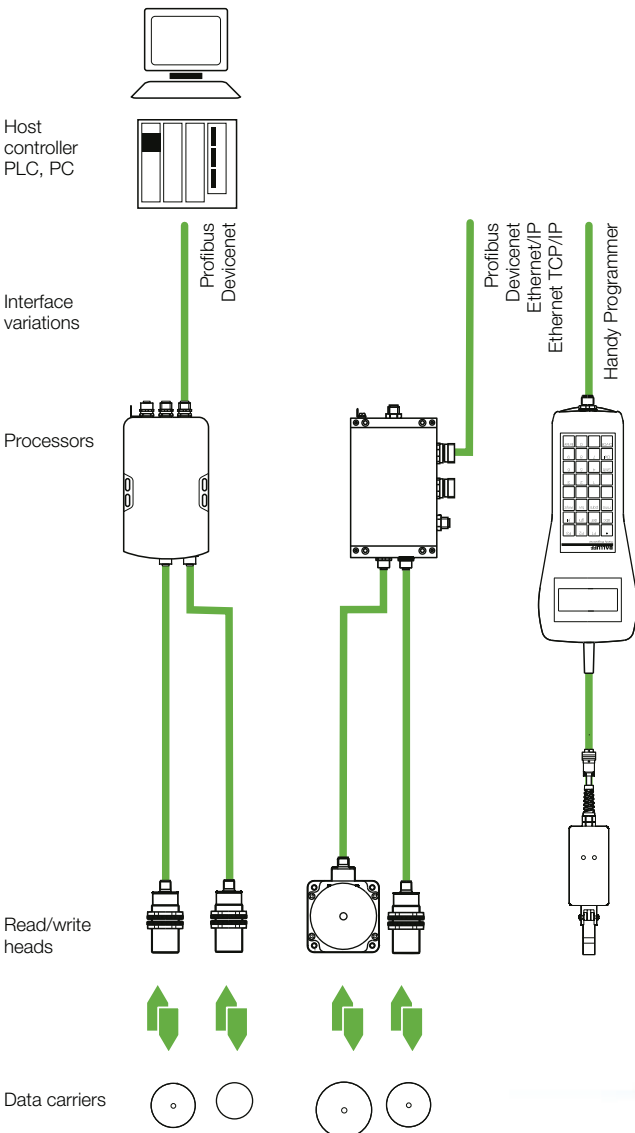


BIS S Industrial RFID System

Inductive Identification

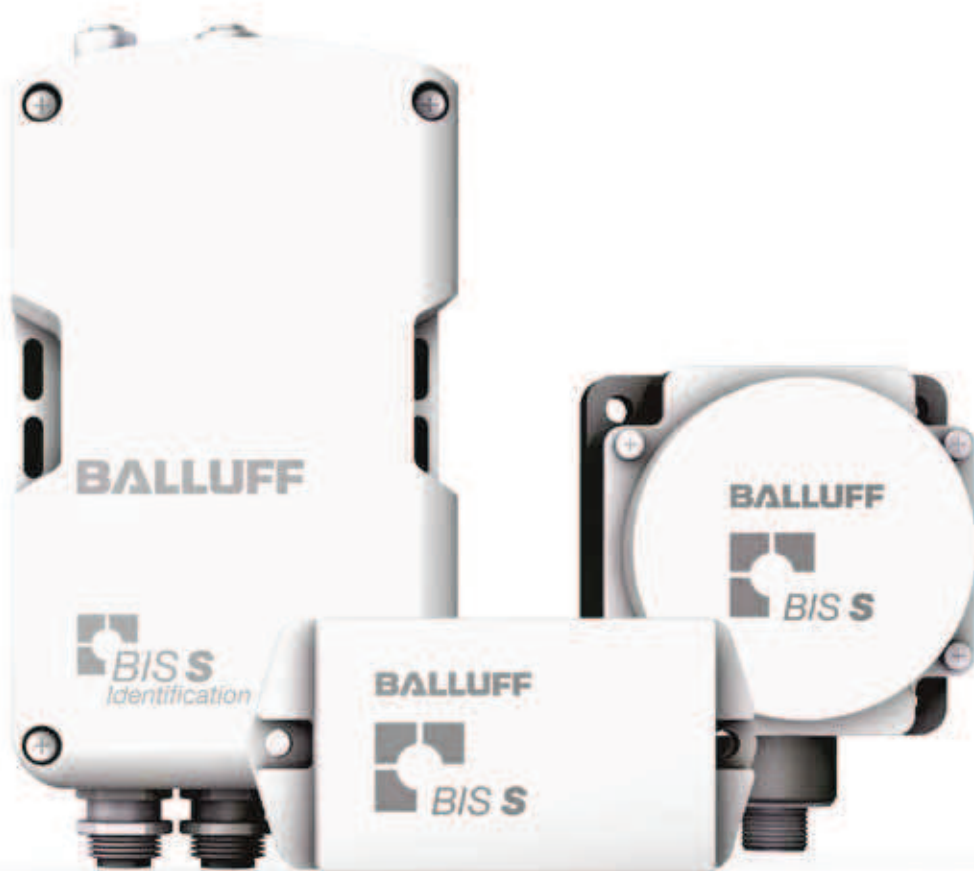
Large data volumes for controlling assembly and production. The BIS S system uses a Dual Frequency 3.65 MHz read and 560 KHz write inductively coupled technology along with passive tags.



BIS S Industrial RFID System

Inductive identification

Data carriers read/write	238
Read/write heads	240
Processors	242
Handy programmer	248



Basic information and definitions can be found on page 352

Benefit from a large storage capacity



Dimensions	
Housing material	
Weight	

BIS S programmable

8 kBytes	Ordering code	
	Part number	
16 kBytes	Ordering code	
	Part number	
32 kBytes	Ordering code	
	Part number	




Operating temperature	
Storage temperature	
Degree of protection per IEC 60529	

Appropriate read/write head with max. read/write distance

Mounting	
BIS S-301	
BIS S-302	
BIS S-303	

For installation pay attention to Basic Information chapter.

Mounting:

-  flush in steel
-  non-flush on steel
-  non-metal

Antenna type:

-  rod
-  round

BIS S Industrial RFID System

Data carriers read/write



52x32x11 mm
PBTP
27 g



80x40x22 mm
POM
93 g

BIS004J

BIS S-108-32/L

BIS004K

BIS S-108-42/L

BIS004L

BIS S-108-52/L

0...+70 °C

-20...+85 °C

IP 67

BIS004N

BIS S-150-42/A

BIS004P

BIS S-150-52/A

0...+70 °C

-20...+85 °C

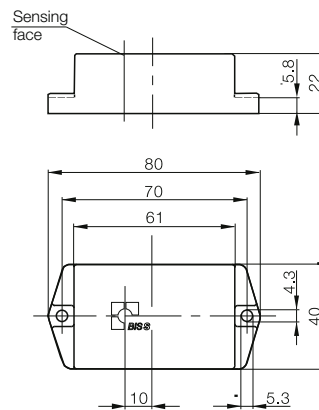
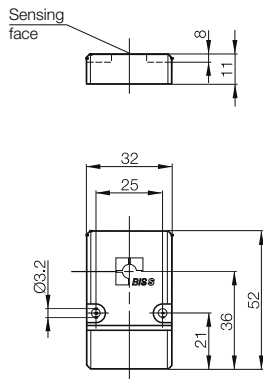
IP 67

30 mm
20 mm
20 mm

50 mm

3.65 MHz HF

BIS S
Industrial
RFID System
**Data carriers
read/write**
Read/write
heads
Processors
Handy
programmer



BIS S Industrial RFID System

Read/write heads

First choice in static applications involving large quantities of data.



Dimensions	
Housing material	
Ordering code	
Part number	
Mounting	
Operating temperature	
Storage temperature	
Degree of protection per IEC 60529	
Connection to	
Connection cable	

Appropriate data carrier

Mounting	
Write distance in mm	
Read distance in mm	
Offset in mm at distance	5 mm
	7 mm
	10 mm
	15 mm
	20 mm
	30 mm
	50 mm

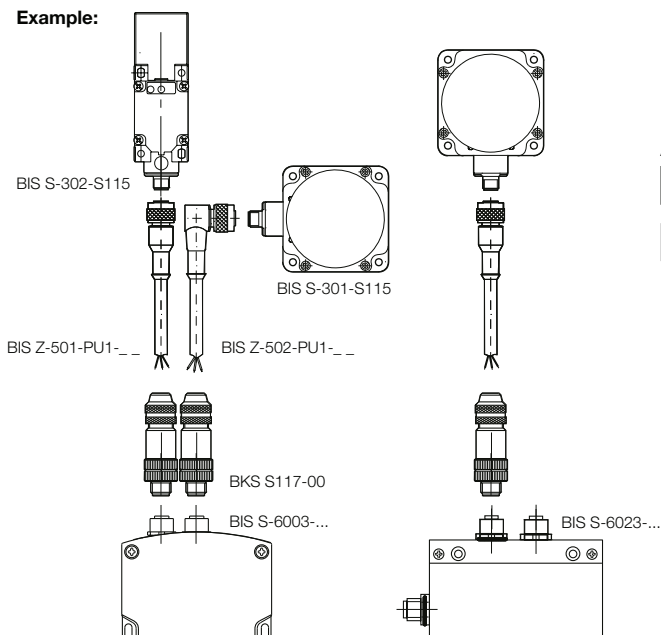
For installation pay attention to Basic Information chapter.

Mounting:

-  flush in steel
-  non-flush on steel
-  non-metal

Antenna type:

-  rod
-  round



BIS S Industrial RFID System

Read/write heads

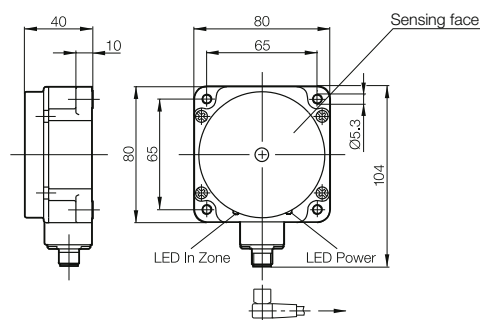
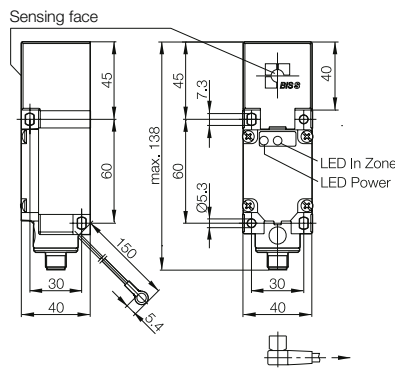
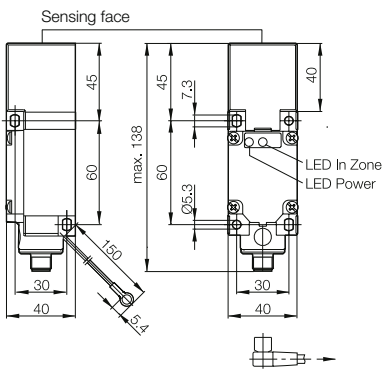


40x40x138 mm	40x40x138 mm	80x80x40 mm
ABS	ABS	PBT, ABS
BIS005R	BIS005T	BIS005F
BIS S-302-S115	BIS S-303-S115	BIS S-301-S115
0...+70 °C -20...+85 °C IP 67 Processor See page 280 for cable options	0...+70 °C -20...+85 °C IP 67 Processor See page 280 for cable options	0...+50 °C -20...+85 °C IP 67 Processor See page 280 for cable options

BIS004J	BIS004K	BIS004L	BIS004J	BIS004K	BIS004L	BIS004N	BIS004P	BIS004J	BIS004K	BIS004L
BIS S-108-32/L	BIS S-108-42/L	BIS S-108-52/L	BIS S-108-32/L	BIS S-108-42/L	BIS S-108-52/L	BIS S-150-42/A	BIS S-150-52/A	BIS S-108-32/L	BIS S-108-42/L	BIS S-108-52/L
5...20	5...20		5...20	5...20		10...50	10...50	5...30	5...30	
±5	±5		±5	±5		±5	±5	±5	±5	
±5	±5		±5	±5		±5	±5	±5	±5	
±5	±5		±5	±5		±5	±5	±5	±5	
±5	±5		±5	±5		±5	±5	±5	±5	



BIS S
Industrial
RFID System
Data carriers
read/write
**Read/write
heads**
Processors
Handy
programmer





**Cost-effective identification –
operate 2 read/write heads simultaneously**

- Selectable division of the data width on the Profibus, 4...128 bytes
- Free assigning of the data width for each read/write head
- Optimum data speed, internal cycle time is shorter than the bus activation time
- Service-friendly, all parameter data are stored in an interchangeable memory
- Bus address selectable with switches
- Accepts all read/write heads
- Interface-compatible with BIS C and BIS L identification systems

The **compact class BIS S-600_** with its reduced dimensions and various interface options can be used wherever ambient conditions require higher protection. The devices are ideal for IP 65 and applications involving media that is not aggressive to PS plastic. Small, compact, flexible and economical.

