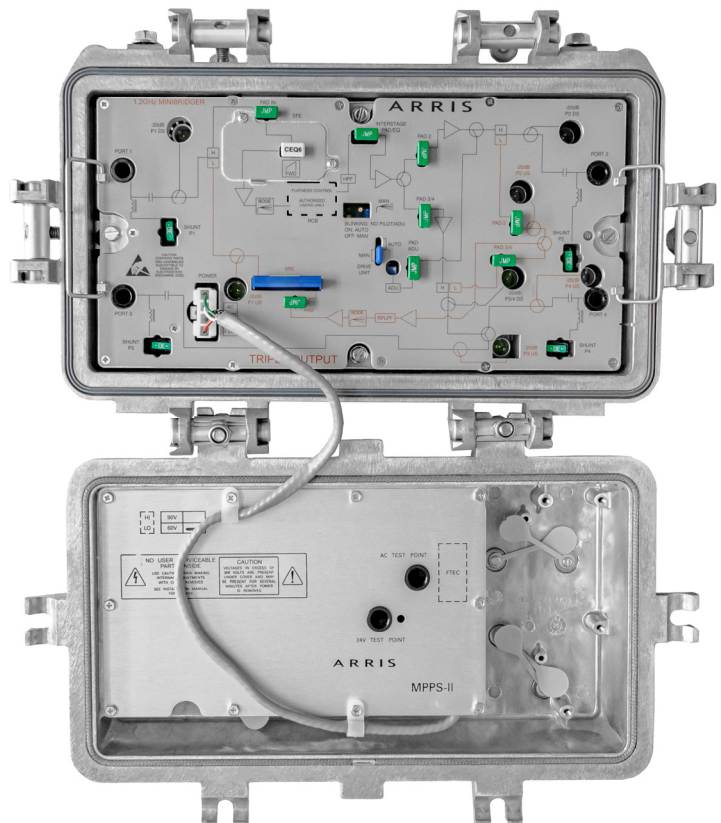


## FEATURES

- Factory configured to support three equal and balanced RF outputs
- Supports 1.2 GHz Downstream and 204 MHz Upstream bandpass for DOCSIS® 3.1 migration
- Modular RF Electronics package with upgradable frequency split options
- Increased gain to allow drop in upgrades for  $\geq 750$  MHz spacing
- Mechanically compatible with legacy MiniBridger housings
- Expanded return path bandwidth with support up to 204 MHz
- Analog and QAM ADU options for automatic gain control (AGC). AGC mode will revert to gain hold mode in the event of pilot loss.

For cable operators looking to ensure maximum backward compatibility, scalability, and protect network investments, CommScope offers solutions that deliver new services with minimal CAPEX, enhance network efficiency, and increase subscriber satisfaction.

The new CommScope 1.2 GHz MB120 MiniBridger Amplifier with Triple Output enables cable operators to take advantage of DOCSIS 3.1 efficiencies while maintaining backward compatibility of existing 750 MHz, 870 MHz, and 1 GHz systems.



## Downstream

The new MB120 amplifier with triple output is equipped with Gallium Nitride (GaN) technology supporting three RF outputs. Port balancing is achieved via plug-in attenuators in the forward path.

New 1.2 GHz Forward Cable Equalizers (CE-120-\*) and Cable Simulators (CS-120-\*) are available to optimize system designs. These new plug-ins are in the JXP-style form factor and plug into a carrier board with a backward compatible footprint so that operators who want to use the new amplifiers in older 870 MHz or 1 GHz systems can re-use their standard accessories.

The MB120 utilizes pluggable duplex filters, which provides operators with the flexibility to change band splits in the future. The following frequency splits are available:

- 5 to 42 MHz/54 to 1218 MHz (042 split)
- 5 to 85 MHz/102 to 1218 MHz (085 split)
- 5 to 204 MHz/258 to 1218 MHz (204 split)

## Upstream

MB120 models with triple output are available with 24 dB of gain in the upstream. Attenuator locations are available in the upstream path that allow operators to achieve desired output levels. The return path equalizer maintains the SRE-\* form factor from the MB100, and operators can select SRE return path equalizers in 2 dB increments based on their network design.

## Backward Compatibility

The MB120 RF electronics package is backward compatible with the MB87 and MB100 amplifier housings. MB-750 and MB86 housings were rated at 10 Amps and will require the installation of the MB-15AII-KIT, which allows for the amplifier to carry 15 Amperes continuous through its input or output ports.

