



KSE-CNC

The CNC with the right solutions for demanding applications.

www.kse.it

Know-how for the industries

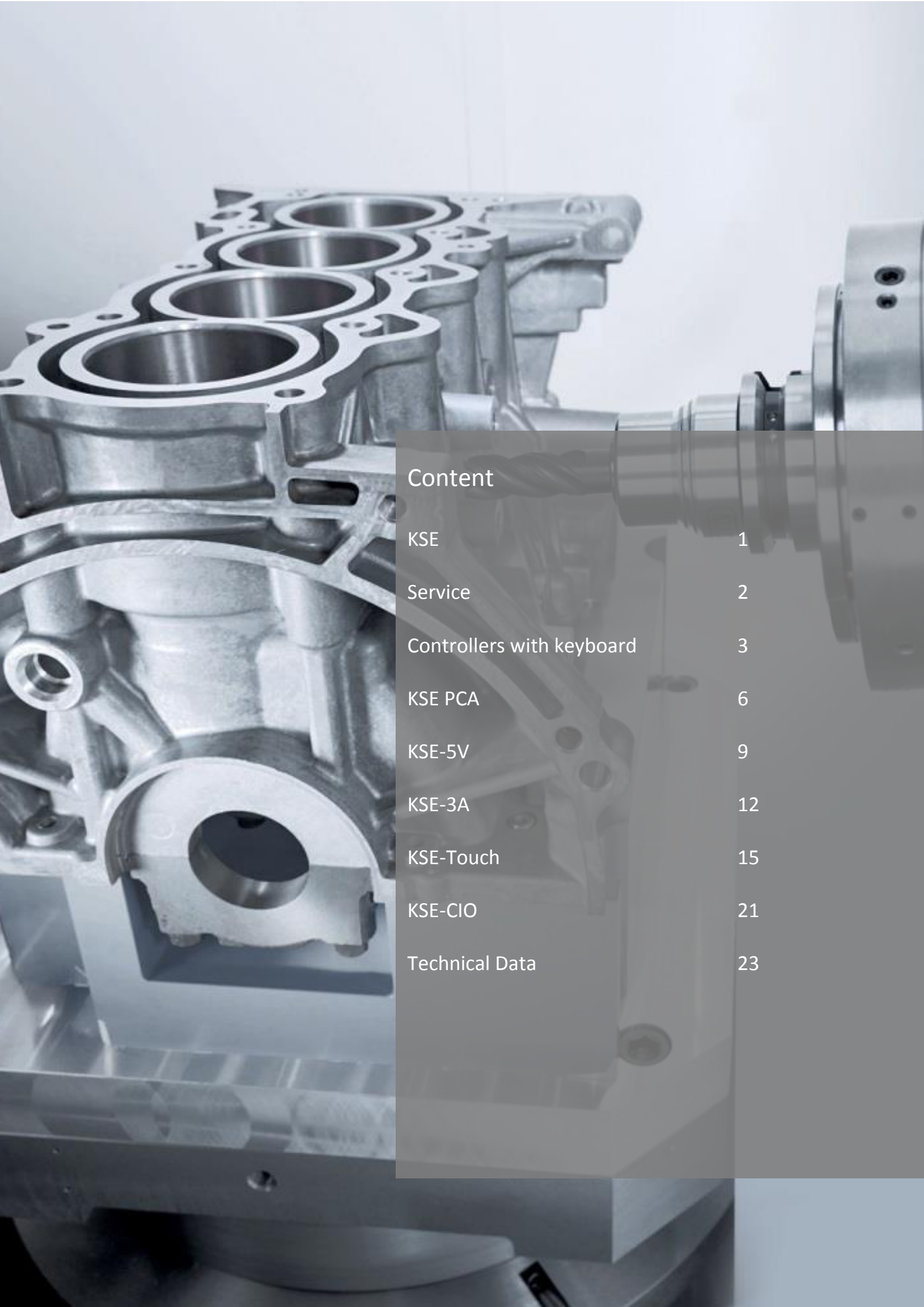


KSE Controllers

Compact and powerful, KSE controllers grow with your business.

KSE offers innovative answers. Small or huge numbers, simple or complex details, KSE controllers make every piece a masterpiece.





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KSE means Solutions.

Your Automation Partner.

KSE stands for innovation and engineering experience: our aim is to become your partner of choice, committed to the success of your business.

Our products cover a wide range of industries: sheet metal machines, machining centres, plastic recycling systems, assembly lines, paper processing systems and many others.

Creative Concepts in Motion.

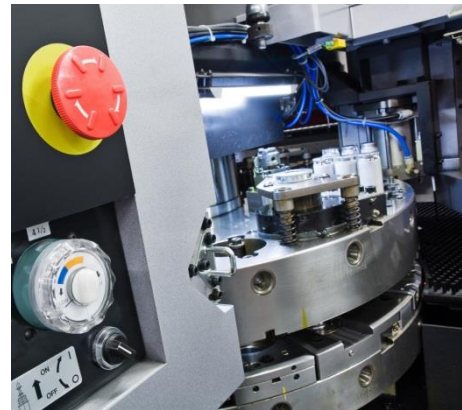
The past, present and future of our company have one thing in common: dedication. Since 1996, dedication has made us what we are today: a strong, innovative partner for system automation in all fields. Know-how and creativity are part of what we offer to our customers.



KSE automation systems are ideal for retrofits of existing systems as well as for the OEM market. KSE controllers have been working for decades wherever there is a need for the most efficient solutions. Since it was founded, KSE has built and sold more than 5000 controllers.

KSE answers.

KSE builds CNC controllers for major OEM manufacturers in Italy. KSE controls are robust, reliable and simple to use. With every KSE product comes a variety of ready-to-use applications with the right solution to all needs.



More Profits.

Our products are chosen by our customers for their:

- > Simplicity and sturdiness
- > Ease of installation and configuration
- > High efficiency and optimization
- > Compelling value-for-money and ROI
- > Superior after-sale service



Best service.

