

Nidec

Drives



Elevator Drive E300

Dedicated drives for
class-leading ride comfort

Specialist Drive



CONTROL
TECHNIQUES
ELEVATOR

Any size solutions

Your top choice For every project



25+ Automation centers

Providing outstanding customer support for any product or service requirement.



5 manufacturing sites

Producing a comprehensive range of products, optimised for specific customer needs.



Unparalleled performance

Control Techniques drives are the go to product in modern elevator systems around the globe.



Drives you can rely on

Designed and tested to offer enduring reliability regardless of traffic requirements or installation preference.

Our elevator drive solutions work for any size of building.

Whether it's a small residential building or a luxury high rise, new build or modernization projects, we make every step of the process as easy as possible from product selection to installation, setup and service.



5-year warranty as standard*

Our Elevator Drive 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.

A level above throughout The lifetime of your application

Freedom to design

For every project

Optimised and efficient for new elevators, truly comprehensive when it comes to the wide spectrum of requirements at retrofit projects.

Broad power range, compact form factor

A full range of some of the smallest drives in the industry per kW rating. Perfect for MRL systems where space is at a premium, and just as capable as a full cabinet, offering 10 m/s speeds in high rise buildings.

Match any control interface, any protocol

Velocity or position control through any common method, including analogue speed reference, digital I/O, or digital comms via Modbus, CANopen, CANopen-Lift, DCP or Ethernet.

Work with any motor, any feedback device

Perfect control over any asynchronous or synchronous motor. Support for 17 different feedback types as standard, without the need for additional interface cards.

Multiple mounting options

Flexible drive mounting options are available to optimise space, either in a cabinet or inside the elevator shaft.

Dynamic braking & regen solutions

All drives are fitted with a dynamic braking transistor as standard. Braking energy can also be recuperated when using one of our regen solutions together with the drive.

Back-up power connectivity & rescue mode

After connecting a UPS or battery to the terminals of the drive, low voltage mode can keep the drive running and perform a rescue even at 24 Vdc.



Effortless installation and commissioning

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.

Robust cable management

Our standard accessories help keep things tidy and provide grounding points for shielded control and power cables.

Elevator specific menu structure

Designed to be intuitive, everything is described clearly using familiar language and common units.

Stationary autotune

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

Parameter storage, cloning & security

Quickly back-up drive parameter configurations to an SD card or Smartcard, or clone them over multiple drives.

Create secure cards with pre-configured parameter sets and lock them to your specific units.

Keypad with backlit LCD display

The Remote Keypad RTC helps make adjustments to drive settings rapidly. Mount it directly on the drive or remotely with an RS485 lead.

Virtual terminal

Take advantage of advanced industry-specific comms protocols and set everything up through the elevator controller without direct interaction with the drive, especially if it's physically difficult to access.

PC tools

Manage everything related to your elevator drive in our Connect software. Set up, fine tune or troubleshoot with just a few clicks.



Class-leading performance

Creep-to-floor or Direct-to-floor operation

Get class-leading ride performance either in traditional creep-to-floor operation or with our highly accurate direct-to-floor positioning mode, greatly improving travel times.

Selectable gains

Choose separate variable speed loop and current loop gains as needed for start, run and stopping, and have perfect ride comfort at each section of the travel profile.

Load cell compensation & Start locking

Prevent roll-back of the elevator car when the brakes are released, with or without a load cell fitted in the system.

Start optimiser

Use the Start optimiser function to overcome stiction during start in either the motor gearbox or guide rail pads.

Fast start

Speed up the starting sequence for every travel, allowing the brakes to release as the elevator doors are closing and for the car to move as soon as it can safely do so.

Floor sensor correction

If your site has floor sensors or limit switches set up in the elevator shaft, FSC helps compensate for rope slip, rope stretch or any mechanical offset, achieving perfectly accurate positioning every time.

Short floor landing

Where the garage or lobby has an odd height compared to other floors in the building, you can rely on Short floor landing for the elevator car to travel a fixed distance and get into position.

Sleep mode

Turns off non-essential circuits to minimise energy consumption. Quick wake up times ensure the drive is ready to go when it's needed.



Maintenance and diagnostics support

Selectable status parameters

Two status parameters can be freely selected to be displayed on the attached drive keypad as default, and help monitor the drive during normal operation or maintenance.

