

Green-GO Quick Users Guide



System description

The green-GO communication system is a network based digital intercom system, but can also be used for distributed audio and paging systems. Unlimited users* can talk to multiple groups and or direct users. Talking to a group can be compared to the analogue party-line / ring. A direct user talk is a private communication, with automatic / hands-free talk back as option. No central matrix or control unit is needed and scaling is as easy as connecting an extra unit to the network. Multiple program audio sources can be distributed. A program audio source will be sent to a group, and can be picked up by a device as a normal channel or special program channel. The program channel can drop the volume automatically when talk channels are active.

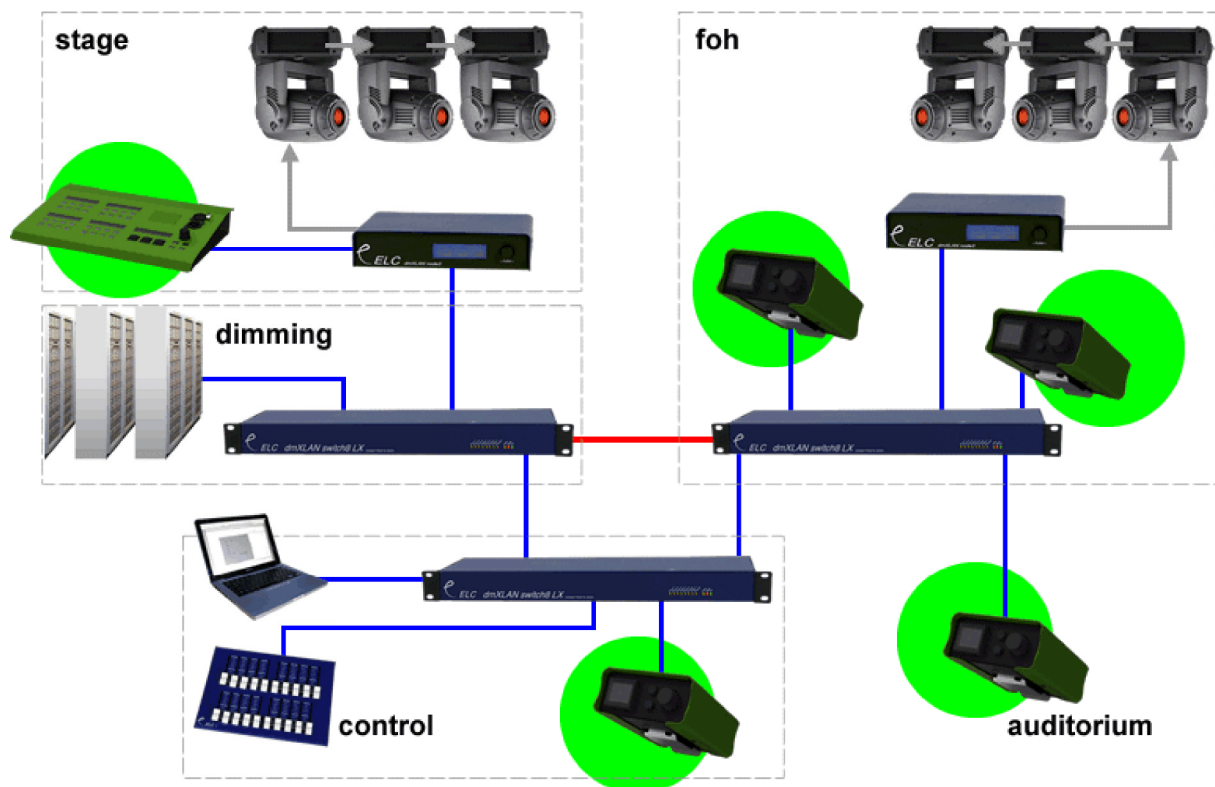
* At this moment the system is limited to 250 groups and 3000 users

Non-Audio communication

Because of the network based architecture of the system, it's easy to add extra communication separate from the audio. With this extra functions it's possible to send commands like Calling / Cueing with feedback, remote talk enable/disable and text's.

System devices

- 2 Channel Beltpack
- 2 Channel Wall Speaker Station
- Multi Channel station:
4/8/12/16/24 and 32 channel versions available
- Dual 4-wire interface (2x Audio In/Out and contact Closures In/Out)
- Dual 2-wire interface (ClearCom/ASL/RTS compatible)



2 Channel Beltpack

Connections

The Beltpack has 1 Ethernet 100MBit port, it requires PoE (Power over Ethernet), on Neutrik Ethercon. An XLR 4-pin male connector is used for the headset connection.

