CriticalPoint™ Version 3 / Next Generation Public Safety Solution

Public Safety 700/800MHz Class A/B 27/33dBm Bi-directional Amplifier and Battery Backup Unit

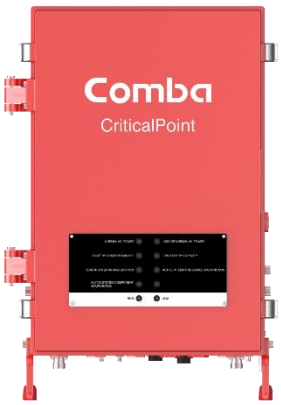
Features

Public Safety Standards Compliance

- Compliance with IFC / NFPA / UL2524
- FCC Class A: PX8RX78V2F-A / Class B: PX8RX78V2F-B
- UL 2524 Standard Certified – SGS Certificate No.: TBD
- ISED (IC): TBD
- UL50E Type 4 / NEMA 4 enclosure for BDA / BBU

Bi-directional Amplifier

- Supports P25 P1/P2, digital and conventional analog communications simultaneously
- Built-in cavity filtering to protect the unit from interference from FirstNet and other neighbor bands
- Up to 64 channels per band on single band models; up to 96 channels shared across bands on dual band models (maximum of 64 on individual band) (Class A)
- Channelized Auto Level Control (ALC) supported (Class A)
- Channelized Downlink and Uplink squelch supported (Class A)
- Uplink PA shutdown during no traffic periods to minimize noise being introduced to the network (Class A)
- Built-in mandatory isolation test to prevent BDA oscillation
- Auto shutdown with alarm upon oscillation detection
- Expandable to 700/800MHz V3/NG fiber system
- Web based GUI for intelligent configuration, SNMP supported
- Integrated Battery Charger Unit, Comba BBU V2 / BBU V3/NG supported
- License based switching between Class A or Class B, Single band or Dual band, 0.5W or 2W configurations
- NFPA / IFC / UL 2524 compliant dry contact alarms, with LED displays
- External Comba Annunciator Panel supported



Battery Backup Unit

- Optional dedicated Battery Backup Solution for BDA V3/NG platform
- Supports Lithium Iron Phosphate (LiFePO4) batteries
- Supports 12 hours backup power with 30AH battery option
- Supports 24 hours backup power with 60AH battery option
- Provides connections for EPO (Emergency Power Off) switch
- Provides AC convenience outlet inside BBU

Specifications - BDA

BDA		700MHz	800MHz
Passband (Downlink / Uplink)	MHz	Configuration S0 – 700MHz: 758-775 / 788 – 805, 800MHz: 851-861 / 806-816 Configuration S1 – 700MHz: 769-775 / 799 – 805, 800MHz: 851-851 / 806-816 Configuration C0 – 700MHz: 768-776 / 798 – 806, 800MHz: 851-869 / 806-824	
Total Output Power, Uplink	dBm	27	
Total Output Power, Downlink	dBm	27 / 33	27 / 33
Maximum System Gain (Uplink / Downlink)	dB	90	90
Gain Adjustment Range (1dB step) *	dB	60-90 / 35-65 / 10-40 (Under different gain limit modes)	60-90 / 35-65 / 10-40 (Under different gain limit modes)
Pass Band Ripple, p-p (Uplink / Downlink)	dB	S0: ≤3, S1: ≤7	S0: ≤3, S1: ≤7
Uplink Noise Figure	dB	<5 (90dB Uplink Gain), <9 (67dB Uplink Gain)	
Intermodulation	dBm	≤ -13	≤ -13
Spurious	dBm	FCC Compliance	FCC Compliance
Maximum RF Input Level without Damage	dBm	0	0
Maximum RF Input Level without Overdrive	dBm	-10	-10
Input VSWR		≤ 2	≤ 2
Impedance	Ω	50	50

