

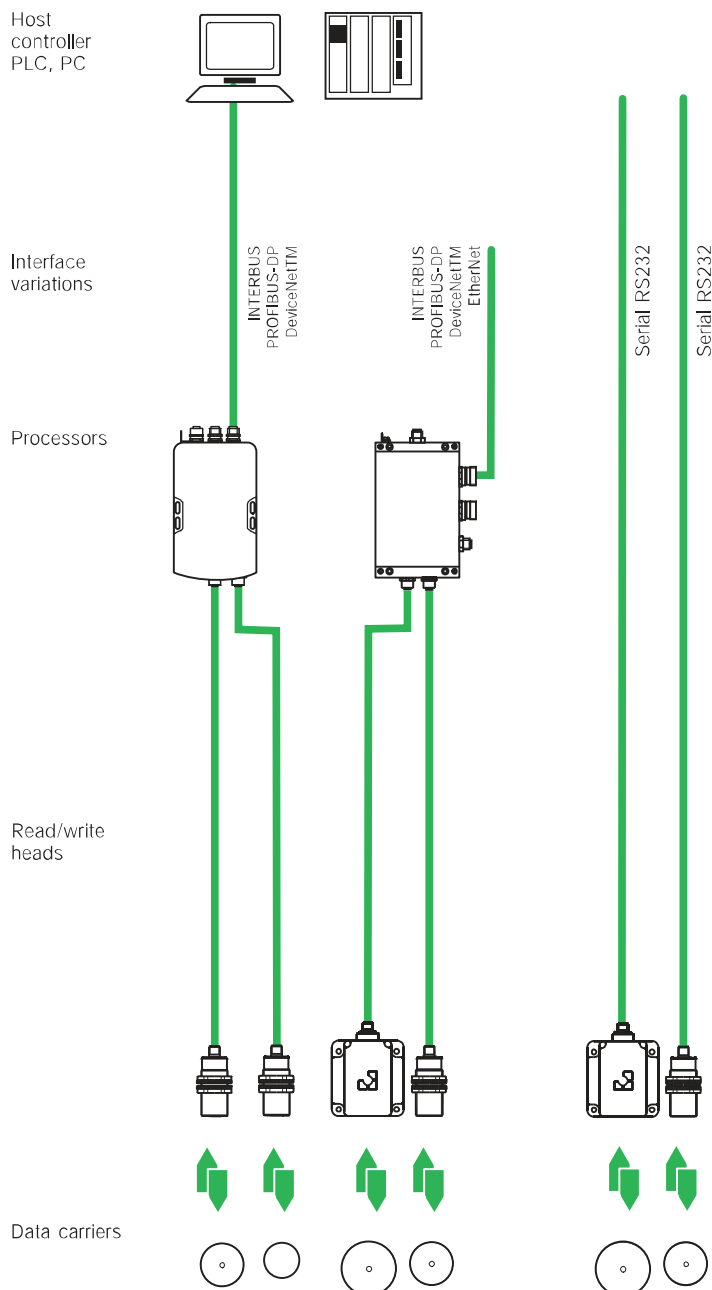


### BIS M

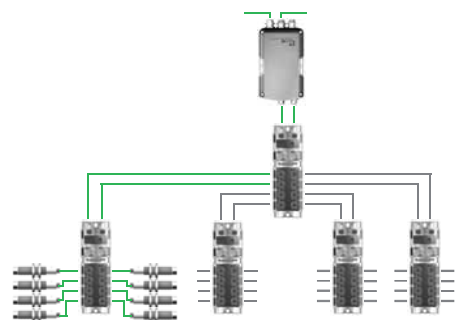
For lightning-quick data transfer and large read/write distances

134	Range of applications
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144	Read/write heads
152	Read/write heads with integrated processor
160	Processors
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**BIS M**



**Expander module BIS Z-ER**  
See starting page 210



## Industrial RFID Systems BIS M

Wide range of applications, many different variants

The main areas of application of BIS M include internal company logistics, access control and copy protection. The powerful identification system is proven in all applications where lightning-fast data transfer and large read/write distances are required. Select the most suitable BIS M system for your application from the table.

Data carrier	Tools		Production				
	Data storage on machine tools		Tool and die management		Assembly conveying systems		
	Tool holder collar	Retention knob	On tool	Dies	Pallets	On part	
BIS M-101-01/L					■		
BIS M-102-01/L					■		
BIS M-105-01/A	■	■	■	■		■	
BIS M-105-02/A	■	■	■	■		■	
BIS M-108-02/L			■	■	■		
BIS M-110-02/L					■		
BIS M-111-02/L					■		
BIS M-112-02/L					■		
BIS M-120-01/L							
BIS M-122-02/A	■	■	■			■	
BIS M-150-02/A			■	■			
BIS M-151-02/A			■	■			



# Industrial RFID Systems BIS M

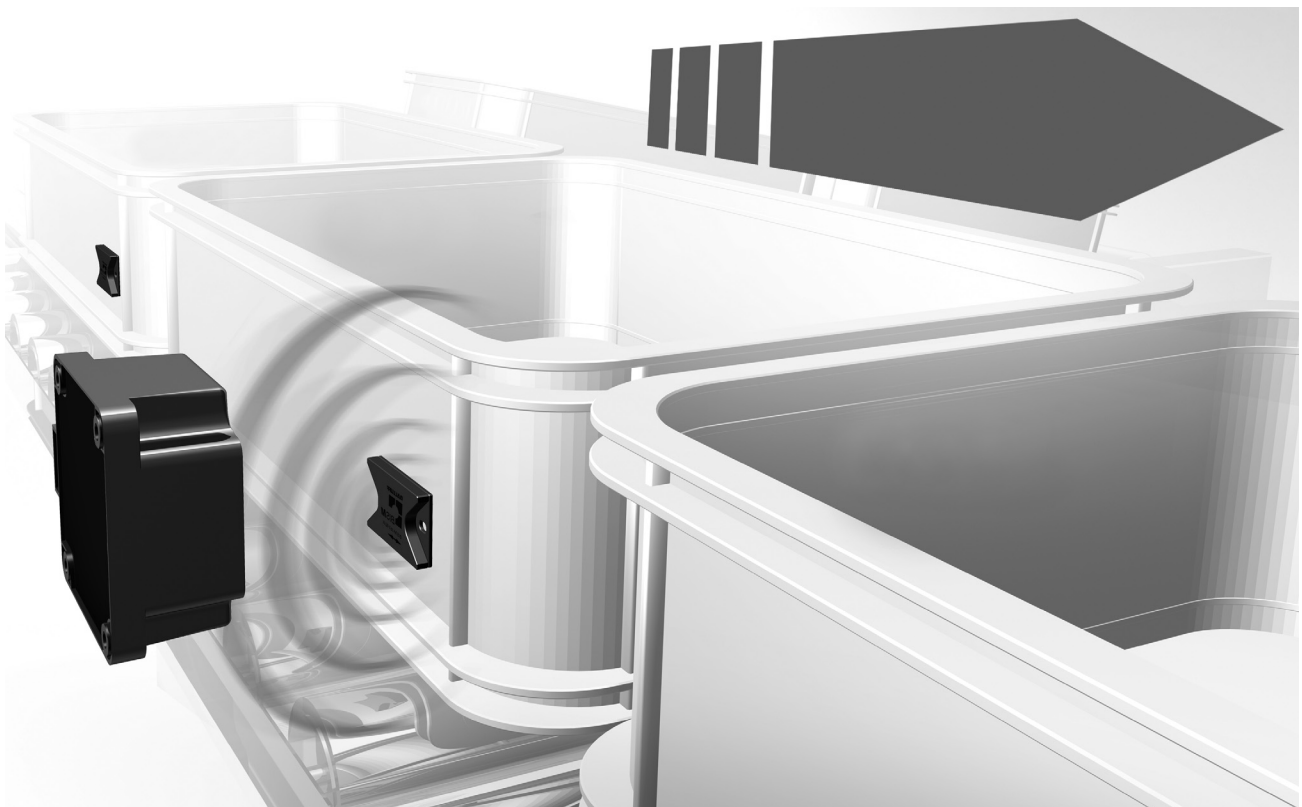
## Typical applications

	Intralogistics						Access and object control											
	Closed logistics circuits		Storage and retrieval equipment Storage and tracking		Intelligent vehicles (driverless transport vehicles)		Object detection		Access control Entry control			Read/write	Dynamic or static	Installation in metal	For harsh environments	Long distances (> 16 mm)	752-byte memory	2000-byte memory
	Retainer/workpiece carrier	Pallets	Retainer/workpiece carrier	Workpiece carrier Skid	Guiding, steering	Identification	In component	On component	Reliable access control	Process access	PartID							
	■					■				■		■	■			■	■	
	■	■				■				■		■	■			■	■	
			■		■		■				■	■		■	■		■	
	■		■	■				■			■	■	■		■			■
	■	■	■						■	■		■	■		■			■
	■	■	■	■		■			■	■		■	■		■	■		■
		■								■		■	■			■	■	
							■		■		■	■		■	■			■
		■	■	■		■		■				■	■	■	■	■		■
	■									■		■	■					■
	■					■						■	■					■
	■	■	■	■		■		■				■	■	■	■	■		■

**BIS M**

### Range of Applications

- Selection Criteria
- Data carriers
- Read/write heads
- Read/write heads with integrated processor
- Processors
- Handy Programmer
- Handheld
- Installation
- Read/write times, Accessories



# Industrial RFID Systems BIS M

Selection criteria for read/write distances

## 0-12



Read/write heads

			BIS M-302-001_-- M-302-003_-- Page 145	BIS M-304-001-__ M-304-003-__ Page 147	BIS M-400-007-001-__ Page 155	BIS M-400-007-002-__ Page 153	BIS M-402-007-__ Page 157
Data carrier		Memory capacity in bytes	Read/write distance				
BIS M-105-01/A BIS M-105-02/A Page 138		752 2000	0...7 mm 0...9 mm	0...5 mm 0...5 mm	0...7 mm 0...11 mm	0...5 mm 0...5 mm	
BIS M-122-01/A BIS M-122-02/A Page 138		752 2000	0...7 mm 0...9 mm	0...4 mm 0...5 mm		0...4 mm 0...5 mm	0...5 mm 0...5 mm
BIS M-110-02/L Page 139		2000	0...16 mm	0...14 mm	0...20 mm	0...15 mm	0...8 mm

## 8-20



Read/write heads

			BIS M-300-001_-- M-300-003_-- Page 149	BIS M-302-001-__ M-302-003-__ Page 145	BIS M-304-001-__ M-304-003-__ Page 147	BIS M-400-007-001-__ Page 155	BIS M-400-007-002-__ Page 153
Data carrier		Memory capacity in bytes	Read/write distance				
BIS M-101-01/L Page 138		752	0...22 mm	0...16 mm	0...14 mm	0...20 mm	0...15 mm
BIS M-102-01/L Page 139		752	0...32 mm	0...20 mm	0...18 mm	0...28 mm	0...18 mm
BIS M-105-01/A BIS M-105-02/A Page 138		752 2000	0...11 mm 0...11 mm	0...7 mm 0...9 mm	0...5 mm 0...7 mm	0...7 mm 0...11 mm	0...6 mm 0...9 mm
BIS M-108-02/L Page 141		2000	0...30 mm	0...20 mm	0...18 mm	0...16 mm	0...20 mm
BIS M-110-02/L Seite 139		2000	0...22 mm	0...16 mm	0...14 mm	0...20 mm	0...15 mm
BIS M-111-02/L Page 139		2000	0...28 mm	0...20 mm		0...28 mm	0...20 mm

## 15-30



Read/write heads

			BIS M-300-001_-- M-300-003_-- Page 149	BIS M-302-001-__ M-302-003-__ Page 145	BIS M-400-007-001-__ Page 155	BIS M-400-007-002-__ Page 153	BIS M-401-007-001-__ Page 159
Data carrier		Memory capacity in bytes	Read/write distance				
BIS M-110-02/L Page 139		2000	0...22 mm	0...16 mm	0...20 mm	0...15 mm	0...30 mm
BIS M-101-01/L Page 138		752	0...22 mm	0...16 mm	0...20 mm	0...15 mm	0...28 mm
BIS M-111-02/L Page 139		2000	0...28 mm	0...20 mm	0...28 mm	0...20 mm	0...40 mm
BIS M-102-01/L Page 139		752	0...32 mm	0...20 mm	0...28 mm	0...18 mm	0...45 mm
BIS M-112-02/L Page 140		2000	0...44 mm	0...30 mm	0...38 mm	0...28 mm	0...60 mm
BIS M-108-02/L Page 141		2000	0...30 mm	0...20 mm	0...28 mm	0...20 mm	0...40 mm

0...2 mm = Data carrier flush mounted in steel



# Industrial RFID Systems BIS M

## Selection criteria for read/write distances

### How much data do you require?

### How dynamic is your application?

Use the table and combine the BIS M components as you need them.

