TELEX
Radio Dispatch

Catalog

Education | Utilities | Healthcare | Police | Fire | EMS | Transportation

Innovating the future of Mission-Critical Communications

More installations than any other IP-based dispatch system.

TELEX
Radio Dispatch

Telex Radio Dispatch equipment is trusted by professionals around the globe – nothing else is as reliable, scalable, or flexible.

Telex Radio Dispatch is the leading manufacturer of IP control for two-way radio communications. Capable of deployment in both distributed and server based architectures, Telex dispatch console systems have flexibility, scalability, and redundant capability based on the network.

Telex converts audio and control functions from analog or digital communication devices to Ethernet. Once converted to IP, the signal can be transported via LAN, WAN, 802.11 wireless, satellite, and the Internet. With this many mediums to work with, systems can be precisely scaled according to application, whether confined to a single building or campus, or covering an entire country or the world. You can control a Telex IP-based system in Texas from New York, and all with parallel control in London, England.

C-Soft is the industry's most flexible and capable dispatch software – the perfect application for any dispatch environment. This software installs on a Telex Nexus position, a Telex laptop, or on your own computer position (when used with the ADHB-4 audio adapter). With two to two hundred radio lines, C-Soft allows you to design your screen to your application. Standard features include an Instant Recall Recorder, paging, and intercom. Featuring a wide range of interface capabilities, the system can work with everything from simple PTT and tone controlled systems to advanced digital systems such as Kenwood NEXEDGE® IP based trunking systems. C-Soft dispatch software is compatible with both Windows 7 and Windows 8.1 operating systems.

The last few years have seen a rapid shift in radio technologies. As a result Telex has recently brought to market a number of new interfaces. The introduction of the Sprint Direct Connect interface allowed Telex user's to leverage their existing dispatch solutions when the Sprint NEXTEL system was shut down. The FCC narrow banding mandate brought about newer technologies such as NXDN™, TETRA™, and MOTOTRBO™. Telex was right there working with manufacturers and technology groups to develop interfaces to these systems. When you choose a Telex solution you're choosing not just a product, but a company dedicated to the latest technologies.

Having great features and performance isn't enough if it's not backed by service and support. Telex Technical Support team members have the right combination of extensive training and years of experience to assist you with any technical issues, ensuring your Telex equipment provides the right solution for you.

Read on to learn more about how a Telex dispatch solution can be right for you.

Portland State University Public Safety Dispatch:

"This system was a good choice for us, and I don't see us using anything else."

With a student body of nearly 30,000, Portland State University (PSU) is the largest university in Oregon. The campus is made up of 50 buildings, including ten student housing facilities, situated on 50 acres in central Portland. Policing at PSU is handled by the Campus Public Safety Office (CPSO), which is staffed for up to 16 officers and five dispatchers. "We provide most of the law enforcement services for the university," says lead dispatcher Tyler Roppe, "and act as the central contact point for the university."

CPSO uses three channels on the 800-MHz system – one for the city police's precinct channel, and two for on-campus CPSO activity. Two channels run on Motorola MCS 2000 systems, and another on a newer Motorola XLT. At the same time, CPSO needs to maintain easy communication with other campus departments that use a Motorola 450 radio system, including the parking and recreation staffs. The 450 system also serves as CPSO's backup in case the city system goes down.

"The idea of running radio over IP (RoIP) was a very attractive way to deal with the situation," Roppe continues, "because there was already Ethernet to our basement and also to the penthouse. In fact there is a fiber line that goes directly from us to that penthouse. And once we had decided on RoIP, it seemed like C-Soft was the system that everyone was talking about.

"Everyone is very happy with the C-Soft console," Roppe says. "We haven't had any significant issues at all. It's great to be able to inter-operate with the 450s, and the system is very stable; once it was locked in, we didn't need to adjust it. And the IP-223s are very sound units; we've never had any issues with them. So overall the reliability on the system has been very good. We'd actually like to expand the Telex system and use it in some new ways, including interconnecting with our phones. This system was a good choice for us, and I don't see us using anything else."

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IP-based FAQ

Can we use our existing computer network to create an IP-based dispatch system, or do we need to build a new one?

The answer to this question depends on the IP dispatch system application. In many cases we can use existing IP networks, but in other cases, like public safety applications, you may want to think about creating a secure, standalone communications network. Here are a few things to consider with regard to IP dispatch solutions:

• How much traffic is on my existing network and how much bandwidth is available to dedicate to a communications solution?

• Does your network support multicasting? Multicasting is an important element in making our dispatch solutions as effective as possible. We can work with non-multicasting networks, but there are some limitations.

• Do you want to connect and communicate between multiple locations or installations via an IP dispatch network? If so, that means you have to have a good network connection between them. Anywhere you have a network connection could be a potential location for communications equipment. If you have offices across the country that are all connected via a network, you could communicate between them using two-way radios because the network ties them together.

How much bandwidth will the dispatch system use on the network?

With a C-Soft low-bit vocoder, there can be a bandwidth savings of up to 30 percent. This depends on how many radios and dispatch positions you want on the system. The breakdown is simple: every device you connect to the system that operates in simplex mode requires 50 kBits of available bandwidth. Multiply that times the number of communication lines you have on the system — 8 base stations means 8 x 50 kBit or 400 kBit for effective simultaneous communications. Always make sure the network has the capacity to account for the maximum possible number of simultaneous transmissions.

What type of telephone integration does C-Soft support?

C-Soft implements phone integration via its Enhanced SIP interface. Two lines of Enhanced SIP are available in the latest version of C-Soft and that can be expanded to a total of six or twelve lines if needed through the purchase of optional software licenses. The proliferation of VoIP telephone systems over the last decade has overtaken a lot of the previous analog systems. Because of this we have made the technology decision to handle all calls using SIP (Session Initiation Protocol) because the trend over time will be more and more VoIP systems will be encountered and any analog systems can be interfaced by using a SIP server equipped with FXO ports. Through our solution everything from a simple two-way call to a conference session can be handled. This allows dispatch to control incoming and outgoing phone calls and use features such as hold/unhold, call forwarding, conferencing, voice mail, and call transfer. One of the most important features is the crosspatch capability of radio and phone. Now a police officer on a radio channel can be connected to a phone call to coordinate activities or assist dispatch with a critical situation. SIP can be configured to use existing switches, so a large number of lines are available if required. Like the IP console, SIP is a powerful yet simple tool which is also very flexible and scalable.

I have two dispatch locations, but can only afford to update one console to IP. Will I be able to communicate with the old console?

In most cases, Telex will be able to interface an IP-224 or gateway to each channel at the location where the radios would be interfaced to the analog console, usually the Central Electronics Bank (CEB). The IP-224 is configured in console mode, and allows the channels configured this way to be put on the same IP network system as the new IP console. Through the network, the analog console can be monitored and operated like it was another IP console. The flexibility of this design provides a way for an end user to start a migration path to a complete IP changeover when replacing the dispatch consoles in multiple locations. When required, this concept also provides a very cost-effective backup console to existing analog consoles.

