

# [AN001]



**ADVANCED**  
NETWORK DEVICES

## General Purpose Output Interface

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### Static Electric Warning



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Complete Support Site with User Guides & Help: <http://www.anetdsupport.com/>  
Additional App Notes: <http://www.anetdsupport.com/AppNotes>  
Customer Feedback Survey: <http://www.anetdsupport.com/survey>  
AND Legal Disclaimer: <http://www.anetd.com/legal>

## OVERVIEW

All AND devices (except the IPSCM and ZONEC) offer access to a general purpose output signal controlled by the device firmware (3.1V DC output / 20mA max).

## PHYSICAL INTERFACE

Build the following two-wire cable to establish a physical connection between an AND device and the output destination.

General Purpose Output Cable Build of Materials		
Manufacturer / Part #	Qty	Description
Molex 50-57-9002	1	Two-position .100" connector housing
Molex 16-02-1125	2	Gold finished female terminal connectors
Alpha Wire 1172C	1	22 AWG, 2 conductor, PVC insulated stranded wire, or similar

### 1. Cable Assembly

- Cut the appropriate length of cable (Alpha Wire 1172C) for the installation.
- Strip one end of the cable, and crimp a female terminal connector (Molex 16-02-1125) to each wire, using a Molex crimper # 64016-0201.
- Slide the two female connectors into the connector housing (Molex 50-57-9002). The connector will snap into place when inserted properly.
- Strip the other end of the cable as needed.

### 2. AND Device Connections

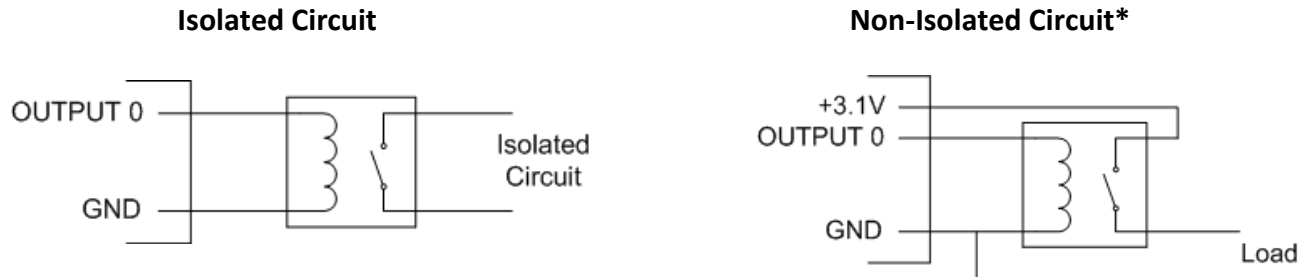
Plug the two-position .100" connector housing end of the cable onto pins 5 and 6 of the J13 header on the bottom edge of the square controller board in the device, as shown below. The black wire goes to pin 5 (ground), and the red wire to pin 6 (output 0, 3.1V).



**Connection to Controller Board**

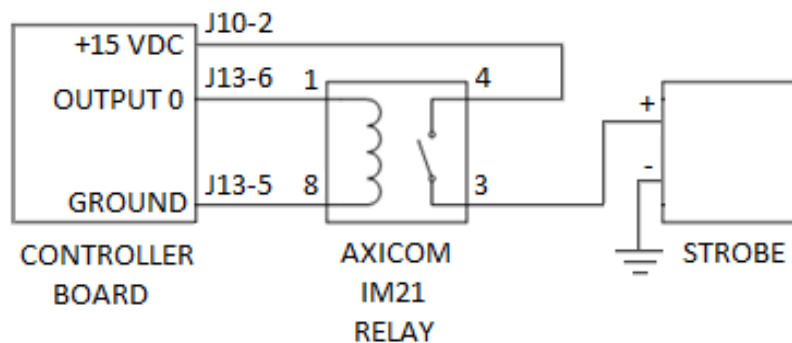
### 3. Output Destination

Connect the other end of the cable assembly to an external circuit as desired, examples shown below.



\*Pin 3 or pin 12 can provide the 3.1V shown in the non-isolated circuit

**External strobe example using a non-isolated circuit, with the Axicom IM21 3VDC relay:**



### 4. Testing

Power on the AND device, then open the device's web page. Configure the AND device:

When using the device's web server settings:

- a. Select **Device Settings** → **Priorities**.
- b. In the Message and Audio Priorities table, set *GPO 0* to "Yes" for the Med. High Priority (26-50) priority levels.
- c. Press *Save and Apply* button to save the settings.
- d. Reboot the device.

Home Device Status SIP Status **Device Settings**

General Audio Display Network SIP SIP2 Servers Firmware Peripherals Streams **Priorities** Scheduler XML

Save Priorities Changes

**Priority Option Settings** [help](#)

Parameter	Stored value	New Value
Low-Priority Ignore	Remote Only	Remote Only
Lowest Active Priority (1-99)	0	0

**Message and Audio Priorities** [help](#)

Priority	Color	Brightness	Flasher Blink Rate			Flasher	GPIO Output	
			Left	Middle	Right		Brightness	GPO0
High Priority (1-25) During Message:	Default	Default	fast	fast	fast	dim	No	No
During Gaps (When Message Not on Display):	N/A	N/A	off	off	off	bright		
Med. High Priority (26-50) During Message:	Default	Default	off	off	off	bright	Yes	No
During Gaps (When Message Not on Display):	N/A	N/A	off	off	off	bright		
Med. Low Priority (51-75) During Message:	Default	Default	off	off	off	bright	No	No
During Gaps (When Message Not on Display):	N/A	N/A	off	off	off	bright		
Low Priority (76-100) During Message:	Default	Default	off	off	off	bright	No	No
During Gaps (When Message Not on Display):	N/A	N/A	off	off	off	bright		

To set up message priorities in a configuration file, use the sample configuration file settings:

```
<Priorities>
  <action priority="26-50" gpio0="1" />
</Priorities>
```

Send audio or a text message to the device and verify the output is activated by viewing the GPIO status on the device's web page interface (select **Device Status** tab). The GPIO output line should read *Outputs: 01* when the text or audio is playing, and *Outputs: 00* otherwise.

