# Universal Transmitter

N-CONTROLS

NEW!

## Application Example

- Temperature transmitting into standardised electrical signals
- Flow measurement
- Rotation speed measurement
- Isolation of electrical signals

## Special Features

- Compact design, only 22,5mm wide
- Dual-line LC display with additional display elements
- Convinient 3-key operation
- Direct communication between mounted transmitters, fieldbus connections via bus coupler
- Up to two universal inputs for TC, RTD, R, I, U, f
- Universal output with combined current / voltage output
- Combined counter or frequency input resp. output
- Up to two relay outputs
- Customized linearization
- Min-, Max-indicator
- Galvanic isolation between input and output as well as power supply
- Fast response (100ms cycle time)
- Sensor monitoring
- Build in transmitter power supply

## Options / Accessories

- Second universal input
- Connector set with screw terminals
- Additional relay output
- Counter input
- Frequency input and output
- RS 485 / Modbus protocol
- Fieldbus coupler PROFIBUS DP
- System interface (only for 24V version)
- Engineering-Tool BlueControl® for configuration, parameter setting and operation
- Power supply module

## Functions

- Standard (actual value X1)

As Option:

- Difference (X1-X2)
- Maximum / Minimum value
- Average of X1 and X2
- Switchover between X1 and X2
- Counter, frequency measuring
- Actual value of INP1, temperature compensation with INP2

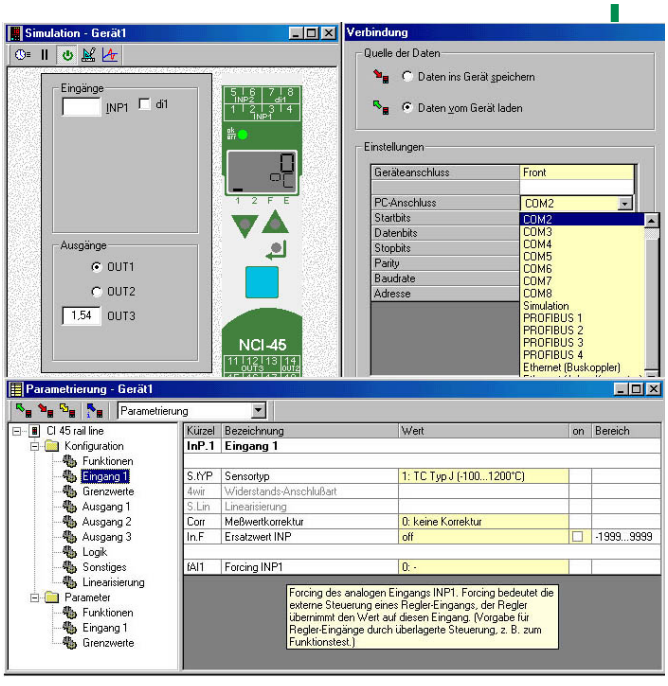
## Signal processing

- Measurement value correction (offset and 2-point)
- Scaling
- 1st-order filter
- Linearization with 31 segments
- Radical function
- Integrator

## Behavior on sensor break / short circuit

- Response of the analog output is selectable (upscale / downscale)
- Preset substitute input value, can be disabled


*NCI-45-rail*




*BlueControl-Software*



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## Specification NCI-45

### General

| | | |
|---|---|---|
| Display | LCD | dual-line + display elements |
| Power supply | (acc. to order) | |
| | alternating current | 90...260VAC / 48...62Hz |
| | or universal supply | 18...30VAC / 48...62Hz<br>18...31VDC<br>4VA / 3W max. |
| Protection class | housing | IP20 |
| Perm. temperatures | operation | -10...55°C |
| | temperature drift | ≤ 0,05% / 10K |
| | storage | -30...70°C |
| Humidity | | 95% max., no condensation |

