RTS is an industry leader in the design and manufacture of intercom solutions, with over 40 years’ experience in the market. From the Advanced Digital Audio Matrix (ADAM) systems used to coordinate major network broadcasts of the world’s largest events to small-format systems used for in-house productions, RTS is dedicated to innovating the future of global communications.

With its acquisition in 2006, RTS became part of the Business Unit Communications Systems of Bosch Security Systems, a leading global supplier of security, safety and communications products. Our customer focus and industry expertise is reinforced on a global scale as part of the Bosch Group, which counted 389,000 associates and 440 manufacturing sites in 2017, ensuring continuity, innovation and the highest quality standards.

“IT HAS ALWAYS BEEN AN UNBEARABLE THOUGHT TO ME THAT SOMEONE COULD INSPECT ONE OF MY PRODUCTS AND FIND IT INFERIOR IN ANY WAY. FOR THAT REASON I HAVE CONSTANTLY STRIVEN TO PRODUCE PRODUCTS WHICH WITHSTAND THE CLOSEST SCRUTINY – PRODUCTS WHICH PROVE THEMSELVES SUPERIOR IN EVERY RESPECT.”

Robert Bosch, 1918
RTS CORE TECHNOLOGIES

OMNEO, RVON, TRUNKING, AIO AUDIO, KEYPANEL, WIRELESS INTERCOM
OMNEO IP technology
OMNEO is an architectural approach to connecting devices that need to exchange information such as audio content or device control. Built upon multiple technologies, including IP and open public standards, OMNEO supports the technologies of today - such as Audinate’s Dante - while adopting the standards of tomorrow. OMNEO offers a professional-grade media networking solution that provides interoperability, unique features for easier installation, better performance, and greater scalability than any other IP offering on the market. RTS products that use OMNEO support Dante media networking and the AES67 standard for IP audio transport. Another important standard within OMNEO is AES70, also known as Open Control Architecture (OCA) which is a communications protocol architecture for control, monitoring and connection management for media networks. ADAM Series matrices can be easily retrofitted with the OMNEO Matrix Interface (OMI) card. OMNEO is supported by the ROAMEO wireless matrix system, as well as all KP-Series keypanels, with the exception of the analog KP-3016A keypanel.

RVON (RTS Voice Over Network)
RVON is a solution for establishing intercom audio over long distance. One of four user-selectable voice encoders – codecs – is used to compress digital audio to a low bitrate suitable for transmission over internet. Bitrates range from 5.3 kbit/s all the way up to 64 kbit/s. The high compression audio codec is intended for long-distance satellite transmissions, whereas the low compression codec is commonly used when high internet bandwidth is given. With RVON, a matrix can communicate with another RVON-enabled matrix or keypanel anywhere in the world. RVON is available for the ADAM Series matrix as well as for Cronus matrices, and compatible with the KP-Series keypanels. The firmware to run RVON on a KP-Series keypanel is available at the RTS website as free download.

Trunking
Trunking allows networked matrices to be tied together seamlessly. A central node, the Trunkmaster, finds the best possible path for each audio connection, from the originating matrix to its destination, and possibly traversing another matrix on the way. This increases the network availability and allows for more efficient use of transmission resources. The largest trunked network in the world – a major US broadcaster – has been using RTS Trunking for two decades. A trunked network can be expanded virtually without limits. Trunking can grow up to 225,000 ports and is supported by all RTS matrices.

AIO Audio
An analog Input Output (AIO) card establishes a bidirectional link to send and receive analog audio between matrix and keypanels. Each audio connection uses a twisted pair of wires, and the electrical signal is electronically balanced. This allows analog audio to be sent over long distance without noise or other audio artifacts. AIO is supported by all RTS keypanels, including legacy panels. AIO can use an RJ12 or an RJ45 connector.

Keypanel Legacy Support
Keypans often represent a big investment in an intercom system. Our legacy keypanels work on our new matrix products, this remains the guiding principle for our product development. AIO is the enabling audio and control signal format.

Keypanss Ergonomics and Features
A wired intercom system allows communication by using keypanels. Keypanels comprise a front microphone, a loudspeaker, and either lever keys or buttons for talk/listen control. RTS has developed and sold keypanels since more than 40 years – and we learned what ergonomics mean for professional intercom users. The latest generation of keypans, the KP-Series, has set a new industry standard for design and usability. KP-Series comes with more features and selectable options than any other keypanel on the market. There is also optional software available for users in need of enhanced functions. An audio software package provides five advanced functions for users who wish to customize their audio. A control software package includes five additional features for enhanced control, including the Supervisor Mode (also known as Keypanel Mirroring).

Wireless Intercom
The VHF and UHF frequencies are used for full duplex wireless partyline communications. Two digital standards, WiFi and DECT, are also available. The DECT-based system ROAMEO connects to the matrix using the OMNEO Matrix Interface, OMI, which is the same card used for all other OMNEO and third-party Dante-compatible devices. RTS also has a long tradition of industry-standard solutions for high-quality audio using analog technology. Each system has two channels. The base station has two AIO connectors which are used to communicate to the matrix. Current products include the BTR-800, BTR-80N, and BTR-700. RTS closely monitors FCC frequency changes to make sure our BTR products can be used in the future. For older products, a rebanding program is available to give customers peace of mind.
ODIN is the new family member from RTS, featuring the newest technology in the portfolio. Condensing decades of experience and our latest IP-based innovations into a compact single rack unit package, ODIN is designed to truly revolutionize intercom connectivity, scalability and performance – making a professional matrix solution more accessible and easier to use than ever before, for a wide range of applications and users of all levels.

**ODIN – OMNEO DIGITAL INTERCOM MATRIX**

**REVOLUTIONIZE YOUR INTERCOM … IN 1RU**

- **Scalable** – Easily expand system as needed by adding licenses or more ODIN units: start with 16 ports, extend up to 128 ports, or connect eight units seamlessly for a 1024-port matrix. No competing product has this level of scalability.
- **Versatile** – Supports Dante-compatible OMNEO IP technology*, four-wire and two-wire for the broadest connectivity to other components, all with the highest-quality audio.
- **User-friendly** – High-resolution icon-based front-panel color user interface for intuitive operation and immediate configuration directly from the unit.
- **Efficient** – Requires less power, less space and less cooling for lower environmental impact and lower total cost of ownership.
- **Flexible** – Reallocate ports to any hardware type with no adapters or special boards required – future proof for evolving systems with audio over IP technology and backward compatibility with legacy products.
In keeping with the RTS principles of backwards compatibility and forward thinking, ODIN offers state-of-the-art features to seamlessly integrate into the most sophisticated intercom operations, extending the value of the initial investment while providing a path for system expansion for users who need to upgrade existing RTS systems to the latest technologies. Whether the user wants to expand intercom functionality with an IP-based system at a regional theater or large house of worship, or whether the goal is to start streamlining a larger system’s footprint and cost of operation in an OB van or broadcast control room – all while increasing user-friendliness and functionality –

ODIN combines the functionality of multiple existing RTS technologies into a new, future-proof package:

- **OMI-64**
  The capacity of two 64-port OMI-cards. Up 128 channels of digital audio over IP in OMNEO* format – fully compatible with Dante and AES67.

- **AIO-16A**
  Connections for up to 16 keypanels or analog four-wire connection

- **MCIIe**
  A powerful master controller.

- **DSI-2008**
  Built-in connectors for analog two-wire party-line.

- **Power supplies**
  Redundant power supplies as standard.

ODIN stands apart as the most comprehensive intercom solution RTS has ever made ... all in 1RU.

With connectors for OMNEO, four-wire and two-wire, ODIN supports ROAMEO IP-based wireless technology, KP-Series keypanels and, as always, RTS legacy keypanels. Dante-enabled OMNEO IP technology is standard on RJ-45 connectors or is available using optional optical fiber SFP connectors. Users can flexibly define ports to use any of the available connector types. As a user’s capacity needs evolve, a single ODIN can grow from the basic 16 ports to a maximum of 128 ports; up to eight ODIN units can be connected via an optical Inter-Frame Link to create a single matrix with up to 1024 ports. Additional features include redundant power supplies and five cooling fans (two of which are redundant). The unit’s energy-efficient design uses less than 50 Watts of power, minimizing operating costs.

ODIN sets a new benchmark for user interaction. All setup and configuration can be done externally by connecting a laptop; the most common operations can be handled directly on the front panel via the icon-driven advanced graphical user interface. This intuitive GUI makes it easy to get an overview of channel status, or use the menus to quickly find the matrix setting you need to modify. Icons support the most common setup and configuration tasks and are displayed in vivid colors on a high-resolution TFT screen. The AZedit and IPedit software applications have been updated to support ODIN for more complex configuration tasks.

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*The latest generation of RTS advanced digital audio matrix and keypanel products is based upon the uniquely powerful and flexible OMNEO IP technology for media transmission and system control. OMNEO is an architectural approach to connecting devices that need to exchange information such as audio content or device control. Built upon multiple technologies, including IP and open public standards, OMNEO supports the technologies of today such as Audinate’s Dante while adopting the standards of tomorrow. RTS uses OMNEO as our platform to embrace and employ open standards. OMNEO offers a professional-grade media networking solution that provides interoperability, unique features for easier installation, better performance, and greater scalability than any other IP offering on the market.*
**System setup examples**

ODIN has connectors for OMNEO, AIO and two-wire. In this example of an expanded ODIN system, a KP-4016 keypanel is connected directly to the OMNEO port. An expansion panel, EKP-4016, is connected to the keypanel. Up to 16 analog keypanels may be connected directly to ODIN. All RTS keypanels support this format, including older keypanels. Finally, there are two rear connectors for two-wire. The PS-20 is the power supply. Additional examples are shown in our Application Note "Adding connections to ODIN."

The Inter-Frame Link, or IFL for short, allows up to eight ODIN units to interconnect and form a single matrix. The IFL uses optical fiber. The connectors allow for redundant connections between the matrices. This graphic shows two different ways in which ODIN units can be interconnected: in a loop (left) or as a linear stack (right) but with redundancy. Read more about the IFL in our Application Note "Interconnecting ODIN frames."

### ODIN Technical Specs.

**Power Supply**
- Type: Two internal fully redundant load-sharing power supplies
- Connector: Two locking IEC320 C14 connectors
- AC Input: 100 – 240 VAC, 60/50 Hz, 0.5 / 0.35 A

**AIO four-wire analog / keypad data**
- Connectors: 16 RJ-45 connectors
- Analog / Digital resolution: 24 bits

**General Purpose Input/Output**
- Input: Four relays
- Output: Four opto-coupled inputs

**Optical ports**
- Type: Small Form Factor Pluggable (SFF)
- Multimode: 500 m / 2 Gbps
- Single mode: 15 km / 2 Gbps

**OMNEO ports**
- Capacities: 128 full-duplex ports
- Copper: 2x RJ-45
- Fiber: 2x Optical, see above

---

The RTS family of digital intercom matrices is the most extensive, widely used line of intercoms in the world. From the top-of-the-line ADAM matrix, available in sizes from 16 to 880 users. RTS matrices are the standard for reliable, mission-critical communications in broadcast, military, industrial and entertainment applications.

### Intercom matrices at a glance

<table>
<thead>
<tr>
<th>Attribute</th>
<th>ADAM</th>
<th>ADAM-M</th>
<th>ODIN</th>
<th>Cronus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Capacity Single Frame</td>
<td>272</td>
<td>128</td>
<td>128</td>
<td>32</td>
</tr>
<tr>
<td>Takes expansion cards</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Max ports, expanded system</td>
<td>880</td>
<td>512</td>
<td>1024</td>
<td>128</td>
</tr>
<tr>
<td>Back Units Single Frame</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Redundant Power Supplies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Redundant Controllers</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Bus Expansion</td>
<td>Yes (TBX)</td>
<td>Yes (TBX)</td>
<td>Yes (IFL)</td>
<td>Yes (4x Cronus)</td>
</tr>
<tr>
<td>Link Method</td>
<td>Single or Multi Mode Fiber</td>
<td>Single or Multi Mode Fiber</td>
<td>Single or Multi Mode Fiber</td>
<td>Coax/Fiber</td>
</tr>
<tr>
<td>Cable Length, Single Mode</td>
<td>40 km (TBX)</td>
<td>40 km (TBX)</td>
<td>15 km (IFL)</td>
<td>Fiber (SM) 15 km, Coax 90 m</td>
</tr>
<tr>
<td>Cable Length, Multi Mode</td>
<td>550 m (TBX)</td>
<td>550 m (TBX)</td>
<td>550 m (IFL)</td>
<td>Coax 90 m</td>
</tr>
<tr>
<td>Front-panel display</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Display type</td>
<td>NA</td>
<td>NA</td>
<td>TFT, color, icon-based</td>
<td>LCD, B/W, text</td>
</tr>
<tr>
<td>Audio Bits</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>OMNEO Audio</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Trunking Support</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Matrix PC Connection</td>
<td>Ethernet, Serial</td>
<td>Ethernet, Serial</td>
<td>Ethernet6</td>
<td>Ethernet, Serial, USB</td>
</tr>
<tr>
<td>Field-upgradeable firmware</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Integrated Partyline Interface</td>
<td>No</td>
<td>No</td>
<td>Yes (2)</td>
<td>No</td>
</tr>
<tr>
<td>General Purpose Outputs</td>
<td>External GP10-16</td>
<td>External GP10-16</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>General Purpose Inputs</td>
<td>External GP10-16</td>
<td>External GP10-16</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Uses OMI-64 cards
2. Eight units, interconnected with optical fiber
3. Requires linking license
4. IFL is Inter-Frame Link
5. Up to 40 km available, depending on SFP
6. Connectors available on front and rear
Using a Time Division Multiplex (TDM) technique, ADAM grows linearly as users are added, the system comes standard with newly redesigned, redundant high-current power supplies. The Ethernet master controller, MCII-E, allows for automatic changeover in the event of failure. With the added convenience of Ethernet connectivity between the ADAM intercom and a PC running AZedit matrix control software, it can support 32 simultaneous AZedit sessions via Ethernet and three sessions via serial.

The 3RU matrix frame supports eight interface cards, in addition to redundant master controller cards. In keeping with the RTS principle of backward compatibility, forward thinking, the ADAM-M is fully compatible with all current ADAM cards, including the MADI-2 and OMNEO 16 interface. Users now have the option of configuring a very compact frame with RVON, MADI, OMNEO and analog with full redundancy.

Cronus DSP Matrix Intercom

RTS Cronus intercom is a modular, 32-port digital matrix intercom in 2RU that can hold up to four AIO analog or RVON-C VoIP cards with eight ports each, based on advanced DSP architecture. Cronus intercom has the ability to link up to four units into a single 128-port matrix. The Cronus can be preconfigured for fiber with a connection up to 9.3 mi (15 km) or coax for a connection up to 300’ (90 m). When connected as a single matrix, individual Cronus intercom controls remain autonomous and independent at each matrix for the highest reliability. Cronus is available with an analog card or the RVON-C VoIP card.

OMNEO

The OMNEO media networking architecture allows the transport and easy control of media, control, and other data over IP networks. OMNEO provides the highest levels of audio quality as well as synchronization whilst ensuring lowest levels of latency in a highly reliable and secure set up at competitively low system cost due to the use of standard IT components and lower installation as well as maintenance cost. OMNEO is based on two key components – media transport and control data. Technologies such as Dante from Audinate Pty for transport and AES70, also known as OCA (Open Control Architecture), for control are fully supported within OMNEO. Products with OMNEO onboard are enhanced by Bosch specific features. OMNEO provides extensive interoperability, flexibility, reliability and future-proof technology by utilizing an open public standards. Additionally, OMNEO provides numerous advanced features and tools to support mission-critical system applications. Systems using the OMNEO media networking architecture can be scaled to include up to 10,000 nodes and can interoperate across multiple IP subnets and long distance for complex network designs and applications.

For those asking if RTS supports TCP/IP, the quick answer is yes. We began our TCP/IP support with our RVON (RTS Voice Over Network) product starting in 2002. With our introduction of OMNEO we have added to our portfolio of IP products and embracing additional industry standard IP based products. RTS Intercoms uses Audinate’s DANTE IP based product as the basis for OMNEO.

OMNEO
- Special control for BOSCH products
- OMNEO supports DANTE using industry standard routers and switches

Audinate’s DANTE
- Runs on top of TCP/IP using industry standard routers and switches

TCP/IP
- Uses industry standard routers and switches
The OEI-2 enables connectivity between analog audio sources or legacy RTS keypanels and an OMNEO network. OMNEO sets the standard for the future of audio communications by offering high quality IP compatible audio, ultra low latency, and supports DHCP and Bonjour protocols. OEI-2 supports all RTS analog keypanels.

