

Bosch Communications Systems Telex Communications, Inc.

RadioCom™, Audiocom® and Headsets – Intercom Systems

Mark Gubser - Product Manager
Telex RadioCom™ and Audiocom® Intercom Products

Security Systems

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Business Unit Communication Systems



BTR-24 and Telex Legacy™

- ✓ Background
- ✓ System Features
- ✓ BTR-24 <VS> Telex Legacy™
- ✓ Operation
- ✓ Price Sheet Review
- ✓ Telex <VS> The Competition

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BACKGROUND

- **Technology initially developed as a Voice Translation Listening Device**
 - ✓ 1000+ Radio Receiver's w/ One Access Point (20,000 seat auditorium)
 - ✓ 60 Selectable Audio Channels Translating 59 Languages simultaneously
 - ✓ Technology adapted for full duplex intercom applications – 3 Audio Channels
 - ✓ IEEE 802.11b "WiFi" standard
 - ✓ **Introduced as Telex Legacy™ January 2006 to High School Football Coaches**



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BTR-24 and Telex Legacy™ - SYSTEM FEATURES

- License Free Operation
- Full Duplex Wireless Intercom System
- Easy Setup
- Up to 14 users (10 Beltpacks – full duplex) with one Base Station
- Encrypted audio – 64 Bit DES encryption key
- 3 Audio Channels (Ch 1, Ch 2 & Ch 1+Ch 2)
- Base Station automatically selects clearest RF channel (ClearScan™)
- Easy to read Base Station channel display
- Manual channel selection available
- Button “Lock” selection available
- Base Station and Beltpack utilize rechargeable lithium ion battery packs
- Base Station can be powered from battery pack or wall power supply
- Low battery and charge indicators on Base Station and Beltpack
- End user ability to change encryption key
- Utilizes IEEE 802.11b “WiFi” operating standard
- 2.4 GHz (11 Operating Channels)



XO-1



TR-24

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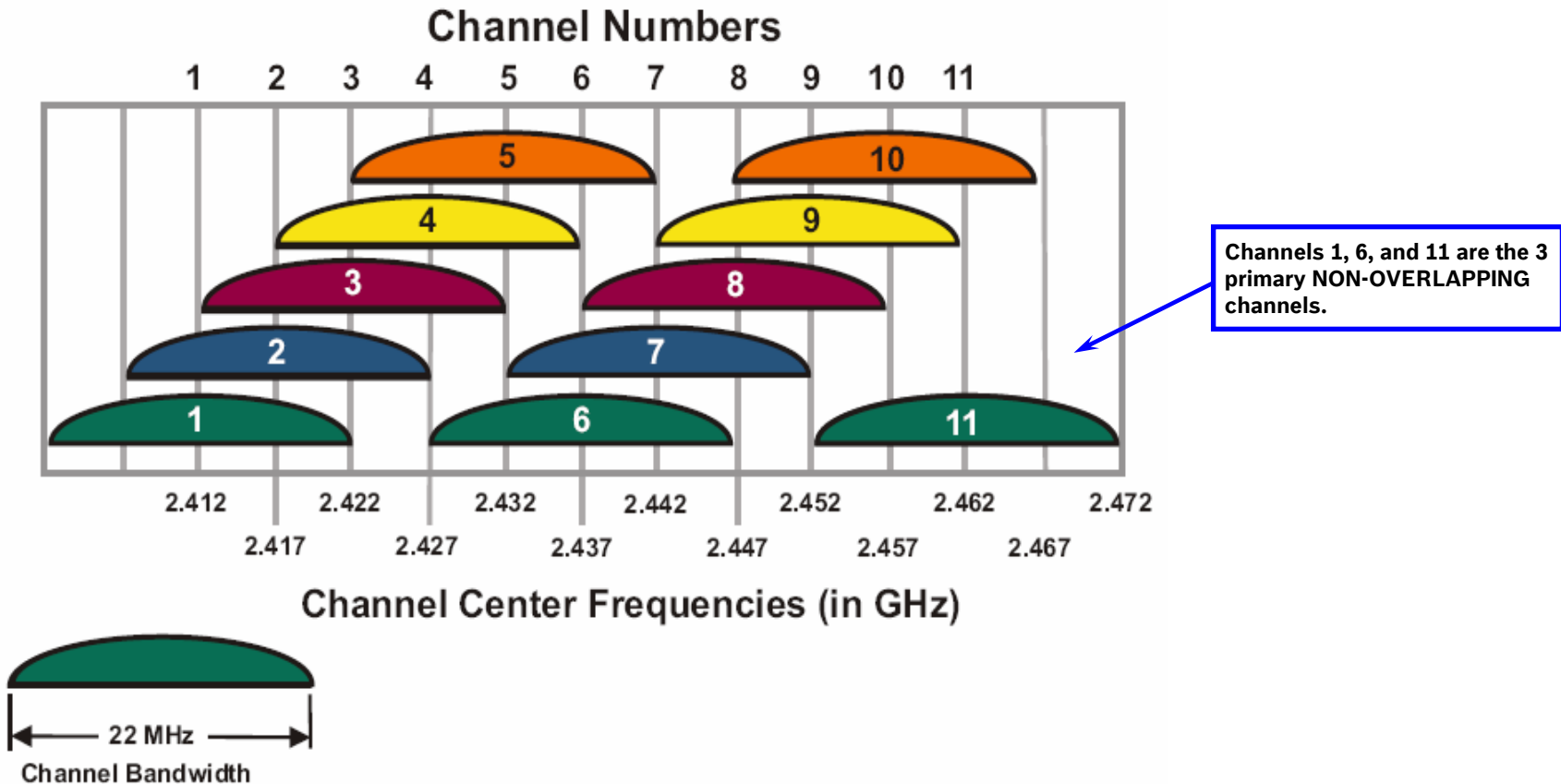
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BTR-24 and Telex Legacy™ - WIRELESS CHANNELS