Products

PC Based IP Console Position

Complete Communications Solution

Our PC based IP console position delivers everything for dispatch communications — stability, performance, and world-class dispatch capability. The IP platform makes it simple to install, easy to expand, and flexible enough to use in any dispatch setting.

1   **2**   **3**   **4**   **5**

To build your dispatch position:

Choose a PC platform, monitor, C-Soft, headset adapter, and accessories.

1. Choose your computer:

Either purchase our computer, or purchase a computer/laptop that meets the PC requirements listed on the next page under the C-Soft product.

2. Choose your C-Soft

A. Select C-Soft by number of Lines
  • Standard lines (i.e. IP-224s),
  • P25 DFSI
  • NEXEDGE®
  • Enhanced SIP
  • Per Line Call Playback

3. Choose your monitor:
  • 22" LED monitor
  • 19" touch screen LCD monitor

4. Choose your headset adapter:
  • ADHB-4 with PC position
  • RHB-1 for remote headset (optional)

5. Choose any of the applicable accessories:
  • Microphone
  • Speakers, up to 6 or 3 pairs
 • Headset
  • Footswitch

Service and Support

By standardizing around a single dispatch position platform, we have been able to optimize both the operating system and dispatch software for maximum stability and performance. We are able to deliver a total solution that is significantly enhanced and much easier to support by removing the variables associated with software installation on an end-user provided PC.

Flexibility and Scalability

Our PC based IP console position can be ordered in configurations from 2 to 200 lines. It is our most capable and highest-capacity dispatch solution. The user interface is completely customizable, meaning you can control the button layout — the size, shape, color, and even the labeling. Change the background color, create simple or advanced dispatch interfaces — the options are nearly limitless with the PC based IP console position. You can even store multiple dispatch configurations on a single station for different applications or usage scenarios.

C-Soft Software-based Radio Dispatch Console
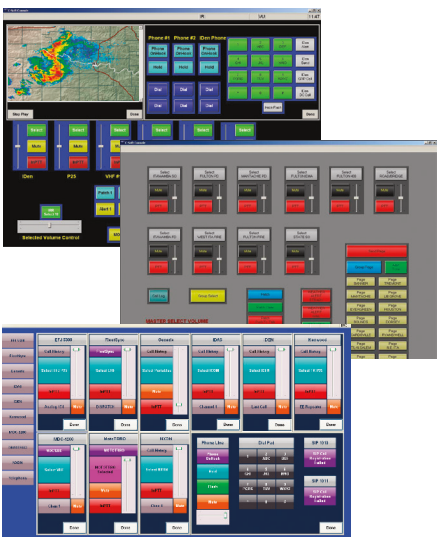
PC requirements:
  • Operating system: Windows 7 or Windows 8.1
  • Network connection: 10 Mbps or 100 Mbps TCP/IP connection
  • Processor speed: Intel Core i3 2.8 GHz
  • Memory: minimum of 8 GB of RAM
  • Parallel applications: not recommended to run other applications on PCs running C-Soft, especially those with high demands.

NOTE: These are minimum requirements and users should bear in mind that when handling a large number of lines - 50 or more per PC – it is strongly recommended that more powerful computers and more robust network resources be deployed. Please consult your integrator for specific system recommendations.

Features:

Available configurations – available in configurations from 2 to 200 lines.

User interface – user-controlled configurations for any dispatch application.

Signaling capabilities – MDC-1200 encode and decode, FleetSync encode and decode, DTMF, serial and OTA FleetSync, 5/6 tone—supports emergency, group, individual, and status calls.

Instant recall recorder:
  • Tracks the last ten minutes of both select and unselect speaker audio.
  • Buttons can be set up to start playback at various points in the buffer, or played call-by-call from the call buffer.

Per Line Call Playback – option expands capabilities to one hour of recording to 100 lines.

Information windows – per-line call history, active emergency, emergency history, manual call list, and status window.

Intercom capabilities – intercom communications between dispatch positions can be set up on all consoles on the system.

DTMF keys – a full 16-key keyboard is supported.

Paging:
  • Multiple paging formats are built into the C-Soft console software.
  • Quickcall in both the 100 and 1000 group formats, as well as DTMF, Knox paging tone, and 5/6 tone paging.
  • Manual frequency entry mode is also supported.

Alert tones:
  • Three alert-tone types are supported, including steady tone, pulsed tone, and high-low warble.
  • All frequencies and durations are programmable.

Programmed group & mute buttons – for both functions, lines can be selectively included within these programmed buttons, allowing for instant access to particular lines of interest.

Status indicators – 24-hour clock, VU meter, PTT indication, and Instant Recall Recorder progress are displayed on the upper status bar.

Flexible audio interface options – using Telex's new ADHB-4 and RHB, C-Soft can interface with all common dispatch communication audio sources, including headsets, desktop microphones, external speakers (up to six), and footswitches.

SIP Telephony:
  • Crosspatch, DTMF hold, call history, phone directory, stun, and proxy server.
  • Provides audio adjustment with silence detection and jitter buffering.
  • Able to specify IP interface for SIP connections.
  • Per-line configuration for each SIP account. SIP is only available with 24 lines of C-Soft dongle or above.

Multiple vocoders – per-line vocoder type ability to select lower bandwidth vocoder.

