

IO-Link Solutions

Diagnostics Made Simple



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Breakthrough Engineering for a Better World

Norgren is part of global engineering organization IMI plc. IMI is at the forefront of delivering the solutions we need in a changing world and is focused on **creating tremendous value by solving key industry problems in attractive markets and employing the best.**

Norgren has a proud history of creating innovative engineering solutions in precise motion control and fluid technology, and we collaborate with our customers across more than 50 countries in critical areas such as Factory Automation, Material Handling, Rail, Energy, Process Control, Life Science and Commercial Vehicles.

From improving speed, productivity, reliability and efficiency of equipment, to generating significant energy and cost savings, or lowering total cost of ownership across many industries, Norgren's high-quality solutions are designed to help customers pursue progress, achieve new goals and overcome problems.

With market-leading industry expertise, we offer the capability, resources, engineering intelligence and global support infrastructure to tackle the largest project demands.

Our world-class portfolio of fluid and motion control products include Norgren, Bimba, Buschjost, FAS, Herion, Kloehn and Maxseal. Supplied either individually or combined into powerful customized solutions to meet customer needs.

Breakthrough engineering you can count on.

IO-Link

The Last Step in an Intelligent Automation System

The requirements for modern Industrial Automation applications are becoming increasingly complex. Therefore it is essential to select the best possible solution for each application.

IO-Link is revolutionizing Industrial Automation by offering a standardized and seamless communication interface for all IO-Link devices, with simple installation and a complete range of diagnostics functionality.

What is IO-Link?

IO-Link is a globally standardized (IEC 61131-9) communication system for connecting sensors and many other components, without any complex wiring, to a control system. A serial, bi-directional point-to-point communication between any compatible I/O system and field devices, which can be integrated into virtually any fieldbus or automation system. Put simply, IO-Link knows what is going on in your automation system.

IO-Link offers the perfect solution for manufacturers seeking remote diagnosis, simplified installation, automated parameter settings and an overall cost effective solution.

- » Communication standard IEC61131-9
- » Standardized, open and fieldbus independent technology
- » Connects intelligent sensors and field devices to the PLC
- » Uses advantages of available I/O interfaces
- » Enables efficient production and cost savings thanks to minimized downtime
- » Enables predictive and planned maintenance



Norgren, the right partner for your IO-Link needs

With established manufacturing and technical facilities globally, we have the capability to cope with the most demanding international projects. With a sales and service network in over 50 countries, we have the reach and capability to ensure continuity of supply and local support where it is needed.

Norgren offers a complete IO-Link system solution, which includes a wide range of IO-Link enabled devices, IO-Link Masters and I/O Modules (Hubs).

Alongside reliable, high performance and quality IO-Link products, Norgren offers insight, technical excellence, and a collaborative approach, to help our customers forge a brighter future of possibility.

IO-Link

The Ideal Solution



IO-Link is the ideal solution for cost effective, more efficient and reliable production. It enables seamless communication and a powerful infrastructure to manage data through your manufacturing process. Intelligent devices can be used to their full potential with IO-Link, paving the way for Industry 4.0 in Industrial Automation. This standardized communication system provides value, from design to installation, through to operation and maintenance, by reducing costs and increasing efficiency.

IO-Link is simple to install and enables continuous diagnostics, as well as remote and automated configuration of all the IO-Link devices in your system.

Open and Standardized

- » Standardized worldwide IO technology - communication specification IEC61131-9.
- » Manufacturer independent point-to-point connection offering seamless integration in established fieldbus systems.

Easy to Install

- » Field installable connector system with M8 and M12 electrical connections, as per IO-Link specification.
- » Pin lockable.
- » The standardized unit parameter setting allows locking of the operating keys on the device. Wrong settings by the operator is no longer possible.

Reduced Wiring

- » Simple connector.
- » IO-Link decreases the number of different interfaces or connector plugs in your system.

