

BALLUFF

sensors worldwide

Easy ID Solutions

Simple, inexpensive implementation of industrial RFID systems



more added value



Easy ID Solutions

Simple integration and application

Balluff Industrial RFID (Radio Frequency Identification) Easy ID products provide an efficient low-cost solution for tracking production progress within a manufacturing process. They are ideal for applications where viewing the data for tracking purposes and managing the data centrally in the controller are the only requirements. The process is controlled using the reference or ID number, which are stored in the central controller like all other associated data such as the assembly, testing, and storage locations as well as other relevant process information. The individual pieces of data are linked to one another in such a way as to maximize that process transparency.

Benefit

- 100 % data integrity
(unlike other methods such as barcodes)
- Considerable improvement in process transparency
- Simplified control and process management
- Support in avoiding errors
- Reduction of errors and expensive rework
- Short return on investment



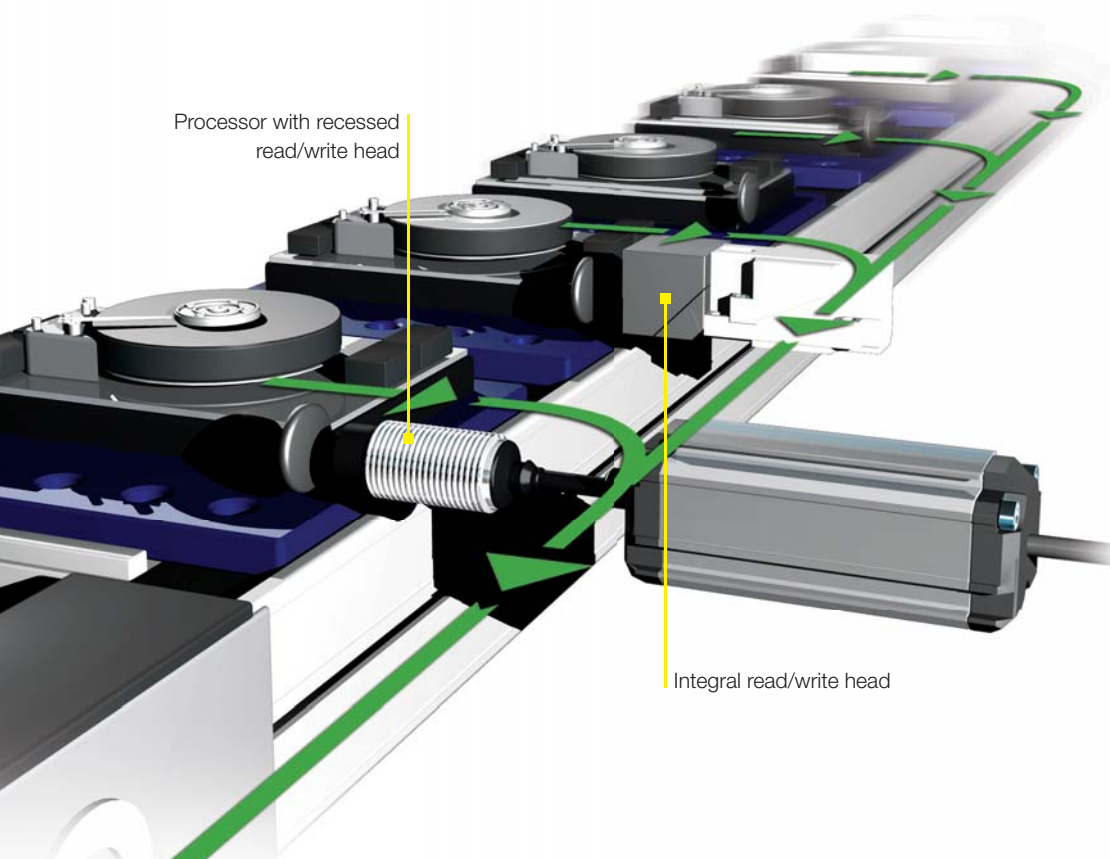
RFID versus barcode

Barcode-based pallet or process tracking systems are only suitable for the demanding environment present in industrial manufacturing processes to a limited extent. Hard-wearing RFID systems such as Easy ID Read-Only systems by Balluff are designed specially to operate with absolute reliability under difficult conditions. Barcodes on the other hand are read optically, which makes them susceptible to dirt and damage and can lead to detection errors.

In some cases, the reliability of barcodes can be less than 90 %. Industrial RFID systems on the other hand ensure that the user always receives the right information at the right time. You can rely on us.

RFID in process engineering

The advantages of RFID in industrial manufacturing are evident. In manufacturing, tracking technology can be implemented to ensure better transparency over the years that follow. Balluff Easy ID components are quick and easy to integrate in existing structures. Easy-ID uses simple, low-cost interfaces similar to parallel circuits that can be wired directly to the digital inputs of a PLC or interface connections established via serial ports such as RS232, RS422 or Ethernet TCP/IP (in combination with a PLC or PC).



Manufacturing solutions

Balluff Easy ID systems enable your system to track the path of workpiece carrier units through different manufacturing or assembly stations without requiring barcodes, thereby guaranteeing the reliable detection of failures within the manufacturing environment. The Easy ID systems combine reliable RFID tracking with a high degree of cost efficiency and flexibility, even in complex production processes. With a large selection of interfaces for PLCs and PCs and different read head designs, these systems are the ideal replacement for an existing barcode system.

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| Serial connection technology RS232, IO-Link | 16 |
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BIS C

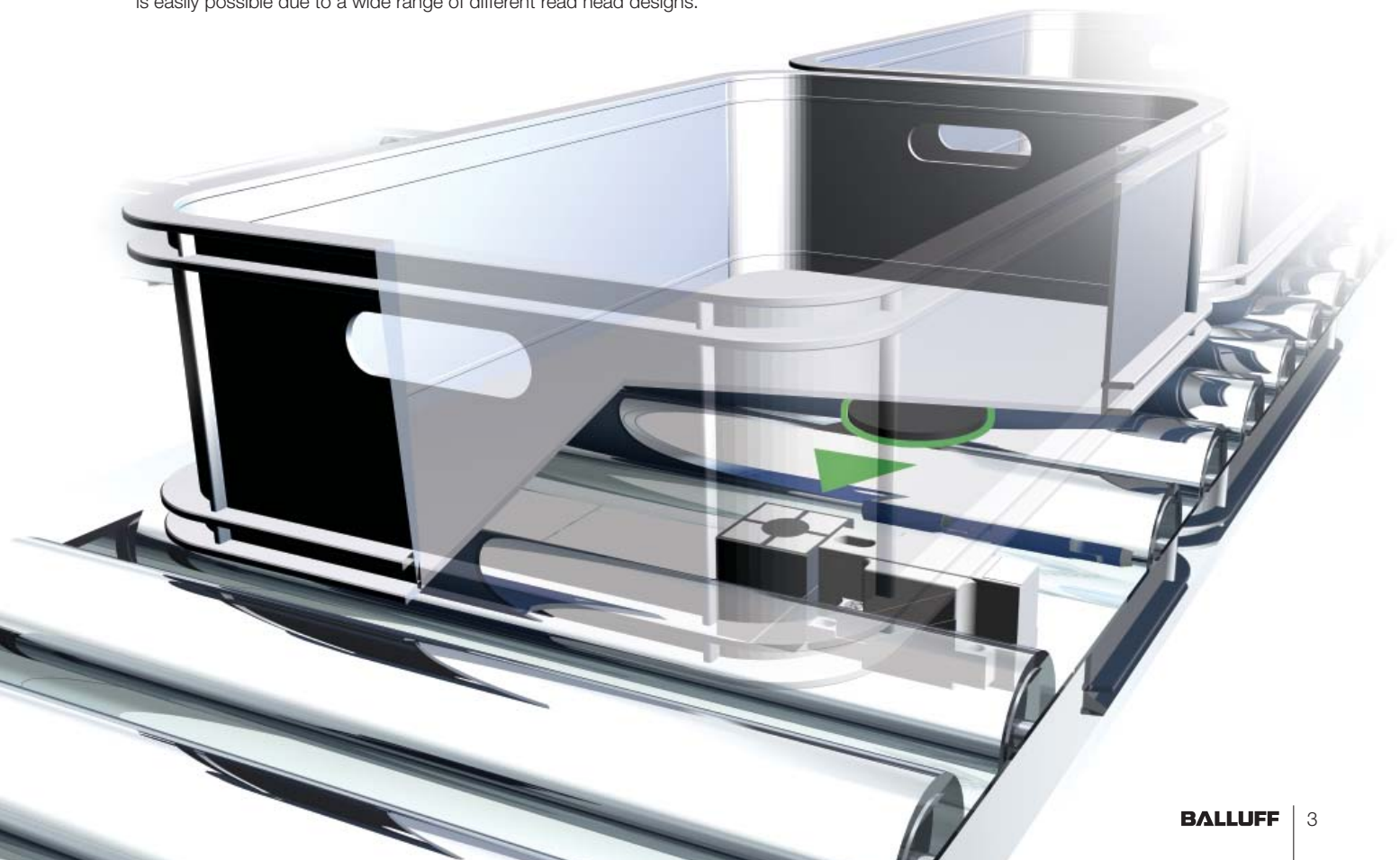
BIS L

BIS M



Closed loop logistic solutions

Easy ID systems from Balluff are the ideal solution for tracking containers or crates in conveyor, storage and retrieval applications. The ID values of the data carrier can be read at distances of up to 70 mm in order to track the location of part or production containers and crates during storage and relocation processes or track them within logistic circulation systems to provide a detailed insight into the workings of processes. Standard interfaces such as RS232 or Ethernet TCP/IP allow Easy-ID products to be connected quickly and easily. Customized integration in line with system requirements is easily possible due to a wide range of different read head designs.

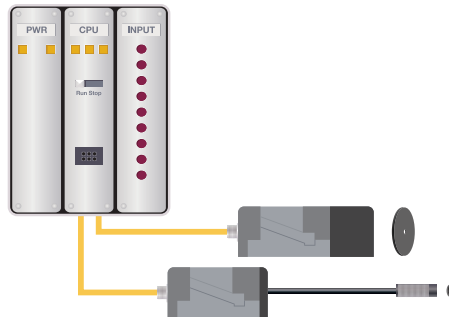
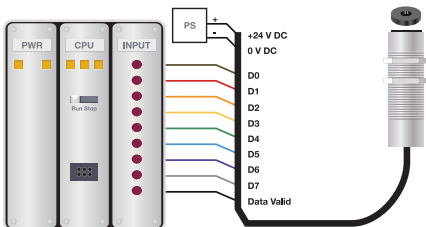


Basic Information and Definitions

Connection solutions

Connection solutions

Ranging from simple, discreet I/O connections to Ethernet TCP/IP, Balluff Easy ID systems offer the right connection for every application to guarantee maximum flexibility for the integration into new or existing applications. Needless to say this includes RS232 interfaces, which are compatible with many barcode readers and are therefore easy to upgrade.

