



Host port command/status messages

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1. Intent & Scope

The MicroComm DXI quickly and reliably exchanges command and status messages with external computer systems or PLCs using one of many protocols (specified in separate documents). The protocols which use the messages specified in this document fall into two categories depending on the method used to transmit these messages. One category of protocols exchanges messages between the host and intercom system using ASCII text strings, while the other category of protocols, usually used for communication to PLCs, exchanges messages between the host and intercom system using 16-bit registers. The short sections below describe the format of the messages for each of these categories.

2. Message Formats

2.1 ASCII protocols using text strings:

All command and status messages start with up to a four-character code followed by a number of parameters each separated by one or more spaces. All numeric parameters are sent as ASCII decimal strings (i.e. a sequence of the characters 0–9). All MicroComm DXI system ID numbers are limited to the range 0–65535, with the value zero being reserved for use as a null ID.

On most computer systems the four character codes can be represented as a single 32-bit integer. This can be used to speed up searches and lookups based on these codes. Any character codes that are less than 4 characters should have spaces added to the right to pad the strings to 4 characters.

2.2 Numeric protocols using 16-bit registers:

All command and status messages are a block of five 16-bit registers. All MicroComm DXI command numbers and system ID numbers are limited to the range 0–65535, with the value zero being reserved for use as a null ID.

In the commands below, any unused registers in the block of five registers are assumed to be zero. The example for the **Icrq** message shows the command 1 10 1102, meaning that the following values are present in the block of five registers:

Base Register	1
Base Register + 1	10
Base Register + 2	1102
Base Register + 3	0
Base Register + 4	0

3. Command and Status Messages:

The message codes detailed in this document are currently defined. Other codes may be defined in the future so it is important that the external computer system or PLC accept and ignore any messages that have codes that it

does not understand. Similarly, the host system should not send any undefined message codes to the intercom system as these may be misinterpreted by later versions of the software.

In many cases the same message is used for both commands from the host computer system and status messages to the host computer system. These situations are noted in the command descriptions below.

The command and status messages currently supported by the DXI system are as follows.

Icrq (1) Intercom call request

parameters: master station ID, intercom station ID

examples: Icrq 10 1102 (ASCII), 1 10 1102 (numeric)

Call request from station 1102 received on master 10.

This message reports that a call request from the intercom station was received and queued at the master station. Note that this is also used to indicate a secondary alarm to a master if the master is a secondary master.

Normally, this is only sent from the intercom system to the host computer. However, for unusual circumstances, this message can also be sent from the host to the intercom system to initiate a call request to the system from some external source (a motion sensor, alarm input, etc.). In this case, the call will be queued on the master that the station normally calls into, not the master ID given in the host command (which is ignored). However, this master ID given in the host command must be a valid master ID.

Ican (2) Intercom call request cancel

parameters: master station ID, intercom station ID

examples: Ican 2 10 1102 (ASCII), 2 10 1102 (numeric)

Cancel call request from station 1102 to master 10.

This message reports that a call request from the intercom station was canceled at the master station. This can either report the canceling from the intercom system to the host or can be used as a command from the host to the intercom system telling it to cancel the request.

Mcrq (3) Master call request

parameters: master station ID, master station ID

examples: Mcrq 10 1102 (ASCII), 3 10 1102 (numeric)

Call request from master 1102 received by master 10.

This message reports that a call request from the second master station was received and queued at the first master station. This can only be sent from the intercom system to the host computer. Note that this is used to indicate a secondary alarm to a master if the master is a secondary master.

Mcan (4) Master call request cancel

parameters: master station ID, master station ID

examples: Mcan 10 1102 (ASCII), 4 10 1102 (numeric)

Cancel call request from master 1102 to master 10.

This message reports that a call request from the second master station was canceled at the first master station. This can either report the canceling from the intercom system to the host or can be used as a command from the host to the intercom system telling it to cancel the request.

Date (5) Set system date

parameters: year, month, day

examples: Date 2002 12 25 (ASCII), 5 2002 12 25 (numeric)

Set date to 2002/12/25.

This command is used to set the date on the intercom system's real time clock. This message will also report when the intercom system's clock is set by any means other than a **Date** command from the host computer. The year is given in full 4-digit format. The month is a number from 1 to 12 with 1 corresponding to January. The day is a number from 1 to 31. The intercom system checks the number of days in the month to ensure that it is correct

Note: To prevent a "race" condition when the SAC and host clock run at slightly different speeds, the **Date** and **Time** commands should not be set near midnight (at least +/- 1 minute), as this may result in the SAC resetting to just after midnight this day (losing one day) or just after midnight tomorrow (gaining one day).

To prevent this, set **Date** and **Time** at least one minute from midnight.

The SAC will ignore all time commands sent from 00:00:00 to 00:00:59 to prevent this from happening

Time (6) Set system time

parameters: hour, minute, second

examples: Time 22 15 39 (ASCII), 6 22 15 39 (numeric)

Set time to 22:15:39.

This command is used to set the time on the intercom system's real time clock. This message will also report when the intercom system's clock is set by any means other than a **Time** command from the host computer. The time is always in 24 hour format, in the format HH MM SS, ranging from 00 00 00 to 23 59 59.

