Overview ARS 2000

Product description

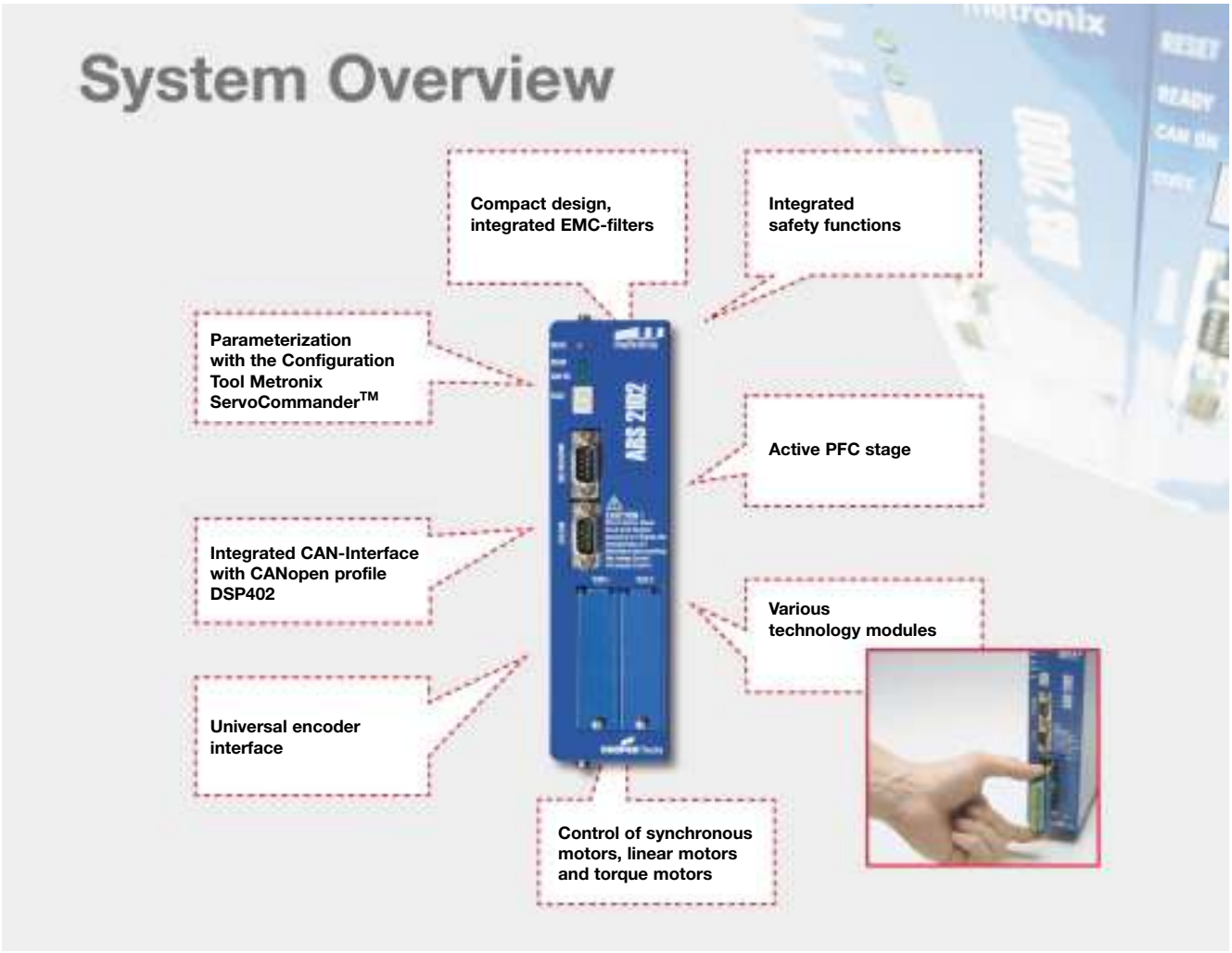
The ARS 2000 servo positioning controllers (ARS servo 2nd generation) are intelligent AC servo inverters with many parameter setting and extension options. They are flexible and can be easily adapted to a number of different applications.

