# NORISYS 4 CPU
# High-Performance Control System

- Robust design for harsh environments
- 32-bit, 400 MHz embedded Power PC
- Integrated web-server
- 2 separate CANbus interfaces
- 2 separate Ethernet interfaces
- 1 RS-232/-422/-485 interface
- 1 NORISYS ExtensionBus interface, RS-485
- 1 USB 1.1 host
- 1 SD(HC) card slot for cards with a capacity of up to 32 GB
- 4 galvanically isolated digital inputs with wire break detection
- 4 potential-free changeover relay outputs
- Extended operating temperature range of -25°C … +70°C
- PLC according to IEC 61131 standard with CoDeSys integration

**ClassNK**
NIPPON KAIJI KYOKAI

Lloyd's Register TYPE APPROVED

DNV

BUREAU VERITAS

CE

ABS TYPE APPROVAL PROGRAM

Germanischer Lloyd

## NORISYS 4 CPU N4C...

### General Information

NORISYS 4 is an integrated, open and easy-to-use automation platform, which has been designed to reduce the engineering workload and which guarantees a high level of safety. The platform is scalable up to high-level automation applications, with added values and benefits, e. g. web server integration and software parameterisable I/O unit architecture.

### Description

The NORISYS 4 CPU module serves as a processor and communication device within the context of the NORISYS 4 automation platform. The module consists of an embedded high performance Power PC processor with multithreading enabled CoDeSys runtime implementation.

The IPC version of the NORISYS 4 CPU elegantly combines what industry wants from a PLC with a level of PC technology performance that is suitable for harsh environments. Program data is stored on an internal 32 MB flash drive. The remaining free space is available for user and project-related data. A separate SRAM module featuring battery backup contains a 128 kB retentive data area. Both the SD(HC) drive and the USB interface can be used for data storage.

Galvanically isolated digital inputs and changeover relay outputs can be used for process interconnection or PLC status output.

Every digital channel and all the communication interfaces are equipped with indicator LEDs for status monitoring. 2.5 mm² terminal blocks are used for direct wiring of standard industrial signal cables.

### System Interconnection

The CPU module is equipped with redundant CANbus and redundant Ethernet interfaces for field bus interconnection and vertical network integration. The CANbus interfaces support user-defined protocols and CANopen communication. Not only that, but there is a freely programmable RS-232/-422/-485 interface that can be used with existing MoDBUS RTU implementation and user-defined protocols for the purpose of interconnecting third-party systems.

The internal NORISYS 4 ExtensionBus is based on an RS-485 interface with an adapted MoDBUS RTU protocol for extension module interconnection. Thanks to the efficient way in which the protocol has been implemented, the I/O data can be updated for 500 channels in less than 250 ms. Each CPU module can be extended using up to 16 I/O modules. The hotswap functionality and runtime I/O configuration mean that the control system has a high level of availability. All interfaces are short-circuit proof and feature 24 V protection.

### Web Interface

The CPU module contains a web server, which is able to drive the XML-based CoDeSys Web Visualization. Consequently, a web browser with the JAVA runtime system is merely requested on the user side.

FTP connections to the internal flash as well to the SD(HC) drive and USB interface complete the set of available remote access options.
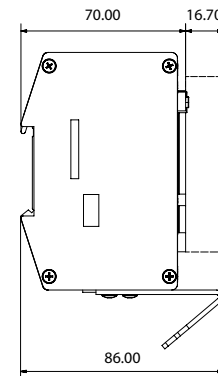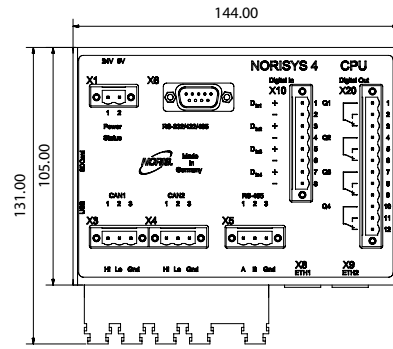
### Data Logger

The CPU module comes with a card drive for standard SD/SD(HC) cards of up to 32 GB. A basic data logger system for event and cyclic data can be set up using standard CoDeSys file access functions or the NORISYS secure file library, which supports secure data transfer combined with a data consistency check.

# Technical Data

| Series N4C... | | |
|---|---|---|
| **Connection** | Supply voltage | $U_{nom}$ 24 $V_{DC}$, 18 ... 32 $V_{DC}$, galvanically isolated |
| | Current consumption | Max. 420 mA @ 24 $V_{DC}$ |
| | Reverse voltage protection | Integrated |
| | Over voltage protection | Integrated |
| **Interfaces** | RS-485 | 1 x, NORISYS extension bus, galvanically isolated |
| | CANbus | 2 x system bus, galvanically isolated |
| | RS-232/-422/-485 | 1 x, galvanically isolated; Protocol: MODBUS-RTU |
| | Ethernet | 2 x 100 Base-TX/10Base-T; Protocol: TCP/IP, MODBUS-TCP |
| | USB | 1 x USB 1.1 Host |
| | SD(HC)-drive | 1 x card drive, max. 32 GB |
| | Electrical connections | Plug with spring-type terminals, cable 2.5 mm², RJ-45, D-Sub9 male plug |
| **In-/Output** | Inputs | 4 channels, galvanically isolated, therefrom 2 counter inputs, wire break detection |
| | Outputs | 4 channels, relay changeover |
| **Environmental influences** | Operating temperature | DIN IEC 60068-2-2 and DIN IEC 60068-2-1: -25°C ... +70°C |
| | Climatic test | IEC 60068-2-30 Db |
| | Storage temperature | DIN IEC 60068-2: -40°C ... +85°C |
| | Vibration resistance | *For bolt screw strap enclosure:* DIN IEC 60068-2-6 Fc: ±1.6 mm @ 2 ... 25 Hz, ±4 g @ 25 ... 100 Hz <br> *For mounting rail enclosure:* DIN IEC 60068-2-6 Fc: ±1.0 mm @ 2...13.2 Hz, ±0.7 g @ 13.2...100 Hz |
| | Shock resistance | DIN IEC 60068: 15 g/11 ms |
| | Degree of protection | DIN EN 60529: IP30 |
| | ESD | IEC 61000-4-2: ± 6 kV/CD; ± 8 kV/AD |
| | HF-interference immunity | IEC 61000-6-2; IEC 61000-4-3, -4-4, -4-5, -4-6 |
| | Interference emission | IEC 61000-6-4; CISPR16-1, CISPR16-2, EMC 2, EMC 1 with external filter |
| **Mech. dimensions** | Material | Enclosure: transparent passivated aluminium |
| | Mounting | Bolt screw strap; 35 mm mounting rail |
| | Installation position | Preferably horizontal |
| | Weight | 350 g |
| **Other** | Processor | embedded PPC, 32 Bit, 400 MHz, 760 MIPS |
| | Program memory code/global/marker | 8 MB/4 MB/1 MB |
| | Memory retentive data | 128 kB on battery supported SRAM |
| | Cycle time for 1k Bit-instructions | < 0.05 ms |
| **Appr.** | Approvals | CE, ABS, BV, DNV, GL, LR, NK |
| | Applied standards | EN 61131-2 and EN 61131-3 |

# Dimensions, Connection, Diagram

## Top-hat channel TS35 to DIN EN 50022 / Rail mounting



## Flange mounting