



GAI-TRONICS® CORPORATION
A HUBBELL COMPANY

Model MS05-101

Desktop Master Station

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General Information

The Model MS05-101 Desktop Master Station is designed to operate with the GAI-Tronics MI05-10x Series Merge/Isolate Cabinets in a multi-zone Page/Party® communication system.

The Model MS05-101 Desktop Master Station can selectively merge and isolate up to five zones that normally operate independently. When merged, the zones share a page line and a party line. For example, two zones can be merged while the remaining zones are isolated and continue to operate independently. Voice pages generated from handset stations within one zone can be heard in another zone when the two zones are merged. The Model MS05-101 Master Station controls the actual merging and isolating of the zones.

Additional features are available depending on model of the merge/isolate cabinet and the system's accessories. Refer to GAI-Tronics publications for the Model MI05-101, MI05-103, and MI05-104 Merge/Isolate Cabinets for system and master station capabilities. These include:

- Initiating voice pages to selective zones
- Conducting two-way conversations with handset stations
- Monitoring voice pages from selective zones
- Merging page and party line channels
- Receiving visual and audible *call-in* signals from handset stations
- Activating and resetting alarm tones

The MS05-101 Master Station consists of the following components:

- MS05-101S Desktop Subset
- MS05-101A Remote Handset/Speaker Amplifier
- MS05-101E Amplifier Enclosure

Installation

Mounting and Wiring Terminations

1. Drill or punch the conduit or cable openings prior to mounting the amplifier enclosure. All entries to the amplifier enclosure should be made from the bottom or sides.
NOTE: Use caution when drilling holes to avoid damage to internal electrical components and wiring.
2. Surface mount the amplifier enclosure using the four mounting holes located on the rear of the enclosure. The amplifier enclosure can be mounted at a remote location, not to exceed the length of the 15-foot subset cable.
3. Connect all party lines and the page line wiring to TB1 and TB2 in the enclosure. Refer to the Wiring Terminations Table.
4. Connect the RS-485 data line wiring to TB3 the enclosure. Refer to the Wiring Terminations Table.
5. If an external speaker is used, connect the speaker wires to TB1.
 - 8-ohm speaker: TB1-4 and TB1-5
 - 16-ohm speaker: TB1-4 and TB1-6
6. Plug the 15-foot cable connector from the subset to the socket on the front of the amplifier enclosure.
7. Connect 120 V ac power conductors to TB1-1 (H), TB1-2 (N), and TB1-3 (GND) of the amplifier enclosure.
8. Plug the amplifier into the enclosure and tighten the screw in each corner of the amplifier.
9. Apply power.

Connections to the Merge/Isolate Cabinet

1. Locate the Termination PCBA in the lower left corner of the merge/isolate cabinet.
2. Connect the master station cable to TB6 in the cabinet. Refer to the Wiring Terminations Table. A 9-pair cable (No. 18–20 AWG) is recommended for this connection.

Wiring Terminations Table

Terminals		Function
Master Station	Merge/Isolate Cabinet	
TB3-23 and TB3-24	TB6-1 and TB6-2	RS-485 data line (+ /-)
TB3-25	TB6-3	Data ground
TB1-10 and TB1-11	TB6-5 and TB6-6	Page monitor (See note.)
TB1-8 and TB1-9	TB6-7 and TB6-8	Page line (See note.)
TB2-12 and TB2-13	TB6-9 and TB6-10	Party Line 1
TB2-14 and TB2-15	TB6-11 and TB6-12	Party Line 2
TB2-16 and TB2-17	TB6-13 and TB6-14	Party Line 3
TB2-18 and TB2-19	TB6-15 and TB6-16	Party Line 4
TB2-20 and TB2-21	TB6-17 and TB6-18	Party Line 5

NOTE: If connecting to Model MI05-101 Merge/Isolate Cabinet, jumper the page line (TB1-8 and TB1-9) to the page monitor line (TB1-10 and TB1-11). If these lines are not tied together, the master station speaker will not broadcast.

Setting the Station's Address

Each master station in the system requires a unique address. If two master stations have the same address, data collision will occur when communicating with the merge/isolate cabinet, resulting in a fault condition. The master station addresses must be set in sequence starting at 1. Do not skip any numbers when assigning addresses.

