isel®

From Components to Systems

Servo – Power Unit

iPU-DC
iPU-EC

Operating Instruction

About this operating instruction

Used shortcuts

MRL   *machine directive 2006/42/EC*
ERL   *EMC directive 2004/108/EC*
NRL   *low voltage directive 2006/95/EC*

Used symbols

You will find different symbols in this manual that signalizes important information/ facts and danger.

Warning!
This symbol indicates dangers that cause damages for person's health, physical injury or death.

Warning! Dangerous voltage!
Warning of danger from electricity. Ignoring can lead to serious injury or death.

Attention!
This Symbol indicates important notes. Ignoring this symbol leads to damages and malfunctions of the machinery

Information:
This symbol indicates important information and notes.

Observe the safety instructions

Before you take the servo power unit iPU-DC/iPU-EC in operation, working with the controller or make additions or changes to the wiring of the, make sure to read carefully the safety instructions in this manual. (Chapter 1.2)

isel controllers are concurrent with CE norms and marked accordingly. Commissioning of all other parts or components, for which CE safety regulations apply, is prohibited until all respective requests are met.

isel Germany AG as the manufacturer cannot take over guarantee if you change the controller in any way.

The EMC test is valid only for the controller's original configuration ex works, i.e. the delivery state.

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(Translation of operation instruction in German language)

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a	06/01/2015	Serial number	RL
	07/2014	First print	

Technical changes reserved.

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www.isel-data.de/manuals

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1 Introduction

The **iPU power units** are powerful drive controllers for up to four linear or circular axes with brush or brushless motors. The compact controller
The table or the 19" HE housing integrates all necessary controller components, which are needed to solve a wide range of automation tasks.

As its interface for NC control, the **iPU power unit** has a CANopen interface at the back of the housing, which works according to the DS301 bus protocol and DS402. By using the optional CAN PCI board iCC 10 or a iPC series control computer, the controller can control interpolation (linear, circular, helical) of all four axes as well as track processing.

The final output stages (iMD10 or iMD20) also have automatic jerk limitations and rest state monitoring.

The control elements integrated in the front of the housing, such as EMERGENCY SHUTDOWN, START or STOP enable convenient operation.

1.1 Intended use

Die control unit iPU-DC/iPU-EC integrates motor power amplifiers, I/O module and security circuit module.

The power units have to be used in connection with an isel CANopen PCI-card (iCC10, iCC20) that works as CAN master in the control computer. The card communicates with the power amplifiers for the axes and other CAN peripheral devices such as I/O-module. The CNC Motion control allows the interpolation of up to 4 axes (linear, circular and helix), on-line and look ahead continuous path (CP) machining as well as the control of up to 4 handling axes.

The CAN-servo units series **iPU-DC** are able to drive up to 4 brushed DC-servo-motors. The used power amplifiers type **iMD10** have a jerk limit and standstill monitoring (till safety category 3).

Control units series **iPU-EC** are able to drive up to46 brushless DC-servo-motors. The used power amplifiers type **iMD20** have a jerk limit and standstill monitoring (till safety category 3).

All axis of the controller have to be used only with the compatible motor type.

Please read this operation instruction manual carefully before first use of the controller therewith you can:

• Work safely, fast and effective
• Keep away danger from persons
• Use all the power and features of the controller.

1.2 Safety instructions

- The CNC-controllers iPU-DC and iPU-EC are designed in conformability to current technical and recognized rules.

- The device may only be used if it is in correct condition. Any faults have to be eliminated immediately. Neither children nor non-authorized persons are allowed to put the device into operation.

- The device may only be used for the intended purpose: control of 2 up to 6 linear or rotational axes with brushed DC Servo (iPU-DC) or brushless DC servo motors (iPU-EC), both motor types with integrated incremental measurement system (encoder).

- All work with the controllers iPU-DC and iPU-EC, especially initial operation, installation as well as external wiring must be executed by authorized personal regarding electrical industry rules and accident prevention regulations.

- Assembly and use of operating material has to be according to Machine directive 2006/42/EC/EC and Low voltage directive 2006/95/EC. In case of in proper use even the observation of the respective rules and standards does not protect against physical damages and damage to property.

- Do not expose the device to high humidity or high vibrations.

- Please take care of the instruction manual. Be sure that all users know the instructions.

- Ignoring the instruction manual can lead to damage, heavy physical damage or to death.
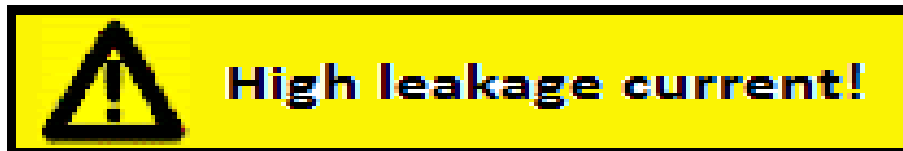
- **Warning! High earth leakage current (ground discharge current, protection conductor current).** Before connecting to the AC supply network, it is necessarily required an **additional protective grounding**. Before connecting the CNC controller to the AC supply network, an **additional protective grounding** (cross section: 2.5 mm^2 or 4 mm^2, see below) has to be connected! Before the electrical start-op of the controllers a protective grounding of 2.5 mm^2 (protected installation) or a protective conductor of 4 mm^2 (unprotected installation) has to be connected durably to the marked clamping point ⏚ at the back of the housing where the cross section of the protective grounding shall not be less than 10 mm^2 copper or 16 mm^2 aluminum has (e.g. electrical distribution of the building). Please instruct an electrician with these implementation. When using the Residual Current circuit Device (RCD) for line fuses/fault current delimitation: Do not use an RCD with AC characteristics. Using a frequency inverter and choppered power stages in the power units may cause superimposed AC fault units with pulsating direct current and direct current apart from AC fault currents. Please consult your electrician.
- **The term leakage is understood here as grounding discharge current. This is defined in the standard EN 60204-1:2006 section 8.2.8, note 1**
- **If the CNC machine (ideal) is set up isolated from the reference potential, the grounding discharge current is equal to the protective grounding stream.**

2 Types

type	servo motor	amplifiers	max. axis
iPU-DC	BDC-servo motors (brushed)	iMD10	4
iPU-EC	BLDC-servo motors (brushless)	iMD20	4

Scope of delivery iPU-DC (part.-no. 353000 $X^1$01X^2)

- Power unit iPU-DC as table housing or 19" 4 HE housing with the following electronic components:
  - max 4 integrated power amplifiers iMD10 for brushed DC servo motors /1/
  - CAN IO 8-12 / 4-1 module
  - Safety circuit module iSM5
  - power unit 24V-60W, 48V-1000W

- main lead (protection contact plug, IEC-60320 power connector)