DEVICE SETTINGS PARAMETERS		
Web Server Interface	Configuration File	Description
<b>Device Settings → General (Audio)</b>	<b>&lt;Microphone .../&gt;</b>	
Activate GPIO 0 During Microphone	<code>gpiox_when_active</code>	If "Yes", general purpose output (GPO) 0 will activate (go to 3.1V) while the microphone captures audio data.
<b>Device Settings → SIP (GPIO Output Control Settings)</b>	<b>&lt;SIPConfig .../&gt;</b>	
Keypad GPIO 0 'On' Password	<code>password_gpiox_on</code>	Specifies the number sequence used to activate GPIO output 0, when entered on a phone keypad during a SIP call (on supported phones).
Keypad GPIO 0 'Off' Password	<code>password_gpiox_off</code>	Specifies the number sequence used to deactivate GPIO output 0, when entered on a phone keypad during a SIP call (on supported phones).
Keypad GPIO 0 'Transient' Password	<code>password_gpiox_transient</code>	Specifies the number sequence used to activate GPIO output 0 for a set duration, defined by the <i>GPIO 0 Transient Time</i> , when entered on a phone keypad during a SIP call (on supported phones).
GPIO 0 Transient Time (ms)	<code>ms_gpiox_transient</code>	Specifies the duration of the GPIO 0 Transient activation, in milliseconds.
Activate GPIO 0 During Active Call	<code>gpiox_when_active_call</code>	If "Yes", GPO 0 will activate for the duration of a SIP call.
Activate GPIO 0 When Ringing	<code>gpiox_when_ringing</code>	If "Yes", GPO 0 will activate while a SIP call is ringing.
<b>Device Settings → Peripherals (GPIO Settings)</b>	<b>&lt;GPIO .../&gt;</b>	
Activate GPIO 0 During GPIO 0 Input	<code>gpiox_when_input_gpiox</code>	Set to "Yes" to activate output 0 when input 0 is active.
Activate GPIO 0 During GPIO 1 Input	<code>gpiox_when_input_gpiox</code>	Set to "Yes" to activate output 0 when input 1 is active.
GPIO 0 Output Description	<code>description_output_gpiox</code>	Text description to identify the general purpose output 0. A MIB browser can read the description, and the IPClockWise application can trigger an event based on a match of the description text when receiving a related trap.
GPIO 0 Output Inversion	<code>invert_output_gpiox</code>	Set to "Yes" to invert the reported logic of output 0. When the output is set "on" by the device firmware, the output will be "off", or inactive; when the output is set "off", the output will be "on", or active.
GPIO 0 Output Oscillation	<code>oscillate_output_gpiox</code>	Set to "Yes" to force output 0 to oscillate rapidly between the on and off states whenever output 0

		is set "on" by the device firmware. Useful to signal certain devices, such as the paging sensor input on Extron's PVS 305 switcher.
GPIO 0 Output Transitions Send SNMP Trap	<code>snmp_trap_for_output_gpiox</code>	Set to "Yes" to send a trap when output 0 transitions between off-to-on and on-to-off.
GPIO 0 Output On During Audio Message	<code>while_audio_output</code>	Set to "Yes" to activate output 0 when any audio stream is playing back on the device, regardless of the priority level of the stream.
GPIO 0 Output On During Display Message	<code>while_display_output</code>	Set to "Yes" to activate output 0 when any display message is playing back on the device, regardless of the priority level of the message.
GPIO 0 Peripheral Power (mW)	<code>peripheral_power_mw_output_gpiox</code>	Used with the AND-PIA peripheral board. Set the maximum power consumption, in milliwatts, of output 0. Choose this power budget level carefully to provide sufficient current to the external load, while allowing enough power for proper operation of the main device. For loads requiring more than 1500 mW, a PoE+ power source is recommended, as this can provide up to 12000 mW (12 W) to the external load.
Always-On Peripheral Power	<code>always_on_peripheral_power_mw</code>	Set the maximum power consumption, in milliwatts, of any additional powered devices that will need constant power, such as an IP camera. Choose this power budget level carefully to provide sufficient current to the external load, while allowing enough power for proper operation of the main device. For loads requiring more than 1500 mW, a PoE+ power source is recommended, as this can provide up to 12000 mW (12 W) to the external load.
<b>Device Settings → Priorities (Priority Options Settings)</b>	<code>&lt;Priorities &lt;action ... &lt;/Priorities&gt;</code>	
GPIO Output – GPO0	<code>GPI00</code>	If "Yes", GPO 0 will activate when the device receives an audio or text message within the specified priority level range. The output will remain active until the audio or message completes.
<b>Device Settings → Audio (Line-In Audio Settings)</b>	<code>&lt;LineIn .../&gt;</code>	
Line-In Activate GPIO 0 During Amplification	<code>gpio0_when_amp</code>	If "Yes", GPO 0 will activate when the line-in local speaker playback occurs - useful for activating a paging amplifier only on the occasion when receiving line-in audio.
Line-In Activate GPIO 0 When Line-In Active	<code>gpio0_when_active</code>	If "Yes", GPO 0 will activate during the line-in local speaker playback or re-broadcast.