

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:

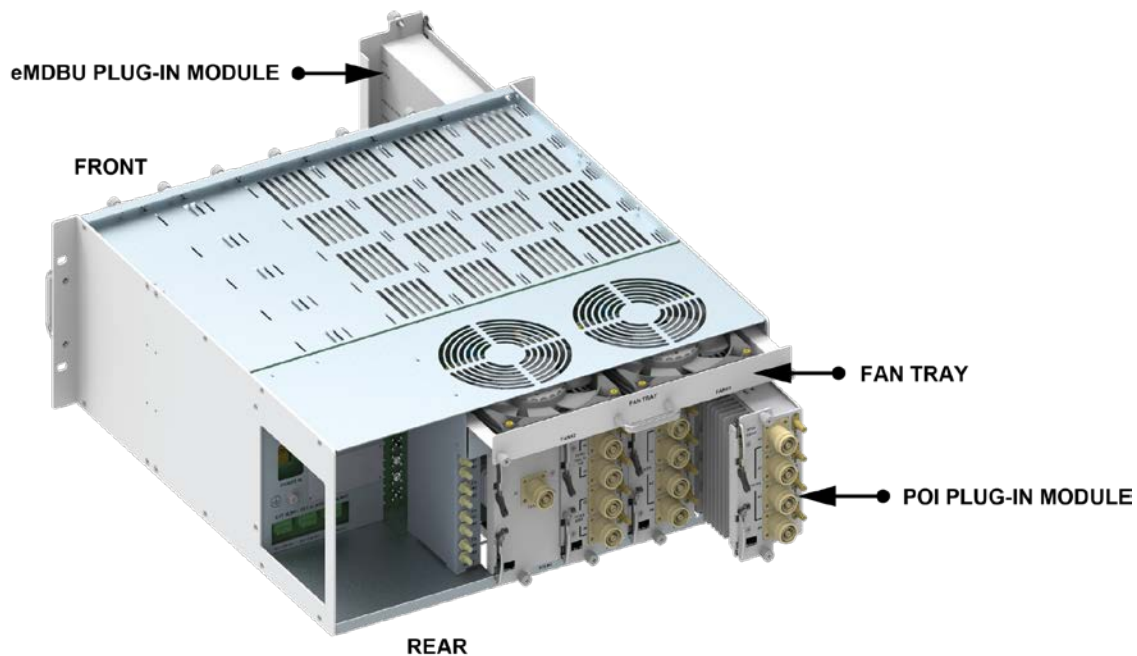
- Integrated low- and high-power Point of Interface (POI) modules
- Accepts simplex or duplex feeds from carrier equipment
- 4.3-10 connectors on high-power duplex ports
- Reduced footprint: 16 services in 4RU
- Integrated AC or DC power supply module
- Auto Level Control (ALC) uplink and downlink for 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 is compatible with all of SOLiD's low, medium and high power remote units.

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 (Optic 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 modules can be mixed in the same chassis. The high-power POI (HPOI) has an input range from +15dBm to +43dBm and the low-power module (LPOI) from -10dBm to +20dBm. Band-specific high- and low-power POI modules offer both duplex and simplex ports for connectivity with carrier equipment. Two additional LPOIs are available which support all bands: the LPOI_SPLX and LPOI_EB. These units only support simplex input.