- CAN bus connection cable, RJ45 plug→plug

- connector package

- control software Remote from **Version 1.46.2.1** (optional: ProNC)

- operating instruction in printed form

Scope of delivery iPU-EC (Art.-Nr. 353000 $X^1$02X^2)

- Power unit iPU-DC as table housing or 19" 4 HE housing with the following electronic components:
  - max 4 integrated power amplifiers iMD20 for brushed DC servo motors /1/
  - CAN IO 8-12 / 4-1 module
  - Safety circuit module iSM5
  - power unit 24V-60W, 48V-1000W

- main lead (protection contact plug, IEC-60320 power connector)

- CAN bus connection cable, RJ45 plug→plug

- connector package

- control software Remote from **Version 1.46.2.1** (optional: ProNC)

- operating instruction in printed form

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[1] case   1 … 19" 4HE housing, 2 … table housing
[2] Number of axis: 2 …4

3 Technical data

controller	iPU-DC	iPU-EC
servo-motor type	BDC servo motors (DC brushed)	BLDC servo motors (DC brushless)
maximum number of axis	4	4
power supply input	100 - 230 VAC, 50 … 60 Hz	100 - 230 VAC, 50 … 60 Hz
Fuses	2 x 6.3A (inert)	
power supply output	1000 W	1000 W
motor power amplifier	iMD10	iMD20
intermediate circuit power supply	48 VDC	48 VDC
rated current	12 A	12 A
peak current	25 A	25 A
safety characteristic:	EN ISO 13849-1:2006 category 3, PL d	
additional safety functions	integration in higher ranked security circuit , safety door control, working spindle control	
I/O module	4 x digital inputs (24VDC/8mA) 8 x digital outputs (4 x electronic Imax<350mA, 4 x relay Imax <5A) 1 x 115-230V relay output (max. 6 A) 1 x analog output (8 Bit, 0 …10 V)	
control elements	function buttons, switches, emergency stop	
control software	Remote (optional: ProNC, isyCAD/CAM)	
dimensions L x W x H	625 x 225 x 375	625 x 225 x 375

4 Hardware description

4.1 Controller front side iPU-DC / iPU-EC
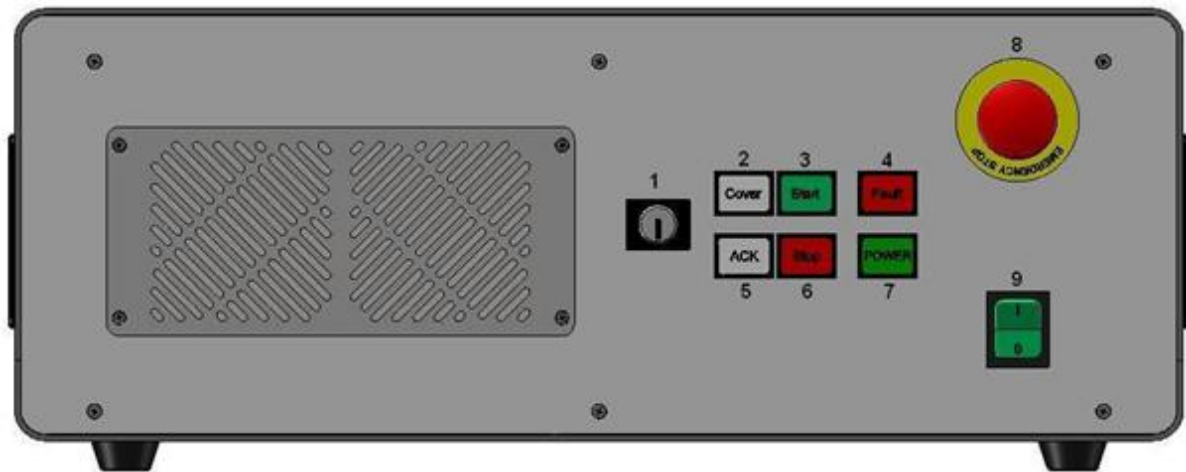
1 - operation mode switch (key switch)

Use this switch to choose between automatic- and setup-mode.

> *In **automatic-mode** you can **only open** the **cover or safety door** of the machine if **no axis is in motion** and the mounted **working spindle** is **switched off** (means that spindle does not turn).*
>
> *In **the setup-mode** you can **only open** the **cover or safety door** of the machine if the mounted **working spindle** is **switched off** (means that spindle does not turn). You can just **move the axes at opened cover or safety door** if you **press** the **ACK button**.*
>
> **Ensure that in setup-mode (key switch on TEST) only authorized personal operates on the machine.**

2 - cover-button

Use this button to open the machines cover or safety door. This is possible only if the conditions from point "3 – operation mode switch" are complied. An enable for opening of the cover or safety door is signalized by a white lighted cover button.

3 - start-button

If you press the start button an opened user program in the operator software ProNC (ISO-, PAL- or NCP-file) resp. user program in control software Remote (ISO-, NCP- or CNC-file) will be started.

> *If there is no user program opened a dialog window is shown where you can select an user program.*

4 - fault-lamp

The fault lamp indicates an error within the safety circuit.

5 - ACK (ACKnowledge-button)

Press this button to move the axes when the machine is in setup-mode and the cover or safety door is open.

6 - stop-button

With the stop button you can stop a running user program / axis motion. By pressing the start button you can continue the execution of the user program.

7 - power-button

Use this button to switch on motor power supply voltage for the motor power amplifiers.
Conditions for switch on:
- Main power switch on the controller back side is switched on
- Emergency stop button is pulled out

If power supply voltage is successfully switched on the power button is lighted green.

8 - emergency-stop-switch

Turns off the power supply for the motor power amplifiers and the working spindle in case of any danger. This means dangers for the users health or machine safety.

If you push the emergency stop switch any axes motion will be slow down controlled and the motor power supply will be time lag switched off (stop category 1).
The main power supply voltage of 115/230VAC lies still on the device, only the motor power supply voltage for the amplifiers is switched off.

9 - Main switch (if mounted)
Switch on net power supply voltage for the controller. The switch is lighted green if device is powered.