The ARS 2100 series includes types with single-phase supply and the ARS 2300 series types with three-phase supply.

In addition to point-to-point positioning, speed and angle synchronization with electronic gear, the CANopen protocol DSP402 allows the implementation of contouring controls with linear interpolation as well as time-synchronized multi-axis applications. The ARS 2000 communicates with a PLC via fieldbus like the integrated CAN Interface or fieldbus modules, e.g. with PROFIBUS or SERCOS.

The servo positioning controllers can be used universally since they can be connected to various encoder systems and motor types.

With the menue-driven configuration tool Metronix ServoCommander™ and the automatic motor identification, the ARS 2000 quickly and comfortably adapts to your requirements.



Features

Compact design

- Small dimensions
- Directly connectable to each other
- Complete integration of all components for controller and power module including RS232 and CAN interface
- Integrated brake chopper
- Integrated EMC filters
- Compliance with current CE and EN standards without additional external measures

Control of different AC motors

- Synchronous motors
- Linear motors
- Torque motors

Universal encoder interface

- Integrated universal encoder evaluation for the following encoders:
  - Resolver, high control quality due to extremely good sensor technology
  - Incremental encoder with/without commutation signals
  - High-resolution Stegmann incremental encoders, absolute encoders with HIPERFACE
  - High-resolution Heidenhain incremental encoders, absolute encoders with EnDat

Extension and fieldbus modules

- EA88 I/O extension module
- PROFIBUS-DP
- SERCOS
- Ethernet
- Service flash module

NEW - EtherCAT and DeviceNET

Control of different motor types

Extension and fieldbus modules

Features

Integrated CANopen interface

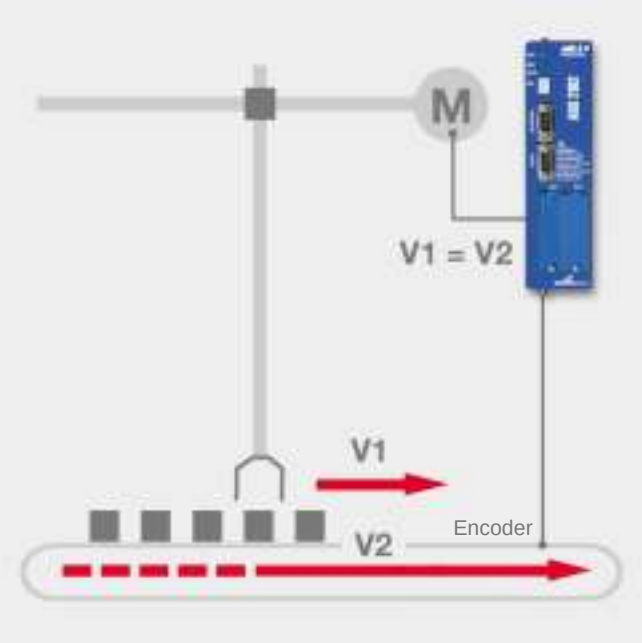
- Open interface with CANopen fieldbus
- Protocol in accordance with CANopen standard DS 301 and DSP 402
- Including “interpolated position mode“ for multi-axis applications