The **ruggedized version BIS S-602_** is in spite of the mechanically rugged die-cast aluminum housing a small, flexible processor which is available with various interface options. Suitable for all applications with demanding requirements for mechanical stability and chemical resistance.



Description	
Housing material	
Profibus	Ordering code
	Part number
Supply voltage, Ripple	
Current	
Operating temperature	
Storage temperature	
Degree of protection per IEC 60529	
Read/write head ports	
Service interface	
Connection for	
Connection type	
Accessories included	
Connection cable	

BIS S Industrial RFID System

Profibus processors



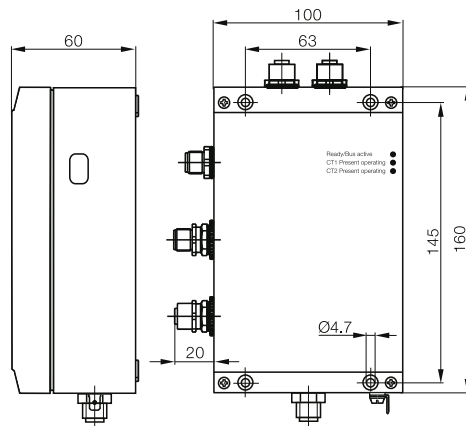
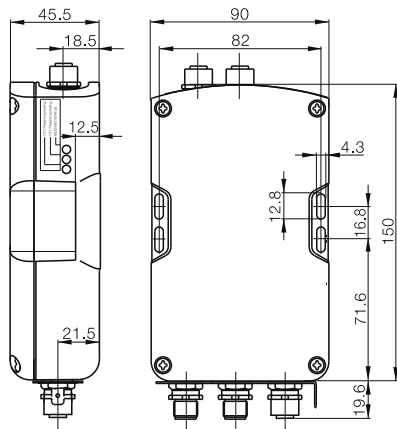
Processor	Processor
ABS	Aluminum cast, coated
BIS00F3	BIS00F5
BIS S-6002-019-050-03-ST11	BIS S-6022-019-050-03-ST14
24 V DC $\pm 20\%$, $\leq 10\%$	24 V DC $\pm 20\%$, $\leq 10\%$
≤ 600 mA	≤ 600 mA
0...+60 °C	0...+60 °C
0...+60 °C	0...+60 °C
IP 65, NEMA 12	IP 65, NEMA 12
2x external	2x external
RS232	RS232
2x read/write heads BIS S-30_	2x read/write heads BIS S-30_
1x M12 connector male, 5-pin, B-coded	1x M12 connector male, 5-pin, B-coded
1x M12 connector female, 5-pin, B-coded	1x M12 connector female, 5-pin, B-coded
1x M12 connector male, 5-pin	2x M12 connector male, 5-pin
Software GSD file	Software GSD file
See page 290/305 for cable options	See page 290/305 for cable options

Processor	Processor
ABS	Aluminum cast, coated
BIS00F3	BIS00F5
BIS S-6002-019-050-03-ST11	BIS S-6022-019-050-03-ST14
24 V DC $\pm 20\%$, $\leq 10\%$	24 V DC $\pm 20\%$, $\leq 10\%$
≤ 600 mA	≤ 600 mA
0...+60 °C	0...+60 °C
0...+60 °C	0...+60 °C
IP 65, NEMA 12	IP 65, NEMA 12
2x external	2x external
RS232	RS232
2x read/write heads BIS S-30_	2x read/write heads BIS S-30_
1x M12 connector male, 5-pin, B-coded	1x M12 connector male, 5-pin, B-coded
1x M12 connector female, 5-pin, B-coded	1x M12 connector female, 5-pin, B-coded
1x M12 connector male, 5-pin	2x M12 connector male, 5-pin
Software GSD file	Software GSD file
See page 290/305 for cable options	See page 290/305 for cable options



3.65 MHz HF

BIS S
Industrial
RFID System
Data carriers
read/write
Read/write
heads
Processors
Handy
programmer

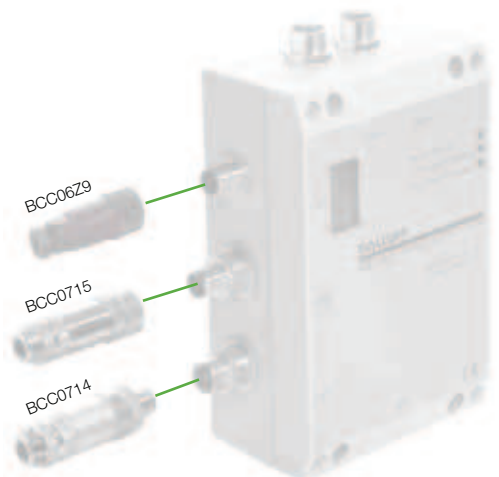


Recommended accessories
(please order separately)



Ordering code	BAM0114
Part number	BKS 12-CS-01

Threaded cover for M12 connector



**Cost-effective identification –
operate 2 read/write heads simultaneously**

- Freely selectable buffer size between 0 and 256 bytes
- Service-friendly, all parameter data are stored in an interchangeable memory
- Accepts all read/write heads
- Interface-compatible with BIS C and BIS L identification systems

The **compact class BIS S-600_** with its reduced dimensions and various interface options can be used wherever ambient conditions require higher protection. The devices are ideal for IP 65 and applications involving media that is not aggressive to PS plastic. Small, compact, flexible and economical.

The **ruggedized version BIS S-602_** is in spite of the mechanically rugged die-cast aluminum housing a small, flexible processor which is available with various interface options. Suitable for all applications with demanding requirements for mechanical stability and chemical resistance.



Description		
Housing material		
Devicenet	Ordering code	
	Part number	
Supply voltage, Ripple		
Current		
Operating temperature		
Storage temperature		
Degree of protection per IEC 60529		
Read/write head ports		
Service interface		
Connection for		
Connection type		
Accessories included		
Connection cable		

BIS S Industrial RFID System

Devicenet processors



Processor
ABS

BIS00F4

BIS S-6003-025-050-03-ST12

24 V DC $\pm 20\%$, $\leq 10\%$

≤ 600 mA

0...+60 °C

0...+60 °C

IP 65, NEMA 12

2x external

RS232

2x read/write heads BIS S-30_

2x M12 connector male, 5-pin

1x M12 connector female, 5-pin

Software EDS file

See page 296/305 for cable options

Processor

Aluminum cast, coated

BIS00F6

BIS S-6023-025-050-03-ST13

24 V DC $\pm 20\%$, $\leq 10\%$

≤ 600 mA

0...+60 °C

0...+60 °C

IP 65, NEMA 12

2x external

RS232

2x read/write heads BIS S-30_

2x M12 connectors male, 5-pin

1x 7/8" connectors male, 5-pin

1x 7/8" connectors female, 5-pin

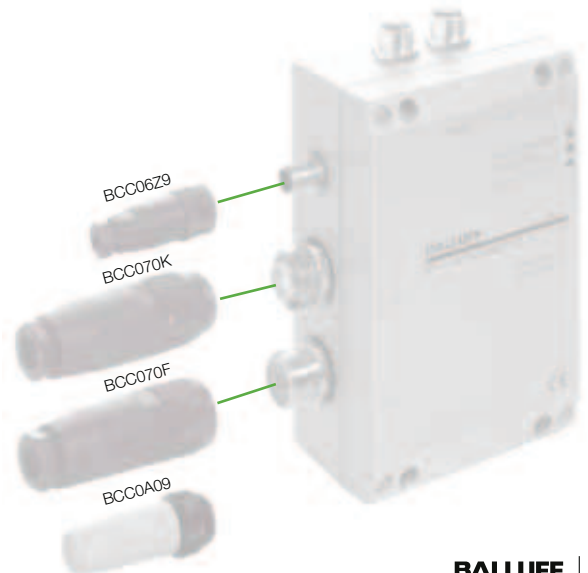
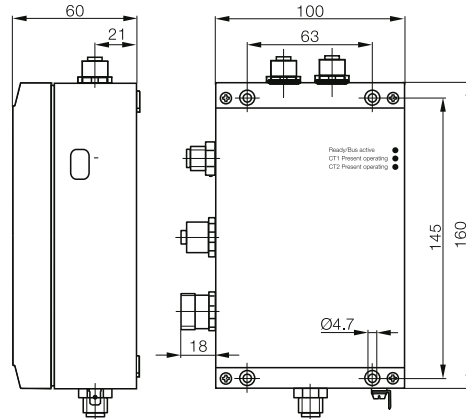
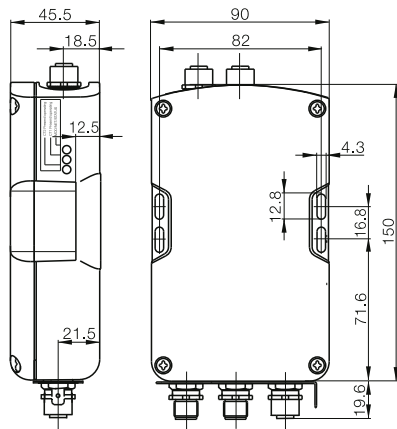
Software EDS file

See page 294/305 for cable options



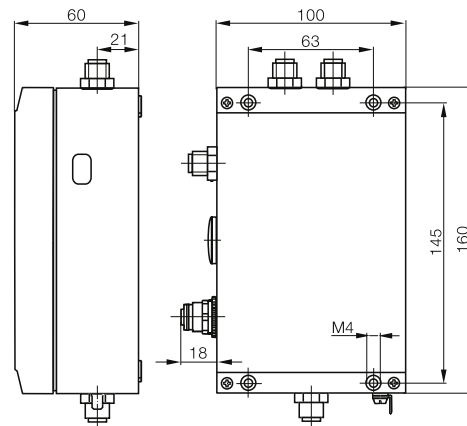
3.65 MHz HF

BIS S
Industrial
RFID System
Data carriers
read/write
Read/write
heads
Processors
Handy
programmer





Description	Processor
Housing material	Aluminum cast, coated
Ethernet/IP	BIS00F7
	Ordering code
	Part number
	BIS S-6026-034-050-06-ST19
Supply voltage, Ripple	24 V DC $\pm 20\%$, $\leq 10\%$
Current	≤ 400 mA
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Degree of protection per IEC 60529	IP 65
Read/write head ports	2x external
Service interface	yes
Connection for	2x read/write heads BIS S-30_
Connection type	1x M12 connector, 4-pin, D-coded 1x M12 connector, 5-pin 1x M12 connector, 4-pin
Accessories included	Configuration software
Connection cable	See page 292/305 for cable options



Ethernet TCP/IP

BIS S Industrial RFID System Ethernet TCP/IP processors

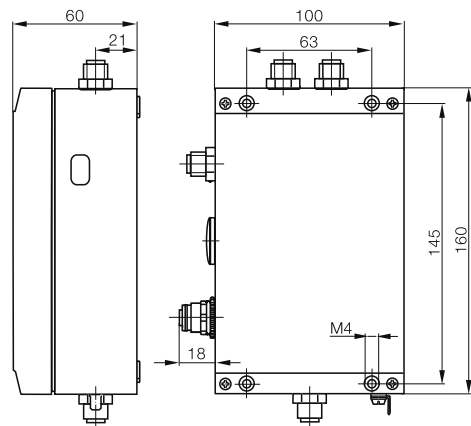


Description	Processor
Housing material	Aluminum cast, coated
Ethernet TCP/IP	Ordering code BIS00F8
	Part number BIS S-6027-039-050-06-ST19
Supply voltage, Ripple	24 V DC $\pm 20\%$, $\leq 10\%$
Current	≤ 400 mA
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Degree of protection per IEC 60529	IP 65
Read/write head ports	2x external
Service interface	yes
Connection for	2x read/write heads BIS S-30_
Connection type	1x M12 connector, 4-pin, D-coded 1x M12 connector, 5-pin 1x M12 connector, 4-pin
Accessories included	Configuration software
Connection cable	See page 292/305 for cable options



3.65 MHz HF

BIS S
Industrial
RFID System
Data carriers
read/write
Read/write
heads
Processors
Handy
programmer



Suitable connectors
(please order separately)



Ordering code	BCC0C5J
Part number	BIS C-526-PU-00,6

Order accessories separately! Adapter cable for Ethernet from M12, D-coded to coupling RJ45 see connectivity section.

BIS S Industrial RFID System

Handy programmer

For maximum flexibility

Benefit from increased mobility during repair work. The handy programmer with read/write function helps you stay mobile and independent. The handy programmer is fitted with an interface to a PC.



