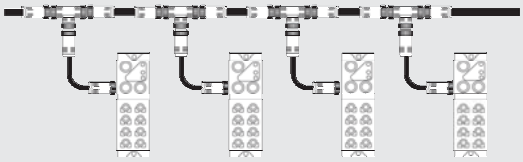
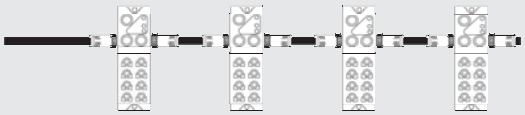
With Profinet, industrial automation has made a significant advancement. Profinet operates on an Ethernet basis and is considerably faster than Profibus. Other advantages: Profinet can be fully integrated from the control level to the drive. Even in harsh environments. With Profinet, you also directly link drives and safety technology to the network environment.
You can also combine Profinet with Profibus with no additional work. Connection is also extremely simple with IO-Link. IO-Link not only ensures freedom of installation, but also guarantees simplified wiring, integrated diagnostics and central configuration. Time savings and tangible cost benefits included. Connectivity helps to ensure improved process quality.

Profinet
Product topology

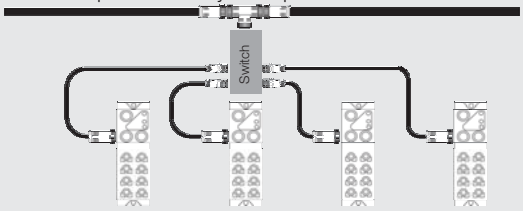
Trunk and drop
- Very simple troubleshooting
- A single device can be disconnected without disrupting the network
- Extra cable requirements result in higher costs



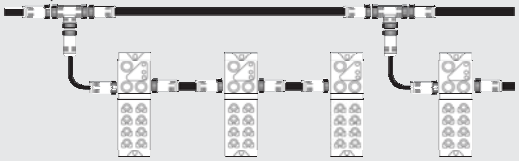
Connected in series
- Difficult troubleshooting
- Disconnecting a device interrupts the network
- Lower costs due to fewer cabling components



Star
- Simple troubleshooting
- Ideal for large I/O clusters
- Less expensive – only one splitter box needed



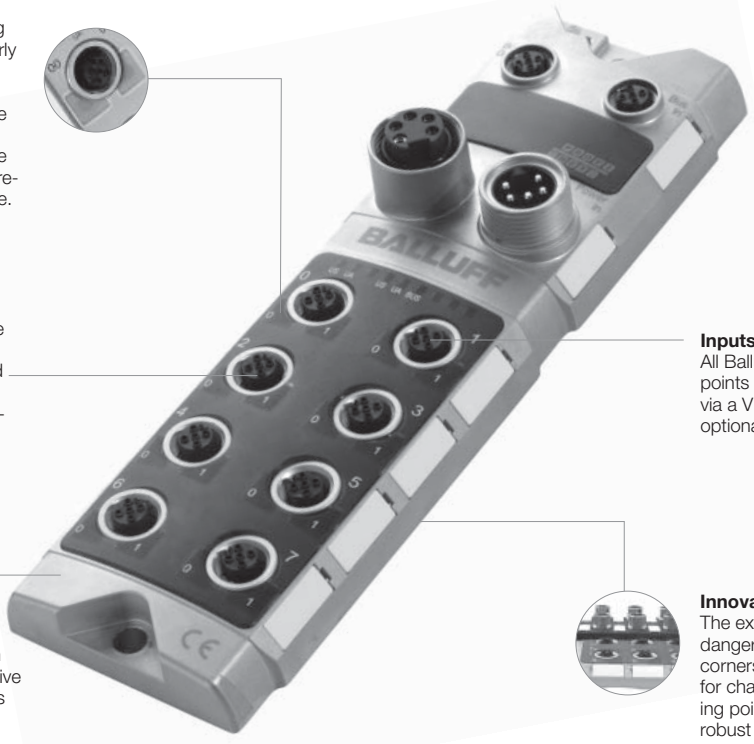
Mixed topology
- Creation of logical groups results in relatively simple troubleshooting
- Popular method – ideal cost/benefit ratio



Clearly visible status LEDs
Low-quality LEDs that are often difficult to identify under demanding production conditions perform poorly when used in high-speed applications. Unlike Balluff status LEDs, which are large, bright, highly visible and provide maximum assistance. Balluff quality will help you complete setup and maintenance tasks and reduce machine downtimes with ease.

Powerful and safe outputs
With an output current of up to **2 amps**, Balluff output modules are capable of driving almost any load. Each output also offers an overload protection with LED indicator and a memory feature for easy troubleshooting.

Robust, solid metal housing
The fully encapsulated housing can withstand impacts, shaking, corrosive fluids, incorrect assembly as well as people treading on it and costs the same as a plastic housing.