Remote Configuration and Monitoring

- » Users can read and change device parameters through the control system software, enabling fast configuration and commissioning.
- » The parameter definitions can be modified while the system is operating, without having to stop your machines.
- » Accurate real time data.

Simple Device Replacement

- » IO-Link's data storage capability allows for automated parameter reassignment when a replacement device is needed. Simply plug in the new device the parameter settings will be automatically imported. This functionality can be enabled on the IO-Link Masters, if required.

Connected

- » Digital communication can reduce system downtime through predictive maintenance.
- » Simple and seamless communication connects intelligent sensors, field-devices and actuators.
- » Access to sensor-level data helps ensure the smooth operation of the system at all times and helps reduce downtime and resources.

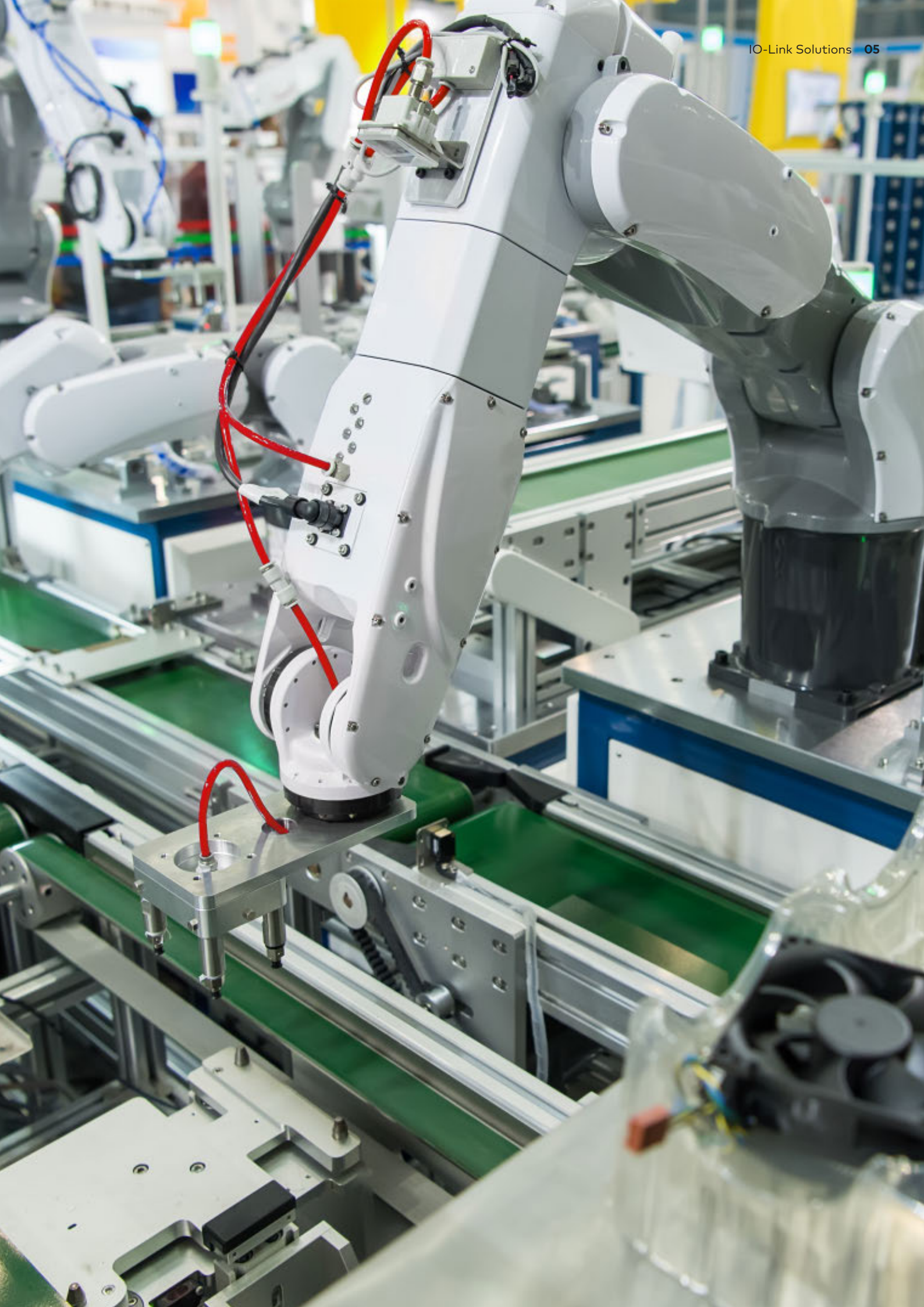
Intelligent Sensing

- » Built-in diagnostics, self-testing and fault reporting offer intelligence for monitoring and measurement.

Extended Diagnostics

- » IO-Link provides users with visibility of errors and health status from each device.
- » The transfer of process and service data takes place simultaneously. Wire-breaks or short-circuits are immediately detected. The diagnostic data can be accessed even during operation.

