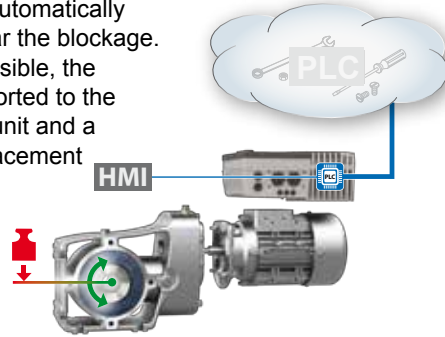


NORDAC Frequency Inverters with Integrated PLC

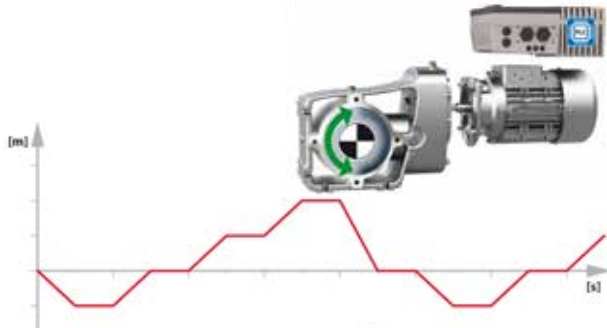
2. Autonomous and networked operation of a NORD drive unit

A drive unit, for example a pump, detects a blockage. The drive unit automatically attempts to clear the blockage. If this is not possible, the blockage is reported to the central control unit and a networked replacement drive is started.



3. A decentralised control concept can be easily implemented.

NORD frequency inverters play a decisive role in this. Thanks to their integrated PLC function, they operate independently from a central control system, both as individual drives or in defined groups.



4. Positioning with a decentralised frequency inverter

"POSICON" positioning control is available in many NORD frequency inverters. In combination with the integrated PLC, the solution for applications close to the drive unit (e.g. sequence control for turntables) are practically included directly in the frequency inverter.

MULTIPURPOSE: NORDAC PRO SK 500E



- Frequency inverters**
- Power range up to 160 kW
 - Control cabinet installation
 - IP20

VERSATILE: NORDAC FLEX SK 200E



- Frequency inverters**
- Power range up to 22 kW
 - Wall or motor installation
 - IP55, IP66

ECONOMICAL: NORDAC BASE SK 180E



- Frequency inverters**
- Power range up to 2.2 kW
 - Wall or motor installation
 - IP55, IP66, IP69K

CONVENIENT: NORDAC LINK SK 250E



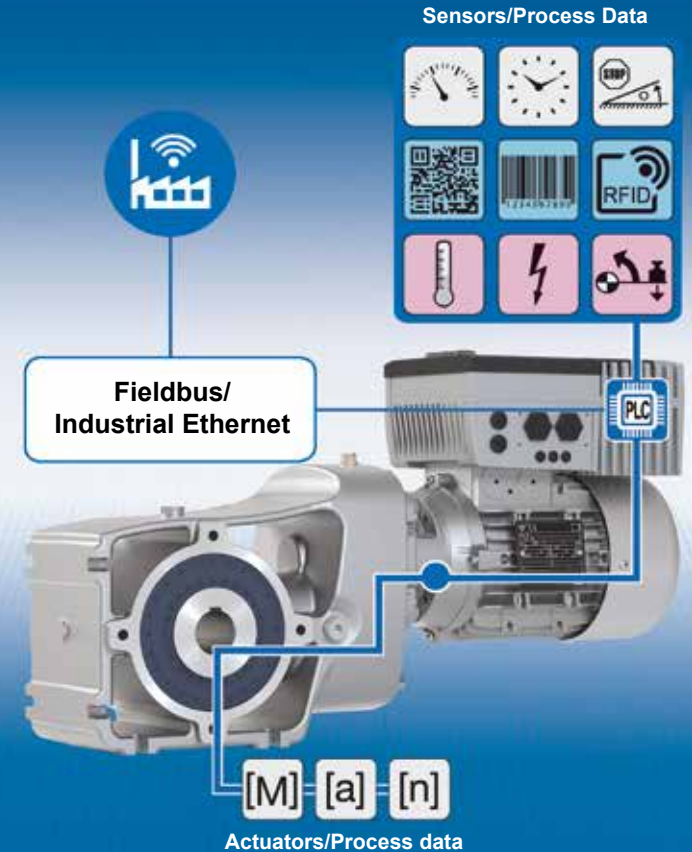
- Frequency inverters**
- Power range up to 7.5 kW
 - Field installation
 - IP55, IP65

COST-EFFECTIVE: NORDAC LINK SK 155E



- Motor starter**
- Power range up to 3 kW
 - Field installation
 - IP65

DER ANTRIEB INTEGRATED PLC



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Member of the NORD DRIVESYSTEMS Group

NORD DRIVE SOLUTIONS WITH INTEGRATED PLC

Our models illustrate the following:

1. Hybrid control concept for a drive system

Decentralised frequency inverter in a centralised automation concept

The model shows just how simple this is. NORD drive units can be used in both centralised automation concepts as well as for autonomous operation. In this model the inverter can be disconnected from the central control system. After this, the drive continues to operate autonomously.