**OEI-2 & ARNI**

- Provides a frequency response of 20Hz to 20kHz to the keypanel
- Supports DHCP and device discovery for easy set up and network management.
- Supports a fiber connection to the keypanel (multi-mode or single-mode optional).
- Supports CAT-5/5e and CAT-6 with dual Ethernet connectors for device looping.
- Supports compatibility with third-party Dante products.

**ARNI G2**

Audio Routed Network Interface

ARNI significantly extends the reach of an OMNEO-based RTS intercom network to function seamlessly across subnets. ARNI enhances the flexibility of system deployments by providing network services and network-wide synchronization for OMNEO traffic. ARNI may also be configured for fully redundant operation to ensure network reliability and stability. ARNI allows the creation of media networks that are able to support up to 10,000 devices across 40 subnets.

Two models are available: the ARNI-S and the ARNI-E. Depending on the size and configuration of the network, multiple ARNI devices can be deployed to achieve the desired network layout and functionality.

- ARNI S is used when more than 128 OMNEO/DANTE devices are being used in a single subnet. It increases this subnet to up to 450 devices.
- ARNI E and ARNI S are required when multiple subnets will support more than 450 and up to 10,000 OMNEO/DANTE devices.

**INTERFACE & CONTROLLER CARDS**

RTS interface cards are the core of the modular digital matrix intercom concept. An array of features and connectivity options allow users to customize their ADAM matrix to integrate seamlessly into a cohesive communications network. Each new generation provides expanded possibilities for existing ADAM frames, solidifying its investment value for years to come. With features such as hot swap and user allocated ports, the ADAM subassemblies ensure that users can scale their intercom systems to fit their growing needs with peace of mind.

**ADAM**

- **AIO-16A**
  - 16-Port Analog I/O for ADAM Series
  - The AIO-16A card provides 16 ports of bi-directional analog audio plus RS-485 control data. Each AIO-16A is composed of a front card and a back card. Two back cards are available, MDR and SC5S. The AIO-16A uses the latest FPGA technology, which utilizes about half of the power of the older AIO-16 card. This is advantageous in applications where cooling is a consideration.

- **MADI-2**
  - Multichannel Audio Digital Interface Card
  - The MADI-2 card expands the ADAM system by providing 16, 32, 48, or 64 channels of digital audio, utilizing MADI (Multichannel Audio Digital Interface) technology to connect any AES-10 compliant devices over coaxial or fiber connections at sampling rates of 44.1 kHz and 48 kHz. Unlike the RVON devices, the MADI-2 has a point-to-point configuration, which provides for little or no delay in the transmission of audio across lines. The MADI card now has cross point volume control and reduced power consumption.

- **Cronus-AIO**
  - 8-Port AIO card for Cronus
  - The Cronus-AIO card supports eight ports of bi-directional analog audio. Includes one front card and one RJ-12 or MDR rear card. The MDR rear card allows relocation of the DB9 or RJ12 breakout panels for easier cable management. The Cronus matrix can accept up to four Cronus-AIO cards, for a total of 32 ports. Up to four Cronus matrices can be linked, for a total of 128 ports. A copy of the linking software is required for each Cronus controller in the system.

- **RVON-C**
  - 8-Port VoIP card for Cronus
  - This card provides eight individually addressable analog bidirectional audio channels converted to TCP/IP based VoIP to distribute matrix audio over long distance and across subnets. RVON provides excellent audio. Users may select the bitrate. The RVON-C card has four user-selectable codecs available in 5.3, 6.3, 8, and 64 kbit/s. The two lower rates may be used for RVON over satellite connections. With the RVON-C card, the Cronus matrix can communicate to another RVON-enabled keypanel or matrix, anywhere in the world.
The Ethernet connectivity of the MCII-E enables multiple AZedit sessions and remote peripherals, such as the GPIO-16 (see page 22). Adding Ethernet connectivity between the ADAM intercom and a PC running AZedit matrix control software, the new controller can support up to 35 simultaneous AZedit sessions. Using a pair of MCII-E controller cards provides full redundancy with seamless automatic changeover upon failure. The MCII-E also supports SNMP, the IETF standard protocol for monitoring network-attached devices.

The Triple-Bus Expander allows multiple ADAM Series matrices to be interconnected in a ring or mesh topology, using high-speed optical fiber. An interconnected system behaves as a single matrix with up to 880 ports. The TBX-2 is fully backward compatible with all existing AES, AIO, and RVON cards in the ADAM intercom product line. Each TBX-2 card has three fiber links, capable of supporting a maximum of 256 bi-directional audio channels per link. The interconnected system will reconfigure itself in the event of a frame failure. If the master frame fails, another ADAM frame takes over and becomes the master frame. This fail-safe mechanism monitors audio, control and messaging to prevent any corrupt behavior in the system.

RVON, or RTS Voice Over Network, provides the ADAM Series with a solution for distributing bi-directional audio over long distances and across subnets. In a typical application, the RVON-16 card would connect to a switch, which in turn connects to the customer’s TCP/IP based network. After the IP-addresses have been configured, ADAM can communicate to another RVON-enabled keypanel or matrix, anywhere in the world, with excellent audio quality. RVON has user-selectable codecs, with the following four bitrates available (in kbit/s) : 5.3, 6.3, 8, 64. The two lower bitrates allow RVON over satellite connections. It provides a single RJ-45 Ethernet connection for use with a 30 BASE-T or 100 BASE-TX network. It also has two DB-9 serial connections for RS-232 or RS-485 pass-thru port connections. The RVON-16 supports use with RTS Intelligent Trunking.

Breakout panels provide a convenient way of expanding the port capacity of ADAM intercom systems. There are eight breakout panels for use with the AIO cards: XCP-32-DB9, XCP-16-DB9-T, XCP-48-RJ45, XCP-48-TELCO, XCP-40-DB9, XCP-40-RJ11, XCP-955, XCP-954-48 and XCP-24-USOC.

<table>
<thead>
<tr>
<th>Panel</th>
<th>Frame</th>
<th>Back Card</th>
<th>Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>XCP-955</td>
<td>ADAM/ADAM-M</td>
<td>Telco</td>
<td>(25x) RJ-12</td>
</tr>
<tr>
<td>XCP-954-48</td>
<td>ADAM/ADAM-M</td>
<td>Telco</td>
<td>(48x) DB-9</td>
</tr>
<tr>
<td>XCP-32-DB9</td>
<td>ADAM/ADAM-M &amp; Cronus</td>
<td>MDR</td>
<td>(32x) DB-9</td>
</tr>
<tr>
<td>XCP-16-DB9-T</td>
<td>ADAM/ADAM-M &amp; Cronus</td>
<td>MDR</td>
<td>(16x) DB-9</td>
</tr>
<tr>
<td>XCP-48-RJ45</td>
<td>ADAM/ADAM-M &amp; Cronus</td>
<td>MDR</td>
<td>(48x) RJ-45</td>
</tr>
<tr>
<td>XCP-48-TELCO</td>
<td>ADAM/ADAM-M &amp; Cronus</td>
<td>MDR Telco</td>
<td>(6x) Telco</td>
</tr>
<tr>
<td>XCP-40-DB9</td>
<td>ADAM/ADAM-M</td>
<td>SCSI</td>
<td>(40x) DB-9</td>
</tr>
<tr>
<td>XCP-40-RJ11</td>
<td>ADAM/ADAM-M</td>
<td>SCSI</td>
<td>(40x) RJ-12</td>
</tr>
<tr>
<td>XCP-24-USOC</td>
<td>ADAM/ADAM-M</td>
<td>SCSI</td>
<td>(3x) Telco</td>
</tr>
<tr>
<td>XCP-ADAM-MC</td>
<td>ADAM/ADAM-M</td>
<td>SCSI</td>
<td>(10x) DB-9, (1x DB25)</td>
</tr>
</tbody>
</table>
## Card Comparison

<table>
<thead>
<tr>
<th>Supporting Products</th>
<th>MCII-E</th>
<th>TBX-2</th>
<th>OMI</th>
<th>RVON-16</th>
<th>AIO-16A</th>
<th>MADI-2</th>
<th>CRONUS-AIO</th>
<th>RVON-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function of card</td>
<td>Master Controller</td>
<td>Triple bus matrix expander</td>
<td>OMNEO Matrix Interface</td>
<td>VoIP interface</td>
<td>Analog Input/Output</td>
<td>MADI Input/Output</td>
<td>Analog Input/Output</td>
<td>VoIP interface</td>
</tr>
<tr>
<td>Features</td>
<td>Connects to AZedit matrix control software via Ethernet, Controls matrix</td>
<td>One card links up to four ADAM or ADAM-M frames together</td>
<td>Provides high-quality audio over IP</td>
<td>Connects matrix to panels and/or audio tie lines over standard IP networks</td>
<td>Provides ports for audio in and out via MDR or SCSI, plus individual data drivers</td>
<td>Connects any AES-10 compliant devices over coaxial or fiber</td>
<td>Provides audio in and out via RJ12 or MDR</td>
<td>Connects matrix to panels and/or audio tie lines over standard IP networks</td>
</tr>
<tr>
<td>Connections</td>
<td>(1) RJ45 Ethernet Connections</td>
<td>(3) LC Type SFP Fiber Connectors</td>
<td>(2) RJ45 Ethernet Connector</td>
<td>(2) DB-9 RS232/485 Serial data</td>
<td>Choice of SCSI or MDR back cards (BC)</td>
<td>BCS connect to break out panels for (32) DB-9. (48) RJ-45 (ADAM, 6 x 16 for ADAM-M), or (8) 48-pin Telco connectors</td>
<td>Choice of RJ12 or MDR back cards (1) RJ45</td>
<td>(1) DB-9 RS232/485 Serial data</td>
</tr>
<tr>
<td>Ports per card</td>
<td>N/A</td>
<td>N/A</td>
<td>16-64, software license scalable</td>
<td>16</td>
<td>16</td>
<td>16-64, software license scalable</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>N/A</td>
<td>N/A</td>
<td>± 1 dB from 20 Hz to 20 kHz</td>
<td>± 0.007% @ 21 dBu, 1 kHz, unweighted</td>
<td>± 0.007% @ 21 dBu, 1 kHz</td>
<td>&lt; 0.007% @ 1 kHz</td>
<td>&lt; 0.007% @ 1 kHz</td>
<td>Codes G.711, G.723, G.729 (A/B)</td>
</tr>
<tr>
<td>THD+N at 1 kHz</td>
<td>N/A</td>
<td>N/A</td>
<td>&lt; 0.01% @ 8 dBu</td>
<td>&lt; 0.4% @ 1 kHz</td>
<td>&lt; 0.4% @ 1 kHz</td>
<td>&lt; 0.4% @ 1 kHz</td>
<td>&lt; 0.4% @ 1 kHz</td>
<td>Codes G.711, G.723, G.729 (A/B)</td>
</tr>
<tr>
<td>Network Requirements</td>
<td>10-100 Mbit/s</td>
<td>N/A</td>
<td>≥ 100 Mbit/s</td>
<td>≥ 10 Mbit/s</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>≥ 10 Mbit/s</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to 70°C (-40°F to 158°F)</td>
<td>-40°C to 70°C (-4°F to 158°F)</td>
<td>20°C to 75°C (+4°F to 167°F)</td>
<td>-40°C to 70°C (-4°F to 158°F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 50°C (32°F to 122°F)</td>
<td>0°C to 50°C (32°F to 122°F)</td>
<td>0°C to 50°C (32°F to 122°F)</td>
<td>0°C to 50°C (32°F to 122°F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Consumption</td>
<td>7.5 W / 1.5 A @ 5 V FC and BC combined</td>
<td>13 W FC and BC combined</td>
<td>14.9 W @ 5 V FC and BC combined</td>
<td>10.2 W FC and BC combined</td>
<td>18.2 W FC only</td>
<td>18.7 W / 3.7 A @ 5 V FC and BC combined</td>
<td>9 W approx.</td>
<td>5 W typical</td>
</tr>
<tr>
<td>Weight</td>
<td>FC: 0.33 kg (0.73 lb)</td>
<td>BC: 0.12 kg (0.26 lb)</td>
<td>FC: 0.34 kg (0.75 lb)</td>
<td>BC: 0.17 kg (0.37 lb)</td>
<td>FC: 0.29 kg (0.64 lb)</td>
<td>BC: 0.14 kg (0.31 lb)</td>
<td>FC: 0.30 kg (0.66 lb)</td>
<td>BC: 0.12 kg (0.26 lb)</td>
</tr>
<tr>
<td></td>
<td>FC: 0.30 kg (0.66 lb)</td>
<td>BC: 0.19 kg (0.42 lb)</td>
<td>FC: 0.33 kg (0.73 lb)</td>
<td>BC: 0.19 kg (0.42 lb)</td>
<td>FC: 0.29 kg (0.64 lb)</td>
<td>BC: 0.14 kg (0.31 lb)</td>
<td>FC: 0.30 kg (0.66 lb)</td>
<td>BC: 0.19 kg (0.42 lb)</td>
</tr>
<tr>
<td></td>
<td>FC: 0.16 kg (0.35 lb)</td>
<td>FC: 0.18 kg (0.40 lb)</td>
<td>FC: 0.14 kg (0.31 lb)</td>
<td>FC: 0.18 kg (0.40 lb)</td>
<td>FC: 0.14 kg (0.31 lb)</td>
<td>FC: 0.18 kg (0.40 lb)</td>
<td>FC: 0.14 kg (0.31 lb)</td>
<td>FC: 0.18 kg (0.40 lb)</td>
</tr>
<tr>
<td>Card Dimensions</td>
<td>Front Card: 2.1 cm x 32.2 cm x 17.3 cm (0.8&quot; x 12.7&quot; x 6.8&quot;)</td>
<td>Back Card: 2.0 cm x 17.3 cm x 17.3 cm (0.8&quot; x 6.8&quot; x 6.8&quot;)</td>
<td>Front Card: 2.1 cm x 32.2 cm x 17.3 cm (0.8&quot; x 12.7&quot; x 6.8&quot;)</td>
<td>Back Card: 2.0 cm x 17.3 cm x 17.3 cm (0.8&quot; x 6.8&quot; x 6.8&quot;)</td>
<td>Front Card: 2.1 cm x 16.5 cm x 1.0 cm (0.8&quot; x 6.5&quot; x 0.4&quot;)</td>
<td>Back Card: 2.1 cm x 13.7 cm x 2.0 cm (0.8&quot; x 5.4&quot; x 0.8&quot;)</td>
<td>Front Card: 2.1 cm x 16.5 cm x 1.0 cm (0.8&quot; x 6.5&quot; x 0.4&quot;)</td>
<td>Back Card: 2.1 cm x 13.7 cm x 2.0 cm (0.8&quot; x 5.4&quot; x 0.8&quot;)</td>
</tr>
</tbody>
</table>
KP-SERIES KEYPANELS

KP-Series keypanels deliver superior digital audio using the Bosch-developed OMNEO which includes Audinate’s Dante audio over IP technology, via either copper or fiber. The KP-Series provides high-quality audio, free of noise, delay and other artifacts present in older technologies. The family includes a rich set of connectors as standard, including GPIO and RC. As with other RTS products, emphasis has been placed on backward compatibility with previous generations of matrices including analog technology.

KP-Series keypanels utilize the latest generation of wide angle TFT displays, providing superior clarity, resolution and longer display life, along with high-quality readability under a variety of lighting conditions. The RTS OMNEO suite now fully supports Open Control Architecture (OCA) also known as AES70.