Diagnostics

The simple trip code system makes it easy to diagnose drive errors. The last 10 trip codes are recorded within the drive to aid troubleshooting.

With the Remote Keypad RTC attached, the diagnostic records also receive time and date stamps as they are generated.

Data logger

All drives have a built-in data logger that can monitor any parameter, recording events such as drive trips. Records can be written onto a media card or retrieved by the elevator controller via the comms link.

Normal Terminal Stopping Device

The NTSD function is intended to bring the elevator car to a controlled, limited speed if the car ever approaches the bounds of the shaft or the controller detects overspeed.

Fast stop

When a technician is manually controlling the elevator car during maintenance, the Fast stop feature can bring the car to a rapid but controlled halt as needed.

Low voltage rescue mode

Whenever the main power is down, the drive can perform a rescue of an unbalanced car to the nearest floor by sequencing the brakes. In systems with a synchronous machine, the drive can also utilise the braking energy generated by the motor and generate the rescue profile for improved comfort.

Blocked elevator car release

The drive can undo the elevator's safety gear after it has been deployed and return the blocked car to normal operation, without the need for a technician to climb into the shaft.

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.

Elevator Drive E300

State-of-the-art solutions in support of system safety

Above all else, safety is the number one priority in any elevator application. We at Control Techniques are rigorous in achieving the highest attainable safety levels, and assist our partners in doing the same, with pre-engineered features already built-in into our products.

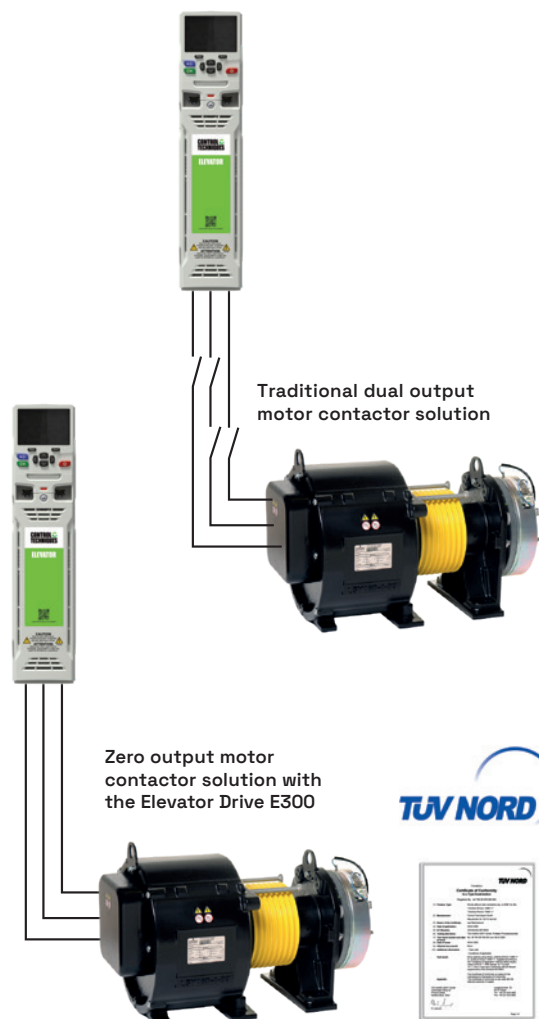
Zero motor contactor operation

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

Our EN81-20, EN81-50 TÜV certified Safe Torque Off (STO) function provides an exceedingly dependable method for preventing the motor from being driven. This removes the need for both output motor contactors, a standard but burdensome feature of traditional elevator systems.

The benefits of switching to a contactorless solution include:

- Simplified electrical installation
- Improved system reliability
- Reduced EMC issues
- Reduced acoustic noise
- Improved system costs
- Minimised cabinet space allowing machine room-less (MRL) installations