4.2 Controller back side iPU-DC / iPU-EC
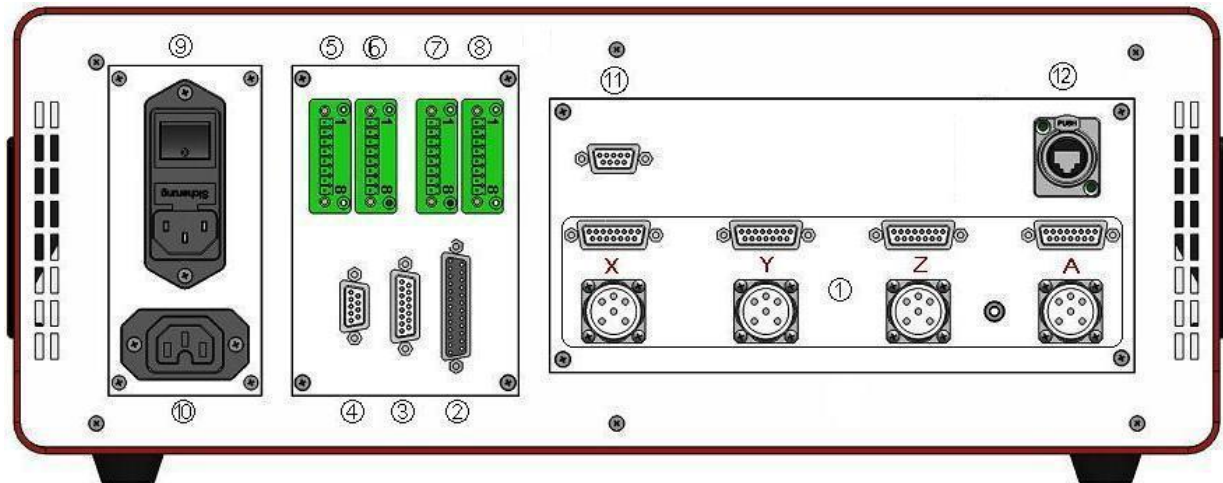
① Connectors for motor-, encoder- and signal leads

iPU-DC - motor, encoder and signal leads

motor connector (X, Y, Z, A, B, C), 8+1-pin M23 socket

pin	signal	lead no.	description
1	1	1	motor phase 1*
2	2	2	motor phase 2*
3	1	3	motor phase 1*
4	2	4	motor phase 2*
5	brake	brown	motor brake
6	brake_GND	white	motor brake GND
7	---		
8	---		
9	PE	yellow / green	protected earth

* every motor phase is connected via two leads

encoder / signal connector, 15-pin Sub-D socket

pin	signal	lead color	description
1	n.c		
2	VCC_Encoder	red	digital +5V DC
3	/ENC_Z	orange / black	encoder line /Z
4	/ENC_B	brown / black	encoder line /B
5	/ENC_A	grey / black	encoder line /A
6	VCC_Logik		logic +24V DC
7	LIMIT_SW1		limit switch 1
8	GND_24V		Logik GND
9	n.c	white	
10	D_GND	black	digital GND
11	ENC_Z	orange	encoder line Z
12	ENC_B	brown	encoder line B
13	ENC_A	grey	encoder line A
14	REF_SW		reference switch
15	LIMIT_SW2		limit switch 2

iPU-EC - motor, encoder and signal leads

motor connector (X, Y, Z, A, B, C), 8+1-pin M23 socket

pin	signal	lead no.	description
1	U	black 1	motor phase U
2	V	black 2	motor phase V
3	W	black 3	motor phase W
4	---		
5	brake	brown	motor brake
6	brake_GND	white	motor brake GND
7	---		
8	---		
9	PE	yellow / green	protected earth

encoder / signal connector, 15-pin Sub-D socket

pin	signal	lead no.	description
1	HALL_A _IN	yellow	Hall Signal A
2	VCC_Encoder	red	Digital +5V DC
3	/ENC_Z	orange / black	Encoderspur /Z
4	/ENC_B	brown / black	Encoderspur /B
5	/ENC_A	grey / black	Encoderspur /A
6	VCC_Logik		Logik +24V DC
7	LIMIT_SW1		Endlagenschalter 1
8	GND_24V		Logik GND
9	HALL_B_IN	white	Hall Signal B
10	D_GND	black	Digital GND
11	ENC_Z	orange	Encoderspur Z
12	ENC_B	brown	Encoderspur B
13	ENC_A	grey	Encoderspur A
14	HALL_C_IN	green	Hall Signal C
15	LIMIT_SW2		Endlagenschalter 2

② **hand control unit** - 25-pin Sub-D (optional version)

This connector is only available on controller without integrated function keys in the case front.

It is possible to connect function keys (switches, buttons) from:
- an external hand control unit
- an isel CNC control panel

with the corresponding connectors on the security circuit module inside the controller case.

pin	signal	description
1	E-STOP_1	Emergency stop channel 1, 1.1
2	E-STOP_1	Emergency stop channel 1, 1.2
3	E-STOP_2	Emergency stop channel 2, 2.1
4	E-STOP_2	Emergency stop channel 2, 2.2
5	24V	+24 V DC
6	POWER BTN	Input power button
7	POWER LAMP	Output power button lamp
8	24V	+24VDC
9	KEY SWITCH Test	Input key switch test mode
10	KEY SWITCH Auto	Input key switch automatic mode
11	24V	+24VDC
12	ACK_1	Input acknowledge button channel1
13	24V	+24VDC
14	ACK_2	Input acknowledge button channel 2
15	COVER SWITCH	Input cover button
16	COVER SWITCH	Input cover button
17	GND	
18		
19		
20	FAULT LAMP	output FAULT lamp
21	START BTN	Input START button (make contact)
22	STOP BTN	Input STOP button (break contact)
23	START LAMP	Output START lamp
24	STOP LAMP	Output STOP lamp
25	n.v.	

> **The maximum length of the connection cable for the hand control unit / CNC control panel should not exceed 5m.**

③ **External additional control console connector** - 15-pin Sub-D (optional)

This connector is used if an additional isel control console is used.

pin	signal	description
1	EM_STOP_1	Emergency stop channel 1, connector 1.1
2	EM_STOP_1	Emergency stop channel 1, connector 1.2
3	EM_STOP_2	Emergency stop channel 2, connector 2.1
4	EM_STOP_2	Emergency stop channel 2, connector 2.1
5	GND	GND control console
6	LAMP ACK	Output ACK lamp
7	ACK_1	Acknowledge channel 1, connector 1.1
8	ACK_1	Acknowledge channel 1, connector 1.2
9	ACK_2	Acknowledge channel 2, connector 2.1
10	ACK_2	Acknowledge channel 2, connector 2.2
11	COVER_1	Connector for cover button, connector 1.1
12	COVER_1	Connector for cover button, connector 1.2
13	COVER_2	Connector for cover button, connector 2.1 (option)
14	COVER_2	Connector for cover button, connector 2.1 (option)
15	n.v.	

The maximum length of the connection cable for the hand control unit / CNC control panel should not exceed 5m.