### Inputs

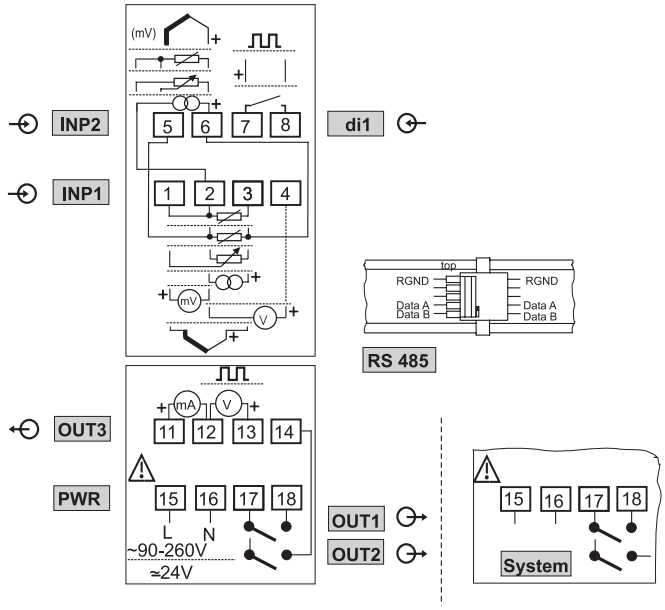
| | | |
|---|---|---|
| INP1+INP2 | thermocouple inputs | type L, J, K, N, S, R, T, C, D, E, B |
| | resistive inputs | Pt100, Pt1000, KTY 11-6 (3-wire) |
| | potentiometric | 0...4,5kOhm (3-wire) |
| | current | 0...20mA |
| | voltage | 0...10V, -10...10V, -5...5V, -500...500mV |
| INP2 | digital input DI1 | potential-free contact input |
| | counter input (option) | pulse counter for up or down counting, no storing |
| | optocoupler (option) | for active control signals |
| | frequency (option) | input with optocoupler 0...100kHz |

### Outputs

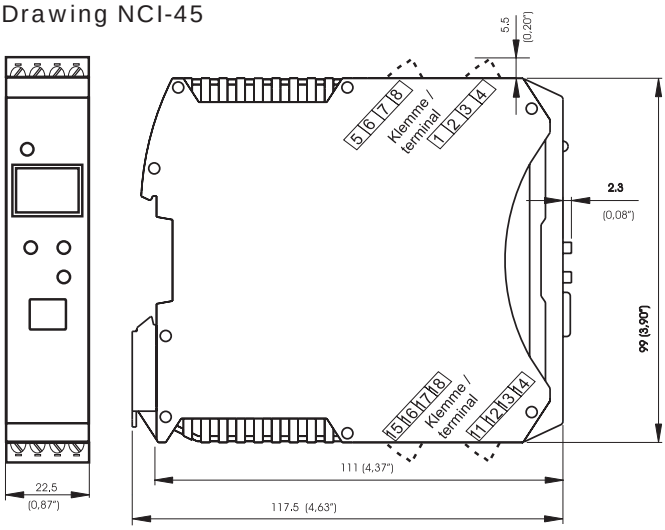
| | | |
|---|---|---|
| OUT1+OUT2 | relays, 2 no-contacts | 500VA, 250V, 2A max. |
| OUT3 | 0/4-20mA, 0-10V | short circuit proof burden 700Ohm |
| | 0-10V | not continuous short circuit proof burden ≥ 2kOhm |
| | 0,025...1kHz | square wave |
| | pulse output | 0...5Hz, 5Imp/s max. pulse duration 100/140ms |
| | transmitter supply | 22mA / ≥ 13V |
| Accuracy | | ≤ 0,1% |
| Resolution | | ≤ 1,5µA bzw.0,75mV |

Operation Elements: see Operation Manual

## Electrical Connection NCI-45




## Drawing NCI-45




## Table Functionality of BlueControl®-Versions

| Functionality | Basic | Expert |
|---|---|---|
| | | |
| parameter and configuration setting | yes | yes |
| controller and loop simulation | yes | yes |
| download: transfer of an engineering to the controller | yes | yes |
| online mode / visualisation | yes | yes |
| defining an application specific linearization | yes | yes |
| configuration in the extended operating level | yes | yes |
| upload: reading an engineering from the controller | yes | yes |
| basic diagnostic functions | no | yes |
| saving data file and engineering | yes | yes |
| printer function | yes | yes |
| online documentation, help | yes | yes |
| implementation of measurement value correction | yes | yes |
| data acquisition and trend display | yes | yes |
| wizard function | yes | yes |
| extended simulation | no | yes |
| customer-specific default data-set | no | yes |
| | | |
| programeditor (NKS-90-1 programmer only | no | yes |
| Rail line system support | no | yes |



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## General

BlueControl® is a powerful tool for setting parameters, simulation, commissioning and diagnosing BluePort®-devices.