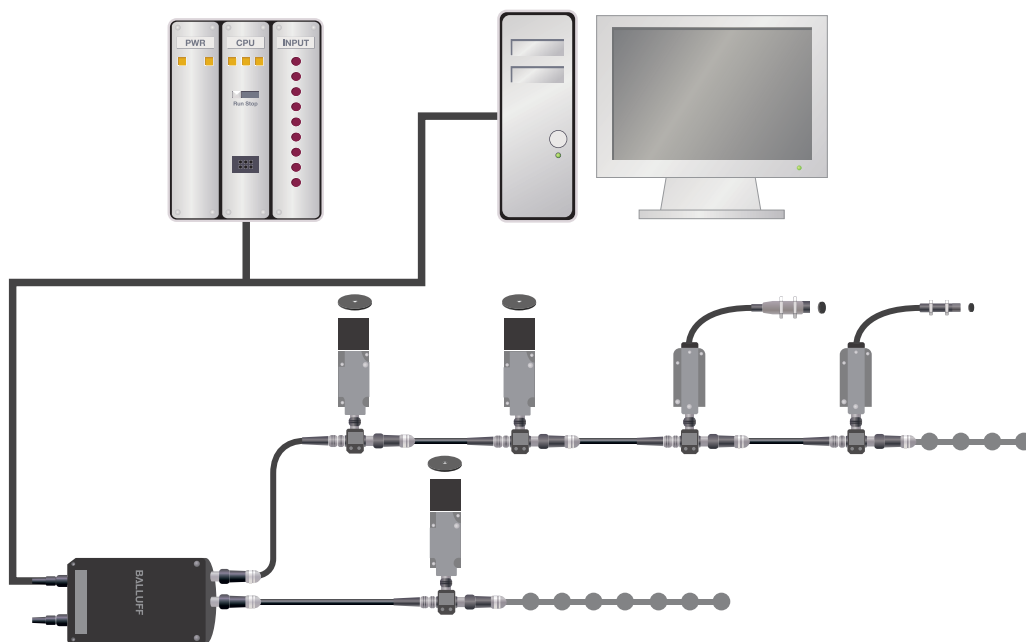


Parallel I/O

These Easy ID systems provide a particularly economical solution for implementing read-only systems. Balluff Easy ID systems with parallel I/O versions include some extremely compact versions and are the simplest and most flexible option here. Some systems are designed with the read head integrated in the processor, whereas on other units, the recessed read head is as small as an M12 proximity switch. These systems are capable of supplying up to 5 bytes of information along discreet parallel lines in binary format and can be connected directly to PLC I/O cards or I/O splitter boxes. They are even suitable for replacing pallet identification systems that operate on the proximity switch principle. A greater degree of reliability and a significant reduction in maintenance are the result.

Serial

Versions with serial interface represent a particularly reliable and economical solution when replacing barcode read systems during a system upgrade. The Easy ID variants offered by Balluff can even be integrated in systems that only incorporate a small number of read stations. The systems communicate with controllers or PC systems via RS232, RS422 or IO-Link. The devices can be configured in such a way that the data from a data carrier located in the working area is read and transferred automatically to a higher level system. Different processor variants with a compact design and recessed antennas offer maximum flexibility in manufacturing and assembly.



Serial/Ethernet TCP/IP networking

easy loop[®] is the ideal system for the economical connection of several read-only stations in conveyor and tracking applications involving workpiece carriers or pallets. A maximum of eight read heads can be connected directly to a PLC or PC on two lines using RS422. If the optional communication module is used, communication can also be established via an RS232 or Ethernet TCP/IP interface

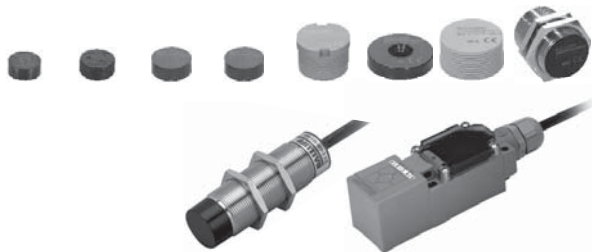
The easy loop[®] system supplies the data from each read station in ASCII string format to enable reliable transfer to a deterministic application. The system is installed using a ready assembled line that provides the complete range of functions immediately. A separate power supply is no longer necessary, making connection and commissioning so easy. Other stations can be added or even removed without requiring the configuration of addresses or additional settings.

Basic Information and Definitions

System overview

BISC

LF 70 kHz



Powerful and flexible

BIS C is an LF system designed for production and assembly. The wide range of data carrier and read head models offers solutions for an equally broad range of application challenges.

Even the most demanding operating conditions such as drying in a vacuum, autoclave processes or contact with coolant and lubricants do not pose a problem as a result.

The BIS C-60R-00x-08P... system listed here was designed purely as a read-only system and is suitable for simple identification tasks with the direct data output to a parallel interface. The signals can then be used directly. In certain situations, it may even be possible to omit a control unit.

BIS L

LF 125 kHz



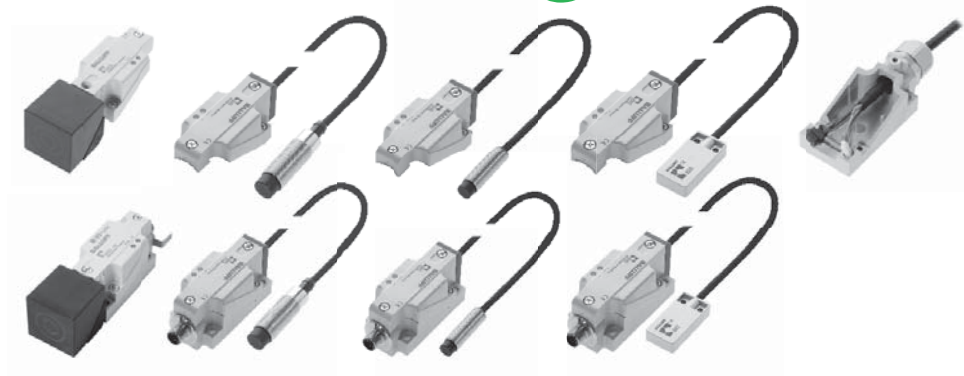
Economical

BIS L is an especially economical 125 kHz solution for tracking parts and monitoring assembly lines. Data carriers with an extremely flat disc shape and a 40-bit read-only memory. There is also the option storing a CRC check sum on the data carrier for the actual data. The sum can be interpreted directly by a suitable processor to save additional programming time that would otherwise be spent checking data at the controller end. The maximum read distance is 100 mm, which offers sufficient reserve even for critical applications.

RS232
RS422



IO-Link



BISM

HF 13.56 MHz



Fast and efficient

This system is characterized by a varied range of low-cost data carriers that can achieve impressive rates of data transfer. With up to 2000 bytes of FRAM memory, these data carriers are ideal for applications where data needs to be processed very quickly at a specific distance.

The system operates at a transfer frequency of 13.56 MHz in line with standards ISO 14443/15693 and is therefore suitable for global use.

RS232

IO-Link

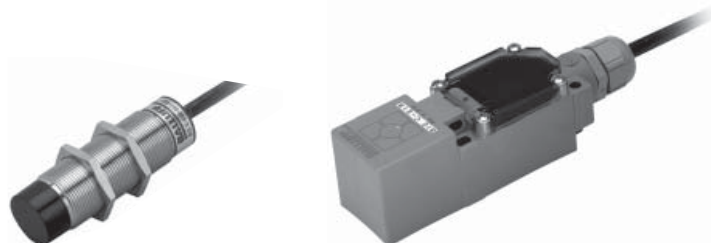


Easy ID Solutions BIS C

Parallel connection technology

more added value

For simple applications where read functions are sufficient



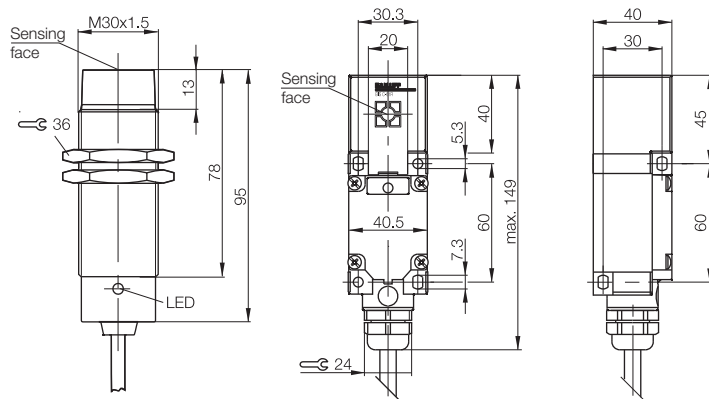
parallel

parallel

parallel dynamic

| Description/dimensions | M30x1.5 | 40x40x149 mm |
|--|-------------------------------------|-------------------------|
| Function | read | read |
| Antenna type | Round | Round |
| Weight | 330 g without cable | 330 g without cable |
| Output signal 8-bit parallel | | |
| 5 m | Ordering code BIS00H6 | BIS00HL |
| | Part number BIS C-60R-001-08P-PU-05 | BIS C-61R-001-08P-PU-05 |
| 10 m | Ordering code BIS00H6 | |
| | Part number BIS C-60R-001-08P-PU-05 | |
| 20 m | Ordering code BIS00H6 | |
| | Part number BIS C-60R-001-08P-PU-05 | |
| Output signal 8x8-bit parallel | | |
| 5 m | Ordering code BIS00HC | |
| | Part number BIS C-60R-002-08P-PU-05 | |
| 10 m | Ordering code BIS00HE | |
| | Part number BIS C-60R-002-08P-PU-10 | |
| Output signal 2x8-bit parallel dynamic | | |
| 5 m | Ordering code BIS00HH | |
| | Part number BIS C-60R-003-08P-PU-05 | |
| 10 m | Ordering code BIS00HJ | |
| | Part number BIS C-60R-003-08P-PU-10 | |
| Power supply | 24 V DC +10 %/-20 % | 24 V DC +10 %/-20 % |
| Ripple | ≤ 10 % | ≤ 10 % |
| Power supply | ≤ 50 mA | ≤ 50 mA |
| Ambient temperature T _a | 0...+50 °C | 0...+50 °C |
| Degree of protection per IEC 60529 | IP 67 | IP 67 |
| Mounting in steel | Non-flush | Non-flush |
| Housing material | PA/nickel-plated brass | PA/nickel-plated brass |
| LED function indicator | Yes | Yes |

The BIS C-60R-001- 08P-__ read-only system is designed for simple applications of the BIS C read/write system. It is supplied as a read-only system and provides the 8 bits of information without any additional components in parallel format. Three bytes per value are always used starting at Address 0. The remaining bytes on the data carrier can be used for other purposes with the appropriate processors. However, the bytes of the data carrier (from address 0) must be preprogrammed with data before a read operation can be performed. To easily program the data carrier a processor with serial port and Balluff 007 protocol are used. Programming is easy and fast using the free BISCOMRW software downloadable from the Balluff website at www.balluff.com.