④ **External Spindle** – SubD-9-pin

Use this connetor to get the signals for driving an external frequency converter for an main spindle drive.

pin	signal	description
1	VCC	+24V DC
2	SPINDLE_FAULT	Input frequency converter fault (LOW activ)
3	-	n.u.
4	-	n.u.
5	ANALOG_OUT	analog out 0 …10V (8 bit resolution)
6	ANALOG_GND	analog GND
7	-	n.u.
8	SPINDLE_START	uutput spindle start
9	GND	GND (digital)

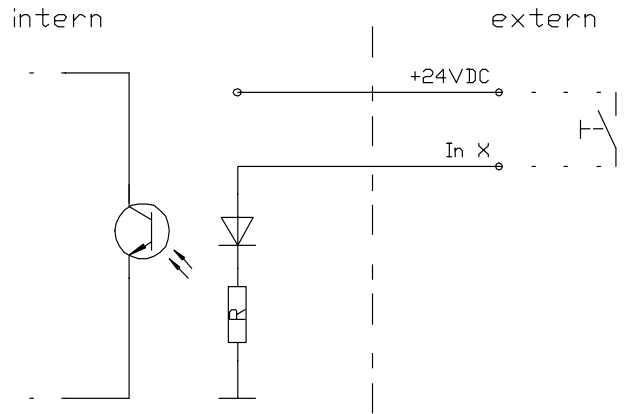⑤ **Digital input port** - *8-pin, bottom to top E1.1 – E1.4*

The mounted I/O board has two digital input ports each with 8 digital inputs. The first input port (E1.1 – E1.8) is partly internal used for signalization. The digital inputs E1.1 – E1.4 can free configured by the user.

Properties
- opt coupled inputs
- input current ca. 8mA

Wiring

pin	input	description
1	In 1	input E1.1
2	VCC	+24VDC
3	In 2	input E1.2
4	VCC	+24VDC
5	In 3	input E1.3
6	VCC	+24VDC
7	In 4	input E1.4
8	VCC	+24VDC

Please note the default connection of the second input –port (I1.5 – I1.8) in the control software Remote / ProNC under the menu entry „Signalization".

These inputs are directly wired with the modules inside the controller. You <u>cannot longer</u> use these inputs in the user program!

⑥ **Digital electronic outputs** - *8-pin, bottom to top A1.1 – A1.4*

The mounted I/O board has two digital output ports each with 8 digital switches. The first output port (A1.1 – A1.8) is partly internal used for signalization. The outputs A1.1 – A1.4 can used to switch different actors.

Properties
- 8 x electronic outputs
- Imax < 350mA, 24VDC
- Thermic protection
- short circuit proof

Wiring

pin	output	description
1	Out1	Output A1.1
2	GND	GND
3	Out2	output A1.2
4	GND	GND
5	Out3	Output A1.3
6	GND	GND
7	Out4	Output A1.4
8	GND	GND
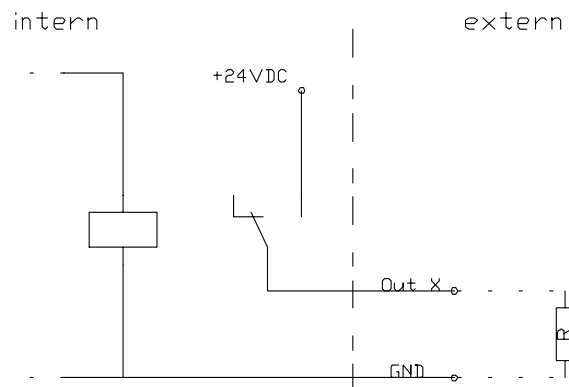
Please note the default connection of the first output –port (A1.1 – A1.8) in the control software Remote / ProNC under the menu entry „Signalization".

These outputs are directly wired with the modules inside the controller. You <u>cannot longer</u> use these outputs in the user program!

By using intuctance, an free-wheeling diode is necessarily.

⑦ **Digital relay outputs** *- 8-pin, bottom to top A2.1 – A2.4*

The mounted I/O board has a second digital output port with four other **relay outputs**. The second output port (A2.1 – A2.8) is partly internal used. The outputs A2.1 – A2.4 can freely used to switch different actors.

Properties
- 4 x digital rely outputs
- Imax < 5 A, 24VDC
- Thermic protection
- short circuit proof

Wiring

pin	output	description
1	Out1	Output A2.1
2	GND	GND
3	Out2	output A2.2
4	GND	GND
5	Out3	Output A2.3
6	GND	GND
7	Out4	Output A2.4
8	GND	GND
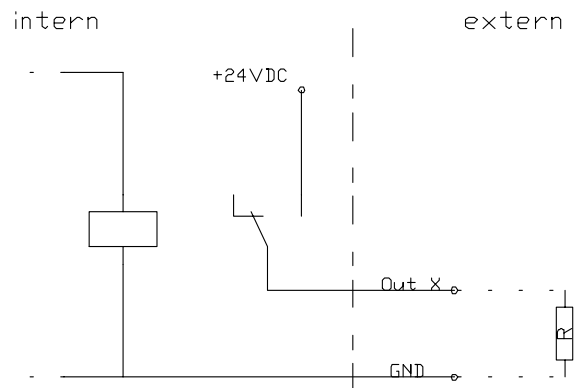
⑧ **Remote**- *security circuit interface, 8-pin, bottom to top*

Use this connector to include the controller into a higher ranked security circuit system. Furthermore, this interface provides the functions of the front control buttons (START, STOP) as a function of an external remote control panel or other device via I / O functions.

pin	signal	description
1	E_STOP_1_1	external emergency STOP, channel 1, connector 1.1
2	E_STOP_1_2	external emergency STOP, channel 1, connector 1.2
3	E_STOP_2_1	external emergency STOP, channel 2, connector 2.1
4	E_STOP_2_2	external emergency STOP, channel 2, connector 2.2
5	EXT_START	external START button (option to E1.7 on CAN IO)
6	EXT_STOP	external STOP button (option to E1.8 on CAN IO)
7	VCC	+24V for switches
8	VCC	+24V for switches

⑨ **AC-Input** – *net input module 115 -230 VAC, 50 …60 Hz*

The net input module consists of net input socket, net filter, fuse holder and net main switch. Connect the controller via delivered net cable to a free receptacle. After that you can switch on the controller with the net main switch.

⑩ **Spindle** *-115V/ 230V connector*

Use this output connector to directly tap a working spindle without speed control. Use the delivered mating connector. Maximum load of the relay output is 115/230 V AC / 6A. The spindle start signal is switched by the integrated CAN-I/O-module and will be analyzed by the security-circuit-module (iSM5). If all safety related conditions are complied the 115/230 V AC voltage is switched on the connector.

> ***Please note the pin assignment for the spindle start signal in the table for the CAN-I/O-module in chapter 4.2.***4.2

The net input module consists of net input socket, net filter, fuse holder und net main switch. Connect the controller via delivered net cable to a free receptacle. After that you can switch on the controller with the net main switch.

⑪ **Cover** *- Sub-D9-pin connector*

This connector is used to integrate a solenoid interlock to the security circuit of the controller.