Note: To prevent a "race" condition when the SAC and host clock run at slightly different speeds, the **Date** and **Time** commands should not be set near midnight (at least +/- 1 minute), as this may result in the SAC resetting to just after midnight this day (losing one day) or just after midnight tomorrow (gaining one day).

To prevent this, set **Date** and **Time** at least one minute from midnight.

The SAC will ignore all time commands sent from 00:00:00 to 00:00:59 to prevent this from happening

Ical (7) Intercom call

parameters: master station ID, intercom station ID

examples: Ical 10 1102 (ASCII), 7 10 1102 (numeric)

Call station 1102 from master 10.

This command is sent from the host computer to the intercom system to connect the master station to the intercom station. The intercom system will report this command to the host computer to indicate an intercom call in progress when the call is started by any means other than an **Ical** command. Calling this with an intercom station ID of 0 will disconnect the current call (like **EndC**).

Mcal (8) Master call

parameters: master station ID, master station ID

examples: Mcal 10 14 (ASCII), 8 10 14 (numeric)

Call master 14 from master 10.

This command is sent from the host computer to the intercom system to connect the first master station to the second master station. The intercom system will report this command to the host computer to indicate a master-to-master intercom call is in progress when the call is started by any means other than a **Mcal** command. Calling this with a second master station ID of 0 will disconnect the current call (like **EndC**).

Page (9) Page call

parameters: master station ID, page zone ID

examples: Page 10 99 (ASCII), 9 10 99 (numeric)

Page zone 99 from master 10.

This command is sent from the host computer to the intercom system to connect the master station to the page zone. The intercom system will report this command to the host computer to indicate a page call in progress when the call is started by any means other than a **Page** command. Calling this with a page zone ID of 0 will disconnect the current page (like **EndC**).

EndC (10) End call

parameters: master station ID

examples: EndC 10 (ASCII), 10 10 (numeric)

Ends current call, if any, on master 10.

CCTV (13) CCTV command pass-through

parameters: switch ID, monitor ID, camera ID, camera preset ID

This command is used to display the camera on the monitor. The switch ID is used to allow for large installations with multiple CCTV switches. The switch ID must be the card ID for the CCTV switch in the intercom system's configuration database, and the monitor, camera and camera preset numbers must match the ID numbers of the monitor, camera and camera presets in the CCTV switch's configuration database. This message also reports to the host computer when the intercom system connects a camera to a monitor as a result of any command other than a **CCTV** command.

AUTO (14) CCTV automatic stepping

parameters: switch ID, monitor ID

This command is sent from the host computer to the intercom system telling the intercom system to resume auto-stepping the video switcher. The switch ID is used to allow for large installations with multiple CCTV switches. The switch ID must match the configuration ID for the CCTV switch in the intercom system's configuration database. This message also reports to the host computer when the intercom system resumes auto-stepping as a result of any command other than a **AUTO** command.

Done (15) Command completion status

parameters: command string

This status message indicates that the command was executed successfully. The parameter string is an echo of the command that was completed. This status message can be disabled in the intercom system configuration to reduce the amount of message traffic if positive confirmation is not required. The parameter string returned will remove any leading zeros from parameters, and delete any extraneous spaces, but the message content will be the same. Therefore, the user should not perform a direct string compare but should instead compare the tokens returned to the tokens in the command string.

Busy (16) Busy status

parameters: command string

This status message indicates that the destination for a call command was busy in a call with a higher priority master. The parameter string is an echo of the command which caused the problem. The parameter string is not a direct copy of the input string. The parameter string returned will remove any leading zeros from parameters, and delete any extraneous spaces, but the message content will be the same. Therefore, the user should not perform a direct string compare but should instead compare the tokens returned to the tokens in the command string.

Fail (17)**Failure status**

parameters: command string

This status message indicates that the command failed to execute. The parameter string is an echo of the command that caused the problem. This can result from invalid ID numbers or hardware faults etc. The parameter string returned will remove any leading zeros from parameters, and delete any extraneous spaces, but the message content will be the same. Therefore, the user should not perform a direct string compare but should instead compare the tokens returned to the tokens in the command string.

Halm (19)**Intercom station fault**

parameters: master station ID, intercom station ID, state

This command is sent from the intercom system to the host to inform the host that an intercom fault has occurred or an existing one has been cleared on the intercom station specified. If the third parameter is set to 1 (one), then a fault has been generated. If the third parameter is a 0 (zero), then a fault has been cleared.

Hflt (20)**Hardware fault**

parameters: master station ID, card ID, state

This command is sent from the intercom system to the host to inform the host that a card fault has occurred or an existing one has been cleared on the card specified. If the third parameter is set to 1 (one), then a fault has been generated. If the third parameter is a 0 (zero), then a fault has been cleared.

Next (21)**Acknowledge next CRQ**

parameters: master ID

This is passed from the host to the intercom system to acknowledge the next call request on the queue. The call request can be either a master or station call request. If there are no call requests queued up, then this will return a Fail response. If there is a station call request, then the intercom will return a **"Ican"** to cancel the alarm (see above) and then a **"Ical"** to indicate which station has been called. Similarly, if there is a master call request, then the intercom will return a **"Mcan"** and then a **"Mcal"**.

