

HUBBCOM[™]

Device Configuration Guide

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HUBBCOM[™] Device Configuration Guide

Confidentiality Notice

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General Information

HUBBCOMTM devices are multi-functional; supplying access control, intercom, I/O control, public address, tamper detection, telephone, video, and webpage portal capabilities. This manual provides information to configure HUBBCOM GSC (GAI-Tronics smart controller) and HUBBCOM GRC (GAI-Tronics remote controller) devices to perform the desired function(s) using the GUDA (GAI-Tronics Universal Device Application) software.

The GUDA software is available for free download at: https://www.hubbell.com/gai-tronics/en/guda-universal-device-application. Refer to GAI-Tronics Pub. 42004-531 for GUDA software user instructions (see the Reference Documents section).

Configuration Tree Structure

Access HUBBCOM GSC and GRC devices using the GUDA software to display the device's configuration parameters in a tree structure (see <u>Figure 1</u>). Select the nodes in the tree to display and edit the parameters to configure each feature for its intended purpose.

This document explains each screen in the GUDA and the associated parameters for HUBBCOM GSC and GRC devices. Default values for parameters have a **bold** font in the tables. HUBBCOM features vary by model number, so some screens may not apply to the current HUBBCOM device.

NOTE: The GUDA does not display configuration screens for unsupported features of the current HUBBCOM device.

The root level in the GUDA's configuration tree for HUBBCOM devices is the UNIT level (see <u>Figure 1</u>). The UNIT level of the configuration tree includes sub nodes for the required functions and available features of the connected HUBBCOM device, including; FEATURE AVAILABILITY, NETWORK, INTERCOM (GSC models only), PHONE, POINT TO POINT, CONTACTS, ACCESS CONTROL(remote controllers only), AUXILIARY DOOR CONTROL, E3 AP LITE, WEB PORTAL(GSC models only), VIDEO, MONITORING, OUTPUT CONTACTS (GSC models only), INPUT CONTACTS, and ACTIVATION (GSC models only).

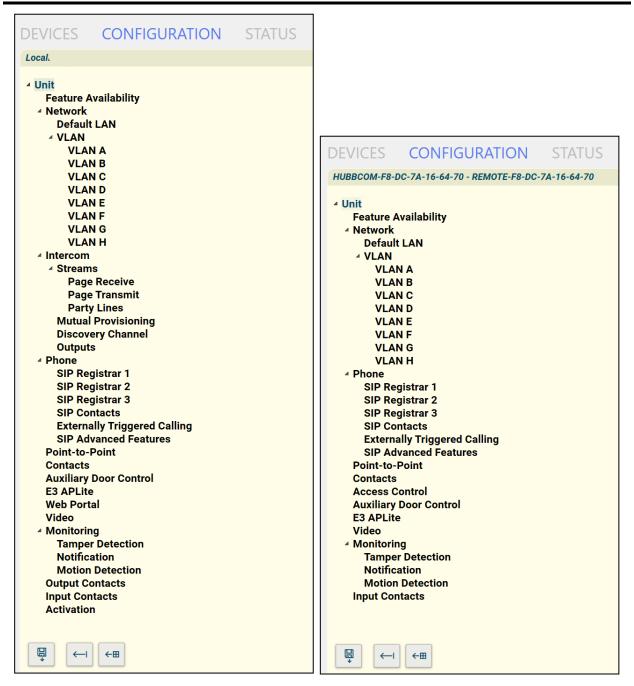


Figure 1. HUBBCOM GSC and GRC Device Configuration Trees

Unit Screen

Configure the device hardware and top level functionality for the HUBBCOM GSC or GRC device on the UNIT parameters screen (see <u>Figure 2</u>).

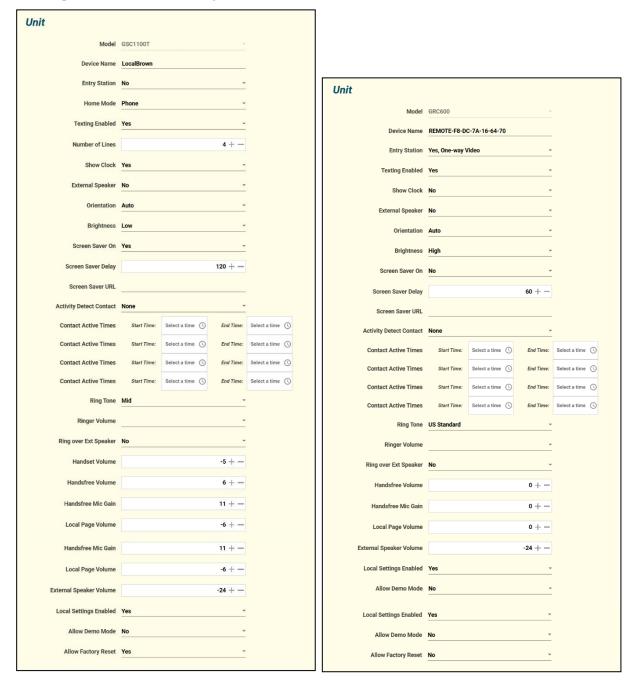


Figure 2. HUBBCOM GSC and GRC Unit Screens

The UNIT configuration screen contains the following parameters (see <u>Table 1</u>):

Table 1. HUBBCOM Unit Configuration Parameters

Field Name	Description	Valid Settings
Model	This read-only field displays the model number of the currently connected HUBBCOM device.	HUBBCOM model number
Device Name	A user-friendly recognizable name for the HUBBCOM device.	Alpha numeric entry. The hyphen (-) is the only other character allowed. Default: <i>HUBBCOM-</i> [MAC ADDRESS]
Entry Station	 Applicable to: Telephone functions. When set to YES, the HUBBCOM screen displays the Contact List—Favorites NOTE: Populate the Contact List—Favorites before configuring a station as an entry station. Once set as an entry station, the contact list is not accessible from the HUBBCOM screen. Two-way video: allows both parties to view each other during the call. One-way video: allows the called party to view the caller, but the caller cannot view the called party. 	 No Yes—two-way video Yes—one-way video
Home Mode (GSC models only)	Sets the HUBBCOM function to display upon start up. Options available depend on the model number. NOTE: The home screen is not available when configuring the station as an entry station. NOTE: Change this setting on the touch screen display under the SETTINGS/DEVICE tab.	IntercomPhoneAccess ControlWeb portalNone
Number of Lines (GSC models only)	Applicable to: Telephone functions. Sets the number of simultaneous telephone connections the device can service.	1-4
Show Clock	Displays the date and time at the top left corner of all user screens	Yes No
External Speaker	Enables the speaker amplifier to power an external loudspeaker connected to the speaker terminals on the rear of the HUBBCOM device.	Yes No
Orientation	Defines the touch screen display orientation.	 Auto Portrait (Right) Portrait (Left) Landscape (Normal) Landscape (Inverted)
Brightness	Sets the brightness of the touch screen display. NOTE: Configurable on the touch screen display on the SETTINGS/DEVICE tab.	HighMidLow

Field Name	Description	Valid Settings
Screen Saver	Enable or disable the screen saver. NOTE: When the screen saver is active, the screen turns OFF resulting in a black screen. Motion detection by the camera or touching the screen turns the screen ON, restoring the previous image.	Yes No
Screen Saver Delay	The time in seconds before the screen saver starts.	[15–3600] in 5-second steps (default: 60 s)
Activity Detect Contact	Selects one of four available outputs to follow the unit's active state. The contact is active when the unit is active and deactivates when the screen saver starts. NOTE: Local outputs one and two are solid state relay contacts capable of switching 0.4A at 60 V max. Outputs are on the rear panel of the HUBBCOM. NOTE: USB 1 and 2 require connection to an external I/O board via the USB port on the rear panel of the HUBBCOM.	 None Local Out 1 Local Out 2 USB Out 1 USB Out 2
Contact Active Times	During the set time periods, the output contact deenergizes when the screen saver is active. There are four individual time-of-day periods.	Start Time–End Time (12:00 AM–12:00 PM)
Ring Tone	Front panel speaker audio tone for incoming phone call notification. NOTE: Configurable on the touch screen display on the SETTINGS/DEVICE tab.	 US Standard double low double high double high low long-short low short-long low long-short high short-long high low low double mid mid double high high double highest highest double
Ringer Volume	Front panel speaker volume level for the <i>Ring Tone</i> . NOTE: Configurable on the touch screen display on the SETTINGS/DEVICE tab.	Low1–6High
Handset Volume	Volume of the handset receiver. NOTE: Configurable on the touch screen display on the SETTINGS/DEVICE tab.	-12 thru +12, Default: 0
Handsfree Volume	Front panel speaker volume during handsfree phone calls. NOTE: Configurable on the touch screen display on the SETTINGS/DEVICE tab.	-12 thru +12, Default: 0

Field Name	Description	Valid Settings
Handsfree Mic Gain	Sensitivity of the front panel microphone NOTE: Configurable on the touch screen display on the SETTINGS/DEVICE tab.	-12 thru +12, Default: 0
Local Page Volume	Volume of the front panel speaker during intercom paging. NOTE: Configurable on the touch screen display on the SETTINGS/DEVICE tab.	-12 thru +12, Default: 0
External Speaker Volume	External speaker volume during intercom paging.	0–36, Default: 24
Local Settings Enabled	Makes the SETTINGS button visible on the HUBBCOM main menu screen	Yes No
Allow Demo Mode	Makes the DEMO MODE button visible on the HUBBCOM main menu screen	Yes No
Allow Factory Reset	Makes the FACTORY RESET button visible on the HUBBCOM SETTINGS/DEVICE screen.	Yes No

Feature Availability

The FEATURE AVAILABILITY screen enables/disables/restricts features of the HUBBCOM device.

