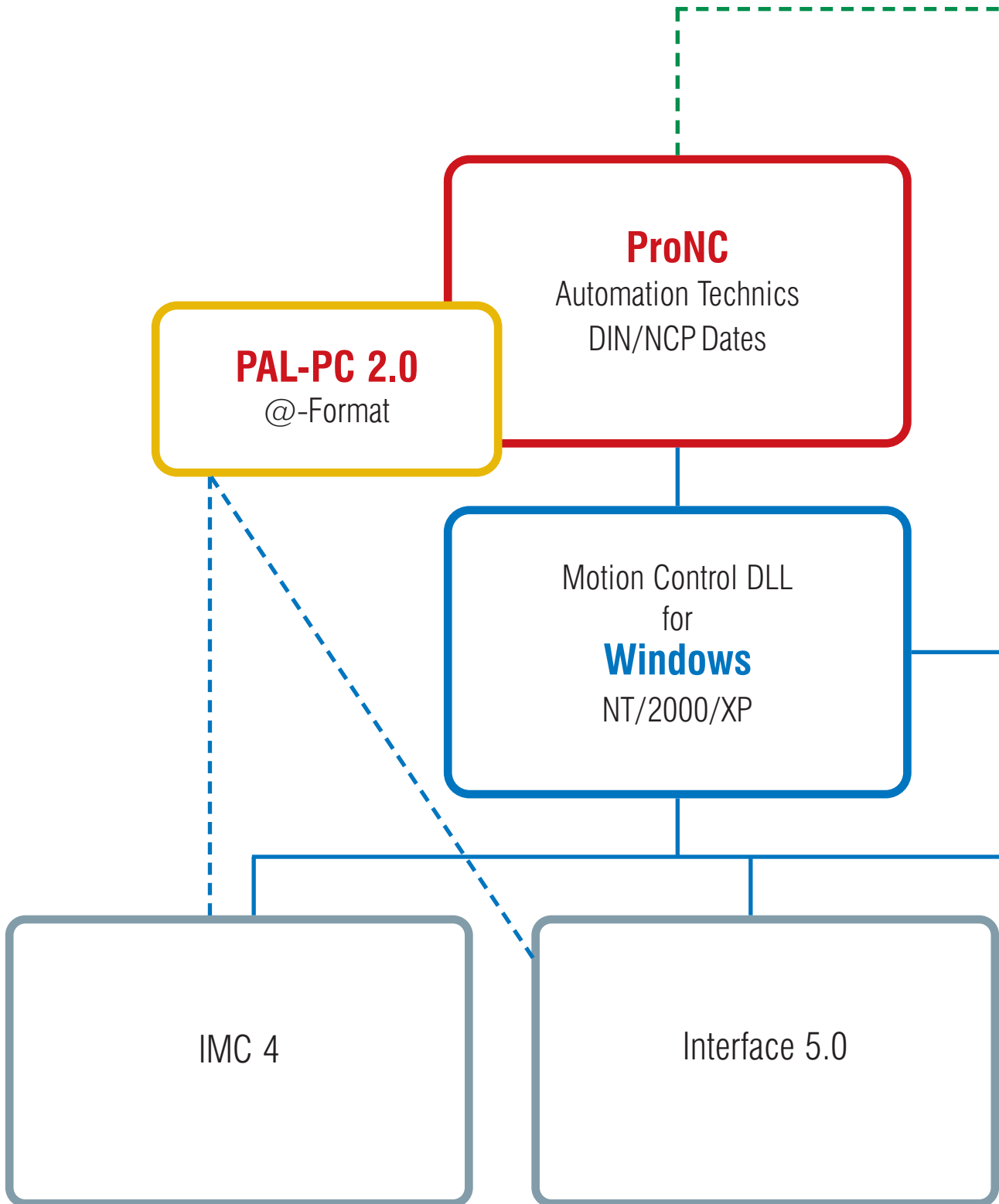


Software and Control Structure



Software and Control Structure

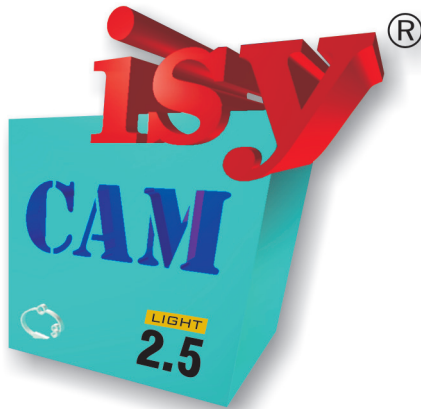
isy-CAM 2.5 light/3.0
incl. RemoteWin
with Import-Filter

RemoteWin
Output Program
for NCP Dates

CAN-Dongle

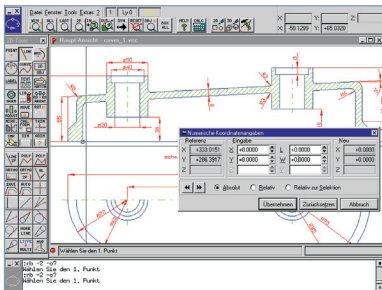
PSK 4

isy-CAM 2.5 light

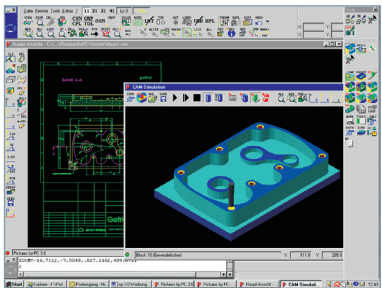


a complete Package with:

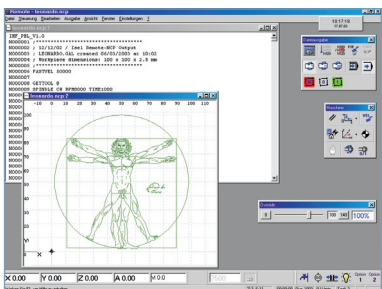
- 2D CAD / Design
- 2,5D CAM up to 4 axes
- Integrated machine control software
- Service



CAD



CAM



REMOTE

With isy-CAM 2.5, the isel group provides its customers with a "light" version of the Windows®-based CAD/CAM package.

