Specifications

Transmit Electrical Specifications

Audio Output:	+10 dBm max. into 600 ohm line
Output Impedance:	Transmit: 600 ohm balanced. Idle: 600 or 3500 ohms
Distortion:	<2% at full output. Hum, Cross-Talk all 50 dB at full output
Microphone Input:	-65 dBm for full output
Aux. Mic Input:	-20 dBm for full output
Page/Spare Input:	-15 dBm, not compressed
Frequency Response:	-3 dB to +1 dB from 250-3400 Hz except guard tone notch
Compression:	Input level increase of 30 dB above knee of compression causes <3 dB output increase

Receive Electrical Specifications

Input Impedance:	600 or 10K ohm (4-wire) 600, or 3500 ohm (2-wire)
Line Balance:	66 dB at 1000 Hz
Rx Sensitivity:	-30 dBm max. at knee of compression; adjustable
Frequency Response:	-3dB to 1 dB from 250-3400 Hz except guard tone notch
Compression:	Input level increase of 30 dB above knee of compression causes <3 dB output increase
Distortion:	< 2%
Call Light:	Sensitivity 20 dB below knee of compression (vox operation)
Audio Outputs:	5 watts into 4 ohms
Mute:	Programmable from 0 to -50 dB "All-mute" time programmable

Physical Specifications (H x W x D)

Model 4018:	9 x 18 x 14 inches
Model 4118:	5.25 x 19 x 4.5 inches
Model 4115:	5.25 x 19 x 2.25 inches

Integrator RD Workstation

Video Display:	Varies with selected monitor M4217 Audio Panel - 5.25 x 19 x 4.5 inches M4219 Audio Interface - 1.75 x 19 x 7 inches
Model 4048:	Chan. Card Cage 15.75 x 19 x 9.75 inches Cons. Card Cage 17.5 x 19 x 9.75 inches Power Supply 3.5 x 19 x 9.75 inches
Model 4020:	22.75 x 19 x 10 inches
Dust/Liquid Ingress:	NEMA 1, IEC 60529 IP 30
Operating Temp:	0 to 45 degrees Celsius

Other Electrical Specifications

Capacity (M4048):	2-48 Channels 1-16 Operating Positions (15 w/ Patch Card)
Capacity (M4020):	2-20 Channels 1-6 Operating Positions
Console Interface:	3 audio pairs (Select, Unselect, MIC) and 2 data (RS-422 @ 9600 Baud)
Channel Audio:	2-wire simplex/half-duplex, or 4-wire half/full-duplex
Channel Control:	Local, E&M, Tone Remote, DC* Remote, Telephone (end-to-end), and selected trunking radio protocols
DC Control:	Uses serial port or external contact closures (e.g. PTT relay, M-lead) to select up to 15 programmable currents between 0 and 15.5 mA, positive or negative. Drives line to up to 125 V sufficient for 8000 ohm loop resistance. Operates from 10.8 to 16 Volts DC.
Tone Control:	15 standard tones supported, programmable (in 100 Hz increments) to 650-2050Hz. High Level Guard Tone duration 100-790 msec. Function Tone duration 40 msec. Guard Tone Freq. 2175 Hz, alterable. Tone freq. accuracy + 0.2%; timing accuracy +1.0
Local Control:	PTT normally open relay contact rated 1.0 A at 24 VAC/DC
E&M Control:	Tx control via PTT relay, external 48V required
Trunking Control:	EDACS®, MAP27, iDEN®, P25, SNSZ®, LTR®, PassPort®, NEXEDGE™
Busy Chan. Detect:	Local Cross-Busy detection and Guard Tone
Time Synch:	IRIG-B (with Aux I/O Card) RS-232 (1200, 2400, 9600, 19.2 Baud)

