

RRU 4500 - Gen 4
 ETSI 52010678 / FCC 52010682

RRU 4560 - Gen 4
 ETSI 52010679 / FCC 52010683

RRU 4570 - Gen 4
 ETSI 52010680 / FCC 52010684



10x higher RX sensitivity	1100 tags / second	 USB-C		 Cyber Security
 Smart Reader Mode	40% Lower power consumption than Gen3 Reader			 IP68
 Multi port	 10x higher switching speed	 Web Interface	 Linux	 Scalable RFID performance based on the Impinj Ex 10 chip family
 4 Port RFID Reader Unit	 Wi-Fi	 Bluetooth SPP	5G	 GNSS

The 4th generation of Kathrein RFID readers builds on experience and innovation. The well-known flexibility of the previous reader families is paired with the latest technology and innovative power to solve the upcoming requirements for IoT applications.

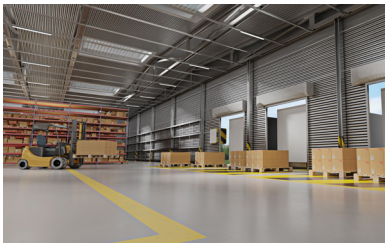
Our customers and partners can rely on the fact that the 4th generation of Kathrein readers is also SW-compatible, but at the same time new features and functions have been added that were previously missing on the market. Based on the impinj Ex10 chipset, the Kathrein RFID readers are the most versatile and high-performance units for all IoT applications and harmonize with Kathreins's RFID antenna series.

> Features

- Ruggedized high-end RAIN RFID reader
- Powerful IoT gateway with wireless host functionality
- Enhanced RF design
- Reduced power consumption for green IT installation
- 4 external antennas (up to 32 antennas via ©KRAI)
- +33 dBm port power
- ©KRAI 1.0 / 2.0 antenna support
- GPIO
- PoE
- Basic computing module
- Embedded dual-core 800 MHz PC
- Open source Linux OS
- Advanced LED visualisation
- IP68 outdoor use
- Type approval for Europe, US and RoW

