TARA CONTROLS

AGC-5

UCI Random Start USER'S GUIDE

With Optional Warning Flashes for the Hearing Impaired

TARA CONTROLS by Cartessa Corporation

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1. Component Layout.

When used with the optional speaker modules, the AGC-5 gate controller is an all-in-one unit, complete with speakers and microphone. With a microprocessor controlling all functions, the unit is accurate, flexible and user friendly. The controller can be *factory wired* for either 115 VAC or 230 VAC.
See the **CONTROL LAYOUT** drawing at the end of this User's Guide for locations of all connectors:

AGC-5 Rear Panel

1, 17. Connectors for one or two external speakers. The connector is a standard 1/4 inch jack. The connectors can be used with the TARA Speaker Module or any other 4 or 8 ohm speaker with at least a **100W** power rating.

2 A main power switch. This switch controls power to the controller including the air gate output.

3, 15 Two threaded sockets (found on both sides). The sockets are used for the optional TARA Speaker Module. Use 8-32 screws to mount the speaker module or modules.

4. A 120 VAC, four-lamp light stand and Gate Outlet. The Mating Connector is a MS3106A14S-6P with a 97-3057-1007 Strain Relief. A = Red, B = 1st Yellow, C = 2nd Yellow, D = Green, E = Gate Output, F = Neutral.

5. A six-foot long power cable. The cable comes with a U.S. standard power plug.

6. A 120 VAC gate (air cylinder) outlet. The standard configuration provides the same signal at both outlets (GATE 1 and GATE 2) and will provide 120 VAC for the gate UP position and 0 VAC for the gate DOWN position. However, TARA can provide custom versions that will control GATE 1 and GATE 2 separately. Typically, this is used with independent up and down or Dual Cylinders.

7. A fuse protecting the 120 VAC gate output, as well as the 120 VAC light stand output. The maximum value is a 6 Amp slow blow. The fuse will protect the controller when a short circuit is present on either output.

8. A cable retainer. Use this for the power cable and the hand control cable.

9. A volume control. Use this control to set the desired audio volume.

10. Onyx Safety Gate Output. The Mating connector comes with the Onyx Safety Gate. For Dual Cylinder use a Mating Connector MS3106A14S-5P with D and E tied together must be used for Start Switch enable.

11. A 5 pin accessories connector. In the standard configuration, this connector will interface with the TARA timing system.

12. A 3 pin AMBit connector. This connector is used with the AMBit timing system.

13. A 5-pin connector for the removable hand control cable. **Do Not Remove and Reconnect the Hand Control with Power on as this may damage the unit.**

14, 16. Two 6 pin connectors for one or two 12 VDC TARA LED light stands. In addition to providing lamp signals, the connectors provide a speaker signal to each light stand. However, if the corresponding (A or B) speaker connector (1,17) is used, the speaker output connected to that light stand (A or B) is disabled.

AGC-5 Hand Control

18. A microphone activating switch. Use this switch to turn on the hand control microphone.
19. A gate reset switch. Use this switch to raise the air gate.
20. A hand control microphone. The microphone allows the AGC-5 to perform as a PA system.
21. A start switch. This switch will initiate the starting cadence.
22. Start Switch Active Indicator Light

AGC-5 Front View

23. "Gate Beeps" Switch turns Gate Raise Beeps on and off. Can be done without cycling Power.

2. Operation.

2.1. Initial Settings.

The AGC-5 controller has a few internal adjustments. To gain access to these controls, **unplug the power cable**, and then carefully remove the rear cover. If changes to the factory settings are necessary, a three position Dipswitch can be found in the middle of the printed circuit board (the board is mounted to the cover). On the three-position DIP switch, SW1 turns on or off the Gate Raise warning beeps. SW2 is used to turn on or off the gate warning lights for the hearing impaired riders. Switch SW3 controls the action of the air gate and should normally be in the OFF position. The **ON** Position is used for the Onyx Safety Gate or if a dual air cylinder gate is used. It will be necessary to tie Pins D and E together on the Safety Gate connector to activate the Start Switch for the Dual Cylinder Setup.
The transformer is factory wired for either 115 VAC or 230 VAC. **DO NOT ATTEMPT** to rewire the transformer without consulting the factory.

