

ALLIANCE is SOLiD's multi-operator, neutral host Distributed Antenna System (DAS) that efficiently delivers wireless RF signals into any indoor or outdoor location difficult to cover with traditional macro networks.

Modular design and rugged construction means lower operational costs and unparalleled RF performance, cost efficiency and flexibility.

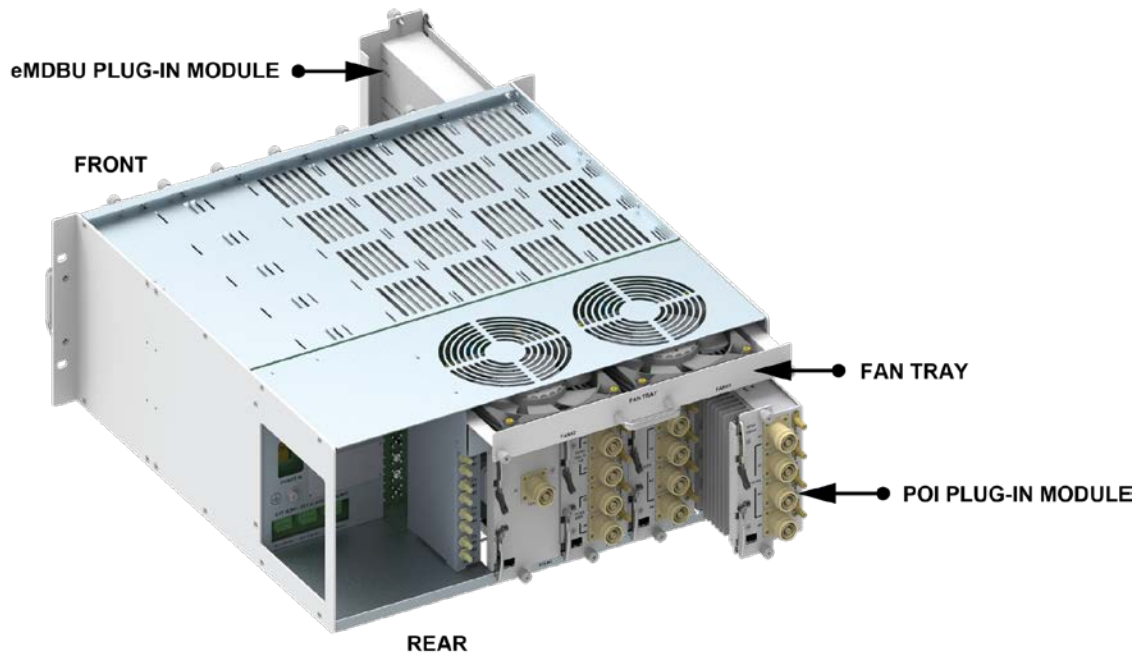
The Enhanced Base Station Unit (eBIU) features:

- Integrated high and low power Point of Interface (POI) modules
- Accepts simplex or duplex feeds from carrier equipment
- 4-3-10 connectors on high-power duplex ports
- Reduced footprint: 16 services in 4RU
- Integrated AC or DC power supply module
- Auto Level Control (ALC) uplink and downlink for each service

Operation

The Enhanced BIU (eBIU) with integrated POI modules is the central input point for all source signals sent and received over the DAS. The eBIU receives downlink signals from the base station (BTS) or bi-directional amplifier (BDA). Each signal is then independently monitored, filtered and controlled automatically in the eBIU and transmitted to the system's ODUs (Optical Distribution Units). The ODU converts the RF signals to optical signals and transmits them via fiber to the remote units (ROUs).

At the ROU, signals are amplified and sent via coax to the remote antennas placed throughout the building or campus. For the uplink path, the process is reversed allowing the eBIU to route each frequency to the proper operator.