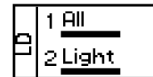
- Pinout:
 1: Mic Ground
 2: Mic Signal
 3: Speaker Out -
 4: Speaker Out +



Microphone can be dynamic or electret (software definable). The Speaker impedance can be 32 ohm and above.

Controls

On the front there is a multi color backlit display button, 2 direct channel buttons and 1 rotary encoder with push function. The display indicates the user assigned to the device and the assignment / status and mix volume of the 2 direct channels.



OPERATION

Talk

The 2 direct channel buttons are used to enable talk. These buttons work with both a momentary and toggle function. A short press will toggle, while a long press will work momentary. The push function of the rotary encoder is used for answering.



Pushing the encoder will enable to talk on the active channel(s). Active channels are channels with audio or Calling/Signalling received in the last 5 seconds, indicated by a rectangle around the channel.



Private Talk

A private conversation can be received from a different user. This will be indicated in the display. To answer press and hold the encoder.



Volume

The main function of the rotary encoder is to change the master volume. To change the mix volume of a direct channel, press and hold the channel button and rotate the encoder. Pressing the encoder will toggle the mix volume between mute and default.



Calling / Signalling

Pressing the display button will send a call alert to channel 1. Sending a call/signal to channel 2 will require press and hold the channel 2 button and the display button. Sending a call for more then 3 seconds will change the CALL into an ALERT.



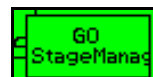
Received calls are displayed by a Red/Blue blinking display. When the CALL changes into an ALERT, then also the buzzer will go on (if enabled).

Cueing

A Multi-Channel station can send ATTENTION/HOLD/GO signal and request an acknowledge. When an Attention is received, the display will blink orange/blue and a ringtone will be heard in the headset.



To acknowledge the attention request, push on the display button. The ringtone will stop and the display will go to HOLD (Red back light). When the GO is sent, a short ring tone will go on the headset and the display goes Green, until the Multi-Channel station removes the GO status.



SETUP

Settings and Options

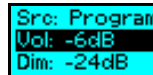
To enter the settings menu press and hold the rotary encoder and then press the display button. In the settings menu you have the option to change:



```
==Settings==
Exit
Program In
```

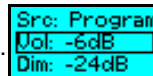
- Exit: return to normal operation
- Change program audio options
- Change channel assignments
- Change Microphone (auto gain / gain / gate threshold / sidetone)
- Options like Display (Flip / Brightness) and Buzzer (On/Off)
- Set User: load user settings from the configuration
- Clone Configuration: copy system settings from a different unit.
- Info like serial number and firmware version

In the sub menus select an item with the encoder and press to change the mode into edit mode.



```
Src: Program
Vol: -6dB
Dim: -24dB
```

In edit mode, the encoder is used to change the value. Press the encoder again to exit the edit mode and go back to selection mode.




```
Src: Program
Vol: -6dB
Dim: -24dB
```

Program Audio

Src → Select one of the groups as program audio source

Vol → Set normal volume for the program audio

Dim → Set the amount of volume level the program audio drops on other activities.



```
=Program In=
Exit
Src: Program
```

Channel Assignments (Channel 1 and 2)

Type → Set the channel to a Group (party line) or Direct User (private talk)

ID → Select the Group or User



```
=Channel 1=
Exit
Type: Group
```

Microphone

Set Default → Set all values to a known working setting

SideT → Set the sidetone (the amount of signal of your own microphone in your headset)

Auto → Set the auto gain function to Off/Slow/Med/Fast, can be used to regulate the maximum level of the microphone

MaxG / Gain → Maximum microphone gain in Auto / Gain in fixed

Thld → Threshold for the noise gate. Set this to a level that if you are not talking, the microphone is off.



```
=Microphone=
Exit
Set Default
```

Options

Displ Normal / Flip → in display flip, the display will be inverted. Used if the beltpack is upside-down

Displ Bright / Dim → in Dim, the back light will be dimmed

Buzzer On / Off → Set the call buzzer function



```
=Options==
Exit
Displ Normal
```

Set User

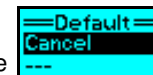
Select the user and load the settings for this user. Select Cancel to exit this menu without selecting an other user.



```
Cancel
1 StageManag
2 FOH
```

Clone Configuration

The top line will show the name of the current configuration. Cancel will exit this menu without changing anything. Next up to 4 other configurations found on the network will be shown and can be selected. The last option at the bottom of the list will be to load the Factory Default configuration file.



```
=Default=
Cancel
---
```

Multi Channel station

The multi-channel stations are available in 8, 16, 24 and 32 channel desks and a 12 channels rack-mount version.



