

Nidec

Drives



Product portfolio



Contents



About us	4
AC Drives	14
General purpose drives	14
Commander	
High performance drives	26
Unidrive	
Freestanding drives	40
DFS Series	
Specialist drives	44
Elevator	
Pump	
HVAC	
Servo drives	62
Unidrive	
Digitax HD	
Digitax SF	
Motors	70
Servo motors	70
Unimotor hd	
DC Drives	72
Mentor MP	
Industrial control	76
PLC Controlled Motion	
HMI Panels & Software	
Remote I/O	
MCe Machine Controller	
MCz Industrial PC	
Drive Options	
Our expertise	90
Integrated Safety	
Service & Support	96

Electric drives

Creating the world's motion

We provide electric drive solutions that add value to our world, from the production of food, movement of materials and people, to keeping us comfortable in any environment.

Our precision engineered drives are designed to improve performance, efficiency, and productivity.

Present in over 70 countries, we are a truly global drives manufacturing business. This means we are always close to our customers, can speak to you in your own language and can guarantee fast, efficient service and support when it's needed.



5-year warranty as standard*

Our drives are so reliable we are confident enough to supply them with a five-year warranty as standard.

Now you can buy with the same confidence.



*Warranty terms and conditions apply. Control Techniques products only.

Here's what Makes us different



Outstanding performance

The outstanding performance of our drives is the fruit of over 50 years of engineering experience in drive design.



Embedded intelligence

Precision motor control is combined with the highest embedded intelligence, ensuring maximum productivity and efficiency of your machinery.



Technology you can rely on

Robust design and the highest build quality ensure the enduring reliability of millions of our drives installed around the world.



Open design architecture

Based on open design architecture, our drives integrate with all leading communication protocols.



Local support

Highly experienced, locally based application and sales engineers design and support drive technology to provide maximum value, wherever you are in the world.





5 Global R&D Facilities

feeding

5 Global Manufacturing Sites

building more than

1 million drives a year

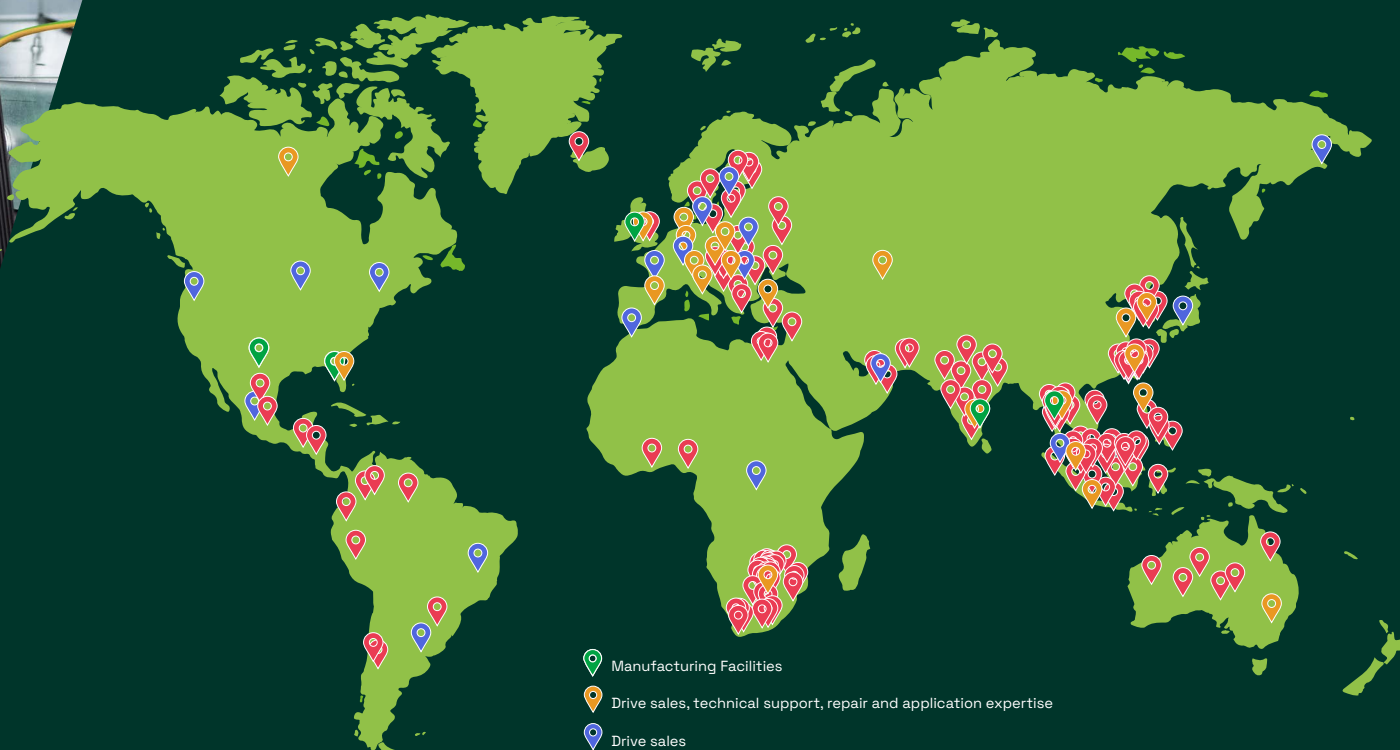
shipping to

23 Drive Centres & 740 Partners

serving

70 countries

and growing



- Manufacturing Facilities
- Drive sales, technical support, repair and application expertise
- Drive sales
- Country Partners

We're looking forward Future proofing with Industry 4.0

Manufacturing Automation

The term Industry 4.0 has been used a lot in the past few years.

And for some it's almost become a buzz word that doesn't really have any meaning. That's understandable. Allow us to explain what Industry 4.0 means to us.

Defining what we mean by Industry 4.0

Industry 4.0 relates to the fourth industrial revolution. A point where IT and physical equipment converge. It marks the stage where no longer are we making decisions based on gut feeling and experience, instead solid trends of data dictate equipment behaviour. It goes beyond just a single machine, & can encompass whole factories, if not companies, on a global scale.

The growing momentum of Industry 4.0

It's a grand concept, so it's understandable that for many businesses the idea of total system integration is a long way off.

It is for this reason that we developed a piece of research to see what is really holding businesses back from exploiting the possibilities of Industry 4.0.

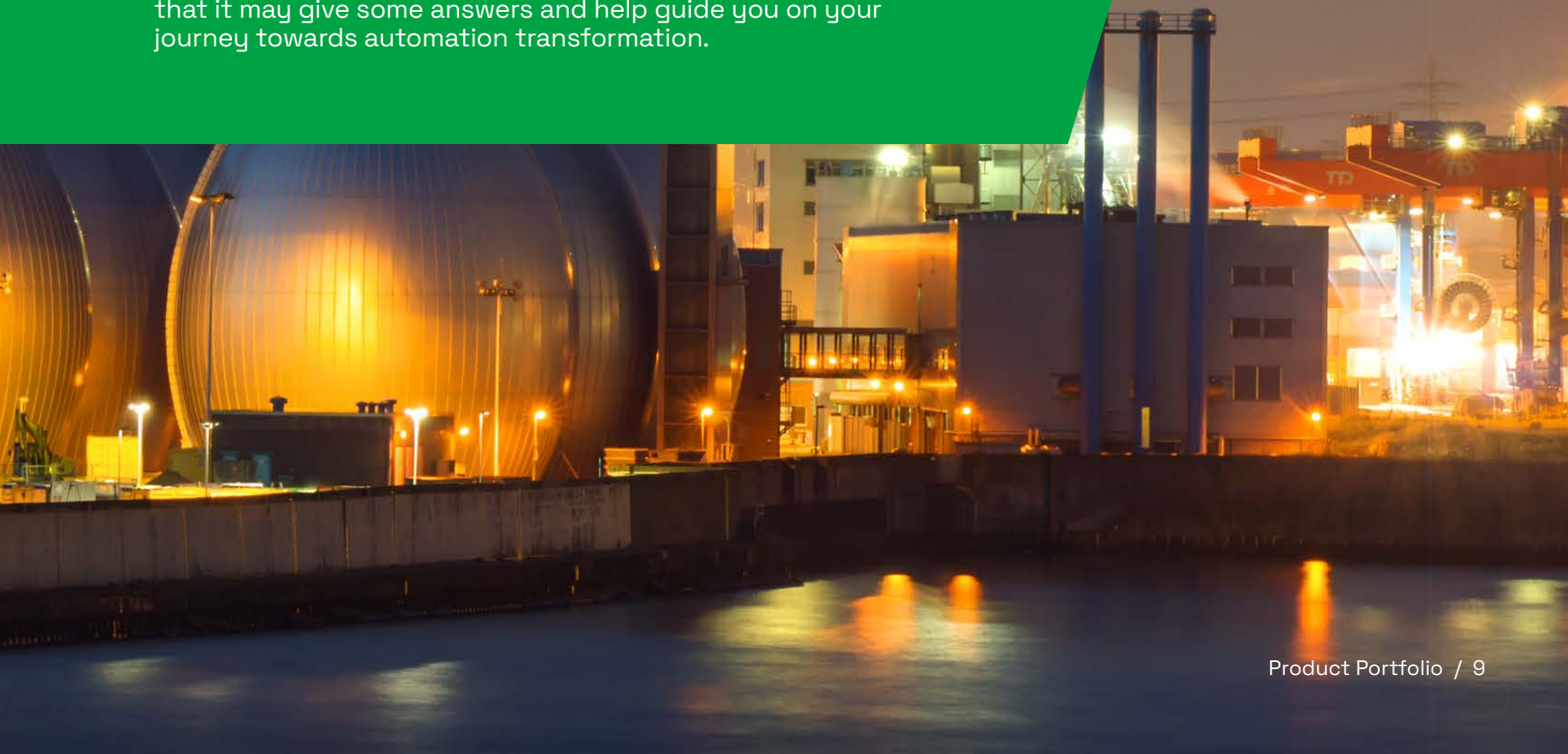
Just take a look at the disruption innovative businesses like Amazon, Google and Apple have created. Each has ran with emerging technology. It's clear that those ahead of the game will greatly benefit.

Manufacturing automation research background

We asked a number of people working in automation how they felt about Industry 4.0.

Our goal was to analyse awareness & attitudes.

Our sample base came from businesses across the globe who operate in a wide range of sectors. We've taken the key points that came from the research and made this document. We hope that it may give some answers and help guide you on your journey towards automation transformation.



Automotive / Commercial &
Manufacturing / Cranes & Hoists /
Energy / Elevators / Entertainment
& Leisure / Fans & Pumps / Food &
Drink / Glass / Machine Tool /
Material Handling / Medical /
Metals / Mining / Packaging /
Paper / Printing / Process /
Stage & Theatre / Steel /
Test Rigs / Textiles / Water /
Wind / Wire / Wood Working

Progressive...



Driving the world with Class-leading motor control products

Control Techniques is 100% focused on delivering world-class variable speed drives and power conversion technologies that are used in industry, commerce and renewable energy schemes.

Our motor control solutions help businesses to significantly reduce energy costs and improve their operating efficiency.



General Purpose Drives

Commander

S100
C200
C300



High Performance Drives

Unidrive

M700
M600
M400
Extreme Power



Freestanding Drives

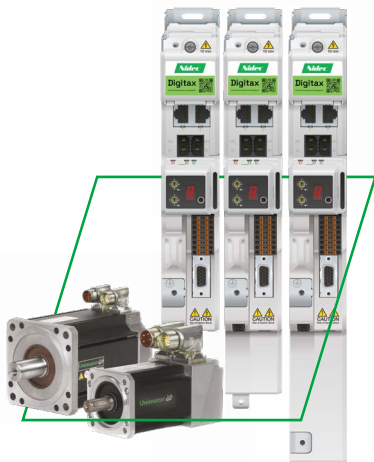
DFS Series

DFS Series



Specialist Drives

Elevator Drive E300
Pump Drive F600/IP65
HVAC Drive H300/IP65



Servo Drives & Motors

Digitax

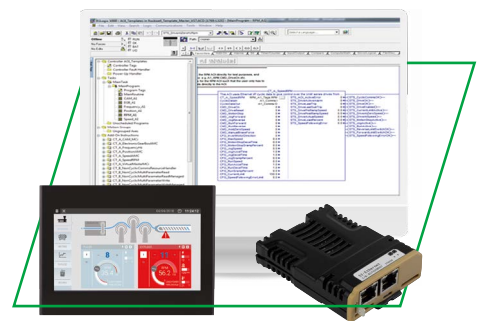
Digitax HD Series
Digitax SF
Unimotor HD



DC Drives

Mentor MP

Mentor MP



Industrial Control

PLC Controlled Motion
MCH040, MCH070, MCHMobile
Remote I/O and EtherCAT I/O
MCE Machine Controller
MCz Industrial PC
Integration Modules

General Purpose Drives

Commander

Products in this range

Commander C200 | C300 | S100



5-year warranty as standard*

Our Commander series is so reliable we are confident enough to supply it with a five-year warranty as standard.

Now you can buy with the same confidence.

*Warranty terms and conditions apply.

Commander Applications



**Pumping, Ventilating
& Compressing**



Moving Applications

conveyors, treadmills, automatic
doors & barriers



Processing

mixers, crushers, agitators,
centrifuges, kneaders, spinning
& braiding machines for textile



**Lifting, Hoisting
& Winching**



Commander C

Simple, reliable motor control

0.25kW - 132kW (0.33 hp to 200hp) 100 V | 200 V | 400 V

The new Commander C series has been designed to be a simple and reliable AC motor speed controller that meets advanced requirements in a wide range of applications and provides optimum user experience. Now with a free five-year warranty*.

Value Proposition:

- 1 Improved machine productivity**
Commander C provides superior motor control for a broad range of general applications.
- 2 Lower start up costs**
Easy & fast installation, online start-up guides & videos.
- 3 Common control philosophy**
For both our general purpose and high performance drives.
- 4 Lower system costs**
Advanced control with extensive on board feature set, PLC and plug-in option modules.
- 5 Commander brand**
A platform that has driven continuous technological advancements since 1983.
- 6 5 year free warranty**
Guaranteed quality (Terms and conditions apply).



*Warranty terms and conditions apply.



Equipped with the latest energy saving features

The latest energy-saving technology means you get high productivity and low running costs.

Plug-in options for advanced control

The plug in communication modules enable integration with a wide range of industrial fieldbuses.

Straightforward installation and commissioning

For a quick motor set-up the key parameters are printed on the front of the drive so you can be up and running within seconds.

Dual Safe Torque Off (STO)

Commander C300 (only) features a Dual Safe Torque Off input, certified to SIL3/PLe safety rating and compliant with EN/IEC 61800-5-2.

Set just four parameters to get your drive started

Simply select the motor rated current, RPM, voltage and power factor from parameters 6 to 9.

Wide availability and outstanding service

Through our local Drive Centres.



Commander S

0.18 to 4 kW (0.25 to 5 hp)
1Φ 100 & 200 V, 3Φ 200 & 400 V
Linear V to F, Square V to F, Resistance
Compensation

Take charge of motor control and energy savings with the latest addition to the Control Techniques portfolio. With a feature set optimised for simple applications, Commander S provides a cost-effective solution for installations that require plug and play convenience straight from the box.

Commander S is the first drive to come with an app interface as a standard feature. The Marshal app is our revolutionary way to interface with the drive covering commissioning, monitoring, diagnostics and support.



Easy to install

The sleek curved design of Commander S optimises component layout for a small footprint and easy access to terminals. The click-on/click-off DIN rail mount makes installation remarkably easy.



5-year warranty as standard*

Our Commander S series is so reliable we are confident enough to supply it with a five-year warranty as standard.

Now you can buy with the same confidence.

*Warranty terms and conditions apply.



Easy to use

Using our new Marshal app (Android/iOS) your drive can be configured in under 60 seconds.



Reliable

Durability is at the core of Commander S design, guaranteeing performance throughout its whole lifetime.



Cost effective

Equipped with unique features designed to save you time, energy and money.



Cost effective

- Intelligent fan control reduces energy usage.
- Easy integration to automation via the onboard ModbusRTU.
- Integrated C1 EMC filter variants can operate in EMC-sensitive environments such as residential areas, without requiring additional external filters.
- Environmentally friendly – meets ECO design regulations.



