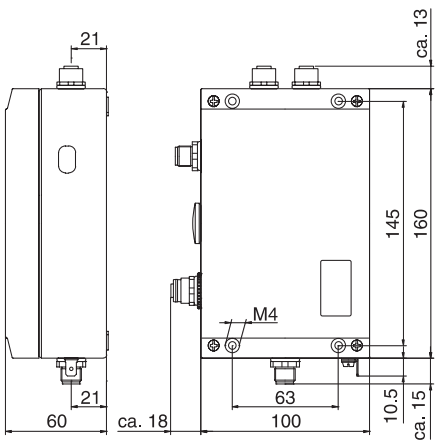
BALLUFF

BIS L-6026 EtherNet/IP

Quick Guide

BIS L



english

www.balluff.com

1 User Notes

1.1 About this Manual

This manual describes the processor for the BIS L-6026 identification system and guides you through startup for immediate operation.

> **Note**
> For the User's manual with a detailed technical description of the processor see to the BIS-CD or www.balluff.com.

1.2 Manual layout

The manual is designed so that each section builds on the previous sections.
Chapter 2: Basic information regarding safety.
Chapter 3: The main steps in installing the identification system.
Chapter 4: Basic knowledge for using the product.
Chapter 5: Technical data for the processor.

1.3 Conventions

The following conventions are used in this manual.

Enumerations

Enumerations are represented as a list with bullet points.
– 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.
⇒ Result of action.
► Action instruction 2.

Notation

Numbers:
– Decimal numbers are represented without additional description (e.g. 123),
– hexadecimal numbers are represented by appending the abbreviation hex (e.g. 00hex).

Directory paths:
Paths in which data are or will be saved/stored are represented in small caps (e.g. Project:\Data Types\Userdefined).

Cross-references

Cross-references indicate where additional information on the topic can be found (see Technical Data starting page 10).

1.4 Symbols

> **Attention**
> This symbol indicates a safety advisory which must be observed.

> **Note, tip**
> This symbol indicates general notes.

1.5 Abbrevations

BIS	Balluff Identification System
CIP	Common Industrial Protocol
DHCP	Dynamic Host Configuration Protocol
EMV	Electromagnetic Compability
MAC-ID	Media Access Control Identifier
ODVA	Open DeviceNet Vendor Association

2 Safety

2.1 Intended use

The BIS L-6026 processor is a component of the BIS L identification system. Within the identification system it is used for linking to a host computer (PLC, PC).
It is intended only for use only in this way and in an industrial environment complying with Class A of the EMC Law.
This description applies to processors in series BIS L-6026-034-….

2.2 General notes on device safety

Installation and startup
Installation and startup are to be carried out only by trained specialists. The manufacturer revokes the right to any warranty or liability claims resulting from unauthorized modifications or improper use. When connecting the processor to an external controller, be sure to observe proper polarity for all connections including the power supply (see section "Getting Started" on page 6). The processor must be operated only using approved power supplies (see section "Technical Data" on page 10).

Operation and testing
It is the responsibility of the operator to ensure that the locally applicable safety regulations are maintained.
In case of defects and faults in the identification system which cannot be remedied, take it out of operation and predect against unauthorized use.

2.3 Meaning of the warning notes

⚠ **Attention!**
The pictogram used with the word "Attention" warns of a possibly hazardous situation for the health of persons or equipment damage.
Disregarding these warnings may result in personal injury or equipment damage.
► Always observe the instructions given for avoiding this hazard.

3 Getting Started

3.1 Mechanical connection

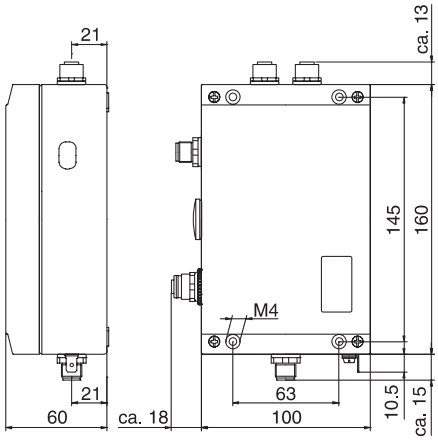


Fig. 1: Mechanical connection

► Attach processor using (4) M4 screws.

3.2 Electrical connection

Note!
Route the ground wire to ground either directly or through an RC combination, depending on the system.
When connecting to the Ethernet, be sure that the connector shield is perfectly connected to the connector body.
Do not change the factory settings of the DIL switches.