Connections

Ethernet connections: Lan 1 and 2 with built-in 10/100MBit switch.

The unit can be powered via PoE (Power over Ethernet) via Lan port 2.

HeadSet: XLR 4 pin male. Pinout see the Beltpack above.

Line In: XLR 3 pin female (balanced).

Used for Program audio distribution or as Talk audio input

Line Out: XLR 3 pin male (impedance balanced). Used as audio group output for Program/Announcement audio or as, Main-Mix output (same audio as for the headset)

GPIO: Female SUBD 9 pin with 2 contact-closure inputs and 2 contact-closure outputs.

Functions to be defined in software

DC 12V input: to be used if no PoE is available.

Front Panel

On the front panel there is a XLR 3 pin female as Microphone input, with 10V phantom power. Next to the Microphone input there is a Speaker.

Controls

User interface control has 2 main areas: Channel and Control.

Channel Area

The channels are divided in groups of 4 channels. With 2 RGB backlit buttons per channel and 1 Display.

The display shows the mix level as a small bar on top and below the name of the assigned Group or User.



Channel Button Top Row

The top row of buttons are always used for Talk enable. The buttons have a toggle and momentary (push to talk) fashion. A short press will toggle the channel on/off, while a long press will be a momentary action. The button backlight will indicate the status.

Green: talk function enabled on the channel (microphone is on)

Orange: talk activity on the channel (somebody is talking on the channel)

Red blinking: CALL received

Channel Button Bottom Row

The bottom row of the channels has 3 functions depending on the operating mode. The operation mode can be set on the right side of the Control area.

Listen mode: select a channel to change the mix volume or to remotely disable a microphone.

Call mode: send a call to a channel (group or user). Hold longer to send an alert (buzzer).

Cue mode: send attention/hold/go to remote users.

Control Area

The control area has a display with 3 softkeys, 4 operating mode selection keys (Listen/Call/Cue/Setup) and an encoder with push function.

Encoder function

The main function of the encoder is the master volume. Push the encoder to mute the master. Mute is displayed by blinking the Listen button red. To set the volume back, turn the encoder.

Operation Modes

Push the mode buttons to change the operating mode

Listen Mode

In Listen mode you can change the Mix volume of the channels and also the Speaker/Headset/Program audio volume.

Softkey 1: Switch off all channel talks

Softkey 2: Switch on temporary channel talk on all active channels (Answer)

Softkey 3: Isolate function (led will indicate if on of off). If Isolate is on, when pushing a channel bottom button will mute all other channels.



To change a channel-mix volume press and hold the channel bottom button and turn the encoder.

Softkey 1: Mute selected channel mix

Softkey 2: Set channel-mix to default on

Softkey 3: Send microphone off signal to all users on the selected channel



Changing the Speaker / Headset / Program volume

Push the Listen button to enter the volume adjust menu. The Listen button will blink orange. Press and hold a softkey and turn the encoder to change the selected volume.

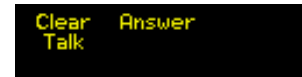


Call Mode

In call mode you can send a Call and Alert to Groups and Users using the bottom channel row.

Softkey 1: Switch off all channel talks

Softkey 2: Switch on temporary channel talk on all active channels (Answer)



Cue Mode

In cue mode it is possible to send attention/hold and go commands to remote users.

Pushing a bottom row channel button will force the channel (group or user) in to attention mode. Attention is indicated by Orange blinking channel button. The remote user will see the attention request on the display and hear a ringtone in the headset. When a remote user acknowledges the attention, the channel will go in to Hold. Hold is indicated by a red button.

Softkey 1: Send GO to all channels in ATTENTION and HOLD state

To send a go to a single channel press the bottom row channel button that is in attention or hold state.