## COMPATIBILITY

Platform	MB-550	MB-750D	MB-750SH	MB86	MB87	MB100
Upgrade to MB120	No	No	Yes*	Yes*	Yes	Yes

\* Requires MB-15AII-KIT

## RELATED PRODUCTS

ADU/QADU	SRE Return Equalizers
BLE120 1.2 GHz Line Extender	Forward Signal Correction Plug-in Accessories

## SPECIFICATIONS

Downstream Parameter		Specification
Frequency Split, MHz <sup>1</sup>	042 Split	54–1218
	085 Split	102–1218
	204 Split	258–1218
Flatness, dB <sup>2</sup>		± 0.75
Operational Gain, dB <sup>3</sup>		46
Internal Slope, dB <sup>4</sup>	042 Split	16.10
	085 Split	14.92
	204 Split	12.04
Noise Figure, dB <sup>5</sup>		8.0
Test Points, dB		20 ± 1.0
Return Loss, dB		16
Hum Modulation @ 15A, dBc <sup>6</sup>	F <sub>minfwd</sub> to 1003 MHz	< 60
	1003 MHz to 1218 MHz	< 50
<b>Distortion: 1.2 GHz Analog/Digital, 30 Analog, 160 Digital Channels<sup>7,8</sup></b>		
Reference Frequency, MHz		1218/258/54
Reference Input Level, dBmV		8/5.2/6.1 (virtual)
Reference Output Level (18 dB Slope), dBmV		54/39.2/36 (virtual)
Composite Triple Beat (CTB), dBc		74
Composite Second Order (CSO), dBc		78
Carrier to Composite Noise (CCN), dB		56
<b>Distortion: All Digital (1.2 GHz), Number of Digital Channels<sup>7</sup></b>		
Reference Frequency, MHz		1218/550/54
Reference Input Level, dBmV		2/-0.5/0.1 (actual)
Reference Output Level (18 dB Slope), dBmV		48/37.7/30 (actual)
CCN, dB		49
BER, dB		< 1x10 <sup>-6</sup>

### NOTES:

- Operating passband of station, determined by the diplex filters, forward correction board and high pass filter installed in the amplifier.
- Flatness is measured with respect to slope. Slope is calculated using best fit.
- Includes AGC back-off of and forward equalizer loss.
- Internal slope is a combination of cable slope in addition to linear slope.
- Measured at 1218 MHz. Specified at the housing cable entry facility and includes the loss of 1 dB for the equalizer. May derate up to 1 dB over temperature.
- Hum modulation is measured at 15 Arms AC current passing through the port under test.
- The QAM load is 256 QAM, J.83 Annex B, 5.360537 MS/s; 6 MHz/channel.
- Output level is 48 dBmV (actual) at 1218 MHz with 18 dB tilt from 54 MHz to 1218 MHz. CCN is measured by turning off the QAM channel under test and inserting a CW test signal at the corresponding QAM RF level in its place.

