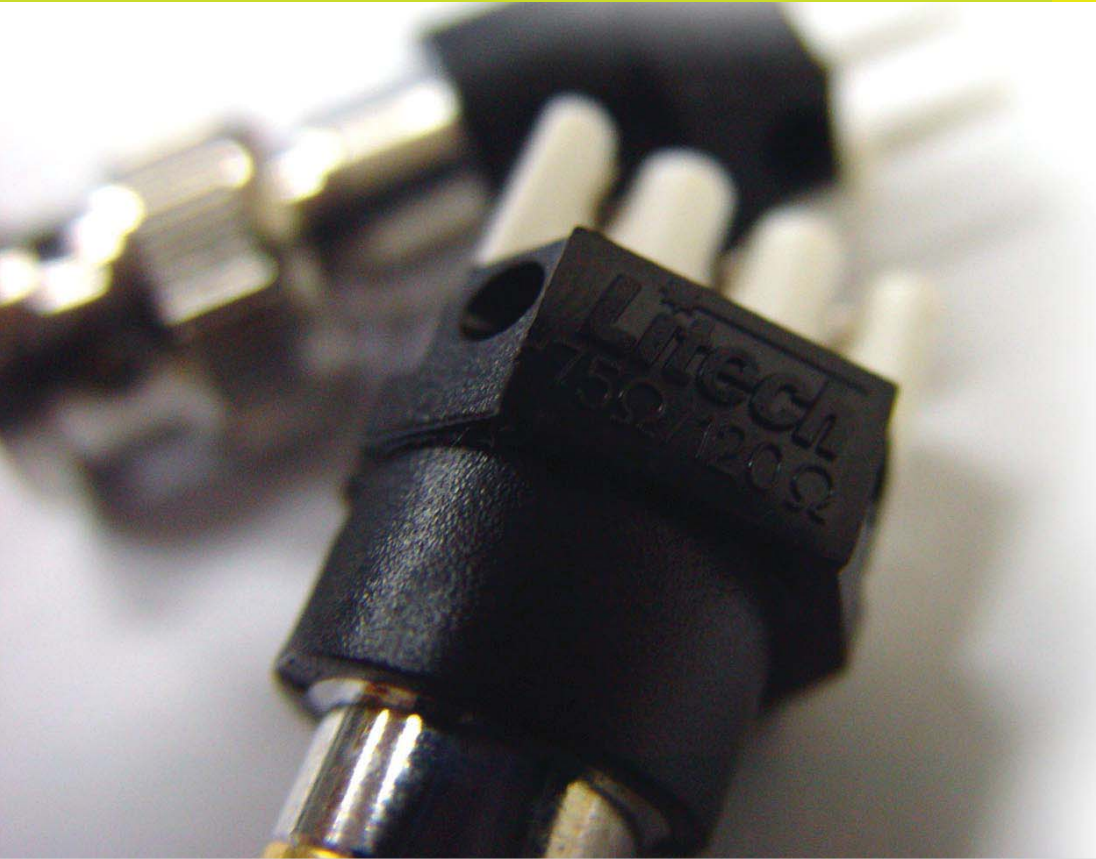




Balun Solutions



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LITECH introduces its range of twisted pair to coaxial BALUNS that are available with variety connector interface. These BALUNS are designed for ITU_T G.703 applications to provide a reliable and robust yet cost effective conversion between unbalanced signal (75-Ohm Coax) and balanced signal (120-Ohm twisted pair). Typical application for BALUNS can be seen at Digital Distribution Frame (DDF) jumper reconfiguration with 120-Ohm. Here the BALUNS will be applied at the DDF for the unbalanced signal from coaxial cable (connected to a 75-Ohm transmission system) to convert to balanced signal allowing arbitrary interconnections within the 120-Ohm Digital Equipment. The practice of transmitting signals over a twisted pair cable shows the signal and return path have similar geometry. In according to this, fields generated in the two lines will tend to cancel the emissions and ground currents theoretically. Thus an improved signal-to-noise ratio (SNR), cross talk and ground bounce balances the signal transmission. These characteristics are valuable in wide bandwidth and high fidelity systems for providing data rates with Quality of Service.

