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Find the *LTI Motion Andronic 3060S* at our website: *Click HERE*

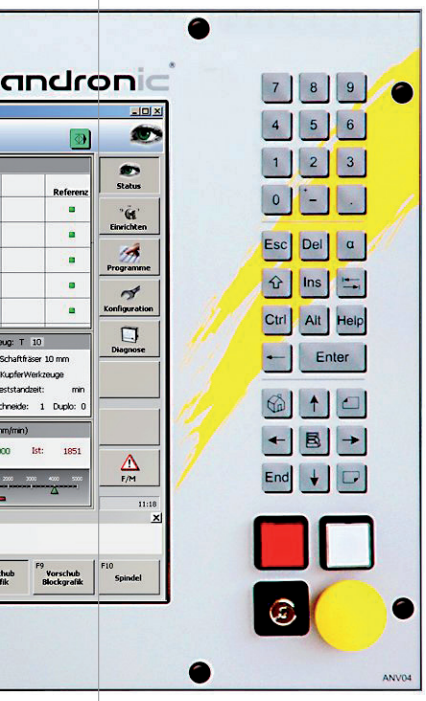
LTI MOTION
KÖRBER SOLUTIONS

andronic 3060

Next generation high speed CNC control



DE
EN
FR


Status
Einrichten
Programme
Konfiguration
Diagnose
F/M
Spindel
7 8 9
4 5 6
1 2 3
0
Esc Del
Ins
Ctrl Alt Help
Enter
End
ANV04

andronic 3060

Machine tools which are continuously advanced by the latest machine and processing technologies require ever increasing performance of CNC control units. Quick data processing, short block cycle times, high computational accuracy and interpolation speed are important prerequisites which must be fulfilled by quick machine tool control systems.
For years, LTI Motion has been focusing on the highest performance, and with the andronic series, it offers high-end CNC control systems for demanding applications of all kinds.

Along with the fully digital drive control units of the ServoOne series, we offer you an overall package which leaves nothing to be desired. High performance from control to drive and sufficient power reserves to guarantee a constant traverse speed even with vast data volumes.

With more than 40 years' experience, we now develop control systems for high-speed applications for a wide range of machine kinematics. Nowadays considered by others as world novelty, the concept of an open CNC control has been successfully used for years by us.

andronic 3060. Dynamics of a new generation.

andronic 3060 Multi processor system

We are presenting the new CNC generation andronic 3060, a multi processor system with modular power adaptation, integrated Soft-PLC and Windows® technology.
High functional security by using selected industrial PC components, the standardized digital sercos interface and the current field bus systems like EtherCAT, Profibus, InterBus or CANopen as interface to all I/O periphery devices present the openness and flexibility of the control system.

The principal item of the system designated andronic 3060 are two powerful Intel® processors communicating with one another via a PCIe-to-PCIe bridge. One processor is responsible only for the control kernel (NC computer) and the other for the user interface (HMI computer).
The separation of functions allows separating processes and guarantees the completely undisturbed work sequence on the NC level whereas, independently and completely separated from the former, the computing power required on the HMI level for data handling or other actions does not lead to any capacity problems such as speed disruption or interruption to the work sequence.



The control is available in two versions. The extremely compact control andronic 3060S for standard applications and the bit bigger control andronic 3060L with enough performance for high-end applications.

