ABB industrial drives
ACS880 position control, 0.55 to 6000 kW

Wide power range and various drive variants make the ACS880 position control ideal for any axis. Motion functions are based on PLCopen motion control blocks and can be easily configured by parameters. Programming flexibility and connectivity to all motors and PLCs ensure optimized solutions for production machinery and material handling applications.

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Power and motion for any axis

ACS880 – powering any axis
A wide power and voltage range, hardware variants ranging from modules to high protection class drives and extensive option selection combined with the capability for speed, torque and position control, enable the use of the ACS880 in all applications throughout one manufacturing line. Position control is available with all ACS880 drive variants including regenerative drives that can feed braking energy back to the network.

Optimized total cost
Ready-made control functions enable decentralized motion systems eliminating the need for external position controllers. The total cost is further reduced by embedded features, such as synchronized drive to drive communication, integrated safety and possibility for encoderless positioning and enclosure-free installation.

Simplicity
Everything is provided in a single, compact package for simplified engineering and installation. Advanced motion and synchronization functions are available through a simple parameter interface.

Flexibility
Ready-made control functions can be modified and extended by IEC61131 programming using PLCopen motion blocks. Additional flexibility is offered by the ACS880's support for virtually any type of motor, feedback device and communication protocol.
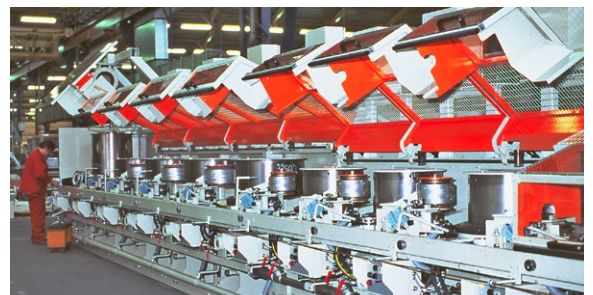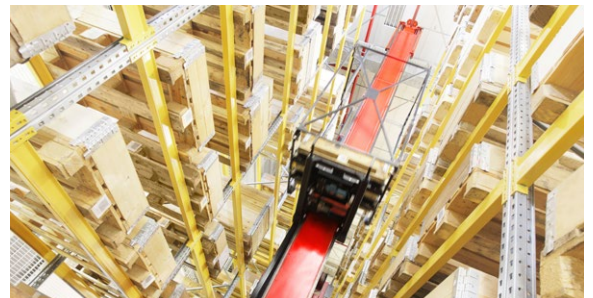
Technical data

ACS880 position control program (+N5700)

Motors and feedback

Motors	Asynchronous, permanent magnet (servo and high torque), synchronous reluctance motors
Feedback devices	HTL, TTL, sin/cos, EnDat, Hiperface, SSI, resolvers

Position control functions

Homing	Different modes with home switch, and index pulse
Absolute/relative positioning	Linear/rotary/modulo
Profiled positioning	Target position, velocity, acceleration/deceleration, jerk 8 predefined sets via DI/fieldbus Target change on the fly
Position synchronizing/ electrical shaft	Reference via master encoder, drive to drive link, virtual master or fieldbus
Fast position latching	With 2 position registers for homing, position correction
Jogging	Adjusting an axis while maintaining smooth position control

Control performance

Position control loop	500 µs
Drive-to-drive link synchron	500 µs
Speed control loop	500 µs
Torque control loop	125 µs

Programmability

IEC61131 programming	Ladder, IL, CFC, FBD, ST, SFC
Motion control library	PLCopen motion function blocks and additional ABB specific blocks
Adaptive programming	50 blocks for flexible adjustments
Programming tools	Drive application builder for IEC programming Drive composer for adaptive programming

ACS880 drive product family

Power and voltage range	0.55 to 6000 kW, 3-phase, 230 to 690 V
Enclosure	IP00 to IP55
Configurations	Single and multidrive (common DC)
Mounting	Wall-mounting up to IP55, stand-alone cabinet-built, modules for cabinet mounting, flange (push through) mounting
Supply side variants	Integrated or separate supply modules for diode, ultra-low harmonic or regenerative supply

Functional safety

Supported functions	Safe torque off (STO), Safe stop 1 (SS1), Safe stop emergency (SSE), Safe brake control (SBC), Safely-limited speed (SLS) with/without encoder, Safe maximum speed (SMS), Prevention of unexpected startup (POUS), Safe direction (SDI), Safe speed monitoring (SSM), Safe temperature monitoring (SMT)
Safety data	PL e, SIL 3
Safety communication	PROFIsafe over PROFINET IO

Key features

Easy to implement, control and maintain a whole manufacturing line
- Available with all ACS880 drive variants
- Common all-compatible user interface and hardware for position controlled and speed/torque controlled ACS880
- Common spare parts

Ready-made, built-in motion control functions
Easy implementation via parameter interface.

IEC61131 programming with PLCopen motion blocks
Well-known implementation. No need to learn a new programming environment.

Possibility for encoderless positioning and position synchronization
Lower total cost with improved reliability.

Built-in synchronized drive to drive link
No need for external motion controllers or real-time networks.

Supports all types of rotary AC motors and various feedback devices from any motor supplier

Support for all common communication protocols

Removable memory unit with drive software and settings
Easy software upgrades and drive replacements.

Cost and time savings with integrated functional safety features

9-year maintenance interval
Minimized machine downtime with long lifetime components and global service network.