Special interfaces – MOTOTRBO™ Systems with Mapping, Motorola Smartnet/Smartzone, Kenwood NEXEDGE®, Icom IDAS™, TETRA (Hytera/PowerTrunk/Sepura), iDEN, and P25 DFSI
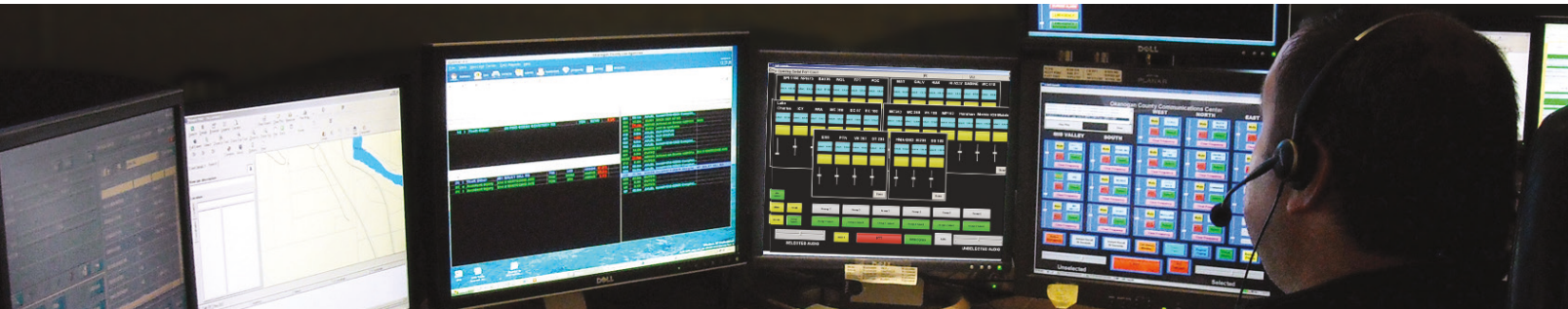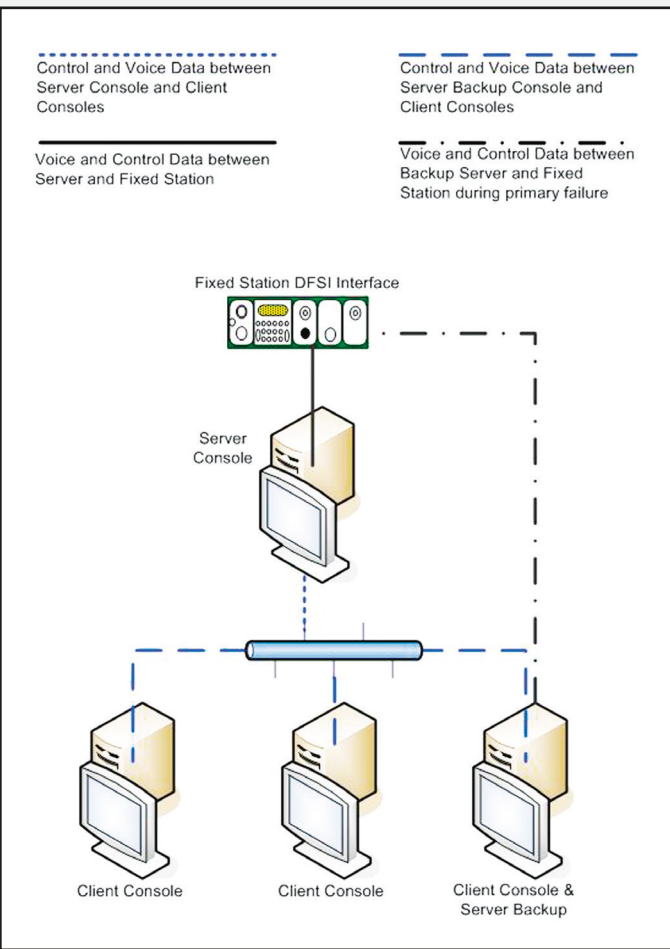
C-Soft
P25 DFSI

The Telex conventional P25 offering complies with Telecommunications Industry Association (TIA) standards for the Digital Fixed Station Interface (DFSI). This interface provides the connection between the C-Soft console and conventional P25 networks operating with the common air interface.

Working with Tait and Daniels, Telex is providing a DFSI for digital conventional radio systems. This interface connects directly to the base station radio and will not require an IP-223 or IP-224 to convert audio and control signals to Ethernet. This design does not require dedicated servers in the system, so, in a multi-position console system, one position takes the role of control server and another position backs-up the control in case of failure. Any of the positions can be configured to be the server and backup, thus maintaining scalability and flexibility in the console system design. All C-Soft features are still available with this design, including Crosspatch, which allows the analog systems to be connected to the P25 systems. The following list outlines the companies and functions offered in this DFSI interface.

Supported DFSI Repeaters:
    Tait
    Daniels/CODAN

Supported DFSI Repeater Functions:
    Channel Change
    Repeat Mode
    Monitor
    Voting

Supported DFSI Radio Functions
    Digital/Analog/Mixed Mode
    Radio Check
    Radio Inhibit
    Radio Un-inhibit
    Status Request
    Call Alert
    Radio Monitor
    Private Call
    Group Call
    Pre-Programmed Text Message
    Emergency Acknowledgement

Control and Voice Data between Server Console and Client Consoles

Control and Voice Data between Server Backup Console and Client Consoles

Voice and Control Data between Server and Fixed Station

Voice and Control Data between Backup Server and Fixed Station during primary failure

Fixed Station DFSI Interface

Server Console

Client Console   Client Console   Client Console & Server Backup

It is important to note that there is no special software build between consoles. Any C-Soft position can be configured as a server, backup server, or client console position by using C-Soft designer.

St. Lawrence Seaway

Photo Credit - The St. Lawrence Seaway Management Corporation

The Seaway's primary communications center is at St. Lambert, QC – one of the seven main locks that connect the Seaway's system of canals. The St. Lambert location is equipped with two primary Telex C-Soft positions (interfaced with IP-223 RoIP adapters), one of which is a supervisory position for controlling communications over the length of the Seaway – about 200 km. Three more C-Soft positions are dedicated to controlling the locks. All of the above are backed up by two identical C-Soft positions at a smaller center at lock two in Sainte-Catherine, QC.

Eight Telex IP-1616 consoles are distributed at the seven locks along the Seaway, allowing the main St. Lambert center to communicate locally with other communications colleagues, maintenance staff, ships, etc. In addition, 12 IP-2002 consoles were specified for specific management locations to access different channels.

All audio traffic is recorded on Telex Network Recorders with RDR (Remote Data Reviewer) capability from remote locations. This recorder logs all audio traffic and events from each console and makes that information available to the various RDR locations for viewing.

The Telex system's IP capability provides the ideal combination of flexibility and user-friendliness needed over the length of the Seaway.

C-Soft is the industry's most flexible and capable software dispatch console — the perfect application for any dispatch environment. C-Soft delivers all of the dispatch capabilities you expect, while also giving you the flexibility that only an IP-based

software console can provide: simple and quick deployment in the field, easy back-up of communications assets, and the ability to save multiple configurations on a single computer. This proven application has been deployed in communication centers around the world, in applications from 911 dispatch to mobile command centers and transportation management.

C-Soft
Kenwood NEXEDGE® Trunking

The Telex direct IP interface to Kenwood NEXEDGE® Trunked systems is the latest addition to the options available for C-Soft. This interface provides the ability to have a direct IP connection between the C-Soft console and Kenwood NEXEDGE® Trunking system without the need for a hardware gateway. All C-Soft features are still available with this design, including Crosspatch, which allows the analog systems to be connected to the NEXEDGE® systems. The option is available in 2, 6, 12, and 24 line configurations.

The following list outlines the functions offered in this NEXEDGE® interface.

Supported Functions:
Broadcast, group, and unit calls
Emergency call decode with acknowledgement capabilities
Radio status decode and encode
Radio remote monitor with supervisor password
Selectable talk group
Radio status request
Radio stun and revive
Radio remote grouping
Over-the-air-aliasing
Text messaging
GPS decode with IP interface
Alert call

System Limits:
Up to 24 talk paths per console
Up to 10 consoles per site and 100 per system (NEXEDGE® System Limit)
Supports both narrowband (12.5 kHz) and very narrowband (6.25 kHz) channel spacing.