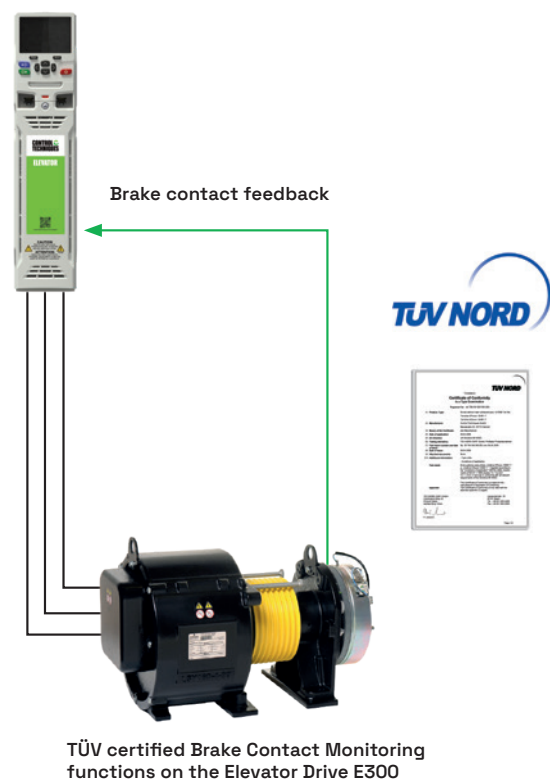
Optimum brake control

Control Techniques' Elevator Drive E300 can manage the control signals of the mechanical brakes, allowing for the smoothest transition of load during start and stop, or leave it up to the elevator controller, depending on the customers' preferences in system design.

Brake contact monitoring

The Elevator Drive E300 comes with Brake Contact Monitoring (BCM) as standard; an advanced feature set that improves overall system safety and supports even legacy elevator systems 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.



Effortless set-up

Class leading Ride comfort

Performance guaranteed

Ride experience is the true test of quality in the world of elevators. As a company of drive obsessives we take pride in honing our unique motor control algorithms, and so precise, smooth motor control is what we do best.

Our ultra fast current loop guarantees vibration and jerk-free motor control with virtually any motor, either geared or gearless induction motors, or the latest, highly efficient permanent magnet machines.

The benefit to you is the smoothest car movement possible and reduced travel times realized through optimum start sequencing. The improvements don't have to end there, as you may also take advantage of our highly accurate direct-to-floor positioning mode, eliminating the wait on the elevator car to creep into position.

Right to remain silent

Sound also plays an important role in user's perception of quality. Thanks to the intelligent thermal design in our drives, the cooling fans only run when components require additional cooling at peak operation, cutting down on unwanted acoustic noise and making our drives run silently.

You may also use our drives to switch to a zero output motor contactor solution to further reduce acoustic noise across the entire elevator system.

Hassle-free installation

Gone are the days when a commissioning or maintenance job needs to take hours if not days, lifting the motor brakes or de-ropeing the system.

Our static autotune algorithms do all the hard work, quickly detecting the encoder offset and achieving optimum current loop configuration without you getting your hands dirty.

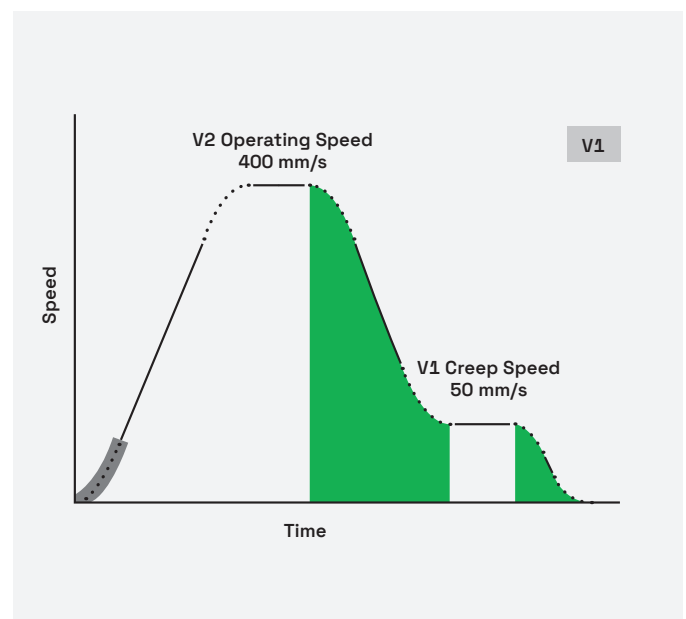
Rapid set-up and adjustment

The menu structure of the Elevator Drive E300 is designed with elevator engineers in mind, so all the settings are where you'd expect them and described using familiar language. Setup is straightforward whether you're highly experienced working with Control Techniques drives or brand new to them.

