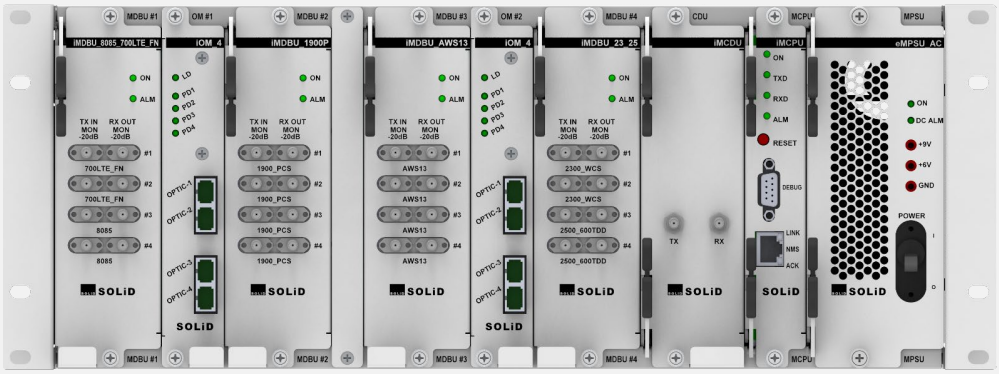
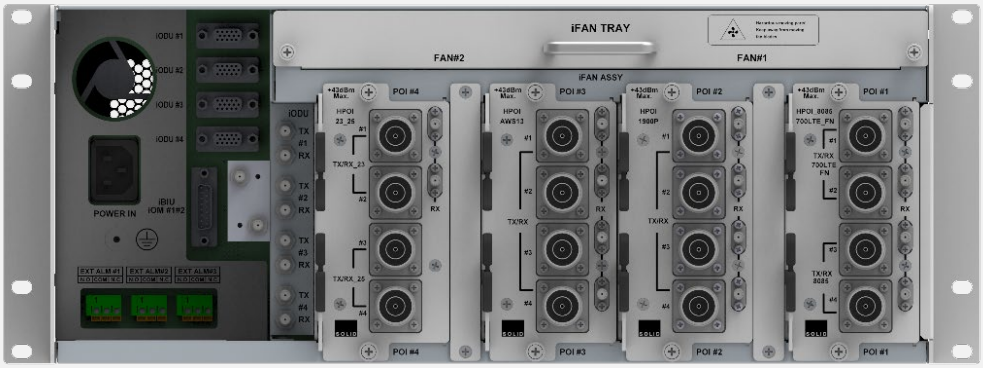
ALLIANCE Multi-Carrier DAS

Integrated BTS Interface Unit (iBIU)

Product Specification / Parts List





The ALLIANCE Release 6 platform 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.

The iBIU serves as the system headend, receiving RF signals from and sending RF signals to the base station (BTS) or bi-directional amplifier (BDA).

The iBIU is compatible with all current REL6 remote units including the Fiber2Antenna edgeROUs.