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FUNDAMENTAL DIFFERENCE

- **BTR-24/TR-24**
 - ✓ Ordered Individually or as 3 Beltpack System (SYS-243)
 - ✓ All beltpacks shipped with same SSID and Encryption Code
 - ✓ Systems easily expandable by adding beltpacks
 - ✓ Priced HIGHER than Telex Legacy™
 - ✓ **INTENDED FOR ALL MARKETS....EXCEPT COACHING**
- **Telex Legacy™**
 - ✓ Ordered as SYSTEMS ONLY (Legacy 3, Legacy 4...Legacy 10)
 - ✓ Systems are programmed with unique SSID Code
 - ✓ Systems can be expanded, but programming information needed by factory (SSID Code and IP Codes from existing system)
 - ✓ **INTENDED FOR COACHING MARKETS....ONLY**



Business Unit Communication Systems

- **TR-24 and XO-1 Beltpacks ARE SIMILAR**

- ✓ Same Beltpack Case
 - ✓ Similar Top Panel/Buttons – Different Color
 - ✓ Similar Functionality – TR-24 has Added Features
 - 1) Local Side Tone Adjustment at Beltpack
 - 2) Talk Button Program to “Momentary Only”
 - 3) TR-24 “REMEMBERS” Last Operational Setting (XO-1 Does Not)
- ⇒ Wireless
 - ⇒ Master Wireless
 - ⇒ Wired



XO-1



TR-24

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- **BTR-24 and XO-AP Base Stations ARE NOT SIMILAR - Mechanically**

- ✓ **BTR-24**

- Rack Mountable
- TNC Antenna Jacks on Back Panel
- Ships with 19" Rack Mount Hardware
- Ships with Wall Mount Hardware
- Ships with 3db Omni Antennas



- ✓ BTR-24 and Telex Legacy™ have Similar Operating Characteristics



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- **BTR-24 and XO-AP Base Stations ARE NOT SIMILAR - Mechanically**
 - ✓ **XO-AP** is not Rack Mountable – Designed for Table Top Use
 - TNC Antenna Jacks are on Top of Unit
 - Top Mount Antenna Stud for Use with Supplied Goose Neck Mount
 - ✓ BTR-24 and Telex Legacy™ have Similar Operating Characteristics