It is directly coupled to isel controllers and offers a universal solution from the construction to the production by means of isel controllers and isel machines.

The offered software package is best suited for those who want to enter the world of CAD/CAM.

The operation takes place "windowslike" by means of graphic menus and dialogue boxes.

The **CAD part** includes all functions that are necessary for 2D constructions.

The **CAM part** makes it possible to create machining data simply and fast - directly from the design data.

With the integrated operating software **RemoteWin**, these machining data can be put out directly to the connected machine or controller.

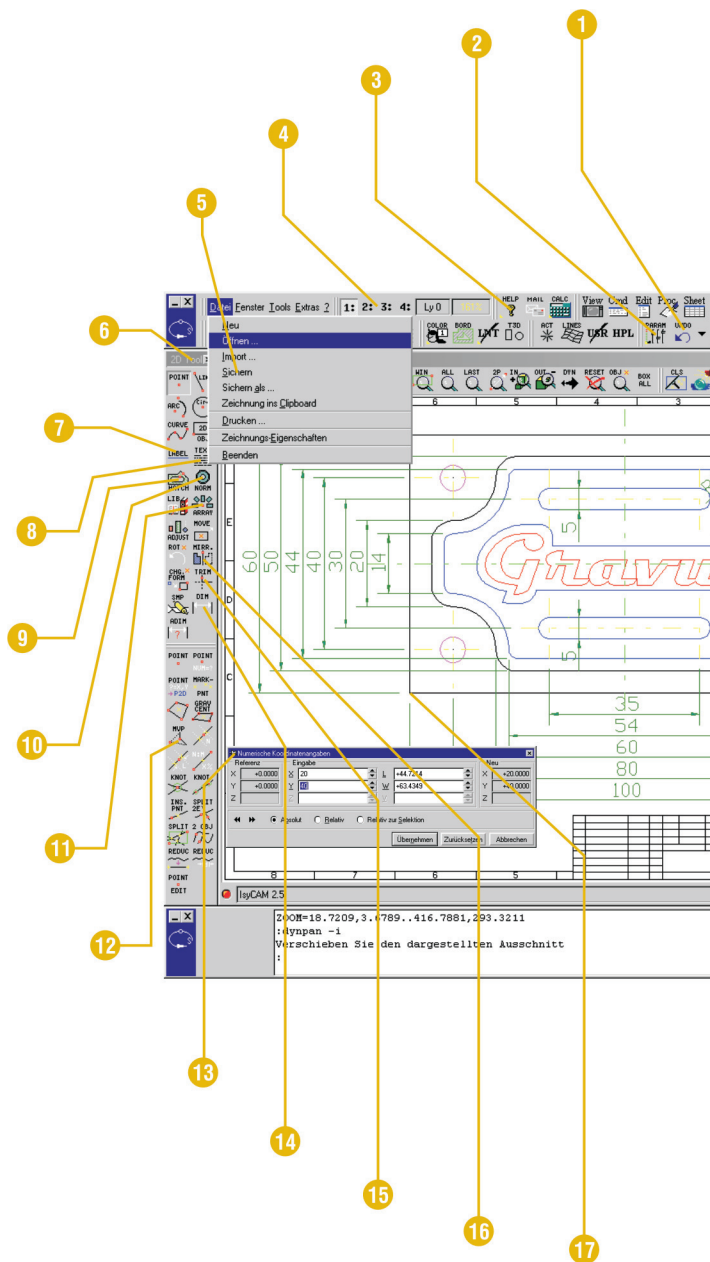
Therefore you get a universal solution to easily realize your ideas.

Range of Application

- General construction
- Mechanical engineering
- Tool manufacture
- Electrical engineering
- Engraving technology
- Artistic design
- ...

isy-CAM 2.5 light

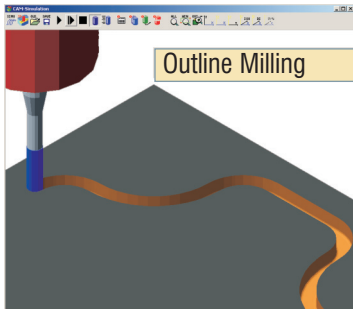
CAD-Funktionen



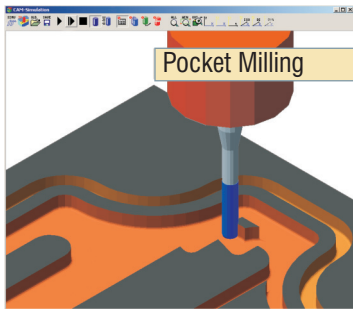
- 1 Arbitrary "Undo" function (backward steps)
- 2 Freely definable line types and colours
- 3 Integrated online support, configurable control surface
- 4 Parallel and independent working on several drawings
- 5 Import/export functions
 - Import: DXF, HPGL, AI, EPS, TIFF, BMP, NC, NCP
 - Export: DXF, HPGL, AI, WMF, EMF, TIFF, JPG, BMP
- 6 Extensive geometry elements such as points, lines, ellipses, circles, curves (polygons, splines, Bezier curves, NURBS)
- 7 Direct use of the Windows® fonts
- 8 Professional number and text editing functions
- 9 Hatch and freely definable types of hatch
- 10 Standard parts
- 11 Automatic arrangement and orientation functions
- 12 Sketch and interactive change of outlines
- 13 Numeric input opportunity for absolute, relative and polar coordinates
- 14 Extensive measuring and dimensioning functions, corresponding to DIN/ISO
- 15 Trimming, separating and pulling curves, conversions of different kinds of geometry
- 16 Geometry manipulation by shifting and copying like e.g. translation, rotation, scaling, mirroring
- 17 Intelligent object locking