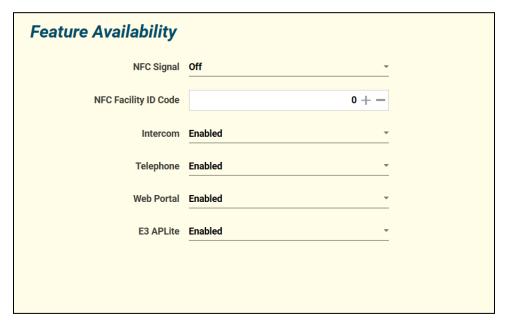


Figure 3. Feature Availability Screen

Table 2. Feature Availability Parameters

Field Name	Description	Valid Settings
NFC Signal	Enables/disables the NFC (near field communication) reader.	On Off
NFC Facility ID Code	Numeric code for additional validation of cards by facility ID code in addition to the card's serial number. Assign each building or location a code to prevent cardholders from accessing each other's facilities.	0–255
Intercom	Enables/disables/restricts the intercom function. Enable the intercom feature to turn it on. Set it to disabled to disable it. Select <i>restricted</i> to control intercom access via NFC card reader authorization. Configure NFC cards from the TOOLS tab in the GUDA. (see Pub. 42004-531 for instructions on programming NFC cards.)	EnabledDisabledRestricted
Telephone	Enables/disables/restricts the telephone function. Enable the telephone feature to turn it on. Set it to disabled to disable it. Select <i>restricted</i> to control telephone access via NFC card reader authorization. Configure NFC cards from the TOOLS tab in the GUDA. (see Pub. 42004-531 for instructions on programming NFC cards.)	EnabledDisabledRestricted
Web Portal	Enables/disables/restricts the web portal function. Enable this feature to turn it on. Set it to disabled to disable it. Select <i>restricted</i> to control web access via NFC card reader authorization. Configure NFC cards from the TOOLS tab in the GUDA. (see Pub. 42004-531 for instructions on programming NFC cards.)	EnabledDisabledRestricted
E3 APLite	Enables/disables/restricts the E3 APLite function. Enable the feature to turn it on. Set it to disabled to disable it. Select <i>restricted</i> to control web access via NFC card reader authorization. Configure NFC cards from the TOOLS tab in the GUDA. (see Pub. 42004-531 for instructions on programming NFC cards.)	EnabledDisabledRestricted

Network

The NETWORK node has sub nodes for Ethernet IP network operation. The sub nodes include WIFI, ACCESS POINT, DEFAULT LAN, and VLAN.

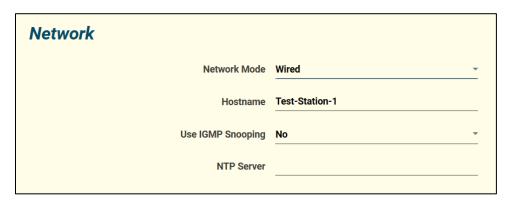


Figure 4. Network Parameters Screen

NOTE: The NETWORK MODE parameter is only applicable to HUBBCOM GSC devices.

Table 3. Network Parameters

Field Name	Description	Valid Settings
Network Mode (GSC models only)	 Defines how the smart controller connects to the network or if it is acting as a wireless access point. Wired—Ethernet jack is in use as hardwired connection to the network. Wireless—WiFi adapter is in use for wireless connection to the network Wired +AP—Ethernet jack is in use for hardwired connection to the network and the Wi-Fi adapter is an access point for other Wi-Fi users. 	WiredWirelessWired +AP
Hostname	A unique name that identifies each station on the network.	Use a maximum of 32 characters consisting of $a-z$, $0-9$ and The station's mac address forms the default hostname.
Use IGMP Snooping	Enables or disables IGMP on the HUBBCOM switch port. This is the process of listening to IGMP network traffic to control delivery of IP multicasts.	Yes No
NTP Server	IP address of the SNTP (simple network time protocol) server.	The SNTP Server's IP address in IPv4 format.

Network—Default LAN

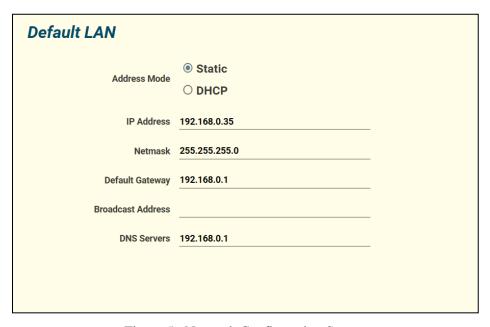


Figure 5. Network Configuration Screen

Table 4. Default LAN Parameters

Field Name	Description	Valid Settings
Address Mode	Define how the station acquires its IP address information.	 Static—Manually configure the IP address, subnet mask, and default gateway parameters. DHCP—A DHCP server assigns the IP address, subnet mask, and default gateway.
IP Address	The station's IP address.	valid IPv4 address
Netmask	The network subnet mask.	valid IPv4 subnet mask
Default Gateway	The network default gateway IP address	valid IPv4 router address
Broadcast Address	Not used	N/A
DNS	IP address of the primary domain name server	valid IPv4 DNS server address

Network—WiFi

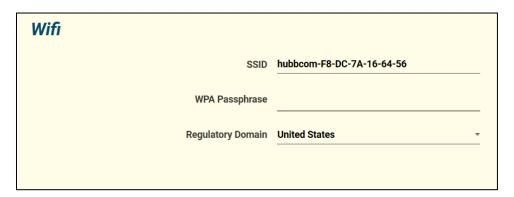


Figure 6. Wireless Network Screen

Table 5. WiFi Parameters

Field Name	Description	Valid Settings
SSID	The name of the Wi-Fi network that the HUBBCOM connects to.	As defined by the Wi- Fi network administrator.
WPA Passphrase	The password to connect to the SSID wireless network.	The passphrase may either be a string of 64 hexadecimal digits, or word/phrase of 8–63 ASCII characters.

Field Name	Description	Valid Settings
Regulatory Domain	The set of laws or policies that regulate a WLAN based on its location. There are governing bodies in many countries around the world.	 United States Global Australia Brazil Canada China France Israel India Japan Korea Mexico Qatar Saudi Arabia UK

Network—Access Point (GSC models only)

The access point feature projects a Wi-Fi signal to the area surrounding the HUBBCOM device. Local wireless devices connect to the HUBBCOM wired network via the access point.

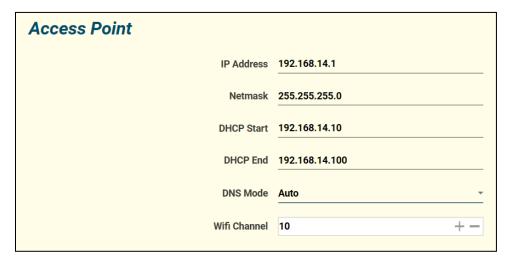


Figure 7. Access Point Screen

The HUBBCOM automatically assigns IP addresses to wireless devices that connect to the access point. Define the IP address range by setting the DHCP START and DHCP END parameters. The wireless devices receive IP addresses between the start and end addresses.

Table 6. Access Point Parameters

Field Name	Description	Valid Settings
IP Address	IP address of the HUBBCOM wireless access point.	Enter the IP address in IPv4 format.
Netmask	The subnet mask of the HUBBCOM wireless access point.	Enter the subnet mask in IPv4 format.
DHCP Start	Enter the first IP address of the DHCP pool.	Enter the IP address in IPv4 format.
DHCP End	Enter the last IP address of the DHCP pool.	Enter the IP address in IPv4 format.
DNS Mode	Wireless devices automatically receive DNS (Domain Name Server) assignment.	Auto Manual
WiFi Channel	A WiFi channel is a subdivision of the WiFi frequency band. Each channel allows wireless devices to send and receive data. The HUBBCOM access point operates in the 2.4 GHz band which has 11 channels.	Set using (-) (+) buttons or enter a number: 1–11.

