

M A I N S T A T I O N



MS-400 FOUR-CHANNEL MAIN INTERCOM STATION

FEATURES

- Regulated power supply supports up to 100 Remote Stations
- Selectable, 4-channel monitoring system
- Programmable talk/listen functions for each channel
- Wide frequency response speaker with speaker on/off switch
- Visual signalling
- Balanced program input, assignable to any or all channels
- Separate intercom, program, and sidetone level controls
- External speaker jack
- Circuit-breaker-protected with short circuit indicator and re-set button
- Available with gooseneck mic, length-adjustable (1"-12")



DESCRIPTION

The MS-400 is a four-channel main intercom station with a regulated power supply and a versatile channel-monitoring system. It features Clear-Com's excellent speech intelligibility and consistent high performance.

The MS-400 contains a mic preamp and a four-watt power amp, so it can drive two dynamic headsets and the built-in speaker or an external speaker. The station drives a standard Clear-Com headset to levels greater than 110 dB SPL. The built-in speaker outputs crisp sound pressure levels, high enough to be heard in the noisiest surroundings.

MONITORING SYSTEM

The MS-400 supports four channels used by as many as 100 remote headset stations or 20 speaker stations. The main station operator monitors the intercom activity on the channels with locking "Monitor Select" buttons. These buttons light dimly when engaged. One, two, three, or all four channels can be monitored simultaneously without tying the channels together.

The MS-400 operator pre-sets the monitor functions for each channel. For instance, Channel A may be programmed for talk-only, Channel B for listen-only, and Channels C and D for talk and listen. "Channel Override" buttons momentarily cancel the pre-sets when the operator needs two-way communicating.

Sidetone controls (the MS-400 provides one for each channel, and

one for overall headset/speaker sidetone) allow the operator to vary the level of his/her own voice as heard in the headset/speaker. Sidetone control also suppresses acoustic feedback when using a speaker.

SIGNALLING

Visual Signalling attracts the attention of operators who've removed their headsets or turned off their speakers. The MS-400 Call button signals the stations on channels that have been previously chosen with the Monitor Select buttons. When a remote station sends a Call signal, the Monitor Select button associated with that station's channel will light brightly, whether in the "on" or "off" position. (The Visual Signal Circuit is also used to activate the optional remote page feature at other stations.)

PROGRAM INPUT

The MS-400 accepts a balanced, line-level program input which is heard in the headset/speaker and can be mixed with the intercom audio on any or all channels. Program volume is set individually for each channel with trimpots located beneath the top cover of the station.

POWER SUPPLY PROTECTION

The MS-400 provides a red lamp to indicate a short circuit in the system, and a circuit-breaker re-set button that enables instant operation once the short is

continued

removed. The station's power supply is regulated, current-limited, and provides 28 volts at two amperes from a 115V or 230V AC mains supply.

EASY INTERCONNECTION

The MS-400 connects to the remote stations with standard two-conductor mic cable. The station's rear panel provides three 3-pin, XLR connectors for the output of each channel (twelve connectors total).

GOOSENECK MIC OPTION

The MS-400 is available with a permanently-attached, noise-cancelling electret mic on a gooseneck with adjustable length (up to 12"). The mic is installed in the top headset connector. When the mic switch is set to momentary "on", the mic activates and the speaker is attenuated by 10 dB to reduce the possibility of feedback.

POWER REQUIREMENTS: 115/230 volts 50-60 Hz. 80 watts maximum.

DIMENSIONS: 19"L x 3.5"H x 9"D
463mmL x 89mmH x 229mmD

ENVIRONMENTAL TEMPERATURE RANGE: 0-50° C (32-122°F)

Specifications subject to change without notice
*0 dBv is referenced to 0.775 volts rms.

