Elevator Solutions
E300

Dedicated drives for class-leading ride comfort

6.2 A - 450 A
200 V | 400 V | 575 V | 690 V

CONTROL TECHNIQUES™

Nidec
All for dreams

We’re here when you need us

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

We have specialists around the world who’ll work with you to get the most out of our products.

A global leader in drive technology

We have over 40 years’ experience developing drives. Over that time, we’ve kept close to our customers, providing class-leading ride comfort in over 3 million elevators worldwide. Our latest dedicated product line is sure to take your expectations to new heights.

Drive solutions designed for perfect ride comfort.

A world of experience

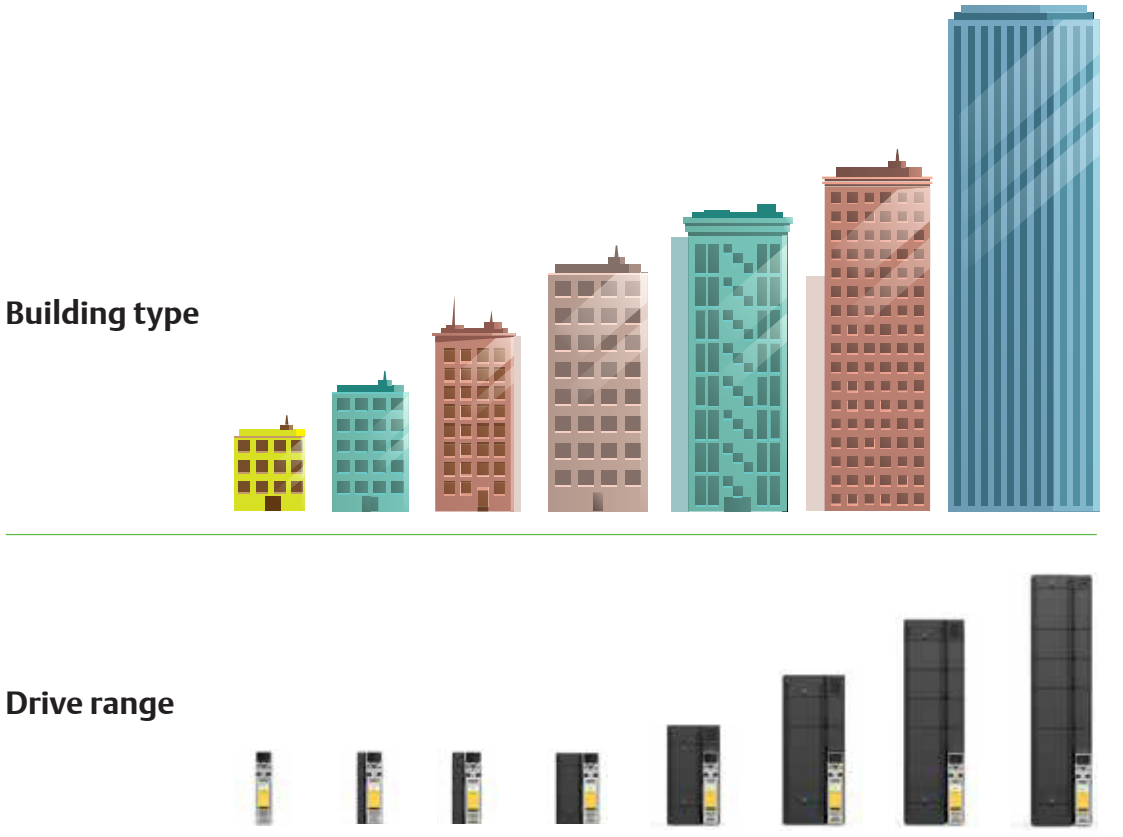
We are not just a local agent. We are a global business with shared knowledge of drive applications across every industry: a central Engineering and Design department; 40+ Automation Centers; the Nidec network of over 400 companies.

