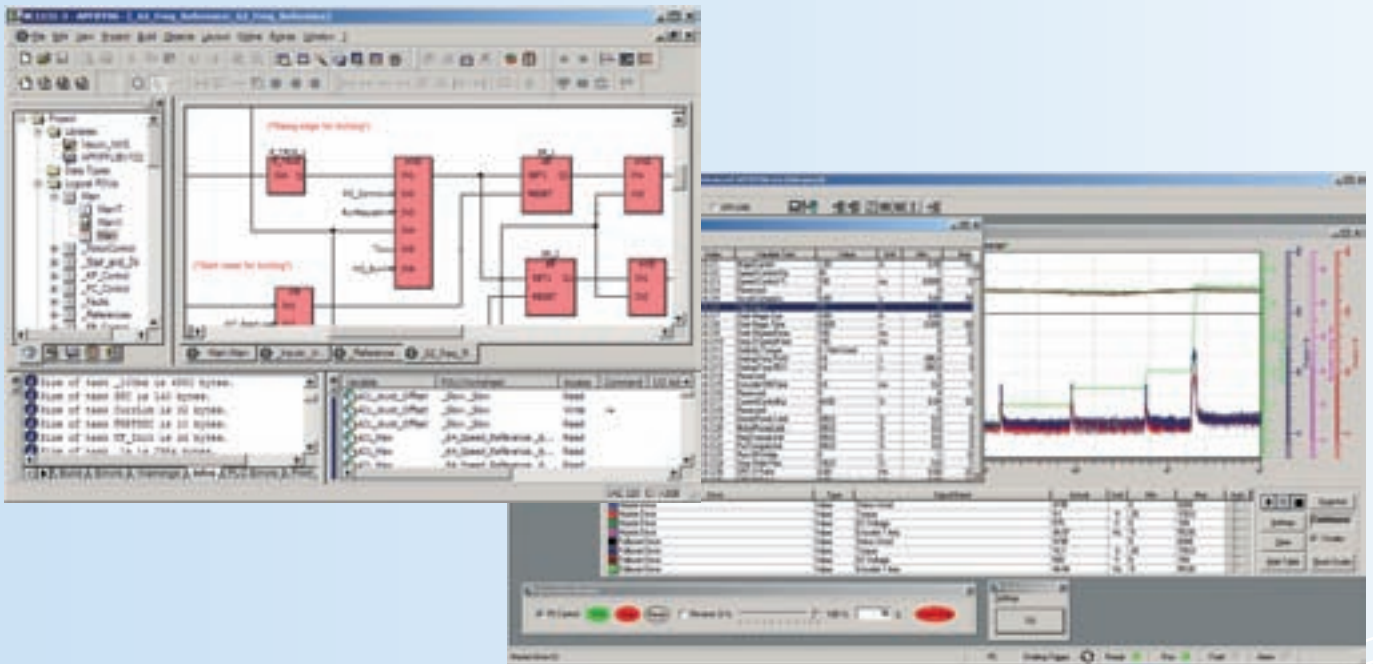# VACON NC61131-3
APPLICATION PROGRAMMING SUITE

VACON

DRIVEN BY DRIVES

PROFESSIONAL APPLICATION DEVELOPMENT

The Vacon NC61131-3 Application Programming Suite consists of tools that offer all that is necessary for making professional and efficient applications. This suite enables you to adapt Vacon AC drives to your application-specific requirements.

The Vacon NC61131-3 Application Programming Suite supports many programming languages which are based on the IEC61131-3 standard. An entire application can be done in a few easy steps by using a specific tool for each programming phase. The Application Programming Suite offers a graphical programming environment for the functional design of an application.

NC61131-3, Block programming tool

The NC61131-3 is a block programming tool to make a graphical presentation of the application. The application is made with the user-selected programming language (Function Block Diagram, Structured Text, Sequential Function Chart, or Ladder Diagram). The user selects the necessary functions and function blocks from the library to the worksheet and wires them together in order to define the desired functionality for the application.

The tool incorporates a wide range of IEC features. The PLC type of logic can be programmed with Boolean functions, timers, counters, comparators and flip-flops. In addition, frequency-converter-related functions can be created by using scaling, ramp control, PI(D) control, and more can be added. These features ensure that the drive control and the PLC control can be combined, and external equipment (e.g. small PLCs with control logic) are no longer necessary.

The NC61131-3 also has a new online debugging feature. It displays all the internal variables of the application with their status.

