COMMSCOPE BT100

TRUNK AMPLIFIER

For cable operators looking to ensure maximum backwards compatibility and 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 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 BTD, BT75, and BT87 amplifiers.

- 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

SPECIFICATIONS E-GaAs	UNITS	FORWARD	RETURN
Frequency split [1]	MHz	K (54 – 1003) A (85 – 1003) N (104 – 1003)[19]	K (5 – 42) A (5 – 65) N (5 – 85)
Flatness [2,19]	dB	± 0.7	± 0.75
Minimum Full Gain [3]	dB	46	17.5
Operation Gain [4]	dB	42	NA
Manual Bode Slope Control Range [5]	dB	± 4	NA
Noise Figure [6]	dB	10	8
Standard Slope Reference Frequency	MHz	1003/550/54	35 (flat)
Reference Output Level	dBmV	51/44/37	—
Operating Interstage Slope[7]	dB	14 ± 1	NA
Standard Slope Distortion Channels, Number of NTSC[17] Composite Triple Beat (CTB) [8,16] Cross Modulation (XM) [9,16] Composite Second Order (CSO) [8,10,16] Carrier to Intermodulation Noise (CIN)[21] Channels, Number of 256 QAM Carrier to Intermodulation Noise (CIN)[20,21]	 dBc dBc dBc dB dB	 79 75 66 71 65 154 65	 80 70 81 - - -
Test Point [11]	dB	20 (± 1.0 dB)	20 (± 1.0 dB)
Return Loss [12]	dB	15	15
Hum Modulation @ 12A	dBc	< 65	< 60
Hum Modulation @ 15A [12]	dBc	< 60	< 60
DC Voltage	VDC	24	
Current DC Max. [18]	mA	2475	
Power Consumption Max.	W	80	
AC Input Voltage Range	VAC	38–90	
AC Current Draw Max. @ 90 VAC @ 60 VAC @ 38 VAC	A	 0.90 1.42 2.25	
AC Bypass Current (all ports) [14]	A	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 109.25 to 112.83 MHz 112.25 to 116.68 MHz	 nSec nSec	 14 12	 NA NA
Operating Temperature Range	°C °F	–40 to +60 –40 to +140	
Housing Dimensions, L x W x D	inches mm	21.6 x 10.6 x 7.7 549 x 270 x 196	
Weight	lb kg	27 12.2	

SPECIFICATIONS E-GaN	UNITS	FORWARD	RETURN
Frequency split [1]	MHz	K (54 – 1003) A (85 – 1003) N (104 – 1003)[19]	K (5 – 42) A (5 – 65) N (5 – 85)
Flatness [2,19]	dB	± 0.7	± 0.75
Minimum Full Gain [3]	dB	46	NA
Operation Gain [4]	dB	42	17.5
Manual Bode Slope Control Range [5]	dB	± 4	NA
Noise Figure [6]	dB	10	8
Ultra Slope Reference Frequency[7]	MHz	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 Composite Triple Beat (CTB) [8,16] Cross Modulation (XM) [9,16] Composite Second Order (CSO) [8,10,16] Carrier to Intermodulation Noise (CIN)[21] Channels, Number of 256 QAM Carrier to Intermodulation Noise (CIN)[20,21]	 –dBc –dBc –dBc dB dB	 79 70 58 69 58 154 58	 80 70 81 - - -
Standard Slope Reference Frequency[7]	MHz	1003/550/54	35 (flat)
Reference Output Level	dBmV	51/44/37	-
Operating Interstage Slope[6]	dB	14 ± 1	NA
Standard Slope Distortion Channels, Number of NTSC[17] Composite Triple Beat (CTB) [8,16] Cross Modulation (XM) [9,16] Composite Second Order (CSO) [8,10,16] Carrier to Intermodulation Noise (CIN)[21] Channels, Number of 256 QAM Carrier to Intermodulation Noise (CIN)[20,21]	 –dBc –dBc –dBc dB dB	 79 75 66 71 66 154 66	 80 70 81 - - -
Test Point[11]	dB	20 (± 1.0 dB)	
Return Loss[12]	dB	15	15
Hum Modulation @ 12A	dBc	< 65	< 60
Hum Modulation @ 15A [18]	dBc	< 60	< 60
DC Voltage	VDC	24	
Current DC Max. [13]	mA	2475	
Power Consumption Max.	W	80	
AC Input Voltage Range	VAC	38–90	
AC Current Draw Max. @ 90 VAC @ 60 VAC @ 38 VAC	A	 0.90 1.42 2.25	
AC Bypass Current (all ports) [14]	A	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 112.25 to 116.68 MHz	 nSec nSec	 14 12	 NA NA
Operating temperature range	°C °F	–40 to +60 –40 to +140	
Housing dimensions, L x W x D	inches mm	21.6 x 10.6 W x 7.7 D 549 L x 270 W x 196 D	
Weight	lb kg	27 12.2	

Notes:
1. Operating passband of station. Diplex filters are plugged into the electronic chassis.
2. Referenced to the average gain across the passband.
3. 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.
4. Includes loss of gain reserves as well as equalizer.
5. From midpoint (typical setting is –4 dB at 1003 MHz @ 25 °C). This control should not be used for gain reduction.
6. 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.
7. Amount of slope created and cable equivalence of fixed, plug-in interstage equalizer.
8. Measured with CW carriers and spectrum analyzer over specified temperature range. References the worst-case channel.*
9. Measured with wave analyzer and synchronous, 100% depth modulated channels. References the worst-case channels over specified temperature range. *
10. Refers only to beat clusters that fall 0.75 MHz and 1.25 MHz above the subject picture carrier.
11. Test points should be used with GFAL adapter.
12. Match measurement at the station input and output, cable- entry facilities, at the specified passbands for operational gain.
13. Current draw at 24 VDC.
14. Stated in RMS continuous.
15. 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.
16. Worst-case over temperature in a cascade.
17. NTSC 79 Channel forward, 75 QAM carriers -6dB relative to analog CW carriers. 6 Channel return.
18. Specification is 55 from 5 to 10MHz at 15A.
19. For N-split (5-85/104-1003MHz) roll-off from 105 MHz to 102 MHz < 1.0 dB. Group delay from 103.25 MHz to 105.25 MHz is < 22 ns.
20. 154 QAM carriers 54-1002 MHz. Carriers are -6dB relative to virtual analog levels.
21. Room temperature performance.
* Specifications are compliant with the test methods as stated in NCTA Recommended Practices for Measurements on Cable Television