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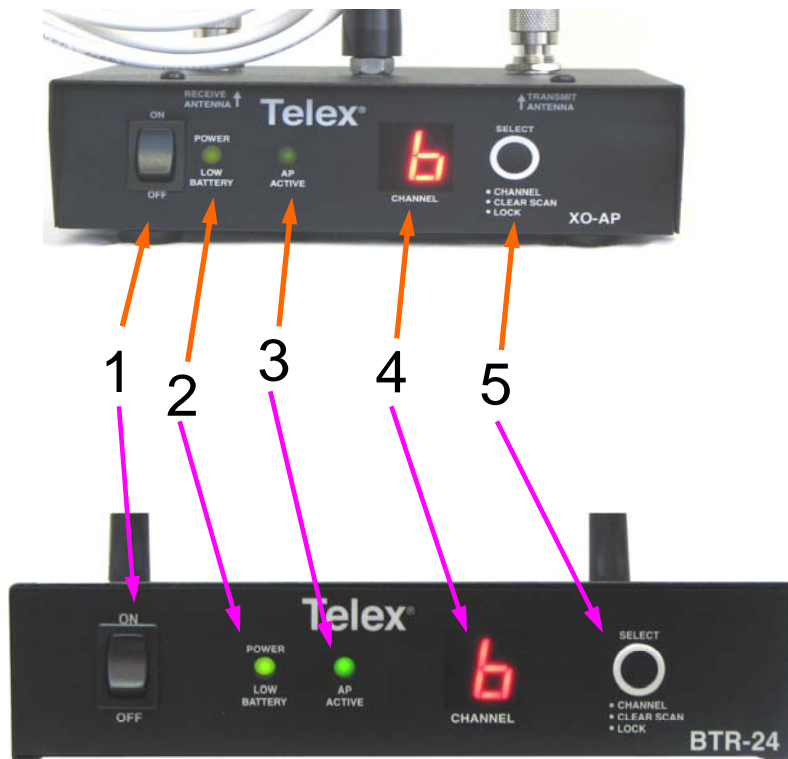
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BTR-24 and XO-AP Base Station Operation



1. Power On/Off Switch
2. Power/Low Battery LED Indicator
 - ✓ **GREEN** – Battery OK (Power ON)
 - ✓ **RED** – Low Battery, Needs Charged
3. AP Active LED Indicator
4. RF Channel LED Display
5. Select Button
 - ✓ **ClearScan**
 - ✓ **Channel Select**
 - ✓ **Lock**

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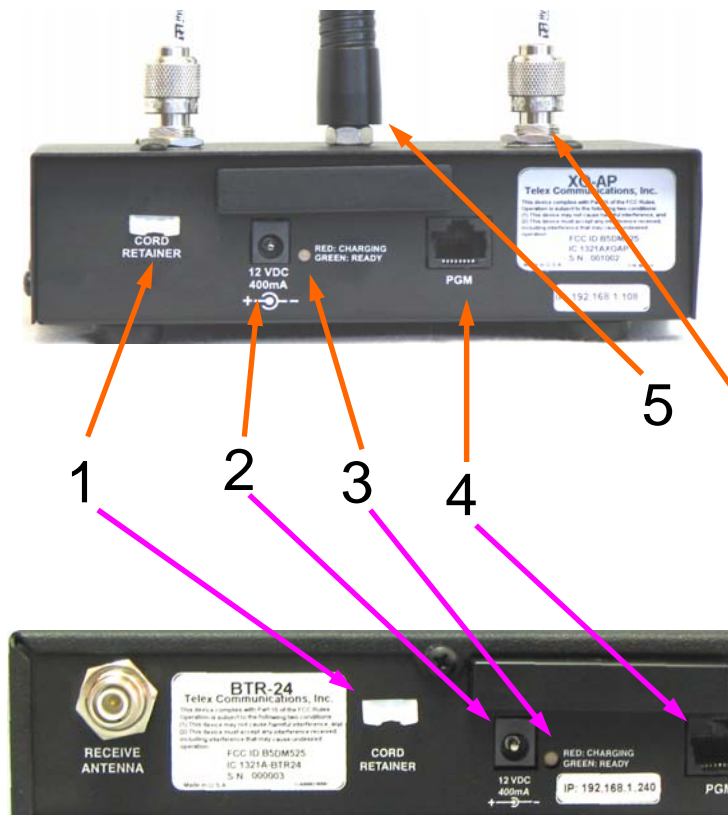
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BTR-24 and XO-AP Base Station Operation