Parallel connection technology
Data carriers
Wiring diagrams

Read head with integral processor BIS C-60R-001-08P-PU-05



Ordering code
Part number



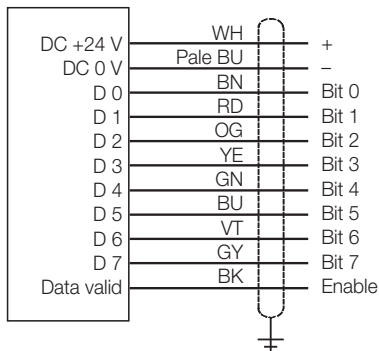
| Dimensions | Ø 9x4.5 | Ø 10x4.5 | Ø 12x8 | Ø 16x7 | Ø 16x10.5 | Ø 26x6 | Ø 30x16 | 30x35 | 52x32x11 |
|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Memory capacity in bytes | 511 | 511 | 1023 | 1023 | 1023 | 1023 | 1023 | 2047 | 1023 |
| Matching data carrier Non-flush mounting | BIS000T BIS C-121-04/L | BIS0011 BIS C-122-04/L | BIS0004 BIS C-103-05/A | BIS001E BIS C-130-05/L | BIS0002 BIS C-100-05/A | BIS0019 BIS C-128-05/L | BIS000R BIS C-117-11/L | BIS0006 BIS C-104-11/A | BIS000C BIS C-108-05/L |
| Read distance in mm | 1-5 | 1-5 | 1-5 | 1-8 | 1-6 | 3-12 | 1-8 | 1-8 | 1-8 |
| Offset in mm | 1 ±3 | ±3 | ±2.5 | ±4 | ±3 | | ±7 | ±4 | ±7 |
| at distance | 3 ±3 | ±3 | ±2.5 | ±5 | ±3 | ±7 | ±7 | ±4 | ±7 |
| | 5 ±3 | ±3 | ±2.5 | ±5 | ±3 | ±6 | ±7 | ±4 | ±7 |
| | 7 | | | ±5 | | ±5 | ±6 | ±4 | ±6 |

Read head with integral processor BIS C-61R-001-08P-PU-05

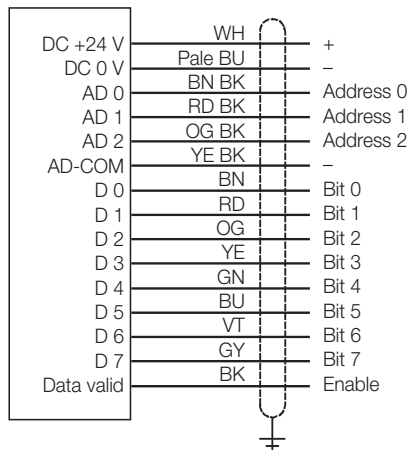


| Dimensions | Ø 9x4.5 | Ø 10x4.5 | Ø 12x8 | Ø 16x7 | Ø 16x10.5 | Ø 26x6 | Ø 30x16 | 30x35 | 52x32x11 |
|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Memory capacity in bytes | 511 | 511 | 1023 | 1023 | 1023 | 1023 | 1023 | 2047 | 2047 |
| Matching data carrier Non-flush mounting | BIS000T BIS C-121-04/L | BIS0011 BIS C-122-04/L | BIS0004 BIS C-103-05/A | BIS001E BIS C-130-05/L | BIS0002 BIS C-100-05/A | BIS0019 BIS C-128-05/L | BIS000R BIS C-117-11/L | BIS0006 BIS C-104-11/A | BIS000C BIS C-108-11/L |
| Read distance in mm | 1-5 | 1-5 | 1-5 | 1-8 | 1-6 | 3-12 | 1-8 | 1-8 | 1-7 |
| Offset in mm | 1 ±3 | ±3 | ±2.5 | ±4 | ±3 | | ±7 | ±4 | ±7 |
| at distance | 3 ±3 | ±3 | ±2.5 | ±5 | ±3 | ±7 | ±7 | ±4 | ±7 |
| | 5 | | | ±5 | ±3 | ±6 | ±6 | ±4 | ±6 |

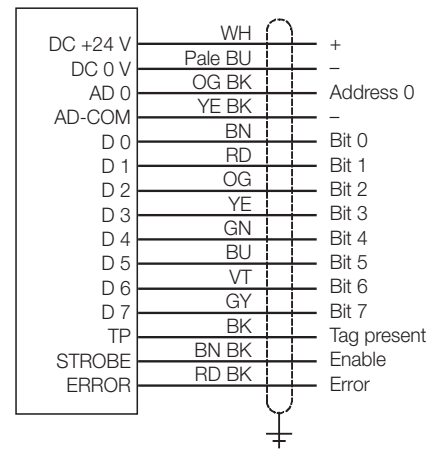
BIS C-60R-001-08P-PU-xx, 8-bit parallel

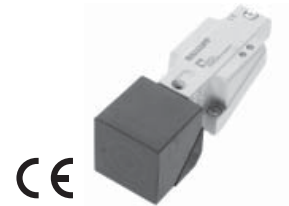


BIS C-60R-002-08P-PU-xx, 8x8-bit parallel



BIS C-60R-003-08P-PU-xx, 2x8-bit parallel dynamic





parallel CRC check

| | | |
|--------------------------------------|----------------------------|--|
| Description/dimensions | Module 40x41x120 mm | |
| Housing material | PBT | |
| Antenna type | Round | |
| Weight | 220 g | |
| Output signal parallel | | |
| Ordering code | BIS00CM | |
| Part number | BIS L-405-033-001-05-MU | |
| Output signal parallel with CRC test | | |
| Ordering code | BIS00CT | |
| Part number | BIS L-405-037-001-05-MU | |
| Sensor base with 5 m cable | | |
| Ordering code | | |
| Part number | | |
| Power supply | 24 V DC +10 %/-20 % | |
| Ripple | ≤ 10 % | |
| Power supply | ≤ 50 mA | |
| Ambient temperature T _a | 0...+0 °C | |
| Degree of protection per IEC 60529 | IP 67 | |
| Mounting in steel | Non-flush | |
| LED function indicator | Yes | |

Parallel signals for easier integration. The processors are compact, handy and very easy to install and the recessed antennas, which are available in different designs, make them ideal for a wide variety of different applications.

These simple processors can also be used in dynamic processes: the data from the data carrier last accessed is stored in the cache until retrieved again. The data is available for longer and programming is simplified as a result.

Different antenna characteristics and data carriers are used depending on application requirements.

See page 14 for an overview. The selection does not depend on the interface being used – only the design is a decisive factor.

The BIS L-2_ _-03/L are read-only data carriers with a fixed 5-byte (40 bits) "unique number".

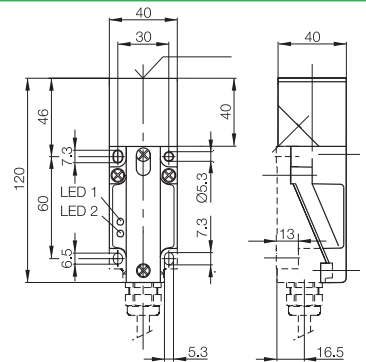
No repetition of the unique number or delivery of sequential numbers is possible – other options are available here. These data carrier types are used with BIS L-405-033-... processors.

Secure is secure: CRC test

The CRC 16 check sum can be used for applications with higher demands for data integrity. A check sum that allows the validity of data to be checked anywhere and at any time is stored on the data carrier. Discrepancies are diagnosed immediately.

The BIS L-405-037-... processor checks the correctness of the read data using a CRC-16 check sum. The CRC value is calculated automatically using the data in bytes 0, 1 and 2 of the data carrier.

Stored in bytes 3 and 4 of the data carrier, this CRC 16 check sum guarantees an extremely high degree of data integrity without requiring additional programming work.



In order to use the CRC-16 check sum, the type BIS L-10_-05/L data carriers must first be initialized using a BIS L-60_ _ processor and BISCOMRW.EXE software. 3 bytes are available for the user data.

The BIS L-405-037-... processor can only be operated using initialized type BIS L-10_-05/L data carriers.

Easy ID Solutions BIS L

Parallel connection technology

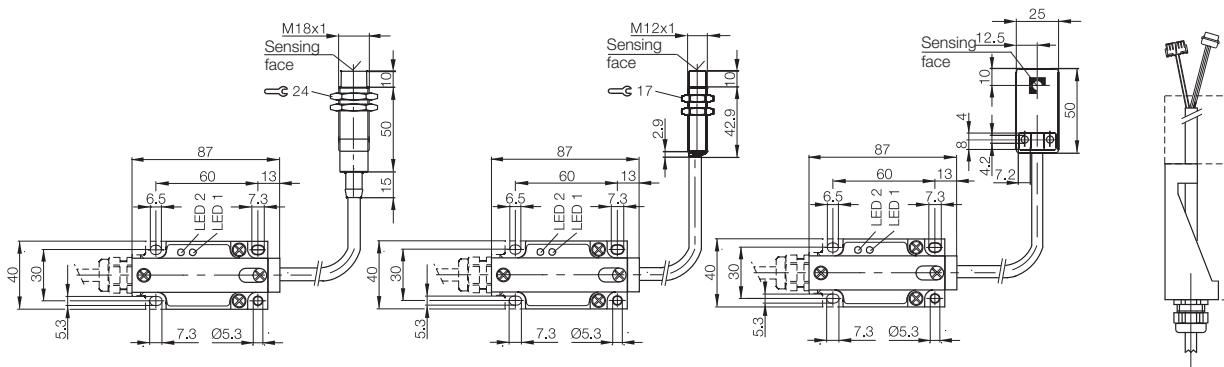


BIS L

Parallel connection technology

Serial connection technology, RS232, RS422, easy loop®, IO-Link, easy loop®
Data carriers
Wiring diagrams

| Module M18 | M12 | 25x50x10 | Sensor base |
|-------------------------|-------------------------|-------------------------|----------------------|
| PBT/nickel-plated brass | PBT/nickel-plated brass | PBT/ABS | |
| Round | Round | Round | |
| 170 g | 170 g | 200 g | 70 g without cable |
| BIS00CT | BIS00CP | BIS00CR | |
| BIS L-405-033-002-05-MU | BIS L-405-033-003-05-MU | BIS L-405-033-004-05-MU | |
| BIS00CU | BIS00CW | BIS00CY | |
| BIS L-405-037-002-05-MU | BIS L-405-037-003-05-MU | BIS L-405-037-004-05-MU | |
| | | | BCC00R2 |
| | | | BIS L-503-PU1-05 |
| 24 V DC +10 %/-20 % | 24 V DC +10 %/-20 % | 24 V DC +10 %/-20 % | |
| ≤ 10 % | ≤ 10 % | ≤ 10 % | |
| ≤ 50 mA | ≤ 150 mA | ≤ 150 mA | |
| 0...+70 °C | 0...+70 °C | 0...+70 °C | 0...+60 °C |
| IP 67 when assembled | IP 67 when assembled | IP 67 when assembled | IP 67 when assembled |
| Non-flush | Non-flush | Non-flush | Non-flush |
| Yes | Yes | Yes | Yes |



| | |
|------|------------------------------------|
| 5 m | BCC00R2 BIS L-503-PU1-05 |
| 10 m | BCC00R3 BIS L-503-PU1-10 |
| 15 m | BCC00R4 BIS L-503-PU1-15 |
| 20 m | BCC00R5 BIS L-503-PU1-20 |

Easy ID Solutions BIS L

Serial connection technology
RS232, RS422, easy loop® and IO-Link



Serial RS232 RS422



IO-Link

| | | |
|------------------------------------|---------------------------|--|
| Description/dimensions | 40x41x120 mm | |
| Housing material | PBT | |
| Antenna type | Round | |
| Weight | 220 g | |
| Output signal, serial RS232 | | |
| Ordering code | BIS00C5 | |
| Part number | BIS L-400-035-001-00-S115 | |
| Output signal, serial RS422 | | |
| Ordering code | BIS00C6 | |
| Part number | BIS L-400-035-001-02-S115 | |
| Output signal, serial easy loop® | | |
| Ordering code | BIS00CH | |
| Part number | BIS L-400-043-001-02-S115 | |
| Output signal, serial IO-Link | | |
| Ordering code | BIS00CZ | |
| Part number | BIS L-409-045-001-07-S4 | |
| Power supply | 24 V DC +10 %/-20 % | |
| Ripple | ≤ 10 % | |
| Power supply | ≤ 150 mA | |
| Ambient temperature T _a | 0...+70 °C | |
| Degree of protection per IEC 60529 | IP 67 | |
| Mounting in steel | Non-flush | |
| LED function indicator | Yes | |
| Serial and easyloop connection | 8-pin M12 male | |
| Connection: IO-Link | M12 male, 4-pin | |

Easy ID solutions are not only available with a parallel interface, but also with a serial interface, which is why they are suitable for smart, single-celled production platforms. Balluff offers different point-to-point connections specific to each device.

