AdvanGPIO™

Connection board for connecting Keonn products to RFID readers

Benefits:

- Very fast and easy connection
- Makes it very easy to control Keonn multiplexers and phase shifters by RFID readers
- Compatible with most reader models
- Wide input voltage range

Applications:

- RFID systems that require more than 4 antennas connected to the same reader
- RFID systems that require to control electronically the orientation of the antenna beam
- Smart shelves
- Smart surfaces
- Loss prevention systems
- Overhead real-time inventory systems

Product overview

AdvanGPIO is a connection board that makes it very easy to control some Keonn products through the GPIO (General Purpose Input Output) of many RFID UHF reader models.

AdvanGPIO allows to connect the following Keonn products:

- AdvanMux-4 (four port RFID multiplexer)
- AdvanMux-8 (eight port RFID multiplexer)
- AdvanMux-12 (twelve port RFID multiplexer)
- AdvanMux-16 (sixteen port RFID multiplexer)
- AdvanPhaser-2:4 (RFID phase shifter)

to RFID readers of vendors like Impinj, Motorola, Sirit , Alien and ThingMagic

In this way, the above mentioned Keonn products can be easily controlled by sending simple commands to the reader, without the need of developing software libraries.

In general, AdvanGPIO is used in the following situations:

- When there is not a Keonn adaptor cable available to connect AdvanMux and AdvanPhaser directly to the reader GPIO
- When the GPIO of the RFID reader does not provide power supply
- When the GPIO of the RFID reader provides power supply, but it's less than 5V
- When the RFID reader output voltage is higher or equal to 5V, but the number of AdvanMux or AdvanPhaser connected in daisy-chain exceeds 4 units.
- When the overall consumption of all AdvanMux or AdvanPhaser units connected to the same reader exceeds the output power of that reader's GPIO
- When the RFID reader GPO electronics is not compatible with AdvanMux and AdvanPhaser
- When it is needed to adapt electronic levels between the RFID reader GPIO and AdvanMux / AdvanPhaser.

Note: See the compatibility tables in AdvanMux User Guide.

For those reader models that do not have a 5V output signal at their GPIO, AdvanGPIO is connected to a power supply or to a Power Over Ethernet injector with a power output ranging from 7 V up to 48 V.

AdvanGPIO has a very low current consumption and can be powered through different standard connectors:

- RJ45
- 6 way IN plug
- Receptacle power

Power over Ethernet and receptacle power inputs accept either polarity, and the 6 way IN plug is protected against reverse polarity.

The control signals coming out of the GPIO of the RFID reader are connected directly to the 6 way IN plug connector very quickly and easily by using a screwdriver.

The wide input voltage power supply and the different connectors of AdvanGPIO provide a very high flexibility, with up to six different connection configurations:

Control bits from	Power supply from
RJ45 Reader connector	RJ45 PoE
	Receptacle power
	6 way IN plug
6 way IN plug	RJ45 PoE
	Receptacle power
	6 way IN plug

A white LED diode indicates that AdvanGPIO is correctly powered.

AdvanGPIO ™

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Specifications

Connectors	Data input connectors: • Reader connector – RJ45 connectorSee appendix I for connector pin-out. • IN connector: 6-way terminal block connector (compatible with Phoenix Contact MC 1,5/6-G-3,81, the male companion Phoenix Contact is provided with AdvanGPIO™). Data output connectors: • AdvanMux connector: RJ45 connector for direct connection to AdvanMux through standard Ethernet 8-wire UTP cables. Power input connectors: • PoE connector: RJ45 connector. • 24 V in connector: sealed power jack for 24 V in. Compatible with SWITCHCRAFT L712RA jack connector.
Power supply	• PoE: PoE connector supports 802.3af (802.3at type I)1 compliant PoE devices. • External power supply: 24 V in connector accepts 9 V to 24 V in either polarity. Maximum rating is 30 V. • RFID reader: GND pin 6. Vcc pin 5. Accepts from 7 V to 24 V. Reverse polarity protected
'Reader' connector	4 input RJ45 connector (Table 1)
'IN' connector	4 input plug connector (Table 2)
Current consumption	< 15 mA @ 48 V (through PoE) < 3.5 mA @ Vin = 9 V (through receptacle or plug connectors) < 4 mA @ Vin = 12 V (through receptacle or plug connectors) < 4.5 mA @ Vin = 15 V (through receptacle or plug connectors) < 6 mA @ Vin = 24 V (through receptacle or plug connectors)
Digital inputs	0 V/5 V TTL or open collector Note 1: B0..B3 are provided with 2.2 kohm pull-up resistors Note 2: Reader outputs must sink 2 mA (maximum) Note 3: 3.3 V readers must be 5 V tolerant
Compatibility with RFID UHF readers	Impinj, Motorola, Sirit , Alien, ThingMagic See User's guide for more detailed information about specific reader models
Control connection to AdvanMux-8, AdvanMux-16 and AdvanPhaser-2:4	Through standard Ethernet 8-wire UTP cables
Power on indicator	White SMD LED
Weight	35 g
Outline dimensions	67 mm x 67 mm x 18 mm (2.6 inches x 2.6 inches x 0.7 inches)
Operating temperature	-40 °C to 55 °C
Storage temperature	-40 °C to 85 °C
EU Directives	RoHS compliant (2002/95/EC), EMC (2004/108/EC)

RJ45 Reader connector

RJ45 pin number	AdvanGPIO™ signal
1	B0
2	B1
3	B2
4	Vcc
5	Vcc
6	B3
7	GND
8	GND

Table 1

Plug IN connector

Plug pin number	AdvanGPIO™ signal
1	B0
2	B1
3	B2
4	B3
5	Vcc
6	GND

Table 2

AdvanGPIO ™

Connection board for connecting Keonn products to RFID readers

Product codes for ordering

ADGP	-	mmm	
			Model
		110	Model number

Examples:

- **ADGP-110:**
  - AdvanGPIO
  - Model **110**

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