With every controller our customers receive the best support before, during and after installation. A controller made by KSE always comes with a working solution onboard, fine-tuned with real field data.

www.kse.it/products



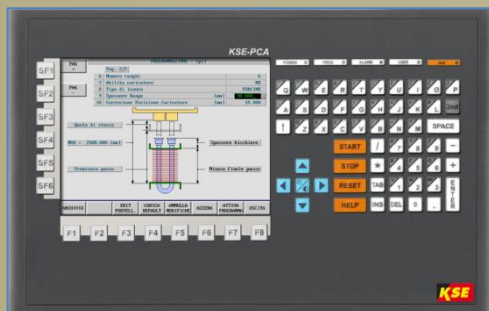
KSE works together with its customers for the development of the applications to be used on the controller, defining features and performances.

Controllers with keyboard

The KSE controllers with keyboard are made to adapt and customers will always find the proper size for their applications. The KSE products have find their way in the most diverse fields of use, from basic metal turning and milling, to dedicated HVAC machines, to paper and plastic processing plants.

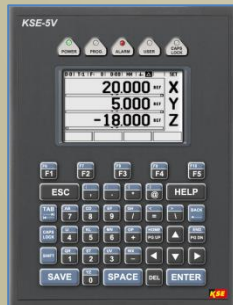
KSE controllers are suitable for retrofit as well as for OEM equipment and always give a competitive edge wherever they are installed.

Scalability



- 16 axes/spindles
- General purpose in all fields

KSE-PCA



- 5 axes/spindles
- metal forming and machining, press feed, coil winding, paper and plastic processing

KSE-5V



- 3 axes/spindles
- metal forming and machining, press feed, coil winding

KSE-3A



Data, programs and configurations are easily transferred and updated using the USB and Ethernet interfaces. USB can be both master and slave for PC-CNC and CNC-USB stick data transfer. The ethernet connection is used for local connection and word-wide remote



The KSE CNC can manage many different applications, and for each application different configuration and data can be used. Retrieving and launching an application and loading the proper data is just a matter of seconds with the windows-like file manager.



With the PLC virtualization, KSE provides more functionalities without additional costs. A free SDK for the PLC AWL language is available.

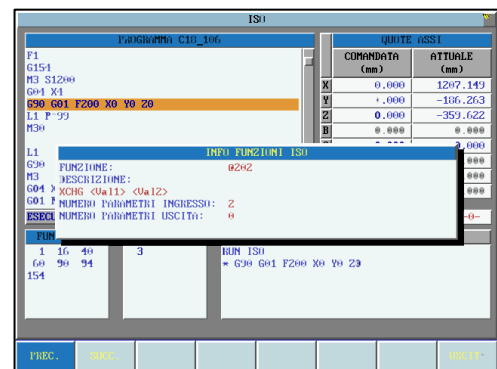


All the processing power a machine needs

What really makes a difference in a plant floor, is power and control. A KSE CNC gives both and more: standard tools to improve existing solution.

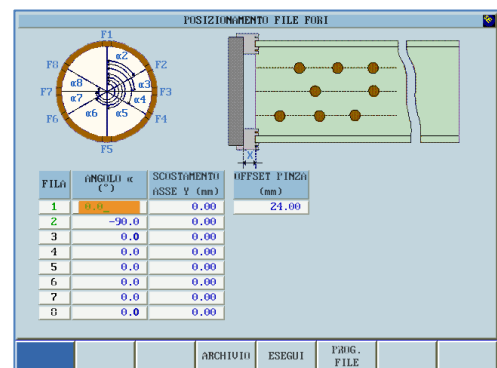
Standard ISO programming for immediate usability.

When CNC are inserted in a working environment, re-usability is a must. The KSE-CNCs run ISO programs as well as custom applications. In the programming environment, operators will find all the common ISO code and functions.



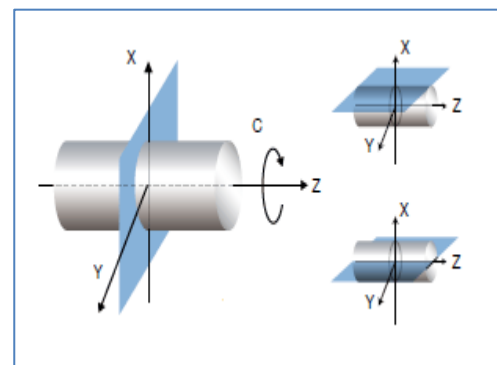
Ready-to-use applications.

Applications for the most diverse fields of operations are there to be used. KSE offers its vast know-how and experience to expedite the development process. On request, KSE hard-codes the application using proprietary solutions.



Up to 16 axes/spindle.

With its exuberant resources, the KSE controllers can control up to 16 axes/spindles with all the sophisticated interpolation functions needed in top-class products.

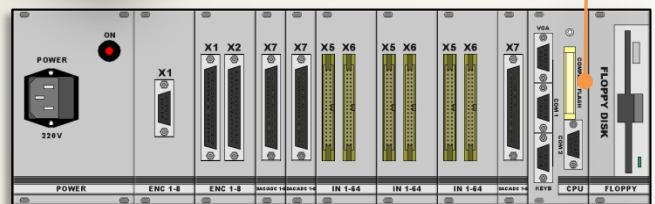


KSE - PCA panel and architecture

- > 14 (6 + 8) Technical keys
- > 10.4" TFT LCD color display with 800x600 resolution
- > QWERTY membrane keyboard with double function.
- > Special keys



