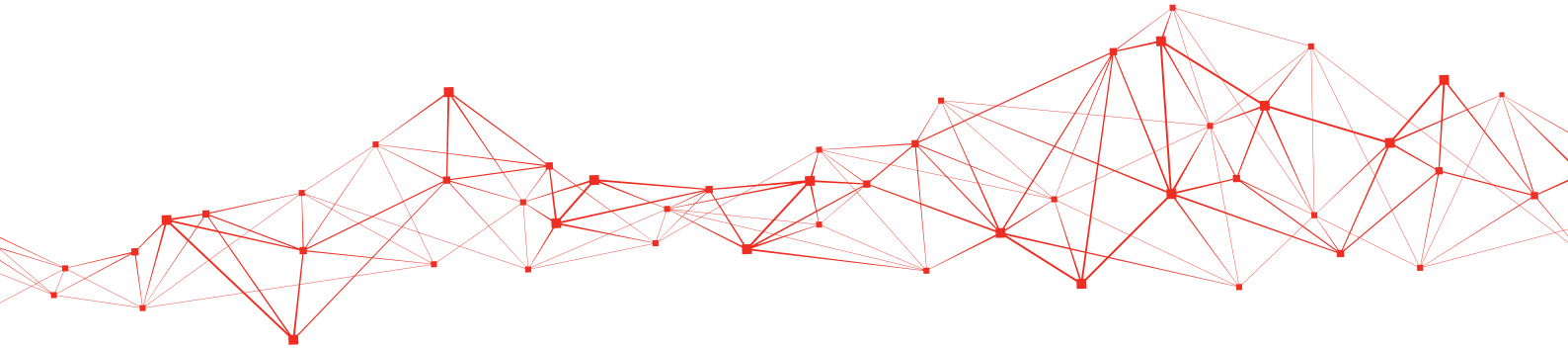
CATALOGUE

Kathrein Solutions

IoT Portfolio 2019



CrossTalk IoT Suite

KATHREIN

We Provide Solutions for Better Business

Kathrein Solutions provides AutoID turnkey solutions including hardware, software, services and support. From the first proof of concept up to the go-live implementation, Kathrein supports customers in applications for logistics, industrial automation, retail and vehicle identification. The possibility of offering all necessary components and tools from one source enables us to give our customers the most powerful solutions. From track and trace visualisation to seamlessly incorporating any kind of identification technology — including solutions such as barcode readers, active RFID systems and wide area network technologies — we combine the best suitable features and generate interfaces with all kinds of ERP systems. First-class service and customer-oriented support round off our portfolio. We provide RF simulation, application support, software integration and implementation as well as operation and maintenance — all from a single source.

Hardware

Kathrein's IoT hardware portfolio includes the leading passive RAIN RFID portfolio with fixed readers, antennas and accessories for professional infrastructure installations. Based on long-term experience in RTLS solutions using Kathrein CrossTalk Software and third-party RTLS hardware, Kathrein started with its in-house developed UWB (ultra wide band)-based RTLS (real-time location system) in 2019.
Our objective is to combine the best-suited technology for Tracking and Tracing solutions in our key vertical industries Manufacturing, Logistics, Vehicle Identification and Healthcare.

Service & Support

At Kathrein, we can rely on our outstanding reputation when comparing the quality of our hardware and software components at an international level. Adhering to the highest standards, we offer you a high-quality portfolio of various services and support to bring you seamlessly throughout the entire life cycle of your project.

Software

CrossTalk, Kathrein's integration software layer, is a modular IoT suite for different identification applications. Passive UHF RFID, barcode, GPS, RTLS, sensors and various other technologies can be handled with CrossTalk. We provide centrally controlled integration — from device management to customised back ends.

NEW

New Products

K-RTLS

The new real-time location system „K-RTLS“ –introduced in 2019 – combines high localisation accuracy in an industrial environment with unique technical features which allow a broad use of the system in different applications. The UWB localisation precision of up to 10 cm, even in difficult, reflective environments, as well as the robust, compact housing design of the transponder allow a broad use in the real-time tracking of objects in manufacturing and logistics.

The system consists of mobile transponders, permanently installed nodes and the CrossTalk IoT suite.

Transponder

The transponder has an innovative, flexible adapter mounting system that can be dynamically changed for fixed or temporary mounting, for example, on vehicles or material container trolleys, depending on the application.
A UHF RFID tag and an NFC RFID tag, which are connected to the microcontroller, have been integrated into the transponder.

Node

The compact nodes can be easily supplied with power and network via PoE. To keep the installation costs for the network as low as possible, the nodes also have their own optional 2.4 GHz radio network for data transfer. This means that only about 25% of the installed nodes require a cable connection to the network. The distance between the individual nodes can be up to 80 meters.

CrossTalk IoT Suite

With the CrossTalk IoT-Suite, which has been successfully used in the market for many years, a very comprehensive software for the configuration and operation of the hardware is immediately available for the new K-RTLS system.

K-RTLS Features

- RTLS/RFID/NFC-integrated
- Intelligent Cloud-capable software architecture
- Scalable hardware concept for high investment security
- Robust IP67 industrial design
- Modular mounting adapter concept

NEW

New Products

ARU 2400 Reader Series

The ARU 2400 offers new mounting and connection options. The housing of the ARU 2400 can easily be installed in existing shelves using the mounting points for the so-called ITEM profiles. The plugs and sockets are just as easy to operate. For both the power supply and the terminal block of the digital inputs and outputs, a terminal strip with screw terminals – which allow direct cable installation – is installed. Furthermore, the reader has antenna connections in accordance with the FAKRA standard. These antenna connectors known from the automotive industry are robust and vibration-resistant. The coded connectors lock in place with a click, which makes installation in large rollout projects considerably easier and also reduces hardware costs.

Key Applications

- eKanBan Applications
- Intelligent Assembly Areas
- IATA Baggage Check-in
- Shelf Applications

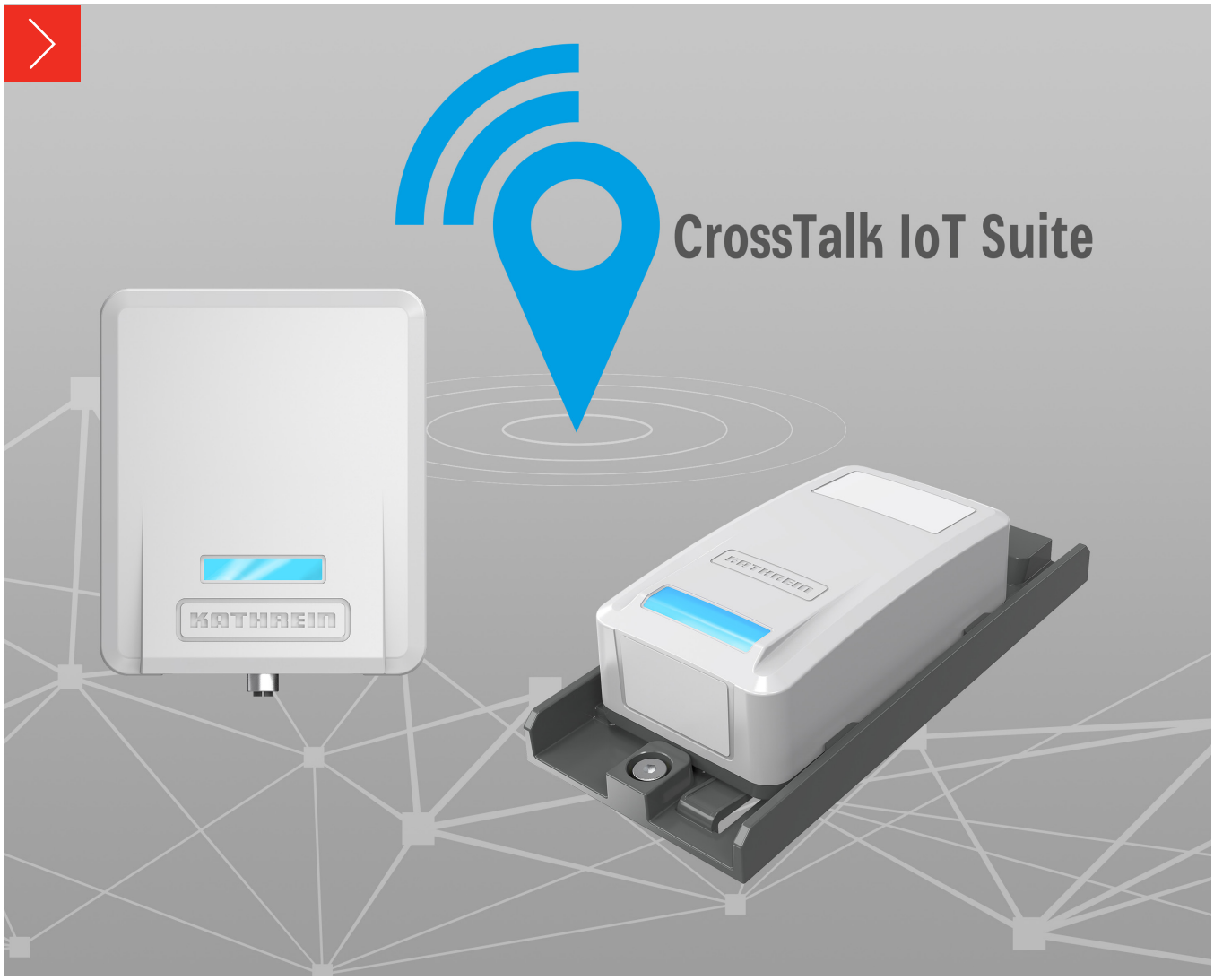
ARU 8500 Reader Series

The Kathrein ARU 8500 reader offers an integrated 30° wide-range antenna with three automatically switchable read zones. In addition, three external antenna ports are available to extend the read zones. Based on the intelligent antenna system, it is possible to easily realise identification and direction detection in one unit. The embedded dual-core 800 MHz PC enables easy integration into ERP back-end systems.

The ARU 8500 provides optimised solutions for all material flow applications in logistics, supply-chain and retail environment.

Key Applications

- Shipment Verification
- Dock Door Applications
- EAS Retail Applications
- Vehicle Logistics
- People Tracking
- Asset Tracking



K-RTLS

The new real-time location system „K-RTLS“ combines high localisation accuracy in an industrial environment with unique technical features which allow a broad use of the system in different applications. In production, for example, it enables precise monitoring of the manufacturing progress and a transparent material flow.

The real-time data about the location and status of the objects available with the RTLS form the basis for networking the parties involved and the logistics processes in the value-added supply chain.

NEW

K-RTLS Node

The new Kathrein RTLS-N-1000 node series set a new IoT standard based on the real-time location and tracking solution. The unique combination of UWB with RAIN RFID and NFC technology allow an easy and seamless integration into the existing RFID infrastructure. Based on the latest generation of wireless technology, the RTLS-N-1000 series provide a localisation precision of up to 10 cm. Due to the fact that the nodes are fully integrated into the powerful Kathrein CrossTalk IoT platform, it is possible to achieve the next level of industrial revolution.

Type No.	RTLS-N-1000-40	RTLS-N-1000-67
Order No.	**53010000**	**53010001**
UWB RTLS		
Frequency range [MHz]	3244–6999	
Antenna port output power [dBm]	–41.3	
Coverage [m]	approx. 80 in the line of sight	
Standards	IEEE 802.15.4 UWB, EN301489-3, EN50364, EN62368-1, EN60529, FCC Part15, UL, IC	
2.4-GHz communication link*		
Frequency range [MHz]	2400–2483.5	
Standards	IEEE 802.15.4:2006, IEEE 802.15.4:2011, IEEE 802.15.4:2012, IEEE 02.15.4:2015	
Ethernet		
Number of Ethernet ports	1	
Connector	RJ45	M12, X-coded, 8-pin, female
LED visualisation		
Status indication	1 multi-colour LED	
Mechanical properties		
Degree of protection	IP40	IP67
Operating temperature range [°C]	–40 to +60	
Storage temperature range [°C]	–40 to +85	
Dimensions (L x W H) [mm]	160 x 135 x 37	

Accessories

Order No.	Description
53010006	RTLS-N-WPM wall/pole mount
52010474	R-RPA 24VDC-18W, AC/DC adapter

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NEW

K-RTLS Transponder

Based on the latest generation of wireless technology, the RTLS-T-1000 series provide a localisation precision of up to 10 cm. Due to the fact that the the transponder is fully integrated into the powerful Kathrein CrossTalkIoT platform, it is possible to achieve the next level of industrial revolution.
The unique combination of UWB with RAIN RFID and NFC technology in a robust IP67 housing allows an easy and seamless integration into an existing RFID infrastructure. The RFID UHF tag is used for mid-range detection, while the RFID NFC tag is used for near-field detection and smartphone communication.