KP-SERIES FEATURES

- **OMNEO Open Media Networking Standard** – The new KP-Series is future-proof and so is your communication. The unparalleled flexibility features automatic hardware recognition plus the technology of OMNEO, so you get full backward compatibility and easy scalability.
- **Full IP Connectivity and TCP-IP Layer 2 & 3 Compatibility.**
- **Out with the old and in with the more intuitive.** The new design and an enhanced user interface enable easier understanding and improved operation. The software provides simple and intuitive navigation of menus, with the most commonly used features easily accessible.
- **Advanced Signal Processing and AD/DA –** Get high-quality audio transmission every time. The new keypanel family features two echo cancellation modes, plus quick AD/DA conversion — ensuring ultra-low latency and reducing noise, echo, delay and other artifacts present found in older technologies.
- **User-Friendly, High-Res Color Display** – Get high quality, inside and out. The new KP-Series keypanels feature a unified design, with better color, contrast, resolution and viewing angle for an improved visual experience. Plus, multiple controls through ergonomically-designed levers. Pushbutton versions are also available.
- **Backward compatibility –** All KP-Series keypanels are compatible with older technologies such as analog audio in USOC and 568-B connector formats.
- **Standardized connectors –** All previous hardware connector options (RC, GPIO, and ancillary items) are now standard on the 4000 and 5000 series of KP-Series products.
- **Enhanced navigation menus –** Optimized for ease of use.
- **High-performance Audio and Control Software Packages** for KP-5032 and KP-4016 keypanel models including the DKP-4016 desktop keypanel. The software packages new features like keypanel mirroring, voicemail, customization, and more.
- **RTS offers two firmware updates that allow your keypanels to speak either OMNEO or RVON, the tried and tested RTS Voice over Network codec for VoIP (Voice over IP).**
- **Reduced power consumption: The power utilization of the KP-Series keypanels is reduced to almost fifty percent compared to older keypanels and are the most environmentally friendly keypanels RTS has to offer.**

**KP-5032**
32-Position HD Color Display Keypanel
Control Software Package*
Audio Software Package* RVON

**KP-4016**
16-Position HD Color Display Keypanel
Control Software Package*
Audio Software Package* RVON

**EKP-4016**
16-Position HD Color Display Expansion Panel
Connect up to 6 (KP-5032) or up to 7 (KP-4016) expansion panels for a maximum of 128 talk and 128 listen keys.
KP-SERIES PUSH-BUTTON KEYPANELS

KP-Series delivers superior digital audio using the Bosch-developed OMNEO IP-technology, which includes Audinate’s Dante audio-over-IP streaming via copper or fiber. The KP-Series provides high-quality audio – free of delay and other audio artifacts present in older technology. The family includes a rich set of connectors as standard, including GPIO and RC. As with other RTS products, emphasis is on backward compatibility with previous generations of matrices. In response to growing customer demands, RTS now offers three models of the popular KP-Series as pushbutton versions featuring simple push-to-talk operation and easy switching between talk and listening mode. The keypanels KP-5032PB and KP-4016PB as well as the extension keypanel EKP-4016PB are available now. KP-Series keypanels utilize the latest generation of wide angle TFT displays, providing superior clarity and resolution. In addition, the RTS OMNEO suite supports Open Control Architecture (OCA) protocol and is compliant with the AES70 standard. RTS offers different firmware versions, making it possible to load either OMNEO or RVON (RTS Voice over Network) IP protocols.

KP-SERIES PUSH-BUTTON FEATURES

- **OMNEO Open Media Networking Standard** – The new KP-Series is future-proof and so is your communication. The unparalleled flexibility features automatic hardware recognition plus the open source technology of OMNEO, so you get full backward compatibility and easy scalability.

- **Full IP Connectivity and TCP-IP Layer 2 & 3 Compatibility.**

- **The enhanced user interface enable easier understanding and improved operation.** The software provides simple and intuitive navigation of menus, with the most commonly used features easily accessible.

- **Advanced Signal Processing and AD/DA Conversion** – Get high-quality audio transmission every time. The new keypanel family features two echo cancellation modes, plus quick AD/DA conversion – ensuring ultra-low latency and reducing noise, echo, delay and other audio artifacts found in older technologies.

- **User-Friendly, High-Res Color Display** – Get high quality, inside and out.

- **The new KP-Series keypanels feature a unified design with improved color, contrast, resolution and viewing angle.**

- **Lever key and pushbutton models.** Ergonomics has been the guiding principle throughout our design, KP-Series offers lever keys and pushbutton models to suit your individual needs.

- **Backward compatibility** – All KP-Series keypanels are compatible with older technologies such as analog audio in USOC and 568-B connector formats.

- **Standardized connectors** – All previous hardware connector options (RC, GPIO, and ancillary items) are now standard.

- **High-performance Audio and Control Software Packages** also work on the new pushbutton panels. The software packages new features like keypanel mirroring, voicemail, customization, and more.

- **User-Friendly, High-Res Color Display** – Get high quality, inside and out.

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- **Reduced power consumption:** The power utilization of the KP-Series keypanels is reduced to almost fifty percent compared to older keypans, they are the most environmentally friendly keypanels RTS has to offer.
Four new KP-Series keypanel models complement the KP-Series keypanels family in the entry level segment. Depending on the intercom environment, these products can be connected to both digital (KP-3016 and DKP-3016 only) and analog RTS matrices and utilized as entry-level keypanels while still offering the same intuitive, easy handling features. They can also be quickly installed in applications with predefined requirements where the comprehensive connectivity options of the existing KP-series models are not needed, but with the same consistent industrial design, hardware and software platform and high-quality audio performance.

**BEST-IN-CLASS SOLUTIONS**

Four new KP-Series keypanel models complement the KP-Series keypanels family in the entry level segment. Depending on the intercom environment, these products can be connected to both digital (KP-3016 and DKP-3016 only) and analog RTS matrices and utilized as entry-level keypanels while still offering the same intuitive, easy handling features. They can also be quickly installed in applications with predefined requirements where the comprehensive connectivity options of the existing KP-series models are not needed, but with the same consistent industrial design, hardware and software platform and high-quality audio performance.

**KEY FEATURES**

- Each keypanel features full-color HD displays offering well-balanced color, contrast and resolution. The keypanels are capable of displaying English, Kanji, Cyrillic, and simplified Chinese characters.
- Intuitive, easy to learn operation with ergonomically designed listen/talk levers.
- All RTS keypanels have a consistent user interface and operation, which is intuitive and easy to learn.
- Superior sound quality with design assistance provided by the EV speaker engineering R&D group.
- Backward compatible with existing RTS analog matrices and forward compatible with future-proof OMNEO IP architecture.
- OMNEO technology onboard. The KP-3016 and DKP-3016 incorporate OMNEO media networking without the need for additional cards or add-ons.
DIGITAL MATRIX

KP-Series Accessories

All keypanels have a high-resolution TFT1 wide view angle display with 65536 colors and approximately 80° view angle, AEC2, full backward compatibility, self-sensing headset input, and roughly half the power consumption of older panels.

**FEATURE COMPARISON – KP-SERIES**

<table>
<thead>
<tr>
<th>Feature</th>
<th>KP-3016A</th>
<th>KP-3016</th>
<th>DKP-3016</th>
<th>DNP-4016</th>
<th>KP-4016</th>
<th>KP-5032</th>
<th>KP-4016 PB</th>
<th>KP-5032 PB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form factor</td>
<td>FPU</td>
<td>FPU</td>
<td>DNP/FPU</td>
<td>FPU</td>
<td>FPU</td>
<td>FPU</td>
<td>FPU</td>
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</tr>
<tr>
<td>Talk</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
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<tr>
<td>Listen</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
</tr>
<tr>
<td>Keyp. (KP / DP)</td>
<td>14</td>
<td>16</td>
<td>14</td>
<td>16</td>
<td>14</td>
<td>32</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Keys (Exp)</td>
<td>16</td>
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<td>16</td>
<td>Not applicable</td>
<td>16</td>
<td>Not applicable</td>
<td>16</td>
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<tr>
<td>Cross Point Vol</td>
<td>Knob</td>
<td>LVR</td>
<td>LVR</td>
<td>LVR</td>
<td>PB + Aux knob</td>
<td>LVR</td>
<td>LVR</td>
<td>PB + Aux knob</td>
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<tr>
<td>Anti-glare lens</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>TCP/IP Layer 3</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Dante compatible</td>
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<td>Yes, OMNEO</td>
<td>No</td>
<td>Yes, OMNEO</td>
<td>No</td>
<td>Yes, OMNEO</td>
<td>No</td>
<td>Yes, OMNEO</td>
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<td>Yes</td>
<td>Yes</td>
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<td>Front self-sensing hidt</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Power (W), nominal</td>
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<td>11</td>
<td>25</td>
<td>12</td>
<td>13</td>
<td>12</td>
<td>13</td>
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<tr>
<td>Aux inputs</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Ext mic input</td>
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<td>Yes</td>
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<tr>
<td>Line out / mic out</td>
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<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Power supply</td>
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<td>Internal</td>
<td>External</td>
<td>Internal</td>
<td>External</td>
<td>External</td>
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<td>External</td>
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<td>Output for ext. speaker</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>OMNEO (RJ-45)</td>
<td>No</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>OMNEO (for SFP)</td>
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<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Backward compatible</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Firmware can be upgraded</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<td>Yes</td>
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<td>Accepts RVON codex</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<tr>
<td>Enhanced feature licensing</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

1. TST = Thin Film Transistor
2. AEC = Acoustic Echo Cancellation
3. DNP = Desktop, WM = Wall-mount
4. Analog only
5. 1 RU
6. One XLR-4F and one XLR-5F, both located on the side of the unit
7. XLR-3F
8. One XLR-4F and one XLR-5F, both located on the side of the unit
9. XLR-3M, located on the rear of the unit
10. Two relays and two opto-inputs
11. On units with external power supply, same type is used
12. Uses locking AC-connector
13. KP-Series software packages, Audio and Control
14. OMNEO AUX Input: The Audio Software Package additionally provides six OMNEO AUX inputs in addition to the two standard inputs, giving you more configuration options for your matrix environment

**KP-SERIES SOFTWARE PACKAGES**

RTS offers two software packages for its KP-Series keypanels, designed for high-tech users including large broadcasters and organizations with more demanding requirements for audio-visual performance and remote control. The audio and control software packages represent a completely new way to enhance the functionality and investment value of existing RTS hardware. Each software package can be installed on the KP-5032 and KP-4016 keypanel models, including the DNP-4016 desktop keypanel. A one-time-only fee means there are no recurring payments. Once installed, the two packages create customized audio/control functionality that meets the most challenging requirements.

**HIGHLIGHTS**

- The KP-Series Control package includes two superior features to make it easy to change the settings on any keypanel, either from a central location using AZ-Edit, or from any panel with Keypanel Mirroring installed.
- The KP-Series Audio package offers the best audio performance of any keypanel on the market. Users can fine-tune the audio to their personal preferences. Multiple audio parameters are available to users.
- The Audio package also has voice mail, to make sure your message reaches its intended recipient. The voice message system will alert users to the presence of messages, as soon as they return to their keypanel.

**Audio Software Package**

- Five-band equalizer:
  - adjust volume level within five pre-defined frequency bands; users can fine-tune audio to their individual preferences
- Noise gate:
  - adjust as required to reduce fatigue-causing line noise
- OMNEO AUX Input:
  - The Audio Software Package also provides six OMNEO AUX inputs in addition to the two standard inputs, giving you more configuration options for your matrix environment

**Control Software Package**

- Configuration upload/download:
  - remotely configure any keypanel and edit/save keypanel configurations in AZ-Edit software
- Supervisor mode (keypanel mirroring):
  - remotely configure any keypanel, adjust volumes and other parameters in real-time on target panel from a supervisor panel
- Supervisor mode (keypanel mirroring):
  - remotely configure any keypanel, adjust volumes and other parameters in real-time on target panel from a supervisor panel
- Configuration upload/download:
  - remotely configure any keypanel and edit/save keypanel configurations in AZ-Edit software

**RVON Codec**

- The field-proven RVON (RTS Voice over Network) codec for VoIP (Voice over Internet Protocol) enables communication between users across long distances, with superior sound quality compared to competitor software solutions.
- KP-Series users may now connect to matrices equipped with a suitable RVON interface, such as the RVON-16 for ADAM/ADAM M or RVON-C for Cronus matrices. RVON uses the G.711 narrowband audio protocol, providing toll-quality audio at 64 kbit/s.

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*The Audio and Control Software Packages are optional and can be installed on all KP-5032, KP-4016 and DNP-4016 keypanel models.*
The Color Series keypanels sport advanced features that take flexibility and ease-of-use to the next level. The Color Series feature a revolutionary customizable GUI in integrated full-color TFT displays. The Color Series advanced functionality is wrapped in a sleek, ergonomic design with a contoured bezel that fits flush within a rackmount configuration and looks great on the desktop.

The RP-1000 features a stunning high-contrast HD TFT display with high-efficiency LED backlighting and enhanced language support for system alphas.

**COLOR SERIES FEATURES**

- **Full-Color TFT Display** – The TFT color display hosts a rich and intuitive GUI that allows each type of function to be assigned a unique color.
- **Modern, Modular Design** – The rack-mount Color Series keypanel’s flush front panel is ergonomically designed to fit easily into any control room or truck application. The back panels are optimized for future expansion.
- **Multi-Directional Keys** – Multi-directional keys are used for talk, listen and emulation of traditional level control function.
- **Enhanced Features** – The Color Series keypanels support industry leading features, such as up to six auxiliary inputs, three relays, independent digital gain control for microphone sources and configurable audio routing.
- **DSP** – Acoustic Echo Cancellation, Equalization, Mixing, Filtering and Metering.
- **User-Programmable Buttons** – User-programmable buttons provide custom shortcuts to menu functions.
- **Key Sequence Options** – Color Series keypanel can be ordered with the new Color key sequences and button screening, or the classic key sequences and button screening configured for the backlit numeric keypad.
- **Future Expansion** – Designed to allow for an expansion panel and optional connections to the matrix through current and future standard transmission formats.

**Color Series Accessories**

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Panel</th>
<th>Functionality</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>DKP 16 CLD RC</td>
<td>DKP 16 CLD Rear Connector Kit</td>
<td>5 AUX, 3 relays, 4 opto inputs, headset, 2 OC outputs, foot SW, mic in/out, speaker</td>
<td></td>
</tr>
<tr>
<td>KP 12 CLD RC</td>
<td>KP 12 CLD Rear Connector Panel</td>
<td>3 AUX, 3 relays, 4 opto inputs, headset, 2 OC outputs, foot SW, mic in/out, LCP, EXP, frame, VoIP</td>
<td></td>
</tr>
<tr>
<td>RP-1000 RC</td>
<td>RP-1000 Rear Connector Kit</td>
<td>6 AUX, 3 relays, 4 opto inputs, headset, foot SW, speaker, 2 OC outputs, mic in/out</td>
<td></td>
</tr>
<tr>
<td>LCP 16 CLD</td>
<td>RP-1000 Level Control Panel</td>
<td>Provides direct knob access to the volume levels of AUX, sidetone, speaker, headset and other functions of the RP-1000/KP 32 CLD</td>
<td></td>
</tr>
<tr>
<td>OKI</td>
<td>RP-1000 KP 12 CLD KP-32</td>
<td>OMNIBUS Interface</td>
<td>Two channels of audio in and out, Ethernet and fiber compatible</td>
</tr>
<tr>
<td>RVON-2</td>
<td>RP-1000 DKP 16 CLD KP 12 CLD</td>
<td>VoIP Interface</td>
<td>Two channels of audio in and out, Ethernet compatible</td>
</tr>
<tr>
<td>MCP-90-x</td>
<td>All RTS keypanels Electret Gooseneck Microphone</td>
<td>Available in various length from 0” till 18”. All versions use a electret microphone element.</td>
<td></td>
</tr>
</tbody>
</table>
**OKI OMNEO Keypanel Interface Card**

This card fits into select RTS user stations and provides native OMNEO IP connectivity for RJ45 Ethernet connections into the OMNEO network with optional single or multimode fiber modules. The card provides a two-port switch onboard as a pass-thru connection to allow daisy chaining of keypanels if required. It plugs into the existing header in the keypanel and comes with all parts needed to complete the upgrade. The OKI card is available for the RTS KP-32, RP-1000 or KP 12 CLD keypanels.

WKP-1 is an analog-only industrial intercom keypanel in a rugged and weather-resistant design. Microphone and speaker are built into the unit. The unit is intended for wall mount applications, and fits into a standard 2-gang 3” deep electrical box (approximately 8 cm). The built-in relay switch allows the user to set up door latching, unlatching, and other actions by pressing a single button from any panel in the system. The keypanel can be powered in two ways: locally through a 3-pin terminal or remotely via an RJ-45 connection from the breakout panel or remote power supply. The WKP-1 has been updated with new circuitry to use less power, as well as reverse polarity protection on the DC input.

