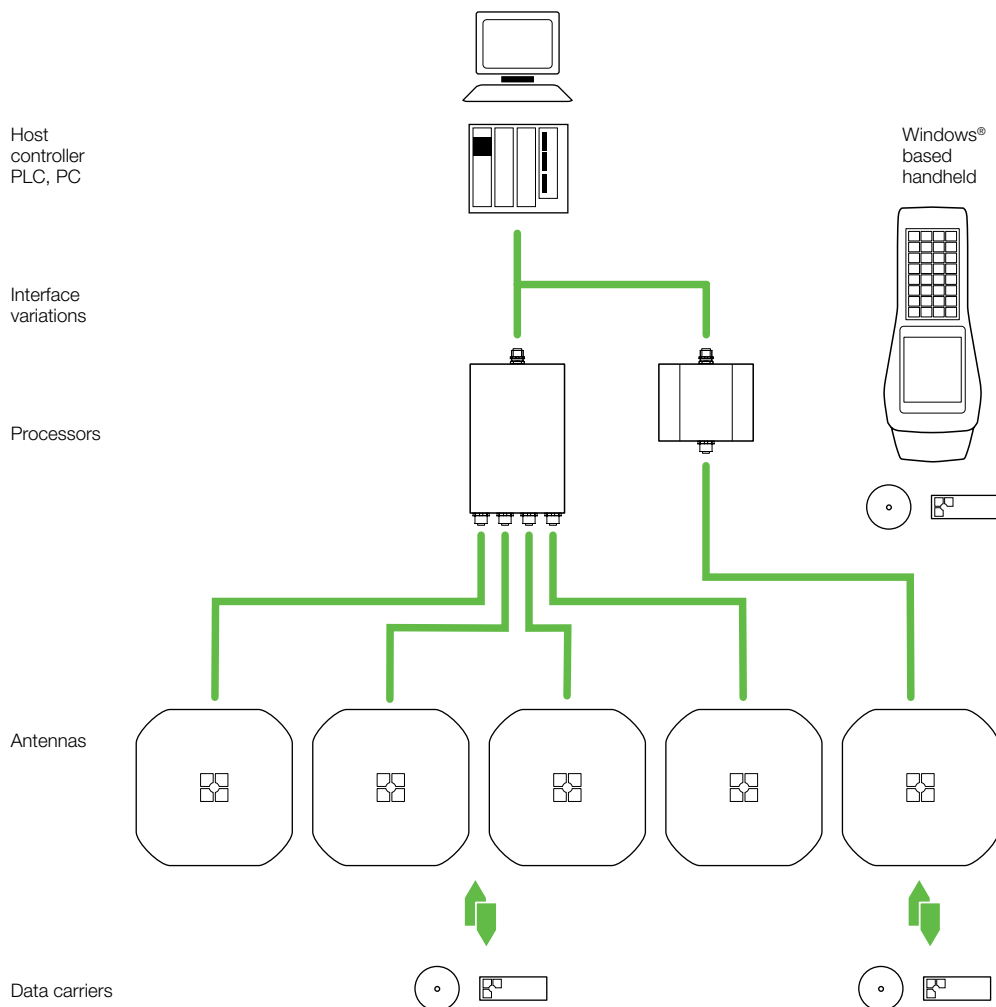




# BIS U Industrial RFID System

## Electro-magnetic identification

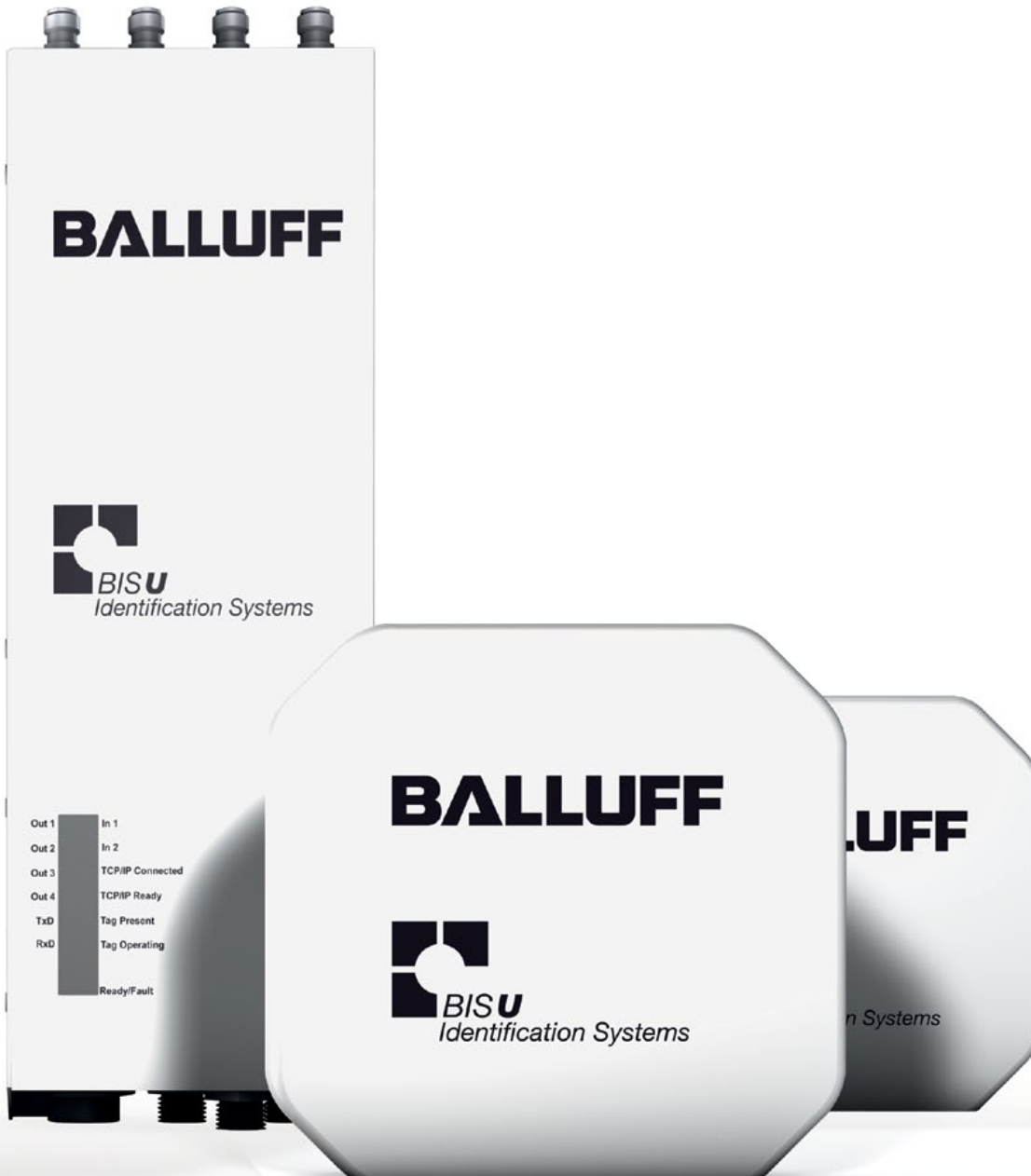
The BIS U system uses Ultra High Frequency or UHF 865 to 928 MHz propagating wave and back scatter technology along with passive tags to provide very long range RFID solutions as far as 6 m. This system is ideal for asset as well as intra or inter logistics tracking and identification applications. The BIS U includes high temperature and metal mounted tag solutions as well as combination hardened and disposable tags that can be used to provide the most cost effective and reliable solution.



# BIS U Industrial RFID System

## Electro-magnetic identification

Process visibility and applications	18
Passive UHF tags	20
UHF antennas	22
UHF single channel processors	24
UHF multi-channel processors	26
UHF handheld	28



Technical information and definitions can be found on **page 354**

