

**BALLUFF**

# The new networking portfolio.

Discover the future of networking.



# Four product lines to cover different applications.

Black Line



Silver Line



Washdown Line



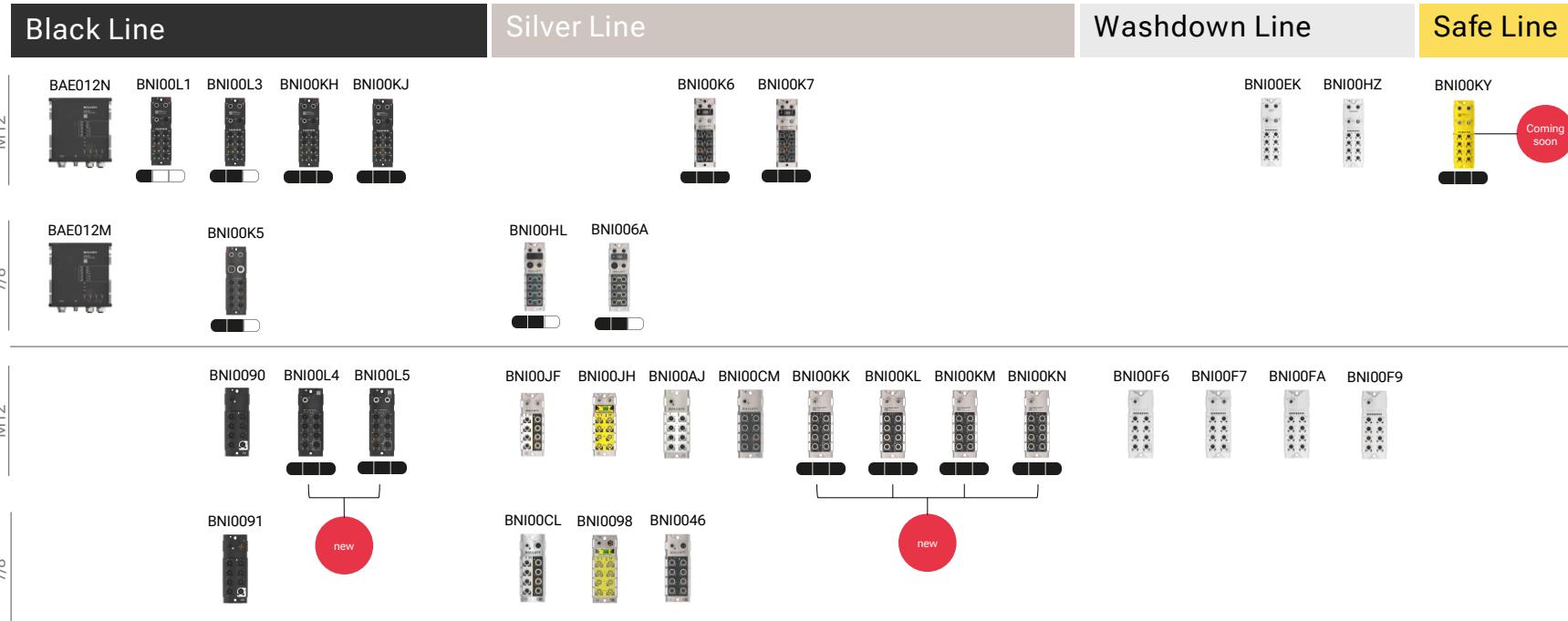
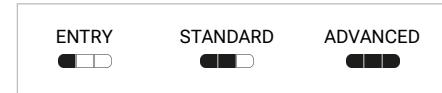
Safe Line



# Feature sets.

	ENTRY	STANDARD	ADVANCED
Multi-protocol	✓	✓	✓
Single-protocol		✓	
M12 L-coded	✓	✓	✓
7/8"		✓	
Intuitive Web User Interface	✓	✓	✓
Daisy chaining	✓	✓	✓
Total current / Max. output current per port	4A / 0.5A	7/8": 9A / 2A M12: 16A / 2A	16A / 4A
MQTT	✓ (no parsing)	✓	✓
Common platform for hard- and software	✓	✓	✓
REST API	✓	✓	✓
Port class type A	✓	✓	✓
Port class type B			✓
Additional IIoT features in development			✓

# An entire world of solutions.





Black Line

# Black line. The first choice for automation.

Choose IO-Link. Choose Black line.