isy-CAM 2.5 light

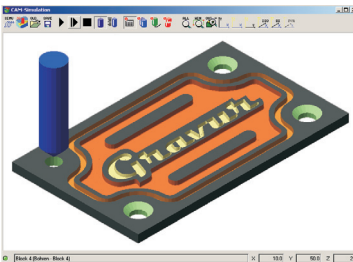
CAM-Funktionen



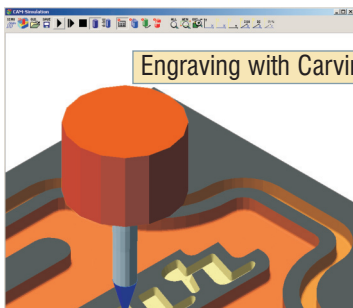
Outline Milling



Pocket Milling



Engraving with Carving



Drilling and Centring

The CAM functions of the software package provide the user with a practice-oriented and effective tool for the creation of machining data for all typical 2D and 2.5D production jobs with three-axis or four-axis machines.

In contrast to conventional numerical control programming, the workpiece geometry data are directly taken from the CAD system (designing instead of programming!) and transferred into numerical control data. In the CAM module, technological (material- and tool-dependent) machining instructions are assigned to the outline data. The integrated online simulation of the milling paths ensure an optimal supervision of the computed numerical control data.

- Tool list with selection and default of the tool geometry
- Machining feed motion and speed of the spindle
- Immersing variants/start-up strategy
- Automatic remaining material treatment
- Synchronism/reverse rotation
- Zero point shift and/or program zero point
- Feed reduction when immersing and in the full cut
- Roughing and smoothing with depth increment
- Treatment of oversize/undersize
- Computation tolerances
- Tool path distance
- Repeat functions e. g. for mass-production
- Arbitrary definition of the machining sequence of technology blocks
- Simulation of the milling paths
- Post-processor run for the generation of the NCP data for a three-axis machining or the developed view on a fourth axis (rotational axis)
- Possibility to edit NCP data

Outline Milling

- Tool correction by means of the CAM
- Closed outline, open outline, on the outline
- Start-up strategies - straight line, circle, tangential
- Special functions e.g. for water jet and laser cuttings, glue dispensing etc. (own functions and/or commands on arbitrary positions of the geometry that will be executed with the machining can be defined)

Pocket Milling

- Arbitrary geometry, automatic island recognition
- Clean out outline parallel or with parallel straight lines according to angle details
- Immerse through ramp, helix, or with pre-drilling

Engraving with Carving

(Die Manufacturing)

- On the outline
- Elimination of free, closed outlines with arbitrarily complex islands
- Smoothing with cut-out of the corners for tools with opening angle via 3D movements
- Automatic recognition of inner and outer contours

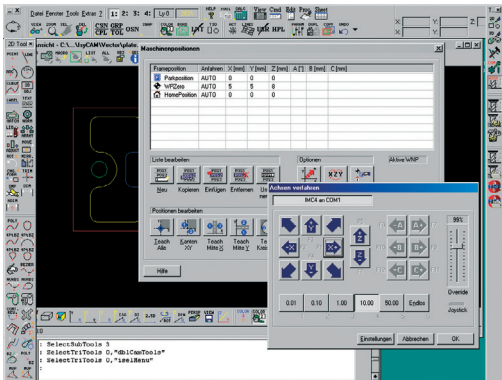
Drilling and Centring

- Deep hole drilling with chip removing or with chip breaking
- Rubbing, centring
- Thread milling

isy-CAM 2.5 light

REMOTE

REMOTE is the universal operating and output software for processing NCP files in the fields of milling, drilling, glueing, water jet cutting, laser cutting and laser welding - for all ideas that can be realized by means of isy-CAM 2.5.



Due to the high flexibility and expandability of isy-CAM and REMOTE, you can also automate complex processing procedures.

Due to various options and adjustment possibilities, REMOTE can also be integrated into superordinate manufacturing processes.

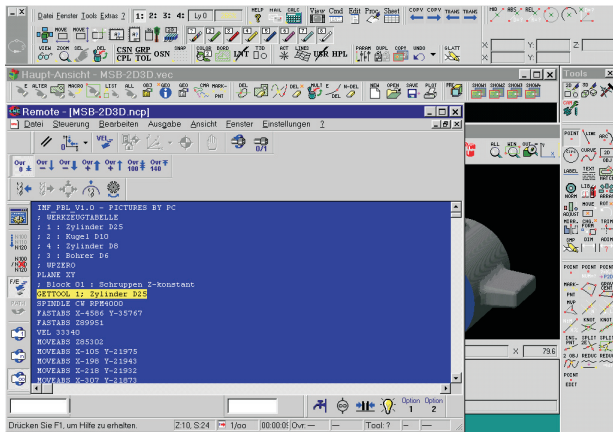
Features of Performance:

- Universal processing and control software
- Flexible and expandable
- Direct call and control by isy-CAM 2.5
- Stand-alone mode possible (shop manufacturing, network operation ...)
- Available for a large number of isel machines and isel controllers
- Operates under Win 98, 2000, NT and XP
- Intuitive program operation
- Integrated editor for comfortable handling of NC data
- Graphical representation of the milling data with measuring functions
- Dialogue-supported machine configuration
- Dialogue-oriented management of workpiece zero points, park positions, output positions
- Dialogue-supported management of copy manufacturing/multiple output
- "Set advance" (process restart at a break point)
- Online support system
- Extensive command line options

Ordering Data

isy-CAM 2.5 light	Z13-337020
Update isy-CAM 2.0 to isy-CAM 2.5 light	Z13-337020-0001
isy-CAM 2.5 light (secondary licence)	Z13-337020-0300
Update isy 2.5 light → isy 3.0	Z13-337020-0900
School licence for 10 additional places (addition to main licence)	Z13-337000-0140
User Manual	970 Z13 HD001

RemoteWin



Interpreter and Control Program for isel Machines and Controllers

- Interpretation of NCP files and CNC files for the output to or the control of isel machines

... the powerful Interpretive Software for modern isel Controllers

RemoteWin is a universal processing and control program for the machining technologies milling, drilling, glueing, water jet cutting and laser cutting/welding. Supported file formats are the isel NCP format (ASCII file with machining data, provided by a post processor) as well as the isel CNC format (ASCII files in a new format for the universal application within process automation, machining, milling etc.)