Type No.	**RTLS-T-1000-67**
Order No.	**53010002**
UWB RTLS	
Frequency range [MHz]	3244–6999
Antenna port output power [dBm]	–41.3
RX input sensitivity [dBm]	–93 to –106/500MHz (1% packet error rate)
Coverage [m]	approx. 80 in the line of sight
Standards	IEEE 802.15.4 UWB, EN301489-3, EN50364, EN62368-1, EN60529
RFID UHF	
Frequency range [MHz]	860–960
Max. ant. port input power [dBm]	15.5
Connection	I^2C
Standards	ISO 18000-63 (Gen2) & 18000-64 (TOTAL)
RFID NFC	
Frequency range [MHz]	13.56
Connection	I^2C
Standards	ISO/IEC 14443, Part 2 and Part 3

Quality made in Germany

NEW

K-RTLS Transponder

Type No.	RTLS-T-1000-67
Order No.	**53010002**
Sensors	
Accelerometer orientation	3 axes
Accelerometer measuring rate [Hz]	1–5.376
Accelerometer and vibration sensor measuring range	16mg–16g
Temperature sensor, operating temperature range [°C]	–40 to +60
Battery	
Name	CR123A (EIC-CR17345), exchangeable
Battery capacity [Ah]	1.5
Nominal voltage [V]	3
Typ. battery life (incl. marginal conditions)	@ 1Hz update rate: > 5 years*
LED visualisation	
Status indication	1 multi-colour LED
Mechanical properties	
Degree of protection	IP67
Operating temperature range [°C]	–40 to +60
Storage temperature range [°C]	–40 to +85
Dimensions (L x W x H) [mm]	92 x 54 x 30

* depending on the update rate and the use interval

Accessories

Order No.	Description
53010003	RTLS-T-MPC carrier mounting plate
53010007	RTLS-T-BAT battery

Quality made in Germany

RAIN RFID Readers

Passive UHF ISO 18000-6C RFID fixed readers with best-in-class RF performance, intelligent antenna interface ©KRAI, ruggedised mechanical IP67 design and unique connectivity features, such as integrated industrial controllers, 2G/3G, Wi-Fi, Bluetooth and PoE+.

NEW

Kathrein Reader Overview

RRU 4000 Reader Family

RRU 4400

Features

- +30 dBm
- 4 antenna ports
- ©KRAI
- IP67

RRU 4500

Features

- +33 dBm
- dual-core 800 MHz PC
- high-security memory module
- advanced LED visualisation

Option:

Wi-Fi/BLE	RRU 4560
2G/3G	RRU 4570

ARU 3000 Reader Family

ARU 4400

Features

- +30 dBm
- 3 antenna ports
- integrated antenna
- IP67

ARU 4500

Features

- +33 dBm
- dual-core 800 MHz PC
- high-security memory module
- advanced LED visualisation

Option:

Wi-Fi/BLE/Pol. switch	ARU 3560
2G/3G	ARU 3570

ARU 2400

Features

- +27 dBm
- 3 antenna ports
- integrated SMSH antenna
- ©KRAI
- IP40

ARU 8500

Features

- +33 dBm
- 3 antenna ports
- switched beam antenna for direction detection
- dual-core 800 MHz PC
- IP40

RRU 4000 Reader Series

The Kathrein RRU 4000 reader family is the next generation of RAIN RFID readers and the leading IoT device for all professional AutoID solutions. Its high-performance 33 dBm UHF RF unit, optional connectivity modules, such as PoE+, Wi-Fi, 3G mobile interface and the powerful scalable processing unit will change the way identification works.

Type No.	RRU 4400	RRU 4500	RRU 4560	RRU 4570
Version ETSI Order No.	52010287	52010288	52010289	52010290
Version FCC Order No.	52010295	52010296	52010297	52010298
Basic computing module	✓	✓	✓	✓
Dual-core embedded PC		✓	✓	✓
Number of Ethernet ports	1	2	2	2
GPIO	✓	✓	✓	✓
©KRAI	✓	✓	✓	✓
PoE+	✓	✓	✓	✓
LED visualisation	✓	✓	✓	✓
Wi-Fi			✓	
Bluetooth			✓	
2G/3G				✓

Accessories

Order No.	Description
52010358	10 m RRU/ARU DC power cable
52010359	3 m RRU/ARU DC power cable
52010360	10 m RRU/ARU Ethernet cable M12/RJ45
52010361	3 m RRU/ARU Ethernet cable M12/RJ45
52010362	10 m RRU/ARU GPIO cable M12
52010363	3 m RRU/ARU GPIO cable M12
52010373	10 m RRU/ARU Ethernet bridge cable

Order No.	Description
52010364	RRU/ARU AC/DC adapter 24 V/90 W
52010365	RRU/ARU AC/DC adapter 24 V/72 W DIN rail
52010366	RRU/ARU AC/DC adapter 24 V/90 W DIN rail
52010369	PoE+ Ethernet switch, 4-port
52010370	PoE+ injector 30 W, 100 Mbit for RRU, ARU
52010351	Wall/pole mount kit for RRU, ARU, WRA 6060, WRA 7070
52010261	Wall mount kit for RRU, ARU, WIRA 70
52010367	Vandalism protective cover for RRU, ARU, WRA 70
52010376	Protective caps for RRU, ARU

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RAIN RFID

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RRU 4000 Reader Overview

RFID UHF Reader Overview	ETSI Version		FCC Version	
	RRU 44xx	RRU 45xx	RRU 44xx	RRU 45xx
Frequency range [MHz]	865–868		902–928	
Max. TX power conducted [dBm]	30	33	30	30 (+33 dBm with extended cable length)
Protocol	EPC Class1 Gen2/ISO 18000-6C			
Number of antenna ports [R-TNC]	4			
Operating system, reader	Linux			
Basic computing module	✓	✓	✓	✓
Integrated IPC	–	dual-core @ 800 MHz/8 GB/Linux OS	–	dual-core @ 800 MHz/8 GB/Linux OS
©KRAI	✓	✓	✓	✓
Interface				
Number of Ethernet ports	1	2	1	2
Wi-Fi	–	RRU 4560	–	RRU 4560
Bluetooth	–	RRU 4560	–	RRU 4560
2G/3G	–	RRU 4570	–	RRU 4570
PoE+	PoE according to 802.3at (10–57)			
GPIO	4 inputs/4 outputs			
4 LED visualisation, freely programmable	basic LED	high-end LED	basic LED	high-end LED
Mechanical properties				
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			
Degree of protection	IP67*			
Standards	EN302208-2 V2.1.1, EN301489-3, EN50364, EN62368-1, EN60529, EPC Gen2 V2, UCODE DNA		FCC Part15, UL, IC, EPC Gen2 V2, UCODE DNA	

* If all sockets are connected via a Kathrein cable or have Kathrein protective caps.

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RAIN RFID

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ARU 3000 Reader Series

The Kathrein ARU 3000 antenna reader family is the next generation of RAIN RFID readers with an integrated 65° wide range antenna and 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, optional connectivity modules such as PoE+, Wi-Fi, 3G mobile interface and the powerful scalable processing unit will change the way identification works.

Type No.	ARU 3400	ARU 3500	ARU 3560	ARU 3570
Version ETSI Order No.	52010291	52010292	52010293	52010294
Version FCC Order No.	52010299	52010300	52010301	52010302
Basic computing module	✓	✓	✓	✓
Dual-core embedded PC		✓	✓	✓
Number of Ethernet ports	1	2	2	2
GPIO	✓	✓	✓	✓
LED visualisation	✓	✓	✓	✓
PoE+	✓	✓	✓	✓
Wi-Fi			✓	
Bluetooth			✓	
2G/3G				✓
Polarisation switch antenna			✓	

Accessories

Order No.	Description
52010358	10 m RRU/ARU DC power cable
52010359	3 m RRU/ARU DC power cable
52010360	10 m RRU/ARU Ethernet cable M12/RJ45
52010361	3 m RRU/ARU Ethernet cable M12/RJ45
52010362	10 m RRU/ARU GPIO cable M12
52010363	3 m RRU/ARU GPIO cable M12
52010373	10 m RRU/ARU Ethernet bridge cable

Order No.	Description
52010364	RRU/ARU AC/DC adapter 24 V/90 W
52010365	RRU/ARU AC/DC adapter 24 V/72 W DIN rail
52010366	RRU/ARU AC/DC adapter 24 V/90 W DIN rail
52010369	PoE+ Ethernet switch, 4-port
52010370	PoE+ injector 30 W, 100 Mbit for RRU, ARU
52010351	Wall/pole mount kit for RRU, ARU, WRA 6060, WRA 7070
52010261	Wall mount kit for RRU, ARU, WIRA 70
52010367	Vandalism protective cover for RRU, ARU, WRA 70
52010376	Protective caps for RRU, ARU

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RAIN RFID

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ARU 3000 Reader Overview

RFID UHF Reader Overview	ETSI Version		FCC Version	
	ARU 34xx	ARU 35xx	ARU 34xx	ARU 35xx
Frequency range [MHz]	865–868		902–928	
Max. TX power conducted [dBm]	30	33	30	30 (+33 dBm with extended cable length)
Max. emitted output power [dBm] int. antenna	33 ERP		+36 EIRP	
Protocol	EPC Class1 Gen2/ISO 18000-6C			
Number of antenna ports [R-TNC]	3			
Operating system, reader	Linux			
Basic computing module	✓	✓	✓	✓
Integrated IPC	–	dual-core @ 800 MHz/8 GB/Linux OS	–	dual-core @ 800 MHz/8 GB/Linux OS
Antenna integration				
Half-power beam width [°]	65			
Gain, linear [dBi]	–	ARU 3560 = 7.0	–	ARU 3560 = 7.0
Gain, circular [dBic]	ARU 3400 = 8.5	ARU 3500 = 8.5 ARU 3560 = 6.5 ARU 3570 = 7.0	ARU 3400 = 8.5	ARU 3500 = 8.5 ARU 3560 = 6.5 ARU 3570 = 7.0
Interface				
Ethernet	1	2	1	2
Wi-Fi	–	ARU 3560	–	ARU 3560
Bluetooth	–	ARU 3560	–	ARU 3560
2G/3G	–	ARU 3570	–	ARU 3570
PoE+	PoE according to 802.3at (10–57)			
GPIO	4 inputs/4 outputs			
4 LED visualisation, freely programmable	basic LED	high-end LED	basic LED	high-end LED
Mechanical properties				
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			
Degree of protection	IP67*			
Standards	EN302208-2 V2.1.1, EN301489-3, EN50364, EN62368-1, EN60529, EPC Gen2 V2, UCODE DNA		FCC Part15, UL, IC, EPC Gen2 V2, UCODE DNA	

* If all sockets are connected via a Kathrein cable or have Kathrein protective caps.

EPC FOUNDATION MEMBER

RAIN RFID

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NEW

ARU 2400 Reader Series

The Kathrein ARU 2000 reader family is a basic RAIN RFID reader with an integrated antenna for indoor use in eKanBan applications, Intelligent Assembly areas, IATA baggage check-in terminals and Intelligent Shelf applications. Its best-in-class 27-dBm UHF RF unit and connectivity interface PoE+ as well as the basic level processing unit allow for a flexible integration into Industry 4.0 and IoT solutions. Based on the latest RFID standards, such as EPC Gen2v2/ISO 18000-6C, Kathrein ARU 2000 series support all market-leading transponder chip features.