With three different performance classes the Black line masters offer the full range of networking solutions. No matter if you're looking for a solution that offers an entry into the world of IO-Link or the full range of functions – the Black line has something in store for you.



# Black line.

## Main features and benefits.



Seamless integration.  
Thanks to interfaces like IO-Link, Ethernet protocols and IIoT interfaces, you can seamlessly integrate devices into your OT and IT infrastructure.



Scalable.  
IO-Link offers the possibility to easily scale up your automation based on your needs.



Cost effective.  
Save time and money in cabling and installing new devices.



Tailored to your needs.  
Choose between three performance classes to find the module, that best fits your needs.

# Advanced IO-Link Master. Black line.

Designed to solve demanding applications. Seamlessly connect IO-Link devices, high-power Outputs and leverage advanced IIoT features.



- ① Common Platform with enhanced performance and memory
- ② Multi-protocol with PNT, EIP, ECT, Modbus TCP and auto detect function
- ③ Power Concept with M12 L-coded with 16A max.
- ④ Variants with IO-Link Ports Class A & Class B
- ⑤ IIoT Support with REST API, MQTT (parsing)
- ⑥ Flexible Network configuration
- ⑦ Usability via Web UI
- ⑧ Maximum Current output up to 4 A per Pin
- ⑨ Robust, IP67, -25°C to +70°C

# Standard IO-Link Master. Black line.



STANDARD

Offers the power to scale up your automation and solve applications, that require more flexibility.



- ① Common Platform with enhanced performance and memory
- ② Multi-protocol with PNT, EIP, ECT, Modbus TCP and auto detect function
- ③ Power Concept with M12 L-coded with 16A max. or 7/8" with 9A max.
- ④ Variants with IO-Link Ports Class A
- ⑤ IIoT Support with REST API, MQTT (parsing)
- ⑥ Flexible Network configuration
- ⑦ Usability via Web UI
- ⑧ High Current output up to 2 A per Pin
- ⑨ Robust, IP67, -25°C to +70°C

# Entry IO-Link Master. Black line.

Designed to effortlessly integrate IO-Link devices into your automation system and solve standard IO-Link applications.



- ① Common Platform with enhanced performance and memory
- ② Multi-protocol with PNT, EIP, ECT, Modbus TCP and auto detect function
- ③ Power Concept with M12 L-coded with max. 4A per module
- ④ Variants with IO-Link Ports Class A
- ⑤ IIoT Support with REST API, MQTT
- ⑥ Usability via Web UI
- ⑦ Simplified wiring by M12 Power Daisy Chaining
- ⑧ Robust, IP67, -25°C to +70°C

The right solution for any task.



	Entry	Standard	Advanced
Collect IO-Link signals	✓	✓	✓
Transfer data to IT systems	✓	✓	✓
Control actuators up to 2A	○	✓	✓
Control actuators up to 4A	✗	✗	✓
Control high-power outputs	✗	✗	✓

## Masters

	BNI00KH	BNI00KJ	BNI00L3	BNI00L1
				
Performance class				
Type Code	BNI XG5-508-0B5-R067	BNI XG5-538-0B5-R067	BNI XG3-508-0B5-R067	BNI XG1-505-0A5-R067
Industrial Protocols	Multi-protocol	Multi-protocol	Multi-protocol	Multi-protocol
IT-Protocols	REST API, MQTT (parsing)	REST API, MQTT (parsing)	REST API, MQTT (parsing)	REST API, MQTT
Power Plug	M12 L-coded	M12 L-coded	M12 L-coded	M12 L-coded
Digital I/O	8x IO-Link ports Class A 16x DI or 16x DO, PNP	4x IO-Link ports Class A 4x IO-Link ports Class B 12x DI or 12x DO, PNP	8x IO-Link ports Class A 16x DI or 16x DO, PNP	8x IO-Link ports Class A 16x DI or 8x DO, PNP
Housing	Plastic	Plastic	Plastic	Plastic
Display	No	No	No	No

