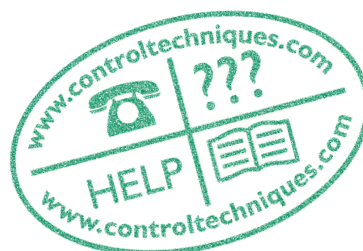


## Unidrive

Elevator Drives

The Solutions Platform



# Unidrive **SD** - The Elevator drive

The perfect elevator drive from  
Control Techniques



Unidrive **SD** is your ideal drive partner for elevator controllers suitable for a diverse range of applications:

- Geared and gearless elevators
- Synchronous motors and asynchronous motors with or without encoder
- Elevators with 'creep-to-floor' travel or 'direct-to-floor' travel



**A flexible integration policy ensures Unidrive **SD** is open to all elevator controllers.**

When combined with the optional SM-Applications module and the elevator software from Control Techniques, Unidrive **SD** can be flexibly adapted to every elevator controller, ensuring maximum performance from the controller and host system.

## Flexibility thanks to easy elevator parameter settings

Thanks to easy parameter setting, Unidrive **SD** can be used in the following operating modes:

- OPEN LOOP - without elevator motor speed feedback
- CLOSED LOOP - with elevator motor feedback
- SERVO - with synchronous elevator motor
- REGEN - mains-fed AC inverter with unity power factor  $\cos = 1$

Rating:	0.75 to 22 kW* / 1 to 30 hp
Mains input:	380 to 480V / 48 to 62Hz
Protection rating:	IP20 / IP54** Nema 1/ Nema 12**
Switching Frequencies:	3 to 16 kHz
<p>* Higher power ratings available on request ** Option</p> <p>Internally integrated as standard:</p> <ul style="list-style-type: none"> <li>● mains connection</li> <li>● braking circuit</li> <li>● EMC filter</li> <li>● battery back up supply connection</li> </ul>	



## Complete system for elevator drives

- Complete with power supply and accessories delivered in the control cabinet
- Accessories complete with EMC filter, line choke and braking resistor all from a single supplier
- Optional, mains-friendly regen with power factor correction -  $\cos = 1$
- User selectable feedback as Encoder, SinCos Encoder or Resolver
- 'Secure Disable' function (EN954-1 cat. 3)

## SMART **START**

- Easy parameter setting backup
- Provides pre-optimised parameter settings
- Ensure quick reliable system start-up by trained personnel



## Keypad options provide real benefits

- LED standard display
- LCD display with plain text
  - Allows users to enter values in plain text
  - Elevator industry specific parameters
  - Operator prompts
  - Help function
- Display-free operation
  - Parameters stay protected
  - Prevents access by unauthorised personnel

## Internal controller functionality

- Logic functions easily expanded
- External functions provided (overspeed and overload protection)

## Designed for emergency evacuation systems

- 48-60V battery supply can be connected for emergency evacuation mode on loss of mains power
- Internal load measurement for automatic choice of direction
- Implementation cost & time is greatly reduced compared with conventional evacuation systems

# The elevator drive with the highest quality


## Elevator functions integrated in the basic unit

- 7 speeds (binary)
- 'Creep-to-floor' travel
- S-ramp (jerk) with separate acceleration rounding
- Brake controller
- Velocity thresholds
- Stopping controller

## SM-Applications offers users real integration possibilities

- Parameters in familiar elevator industry units (mm, mm/s, mm/s<sup>2</sup>, etc.)
- S-ramp (jerk) with sectionalised, adjustable profile parameters
- Wide speed selection (7-10 speeds)
- 2 velocity thresholds (e.g. 0.3 m/s)
- 'Creep-to-floor' travel or 'direct-to-floor' travel
- Peak travel and short travel
- Winching error supervision
- Brake controller
- Optimised acceleration
- Separate controller parameters for travel and load transfer
- Electronic load measurement
- High-precision positioning
- Calculation of deceleration paths
- Stopping controller for gearless motors

## Optimised for elevator applications

- Temperature controlled ventilation fan speed for low noise emission
- High switching frequency (up to 16kHz) for quiet running motor
- High resolution encoder with up to 1 million pulses per revolution
- Extremely stiff and highly dynamic control for direct drive applications (gearless)
- Built-in brake chopper
- Built-in dc bus choke for reduced mains harmonics feedback
- Optional CANopen interface
- User friendly elevator software
- Operation with and without elevator motor feedback encoder
- For synchronous and asynchronous motors
- Minimal fitted depth at < 300mm
- Designed to meet tough elevator duty cycle
- Unidrive  operates easily with a wide range of AC motors - perfect for retrofitting applications

Elevator Data	Gearless elevator	Geared speed
Speed	0.8 - 7 m/s	0.6 - 3 m/s
Useful load	300 - 3000 kg	300 - 3000 kg
Motor speed	40 - 280 rpm	500 - 3000 rpm