The range extends from interfaces such as RS232, RS422 to IO-Link. A "daisy chain" configuration with RS232 or Ethernet TCP/IP is also possible. Systems with or without recessed antennas are available to allow a flexible response to different installation situations such as cramped spaces, for example.

These simple processors can also be used in dynamic processes: the data from the data carrier last accessed is stored in the cache until retrieved again. The data is available for longer and programming is simplified as a result.

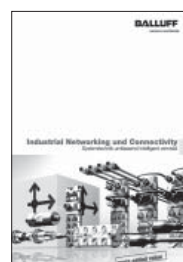
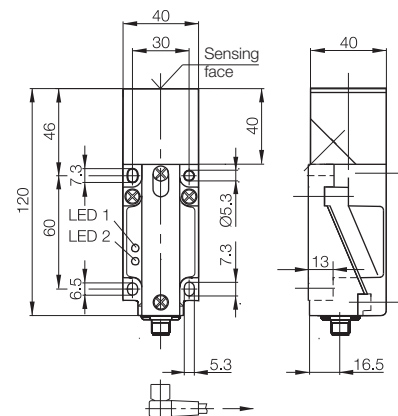
A distinction is made between use of the type BIS L-2_ _-03/L data carrier and the programmed data carrier with type BIS L-10_ -05/L CRC check. The processors must be parameterized accordingly using the relevant configuration software. Different antenna characteristics and data carriers are used depending on application requirements.

See page 14 for an overview. The selection does not depend on the interface being used – only the design is a decisive factor.

BIS L at a glance

- Tough
- Compact
- Read only
- Simple to integrate

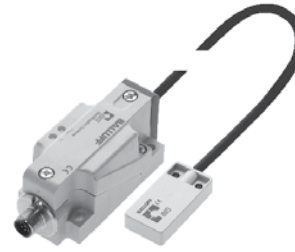
| IO-Link | | | |
|---------------|----------|-----------|------------|
| Mode | COM 1 | COM 2 | COM 3 |
| Transfer rate | 4.8 baud | 38.4 baud | 230.4 baud |



For information on other IO-Link and networking products, refer to our "Industrial Networking and Connectivity" catalog or visit us online at www.balluff.com

Easy ID Solutions BIS L

Serial connection technology
RS232, RS422, easy loop® and IO-Link

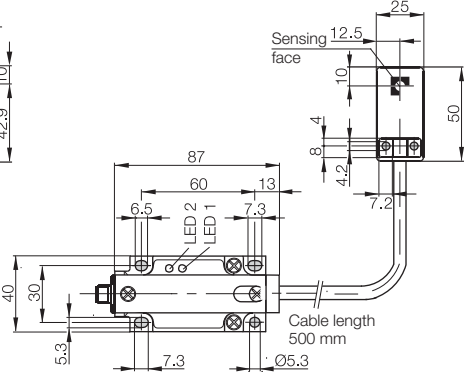
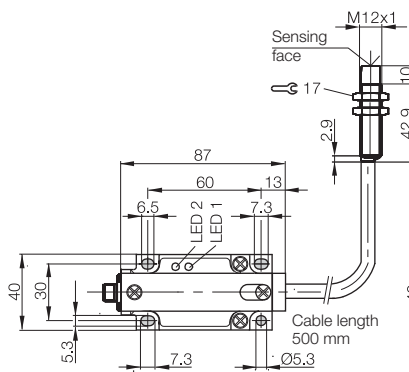
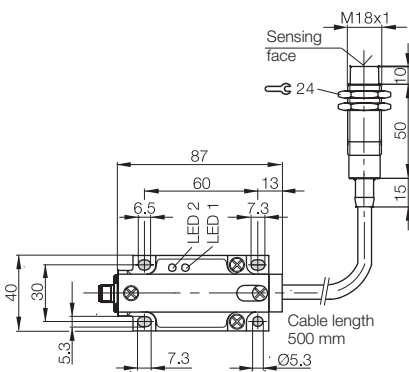


BIS L

Parallel connection technology
Serial connection technology, RS232, RS422, easy loop®, IO-Link
easy loop®
Data carriers
Wiring diagrams

| M18 | M12 | 25x50x10 |
|---|---|---|
| PBT/nickel-plated brass | PBT/nickel-plated brass | PBT/ABS |
| Round | Round | Round |
| 200 g | 170 g | 200 g |
| BIS00C7 | BIS00C9 | BIS00CC |
| BIS L-400-035-002-00-S115 | BIS L-400-035-003-00-S115 | BIS L-400-035-004-00-S115 |
| BIS00C8 | BIS00CA | |
| BIS L-400-035-002-02-S115 | BIS L-400-035-003-02-S115 | |
| BIS00CJ | BIS00CK | BIS00CL |
| BIS L-400-043-002-02-S115 | BIS L-400-043-003-02-S115 | BIS L-400-043-004-02-S115 |
| BIS00E0 | BIS00E1 | BIS00E2 |
| BIS L-409-045-002-07-S4 | BIS L-409-045-003-07-S4 | BIS L-409-045-004-07-S4 |
| 24 V DC +10 %/-20 % ≤ 10 % ≤ 150 mA 0...+70 °C IP 67 Non-flush Yes 8-pin M12 male M12 male, 4-pin | 24 V DC +10 %/-20 % ≤ 10 % ≤ 150 mA 0...+70 °C IP 67 Non-flush Yes 8-pin M12 male M12 male, 4-pin | 24 V DC +10 %/-20 % ≤ 10 % ≤ 150 mA 0...+70 °C IP 67 Non-flush Yes 8-pin M12 male M12 male, 4-pin |

| COM 1 | COM 2 | COM 3 | COM 1 | COM 2 | COM 3 | COM 1 | COM 2 | COM 3 |
|-----------|------------|-------------|-----------|------------|-------------|-----------|------------|-------------|
| 4.8 kbaud | 38.4 kbaud | 230.4 kbaud | 4.8 kbaud | 38.4 kbaud | 230.4 kbaud | 4.8 kbaud | 38.4 kbaud | 230.4 kbaud |



Easy ID Solutions BIS L

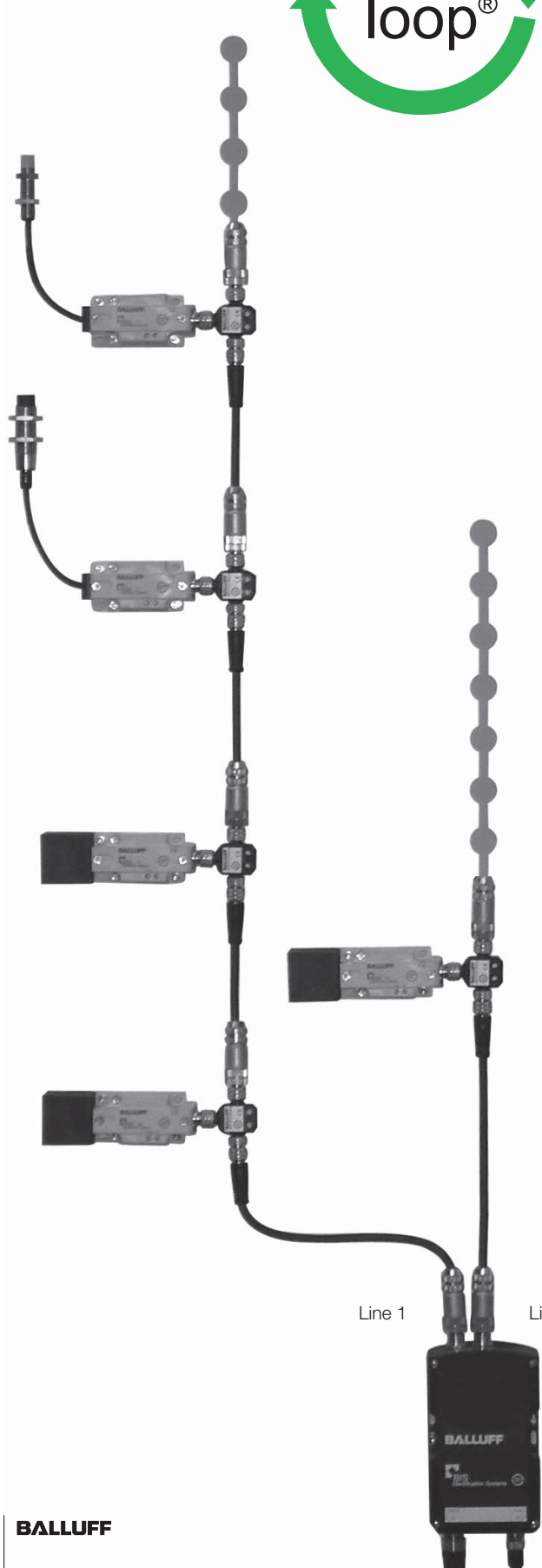
Simple installation with easy loop®



For simple installation

Use easy loop® to extend the BIS L system at minimal cost: compact read heads and the communication module for simple connection to the controller. Prefabricated cable and connectors for rapid, correct wiring. No address settings. Install the BIS L simply by connecting a maximum of eight read heads with easy loop® interface to two lines. A single cable will suffice and a separate power supply is no longer necessary.

All processor units function independently to allow dynamic operation: Data is transferred reliably when the data carrier passes by.



Maximum of 8 processor units on each line
All lines can be extended up to 80 m!

Terminator
BCC00TM
BKS-S117-RO1

Tee
BCC00TK
BKS-S115-TW2-03

Connection cables
BIS Z-501-PU-__

Communication module
RS232 or Ethernet

Easy ID Solutions BIS L

easy loop® communication module



| | |
|--|--|
| Description | BIS Z-EL-002-RS232, BIS Z-EL-001-Ethernet |
| Housing material | ABS |
| Function | read |
| Weight | 220 g |
| Output signal, RS232 serial | |
| Ordering code | BIS00.. |
| Part number | BIS Z-EL-002-RS232 |
| Output signal Ethernet TCP/IP | |
| Ordering code | BIS00.. |
| Part number | BIS Z-EL-001-Ethernet |
| Power supply | 24 V DC +10 %/-20 % |
| Ripple | ≤ 10 % |
| Power supply | ≤ 500 mA +50 mA for each connected read head |
| Ambient temperature T _a | 0...+60 °C |
| Degree of protection per IEC 60529 | IP 65 |
| Mounting in steel | Non-flush |
| Connection type | 1 connector round 4-pin 1 connector round 5-pin 2 connectors round 8-pin |
| Connection for read/write heads/Line 1 and 2 | |



Parallel connection technology
Serial connection technology, RS232, RS422, easy loop®, IO-Link
easy loop®
Data carriers
Wiring diagrams