Start with the top level "Menu A" to quickly access all frequently used functions. You can also go deeper and fine-tune the drive to your specific needs. Make all adjustments on a bright backlit LCD keypad.

Visually pleasing

Optimising your system is easy and more pleasing to the eyes than ever with the advanced graphic interface of our PC tools. 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.



Elevator Drive E300

To the rescue

With over 45 years of drive knowledge, Control Techniques know how to make reliable solutions designed to keep applications running.

Flexible and cost effective

Ensuring no one gets trapped in an elevator car if the main power goes down is a must-have for any elevator system, yet sizing for such a contingency plan can be complex and costly.

Our drives allow for a fully flexible DC operating voltage range, down to 24Vdc, supporting common solutions such as a single phase UPS or battery operation.

The Elevator Drive E300 also incorporates a number of rescue assist modes, minimizing the power drawn from the backup supply, such as gravity-assisted Low Voltage Rescue, and even utilizing the energy generated by a synchronous motor.

Additional features like the Blocked Cabin Release function cut maintenance time and risk. In case the safety gear has been deployed, the drive can assist in releasing the cabin remotely, without the need for a technician to climb into the shaft.

Stay in tune

The Elevator Drive 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 at the same time.

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 sorted out with minimum downtime.

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



Robust and reliable

From the start we design our elevator drives with cyclic applications in mind, to help achieve long service life in the most demanding applications. To withstand harsh environments, we protect our drives with conformal coating for increased resilience.

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

Tried-and-true

We can ensure the highest level of performance no matter how the elevator system is configured. This is because our E300 drives have been extensively tested with a range of elevator motors and controller technologies at the UK National Lift Tower.

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

nationallifttower.co.uk

Diagnostics? There's an app for that



Free
download



Diagnostic Tool App

The Diagnostic Tool App is a fast and simple tool, which allows users to quickly solve any error codes that the drive may show.

Download from:
controltechniques.com/mobile-applications

Free online help: Drive-Setup.com

You'll have permanent free access to lots of web pages with useful information, like user manuals, 'how-to' videos and guides.

YouTube Training

Access a series of Commander C training videos, available on YouTube, visit:
www.youtube.com/controltechniques

Elevator Drive E300

Key features

Function		Function	
Creep-to-floor operation	✓	Active thermal management	✓
Direct-to-floor positioning	✓	Variable speed cooling fan	✓
Selectable speed reference	10	Supply loss detection	✓
Start optimizer	✓	Low DC link operation	✓
Start locking & pre-torquing	✓	24 Vdc backup	✓
Selectable switching frequencies	Up to 16 kHz	Simple UPS connection with load direction signal	✓
Skip frequency dead bans	✓	Analogue input control	3
Local/Remote keypad	✓	Analogue output control	2
High resolution S-ramp	✓	Temperature monitoring	✓
Acceleration Rates	8	Digital input control	3
Deceleration Rates	8	Digital I/O programmable control	3
Control mode: analogue reference	✓	Safe Torque Off input	1
Control mode: digital binary	✓	Relay control	1
Control mode: control word	✓	Mechanical Brake Controller	✓
Control mode: analogue reference over comms	✓	Brake contact monitoring	✓
Control mode: DCP3 & DCP4	✓	Adjustable break delays	✓
Control mode: CANopen-Lift	✓	Logic function control	✓
Stator resistance compensation	✓	Timer function control	✓
Slip compensation	✓	Limit switch control	✓
Selectable roping ratios	✓	Variable selector	✓
Auto-tune static	✓	Energy meter	✓
Auto-tune rotating	✓	Trip time stamping	✓
Tunable start, run & stop gains	✓	Trip logging	8
Fast stop	✓	Run time log	✓
Floor sensor correction	✓	Cloning	✓
DC injection braking	✓	Universal feedback port on-board	✓
Programmable braking	✓	Speed feedback via options	✓



