keonn Modular RFID Components

AdvanReader-160 ™

4 port RFID UHF reader

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AdvanReader-160 ™
4 port RFID UHF reader

Benefits:

- High-performance: high output power and high sensitivity
- Highest flexibility: on-board microcomputer
- Fully open Linux OS
- Reduces time and cost of developing RFID systems
- You can make it your own reader by putting your company logo on the enclosure
- Can control up to 1024 antennas by using it in combination with AdvanMux multiplexer
- Direct connection to an external loudspeaker
- 2 digital/analog inputs
- 8 digital outputs

Applications:

- Smart shelves
- Smart display fixtures
- Smart surfaces
- RFID portals
- RFID tunnels
- Point of Sales
- Loss prevention systems
- In general, any RFID application

Product overview

AdvanReader-160 is a high power (31.5 dBm), four port, high performance UHF reader with an on-board microcomputer and a fully open Linux operating system.

Thanks to its on-board microcomputer, AdvanReader-160 can **work stand-alone**, without needing to be connected to an external computer, thereby reducing equipment costs, installation costs, and maintenance costs.

AdvanReader-160 is prepared to work with **batteries** and control the battery level. It has a sleep mode for minimizing consumption. It is therefore ideal for mobile systems.

Additional product features

AdvanReader-160 can become **your own reader**: your company logo can be the only logo on the enclosure.

A single AdvanReader-160 unit **can control up to 1024 antennas** when connected to Keonn multiplexers.

AdvanReader-160 is also very flexible in terms of **inputs** and **outputs**:

- 2 x digital/analog inputs
- 2 x additional digital inputs
- 8 x digital outputs
- 4 x Direct LED connections (100 mA)
- 4 x GPO (lines 8 mA)
- 1 x relay enabled output
- Loudspeaker: 8 ohm/2 W
- 2 x RJ45 to directly connect to other Keonn devices, such as AdvanMux and AdvanPhaser

AdvanReader-160 includes several **sensors**, **actuators** and **indicators** on-board:

- Aux Power Supply Voltage
- PoE Power Supply Temperature
- Aux Power Supply Temperature
- On-board buzzer
- On-board LED indicators for: power on, Ethernet linked, Ethernet activity, serial data in, serial data out, etc.

AdvanReader-160 comes with a comprehensive set of built-in HW/SW communication options:

- USB HID emulation: allows generating keyboard events based on Reader events.
- HTTP: user-configurable HTTP request generation based on Reader events.
- MQTT: user-configurable MQTT packet generation based on Reader events.
- SQL: user-configurable SQL sentence generation based on Reader events.
- TCP: real-time TCP socket of Reader events.

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RF specifications

Air Protocol Interface	EPC global UHF Class 1 Gen 2 / ISO 18000 - 6 C
Data output connectors	FCC (NA, SA) (902 - 928) MHz ETSI (EU, IN) (865.6 - 867.6) MHz MIC (KR) (910 - 914) MHz SRRC-MII (P.R.China) (920.125 – 924.875) MHz Argentina (AR) (915.0 – 928.0) MHz Australia (AU) (920.0 – 926.0) MHz Bangladesh (BD) (925.0 – 927.0) MHz New Zealand (NZ) (922.0 – 927.5) MHz Hong Kong (HK) (865.0 – 868.0) MHz Indonesia (ID) (923.0 – 925.0) MHz Israel (IS) (915.0 - 917.0) MHz Japan (JP) (916.8 - 920.8) MHz Macao (MO) (920.0 – 925.0) MHz Malaysia (MY) (919.0 – 923.0) MHz Philippines (PH) (918.0 – 920.0) MHz Russia (RU) (866.0 – 868.0) MHz Taiwan (TW) (922.0 – 928.0) MHz Thailand (TH) (920.0 – 925.0) MHz Singapore (SG) (920.0 – 925.0) MHz Vietnam (VN) (866.0 – 869.0) MHz Brazil (902 – 907.5) MHz (915 – 928) MHz by using channel selection Chile (916 – 928) MHz by using channel selection Peru (916 – 928) MHz by using channel selection Taiwan (922 – 928) MHz by using channel selection Open Region (865 – 869) MHz and (902 – 928) MHz
RF connections	Four 50 ohm SMA connectors for monostatic antennas (4-port version)
RF Power	Programmable from 5 dBm to 31.5 dBm in 0.5 dBm steps (Maximum power may have to be reduced to meet regulatory limits)
Max tag read distance	Up to 9 m (33 feet) with 6 dBi gain antennas
Max tag read throughput	Up to 400 tags/second

