Lynx® Broadband

Innovative Technology .... Exceptional Quality!

HD Television and Internet TV, data, or VoIP on a shared Cat 5/6 cable

The Lynx® Television and Data Network

- ⬭ **Delivers RF television and other services on a shared Cat 5/6 cable. The other services could be internet TV, or IPTV/streaming video, or data, or VoIP, or data and VoIP.**

- ⬭ **Distributes up to 640 digital channels or 210 HD channels of cable TV or SMATV**

- ⬭ **Simplifies cable requirements**

- ⬭ **Enables simultaneous deployment of both RF and IP technologies**

- ⬭ **Delivers the RF television without using any bandwidth on the network**

- ⬭ **Reduces costs by sharing the cable**

- ⬭ **Improves reliability**

The Lynx Television and Data Network simultaneously delivers up to 210 HD channels, 640 digital channels, or 134 analog channels on pair 4 of a Cat 5/6 cable. Pairs 2 and 3 deliver 100BASE-T Ethernet which can transport internet TV, IPTV/streaming video, data, VoIP, or data and VoIP.

This technology provides access to conventional RF television as well as internet TV or other internet services - all on a single cable!

The Lynx Television and Data Hub uses RF baluns to convert coaxial TV signals into balanced signals that travel on pair 4 of the UTP cable. Internet TV, streaming video, data, VoIP, or data and VoIP enter the back of the hub via RJ-45 jacks, and pass through to the front on pairs 2 and 3.

At the point of use a Lynx converter changes the television signals back to coaxial signals accessible via an F connector. The internet TV, streaming video, data, or data and VoIP signals are accessible via RJ-45 jacks.

Unlike internet TV and streaming video, the RF television signals do not travel on the data network and do not use any bandwidth on the network itself. They simply use the copper pathway in the last 100 meters of UTP cable.

Delivering multiple services on one twisted pair cable makes a structured cabling network more powerful and cost effective than ever. It eliminates the need to install and maintain both twisted pair and coaxial cable.

The Lynx Network increases system flexibility because new TVs can be added in any location where Cat 5/6 is available.

The homerun cabling is very reliable because unlike coax there are no taps and splitters between the wiring closet and the TV.

A patented RF balun is the centerpiece of the Lynx design. A pair of send/receive baluns delivers a clean RF signal to each TV.

The Lynx equipment is bi-directional and does not require power. External amplifiers compensate for cable and insertion losses.

Applications

The Lynx® Television and Data Network is designed for hospital, hotel, school, university, corporate, government, trading floor, MDU, and residential applications.

Internet TV or streaming video application
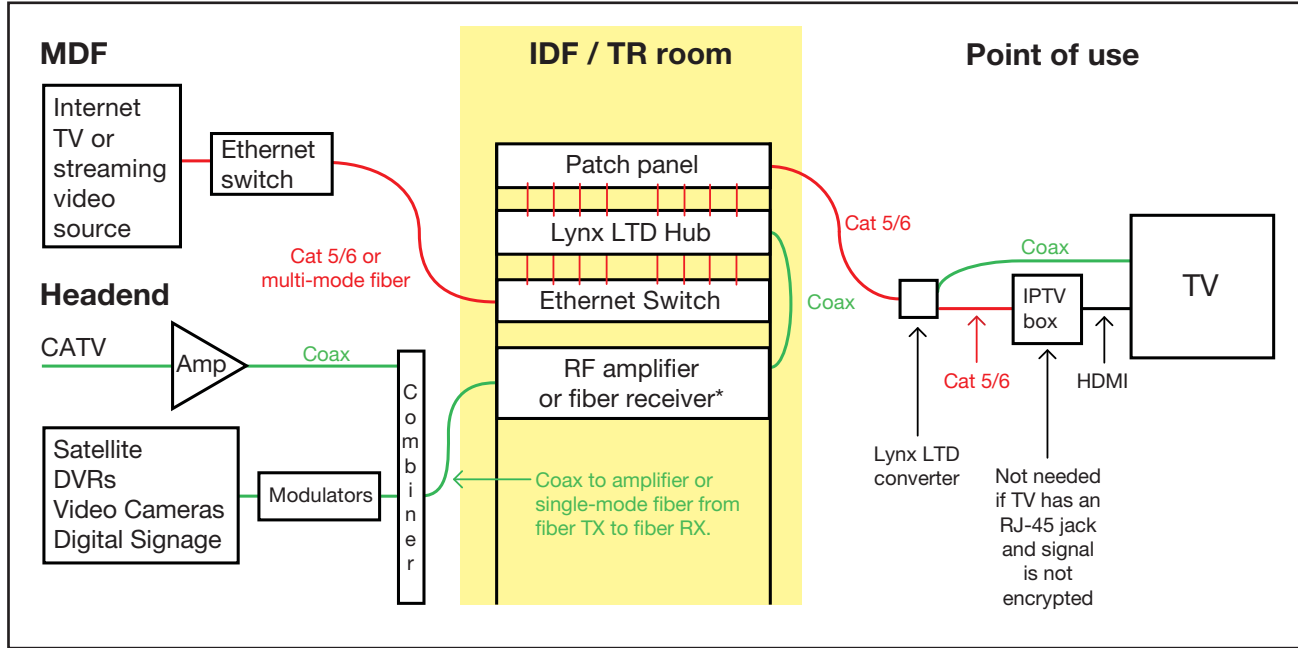
* One amplifier typically supports up to three 8 port hubs (24 TVs). See diagram on page 4. The standard amp offered by Lynx is not rack mountable, but rack mounted amps can be purchased from others. Fiber receivers support one, two, or three 8 port hubs depending on the output of the receiver and the distances and frequencies for the specific application.

