AdvanGPIO™-200

User Guide

Version**: 1.0**

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Author: **Keonn Technologies S.L.**

Change Document record

Date	revision	Changes
21st June 2018	1.0	Initial version of the document

Products Covered by this Guide

This guide pertains to AdvanGPIO™ Series 200 that have the following part numbers:
AdvanGPIO-200.01

Before You Begin

Warning!

Please read this document in its entirety before operating AdvanGPIO, as equipment damage may result from improper use.

Electrostatic Discharge (ESD) sensitive device!

AdvanGPIO devices may be damaged due to ESD. Please follow the basic manipulation instructions in [Keonn Wiki site](#) avoid ESD problems.

Extreme caution must be taken at any danger sign found

Additional caution must be taken at any warn sign found

Informative note

Disposal of the product

Do not dispose the product in municipal or household waste. Please check your local regulations for disposal/recycle of electronic products.

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Captures

Tables

1- Introduction

1.1- About this guide

This guide describes the installation and operation of AdvanGPIO-200.

This guide does not intend to cover any introduction to RFID nor to cover the installation and set up of RFID readers.

1.2- Intended audience

Intended readers of this guide are systems engineers and IT staff with basic understanding of RFID and RFID systems management.

This guide assumes audience are familiar with RFID readers and in particular they are familiar with the set up and operation of the GPIO capabilities of the specific RFID reader that will be connected to AdvanGPIO.

1.3- General information

AdvanGPIO™ is an adaptor board to connect Keonn readers and systems to Tower stacks / Signal towers.

AdvanGPIO™ must be fed with:

- Input data: up to 4 digital input lines from AdvanReader Series 60, AdvanReader Series 150 or derived systems
- Output data: up to 4 digital output lines to be connected to Tower stacks containing lights and or sounders.
- Power:
  - External power supply by using a DC jack connector.

1.4- What is not AdvanGPIO™?

AdvanGPIO™ is not an RF component as it does not handle RF signals in any way.

1.5- Specifications

Specifications Table	
Inputs	Data IN connector • RJ45 connector • 4 x GPI lines • To be connected only to AdvanReader or derived AdvanReader systems ADMX connectors. • See appendix I for connector pin-out.

Outputs	Data OUT connector
	
	• RJ45 connector
	• 4 x GPO lines to drive 4 sounders / lights
	    ◦ Output current for GPO line is limited to 500 mA
	    ◦ Output current is limited to 750 mA overall
	• To be used to drive Alarm Boxes / Signaling Tower systems
	• See appendix II for connector pin-out.

Power supply	24 V in connector: sealed power jack for 9 - 24 V in. • Compatible with SWITCHCRAFT L712RA jack connector. • Maximum rating is 30 V.
Current consumption	< 31 mA *Internal consumption without adding the Alarm Box consumption*
LED indicarors	4 x SMD LED indicators for the status (high/low) of the input lines.
Power on indicator	White SMD LED
Weight	115 g (4.1 oz)
Dimensions	85 mm x 73.5 mm x 27.3 mm (3.35 in x 2.90 in x 1.07 in)
Operating temperature	-40 °C to 55 °C (-40 °F to 131 °F)
Storage temperature	-40 °C to 55 °C (-40 °F to 131 °F)
EU Directives	RoHS compliant (2002/95/EC) EMC (2004/108/EC)

