

SEMINARS 2024

IN BARNTRUP OR HEILBRONN

EN



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During the past few years the electrical drive technology experienced an uneven triumphal procession in the areas of industrial automation.

Here it can be noticed, that aside from pure drive tasks due to efficiency reasons more and more control and supervision functions are shifted to the drive controller.

Relatively short product cycles with more compact and more efficient units demand also a permanent continued education of the personnel involved in the projectioning and start-up. Only the combination of application orientated knowledge in connection with the safe handling allows a cost optimized usage of electronically controlled drives in modern machines.

KEB as one of the leading mid-size manufacturers of mechanical and electrical drive components noticed in due time, that aside from high quality technical products a competent counselling and support of the user is necessary. Based on this knowledge user orientated trainings are a fixed part of the range of KEB services.

Target group of these training sessions are interested first time users who wish to obtain solid basic knowledge as well as advanced users who wish to recall their knowledge. According to the principle "Learning by doing" practical exercises with the units are a fixed part of the training.

The seminars described in this booklet are face-to-face events at our KEB HQ in Barntrup or KEB-Süd in Heilbronn. KEB Automation also offers online training. Information on this can be found in a separate booklet [online seminars](#).

We would appreciate if you can spare some time and participate in one of our various trainings. You will surely profit from this investment in a short time.

More information and the training dates
you can find here: <https://www.keb-automation.com/news-events/training>



„BASICS 3-PHASE DRIVES WITH DRIVE CONTROLLER“

Time:	9.00 - 17.00 h (1 day)
Participants	min. 6 persons
Fees per person:	EURO 375 + VAT incl. training documents, lunch, beverages
Target:	The participants get an overview of the functionality of a frequency inverter and its general conditions.
Requirements:	<ul style="list-style-type: none">■ Basic electronic knowledge

TOPICS:

- Basics AC drives
- Basics frequency inverters
- Basics EMC
- V/F controlled drives
- Closed loop controlled drives
- Error diagnosis

COMBIVIS 6 AND COMBIVERT F6/S6 OPERATING PROGRAM

Time: 9.00 - 16.00 h (1 day)

Participants: min. 6 persons

Fees per person: EURO 375 + VAT
incl. training documents, lunch, beverages

Fees per person: The participants get knowledge in function and operation of the new parameterizing software COMBIVIS 6.

Practical training opportunities give the necessary confidence in using the software.

Requirements:

- Basic PC knowledge, knowledge of parameterization of COMBIVERT
- Laptop with installed, current COMBIVIS 6 (seminar location Heilbronn)

TOPICS:

- Structure of communication
- Program structure
- Operation and adjustment of the units
- Operation assistant
- Data protection
- Analysis options with KEB Scope
- Export functions
- Practical exercises

“SINGLE AXIS DRIVE COMBIVERT F6/S6”

Time: 9.00 - 17.00 h (2 days)

Participants: min. 6 persons

Fees per person: EURO 750 + VAT
Incl. training documentation, lunch, beverages

Target: By the means of practical exercises and examples the participants learn the start-up and parameterization of the servo series COMBIVERT F6/S6. They obtain a general view of the functionality of the units and are able to adjust these to respective application.

Requirements:

- Basic PC knowledge
- Basic knowledge of electronic drive technology
- Basic knowledge of parametrization of COMBIVIS 6
- Laptop with installed, current COMBIVIS 6 (seminar location Heilbronn)

FOR THE ACQUISITION OF THE BASIC KNOWLEDGE THE PARTICIPATION IN COURSE 1A/B OR B ONLINE IS RECOMMENDED.

TOPICS:

- Hardware COMBIVERT F6 and S6
- Steps of connection and taking unit into operation
- Functional range of the units
- Operating modes concerning CiA 402 (IEC 61800-7-200)
- COMBIVIS 6 start-up wizards
- Error diagnosis
- Accessories
- Practical exercises

“SINGLE AXIS DRIVE COMBIVERT F6/S6”

Time: 9.00 - 17.00 h (1 day)

Participants: min. 6 persons

Fees per person: EURO 375 + VAT
Incl. training documentation, lunch, beverages

Target: By the means of practical exercises and examples the participants learn the start-up and parameterization of the servo series COMBIVERT F6/S6. They obtain a general view of the functionality of the units and are able to adjust these to respective application. The course 2B deepens the knowledge of the operation modes specially profile position mode, homing mode and cyclic sync. modes.