# The right data at the right time at the right place



## Features

- Supports standard EPC Gen 2 tags
- Supports multiple enterprise or control interface options
- Up to four antennas can be used on one controller
- Does not require line of site
- Passive tags require no batteries

## Benefits

- Tags available for any asset no matter how large or small and regardless of material
- Integration into most current system
- Multiple antennas provide redundant, reliable data
- Identifies multiple assets without having to scan each item separately
- Low cost passive tags ensure cost effectiveness, or durability, and longevity
- No battery replacement needed

# BIS U Industrial RFID System

## Process visibility and applications



### Process visibility and applications

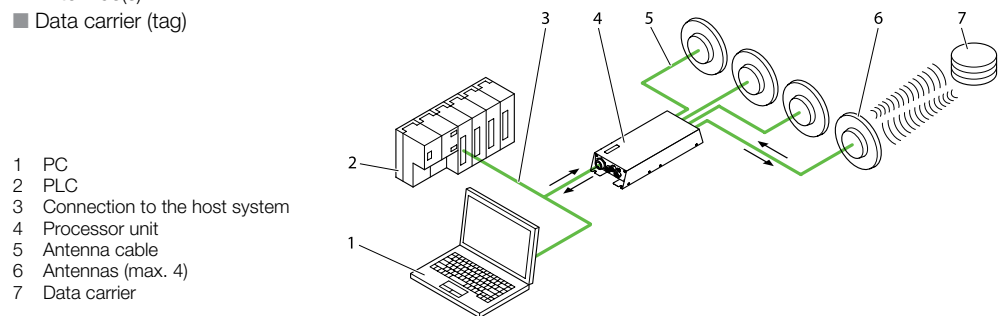
Passive UHF tags  
UHF single channel processors  
UHF multi-channel processors  
UHF antennas  
UHF handheld