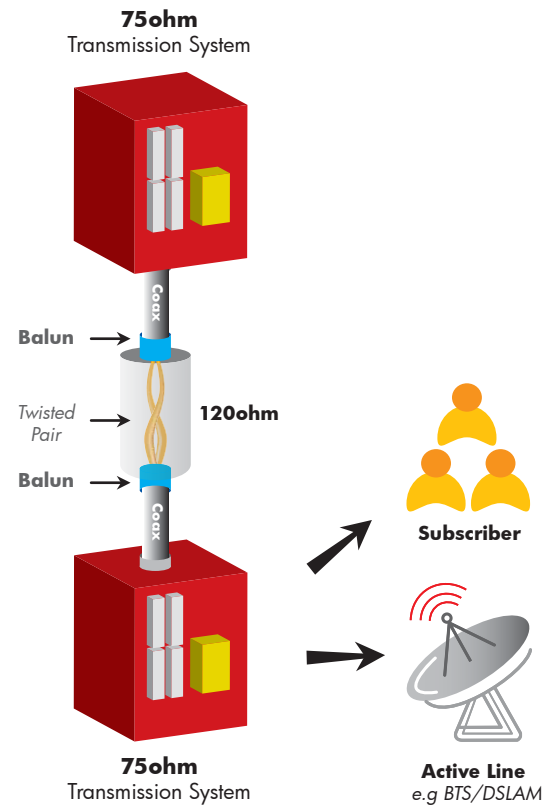
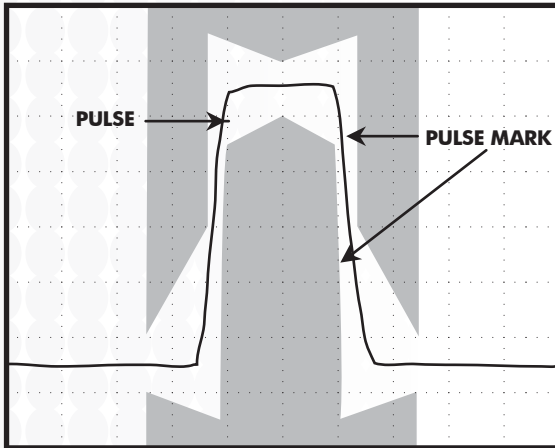


Figure 1
Baluns: Used to interface between 75ohm coaxial & 120ohm twisted pair

Transmission Signal Specification Of Baluns With 2 – 8 – 34 Mbps Data Rate

In the telecommunication industry, for a piece of equipment to function accurately with existing telecommunication system, it has to adhere to certain application dependent specifications. Since BALUNS are used in transmitting signals, the measured signal should fit within the pulse mark. Pulse mark is a predefined template as specified by standards ITU G.703 and ANSI T1.102-1993. The quality of the transmission signal for both E1 & E3 network are predefined by the pulse shape measurement capability as shown in the figure below.

E1 Pulse Shape specifications



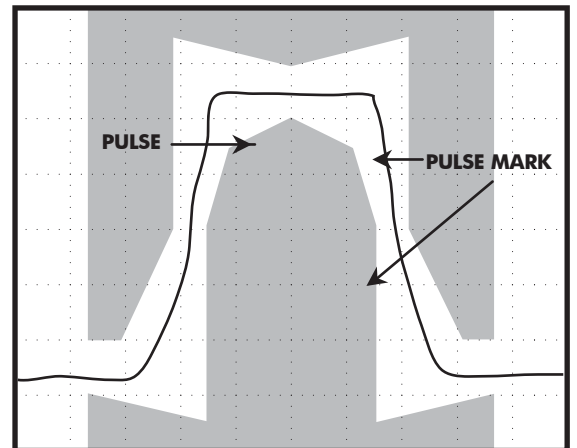
Line rate	2.048Mbps	
Medium	Coaxial Pair	Twisted Pair
Test Load Impedance	75-Ohms \pm 5%	120-Ohms \pm 5%
Pulse Amplitude	2.37 V \pm 10%	3.0 V \pm 10%
Pulse Shape	Every pulse must fit within the pulse mask as per figure below	