> Key Applications

■ Logistics & Supply Chain



■ Manufacturing & Automotive



■ Intelligent Transportation Systems



■ Healthcare



General Specification RFID Reader Unit RRU Reader Family

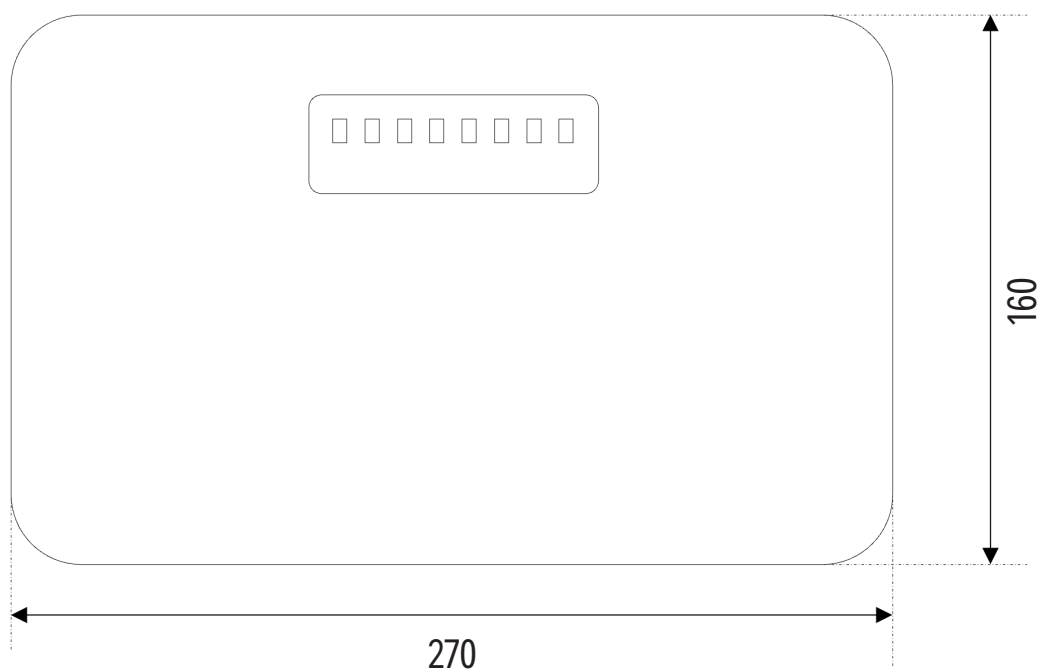
Type	ETSI Version			FCC Version		
	RRU 4500	RRU 4560	RRU 4570	RRU 4500	RRU 4560	RRU 4570
Order number	52010678 52010679 52010680			52010682 52010683 52010684		
RFID						
Frequency range SW defined ratio	[MHz]	865 – 868 915 – 921 ¹⁾		902 – 928		
Impedance antenna port	[Ohm]	50				
Max. TX power conducted	[dBm]	+33				
Max. TX power radiated	[dBm EIRP]	+33 e.r.p. +36 e.r.p. ¹⁾		+ 36 EIRP		
Max. RX sensitivity	[dBm]	-93				
Max. read range ²⁾	[m]	32				
Max. write range ²⁾	[m]	22				
Max. read rate ²⁾	[tags/s]	1100				
Number of antenna ports		4, TNC-R				
Power supply						
Local supply	[VDC]	+10 to +30				
Power connector		M12, A-coded, 4-pole				
Remote feed ³⁾	[VDC]	Power over Ethernet PoE according to 802.3af (36–57)				
Ethernet connector		M12, X-coded, 8-pole				
Power consumption						
Local supply @ 33 dBm	[W]	< 15				
Remote feed with PoE @ 31.5 dBm	[W]	< 12.5				
Ethernet						
Number of ethernet ports		1				
Data rate	[Mbit/s]	10/100				
Ethernet connector ⁴⁾		M12, X-coded, 8-pole				
Multi-Protocol Port						
Protocol type		RS 232 / RS 485 / customized				
Data rate	[Mbit/s]	up to 12				
MPP connector		M12, A-coded, 5-pole				
Service Port						
USB mode ⁵⁾		Full speed, data only, USB 2.0; USB on the go, customized				
USB type		USB C (w/o power supply)				

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Wifi only with RRU 4560						
Supported standards				802.11 a, b, g, n		
2.5 GHz band	[GHz]			2.412 – 2.484		
Max TX power (depends on country)	[dBm]			max. 17.3		
5 GHz band	[GHz]			4.910 – 5.825		
Max TX power (depends on country)	[dBm]			max. 18		
Max. channel bandwidth	[MHz]			max. 40		
Antenna connector				SMA		
External antenna alignment	[°]			0 ... 90		
Bluetooth only with RRU 4560						
Frequency range	[GHz]			2.402 – 2.480		
Operating mode				BT serial port profile		
Antenna connector				SMA		
External antenna alignment	[°]			0 ... 90		
Mobile communication only with RRU 4570						
Supported standards				2G / 3G / 4G / 5G-ready		
Frequency range GPRS/EDGE	[MHz]			900/1800		
Frequency range UMTS/HSPA	[MHz]			800/1800/2100		
Frequency range 4G	[MHz]			800/900/1800/2100/2600		
Frequency range 5G	[MHz]			700/800/900/1800/1900/2100/2600		
Max TX power (depends on country)	[dBm]			max. 33		
Global localization						
Localization systems				GPS, GLONASS, Galileo		
©KRAI						
Cmd duration Gen3 mode	[ms]			100		
Cmd duration Gen4 mode	[ms]			10		
Frequency	[kHz]			22		
Supply voltage (output)	[V]			5		
Max. current per port	[mA]			100		
LED visualization						
Freely programmable				7		
Status LED power on				1		