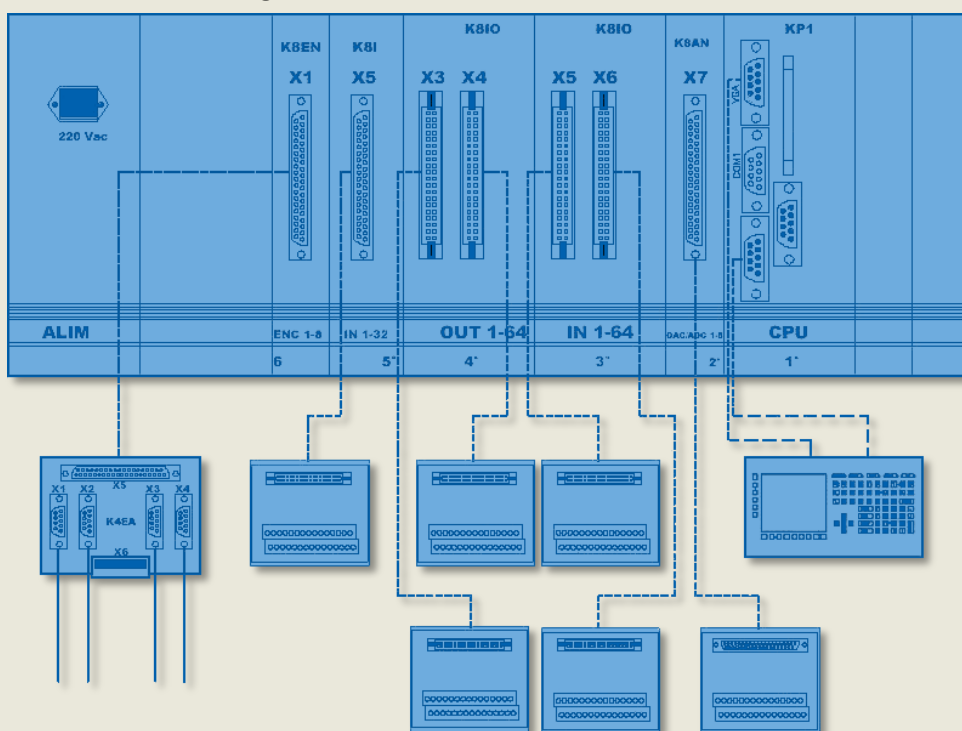
- > IP65 protection



- > Combo rack with CPU and additional modules

- CNC with operator-panel, modular rack and ISO interpreter
- Dedicated sw versions
- QWERTY keyboard with special keys
- Compact Flash card, USB and Ethernet interfaces
- Ethernet interface for connection to factory network and global service
- Integrated virtual PLC with AWL logic programming
- I/O interface based on KSE protocol/CanBus/Profibus for the connection of devices and control panels
- Up to 16 axes/spindles
- Window-based GUI and file manager

Rack connection diagram



Dimensions/weight

LCD/Keyboard:

WxHxD	540x330x65mm – 21.3"x13"x2.6"
Weight	5,5kg – 12.13lbs

Cabinet:

Depth with connectors	330mm – 13"
42TE:	271x130mm – 10.7"x5.12"
60TE:	328x130mm -13"x5.12"
84TE:	451x130mm -17.8"x5.12"
Weight:	Variable with configuration

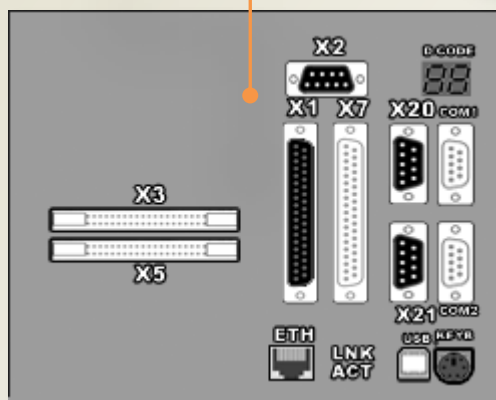
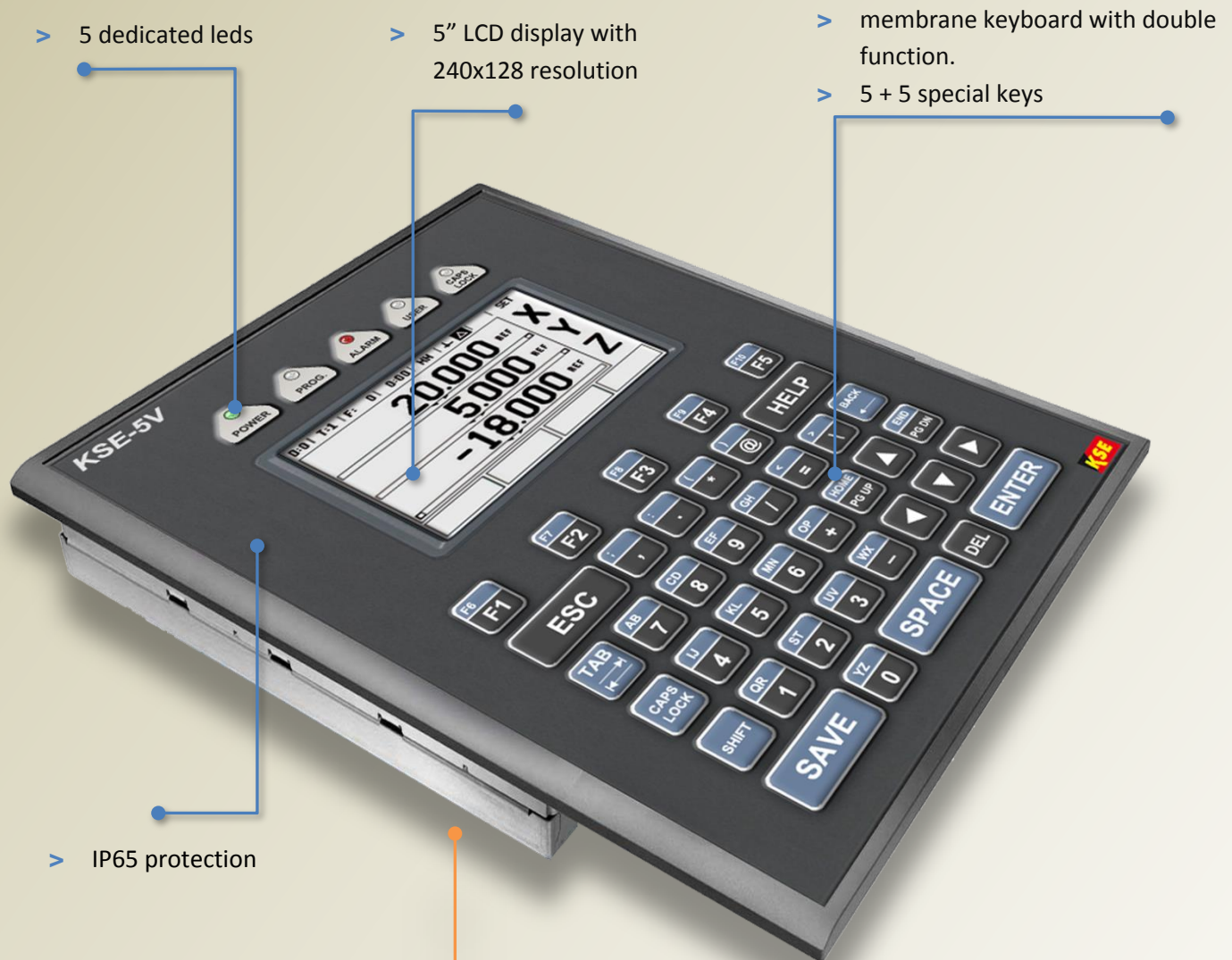
GENERAL PURPOSE	ISO	ISO interpreter for up to 16 axes/spindles applications
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METAL FORMING	2AS	Sheet metal bending with 2 synchronous axes + 2 closed-loop axes.
	3AC	Cut line with 6 transfer stations with 3 closed-loop axes + 1 open-loop axes
	A7TF	Press transfer with 2x3 closed-loop axes (transfer) + 1 closed-loop (destacker) + electronic cams
	AVRZTF	Roll feed + Press transfer + electronic cams
	LTS/LTSL/ LTSO/LTSP	LTS: 2 closed-loop axes for cut + slotting line. LTSL: LTS + controls one circular saw LTSO: LTS + tracks the sheet profile for optimal cut LTSP: LTS + manages the sheet bending
	WALL	4 closed-loop axes + 1 open-loop axis for drainpipe forming machine
	6FSZ	13-axes control for 6 reels winding machine