Table 1: AdvanGPIO-200 Specifications
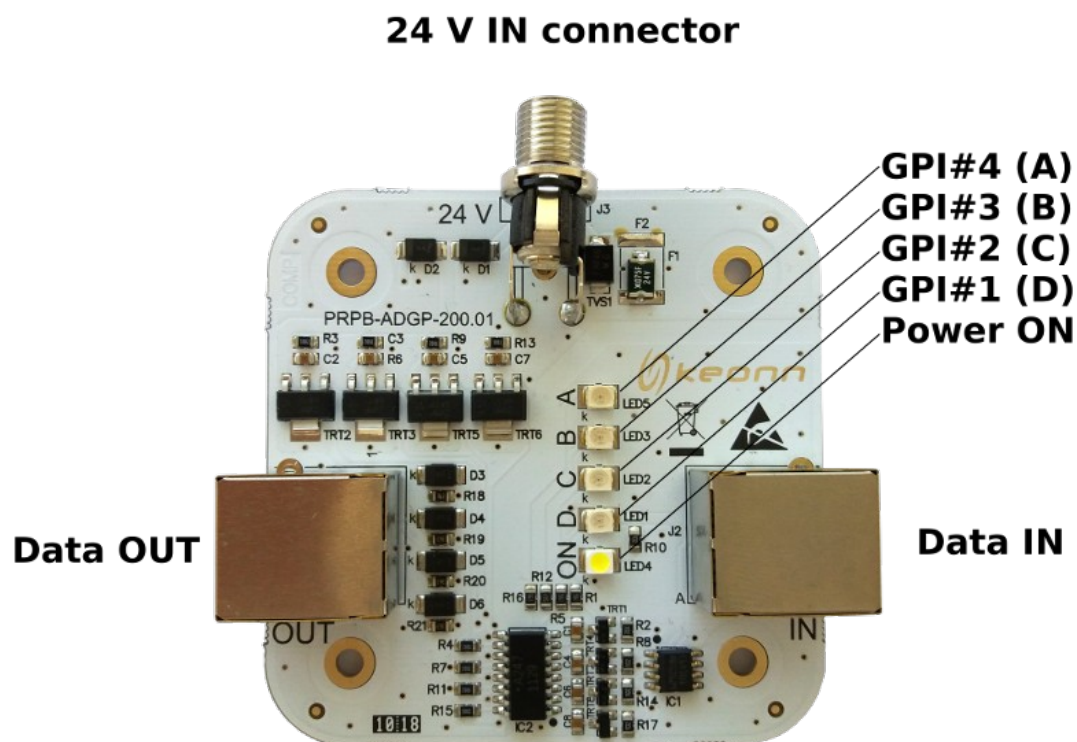
2- Hardware overview

Capture 1: AdvanGPIO-200 (front view)

Capture 2: AdvanGPIO-200 (top view)

2.1- Ports and connectors

AdvanGPIO-200 overview

Capture 3: AdvanGPIO-200 ports

Detailed description of each connector and port can be found on the tables below.

Connector	Type and direction	Description
Data IN	RJ45 (input)	Used to provide control data from AdvanReader Series 60, AdvanReader Series 150 ADMX connectors. Also derived systems from the above readers can be used to supply control data.
24 V IN	Sealed DC jack (input)	Used as a power source for the Tower stack to be controlled. • Compatible with SWITCHCRAFT L712RA jack connector. • Maximum rating is 30 V.

Data OUT   RJ45 (ioutput)   Used to feed both data and power to the tower stack to be controlled.

Table 2: Connector description

LED	Description
Power ON LED	Power status. LED is on when AdvanGPIO™ is connected successfully to AdvanReader Series 60, AdvanReader Series 150 ADMX connectors. The power ON LED does not take into account whether the 24 V In connector is active.
GPI #1 (D)	Red LED that shows the status of the GPI-0 line
GPI #2 (C)	Red LED that shows the status of the GPI-1 line
GPI #3 (B)	Red LED that shows the status of the GPI-2 line
GPI #4 (A)	Red LED that shows the status of the GPI-3 line

Table 3: Status LED

2.2- Hardware options

The hardware allows for a special configuration:

- Regular set up: S1 soldered, S2 unsoldered
- 3 GPO option: S1 unsoldered, S2 soldered.
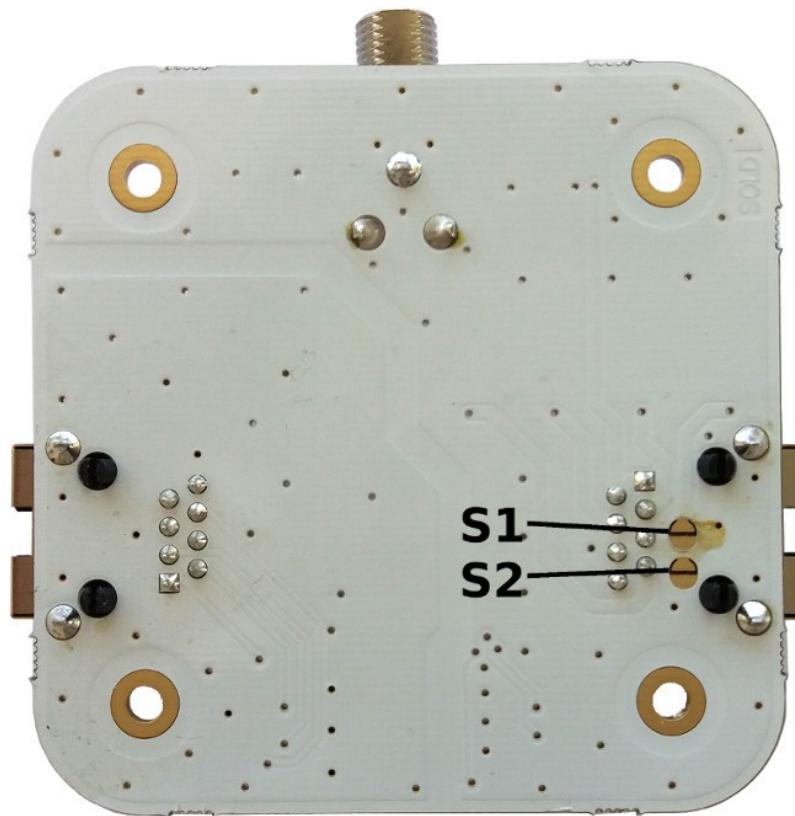
Capture 4: AdvanGPIO-200 HW options
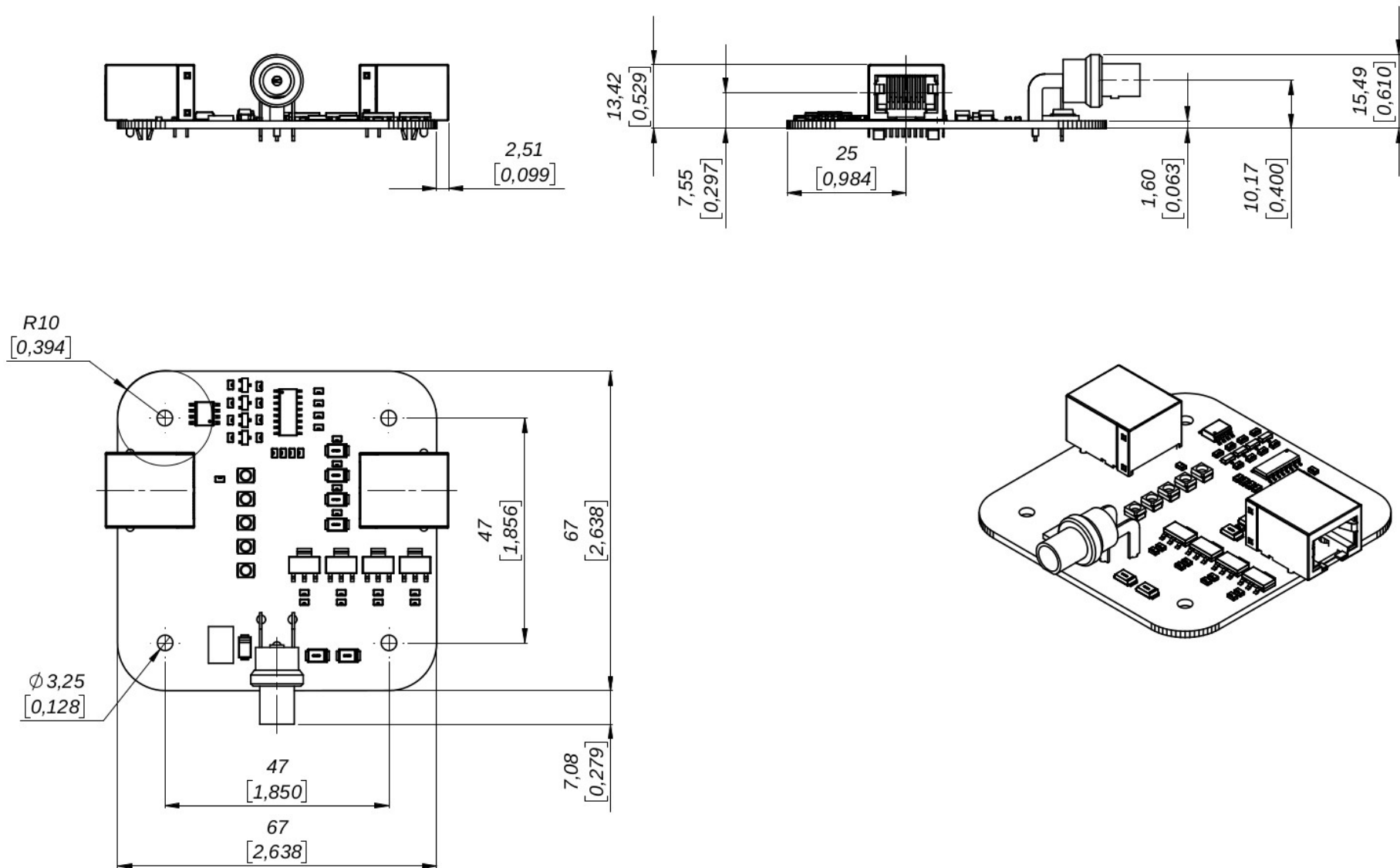
2.2.1- Regular set up

