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 Mid-power Remote Optic Unit (MROU) can support up to seven bands, each delivering 5W of output power. An Add-on remote unit (AOR) is supported for additional RF services.

The 5W mid-power MROU features:

- Combiners support one or two antenna ports
- Easy install, commissioning, and management
- Fan and convection cooled
- Rugged construction: IP66 / NEMA 4 certified
- Up to nine bands on one fiber (with Add-on unit)

Specifications

RF Parameter		All Bands
Input Power	TX	LPOI: -10 to +20 dBm. HPOI: +15 to +43 dBm each port
	RX	MROU: -50 dBm max
Output Power	TX	+37 dBm for all bands, +38 dBm for 2100AWS
	RX	All bands -3 dBm ± 0.5 dB (except 2500TDD -23 dBm ± 2 dB)
System Gain	TX	57dB max for all bands; 58 dB max for 2100AWS
	RX	All bands 47 dB max (except 27 dB for 2500TDD); 25 dB gain control at remote all bands
Spurious Emissions		Maximum Intermodulation Distortion. TX: ≤ -13 dBm @ 9kHz to 5GHz
Nominal Impedance		50 Ohm
VSWR		1.66:1 typical, 1.8:1 max at each band In / Out ports

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 Parameter	600 MHz	700LTE+ Band 14	800/ 850 Cell	900SMR/ Paging	1900 PCS	2100 AWS	2300 WCS	2500TDD (Full Band)
NF UL (typical)	4.5 dB	3.5 dB	2.9 dB	3.7 dB	4 dB	3.4 dB	5 dB	5.2 dB
NF UL (max)	5.0 dB	4.2 dB	3.4 dB	4.4 dB	4.5 dB	3.9 dB	5.4 dB	5.8 dB
IIP$_3$ UL (typical)	-23.5 dBm	-21.2 dBm	-21.4 dBm	-21.0 dBm	-19.8 dBm	-23.2 dBm	-20.3 dBm	-20.8 dBm
IIP$_3$ UL (max)	-24.0 dBm	-21.7 dBm	-21.9 dBm	-21.5 dBm	-20.3 dBm	-23.7 dBm	-20.8 dBm	-21.3 dBm
EVM DL (typical)	1.6%	1.8%	1.8%	1.9%	1.9%	1.8%	1.3%	2.0%
EVM DL (max)	2.0%	2.2%	2.2%	2.3%	2.3%	2.2%	1.6%	2.5%
Ripple DL (typical)	3.5 dB	1.9 dB	2.7 dB	3.1 dB	1.6 dB	1.6 dB	1.6 dB	5.2 dB
Ripple DL (max)	4 dB	4 dB	4 dB	4 dB	4 dB	4 dB	3 dB	5 dB
Downlink (DL)	617-652	729-768	862-894	929-941	1930-1995	2110-2180	2350-2360	2496.8-2690
Uplink (UL)	663-698	699-716 777-798	817-849	896-902	1850-1915	1710-1780	2305-2315	2496.8-2690

NOTES: NF (noise figure) represents system noise tested with one remote connected. Add 2 dB to NF when using Optical Expansion Unit (OEU or iOEU) or 1-port optic module. EVM performance includes 0.7% error from signal source.
NF, IIP$_3$ and EVM specs are measured with 0 dB attenuation.

Power Consumption (Max)	600 MHz	700LTE+ Band 14	800/ 850Cell	900SMR/ Paging	1900 PCS	2100 AWS	2300 WCS	2500 FB
5W MRDU	60W	50W	48W	47W	59W	62W	47W	74W
MROU Chassis	RCPU, RPSU, R-Optic = 16W							

NOTES: For total power, add the power consumption of the included MRDU'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.

Mechanical	Specification
Mounting Type	Wall or rack (fits standard 19" rack with bracket)
Antenna Connectors	7/16 DIN female
External Alarm Interface	5-Pin connector on bottom panel
Optical Connector	SC / APC, Step Ferrule, Waterproof, Single Mode Fiber
Monitoring Port	- 40 dB (±3 dB), SMA female, TX output only, located on combiner unit
Craft Port	Serial interface RS-232 9-pin D-sub male
Dimensions (WxHxD)	12.6" x 45.9" x 10.2" (320 x 1165 x 260 mm) including wall mount bracket
Weight	137 lbs. (62 kg) max with 6 MRDUs
MTBF	8.96 Years (worst case, fully loaded unit)
Ingress Protection	IP66, NEMA 4
Operating Environment	Temp: -13 to 131°F / -25 to +55°C. Humidity: 0% to 90% Non-condensing