> ***On isel machines the solenoid interlock is realized by a switch of type:***
> ***SCHMERSAL EX-AZM 170-02ZK-24V*** *(part-no.* 577047 0800)
>
> ***Only this type interlocks or interlocks with the same functionality have to be used.***

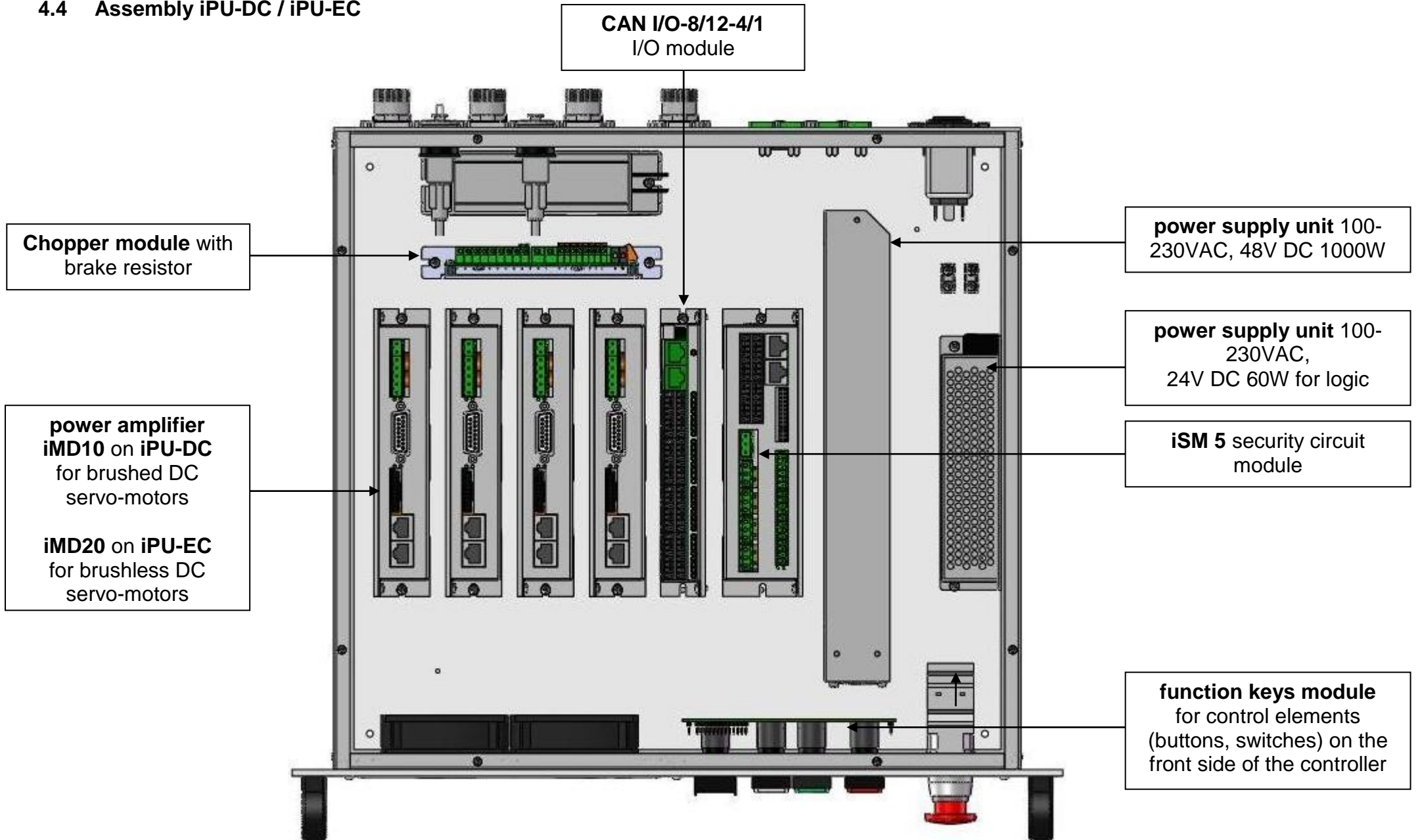| pin	description
1	+ coil break contact
2	switch 1.1 (bridge to pin 3 if no safety door is used)
3	switch 1.2 (bridge to pin 2 if no safety door is used
4	switch 2.1 (bridge to pin 5 if no safety door is used
5	switch 2 .2 (bridge to pin 4 if no safety door is used
6	- coil break contact
7 - 9	n.u.

> **If no cover or safety door is used the pins 2, 3 and 4, 5 must be bridged. Therefore use the enclosed Sub-D 9-pin plug.**

> ***If the contacts of the interlock is interrupted (e.g. forcible opening of the hood or remove the jumper, Sub-D) will immediately trigger an emergency stop and turned off the spindle.***

4.4 Assembly iPU-DC / iPU-EC

CAN I/O-8/12-4/1
I/O module

Chopper module with brake resistor

power supply unit 100-230VAC, 48V DC 1000W

power supply unit 100-230VAC,
24V DC 60W for logic

power amplifier iMD10 on **iPU-DC** for brushed DC servo-motors

iMD20 on **iPU-EC** for brushless DC servo-motors

iSM 5 security circuit module

function keys module for control elements (buttons, switches) on the front side of the controller

5 Initial operation

Voraussetzungen für den Betrieb des Controllers

The power units iPU DC / iPU -EC have intelligent CAN modules such as poweramplifiers for controlling motors .
To communicate with the modules you need a CAN master controller iCC10 (Item No. 320310) or iCC20 (Item No. 320310) as a PCI card . Insert the PCI card iCC10 / iCC20 into a free PCI slot in your PC. The drivers for the CAN PCI card is located on the volume containing the installation files from ProNC / Remote in directory:

{*root:}\Control\CAN\CAN_PCI_Driver_1_Channel*

In its subdirectories contains drivers for various Windows operating systems. When the computer starts you will be prompted to select the driver to install . Alternatively, you can install the driver via the device manager of the operating system.