Software Specifications

On-board intelligence	BCM (Battery Controller Module) • MSP430 firmware • Automatic battery protection • Configurable scheduler for active/sleep mode ARM board • Cortex A-8 CPU (1 GHz) • 512 MB RAM • 4 GByte ROM with Operating System • 1 x USB connector
Battery control module	MSP430 firmware Automatic battery protection Configurable scheduler for active/sleep mode
On-board software	AdvanNet-2.5: advanced driver platform for Keonn components and systems Debian Squeeze (Debian 10) based distribution
External software development	AdvanNet based: Test and deploy web-based GUI utility (AdvanNet Monitor) REST interface that can be used in any development environment
Internal development environments	Java development C development
Operating system	The OS is fully open

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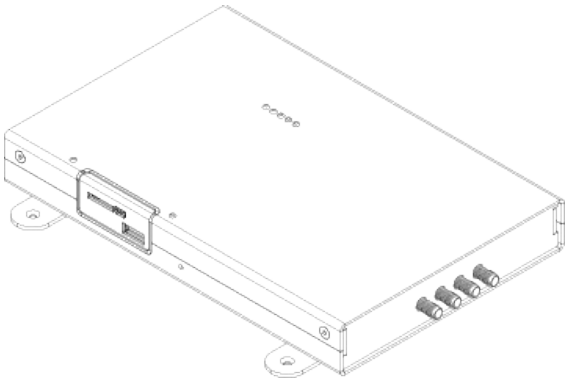
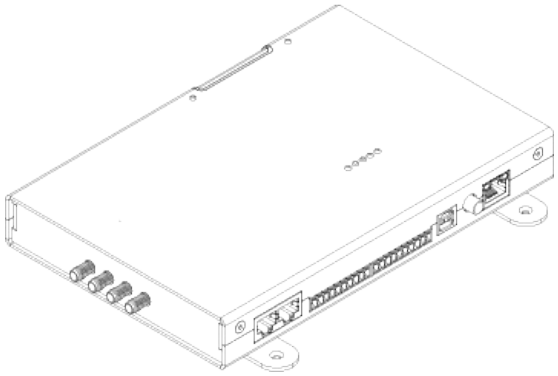
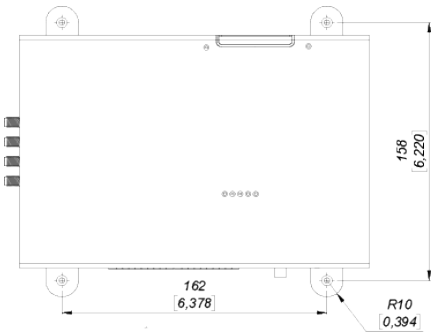
Electrical, communication and mechanical specifications

