

NIC – Accessories

Dimension drawing	Ident-no.	Type	Description
	6814100	TBIL-M1-16DIP	I/O hub for IO-link, 16 digital PNP inputs
	6814101	TBIL-M1-8DOP	I/O hub for IO-link, 8 digital outputs
	6814024	TBEN-S2-4IOL	IO-Link-1.1 master, compact Multiprotocol I/O-modul for Ethernet, 4 IO-Link Class A ports
	6827386	BL67-4IOL	IO-Link-1.1 master for the modular fieldbus system BL67, 4 IO-Link Class A ports
	6827385	BL20-E-4IOL	IO-Link-1.1 master for the modular fieldbus system BL20, 4 IO-Link Class A ports
	6825482	USB-2-IOL-0002	IO-Link-1.1 master with USB port, 1-channel operation in IOL or SIO mode
	6625503	RKC4.4T-2/TXL	Connection cable, female M12, straight, 4-pin, cable length: 2 m, sheath material: PVC, black
	6625339	RKC12T-2/TXL	Connection cable, female M12, straight, 12-pin, cable length: 2 m, sheath material: PVC, black
	6625608	RKC4.4T-2-RSC4.4T/TXL	Extension cable, female M12, straight 4-pin, cable length 2 m, male M12, straight 4-pin, sheath material PUR, black
	6932705	RKC12T-2-CS19.121/TXL	Extension cable, female M12, straight 12-pin, cable length 2 m, male M23, straight 19-pin, for direct connection to BL67 base module with M23 male connector

NIC – Types and Features

Dimension drawing	Ident-no.	Type	Description
	4300101	NICP-M30-IOL2P8X-H1141	Inductive coupler, primary part, IO-Link and 2 x PNP connection: Male M12, 4-pin
	4300201	NICP-M30-8P8-0,3-RSC12T	Inductive coupler, primary part, 8 x PNP for sensor signals, 1 x PNP status, 1 x PNP identification of foreign objects, connection: 0.3 m cable with male M12, 12-pin
	4300301	NICS-M30-IOL2P8-0,3-RKC4.4T	Inductive coupler, secondary part, IO-Link and 2 x PNP, connection: 0.3 m cable with female M12, 4-pin

Technical data	
Operating voltage	24 VDC ± 10 %
Transmission distance	0...7 mm
Lateral offset	5 mm at 4 mm transmission distance
Angular misalignment	15° mm at 4 mm transmission distance
Transmit power	up to 12 W
Ambient temperature	-20...55 °C
Protection class	IP67, IP68
Output current	500 mA
Standby power coupled	4 W
Standby power uncoupled	1 W
Standby time	≤ 160 ms
Readiness delay	10 ms
IO-Link transmission	COM2, IO-Link V1.1.1



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NIC Inductive Couplers



Contactless Transmission of Data and Power



With contactless inductive couplers, Turck offers a wear-free alternative to the classical connection technology.

The NIC coupler sets consist of a primary part on the control side and a secondary part on the sensor/actuator side of the connection.

The NIC couplers transmit up to eight PNP switching signals and up to 500 milliampere of current with 12 Watts output power. This enables sensors and actuators such as light curtains, piezo valves or smaller valve manifolds to be operated without an additional amplifier being necessary on the secondary side.

Compact combination

The primary parts are connected with a 4-pin M12 male connector or a 30 cm pigtail with a 12-pin M12 male connector. The secondary part has a 30 cm-pigtail with a 4-pin M12 connector. With a length of 80 millimeters, the Turck couplers are the most compact devices in the M30 housing.

The NIC couplers are a wear-free alternative to slip rings or mechanically highly stressed connections. Thus, maintenance intervals can be extended, unplanned downtime reduced and higher clock speeds achieved. Inductive couplers as contactless connectors are also impressive on account of the freedom of movement they offer their coupled components, such as robots with rotating tools or shafts from which sensor signals have to be taken. Here a contactless connection of the interface is a major benefit, since the system also tolerates a counter-rotation of the components. Although the slip ring is established in industry as an alternative solution, it is little appreciated due to its wear. Another application area for inductive couplers are overhead conveyor systems as are frequently used in the automotive industry.

Three variants

The inductive couplers can be connected as easily as a plug connection. A sensor or another signal source is connected to the secondary part, the primary part is positioned opposite and connected via a standard 4-pin M12 connector to a controller or a fieldbus device. This basic system can transfer without contact two PNP switching signals via a simple VB2 splitter behind the secondary coupler. The air interface here can be up to 7 millimeters.