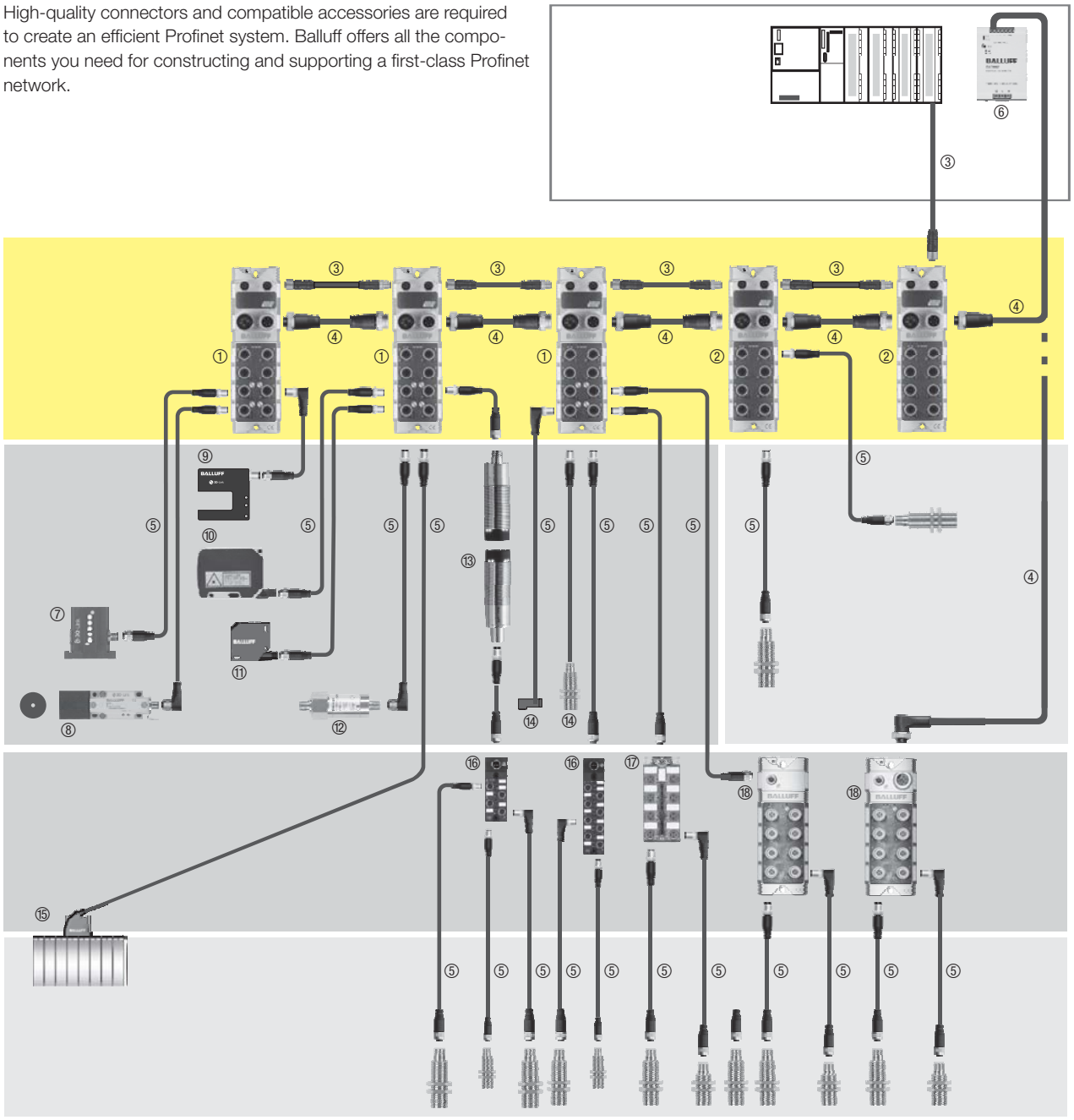
Inputs with high density
All Balluff input blocks offer two input points for each connector, accessed via a V splitter. A Desina output is also optionally available via pin 2.

Innovative housing design
The extra-flat profile reduces potential dangers posed by cables. Rounded corners offer highly visible locations for channel markers and two mounting points are sufficient to secure the robust metal housing.

Profinet
Product topology

more added value
- Optimal integration
- Reliable information flow
- High-performance automation

High-quality connectors and compatible accessories are required to create an efficient Profinet system. Balluff offers all the components you need for constructing and supporting a first-class Profinet network.



