ALLIANCE DAS
1W Remote Unit (LROU)
Specifications / Parts List

ALLIANCE is a multi-operator DAS solution that supports public safety, 2-way radio and commercial wireless services all from a common head end and delivered over a single fiber.

Modular design means lower operational costs and unparalleled RF performance, cost efficiency and flexibility.
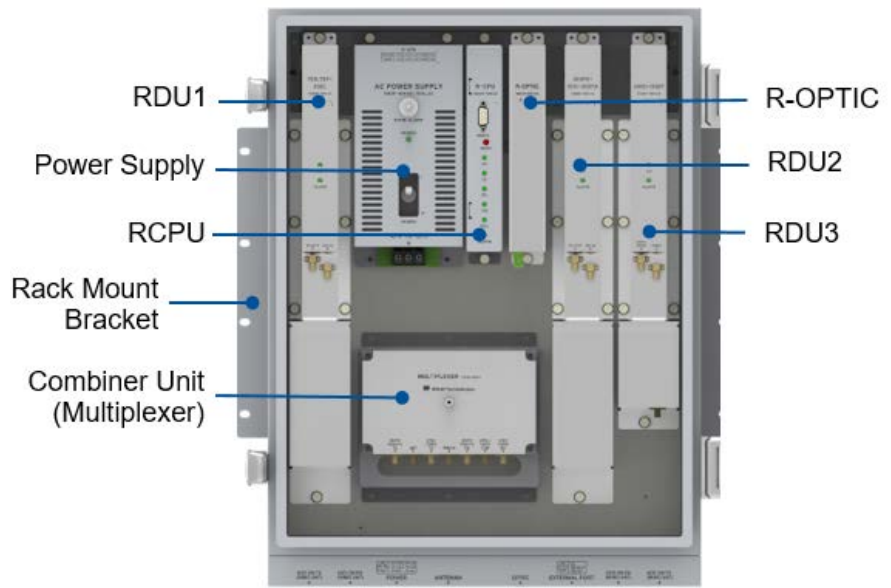
Rugged construction meets the latest fire codes and requirements for harsh environmental conditions.

- *Guaranteed RF power control. 4G certified. MIMO capable*

- *12 individual bands on a single fiber*

- *NFPA 72 compliant. NEMA 4 certified. UL labeled*

- *Delivers 150MHz to 3GHz, with UHF/VHF standard*

- *Quality checked and fully bench tested*

- *Simplified installation, commissioning, management*

- *Rack or wall, indoor or outdoor mounting. Convection cooled. Optional fan unit available*

Operation

The 1W low-power ROU (LROU) delivers +24dBm of output power for up to six commercial and public safety bands simultaneously. An Add-on Remote unit (AOR) can also be connected for supporting additional RF services.
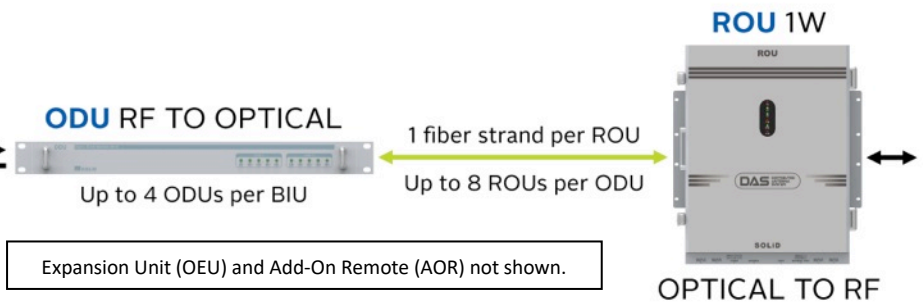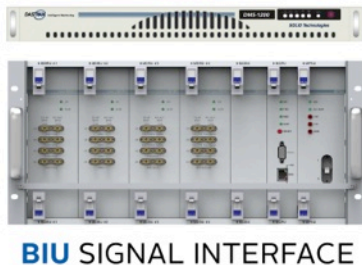
The LROU enclosure incorporates a rugged, but compact NEMA 4 design. The unit can be rack or wall mounted, indoors or outdoors. A Dry Contact Relay provides support for alarm inputs, which is now a requirement for many deployments.

Unit Name	Unit Description
1W Remote Optic Unit (LROU)	Enclosure with RCPU, AC or DC power supply, and multiplexer
Add-on Remote (AOR)	Optional add-on enclosure (not shown in figure above), AC or DC power
Remote Drive Unit (RDU)	Amplifies downlink / uplink signals (supports up to 3 single or dual band RDUs) Any RDU can go in any slot.
R Optic Unit	Converts RF-to-Optic and Optic-to-RF
Power Supply (RPSU)	AC: 120V, 50/60Hz. Operating Range: 108 to 132 VAC, 50/60Hz DC: -48 VDC. Operating range: -42 to -56 VDC
Remote Central Processor Unit (RCPU)	Controls and monitors signal of each unit. RS232 port for connecting management PC.
Multiplexer	To utilize common antenna output, the multiplexer combines Tx signals from the RDUs and distributes Rx signals to the RDUs.
Dry Contact Relay Sub Board	Enables LROU to accept input alarms from external equipment.
External Fan Unit (Optional)	Turns on/off automatically based on operator-defined temperature settings.