RemoteWin is used primarily for controlling isel machines with a variety of output files. For this reason, flexibility is a main feature of the program. A large variety of options makes a simple adaption to different requirements possible.

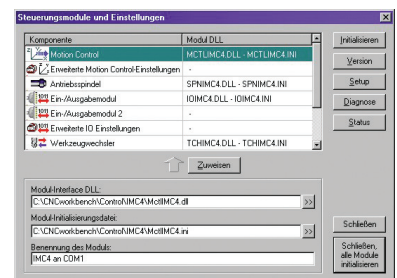
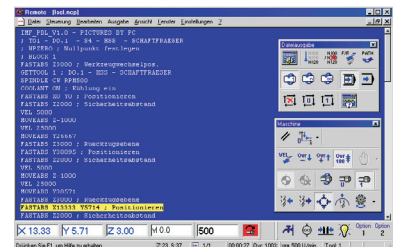
The extensive graphic user interface is designed in such a way, that the most important program functions are quickly accessible in two ways - by keyboard (short keys or hot keys) as well as by mouse (symbol bars and dialog boxes).

The menu structure is kept simple, in order to enable a quick operation. Optionally an operation can be performed using the isel control panel or via the CAN bus communication (CANopen).

For additional adjustments of the output files, RemoteWin has an integrated editor, which is also suitable for editing larger files. Standard editor functions like "search and replace", "cut", "copy" and "paste" are supported.

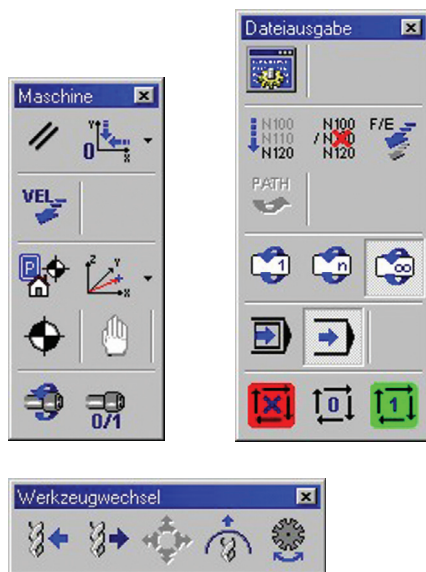
RemoteWin can be controlled remotely. By means of command line parameters, the appearance of the program, if called from other Windows applications, can be adapted. The parameterization of the program as well as the processing of the output file can be automated by using suitable parameters.

RemoteWin is a 32-bit Windows program. Under the condition, that a suitable driver software is employed for the machine type being used, it runs therefore under the operating systems Windows 98, Windows ME, Windows NT4.1, Windows 2000 and Windows XP.



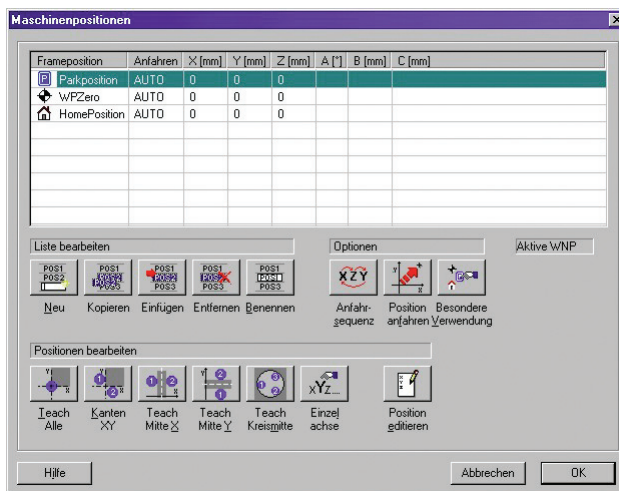
RemoteWin

Operation



Operation Panels with Buttons

- Reset, reference run
- Speed setting
- Set/delete workpiece zero point
- Manual jogging
- Switch on/off spindle, set speed
- Block forward run, optional block skip, rapid motion overlay
- Selection of the output repetitions
- Selection of the operation mode (Single step mode, automatic mode)
- Start, stop and abort the user program
- Get/deposit/clamp tool
- Tool magazine

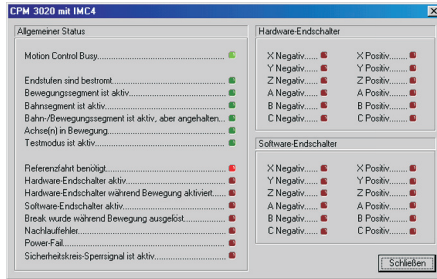


- Dialog supported machine configuration
- Set, correct, test the machine position
- Access to symbolic machine positions in the CNC user program