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

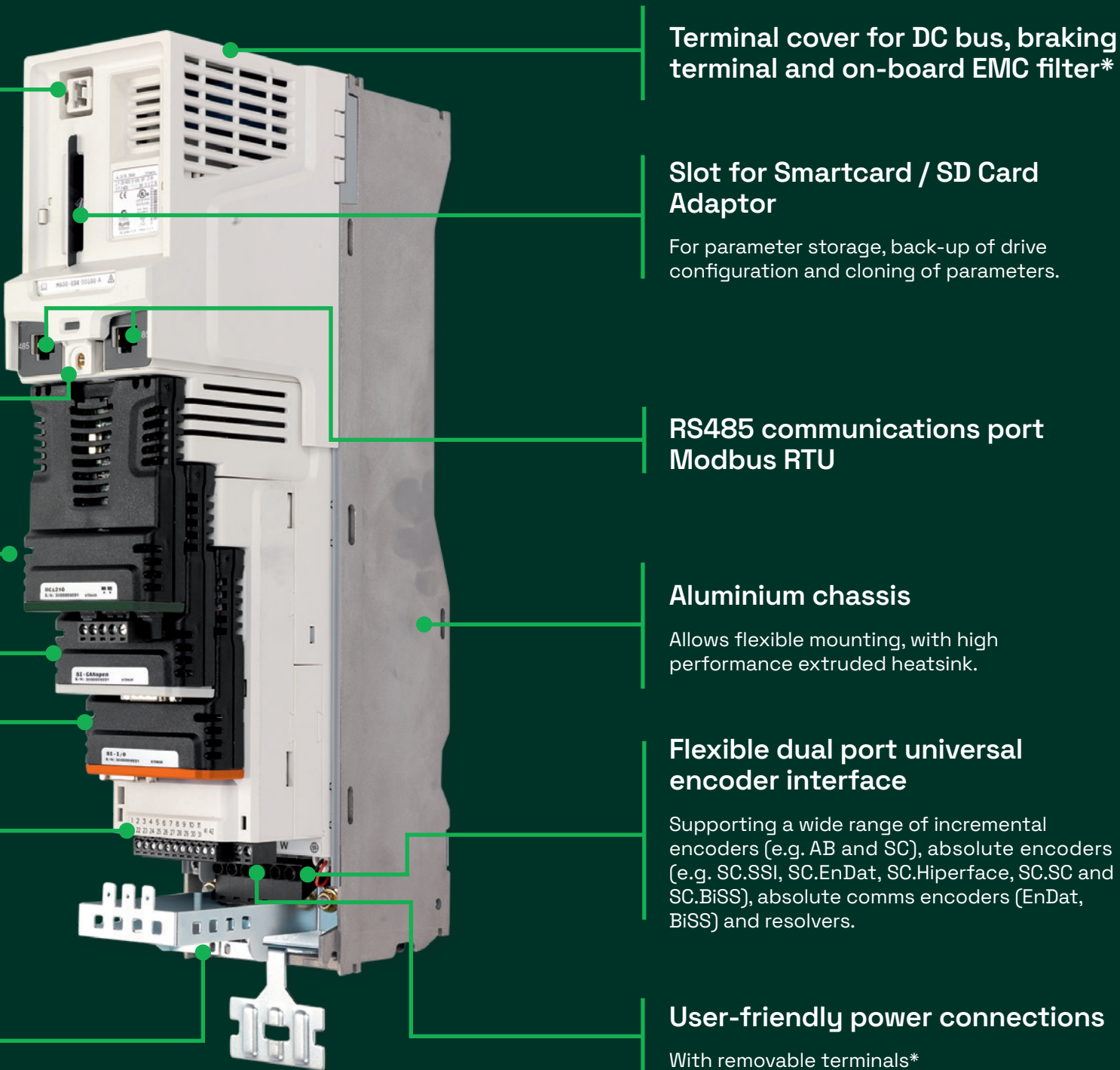
3 x slots available for additional communications, I/O, and feedback management modules

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.

Elevator Drive E300

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		0550030A10	0550040A10	0550069A10	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																