In three steps you will have selected your BIS M system:

1. First choose the appropriate form factor for your data carrier and the associated read/write heads.
2. Then determine your read/write distance, which also depends on the speed of your system: the faster the data carrier moves, the closer the distance needs to be.
3. Finally determine the desired memory capacity.  
This will give you the maximum data security.

### Questions?

Whatever your need, whether analysis, selection and return on investment, formats, interfaces and software, installation, disassembly and retrofitting – in short: we are here to help you in every way.

Take advantage of our personal consultation, individual support and worldwide service. And contact us.

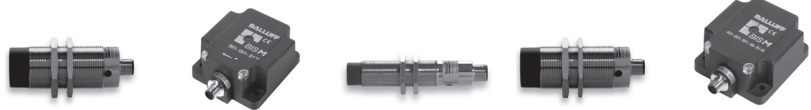
**BIS M**

Range of Applications








**Selection Criteria**

Data carriers  
Read/write heads  
Read/write heads with integrated processor  
Processors  
Handy Programmer  
Handheld Installation  
Read/write times, Accessories

**25-50**



Read/write heads

			BIS M-300-001-__ M-300-003-__ Page 149	BIS M-301-001-__ M-301-003-__ Page 151	BIS M-302-001-__ M-302-003-__ Page 145	BIS M-400-007-001-__ Page 155	BIS M-401-007-001-__ Page 159
Data carrier		Memory capacity in bytes	Read/write distance				
BIS M-110-02/L Page 139		2000	0...22 mm	0...32 mm	0...16 mm	0...20 mm	0...30 mm
BIS M-101-01/L Page 138		752	0...22 mm	0...34 mm	0...16 mm	0...20 mm	0...28 mm
BIS M-111-02/L Page 139		2000	0...28 mm	0...45 mm	0...20 mm	0...28 mm	0...40 mm
BIS M-102-01/L Page 139		752	0...32 mm	0...45 mm	0...20 mm	0...28 mm	0...45 mm
BIS M-112-02/L Page 140		2000	0...44 mm	0...70 mm	0...30 mm	0...38 mm	0...60 mm
BIS M-108-02/L Page 141		2000	0...30 mm	0...45 mm	0...20 mm	0...28 mm	0...40 mm
BIS M-120-01/L Page 141		752		0...50 mm			0...50 mm

**> 40**



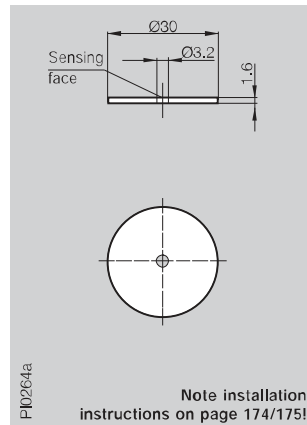
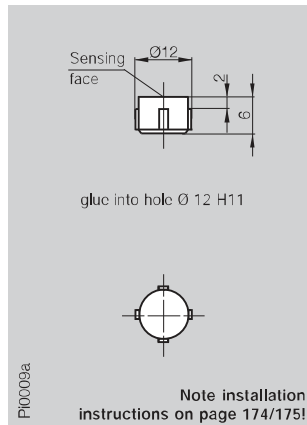
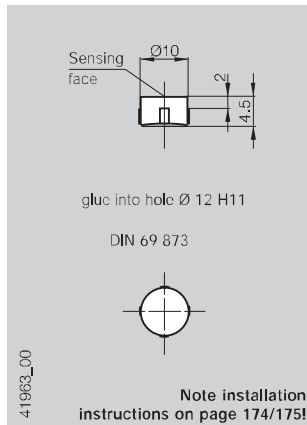
Read/write heads

			BIS M-300-001-__ M-300-003-__ Page 149	BIS M-301-001-__ M-301-003-__ Page 151	BIS M-351-001-__ Page 150	BIS M-401-007-001-__ Page 159	BIS M-451-007-001-__ Page 158
Data carrier	Memory capacity in bytes	Read/write distance					
BIS M-102-01/L Page 139	752	0...32 mm	0...45 mm			0...45 mm	
BIS M-112-02/L Page 140	2000	0...44 mm	0...70 mm			0...60 mm	
BIS M-108-02/L Page 141	2000	0...30 mm	0...45 mm			0...40 mm	
BIS M-120-01/L Page 141	752		0...50 mm			0...50 mm	
BIS M-150-02/A Page 143	2000				0...60 mm on metal		0...60 mm on metal
BIS M-151-02/A Page 143	2000				0...60 mm on metal		0...60 mm on metal

# Industrial RFID Systems BIS M

## Data Carriers Read/Write

Dimensions	Ø 10×4.5	Ø 12×6	Ø 30×1.6	
Housing material	PA12	EP	EP	
Antenna type	round	round	round	
Weight	< 1.5 g	< 1.5 g	< 1.6 g	



### BIS M Programmable

752 bytes	Ordering code	BIS M-122-01/A**	BIS M-105-01/A**	BIS M-101-01/L**
2000 bytes	Ordering code	BIS M-122-02/A*	BIS M-105-02/A*	

Operating temperature	0...+70 °C	-25...+70 °C	-25...+70 °C	
Storage temperature	-25...+85 °C	-25...+85 °C	-40...+85 °C	
Protection per IEC 60529	IP 67	IP 67	IP 67	

Mounting		flush	no		flush	no		no
Appropriate read/write head with max. read/write distance				BIS M-300		0-11 mm	BIS M-300	0-22 mm
							BIS M-301	0-34 mm
	BIS M-302	0-6 mm	0-9 mm	BIS M-302	0-6 mm	0-9 mm	BIS M-302	0-16 mm
	BIS M-304	0-5 mm	0-7 mm	BIS M-304	0-5 mm	0-7 mm	BIS M-304	0-14 mm

Supported standard

\* ISO 15693

\*\* ISO 14443

Tightening torque max. 1 Nm

**more added value**

### Simply attach data carrier

A single screw is enough – and the data carrier is firmly attached. Or simply glue it in place

For reliable traceability

All data carriers have a 4-byte unique ID contained in the read/write memory. This number is read-only.

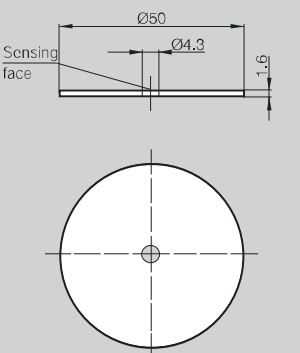
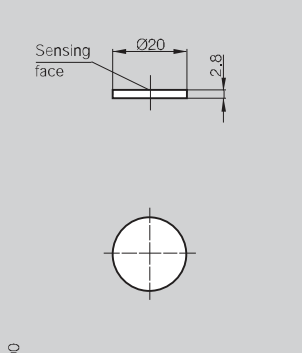
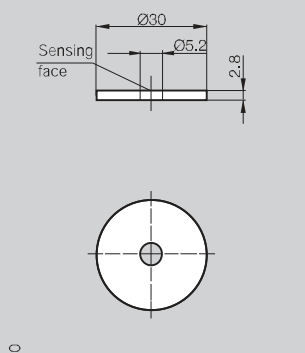
### Read/Write Cycles

Data carriers	Memory type	Write cycles	Read cycles	Data retention time
752 bytes	EEPROM	100 000	unlimited	10 years
2000 bytes	FRAM	unlimited	unlimited	10 years



# Industrial RFID Systems BIS M

## Data Carriers Read/Write

	<div>Ø 50×1.6</div> <div>EP</div> <div>round</div> <div>&lt; 2.5 g</div>	<div>Ø 20×2.5</div> <div>PA6</div> <div>round</div> <div>&lt; 1.3 g</div>	<div>Ø 30×2.5</div> <div>PA6</div> <div>round</div> <div>&lt; 3.0 g</div>				
	<div></div> <div>PI0265a</div> <div>Note installation instructions on page 174/175!</div>	<div></div> <div>41959_00</div> <div>Note installation instructions on page 174/175!</div>	<div></div> <div>41960_00</div> <div>Note installation instructions on page 174/175!</div>				
	<div>BIS M-102-01/L**</div>	<div>BIS M-110-02/L*</div>	<div>BIS M-111-02/L*</div>				
	<div>-25...+70 °C</div> <div>-40...+85 °C</div> <div>IP 67</div>	<div>-25...+85 °C</div> <div>-40...+90 °C (100 h at 140 °C)</div> <div>IP 67</div>	<div>-25...+85 °C</div> <div>-40...+90 °C (100 h at 140 °C)</div> <div>IP 67</div>				
	<div>non-metal</div>	<div>non-metal</div>	<div>non-metal</div>				
	<div>BIS M-300</div> <div>BIS M-301</div> <div>BIS M-302</div> <div>BIS M-304</div>	<div>0-32 mm</div> <div>0-45 mm</div> <div>0-20 mm</div> <div>0-18 mm</div>	<div>BIS M-300</div> <div>BIS M-301</div> <div>BIS M-302</div> <div>BIS M-304</div>	<div>0-22 mm</div> <div>0-32 mm</div> <div>0-16 mm</div> <div>0-14 mm</div>	<div>BIS M-300</div> <div>BIS M-301</div> <div>BIS M-302</div> <div></div>	<div>0-28 mm</div> <div>0-45 mm</div> <div>0-20 mm</div> <div></div>	
	<div>Tightening torque max. 1 Nm</div>		<div>Tightening torque max. 1 Nm</div>				

**BIS M**

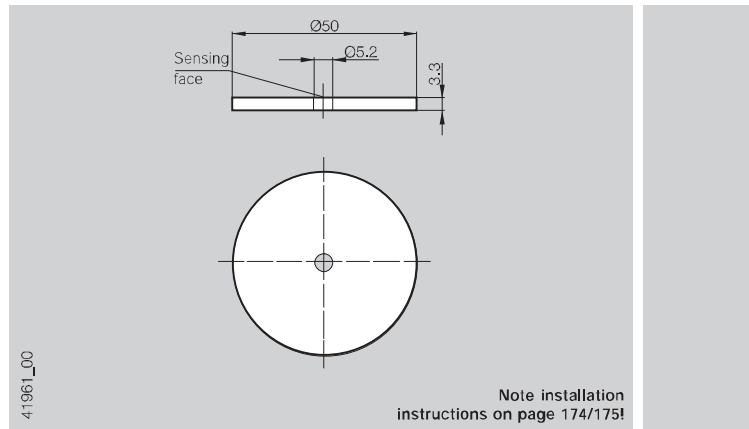
Range of Applications  
Selection Criteria  
**Data carriers**  
Read/write heads  
Read/write heads with integrated processor  
Processors  
Handy Programmer  
Handheld  
**Installation**  
Read/write times,  
Accessories



# Industrial RFID Systems BIS M

## Data Carriers Read/Write

Dimensions	50×3
Housing material	PA6
Antenna type	round
Weight	< 9.5 g



### BIS M Programmable

752 bytes	Ordering code	
2000 bytes	Ordering code	BIS M-112-02/L*

Operating temperature	-25...+85 °C
Storage temperature	-40...+90 °C (100 h at 140 °C)
Protection per IEC 60529	IP 67

### Mounting

Appropriate read/write head with max. read/write distance	BIS M-300	0-44 mm
	BIS M-301	0-70 mm
	BIS M-302	0-30 mm

non-metal

Supported standard

\* ISO 15693

\*\* ISO 14443

**more added value**

### For greatest flexibility

Data carriers in various formats including wafer, cylinder, block or handy credit card format allow for a wide range of applications

### For reliable traceability

All data carriers have a 4-byte unique ID contained in the read/write memory. This number is read-only.