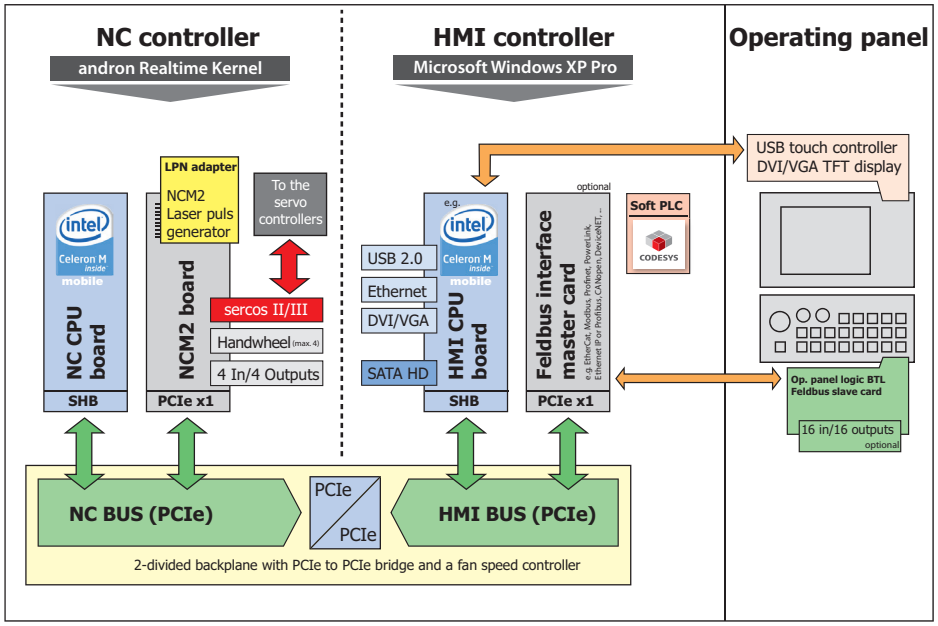
andronic 3060S



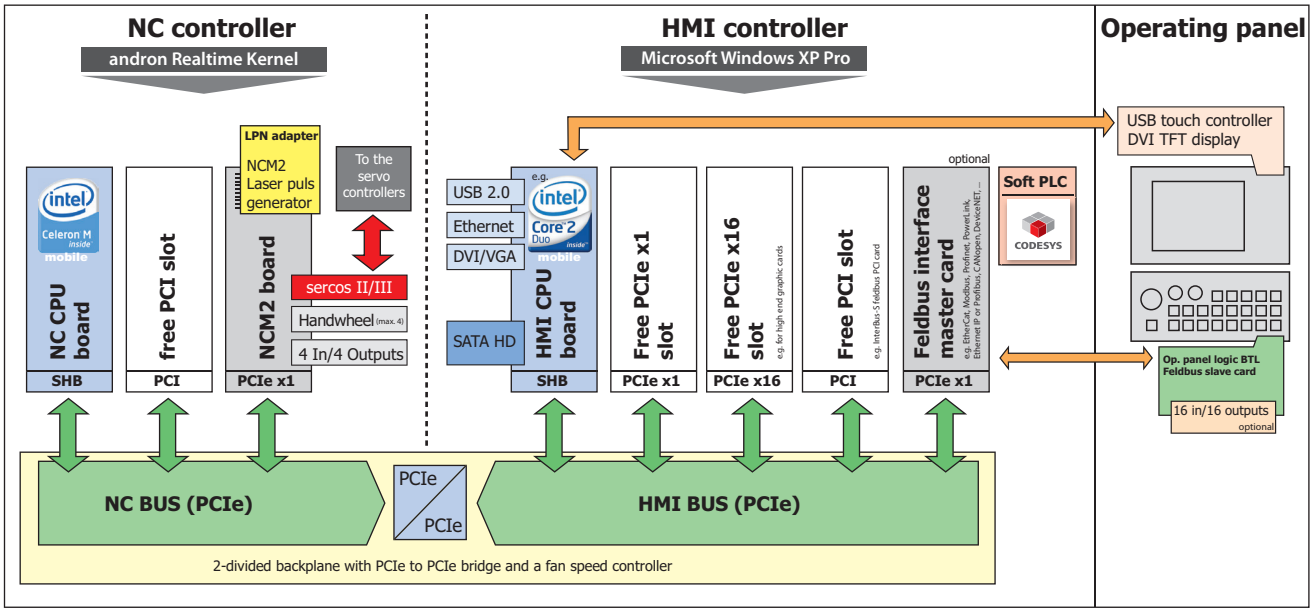
andronic 3060L



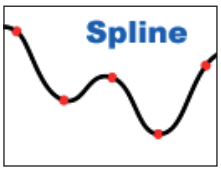
andronic 3060S



andronic 3060L




ACHTUNG !
ATTENTION !
250GB
WD Scorpio
Windows XP Professional
OEM Software
gindron



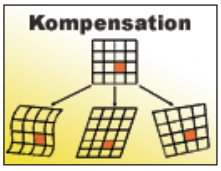
Interpolation

The andronic system supports a large number of interpolation types, allowing simultaneous interpolation of a maximum of 16 axes.

Interpolation types: Linear (G00, G01), circle in the principal planes (G02, G03) and circle in the space (G05), spline contours (cubic B-spline G31 - G35), third degree polynomials (G30), fifth degree polynomials (G305) and contours of a series of linear elements, circles, space circles, third and fifth degree polynomials.

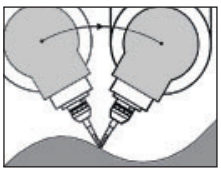
Interpolation speed:

Max. 16 axes simultaneous with a physical axis resolution from 1/10 µm > 300 m/min



Compensation

Various axis and geometry errors can be compensated by the andronic control, i.e. compensation of grid errors, cross errors, temperature errors, axis errors and spindle pitch errors.



Transformation

The andronic system supports complex coordinate transformations, such as translations, rotations, 5-axis RTCP, but also the Cartesian calculation of parallel kinematics (tripod, pentapod, hexapod).

