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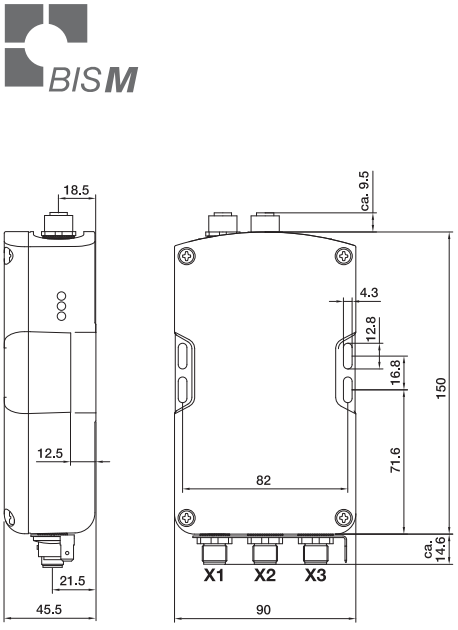
BIS M-6000 RS232

Quick Guide



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Appendix 13

1 Notes to the user

1.1 CE Declaration of Conformity and user safety

Declaration of Conformity

This product was developed and produced in compliance with applicable European standards and directives.

Process Control Equipment
Control No 3TLJ
File No E227256

Note
You can request a Declaration of Conformity separately.
For additional safety instructions, refer to the "Safety" section on page 6

1.2 About this manual

This manual describes processors in the series BIS M-6000-... identification system as well as startup instructions for immediate operation.

1.3 Manual organization

The manual is organized so that the sections build on each other.
Section 2: Basic safety information.
Section 3: The key steps for installing the Identification System.
Section 4: Introduction to the material.
Section 5: Technical data for the processor.
Section 6: Mechanical and electrical connection.
Section 7: User-defined processor settings.
Section 8: Processor and host system interaction.

1.4 Conventions

The following conventions are used in this manual:

Enumerations

Enumerations are shown as a list with em-dashes.
– Entry 1,
– Entry 2.

Actions

Action instructions are indicated by a preceding triangle. The result of an action is indicated by an arrow.
▶ Action instruction 1.
⇒ Action result.
▶ Action instruction 2.

Syntax

Numbers:
– Decimal numbers are shown without additional indicators (e.g. 123),
– Hexadecimal numbers are shown with the additional indicator hex (e.g. 00hex).

ASCII characters:
– The control characters in ASCII code are set in pointed brackets (e.g. <CR>),
– the other ASCII characters are set in apostrophes (e.g. 'L').

Parameters:
Parameters are shown in italics (e.g. CRC_*16*).

Cross-references

Cross-references indicate where additional information on the topic can be found (see Technical Data“ starting page 11).

1.5 Symbols

	**Attention!** This symbol indicates a safety instruction that must be followed.
	**Note, tip** This symbol indicates general notes.
	DC current
	Function ground
	ESD symbol

1.6 Abbreviations

BCC	Block Check Character
BIS	Balluff Identification System
CRC	Cyclic Redundancy Check
EEPROM	Electrically Erasable and Programmable Read Only Memory
EMC	Electromagnetic Compatibility
PC	Personal Computer
PLC	Programmable Logic Controller
LPS	Limited Power Source Class 2

2 Safety

2.1 Intended use

The BIS M-6000 processor is a component of the BIS M Identification System. Within the Identification System it is used to for connecting to a host computer (PLC, PC). It may be used only for this purpose in an industrial environment corresponding to Class A of the EMC Law.
This description is valid for processors in series BIS M-6000-007-….

2.2 General safety notes

Installation and startup
Installation and startup are to be performed only by trained specialists. Any damage resulting from unauthorized manipulation or improper use voids the manufacturer's guarantee and warranty.
When connecting the processor to an external controller, observe proper selection and polarity of the connection as well as the power supply (see User's Guide "Installation" section on page 13).
The processor may be operated only using an approved power supply (see "Technical Data" on page 11).

