

Two Way 870MHz CATV Line Extenders

Model	Bandwidths
TBLE8735-xx	5-42 / 54-870 MHz 5-55 / 70-870 MHz 5-65 / 80-870 MHz

TBLE8735 series CATV Line Extenders are broadband outdoor, with GaAs-Hybrid / Power Doubler technology designed for the cable powered (35-90VAC) distribution systems where a high quality low noise figure amplifier is necessary to amplify the signals in both the forward and return paths.

These are all designed with flat operational gain of 35 dB in the forward bandwidth and 20 dB in the reverse bandwidth with a plug-in module. They have an input plug-in fixed attenuator and equalizer with plug-in interstage equalization feature in the forward bandwidth, a post stage plug-in equalization feature in the reverse bandwidth. Reverse bandwidth features a fixed value attenuator pad at the input and at the output stages.

These amplifiers are remote powered, 35-90VAC over coaxial network .



Technical Specifications

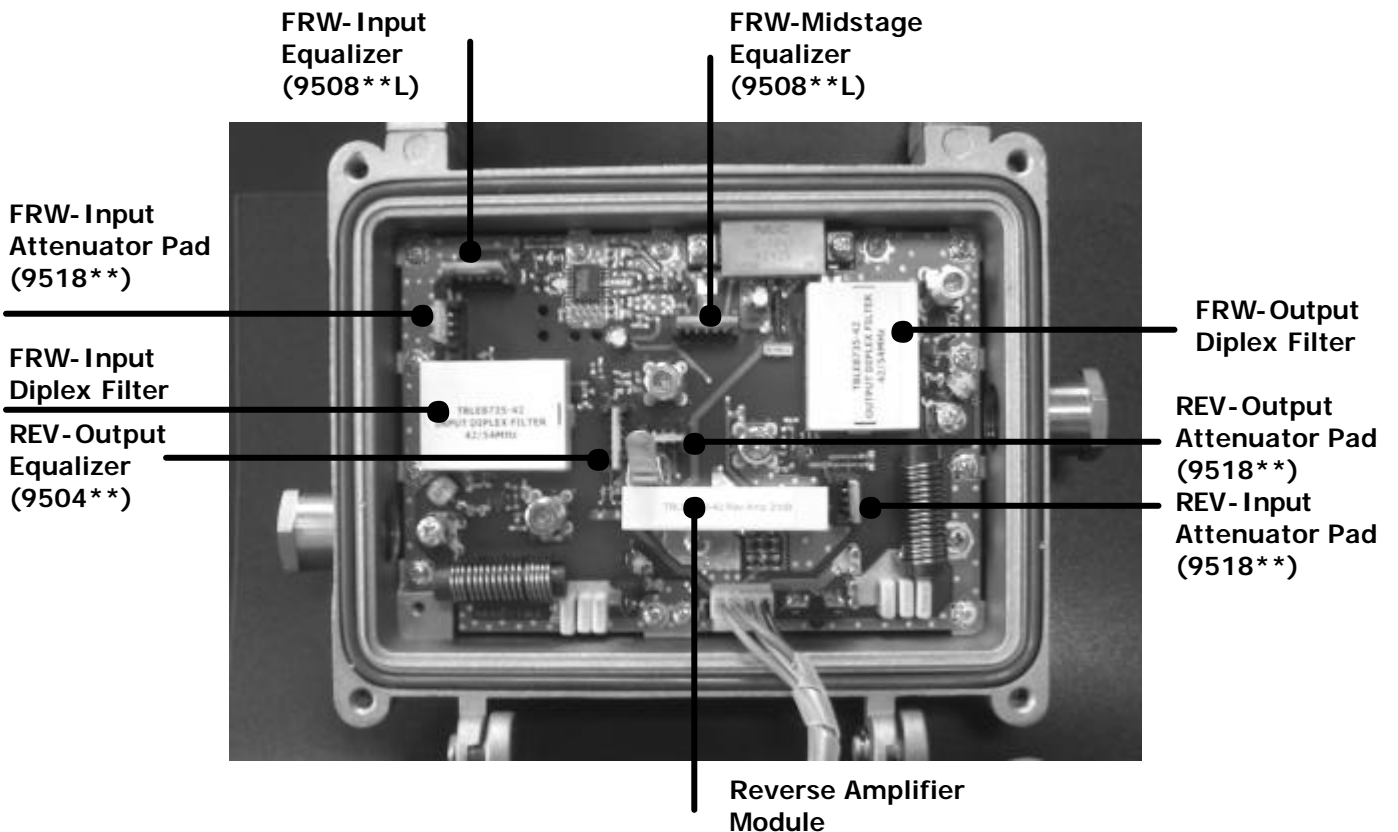
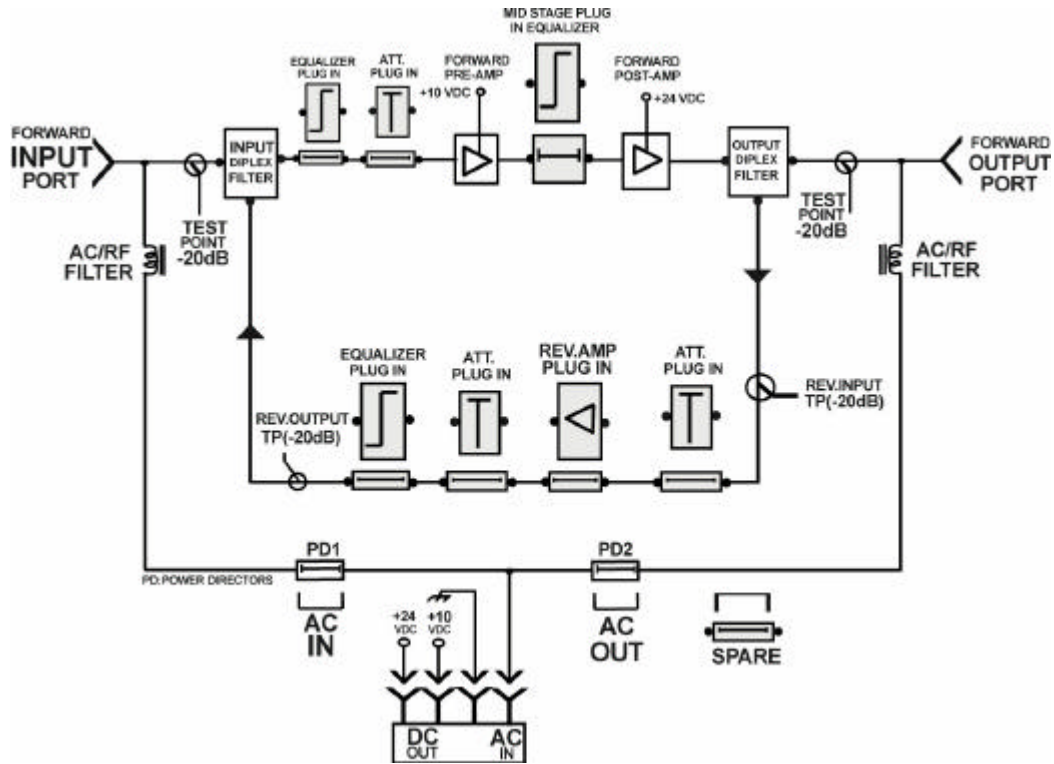
Typical, for T=20degC, Zin=Zout=75ohms