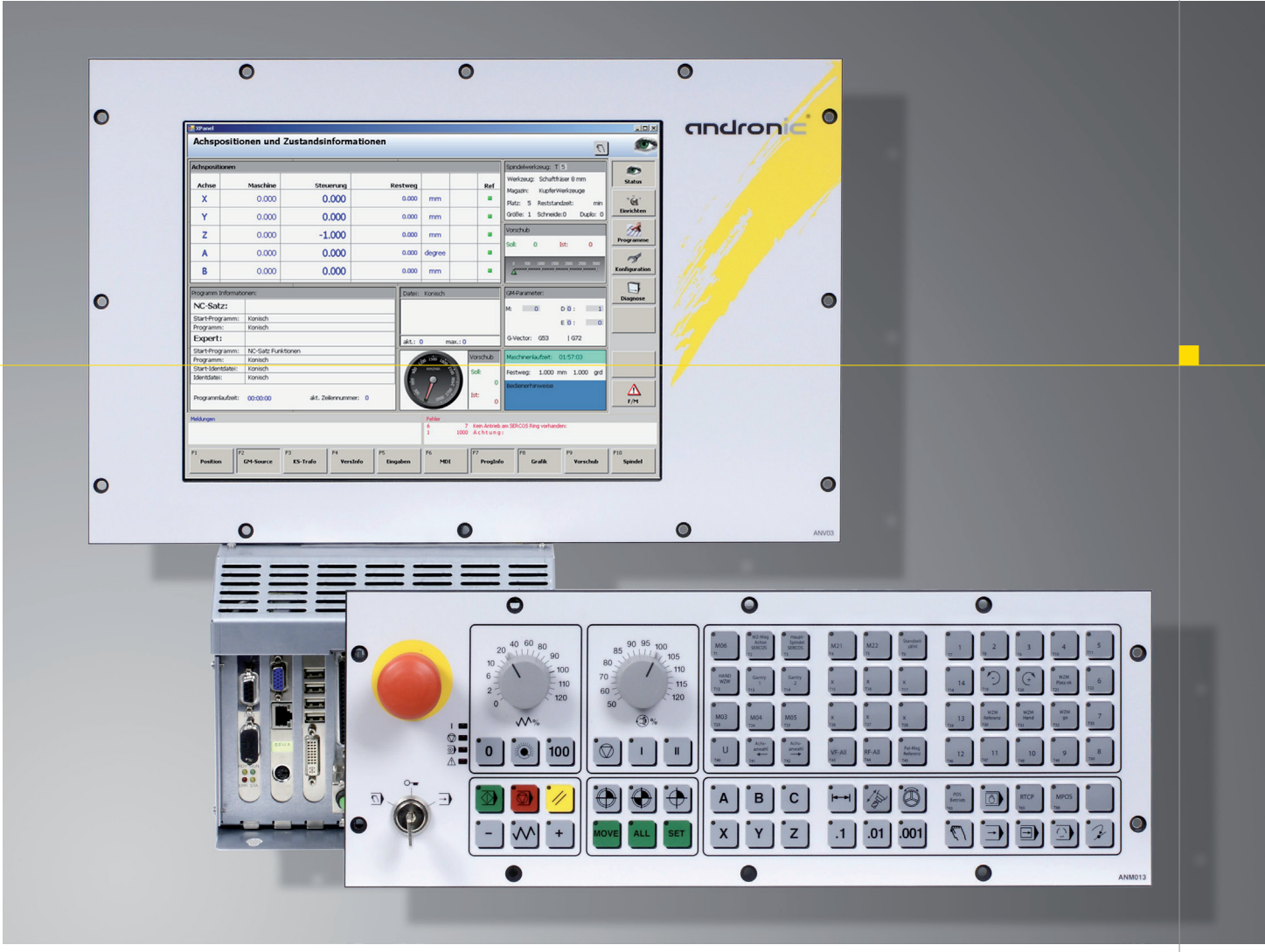


Look Ahead (foresighted CNC)

Dynamic look-ahead buffer providing a foresight of up to 25000 blocks. Symmetric position set point filter for soft contour transitions.

Monitoring of machine limit values (max. axis speed, acceleration, jerk as a result of the active position set point filter).

Monitoring of the programmed geometry (speed control on the basis of the max. contour deviation in conjunction with the active position set point filter).





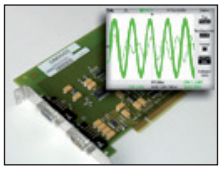
Position set point assignment with 125µs / block cycle time < 100µs

Our CNC drive solution consisting of the open andronic 3060 CNC control and the ServoOne digital drive control units is the fastest one currently available worldwide. Highest computing power in the control system and drive control unit allows for a position set point assignment (sercos cycle time) of 125µs. The sercos interface located between drive and control provides real time synchronisation at microsecond level.



Superimposed, independent coordinate systems

During each CNC process, it is possible to simultaneously move all the 16 axes in a particular coordinate system independently from all the others. Moreover, each process contains independent background jobs for rotating axes, oscillating or execution of recurring contours. The execution of background jobs may also be continued in semi-automatic mode (manual to automatic). The axis movement is a sum of the movements made during execution of all processes and jobs.



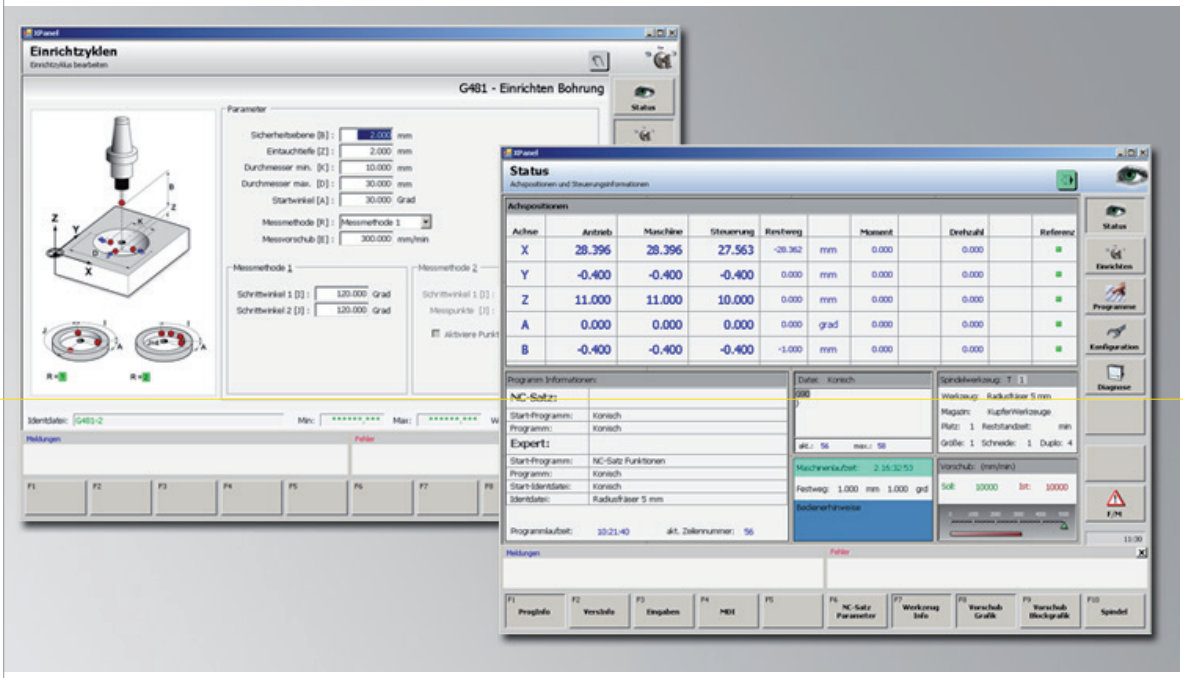
Position-synchronous switching signals using additional hardware