IVad (22)**Intercom volume adjustment**

parameters: master ID, station ID, increment

This is passed from the host to the intercom system to change the volume on a station. If the increment passed is 0, then the station's volume will decrement by 1 setting (i.e., get quieter). If the increment passed is 1, then the station's volume will increment by 1 (i.e., get louder). If the station ID passed is 0, then the currently connected station (if there is a call in progress at the master) will have its volume increased or decreased. Otherwise, the user should enter the station number whose volume they wish to adjust in the station ID. This only sends a bad response if the

station or master ID is incorrect. Note that the **Done** response is always sent back, regardless of whether or not the volume can increase or decrease any more than its current setting. The **Fail** response only indicates an error in the syntax of this command.

MVad (23) Master volume adjustment

parameters: master ID, increment

This is passed from the host to the intercom system to change the volume on a master. If the increment passed is 0, then the master's volume will decrement by 1 setting (i.e., get quieter). If the increment passed is 1, then the master's volume will increment by 1 (i.e., get louder). This can be called if the master is in a call or not. Note that the **Done** response is always sent back, regardless of whether or not the volume can increase or decrease any more than its current setting. The **Fail** response only indicates an error in the syntax of this command.

Sgnl (24) Start a signal (tone output to a group of stations)

parameters: master station ID, signal ID

This is sent from the host to the intercom to tell the intercom to start a signal (as defined in the administration menus). This will start the tone and let it run until either an **EndS** is received from the host (see below), the tone's time elapses, or the tone is ended from the master station. This reports a **Done** or **Fail** response to the host which initiated it. This command, when received by the host computer, indicates that the tone was initiated and executed successfully from the master station.

EndS (25) Stop a signal (tone output to a group of stations)

parameters: master station ID, signal ID

This is sent from the host to the intercom to tell the intercom to stop a running signal (as defined in the administration menus). If the signal specified is being sent, then this will stop it immediately. If the signal ID is 0, then the intercom system will stop all the tones that are being generated by the master specified. If the signal ID is not 0, then this will return a **Done** or **Fail** response to the host system. If the signal ID is 0, then this will return a **Done EndS** with the appropriate signal for each signal on the master which was removed. This command, when received by the host computer, indicates that the tone was ended successfully from the master station.

Boot (26) Reports that the DXI has started

parameters: master station ID

This is sent from the intercom to the host to tell the host that the DXI has restarted and the master stations may require updates to their enable/disable status (since the MicroComm DXI will reset the state of the master station when it starts up). This will only be sent when the DXI SAC computer boots up. It triggers the host system to issue any **ENBL** messages, **SETM** messages, etc that may be required to get the intercom system state to agree with the host system state. This

message is only sent by permanently connected protocols (i.e. serial port) and will not be sent by Ethernet based protocols.

Alrm (27) Station alarm

parameters: master station ID, intercom station ID, master station ID

This message reports that an alarm has occurred. This is used for both primary and secondary alarms. If the alarm is a primary alarm, then the second master station ID (i.e., the third parameter) will be 0 (zero). If the alarm is a secondary alarm, then the third parameter will be set to the master who has not responded to the alarm. In all cases, the message will have the intercom station ID of the station which has alarmed and the first master station ID is the master to which this alarm is intended (either a primary or secondary master). This message is only sent from the intercom system to the host computer.

Enbs (28) Enable / disable station

parameters: master station ID, intercom station ID, state

This command is sent from the host computer to the intercom system to enable or disable a station. The first parameter is the master to enable or disable. The second parameter is the station ID which is to be disabled. The third parameter is a 1 (one) if the host computer wants to enable the station and a 0 (zero) if the host computer wants to disable the master. The intercom system will report this command to the host computer to indicate a station has been enabled or disabled when it is enabled or disabled by any means other than an **Enbs** command.

Log (29) Logging message

parameters: string (ASCII protocols only)

This command is sent from the intercom system to the host computer to inform the host computer of activity on the intercom system. This should never be sent from the host computer to the intercom system. The string passed is a zero terminated string (i.e., a hex 0, as opposed to a 0 character, which is hex 30). The string can be any length though a practical limit would be 128 characters. The string content is entirely at the discretion of the intercom system. This is meant to be used only for situations where the host computer is logging information either to a printer or to a disk. To use this feature, it first must be configured in the SAC software.

NOOP (30) Activity test message

parameters: string (ASCII protocols only)

This command is sent from the host computer to test whether the intercom system is active. This command will cause the intercom system to return a NOOP with the specified string. This should be used by the host computer to determine if the intercom system is functioning.

lack (31) Intercom call acknowledge

parameters: master station ID, intercom station ID

This message reports that a request from the intercom station was acknowledged at the master station. This can either report the acknowledging from the intercom system to the host or can be used as a command from the host to the intercom system telling it to acknowledge the highest priority request (if the station ID is zero) or a specific intercom station's alarm.

Mack (32) Master call acknowledge

parameters: master station ID, master station ID

This message reports that a request from the second master station was acknowledged at the first master station. This can either report the acknowledging from the intercom system to the host or can be used as a command from the host to the intercom system telling it to acknowledge the highest priority request (if the second master ID is zero) or a specific master call request.