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GPIO						
Digital inputs				4		
Digital outputs				4		
Operating mode 1				DC-isolate		
Operating mode 2				not DC-isolate		
Max. input voltage	[V]			30		
Max. output voltage	[V]			30		
Max. current per output port	[mA]			500		
Max. current over all outputs	[mA]			1500		
Connector				M12, A-coded, 12-pole		
Embedded PC						
Processor				iMX7 ARM Cortex-A7 dual core @ 1200 MHz		
Flash memory eMMC	[GByte]			8		
RAM DDR3	[GByte]			1		
Operating system				Linux		
General						
Shock				ETSI EN 300 019-2-3 V2.1.2 IEC 60068-2-27		
Total shock response spectrum				Type 3.3		
Vibration				ETSI EN 300 019-2-3 V2.1.2 IEC 60068-2-64		
Weight	[kg]			1.5		
Degree of protection				IP68		
Temperature range						
Operating	[°C]			-40 to +60		
Storage	[°C]			-40 to +85		
Dimensions (L x W x H)	[mm]			160 x 270 x 50		
Standards				ISO 18000-6C EPC Gen2 V2 UCODE DNA EN 29167-10 ETSI reader: EN302208-2 V2.1.1, EN301489-3, EN50364, EN62368-1, EN60529, FCC reader: FCC Part15, UL, IC		

- 1) European Upper Band; selectable by customer for external antennas only, check whether operation is permitted in your country
- 2) Depends on the environment and the transponder properties
- 3) In PoE mode, the transmission power is reduced to 31.5 dBm. Use cable length < 100 m. Make sure to use a Cat 6 cable or higher. Note that the internal supply of GPIO-VCC-pin is not possible with PoE
- 4) PoE and Ethernet connection via one socket
- 5) USB-C is a separate interface for service purposes

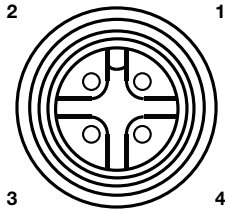
> Dimensions [mm]



Connectivity

Power supply

M12, A-coded, 4-pin, male

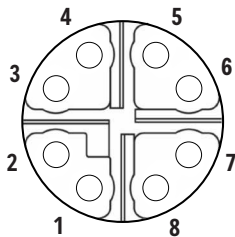


Pinout power supply

Pin	Allocation
1	+24 V DC
2	GND
3	GND
4	+24 V DC

Ethernet

M12, X-coded, 8-pin, female

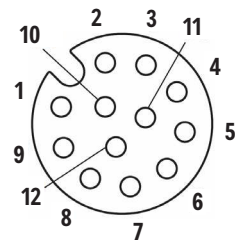


Pinout communication PoE+

Pin	Data	PoE
1	TX+	Mode A
2	TX-	Mode A
3	RX+	Mode A
4	RX-	Mode A
5		Mode B
6		Mode B
7		Mode B
8		Mode B

GPIO

M12, A-coded, 12-pin, female

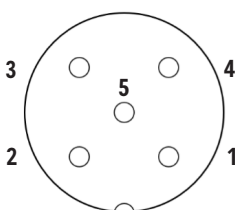


Pinout general purpose input output

Pin	Allocation	Pin	Allocation
1	OUT_CMN	7	UB
2	OUTPUT_1	8	OUTPUT_4
3	INPUT_3	9	OUTPUT_3
4	INPUT_CMN	10	OUTPUT_2
5	INPUT_1	11	INPUT_2
6	GND	12	INPUT_4

Multi protocol port connector

M12, A-coded, 5-pin, male



Pinout power supply

Pin	Allocation
1	RS 232 /TX
2	RS 232 /RX
3	RS 485 /A
4	RS 485 /B
5	GND