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BALLUFF

sensors worldwide



Industrial RFID Systems BIS U

The right data at the right time at the right place

Industrial RFID Systems BIS U

Increase quality and productivity









With over 50 years of sensor experience, Balluff is a leading global sensor specialist with its own line of connectivity products for every area of factory automation. Balluff is based in Germany and has a tight international network of 54 representatives and subsidiaries.

Balluff stands for comprehensive systems from a single source, continuous innovation, the most modern technology, highest quality and greatest reliability and prides itself on distinctive customer orientation, custom-tailored solutions, fast worldwide service and outstanding application assistance.

High-quality, innovative products – certified in accordance with DIN ISO 9001:2008 (EN 29001) – are a secure foundation for optimized value creation for our customers.

Whether electronic and mechanical sensors, rotary and linear transducers, identification systems or optimized connection technology for high-performance automation, Balluff masters not only the entire technological variety with all of the different operating principles, but also provides technology that fulfills regional quality standards and is suitable for use worldwide. Wherever you are in the world, Balluff technology is never far away. You won't have to look far for you nearest Balluff expert.

Balluff products increase performance, quality and productivity around the world every day. They satisfy prerequisites for meeting demands for greater performance and cost reductions on the global market. Even in the most demanding areas. No matter how stringent your requirements may be, Balluff delivers state-of-the-art solutions.

Mature technology, individual solutions – more efficiency! Fully exploit the potential of high quality.


CERTIFICATE



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Industrial RFID Systems BIS U

Basic Information and Definitions 4

BIS U 5

Alphanumerical directory 17
Worldwide sales 18

more added value

– 100% quality
– High efficiency
– Increased economy

For 100% quality and maximum reliability – even at large distances

The Industrial RFID BIS U ensures flexible communication with fast read/write cycles. Even in highly dynamic applications. The BIS U thereby ensures 100% quality and, with an operating range of up to 6 m, bridges even large distances.

And it does this economically, since BIS U can detect and process multiple data carriers in the same field Regardless of how you align the data carrier – you are completely flexible with the circularly polarized antenna. Our rugged BIS U systems are simple to integrate into host controller systems: worldwide standards are not only the newest technology, they also bring investment security.

BIS U

Basic Information and Definitions
Areas of Application





more added value

- Reliable identification over long distance
- Detection of multiple data carriers in the same field
- Fastest data processing, even in dynamic applications
- More process transparency

Areas of applicaion

Bringing together the material and the corresponding information – that is the challenge in logistics. UHF technology makes an important contribution here. Particularly in conveying systems or in the area of logistics and distribution – in which it is not always possible to reproducibly detect load carriers within a few centimeters of the same location – the use of UHF makes sense. With ranges of up to several meters, they have enough performance reserve to reliably detect individual load carriers even from great distances.
Even if the load carriers, i.e. pallets, are packed with multiple objects: UHF technology can be used here to detect and process multiple transponders in the same field. Thus, load carriers can be moved past, e.g., so-called RFID gates and automatically detected via UHF. Without completely unstacking the pallet.

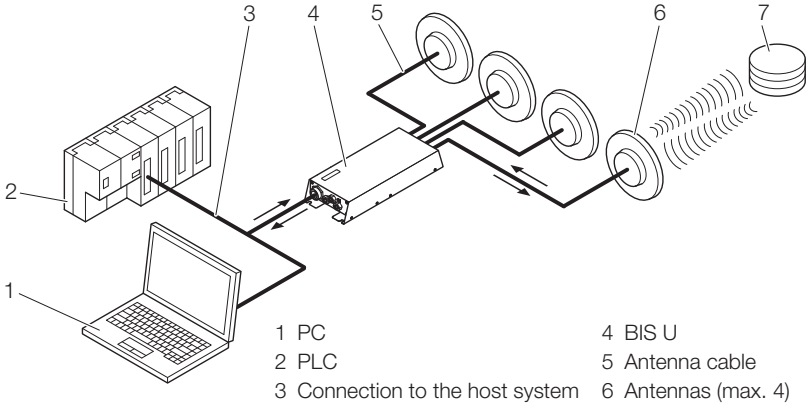
The quantity of data on the transponders plays a secondary role here – in many cases, it is sufficient to uniquely identify the transponder. The assignment takes place in a higher-level database . This simplifies tracking even beyond company boundaries.

A handbook containing the physical fundamentals, reference antennas and parameters, characteristics of the components and system behavior for the operation of a UHF system is available on our website: www.balluff.com/industrial-rfid

Functional principle Identification systems

The BIS U Identification System is classified as a non-contacting system with read and write function. This allows it to transport not only programmed information that is fixed in the data carrier, but also to collect and pass on current information.

