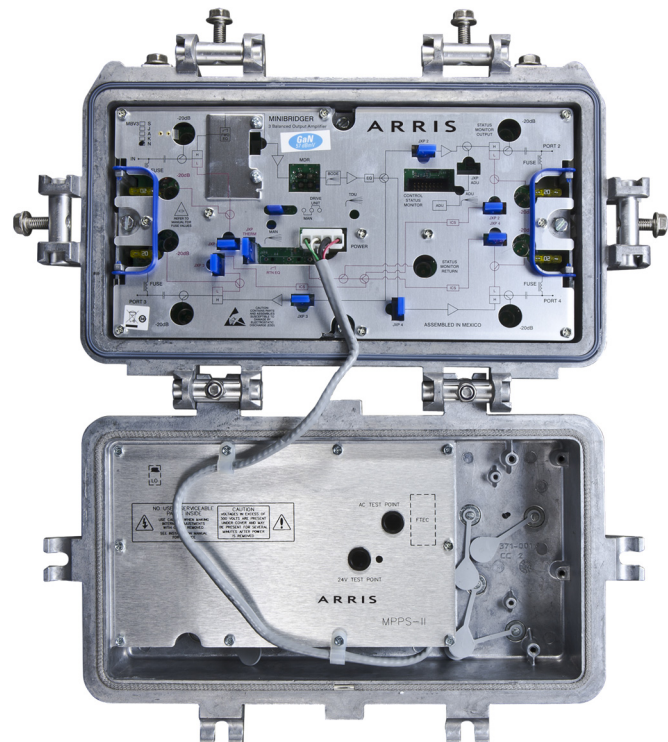


FEATURES

- Simplify plant upgrades with modular RF design and 1.2 GHz capable housing
- Improve amplifier reach with optional GaN technology and increased station tilt
- Maintain current amplifier spacing with high output GaAs technology
- Expand return path bandwidth with plug-in diplex filter support to 85 MHz
- Minimize RF drift over temperature with optional analog or QAM ADU

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 CommScope 1 GHz MBV3 MiniBridger™ Amplifier enables cable operators to increase forward capacity while maintaining current amplifier spacing of existing 750 MHz and 870 MHz systems. The MBV3 is available as a complete unit for greenfield deployments or as drop-in RF module for 1 GHz upgrades to legacy STARLINE MB75 and MB87 amplifiers.



Forward Path

The standard MBV3 configuration is equipped with second-generation Enhanced Gallium Arsenide (E-GaAs) technology, which provides superior distortion performance over standard silicon and competing GaAs technologies. If operators require longer reach, the MBV3 can be configured with optional Gallium Nitride (GaN) hybrid technology, which allows for a 3 dB increase in output level over the standard GaAs option.

To provide additional system flexibility, easy installation, and maintenance, the MBV3 is compatible with standard accessories such as attenuators, equalizers, ADUs or QADUs, automotive fuses, and FTEC crowbar circuits. The amplifier maintains output level via an optional plug-in drive unit. In addition, operators can control level manually, thermally with the TDU (thermal drive unit) accessory, or electronically with the vertical automatic drive unit (VADU). The VADU can support either analog or QAM pilot channels.

The MBV3 uses modular diplex filters, which operators can change to increase return bandwidth. The following filters are available for use with all US-style STARLINE RF distribution amplifiers (models BLE, MB/MBV3, BT):

- K-split (5 to 42 MHz/54 to 1003 MHz)
- A-split (5 to 65 MHz/85 to 1003 MHz)
- N-split (5 to 85 MHz/104 to 1003 MHz)

Return Path

The MBV3 comes standard with a high-gain return amplifier. Operators can select return path equalizers ranging from 0 to 12 dB.

Backward Compatibility

Operators can make MBV3 electronics package backward compatible with the 10-Amp MB*/* housing by installing the MB-15All Kit. These kits contain 50 mil gold plated platform assemblies, which make it possible for the amplifier to carry 15 Amperes continuous through its input or output ports.

