

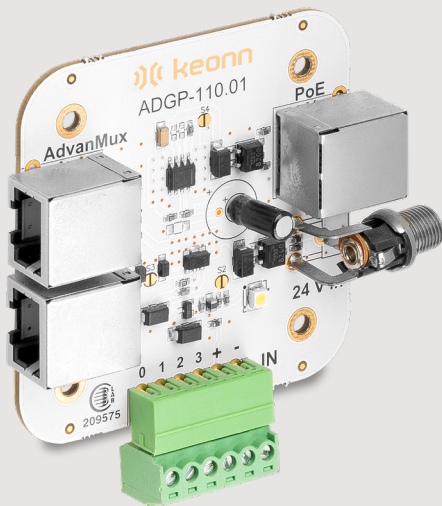


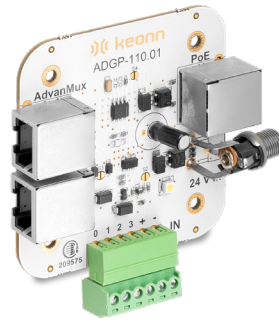
keonn

Modular RFID
Components

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 GPIO 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:

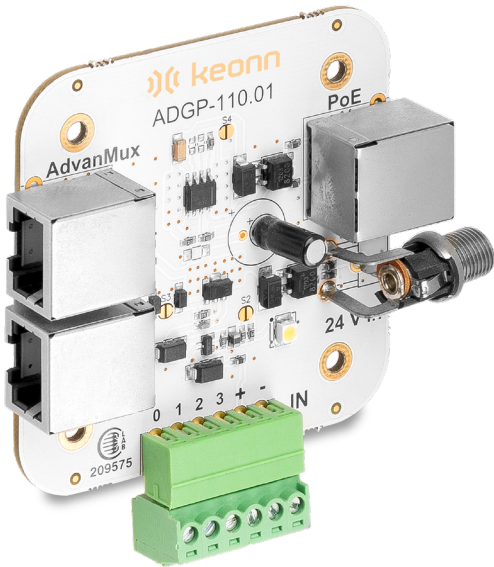
- RJ45
- 6 way IN plug
- Receptacle power



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:



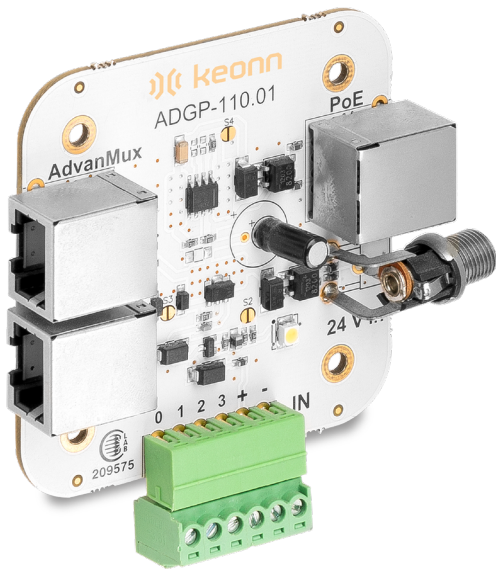
| Control bits from | Power supply from |
|-----------------------|-------------------|
| RJ45 Reader connector | RJ45 PoE |
| | Receptacle power |
| | 6 way IN plug |
| 6 way IN plug | RJ45 PoE |
| | Receptacle power |
| | 6 way IN plug |

A white LED diode indicates that AdvanGPIO is correctly powered.

Technical specifications

| | |
|--|--|
| Connectors | <p>Data input connectors:</p> <ul style="list-style-type: none"> Reader connector – RJ45 connector See 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™). <p>Data output connectors:</p> <ul style="list-style-type: none"> AdvanMux connector: RJ45 connector for direct connection to AdvanMux through standard Ethernet 8-wire UTP cables. <p>Power input connectors:</p> <ul style="list-style-type: none"> PoE connector: RJ45 connector. 24 V in connector: sealed power jack for 24 V in. Compatible with SWITCHCRAFT L712RA jack connector |
| Power supply | <ul style="list-style-type: none"> PoE: PoE connector supports 802.3af (802.3at type I) 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 | <ul style="list-style-type: none"> < 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 | <p>0 V/5 V TTL or open collector</p> <p>Note 1: B0..B3 are provided with 2.2 kohm pull-up resistors</p> <p>Note 2: Reader outputs must sink 2 mA (maximum)</p> <p>Note 3: 3.3 V readers must be 5 V tolerany</p> |
| Compatibility with RFID UHF readers | <p>Impinj, Motorola, Sirit, Alien, ThingMagic</p> <p>See User's guide for more detailed information about specific reader models</p> |
| Control connection to AdvanMux-8, AdvanMux-16 and AdvanPhaser-24 | 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

Product codes for ordering

| | | | |
|-------------|---|------------|--------------|
| ADGP | - | mmm | |
| | | | Model |
| | | 110 | Model number |

Examples:

ADGP-110:

- AdvanGPIO
- Model **110**



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