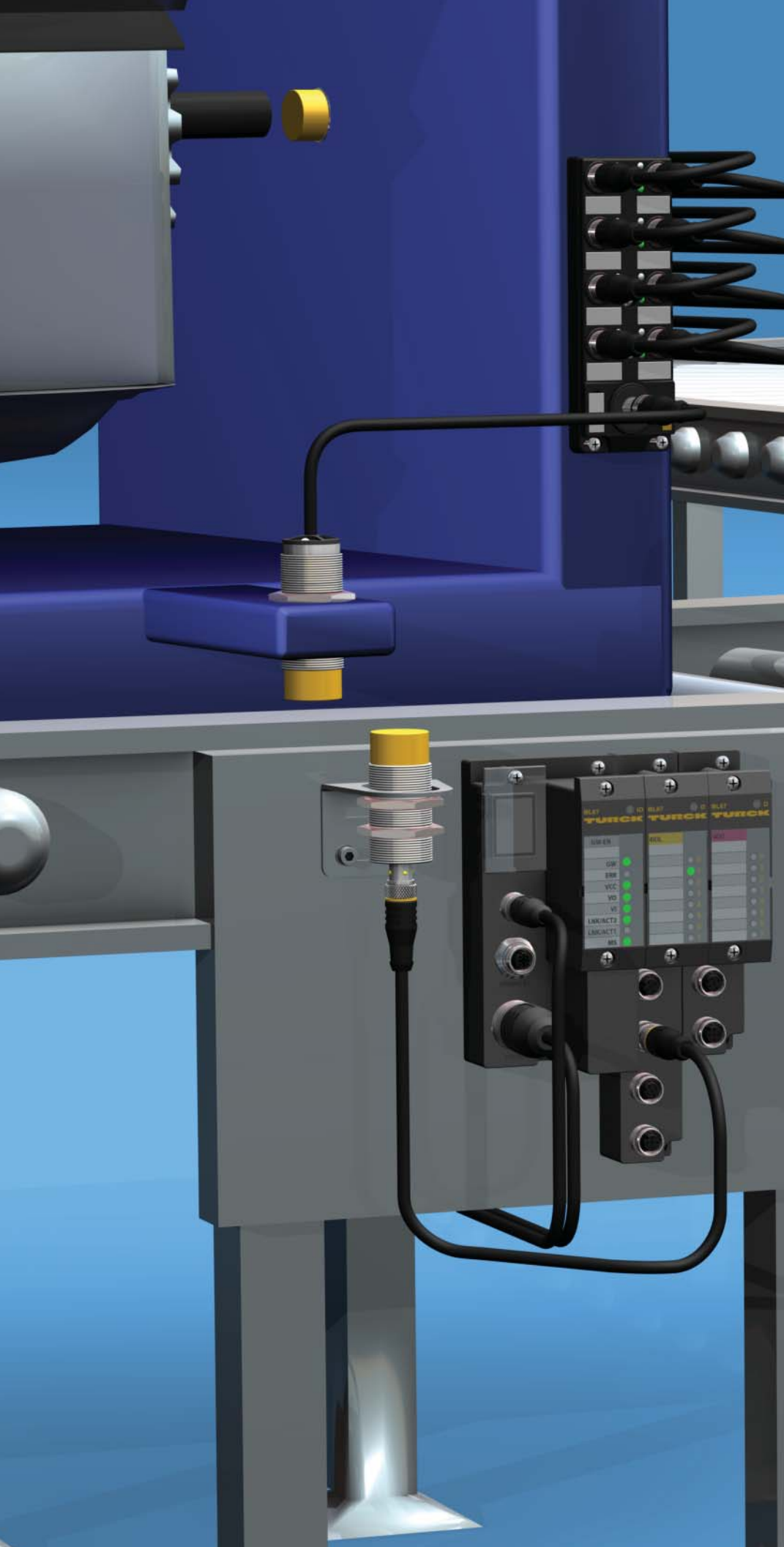


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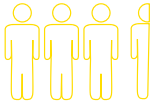
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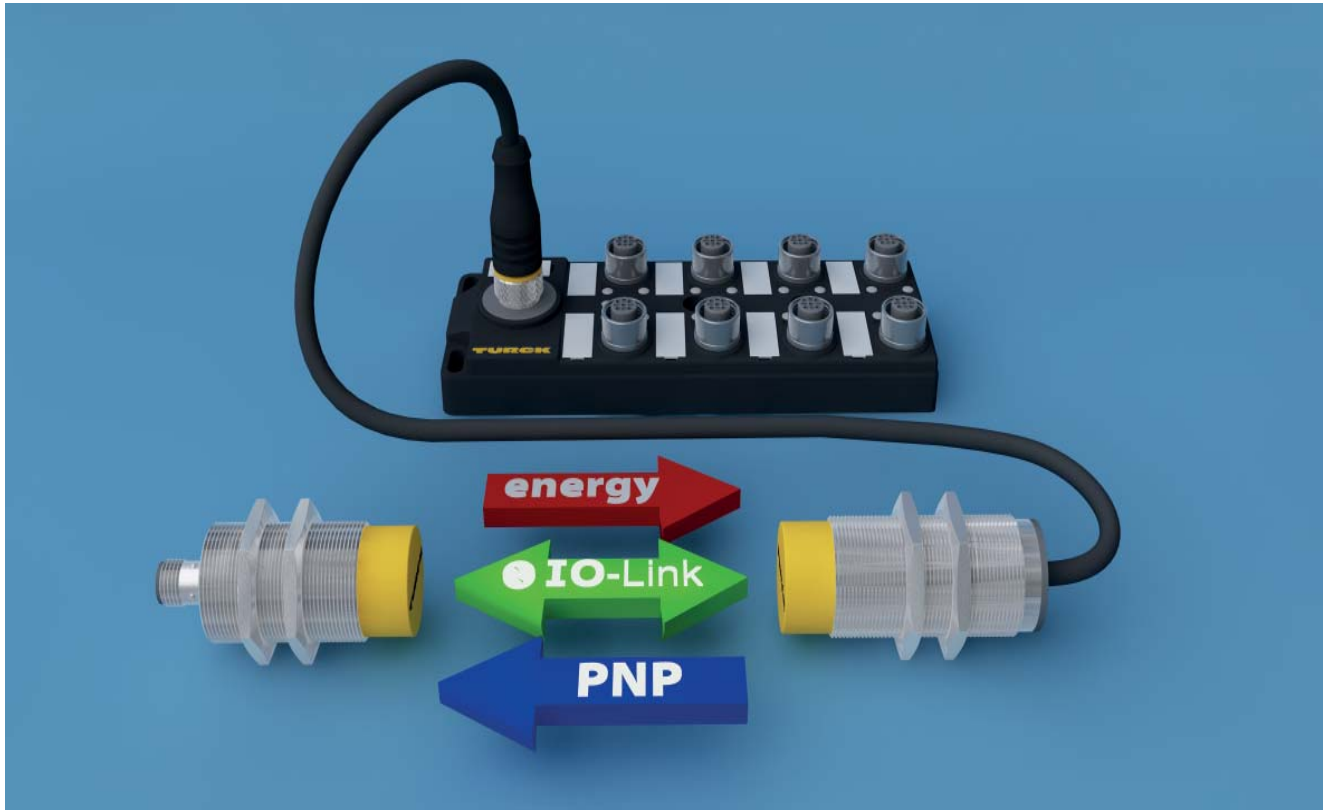
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NIC – Contactless Transmission of Data and Power



With contactless inductive couplers, TURCK offers a wear-free alternative to traditional 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 milliamps 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 on the secondary side.

Compact combination

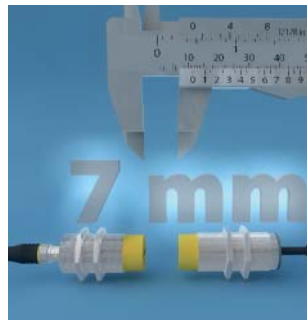
The primary parts are connected with a 4-pin M12 male connector or a 30 cm pigtail with a 12-pin M12 connector. The secondary part has a 30 cm-pigtail with a 4-pin M12 connector. With a length of 80 millimeters, the TURCK couplers are the most compact devices in the M30 housing.