For example it can take on a specified operating state or can perform a defined sequence of movements. This also includes independent movement to various positions, for example the starting position.

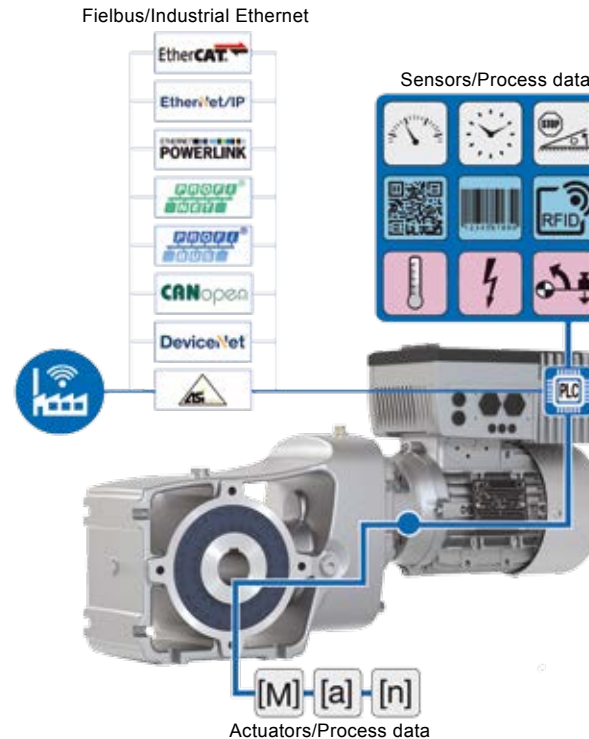


The integrated PLC turns the combination of a NORD frequency inverter and a motor/gear unit combination into a complete system solution.

The NORD system solution is extended with functions for IEC 61131-3 programming (Structured Text and Instruction List) by use of the NORD CON software tool. Use of the PLC and the NORD CON programming tool does not involve any extra costs.

With integration of the PLC into the frequency inverter application-specific functions close to the drive unit can be efficiently programmed and parameterised in the same way as all other frequency inverter functions. This enables direct access to the parameters as well as the analogue and digital inputs and outputs of the frequency inverter, for example the pre-processing of signals is possible.

Networked NORD drive units which can also operate autonomously



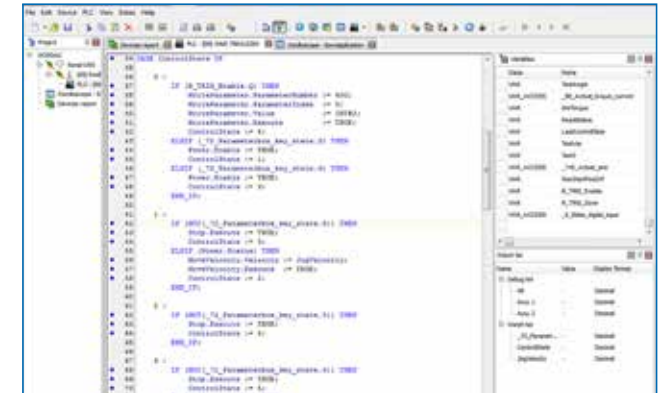
NORD DRIVE SOLUTIONS WITH INTEGRATED PLC ARE INDUSTRY 4.0 READY

NORD CON SOFTWARE TOOL

NORD CON follows the trend towards "high-level programming languages" in the field of automation, and supports the programming languages "Structured Text" and "Instruction List" according to IEC 61131-3.

Free programming of the integrated PLC is supported by an extensive selection of Motion Control function blocks which are integrated into the firmware. The function blocks are based on PLCopen Motion Control (www.plcopen.org) and simplify control of the drive unit.

The PLC enables control and evaluation of the IOs of the frequency inverter. The logical control of movement sequences, for example a positioning application, enables implementation of complex functions close to the drive unit.



The development of an application-specific firmware, which would require intensive verification and validation, can therefore be avoided.