IO-Link

⑦ **BNS IO-Link multiple position switches**	Page 146
⑩ **BIS IO-Link RFID system**	Page 140
⑪ **BGL IO-Link through-beam fork sensors**	Page 135
⑥ **BOD IO-Link laser distance sensors**	Page 137
⑪ **BFS IO-Link color sensors**	Page 136
⑫ **BSP IO-Link pressure sensors**	Page 152
⑮ **BIC IO-Link inductive couplers**	Page 187
⑪ **BAW IO-Link inductive distance sensor**	Page 138
⑫ **BNI IO-Link valve terminal connectors**	Page 150
③ **BNI M8 IO-Link sensor hubs**	Page 126
④ **BNI M12 IO-Link sensor hubs**	Page 132
④ **Metal IO-Link sensor hubs**	Page 130

① **BNI Profinet IO-Link modules**	Page 34
② **BNI Profinet modules**	Page 35
③ **BCC bus cables**	Page 40
④ **BCC power cables**	Page 38
⑩ **BCC connection cables**	Page 246
⑪ **BAE power supplies**	Page 274

Profinet
IO-Link modules

more added value
With four integral IO-Link ports!

For high-performance applications, consider the PROFINET IO-Link master interface, which also supports isochronal real-time (IRT) using ERTEC 200.

The module includes four IO-Link master ports that can be configured and used fully independently of one another. All IO-Link ports support COM1, COM2, COM3 (3-wire only) as well as SIO mode.

The IO-Link ports also include an additional input or input/output via pin 2 so that SIO mode allows the connection of antivalent NO/NC and DESINA sensors.

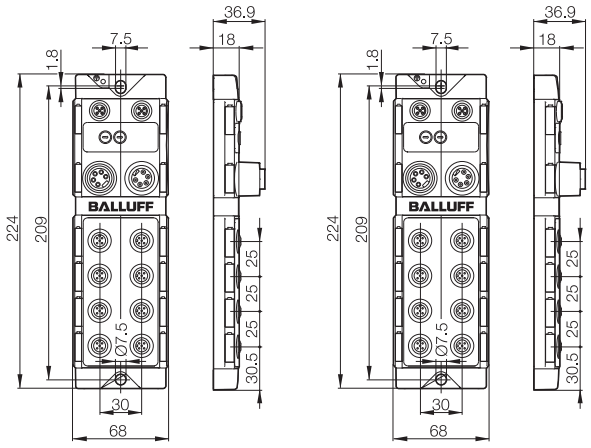
You get four additional standard IO ports with eight inputs or eight freely configurable inputs/outputs for standard sensors and actuators up to 2 A.

Fieldbus	Profinet	Profinet	
IO-Link	Master	Master	
Version	4× IO-Link, 12× I	4× IO-Link, 12× I	
Ordering code	**BNI0025***	**BNI001C**	
Part number	BNI-PNT-501-000-Z002	BNI-PNT-502-000-Z002	
Power supply U_S	18...30 V DC	18...30 V DC	
Function indicator	BUS RUN	BUS RUN	
Power indicator	U_A, U_S, undervoltage	U_A, U_S, undervoltage	
Connection: Fieldbus	M12, D-coded	M12, D-coded	
Connection: operating voltage	7/8"	7/8"	
Connection: I/O ports	M12, A-coded	M12, A-coded	
No. of I/O ports	8	8	
No. of inputs	12	12	
No. of outputs		12	
Configurable	No	Yes	
Max. load current sensors/channel	200 mA	200 mA	
Max. output load current		1.6 A/2 A	
Port status indicator	Yellow LED	Yellow LED	
Port diagnostic indicator	Short circuit/overload: red LED	Short circuit/overload: red LED	
Total current $U_{Actuator}$	< 9 A	< 9 A	
Total current U_{Sensor}	< 9 A	< 9 A	
Degree of protection as per IEC 60529	IP 67 (when connected)	IP 67 (when connected)	
Operating temperature T_a	–5...+55 °C	–5...+55 °C	
Storage temperature range	–25...+85 °C	–25...+85 °C	
Weight	Approx. 580 g	Approx. 580 g	
Mounting	2 mounting holes	2 mounting holes	
Dimensions	225×68×36.9 mm	225×68×36.9 mm	
Housing material	Nickel-plated Gd-Zn	Nickel-plated Gd-Zn	

IO-Link

No. of IO-Link master ports		4× master	4× master
Operating modes (3-wire)		SIO, COM 1, COM 2, COM 3	SIO, COM 1, COM 2, COM 3
Indicators	Communication	Green LED	Green LED
	Error	Red LED	Red LED
Max. load current for IO-Link device		1.6 A	1.6 A