Class A / Class B Specialized Filtering			
Number of Filters Downlink			64 per band
Number of Filter Uplink			96 Shared between 700/800MHz
Filter Bandwidth		KHz	12.5/25/75 (Class A) 75/100/150 (Class B Specialized Filtering) Additional 10MHz (LTE) for FirstNet
Filter	Bandwidth (kHz)	Delay(μs)	Out-of-Band Suppression
High rejection Filter Set	12.5	≤48	≥ 60dBc @ filter edge + 30KHz
	25	≤30	≥ 60dBc @ filter edge + 50KHz
	75	≤18	≥ 60dBc @ filter edge + 130KHz
	75 LD	≤15	≥ 60dBc @ filter edge + 200KHz
Low Delay Filter Set	12.5	≤30	≥ 60dBc @ filter edge + 65KHz
	25	≤27	≥ 60dBc @ filter edge + 75KHz
	37.5	≤26	≥ 60dBc @ filter edge + 75KHz
	50	≤26	≥ 60dBc @ filter edge + 100KHz
	75	≤15	≥ 60dBc @ filter edge + 200KHz
	100	≤14	≥ 60dBc @ filter edge + 200KHz
	150	≤13	≥ 60dBc @ filter edge + 205KHz

*Actual delay number is various according to version

Class B Wide Band		
Filter Bandwidth	MHz	0.6-10
Number of Filters		3
System Group Delay	μsec	≤ 14
Out-of-Band Suppression	dBc	≥ 60 @ filter edge + 1MHz

Mechanical - BDA

BDA				
Dimensions, H x W x D		mm / in	330 x 490 x 199 / 13.0 x 19.3 x 7.8	
Weight (without bracket)		kg / lbs	25 / 55.1	
Power Supply Input		VAC	100-240V / 50-60Hz / 0-4.5A	
Power Supply Output		VDC	40-60V (Typical: 53.5V) / 0-7.5A	
Maximum Charging Current		A	5	
Power Consumption		W	27 dBm	33 dBm
	Single Band		<75	<90
	Dual Band		<85	<100
Enclosure Cooling			Convection	
RF Connectors * 2			N-Female (MT, DT), SMA-Female (FOU DL, FOU UL)	
Test Port * 2			SMA-Female (DT-Test, MT-Test)	
LED * 10			Dry Contact Alarm LED 1 - 8, ALM/RUN	
Communication port *2			RJ45 (LAN, OMT)	
Reserved knock outs			3/4-inch hole x 1, 1/2-inch hole x 3, 1-inch hole x2	
Operating Temperature		°C	-40 to +55	
Operating Humidity			≤ 95%	
Environmental Class			UL50E Type 4 / NEMA 4	
MTBF		Hr	100,000	