We’ve got you covered for everything that moves and spins.

- 40+ Automation Centers
- 23 Manufacturing sites
- 8 Engineering and Design facilities
- 3 Regional despatch hubs

Match all requirements seamlessly

We provide elevator drive solutions for any size of building, from the smallest residential to the luxury high rise; new build or modernization projects. Our mission is to make every step of the process as easy as possible, from product selection to installation, setup and service.



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.

Taking elevator drives to another level

Freedom to design

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.

Match any control interface

Analog speed reference, digital I/O control, comms control, digital communications control (CANopen, DCP & Ethernet).

Encoder range

Flexible encoder interface supporting 16 different encoder types without the need for additional interface cards. Ranging from incremental encoders (e.g. AB and SC), to absolute encoders (e.g. SC.SSI, SC.EnDat, SC.Hiperface, SC.SC and SC.BiSS) to absolute comms encoders (EnDat and BiSS).

Dynamic braking

All drives are fitted with a dynamic braking transistor as standard.

Simple UPS connection

The easy connectivity ensures optimum backup and rescue operation.

Quick setup

Elevator specific menu structure

Easily make adjustments to drive settings, even without having the manual at hand.

Static autotune

Encoder offset detection and optimum current loop configuration without the need to lift the brake or de-rope the system.

Flexible drive mounting

Multiple mounting options available to optimize enclosure space

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.

throughout the lifetime of your application

Easy optimization

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.

PC tools

The advanced graphic interface lets you fine-tune your elevator system with just a few clicks.

Parameter storage & cloning

Quickly back up drive configurations to an SD Card or Smartcard, or use the Elevator Connect PC tool.

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

Class-leading performance and maintenance support

Silent operation

Eliminate unwanted sounds using high switching frequencies and intelligent thermal design. In addition, cooling fans are set to only switch on when required by the power circuits.

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.

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.

Sleep mode

Turns off non-essential circuits to minimize energy consumption. Sleep mode can be initiated from the elevator controller.

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.

Ready for the future

Control Techniques continually work with customers, user groups, and legislators around the globe. We keep you ahead of what's coming up on the horizon with pre-engineered features that drive safety, efficiency and value.

Contactorless operation

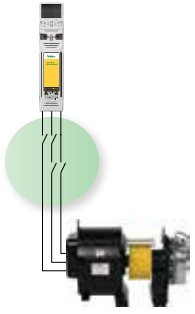
Control Techniques' drive range provides contactorless operation in elevator applications.

Our EN81-20, EN81-50 TÜV certified Safe Torque Off (STO) function provides a highly dependable method for preventing the motor from being driven. This removes the need for both output motor contactors.

The benefits of switching to a contactorless solution include:

- Reduced EMC issues
- Reduced acoustic noise
- Improved system reliability
- Simplified electrical installation
- Lower system costs
- Minimized cabinet space allowing machine room-less installation

Traditional dual output motor contactor solution



Zero output motor contactor solution with the E300 elevator drive

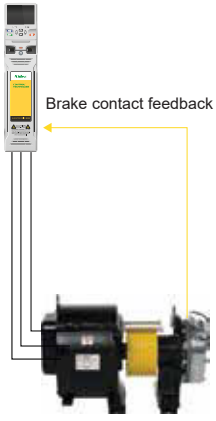
TÜV certified Brake Contact Monitoring functions on the E300 elevator drive

Brake contact monitoring

Above all else, safety is the number one priority in any elevator application. We are rigorous to achieve the highest attainable safety levels, and assist our partners in doing the same.

Control Techniques' E300 elevator drives come with Brake Contact Monitoring (BCM), an advanced feature set that improves overall system safety and supports the elevator system to meet the requirements of EN81-20, EN81-50 for Unintended Car Movement (UCM).

Our TÜV certified solution provides a flexible and simple addition to any existing or new project, managing brake contact feedback for motors with one to four motor brakes.