# Advanced IO-Link Hubs. Black line.



- ① Fast communication thanks to COM3 communication standard
- ② Maximum Current output up to 16 A
- ③ Stand-alone: Independent and fast operation possible due to integrated logic functions
- ④ Condition Monitoring functions included to monitor vibration, internal temperature and more
- ⑤ Power Concept with M12 L-coded with 16 A max.
- ⑥ Robust, IP67, -25°C to +60°C
- ⑦ Scalable: Extension port enables easy scale-up of network structures

## Hubs

	BNI00L5	BNI00L4	BNI0091	BNI0090
				
Performance class				
Digital inputs	16x PNP/NPN, Type 1, Type 3	16x PNP/NPN, Type 1, Type 3	16x PNP, Type 3	16x PNP, Type 3
Digital outputs	16x PNP	16x PNP	16x PNP	-
Configurable inputs / outputs	yes	yes	yes	no
Current sum UA, actuator	16 A	4 A	9 A	-
Current sum US, sensor	2 A	2 A	9 A	3.5 A
Process data IN	12 Bytes	12 Bytes	6 Bytes	4 Bytes
Process data OUT	2 Bytes	2 Bytes	2 Bytes	-
Condition Monitoring	Monitoring of internal temperature, vibration and inclination; installation aid	Monitoring of internal temperature, vibration and inclination; installation aid	-	-



Silver Line

## Silver line. To cover a broad range of applications.

Two performance classes. Numerous possibilities.

With a broad range of E/A modules, the silver line offers everything you need to cover not only standard IO-Link applications, but also specific needs, like safety over IO-Link. The IO-Link masters in zinc-die cast are not only robust, they can also come with a display for better usability. Choose between the Standard and Advanced performance to find the perfect fit for your application.



# Silver line.

## Main features and benefits.



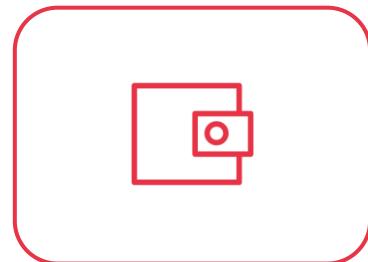
Cover any application.  
Draw from the full range of E/A modules to also cover more specific applications.



Comfortable usability.  
With an integrated display, a lot of IO-Link masters in the Silver Line offer the possibility to configure devices on-site.



Seamless integration.  
Thanks to interfaces like IO-Link, Ethernet protocols and IIoT interfaces you can seamlessly integrate devices into your OT and IT infrastructure.



Cost effective.  
Save time and money in cabling and installing new devices.



# Advanced IO-Link Master. Silver line.

Designed to solve demanding applications. Seamlessly connect IO-Link devices, high-power Outputs and leverage advanced IIoT features.



- ① Common Platform with enhanced performance and memory
- ② Multi-protocol with PNT, EIP, ECT
- ③ Power Concept with M12 L-coded with 16A max.
- ④ Variants with IO-Link Ports Class A & Class B
- ⑤ IIoT Support with REST API, MQTT (parsing)
- ⑥ Flexible Network configuration
- ⑦ Usability via built-in Display & Web UI
- ⑧ Maximum Current output up to 4 A per Pin
- ⑨ Robust, IP67, -5°C\* to +70°C

\* -25°C w/o display functionality



# Standard IO-Link Master. Silver line.

Offers the power to scale up your automation and solve applications, that require more flexibility.