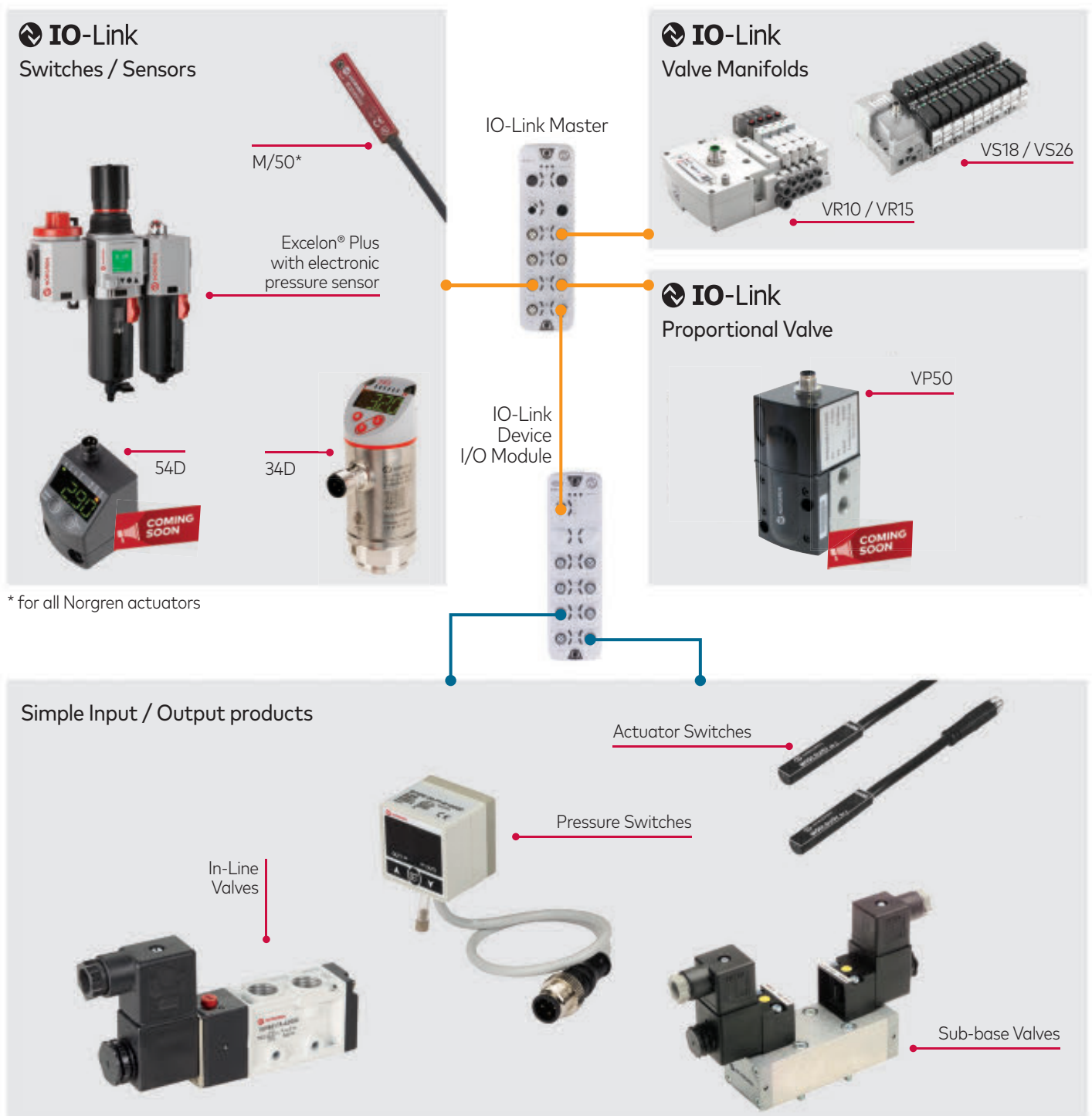




IO-Link Enabled Products A Complete System Solution

Norgren offers a complete IO-Link system solution, which includes a wide range of IO-Link enabled devices, as well as an IO-Link Master and I/O Modules (Hubs). The IO-Link Master and the I/O Modules provides a decentralized solution offering the ultimate flexibility:

- » Simple "Plug and Play" devices.
- » Flexibility - easy to add, remove, re-position or reconfigure your system.



IO-Link Enabled Products from Norgren



IO-Link Master and I/O Module

The IO-Link Master acts as a gateway between IO-Link devices and the higher-level communication system, such as Ethernet. It can transmit this data over various networks, making the data accessible for immediate action or long-term analysis via an industrial information system (PLC, HMI, etc.).

- » **Connected** – PROFINET, EtherNet/IP and EtherCAT– Port Class A and Port Class B.
- » **Expandable** – I/O Modules (Hubs) can be easily added - which act as an IO-Link device.
- » **Easy Installation** – wide range of cables and connectors.