1. Power Cord Retainer
2. Power Input/Charge Jack
3. Charge LED Indicator
 - ✓ **RED** – Battery Charging
 - ✓ **GREEN** – Battery Charged
4. Programming Jack
5. Antenna Mount (**XO-AP** Only)
6. Transmit and Receive TNC Antenna Jacks

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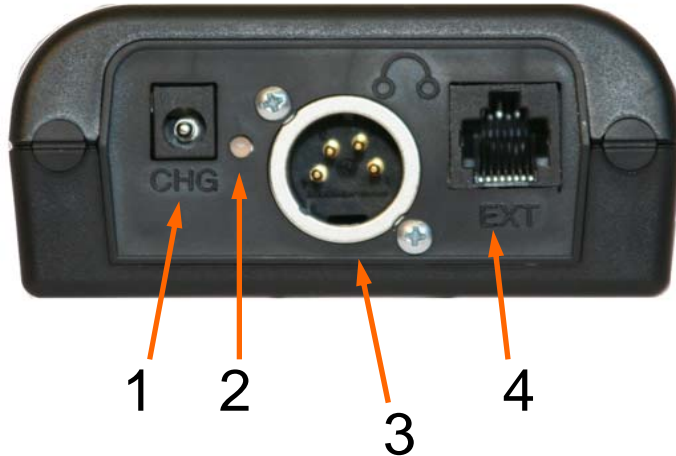
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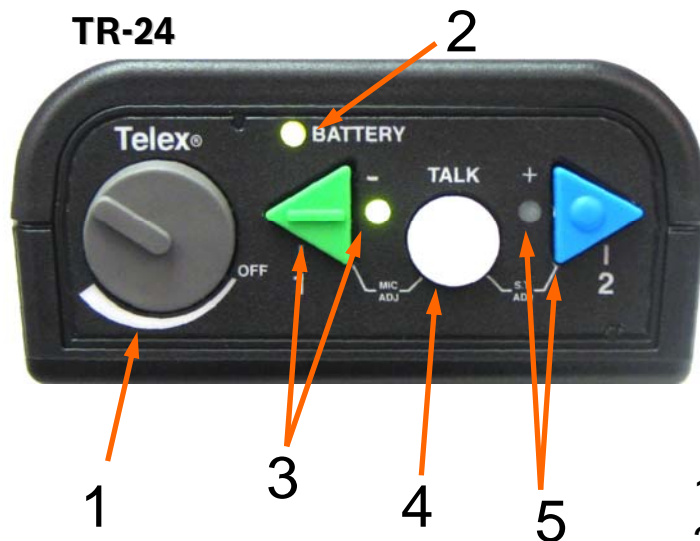
TR-24 and XO-1 Beltpack Operation



1. Battery Charge Jack
2. Battery Charge LED Indicator
 - ✓ **GREEN** – Battery Charged
 - ✓ **RED** – Beltpack Battery Being Charged
3. Headset Connector (Dynamic Mic Only)
 - ✓ Mic Level Adjustment (Mic -)
4. Programming Jack

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TR-24 and XO-1 Beltpack Operation



1. Power On/Off Switch & Volume Control
2. Power/Low Battery LED Indicator
 - ✓ **GREEN** – Battery OK (Power ON)
 - ✓ **RED** – Low Battery, Needs Charged
3. “**GREEN**” (“1” or “O”) Channel Select Button & LED Indicator
4. Talk Button
5. “**Blue/Red**” (“2” or “X”) Channel Select Button & LED Indicator

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TR-24 and XO-1 Beltpack Operation

TR-24



Press and Hold Together for 3 Seconds
>Continue to Press Talk and Adjust Mic Level with Blue or Green Button

XO-1



Press and Hold Together for 3 Seconds
>Continue to Press Talk and Adjust Mic Level with Red or Green Button

⇒ Mic Level Adjust

- Press/Hold **“Talk & Green”** Button for 3 Seconds
- “Mic Adjust” Voice Prompt Heard
- Continue pressing **“Talk”** Button and press **“Green (mic -)”** or **“Blue/Red (mic +)”** to make level changes
- Voice prompts “1-10” heard while making the adjustments

Business Unit Communication Systems

TR-24 and XO-1 Beltpack Operation

TR-24



Press and Hold Together for 3 Seconds
>Continue to Press Talk and Local Side
Tone Level with Blue or Green Button

