C6

COMBICONTROL C6

Automation
Systems

KEB

Automation System KEB COMBICONTROL C6

KEB COMBICONTROL C6 is the new line of motion control solution, focussed to high dynamic drive orientated applications.

Scalable and tailored for dedicated tasks in OEM machines and systems. The embedded or IPC based control platform utilizes state of the art user free programmable IEC 61131-3 software with the latest solution and utilities offered by the CoDeSys V3 core and .net based software tool **KEB COMBIVIS studio 6.**

KEB COMBICONTROL C6-COMPACT

Is the embedded solution for smaller machines and best choice for economical sub-control concepts with motion applications.

KEB COMBICONTROL C6-PERFORM

Is structured as a high performance IPC platform in single chip version, or Core™2 Duo chipset configuration for integrated motion control and visualization in one hardware package.
Both types are available in BOX-IPC and PANEL-IPC from 12" to 17" high resolution touch screens.
This offers the high end motion and CNC control functionality.

KEB COMBICONTROL C6-ECON

Offers a medium size IPC performance and the basis for most standard typical machine control tasks. Depending on the requirements of the mechanical installation the C6-ECON is available as a compact Box-IPC or integrated Panel IPC with 8" to 17" size touch screens.

KEB COMBICONTROL C6-VISU

Is the IPC based visualization solution with economic touch screens ranging from 6" to 12" utilizing CoDeSys Target ViSu/3S or PremiumHMI high end visualization software packages.

Constructed on powerful drive solutions for single and multi-axes applications KEB offers in addition the complete automation level for dynamic motion control tasks.

The main goal of the KEB automation philosophy is the cooperation with OEM builders in the development of bespoke and worldwide competitive machine control concepts.

Application design and software engineering is supported by a team of technicians and engineers, who have a large amount of experience gained through solution integration with major machine builders in all areas of control automation, where future solutions are with-out limits and know-how is in the customers hands.

COMBICONTROL C6

CoDeSys

Visualisation

HMI

Control

Embedded controls

IPC-based controls

Drives

Single axis drives F5

Multi axis drives H6

Motors

KEB COMBICONTROL C6   COMPACT

The efficient and compact drive orientated control for machine automation.

Based on the integrated EtherCAT master protocol the **KEB COMBICONTROL C6-COMPACT** offers high speed serial communication for multi axis operation with invert or servo drives.

Digital and analogue inputs and outputs signals in addition to the onboard I/O can be directly connected via the EtherCAT system bus, with the modular and pluggable KEB Remote I/O system.

Point-to-point communication the HSP5 ports offers parallel serial bus communication with up to 4 **KEB COMBIVERT F5** inverters operating in open, closed and servo operation at nearly "no cost".

Technical data	
voltage	18 ... 30 V DC
power	3 W
code + data / retain	32 MB / 32 kB
dimension (W x H x D)	44 x 125 x 144 mm
weight	0.3 kg
assembly	35 mm DIN rail mounting
operating temperature	-10 ... 45 ℃
storage temperature	-25 ... 70 ℃

C6-COMPACT hardware	part no.
embedded, 24 V DC, Soft-PLC	00C6.BA1-AAA0
embedded, 24 V DC, SoftMotion/CNC	00.C6.BA1-AAB0

Fieldbus versions	part no.
Profibus DP slave	00.C6.BA1-BAx0
CAN slave	00.C6.BA1-CAx0
Interbus slave	00.C6.BA1-DAx0

The structured and compiled format of the control software means there is no need for any operating system freeing up full system resources for the main Soft-PLC and SoftMotion tasks.

This makes the **KEB COMBICONTROL C6-COMPACT** very efficient and powerful in operation as a sub-control system below standard PLC´s, simple to network with the field bus options for

- **Profibus**
- **CAN**
- **Interbus**
- **Ethernet.**

Most cost efficient is the fully handling of automation task in combination with the well performing KEB drive range for all kinds of asynchronous or synchronous systems.

Serial interfaces		Onboard I / O´s	
1	EtherCAT Master	4	Digital IN (one high speed: 100 µs)
1	Ethernet 10/100 Mbit/s, Modbus TCP	4	Digital OUT (24V transistor - 0.7 A)
1	RS 232/485, DIN 66019, Modbus RTU	1	24 V DC Input
4	KEB HSP5, cyclic communication to F5 drives		

… easy to use with connection via MODBUS-RTU or RS 232 interface …

HMI display for processing of parameters or to operate as a user interface.
3" graphic terminal with 25 function keys, monochrome 160x80pixel,
part no. 03.C6.AF2-00J0

First upgrade in size and performance is the **4" touchscreen display** with standard Ethernet connection, 32 greyscales and 480x272 pixel **part no 04.C6.AF2-30J0**

KEB COMBICONTROL C6-VISU offers further solutions in size and functionality.