TABLE 1: E1 Pulse Shape specifications

E3 Pulse Shape specifications

Line rate	34.368 Mbps
Medium	Coaxial Pair (bi-direction)
Test Load Impedance	75-Ohms \pm 5%
Pulse Amplitude	1.0 V \pm 10%
Pulse Shape	Every pulse must fit within the pulse mask as per figure below

TABLE 2: E3 Pulse Shape specifications



Features

- Convert G.703 signals from coax to twisted-pair cable.
- Resolves impedance miss-match between 75-Ohm Twisted Pair (Equipment/Cabling) and 120-Ohm Coaxial (Equipment/Cabling)
- Feature low insertion loss to fully meet the ITU-T G.703 standard.
- Compact, light weight and easy to install thus providing high density during installation
- Multitude of Industrial Standard coaxial connections* types available
- No AC/DC power required as it operational within the interface
- Industrial Standard IDC punch down for Krone type or 110 punch tool.

Technical Specification

Material, Mechanical and Electrical Specification

Insertion loss	2 Mbit/s : < 0.2dB
	8 Mbit/s : < 0.3 dB
Return loss	2 Mbit/s : < -29 dB
	8 Mbit/s : < -22 dB
Crosstalk	< -80 dB (0.1 MHz to 12 MHz)
Coaxial	Contact - Beryllium Copper
	Insulator - Teflon Durability - > 500 matings
IDC	Contact - Phosphor Bronze
	Durability - > 200 Insertion
	Conductor Gauge : 0.4mm to 0.65mm
	Tool : Krone Type Insertion Tool or 110 Punch Tool

Ordering Information

Part Number	Description
LTBL-IDC-1SM-3P	Balun 1.6/5.6 Straight Male to IDC 3 Pole
LTBL-IDC-1SF-3P	Balun 1.6/5.6 Straight Female to IDC 3 Pole
LTBL-IDC-1LM-3P	Balun 1.6/5.6 Right Angle Male to IDC 3 Pole
LTBL-IDC-1LF-3P	Balun 1.6/5.6 Right Angle Female to IDC 3 Pole
LTBL-IDC-3SM-3P	Balun BNC Straight Male to IDC 3 Pole
LTBL-IDC-3SF-3P	Balun BNC Straight Female to IDC 3 Pole
LTBL-IDC-3LM-3P	Balun BNC Right Angle Male to IDC 3 Pole
LTBL-IDC-3LF-3P	Balun BNC Right Angle Female to IDC 3 Pole

Advantages

- Convert between 75 Ohm coaxial to 120 Ohm twisted pair
- 2-8 Mbit/s data stream version
- Bi-directional
- No power required
- Compact and light weight
- Easy to install
- Variety for connector interface and design
- IDC punch down for krone type or 110 punch tool



Litech Litech Litech Litech Litech Litech Litech Litech Litech Litech

Litech



Technical Specification

Material, Mechanical and Electrical Specification

Insertion loss	2 Mbit/s : < 0.2dB
Return loss	8 Mbit/s : < 0.3 dB 2 Mbit/s : < -29 dB
Crosstalk	8 Mbit/s : < -22 dB < -80 dB (0.1 MHz to 12 MHz)
Coaxial	Contact - Beryllium Copper
IDC	Insulator - Teflon Durability - > 500 matings Contact - Phosphor Bronze Durability - > 20 Insertion Conductor Gauge : Type A : 0.32 - 0.40mm Standard : 0.50 - 0.60mm