The I/O control board is located inside the desktop subset. This determines the station address and also controls the station's zone and alarm selection features by scanning the switches and then transmitting the selection to the merge/isolate cabinet over a data line. There are several switches and jumpers on the I/O board that must be set correctly for the station to operate correctly. Refer to Figure 1 below for I/O controller board outline and switch locations.

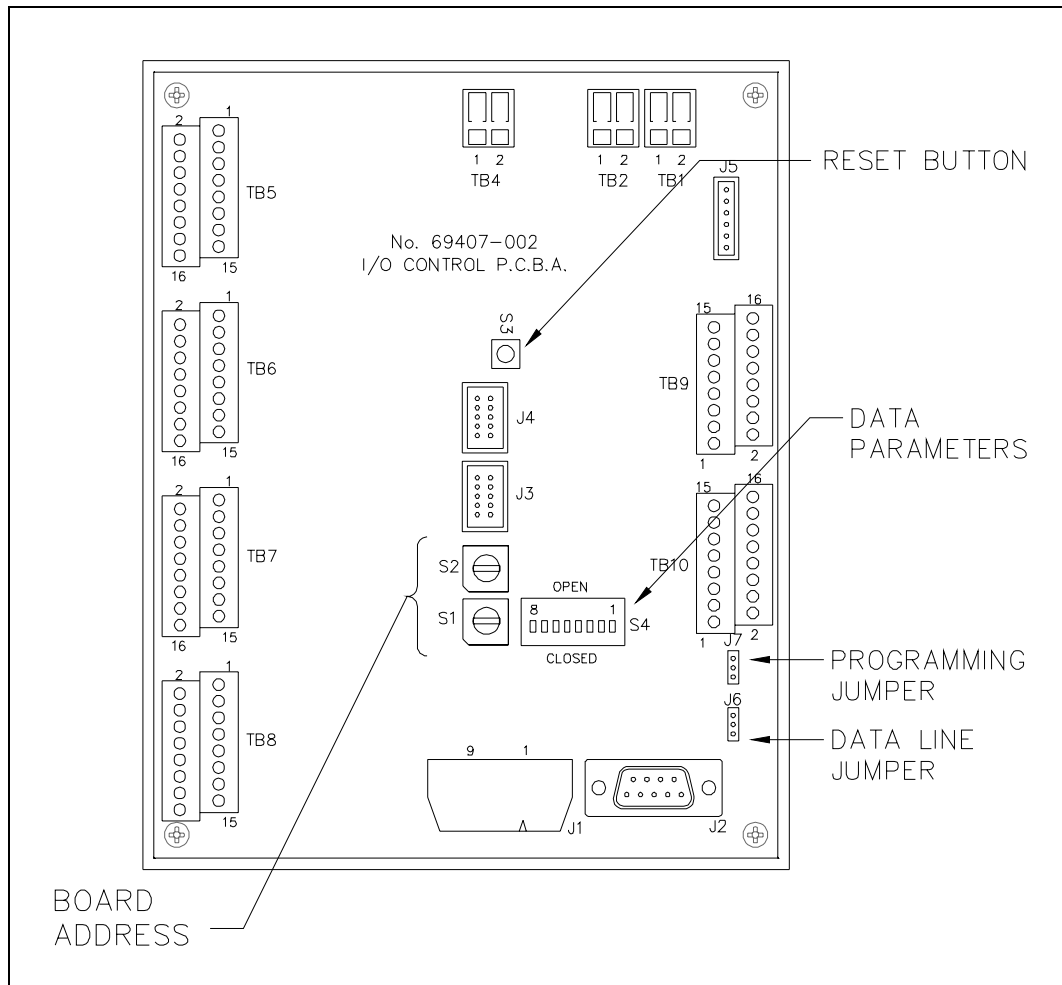


Figure 1. I/O Controller Board

Switches S1 and S2

S1 and S2 are hexadecimal switches that are used to set the I/O board's address. If the system contains more than one master station, each station's I/O board must be set with a different sequential address starting with 01. Switch S2 sets the first digit and switch S1 sets the second digit.

Switch Setting Examples

Switch S2	Switch S1	Master Station Address
0	1	1
0	2	2
0	3	3
0	4	4
0	5	5
0	6	6
0	7	7
0	8	8

NOTE: The factory default setting is 01 since typically there is only one master station per system.