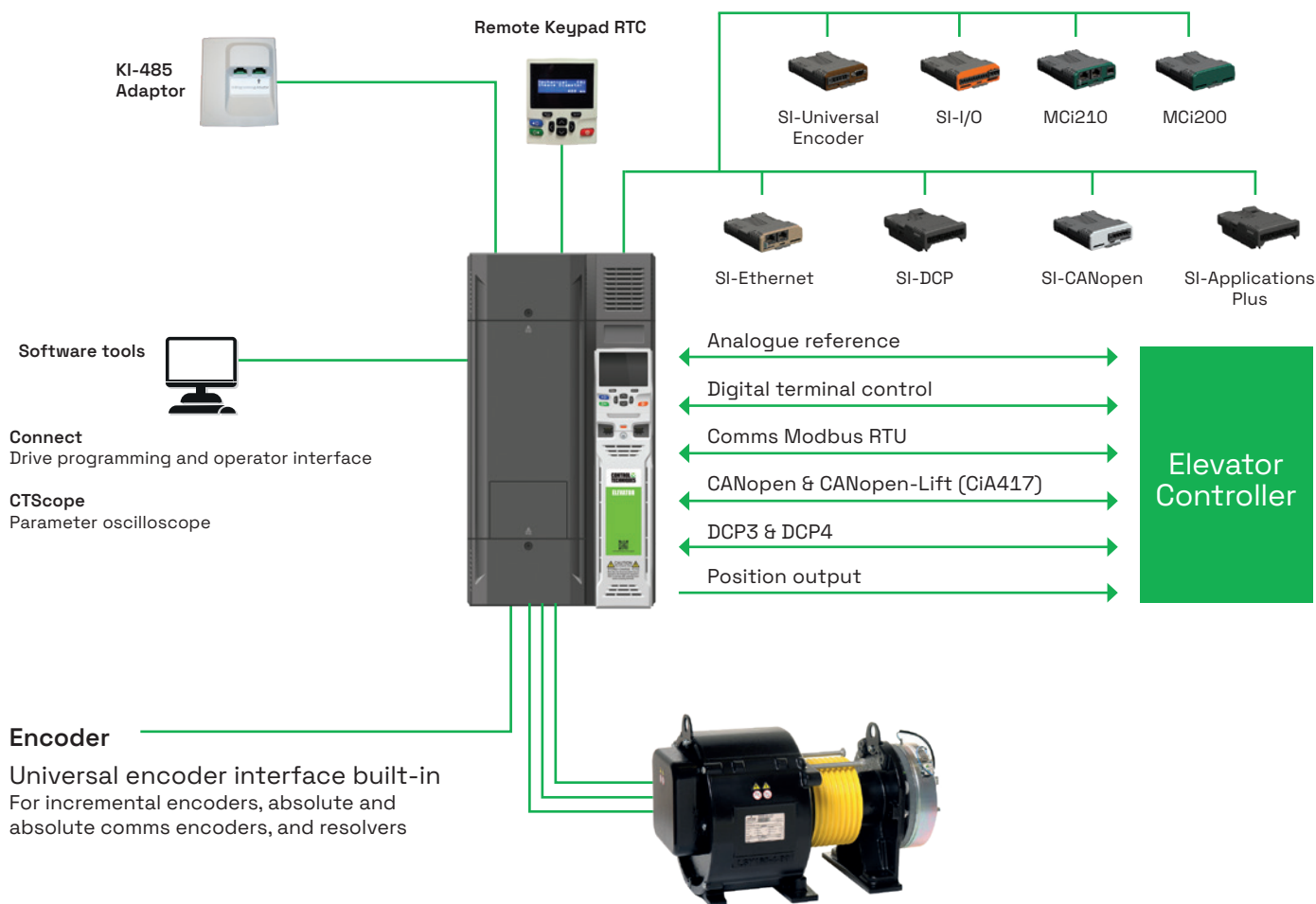
690 V Drives													
E300		07600190A10	07600240A10	07600290A10	07600380A10	07600440A10	07600540A10	08600630A10	08600860A10	09601040A10	09601310A10	10601500E10	10601780E10
Peak current	A	33.5	42	51	66.5	77	84	110.5	150.5	182	229.5	262.5	311.5
Nominal current @ 40° C	A	19	24	29	38	44	48	63	86	104	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 dedicated low 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

Elevator Drive E300

Options and accessories



Feedback



82400000018300

SI-Universal Encoder

Encoder input and simulated output interface supporting Quadrature, SinCos, EnDat and SSI encoders.

I/O



82400000017800

SI-I/O

Extended I/O interface module to increase the number of I/O analogue and digital points on a drive.

Communications



SI-DCP*

82400000019900

*Support of DCP3 & DCP4



SI-CANopen

82400000017600



SI-CiA417

82400000021700



SI-Ethernet

82400000017900



82400000017000

MCi200

Second processor, providing advanced customization using industry standard IEC61131-3 programming languages.