Requirements:

- Completing course 2A
- Laptop with installed, current COMBIVIS 6 (seminar location Heilbronn)

TOPICS:

- Operating modes concerning CiA 402 (IEC 61800-7-200)
 - Velocity Mode
 - Homing Mode
 - Profile Position Mode
 - Cyclic Synchronous Velocity Mode
 - Cyclic Synchronous Position Mode
- COMBIVIS 6 start-up wizards
- Error diagnosis
- Practical exercises

“SAFETY MODULE FOR KEB COMBIVERT F6 AND S6”

Time: 9:00 - 17:00 h / 9:00 - 12:00 h (1,5 days)

Participants: min. 6 persons

Fees per person: EURO 550 + VAT
Incl. training documentation, lunch, beverages

Target: On the basis of practical exercises and examples, the participants will learn how to commission and parameterize the Safety Modules of the KEB COMBIVERT F6 / S6 series. They get an overview of the functionality of the devices and are able to adapt them to the respective application.

Requirements:

- Knowledge of parameterization of KEB COMBIVERT F6 / S6 and of program COMBIVIS 6 (Course 2A)
- Basic safety functionality regarding ISO 13849 and IEC 62061
- Laptop with installed, current COMBIVIS 6 (seminar location Heilbronn)

TOPICS:

- Short Instruction concerning ISO 13849 / IEC 62061
- Functionality of the devices
- Safety functions regarding EN 61800-5-2
- Safety editor in COMBIVIS 6
- Fault diagnosis
- Practical exercises

“SUPPLY AND REGENERATIVE UNITS COMBIVERT R6”

Time: 9.00 - 16.00 h (1 day)

Participants: min. 6 persons

Fees per person: EURO 375 + VAT
Incl. training documentation, lunch, beverages

Target: The participants get knowledge in dimensioning and start up of the block shaped regenerative units as well as “active infeed converter” COMBIVERT R6.

Requirements:

- Basic knowledge in electro-technology and frequency inverters as well as parameterization software COMBIVIS 6
- Laptop with installed, current COMBIVIS 6 (seminar location Heilbronn)

TOPICS:

- Structure of the devices
- Design
- Operation and adjustment
- Operation
- Troubleshooting

“Multi Axis Drive COMBIVERT H6”

Time: 9.00 - 17.00 h (2 days)

Participants: min. 6 persons

Fees per person: EURO 750 + VAT
Incl. training documentation, lunch, beverages

Target: By the means of practical exercises and examples the participants learn the start-up and parameterization of the servo series COMBIVERT H6. They obtain a general view of the functionality of the units and are able to adjust these to respective application.

Requirements:

- Basic PC knowledge
- Basic knowledge of electronic drive technology
- Basic knowledge of parametrization of COMBIVIS 6
- Laptop with installed, current COMBIVIS 6 (seminar location Heilbronn)

TOPICS:

- Hardware COMBIVERT H6
- Steps of connection and taking unit into operation
- Functional range of the units
- Operating Modes concerning DS 402
 - Velocity Mode
 - Homing Mode
 - Cyclic Synchronous Velocity Mode
 - Cyclic Synchronous Position Mode
 - Cyclic Synchronous Torque Mode
- PC-operation surface COMBIVIS
- Error diagnosis
- Accessories
- Practical exercises

“COMBIVERT G6 and COMBIVIS 6”

Time: 9.00 - 17.00 h (2 days)

Participants: min. 6 persons

Fees per person: EURO 750 + VAT
Incl. training documentation, lunch, beverages

Target: The participants get an overview of the functionality of a frequency inverter and its general conditions. By the means of practical exercises and examples the participants learn the projectioning, start-up and parameterization of the series COMBIVERT G6. They obtain a general view of the functionality of the units and are able to adjust these to respective application.