The main components of the BIS U Identification System are:
- Reader
- Antennas
- Data carrier



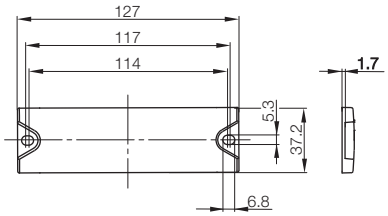
1 PC
2 PLC
3 Connection to the host system
4 BIS U
5 Antenna cable
6 Antennas (max. 4)
7 Data carrier

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Transponder
- Fast mounting with two holes
- Directly on metal with holder
- Rugged housing for closed-loop applications

Dimensions	127×37.2×7
Housing material	PPS-GF40
Weight	18 g
Ordering code	**BIS 00NL**
Part number	BIS U-100-01/CA
User data	512 bits
Frequency	840...960 MHz
Insulation class acc. to IEC 60529	IP 67
Memory capacity read/write	96...480 bit EPC
Memory capacity read-only	32-bit ID, 64-bit unique ID
Standards	EPC global™, Class 1, gen 2, ISO 18000-6C
Ambient temperature	–40...+85°C
Storage temperature	–40...+85°C

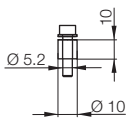






Labels
The applications are as varied as the labels that are used. A wide range of variants arises here from the contact surface, the maximum size and even the required protection class. We will be happy to advise you as to whether, and, if so, which labels may be used in your application.
We look forward to hearing from you: tecsupport@balluff.com





Ordering code BAM01LW
Part number BIS Z-SP-003

Fastener set consisting of:
2 plastic distance rollers
2 socket cap screws with hexagon socket, ISO4762-M 5X22-8,8-A2B
2 washers D 125-A 5,3-ST-A2P

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Industrial RFID Systems BIS U
Antennas

An important part of the system are the antennas. Together with the transponder, they are largely responsible for the range and the illumination of the application area. The power available to the antenna can be flexibly set via the reader. The frequency range for UHF systems in dependent on the region of use. There are, thus, country-specific variants here as with the readers. Regardless of whether you install the antennas near gates or plan to use them in a conveyor line – the wide range of accessories simplifies integration in all places of use.

Antennas from Balluff stand for
- Simple mounting with standard accessories
- Metal connector for secure connection
- Rugged housing for use where you need it

CE

Dimensions	
Housing material	
Weight	
Ordering code	
Part number	
Frequency range	
Approved radiated power	
Antenna gain	
Antenna impedance	
Connection type	
Degree of protection	
Ambient temperature T_a	
Dispersion angle	



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For USA/Canada!
902...928 MHz