*Module on request



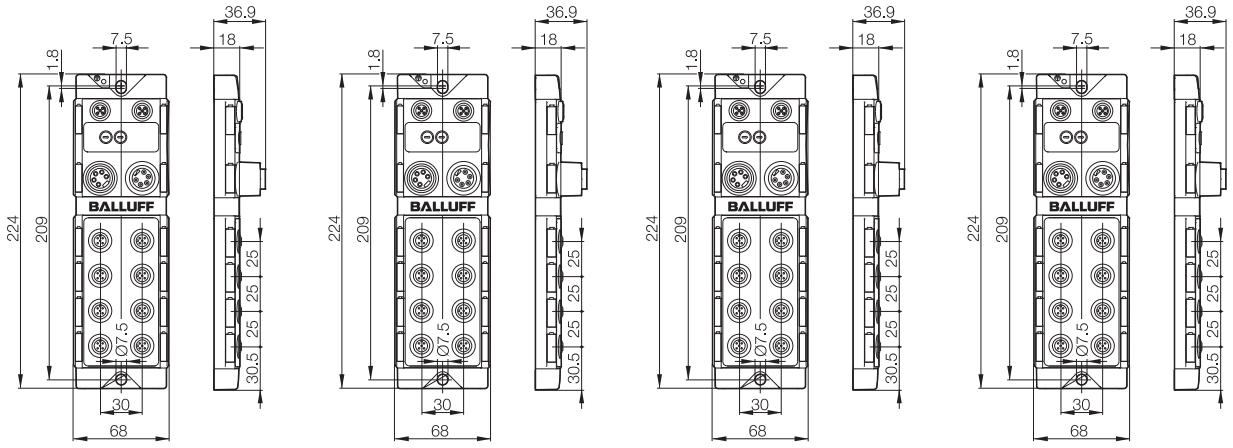
All modules include 4 screw plugs and 1 label set.

more added value
Connect a maximum of 16 I/O ports!




	Profinet	Profinet	Profinet	Profinet
	16 inputs	16 inputs/16 outputs	8 outputs	16 outputs
	BNI002M	**BNI002N**	**BNI002P***	**BNI002R**
	BNI-PNT-104-000-Z002	BNI-PNT-302-000-Z002	BNI-PNT-202-000-Z002	BNI-PNT-206-000-Z002
	18...30 V DC	18...30 V DC	18...30 V DC	18...30 V DC
	BUS RUN	BUS RUN	BUS RUN	BUS RUN
	U_A, U_S, undervoltage	U_A, U_S, undervoltage	U_A, U_S, undervoltage	U_A, U_S, undervoltage
	M12, D-coded	M12, D-coded	M12, D-coded	M12, D-coded
	7/8"	7/8"	7/8"	7/8"
	M12, A-coded	M12, A-coded	M12, A-coded	M12, A-coded
	8	8	8	8
	16	16		
		16	8	16
	No	Yes	No	No
	200 mA	200 mA	200 mA	200 mA
		2 A	2 A	2 A
	Yellow LED	Yellow LED	Yellow LED	Yellow LED
	Short circuit/overload: red LED	Short circuit/overload: red LED	Short circuit/overload: red LED	Short circuit/overload: red LED
		< 9 A	< 9 A	< 9 A
	< 9 A	< 9 A		
	IP 67 (when connected)	IP 67 (when connected)	IP 67 (when connected)	IP 67 (when connected)
	–5...+55 °C	–5...+55 °C	–5...+55 °C	–5...+55 °C
	–25...+85 °C	–25...+85 °C	–25...+85 °C	–25...+85 °C
	Approx. 580 g	Approx. 580 g	Approx. 580 g	Approx. 580 g
	2 mounting holes	2 mounting holes	2 mounting holes	2 mounting holes
	225×68×36.9 mm	225×68×36.9 mm	225×68×36.9 mm	225×68×36.9 mm
	Nickel-plated Gd-Zn	Nickel-plated Gd-Zn	Nickel-plated Gd-Zn	Nickel-plated Gd-Zn

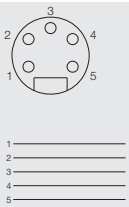
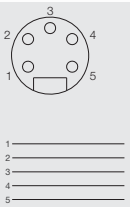
*Module on request



Profinet
Power cables 7/8", 5-pin

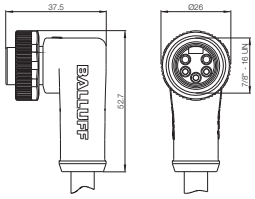
more added value

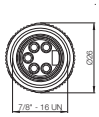
For improved fitting accuracy!
Connector with metal thread – adapted perfectly for Profinet modules. Metal on metal guarantees durability and a high degree of protection.