TELEX Radio Dispatch

KENWOOD NEXEDGE™
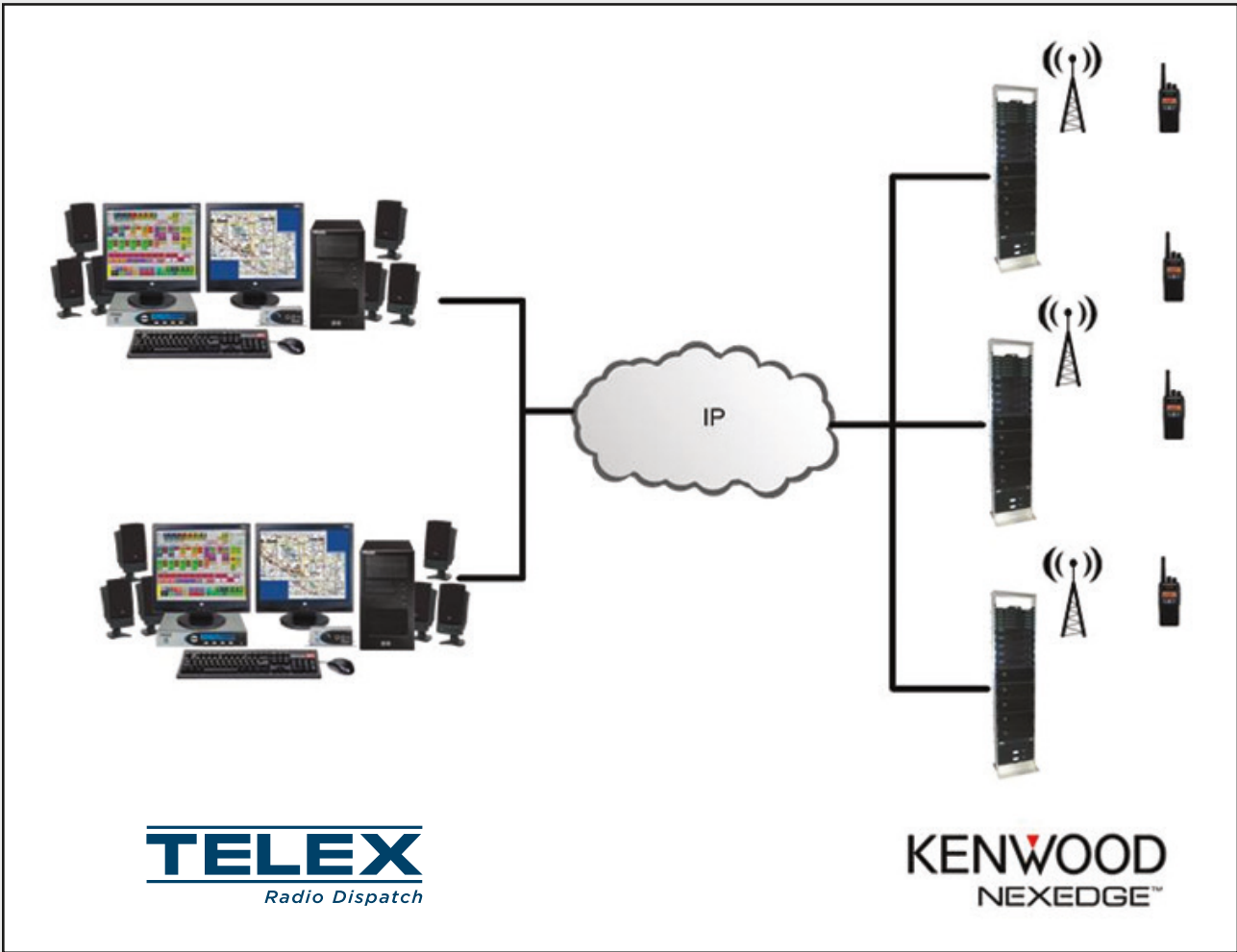
Denver Public Schools use Telex for stability and effectiveness

"I have been working with two-way radios for DPS going on 25 years now, and RoIP is the neatest technology I have seen in communications yet. The ability to multi-cast over Ethernet is a powerful tool. RoIP has created endless possibilities for our two-way applications. We can design and add on to the Telex IP-223/C-6200 system in many different ways. It's a great platform to grow with."

Jim Bailey,
Denver Public Schools Radio Room

C-Soft
Enhanced SIP VoIP Telephony
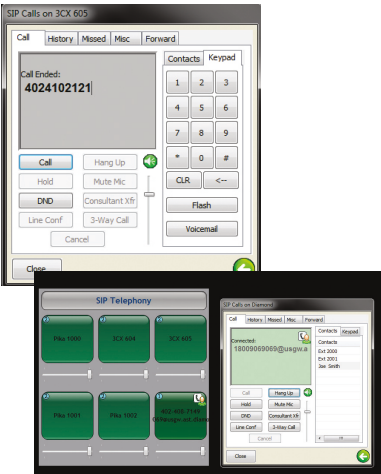
Features:

Call hold – places the current call on hold and returns to the previous call.

Call waiting – sends an audible indicator when a third party calls in.

Blind call transfer – two parties are in a call and one transfers the call to a third party without first contacting the third party.

Call transfer with consultation – two parties are in a call, then the third party is contacted to announce the transfer before it happens.

Call-forwarding feature:
• Unconditional – routes all incoming calls to voice-mail or another number for any reason.
• Busy – sends a call to another phone number or voice-mail in the event the line is busy.
• No answer – sends the call to another phone number or voice-mail in the event that there is no answer (after a pre-defined time).

Three-way call conferencing – allows up to three calls via conference bridge.

Crosspatching radio PTT users with SIP calls – allows dispatchers to interface radios via SIP, to be included in the inter-operable conferences.

Call conference up to five users – allows for multiple calls out to others, putting all calls on hold then bridging the conference call.

Do not disturb – allows all calls to be routed to voice-mail.

All SIP call sessions are recorded on the Network Recorder – C-Soft records via echo packets, so the user will have to configure packets in C-Soft Designer.

We offer a full industry-standard SIP (Session Initiation Protocol) two line solution as a part of the C-Soft software-based console. Users can expand to six-line or twelve-line via an add-on license key. Adding our new Enhanced SIP solution to the Telex IP dispatch consoles integrates VoIP telephony, allowing for a complete console solution.

Our new application provides a great method of telephone line installation into a dispatch console solution. If you don't have a VoIP phone system, a simple SIP server with FXO ports can be used to convert analog lines to SIP.

With the Enhanced SIP features, users can implement and configure many telephone lines into a C-Soft console position without having to connect external hardware.

Our application is easy to install and easy to use! The icons are intuitive and they indicate various calling features (i.e. call is on hold, etc).