Class leading ride comfort. Effortless set-up

Performance guaranteed

In the elevator industry, ride experience is the true test of quality. And that's what we do best, thanks to our unique motor control algorithm and microprocessor technology. Optimum start sequencing combined with our high accuracy, direct-to-floor positioning reduces travel time, with the smoothest possible car movement.

Be it standard AC induction motors or high efficiency permanent magnet machines, our ultra-fast current loop guarantees vibration-free motor control.

Right to remain silent

Our senses go beyond feeling. Sound also plays an important role, it adds to our perception of quality. Thanks to the intelligent thermal design of our drives the fans only run when the circuits require additional cooling, minimizing unwanted noise, and making our drives silent in operation.

Switch to a zero output motor contactor solution to further reduce acoustic noise across the entire elevator system.

Rapid set-up and adjustment

Whether you live and breathe Control Techniques drives, like we do, or it's your first time looking to retrofit using our product, setup will feel straightforward. The menu structure has been designed with elevator engineers in mind; all the settings are where you'd expect them, and described in a language you'll understand.

Start with the top level menu to quickly access all frequently used functions, or go deeper and fine-tune the drive to your specific needs. You can make all adjustments on a bright backlit LCD keypad.

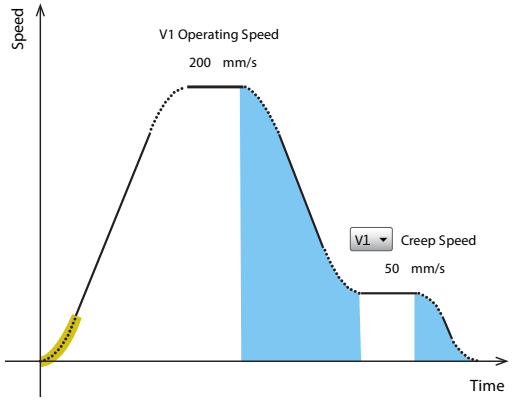
Hassle-free installation

Gone are the days of lifting brakes or de-roping systems.

Our static autotune algorithms do all the hard work, achieving optimum current loop configuration without getting your hands dirty.

Visually pleasing

The advanced graphic interface of our PC tools make optimizing your system easier and more visual than ever. Hover over to highlight and fine-tune any part of the high resolution multi-step curve. Once finished, simply save and clone parameter sets to transfer between drives and devices.



Say goodbye to downtime

Control Techniques is built on over 40 years of drive knowledge, making reliable solutions that are designed to keep applications running.

To the rescue

The blocked cabin release function on the E300 assists in releasing the cabin after the safety gear has been deployed. This removes the need to climb into the shaft, trimming maintenance time and risk.

Sizing for a contingency plan can be complex and costly. Our drives allow for a fully flexible DC operating voltage range, from nominal down to 24 Vdc, supporting UPS and battery operation.

The drive also provides a load direction signal, ensuring optimum rescue operation.

A built-in maximum power control function limits the power drawn during rescue based on the size of the UPS, keeping your backup solution dependable and economical.

Robust and reliable

Poorly designed drives result in premature failure and shortened service life. We protect our drives with conformal coating for increased resilience, even in harsh environments.

All E300 drives offer phase loss detection on both the input and output. This safeguards components, increases system lifetime, and helps avoid unnecessary downtime.

Quickly diagnose faults

You can also download our Diagnostics Tool app. Available for Apple, Android and Windows operating systems. More info at: www.controltechniques.com/mobile-applications

Stay in tune

The E300's built-in data logger can monitor any drive parameter, and it's fully user configurable. It allows up to 4 user selected parameters to be logged simultaneously. That means, for example, you can log the speed reference, speed feedback, current and I/O sequence for every journey. If a fault occurs, it's easily traced and rectified with minimum downtime.

The real-time clock on the Remote Keypad RTC provides time and date stamping. Trip log data files can then be automatically written to an on-board SD Card or Smartcard, or retrieved by the elevator controller.