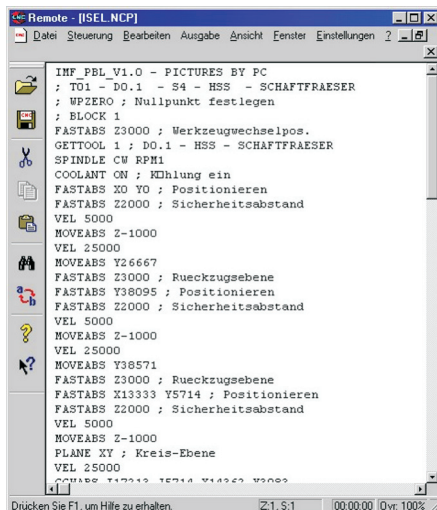
- Manual jogging (up to 6 axes)
- Teach-In with function keys, mouse click or via operating panel
- Step mode (Jog) or axis travel, slant travel

RemoteWin



Display Functions

- Controller status
(hard- and software limit switches, ...)
- Speed indication
- Actual coordinates indication
- Machining time
- Override
- Spindle speed
- Current tool number



Instruction Process / Output

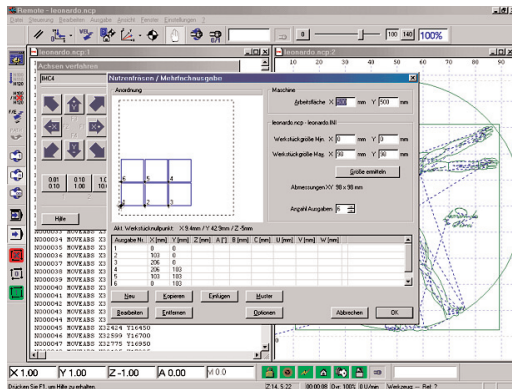
- Direct call out of isy-CAM 3.0
- Text editor for NCP user programs with Windows standard functions (search, replace, ...)
- Editing window for correcting NCP files in NCP syntax
- Immediate processing without conversion or translation after storing
- The functional possibilities of the interpreter correspond to ProNC:
 - Definition and access possibility of selected machine positions via the geometry file
 - Parameter computing by means of real variables
 - Arithmetic, trigonometric functions
 - Parallelism of axis movement and binary outputs
 - Possibility of calling user's software

Files

NCP-Files are generated by the post processor (isel CAD/CAM software) and interpreted by RemoteWin (processed line by line)

CNC-Files are generated in ProNC by compiling PAL or ISO user programs

RemoteWin



Example for the dialogue
„Setup copy milling / batch machining“

Remote Operation

Input support and programmed machining

- Dialog supported menu prompt
- Simple operation by mouse and/or keyboard
- Direct access of all control functions for test, start-up or manual machinings
- Dataset forerun, suppression, quick motion overlay
- Processing of files of any size

Ordering Data

RemoteWin
RemoteWin–Update

Z12-334312
Z12-334312-0001

for isel-CAN-CNC-Controllers
Win NT, 2000, XP

RemoteWin
RemoteWin–Update

Z12-334112
Z12-334112-0001

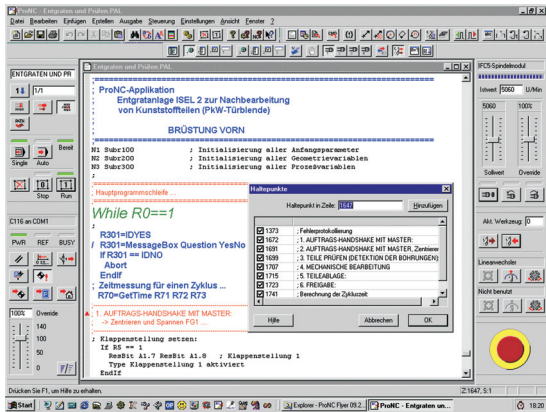
for isel-Controllers C 142
Win 98, NT, 2000, XP

RemoteWin
RemoteWin–Update

Z12-334111
Z12-334111-0001

for isel-Controllers IMC 4, CSD 405 IMC (for CPM and GFM Machines)
Win 98, NT, 2000, XP

ProNC



- Convenient operating and programming interface
- Programming according to isel PAL or DIN 66025
- Import of postprocessor files (NCP)
- Runs under Windows 98, NT 4, 2000 and XP
- Interactive machine configuration
- Flexible due to the use of interface DLLs
- Expandable by customized DLLs

The Universal Software for Modern isel Controllers

ProNC is the integration of the control programmes Remote, implemented for the operating system MS-DOS by iselautomation, ProDIN and ProPAL into one software product as a new, powerful operating and programming interface under MS Windows (98, NT 4.x, 2000 and XP). All NC programs that were previously used by the operators for Remote (isel NCP format), ProDIN (DIN/ISO format) and/or ProPAL (isel PAL format) can be executed by ProNC.

ProNC consequently uses the MS Windows concept of dynamic linking (Dynamic Link Library = DLL) for the realization of the necessary module and/or device interfaces for the control of:

- controllers, motor control boards or intelligent output stages for motion axes / axes systems (motion control DLLs)
- frequency converters for machining spindles (spindle DLLs)
- hardware for binary/analogue input and output (I/O DLLs)
- tool changers (tool change DLLs)
- hardware for operating and safety functions, measuring technique and the CAN fieldbus interface

ProNC contains an extensive dialogue software for the configuration, parameterization, start-up and diagnostics of numerical axes/systems including the necessary periphery.

The application range of ProNC covers automation solutions particularly in the areas assembly, handling, loading and quality inspection, in which the user programs are predominantly created textually by using teach-in functions and/or by integrating contour data records (e. g. isel NCP format).