Connector diagram and wiring		
Version	**Female**	**Female**
Power supply max. U_B/current rating	300 V DC/9 A	300 V DC/9 A
Cable	PUR	PUR
No. of wires × cross-section	5×1.5 mm²	5×1.5 mm²
Degree of protection as per IEC 60529	IP 68	IP 68
Ambient temperature range T_a	–25...+80 °C	–25...+80 °C
Housing material	PUR	PUR
Knurled ring	Brass	Brass

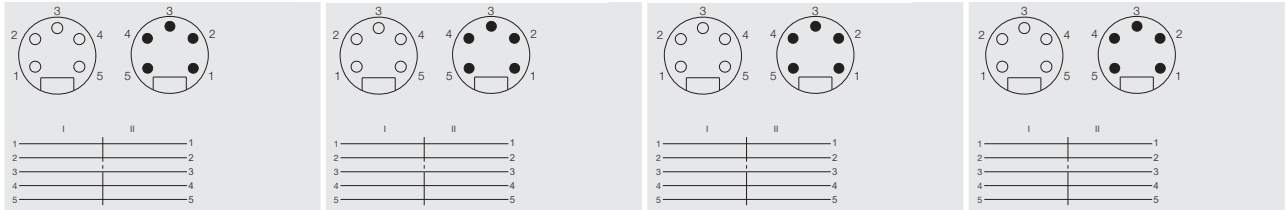
Cable material	Color	Length	Ordering code Part number	
PUR	Black	0.6 m		
PUR	Black	2 m	**BCC06HC** BCC A315-0000-10-063-PX05A5-020	**BCC06HH** BCC A325-0000-10-063-PX05A5-020
PUR	Black	5 m	**BCC06HE** BCC A315-0000-10-063-PX05A5-050	**BCC06HJ** BCC A325-0000-10-063-PX05A5-050
PUR	Black	10 m	**BCC06HF** BCC A315-0000-10-063-PX05A5-100	**BCC06HK** BCC A325-0000-10-063-PX05A5-100
PUR	Black	15 m		

Other cable materials, colors and lengths on request.





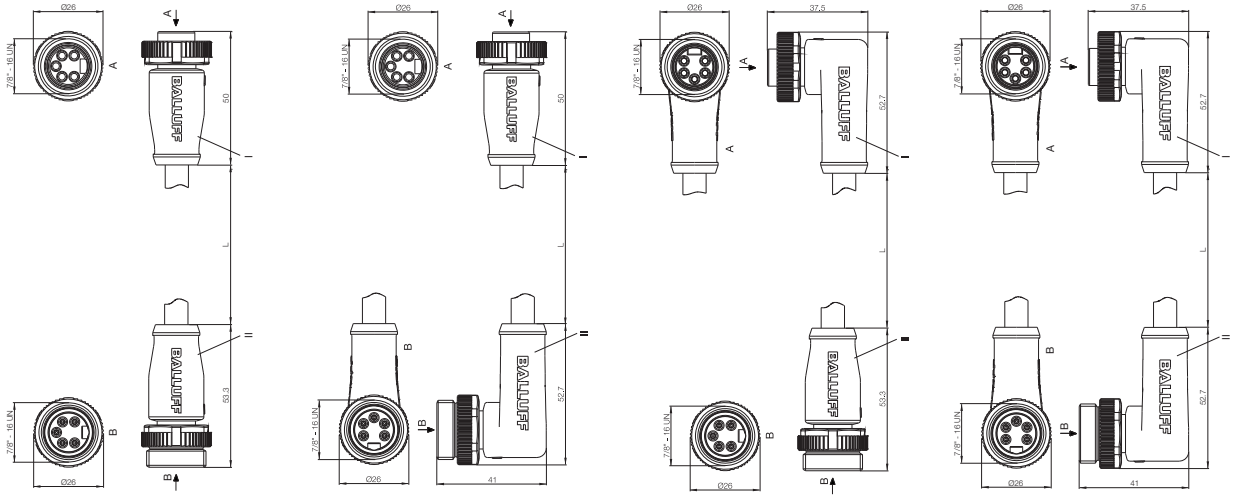


Female/male	**Female/male**	**Female/male**	**Female/male**
300 V DC/9 A	300 V DC/9 A	300 V DC/9 A	300 V DC/9 A
PUR	PUR	PUR	PUR
5×1.5 mm²	5×1.5 mm²	5×1.5 mm²	5×1.5 mm²
IP 68	IP 68	IP 68	IP 68
–25...+80 °C	–25...+80 °C	–25...+80 °C	–25...+80 °C
PUR	PUR	PUR	PUR
Brass	Brass	Brass	Brass

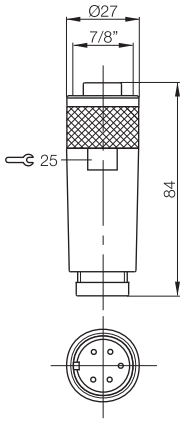
Product topology
IO-Link modules
Modules
Power cables
Power tee
Bus connectors
Bus cables
Accessories