HVAC	Forc Z	4 closed-loop axes + 1 open loop axis control for hairpin bender with variable length, size and number.
	FORAC	control for drilling manifolds with variable holes number, size and spatial configuration.
	LFM3	3x2 closed-loop axes control for tube cutting and bending with variable length and size.
	MEO	2 closed-loop axes + 2 open-loop axes for horizontal push/pull tube expander with variable tube length and size.
	MIV/MIV CAM	MIV: Control for hydraulic vertical expander for tubes with variable length and size. MIV CAM: MIV + automatic expanding rods replacement.
	PB	3 closed-loop axes for finned coil bender.

PAPER PROCESSING	CFA88	Winder/unwinder with tension control for 8 + 8 paper reels
	TRB	7-axes control for rotating cross cutter

KSE – 5V panel and architecture

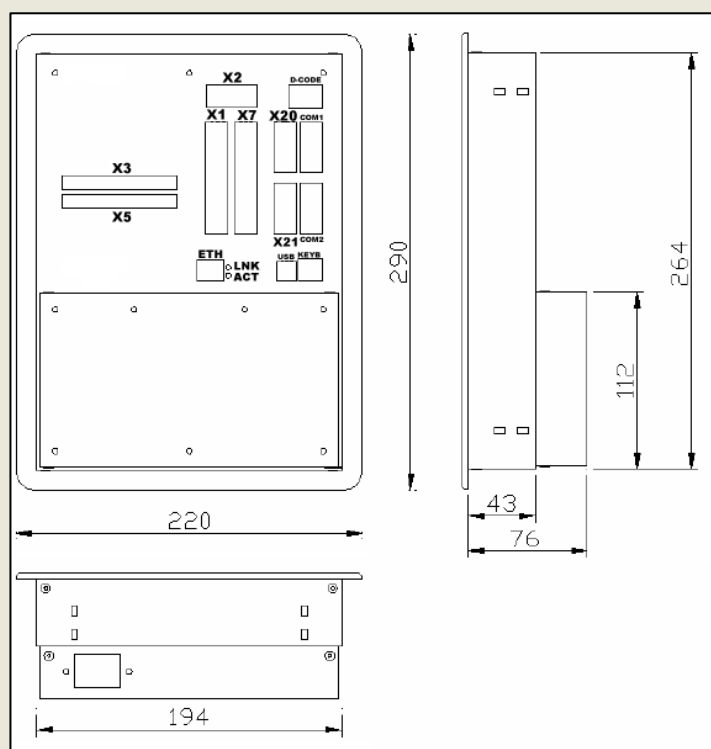


Interfaces/connections:

- RS232/485
- USB
- PS2 Keyboard
- 10/100Mb Ethernet
- Incremental/SSI encoders
- DAC/ADC
- Digital Inputs
- Digital Outputs
- Compact flash (internal)
- Hard disk 2.5" (internal)
- Anybus (Profibus/CanBus)

- Panel-based CNC with ISO interpreter
- Dedicated sw versions
- Keyboard with special keys
- Compact Flash card, USB and Ethernet interfaces
- Ethernet interface for connection to factory network and global service
- Integrated virtual PLC with AWL logic programming
- I/O interface based on KSE protocol/CanBus/Profibus for the connection of I/O devices and control panels
- Up to 5 axes/spindles

Rear, side and top view/Connectors



Technical details

Digital Input: 32 optoisolated inputs (500V DC).

Digital Output: 32 optoisolated outputs (500V DC).

Encoder: 5 channels for Incremental/SSI encoders.

DAC: 8 14-bit analog outputs (+/- 10V) with 1.22mV resolution. All channels are filtered and short-circuit protected.

ADC: 8 16-bit analog inputs (+/- 10V) with 0.3mV resolution. All channels filtered.

PLC: virtual PLC for I/O, axes and peripherals control.

COM PORTs: COM1 (RS232) + COM2 (configurable as: RS232, RS422 or RS485).

ETHERNET: 10/100 Mb with RJ45 port with FTP protocol for (remote) backup.

USB: 1 Hi-Speed (12Mbit) slave port.

Keyboard: alphanumeric keyboard.