XO-1



NOT AVAILABLE ON XO-1

⇒ Local Side Tone Level Adjust

- Press/Hold “**Talk & Blue**” Button for 3 Seconds
- “Side Tone Adjust” Voice Prompt Heard
- Continue pressing “**Talk**” Button and press “**Green** (mic -) or “**Blue/Red**” (mic +) to make level changes
- Voice prompts “1-10” heard while making the adjustments

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TR-24 and XO-1 Beltpack Operation

TR-24



Press and Hold Together for 3 Seconds

XO-1



NOT AVAILABLE ON XO-1

⇒ Talk Button set to “Momentary Only”

- Press/Hold “Talk & **Blue** & **Green**” Button for 3 Seconds
- “Momentary” Voice Prompt Heard
- Talk Button will only function when pressed and held
- To change back to “Push to Latch” operation, Press/Hold “Talk & **Blue** & **Green**” Button for 3 Seconds until “Momentary” Voice Prompt Heard

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TR-24 and XO-1 Beltpack Modes of Operation

TR-24



The TR-24 will remember the Operation Mode last set in when turned OFF and back ON.

The XO-1 will always return to "Wireless" mode when turned OFF and back ON.

XO-1



1) "Wireless"

- Normal Mode Of Operation with a Base Station
- Default as shipped from Lincoln

2) "Master Wireless" (Not intended for Telex Legacy™)

- Turns Beltpack into a "roving" Base Station
- Tour Groups

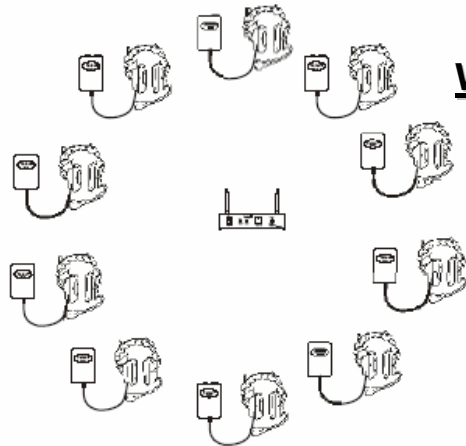
3) "Wired" (Not intended for Telex Legacy™ ... except for Software Rev)

- Turns Radio Card off in Beltpack
- Wired connection to Hub
- Provides Software Rev via "Voice Prompt"

Press and hold button during start up to set Operation Mode

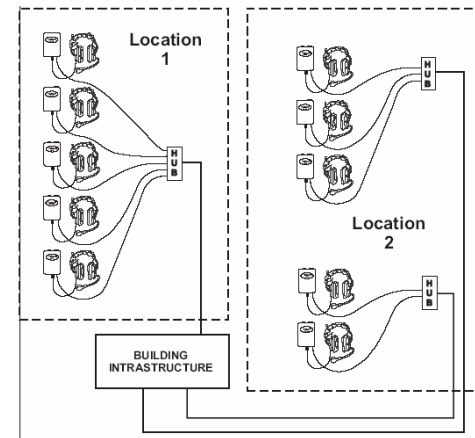
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Modes of Operation & Systems Examples

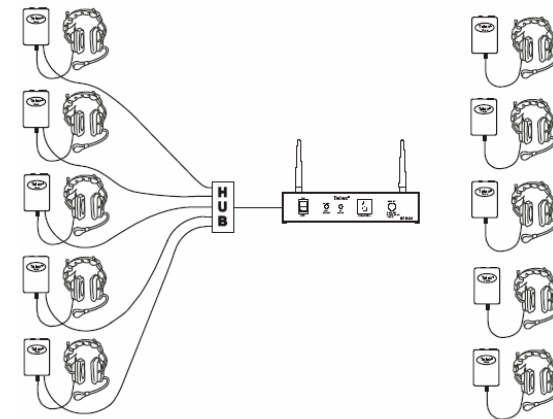
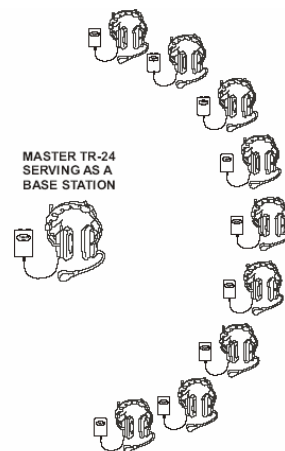