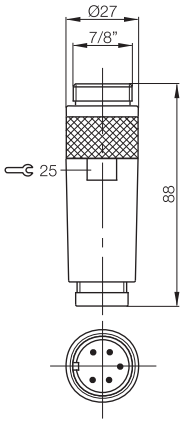
Ordering code			
Part number			
BCC06FM	**BCC06FU**	**BCC06H1**	**BCC06H6**
BCC A315-A315-30-335-PX05A5-006	BCC A315-A325-30-335-PX05A5-006	BCC A325-A315-30-335-PX05A5-006	BCC A325-A325-30-335-PX05A5-006
BCC06FN	**BCC06FW**	**BCC06H2**	**BCC06H7**
BCC A315-A315-30-335-PX05A5-020	BCC A315-A325-30-335-PX05A5-020	BCC A325-A315-30-335-PX05A5-020	BCC A325-A325-30-335-PX05A5-020
BCC06FP	**BCC06FY**	**BCC06H3**	**BCC06H8**
BCC A315-A315-30-335-PX05A5-050	BCC A315-A325-30-335-PX05A5-050	BCC A325-A315-30-335-PX05A5-050	BCC A325-A325-30-335-PX05A5-050
BCC06FR	**BCC06FZ**	**BCC06H4**	**BCC06H9**
BCC A315-A315-30-335-PX05A5-100	BCC A315-A325-30-335-PX05A5-100	BCC A325-A315-30-335-PX05A5-100	BCC A325-A325-30-335-PX05A5-100
BCC06FT	**BCC06H0**	**BCC06H5**	**BCC06HA**
BCC A315-A315-30-335-PX05A5-150	BCC A315-A325-30-335-PX05A5-150	BCC A325-A315-30-335-PX05A5-150	BCC A325-A325-30-335-PX05A5-150



Connector diagram and wiring	 1 0 V 2 0 V 3 PE 4 Power supply 5 Actuator supply	 1 0 V 2 0 V 3 PE 4 Power supply 5 Actuator supply
Version	**Female**	**Male**
Power supply max. U_B/current rating	300 V	300 V
No. of wires × cross-section	5×1.0 mm²	5×1.0 mm²
Degree of protection as per IEC 60529	IP 67	IP 67
Ambient temperature range T_a	–25...+80 °C	–25...+80 °C
Housing material	PBT	PBT
Knurled ring	Brass	Brass
Screw terminal	max. 1.5 mm²	max. 1.5 mm²

Cable material Cable dia.	Color	Length	Ordering code Part number	
PUR 6-8 mm	Black	2 m	**BCC070E** BCC A335-0000-10-000-51X5A5-000	**BCC070J** BCC A335-0000-20-000-51X5A5-000
PUR 8-10 mm	Black	2 m	**BCC070F** BCC A335-0000-10-000-61X5A5-000	**BCC070K** BCC A335-0000-20-000-61X5A5-000
PUR 10-12 mm	Black	2 m	**BCC070H** BCC A335-0000-10-000-71X5A5-000	**BCC070L** BCC A335-0000-20-000-71X5A5-000