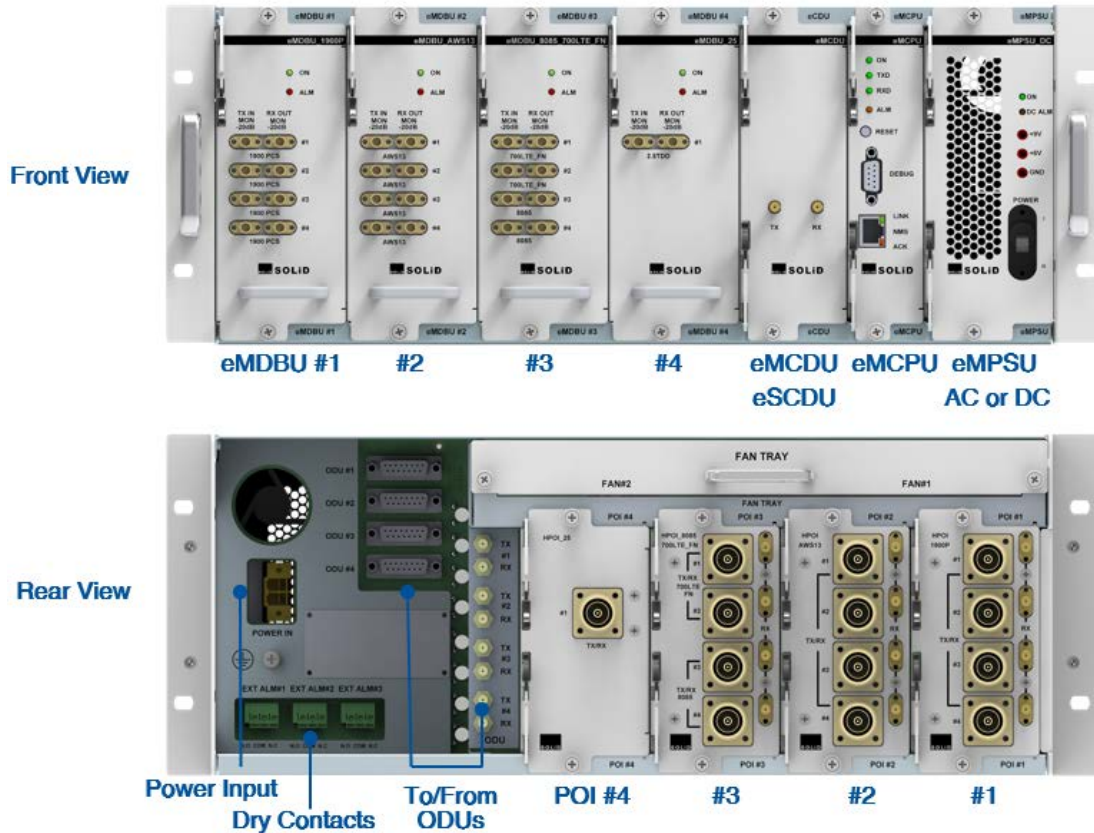
The eBIU can be configured with band-specific, high power (20W) or low power (100mW) Point of Interface (POI) modules for conditioning downlink and uplink signals. High and low power modules can be mixed in the same eBIU chassis.

In addition to the standard band-specific high and low power POIs, a hybrid module (HLPOI) is available for certain bands that consists of two HPOI ports and two LPOI ports. Also, two additional LPOIs are available (LPOI_SPLX_T10_R35 and LPOI_EB) that support all bands.

For deployments requiring more than 16 services per sector, a secondary eBIU can be connected to the main eBIU via the eMCDU module.

The eBIU is compatible with all current ALLIANCE DAS REL6 remote units including low (1W, 2W), medium (5W) and high power (20W) units.

Components



eBIU Components	Description
Enhanced Base Station Interface Unit	eBIU chassis includes eMCDU (or eSCDU), eMPCPU, eMPSU.
Main Combiner Divider Unit (eMCDU)	Provides combining/splitting to support 4 eMDBU modules and 4 ODU connections. eMCDU includes interface for secondary eBIU.
Secondary Combiner Divider Unit (eSCDU)	Used in secondary unit to connect to eMCDU in main unit.
Main Central Processor Unit (eMPCPU)	Controls and monitor system status. RJ45 and RS232 ports provide connection for management PC.
Main Power Supply Unit (eMPSU)	DC Input power: DC -48V, Output power: 9V, 6V AC Input power: AC 110/220V, Output power: 9V, 6V
Main Drive BTS Unit (eMDBU)	Amplifies and adjusts downlink and uplink RF signal. Max 4 eMDBUs per eBIU.
Point of Interface (POI) Module	Low Power POI (LPOI) for typical Small Cell Interface: up to 100mW High Power POI (HPOI) for typical BTS Interface: up to 20W Conditions RF signals from / to carrier equipment. (See more detail below.)
Fan Tray	Draws air across cooling fins on POI modules.
Dry Contact Relays	Used to accept input alarms from external equipment or send output alarms to NOCs or fire safety panels.