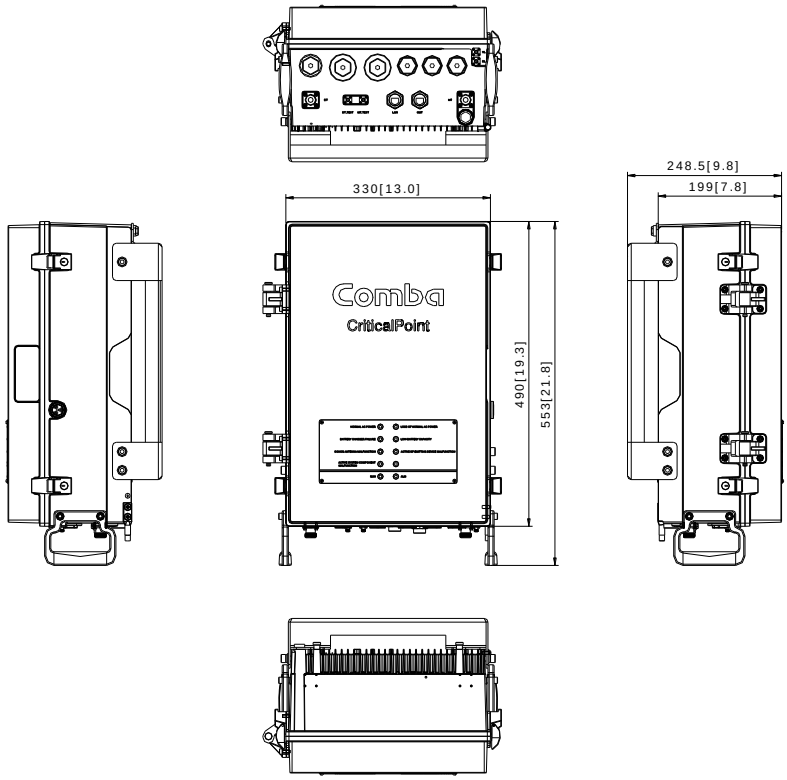
Battery Backup Unit

BBU				
Dimensions, H x W x D		mm / in	605 x 500 x 272.9 / 23.8 x 19.7 x 10.7	
Weight (without battery)		Kg / lbs	26 / 57.3	
LiFePO4 Output		VDC	Per Battery	
LiFePO4 Battery Communication Port			Serial port (RS485)	
Knockouts			3/4-inch hole x 4, 1/2-inch hole x 6	
Operating Temperature		°F (°C)	32 to 104 (0 to 40)	
Operating Humidity			≤ 95%	
Enclosure Environmental Class			UL50E Type 4 / NEMA 4	

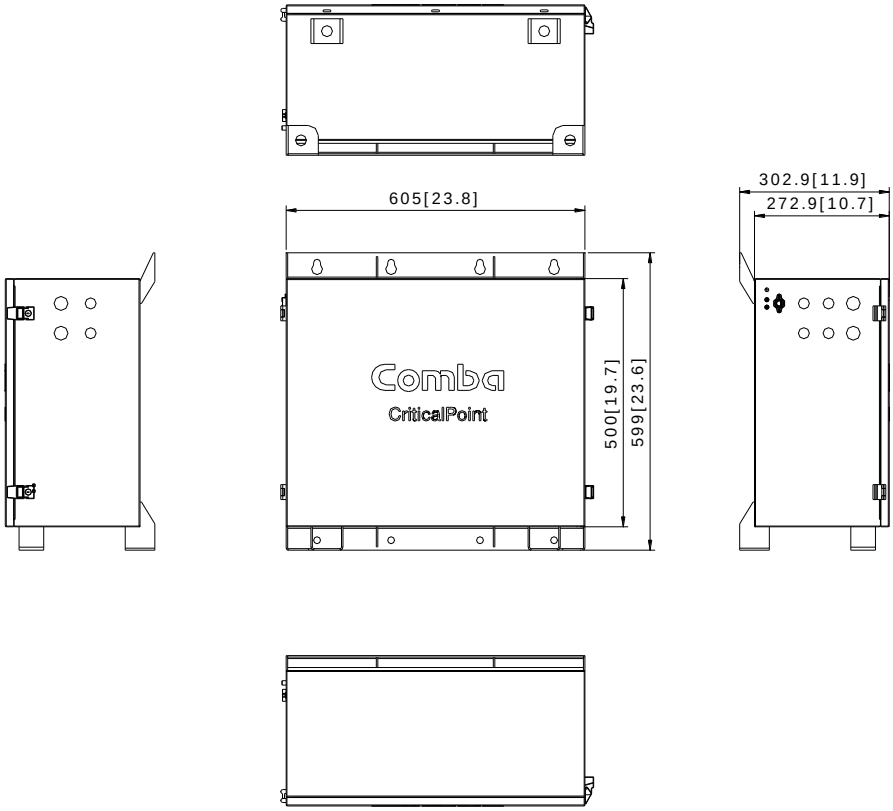
Battery				
Battery Type		(Lithium Iron Phosphate) LiFePO4		
System Required Quantity	pcs	1	1	1
Amp/Hour (Discharge at XC)		30AH	60AH	100AH
Nominal Voltage		51.2V	51.2V	51.2V
Battery Weight	lb(kg)	52.9 (24)	79.8 (36.2)	123.5 (56)
Battery Electrolyte Counts		0.456 Gallons / 4.6 lbs	0.913 Gallons / 9.1 lbs	1.758 Gallons / 17.6 lbs

Note: Gain adjusts down to 10dB total gain but is no longer FCC compliant for NF at that level
Note: Typical specifications at room temperature