Topology

Specifications

Mechanical	Specification
Mounting Type	Wall or Rack Mounting (fits standard 19" rack)
Connectors	Antenna port type: 4.3-10 DIN. In / Output port type: N Type Female (to AOR). Serial interface: RS232 9-pin D-sub Male
Monitoring Port	-30dB (SMA Female)
Power Consumption	290W Fully loaded (3 LRDUs) covering bands: 700/800/850/1900/2100/2500. Total power consumption will vary depending on configuration.
Dimensions	19"W x 24.87"H (14U) x 10.57"D (482.6mm x 630mm x 268.5mm) Includes wall mount bracket, which can be removed as needed
Weight	35.5 Kg (78lbs) Fully Loaded

Environmental	Specification
Ingress Protection	IP65 Compliant, NEMA 4
Operating Environment	Temp: 14 to 122°F (-10 to +50°C). Humidity: 5% to 90% Non-condensing

Optical	Specification
Optic	SC / APC (STEP FERRULE)
Laser Diode	1550nm (Coaxial Type)
Photo Diode	1310nm
Optic Loss	Max 5dBo (4-port Donor Optic Module); Max 10dBo (1-port Donor Optic Module)

Regulatory	Specification
FCC	Complies with the applicable sections of Title 47 CFR Parts 15, 22, 24 and 90.
ICES-003	This Class A digital apparatus complies with Canadian ICES-003.
UL/CUL	Complies with UL and CUL 1950-1 Standard for safety for information technology equipment.
FDA/CDRH	This equipment uses a Class 1 LASER according to FDA/CDRH Rules. This product conforms to all applicable standards of 21 CFR Chapter 1, Subchapter J, Part 1040.
NFPA 72	Code Compliant. Applies to Remote Optic Unit and Add-on Remote

Band and RF Specifications

Frequency Band	Downlink (Tx)		Uplink (Rx)	
	Frequency (MHz)	Bandwidth (MHz)	Frequency (MHz)	Bandwidth (MHz)
700LTE	729-756	27	699-716 / 777-787	17 / 10
700PS (Includes FirstNet)	758-775	17	788-805	17
800 PS	851-860	9	806-815	9
800 Sprint / 850C	862-894	32	817-849	32
900 Paging	929-941	11	896-902	6
1900PCS	1930-1995	65	1850-1915	65
AWS 1+3	2110-2180	70	1710-1780	70
2500TDD LTE	2496-2690	LB: 71.2 MB: 37.8 UB: 71.2	2496-2690	LB: 71.2 MB: 37.8 UB: 71.2
VHF	136-174	38	136-174	38
UHF	B1: 380-434 B2: 396-450 B3: 450-512	54 54 62	B1: 380-434 B2: 396-450 B3: 450-512	54 54 62
For 2500 services and UHF, operator can select band using management software. VHF/UHF requires Add-On Remote (AOR)				

RF Parameters											
Supported Services		700LTE Full Band	700PS	800 PS / 800 Sprint	850 Cellular	900 Paging	1900 PCS	2100 AWS1+3	2500 TDD	VHF	UHF
Input Power	Tx (dBm)	-20 to +10								-15 to +10	
	Rx (dBm)	≤ -50								≤ -54	
Output Power	Tx (dBm)	23	23	25	26	25	29	30	30	24	24
	Rx (dBm)	0							-20	-4	
System Gain	Tx (dB)	43 Max					27 Max	50 Max		39 Max	
	Rx (dB)	30 to 50							10 to 30	34 to 50	
Gain Control Range		For the remote unit TX: 30 dB/step 0.5dB									
System Delay*	Tx	< 1.5µs	< 1µs	< 4µs	< 4µs	< 1µs	< 2µs	< 1µs	< 0.5 µs	< 2µs	< 2µs
	Rx	< 1µs	< 8µs	< 8µs	< 8µs	< 4µs	< 3µs	< 2µs	< 1.5 µs	< 2µs	< 2µs
Noise Figure (UL)		15dB Max					8dB Max		10dB Max	7dB Max	
Spurious Emissions		Tx: ≤ -13dBm @ 9kHz to 5GHz									

NOTES: System delay excludes fiber optic delay. Additional gain control available at head end including uplink gain control.

1W LROU and Add-On Remote (AOR)	Part Number
Remote Optical Unit Chassis - AC Power - For use w/ Rel. 6	ROU_C_AC
Remote Optical Unit Chassis - DC Power - For use w/ Rel. 6	ROU_C_DC
1900MHz & 2100/1700Mhz AWS Amplifier Module (AWS1+3)	RDU_1900P_AWS13
1900MHz & 2100/1700Mhz AWS Amplifier Module **Replaced by RDU_1900P_AWS13	RDU_1900P_AWS
700MHz LTE Full Band MIMO Amplifier Module (comes with cavity filter)	RDU_700LTE_M
700MHz LTE Full Band SISO Amplifier Module (comes with cavity filter)	RDU_700LTE_S
800MHz & 900MHz Amplifier Module (comes with cavity filter)	RDU_800PS_900I_PA
850MHz & 700MHz Full Band Amplifier Module (comes with cavity filter)	RDU_850C_700FB
850MHz & 700MHz Public Safety Amplifier Module (comes with cavity filter)	RDU_850C_700PS
2500 MHz TDD Amplifier module; 60MHz contiguous bandwidth	RDU_2500_60TDD
150MHz VHF & 450MHz UHF Amplifier Module	RDU_150_450
Blank Amplifier Module	ROU_B (Blank Module)
Fan Tray to be attached to ROU; (special order, not stocked)	FAN_TRAY
700LTE & 700PS Filter Kit	FK_700LTE_700PS
ALLIANCE ROU AC Power Cord, 25 ft. (special order)	RPSU_AC_CORD_25
1W/2W Alarm Cable ROU-to-AOR cable with external alarm input pigtail	CBL_AOR_ALM
1W/2W Alarm Cable ROU cable with external alarm input pigtail	CBL_ROU_ALM
1W Dry Contact Upgrade Kit for legacy ROU. Includes board assembly and internal cables. Kit does not include external cable.	CBL_1WROU_ALM_KIT