Dolog AKF125 → A120/A250
Type: AKF125EN
Version: 7.10
How do you proceed?
User Instruction

DOK–702084.35–1096

Translation of the German Description
DOK–700566.35–0196

Accompanying software package E-No. 424-275182
## Documents in the software package

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<td>Installation User Instruction DOK-702082</td>
<td>Explains the usage and installation of the diskette's included.</td>
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<tr>
<td>How do you proceed? User Instruction DOK-702084</td>
<td>Serves as a &quot;red thread&quot; through the documentation of the software packet and should be gone over before the start.</td>
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<td>AKF125 for Beginners User Instruction DOK-702083</td>
<td>Serves to introduce new customers to AKF125. The user learns how to use the software in small steps.</td>
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<td>Short Form Guide A120 User Instruction DOK-702087</td>
<td>Tables for validity ranges and system markers, SFB-Formal operands for quick use on-site.</td>
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<tr>
<td>Configuration A250 (Vo1) User Instruction DOK-702086</td>
<td>Contains the new features of the current version and explains the functions of the individual software menus for the configurer.</td>
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<td>Configuration A250 (Vo2) User Instruction DOK-707695</td>
<td>The explanation of the individual software menus will continued.</td>
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<td>Masterindex User Instruction DOK-702089</td>
<td>Index of all documentation.</td>
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iv  Documents in the software package
Application Note

Caution  The relevant regulations must be observed for control applications involving safety requirements. For reasons of safety and to ensure compliance with documented system data, repairs to components should be performed only by the manufacturer.

Training
Schneider Automation GmbH offers suitable training that provides further information concerning the system (see addresses).

Data, Illustrations, Alterations
Data and illustration are not binding. We reserve the right to alter our products in line with our policy of continuous product development. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us by using the form on the last page of this publication.

Addresses
The addresses are given at the end of this publication.
Terminology

Note  This symbol emphasizes very important facts.

Caution  This symbol refers to frequently appearing error sources.

Warning  This symbol points to sources of danger that may cause financial and health damages or may have other aggravating consequences.

Expert  This symbol is used when a more detailed information is given, which is intended exclusively for experts (special training required). Skipping this information does not interfere with understanding the publication and does not restrict standard application of the product.

Path  This symbol identifies the use of paths in software menus.

Figures are given in the spelling corresponding to international practice and approved by SI (Système International d' Unités).
I.e. a space between the thousands and the usage of a decimal point (e.g.: 12 345.67).
### Abbreviations

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<td>Absolute Adressing</td>
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<td>Adr.</td>
<td>Adresse (signal adresse)</td>
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<td>AE</td>
<td>Block for one time actions</td>
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<td>DB0,...,9</td>
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<td>DPB</td>
<td>Diagnostics Block for Programm Blocks (PB)</td>
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<td>DSB</td>
<td>Diagnostics Structure Block</td>
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<tr>
<td>DW</td>
<td>Double word</td>
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<tr>
<td>I/O</td>
<td>Input- / Output signales (e.g. from a Module)</td>
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<td>FB</td>
<td>Function block</td>
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<td>LZS</td>
<td>Run Time System</td>
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<td>MW</td>
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<td>OB</td>
<td>Organisations Block</td>
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<tr>
<td>PB</td>
<td>Program Block</td>
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<tr>
<td>PaDT</td>
<td>Programming- and Diagnostics testequipment</td>
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<tr>
<td>RK</td>
<td>Controloop</td>
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<tr>
<td>SFB</td>
<td>Standard-Function Block</td>
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<td>SK</td>
<td>Step marker</td>
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SM  Systemmarker
SSP  Signal memory
SW   Software
SYM  symbolic Adressing
SYM/COM  Symbol und Comment
SZ   Step Counter
TB   Transitionsblock
TN   Teilnehmer
VBGT  Virtuelle Subrack (InterBus-S, Modnet 1/IS))
ZVT  Time organisationtable (Controller)
ZZ   Time Counter
<Return>  Applay the key Return
<Esc>     Applay the key Esc
<Ctrl>+<Alt>+<Applay in the same time the keys Ctrl, Alt und Del
          (beginning with Ctrl and finishing with Del)
Objectives

Here you will find the prerequisites for configuration, and also how to proceed in order to come up with a solution to your control task using the A250.