Display: graphic display 240x128

Power supply: 220V DC

Dimensions/weight

WxHxD	194x264x76mm – 7.8"x10.4"x3"
Front frame	220x290mm – 8.7"x11.4"
Weight	2,1kg – 4.6lb



Portfolio

GENERAL PURPOSE

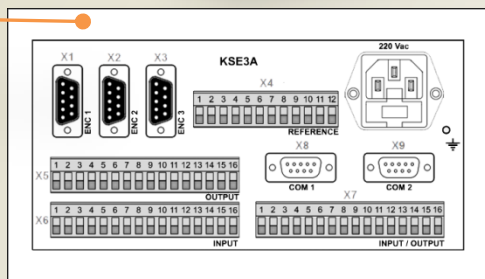
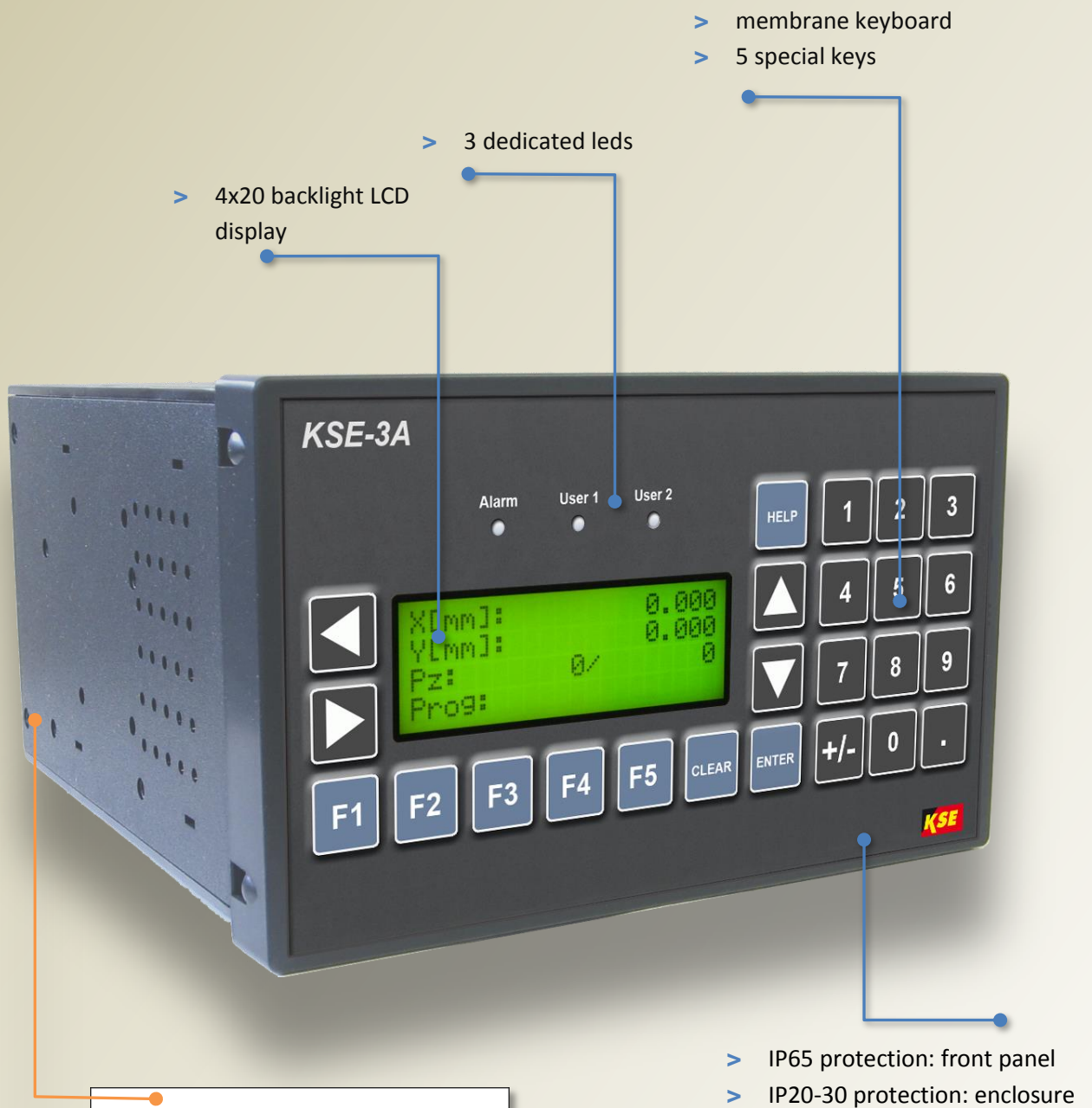
ISO	ISO interpreter for up to 5 axes/spindles applications
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METAL FORMING

AVR AVR AR	AVR: Roll feed + electronic cams – 2 axes AVR AR: Roll feed + electronic cams + turning axis for feeding rolls – 3 axes.
SFZ	Coil to coil winder – 3 axes



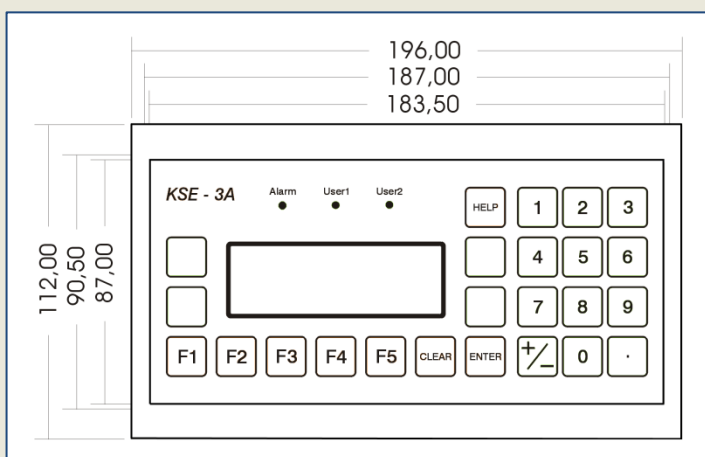
KSE – 3A architecture



Interfaces/connections:

- RS232/485
- Incremental/SSI encoders
- DAC/ADC
- Digital Inputs
- Digital Outputs
- KSE protocol

- Monolithic CNC with ISO interpreter
- Dedicated sw versions
- Keyboard with special keys
- Integrated virtual PLC with AWL logic programming
- I/O interface based on KSE protocol for the connection of I/O devices and machine control panels
- Up to 3 axes/spindles



Technical details

Keyboard: 24 numeric/function keys with anti-scratch, anti-static polycarbonate coating +3 led.

