ALLIANCE Multi-Carrier DAS
Integrated BTS Interface Unit (iBIU)
Product Specification

The iBIU receives RF signals from, and sends RF signals to, the base station (BTS) or bi-directional amplifier (BDA). 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 (ROUs).

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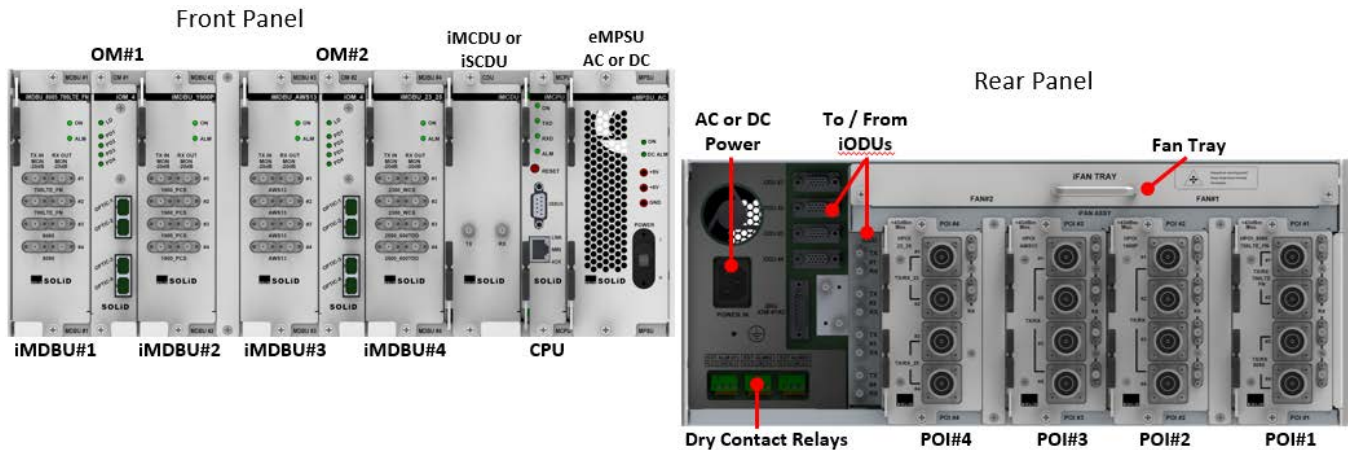
For deployments requiring support for more than 16 services per sector, the DAS headend can support a secondary iBIU that interfaces directly with the main iBIU.

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

Features

- Integrated optic modules
- Integrated high- and low-power point-of-interface (POI) modules
- Accepts simplex or duplex feeds from carrier equipment
- Reduced footprint: 16 services in 4RU including up to 8 optical ports

- 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

iBIU Components and Accessories

Unit Name	Description
Integrated BTS Interface Unit (iBIU)	iBIU chassis includes iMCPU and eMPSU
Optical Module (iOM_1 or iOM_4)	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)	Provides combining/splitting to support four iMDBU modules, two internal optical modules and three external iODU connections. iMCDU includes interface for secondary iBIU.
Secondary Combiner Divider Unit (iSCDU). (iSCDU_4W1 or iSCDU_2W2)	iSCDU_4W1 connects all four iMDBU slots of the secondary iBIU chassis to one main iBIU chassis. iSCDU_2W2 connects two iMDBU slots to one main iBIU chassis and the other two iMDBU slots to a second main iBIU chassis.
Main Central Processor Unit (iMCPU)	Controls and monitors system status
Enhanced 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 (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
Fan Tray	Draws air across the cooling fins of the POI modules.
Dry Contact Relays	Used to accept input alarms from external equipment or provide output alarms.

The following items ship with the unit.

Item	Description	Notes
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: 100-240VAC input cable	Qty 1

POI Modules

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 must match corresponding iMDBU. Accepts duplexed and simplex RF signal input.
HPOI 2500	+15 to +43 dBm	35 dB	35 dB	
LPOI	-10 to +20 dBm	10 dB	35 dB	LPOI must match corresponding iMDBU. Accepts duplexed and simplex RF signal input.
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	HLPOI must match corresponding iMDBU. Accepts duplexed and simplex RF signal input.
LPOI_EB	-20 to +10 dBm	No attenuation	No attenuation	Simplex input only. Supports all bands in the range 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 input only. Supports all bands in the range 136-3700 MHz TRX. (For iMDBU_7_8_9_V/U use LPOI_SPLX_T10_R35.)

Specifications

RF Parameters		
Frequency Band	**Downlink (Tx)** **Frequency (MHz)**	**Uplink (Rx)** **Frequency (MHz)**
VHF (3Q 2018)	134~174	134~174
UHF (3Q 2018)	380~512	380~512
600 (3Q 2018)	617~652	663~698
700LTE + FN	729~768	699~716 / 777~798
700 NB+FN (3Q 2018)	758~775	788~805
800PS (3Q 2018)	851~869	806~824
900 (3Q 2018)	923~941	896~919
Extended 850C band	862~894	817~849
1900PCS	1930~1995	1850~1915
2100 AWS 1+3	2110~2180	1710~1780
2300 WCS	2350~2360	2305~2315
2500TDD	2496.8~2690	2496.8~2690
2600FDD	2620~2690	2500~2570

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

Electrical Specifications (Continued from previous page)

Field		Value
Nominal Impedance		50 Ohm
Power Supply Range		AC: 110 – 240V. DC: -48V (DC: -42V to -56V)
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	250W maximum. See Operations Manual to calculate power consumption for specific configurations.
	Secondary	130W maximum.
Front Panel LED Indicator	iMDBU	Power on: Green, Alarm: Red
	iMCPU	Power on: Green, Alarm: Red, Link: Green flickering (Comm Status)
	eMPSU	Power on: Green, Alarm: Red
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 <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 and 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

Field	Value
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
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)

Part Numbers – See the Ordering Guide for Complete Configuration Details

iBIU_AC	iMDBU_23_25	HPOI_8085_700LTE_FN	LPOI_8085_700LTE_FN
iBIU_DC	iMDBU_25_26_S/M	HPOI_1900P	LPOI_1900P
iOM_1 / iOM_4	iMDBU_1900P_M	HPOI_AWS13	LPOI_AWS13
iMCDU	iMDBU_700LTE_M	HPOI_23_25	LPOI_23_25
iSCDU_4W1	iMDBU_AWS13_M	HPOI_25_26_S/M	LPOI_SPLX_T10_R35
iSCDU_2W2	iMDBU_7_8_9_V/U	HPOI_700LTE_FN_S/M	LPOI_700LTE_FN_S/M
iMDBU_8085_700LTE_FN	iMDBU_600_700LTE_FN	HLPOI_1900P	LPOI_EB
iMDBU_1900P	iBIU_B	HLPOI_AWS13	
iMDBU_AWS13	iOM_B	HLPOI_8085_700LTE_FN	