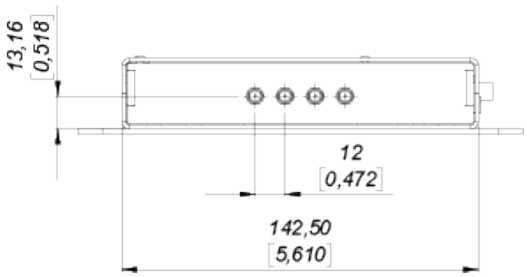
Data communications	EEthernet: IEEE 802.3 up to 100 Mbps Ethernet over USB (USB mini Type-B connector) USB HID (USB Type-B connector)•USB HID hardware emulation
Other ports	USB (Type-A) Host Accepts USB memory sticks Accepts USB Wi-Fi dongle Etc
Power supply	Power Over Ethernet (PoE): IEEE 802.3af and 802.3at (Type I & Type II) Power consumption: Class 3 Power supply from 11 to 24 V (DC) 11 V (DC) @ 2 A 24 V (DC) @ 1 A On-board battery for RTC chip (CR2032)
Battery Operation	The system is specifically designed for battery assisted operation. Protects lead batteries by disconnecting the system when the battery level is below a threshold Scheduler to activate/deactivate the system Very low consumption in sleep mode: < 320 uA
Output power	5 V @ 100 mA non-isolated power supply to feed external devices and circuitry
On-board sensors and actuators	Buzzer Aux Power Supply Voltage Aux Power Supply Temperature 5 Vcc Voltage Power consumption IN1 Voltage IN2 Voltage RTC chip to keep Date and Time between reboots. Battery life timemore than 10 years in power off mode.
On-board LED indicators	LED ON (Blue LED) LED status (Orange LED) LED M6e Rx line (Green LED) LED M6e Tx line (Red LED) LED Micro Status (Green LED)
Inputs	2 x digital inputs (IN3 and IN4) Non isolated 0 V (DC) – 30 V (DC) 2 x digital/analog inputs, 10 bits resolution Inputs accepted in the range: 0 V – 3 V (IN 1) 0 V – 10 V (IN 2)
Outputs	4 x digital outputs (higher power): Non isolated Maximum output current 100mA 4 x digital outputs (low power): Non isolated Maximum output current 8 mA 1 x Relay output (24 VDC / 0.5 A) Other outputs : Loudspeaker : 8 ohm/2 W 2 x RJ45 to directly connect to other Keonn devices, such as Advan-Mux and AdvanPhaser
Power consumption	Idle consumption < 3 W Max consumption (@31.5 dBm) < 14 W
Temperature	-20 °C to +40 °C
Size	Without enc.: 222 mm x 146 mm x 24 mm (8.74 in x 5.79 in x 0.95 in) With enc.: 214 mm x 142.5 x 28 mm (8.42 in x 5.61 in x 1.1 in)
Weight	Without enclosure: 280 g (9.9 oz) With enclosure: 620 g (21.9 oz)

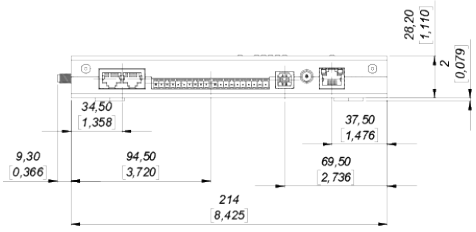
Mechanical specifications with enclosure

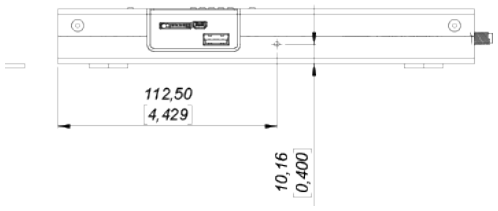












Units in millimeters and [inches]

Product codes for ordering

ADRD	-	MX	-	E	CT	-	SC	
								MX = number of ports
		M4						4 ports
								E = enclosure
				-				without enclosure
				E				with enclosure
								CT = connector type
					SMA			SMA Straight
								SC = series code
							160	Serie 160

Examples:

ADRD-M4-SMA-160:

- AdvanReader
- With 4 ports
- Without enclosure
- SMA connector type
- Model **160**

ADRD-M4-ESMA-160:

- AdvanReader
- With 4 ports
- With enclosure
- SMA connector type
- Model **160**

Information in this publication supersedes all earlier versions. Specifications subject to change without notice.

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