VLAN

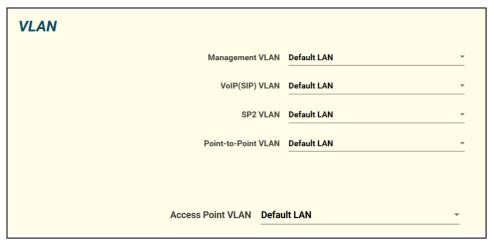


Figure 8. VLAN Screen

Table 7. VLAN Parameters

Field Name	Description	Valid Settings
Management VLAN	Assign a specific VLAN for HUBBCOM to GUDA software communication traffic.	Default LAN VLAN A–H
VoIP (SIP) VLAN	Assign a specific VLAN for SIP traffic when the HUBBCOM device is operating in telephone mode.	Default LAN VLAN A–H
Access Point VLAN	Assign a specific VLAN for WiFi traffic when the HUBBCOM device is operating as an access point.	Default LAN VLAN A–H

Field Name	Description	Valid Settings
SP2 VLAN	Assign a specific VLAN for <i>paging and party line</i> traffic when the HUBBCOM device is operating in intercom mode.	Default LAN VLAN A-H
Point-to-Point VLAN	Assign a specific VLAN for audio and video traffic when one HUBBCOM device is in point to point communication with another HUBBCOM device.	Default LAN VLAN A–H

VLAN A-H

Set parameters for each VLAN A-H separately.

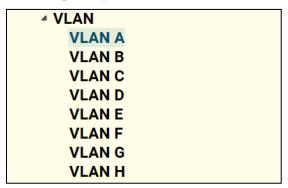


Figure 9. VLAN Subtree

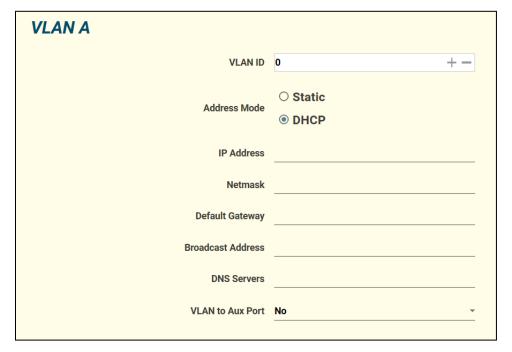


Figure 10. VLAN A-H Screens

Table 8. VLAN A-H Parameters

Field Name	Description	Valid Settings
VLAN ID	Assigns traffic from this station to the specified VLAN number.	Use the (-) (+) buttons to adjust the value or enter a number.
Address Mode	Define how the station acquires its IP address information.	 Static—Manually enter the IP address, subnet mask, and default gateway. DHCP—A DHCP server assigns the IP address, subnet mask, and default gateway.
IP Address	The station's IP address.	Enter the IPv4 IP address.
Netmask	The network subnet mask.	Enter the IPv4 subnet mask.
Default Gateway	The network default gateway IP address.	Enter the IPv4 gateway IP address.
Broadcast Address	not used	N/A
DNS Servers	The primary domain name system server's IP address.	Enter the IPv4 IP address.
VLAN to Aux Port	VLAN traffic routes to the second Ethernet port (non-POE port) on the HUBBCOM	Yes No

Intercom (GSC models only)

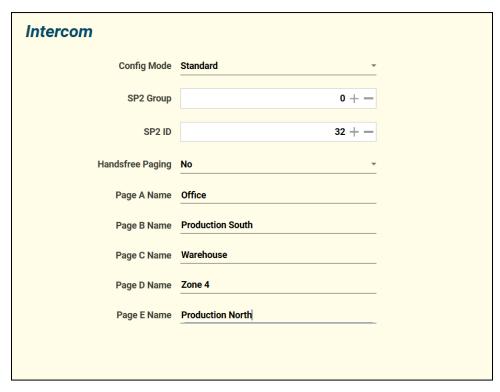


Figure 11. Intercom Screen

Table 9. Intercom Parameters

Field Name	Description	Valid Settings
Config Mode	Defines how a station acquires its configuration parameters on boot-up. A configuration file contains information for all intercom functions.	 Mutual—Acquire a configuration file from a designated master station on the network. Standard—On Boot-up, load the locally stored configuration settings.
SP2 Group	Identifies the group number of the station. Stations within the same group may use common intercom parameters.	0 –F
SP2 ID	Identifies the ID number of the station. Each station in the same group must have a unique ID number. Assign unique intercom parameters to each station ID.	00-FF
Handsfree Paging	Enables/disables handsfree paging mode	Yes No
Page A Name	A descriptive label for zone one's selection pushbutton on the intercom screen.	Enter text up to 20 characters. Default: Zone 1

Field Name	Description	Valid Settings
Page B Name	A descriptive label for the 2nd zone's selection pushbutton on the intercom screen.	Enter text up to 20 characters. Default: Zone 2
Page C Name	A descriptive label for the 3rd zone's selection pushbutton on the intercom screen.	Enter text up to 20 characters. Default: Zone 3
Page D Name	A descriptive label for the 4th zone's selection pushbutton on the intercom screen.	Enter text up to 20 characters. Default: Zone 4
Page E Name	A descriptive label for the 5th zone's selection pushbutton on the intercom screen.	Enter text up to 20 characters. Default: Zone 5

Streams

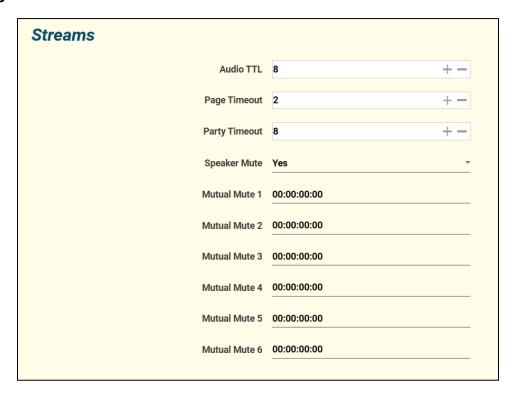


Figure 12. Audio Streams Screen

Table 10. Audio Streaming Parameters

Field Name	Description	Valid Settings
Audio TTL	Configure the time to live (router hops) for multicast audio packets.	Set using (-) (+) buttons or enter a number. Default: 8
Page Timeout	Configure the period (in minutes) that the station can generate a page while in intercom mode.	Set using (-) (+) buttons or enter a number. Disable timeout: 0 Default: 2 min
Party Timeout	Configure the handset's off-hook timeout period (in minutes) when the station is operating in intercom mode. This determines the maximum time of a conversation at this station.	Set using (-) (+) buttons or enter a number. Disable timeout: 0 Default: 8 min
Speaker Mute	Mutes the local speaker(s) when paging from this station.	 Yes—Mutes the audio at the local speaker(s) while the station is paging. No—The local speaker(s) broadcast all page RX audio while the station is paging.
Mutual Mute 1–6	The station speaker does NOT broadcast audio from the stations listed in the MUTUAL MUTE 1-6 list.	Enter the last four octets of the station MAC address.

Page Receive

Stations receive audio on up to eight different multicast sockets (see Figure 13).

Page Receive		
	Page 1 RX Socket	239.1.1.1:50002
	Page 2 RX Socket	239.1.1.2:50002
	Page 3 RX Socket	239.1.1.3:50002
	Page 4 RX Socket	239.1.1.4:50002
	Page 5 RX Socket	239.1.1.5:50002
	Page 6 RX Socket	0.0.0.0:0
	Page 7 RX Socket	0.0.0.0:0
	Page 8 RX Socket	0.0.0.0:0

Figure 13. Page Receive Screen

Table 11. Page Receive Parameters

Field Name	Description	Valid Settings
Page 1 RX Socket Page 2 RX Socket Page 3 RX Socket Page 4 RX Socket Page 5 RX Socket	Each PAGE RX Socket (1–8) consists of a multicast IP address and a port number. Disable page RX socket (1–8): IP Address: Port—0.0.0.0:0. PAGE 1 RX Socket—highest priority PAGE 8 RX Socket—lowest priority	IPv4 format: xxx.xxx.xxx.xxx:P xxx: IP address octet P: Port number (49152–65534) Defaults: Page 1 RX: 239.1.1.1:50002 Page 2 RX: 239.1.1.2:50002 Page 3 RX: 239.1.1.3:50002
Page 6 RX Socket Page 7 RX Socket Page 8 RX Socket		Page 3 RX: 239.1.1.3:50002 Page 4 RX: 239.1.1.4:50002 Page 5 RX: 239.1.1.5:50002 Page 6 RX: 0.0.0.0:0 Page 7 RX: 0.0.0.0:0 Page 8 RX: 0.0.0.0:0

Page Transmit

The default page transmit sockets (see <u>Figure 14</u>) correspond to the intercom pushbuttons. Change the socket addresses, as necessary, to configure a unique page and party system.

