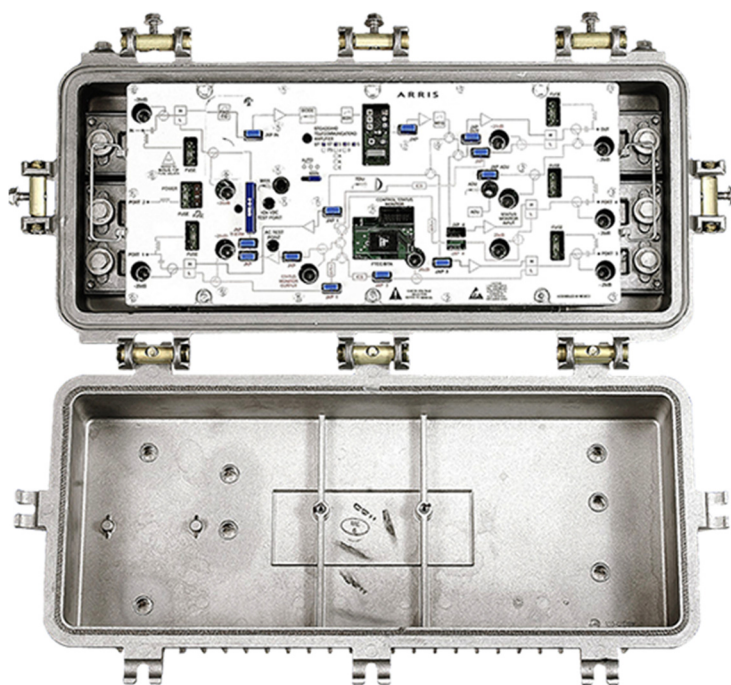


FEATURES

- Maintain current amplifier spacing with high output GaAs technology
- Improve amplifier reach with optional GaN technology and increased station tilt
- Ease of maintenance with modular RF design and integrated power supply
- 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 BT100 Amplifier enables cable operators to increase forward capacity while maintaining current amplifier spacing of existing 750 MHz and 870 MHz systems. The BT100 is available as a complete unit for greenfield deployments or as a drop-in RF module for 1 GHz upgrades to legacy STARLINE BTB, BT75, and BT87 amplifiers.



Forward Path

The standard BT100 configuration is equipped with Gallium Arsenide (GaAs) technology, with optional Gallium Nitride (GaN) hybrid technology for increased output level over the standard GaAs option.

To provide additional system flexibility, easy installation, and maintenance, the BT100 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 automatic drive unit (ADU). The ADU can support either analog or QAM pilot channels.

The BT100 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 BT100 features a single upstream gain option of 17.5 dB. Operators must purchase the appropriate return path equalizers ranging in values from 0 to 12 dB. Thermal compensation is available as a JXP-TH*C plug-in accessory, which stabilizes gain and match over temperature extremes.

Backward Compatibility

The BT100 electronics package can be dropped into legacy BTD, BT75, and BT87 amplifiers. All BT* products are capable of 15A power passing.

COMPATIBILITY

Platform	BTD	BT75	BT86	BT87
Upgrade to BT100	Yes	Yes	Yes	Yes

SPECIFICATIONS E-GaAs

Specifications	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}	± 0.7	± 0.75
Minimum Full Gain, dB ³	46	17.5
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 Interstage Slope, dB ⁷	14 ± 1	NA
Standard Slope Distortion		
Channels, Number of NTSC ¹⁷	79	
Composite Triple Beat (CTB), dBc ^{8, 16}	75	80
Cross Modulation (XM), dBc ^{9, 16}	66	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	15	15
Hum Modulation @ 12A, dBc	< 65	< 60
Hum Modulation @ 15A, dBc ¹²	< 60	< 60
DC Voltage, VDC		24
Current DC Max, mA ¹⁸		2475
Power Consumption Max, W		80
AC Input Voltage Range, VAC		38–90
AC Current Draw Max, A		
@ 90 VAC		0.90
@ 60 VAC		1.42
@ 38 VAC		2.25
AC Bypass Current (All Ports), A ¹⁴		15
Group Delay ¹⁵		
K-split		
55.25 to 58.83 MHz, nSec	52	NA
A-split		
86.25 to 90.68 MHz, nSec	28	NA
N-split		
109.25 to 112.83 MHz, nSec	14	NA
112.25 to 116.68 MHz, nSec	12	NA
Operating Temperature Range		-40° to +60°C -40° to +140°F
Housing Dimensions, L x W x D		21.6 x 10.6 x 7.7 inches 549 x 270 x 196 mm
Weight		27 lb 12.2 kg

