ALLIANCE Multi-Operator DAS

2W Low-Power Remote Optic Unit (L2ROU)

Product Specifications / 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 Low-power 2W Remote Optic Unit (L2ROU) can support up to five commercial bands, each delivering 2W of output power. An add-on remote unit (AOR) is supported for additional RF services.

The 2W L2ROU features:

- Easy install, commissioning, and management
- Rack or wall, indoor or outdoor mounting
- Convection cooled. Optional fan unit available.
- Rugged Construction: NEMA 4 / IP66 certified
- Up to 7 bands on a single fiber

Specifications

RF Parameters		All Bands
Input Power	TX	LPOI: -10 to +20 dBm. HPOI: +15 to +43 dBm each port
	RX	L2ROU: -50 dBm max
Output Power	TX	+33 dBm for all modules except +32dBm for 2500 TDD
	RX	-3 dBm ± 0.5 dB for all modules except -23 dBm for 2500 TDD
System Gain	TX	53 dB max for all modules except 52 dB for 2500 TDD
	RX	50 dB max for all modules except 30 dB max for 2500TDD; 25 dB gain control at remote
Spurious Emissions		Maximum Intermodulation Distortion. TX: ≤ -13 dBm @ 9kHz to 5GHz
Nominal Impedance		50 Ohm
System Ripple		4dB for all modules except 5 dB for 2500 TDD,1900PCS and 3 dB for 2300 WCS
VSWR		1.59:1 typical, 1.7:1 max.
NOTES: TX Input power refers to the DAS headend. TX Output power is measured at the antenna port. TX and RX Output power is ± 0.5dB. Additional gain control available at head end including uplink gain control. See the AOR data sheet for VHF/UHF specifications.		

RF Parameters	700LTE	800/850 Cell	1900 PCS	2100 AWS	2300 WCS	2500 TDD
NF (typical)	4.6 dB	4.5 dB	4.5 dB	3.1 dB	4.1 dB	4.5 dB
NF (max.)	5.1 dB	5.3 dB	5.3 dB	3.6 dB	4.6 dB	5 dB
IIP_3 (typical)	-17.5 dB	-17.2 dB	-17.2 dB	-19.5 dB	-16.9 dB	-21.1 dB
IIP_3 (max.)	-18 dB	-17.7 dB	-17.7 dB	-20 dB	-17.4 dB	-21.6 dB
EVM (typical)	2.3%	1.7%	2.5%	2.5%	1.3%	2.6%
EVM (max.)	2.7%	2.2%	2.9%	2.9%	1.7%	3.2%
Downlink	729-756	862-894	1930-1995	2110-2180	2350-2360	2496.8-2690
Uplink	699-716 777-787	817-849	1850-1915	1710-1780	2305-2315	2496.8-2690
NOTES: For 2500TDD services, the operator sets the sub-band using management software. Noise figure represents system noise and tested with one remote connected. Add 2dB to Noise figure when using Optic Expansion Unit (OEU) or 1-port optic modules. EVM performance includes 0.7% error from the signal source.						

Power Consumption (Max)	8085 / 700LTE	1900PCS / 2100AWS	2300WCS	2500TDD
2W L2RDU	66W	59W	60W	68W
L2ROU Chassis	RCPU, RPSU, R-Optic = 20W			
NOTES: For total power, add the power consumption of the included L2RDU's to the chassis' power consumption.				

Optical	Specification
Wavelength	Tx: 1550 nm; Rx: 1310 nm
Loss	4-port optic module: 5 dBo max.; 1-port optic module: 10 dBo max.

Regulatory	Specification
Type Approval	FCC, IC, FCC Part 15 Subpart B, Class A
Safety	NRTL Certified
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.