Please order accessories separately



Tee
BCC00TK
BKS-S115-TW2-03



Terminator
BCC00TM
BKS-S117-RO1



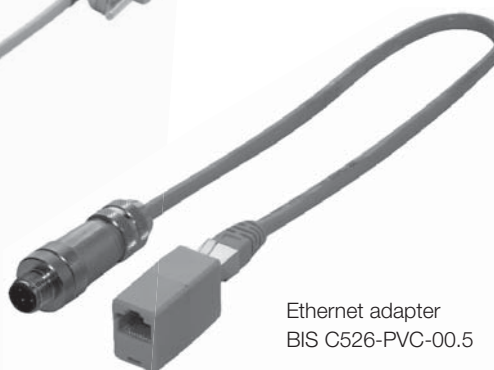
Operating voltage
BCC00T8
BKS-S 79-00



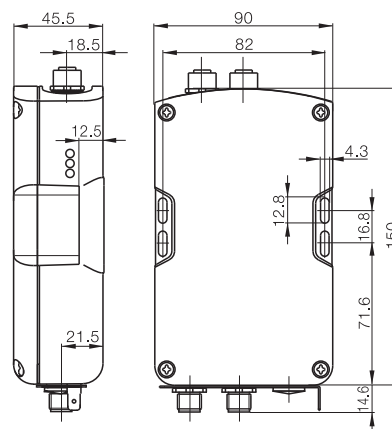
Ethernet connector
BCC00TR
BKS-S 182-00



RS-232 connector
BIS C-522-PVC-02



Ethernet adapter
BIS C526-PVC-00.5



Easy ID Solutions BIS L

Data carriers, wiring diagram

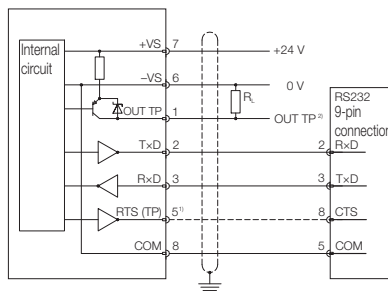


| | | |
|----------------------|----------------------------|---------------------------|
| Ordering code | BIS00CM | BIS00CN |
| Part number | BIS L-405-033-001-05-MU | BIS L-405-033-002-05-MU |
| Ordering code | BIS00C5 | BIS00C7 |
| Part number | BIS L-400-035-001-0_-S115 | BIS L-400-035-002-0_-S115 |
| Ordering code | BIS00CH | BIS00CJ |
| Part number | BIS L-400-043- 001-02-S115 | BIS L-400-043-002-02-S115 |
| Ordering code | BIS00CZ | BIS00ED |
| Part number | BIS L-409-045- 001-07-S4 | BIS L-409-045-002-07-S4 |

Ordering code
Part number

| Dimensions | Ø 20x1.6 | | Ø30x1.6 | | Ø 12x8 | | Ø12.4x2 | | Ø 16x10.5 | | Ø 26x6 | | Ø 30x16 | |
|------------------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|
| | 40 | 24+ CRC | 40 | 24+ CRC | 40 | 24+ CRC | 40 | 24+ CRC | 40 | 24+ CRC | 40 | 24+ CRC | 40 | 24+ CRC |
| Matching data carrier | BIS003R | BIS0035 | BIS003T | BIS0038 | BIS003U | BIS003C | BIS003W | BIS003F | BIS003R | BIS0035 | BIS003T | BIS0038 | BIS003W | BIS003F |
| Non-flush mounting | BIS L-200-03/L | BIS L-100-05/L-RO | BIS L-201-03/L | BIS L-101-05/L-RO | BIS L-202-03/L | BIS L-102-05/L-RO | BIS L-203-03/L | BIS L-103-05/L-RO | BIS L-200-03/L | BIS L-100-05/L-RO | BIS L-201-03/L | BIS L-101-05/L-RO | BIS L-203-03/L | BIS L-103-05/L-RO |
| Read distance in mm | 0-25 | | 0-35 | | 0-48 | | 0-16 | | 0-15 | | 0-18 | | 0-10 | |
| Offset in mm | 0 | ±15 | ±20 | ±25 | ±25 | ±10 | ±10 | ±10 | ±10 | ±10 | ±12 | ±12 | ±4 | ±4 |
| at distance | 3 | ±15 | ±20 | ±25 | ±25 | ±10 | ±10 | ±10 | ±10 | ±10 | ±12 | ±12 | ±4 | ±4 |
| | 4 | ±15 | ±20 | ±25 | ±25 | ±10 | ±10 | ±10 | ±10 | ±10 | ±12 | ±12 | ±4 | ±4 |
| | 5 | ±15 | ±20 | ±25 | ±25 | ±10 | ±10 | ±10 | ±10 | ±10 | ±12 | ±12 | ±4 | ±4 |
| | 7 | ±15 | ±20 | ±25 | ±25 | ±10 | ±10 | ±10 | ±10 | ±10 | ±12 | ±12 | ±4 | ±4 |
| | 8 | ±15 | ±20 | ±25 | ±25 | ±10 | ±10 | ±10 | ±10 | ±10 | ±12 | ±12 | ±4 | ±4 |
| | 10 | ±15 | ±20 | ±25 | ±25 | ±10 | ±10 | ±10 | ±10 | ±10 | ±12 | ±12 | ±4 | ±4 |
| | 12 | ±15 | ±20 | ±25 | ±25 | ±10 | ±10 | ±10 | ±10 | ±10 | ±12 | ±12 | ±4 | ±4 |
| | 15 | ±15 | ±20 | ±25 | ±25 | ±10 | ±10 | ±10 | ±10 | ±10 | ±12 | ±12 | ±4 | ±4 |
| | 20 | ±15 | ±20 | ±25 | ±25 | ±10 | ±10 | ±10 | ±10 | ±10 | ±12 | ±12 | ±4 | ±4 |
| | 25 | | ±20 | ±25 | ±25 | | | | | | ±12 | ±12 | | |
| | 30 | | ±20 | ±25 | ±25 | | | | | | ±12 | ±12 | | |
| | 35 | | ±20 | ±25 | ±25 | | | | | | ±12 | ±12 | | |
| | 40 | | | ±25 | ±25 | | | | | | | | | |
| | 45 | | | ±25 | ±25 | | | | | | | | | |

BIS L-400-035-001-00-__
BIS L-400-035-002-00-__
BIS L-400-035-003-00-__
BIS L-400-035-004-00-__



- 1) RTS (TP) connection enables the TP display in the program BISCOMRW.EXE.
- 2) OUT TP switches to +24 V when a data carrier is located within the action field.

Easy ID Solutions BIS L

Data carriers, wiring diagram



BIS L

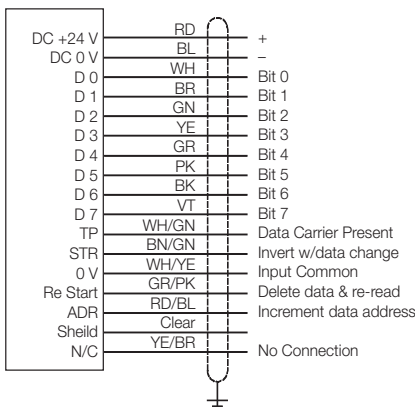
Parallel connection technology
Serial connection technology, RS232, RS422, easy loop®, IO-Link, easy loop®

Data carriers
Wiring diagrams

| | | | |
|----------------|---------------------------|----------------|---------------------------|
| BIS00CP | BIS L-405-033-003-05-MU | BIS00CR | BIS L-405-033-004-05-MU |
| BIS00C9 | BIS L-400-035-003-0_-S115 | BIS00CC | BIS L-400-035-004-00-S115 |
| BIS00CK | BIS L-400-043-003-02-S115 | BIS00E2 | BIS L-409-045-004-07-S4 |
| BIS00E1 | BIS L-409-045-003-07-S4 | | |

| | Ø 30x16 | | | | 30x35 | | | | 52x32x11 | | | | Ø 30x16 | | | |
|----------------|----------------|----------------|-------------------|--|----------------|----------------|----------------|-------------------|----------------|----------------|----------------|-------------------|----------------|----------------|----------------|-------------------|
| | 40 | 24 + CRC | | | 40 | 24 + CRC | | | 40 | 24 + CRC | | | 40 | 24 + CRC | | |
| BIS003W | BIS L-203-03/L | BIS003F | BIS L-103-05/L-RO | | BIS003R | BIS L-200-03/L | BIS0035 | BIS L-100-05/L-RO | BIS003T | BIS L-201-03/L | BIS0038 | BIS L-101-05/L-RO | BIS003W | BIS L-203-03/L | BIS003F | BIS L-103-05/L-RO |
| | 0-7 | | | | 0-15 | | | | 0-18 | | | | 0-10 | | | |
| | ±4 | | | | ±10 | | | | ±12 | | | | ±4 | | | |
| | ±4 | | | | ±10 | | | | ±12 | | | | ±4 | | | |
| | ±4 | | | | ±10 | | | | ±12 | | | | ±4 | | | |
| | ±4 | | | | ±10 | | | | ±12 | | | | ±4 | | | |
| | | | | | ±10 | | | | ±12 | | | | ±4 | | | |
| | | | | | ±10 | | | | ±12 | | | | ±4 | | | |
| | | | | | ±10 | | | | ±12 | | | | ±4 | | | |
| | | | | | | | | | ±12 | | | | | | | |
| | | | | | | | | | ±12 | | | | | | | |

- BIS L-405-033-001-xx-MU**
- BIS L-405-033-002-xx-MU**
- BIS L-405-033-003-xx-MU**
- BIS L-405-033-004-xx-MU**



Easy ID Solutions BIS M

Serial connection technology
RS232 and IO-Link



More time for the right challenges

The compact design and ease with which Industrial RFID systems BIS M are implemented is impressive. With a frequency of 13.56 MHz, the systems operate according to ISO 15693/14443 standards and are well equipped for performing tasks in modern production lines and the serial connection allow for easy integration in adaptive production systems.

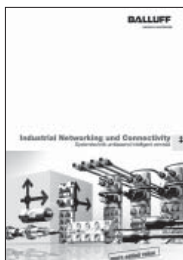
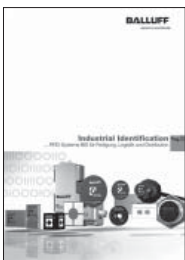
These systems can both read and write data, opening up new opportunities in manufacturing processes and for tracking parts. The wide variety of available housings (with recessed antenna, M30 version, etc.) makes these processors extremely versatile. Regardless of whether the processor is installed in an assembly plant with limited space or is integrated directly in the manufacturing process and operates under demanding conditions, there is a suitable alternative for every application.

These simple processors can also be used in dynamic processes: the command for processing the data carrier can be issued in advance. The data is then stored by the processor until the next data carrier enters the working area. Programming is no longer time-critical, which simplifies the entire processing sequence.

One other option allows for the easier exchange of data, especially in assembly plants or manufacturing processes where the same areas of the data carrier are scanned or written at different stations: immediately after detecting the data carrier, the processor performs a predefined action without additional commands, thereby simplifying the overall programming process.

BIS M at a glance

- Tough
- Compact
- Reading and writing
- Simple to integrate



See the Industrial Identification brochure for a large selection of products.