NCDef, Definition tool

The NCDef is a tool to make local control panel definitions for an application. The NCDef is a link between the logic program and keypad layout. This tool is used for creating parameters, variables, references and special buttons for the AC drive. If you want to show text instead of numerical values for a parameter, the tool offers an option to define unique value-to-text conversion pairs.

The NCDef also assists in customizing the menu groups for easy and clear parameter and variable reading via a local control panel. The menu groups can be modified, deleted or added as required.

NCLoad, Loading tool

The NCLoad is an easy-to-use service tool for downloading applications, language packages, option board software, and system software to Vacon AC drives. The graphical user interface provides an easy point-and-click selection of applications to be downloaded. After a successful download, the drive will be reset, and the custom application is ready to use.

You can download multiple applications to Vacon AC drives and activate the one that is required at the given moment. All hardware, software and option board details are readily available for viewing via the NCLoad.

NCDRIVE FOR VERSATILE COMMISSIONING

The NCDrive is a versatile commissioning and maintenance tool for Vacon AC drives. The tool provides four main windows for different purposes: parameter, monitor, operating and diagnostic window. Moreover, there is a data logger and trend recorder for the Vacon NXP drives.

The NCDrive uses a simple RS232 communication cable between the PC and Vacon AC drive. A fast and multidrop CAN communication can be used with the Vacon NXP. The CAN bus cable can be connected to a PC using a USB-to-CAN interface or a CAN-to-Ethernet interface.

Parameter window features

- Parameter values are visible with the parameter name, default value and its minimum and maximum limits
- Parameters can be uploaded or downloaded to/from Vacon AC drives
- Parameters can be edited online or offline. In the online mode, the changes take place immediately in Vacon AC drives
- Parameters can be saved on a computer hard disk in text or Excel format for back-up purposes
- The parameters in Vacon AC drives or in a file can be compared with the parameters in any other parameter file in the computer

Monitor window features

- Monitoring of eight signals in graphical format on the same time axis
- Minimum sample time of 50 ms with RS232 and of 1 ms with CAN communication
- Minimum and maximum scaling can be modified any time
- Graphical screen can be saved onto the hard disk. It can also be exported in BMP or Excel format.
- The monitoring data can be triggered on condition to debug specific problems.

Operating window features

- Vacon AC drives can be controlled from the NCDrive and motor can be run as required
- Run, Stop, Fault reset, Coast stop, Direction reverse through simple graphical buttons
- Speed/frequency reference can be set directly, or by using the scroll bar
- Status indication for ready, running, fault, alarm, active control place and datalogger status in the task bar

Diagnostic window features

- Active faults in Vacon AC drives with associated signal values at the time of fault such as frequency, current, and more
- Fault history with associated signal values at the time of each fault. The last 30 faults can be viewed.

Datalogger window features

- Data logged in the drive for eight signals with a minimum sample time of 1 ms
- NCDrive can, for instance, be used to set the signals, trigger condition, and so forth
- The triggered data saved in the drive can be uploaded in graphical form, and can also be exported as BMP or Excel
- Available only for the Vacon NXP

Trend recorder window features

- The data can be saved continuously for longer periods, typically for hours, onto the hard disk
- The saved trend data can be opened any time in graphical format and scrolled through the time axis
- Available only for the Vacon NXP via the CAN bus interface

Other features

- Real-time clock setting in the Vacon NXS and NXP
- Parameter, monitor, diagnostic, data logger and trend data can be printed
- Application file database can be generated from the drive
- Firmware and application variables can be monitored for advanced debugging
- Service info keeps the complete information of the drive including hardware, software details, hour counters, parameter settings, and a fault logger

TECHNICAL DATA

System requirements	
Operating system	Microsoft Windows 95, 98, 2000, NT 4.0 or XP
CPU	Pentium 200 MHz or better
Hard disk	Minimum of 80 MB free space available
RAM	Minimum of 64 MB RAM available
Interface	RS-232. Note : USB/Ethernet for CAN communication with Vacon DV2 drives.
Display	VGA 800 x 600 (1280 x 1024 recommended)

Delivery

The installation CD-ROM (CD number CD00001), including:

- NC61131-3 block programming tool
- NCDef definition tool
- NCLoad loading tool
- NCDebug debugging tool
- NCDrive parameterisation and commissioning tool
- User manuals
- Installation instructions

Ordering identification

- Vacon NC61131-3 Application Programming Suite

Tool licence covers

- Personal license, one license/person
- Vacon NC61131-3 Application Programming training course for one person is included in the license
- Unique CD-ROM ID code (password)
- All licenses are registered in the database at Vacon Plc, Finland
- Free upgrades for all registered licensees

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