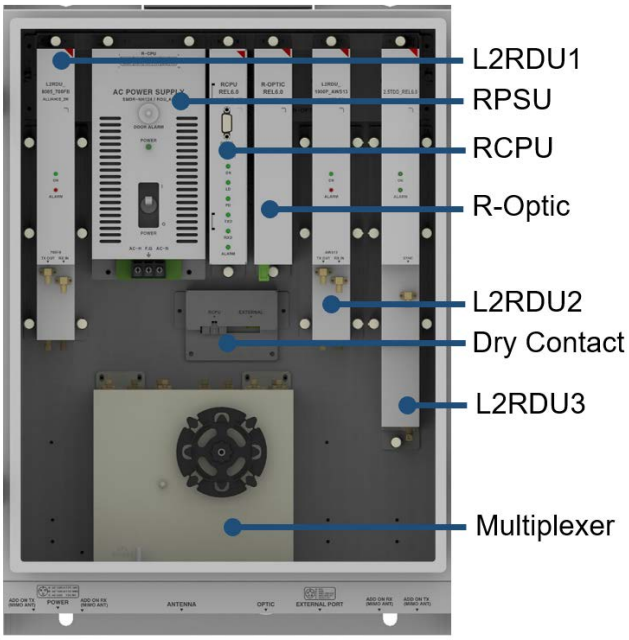
Mechanical	Specification
Mounting Type	Wall or rack (fits standard 19” rack. 14U height)
Antenna Connectors	4.3-10 Female
External Alarm Interface	5-Pin connector on bottom panel
Optical Connector	SC / APC, Step Ferrule, Waterproof, Single Mode Fiber
Monitoring Port	SMA Female
Craft Port	Serial interface RS-232 9-pin D-sub Male
Dimensions (WxHxD)	19 x 24.8 (14U) x 10.6 inches (482.6mm x 630mm x 268.5mm) including wall mount bracket
Weight	99 lbs. (45kg) max with 3 L2RDUs
MTBF	10.4 Years (worst-case, fully-loaded unit)
Ingress Protection	IP66 NEMA 4
Operating Environment	Temp: 14° to 122°F / -10° to 50°C / Humidity: 5 to 90% non-condensing

Overview

SOLiD’s Low-power 2W Remote Optic Unit (L2ROU) can be mixed with 1W, 5W, and 20W remotes in a single system all driven by a common head end.

This highly efficient, small footprint unit can support up to five frequency bands. An Add-on Remote unit (AOR) can be connected to support additional RF services, like VHF/UHF.

The enclosure incorporates a rugged, yet compact NEMA 4 design. The unit can be rack or wall mounted, indoors or outdoors. A Dry Contact Relay can be used for input alarms from external units, like battery backup systems, which is becoming a requirement for many deployments.



Unit Name	Unit Description
2W Remote Optic Unit (L2ROU)	Enclosure including RCPU, RPSU_AC or DC, Multiplexer, R-Optic
Add-on Remote (AOR)	An optional add-on enclosure (not shown in figure above). AC or DC power
Remote Power Supply Unit (RPSU)	AC: 108 to 132V. DC: -42 to -56V
Remote Central Processor Unit (RCPU)	Controls and monitors signals for each unit
2W Remote Drive Unit (L2RDU)	Filters and amplifies downlink / uplink signals
Remote Optic Module (R-Optic)	Converts downlink optical signals to RF and uplink RF signals to optical
Multiplexer	Combines downlink signals and separates uplink signals for each band
External Fan Unit (Optional)	Turns on/off automatically based on operator-defined temperature settings

Recommended configurations have been tested for thermal and RF performance.

2W L2RDU	Recommended Configurations
RDU1 (Left most)	1900_AWS13 or 8085_700FB
RDU2 (Middle)	1900_AWS13 or 8085_700FB
RDU3 (Right most)	2500 or 2300 or 1900_AWS13 or 8085_700FB
Add on Remote	VHF/UHF or 2300 or 2500.

Part Number	2W L2ROU / L2RDU
L2ROU_C_AC	2 WATT Remote Optical Unit Chassis - AC Power
L2ROU_C_DC	2 WATT Remote Optical Unit Chassis - DC Power
L2ROU_B	Blank Amplifier Module for 2W MROU
L2RDU_1900P_AWS13	2 WATT 1900MHz & 2100/1700Mhz AWS Amplifier Module (AWS 1+3)
L2RDU_8085_700FB	2 WATT 800MHz Sprint, 850MHz Cellular & 700MHz Full Band Amp Module
L2RDU_2300_WCS	2 WATT 2300MHz Amplifier Module
L2RDU_2500_60TDD	2 WATT 2500 MHz TDD Amplifier module; 60MHz contiguous bandwidth
FAN_TRAY	Fan Tray Kit for LROU and L2ROU
CBL_AOR_ALM	1W/2W Alarm Cable ROU-to-AOR cable with external alarm input pigtail
CBL_ROU_ALM	1W/2W Alarm Cable ROU cable with external alarm input pigtail

Additional information is available in the following documents, available from SOLiD Support.

SOLiD Operations Manual – ALLIANCE DAS REL6; SOLiD Installation Manual – ALLIANCE DAS REL6

SOLiD Data Sheet – ALLIANCE MTBF Specification

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