NOTE: The switch setting is recognized only when either the I/O Controller is powered up, or when the RESET button is pressed. Momentarily press the RESET button each time a switch is changed.

DIP Switch Settings

The I/O controller switch S4 is an 8-position DIP switch that is used to set the data baud rate. This switch is factory set and should not be changed. If replacing the I/O controller, be sure to set the switch as follows:

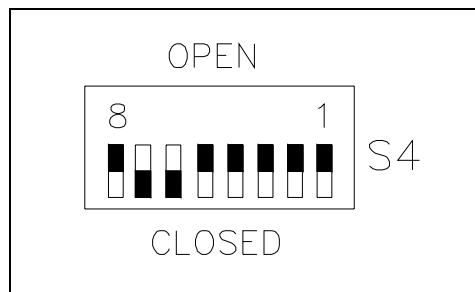


Figure 2. S4 DIP Switch

Switch Position	Open/Close
S4-1	Open
S4-2	Open
S4-3	Open
S4-4	Open

Switch Position	Open/Close
S4-5	Open
S4-6	Close
S4-7	Close
S4-8	Open

Momentarily press the RESET button each time a switch is changed.

Operation

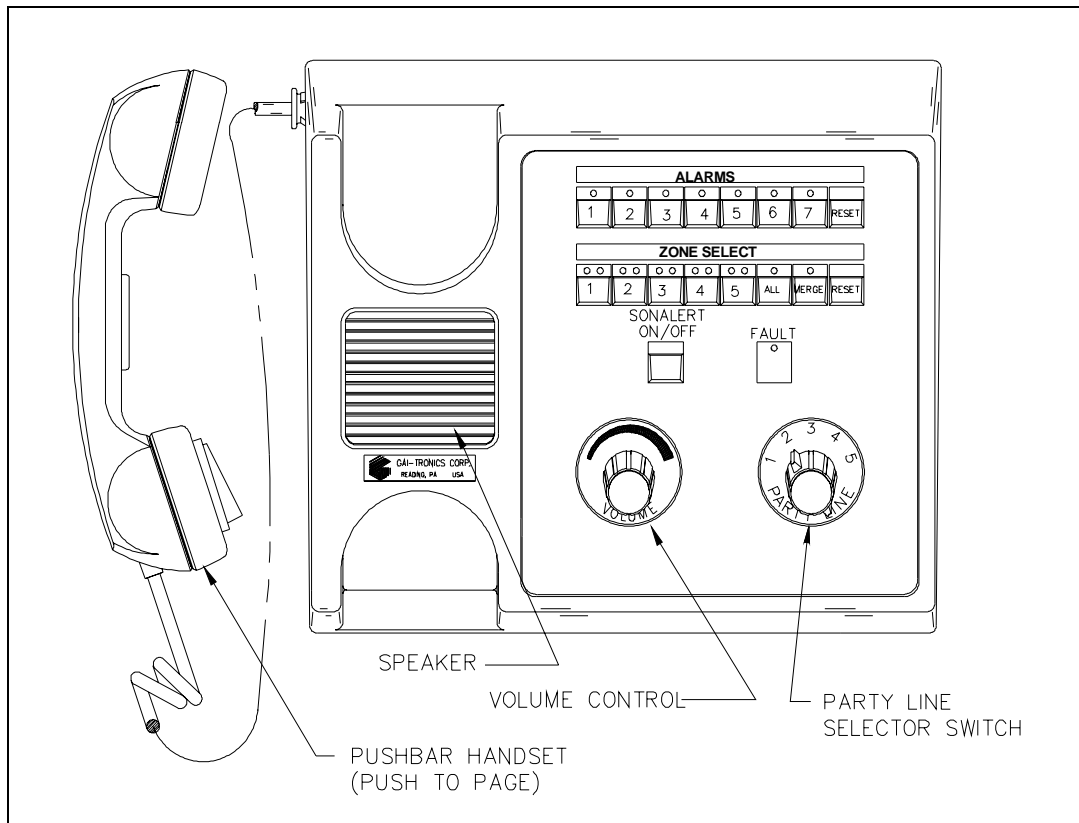


Figure 3. Model MS05-101S Desktop Master Subset Outline

Merging Zones

When merged, the stations in each zone share a page line and party line 1. Voice pages generated from handset stations within one zone can be heard in another zone when the two zones are merged. Party line 1 can also be used to conduct a two-way conversation between zones.