Function	
Dimensions	
Housing material	
Ordering code	
Part number	
Keyboard	
Display	
Current	
Capacity	
Interface	
Operating temperature	
Storage temperature	
Degree of protection per IEC 60529	
Read head connection	
Connection to	
Accessories	

Appropriate data carrier

Antenna type:



rod



round

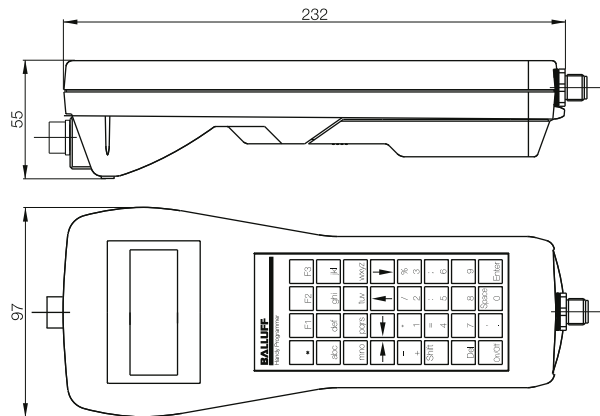
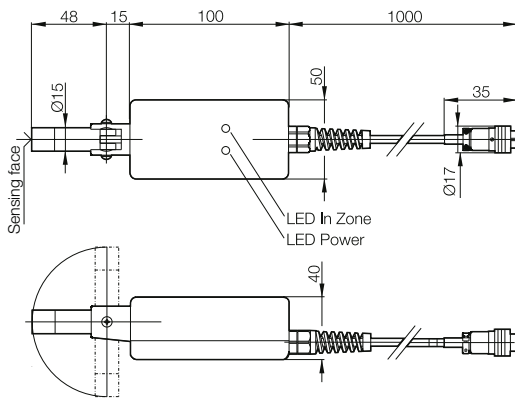
BIS S Industrial RFID System Handy programmer



BIS S
Industrial
RFID System
Data carriers
read/write
heads
Processors
**Handy
programmer**

Read/write heads Ø 15×63 mm Plastic BAE0098 BIS S-850	Handy programmer 232×97×55 mm ABS BAE008M BIS S-810-0-003 32 buttons, alphanumeric LCD-display, 20 characters/4 lines 2.4 V rechargeable battery pack NiMH 1500 mA/h RS232, Balluff Dialog 0...+50 °C IP 40 Fixed socket, 6-pin 1× M12 connector, 5-pin Carrying case included
0...+40 °C -10...+50 °C IP 54 Fixed plug, 6-pin BIS S-810	

BIS S-108 __ BIS S-150 __	
------------------------------	--

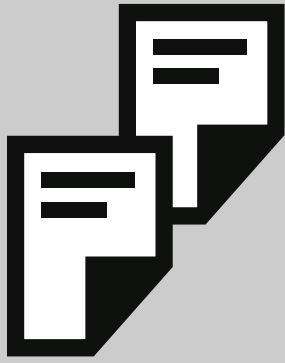


Recommended accessories (please order separately)

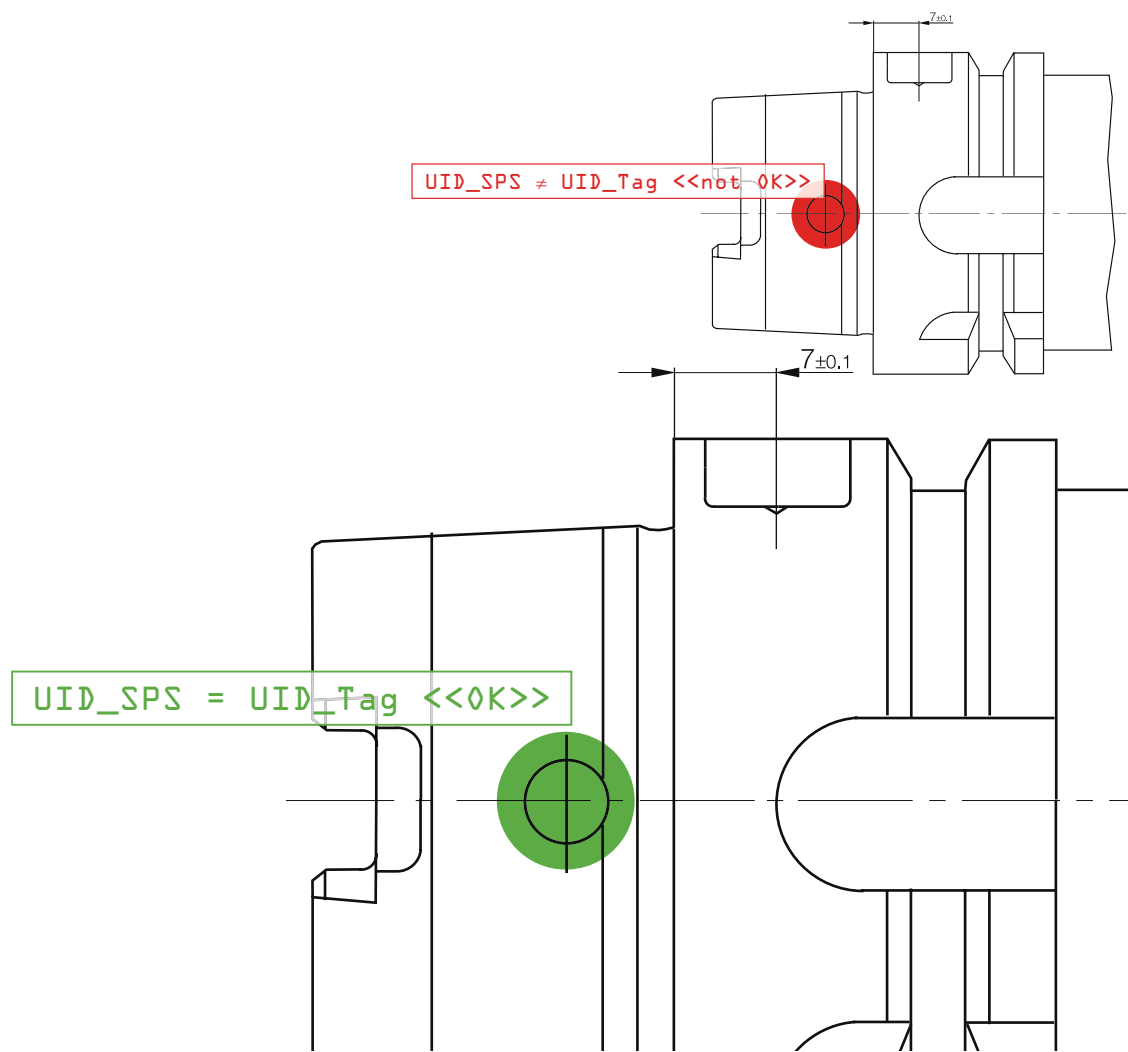


Description	Charger	Rechargeable battery	Charging cradle with Charger
Ordering code	BAE0047	125997	BAE0048
Part number	BIS C-701-A	Akku-BIS C-81. 2,4V 1500 MAH	BIS C-702-A

Please order separately!



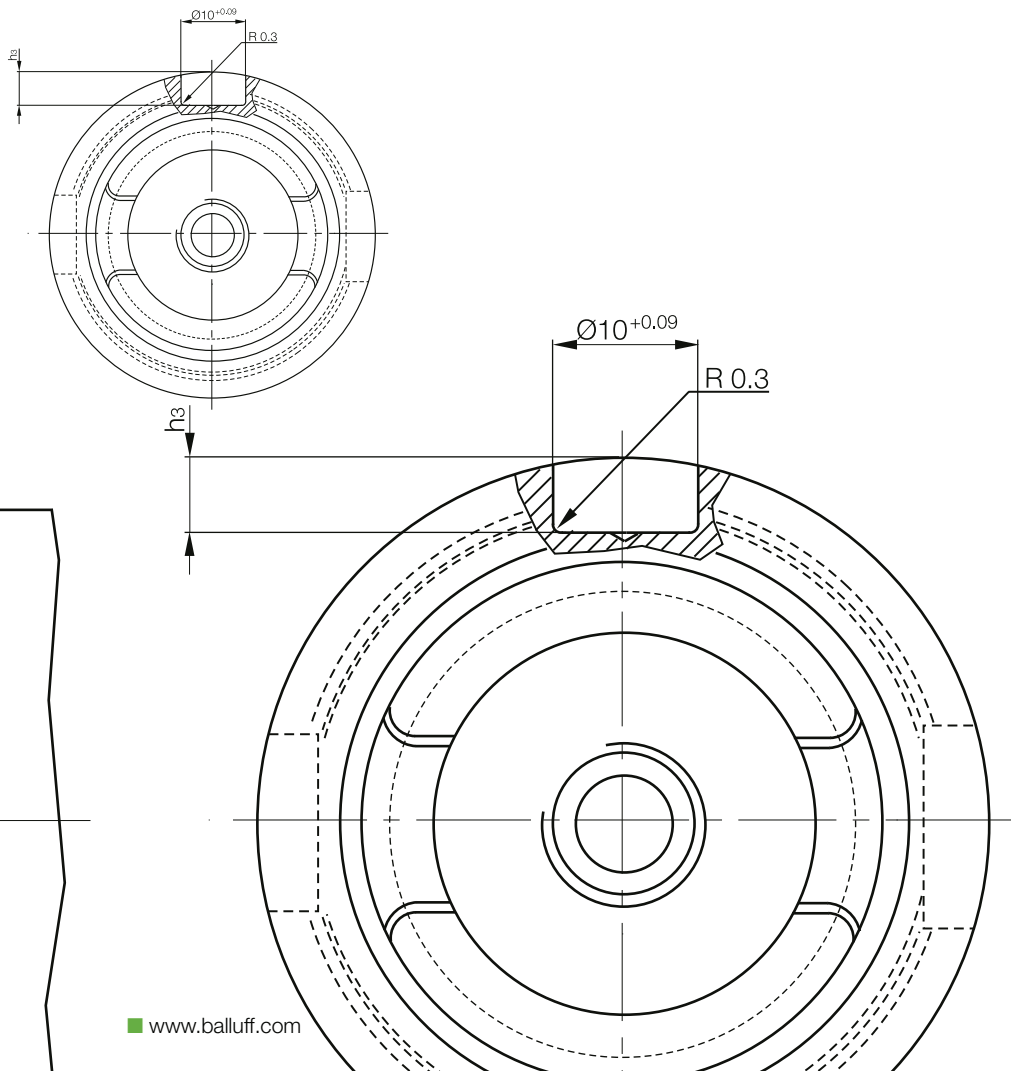
Basic Information and Definitions



Basic Information and Definitions

Contents

General information	354
Mechanical properties	356
Quality	357
Electro-magnetic identification	
BIS U Industrial RFID System	358
Inductive identification	
BIS M Industrial RFID System	360
BIS C Industrial RFID System	364
BIS L Industrial RFID System	370
BIS S Industrial RFID System	374
Interaction between read/write heads and data carriers	376
Vision-based identification	
BVS Vision Sensors	378



Standards

Protection class	II □	EN 60947-5-2/IEC 60947-5-2
Degree of protection	IP 60...67 IP 68 per BWN Pr. 20	EN 60529/IEC 60529 Balluff factory standard (BWN): Temperature storage 48 h at 60 °C, 8 temperature cycles according to EN 60068-2-14/IEC 60068-2-14 between the benchmark temperatures according to the data sheet, 1 h storage in water, insulation inspection, 24 h storage in water, insulation test, 8 temperature cycles according to EN 60068-2-14 IEC 60068-2-14 between the benchmark temperatures according to the data sheet, 7 days storage in water, insulation test.
	IP 68 per BWN Pr. 27	Balluff Factory Standard (BWN): Testing products for use in the foods industry.
	IP 69K	DIN 40050 part 9: Protection against entry of water under high pressure- or steam jet cleaning.
EMC (Electromagnetic Compatibility)	Emissions, RF noise voltage and RF noise radiation from electrical equipment	EN 55011
	Interference immunity against discharging static electricity (ESD)	EN 61000-4-2/IEC 61000-4-2
	Radio frequency immunity against high-frequency electromagnetic fields (RFI)	EN 61000-4-3/IEC 61000-4-3
	Immunity to fast transients (bursts)	EN 61000-4-4/IEC 61000-4-4
	Interference immunity against conducted interference, induced by high-frequency fields	EN 61000-4-6/IEC 61000-4-6
	Immunity to voltage dips and voltage interruptions	EN 61000-4-11/IEC 61000-4-11
	Surge-voltage stability	EN 60947-5-2/IEC 60947-5-2
Environmental simulation	Vibration, sinusoidal	EN 60068-2-6/IEC 60068-2-6
	Shock	EN 60068-2-27/IEC 60068-2-27
	Continuous shock	EN 60068-2-29/IEC 60068-2-29

Basic Information and Definitions

General information

Mounting torques

The following torques are to be followed so that the sensors are not mechanically destroyed during installation, as long as no other information is indicated on the data sheet or the sensor packaging.