ARCH/ENG SPECS

The main station shall be a 4-channel rack-mount intercom station. It shall incorporate a 30 volt regulated power supply capable of delivering 2 amps, circuit-breaker protected against external shorts, and have an LED indicator to indicate a shorted condition. It shall have four illuminating monitor select switches for monitoring any or all channels. The talk and listen functions of the monitor select switches shall be programmable. The program select switches and level trim controls shall be accessible from the front panel. These controls shall be located behind a removable cover plate. When monitoring all channels the operator shall be able to communicate with them simultaneously without combining the channels into a common or partyline system. The station shall have a built-in speaker and a jack for connecting an external speaker. It shall have provisions for accepting a balanced line-level auxiliary input signal which shall be selectable assignable to any intercom channel. It shall also have a front panel control for adjusting the program

level in the headset/speaker. It shall supply the terminating network for each channel. It shall have provisions for connecting two dynamic headsets to the station, and a level control to adjust the volume to the headphones. It shall also have a front panel sidetone adjustment. The remote stations shall have the ability to visually signal the main station by illuminating the appropriate monitor select switch. The rear panel shall contain three XLR-type, 3-pin male connectors for the output of each channel, A-D. The electronics shall be solid-state, IC plug-in printed circuit amplifier modules. It shall be field-serviceable and replaceable. The station shall accept a 200Ω dynamic microphone with a nominal level of -55dB. The station's frequency response shall be 250Hz to 12kHz. It shall be capable of driving the line of any channel to a maximum level of 0dB. The headphone amplifier shall be able to operate a headset with an impedance of 300 to 2000Ω and shall be capable of delivering an output level of +20dBm at 600Ω. The distortion shall be less than 0.5% THD at 1kHz. The station shall also incorporate a mic on/off switch on the front panel. The mic preamp shall incorporate a limiter, and shall automatically shut off when the headset is disconnected from the station. The station shall have the capacity to power 100 headset stations or 20 speaker stations. The auxiliary input shall have a frequency response of 150-18k Hz (± 2dB). The power supply shall operate from 105-125 VAC or 210-260 VAC; 50-60Hz, with maximum power consumption of 80 watts. The station's dimensions shall be no greater than 19" x 3.5" x 9" deep. It shall be called an MS-400.

SPECIFICATIONS

AMPLIFIER DESIGN: IC amplifiers including solid state switching and signalling circuits. Current limited and short circuit protected.

MICROPHONE PRE-AMP:

Microphone Input: 200Ω nominal dynamic type
Maximum Input Before Clipping: -20dBv
Mic Pre-Amp Frequency Response: 250Hz-12kHz with a contoured response to enhance voice intelligibility
Headset Mic Input Level: -55dB

HEADPHONE AMPLIFIER:

Output Impedance Range: 8-2,000Ω
Output Level: 4 watts into 8Ω
Distortion: <0.5% THD at 1kHz
Amplifier Gain: 35dB
Frequency Response: 150-18kHz (±2dB)

PROGRAM AMPLIFIER:

Frequency Response: 150-18,000Hz
Input: 47kΩ-100kΩ balanced
Input Level: -15dBv nominal; +10dBv max*

POWER SUPPLY:

Output voltage: 30 volts circuit breaker protected, regulated
Output current: 2 amps maximum

CHANNEL SEPARATION: >50dB

SIGNAL TO NOISE: 55dB

SIDETONE: Adjustable from 25dB null to full on

OPERATING CONDITIONS:

Channel Monitoring: Programmable channels A, B, C, D with illuminated push on/push off switches
Channel Override: Defeats programmed select switches

All Page: Talk to all 4 channels

Call Light Send: Follows channel select switch.
Capacity: up to 100 Remote Headset Stations or 20 Remote Speaker Stations.

System Termination: 200Ω impedance switchable on or off

System Level: -15dBv nominal; 0dBv before clipping*

SIGNALLING:

Call Light Sensitivity: 4vdc
Signalling Voltage: 11vdc

CONNECTORS:

Headset Input Connector: 2-4 pin connectors (D4M)
Output Connectors: 12 (3 outputs per channel).

Auxiliary Input: Switchcraft D3F

External Speaker Jack: Disconnects internal speaker

MS-400 BLOCK DIAGRAM