Within a contour resulting from a series of G01, G02, etc, a pulse signal or permanent signal can be switched on or off without exact stop at precisely defined positions (time resolution 10ns) (with 2m/s, this results in a switching position resolution of 0.04µm). The pulse signal is defined by the pulse length (typ. 500 ns) and the pulse interval in mm.

andronic Operating interface XPanel

The pleasantly designed and clearly structured operating interface can be operated intuitive. The Microsoft .NET based panel has a various number of configuration possibilities and can be adjusted problem-free onto the needs of the end user. The use of future-pointing technologies during the development allows a simple migration onto a new Windows® operating system.

Our andronic CNC controls has a wide range of applications from the classical machine applications like milling, honing, grinding and eroding up to high dynamic processing. For this reason we put a lot of value during the design of the new panel in individual adjustment options and a optimal usability.



CODESYS Programming system

With the latest-version **CODESYS V3** you can program the andronic 3060 in the languages of IEC 61131-3. The application of international standards provides for a familiar programming environment and uniform programming methodology, which also minimizes the required training and project planning commitment.
Nevertheless, programming in the current version **CODESYS V2** is still possible.

- Programming in the 5 languages of IEC 61131 and CFC
- Docking Views technology to customize the workspace to your needs
- Project archive for rapid exchange of applications
- Object-oriented programming delivers enormous application benefits
- Context-sensitive online help
- Display and edit variables in online mode
- ‚Online Program Change' function to reduce development lead time
- Break points for error analysis and step-by-step commissioning
- Break points with conditions to detect program errors in an even more targeted way
- Single-step mode for tracking changes
- Watchdog timer



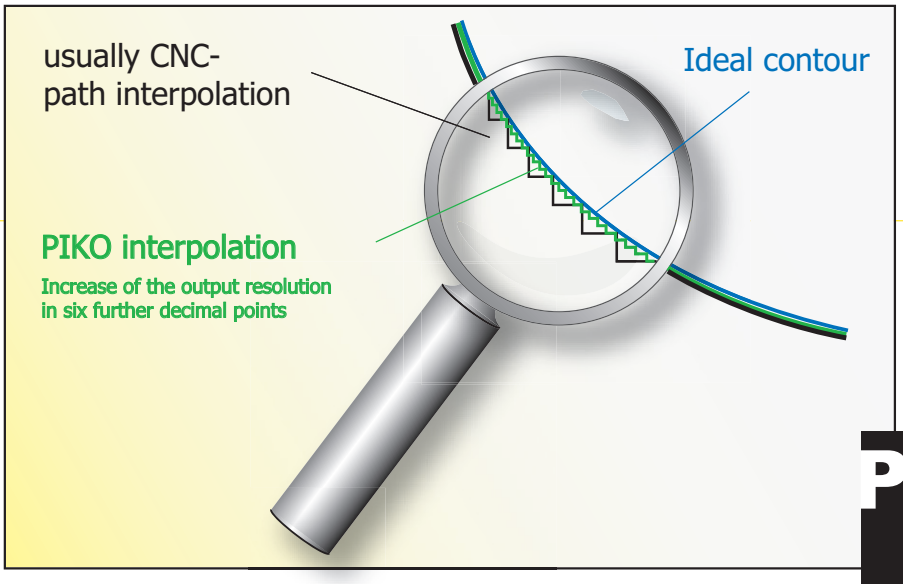
Smoother running and higher surface quality with PIKO interpolation

The output resolution for contour interpolation of the andronic 3060 was increased from $1x10^{-7}$ m (0.0001 mm) to $0.6x10^{-12}$ m (0.0000000006 mm) at a constant interpolation cycle of 125 µsec in up to 16 CNC axes.

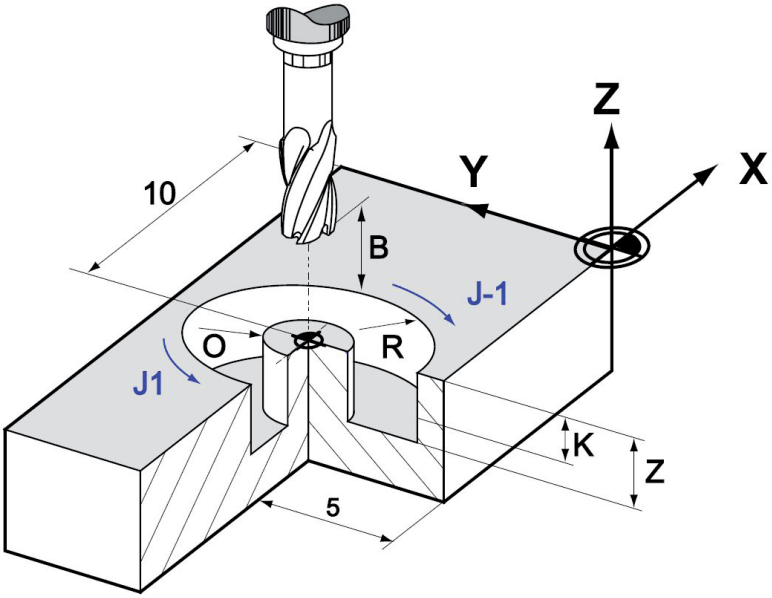
The pico value constitutes the internal computer precision and the output to the digital sercos drives. It should not be confused with the machining tolerance at a machine. (The picometer range is, for example, the range for the structures on the surface of molecules.)

