



Readme for Concept V2.6

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1. Overview

Please read the "Installation Guide" prior to beginning installation of Concept.
The following table shows which files cover different aspects of this release

<u>Installation Guide</u>	Description of the Concept installation
<u>README.PDF</u>	This file
<u>WHATSNEW.PDF</u>	Release specific information.
<u>UPGRADE.PDF</u>	Issues specifically related to upgrading to Concept 2.6
<u>InfoSRxe.PDF</u>	Information and install procedure for the Service release (located on the Service Release CD) (x means number of Service Release), Firmware/Executive Version Table
<u>errmsg.*</u>	Error description. Located in the sub-directory errmsg.dsc" of the Service Release CD

PDF files Latest User documentation: Use ACROBAT READER to access the information located on the Service Release CD under Add-Help.
Add_Help directory provides also EFB library and Concept documentation as *.PDF files for printing.

2. System requirements

- x86-based personal computer (Pentium platform recommended)
- Win98, Win2000, or WinNT 4.0 Service Pack 3 or higher (Y2K compatibility requires SP5), or Microsoft Windows XP PROFESSIONAL.

- Win95 is no longer qualified. Win3.1x is no longer supported.
- 24 MB application RAM (or higher)
- CD-Rom drive
- 150 MB hard disk space
- VGA graphics adapter and screen (minimum resolution: 800x600)
- Microsoft compatible mouse

3. Information about Concept 2.6

3.1. Concept and Service Release Installation

The Concept installation is bundled in 2 CDs.

The installation of Concept requires both CDs. The first CD (Concept CD) contains the core Concept installation. The second CD includes any patches (if available) and the appropriate Execs, as well as the loader utility (ExecLoader). This second CD can be used separately to upgrade the PLC executives or for installation of a patch if available on the CD. Refer to the Installation Guide (paper manual) for further instructions on installing Concept and the Installation Instructions (infoSRxe.pdf on the Service Release CD) for the Service Release.

3.2 New projects

Exec's

Run the loader utility (ExecLoad.exe, must be installed on your hard disk) and reflash your controllers with the appropriate exec. Refer to the file infoSRxe.pdf for the correct executive to download.

NOTE: To use the new ExecLoader with Modbus Plus on a Win98, or Win2000, or WinNT system, you need to use the Cyberlogic 32 bit Modbus Plus drivers. If you are using the DOS drivers, you can use the DOS "Loader.exe" to download your executives.

It is highly recommended to power cycle the PLC after loading a new executive to the PLC.

3.3 Project Conversion

Detailed information for project conversion from previous Concept versions can be found in the file "**upgrade.pdf**" located in the Concept directory.

Applications written in Beta versions of Concept 2.6 are not fully compatible with the released Concept version.

Affected are applications using:

- Stripped Quantum (140 CPU x13 xxS) with REAL arithmetic
- Hybrid applications (LL984 and IEC Program)
- Application using IEC Ladder Diagram editor (LD)

Due to a different handling of the access of located 0x and 1x references the disable functionality (RDE) of these references has been enhanced with Concept V2.1x to support true LL984 forcing.

The memory required to access 0x and 1x references has increased slightly for applications created with a version before Concept V2.2.

Applications in Concept 2.5 using RS/SR Flip-flop function blocks will not be able to connect EQUAL with the controller when opening with Concept 2.6. This is due to a fix that was made to RS/SR Flip-flop function block. With Concept 2.6 all locations of RS/SR Flip-flops will be detected upon first opening the project.

A message box will pop up to notify the customer of the problem. Concept will repair the problem by making internal changes to the section and setting the status of the section to

'modified'. This handling will lead to the connection status 'modified'. A 'download change' will download the repaired section and the status will become EQUAL.

If a 2.5 project is uploaded from the PLC using 2.6, any affected RS/SR Flip-flops are only detected after having closed and re-opened the project manually.

4 Further Information

4.1. General

Concept - Trial Version is limited in its functionality

Animation of large data structures

For performance reasons avoid animation of a large amount of data (>> 5 K bytes). There is a limitation and check of not more than 65000 bytes of animated data.

Online Connect

Concept always requests a programming path for connections to the PLC. As a result only one programming unit can be connected to the CPU.