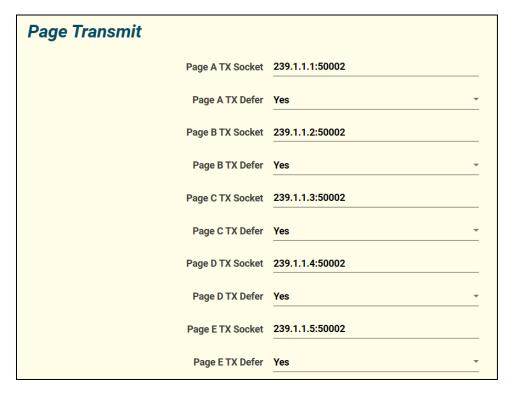


Figure 14. Page-Transmit Screen

Table 12. Page-Transmit Parameters

Field Name	Description	Valid Settings
	The HUBBCOM INTERCOM screen (see Figure 11) shows five page-zone selection buttons. Assign a multicast socket to each button. Each page TX socket (A–E) consists of a multicast IP address and a port number. Set the IP address and port to 0.0.0.0:0 to disable the page line.	IPv4 format: xxx.xxx.xxx.xxx:P xxx: IP address octet P: Port number (49152–65534)
Page A TX Socket	Transmit socket assigned to the 1 st page selection button on HUBBCOM touch screen.	Default: 239.1.1.1:50002
Page B TX Socket	Transmit socket assigned to the 2 nd page selection button on HUBBCOM touch screen	Default: 239.1.1.2:50002
Page C TX Socket	Transmit socket assigned to the 3 rd page selection button on HUBBCOM touch screen	Default: 239.1.1.3:50002
Page D TX Socket	Transmit socket assigned to the 4 th page selection button on HUBBCOM touch screen	Default: 239.1.1.4:50002
Page E TX Socket	Transmit socket assigned to the 5 th page selection button on HUBBCOM touch screen	Default: 239.1.1.5:50002
Page A–E TX Defer	Use this parameter to prevent two stations from simultaneously sending a page on the same page TX socket. The HUBBCOM station will not transmit onto a page TX multicast socket if that socket is in use.	 Yes—This station will NOT transmit if a page is already in progress on the selected PAGE TX socket (A–E). No—the station will transmit onto the selected PAGE TX socket (A–E) regardless of the current paging status.

Party Lines

The default party line sockets are below (see <u>Figure 15</u>). Change the socket addresses, as necessary, to configure a unique page and party system.

Party Lines		
	Party Line 1 Socket	239.1.0.1:50000
	Party Line 2 Socket	239.1.0.2:50000
	Party Line 3 Socket	239.1.0.3:50000
	Party Line 4 Socket	239.1.0.4:50000
	Party Line 5 Socket	239.1.0.5:50000

Figure 15. Party Line Sockets Screen

Table 13. Party Line Socket Parameters

Field Name	Description	Valid Settings
	Each party line socket (1–5) consists of a multicast IP address and a port number. Set the IP address and port to 0.0.0.0:0 to disable the party line.	IPv4 format: xxx.xxx.xxx.xxx:P xxx = IP address octet P: = Port number (49152–65534)
Party Line 1 Socket	Enter the socket for party line button one on the HUBBCOM's touch screen.	Default: 239.1.0.1:50000
Party Line 2 Socket	Enter the socket for party line button two on the HUBBCOM's touch screen	Default: 239.1.0.2:50000
Party Line 3 Socket	Enter the socket for party line button three on the HUBBCOM's touch screen	Default: 239.1.0.3:50000
Party Line 4 Socket	Enter the socket for party line button four on the HUBBCOM's touch screen	Default: 239.1.0.4:50000
Party Line 5 Socket	Enter the socket for party line button five on the HUBBCOM's touch screen	Default: 239.1.0.5:50000

Mutual Provisioning

Configure the intercom functionality for HUBBCOM devices on the mutual provisioning screen. HUBBCOM stations obtain their intercom and network parameters from a station designated as a *master station* when using mutual provisioning. The provisioning data transfer occurs on a special multicast socket. Encrypt the data, if desired. Implement up to three *master stations* (for redundancy purposes). The *master list* parameter identifies the three master stations using their SP2 group and station ID as defined on the intercom screen (see Figure 11).



Figure 16. Mutual Provisioning Parameters

This screen is view only. All settings on this screen are locked and cannot be changed:

- **Provision Socket**—used for communication among HUBBCOM and SP2 stations when operating in mutual configuration mode.
- **Master List** master-station group and station number list; in priority order from highest to lowest. Format the list as follows: G.SS (G=Group, S=Station Number). Always set to **0.01**, **0.02**, **0.03**.
- **Designation**—indicates the name of the system. Only stations with the same designation receive the mutual configuration. There is typically only one system designation on a network.
- **Mutual Provn TTL**—time to live value used by the provisioning sockets. This determines the number of router-hops a data packet can make in the network.
- Encrypt Mutual—encrypt the data on the mutual provisioning socket (Yes/No).

Discovery Channel



Figure 17. Discovery Channel Parameter

Discovery Socket—the socket used to auto discover HUBBCOM stations on the network. This read only parameter is set to 239.239.239.239:50000

Outputs

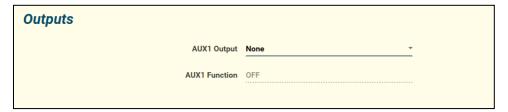


Figure 18. Outputs Screen

Table 14. Output Parameters

Field Name	Description	Valid Settings
Aux 1 Output	The output triggered by the selected Aux 1 Function .	 None Local 1 Local 2 USB Out 1 USB Out 2 Wiegand
Aux 1 Function	The intercom function that triggers the Aux 1 Output.	 Off Idle RX Page Any RX Page 1-8 TX Page Any TX Page A-E Party Any Party 1-5 On-Hook Off-Hook

Phone

The SIP telephone feature allows for concurrent registration with up to three registrar servers. The HUBBCOM attempts to register with all three servers using the accounts specified by the SIP ID/ACCOUNT EXTENSION on the PHONE screen.

The HUBBCOM will not attempt to register with a registrar server whose settings are invalid:

- All three registrars are invalid if the SIP ID/ACCOUNT EXTENSION is empty.
- This registrar is invalid if the registrar dataset has its AUTHENTICATION PASSWORD empty.
- This registrar is invalid if the registrar dataset has its REGISTRAR ADDRESS containing fewer than seven characters.

Outbound calling is available if the HUBBCOM successfully registers with at least one registrar server. Otherwise, the HUBBCOM smart controllers display a full-screen popup window indicating that *No SIP Phone Calls are Possible*.

Outbound calls use only one registrar account that currently has a successful registration. The highest priority is registrar one; the lowest priority is registrar three.

Changes to the registrar settings do not affect the current operation of the HUBBCOM device. REBOOT the HUBBCOM device for changes to take effect.

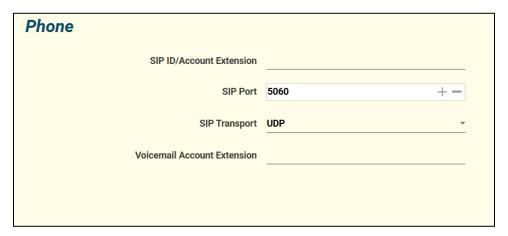


Figure 19. Phone Parameters

Table 15. Phone Parameters

Field Name	Description	Valid Settings
SIP ID/Account Extension	The extension number the registrar (SIP Server) assigns to this phone.	The phone number provided by the IP phone system administrator.
SIP Port	Port number for SIP registration/signaling.	Default: 5060
SIP Transport	Protocol for sending bits of data (known as packets) over the network.	TCP or UDP Defined by the SIP Registrar
Voice Mail Account Extension	The number to access the phone's voicemail box.	The phone number provided by the IP phone system administrator.

SIP Registrar 1-3

Enter up to three SIP registrars. The phone will always attempt to initiate a call with SIP registrar one first. If registration with registrar one fails, the phone attempts to call using registrar two or three in that order.

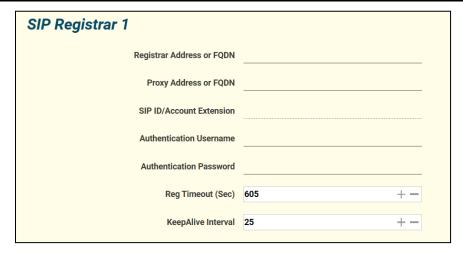


Figure 20. SIP Registrar 1–3 Screens

Table 16. SIP Registrar 1–3 Parameters

Field Name	Description	Valid Settings
Registrar Address or FDQN	Registrar Address—The IP address of the SIP phone system registrar (server).	Registrar IP address in IPv4 format.
	FQDN—The fully qualified domain name is the complete domain name for the SIP phone system	Example: 192.168.1.100
	registrar.	The FQDN consists of two parts: the hostname and the domain name.
		Example: reg.phoneco.com
Proxy Address or FDQN	A proxy server is a computer acting as an intermediate/bridge between the HUBBCOM and other	Same format as registrar address or FDQN.
	SIP devices. It uses the registrar database to facilitate connections between devices.	Often the registrar provides this function. In this case the field can remain empty.
SIP ID/Account Extension	This is a read only field which displays the same entry made on the phone screen above.	Assigned by phone system administrator.
Authentication Name	The account user name assigned by the registrar.	Assigned by phone system administrator.
Authentication Password	The account password assigned by the registrar.	Assigned by phone system administrator.
Reg Timeout (Sec)	Sets the suggested registration timeout value (in seconds) from the phone to the registrar.	Set using (-) (+) buttons or enter a number.
	The registrar server can ignore and override this suggested time.	
	Following the expiry of registration timeout, the phone will deregister and then automatically attempt to reregister.	
Keep Alive Interval	The time (in seconds) that the phone will send a keep alive message to ensure the port remains open. Set this number to zero (0) to disable.	Set using (-) (+) buttons or enter a number.