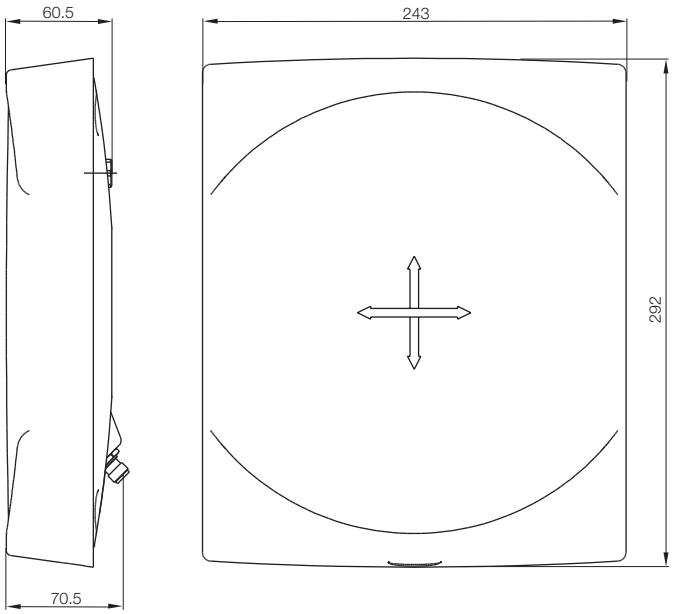


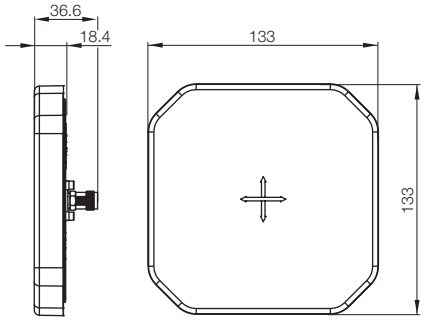
For Europe!
865...868 MHz

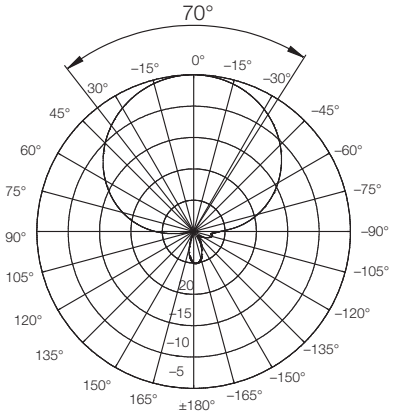


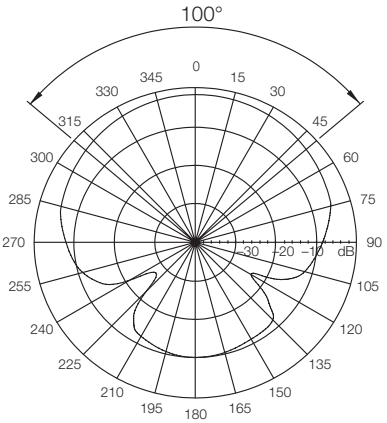
For Europe!
865...868 MHz

	292×243×60.5	292×243×60.5	133×133×18.4
	PS	PS	PC
	960 g	960 g	365 g
	BIS00MC	**BIS00MH**	**BIS00P0**
	BIS U-300-C1-TNCB	BIS U-300-C0-TNCB	BIS U-301-C0-TNCB
	902...928 MHz	865...868 MHz	865...868 MHz
	< 2 W ERP ETSI EN 302208	< 2 W ERP ETSI EN 302208	< 0.5 W ERP ETSI EN 302208
	8.4 dBic	8.4 dBic	5.5 dBic
	50 Ω	50 Ω	50 Ω
	TNC socket	TNC socket	TNC socket
	IP 54 (with connector)	IP 54 (with connector)	IP 67 (with connector)
	–25...+55°C	–25...+55°C	–30...+70°C
	68° vertical, 70° horizontal	68° vertical, 70° horizontal	100° vertical, 100° horizontal







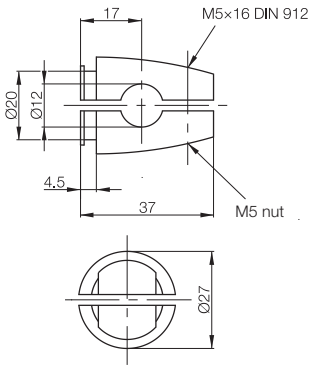


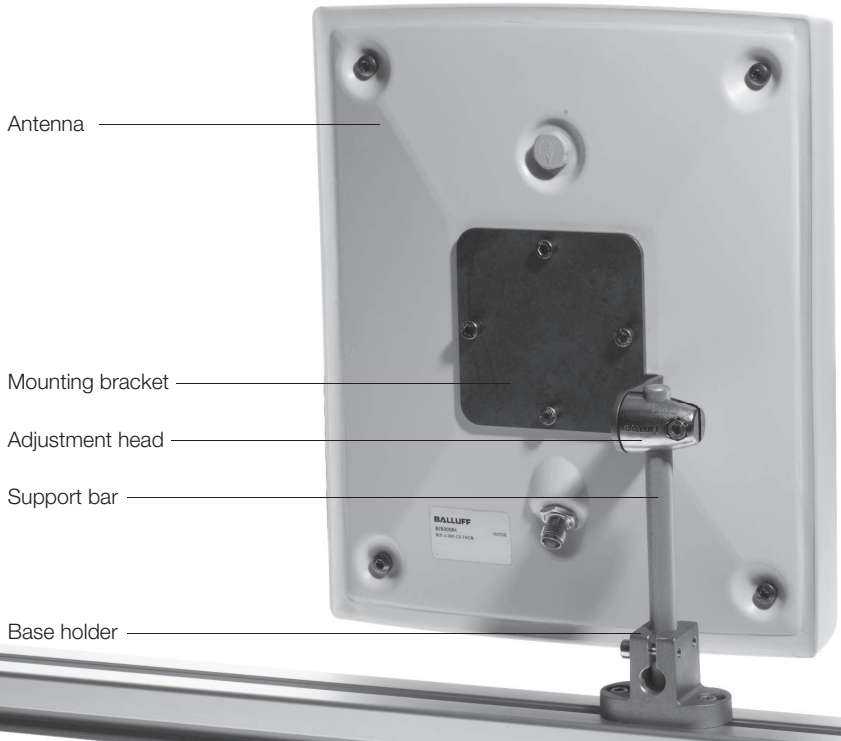
Radiation pattern, horizontal

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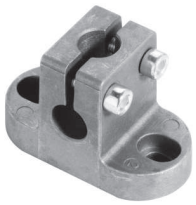