Operation and testing
The operator is responsible for ensuring that local safety regulations are observed.
When defects and non-clearable faults in the Identification System occur, take the system out of service and secure it against unauthorized use.

2.3 Meaning of the warning notes

Attention!
The pictogram used with the word "Caution" warns of a possible hazardous situation affecting the health of persons or equipment damage. Ignoring these warnings may result in personal injury or equipment damage.
► Always observe the described measures for preventing this danger.

3 Getting Started

3.1 Mechanical connection

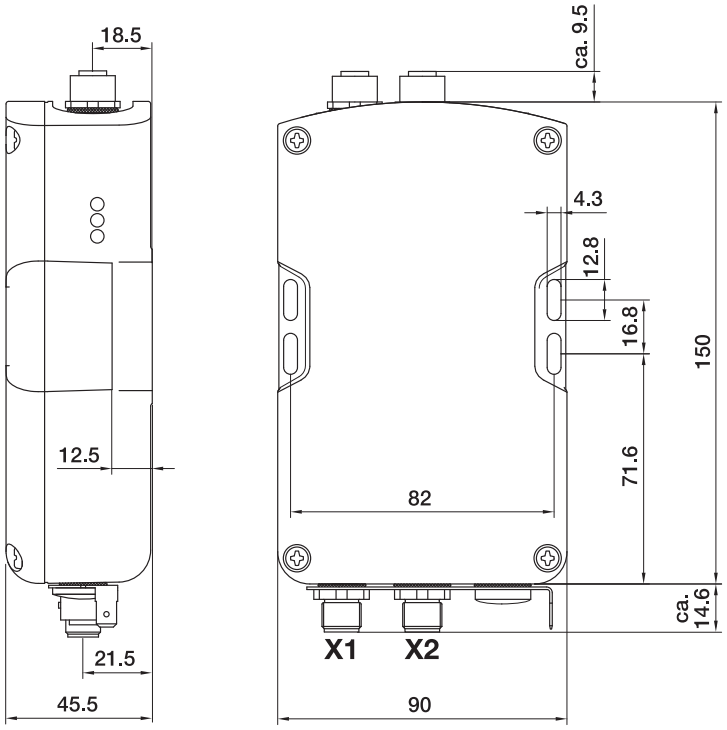


Fig. 1: Mechanical connection BIS M-6000-007-050-00-ST15 (dimensions (in mm)

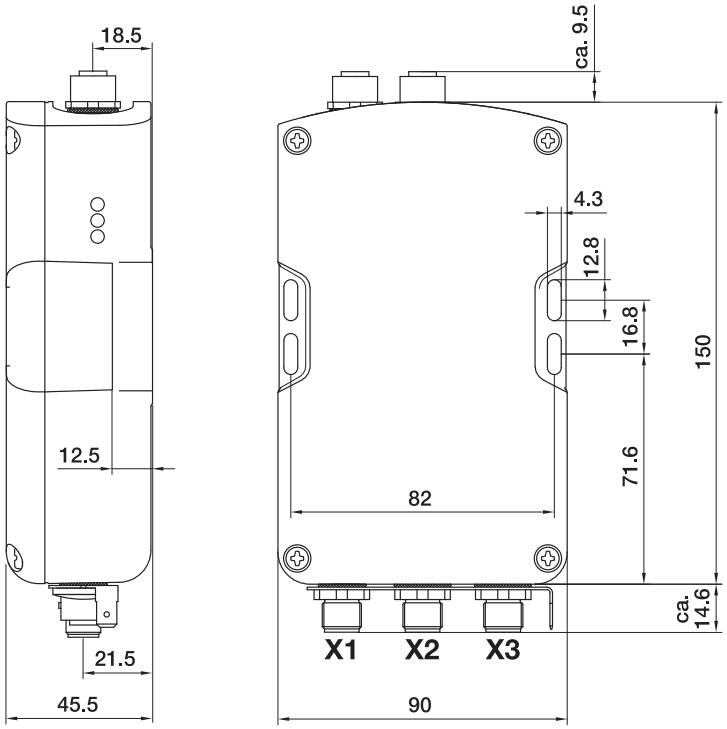


Fig. 2: Mechanical connection BIS M-6000-007-050-00-ST24 (dimensions (in mm)

► Attach processor using 4 M4 screws.
Maximum tightening torque: 9 Nm.

