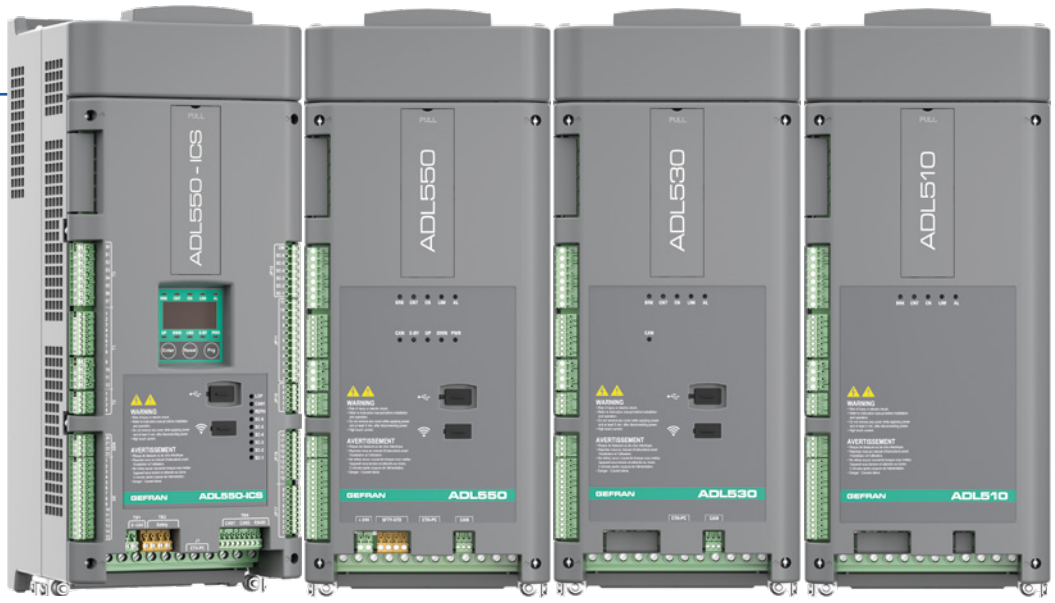
ENG

ADL500

INVERTER FOR ELEVATOR



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IGND
TP1
IC2
IC13
IC32
S5
S10
J10
J14
R252
R251
R242
R241
IC28
IC29
IC31
IC36
J12
G1
S4
K6

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Over fifty years of experience, an organisation highly focused on the customer's needs and constant technological innovation make Gefran a benchmark in the design and production of sensors and components for industrial process automation and control.

Expertise, flexibility and process quality are the factors that distinguish Gefran in the production of integrated tools and systems for specific applications in various industrial fields, with consolidated know-how in the plastics, mobile hydraulics, heating and lift sectors.

Technology, innovation and versatility represent the catalogue's added value in addition to the ability to create specific application solutions in association with the world's leading machine manufacturers.

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Gefran's new series of inverters, which are more precisely dedicated to the specific requirements of each new elevator system development, are a clear confirmation of the company's commitment to keeping in tune with today's civil lifting sector.

By setting primary objectives for its new product lines such as user friendliness, reliability, security and sustainability, united with the most innovative remote management techniques and smart devices, Gefran is able to anticipate the needs of a constantly evolving market through its constant vigilance alongside the main operators in the sector.

Indeed, these are the characteristics featured in the new ADL500 inverters.

The four variants ADL550 - ADL530 - ADL510 and ADL550-ICS, have been designed to fit in perfectly with every lift category whether used in high-end, mid-end or low-end buildings or modernizations.

ADL550: advanced safety functionalities, STO, SBT and EBC. Green and regenerative functionality, DCP3 and DCP4 with internal optional card.

ADL530: geared and gearless motor control, start up wizard for easy commissioning. Universal integrated encoder.

ADL510: designed for geared motors, optimized control in open loop and easy to install.

ADL550-ICS: the integrated solution for elevators. In the integrated control system the control card is integrated into the inverter and communication takes place via a dedicated internal interface, which guarantees complete interoperability and very fast response times.

Car functions are also incorporated in the system thanks to the roof card and the operator card.

MARKET SECTOR

HOME LIFT

LOW RISE

MEDIUM RISE

HIGH RISE

INTEGRATED COMMUNICATION AND WI-FI CONNECTIVITY

In addition to foreseeing the market's application needs, Gefran forms partnerships with its customers to find the best way to optimise and boost the performance of various applications.

Gefran products communicate with one another to provide integrated solutions, and can dialogue with devices by other companies thanks to compatibility with numerous fieldbuses.

ADL500 allows local wireless access via Wi-Fi connection or remote access through a gateway with SIM card and data connection.

CANopen LIFT © CiA CANopen DCP3 DCP4 Modbus

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ADL500 • GENERAL CHARACTERISTICS

EXPANSION CARDS

EXTRA I/O CONFIGURATION

All in one board with:

> 4 Digital Inputs
> 2 Relay Output

OR

DCP3 and DCP4 Protocols

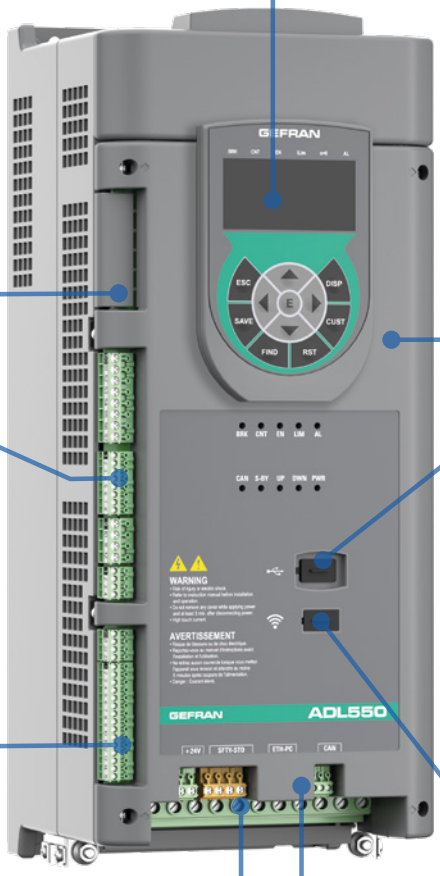
DCP3 for use in EFC (Elevator Floor Control) mode.