Box IPCs

The new **KEB COMBICONTROL C6-ECON** family was designed to provide a wide range of scalability in performance and functionality.

Based on the operating system Windows® XP embedded, "CoDeSys RTE" and designed with the "all in one" ASEM951 motherboard including Intel® Celeron® M ULV -1 GHz and 915 GM Express, the hardware starts with the Box-IPC as base version, mainly prefered in all mechanical installations with external monitor placement via VGA port.
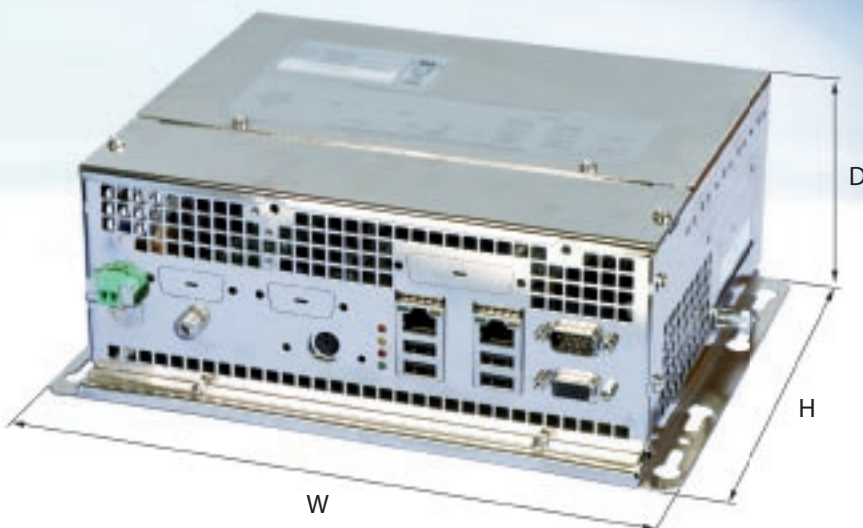
C6-ECON

Serial interfaces
1 x EtherCAT Master RJ45
1 x Ethernet 10/100 Mbit/s RJ45
2 x RS 232 DSub9 male
4 x USB / Panel IPC + 1 x on frontside
Front Side Bus   400 MHz
1 x PS/2 Port (mouse or keyboard - Y adapter)
1 x VGA
1 x CFC slot

Technical data	
voltage supply	18 … 30 V DC
power	75 W
cache	512 KB
RAM	1 GB

Ambient conditions	
operating temperature	0 … 50 °C
storing temperature	-20 … 60 °C
humidity (non condensing)	80 %

Box- and Panel IPC
Box IPC
8" touch panel
12" touch panel
15" touch panel
17" touch panel

KEB

Panel IPCs

offer the advantage of high integration of control and visualisation solution and reduce the configuration and installation requirements to a minimum.

KEB COMBICONTROL C6 ECON range comprise touch screen sizes from 8" to 17" in 5-wire resistive technology. All versions operate fanless without any rotating parts.
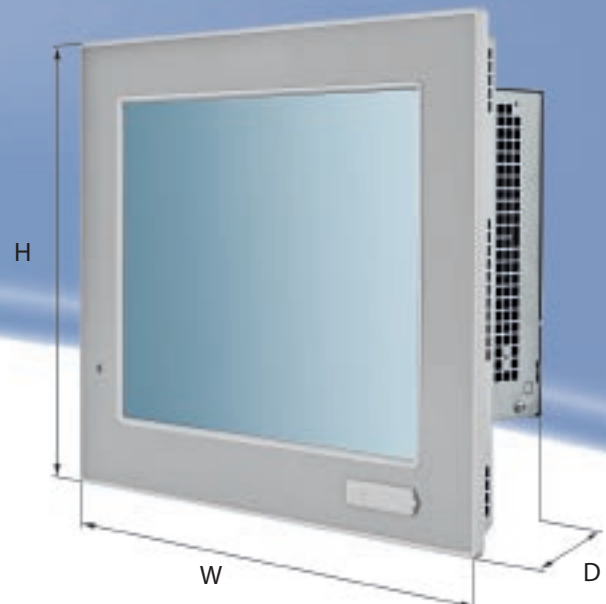The aluminum panel mount chassis design offers a high level of component protection well the front panel is rated higher to IP65.