The standard set up provides the features just described in the previous chapters.
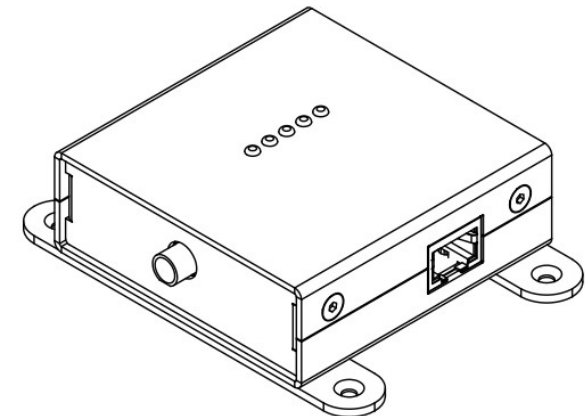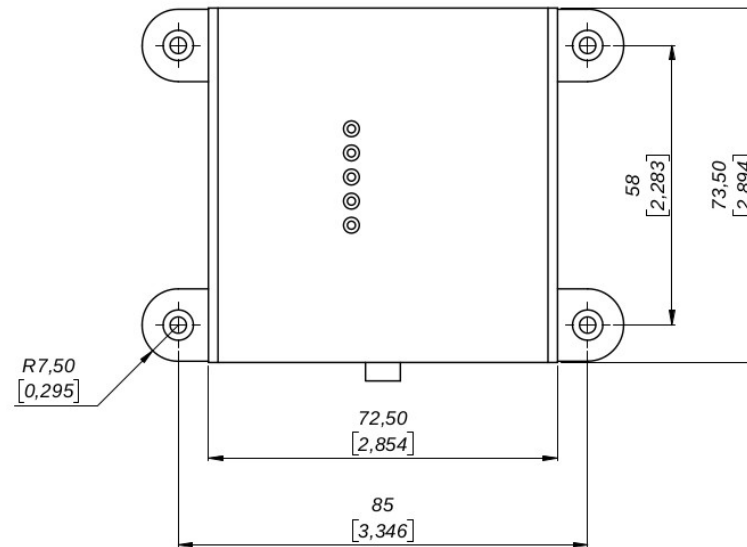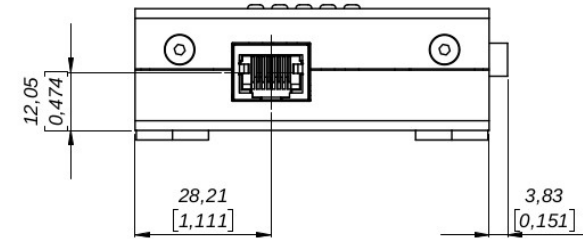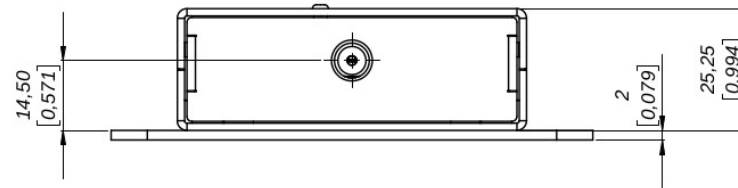
2.2.2- 3 GPO set up

The 3 GPO set up provides a slight modification of the features.

- The output line GPO-0 is grounded.