For additional information, visit www.balluff.de/industrial-rfid

For information on other IO-Link and networking products, refer to our "Industrial Networking and Connectivity" catalog or visit us online at www.balluff.com

Easy ID Solutions BIS M

Serial connection technology
RS232 and IO-Link



Serial

RS232

RS422

IO-Link

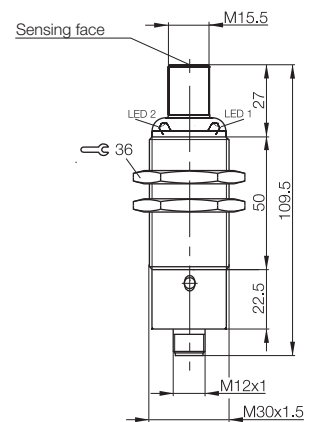
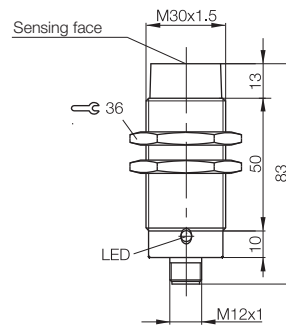
| Description/dimensions | M30x1.5 | M30x1.5 |
|------------------------------------|---------------------------|---------------------------|
| Housing material | Nickel-plated brass | Nickel-plated brass |
| Antenna type | Round | Round |
| Weight | 100 g | 100 g |
| Output signal, serial RS232 | | |
| Ordering code | BIS00EJ | BIS00EK |
| Part number | BIS M-400-007-001-00-S115 | BIS M-400-007-002-00-S115 |
| Connection | 8-pin M12 male | 8-pin M12 male |
| Output signal, serial RS422 | | |
| Ordering code | BIS00M0 | |
| Part number | BIS M-400-007-001-02-S115 | |
| Connection | 8-pin M12 male | |
| Output signal, serial IO-Link | | |
| Ordering code | BIS00LH | BIS00LJ |
| Part number | BIS M-400-045-001-07-S4 | BIS M-400-045-002-07-S4 |
| Connection | M12 male, 4-pin | M12 male, 4-pin |
| Power supply | 18...30 V DC | 18...30 V DC |
| Ripple | ≤ 1.3 V _{pp} | ≤ 1.3 V _{pp} |
| Power supply | ≤ 150 mA | ≤ 150 mA |
| Ambient temperature T _a | 0...+70 °C | 0...+70 °C |
| Degree of protection per IEC 60529 | IP 67 | IP 67 |
| Mounting in steel | Non-flush | Non-flush |
| LED function indicator | Yes | Yes |

BIS M

Serial connection technology, RS232, IO-Link
Data carriers
Wiring diagrams

IO-Link

| Mode | COM 1 | COM 2 | COM 3 | COM 1 | COM 2 | COM 3 |
|---------------|-----------|------------|-------------|-----------|------------|-------------|
| Transfer rate | 4.8 kbaud | 38.4 kbaud | 230.4 kbaud | 4.8 kbaud | 38.4 kbaud | 230.4 kbaud |



Easy ID Solutions BIS M

Serial connection technology
RS232 and IO-Link



Serial RS232

IO-Link

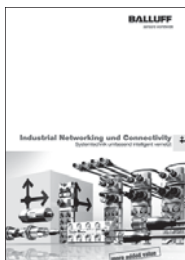
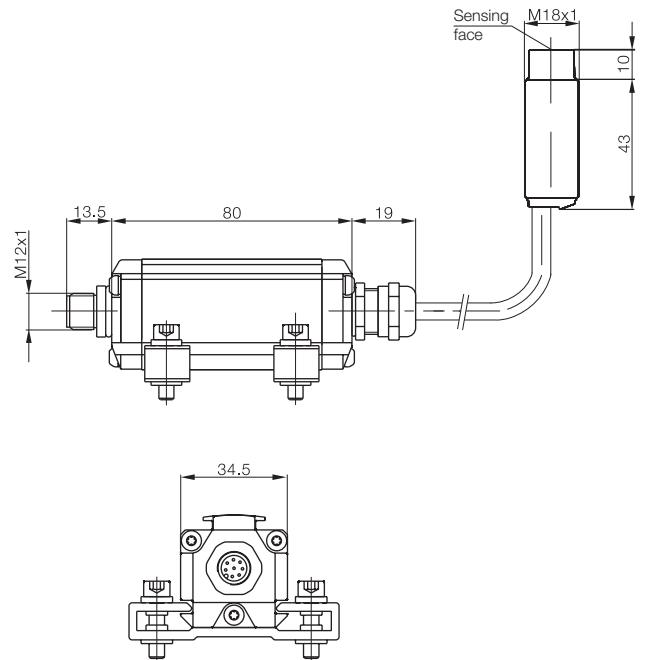
| | | |
|------------------------------------|--|--|
| Description/dimensions | M18x1 | |
| Housing material | AlMgSi _{0.5} /nickel-plated brass | |
| Antenna type | Round | |
| Weight | 220 g | |
| Output signal, serial RS232 | | |
| Ordering code | BIS00EN | |
| Part number | BIS M-402-007-002-00-S115 | |
| Connection | | |
| Output signal, serial IO-Link | | |
| Ordering code | BIS00LW | |
| Part number | BIS M-402-045-002-07-S4 | |
| Connection | M12 male, 4-pin | |
| Power supply | 18...30 V DC | |
| Ripple | ≤ 1.3 V _{pp} | |
| Power supply | ≤ 150 mA | |
| Ambient temperature T _a | 0...+70 °C | |
| Degree of protection per IEC 60529 | IP 67 | |
| Mounting in steel | Non-flush | |
| LED function indicator | Yes | |

IO-Link

| | | | | |
|---------------|-----------|------------|-------------|--|
| Mode | COM 1 | COM 2 | COM 3 | |
| Transfer rate | 4.8 kbaud | 38.4 kbaud | 230.4 kbaud | |

More time for the right challenges

The compact design and ease with which Industrial RFID systems BIS M are implemented is impressive. With a frequency of 13.56 MHz, the systems operate according to ISO 15693/14443 standards and are well equipped for performing tasks in modern production lines.



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Easy ID Solutions BIS M

Serial connection technology
RS232 and IO-Link



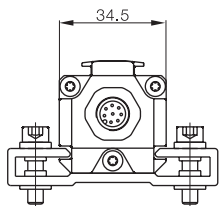
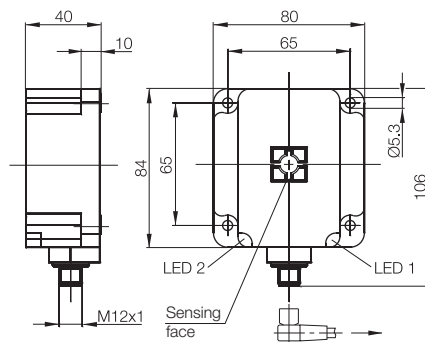
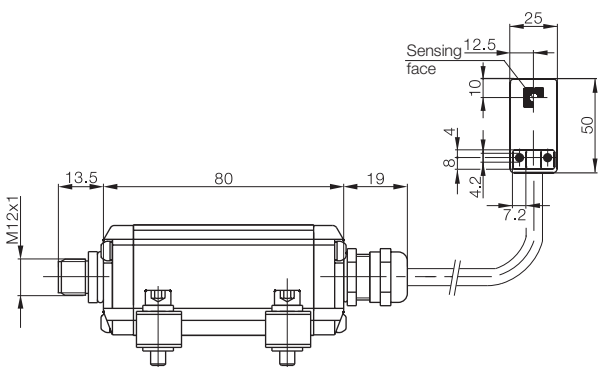
FERROIDENT

| 25×50×10 | 80×80×40 | 80×80×40 |
|-------------------------|---------------------------|---------------------------|
| AlMgSi 0.5/ABS-GF16 | PBT | PBT |
| Round | Round | Rod |
| 220 g | 190 g | 360 g |
| | BIS00EM | BIS00ER |
| | BIS M-401-007-001-00-S115 | BIS M-451-007-001-00-S115 |
| | 8-pin M12 male | 8-pin M12 male |
| | | |
| BIS00M1 | BIS00LK | BIS00LM |
| BIS M-402-045-004-07-S4 | BIS M-401-045-001-07-S4 | BIS M-451-045-001-07-S4 |
| M12 male, 4-pin | M12 male, 4-pin | M12 male, 4-pin |
| 18...30 V DC | 18...30 V DC | 18...30 V DC |
| ≤ 1.3 V _{pp} | ≤ 1.3 V _{pp} | ≤ 1.3 V _{pp} |
| ≤ 150 mA | ≤ 150 mA | ≤ 150 mA |
| 0...+70 °C | 0...+70 °C | 0...+70 °C |
| IP 67 | IP 67 | IP 67 |
| Non-flush | Non-flush | Non-flush |
| Yes | Yes | Yes |

BIS M

Serial connection technology, RS232, IO-Link
Data carriers
Wiring diagrams

| COM 1 | COM 2 | COM 3 | COM 1 | COM 2 | COM 3 | COM 1 | COM 2 | COM 3 |
|-----------|------------|-------------|-----------|------------|-------------|-----------|------------|-------------|
| 4.8 kbaud | 38.4 kbaud | 230.4 kbaud | 4.8 kbaud | 38.4 kbaud | 230.4 kbaud | 4.8 kbaud | 38.4 kbaud | 230.4 kbaud |



Easy ID Solutions BIS M

Data carriers

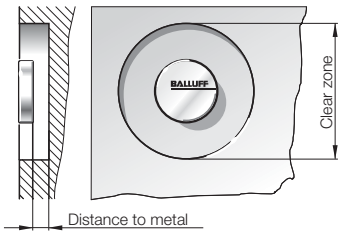


Read head with integrated processor
BIS M-400-007-001-00-S115



| | | | | | | | | | |
|---|----------------|------|------|----------------|------|------|----------------|-------|--|
| Dimensions | Ø 30x1.6 | | | Ø 50x1.6 | | | Ø 12x6 | | |
| Memory capacity in bytes | 752 | | | 752 | | | 752 | | |
| Matching data carrier Non-flush mounting | | | | | | | | | |
| Ordering code | BIS003Y | | | BIS003Z | | | BIS0040 | | |
| Part number | BIS M-101-01/L | | | BIS M-102-01/L | | | BIS M-105-01/A | | |
| Data carrier distance to metal in mm | > 25 | > 10 | > 5 | > 50 | > 15 | > 10 | > 20 | > 5 | |
| Data carrier clear zone in mm | > 100 | > 60 | > 50 | > 150 | > 90 | > 70 | > 100 | > 100 | |
| Write distance in mm | 0-20 | 0-15 | 0-12 | 0-28 | 0-20 | 0-12 | 0-7 | 0-6 | |
| Read distance in mm | 0-20 | 0-15 | 0-12 | 0-28 | 0-20 | 0-12 | 0-7 | 0-6 | |
| Offset in mm | 0 | ±14 | ±10 | ±20 | ±15 | ±6 | ±7 | ±6 | |
| at distance | 5 | ±14 | ±10 | ±20 | ±15 | ±6 | ±7 | ±6 | |
| | 9 | ±14 | ±8 | ±20 | ±15 | ±3 | | | |
| | 12 | ±10 | ±4 | ±20 | ±13 | ±2 | | | |
| | 15 | ±10 | ±2 | ±20 | ±10 | | | | |
| | 16 | ±8 | | ±18 | ±3 | | | | |
| | 18 | ±6 | | ±16 | | | | | |
| | 20 | ±5 | | ±15 | | | | | |
| | 22 | | | ±15 | | | | | |
| | 25 | | | ±10 | | | | | |
| | 30 | | | | | | | | |
| | 32 | | | | | | | | |
| | 35 | | | | | | | | |

Installation note for data carriers



Read head with integral processor
BIS M-400-007-002-00-S115



| | | | | | | | | | | | | |
|---|----------------|------|------|----------------|------|------|----------------|-----|----|----------------|-----|--|
| Dimensions | Ø 30x1.6 | | | Ø 50x1.6 | | | Ø 12x6 | | | Ø 12x6 | | |
| Memory capacity in bytes | 752 | | | 752 | | | 752 | | | 2000 | | |
| Matching data carrier Non-flush mounting | | | | | | | | | | | | |
| Ordering code | BIS003Y | | | BIS003Z | | | BIS0040 | | | BIS0042 | | |
| Part number | BIS M-101-01/L | | | BIS M-102-01/L | | | BIS M-105-01/A | | | BIS M-105-02/A | | |
| Data carrier distance to metal in mm | > 25 | > 10 | > 5 | > 50 | > 25 | > 10 | > 10 | > 0 | | > 10 | > 0 | |
| Data carrier clear zone in mm | > 60 | > 50 | > 50 | > 60 | > 50 | > 50 | > 60 | > 0 | | > 60 | > 0 | |
| Write distance in mm | 0-15 | 0-12 | 0-9 | 0-18 | 0-18 | 0-10 | 0-6 | 0-5 | | 0-9 | 0-5 | |
| Read distance in mm | 0-15 | 0-12 | 0-9 | 0-18 | 0-18 | 0-10 | 0-6 | 0-5 | | 0-9 | 0-5 | |
| Offset in mm | 0 | ±9 | ±6 | ±4 | ±16 | ±12 | ±4 | ±5 | ±4 | ±6 | ±4 | |
| at distance | 5 | ±9 | ±6 | ±4 | ±16 | ±12 | ±4 | ±4 | ±2 | ±6 | ±2 | |
| | 9 | ±8 | ±4 | ±2 | ±12 | ±10 | ±2 | | | ±2 | | |
| | 12 | ±6 | ±2 | | ±8 | ±5 | | | | | | |
| | 15 | ±4 | | | ±8 | ±5 | | | | | | |
| | 16 | | | | ±7 | ±3 | | | | | | |
| | 18 | | | | ±6 | ±2 | | | | | | |
| | 20 | | | | | | | | | | | |
| | 22 | | | | | | | | | | | |
| | 25 | | | | | | | | | | | |