3 Getting Started

3.2 Electrical connection

Note
Make the ground connection either directly or using an RC combination to ground. The DIL switch settings must not be changed (factory default setting: all DIL switches in OFF position).

BIS M-6000-007-050-00-ST15

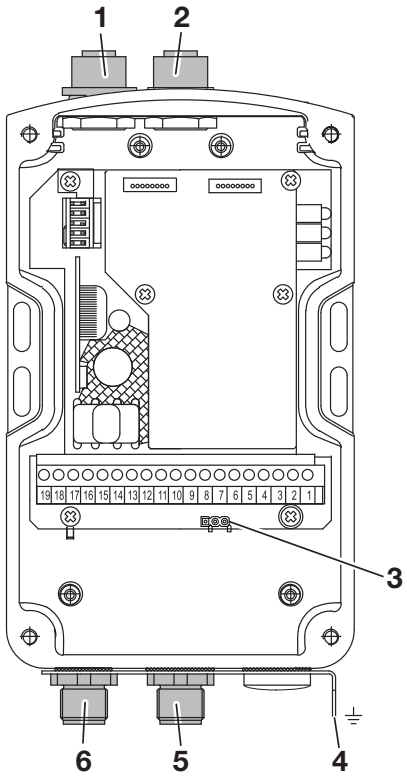
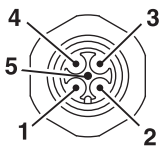


Fig. 3: Electrical connection

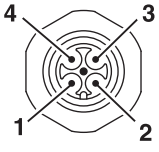
1 Head 2 – Read/write head 2
2 Head 1 – Read/write head 1
3 Shunt connector (see next page)
4 Function ground FE
5 X2 – Serial port RS232
6 X1 – Supply voltage, digital input

X1 - Male panel connector, 5-pin



PIN	Function
1	+Vs
2	–IN
3	–Vs
4	+IN
5	n.c.

X2 - Male panel connector, 4-pin



PIN	Function
1	n.c.
2	TxD
3	COM
4	RxD

► Connect power supply and digital input to port X1 (6).
► Connect data line for host system to port X2 (5).

3 Getting Started

**BIS M-6000-007-
050-00-ST24**

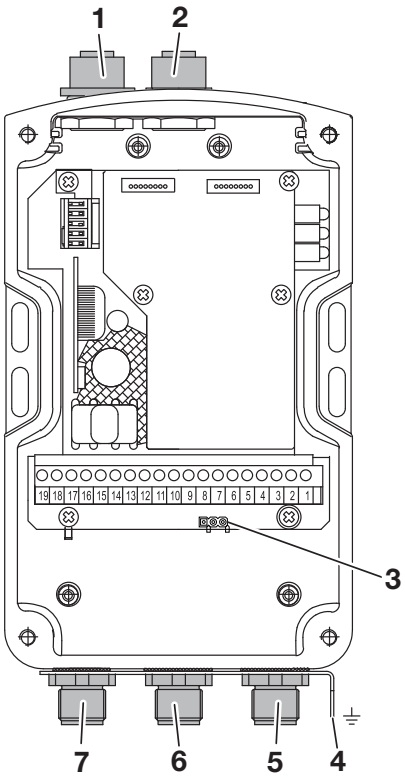
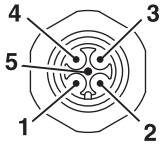


Fig. 2: Electrical connection

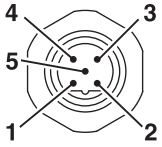
1 Head 2 – Read/write head 2
2 Head 1 – Read/write head 1
3 Shunt connector (see next page)
4 Function ground FE
5 X3 – Serial port RS232
6 X2 – No function
7 X1 – Supply voltage

X1 - Male panel connector, 5-pin



PIN	Function
1	+Vs
2	n.c.
3	–Vs
4	n.c.
5	n.c.