C6-ECON hardware	part no.
Box IPC, Celeron® 1.0 GHz, 1024 MB RAM, 24 V DC	00.C6.AE1-BAA0
8" Panel IPC, Celeron® 1.0 GHz, 1024 MB RAM, 24 V DC	08.C6.AE1-BAA0
12" Panel IPC, Celeron® 1.0 GHz, 1024 MB RAM, 24 V DC	12.C6.AE1-BAA0
15" Panel IPC, Celeron® 1.0 GHz, 1024 MB RAM, 24 V DC	15.C6.AE1-BAA0
17" Panel IPC, Celeron® 1.0 GHz, 1024 MB RAM, 24 V DC	17.C6.AE1-BAA0

C6-ECON hardware options	part no.
Dual CAN master card with NV RAM 512 k	xx.C6.AE1-BAB0
HDD - hard disc 80 GB or 160 GB	on request
SSD - solid state disc 4 GB, 8 GB, 16 GB or 32 GB	on request
UPS- supply 15 minutes	on request

C6-ECON software configuration on CFC - 2 GB	part no.
XP embedded, CoDeSysV3 XP RTE, SoftPLC	A0.C6.DE3-1100
XP embedded, CoDeSysV3 XP RTE, SoftPLC, CoDeSys Target Visu	A0.C6.DE3-1101
XP embedded, CoDeSysV3 XP RTE, SoftPLC, PremiumHMI	A0.C6.DE3-1102
XP embedded, CoDeSysV3 XP RTE, SoftMotion/CAM/CNC	A1.C6.DE3-1110
XP embedded, CoDeSysV3 XP RTE, SoftMotion/CAM/CNC, CoDeSys Target Visu	A1.C6.DE3-1111
XP embedded, CoDeSysV3 XP RTE, SoftMotion/CAM/CNC, PremiumHMI	A1.C6.DE3-1112

Dimension W x H x D	Weight
252 x 190 x 96 mm	2.0 kg
250 x 210 x 109 mm	3.1 kg
335 x 270 x 109 mm	4.6 kg
390 x 315 x 109 mm	5.3 kg
455 x 355 x 109 mm	6.7 kg

Box IPCs

are focused on all kinds of high performance control solutions and offer the newest technology for automation tasks.

Windows® XP embedded and "CoDeSys RTE" in combination with the 2.2 GHz single controller or the second level version with 2 x 1.8 GHz Core™2 Duo opens new application segments for IPC based control and guarantees a independent usage in application with a higher number of participants.
The EtherCAT communication network integrates all levels with fastet access to process parameters.

C6-PERFOR

Serial interfaces	
1	EtherCAT Master RJ45
1	Ethernet 10/100 Mbit/s RJ45
2	RS 232 DSub9 male
4	USB / Panel IPC plus 2 on frontside
Front Side Bus 800 MHz	
1	VGA
1	DVI
1	CFC slot
2	PS/2 (mouse and keyboard)

Technical data	
voltage supply	18 … 30 V DC
power	140 W
cache	512 KB
RAM Celeron®	1 GB
RAM Core™2 Duo	2 GB

Ambient conditions	
operation temperature	0 … 50 °C
storage temperature	-20 … 60 °C
humidity (non condensing)	80 %

Box- and Panel IPC
Box IPC
12" touch panel
15" touch panel
17" touch panel

Panel IPCs

The fully scalable solution for high-performance application, powerful with high resolution touch screen display sizes from 12" to 17".

Standard configurations with several interfaces the system can be optimized for specific application requirements.

Compact flash card without rotating parts makes the hardware extremely robust against mechanical loads and ensure stable operation and long lifetime.

C6-PERFORM hardware		part no.
Box IPC, Celeron®	2.2 GHz, 1024 MB RAM, 24 V DC	00.C6.AB1-CAA0
Box IPC, Core™2 Duo,	2 x 1.8 GHz, 2048 MB RAM, 24 V DC	00.C6.AB1-DAA0
12" Panel IPC, Celeron®	2.2 GHz, 1024 MB RAM, 24 V DC	12.C6.AB1-CAA0
12" Panel IPC, Core™2 Duo	2 x 1.8 GHz, 2048 MB RAM, 24 V DC	12.C6.AB1-DAA0
15" Panel IPC, Celeron®	2.2 GHz, 1024 MB RAM, 24 V DC	15.C6.AB1-CAA0
15" Panel IPC, Core™2 Duo	2 x 1.8 GHz, 2048 MB RAM, 24 V DC	15.C6.AB1-DAA0
17" Panel IPC, Celeron®	2.2 GHz, 1024 MB RAM, 24 V DC	17.C6.AB1-CAA0
17" Panel IPC, Core™2 Duo	2 x 1.8 GHz, 2048 MB RAM, 24 V DC	17.C6.AB1-DAA0