Wireless Mode

Wired Mode



Master Wireless Mode



Wireless and Wired Mode - MIXED

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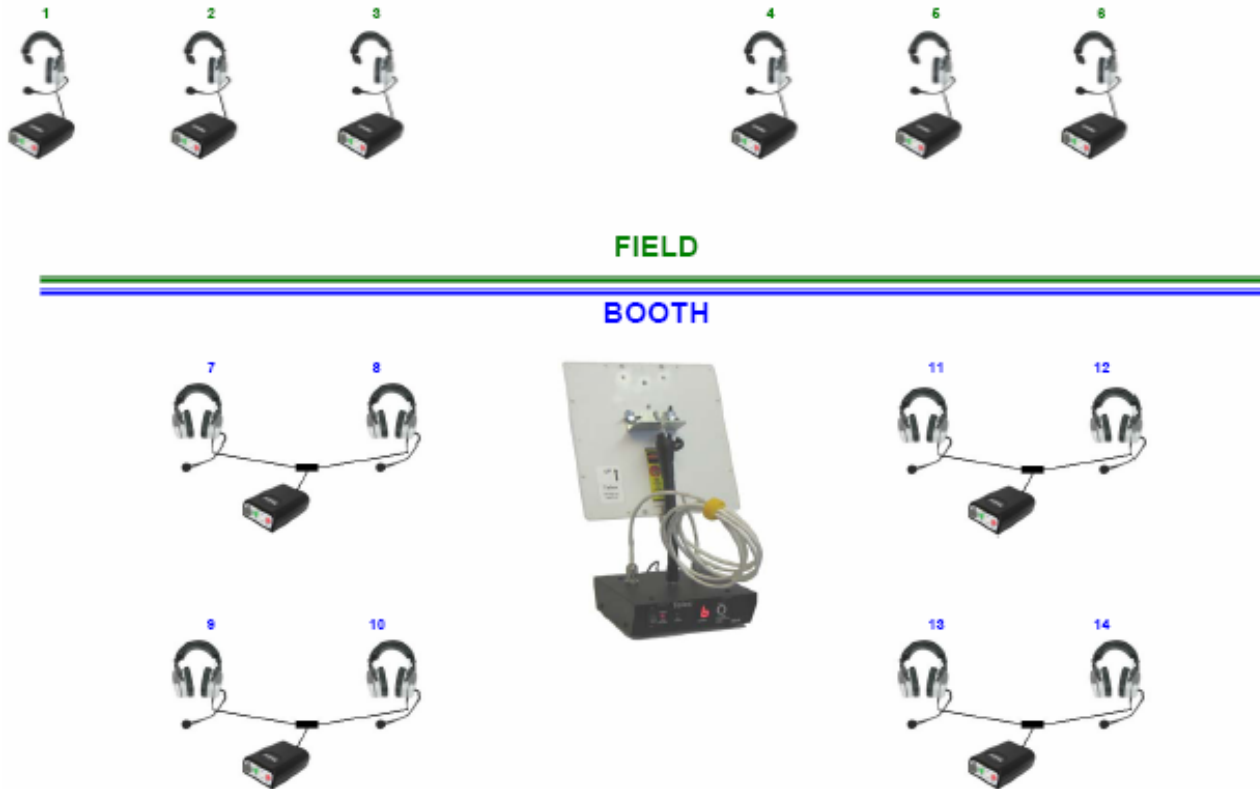


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XO-1 System Configuration

Telex Legacy™ 14 Coach System



Legacy 14 Coach

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Accessories



ANT-FPM

FP Antenna Mount



ANT-FP

11db
Dual Element
Directional



XO-B

Nylon Belt



LG-Y

Headset Y Cable



RA-3

3db Omni

AB-24

RA Antenna
Mount



RA-7

7db Omni

FP-11

11db
Directional



RA-5

5db Omni



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RADIOCOM WIRELESS INTERCOM

2.4 GHz Multi-Channel Wireless Intercom

	Model	Item #	Description
	▶ BTR-24	PRD000060000	2.4 GHz multi-channel wireless Base Station Access Point. Includes omni antennas, built in battery pack, rack mounts and US power supply.
	▶ TR-24	PRD000065000	2.4 GHz multi-channel wireless beltpack with A4M headset connector. Includes built in battery pack and US power supply.
	▶ SYS-243	SYS000007000	2.4 GHz multi-channel wireless beltpack and base station system. System includes carry case, 3 TR-24 beltpacks, BTR-24 base station, omni antennas, rack mounts and US power supply.

