Rexroth
Bosch Group

Digital axis control HNC100

RE 30131/07.05 1/12
Replaces: 03.05

Types VT-HNC100-1 and VT-HNC100-2

Component series 2X


H/D 20451

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Features

The digital axis control HNC100 is a programmable NC control for a closed-loop controlled axis. It meets the specific requirements of closed-loop controlling of hydraulic drives and also offers the possibility of controlling electrical drives.

With regard to immunity to interference, mechanical resistance to vibration and shock, and climate-proofness, the HNC100 is designed for use in harsh industrial environments. It conforms with EC Directives (CE mark).

Fields of application:

- Machine tools, plastics processing machines, special machines
- Presses
- Transfer lines
- Rail-bound vehicles

Programming:

- User programming with a PC
- NC language with subprogram technique and conditional jumps
- Own NC program for function sequences
- Local CAN bus for parameterising several HNC100

Operation:

- Comfortable administration of data on the PC
- Swift changing of data by means of hand-held control box BB-3 (see RE 29798) or control panel BF-1 (see RE 29794)

Process interfacing:

- 8, 16 or 24 digital inputs and outputs each, Profibus DP, CANopen or INTERBUS-S for communication with a PLC

Hydraulic axes:

- Measuring system:
  - Incremental or absolute (SSI)
  - Analogue 0 to ±10 V and 4 to 20 mA
  - Reference voltage ±10 V
- Voltage or current control variable output
- Freely configurable controller variants
  - Position controller, pressure/force controller
  - Position-dependent braking
  - Alternating closed-loop control (position/pressure)
  - Synchronisation control for 2 axes

Further information:

- Installation instructions and interconnection diagrams VT-HNC100-.-2X, see RE 30131-Z

Ordering code

VT-HNC100 – – 2X / – – – – *

Digital NC control HNC100

Version for 1 hydraulic axis **= 1**
Version for 2 hydraulic axes **= 2**

Component series 20 to 29 **= 2X**
(20 to 29: unchanged installation and connection dimensions)

Type of installation:
Housing for wall-mounting **= W**
Housing for rack installation **= M**

For single-axis version:
8 digital inputs/outputs **= 08**
24 digital inputs/outputs **= 24**
For 2-axis version:
16 digital inputs/outputs **= 16**

Further details in clear text

0 = Without evaluation electronics
A = **On enquiry only:**
Evaluation electronics for 2 inductive position transducers (not possible in conjunction with INTERBUS-S or CANopen)

0 = Without bus interfacing
P = Profibus DP [1)]
C = CANopen
I = INTERBUS-S
S = SERCOS

An interface cable is not included in the scope of supply, but can be ordered separately (3 m long; other lengths on enquiry). Material no.: **R900842349**

[1)] Additional plug type 6ES7972-0BA20-0XA0 for Profibus DP is not included in the scope of supply, but must be ordered separately! Material no: **R900050152**

Software configuration

Configuration

The operation of the HNC100 is based on the creation of application-specific data sets. These data sets are generated on a PC and sent to the HNC100 via the serial interface. The combination of the user program and data sets is called “project”. This software configuration is carried out according to the following steps:

1. The tasks to be performed by the HNC100 are to be defined and stored in a sequence chart. The definition also refers to the meaning of inputs and outputs and the parameters used.
2. The functions of the sequence charts have to be implemented in the form of a sequence of NC commands.
3. The machine data (selection of encoders and controllers) and the parameters of the NC program have to be defined.
4. The data are sent to the HNC100.
5. Settings and program sequences are optimised on the machine.

PC program “WIN-PED“

The PC program “WIN-PED” helps the user perform configuration tasks. It is used for programming, setting and diagnostics with regard to the HNC100.

Scope of functions:

- Comfortable dialogue functions for on-line or off-line setting of machine data
- NC editor with integral syntax check and program compiler
- Support for the definition of parameters used in the NC program
- Dialogue window for on-line setting of parameter values
- Comprehensive options for displaying process data, digital inputs, outputs and flags
- Recording and graphical representation of up to four process variables via selection of trigger options
- Dialogue for the graphical definition of special functions (determination of function via polygon)

System requirements:

- IBM PC or compatible system
- Windows 9x or Windows NT
- Processor: Intel 80286 or higher (recommendation: 80486 or better)
- Min. 8 MB RAM (recommendation: 16 MB)
- 10 MB free hard disk space

Note:

The PC program “WIN-PED“ (SYS-HNC-WINPED5-C01) is **not** included in the scope of supply. It can be ordered separately or downloaded free of charge on the Internet!