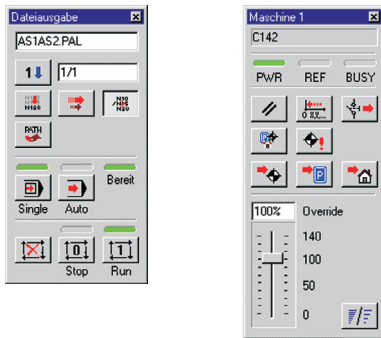
To use ProNC efficiently for the purpose of start-up / optimization of the user programs, inter alia, the following characteristics were implemented:

- single-step processing
- adjustment/teach-in as well as correction and test of arbitrary machine positions
- configurable system monitor for displaying the current values of real variables
- display window for speed and actual coordinates
- display of the movement control status (incl. hard- and software limit switches)
- self-sufficient spindle control panels for up to four spindles with speed override
- self-sufficient machine control panels for one or two axis systems with movement override, manual setting/deleting of work-piece zero points
- setting of breakpoints on arbitrary program lines / sets in the user program
- change of the values of real variables, e.g. for target coordinates, forward feeds, speeds and technological parameters (delay times, offset, copies, output values) while the program is executed
- teach-in and manual axis movement at the run-time of the user program
- extraction sets, set forerun, rapid traverse overlay

ProNC is an open software system. All interfaces are documented in the isel CNC API (Application Programming Interface). The activation of user software (as Windows EXE or Windows DLL) out of the NC program (DIN/ISO or PAL) is supported.

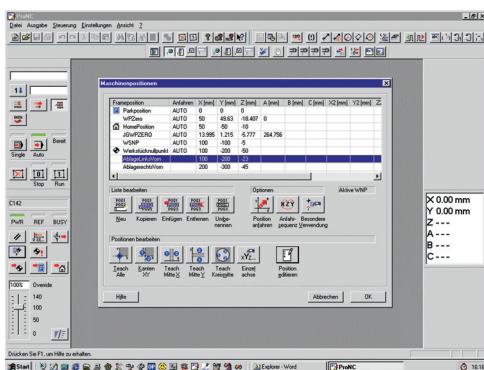
ProNC

Operation



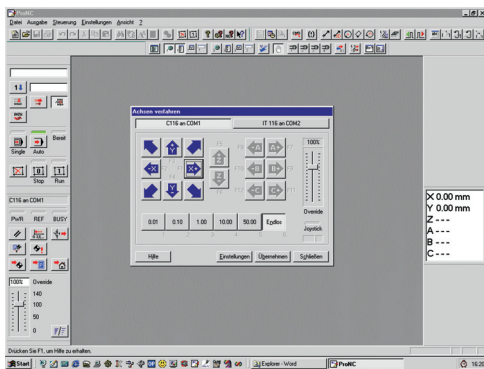
Operating Panels with Buttons

- Starting, interrupting and cancelling the user program
- Selection of the operation mode
- Approaching selected machine positions
- Workpiece zero point on / off
- Axis override



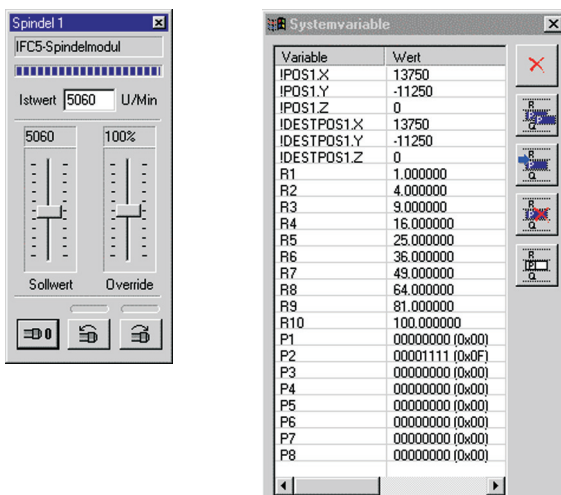
Machine Positions

- Setting, correcting and testing machine positions
- Access to symbolic machine positions in the ISO/PAL user program



Axes Actuation

- Manual axes actuation, alternatively in the first or second axis system
- Teach-in with function keys, mouse click or joystick
- Step-by-step mode (jog) or axis actuation, slantwise travel



ProNC System Monitor

- Axis status (limit switch)
- Speed indication
- Actual coordinates display
- Real variables (RX)
- Process variables (PX)

Spindle Operating Panels

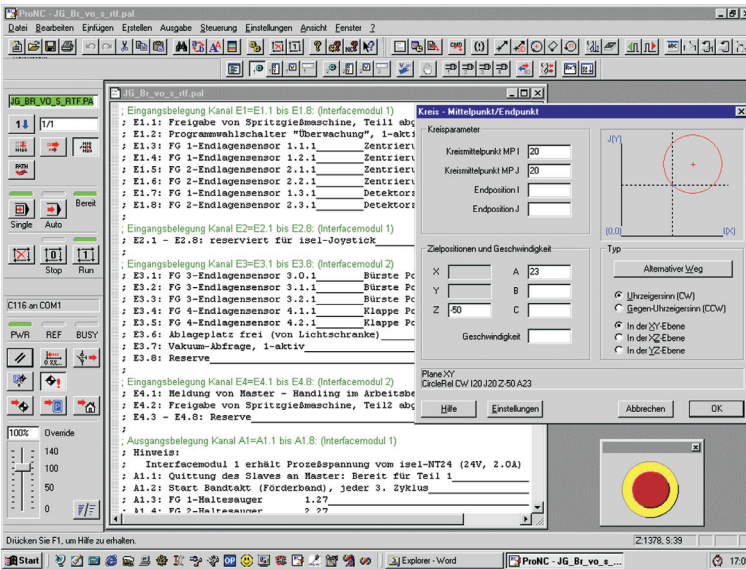
- for up to 4 spindles

ProNC

Programming

Input Support

- Editing window for the source file
- Interactive windows for inserting commands and functions in ISO syntax or PAL syntax
- Compilation run with error list and correction references
- Debug functions (break points, trace)