Motion control

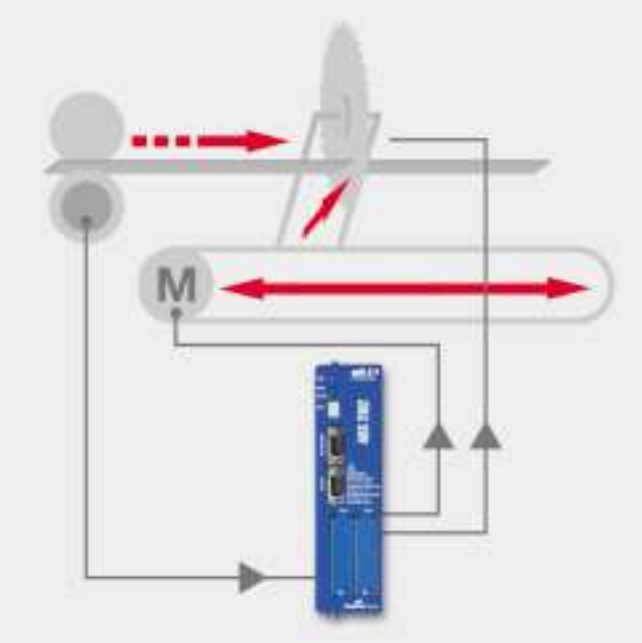
- Operation as speed, torque and positioning controller
- Integrated positioning control
- Time-optimized positioning or jolt-free positioning (S-shape)
- Relative and absolute movements
- Point-to-point positioning with or without active positioning profile
- Speed and angle synchronization
- Electronic gear system
- 256 freely programmable position sets
- Various homing methods
- Flying saw

Integrated sequence control

- Moving position sets without external PLC
- Linear and cyclic position sequences
- Adjustable delay times
- Branches and wait positions
- Freely programmable stop position for safe stop



Synchronization of a Pick and Place station



Flying saw

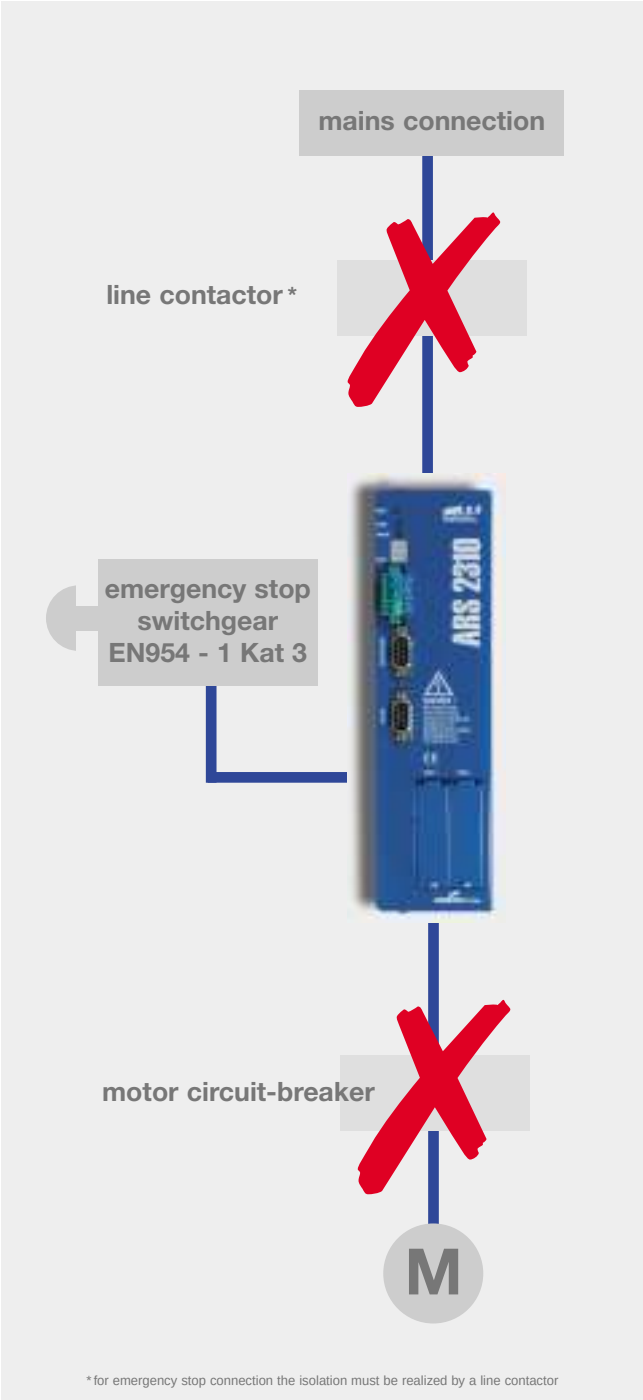
Features

Integrated power factor control (PFC)