### Read/Write Cycles

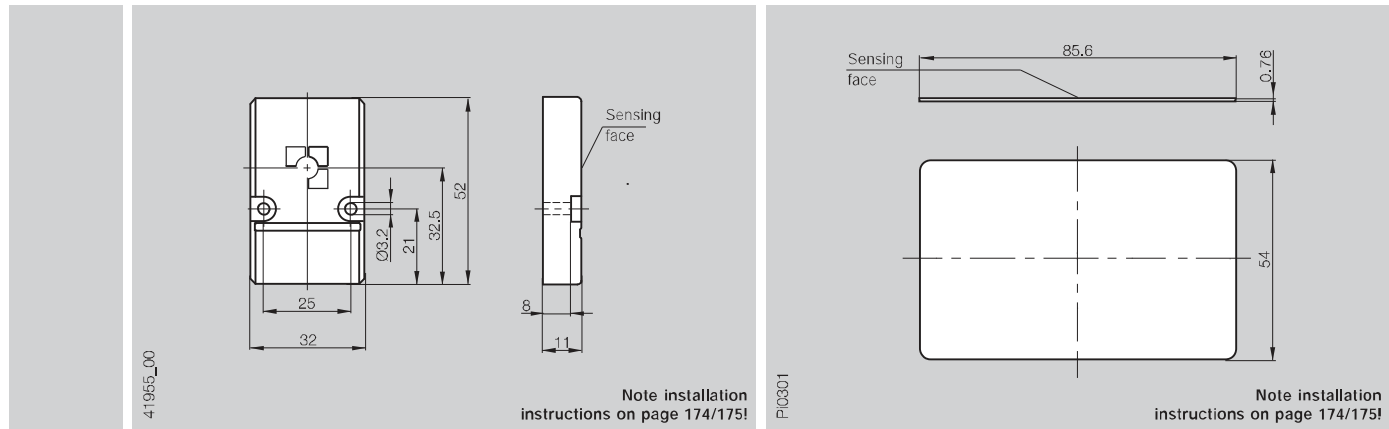
Data carriers	Memory type	Write cycles	Read cycles	Data retention time
752 bytes	EEPROM	100 000	unlimited	10 years
2000 bytes	FRAM	unlimited	unlimited	10 years



# Industrial RFID Systems BIS M

## Data Carriers Read/Write

<b>52×32×11</b>	<b>85.6×54×0.76</b>
PBT	PVC
round	round
< 27.0 g	< 5.8 g



**BIS M**

<b>BIS M-108-02/L *</b>		<b>BIS M-120-01/L **</b>	
-25...+70 °C		-25...+70 °C	
-25...+85 °C		-25...+70 °C	
IP 67		IP 60	
	flush in steel		non-metal
BIS M-300	0-16 mm		
BIS M-301		BIS M-301	0-50 mm
BIS M-302	0-12 mm		
BIS M-304	0-10 mm		
	0-30 mm		
	0-45 mm		
	0-20 mm		
	0-18 mm		

Range of Applications  
Selection Criteria  
**Data carriers**  
Read/write heads  
Read/write heads with integrated processor  
Processors  
Handy Programmer  
Handheld  
**Installation**  
Read/write times,  
Accessories



More solutions for your application. Contact us.

# Industrial RFID Systems BIS M

## Data Carriers Read/Write

**more added value**

For maximum data security in all environments – even on metal!

Dimensions	
Housing material	
Antenna type	
Weight	



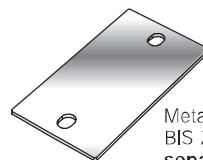
### BIS M Programmable

2000 bytes	Ordering code
------------	---------------

Operating temperature	
Storage temperature	
Protection per IEC 60529	

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

Supported standard  
\* ISO 15693



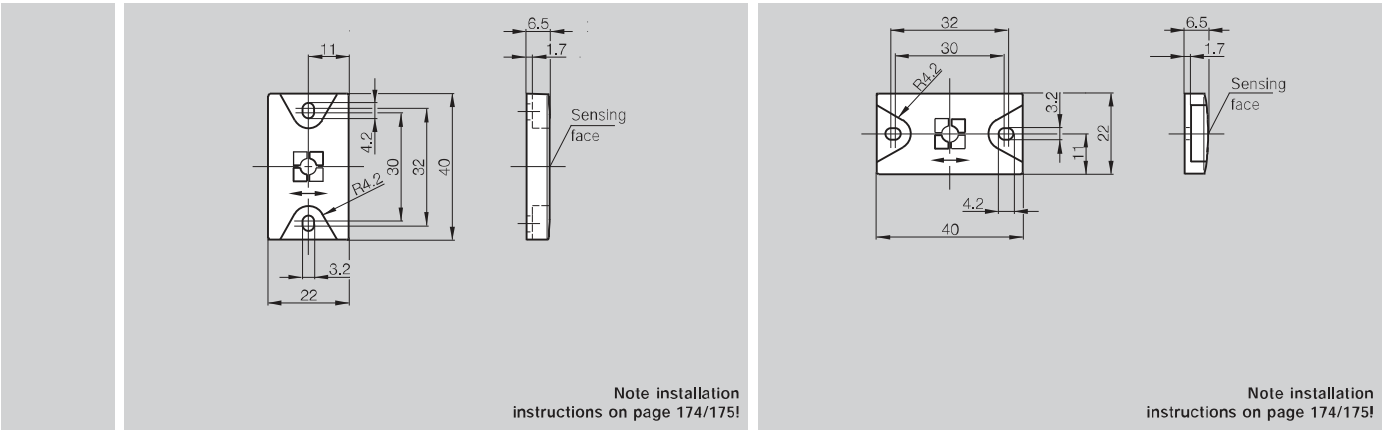
Metal mounting plate 40×22 mm  
BIS Z-MP-001 **please order separately!**  
(10 to a package) Required if no metal substrate is used!

For reliable traceability  
All data carriers have a 4-byte unique ID contained in the read/write memory. This number is read-only.

### Read/Write Cycles

Data carriers	Memory type	Write cycles	Read cycles	Data retention time
2000 bytes	FRAM	unlimited	unlimited	10 years

	<b>40×22×6.5</b>		<b>40×22×6.5</b>
	PPS-GF40		PPS-GF40
	Rod		Rod
	< 8.0 g		< 8.0 g



	<b>BIS M-150-02/A*</b>		<b>BIS M-151-02/A*</b>
	-25...+70 °C		-25...+70 °C
	-25...+130 °C		-25...+130 °C
	IP 67		IP 67

		on metal			on metal
	BIS M-351	0-50 mm		BIS M-351	0-50 mm

**BIS M**

Range of Applications  
Selection Criteria  
**Data carriers**  
Read/write heads  
Read/write heads with integrated processor  
Processors  
Handy Programmer  
Handheld Installation  
Read/write times, Accessories





# Industrial RFID Systems BIS M

## Read/Write Heads

Dimensions	
Housing material	
Antenna type	
Weight	



Ordering code	
Ordering code	

Mounting in steel	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Connection to	
with connection cable	

Appropriate data carrier

Data carrier distance to metal in mm	
Data carrier clear zone in mm	
Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	5 mm
	9 mm
	12 mm
	15 mm
	16 mm
	18 mm
	20 mm
	22 mm
	25 mm
	30 mm

BIS M-101-01/L BIS M-102-01/L

> 25	> 10	> 5	> 50	> 25	> 10
> 60	> 50	> 50	> 60	> 50	> 50
0-16	0-15	0-10	0-20	0-18	0-10
0-16	0-15	0-10	0-20	0-18	0-10
±10	±8	±4	±18	±14	±8
±10	±8	±4	±18	±14	±6
±10	±7	±2	±16	±12	±4
±8	±6		±14	±8	
±7	±4		±12	±6	
±4			±10	±4	
			±8	±4	
			±4		

**more added value**

**Small size –  
big performance**

### Broad selection range

Read/write heads in various form factors offer wide application possibilities. Simply choose according to your application.

\* For use only with processor  
BIS M-407-039-06-S115! see page 167

\*\*Please indicate cable length in ordering code!  
see page 198

# Industrial RFID Systems BIS M

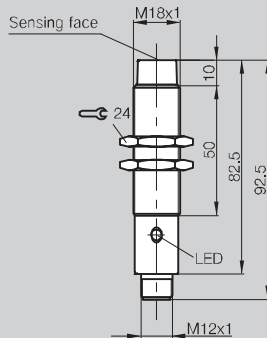
## Read/Write Heads

### M18

Nickel plated brass

round

52 g



PI0292b

Note installation instructions on page 174/175!

**BIS M**

BIS M-302-001-S115

BIS M-302-003-S115\*

non-flush

0...+70 °C

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-\_\_ / E\*\*, BIS Z-502-PU1-\_\_ / E\*\*

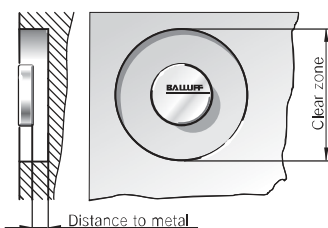
BIS Z-501-PU1-\_\_ / M\*\*, BIS Z-502-PU1-\_\_ / M\*\*

Please order cable separately, see page 198

Range of Applications  
Selection Criteria  
Data carriers  
**Read/write heads**  
Read/write heads with integrated processor  
Processors  
Handy Programmer  
Handheld Installation  
Read/write times, Accessories

BIS M-105-01/L	BIS M-105-02/A	BIS M-122-01/A	BIS M-122-02/A	BIS M-108-02/L	BIS M-110-02/L	BIS M-111-02/L	BIS M-112-02/A
> 10 > 0	> 10 > 0	> 10 > 0	> 10 > 0	> 25 > 0	> 25 > 10 > 5	> 25 > 10 > 5	> 50 > 25 > 20
> 60 > 0	> 60 > 0	> 60 > 0	> 60 > 0	> 60 > 0	> 80 > 50 > 50	> 80 > 50 > 50	> 150 > 90 > 70
0-7 0-5	0-9 0-6	0-7 0-5	0-9 0-6	0-20 0-12	0-16 0-12 0-8	0-20 0-12 0-5	0-30 0-22 0-12
0-7 0-5	0-9 0-6	0-7 0-5	0-9 0-6	0-20 0-12	0-16 0-12 0-8	0-20 0-12 0-5	0-30 0-22 0-12
±5 ±4	±5 ±5	±4 ±3	±4 ±3	±14 ±10	±8 ±6 ±4	±12 ±8 ±7	±20 ±16 ±14
±4 ±3	±5 ±3.5	±3 ±2	±3 ±2	±12 ±8	±8 ±6 ±4	±12 ±8 ±4	±20 ±16 ±14
				±12 ±6	±6 ±5	±10 ±6	±18 ±16 ±10
				±10 ±4	±4 ±3	±10 ±4	±18 ±14 ±6
				±7	±3	±5	±16 ±12
				±7		±5	±16 ±12
				±5		±5	±16 ±12
							±12 ±8
							±12
							±8

Installation note for data carriers



# Industrial RFID Systems BIS M

## Read/Write Heads

**more added value**

M18 housing with extra small read/write head: just 14mm provides security For example in tool identification

Dimensions	
Housing material	
Antenna type	
Weight	



Ordering code	
Ordering code	

Mounting in steel	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Connection to	
with connection cable	

Appropriate data carrier

Data carrier distance to metal in mm	
Data carrier clear zone in mm	
Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	5 mm
	9 mm
	12 mm
	15 mm
	16 mm
	18 mm

\* For use only with processor  
BIS M-407-039-06-S115! see page 167

\*\*Please indicate cable length in ordering code!  
see page 198



# Industrial RFID Systems BIS M

## Read/Write Heads

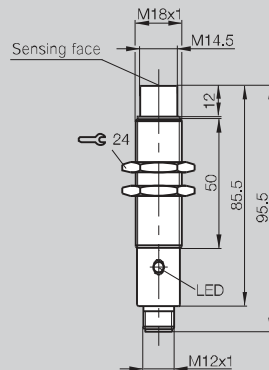
### M18

Nickel plated brass

round

52 g

44224\_00



Note installation instructions on page 174/175!

