



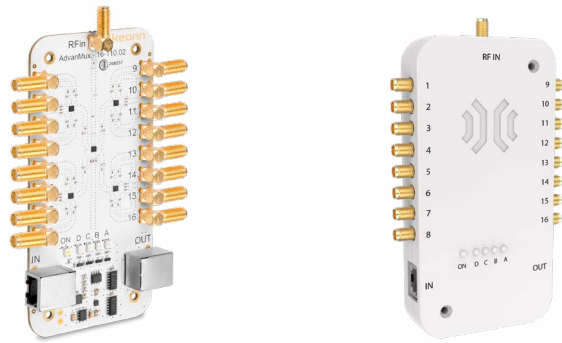
# keonn

Modular RFID  
Components

## AdvanMux-16™

16 port RFID UHF multiplexer





Video

### Benefits:

- Reduces the cost of RFID applications with many antennas
- Very fast and easy connection
- Compatible with most reader models
- Easy selection of ports by sending proper commands to the reader
- Easy control of several multiplexers by interconnecting them with standard Ethernet cables
- Low insertion loss

### Applications:

- Radiofrequency systems that require more than 4 antennas
- RFID systems in general
- Smart shelves
- Smart cabinets
- Smart surfaces
- Portals

### Product overview

AdvanMux-16 is a high performance 16 port multiplexer that expands by a factor 16 the number of antennas that can be connected to each port of an RFID reader.

AdvanMux-16 is compatible with most RFID reader models in the market, including Keonn, Impinj, Zebra, Alien, ThingMagic and others.

AdvanMux-16 is connected to the I/O port of most reader models, and it is controlled by sending simple commands to the reader. This facilitates the control of AdvanMux-16 and its synchronization with the reader. Any port of AdvanMux-16 can be selected at any time.

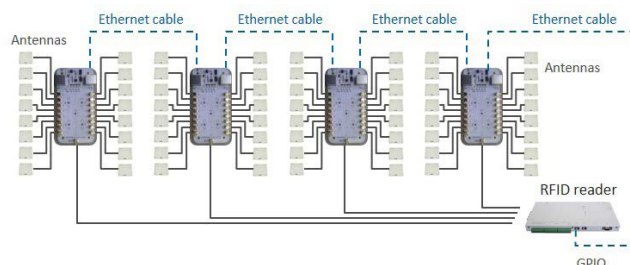
AdvanMux-16 can be directly connected to AdvanReader-100 and AdvanReader-150 through a conventional Ethernet cable.

For other reader models, a reader-specific cable adapter or the AdvanGPIO connection board can be ordered that connect the digital I/O port of the reader to one of the two RJ45 control ports of AdvanMux-16 multiplexer. The following picture shows the cable adapter for a specific reader model and the AdvanGPIO connection board.



The cable adapter can be easily extended to the required length using regular Ethernet 8-wire cables.

Two RJ45 control connectors are available at each AdvanMux-16 so that one multiplexer can control and power another multiplexer by a simple Ethernet 8-wire cable connection (see diagram below).

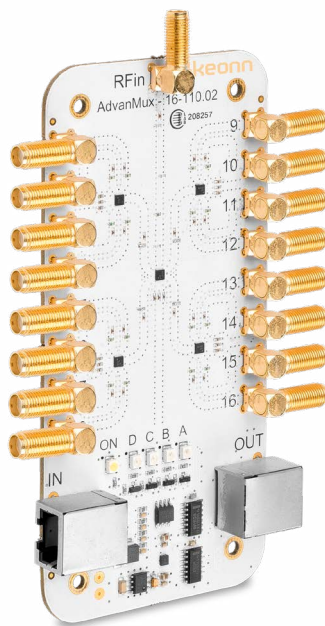


AdvanMux-16 can be controlled both by standard +5 V and open collector digital outputs.

AdvanMux-16 can be powered from +5 V DC to +48 V DC. This power can be obtained from a power supply or by the available voltage in some reader's I/O ports.

The input RF connector and the 16 output RF connectors are SMA (female).

Four red LED diodes show the digital-in status and one white LED shows the power on status.



### Technical specifications

Operating frequency	860 MHz to 950 MHz
Number of ports	16
Insertion loss	<1.4 dB (1.2 dB typ.)
Isolation	> 35 dB
Return loss	> 19.5 dB (22 dB typ.)
Max input power	33 dBm
Switching time	< 15 µs
RF connectors	1 input and 16 output SMA 50 ohm female connectors
Control and power connector	2 input/output RJ45 connectors (Table 1)
Power supply	RJ45 IN connector pin 4 and/or pin 5: 5 V (-2%) to 48 V (+5%) (regulated on board)
Current consumption	< 12 mA
Digital inputs	0 V/5 V TTL/3 V TTL or open collector Note: Reader outputs must sink 2 mA (maximum)
AdvanReader-100 and AdvanReader-150	Requires only a conventional Ethernet cable AdvanReader allows using two-level AdvanMux-16 multiplexing, so that up to 1024 antennas can be connected to the same reader
Connection to Impinj R220 and R420, and ThingMagic Mercury 6	Requires a cable adapter (available upon request) and a conventional Ethernet cable (UTP cable)
Connection to other readers	Compatibility with most readers. Requirements: AdvanGPIO connection board (available upon request), and for some reader models PoE injector (available upon request)
Cable adapter	Optional. Length: 25 cm (10 inches)
Control connection between AdvanMux units	Through standard Ethernet 8-wire UTP cables
Electrostatic discharge protection	> 2kV ESD protection on all RF ports
Size with enclosure	144 mm x 74mm x 23 mm (5.7 inches x 2.9 inches x 0.9 inch)
Size without enclosure	137 mm x 75 mm x 17 mm (5.4 inches x 3 inches x 0.7 inch)
Weight with enclosure	175 g (6.2oz)
Weight without enclosure	107 g (3.7oz)
Operating temperature	-30 °C to 55 °C
Storage temperature	-35 °C to 85 °C
EU Directives	RoHS compliant (2002/95/EC), EMC (2004/108/EC)