82400000016700

MCi210

Extended advanced machine control, provides MCi200 functionality with additional ports and simultaneous connectivity to 2 separate Ethernet networks.



82400000016500

SI-Applications Plus

Allows SyPTPro application programs to be recompiled and executed to enable rapid & simple upgrade for existing Control Techniques drive users.

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

KI-Keypad Plus's large and clear colour display makes the drive status information and parameter descriptions easy to read and readily accessible. It enables easy access to key drive features for enhanced machine performance, with the helpful wizard quickly guiding the user through configuration.



82400000019700

Bluetooth allows remote and flexible connectivity for PC tool commissioning and programming, without needing to open the cabinet, for smarter and safer working. 10 user selectable parameters can be shown on the status screen, with real-time information, plus all parameters can be scaled and their units customised.

Optional accessories

Order code

Smartcard: Smartcard memory device to back-up and copy parameter sets.



2214-0010-00

SD Card Adaptor: Allows an SD Card to be inserted into the Smartcard slot, for parameter back-up and cloning.



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, 9B, & 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 harmonised 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

Elevator Drive E300

Support right here, right now

Whether you want strong support throughout a project or like to be reassured someone can help if necessary, we provide the support you need.

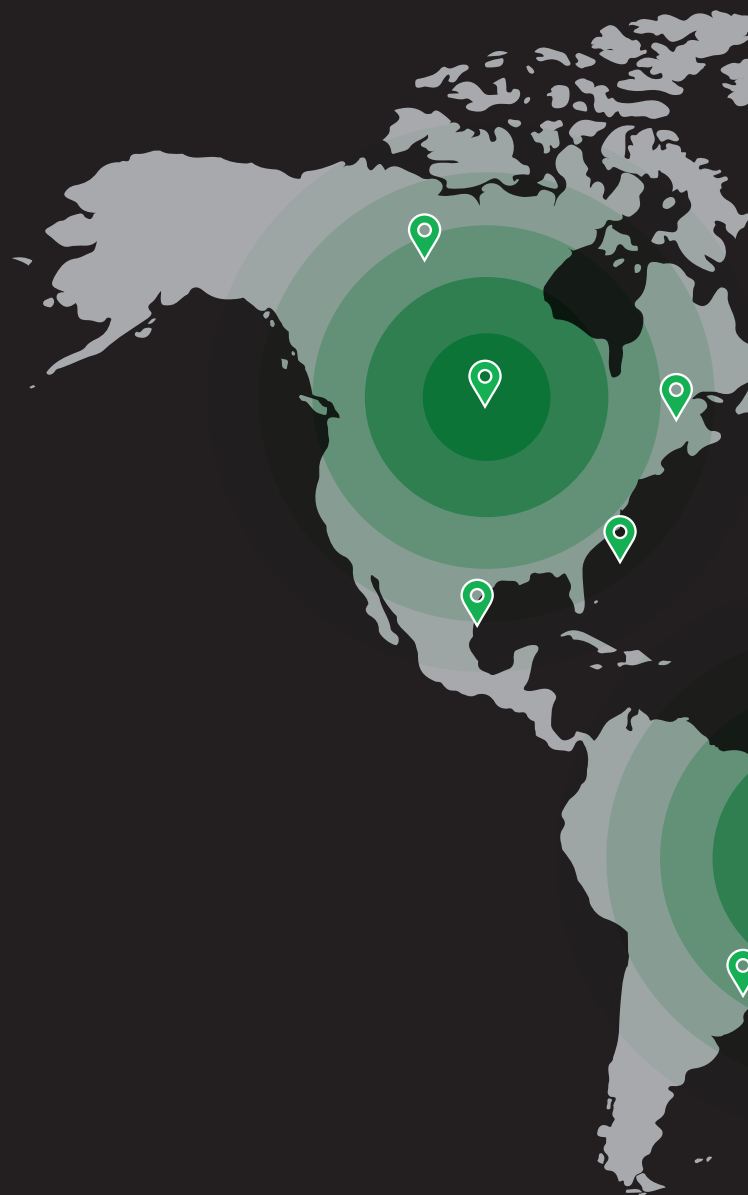
Our worldwide network of specialists will work with you to get the best out of your application.

Decades of specialist expertise

During our 45 years' of experience developing drives, we've provided superb ride comfort in over 3 million elevators worldwide. Our latest dedicated product line takes customer expectations to new heights.