Easy to install

- Simple to fit with click on/click off DIN rail mounting.
- Angled and offset screw terminal connectors for easy access and fast installation.
- The small footprint and side-by-side installation saves cabinet space.



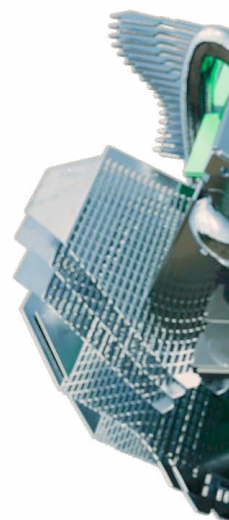
Easy to use

- Marshal App interface enables drive set-up in only 60s.
- Simple setup routines tailored to your application.
- FastStart commissioning menu – only 4 simple steps to get your motor running.
- Full flexibility in choosing your preferred interface; Marshal App, drive keypad, Connect PC Tool.
- A PIN can be set on the drive or Marshal to restrict unwanted access.



Reliable

- 100% conformal coating ensures moisture, corrosion and dust protection.
- Free 5 Year Warranty gives peace of mind.
- Latest generation of components from trusted suppliers, for robust performance and long term reliability.
- Keep running by default allows for continuous run during unusual loadings or operating conditions.





Marshal Revolutionise the way you interface with your drive

Control Techniques has a long tradition of challenging the status-quo with innovative ideas and making a profound impact in the drives industry. And we've done it again with Marshal: Control Techniques is the 1st drive supplier to implement NFC technology as standard on a drive and offer the Marshal app interface at no extra cost.

Marshal is your drive expert in the field. This rich content interface means you can commission, clone, diagnose system issues and monitor the drive in just a few screen taps.

Download the Marshal app





Powered by NFC* technology, data transfer between the drive and mobile device takes less than 0.5s.



App Tap Go

Just bring your phone near the NFC logo to connect to the drive

Marshal

Your drive expert in the field

Commissioning

- Power off or on commissioning (even in the box).
- FastStart – assisted commissioning. Only 4 simple steps to get you up and running.
- Advanced features available in parameter setting.
- Pre-set application configurations.

Cloning

- Parameters can be easily transferred from one drive to another - just tap to write as many drives as you want.
- Back-up and restore drive configuration via the app.

Share

- Share configuration via Outlook, OneDrive, WhatsApp etc.
- Shared configurations are compatible with Marshal & Connect (our PC commissioning tool).
- Export customised wiring diagram and drive configuration to PDF format.

Offline capabilities

- Create new configurations in the app.
- Open existing projects to review/change parameters.





Diagnostics

- Guided diagnostics for the system even without drive alarms or errors.
- Diagnostics available with power off or on.
- Get support for drive alarms within the app.
- Error log & active error diagnostics – view active and historic error info.
- Differences from default – compare configuration against factory defaults.

Registration

- Activate the 5 Year Warranty via the app.
- Access & download support materials via your CT account.

Monitoring and security

- Quick view of parameter settings & drive status.
- Restrict access to drive configuration via PIN.
- Quick visualisation of I/O, motor, and speed settings.

Contact us

Access to worldwide distribution network and local drive centres for sales and technical support.

High Performance Drives

Unidrive

Products in this range

M700 | M600 | M400 | DFS SERIES

EXTREME POWER | MODULAR POWER



5-year warranty as standard*

Our Unidrive series is so reliable we are confident enough to supply it with a five-year warranty as standard.

Now you can buy with the same confidence.

*Warranty terms and conditions apply.



Unidrive Applications



Hoists



Woodworking



Winding



Textiles



Cutting



Printing



Web Handling



Tyre Manufacturing



Test Stands



Speed & Position Control
(For Gearing & Ratio Control)



Packaging Machines



Unidrive M700

Advanced Motor control

0.75 kW – 2.8 MW (1.0 - 4,200 hp)

200 V | 400 V | 575 V | 690 V

Class-leading Induction, Servo and PM Motor Performance.

Delivers high performance motor control for induction, permanent magnet & servo applications, plus onboard real-time Ethernet.

Unidrive provides ultimate control flexibility to satisfy the requirements of machine builders and high specification industrial applications. Unidrive M700 offers an enhanced upgrade for existing Unidrive SP users.

Flexible control systems

- Ideal for centralised & decentralised control.
- MCi module advanced system control capability.
- Onboard PLC for logic programs.
- IEC61131-3 programming.
- Onboard real-time Ethernet (IEEE 1588 V2 PTP).





Optimise system performance

- Onboard Advanced Motion Controller.
- 1.5 axes control.

Conform to safety standards

- Integrate directly with safety systems.
- Onboard STO.
- Add a safety option for safe motion functions.

Flexible communications

- Synchronised RTMoE comms.
- Fieldbus communications: PROFINET, Ethernet/IP, Modbus TCP/IP and EtherCAT.
- Onboard web-server for flexible setup and monitoring.

Maximise throughput

- High bandwidth motor control.
- Flexible speed & position feedback.

Variants

- M701 – Unidrive SP replacement with RS485 port.
- M702 – 2 x STO, real-time Ethernet & digital I/O.

Unidrive M600

Open-loop Control drive

0.75 kW – 2.8 MW (1.0 - 4,200 hp)

200 V | 400 V | 575 V | 690 V

High performance drive for induction and sensorless control of permanent magnet motors.

The perfect choice for applications that require high performance open-loop control of induction or permanent magnet motors.

SI-Encoder option modules are available for applications that require more precise closed-loop velocity and digital lock/frequency following of induction motors.

Reduced system costs with direct integration

- Incorporates an onboard PLC which can execute Machine Control Studio (IEC61131-3) programs for logic control, sequencing, speed following and digital lock - removing the need for additional PLCs.
- Fit up to three SI modules to add safe motion, speed feedback and additional I/O.

Fast and Easy access for Commissioning, Monitoring and Diagnostics





Enhance throughput with high performance open-loop control of induction and permanent magnet motors

- Advanced Rotor Flux Control (RFC) algorithm gives maximum stability and control of induction and permanent magnet motors.
- Up to 200% motor overload suitable for heavy industrial machinery applications.

Flexible communications

- Modbus RTU communications onboard.
- Full Ethernet based and traditional fieldbus.
- Support available through user-fit I/O options.

Energy Efficiency

- Low power standby mode.
- Easy common DC bus configuration enables braking energy to be recycled within the drive system, reducing energy usage and eliminating external supply components.
- Supports sensorless (open loop) control of compact high efficiency permanent magnet motors.
- Active Front End for regenerative AC drive systems.
- Dyneo®: perfectly synergised permanent magnet motor and Unidrive M solutions - optimised for performance and energy saving.
- Dyneo®, Unidrive M and permanent magnet motor solutions offer exceptional efficiency levels across all operating speeds, especially at lower speeds where the efficiency is much higher than induction motors.
- Low losses, up to 98% efficiency.

Unidrive M400

Minimise downtime & system setup

0.25 - 132 kW (0.33 - 200 hp)

100 V | 200 V | 400 V | 575 V | 690 V

**Optimised throughput, open automation systems,
maximum ease of use.**

Unidrive M400 minimises downtime with an intuitive LCD display for rapid set-up and clear diagnostic help. The integrated PLC will execute a substantial range of sequencing and logic programs.

Coupled with an impressive I/O count complete with two STO inputs and an SI interface for a fieldbus option or extended I/O, the feature set ensures Unidrive M400's flexible integration with any system. Unidrive M400 provides an upgrade path for existing Commander SK users who use LogicStick.

Energy Savings

- Low power standby mode for applications where drives can sit idle for significant periods.
- Automatic 3-speed cooling fan keeps energy usage and acoustic noise to a minimum by intelligently responding to load and environmental conditions (from 0.37W).
- Square law V/F mode is optimised for quadratic loads like pumps and fans to keep motor losses to a minimum.
- Dynamic V to F mode keeps energy usage and motor losses to a minimum in low load conditions.
- Unidrive M400 is highly efficient (above 98%).





Minimise downtime and system set-up time with advanced keypad options

- Informative, multi-language, 3 line display aids set up and provides diagnostic information.
- 4 navigation buttons facilitate intuitive navigation and programming.
- Keypad options available:
 1. CI Keypad - Drive mounted LCD keypad.
 2. Remote IP66 keypad - rapid panel mount (1 x 32mm Ø hole).
 3. No Keypad - Control/programming performed by PC or fieldbus.

Reduced system costs with direct integration

- Incorporates an onboard PLC which can execute Machine Control Studio (IEC61131-3) programs for logic and sequencing with real-time tasks - removing the need for additional PLC's.
- Fit an SI module to add a fieldbus communications option or additional I/O.

Improve throughput with advanced open-loop motor control algorithms

- Rotor Flux Control (RFC-A) gives maximum stability and control of induction motors at all powers.
- 180% motor overload (suitable for heavy industrial machinery applications).
- Precise frequency following is possible from an encoder or frequency/ direction inputs.

Conform to safety standards, maximise uptime and reduce costs by direct safety system integration

M400 has integrated dual STO inputs for SIL3 / PLe conformity, eliminating the need for external safety components.

Extreme Power Engineered to fit the world

315 kW to 500 kW | Up to 865 A | 380 to 480 VAC ($\pm 10\%$)
with 110% Overload

You loved the smaller ones. Here's the big one.

While low power accounts for most of the growth for variable speed drives, energy-saving applications are driving growth in high power drives.

Fans, pumps, compressors and extruders are common uses of drives that increasingly need a higher power option.

Light weight, but no light weight!

Enter the new high power drive, which not only offers 500 kW of power in a single module, but at 130kg is up to 60kg lighter than competitors drives.

Its small footprint and pre-engineered accessories make it easy to install or retrofit in industry-standard cubicles.

A choice of control module options

This 500 kW drive can be fitted with a Unidrive M600/ M70X or Pump Drive F600 control module and has a wide range of accessories available for easy installation.

Alternatively, the frame can be provided pre-assembled in its own industry-standard cabinet, with user-selectable system components included.

This is the ready to use DFS series free standing version.





Installation and servicing

- A single installer can handle wiring and connection using comprehensive accessories.
- Under 30 minutes for one engineer to replace the drive using service accessories.
- During service, factory-tested sub-assemblies can be exchanged on site without having to replace the complete drive.
- Wider front face design & lower centre of gravity provide greater physical stability and safety during installation.
- Always smaller than an existing drive when retrofitting, so will always fit space available.
- Fixed lifting points on the chassis (no additional brackets required) for safe handling.
- No additional chokes are required for the vast majority of applications.
- Online diagnostic app aids commissioning & user support.

Controls, communications & configuration

- Renowned Unidrive AC motor control extended up to 500 kW in a single power module.
- Optimised for the key high-power drive applications of fans, pumps, compressors and extruders.
- As powerful as any other drive on the market, yet very light and easy to handle.
- All leading industrial communications protocols supported, on-board as standard or with userfitted options.
- On-board machine control, open programming architecture and safety features.
- User-connectable 12-pulse operation as standard for supply current harmonic reduction.
- Enhanced IGBT protection during short circuit protects against external fault conditions.
- Novel capacitor bank protection provides enhanced reliability and increases up-time.

High power modular drives

Highly reliable drive modules

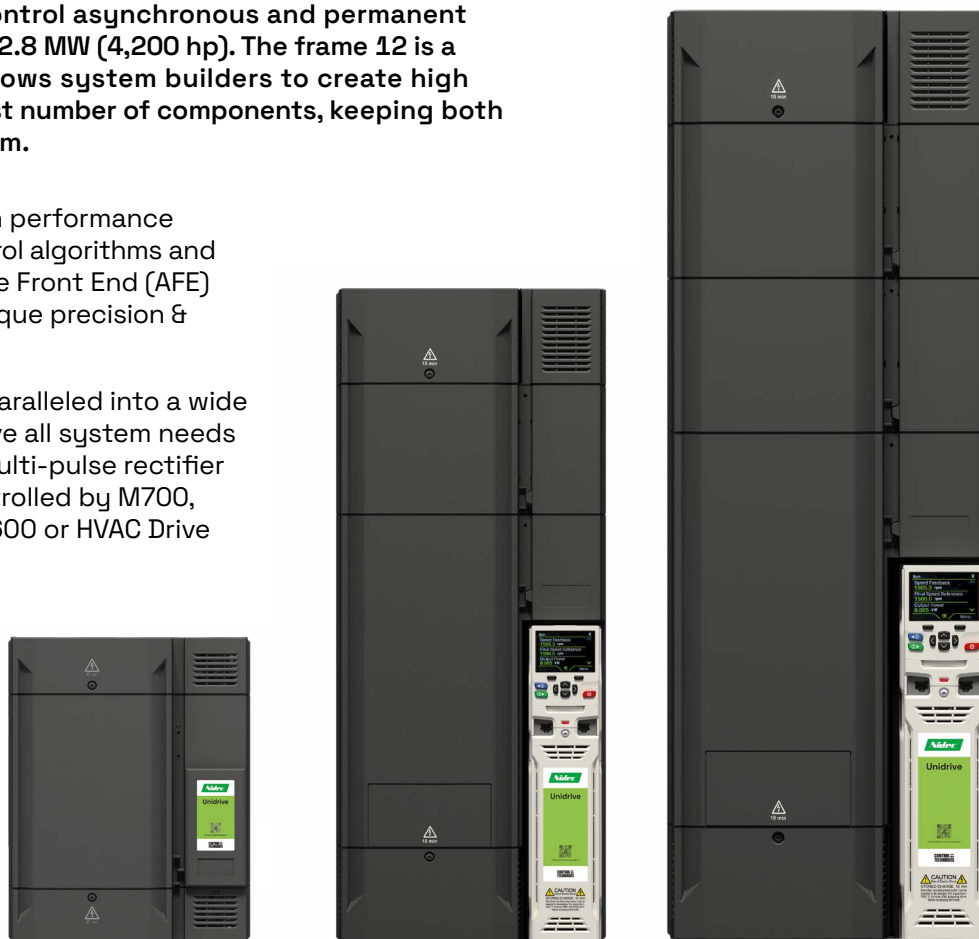
M700 | M701 | M702 | M600 | Pump Drive F600 | HVAC Drive H300

The modular offering provides a flexible method of building compact, reliable high-power solutions.

Paralleled together, they can control asynchronous and permanent magnet motors in systems up to 2.8 MW (4,200 hp). The frame 12 is a 500 kW (700 hp) module that allows system builders to create high power solutions with the smallest number of components, keeping both footprint and costs to a minimum.

Unidrive M differentiates itself on performance with extremely fast current control algorithms and high switching frequencies. Active Front End (AFE) solutions deliver unparalleled torque precision & power quality.

The Unidrive M modules can be paralleled into a wide range of flexible solutions to solve all system needs including Active Front End and multi-pulse rectifier configurations. They can be controlled by M700, M701, M702, M600, Pump Drive F600 or HVAC Drive H300 controllers.





F12 T



F12 D



RECT..A, RECT..T



F9 A, E, T
F10 & 11 E, T



F9, 10 & 11 D



Master Control,
Standard Control



Follower Control

Format

A	AC in AC out module with integrated rectifier and line choke. Available in frame size 9 and can be paralleled up to 1.9 MW (2,100hp) (Unidrive SPMA replacement)
E	AC in AC out module with integrated rectifier. Available in frame sizes 9, 10 & 11 and can be paralleled up to 2.8 MW (4,200hp)
T	AC in AC out module with 12 pulse integrated rectifier. Available in frame size 9, 10, 11 & 12 and can be paralleled up to 2.8 MW (4,200hp)
D	DC in AC out module. Available in frame size 9, 10, 11 & 12 and can be paralleled up to 2.8 MW (4,200hp) (Unidrive SPMD replacement)
RECT..A	AC in DC out rectifier 6 pulse module (Unidrive SPMC replacement). Available in frame size 10 & 11
RECT..T	AC in DC out rectifier 12 pulse module (Unidrive SPMC2 replacement). Available in frame size 10 & 11
Standard Control	M700, M701, M702, M600, F600, H300 controller for single module systems
Master Control	M700, M701, M702, M600, F600, H300 master controller for systems with more than one module
Follower Control	Follower controller for all paralleled modules



Create flexible systems easily

The modular approach to building high power systems provides machine builders with flexibility while keeping complexity low. Modules with integrated rectifiers and / or line chokes can be easily paralleled keeping installation time and component count to a minimum. Separate inverter and rectifier modules (D, RECT..A and RECT..T) can be paralleled into more flexible common DC bus and regenerative configurations where power management and system design efficiency are key.