Softkey 2: Talk enable on all channels in attention and hold state

Softkey 3: Press and hold and select the channels to cancel the cueing. Press softkey 1 to cancel all channels.



!!! Cue button will blink when not in Cue mode while 1 or more channels are in att/hold/go status.

SETUP

Setup Mode

In setup mode it's possible to change functions of the unit:

- Program Audio settings
- Channel Assignment
- Input: Microphone input selection and setup
- Line In: Set the function of the line input
- Line Out: Set the function of the Line output
- Buzzer On: set buzzer on/off
- Set backlight level to High/Med/Low.
- User: change the selected user
- Clone Config: change the system configuration
- Info: show serial number and firmware version.



Functionality of the submenu

A number on the right side of the display indicates multiple pages. Use the encoder to change page. Press and hold s softkey and turn the encoder to change the value above the softkey.

Program Audio

Channel → Select one of the groups as program audio source
Volume → Set normal volume for the program audio
Dim → Set the amount of volume level the program audio drops on other activity

```
Channel Volume Dim
Program -6dB -24dB
```

Channel Assignment

Channel → Select one of the 32 channels
(or push the channel button)
Mode → Set User or Group (ID show the number of the selected user or group)
xxxx → Channel assigned group or user

```
Channel Mode All
1 Group ID: 1
```

Input (microphone settings)

Input → Select the input source:
Headset (XLR4)
Mic (Front panel XLR3 female)
Line In (Rear panel XLR3 female)
Auto Gain → Set the auto gain function to Off/Slow/Med/Fast,
can be used to regulate the maximum level of the microphone
Max G / Gain → Maximum microphone gain in Auto / Gain in fixed
Threshold → Threshold for the noise gate. Can be set this to a level that if you are not talking,
the microphone is off.
SideTone → Set the sidetone (the amount signal of your own microphone in your headset)

```
Input AutoGain Gain
Headset Fixed 39dB 1
```

```
Threshold SideTone
off -0dB 2
```

Line In

Destination → Group to send the audio signal to.
--- will indicate the signal is not sent.
Auto Gain → Set the auto gain function to Off/Slow/Med/Fast,
can be used to regulate the maximum level of the input
Max G / Gain → Maximum gain in Auto / Gain in fixed
Threshold → Threshold for the noise gate. Set this to a level that if
there is no signal on the input, nothing is sent.

```
Destination AutoGain Gain
Program Fixed 0dB 1
```

```
Threshold
off 2
```

Line Out

Mode → Set the function of the output
Main Out: Output main mix (same signal as headset/speaker)
Channel: Output any group from the network
Channel → Select a group to output (example Announcement)
Volume → Set output volume

```
Mode - Volume
Main Out 0dB
```

```
Mode Channel Volume
Channel Announc -15dB
```

User

Select the user and load the settings for this user. Select Cancel to exit this menu without selecting a user.