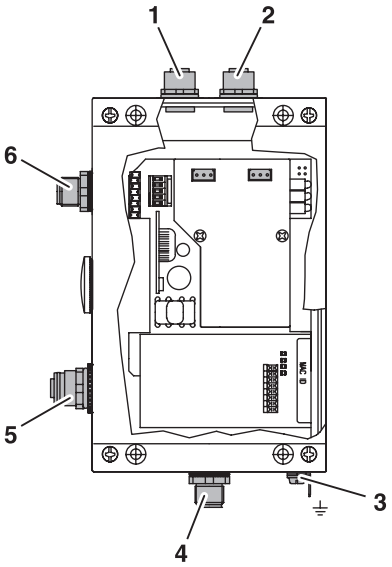
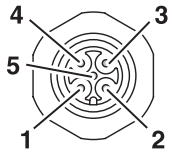


Fig. 2: Electrical connection

1 Head 2 - Read/write head 2
2 Head 1 - Read/write head 1
3 Function ground FE
4 X4 – Service port
5 X3 - Ethernet
6 X1 – Power supply

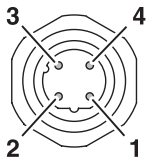
3 Getting Started

X1 - Power supply



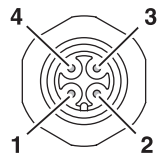
PIN	Function
1	+Vs
2	
3	-Vs
4	
5	

X3 - Ethernet



PIN	Function
1	TD+
2	RD+
3	TD-
4	RD-

X4 - Service port



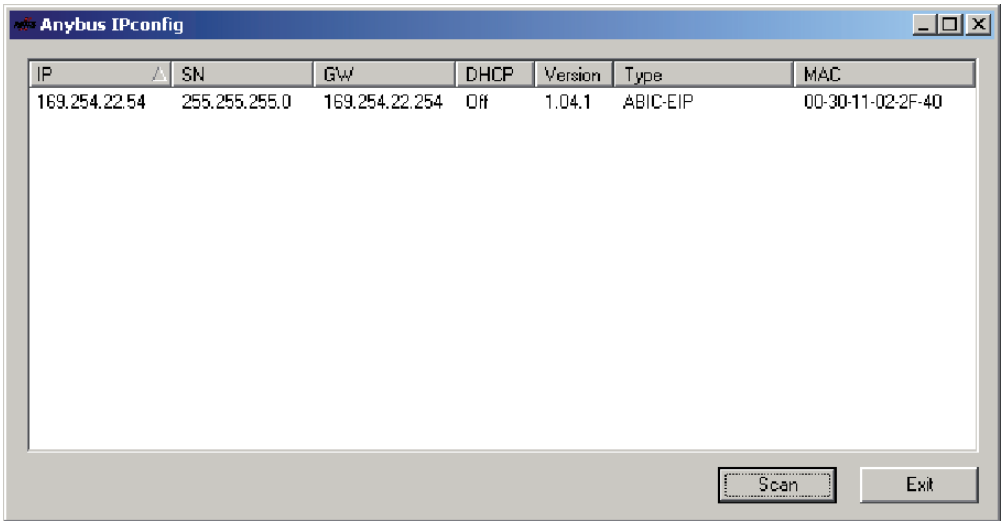
PIN	Function
1	
2	TxD
3	GND
4	RxD

3.3 Bus connection

There are two ways of making the bus connection:
– Setting the IP address, subnet mask, gateway address and selecting DHCP using the application "Anybus IPconfig" on a Windows PC having an Ethernet network card.
– Using a DHCP server or BOOTP software.

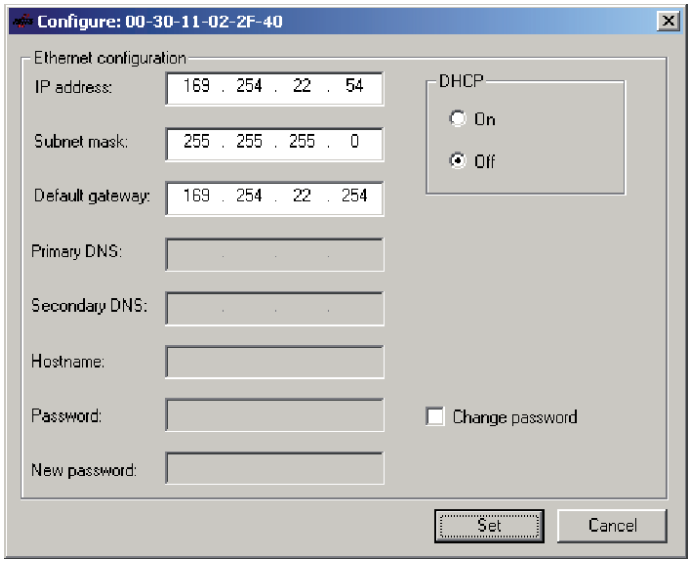
Use the "Anybus IPconfig" program to make the bus connection. The "Anybus IPconfig" application is included on the BIS SD which comes with the processor.

