

Quality management For high customer satisfaction

Current certification guidelines define the quality of products and production today. These guidelines and the customer's expectations of our product quality characterise the entire workflow of *nass magnet*. The continuous improvements, constant qualification and motivation of our employees as well as modern testing systems are further components of our systematic quality management.

I Quality guarantee

- quality management certified to IATF 16949:2016 and DIN EN ISO 9001:2015
- focus on ISO 45001
- best quality awareness by *nass magnet* production-system (NPS)
- efficient project management by VDA standards
- extensive qualifications as per ISO 16750, VDE 0580 or customer standards



Qualifications Your strategic partner

In addition to the know-how acquired over many decades, *nass magnet* offers an all-round competence from a single source that can be called up at any time and meets the market with the fulfilment of the required or desired quality, environmental and safety requirements. The range of services extends from assembly, turning shop, plastic injection moulding, tool, mould, plant and prototype construction, through testing to product adaptation to the respective customer interface.

The group offers new and advance development of customer-specific products, including basic research, project and quotation preparation as well as continuous improvements and cost optimization.

The routine manufacture of tools, early quality planning (APQP) and over 90 years of experience in the design and construction of our equipment and production plants make *nass magnet* a reliable partner.

All-round-competence From a **single source**

Flexibility

- flexible production and modular manufacturing concepts
- structured modular systems
- Individual products and complete solutions
- high variety
- transactions of orders for small to large batches
- simulation and expertise
- testing and prototyping
- product plant construction

Services

- all steps from planning to production readiness
- advice on the use of products
- excellent delivery performance and timelines

Special offer

Custom-made products and series production

Even the basic offer achieves a high level of quality due to the modular design. Structure offers a remarkable variety of variants. If your requirements once not by means of existing product portfolio, but to build on it, enables us to the group of companies offers customer-specific special solutions.

Your **contact** to us



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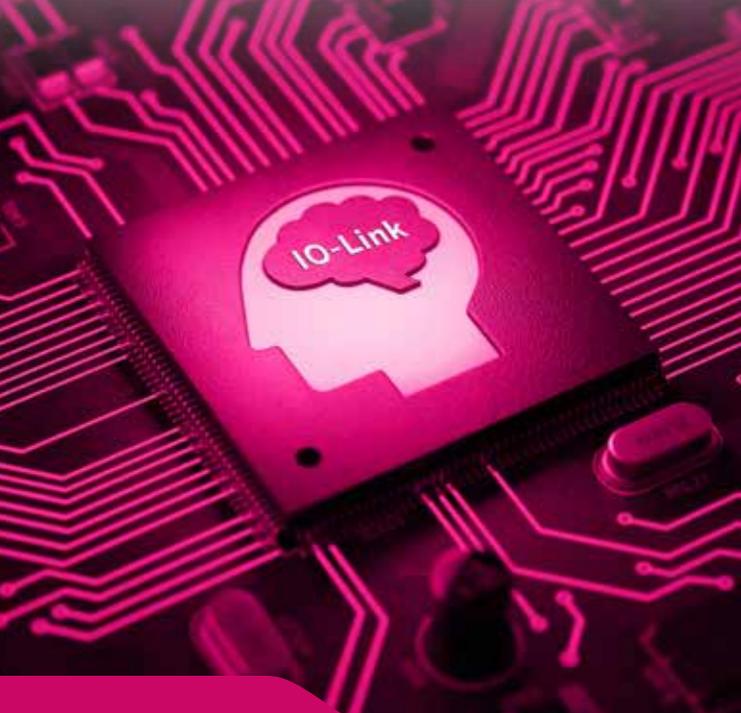
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The Smart Connector Digital valve control with IO-Link communication



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and compact
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Valve connector innovation

Smart Connector

According to the digitization of the „last meters“ in the automation technology, *nass magnet* as an expert for pneumatic valve actuators presents the innovative valve driver with IO-Link interface, implemented in a DIN interface connector.

Connected valves can be remotely controlled and monitored via the network using this peer-to-peer interface.

Using a master, diagnostic data for the connector, solenoid coil and valve system can be retrieved, monitored and connected to **cloud-based** systems.

For use in extreme environmental conditions *nass magnet* also offers very robust versions of the smart connector in the protection classes IP65/IP67.



Innovation in the valve connectors

Quick and simple M12 connection

In order to speed up conventional cable installation, IO-Link connectors from *nass magnet* are marketed with a pre-assembled M12 connector. Due to M12 connector it can now be easily connected to a control unit or to a master, thus completely eliminating the need for on-site cable assembly.

The cable used is an unshielded 3 core signal cable. The advantage is that digital signals are less sensitive to interference than conventional analog signals.