It is possible to merge some zones while the remaining zones are isolated. Complete the following steps to merge zones:

1. Select the desired ZONE SELECT push buttons (1 through 5 or ALL). This could be two zones, a group of zones, or all zones. The green LED indicators located above each selected zone push button illuminate.
2. Press the MERGE push button.
3. To isolate the zones, press the MERGE push button again followed by the ZONE SELECT RESET push button.

NOTE: If the ALL push button is pressed, it merges all zones automatically—the MERGE push button does not also need to be pressed. To isolate the zones, press the ZONE SELECT RESET push button.

Communication on Party Line 1

The master station can selectively communicate with field stations in each zone, or with other master stations. To communicate with a field station:

1. Lift the handset and select party line 1 on the PARTY LINE rotary selector switch.
2. Select the desired ZONE SELECT push button (1 through 5 or ALL). This could be a single zone, a group of zones, or all zones. The green LED indicator(s) above the selected zone(s) illuminates.
3. Press the MERGE push button. Two-way communication with handsets stations in the selected zones is now available.
4. When conversation is complete, press the ZONE SELECT RESET push button.

The zone switches are not needed to communicate with other master stations. Simply lift the handset and select party line 1 on the PARTY LINE selector switch. Two-way communication with other master stations is now available.

Communication on Party Lines 2 through 5

Communication between the Model MS05-101 Master Station and field stations is not available unless each zone's party lines 2 through 5 and the master station party lines 2 through 5 are configured as "common." This is accomplished by jumper settings on the Termination PCBA inside the merge/isolate cabinet. Jumpers are provided for party lines 2 through 5 in each zone and for the master station party lines. Refer to the Installation section of the merge/isolate cabinet manual for jumper setting details.

Assuming the party lines are set to common, communicate on party lines 2 through 5 from the master station to field stations as follows:

Lift the master station handset and select a party line (2 through 5) on the PARTY LINE selector switch. Two-way communication with other master stations and handsets stations in zones 1 through 5 is now available.

Paging to Other Master Stations

To generate a page to other master stations, lift the handset, press the handset pressbar, and speak directly into the microphone. The page message is broadcast from speakers at all the other master stations. If two-way, party line (full duplex) communication is desired, release the handset pressbar to connect to the selected party line.

Paging to Field Stations

To page to field stations, complete the following steps:

1. Select the desired ZONE SELECT push buttons (1 through 5 or ALL). This could be one zone, a group of zones, or all zones. The green LED indicator(s) for the selected zone(s) illuminate.
2. Lift the handset, press the handset pressbar, and speak directly into the microphone. The page message is broadcast from speakers in the selected zones.
3. To reset the system, press the ZONE SELECT RESET push button.

NOTE: If the ALL push button is pressed, it merges all zones automatically. To reset the zones, press the ZONE SELECT RESET push button.

Speaker Volume Control

Use the VOLUME knob on the Model MS05-101S Desktop Master Station Subset to adjust the front panel speaker volume. Turning the knob clockwise increases the speaker volume, and turning it counterclockwise decreases the volume.

The front panel volume control does not affect any external speaker that is connected to the master station. The speaker volume for any externally-mounted speakers is controlled using the amplifier volume control located under the GAI-Tronics nameplate on the front of the amplifier.

NOTE: A small screwdriver is required for making this adjustment.

Fault Indicators

Two types of indication are provided for data communication faults between the master station(s) and the merge/isolate cabinet.

1. If data communication lost between a master station and the merge/isolate cabinet, all the LED indicators on the affected master station subset will flash. All alarm and zone selection features are disabled during this type of fault. Party line communication on party lines 2–5 is unaffected. Paging is still possible to other master stations.
2. The red FAULT indicator on the subset is only functional when multiple master stations are installed in the system. When the FAULT indicator illuminates there is a data fault between the merge/isolate cabinet and one of the other master stations in the system. It does not indicate a data fault at the local master station.

Possible causes of data fault conditions include:

- A defective master I/O controller board in the merge/isolate cabinet.
- Improper switch setting of the master controller switches in the merge/isolate cabinet;
- Missing or reversed data cable connection between a master station and the merge/isolate cabinet.
- A defective I/O controller board in a master station.