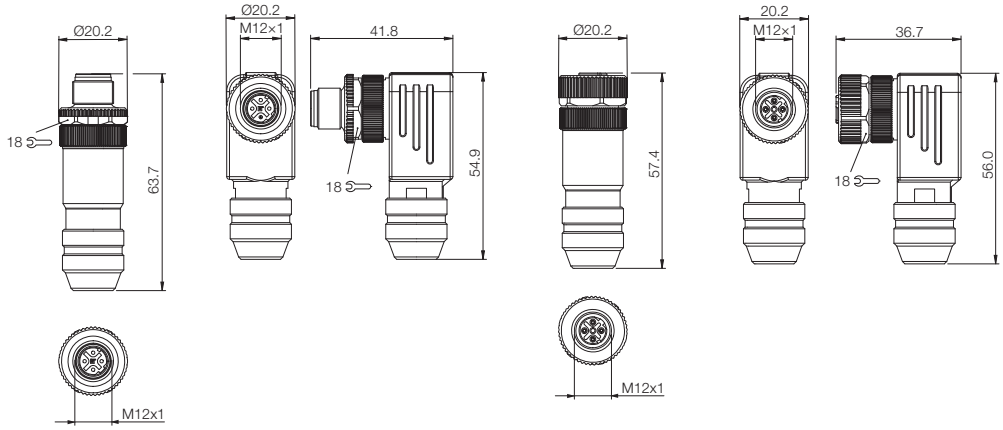
Profinet

M12 bus connector, 4-pin, D-coded, customized assembly, shieldable




View of female/male side				
Connector	M12	M12	M12	M12
Version	D-coded, 4-pin	D-coded, 4-pin	D-coded, 4-pin	D-coded, 4-pin
Version	Male	Male	Female	Female
Ordering code	**BCC03WZ**	**BCC03Y0**	**BCC03Y1**	**BCC03Y2**
Part number	BCC M474-0000-2D-000-51X475-000	BCC M484-0000-2D-000-51X475-000	BCC M474-0000-1D-000-51X475-000	BCC M484-0000-1D-000-51X475-000
Power supply U_S	18...24 V DC	18...24 V DC	18...24 V DC	18...24 V DC
No. of wires × cross-section	4×0.75 mm²	4×0.75 mm²	4×0.75 mm²	4×0.75 mm²
Cable diameter min.	Max. 8.0 mm	Max. 8.0 mm	Max. 8.0 mm	Max. 8.0 mm
Connection	Screw plug	Screw plug	Screw plug	Screw plug
Degree of protection as per IEC 60529	IP 67	IP 67	IP 67	IP 67
Ambient temperature range T_a	–25...+85 °C	–25...+85 °C	–25...+85 °C	–25...+85 °C
Housing material	Brass	Brass	Brass	Brass
Shielded version	Yes*	Yes*	Yes*	Yes*

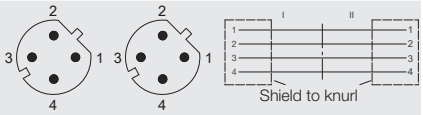
*Knurled ring used for shielding



more added value

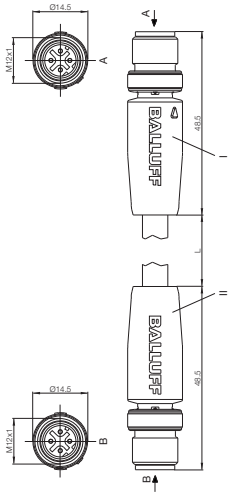
Shielded throughout!

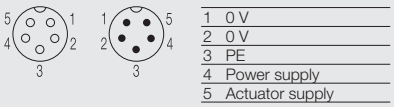
Profinet
Bus cable, M12, 4-pin, D-coded

Connector diagram and wiring	
Version	**Male/male**
Power supply max. U_B/current rating	60 V AC/DC
Cable	PUR
No. of wires × cross-section	2×2×AWG 22/7 twisted pair, shielded
Degree of protection as per IEC 60529	IP 68
Ambient temperature range T_a	–20...+60 °C
Housing material	PUR
Knurled ring	Brass

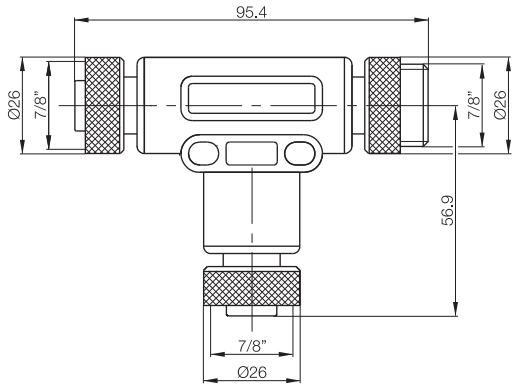
Cable material	Color	Length	Ordering code Part number
PUR	Green	0.6 m	**BCC04K0** BCC M414-M414-6D-331-PS54T2-006
PUR	Green	2 m	**BCC04K1** BCC M414-M414-6D-331-PS54T2-020
PUR	Green	5 m	**BCC04K2** BCC M414-M414-6D-331-PS54T2-050
PUR	Green	10 m	**BCC04K3** BCC M414-M414-6D-331-PS54T2-100
PUR	Green	15 m	**BCC04ZH** BCC M414-M414-6D-331-PS54T2-150
PUR	Green	20 m	**BCC04K4** BCC M414-M414-6D-331-PS54T2-200
PUR	Green	30 m	**BCC04K5** BCC M414-M414-6D-331-PS54T2-300

Other cable materials, colors and lengths on request.



View of female/male side			
Configuration	7/8" power distributor		
Version	Standard 5-pin		
Version	Female/male		
Ordering code	**BCC00AZ**		
Part number	BKS-S248-TL2-01		
Power supply U_S	300 V AC		
Degree of protection as per IEC 60529	IP 67		
Ambient temperature range T_a	–40...+90 °C		
Housing material	Plastic		

Product topology
IO-Link modules
Modules
Power cables
Power tee
Bus connectors
Bus cables
Accessories

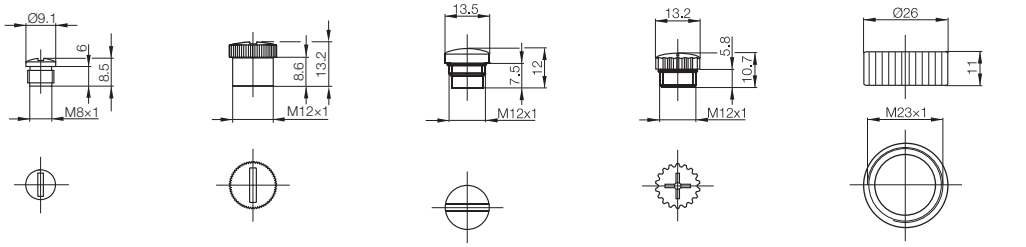


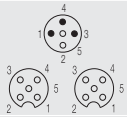
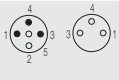
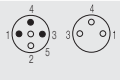
more added value
Customized components for quick and easy Profinet installation!