Order for CD-ROM: Material no. **R900725471**

Download on the Internet: www.boschrexroth.de/hnc100

Enquiries: support.nc-systems@boschrexroth.de

Overview of controller functions

Position controller:

- PDT1-controller
- Linear gain characteristic curve
- Direction-dependent gain adjustment
- "Inflected" gain characteristic curve
- Gain alteration possible via the NC program
- Fine positioning
- Residual voltage principle
- Zero point error compensation
- State feedback
- Command value feedforward
- Limitation of control output via the NC program
- "Position-dependent braking"
- Intermediate electronics for use with commercial NC controls
- Synchronisation control

Pressure/force controller:

- PIDT1-controller
- I-component can be cut in and out via window
- Differential pressure evaluation
- Own scanning rate

Velocity controller:

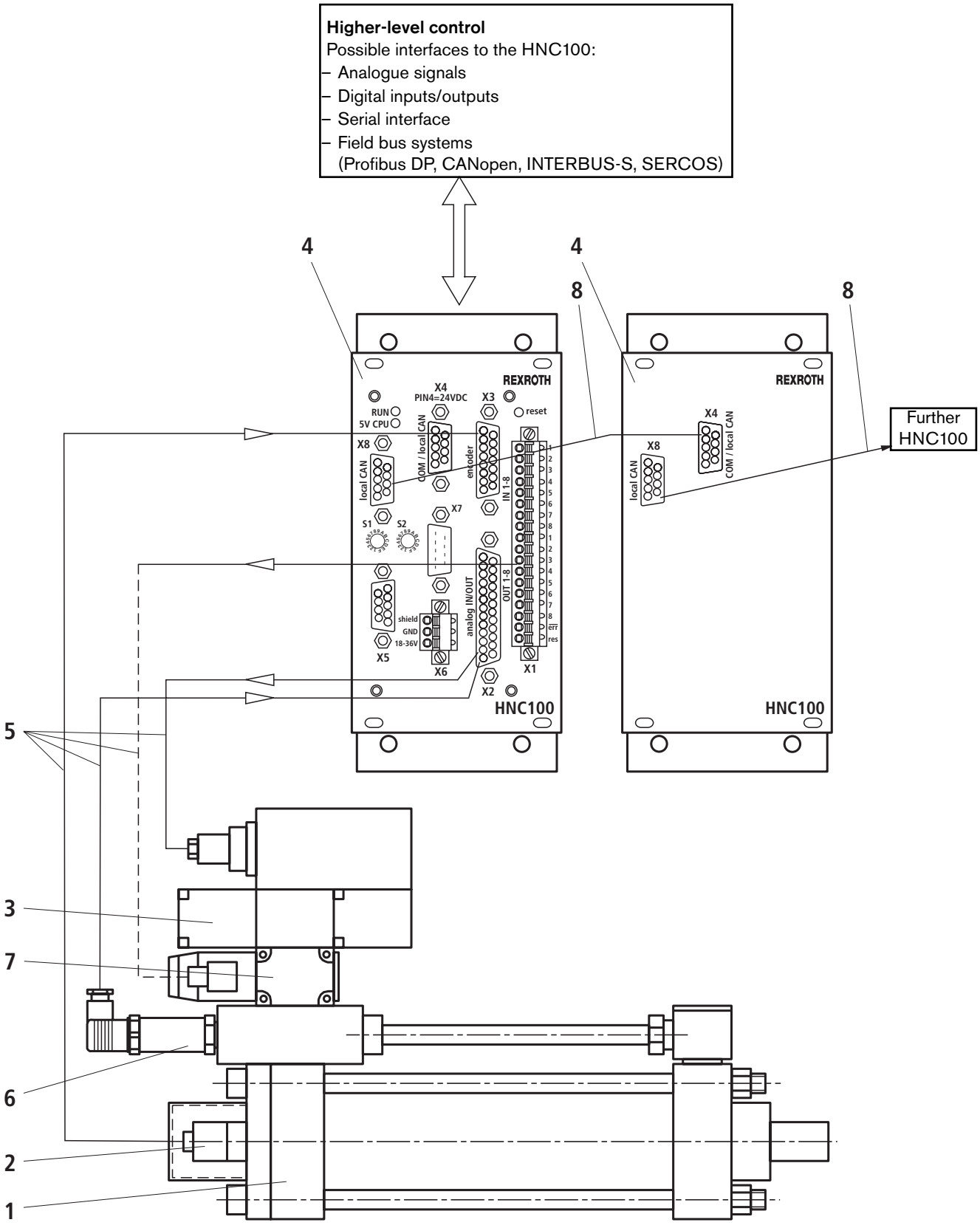
- PI-controller
- I-component can be cut in and out via window

Monitoring functions:

- Dynamic following error monitoring
- Traversing range limits (electronic limit switches)
- Cable break monitoring for incremental and SSI encoder
- Cable break monitoring for sensors with 4 to 20 mA output

In the event of a fault, the output "no error" is reset and the controller deactivated !