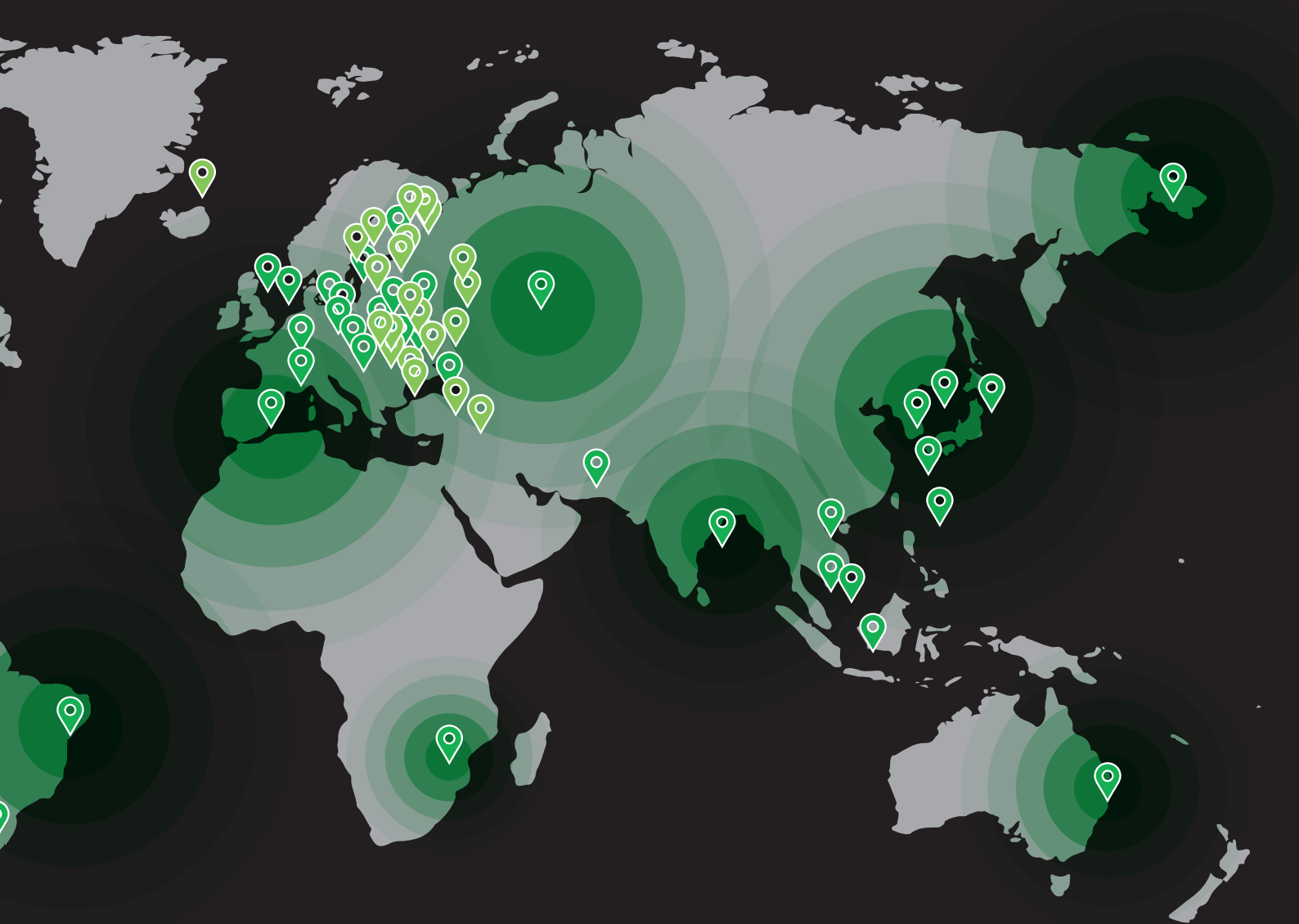
A world of experience

With us, you don't just get the benefits of a local agent but also of a global business with shared knowledge of drive applications across every industry. We also have a central Engineering and Design department, 25+ Automation Centers, and the Nidec network of over 230 companies.



Drive sales, technical support, repair and application expertise

Country Partners





Autom

Innovatin
environn
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



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www.kbelectronics.com

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