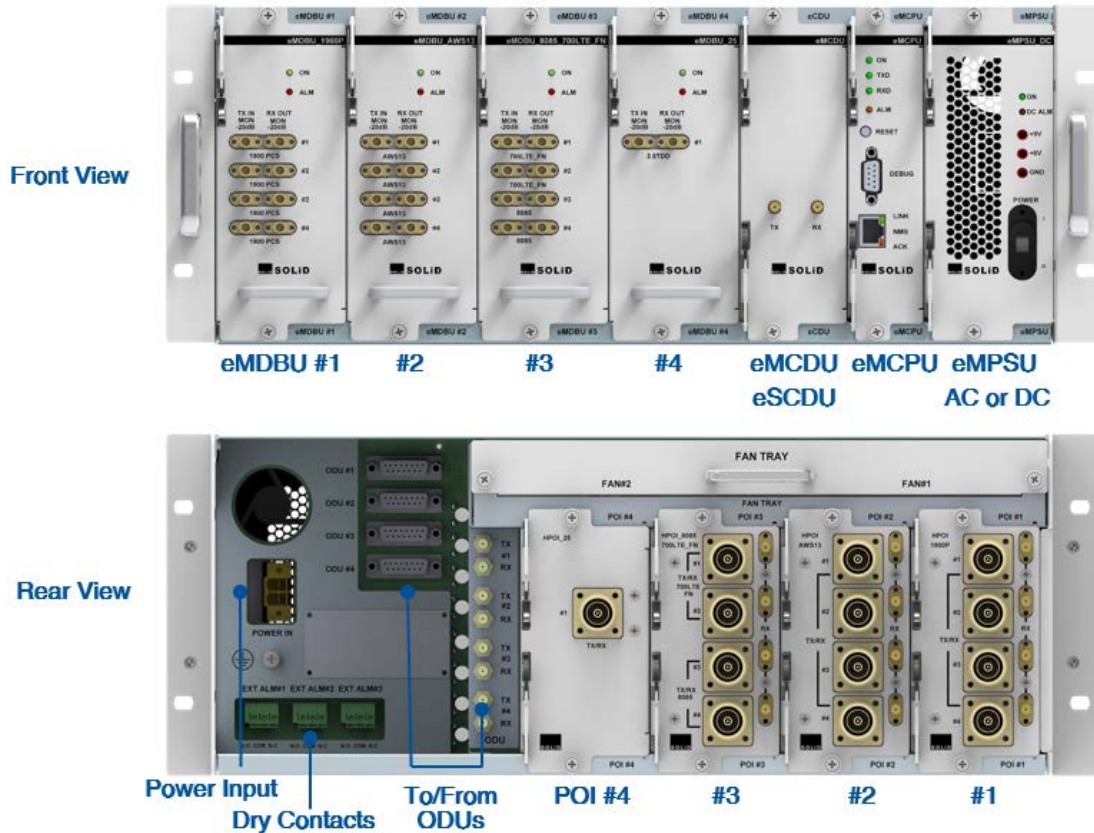
A fan tray draws air across cooling fins on the modules when using high-power POIs. SOLiD recommends leaving 1U of space above and below the unit to dissipate heat when using the-high power POIs.

For deployments requiring more than 16 services per sector, a second eBIU, configured as a slave unit, can be connected to the master eBIU via the eMCDU module.

The eBIU mounts in a 19-inch equipment rack and is powered by an internal AC or DC power supply. Supported bands include: 700MHz, 800MHz, 850MHz, 1900MHz, 2100MHz (AWS 1+3), 2300MHz WCS, 2500MHz TDD, and 2600MHz FDD.

The eBIU is compatible with all current ALLIANCE DAS components including low (1W, 2W), medium (5W) and high power (20W) remote units. However, the ALLIANCE DAS must be operating at REL6 version firmware.

Components





eBIU Components	Description
Enhanced Base Station Interface Unit	eBIU chassis includes eMCDU (or eSCDU), eMPCU, eMPSU
Main Combiner Divider Unit (eMCDU)	Provides combining/splitting to support 4 eMDBU modules and 4 ODU connections. eMCDU includes interface for secondary eBIU. .
Slave Combiner Divider Unit (eSCDU)	Used in slave unit to connect to eMCDU in master unit
Main Central Processor Unit (eMPCU)	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.
LPOI Simplex Interface Module	Simplex input, all bands 136MHz to 2700MHz, 10dB attenuation.
LPOI Extender Board	Simplex input, all bands 136MHz to 2700MHz, no attenuation
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 and Attenuator Pads

The eBIU can be configured with high-power (20W) or low-power (100mW) Point of Interface (POI) modules or high/low modules can be mixed in the same chassis.