### Operation principles of the system

The BIS U Identification System is classified as a non-contacting system with read and write functionality for single or multiple UHF tags. This allows it to transport not only programmed information that is fixed on the data carrier (tag), but also to collect and pass on tag information to interfacing control or data collection systems.

The main components of the BIS U Identification System are:

- Processor
- Antennas(s)
- Data carrier (tag)



### Asset tracking

UHF-based RFID provides a means of identifying and tracking assets like tools, production equipment, medical devices, installed parts, logistic containers, and even reusable assets like totes, bins and skids.

### Logistics tracking

Tracking incoming and outgoing shipments of parts and products are key to the efficiency and operation of any production facility. UHF-based RFID enables a reliable, non-visual way to identify multiple containers and shipment information quickly and reliably.

### Closed loop and supply chain logistics

When moving parts from suppliers to main production facilities, UHF-based RFID can be a significantly more reliable and a faster way to identify incoming shipments, contents and reusable assets like totes, part containers, skids, and transport containers.

### Production tracking

During the production process, RFID can be used to track parts and enable visibility into the process itself. UHF-based RFID can provide a means to track parts or part pallets at greater distances allowing greater freedom of use.

### e-Kanban

Electronic Kanban is a messaging system that allows a mix of information and control for the tracking and movement of production components. e-Kanban can be used to provide faster flow of information and replaces traditional elements such as cards with RFID and barcode.

# BIS U Industrial RFID System

## Passive UHF tags

### Passive UHF tags

- Great range on or off metal (with holder or spacer)
- Rugged housing
- Available for high temperature applications

### Specialty tags

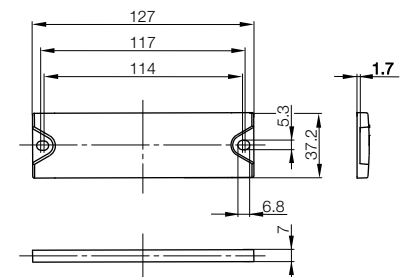
Balluff can offer a wide variety of highly specialized UHF RFID tags. From tiny metal mount tags designed to track individual tools to the larger tags designed to track vehicles, Balluff can help match the right tag to the right assets. In addition to rugged tags used in harsh environments, Balluff can also provide tags in paper (label) and other synthetic materials. Tag selection should be based on the environment and the asset. Contact Balluff for additional tagging options.



Dimensions		127×37.2×7 mm	
Housing material		PA 12 (fiberglass reinforced)	
Weight		18 g	
For EU			
Frequency range	Ordering code	BIS00NL	
865...868 MHz	Part number	BIS U-100-01/CA	
For US/CA/MX/BR			
Frequency range	Ordering code	BIS00RC	
902...928 MHz	Part number	BIS U-100-02/CA	
For Global			
Frequency range	Ordering code		
860...960 MHz	Part number		
Mounting	■ on metal only with spacer		
User data	512 bit EEPROM		
Frequency	865...960 MHz		
Degree of protection per IEC 60529	IP 67		
Memory capacity read/write	96...480 bit EPC, 512 bit user memory		
Standards	EPC, Class 1, Gen 2, ISO 18000-6C		
Operating temperature	-40...+85 °C		
Storage temperature	-40...+85 °C		

### Mounting (see technical section for details):

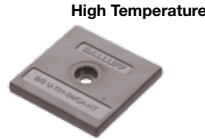
■ non-metal



Balluff can provide many other metal mount and label UHF tag options from third party partners. Contact your Balluff provider or Balluff sales person for more options and information.