Monitor mode

The monitor mode restricts the access to the PLC by not allowing changes to be downloaded. It does not take into account changes made on the programming unit. Regard the warning if disconnecting or leaving Concept!

Restart behavior of variables versus references/registers

The PLCs supported by Concept do not have a cold-restart behavior except after a download. Instead, they feature a warm-restart with a different behavior for located references (conform to Modsoft) and unlocated variables (conform to IEC 1131-3).

Located references/registers behave as follows after a warm-start: 0x, 1x references and 3x registers are cleared (except 0x latched coils). 4x registers keep their previous value (retentive).

Unlocated variables starts with their last value after a warm-start (retentive).

The different restart behavior has an impact on the user logic as for e.g. the Set and Reset.

- The restart behavior of Set and Reset instructions (only available in Ladder Diagram (LD) and IL) depends on the used variable type (0x references or unlocated variable).
- The EFB Implementation of SR or RS function blocks (available in FBD, LD and ST) work with an internal (unlocated) variable and as a result is stored in memory (always retentive behavior).

Platform dependent EFBs

EFBs can always be selected regardless of which PLC selected. If an EFB is used on a PLC it is not designed for, the logic has no effect on the application (E.g a Quantum EFB block used on a Compact CPU). No error is produced.

Database inconsistencies

If an exceptional situation occurs while using Concept use **CTRL-ALT-DELETE** ONLY as a last resort to avoid database inconsistencies.

If you get the message "Auto recovery is about to occur" and followed by more problems you should delete the files **vista.taf** and **vista.log** in the installation directory of Concept. Also if "project inconsistent" is reported this may be due to temporary files in Concept. Delete the **<projectname>.q1** and **<projectname>.q2** files in your application and the **~aitmp.*** files in the Concept sub-directory "lib".

User EFBs

User EFBs can simply be installed on several PCs which run the same version of Concept by copying the library directory into the "lib" sub directory. The **~aitmp.*** files have to be deleted prior to starting Concept.

Additional Documentation

Additional documentation is available as PDF files in the Add_Help sub directory of the Service Release CD. To view this documentation, run the program "acrobat viewer" (included as separate setup on the Concept CD) .

Function Block PLCSTAT

The name of the output pin "DIO_STAT" is misleading. It provides the remote I/O drop health information (S908) and not Distributed IO health information. To obtain DIO health information use the DIOSTAT function block.

Function Block IEC-XMIT

The functionality of the IEC-XMIT function block is no longer available on IEC Momentum. Use IEC XXMIT instead.

XMIT 984LL Loadable

The XMIT **984LL** loadable version 1.08 is not supported on the Quantum 434/534. Please upgrade to the XMIT **984LL** loadable Version 2.01 for Quantum 434/534 support. In addition, the XMIT **984LL** loadable does not work with a second Modbus port. It has only been implemented for the first port.

Quantum Modbus Port configuration

The three Modbus Port configurations in Concept are mapped as follows in order to configure up to 2 PLC ports and 6 NOMs (The NOMs are numbered from left to the right in the rack).

	PLC port	NOM
Config1:	1	-
Config2:	2	1,3,5
Config3:	-	2,4,6

The Modbus Port Parameter settings can no longer be changed while online on all IEC enabled controllers.

Code generation options

"Enable Loop Control (ST/IL)" activates a software watchdog. The maximum amount of time spent in **all loops** is limited to 80% of the hardware watchdog supervision time. When the SW watchdog kicks in, the current text section (ST/IL) is aborted and an online event will be generated. Execution resumes on the next section, but the systematic of the loop control remains active.

Enabling loop control does not disable the hardware watchdog (stop of the PLC).

Max length of filenames and installation path.

The pathname for the installation path must be less than 13 characters. For all files the DOS 8.3 format applies as well as an overall limitation of max 29 characters including the path.

4.2. Language specific

Text languages ST/IL

The code compiler in the text languages can't solve

- the type ANY if used as an output pin only (E.g. GET_4X)
- the use of several registers if only the first register is named on the Pin (E.g. MBP_MSTR with the Output Pin CONTROL with its type WORD)
- variable output pins which are also used as input information (transition variables) (E.g. SET_BIT, GET_BIT, GET_3X, GET_4X, R2T, T2T, FIFO, LIFO, EXFR....)