Type No.	ETSI Version ARU 2400
Version ETSI Order No.	**52010348**
Version FCC Order No.	**52010349**
Basic computing module	✓
Number of Ethernet ports	1
GPIO	✓
LED visualisation	✓
PoE	✓

Accessories

Order No.	Description
52010451	1 m RFID antenna cable, SMA-FAKRA
52010452	3 m RFID antenna cable, SMA-FAKRA
52010453	5 m RFID antenna cable, SMA-FAKRA
52010461	1 m RFID antenna cable, TNC-FAKRA
52010462	3 m RFID antenna cable, TNC-FAKRA
52010463	5 m RFID antenna cable, TNC-FAKRA
52010474	R-RPA 24VDC-18W, AC/DC adapter

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RAIN RFID

OPC FOUNDATION MEMBER

NEW

ARU 2400 Reader Overview

RFID UHF Reader Overview	ETSI Version	FCC Version
	ARU 2400	**ARU 2400**
Frequency range [MHz]	865–868 (865–867 for India)	902–928
Max. TX power conducted [dBm]	27	
Max. emitted output power [dBm] int. antenna	27.25	29.25
Protocol	EPC Class1 Gen2V2/ISO 18000-6C	
Number of antenna ports	3, Fakra connector, Z-coded	
Operating system, reader	Linux	
User platform	Linux basic computing module	
@KRAI	✓	
Antenna integration		
Half-power beam width [°]	60	
Gain, circular [dBic]	typ. 5.5	
Interface		
Ethernet	1	
PoE	PoE Class 0 according to 802.3at (10–57)	
GPIO	2 inputs, 2 outputs	
4 LED visualisation, freely programmable	basic LED	
Mechanical properties		
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 49	
Degree of protection	IP 40	
Standards	EN302208-2 V2.1.1	FCC Part15, UL

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RAIN RFID

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NEW

ARU 8500 Reader Series

The Kathrein Reader ARU 8500 offers a built-in 30° wide-range antenna with three selectable read zones which allows for a direct detection of movement. In addition, three external antenna ports are available to extend the read zones. The ARU 8500 is the perfect fit for Shipment Verification, Overhead EAS Retail applications, People/ Asset Tracking and Vehicle Logistics solutions.
It is possible to read out active and passive RFID tags in the frequency range from 865 to 868 MHz (865 to 867 MHz for India) and from 902 to 928 MHz (916 to 928 MHz for Peru). The device can read and write tags conforming to the EPC Gen2v2 standard (ISO 18000-6C).

Type No.	ARU 8500
Version ETSI Order No.	52010340
Version FCC Order No.	52010341
Basic computing module	✓
Dual-core embedded PC	✓
Number of Ethernet ports	2
GPIO	✓
LED visualisation	✓
PoE+	✓
Antenna system	3-beam phased array, circular polarised

Accessories

Order No.	Description
52010358	10 m RRU/ARU DC power cable
52010359	3 m RRU/ARU DC power cable
52010360	10 m RRU/ARU Ethernet cable M12/RJ45
52010361	3 m RRU/ARU Ethernet cable M12/RJ45
52010362	10 m RRU/ARU GPIO cable M12
52010363	3 m RRU/ARU GPIO cable M12
52010373	10 m RRU/ARU Ethernet bridge cable

Order No.	Description
52010364	RRU/ARU AC/DC adapter 24 V/90 W
52010365	RRU/ARU AC/DC adapter 24 V/72 W DIN rail
52010366	RRU/ARU AC/DC adapter 24 V/90 W DIN rail
52010369	PoE+ Ethernet switch, 4-port
52010370	PoE+ injector 30 W, 100 Mbit for RRU, ARU
52010351	Wall/pole mount kit for RRU, ARU, WRA 6060, WRA 7070
52010261	Wall mount kit for RRU, ARU, WIRA 70
52010367	Vandalism protective cover for RRU, ARU, WRA 70
52010376	Protective caps for RRU, ARU

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RAIN RFID

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NEW

ARU 8500 Reader Overview

RFID UHF Reader Overview	ETSI Version	FCC Version
	ARU 8500	ARU 8500
Frequency range [MHz]	865–868	902–928
Max. TX power conducted [dBm]	33	30 (+33 dBm with extended cable length)
Max. emitted output power [dBm] int. antenna	33 ERP	+36 EIRP
Protocol	EPC Class1 Gen2/ISO 18000-6C	
Number of antenna ports [R-TNC]	6 (3 = inside/middle/outside + 2 external ones)	
Operating system, reader	Linux	
Basic computing module	✓	
Integrated IPC	dual-core @ 800 MHz/8 GB/Linux OS	
Antenna integration		
Far-field half-power beam width [°]	30 vertical/80 horizontal	
Gain, left/straight/right [dBiC]	6.5/7.5/6.5	7.5/8.5/7.5
Switchable read field [°]	+35/0/–35	
Polarisation	circular	
Interface		
Ethernet	2	
PoE+	PoE+ according to 802.3at (10–57)	
GPIO	4 inputs/4 outputs	
4 LED visualisation, freely programmable	high-end LED	
Mechanical properties		
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 113	
Degree of protection	IP40	
Standards	EN302208-2 V2.1.1, EN301489-3, EN50364, EN62368-1, EN60529, EPC Gen2 V2, UCODE DNA	FCC Part15, UL, IC, EPC Gen2 V2, UCODE DNA

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RAIN RFID

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RAIN RFID Antennas

Passive UHF RFID high-performance antennas. Suitable for a variety of different read ranges by low-range (LORA), mid-range (MIRA) and wide-range (WIRA) antennas. ©KRAI (Kathrein RFID antenna interface) enables different intelligent features, such as beam switch, polarisation switch or antenna cascading for multiple use cases.

RAIN RFID Wide-Range 30 Antenna Overview

- ruggedised industrial design
- IP65 outdoor protection class
- different beamwidth in azimuth and elevation plane
- optimised for dock door applications
- linear versions optimised for free flow toll collect applications

Order No.	52010086	52010248	52010087	52010249
Type	WIRA-30-circular-ETSI	WIRA-30-linear-ETSI	WIRA-30-circular-FCC	WIRA-30-linear-FCC
Frequency range [MHz]	865–868		902–928	
©KRAI	–	–	–	–
Beamwidth [°]	30/70	30/70	30/70	30/70
Polarisation	circular	linear	circular	linear
Antenna gain [dBi]	typ. 11.5	typ. 11	typ. 11	typ. 11
VSWR	< 1.2:1	< 1.3:1	< 1.2:1	< 1.3:1
Connection	N female			
Operating temperature range [°C]	–40 to +70			
Storage temperature range [°C]	–40 to +85			
Degree of protection	IP65			
Dimensions (L x W x H) [mm]	557 x 270 x 58.5			

Accessories

Order No.	Description
52010174	3 m low-loss 240 antenna cable TNC/TNCR *
52010175	6 m low-loss 240 antenna cable TNC/TNCR *
52010176	10 m low-loss 240 antenna cable TNC/TNCR *
52010177	15 m low-loss 240 antenna cable TNC/TNCR *
52010250	15 m low-loss antenna cable N/TNCR
52010178	Antenna adapter TNC-N(f-m)
52010005	Pole mount kit for ARU-CSB, WIRA 30

* To connect the antenna cable, the TNC/N adapter 52010178 is needed

Wide-Range 40 Antenna Overview

- compact design for applications in ruggedised environments
- IP67 outdoor protection class
- read range up to 14 m
- symmetric beamwidth in azimuth and elevation plane
- optimised for vehicle identification (AVI) applications
- ideal solution for toll collect applications
- suitable for buld and single tag applications

Order No.	52020251	52010252
Type	WIRA-40-linear-ETS	WIRA-40-linear-FCC
Frequency range [MHz]	865–868	902–928
Far-field half-power beam width [°]	40/40	
Polarisation	linear	
Antenna gain [dBi]	typ. 12.5	typ. 13
VSWR	< 1.3:1	< 1.8:1
Connection	N female	
Operating temperature range [°C]	–40 to +70	
Storage temperature range [°C]	–40 to 85	
Degree of protection	IP67*	
Dimensions (L x W x H) [mm]	460 x 460 x 24	

* If all sockets are connected via a Kathrein cable or have Kathrein protective caps.

Accessories

Order No.	Description
52010174	3 m low-loss 240 antenna cable TNC/TNCR *
52010175	6 m low-loss 240 antenna cable TNC/TNCR *
52010176	10 m low-loss 240 antenna cable TNC/TNCR *
52010177	15 m low-loss 240 antenna cable TNC/TNCR *
52010250	15 m low-loss 400 antenna cable N/TNCR
52010178	Antenna adaptor TNC-N(f-m)
52010262	Wall/pole mount kit WIRA 40 Outdoor

* To connect the antenna cable, the TNC/N adapter 52010178 is needed

Quality made in Germany

RAIN RFID

OPC FOUNDATION MEMBER

Wide-Range 60 Antenna Overview

- compact industrial design
- read range up to 5 m
- very homogenous reading field
- extremely high front-to-back ratio
- Kathrein SMSH technology in a robust housing
- for applications in radiated near field, suitable for static tag identification

Order No.	52010423	52010424
Type	WRA 6060 Antenna Unit	WRA 6060 Antenna Unit
Frequency range [MHz]	865–868	902–928
Far-field half-power beam width [°C]	60	
Polarisation, circular	RHCP *	
Antenna gain [dBiC]	typ. 5.5 (at 866 MHz)	typ. 5.5 (at 915 MHz)
Axial ratio [dB]	typ. 1	
VSWR	typ. 1.2:1	
Connection	TNC female	
Operating temperature range [°C]	–40 to +70	
Storage temperature range [°C]	–40 to +85	
Degree of protection	IP67**	
Dimensions (L x W x H) [mm]	300 x 300 x 49	

* Right-hand circular polarisation

** If all sockets are connected via a Kathrein cable or have Kathrein protective caps.

Accessories

Order No.	Description
52010174	3 m low-loss 240 antenna cable TNC/TNCR
52010175	6 m low-loss 240 antenna cable TNC/TNCR
52010176	10 m low-loss 240 antenna cable TNC/TNCR
52010177	15 m low-loss 240 antenna cable TNC/TNCR
52010261	Wall mount kit WIRA 70, RRU, ARU indoor
52010351	Wall/pole mount kit WRA 6060, WRA 7070, RRU, ARU outdoor

Wide-Range 70 Antenna Overview

- compact industrial design
- IP67 outdoor protection class
- read range up to 12 m
- symmetric beam width in azimuth and elevation plane
- ©KRAI Interface
- dynamic polarisation switch (LHCP/RHCP/hor./ver.)
- LED visualisation
- optimised for logistics applications
- optimised for parking applications

Order No.	52010333	52010335	52010334	52010336
Type	WRA 7070 Antenna Unit	WRA 7070 ©KRAI Antenna Unit	WRA 7070 Antenna Unit	WRA 7070 ©KRAI Antenna Unit
Frequency range [MHz]	865–868		902–928	
©KRAI	–	✓	–	✓
4 LED visualisation, freely programmable	–	high-end LED	–	high-end LED
Far-field half-power beam width [°C]	65			
Polarisation, circular	RHCP **	LHCP/RHCP *	RHCP **	LHCP/RHCP *
Antenna gain [dBiC]	typ. 8.5 (at 866 MHz)	typ. 6.5	typ. 8.5 (at 915 MHz)	typ. 6.5
Axial ratio [dB]	typ. 1	typ. 2	typ. 1	typ. 2
Polarisation linear	–	horizontal/vertical	–	horizontal/vertical
Antenna gain [dBi]	–	7.0	–	7.0
VSWR	typ. 1.2:1	typ. 1.4:1	typ. 1.2:1	typ. 1.8:1
Connection	TNC female			
Operating temperature range [°C]	–40 to +70			
Storage temperature range [°C]	–40 to +85			
Degree of protection	IP67***			
Dimensions (L x W x H) [mm]	300 x 300 x 49			

* Left-/right-hand circular polarisation, ** Right-hand circular polarisation
*** If all sockets are connected via a Kathrein cable or have Kathrein protective caps.