# BIS U Industrial RFID System

## Passive UHF tags



Process  
visibility and  
applications  
**Passive  
UHF tags**

UHF  
single channel  
processors

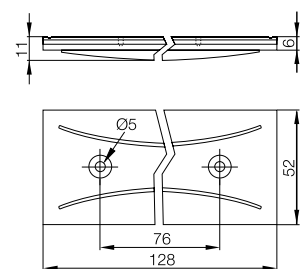
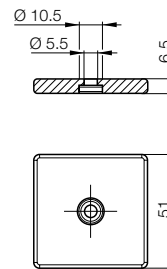
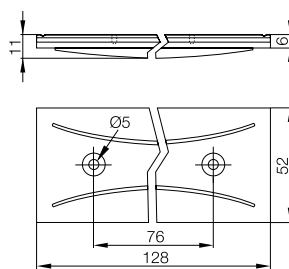
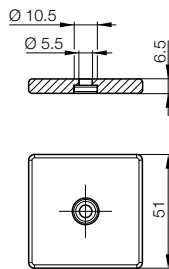
UHF  
multi-channel  
processors

UHF antennas

UHF handheld

<b>51.5x51.5x6.5 mm</b>	<b>127.7x51.5x11 mm</b>	<b>51.5x51.5x6.5 mm</b>	<b>127.7x51.5x11 mm</b>
ABS	ABS	PPS	PPS
32 g	48 g	47 g	70 g


<b>BIS00WH</b>	<b>BIS00WE</b>	<b>BIS00WF</b>	<b>BIS00WC</b>
BIS U-101-04/CA	BIS U-102-05/CA	BIS U-101-04/CA-HT	BIS U-102-05/CA-HT
■ on metal only with spacer	■ on metal only with spacer	■ on metal only with spacer	■ on metal only with spacer
512 bit EEPROM	512 bit EEPROM	512 bit EEPROM	512 bit EEPROM
860...960 MHz (Global)	860...960 MHz (Global)	860...960 MHz (Global)	860...960 MHz (Global)
IP 67	IP 67	IP 67	IP 67
240 bit EPC,	240 bit EPC,	240 bit EPC,	240 bit EPC,
512 bit user memory	512 bit user memory	512 bit user memory	512 bit user memory
EPC, Class 1, Gen 2,	EPC, Class 1, Gen 2,	EPC, Class 1, Gen 2,	EPC, Class 1, Gen 2,
ISO 18000-6C	ISO 18000-6C	ISO 18000-6C	ISO 18000-6C
-40...+85 °C	-40...+85 °C	-40...+85 °C	-40...+85 °C
-40...+85 °C	-40...+85 °C	-40...+220 °C	-40...+220 °C



**UHF Databolt options**  
available upon request.

# BIS U Industrial RFID System

## UHF antennas

The frequency range for UHF systems is dependent on the region of use. There are country-specific variants here as with the readers. The power available to the antenna can be flexibly set via the reader. 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.

### Balluff UHF Antennas

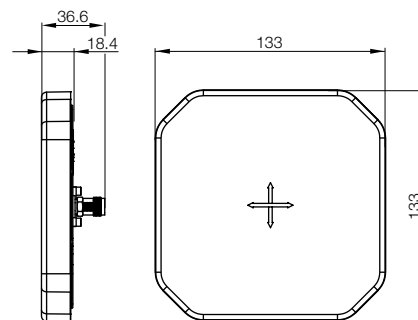
- Simple mounting with standard accessories
- Rugged metal connector for secure connection
- Rugged housing built for harsh environments
- Available in different sizes



For EU  
865...868 MHz

Dimensions	<b>133×133×18.4 mm</b>	
Housing material	PC	
Weight	365 g	
<b>Ordering code</b>	<b>BIS00P0</b>	
Part number	BIS U-301-C0-TNCB	
Frequency range	865...868 MHz	
Approved radiated power	< 0.5 W ERP ETSI EN 302208	
Antenna gain	5.5 dBic	
Antenna impedance	50 Ω	
Connection type	1× TNC connector female	
Degree of protection per IEC 60529	IP 67 (with connector)	
Operating temperature T <sub>a</sub>	–30...+70 °C	
Dispersion angle	100° vertical, 100° horizontal	
Connection cable	See Connectivity section for cable options	

For installation see technical section.



# BIS U Industrial RFID System

## UHF antennas



For US/CA/MX/BR  
902...928 MHz



For EU  
865...868 MHz

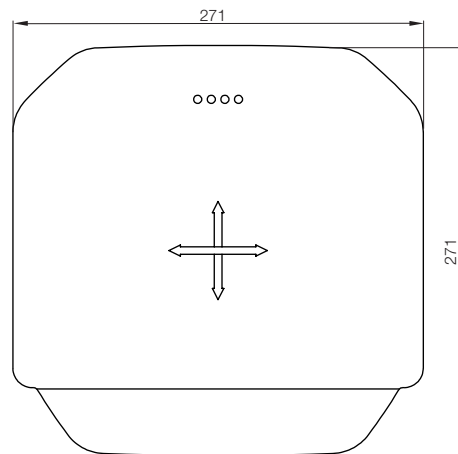
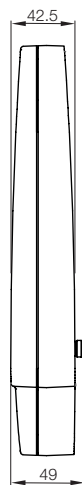
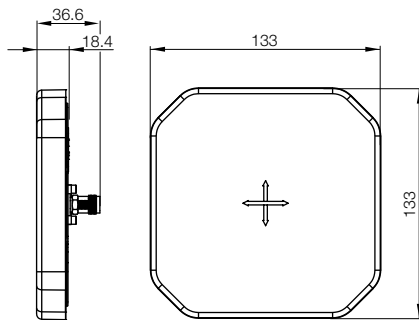