System overview



1 Single-rod cylinder
2 Integrated position measuring system
3 Servo, proportional or high-response valve with integral control electronics
4 HNC100
5 Connecting cable
6 Pressure transducer
7 Sandwich plate shut-off valve (with plug-in switching amplifier)
8 Local CAN bus

Overview of NC commands for the sequence control

At the time of publishing this data sheet, the following NC commands are available for programming of sequences [1]:

Definition part:	
/TRIG	Definition of a switching point
/E	Suppression of limit switches
/OVER	Override of velocity
/KD	Definition of a curve
/KT	Scanning time of a curve
/DFN	Normalisation factor for curve polygon
/SE	Definition of system inputs
/SA	Definition of system outputs
NC interpreter:	
KURVE	Start and stop of the curve function
K	Output of a voltage
KP	Alteration of controller gain
CLR	Resetting of output or flag
SET	Setting of output or flag
IF	Conditional branching
JMP	Jump to a flag (L000 to L1999)
JSR	Subroutine call
M17	End of subroutine
M02	End of main program
B	Variable for global variables
C	Variable for local variables
Lxxx	Jump flag
R	Value assignment for an R parameter
G64	Limitation of control variable
BINE	Reading of binary-coded inputs
BINA	Output to binary-coded outputs
M22I	Setting of command value for position controller
G65/G66	Position monitoring in closed-loop pressure control “ON/OFF“

Sequence control:	
G01	Point-to-point travel
G30	Point-to-point travel for oscillating movements
BREAK	Interruption of G01 or G30
STOP	Deceleration and termination of G01, G30
G53/G54	Zero point compensation "OFF/ON"
G70	Activation of closed-loop velocity control
G55	“Setting/reading” of values of zero point compensation
G63	Transition from closed-loop pressure/velocity control to closed-loop position control
M33/M34	“Activation/deactivation” of position controller
M35/M36	“Activation/deactivation” of synchronism
G26	Traversing to limit stop, closed-loop controlled
G25	Traversing to limit stop, open-loop controlled
G27, G28	Activation of pressure controller in dependence upon a position
G60	Activation of pressure controller
G61	Activation of pressure limitation
G62	Deactivation of pressure limitation
M22	Setting the actual and command value for the position controller
G04	Waiting time
M00	Waiting for input or flag
M90	Setting output or flag
M91	Resetting output or flag

[1] This scope of functions is valid for the current software version. The efficiency of the system is continuously extended within the framework of software development.

Technical data (for applications outside these parameters, please consult us!)

Operating voltage		U_O	18 to 36 VDC
Power consumption		P_{int}	8 W (plus power for connected sensors/actuators)
Processor			16/32-bit MC68376
Memory			Flash EPROM 1 MB; EEPROM 8 KB; RAM 256 KB (main memory)
Analogue inputs [1]:			
– Voltage inputs (differential inputs)			
• Number of channels			4
• Input voltage		U_I	+10 V to −10 V measurable (max. +15 V to −15 V)
• Input resistance		R_I	200 kΩ ±2 %
• Resolution			5 mV
• Non-linearity			< 10 mV
• Calibration tolerance [2]			max. 40 mV (with factory setting)
– Current inputs			
• Number of channels			4
• Input current		I_I	4 mA to 20 mA
• Input resistance		R_I	100 Ω ±0.2 %
• Resistance between Pin "I_{in} 1 −" and "analog_GND"		R	0 to 500 Ω
• Power loss		I_L	0.1 to 0.4 % (at 500 Ω between pin "I_{in} 1 −" and "analog_GND")
• Resolution			5 µA
– Impedance inputs [3]			
• Number of channels			4
• Input voltage		U_{imp}	−10 V to +10 V
• Input resistance		R_{imp}	> 10 MΩ
• Resolution			5 mV
• Non-linearity			< 10 mV
• Calibration tolerance [2]			max. 40 mV (with factory setting)
Analogue outputs:			
– Voltage outputs [4]			
• Number of channels			4
• Output voltage		U_{nom}	−10 V to +10 V (max. −10.7 V to +10.7 V)
• Output current		I_{max}	±10 mA
• Load		R_{min}	1 kΩ
– Current outputs [4]			
• Number of channels			2
• Output current	normalised	I_{nom}	4 mA to 20 mA
	not normalised	I_{max}	±23 mA
• Load		R_{max}	500 Ω
– Residual ripple content			±60 mV (without noise)
– Resolution			1.25 mV
– Non-linearity			
• within the range of −9.5 V to +9.5 V			15 mV
• within the range of −10 V to −9.5 V and +9.5 V to +10 V			35 mV

[1] Not all of the channels can be used simultaneously. The voltage inputs and the current inputs are provided with a common pin so that either the voltage input **or** the current input can be used at a time. The current can be looped through several current measuring devices. Otherwise, a jumper must be provided from pin "I_{in}" to pin "analog_GND".