SIP Contacts

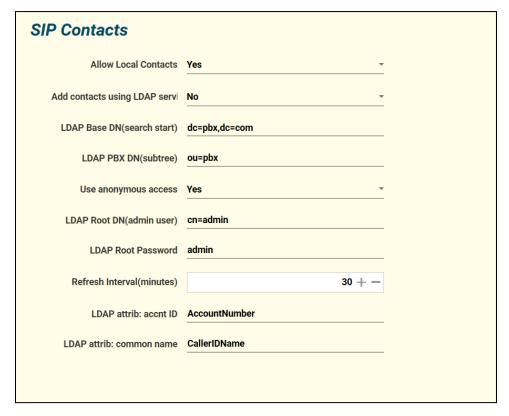


Figure 21. SIP Contact Parameters

Table 17. SIP Contact Parameters

Field Name	Description	Valid Settings
Allow Local Contacts	Allows the user to enter contacts by using the HUBBCOM touch screen.	Yes No
Add Contacts using LDAP Serv	Depending on the SIP phone system server, the LDAP protocol may populate the phone contact list. This setting enables or disables the phone's LDAP protocol for communication with the server.	Yes No
LDAP Base DN (Search Start)	A Base DN is the point in the directory information tree where a Directory Server Agent will search for users. A DN (distinguished name) uniquely identifies an LDAP object. A DN is a sequence of RDNs (relative distinguished names) connected by commas and structured like an absolute PATH on a file system. An RDN is an attribute with an associated value in the form attribute=value; normally given in a UTF-8 string format. A comma follows each RDN that has a parent with the parent RDN after the comma, with no spaces.	Enter a character string.
LDAP PBX DN (Subtree)	The RDN (relative to the Base DN) that locates the specific directory (phonebook) to retrieve from the DSA (Directory Service Agent) in its hierarchy. Do not include a trailing comma.	Enter a character string. e.g.: ou=pbx
Use anonymous access	Allows the HUBBCOM device to access the server directory as an anonymous user (with no credentials required). If the LDAP server does not support anonymous access, use the Root DN and Root Password Fields to specify the user name and password.	Yes No
LDAP Root DN (admin user)	The username RDN (relative to the Base DN) provided to the LDAP server to permit directory access (when the LDAP server does not support anonymous access)	Enter a character string. e.g.: cn=admin
LDAP Root Password	The password corresponding to the Root DN username provided to the LDAP server to permit directory access (when the LDAP server does not support anonymous access)	Enter a character string.
Refresh Interval(minutes)	Interval at which the HUBBCOM will request contact list updates from the server.	Set using (-) (+) buttons or enter a number.
LDAP attrib: accnt ID	The attribute designation (Field Name) that the directory(phonebook) uses as the identifier of a directory entry.	Enter a character string. e.g.: AccountNumber
LDAP attrib: common name	The attribute designation (Field Name) that the directory(phonebook) uses to refer to the <i>name</i> associated with a directory entry.	Enter a character string. e.g.: CallerIDName

SIP Advanced Features

SIP Advanced Featur	res	
#1 Description		я
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#2 Feature Code		
#3 Description		\$
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#5 Description		8
#5 Feature Code		ii ii
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#6 Feature Code	-	

Figure 22. SIP Advanced Features Parameters

SIP ADVANCED FEATURES define up to six *feature access codes* available from the SIP phone system in use. The codes and available functions vary between phone system suppliers. Depending on the feature, the phone system may return a confirmation message or a voice prompt requesting additional numbers from the HUBBCOM keypad.

It is possible to add additional numbers after the access code for actions such as call forwarding to a specific number, etc.

Press the ADVANCED button on the HUBBCOM telephone screen to access these actions.

Table 18. SIP Advanced Features Parameters

Field Name	Description	Valid Settings
#1–6 Description	A user-friendly name to describe the function.	text entry
#1–6 Feature Code	Enter the number/character string that the HUBBCOM dials to perform the function.	number/character string defined in the IP phone system function list

Point to Point

HUBBCOM GSC Devices

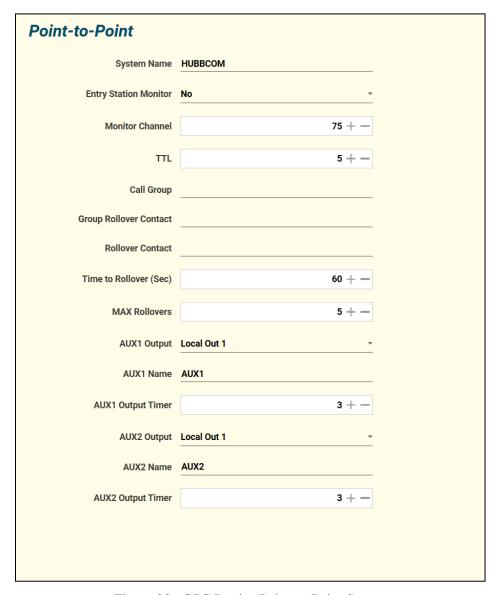


Figure 23. GSC Device Point-to-Point Screen

Table 19. Point to Point Calling Parameters for GSC Devices

Field Name	Description	Valid Settings
System Name	The system name assigned to this HUBBCOM station. Point-to-point calls are only possible between HUBBCOM stations with the same <i>system name</i> . The station's contact list automatically populates to include all other stations with the same <i>system name</i> .	any alpha/numeric text entry Default: HUBBCOM
Entry Station Monitor	Allows audio/video monitoring of any HUBBCOM stations designated as <i>Entry Stations</i> .	Yes No

Field Name	Description	Valid Settings
Monitor Channel	Underlying parameter that defines the multicast address used for communication with entry stations. Do not normally change this setting. Change it only to eliminate interference with other network multicast activity. NOTE: Also change the channel number on the monitored <i>Entry Stations</i> .	0–255, Default: 75
TTL	Time to live for point-to-point calling multicast packets.	0–255, Default: 5
Call Group	The call group name that this HUBBCOM belongs to. Call Group names must be unique. Verify that the name selected is not a duplicate of any HUBBCOM device name in the system.	Enter a descriptive name for the call group.
Group Rollover Contact	This setting applies only to an incoming call for the HUBBCOM group that this station belongs to. The calling phone will re-dial this contact name or HUBBCOM number if the HUBBCOM station does not answer the call.	Select from the contact list (either individual contacts or group contacts) or enter a SIP phone number.
Rollover Contact	This setting applies only to an incoming call directly to this HUBBCOM station. The calling HUBBCOM will re-dial this contact name or HUBBCOM number if the HUBBCOM station does not answer the call.	Select from the contact list (either individual contacts or group contacts) or enter a SIP phone number
Time to Rollover (Sec)	Time that this HUBBCOM must ring before the calling HUBBCOM re-dials the rollover contact.	18–600, 60
MAX Rollovers	The maximum times the calling HUBBCOM will re-dial other contacts.	1–600, 5
AUX1 Output	Allows the calling HUBBCOM to activate the selected output on this HUBBCOM station after it answers the call. The calling HUBBCOM's display has a pushbutton icon to manually activate the output.	 None Local Out 1 Local Out 2 USB Out 1 USB Out 2
Aux Out 1 Name	The name displayed on the calling HUBBCOM's pushbutton icon.	Enter a descriptive name for the outputs function.
Aux Out 1 Timer	The time that the output stays active.	1-71, 3
AUX2 Output	Allows the calling HUBBCOM to activate the selected output on this HUBBCOM station after it answers the call. The calling HUBBCOM's display has a pushbutton icon to manually activate the output.	 None Local Out 1 Local Out 2 USB Out 1 USB Out 2
Aux Out 2 Name	The name displayed on the calling HUBBCOM's pushbutton icon.	Enter a descriptive name for the output's function.
Aux Out 2 Timer	The time that the output stays active	1–71, 3