LCD: backlight, 4x20

COM PORTS: 2x RS232C

Encoder channels: 3 incremental/differential channels, 5V optoisolated line driver; max freq. 500kHz; integrated 5V power; x4 encoder pulses multiplication.

Digital Input: 16 optoisolated DIO 24Vdc PNP.

Input levels: logic 1 > 14VDC; logic 0 < 10VDC

Digital Output: 16 optoisolated DIO 24Vdc PNP; fan out 700mA; + protection against overload and short-circuit.

Signals configuration: 14 signals configurable as input, 24V DC PNP, or output, 24V DC PNP.

Analog Inputs: 2 analog inputs +/- 10VDC, 12 bit optoisolated; impedance 130kΩ, max error 8%

Analog Output: 4 analog outputs +/- 10VDC; optoisolated 14 bit DAC, + protection against short-circuit; power 5mA; impedance (1kHz) 23Ω

Power supply: 220V AC; 50/60Hz; RC filter + inlet fuse

PLC: virtual PLC for I/O, axes and peripherals control.

Connections: SUB-D 9 for RS232 + Encoder.

Cooling: 24V DC fan.

Protection: IP65 front side; IP20 + IP30 other sides.

Dimensions/weight

WxHxD	185x90x202mm – 7.3"x3.5"x8"
Front frame	196x112mm – 7.7"x4.4"
Depth with connectors	260mm – 10.2"
Weight	2,5kg – 5.5lb

GENERAL PURPOSE

ISO	ISO interpreter for up to 3 axes/spindles applications
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METAL FORMING/ SPECIAL

1A CR	Single turning axis – closed loop
2AC X1	X-B axes – closed loop
123 AC 123 AC O	AC: 3 axes – closed loop AC O: AC + speed override
AP	Pinch feed + electronic cams
AVR	AVR: roll feed (various versions)
GY	gantry / closed loop
LTS	cut and punch line
Spindle	Spindle control
SFZ	coil winder
TVL	TVL: linear fly cut machine (various versions)
ECY4	plastic laminating machine
PAL	palletizer

HVAC

CDC	manifold closing machine
CRV CRV CR	CRV: crossover machine CRV CR: special crossover machine
EPS XYZ EPS XYZ S EPT XBC EPT XYZ EPT XYZB	EPS XYZ: push-type expander machine EPS XYZ S: special expander EPT XBC: EPS XYZ + Open/Closed loop EPT XYZ: EPS XYZ + Open/Closed loop EPT XYZB: EPT XYZ + External CNC
FFT	Controller for hairpin bender
LFM T1 2T TP1	LFM T1: for tube cut/straightener 2T: LFM T1 + single/double output TP1: LFM T1 single lane

KSE Touch

**CNC controller with 7"/10"
Touch Screen
+ *axis and IO boards***



Compact, Fast and Cost-effective.

So far, the need of CNC controllers with graphics interface has been hindered by the price barrier. KSE presents its answer to the market: **KSE Touch**. Compact and slim, powerful and fast, scalable and with an extra: a competitive price.

A Very Simple Idea. KSE Touch adapts to the system: one hw platform for 3 modules: control panel, axis boards and IO board. Each board is equipped with a powerful CPU for independent data and signal processing.

More with less. KSE Touch is the ideal solution for OEMs who need a low-cost, fanless, and touch-operated CNC.

The KSE-Touch is available for CNC machining, bottling and filling lines, palletizers.



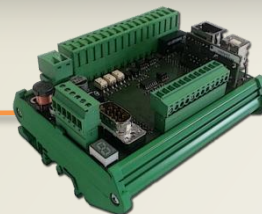
Overview of KSE Touch: panel and architecture

- Anti-reflection aluminium frame
- 7" or 10" TFT LCD Touch screen color display with 800x480 resolution
- Compact size
- Reduced depth
- Fanless

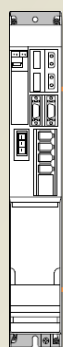
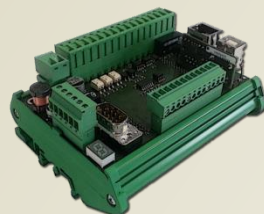


Axis board

IO board



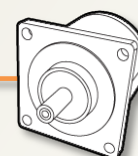
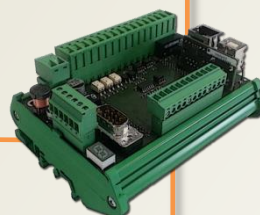
- Axis and IO DIN rail units



Servo Drive



Servo Drive

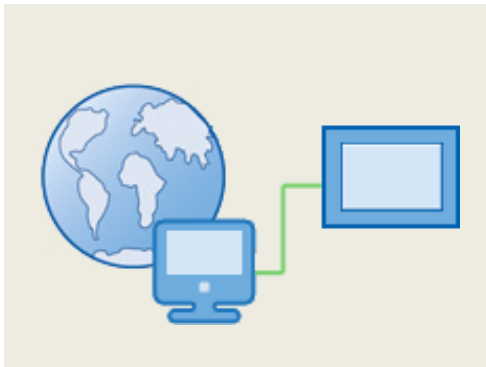


Encoder



Best comfort

Working with KSE Touch is like using a notepad with the touch of your finger. This and clear and intuitive controls make life easier.



Local and global link.

Data, programs and configurations are easily transferred and updated using the USB and Ethernet interfaces. USB is available for PC-CNC data transfer. The ethernet connection is used for local connection and word-wide remote assistance.



OSD tools and file manager for applications and data.

The KSE Touch can manage different applications and each application can use different configuration and data. Retrieving and launching an application and loading the proper data is just a matter of seconds with the windows-like file manager.



Built-in virtual PLC for maximum performance.

With the PLC virtualization KSE provides more functionalities without additional costs. A free SDK for PLC AWL language is available.

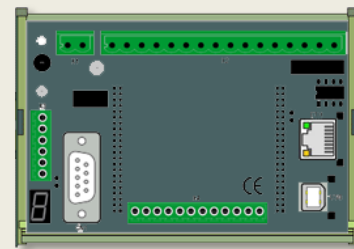


A modular approach

With KSE-Touch the controller adapts to the requirements adding resources only when required. Both the control panel and the axis and IO units are equipped with their own CPU and RAM for optimal response.