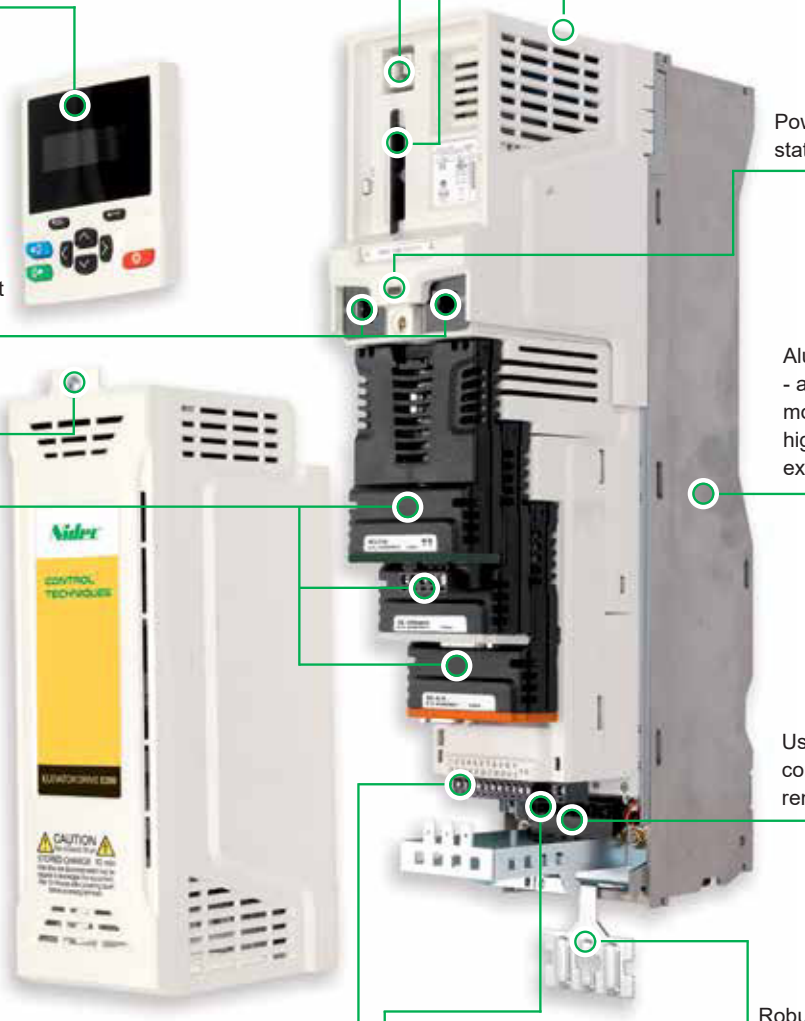
Tried-and-true

The E300 has been extensively tested with a range of elevator motor and controller technologies at the UK National Lift Tower ensuring the highest level of performance can be achieved no matter how the elevator system is configured.

The National Lift Tower is an independent 127 m (418 ft) research and development facility located in Northampton, England. There are six lift shafts of varying heights and speeds, one of which is a high speed shaft with a travel of 100 m and a theoretical maximum speed of 10 m/s.

www.nationallifttower.co.uk

Key features of the E300 drive



Easy click-in keypad connection

Slot for Smartcard / SD Card Adaptor for parameter storage, backup of drive configuration and cloning of parameters

Dedicated elevator keypad, providing:

- Easy-to-use menu and parameter structure
- Local and remote mounting
- Real-time clock

Terminal cover for DC bus, braking terminal and onboard EMC filter*

Power on / Drive status LED

RS485 communications port Modbus RTU

Single screw removable cover

Aluminum chassis - allows flexible mounting, with high performance extruded heatsink

3 x System Integration (SI) module slots for communications, I/O, additional feedback devices

User-friendly power connections with removable terminals*

Pluggable control connections

Flexible dual port universal encoder interface supporting incremental, SinCos, SSI, EnDat and Hiperface feedback types