Size	Material	Tightening torque
M12×1	Stainless steel	40 Nm
M18×1	PBT	1 Nm
M18×1	Stainless steel	60 Nm
M30×1.5	PBT	3 Nm
M30×1.5	Stainless steel	90 Nm

Degree of protection

The degrees of protection are given according to IEC 60529. Code letters IP (International Protection) designate protection for electrical equipment against shock hazard, ingress of solid foreign bodies and water.

First digit:

- 2 Protection against penetration of solid bodies larger than 12 mm, shielding from fingers and objects
- 4 Protection against penetration of solid bodies larger than 1 mm, shielding from tools and wires
- 5 Protection against damaging dust deposits, complete contact protection
- 6 Protection against penetration of dust, complete contact protection

Second digit:

- 0 No special protection
- 4 Protection against water, which is sprayed from all directions against the equipment
- 5 Protection against a stream of water from a nozzle which hits the equipment from all directions
- 7 Protection against water, if the equipment (housing) is temporarily submerged
- 8 Protection against water when submerged for some time



Basic Information and Definitions

General information

Mechanical properties

Quality

BIS U

BIS M

BIS C

BIS L

BIS S

Interaction between read/write heads and data carriers

BVS

Materials

Material	Use and characteristics
Plastics	
ABS Acrylonitrile-Butadiene-Styrene	Impact-resistant, stiff, limited chemical resistance. Some types flame-retardant. Used for housings.
ASA Acrylonitrile styrene acrylate	Impact-resistant material, scratch-resistant surface and good weather resistance
EP Epoxy resin	Duromer, molded plastic material, highest mechanical strength and temperature resistance. Very good dimensional stability. Cannot be melted.
Epoxy resin - hollow glass spheres	Hollow glass spheres can be treated with epoxy resins. They are used for manufacturing converters with low thickness and high pressure rating.
PA Polyamide	High impact resistance, good chemical resistance.
PA 6, PA 66, PA mod., PA 12 Polyamide	Good mechanical strength. Temperature resistance. PA 12 approved for food industry applications.
PBT Polybutylene terephthalate	High mechanical strength and temperature resistance. Some types flame-retardant. Good chemical resistance. Good oil resistance.
PC Polycarbonate	Clear, hard, elastic and impact resistant. Good temperature resistance. Limited chemical resistance.
PET Polyethylene terephthalate	High resistance to breakage, good dimensional stability. Frequently used in the food industry.
POM Polyoxymethylene	High impact resistance, good mechanical strength. Good chemical resistance.
Plastics	
PPS Polyphenylene sulfide	High strength, even at high temperatures. High chemical resistance.
PVC Polyvinyl chloride	Good mechanical strength and chemical resistance (cable).
PVDF Polyvinylidene fluoride	Thermoplastic. High mechanical strength and temperature resistance. Good chemical resistance (similar to PTFE).
Metal	
Wrought aluminum alloy	Standard-aluminum for machined cutting. Can be anodized. Used for housings and mounting components.
CuZn Brass	Standard-housing material with surface protection.
Stainless steel	Excellent corrosion resistance and strength. Quality 1.4034, 1.4104: Standard-material; quality 1.4305, 1.4301: Standard-material for the food industry; quality 1.4401, 1.4404, 1.4571: With increased requirements on chemical resistance at elevated temperatures for the food industry.
GD-Al die-cast aluminum	Low specific gravity. Good strength and resistance. Some types can be anodized.
GD-Zn die-cast zinc	Good resistance and strength. Usually with protective surface coating.
Other	
Glass	Good chemical resistance and strength. Used primarily in optical applications (lenses, cover lenses).

Quality and the environment

Quality management system per DIN EN ISO 9001:2008

Balluff companies

Balluff GmbH	Germany
Balluff SIE Sensorik GmbH	Germany
Balluff Controles Eléctricos Ltda.	Brazil
Balluff Sensors (Chengdu) Co., Ltd.	China
Balluff Ltd.	Great Britain
Balluff Automation S.R.L.	Italy
Balluff Canada Inc.	Canada
Balluff de México S.A. de C.V.	Mexico
Balluff GmbH	Austria
Balluff Sp. z o.o.	Poland
Balluff Hy-Tech AG	Switzerland
Balluff Sensortechnik AG	Switzerland
Balluff S.L.	Spain
Balluff CZ, s.r.o	Czech Republic
Balluff Elektronika Kft.	Hungary
Balluff Inc.	USA



Environmental management system per DIN EN ISO 14001:2009

Balluff companies

Balluff GmbH	Germany
Balluff Sensors (Chengdu) Co., Ltd.	China
Balluff Elektronika KFT	Hungary

Testing laboratory

The Balluff testing laboratory operates in accordance with ISO/IEC 17025 and is accredited by DAkks for testing electromagnetic compatibility (EMC).



Balluff products comply with EU directives

Products that require labeling are subject to a conformity evaluation process according to the EU directive and the product is labeled with the CE marking.

Balluff products fall under the following EU directive:

2004/108/EC	EMC directive
2006/95/EC	Low Voltage Directive valid for products with supply voltage ≥ 75 V DC/ ≥ 50 V AC



Product approvals

Product approvals are awarded by domestic and international institutions. Their symbols affirm that our products meet the specifications of these institutions.

"US Safety System" and "Canadian Standards Association" under the auspices of Underwriters Laboratories Inc. (cUL).



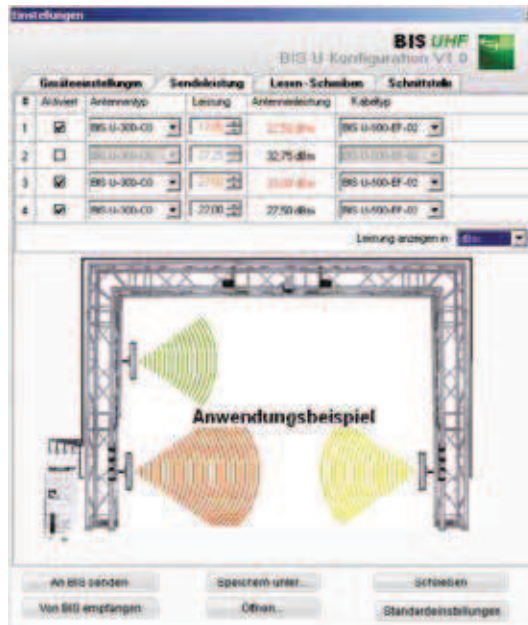
Basic Information and Definitions

BIS U configuration software

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.

Application software

Balluff partners with only best in class software providers and elite integrators to deliver the complete RFID solution. From a full system rollout to meshing into the current process, our software partners understand the needs of the manufacturing industry. Logistics, Work in process (WIP) production control, E-Kanban etc., are just a few of the applications in which our partners specialize.



Setting the transmission power and dependency on the antenna being used



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



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 probability 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.

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 are happy to help!

Tel. +49 7158 173-401
 +49 7158 173-727
 E-mail: TecSupport@balluff.de

Mounting definitions

- **Flush in steel**
 Active sensing surface can be flush mounted to surface of steel. Consult part data sheet for additional information.
- **Non-flush on steel**
 Active sensing surface must be clear and not be surrounded by steel. Consult part data sheet and clear zone definitions for more information.
- **Non-metal**
 Total clearance zone from any kind of metal must be maintained. Consult part data sheet and clear zone definitions for more information.

Consult technical support for other metal mounting options.



Mounting definitions

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Non-metal

Total clearance zone from any kind of metal must be maintained.
Consult part data sheet and clear zone definitions for more information.

Consult technical support for other metal mounting options.

Minimum distance between two data carriers

	BIS M-122-01/L, BIS M-122-02/L	BIS M-110-02/L	BIS M-101-01/A, BIS M-111-02/A	BIS M-102-01/L, BIS M-112-02/L	BIS M-105-01/A, BIS M-105-02/A	BIS M-108-02/A	BIS M-120-01/L	BIS M-151-02/A, BIS M-150-02/A
BIS M-300		> 100	> 100	> 150	> 100	> 100		
BIS M-301		> 200	> 200	> 200	> 100	> 200	> 250	
BIS M-302, BIS VM-307	> 100	> 100	> 100	> 100	> 100	> 100		
BIS M-304	> 100	> 100	> 100	> 100	> 100	> 100		
BIS M-400-007-001-00-S115		> 100	> 100	> 150	> 100	> 100		
BIS M-401-007-001-00-S115		> 200	> 200	> 200	> 100	> 200	> 250	
BIS M-400-007-002-00-S115	> 100	> 100	> 100	> 100	> 100	> 100		
BIS M-351, BIS VM-351								> 250
BIS M-451-007-001-00-S115								> 250

Dimensions in mm

Minimum distance between two read/write heads

BIS M-300	200
BIS M-301	600
BIS M-351/BIS VM-351	600
BIS M-302/BIS VM-307	100
BIS M-304	100
BIS M-400-007-001-00-S115	200
BIS M-401-007-001-00-S115	600
BIS M-451-007-001-00-S115	600
BIS M-400-007-002-00-S115	100
BIS M-410-007-002-00-S115	200
BIS M-411-007-002-00-S115	300

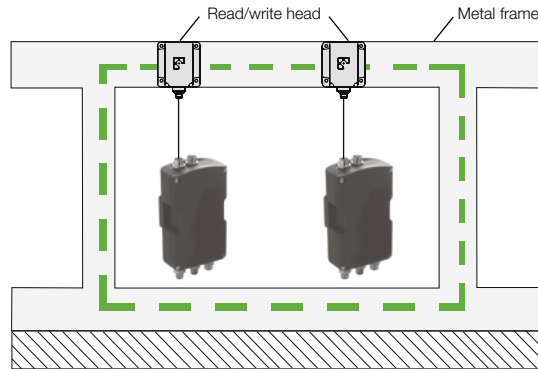
Dimensions in mm

Basic Information and Definitions

BIS M installation notes

Mounting the read/write heads on metal frames

If the read/write heads are mounted so that they are joined through an enclosed metal frame, mutual interference may result (conductor loop). This may reduce the read/write distances. The smaller the read/write head, the less the interference. This may result in a reduction of the maximum distance by 80 %. In such a case you should test the actual effective read distance.

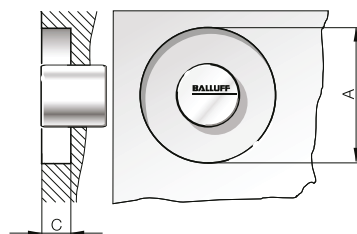


Clear zone dimensions for read/write heads

For compliance to the read/write distances as rated for a given data carrier to read/write head, the following Clear Zone Dimension must be used for a non-metal data carrier mounting:

Data carriers with clear zone dimensions	BIS M-111-02/L, BIS M-101-01/L		BIS M-112-02/L, BIS M-102-01/L		BIS M-105-02/A, BIS M-105-01/A		BIS M-120-01/L		BIS M-150-02/A, BIS M-151-02/A	
	A	C	A	C	A	C	A	C	A	C
Read/write head										
BIS M-300-001	100	30	150	30	100	20				
BIS M-301-001	200	70	200	70			250	70		
BIS M-302-001	60	30	60	30	60	30				
BIS M-351-001									250	70
BIS M-304-001	60	30	60	30	60	30				
BIS M-400-007-001	100	30	150	30	100	20				
BIS M-400-007-002	60	30	60	30	60	30				
BIS M-401-007-001	200	70	200	70			250	70		
BIS M-451-007-001									250	70

Dimensions in mm



Mechanical strength

Data carriers and read/write heads BIS M-1_ __, BIS M-3_ __

Shock load	100 g/6 ms per EN 60068-2-27 and 100 g/2 ms per EN 60068-2-29
Vibration	20 g, 10...2000 Hz per EN 60068-2-6

Processors BIS M-6_ _ _ _

Shock load	15 g/11 ms per EN 60068-2-27 and 15 g/6 ms per EN 60068-2-29
Vibration	5 g, 10...150 Hz per EN 60068-2-6

Basic Information and Definitions

BIS M read/write times

Memory access

Our processors can read or write each individual byte in the data carrier. But since the data carrier is divided into 16-byte blocks, the actual reading and writing is done by blocks. Our processor electronics converts this time accordingly. To calculate the read/write times the block read or write time must however be used.

Data carrier recognition

20 ms are required to recognize a data carrier.