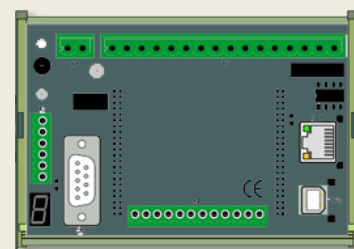
Independent Axis units.

DIN rail axis units to manage up to 4 independent high speed axes. No additional costs for unwanted power and always the right size for the required solution.



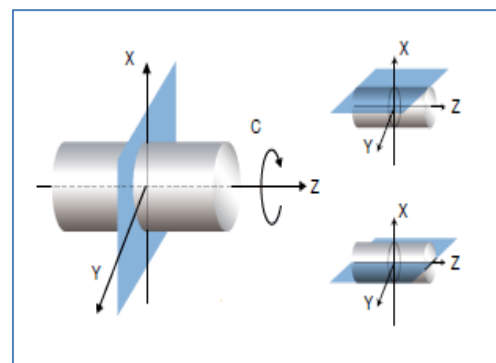
Independent IO units.

If applications require more IOs, additional DIN rail IO units can be connected to the control panel. Even IO units are capable of independent processing power with no additional burden on the Control Panel CPU.



Up to 4 axes/spindle.

With its exuberant resources, the KSE Touch can control up to 4 axes/spindles.



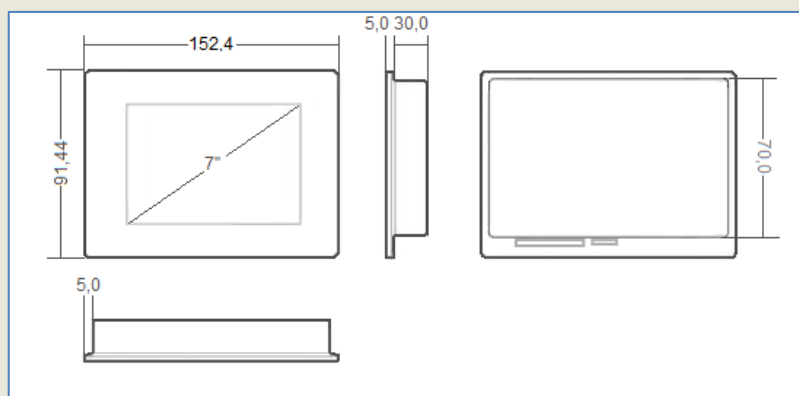
- CNC with Touch-screen control panel
- DIN rail units for axes and IO
- Dedicated sw versions
- RS232/422/485, USB and Ethernet interfaces
- Ethernet interface for connection to factory network and global service
- Integrated virtual PLC with AWL logic programming
- I/O interface based on KSE protocol/CanBus/Profibus for the connection of I/O devices and machine control panels
- Up to 4 axes/spindles
- Window-based GUI and file manager

Boards Common features	
Memory	
RAM	96MB Internal
	0-64MB External
Flash	512KB
SD Expansions	Up to 2GB
Connections	
Serial Ports	1xRS232
	1xRS485
Ethernet LAN	1x10/100Mbit
USB	1x Slave
Temperature	
Operating	0° to 70° C
Storage	-40° to 85° C
Dim. [W x H x D]	112x54x92mm
Power	24V DC
CPU	ARM Cortex M3
RTC	Yes
Display	1x Diagnostic

Control panel	
User Display	
Type	7"/10" 65535 color TFT Touch Screen
Resolution	800x480
Dimensions [W x H]	152.4x91.44mm
Connections	
CanBUS channels	1x propr. protocol
PLC	
Built-in	Yes
Language	AWL
Expansions	1x KSE-SIO

Axis Board	
Digital IOs	
Digital Outputs	3x24V DC 100mA
Digital Inputs	4x24V DC
Connections	
CanBUS channels	2x propr. protocol
Encoder Channels	
Option #1	1 Incremental + 1 SSI
Option #2	2x SSI
Outputs	
Pulse train	2x 200kHz
Analog	1x14bit ±10V

IO Board	
Digital IOs	
Outputs	16x 1A 24V DC
Inputs	16x 24V DC
Connections	
CanBUS channels	2x propr. protocol





Portfolio

KSE Touch is provided equipped with specific applications, fully developed and tested. Each application is easily configurable and expandable.