X3 - Male panel connector, 5-pin, B-coded



PIN	Function
1	RTS
2	TxD
3	COM
4	RxD
5	CTS

- ► Connect power supply to port X1 (7).
- ► Connect data line for host system to port X3 (5).

3.3 Configuration

The configuration is made using a computer and the Balluff application “BIS Configuration Software” and stored in the processor. It can be overwritten at any time. The configuration can be saved in a file so that it can be used whenever needed. The application can be found on the included BIS-CD.

4 Basic knowledge

4.1 Function principle of Identification Systems

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

The main components of the BIS M Identification System are:
– Processor,
– Read/write heads,
– Data carriers.

The main areas of application are:
– In production for controlling material flow (e.g. in model-specific processes), in workpiece transport with conveying systems, for acquiring safety-relevant data.
– warehousing for monitoring material movement,
– transporting and conveying..

4.2 Product description

Processor BIS M-6000:
– Plastic housing,
– Connections made using round connectors,
– Two read/write heads can be connected,
– Read/write heads are suitable for dynamic and static operation,
– Power for the system components provided by the processor,
– Power for the data carrier provided by the read/write heads via carrier signal.

4.3 Control function

The processor is the link between data carrier and controlling system. It manages two-way data transfer between data carrier and read/write head and provides buffer storage.
The processor uses the read/write head to write data from the controlling system to the data carrier or reads the data from the carrier and makes it available to the controlling system.

Host systems may be the following:
– A control computer (e.g. industrial PC),
– a PLC.

4.4 Data integrity

In order to ensure data integrity, data transfer between the data carrier and processor can be monitored using a CRC_16 data check.
In CRC_16 data checking a checksum is written to the data carrier which enables the data to be checked for validity at any time.

Advantages of CRC_16 data checking:
– Very high data integrity, even during the non-active phase (data carrier outside the read/write zone)

Disadvantages of CRC_16 data checking:
– Longer read write times
– User data capacity is sacrificed.

Use of the CRC_16 can be parameterized by the user (see User's Guide “Parameter Setting” starting page 20).

4.5 Connection

The processor is connected to the controlling system (PC/PLC) through the serial RS232 port.
Bus connection is possible using an external gateway.

5 Technical Data

5.1 Electrical Data (valid for all device versions)

Operating voltage VS	24 V DC ±10 % LPS Class 2
Ripple	≤ 10 %
Current draw	≤ 400 mA
Device interface	RS232

5.2 Operating Conditions (valid for all device versions)

Ambient temperature	0 °C … 60 °C
EMC – EN 61000-4-2/3/4/5/6 – EN 55011	 – Severity level 4A/3A/4A/2A/3A – Gr. 1, Cl. A
Vibration/shock	EN 60068 Part 2-6/27/29/64/32

5.3 Function Indicators (valid for all device versions)

CT2 Present/operating	LED green/yellow
CT1 Present/operating	LED green/yellow
Ready	LED green