However, the higher computing resolution results in a more accurate interpolation in speed and acceleration of the drives and thus in **smoother running** of the machine tools. This results in a higher **surface quality** of the workpiece produced and in **longer tool lives**. This leads to a welcome reduction in costs in the production sector.

This impressive "interpolation in the pico range" is achieved, among other things, as a result of the highly advanced communication technology and the use of fast Intel processors in the andronic 3060 CNC controls.



PIKO
Interpolation



Programming languages

G&M code programming

The andronic control supports standard G&M code programming in accordance with **DIN 66025 / ISO 6983**.

The NC language and parameter programming functionality is considerably enhanced by the flexible programming **FlexProg**, a programming method known from high-level languages. Programming of complicated processes and calculation is significantly simplified by the use of global and local variables, free definition of functions with call-up parameters and return value and the use of control structures for conditional or repeated execution.

anlog-C programming

CNC programming in anlog-C, high-level language programming in accordance with ANSI C, comprising more than 250 NC-specific commands for simple control/programming of machine tools.

anlog-C has been developed by for the creation of NC programs that are significantly superior to conventional NC programs according to DIN 66025 with respect to flexibility and execution speed.

anlog C®

andronic function interface AFL

The AFL software tool (andronic Function Library) allows fast and easy integration of your own programs and applications, ranging from measurement data evaluation to the entire user interface (HMI), into the andronic CNC control system. Defined commands provide access to all database contents and interface signals.

andron 3Dvision

G&M code visualization, manipulation, model feedback and machine simulation

With its new 3D visualisation and simulation software, LTI Motion sets new standards in the field of virtual metal cutting for the new andronic CNC generation.

The efficient and realistic simulation solution enables analysis, control and optimisation of NC programs already before the machining process.

Collision protection, programming of more complex processes, chronological coordination of axis travels and the exact machining times can be calculated in advance.

The basis of the machining simulation is the exact emulation of the machine tool. Appropriate programmes help you to create your own machine models with collision bodies and clamping systems, both with and without CAD programmes.

In order to comply with the users' requirements, LTI Motion has developed three versions with different functionalities.

andron 3D vision

Simple visualization software with structure analysis and single block simulation to enable direct control of the NC contour which has been programmed.

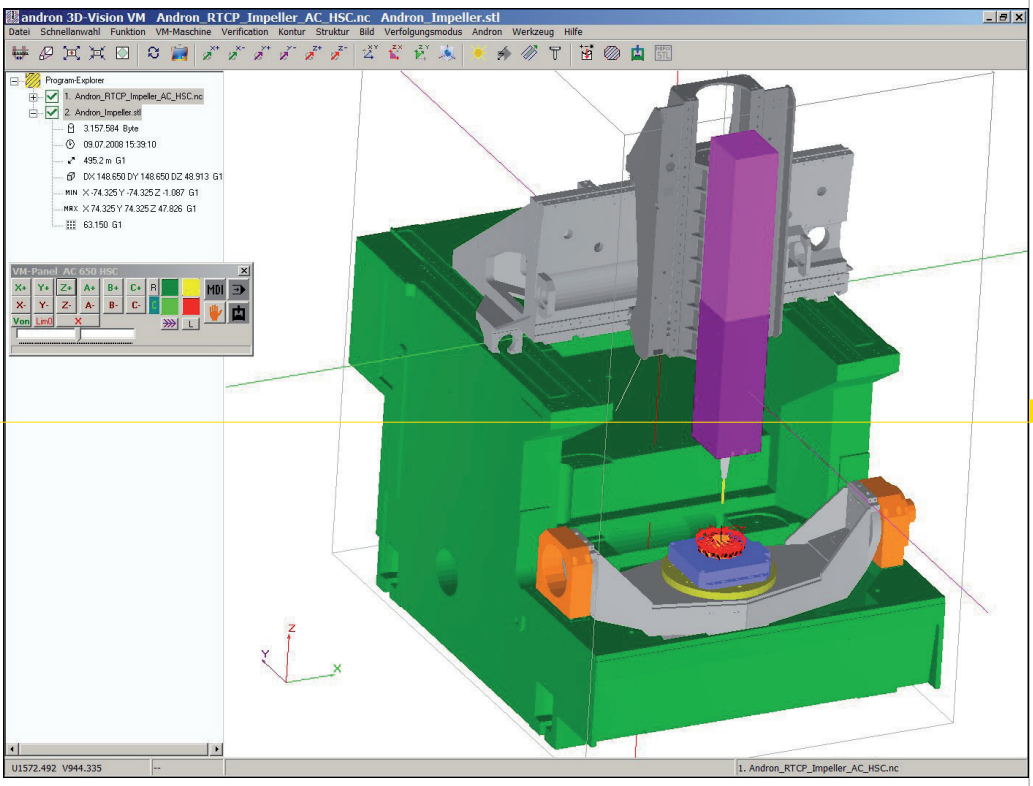
andron 3D vision PRO

G&M code visualization, manipulation, model feedback with integrated postprocessor, access to the andronic data base and many other features.

andron 3D vision VM

Fully integrated machine simulation with complete five-axis collision control and machine builder for creating your own machine models.