**Specification Table**

<table>
<thead>
<tr>
<th>Feature</th>
<th>OKI OMNEO Keypanel Interface Card</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supporting Products</strong></td>
<td>KP-32, KP 32 CLD, RP-1000, KP 12 CLD</td>
</tr>
<tr>
<td><strong>Connections</strong></td>
<td>(2) RJ45 Ethernet Connections (1) LC Type SFP Fiber Connector</td>
</tr>
<tr>
<td><strong>Audio I/O Levels</strong></td>
<td>Input/Output (maximum level): +20 dBu Input/Output (nominal level): -8 dBu</td>
</tr>
<tr>
<td><strong>Frequency Response (Input)</strong></td>
<td>Within ±1 dB from 20 Hz – 20 kHz</td>
</tr>
<tr>
<td><strong>Network Requirements</strong></td>
<td>&lt; 2 ms typical</td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
<td>KP 12 CLD/KP 32 CLD/RP-1000: -40°F to 158°F (-40°C to 70°C)</td>
</tr>
<tr>
<td></td>
<td>KP 32: -40°F to 140°F (-40°C to 60°C)</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>KP 12 CLD/KP 32 CLD/RP-1000: 5°F to 122°F (-15°C to 50°C)</td>
</tr>
<tr>
<td></td>
<td>KP 32: 14°F to 105.8°F (-10°C to 41°C)</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>KP 12 CLD/KP 32 CLD/RP-1000 without Fiber: 5 watts</td>
</tr>
<tr>
<td></td>
<td>KP 12 CLD/KP 32 CLD/RP-1000 with Fiber: 5.75 watts</td>
</tr>
<tr>
<td></td>
<td>KP 32 without Fiber: 5.5 watts</td>
</tr>
<tr>
<td></td>
<td>KP 32 with Fiber: 6.25 watts</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>4.15 oz (card only)</td>
</tr>
<tr>
<td><strong>Card Dimensions (W x D x H)</strong></td>
<td>4.5” x 3.0” x 1.1” (29.03 cm x 19.35 cm x 7.10 cm)</td>
</tr>
</tbody>
</table>

*OMI card is a digital board with build-in audio mixer for 64 inputs. The audio I/O levels are specific to analog sources such as AIO-16A or keypanel.

---

**BFE**

KSC CORE is an adaptable control and monitoring system for fast and flexible control of the entire broadcast chain – planning, contribution, production, playout & distribution. A variety of features make broadcast operations easy: Format agnostic signal conversion through advanced signal format management and dynamic handling of formats in the age of video-over-IP, an intelligent device scanner for easily adding new equipment and thousands of processing parameters are just some of the software’s benefits.

BFE’s hardware options – control panels, GPIO controllers & under monitor displays – extend KSC CORE even further.

**VSM**

VSM (Virtual Studio Manager) is Lawo’s sophisticated and flexible, IP-based broadcast control and monitoring system that integrates the control of all TV and radio equipment in one system. This provides incomparable benefits in terms of an advanced workflow. VSM uses a TCP/IP backbone. Through multiple protocols, VSM controls all major brands of video and audio routers / mixers, under monitor displays, multi-viewers, and other third party devices. VSM controls the complete Tally and Labelling requirements of a system without any additional equipment. VSM is a single control system for all hardware types – with the possibility of managing an unlimited number of users.
RTS software provides complete control over your intercom system from any standard Windows computer. Configure keypanel settings, assign user rights and even link matrices together that are thousands of miles away.

Intercom system configuration has never been easier with the advent of AZedit matrix control software. AZedit is a Windows-based, full-featured configuration software, providing online and offline configuration capabilities. It gives you the ability to manage multiple intercom systems, assign and reassign users to different ports, as well as dynamically add intercom hardware to your system setup without jumper changes, rewiring or taking the system offline. AZedit has the capability to load pre-set configuration files, which means saved configurations can be uploaded to the live application at anytime without interruption. AZedit can be used as a monitor tool to observe the status of features, such as gain and crosspoint settings, keypanel keys activated and other aspects of the system. AZedit can run in multiple sessions using the MCII-E ADAM master controller to allow for remote system configuration. AZedit is updated regularly to provide users with the latest features and innovations available.

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RestrictEdit is a tool to create restriction files for use with AZedit software. Restriction files allow administrators to manage user access to resources and features. AZedit includes support for user restrictions by reading a text file (the restrictions file) and parsing out the set of resources and features available to each user.

Trunk Edit Software is a GUI for programming TM-10K trunking devices. Trunk Edit Software allows the user to set up all necessary parameters required for trunking multiple intercom systems. Each intercom system can be configured to work together as a virtual-integrated, single intercom system while still maintaining each individual system’s autonomy.

PAP-32
Program Assignment Panel
The PAP-32 enables routing of program sources to IFB destinations.
The TIF-4000 provides bidirectional communication between the intercom matrix and up to 12 standard analog telephone lines. The unit operates with 2 redundant power supplies.

The MCP-90-x gooseneck microphones is the standard gooseneck Intercom microphone for all RTS keypanels. Available in various length from 0” till 18”. All versions use a electret microphone element.

The SIP-ISDN has support for the SIP protocol and incorporates an ISDN basic rate interface (1x 50/2 Lines) and a LAN interface. To connect the SIP-ISDN unit directly to a matrix port, a RS-232 to RS-485 data converter is required.

The new multiplexers come with a built-in, highly stable word clock generator. In case of a failure of the word clock master, the FMI-4 and FMI-8 multiplexers employ an automatic switching algorithm allowing every device to function as word clock master in a system.

The RTS multiplexer models feature low power consumption and silent operation. They can even be used in recording studios, OB vans or theater productions with very high requirements for room acoustics.

An Ethernet signal can also be carried across the optical network. In this example, a KP-4016 with EKP-4016 expansion panel are also connected. Both FMI-4 and FMI-8 have two LAN-ports, internally connected by a fast Ethernet switch. This is shown in the illustration below.

*1/2 of 1 RU device, Rackmount kits see page 74.
RTS VLink is a fully interconnected software application that enables remote users to interface with RTS matrix intercoms, allowing control and flexibility from anywhere in the world. RTS VLink extends your RTS intercom to any location with internet access, turning a standard conference room or hotel suite into an executive monitoring lounge offering full two-way communication with production facilities such as control rooms and video trucks. Whether the people you need to talk to are in the same facility, across town, or thousands of miles away, RTS VLink securely ties them into your main intercom over a dedicated network, or via standard Internet connections using a VPN – all without any running of cable or leasing of lines. The basic system can be operated in stand alone mode, the advanced version can integrate to your existing RTS intercom system.

**RTS VLink Features**

- **Anywhere, Anytime Access** – The perfect solution for users that need secure, intelligent access to their RTS matrix from any location.
- **Flexible configuration** – scale the system to any number of ports (initial system of eight ports with two-port expansions available). Purchase only the capacity you need.
- **Full integration into RTS Matrix Intercom Systems** – Allows full mapping of all intercom alphas.
- **Fully DHCP compliant** – Operates over open internet connections. Secure access can be employed with a standard VPN connection.
- **SIP telephony support** – Full IP telephony for digital matrices to make phone calls via SIP server functionality.
- **Flexible connectivity** – Provides a variety of connections including MADI, analog or Firewire.
- **True mobility** – Access an RTS matrix via smart phone or ipad etc. using a WIFI/3G/4G internet connection.

**SIP Telephony Support**

With the new SIP server functionality, RTS provides a cost-effective way for digital matrices to make phone calls via IP telephony. Interfacing with SIP, this allows users to feed into a PBX and ultimately into the public switched telephone network. SIP server can provide an unlimited number of digital telephone lines. For flawless operation, a complete system requires an RTS matrix with OMNEO IP technology on board, a PC with the RTS VLink server, SIP-lines, an IP network and the respective software components and licenses. Wherever VLink software uses the SIP server functionality, a TrunkMaster system is no longer required. For broadcasters already using TrunkMaster, the SIP server can be utilized as a professional backup communication system, adding more resilience and redundancy to the existing intercom system.

**Individually Configured Matrices Allow for Easier Administration of the Overall Intercom System**

Trunking allows global users to intelligently interconnect their intercom systems worldwide to provide a global communication solution. A seamless communication between the various systems is giving the impression of one complete system. Each RTS matrix (or bus expanded system) is treated individually and is configured/managed by their own A2Edit session, allowing for the administration of the systems to be carried out locally and more manageably rather than having to control one huge system. The matrices are connected together via a network of audio tielines. The RTS TrunkMaster dynamically controls and allocates the audio tieline as a pool of resources making the necessary audio routes. It optimizes the audio tielines by making multiple crosspoints or forks in the matrices to eliminate using tielines for the same function. For control, the TM10K TrunkMaster only requires an Ethernet Network connection to the RTS Matrix or alternatively a serial (RS-485) connection to each of the matrices or systems. The audio tielines can be via analog or digital audio protocols and codecs such as POTS, ISDN, MADI, RVON, AES, OMNEO or even analogue Four-wires.
TRUNKMASTER & TRI-BUS MULTI-FRAME TOPOLOGY

The RTS TM-10K trunkmaster is a super high capacity intelligent linking system to provide virtually limitless expansion to any RTS intercom network. The TM-10K seamlessly links up to 255 RTS intercom systems, allowing users to communicate with one another instantaneously with all the same presets, scroll lists and tallies available on local matrices. 10,000 trunk lines can be interconnected into one network. Whether the systems are located in adjacent studios or on different continents, intelligent trunking unifies your unique communication needs.

The TM-10K can be linked using OMNEO, RVON or analog audio connections providing the ultimate in flexibility and reliability. Using multiple TM-10K units, the system is fail safe, providing redundant linking connections and control of which can be separated over long distances for superior reliability and flexibility.

- Dual redundant power supplies provide fail safe operation.
- Support for dual network interface connections for enhanced reliability.
- Solid state hard drive for superior operational speed and reliability.
- Capacity to link up to 255 RTS intercom systems and 10,000 trunk lines.
- Full support for all RTS digital matrix frames.
- Fail safe operation when using multiple trunkmasters.
- Redundant trunkmasters can be geographically separated.

The RTS systems TriBus technology provides the end user with a wide variety of system expansion options. The TriBus expander supports both a dual fiber ring or a robust mesh architecture for added redundancy. Whether your communication needs call for a distributed topology or centralized design, the TriBus expansion card can meet the challenge.

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The new ROAMEO wireless intercom system from RTS is a professional, easy-to-use and future-proof solution based on the license-free DECT (Digital Enhanced Cordless Telecommunications) standard. ROAMEO provides high-quality audio and a large number of simultaneous users across wide areas over a seamlessly integrated digital wireless beltpack and associated access points. ROAMEO can solve a series of communication challenges by operating like a wireless keypanel in the field which is easy to use and easy to expand. Additionally, wireless beltpacks can be directly addressed as part of a wired RTS matrix intercom system.
ROAMEO provides a superior user experience – the system can be easily configured in a multi-language set-up via scroll lists on the TR-1800 beltpacks or using the control software AZedit, which allows users to configure the complete intercom system on one screen. Thanks to its large color LED-display and intuitive icon-based menu structure, the TR-1800 beltpack is very easy to set up and operate. With its lightweight, durable housing, the beltpack features the smallest enclosure in its class and is protected against dust and light rain.

**DECT**

**THE AP-1800 ACCESS POINT – COMPATIBLE AND RELIABLE**

Connection to a digital matrix is easily established via a single Ethernet cable; the access points can be daisy-chained. The AP-1800 access point is protected by a durable aluminum enclosure and designed for a minimum of spatial requirements on vertical or horizontal wall surfaces. The AP-1800 access points convert the DECT signals into Dante-compatible OMNEO IP-technology, thereby providing the highest interoperability, flexibility, reliability and resilience.

**EXPANDING THE SYSTEM**

ROAMEO’s cellular structure can cover a wide area with superior audio and seamless roaming between the individual cells. Each cell requires an AP-1800 access point and covers a specified area and number of beltpacks, depending on the audio codec used. Each AP-1800 has a built-in IP switch that adds multiple streams together in the same cable and will configure itself automatically. Users can easily expand the coverage area by adding additional access points, while additional wireless beltpacks can be directly addressed as part of a wired RTS matrix intercom system.
The TR-1800 holster is an accessory intended for users who do not use a belt, or prefer a shoulder-strap instead of the clip. The holster provides additional protection against dust (no rain protection). TR-1800 holster may be purchased as accessory separately.

The TR-1800 beltpack comes with a power supply included, but for users who want an extra power supply, the PSE-24 may be ordered separately. It provides the correct voltage for charging the Lithium-Ion battery in the unit. The TR-1800 beltpack cannot be operated while the battery is charging. A full charge takes approximately eight hours.

The AP-1800 access point comes already with two antennas. Users who need one spare antenna can order this accessory separately. ANT-1800 may be rotated and tilted, to optimize the radio coverage from the Access Point. The same antenna is used for 1.88-1.90 GHz and 1.92-1.93 GHz.

The PoE (Power over Ethernet) adapter can drive one single AP-1800 Access Point. If additional access points are daisy-chained, they must have local power. The Access Point that uses PoE must be connected directly to a PoE-enabled switch. If multiple Access Points require PoE, they must be connected in a star topology, with each AP attached directly to the switch. The PoE adapter is a convenient option if local power is hard to arrange in the location where the AP is mounted. The PoE adapter for the AP-1800 Access Point comes with all the plugs and cables required: PoE splitter, DC-cable, barrel adapter, Ethernet cable (yellow, CAT6), Ethernet cable (gray, CAT5, provided as a spare).

This rechargeable battery powers the TR-1800 beltpack for up to 17 hours of normal use. It may be charged in the TR-1800, or using the CHG-240 four-bay charger. Charges up to four Lithium-Ion batteries in approximately 90 minutes. CHG-240 is available in a North American and a European version.
BTR-700

**Single-Channel UHF Synthesized Wireless Intercom**

- Frequency agile
- 1440 selectable frequencies
- ClearScan auto frequency selection
- Four beltpacks per base station
- Cast magnesium beltpacks

**BASE STATIONS, BELTPACKS, ACCESSORIES**

**SINGLE-CHANNEL UHF SYNTHESIZED WIRELESS INTERCOM BASE STATION**

- TR-700 Wireless Beltpacks — Four beltpacks per base station. Each BTR-700 base station can support up to four beltpacks in full-time transmit, full duplex operation. Multiple base station/beltpack systems can be used together to meet the needs of virtually any wireless communications application.
- Frequency Agile — Choose from 1440 user selectable frequencies using the BTR-700 graphical user interface. Frequencies can be selected from groups of intermode free choices, or any frequency in 25 kHz increments. Select from 720 TX and 720 RX frequencies each from independent 18 MHz operational bands.
- UHF Operation — Both the BTR-700 and the TR-700 operate in the UHF band from 518 to 722 MHz. Bases and beltpacks operate in specific 18 MHz operational bands.
- Enhanced ClearScan Frequency Auto Selection And Graphical User Interface — Intermodulation-Free Factory Selected Groups — Each BTR-700 system comes with 24 factory-selected, intermodulation-avoiding groups that allows the user to get started right out of the box.
- “Fifth Person” Talk/Listen Station At Base — The BTR-700 base station features a full talk/listen headset station so that an additional user can communicate on the intercom channel.
- Intelligent Power Control — This breakthrough technology takes system range and performance to a whole new level. Each beltpack senses when it is close to the base station and intelligently reduces its output by 10 dB. This effectively eliminates overloading the base station receiver front end, which is the primary cause for the “near-far” desensizing problem experienced in other wireless intercoms.
• Cast Magnesium Beltpacks — TR-700 beltpacks are constructed of extremely light, strong, and durable cast magnesium. Using magnesium substantially decreases the weight of the beltpack while assuring the utmost ruggedness and durability.

• Detachable Beltpack Antennas — TR-700 beltpacks feature detachable antennas that utilize stud threaded connectors that do not have a fragile center pin to break off or bend. Detachable antennas make storage or shipping easy.

• Two Great Battery Options — TR-700 beltpacks can be operated from standard alkaline AA batteries that provide over 14 hours of continuous duty operation. For applications where rechargeable batteries are required, optional NiMH battery packs are available. NiMH batteries do not develop harmful memories like NiCads and offer a full 12 hours of operation. Drop-in chargers are also available in single and four-gang configurations.

The BTR-800 is fully compatible with AudioCom, RTS, and Clear-Com hardwired intercom systems.

• Dual Listen Operation — Each TR-825 beltpack provides two volume controls, one for each intercom channel that allows for individual level control. Listen to production in one ear and tech in the other ear. The TR-825 can operate in either stereo (split-feed) or mono mode.

• Dual Listen Operation (TR-825)
• Four beltpacks per base station
• Cast magnesium beltpacks
OFFERING THE MOST COMPREHENSIVE SET OF FEATURES IN WIRELESS INTERCOM SYSTEMS

The BTR-80N narrow band wireless intercom system offers the most comprehensive, user-friendly and versatile set of features available in wireless intercom systems anywhere in the world. Providing an unprecedented 25 kHz of modulated bandwidth, the BTR-80N narrow band system allows more users per channel in the cramped UHF spectrum. Combining the award-winning performance of the BTR-800 wireless intercom system with revolutionary narrow band technology and additional innovative features, the BTR-80N is the best-performing, most versatile wireless intercom system ever made.

While providing excellent audio performance, the narrow band system is based on the award-winning and world leading BTR-800 wireless intercom system and provides all of the standard features of the BTR-800 system, such as DSP and Intelligent Power Control, and more. The BTR-80N narrow band systems offers up to four full-duplex wireless TR-80N or TR-82N beltpacks per base station. An unlimited number of additional beltpacks can be added in half-duplex operation. Additional features include selectable transmitter power output, selectable receiver squelch control, RF meter display on base station and beltpack displays, remote battery indicators on base station display, low battery tone indicator on beltpack, AC or DC power input on base station, simultaneous 2-wire and 4-wire operation, and more.