SetO (33) Set station output

parameters: master station ID, station ID, state

This message is sent by a host to the intercom system to tell it to turn on a station's output. The state variable passed will be one of the following:

STATE	OUTPUT	REMARKS
1	ON	FULLY ON
2	WINK	7/8 DUTY CYCLE
3	SLOW FLASH	1/2 DUTY CYCLE
4	FLASH	!2 DUTY CYCLE WITH QUICK FLASH
5	BLINK	1/8 DUTY CYCLE
6	OFF	FULLY ON
7	Pulsed on	On for "pulse time", then off

The "pulse time" referred to in state 7 is configurable for each station. This can be passed to any station which has an output.

Inpt (34) Station input state

parameters: master station ID, station ID, state

This is passed from the intercom system to the host to inform the host that the state of the station's input switch has changed. The third parameter is the new state of the input switch (note that the switch must be configured as latched, as opposed to momentary). The state will be 1 when the switch is on, 0 when it is off. This is passed only for stations which have switches which are defined as 'Report to Host' or 'Output ON' type in the configuration.

Open (35) Open door request

parameters: master station ID, door ID, pulse

This is passed from the host to the intercom system to tell the intercom system to open the door specified. If the pulse parameter is 0, then this command will turn on the motor for a predefined amount of time before turning it off. If the pulse parameter is 1, and the door has a fully opened indicator, then the open motor will run until the opened indicator trips. If there is no fully opened indicator, then the motor will be left on. If there is a close motor on the door, this will be shut off. A 'Done' response from this command merely means that the command was sent to the door controller (in the intercom system) and that the door's state is being changed to open. If the door is already open when this command is sent, then it will return a 'Done' even though the door is already open.

Clse (36) Close door request

parameters: master station ID, door ID

This is passed from the host to the intercom system to tell the intercom system to open the door specified. This will turn off the open motor of the door (if there is one) and turn on the close motor and leave it on until the closed indicator trips (if there is one, if there is no closed indicator, then the door will have its close motor left on). A 'Done' response from this command merely means that the command was sent to the door controller (in the intercom system) and that the door's state is being changed to closed. If the door is already closed when this command is sent, then it will return a 'Done' even though the door is already closed.

Stop (37) Stop door request

parameters: master station ID, door ID

This is passed from the host to the intercom system to tell the intercom system to stop the door from either opening or closing. This will turn off both the open and close motors (if they are configured). A 'Done' response from this command merely means that the command was sent to the door controller (in the intercom system) and that the door's state is being changed to stopped. If the door is already stopped when this command is sent, then it will return a 'Done' even though the door is already closed.

Door (38) Report door state (secured/unsecured)

parameters: master station ID, door ID, status

This is passed from the intercom system to the host to tell the host that the door has changed state (i.e., from secured to unsecured). The status will be 0 if the door is unsecured and 1 if it is secured. Secured is defined as the closed indicator on the door being on.

EXTA (39) External alarm

parameters: card ID, station ID, status

This is passed from the host to the intercom system to forward an alarm from the host to another host of the intercom system. The card ID is the card number of the host to which we want to send the alarm. The station ID is the station number we are trying to set the alarm on. The status is the value of the alarm (typically would be 1 or 0 but there is no restriction upon this value, other than

it must be between 0 and 65535). This is similar in format the CCTV and AUTO commands in that it passes information directly from one host to another.

Palm (40) Panic Alarm report

parameters: master ID, station ID

This is passed from the intercom system to the host when a panic alarm is generated. These are never cleared and each time that the panic event happens, this alarm will be generated (i.e., the user does not have to acknowledge or cancel these alarms at the master). These are for things that must be annunciated on each switch transition at a host.

PCsw (41) Redundant SAC switched

parameters: master ID, station ID, state

This is passed from the intercom system to the host when the exchange has a redundant SAC computer and the exchange is configured to report a change in the state of the SAC computers (i.e., when the redundant SAC computers switch). The station ID is not a DXI station but instead an ID number (0-65535) that the host must interpret. If the exchange has a redundant SAC computer and that SAC computer is currently active, then this message will be passed with that SAC ID number (see the maintenance menus under Exchange) with the state set to 1. If this SAC is not the currently active one, then the state will be set to 0. This command is sent only if it is enabled in the DXI's configuration. Typically, the station ID will be set in the configuration to the DXI SAC node number, in which case this command can be used by the host to determine which SAC computer to address when the active SAC is switched – the node number to address should be the station ID returned that has a state of 1. When the SAC computers switch, the active SAC will send two PCsw commands – one with the active SAC's station ID and a state of 1, and the second with the redundant SAC's station ID and a state of 0.

Bkup (42) Redundant PC state

parameters: master ID, exchange number, state

This is passed from the intercom system to the host when the exchange has a redundant SAC computer and the exchange is configured to report a change in the state of the SAC computers (i.e., to a master which has a host). This is sent by the main PC when its redundant PC starts working (it sends a 1 for state) or when the redundant PC stops (it sends a 0 for the state). The PCsw message is sent when the PC's switch (the active becomes inactive). This message only reports the state of the backup PC (i.e., if it is running or not).