Easy ID Solutions BIS M

Data carriers



| | | | | |
|--------|----------|----------|----------|----------|
| Ø 12x6 | 52x32x11 | Ø 20x2.8 | Ø 30x2.8 | Ø 50x3.3 |
| 2000 | 2000 | 2000 | 2000 | 2000 |

| BIS0042 | | | BIS0043 | | | BIS0044 | | | BIS0045 | | | BIS0046 | | |
|----------------|-------|--|----------------|------|--|----------------|------|------|----------------|------|------|----------------|------|------|
| 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 | | |
| > 20 | > 5 | | > 25 | > 0 | | > 25 | > 10 | > 5 | > 25 | > 10 | > 5 | > 50 | > 15 | > 10 |
| > 100 | > 100 | | > 100 | > 0 | | > 100 | > 60 | > 50 | > 100 | > 60 | > 50 | > 150 | > 90 | > 70 |
| 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 |
| 0-11 | 0-7 | | 0-28 | 0-16 | | 0-20 | 0-15 | 0-8 | 0-28 | 0-18 | 0-10 | 0-38 | 0-25 | 0-15 |
| ±9 | ±6 | | ±16 | ±10 | | ±12 | ±8 | ±6.0 | ±16 | ±10 | ±7 | ±22 | ±16 | ±13 |
| ±8 | ±6 | | ±16 | ±10 | | ±12 | ±8 | ±5.0 | ±16 | ±10 | ±7 | ±22 | ±16 | ±13 |
| ±5 | | | ±14 | ±8 | | ±10 | ±6 | | ±14 | ±8 | ±2 | ±22 | ±14 | ±10 |
| | | | ±14 | ±6 | | ±8 | ±4 | | ±14 | ±7 | | ±20 | ±13 | ±8 |
| | | | ±14 | ±6 | | ±8 | ±2 | | ±14 | ±6 | | ±20 | ±12 | ±6 |
| | | | ±14 | ±4 | | ±5 | | | ±14 | ±3 | | ±20 | ±10 | |
| | | | ±14 | | | ±5 | | | ±14 | ±2 | | ±20 | ±10 | |
| | | | ±14 | | | ±5 | | | ±14 | | | ±20 | ±8 | |
| | | | ±12 | | | | | | ±12 | | | ±20 | ±6 | |
| | | | ±12 | | | | | | ±12 | | | ±20 | ±4 | |
| | | | | | | | | | | | | ±16 | | |
| | | | | | | | | | | | | ±10 | | |
| | | | | | | | | | | | | ±10 | | |

BIS M

Serial connection technology, RS232, IO-Link
Data carriers
 Wiring diagrams



| | | | | | |
|--------|--------|----------|----------|----------|----------|
| Ø 12x6 | Ø 12x6 | 52x32x11 | Ø 20x2.8 | Ø 30x2.8 | Ø 50x3.3 |
| 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |

| BIS0048 | | BIS004A | | BIS0043 | | BIS0044 | | | BIS0045 | | | BIS0046 | | |
|----------------|-----|----------------|-----|----------------|------|----------------|------|------|----------------|------|------|----------------|------|------|
| 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 | > 25 | > 0 | > 25 | > 15 | > 5 | > 25 | > 10 | > 5 | > 50 | > 25 | > 20 |
| > 60 | > 0 | > 60 | > 0 | > 60 | > 0 | > 80 | > 50 | > 50 | > 80 | > 50 | > 50 | > 150 | > 90 | > 70 |
| 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 |
| 0-5 | 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 |
| ±4 | ±3 | ±4 | ±3 | ±14 | ±10 | ±8 | ±6 | ±4 | ±12 | ±8 | ±7 | ±20 | ±14 | ±14 |
| ±3 | | ±3 | ±2 | ±14 | ±8 | ±8 | ±6 | ±4 | ±12 | ±8 | ±4 | ±20 | ±14 | ±14 |
| | | | | ±12 | ±6 | ±6 | ±5 | | ±10 | ±6 | | ±18 | ±14 | ±10 |
| | | | | ±10 | ±4 | ±4 | | | ±10 | ±4 | | ±18 | ±12 | ±6 |
| | | | | ±10 | | ±4 | | | ±10 | | | ±18 | ±12 | ±6 |
| | | | | ±7 | | | | | ±7 | | | ±16 | ±10 | |
| | | | | ±7 | | | | | ±7 | | | ±16 | ±8 | |
| | | | | ±7 | | | | | ±7 | | | ±16 | | |
| | | | | | | | | | | | | ±12 | | |
| | | | | | | | | | | | | ±12 | | |

Easy ID Solutions BIS M

Data carriers



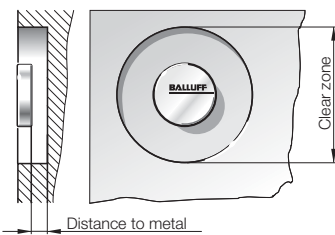
Read head with integrated processor
BIS M-401-007-001-___



| | | | |
|--------------------------|----------|----------|--------------|
| Dimensions | Ø 30×1.6 | Ø 50×1.6 | 85.6×54×0.76 |
| Memory capacity in bytes | 752 | 752 | 752 |

Matching data carrier Non-flush mounting

| Ordering code | BIS003Y | | | BIS003Z | | | BIS0047 | | |
|--------------------------------------|----------------|-------|-------|----------------|-------|-------|----------------|-----|--|
| Part number | BIS M-101-01/L | | | BIS M-102-01/L | | | BIS M-120-01/L | | |
| Data carrier distance to metal in mm | > 50 | > 25 | > 10 | > 50 | > 25 | > 10 | > 80 | | |
| Data carrier clear zone in mm | > 200 | > 150 | > 150 | > 200 | > 150 | > 150 | > 250 | | |
| Write distance in mm | 0-28 | 0-25 | 0-20 | 0-45 | 0-40 | 0-34 | 0-50 | | |
| Read distance in mm | 0-28 | 0-25 | 0-20 | 0-45 | 0-40 | 0-34 | 0-50 | | |
| Offset in mm at distance | | | | | | | | | |
| | 0 | ±22 | ±18 | ±12 | ±30 | ±24 | ±16 | ±30 | |
| | 5 | ±22 | ±18 | ±12 | ±30 | ±24 | ±16 | ±30 | |
| | 9 | ±22 | ±18 | ±10 | ±30 | ±24 | ±16 | ±30 | |
| | 12 | ±22 | ±16 | ±8 | ±30 | ±24 | ±14 | ±30 | |
| | 15 | ±22 | ±16 | ±8 | ±30 | ±24 | ±14 | ±30 | |
| | 16 | ±20 | ±15 | ±6 | ±30 | ±20 | ±12 | ±30 | |
| | 18 | ±20 | ±13 | ±4 | ±30 | ±20 | ±10 | ±30 | |
| | 20 | ±20 | ±12 | ±2 | ±30 | ±20 | ±10 | ±30 | |
| | 22 | ±16 | ±8 | | ±24 | ±18 | ±8 | ±30 | |
| | 25 | ±12 | ±4 | | ±24 | ±18 | ±8 | ±30 | |
| | 30 | | | | ±24 | ±15 | ±6 | ±28 | |
| | 32 | | | | ±20 | ±12 | ±4 | ±24 | |
| | 35 | | | | ±20 | ±10 | | ±22 | |
| | 40 | | | | ±15 | ±5 | | ±18 | |
| | 42 | | | | ±8 | | | ±14 | |
| | 43 | | | | ±5 | | | ±12 | |
| | 45 | | | | | | | ±4 | |
| | 50 | | | | | | | | |
| | 52 | | | | | | | | |
| | 55 | | | | | | | | |
| | 60 | | | | | | | | |





Easy ID Solutions BIS M

Data carriers



| | | | |
|--------|----------|----------|----------|
| Ø 12x6 | Ø 20x2.8 | Ø 30x2.8 | Ø 50x3.3 |
| 2000 | 2000 | 2000 | 2000 |

| BIS0043 | | | BIS0044 | | | BIS0045 | | | BIS0046 | | |
|----------------|------|--|----------------|-------|--|----------------|-------|--|----------------|-------|--|
| BIS M-108-02/L | | | BIS M-110-02/L | | | BIS M-111-02/L | | | BIS M-112-02/L | | |
| > 50 | > 20 | | > 50 | > 30 | | > 50 | > 30 | | > 50 | > 30 | |
| > 200 | > 60 | | > 200 | > 100 | | > 200 | > 100 | | > 200 | > 100 | |
| 0-40 | 0-18 | | 0-30 | 0-18 | | 0-40 | 0-25 | | 0-60 | 0-25 | |
| 0-40 | 0-18 | | 0-30 | 0-18 | | 0-40 | 0-25 | | 0-60 | 0-25 | |
| ±30 | ±16 | | ±25 | ±18 | | ±30 | ±20 | | ±35 | ±25 | |
| ±30 | ±16 | | ±25 | ±18 | | ±30 | ±20 | | ±35 | ±25 | |
| ±30 | ±16 | | ±25 | ±15 | | ±30 | ±20 | | ±35 | ±25 | |
| ±25 | ±16 | | ±20 | ±15 | | ±25 | ±20 | | ±35 | ±25 | |
| ±25 | ±16 | | ±20 | ±12 | | ±25 | ±18 | | ±35 | ±25 | |
| ±25 | ±16 | | ±20 | ±12 | | ±25 | ±18 | | ±35 | ±25 | |
| ±25 | ±14 | | ±20 | ±8 | | ±25 | ±16 | | ±35 | ±25 | |
| ±25 | | | ±15 | | | ±20 | ±14 | | ±35 | ±25 | |
| ±20 | | | ±15 | | | ±20 | ±12 | | ±35 | ±22 | |
| ±20 | | | ±15 | | | ±20 | ±10 | | ±35 | ±22 | |
| ±20 | | | ±10 | | | ±20 | | | ±35 | ±22 | |
| ±15 | | | ±10 | | | ±15 | | | ±35 | ±22 | |
| ±15 | | | | | | ±15 | | | ±35 | ±20 | |
| ±15 | | | | | | ±15 | | | ±35 | | |
| | | | | | | | | | ±25 | | |
| | | | | | | | | | ±25 | | |
| | | | | | | | | | ±25 | | |
| | | | | | | | | | ±25 | | |
| | | | | | | | | | ±25 | | |
| | | | | | | | | | ±25 | | |
| | | | | | | | | | ±25 | | |
| | | | | | | | | | ±25 | | |



Serial connection technology, RS232, IO-Link
Data carriers
 Wiring diagrams

Easy ID Solutions BIS M

Data carriers



Read head with integrated processor
BIS M-402-045-002-...
BIS M-402-045-004-...
BIS M-402-007-00x-...