The same system consisting of primary and secondary coupler can also be used to transfer signals from IO-Link-capable measuring sensors. For this the primary coupler only has to be connected to an IO-Link master. If more than two signals are transmitted, a primary part with integrated IO-Link master is available. The primary unit is connected to conventional PNP inputs of a field device using 12-pin M12 connectors, so that the system works internally with the IO-Link technology unnoticed by the user.

Connection technology and sensors

Customers can draw on the extensive range of Turck connectivity, fieldbus technology and sensor products to ensure the simple mounting and use of the new NIC couplers. Several options are available, from standard 4-pin M12 connectors and several different variants of Y-pieces, IO hubs, right through to the appropriate 12-pin adapter cable for the BL67 modular fieldbus system.

Advantages

- Wear-free
- Highest mounting flexibility through an optimum air interface and offset tolerances
- Tool identification with Turck's I/O-hub TBIL
- Reduction of stocks by multifunctional devices
- Less suppliers: Couplers, sensors and connection technology from a single source
- Reduction of downtimes through diagnosis in the control system
- Worldwide support by global sales and support channels of the Turck Group

Solutions for different application scenarios



Two PNP switching signals

Solution 1: Up to two PNP switching signals can be transmitted via the secondary part NICS-M30-IOL2P8-0,3-RKC4.4T (right) – either from power clamp sets or from two different sensors that are connected via a VB2-splitter.



One IO-Link device

Solution 2: If the primary part NIPC-M30-IOL2P8X-H1141 (left) is connected to an IO-Link master, data from measuring IO-Link sensors can be transmitted bidirectionally. You can, of course, also connect IO-Link-capable actuators such as tower lights or the TBIL-M1-16DIP I/O hub with 16 digital PNP inputs.



Eight PNP switching signals

Solution 3: The primary part NIPC-M30-8P8-0.3-RSC12T works as an IO-Link master, allowing up to eight switching signals to be processed via the I/O hub TBIL-M1-16DIP (right). The entire IO-Link communication is handled internally, requiring no configuration for the user.



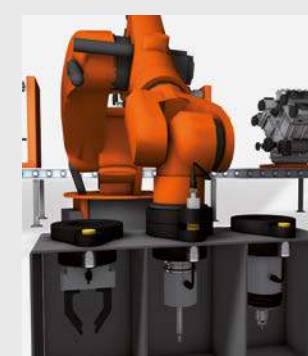
Large transmission range
Turck's inductive couplers transmit the full power of 12 Watts at a distance of 7 mm. They also tolerate a lateral offset of 5 mm and an angular misalignment up to 15° degrees without any restriction of the transmit power.



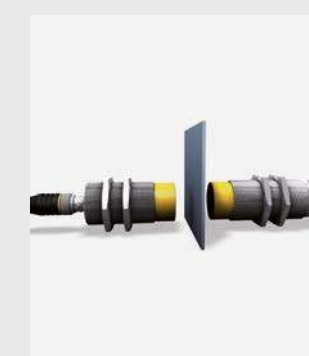
High power transmission
The NIC couplers transmit up to eight PNP switching signals and up to 500 mA of current with 12 Watts output power. This enables sensors and actuators such as light curtains, piezo valves or smaller valve manifolds to be operated without an additional amplifier being necessary on the secondary side.



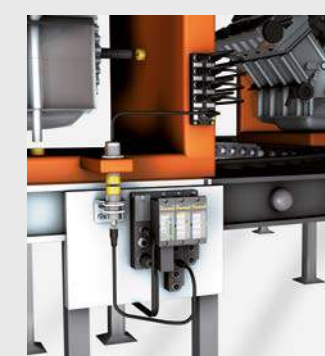
IO-link on board
Full IO-Link support makes the NIC system particularly flexible. This makes the solution suited on the one hand for bidirectional data transmission from and to IO-Link devices, but also for transmission of eight PNP signals via a 12-wire cable, internally handled via IO-Link.



Fast operational readiness
The secondary part of the Turck-coupler is ready in less than 10 ms. With this ramp-up time, the system is one of the fastest on the market. Thus, the NIC-couplers are ideal for high-speed tasks such as robots with tool changers.



Foreign Object Detection
The NIC-system provides two pins for diagnostic signals: One signal indicates the presence of the secondary part, the second is for "Foreign Object Detection", i.e. to detect metallic foreign objects between the primary and secondary part.



Dynamic Pairing
The primary parts can be combined with as many secondary parts as wanted - and vice versa. By means of "Dynamic Pairing" also more complex applications can be solved satisfactorily with several primary and secondary parts.