- ① Common Platform with higher performance
- ② Multi-protocol with PNT, EIP, ECT
- ③ Power Concept with 7/8" with 9A max.
- ④ Variants with IO-Link Ports Class A
- ⑤ IIoT Support with REST API, MQTT (parsing)
- ⑥ Usability via Web UI
- ⑦ High Current output up to 2 A per Pin
- ⑧ Robust, IP67, -5°C\* to +70°C

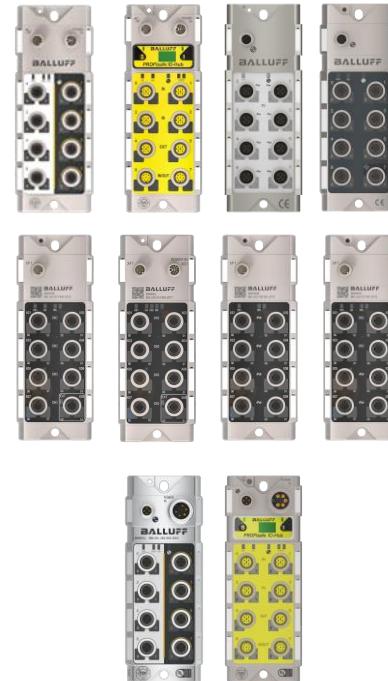
\* -25°C w/o display functionality

## Silver line.

Scale up your automation solution with the E/A modules.

Combine the Silver line IO-Link masters with a range of E/A modules in order to

- Reduce shielded cable management
- Connect safety devices to your application via safety over IO-Link
- Safely switch off actuators
- Expand your automation by integrating more sensors and actuators



## Masters

	BNI00K6	BNI00K7	BNI00HL	BNI006A
				
Performance class				
Type Code	BNI XG5-508-1B5-Z067	BNI XG5-538-1B5-Z067	BNI PG3-508-0C5-Z015	BNI EIP-508-105-Z015
Industrial Protocols	Multi-protocol	Multi-protocol	Single protocol (Profinet)	Single protocol (EtherNet/IP)
IT-Protocols	REST API, MQTT (parsing), OPC UA*	REST API, MQTT (parsing), OPC UA*	REST API, MQTT	REST API, MQTT
Power Plug	M12 L-coded	M12 L-coded	7/8"	7/8"
Digital I/O	8x IO-Link ports Class A 16x DI or 16x DO, PNP	4x IO-Link ports Class A 4x IO-Link ports Class B 12x DI or 12x DO, PNP	8x IO-Link ports Class A 16x DI or 16x DO, PNP	8x IO-Link ports Class A 16x DI or 16x DO, PNP
Housing	Metal	Metal	Metal	Metal
Display	Yes	Yes	No	Yes

# Advanced IO-Link Hubs. Silver line.



- ① Fast communication thanks to COM3 communication standard
- ② Maximum Current output up to 16 A
- ③ Stand-alone: Independent and fast operation possible due to integrated logic functions
- ④ Condition Monitoring functions included to monitor vibration, internal temperature and more
- ⑤ Power Concept with M12 L-coded with 16 A max.
- ⑥ Robust, IP67, -25°C to +60°C
- ⑦ Scalable: Extension port enables easy scale-up of network structures
- ⑧ Versatile: Variants with analog inputs available

## Hubs

	BNI00KK	BNI00KL	BNI00KM	BNI00KN
				
Performance class				
Digital inputs	16x PNP/NPN, Type 1, Type 3	16x PNP/NPN, Type 1, Type 3	-	4x PNP, Type 1, Type 3
Digital outputs	16x PNP	16x PNP	-	4x PNP
Analog inputs	-	-	8x Analog, voltage/analog, current	4x Analog, voltage/analog, current
Configurable inputs / outputs	yes	yes	-	yes
Current sum UA, actuator	4 A	16 A	-	4 A
Current sum US, sensor	2 A	2 A	4 A	4 A
Process data IN / OUT	12 Bytes / 2 Bytes	12 Bytes / 2 Bytes	23 Bytes / -	17 Bytes / 1 Byte
Condition Monitoring	Monitoring of internal temperature, vibration and Inclination; installation aid			



Washdown Line

# Washdown line. For IP69K environments.

Powerful and robust.