Outline Drawing



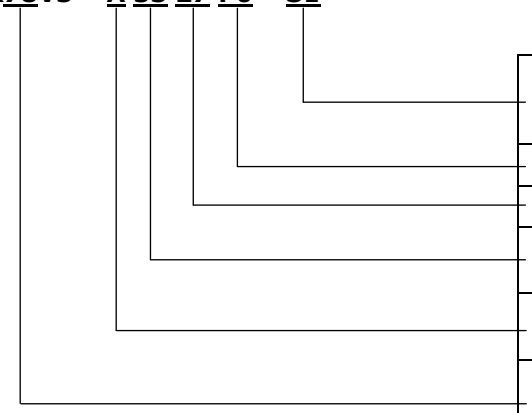
BDA V3 NG



BBU V3 NG

Part Numbers

RX78V3 – A 33 27 P0 – S1



BDA Band Configuration	S0 = 700MHz NB, 800MHz NB, FirstNet, ESMR S1 = 700MHz NB, 800MHz NB, High Rejection Duplexers C0 = Canada Version
BDA Power Supply	P0 = AC input with internal Charger
BDA UL Power	27 = 27dBm
BDA DL Power	33 = 33dBm 27 = 27dBm
BDA Class	A = Class A B = Class B
BDA Authorized Band	07 = 700MHz single band 08 = 800MHz single band 78 = 700MHz and 800MHz dual band

BDA Part Numbers	Band	Class	DL PWR	Duplexer Configuration
RX78V3-A3327P0-XX	700/800MHz	Class A	33dBm	XX=S1/S0/C0
RX07V3-A3327P0-XX	700MHz	Class A	33dBm	XX=S1/S0/C0
RX08V3-A3327P0-XX	800MHz	Class A	33dBm	XX=S1/S0/C0
RX78V3-A2727P0-XX	700/800MHz	Class A	27dBm	XX=S1/S0/C0
RX07V3-A2727P0-XX	700MHz	Class A	27dBm	XX=S1/S0/C0
RX08V3-A2727P0-XX	800MHz	Class A	27dBm	XX=S1/S0/C0
RX78V3-B3327P0-XX	700/800MHz	Class B	33dBm	XX=S1/S0/C0
RX07V3-B3327P0-XX	700MHz	Class B	33dBm	XX=S1/S0/C0
RX08V3-B3327P0-XX	700MHz	Class B	33dBm	XX=S1/S0/C0
RX78V3-B2727P0-XX	700/800MHz	Class B	27dBm	XX=S1/S0/C0

BBU Part Numbers	Battery Type	Capacity	Backup Hours
BBUV3-LFP48030	Lithium iron phosphate	30AH	>12H for 110W
BBUV3-LFP48060	Lithium iron phosphate	60AH	>24H for 110W, 12H for 220W
BBUV3-LFP48100	Lithium iron phosphate	100AH	>48H for 110W, 24H for 220W

License Part Numbers	Configuration	
RX78V3-L-2733AASS	27dBm to 33dBm upgrade license	27dBm to 33dBm upgrade license, for Single Band, Class A units
RX78V3-L-2733AADD		27dBm to 33dBm upgrade license, for Dual Band, Class A units
RX78V3-L-2733BBSS		27dBm to 33dBm upgrade license, for Single Band, Class B units
RX78V3-L-2733BBDD		27dBm to 33dBm upgrade license, for Dual Band, Class B units
RX78V3-L-3333AASD	Single Band to Dual Band upgrade license	Single band to Dual Band upgrade license, for 33dBm, Class A units
RX78V3-L-3333BBSD		Single band to Dual Band upgrade license, for 33dBm, Class B units
RX78V3-L-2727AASD		Single band to Dual Band upgrade license, for 27dBm, Class A units
Not Available		Single band to Dual Band upgrade license, for 27dBm, Class B units
RX78V3-L-3333BASS	Class B to Class A upgrade license	Class B to Class A upgrade license, for 33dBm, Single Band units
RX78V3-L-3333BADD		Class B to Class A upgrade license, for 33dBm, Dual Band units
RX78V3-L-2727BASS		Class B to Class A upgrade license, for 27dBm, Single Band units
RX78V3-L-2727BADD		Class B to Class A upgrade license, for 27dBm, Dual Band units