HUBBCOM GRC Devices

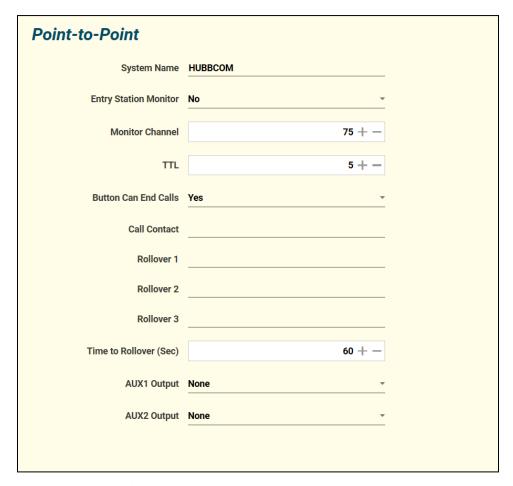


Figure 24. GRC Device Point to Point Screen

Table 20. Point to Point Parameters for GRC Devices

Field Name	Description	Valid Settings
System Name	The system name assigned to this HUBBCOM station. Point-to-point calls are only possible between HUBBCOM stations with the same <i>system name</i> . The station's contact list automatically populates to include all other stations with the same <i>system name</i> .	any alpha/numeric text entry Default: HUBBCOM
Entry Station Monitor	Allows audio/video monitoring of any HUBBCOM stations designated as <i>Entry Stations</i> .	Yes No
Monitor Channel	Underlying parameter that defines the multicast address used for communication with entry stations. Do not normally change this setting. Change it only to eliminate interference with other network multicast activity. NOTE: Also change the channel number on the monitored <i>Entry Stations</i> .	0–255, Default: 75
TTL	Time to live for point-to-point calling multicast packets.	0–255, Default: 5

Field Name	Description	Valid Settings
Button Can End Calls	Allows/disallows using the UNIT button to end calls.	Yes No
Call Contact	Either a group (<i>group name</i>), an individual contact (<i>HUBBCOM device name</i>), or a SIP phone number Call group names must be unique in the system. The <i>call-group</i> name must not match any HUBBCOM device name in the system.	Enter a descriptive name for the call group.
Rollover 1 Rollover 2 Rollover 3	This setting applies to incoming calls directed to this HUBBCOM station. The calling HUBBCOM dials each destination in the <i>rollover</i> list if this destination does not answer the call within the <i>Time to Rollover</i> . The calling HUBBCOM dials the three rollover destinations until the call connects or each rollover destination is dialed one time.	Select from the contact list (either individual contacts or group contacts) or enter a SIP phone number
Time to Rollover (Sec)	Time that this HUBBCOM must ring before the calling HUBBCOM re-dials the rollover contact.	18–600, 60
AUX1 Output	Allows the calling HUBBCOM to activate the selected output on this HUBBCOM station after it answers the call. The calling HUBBCOM's display has a pushbutton icon to manually activate the output.	 None Local Out 1 Local Out 2 USB Out 1 USB Out 2
AUX2 Output	Allows the calling HUBBCOM to activate the selected output on this HUBBCOM station after it answers the call. The calling HUBBCOM's display has a pushbutton icon to manually activate the output.	 None Local Out 1 Local Out 2 USB Out 1 USB Out 2

Contacts

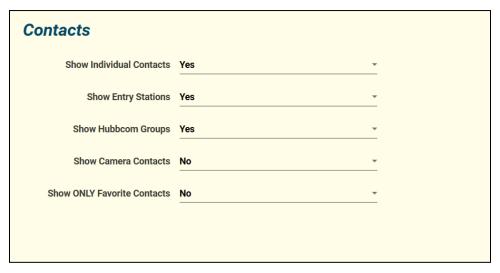


Figure 25. Contacts Screen

Contact parameters filter the devices displayed in the station's contact list.

Table 21. Contact Parameters

Field Name	Description	Valid Settings
Show Individual Contacts	Displays all HUBBCOM stations with the same <i>system name</i> (set on the POINT-TO-POINT screen).	Yes No
Show Entry Stations	Displays all HUBBCOM stations with the same <i>System Name</i> (set on the POINT-TO-POINT screen) and set as <i>Entry Station</i> on the UNIT Screen	Yes No
Show HUBBCOM Groups	Displays all HUBBCOM groups with the same System Name.	Yes No
Show Camera Contacts	When enabled, a camera icon appears on the HUBBCOM screen main menu.	Yes No
	Manually add remote IP camera URLS to the contact list.	
	When a remote IP camera is associated with a HUBBCOM station, enter the camera URL under the HUBBCOM entry in the contact list.	
	NOTE: Manually enter all remote IP camera URLs in the contact list.	
Show ONLY Favorite Contacts	Enable to display only contacts selected as Favorites in the contact list. Select favorite contacts by toggling the star for the contact when viewing the contact list on the device.	Yes No

Access Control

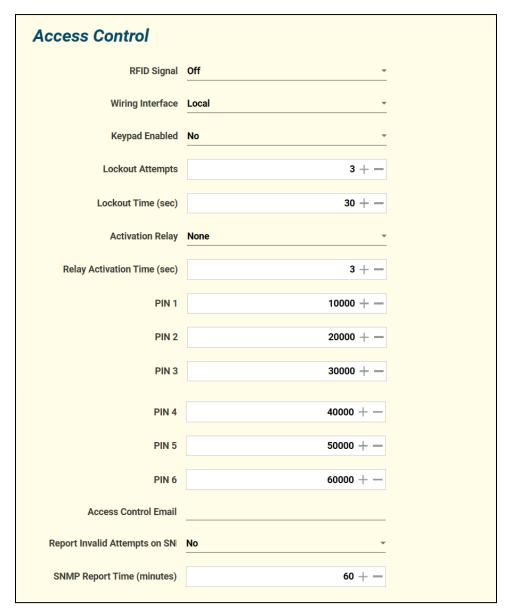


Figure 26. Access Control Parameters

Table 22. Access Control Parameters

Field Name	Description	Valid Settings
RFID Signal	Enables/disables the 125 kHz carrier signal to detect RFID tags.	• Off • On
Wiring Interface	 The HUBBCOM's access control wiring scheme. Local—Connect the access control wiring to the output configured for the activation relay on the HUBBCOM. 26-bit Weigand—Access control wiring connects to a remote access control system using the 26-bit Weigand wiring standard. 	NoneLocalWiegand
Keypad Enabled (GSC models only)	Displays a numeric keypad on the HUBBCOM screen. Users manually enter a valid code number to activate the selected access control wiring interface.	Yes No
Lockout Attempts	The number of failed attempts before the HUBBCOM locks out the access control features.	1-10
Lockout Time (seconds)	The period the HUBBCOM stays in lockout mode.	1–180
Activation Relay	The output triggered upon a successful code entry or authorized RFID scan.	 None Local 1 Local 2 USB Out 1 USB Out 2 Wiegand
Activation Relay Time (seconds)	The period the <i>activation relay</i> output stays active following a successful code entry or RFID scan.	1–60
PIN 1-PIN 6	Enter up to six different PIN codes for activating the selected wiring interface from the HUBBCOM touchscreen. For Local: The PIN code entry will directly activate the relay. For Weigand: The PIN code entry will transmit the facility code and card # entered on the same screen as PIN number. The facility code and card # must be valid in the card access system.	0–99999
Access Control Email	The HUBBCOM sends an email to this address based on the selected access control trigger. Never Lockout Only Incorrect Entry Every Nth Attempt (N = 1-100) Always	Valid email address Select trigger from pull-down menu.
Report Invalid Attempts on SNMP	Enables/disables storing an invalid access attempt state for the <i>SNMP Report Timeout</i> period for access by an SNMP server.	Yes No
SNMP Report Timeout (minutes)	The period that <i>report invalid attempts</i> remains active/reportable. The HUBBCOM automatically clears the state when the time elapses. Configure the site's SNMP server to request reports at shorter intervals than the value set. HUBBCOM devices do not issue SNMP traps.	Set using (-) (+) buttons or enter a number. Default: 60

Auxiliary Door Control

This feature allows one HUBBCOM device to directly control the relay output of another HUBBCOM device. The most common use is to remotely open doors, as the name states.

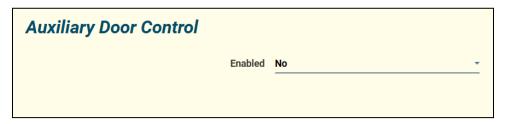


Figure 27. Auxiliary Door Control Enable Screen

Table 23. Auxiliary Door Control Parameter

Field Name	Description	Valid Settings
Enabled	Enables this feature.	Yes No

Once enabled, the screen updates to display the applicable parameters:

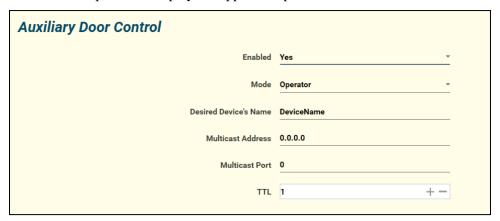


Figure 28. Auxiliary Door Control Enabled Screen

Table 24. Auxiliary Door Control Parameters

Field Name	Description	Valid Settings
Enabled	Enables this feature.	Yes No
Mode	The HUBBCOM device that sends the door open command is the <i>operator</i> The HUBBCOM device that receives the command and activates its output relay is the <i>activator</i> .	OperatorActivator

Field Name	Description	Valid Settings
Desired Device Name	The device name of the companion HUBBCOM device. The <i>operator</i> HUBBCOM must have the device name of the <i>activator</i> HUBBCOM and visa-versa.	Enter the device name. NOTE: Device name must match exactly and is case sensitive.
Multicast Address	Multicast address to activate the output.	Example: 239.1.1.200
Multicast Port	Port number to activate the output.	Example: 50010
TTL	Time to Live of the multicast packet.	1–255

E3 APLite (319-02-HZ00200 models only)

E3 AP Lite is a HUBBCOM device configured and used as an access panel in an *Elemec3* system. To use this feature:

- 1. Set the Intercom Config Mode to *MUTUAL* (see <u>Table 9</u>).
- 2. The *Elemec3* system providing the configuration must define the SP2 group and ID for the station.