COMPATIBILITY

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

* Requires MB-15All Kit

SPECIFICATIONS E-GaAs

Specification	Forward	Return
Frequency Split, MHz ¹	K (54–1003) A (85–1003) N (104–1003) ¹⁹	K (5–42) A (5–65) N (5–85)
Flatness, dB ^{2, 19}	± 0.75	± 0.5
Minimum Full Gain, dB ³	46	17
Operation Gain, dB ⁴	42	NA
Manual Bode Slope Control Range, dB ⁵	± 4	NA
Noise Figure, dB ⁶	10	8
Standard Slope Reference Frequency, MHz	1003/550/54	35 (flat)
Reference Output Level, dBmV	51/44/37	—
Operating Station Slope, dB ⁷	14 ± 1	NA
Standard Slope Distortion		
Channels, Number of NTSC ¹⁷	79	
Composite Triple Beat (CTB), dBc ^{8, 16}	73.5	80
Cross Modulation (XM), dBc ^{9, 16}	68.5	70
Composite Second Order (CSO), dBc ^{8, 10, 16}	71	81
Carrier to Intermodulation Noise (CIN), dB ²¹	65	—
Channels, Number of 256 QAM	154	—
Carrier to Intermodulation Noise (CIN), dB ^{20, 21}	65	—
Test Point, dB ¹¹	20 (± 1.0 dB)	20 (± 1.0 dB)
Return Loss, dB ¹²	16	14
Hum Modulation @ 12A, dBc	< 60	< 60
Hum Modulation @ 15A, dBc ¹⁸	< 60	< 60
DC Voltage, VDC		24
Current DC Max, mA ¹³		2000
Power Consumption Max, W		66
AC Input Voltage Range, VAC		38–90
AC Current Draw Max, A		
@ 90 VAC		0.74
@ 60 VAC		1.17
@ 38 VAC		1.85
AC Bypass Current (all ports), A ¹⁴		15
Group Delay ¹⁵		
K-split		
55.25 to 58.83 MHz, nSec	52	NA
Group Delay ¹⁵		
A-split		
86.25 to 90.68 MHz, nSec	28	
Group Delay ¹⁹		
N-split		
104 to 110 MHz, nSec	38	NA
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 lb 6.8 kg

SPECIFICATIONS E-GaN

Specification	Forward	Return
Frequency Split, MHz ¹	K (54–1003) A (85–1003) N (104–1003) ¹⁹	K (5–42) A (5–65) N (5–85)
Flatness, dB ^{2, 19}	± 0.75	± 0.5
Minimum Full Gain, dB ³	46	NA
Operation Gain, dB ⁴	42	17
Manual Bode Slope Control Range, dB ⁵	± 4	NA
Noise Figure, dB ⁶	10	8
Ultra Slope Reference Frequency, MHz ⁷	1003/550/54	35 (flat)
Reference Output Level, dBmV	57/48/39	—
Operating Station Slope, dB	18 ± 1	NA
Ultra Slope Distortion		
Channels, Number of NTSC ¹⁷	79	
Composite Triple Beat (CTB), -dBc ^{8, 16}	70	80
Cross Modulation (XM), -dBc ^{9, 16}	62	70
Composite Second Order (CSO), -dBc ^{8, 10, 16}	69	81
Carrier to Intermodulation Noise (CIN), dB ²¹	65	—
Channels, Number of 256 QAM		—
Carrier to Intermodulation Noise (CIN), dB ^{20, 21}	65	—
Standard Slope Reference Frequency, MHz ⁷	1003/550/54	35 (flat)
Reference Output Level, dBmV	51/44/37	—
Operating Station Slope, dB ⁵	14 ± 1	NA
Standard Slope Distortion		
Channels, Number of NTSC ¹⁷	79	
Composite Triple Beat (CTB), dBc ^{8, 16}	73.5	80
Cross Modulation (XM), dBc ^{9, 16}	68.5	70
Composite Second Order (CSO), dBc ^{8, 10, 16}	71	81
Carrier to Intermodulation Noise (CIN), dB ²¹	65	—
Channels, Number of 256 QAM	154	—
Carrier to Intermodulation Noise (CIN), dB ^{20, 21}	65	—
Test Point, dB ¹¹	20 (± 1.0 dB)	20 (± 1.0 dB)
Return Loss, dB ¹²	16	14
Hum Modulation @ 12A, dBc	< 60	< 60
Hum Modulation @ 15A, dBc ¹⁸	< 60	< 65
DC Voltage, VDC		24
Current DC Max, mA ¹³		2000
Power Consumption Max, W		66
AC Input Voltage Range, VAC		38–90

SPECIFICATIONS CONTINUED E-GaN

Specification	Forward	Return
AC Current Draw Max, A		
@ 90 VAC		0.74
@ 60 VAC		1.17
@ 38 VAC		1.85
AC Bypass Current (all ports), A ¹⁴		15
Group Delay ¹⁵		
K-split		
55.25 to 58.83 MHz, nSec	52	NA
Group Delay ¹⁵		
A-split		
86.25 to 90.68 MHz, nSec	28	NA
Group Delay ¹⁹		
N-split		
104 to 110 MHz, nSec	14	NA
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 lb 6.8 kg

NOTES:

- Operating passband of station. Diplex filters are plugged into the electronic chassis.
- Referenced to the average gain across the passband.
- Minimum full gain at 1003 MHz includes loss of equalizer but Bode slope reserves have not been set. Return gain includes loss of SRE-*4 return equalizer. Measured at Fmax return.
- Includes loss of gain reserves as well as equalizer.
- From midpoint (typical setting is -4 dB at 1003 MHz @ 25°C). This control should not be used for gain reduction.
- Specified at the housing cable entry facility over temperature and includes the loss of 1 dB for the pre-stage equalizer. The return noise figure includes the station loss preceding the RF hybrid.
- Amount of slope created and cable equivalence of fixed, plug-in interstage equalizer.
- Measured with CW carriers and spectrum analyzer over specified temperature range. References the worst-case channel.*
- Measured with wave analyzer and synchronous, 100% depth modulated channels. References the worst-case channels over specified temperature range.*
- Refers only to beat clusters that fall 0.75 MHz and 1.25 MHz above the subject picture carrier.
- Test points should be used with GFAL adapter.
- Match measurement at the station input and output, cable-entry facilities, at the specified passbands for operational gain.
- Current draw at 24 VDC.
- Stated in RMS continuous.
- Specified for standard NTSC video, where delay is the delta from picture carrier to 3.58 MHz color subcarrier. Reverse delay is in a 1.5 MHz bandwidth.
- Worst-case over temperature in a cascade.
- NTSC 79 Channel forward, 75 QAM carriers -6 dB relative to analog CW carriers. 6 Channel return.
- Specification is 55 from 5 to 10 MHz at 15A.
- For N-split (5-85/104-1003 MHz) roll-off from 105 MHz to 102 MHz < 1.0 dB. Group delay from 103.25 MHz to 105.25 MHz is < 22 ns.
- 154 QAM carriers 54-1002 MHz. Carriers are -6 dB relative to virtual analog levels.
- Room temperature performance.

* Specifications are compliant with the test methods as stated in NCTA Recommended Practices for Measurements on Cable Television.

1 GHZ MBV3 ORDERING GUIDE

M B V 3 - 1 0 0 N - G S U H - F - X - R

Key	Platform Family
MBV3	STARLINE MBV3 MiniBridger
Key	Bandwidth
100	1 GHz
Key	Frequency Split
A	65/85 MHz
K	42/54 MHz
N	85/104 MHz
Key	Spacing
G	High output 42 dB GaN
H	42 dB GaAs

Key	Level Control
A	499.25 QAM ADU
Q	609 MHz QAM ADU
S	711 MHz QAM ADU
T	TDU (Thermal Drive Unit)
X	None (Manual Level Control)
Key	Station Tilt
U	18 dB Ultra station tilt (GaN)
X	14 dB standard station tilt
Key	Return
H	17 dB high gain return

Key	Housing
E15	None (RF Module Only)
F	Full Station
Key	Power Supply Configuration
90	90 Volt position
X	Standard
Key	Options
R	RoHS compliant

NOTES:

- Not all combinations in the ordering guide are available. This is a guide only.
- FTECs are included in all models as standard.

REQUIRED ACCESSORIES

Part Number	Model	Description
535723-001-00	SFE-100-0	Forward 1003 MHz equalizer (0 dB) -or-
531124-001 to -022	SFE-100-1 to -22	Forward 1003 MHz equalizer (values 1 to 22 dB in 1 dB steps) -or-
531161-001 to -010	SCS-1 to SCS-10	Cable simulator (values 1 to 10 dB in 1 dB steps)
531163-XXX-00	SRE-*.*	Return equalizer, 5–42 MHz (K-split), 5–65 (A-split), 5–85 (N-split), values 0 to 12 dB in 2 dB steps
531186-XXX-00	JXP-*.B	Plug-in attenuator/pad (values 0 to 26 dB in 1 dB steps)

OPTIONAL ACCESSORIES

Part Number	Model	Description
558958-001-00	QADU-609.00S/V-R	609.00 MHz Vertical QAM Automatic Drive Unit for use in MBV3
558958-002-00	QADU-711.00S/V-R	711.00 MHz Vertical QAM Automatic Drive Unit for use in MBV3
558958-003-00	ADU-499.25S/V-R	499.25 MHz Vertical Automatic Drive Unit for use in MBV3
531344-001-00	MB-15AII-KIT	15 Amp kit to upgrade 10 Amp platforms

RELATED PRODUCTS

VADU/VQADU	MB100
BLE100	BT100
SRE Equalizer	Flex Max® RF Amplifiers

Contact Customer Care for product information and sales:

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

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Note: Specifications are subject to change without notice.

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