Robust cable management system providing grounding point for shielded control and power cables

* Features and their locations vary between drive sizes

SIL3 RoHS Compliant N1652 E171230

Drive ratings

200 V Drives

E300		03200106A10	04200137A10	04200185A10	05200250A10	06200330A10	06200440A10	07200610A10	07200750A10	07200830A10	08201160A10	08201320A10	09201760A10	09202190A10	10202830A	10203000A
Peak current	A	18.6	24	32.4	44	57.8	77	107	132	146	203	231	308	383	496	525
Nominal current @ 40° C	A	10.6	13.7	18.5	25	33	44	61	75	83	116	132	176	219	283	300
Nominal electrical power	kW	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90
Switching frequency	kHz	8 (Selectable 3 to 16 kHz @ 50 % ED)														
Input voltage	V	3 phase 200 - 240 Vac, 50-60 Hz ± 10 %														
Braking transistor		Built in as standard														

400 V Drives

E300		03400062A10	03400078A10	03400100A10	04400150A10	04400172A10	05400220A10	05400270A10	05400300A10	06400350A10	06400420A10	06400470A10	07400660A10	07400770A10	07401000A10	08401340A10	08401570A10	09402000A10	09402240A10	10402700E	10403200E
Peak current	A	11	14	18	27	31	39	48	53	62	74	83	116	135	175	235	275	350	385	473	543
Nominal current @ 40° C	A	6.2	7.8	10	15	17.2	22	27	30	35	42	47	66	77	100	134	157	200	220	270	310
Nominal electrical power	kW	2.2	3	4	5.5	7.5	9	11	15	15	18.5	22	30	37	45	55	75	90	110	132	160
Switching frequency	kHz	8 (Selectable 3 to 16 kHz @ 50 % ED)																			
Input voltage	V	3 phase 380 - 480 Vac, 50-60 Hz ± 10 %																			
Braking transistor		Built in as standard																			

575 V Drives

E300		05500030A10	05500040A10	05500069A10	06500100A10	06500150A10	06500190A10	06500230A10	06500290A10	06500350A10	07500440A10	07500550A10	08500630A10	08500860A10	09501040A10	09501310A10	10501520E10	10501900E10
Peak current	A	5.5	7	12	17.5	26.5	33.5	40.5	51	54.5	77	96.5	110.5	150.5	182	229.5	266	332.5
Nominal current @ 40° C	A	3	4	6.9	10	15	19	23	29	31	44	55	63	86	104	131	152	190
Nominal electrical power	kW	1.5	2.2	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132
Switching frequency	kHz	8 (Selectable 3 to 16 kHz @ 50 % ED)																
Input voltage	V	3 phase 500 - 575 Vac, 50-60 Hz ± 10 %																
Braking transistor		Built in as standard																

690 V Drives

E300		07600190A10	07600240A10	07600290A10	07600380A10	07600440A10	07600540A10	08600630A10	08600860A10	09601040A10	09601310A10	10601500E10	10601780E10
Peak current	A	33.5	42	51	66.5	77	84	110.5	150.5	182	229.5	262.5	311.5
Nominal current @ 40° C	A	19	24	29	38	44	48	63	86	104	131	150	178
Nominal electrical power	kW	15	18.5	22	30	37	45	55	75	90	110	132	160
Switching frequency	kHz	8 (Selectable 3 to 16 kHz @ 50 % ED)											
Input voltage	V	3 phase 690 Vac, 50-60 Hz ± 10 %											
Braking transistor		Built in as standard											

Further information is available from your supplier on the following features:

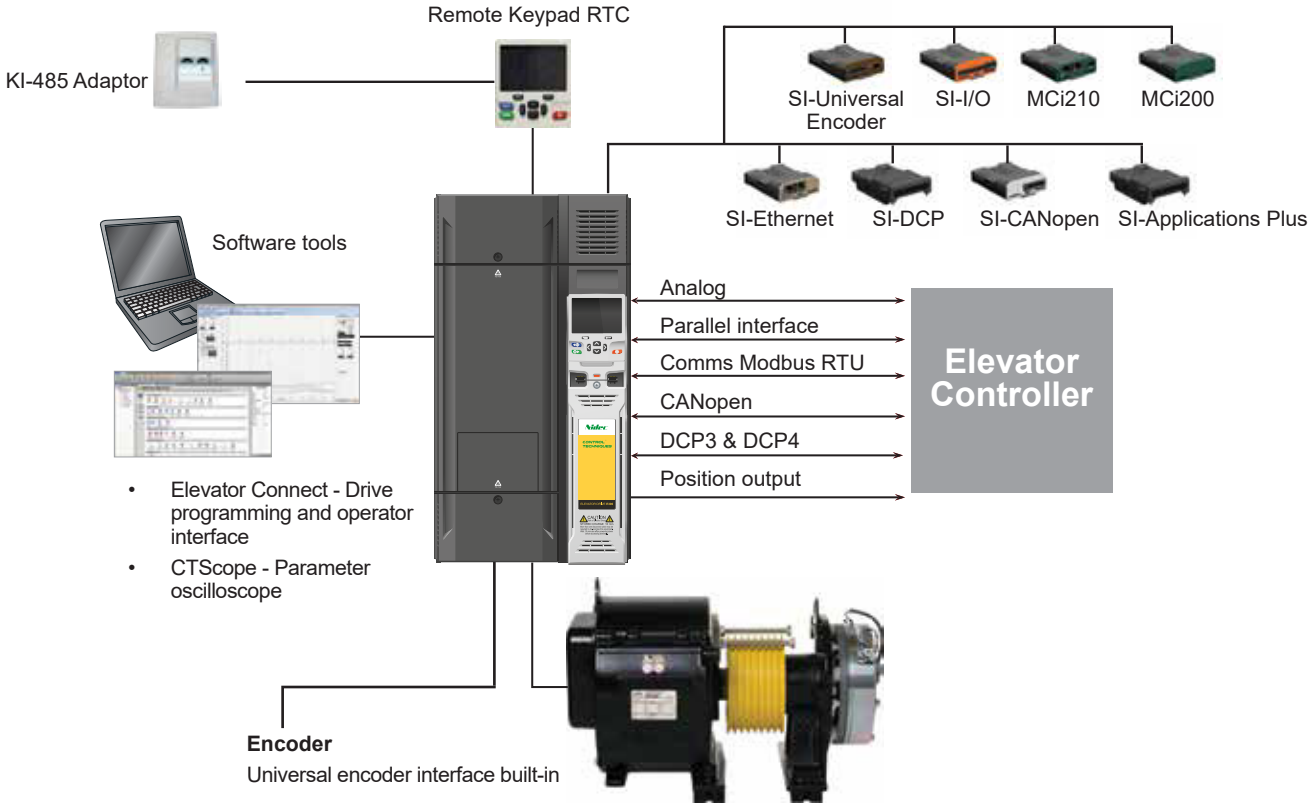
- UPS operation - all drives have a dedicatedlow voltage mode allowing operation from a UPS, for example a standard 230V solution
- DC supply - all drives have the possibility of being supplied from a DC source from 24 V to the maximum voltage rating of the product
- Larger frame size units up to 450 A at 400 V are also available

Options and accessories

Optional keypad	Order code
Remote Keypad RTC: The keypad is local or remote mountable, allowing flexible mounting on the outside of a panel (meets IP54/NEMA 12). Three line full text, multi-language LCD keypad for rapid set-up and helpful diagnostics. Battery operated real-time clock allows accurate time stamping of events. 	82400000019600

Software	Order code
Connect software package: the Connect PC tool is for commissioning, optimizing and monitoring drive performance. 	Available for free on controltechniques.com