Flexible and easy system design:

- Unidrive M high power modules are designed to fit in standard 600 mm deep x 400 mm wide (23.6 x 15.7 in) cubicles
- 6,12,18 and 24 pulse input and Active Front End configurations are easy to achieve
- Integrated cooling fan power supply means no additional power supplies are required
- Output current ratings have been increased for a wider range of global motors
- A common control interface ensures a consistent programming method and feature set across the whole range. Familiarity reduces the need for training:
- Identical parameter structure with Smartcard and SD card cloning support
- Connect software for monitoring, diagnostics and parameter file management
- Machine Control Studio for application programming in IEC61131-3 environment
- SI-Option module support for additional I/O and fieldbus (e.g. Ethernet/IP, PROFINET RT, EtherCAT, POWERLINK or PROFIBUS)
- MCi and SI-Applications modules for advanced application solutions



Minimize downtime for critical operations

We know how important reliability is to our customers and that every second of system downtime can be costly. Control Techniques high power modules have exceptional build quality based on over 45 years of drive knowledge, expertise and development.

Built using world leading manufacturing processes, the modules are packed with features proven to keep the drive running in the most testing of environments. Control Techniques Automation Centres are situated in many global regions to provide local design consultation and rapid specialist technical support wherever your business is located.



Make compact, easily maintainable systems

- Control Techniques high power modules are incredibly compact given the impressive amount of power they can deliver. For example, the powerful AC in AC out 500 kW (700 hp) module measures only 295 x 1750 x 526 mm (11.61 x 68.90 x 20.71 in) - a power density unrivalled in the market place and almost half the size of other leading suppliers.
- Overall system size and footprint is kept to a minimum
- Manageable small and light modules are maintained and replaced rapidly and easily



Environmental safety and electrical conformance

- UL and DNV listed
- Electromagnetic immunity complies with EN 61800-3 and EN 61000-6-2
- Electromagnetic emissions comply with EN 61800-3
- On-board EMC filter, category C3
- Optional external EMC filter, category C2 depending on power rating
- Compliance with EN 61000-3-12 with external line reactor



Reliability assured

- Every power module has been thoroughly tested in environmental chambers that cycle a wide range of load and thermal conditions
- PCBs have conformal coating to further increase resilience to harsh environmental conditions
- Trip avoidance features take intelligent action instead of interrupting critical processes.

For example:

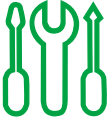
- Active thermal monitoring reduces switching frequency as the drive approaches thermal limits
- Load shedding reduces speed at current limits
- Supply loss ride-through keeps the drive running during supply brown outs
- Protection alarms safeguard the wider system (e.g. over current, over temperature, over voltage and short circuit protection)
- Intelligent variable speed fans ensure operating temperature stays within limits. vThey are easily replaceable as part of routine maintenance
- Wide supply voltage tolerance keeps drive operation smooth in areas where supplies are variable



Upgrade legacy modular systems painlessly

Migration of Unidrive SP modular systems is fast and easy with many conversion tools available:

- Parameter porting tools such as Connect and Smartcard are available SyptPro can recompile SM-Applications programs for SI-Applications and connect to existing CTNet networks
- Identical width and depth dimensions, along with retrofit kits, mean that Unidrive M modules frame sizes 9, 10, 11 can easily fit into SP modular locations using existing fittings



Reduce spares inventory

Control Techniques modular approach gives customers the opportunity to standardize their solutions in order to keep spares holding to a minimum as different systems can be serviced using one common spare. Additionally, large volumes of standard product modules are stocked at local distribution hubs in convenient locations around the world meaning that rapid delivery is always available to all customers.



Create high performance solutions

Unidrive M delivers market leading control performance at high powers with extremely fast current control algorithms, advanced thermal monitoring and high switching frequencies. When Control Techniques power modules are configured with an Active Front End, dynamic torque response can be effectively demanded across all power quadrants.

- Switching frequencies of up to 16 kHz in systems up to 160 kW (250 hp) and 8 kHz in systems up to 500 kW (700 hp) allow Unidrive M to provide precision torque. This is effective in demanding applications such as test stands, where our ETPS solution (engine torque pulsation system) can precisely simulate dynamic engine torque profiles.
- Highly accurate thermal model ensures:
 1. High overload capability – 150% Heavy Duty. (140 % with frame 12)
 2. Impressive low derating requirement in applications that demand high torque at low speeds. Power device temperature is intelligently managed meaning smaller lower priced systems can be specified and product life is extended.
- Dynamic Active Front End configurations provide:
 3. Precision torque linearity across quadrants
 4. Corrective power factor operation (lagging, unity or leading) for high quality power)
 5. Harmonic mitigation

High performance drives

DFS Series

Products in this range

DFS SERIES



Commander Applications



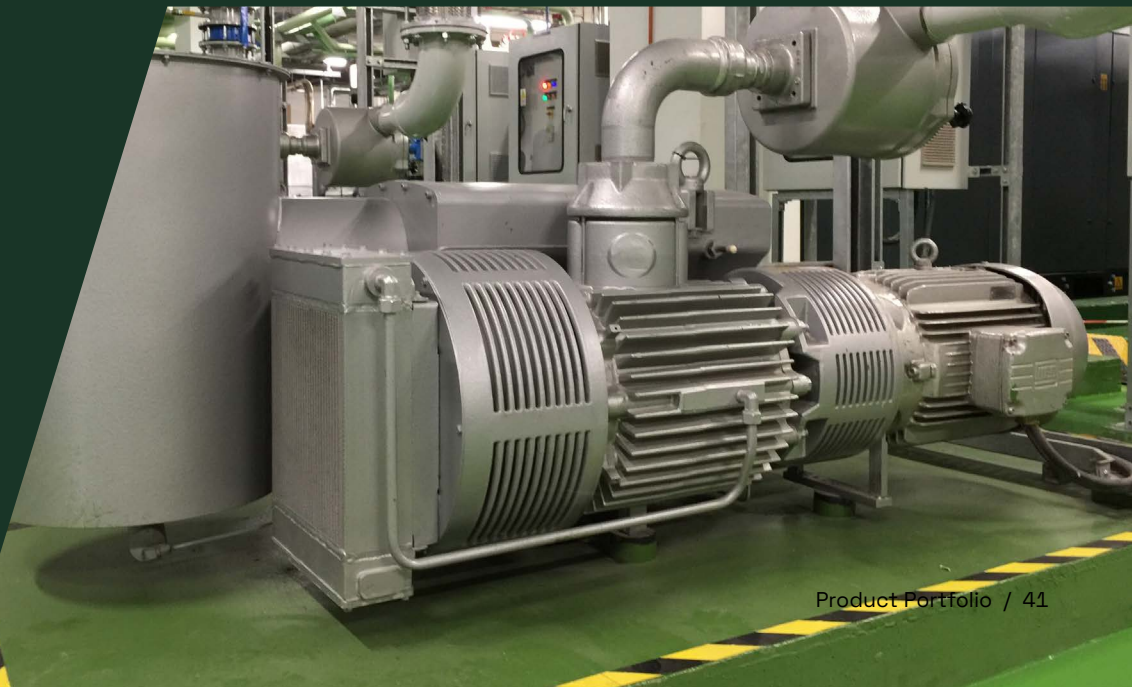
General Automation



Fans & Pumps



Compressors



DFS series

High Power Free Standing Drives

55 kW to 540 kW

400 V | 690 V

Efficient System Build.

For many drive users, designing and building a high power drive cubicle requires extensive in house engineering expertise that they do not have...

DFS is a pre-assembled, ready to install drive cubicle system designed for use in high power applications where energy saving and high ingress protection are key. With fast, easy installation, plant availability is maximised with virtually zero requirement from your engineering resource.

Optimum local service support to minimise downtime

- Rapid on-site support, in your language, from highly qualified and experienced service and application engineers
- Efficient service with replacement parts available locally
- Comprehensive online support including:
 1. Drive set-up, diagnostic tool and
 2. online support system with dynamic logic diagrams

Pre-installed options available include:

EMC filter | Energy monitoring | 24V back-up supply wiring
Empty sections can be integrated for customer equipment & installation cables





Includes power disconnect and fuses

Fast turnaround

- Control Techniques Drive Centres and Partners have all the tools required to generate fast quotations to minimise delays in the ordering process.
- For emergency breakdowns where a replacement drive is needed quickly, DFS can be shipped in as little as one week.
- Standard lead-times are six weeks.

Easy set-up

- Door-mounted multi-language HMI for easy commissioning.
- Real time clock for enhanced diagnostics.
- Connect PC tool for optimised commissioning:
 1. Full parameter management features including cloning.
 1. Real time visualisation and manipulation of drive control system with dynamic logic diagrams.

Industry standard cubicles which integrate with your existing installation

Rugged, reliable drive systems

- Highly robust cabinets with ingress protection options to meet the needs of the application – IP23 as standard.
- IP54 as selectable option – IP55 water-cooled on request.
- Cabinet temperature control via intelligent fan system.
- Built with stringent quality controls with full traceability & rigorous testing gives our plant ISO-9001 accreditation.
- High quality auxiliary components sourced from leading automation industry vendors.

Water
Cooling
Available



Specialist drives

HVAC, Elevator & Pump

Products in this range

Elevator Drive E300 | Pump Drive F600 | HVAC Drive H300



5-year warranty
as standard*

Our specialist drives are so reliable we are confident enough to supply it with a five-year warranty as standard.

Now you can buy with the same confidence.

*Warranty terms and conditions apply.



Commander Applications



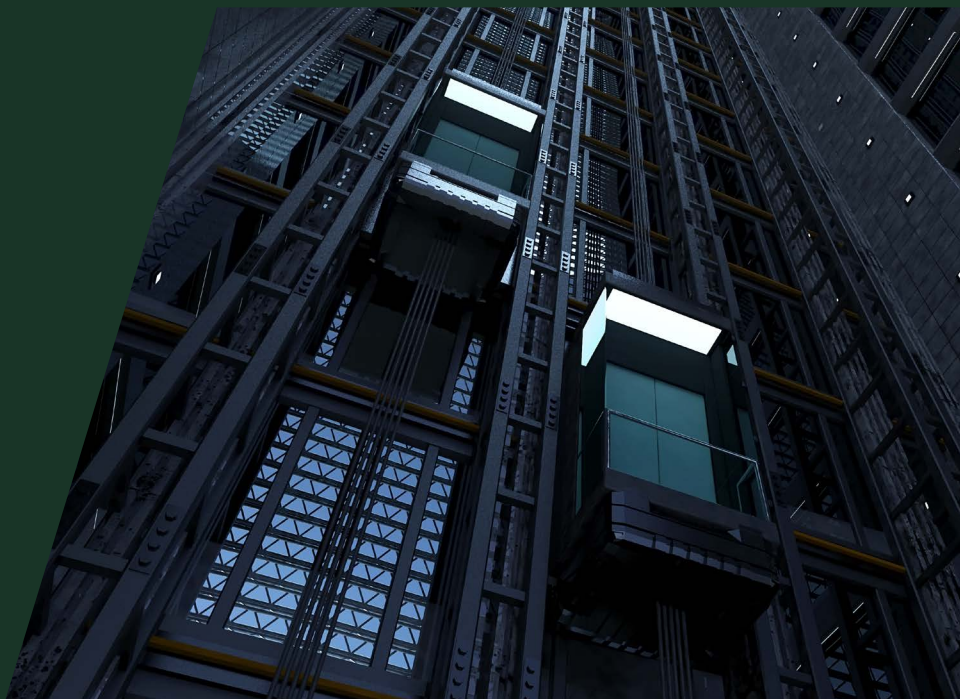
HVAC



Elevator



Pump



Elevator Drive E300

Class-leading ride comfort

2.2 – 250 kW (3 – 400 hp)

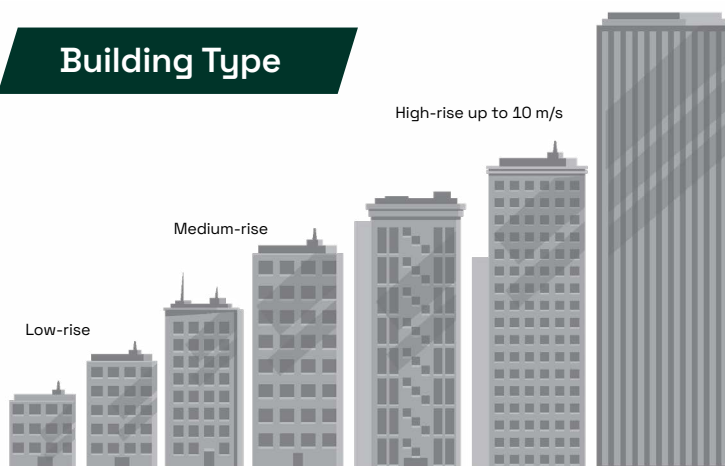
200 V | 400 V | 575 V | 690 V

Match all requirements seamlessly

We provide elevator drive solutions for any size of building, from small residential to luxury high-rise; new build or modernisation projects.

Our mission is to make every step of the process as easy as possible, from product selection to installation, setup & service.

Building Type



Unparalleled performance

We design and rate our drives to offer top performance, regardless of traffic requirements or installation preference.

Control Techniques' low noise and jerk-free drives are the product of choice in modern elevator systems. Our reputation for industry benchmark ride comfort is second to none.

Product Range





Taking elevator drives to another level

Freedom to Design	Quick Setup	Easy Optimisation	Class-Leading Performance & Maintenance Support
Broad range, compact form factor A full range of some of the smallest drives in the industry per kW rating, for all elevator applications, giving flexibility without constraints.	Elevator specific menu structure Easily make adjustments to drive settings, even without having the manual at hand. 	Keypad with backlit LCD display The Remote Keypad RTC provides clear parameter descriptions and units. All laid out in a logical sequence to support a rapid and effortless system start up.	Brake contact monitoring The TÜV certified Brake Contact Monitoring allows monitoring of up to four motor brakes. This can help even old lift systems to comply with Unintended Car Movement, and EN81-20 and EN81-50.
Match any control interface Analog speed reference, digital I/O control, comms control, digital communications control. (CANopen, DCP & Ethernet).	Stationary autotune Encoder offset detection & optimum current loop configuration without the need to lift the brake or de-rope the system.	PC tools The advanced graphic interface lets you fine-tune your elevator system with just a few clicks.	Enhanced data logger All drives have a built in data logger that can monitor any parameter, recording events such as drive trips. This can be written onto an SD Card or retrieved by the elevator controller via the communications link.
Encoder range Flexible encoder interface supporting resolvers and 16 different encoder types as standard. Ranging from incremental encoders to EnDat, Hiperface and BiSS. All without the need for additional encoder cards.	Simple UPS connection The easy connectivity ensures optimum backup & rescue operation.	Parameter storage & cloning Quickly back up drive configurations to an SD Card or Smartcard, or use the Elevator Connect PC tool.	Travel counter The built in travel counter helps keep track of rope lifetime when plastic ropes are used in the elevator system. The drive warns when critical thresholds have been reached, and maintenance is necessary.
Safe Torque Off Our TÜV certified STO function provides a highly dependable method for preventing the motor from being driven, removing the need for both output motor contactors.	Pluggable drive terminals Control terminal connections are pluggable across the full range and biased to ensure correct connection. Supply and motor power terminal connections are pluggable up to 22 kW.	Diagnostics Simple trip code system makes it easy to diagnose drive errors. Records the last 10 trip codes within the drive to aid troubleshooting. Time and date stamp option with the Remote Keypad RTC.	Blocked cabin release function The release blocked cabin control will release the elevator's safety gear when it has been deployed, and helps return the blocked cabin to normal operation. This removes the need to climb into the elevator shaft to release the safety gear.