**BIS M**

BIS M-304-001-S115

BIS M-304-003-S115\*

non-flush

0...+70 °C

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-\_\_ / E\*\*, BIS Z-502-PU1-\_\_ / E\*\*

BIS Z-501-PU1-\_\_ / M\*\*, BIS Z-502-PU1-\_\_ / M\*\*

Please order cable separately, see page 198

Range of Applications

Selection Criteria

Data carriers

**Read/write heads**

Read/write heads with integrated processor

Processors

Handy Programmer

Handheld

Installation

Read/write times,

Accessories

BIS M-101-01/L BIS M-102-01/L BIS M-105-01/A BIS M-105-02/A BIS M-122-01/A BIS M-122-02/A BIS M-108-02/A BIS M-110-02/A

> 25 > 10 > 5 > 50 > 25 > 10 > 10 > 0 > 10 > 0 > 10 > 0 > 10 > 0 > 25 > 0 > 25 > 10 > 5  
> 60 > 50 > 50 > 60 > 50 > 50 > 60 > 0 > 60 > 0 > 60 > 0 > 60 > 0 > 60 > 0 > 80 > 50 > 50

0-14 0-10 0-8 0-18 0-15 0-10 0-5 0-5 0-7 0-6 0-5 0-4 0-7 0-5 0-18 0-10 0-14 0-10 0-8

0-14 0-10 0-8 0-18 0-15 0-10 0-5 0-5 0-7 0-6 0-5 0-4 0-7 0-5 0-18 0-10 0-14 0-10 0-8

±10 ±8 ±4 ±18 ±14 ±8 ±5 ±4 ±5 ±5 ±4 ±2 ±4 ±3 ±14 ±10 ±8 ±6 ±4

±10 ±8 ±4 ±18 ±14 ±6 ±4 ±3 ±5 ±3.5 ±3 ±3 ±2 ±12 ±8 ±8 ±6 ±4

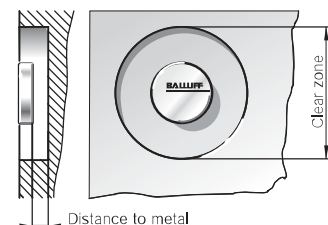
±10 ±7 ±16 ±12 ±4 ±3 ±12 ±6 ±6 ±5

±8 ±14 ±8 ±10

±12 ±6 ±10 ±7

±8 ±5

### Installation note for data carriers



# Industrial RFID Systems BIS M

## Read/Write Heads

### more added value

The large diameter of these tubular read/write heads enables generous distances to the object.

Dimensions	
Housing material	
Antenna type	
Weight	



Ordering code	
Ordering code	

Mounting in steel	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Connection to with connection cable	

Appropriate data carrier

Data carrier distance to metal in mm	
Data carrier clear zone in mm	
Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	5 mm
	9 mm
	12 mm
	15 mm
	16 mm
	18 mm
	20 mm
	22 mm
	25 mm
	30 mm
	32 mm
	35 mm
	40 mm
	43 mm

\* For use only with processor  
BIS M-407-039-06-S115! see page 167

\*\*Please indicate cable length in ordering code!  
see page 198

# Industrial RFID Systems BIS M

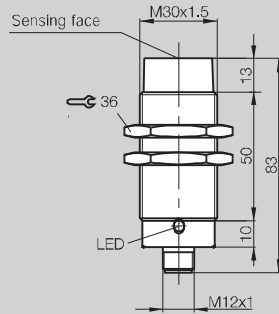
## Read/Write Heads

M30

Nickel plated brass

round

100 g



PI0293b

Note installation instructions on page 174/175!

**BIS M**

BIS M-300-001-S115

BIS M-300-003-S115\*

non-flush

0...+70 °C

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-\_\_ / E\*\*, BIS Z-502-PU1-\_\_ / E\*\*

BIS Z-501-PU1-\_\_ / M\*\*, BIS Z-502-PU1-\_\_ / M\*\*

Please order cable separately, see page 198

Range of Applications

Selection Criteria

Data carriers

Read/write heads

Read/write heads with integrated processor

Processors

Handy Programmer

Handheld

Installation

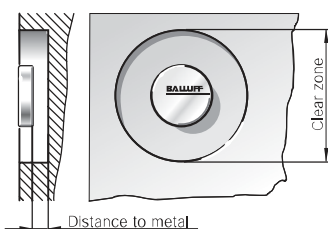
Read/write times, Accessories

BIS M-101-01/L BIS M-102-01/L BIS M-105-01/A BIS M-105-02/A BIS M-108-02/L BIS M-110-02/L BIS M-111-02/L BIS M-112-02/L

> 25 > 10 > 5 > 50 > 15 > 10 > 20 > 5 > 20 > 5 > 25 > 0 > 25 > 10 > 5 > 25 > 10 > 5 > 50 > 15 > 10  
> 100 > 60 > 50 > 150 > 90 > 70 > 100 > 100 > 100 > 100 > 100 > 60 > 50 > 100 > 60 > 50 > 150 > 90 > 70

0-22 0-20 0-15	0-32 0-22 0-12	0-9 0-9	0-11 0-11	0-30 0-16	0-22 0-16 0-10	0-28 0-18 0-10	0-44 0-25 0-15
0-22 0-20 0-15	0-32 0-22 0-12	0-9 0-9	0-11 0-11	0-30 0-16	0-22 0-16 0-10	0-28 0-18 0-10	0-44 0-25 0-15
±15 ±12 ±8	±20 ±15 ±6	±7 ±6	±10 ±7	±18 ±10	±14 ±8 ±7	±16 ±10 ±7	±25 ±18 ±15
±15 ±12 ±8	±20 ±15 ±6	±7 ±6	±8 ±7	±18 ±10	±14 ±8 ±7	±16 ±10 ±7	±25 ±18 ±15
±15 ±10 ±6	±20 ±15 ±5	±2 ±1	±5 ±3	±18 ±8	±12 ±6 ±2	±14 ±8 ±2	±25 ±16 ±12
±15 ±8 ±4	±20 ±15 ±4			±16 ±6	±12 ±5	±14 ±7	±24 ±15 ±10
±15 ±8 ±4	±20 ±12			±16 ±6	±12 ±4	±14 ±6	±24 ±14 ±8
±12 ±6	±20 ±10			±16 ±4	±10 ±2	±14 ±3	±24 ±12
±12 ±6	±20 ±8			±16	±10	±14 ±2	±24 ±12
±12 ±4	±20 ±6			±16	±10	±14	±24 ±10
±4	±18 ±4			±14	±6	±12	±22 ±8
	±14			±14		±12	±22 ±6
	±10			±10			±22
	±4						±16
							±16
							±16
							±10

Installation note for data carriers



# Industrial RFID Systems BIS M

## Read/Write Heads

**FERROIDENT**

**more added value**

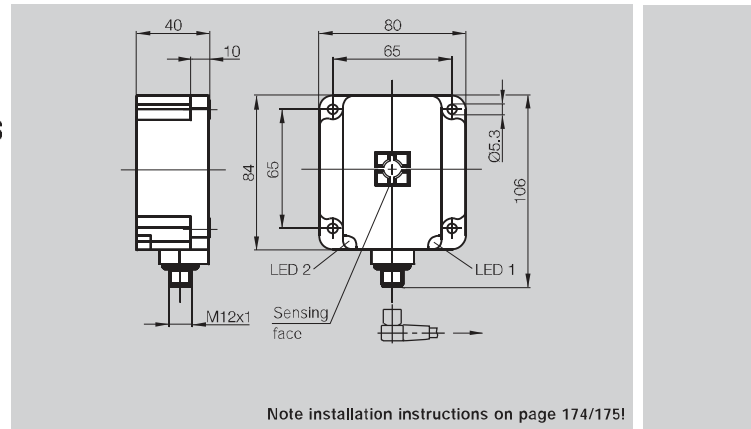
The right choice when you need a flat design with long read/write distance.

### Ferrolident

Read/write head with rod type antenna  
Simply use the arrows for alignment. For fast positioning

Dimensions
Housing material
Antenna type
Weight

<b>80×84.5×40</b>
PBT and ASA
Rod
250 g



Ordering code
Ordering code

<b>BIS M-351-001-S115</b>

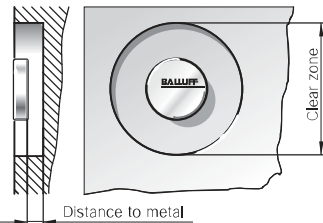
Mounting in steel
Operating temperature
Storage temperature
Protection per IEC 60529
Connection to with connection cable

non-flush
0...+60 °C
-20...+85 °C
IP 67
Processor
BIS Z-501-PU1-__ / E**, BIS Z-502-PU1-__ / E**
BIS Z-501-PU1-__ / M**, BIS Z-502-PU1-__ / M**
Please order cable separately, see page 198

Appropriate data carrier

BIS M-150-02/A BIS M-151-02/A

Installation note for data carriers



Data carrier distance to metal in mm
Data carrier clear zone in mm
Metallic mounting surface 40×22
Metallic mounting surface ≥ 200×200
Write distance in mm
Read distance in mm
Offset in mm
at distance

	BIS M-150-02/A	BIS M-151-02/A
Data carrier distance to metal in mm	> 200	> 200
Data carrier clear zone in mm	> 200	> 200
Metallic mounting surface 40×22	0-52	0-52
Metallic mounting surface ≥ 200×200	0-65	0-65
Write distance in mm		
Read distance in mm		
Offset in mm		
at distance		
0 mm	±25 ±26	±25 ±26
5 mm	±25 ±26	±25 ±26
9 mm	±25 ±25	±25 ±25
12 mm	±25 ±25	±25 ±25
15 mm	±25 ±25	±25 ±25
16 mm	±25 ±25	±25 ±25
18 mm	±25 ±25	±25 ±25
20 mm	±25 ±25	±25 ±25
22 mm	±25 ±25	±25 ±25
25 mm	±25 ±25	±25 ±25
30 mm	±25 ±25	±25 ±25
32 mm	±25 ±25	±25 ±25
35 mm	±25 ±25	±25 ±25
40 mm	±20 ±25	±20 ±25
43 mm	±20 ±25	±20 ±25
45 mm	±20 ±25	±20 ±25
50 mm	±20 ±25	±20 ±25
52 mm	±8 ±25	±8 ±25
60 mm	±10	±10
65 mm	±10	±10
70 mm		



\* For use only with processor BIS M-407-039-06-S115! see page 167

\*\*Please indicate cable length in ordering code! see page 198



# Industrial RFID Systems BIS M

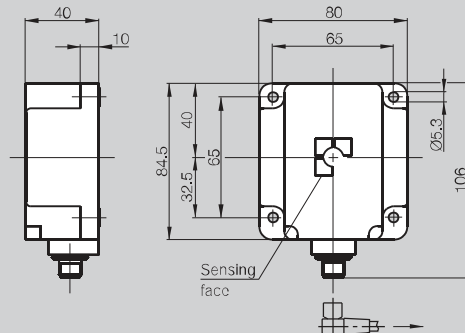
## Read/Write Heads

80×80×40

PBT

round

410 g



P0356

Note installation instructions on page 174/175!

