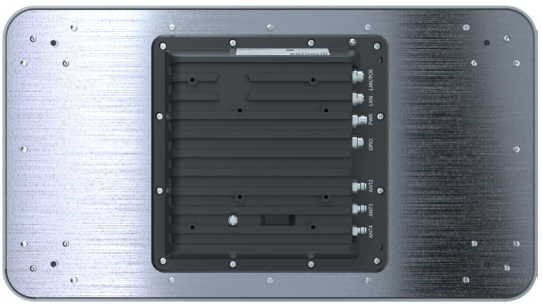
The Kathrein Reader ARU 8500 is the perfect device for identification and direction detection. Based on an Ethernet communication interface and a circular switch-beam antenna, the reader detects the direction of movement of goods and containers.

The three well-defined read zones of the integrated 30° wide range antenna, steered by the reader, offer optimised solutions for the seamless detection of the movement and are used in logistics, intralogistics, retail and EAS (anti-heft protection) applications.

Due to an embedded Linux-based module, it is possible to use the reader as a stand-alone system, thus running applications and parameterisation is possible directly on the reader without the need for a remote PC. The reader offers the best performance when linked with Kathrein CrossTalk software.



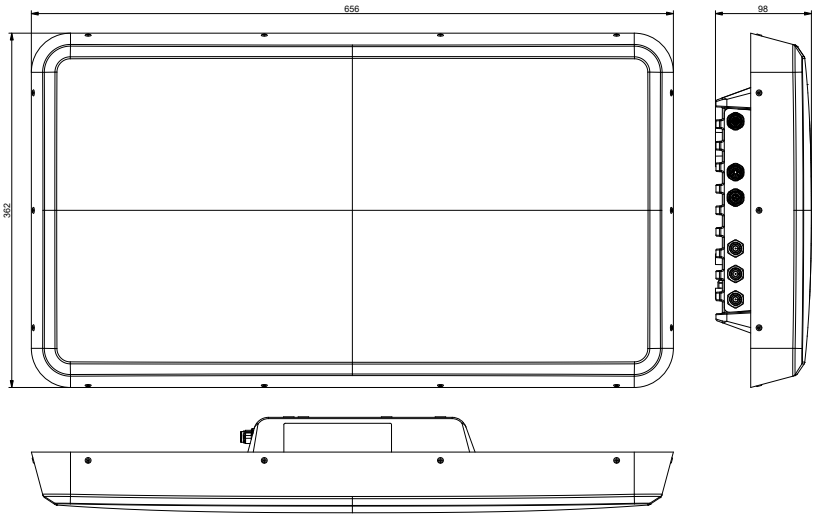
Features

- Enhanced RF design
- Integrated phased array antenna for direction detection
- 3 independent beams (inside/middle/outside)
- Highly selective transition between the beams
- 3 x 7 m typical detection area for gate solutions
- 3 additional external antenna ports available
- Easy to install overhead
- Delivery combined data for the RFID transponder and location in one shoot
- Captures the direction and provides a decision accuracy with CrossTalk

Key Applications

- Logistics
- Track & Trace
- Dock Door applications
- EAS Retail applications
- People tracking
- Healthcare

Dimensions [mm]



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936B263/G/1019 | Subject to change.