Description	Clamping cylinder	
Type	For 1 mounting rod Ø 12 mm	
Version		
Ordering code	**BAM0031**	
Part number	BMS CS-M-D12-IZ	
Material	GD-Zn	





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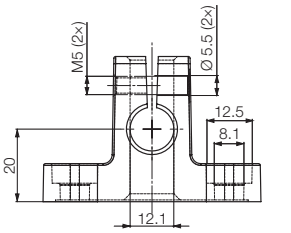


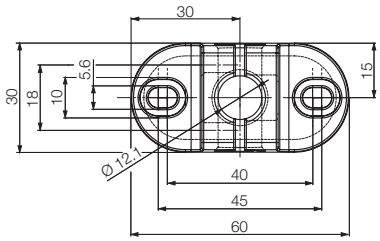


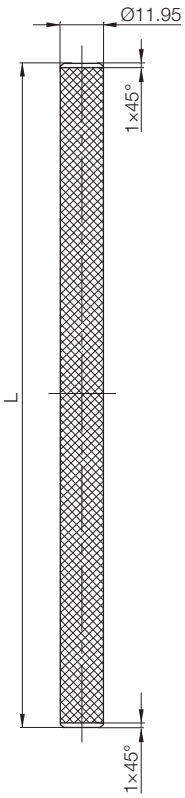


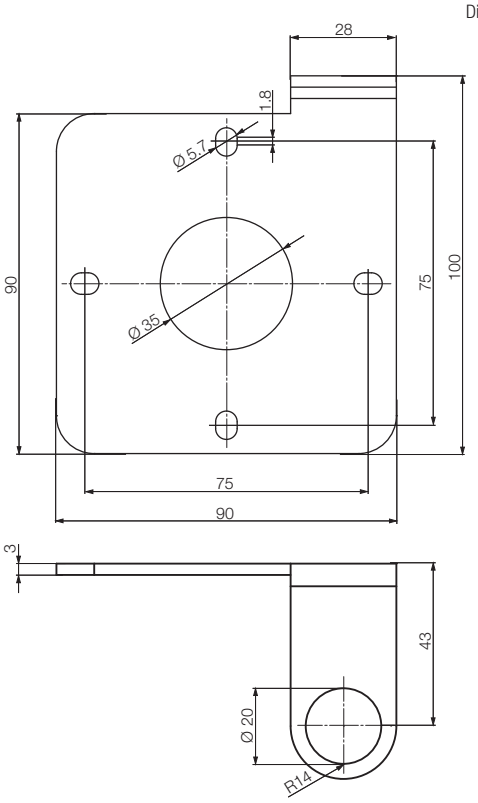
	Base holder	Mounting rod Ø 12 mm	Antenna holder
	For 1 mounting rod Ø 12 mm (vertical or horizontal)	Knurled, length 150 mm	for BIS U-300...TNCB BIS U-301...TNCB
	For mounting on base plates or profiles		
	BAM002W	**BAM002R**	**BAM01JK**
	BMS CU-M-D12-A040-00	BMS RS-M-D12-0150-00	BIS Z-HW-003
	Al anodized	Al anodized	V4A (1.4571)

The mounting rods are knurled full-length.
This prevents any position change.

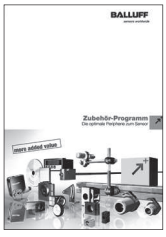












You can find additional information on the topic of accessories in our Accessories Program catalog or online at www.balluff.com

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Industrial RFID Systems BIS U

Processors BIS U-602_-... TCP/IP and RS232

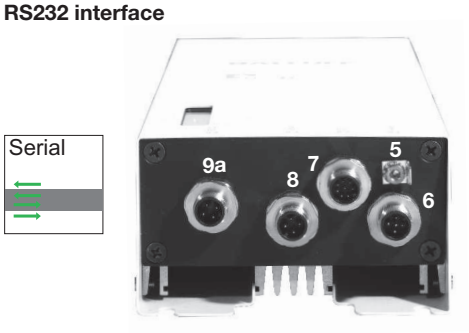
– Simple mounting with standard accessories
– Metal connector for secure connection
– Rugged housing for use where you need it