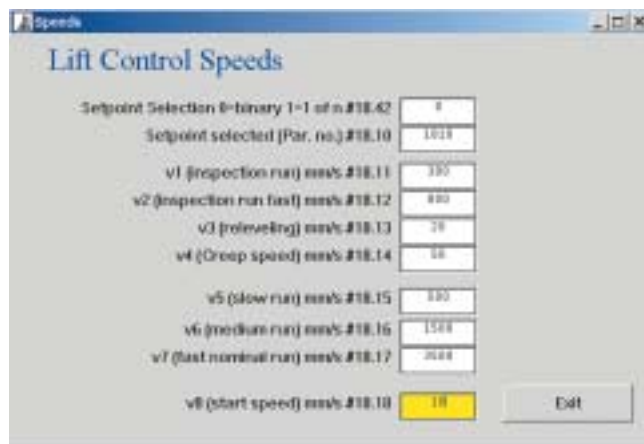
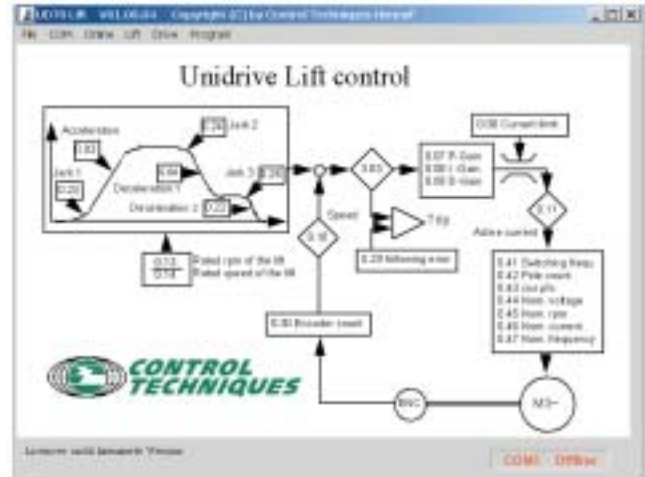


# Operator friendly drive system

Set up and commissioning advantages

## Rapid start-up

- All relevant parameters arranged at a single control level menu
- Quick guide for step-by-step start-up
- Customer defined default settings
- LCD display with plain text
- Pre-optimised parameter setups on SMART
- Optional HMI (CTIU) for simple compatibility and display

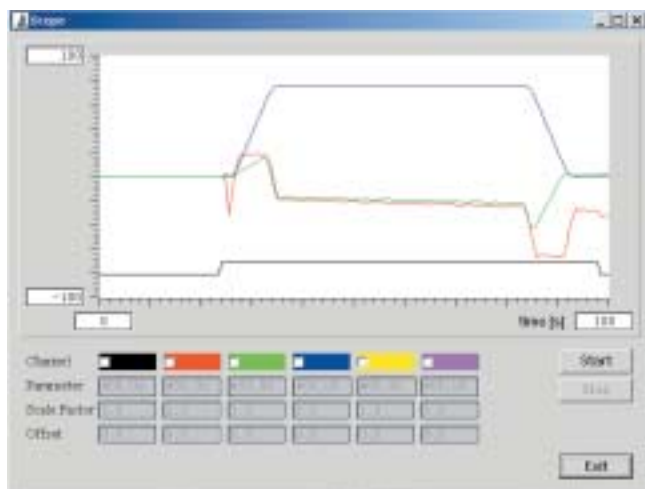


## Easy start-up via PC

- Windows based start-up interface tailor-made for elevator control
- Intuitive input windows for the various elevator functions
- Parameters displayed in plain text, and inputs in standard elevator industrial units: (mm, mm/s, mm/s<sup>2</sup>, etc.)

## Scope function

- Windows based oscilloscope function for diagnosis and storage of operational data
- 6 freely available channels with separate scaling for analogue and digital signals
- For optimising the travel curve and controller parameters
- On-site or remote diagnosis of operational functions or control behaviour
- Multiple test runs can be stored on disk (up to 10 minutes)



# Technical Specification

208 / 230 VAC								
Motor kW 200% Peak	Motor kW 250% Peak	Elevator Duty Output Current (A)	Peak Current (A)	Dimensions				Catalogue Number
				Height	Width	Depth	Weight	
5.5	5.5	31	54.3	368mm	250mm	260mm	15kg	SP3201
7.5	7.5	42	73.5					SP3202

460 / 480 VAC								
Motor kW 200% Peak	Motor kW 250% Peak	Elevator Duty Output Current (A)	Peak Current (A)	Dimensions				Catalogue Number
				Height	Width	Depth	Weight	
5.5	4	13	22.8	368mm	155mm	219mm	7kg	SP2401
7.5	5.5	16.5	28.9					SP2402
11	7.5	25	43.8					SP2403
15	11	32	56	368mm	250mm	260mm	15kg	SP3401
18.5	15	40	70					SP3402
22	18.5	46	80.5					SP3403

575 VAC								
Motor kW 200% Peak	Motor kW 250% Peak	Elevator Duty Output Current (A)	Peak Current (A)	Dimensions				Catalogue Number
				Height	Width	Depth	Weight	
5.5	4	12	21	368mm	250mm	260mm	15kg	SP3505
7.5	5.5	18	31.5					SP3506
11	7.5	22	38.5					SP3507



## Conformance is standard

- EMC immunity to IEC6100-6-2, IEC61800-3
- I/O to IEC61131-2
- Programming to IEC61131-3
- Machinery directive requirement EN954-1 Cat.3
- 'Secure Disable' certified by BIA
- Electrical safety to EN50178
- Meets UL508C
- Designed to EN81-1 for elevators

- Motor kW is based on typical elevator motor and duty cycle, 230 / 460 / 575 VAC ratings
- Ratings at 8kHz carrier frequency
- Peak Current for acceleration: 200/250% for 5 seconds
- Operating Temperature -10 °C to 40 °C
- Options available include cloning module, I/O modules, EMC Filters, Remote Keypad and CANopen, DeviceNet, PROFIBUS DP, Modbus and INTERBUS communications



# Driving the world...

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