Range of Functions

- ProNC is the porting of the control programs Remote, ProDIN and ProPAL under Windows
- User programs in the NCP format (isy Remote), ISO format (pro DIN) or PAL format (pro PAL) are furthermore usable
- After the import with the text editor, NCP user programs are arbitrarily expandable
- Creation of the user programs alternatively in ISO syntax or PAL syntax
- Full function range analogous to ProDIN/ProPAL
- Definition and accessibility of selected machine positions by means of the geometry file
- Parameter calculation by real variables
- Boolean operations by process variables
- Arithmetic, trigonometric functions
- Alignment of axis motion and binary output units
- Possibility of calling user software (DOS Batch, WIN *.exe, WIN *.dll) for logging, communication and parameter exchange with external devices as proportioning, welding or laser controllers and/or intelligent sensors / actuators

File Types

- Source file: user file in ISO syntax or PAL syntax
- Geometry file: reading and writing of machine positions e. g. via teach-in, in the set-up or automatic mode
- CNC target file: compiled source file in the CNC format as output file for the interpreter
- Error file: list of the syntactic errors after the compiler run
- Variables file: reading of real variables at the program start and/or saving at the program end or abnormal termination or at run time of the user program

ProNC

Overview

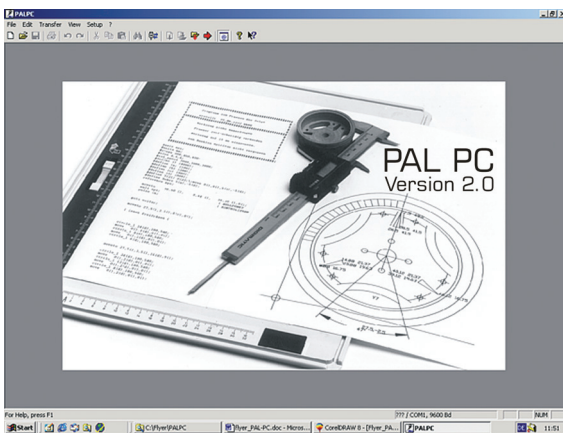
Controller	Movement type	Axes	Runs under	Item no.
IMC 4 IMC 4 – Update	linear, cirkular, helix	4 ●	Win 98, NT 4, 2000, XP	Z11-333 111 Z11-333 111-0001
C 142/4 Interface card I5 // I5.0C // I5.0C E/A C 142/4 – Update	linear, cirkular	3 ●	Win 98, NT 4, 2000, XP	Z11-333 112 Z11-333 112-0001
IT 116 G IT 116 G – Update	linear	1 ●	Win 98, NT 4, 2000, XP	Z11-333 112 Z11-333 112-0001
CSI 464 D/E CSI 464 D/E – Update	linear, cirkular, helix, buffered mode	4 ●	Win 98, NT 4, 2000, XP	Z11-333 123 Z11-333 123-0001
PS-PCI (for PCI-Slot)	linear, cirkular, helix	5 ●	Win NT 4, 2000, XP	auf Anfrage
UPMV 4/12 (for ISA-Slot) UPMV 4/12 – Update	linear, cirkular, helix	4 ●	Win 98, ME	Z11-333 211 Z11-333 211-0001
PSK 4 (for printer interface) PSK 4 – Update	linear, cirkular, helix, look-ahead path	4 ●	Win NT 4, 2000, XP	Z11-333 213 Z11-333 213-0001
CAN Dongle (for printer interface) CAN Dongle – Update	linear, zirkular, helix, look-ahead path	6 ● + by 121 Handling axis	Win NT 4, 2000, XP	Z11-333 312 Z11-333 312-0001

Training courses and application solutions upon request!

● = Servo motor

● = Stepping motor

PAL-PC 2.0



Process Automation Software for Controllers with CNC Mode

- Convenient user and programming interface
- Programming in accordance with PAL PC
- Runs under Windows 98, ME, NT 4, 2000 and XP
- Permits to control up to 3 (4) axes

General Overview

PAL PC The new version 2 of PAL PC permits the fast and easy realization of automation projects, such as drilling machines, handling systems, measuring and inspection systems, machines for individual and serial processing, etc.

PAL PC runs under the operating systems Windows 98, Windows ME, Windows NT 4, Windows 2000 and Windows XP.

PAL PC is the latest development of the programming environment for the isel interface card series, providing solutions for simple process controls. PAL PC can be used to control up to 4 axes (depending on the type of used control unit).

PAL PC can either be executed in the store-and-forward mode (CNC mode) or in the direct controller mode (DNC mode). This permits to realize both, applications in the stand-alone mode and applications with a supporting control PC.

If the CNC extension of the IMC4 controller is used, it is also possible to operate autonomous machines of the CPM series/GFM 4433.

In the CNC mode, the program is stored in the internal memory of the controller

after transmitting (downloading) the application program to the target controller. It can be directly started via the controller or the machine (store-and-forward mode or stand-alone mode). The PC is only required for creating and testing the CNC program as well as for downloading the program.

In the DNC mode, the transmission of the CNC program is carried out order-wise/segment-wise with direct execution. In this mode, the program can only be started with the control PC being connected (direct mode).

PAL PC for Windows is the follow-up software of PAL PC for DOS. It comprises the complete scope of functions of the DOS version.

PAL PC was consistently realized with downward compatibility in mind to ensure that the already available source code of the preceding version can be freely used.

The user interface is designed in such a way that the most important program functions can be started via the buttons of the toolbar.

PAL PC has an integrated editor and compiler. Conventional editor functions, such as "Search" and "Replace", "Copy" and "Paste", as well as formatting functions for selecting specific colours and

fonts, allow a convenient and fast program creation - even including the fault-free translation of the application program.