Read times BIS M-1_ _

EEPROM – Data carrier with 16 byte blocks		FRAM – Data carrier with 16 byte blocks	
Byte	read time	Byte	read time
from 0 to 15	20 ms	from 0 to 15	30 ms
for each additional 16 bytes started add an additional	10 ms	for each additional 16 bytes started add an additional	15 ms

Write times BIS M-1_ _

EEPROM – Data carrier with 16 byte blocks		FRAM – Data carrier with 16 byte blocks	
Byte	write time	Byte	write time
from 0 to 15	40 ms	from 0 to 15	60 ms
for each additional 16 bytes started add an additional	30 ms	for each additional 16 bytes started add an additional	40 ms

Example:

Read and write 183 bytes starting at address 42
 Address 42 is in Block 3 (42/16)
 Address 224 is in Block 14 (224/16)

Therefore a total of 12 blocks will be processed, where the first block always has a slightly longer read or write time.

Read time = 20 ms + 11 × 10 ms = 130 ms
 Write time = 40 ms + 11 × 30 ms = 370 ms

Attention! Fluctuations in the ms range are possible. Electrical noise effects may increase the read/write time.

Basic Information and Definitions

BIS M read/write times

Read/write cycles

Data carriers	Memory type	Write cycles	Read cycles	Data retention time
112 bytes	EEPROM	100000	unlimited	10 years
160 bytes	EEPROM	100000	unlimited	10 years
736 bytes	EEPROM	100000	unlimited	10 years
752 bytes	EEPROM	100000	unlimited	10 years
992 bytes	EEPROM	100000	unlimited	10 years
2000 bytes	FRAM	unlimited	unlimited	10 years
8192 bytes	FRAM	unlimited	unlimited	10 years

Maximum speed

To calculate the permissible speed at which the data carrier and head may move relative to one another, the static distance values are used (see section BIS M).

The permissible speed is:

$$V_{\text{max. perm.}} = \frac{\text{Path}}{\text{Time}} = \frac{2 \times |\text{offset value}|}{\text{Processing time}}$$

The offset value is dependent on the read/write distance actually used in the system.

$$\text{Processing time} = \text{Data-carrier detection time} + \text{Read/write time of first block to be read} + n^1 \times \text{Read/write time for other started blocks}$$

n^1 = Number of started blocks



Basic Information and Definitions

General information

Mechanical properties

Quality

BIS U

BIS M

BIS C

BIS L

BIS S

Interaction between read/write heads and data carriers

BVS

Mounting definitions

Flush in steel

Active sensing surface can be flush mounted to surface of steel.
Consult part data sheet for additional information.

Non-flush on steel

Active sensing surface must be clear and not be surrounded by steel.
Consult part data sheet and clear zone definitions for more information.

Non-metal

Total clearance zone from any kind of metal must be maintained.
Consult part data sheet and clear zone definitions for more information.

Consult technical support for other metal mounting options.

Installation in steel

For compliance to the read/write distances as rated for a given data carrier to read/write head, the following Clear Zone Dimension must be used for a "non-flush" or "non-metal" data carrier mounting:

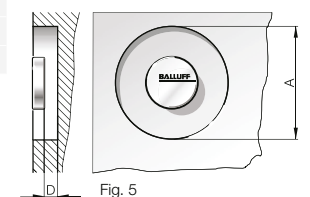
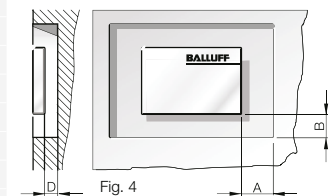
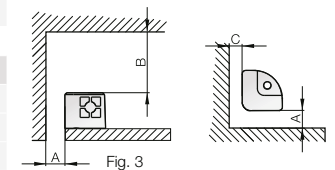
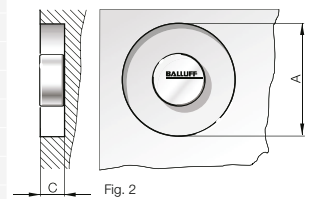
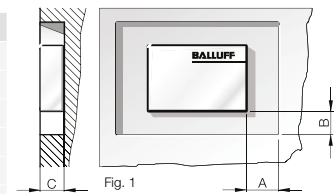
Clear zone dimensions

Data carriers	Fig.	A	D	C	B
BIS C-100-05/A		0	0	0	0
BIS C-103-_/A		0	0	0	0
BIS C-104-_/A		0	0	0	0
BIS C-105-_/A		0	0	0	0
BIS C-108-_/L		0	0	0	0
BIS C-117-05/A		0	0	0	0
BIS C-121-04/L	5	60			20
BIS C-122-_/L		0	0	0	0
BIS C-127-05/L	4	30	30		30
BIS C-128-_/L	5	60			20
BIS C-130-05/L	5	70			2
BIS C-133-_/L		0	0	0	0
BIS C-134-_/L	2	70		11	
BIS C-150-_/A	1	20	20	22	
BIS C-190-_/L	3	20	17	20	
BIS C-191-_/L	3	9	27	9	

Read/write heads	Fig.	A	B	C
BIS C-300		0	0	0
BIS C-302		0	0	0
BIS C-305		0	0	0
BIS C-306		0	0	0
BIS C-310	2	60		13
BIS C-315		0	0	0
BIS C-318	1	50	50	30
BIS C-319	2	50		35
BIS C-323	2	60		13
BIS C-324	1	0	0	0
BIS C-325	2	0	0	0
BIS C-326	2	80		35
BIS C-327	1	50	50	20
BIS C-328	1	50	50	20
BIS C-350	1	60	50	60
BIS C-351	1	100	60	50

Dimensions in mm

Note! Depending on the combination of read/write head and data carrier, clear zone dimension A and B should always be selected for the larger of the components.



Installation in aluminum

With clear zone, static operation

When installing components in aluminum, provide clear zones for trouble-free operation. In static mode a clear zone depth in aluminum of at least 10 mm must be maintained, Fig. 1. Clear zone dimension **A** corresponds to the diameter of the larger communication partner (data carrier or read/write head) plus the maximum possible offset (see specification for read/write head), Fig. 2. When combined with read/write heads BIS C-318, 327, 328, 350, 351 and 355 dimension **B** and **C** are calculated from the length and width of the larger communication partner (data carrier or read/write head) plus the maximum permissible offset (see specification for read/write head), Fig. 3.

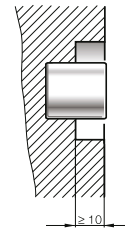


Fig. 1

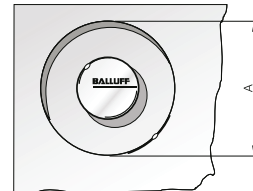


Fig. 2

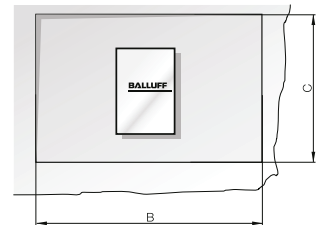


Fig. 3

With clear zone, dynamic operation

In dynamic mode a clear zone depth in aluminum of at least 10 mm must be maintained, Fig. 1. Clear zone dimension **A** corresponds to $2 \times$ the diameter of the larger communication partner + $1 \times$ the diameter of the smaller communication partner. Clear zone dimension **C** corresponds to the diameter of the larger communication partner plus the corresponding maximum offset (see specification for read/write head), Fig. 4. When combined with read/write heads BIS C-318, 327, 328, 350, 351 and 355 dimension **B** is calculated from $2 \times$ the read/write path (see specification for read/write heads) + the width of the data carrier. Clear zone dimension **C** corresponds to the read/write head length plus the corresponding maximum offset (see specification for read/write head), Fig. 5.

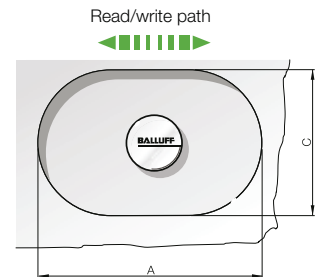


Fig. 4

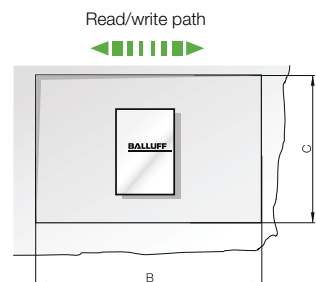


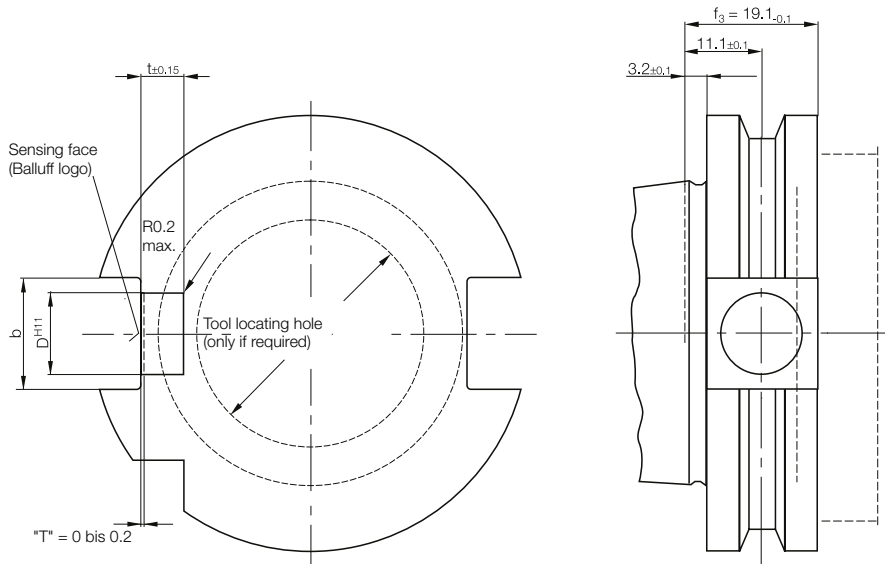
Fig. 5

- Basic Information and Definitions
- General information
- Mechanical properties
- Quality
- BIS U
- BIS M
- BIS C**
- BIS L
- BIS S
- Interaction between read/write heads and data carriers
- BVS

Installation in SK taper

Data carrier	BIS C-122			BIS C-103			BIS C-105			
	Taper DIN 69871-A	D ^{H11}	t ±0.15	RPM _{max}	D ^{H11}	t ±0.15	RPM _{max}	D ^{H11}	t ±0.15	RPM _{max}
Nr. 30		10	4.65	90000	12	8.15	68000	12	6.15	68000
Nr. 40		10	4.65	75000	12	8.15	54000	12	6.15	54000
Nr. 45		10	4.65	66000	12	8.15	43000	12	6.15	43000
Nr. 50		10	4.65	59000	12	8.15	33000	12	6.15	33000

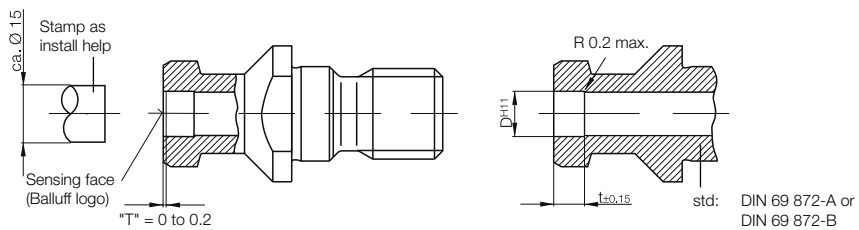
Dimensions in mm



Installation in retention knob

Data carrier	BIS C-122		BIS C-103		BIS C-105		
	Taper DIN 69871-A	D ^{H11}	t ±0.15	D ^{H11}	t ±0.15	D ^{H11}	t ±0.15
Nr. 30							
Nr. 40		10	4.65				
Nr. 45		10	4.65	12	8.15	12	6.15
Nr. 50		10	4.65	12	8.15	12	6.15

Dimensions in mm



Installation

1. Degrease gluing surfaces
2. Apply a bead of glue (recommended glue e.g. LOCTITE Hysol 1C or UHU-Plus endfest 300) approximately 3 mm wide around the perimeter of the data carrier housing. Note manufacturer's instructions!
3. Press in data carrier housing by hand. Note dimension "T"!
4. Remove excess glue
5. Allow to harden