► Start "Anybus IPconfig".
⇒ The subnet is scanned for a connected BIS _-6026. The result of the scan is displayed in the "Anybus IPconfig" window.



► Select the device from the scan list and double-click on it.
⇒ The "Configure" window is opened.

3 Getting Started



- Assign the IP address, subnet mask and gateway address.
- Turn DHCP on/off.
- Confirm your settings by clicking on Set.

4 Basic Knowledge

4.1 Identification system principles of operation

The BIS L identification system belongs to the category of non-contact systems having a read and write function. This enables you to not only read data contained in the data carriers, but also to write new data to them at any point in the process.

The main components of the BIS L identification system are:
– Processor,
– read/write heads,
– data carriers.

The main areas of application are:
– In production for controlling material flow (e.g. for variant-specific processes, workpiece transport using conveying systems, for collecting safety-related data),
– in inventory systems for monitoring inventory movements,
– in transport and conveying technology.

4.2 Processor

BIS L-6026 processor:
– Metal enclosure,
– round connectors for making plug connections,
– capacity for two read/write heads,
– read/write heads are suitable for both dynamic and static operation,
– processor provides power for system components,
– Carrier signal from the read/write heads provides power for the data carrier.

4.3 Bus connection

The processor and host system communicate using EtherNet/IP protocol.

EtherNet/IP is an industrial network standard. The IP in EtherNet/IP stands for "Industrial Protocol". EtherNet/IP uses the open communications protocol "Common Industrial Protocol" (CIP) on the application layer (as per the ISO/OSI reference model).
EtherNet/IP is supported by the network organization "Open DeviceNet Vendor Association".

Use of a switch in full-duplex mode is necessary for collision-free data exchange.

5 Technical Data

5.1 Dimensions

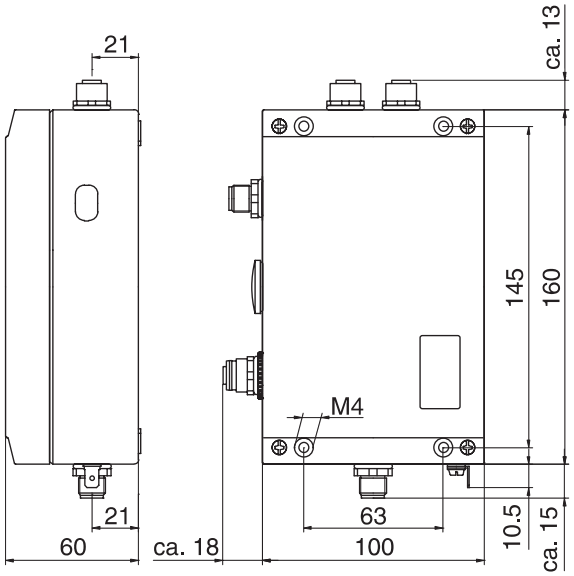


Fig. 3: Dimensions in mm

5.2 Mechanical Data

Housing material	EN AC-AlSi12 (a), DIN EN 1706
X1 – Input	V_S 24 V DC – 5-pin plug
X3 – Ethernet	M12 – 4-pin female, D-coded
X4 – Service port	RS 232 – 4-pin plug
Head 1, 2 (Read/write head connections)	8-pin female
Enclosure rating	IP65 (with plugs connected)
Weight	950 g

5.3 Electrical Data

Operating voltage V_S	24 V DC ±10 %
Ripple	≤ 10 %
Current consumption	≤ 400 mA
Device interface	Ethernet
Service port	RS 232

5 Technical Data

5.4 Operating conditions

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

5.5 Function indicators

The operating states of the identification system, the Ethernet connection and the EtherNet/IP connection are indicated by means of LED's.

