## CONSTANT COMMUNICATION WHEN IT MATTERS MOST

# ASTRO® 25 MCC 7500 IP DISPATCH CONSOLE

Designed to ensure optimal-quality audio, reliable communication and ease of use for dispatchers, the MCC 7500 IP Dispatch Console operator positions connect directly to the ASTRO 25 system for communication with both trunked and conventional radios, and for all other dispatch activity.

Integration of the MCC 7500 positions with the ASTRO 25 system enables full participation in end-to-end voice encryption for secure communication, priority handling of emergency calls and agency partitioning. Each console is centrally configured and managed from the network manager, providing vital efficiency.

### EASY TO USE, FLEXIBLE, AND CUSTOMIZABLE USER INTERFACE

Featuring the Elite Graphical User Interface (GUI), which has been refined and proven through years of use in mission critical dispatch operations, the MCC 7500 eases migration and minimizes user training requirements.

The intuitive and familiar GUI is based on Microsoft Windows® and uses easily recognized icons and aliases. The flexible and customizable GUI provides multiple screen layouts (folders) to organize resources by agency, shift or any criteria that meets the needs of the console users.

Trunked and conventional radio channels are customizable with various controls, such as patch status, frequency select, coded/clear select and individual volume control, based on user preferences. Per-channel controls can be fully or partially shown, or hidden to save space on the screen.

Busy dispatchers can respond to a missed call by simply clicking on an entry in the Activity Log. The number of calls and call information displayed in the Activity Log is customizable to suit the needs of the user(s).

The status of auxiliary inputs and outputs is conveniently interpreted from the GUI with the use of familiar graphical icons, such as a door shown open or closed.

## KEY INTEROPERABILITY FEATURES

### Agency Partitioning

Multiple agencies can share a system to gain interoperability and cost savings benefits, while still maintaining control of their own channels, encryption keys, console configuration and more.

### Priority for Emergencies

Transmit Priority Levels provide an orderly and consistent method for ensuring higher priority transmissions are able to take over resources from lower priority transmissions.

### Optimized Patch Functionality

MCC 7500 console users can patch communications between trunked and/or conventional radios that are normally unable to communicate with each other. Patched radio users see the ID or alias of the other patched radio(s), as opposed to that of the console. This minimizes confusion and the need for the dispatcher to intervene in the call. Patches are automatically re-established if interrupted so the MCC 7500 user can concentrate on continuing operations.

### Enhanced Secure Operation

Encryption and decryption services within each dispatch operator position enable dispatchers to fully participate in secure communications while keeping the sensitive, vital information completely encrypted between the dispatcher and the radio users.

Dispatchers can interface with agencies that have different encryption configurations without any manual intervention or delay. Up to 60 calls using up to six different algorithms and multiple secure keys can be supported simultaneously.

To help reduce dispatcher stress and potential errors when managing encrypted audio situations, indicators and alerts are provided when the console mode does not match that of a received call, as well as when a patch or multi-select group is being set up between a mix of clear and secure channels.

## MCC 7500 DISPATCH SOLUTION COMPONENTS

### MCC 7500 Dispatch Console Operator Position

MCC 7500 operator positions connect directly to the radio system's IP transport network without gateways or interface boxes. Audio processing, encryption, and switching intelligence for dispatch is performed within each software-based operator position, without additional centralized electronics. Consoles function as integrated components of the total radio system, enabling full participation in system level features such as end-to-end encryption and agency partitioning.

Operator position hardware consists of a monitor, personal computer, keyboard and mouse/trackball/touchscreen, speakers, audio accessories and a Voice Processor Module (VPM). The VPM allows analog devices to be connected to the digital console. The low-profile VPM can be rack mounted, furniture mounted or placed on the desktop.

The MCC 7500 console system does not require separate configuration or performance management equipment. The console system is configured and managed by the radio system's configuration manager, fault manager and performance reporting applications to provide the customer with a single point for configuring and managing the entire radio system. Changes are automatically distributed throughout the system. This centralized approach saves valuable time and effort for system administrators and technicians.

## CONVENTIONAL GATEWAY

The Conventional Channel Gateway (CCGW) enables both analog and digital channels to interface with MCC 7500 consoles with no need for a separate hardware network and channel banks. Both conventional and trunked calls are transported between the dispatch operator positions and the CCGWs on the same IP network.