Accessories

Order No.	Description
52010174	3 m low-loss 240 antenna cable TNC/TNCR
52010175	6 m low-loss 240 antenna cable TNC/TNCR
52010176	10 m low-loss 240 antenna cable TNC/TNCR
52010177	15 m low-loss 240 antenna cable TNC/TNCR
52010261	Wall mount kit WIRA 70, RRU, ARU indoor
52010351	Wall/pole mount kit WRA 6060, WRA 7070, RRU, ARU outdoor

Quality made in Germany

RAIN RFID

OPC FOUNDATION MEMBER

SmartShelf Antenna Overview

- extremely slim design
- near-field applications
- read range 0–3 m
- very high, homogeneous detection field
- optional cascade function for up to 32 antennas
- cascade function optional
- optional antenna protection cover

Order No.	52010219	52010259	52010260	52010318	52010319
Type	SMSH-30-30-ETSI-FCC	SMSH-High-Gain-30-30-©KRAI-ETSI	SMSH-High-Gain-30-30-ETSI	SMSH-High-Gain-©KRAI-FCC	SMSH-High-Gain-FCC
Frequency range [MHz]	865–928	865–868		902–928	
©KRAI	–	cascading	–	cascading	–
Protection cover	optional	✓	optional	✓	optional
Read range	0–1 metre	0–3 metres			
Polarisation	circular				
Antenna gain [dBiC]	typ. –7	typ. 5			
Axial ratio [dB]	typ. 1.5	typ. 2		typ 3.5	
VSWR	typ. 1.3:1				
Connection	IN: SMA female	IN: SMA female OUT: SMA female	IN: SMA female	IN: SMA female OUT: SMA female	IN: SMA female
Operating temp. range [°C]	–20 to +55				
Storage temp. range [°C]	–40 to +85				
Degree of protection	Indoor				
Dimensions (L x W x H) [mm]	310 x 300 x 8.5				
Dimensions with protective cover (L x W x H) [mm]	330 x 340 x 20				

Accessories

Order No.	Description
52010174	3 m low-loss 240 antenna cable TNC/TNCR
52010175	6 m low-loss 240 antenna cable TNC/TNCR
52010176	10 m low-loss 240 antenna cable TNC/TNCR
52010177	15 m low-loss 240 antenna cable TNC/TNCR
52010090	3 m RG58 antenna cable SMA/TNCR
52010208	0.5 m RG58 antenna cable SMA/SMA
52010243	Adapter TNC/SMA
52010224	Protection cover (housing for SMSH)
52010356	Aluminium backplane for SMSH

OPC FOUNDATION MEMBER RAIN RFID Quality made in Germany

Mid-Range Antenna Overview

- compact design
- small dimensions
- typical read range up to 2 m
- various transponder types
- suitable for use in industrial environments
- suitable for bulk and single tag applications
- high IP67 degree of protection; suitable for outdoor use

Order No.	52010082	52010083	52010172
Type	MIRA-100-circular-ETSI	MIRA-100-circular-FCC	S-MIRA-100-circular-ETSI-FCC
Frequency range [MHz]	865–868	902–928	865–928
Far-field half-power beamwidth [°]	100		
Read range	typ. 0.2–2 metres		typ. 0.1–1 metres
Polarisation	circular		
Antenna gain [dBiC]	2.5 (@ 866 MHz)	2.5 (@ 915 MHz)	–12 (@ 866 MHz) –10 (@ 915 MHz)
Axial ratio [dB]	typ. 1.5	typ. 2.5	typ. 2
VSWR	typ. 1.3:1	typ. 1.5:1	typ. 1.4:1
Connection	TNC female		
Operating temperature range [°C]	–20 to +55		
Storage temperature range [°C]	–40 to +85		
Degree of protection	IP67*		
Dimensions (L x W x H) [mm]	156 x 143.8 x 36		

* If all sockets are connected via a Kathrein cable or have Kathrein protective caps.

Accessories

Order No.	Description
52010174	3 m low-loss 240 antenna cable TNC/TNCR
52010175	6 m low-loss 240 antenna cable TNC/TNCR
52010176	10 m low-loss 240 antenna cable TNC/TNCR
52010177	15 m low-loss 240 antenna cable TNC/TNCR

Quality made in Germany

RAIN RFID

OPC FOUNDATION MEMBER

Low-Range Antenna Overview

- minimal dimensions
- extremely high selectivity
- read range < 20 cm
- suitable for use in industrial environments
- optimised for near-field applications
- high IP67 degree of protection
- suitable for outdoor use

Order No.	52010084	52010085	52010092
Type	LORA-ETSI	LORA-FCC	U-LORA-ETSI-FCC
Frequency range [MHz]	865–868	902–928	865–928
Range of near-field tags [cm]	typ. 7 @ NF-Tags		typ. 3 @ NF-Tags
Selectivity of near-field tags [cm]	typ. 5 @ NF-Tags		typ. 3 @ NF-Tags
Range of far-field tags [cm]	–	–	typ. 8 @ FF-Tags
Selectivity of far-field tags [cm]	–	–	typ. 10 @ FF-Tags
EIFF [dB]	20		15
Antenna gain [dBiC]	–15		–30
VSWR	< 1.3:1	< 1.8:1	< 1.2:1
Connection	TNC female		
Operating temperature range [°C]	–20 to +55		
Storage temperature range [°C]	–40 to +85		
Degree of protection	IP67*		
Dimensions (L x W x H) [mm]	79.5 x 90 x 31		

* If all sockets are connected via a Kathrein cable or have Kathrein protective caps.

Accessories

Order No.	Description
52010174	3 m low-loss 240 antenna cable TNC/TNCR
52010175	6 m low-loss 240 antenna cable TNC/TNCR
52010176	10 m low-loss 240 antenna cable TNC/TNCR
52010177	15 m low-loss 240 antenna cable TNC/TNCR

Software

The highly configurable, modular and customisable AutoID software suite CrossTalk allows a mix of technologies from major RFID, RTLS, barcode and sensor providers to fit into any customer environment. CrossTalk is the most advanced software suite for IoT device management and Track&Trace visualisation.

CrossTalk IoT Suite

CrossTalk AppCenter

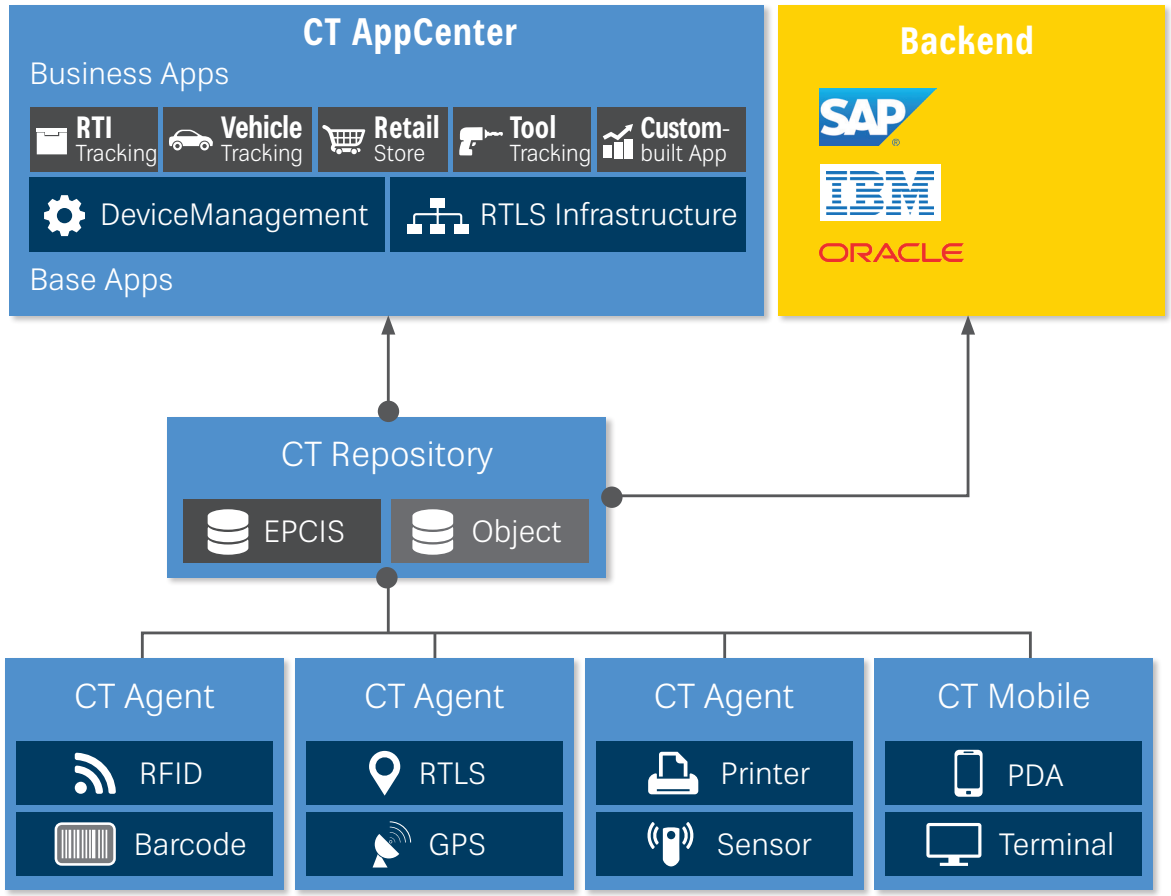
- Plattform for IoT tracking applications
- Central configuration and monitoring of IoT infrastructure
- DeviceManagement and back-end integration

CrossTalk Repository

- Highly scalable data storage and distribution platform for events and objects
- EPCIS compatible

CrossTalk Agent

- Plug&play device integration
- Real-time data capturing
- Event processing
- Intelligent filtering

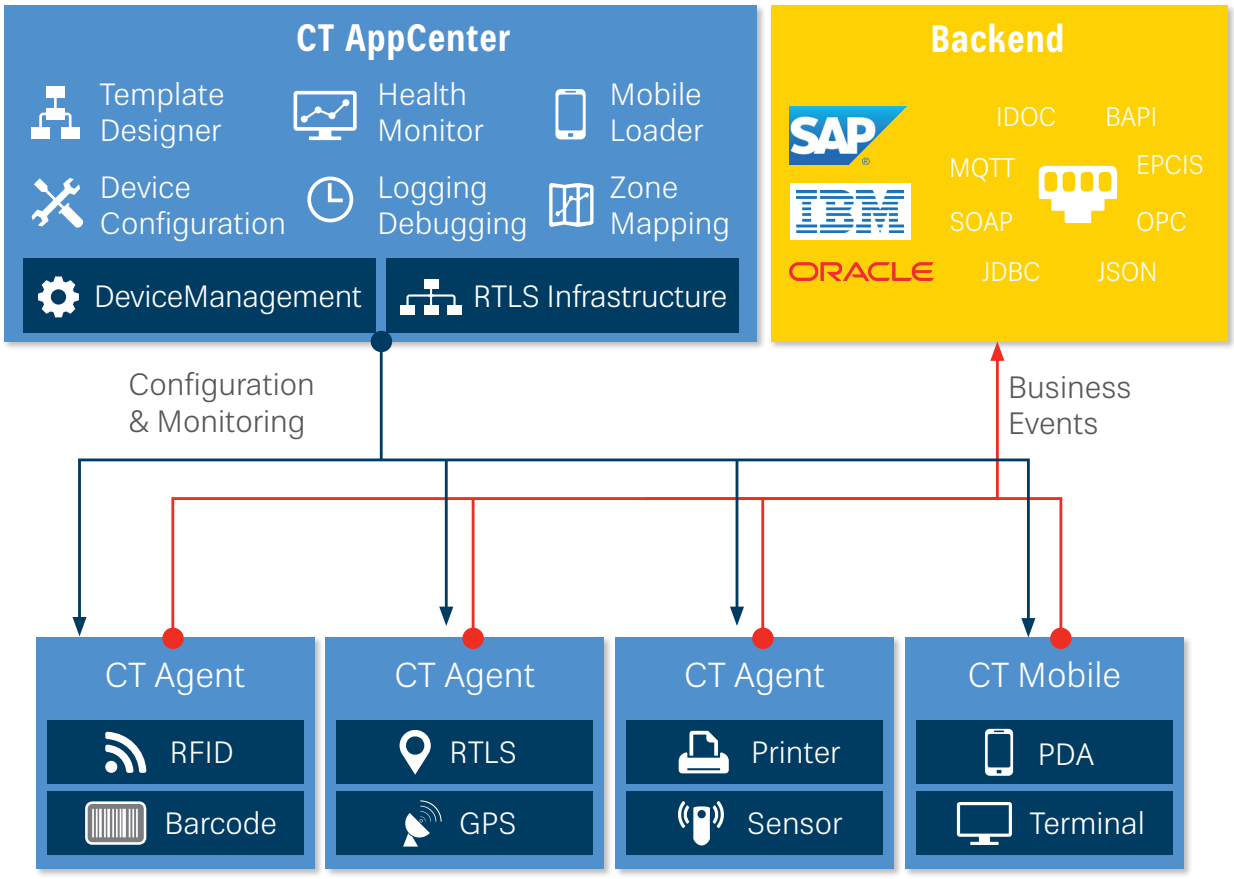


CrossTalk Base Platform License

- The base platform license allows cost-efficient integration of RFID and RTLS devices into existing back-end systems via standard or custom interfaces
- Data capture or localisation events are processed by the CrossTalk Agent and sent to the back-end application directly, thus guaranteeing a scalable and robust environment resilient to errors.