2.4 GHz Telex Legacy Coaches Wireless Intercom

	▶ LEGACY 3	301950005	3 Coach Wireless Intercom System, includes XO-AP base station, US power supply, gooseneck antenna mount, dual diversity flat patch antenna (11db), carry case and 3 XO-1 beltpacks with A4M headset connector
	▶ LEGACY 4	301950008	Same as Legacy 3 except 4 XO-1 beltpacks
	▶ LEGACY 5	301950001	Same as Legacy 3 except 5 XO-1 beltpacks
	▶ LEGACY 6	301950007	Same as Legacy 3 except 6 XO-1 beltpacks
	▶ LEGACY 7	301950008	Same as Legacy 3 except 7 XO-1 beltpacks
	▶ LEGACY 8	301950009	Same as Legacy 3 except 8 XO-1 beltpacks
	▶ LEGACY 9	301950010	Same as Legacy 3 except 9 XO-1 beltpacks
	▶ LEGACY 10	301950011	Same as Legacy 3 except 10 XO-1 beltpacks
	▶ LP-XO1	301950002	XO-1 Beltpack and Battery Charger
	▶ LP-XOAP	301950003	XO-AP Base Station and Battery Charger

2.4 GHz Wireless Intercom Accessories

	▶ RA-3	302054003	Omni Antenna (3db), with TNC reverse polarity connector
	▶ RA-7	302054004	Omni Antenna (7db), with TNC reverse polarity connector
	▶ RA-5	302054005	Omni Antenna (5db), magnetic mount with TNC reverse polarity connector
	▶ FP-11	302054006	Flat Panel Directional Antenna (11db) with TNC reverse polarity connector
	▶ ANT-FP	302054001	Dual Diversity, Flat Patch Antenna with Dual Coax, 11dBi
	▶ ANT-FPM	302054000	Metal Tilt and Swivel Antenna Mounting Bracket for ANT-FP Antenna. Use for permanent mounting of ANT-FP Flat Panel Antenna.
	▶ RPT-3	302054007	3 FT Coax with TNC reverse polarity connector
	▶ RPT-10	302054008	10ft Coax with TNC reverse polarity connector
	▶ TNC-RP	302054009	TNC reverse polarity coupler (jack to jack)
	▶ CC-24	302054010	Carry case for BTR-24 System
	▶ LP-CC	550257	Carry case for Telex Legacy System, includes dual element flat panel antenna and gooseneck mount
	▶ LG-Y	302054012	Headset Y cable for Telex Legacy
	▶ LG-PS	532091000	US power supply for BTR-24, TR-24 and Telex Legacy
	▶ XOB	302054002	Nylon Belt, Adjustable

AB-24 302054013 AB-24 Antenna Bracket w/ 6ft Coax

Price Sheet Review

Telex Legacy™ System ships complete with carry case, base station, beltpacks, power supplies/chargers, antenna and antenna mount.

BTR-24/TR-24 can be order as a 3 Beltpack System (SYS-243) or as individual components.

The **BTR-24** ships with 19" rack hardware, wall mount hardware, power supply/charger and 3db omni antennas (RA-3).

The **SYS-243** System ships complete with carry case, base station, 3 beltpacks, power supplies/chargers and 3db omni antennas.

The **TR-24** Beltpack ships with a power supply/charger.