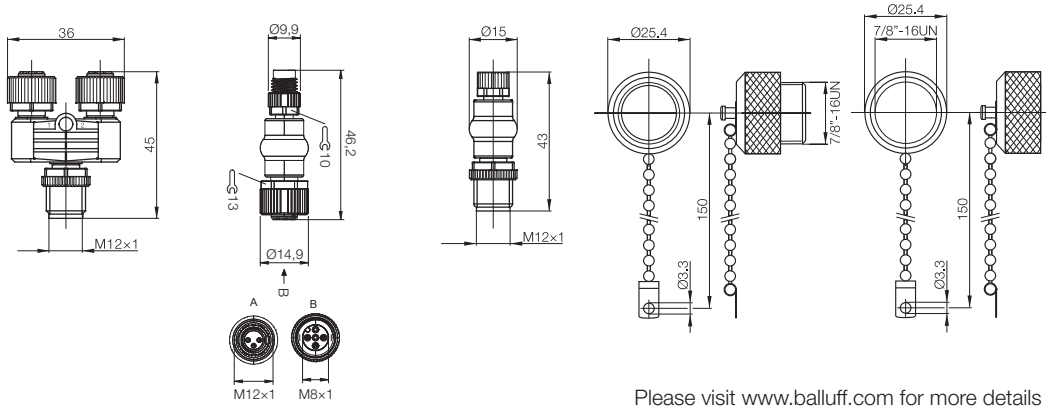




Description	M8 screw plug	M12 screw plug	M12 screw plug	M12 screw plug	M23 screw plug
Version	IP 65 screw plug for unused ports	IP 65 screw plug for unused ports	IP 65 screw plug for unused ports	IP 65 screw plug for unused ports	IP 65 screw plug for unused ports
Ordering code	**BAM01C1**	**BAM01C2**	**BAM0114**	**BAM0115**	**BAM012P**
Part number	BAM CS-XA-001-M8-C	BAM CS-XA-002-M12-A	BKS 12-CS-01	BKS 12-CS-02	BKS 23-CS-00
Ambient temperature range T_a	–20...+80 °C	–20...+80 °C	–20...+80 °C	–20...+80 °C	–20...+80 °C
Housing material	Plastic	Plastic	Nickel-plated brass	PA 6	Nickel-plated brass

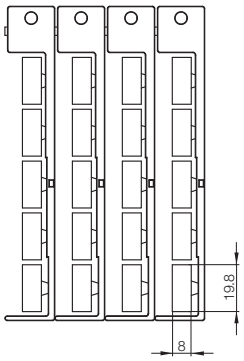


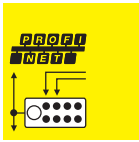
View of female/ male side					
Description	Tee	Adapter	Adapter	Screw plug 7/8"	Screw plug 7/8"
Version	M12 male to M12 female 2× 2 signals to one port	M8 male 3-pin to M12 female 3-pin	M12 male 3-pin to M8 female 3-pin	Cover for the power ports	Cover for the power ports
Ordering code	**BCC02CL**	**BCC007W**	**BCC02CK**		
Part number	BKS-S4-TM1-01	BKS-S49-GM1/S4	BKS-S4-GM1-01/S49	BKS-7/8-CS-00-A	BKS-7/8-CS-00-I
Power supply U_B	Max. 24 V DC	Max. 24 V DC	Max. 24 V DC		
Rated operating current I_e	Max. 4 A per contact	Max. 4 A per contact	Max. 4 A per contact		
Degree of protection as per IEC 60529	IP 67	IP 67	IP 67		
Ambient temperature range T_a	–25...+90 °C	–25...+85 °C	–25...+85 °C	–20...+80 °C	–20...+80 °C
Housing material	Nickel-plated Gd-Zn	Nickel-plated Gd-Zn	Nickel-plated Gd-Zn	Nickel-plated brass	Nickel-plated brass



Please visit www.balluff.com for more details

Description	Tamperproof cover	Marking sleeve	Label set	
Version	with 4 openings	For labeling connectors	Labeling the ports for modules BNI PBS..., BNI PNT..., BNI DNT..., BNI EIP..., BNI CCL...	
Ordering code			**BAM01AT**	
Part number	BAM FK-NI-003-BPS-01	BAM IA-CC-002-01	BNI ACC-L01-000	
Housing material			Plastic	






3-wire BCC connector, see chapter Connectors and Connection Cables beginning **on page 246!**