For US/CA/MX/BR  
902...928 MHz



<b>133×133×18.4 mm</b>	<b>271×271×42.5 mm</b>	<b>271×271×42.5 mm</b>
PC	Polymer blend	Polymer blend
365 g	1700 g	1700 g
<b>BIS00TY</b>	<b>BIS00TZ</b>	<b>BIS00U0</b>
BIS U-301-C1-TNCB	BIS U-302-C0-TNCB	BIS U-302-C1-TNCB
902...928 MHz	865...868 MHz	902...928 MHz
< 4 W EIRP FCC	< 2 W ERP ETSI EN 302208	< 4 W EIRP FCC CFR47
5.5 dBic	8.4 dBic	8.4 dBic
50 Ω	50 Ω	50 Ω
1× TNC connector female	1× TNC connector female	1× TNC connector female
IP 67 (with connector)	IP 65	IP 65
-30...+70 °C	-25...+55 °C	-25...+55 °C
100° vertical, 100° horizontal	69° vertical, 69° horizontal	69° vertical, 69° horizontal
See Connectivity section for cable options	See Connectivity section for cable options	See Connectivity section for cable options

Process  
visibility and  
applications  
Passive  
UHF tags  
UHF  
single channel  
processors  
UHF  
multi-channel  
processors  
**UHF antennas**  
UHF handheld





# BIS U Industrial RFID System

## UHF single channel processors

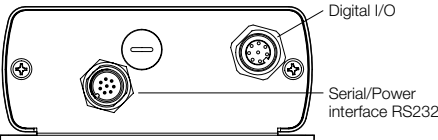


Function		
Housing material		
Weight		
<b>For EU</b>		
Frequency range	<b>Ordering code</b>	
865...868 MHz	Part number	
<b>For US/CA/MX</b>		
Frequency range	<b>Ordering code</b>	
902...928 MHz	Part number	
Operating voltage		
Current consumption at 24 V DC		
Application interface		
Connection power supply, interface		
Connection control inputs, outputs (1× DI, 2× DO)		
Antenna ports		
Degree of protection per IEC 60529		
Connection cable		

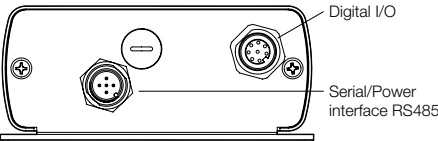
For installation see technical section.