Ordering Information

Part Number	Description
LTBL-IDC-1SM-MINI	1.6/5.6 Straight Male to IDC Mini Balun
LTBL-IDC-1SF-MINI	1.6/5.6 Straight Female to IDC Mini Balun
LTBL-IDC-3SM-MINI	BNC Straight Male to IDC Mini Balun
LTBL-IDC-3SF-MINI	BNC Straight Female to IDC Mini Balun
LTBL-IDC-2SM-MINI	1.0/2.3 Straight Male to IDC Mini Balun
LTBL-IDC-2SF-MINI	1.0/2.3 Straight Female to IDC Mini Balun

Advantages

- Convert betw d pair
- 2-8 Mbit/s data stream version
- Bi-directional
- No power required
- Compact and light weight
- Easy to install
- Variety for connector interface and design
- Toolless type IDC termination

Features

- Convert G.703 signals from coax to twisted-pair cable.
- Resolves impedance miss-match between 75-Ohm Twisted Pair (Equipment/Cabling) and 120-Ohm Coaxial (Equipment/Cabling)
- Feature low insertion loss to fully meet the ITU-T G.703 standard.
- Compact, light weight and easy to install thus providing high density during installation
- A multitude of Industrial Standard coaxial connections* types available
- Standard One Year Manufacturer Warranty Included
- No AC/DC power required as it operational within the interface
- Two-pin wire-wrap BALUNS are compatible with industrial standard wire wrapping tools.



Technical Specification

Material, Mechanical and Electrical Specification	
Insertion loss	2 Mbit/s : < 0.2dB
	8 Mbit/s : < 0.3 dB
Return loss	2 Mbit/s : < -29 dB
	8 Mbit/s : < -22 dB
Crosstalk	< -80 dB (0.1 MHz to 12 MHz)
Coaxial	Contact - Beryllium Copper
	Insulator - Taflon
	Durability - > 500 matings
Wire Wrap	Contact - Phosphor Bronze
	Plating - Gold Plated

Ordering Information

Part Number	Description
LTBL-IDC-1SM-W2P	Balun 1.6/5.6 Straight Male to Wire Wrap
LTBL-IDC-1SF-W2P	Balun 1.6/5.6 Straight Female to Wire Wrap
LTBL-IDC-3SM-W2P	Balun BNC Straight Male to Wire Wrap
LTBL-IDC-4SM-W2P	Balun BNC Straight Female to Wire Wrap
LTBL-IDC-3SF-W2P	Balun BT43 Straight Male to Wire Wrap
LTBL-IDC-4SF-W2P	Balun BT43 Straight Female to Wire Wrap

Advantages

- Convert between 75 Ohm coaxial to 120 Ohm twisted pair
- 2-8-34 Mbit/s data stream version
- Bi-directional
- No power required
- Compact and light weight
- Easy to install
- Variety for connector interface and design



Technical Specification

Material, Mechanical and Electrical Specification

Insertion loss	2 Mbit/s : < 0.2dB
	8 Mbit/s : < 0.3 dB
	34 Mbit/s : < 0.8dB
Return loss	2 Mbit/s : < -29 dB
	8 Mbit/s : < -22 dB
	32 Mbit/s : < -15 dB
Crosstalk	< -80 dB
Coaxial	Contact - Beryllium Copper
	Insulator - Taflon
	Durability - > 500 matings
RJ45	Contact - Copper Alloy - Gold Plating
	Durability - > 200 Cycles

Ordering Information

Part Number	Description
LTBL-BOX3-3SF-45F	Coaxial Balun Box-Panel Mount Double BNC Female to RJ45
LTBL-BOX2-3SF-45F	Coaxial Balun Box Double BNC Female to RJ45
LTBL-BOX-3SM-45F	Coaxial Balun Box BNC Male to RJ45
LTBL-PGT2-3SM-45F	Coaxial Balun Pigtail Double BNC Male to RJ45