**BIS M**

BIS M-301-001-S115

BIS M-301-003-S115\*

non-flush

0...+70 °C

-20...+85 °C

IP 67

Processor

BIS Z-501-PU1-\_\_ / E\*\*, BIS Z-502-PU1-\_\_ / E\*\*

BIS Z-501-PU1-\_\_ / M\*\*, BIS Z-502-PU1-\_\_ / M\*\*

Please order cable separately, see page 198

Range of Applications

Selection Criteria

Data carriers

**Read/write heads**

Read/write heads with integrated processor

Processors

Handy Programmer

Handheld

Installation

Read/write times,

Accessories

BIS M-101-01/L	BIS M-102-01/L	BIS M-108-02/L	BIS M-110-02/L	BIS M-111-02/L	BIS M-112-02/L	BIS M-120-01/L
> 50 > 10 > 5	> 50 > 25 > 10	> 50 > 20	> 50 > 30	> 50 > 30	> 50 > 30	> 80
> 200 > 60 > 50	> 200 > 150 > 150	> 200 > 60	> 200 > 100	> 200 > 100	> 200 > 100	> 250
0-34 0-20 0-15	0-45 0-43 0-35	0-45 8-22	0-32 0-20	0-45 0-30	0-70 0-45	0-50
0-34 0-20 0-15	0-45 0-43 0-35	0-45 8-22	0-32 0-20	0-45 0-30	0-70 0-45	0-50
±22 ±18 ±14	±30 ±24 ±18	±32 ±20	±28 ±20	±32 ±22	±40 ±25	±30
±22 ±18 ±14	±30 ±24 ±18	±32 ±20	±28 ±20	±32 ±22	±40 ±25	±30
±22 ±18 ±14	±30 ±24 ±18	±32 ±20	±28 ±18	±32 ±22	±40 ±25	±30
±22 ±18 ±10	±30 ±24 ±18	±32 ±18	±24 ±18	±32 ±22	±40 ±25	±30
±22 ±18 ±10	±30 ±24 ±18	±32 ±18	±24 ±15	±32 ±20	±40 ±25	±30
±22 ±16 ±8	±30 ±24 ±18	±32 ±18	±24 ±15	±32 ±20	±40 ±25	±30
±22 ±16 ±6	±30 ±24 ±18	±32 ±16	±24 ±12	±32 ±18	±40 ±25	±30
±22 ±16 ±4	±30 ±24 ±18	±32 ±16	±24 ±8	±32 ±16	±40 ±25	±30
±20 ±10	±30 ±24 ±15	±25 ±14	±20	±25 ±14	±40 ±22	±30
±15 ±10	±30 ±24 ±15	±25	±20	±25 ±12	±40 ±22	±30
±15 ±4	±30 ±20 ±12	±25	±12	±25 ±10	±40 ±22	±28
±8	±30 ±18 ±8	±20	±12	±20	±40 ±22	±24
±4	±30 ±16 ±4	±20		±20	±40 ±20	±22
	±24 ±10	±20		±20	±40 ±20	±18
	±20 ±4	±12		±12	±35 ±15	±14
	±16	±12		±12	±35 ±12	±12
	±4				±35	±4
					±35	
					±30	
					±30	
					±20	



Connector orientation

# Industrial RFID Systems BIS M

## Read/Write Head with Integrated Processor

Dimensions	
Housing material	
Antenna type	
Weight	

**more added value**

For direct connection to the controller for tight space conditions



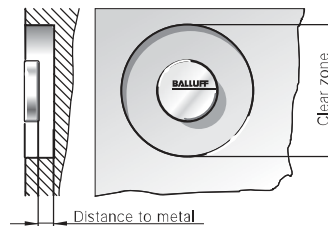
Supply voltage	
Current	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Connection	
Interface type:	
RS232 Balluff Dialog	
Accessories included	
Please order separately	

Appropriate data carrier

		BIS M-101-01/L			BIS M-102-01/L		
Data carrier distance to metal in mm		> 25	> 10	> 5	> 50	> 25	> 10
Data carrier clear zone in mm		> 60	> 50	> 50	> 60	> 50	> 50
Write distance in mm		0-15	0-12	0-9	0-18	0-18	0-10
Read distance in mm		0-15	0-12	0-9	0-18	0-18	0-10
Offset in mm	0 mm	±9	±6	±4	±16	±12	±4
at distance	5 mm	±9	±6	±4	±16	±12	±4
	9 mm	±8	±4	±2	±12	±10	±2
	12 mm	±6	±2		±8	±5	
	15 mm	±4			±8	±5	
	16 mm				±7	±3	
	18 mm				±6	±2	
	20 mm						
	22 mm						
	25 mm						

\* Please indicate cable length in ordering code! see page 199

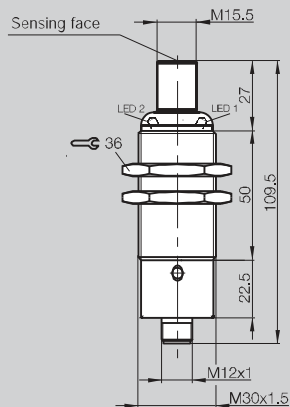
Installation note for data carriers



M30×1,5

Nickel plated brass

PI03-42a



Note installation instructions on page 174/175!

**BIS M**

24 V DC +10 %/-20 % including ripple

≤ 50 mA no-load

0...+70 °C

-20...+85 °C

IP 67

1 connector, round 8-pin

BIS M-400-007-002-00-S115

Configuration software

BKS S115-PU-\_\_\* or BKS S116-PU-\_\_\*

Range of Applications  
Selection Criteria  
Data carriers  
Read/write heads  
Read/write heads with integrated processor  
Processors  
Handy Programmer  
Handheld Installation  
Read/write times, Accessories

BIS M-105-01/A	BIS M-105-02/A	BIS M-122-01/A	BIS M-122-02/A	BIS M-108-02/L	BIS M-110-02/L	BIS M-111-02/L	BIS M-112-02/L
>10 >0	>10 >0	>10 >0	>10 >0	>25 >0	>25 >15 >5	>25 >10 >5	>50 >25 >20
>60 >0	>60 >0	>60 >0	>60 >0	>60 >0	>80 >50 >50	>80 >50 >50	>150 >90 >70
0-6 0-5	0-9 0-5	0-5 0-4	0-6 0-5	0-20 0-12	0-15 0-10 0-6	0-20 0-12 0-5	0-28 0-18 0-10
0-6 0-5	0-9 0-5	0-5 0-4	0-6 0-5	0-20 0-12	0-15 0-10 0-6	0-20 0-12 0-5	0-28 0-18 0-10
±5 ±4	±6 ±4	±4 ±3	±4 ±3	±14 ±10	±8 ±6 ±4	±12 ±8 ±7	±20 ±14 ±14
±4 ±2	±6 ±2	±3	±3 ±2	±14 ±8	±8 ±6 ±4	±12 ±8 ±4	±20 ±14 ±14
	±2			±12 ±6	±6 ±5	±10 ±6	±18 ±14 ±10
				±10 ±4	±4	±10 ±4	±18 ±12 ±6
				±10	±4	±10	±18 ±12
				±7		±7	±16 ±10
				±7		±7	±16 ±8
				±7		±7	±16
							±12
							±12



# Industrial RFID Systems BIS M

## Read/Write Head with Integrated Processor

**more added value**

### For longer ranges

Integrated version of read/write head with processor in large form factor. For direct connection to the controller

Dimensions

Housing material

Antenna type

Weight



Supply voltage

Current

Operating temperature

Storage temperature

Protection per IEC 60529

Connection

Interface type:

RS232 Balluff Dialog

Accessories included

Please order separately

Appropriate data carrier

Data carrier distance to metal in mm

Data carrier clear zone in mm

Write distance in mm

Read distance in mm

Offset in mm

at distance

0 mm  
5 mm  
9 mm  
12 mm  
15 mm  
16 mm  
18 mm  
20 mm  
22 mm  
25 mm  
30 mm  
32 mm  
35 mm

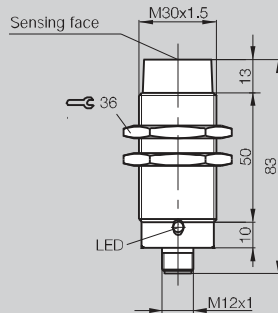
\* Please indicate cable length in ordering code! see page 199



M30x1,5

Nickel plated brass

100 g



Note installation instructions on page 174/175!

**BIS M**

24 V DC +10 %/-20 % including ripple

≤ 50 mA no-load

0...+70 °C

-20...+85 °C

IP 67

1 connector, round 8-pin

BIS M-400-007-001-00-S115

Configuration software

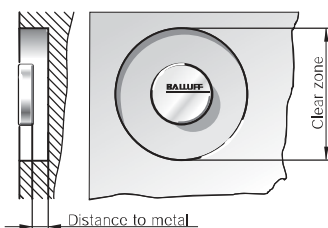
BKS S115-PU-\_\_\* or BKS S116-PU-\_\_\*

 Range of Applications  
 Selection Criteria  
 Data carriers  
 Read/write heads  
 Read/write heads with integrated processor  
 Processors  
 Handy Programmer  
 Handheld Installation  
 Read/write times, Accessories

BIS M-101-01/L	BIS M-102-01/L	BIS M-105-01/A	BIS M-105-02/A	BIS M-108-02/L	BIS M-110-02/L	BIS M-111-02/L	BIS M-112-02/L
> 25 > 10 > 5	> 50 > 15 > 10	> 20 > 5	> 20 > 5	> 25 > 0	> 25 > 10 > 5	> 25 > 10 > 5	> 50 > 15 > 10
> 100 > 60 > 50	> 150 > 90 > 70	> 100 > 100	> 100 > 100	> 100 > 0	> 100 > 60 > 50	> 100 > 60 > 50	> 150 > 90 > 70

0-20 0-15 0-12	0-28 0-20 0-12	0-7 0-6	0-11 0-7	0-28 0-16	0-20 0-15 0-8	0-28 0-18 0-10	0-38 0-25 0-15
0-20 0-15 0-12	0-28 0-20 0-12	0-7 0-6	0-11 0-7	0-28 0-16	0-20 0-15 0-8	0-28 0-18 0-10	0-38 0-25 0-15
±14 ±10 ±6	±20 ±15 ±6	±7 ±6	±9 ±6	±16 ±10	±12 ±8 ±6	±16 ±10 ±7	±22 ±16 ±13
±14 ±10 ±6	±20 ±15 ±6	±7 ±6	±8 ±6	±16 ±10	±12 ±8 ±5	±16 ±10 ±7	±22 ±16 ±13
±14 ±8 ±4	±20 ±15 ±3		±5	±14 ±8	±10 ±6	±14 ±8 ±2	±22 ±14 ±10
±10 ±4 ±2	±20 ±13 ±2			±14 ±6	±8 ±4	±14 ±7	±20 ±13 ±8
±10 ±2	±20 ±10			±14 ±6	±8 ±2	±14 ±6	±20 ±12 ±6
±8	±18 ±3			±14 ±4	±5	±14 ±3	±20 ±10
±6	±16			±14	±5	±14 ±2	±20 ±10
±5	±15			±14	±5	±14	±20 ±8
	±15			±12		±12	±20 ±6
	±10			±12		±12	±20 ±4
							±16
							±10
							±10

Installation note for data carriers



# Industrial RFID Systems BIS M

## Read/Write Head with Integrated Processor

**more added value**

**For tight mounting spaces**  
The remote electronics of the integrated version creates extra installation space. For direct connection to the controller

Dimensions	
Housing material	
Antenna type	
Weight	

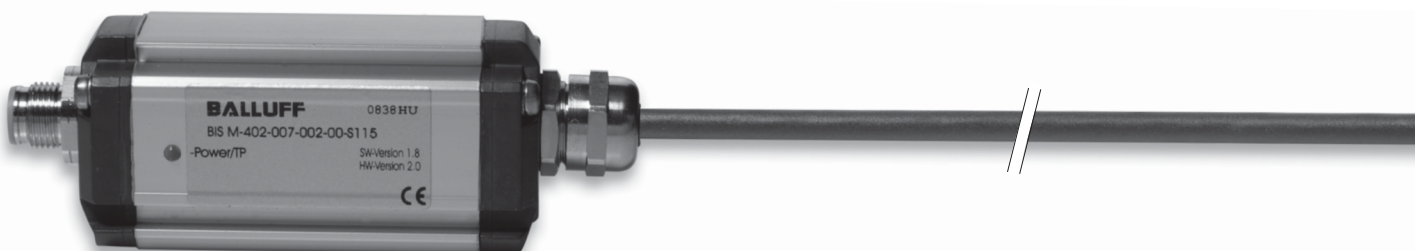


Supply voltage	
Current	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Connection	
Interface type:	
RS232 Balluff Dialog	
Accessories included	
Please order separately	

Appropriate data carrier

Data carrier distance to metal in mm	
Data carrier clear zone in mm	
Write distance in mm	
Read distance in mm	
Offset in mm	0 mm
at distance	5 mm