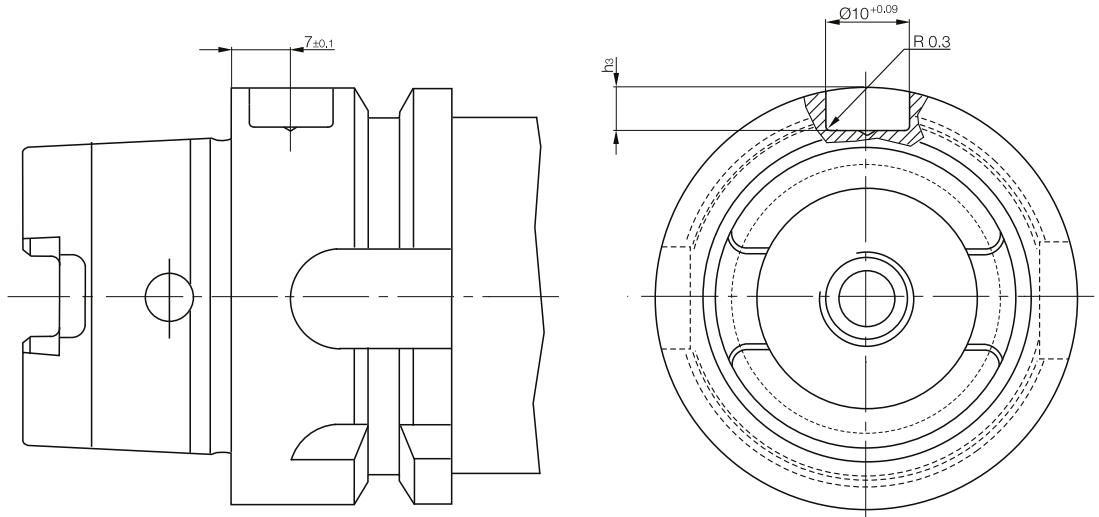
Basic Information and Definitions

BIS C installation notes

Installation in HSK taper

Data carrier	BIS C-122	
HSK Form A ISO/DIN 12164-1	$h_3 +0,20$	RPM _{max}
32	5.4	96000
49	5.2	80000
50	5.1	75000
63	5	65000
80	4.9	57000
100	4.9	48000

Dimensions in mm



Mechanical strength

Data carriers and read/write heads BIS C-1_-, BIS C-3_-

Shock load	100 g/6 ms per EN 60068-2-27 and 100 g/2 ms per EN 60068-2-29
Vibration	20 g, 10...2000 Hz per EN 60068-2-6

Values apply to data carriers BIS C-1_- and read/write heads BIS C-3_- except for the non-potted read/write heads BIS C-350, BIS C-351, BIS C-352 and BIS C-355.

Processors and non-potted read/write heads

BIS C-6_-, BIS C-350, BIS C-351, BIS C-352, BIS C-355

Shock load	15 g/11 ms per EN 60068-2-27 and 15 g/6 ms per EN 60068-2-29
Vibration	5 g, 10...150 Hz per EN 60068-2-6



Basic Information and Definitions

General information

Mechanical properties

Quality

BIS U

BIS M

BIS C

BIS L

BIS S

Interaction between read/write heads and data carriers

BVS

Basic Information and Definitions

BIS C read/write times

Read/write cycles

Data carriers	Memory type	Code	Write cycles up to 30 °C	Write cycles up to 70 °C	Read cycles	Memory Organization
511 bytes	EEPROM	-04	1000000	500000	unlimited	32 byte blocks
1023 bytes	EEPROM	-05	1000000	500000	unlimited	32 byte blocks
2047 bytes	EEPROM	-11	1000000	500000	unlimited	64 byte blocks
8 Kbytes	FRAM	-32	unlimited	unlimited	unlimited	64 byte blocks

Read times in static mode

For double read and compare:

Data carrier with 32-bytes blocks		Data carrier with 64-bytes blocks	
Bytes	Read time	Bytes	Read time
from 0 up to 31	110 ms	from 0 up to 63	220 ms
for each additional 32 bytes started add an additional	120 ms	for each additional 64 bytes started add an additional	230 ms
from 0 up to 255	= 950 ms	from 0 up to 2047	= 7350 ms

Write times in static mode

Includes checking and comparing:

Data carrier with 32-bytes blocks		Data carrier with 64-bytes blocks	
Bytes	Write time [ms]	Bytes	Write time [ms]
from 0 up to 31	$110 + n \times 10$	from 0 up to 63	$220 + n \times 10$
≥ 32	$y \times 120 + n \times 10$		$y \times 230 + n \times 10$
from 0 up to 255	= max. 3510	from 0 up to 2047	= max. 27830

n = number of contiguous bytes to be programmed
y = number of blocks to be processed

Example:

Write 17 bytes starting at address 187. Data carrier block size = 32 bytes. Blocks 5 and 6 are processed, since the start address 187 is in block 5 and end address 204 is in block 6.

$$t = 2 \times 120 + 17 \times 10 = \mathbf{410 \text{ ms}}$$

Read times in dynamic mode

Read times within the 1st block for double read and compare:

Data carrier with 32-bytes blocks		Data carrier with 64-bytes blocks	
Bytes	Read time	Bytes	Read time
from 0 up to 3	14 ms	from 0 up to 3	14 ms
for each additional bytes	3.5 ms	for each additional bytes	3.5 ms
from 0 up to 31	112 ms	from 0 up to 64	224 ms

The time indicated apply after the data carrier has been recognized. If the tag has not been recognized, an additional 30 ms must be added to allow for creating the energy field necessary to recognize the Data carrier.

Example:

Read 11 bytes starting at address 9, i.e. the highest address to be read is 20 (use for "m" in the formula).

$$t = 14 \text{ ms} + (m - 3) \times 3.5 \text{ ms} = \mathbf{73.5 \text{ ms}}$$

In the internal memory organization of the data carrier, a distinction is made between the two block sizes 32 and 64 bytes (also referred to as 'page size').

Basic Information and Definitions

BIS C read/write times

Memory organization

Memory size up to 1023 bytes = 32 bytes per block
 Memory size 2047 bytes and larger = 64 bytes per block

Maximum speed

To calculate the permissible speed at which the data carrier and head may move relative to one another, the static distance values are used (see section BIS C).

The permissible speed is:

$$V_{\text{max. perm.}} = \frac{\text{Path}}{\text{Time}} = \frac{2 \times |\text{offset value}|}{\text{Processing time}}$$

The offset value is dependent on the read/write distance actually used in the system.

$$\text{Processing time} = \text{Data-carrier detection time} + \text{Read/write time of first block to be read} + n^1 \times \text{Read/write time for other started blocks}$$

n^1 = Number of started blocks



Basic Information and Definitions
 General information
 Mechanical properties
 Quality
 BIS U
 BIS M
BIS C
 BIS L
 BIS S
 Interaction between read/write heads and data carriers
 BVS

Basic Information and Definitions

BIS L installation notes

Mounting definitions

Flush in steel

Active sensing surface can be flush mounted to surface of steel.
Consult part data sheet for additional information.

Non-flush on steel

Active sensing surface must be clear and not be surrounded by steel.
Consult part data sheet and clear zone definitions for more information.

Non-metal

Total clearance zone from any kind of metal must be maintained.
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Consult technical support for other metal mounting options.

Minimum distance between two data carriers

	BIS L-100-01/L	BIS L-101-01/L	BIS L-102-01/L	BIS L-103-05/L	BIS L-200-03/L	BIS L-201-03/L	BIS L-202-03/L	BIS L-203-03/L
BIS L-300	250	300	400	250	250	300	400	250
BIS L-301	300	400	500	350	350	400	500	350
BIS L-302	150	200	200	180	180	200	250	180
BIS L-303	300	400	500	350	350	400	500	350
BIS L-304	150	200	200	180	180	200	250	180
BIS L-40_					≥ 250	≥ 300	≥ 400	

Dimensions in mm

Minimum distance between two read/write heads

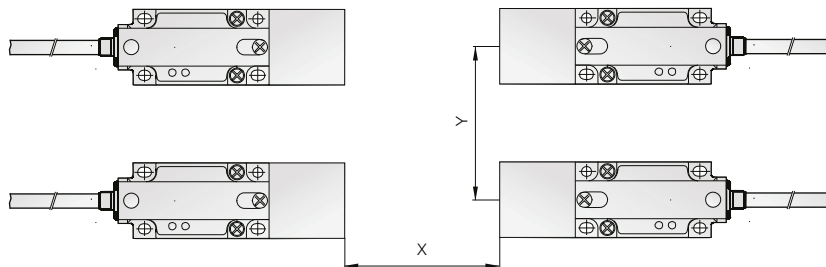
BIS L-300	800 mm
BIS L-301	800 mm
BIS L-302	200 mm
BIS L-303	800 mm
BIS L-304	200 mm

Dimensions in mm

Distance from read head to read head

Read head	Distance X	Distance Y
BIS L-40 _-...-001-...	1000 mm	1000 mm
BIS L-40 _-...-002-...	500 mm	300 mm
BIS L-40 _-...-003-...	500 mm	300 mm
BIS L-40 _-...-004-...	500 mm	300 mm

Dimensions in mm

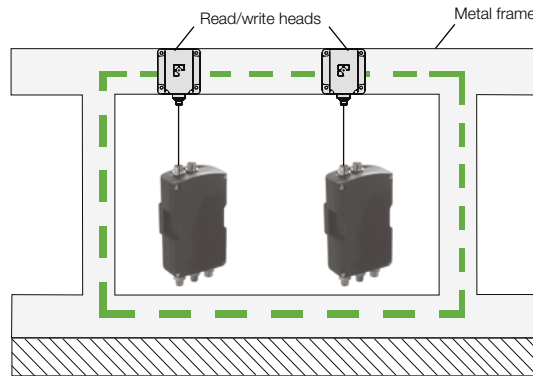


Basic Information and Definitions

BIS L installation notes

Mounting the read/write heads on metal frames

If the read/write heads are mounted so that they are joined through an enclosed metal frame, mutual interference may result (conductor loop). This may reduce the read/write distances. The smaller the read/write head, the less the interference. With the BIS L-301, the maximum distance can be reduced by up to 20 %. The distance should therefore be tested.



Installation in metal

For compliance to the read/write distances as rated for a given data carrier to read/write head, the following Clear Zone Dimension must be used for a "non-flush" or "non-metal" data carrier mounting.

Clear zone dimensions

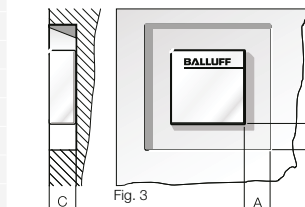
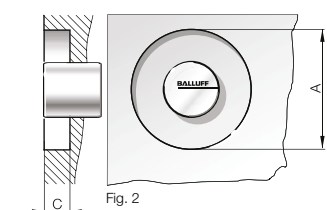
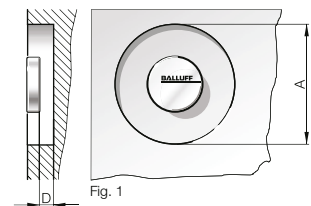
Data carriers	Fig.	A	D	C	B
BIS L-100-01/L	1	100	50		
BIS L-101-01/L	1	100	50		
BIS L-102-01/L	1	100	50		
BIS L-103-05/L	1	100	50		
BIS L-150-05/A	3	0		3	0*
BIS L-200-03/L	1	100	50		
BIS L-201-03/L	1	100	50		
BIS L-202-03/L	1	100	50		
BIS L-203-03/L	1	100	50		

Read/write heads	Fig.	A	D	C	B
BIS L-300-__	2	100		50	
BIS L-301-__	1	240			0
BIS L-302-__	2	100		10	
BIS L-303-__	3	80	60	50	
BIS L-350-001-S4		50	50	30	
BIS L-304-__	3	50	50	10	
BIS L-400-__-001	2	100		40	
BIS L-400-__-002	2	100		10	
BIS L-400-__-003	2	100		10	
BIS L-400-__-004	3	50	50	10	
BIS L-405-__-001	2	100		40	
BIS L-405-__-002	2	100		10	
BIS L-405-__-003	2	100		10	
BIS L-405-__-004	3	50	50	10	

*in steel and BIS L-350 head

Dimensions in mm

Note! Depending on the combination of read/write head and data carrier, clear zone dimension A should always be selected for the larger of the components. If the clear zones cannot be maintained, the read/write distance will be reduced.



- Basic Information and Definitions
- General information
- Mechanical properties
- Quality
- BIS U
- BIS M
- BIS C
- BIS L**
- BIS S
- Interaction between read/write heads and data carriers
- BVS

Basic Information and Definitions

BIS L installation notes

Mechanical strength

Data carriers and read/write heads BIS L-1_ __, BIS L-2_ __, BIS L-3_ __, BIS L-4_ __	
Shock load	100 g/6 ms per EN 60068-2-27 and 100 g/2 ms per EN 60068-2-29
Vibration	20 g, 10...2000 Hz per EN 60068-2-6

Processors BIS L-6_ __ _	
Shock load	15 g/11 ms per EN 60068-2-27 and 15 g/6 ms per EN 60068-2-29
Vibration	5 g, 10...150 Hz per EN 60068-2-6

Maximum speed

To calculate the permissible speed at which the data carrier and head may move relative to one another, the static distance values are used (see section BIS L).

