

Fieldbus Coupler: Modular I/O-System

Application / Specified Usage

- In- / output of norm signals and process values by Profibus-DP or Ethernet (Modbus/TCP)
- Cost saving fieldbus connection of sensors and actors with decentralised in- / output units

Features

- Modular system is optimal customizable per requirement
- Easy system extension by pluggable modules (up to 62 modules addressable with one fieldbus coupler)
- Multifunctional microcontroller based modules; integrated signal preprocessing
- Thought-out concept of galvanic isolation
- Modules changable during operation without downtime ("hot swap")

Modules

- Fieldbus coupler for Profibus-DP or Ethernet (Modbus/TCP)
- Digital in- / output modules
- Analog in- / output modules
- Analog input modules for Pt100 / Pt1000 and thermocouples
- Relay modules (switching current 5 A max.)
- Power modules for up to 16 I/O-modules

Functional Description

The "Modular I/O-System" NRL includes one fieldbus coupler and up to 62 in- / output modules mounted on DIN rail. All modules are linked by pluggable bus connectors which are integrated in the rail. More than 16 modules require additional power modules.

System power (24 VDC) is directly connected to the fieldbus coupler. All other in- / output modules are supplied through the bus connectors.

The I/O-modules are linked to the fieldbus coupler by the internal data bus. In- / output values and status of the modules are frequently actualized and saved by the fieldbus coupler. Cycle time depends on type and number of connected modules and current bus load.

Configuration of the modules can either be done by configuration software BlueControl® or directly over the fieldbus.

Fieldbus Coupler

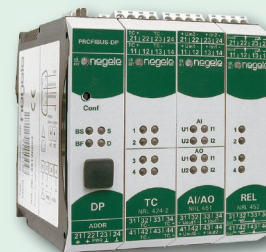
MODBUS TCP

PROFI[®]

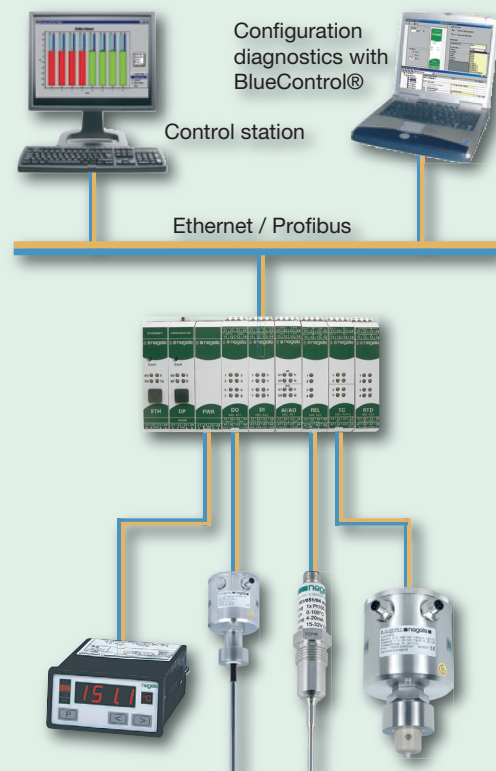
PROCESS FIELD BUS

BUS

DP-Bus Coupler with 3 Modules





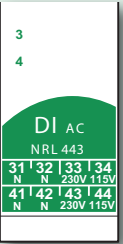



System Overview




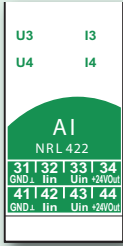

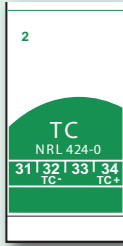
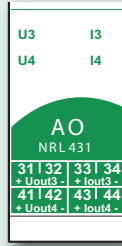

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Available Fieldbus Coupler Modules

NRL						
	NRL-40-PWR	NRL-40-DP	NRL-40-ETH	NRL-442	NRL-443	NRL-451
Module	Power Supply	CPU-Module Profibus-DP	CPU-Module Ethernet	Digital Input Module	Digital Input Module	Digital Output Module
Description	Power supply for 16 additional modules	<ul style="list-style-type: none"> Baud rate up to 12MBd PROFIBUS-DP according to EN 50170 DPV1-protocol implemented Node address 1-99 via rotary code switch Power supply of 16 I/O-modules Configuration via fieldbus, front interface or automatically via 'Conf' button 	<ul style="list-style-type: none"> Ethernet 10/100 BaseT acc. to IEEE 802.3 via Port 502 Modbus over TCP/IP protocol Power supply of 16 I/O-modules Configuration via fieldbus, front interface or automatically via 'Conf' button 	<ul style="list-style-type: none"> 8 Channel input module for 24 VDC signals Versions for PNP, NPN or potential free inputs Direct connection of 3-wire-sensors Input specification according to IEC 1131 	<ul style="list-style-type: none"> 4 Channel input module for 115 / 230 VAC signals 	<ul style="list-style-type: none"> 8 Channel output module for 24 VDC signals High side driver Short-circuit proof Thermal protection Detection of wire breakage and shortcircuit
Inputs	-	-	-	8x <ul style="list-style-type: none"> PNP-Sensor or NPN-Sensor or 24 VDC 	4x <ul style="list-style-type: none"> 115 VAC / 230 VAC 	-
Outputs	-	-	-	-	-	8x <ul style="list-style-type: none"> 24 VDC Switching current max. 2 A
Galvanic Isolation	-	U _B - Fieldbus CPU - Fieldbus	U _B - Fieldbus CPU - Fieldbus	Inputs - Logic	Input - Input Inputs - Logic	Outputs - Logic