As a consequence you cannot use these or similar EFBs in textual languages.

Use SET_BITX instead of SET_BIT in textual languages

SFC

The SFC section is limited to 1900 objects (represents half of the graphical area).

4.3. Simulator

16 Bit Simulator

The 16 Bit simulator has a fixed maximum configuration set at

0x	60000
1x	5008
3x	4000
4x	24000

32 Bit Simulator

The 32 Bit simulator can be run without a TCP/IP card. Please refer to the online help.

4.4 Hardware related

BKF 201 /BKF 202

The parameter screen for the Compact Interbus modules BKF 201 and BKF 202 is no longer available.

The definition of the time-out state for the outputs is now possible with the lowest bit in the command word.

Bit 0	(LSB) = 0	Outputs are set to zero
Bit 0	(LSB) = 1	Outputs hold last value are set

ADU214

The parameter definition for the Compact ADU 214 module as defined in Concept, requires 8 - 3x references unlike Modsoft which used 4 - 3x references and 2- 4x references.

Maximum number of I/O modules with stripped Quantum CPUs

The memory size of the I/O configuration is limited with stripped Quantum CPUs in favor of

available memory for the IEC user program. Depending on the types of I/O modules the numbers are approximately:

140 CPU 113 02 S	125 I/O modules
140 CPU 113 03 S	250 I/O modules
140 CPU 213 04 S	1100 I/O modules

Momentum stripped EXEC

In Concept 2.5 and higher, the M1 (171 CCS 7xx xx) stripped EXEC supports a maximum

of 44 I/O modules.

Modsoft Converter

When porting from a Modsoft Compact PLC application to the Concept TSX Compact the configuration (including I/O map) will be cleared.

- Analog data scaling in the application may need to be modified to match the new I/O map settings.
- 6x references are not supported. XMRD/XMWT functions need to be delete and the application modified to use the additional 4x references.

5. Known Issues

Textual Languages ST/L

- Long structured variable names, which are distributed over two or more lines of text, are not completely animated. Variable's part of the name in the first line is correctly animated. The remaining parts of the name in the second and following lines do not stay animated..
- Menu item 'Goto Counterpart' does not find corresponding keyword or bracket. This occurs for keyword ELSE, which is part of several compound statements.
- Wrong format for animation of %QDxxx or %IDxxx in watch window. If a direct address is declared as an UDINT with the '**AT**' statement it is animated as a REAL.. Reason: AT declaration is known inside the section only but not in the watch window. The watch window displays with the default format of %QD/%ID. This is data type REAL.
- In ARRAY index NO generic EFB like SEL or MUX can be used. Example:
Does not work: Arr3[0,1, MUX_INT(K:=mIn, IN0:=0, IN1:=1, IN2:=0)])

Functions (EFBs which deliver an integer as result) work:
Example: Arr3[REAL_TO_INT(TAN_REAL(ie.real1[2]) j , 2)] ;
- IEC Upload Information and download change in case of changed comments only. Changing comments only in textual sections lead to 'Modified' state. By doing a 'download change' the project in the PLC will be updated but not the upload information. If the changed comment should be added to the text section's upload information a true code change needs to be done before a 'download change'.

Sequential Download Change

Never abort a sequential download change without saving the changes. This can result in a misleading version compare between PLC and project database on PC during re-connect.

DTY and nested comments with section export/import

An error is reported with section export/import if the preference of nested comment handling is not identical in both projects . Original project and destination project should have the same preference set.

Hot Swapping of the CPU/CPS is not allowed.

If the CPU/CPS is Hot Swapped out of the rack and not allowed to do it's proper power down checksum calculation the IEC portion of the code has not been saved correctly and will cause a HEX 200 stop code. Starting the controller in that state will solve the 984 Ladder Logic sections but will not solve the IEC sections.

DO NOT RESTART THIS CPU. DOWNLOAD THE PROGRAM, THEN RESTART THE CPU.

TSX Compact Secure Data Area

When loading a configuration or program with a large Secure Data Area Configured, smaller Compact PLCs will return either of the two following error messages:

- a) Controller Configuration Illegal
- b) Illegal address or address range for Modbus Program command

Case b is likely to happen when there are EXE loadables in the downloaded program. In both cases, the PLC will go back to a Dim Awareness state and allow a new download of another configuration/program.