The permissible speed is:

$$V_{\text{max. perm.}} = \frac{\text{Path}}{\text{Time}} = \frac{2 \times |\text{offset value}|}{\text{Processing time}}$$

The offset value is dependent on the read/write distance actually used in the system.

$$\text{Processing time} = \text{Data-carrier detection time} + \text{Read/write time of first block to be read} + n^1 \times \text{Read/write time for other started blocks}$$

n^1 = Number of started blocks

Basic Information and Definitions

BIS L read times

Read times BIS L-1_ _

Typically 110 ms for recognizing the serial number*

Data carrier with 4 byte blocks	
Byte	read time
from 0 to 3	180 ms
for each additional 4 bytes started add an additional	90 ms

Read times BIS L-2_ _

Serial number recognition = read data carrier = 100 ms*

Write times BIS L-1_ _

Data carrier with 4 byte blocks	
Byte	write time
from 0 to 3	305 ms
or each additional 4 bytes started add an additional	215 ms

*Applies only to parameter type and serial number output.

All specifications are typical values. Deviations are possible depending on the application and combination of read/write head and data carrier.



Basic Information and Definitions
 General information
 Mechanical properties
 Quality
 BIS U
 BIS M
 BIS C
BIS L
 BIS S
 Interaction between read/write heads and data carriers
 BVS

Mounting definitions

Flush in steel

Active sensing surface can be flush mounted to surface of steel.
Consult part data sheet for additional information.

Non-flush on steel

Active sensing surface must be clear and not be surrounded by steel.
Consult part data sheet and clear zone definitions for more information.

Non-metal

Total clearance zone from any kind of metal must be maintained.
Consult part data sheet and clear zone definitions for more information.

Consult technical support for other metal mounting options.

Installation in steel

For compliance to the read/write distances as rated for a given data carrier to read/write head, the following Clear Zone Dimension must be used for a "non-flush" data carrier mounting:

Clear zone dimensions

Data carriers	Fig.	A	B	C
BIS S-108-_/L	1	35	35	11
BIS S-150-_/A	1	20	20	22

Read/write heads	Fig.	A	D	B
BIS S-301	2	80	80	40
BIS S-302	3	10	10	40
BIS S-303	4	10	10	40

Dimensions in mm

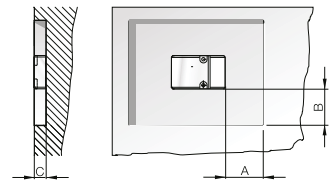


Fig. 1

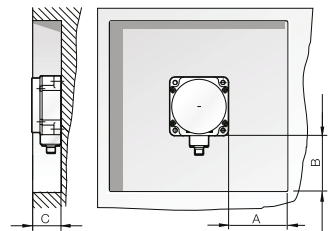


Fig. 2

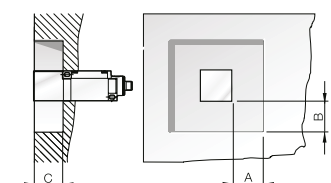


Fig. 3

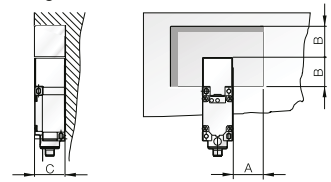


Fig. 4

Installation in aluminum

Clear zone dimensions

Data carriers	Fig.	A	B	C
BIS S-108-_/L	1	35	35	11
BIS S-150-_/A	1	20	20	22

Read/write heads	Fig.	A	D	B
BIS S-301	2	80	80	40
BIS S-302	3	40	40	40
BIS S-303	4	40	40	40

Dimensions in mm

Note! Depending on the combination of read/write head and data carrier, clear zone dimension A and B should always be selected for the larger of the components.

Basic Information and Definitions

BIS S installation notes and read/write times

Mechanical strength

Data carriers and read/write heads BIS S-1_ _ , BIS S-3_ _

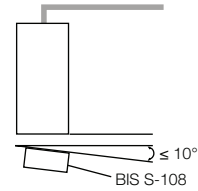
Shock load	100 g/6 ms per EN 60068-2-27 and 100 g/2 ms per EN 60068-2-29
Vibration	20 g, 10...2000 Hz per EN 60068-2-6

Processors BIS S-6_ _ _

Shock load	15 g/11 ms per EN 60068-2-27 and 15 g/6 ms per EN 60068-2-29
Vibration	5 g, 10...150 Hz per EN 60068-2-6

Permissible inclination

The sensing surfaces of read/write head and data carrier should be installed in parallel. If the inclination of data carrier to read/write head becomes over 10 degrees, read/write distance and offset will decrease.



Read/write cycles

Data carriers	Memory type	Write cycles	Write cycles	Read cycles	Memory organization
8 kBytes	FRAM	unlimited	unlimited	unlimited	64 byte blocks
16 kBytes	FRAM	unlimited	unlimited	unlimited	64 byte blocks
32 kBytes	FRAM	unlimited	unlimited	unlimited	128 byte blocks

Read times

Byte	read time
from 0 to 63	29 ms
for each additional 64 bytes started add an additional	31 ms
from 0 to 2047	990 ms

Write times

Byte	write time [ms]
from 0 to 63	$31 + n \times 1.5$
≥ 64	$y \times 31 + n \times 1.5$
from 0 to 2047	= max. 4064

n = Number of contiguous bytes to write

y = Number of blocks to process

Example:

Write 87 bytes starting with Address 187. Data carrier = 64-byte blocks. Blocks 2 to 5 are processed, since start address 187 is in Block 2 and end address 274 is in Block 5.

$$t = 4 \times 31 + 87 \times 1.5 = 255 \text{ ms}$$

Maximum speed

No dynamic operation is recommendet.



Basic Information and Definitions

General information

Mechanical properties

Quality

BIS U

BIS M

BIS C

BIS L

BIS S

Interaction between read/write heads and data carriers

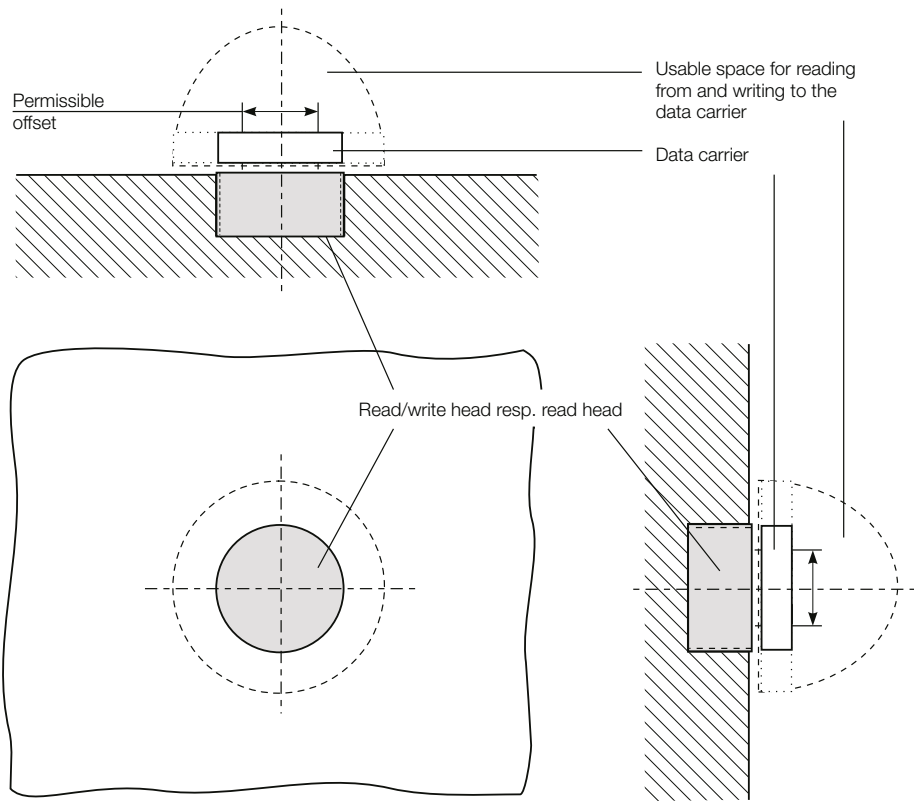
BVS

Spatial arrangement of read/write head resp. read head and data carrier

The key to reliable data exchange between the read/write head resp. read head and the data carrier is maintaining sufficient dwell time of the data carrier within a specified spatial distance from the read/write head resp. read head.

The sketches on the two following pages are intended to clarify this requirement, in the first sketch for read/write heads resp. read heads with non-directional operation, in the second for read/write heads resp. read heads in cases where the data carrier have to pass by from a certain direction or at a certain orientation.

For a **static read/write resp. read operation** the data carrier stops completely in front of the read/write resp. read heads; this permits a greater distance between the two.



Spatial arrangement of read/write head resp. read head and data carrier for non-directional read/write heads resp. read heads and **flush mounting** (circular antenna).

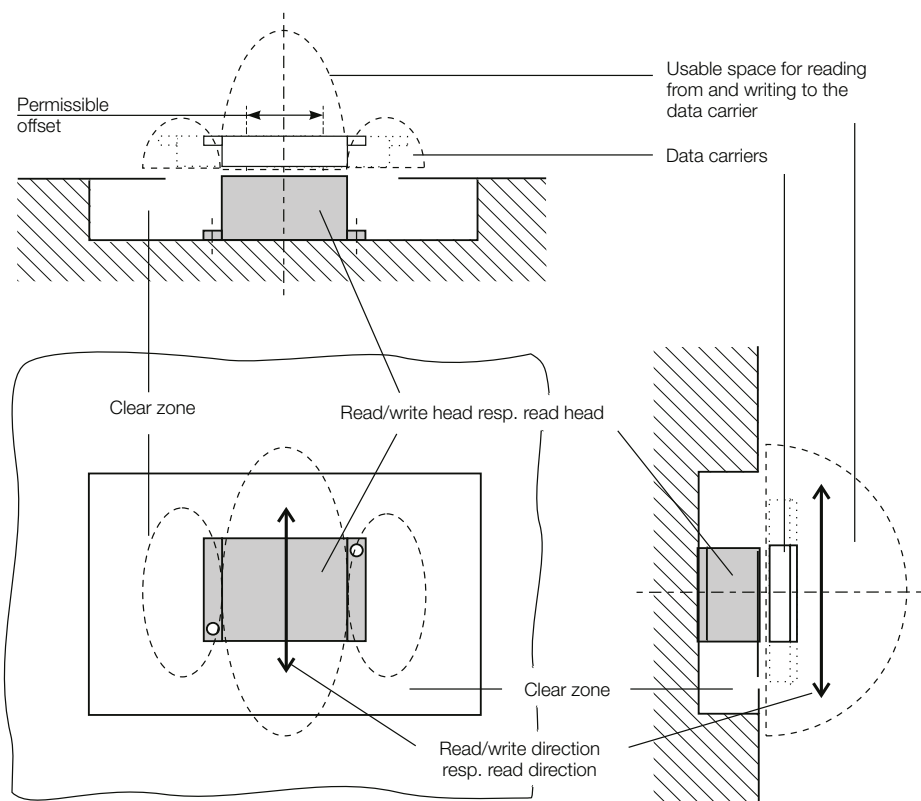
Basic Information and Definitions

Interaction between read/write heads and data carriers

For **dynamic operation** the data carrier is read or programmed on the fly. The shorter distance is necessary in order to achieve as large a read/write resp. read path as possible.

Each read/write head or read head has certain data carrier which can be used with it (the pairing is based on physical size and antenna field configuration).

The associated specifications for distance and permissible offset are indicated as well as the distance and relative speed between the read/write head or read head and the data carrier.



Spatial arrangement of read/write head resp. read head and data carrier for directional read/write heads resp. read heads and **non-flush mount** (bar-shaped antenna).