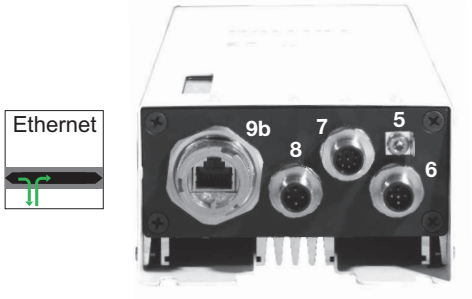
4 antennas on top



RS232 interface



Ethernet TCP/IP interface



1 Antenna port 1
2 Antenna port 2
3 Antenna port 3
4 Antenna port 4
5 Function ground FE
6 X1 power supply
7 X2 control inputs / outputs
I/O ports for additional functionality
8 X3 RS232 service interface
9a X4 application interface - RS232 variant
9b X4 application interface - TCP/IP variant

Ordering example:

BIS U-602_-0_ _-_ _4-0_-ST2_

Hardware type

0 serial interface RS232
7 Ethernet TCP/IP (Metal housing)

Software type

53 RS232
54 Ethernet TCP/IP

Antenna socket version

10 Country setting 865...868 MHz Europe
11 Country setting 902...928 MHz USA/Canada

Interface

0 RS232
6 Ethernet

Customer connection

6 for serial device
7 for TCP/IP device

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Industrial RFID Systems BIS U

Processors BIS U-602_-... TCP/IP and RS232



Serial

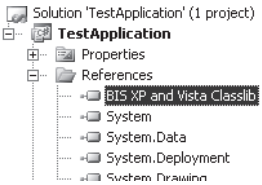


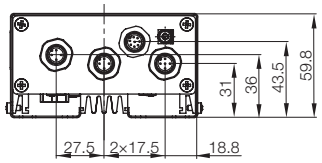
Ethernet

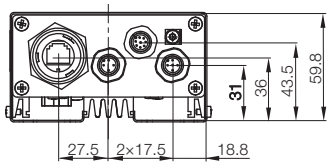
Function		Read/write	Read/write
Housing material		AlMgSi 0.5	AlMgSi 0.5
Weight		2100 g	2100 g
For Europe!			
Frequency range	**Ordering code**	**BIS00M7**	**BIS00NA**
865...868 MHz	Part number	BIS U-6020-053-104-00-ST26	BIS U-6027-054-104-06-ST27
For USA/Canada!			
Frequency range	**Ordering code**	**BIS00R2**	**BIS00R1**
902...928 MHz	Part number	BIS U-6020-053-114-00-ST26	BIS U-6027-054-114-06-ST27
Operating voltage		24 V DC ± 20 %	24 V DC ± 20 %
Ripple		≤ 10 %	≤ 10 %
Current consumption at 24 V DC		≤ 1 A	≤ 1 A
X3 service interface		RS232	RS232
X4 application interface		**RS232**	**Ethernet**
Characteristic impedance of antenna ports		50 Ω	50 Ω
Adjustable power at the antenna ports		17...30 dBm (50 mW...1 W)	17...30 dBm (50 mW...1 W)
X1 power supply		V_s 24 V DC: panel connector M12. 5-pole	V_s 24 V DC: panel connector M12, 5-pole
X2 control inputs / control outputs		M12 panel connector, 8-pin	M12 panel connector, 8-pin
X3 service interface		M12 panel connector, 4-pin	M12 panel connector, 4-pin
X4 application interface		M12 panel connector, 4-pin (BIS U-6020)	Bayonet connector RJ45 (BIS U-6027)
Antenna ports 1 - 4		Antenna socket R-TNC	Antenna socket R-TNC
Degree of protection per IEC 60529		IP 65	IP 65

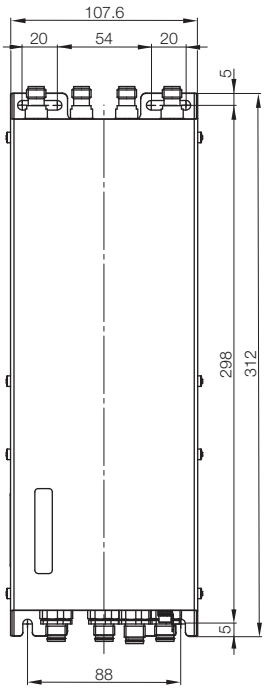
Included in the scope of delivery:
- BIS U-602_
- 5× closure cap
- BIS Software-CD
- Condensed manual in printed form (DE/EN)

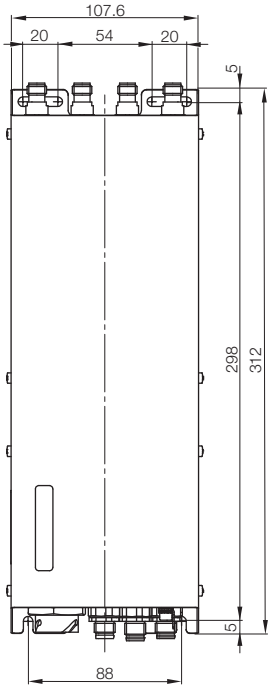
Accessories (please order separately)
DLL for integrating the protocol in PC-based controller or evaluation unit.
Ordering code BAE00F2
Part number BIS-Z-SW-UHF-DLL