POI Modules

The eBIU can be configured with high-power (20W) or low-power (100mW) Point of Interface (POI) modules and high/low modules can be mixed in the same chassis. Hybrid modules (HLPOI) are available for certain bands that consists of two HPOI ports and two LPOI ports.

POI type	TX Input Power Range	Fixed TX Attenuation	Fixed RX Attenuation	Notes
HPOI all bands except 2500	+15 to +43 dBm	35 dB	45 dB	HPOI / HLPOI / LPOI must match corresponding MDBU. Accepts duplexed & simplex RF signal input.
HPOI 2500	+15 to +43 dBm	35 dB	35 dB	
LPOI	-10 to +20 dBm	10 dB	35 dB	
HLPOI	2 Ports: +15 to +43 dBm 2 Ports: -10 to +20 dBm	2 Ports: 35 dB 2 Ports: 10 dB	2 Ports: 45 dB 2 Ports: 35 dB	
LPOI_EB	-20 to +10 dBm	No attenuation	No attenuation	Simplex input only. Covers all bands: 136-3700 MHz TRX. One LPOI_EB ships with each eBIU used for testing input signal.
LPOI_SPLX_T10_R35	-10 to +20 dBm	10 dB	35 dB	Simplex input only. Covers all bands: 136-3700 MHz TRX.

Accessories

The following items ship with the unit.

Item	Description	Remark
Rear support brackets	Heavy duty brackets to support rear or side of chassis when mounted in rack. Can be used in 2-post or 4-post rack.	Qty 2
M6 ground screw	For ground connection, use with AWG #10 ~ 12 cable with M6 lugged end. Ground cable is not included with unit.	Qty 1
Power cable (SOLiD will supply AC or DC cable to match power unit ordered.)	DC: AWG #12x2C -48VDC input with two lug terminals. 2000mm (6.5ft)	Qty 1
	AC: 120VAC/220VAC (100-240VAC) input cable	Qty 1

Supported Bands / eMDBU Configurations

SOLiD Part Number / Frequency Bands	Service Band	Port #	Downlink (TX)		Uplink (RX)	
			Frequency (MHz)	Bandwidth (MHz)	Frequency (MHz)	Bandwidth (MHz)
eMDBU_8085_700LTE_FN / 800MHz (Sprint only) & 850MHz & 700MHz LTE Full Band + FirstNet	700LTE_FN	1	729-768	39	699-716	17
	700LTE_FN	2			777-798	21
	8085	3	862-894	32	817-849	32
	8085	4				
eMDBU_700LTE_M / 2 Ports 700LTE SISO / 2 Ports MIMO	LTE SISO	1	728-756	28	777-787	10
		2			698-716	18
	LTE MIMO	3	728-756	28	777-787	10
		4			698-716	18
eMDBU_1900P / 1900PCS	1900PCS	1	1930-1995	65	1850-1915	65
		2				
		3				
		4				
eMDBU_1900P_M / All ports 1900MHz MIMO	1900 MIMO	1	1930-1995	65	1850-1915	65
		2				
		3				
		4				
eMDBU_AWS13 / 2100 AWS 1+3	AWS 1+3	1	2110-2180	70	1710-1780	70
		2				
		3				
		4				
eMDBU_AWS13_M / All ports 2100 AWS 1+3 MIMO	AWS 1+3	1	2110-2180	70	1710-1780	70
		2				
		3				
		4				
eMDBU_25 / 2500 TDD LTE	2500 TDD LTE	1	2496.8-2690	LB: 71.2 MB: 37.8 UB: 71.2	2496.8-2690	LB: 71.2 MB: 37.8 UB: 71.2
eMDBU_23_25 / 2500MHz TDD & 2300MHz	2300Mhz	1	2350-2360	10	2305-2315	10
		2				
	2500TDD	3	2496.8-2690	LB: 71.2 MB: 37.8 UB: 71.2	2496.8-2690	LB: 71.2 MB: 37.8 UB: 71.2
		4				
eMDBU_25_26_S/M / 2500MHz TDD & 2600MHz FDD	2500 SISO or 2600 SISO	1	2496.8-2690	LB: 71.2 MB: 37.8 UB: 71.2	2496.8-2690	LB: 71.2 MB: 37.8 UB: 71.2
		2	2620-2690	70	2500-2570	70
	2500 MIMO or 2600 MIMO	3	2496.8-2690	LB: 71.2 MB: 37.8 UB: 71.2	2496.8-2690	LB: 71.2 MB: 37.8 UB: 71.2
		4	2620-2690	70	2500-2570	70
Notes: For 2500 services, operator can select the band – lower, mid, and upper band – using the management software. For the eMDBU_25_26_S/M module, the operator can select 2500TDD or 2600FDD mode using the management software.						