Basic Information and Definitions

General information

Mechanical properties

Quality

BIS U

BIS M

BIS C

BIS L

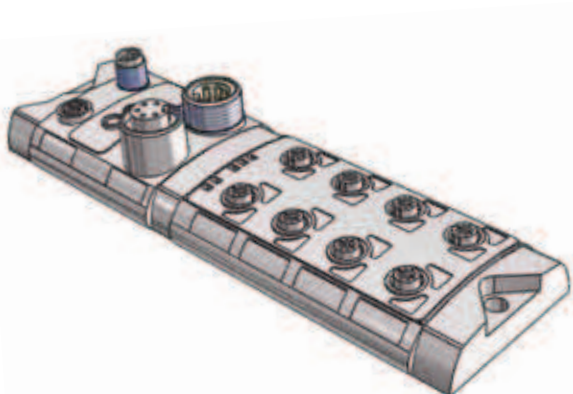
BIS S

Interaction between read/write heads and data carriers

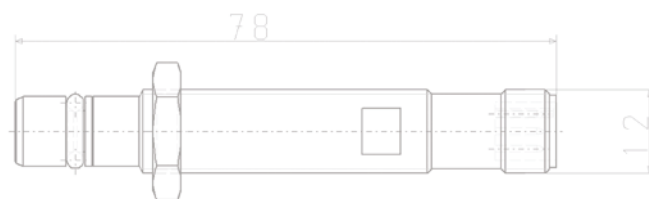
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Retrieving Product Information Online

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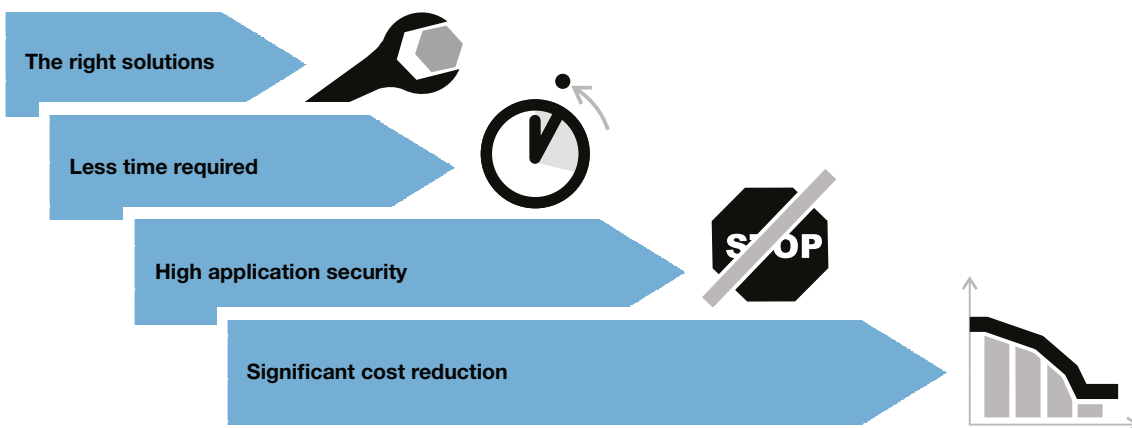
Balluff stands for highly efficient sensor technology, compact connection technology and an extensive range of accessories. We offer comprehensive services to support you, with customized solutions and individualized advice. We do this completely according to your specifications.

You receive our support over the entire life cycle of our products: Including the design and planning of your projects, testing and setup on site, and training and support. For an optimal implementation and significant planning security. This enables quick startup and an early start to production. This leads to maximum productivity and more cost-effectiveness. Learn about your options.



You can find more information in our Services brochure or send us an e-mail: tsm.de@balluff.com

<p>Application advice through our TecSupport Individualized expertise for your technical requirements</p>	<p>Real-world examples:</p> <ul style="list-style-type: none"> ■ Selection of the correct identification procedure for an assembly line ■ IO-Link concept as a cost-effective alternative to conventional wiring ■ System consulting for radio frequency identification (RFID): identification of large steel pipes in adverse environments ■ Recognizing multiple containers on a pallet in goods receiving
<p>Commissioning Order expert knowledge. And benefit from a quick start of production.</p>	<p>Real-world examples:</p> <ul style="list-style-type: none"> ■ Setting up an optical checkpoint with the vision sensor BVS ■ Consulting and support during the programming of RFID systems BIS ■ Installation and commissioning of a color detection application with the BFS color sensor
<p>Fully customized products Specific versions according to your requirements: from pre-assembly to engineering services</p>	<p>Real-world examples:</p> <ul style="list-style-type: none"> ■ Extending the housing of a BHS high-pressure resistant inductive sensor ■ Extra threads for the housing cover of a BTL micropulse transducer ■ Customer-specific holder for an RFID data carrier ■ Adaptation of the characteristics for BAW analog sensors
<p>Training Make use of well-founded manufacturer knowledge. And benefit from application security.</p>	<ul style="list-style-type: none"> ■ Professional sensor use: Select operating principles, install sensors professionally and ensure the reliable operation of your application. ■ Position and distance measurement: This is how you make precise and wear-free measurements. ■ RFID: The right data at the right time at the right place. ■ Vision sensor: Using an image processing sensor, ensure manufacturing quality in three steps. ■ Vision sensor identification: Reliably identify data matrix codes with an image-processing sensor. ■ Industrial networking with IO-Link: Manage signals intelligently and cost-effectively.



Custom-programmed RFID data carriers

**Use data carriers written according to your specifications.
And accelerate your production.**

In assembly lines where the application is read-only or pallets will only need to be identified, it is often sufficient to write a consecutive number or a special code on the data carrier.

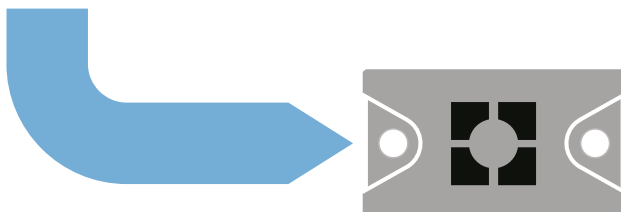
Let us take over this programming. And order increased comfort. By means of finished, written LF, HF or UHF data carriers from the factory which are ready for use immediately.

To do so, simply indicate your data to us, tell us your desired format and the section of the data carrier to which it should be saved. Use a service that brings advantages to your time management and guarantees quick commissioning.

The benefits to you

- Cost-effective – no need to maintain separate hardware for writing
- Time-saving – programming write routines can be omitted entirely
- Reorder availability – reorder a data carrier with the same programming

1010111101011
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0101100111
0101101







Tool identification with Industrial RFID

Identify tools with Industrial RFID. And guarantee product quality.

Tool identification with Industrial RFID means incorrect assignments or missing tools are a thing of the past. Our systems provide complete tool data with extreme reliability and guarantee assured operation as well as increased productivity of the equipment.

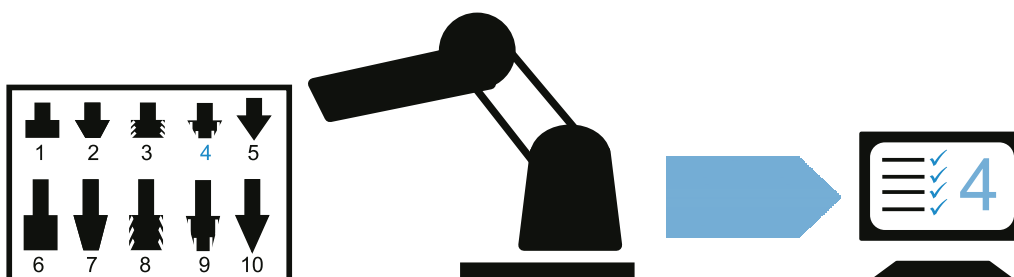
Capable of integration into all commonly used machine controls, our Industrial RFID systems ensure flexible and reliable communication in tool management. Absolutely without contact and maintenance-free. Tools are always accompanied by their individual data so they can be optimally used and managed.

The benefits to you

- Service life control outside of the machine as well
- Quality assurance through error prevention
- Electronic data transmission and paperless tool information
- Optimal tool utilization
- Reduce set-up time through quick and precise tool identification

The system

Balluff Industrial RFID stands for flexible, secure, contactless communication. The systems are entirely tolerant of environmental influences on account of their inductive operating principle. Therefore, they are excellently suited for use in harsh industrial environments such as the machine tool. Our systems therefore provide complete tool data robustly and reliably and ensure reliable identification. Balluff Tool ID supports process reliability.



TecSupport – Your added value for planning and commissioning

We offer ...

- Decision help for the correct product selection
- Complex product and application support
- Integration support
- Customer-specific product and commissioning training
- Intensive technical support during the entire phase of the project
- Assumption of time-consuming project work

We support you during the project implementation, commissioning and integration

- Would you like to monitor and track production processes?
- Would you like to identify, control, monitor and optimize objects?
- Would you like to optimize and simplify your system wiring?

We provide you with specific support for Balluff system components

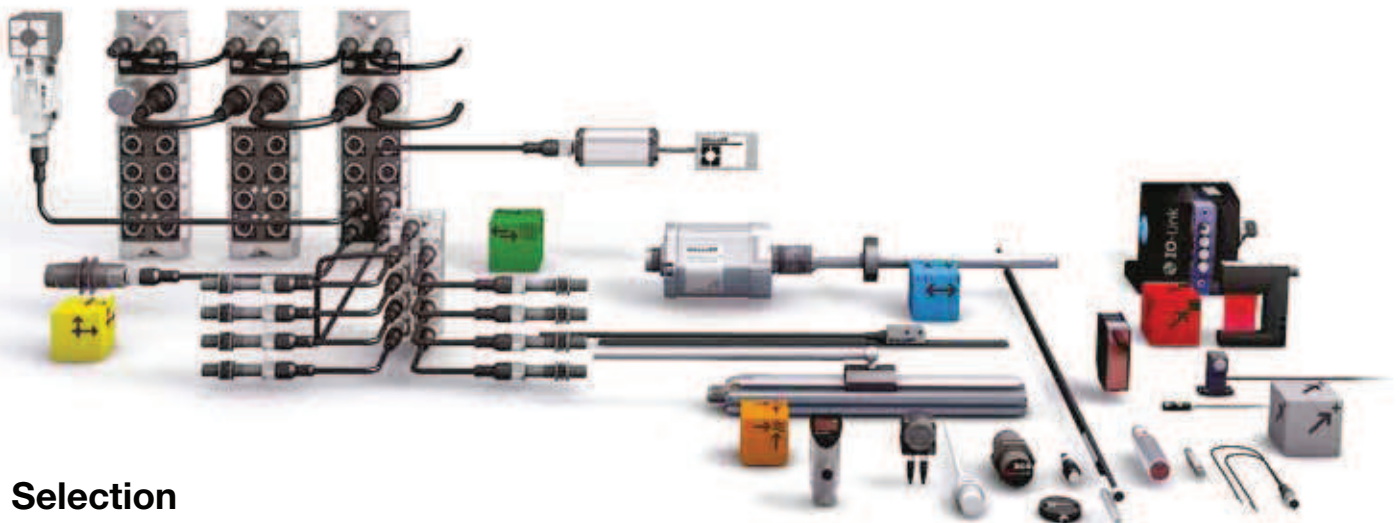
- Vision sensors BVS for optical identification
- Industrial networking and connectivity for wiring and networking
- IO-Link – network technology for reliable data transfer and greater efficiency
- Industrial identification – RFID for transparency in material flow

We are happy to help!

Phone +49 7158 173-401

+49 7158 173-727

E-mail TecSupport@balluff.de



Selection
Integration
Instruction
Application
Industrial Identification
Project support
Vision sensors
IO-Link
Industrial Networking and Connectivity
Product
System components
Decision help

BIS Application Specification

Company

Address

Contact

Phone

Salesperson

What is the application?

Description

How many read/write stations?

Read

Write

How much/what type of information is going to be stored on the data carrier?

What are the read/write speeds required in the application?

Will the line be moving while reading or writing?
(If moving, what will max velocity be?)

m/min

What will the sensing distance be?

mm

What will the operating temperature range be?

°C

How many read and/or write operations per day and tags occur?

What will be the cable distance between PLC and processor?

What type of PLC or PC?

What will the data carrier be mounted in/on (material etc.)?

Non-metal Aluminum Steel

What will the read/write head be mounted to (material etc.)?

Non-metal Aluminum Steel

What will be the method of communication and protocol?

RS232 RS422/RS485 Profibus
 Devicenet IO-Link easy-loop®
 Profibus Ethernet/IP EtherCAT
 Ethernet TCP/IP



BIS V – The new generation for more efficiency



reddot design award
winner 2012

SENSOR SOLUTIONS AND SYSTEMS

For all areas of the automation industry

As a global player, we stand for comprehensive system expertise, continuous innovation, the highest quality and the greatest reliability. Balluff means technological variety and first-class service. Our 2450 worldwide employees are working to ensure this.



Systems
and Service



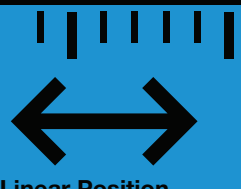
Industrial
Networking and
Connectivity



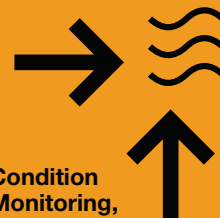
Industrial
Identification



Object
Detection



Linear Position
Sensing and
Measurement



Condition
Monitoring,
Fluid Sensors



Accessories

BALLUFF

sensors worldwide



Systems and Service



Industrial Networking and Connectivity



Industrial Identification



Object Detection



Linear Position Sensing and Measurement



Condition Monitoring and Fluid Sensors



Accessories

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