BASE PLATFORM FEATURES

- DeviceManagement
- RTLS Infrastructure
- Back-end integration
- CrossTalk agents
- Plug-and-play device integration
- Real-time data capturing
- Event processing
- Intelligent filtering



CrossTalk Base Platform License: Agent Standard Interface Matrix

Event Message Encoder

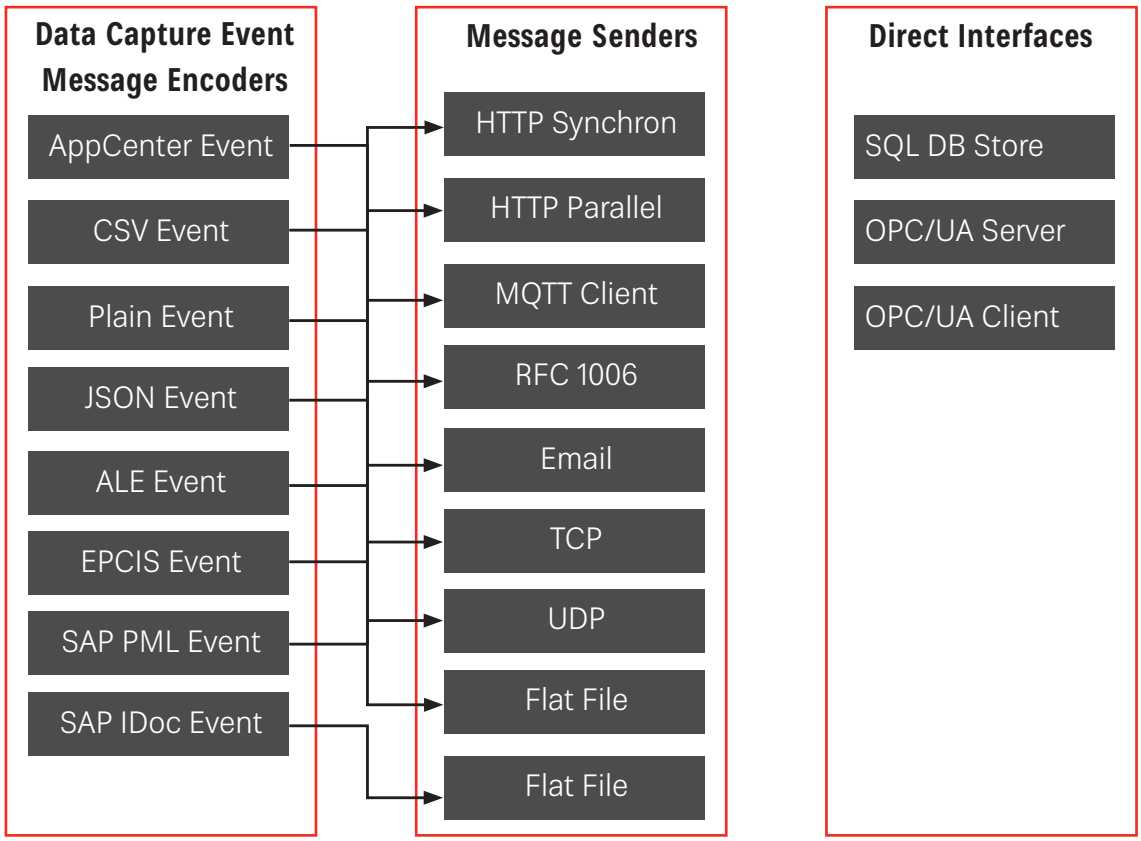
- Brings data capture events (RFID, RTLS etc.) into a specific message format

Message Senders

- Forwards event messages to the host system

Direct Interfaces

- E.g. the SQL DB Store, store events directly into a remote database

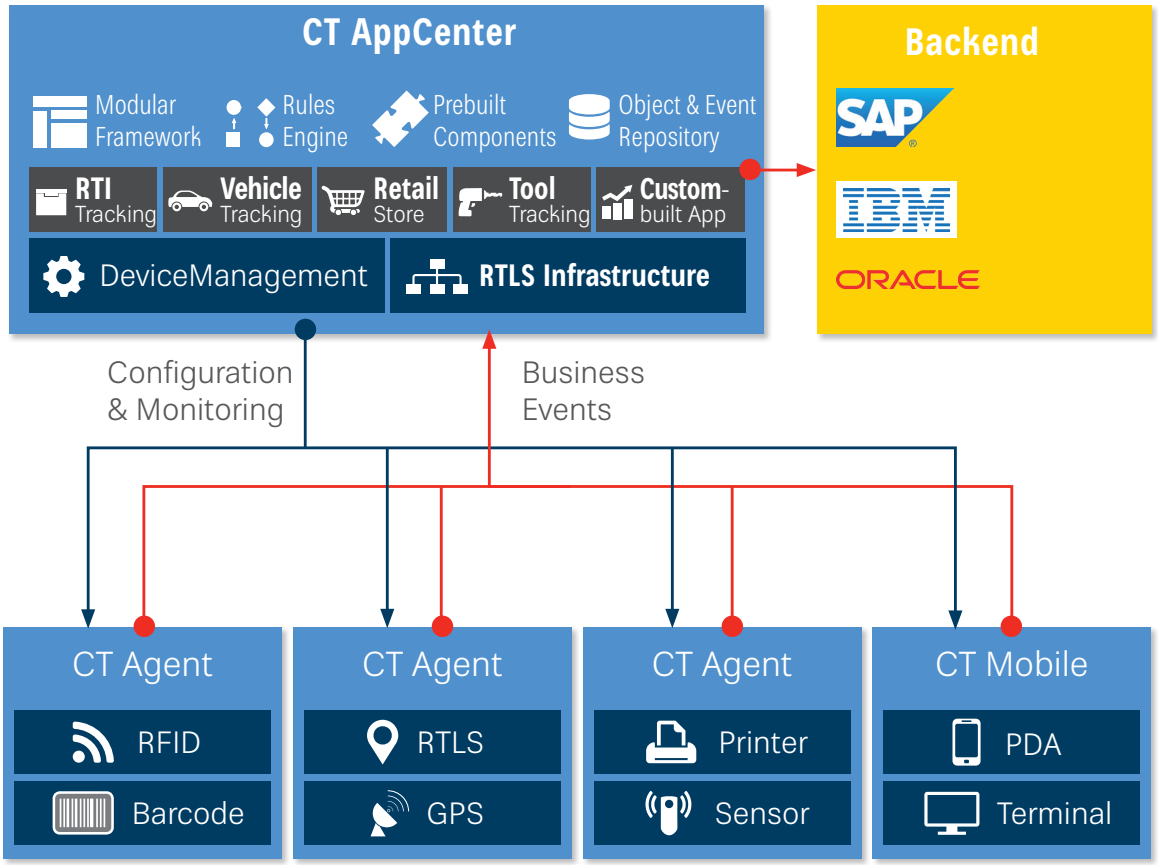


CrossTalk Full Platform License

- Built-in custom Track&Trace apps for end users, based on predefined scenarios

FULL PLATFORM FEATURES

- CrossTalk Base functions
- Predefined scenarios
- Basic tracking apps
- Rules Engine
- Object Event Repository
- Fully customisable user interface



CrossTalk Full Platform License

Rules Engine

- Customises application events and performs individual programme tasks for existing standard and custom-built apps
- Managed directly within the AppCenter customising environment

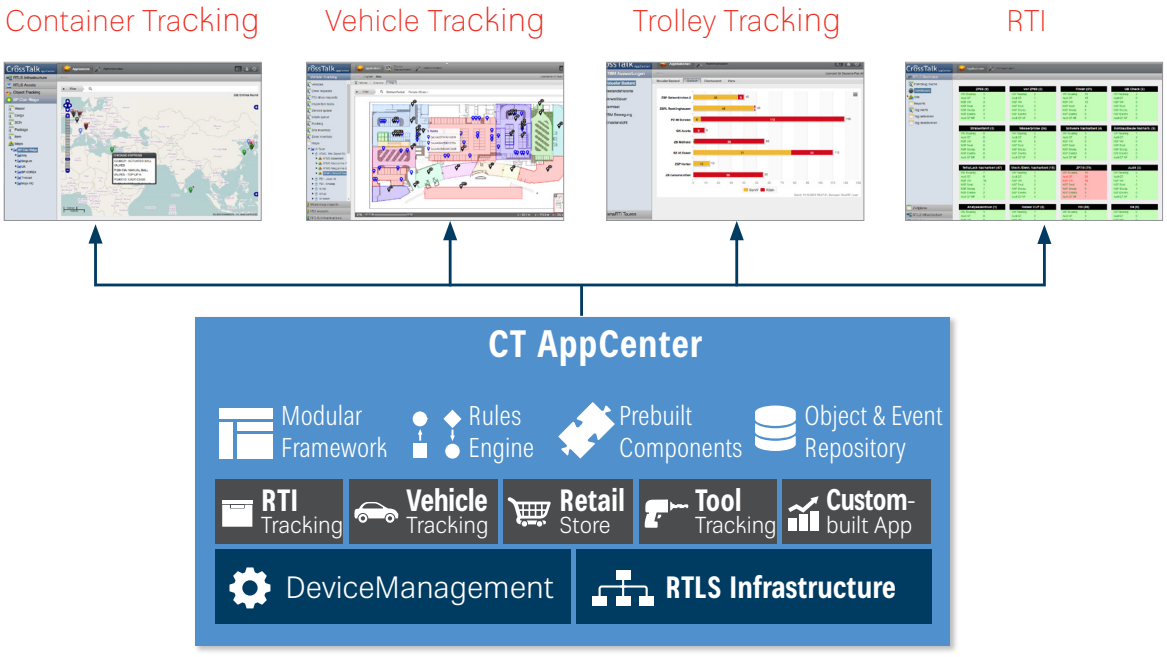
Object Repository Manager

- Allows the customisation of the integrated object repository
- Adds and changes object properties, types and labels
- Modifies existing language labels, adds new language translations
- Managed directly within the AppCenter customising environment

Direct Interfaces

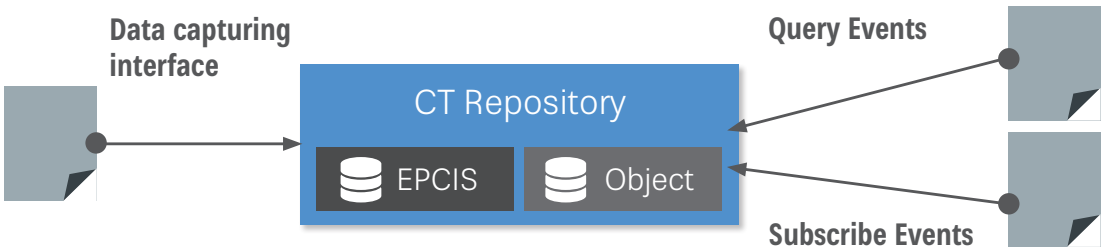
- Existing base Apps can be enhanced by injecting new functions and features as an add on
- Develop any track & trace scenario by building own Aapps using pre-built views and components