Arrangement of this guide

Chapter 1  Describes the preparations for programming.

Chapter 2  Shows how to proceed with system processing in A120 in the form of a program flowchart.

Chapter 3  Shows how to proceed with system processing in A250 in the form of a program flowchart.

Chapter 4  shows in the short form of a program flow chart what has to be done in AKF125 before you can get started with COMAKF configuration.
Related Documents

A250
User Manual A250
804 BHB 000 00

A250
User Manual A250
Regeln mit Dolog AKF
804 BHB 001 00

A250
User Manual A250
Prozessperipherie Frontanschlusstechnik
899 BHB 000 00

A250
User Manual A250
Cable
899 BHB 001 00

A250
Blockbibliothek Standard Funktionblocks A250
Vol. 1 (AKF125 V4.x, ALD25 V4.1)
804 BSB 001 00

A250
Blockbibliothek Standard Funktionblocks A250
Vol. 2 (AKF125 V4.x, ALD25 V4.1)
804 BSB 002 00
Validity Note

These User Instructions apply to the AKF125 software, version 7.1, on the DOS operating system.

The current intention is for remote control data only to be edited with the AKF125 configuration software and not with ALD25. Therefore, within systems U250 and UZ250, remote control modules KOS140, KOS141 and DEZ161 should not be used as REAL–TIME variants. Correspondingly, the KOS 20x modules of the U120, Z120 and UZ120 systems are not to be used.
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Chapter 1
The start
1.1 Preparations

Before you concern yourself with creating your AKF user program, you should read the following chapter of the PLC User Manual:

- A120 User Manual (DIN A4)
  Chapter 1 General
  Chapter 3.6 Checklist for initial start-up and testing

- A250 User Manual (DIN A4)
  Chapter 1 General
  Chapter 3 Configuration and Commissioning

For hardware indexes, software version status and order numbers please refer to the Modicon A250 catalog.

When you have arrived at the actual configuration of the user program, the flow-charts will help you move step-by-step from configuration to program transfer and then on to system start-up of your user program.

The flow charts can be found in the present documentation:

- Chapter 1 Selecting A120 / A250 programming
- Chapter 2 A120 Working Guide
- Chapter 3 A250 Working Guide
- Chapter 4 Preparations in ALD/AKF for COMAKF, COMMMS
1.2 Selecting A120/A250 programming

The following flowchart shows you the first configuration steps for selecting the type of PLC you use. It also shows you where you can find further, more detailed information in these user instructions.

Figure 1 Selecting A120 / A250 configuration
1.3 Converting a station A120/A250, A250/A120

The first time you convert between A250 and A120 (start-up), please comply with the following steps:

Step 8 Open the "Setup", "PLC station" menu.

Step 9 At menu item "ALU Group", toggle to select the required ALU Group (and in so doing, the required PLC).

Step 10 Exit the menu by pressing <Esc>.

Step 11 You will be asked whether the ALU Group should be loaded; answer "Yes".

Step 12 Enter the plant name.

Step 13 Enter the Station Name.

Step 14 Confirm that the station is to be created.

Response The required plant and station are created.
If there are **further** changes between A250 and A120, please proceed as shown in the following steps:

**Step 1**
Open the "Setup", "PLC station" menu.

**Step 2**
At menu item "ALU Group", toggle to select the required ALU Group (and in so doing, the required PLC).

**Step 3**
Exit the menu by pressing <Esc>.

**Step 4**
You will be asked whether the ALU Group should be loaded; answer "Yes".

**Response**
An existing plant and station from the required PLC is loaded.

**Step 5**
Open the "Setup", "PLC station" menu.

**Step 6**
At "Station Name" enter the station name and confirm by pressing <Return>.

**Step 7**
Confirm that the station is to be created.

**Response**
The required station is created.
Chapter 2
Working Guide to A120 / AKF125

The pages that follow show you in the form of a program flow chart how to proceed in A120 system processing with AKF125.