TSX Momentum Known Issues

When making edits to the I/O Map online with the M1 controllers, you need to answer NO to the prompt that asks if you want to "Automatically update the segment scheduler table?" If you do say YES, the configuration in the controller may become invalid and you will need to reload your application.

Concept will prompt you to save the IEC Momentum project when "closing" the project even if no changes have taken place.

Interbus PCP Communication EFBs

The PCP communication EFB (library COMM / IBS_NOA_PCP) can not be used in the Quantum 140 CPU x34 xx PLCs. Instead use the compatible function blocks in a LL984 section.

140 NOA 611 x0 Interbus modules when inserted in the I/O map do not update the used Bits In for that drop. These modules use 16 input words (256 bits) which must be deducted from the total number of input bits available for the drop.

Behavior of TCP/IP Communication between Quantum and Momentum

A TCP/IP connection can be established between Quantum (NOE 21100) and Momentum (all Ethernet Momentum and TCP/IP I/O-modules) using following EFBs, READREG, WRITEREG, and MBP_MSTR.

The EFB's work properly if only ONE read OR write request is generated per scan. Communication stops without an error message delivered in the status registers if more than ONE request is generated per scan.

140 NOE 2x1 x0 Using MSTR Blocks

There is an existing issue with NOEs and multiple MSTR blocks to one Momentum Ethernet communication adapter. One of the MSTR blocks may "hang". The work around is to synchronize the MSTR blocks using timers in the logic of the application to abort or reset the hung MSTR block. The NOE 771s have addressed this issue, so upgrading is another possibility.

"Used reference" display

The used reference display does not recognize the configuration extensions for Profibus registers when used in a configuration.

LL984 Editor

The **ladder logic editor does not replace or offset references** within equation networks when they are programmed as variables. This is inconsistent with the behavior of the replace and offset operations when applied to LL984 networks in Modsoft.

Floppy disk

Do not try to save the project to a floppy. The project normally exceeds the capacity of a floppy, and afterwards Concept will try to access the floppy drive.

Advanced Dialog for FB's

The Advanced button does not work properly for all EFBs. Do not use the advance button for system EFBs (e.g. SFCCTRL) and EFBs with a large amount of data. For performance reasons max 230 elementary types are allowed by the settings (file "EFB_UI.INI", Keyword "Max_Items=230").

Address Format

The display settings in the preference menu for the address format behaves as follows:

- **SFC** and **LL984** update according to preference after next open of a section.
- **FBD** and **LD** display separator format only (0:00001).

RDE Templates

Performing a Global Replace on variables in an open section that are also in an RDE Template while the RDE Template is open will not update the RDE Template with the replaced variable names. New variables that result from the Global Replace must be added to the RDE Template after the Global Replace has been performed.

Using RDE Templates between projects is not recommended. If an RDE Template created in one project is opened in another project, the RDE spreadsheet could contain duplicate variable name entries as well as variable name entries that were not in the original RDE Template that was opened. The variables in the RDE Template will also be updated with the current projects reference values.

Variable Import

There is a 32 character restriction on variables to be imported. If the list of variable to be imported contains variable names with more than 32 characters none of the variables in the list will be imported.

Upload of configurations

Configurations written by other programming software other then Concept may not be uploaded correctly. The upload is based on an image backup which is not always compatible to other programming software.

If you want to port your application from Modsoft to Concept please use the Modsoft converter utility shipped with Concept.

32 Bit Simulator

- Under certain circumstances the direct update of configuration data may disconnect you from online connection. This behavior was only observed if the 32 Bit Simulator is running as an open window. Run the simulator program minimized (as an icon) if you get this error.
- XBE expansion rack is not supported for RIO or DIO drops
- **Cannot load loadables like ULEX, ASUP....., fails with Stop 8000, start again or remove loadables from the configuration**

Animation Error Messages

The watchdog supervision of the Concept Online Services may cause the online services of the RDE to report an error. If this error increases in occurrence, please close and reopen the RDE editor.

SFC Import from IEC text

Please use the "program section" import/export instead. The import via the IEC text may fail for complex sequences.