SPECIFICATIONS E-GaN

Specifications	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}	± 0.7	± 0.75
Minimum Full Gain, dB ³	46	NA
Operation Gain, dB ⁴	42	17.5
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 Interstage Slope, dB	18 ± 1	NA
Ultra Slope Distortion		
Channels, Number of NTSC	79	
Composite Triple Beat (CTB), -dBc ^{8, 16}	70	80
Cross Modulation (XM), -dBc ^{9, 16}	58	70
Composite Second Order (CSO), -dBc ^{8, 10, 16}	69	81
Carrier to Intermodulation Noise (CIN), dB ²¹	58	—
Channels, Number of 256 QAM	154	—
Carrier to Intermodulation Noise (CIN), dB ^{20, 21}	58	—
Standard Slope Reference Frequency, MHz ⁷	1003/550/54	35 (flat)
Reference Output Level, dBmV	51/44/37	—
Operating Interstage Slope, dB ⁶	14 ± 1	NA
Standard Slope Distortion		
Channels, Number of NTSC ¹⁷	79	
Composite Triple Beat (CTB), -dBc ^{8, 16}	75	80
Cross Modulation (XM), -dBc ^{9, 16}	66	70
Composite Second Order (CSO), -dBc ^{8, 10, 16}	71	81
Carrier to Intermodulation Noise (CIN), dB ²¹	66	—
Channels, Number of 256 QAM	154	—
Carrier to Intermodulation Noise (CIN), dB ^{20, 21}	66	—
Test Point, dB ¹¹		20 (± 1.0 dB)
Return Loss, dB ¹²	15	15
Hum Modulation @ 12A, dBc	< 65	< 60
Hum Modulation @ 15A, dBc ¹⁸	< 60	< 60
DC Voltage, VDC		24
Current DC Max, mA ¹³		2475
Power Consumption Max, W		80
AC Input Voltage Range, VAC		38–90

SPECIFICATIONS CONTINUED E-GaN

Specifications	Forward	Return
AC Current Draw Max, A		
@ 90 VAC	0.90	
@ 60 VAC	1.42	
@ 38 VAC	2.25	
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 ^{15,19}		
N-split		
109.25 to 112.83 MHz, nSec	14	NA
112.25 to 116.68 MHz, nSec	12	NA
Operating Temperature Range		-40° to +60°C -40° to +140°F
Housing Dimensions, L x W x D		21.6 x 10.6 W x 7.7 D inches 549 L x 270 W x 196 D mm
Weight		27 lb 12.2 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 BT ORDERING GUIDE

B	T	1	0	0	N	—	4	G	S	U	H	—	F	—	R
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Key	Platform Family
BT	STARLINE BT100

Key	Bandwidth
100	1 GHz

Key	Bandpass Split
A	65/85 MHz
K	42/54 MHz
N	85/104 MHz

Key	Spacing
3H	Three driven 42 dB GaAs outputs
3G	Three driven high output 42 dB GaN outputs
4H	Four driven 42 dB GaAs outputs
4G	Four driven high output 42 dB GaN outputs

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	17.5 dB high gain return

Key	Housing
E15	None (RF Module Only)
F	Full Station

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 Name	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 1n 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 Name	Description
594742-002-00	QADU-609.00/S-R	609 MHz QAM Automatic Drive Unit
594742-001-00	QADU-711.00/S-R	711 MHz QAM Automatic Drive Unit
531236-003-00	ADU-499.25/S-R	499.25 MHz Automatic Drive Unit

RELATED PRODUCTS

ADU/QADU	BLE100
MB100	MBV3
SFE/SRE Equalizers	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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