2.3- Mechanical specifications

Drawing 1: AdvanGPIO-200 Mechanical Specification. All sizes in mm

Dimensions shown:

- 2,51 [0,099]
- 13,42 [0,529]
- 7,55 [0,297]
- 25 [0,984]
- 1,60 [0,063]
- 10,17 [0,400]
- 15,49 [0,610]
- R10 [0,394]
- 47 [1,856]
- 67 [2,638]
- Ø 3,25 [0,128]
- 47 [1,850]
- 67 [2,638]
- 7,08 [0,279]
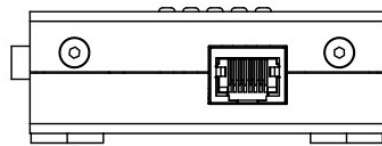
Drawing 2: AdvanGPIO-200 (case) Mechanical Specification. All sizes in mm (inches)

3- Installation
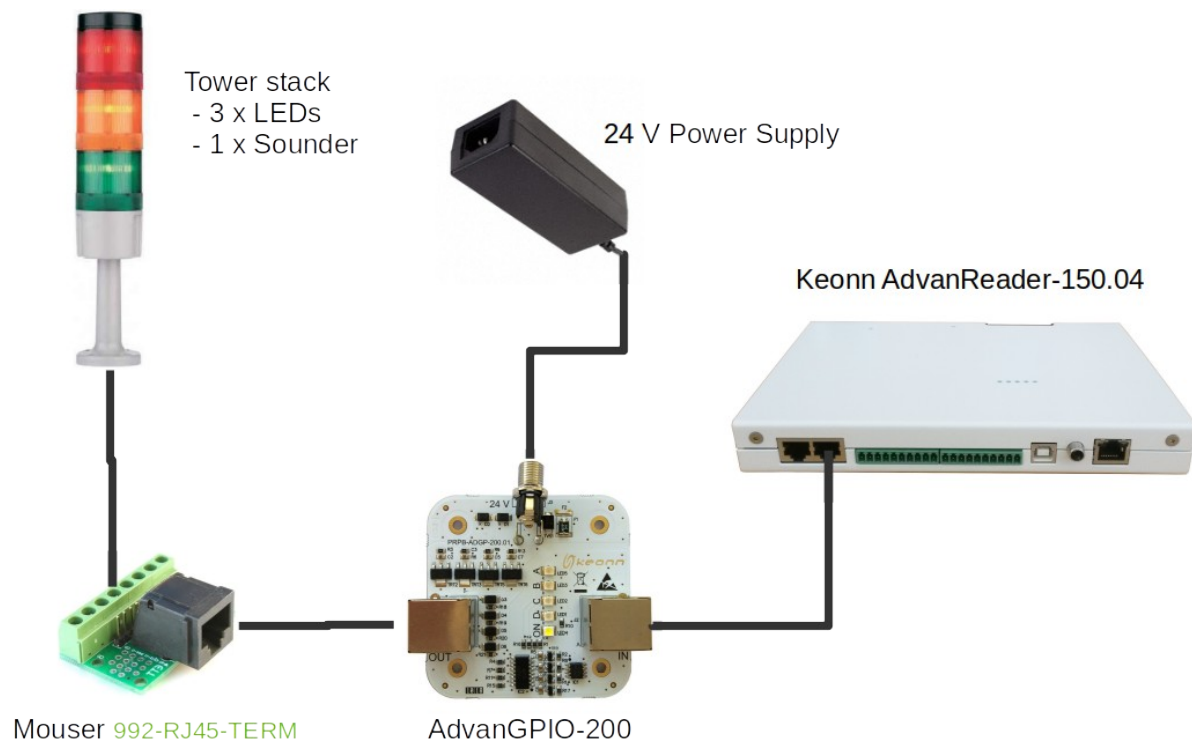
3.1- Connecting AdvanGPIO-200™

