



ADVANCED
NETWORK DEVICES

General Purpose Input

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Static Electric Warning



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AND GENERAL PURPOSE INPUT

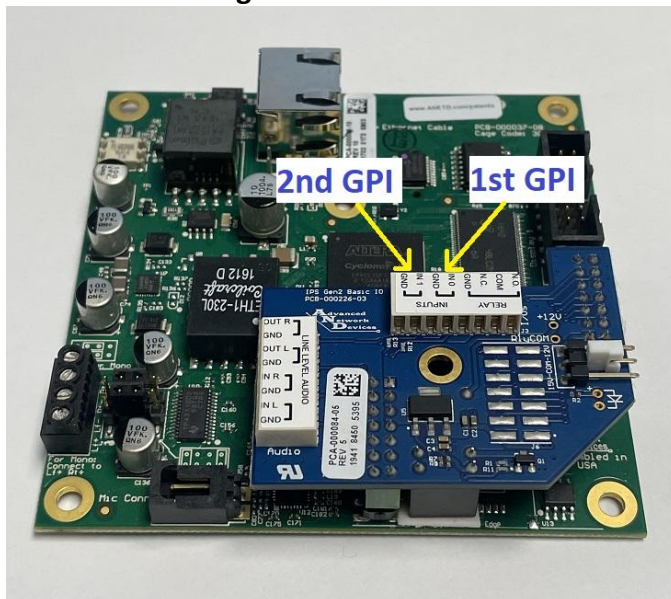
The majority of AND devices support two general purpose inputs (GPIs) for use with either the AND-BTN-KIT peripheral, or a generic two-wire contact closure. Newer board revisions also support a 6-pin RJ11 connection for use with the AND BTN-KIT-MIC-ND. These inputs can be used for a variety of actions, including but not limited to: placing/receiving/hanging up SIP calls, sending SNMP traps across the network, and triggering an HTTP callback.

GPI LOCATION BY BOARD PLATFORM

In order to activate the GPI on the device, each wire from the contact closure should connect to one contact of the two for each input. The location of these contacts is noted below.

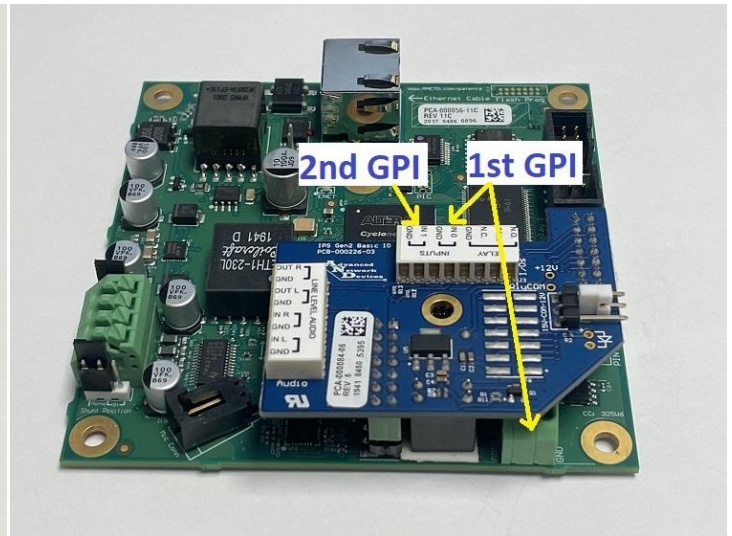
IPS21 FIRMWARE

MAC Address range 20:46:F9:03:00:00 - 05:2F:FF



1st and 2nd Input: Utilizes AND-PIA-2 peripheral interface card. Alternatively, refer to the J13 header wiring section of this document.

MAC Address range 20:46:F9:05:30:00 - 06:xx:xx



1st Input: 2 pin connector included on-board.

2nd Input: Utilizes AND-PIA-2 peripheral interface card. Alternatively, refer to the J13 header wiring section of this document.

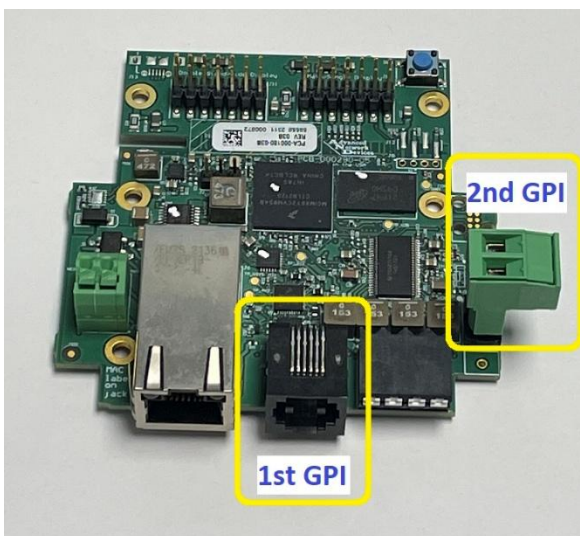
IPS30/IPS31 FIRMWARE

MAC Address range 20:46:F9:0A:xx:xx

Devices equipped with an RJ-11 input can use the BTN-KIT-MIC-ND button kit or third-party input per the RJ-11 pinout section of this document. These models do not support a second input.