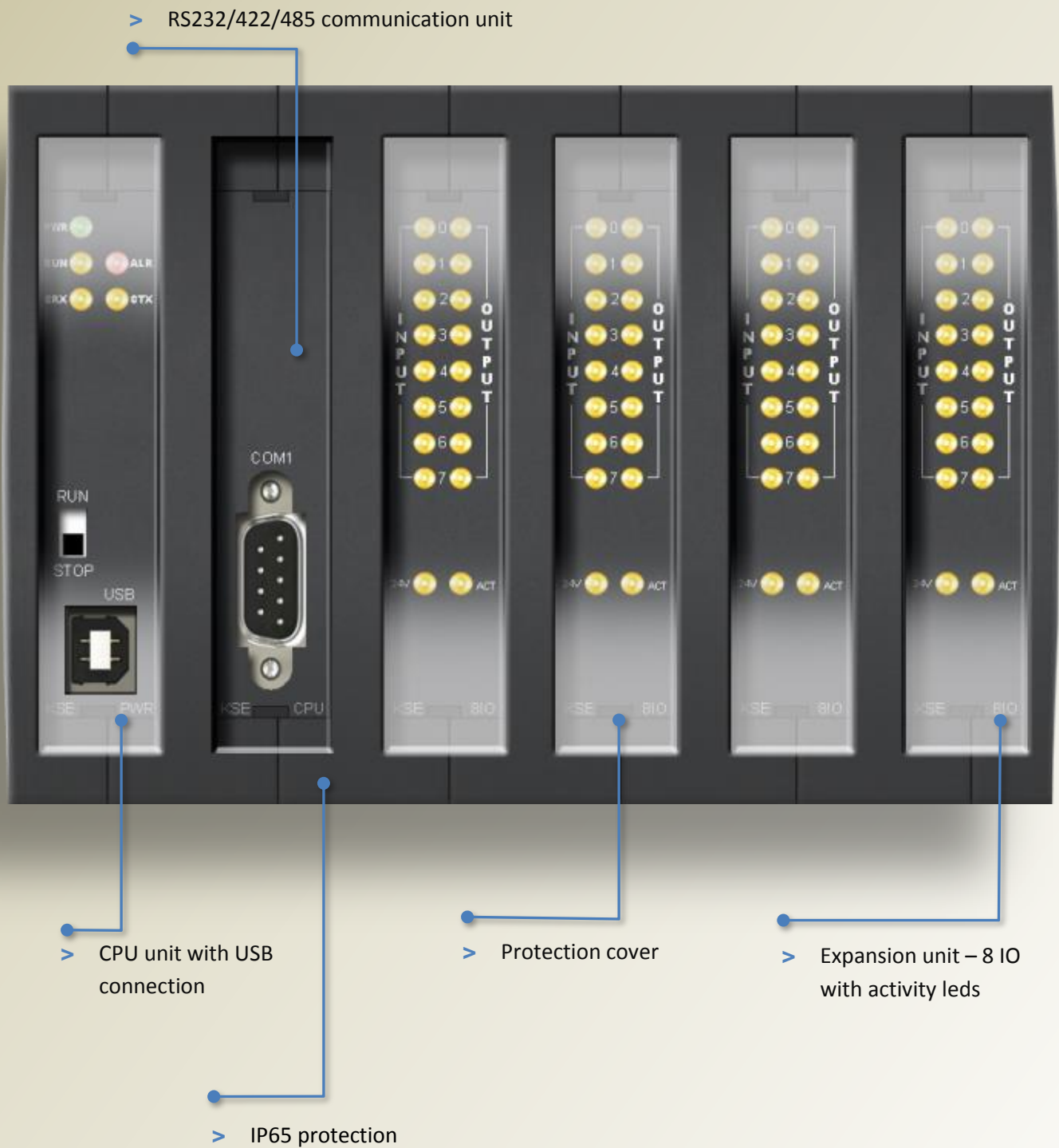
Metal forming

AVR	Roll feed control
PT	Press transfer control
WIND	Control for winding machines
SPINDLE	Spindle control
XYZ	Multiple axes control
AC	Open/Closed loop application
BEND	Press Brake

Other applications

PCK	Packing machine application
PLT	Palletizer application
FILL	Bottling line control

KSE – CIO DIN rail expansion



- IO expansion for the connection of PLC I/O devices and machine control panel
- DIN rail mounting
- 8+8 IO for unit, up to 8 units for expansion
- Cascade link for multiple expansions (max 8)
- KSE protocol, CanBus, Profibus



Technical details

Digital Inputs: 8 for unit

Digital Outputs: 8 for unit

Shape: DIN RAIL

Units for expansion: 8 max

Microcontroller: AT89C51CC01

ROM: 32KB*8

EEPROM: 2KB*8

RAM: 64KB*8

Application memory: 24KB*8

PLC memory: 8KB*8

USB: 1 standard

COM PORT: 1 configurable RS232/422/485

Can bus: up to 110 nodes

Expansion Bus: up to 8 units

Dimensions/weight

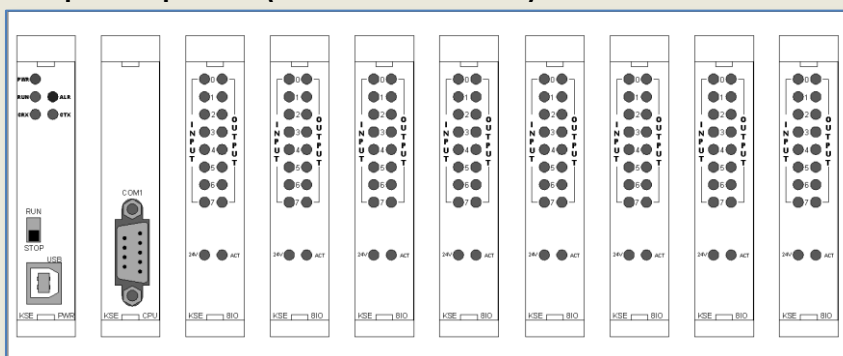
Height: 112mm – 4.4"

Width: 47mm + 25mm – 1.9" + 1" for each unit




Depth: 120mm – 4.7"

Weight: 200g + 130g – 0.44lb + 0.28lbs for each unit

Complete expansion (8 IO units – 64+64 IO)



Technical Data

	KSE-PCA	KSE-5V	KSE-3A
			
Product features			
HW configuration	Panel + combo rack	Panel	Monolithic
Max number of axes/spindles	16 axes	5 axes	3 axes
CPU	Intel Pentium – 1GHz	ST Microelectronics STPC Elite 100MHz	Intel 386EXTC – 25MHz
Spare parts guaranteed for	> 10 years	> 10 years	> 10 years
IP Protection	IP65	IP65	IP65 – 20 - 30
Temperature range	0 .. 50 °C	0 .. 50 °C	0 .. 50 °C
Display size (LCD)	10,4"	5"	4x20
CNC Programming			
ISO programming	•	•	•
Step by step program execution	•	•	•
Program simulation	•	•	•
Memory			
Main memory max.	256MB	64KB + 128KB	256KB + 128KB
Load memory/mass storage, max	128MB -4GB	1GB – 30GB	128KB
Battery backed RAM	128KB	64KB - 512KB	256KB
I/O			
Integrated I/O	•	•	•
Expandable	•	•	•
Number of digital IO (max)	1024	1024	1024
Interpolation & couplings			
Interpolating axes	•	•	•
Elliptic, circle, linear functions	•	•	•
Synchronous axes	•	•	•
Safety			
Data retention with power-off	•	•	•
PLC			
Virtual PLC	•	•	•
Programming sw	AWL	AWL	AWL
Encoders			
Dedicated channels (Incremental/SSI)	•	•	•
Servo-drives protocols			
Analog	•	•	•
Communication			
RS232/422/485	•	•	•
USB	•	•	
Ethernet	•	•	
KSE protocol	•	•	•
CanBUS (optional)	•	•	
Profibus Master/Slave (optional)	•	•	

KSE-TOUCH

[illegible]

For further information:

Company and products:
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Guides and manuals:
www.kse.it/manuals

Material to download:
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