SetS (43) Set Secondary Master Station for Master Station

parameters: master station ID, secondary master station ID

This is passed from the host to the intercom system to change the secondary master station to which the master station will redirect call requests and alarms when it is disabled. This command can only be issued when the master station is enabled. This allows the host system to change the MicroComm DXI call request routing tables while the system is running. The master ID can be

the ID of a master station group in which case the system will change the secondary master ID for the group master station. At least one master station in the group must be enabled when the **SetS** command is given. Call requests and other alarms will be redirected only when all the master stations in the group are disabled.

SetM (44) Set Master Station for Intercom Station

parameters: station ID, master ID

This is passed from the host to the intercom system to change the master station to which the intercom station will report call requests and faults. This allow the host system to change the MicroComm DXI call request routing tables while the system is running. The station ID can be the ID of a station group in which case the system will redirect all stations in the group to the specified master station.

Alvl (45) Reports an audio threshold alarm has occurred

parameters: master station ID, intercom station ID

This command is sent from the intercom system to the host computer to indicate that an audio level alarm has triggered.

Acan (46) Reports an audio threshold alarm has been cancelled

parameters: master station ID, intercom station ID

This command is sent from the intercom system to the host computer to indicate that an audio threshold alarm has been cancelled. It is sent from the host computer to the intercom system to cancel an audio threshold call request.

Levl (47) Set the sensitivity of the audio threshold alarm

parameters: intercom station ID, level

This command is sent from the host computer to the intercom system to initialize an audio level alarm on a station. The second parameter determines which set of alarm level settings is used to trigger the alarm. This is a value between 0 and 4 (0 is off, and 1-4 are the levels defined in the SAC configuration).

Imon (48) Intercom monitor

parameters: master station ID, intercom station ID

This command is sent from the host computer to the intercom system to monitor an intercom station from a master station. The intercom system will report this command to the host computer to indicate a monitor in progress when the monitor is started by any means other than an **Imon** command.

Mmon (49) Master monitor

parameters: master station ID, master station ID

This command is sent from the host computer to the intercom system to monitor the second master station from the first master station. The intercom system will report this command to the host computer to indicate a monitor in progress when the monitor is started by any means other than a **Mmon** command.

Rmon (50) Radio monitor

parameters: master station ID, radio ID

This command is sent from the host computer to the intercom system to monitor a two-way radio from a master station. The intercom system will report this command to the host computer to indicate a monitor in progress when the monitor is started by any means other than a **Rmon** command.

EndM (51) End monitor

parameters: master station ID

This command is used to end the monitor on the master station. An alternative to this command is to issue a monitor command (**Imon**, **Mmon**, **Rmon**, or **Tmon**) with a destination ID of zero. The intercom system will report this command to the host computer to indicate that the current monitor has been ended by any means other than a command from the host computer.

Rcal (52) Radio call

parameters: master station ID, radio ID

This command is sent from the host computer to the intercom system to connect the master station to the two-way radio. The intercom system will report this command to the host computer to indicate an intercom call in progress when the call is started by any means other than a **Rcal** command.

Ccrq (53) Conference call request

parameters: master station ID, master station ID

This message reports that a conference call request from the second master station was received and queued at the first master station. This message can only be sent from the intercom system to the host computer.

Ccan (54) Conference call request cancel

parameters: master station ID, master station ID

This message reports that a conference call request from the second master station was canceled at the first master station. The alarm is canceled when it is acknowledged from the master station (and the master joins the conference) or when the conference master (the second master station) ends the conference call before this master can join it (by acknowledging the alarm). This message cannot be sent from the host to the intercom system.

Ccal (55) Conference call

parameters: master station ID, master station ID

The DXI system will send this command to the host computer to indicate a master-to-master intercom conference call is in progress. Each master, which is part of the conference, will send this command to the host. If the first and second master station IDs are the same, this means that the conference master has been connected. If the first and second IDs are different, this means that the first master station ID has been added to the second master station ID's conference. This command cannot be sent from the host to the intercom system.

Conf (56) Start conference call

parameters: master station ID, conference ID

This command is used to start a conference call at the master specified. This is sent from the host to the DXI system only. The response to this will be the **Done**, **Fail** or **Busy** command. This is never sent from the DXI system to the host. Passing 0 for the conference ID will end the conference call (same as doing an **EndC**).

PAIm (57) Primary alarm

parameters: master station ID, master station ID, state

The DXI system will send this command to the host computer to indicate a secondary master (the first master station ID) has received a secondary alarm (i.e., a timeout) from a primary master (the second master station ID). This is only sent if the DXI is configured to send secondary alarms on a per master basis (i.e., rather than on a station by station basis). This is sent with a 'state' of 1 to indicate that there are alarms and 0 to indicate that the alarm has been cleared. This command cannot be sent from the host to the intercom system.

PDsb (58) Primary disable alarm

parameters: master station ID, master station ID, state

The DXI system will send this command to the host computer to indicate a secondary master (the first master station ID) that a primary master (the second master station ID) has disabled some of its alarms (i.e., disabled one of the call switches on at least one of its stations). This is sent with a 'state' of 1 to indicate that there are disabled alarms or 0 to indicate that there are no disabled alarms. This command cannot be sent from the host to the intercom system.