[2] If the factory settings are not sufficient, the measuring equipment can be calibrated on site according to the system requirements.

[3] Due to the characteristics of these high-resistance inputs, **no internal protective circuits** with diodes or capacitors may be used. For this reason, when connecting analogue signals to inputs $U_{imp}1$ to $U_{imp}4$, connect all the required protective features such as shield, EMC protection and signal filter **externally** in the incoming circuit.

[4] Outputs "U_{out} 1" and "I_{out} 1" as well as "U_{out} 2" and "I_{out} 2" are electrically coupled. Normalisation can be set to voltage or current by means of the software.

Technical data (continued)

Serial interfaces	Standard	RS232 (9.6 KBaud)
	Optional	Profibus DP (max. 12 MBaud) CANopen, INTERBUS-S
Switching inputs	Number	8, 16 or 24
	Logic level	log 0 (low) ≤ 5 V; log 1 (high) ≥ 10 V to U_O; $R_i = 3\ k\Omega \pm 10\ \%$
	Connection	Flexible conductor up to 1.5 mm²
Switching outputs	Number	8, 16 or 24
	Logic level	log 0 (low) ≤ 2 V; log 1 (high) ≤ U_O; $I_{max} = 50$ mA
	Connection	Flexible conductor up to 1.5 mm²
Digital position transducers:		
– Incremental transducer (transducer with TTL output)		
• Input voltage	log 0	0 to 1 V
	log 1	2.8 to 5.5 V
• Input current	log 0	–0.8 mA (at 0 V)
	log 1	0.8 mA (at 5 V)
• Max. frequency referred to Ua 1	f_{max}	250 kHz
– SSI transducer		
• Coding		Gray code
• Data width		Adjustable up to max. 28 bits
• Line receiver (TTL)		
Input voltage	log 0	0 to 1 V
	log 1	2.8 to 5.5 V
Input current	log 0	–0.8 mA (at 0 V)
	log 1	0.8 mA (at 5 V)
• Line driver		
Output voltage	log 0	0 to 0.5 V (at 120 Ω)
	log 1	2.5 to 5.5 V (at 120 Ω)
- EnDat transducer		Interface in preparation
Voltge supply to position transducer by the HNC100	U	U_O or +5 VDC ±5 %; max. 200 mA
Max. voltage for all input signals	U_{max}	U_O –1 V (the signals are not opto-decoupled)
Inductive position transducers:		
– Number		2
– Voltage supply	U_{eff}	2 V ($I_{max} = 30$ mA / channel) balanced to ground, short-circuit-proof, can be synchronised between 4.8 and 5.2 kHz, optional compensation capacitor of 220 nF; amplitude stability ≤ 0.2 % /10 K; carrier frequency 5 kHz ± 2 %; inductive transducers in half and full bridge circuit and 3- and 4-conductor circuit; linearity error < 0.1 %
Reference voltage	U_{ref}	+10 V ±25 mV and –10 V ±25 mV (20 mA each)
Dimensions (W x H x D):		
– VT-HNC100-**1**-2X/.-**08**-.-.		71 x 155 x 204 mm
– VT-HNC100-**2**-2X/.-**16**-.-. and VT-HNC100-**1**-2X/.-**24**-.-.		106.5 x 155 x 204 mm
Permissible operating temperature range	ϑ	0 to 50 °C
Storage temperature range	ϑ	–20 to +70 °C
Weight:		
– VT-HNC100-**1**-2X/.-**08**-.-.	m	1.0 kg
– VT-HNC100-**2**-2X/.-**16**-.-. and VT-HNC100-**1**-2X/.-**24**-.-.	m	1.2 kg

Further technical details on enquiry.

☞ **Note!**

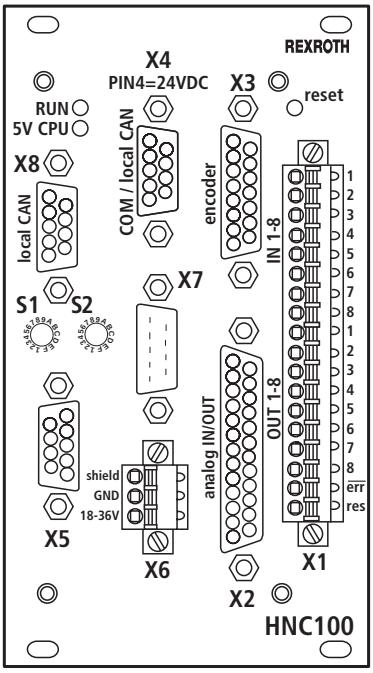
For details regarding **environment simulation testing** in the fields of EMC (electromagnetic compatibility), climate and mechanical stress, see RE 30131-U (declaration on environmental compatibility).

