



CROSSFIRE

LP

LOW POWER

Quad Band Digital Radios
27dBm per Band
5G NR Compliant
Field Replaceable Bands

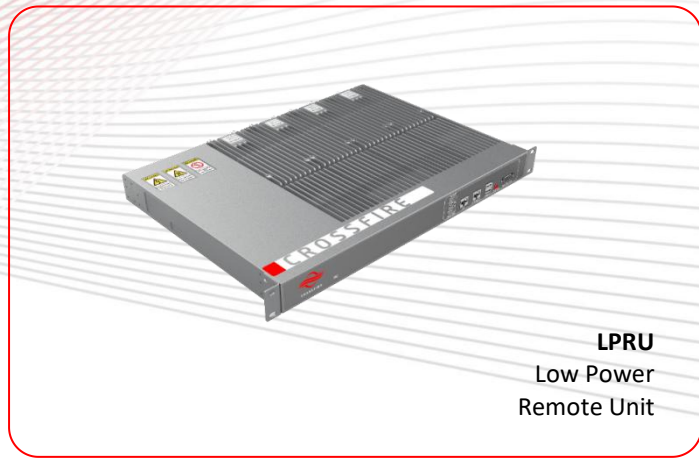
OVERVIEW

CrossFire LP is a digital transmission platform supporting the CPRI protocol over fiber optic cable for cellular, GigE IP and public safety technologies. The radio unit provides a compact rack or wall mounted solution for high capacity sites where passive coaxial cabling is restricted to horizontal cabling only. This platform is ideal for multi-operator, multi-band deployments where traditional large-scale passive DAS solutions are unable to meet the performance or capacity requirements of today's cellular networks.

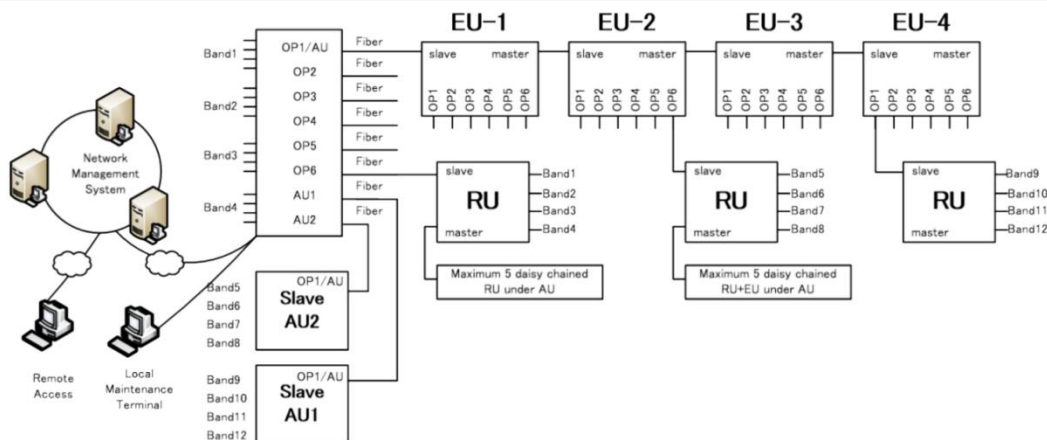
KEY FEATURES

- 27dBm Output Power per Band
- Optical Connectivity
- Integrated IP Transport
- (4) 3GPP Bands per Remote
- External Alarm Interface
- 700 to 2700MHz Range
- Optical cascading of EU-O's & RU's
- Up to 80MHz per Band

SYSTEM ELEMENTS



BLOCK DIAGRAM



TECHNICAL SPECIFICATIONS

System

Maximum RF Bands per Access Unit	4
Maximum RF Bands per Remote Unit	4
Maximum RF Bands per System	12
Maximum Access Units per System	3 (1 x Master / 2 x Slaves)
Maximum EUs per Master AU	8
Maximum EUs cascaded	5
Maximum RUs cascaded	6
Frequency Range (Non-Contiguous)	700MHz – 2700MHz
Bandwidth per Channel (Downlink & Uplink)	≤ 80MHz (Contiguous)
Digital Bandwidth per Channel (Downlink & Uplink)	20 / 30 / 40 / 60 / 80 MHz
Bandwidth per System (Downlink & Uplink)	≤ 280MHz (in each direction)
MIMO	2 x 2: 1 x RU (x2) 4 x 4: 1 x RU (x1) 8 x 8: 2 x RU
IP Transmission Rate per RU	1GB/s
Maximum IP Connections per EU	6
Maximum IP Connections per RU	1
System Delay Adjustment	Up to 80.00μs

FORWARD PATH (DOWNLINK)