Thanks to an IP69K housing design for washdown applications these IO-Link network modules are ideal wherever regular cleaning cycles are performed. Different units allow you to meet your specific demands and requirements.



# Washdown line.

## Main features and benefits.



Robust  
IP69K housing to cover all  
washdown applications.



Resistant  
Against a range of cleaning  
agents, acids,  
temperatures, water and  
more. Ecolab certified.



Cost effective  
Save time and money in  
cabling and installing new  
devices.

# IO-Link Master. Washdown line.

»»» Designed to solve applications in harsh IP69K environments.



- ① New Platform enhanced performance and memory
- ② Power Concept with M12 L-coded with 16A max.
- ③ Flexible Network configuration
- ④ Maximum Current output up to 4 A per Pin
- ⑤ Robust , IP69K, -25°C to +70°C

\* -25°C w/o display functionality

# Smart sensor integration for automated cleaning in beverage production

## The challenge

Automated cleaning in beverage production that meets the hygiene standards.

## The solution

- Integration of smart sensors that track vibration, temperature, streamlining maintenance schedules
- Seamless sensor-to-network communication via robust networking masters and E/A modules of the Washdown line, enabling a data-enriched production environment



# Masters

BNI00EK

BNI00HZ



Type Code	BNI PNT-508-055-P067	BNI XG5-538-1B5-Z067
Industrial Protocols	Single protocol (Profinet)	Single protocol (Ethernet/IP)
IT-Protocols	REST API	REST API
Power Plug	M12 L-coded	M12 L-coded
Digital I/O	8x IO-Link ports Class A 16x DI or 16x DO, PNP	8x IO-Link ports Class A 16x DI or 16x DO, PNP
Housing	Plastic	Plastic
Display	No	No
Special characteristics	Washdown Plus Washdown	Washdown



Coming  
soon

Safe Line

# Safe line. For functional safety.

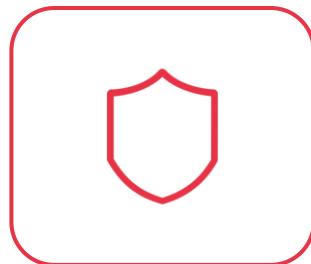
## IO-Link safety.

With IO-Link safety, the safe line offers a new state-of-the-art technology. Leverage the full potential of IO-Link, also in functional safety. Seamlessly integrate standard IO-Link-devices as well as devices with IO-Link safety into your automation with the IO-Link safety master from Balluff.

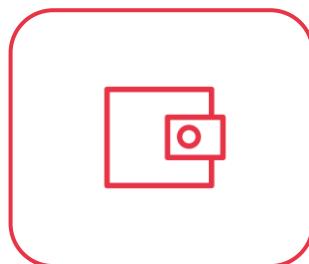


# IO-Link safety.

## Main features and benefits.



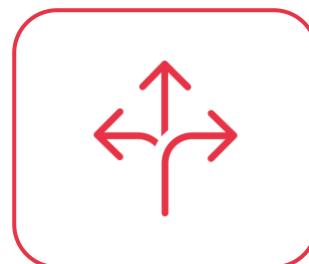
Safe.  
state of the art in  
functional safety and  
cyber security.



Cost-effective.  
quick and easy  
commissioning, fast  
fault diagnosis, simple  
replacement.



Standardized.  
can be used  
internationally, fulfils  
all necessary laws and  
regulations.