MusM (59) Master music selection

parameters: master station ID, music channel ID

This command is sent from the host computer to the DXI to instruct the DXI to change the master's music channel selection. The music channel ID specified will be placed on the master's speaker (assuming that the speaker is not in a higher priority call). The DXI will respond with either the **Done** or **Fail** response. Passing a music channel ID of 0 will disconnect any music from the master. This command is not sent from the DXI to the host computer.

MusN (60) Next master music selection

parameters: master station ID

This command is sent from the host computer to the DXI to instruct the DXI to change the master's music channel selection. The next music channel (i.e., numerically in order from the current selection) will be placed on the master's speaker (assuming that the speaker is not in a higher priority call). If the master is listening to the highest numbered music channel ID, then this command will cause the master's music to be disconnected. If there is no current music selected for the master, then the lowest numbered music channel will be selected. The DXI will respond with either the **Done** or **Fail** response. This command is not sent from the DXI to the host computer.

MusP (61) Previous master music selection

parameters: master station ID

This command is sent from the host computer to the DXI to instruct the DXI to change the master's music channel selection. The previous music channel (i.e., numerically in order from the current selection) will be placed on the master's speaker (assuming that the speaker is not in a higher priority call). If the master is listening to the lowest numbered music channel ID, then this command will cause the master's music to be disconnected. If there is no current music selected for the master, then the highest numbered music channel will be selected. The DXI will respond with either the **Done** or **Fail** response. This command is not sent from the DXI to the host computer.

ZMus (62) Page zone music selection

parameters: master station ID, page zone ID, music channel ID

This command is sent from the host computer to the DXI to instruct the DXI to change the zone's music channel selection. The specified music channel will be placed on the page zone speakers (assuming that the speakers are not in a higher priority call). The DXI will respond with either the **Done** or **Fail** response. Passing a music channel ID of 0 will disconnect any music from this zone. This command is not sent from the DXI to the host computer.

ZMas (63) Page zone music selection

parameters: master station ID, page zone ID,

This command is sent from the host computer to the DXI to instruct the DXI to change the zone's music channel selection to the same channel as is currently on the master station ID specified. The music channel will be placed on the page zone speakers (assuming that the speakers are not in a higher priority call). The DXI will respond with either the **Done** or **Fail** response. This command is (currently) not sent from the DXI to the host computer.

SMus (64) Station music selection

parameters: master station ID, station ID, music channel ID

This command is sent from the host computer to the DXI to instruct the DXI to change the station's music channel selection. The specified music channel will be placed on the station's speaker (assuming that the speaker is not in a higher priority call). The DXI will respond with either the **Done** or **Fail** response. Passing a music channel ID of 0 will disconnect any music from this station. This command is not sent from the DXI to the host computer.

SMas (65) Station music selection

parameters: master station ID, station ID

This command is sent from the host computer to the DXI to instruct the DXI to change the station's music channel selection to the same channel as is currently on the master station ID specified. The specified music channel will be placed on the station's speaker (assuming that the speaker is not in a higher priority call). The DXI will respond with either the **Done** or **Fail** response. This command is not sent from the DXI to the host computer.

Vset (66) Start visiting booth call with timeout

parameters: master station ID, station ID, station ID, timeout value

This command is sent from the host computer to the DXI to instruct the DXI to start a visiting booth call between the first station ID and the second station ID, timing out after the timeout value. This same command is sent from the DXI to the host computer when a timed visiting booth call has been started.

Vstp (67) Stop visiting booth call

parameters: master station ID, station ID, station ID

This command is sent from the host computer to the DXI to instruct the DXI to stop a visiting booth call between the first station ID and the second station ID, timing out after the timeout value. This same command is sent from the DXI to the host computer when a timed visiting booth call has been stopped.

VstB (68) Visiting Booth State

parameters: master station ID, station ID, state number

This command is sent from the DXI to the host computer when a visiting booth changes its state. It should not be sent from the host computer to the DXI.

The state of the visiting booth roughly corresponds to the message printed out on its video display. The states are numbered 1-8 (inclusive). They represent the following:

State number	Description	Video display/connection
1	Idle, on hook	No text
2	Idle, off hook	No text
3	Assigned, on hook	Lift Handset To Start
4	Assigned, off hook	Please Wait
5	Ending Call	End of Visit
6	Master Calling, on hook	Lift Handset For Message
7	Master Calling, off hook	Lift Handset For Message
8	In Call	Connection to visitor/inmate
9	In Call with Warning ¹	Connection to visitor/inmate

The Idle states are the unconnected, unassigned visiting booth state. When a master assigns a pair of visiting booths, then the visiting booths will enter either of the assigned states, depending upon whether it is on hook or off hook. When both visiting booths pick up the phone, then the visiting booths will enter the In Call state, at which time the video switcher(s) should be connected together. When the call times out or is ended by the master, then the visiting booths go to the Ending Call state for 1 minute, after which the visiting booths return to the appropriate idle state. When the master calls a visiting booth, the visiting booth displays either one of the Master Calling states, depending upon whether the visiting booth is on or off hook.

Vcal (69) Call visiting booth

parameters: master station ID, station ID

This command is sent from the host computer to the DXI to instruct the DXI to connect a master station to one side of a visiting booth (given by the station ID). This same command is sent from the DXI to the host computer when a master station has called one side of a visiting booth.