Overview of indicators

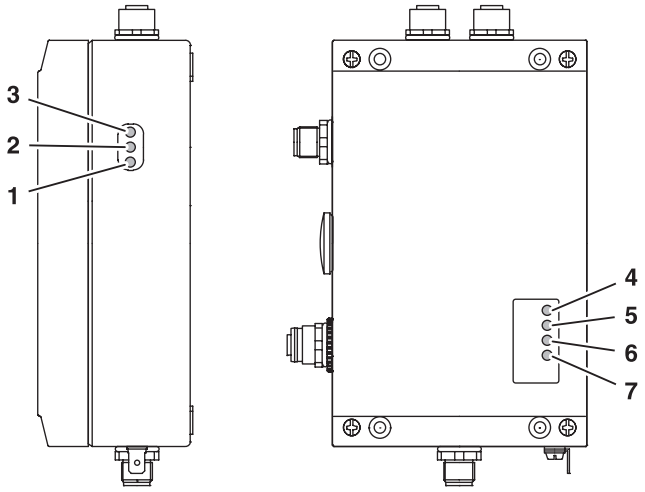


Fig. 4: Function indicators

Identification system

1 CT2 Present/Operating
2 CT1 Present/Operating
3 Ready

Ethernet and EtherNet/IP

4 Data Rate (DR)
5 Module Status (MS)
6 Network Status (NS)
7 Link/Activity (L/A)

Power up

During power-up all LED's for the Ethernet and EtherNet/IP connection are tested as described in the following table.

LED name	LED sequence								
Data Rate (DR)	off							green	red
Module Status (MS)	green	red	green						
Network Status (NS)	off			green	red	off			
Link/Activity (L/A)	off					green	red	off	

Diagnostic

Identification system

Status LED	Meaning
Ready	
green	Operating voltage present; no hardware error

4 Technical Data

Status LED	Meaning
CT1 Present/Operating	
green	Data carrier ready to read/write at Read/Write Head 1
yellow	Read/write job being processed at Read/Write Head 1
yellow flashing	Cable break on Read/Write head 1 or Read/Write Head 1 not connected
off	No data carrier in the active zone of Read/Write Head 1

CT2 Present/Operating	
green	Data carrier ready to read/write at Read/Write Head 2
yellow	Read/write job being processed at Read/Write Head 2
yellow flashing	Cable break on Read/Write head 2 or Read/Write Head 2 not connected
off	No data carrier in the active zone of Read/Write Head 2

Ethernet- and EtherNet/IP connection

Status LED	Meaning
Data Rate	
off	Transmission rate 10 Mbit
green	Transmission rate 100 Mbit
red	-

Module Status	
off	No power to module
green	Device ready
green flashing	Module configuration missing or incorrect
red	Non-clearable error
red flashing	Clearable error

Network Status	
off	No voltage or no IP address
green	Device has at least one EtherNet/IP connection
green flashing	Device has no EtherNet/IP connection
red	An IP address is duplicated
red flashing	One or more EtherNet/IP connections has timed out

Link/Activity	
off	No power
green	Device is connected to Ethernet
green flashing	RX/TX activity
red	-

Appendix

Ordering code

BIS L – 6026 – 034 – 050 – 06 – ST19

Balluff Identification system

Series L Read/Write System

Hardware Type
6026 = Metal enclosure, EtherNet/IP

Software Type
034 = EtherNet/IP

Version
050 = with two ports for external read/write heads BIS L-3_ _

Interface
06 = Ethernet

Customer connection
ST19 = Plug variant
X1 = Round connector for supply voltage (5-pin male)
X3 = Round connector for Ethernet (4-pole female)
X4 = Round connector for RS 232 interface (4-pin male)

Accessories (optional, not included in scope of delivery)

Type		Ordering code
Connector no cable:	for Head 1, Head 2	BKS-S117-00
Connection cable	for Head 1, Head 2; 5 m	BIS L-500-PU-05
	for Head 1, Head 2; 10 m	BIS L-500-PU-10
Connection cable: one end with a straight, molded-in connector (female), one end for user-assembled connector, lenght as desired.	for Head 1, Head 2; 25 m	BIS L-501-PU1-25
Connection cable: one end with a right-angle format, molded-in connector (female), one end for user-assembled connector, lenght as desired.	for Head 1, Head 2; 25 m	BIS L-502-PU1-25
Connector	for X1	BKS-S 79-00
	for X3	BKS-S 182-00
Cover cap	for X4	BES 12-SM-2
	for Head 1, Head 2	Cover cap M12 female (121 671)
Adapter cable M12 D coded to RJ45		BIS C-526-PVC-00,5

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