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FEB-16-2007
INFORMATION SUBJECT TO CHANGE

BTR-24 vs Telex Legacy

BTR-24/TR-24	TELEX LEGACY™
2.4 GHz WIFI SYSTEM (802.11b)	YES - 11 Channels Available
BASE STATION - BATTERY OPERATION or WALL WART	YES
BASE STATION - RACK MOUNTABLE	YES
BASE STATION - FREE STANDING	YES
REAR MOUNT ANTENNA JACKS	YES
TOP MOUNT ANTENNA JACKS	NO
TOP MOUNT ANTENNA	YES - With Optional Magnetic Mount Antennas
BASE STATION ANTENNA SHIPPED WITH PRODUCT	Qty 2 - 3db OMNI
CONNECTIVITY TO PARTY LINE OR MATRIX	NO
CLEARSCAN (Automatic on start up or Manual)	YES
MANUAL CHANNEL SELECT	YES
CHANNEL LOCK	YES
19 INCH RACK MOUNT BRACKET	YES - Included with Product
WALL MOUNT BRACKET	YES - Included with Product
USER PROGRAMMING FOR ENCRYPTION CODE	YES - Cable Included with Product
3 AUDIO CHANNELS, CHANNEL A, CHANNEL B & CHANNEL A-B	YES
MIC LEVEL ADJUST AT BELTPACK	YES
SIDETONE LEVEL ADJUSTMENT AT BELTPACK	YES
TALK SWITCH PROGRAMMABLE TO "MOMENTARY ONLY"	YES
BELTPACK PROGRAM TO "MASTER WIRELESS" - TOUR GROUP LEADER	YES
BELTPACK PROGRAM TO "WIRED" - FOR ENCRYPTION UPDATE	YES
NUMBER OF FULL DUPLEX BELTPACKS USED WITH A BASE STATION	10
NUMBER OF "SIMPLEX" LISTEN ONLY BELTPACKS (TALK NOT ENGAGED)	UNLIMITED
SYSTEM SSID	ALL BTR-24 AND TR-24 UNITS ARE PROGRAMMED WITH AN IDENTICAL SSID CODE - ALLOWS EASY EXPANSION (ADDING BELTPACKS) OF ANY SYSTEM
ENCRYPTION KEY - 64 BIT (DES)	USER CHANGEABLE
APPLICATIONS	CHURCHES CONSTRUCTION CREWS CRANE OPERATORS CROWD MANAGEMENT HOSPITALS LIVE EVENTS PARKING ATTENDANTS PRODUCTION CREWS SCHOOLS SECURITY THEATERS TOUR GUIDES

• BTR-24 vs Telex Legacy™

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BTR-24 & Telex Legacy Comparison.xls
FEB-19-2007
INFORMATION SUBJECT TO CHANGE

HME DX200™ vs. Telex BTR-24 & BTR600

Feature	DX200	BTR-24	BTR600
RF Frequency Range	2.4-2.4835 GHz FHSS	2.4 GHz 802.11b (2.4 - 2.4835 GHz) 11 Channels DSSS	MHz Controlled
Base Transmit Power	100 mW	200 mW	Typical
License-Free Operation	YES	YES	
Antenna and Channel Diversity	YES	YES	
Automatic Frequency Selection	YES	YES - ClearScan, 11 Channels	
Wireless Isolated Channel	YES	YES	
Simultaneous 2-Wire and 4-Wire Operation	YES	NO	YES
RTS® and ClearCom® 2-Wire Interface Support	YES	YES	(Standard)
Remotely "Unlatch" Beltcaps from Transmitting	YES	NO	NO
Beltcap Transmit Power	100 mW No SAR Test	70 mW (SAR TEST APPROVED)	
Voice Prompts	YES	YES	
ISO+ Mode	YES	YES	
Internal Beltcap Antennas	YES	YES	
Low Battery Indication	LED Blink & Voice Prompt	LED Only	LED Only
Beltcap Weight	7.4 oz.	12 oz	

L704-03

Telex <vs> The Competition

• BTR-24 vs HME DX200

Feature	DX200	BTR-24
Number of Audio Channels	1	3
Programmable Buttons	NO	YES
Base Station Size	1 RU Wide by 1 RU Tall	1/2 RU Wide by 1 RU Tall
Base Station Weight	9 lbs 2 oz	2 lbs 11 oz
Base Station Battery Operation	NO - DX200 YES - DX100	YES - 8-10 Hrs
Type of Base Station Battery	6 AA	LION Recharge
System P/N Available with Case	NO	YES
SAR Test	NO	YES
Beltpack XLR Connector	NO	YES
Rack Mtg & Wall Mount HDW Included	NO	YES
Frequency Response	200 - 3500 Hz	400 - 5500 Hz
Warranty	2 Years	3 Years

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Questions??



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RadioCom[™], Audiocom[®] and Headsets

Thank You!