Display Log-File Button disabled

The log-file button becomes disabled after there is a day change(0:00) AND Concept is on-line AND nothing is written to the log file. Restart Concept or re-activate the button via 'Preferences/Common'.

Message box "Local Data Type File was changed" under Windows NT

Due to inconsistencies in NT's treatment of file time stamps on NTFS partitions Concept may falsely report that project files have been changed and have to be re-imported when projects have been copied or moved to different locations.

If this occurs too frequently there are currently two possible methods to avoid this nuisance:

- store Concept projects only on FAT partitions;
- to move a project to different locations use Concept's "Save As..." function instead of copying project files with Explorer or the like;

This problem does not occur under Windows 98.

CONCEPT-EFB under Windows NT

Possible errors converting EFB-libraries on PCs with both FAT and NTFS partitions.

Some PCs setup with both FAT and NTFS partitions may cause problems when converting old EFB libraries to the new format in Concept 2.6. This error appears when data structures are defined in the DTY file and

appear during the conversion function when the compiler is started. It shows itself in the form of a 'non-existing data type' error. In the case known the situation was :

- Old EFB library on NTFS partition
- New development path on NTFS partition
- Concept -EFB installed on NTFS partition

The work-around for this case was to re-install Concept and Concept-EFB on a FAT partition and to create the new development path on that FAT partition too. As said, this was a one-time scenario, the same start conditions on other PCs caused no problems at all during conversion. Other placement combinations have also been tried and tested without error.

NOA 622 00: Increase of PLC scan time after first download

If the Concept project is downloaded the first time into your PLC the scan time will increase about 100ms. This will arise only, if you are using a 140 NOA 622 00 INTERBUS master module.

In this case the 140 NOA 622 00 reads the new INTERBUS configuration and while starting the 140 NOA 622 00, the CPU scan time will increase about 100ms for each NOA, if a 434/534 Quantum High End CPU is used. Using a 16 Bit Quantum CPU will cause a scan time increase about 600ms per NOA!

Under normal circumstance this is no problem (PLC watchdog is set to 300ms per default), but as soon as you are using more than 2 NOAs you should increase your PLC watchdog by 100ms / 600ms per additional NOA module.

NOA 622 00: Flash of generic bus table

Generic bus table is not flashed with the application. This feature will be delivered with an EXEC after Concept V2.6 release.

NOA 622 00: EFB IBS_WRITE, error message 081hex in parameter "STATUS"

If the error message 081hex occurs in EFB's output parameter "STATUS" the affected slave writes additional four bytes with slave-specific information to the INTERBUS master. These data are written to the first four bytes of EFB's input parameter "PCP_Data". Please refer to the documentation of the affected PCP module concerning the data's meaning.

Hint:

To avoid unintended overwriting of data it is recommended to define blocks of at least 4 bytes for the parameter "PCP_Data" (e.g a WORD address of block of two free WORDs

or a WORD array of at least two elements).



Attention, the input parameter "PCP_Data" will be overwritten with additional information if the error 081hex occurs!

You have to make sure that EFB's input parameter "PCP_Data" contains the correct PCP data before the next request is processed.

6. Technical Support

Online help is available in Concept.

For additional help visit the Schneider Electric World Wide Web site at <http://www.schneiderautomation.com/> or use the Schneider Automation's Customer Service Bulletin Board (BBS) telephone USA 978 975 9779.

Call Schneider Electric's MODFAX faxback system at 978 975 9737 (in North America) and follow the instructions for the appropriate technical solution available via fax.

For further assistance, Technical Support is provided by

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7. Copyright Notes

Concept V2.6 has been developed by using

Borland C++ 5.0

Microsoft C, MFC

Visual Basic 3.0 - 5.0

Windows 98

Windows 2000

Windows NT 4.0

CA-CommonView 3.1C

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GoFast BCC, Floating Point Library

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7175 N.W. Evergreen Parkway, Suite 100, Hillsboro, Oregon 97124

License dated from April 8, 1998 used for Quantum Q86 (CPU 113 0x) AND
TSX Momentum (171 CSS xxx xx) stripped EXECs

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The installation program is provided to you for the exclusive purpose of installing Concept V2.6.

IEC Conformance Test Scripts:

(c) 1994, IFAK Institut fuer Automation und Kommunikation e.V.
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Raima Database Manager RDM 3.30

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