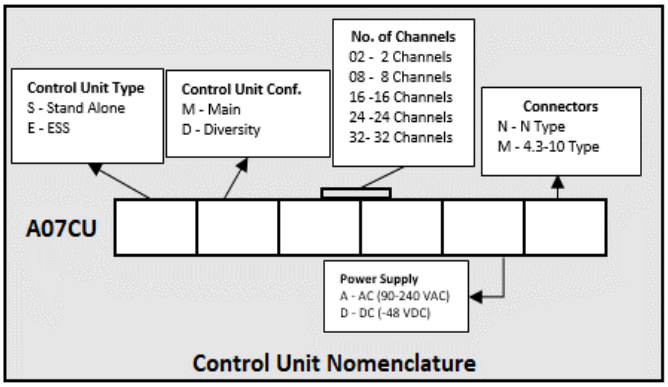


Main Unit Shown

Features and Benefits (Control Unit)

- 8 – 32 Channels in a 2 RU chassis (expandable in 8 channel increments)
- Large front panel display for local monitoring and configuration.
- Includes a secondary filter for additional isolation at the 700 & 800 MHz Transmitter Bands.
- Post filter ports to connect an external filter for additional selectivity.
- Test Port for accurate receiver testing.
- Antenna Test Port for antenna return loss testing
- Pre attenuator (0 – 15 in 0.25 dB steps)
- Self-terminating splitter outputs
- IP Interface
  - Web Interface for remote monitoring and configuration
  - TLS IP security layer
  - SNMP V2c & V3

Ordering Information



Control Unit Nomenclature

Control and Control & Distribution Units	
Type of Amplifier	Quadrature-Coupled
Amplifier Redundancy	Yes
Amplifier Output 3rd Order Intercept Point	≥ 45 dB
RF Port Return Loss	≥ 14 dB
Adjustable Attenuator Type	Electronic, 0 -15 dB, 0.25 dB steps
TTA Connectors Type (rear-facing)	N-Female or 4.3-10 (See ordering information)
Number of RX Output ports	8 - 32 on C&D ESS CU has two RF outputs
RX Output Connectors Type (rear-facing)	BNC-Female
Rx to Rx Port Isolation	≥ 20 dB
External Filter Ports	Yes
External Filter Port Connector Type	N-Female
Test Port Input Connector Type (front-facing)	Test Port: BNC-Female. Antenna Test: N-female
Grounding Studs	(2) ¼" -20 for 2 hole lugs
Status Indicators	LED plus LCD Display
Alarm Contacts	Form-C Contacts
Ethernet Port	Provided for SNMP, configuration, control and monitoring.
Power Requirements	90-240 VAC 50/60 Hz OR -48 VDC
Operating Temperature Range (full Specs)	0°C to + 50°C
Enclosure	Standard EIA 19" Rack Mount
Size Maximum (H x W x D)	3.5"(2 RU) x 19" x 11"
Control Unit Test Record	Yes , entered electronically and hard copy provided with shipment.

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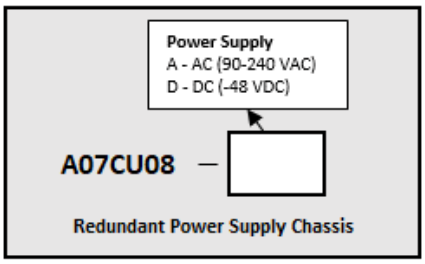
Nomenclature Charts

ESS/Stand Alone TTA System Nomenclature Chart					
System Conf.	AC Supply;N-Type	AC Supply; 4.3-10 Type	DC Supply; N-Type	DC Supply; 4.3-10 Type	Channels
Stand Alone System					
Diversity	A07SYSSD08AN	A07SYSSD08AM	A07SYSSD08DN	A07SYSSD08DM	08
	A07SYSSD16AN	A07SYSSD16AM	A07SYSSD16DN	A07SYSSD16DM	16
	A07SYSSD24AN	A07SYSSD24AM	A07SYSSD24DN	A07SYSSD24DM	24
	A07SYSSD32AN	A07SYSSD32AM	A07SYSSD32DN	A07SYSSD32DM	32
Single	A07SYSSS08AN	A07SYSSS08AM	A07SYSSS08DN	A07SYSSS08DM	08
	A07SYSSS16AN	A07SYSSS16AM	A07SYSSS16DN	A07SYSSS16DM	16
	A07SYSSS24AN	A07SYSSS24AM	A07SYSSS24DN	A07SYSSS24DM	24
	A07SYSSS32AN	A07SYSSS32AM	A07SYSSS32DN	A07SYSSS32DM	32
ESS System					
Diversity	A07SYSED02AN	A07SYSED02AM	A07SYSED02DN	A07SYSED02DM	02
Single	A07SYSES02AN	A07SYSES02AM	A07SYSES02DN	A07SYSES02DM	02

Nomenclature Chart for TTA (Top Unit) Combination (For Stand Alone and ESS options)		
Diversity	*Single*	Connectors
A07TTA-MN, A07TTA-DN	A07TTA-MN	N-Type
A07TTA-MM, A07TTA-DM	A07TTA-MM	4.3-10 Type

Nomenclature Chart for Control Unit (Bottom Unit) Combination				
Diversity	*Single*	*Channels*	*Supply*	*Connector Options*
Stand Alone Options				
A07CUSM08AN , A07CUSD08AN	A07CUSM08AN	08	AC	N-Type
A07CUSM16AN , A07CUSD16AN	A07CUSM16AN	16	AC	N-Type
A07CUSM24AN , A07CUSD24AN	A07CUSM24AN	24	AC	N-Type
A07CUSM32AN , A07CUSD32AN	A07CUSM32AN	32	AC	N-Type
A07CUSM08DN , A07CUSD08DN	A07CUSM08DN	08	DC	N-Type
A07CUSM16DN , A07CUSD16DN	A07CUSM16DN	16	DC	N-Type
A07CUSM24DN , A07CUSD24DN	A07CUSM24DN	24	DC	N-Type
A07CUSM32DN , A07CUSD32DN	A07CUSM32DN	32	DC	N-Type
A07CUSM08AM , A07CUSD08AM	A07CUSM08AM	08	AC	4.3-10 Type
A07CUSM16AM , A07CUSD16AM	A07CUSM16AM	16	AC	4.3-10 Type
A07CUSM24AM , A07CUSD24AM	A07CUSM24AM	24	AC	4.3-10 Type
A07CUSM32AM , A07CUSD32AM	A07CUSM32AM	32	AC	4.3-10 Type
A07CUSM08DM , A07CUSD08DM	A07CUSM08DM	08	DC	4.3-10 Type
A07CUSM16DM , A07CUSD16DM	A07CUSM16DM	16	DC	4.3-10 Type
A07CUSM24DM , A07CUSD24DM	A07CUSM24DM	24	DC	4.3-10 Type
A07CUSM32DM , A07CUSD32DM	A07CUSM32DM	32	DC	4.3-10 Type
ESS Options				
A07CUEM02AN , A07CUED02AN	A07CUEM02AN	02	AC	N-Type
A07CUEM02DN , A07CUED02DN	A07CUEM02DN	02	DC	N-Type
A07CUEM02AM , A07CUED02AM	A07CUEM02AM	02	AC	4.3-10 Type
A07CUEM02DM , A07CUED02DM	A07CUEM02DM	02	DC	4.3-10 Type

Expansion Kit (Redundant Power Supply Chassis)



ESS (Expandable Site Subsystem) /SA (Stand Alone) Tower Top Amplifier System (700/800 MHz)