\* Please indicate cable length in ordering code! see page 199



# Serial RS232 **Industrial RFID Systems BIS M**

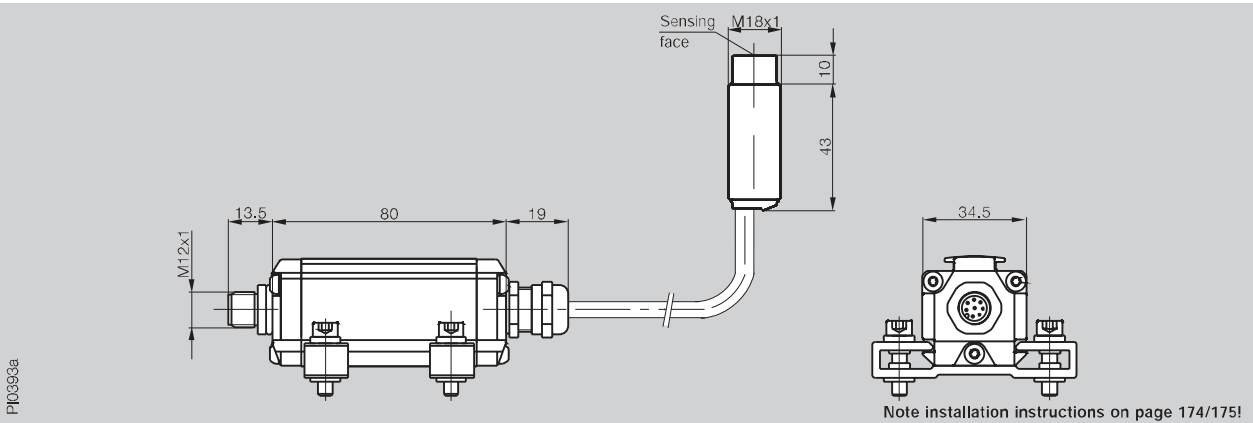
Read/Write Head with Integrated Processor

**M18×1,5**

Nickel plated brass

round

220 g



PI0393a

**BIS M**

24 V DC +10 %/-20 % including ripple

≤ 50 mA no-load

0...+70 °C

-20...+85 °C

IP 67

1 connector, round 8-pin

**BIS M-402-007-002-00-S115**

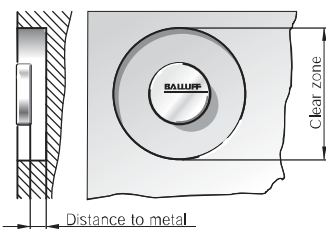
Configuration software

BKS S115-PU-\_\*

Range of Applications  
Selection Criteria  
Data carriers  
Read/write heads  
Read/write heads with integrated processor  
Processors  
Handy Programmer  
Handheld  
Installation  
Read/write times, Accessories

BIS M-105-01/L	BIS M-105-02/A	BIS M-122-01/A	BIS M-122-02/A	BIS M-110-02/A
> 10 > 0	> 10 > 0	> 10 > 0	> 10 > 0	> 25 > 0
> 60 > 0	> 60 > 0	> 60 > 0	> 60 > 0	> 80 > 0
0-5 0-3	0-5 0-3	0-5 0-2	0-5 0-2	0-8 0-2
0-5 0-3	0-5 0-3	0-5 0-2	0-5 0-2	0-8 0-2
±3 ±2	±3 ±2	±3 ±2	±3 ±2	±5 ±2
±2	±2	±2	±2	±5

Installation note for data carriers





# Industrial RFID Systems BIS M

## Read/Write Head with Integrated Processor

**FERROIDENT**

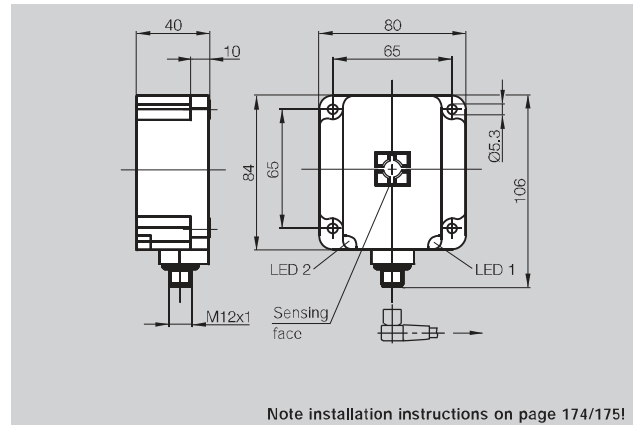
**more added value**

When the available space requires a flat housing, this version is the ideal choice. For direct connection to the controller

### Ferrolident

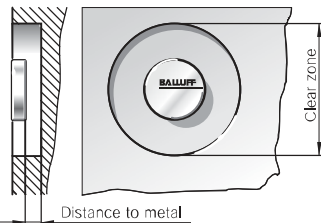
Read/write head with rod type antenna  
Simply use the arrows for alignment. For fast positioning

Dimensions	80×84,5×40
Housing material	PBT and ASA
Antenna type	Rod
Weight	250 g



Supply voltage	24 V DC +10 %/-20 % including ripple
Current	≤ 50 mA no-load
Operating temperature	0...+70 °C
Storage temperature	-20...+85 °C
Protection per IEC 60529	IP 67
Connection	1 connector, round 8-pin
Interface type:	
RS232 Balluff Dialog	BIS M-451-007-001-00-S115
Accessories included	Configuration software
Please order separately	BKS S115-PU-__* or BKS S116-PU-__*

### Installation note for data carriers



### Appropriate data carrier

	BIS M-150-02/A	BIS M-151-02/A
Data carrier distance to metal in mm		
Data carrier clear zone in mm	> 200 > 200	> 200 > 200
Metallic mounting surface 40×22	0-52	0-52
Metallic mounting surface ≥ 200×200	0-65	0-65
Write distance in mm		
Read distance in mm		
Offset in mm	0 mm	±25 ±26
at distance	5 mm	±25 ±26
	9 mm	±25 ±25
	12 mm	±25 ±25
	15 mm	±25 ±25
	16 mm	±25 ±25
	18 mm	±25 ±25
	20 mm	±25 ±25
	22 mm	±25 ±25
	25 mm	±25 ±25
	30 mm	±25 ±25
	32 mm	±25 ±25
	35 mm	±25 ±25
	40 mm	±20 ±25
	43 mm	
	45 mm	
	50 mm	
	52 mm	±8 ±25
	60 mm	±10 ±10

\* Please indicate cable length in ordering code! see page 199

 → Connector orientation



---

80×80×40

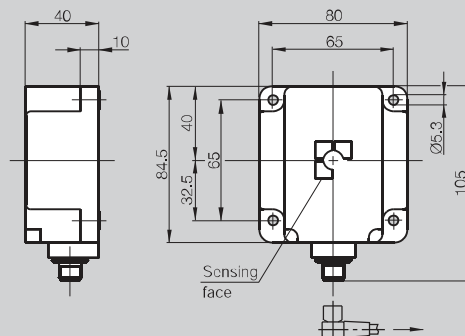
---

PBT

round

---

410 g



Pi0360

Note installation instructions on page 174/175!

**BIS M**

24 V DC +10 %/-20 % including ripple

≤ 50 mA no-load

0...+70 °C

-20...+85 °C

IP 67

1 connector, round 8-pin

## Range of Applications

### Selection Criteria

Data carri

Read/write

Read/write  
heads

## Read/write

BIS M-401-007-001-00-S115

Configuration software

BKS S115-PU-\_\_\* or BKS S116-PU-\_\_\*

Read/write  
heads with  
integrated  
processor

Processors

Handy

Handy  
Program

Handheld

Handheld

## Installation

Read/write

times,

## Accessories

[illegible]

# Industrial RFID Systems BIS M

## Processors

**Cost-effective  
identification – operate  
2 Read/Write Heads  
simultaneously**

- Data width on the bus,  
16 bytes
- Service friendly, all  
parameter data are stored  
in an exchangeable  
memory
- Accepts all read/write  
heads



Description	
Function	
Housing material	

Supply voltage	
Ripple	
Current	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Read/write head ports	
Service interface RS232	
Connection	

Connection for	
Interface type/Software:	
INTERBUS Remote node	
INTERBUS Remote node with 2 Mbaud	
INTERBUS Installation bus	
INTERBUS Installation bus with 2 Mbaud	

Please order accessories separately	
-------------------------------------	--

The **BIS M-6001 processor** features a small form factor and flexible interface options for use wherever ambient conditions require IP 65 protection.

These models are ideal also when no aggressive media are used with PS plastic.

Small, compact, flexible and cost-effective



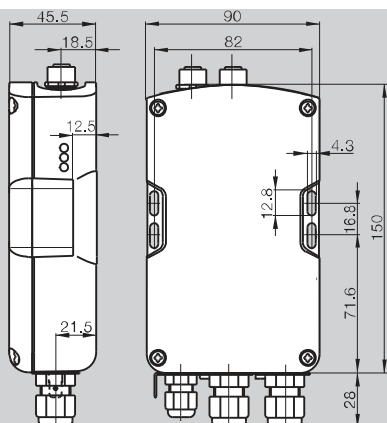
### BIS M-6001-\_-\_-050-03-KL2

read/write  
ABS

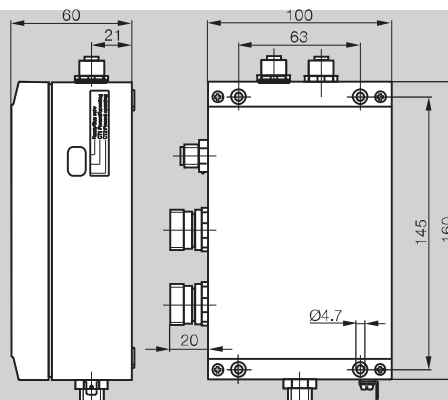
### BIS M-6021-\_-\_-050-03-ST8

read/write  
AISI 12

PI0271



PI0274



**BIS M**

24 V DC  $\pm 20\%$

$\leq 10\%$

$\leq 400$  mA

0...+60 °C

0...+60 °C

IP 65

2 external

yes

Terminals 1  $\times$  Pg 9

Terminals 2  $\times$  Pg 11

2 read/write heads BIS M-3\_-\_-

2 connectors round 9-pin

2 connectors round 5-pin

2 read/write heads BIS M-3\_-\_-

BIS M-6001-023-050-03-KL2

BIS M-6021-023-050-03-ST9

BIS M-6021-023-050-03-ST9M

BIS M-6021-023-050-03-ST8

BIS M-6021-023-050-03-ST8M

BKS 23-CS-00

For connectors see page 200

Range of  
Applications

Selection  
Criteria

Data carriers

Read/write  
heads

Read/write  
heads with  
integrated  
processor

**Processors**

Handy

Programmer

Handheld

Installation

Read/write  
times,

Accessories

The **rugged BIS M-6021** with the die-cast aluminum housing is a small, flexible processor which is available with various interface options.

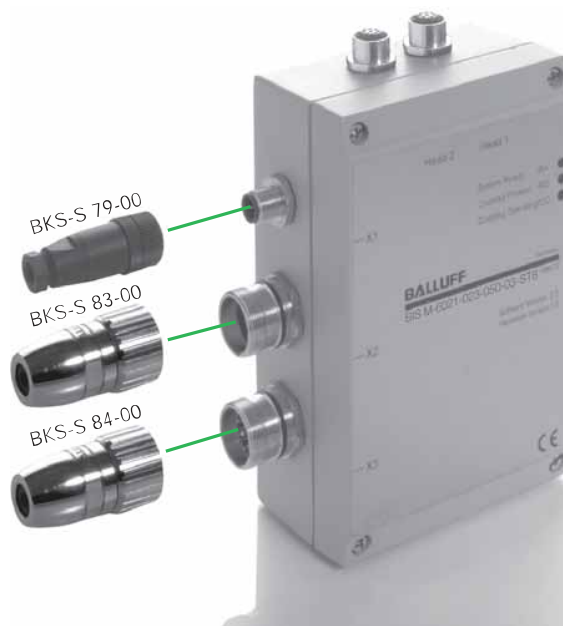
Great mechanical stability and high chemical resistance.

Rugged, small and flexible



#### Threaded cover BKS 23-CS-00

for M23 connector  
IP-65 protective cover for  
unused connectors!