Advantages

- Convert between 75 Ohm coaxial to 120 Ohm twisted pair
- 2-8-34 Mbit/s data stream version
- Bi-directional
- No power required
- Compact and light weight
- Easy to install
- Variety for connector interface and design

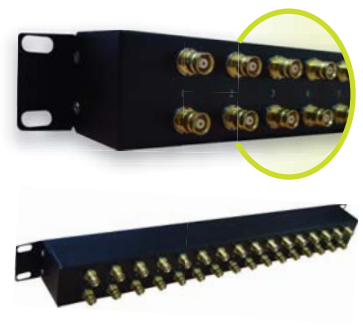
PN SERIES



Coaxial Balun Panel 19" 32 Port BNC Female (Front) To RJ45 Female (Front)
LTBL-PN32-3FF-45FF



Coaxial Balun Panel 19" 48 Port BNC Female (Front) Dual Telco Plug 50 pin (Back)
LTBL-PN48-3FF-2T40



Coaxial Balun Panel 19" 32 Port 1.6/5.6 Female (Back) to RJ45 Female (Front)
LTBL-PN32-1FB-45FF

Features

- Convert between 75 Ohm coaxial to 120 Ohm twisted pair
- Exceed ITU-G703 transmissions requirement
- 2-8 Mbit/s data stream version
- Bi-directional
- No power required
- Compact design
- 19", 21" or 23" mounting available
- Variety of connector interface, include BNC, 1.6/5.6, BT43, SMB, 1.0/2.3



Coaxial Balun Panel 19" 32 Port BNC Female (Front) to Wire Wrap (Back)
LTBL-PN32-3FF-WB

PM SERIES

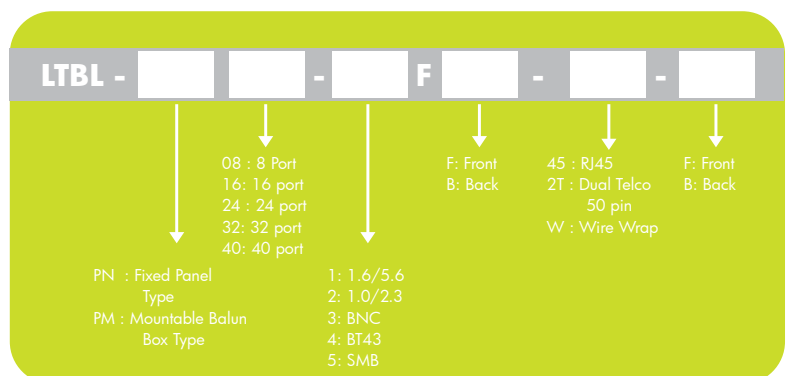


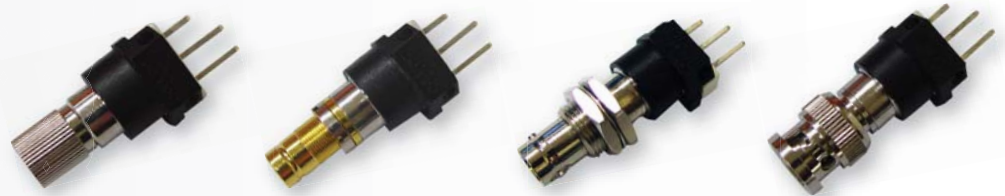
Balun Panel 19" 32 Port BNC Female (Front) to RJ45 Female (Back)
LTBL-PM32-3FF-45FB

Technical Specification

Material, Mechanical and Electrical Specification		
Insertion loss	2 Mbit/s : < 0.2dB 8 Mbit/s : < 0.3 dB	
Return loss	2 Mbit/s : < -29 dB	8 Mbit/s : < -22 dB
Crosstalk		
Coaxial Connector	< -80 dB	
	Contact - Beryllium Copper	
	Insulator - Teflon	
RJ45	Durability - > 500 matings	
	Contact - Copper Alloy - Gold Plating	