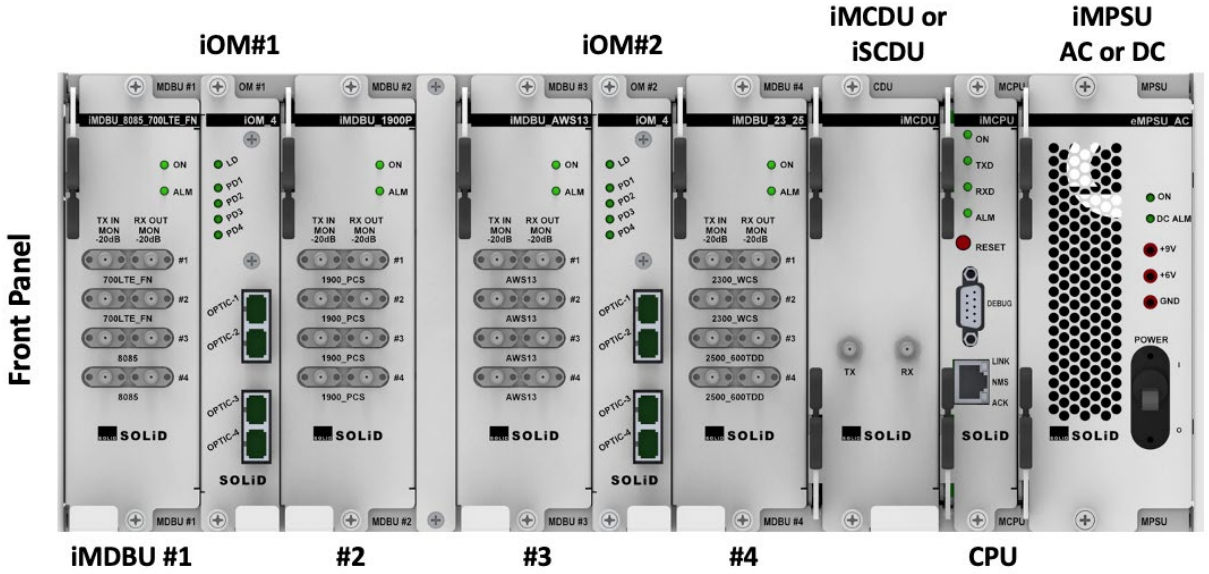
- Integrated AC or DC power supply unit
- 4.3-10 connectors on high-power duplex ports
- Automatic Level Control (ALC) uplink and downlink for each service
- Integrated optic modules
- Integrated point-of-interface (POI) modules
- Accepts simplex or duplex feeds from carrier equipment
- Small footprint: 16 services in 4RU including up to 8 optical ports

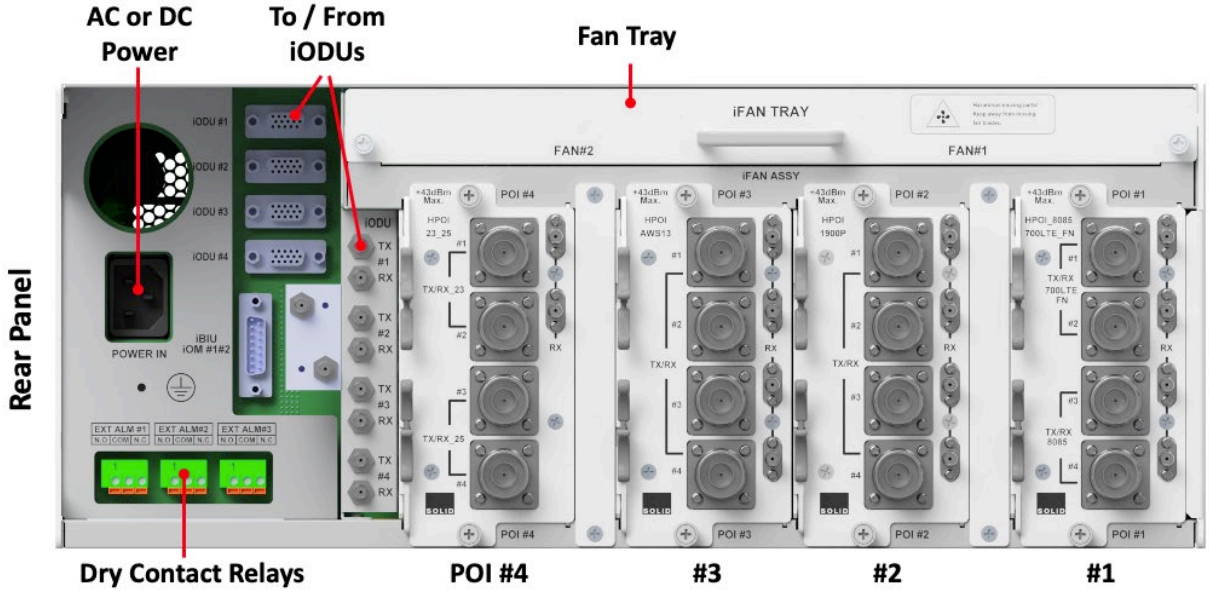
Overview

In the iBIU, each signal is independently filtered, attenuated and controlled. The optical modules in the iBIU convert the RF and optical signals and transmits them via fiber to and from the remote units.