C6-PERFORM hardware options	part no.
Dual CAN master card with NV RAM 512 k (housing size **H3**!)	xx.C6.AA1-_AB0
HDD - hard disc 80 GB or 160 GB	on request
SSD - solid state disc 4 GB, 8 GB, 16 GB or 32 GB	on request

C6-PERFORM software configuration on CFC - 2 GB	part no.
XP embedded, CoDeSysV3 XP RTE, SoftPLC	E0.C6.DE3-1100
XP embedded, CoDeSysV3 XP RTE, SoftPLC, CoDeSys Target Visu	E0.C6.DE3-1101
XP embedded, CoDeSysV3 XP RTE, SoftPLC, PremiumHMI	E0.C6.DE3-1102
XP embedded, CoDeSysV3 XP RTE, SoftMotion/CAM/CNC	E1.C6.DE3-1110
XP embedded, CoDeSysV3 XP RTE, SoftMotion/CAM/CNC,CoDeSys Target Visu	E1.C6.DE3-1111
XP embedded, CoDeSysV3 XP RTE, SoftMotion/CAM/CNC, PremiumHMI	E1.C6.DE3-1112

Dimension W x H x D [mm]			Weight	
	H1	H3	H1	H3
370 x 254 x	69	125	4.8 kg	6.4 kg
355 x 270 x	87	140	8.9 kg	10.5 kg
425 x 305 x	87	140	8.9 kg	10.5 kg
455 x 355 x	87	142	8.9 kg	10.5 kg

Visualisation IPCs

C6-VISU are appointed for the specific tasks of visualization and the human-machine-interface (HMI) of machines and production systems.

Based on Windows CE® operating system. The unit come preinstalled with the visualization software solutions of

CoDeSys-HMI/Visu

to enable you to create simple and easy displays using the standard library of engineering tools.

C6-VISU

C6-VISU hardware	part no.
6" touch panel, AMD Geode™ 500 MHz, 1 GB, 24 V DC, VGA 640 x 480	06.C6.AD1-AAA0
8" touch panel, AMD Geode™ 500 MHz, 1 GB, 24 V DC, SVGA 800 x 600	08.C6.AD1-AAA0
12" touch panel, AMD Geode™ 500 MHz, 1 GB, 24 V DC, SVGA 800 x 600	12.C6.AD1-AAA0

C6-VISU software configuration on CFC - 2 GB	part no.
Windows® CE 6.0 professional, PremiumHMIplus demo version	D0.C6.DE3-2000
Windows® CE 6.0 professional, PremiumHMIplus licenced version	D0.C6.DE3-2002
Windows® CE 6.0 professional, CoDeSysHMI demo version	D0.C6.DE3-2003
Windows® CE 6.0 professional, CoDeSysHMI licenced version	D0.C6.DE3-2004

Dimension	H x W x D
6" touch panel	168 x 201 x 74 mm
8" touch panel	202 x 240 x 79 mm
12" touch panel	262 x 321 x 79 mm

For higher dedicated requirements of graphic design the established visualisation software

PremiumHMIplus

offers a full functional platform and increased features.

In addition to the **C6-VISU** touch panel range with display sizes from 6 … 12" further solutions up to 17" are available on the hardware of all **C6-ECON** types.

Serial interfaces		Technical data	
1	Ethernet 10/100 Mbit/s	voltage supply	18 ... 30 V DC
2	USB, plus 1 x frontside	power	15 W
1	RS 232 DSUB 9 male	RAM	1 GB
1	RS 232/485 DSUB 15 male	front protection	IP 65
1	CFC slot		

Weight
1.6 kg
2.2 kg
3.2 kg

Analog and digital - For all additional input and output handling in automation solutions the **KEB Remote I/O** brings real time serial communication into the I/O level.

The system operates direct via EtherCAT bus communication into every single device and secures highest speed and performance with smallest space requirement.
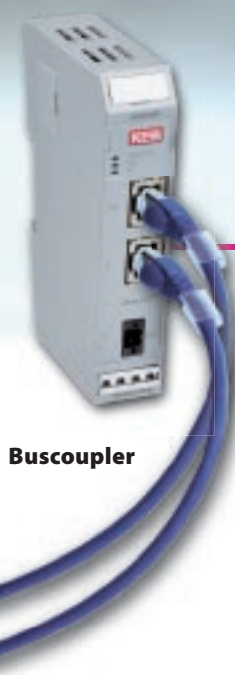
Designed in a standardized 25 mm aluminium based frame with strong EMC performance every bus coupler module can operate up to 20 remote I/O-modules.