Requirements:

- Basic electrical
- PC knowledge
- Laptop with installed, current COMBIVIS 6 (seminar location Heilbronn)

TOPICS:

- Basics frequency inverters
- Connection and taking units into operation
- Operation surfaces
- PC-operation surface COMBIVIS 6
- Function extent of the units
- Operating mode u/f and sensorless control (ASCL/SCL)
- Error diagnosis
- Accessories
- Practical exercises

OFFER OF SEMINARS **CONTROL ENGINEERING**

COMBIVIS studio 6	COMBICONTROL C6 BASIC Introduction into programing with COMBIVIS studio 6 Function of the C6 system components	(2 days)
	COMBICONTROL C6 PRO The easy way of programing single- and multiaxis motion with KEB Softmotion libraries	(1 day)
	COMBICONTROL C6 ADVANCED The easy way of programing single- and multiaxis motion with KEB CNC libraries	(1 day)
COMBIVIS studio HMI	COMBICONTROL C6 HMI BASIC Visualization on the highest level with COMBIVIS studio HMI	(1 day)
COMBIVIS connect	COMBICONTROL C6 CONNECT Remote control and diagnostic via COMBIVIS connect	(1 day)
COMBICONTROL Safety	Introduction into programing with safety Function of the C6 safe PLC	(1,5 days)
C6 individual	Indicidual topics, adapted to your application! See questionnaire page 19.	

Please contact our support team for advise.

Email: combicontrol@keb.de

COMBICONTROL C6 BASIC “COMBIVIS studio 6 / COMBICONTROL C6”**Time:** 9.00 - 17.00 h (2 days)**Participants:** min. 4 persons**Fees per person:** EURO 750 + VAT
incl. training documentation, lunch, beverages**Target:** By the means of practical exercises and examples the participants learn how to hand the automation platform COMBIVIS studio 6 and the start-up and programing of the COMBICONTROL C6 system components.

You get a general overview about the features and you are able to use and customize them to the respective application.

Requirements:

- COMBIVIS studio 6 workstation licence
- Own laptop recommended (pre-installed COMBIVIS studio 6)
PC workstations on side are available on request.
- Basic programming knowledge
- KEB Inverter: Basic Parameterization knowledge (COMBIVIS 6)

TOPICS:

- Overview COMBICONTROL C6 automation system
 - IPC-based control
 - Embedded control
 - Systembus EtherCAT C6
 - IO-modules
 - Automation platform COMBIVIS studio 6
- Attachment and device setup
- Introduction in programming with COMBIVIS studio 6
 - Object orientated project organization (Applications layout / terms / objects)
 - Overview: Programing according to standard IEC 61131-3 (ST, FBD, SFC, CFC, LD, IL)
 - Declare / Compile / Login / Download / Debug / Monitor / Trace
 - Bus configuration (EtherCAT), drive attachment F6, H6, S6
 - Further interfaces on request
- Exercises and sample projects

COMBICONTROL C6 PRO “COMBIVIS studio 6 SOFTMOTION”

- Time:** 9.00 - 17.00 h (1 day)
- Participants:** min. 4 persons
- Fees per person:** EURO 375 + VAT
incl. training documentation, lunch, beverages
- Target:** By the means of practical exercises and examples the participants learn the easy way of programming motion profiles using the CONTROL PRO driver and libraries.
You get a general overview about the features and you are able to use and customize them to the respective application.
- Requirements:**
- COMBIVIS studio 6 workstation licence
 - Own laptop recommended (pre-installed COMBIVIS studio 6)
PC workstations on side are available on request.
 - Basic programming knowledge
 - KEB Inverter: Basic Parameterization knowledge (COMBIVIS 5 / 6)

THE COURSE IS BASED ON THE “COMBICONTROL C6 BASIC” TRAINING.

TOPICS:

- Basics of CONTROL PRO
(drive configuration, basics, PLCopen, KEB_SMC_UTILITY)
- Single axis movement (Velocity mode, abs./rel. positioning)
- Master/Slave-modes (phasing, coming, gearing)
- Virtual drive, virtual master
- External encoder
- Exercises and sample projects

COMBICONTROL C6 ADVANCED “COMBIVIS studio 6 CNC”

- Time:** 9.00 - 17.00 h (1 day)
- Participants:** min. 4 persons
- Fees per person:** EURO 375 + VAT
incl. training documentation, lunch, beverages
- Target:** By the means of practical exercises and examples the participants learn the easy way of programming motion profiles using the KEB CNC driver and libraries.
- You get a general overview about the features and you are able to use and customize them to the respective application.
- Requirements:**
- COMBIVIS studio 6 workstation licence
 - Own laptop recommended (pre-installed COMBIVIS studio 6)
PC workstations on side are available on request.
 - Basic programming knowledge
 - KEB Inverter: Basic Parameterization knowledge (COMBIVIS 6)

THE COURSE IS BASED ON THE “COMBICONTROL C6 PRO” TRAINING.