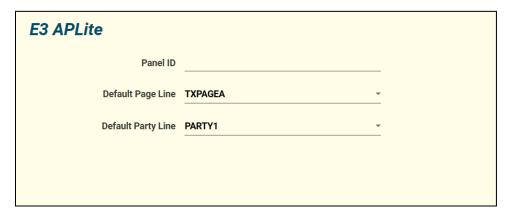


Figure 29. E3 APLite Screen

Table 25. E3 AP Lite Parameters

Field Name	Description	Valid Settings
Panel ID	The <i>Elemec3</i> AP Lite Access Panel ID, assigned in the E3 Console	0000–9999
Default Page Line	The E3 AP Lite mode intercom page channel for paging.	TXPAGEA- TXPAGEE
Default Party Line	The E3 AP Lite mode <i>intercom party line</i> for party communication.	PARTY1-PARTY5

Web Portal (GSC models only)

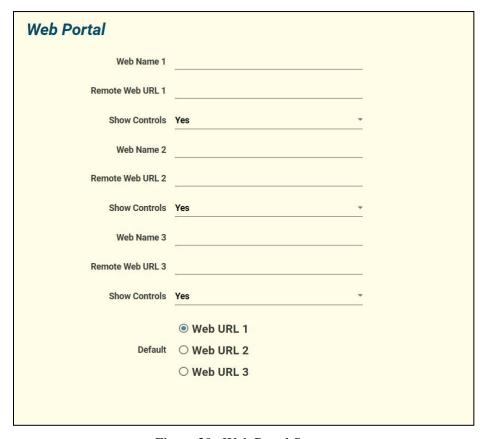


Figure 30. Web Portal Screen

Access up to three web pages from a HUBBCOM GSC. Each entry 1-3 displays an icon on the HUBBCOM screen MAIN MENU with a label based on the WEB NAME X entry.

Table 26. Web Portal Parameters

Field Name	Description	Valid Settings
Web Name 1–3	Enter recognizable names for the websites the HUBBCOM station will access. These names identify each web page icon on the HUBBCOM screen main menu.	Text Entry
Remote Web URL 1–3	A URL (Uniform Resource Locator) is a human readable Internet address of a specific online resource, such as a webpage, video, or other document or resource.	Enter each webpage URL. Example: https://www.hubbell.com/gai- tronics/en/hubbcom-ip- devices
Show Controls 1–3 (GSC models only)	Enable/disable the screen header and footer containing a back, home, and forward button for website navigation. Remove the controls by swiping them off the screen from left to right. Access the menu panel by swiping the screen from left to right when this setting is set to no.	Yes No

Field Name	Description	Valid Settings
Default	This setting only applies if the WEB PORTAL is set as the Home Mode on the UNIT screen.	Select the <i>Web URL n</i> radio button the HUBBCOM displays upon start-up or upon selection of the home mode.

Video

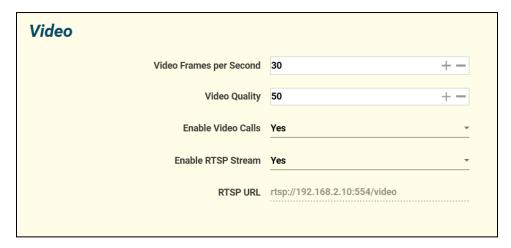


Figure 31. Video Screen

Table 27. Video Parameters

Field Name	Description	Valid Settings
Video Frames per Second	Frame rate (expressed in frames per second or FPS) is the frequency (rate) that consecutive images called frames appear on the display.	Default: 30
Video Quality	Video compression value that adjusts the network bandwidth required for video transmission.	1–100, 50
Enable Video Calls	Turns ON or OFF the point-to-point video calling feature.	Yes No
Enable RTSP Stream	Turns ON or OFF the camera video streaming feature.	Yes No
RTSP URL	RTS (Real-Time Stream Protocol)—the multimedia stream protocol used by the camera to deliver video. Users monitor the listed URL to obtain the camera's video stream.	N/A—This is a read-only field and is dependent on the station's IP address. Example: RTSP://192.168.1.100/video

Monitoring

Tamper Detection

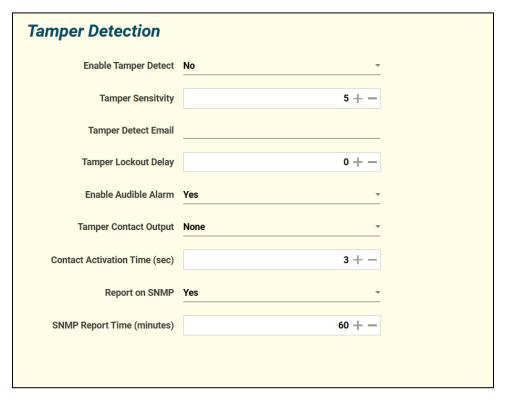


Figure 32. Tamper Detection Settings

Table 28. Tamper Detection Parameters

Field Name	Description	Valid Settings
Enable Tamper Detect	Enables a tilt/movement sensor inside the HUBBCOM station	Yes No
Tamper Sensitivity	Sets the sensitivity of the senor for detecting movement (tampering) of the HUBBCOM station. Increase the sensitivity by increasing the set value.	1–10, 5 1—lowest sensitivity 10—highest sensitivity
Tamper Detect Email	Enter the email address that will receive notifications of device tampering.	An active email address
	Specify the sending email address when the tamper sensor activates on the NOTIFICATION SCREEN (see the Notification section).	
	If the camera is enabled, it takes a photo and inserts it into the email message.	
Tamper Lockout Delay	When the tamper sensor activates, the HUBBCOM screen locks for the specified time (in seconds).	0 –3600
	The screen displays a lock-out message and all functions of the station are inoperable.	
Enable Audible Alarm	A tone plays over the HUBBCOM speaker during the lockout period.	Yes No

Field Name	Description	Valid Settings
Tamper Contact Output	Selects the hardware channel that provides the signal indicating a tamper event.	NoneLocal Out 1Local Out 2Wiegand Out
Contact Activation Time (seconds)	The duration of contact activation for a tamper event.	3
Report ON SNMP	Enables/disables storage of a tamper state for the <i>SNMP Report Time</i> period for access by an SNMP server.	Yes No
SNMP Report Time (minutes)	The period the tamper detect remains active/reportable. The HUBBCOM automatically clears the latched state when the time elapses. Configure the site's SNMP server to request reports at shorter intervals than the value set. HUBBCOM devices do not issue SNMP traps.	Set using (-) (+) buttons or enter a number. Default: 60

Notification

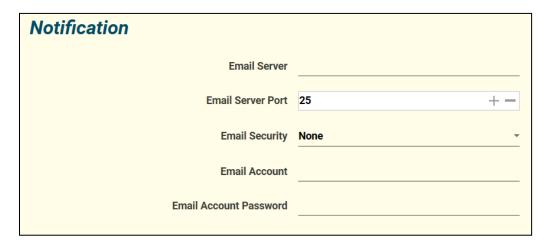


Figure 33. Notification Settings

Table 29. Notification Parameters

Field Name	Description	Valid Settings
Email Server	The IP address of the SMTP server. Obtain from email system administrator.	IPv4 Address
Email Server Port	The port number used by the SMTP service running on the mail server.	Default: 25
Email Security	SSL (Secure Sockets Layer) is the standard security technology for establishing an encrypted link between server and client. This link ensures that all data passed remains private and integral. TLS (Transport Layer Security) provides encryption technology for the message while it is <i>in transit</i> from one secure email server to another.	NoneSSLTLS

Field Name	Description	Valid Settings
Email Account	The email account of this HUBBCOM device. Obtain from email system administrator.	Valid SMTP email address
Email Account Password	Password to authenticate the email account to the SMTP server. Obtain from email system administrator.	Character string