This chapter details the installation steps to connect AdvanGPIO-200™ to a Keonn RFID reader and to an Tower stack device.
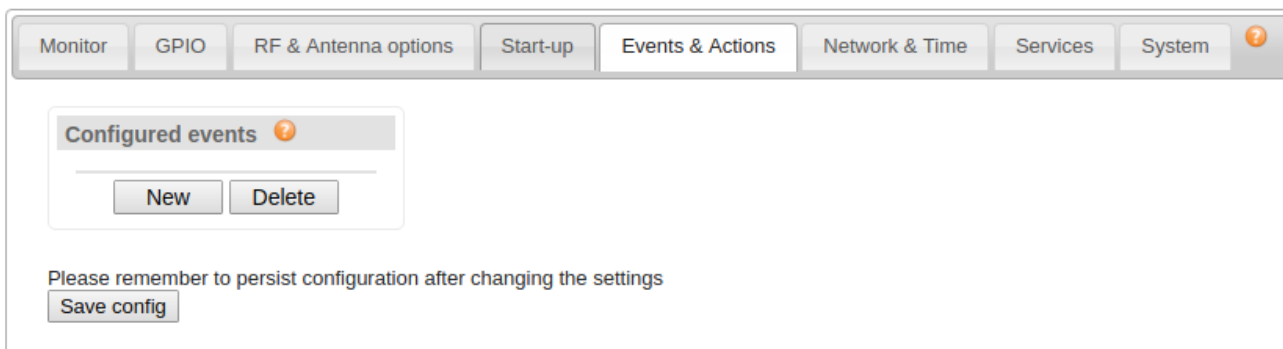

Tower stack
- 3 x LEDs
- 1 x Sounder

24 V Power Supply

Keonn AdvanReader-150.04

Mouser 992-RJ45-TERM

AdvanGPIO-200

Capture 5: AdvanGPIO-200™ set up

4- Operation

4.1- AdvanNet configuration

AdvanNet must be configured to properly trigger events to the AdvanGPIO-200 box.

The triggering of events to AdvanGPIO-200 is done using the *Events & Actions* tab.

Capture 6: Events & Actions tab

4.1.1- Event configuration

AdvanReader and derived systems have ADMX1 and ADMX2[1]

In case ADMX1 is used, the GPO lines to be configured are:

- GPO#1
- GPO#2
- GPO#3
- GPO#4

In case ADMX2 is used, the GPO lines to be configured are:

- GPO#5
- GPO#6
- GPO#7

1 *ADMX2 is only available in AdvanReader.m4.150.03, AdvanReader-m4-150.04 and derived systems*

- GPO#8

In case we needed to link TAG_READ events to Tower stack control line #1, we would do a configuration like

Capture 7: GPO1 configuration

An explanation for the settings is as follows:

- Trigger: the internal reader event that will trigger the action on the GPO lines

- Action: in order to control the Tower stack we will always use the GPO_ACTION

- Line: GPO line we want to control:

  - When using ADMX1: GPO1, GPO2, GPO3, GPO4

  - When using ADMX2: GPO5, GPO6, GPO7, GPO8

- On time (ms): time the GPO line will be in high state

- Off time (ms): time the GPO line will be in low state. When using Tower stacks the off time should be 0.

- Total time (ms): total time of the GPO event. When using Tower stacks the *Total time* should be equals to the *On Time*.

Appendix I. Connectors pin-out
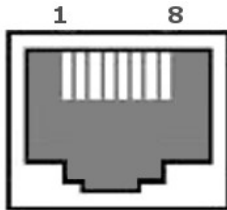
IN connector pin-out

RJ45 connector pin-out.
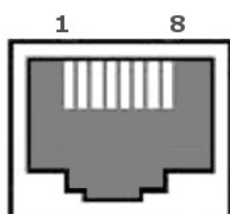
Reader connector: RJ45 female control connector pin-out.

Pin	Name	Value
1	GPI-0	Bit #0 from RFID reader output
2	GPI-1	Bit #1 from RFID reader output
3	GPI-2	Bit #2 from RFID reader output
4	VCC-1	Reader Vcc (+5 V)
5	VCC-2	Reader Vcc (+5 V)
6	GPI-3	Bit #3 from RFID reader output
7	GND-1	GND
8	GND-2	GND

Table 4: IN connector pin-out

OUT connector pin-out

RJ45 connector pin-out.[2]

AdvanMux connector: RJ45 female control connector pin-out.

Pin	Name	Value
1	Vcc-1	Vin
2	Vcc-2	Vin
3	GPO-0	0 – Vin (depending on the value of Bit #0)
4	GPO-2	0 – Vin (depending on the value of Bit #2)
5	GPO-1	0 – Vin (depending on the value of Bit #1)
6	GND-1	GND
7	GPO-3	0 – Vin (depending on the value of Bit #3)
8	GND-2	GND

Table 5: OUT connector pin-out

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2 *GPO-0 can optionally be grounded (3 GPO option)*