The iBIU can be configured with any combination of point-of-interface (POI) modules: high power (20W), low power (100mW), or hybrid (high and low power).

For deployments requiring support for more than 16 services per sector, the DAS headend can support a secondary iBIU that interfaces directly with the main iBIU.





Unit	Description
Integrated BTS Interface Unit (iBIU)	iBIU chassis includes iMCPU, iMPSU, Fan unit
Optical Module (iOM_1_4000, iOM_4_4000, iOM_1_2700, iOM_4_2700)	RF / Optical conversion. Up to two iOMs per iBIU, either 4-port or 1-port. Link budget: 4-port module: 5 dBo. 1-port module: 10 dBo.
Main Combiner Divider Unit (iMCDU) iMCDU or iMCDU_4000	Provides combining/splitting to support four iMDBU modules and four iODU connections. iMCDU includes interface for secondary iBIU. The 4000 versions are required to support C Band.
Secondary Combiner Divider Unit iSCDU_4W1 or _2W2 iSCDU_4W1_4000 or _2W2_4000)	4W1 connects all four iMDBU slots of the secondary iBIU to one main iBIU. 2W2 connects two iMDBU slots to one main iBIU and the other two iMDBU slots to a second main iBIU. The 4000 versions are required to support C Band.
Main Central Processor Unit (iMCPU)	Controls and monitors system status
Integrated Main Power Supply Unit (iMPSU)	DC Input power: DC -48V, Output power: 9V, 6V AC Input power: AC 100-240V AC, Output power: 9V, 6V
Main Drive BTS Unit (iMDBU)	Amplify and adjust downlink / uplink RF signals. Maximum four iMDBUs per iBIU. iMDBU_7_8_9_V/U (for VHF/UHF frequencies) is only supported at iMDBU#1 slot in main unit. VHF/UHF is not supported in secondary iBIU.
Point of Interface Modules (POIs)	Conditions RF signals from carrier equipment. Plugs into backplane and aligns with band-specific iMDBU. Low Power POI (LPOI): Small Cell Interface: 100mW High Power POI (HPOI): BTS Interface: 20W The 4000 versions are required to support C Band.
Fan Tray (Optional)	Draws air across the cooling fins of the POI modules. iBIU ships with the Fan tray but it is only required when using HPOI or HLPOIs and may be removed if only using LPOIs.
Dry Contact Relays	Used to accept input alarms from external equipment or provide output alarms.

Specifications

RF Parameters		
Frequency Band	**Downlink (Tx)**	**Uplink (Rx)**
	Frequency (MHz)	**Frequency (MHz)**
VHF	136~174	136~174
UHF	380~512	380~512
600	617~652	663~698
700LTE + FN	729~768	699~716 / 777~798
700 NB+FN	758~775	788~805
800PS	851~869	806~824
900	923~941	896~919
Extended 850C band	862~894	817~849
1900PCS (Extended)	1930~2020	1850~1915
2100 AWS 1+3 (Extended)	2110~2200	1695~1780
2300 WCS	2350~2360	2305~2315
2500TDD	2496~2690	2496~2690
Lower C-Band	3450~3550	3450~3550
C-Band	3700~3980	3700~3980