Output Power per Carrier	Number of Carriers			
	1	2	4	8
All Technologies (dBm)	27	24	21	18
Output Power Accuracy	±2 dB			
Maximum Gain	27 ± 3dB			
Maximum Input Power	+ 15dBm			
Error Vector Magnitude	< 3.5% @ 256 QAM			
Ripple	3dB Typical			
Manual Gain Control	45dB @ 1dB/step (AU:30dB, RU:15dB)			
System Delay (AU+EU+RU)	8μS			
VSWR (AU/RU)	1.5:1			

REVERSE PATH (UPLINK)

Maximum Output Power per Band	- 23dBm
Output Power Accuracy	± 2dB
Maximum Gain	27 ± 3dB
Maximum Input Power	- 35dBm
Ripple	3dB Typical
Manual Gain Control	45dB @ 1dB/step (AU: 30dB, RU: 15dB)
System Delay (1AU + 1EU + 1RU)	8μS
Noise Figure	7dB Typical @ Maximum Gain

SUPPORTED BANDS				
Band	3GPP Band	Downlink	Uplink	Max Bandwidth
700MHz Lower	12	728-746	698-716	18
700MHz Upper	13	746-757	776-787	11
700MHz APT	28	758-803	703-748	45
800MHz	20	791-821	832-862	30
850MHz	5	869-894	824-849	25
900MHz	8	925-960	880-915	35
1700MHz	10	2110-2180	1710-1780	70
1800MHz	3	1805-1880	1710-1785	75
1900MHz	25	1930-1995	1850-1915	65
2100MHz	1	2110-2170	1920-1980	60
2300MHz TDD	40	2300-2400	2300-2400	80
2300MHz	30	2350-2360	2305-2315	10
2600MHz	7	2620-2690	2500-2570	70

INTERFACES	
Antenna Interface (All bands)	N Female (Bands 1& 40 Duplex, All Other Bands Simplex)
Access Unit RF Interface	QMA Female
Optical Connector Type	SFP+, Standard LC
Optical Transmission Rate	9.8304 GB/s
Optical Fiber Length	1.4km/ 10km/ 30km 0.87mi/ 6.21mi/ 18.64mi
Physical Alarms	DB9, Female (4 x in, 4 x out)
Maintenance Interface	Ethernet RJ45/ Wi-Fi/ USB

ELECTRICAL	
Electromagnetic Compatibility/Interference (EMC/EMI)	3GPP TS36.113 / 3GPP TS25.113
Maximum Power Consumption (AU/EU-O/RU)	80W/ 50W/ 100W
AC Power	100-240V AC, 50 /60Hz
DC Power	48VDC ± 20%

ENVIRONMENTAL	
Mean Time Between Failure (MTBF)	> 100,000 hours
Operating Temperature (AU/EU)	-10°C ~ 50°C/ 14°F ~ 122°F
Operating Temperature (RU)	-10°C ~ 50°C/ 14°F ~ 122°F
Storage Temperature	-40°C ~ 70°C/ -40°F ~ 158°F
Humidity	5% ~ 85% (Non-Condensing)
Cooling	Passive
Installation	AU/EU: Wall or 19" Rack RU: Wall or 19" Rack
Ingress Protection Rating	AU/EU: IP30 (Indoor) RU: IP30 (Indoor)

MECHANICAL	
AU: Width x Height x Depth (Weight)	440mm x 44mm x 329mm (8.0kg) 17.32in x 1.73in x 12.95in (17.64lbs)
EU-O: Width x Height x Depth (Weight)	440mm x 44mm x 220mm (5.0kg) 17.32in x 1.73in x 8.66in (11.02lbs)
RU: Width x Height x Depth (Weight)	440mm x 44mm x 329mm (8.0kg) 17.32in x 1.73in x 12.95in (17.64lbs)

ELEMENT MANAGEMENT	
OMT (Operations and Maintenance Terminal)	Yes. Access via AU, EU or RU (Web Based)
LMS (Local Management System)	Yes (Ordered separately)
NMS (Network Management System)	Yes (Ordered separately)