Radio Management

Port RS-232 (1200, 2400, 9600, 19.2 Baud)	
Logger Port:	RS-232 (1200, 2400, 9600, 19.2 Baud)
Modem Port:	RS-232 (1200, 2400, 9600, 19.2 Baud)
Recorder Outputs:	1 per channel (Tx/Rx audio summation), plus 1 output per console. 0 dBm level, 600 ohm single ended
Power Input (M4048):	85-132 VAC, 170-264 VAC, 47-63 Hz, 12-13.8 VDC, 280 Watts max.
Power Input (M4020):	95-240 VAC 2 amps 50-60 Hz, 150 Watts max.
Approvals:	FCC part 15, FCC part 68

Series 4000
Communication Control System

System Overview

The Zetron Series 4000 Communication Control System is a full-featured radio dispatch console for a multichannel radio system. The Series 4000 is a tough, proven performer with a reputation for reliability, interoperability, easy programming and economical upgrades. Designed for small to medium-sized organizations, the Series 4000 can be scaled to accommodate up to 48 channels and 16 operator positions. It can be configured for full redundant operation to ensure that no single failure will result in a loss of service.

Because of the wide variety of trunked and conventional radio interfaces, Zetron's Series 4000 is an ideal platform to support communications interoperability. It may be used to patch together two or more agencies using difference radio schemes to communicate with each other. For on-scene communications, a small version of the Series 4000, the Model 4020 can be installed in a mobile communications vehicle and used for both tactical dispatching as well as on-scene interoperability patching.

CCU Model	Channel Capacity	Operating Positions	Cross Channel Patches
4020	20	6	8
4048	48	16*	24

*15 with patch card installed

Product Features

- Programmable Controls
- Up to Three Unselect Speakers
- Channel Check Integrated Instant Recall Recorder
- Emergency Alert/Acknowledge
- Instant Call Paging
- Alert Tones
- Patching
- Simul-Select
- Individual Channel Volume
- Last Call Transmit
- Console Intercom
- Auxiliary Input/Output
- Radio Control Functions vary based on radio interface type

Supported Radio Interfaces

Motorola ASTRO®
- Compatible with Motorola ASTRO® Quantar/Quantro base stations via the Motorola DIU-3000 digital interface
- Supports conventional, CAI (P25), ASTRO® 25

EF Johnson 5300 Series and Viking Series
- Compatible with EF Johnson mobile radios 53SL, 53ES, and VM600.
- Supports analog and P25 conventional, and SMARTNET®/SmartZone®, ASTRO® and P25 trunking

Harris
- EDACS® with Harris Orion, Jaguar 725M, M7100IP, and M7300 radios
- P25 with Harris M7100IP and M7300 Radios

MPT 1327
- Compatible with the Motorola GM1200, Tait T2020, 2035, T2040, and TM8255 radios with MAP27 options
- Compatible with the Zetron Model 427 for direct connection to Zetron infrastructure
- Compatible with the Tait MAP27 Gateway for direct connection to Tait infrastructure

Kenwood® TK-x80, TK-x180, TK-5x10, and NEXEDGE™
- Compatible with the TK-780/7180, 880/8180, 980 and 981 radios
- Supports LTR® and Passport® (TK-x80 and x180) trunking
- Supports P25 conventional and trunking (TK-5x10)
- Supports NEXEDGE™ radios (NX 700 and NX 800)

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Operating Positions

The Series 4000 can be controlled and monitored from up to sixteen console operator positions. Three different styles of console positions are available and may be mixed in the same system: rackmount, desktop, and PC-based consoles. Any of these consoles may be located remotely and connected to the Series 4000 via Zetron's IP Console Gateway.

Desktop Console — Model 4018

For users requiring a compact desktop console with styling suitable for an office environment, the **Model 4018** represents an ideal solution. Measuring 9" x 18" x 14" (HxWxD), the Model 4018 features an attractive two-tone clam-shell design with select and unselect speakers, clock/audio level meter, volume controls, and a built-in paging encoder.

The Model 4018 supports a total of 76 buttons for control of system, channel, auxiliary I/O, and paging functions.

Although the Model 4018 can handle up to 24 channels, the typical system does not exceed 6-10 channels due to the limited number of available buttons. Users requiring more channel capacity than this should consider either the Model 4118/4115B or the Integrator RD workstation.