Electrical Specifications		
Downlink Input Power		LPOI: -10 dBm to +20 dBm. HPOI: +15 dBm to +43 dBm each port
iMDBU Uplink Gain Range (per port)		+5 dB to -25 dB using HPOI; +15 dB to -15 dB using LPOI -5 dB to -35 dB using 2500TDD HPOI
Variable Attenuation per port iMDBU	Downlink	Management Software: 30 dB variable in 0.5 dB increments
	Uplink	Management Software: 30 dB configurable in 0.5 dB 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.)
ALC per port		30 dB Downlink / 30 dB Uplink
Nominal Impedance		50 Ohm
VSWR		1.5:1 at all RF ports
Monitoring level at iMDBU		TX: -20 dB, RX: -20 dB sampled from iMDBU exclusive of POI attenuation
Power Consumption		Main unit: 250W maximum. Secondary unit: 130W maximum. See Operations Manual to calculate power consumption for specific configurations.
Front Panel LED Indicator	iMDBU	Power on: Green, Alarm: Red
	iMCPU	Power on: Green, Alarm: Red, Link: Green flickering (Comm Status)
	MPSU	Power on: Green, Alarm: Red
Optical Wavelength		TX: 1310nm, 1330nm* (*Only applies to iOM_4000 modules which use both 1310 and 1330.) RX: 1550nm
Optical Module Transmit Power		4-port module: 3 dBm ± 1 dB. 1-port module: 10 dBm ± 1 dB.
Optical Module Link Budget		4-port module: 5 dBo. 1-port module: 10 dBo. Recommended max. fiber length is <10km. Maximum back reflection (return loss) is -55dB
LPOI Simplex Board (LPOI_SPLX_T10_R35)		Simplex input only, 136 MHz to 2700 MHz. 10 dB attenuation for TX, 35 dB for RX.
LPOI Extender Board (LPOI_EB)		Simplex input only, 136 MHz to 2700 MHz. No attenuation applied to TX or RX.
PIM (HPOI)		-153 dBc for HPOI

Mechanical/Environmental	
iBIU Total Maximum Weight	Approximately 27 kg fully loaded: iMCDU, four iMDBUs, two iOM_4s
HPOI & LPOI BTS Interface	TX/RX Port: 4.3-10 female HPOI, QMA female LPOI. RX Port: QMA female
Power Supply Range	AC: 110 – 240V. DC: -48V (DC: -42V to -56V)
MDBU UL & DL Test Ports	QMA female (-20 dB)
LPOI Simplex Interface and Extender Board	TX and RX Ports: Simplex: QMA female
Fiber Connector	SC/APC. Recommended maximum fiber length is 10km. Maximum back reflection (return loss) is -55 dB.
Operating Temperature	14 to 122°F (-10 to +50°C) ambient temperature
Dimensions WxHxD / Mounting Type	19 x 7 (4RU) x 18 inches (482.6 x 178 x 457 mm) / 19” Rack Mounting
Management Ports	RJ45 and RS232 9-pin D-sub, female
Dry Contact Alarm Interface	3 Input / 3 Output (Software Switchable)

POI Modules

POI Type	TX Input Power Range	Fixed TX Attenuation	Fixed RX Attenuation	Notes
HPOI all bands except 2500 and 4000	+15 to +43 dBm	35 dB	45 dB	POI module must match corresponding iMDBU. Accepts duplexed and simplex RF signal input (2500TDD is duplex only)
HPOI 2500 and 4000	+15 to +43 dBm	35 dB	35 dB	
LPOI all bands except 2500 and 4000	-10 to +20 dBm	10 dB	35 dB	
LPOI 2500 and 4000	-10 to +20 dBm	10 dB	10 dB	
HLPOI all bands except 4000	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	
HLPOI 4000	2 Ports: +15 to +43 dBm 2 Ports: -10 to +20 dBm	2 Ports: 35 dB 2 Ports: 10 dB	2 Ports: 35 dB 2 Ports: 10 dB	
LPOI_EB	-20 to +10 dBm	No attenuation	No attenuation	Simplex, FDD input only. Covers all bands: 136-3700 MHz TRX. One LPOI_EB ships with each iBIU used for testing input signal.
LPOI_SPLX_T10_R35	-10 to +20 dBm	10 dB	35 dB	Simplex, FDD input only. Covers all bands: 136-3700 MHz TRX.

Parts Numbers

iBIU / iMCDU / iSCDU / Bracket	Description
iBIU_AC	iBIU Chassis, Includes: iMCPU, iMPSU_AC
iBIU_DC	iBIU Chassis, Includes: iMCPU, iMPSU_DC
iMCDU	Main Combiner/Divider Unit
iMCDU_4000	Main Combiner/Divider Unit - C-Band
iSCDU_4W1	Secondary Combiner/Divider Unit, iSBIU_4W1, 1 sector
iSCDU_4W1_4000	Secondary Combiner/Divider Unit, iSBIU_4W1 - C Band
iSCDU_2W2	Secondary Combiner/Divider Unit, iSBIU_2W2, 2 sectors
iSCDU_2W2_4000	Secondary Combiner/Divider Unit, iSBIU_2W2 - C Band
iODU_CBL_KIT	iBIU Cable Kit, OM Modules in Secondary iSBIU, Data and RF Cables
iODU_BIU_CBL_KIT	iODU Cable Kit, Connects iODU to eBIU or Legacy BIU
iBIU_B	Input module, blank
BRKT_BIU_SIDE	iBIU/eBIU MOUNT Bracket for Installation

Part Numbers continued on next page.