Motion Detection

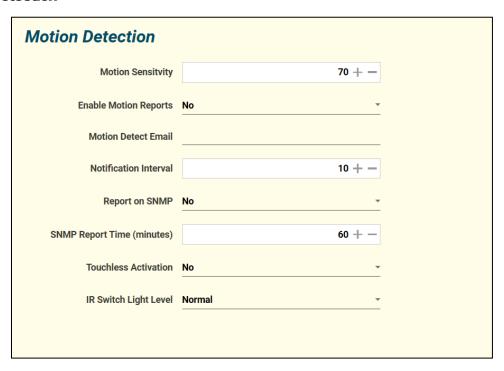


Figure 34. Motion Detection Screen

Table 30. Motion Detection Parameters

Field Name	Description	Valid Settings
Motion Sensitivity	Sensitivity level of the motion sensor in the HUBBCOM device. Increase the sensitivity by increasing the set value.	1–100, 70 1—lowest sensitivity 100—highest sensitivity
Enable Motion Reports	Enables/Disables reporting motion detections. The HUBBCOM does not generate motion detected reports when disabled.	Yes No
Motion Detect Email	Receipt email address for motion detected email messages.	Enter the email address that will receive the notifications when motion detection is enabled.
Notification Interval	Period between email notifications when motion detection is continuous.	1–60 Default = 10

Field Name	Description	Valid Settings
Report on SNMP	Enables/disables storage of a motion detection event for the <i>SNMP report time</i> for access by an SNMP server.	Yes No
SNMP Report Time (minutes)	The period the motion detection state remains active/reportable. The HUBBCOM automatically clears the latched state when the <i>SNMP report time</i> elapses. Configure the site's SNMP server to request reports at shorter intervals than the value set. HUBBCOM devices do not issue SNMP traps.	Set using (-) (+) buttons or enter a number. Default: 60
Touchless Activation	Enables/Disables touchless activation.	Yes No
IR Switch Light Level	Sets the intensity for the IR illumination LED	Normal

Output Contacts (GSC models only)

Enable the outputs, on GSC stations, for the periods that they need to be available each day. The output contacts will only activate on the days that are on during the enabled times.

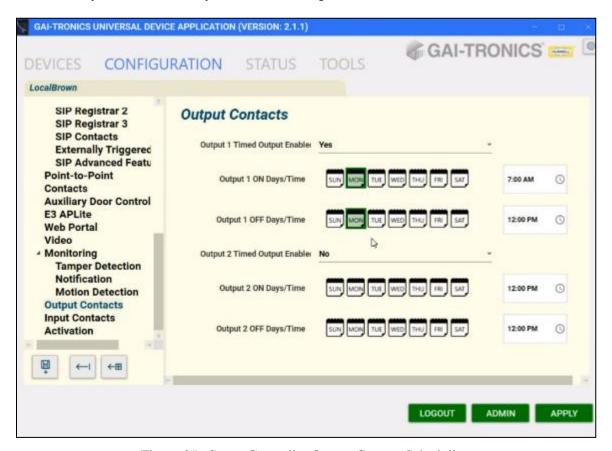


Figure 35. Smart Controller Output Contact Scheduling

Table 31. Output Contact Scheduling

Field Name	Description	Valid Settings
Output 1/2 Timed Output Enable	Enable/disable the scheduling of output contact availability. The contacts are always available for activation when set to <i>No</i> .	Yes No
Output 1/2 On Days/Time	Select the days the contacts are available and configure the beginning availability time.	SUN—SAT HH:mm AM/PM
Output 1/2 Off Days/Time	Select the days the contacts become unavailable and configure the ending availability time.	SUN—SAT HH:mm AM/PM

Input Contacts

HUBBCOM GSC devices have two input contacts; HUBBCOM GRC devices have four input contacts. The input contacts screen (see <u>Figure 36</u>) shows the input contacts for a GRC device (four input contacts) The GUDA only displays two inputs for GSC devices.

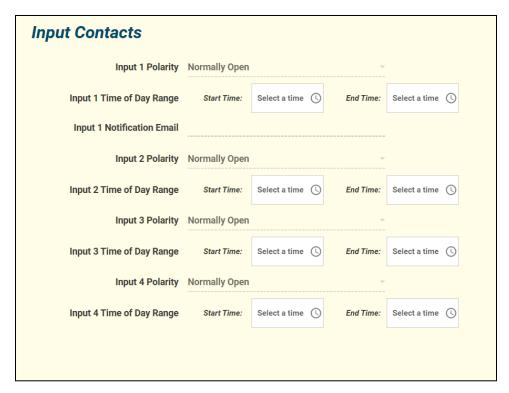


Figure 36. Input Contact Screen

Table 32. Input Contact Parameters

Field Name		Description	Valid Settings
Input N Polarity		The input contact type.	Normally Open Normally Closed
Input N Time of Day Range	Start Time	Enter the input contact sensing start time.	HH:mm AM/PM
	End Time	Enter the input contact sensing end time	HH:mm AM/PM
Input N Notification Email		Receipt email address for input contact state change email message.	SMTP Address

N is the input contact number, 1–4

Activation (GSC models only)

HUBBCOM smart controllers with firmware versions 3.3.2020-09-08 and prior require activation before they will function.

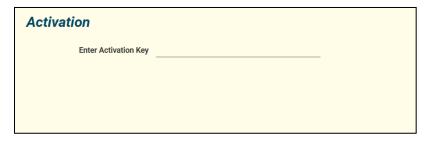


Figure 37. HUBBCOM GSC Activation

Reference Documents

Glossary

Table 33. Glossary of Terms

Term	Definition	
MAC ADDRESS	A MAC (Media Access Control) address, also called the physical address, enables device communication on a physical network segment. MAC addresses are assigned by the manufacturer of the NIC (network interface card) and are stored in its hardware. Each NIC must have a unique MAC address on a physical network.	
IP Address	A unique numerical address assigned to each device connected to a network using Internet Protocol for communication.	
	Two versions of the IP (Internet Protocol) are in use: IPv4 (IP Version 4) and Ipv6 (IP Version 6). Each version defines an IP address differently.	
	An IPv4 address consists of 32 bits (4 octets).	
	Example: 192.168.1.100	
	An Ipv6 address consists of 128 bits. Eight groups of four digits Example: 2001:0db8:0:0:0:ff00:0042:8329	
PRIVATE IP ADDRESS	IP addresses reserved for use on private networks. These addresses cannot connect directly to the Internet. IPv4:	
	• 10.0.0.0–10.255.255.255	
	• 172.16.0.0–172.31.25.255	
	• 192.168.0.0–192.168.255.255	
SUBNET MASK	Used in conjunction with an IPv4 IP address, the subnet mask separates an IP address into logical network and host address components. Every host on a unique logical network must have the same subnet mask.	
	Subnet Mask format— $xxx.xxx.xxx$ (where $xxx = 0-255$).	
DEFAULT GATEWAY	The IP address of the router to which all packets will be routed to for hosts that are not located on the same logical network. This is the address of the network router used to connect to devices on a different network.	
HOSTNAME	Hostnames are human-readable names that DNS (Domain Name System) servers resolve to the IP address of a service or device on a network. Hostnames appear in computer browser lists, active directory lists, hostname resolutions, email headers, etc.	
DHCP	Dynamic Host Configuration Protocol is a network service that assigns IP address configuration data to hosts configured to request it upon boot-up. DHCP servers assign the IP address, subnet mask, default gateway, and DNS server addresses and other optional TCP/IP parameters.	
DNS	Domain Name System is a network service used by IP network hosts to convert host names to IP addresses	
IGMP	Internet Group Management Protocol is a communications protocol used by hosts, switches, and routers for creating, joining, and leaving multicast groups.	
TIME-TO-LIVE (TTL)	This mechanism limits the lifespan of IP data packets on a network. Each time an IP data packet passes through a router, its TTL value decrements by 1 before the router forwards the packet. A router discards the packet when the TTL value reaches 0. A TTL of 1 restricts a packet to the same subnet on which it originates because no router will forward the packet.	
KEEP ALIVE	A message sent by one device to another to check that the link between the two is operating, or to prevent the link from being broken.	

SMTP	Simple Mail Transfer Protocol is the procedures for email transport on the Internet.		
SNMP	Simple Network Management Protocol collects information from and sends configuration commands out to network devices.		
SNTP	Simple Network Time Protocol enables IP network devices to obtain standardized time from a time server.		
TFTP	Trivial File Transfer Protocol is a subset of the FTP (file transfer protocol) used by network clients to issue requests to read or write to/from a file on an FTP server computer.		
CONFIGURATION	A named collection of settings that defines a station's behavior.		
NETWORK SOCKET	A network socket consists of the IP address and port number of a service running on a host (<i>server</i>) computer on a TCP/IP network. It is the endpoint address of the service used by hosts (<i>clients</i>) on the IP network to access the service. All IP network hosts use network sockets to route information between applications and services on client and server hosts.		
	used to maintain distributed directory info in an organized, easy-to-query manner. Data Structure Example: dc=exmple,dc=com cn=admin cn=group1 cn=user1 cn=user2 cn=application2 cn=role1 cn=user3 cn=role2 cn=user4 cn=role3 cn=user5 cn=role4 cn=user6 cn=role5 cn=user7		
	- cn=application3 - cn=application4 - cn=application5		
ALS	Use Ambient Level Sensing to monitor external speakers by sensing ambient noise levels to adjust speaker volume.		