Option modules	Order code
SI-Ethernet: Ethernet module supports EtherNet/IP and Modbus TCP/IP. 	82400000017900
SI-DCP: DCP3 & DCP4 interface module. 	82400000019900
SI-CANopen: CANopen interface module. 	82400000017600
SI-I/O: Extended I/O interface module to increase the number of I/O analog and digital points on a drive. 	82400000017800



Option modules	Order code		
SI-Universal Encoder: Encoder input and simulated output interface supporting quadrature, SinCos, EnDat and SSI encoders. 	82400000018300	MCi200: Second processor, providing advanced customization using industry standard IEC61131-3 programming languages. 	82400000017000
SI-Applications Plus: Allows SyPTPro application programs to be recompiled and executed to enable rapid and simple upgrade for existing Control Techniques drive users. 	82400000016500	MCi210: Extended advanced machine control, provides MCi200 functionality with additional ports and simultaneous connectivity to 2 separate Ethernet networks. 	82400000016700

Optional accessories		Order code
Smartcard: Smartcard memory device to back up and copy parameter sets and basic programs.		2214-0010-00
SD Card Adaptor: Allows an SD Card to be inserted into the Smartcard slot, for parameter back up, cloning and application programs.		82400000016400
KI-485 adaptor: Allows the drive to communicate via additional RS485 ports.		82400000016100
USB to RS485 comms cable: The cable allows the drive to connect to a PC for use with PC tools.		4500-0096

Through hole IP65 kit

Frame size	Order code
3	3470-0053
4	3470-0056
5	3470-0067
6	3470-0055
7	3470-0079
8	3470-0083

Tile mount kit

Frame size	Order code
3	3470-0049
4	3470-0060
5	3470-0073

Retrofit brackets

To allow E300 drives to be fitted in existing Unidrive SP and Unidrive ES surface mount installations.

Frame size	Order code
4	3470-0062
5	3470-0066
6	3470-0074
7	3470-0078
8	3470-0087
9A, 9E & 10	3470-0118

Environmental safety

IP20 / NEMA1 / UL TYPE 1*
*UL open class as standard, additional kit needed to achieve Type 1

- IP65 / NEMA12 / UL TYPE 12 rating can be achieved on the rear of the drive when through panel mounted
- Frames 9, 10 and larger can achieve IP55 / NEMA12 / UL TYPE 12 rating on the rear of the drive when through panel mounted
- Ambient temperature -20 °C to 40 °C as standard. Up to 55 °C with derating
- Humidity 95 % maximum (non-condensing) at 40 °C
- Altitude: 0 to 3000 m, derate 1 % per 100 m between 1000 m and 3000 m
- Random Vibration: Tested in accordance with IEC 60068-2-64
- Mechanical Shock Tested in accordance with IEC 60068-2-29
- Storage temperature -40 °C to 70 °C

Optional external EMC filters

External EMC filters can be used where required for compliance with the harmonized European EMC emission standard EN12016.

For more information please contact your supplier and refer to the E300's EMC datasheet document: Electromagnetic Compatibility Data for Lifts, Elevators, Escalators and Moving Walks.

Frame size	Voltage	Order code
3	200 V	4200-3230
	400 V	4200-3480
4	200 V	4200-0272
	400 V	4200-0252
5	200 V	4200-0312
	400 V	4200-0402
	575 V	4200-0122
6	200 V	4200-2300
	400 V	4200-4800
	575 V	4200-3690
7	200 V & 400 V	4200-1132
	575 V & 690 V	4200-0672
8	200 V & 400 V	4200-1972
	575 V & 690 V	4200-1662
9A	200 V & 400 V	4200-3021
	575 V & 690 V	4200-1660
9E & 10	200 V & 400 V	4200-4460
	575 V & 690 V	4200-2210

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theautomationengineer.com (blog)

THE AUTOMATION ENGINEER

Nidec

All for dreams

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