VR Series Valve Manifolds

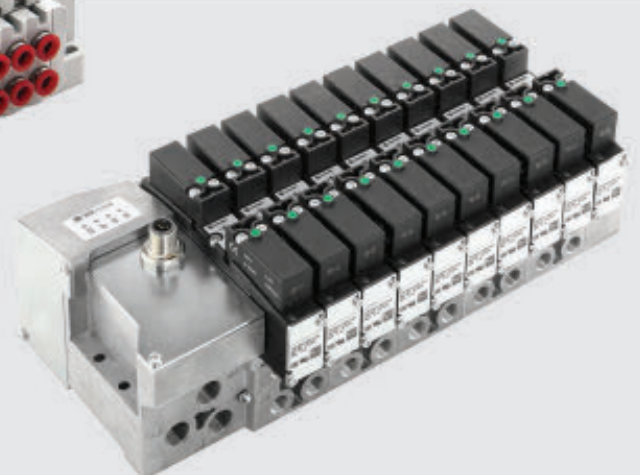
A simple plug-in, sub-base style design allows valves to be easily exchanged for easy installation and maintenance. Available in 10mm and 15mm, with up to 24 solenoids and a wide range of valve functions.

- » **Modular** – 2 to 24 valve slices (max. 24 solenoids), field expandable.
- » **Robust** – IP65.
- » **Easy Installation** – No restrictions in installation as connectors can be horizontal or vertical. Valve manifold can be direct mounted or mounted on a DIN rail.
- » **Maintenance Friendly** – Simple plug-in sub base valve exchange allows easy exchange of system components and interruption-free valve replacement option; and integrated silencers offer simple replacement.
- » **Connected** – IO-Link, Multipole, PROFINET, EtherNet/IP and EtherCAT.

VS Series Valve Manifolds

The VS Series is unique in offering two spool technologies. The softseal spool maximizes speed and enhances flow. The glandless spool and sleeve delivers hundreds of millions of troublefree cycles. Incorporate both technologies to optimize your machine's performance.