ORDERING INFORMATION	
Part Code	Part Description
Access Unit Chassis	
AU-4-AC	Access Unit Chassis, 4 Bands, 700 - 2700MHz supported, 100 - 240v AC Powered
AU-4-DC	Access Unit Chassis, 4 Bands, 700 - 2700MHz supported, ± 48v DC Powered
Access Unit Modules	
AU-AC-M700	Access Unit Module, 4 Way Active Combiner 700MHz (UL 703-748/ DL 758-803)
AU-AC-M700L	Access Unit Module, 4 Way Active Combiner 700MHz Lower (UL 698-716/ DL 728-746)
AU-AC-M700U	Access Unit Module, 4 Way Active Combiner 700MHz Upper (UL 776-787/ DL 746-757)
AU-AC-M800	Access Unit Module, 4 Way Active Combiner 800MHz (UL 832-862/ DL 791-821)
AU-AC-M850	Access Unit Module, 4 Way Active Combiner 850MHz (UL 824-849/ DL 869-894)
AU-AC-M900	Access Unit Module, 4 Way Active Combiner 900MHz (UL 880-915/ DL 925-960)
AU-AC-M1800	Access Unit Module, 4 Way Active Combiner 1800MHz (UL 1710-1785/ DL 1805-1880)
AU-AC-M1900	Access Unit Module, 4 Way Active Combiner 1900MHz (UL 1850-1915/ DL 1930-1995)
AU-AC-M2100A	Access Unit Module, 4 Way Active Combiner 2100MHz AWS (UL 1710-1780/ DL 2110-2180)
AU-AC-M2100	Access Unit Module, 4 Way Active Combiner 2100MHz (UL 1920-1980/ DL 2110-2170)
AU-AC-M2300	Access Unit Module, 4 Way Active Combiner 2300MHz (UL 2305-2315/ DL 2350-2360)
AU-AC-M2300T	Access Unit Module, 4 Way Active Combiner 2300MHz TDD (2300-2400)
AU-AC-M2500TL	Access Unit Module, 4 Way Active Combiner 2500MHz TDD Lower (2496-2596)
AU-AC-M2500TU	Access Unit Module, 4 Way Active Combiner 2500MHz TDD Upper (2590-2690)
AU-AC-M2600	Access Unit Module, 4 Way Active Combiner 2600MHz (2500-2570/ 2620-2690)
AU/RU-NC	Blanking Card to suit AU or Indoor Low Power RU
Expansion Units	
EU-O-6-AC	Expansion Unit Supports up to 6 x Optical Outputs. 100-240v AC Powered
EU-O-6-DC	Expansion Unit Supports up to 6 x Optical Outputs. ± 48v DC Powered
Remote Unit Chassis	
LPRU-ID-4-AC	Indoor Low Power Remote Unit Chassis, Supports up to 4 Discrete Bands, 100-240v AC Powered
LPRU-ID-4-DC	Indoor Low Power Remote Unit Chassis, Supports up to 4 Discrete Bands, ±48v DC Powered
Remote Unit Modules	
LPRU-ID-M700	Indoor Low Power Remote Unit Module, 700MHz (UL 703-748/ DL 758-803)
LPRU-ID-M700L	Indoor Low Power Remote Unit Module, 700MHz Lower (UL 698-716/ DL 728-746)
LPRU-ID-M700U	Indoor Low Power Remote Unit Module, 700MHz Upper (UL 776-787/ DL 746-757)
LPRU-ID-M800	Indoor Low Power Remote Unit Module, 800MHz (UL 832-862/ DL 791-821)
LPRU-ID-M850	Indoor Low Power Remote Unit Module, 850MHz (UL 824-849/ DL 869-894)
LPRU-ID-M900	Indoor Low Power Remote Unit Module, 900MHz (UL 880-915/ DL 925-960)
LPRU-ID-M1800	Indoor Low Power Remote Unit Module, 1800MHz (UL 1710-1785/ DL 1805-1880)
LPRU-ID-M1900	Indoor Low Power Remote Unit Module, 1900MHz (UL 1850-1915/ DL 1930-1995)
LPRU-ID-M2100A	Indoor Low Power Remote Unit Module, 2100MHz (UL 1710-1780/ DL 2110-2180)
LPRU-ID-M2100	Indoor Low Power Remote Unit Module, 2100MHz (UL 1920-1980/ DL 2110-2170)
LPRU-ID-M2300	Indoor Low Power Remote Unit Module, 2300MHz (UL 2305-2315/ DL 2350-2360)
LPRU-ID-M2300T	Indoor Low Power Remote Unit Module, 2300MHz TDD (2300-2400)
LPRU-ID-M2500TL	Indoor Low Power Remote Unit Module, 2500MHz TDD Lower (2496-2596)

LPRU-ID-M2500TU	Indoor Low Power Remote Unit Module, 2500MHz TDD Upper (2590-2690)
LPRU-ID-M2600	Indoor Low Power Remote Unit Module, 2600 MHz (UL 2500-2570/ DL 2620-2690)
AU/RU-NC	Blanking Card to suit AU or Indoor Low Power RU
Other Items	
FAN-1U-AC	AC Fan Unit to support AU & LPRU Chassis, 1U Rack Unit Height, 100-240v AC Powered
FAN-1U-DC	DC Fan Unit to support AU & LPRU Chassis, 1U Rack Unit Height, ± 48v DC Powered
SFP+1.4-SS	1.4km Optical SFP+ Module, Simplex, Single-Mode (Sold as a pair)
SFP+10-DS	10.0km Optical SFP+ Module, Duplex, Single-Mode (Sold as a pair)

Contact Us

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