Specifications

RF Parameters		
Frequency Band	Downlink (Tx)	Uplink (Rx)
	Frequency (MHz)	Frequency (MHz)
700LTE + D Block (FirstNet)	729-768	699-716 / 777-798
Extended 850C band	862-894	817-849
1900PCS	1930-1995	1850-1915
2100 AWS 1+3	2110-2180	1710-1780
2300 WCS	2345-2360	2305-2320
2500TDD LTE	2496.8-2690	2496.8-2690
2600FDD	2620-2690	2500-2570

Electrical Specifications		
Downlink Input Power	LPOI	-10dBm to +20dBm
	HPOI	+15dBm to +43dBm each port
Uplink Gain Range (per port)	+5dB to -25dB using HPOI; +15dB to -15dB using LPOI -5dB to -35dB using 2500TDD HPOI	
Total Attenuation per port eMDBU + POI	Downlink	Management Software: 30dB variable in 0.5dB increments Fixed POI values all bands: HPOI 35dB. LPOI 10dB
	Uplink	Management Software: 30dB configurable in 0.5dB increments. (Note: this attenuator is shared with the ALC feature. Any hard-coded attenuation will reduce the ALC action by the amount of the hard-coded attenuation.) Fixed POI values: 45dB (HPOI) (35dB for 2500TDD HPOI) and 35dB (LPOI)
LPOI Simplex Board (LPOI_SPLX_T10_R35)	Simplex input only, 136MHz to 3700MHz. 10dB attenuation for TX and RX.	
LPOI Extender Board	Simplex input only, 136MHz to 3700MHz. No attenuation applied to TX or RX.	
ALC per port	30dB Downlink / 30dB Uplink	
PIM (HPOI)	-153dBc for HPOI	
Nominal Impedance	50 ohm	
Power Supply Range	AC 110/220V (AC: 110 – 240V). DC: -48V (DC: -42V to -56V)	
VSWR	1.5:1 at all in/out ports	
Monitoring level at eMDBU	TX: -20dB, RX: -20dB per port at interface between eMDBU and POI	
Power Consumption	Main	235W (AC version) Fully loaded (4 eMDBUs) covering bands: 700/800/850/1900/2100/2500 and powering 4 fully loaded ODUs (2 DOUs per ODU). Total power consumption will vary depending on configuration.
	Secondary	115W (AC version) with 4 eMDBUs
Front Panel LED Indicator	eMDBU	Power on: Green, Alarm: Red
	eMCPU	Power on: Green, Alarm: Red, LINK: Green flickering (Comm Status)
	eMPSU	Power on: Green, Alarm: Red

Mechanical/Environmental	
Total Maximum Weight	Approximately. 23kg (50lbs) at full load with 4 eMDBUs
HPOI BTS Interface (also applies to high power ports on HLPOI)	T/RX Duplexed Port: 4.3-10 (Female), Simplex RX Port: QMA (Female)
LPOI Small Cell Interface (also applies to low power ports on HLPOI)	T/RX Duplexed Port: QMA (Female) Simplex RX Port: QMA (Female)
LPOI Simplex Board (LPOI_SPLX_T10_R35) LPOI Extender Board (LPOI_EB)	TX and RX Port: Simplex: QMA (Female)
eMDBU UL & DL Test Ports (-20dB)	QMA (Female)
Mounting Type	19" rack mount (support brackets included and recommended)
Operating Temperature	14 to 122°F (-10 to +50°C) ambient temperature
Dimensions	19" W x 7" H x 18" D (4RU rack height)
Serial Interface Connector	RS232 9-pin D-sub, female (for connecting management PC)
Dry Contact Alarm Interface	3 Contacts. Configurable in management software and set up for either input/output alarms.