Key usability features

Easy click-in keypad connection

Dedicated elevator keypad, providing:

- Easy-to-use menu and parameter structure.
- Local and remote mounting.
- Real-time clock for time-stamping and diagnostics



Power on / Drive status LED

Single screw removable cover

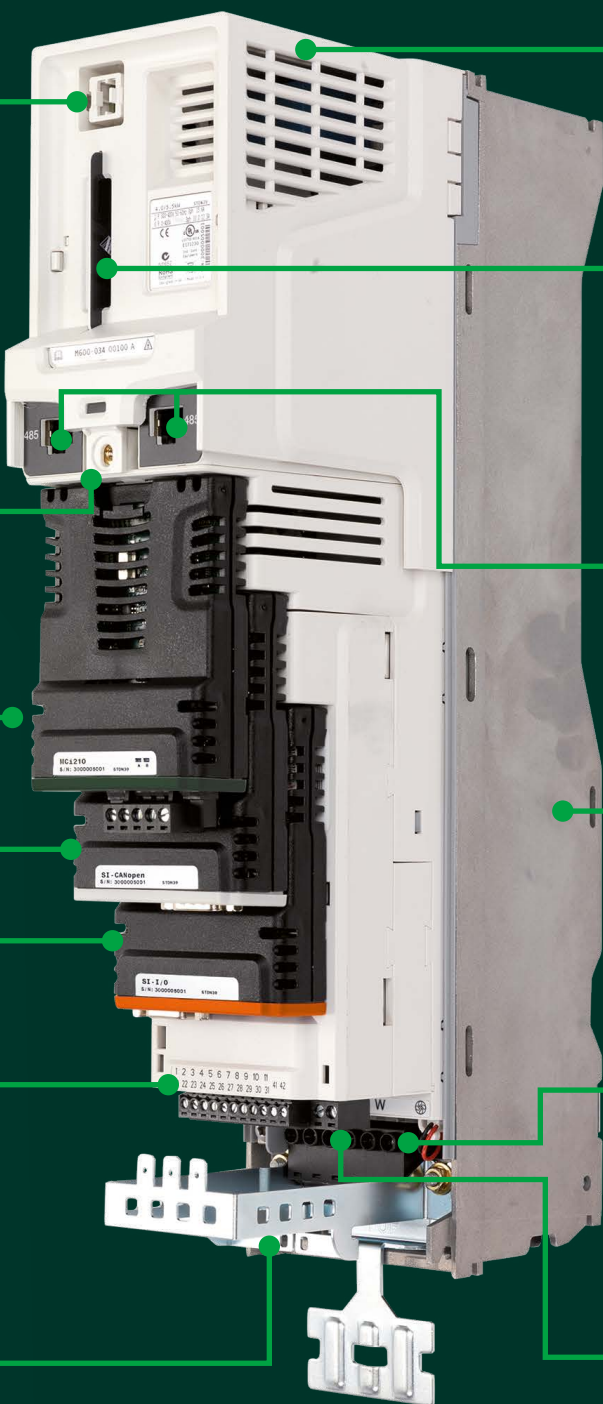
3 x slots available for additional communications, I/O, and feedback management modules

Pluggable control connections

Robust cable management system

Grounding point for shielded control and power cables





Terminal cover for DC bus, braking terminal and on-board EMC filter*

Slot for Smartcard / SD Card Adaptor

For parameter storage, back-up of drive configuration and cloning of parameters.

RS485 communications port Modbus RTU

Aluminium chassis

Allows flexible mounting, with high performance extruded heatsink.

Flexible dual port universal encoder interface

Supporting a wide range of incremental encoders (e.g. AB and SC), absolute encoders (e.g. SC.SSI, SC.EnDat, SC.Hiperface, SC.SC and SC.BiSS), absolute comms encoders (EnDat, BiSS) and resolvers.

User-friendly power connections

With removable terminals*.

*Features and their locations vary between drive sizes.

Pump drive F600

Simple, reliable flow control

The specialist pump drive from the drive specialists.

Available in IP20 and IP65 variants

F600 has energy-saving features and simple guided setup for your pump, no matter the requirements.

Applications involving the flow of air or water demand extreme reliability and low energy consumption. Control Techniques' F600, part of its new Specialist category of industry-specific drive technologies, meets these needs. It builds on five decades of specialist drives expertise from Control Techniques, delivering fast, dependable control in the areas it's needed most.

Everything you need is baked into the drive itself. We've thought of all the details, from the features you'll need the most to the terminology you'll understand. This isn't a general-purpose drive with pump features added on; it's a dedicated, specialist pump drive, designed from the ground up to deliver the performance, reliability and efficiency you need.



5-year warranty as standard*

Our F600 series is so reliable we are confident enough to supply it with a five-year warranty as standard.

Now you can buy with the same confidence.

Warranty terms and conditions apply.





Speaks your language

Built-in pump functionality to suit your every need, optimised for minimal setup time yet sacrificing none of the flexibility. Pump control made simpler than ever via specialist, dedicated approach to a clear parameter naming and structure.

Energy efficiency as standard

F600 is designed from the ground up to save energy, via drive efficiency, optimised motor control, low load savings and more.

Drive accessibility, refined

F600's back-lit hand-off-auto keypad enables quick and easy setup of the drive, with intuitive menu design, clear display and diagnostic information right at your fingertips.

Total control

Control induction, or permanent-magnet motors for greater efficiencies. For maximum efficiency, F600 is suitably designed to be packaged with the brand new Leroy Somer Dyneo+ range of ultra-high efficiency motors, which achieve the highest efficiency class, IE5.

Enhanced reliability

Conformal coating designed for 3C2 environments is provided as standard, to protect your drive under harsh conditions. A safe torque off (STO) input is also built-in as standard for maximum safety.

PC connectivity

Setup your F600 using Control Techniques' Connect tool, featuring a dedicated pump and fan guide to walk you through each stage of setup, from selecting motor type to configuring pump-specific function: cleaning or pipe-fill.

Communications

Modbus RTU is provided as standard onboard the drive, with option modules available for additional fieldbus connectivity.

Optimised control for your Pump solutions

With innovative protective features and extended equipment life

The F600 has comprehensive pump and motor protection features which minimise unplanned downtime, improving overall effectiveness and guaranteeing better value for money. Bring true resilience to your application and easily ride-through component failures.

Automatic error recovery

In the unlikely event of detecting an error with your pump, the F600 has the ability to dynamically recover and resume normal operation.

Limit protection

If the feedback exceeds the limits defined for your application, the F600 has the ability to raise an alarm or stop the drive to protect your equipment and preserve its lifetime.

Transducer loss protection

In the event of losing connection to the transducer, the F600 can stop, continue to run at a fixed speed or ignore the fault depending on the application requirements.

Fire mode

Fire mode allows the drive to disable all trips and to continue to run uninterrupted during emergency events if the application requires.



Pipe Fill

Mitigate spikes in pressure using a controlled ramp, protect your piping system and preserve equipment lifetime.

Over-cycling

Ensure uniform wear in multi-pump systems and limit pumping sequences, with flexible configurations to dynamically alter cycling reference limits, set an alarm or trip the drive.

Cleaning

Live continuous measurement of torque producing current and pump speed is monitored, which is used to trigger an automatic drive based cleansing cycle to clear the pump impeller and reduce maintenance costs on cleaning pump blockages.

Dry-run

Prevent the pump running dry by checking the load against a threshold; with flexible configurations to dynamically adjust output, set an alarm or trip the drive.

Switch Control

Level switches provide critical protection for tanks in the event of the level reaching a “high” switch, whereby the pump is stopped, or a “low” switch, whereby the pump is started, to ensure pumping within tank levels.

Dust and water resistant Pump Drive F600 High IP variant

The Pump Drive F600 offers a full IP65 solution with exactly the same dedicated pump features & capabilities as the standard models.

IP65 provides protection from total dust ingress and low pressure water jets from any direction, making it a simple choice for harsh environments and the outdoors*. The Pump Drive F600 is now one of the most protected drives on the market, maximising pump uptime and productivity, while cutting maintenance costs.

Standard and High IP drives

The High IP drive will already be familiar to users of the F600, with all the same features that make commissioning effortless. The Hand-Off-Auto keypad with the built-in real-time clock is still available, sealed, and the protective casing has been designed with easy servicing and usability in mind.

This new variant enables customers to use both standard and high IP drives for the same project, so there is no longer any headache with mixing-and-matching vendors or product feature sets, making project qualification straightforward.

Save on installation

The F600 High IP drive is enclosed in a sturdy, protective yet light casing, providing a compact solution. This not only allows easy integration in harsh environments but wall mounting close to the pump reduces installation costs, through:

- No cabinet required
- Shorter cable lengths
- Less labour time/cost to install drive



5 year warranty as standard*

To share our confidence in the reliability of Control Techniques, the Pump Drive F600 High IP product is also eligible for Control Techniques' extended warranty.

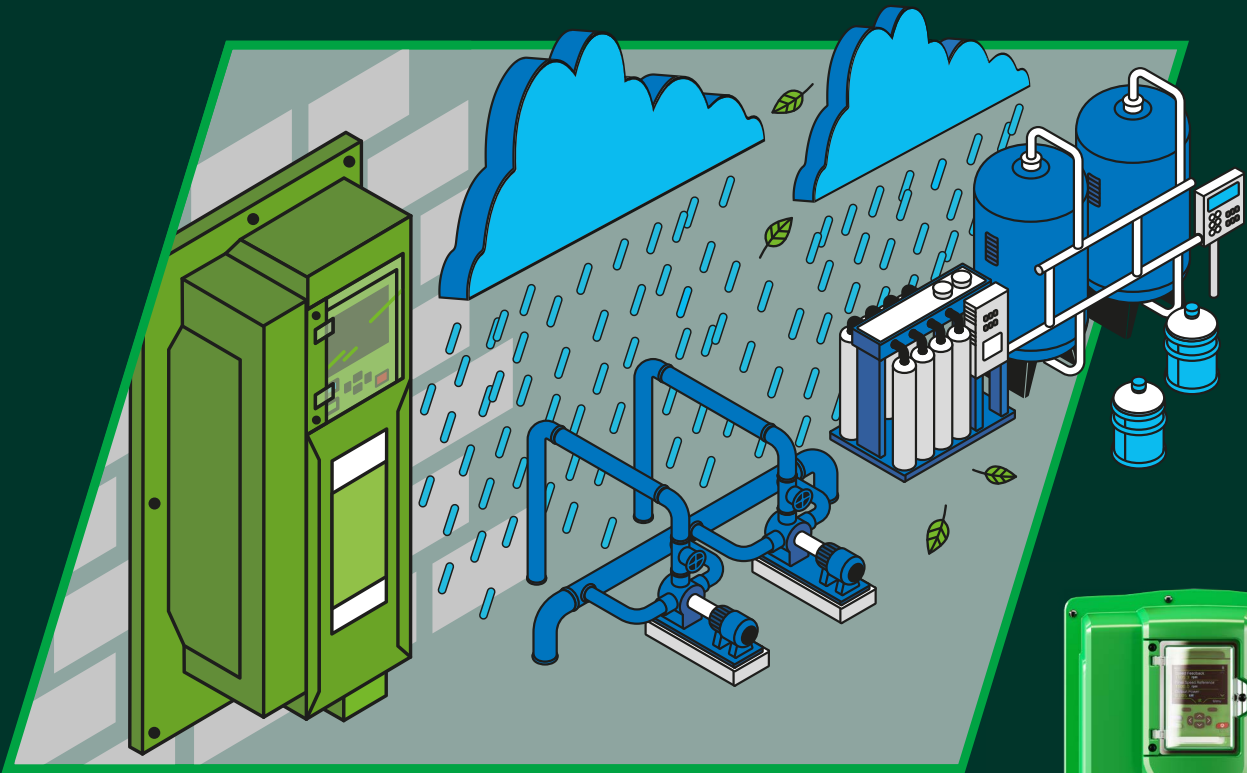
With 5 years guarantee, rest assured your application will continue to run uninterrupted, giving an unbeatable total cost.

*Warranty terms and conditions apply. Shading from direct sunlight is required.

Nidec

Drives

Weather... who cares?



Pump Drive F600 staves off the elements.

With enhanced armour for outdoor pumping applications, it's rated for protection against dust and water to **IP65**.



**CONTROL
TECHNIQUES**

www.controltechniques.com

HVAC Drive H300

Efficiency & reliability in HVAC

Control Techniques' HVAC Drive H300 variable frequency AC drive (VFD) is the result of extensive research and builds on our vast experience of the HVAC market.

The HVAC Drive H300, part of the newly introduced Specialist series of industry-specific drive technologies, builds on our company's five decades of drives expertise, delivering precise, dependable flow control.

The HVAC Drive H300 dimensions are among the smallest in its class at every power rating. This saves valuable building real estate, makes the drives easy to handle, and maximizes mounting flexibility.



5 year warranty as standard*

To share our confidence in the reliability of Control Techniques, the Pump Drive F600 High IP product is also eligible for Control Techniques' extended warranty.

With 5 years guarantee, rest assured your application will continue to run uninterrupted, giving an unbeatable total cost.

*Warranty terms and conditions apply.





The drive for building HVAC

The HVAC Drive H300 has been designed to meet the needs of:

Consultants and design engineers

- All the necessary features to meet your building HVAC project specification requirements.
- A highly reliable product and support service: Simply specify, install and forget.

Contractors

- Fast, easy and secure installation, commissioning and maintenance.

Owners of commercial buildings

- Achieves maximum building occupant comfort.
- Optimum energy saving and value with rapid ROI.

A complete HVAC building Automation solution

The HVAC Drive H300 is optimised for fan/compressor control in HVAC applications and has all the features you would expect from a dedicated HVAC drive and more:

Building automation systems

- Seamless integration with Building Automation Systems with the following onboard communications supported:
 - BACnet, conformance tested to guarantee reliable operation.
 - Modbus RTU communications.

Custom software

- Flexibility without a Building Management System with optional modules for running custom application software.

Fire mode

- The HVAC Drive H300 has onboard Fire mode which allows the drive to continue running uninterrupted in the event of a fire. It can allow the safe extraction of smoke while the drive's other functions are maintained.

High efficiency operating modes

- Quiet operation with Rotor Flux Control modes, high switching frequencies (up to 16 kHz).
- Intelligent 10 speed drive cooling fan with minimum noise operation.





Conformal coated PCB

- High product reliability with conformally coated PCBs as standard.

Compact dimensions

- Among the most compact VFD in its class at every frame size, maximizing mounting flexibility.

Dual PID

Built-in dual process PID loops that can operate independently or be combined to provide more complex functionality.

Energy efficiency as standard

- Exponential energy savings through fitting a Control Techniques Variable Frequency Drive into the application.
- HVAC Drive H300 provides high energy efficiency, up to 98% where very little energy is lost in the conversion.
- Motor control of super high efficiency sensor-less permanent magnet motors.
- Dynamic Volts/Hertz energy optimization minimises power loss under low load conditions.

Energy savings

- Energy savings features promise a low total cost ownership:
 - Sleep, Wake & VFD standby modes ensure minimal wasted energy.
 - Onboard power metering includes a cost per kWh function to track operating costs.
 - Energy savings verified with CT Energy Efficiency Calculator tool.

Thermistor monitoring

- A temperature sensor input is available which can directly provide an analogue input without a transducer for control of fans and compressors.

Dust and water resistant HVAC Drive H300 High IP variant

The HVAC Drive H300 offers a full IP65 solution with exactly the same dedicated HVAC features & capabilities as the standard models.

IP65 provides protection from total dust ingress and low pressure water jets from any direction, making it a simple choice for harsh environments and the outdoors*. The HVAC Drive H300 is now one of the most protected drives on the market, maximising uptime and productivity, while cutting maintenance costs.

Standard and High IP drives

The High IP drive will already be familiar to users of the HVAC Drive H300, with all the same features that make commissioning effortless. The Hand-Off-Auto keypad with the built-in real-time clock is still available, sealed, and the protective casing has been designed with easy servicing and usability in mind.

This new variant enables customers to use both standard and high IP drives for the same project, so there is no longer any headache with mixing-and-matching vendors or product feature sets, making project qualification straightforward.

Save on installation

The HVAC Drive H300 High IP drive is enclosed in a sturdy, protective yet light casing, providing a compact solution. This not only allows easy integration in harsh environments but wall mounting close to the motor reduces installation costs, through:

- No cabinet required
- Shorter cable lengths
- Less labour time/cost to install drive



5 year warranty as standard*

To share our confidence in the reliability of Control Techniques, the Pump Drive F600 High IP product is also eligible for Control Techniques' extended warranty.