Pin assignment VT-HNC100-1-2X/.-08… (single-axis version)

X8: local CAN	
Pin 1	CAN_GND
2	res
3	res
4	res
5	res
6	res
7	res
8	CAN_H
9	CAN_L

X4: COM / local CAN	
Pin 1	CAN_GND
2	TxD
3	CTS
4	24 VN
5	0 VN
6	RxD
7	RTS
8	CAN_H
9	CAN_L

S1, S2: Address, baud rate CAN



X3: encoder		
Pin	**incremental**	**SSI**
1	/Ua 2	
2		Clock
3	Ua 0	
4	/Ua 0	
5	Ua 1	Data
6	/Ua 1	/Data
7		/Clock
8	Ua 2	
9	res	
10	0 VN	
11	res	
12	5 VTTL (max. 150 mA)	
13	res	
14	24 VN (max. 200 mA)	
15	res	

Note!
The pins identified with "res" are reserved and must not be connected.

X1: digital I/O	
Pin 1	IN1
2	IN2
3	IN3
4	IN4
5	IN5
6	IN6
7	IN7
8	IN8
9	OUT1
10	OUT2
11	OUT3
12	OUT4
13	OUT5
14	OUT6
15	OUT7
16	OUT8
17	/error
18	res

X5: communication with higher-level control			
Pin	**Profibus DP**	**INTERBUS-S (OUT)**	**SERCOS**
1	n.c.	DO 2	via optical fibre adapter
2	n.c.	DI 2	
3	RxD/TxD-P	GND 2	
4	CNTR-P	n.c.	
5	DGND	U_{dd}	
6	VP	/DO 2	
7	n.c.	/DI 2	
8	RxD/TxD-N	n.c.	
9	n.c.	BCI	

X6: voltage supply	
Pin 1	Shield
2	GND
3	18 - 36 VDC

X2: analog IN / OUT			
Pin	**1**	U_{in} 1 +	I_{in} 1 −
	2	U_{in} 1 −	
	3	U_{in} 2 +	I_{in} 2 −
	4	U_{in} 2 −	
	5	U_{in} 3 +	I_{in} 3 −
	6	U_{in} 3 −	
	7	U_{in} 4 +	I_{in} 4 −
	8	U_{in} 4 −	
	9	I_{out} 2	
	10	U_{out} 2	
	11	analog_GND	
	12	U_{ref} = + 10 V	
	13	U_{ref} = − 10 V	
	14	I_{out} 1	
	15	U_{out} 1	
	16	U_{out} 3	
	17	U_{out} 4	
	18		I_{in} 1 +
	19		I_{in} 2 +
	20		I_{in} 3 +
	21		I_{in} 4 +
	22	U_{imp} 1	
	23	U_{imp} 2	
	24	U_{imp} 3	
	25	U_{imp} 4	

X7: communication with higher-level control			
Pin	**CANopen**	**inductive**	**INTERBUS-S (IN)**
1	n.c.	Supply 1 +	DO1
2	CAN_L	Supply 1 −	DI1
3	CAN_GND	Signal 1 +	GND1
4	n.c.	Signal 1 −	n.c.
5	n.c.	Supply 2 +	n.c.
6	n.c.	Supply 2 −	/DO1
7	CAN_H	Signal 2 +	/DI1
8	n.c.	Signal 2 −	n.c.
9	n.c.	Sync IN/OUT	n.c.

Pin assignment VT-HNC100-2-2X/.-16… (2-axis version)

☞ **Note!**
The pins identified with "res" are reserved and must not be connected.