# Industrial RFID Systems BIS M

## Processors

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

- Selectable division of the data width on the PROFIBUS-DP, 4 to 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 exchangeable memory
- BUS address selectable with switches
- Accepts all read/write heads



Description	
Function	
Housing material	
Supply voltage	
Ripple	
Current	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Read/write head ports	
Service interface RS232	
Connection	
Connection for	
Interface type/Software:	
PROFIBUS-DP	
Accessories included	
Please order accessories separately	

The **BIS M-6002 processor** features a small form factor and flexible interface options for use wherever ambient conditions require IP 65 protection.

These models are ideal also when no aggressive media are used with PS plastic.

Small, compact, flexible and cost-effective



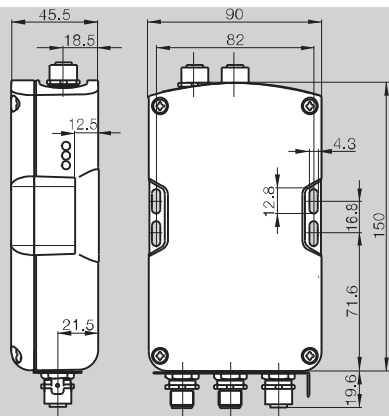
## BIS M-6002-019-050-03-ST11

read/write  
ABS

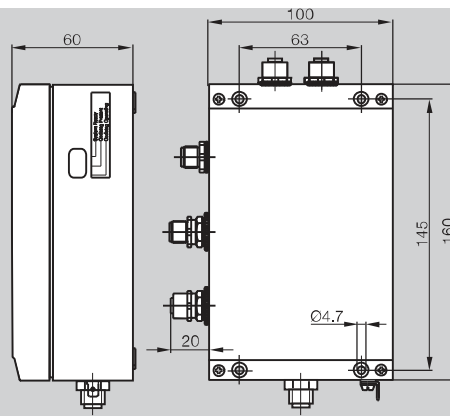
## BIS M-6022-019-050-03-ST14

read/write  
AISI 12

PI0272



PI0270



**BIS M**

24 V DC  $\pm 20\%$

$\leq 10\%$

$\leq 400\text{ mA}$

$0\ldots+60\text{ }^{\circ}\text{C}$

$0\ldots+60\text{ }^{\circ}\text{C}$

IP 65

2 external

yes

2 connectors round 5-pin, B-coded

1 connector round 5-pin

2 read/write heads BIS M-3\_ \_

2 connectors round 5-pin, B-coded,

2 connectors round 5-pin

2 read/write heads BIS M-3\_ \_

## BIS M-6002-019-050-03-ST11

Software GSD file

BKS 12-CS-01

For connectors see page 200/201

## BIS M-6022-019-050-03-ST14

Software GSD file

BKS 12-CS-01

For connectors see page 200/201

Range of  
Applications  
Selection  
Criteria  
Data carriers  
Read/write  
heads  
Read/write  
heads with  
integrated  
processor  
**Processors**  
Handy  
Programmer  
Handheld  
Installation  
Read/write  
times,  
Accessories

The **rugged BIS M-6022** with the die-cast aluminum housing is a small, flexible processor which is available with various interface options.

Great mechanical stability and high chemical resistance.

Rugged, small and flexible



**Threaded cover**  
**BKS 12-CS-01**  
coded for M12 B connector  
type



## Industrial RFID Systems BIS M

### Processors

**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 exchangeable memory
- Accepts all read/write heads



Description	
Function	
Housing material	

Supply voltage	
Ripple	
Current	
Operating temperature	
Storage temperature	
Protection per IEC 60529	
Read/write head ports	
Service interface RS232	
Connection	
Connection for	
Interface type/Software:	
DeviceNet	
Accessories included	
Please order accessories separately	

The **BIS M-6003 processor** features a small form factor and flexible interface options for use wherever ambient conditions require IP 65 protection.

These models are ideal also when no aggressive media are used with PS plastic.

Small, compact, flexible and cost-effective



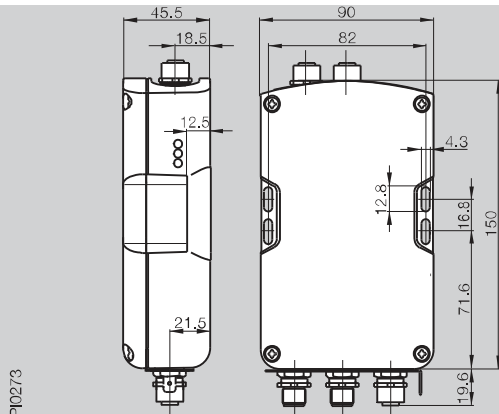


### BIS M-6003-\_-\_-650-03-ST12

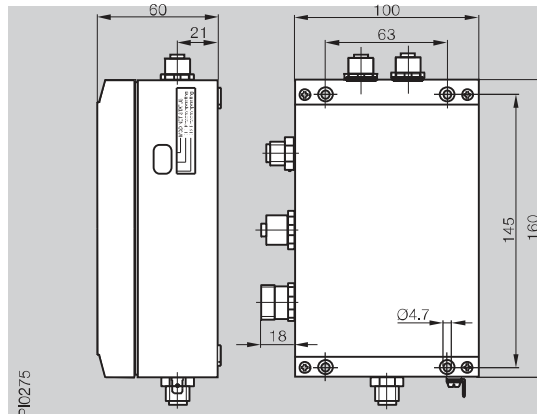
read/write  
ABS

### BIS M-6023-\_-\_-050-03-ST13

read/write  
AISI 12



P0273



P0275

# BIS M

24 V DC  $\pm 20\%$ 
 $\leq 10\%$ 
 $\leq 400\text{ mA}$ 
 $0\ldots+50\text{ }^{\circ}\text{C}$ 
 $0\ldots+50\text{ }^{\circ}\text{C}$ 

IP 65

2 external

yes

3 connectors round 5-pin,  
2 read/write heads BIS M-3\_

4 connectors round 5-pin  
2 read/write heads BIS M-3\_

### BIS M-6003-025-050-03-ST12

Software EDS file

For connectors see page 200/204/205

### BIS M-6023-025-050-03-ST13

Software EDS file

For connectors see page 200/203

Range of  
Applications  
Selection  
Criteria  
Data carriers  
Read/write  
heads  
Read/write  
heads with  
integrated  
processor  
**Processors**  
Handy  
Programmer  
Handheld  
Installation  
Read/write  
times,  
Accessories

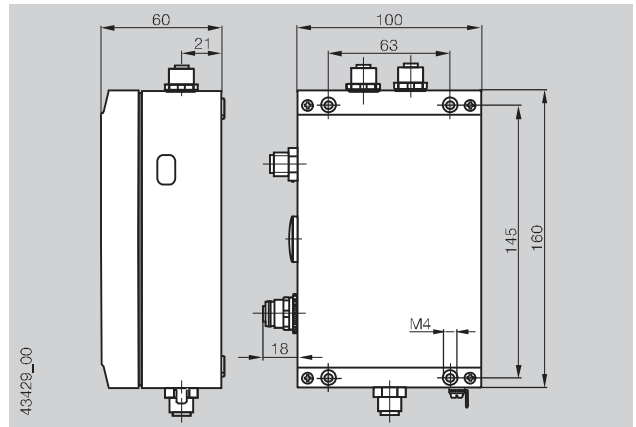
The **rugged BIS M-6023** with the die-cast aluminum housing is a small, flexible processor which is available with various interface options.

Great mechanical stability and high chemical resistance.

Rugged, small and flexible



Description	<b>BIS M-6026-034-050-06-ST19</b>
Function	read/write



Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection	Connector round 4-polig, D-coded 1 connector 5-pin 1 connector 4-pin 2 read/write heads BIS M-3_ _
Connection for	
Interface type/Software:	
EtherNet/IP	<b>BIS M-6026-034-050-06-ST19</b>
Accessories included	Configuration software
Please order accessories separately	For connectors see page 200/202

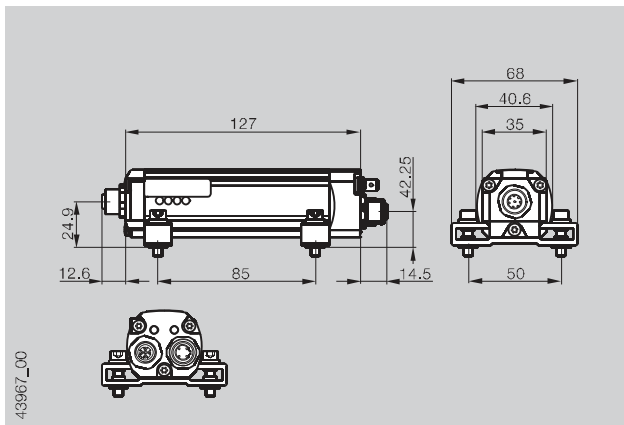
**Cost-effective identification –  
operate 2 read/write heads simultaneously!**

**more added value**

Rugged processor for  
EtherNet/IP networks



Description	BIS M-407-039-003-06-S115
Function	read/write



**BIS M**

Supply voltage	24 V DC $\pm 20\%$
Ripple	$\leq 10\%$
Current	$\leq 150\text{ mA}$
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 67
Read/write head ports	1 external
Service interface RS232	no
Connection	1 connector round 4-pin, D-coded 1 connector round 5-pin
Connection for	1 read/write head BIS M-3_--003-__
Interface type/Software:	
Ethernet TCP/IP	BIS M-407-039-003-06-S115
Accessories included	Configuration software
Please order accessories separately	For connectors see page 200/202

Range of Applications  
Selection Criteria  
Data carriers  
Read/write heads  
Read/write heads with integrated processor  
**Processors**  
Handy Programmer  
Handheld  
Installation  
Read/write times,  
Accessories

**more added value**

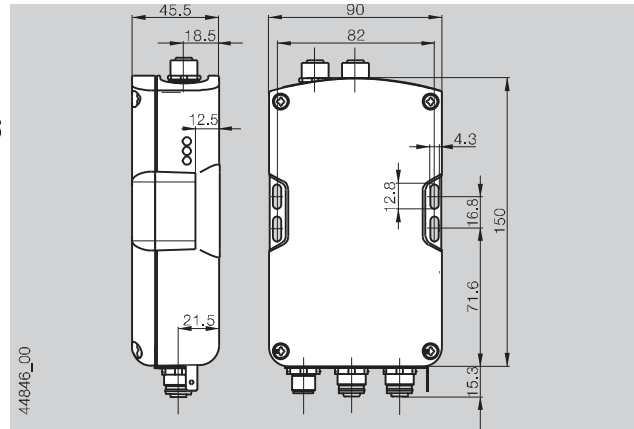
Small and compact –  
for one read head  
Easy to connect to any  
PC-based controller!