TOPICS:

- Basics of CONTROL PRO (Short repetition)
- Basics of CNC
- G-Code / Editor / Import
- Cinematics (Gantry; Portal, Scara, Tripod)
- Exercises and sample projects

COMBICONTROL COMBIVIS connect

Time: 9.00 - 17.00 (1 day)

Participants: min. 4 persons

Fees per person: EURO 375 + VAT
incl. training documentation, lunch, beverages

Target: By the means of practical exercises and examples the participants learn usage of the remote center COMBIVIS connect and the setup and maintenance of the COMBIVIS connect domain.

Requirements:

- COMBIVIS connect domain-licence
- Own laptop recommended (pre-installed Control Center)
PC workstations on side are available on request.

TOPICS:

- Basics of COMBIVIS connect
 - Component
 - Scenarios of application / concepts
- COMBIVIS connect Domain
 - Create a new domain - Domain-licencing
 - User-Management - Add devices
- Control Center
 - Remote Desktop - VPN
 - Virtual serial connection - Filebrowser
 - Remote Taskmanager - Statistic
- Client
 - Settings - Networktopologies
 - Network-bridges

COMBICONTROL “SAFE PLC, SAFE I/O “

Time: 13.00 - 17.00 / 9.00 - 16.00 h (1,5 days)

Participants: min. 4 persons

Fees per person: EURO 550 + VAT
incl. training documentation, lunch, beverages

Target: On the basis of practical exercises and examples, the participants will learn how to commission and parameterize the KEB Safe PLC. They get an overview of the functionality of the devices and are able to adapt them to the respective application.

Requirements:

- COMBIVIS studio 6 workstation license
- Own laptop recommended (pre-installed KEB COMBIVIS studio 6)
PC workstations on side are available on request.
- Basic programming knowledge
Safety functions regarding EN 61800-5-2
- Basic safety functionality regarding ISO 13849 and IEC 62016

TOPICS:

- Functionality of the devices
- COMBIVIS studio 6 safety
 - PLCopen safety function blocks
 - Communication with a COMBIVERT F6/S6 by FSoE
 - Automatically download of safe parameter lists
- Fault diagnosis
- Practical exercises

(Please copy and E-Mail)

Purpose, Application, Time schedule:

Number of participants / Name (Company):

Used hardware + software license {C6 Comp. IPC; SM, CNC}:

Participant background (please tick or underline as appropriate)

ENGINEERING TOOLS

- CoDeSys 2.3 CoDeSys 3.x
- Miscellaneous Tools ...
- COMBIVIS 6

REQUESTED TOPICS

- Hardware C6
- Basics COMBIVIS 6
(IPC, C6 embedded, C6 IO, C6HMI)
- Basics COMBIVIS studio 6
- Basics COMBIVIS studio HMI
- Basics COMBIVIS connect

Communication

- EtherCat (Master) HSP5 (Master)
- Profibus (Slave) CAN (Master/ Slave)
- Ethernet
- Serial

PROGRAMMING

- IEC61131 (ST, AWL, FBD, CFC, KOP, AS)
- PLCopen
- adv. languages (C, C++, C#, Java, Delphi, VB.net, etc.)

Soft Motion

- Basics
(drive configuration, basics modul PLCOpen)
- Master/ Slave modes (CAMing, Gearing / Phasing)
- Virtual Drives, -Master, Ext. Encoder

CNC

- CNC Basics (G-Code, Kinematics)

Miscellaneous Topics

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TERMS AND CONDITIONS OF THE TRAINING AND INSTRUCTIONS

KEB reserves itself the right to call seminars of 7 calendar days before beginning because of not reached number of participants.

■ Registration

- by mail, fax or via www.keb-automation.com/news-events/training

■ Notice of Cancellation

- In the event of cancellations less than 7 calendar days before the start of the seminar, the seminar price cannot be not be refunded. The cancellation must be made in written form.