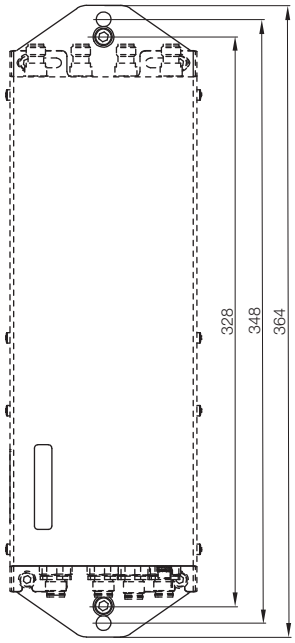
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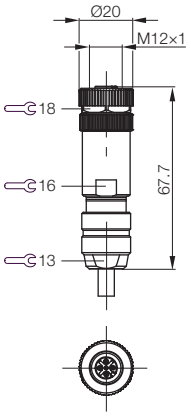




Description	Fastening plate		
Type		5-pin, female	
Version		for connecting to processors supply voltage	
Ordering code	**BAM01KN**	**BCC06ZN**	
Part number	BIS Z-HW-004	BCC M475-0000-1A-000-01X575-000	
Ordering code			
Part number			
Ordering code			
Part number			
Ordering code			
Part number			
Connector		M12 - field-attachable	
Cable diameter		5...8 mm	
Conductor cross section		0.14 mm²...0.75 mm²	
Degree of protection per IEC 60529		IP 67	
Ambient temperature		–25...+85 °C	
Cable			
Surge impedance			

For mounting on profile rail, steel screw connection.





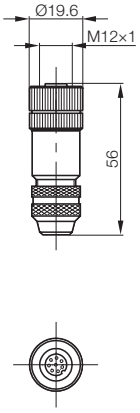
Included for mounting are:
2 BIS Z-HW-004 retaining plates
4 socket cap screws with
hexagon socket M5×10 DIN 912, A2, 8.8
2 socket cap screws with
hexagon socket M6×12 DIN 912, A2, 8.8
4 washers 5 DIN 125, A2
2 washers 6 DIN 125, A2

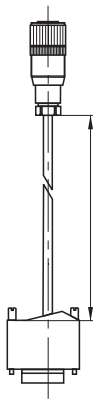
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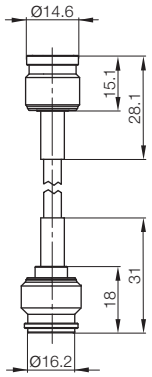


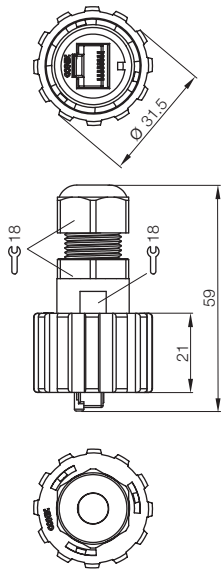



		Adapter cable	Connection cable	RJ45 coupling
	8-pin, female			
	for connecting to processors RS232 service interface	for connecting to processors BIS U-6020-053-104-00-ST26 BIS U-6027-054-104-06-ST27	for connecting to processors and antenna	for Ethernet TCP/IP
	BCC00YA	**BCC00PL**	**BAM01HL**	**BCC09N2**
	BKS-S115-00	BIS-C-522-PVC-02	BIS U-500-EF-01	BCC E878-0000-Z1-41X8T4
			BAM01HM	
			BIS U-500-EF-02	
			BAM01HN	
			BIS U-500-EF-05	
			BAM01HP	
			BIS U-500-EF-10	
	M12	Serial interface RS232 to PC	TNC connector 7/16“	
	6...8 mm	5.8 mm	5 mm	4.58 mm
			0.94 mm	
	IP 67	IP 67	IP 68	IP 67
	–40...+85 °C	–5...+80 °C	–40...85°C	–20...60°C
		PVC	FRPE	
			50 Ω	











Crimping tool for RJ45 connector 11030273

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Industrial RFID Systems BIS U
Handheld