5.4 BIS M-6000-007-050-00-ST15

Dimensions

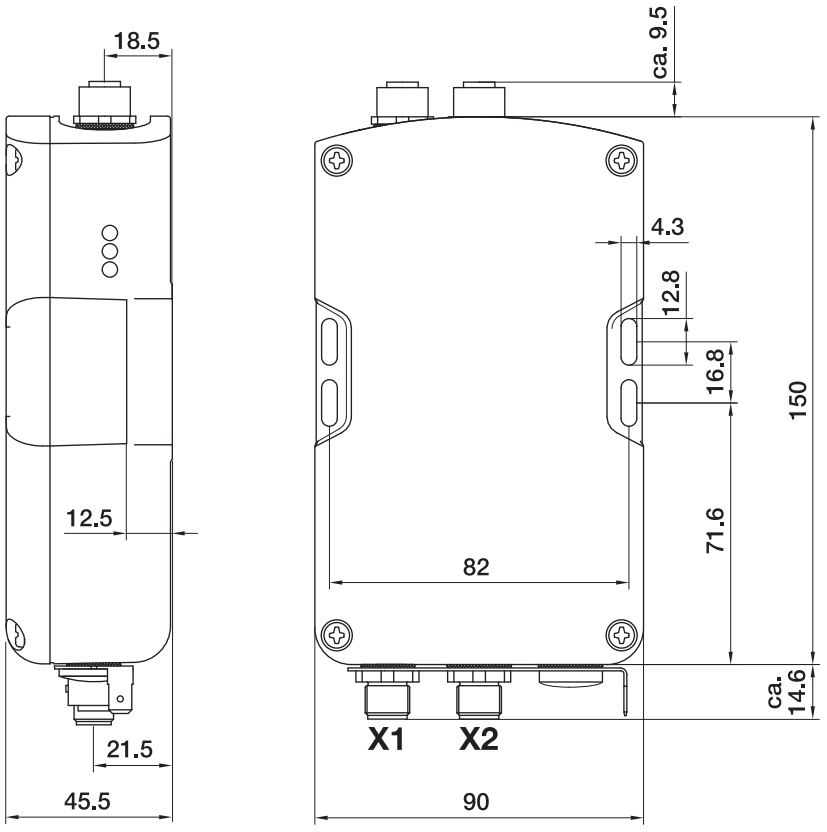


Fig. 5: BIS M-6000-007-050-00-ST15 – dimensions in mm

5 Technical Data

Mechanical data

Housing material	Plastic, ABS
X1 – Supply voltage input	V_S 24 V DC, 5-pin male panel connector, A-coded
X2 – RS232 interface	4-pin male panel connector, A-coded)
Head 1, 2 (read/write head connections)	fixed socket 8-pin
Enclosure rating	IP65 (with connectors)
Weight	approx. 500 g