- User-adjustable receiver squelch control
- RF meter on BTR-80N, TR-80N and TR-82N
- Beltpack battery gauge on BTR-80N display
- Ability to turn off remote beltpack transmitter from base station
- BTR-80N is easily adapted for two transmitter output
- BTR-80N is designed for AC or DC power input
- Auxiliary audio input is assignable with level control
UHF Operation — The BTR-80N, TR-80N, and TR-82N operate in the UHF band from 482 to 722 MHz and operate in specific 18 MHz frequency bands. An industry-leading 32 frequency band combinations are available to order.

Frequency Agility — Choose from 1440 user selectable frequencies in 25 kHz increments or select frequency plans from preset intermodulation-avoiding groups. The independent 18 MHz frequency bands provide 720 TX and 720 RX selectable frequencies.

Selectable Output Power — The BTR-80N, TR-80N, and TR-82N provide a user-selectable transmit output power. The BTR-80N has a maximum output power of 249 mW down to 10 mW with an additional setting to turn off transmit power to each individual transmitter. The TR-80N and TR-82N have a maximum output power of 100 mW down to 5 mW with an additional setting to turn on the auto Intelligent Power Control feature to provide outstanding “near-far” operation.

Engineering Defined Frequency Plans — Each narrow band system comes with 36 engineering selected, intermodulation-avoiding groups of channel plans that allows the user to get the system operational right out of the box.

Two-Channel Intercom Access — Hardwired intercom channels that are run to the BTR-80N base station can be 2-wire (partyline) or 4-wire (digital matrix). These intercom inputs to the BTR-80N can be set up to be individual per channel or they can be mixed on a channel. Individual adjustment for in and out level control are provided in the BTR-80N front panel user interface.

Flexible Number of Beltpack Users per Base Station — In full-duplex operation, the BTR-80N will support up to 4 TR-80N or TR-82N beltpacks. By placing TR-80N or TR-82N beltpacks in Push-to-Transmit operation (half-duplex), you can expand your system to multiple users on one BTR-80N base station. When the TR-80N or TR-82N are placed in Push-to-Transmit operation, the intelligence of the narrow band system provides a First-On-Latch-Out feature that will not allow the beltpacks to interfere with each other when operating on the same frequency. This feature provides future expansion possibilities and will allow multiple users on the same channel whose primary function is to listen all the time and talk infrequently.

Enhanced ClearScan Frequency Scan and Auto Selection — This powerful frequency scanning and selection feature is easily activated and progress is easily monitored on the BTR-80N, TR-80N and TR-82N display screens. Results are provided and users have the option to review, accept or reject the results. This dynamic feature allows system frequency selection and setup in just minutes in a new or unknown venue.

Battery Options — The TR-80N and TR-82N beltpacks can operate from standard alkaline AA batteries or from the optional NiMH battery packs. Operation on alkaline batteries provides up to 12 hours of continuous duty and up to 10 hours on NiMH. Drop-in chargers are available in single and four-gang configurations.

“Fifth person” talk/listen user station at the BTR-80N base station

Wireless talk around (broadcast ISO)

Stage announce output with relay closure

Intelligent power control

TR-82N dual listen operation

Cast magnesium beltpacks

Beltpack low battery indicator with tone warning
The ACS-101 amplified broadband combiner/splitter makes it possible to operate 10 UHF wireless intercom base transceivers using only two antennas. In addition to accommodating ten transmit and 10 receiver antennas, it provides power connection for up to 10 base transceivers. It also features excellent output isolation (better than SC-600). The ACS-101 is necessary in multi-frequency systems to prevent intermodulation. The ACS-101 is an ideal complement to your BTR-700, BTR-800 or BTR-80N (BTR-800/BTR-80N set to normal output power).

*The product is not available in countries where CE certification is necessary

**COMBINER/SPLITTER**

**The ACS-101**

- Amplified broadband combiner/splitter
- Operates 10 UHF wireless intercom base transceivers with 2 antennas
- Accommodates 10 transmit and 10 receiver antennas
- Provides power connection for up to 10 base transceivers
- Features excellent output isolation
- Necessary in multi-frequency systems to prevent intermodulation
- Ideal complement to BTR-700, BTR-800 or BTR-80N

**The APS-1**

- Passive broadband combiner/splitter
- Combines two antennas to one (receive) or splits one antenna to two (transmit)
- Two models available
- Reduces 20 antennas to two (ACS-101) or reduces two antennas to one (APS-1)
- Extremely low intermode production
- Compatible with BTR-700 and BTR-800 systems
- One year warranty
- Handles both transmit and receive
- Rugged and durable construction
- Made in the USA

**UHF Base Station Accessories**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB-2</td>
<td>Universal bracket for CLA-X ½ wave antennas with 10' coax</td>
</tr>
<tr>
<td>ALP-450</td>
<td>Directional log periodic antenna. Covers 450-900 MHz. Forward coverage pattern increases signal gain up to 5 dB. Supplied with mounting hardware for wall or mic stand and 10' coaxial cable. Measures 9½”L x 11”H painted matte black.</td>
</tr>
<tr>
<td>ALP-600</td>
<td>Bi-directional log periodic antenna. Covers 520-760 MHz. Includes mounting hardware and 10' (3 m) coaxial cable with TNC connector. Painted black with TNC connector. Measures 274.6mm x 422mm (L x H).</td>
</tr>
<tr>
<td>ALP-600B</td>
<td>ALP-600 antenna bracket kit</td>
</tr>
<tr>
<td>ALP-600M</td>
<td>ALP-600 antenna mast-telescoping</td>
</tr>
<tr>
<td>ALP-700</td>
<td>Bi-directional log periodic antenna. Covers 470-760 MHz. Unique side-to-side and front to back coverage pattern increases single gain up to 1.8dBd. Includes mounting hardware, clamp and 10' (3 meters) coaxial cable with TNC connector. Painted black with TNC connector. Measured 274.6mm x 422mm (L x H).</td>
</tr>
<tr>
<td>APS-1</td>
<td>Two to one antenna combiner/splitter with TNC connectors</td>
</tr>
<tr>
<td>CXU</td>
<td>50 Ω loss coaxial cable with TNC connectors (multiple lengths available)</td>
</tr>
<tr>
<td>FA</td>
<td>½ wave collinear antenna (multiple frequency ranges)</td>
</tr>
<tr>
<td>RM-800</td>
<td>Rackmount reinforcement for BTR-800/BTR-700</td>
</tr>
<tr>
<td>TP-2</td>
<td>TNC 50 Ω termination plug and ACS-101 antenna combiner</td>
</tr>
<tr>
<td>TP-3</td>
<td>XLR-3 Intercom &quot;dummy load&quot; plug (AudioCom)</td>
</tr>
<tr>
<td>TP-3R</td>
<td>XLR-3 Intercom &quot;dummy load&quot; plug (RTS)</td>
</tr>
</tbody>
</table>

**UHF Beltpack Accessories**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC-800NM</td>
<td>1 bay charger w/switching power supply, Euro cord, NiMH pack</td>
</tr>
<tr>
<td>BC-800N4</td>
<td>4 bay charger w/switching power supply, 4 NiMH battery packs, Euro cord</td>
</tr>
<tr>
<td>BP-700</td>
<td>Alkaline battery holder TR-700/TR-800/TR-825/TR-82N/TR-82N/TR-1/RKP-4</td>
</tr>
<tr>
<td>BP-800NM</td>
<td>NiMH battery pack TR-700/800/TR-825/TR-82N/82N/1/RKP-4</td>
</tr>
<tr>
<td>BPA 1/4</td>
<td>Wave beltpack antenna (multiple frequency ranges)</td>
</tr>
<tr>
<td>SBC-1</td>
<td>Swivel beltclip for TR-700/800/825/82N/1/RKP-4</td>
</tr>
<tr>
<td>TRH-2</td>
<td>Heavy duty leather swivel holster with belt loop for TR-700/800/820/82N/1/RKP-4</td>
</tr>
</tbody>
</table>
WIRELESS PARTYLINE

**BTR-80N**

The BTR-80N system operates in TV channels 16 to 36 and 38 to 55. This is the frequency range of 470 to 608 and 614 to 722 MHz. The BTR-80N frequency bands are typically 18 MHz wide.

The BTR-80N systems are offered on 32 standard frequency band splits noted as follows*:

F1, F2, F3, F4, F5, F6
H1, H2, H3, H4, H5, H6
A1, A2, A3, A4, A5, A6
B2, B3, B4, B5, B6
C3, C4, C5, C6
D5, D6, D7
E5, E6

The frequency band D7 is not available in countries where CE certification is necessary.

**RTS Intercoms UHF Frequency Band Chart**

<table>
<thead>
<tr>
<th>BTR-80N</th>
<th>TV CHANNEL</th>
<th>START FREQUENCY</th>
<th>END FREQUENCY</th>
<th>TV CHANNEL (NTSC)</th>
<th>BTR-80N</th>
<th>BTR-700</th>
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</thead>
<tbody>
<tr>
<td>14</td>
<td>470</td>
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<td>18</td>
<td>500</td>
<td>506</td>
<td>512</td>
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<td>680</td>
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<tr>
<td>37</td>
<td>728</td>
<td>734</td>
<td>740</td>
<td>F</td>
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<td></td>
</tr>
<tr>
<td>38</td>
<td>740</td>
<td>746</td>
<td>752</td>
<td>F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The frequency bands E88, F2, F4, H2, H4, A4, B3, B5, B7 are not available in countries where CE certification is necessary.

Please go to www.rtsintercoms.com/fcc to learn about the RTS response to the FCC UHF spectrum changes.

Please note for US and Canada. After October 12 we will:

- Offer BTR-80N and BTR-80N only in the following frequency bands: E88, A3, B3, C3, F3, and H3 bands to comply with FCC
- Deselect the BTR-700 for US and Canadian markets.

Markets outside of US and Canada: • Are not affected by the FCC frequency changes • Will be able to purchase BTR-80N, BTR-800 and BTR-700 in all frequencies at the current power levels (e.g., no change).

20mW for products in the A3, B3, C3, F3, and H3 bands to comply with FCC

Discontinue the BTR-700 for US and Canadian markets.

Note for US and Canada: After October 12 we will:

- Offer BTR-800 and BTR-80N only in the following frequency bands: E88, A3, B3, C3, F3, H3
- Reduce the power to 17 different frequency band splits

The BTR-80N system operates on 32 standard frequency band splits noted as follows:

E88
F1, F2, F3, F4
H1, H2, H3, H4
A1, A2, A3, A4
B2, B3, B4, B5
C3, C4, C5, C6
D5, D6, D7
E5, E6

**BTR-800 and BTR-700**

The BTR-800 and BTR-700 systems operate in TV channels 14 to 36 and 38 to 55. This is the frequency range of 470 to 608 and 614 to 722 MHz. The BTR-800 and BTR-700 frequency bands are 18 MHz wide.

Frequency bands F to C are always BTR-800/BTR-700 receive bands) and frequency bands 1 to 6 and 88 are BTR-800/BTR-700 transmit bands (TR-800/TR-825/TR-700 transmit bands).

The BTR-800 system is offered on 17 different frequency band splits noted as follows*:

E88
F1, F2, F3, F4
H1, H2, H3, H4
A1, A2, A3, A4
B1, B2, B3, B4
C3, C4, C5
D5, D6, D7
E5, E6

*The frequency bands A4, B3, B5, B7 are not available in countries where CE certification is necessary.

**BTR-700**

The BTR-700 system is offered on 3 standard frequency band splits noted as follows:

A2, A4, C6

**BTR-240**

2.4 GHz Wireless Base System

**Connection Flexibility:**

- The BTR-240 gives you a wide range of interfacing options so you can build a system that precisely fits your needs, whether over a wired or wireless network.
- A 2- and 4-wire intercom interface and XLR in/out for connecting to general audio systems gives you the flexibility to utilize communications equipment from across a wide range of manufacturers.

- In addition to connecting to a WiFi network in a large facility, the BTR-240 can serve as a backup via an Ethernet/Cat-5 wired connection. Now facilities like schools, houses of worship, and theatres can easily extend their existing partylines into the wireless world.

- License Free 2.4 GHz, IEEE 802.11b WLAN technology
- Expand coverage using BTR-24 access points
- Multi-level security and audio encryption
- 2-wire and 4-wire intercom interface
- ClearScan channel selection
- Auto-select Electret or Dynamic microphone
- Choice of two (2) independent or simultaneous audio channels
- TR-240 beltpacks operate wired or wireless
- Eight (8) full-duplex beltpacks with virtually unlimited number of half-duplex beltpacks
- TR-240 beltpacks can operate as an access point
- Multiple antenna options and accessories
- Durable ABS construction
- Easy-to-read LCD indicates system status
- Removable Li-Ion batteries with wide temperature range and up to eight (8) hours of operation

**FP-11**

2.4 GHz Flat-Panel Directional Antenna
### 2.4 GHz Wireless Intercom Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANT-FP</td>
<td>Flat panel dual element directional antenna</td>
</tr>
<tr>
<td>ANT-FPM</td>
<td>Metal tilt &amp; swivel antenna mounting bracket for ANT-FP</td>
</tr>
<tr>
<td>BP-240</td>
<td>Lithium Ion battery pack for TR-24</td>
</tr>
<tr>
<td>CC-24</td>
<td>Carry base for BTR-24 system</td>
</tr>
<tr>
<td>CHG-240</td>
<td>4 bay charger to charge 4 pcs BP-240 Lithium Ion batteries in parallel</td>
</tr>
<tr>
<td>FP-11</td>
<td>2.4 GHz flat-panel directional antenna</td>
</tr>
<tr>
<td>MDL-240</td>
<td>Holster for TR-24</td>
</tr>
<tr>
<td>LG-PS</td>
<td>US power supply for BTR-24/TR-24</td>
</tr>
<tr>
<td>RA-3</td>
<td>Omnidirectional antenna (3 dB) with TNC reverse polarity</td>
</tr>
<tr>
<td>RA-5</td>
<td>2.4 GHz omnidirectional antenna, magnetic mount with TNC reverse polarity</td>
</tr>
<tr>
<td>RA-7</td>
<td>Omnidirectional antenna (7 dB) with TNC reverse polarity connector</td>
</tr>
<tr>
<td>RPT-3</td>
<td>3' cox with TNC reverse polarity connector</td>
</tr>
<tr>
<td>RPT-10</td>
<td>10' cox with TNC reverse polarity connector</td>
</tr>
<tr>
<td>TNC-RP</td>
<td>TNC reverse polarity coupler (jack-to-jack)</td>
</tr>
</tbody>
</table>

#### TT-16 & TR-16

The TT-16 base station transmitter and the TR-16 beltpack talent receiver is a 16-channel synthesized wireless IFB system designed to provide a convenient wireless link to on-air talent in the studio or in the field at remote locations. Operating in the low band VHF 64–68 MHz range (NTSC TV Ch 3 and 4), the units operate reliably at distances of over 225 m. In unoccupied television channels, up to five TT-16 transmitters will operate simultaneously within the same location.

![TT-16 Image]

The TT-16 features 16 user-selectable frequencies controlled from front panel control buttons. A backlit LCD display allows the user to select the RF channel used, change hi/lo RF transmit power, select intercom input source and adjust the input levels. The Enhanced Dynamic Range feature greatly improves the Signal-to-Noise Ratio and works with the TR-16 talent receiver to provide clearer, more dynamic audio. The TT-16 has a 3-pin XLR connector on the back of the unit that will accept intercom signal input and is selectable between RTS two-wire intercoms, AudioCom or Clear-Com. Other types of balanced audio input can also be used. The TT-16 also has a 1/4" input jack on the back of the unit that will accept unbalanced line level signal input. Selection of the intercom type used and signal level adjustment is made from the front panel.

*The product is not available in countries where CE certification is necessary

#### TT-16

16-Channel Broadcast Wireless IFB Transmitter

![TT-16 Image]

Like the TT-16, the TR-16 features 16 user-selectable frequencies controlled from top panel control buttons. The TR-16 is designed with a 3.5 mm earphone connector to be used with standard IFB earpieces, such as the RTS Telethin announcers earpiece system or any other 8–500 Ω earphone. The TR-16 features a selectable high frequency boost control to equalize the high frequency loss associated with the use of behind the collar acoustic tubes and earphone drivers. Additionally, the TR-16 has Enhanced Dynamic Range for increased dynamic range. Operating on two AA batteries (up to 20 hours on alkaline cells), the TR-16 also features a low battery indicator on the backlit LCD display when 10% of battery life remains.