**For use only with these read heads**

BIS M-300-003-S115  
BIS M-301-003-S115  
BIS M-302-003-S115  
BIS M-304-003-S115  
see page 145/147/149/151

Description	BIS M-6008-__-650-06-ST23
Function	read/write
Housing material	ABS



Supply voltage	24 V DC $\pm 10\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes internal
Connection	Connector round 5-pin, A-coded 2 connectors 4-pin, D-coded Read/write heads BIS M-3__ Exception BIS C-350 and BIS C-355
Connection for	
Interface type/Software:	
PROFINET RT with IRT-capable 2-PORT switch	BIS M-6008-048-650-06-ST23
Accessories included	Configuration software
Please order accessories separately	For connectors see page 200/202

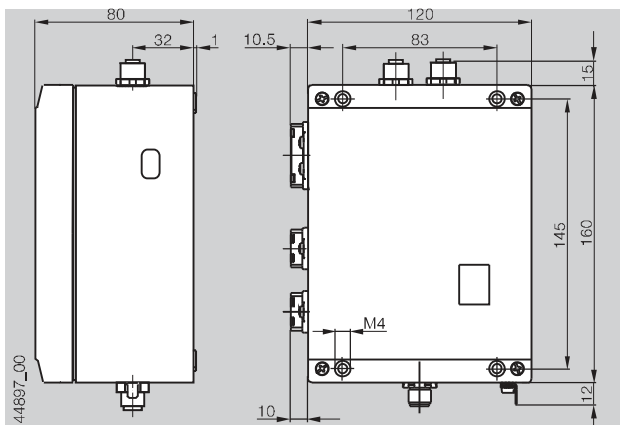
**Cost-effective identification –  
operate 2 read/write heads simultaneously!**



Please order accessories  
separately!  
Adapter cable for PROFINET  
from M12 D-coded  
to coupling RJ45/RJ45  
BIS C-526-PVC-00.5  
page 202



Description	BIS M-6028-048-050-06-ST22
Function	read/write
Housing material	Al



Supply voltage	24 V DC $\pm 10\%$
Ripple	$\leq 10\%$
Current	$\leq 400\text{ mA}$
Operating temperature	0...+60 °C
Storage temperature	0...+60 °C
Protection per IEC 60529	IP 65
Read/write head ports	2 external
Service interface RS232	yes
Connection	1 connector 5-pin, Push-pull RJ45 AIDA 2 connectors 8-pin, Push-pull RJ45 AIDA Connector round 4-pin
Connection for	Read/write heads BIS M-3_ _ Exception BIS C-350 and BIS C-355
Interface type/Software:	BIS M-6028-048-050-06-ST22
Accessories included	Configuration software

**BIS M**

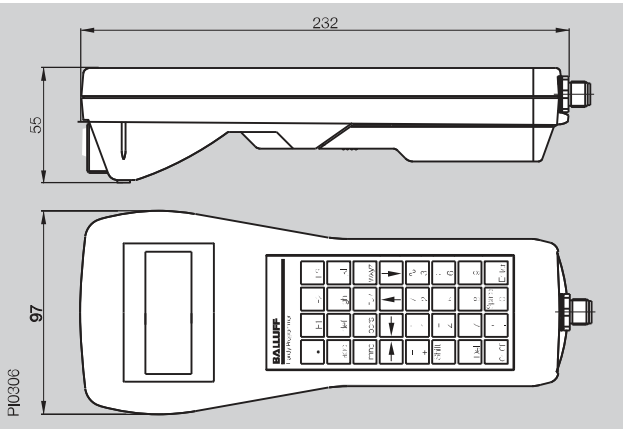
Range of Applications  
Selection Criteria  
Data carriers  
Read/write heads  
Read/write heads with integrated processor  
**Processors**  
Handy Programmer  
Handheld  
Installation  
Read/write times,  
Accessories



# Industrial RFID Systems BIS M

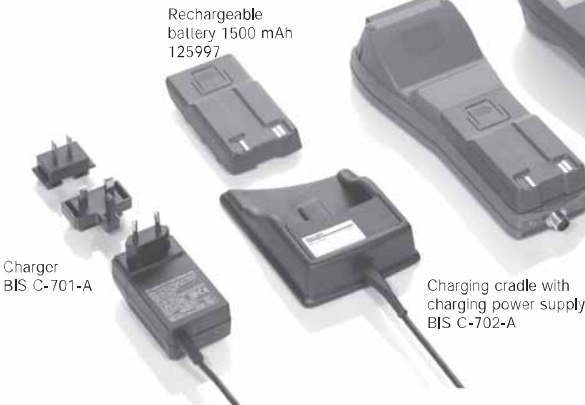
## Handy Programmer

Function	read/write	
Housing material	ABS	



Ordering code	BIS M-810-0-003	
Keyboard	32 buttons, alphanumeric	
Display	LCD display, 20 characters/4 lines	
Current	2.4 V rechargeable battery pack NiMH	
Capacity	1650 mA/h	
Interface	RS232/Balluff Dialog	
Operating temperature	0...+50 °C	
Protection per DIN 40050	IP 40	
Read/write head option	integrated	
Accessories included	Carrying case	
Appropriate data carrier	BIS M-101 BIS M-102 BIS M-105 BIS M-108 BIS M-110 BIS M-111 BIS M-112 BIS M-120	
Please order additional accessories separately	Charging power supply	

**For maximum flexibility**  
 The Handy Programmer with read/write function makes you mobile and independent. Ideal for example in maintenance work. Needless to say, the handy programmer is fitted with an interface for connection to a PC.





## Handy Programmer



**Industrial RFID Systems BIS M**  
Handheld

**For enhanced  
operating convenience**

Allows portable writing  
and reading of BIS M data  
carriers.

Easy operation thanks to

- Touchscreen with large  
color Windows CE®  
display and
- Pre-installed Balluff  
software and keyboard or  
stylus.

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

**Additional convenience**

A pistol grip is provided for  
ergonomic comfort.

Function	
Housing material	



Standard	Ordering code
Standard + WLAN (802.11b&g)	Ordering code
Standard + Barcode Scanner	Ordering code
Standard + WLAN (802.11b&g) + Barcode Scanner	Ordering code

Keyboard	
Display	
Current	
Capacity	
Interface	
Operating temperature	
Protection per IEC 60529	
Read/write head option	
Accessories included	
Appropriate data carrier	
Please order additional accessories separately	

Handheld Standard  
**BIS M-870-1-008-x-000**  
Includes charger and  
stylus



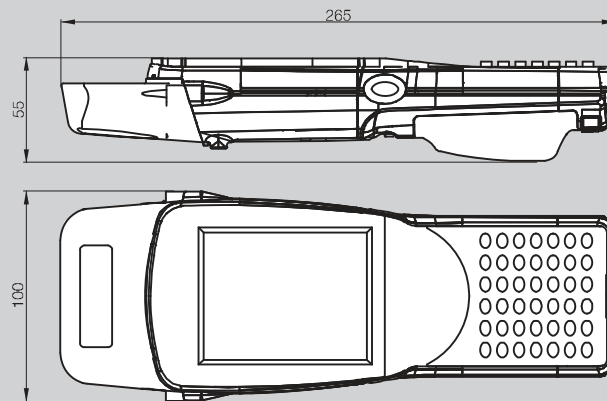


# Industrial RFID Systems BIS M

## Handheld

read/write  
ABS

43976\_00a



**BIS M**

BIS M-870-1-008-x-000  
BIS M-870-1-008-x-001  
BIS M-870-1-008-x-002  
BIS M-870-1-008-x-004

Range of  
Applications  
Selection  
Criteria  
Data carriers  
Read/write  
heads  
Read/write  
heads with  
integrated  
processor  
Processors  
Handy  
Programmer  
**Handheld**  
Installation  
Read/write  
times,  
Accessories

52 buttons, alphanumeric  
TFT Touchscreen display  
3.7 V rechargeable battery pack  
4000 mA/h  
RS232/Balluff Dialog  
-10...+50 °C  
IP 65  
integrated  
Charging power supply and stylus  
BIS M-1 ...  
BIS M-2 ...  
Docking Station and Pistol Grip



Docking Station with power  
supply 11023934

Pistol Grip  
11023836

# Industrial RFID Systems BIS M

## Installation Notes

### Minimum distance between two data carriers

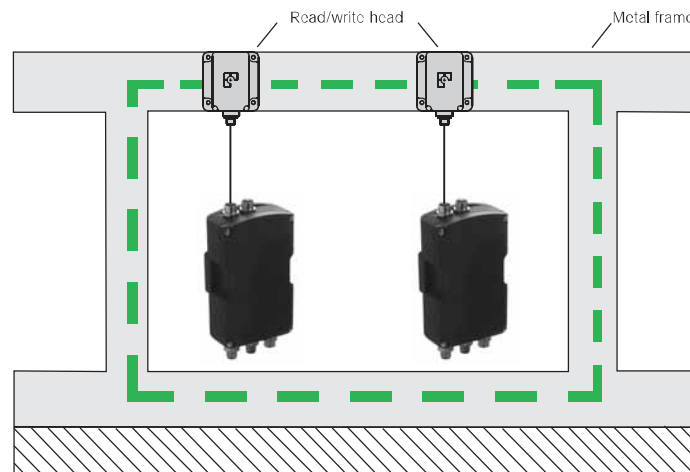
	BIS M-122-02/L	BIS M-110-02/L	BIS M-111-02/A	BIS M-112-02/L	BIS M-105-02/A	BIS M-108-02/A	BIS M-120-01/L	BIS M-150-02/A
	BIS M-122-02/L		BIS M-101-01/A	BIS M-102-01/L	BIS M-105-01/A			BIS M-151-02/A
BIS M-300		> 100 mm	> 100 mm	> 150 mm	> 100 mm	> 100 mm		
BIS M-301		> 200 mm	> 200 mm	> 200 mm	> 100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

### Minimum distance between two read/write heads

BIS M-300	200 mm
BIS M-301	600 mm
BIS M-351	600 mm
BIS M-302	100 mm
BIS M-304	100 mm
BIS M-400-007-001-00-S115	200 mm
BIS M-401-007-001-00-S115	600 mm
BIS M-451-007-001-00-S115	600 mm
BIS M-400-007-002-00-S115	100 mm

### 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.

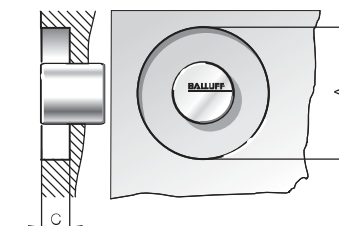


# Industrial RFID Systems BIS M

## Installation Notes

### Clear zone dimensions for read/write heads

Read/write head	Data carriers with clear zone dimensions (in mm)									
	BIS M-111-02/L		BIS M-112-02/L		BIS M-105-02/A		BIS M-120-01/L		BIS M-150-02/A	
	BIS M-101-01/L		BIS M-102-01/L		BIS M-105-01/A				BIS M-151-02/A	
	A	C	A	C	A	C	A	C	A	C
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



### Mechanical Strength

#### Data carriers and read/write heads

Ordering code	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

Ordering code	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

**BIS M**

Range of Applications  
Selection Criteria  
Data carriers  
Read/write heads  
Read/write heads with integrated processor  
Processors  
Handy Programmer  
Handheld  
**Installation**  
Read/write times,  
Accessories

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

### Write Times BIS M-1\_ \_

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

### 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

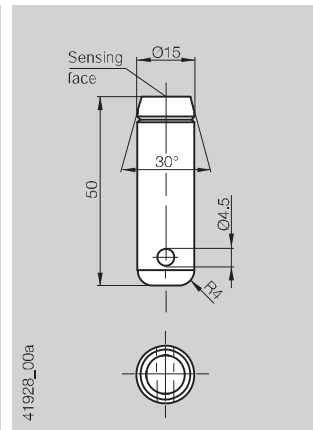
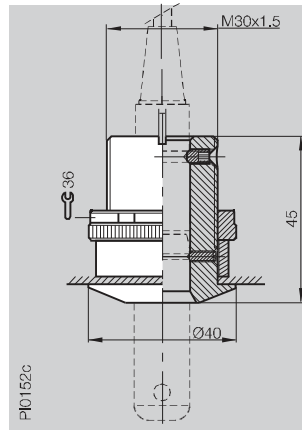
Write time = 40 ms + 11 \* 30 ms = 370 ms

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

# Industrial RFID Systems BIS M

## Accessories

Version	Access protection	Data carrier + Bracket
Use	Attachment for read/write head BIS M-304	



**BIS M**

Range of Applications  
Selection Criteria  
Data carriers  
Read/write heads  
Read/write heads with integrated processor  
Processors  
Handy Programmer  
Handheld  
Installation  
Read/write times,  
Accessories

Ordering code	BIS Z-ZA-001	BIS M-122-01/A-ZC1
Protection per IEC 60529		IP 67
Ambient temperature range	0...+70 °C	-25...+70 °C
Storage temperature	-20...+85 °C	-25...+85 °C



### Access protection

#### And here's how it works

Individual access codes are allocated via programmable data keys, which can then be disabled to prevent further programming.

Unauthorized personnel cannot manipulate the data key as a result. The data key is read via an antenna fitted to a special bracket and the processor unit then issues the data. Different interfaces such as serial, PROFIBUS, INTERBUS, DeviceNetTM, Ethernet/IP or parallel interfaces enable simple connection to the monitored system. Available for systems BIS C, BIS L and BIS M.

### The benefits

The programmable data key allows upgrades or replacements without requiring modifications to the system software. End users are independent of system providers. The access system is easy to integrate in read/write stations that already use an identification system. Simply connect the access monitoring antenna to the second channel on the existing processor unit. Hardware expenses are reduced to a minimum and software only requires slight modification in order to process both channels.



Electronic key for access control. Easy to implement using the "RFID key"