POI type	TX Input Power Range	RX Attenuation	Remark
HPOI	+15dBm to +43dBm	45dB (35dB for 2500TDD)	HPOI must match corresponding eMDBU. Accepts duplexed and simplex RF signal input.
LPOI	-10dBm to +20dBm	35dB	LPOI must match corresponding eMDBU. Accepts duplexed and simplex RF signal input.
LPOI_SPLX	-10dBm to +20dBm	10dB	Simplex input only. Supports all bands in the range 136-2700MHz TRX - For additional attenuation, use the external pads (see below).
LPOI_EB	-20dBm to +10dBm	No attenuation	Simplex input only. Supports all bands in the range 136-2700MHz TRX One LPOI_EB (extender board) ships with each eBIU. It is used for testing input signal and can also be used when replacing legacy BIU with eBIU.

For additional attenuation, SOLiD offers a 10dB attenuator for the downlink (TX) path and a 25dB attenuator for the uplink (RX) path. These attenuator pads can be added directly to QMA TX and RX ports on the LPOI_SPLX to improve the power handling in the downlink path and offer additional noise suppression in the uplink. Applying the 10dB attenuator pad to the TX port of the LPOI_SPLX will increase the maximum input power from the signal source to +30dBm.

SOLiD Part Number	Attenuation	Color	Type	Image
ATTN_10dB_2W_QMAM_QMAF (TX only)	10dB	Red	QMA(Female) to QMA (Male)	
ATTN_25dB_1W_QMAM_QMAF (RX only)	25dB	Blue	QMA(Female) to QMA (Male)	

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. 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_1900P / 1900PCS	1900PCS	1	1930-1995	65	1850-1915	65
		2				
		3				
		4				
eMDBU_1900P_M 1900MHz; B Path for MIMO / 1900MHz; B Path for 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_25 / 2500 TDD LTE	2500 TDD LTE	1	2496-2690	LB: 71.2 MB: 37.8 UB: 71.2	2496-2690	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	2496-2690	LB: 71.2 MB: 37.8 UB: 71.2	2496-2690	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	2496-2690	LB: 71.2 MB: 37.8 UB: 71.2	2496-2690	LB: 71.2 MB: 37.8 UB: 71.2
		2	2500-2570	70	2620-2690	70
	2500 MIMO or 2600 MIMO	3	2496-2690	LB: 71.2 MB: 37.8 UB: 71.2	2496-2690	LB: 71.2 MB: 37.8 UB: 71.2
		4	2500-2570	70	2620-2690	70
<p>Notes: For 2500 services, operator can select the band – lower band, mid band and upper band – using the management software. For 2500 TDD ports on eMDBU modules only duplexed input types are supported. The Tx port (SMA type) is used for both Tx and Rx inputs/outputs.</p> <p>For the eMDBU_25_26_S/M module, the operator can select 2500TDD mode or 2600FDD mode in the management software. Ports #1 & #2 are used for SISO channel. Ports #3 & #4 for MIMO channel.</p>						

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	2496-2690	2496-2690
2600FDD	2500-2570	2620-2690