*The product is not available in countries where CE certification is necessary

#### TR-16

16-Channel Broadcast Wireless IFB Talent Receiver

![TR-16 Image]

- 16 user-selectable channels
- Balanced or unbalanced audio input
- Covers TV Ch 3 and TV Ch 4
- 20 hours of operation on two AA alkaline batteries
POWER SUPPLY

Power supplies are the heart of partyline intercom systems. They supply operating voltage to beltpacks and many user stations. Unique, short-circuit reset circuitry design and unparalleled mechanical engineering ensures reliable, trouble-free operation for years to come. With all of the things you have to worry about, power supplies should not be one of them.

The PS-20 features 2- and 4-channel operation, RTS monitoring, 2-channel program input, audio linking and 3-mode operation: RTS 2-channel, RTS 4-channel and Clear-Com mode. It also has double the power output per channel of previous RTS power supplies, which will substantially increase the number of user stations and beltpacks that can be connected. The PS-20 uses a unique current-pump circuit, which improves performance in applications with very long wires.

The PS-20 features two channels of communication where both channels are "wet," meaning there is power on each channel (RTS 2-channel mode). In RTS 4-channel mode, the audio signals and DC exist on the same wire. The PS-20 can also be switched into Clear-Com mode. The PS-20 has a 3-pin XLR (male) connector on the front of the system, where a RTS user station can connect and monitor activity on either or both channels. A single PS-20 power supply has 1.8 amps per channel, which means the user can power up more stations. If additional user stations or beltpacks are needed, two PS-20s can be joined together to double the power capability. A pair of standard stereo plug connectors are available on the back of the power supply to connect two PS-20s through audio linking as well. The 3-pin XLR female program input connector can be used to send audio to both CH 1 and/or CH 2.
MASTER STATION

RTS two-wire intercom master stations have been the industry standard for professional partyline communication systems for more than 25 years. With their flexible configurations, ease of use and legendary reliability, they are the elite core communications control tools. RTS two-wire intercom master stations are installed in major broadcast and industrial application venues worldwide.

MCE-325

2- or 4-Channel User-Programmable Master Station

The MCE-325 is a 4-channel, programmable intercom station. It may be used as a headset station or, with the addition of the MCS-325 modular speaker, as a speaker station. It may be mounted in a console or equipment rack via optional mounting kits. The MCE-325 can be used with either 2-wire or 4-wire intercom lines, or a combination of both. The MCE-325 can be interfaced to a variety of external devices, including external program sources, 2-way radios, paging systems and satellite circuits. The MCE-325 can be ordered for 4- or 5-pin operation.

USER STATIONS

RTS two-wire intercom user stations employ a unique modular design that enables a few station types to be configured into a multitude of communications solutions. Rugged and dependable RTS two-wire intercom user stations form the widest variety of stationary communications stations in the industry. RTS two-wire intercom user stations are the perfect choice for a wide range of applications regardless of what physical profile is required. RTS is the only two-wire protocol that allows two communication channels to be connected on a single standard microphone cable.

MRT-327

User Station

The model MRT-327 is a 2-channel intercom station for use in RTS two-wire intercom systems. It may be used as a headset station or as a speaker station (with an optional MCS-325 modular speaker listed on page 52). The MRT-327 may be installed in optional console or rackmount configurations. The MRT-327 can be ordered for 4- or 5-pin operation.

RM-325

User Station

The RM-325 is a 2-channel binaural headset station. Features stereo (split-feed) operation, microphone limiter circuit, two powerful headphone amps and simplified operational controls, including individual volume adjusts. Packaged in ½-rack by 1RU metal housing for added durability.

The SPK-300L is a desktop station with built-in speaker. It can be used as a “public” listen box via built-in speaker or privately through the headset connection. Features a channel-select switch, call light, speaker on/off switch and dual-purpose portable desktop volume control. Packaged in a rugged, all-metal housing perfect for table-top operation.

CM-300L

Console-Mount User Station

Two-channel select, console-mount user station. Features a microphone limiter circuit, separate dynamic and carbon microphone inputs, and a silent channel select switch. Solid metal front and open back for console mounting.

WM-300L

Wallmount User Station

Two-channel select, wallmount headset station. Features channel select switch, call light and headset volume control. Fits in standard two-gang outlet box.

WMS-300L

Dual-Channel Wallmount User Station with Speaker

Two-channel select, wallmount speaker user station. Features channel select switch, call light and a speaker on/off switch. Fits in standard four-gang outlet box.
UNIVERSAL BELTPACKS

The new beltpack models BP-4000 and BP-5000 come in a new design and a plug & play concept helping rental companies and large broadcasters to improve their performance and save time and money in their day-to-day business.

BP-4000
Single-Channel Portable Beltpack

BP-5000
Dual-Channel Portable Beltpack

BP-6000
Dual-Channel Portable Beltpack

FEATURES

- Intelligent power management – Due to a reduced power consumption up to 40 daisy-chained beltpacks can be powered by only one PS-20 power supply. A current pump circuit constantly monitors the cable length versus the actual current consumption to ensure the beltpacks receive the voltage they need.
- Remote kill function – Allows any user to send an invisible "microphone kill signal" which instantly mutes every beltpack mic in the partyline. This feature can be useful when a user inadvertently left the mic open. It is also possible to override the mic-kill function.
- Voice guidance easy factory default reset – Short voice prompts help the user navigating through the menu options eliminating the need to configure internal jumpers or switches. The devices can be easily reset to factory defaults.
- Headset connectivity – Both units are available with either 4 or 5-pin XLR headset connectors allowing for a wide range of headset options; both dynamic and electret headset microphones are supported.

HEADSET OPTIONS

The BP-4000 single channel beltpack is available in three headset options: 4-pin female, 5-pin female, and 4-pin male. The BP-5000 dual channel beltpack is available in two, 4-pin female and 5-pin female. The BP-6000 has 4-pin male headset connector only.
Interrupt Fold Back (IFB) is a broadcast term used to describe the process of cueing on-air talent. RTS IFB equipment is designed with a modular approach that meets the needs of not only large television networks, but can also be configured for any one-way communication needs. With multiple program audio sources and individual or simultaneous interrupts, the RTS series of IFB and ISO products is perfect for any talent-cueing need.

The 4010 is a central IFB electronics station. It contains all necessary control functions and electronics, including line power, to provide an active link between the 4001 and 4002 control stations and the 4030 and IFB-325 user stations. Each 4010 can handle up to four user stations, and has a separate volume control for each one.

The IFB-828 interfaces up to eight 4030 or IFB-325 beltpacks to any RTS digital matrix intercom system and provides power to the beltpacks. The IFB-828 may also be used as a simple program interface to feed two separate program sources to each of eight 4030 beltpacks (16 program sources to eight beltpacks total). The 4030 and IFB-325 are listen-only beltpacks with two and one channels, respectively. The 4030 contains electronics to provide a stereo audio signal to the user. The IFB-325 provides a mono (either interrupt/non-interrupt selected via 4010) audio signal to the user. The 4030 and IFB-325 feature volume controls in extruded aluminum cases. For earset options see page 62.

The 4001 and 4002 are IFB control stations with four and eight channels, respectively. Thus, the control stations separate talent feeds per channel plus one (4001) or two (4002) Stage Announce sends. The control stations feature two distinct audio sends per IFB channel for interrupt/non-interrupt or multiple program feeds. Each unit has illuminated switches, supports four priority levels and a gooseneck mic connector. An optional rack kit is also available. Requires one 4010 central IFB. The 4025A splitter is used to connect multiple control stations to the 4010. Two 4001 control stations can be connected to a single 4010, using the splitter. Similarly, two 4002 control stations can be connected to two 4010, using two splitters, as shown in the diagram below.

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BELTPACKS

RTS two-wire intercom beltpacks are mechanically engineered to be rugged and dependable. Unique audio circuitry is perfect for either high- or low-noise environments while maintaining maximum voice intelligibility.

The BP-325 is a portable beltpack for use with RTS two-wire intercom systems. The BP-325 is a binaural, programmable two-channel beltpack with program input capability. For use with a dynamic microphone only. The BP-325 consumes 65 to 85 mA of electrical current. Additional features include

- Call function allows the user to send or receive call signals to or from other devices on the intercom channel, including audible call alert on the listen side.
- Microprocessor controlled microphone kill detect – to mute open microphones that are injecting noise into the partyline.
- Powered externally via the intercom system power supply on channel 1.
- The BP-325 has both 4 and 5-pin XLR headset connections as standard.
- Housed in a rugged ABS enclosure.

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ACCESSORIES

RTS offers a full line of products to complete your communications system, including interfaces to partyline intercoms, cables, telephone lines and relays. Accessories also include control panels for IFB levels and assignments, panels for adjusting system audio levels, microphones and 4-wire beltpacks.

RTS two-wire intercom source assignment panel accessories are a key element in large, high-end RTS two-wire intercom partyline systems. With the ability to turn a standard 2-bus communications system into a 12 or more bus configuration, source assignment panels are vital to system expansion. Increasing the number of usable communication busses allows the system to be tailored to individual user needs.

**SAP-1626**
2RU Source Assignment Panel

It assigns any one of 12 intercom channels and/or three program audio channels to 26 separate 2-channel user stations via convenient thumb-wheel switches. I/O provided via two 50-pin connectors. Normally used in conjunction with a BOP-220.

**BOP-220**
3RU Breakout Panel, I/O Connector Transition Assembly

It provides a convenient interface between a SAP-1626 (25 pair 50-pin) and up to 20 user stations or strings of stations (3-pin XLR male).

**SAP-612**
Source Assignment Panel

It transforms a basic 2-bus intercom system into a 6-bus system via convenient slide switches. Provides six input channels and 12 2-channel 2-wire user station strings. I/O provided via two ¼", three 3-pin XLR female and twelve 3-pin XLR male connectors. Contains XLR jacks for RTS power supply.

**LMS-325**
(Active) Line-Monitor Speaker Station

Part of RTS’s unique modular packaging system. Features a full-range, 5 W speaker and power amp, dual-channel inputs from 2-wire or separate program inputs, and volume control. Packaged in ½ rack by 1RU metal housing for added durability and magnetically shielded for use near video monitors.

**MCS-325**
Passive Modular Speaker

It can be combined with MCE-325 and MRT-327 to provide speaker station operation. Packaged in ½ rack by 1RU metal housing for added durability.

**MCP-90-x**
Electret Gooseneck Microphone

- MCP-90-0 0" Gooseneck Microphone
- MCP-90-8 8" Gooseneck Microphone
- MCP-90-12 12" Gooseneck Microphone
- MCP-90-18 18" Gooseneck Microphone

**MCP-1**
Mounting Bracket for Two Main Components

**MCP-2**
Single Rackmount Kit

**MCP-3**
Mounting Kit for One Main Component

**MCP-4**
Tandem Mount Kit for Two Main Components

**CIA-1000**
Call Light Indicator Assembly

**TW-5W**
1 x 5 Dual-Channel 3-Pin XLR-Type Passive Splitter

**TW-7W**
One XLR-3F into Seven XLR-3M Out

**4022**
1 x 2 25 pair, 50-pin passive splitter

**4025A**
1 x 4 50-pin passive splitter

*The product is not available in countries where CE certification is necessary*
The master stations provide unique balanced audio design that allows users to utilize the longest 2-wire partyline cable runs in the industry. The master stations offer users the ultimate in performance and flexibility. Operators can utilize headset or speaker/mic operation and have full access to all intercom channels—both individually and as “all talk”. The master station users can also utilize innovative features such as the “remote mic kill” function to silence any open mic on the intercom channel so that extraneous noise can be eliminated, backlit lettered buttons for darkened environments and the ability to operate in an unbalanced mode to be completely Clear-Com compatible.

*The product is not available in countries where CE certification is necessary.*

The single-channel can be used as speaker station and/or headset station. Features include headset operation for noise reduction and privacy; dual-purpose level control, which adjusts both the speaker volume and the headset listen volume; “remote mic kill” receive enabled so an open mic can be silenced from any user or master station; and backlit buttons for darkened environments. Clear-Com compatible.

The PS4001 power supply supplies four isolated channels of intercom system phantom power to down line components. The PS4001 may be combined with an ES4000A expansion station to create additional intercom channels when using a US2002/PS2001L or US2000A/SPS2001 master station configuration. The PS4001 can also be used as a standalone power supply to provide power to four independent partyline channels. Rack mountable in a variety of modular configurations with one of several optional rack mount kits. Clear-Com compatible.
ULTRA-LIGHTWEIGHT INTERCOM HEADSETS

The LH-300 / 302 family of headsets are lightweight, single-sided and double-sided headsets for the ultimate in day-long comfort. The LH-300 / 302 family features a high-quality audio with a semi-rigid, fully adjustable boom for precise positioning on right- or left-side. The heavy-duty wide band dynamic earphones with soft, pliable ear cushions and headband pads offer a comfortable and stable fit, isolation and extended frequency response. Available with several standard connectors including 4 and 5 pin male and female XLR and 3.5 mm audio jack to fit your specific application.

PH-88
Single-sided Headset with Flexible Dynamic Boom Mic

The PH-88 headset is a super lightweight, single-sided headset for the ultimate in daylong comfort. The PH-88 features high quality dynamic earphones with a dynamic-noise cancelling microphone with a semi-rigid, fully adjustable boom for precise positioning. The high-quality wide band dynamic earphones offer a better fit, isolation and frequency response. Additional versions are available including 4- or 5-pin male or female XLR connectors.

PH-44
Dual-sided Headset with Flexible Dynamic Boom Mic

The PH-44 headset is a super lightweight, dual-sided headset for the ultimate in daylong comfort. The PH-44 features high quality dynamic earphones with a dynamic noise-cancelling microphone with a semi-rigid, fully adjustable boom for precise positioning. The high-quality wide band dynamic earphones offer a better fit, isolation and frequency response. Additional versions are available including 4- or 5-pin male or female XLR connectors.
PREMIUM LIGHTWEIGHT HEADSETS | MH SERIES

MH-300
Single-sided Headset/Headphone

The MH-300 single-sided headset provides the newest design from RTS. It features a rugged, modular design, lightweight construction, installation options and multiple functions beyond the live studio or theater venue. The modular design allows you to interchange modules to allow for the best headset configuration for any environment. The noise-cancelling microphone, combined with the headphone transducers, provide clear and precise communication in noisy environments. Finally, by installing the appropriate module, you can connect to any audio device. Expanded frequency response ensures clear communications and enhanced audio performance.

MH-302
Dual-sided Headset/Headphone

The MH-302 is designed with you, the user, in mind. The headset features a durable modular design, lightweight construction, installation options and multi-functional use. The modular design allows you to interchange modules for any environment. The noise-cancelling microphone, combined with the headphone transducers, provide clear communication in noisy environments. Finally, by installing the appropriate module, you can connect to any audio device. Expanded frequency response ensures clear communications and enhanced audio performance.

MEDIUM WEIGHT HEADSETS | PH SERIES

The PH Series of medium-weight intercom headsets is considered the industry standard by many users in all different applications. The PH Series features both durability and functionality. With weights between 11–13 oz, these headsets offers the ultimate in daylong comfort.

PH-1
Single-sided Headset with Flexible Dynamic Boom Mic

The PH-1 is a medium weight, single-sided headset with foam-filled cushions that offer a light feel with moderate isolation from ambient noise. The dynamic noise-cancelling microphone is easily positioned with a unique ball joint for continuous adjustability. Available with 4- or 5-pin male or female XLR connectors.

PH-2
Dual-sided Headset with Flexible Dynamic Boom Mic

The PH-2 headset is a medium weight, full cushion, dual-sided headset for the ultimate in daylong comfort. The headset has foam-filled cushions that offer a light feel with moderate isolation from ambient noise. The dynamic noise-cancelling microphone is positioned with a unique ball joint for continuous adjustability.

PH-3
Dual-sided Headset with Flexible Dynamic Boom Mic

The PH-3 is a medium weight, dual-sided stereo headset with foam-filled cushions that offer a light feel with moderate isolation from ambient noise. The dynamic noise-cancelling microphone is easily positioned with a unique ball joint for continuous adjustability.
The HR Series of medium-weight intercom headsets features a unique design that is both comfortable and functional. The HR Series provides users with a premium headset option loaded with features. The earcup and ergonomically designed headband provide added comfort through 3 unique pressure settings. This design also provides 21 dB of passive hearing protection. The cord comes terminated in either 4- or 5-pin XLR, male or female and can also be purchased unterminated for custom applications.

**HR-1**
Single-sided Headset with Flexible Dynamic Boom Mic

The HR-1 is a single muff, medium-weight passive noise reduction headset with a dynamic noise-cancelling microphone. The ergonomic headband design distributes the ear cushion pressure evenly over the entire ear with no pressure points, ensuring hours of comfortable wear. An added advantage of this headset design is that it folds into compact form for ease of transport and storage. Additional versions are available including 4- or 5-pin male or female XLR connectors.