Remote I/O

Description	part.-no.
Bus coupler unit 24 V DC, max. 3 A	00.C6.CA1-0100

Description	part.-no.	Terminal
Digital IN 16 - 1 ms	00.C6.CB1-0100	00.90.501-7121
Digital IN 32 - 1 ms	00.C6.CB1-0200	00.90.501-7119
Digital OUT 16 - 500 mA	00.C6.CB1-0500	00.90.501-7121
Digital IN 16 / OUT 16	00.C6.CB1-0600	00.90.501-7119

Description	part.-no.	Terminal
Analog IN 4 (0-20/4-20 mA/12 bit)	00.C6.CC1-0100	00.90.501-7121
Analog IN 8 (0-20/4-20 mA/12 bit)	00.C6.CC1-0200	00.90.501-7119
Analog IN 4/8 (0-10/+-10 V/13 bit)	00.C6.CC1-0300	00.90.501-7121
Analog IN 8/16 (0-10/+-10 V/13 bit)	00.C6.CC1-0400	00.90.501-7119
Analog OUT 4/8 (0-20/4-20 mA/12 bit)	00.C6.CC1-0500	00.90.501-7121
Analog IN 4 PT/NI 100 (16 bit)	00.C6.CC1-0700	00.90.501-7121
Analog IN 8 PT/NI 100 (16 bit)	00.C6.CC1-0800	00.90.501-7119
Analog IN 4 PT/NI 1000 (16 bit)	00.C6.CC1-0900	00.90.501-7121
Analog IN 8 PT/NI 1000 (16 bit)	00.C6.CC1-1000	00.90.501-7119
Analog IN 4 Thermo (16 bit)	00.C6.CC1-1100	00.90.501-7121
Analog IN 8 Thermo (16 bit)	00.C6.CC1-1200	00.90.501-7121

Buscoupler

digital modules

analog modules

KEB terminal 36-pole part no. 00.90.501-7119

KEB terminal 18-pole part no. 00.90.501-7121

With up to 3 amp power consumption many different analog and digital module combinations can simply be connected and mounted on a standard 35 mm DIN Rail system.

Pluggable high density spring-type terminals on all modules allows simple change in operation and easy cabling.

Strong EMC shielding and effective cord grip is ensured by the shielding plates.

KEB Remote I/O supports the decentralization of machine concepts and improves the modular manufacturing and set-up process.
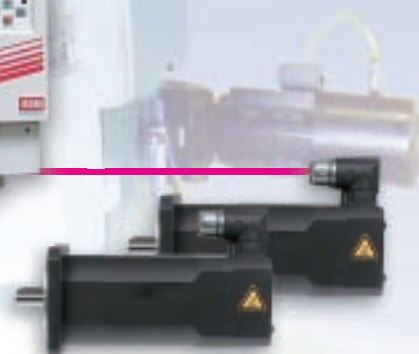
Remote I/O

IPC Control

Drive units

Motors

Option shielding plates 2 x 8 mm
part no. 00.C6.CD1-0400

Option shielding plates 1 x 14 mm
part no. 00.C6.CD1-0500

Engineering tool

The general requirements for technical solutions are continuously increasing and the engineering environment is an important key factor for powerful and efficient design results.

With **KEB COMBIVIS studio 6** a new platform is prepared, where .net based applications are linked into one central tool with high end functional integration.

Demo version of
KEB COMBIVIS studio 6
software is available for registered customers under **www.keb.de**.

COMBIVIS studio 6

CoDeSys - Soft PLC
logic and libraries
Programming IEC 61131-3

CoDeSys - Softmotion / CNC
libraries

CoDeSys Target Visu
visualization

KEB Utility
libraries

KEB COMBIVIS 6

Parameterization
KEB Drives

Wizards
EtherCAT bus configuration
EtherCAT Process data mapping
Motor configuration…

Tool
Oscilloscope

embedded controls
C6-COMPACT

IPC controls
C6-ECON

C6-PERFORM

C6-VISU

Inputs and outputs
KEB Remote I/O

COMBICONTROL

Automatic Software Utilization

From the selection and installing support for single and multi axis drives over the EtherCAT fieldbus configuration up to the functional programming of soft-PLC, motion control and CNC - one tool with many integrated functions.

With special wizzard templates the software simplifies the adaption of servo motors or connect the predesigned fieldbus concept with additional modules of the Remote I/O system.

Optimization of control loops is supported by a fully digital scope with 16 channels.

single axis
KEB EtherCAT drives

multi axis
KEB EtherCAT drives

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