Electrical Specifications		
Downlink Input Power	LPOI	-10dBm to +20dBm
	HPOI	+15dBm to +43dBm each port, -153dBc PIM
Uplink Gain Range (per port)		+5dB to -15dB using HPOI; +15dB to -5dB using LPOI & 2.5TDD 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		Simplex input only, 136MHz to 2700MHz. 10dB attenuation for TX and RX.
LPOI Extender Board		Simplex input only, 136MHz to 2700Mhz. No attenuation applied to TX or RX.
ALC per port		30dB Downlink / 30dB Uplink
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	Master	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.
	Slave	115W (AC version) with 4 eMDBUs
Front Panel LED Indicator	eMDBU	Power on: Green, Alarm: Red
	eMCPUI	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	T/RX Duplexed Port: 4.3-10 (Female), Simplex RX Port: QMA (Female)
LPOI Small Cell Interface	T/RX Duplexed Port: QMA (Female) Simplex RX Port: QMA (Female)
LPOI Simplex Interface Card (LPOI_SPLX) 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)
Master eBIU, AC Version (Includes: eMCPU, eMPSU_AC, eMCDU)	eMBIU_C_AC
Master eBIU, DC Version (Includes: eMCPU, eMPSU_DC, eMCDU)	eMBIU_C_DC
1900 MHz Input Module for the eBIU	eMDBU_1900P
1900 MHz Input Module for the eBIU, Channel B for MIMO Applications	eMDBU_1900P_M
2300 WCS, 2500MHz TDD Input Module for eBIU	eMDBU_23_25
2500MHz TDD Input Module for eBIU	eMDBU_25
817-849/862-869 MHz Cellular, 700MHz Full Band Input Module for the eBIU. Includes Extended 700 band for FirstNet	eMDBU_8085_700LTE_FN
2100MHz (AWS 1+3) Input Module for the eBIU	eMDBU_AWS13
2500TDD or 2600FDD for SISO (Ports 1, 2) or MIMO (Ports 3, 4) **Q2 2017	eMDBU_25_26_S/M
Slave eBIU, AC Version (Includes: eMCPU, eMPSU_AC, eSCDU)	eSBIU_C_AC
Slave eBIU, DC Version (Includes: eMCPU, eMPSU_DC, eSCDU)	eSBIU_C_DC

Continued next page

Product Description	Part Number
High Power POI Module (20W), 1900MHz PCS, 4 Ports	HPOI_1900P
High Power POI Module (20W), 2300MHz WCS, 2500MHz TDD, 3 Ports	HPOI_23_25
High Power POI Module (20W), 2500MHz TDD, 1 Port	HPOI_25
High Power POI Module (20W), 800MHz Sprint, 850MHz Cellular, 700LTE + FirstNet, 4 Ports	HPOI_8085_700LTE_FN
High Power POI Module (20W), 2100MHz (AWS 1+3), 4 Ports	HPOI_AWS13
High Power POI Module (20W), 2500TDD or 2600FDD, 4 Ports (SISO 2 Ports of 25 or 26, MIMO 2 Ports of 25 or 26). ** Q2 2017	HPOI_25_26_S/M
Low Power POI Module (100mW), 1900MHz PCS, 4 Ports	LPOI_1900P
Low Power POI Module (100mW), 2300MHz WCS, 2500MHz TDD, 4 Ports	LPOI_23_25
Low Power POI Module (100mW), 800MHz Sprint, 850MHz Cellular, 700LTE + FirstNet, 4 Ports	LPOI_8085_700LTE_FN
Low Power POI Module (100mW), 2100MHz (AWS 1+3), 4 Ports	LPOI_AWS13
Low Power POI Module (100mW), Simplex Interface Card, 136MHz to 2700MHz	LPOI_SPLX
Low Power Extender Board, +10dBm max power rating, Simplex only, 136-2700Mhz	LPOI_EB
ALLIANCE Power Supply - 48 VDC / 480 W	RMP_480
RF Attenuator, 10dB, 2Watt max power, QMA-male to QMA-female connectors	ATTN_10dB_2W_QMAM_QMAF
RF Attenuator, 25dB, 1Watt max power, QMA-male to QMA-female connectors	ATTN_25dB_1W_QMAM_QMAF



SOLiD Gear, Inc.
 800 Klein Road, Suite 200
 Plano, TX 75074
 PHONE: 888.409.9997
 EMAIL: sales@solid.com
 WEB: www.solid.com