**HR-2**
Dual-sided Headset with Flexible Dynamic Boom Mic

The HR-2 is a dual-sided, medium-weight passive noise reduction headset with a dynamic noise-cancelling microphone. The headset has a noise reduction rating of 21 dB, suitable for use in a moderately noisy environment. The HR-2 features our unique, soft padded headband for daylong comfort. Our ergonomic headset design distributes ear cushion pressure evenly over the entire ear with no pressure points, unlike conventional headsets. An added advantage of this design is that it folds into compact form for ease of transport and storage. Additional versions are available including 4- or 5-pin male or female XLR connectors.

**HR-1L & HR-2L**
Medium-Weight, Listen-only Headphones

The HR-1L & HR-2L are medium-weight, noise reduction headphones with a noise reduction rating of 21 dB. The HR-1L is a single-sided headset while the HR-2L is a dual-sided headset. The headsets effectively reduce noise and are suitable for use in moderately noisy environments. All models feature a unique, soft padded headband design that distributes ear cushion pressure evenly over the entire ear with no pressure points, unlike conventional designs which apply more pressure on the bottom of the ear than the top. An added advantage of this design is that the headset folds into an extremely compact shape.

**PH-16**
Dual-sided Headset with 24 dB, Flexible Dynamic Boom Mic

The PH-16 is a monaural headset with a noise-cancelling dynamic microphone. The PH-16 is designed to fit under a helmet with an environmental protection agency noise reduction rating (NRR) of 24 dB. The headset cord is terminated with a 4-pin XLR female connector. The dynamic receivers have special mounting which resist shock, vibration and acoustic feedback. The PH-16 ear cups are foam lined for added noise attenuation. The vented, foam-filled ear cushions combine comfort with good acoustic seal. For convenience and economy, the receivers and ear cushions are field repairable.

**UNDER HELMET**
ACCESSORIES

**HS-6A**

Telephone-style PTT Handset with Metal Hanger Bracket

The HS-6A is a telephone-style handset that offers a push-to-talk switch, dynamic earphone and dynamic microphone. It is supplied with a metal hanger bracket for vertical storage and is compatible with most user stations. The HS-6A is terminated with an A4F plug. Available in white or black.

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**Headsets Accessories**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>CC-1</td>
<td>Cover Cushion</td>
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<tr>
<td>C-3</td>
<td>Ear Cushion, Black for PH-1, -2, -3</td>
</tr>
<tr>
<td>C-8</td>
<td>Ear Cushion for PH-44, -88</td>
</tr>
<tr>
<td>C-9</td>
<td>Ear Cushion for HR-1, -2</td>
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<tr>
<td>WS-2B</td>
<td>Windscreen for PH-44, -88</td>
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<tr>
<td>PT-400</td>
<td>PTT Kit Locking</td>
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<td>AEF-3B</td>
<td>Nylon Earloop, Clear</td>
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<td>ET-1B</td>
<td>Ear tip, Clear</td>
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<tr>
<td>HE-15</td>
<td>Extension Cable</td>
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<tr>
<td>HE-30</td>
<td>Extension Cable</td>
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<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH-EC</td>
<td>MH ACC Ear Cushion</td>
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<tr>
<td>MH-WC</td>
<td>MH ACC Dyn Mic Windscreen</td>
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<tr>
<td>MH-HBP+</td>
<td>MH ACC Headband and Side Pads</td>
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<tr>
<td>MH-AAM</td>
<td>MH ACC Aux Audio Module</td>
</tr>
<tr>
<td>MH-FM</td>
<td>MH ACC Filler Module</td>
</tr>
<tr>
<td>MH-TP</td>
<td>MH ACC Temple Pad</td>
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<tr>
<td>MH-CC</td>
<td>MH ACC Carry Case</td>
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<td>MH-DM-A4M</td>
<td>MH ACC Dyn Module – A4M</td>
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<td>MH-DM-A4F</td>
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</tr>
<tr>
<td>MH-DM-A5F</td>
<td>MH ACC Dyn Module – A5F</td>
</tr>
</tbody>
</table>

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**Earsets**

The popular RTS earsets are precisely designed for inconspicuous listening while on camera. Used by nearly all major television networks and stations, we have surpassed industry standards. The extremely efficient miniature driver element requires only nominal operating power and enables the announcer to hear program cues while working with a live microphone. The units are also suitable for many other applications such as live theater script prompting.

---

**Typical Set-Up**

To provide optimum versatility, the announcer’s earset is made up of interchangeable components that simply snap together. Users can construct a version of the announcer’s earset that best suits their particular needs. Some popular combinations are available as a standard configuration; these are listed below.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>EMV-2</td>
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<tr>
<td></td>
<td>RTV-04, CMT-2, AEF-3B</td>
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<tr>
<td>CES-1</td>
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<td>RTV-04, CMT-2, ET-4</td>
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<td>CES-2</td>
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<td>RTV-04, CMT-9B, ET-4</td>
</tr>
</tbody>
</table>

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**Teleschin Magnetic Receivers**

Telethin Magnetic Receivers, available in 5 different impedances, permits choice of impedance for any application. For inconspicuous use, the receiver is extremely small and lightweight.

<table>
<thead>
<tr>
<th>Model</th>
<th>Impedance</th>
</tr>
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<tbody>
<tr>
<td>RTR-04</td>
<td>15 Ω</td>
</tr>
<tr>
<td>RTV-04</td>
<td>125 Ω</td>
</tr>
<tr>
<td>RTW-04</td>
<td>500 Ω</td>
</tr>
<tr>
<td>RTX-04</td>
<td>1000 Ω</td>
</tr>
<tr>
<td>RTY-04</td>
<td>2000 Ω</td>
</tr>
</tbody>
</table>
The standard earset system comes equipped with a 5’, low luster gray or beige cord with a 1/4” connector. A variety of other cords with or without volume controls are available as components.

For maximum comfort and convenience, three pliable earmolds (S, M & L) are available for either the left or right ear. The Telethin receiver easily attaches into the earpiece directing sound into the ear canal and limiting ambient noise.

These inconspicuous clear plastic tubes carry the sound effectively from a RTS Telethin receiver to the talent’s ear without revealing the cord to the camera. The clear tubes are available in 3 versions. All connect easily to a RTS eartip, earcone or any size earmold and have a handy clothing clip to secure the system in place.

The cords with in-line volume control are equipped with clothing clips for out of sight, waist-level positioning. To avoid loss of cues, the volume control will not shut off completely.

The nylon or plastic covered metal earloop holds the eartip or receiver in place on the ear.

For best comfort and convenience, three pliable earmolds (S, M & L) are available for either the left or right ear. The Telethin receiver easily attaches into the earpiece directing sound into the ear canal and limiting ambient noise.

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**STUDIO**

**Vision Control**
- Slomotion: KP-3016
- Vision Engineer: KP-3016
- Director: KP-5032
- Production Assistant: KP-5032
- Script: KP-3016
- Cut: KP-3016

**Sound**
- VTR: KP-4016
- Vision Mixer: KP-5032
- Graphics: KP-4016
- Studio/Light: DKP-4016

**IFB**
- CAR: KP-5032
- TR-1800: AP-1800
- EKP-4016: AP-1800

**Broadcasting Center**
- MCR: LAN
- VLink Server: TM-10K
- SIP Server: LAN

**THEATRE**

**Wardrobe**
- Flyperson: DKP-4016
- Machinery: DKP-4016
- Stage Crew: AP-1800

**Stage Door**
- Director: TR-1800
- Light: TR-1800
- Sound Operator: TR-1800
- Sound Designer: TR-1800

**Follow Spot**
- TR-1800

**CAR**
- ADAM-M incl. AIO-16A and OMI cards: KP-4016

**Stage Manager**
- TR-1800
- DKP-4016
- Prompter: DKP-4016

**Orchestra**
- KP-4016

**LAN**
- Camera Control Unit: ADAM-M
- DSI-2008: BP-4000
- PS-20: TR-1800
- TIF 4000: TR-1800
- BTR-80N: TR-1800
- AP-1800: TR-1800
Applications

Trunking data for the TM-10K
Ethernet OMNEO connections
Analog connections to the frames
Ethernet RVON connections
TW audio
Tri-Bus fiber ring
Ethernet data

OEI-2
LAN
ARNI G2
ADAM-M | OMI

VLink
Access Point
Configuration via Azedit

WORLDWIDE CONNECTIVITY

1

VLink Server

2

VLink

VLink Access Point
Configuration via Azedit
Wireless Partyline Products

<table>
<thead>
<tr>
<th>Overall</th>
<th>BTR-80N</th>
<th>BTR-800</th>
<th>BTR-700</th>
<th>BTR-240</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Frequency Range</td>
<td>482–722 MHz (TV 16 to TV 36 and TV 81 to TV 85)</td>
<td>476–608 MHz, 614–722 MHz in 18 MHz TV and 18 MHz FM bands</td>
<td>476–608 MHz, 614–722 MHz in 18 MHz TV and 18 MHz FM bands</td>
<td>North America: 2.412 to 2.482 GHz</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>AC (120 VAC) 100–240 VAC, 50–60 Hz; 12–15 W DC</td>
<td>100–240 VAC, 50–60 Hz, IEC receptacle</td>
<td>100–240 VAC, 50–60 Hz, IEC receptacle</td>
<td>12–15 W DC, 15 Wms</td>
</tr>
<tr>
<td>Product Dimensions</td>
<td>Width 4.3” x 7.4” x 14”</td>
<td>Width 4.3” x 7.4” x 14”</td>
<td>Width 4.3” x 7.4” x 14”</td>
<td>8.3 x 6.8 x 4.5 cm</td>
</tr>
<tr>
<td>Product Weight</td>
<td>7.2 lb (3.2 kg)</td>
<td>7.2 lb (3.2 kg)</td>
<td>7.2 lb (3.2 kg)</td>
<td>3.4 lb (1.5 kg)</td>
</tr>
<tr>
<td>Shipping Dimensions</td>
<td>22.0” x 23.0” x 10.5”</td>
<td>22.0” x 23.0” x 10.5”</td>
<td>22.0” x 23.0” x 10.5”</td>
<td>6.3 x 6.3 x 2.7 cm</td>
</tr>
<tr>
<td>Shipping Weight</td>
<td>11 lb (5.0 kg)</td>
<td>11 lb (5.0 kg)</td>
<td>11 lb (5.0 kg)</td>
<td>5.0 lb (2.3 kg)</td>
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<tr>
<td>FCC ID</td>
<td>B5DM528</td>
<td>B5DM514</td>
<td>B5DM514</td>
<td>B5DM514</td>
</tr>
<tr>
<td>EC Declaration of Conformity: Eligible to be allowed CE mark</td>
<td>BTR-80N</td>
<td>BTR-800</td>
<td>BTR-700</td>
<td>BTR-240</td>
</tr>
<tr>
<td>Frequency</td>
<td>300 Hz – 3 kHz</td>
<td>300 Hz – 3 kHz</td>
<td>300 Hz – 3 kHz</td>
<td>350 Hz – 3 kHz</td>
</tr>
<tr>
<td>Four-Wire Input</td>
<td>Level adjustable (2 Vrms typ)</td>
<td>Level adjustable (2 Vrms typ)</td>
<td>Level adjustable (2 Vrms typ)</td>
<td>Level adjustable (2 Vrms typ)</td>
</tr>
<tr>
<td>Four-Wire Output</td>
<td>Level adjustable (2 Vrms typ)</td>
<td>Level adjustable (2 Vrms typ)</td>
<td>Level adjustable (2 Vrms typ)</td>
<td>Level adjustable (2 Vrms typ)</td>
</tr>
<tr>
<td>Audio Input</td>
<td>Line impedance 200 Ω</td>
<td>Line impedance 200 Ω</td>
<td>Line impedance 200 Ω</td>
<td>Line impedance 200 Ω</td>
</tr>
<tr>
<td>Audio Output</td>
<td>Line impedance 200 Ω</td>
<td>Line impedance 200 Ω</td>
<td>Line impedance 200 Ω</td>
<td>Line impedance 200 Ω</td>
</tr>
<tr>
<td>IF Selectivity</td>
<td>3 dB at 230 kHz</td>
<td>3 dB at 230 kHz</td>
<td>3 dB at 230 kHz</td>
<td>N/A</td>
</tr>
<tr>
<td>Microphone Audio Input</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
</tr>
<tr>
<td>Receiver Audio Input</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
</tr>
<tr>
<td>Microphone Audio Input</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
</tr>
<tr>
<td>Receiver</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
<td>30–3500 Ω</td>
</tr>
<tr>
<td>IF Sensitivity</td>
<td>–20 dBµV at 12.5 dB SNR</td>
<td>–20 dBµV at 12.5 dB SNR</td>
<td>–20 dBµV at 12.5 dB SNR</td>
<td>–20 dBµV at 12.5 dB SNR</td>
</tr>
<tr>
<td>Audio Sensitivity</td>
<td>3 dB at 230 kHz</td>
<td>3 dB at 230 kHz</td>
<td>3 dB at 230 kHz</td>
<td>N/A</td>
</tr>
<tr>
<td>Audio Power</td>
<td>90 dB</td>
<td>90 dB</td>
<td>90 dB</td>
<td>90 dB</td>
</tr>
<tr>
<td>Distortion</td>
<td>3% at full deviation</td>
<td>3% at full deviation</td>
<td>3% at full deviation</td>
<td>N/A</td>
</tr>
<tr>
<td>Local Headphone Output</td>
<td>40 mW output into 600 Ω (1% Distortion)</td>
<td>40 mW output into 600 Ω (1% Distortion)</td>
<td>40 mW output into 600 Ω (1% Distortion)</td>
<td>100 mWmax into 300 Ω</td>
</tr>
</tbody>
</table>

Wireless Partyline Products

<table>
<thead>
<tr>
<th>Overall</th>
<th>TR-80N/802N</th>
<th>TR-825/820N</th>
<th>TR-700</th>
<th>TR-240</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Frequency Range</td>
<td>482–722 MHz (TV 16 to TV 36 and TV 81 to TV 85)</td>
<td>476–608 MHz, 614–722 MHz in 18 MHz TV and 18 MHz FM bands</td>
<td>476–608 MHz, 614–722 MHz in 18 MHz TV and 18 MHz FM bands</td>
<td>North America: 2.412 to 2.482 GHz</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>6 AA cells, alkaline (NiMH optional)</td>
<td>8 AA cells, alkaline (NiMH optional)</td>
<td>6 AA cells, alkaline (NiMH optional)</td>
<td>License-free Rechargeable Battery, 5.0V</td>
</tr>
<tr>
<td>Typical Battery Life</td>
<td>14 hours (continuous duty)</td>
<td>14 hours (continuous duty)</td>
<td>14 hours (continuous duty)</td>
<td>N/A</td>
</tr>
<tr>
<td>Typical Battery Life</td>
<td>14 hours (continuous duty)</td>
<td>14 hours (continuous duty)</td>
<td>14 hours (continuous duty)</td>
<td>N/A</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>6 AA cells, alkaline (NiMH optional)</td>
<td>6 AA cells, alkaline (NiMH optional)</td>
<td>6 AA cells, alkaline (NiMH optional)</td>
<td>License-free Rechargeable Battery, 5.0V</td>
</tr>
<tr>
<td>Local Headset Output</td>
<td>40 mW output into 600 Ω</td>
<td>40 mW output into 600 Ω</td>
<td>40 mW output into 600 Ω</td>
<td>40 mW output into 600 Ω</td>
</tr>
<tr>
<td>IF Sensitivity</td>
<td>–20 dBµV at 12.5 dB SNR</td>
<td>–20 dBµV at 12.5 dB SNR</td>
<td>–20 dBµV at 12.5 dB SNR</td>
<td>–20 dBµV at 12.5 dB SNR</td>
</tr>
<tr>
<td>Audio Sensitivity</td>
<td>3 dB at 230 kHz</td>
<td>3 dB at 230 kHz</td>
<td>3 dB at 230 kHz</td>
<td>N/A</td>
</tr>
<tr>
<td>Audio Power</td>
<td>90 dB</td>
<td>90 dB</td>
<td>90 dB</td>
<td>90 dB</td>
</tr>
<tr>
<td>Distortion</td>
<td>1% at full deviation</td>
<td>1% at full deviation</td>
<td>1% at full deviation</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Licensing of this equipment is the User’s responsibility and ability to license depends on the User’s classification, User’s application and frequency selected.**
Wireless Partyline Products

