An INDEVA® Manipulator equipped with an INDEVA® Gateway can exchange data with Customer’s IT System, through the Company wi-fi network.

Technical specifications:
> data transmission protocol: Standard Modbus TCP/IP
> connection to Wi-Fi network: 802.11 2.4GHz
> manipulator configuration: server
INDEVA® GATEWAY allows OUTPUT and INPUT data exchange in real time.

OUTPUT

Machine Data, e.g.:

> digital inputs status
> digital outputs status
> machine alarms

Performance Data, e.g.:

> gripping tool cycle
> number of kilometers covered by the cable*
> consumption (kw/h)*
> machine working temperature*
> approximate weight of lifted load*

* data not available from pneumatic manipulator

Maintenance management Data:

> preventive and ordinary maintenance management and scheduling, with warning when imminent maintenance is required.

INPUT

Working Data, e.g.:

> load picking/release position control
> load picking/release height control
> bar code recognition
> part picking sequence control

VISION AND ADVANTAGES OF PRODUCTION IN INDUSTRY 4.0

♦ Consistent availability of data
♦ Increased production flexibility
♦ Optimized decision processes
♦ Enhanced Planning thanks to production data availability in real time
♦ Enhanced Productivity and more efficient use of human resources

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DATA COMMUNICATION capability is a feature required for machines in industry 4.0

APPLICATIONS WITH INDEVA MANIPULATORS INTERCONNECTED

Product identification
Identification of the handled product (according to its model and/or serial number), allows to plan production process as per the following paradigms:

♦ Product Registration
Product recognition can be achieved in different ways: by product model according to its shape; by serial number through bar code or RFID tag reading. Product recognition allows material traceability and registration in the management system.

♦ Adaptive cycle
Machine cycle can be adapted according to product model and/or serial number, and/or the working sequence. The manipulator can be programmed to act differently according to the part to handle, e.g.:
- if a model does not have to be picked the manipulator will not carry out load gripping and/or will produce a warning for the operator.
- different release positions can be planned according to product model or serial number; the manipulator will display the correct release position for each picked load and will prevent release in the wrong position.
- it is possible to allow picking only of certain models in order, for example, to fill a pallet according to specific requirements.

♦ Poka-yoke
Any process that requires the flexibility of a human operator is subject to suffer from human error as well. Thanks to INDEVA® Gateway, a process carried out by an INDEVA® manipulator is not subject to human error.

Enhanced production flexibility
Flexibility in production process planning makes it possible to produce more product types in less time at lower costs. Mixing different products in one production chain is achievable only if intelligently controlled by a production management system that can interact with operator and machines, including manipulators.

Supervision of manipulator
INDEVA® Gateway allows to monitor manipulator status both from inside and outside the Company network. Supervision allows, e.g.:
- prompt maintenance actions in case immediately required thanks to real time warning;
- storing of manipulator performance data;
- manipulator status monitoring in order to prevent improper use (lifting weight above max capacity, working at environment temperatures beyond the allowed limit, etc.);
- scheduling maintenance on the basis of actual work conditions.

Monitoring worker’s effort and optimization of ergonomics
INDEVA® Gateway allows to monitor and control the operator’s effort and to plan a proper use in order to satisfy the request for both more productivity and more ergonomics for the operator.

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