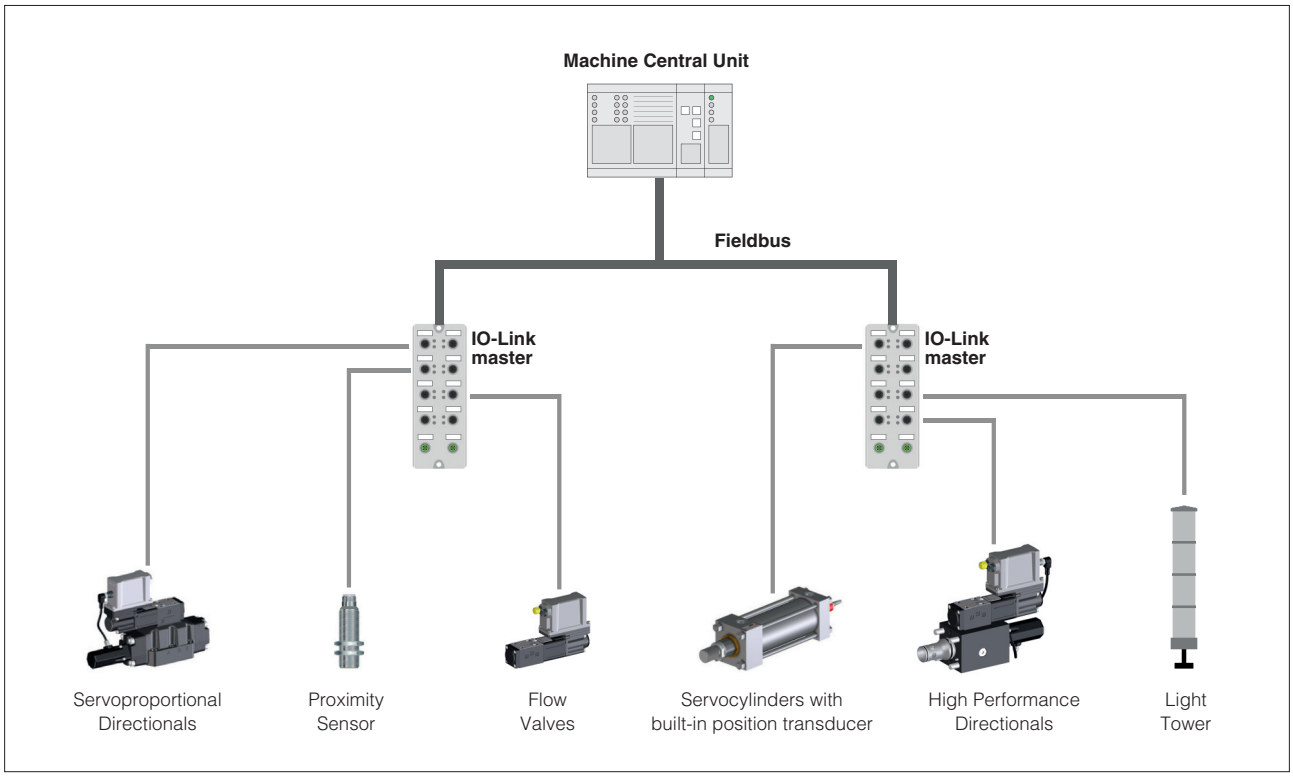
IO-Link features

Point-to-point digital communication protocol

Typical IO-Link network



1 GENERAL DESCRIPTION

IO-Link is a standard digital communication used for connecting digital sensors and actuators to the fieldbus network.

An IO-Link system consits of the following components:

- IO-Link master
- IO-Link devices (valves, transducers,...)
- Standard unshielded molded cables

Each device is connected to a single port of the master via low cost unshielded cables (point-to-point communication) and the master works as a hub establishing the communication between the devices and the machine central unit which manages the automation system. IO-Link masters support various fieldbuses for the communication with the machine central unit (CANopen, PROFIBUS, EtherCAT, POWERLINK, PROFINET, EtherNet/IP, …).

The IO-Link system offers several advantages as a digital communication interface:

- low cost cables with standarized wiring
- improved accuracy and robustness of digital transmitted information
- more information available for machine optimization, diagnostics and troubleshooting
- dynamic change of device parameters for increasing machine flexibility and performances
- automatic device identification and parametrization for simplifying commissioning and maintenance operations

2 IO-Link features for digital drivers in IL execution

Physical

Serial input format	24V pulse modulation
Transmission rate	230.4 kbit/s (COM3)
Port Class	Class B
Network Topology	Point-to-point connection
Cable lenght	Up to 20 m
Cable type	5 wires, unshielded

Communication Protocol

Data Link Layer	M sequence type: - preoperate mode = TYPE_0 - operate mode = TYPE 2_V
Device type	Device - supported features: - Cyclic transmission of process data - Acyclic transmission of parameters - Acyclic transmission of identification data - Acyclic transmission of diagnostic events

Configuration and Commissioning

- setting via Atos PC software
- setting via IO-Link / USB adapter and configuration tool
- setting via IO-Link Master and configuration tool
- setting via Machine Central Unit

Cyclic transmission of process data

Cycle time	Min 2 ms
Number input data	2 word
Number output data	2 word

Diagnostic Events

Update time	2 ms
Event category type	Error, Warning, Notification
Status code	Type 2 with details
Number of event	Max 6 concurrent errors

Standard references

IEC 61131-9
Programmable controllers - Part 9:
Single-drop digital communication interface for small sensor and actuators (SDCI)

IO-Link
Interface and System Specifications 1.1.3

IO-Link
Test Specifications 1.1.3

Programming interface

E-SW-BASIC software using proper cable/adapter (see tech table **GS500**)

Configuration file

IODD (IO Device Description), enclosed in USB memory stick of the programming software and in MyAtos area at www.atos.com

Manuals

E-MAN-S-IL enclosed in programming software E-SW-BASIC and in MyAtos area at www.atos.com