Television, Data and VoIP application
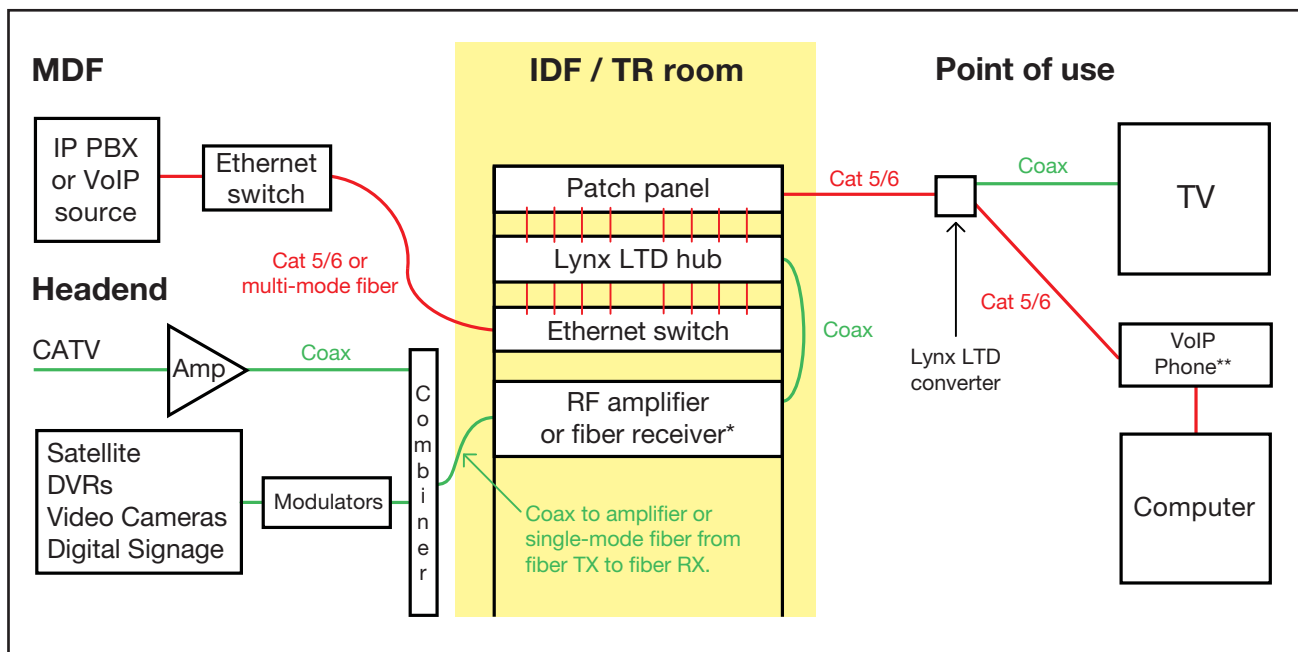
* One amplifier typically supports up to three 8 port hubs (24 TVs). See diagram on page 4. The standard amp offered by Lynx is not rack mountable, but rack mounted amps can be purchased from others. Fiber receivers support one, two, or three 8 port hubs depending on the output of the receiver and the distances and frequencies for the specific application.