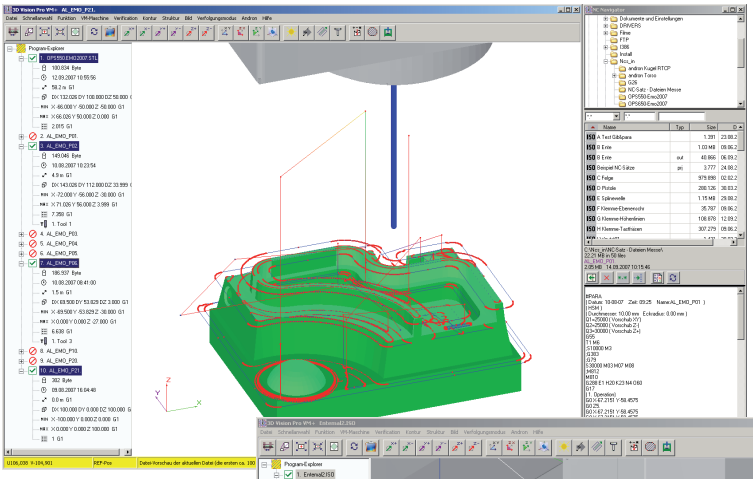
In one sentence: Real down to the last µ

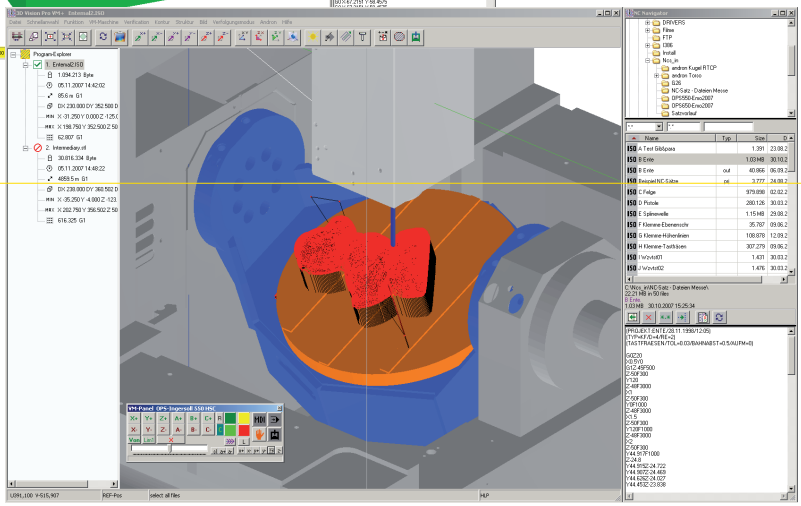


The quality of a workpiece and the cycle time of the machine are substantially determined by the programming and milling strategy of an NC programme. Therefore, optimizing compiled NC codes is all the more important.

Contrary to simulation tools, which are included in the scope of services of different programming systems, we focus on real simulations, i. e. all contour modifications influencing the machining process such as acceleration and brake reaction, tolerance, smoothing constants and other internal influences are taken into account.

The simulation is not based on a mathematical model, i. e. on the internal language of a CAM system, but on the actually generated NC code of the andronic control system.