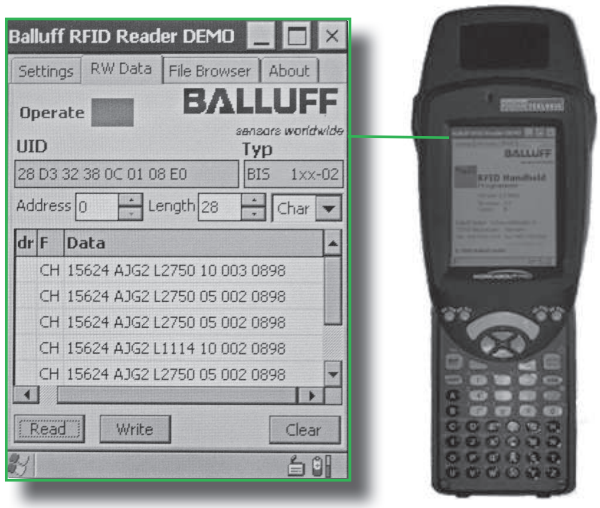
For enhanced operating convenience
For portable writing and reading BIS-U-transponders.
Easy operation thanks to
– Touchscreen with large color display
– Windows CE®
– Preinstalled Balluff software and keyboard or stylus.

Ideal even for poor light conditions and harsh environments! Data transfer via optional WLAN, Bluetooth or wired USB. The handheld is also modular for expandability.



Handheld Standard
BIS U-870-1-008-X-000
including charger and stylus





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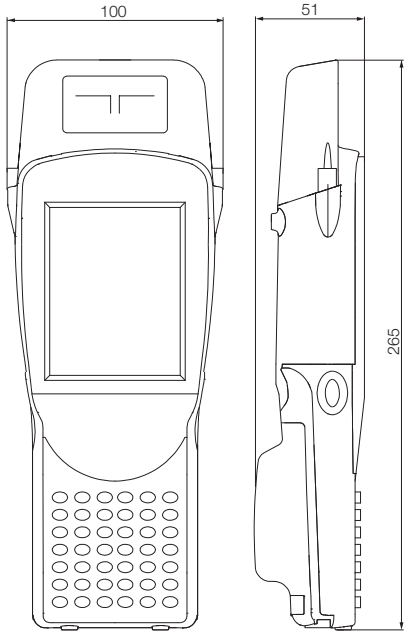
Function	Read/write
Housing material	ABS
Weight	585 g
Ordering code	**BAE00EE**
Part number	BIS U-870-1-008-X-000
Indicator	TFT touchscreen display
Power supply	3.7 V rechargeable battery pack
Capacity	4000 mA/h
Interface	Bluetooth
Operating temperature	–10...+50°C
Degree of protection per IEC 60529	IP 65
Accessories	Charging power supply and stylus
Order accessories separately	Docking station and pistol grip

CE

- PSION-based UHF handheld
- Windows CE®
- Touchscreen
- Delivered with software development kit (SDK)
- Includes charger and stylus
- Bluetooth "on-board"

Optional
- WLAN
- Handle
- 1D/2D barcode reader
- Docking station

Customer-specific software on request:
tecsupport@balluff.com



Additional convenience
A pistol grip is provided for ergonomic comfort.



Pistol grip
11023836

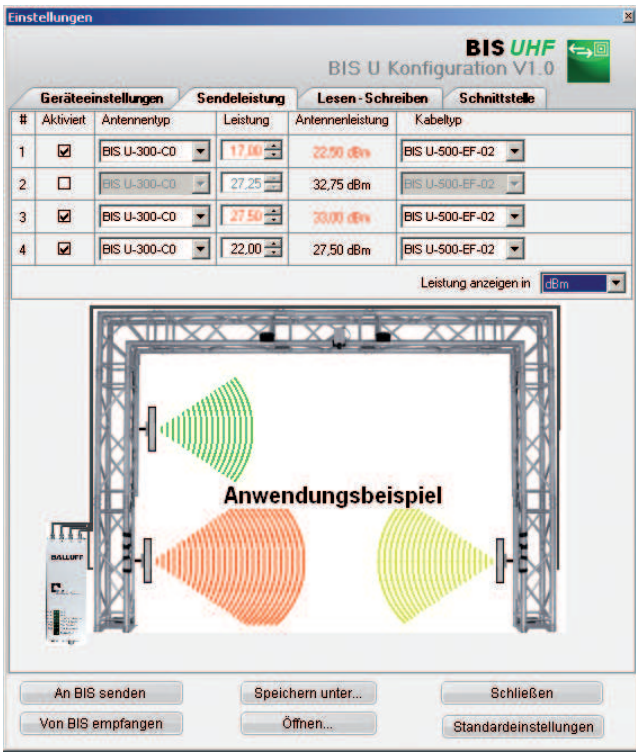
Docking station
with power supply 11023834