5.5 BIS M-6000-007-050-00-ST24

Dimensions

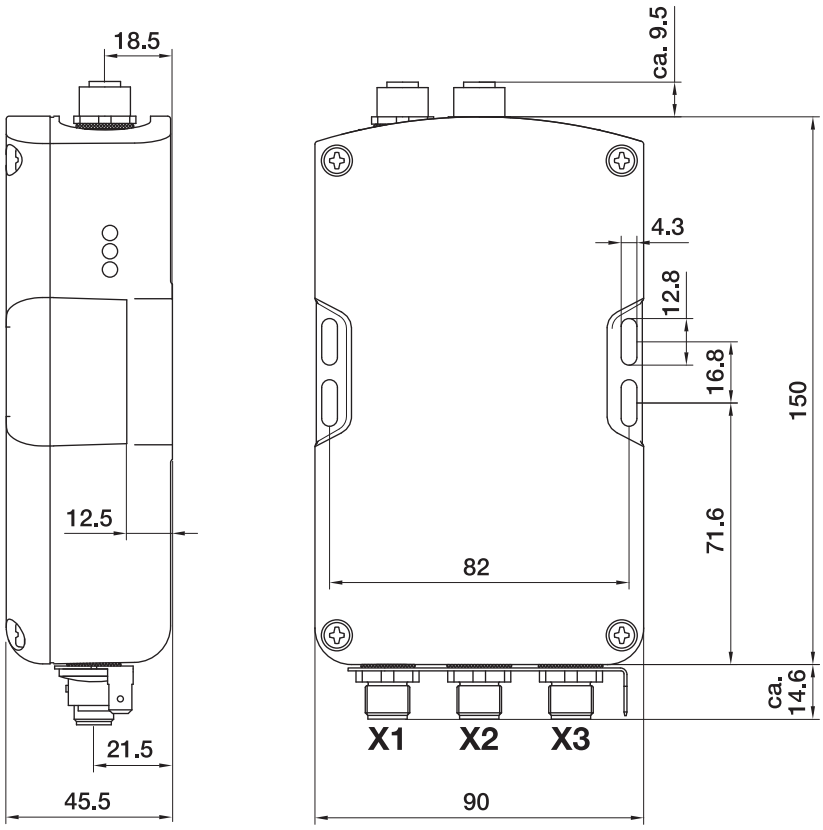


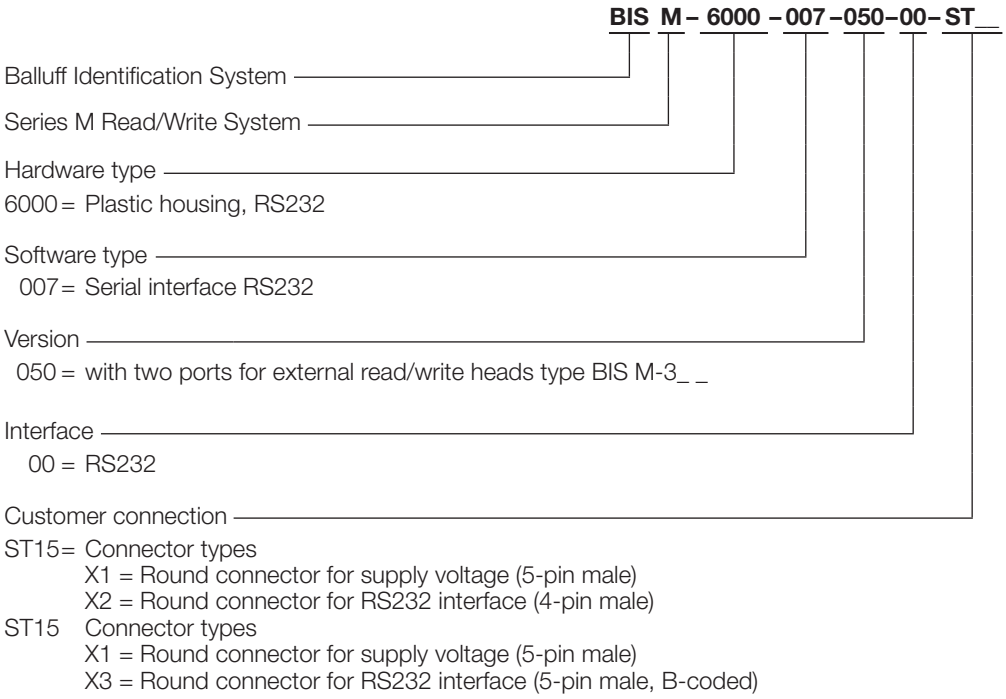
Fig. 3: BIS M-6000-007-050-00-ST24 – dimensions in mm

Mechanical data

Housing material	Plastic, ABS
X1 – Supply voltage input	V_S 24 V DC, 5-pin male panel connector, A-coded
X2 – no function	8-pin male panel connector
X3 – RS232 interface	5-pin male panel connector, B-coded
Head 1, 2 (read/write head connections)	fixed socket 8-pin
Enclosure rating	IP65 (with connectors)
Weight	approx. 500 g

Appendix

Ordering code



Accessories (optional, not included)

Accessories for the BIS M-6000-... can be found in the Balluff BIS catalog.

The catalog can be downloaded on the Internet at "www.balluff.de".

www.balluff.com

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