## Description

The primary function of BlueControl® is parametrizing of control equipment with the assistance of plain texts, a clear structure, and online help, thus enabling the numerous options to be selected quickly and safely.
If BlueControl® is linked with an active device (online-mode), the most important process data and settings of the connected device can be monitored and changed, and the trend function also permits them to be recorded. The display is in real-time.

A completely risk-free procedure is provided by the detailed device and process simulation, primarily for testing control functions before comissioning, or for training purposes. This feature also permits the simulation of comprehensive functions and complex devices, without having to connect the device or process signals to the PC.

## Versions

- Basic version: Functions and access to special device functions that are not available via front-panel operation.
- Expert version: provides additional special functions (see Table "Functions of BlueControl®-versions" page 7)

## Functions

- Parametrizing: the primary task of BlueControl®
- Wizard for controller tuning
- Online-help
- Parameter-help (tool tips)
- Visibility of operation, extended operating level
- Upload / Download the data of an external device
- Simulation
- Online operation
- Export of a download list
- Linearisation export/import
- Print function
- Trend recording
- BluePort® maintenance manager
- Communication via Modbus, PROFIBUS or Ethernet

## Prerequisites

Software

- BlueControl® runs under the operating systems Microsoft Windos 95, 98, ME, NT4, 2000 und XP

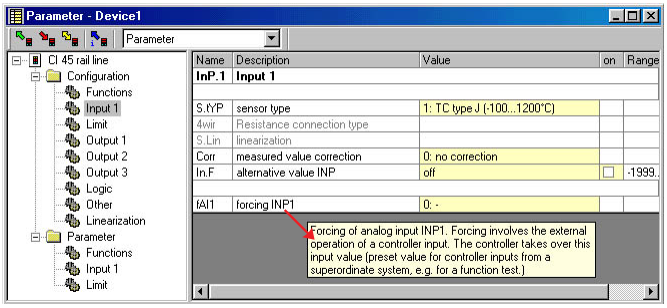
Hardware

- IBM-compatible PC, with Pentium processor
- at least 32MB working memory
- hard disk with at least 64MB free capacity
- VGA-graphics and a suitable monitor
- Floppy disk drive or CD-ROM drive
- Mouse or similar pointer device
- serial interface or USB adapter for connecting external devices

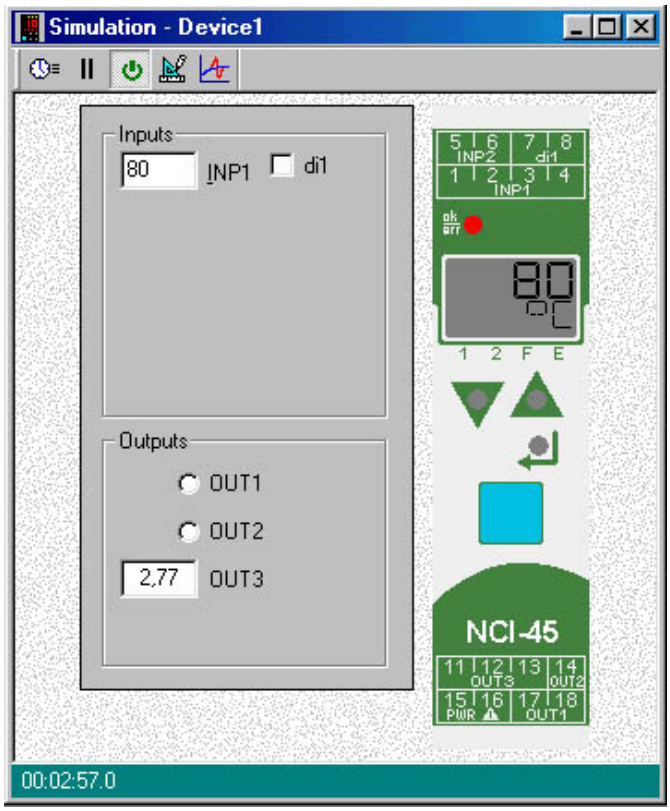
## Order Code

| Engineering-Tool | Version | |
|---|---|---|
| BlueControl® | Basic | multi-language |
| | Expert | multi-language |
| Order Example: | BlueControl® / Basic | |