Parameter	Notes	Forward GaAs PD	Reverse	Units
Bandwidth		54 / 70 / 80 to 862	5 to 42 / 55 / 65	MHz
Gain Blocks		IN GaAs / OUT GaAs PD	Single	
Min Full Gain		35	20	dB
Flatness		+/-0.75	+/-0.5	"
Return Loss, IN / OUT		-16	-16	"
RF Test Points, Directional Coupler	IN / OUT	-20	-20	"
Gain Control, fixed plug-in		0 to 22dB with 1dB steps(Input)	0 to 22dB with 1dB steps(Input & Output)	"
Slope Control, fixed plug-in		0 to 22dB with 1dB steps(Input and Midstage)	0 to 12dB with 1dB steps (Output)	dB cable
Forward Distortions, 79 channels:	47dBmV Flat Output			
CTB	on ch78	-72	---	dBc
CSO	on ch78	-68	---	"
Xmod	on ch2	-61	---	"
Forward Distortions, 79 channels	10dB interstage slope (54-862MHz), ref 47dBmV			
CTB	on ch78	-78	---	dBc
CSO	on ch78	-74	---	"
Xmod	on ch2	-65	---	"
Forward Distortions, CENELEC 42Ch. Plan	acc.to EN50083-3 Flat Output , -60dBc			
CTB		112	---	dBuV
CSO		115	---	"
Xmod		108	---	"
Forward Distortions, CENELEC 42Ch. Plan	acc.to EN50083-3 Flat Output , -60dBc with 10dB interstage slope			
CTB		114	---	dBuV
CSO		117	---	"
Xmod		110	---	"
Reverse Distortions, 4 ch	40dBmV flat output			
3rd on T10	T8+T9-T7	---	-82	dBc
2nd on T9	T7+12MHz	---	-64	"
Xmod on T10	T7, T8, T9, T10	---	-70	"
Noise Figure		6	7	dB
Fwd Group Delay:	48.25-51.83MHz	30	---	nsec max
	55.25-58.83MHz	30	---	"
	61.25-64.83MHz	15	---	"
	Other	4	---	"
	85-86MHz	10	---	"
Rev Group Delay:	5-6MHz	---	50	"
	13-14MHz	---	4	"
	29-30MHz	---	20	"
	41-42MHz	---	30	"
	64-65MHz	---	20	"
Hum Modulation	10A / 15A		-70 / -65	dB
RFI Isolation	5-1000MHz		-100	"
Surge Withstand	IN / OUT	IEEE C62.41-1991 Category B3, Combination Wave 6KV, 3KA		
AC Input			35-90	Vac
AC Power Direction		IN, OUT or THRU		
Port Current	typ / max		10 / 15	Amps
Power Consumption		13,0	1,5	Watts
Temperature			-40 to +55	degC
Environmental Protection		Painted housing with stainless bushings & hardware		
Weight		1.6 kgs / 3.6 lbs		
Water Immersion		15psi for 10 seconds @ 20degC		