Standards / Certifications	
EMC	EN 301 489-01, EN 301-489-8, EN 301-489-23
Type Approval & Certification	EN60950-1

Ordering Information / Part Numbers

Order POI's to match desired carrier equipment power levels. POI frequency band must match associated eMDBU frequency band.

Product Description	Part Number
Blank eBIU Module	eBIU_B (eBIU BLANK)
Main eBIU, AC Version (Includes: eMCPU, eMPSU_AC, eMCDU)	eMBIU_C_AC
Main eBIU, DC Version (Includes: eMCPU, eMPSU_DC, eMCDU)	eMBIU_C_DC
700 MHz eBIU Input Module; SISO (Ports 1 & 2) or MIMO (Ports 3 & 4)	eMDBU_700LTE_M
1900 MHz eBIU Input Module	eMDBU_1900P
1900 MHz eBIU Input Module; Channel B for MIMO Applications	eMDBU_1900P_M
2300 WCS, 2500MHz TDD eBIU Input Module	eMDBU_23_25
2500 MHz TDD eBIU Input Module	eMDBU_25
817-849/862-869 MHz Cellular, 700 MHz Full Band eBIU Input Module. Includes Extended 700 band for FirstNet	eMDBU_8085_700LTE_FN
2100 MHz (AWS 1+3) eBIU Input Module	eMDBU_AWS13
2100 MHz (AWS 1+3) eBIU Input Module; Channel B for MIMO applications	eMDBU_AWS13_M
2500TDD or 2600FDD for SISO (Ports #1, #2) or MIMO (Ports #3, #4)	eMDBU_25_26_S/M
Secondary eBIU, AC Version (Includes: eMCPU, eMPSU_AC, eSCDU)	eSBIU_C_AC
Secondary eBIU, DC Version (Includes: eMCPU, eMPSU_DC, eSCDU)	eSBIU_C_DC
Low Power Extender Board, +10dBm max, Simplex only, 136MHz to 2700Mhz	LPOI_EB
Low Power POI (100mW), Simplex, DL Atten 10 dB, UL Atten 35 dB, 136-2700MHz	LPOI_SPLX_T10_R35
Hybrid POI, 1900MHz, 2 Ports 20W, 2 Ports 100mW	HLPOI_1900P
Hybrid POI, 700LTE+FN: 20W & 100mW, 800/850: 20W & 100mW	HLPOI_8085_700LTE_FN
Hybrid POI, AWS (1+3), 2 Ports 20W, 2 Ports 100mW	HLPOI_AWS13
Low Power POI (100mW), 800MHz Sprint, 850MHz Cellular, 700LTE+FirstNet	LPOI_8085_700LTE_FN
Low Power POI (100mW), 1900MHz PCS	LPOI_1900P
Low Power POI (100mW), 2100MHz (AWS 1+3)	LPOI_AWS13
Low Power POI (100mW), 2300MHz WCS, 2500MHz TDD	LPOI_23_25
Low Power POI (100mW), 700 MHz + FirstNet, Ports 1&2 SISO, Ports 3&4 MIMO	LPOI_700LTE_FN_S/M
High Power POI (20W), 800MHz Sprint, 850MHz Cellular, 700LTE+FirstNet	HPOI_8085_700LTE_FN
High Power POI (20W), 1900MHz PCS	HPOI_1900P
High Power POI (20W), 2100MHz (AWS 1+3)	HPOI_AWS13
High Power POI (20W), 2300MHz WCS, 2500MHz TDD	HPOI_23_25
High Power POI Module (20W), 2500MHz TDD, 1 Port	HPOI_25
High Power POI (20W), 700 MHz + FirstNet, Ports 1&2 SISO, Ports 3&4 MIMO	HPOI_700LTE_FN_S/M
High Power POI (20W), 2500TDD/2600FDD, Ports 1&2 SISO, Ports 3&4 MIMO	HPOI_25_26_S/M



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