ADHB-4 & RHB

Advanced Audio Interface

Remote Headset Box

Features:

Ethernet communication	LED power and PTT indicator
Six audio channels	12 VDC operation
One dual-channel 1/4" headset jack	Two remote headset box connections
One XLR connector to low-impedance microphone	Volume control knob
One desk mic jack	LED for power/PTT indication
One telephone handset jack	Programmable gain control
One NENA I/O jack with offhook detection	Foot-switch inputs for PTT and monitor
Separate headset volume knobs	Two relays with form-C contacts
Supports three pairs of speakers	AUX inputs are DC isolated
Use with any standard amplified speaker	Color LCD-type display

The Advanced Audio Interface (ADHB-4) works exclusively with the Telex C-Soft console version 5.000 or later. It processes audio internally and communicates with C-Soft to transfer the signal via USB, which eliminates dependence on the PC sound card. This allows users to purchase their own computer. While the current HB3+ works with two speakers, the ADHB-4 supports up to six speakers per position.

The ADHB-4 is the heart of the C-Soft console dispatch position. It removes the barrier between users of different PC audio platforms and enables them to relay vital, life-saving information. To further enhance the flexibility of the system, the ADHB-4 works with most desktop systems running Microsoft Windows 7 or 8.1. In addition, the ADHB-4 includes all connections necessary for full integration into the most common radio dispatch configurations.

One of the most striking features of the ADHB-4 is its full-color LCD screen. This display hosts a rich interface which provides the user with at-a-glance system status updates. With its web capability, the ADHB-4 can also be managed via web interface. These advanced configuration options will bring peace of mind to dispatch operators, enabling them to focus on the critical task at hand. Our new Remote Headset Box (RHB) allows up to two optional RHBs to connect to the ADHB-4. This allows other users to listen to the dispatch position (ie: supervisor, second dispatcher).

"Telex is very user-friendly, it can be changed quickly, and it's very flexible. We looked at several other systems, but we kept on coming back to Telex. A lot of states and state fire agencies also use Telex, so we figured that it would be a good fit with anyone with whom we would ever work."

Rob Knabe
President, Cobalt Equipment

IP-224 IP Radio Gateway

Available Options:
- Fleetsync encode and decode
- MDC-1200 encode and decode
- iDEN Interface
- Kenwood conventional
- Kenwood NEXEDGE®
- Icom IDAS™
- TETRA (Hytera/PowerTrunk/Sepura)
- Sprint Direct Connect
- MOTOTRBO™
- E.F. Johnson RS5300 P25 radio Interface

Available Accessories:
- Single or dual rack mounts
- AHS-1 handset

Features:

PTT (Push-to Talk), monitor, and F1 and F2 relays (programmable to any function tone or revert to F1)

Four PTT modes and three monitor modes

Nine selectable PTT frequencies

Eight digital outputs for channel selection, completely programmable per function tone

CTCSS (Continuous Tone Coded Squelch System) generation (64 frequencies)

Software gain control

Local handset port for monitoring activity and transmission back to base or to radio, uses optional AHS-1 alignment handset

RX AGC (Automatic Gain Control)

RX (Receive) audio squelch

ANI (Automatic Number Identification) over-the-air-protocol decode and display

SoIP (Serial-over-Internet-Protocol)

Supports USB, RS485, CAN-bus, RS232, and TTL

Backwards compatible with Telex Radio Dispatch equipment

Secure remote web-browser-based programming and configuration

Single- or dual-function tone generation

Guard tone user-selectable for 2100 Hz, 2175 Hz, 2300 Hz, 2325 Hz, 2400 Hz, 2600 Hz, 2800 Hz, 2850 Hz, or 2900 Hz

Menu-driven front panel controls for TX, RX, spare audio, IP addressing, and CTCSS

Number of channels or talk groups up to 1000

Crosspatch mode, console mode, redundant ethernet

Backward compatible with IP-223 — both can exist in the same system

The IP-224 is the next generation of IP radio gateway to form the heart of the Telex Radio Dispatch System. This redesigned radio gateway does not require any jumper settings or setting of internal pots. Configuration is made simple by the use of a computer for IP settings and communication device settings. Below are more details about the features and options of Telex's newest offering.

Based upon the Linux operating system, the IP-224 provides an extremely reliable means of remote-controlling two audio devices. The IP-224 can be easily configured to work with both digital and analog consoles, and it performs a wide variety of other tasks related to using radios on a digital

network, including state-of-the-art system diagnostics. The IP-224's sleek design combines form with function, allowing easy installation, operation, and servicing. The unit may be rack-mounted or placed directly on a desktop, and it is equipped with an LCD display to clearly provide user feedback when programming. VU meters are also provided via the display for alignment purposes. All other configurations are completed in the web browser configuration windows.

The IP-224 is designed to handle the latest radio interface technologies such as NEXEDGE®, IDAS™, MOTOTRBO™, TETRA™, P25 and whatever comes next.

IP-224 Control Station Interface Options

The IP-224 radio gateway interfaces to a variety of radio products. Some interfaces are included with the standard unit and many others are available as an add-on product through a combination of software codes and, in some cases, additional hardware.

Below is a summary of interfaces and radios supported. Due to changing radio models, please consult with your Telex sales representative for the latest information.

Manufacture	Radio Model	IP-224	IP-224 option code required
EF Johnson	RS and ES 5300	Yes*	
Hytera	MT-680 (TETRA)	Yes	Yes
ICOM	IC-F505x/606x (IDAS™)	Yes	Yes
Kenwood	TK-x80, -x90, -x150, and -x180	Yes	
Kenwood	TK-5x10 and NX-700/800 (NEXEDGE®)	Yes	Yes
Motorola	XPR Series (MOTOTRBO™)	Yes**	Yes
Motorola	Falcon (iDEN)	Yes	Yes
PowerTrunk	DT-410 (TETRA™)	Yes	Yes
Sepura	SRG3500 (TETRA™)	Yes	Yes
Sprint DC	AdvancedBridge by AdvancedTec	Yes	Yes
Tait	TM-91xx/94xx	Yes	Yes

* Requires an additional external interface device.   ****** Requires external device or optional code is requires

Below is a summary of common features supported by each interface. Variations and additional features may exist, please consult with your Telex sales representative for the latest information.

Common Features	Kenwood Serial	P25	NEXEDGE®	IDAS™	MOTOTRBO™	TETRA™	iDEN	SDC
Channel and zone change	✓	✓	✓	✓	✓	✓		
ANI decoding	✓	✓	✓	✓	✓	✓		
Emergency decode	✓	✓	✓	✓	✓	✓*	✓	✓
Emergency Acknowledgement	✓	✓	✓		✓			
Status message decoding	✓*	✓	✓	✓	✓	✓		✓
Status request	✓	✓*	✓		✓	✓		
Monitor ON/OFF	✓	✓	✓	✓	✓			
Scan ON/OFF	✓	✓	✓	✓				
Individual call	✓*	✓*	✓		✓	✓	✓	✓
Group call	✓*	✓*	✓		✓	✓	✓	✓
Radio enable/disable	✓*	✓*	✓		✓			

* Not available for some radios

Accessories

NEO-10

Network Input/Output Control Device

The NEO-10 is a network-based input/output device that has 10 DPDT relays and 10 inputs for monitoring external events. Anytime a relay or input changes, the NEO-10 sends a message across the network, allowing all console users on the system to see status updates in real time. Actual control of the NEO-10 is accomplished by a TCP/IP socket connection from the controlling console.