| | | | | | | | | | | |
|---|----------------|-----|----------------|-----|----------------|-----|----------------|-----|----------------|-----|
| Dimensions | Ø 12x6 | | Ø 12x6 | | Ø 12x6 | | Ø 12x6 | | Ø 20x2.8 | |
| Memory capacity in bytes | 752 | | 2000 | | 2000 | | 2000 | | 2000 | |
| Matching data carrier Non-flush mounting | | | | | | | | | | |
| Ordering code | BIS0040 | | BIS0042 | | BIS0048 | | BIS004A | | BIS0044 | |
| Part number | BIS M-105-01/A | | BIS M-105-02/A | | BIS M-122-01/A | | BIS M-122-02/A | | BIS M-110-02/L | |
| Data carrier distance to metal in mm | > 10 | > 0 | > 10 | > 0 | > 10 | > 0 | > 10 | > 0 | > 25 | > 0 |
| Data carrier clear zone in mm | > 60 | > 0 | > 60 | > 0 | > 60 | > 0 | > 60 | > 0 | > 80 | > 0 |
| Write distance in mm | 0-5 | 0-3 | 0-5 | 0-3 | 0-5 | 0-2 | 0-5 | 0-2 | 0-8 | 0-2 |
| Read distance in mm | 0-5 | 0-3 | 0-5 | 0-3 | 0-5 | 0-2 | 0-5 | 0-2 | 0-8 | 0-2 |
| Offset in mm | 0 | ±3 | ±2 | ±3 | ±2 | ±3 | ±2 | ±3 | ±2 | ±5 |
| at distance | 5 | ±2 | ±2 | ±2 | ±2 | ±2 | ±2 | ±2 | ±5 | ±2 |



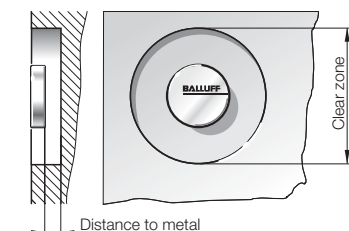
Read head with integrated processor
BIS M-451-007-001-...



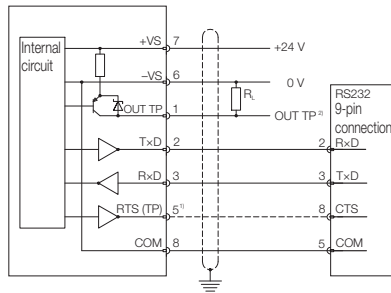
FERROIDENT

| | | | | |
|---|----------------|-------|----------------|-------|
| Dimensions | 40x22x6.5 | | 40x22x6.5 | |
| Memory capacity in bytes | 2000 | | 2000 | |
| Matching data carrier Non-flush mounting | | | | |
| Ordering code | BIS0045 | | BIS0046 | |
| Part number | BIS M-150-02/A | | BIS M-151-02/A | |
| Data carrier clear zone in mm | > 200 | > 200 | > 200 | > 200 |
| Write distance in mm | 0-52 | | 0-52 | |
| Read distance in mm | | | 0-65 | 0-65 |
| Offset in mm | 0 | ±25 | ±26 | ±26 |
| at distance | 5 | ±25 | ±26 | ±26 |
| | 9 | ±25 | ±25 | ±25 |
| | 12 | ±25 | ±25 | ±25 |
| | 15 | ±25 | ±25 | ±25 |
| | 16 | ±25 | ±25 | ±25 |
| | 18 | ±25 | ±25 | ±25 |
| | 20 | ±25 | ±25 | ±25 |
| | 22 | ±25 | ±25 | ±25 |
| | 25 | ±25 | ±25 | ±25 |
| | 30 | ±25 | ±25 | ±25 |
| | 32 | ±25 | ±25 | ±25 |
| | 35 | ±25 | ±25 | ±25 |
| | 40 | ±20 | ±25 | ±25 |
| | 52 | ±8 | ±25 | ±25 |
| | 60 | | ±10 | ±10 |

Installation note for data carriers

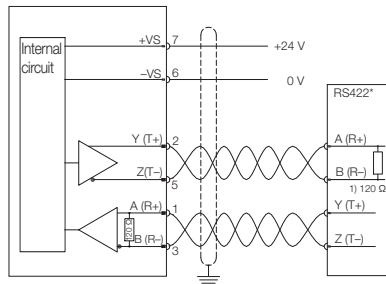


BIS M-4 _-007-...-00-S115
Interface V.24, RS232



- 1) RTS (TP) connection enables the TP display in the program BISCOMRW.EXE.
- 2) OUT TP switches to +24 V when a data carrier is located within the action field.

BIS M-4 _-007-...-02-S115
Interface RS422,
4-wire,
Point to point



- 1) Terminating resistor

* galvanic isolation is recommended for the power supply and RS422 interface!
Data line twisted in pairs.

Contact our TecSupport department or one of our competent **system integration partners**.



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- Identifying and implementing existing systems
- Consulting and installing new systems and networks
- Integrating into existing user interfaces

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Serial connection technology, RS232, IO-Link

Data carriers
Wiring diagrams

Accessories

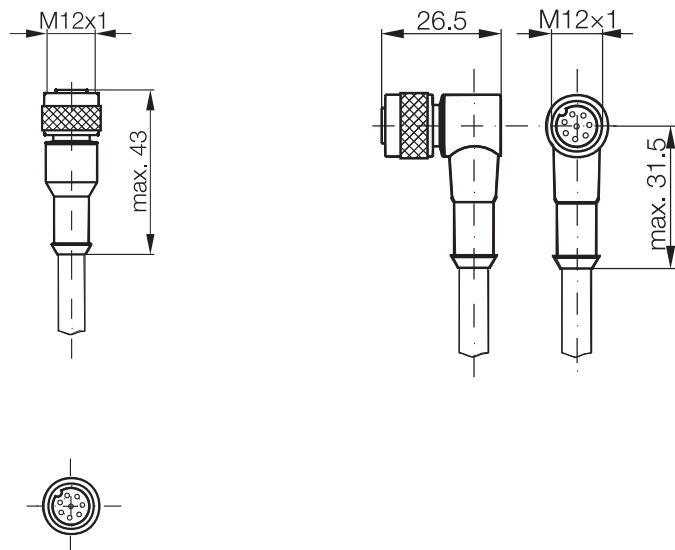
M12 female straight and right-angle connectors, 8-pin, customized assembly



| Connector | BKS-S115-PU-__ | BKS-S116-PU-__ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|--|-----------------------------|-------|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|--|-----|-------|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|
| for Series | BTL6-...-S115 | BTL6-...-S115 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Version | 8-pin, straight, female | 8-pin, right-angle, female | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Part number | BKS-S115-PU-__ | BKS-S116-PU-__ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Housing material | PUR | PUR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contact | Brass | Brass | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contact surface | 0.8 µm gold plated | 0.8 µm gold plated | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Degree of protection per IEC 60529 | IP 67 | IP 67 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Knurled ring | Brass | Brass | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Finish | 2.5 µm Ni | 2.5 µm Ni | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O-ring | Viton | Viton | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cable | Molded-on PUR | Molded-on PUR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. of wires × cross-section | 8×0.25 mm ² | 8×0.25 mm ² | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Version | LIYY-CF11Y | LIYY-CF11Y | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Conductor configuration | 14×0.15 mm | 14×0.15 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Outer diameter | 6.6 ±0.2 mm | 6.6 ±0.2 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Min. bending radius | dynamic 4 × D, static 3 × D | dynamic 4 × D, static 3 × D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pin assignments View of female |  <table border="1"> <thead> <tr> <th>PIN</th> <th>Color</th> </tr> </thead> <tbody> <tr><td>1</td><td>YE</td></tr> <tr><td>2</td><td>GY</td></tr> <tr><td>3</td><td>PK</td></tr> <tr><td>4</td><td>RD</td></tr> <tr><td>5</td><td>GN</td></tr> <tr><td>6</td><td>BU</td></tr> <tr><td>7</td><td>BN</td></tr> <tr><td>8</td><td>WH</td></tr> </tbody> </table> | PIN | Color | 1 | YE | 2 | GY | 3 | PK | 4 | RD | 5 | GN | 6 | BU | 7 | BN | 8 | WH |  <table border="1"> <thead> <tr> <th>PIN</th> <th>Color</th> </tr> </thead> <tbody> <tr><td>1</td><td>YE</td></tr> <tr><td>2</td><td>GY</td></tr> <tr><td>3</td><td>PK</td></tr> <tr><td>4</td><td>RD</td></tr> <tr><td>5</td><td>GN</td></tr> <tr><td>6</td><td>BU</td></tr> <tr><td>7</td><td>BN</td></tr> <tr><td>8</td><td>WH</td></tr> </tbody> </table> | PIN | Color | 1 | YE | 2 | GY | 3 | PK | 4 | RD | 5 | GN | 6 | BU | 7 | BN | 8 | WH |
| PIN | Color | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | YE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | GY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | PK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | RD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | GN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | BU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | BN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | WH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PIN | Color | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | YE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | GY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | PK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | RD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | GN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | BU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | BN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | WH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Please include the type designation in the ordering code!

- 02 = Length 2 m
- 05 = Length 5 m
- 10 = Length 10 m
- 15 = Length 15 m
- 20 = Length 20 m
- 25 = Length 25 m

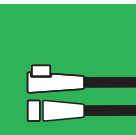


Accessories

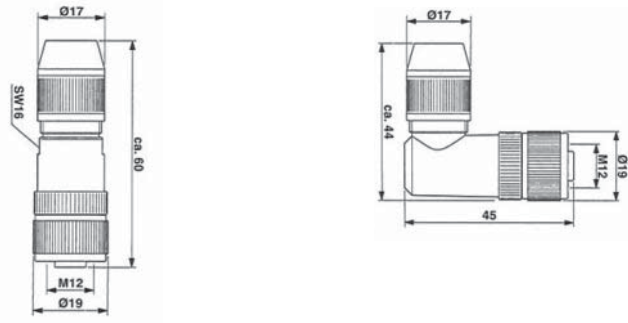
M12 female straight and right-angle connector, 8-pin, customized assembly for AT VARAN profile series



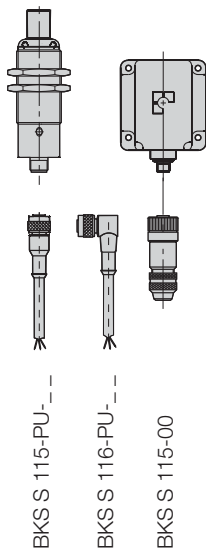
| | | |
|------------------------------------|---------------------------------|---------------------------------|
| Version | M12 female straight, 8-pin | M12 female right-angle, 8-pin |
| Ordering code | BCC04MC | BCC050F |
| Part number | BCC M478-0000-1A-000-43X834-000 | BCC M488-0000-1A-000-43X834-000 |
| Power supply max. U_s | 18...30 V DC | 18...30 V DC |
| Rated operating current I_o | 250 V DC | 250 V DC |
| Cable | 4...8 mm | 4...8 mm |
| No. of wires × cross-section | 8×0.14...0.25 mm ² | 8×0.14...0.25 mm ² |
| Degree of protection per IEC 60529 | IP 67 | IP 67 |
| Ambient temperature T_a | -25...+85° C | -25...+85° C |
| Housing material | Brass | Brass |
| Use | BPI, M8, 3-pin, 8-way, BIC | BPI, M8, 3-pin, 8-way, BIC |
| View of Female/male side | | |



Connectors



BIS M-400-__ BIS M-401-__



BKS S 115-PU-__

BKS S 116-PU-__

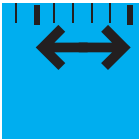
BKS S 115-00

BALLUFF

sensors worldwide



Object Detection



Linear Position Sensing



Industrial Identification



Industrial Networking and Connectivity



Mechanical Accessories



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