Note: Configuration of the ALU 20x / ALU 20xL is described in the "Configuration" user instructions. An introduction to AKF125 for the beginner can be found in the user instructions "AKF125 for beginners".
Insert PaDT/ALU cable and "Load", "Bootload"

"SetUp": "Plant name" "Station Name"

New project

ALU 201L/ALU 202L

Program in PaDT ?

Read AKF program from PLC
Read equipment list from PLC

Compare prog. if necessary, program or block

Figure 1 System processing flowchart
Figure 2  System processing flowchart (Continued from Figure 1)
Figure 3  System processing flowchart (Continued from Figure 2)
If necessary load initial values with "Online", "Control"

"Online": "STArt PLC"

Programs run error-free?

Yes

If necessary Edit title block

Create system documentation

If necessary create option lists

End of project

no

Trouble shooting with Dyn. status display or Status list

If necessary change signals with Control or Force

no

Change program?

Yes

Figure 4 System processing flowchart (Continued from Figure 3)

* not possible for ALU 200 with DIP switch B2 on "EPROM"
Figure 5  System processing flowchart (Continued from Figure 4)

* not possible for ALU 200 with DIP switch B2 on "EPROM"
Prerequisite for RAM-ALU

Insert PaDT/ALU cable and "Load", "Bootload"

Re-compile "old" AKF12 station "Edit", "Compile Blocks"

Figure 6  Procedure with "old" AKF program and ALU 201L or ALU 202L
Chapter 3
Working Guide to A250 / AKF125

The pages that follow show you in the form of a program flow chart how to proceed in A250 system processing with AKF125.

Note  Configuration of the ALU 15x-x is described in the "Configuration A250" user instructions. An introduction to AKF125 for the beginner can be found in the user instructions "AKF125 for beginners".
Figure 7  System processing flowchart
Figure 8 System processing flowchart (Continued from Figure 7)
Figure 9  System processing flowchart (Continued from Figure 8)
"Setup", "PLC station" 
"Link Mode"

Initial values distributed?

Yes

"Edit", "Symbols and comments" Enter initial values

no

ALU with arithmetic?

Yes

"Edit", "Equipment List" Floating point: Emulation / Hardware

no

"Load", "Program link"

Max. no. of blocks too small

Yes

"Setup", "PLC station", increase", "Max. no. of blocks"

no

Figure 10 System processing flowchart (Continued from Figure 9)
Insert cable PLC <-> PaDT

ALU dip switch B0...B2 on "OFF" (right)

ALU dip switch B3 on "ON" (left)

Remove backup battery and re-install 1)

Switch on PLC

Select networking "Local (V.24)"

"Load", "BOOTload"

ALU dip switch B3 on "OFF" (right)

Note: Do not turn the PLC off and on again within the first 3 minutes after bootloading.

Figure 11 System processing flowchart (Continued from Figure 10)
Figure 12  System processing flowchart (Continued from Figure 11)
Figure 13 System processing flowchart (to Figure 12)
If necessary Edit title block

Create system documentation

If necessary write EPROM/Flash with "Load".

".........."

If necessary create option lists

If necessary "Edit", "Export" Blocks/ Structures etc.

Backup of station with "Special", "Archiving of Station"

End of project

Figure 14 System processing flowchart (to Figure 12)
Chapter 4
Preparations in AKF for COMAKF

The pages that follow show you in the form of a program flow chart what needs to be done in AKF125 before you can get started with COMAKF configuration.
The steps described here are only needed if you wish to undertake networking configuration with COMAKF. They are to be carried out in the same way for A120 and A250. You have already selected the PLC via the ALU Group (Chapter 1).

**Figure 15  Sequence chart of COMAKF preparations**