A CCGW provides four-wire analog ports for analog channels, V.24 ports for older ASTRO® 25 conventional channels and IP connectivity for current architecture ASTRO 25 conventional channels. Enhanced digital control of consolettes can be achieved by using a combination of analog and V.24 ports. Up to four consolettes, analog channels and older ASTRO 25 conventional channels can be connected to a CCGW, along with up to 10 IP-based ASTRO 25 conventional channels. In total, a CCGW can support up to 14 conventional channels.

The four-wire analog ports support tone remote and ear and mouth (E&M) station control. The V.24 ports and IP connections support digital station control while a combination of analog and V.24 ports support enhanced digital control of consolettes. The CCGW also supports simple analog, MDC 1200 analog, digital-only and mixed-mode analog/digital channels.

## AUXILIARY INPUT/OUTPUT SERVER

The auxiliary input/output server enables console operators to control and monitor external devices, such as doors and lights, from the console user interface. Since the MCC 7500 Dispatch Console does not rely on centralized electronics, contact closures and input buffers required to interface to these devices are housed in Remote Terminal Units (RTUs). These RTUs can be physically located close to where they are needed or at any console or radio frequency (RF) site. The dispatch consoles and RTUs communicate with each other across the radio system's IP transport network.

## ARCHIVING INTERFACE SERVER (AIS)

The AIS is a digital logging interface, comprised of a personal computer and a voice processor module (VPM). Each AIS works with an IP-based logging recorder. Audio and call control information is sent across the IP network between the AIS and recorder. Highly configurable, the MCC 7500 logging solution includes:

- Recorded audio quality equivalent to audio heard at console position

- Information associated with radio calls recorded in addition to the call audio.

- Dispatcher- and radio-initiated events on radio channels (such as changing the frequency, sending an alarm) are recorded.

- Recorder capacity based on the number of radio transmissions needed to record simultaneously, not on the number of channels it may record.

- Agency partitioning, enhancing control over which resources are recorded by what agency or department.

- Security and fault management centralized at the radio system's network manager.

### SPECIFICATIONS

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| System Compatibility | ASTRO® 25 System and PremierOne™ CAD Application |
| Vocoder Algorithms supported | AMBE, IMBE, ACELP, G.728 |
| Encryption Algorithms supported | AES (256 bit), DES-OFB, DVI-XL, ADP (Advanced Digital Privacy), DES-XL, DVP-XL |
| **Monitor requirements**<br>With Mouse or Trackball<br>Touchscreen | <br>17" minimum, 20" recommended<br>20" minimum |

| Voice Processor Module (VPM) connections | **Connector type** | **Device** |
|---|---|---|
| | RJ45 | One desktop microphone, eight desktop speakers, one local logging recorder, one radio instant recall recorder, one external telephone set, one external paging encoder, one footswitch |
| | DB15 | Two headset jacks connectors |

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| VPM mounting options | EIA 19" rack mount, console furniture mount, Desktop – supports monitor up to 80 lbs |
| VPM audio inputs and outputs | 600 Ohm, balanced and transformer coupled (except for microphone which is 2000 Ohm, balanced, and does not use a transformer) |
| Speaker Mounting Options | Desktop, furniture mount, or wall mount (with bracket accessory) |

| Dispatch Console Cable Lengths | | |
|---|---|---|
| | VPM to Speaker cable | 10.1 feet (3.09 meters) standard |
| | VPM to Headset Jack cable | 6 feet (1.8 meters) standard |
| | Headset Jack Extension cable | 6 feet (1.8 meters) standard |
| | VPM to Microphone cable | 10 feet (3.05 meters) standard |
| | VPM to Footswitch cable | 10 feet (3.05 meters) standard |