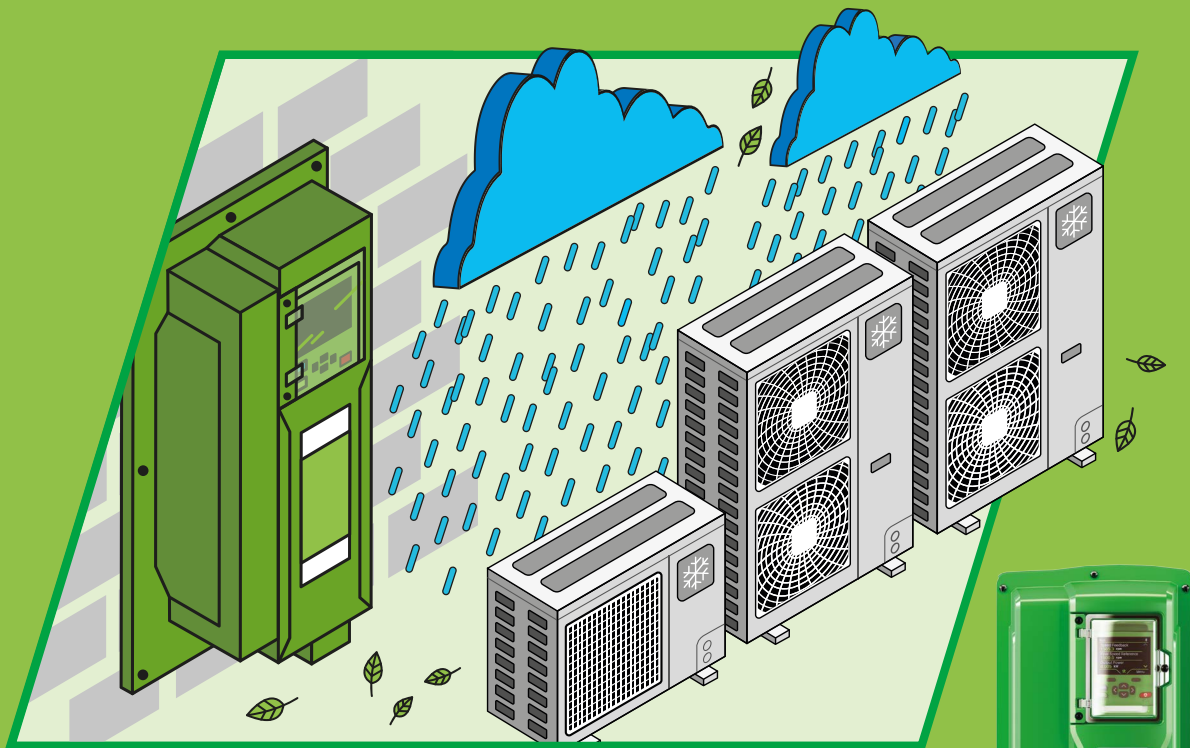
With 5 years guarantee, rest assured your application will continue to run uninterrupted, giving an unbeatable total cost.

*Warranty terms and conditions apply.

Nidec

Drives

Weather... who cares?



HVAC Drive H300 staves off the elements.

With enhanced armour for HVAC applications, it's rated for protection against dust and water to IP65.



**CONTROL
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www.controltechniques.com

Servo drives and motors

Digitax



5-year warranty as standard*

Our Mentor series is so reliable we are confident enough to supply it with a five-year warranty as standard.

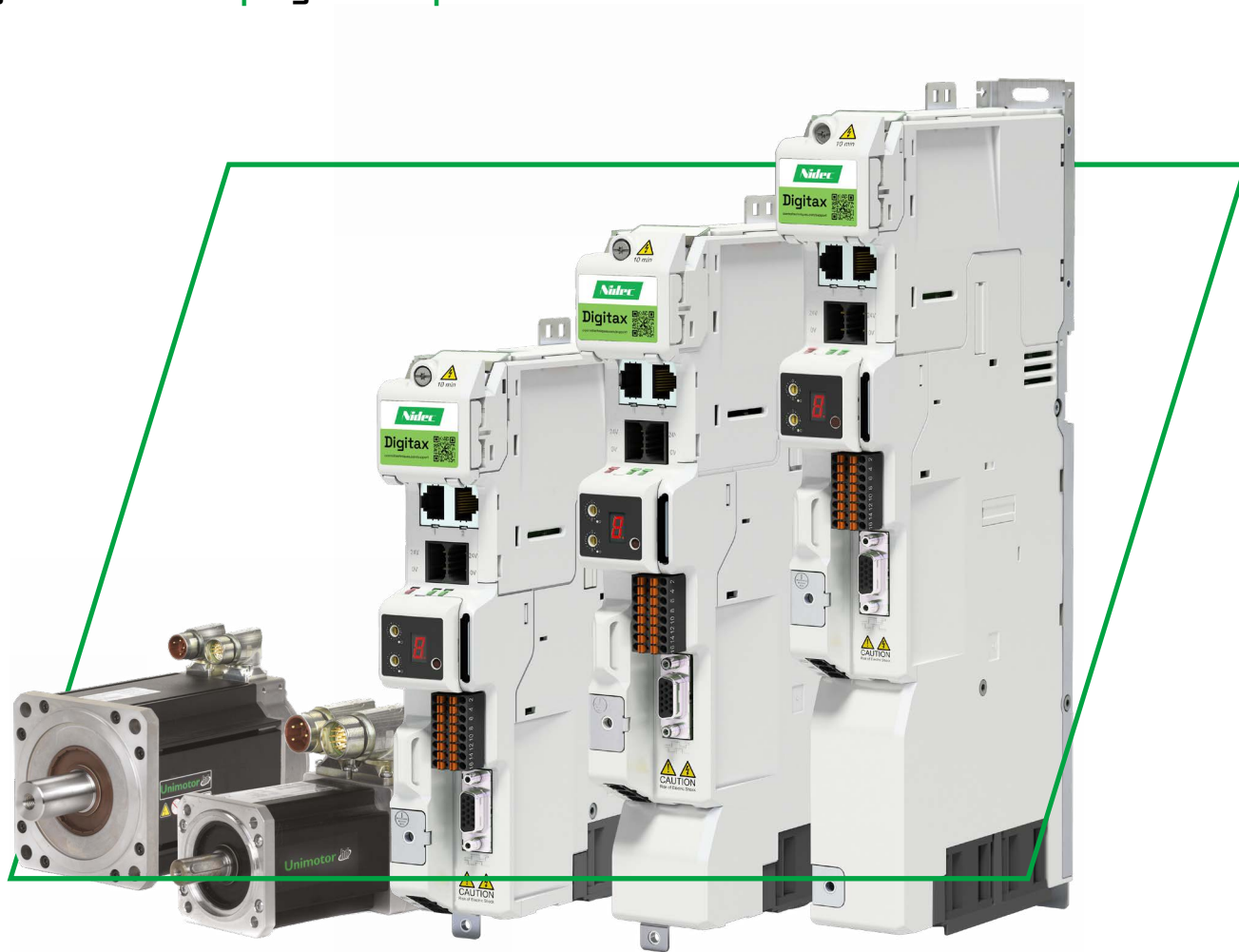
Now you can buy with the same confidence.

*Warranty terms and conditions apply.

Products

In this range

Digitax HD series | Digitax SF | Unimotor HD



Applications:



Printing



Textiles



Extruders



Robotics



Packaging
Machines

Digitax HD

Minimum size, maximum performance

0.7 Nm - 51 Nm with 153 Nm peak

1.5 A - 16 A with 48 A peak

200 V | 400 V | 0.25 kW - 7.5 kW



Servo Drive Series

Digitax HD brings ultimate performance to high dynamic applications, where high peak torque is required for fast acceleration.

Optimised for high-dynamic applications, Digitax HD provides the flexibility of both standalone and modular configurations. The drive offers full servo control plus open loop permanent magnet motor and induction motor control across three functionality levels: EtherCAT, EtherNet and the flexible Base servo drive.

Digitax HD:

Application Flexibility

Three functional variants and support for all common industrial field-buses guarantee flexible adaptation to any automation architecture.



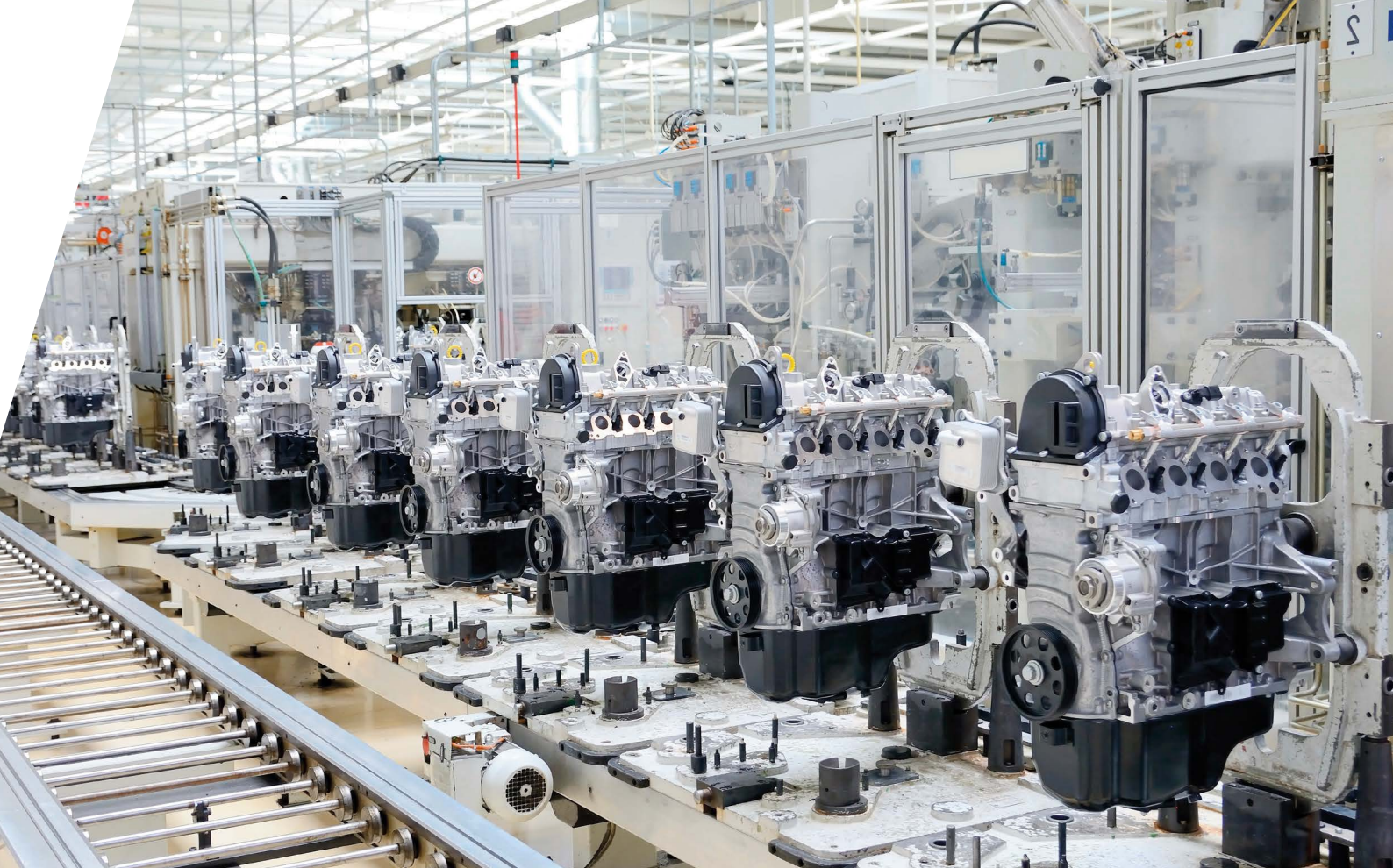
Digital printing:

Label and packaging print machines



Textile:

Knitting machines



Digitax HD
M750 EtherNet

EtherNet/IP™



Digitax HD
M751 Base

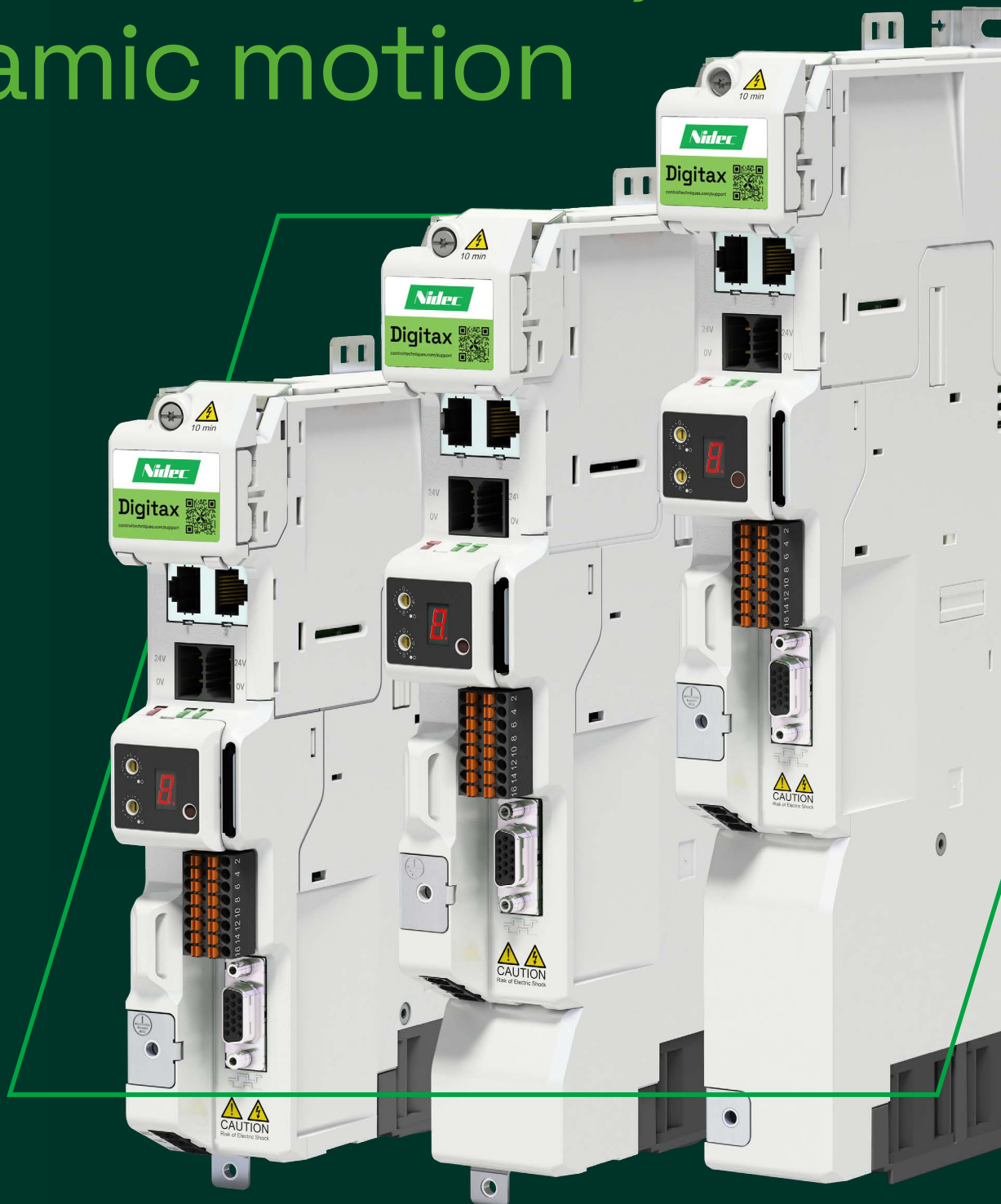


Digitax HD
M753 EtherCAT



Digitax HD

Rapid installation, dynamic motion





Rapid installation and commissioning from standalone to a modular servo system

- Single AC input, 24 V and communication links, and common DC bus.
- DIN rail alignment, single cable technology and easy access pluggable connectors.
- Fast programming and commissioning PC tools.

Boost throughput with high dynamic motion control

Digitax HD brings maximum throughput and production quality to your machines.

- 300% peak current performance pulse-duty overload.
- Optimised control loops for high dynamic performance.
- Up to 16 kHz switching frequency.
- Advanced bi-quad filters for suppression of mechanical resonances.

Reduce cost by maximising cabinet space

- Drive width of only 40mm for increased packing density within the cabinet.
- Reduce cabinet height with UltraFlow™ technology which dissipates heat directly outside of the cabinet.
- Install Digitax HD in a cabinet just 200mm deep.

Digitax SF

Low powered precision solution

0.05 kW - 2 kW | 200 V

Servo solutions for continuous and pulse duty applications.