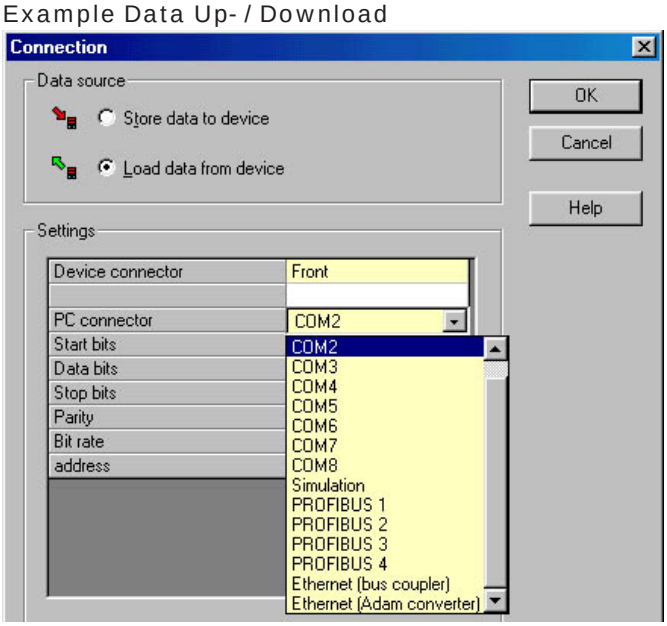
## Example Parameter Setting with Online-Help




## Example Simulation




## Example Data Up- / Download



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## Order Code NCI-45

NCI - 45-1 (with 1 universal input, 1 digital input, display and BluePort®-interface)

**Connection**
- 0 without connection plug
- 1 connector set with screw terminals

**Relays**
- 2 90...260VAC, mA / V / logic + 1 relay
- 3 18...30VAC / 18...31VDC, mA / V / logic + 1 relay
- 4 90...260VAC, mA / V / logic + 2 relays
- 5 18...30VAC / 18...31VDC, mA / V / logic + 2 relays

**Options**
- 0 no option
- 1 RS422 / 485 + transmitter power supply + di2, di3
- 2 system interface (only for 24V version)

**Options**
- 0 no option
- 1 options package 1 (additional universal input INP2; plus: O2 measurement, counter input, function tare, sample&hold, integrator)
- 2 options package 2 (additional to options package 1; digital input as optocoupler, frequency input / output)

**Configuration**
- 000 standard configuration
- 090 configuration to order

**Certification**
- 091 standard (CE-certified)
- U91 UL / cUL-certified (applied for)

Example:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NCI - 45-1 | 0 | 2 - | 0 | 0 | 000 - | 091 | |

## Order Code System Components

| | |
|---|---|
| Fieldbus coupler PROFIBUS DP | RL40-112-00000-000 |
| Fieldbus coupler PROFIBUS DP, UL / cUL-certifiec (applied for) | RL40-112-00000-U00 |
| Power supply module | RL40-119-00000-000 |
| Power supply module, UL / cUL-certified (applied for) | RL40-119-00000-U00 |
| Order Example: | RL40-112-00000-000 |

## Order Coded Documentation

| | |
|---|---|
| Operating instructions NCI-45 german | 9499-040-71718 |
| Operating instructions NCI-45 english | 9499-040-71711 |
| Interface description for MODBUS rail line german | 9499-040-72018 |
| Interface description for MODBUS rail line english | 9499-040-72011 |
| Interface description for PROFIBUS-DP rail line german | 9499-040-77118 |
| Interface description for PROFIBUS-DP rail line english | 9499-040-77111 |
| Data sheet system components rail line german | 9498-737-50933 |
| Data sheet system components rail line english | 9498-737-50913 |
| Order Example: | RL40-112-00000-000 |


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