**The VoIP phone can be powered by POE that is 802.3af compliant and operates at 100 Mbps.

16 Port Television and Data Hub

Back and front views of the 16 port television and data hub.

The back view (top) shows an F connector and the RJ-45 ports (where internet TV, IPTV, data, or VoIP enters the hub).

The front view (bottom) shows the RJ-45 ports where the combined television and internet TV, IPTV, data, or VoIP exit the hub.

LTD Converter Alternatives

A breakout converter processes the signal from an adjacent RJ-45 data jack

A wallplate FRJ with an F connector and RJ-45 jack on the front and a punchdown on back

Side and back views of the Decora insert for the wallplate FRJ

Specifications

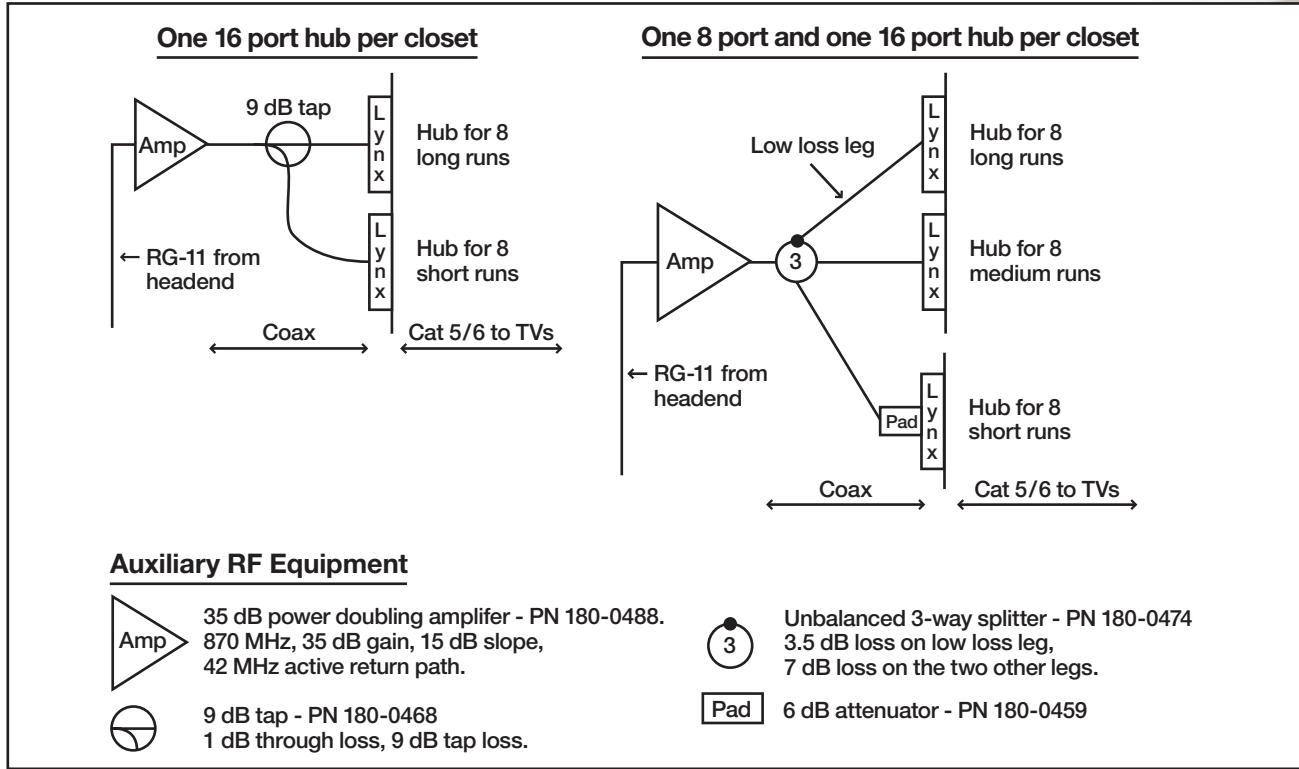Channels and frequencies: 134 analog or 210 HD channels, 5 to 860 Mhz