Part Numbers continued:

iMDBUs	Description
iMDBU_600_700LTE_FN	Input module, 600MHz, 700LTE + FirstNet
iMDBU_7_8_9_V/U	Input module, 700/800/900VHF/UHF Public Safety and LMR
iMDBU_8085_700LTE_FN	Input module, 800/850MHz, 700LTE + FirstNet
iMDBU_1900P_E	Input module, 1900 MHz with extension for DISH
iMDBU_AWS13_B66B70	Input module, 2100MHz (AWS 1+3) with extension for DISH
iMDBU_23_25_FB	Input module, 2300 WCS, 2500MHz TDD (Full Band)
iMDBU_1900P_M	Input module, 1900 MHz, MIMO
iMDBU_700LTE_M	Input module, 700LTE, SISO & MIMO
iMDBU_AWS13_M	Input module, 2100MHz (AWS 1+3), MIMO
iMDBU_345	Input module, 3450-3550MHz
iMDBU_345_M	Input module, 3450-3550MHz, MIMO
iMDBU_Cband	Input Module, C-Band, SISO
iMDBU_Cband_M	Input Module, C-Band, MIMO
Point of Interface Modules	
LPOI_EB	Low Power Extender Board, +10dBm max, Simplex only, 136MHz to 2700Mhz
LPOI_SPLX_T10_R35	Low Power POI (100mW), Simplex, DL Atten 10 dB, UL Atten 35 dB, 136-2700MHz
HLPOI_600_700LTE_FN	Hybrid POI, 600: 20W/100mW, 700LTE+FN: 20W/100mW
HLPOI_8085_700LTE_FN	Hybrid POI, 700LTE+FN: 20W & 100mW, 800/850: 20W & 100mW
HLPOI_1900P	Hybrid POI, 1900MHz, 2 Ports 20W, 2 Ports 100mW
HLPOI_AWS13	Hybrid POI, AWS (1+3), 2 Ports 20W, 2 Ports 100mW
HLPOI_4000	Hybrid POI, 3550~4000MHz TDD, 2 Ports 20W, 2 Ports 100mW
LPOI_8085_700LTE_FN	Low Power POI (100mW), 800MHz Sprint, 850MHz Cellular, 700LTE+FirstNet
LPOI_1900P	Low Power POI (100mW), 1900MHz PCS
LPOI_AWS13	Low Power POI (100mW), 2100MHz (AWS 1+3)
LPOI_23_25	Low Power POI (100mW), 2300MHz WCS, 2500MHz TDD
LPOI_4000	Low Power POI Module (100mW), 3300~4200 MHz TDD, 4 Ports
HPOI_8085_700LTE_FN	High Power POI (20W), 800MHz Sprint, 850MHz Cellular, 700LTE+FirstNet
HPOI_1900P	High Power POI (20W), 1900MHz PCS
HPOI_AWS13	High Power POI (20W), 2100MHz (AWS 1+3)
HPOI_23_25	High Power POI (20W), 2300MHz WCS, 2500MHz TDD
HPOI_4000	High Power POI Module (20W), 3300~4200 MHz TDD, 4 Ports
Integrated Optic Modules	
iOM_1_2700	1 Port optical module, use with iBIU, iODU, iOEU, supports 136 - 2700MHz
iOM_4_2700	4 Port optical module, use with iBIU, iODU, iOEU, supports 136 - 2700MHz
iOM_1_4000	1 Port optical module, use with iBIU, iODU, iOEU, supports 136 - 4000MHz
iOM_4_4000	4 Port optical module, use with iBIU, iODU, iOEU, supports 136 - 4000MHz
iOM_B	Blank optical module, use with iBIU, iODU, iOEU

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