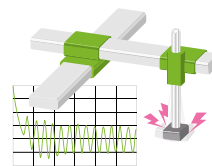
Digitax SF responds to the needs of customers requiring low powered precision servo solutions, with a dedicated servo range from 50W to 2 kW. With 17-bit resolution, robust magnetic encoder technology and pulse train or analog control interface, Digitax SF offers a cost effective servo solution, without compromising on performance.

Multiple motor inertia levels are available, covering a wide range of applications, from semiconductor manufacturing to textile, packaging machines, robotics, extruders, metering and other applications requiring speed, precision and accuracy.

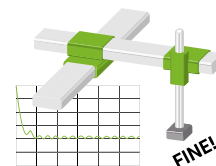
Digitax SF Connect

Digitax SF Connect is a user-friendly PC tool with a familiar Windows interface and intuitive graphical tools for easy parameter setting, tuning and diagnostics. Ease of machine start-up is further facilitated through a positioning table and test run features.

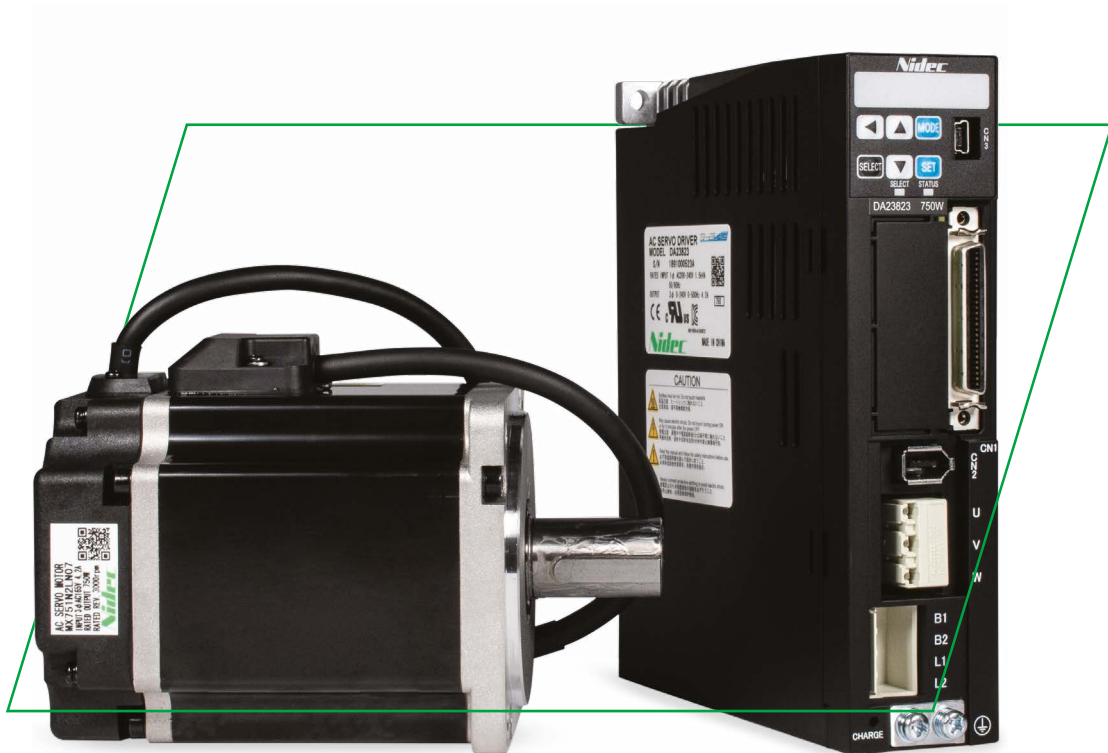
Straightforward to setup and tune, Digitax SF offers high servo performance at the click of a button. For demanding applications, a rich selection of filters to dampen mechanical resonances and suppress tip vibration can be easily configured within Digitax SF Connect with the aid of FFT frequency analysis.



● No damping filter used



● Damping filter used



Magnetic encoder technology.

- Robust in harsh environments.
- Ultra-low energy consumption for reduced maintenance.
- Standardised flange sizes.
- IP 65 or 67 motors.

- Versatile analog or pulse train interface, offering easy integration with any PLC or motion controller.
- Digitax SF can also operate standalone using the on-board 16-point positioning table.
- Built-in keypad with 6 digit 7-segment status display for easy startup, parameter setting, and tuning.
- PC-USB interface for parameter settings, tuning, and status display in the dedicated software Digitax SF Connect.



Drive set-up

Quickly find everything you need for quick and easy installation of your drives.

Visit: www.drive-setup.com



Diagnostic Tool

Quickly solve any error codes that the drive may show. You can download our Diagnostics Tool app at:

controltechniques.com/mobile-applications



Unimotor HD

High dynamic performance

The Ultimate Motor and Drive Combination

Control Techniques offer drive and motor combinations that provide an optimised system in terms of ratings, performance, cost and ease of use.

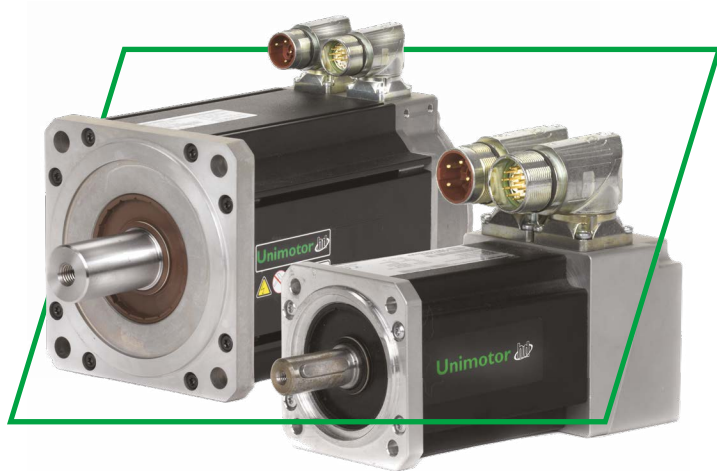
Unimotor HD motors fitted with high resolution Sin Cos or Absolute encoders are pre-loaded with the motor “electronic nameplate” data during the manufacturing process. This data can be read by any of our servo drives and used to automatically optimise the drive settings. This feature simplifies commissioning and maintenance, ensures consistent performance and saves time.

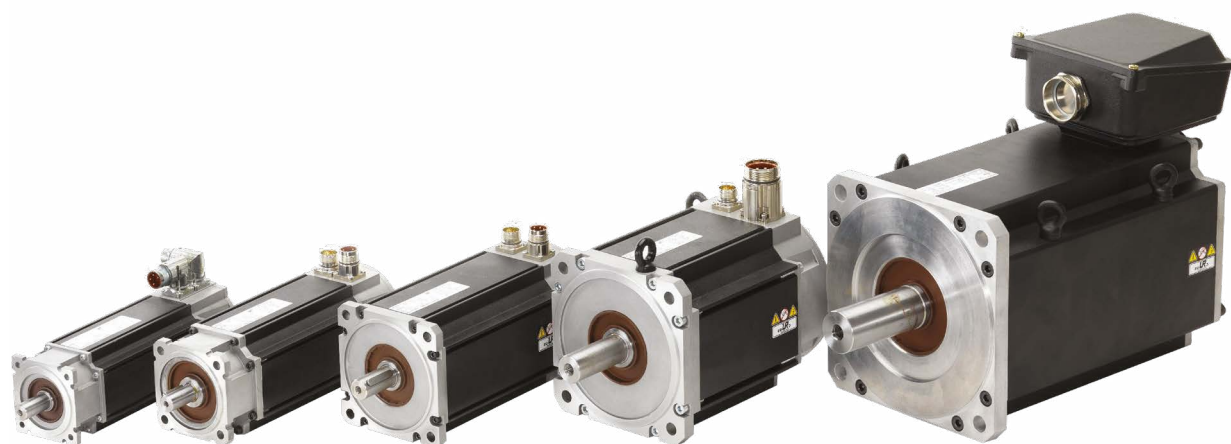
Unimotor HD

High Dynamic AC Brushless Servo Motor

055 to 190 Frames | 0.72 Nm to 85 Nm (255 Nm Peak)

Unimotor HD is Control Techniques' high dynamic brushless AC servo motor range, designed for operation with Unidrive M, Digitax HD servo drives. Designed for high dynamic applications requiring hard accelerations and decelerations.





Features:

Unimotor HD are suitable for a wide range of industrial applications, due to their extensive range of features:

- Torque range: from 0.72 Nm to 85 Nm.
- High torque to inertia ratio for high dynamic performance.
- Compact but powerful.
- High energy dissipation parking brakes.
- IP65 conformance; sealed against water spray and dust when mounted & connected.
- Segmented stator design.
- World class performance.
- Supported by rigorous testing for performance and reliability.
- Winding voltages for inverter supply of 400 V & 220 V.
- Rated speeds from 1,000 to 6,000 rpm.
- Larger shafts to increase torsional rigidity.
- Thermal protection by PTC thermistor/optional KTY84.130 sensor.

DC Drives

Mentor MP



5-year warranty as standard*

Our Mentor series is so reliable we are confident enough to supply it with a five-year warranty as standard.

Now you can buy with the same confidence.

*Warranty terms and conditions apply.

Easy set-up of Enhanced control and monitoring



Greater motor field control

- Built in field controller as standard.
- Gives excellent field control for the majority of DC motors.
- Reduces the need for external components.



Enhanced system design

- The heatsink cooling fans are intelligently controlled and only run when required, thus increasing reliability and reducing maintenance.
- Eighteen different option modules allow customisation of the drive, including fieldbus, Ethernet, I/O, extra feedback devices and motion controllers.
- The drive system designer is able to embed automation and motion control within the drive, eliminating communications delays that reduce performance.



Enhanced field control with FXMP25

- The FXMP25 may be controlled digitally by using a standard RJ45 connection, allowing set-up by standard drive parameters.
- The FXMP25 can also function in standalone mode using its integrated keypad and display.



Fast set-up, configuration and monitoring

- Quick and easy to set-up.
- Can be configured using optional removable keypads.
- Advanced auto-tune features help you get the best performance from your machine.

Mentor MP

Leading digital Drive technology

25A to 7400A Two or four quadrant operation (regenerative)

24V - 480V | 500V - 575V | 500V - 690V

The ultimate DC drive; Mentor MP is Control Techniques' fifth generation DC drive and integrates the control platform from the world's leading intelligent AC drive technology.

This makes Mentor MP the most advanced DC drive available, giving optimum performance and flexible system interfacing capability. This drive allows you to maximise motor performance, enhance system reliability and interface digitally with modern control equipment using Ethernet and fieldbus networks. The drive is designed for easy retrofitting from Mentor II and for high power configuration.

Drive rating label

Armature voltage feedback for use
with DC contactor and inverter
common DC bus systems

Output power connections to
motor with removable covers

Fuses for field protection
(removable cartridge)





AC supply input connections with removable safety covers

Drive identification marker rail

Optional keypad, available as high brightness LED or multilanguage LCD with plain text

Smartcard for parameter and custom application program storage

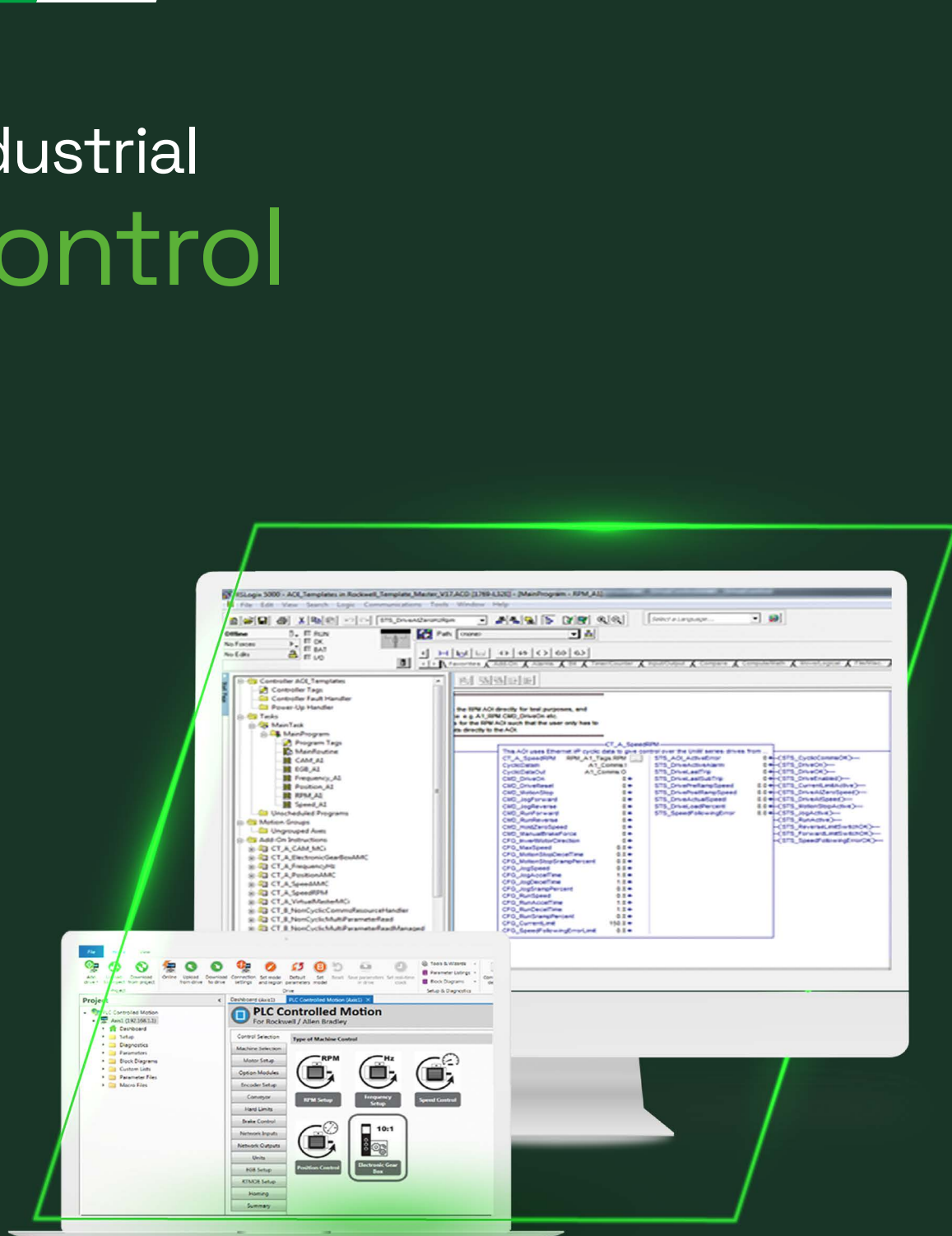
Standard onboard Modbus communications port for PC programming & device interfacing

Safety terminal cover

Safety finger guard

Integrated field controller

Industrial Control



Products

In this range

PLC Controlled Motion | MCh040, MCh070, MChMobile | Remote I/O
MCe Machine Controller | MCz Industrial PC | Integration Modules



Plc Controlled Motion Integration made easy

For major PLC's

PLC Controlled Motion greatly simplifies the integration of Control Techniques drives into major systems.

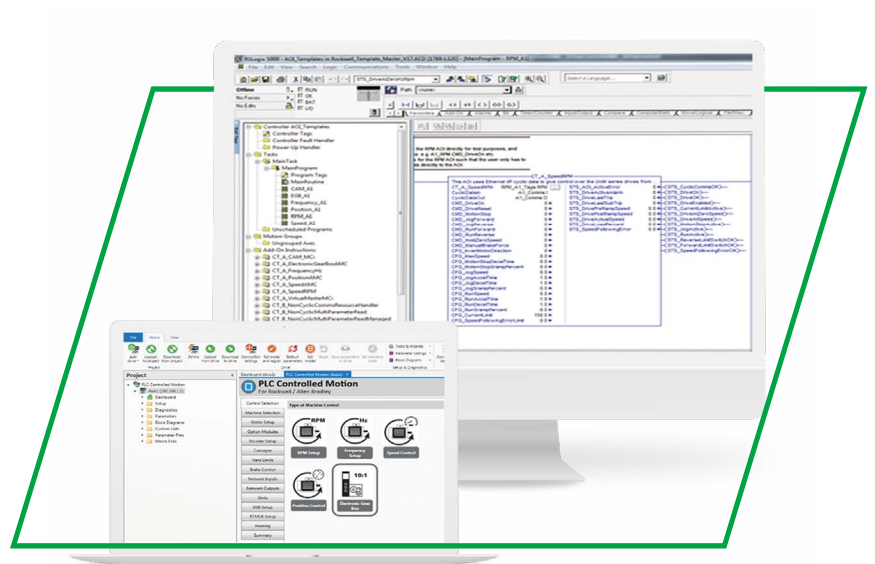
Composed of two parts, a function block for the PLC and a guided setup within the Connect PC tool, the process of creating the PLC control logic and configuring the powerful onboard motion capabilities of the drive is greatly simplified.