- » **Modular** – 2 to 20 valve slices (max. 40 solenoids), field expandable, countless configurations.
- » **Robust** – IP65 and optional ATEX approved.
- » **Simple installation** – Plug-in sub-base valve.
- » **Total reliability** – Glandless spool and sleeve deliver millions of trouble-free cycles.
- » **Connected** – IO-Link, Multipole, PROFINET, EtherNet/IP, PROFIBUS, DeviceNET and CANopen.



34D Pressure Sensor

The 34D has a robust stainless steel body with a G1/4 media connection port and M12 electrical connection, and is ideally suited for aggressive process control environments.

- » **Easy installation** – Body rotatable by 345 degrees relative to the body for easy alignment of the display during installation.
- » **Connected** – IO-Link capability allows remote set-up and access to application performance data for improved system monitoring.
- » **Simple set-up** – Easy and quick manual set up via three push buttons, or remotely via IO-Link.
- » **Easy-to-use** – Large 10mm, two color programmable display to easily identify switching status. LED status indicators can be viewed from rear.
- » **Universal** – Pneumatic and Allfluid process media in single product series with 9 different pressure range options from vacuum to 600 bar, making it suitable for all applications.
- » **Robust** – Stainless steel (1.4404 / 316L) body with laser etched labelling and IP67 ingress protection.
- » **Reliable** – Ceramic capacitive measuring cell provides for very high over pressure capability such as situations with water hammer and cavitation (dynamic pressure peaks). The measuring cell is also very good at handling aggressive or abrasive media.



54D Pressure Sensor

54D pressure sensor allows customers to react quickly and effectively to changing requirements through its built-in intelligence. This pressure switch is ideally suited for monitoring general vacuum and compressed air applications, particularly end-of-arm tooling applications.

- » **Easy installation** – Using integrated mounting holes or a DIN rail bracket, and M8 electrical connector for maximum flexibility.
- » **Connected** – IO-Link capability allows remote set-up and application performance data for improved system monitoring.
- » **Accurate** – High accuracy of $< \pm 0.5\%$ of span.
- » **Simple set-up** – Easy and quick manual set up via push buttons, or remote setup of multiple switches via IO-Link.
- » **Easy to use** – Two color display for easy identification of correct pressure setting.
- » **Robust** – PBT engineering polymer housing is mechanically strong and heat resistant.
- » **Reliable** – Specially coated piezoresistive silicon measuring cell that is resistant to moisture, and IP65 as standard.





COMING SOON



Excelon® Plus 84 Series with Integrated Electronic Pressure Sensor

Excelon® Plus offers exceptional performance, is compact and lightweight with no compromise on robustness, and is suitable for all industrial applications.

- » **Connected** – IO-Link capability allows remote set-up and application performance data for improved monitoring (84 series, 1/2" only).
- » **Intelligent Sensing** – Built-in diagnostics, self-testing and fault reporting of sensor status offers intelligence for monitoring and measurement.
- » **Accurate Real Time Data** – Process pressure, operating temperature and supply voltage are transmitted as 'process data' once per second.
- » **Flexible** – 3 variants - integrated regulator unit, integrated filter-regulator unit or standalone unit.
- » **Easy-to-use** – Programmable 1.44" Color TFT display for easy identification of correct pressure setting. Green (pressure is within limits), red (pressure is outside limits), amber (error) or white (setting mode).
- » **Reliable** – Protection against overvoltage, reverse polarity and short circuit on signal lines. Coating protects it from water in the airline.
- » **Easy-to-install** – Field installable connector system with M8 connector gives a fully integrated design.

VP50 Proportional Valve

VP50 is a three way, closed loop proportional valve using air piloted glandless spool technology. Ideally suited for general purpose industrial pressure control applications requiring high flow and fast response times.

- » **Flexible** – IO-Link driven command signal provides greater flexibility when setting up and operating the valve over an analogue setup.
- » **Accurate Real Time Data** – IO-Link powered feedback provides output pressure and input signal confirmation to the customer or their system.
- » **Preventative Maintenance** – Hours run count. Basic counter for use as part of Time Preventative Maintenance (TPM).
- » **Diagnostics** – Error flag reporting. Self-monitoring of the valve and reporting performance issues, such as the inability to reach desired output pressure.