Ordering Information





Features

- Convert G.703 signals from coax to twisted-pair cable.
- Resolves impedance miss-match between 75-Ohm Twisted Pair (Equipment/Cabling) and 120-Ohm Coaxial (Equipment/Cabling)
- Feature low insertion loss to fully meet the ITU-T G.703 standard.
- Compact, light weight and easy to install thus providing high density during installation
- A multitude of Industrial Standard coaxial connections* types available : 1.0/2.3, 1.6/5.6, BNC, SMB and HDC 43
- No AC/DC power required as it operational within the interface
- Two-pin wire-wrap BALUNS are compatible with industrial standard wire wrapping tools.*

Technical Specification

Material, Mechanical and Electrical Specification	
Insertion loss	2 Mbit/s : < 0.2dB
	8 Mbit/s : < 0.3 dB
Return loss	2 Mbit/s : < -29 dB
	8 Mbit/s : < -22 dB
Crosstalk	< -80 dB (0.1 MHz to 12 MHz)
	Coaxial
Wire Wrap	Contact - Beryllium Copper
	Insulator - Taflon
	Durability - > 500 matings
Wire Wrap	Contact - Brass
	Plating - Silver Plating

Ordering Information

Material, Mechanical and Electrical Specification	
LTBL-IDC-1SM-W3P	Balun 1.6/5.6 Straight Male to Wire Wrap 3 Pole
LTBL-IDC-1SF-W3P	Balun 1.6/5.6 Straight Female to Wire Wrap 3 Pole
LTBL-IDC-3SM-W3P	Balun BNC Straight Male to Wire Wrap 3 Pole
LTBL-IDC-3SF-W3P	Balun BNC Straight Female to Wire Wrap 3 Pole
LTBL-IDC-4SM-W3P	Balun BT43 Straight Male to Wire Wrap 3 Pole
LTBL-IDC-4SF-W3P	Balun BT43 Straight Female to Wire Wrap 3 Pole

Wrapping tool



WG601
AC-Powered Wire
Wrapping Gun

*Ideal for high
volume production*



WG100
Manual Wrapping
Guns - Aluminum

*Every squeeze of the
trigger the bit turns
10 revolutions*



WG500
Battery Wire Wrap /
Unwrap Tool

*Cordless &
high speed*

Coaxial Connector



**1.0/2.3 Straight Male
Crimp (Type B)**
LTCN-201BM-XX



**1.6/5.6 Male-Male
U Link**
LTCN-107-MM



**BNC Straight
Male Crimp**
LTCN-301M-XX



**BT43 Straight
Female Crimp**
LTCN-402F-XX



**SMB Straight Male
Crimp (Type B)**
LTCN-501BM-XX

Cable Management Guide



1U - Metal
LTSS-CMG-01-M



1U - Plastic
LTSS-CMG-01-P

19" Coaxial Panel



**32 Port BNC
(Fixed Type)**
LTCF-B32-P



**32 Port Flip
Down Type**
LTCF-B32-FD

Tools



**Litech Krone Type
Insertion Tool**
LTZF-PR-TL-KR



Krone Insertion Tool
LTSS-TL-TEL-KRONE



Coaxial Tool Kit
LTCO-TLBX-CP

120Ω Jumper Cables



2 Pair Screened
LTSS-FT-120-02



4 Pair Screened
LTSS-FT-120-04



8 Pair Screened
LTSS-FT-120-08



16 Pair Screened
LTSS-FT-120-16



2 Pair Shielded
LTSS-SFT-120-02



4 Pair Shielded
LTSS-SFT-120-04



8 Pair Shielded
LTSS-SFT-120-08



16 Pair Shielded
LTSS-SFT-120-16