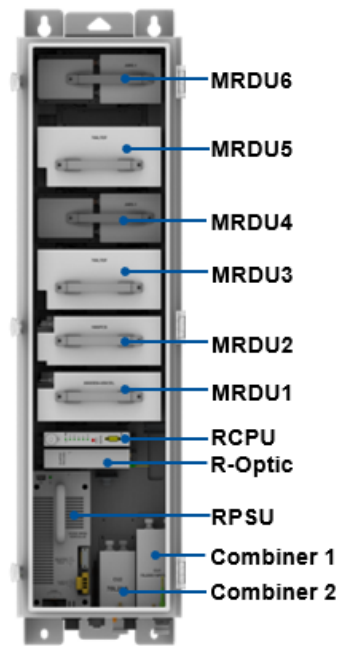| Regulatory	Specification
Type Approval	FCC, IC, FCC Part 15 Subpart B, Class A
Safety	NRTL Certified
FDA/CDRH	This equipment uses a Class 1 LASER according to FDA/CDRH Rules. This product conforms to all applicable standards of 21 CFR Chapter 1, Subchapter J, Part 1040.

Overview

SOLiD's 5W Mid-power Remote Optic Unit (MROU) can be mixed with all other ALLIANCE remote units in a single system all driven by a common head end.

This highly efficient, small footprint unit can support up to seven frequency bands. An Add-on remote unit (AOR) can also be connected to support VHF/UHF.

The MROU enclosure incorporates a rugged, but compact NEMA 4 design. Units can be rack or wall mounted, indoors or outdoors. A fan unit at the bottom of the enclosure comes installed with base models. An external alarm port on the bottom of the enclosure can accept input alarms from connected equipment like battery backup systems.

Combiner units support one- or two-port antenna configurations. A dual fan unit is available for high-temp deployments.

Unit Name	Unit Description
5W Remote Optic Unit (MROU)	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: 100 to 240V. DC: -40.8 to -57.6V
Remote Central Processor Unit (RCPU)	Controls and monitors signals for each unit
Mid-power Remote Drive Unit (MRDU)	Filters and amplifies downlink / uplink signals
Remote Optic Module (R-Optic)	Converts downlink optical signals to RF and uplink RF signals to optical
Combiner (1 and 2)	Combines downlink signals and separates uplink signals for each band
External Fan Unit	Blows air across heatsink fins to promote cooling. Fan comes installed with standard models – MROU_C_MF_AC_CU7 and MROU_C_MF_DC_CU7 – but can also be added to any model.

Parts List

Part Number	5W MROU / MRDU / Combiners
MROU_C_MF_AC_CU7	5 WATT Remote Optical Unit Chassis - AC Power with MROU_CU7, Fan Included
MROU_C_MF_DC_CU7	5 WATT Remote Optical Unit Chassis - DC Power with MROU_CU7, Fan Included
MROU_B	Blank Amplifier Module for 5W MROU
MRDU_600_700LTE_FN	5 WATT 600 MHz & 700MHz Amplifier Module (Includes Band 14)
MRDU_800I_850C	5 WATT 800MHz & 850MHz Amplifier Module
MRDU_1900P	5 WATT 1900MHz Amplifier Module
MRDU_AWS13	5 WATT 2100MHz Amplifier Module (AWS1+3)
MRDU_2300_WCS	5 WATT 2300MHz WCS Amplifier Module
MRDU_2500_FB_TDD_R	5 WATT 2500 MHz TDD Amplifier Module, 194MHz Contiguous, LTE + NR
MRDU_700LTEF_B	5 WATT 700MHz Full Band Amp Module; Channel B for MIMO
MRDU_1900P_M	5 WATT 1900MHz Amplifier Module; Channel B for MIMO
MRDU_AWS13_M	5 WATT AWS Amplifier Module; Channel B for MIMO Applications
MRDU_900I REL6	5 WATT 900MHz 900MHz Amplifier Module
MROU_CU1	5 WATT Combiner Unit 700LTE, 850IC, 1900P, AWS13 and 2500/2600
MROU_CU4	5 WATT Combiner Unit for 700LTE, 850IC, 1900P, AWS13, 2.5TDD, 2.3 WCS
MROU_CU5	5 WATT Combiner Unit for 2500/2600 & 1900 PCS, use with MIMO configurations
MROU_CU6	5 WATT Combiner Unit for 700/1900/AWS13, use with MIMO configurations
MROU_CU7	5 WATT Combiner Unit, 600/700LTE+FN, 850IC, PCS, AWS13, 2300, 2500
CBL_MAOR_ALM	5 WATT Alarm Cable MROU-to-AOR cable with external alarm input pigtail
CBL_MROU_ALM	5 WATT Alarm Cable MROU cable with external alarm input pigtail
ADP_DIN_N_BH	Adapter, DIN Jack to N Jack, Bulkhead
MROU_FAN_TRAY	External Fan-Tray. Fan comes installed with standard models. – MROU_C_MF_AC_CU7 and MROU_C_MF_DC_CU7 – but can also be added to any model.

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

ALLIANCE REL6 - Mid Power Remote (MROU) - Operations & Install Guide

SOLiD Tech Note – MROU Fan Unit Installation

SOLiD Data Sheet – ALLIANCE MTBF Specification