IPS32 FIRMWARE

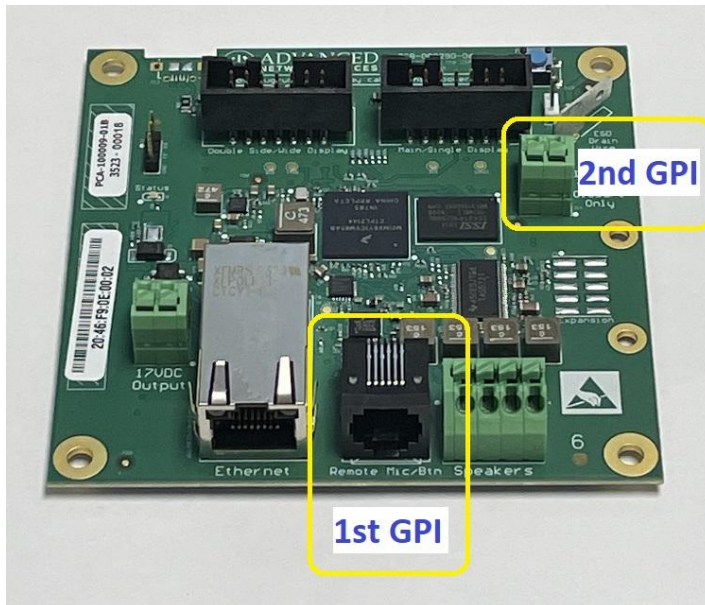
Display Models with MAC Address range 20:46:F9:0B:xx:xx



1st Input: RJ-11 6 pin input.

2nd Input: Utilizes 2 pin connector Phoenix Contact 1757019, sold separately.

Display Models with MAC Address range 20:46:F9:0C:xx:xx – 0E:xx:xx



1st Input: RJ-11 6 pin input.
2nd Input: 2 pin connector included on-board.

Non-Display IPS32 Models

Devices equipped with an RJ-11 input can use the BTN-KIT-MIC-ND button kit or third-party input per the RJ-11 pinout below. These models do not support a second input.

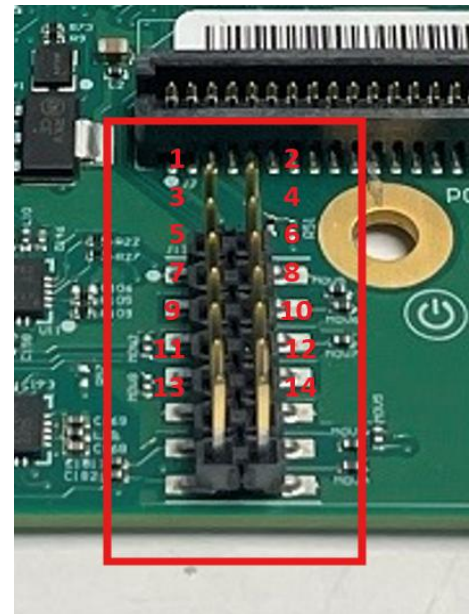
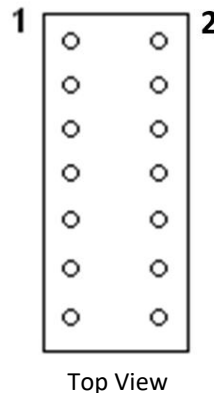
IPS40 FIRMWARE

The recommended GPI to use on IPS40 devices is the RJ-11 6-pin input. Boards supporting a second input will have a green 2 pin connector labeled GPI.

J13 HEADERS

Wiring List

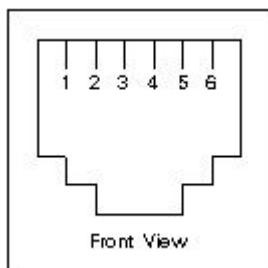
Pin	Signal	Connection
J13-1	GND	Button 0,1 Pin 1
J13-2	Input 0	Button 0 Pin 2
J13-3	+3.1V	N/C
J13-4	Input 1	Button 1 Pin 2
J13-5	GND	LED 0 Cathode
J13-6	Output 0	LED 0 Anode
J13-7	Line Out, left	Line Out Jack Pin 3
J13-8	Line Out, right	Line Out Jack Pin 2
J13-9	GND	Line Out Jack Pin 1
J13-10	GND	Line In Jack Pin 1
J13-11	Line In, left	Line In Jack Pin 2
J13-12	+3.1V	N/C
J13-13	Line In, right	Line In Jack Pin 3
J13-14	GND	LED 1 Cathode



To connect to GPIO, use pins 1 and 2.
To connect to GPI1, use pins 4 and 5.