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| Supported Console Site Link types | Fractional T1/E1, Single T1/E1, Multiple T1/E1s<br>Redundant and non-redundant versions<br>IP site links |
| MCC 7500 Dispatch Console Capacities | Up to 60 simultaneous audio sessions per operator position<br>Up to 60 simultaneous encryption/decryption sessions per secure capable operator position<br>Up to 3 Multi-Select groups per operator position (with up to 20 members per Multi-Select group)<br>Up to 16 Patch groups per operator position (with up to 20 members per Patch group)<br>Up to 160 resources per operator position |
| Conventional Channel Gateway | Rack mountable, 1 rack unit high<br>T1R1, T2R2, T4R4, T8R8, T12R12, T14R14 channels<br>Simple analog, MDC 1200 analog, pure digital, mixed mode (analog/digital) channels, consolettes<br>Each CCGW provides four RJ-45 connector ports for interfacing to analog conventional channels<br>Each port contains the following inputs and outputs<br>• 600 Ohm, balanced analog audio input - To accept radio audio from the channel. Can be configured to support AGC, DLM, or no input conditioning<br>• 600 Ohm, balanced analog audio output - To send console transmit audio to the channel<br>• Input buffer - To detect Carrier Operated Relay (COR) closure in the channel<br>• 1 Amp, 24 VDC relay output - For relay keying of the channel<br>Each CCGW provides four RJ-45 connector ports for interfacing to ASTRO 25 conventional channels<br>• V.24 to station or comparator. No Digital Interface Unit (DIU) required.<br>Enhanced digital control of a consolette is achieved by using one of the analog ports and one of the V.24 ports.<br>Connect up to four conventional channels to each CCGW, including MDC 1200 analog, pure digital and/or mixed mode (analog/digital) channels. In addition, each CCGW also supports up to 10 IP-based ASTRO 25 conventional channels. |

## SPECIFICATIONS

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| Auxiliary Input/Output Server Hardware | A simplified, user-friendly version of the MOSCAD SDM 3000 RTU is used to support most Aux I/O needs. The output relays are capable of switching 1A @ 24VDC or 1A @ 24VAC. Input buffers are capable of sensing a dry closure through 1000 feet or less (round trip) of 24 AWG wire. The RTU provides single pole Form A relay outputs. (Double pole, Form B or Form C relays must be implemented using external relays which are controlled by the RTU relays.) |

| Auxiliary Input/Output Capacities | Number of Output Relays | Number of Input Buffers |
|---|---|---|
| Single SDM 3000 RTU | 16 | 48 |
| Single SDM 3000 RTU with 1 expansion chassis | 32 | 96 |
| Single SDM 3000 RTU with 2 expansion chassis | 48 | 144 |

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| Auxiliary Input/Output Mounting | Each SDM 3000 RTU and each SDM 3000 RTU Expansion Chassis is rack mountable in a standard 19 inch rack and is one rack unit high. |

## SIZE AND WEIGHT

| Device | Height | Width | Depth | Weight |
|---|---|---|---|---|
| VPM | 1.75 in 44.5 mm | 16.9 in 430 mm | 12.3 in 312 mm | 3.6 lbs 1.6 kg |
| Speaker | 4.9 in 124 mm | 4 in 102 mm | Without bracket: 3.5 in 89 mm<br>With bracket: 5.8 in 146 mm | 0.7 lbs 0.3 kg |
| Headset Jack | 1.6 in 41 mm | 5 in 127 mm | 6 in 152 mm | 1.2 lbs 0.5 kg |
| Microphone | Gooseneck at 90°: 4.5 in 114 mm<br>Gooseneck at 180°: 21.8 in 552 mm | 4.8 in 121 mm | 6.6 in 168 mm | 2.4 lbs 1.1 kg |

## POWER AND CONSUMPTION THERMAL

| Device | Power Input | Thermal Output |
|---|---|---|
| VPM | 0.4 Amps at 120VAC 0.2 Amps at 240VAC | 171 BTUs/hour |
| Speaker | Add 0.05 Amps per speaker to VPM power Input at 120VAC (0.025 Amps at 240VAC) | Add 15 BTUs/hour per speaker to VPM thermal output |
| Headset Jack & Microphone | negligible | negligible |

## CERTIFICATIONS

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| | The various hardware elements of the Motorola MCC 7500 dispatch console product line are certified to meet the requirements for CSA and CE. |
| Safety | CSA 60950-1-03 EN60950-1 2001 |
| EMC Emissions & Immunity | FCC part 15 Class A ICES-003 EN55022 1998 + A1: 2001 + A2:2003 (CISPR-22 Class A) EN55024 + A1:2001 + A2:2003 EN61000-3-2 2000 EN61000-3-3 1995 + A1:2001 |
| Energy Efficiency (PVM power supply only) | US HR6 & CEC Tier 2 (Energy Efficiency Level IV) EUP Lot 7 Tier 1 (Energy Efficiency Level IV) |

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