Status monitoring Smart data transfer

Using IO-Link protocol, the connector continuously communicates the **process data** with the master and allows electrical signals from the connected valve system to be checked. This makes it possible to detect whether the valve system is electrically pulled or whether it is energized.

By **asynchronous, on-request data transfer** can several condition variables be reached like supply voltage, output current, switch on resistance of the coil and their actual power consumption.

The connector with IO-Link from *nass magnet* is using communication mode COM 2. This enables the transmission of the actual process signal as well as the transmission of switching signals and diagnostic messages. COM 2 has a transmission rate of 38.4 kbaud and can transmit 8-8 bits of process data to the controller every 2.8 ms.

Integrated Switching cycle counter

The device has two built-in counters as a limit for warnings.

Industry 4.0 Preventive maintenance

To monitor the product lifecycle, the smart connector can **detect and store** switching cycles. To **observe the whole lifecycle** there is one counter, which can not be restarted. And there is another one which can be set up by the user - just like a counter in your car.

There is a possibility to every counter and to almost every measured parameter to set up a limit. **In case of reaching this threshold an automatic event can be generated** to handle them in higher levels.

Thanks to the switching cycle counter in connectors, failures can be prevented and product life cycles analysed.

Power-saving PWM mode

To **reduce the power consumption** of the connected solenoid coil, smart connector offers PWM mode. The Pulse Width Modulation mode allows to regulate the output current.

Switch on time can be set up to maximum 2.000 milliseconds to ensure the perfect pull-in of the valve. In this phase the coil receives the full power. After switch-on time, the PWM mode is activated.

The required power reduction can be achieved by adjusting the duty cycle parameter. The PWM operation works also in Standard* mode. *without using IO-Link communication

Smart automatic Diagnostic data

The IO-Link connector has numerous diagnostic data:

- Supply voltage
- Output current
- Load resistance
- Power consumption of the solenoid coil
- Own temperature
- Switch-on time of the valve

Status signal Multicolour RGB LED

Customize your connector!

Different output states can have different LED colours.

The „FindMe“ function

In the *nass magnet* smart connector, the „FindMe“ function can be switched on. This mode is useful if the solenoid coil, the valve system or the connector itself (assuming it is still electrically powered) should fail. An integrated RGB LED now indicates the location of the connector to be checked by the maintenance service by flashing in 7 different colours.

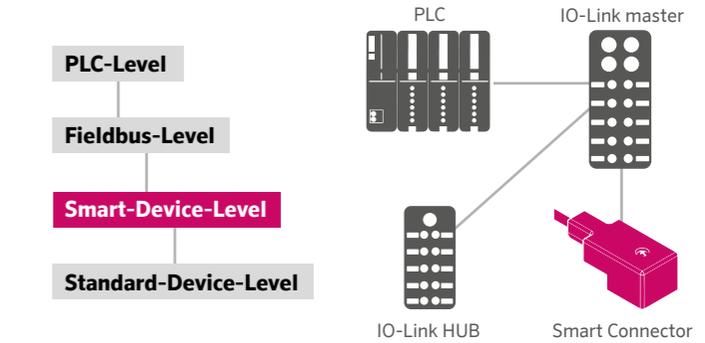
Data storage Configuration memory

The configured parameters of the connector are stored in the data storage and can be read out from the affected connector and transferred to the replacement product in case of a failure.

It will **save time and cost** in case of replacement.

Two different Operating modes

1. **IO-Link mode**
Operation and control via the IO-Link master
2. **Standard mode**
The valve connector operates in two-wire mode with preset PWM and/or switch-on and switch-off timer function

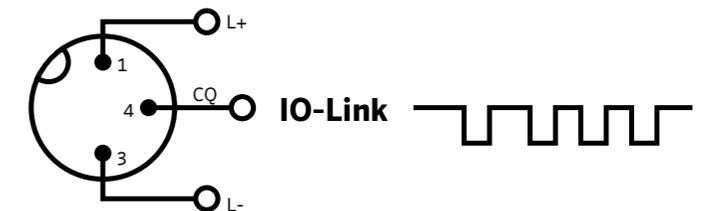


Overview Technical data

Series	Type A according to DIN EN 175301-803
Connection	M12-connector (3-pole)
Nominal voltage	24 V DC (10-30 V DC)
Output power	max. 500 mA (depending on the master)
Internal consumption	< 10 mA
Interface	IO-Link V1.1
IO-Link master port type	Class A
Cycle time	2.8 ms
Process data	1/1 byte

Pin layout

- Pin 1 - 24 V
- Pin 3 - 0 V
- Pin 4 - Switching and communication power (C/Q) (IEC 60974-5-2)



CQ = Switching and communication power