Telex System Manager
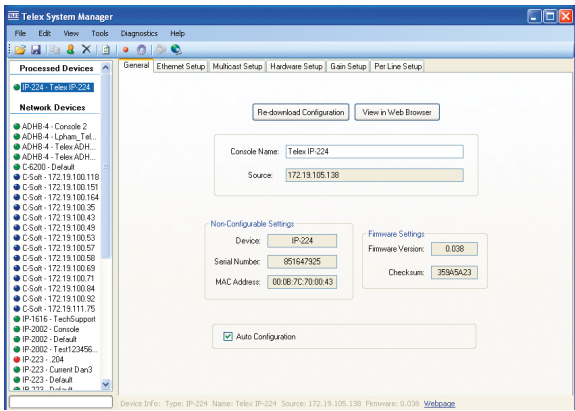
Requirements:
• Windows 7 or 8.1

Features:

Option to save the configuration to a file

Selectively copy device parameters from one configuration to another

Import or export to XML or CSV file, ID directory, crosspatch table

Save device configuration files to local disk for backup, archiving, or duplication

Record configuration files back to a Telex device

Selectable ethernet port

Telex System Manager (TSM) software allows users to easily configure Telex devices. TSM allows a user to view and manipulate configuration parameters for the IP-223, IP-2002, and the IP-1616. In addition, TSM includes the ability to update firmware on the IP-223, IP-2002, IP-1616, C-6200, and the NEO-10. Telex System Manager replaces and improves upon the existing FTP Telex and Configuration Saver programs.

Network Recorder

Features:

Faster CPU speed, more RAM	Separate OS drive
Dual 500-GB hardware RAID control hard drives	250-GB SATA removable hard drive for archive
Easy to recover the system in case of failure	Additional archive hard drive available
Exportable	

Network Recorder Software
The new network recorder is sold in combinations of 12, 24, 50, and 100 licenses.

The Telex Network Recorder allows you to monitor and record audio for any channel in real time, and stores detailed information for each call and event in an SQL database for quick and easy retrieval. This includes source IP addresses, channel changes, crosspatch creation and tear down, supervisor mode start and end, ANI, date/time/call duration, line number, scan status, and NEO-10 relay input while supporting Windows 7 and P25 DFSI.

The recorder monitors the radio network for audio packets and records specific criteria. These are stored as raw PCM audio and are then compressed into MP3 files. A 32-bit digital signature is added to the file to guarantee its authenticity. Both RX and TX audio are stored and separated for search purposes.

The Remote Database Reviewer and Network Recorder's relationship is as client and server. The Remote Database Reviewer (client) connects to Network Recorder (server), and a session is created. While the session is active, the Remote Database Reviewer is able to perform database queries and request audio from the Network Recorder server. As long as the session is active, the session's user account is also considered active. When the Remote Database Reviewer is closed, the session ends and the user becomes inactive. The Network Recorder allows for six sessions at a time.

The Telex Remote Database Reviewer software is a state-of-the-art tool that enables users to remotely access the Telex Network Recorder's database of audio files for playback and data export, to generate a report for portable viewing. The Remote Database Reviewer is able to stream and copy audio files and data from the Network Recorder's archive of recorded audio.

Network Recorder monitor features:
• Check for heartbeat, warning, and errors
• Established reporting messages –
   MP3 compression problems
   Database connection/reconnect problems
   Protect key (dongle) not found
   Sound card problems
   Hard drive full
   Database rebuilding
   A line has been recording over 30 min.
   Accumulation of error files
   Less than 20 GB left on hard drive recorder

Recorder Search Engine:

The network search engine can search the recorder computer using these parameters: ANI, line number, date, time, and call duration. Unrelated calls can be removed from the search screen, and calls of interest can be copied for playback on another computer or an MP3 player. Large groups of calls can be archived for permanent storage and to clear disk space. Archived calls can then be brought back into the database for later review.

Hardware Consoles

IP-1616 Eight-line IP-based Radio Dispatch Console
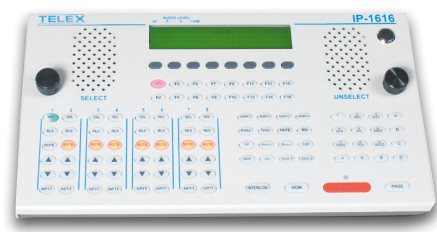
Controls:

- Monitor, intercom, and PTT button
- Up to four alert tones
- Crosspatch
- Group select, two pre-determined groups
- Supervisory control
- 16-digit DTMF keypad
- Volume controls
- Parallel TX LED detect
- Channel selection
- Instant PTT
- Four programmable buttons
- Paging (two-tone, DTMF, manual)
- A- and B-menu buttons

Features:

Simplex/full-duplex operation (field programmable)	16-channel control
Crossmute (ethernet-based)	Crosspatching of two to eight lines
Parallel console update	Line select call with alarm
Communications with crosspatch groups while operating on unused channels	Instant Recall Recorder (IRR)
Telex System Manager (TSM) easily detects Telex device on the network for easy firmware upgrade and configuration.	

The IP-1616 is a workhorse console that offers all the dispatch features and control that you would expect from a larger, more expensive solution. Multiple IP-1616s can be used to control larger operations. Its smaller desktop footprint takes up less room at the workstation, but still offers all the dispatch capabilities and controls you need. The IP-1616 requires no CEB or additional CPU equipment for operation. All processing and control capabilities are completely self-contained within the unit. Requires a gooseneck desktop microphone or dispatch headset for operation — all sold separately.

IP-1616 also offers:

- Call history – up to last 50 incoming calls displayed.
- Autodial – dials from history list and phone list.
- Caller ID – displays phone, iDEN, MDC, FleetSync, TETRA™, and 5-tone.
- NEO-10 support – two NEO-10 relays from the console.
- iDEN support – full support of NI-223 features, including ID, Go-ahead beeps, signals, and manual dial.
- Scan features – scans for supported radios.
- Emergency – decodes incoming emergency signals from supported ANI formats.
- Clear/coded transmit – transmits to EFJ RS5300 mobile radio.
- Radio telephony operation – allows local console to change channel of the remote radio via POTS line. Also gives operators the ability to designate certain lines to automatically fail-over to a standard POTS line if the IP connection fails.
- Phone line interface – allows interfacing to a phone line.
- Kenwood P25 TK5710/5810 serial control – supports encode and decode of FleetSync ID and P25 ID, channel change, scan on/off, and monitor. Also, capable of direct serial control of Kenwood 80, 90, and 150 series radios.
- Generate FleetSync MSK signal at the IP-223 – does not require specific Kenwood base station.