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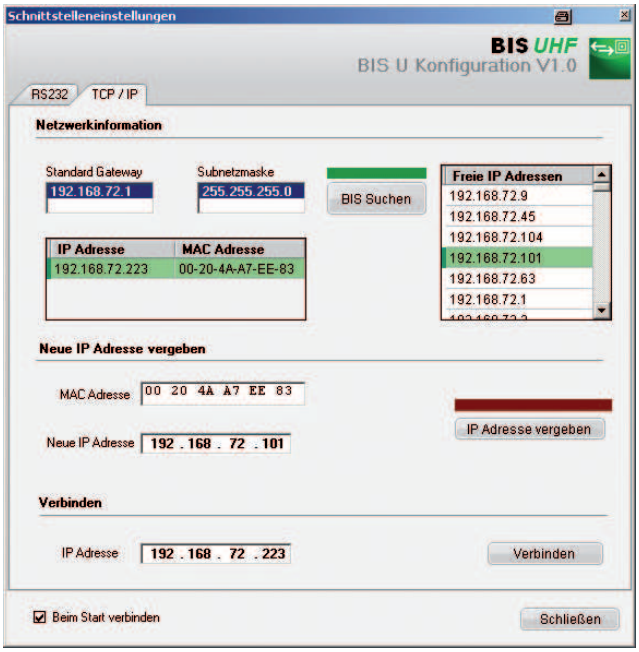
Parameters are configured using the "BIS UHF Manager" software. One requirement is that the processor is connected to the controlling system. The parameter settings can be overwritten at any time. The parameters can be saved in an XML file so that they can be retrieved whenever needed.

Example applications

Setting the transmission power and dependency on the used antenna



The BIS U-6027 processor and the controlling system communicate via Ethernet. Assigning a unique IP address associates the processor with a network.



For additional information!

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Step 1
Preanalysis

Description of the installation conditions and physical characteristics:
- Mechanical installation
- Power limits
- Ambient parameters
- Detection type
- Transponder types
- Stationary/mobile read/write devices

Step 2
Feasibility

- Project description and definition of objectives
- Type and characteristics of the solution
- Where are the weak points
- Selection of system components

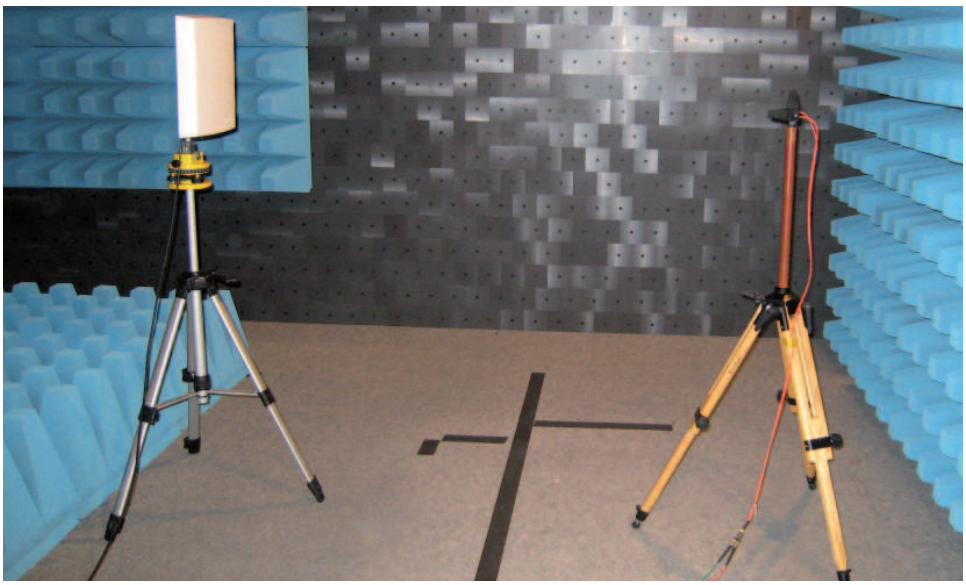
Step 3
Solution suggestion

- Preparation of samples and test settings
- Testing of RFID technology in the actual environment
- Performance comparison of various applications

Step 4
Project coaching

- Control of system integrators
- Support in all launch phases
- Project documentation and knowledge integration
- User training

We assist you in finding a solution to your RFID task with short decision paths and personal contacts – from design to implementation. The objectives and chances of success of your RFID identification task are objectively analyzed and the system design refined.
The RFID system components are then selected. The solution design phase is concluded with a temporary test setup on-site on the system. You thereby receive valuable information for RFID use in your environment and are then able to perform a realistic ROI assessment.



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