The NIC couplers are a wear-free alternative to slip rings or mechanically 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 the industry as an alternative solution, it has significant limitations due to its wear. Another application area for inductive couplers are overhead conveyor systems as are frequently used in the automotive industry.

Large transmission range with offset tolerance

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 reduction of the transmitted 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 on the secondary side.



Your advantages:

- Wear-free
- Mounting flexibility through an optimum air interface and offset tolerances
- Tool identification with TURCK's I/O-hub TBIL
- Reduction of stock 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



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 distance between the components 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 sensors. For this the primary coupler 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.

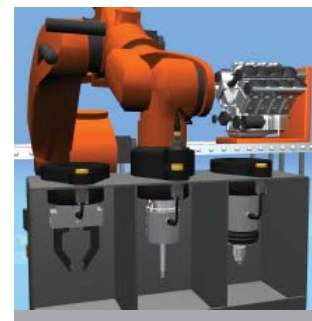
IO-link on board

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



Fast operational readiness of secondary part

The secondary part of the TURCK NIC 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.



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. See page 6 for further information.



One IO-Link device

Solution 2: If the primary part NICP-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. See page 6 for further information.

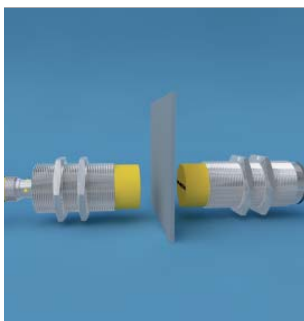


Eight PNP switching signals

Solution 3: The primary part NICP-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. See page 6 for further information.

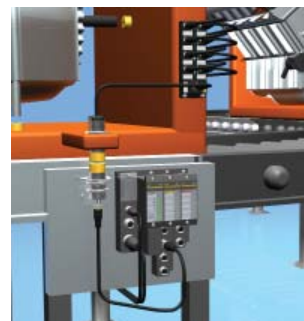
Foreign Object Detection

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.

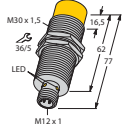
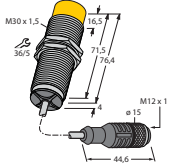
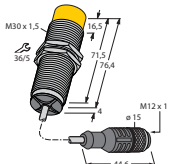


Dynamic Pairing

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.



Variants and technical data

Dimension drawing	Ident no.	Type	Description
	M4300101	NICP-M30-IOL2P8X-H1141	Inductive coupler, primary part, IO-Link and 2 x PNP connection: Male M12, 4-pin
	M4300201	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
	M4300301	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



Accessories

Dimension drawing	Ident no.	Type	Description	Solution # From Page 4
	F6814100	TBIL-M1-16DIP	I/O hub for IO-link, 16 digital PNP inputs	3
	F6814101	TBIL-M1-8DOP	I/O hub for IO-link, 8 digital outputs	3
	U0956-72	RS 4.4T-J14	Jumper Plug Used With TBIL-M1-16DIP Hub	3
	M6827386	BL67-4IOL	IO-Link-1.1 master for the modular fieldbus system BL67, 4 IO-Link ports and 4 programmable PNP ports	2
	M6827383	BL67-16DI-P	Digital input modular I/O card for use with NICP-M30-8P8-0.3-RSC 12T	3
	M6827216	BL67-B-1M23-19	Base module for BL67-16DI-P	3
	M6827385	BL20-E-4IOL	IO-Link-1.1 master for the modular fieldbus system BL20, 4 IO-Link ports and 4 programmable PNP ports	2
	M6825482	USB-2-IOL-0002	IO-Link-1.1 master with USB port, 1-channel operation in IOL or SIO mode. Module to link PC to IO-Link devices via PACTware.	N/A
	U5302	RKC4.4T-2	Connection cable, female M12, straight, 4-pin, cable length: 2 m, PVC jacket	2
	U5264	RKC4.4T-2-RSC4.4T	Extension cable, female M12, straight 4-pin, cable length 2 m, male M12, straight 4-pin, PVC jacket	1,2
	U-77150	RKC 12T-2-CSM 19-12/S90/S1247	Extension cable for use with NICP-M30-8P8-0.3-RSC 12T to connect to BL67-B-1M23-19 base. Female M12 straight 12 pin to male M23, cable length: 2m, TPU jacket	3



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