CrossTalk Full Platform Application Examples



CrossTalk EPCIS Repository License

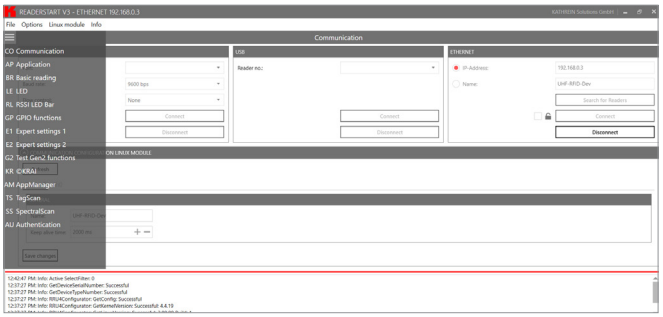
- Highly scalable data storage and distribution platform for IoT events and objects
- Based on the GS1 EPC standard, ISO certified
- Multiple DB storage engines
- Shares events over multiple systems and 3rd party suppliers
- Lowers total integration costs



CrossTalk IoT Suite: Order Overview

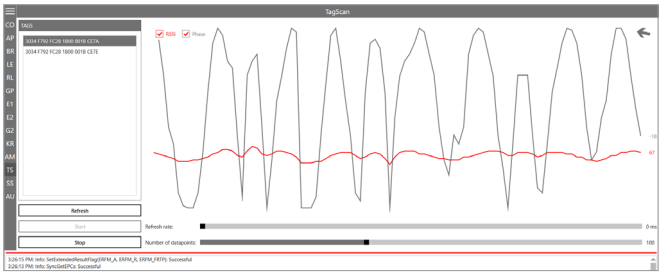
Order No.	Type	Description
52010313	CrossTalk Base License	Device integration platform
52010314	CrossTalk Full Lisence	Track and Trace Application platform
52010385	CrossTalk EPCIS Repository	Standard EPCIS Repository

Kathrein ReaderStart Software



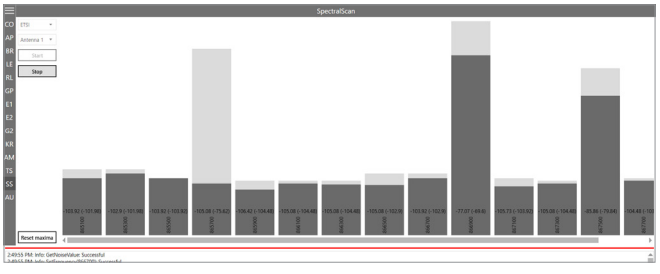
ReaderStart

By default, Kathrein provides a configuration and installation software called “ReaderStart“ with every reader for easy-to-start application developments. By using predefined templates such as gate application or vehicle/people identification, only a few more configurations are necessary, depending on the final environment. The AppManager enables the installation and implementation of Kathrein or customer-built software.



Tag Scan

In addition to Tag RSSI, Linux-embedded readers can represent the RSSI value and the TAG phase at the same time. This makes it very easy to use the data for tag movement detection and positioning.



Spectral Scan

The “Spectral Scan” function enables the detection of high-frequency interferers which fall within the transmission range of UHF RFID readers. This interference may be caused by short-range devices (1st harmonic of 433 MHz) and other UHF RFID readers with insufficient decoupling. With the spectral scan function, the noise level of these parasitic interferers can be recorded directly by the connected antennas.

Profinet IO

The Profinet IO app allows the integration of a reader into a Profinet IO environment; the reader acts as an IO device. To run the app, a valid licence key is needed. Licence keys (either a full licence or a time limited demo licence) are bound to the specific reader the app is running on. For obtaining a licence key, the hardware key provided by the app is needed.

Features

- Industrial Ethernet standard
- Fast IO communication
- High data rate

TagBlower

The TagBlower app can read tags asynchronously and generate messages when a tag is coming or going. The app provides a server on a configurable port where TCP clients can connect to receive those messages. The message format can be specified by the user by setting a coming and/or going datagram. A datagram consists of normal text and keywords.

Features

- Multi listener
- Push principle
- Configurable

LLRP

Kathrein RFID readers are available with an optional LLRP (Low Level Reader Protocol) stack installable as an LLRP app. All readers with an integrated embedded Linux OS can be controlled via LLRP 1.0.1 port 5084 for easier integration. To specify air interface commands between readers and clients, LLRP is a ratified standard protocol from EPCglobal (www.gs1.org/epcrfid/epc-rfid-llrp/latest)

Features

- 32 reader operators selectable
- Version 1.0.1 (13.08.2007)
- Port 5084

APIs

- C/C++ (Windows x 86/x64, Linux x86/x64, ARMv7a-sf x86, ARMv7a-hf x86)
- .NET (Windows x86/x64)
- Java

OPC UA

OPC UA (Unified Architecture) is an M2M-Communication Protocol for industrial applications. It is a standard to interconnect IoT systems. Based on Kathrein's embedded Linux operating system, it enables transport via web service or OPC UA Binary to Clients.
OPC UA is part of the CrossTalk Base platform.

User App

Kathrein devices allow their users full access to the embedded Linux operating system for building their own apps.

Features

- Full access to build own user apps directly on the reader

Kathrein Software: Order Overview

Order No.	Type	Description
52010375	SW-ProfiNet-App	for RRU4xxx/ARU3xxx reader with Linux OS
52010381	SW-Tag-Blower-App	for RRU4xxx/ARU3xxx reader with Linux OS
52010382	SW-Skidata-App	for RRU4xxx/ARU3xxx reader with Linux OS

AccessManager

Automated vehicle identification (AVI) is one of the key markets that Kathrein Solutions is focusing on. AVI includes free flow identification, plaza and parking applications. For parking applications, Kathrein provides a specially configured software for access control named AccessManager. Based on the Kathrein-reader embedded Linux operating system, AccessManager allows to create easy access solutions without any programming skills.

In combination with digital inputs and outputs (GPIO), AccessManager allows for direct control of barriers or gates.
In addition to the recorded permissions, each read event can be stored in a log file. The subscriber identifier and the exact time will be recorded in an SQLite database. This information can be retrieved for a desired duration. In this case, the access is realised via a remote connection or locally as a CSV or XML file.

AccessManager: Order Overview

Order No.	Type	Description
52010217	SW-AC-Manager 1000+	Application software, single licence AccessManager
52010242	SW-AC-Manager 5000+	Application software, single licence AccessManager
52010265	SW-AC-Manager 1000+ Pool Licence	Application software, pool licence 20 readers
52010266	SW-AC-Manager 5000+ Pool Licence	Application software, pool licence 20 readers

Transponders

Kathrein offers a wide range of high-performance transponders for automated vehicle identification and industrial use.

Windshield Label

The RFID windshield label serves for automatic, contactless identivication of vehicles (Automatic Vehicle Identification, AVI).
The label is adhered to the inside of the windshield. The development of the RFID windshield label was focused on a very high read range due to a special antenna behind glass and a passive function without a battery. Tag authentication uses an AES co-processor and a 128-bit AES unique crypto key. Privacy protection is achieved via an untraceable command and a 128-bit AES group crypto key.
The label material is a combination of PP and PET layer. Extra security kiss cuts improve security against removal and re-use. Custom-specific artwork printing, personalisation and key insertion available upon request.

Order No.	52010397	52010396
Type	WSL-TP-DNA25-K-C	WSL-TP-U725-K-C
Delivery lot [pcs]	500	
Operating ambient temperature range [°C]	–40 to +85	
Frequency range [MHz]	865–928	
Protocol	EPC Class1 Gen2 v2.0/ISO 18000-63C/IEC 29167-10	
Chip	UCODE DNA	UCODE 7
Memory		
EPC-serialised	224 bit	128 bit
User memory	3072 bit	–
Unique TID	96 bit	
Read range (on non-metalised glass in centre position) [m]	typ. 12; max. 16	
IT security	tag authentication using AES co-processor and 128-bit crypto key, privacy protection via untraceable command and 128-bit AES unique crypto key, AES group crypto key, ISO/IEC 29167-10	32-bit kill password to permanently disable the tag 32-bit access password
Programming	9-digit consecutive numbers in ASCII	
Serialisation	9 numeric characters in clear text; barcode	
Dimensions (L x W x H) [mm]	100 x 25	

NEW

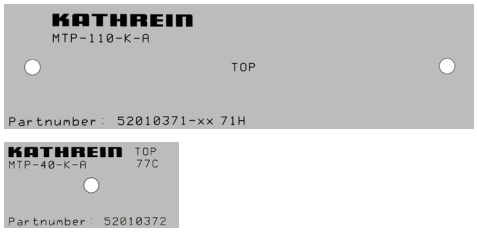
Headlamp Tag

The RFID headlamp tag serves for the automatic, contactless identification of motorcycles and vehicles (Automatic Vehicle Identification, AVI).
The label is adhered to the outside of the headlamp. The development of the RFID headlamp tag has been focused on a very high read range due to the special antenna on the headlamp and a passive function without a battery.
Tag authentication uses an AES co-processor and a 128-bit AES unique crypto key. Privacy protection is realised via an untraceable command and 128-bit AES group crypto key.
To protect the personalisation, both tags consists of two layers. The label material of the UCODE DNA tag is a combination of a hologram and PET layer, the label material of the the UCODE 7xm tag is a PET layer. The extra fragile antenna layer improves security against removal and re-use.

Order No.	**52010467**	**52010478**
Type	HLT-TP-K-C-DNA-M	HLT-TP-K-C-7XM-M
Operating ambient temperature range [°C]	–40 to +85	
Frequency range [MHz]	865–928	
Protocol	EPC Class1 Gen2v2.0/ISO 18000-63C/IEC 29167-10	
Chip	UCODE DNA	UCODE 7xm
Memory		
EPC max.	224 bit	448 bit
User memory	3072 bit	1024 Kbit
Unique TID	96 bit	
Read range (on non-metalised glass in centre position) [m]	typ. 12; max. 16	
IT security	tag authentication using AES co-processor and 128-bit crypto key, privacy protection via untraceable command and 128-bit AES unique crypto key, AES group crypto key, ISO/IEC 29167-10	32-bit kill password to permanently disable the tag 32-bit access password
Programming	9-digit consecutive numbers in ASCII	
Serialisation	9 numeric characters in clear text; QR code	
Dimensions (L x W x H) [mm]	100 x 20	

Multi-surface Transponders

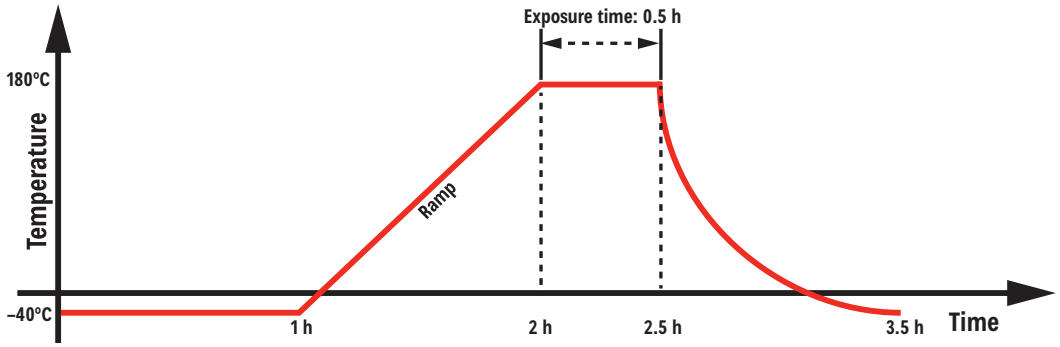
The universal multi-surface transponders from Kathrein are designed to be insensitive to the materials which they are attached to. Equally good performance is expected on both metal and non-metal items. With their robust structure, they can be used in harsh environments and have a high class of destruction resistance. With the UCODE DNA, the transponders offer a combination of long-range UHF RFID performance coupled with cryptographic security functionality for tag authentication.