■ Fees

- The fee is listed in the various training descriptions. The fee is due for payment upon receipt of the invoice right after your announcement.

■ Documentation

- For all training sessions you will receive the necessary documentation during the training.

■ Copy right

- KEB has the copy right for all passed out documentation and these are not allowed to be reproduced not even partially without the written permission of KEB.

■ Certificate of participation

- After finalization of the training each person will receive a certificate of participation.

■ Hotel reservations

- Please find attached a listing of all hotel in the surrounding area. Please select yourself!

■ Contact

Tel.: +49 5263 4010

Email: info@keb.de

■ Instructor

Course 1 - 9 Mr. A. Münchenberger, Mr. B. Tünnermann, Mr. J. Kröker email: schulung-keb@keb.de

Course 11 - 16 COMBICONTROL Team email: Combicontrol@keb.de

■ **Current seminar dates**

Please have a look... www.keb-automation.com/news-events/training

■ **Location**

If nothing else is agreed, the seminars take place in
32683 Barntrup, Suedstrasse 38, Germany
74074 Heilbronn, Ferdinand-Braun Str. 14/1, Germany

■ **Reservation of Rights**

- We reserve the right in case of sickness of the instructor or of low participation to cancel the training even after acknowledged participation. The claim of reimbursement or loss is excluded.
- We reserve the right to adjust the topics to the current state of technology, due to which difference to the description may occur.

■ **Exclusion of Liability**

- During the training and in the training documentation we are delivering information to the best of our knowledge. We are not liable for possible errors in the technical information, which are delivered verbally or in writing during the training or in the documentation. Further we are not liable for possible damages resulting herefrom and consequential loss. This exclusion of liability is not valid, if we can be held liable in cases of intension and grossly negligent.

■ **Customer specific training**

Trainings in english language on request.

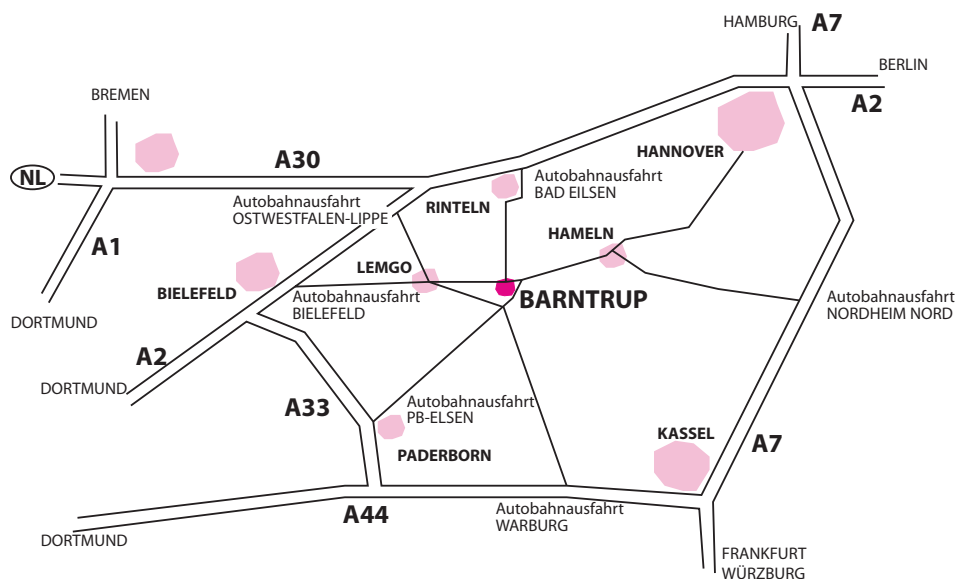
If require we also arrange training sessions in accordance to your needs. To ensure a problem free organization of the training, please discuss the following points with us at an early stage:

- Place of training
- Time frame of the training
- Number of participants
- Knowledge of the participants
- Topics

The fee for special training at KEB is EURO 1.300 per day + VAT. For training sessions at your company the charge for arrival, departure and accommodation of the instructor have to be added.

The availability of a suitable room with screen and blackboard is preassumed. Further for practical exercises one PC/notebook for each two participants should be available.

SKETCH WAY AND HOTELS / BARNTRUP



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