Vmon (70) Monitor visiting booth

parameters: master station ID, station ID

This command is sent from the host computer to the DXI to instruct the DXI to monitor one side of a visiting booth (given by the station ID) from a master station (given by the master station ID). This same command is sent from the DXI to the host computer when a master station has started monitoring one side of a visiting booth.

¹ This state is only used if there is a warning timeout associated with the visiting booth (see the Warning timeout field in the visiting booth database). The visiting booth will go into this state “Warning T/O” minutes before the call is to end. The monitor will not display the time left in the call until “Warning T/O” minutes are left and will then display “Session will end in X minutes”, which will count down to 0. If the Warning timeout is 0, then this visiting booth state will be disabled (i.e., it can never be entered) and the display will count down the time left in the call.

Tcrq (74) Telephone line call request

parameters: master station ID, telephone line ID

This message reports that a call request from the telephone line was received and queued at the master station. Note that this is also used to indicate a secondary alarm to a master if the master is a secondary master. This can only be sent from the intercom system to the host computer.

Chup (75) Put what the master is connected to on hold.

parameters: master station ID

When a master is connected to something (i.e., a telephone, station, visiting booth, etc.) assigned to a telephone line board, the master cannot be disconnected (i.e., by an **EndC** message) without the phone line being hung up. When a master has placed a telephone line on hold or connected it to a station or master, then this must be called to hang up the phone line. This command is only sent from the host computer to the intercom system.

Tcan (76) Telephone line call request cancel

parameters: master station ID, telephone line ID

This message reports that a call request from the telephone line was canceled at the master station. This can either report the canceling from the intercom system to the host or can be used as a command from the host to the intercom system telling it to cancel the highest priority request.

Tcal (77) Telephone line call

parameters: master station ID, telephone line ID

This command is sent from the host computer to the intercom system to connect the master station to the telephone line. The intercom system will report this command to the host computer to indicate a telephone line call in progress when the call is started by any means other than a **Tcal** command. Calling this with a telephone line ID of 0 will disconnect the current call (like **EndC**).

Tmon (78) Telephone line monitor

parameters: master station ID, telephone line ID

This command is sent from the host computer to the intercom system to monitor a telephone line from a master station. The intercom system will report this command to the host computer to indicate a monitor in progress when the monitor is started by any means other than a **Tmon** command.

Chld (79) Telephone line hold

parameters: master station ID

When a master is connected to something (i.e., a telephone, station, visiting booth, etc.) assigned to a telephone line board, the master can not be disconnected (i.e., do an **EndC**) without the

phone line being hung up. This function disconnects the master from the telephone line board but does not hang up the telephone line (essentially putting it on hold until later). This can only be sent from the host computer to the DXI.

Tmas (80) Telephone line transfer to master station

parameters: master station ID, telephone line ID, master station ID

This will transfer the telephone to another master station.

Tstn (81) Telephone line transfer to intercom station

parameters: master station ID, telephone line ID, intercom station ID

This will transfer a telephone to a station.

Tkey (82) Telephone line DTMF key code

parameters: master station ID, DTMF key to dial

This function assumes that the master station is connected to a telephone line board output. The telephone line board is sent the DTMF key specified (the keys are limited to 0-9, * and #). To send multiple keys, this must be called multiple times (i.e., one key per call). This can only be sent from the host computer to the intercom system.

ExtM (83) External alarm from master

parameters: master station ID, alarm ID, status

This is passed from the intercom system to the host to initiate an action from a master station to a host. The master station ID indicates which master station initiated the action. The alarm ID is the identifier for the alarm to be sent to the host. The status is the value of the alarm (typically would be 1 or 0 but there is no restriction upon this value, other than it must be between 0 and 65535).

(84-89) Reserved.

AdMS (90) Intercom monitor

parameters: master station ID, intercom station ID

This command is sent from the host computer to the intercom system to monitor an intercom station from a master station. The station is added to the master's monitor list (which is cycled through on the master) instead of doing a dedicated monitor as the **Imon** command does. This can not be passed with 0 as the station, it must be passed a valid station number. Returns a **Done** response if the command was successfully received.

RmMS (91) Intercom monitor

parameters: master station ID, intercom station ID

This command is sent from the host computer to the intercom system to monitor an intercom station from a master station. This removes the station from the master's monitor list. If the

station is 0, then the monitor list of this master is cleared. Returns a **Done** response if the command was successfully received.

PVad (92) Page zone volume adjustment

parameters: master ID, pagezone ID, increment

This is passed from the host to the intercom system to change the volume on a pagezone. If the increment passed is 0, then the pagezone's station's volume will decrement by 1 setting (i.e., get quieter). If the increment passed is 1, then the pagezone's station's volume will increment by 1 (i.e., get louder). If the pagezone ID passed is 0, then the currently connected pagezone (if there is a call in progress at the master) will have its volume increased or decreased. Otherwise, the user should enter the pagezone number whose volume they wish to adjust in the pagezone ID. This only sends a bad response if the pagezone or master ID is incorrect. Note that the **Done** response is always sent back, regardless of whether or not the volume can increase or decrease any more than its current setting. The **Fail** response only indicates an error in the syntax of this command.