Data sheets should be downloaded at www.negele.net



Available Fieldbus Coupler Modules						
NRL						
	NRL-452	NRL-422	NRL-423	NRL-424	NRL-431	NRL-461
Module	Relay Module	Analog Input Module	RTD Input Module	TC Input Module	Analog Output Module	Analog Combi Module
Description	<ul style="list-style-type: none"> 4 Channel output module relay output 	<ul style="list-style-type: none"> 4 Channel input module for analog signals Input level selectable 16 Bit resolution Sensor supply 10 V / 10 mA or 24 V / 25 mA selectable for each channel Suitable for potentiometrical sensors 	<ul style="list-style-type: none"> 4 Channel temperature input module for resistance thermometer Input level selectable 16 Bit resolution 'Full Range' measuring range Detection of sensor breakage and short-circuit 	<ul style="list-style-type: none"> 2 Channel temperature input module for thermocouples Input level selectable 16 Bit resolution 'Full Range' measuring range Detection of sensor breakage 	<ul style="list-style-type: none"> 4 Channel output module for analog signals Output value selectable 12 Bit resolution 	<ul style="list-style-type: none"> 2 Channel input module for analog signals Input level selectable 16 Bit resolution Differential inputs 2 Channel output module for analog signals Output value selectable 12 Bit resolution
Inputs	-	4x ± 1 V, ± 5 V ± 10 V, ± 20 mA	4x · Pt100/1000 · NI100/1000 · KTY11-6	2x · Type L, J, K, N, S, R, T, E, B, W · ± 80 mV	-	2x ± 1 V, ± 5 V ± 10 V, ± 20 mA
Outputs	4x · Floating change-over contacts · Switching capacity AC: 1250 W, 250 V, 5 A · Switching capacity DC: 120 W, 30 V, 5 A	-	-	-	4x ± 10 V ± 20 mA	2x ± 10 V ± 20 mA
Galvanic Isolation	Output - Output Outputs - Logic	-	Inputs - Logic	Input - Input Inputs - Logic	Outputs 1/2 - Outputs 3/4 Outputs - Logic	Inputs - Outputs Inputs - Logic Outputs - Logic

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Order Code

NRL-40-PWR	Power Supply for 16 modules
NRL-40-DP	CPU Module Profibus-DP
NRL-40-ETH	CPU Module Ethernet (Modbus/TCP)
NRL-442-0	Digital Input Module 8 x 24 V DC (PNP)
NRL-442-1	Digital Input Module 8 x 24 V DC (NPN)
NRL-442-2	Digital Input Module 8 x 24 V DC (potential free)
NRL-443-0	Digital Input Module 4 x 230 V AC
NRL-443-1	Digital Input Module 4 x 115 V AC
NRL-451-0	Digital Output Module 8 x 24 V DC / 2 A
NRL-451-1	Digital Output Module 8 x 24 V DC / 2 A (free-wheeling diode)
NRL-452-0	Relay Module, 4 x 250 V AC / 5 A
NRL-422-0	Analog Input Module 4 x I / U / POT (incl. 2 wire sensor supply)
NRL-423-0	RTD Input Module 4 x Pt100/Ni100 galvanic isolation
NRL-423-1	RTD Input Module 4 x Pt1000/Ni1000/KTY galvanic isolation
NRL-423-2	RTD Input Module 4 x Pt100 / Pt1000 / Ni100 / Ni1000 / KTY
NRL-424-0	TC Input Module, 2 x TC galvanic isolation
NRL-424-1	TC/O2 Input Module, 2 x TC/O2 (mV) galvanic isolation
NRL-424-2	TC Input Module, 4 x TC galvanic isolation
NRL-431-0	Analog Output Module, 4 x I / U
NRL-461-0	Analog Combi Modul, 2 x AI, 2 x AO

Accessories

BlueControl Basic rail line	Engineering tool for Configuration
PC Adapter BluePort®	PC adapter for BluePort® panel interface