Distance capabilities (assumes 45 dBmV to the hub for HD and digital channels and 49 dBmV to the hub for analog channels)	Meters	Feet	Digital channels (1 MHz)	HD channels (3 MHz)	Analog channels (6 MHz)
	90	295	360	120	78
	80	260	470	160	99
	67	220	640	210	134

For a free interactive design model that calculates cable and insertion losses and predicts signal strength at the TV e-mail info@lynxbroadband.com.

Hub insertion loss	<11 dB @ 5 MHz; <15 dB @ 860 MHz
Converter insertion loss	<2 dB @ 5 MHz; <4 dB @ 860 MHz
Impedance	75 ohm unbalanced to 100 ohm balanced
Television capabilities	QAM-256, QAM-64, QAM-16, ATSC, NTSC, and PAL
Internet TV and IPTV capabilities	Delivers MPEG-4 and MPEG-2 over the last 100 meters of the data network
Ethernet capabilities	100BASE-T
Patents	U.S. patents 5,495,212; 5,633,614; 6,150,896

System Design Suggestions

One amplifier usually supports up to 24 television drops from a given wiring closet, as shown at right below. (Internet TV / streaming video / data connections are not shown in order to simplify the diagrams.)

One 16 port hub per closet

9 dB tap

Amp

Lynx — Hub for 8 long runs

Lynx — Hub for 8 short runs

← RG-11 from headend

Coax — Cat 5/6 to TVs

One 8 port and one 16 port hub per closet

Low loss leg

Amp — 3

Lynx — Hub for 8 long runs

Lynx — Hub for 8 medium runs

Pad — Lynx — Hub for 8 short runs

← RG-11 from headend

Coax — Cat 5/6 to TVs

Auxiliary RF Equipment

Amp — 35 dB power doubling amplifer - PN 180-0488. 870 MHz, 35 dB gain, 15 dB slope, 42 MHz active return path.

9 dB tap - PN 180-0468. 1 dB through loss, 9 dB tap loss.

3 — Unbalanced 3-way splitter - PN 180-0474. 3.5 dB loss on low loss leg, 7 dB loss on the two other legs.

Pad — 6 dB attenuator - PN 180-0459

Equipment Options

		Part Number	Width	Height	Depth	Emission Testing
LTD Hub with rackmount plate						
16 port LTD hub[1]	1U	040-0119[1]	19.0"	1.75"	4.5"	FCC Part 15 Class A
8 port LTD hub[1]	1U	040-0118[1]	19.0"	1.75"	4.5"	FCC Part 15 Class A
LTD Hub without rackmount (mounts on wall)						
8 port LTD hub[1]		040-0117[1]	6.2"	1.7"	4.5"	FCC Part 15 Class A
LTD Converters						
Breakout converter		040-0114	2.1"	1.1"	2.1"	FCC Part 15 Class A
Wallplate FRJ (light almond Decora)		040-0233	Fits in a light almond wallplate ring (PN 809-1663)			
Wallplate FRJ (white Decora)		040-0238	Fits in a white wallplate ring (PN 809-1678)			
Port terminators[2]		**040-0069**	.5"	.3"	.9"	NA
Rackmount plates						
16 port (two 8s)		809-1389	19.0"	1.75"	.1"	NA
Auxiliary equipment					**Other Information**	
Amplifier[1] 35 dB gain, 870 MHz		180-0488	7.0"	3.9"	10.6"	15 dB slope, 42 MHz active return path
Unbalanced 3-way splitter		180-0474	3.5"	.62"	2.25"	
9 dB tap		180-0468	2.3"	.62"	2.5"	
6 dB attenuator		180-0459	.5"	.5"	1.5"	

1. **Amplification is usually needed upstream of each hub.** *One amplifier usually serves up to 24 drops in each wiring closet. See diagrams above.*
2. **Port terminators are required for all unused ports** *in order to prevent electromagnetic emissions. An eight port hub serving six TVs has two unused ports that must be terminated.*

ISO 9001 Certified Quality System

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