Lamp Test/ Reset

Momentarily press the red push button located on the back of the Model MS05-101 Master Station. All LEDs should momentarily illuminate. This action also resets the I/O controller.

Optional Features

These options are available only when the applicable kits are installed in the merge/isolate cabinet. Depending on the merge/isolate cabinet installed in the system, not all the features may be available.

Activating an Alarm

NOTE: This feature is only available if a Model 10959-101 or 10959-104 Audio Messenger Interface is connected to the system merge/isolate cabinet.

Alarms can be automatically broadcast to all zones when activated (automatic), or can be manually routed to broadcast to any combination of zones or all zones (selective).

For *selective* alarm routing, complete the following steps to activate an alarm from a master station:

1. Select the desired alarm destination using the **ZONE SELECT** push buttons (1 through 5 or ALL). The destination could be a single zone, a group of zones, or all zones. The green LED indicators for the selected zones illuminate.
2. Press the **MERGE** push button.
3. Select the appropriate **ALARM** push button (1 through 7).
The alarm is broadcast into the selected zones and from the master station speaker. The red LED indicator for the selected alarm switch illuminates during the broadcast.
4. To cancel an alarm, press the **ALARM RESET** push button.
NOTE: The zones remain merged. To isolate the zones, press the **MERGE** push button again followed by the **ZONE SELECT RESET** push button.

For *automatic* alarm routing to all zones, complete the following steps to activate an alarm from a master station:

1. Select the appropriate **ALARM** push button (1 through 7).
The alarm broadcasts into the all zones and from the master station speaker. The red LED indicator for the selected alarm switch illuminates during the broadcast.
2. To cancel an alarm, press the **ALARM RESET** push button.
NOTE: The zones remain merged. To isolate the zones, press the **ZONE SELECT RESET** push button.

Call-In Signaling

NOTE: This feature is only available when using the Model MI05-104 Merge/Isolate Cabinet.

The Call-In signaling feature (also known as Off-hook Detection) provides a means to signal the master station operator through audible and visual indicators. When a Page/Party® handset station in any zone goes off hook on party line 1, the master station is signaled in two ways: the sonalert sounds and the zone's call-in LED indicator illuminates yellow. When the operator answers the call, the sonalert is turned off. Pressing the SONALERT ON/OFF push button also silences the sonalert.

The SONALERT ON/OFF push button does not reset for each call-in. If the sonalert is turned off, it remains off until it is manually turned on by pressing the button again.

Page Monitoring

NOTE: This feature is only available when using the Model MI05-103 and MI05-104 Merge/Isolate Cabinets.

The Page Monitoring feature allows the operator of the master station to selectively monitor voice paging in any or all zones. The page lines are monitored via the integral speaker on the master station's subset. When the master station operator presses a zone push button, pages from that zone are broadcast from the master station's speaker. The operator can monitor more than one zone by selecting any combination of zone push buttons. To monitor zones:

1. Select the desired ZONE SELECT push buttons (1 through 5). This could be two zones, a group of zones, or all zones. The green LED indicators for the selected zones illuminate.
NOTE: Do not press the ALL button when monitoring zones. This automatically merges the zones.
2. Press the ZONE SELECT RESET push button to discontinue monitoring.

Maintenance

If the equipment requires service, contact your Regional Service Center for a return authorization number (RA#). Equipment should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the equipment is under warranty, repairs or a replacement will be made in accordance with GAI-Tronics' warranty policy. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts.

Call 800-492-1212 inside the USA or 610-777-1374 outside the USA for help identifying the Regional Service Center closest to you.

Supplemental Information

For additional information, please reference the drawings listed below.

- 73530 MS05-101 Master Station Outline Drawing
- 73531 MS05-101S Desktop Subset Outline and Connection Diagram (2 sheets)
- 73532 MS05-101A Handset/Speaker Amplifier Outline and Connection Diagram
- 73534 MS05-101E Amplifier Enclosure Outline and Connection Diagram

Spare Parts List

Part No.	Description
MS05-101A	Remote Handset/Speaker Amplifier
69286-101	Switch/LED PCBA
69407-002	I/O Controller PCBA
10112-101	Handset Assembly, with 6-foot cord