PAL PC supports functional extensions of different control units:

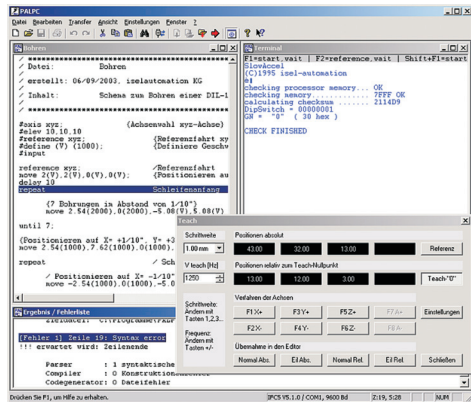
The hardware option "Battery Backup" (for interface cards and single-axis controllers) ensures the continuous availability of a CNC program, even after switching off the control unit.

A memory card allows to backup the translated application program and to reload it directly to the memory of the control unit - without PC.

[Under preparation: G-Code extension \(programming according to DIN 66025\)](#)

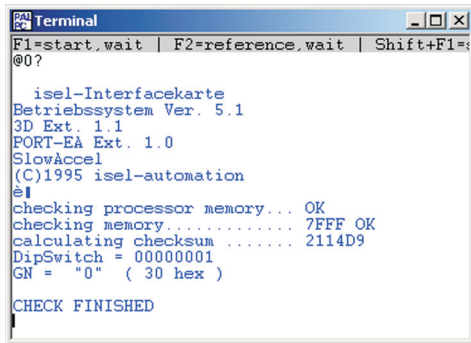
PAL-PC 2.0

The operation



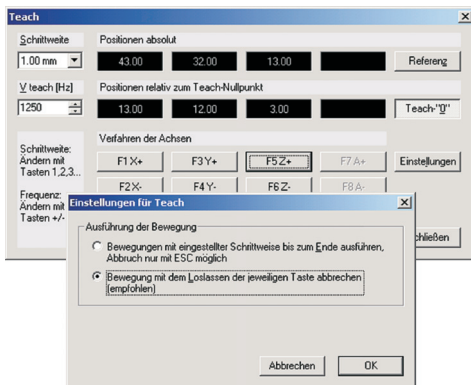
Program Features

- Program operation via menus and short keys
- Editing in several source-text windows
- Display of compiler errors and navigation in the source code
- On-line help on programming and operation
- Auto-Detect of connected control units



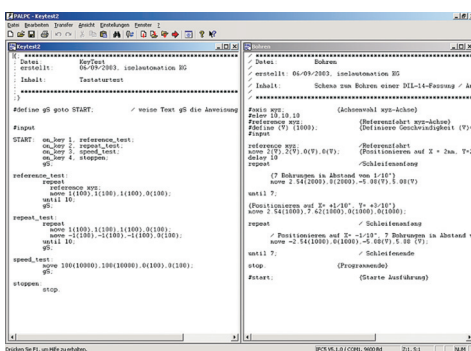
Terminal Window

- Test of communication with the interface card
- Query of information for service and diagnostic functions
- Controller self-test



Moving Axes

- Moving axes manually
- Teach-in programming with function keys, mouse click or joy-stick
- Jog mode or axis travel, diagonal travel
- Take-over of target positions in the editor as formatted source code



PAL PC Program Editor

- MDI interface - Several files in several windows
- Search and replace
- Copy, cut and paste
- Multiple undo/redo function
- Use of program templates
- Teach-in programming
- Partial execution of programs, followed by teach-in

PAL-PC 2.0

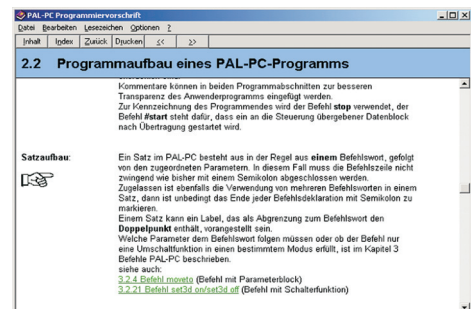
The programming

Scope of Functions

- PAL-PC for Windows the follow-up software of PAL-PC for DOS
- The scope of functions of the DOS version is included
- Syntactic simplifications and extensions
- Integrated editor for creating programs
- Compiler for the translation of the application program
- Path commands for the relative and absolute positioning
- Teach-in programming
- Software limit switches for programming in the teach-in mode
- 2D interpolation can be switched over to 3D interpolation
- Evaluation of input signals for process control
- Loops for repeating instruction blocks, unconditional and conditional branches, time delay
- Evaluation of the program selection unit
- Additional utilities for the automated processing of typical tasks
- Integration into own applications possible

Help

- Windows help for programming with PAL PC
- Help on the program operation
- Error list and correction instructions after compiler run
- Manuals on PAL PC as well as on different isel controllers in PDF format



Files

- Source file: User file in PAL PC syntax
- Include file: Additional source code file for the integration into the user file
- CNC target file: File translated in the CNC target format
- Error file: List of the syntactic errors after the compiler run

Ordering Data

PAL-PC 2.0

Z11-331810






Update

PAL-PC 1.5 to PAL-PC 2.0

Z11-331810-0001

PAL-PC 2.0

Overview of Controllers/Control Units

Control Unit	Interpolation	Axes	CNC-Mode	Runs under
IMC 4 CSD 405-IMC 	linear, circular	4 ●	yes ¹⁾ <small>(available from version V2.5.00 onwards)</small>	Windows 98, NT 4, 2000, XP
C 142/4 Interface card UI5.0//C//E/A 	linear, circular	3 ●	yes ^{2), 3)}	
IT 116 G 	linear	1 ●	yes ²⁾	
IT 142 C 	linear	1 ●	yes ²⁾	
C1 - IMD 	linear	1 ●	yes ²⁾	

1) Data logger of CNC programs with flash EPROM

2) Data logger of CNC programs with 32 kb RAM (extendible with optional battery backup)

3) Optional use of a memory card as an external data logger Technical specifications subject to change.

● = stepping motor



GFM 4433



ICP 2015

Machines

- for all machines of the CPM and ICP series (IMC4 controller for up to 4 stepping motors)
- GFM 4433 (IMC4 controller)