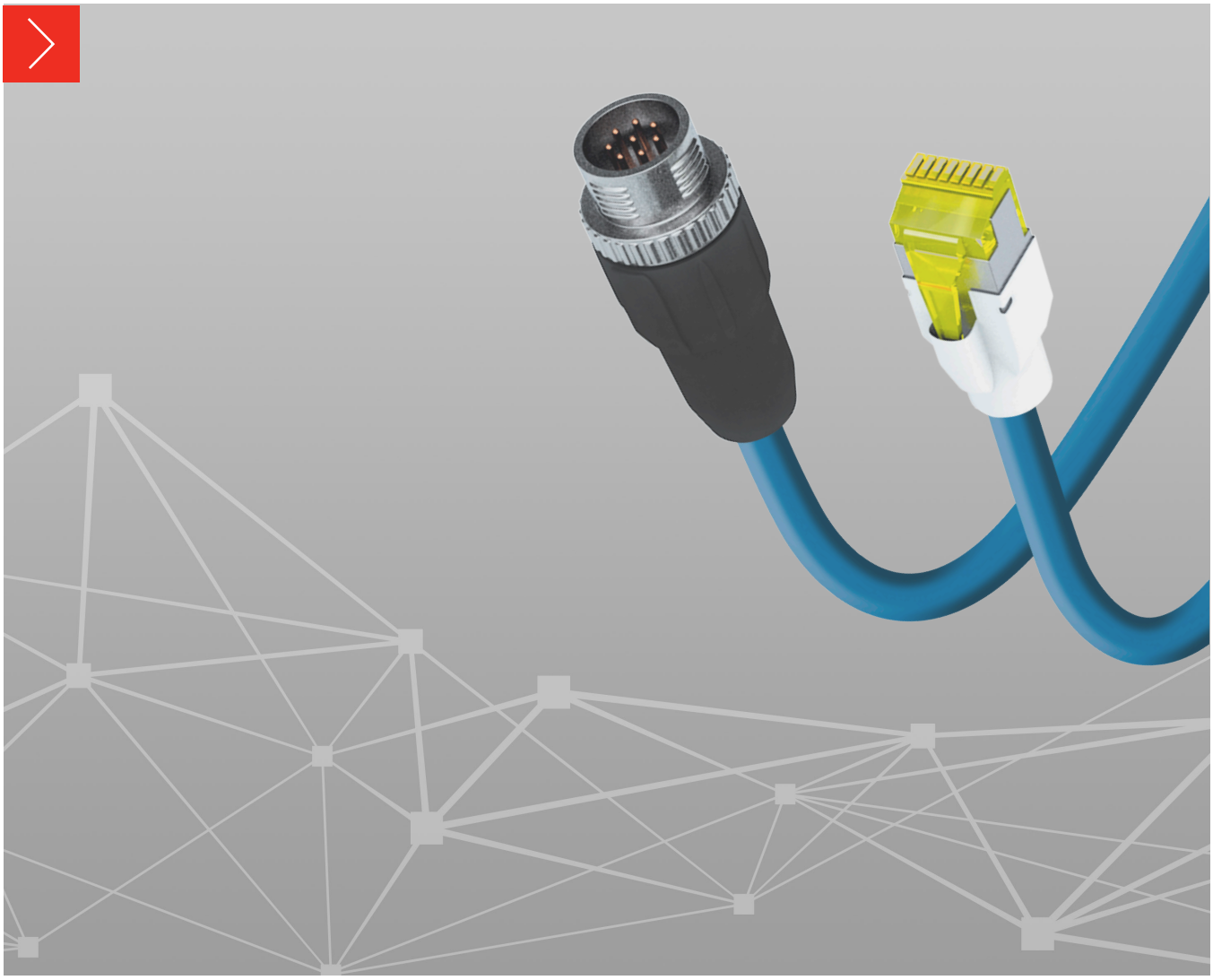


Order No.	52010371	52010372
Type	MTP-110-K-A	MTP-40-K-A
Operating ambient temperature range [°C]	–40 to +85	
Temperature shock [°C]	–40 to +180 (see Max. Temperature Range)	
Frequency range [MHz]	865–928	865–868
Protocol	EPC Class1 Gen2/ISO 18000-63C	
Chip	UCODE DNA	
Memory		
EPC max.	224 bit	
User memory	up to 3 kbit user memory (3072 bits) with BlockPermalock (depending on IC version and configuration)	
Unique TID	96 bit	
Serialisation	96-bit EPC	
Range [m]	typ. 7 m on all surfaces	typ. 4 m on metal surfaces* typ. 1 m on non-metal surfaces
IT security	32-bit access password, 32-bit kill password	
AES authentication	128-bit AES authentication keys	
Dimensions (L x W x H) [mm]	110 x 30 x 3	40 x 20 x 3

* A metal mounting screw can influence the performance

Max. Temperature Range





Accessories

Power supplies, connecting cables and mounting sets for Kathrein reader and antenna systems.

NEW

Reader Connecting Cables and AC/DC Adapter for ARU 2400

Order No.	Type	Description
52010451	R-AC 1 SMA–FAKRA	RFID antenna cable L=1 m, IP40; FAKRA Z-coded to SMA (m); right angle antenna plug
52010452	R-AC 3 SMA–FAKRA	RFID antenna cable L=3 m, IP40; FAKRA Z-coded to SMA (m); right angle antenna plug
52010453	R-AC 5 SMA–FAKRA	RFID antenna cable L=5 m, IP40; FAKRA Z-coded to SMA (m); right angle antenna plug
52010461	R-AC 1 TNC–FAKRA	RFID antenna cable L=1 m, IP40; FAKRA Z-coded to TNC (m); right angle antenna plug
52010462	R-AC 3 TNC–FAKRA	RFID antenna cable L=3 m, IP40; FAKRA Z-coded to TNC (m); right angle antenna plug
52010463	R-AC 5 TNC–FAKRA	RFID antenna cable L=5 m, IP40; FAKRA Z-coded to TNC (m); right angle antenna plug
52010474	R-RPA 24DC-18W	AC/DC adapter, 24 V/18 W, AC 110–230 V, power plug device, interchangeable AC plug

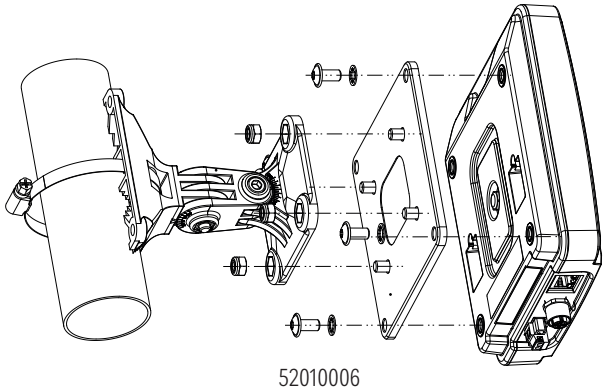
52010451/452/453

52010461/462/463

52010474

RTLS Accessories

Order No.	Type	Description
53010006	RTLS-N-WPM	RTLS-N node wall/pole mounting
53010003	RTLS-T-MPC	RTLS-T mount, load carrier
53010007	RTLS-T-BAT	RTLS-T battery, CR123A (EIC-CR17345)
52010474	R-RPA 24DC-18W	AC/DC adapter, 24 V/18 W, AC 110–230 V, power plug device, interchangeable AC plug



52010006

Reader AC/DC Adapter for RRU 4000 and ARU 3000

Order No.	Type	Description
52010364	R-RPA3 24VDC-90 W	RRU/ARU AC/DC adapter 24 V/90 W
52010365	R-RPA 24VDC-72 W	RRU/ARU AC/DC adapter 24 V/72 W
52010366	R-RPA 24VDC-90 W	RRU/ARU AC/DC adapter 24 V/90 W
52020369	R-ETH-SW-100	PoE+ Ethernet switch, 4-port
52010370	R-POE-INJ-30	PoE+ injector, 30 W, 100 Mbit for RRU and ARU
52010376	PCS-G3-IP67	Protective caps for RRU 4000 and ARU 3000 reader series IP67


52010364


52010365

52010366


52010369

52010370


52010376

Reader Connecting Cable for RRU 4000 and ARU 3000

Order No.	Type	Length	Description
52010358	R-CC3-10-DC	10 m	RRU/ARU DC power cable
52010359	R-CC3-03-DC	3 m	RRU/ARU DC power cable
52010360	R-CC3 10 ETH	10 m	RRU/ARU Ethernet cable M12/RJ45
52010361	R-CC3-03-ETH	3 m	RRU/ARU Ethernet cable M12/RJ45
52010362	R-CC3 10 GPIO	10 m	RRU/ARU GPIO cable M12
52010363	R-CC3-03-GPIO	3 m	RRU/ARU GPIO cable M12
52010373	R-BC3-10-ETH	10 m	RRU/ARU Ethernet bridge cable
52010431	R-AC3	0.5 m	RRU/ARU adapter cable GPIO, IP65, M12 male 12-pole, A-coded, 2x M12 female 8-pole, A-coded
52010432	R-AC3	0.5 m	RRU/ARU adapter cable Ethernet, IP65, M12 female 4-pole, D-coded, M12 male 8-pole, X-coded


52010358/359


52010360/361


52010362/363


52010373


52010431

Antenna Cables & Adapters

Order No.	Type	Description
52010174	R-AC 3 TNC-TNCR	LL 240 flex, L = 3 m, IP65 ruggedised
52010175	R-AC 6 TNC-TNCR	LL 240 flex, L = 6 m, IP65 ruggedised
52010176	R-AC 10 TNC-TNCR	LL 240 flex, L = 10 m, IP65 ruggedised
52010177	R-AC 15 TNC-TNCR	LL 240 flex, L = 15 m, IP65 ruggedised
52010250	R-AC 15 N-TNCR	LL 400 flex, L = 15 m, IP65 ruggedised
52010090	R-AC 3 SMA-TNCR	RG58, L = 3 m
52010208	R-AC 05 SMA-SMA	RG58, L = 0.5 m
52010178	R-AA TNC-N (f-m)	Antenna adapter TNC-N (f-m)
52010243	R-AA TNC-SMA (f-m)	Antenna adapter TNC-SMA (f-m)


52010174


52010250


52010090


52010178


52010243

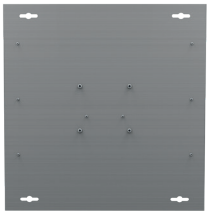
Connection Box

Order No.	Type	Description
52010439	CB-A	Connection box advanced; IP65, 230 V/90 W, Ethernet, GPIO, FI circuit breaker
52010440	CB-B	Connection box basic, IP65, 230 V/90 W, Ethernet, FI circuit breaker

Cover and Backplate for SMSH

Order No.	Type	Description
52010224	SMSH-30-30PC	Protective cover for SMSH
52010356	SMSH-BP-ALU	Aluminium backplate for SMSH


52010224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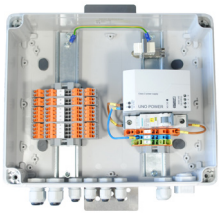
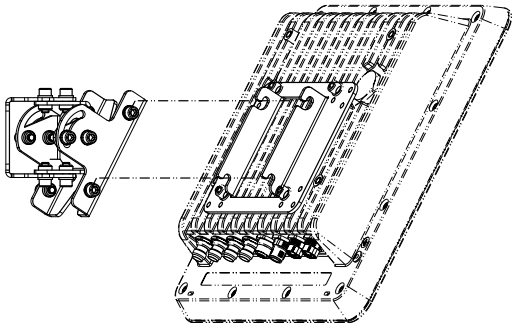
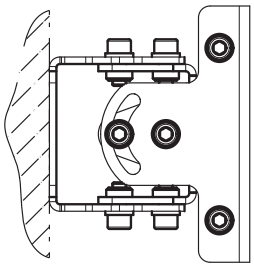