C-1616 Six-line Analog Tone Remote Control Console

Controls:

- Select/unselect status for each line
- Selective call indication
- 16-function tone button selection
- TX and RX all button
- Mute and alert button
- AUX relay and supervisory button
- PTT button and Intercom
- 16-digit DTMF keypad
- TX detect LED for selected audio
- Line activity monitor LED for each line

Features:

Two- or four-wire per line (field programmable)	16-channel control
Simplex/full-duplex per line (field programmable)	Two alert tone cadencing (keypad programmable)
Programmable squelch control per line	Crossmute per line (hardwire)
TX monitor	TX notch filter
Supervisory control	Wildcard groupings (function tones)

The C-1616 is designed for easy field programmability. Its modular design offers selection and control of up to six base stations and 16 frequencies. The C-1616 comes standard with two channels. Additional channels may be added by installing another two-line module (sold separately). Its unique vacuum-fluorescent display provides channel alpha/numeric indication, and features a clock and audio-level meter. Multiple consoles can be easily programmed by using the serial port located on the back of each console. Unlike other manufacturers' equipment, the C-1616 requires no additional programming. Optional: handset/headset, gooseneck mic, desk mic, and footswitch.

C-6200 18-line IP/Analog Radio Dispatch Console

Controls:

- Monitor, intercom, and PTT button
- Up to four alert tones
- Crosspatch
- Group select, three pre-determined groups
- Supervisory control
- 16-digit DTMF keypad
- Volume controls
- Parallel TX LED detect
- Channel selection
- Instant PTT
- Four programmable buttons
- Paging (two-tone, DTMF, manual)
- Auxiliary, up to four buttons

Features:

Simplex/full-duplex operation (field programmable)	Programmable single- or dual-function tones
Crossmute (hardwire)	Instant Recall Recorder (IRR)
Parallel console update	Programmable squelch control
16-frequency control	Paging (multiple formats)
Two- or four-wire (field programmable with optional line cards), local, and E&M	Supports NEO-10 controls
Telex System Manager (TSM) easily detects Telex device on the network for easy firmware upgrade and configuration	

The C-6200 is a unique platform in the dispatch industry that can function as either an IP-based or an analog console, giving you the flexibility to deploy it in numerous settings. Perfect for any small- to mid-sized operation, the C-6200 offers world-class dispatch capability and can even be configured to bridge analog and IP assets within a single unit. It's also the perfect hardware console back-up to the PC based IP radio dispatch position. The C-6200 requires no CEB or additional CPU equipment for operation. All the processing and control capabilities are completely self-contained within the unit. Requires a gooseneck microphone, desktop microphone, or dispatch headset for operation — all sold separately.

Hardware Consoles

IP-2002 Two-line IP-based Radio Dispatch Console

Features:

Simplex/full-duplex operation (field programmable)	100 talkgroup/frequency control
Crossmute (hardwire)	Call history with autodial
Parallel console update	Caller ID (phone, iDEN, MDC, FleetSync, TETRA™, and 5-tone)
Instant Recall Recorder (IRR)	Scan feature for supported radios
Telex System Manager (TSM) easily detects Telex device on the network for easy firmware upgrade and configuration	Emergency – decodes incoming emergency signals from supported ANI formats

Controls:
- Monitor, intercom, and PTT button
- Up to two alert tones
- Crosspatch
- Supervisory control
- 16-digit DTMF keypad
- Volume controls
- Parallel TX LED detect
- Frequency selection
- Menu button for direct menu access
- Paging (two-tone, DTMF, manual)

The perfect footprint for smaller operations or supervisory monitoring situations, the IP-2002 is an IP-based dispatch console in a familiar desktop telephone form factor. Dispatchers using the IP-2002 can initiate a crosspatch between the two lines, as well as inject audio into the crosspatch. A simple ethernet connection places the IP-2002 on the network. The IP-2002 requires no CEB or additional CPU equipment for operation — all the processing and control capabilities are completely self-contained within the unit. The console comes with a handset and panel mic. Other microphone options are sold separately.

C-2002 Two-line Radio Control Console

Features:

Selective call indication	Function tones (programmable)
Parallel console update	Two- or four-wire (field programmable), local and E&M
Alert tone	Simplex/full-duplex (field programmable)
Time duration of the PTT	Programmable squelch control
Audio delay	Crossmute (hardwire)
TX monitor	Supervisory control
TX and TX notch filter	Programmable TX delay

Controls:
- Monitor, intercom, and PTT button
- Alert tone
- ALT button
- Mute, release, and select (per line)
- Supervisory control
- 16-digit DTMF keypad
- Volume controls
- Parallel TX LED detect
- Frequency selection
- Three simultaneous microphones

Compact, but still loaded with features, the reliable C-2002 offers crossmute and supervisory capability and programmable squelch control, which eliminates the unwanted noise generally associated with line monitoring. The C-2002 can control two base stations and select up to 99 frequencies. This DSP-designed console can be programmed by using the DTMF keypad on the front of the console. Used with our mating DSP-223 series adapter panels, the C-2002 meets all the needs and requirements for controlling remote base stations. The console comes with a handset and panel mic. Optional: headset, desk mic, footswitch, and wall-mount kit.

C-2000 & C-2000HS Single-line Radio Control Console

Features:

Programmable single or dual-function tones	Supervisory control
Two- or four-wire (field programmable)	Crossmute (hardwire)
Simplex/full-duplex (field programmable)	TX notch filter
Programmable squelch control	Alert tone/warble
TX monitor	15 programmable DTMF addresses
Parallel console update	

Controls:
- Monitor button
- Intercom
- PTT button
- 16-digit DTMF keypad
- Volume controls
- Parallel TX LED detect
- Frequency selection

The C-2000 allows dispatchers to select and control a single base station and up to 100 frequencies. It's also designed for easy field programmability using the DTMF keypad. Used with Telex's DSP-223 series adapter panels, this console meets all dispatchers' needs and requirements for controlling remote base stations. Multiple consoles can be programmed by using the serial port located on the back of each console. Unlike other manufacturers' equipment, the C-2000 requires no additional software. The C-2000 console comes with a built-in mic. Optional: headset and desk mic. The C-2000HS includes handset. Optional: desk mic and footswitch.

HB-3 +

Headset Adapter Panel

Microphone and headset input circuits allow end-users to choose between electret and dynamic element microphones. The HB-3+ contains its own microprocessor and software, giving it the intelligence and ability to control multiple inputs and outputs. Sold with legacy hardware consoles.

Telex brings flexibility to University of Phoenix Stadium

"The 24-hour stadium security team covers a multitude of responsibilities during its rotating shifts, including video surveillance, fire alarms, door/gate monitoring, and answering after-hour incoming phone calls. An easy-to-use dispatch system was essential, especially in terms of training new staff and ensuring seamless operator turnover at the primary dispatch position."