M/50 Solid State Switch

To enhance effective installation and improved connectivity, the M/50/IOP switch incorporates an orange LED indicator to allow for optimum installation relative to the cylinder magnet, with an additional green LED which acts as a 'power on' indicator. In IO-Link mode, this installation and connectivity indication is provided via the communication system. In addition, with the inclusion of IO-Link technology, the functionality of the switch has been developed to enable the monitoring of the local temperature, recording maximal temperature, providing an operation counter and setting of operating mode variables.

- » **One switch fits all** – Compatible with all Norgren actuators.
- » **UL listed** – Canada and USA.
- » **Compatible** – Standard mode or IO-Link mode.
- » **Smart functionality** – Detection counter.
- » **Permanent diagnostic** – Temperature measurement.
- » **Visual installation aid** – From flashing to permanent LED.



Added Value Benefits to All Industries

Improving efficiency, performance and reducing downtime

Norgren has a long history in many industry sectors, and we use our understanding of the technical challenges and legislative framework in each, to develop breakthrough engineering solutions for our customers. From providing intelligent diagnostics solutions, improving speed, productivity, reliability and efficiency of equipment, to generating significant energy and cost savings, or lowering total cost of ownership, Norgren's solutions are designed to help our customers pursue progress, achieve new goals and overcome problems.



Industrial Machinery

- » Fast initial start-up of the machine.
- » Drastically simplified sensor replacement when failures occur, shorter downtimes.
- » End user does not have to worry about setting sensor parameters.
- » Simple connection of standard sensors using IO-Link.
- » Remote diagnostics possible down to the sensor level (maintenance support through the manufacturer).

Food, Beverage & Packaging

- » Each change in pre-set parameters is detected by the sensors and logged in the controller.
- » Sensor parameters can be logged during the production process.
- » The sensor can be set directly from the controller.
- » Machine and process validation down to the lowest automation level.

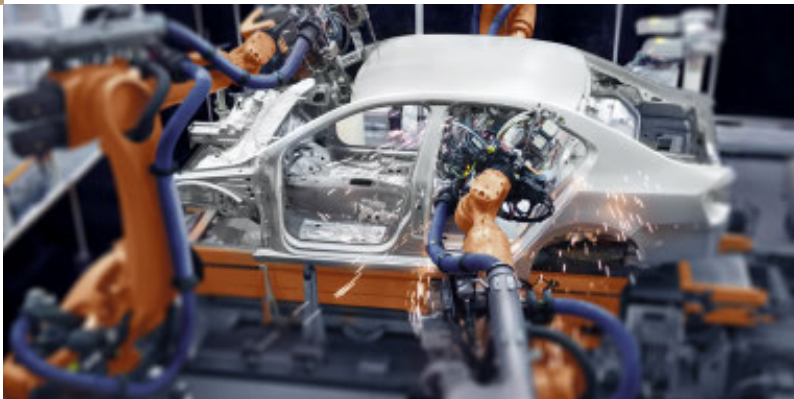


Factory Automation

- » Drastically simplified connection of valve manifolds and sensors.
- » Cabling and wiring replaced by ready-to-plug-in IO-Link.
- » Modular construction of the equipment, modules linked via connectors.
- » Saves resources: Less copper, no wasted worker time.

Automotive Industry

- » Every process (press shop, body-in-white, paint shop, powertrain and final assembly) can function reliably and with very high availability of all machines and installations at all times.
- » Fast detection and elimination of occurring leakage.
- » Remote parametrisation to avoid stopping production.



Norgren operates four global centres of technical excellence and a sales and service network in 50 countries, as well as manufacturing capability in Brazil, China, Czech Republic, Germany, India, Mexico UK and the USA.

For information on all Norgren companies visit

www.norgren.com

Supported by distributors worldwide.

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Incorporating



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