X8: local CAN	
Pin 1	CAN_GND
2	res
3	res
4	res
5	res
6	res
7	res
8	CAN_H
9	CAN_L

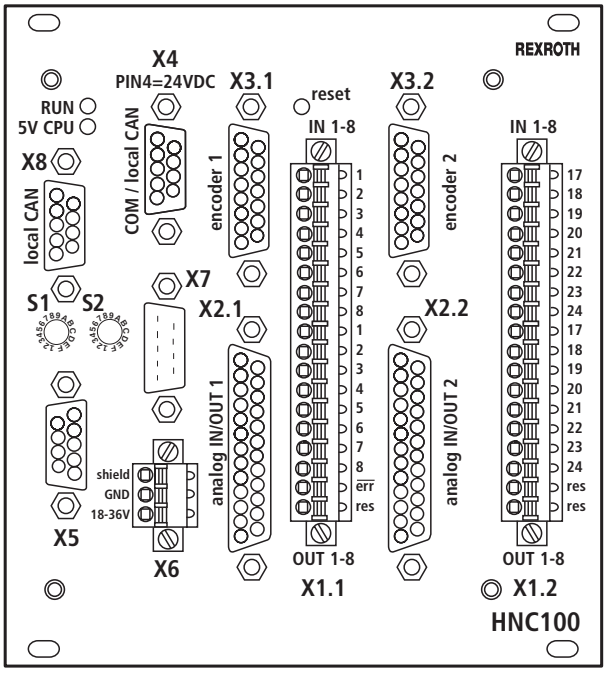
X4: COM / local CAN	
Pin 1	CAN_GND
2	TxD
3	CTS
4	24 VN
5	0 VN
6	RxD
7	RTS
8	CAN_H
9	CAN_L

X1.1 and X1.2: digital IN/OUT		
Pin	X1.1	X1.2
1	IN1	IN9
2	IN2	IN10
3	IN3	IN11
4	IN4	IN12
5	IN5	IN13
6	IN6	IN14
7	IN7	IN15
8	IN8	IN16
9	OUT1	OUT9
10	OUT2	OUT10
11	OUT3	OUT11
12	OUT4	OUT12
13	OUT5	OUT13
14	OUT6	OUT14
15	OUT7	OUT15
16	OUT8	OUT16
17	/error	res
18	res	res

X3.1: encoder 1		
Pin	incremental	SSI
1	/Ua 2	
2		Clock
3	Ua 0	
4	/Ua 0	
5	Ua 1	Data
6	/Ua 1	/Data
7		/Clock
8	Ua 2	
9	res	
10	0 VN	
11	res	
12	5 VTTL (max. 150 mA)	
13	res	
14	24 VN (max. 200 mA)	
15	res	

X3.2: encoder 2		
Pin	incremental	SSI
1	/Ub 2	
2		Clock
3	Ub 0	
4	/Ub 0	
5	Ub 1	Data
6	/Ub 1	/Data
7		/Clock
8	Ub 2	
9	res	
10	0 VN	
11	res	
12	5 VTTL (max. 150 mA)	
13	res	
14	24 VN (max. 200 mA)	
15	res	

S1, S2: Address, baud rate CAN



X6: voltage supply		
Pin	1	Shield
	2	GND
	3	18 - 36 VDC

X5: communication with higher-level control			
Pin	Profibus DP	INTERBUS-S (OUT)	SERCOS
1	n.c.	DO 2	via optical fibre adapter
2	n.c.	DI 2	
3	RxD/TxD-P	GND 2	
4	CNTR-P	n.c.	
5	DGND	U_{dd}	
6	VP	/DO 2	
7	n.c.	/DI 2	
8	RxD/TxD-N	n.c.	
9	n.c.	BCI	

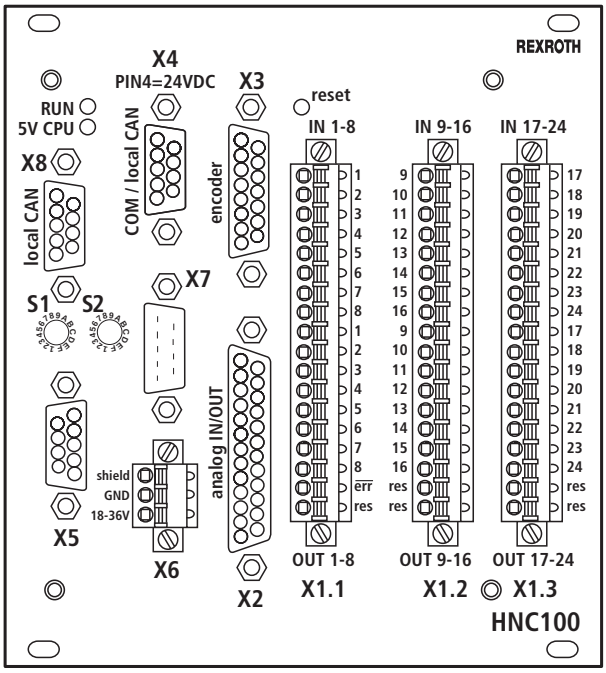
X7: communication with higher-level control			
Pin	CANopen	inductive	INTERBUS-S (IN)
1	n.c.	Supply 1 +	DO1
2	CAN_L	Supply 1 –	DI1
3	CAN_GND	Signal 1 +	GND1
4	n.c.	Signal 1 –	n.c.
5	n.c.	Supply 2 +	n.c.
6	n.c.	Supply 2 –	/DO1
7	CAN_H	Signal 2 +	/DI1
8	n.c.	Signal 2 –	n.c.
9	n.c.	Sync IN/OUT	n.c.