- Integrated in ARS 2100 series
- Compliance with current standards regarding mains harmonics (EN 61000-3-2) without external components
- $\cos_\phi$ = 0.97 at rated operation
- Digital control of the DC-bus voltage to an average value of 360 VDC
- Capable to take a certain amount of mains fluctuations
- 30% higher speed values possible
- Use of motors with higher torque constants at identical power ratings

Integrated safety functions

- Integrated safe stop according to EN 954-1 category 3
- Protection against unexpected movements
- Two channel switch off for the power stage
- BGIA certified
- Less external safety components required
- Short response times in case of failure
- Quick restart, DC-link remains loaded
- Extension module with additional safety functions such as active stop, safe reduced speed, etc.



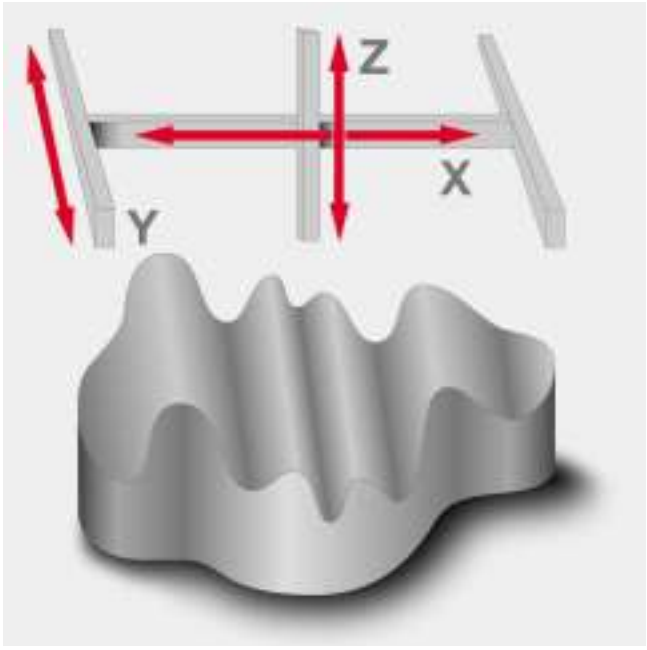
Safe stop: reduced external components

Features

Interpolated multi-axis movements

Due to the implementation of the interpolated position mode via CAN-bus or SERCOS, position setpoints can be set for multi-axis use of the controller.

In this mode, position setpoints are specified by a subordinated control at fixed intervals. If the interval is longer than a position controller cycle, the controller automatically interpolates the data values between two specified position values.