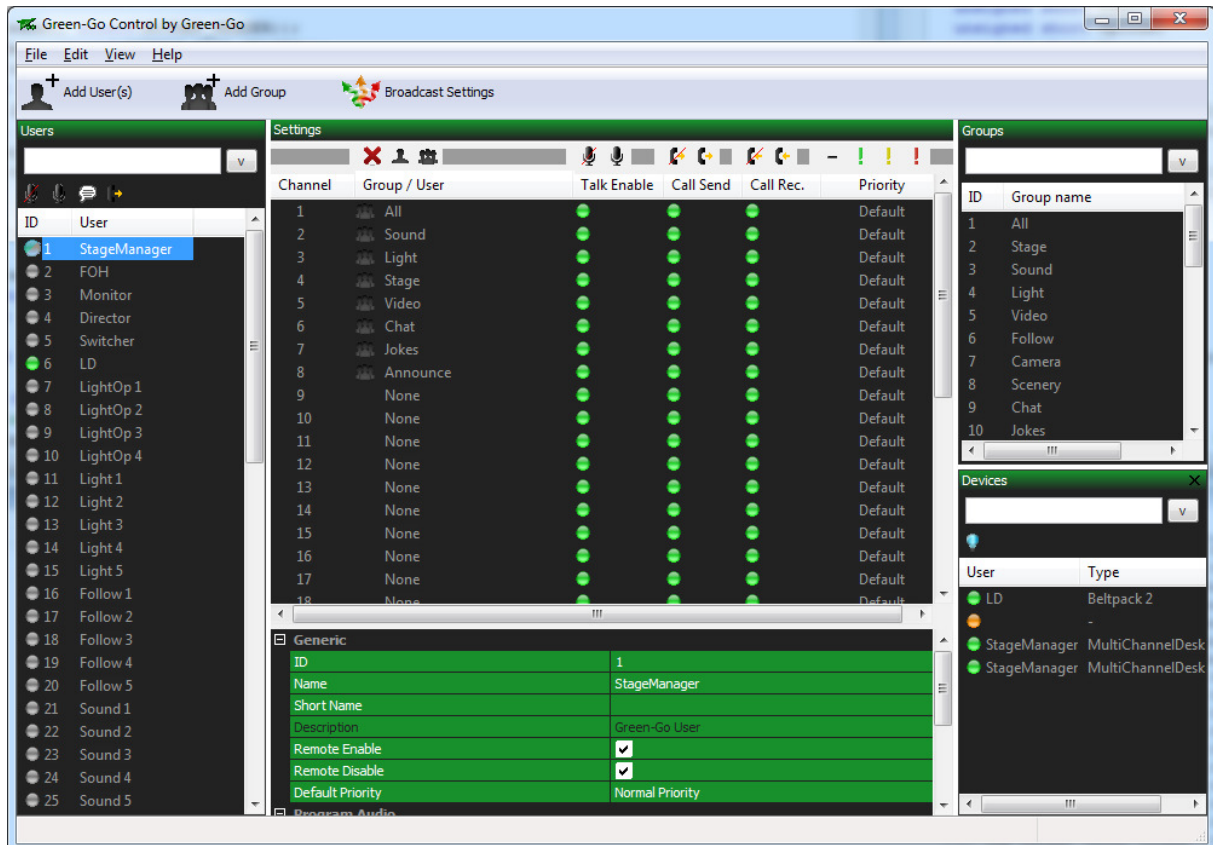
```
Cancel
1 StageManager
2 FOH
```

Clone Configuration

The top line will show the name of the current configuration.
Cancel will exit this menu without changing anything. Next up to 4 other configurations found on the network will be shown and can be selected.
The last option at the bottom of the list will be to load the Factory Default configuration file.

```
====Default====
Cancel
---
```


Configuration Software



The configuration software can be used to change the user settings/names/groups/channel assignments/security levels.

The software will be available for PC windows and Mac OSX.
Send a request to support@greengocom.com

A few notes on Network usage

Power over Ethernet and Crossover Cables

All units work on Power over Ethernet (PoE for short). Some units can also work with an external power supply (multi channel stations and interface units). PoE uses a sensing method to check if a connected device needs power and how many. It will only apply power when needed. PoE comes in 2 flavours: Either Power on the Data lines or on the Spare lines, green-GO products support both. There is also no need to worry about Crossover Cables as all devices support MDIX (automatic detection).

Bandwidth and Latency

The system audio by default runs at 16kHz sample frequency with 16-bit dynamic range. The network bandwidth used is determined by the number of active sources. An active source is for example a user with talk enable and actually speaking (gate functionality). Each active source uses about 340kBits/sec, less than 0.4% on a 100MBit network. The audio latency is fixed at 12milliseconds, comparable to standing 4 meters away from the person talking (no lip-sync problems).

Quality of Service (QoS) / Class of Service / IEEE 802.1p

Green-GO communication system is designed to work on a shared network. As the latency of green-GO is very low (12 milliseconds), there is a small requirement on the network switches used. The switches need to support Quality of Service (QoS) or IEEE 801.2p. Almost every professional switch supports this, but check the specifications.

Boot up time and Network indication

The boot up time of the devices is below 3 seconds. But care should be taken with some switches. Some switches will take up to 30 seconds to bring up the network link (can be caused by spanning tree functionality of the switches). Each green-GO device will indicate if the network connection is ok and that there are other green-GO devices "visible" with the same configuration. The beltpacks will have a blue backlight if there is a problem or no other devices, the multi channel device will blink the Setup button red.

IP addressing

The IP address is NOT needed for normal operation of the system. The handling of IP addresses is only needed if the green-GO devices need to communicate with a computer (only for loading new configuration / monitoring and firmware update). By default the units get a dynamic IP address via DHCP or LLC, a fixed ip address can be set in the setup menu.