X2.1: analog IN / OUT1		
Pin		
1	U_{in} 1 +	I_{in} 1 –
2	U_{in} 1 –	
3	U_{in} 2 +	I_{in} 2 –
4	U_{in} 2 –	
5	res	
6	res	
7	res	
8	res	
9	res	
10	res	
11	analog_GND	
12	U_{ref} = + 10 V	
13	U_{ref} = – 10 V	
14	I_{out} 1	
15	U_{out} 1	
16	U_{out} 3	
17	res	
18		I_{in} 1 +
19		I_{in} 2 +
20	res	
21	res	
22	U_{imp} 1	
23	U_{imp} 2	
24	res	
25	res	

X2.2: analog IN / OUT2		
Pin		
1	U_{in} 3 +	I_{in} 3 –
2	U_{in} 3 –	
3	U_{in} 4 +	I_{in} 4 –
4	U_{in} 4 –	
5	res	
6	res	
7	res	
8	res	
9	res	
10	res	
11	analog_GND	
12	U_{ref} = + 10 V	
13	U_{ref} = – 10 V	
14	I_{out} 2	
15	U_{out} 2	
16	U_{out} 4	
17	res	
18		I_{in} 3 +
19		I_{in} 4 +
20	res	
21	res	
22	U_{imp} 3	
23	U_{imp} 4	
24	res	
25	res	

Pin assignment VT-HNC100-1-2X/.-24… (single-axis version)

X6:		voltage supply
Pin	1	Shield
	2	GND
	3	18 - 36 VDC



S1, S2: Address, baud rate CAN

☞ **Note!**
The pins identified with "res" are reserved and must not be connected.

X3: encoder		
Pin	incremental	SSI
1	/Ua 2	
2		Clock
3	Ua 0	
4	/Ua 0	
5	Ua 1	Data
6	/Ua 1	/Data
7		/Clock
8	Ua 2	
9	res	
10	0 VN	
11	res	
12	5 VTTL (max. 150 mA)	
13	res	
14	24 VN (max. 200 mA)	
15	res	

X1.1 to X1.3: digital IN/OUT			
Pin	X1.1	X1.2	X1.3
1	IN1	IN9	IN17
2	IN2	IN10	IN18
3	IN3	IN11	IN19
4	IN4	IN12	IN20
5	IN5	IN13	IN21
6	IN6	IN14	IN22
7	IN7	IN15	IN23
8	IN8	IN16	IN24
9	OUT1	OUT9	OUT17
10	OUT2	OUT10	OUT18
11	OUT3	OUT11	OUT19
12	OUT4	OUT12	OUT20
13	OUT5	OUT13	OUT21
14	OUT6	OUT14	OUT22
15	OUT7	OUT15	OUT23
16	OUT8	OUT16	OUT24
17	/error	res	res
18	res	res	res

X2: analog IN / OUT			
Pin	1	U_{in} 1 +	I_{in} 1 –
	2	U_{in} 1 –	
	3	U_{in} 2 +	I_{in} 2 –
	4	U_{in} 2 –	
	5	U_{in} 3 +	I_{in} 3 –
	6	U_{in} 3 –	
	7	U_{in} 4 +	I_{in} 4 –
	8	U_{in} 4 –	
	9	I_{out} 2	
	10	U_{out} 2	
	11	analog_GND	
	12	U_{ref} = + 10 V	
	13	U_{ref} = – 10 V	
	14	I_{out} 1	
	15	U_{out} 1	
	16	U_{out} 3	
	17	U_{out} 4	
	18		I_{in} 1 +
	19		I_{in} 2 +
	20		I_{in} 3 +
	21		I_{in} 4 +
	22	U_{imp} 1	
	23	U_{imp} 2	
	24	U_{imp} 3	
	25	U_{imp} 4	