RJ-11 PINOUT

Current pin-out for the RJ11 6-pin connector. To connect a generic contact closure, use pins 5 and 6.



pin	function
1	TDM FSYNC
2	+3.3V
3	PDM Microphone Data
4	PDM Microphone Clock
5	Ground
6	GPIO input (button input)

HTTP CALLBACK / NON-REGISTERED OPERATION

If the AND device is not registered with any servers, you can use the general purpose HTTP callback to generate actions based on an input change, such as a push button press.

1. Power up the AND device with the monitored input. (In this example, *10.10.3.4:8089* indicates the IP address and port of the server to receive the request. Note that *directory* and *file* are optional parameters.)

If configuring the device using the device's web page:

- a. Navigate to Device Settings → Servers.
- b. Set the *GPIO Callback URL* to *http://10.10.3.4:8089/directory/file*.
- c. Save the settings.

If configuring the device using a configuration file, add the following tag:

```
<GPIO_callback url="http://10.10.3.4:8089/directory/file" min_update_period_ms="250" />
```

2. Reboot the device.

In this example, when the input changes state, the device will execute an HTTP GET to 10.10.3.4, port 8089, of the following format:

```
GET /directory/file?address=2046f9010203&gpinutid=0&state=1&transitions=1
```

<i>address</i>	the MAC address of the device with the input state change
<i>gpinutid</i>	the input number that changed
<i>state</i>	the state of that input (either 0 or 1)
<i>transitions</i>	the total number of transitions for that input

CLOCKWISE CAMPUS GPIO CALLBACK EXAMPLE

1. Set the GPIO callback URL as described in the previous section. Set the Callback URL to `http://10.10.3.4:8089`, where 10.10.3.4 is the IP address of the machine running ClockWise. Note that ClockWise uses port 8089.
 - a. Alternatively, register the device to the ClockWise machine as a server (on the same page).
2. Create a notification in ClockWise by clicking “Add Notification” on the Notifications tab
 - a. In the top section labeled *When*, select *Trigger* and set the *Source* dropdown to *GPIO In*, then select the appropriate *Channel* (0 or 1), depending on the monitored input.
 - i. To trigger a Live Sound Intercom or Monitor request when triggering the input, select an *Extra Action*. For example, with the selection of *Intercom*, ClockWise will sound an alert in the Intercom Call Waiting tab of the Live Sound tab when pressing the button.
 - b. At the bottom of the window, next to *Listen for Trigger Source*, check the checkbox next to each device whose input will be monitored.
 - c. Configure the rest of the notification as desired, then save it.

SNMP USAGE

To utilize SNMP-based interactions based on an input, we can configure the device to send an SNMP trap on GPI state change.

If configuring your device through the web interface, navigate to Device Settings → Peripherals, then set “GPIO 0 (or 1) Transitions Send SNMP Trap” to “Yes.” Then, navigate to Device Settings → Network and set the values for “SNMP Read Community” and “SNMP Write Community” as desired.

If configuring your device with configuration files, use the following lines of configuration:

```
<GPIO
  snmp_trap_for_input_gpio0="1"
  snmp_trap_for_input_gpio1="1"
/>
<SNMP
  read_community="public"
  write_community="public"
>
```

Change the SNMP community names as desired.

With these settings configured, the device will begin sending traps when the monitored input state changes. To receive these traps, set up a server to listen for the following OIDs:

GPI 0: .1.3.6.1.4.1.39866.3.1.4.10.1.21.1

GPI 1: .1.3.6.1.4.1.39866.3.1.4.10.1.21.2

To listen for a closure, look for a value of 1. To listen for an opening, look for a value of 0.

AND DEVICE SIP OPERATION

See the related third-party supporting documentation for details on setting up an extension for the AND device. Otherwise, follow these procedures to configure the SIP server settings as follows.

If configuring the AND device via the web page:

1. Select Device Settings → SIP.
2. Set each of the following: Extension, SIP Server (IP), SIP Domain (if required by your phone service), SIP Digest Username, and SIP Password
3. In the *SIP GPIO Input Action Settings*, set the *Push-to-Talk 1* parameter to the extension or SIP ID of the phone or third-party device to call when pressing the button.
4. Save the settings, and reboot the device.

If configuring the device using a configuration file, add or modify the SIPConfig tag so that it contains all necessary information as shown below (in the order presented above), and reboot the device:

```
<SIPConfig
  id="1234"
  SIP_server_addr="10.10.20.30"
  SIP_domain="digidescorp.com"
  digest_username="username"
  password="password"
  push_to_talk_ip1="5678"
/>
```

A momentary press of the push button will dial the phone or device specified by the programmed extension number. If the phone or other device accepts the call, they will enter a two-way conversation. Press the button again to end the call.