<table>
<thead>
<tr>
<th>Overall</th>
<th>TR-1800 (EU)</th>
<th>TR-1800 (NA)</th>
<th>AP-1800 (EU)</th>
<th>AP-1800 (NA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Beltpack (BP)</td>
<td>Access Point (AP)</td>
<td>Beltpack (BP)</td>
<td>Access Point (AP)</td>
</tr>
<tr>
<td>RF Frequency Range MHz</td>
<td>1880–1900</td>
<td>1920–1930</td>
<td>1880–1900</td>
<td>1920–1930</td>
</tr>
<tr>
<td>RF Standard</td>
<td>DECT</td>
<td>DECT</td>
<td>DECT</td>
<td>DECT</td>
</tr>
<tr>
<td>RF range, typical</td>
<td>50–75 m indoor, 150–200 m outdoor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice Codecs</td>
<td>G.722 (wideband) / G.726 (narrowband)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice latency (ms)</td>
<td>Approx 40 ms BP to BP; 30 ms BP to matrix and matrix to BP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Dimensions mm</td>
<td>(W x H x D) 102 x 124 x (42 w/o clip, 59 w. clip)</td>
<td>195 x 138 x 39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Weight kg</td>
<td>0.349 w. clip &amp; batt.</td>
<td>0.442 w. antennas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipping Dimensions mm</td>
<td>(W x H x D) 244 x 99 x 144</td>
<td>287 x 99 x 194</td>
<td></td>
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</tr>
<tr>
<td>Shipping Weight</td>
<td>0.68 kg (1.50 lbs)</td>
<td>0.86 kg (1.90 lbs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP-rating</td>
<td>IP-52 Indoor only</td>
<td></td>
<td></td>
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<tr>
<td>Frequency Response</td>
<td>300–7000 Hz (G.722), 300–3500 Hz (G.726)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Beltpack TR-1800</td>
<td></td>
<td></td>
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<tr>
<td>Roaming</td>
<td>Full, automatic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max BPs / AP</td>
<td>5 (G.722), 10 (G.726)</td>
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<tr>
<td>Max BPs / system</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Headset</td>
<td>5-pin female XLR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td>7.4 V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery time</td>
<td>17 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keys for talk/ listen</td>
<td>4x2 + reply &amp; clear</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User interface</td>
<td>Icons plus text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Languages</td>
<td>English, French, Spanish, Arabic, Mandarin, Russian, Portuguese, German, Italian, Polish</td>
<td></td>
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<tr>
<td>Menu keys</td>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td>Screen</td>
<td>320x240 pixel color LCD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Call Waiting Window</td>
<td>Monochrome</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antenna arrangement</td>
<td>Dual, internal</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19" Rackmount Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Height</th>
<th>Depth</th>
<th>Weight</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>4010</td>
<td>1RU</td>
<td>15&quot; (38.1 cm)</td>
<td>10.74 lb (4.87 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>4012</td>
<td>3RU</td>
<td>5.98&quot; (15.2 cm)</td>
<td>3.72 lb (1.69 kg)</td>
<td>Silver</td>
</tr>
<tr>
<td>ADAM</td>
<td>7RU</td>
<td>23&quot; (58.4 cm)</td>
<td>46.9 lb (21.77 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>ADAM/M</td>
<td>3RU</td>
<td>23&quot; (58.4 cm)</td>
<td>22.05 lb (10.00 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>BCP-220</td>
<td>6RU</td>
<td>23&quot; (58.4 cm)</td>
<td>24.1 lb (10.9 kg)</td>
<td>Silver</td>
</tr>
<tr>
<td>CBO-200</td>
<td>9RU</td>
<td>38.8&quot; (98.5 cm)</td>
<td>14.6 lb (6.65 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>EXP-3010</td>
<td>1RU</td>
<td>3.7&quot; (9.4 cm)</td>
<td>3.09 lb (1.40 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>EXP-4016</td>
<td>1RU</td>
<td>3.7&quot; (9.4 cm)</td>
<td>3.59 lb (1.63 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>EXP-4016 PB</td>
<td>1RU</td>
<td>3.7&quot; (9.4 cm)</td>
<td>2.97 lb (1.35 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>FM-4</td>
<td>1RU</td>
<td>7.87&quot; (20.0 cm)</td>
<td>5.9 lb (2.7 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>FM-8</td>
<td>1RU</td>
<td>7.87&quot; (20.0 cm)</td>
<td>5.9 lb (2.7 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>GPSD-16</td>
<td>1RU</td>
<td>7&quot; (17.8 cm)</td>
<td>5.45 lb (2.49 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>KP-2000</td>
<td>1RU</td>
<td>0.77&quot; (2.0 cm)</td>
<td>0.89 lb (0.4 kg)</td>
<td>Black</td>
</tr>
<tr>
<td>KP-602</td>
<td>1RU</td>
<td>0.77&quot; (2.0 cm)</td>
<td>0.89 lb (0.4 kg)</td>
<td>Black</td>
</tr>
<tr>
<td>KP-12 0L</td>
<td>1RU</td>
<td>4.09&quot; (10.37 cm)</td>
<td>3.76 lb (1.71 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>KP-3016</td>
<td>1RU</td>
<td>3.25&quot; (8.25 cm)</td>
<td>3.35 lb (1.52 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>KP-3016A</td>
<td>1RU</td>
<td>3.25&quot; (8.25 cm)</td>
<td>3.35 lb (1.52 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>KP-5032</td>
<td>1RU</td>
<td>3.25&quot; (8.25 cm)</td>
<td>4.85 lb (2.22 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>KP-5032 PB</td>
<td>1RU</td>
<td>3.25&quot; (8.25 cm)</td>
<td>4.85 lb (2.22 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>KP-4016</td>
<td>1RU</td>
<td>3.25&quot; (8.25 cm)</td>
<td>3.35 lb (1.52 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>KP-4016 PB</td>
<td>1RU</td>
<td>3.25&quot; (8.25 cm)</td>
<td>3.35 lb (1.52 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>LCP-102</td>
<td>1RU</td>
<td>7.13&quot; (18.1 cm)</td>
<td>8.39 lb (3.80 kg)</td>
<td>Black or Grey</td>
</tr>
<tr>
<td>MDA-150</td>
<td>1RU</td>
<td>8.5&quot; (21.59 cm)</td>
<td>7.38 lb (3.35 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>MDA-200</td>
<td>1RU</td>
<td>14.5&quot; (36.85 cm)</td>
<td>11.58 lb (5.24 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>PAP-32</td>
<td>1RU</td>
<td>4.5&quot; (11.43 cm)</td>
<td>5.58 lb (2.53 kg)</td>
<td>Black or Grey</td>
</tr>
<tr>
<td>RP-1532</td>
<td>1RU</td>
<td>8.25&quot; (20.96 cm)</td>
<td>6.3 lb (2.86 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>RPON-10</td>
<td>1RU</td>
<td>8&quot; (20.32 cm)</td>
<td>3.7 lb (1.67 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>SAP-1816</td>
<td>1RU</td>
<td>9.8&quot; (24.89 cm)</td>
<td>10.8 lb (4.94 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>SAP-612</td>
<td>1RU</td>
<td>8&quot; (20.32 cm)</td>
<td>4.5 lb (2.05 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>SAP-1024</td>
<td>1RU</td>
<td>8.5&quot; (21.59 cm)</td>
<td>3.6 lb (1.63 kg)</td>
<td>Dustine</td>
</tr>
<tr>
<td>SPN-1000</td>
<td>1RU</td>
<td>5.75&quot; (14.61 cm)</td>
<td>4.6 lb (2.09 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>TR-4000</td>
<td>4RU</td>
<td>13&quot; (33.02 cm)</td>
<td>28.45 lb (12.9 kg)</td>
<td>Black</td>
</tr>
<tr>
<td>TM-10K</td>
<td>1RU</td>
<td>1.2&quot; (30.48 cm)</td>
<td>26.76 lb (12.51 kg)</td>
<td>Black</td>
</tr>
</tbody>
</table>

Half-rack form factor

The following products require a rack mount kit to be installed into a standard 19" rack.

<table>
<thead>
<tr>
<th>Product</th>
<th>Height</th>
<th>Depth</th>
<th>Weight</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTO-200</td>
<td>1RU</td>
<td>8.25&quot; (20.96 cm)</td>
<td>2.2 lb (1.0 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>DO-200N</td>
<td>1RU</td>
<td>8.25&quot; (20.96 cm)</td>
<td>3.3 lb (1.5 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>UMS-335</td>
<td>1RU</td>
<td>8&quot; (20.32 cm)</td>
<td>2.76 lb (1.25 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>WSI-325</td>
<td>1RU</td>
<td>8&quot; (20.32 cm)</td>
<td>3.84 lb (1.74 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>MOX-325</td>
<td>1RU</td>
<td>8&quot; (20.32 cm)</td>
<td>3.84 lb (1.74 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>MOS-325</td>
<td>1RU</td>
<td>8&quot; (20.32 cm)</td>
<td>3.84 lb (1.74 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>MST-327</td>
<td>1RU</td>
<td>9&quot; (22.86 cm)</td>
<td>2.75 lb (1.25 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>PS-20</td>
<td>1RU</td>
<td>8.56&quot; (21.73 cm)</td>
<td>5.9 lb (2.7 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>RM-325</td>
<td>2RU</td>
<td>8&quot; (20.32 cm)</td>
<td>2.75 lb (1.25 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>SSA-324*</td>
<td>2RU</td>
<td>8&quot; (20.32 cm)</td>
<td>2.75 lb (1.25 kg)</td>
<td>Grey</td>
</tr>
<tr>
<td>TR-2000A</td>
<td>2RU</td>
<td>8.25&quot; (20.96 cm)</td>
<td>2.2 lb (1.0 kg)</td>
<td>Grey</td>
</tr>
</tbody>
</table>

*SSA-324 is only available in the 110V version
Non-Rackmount Products

Product | Form Factor | Height | Width | Depth | Weight | Color
--- | --- | --- | --- | --- | --- | ---
4030 | Beltback | 1.5” (3.8 cm) | 3.75” (9.53 cm) | 1.8” (4.57 cm) | 0.67 lb (0.3 kg) | Grey
ARN/G2 | Other* | 1.7” (4.31 cm) | 5.27” (13.38 cm) | 3.72” (9.42 cm) | 1.30 lb (0.45 kg) | Silver
BP-325 | Beltback | 0.7” (1.2 cm) | 3.75” (9.53 cm) | 2.0” (5.1 cm) | 0.15 lb (0.07 kg) | Black or Grey
BP-4000 | Beltback | 0.7” (1.2 cm) | 3.75” (9.53 cm) | 1.6” (4.1 cm) | 0.14 lb (0.06 kg) | Black
BP-1600 | Beltback | 0.7” (1.2 cm) | 3.75” (9.53 cm) | 1.6” (4.1 cm) | 0.15 lb (0.07 kg) | Black
CL-1000 | Desktop | | | | | 
CL-1000 | Front Rackmount or Desktop | 1RU | 8.19” (20.8 cm) | 5.25” (13.34 cm) | 0.94 lb (0.43 kg) | Grey
CL-1000 Top | Desktop | 2” (5.08 cm) | 8.19” (20.8 cm) | 5.25” (13.34 cm) | 0.94 lb (0.43 kg) | Grey
CNE-300L | Console Mount | 2.75” (6.99 cm) | 6.35” (16.68 cm) | 6.14” (15.62 cm) | 1.2 lb (0.54 kg) | Grey
DNP-16-CLO | Desktop | 3.2” (8.13 cm) | 10.2” (26.25 cm) | 9.2” (23.37 cm) | 3.78 lb (1.71 kg) | Duotone
DNP-4016 | Desktop | 3.60” (9.15 cm) | 10.63” (27.01 cm) | 9.30” (23.68 cm) | 3.70 lb (1.68 kg) | Duotone
DNP-4016H | Wallmount | 3.60” (9.15 cm) | 10.63” (27.01 cm) | 9.30” (23.68 cm) | 3.70 lb (1.68 kg) | Duotone
DNP-3010 | Desktop | 3.60” (9.15 cm) | 10.63” (27.01 cm) | 9.30” (23.68 cm) | 3.59 lb (1.63 kg) | Duotone
DNP-3016H | Wallmount | 3.60” (9.15 cm) | 10.63” (27.01 cm) | 9.30” (23.68 cm) | 3.59 lb (1.63 kg) | Duotone
IFB-325 | Beltpack | 1.5” (3.8 cm) | 3.75” (9.53 cm) | 1.9” (4.84 cm) | 1.16 lb (0.53 kg) | Grey
SPL-300L | Desktop | 4” (10.16 cm) | 8” (20.32 cm) | 8” (20.32 cm) | 3.5 lb (1.59 kg) | Grey
HM-300L | Wallmount | 4.5” (11.43 cm) | 4.5” (11.43 cm) | 1.8” (4.64 cm) | 0.56 lb (0.25 kg) | Grey
HM-300XL | Wallmount | 4.5” (11.43 cm) | 8” (20.32 cm) | 1.75” (4.45 cm) | 1 lb (0.45 kg) | Grey

Software Products

Product | Function
--- | ---
Control Software Package | Advanced control & configuration functions for KP-Series keypanels*
Audio Software Package | Voice messaging and enhanced audio features for KP-Series keypanels*
PHONIC Codec for KP-Series | RTS Voice Over Network (PVON) for KP-Series keypanels*
SIP Server | SIP telephony interface for ADAM & ADAM II matrices*
Opticon Control Software | Control Software Package for FMX 4 and FMX II
ADedit | RTS Matrix Control Software
IPedit | Configuration Software for PHONIC & DMR/ED Devices
Innovate | Access Management Software
Trunk Edit Software | GUI for programming TRK-1020 trunking devices
Trunk Supervisor Software | Trunking System Management Application

* Cannot be installed on the KP-3036G or KP-3016A
* Cannot be installed on KP-3016A
* Requires a server, contact your local sales representative

Headsets

| Product | Type | Microphone sensitivity (re 1V/Pa @ 1kHz) | Microphone frequency response | Microphone impedance | Speaker sensitivity | Speaker frequency response | Connector Terminations | Cord Length | Weight
|---|---|---|---|---|---|---|---|---|---|
| LH-300 OM | Single Side, Dynamic Microphone | 63 dB | 200 Hz - 6.5 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| LH-300 EM | Single Side, Electret Microphone | 41 dB | 200 Hz - 10 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| LH-302 OM | Single Side, Dynamic Microphone | 63 dB | 200 Hz - 6.5 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| LH-302 EM | Single Side, Electret Microphone | 41 dB | 200 Hz - 10 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| LH-302 L | Desktop, Headset | N/A | N/A | N/A | 95 dB | 100 Hz - 3 kHz | 300 Ω | 4 conductor - 6 pin Female XLR | 1.6M (1.8M) | 3 oz (85g)
| PH-6B | Single Side, Dynamic Microphone | 65 dB | 200 Hz - 6.5 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| PH-6E | Double Side, Dynamic Microphone | 65 dB | 200 Hz - 6.5 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| PH-85 | Single Side, Dynamic Microphone | 65 dB | 200 Hz - 6.5 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| PH-A4 | Double Side, Dynamic Microphone | 65 dB | 200 Hz - 6.5 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| MH-300 | Single Side, Dynamic Microphone | 65 dB | 200 Hz - 6.5 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| MH-302 | Double Side, Dynamic Microphone | 65 dB | 200 Hz - 6.5 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| PH-1 | Single Side, Dynamic Microphone | 65 dB | 200 Hz - 900 Hz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| PH-2 | Double Side, Dynamic Microphone | 65 dB | 200 Hz - 900 Hz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| PH-3 | Double Side, Dynamic Microphone | 65 dB | 200 Hz - 900 Hz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR | 1.6M (1.8M) | 3 oz (85g)
| HR-1 | Single Side, Dynamic Microphone | 150 Hz - 88 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR or striped wire | 1.6M (1.8M) | 3 oz (85g)
| HR-1L | Single Side, Headset | N/A | N/A | N/A | 95 dB | 100 Hz - 3 kHz | 300 Ω | 4 conductor - 6 pin Female XLR | 1.6M (1.8M) | 3 oz (85g)
| HR-2 | Double Side, Dynamic Microphone | 150 Hz - 88 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR or striped wire | 1.6M (1.8M) | 3 oz (85g)
| HR-2L | Double Side, Headset | N/A | N/A | N/A | 95 dB | 100 Hz - 3 kHz | 300 Ω | 4 conductor - 6 pin Female XLR | 1.6M (1.8M) | 3 oz (85g)
| PHN-16 | Double Side, Dynamic Microphone | 150 Hz - 88 kHz | 500 Ω | 500 kHz | 500 kHz | 4-way Female XLR or striped wire | 1.6M (1.8M) | 3 oz (85g)
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