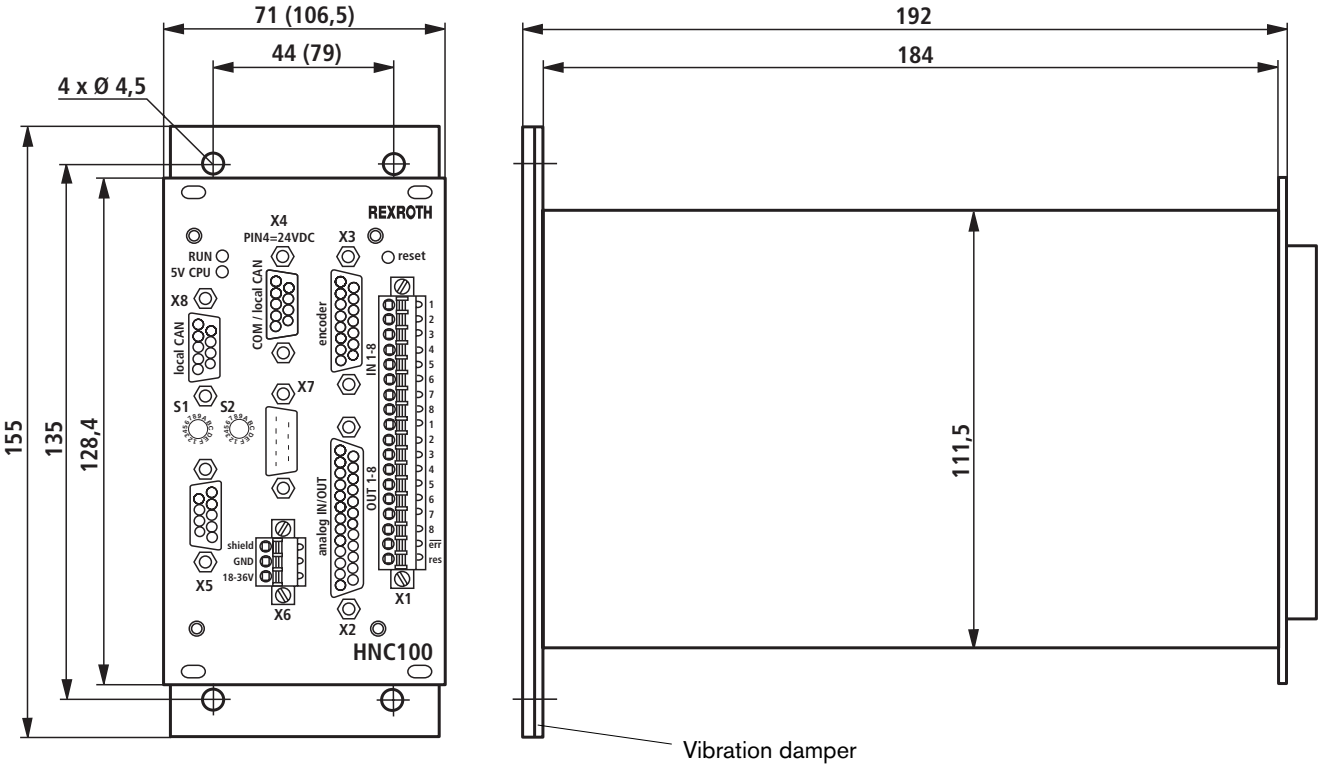
X5: communication with higher-level control				
Pin	Profibus DP	INTERBUS-S (OUT)	Sercos	
1	n.c.	DO 2		
2	n.c.	DI 2		
3	RxD/TxD-P	GND 2		
4	CNTR-P	n.c.		
5	DGND	U_{dd}		via optical fibre dapter
6	VP	/DO 2		
7	n.c.	/DI 2		
8	RxD/TxD-N	n.c.		
9	n.c.	BCI		

X7: communication with higher-level control			
Pin	CANopen	inductive	INTERBUS-S (IN)
1	n.c.	Supply 1 +	DO1
2	CAN_L	Supply 1 –	DI1
3	CAN_GND	Signal 1 +	GND1
4	n.c.	Signal 1 –	n.c.
5	n.c.	Supply 2 +	n.c.
6	n.c.	Supply 2 –	/DO1
7	CAN_H	Signal 2 +	/DI1
8	n.c.	Signal 2 –	n.c.
9	n.c.	Sync IN/OUT	n.c.

X4: COM / local CAN		
Pin	1	CAN_GND
	2	TxD
	3	CTS
	4	24 VN
	5	0 VN
	6	RxD
	7	RTS
	8	CAN_H
	9	CAN_L

X8: local CAN		
Pin	1	CAN_GND
	2	res
	3	res
	4	res
	5	res
	6	res
	7	res
	8	CAN_H
	9	CAN_L

Unit dimensions (nominal dimensions in mm)



( ) … nominal dimensions are valid for VT-HNC100-2-2X/.-16-.-. and VT-HNC100-1-2X/.-24-.-.

Preferred types

Type	Material number
VT-HNC100–1–2X/W-08-0-0	R900955334
VT-HNC100–1–2X/W-08-I-0	R900955332
VT-HNC100–1–2X/W-08-P-0	R900958999
VT-HNC100–1–2X/W–08–C–0	R900959000

Notes

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