2.2 Field set up.

1. Position the AGC-5 where the operator has easy access and all connections can be made securely and safely. If possible, position the controller away from direct sunlight, particularly in hot weather.
2. Connect the AGC-5 power cable to a 115 or 230 VAC outlet (depending on the power line voltage of the AGC-5). **CAUTION:** The outlet must conform to local electric codes and regulations. The power cable is using a standard United States plug. An adapter may be necessary in some locations. In the power cord the black wire is line voltage (hot), the white wire is line voltage common (neutral, typically at the same potential as safety ground but carrying current) and the green wire is safety ground (connected to the metal enclosure of the AGC-5). The power switch should be in the off position.
3. Connect and position one or two light stands using either the 12 VDC LED only light stand outlets or the 120 VAC light stand outlet (depending on the type of light stand used). If the light stands are equipped with speakers, make sure that there are no connections made to the speaker connectors (If a connection is made to the SPEAKER-A connector, the speaker output of the bottom 12V LED LIGHTSTAND is disabled. If a connection is made to the SPEAKER-B connector, the speaker output of the top 12V LED LIGHTSTAND is disabled). If the TARA speaker modules (one or two) are used with the AGC-5, make sure that the speaker enclosure(s) has been properly mounted either to the back of the AGC-5 or the top of the light stand using 8-32 screws. After mounting the speaker enclosure(s) to the AGC-5, connect the enclosure cable to the appropriate speaker output jack (1, 17) on the rear of the AGC-5. If any other make of speaker(s) is used **(100 Watt minimum rating)**, position the speaker(s) and connect to one (or both) of the rear panel speaker jacks (1, 17).
4. Connect the air gate to one of the Gate outlets. (Or both if a special dual air cylinder setup is used. The Dual Cylinder can also be utilized off of the 120V Light Stand connector.) Or Connect the Onyx Safety Gate to the round “Safety Gate” connector. The dual AGC-5 Gate outlet is a standard United States 115 VAC power outlet. An adapter may be necessary in some locations. The round pin is safety ground (connected to the AGC-5 enclosure), the slightly wider flat blade is neutral (white wire and silver screws) and the slightly less wide flat blade is hot (black wire and gold screws). **CAUTION:** The wiring between the AGC-5 and the air gate must conform to local electric codes and regulations.
5. If the hand control was disconnected, make sure the power is off and connect the hand control cable to the connector (13) on the rear panel. Ensure that the twist lock is in the locked position.
6. If a timer is used, connect the timer to the appropriate connector (11 or 12) on the rear panel.

2.3 Operating the AGC-5.

1. Turn the power switch on.
2. If the gate is down, raise the gate by using the air gate reset switch (19). If using an up/down gate, it is sufficient to hold the switch for about one second. When an up only gate is used, maintain the switch until the gate is fully raised. (Also see section 2.1). **CAUTION:** Ensure that the gate is clear of riders before raising.
3. If necessary, use the microphone and microphone activation switch (18 and 20) to direct the riders to the gate.
4. Use the start switch (21) to activate the voice commands. Set the volume control for the best quality voice.
5. Use the start switch to start the riders. The first voice command is **"OK riders, random start"** followed by a delay. If the start button (21) is depressed during the delay, the cadence is paused until the button is released. This will allow the riders to stage before the final two phrases are played. The second voice command is **"Riders Ready"** followed by a short pause. The third voice command is **"Watch the Gate".** After a random pause the horn will beep and the light stand sequence of red-yellow-yellow-green is shown. When the green light is turned on the gate will drop. Before the start of the Light/horn sequence it is possible to reset the controller by using the start button a second time. A two-toned beep will sound if the Cadence is stopped during the first or second phrases. A silent stop will occur after the phrase **"Watch the Gate"** begins and is possible up until the first Light on the Light tree lights.
6. After the riders have departed, raise the gate for the next race.
7. Repeat steps 2 through 6.

2.4 Using external audio components.

Typically, the AGC-5 will be used with one or two TARA speaker modules, either mounted to the enclosure or the light stand. However, some users may wish to use third party speakers. These speakers are connected to the AGC-5 using ¼-inch plugs connected to the rear panel speaker jacks (1, 17). When the plug is inserted, the corresponding light stand speaker is turned off.
Any external speaker should have a minimum impedance rating of 4 ohms and should be rated at a minimum of 100W of power.
When selecting an external speaker, it is important to find a high sensitivity model, preferably with a 4-ohm impedance rating.

To obtain more power than what is available from the internal amplifiers, it is possible to connect an external amplifier using an optional factory installed PA Amp jack. When an external amplifier is used, the volume control (9) will control the audio level at the jack. Connecting the amplifier will not turn off the speaker

jacks. To turn off the speakers, disconnect the speaker cables either at the AGC-5 or the light stand.

