

The Kathrein RRU 4500 reader is the next generation of RAIN RFID readers and the leading IoT device for all professional AutoID solutions. It is the first choice for professional IoT solutions, such as industrial automation and vehicle identification in ruggedised environments.

Its best-in-class 33-dBm UHF RF unit and the powerful scalable processing unit change the way identification works.

Based on the latest RFID standards, such as EPC Gen2v2/ISO 18000-63 and ISO/IEC 18000-64:2012 Type D, Kathrein RRU 4500 reader supports all market leading transponder chip features for security, authentication and encoding. The RRU 4500 versions with order numbers 52010288 / 52010448 are both for the ETSI frequency range and 100% compatible.



> Features

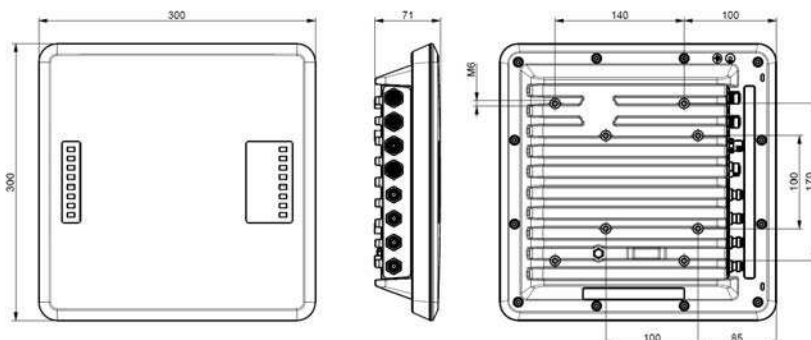
- Ruggedised high-end RAIN RFID reader
- Powerful IoT gateway
- Enhanced RF design
- Integrated high secure memory module
- 4 antenna ports
- +33 dBm port power
- Read speed 1000 tags/s
- Reading tags up to 300 km/h
- @KRAI antenna support
- GPIO
- PoE+
- Basic computing module
- Embedded dual-core 800 MHz PC
- Open source Linux OS
- Advanced LED visualisation
- IP67 outdoor use* with up to 100% humidity
- Type approval for Europe, US and RoW



> Key Applications

- Manufacturing and Automotive
- Logistics
- Track & Trace
- Intelligent Transportation Systems
- Healthcare

> Dimensions [mm]



> Note

Risk of material damage!

- ▶ Make sure that the depth at which the screws are put into the housing of the reader does not exceed 10 mm (the tightening torque is 5 Nm).

> General Specifications

Type		ETSI Version RRU 4500	FCC Version RRU 4500
Order number		52010288 52010448	52010296
RFID			
Frequency range	[MHz]	865–868	902–928
Impedance antenna port	[Ohm]	50	
Max. TX power, conducted	[dBm]	33	30 (33 dBm with extended cable length)
Max. TX power, radiated	[dBm ERP] [dBm EIRP]	33	36
RX sensitivity	[dBm]	typ. –80	
Read speed	[tags/s]	1000	
Reading tags up to	[km/h]	300	
Number of antenna ports	[R-TNC]	4	
Standards		EN302208-2 V2.1.1, EN301489-3, EN50364, EN62368-1, EN60529, EN 18031-1:2025, EPC Gen2 V2, UCODE DNA, ISO/IEC 18000-64:2012 Type D	EN 18031-1:2025, FCC Part15, UL, IC, EPC Gen2 V2, UCODE DNA, ISO/IEC 18000-64:2012 Type D
Voltage			
Local supply	[VDC]	+10 to +30	
Connector		M12, A-coded, 4-pole	
Remote feed	[VDC]	PoE+ according to 802.3at (35–57) <ul style="list-style-type: none"> ▶ Make sure that the router/switch supports 30 W in the static mode. ▶ Use the cable the length of which does not exceed 100 m. ▶ Make sure to use a Cat 6 cable or a higher level cable. ▶ Note that the internal supply of GPIO-VCC-pin is not possible with PoE+. 	
Connector		M12, X-coded, 8-pole, port 1 only	
Power consumption			
Local supply	[W]	25.4	
Remote feed	[W]	25.4	
Embedded PC			
Processor		ARMv7-A based processor, 2 cores @ 800 MHz	
Flash memory (eMMC)	[Gbyte]	8	
RAM DDR3	[Gbyte]	1	
Operating system		Linux	
Ethernet			
Number of Ethernet ports		2	
Datarate	[Mbit/s]	10/100	
Connector		M12, X-coded, 8-pole	
©KRAI			
TX Frequency	[kHz]	22	
Supply voltage (output)	[V]	5	
Max. current per port	[mA]	100	
LED visualisation			
Freely programmable		12	
Fixed		1 (power LED)	

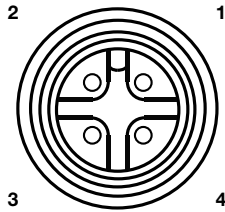
> General Specifications

Type		ETSI Version RRU 4500	FCC Version RRU 4500
Order number		52010288 52010448	52010296
GPIO			
Type		4 inputs, 4 outputs (double insulation possible)	
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	
RFID controller			
Processor		ARMv7-A based processor with 600 MHz	
Flash memory eMMC	[Gbyte]	4	
RAM DDR2	[Mbyte]	128	
Operating system		Linux	
Mechanical properties			
Weight	[kg]	4.00	
Degree of protection		IP67*	
Operation with humidity		up to 100%*	
Operating temperature range	[°C]	-20 to +55	
Storage temperature range	[°C]	-40 to +85	
Dimensions (L x W x H)	[mm]	300 x 300 x 71	

* if all connections are made with a Kathrein cable or have Kathrein protective caps

> Power Supply

M12, A-coded, 4-pin, male

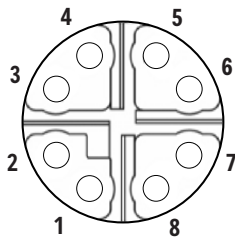


Pinout Power Supply

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

> Ethernet

M12, X-coded, 8-pin, female

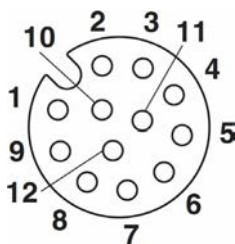


Pinout communication PoE+

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