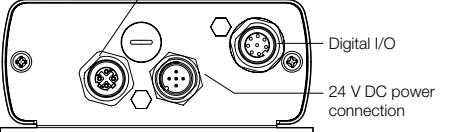
**RS232 interface**



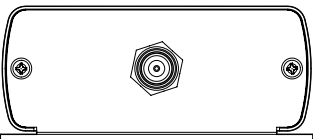
**RS485 interface**



**Ethernet interface**



**1 antenna on top**



# BIS U Industrial RFID System

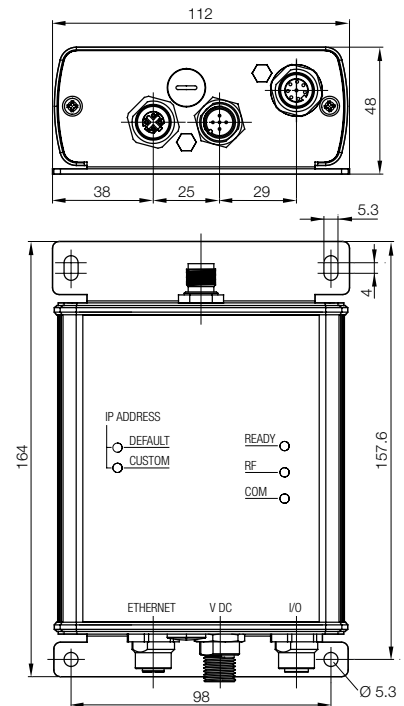
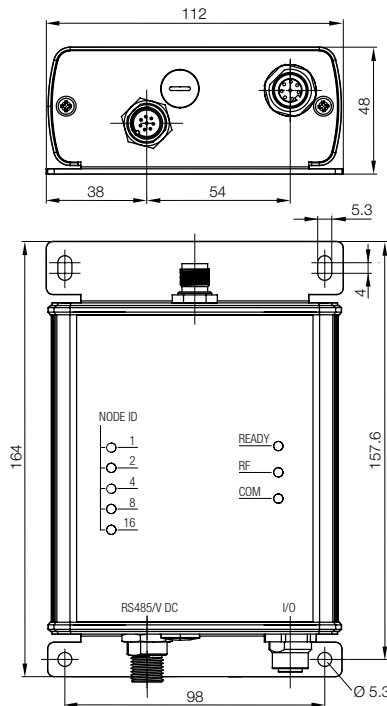
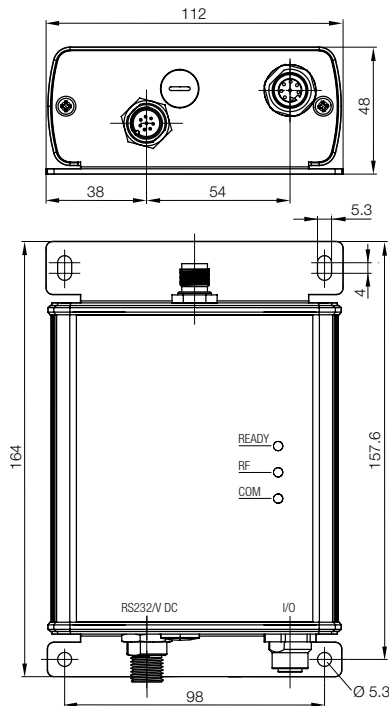
## UHF single channel processors



Process  
visibility and  
applications  
Passive  
UHF tags  
**UHF  
single channel  
processors**  
UHF  
multi-channel  
processors  
UHF antennas  
UHF handheld



<b>Read/write</b> Aluminum 497 g	<b>Read/write</b> Aluminum 497 g	<b>Read/write</b> Aluminum 497 g
<b>BIS00Z4</b> BIS U-620-068-101-00-ST29	<b>BIS00Z8</b> BIS U-620-067-101-04-ST30	<b>BIS00Z0</b> BIS U-626-069-101-06-ST32
<b>BIS00Z2</b> BIS U-620-068-111-00-ST29	<b>BIS00Z6</b> BIS U-620-067-111-04-ST30	<b>BIS00YY</b> BIS U-626-069-111-06-ST32
24 V DC (10...30 V DC) ≤ 1 A <b>Serial RS232</b> 1× M12 connector male, 8-pin 1× M12 connector female, 8-pin 1× R-TNC connector male IP 65 See Connectivity section for cable options	24 V DC (10...30 V DC) ≤ 1 A <b>Serial RS485</b> 1× M12 connector male, 5-pin 1× M12 connector female, 8-pin 1× R-TNC connector male IP 65 See Connectivity section for cable options	24 V DC (10...30 V DC) ≤ 1 A <b>Ethernet, TCP/IP, Modbus TCP</b> 1× M12 connector male, 5-pin 1× M12 connector female, 8-pin 1× R-TNC connector male IP 65 See Connectivity section for cable options



# BIS U Industrial RFID System

## UHF multi-channel processors

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



Function	
Housing material	
Weight	

### For EU

Frequency range	Ordering code
865...868 MHz	Part number

### For US/CA/MX

Frequency range	Ordering code
902...928 MHz	Part number

### For BR

Frequency range	Ordering code
915...928 MHz	Part number

Operating voltage, Ripple	
Current consumption at 24 V DC	
Service interface	
Application interface	
Characteristic impedance of antenna ports	
Adjustable power at the antenna ports	

Connection X1	
Connection X2	
Connection X3	
Connection X4	
Antenna ports 1...4	
Degree of protection per IEC 60529	
Connection cable	

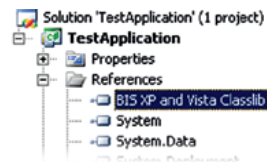
For installation see technical section.

EtherNet/IP communication option available in 2014.