3. Troubleshooting.

There are no user serviceable parts inside the AGC-5. Please consult the factory if you suspect internal problems.

Please note that replacement hand controls and AGC-5 printed circuit boards may be purchased separately from TARA controls.

The following list highlights some of the possible problems along with the appropriate corrective action:

1. *Loss of power in Lightstand output:* The four light (12VDC LED) light stand output is protected by a current-limiting circuit. If there is an overload on the output, the output will be turned off. This can occur if an incandescent Light is used or if there is a Short Circuit in the Light Stand wiring. Remove the light stand and check for short circuits. Incandescent 11 Watt 12V bulbs were discontinued around 2009 and are no longer supported in the AGC-5. The four lamp (120 V) light stand output is protected by a slow blow fuse (7). Check the fuse and if necessary replace with a 6A slow blow fuse.
2. *Malfunctioning up/down air gate:* If the air gate is not functioning properly, it is helpful to know if the problem is in the air gate or in the AGC-5. To diagnose the problem, connect a load that can easily be monitored to the Gate outlet (lamp or desk light etc.). Operate the gate reset switch and note that the load is turned on (please note that there is a short delay before the output is activated). Use the start switch and observe that the load is turned off on the green light. Ensure proper setting of SW3 (see section 2.1). If there is no output, check the Gate fuse (7). The fuse must be replaced with a 6A slow blow type.
3. *Poor sound quality on the voice:* If the voice is distorted, the volume control may be set too high. Turn the volume control counter-clockwise.
4. *Feedback when using the microphone:* If there is feedback when using the microphone, try to move away from the speakers. Use the microphone switch (18) only when talking.
5. *No Voice commands but the Lights Run:* If the voice commands do not play but the Lights run when the start button is pressed the unit must be sent in for repair. This emergency mode can be used for manual starts using the microphone for the voice commands so that you can continue to run races.

Specifications.

Power: Factory wired for 115 VAC or 230 VAC ±10%.

External speakers' output: 4 ohms minimum, 100W minimum.

Optional External PA amplifier output: 1 Vrms maximum, 10-kohm minimum

Gate output: 115 VAC or 230 VAC (same as power input).

Light Stand output:
1) 12 VDC LED Lamps only, 8 lamps maximum (two 4 lamp light stands).
2) 120 VAC, 250W/lamp, two four-lamp light stands 720W maximum.

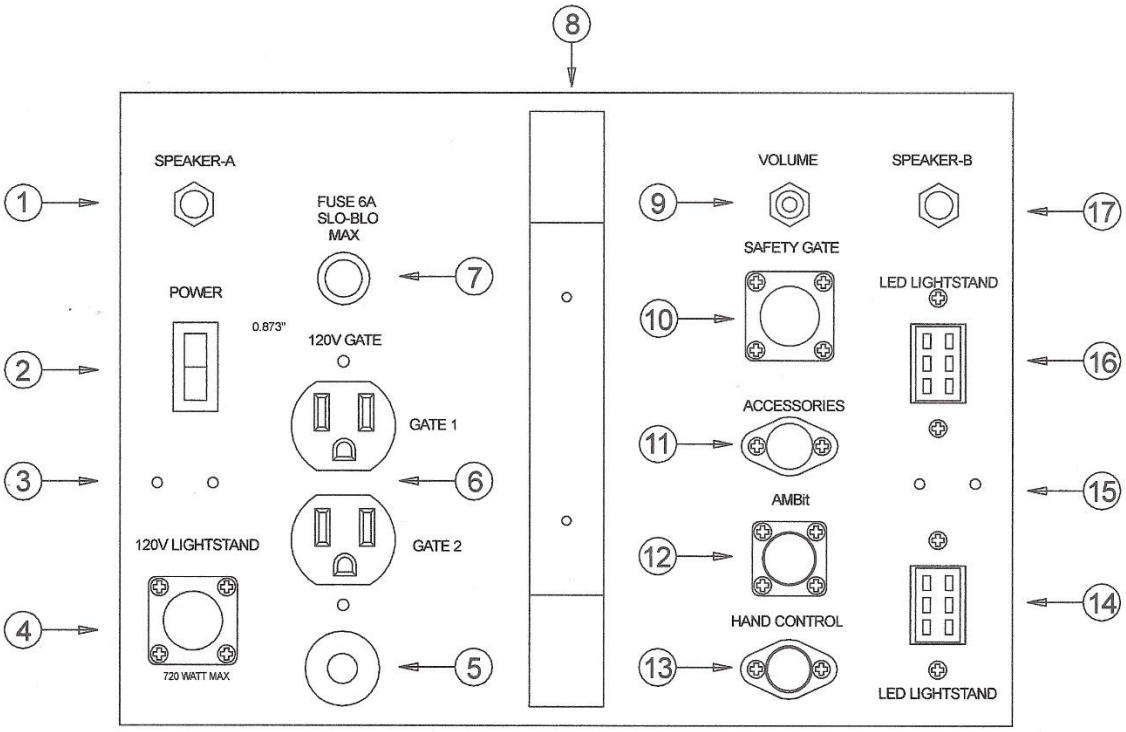
The AGC-5 controller has a built-in microphone for use by the starter. **It is not possible to connect an external microphone to the controller.**