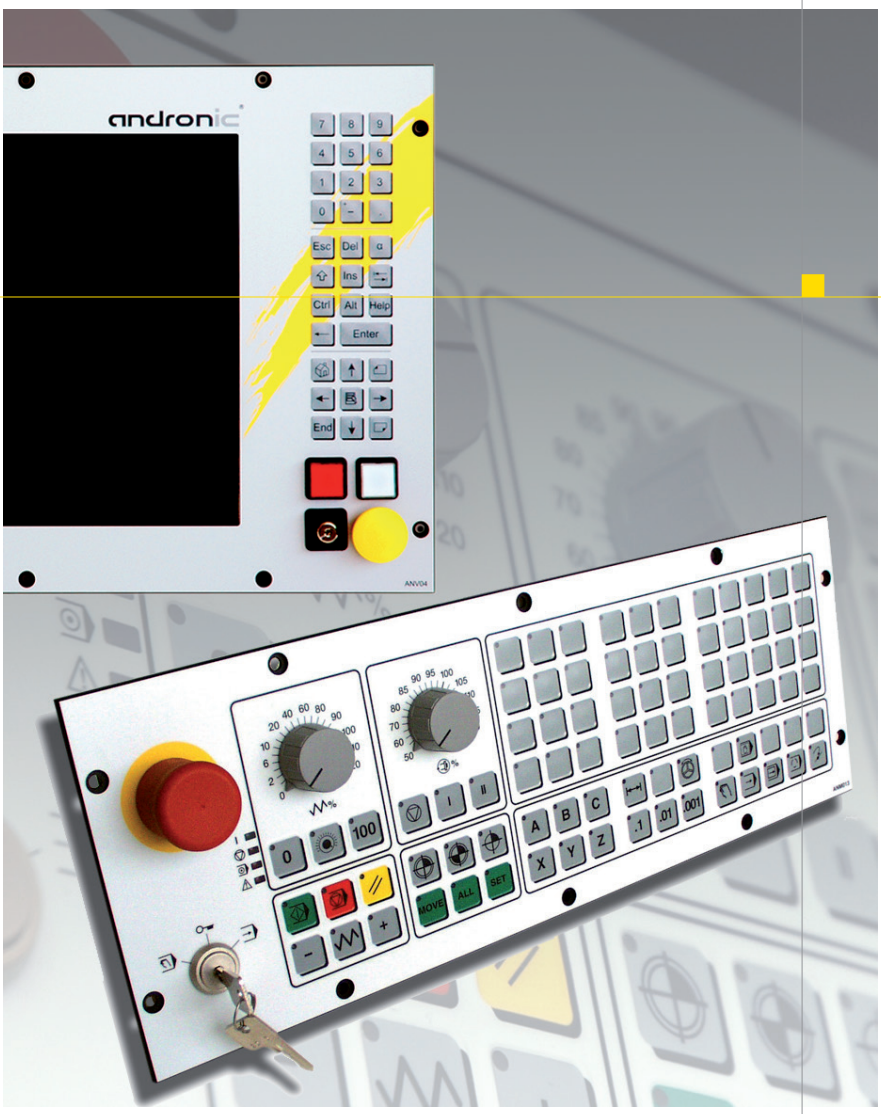


Technical data

	andronic 3060S	andronic 3060L
System		
Backplane	PCIe backplane with PCIe to PCIe bridge with integrated fan speed control	PCIe backplane with PCIe to PCIe bridge with integrated fan speed control
Power supply	24V DC, 150 VA or 115/230 V AC, 50/60 Hz, 200VA	24V DC, 150 VA or 115/230 V AC, 50/60 Hz, 200VA
Housing	Standard „small housing"	Standard „large housing"
HMI controller		
HMI CPU board	Half size slot CPU (Intel) Celeron® M / 1.73 GHz 1-4 GB DDR RAM Graphic-, Ethernet-, USB-, SATA controller onboard	Full size slot CPU (Intel) e.g. Intel® Core Mobile i7 1-4 GB DDR RAM (8 GB / 64 Bit) Graphic-, Ethernet-, USB-, SATA controller onboard
Harddisk	2,5" SATA 320 GB (SSD optional)	2,5" SATA 320 GB (SSD optional)
PLC	integriated soft PLC (CODESYS)	integriated soft PLC (CODESYS)
I/O interfaces	optionally Profibus, CANopen, DeviceNET, EtherCAT, Modbus, Profinet	optionally Profibus, InterBus-S, CANopen, DeviceNET, EtherCAT, Modbus, Profinet,
Operating system	Microsoft Windows® XP® Pro Microsoft Windows® 7 / x32	Microsoft Windows® XP® Pro Microsoft Windows® 7 / x32 Microsoft Windows® 7 / x64
NC controller		
NC CPU board	Half size slot CPU (Intel) Celeron® M / 1.73 GHz with 512 MB DDR RAM	Half size slot CPU (Intel) e.g. Celeron® M / 1.73 GHz with 512 MB DDR RAM
NCM2 board	NC multifunction board II with: - sercos II / III interface - up to 4 handwheels - fast I/O inputs - Laser puls generator (optional)	NC multifunction board II with: - sercos II / III interface - up to 4 handwheels - fast I/O inputs - Laser puls generator (optional)
Operating system	andronic realtime kernel	andronic realtime kernel
General		
Protection cat.	IP20	IP20
Temp. range	+5°C ... +45°C	+5°C ... +45°C
Dimensions	214 x 329 x 171,5 (WxHxD)	293 x 394,5 x 171,5 (WxHxD)









Display control panel ANV03

The ANV03 display control panel is equipped with the following components and interfaces:

- 15" TFT display (XGA)
- Touch screen
- 7-fold USB controller
- standard VGA and DVI interface
- standard dimensions 19" x 7 HE
- (Special versions upon request)



Display control panel ANV04

In comparison with the ANV03, the display control panel ANV04 has the following additional features:

- 32 additional keys for direct input
- four control switches can be integrated

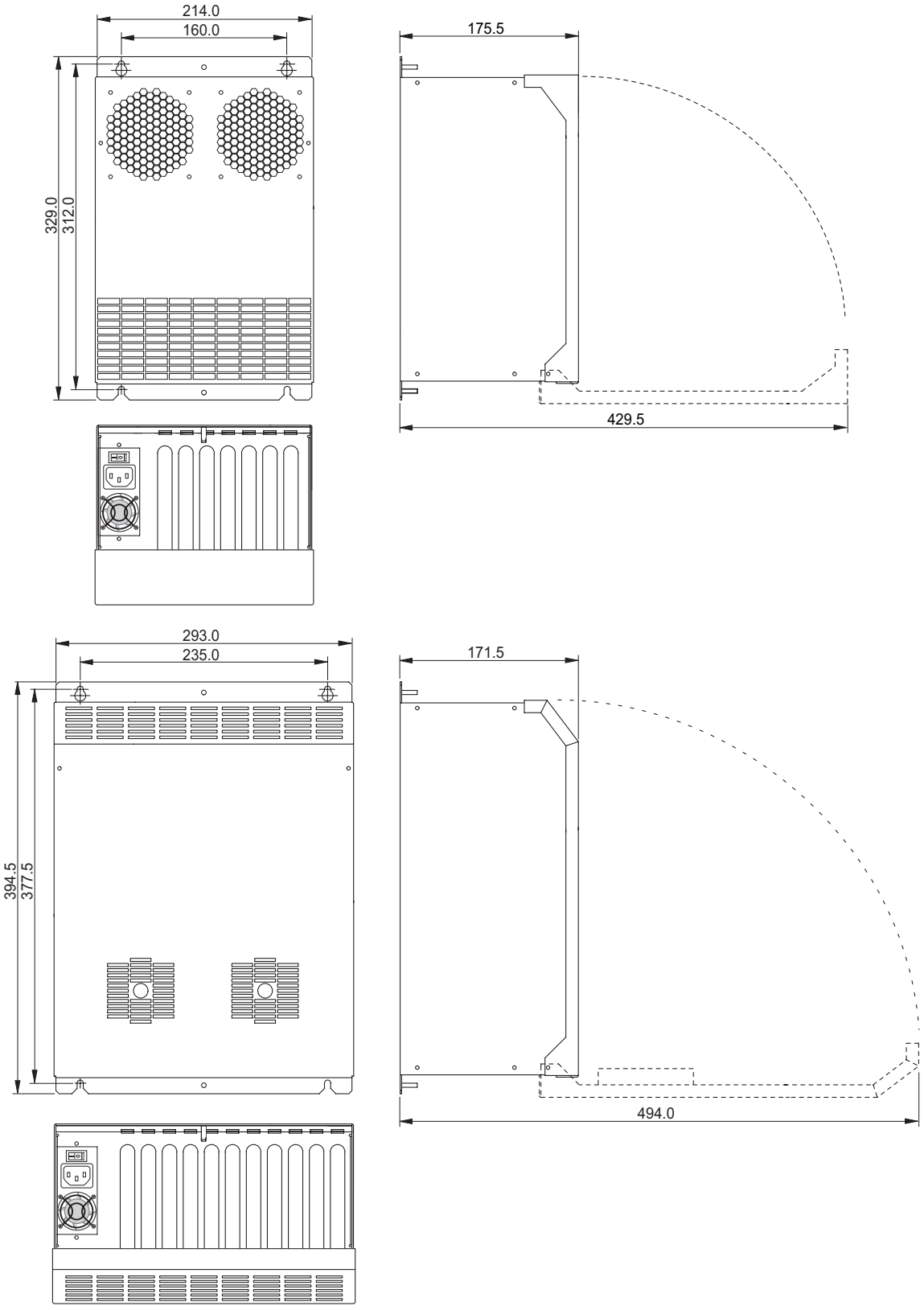


Machine control panel ANM013

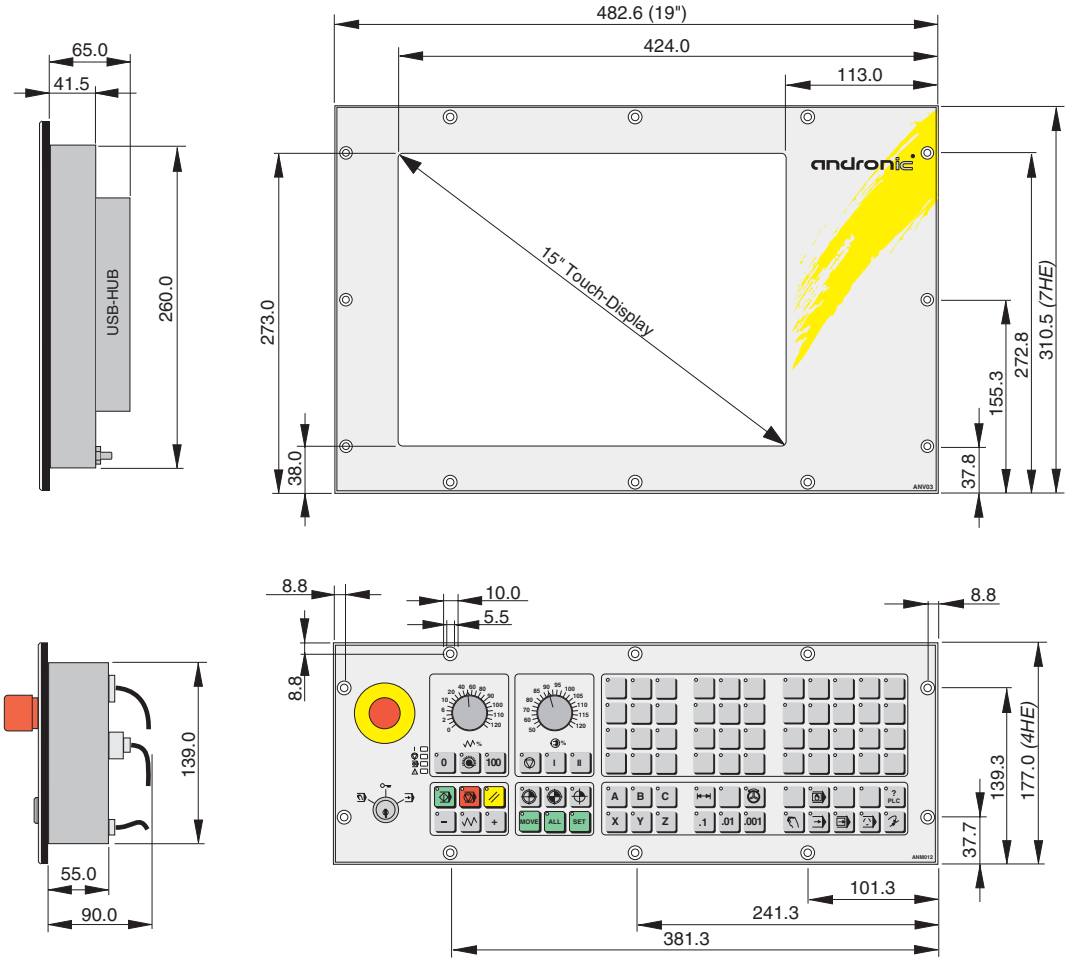
The machine control panel is equipped with the following components and interfaces:

- Profibus or InterBus-S interface
- 44 free assignable machine keys
- EMERGENCY STOP button
- override switches for spindle and feedrate
- 16 inputs/outputs
- connection for further I/O modules
- key switch for operating modes
- Standard dimensions 19" x 4 HE

andronic 3060 Dimensions







	ANV03/04	ANM013
Protection	IP 64 (front), IP 20	IP 64 (front), IP 20
Input voltage	24 V DC	24 V DC
Power consumption	max. 75 VA	max. 225 VA
Temperature range	+5°C ... +45°C	+5°C ... +45°C

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