Specifications are subject to change without notice

Block Diagram

TBLE8735



Note: 3 pin sockets are suitable for Attenuator Pads, 5 pin sockets are for Equalizers

Basic Setup Procedure

Forward Level Setup:

1. Before applying power to the amplifier make sure that the input level to the amplifier is not too high, or damage to the amplifier might occur. To be on the safe side, installing highest available value input pad is recommended before powering the amplifier.
2. Install a 0dB input equalizer pad for minimum slope and install a 0dB plug in equalizer (factory installed) into the midstage equalizer socket.
3. Now apply power to the amplifier and measure the amplifier output level at the 20dB output test point. If it is very low then install a proper value input attenuator pad to increase the gain until the desired output level is reached at the highest operating frequency. Remember that the level measured at the test point is 20dB lower than the real signal level at the output port.
4. Adjust the input equalizer pad value until the output level to be flat across the full bandwidth. The input signal level will now be flat too. Under this condition there will be best CNR across the full bandwidth.
5. Now install a plug-in equalizer into the midstage equalizer socket to get as close as possible to the desired output signal slope. The desired output slope is determined by your system design. Consult your system planner or your system maps for this information.
6. Make a final adjustment of the output slope and output level with the input attenuator and equalizer pad values. Always adjust the gain control, then the slope control in that order.
7. If you are having trouble obtaining the expected output levels then check the input test point to verify that the levels are as expected at the input of the amplifier.
8. Record the in/out operating levels and mid equalizer option used in this station on the lid label, and proceed to the reverse band level setup.

Reverse Level Setup:

1. If the forward amplifier is not set up, stop and do it now. It is recommended that the forward amplifier be set up first since its high gain requires extra precautions be taken before powering.
2. A commercially available *reverse sweep and balance test system* is recommended for setting up the TBLE reverse amplifier. With this test system the forward output test point will be used for a reverse signal injection point, and you should start your set up at the first amplifier out from the node. Follow the procedure offered in the test system manual.
3. If you don't have a *reverse sweep and balance test system* then you will need two people to set up the reverse band, and they will need to communicate with each other.
4. The procedure is simply explained as follows:
 - Reverse signals are all combining to arrive at the node destination. Therefore the signals should be set up to have constant levels at each reverse amplifier input.
 - Constant input signal levels are achieved by injecting an XdBmV test signal into the reverse input using the forward output 20dB test point. Then the reverse amplifier output gain and slope controls are adjusted to achieve the same XdBmV input signal level at the following amplifier (or node) input. The person at the node reports the resulting levels to the person injecting and adjusting. This gives a unity gain setup for each reverse span.
 - The person at the node does not have to move to the adjacent amp each time the setup person moves to the next amp. This is because the system is being set up for unity gain.
 - Remember that the reverse test points and the injection point are 20dB directional couplers, so your measured levels and injected levels should be accordingly adjusted.

Ordering Information

Bandwidth	Model No
54-870MHz with 5-42MHz reverse	TBLE8735-42
70-870MHz with 5-42MHz reverse	TBLE8735-55
80-870MHz with 5-42MHz reverse	TBLE8735-65
Plug in Accessories	
Attenuator Pads 870MHz 0 to 22 dB in 1dB steps	9518**(replace ** with dB value)
Forward Equalizers 870MHz 0 to 22 dB in 1dB steps	9508**L (replace ** with dB value)
Reverse Equalizers 42MHz 0 to 12dB in 1dB steps	9504**(replace ** with dB value)

Safety

The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



CAUTION

**Risk of Electric Shock
Do not Open Power
Supply section**



The Lightning flash with arrowhead symbol within an equilateral triangle is intended to alert you to the presence of uninsulated " dangerous voltage " within the products supplementary external power supply enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

REMEMBER TO REPLACE COVER AFTER ADJUSTING. COVER MUST BE IN PLACE FOR CE, SAFETY AND PROTECTION

NO SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL .

WARNING : AC POWER IS PRESENT AT CONNECTOR TERMINALS