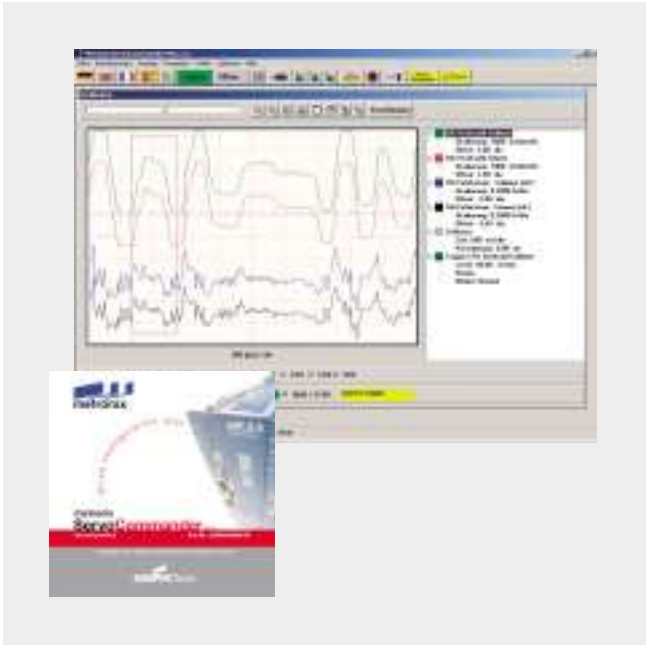
Interpolated multi-axis movements

Input / Output

- Freely programmable I/Os
- High resolution 16 Bit analog input
- Jogging
- Easy connection to a PLC via I/O or fieldbus
- Serial communication via RS 232

"Metronix ServoCommander™" configuration tool

- Easy first commissioning and diagnosis
- Adjustment of all parameters
- 4 channel oscilloscope function
- Multilingual



Metronix ServoCommander ™

Technical data

Range	Values	
Permissible temperature ranges	Storage temperature:	-25 °C to +70 °C
	Operating temperature:	0 °C to +40 °C +40 °C to +50 °C with a power derating of 2,5% /K
Permissible altitude	Up to 1000 m above msl, 1000 to 4000 m above msl with power derating	
Atmospheric humidity	Rel. humidity up to 90 %, non-condensing	
Type of protection	IP20	
Pollution class	1	
CE conformity Low voltage directive: EMC directive: Current harmonics:	 EN 50 178 EN 61 800 - 3 EN 61 000 - 3 - 2	
Other certifications	UL / cUL	
Inputs	10 x digital in (24 V) 3 x analog in (± 10 V, 2 x 10 Bit, 1 x 16 Bit)	
Outputs	4 x digital out (24 V) 1 x digital out (24 V) for brake 2 x analog out (± 10 V, 9 Bit)	
Interfaces	Standard: RS 232 (RS 485), CAN-Bus (CANopen DSP 402) Optional: digital EA88 I/O extension, PROFIBUS-DP, SERCOS, Ethernet NEW - EtherCAT, DeviceNET	
Encoder evaluation	Universal encoder interface for motors with: Resolver, incremental encoder, SinCos-encoder (single-/ multiturn) with HIPERFACE, high resolution Heidenhain encoder as well as multiturn absolute encoder with EnDat-Interface	

Type key:
Example ARS 2305

ARS – 2 3 05

- **05** — **RMS output current**
- **3** — **Power supply line:**
  1 = single-phase
  3 = three-phase
- **2** — **2nd generation**
- **ARS** — **Type denomination**

Technical data

Type	ARS 2102	ARS 2105
Supply voltage	1~ 100...230 V AC [± 10%]	
DC-supply voltage	60...380 V DC	
Control voltage	24 V DC [± 20%]	
DC-link voltage	360...380 V DC	
Clock frequency	Variable clock frequency up to 13 kHz	
	Data for operation at 1~ 230 V AC, 50 Hz	
Rated power	0.5 kW	1.0 kW
Maximum power up to 5 s	1.0 kW	2.0 kW
Rated current	2.5 A_{eff}	5 A_{eff}
Peak current up to 5 s	5 A_{eff}	10 A_{eff}
Internal brake resistor Rated / pulse power	165 Ω 10 W / 1.1 kW	110 Ω 20 W / 1.6 kW
External brake resistor Max. rated brake power	≥ 100 Ω ≤ 250 W	≥ 80 Ω ≤ 500 W
Brake	24 V DC, max. 1 A	
Dimensions w x h x d	200 x 54.5 x 200	225 x 54.5 x 200
Weight	2.0 kg	2.1 kg
Order no.	**9200-2102-10**	**9200-2105-10**
Power connector set	**9200-0210-00**	**9200-0210-00**
Signal connector set	**9200-0200-00**	**9200-0200-00**

ARS 2102 and ARS 2105