Serial Number:

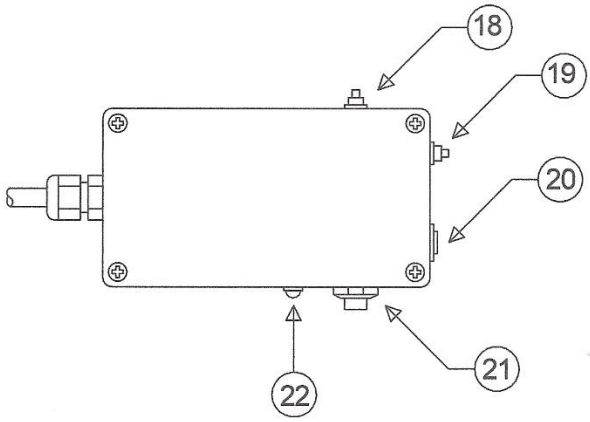
This AGC-5 belongs to:

Control Layout

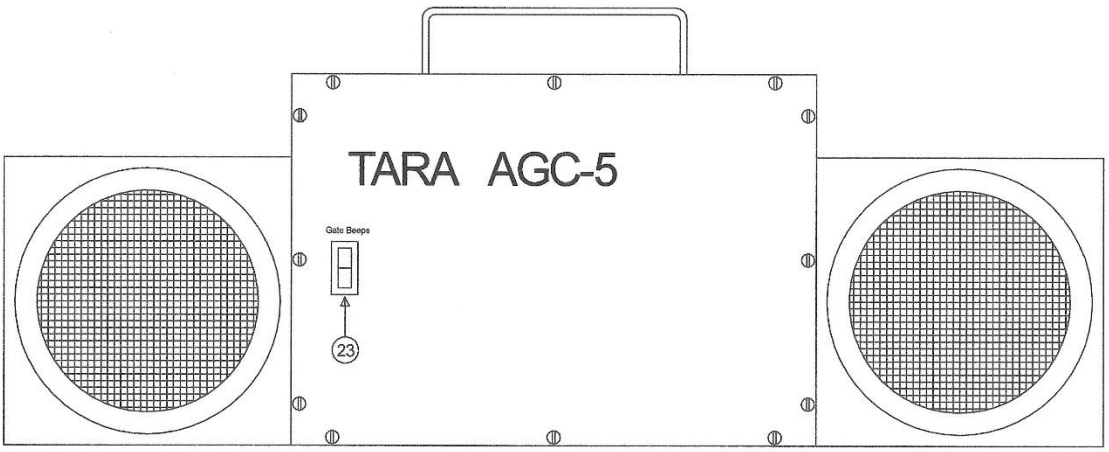
AGC-5 Rear Panel



AGC-5 HAND CONTROL

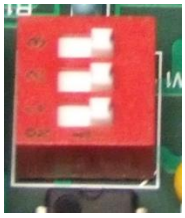


AGC-5 Front View



TARA AGC-5 Switch Settings

For versions: AGC5V1C and newer.



Switch on Circuit Board

You must cycle unit power (Off then On) for switch changes to take effect.

STANDARD FACTORY SWITCH SETTINGS	
DIP-SWITCHES	**FUNCTION**
SW1	
OFF	**Gate Raise Beeps Off**
ON	**Gate Raise Beeps On**
SW2	
OFF	**No Flashing Lights On Gate Warning Beeps**
ON	**Flashing Lights On Gate Warning Beeps**
SW3	
OFF	**Standard Air Cylinder**
ON	**Onyx Safety Gate Setting** **Or Momentary Pulse Dual Action Cylinders***

External Beep Switch only works if Dipswitch 1 is off.

* Note: The Momentary Pulse Dual Action Cylinder requires a jumper between Pins D and E on the circular Safety Gate Connector to activate Start Switch.