Included in the scope of delivery:

- BIS U-602\_
- 5x closure cap
- BIS Software-CD
- Condensed manual in printed form (DE/EN)

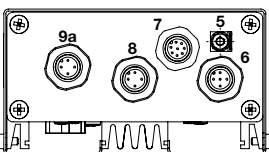
**Accessories (please order separately)**  
**DLL for integrating the protocol in**  
**PC-based controller or evaluation unit.**



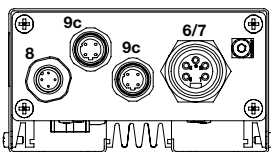
Ordering code: BAE00F2

Part number: BIS-Z-SW-UHF-DLL

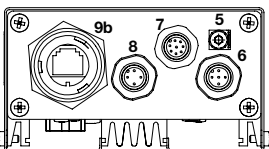
Serial  
RS232 interface



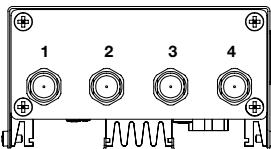
PROFINET  
Profinet interface



Ethernet  
Ethernet TCP/IP interface



4 antennas on top



- 1 Antenna port 1
- 2 Antenna port 2
- 3 Antenna port 3
- 4 Antenna port 4
- 5 Function ground FE
- 6 Power supply
- 7 Control inputs / outputs
- 8 RS232 service interface
- 9a Application interface – RS232 variant
- 9b Application interface – TCP/IP variant
- 9c Application interface – Profinet

# BIS U Industrial RFID System

## UHF multi-channel processors



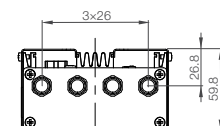
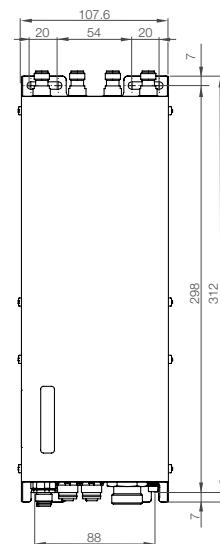
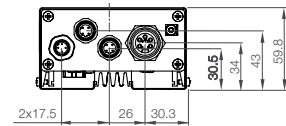
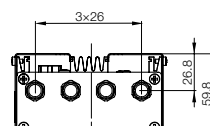
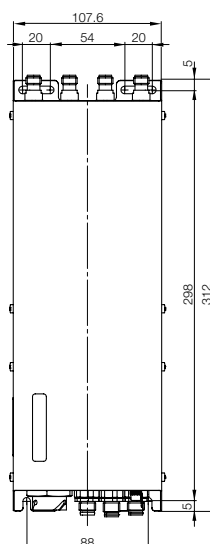
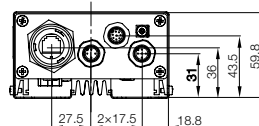
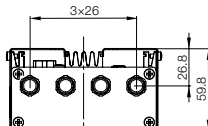
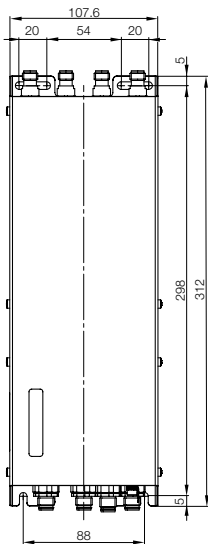
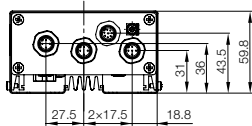
Process  
visibility and  
applications  
Passive  
UHF tags

UHF  
single channel  
processors

**UHF  
multi-channel  
processors**

UHF antennas  
UHF handheld

<b>Read/write</b>	<b>Read/write</b>	<b>Read/write</b>
Aluminum	Aluminum	Aluminum
2100 g	2100 g	2100 g
<b>BIS00M7</b>	<b>BIS00NA</b>	<b>BIS00ZU</b>
BIS U-6020-053-104-00-ST26	BIS U-6027-054-104-06-ST27	BIS U-6028-048-104-06-ST28
<b>BIS00R2</b>	<b>BIS00R1</b>	<b>BIS00ZW</b>
BIS U-6020-059-114-00-ST26	BIS U-6027-060-114-06-ST27	BIS U-6028-048-114-06-ST28
<b>BIS00UM</b>	<b>BIS00UN</b>	
BIS U-6020-059-134-00-ST26	BIS U-6027-060-134-06-ST27	
24 V DC $\pm 20\%$ , $\leq 10\%$	24 V DC $\pm 20\%$ , $\leq 10\%$	24 V DC $\pm 20\%$ , $\leq 10\%$
$\leq 1$ A	$\leq 1$ A	$\leq 1$ A
RS232	RS232	RS232
<b>RS232</b>	<b>Ethernet TCP/IP</b>	<b>Profinet</b>
50 $\Omega$	50 $\Omega$	50 $\Omega$
For Europe 17...33 dBm (50 mW...2 W)	For Europe 17...33 dBm (50 mW...2 W)	For Europe 17...33 dBm (50 mW...2 W)
For USA 17...30 dBm (50 mW...1 W)	For USA 17...30 dBm (50 mW...1 W)	For USA 17...30 dBm (50 mW...1 W)
V <sub>s</sub> 24 V DC: 1x M12 connector male, 5-pin	V <sub>s</sub> 24 V DC: 1x M12 connector male, 5-pin	V <sub>s</sub> 24 V DC: 1x 7/8" connector male, 5-pin
I/O: 1x M12 connector male, 8-pin	I/O: 1x M12 connector male, 8-pin	Profinet 2: 1x M12, connector male, 4-pin, D-code
Service port: 1x M12 connector male, 4-pin	Service port: 1x M12 connector male, 4-pin	Profinet 1: 1x M12 connector male, 4-pin, D-code
RS232: 1x M12 connector male, 4-pin	TCP/IP: 1x RJ45 bayonet connector	Service port: 1x M12 connector male, 4-pin
4x R-TNC connector male	4x R-TNC connector male	4x R-TNC connector male
IP 65	IP 65	IP 65
See Connectivity section for cable options	See Connectivity section for cable options	See Connectivity section for cable options