Preparation

Before power up of the controller please check the scope of delivery.
Following parts should be included:

- net cable
- operating instruction
- CAN bus communication cable RJ45 plug ← →RJ45 plug

Make all necessary connections:
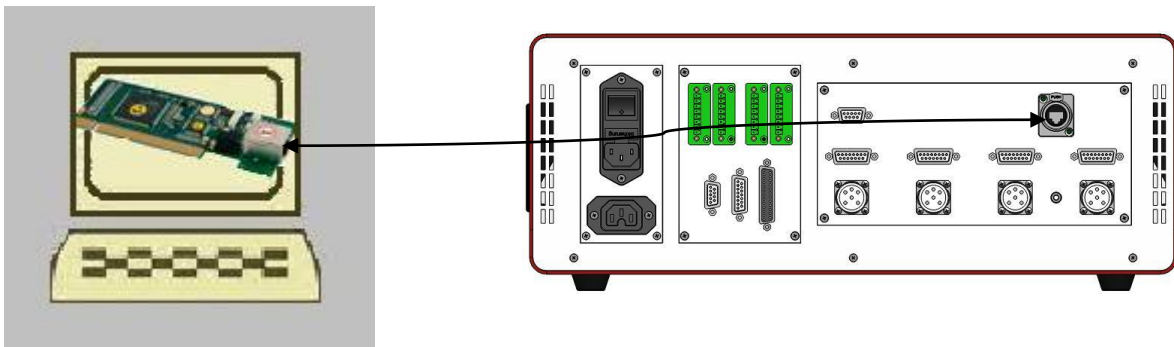
- connect net cable
- connect motor- and encoder-lines (motors) with the connectors on the back side of the controller
- connect communication cable between CAN PCI card and controller iPU-DC/iPU-EC
- check all other connection cables

Initial operation

- switch on controller main switches on front side and back side
  → the main switch on the front side should be lighted green

- install control software (if not preinstalled)
  - ProNC (1) or Remote

- install setup software (if not preinstalled)
  - DCSetup (2)
  - ACSetup (1)

- check if Emergency stop switch is pulled

- push Power button on the controller front side – motor power amplifier voltage should be switched on

- parameterize power amplifiers with ACSetup.exe / DCSetup.exe

- setup axes kinematic of your machine/system with CANSet.exe

- Control/operate the connected axes with the control- and programming software ProNC or Remote

6 Software

6.1 Installing setup software

Setup / initial operation of the integrated power amplifiers inside the controller's iMC-B, iMC-V and iMC-VP takes place by the following setup software

DCSetup.exe (4)

for:

- **BDC-servo-motors (brushed-DC-servos) with motor power amplifiers iMD10**

or

ACSetup.exe (2)

for:

- **BLDC-servo-motors (brushless-DC-servos) with motor power amplifiers iMD20**

Do the following steps to install setup software additional:

1. Connect ProNC/Remote install medium (delivered CD or USB stick) with the control computer.

2. Following Auto-start-window will be shown (when installing from CD):

If Auto-Start-window is not shown start the Windows Explorer and open the root directory of the CD/DVD- or USB-drive. Double click on the file "Autorun.exe".

3. Click on the entry "Installation of control software". The following window will be shown:
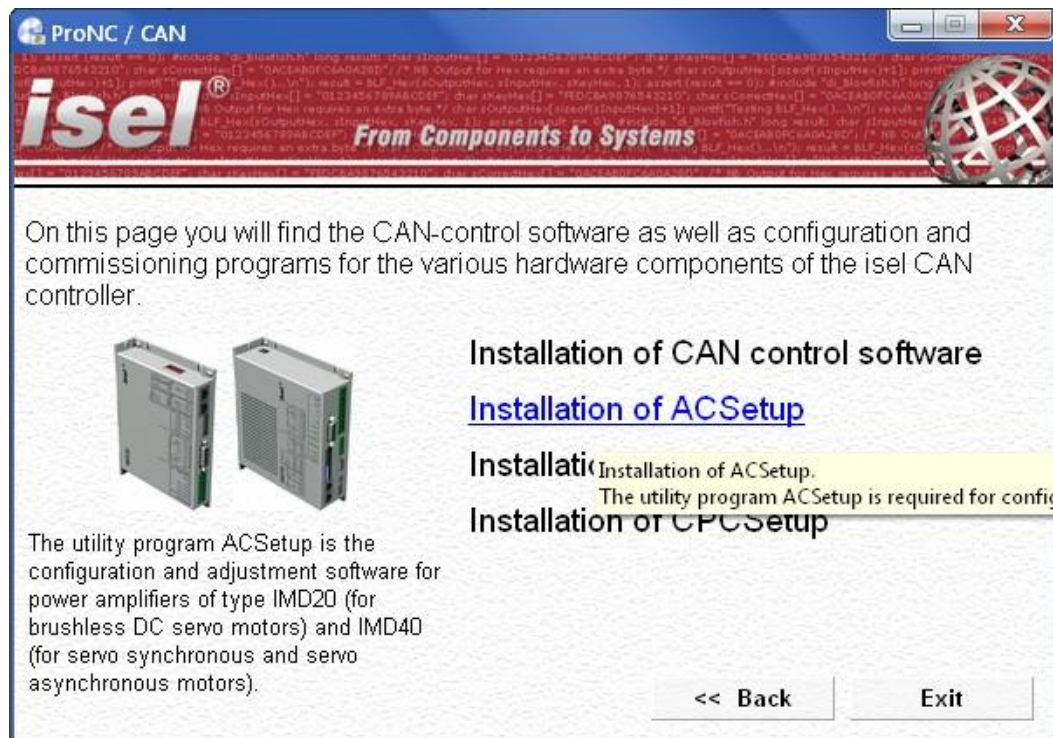
Choose now the setup software depending on your motor type and click on the entry to start the installation. (in this example "**Installation of ACSetup**")

Follow the instructions of the setup assistant.

After finishing the installation click on button "Exit" to close the Auto-Start-menu.

Start **DCSetup.exe / ACSetup.exe** via the desktop shortcut or via the start menu entry:
Start →Programs ACSetup → ACSetup / DCSetup

Information on parameterization of motor power amplifiers iMD10 you will find in the manual **/1/ DC-Servo positioning module with CANopen interface UVE8112 / iMD10.** Therefore open the file "dcsetup_eng.pdf " via shortcut in the start menu.

Information on parameterization of motor power amplifiers iMD20 you will find in the manual **/2/ AC-Servo positioning module with CANopen interface iMD20 / iMD40.** Therefore open the file "acsetup_eng.pdf " via shortcut in the start menu.

6.2   ProNC / Remote installation and first steps

Operation of the controller **iMC-B / iMC-V** takes place either with the control software Remote or with the control / programming software ProNC.