Application Benefits

Utilising the high-performance Advanced Motion Controller (AMC) inside the drive not only yields significant performance benefits but gives the possibility to create complex and high performance motion without the need to use very powerful PLCs.

All common control & commissioning parameters can be adjusted from the PLC reducing the need to leave the programming environment.

Ladder logic is used extensively in the implementation to ease understanding and facilitate debugging of the application logic. A level of customisation is also possible by the application developer should the function blocks provided not quite meet the needs of the application.



Installation and Configuration

A single installation will load all the function blocks and documentation required, as well as example projects to get the application up and running as quickly as possible.

Also included, is a library of utility function blocks that may be used to further reduce application development time.

PLC Controlled Motion fully configures the Ethernet/IP links thus reducing setup time and leaving more time to focus on the application development.



Motion Configuration

Five function blocks provide functionality to support applications across the motion spectrum.

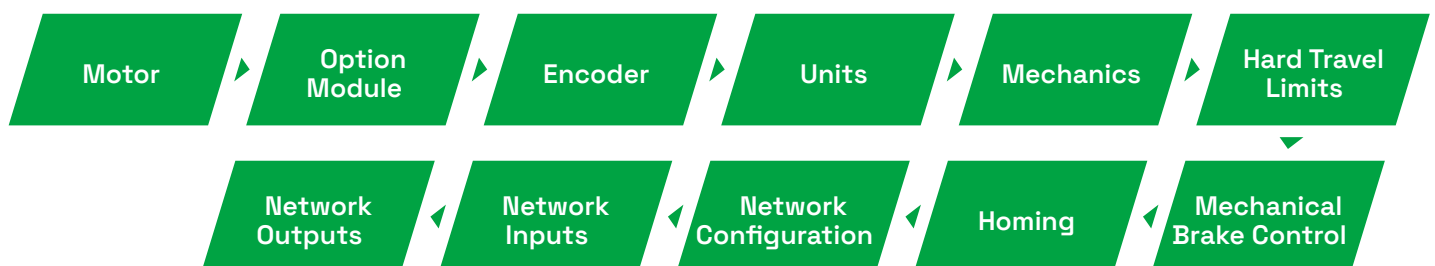
- 1 Frequency Setup
- 2 RPM Setup
- 3 Speed Control
- 4 Position Control
- 5 Electronic Gear Box

Motion Configuration

Entering the machine mechanics allows the use of user selectable units across the application; removing the burden of scaling calculations.

- 1 Standard Gearbox Ratio
- 2 Belt and Pulley
- 3 Ball Screw Linear Slide
- 4 Rack and Pinion
- 5 Conveyor
- 6 Worm Drive
- 7 User Defined Rotary Ratio

Guided steps for easy application configuration:



MCh040, MCh070, MChMobile

Powerful, flexible and easy to use

HMI panels & software

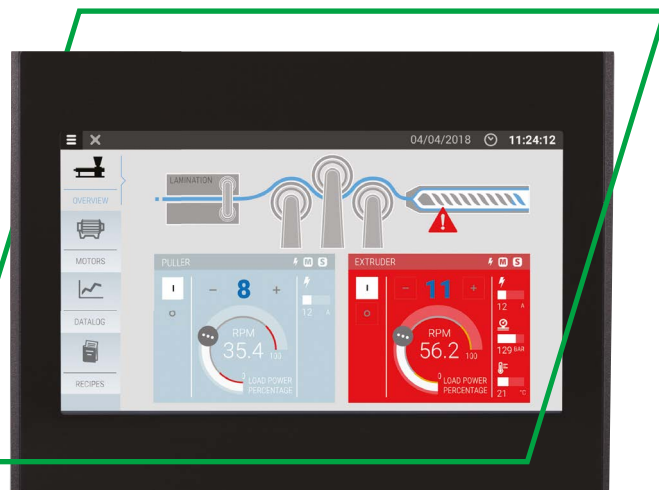
The MCh040 & MCh070 panels and MChMobile Software have been designed for the easy development of HMI applications including factory and building automation.

MCh040 features a bright 4.3" TFT widescreen (16:9) display and MCh070 features a bright 7" TFT widescreen (16:9) display with a fully dimmable LED backlight.

	MCh040	MCh070
System Resources		
Display - Colors	4.3" TFT 16:9 - 64K	7" TFT 16:9 - 64K
Resolution	480x272	800x480, WVGA
Brightness	200 Cd/m ² typ.	200 Cd/m ² typ.
Dimming	Yes	Yes
Touchscreen	Resistive	Resistive
CPU	ARM Cortex-A8 - 300 MHz	ARM Cortex-A8 - 1 GHz
Operating System	Linux 3.12	Linux 3.12
Flash	2 GB	4 GB
RAM	256 MB	512 MB
Real Time Clock, RTC Back-up, Buzzer	Yes	Yes
Interface		
Ethernet port	1 (port 0 - 10/100)	1 (port 0 - 10/100)
USB port	1 (Host v. 2.0, max. 500 mA)	1 (Host v. 2.0, max. 500 mA)
Serial port 1	1 (RS-232, RS-485, RS-422, software configurable)	1 (RS-232, RS-485, RS-422, software configurable)



- Full vector graphic support. Native support of SVG graphic objects, transparency and alpha blending.
- Multi-language applications with TrueType fonts. Easily create, install and maintain applications in multiple languages to meet global requirements.
- Rich set of state-of-the-art HMI features: data acquisition and logging, trend presentation, alarm handling, scheduler and timed actions (daily and weekly schedulers, exception dates), recipes, security and user management, e-mail and RSS feeds.
- Remote monitoring and control with Client-Server functionality.
- Powerful scripting language for automating HMI applications. Efficient script debugger improves productivity in application development.
- Screen object dynamics: control visibility and transparency, move, resize and rotate any object on screen. Change properties of basic and complex objects.
- Off-line and on-line simulation.
- Wide selection of communication drivers available to communicate with our drives with multiple-driver communication capability.
- Data display in numerical, text, bargraph, analogue gauges and image formats.
- | | |
|---|--|
| Standard Modbus <ul style="list-style-type: none"> • Modbus RTU • Modbus RTU server • Modbus TCP • Modbus TCP server | Others <ul style="list-style-type: none"> • OPC UA Client • Ethernet/IP CIP • A-B DF1 • A-B DH485 • A-B ENET |
|---|--|
- Rich gallery of objects and symbols.



Remote I/O & Ethercat I/O

Process control applications

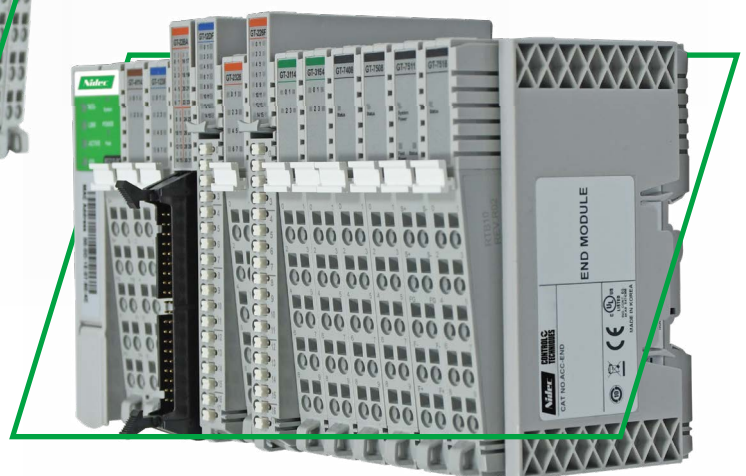
I/O Modules enable process control without PLC

Process control applications often use a PLC system to manage the process, using I/O to communicate with sensors attached to the machines involved.

Now, a series of I/O modules is available for Control Techniques' drives. They are designed to enable applications of moderate complexity to be managed without the need for a PLC system, but directly using the drive itself. The first two products are an EtherCAT Remote I/O module, and a RTMoE or Modbus TCP Remote I/O module. Additional products may be added to the series in due course, according to demand.



RTMoE or
Modbus TCP Remote I/Os

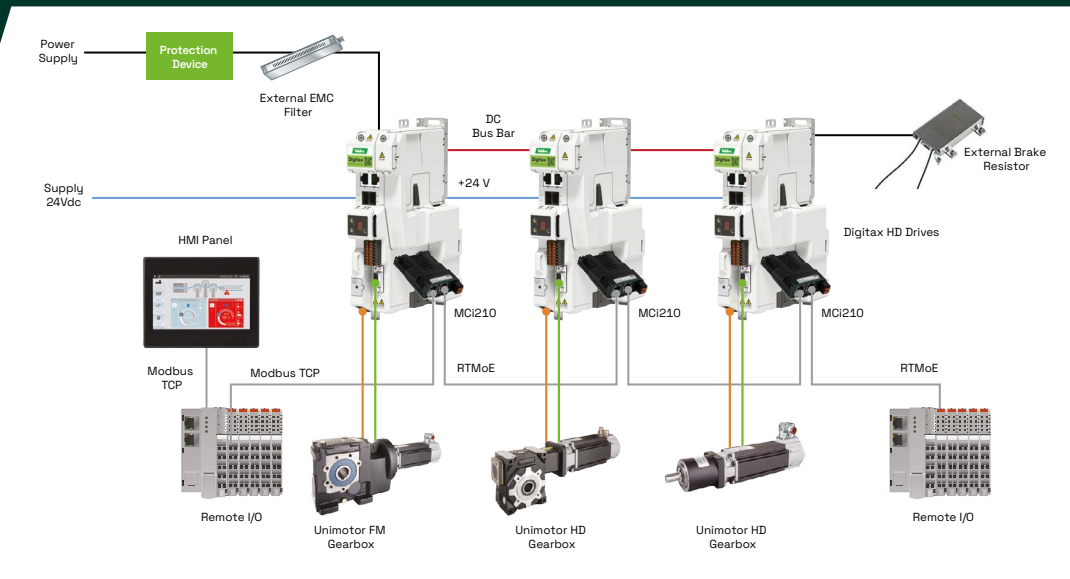


EtherCAT Remote I/Os

RTMoE or Modbus TCP Remote I/Os - Most widely used network protocol

In this configuration, add-on RTMoE or Modbus TCP Remote I/O modules connect directly via the on-board Ethernet port of the M7XX series drives, or via the onboard Ethernet port of the MCi210 Machine Control option modules.

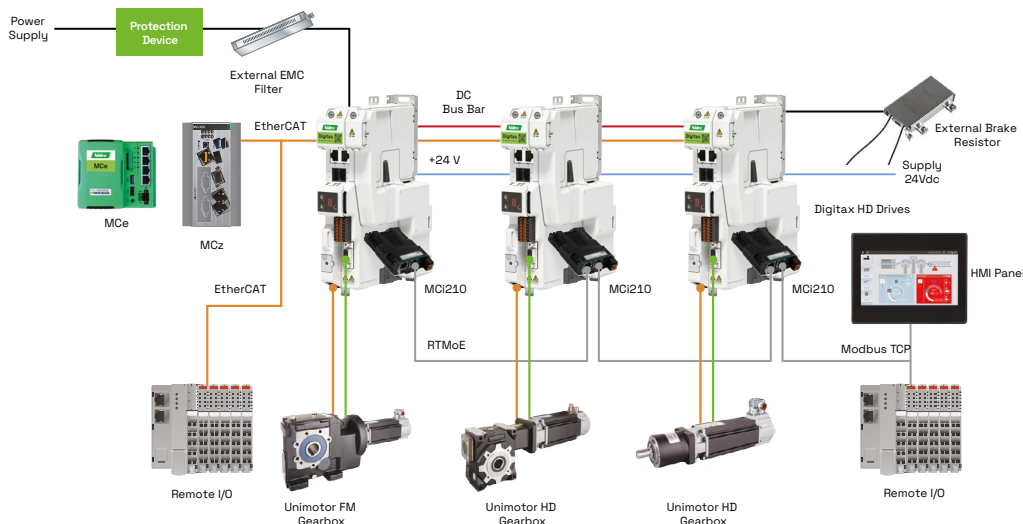
A typical configuration would include MCi2XX Machine Control option modules, Machine Control Studio software and the MCh040/MCh070 HMI Panels. All sensor inputs and outputs can be controlled, including LEDs, pushbuttons, temperature controls, machine status indicators and fluid flow sensors.



EtherCAT Remote I/Os - Easy connection of analogue and digital input & output signals

In this configuration, add-on EtherCAT Remote I/O modules connect via the on-board EtherCAT port of the MCE or MCz controllers, or through any EtherCAT port on any PLC or controller.

A typical scalable configuration would feature the EtherCAT Remote I/O module, used together with MCE or MCz controllers, MCi2XX Machine Control option modules, Machine Control Studio software and the MCh040/MCh070 HMI Panels. All sensor inputs and outputs can be controlled, including LEDs, pushbuttons, temperature controls, machine status indicators and fluid flow sensors.



MCe200

Machine Controller with high performance motion features



Our Embedded Controllers are stand-alone Machine Controllers with high performance Motion features that can manage every aspect of any industrial solution.

Our Embedded Controllers run on the Windows 10™ operating system and use standard Codesys V3.5 SP16 or newer, and so are fully compatible with third party software or hardware.

Hardware Specifications

- Latest generation processor
Intel® Atom E3825 Dual Core 1.33 GHz
- Windows 10
- Inbuilt NVRAM
- 8GB solid state hard drive
- Multiple 1GB Ethernet ports
- Multiple USB ports
- Real time clock
- SD Card storage for application
- Fanless
- Operating temp: -20°C to 60°C

Support for multiple communication protocols:

- EtherCAT Client (PLCopen)
- Profinet Server
- Ethernet/IP Client & Server
- Modbus TCP/IP Client & Server
- OPC UA Server

Programmed via standard CODESYS V3.5 SP16 with these licences included

- Softmotion
- Web Visu

Benefits

Fast machine development due to integration of logic, motion and visualisation

The Control Techniques solution provides an environment for programming controllers in all key programming languages with seamless support for the generation of visualisations.

Ease of use open standards

The use of standard Codesys provides ease-of-use. This package is supported by the majority of automation vendors, and most automation engineers are trained to use it.

Maximum choice for component integration due to PC based architecture

PC based architecture, including the Windows 10™ operating system, allows for the easy integration of third party components. This provides machine builders flexibility to choose best-in-class components for all applications.

Simple application integration due to standard onboard interfaces

Standard onboard interfaces including four Ethernet ports and two USB ports, mean that the Embedded Controller can be easily integrated with any application or machine.

Robustness due to rugged design

The Embedded Controller does not contain rotating fans or internal cabling, and is designed to operate in elevated temperatures. This increases reliability and reduces the need for maintenance, even in dusty environments.