Rackmount Console — Model 4118/4115B

For users who require a rackmount installation or need a console with up to 24 channel capability, Zetron offers the **Model 4118** Dispatch Console and **Model 4115B** Console Expander. Each unit is 5 1/4" high x 19" wide with a panel designed to facilitate mounting in a standard EIA 19" rack.

The Model 4115B Console Expander provides 60 programmable function keys, each with dual LEDs for status indication of key functions. At least one Model 4115B is required with each Model 4118. This configuration provides functionality that is identical to that of the Model 4018 with the added advantage of

Series 4000 System Overview

Integrator RD Workstation (w/Model 4219)

Local Base Station

Radio

LAN/WAN

Model 4020/4048 Common Control Unit

LAN/WAN

Remote Base Station/Repeater (control station interface)

Model 4118/4115 Rackmount Console

Local Control

Model 4018 Desktop Console

Remote Base Station/Repeater (leased lines)

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expandability. Up to three Model 4115Bs can be interfaced with a Model 4118, providing as many as 196 buttons for control of channel, auxiliary I/O, Instant Call pages, and other functions.

PC-Based Console — Integrator RD Workstation

The **Integrator RD** radio dispatch workstation is comprised of a host computer, monitor, Integrator RD software and either the Model **4217B Audio Panel** or the **Model 4219 Audio Interface**. The Integrator RD workstation is the most sophisticated and largest capacity operator position in the Series 4000 family.

The Model 4219 is equipped with a pair of high quality of 5-watt speakers, each with their own volume control and voice modulated LED. The Model 4219 slim-line audio panel may be flexibly mounted behind, under or on top of the work surface, and is sufficiently sized to serve as a stand for 15" and smaller LCD video monitors.

Operating under a Windows® platform, Integrator RD displays up to 36 channels on a single screen, providing a compact and intuitive means of controlling even the most complex radio system.

With its multi-screen user interface, Integrator RD can easily accommodate up to 48 channels, hundreds of Instant Call pages, and a generous number of external alarm inputs and control outputs.

Integrator RD also supports multiple languages including English, French, Spanish, Chinese and Arabic.

Control actions are accomplished with simple "point and click" mouse operations or, when appropriately configured for touchscreen operation, by touching an icon on the screen.

For additional detail, please contact Zetron for a copy of the Integrator RD specification sheet and the Integrator RD demo CD.

Common Control Units

The Common Control Unit, or CCU, is the central "switch" that routes audio and control signals between the dispatch operating positions and external communications devices such as radios and telephone lines. The modular architecture of the Series 4000 CCU allows a system to be configured to economically meet the user's current needs while providing a cost-effective upgrade path for future expansion. Two sizes of common controllers are available. The Model 4020 provides a single card cage solution for applications requiring up to 20 channels. For larger applications, the Model 4048 accommodates up to 48 channels and 16 operating positions. Both employ the same architecture and a common set of circuit cards. Each can be configured for "no single point of failure" with dual system busses, dual power supplies, and dual controllers. Standard features include a dial-up diagnostic port for remote monitoring, provisions for connection of an external time reference, and dual voltage (12 VDC and 120/240 VAC) operation with the Model 4048 power supply. An optional Radio System Management software package allows users to collect usage statistics on a "by channel" and "by position" basis.

Circuit card options to populate the Model 4020 and 4048 CCU include: System Traffic Controller, Console Interface, Dual Channel T/R Control, Auxiliary I/O, and Patch.

The **System Traffic Controller**, or STC, performs the central control function for all cards in the CCU. STC's may be operated individually, or in a redundant configuration with one operating in "hot standby".. The STC features ports for remote diagnostics via a modem, a diagnostic printer output, an external time reference input, and radio system management output to an external PC executing the Radio System Management software. Up to 4MB history of card configuration reports, system changes, and errors are stored on the STC for Zetron Service Assistance.