General Specifications

Type		ETSI Version ARU 8500	FCC Version ARU 8500
Order number		**52010340**	**52010341**
RFID			
Frequency range	[MHz]	865–868 (865–867 for India)	902–928 (916–928 for Peru)
Impedance antenna port	[Ohm]	50	
Max. TX power conducted	[dBm]	33	30 (33 with extended cable length)
Max. TX power radiated	[dBm ERP] [dBm EIRP]	+33	 +36
RX sensitivity	[dBm]	typ. –80	
Number of antenna ports	[R-TNC]	6 (3 = inside/middle/outside + 3 external ones)	
Protocols		EPC Class1 Gen2/ISO 18000-6C	
Standards		EN18031-1:2025, EN302208-2 V2.1.1, EN301489-3, EN50364, EN62369-1, EN60529, EPC Gen2 V2, UCODE DNA	EN18031-1:2025, FCC Part15, UL, IC, EPC Gen2 V2, UCODE DNA
Antenna			
Far-field half-power beam width	[°]	30 vertical/80 horizontal	
Switchable read field	[°]	+35/0/–35	
Polarisation		circular	
Antenna gain left/straight/right	[dBiC]	7.0/7.5/7.0	6.0/7.0/6.0
Axial ratio	[dB]	typ. 2	
Communication interface	[MBit/s]	Ethernet 10/100	
Voltage			
Local supply	[VDC]	+10 to +30	
Connector		M12, A-coded, 4-pole	
Remote-fed	[VDC]	PoE+ according to 802.3at (10–57) (internal supply of GPIO-VCC-pin not possible with PoE+)	
Connector		M12, X-coded, 8-pole, port 1 only	
Power consumption			
Local supply	[W]	25.4	
Remote-fed	[W]	25.4	
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	
Embedded PC			
Processor		ARMv7-A based processor, 2 cores @ 800 MHz	
Flash memory (eMMC)	[Gbyte]	8	
RAM DDR3	[Gbyte]	1	
Operating system		Linux	

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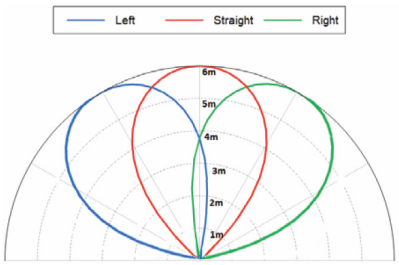
General Specifications

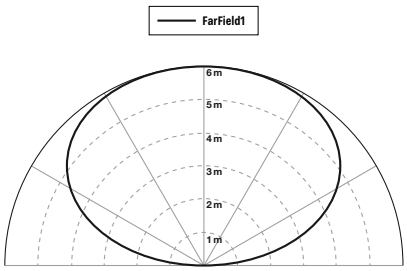
Type		ETSI Version ARU8500	FCC Version ARU8500
Order number		**52010340**	**52010341**
Ethernet			
Number of Ethernet ports		2	
Data rate	[Mbit/s]	10/100	
Connector		M12, X-coded, 8-pole	
LED visualisation			
Freely programmable		high-end LED	
RFID controller			
Processor		ARMv7-A based processor with 600 MHz	
Flash memory eMMC	[Gbyte]	4	
RAM DDR2	[Mbyte]	128	
Operating system		Linux	
Mechanical properties			
Weight	[kg]	ca. 8	
Degree of protection		IP40	
Operating temperature range	[°C]	–20 to +55	
Storage temperature range	[°C]	–40 to +85	
Dimensions (L x W x H)	[mm]	656 x 362 x 98	

Read range

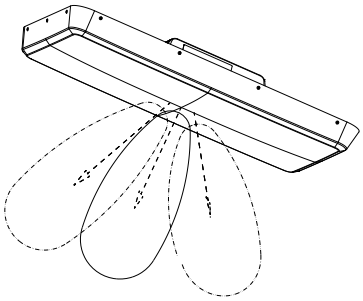
Read range vertical cut



Read range horizontal cut (if mounted like picture)



Directions of the switched beam



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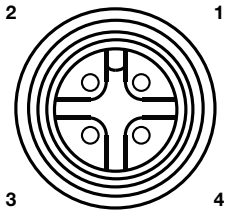
Power Supply

M12, A-coded, 4-pin, male

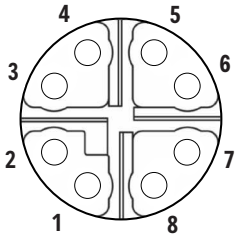


Pinout Power Supply

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

Ethernet

M12, X-coded, 8-pin, female

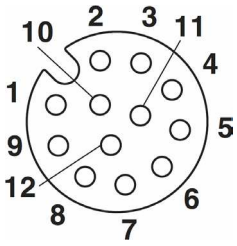


Pinout communication PoE+

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

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