Creative Communications recommended a Telex C-Soft 12-line basic dispatch console, using an IP-223 to interface remotely with CDM base radios.

Hardware Consoles

DSP-223 Tone Remote Adapter Panel

The Telex DSP-223 provides a reliable means of remotely controlling two-way radio base stations. The adapter can be used in conjunction with all radio dispatch consoles, or other manufacturers' (such as Motorola and GE) remote consoles that use the industry-standard sequential tone-keying format. The DSP-223 is interconnected to the distant remote control console(s) by any voice-grade transmission medium, such as a microwave link, leased telephone line, or a twisted-pair 600-ohm line. All DSP-223s are capable of decoding the PTT (push-to-talk/transmitter-on) tone sequence and the voice-plus-tone signals during transmission. All models are prepared for jumper plug conversion from two-wire line operation to four-wire line operation. In the four-wire mode, the panels are full-duplex capable.

TRA-223 Tone Remote Adapter Panel

The TRA-223 tone-adapter is a simple way to remotely control radio base stations. The TRA-223 can be used in conjunction with all Telex analog consoles, or other manufacturers' consoles that use the industry-standard sequential tone keying format.

Base stations can be connected to the distant remote control console(s) by any voice-grade transmission medium-microwave link, a leased telephone line, or a twisted pair 600 ohm line, and are capable of decoding the PTT and monitor function tone sequence. The TRA-223 also features a front panel dip switch that allows you to select various options, such as two- or four-wire line operation, along with full-duplex.

DH2000 Single-side Headset
DH2200 Dual-side Headset

Features:

Weighs 3.2 ounces	Foam ear seals
Mic-noise-canceling electret microphone	Three-year warranty

The DH2000 & DH2200 headsets leverage technology from the Telex Airman 750 headset, which is a best-in-class lightweight headset. A flexible boom allows microphone adjustment to preferred side, and the adjustable stainless steel headband makes it comfortable—even on the longest of shifts.

DH3000 Single-side Noise-Canceling Headset
DH3200 Dual-side Noise-Canceling Headset

Features:

Weighs 4 ounces	Total noise reduction 12 dBs
Mic-noise-canceling electret microphone	Volume control
Plush foam ear seals	Three-year warranty

DH3000 & DH3200 are our noise-canceling headset options, which are very light, with ear cups and cushions enlarged from previous models to enhance comfort. Other features include a set-and-forget volume control and fully flexible boom. This headset dramatically improves the clarity of communication and does not require batteries or panel be power-active noise reduction powered by microphone bias. All DH Headsets require a LC1500 lower cord unit when ordering.

MD-MS Omnidirectoinal Electret Microphone

Specifications:

Type: Dynamic	Directivity: Omnidirectional
Sensitivity: -14 ± 4 dB at 1 kHz (0 dB=1 Vmicrobar)	Frequency response: 200 Hz – 5 kHz
Cable: 4 conductor, 2 shield, 1.5 m 3.5 cm	Dimensions: H 1.43 mm, W 67.5 mm, L 12.9 mm

DT-GN-18 Desktop Gooseneck Microphone

Specifications: **windscreen furnished

Frequency response: 100 Hz - 15000 Hz	Color: Non-reflecting black
Generation element: Condenser, back-electret	Power requirements: 1.5 VDC to 9 VDC phantom supply
Sensitivity, open circuit voltage: 8.0 mV (-42 dB)/pascal @ 1 kHz	Output impedance: Compatible with RTS keypanels
Power level, 1 kHz (0 dB = 1 mW/pascal): -44 dB	Current consumption: <500 µA
Polar pattern: Cardioid	Maximum head diameter: 14 mm
Dynamic range: 102 dB	Gooseneck diameter: 6.4 mm
Mounting: Male threaded TRS	Electronics module diameter: 20 mm

PC desktop-18RD Polar Choice 18" Microphone

Specifications: **windscreen furnished

Frequency response: 50 Hz - 25000 Hz	Output impedance, 1 kHz: 200 ohms
Generation element: Dual condenser, back-electret	Equivalent noise: <26 dB SPL "A" weighted (0 dB=20 micropascals)
Polar patterns: Omni-directional, cardioid, super-cardioid and hyper-cardioid	Polarity: Pin 2 positive, referenced to pin 3, with positive pressure on the diaphragm
Switches & controls: Top mounted push-button configuration switches	Current consumption: <8 mA with P12 supply
Sensitivity, open circuit voltage, 1 kHz: 5.6 mv/pascal	Cable: 10 ft, 5-conductor cable, terminated with 3-pin male XLR
Clipping level (1% THD): >135 dB SPL	Power requirements: 12-52 VDC
Dynamic range: >109 dB	Base dimensions: H 56 mm, W 117 mm, L 175 mm

System Diagram

Since Telex IP dispatch utilizes an Ethernet data network as its backbone for all the components, communications are possible to and from anywhere a user has access to an IP network. VoIP networks are easily expanded to grow with users' needs, and the number of end-users that can be added to the network is virtually unlimited. Get in touch with Telex and let us help you control your dispatch: communications with IP.
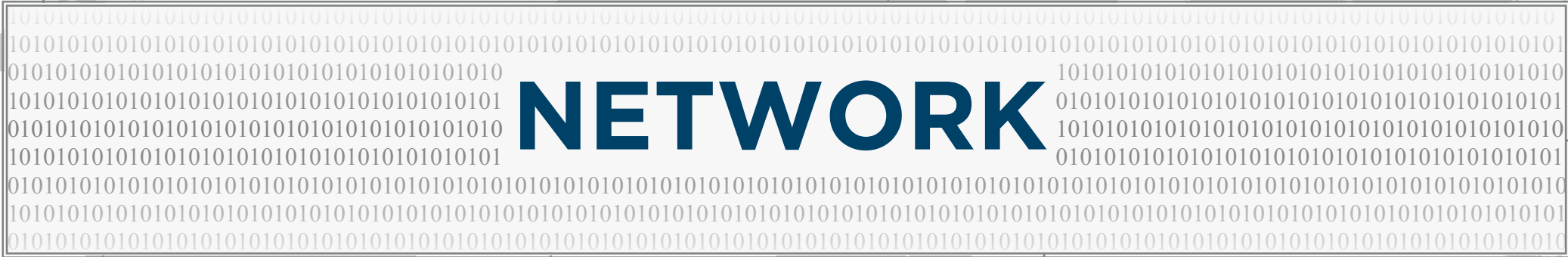
NEO-10
Door control, monitor power, temperatures, and other console functions

Network Recorder

PC Based IP Console Position
with ADHB-4

IP-2002

NETWORK

IP-1616

IP-224/control radio

Radio base station

P25 DFSI System

Kenwood NEXEDGE Trunking

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