IRec (93) Record intercom station.

parameters: master station ID, call recorder ID, intercom station ID

This connects the call recorder so that the intercom station is recorded. The master station ID is the master that is connecting the call recorder, the call recorder ID is the call recorder number (from the call recorder database) and the intercom station ID is the station to record (if not zero). If the intercom station ID is 0, then the call recorder is disconnected (from whatever it was connected to, even if that was not a station). Note that this does not apply to the master call recorder but to the call recorder database.

VRec (94) Record visiting booth.

parameters: master station ID, call recorder ID, visiting booth ID

This connects the call recorder so that the visiting booth is recorded. The master station ID is the master which is connecting the call recorder, the call recorder ID is the call recorder number (from the call recorder database) and the visiting booth ID is the station to record (if not zero). If the visiting booth ID is 0, then the call recorder is disconnected (from whatever it was connected to, even if that was not a visiting booth). Note that this does not apply to the master call recorder but to the call recorder database.

TRec (95) Record telephone.

parameters: master station ID, call recorder ID, telephone ID

This connects the call recorder so that the telephone is recorded. The master station ID is the master which is connecting the call recorder, the call recorder ID is the call recorder number (from the call recorder database) and the telephone ID is the station to record (if not zero). If the telephone ID is 0, then the call recorder is disconnected (from whatever it was connected to, even if that was not a telephone). Note that this does not apply to the master call recorder but to the call recorder database.

RRec (96) Record radio.

parameters: master station ID, call recorder ID, radio ID

This connects the call recorder so that the radio is recorded. The master station ID is the master which is connecting the call recorder, the call recorder ID is the call recorder number (from the call recorder database) and the radio ID is the station to record (if not zero). If the radio ID is 0, then the call recorder is disconnected (from whatever it was connected to, even if that was not a radio). Note that this does not apply to the master call recorder but to the call recorder database.

MRec (97) Record master.

parameters: master station ID, call recorder ID, master ID

This connects the call recorder so that the master is recorded. The master station ID is the master which is connecting the call recorder, the call recorder ID is the call recorder number (from the call recorder database) and the master ID is the station to record (if not zero). If the master ID is 0, then the call recorder is disconnected (from whatever it was connected to, even if that was not a master). Note that this does not apply to the master call recorder but to the call recorder database.

EndR (98) End call recorder.

parameters: master station ID, call recorder ID

This disconnects the call recorder from whatever it is recording. The master station ID is the master which connected the call recorder (and which is now requesting to disconnect the call recorder) and the call recorder ID is the call recorder to disconnect (from the call recorder database). Note that this is an alternative to calling the recorder functions (see above) with 0 as the last parameter.

Vcrq (99) Visiting booth call request.

parameters: master station ID, visiting booth ID

This message reports that a call request from the visiting booth was received and queued at the master station. Normally, this is only sent from the intercom system to the host computer. However, for unusual circumstances, this message can also be sent from the host to the intercom system to initiate a call request to the system from some external source (a motion sensor, alarm input, etc.). In this case, the call will be queued on the master that the visiting booth normally calls into, not the master ID given in the host command (which is ignored). However, this master ID given in the host command must be a valid master ID.

Vcan (100) Visiting booth call request cancel.

parameters: master station ID, visiting booth ID

This message reports that a call request from the visiting booth was canceled at the master station. This can either report the canceling from the intercom system to the host or can be used as a command from the host to the intercom system telling it to cancel any call requests from this visiting booth on this master.

Valm (101) Visiting Booth hardware fault

parameters: master station ID, visiting booth ID, state

This command is sent from the intercom system to the host to inform the host that a visiting booth fault has occurred or an existing one has been cleared on the intercom station specified. If the third parameter is set to 1 (one), then a fault has been generated. If the third parameter is a 0 (zero), then a fault has been cleared.

Iset (103) Start station to station call.

parameters: master station ID, intercom station ID, intercom station ID

This command is sent from the host computer to the DXI to instruct the DXI to start a station-to-station call between the first station ID and the second station ID. This same command is sent from the DXI to the host computer when has been started.

Istp (104) Stop station to station call

parameters: master station ID, intercom station ID, intercom station ID

This command is sent from the host computer to the DXI to instruct the DXI to stop a station to station call between the first station ID and the second station ID. This same command is sent from the DXI to the host computer when a station to station call has been stopped.

AdAG (105) Add intercom station to group

parameters: master station ID, intercom station ID, intercom station ID

This command is sent from the host computer to the intercom system to add a station to an audio group station (first station ID is the audio group, second is the station to add to the group). This cannot be passed with 0 as the station, it must be passed valid station numbers. Returns a **Done** response if the command was successfully received and the station added to the group (or if it was already on the group).

RmAG (106) Remove intercom station from group

parameters: master station ID, intercom station ID, intercom station ID

This command is sent from the host computer to the intercom system to remove a station from an audio group station (first station ID is the audio group, second is the station to remove from the group). If the station is 0, then the audio group list of this station is cleared. Returns a **Done** response if the command was successfully processed (i.e., the station to remove was on the list of the audio group and it was successfully removed or it was not ever on the list).