The **Console Interface Card** provides the interface circuitry to connect the CCU to one dispatch console position (desktop, rack, or video).

The **Dual Channel T/R Control Card** provides a two-channel interface capability for base stations, control stations, repeaters, "POTS" telephone lines, PAs, or intercoms.

vEach **Auxiliary Input/Output Card** provides relay outputs and discrete inputs for control/monitoring of external devices. Typical applications include room light control, remote door opening, intruder alarms, intercom signaling, and voter inputs. The card also contains an IRIG-B decoder to support an interface with external time references using that protocol.

The **Patch Card** is mandatory for applications requiring cross-channel patch capability. Both radio-to-radio and radio-to-telephone patches are supported. The Patch Card may be configured for 3 levels of patch paths; 8, 16, or 24.

The optional **VoIP Console Gateway** allows any Integrator RD console position to be remoted from the CCU via an agency's LAN/WAN. This gives great flexibility in placement of dispatch positions anywhere the LAN/WAN is available.

Accessory Components

Microphone/Headset Options

A wide range of microphone and headset options are available. Each type is compatible with the desktop, rackmount or video consoles. Options include **console-mounted gooseneck microphone**, **desktop gooseneck microphone** with PTT bar, **headset jack** with volume control, **secondary training headset jack**, and **PTT handset** with cradle.

Modems

An external modem pair is used to remotely locate a dispatch console up to a mile from its Common Control Unit when the distance is between 2000 - 5000 feet.

IP Console Gateway

The optional IP Console Gateway allows any Integrator RD console position to be remoted from the CCU via an agency's LAN/WAN. This gives great flexibility in placement of dispatch positions anywhere the LAN/WAN is available.

Telephone Radio Headset Interface

The Telephone/Radio Headset Interface allows the operator to use a common headset for both telephone and dispatch console. Under normal circumstances, the audio from the console's select channel is presented in the operator's headset. Upon activation of "XMIT", the operator's voice is directed to the selected channel of the console. When the telephone instrument is taken off-hook to answer a call, select channel audio reverts back to the console's select speaker, and telephone audio is presented in the operator's headset.

CAD Encoder Port

For operator positions equipped with rackmount or desktop consoles, a Model 25 paging encoder can provide a Computer Aided Dispatch (CAD) port which allows the CAD system to select the proper tone sequences and channels, eliminating much of the potential for error. CAD interface is an optional feature on the Integrator RD workstation.

Instant Recall Recorders

Zetron's **Instant Recall Recorders** are used to temporarily record and replay radio and/or telephone traffic that passes through a dispatch position. The **Integrator IRR** Instant Recall Recorder is a PC-based voice recording application which adds Intelligent Integrated Workstation (IIWS) call recording/playback capability to 9-1-1 telephone and/or radio dispatch systems. Zetron also offers the **Model 3022** for rackmount console positions, which can be configured to meet specific needs.

Tone Remote Adapter

Zetron's **Model 250 Tone Remote Adapter** adapts to most EIA-standard base station radios so they can be controlled by a dispatch console operator. Multiple channel selection for up to 15 frequencies, up to six control outputs, and monitor and transmit (PTT), make the Model 250 a powerful unit.

12 preset configurations of channel combinations, control outputs, and monitor functions make the Model 250 easy to use.

Model 251 DC Remote Base Station Adapter

Zetron's DC Remote Base Station Adapter is used to convert a Local or E&M 2 or 4-wire analog circuit to a DC remote control circuit. The DC control current is determined either by serial port or 4 binary inputs – selecting one of up to 15 programmable currents. For single-current applications (keying current) use of a console's PTT or M-lead signal is sufficient.

Door Intercom Interface

The Door Intercom Interface allows intercom station call and audio signals to be monitored and controlled via the operator consoles. The press of a station's call button provides audible and visual indicators to the operator. The operator may select one of up to 12 stations to monitor or speak through. Compatible with common 3- or 4-wire intercom modules such as Aiphone LE-D. (Not suitable for "multi-master" intercom systems.)