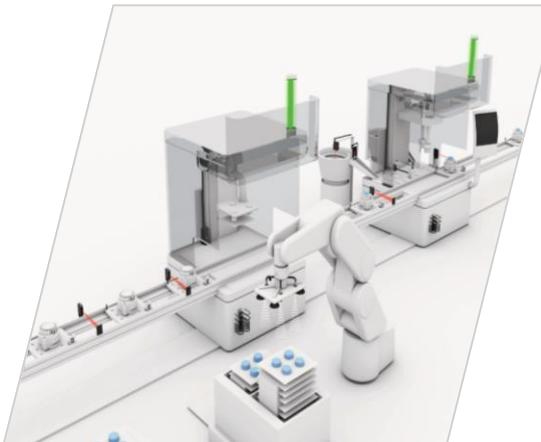


Flexible.  
compatible with a wide  
range of safety and  
standard components,  
efficient system  
expansion.

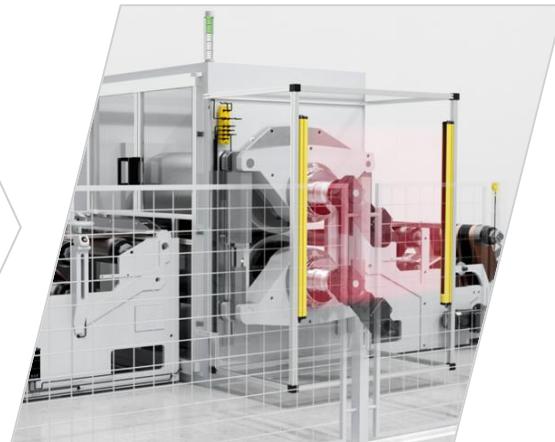


Simple to use.  
simple and intuitive  
operating concept via  
web server, NFC and  
the Balluff Engineering  
Tool.

# Is this the right product for you?



Application  
Do you already use IO-Link?



Safety required  
Do you want to add a functional safety part to this application? Or do you want to decentralize your application?



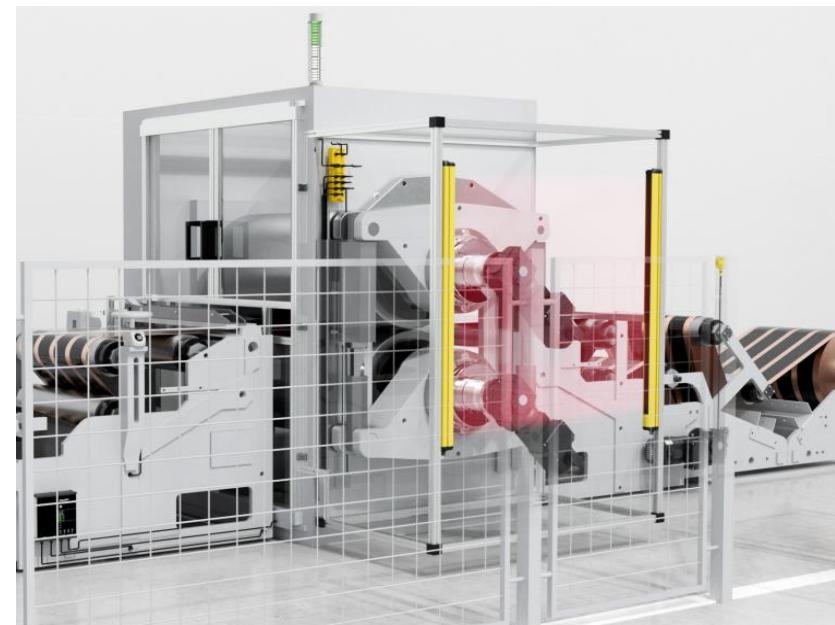
The right product  
Then the IO-Link safety module is the right product for you.

# Key Application

SAFE application in automotive production for vehicle assembly lines, body shop lines and battery production.

## Your Benefits:

- State of the art for the realization of safe applications.
- Safe design / self-monitoring and diagnostics.
- Mission time > 20 years
- Easy commissioning thanks to IO-Link Safety.
- Suitable for harsh environments and direct on-machine mounting.





*innovating automation*

[www.balluff.com](http://www.balluff.com)