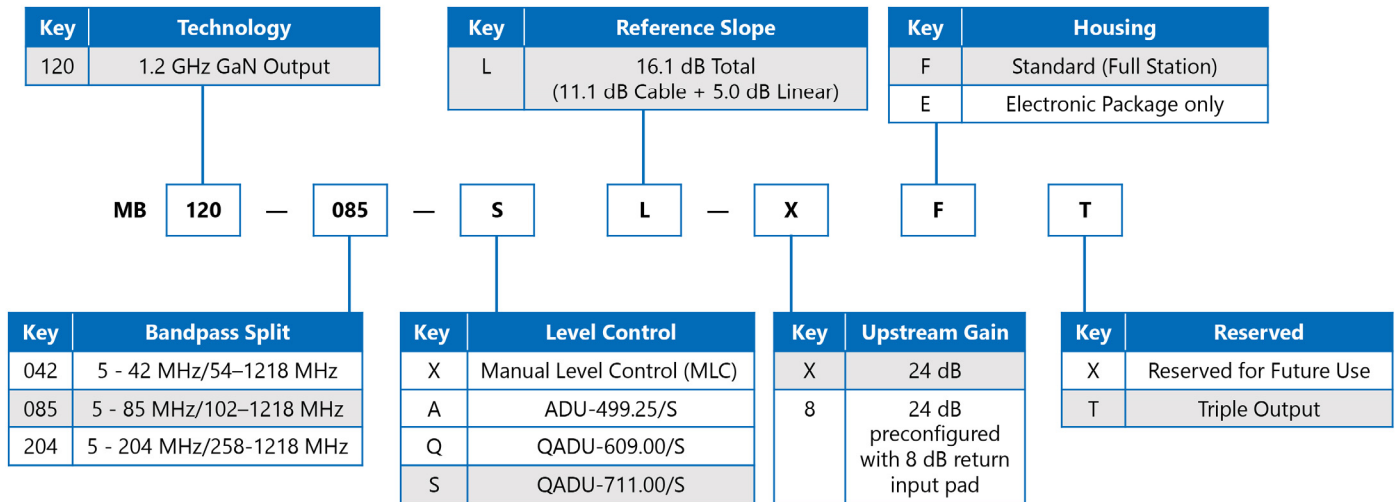
## SPECIFICATIONS

Upstream Parameter		Specification
Frequency Split, MHz <sup>1</sup>	042 Split	5–42
	085 Split	5–85
	204 Split	5–204
Flatness, dB <sup>2</sup>		± 0.5
Operational Gain, dB <sup>3</sup>		24
Reference Operating Slope, dB		± 0.75
Noise Figure, dB <sup>4</sup>		12.0
Test Points, dB		20 ± 1.0
Return Loss, dB <sup>5</sup>		16
Hum Modulation @ 15A, dBc <sup>6</sup>		< -50, 5–10 MHz
		< -60, 11–F <sub>maxreturn</sub> MHz
<b>Distortion: All Digital, 6 Digital Channels<sup>9</sup></b>		
Reference Frequency, MHz		42/5
Reference Input Level, dBmV		12/12
Reference Output Level, dBmV		36/36
NPR Dynamic Range, dB <sup>7</sup>		29
BER Dynamic Range, dB <sup>8</sup>		35
<b>Distortion: All Digital, 13 Digital Channels<sup>9</sup></b>		
Reference Frequency, MHz		85/5
Reference Input Level, dBmV		8/8
Reference Output Level, dBmV		32/32
NPR Dynamic Range, dB <sup>7</sup>		26
BER Dynamic Range, dB <sup>8</sup>		32
<b>Distortion: All Digital, 33 Digital Channels<sup>9</sup></b>		
Reference Frequency, MHz		204/5
Reference Input Level, dBmV		5/5
Reference Output Level, dBmV		29/29
NPR Dynamic Range, dB <sup>7</sup>		22
BER Dynamic Range, dB <sup>8</sup>		28
Powering		Specification
AC Input Voltage Range, VAC		38–90
AC Input Current (Typical)		1.0 A/40.8 W @ 44 V
		0.71 A/39.6 W @ 60 V
		0.47 A/38.8 W @ 90 V
AC Bypass Current, A		15
General		Specification
Operating Temperature Range		-40° to +60°C
		-40° to +140°F
Housing Dimensions, L x W x D		15.4 x 9.6 x 5.5 inches
		292 x 244 x 140 mm
Weight		15 lbs
		6.8 kg

### NOTES:

1. Operating passband of station, determined by the diplex filters, Return Path Low Pass Filter and Return Equalizer installed in the amplifier.
2. Flatness is measured with respect to slope.
3. Includes return equalizer (SRE) loss.
4. There is 1 dB of noise figure degradation over temperature.
5. The return loss from 5 to 15 MHz may degrade by up to 1 dB over the operating temperature range.
6. Hum modulation is specified from 10 MHz to F<sub>maxret</sub> and is measured with 15 Arms AC current passing through the port under test.
7. The NPR dynamic range is specified for an NPR greater than or equal to 40 dB.
8. The BER dynamic range is specified for an uncorrected (Pre-FEC) BER less than or equal to 1.0 x 10<sup>-6</sup>.
9. The QAM load is 256 QAM, J.83 Annex B, 5.360537 MS/s; 6 MHz/channel.

## 1.2 GHZ MB120 TRIPLE OUTPUT ORDERING GUIDE



**NOTE:** Not all combinations of options are valid. Contact your CommScope representative for assistance.

### REQUIRED ACCESSORIES

Model Name	Description
CE-120-*	Forward 1218 MHz Cable Equalizer 2 to 20 dB in 1 dB steps -or-
CS-120-*	Forward 1218 MHz Cable Simulator 1 to 10 dB in 1 dB steps
SRE-*-*	Return Equalizer, 5–42 MHz (042 Split), 5–85 (085 Split), 5–204 (204 Split), values 0 to 10 dB in 2 dB steps
NPB-*	Plug-in attenuator/pad (values 0 to 26 dB in 1 dB steps)

### OPTIONAL ACCESSORIES

Model Name	Description
BOM1512727-002	609.00 MHz QAM Automatic Drive Unit for 1.2 GHz Amplifiers
BOM1512727-001	711.00 MHz QAM Automatic Drive Unit for 1.2 GHz Amplifiers
BOM1512731-001	499.25 MHz Automatic Drive Unit for 1.2 GHz Amplifiers
1513728-001	MB120-42/54-DF-UPG-KIT 42/54 MHz Frequency Split Upgrade Kit
1513728-003	MB120-85/102-DF-UPG-KIT 85/102 MHz Frequency Split Upgrade Kit
1513728-004	MB120-204/254-DF-UPG-KIT 204/254 MHz Frequency Split Upgrade Kit
MB15AII-KIT	15 Amp platform kit to upgrade older 10 Amp housings

Contact Customer Care for product information and sales:

- United States: 866-36-ARRIS
- International: +1-678-473-5656

**COMMSCOPE®**

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