# BIS U Industrial RFID System

## UHF handheld

### Mobile ID

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.

- Touchscreen with large color display
- Windows CE®
- Preinstalled Balluff software and keyboard

### PSION-based UHF handheld

- Windows CE®
- Touchscreen
- Delivered with software development kit (SDK)
- Includes charger
- Bluetooth "on-board"

### Optional

- WLAN
- 1D/2D barcode reader
- Docking station
- Pistol grip

Customer-specific software on request:  
[techsupport@balluff.com](mailto:techsupport@balluff.com)



Handheld Standard  
BIS U-870-1-008-X-000-3...  
including charger



# BIS U Industrial RFID System

## UHF handheld



For EU

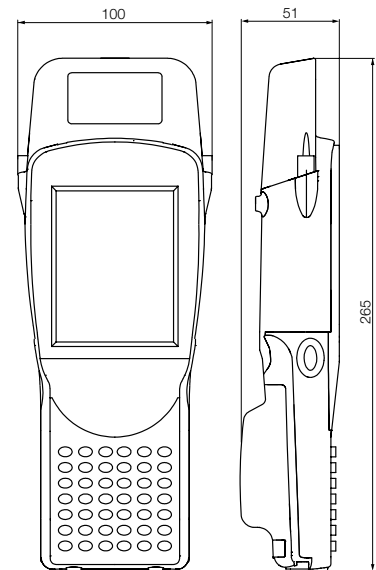
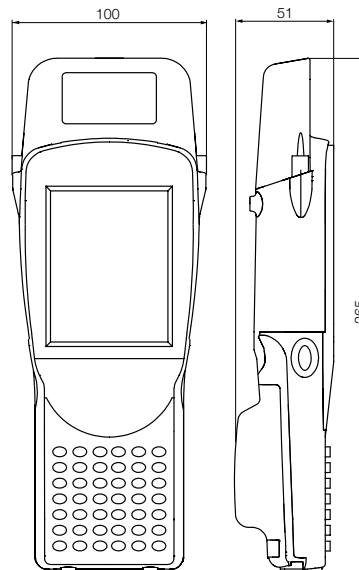


For US/CA/MX



Function		Read/write	Read/write	Process visibility and applications
Housing material		ABS	ABS	Passive UHF tags
Weight		585 g	585 g	UHF single channel processors
Standard	<b>Ordering code</b>	<b>BAE00EE</b>		UHF multi-channel processors
	Part number	BIS U-870-1-008-X-000	BIS U-870-1-008-X-000-1-3000	UHF antennas
Standard + WLAN	<b>Ordering code</b>	<b>BAE00J8</b>		
	Part number	BIS U-870-1-008-X-001	BIS U-870-1-008-X-001-1-3000	
Indicator		TFT touchscreen display	TFT touchscreen display	
Power supply		3.7 V rechargeable battery pack	3.7 V rechargeable battery pack	
Capacity		4000 mA/h	4000 mA/h	
Interface		Bluetooth/USB	Bluetooth/USB	
Operating temperature		-10...+50°C	-10...+50°C	
Degree of protection per IEC 60529		IP 65	IP 65	
Accessories		Charging power supply and stylus	Charging power supply and stylus	
Order accessories separately		Docking station and pistol grip	Docking station and pistol grip	

Handheld Standard **BIS U-87\_-1-008-x-000\_**  
Includes charger and stylus



**Recommended accessories**  
(please order separately)



Description	Pistol grip option	Optional docking station with power supply	Replacement battery 4000mAh rechargeable battery
<b>Part code</b>	<b>FHW0004</b>	<b>FHW0003</b>	<b>WA3010</b>
Part number	11023836	11023834	162936