If there is no operation software installed ex factory do the following steps to install the software later:

1. Connect ProNC / Remote install medium (delivered CD or USB stick) with the control computer.

2. Following Auto-start-window will be shown (when installing from CD):
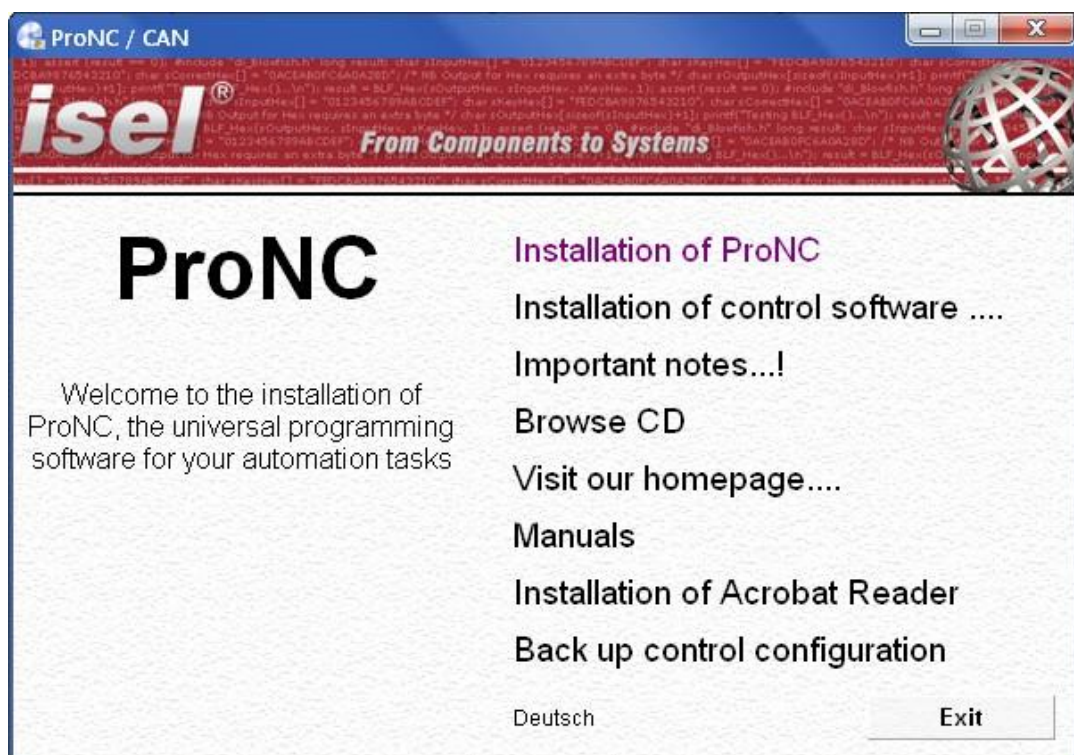
> *If Auto-Start-window is not shown start the Windows Explorer and open the root directory of the CD/DVD- or USB-drive. Double click on the file "Autorun.exe".*

3. Click on the entry "**Installation of ProNC**"

Choose your language and follow the instructions of the setup assistant.
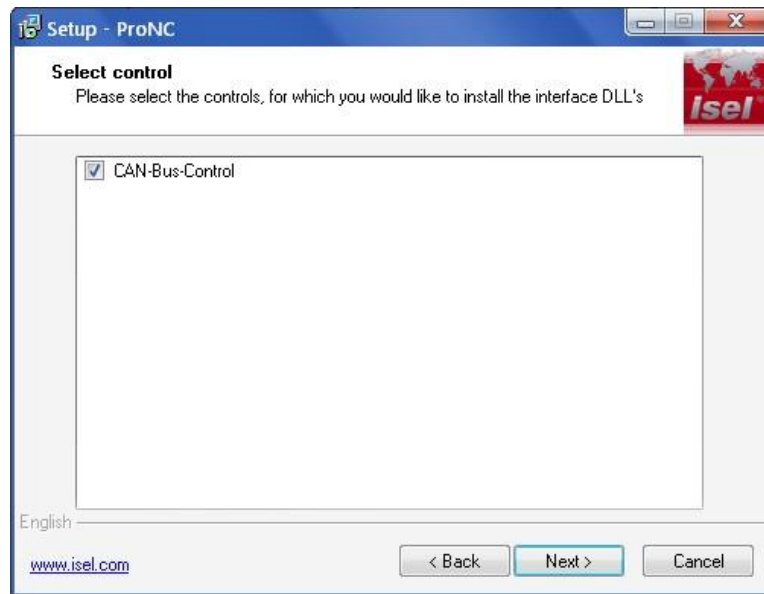
Mark on setup window "Select control" the option "CAN-Bus-Control" to install the CAN-bus software module.

After finishing the installation click on button "Exit" to close the Auto-Start-menu.

4. Open the configuration program **CANSet.exe** (shortcut on windows-desktop or start-menu-entry: Start → Programs → isel CAN-CNC-Control → CANSet) to setup machine specific parameters (CAN-interface, used axes, axis type).
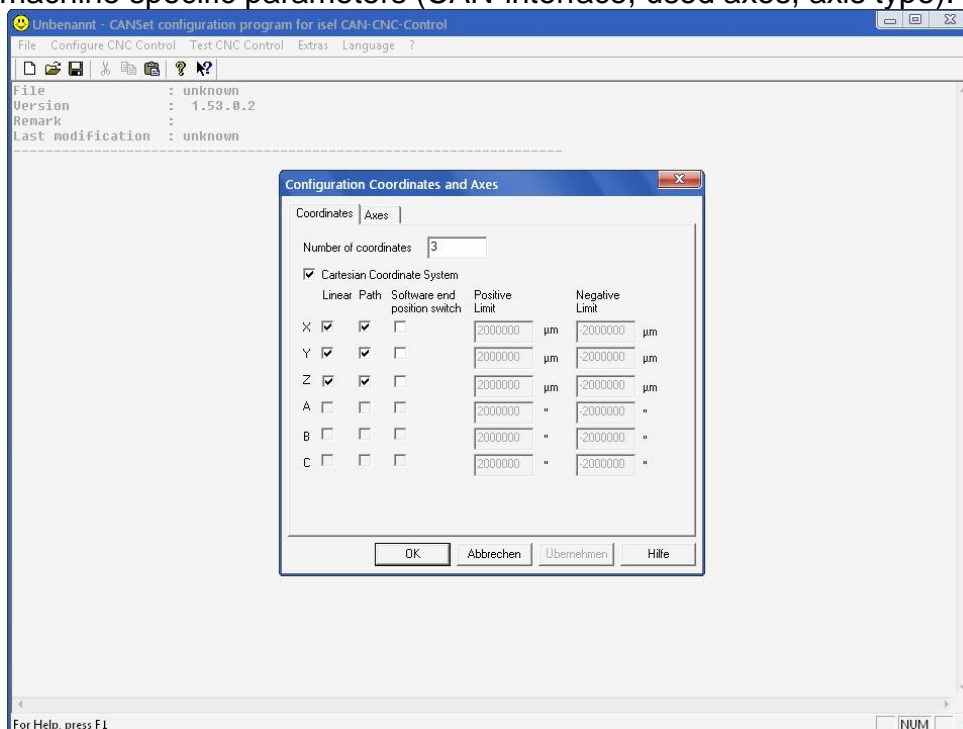
Save your configuration to an initialization file (*.ini file). The saved file will be used later in the control software ProNC / Remote as motion control initialization file.