52010439

Wall/Pole Mounting Set for RRU 4000, ARU 3000, WRA 7070 and WIRA 40

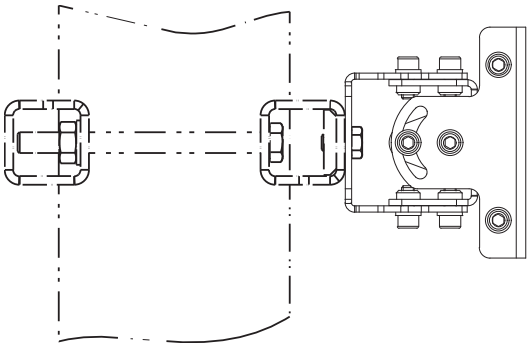
Order No.	Type	Description
52010351	MK-WPM3-OSS Outdoor	Wall/pole mount kit for RRU 4000, ARU 3000, WRA 6060, WRA 7070
52010368	MK-PMA-OGV	Pole mount adapter for 52010351
52010262	MK-WPGM-100-100-Outdoor	Wall/pole mount kit for WIRA 40



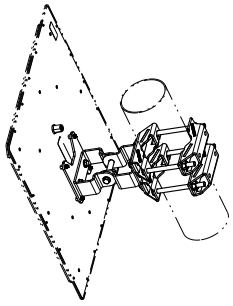
52010351



52010351/wall



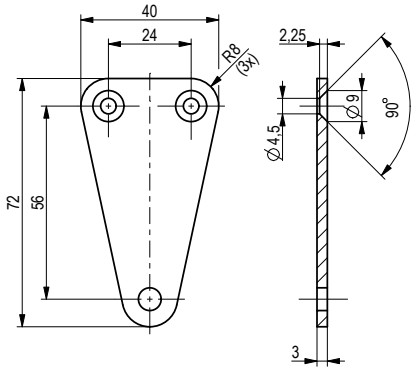
52010368/Pole mount adapter for 52010351

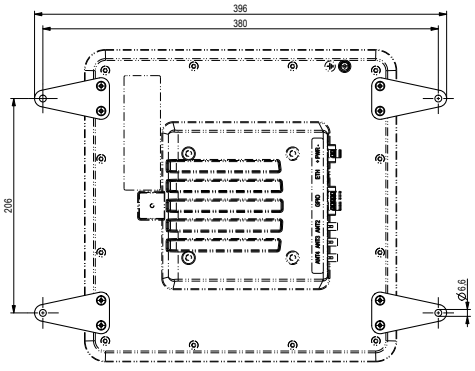


52010262/wall/pole

Shelf Mounting Kit for ARU 2400 Reader Family, WRA 6060 and WRA 7070

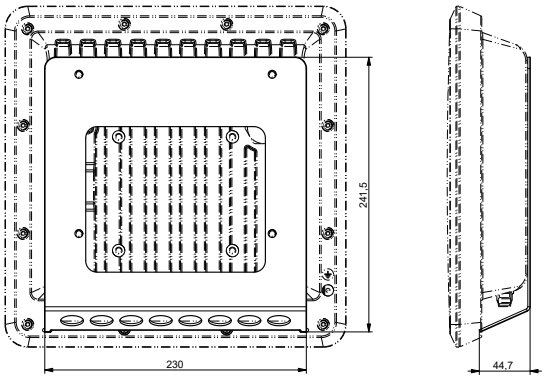
Order No.	Type	Description
52010479	MK-SHM-4IP	Shelf mounting kit for ARU 2400 readers, WRA 6060, WRA 7070





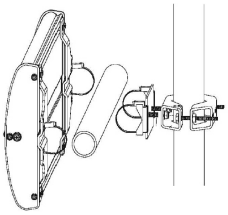
Vandalism Protective Cover for RRU 4000 and ARU 3000

Order No.	Type	Description
52010367	R-RVP3-VPP-SS	Vandalism protective cover for RRU 4000, ARU 3000



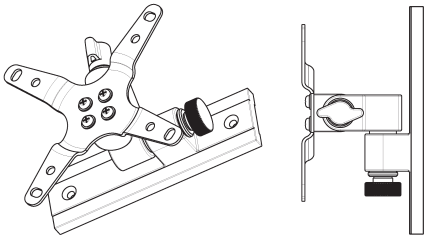
Pole Mounting

Order No.	Type	Description
52010005	MK-AMB-100-Outdoor	Pole mount kit for WIRA 30



Wall Mounting

Order No.	Type	Description
52010261	MK-WM-100-100-Indoor	Wall mount kit for RRU 4000, ARU 3000, WRA 6060/7070, SMSH-BP-ALU



Professional Services

Our services and support reflect the profound expertise of an innovative technology leader acquired over a whole century. Our experts and highly motivated teams work on excellent solutions to coordinate all relevant project activities and implementation tasks, and provide our customers with up-to-date information and direct visibility of the implementation status and progress. We provide you with reliable support in implementing your project according to the very highest quality standards.

Innovation Lab, Test and Application Centre

Our state-of-the-art innovation lab with integrated test and application center in Stephanskirchen, Germany is equipped with modern antenna and high-frequency measurement units and a high-speed conveyor, enabling the testing of applications that are critical in terms of time and speed. We carry out all professional testing on the customer's behalf, which considerably simplifies the development of customised standard products.

Core competencies

- Development and manufacturing of UHF antennas and reader systems
- Customised UHF antenna systems
- Customised stationary readers and reader modules
- 3D antenna/application simulation
- 3D transponder development and measurement

High-end hardware and customer-oriented service round off our portfolio. We provide RF simulation, application support, software integration and implementation as well as operation and maintenance — all from a single source.

Solutions

- Automatic Vehicle Identification — Solutions for mobile transport systems & individual transport
- Industry Automation — Solutions for Industry 4.0
- Logistics — RFID solutions for logistics processes
- Retail — RFID solutions for the retail trade

Make Use of Our Support for

Blueprint Services
The blueprint service is a plan or set of proposals that shows how it is expected to work. This document is created after a detailed site survey and covers the following topics:

- Process Analysis and Workflow
- Creating Specifications and Rough Schedules
- Documentation
- Project Kickoff

Project Management
The project management service delivers a dedicated certified project manager who is responsible for the project with all specified project management tasks.

- Planning
- Project Documentation
- Coordination and Organisation
- Execution & Finalisation

RFID Test Centre, Application Engineer Support & Field Analytics
The RFID Test Centre with an application engineer support is a facility based in Rosenheim for customer-specific tests and developments. The RFID application engineer HF and field analytics service is a dedicated person for customer on-site analysis. The main work packages cover:

- On-site Proof of Concept
- Choosing RFID Hardware
- Evaluation and Testing of RFID Tags
- RF Measurements and Performance Tests

Training
Kathrein is committed to the very highest quality standards. We offer a thoroughly developed portfolio of excellent training programmes so that customers and partners can benefit from our expertise on a lasting basis. These programmes can be booked individually or as part of an overall certification. With a state-of-the-art training infrastructure, our customers enjoy the advantages of an excellent worldwide set-up. Based on your needs, we provide programmes in the form of face-to-face training, general technology and project-related training , and we can provide an individualised combination of these various types, if necessary.

- RFID Basics
- Antenna and UHF Transmission Tasics
- Reader Basics
- Safety Standards and Human Exposure
- EPCglobal RFID Class 1 Gen2

Integration Tests Software/Hardware
The integration tests include interaction of hardware and software related to the specified projects requirements, such as:

- Hardware and Software Configuration and Tests
- Interaction Tests between Modules
- Interaction Tests with Customer Back-End System
- Approval & Documentation

Hardware Installation
The hardware installation and mounting services deliver the following work packages:

- Material Evaluation and Provisioning
- Installation Planning
- In-house Pre-Assembling
- On-site Installation

Go-Live Support
The go-live support services are delivered in and after a project approval or the finalisation phase and include the following:

- Veryfying the Complete System (HW, SW, Interface)
- Immediate Support in Case of Unexpected Problems
- Analysis and Elimination of Problems

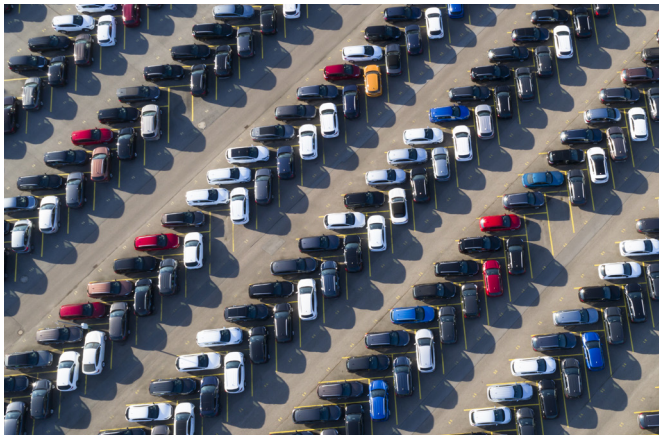
Services and Support for Complete End-to-End Eolutions

Use Cases

We offer our customers comprehensive end-to-end solutions – from RFID hardware, CrossTalk IoT suite and Services&Support – for identification, real-time localisation, tracking and management processes. Find out how our customers are successfully using our IoT technology.

Car Manufacturer AUDI Rolls out RFID in the Vehicle Logistics in Plants Worldwide

To optimally meet the requirements, Audi used the latest generation of RFID readers from Kathrein Solutions. When the vehicle passes an RFID reader, the ID number of the transponder of the corresponding vehicle is detected and transmitted together with the direction recognition to the back-end system. The CrossTalk software, which is installed on each reader, interpretes the reading events, filters unneccesary data or incorrect readings and forwards the relevant information to the IT systems.
At the same time, the CrossTalk software manages and monitors the condition of the RFID hardware and reading points.



IoT Solutions for Intelligent Healthcare Laundry Management

An integral element in the textile care sector of hospitals and retirement homes is the stable availability of clean work clothing. We strive to improve the quality of life of patients, physicians and healthcare professionals by providing future-oriented IoT solutions. All laundry items are registered and tracked throughout the entire process. Every incoming and outgoing laundry item is precisely documented and can be transparently traced at all times. The handling processes associated with the laundry supply are significantly minimised.

From Excavators to Concrete Mixers: Active RFID Keeps 62,000 Rental Units in Order

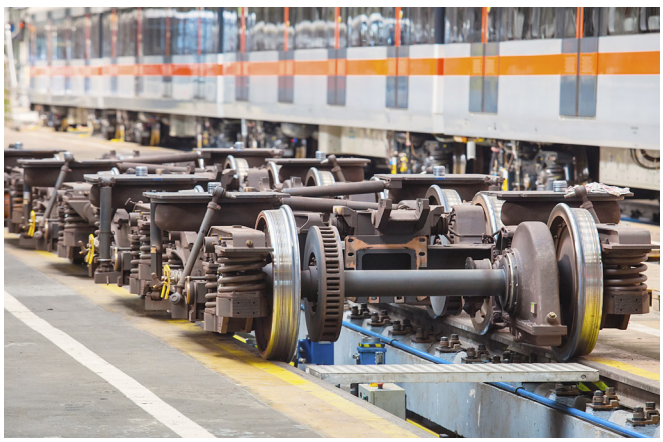
Automatic real-time identification of each rental device for improved availability, less search time and easy online reservations. Kathrein combined active RFID tags on all devices, four reading points per store and the Kathrein CrossTalk IoT suite to reduce cost and time and to improve availability.

Cloud-Supported Access Control and Fleet Management

Kathrein Solutions was able to implement an innovative, Cloud-based solution for the automated entry and exit of employees and fleet vehicles in company's headquaters and locations around the world. Passive UHF RFID and CrossTalk device management enable a precise cost distribution in fleet management.

Railway Tracking & Monitoring

The railway operator identifies and tracks the rolling material at its security checkpoints.
With the Kathrein RFID technology and CrossTalk IoT suite, this leads to increased accuracy in the attribution of measurements to a specific axis or wheel of a railway wagon. By providing this information to other rolling stock owners, it is possible to protect the rail network and increase its availability.



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KATHREIN

0219/IOTM/PF | Technical data subject to change.