### RJ45 pinout

RJ45 pin number	AdvanMux-16 signal
1	B0
2	B1
3	B2
4	Vcc
5	Vcc
6	B3
7	GND
8	GND

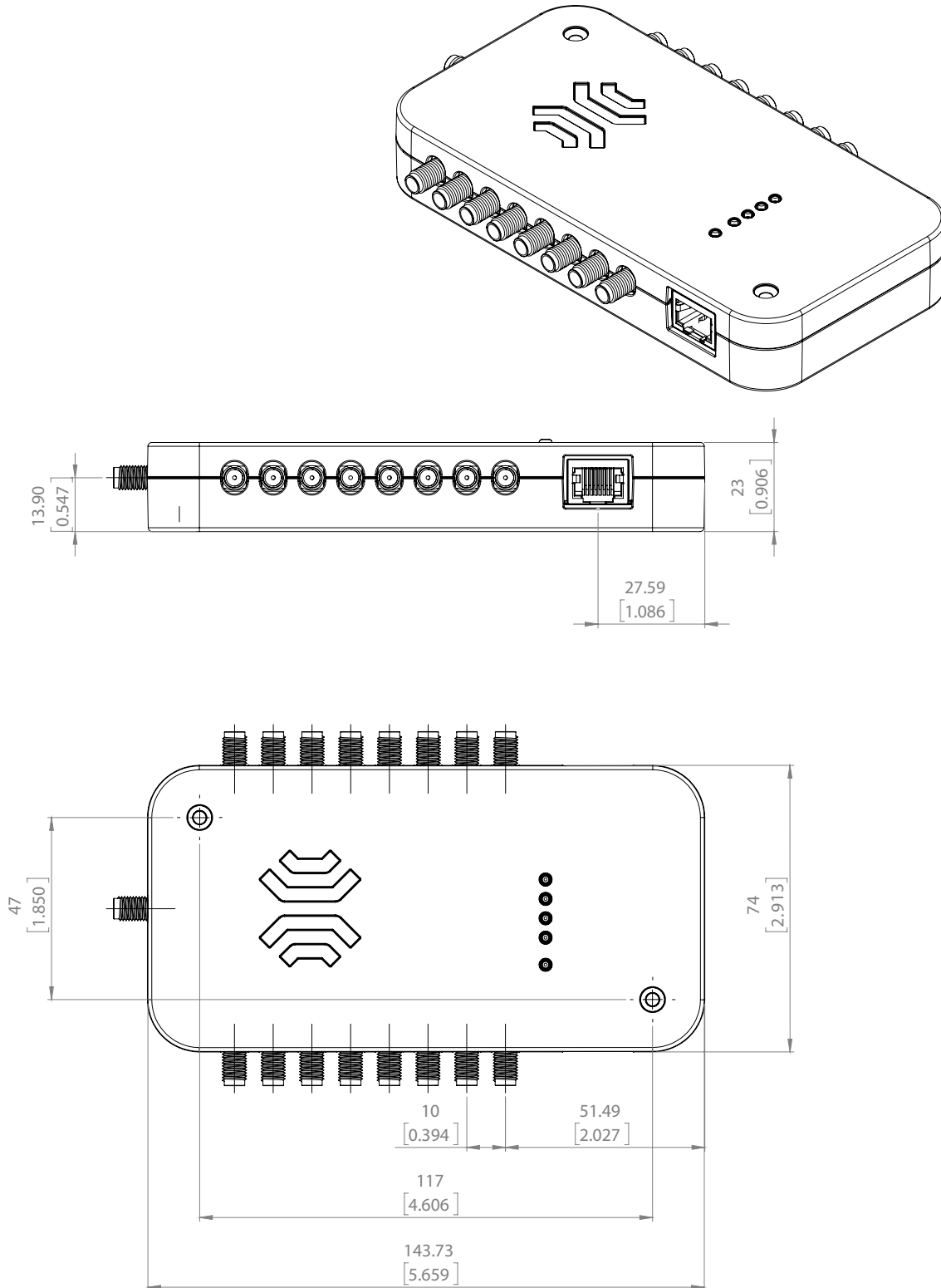
Table 1

### Truth table

B3	B2	B1	B0	RF in to
0	0	0	0	Out 1
0	0	0	1	Out 2
0	0	1	0	Out 3
0	0	1	1	Out 4
0	1	0	0	Out 5
0	1	0	1	Out 6
0	1	1	0	Out 7
0	1	1	1	Out 8
1	0	0	0	Out 9
1	0	0	1	Out 10
1	0	1	0	Out 11
1	0	1	1	Out 12
1	1	0	0	Out 13
1	1	0	1	Out 14
1	1	1	0	Out 15
1	1	1	1	Out 16

Table 2

## Mechanical specifications



Units in millimeters and [inches]



### Product codes for ordering

ADMX	-	NP	-	F	-	mmm	
							<b>NP = Number of Ports</b>
		4					4 ports
		8					8 ports
		16					16 ports
							<b>F = Frame</b>
				e			enclosure
							no enclosure
							<b>mmm = Model</b>
						130	Model number

Examples:

#### ADMX-16-e-130:

- AdvanMux
- 16 ports
- with enclosure
- Model 130





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