5. Open the control software ProNC / Remote via shortcut on the windows desktop or the start menu entry: Start → Programs → CNCworkbench → ProNC/Remote

   Click on entry "control" in menu "settings". Mark the entry Motion control modules → Axis system 1. In the bottom right side of the window you will find the settings for the selected axis system. In the edit field "Module initialization file" you must choose your previously with CANSet.exe generated and saved INI-file.
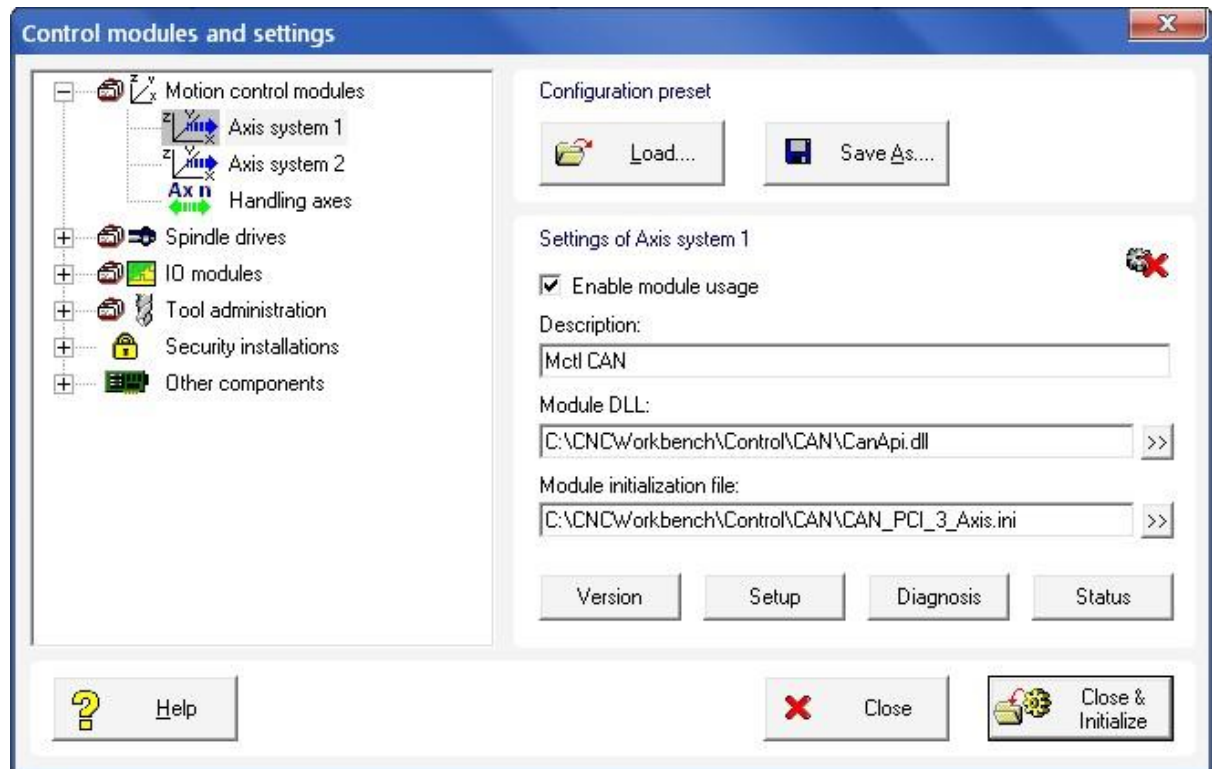
Click on button "Close & Initialize" to take effect the new settings.

6. Perform a software reset [⁄⁄] and a reference run [↤ 0 X,Y,...] to check correct behavior of the machine /system.

> **Additional information to configure ProNC / Remote you can find in the online help (menu help, F1 key).**

8 EC - Declaration of Conformity

Der Hersteller
The manufacturer

isel Germany AG
Bürgermeister-Ebert-Str. 40
D-36124 Eichenzell

erklärt hiermit, dass folgendes Produkt
hereby declares that the following product

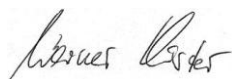|		
Geräteart:	*isel* **Leistungseinheit**	
Device:	isel power unit	
Typ:	**iPU-DC / iPU-EC**	
Type:		
Art.-Nr.:	**iPU-DC:**	354000 10X0
Product - No.:	**iPU-EC:**	354000 20X0
Serien-Nr.:		
Serial-no.:		_____

mit den Vorschriften folgender Europäischer Richtlinien übereinstimmt:
complies with the requirements of the European Directives*:*

EG-Richtlinie 2004/108/EG   EMV Richtlinie
EC-Directive 2004/108/EC   *EMC directive*

EG-Richtlinie 2006/95/EG   Niederspannungsrichtlinie
EC-Directive 2006/95/EC   *low voltage directive*

Folgende harmonisierte Normen wurden angewandt:
Following harmonized standards have been applied:

EN 61000-6-2:2005	EMV - Fachgrundnorm - Störfestigkeit für Industriebereich
	EMC - Generic standards - Immunity for industrial environments
EN 61000-4-2:2008	EMV - Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen Entladung statischer Elektrizität (ESD)
	EMC - Testing and measurement techniques; Electrostatic discharge immunity test
EN 61000-4-4:2012	EMV - Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen schnelle transiente elektrische Störgrößen (Burst)
	EMC - Testing and measurement techniques - Electrical fast transient/burst immunity test
EN 61000-4-5:2007	EMV - Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen energiereiche Impulse (Surge)
	EMC - Testing and measurement techniques - Surge immunity test
EN 61000-4-11:2005	EMV - Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen Spannungs-einbrüche / Spannungsunterbrechungen
	EMC - Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests
EN 61000-6-3:2011	EMV - Fachgrundnorm - Störaussendung Wohn- und Geschäftsbereich, Kleinbetriebe
	EMC - emission standard for residential, commercial and light-industrial environments
DIN EN 55011:2011	Industrielle, wissenschaftliche und medizinische Hochfrequenzgeräte (ISM-Geräte) - Funkstörungen - Grenzwerte und Messverfahren
	Industrial scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement
EN 60204-1:2006	Sicherheit von Maschinen – Elektrische Ausrüstung von Maschinen – Teil 1: Allgemeine Anforderungen
	Safety of machinery – Electrical equipment of machines – Part 1: General requirements

Dermbach, 16.07.2014

Werner Kister, Vorstand / managing board

9 Bibiography

/1/ isel Germany AG.
Positioning module with CANOpen interface UVE8112 / iMD10. 03/2008.

/2/ isel Germany AG.
Positioning module with CANOpen interface iMD20 / iMD40. 03/2009.

/3/ isel Germany AG.
ProNC operating instruction 2003.

Operating instructions and manuals for download you can find here:

www.isel-data.de/manuals

10 Index