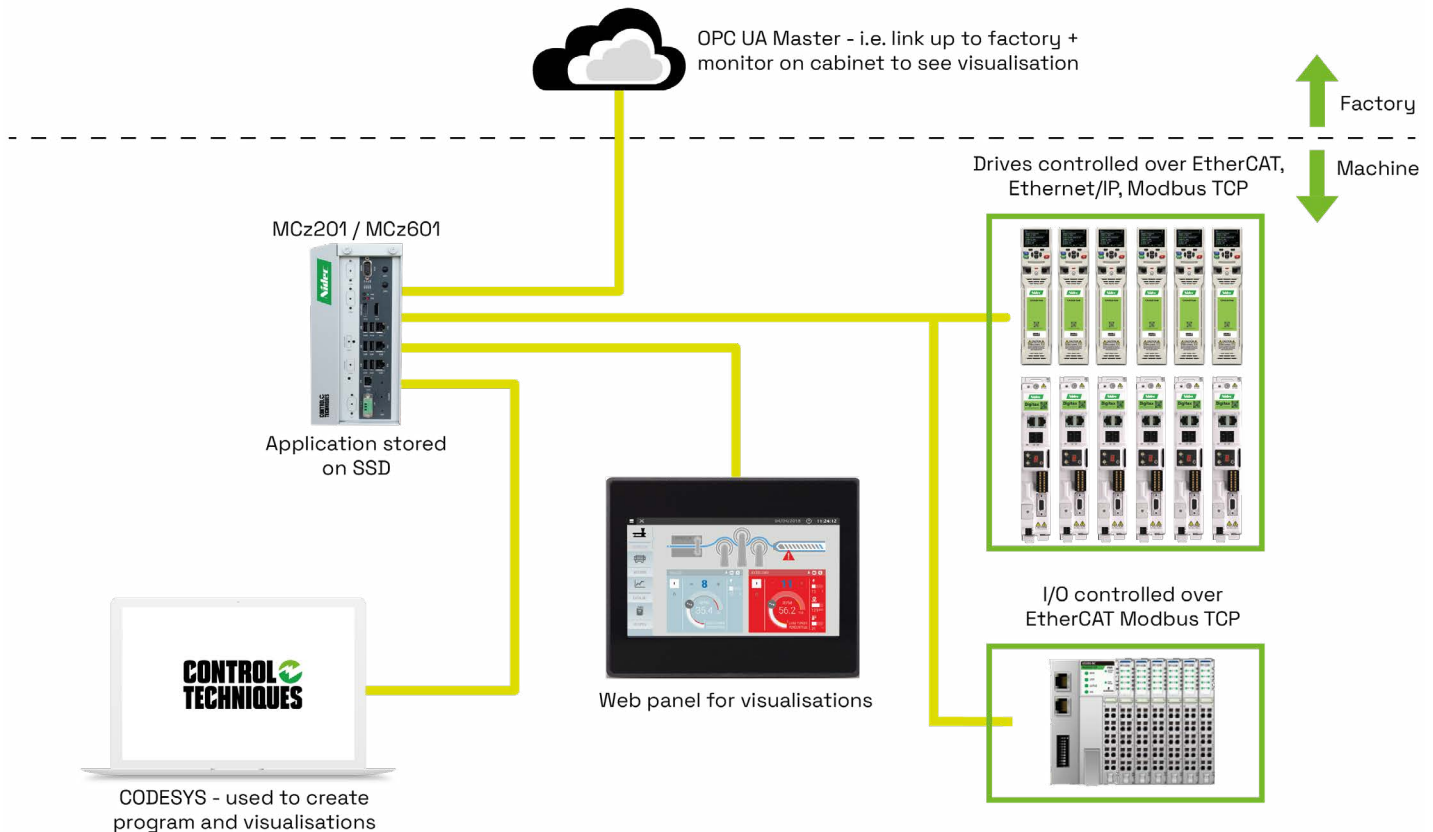
MCz201 & MCz601

Our Industrial PC Machine Controllers are general purpose computers that can manage every aspect of any industrial process, as well as a variety of wider tasks within your factory or business such as big data analysis. Our IPCs run on the Windows operating system and use standard Codesys V3.5 SP16 or newer, and so are fully compatible with third party software and hardware but have been optimized to work with other Control Techniques' products as a complete solution. The result is increased throughput for all machines.

There is increasing pressure on machine builders to develop new and more flexible products fast. That is why the MCz601 and MCz201 Industrial PC Machine Controllers have been designed to be quick and easy to install and commission. They have a robust, flexible and reliable design that allows for easy development and use, as well as for easy component and application integration.



Application example:



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Integrate, Automate, Communicate

Integration is at the heart of everything we do. Our modular drive expansion systems are designed to integrate into virtually any setup, no matter which communication protocol you use.

Our communication, I/O, feedback and machine control modules ensure anyone can experience the benefits of Control Techniques drives.

Communication



SI-Ethernet



SI-EtherCAT



SI-PROFINET V2



SI-CANopen



SI-PROFIBUS



SI-Encoder



SI-Interbus



SI-POWERLINK



Machine Control



SI-Applications
Compact



MCi200



MCi210



PTi210
PowerTools

Feedback



SI-Encoder



SI-Universal
Encoder

I/O



SI-I/O

Safety



MiS210



SI-Safety



Count on Our expertise

Energy Savings

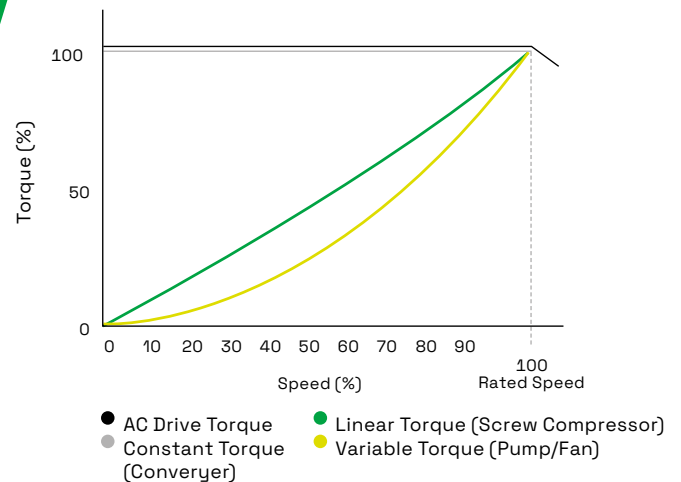
Variable Speed Drives Save Energy.

Control Techniques Variable speed drives provide effective speed control of AC motors by manipulating voltage and frequency.

Controlling the speed of a motor provides users with improved process control, reduced wear on machines, increased power factor and large energy savings.

Most applications can be grouped into the following torque categories:

- Constant torque load applications such as conveyors often require a starting torque close to the rated torque of the motor, and show only small changes as they approach rated speed.
- Linear torque load applications such as screw compressors have a more linear torque requirement that increases proportionately with speed.
- Variable torque load applications like fans and pumps have torque requirements that increase in proportion to the square of the speed and reach 100% torque just below rated speed.



The most significant energy savings can be achieved in applications with a variable torque load. The cube law relationship between speed and power means that reducing a fan's speed in a variable torque load application by 20% can achieve energy savings of 50%. Therefore, for most motion control applications, reducing motor speed is often the easiest way to get large energy savings.



www.drive-setup.com

Diagnostics to turn-key
**Solutions &
maintenance**



Energy Audits

- Pre-diagnostics (identifying main sources).
- Energy audit (gathering information & measuring electricity consumption).
- Report (measuring, suggesting and calculating achievable yield and ROI).
- Provide turnkey, high-yield solutions.
- The Energy Savings Advisor app performs a customised analysis of motor and drive energy consumption.

Complete Offering

- IMfinity® high premium and super premium efficiency induction motors IE3, IE4.
- Dyneo® best-in-class efficiency (>IE4) permanent magnet motors.
- Geared motor execution for low speed, high torque applications.
- Unidrive M and Powerdrive standard and customised drives. Scalable automation solutions – from small machine automation projects up to complete automation & electrical turnkey solutions. High performance soft starter range.
- Express availability: an offer to deliver products with a guaranteed short lead time.

Installation & Commissioning

- Accredited personnel ensure reliability and safety of equipment.
- Installation in compliance with local technical regulations and safety standards.
- Onsite commissioning.
- Extended system guarantee.
- Installation and maintenance.

After Sales

- Emergency services: 24/7 telephone and web support, onsite technical assistance, express round-the-clock delivery of products or spare parts and urgent repairs.
- Assembly centers for ongoing maintenance work (replacement, retrofit and upgrades).
- Maintenance contracts. Services are optimised on a country-to-country basis, so please refer to your local sales contact for full details. Advisor app with your smartphone or tablet, simply scan the QR-code.

Integrated safety

The new paradigm of system design

Modern industrial processes face a three-fold challenge: the constant demand for increased machine throughput, matched by a parallel need to reduce complexity and points of failure, all the while ensuring the health and safety of human operators and allowing them interaction with the running process.

Modernising system design, replacing traditional electro-mechanical safety components with the capabilities of the latest generation of variable speed drives, is the new standard across industries to increase efficiency and availability.

Unidrive and Digitax offer integrated dual Safe Torque Off (STO) inputs, certified to SIL3 / PLe, providing an elegant and more reliable solution over traditional motor contactors.

The MiS210 and MiS250 safety options extend the built-in STO with the ability to safely monitor and/or restrict the scope of motion. Supporting both wired and safety fieldbus connections, they offer maximum flexibility in the safety system architecture.





Simple, cost-effective & functional

The conventional approach to functional safety relies on an external safety controller, electromechanical components to disconnect the drive from the motor and often additional sensors to monitor speed or position.

Integrated safety can **dramatically reduce the cost and design time.**

Onboard STO safely switches off torque to the motor negating the need for external contactors.

The addition of an MiS210 or MiS250 Safety option enables complex safe motion monitoring directly on the drive using the existing motor encoder.

While many applications can be completely solved with a drive-based distributed architecture, when an external safety PLC is required, drive integration is easily achieved using network safety protocols.



Performance without compromises

When protecting people and equipment from hazards, timeliness is of the essence.

Integrated safety offers **faster reaction times**, thanks to the close-coupling of safety function and drive.

Support of the SafeEnDat protocol enables the use of functional safety certified encoders, with the ability to reach SIL 3 / PL e with a single motor-mounted encoder.

All of our integrated safety functions are externally certified to control category SIL 3 or PL e (Performance Level e).



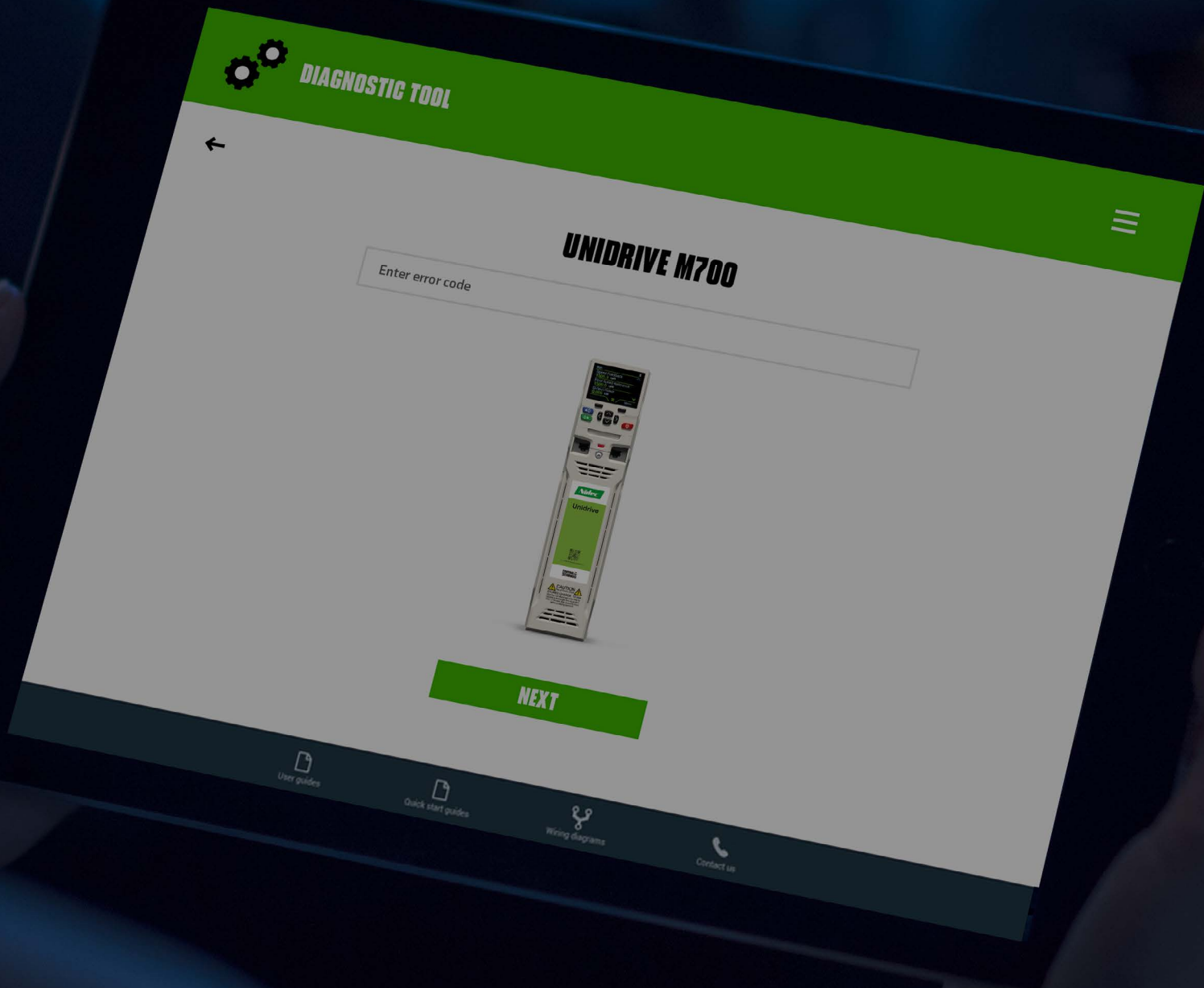
Flexible safety solution

With an integrated safety solution from Control Techniques you always enjoy **maximum flexibility**, be it in the functional design or the choice of components and protocols to integrate.

The MiS210 and MiS250 options support several encoder protocols on up to 4 different channels wired to the drive or directly to the module. Onboard Motion Safety Functions support multiple instances and safe logic blocks are also available to allow implementation of complex safety chains.

Control and monitoring of the functions, as well as transfer of safe position and speed values are available over the main safety fieldbuses: CIP Safety over EtherNet/IP and FSoE over EtherCAT.

Service & Support



Control Techniques' 94 subsidiary Drive Centers and Resellers offer customers **local technical sales, service and design expertise**; many also offer a **comprehensive system design and build service** including **local and bespoke training courses**.



Diagnostic Tool

Quickly solve any error codes that the drive may show. Download:

controltechniques.com/mobile-applications



*For Microsoft users, please note that this mobile app operates with Windows 10 only.



5-year warranty as standard*

A 5-year warranty as standard with Control Techniques' manufactured drives, option modules and keypads with immediate effect.

Now you can buy with the same confidence.

***Warranty terms and conditions apply.**



Services & Repairs

Our certified Service and Repair Centers have extensive product knowledge and provide a prompt, professional, guaranteed repair service.



Drive Systems

Fully designed, built & commissioned automation systems for your drive applications.



Contact us

For any other needs please contact your local Drive Centre, Country Partner or Distributor.



Training

Control Techniques Global Training Centers offer a unique program of drive, servo and software training solutions.



Technical Support

Our global Drive Centre and Distributor network offers local technical support. Find your local support location.



Technical Documentation

Product support downloads including user guides, software, firmware etc.



Drive Set-up

Everything you need for quick and easy installation in our free-to-access online guides:

www.drive-setup.com

Documentation

You may want support throughout a project, or enjoy the peace of mind knowing someone is here to help if you need it.

Our goal is to make it easy for you tap into specialist knowledge, helping to take some of the pressure off your design team.

Learn how Control Techniques drives and motors can help your business achieve energy savings and improve operating efficiency.

Brochures:

- Product Portfolio
- High Performance Drives
- General Purpose Drives
- Specialist Drives
- DC Drives
- Servo Drives and Motors
- Integration Products

User Guides and Software:

- Manuals
- Software
- Firmware
- Installation Guides
- 2D Drawings
- 3D Drawings
- Technical Data



Autom

Innovatin
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comfort

The world's leading global manufacturer of electric motors and controls

Nidec, the world's largest motor brand.

Nidec is in everything, everywhere.

If you drive a car, wash your clothes, watch movies or talk on a smartphone, you're using Nidec technology. Almost anything that spins and moves, no matter how big or small, does so thanks to a Nidec product.

Our shared values of passion, enthusiasm and tenacity guide us on our collective journey to be the best.



Appliance, commercial & industrial motors

Energy efficient motor and drive technology for commercial, industrial, and home appliances

otive

ng to help improve safety,
mental protection and
required for automobiles



Small precision motors

DC motors for all industries
and applications



Motion & Energy

High-performance motors, drives,
generators & energy management
solutions for renewables, automation,
infrastructure, and electric vehicles

Machinery

Machines, factory automation
equipment, measuring, and
testing devices



Connect with us



www.drivesfromnidec.com

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