DCP4 for use in EPC (Elevator Positioning Control) mode.

DCP3 DCP4

OPTIONAL PROGRAMMING KEYPAD

The optional programming keypad is easy to use and always ready.



GREEN SOLUTIONS AND FEATURES

> Regenerative configuration with the AFE200 external modules.
> Stand-by feature that deactivates the power section when the system is stopped.
> Compatible with supercapacitor charging system for maximum energy efficiency.

INPUT / OUTPUT

	ADL550	ADL530	ADL510
Analog input	1+PTC	1+PTC	1+PTC
Digital input	8-1 Enable	8-1 Enable	8-1 Enable
Digital output	4 (Relays)	4 (Relays)	4 (Relays)
Fast digital input	2	0	0

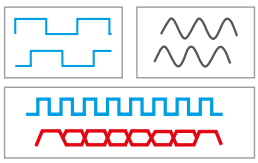
USB PORT

> Uploading and downloading drive parameters.
> Upload the parameters for the desired motor, selecting it from the database.
> Uploading languages and applications on board the drive.

USB 2.0

UNIVERSAL INTEGRATED MULTI-ENCODER

Selects the encoder type from the parameter without adding dedicated boards, such as: SinCos, Endat, Biss, Digital Incremental.



Wi-Fi PLUGIN

External module for local wireless communication with the inverter.

SAFETY FUNCTIONS

Safety features to prevent accidental motor start:

> SBC Safe Brake Control
> EBC Electronic Brake Control SIL3
> STO Contactorless SIL3 (Category PLe).

EN 81-20 CERTIFIED · EN 81-50 CERTIFIED · STO SIL3

ETHERNET PORT

RJ-45 port for PC configuration with Modbus TCP/IP protocol.

It can also be used to connect the drive to a gateway for remote control.

Modbus

HTTP + SSL = HTTPS
(Hypertext Transfer Protocol) (Secure Socket Layer) (Hypertext Transfer Protocol Secure)

MODEL	ADL550	ADL530	ADL510
Control Mode	V/f open loop and closed loop, Field oriented control open loop and closed loop	V/f open loop and closed loop, Field oriented control open loop and closed loop	V/f open loop and closed loop, Field oriented control open loop and closed loop
Input Voltage (Output Power)	3 x 230VAC (4-15kW) 3 x 400VAC (4-15kW) 3 x 480VAC (4-15kW)	3 x 230VAC (4-15kW) 3 x 400VAC (4-15kW) 3 x 480VAC (4-15kW)	3 x 400VAC (4-15kW)
Motor Type	Asynchronous Synchronous	Asynchronous Synchronous	Asynchronous
Speed Accuracy	± 0.01% rated motor speed	± 0.01% rated motor speed	± 0.01% rated motor speed
Analog Inputs	1	1	1
Digital Inputs	8 + 1 Enable	8 + 1 Enable	8 + 1 Enable
Digital outputs	4 (relay)	4 (relay)	4 (relay)
Fast Freeze Inputs	2	0	0
Overload	183% x 10s / 200% x 2s	183% x 10s	183% x 10s
Max Output Freq.	300Hz	300Hz	300Hz
EMI Filter	Integrated (in the ADL550-...-F version)	Integrated (in the ADL530-...-F version)	Integrated (in the ADL510-...-F version)
Choke	Integrated above 22kW	Integrated above 22kW	Not integrated
Braking Unit	Integrated	Integrated	Integrated
USB Port	Yes	Yes	No
Wi-Fi Module	Optional	Optional	No
Emergency operation	Battery powered (48-96VDC) UPS (230V single-phase)	Battery powered (48-96VDC), UPS (230V single-phase)	Battery powered (48-96VDC), UPS (230V single-phase)
Functions	> Calculation of energy savings in regenerative configuration > Optimized management of emergency battery consumption > Motor with peripheral encoder control > Start & Stop (Stand-by feature) > Smooth Emergency > CANopen lift 417 > DCP3 – DCP4 with internal optional card > Universal multi-encoder card integrated > Wireless control through Webapp > USB port for import / export of drive files and language motors selection > Sensorless control optimized for asynchronous motors.	> Optimized management of emergency battery consumption > Smooth Emergency > CANopen lift 417 > Universal multi-encoder card integrated > Wireless control through Webapp > USB port for import / export of drive files and language motors selection > Sensorless control optimized for asynchronous motors.	> Optimized management of emergency battery consumption > Sensorless control optimized for asynchronous motors.
Communication	Modbus TCP (RJ45 port)	Modbus TCP (RJ45 port)	Modbus TCP (RJ45 port)
Protection level	IP20	IP20	IP20
Safety features	> Safe torque off SIL3 (Contactorless). > Safe brake test (SBT) > EBC Electronic Brake Control SIL3	No	No
Operating temperature	50°C	40°C	40°C
Altitude	Max 2000 m. (up to 1000 m without derating)		
Marks	CE *, cULus (UL508C). ** Compliant with CE directive on low-voltage equipment (Directives LVD 2014/35/EU, EMC 2014/30/EU, Lift 2014/33/EU, RoHs 2011/65/EU)*		
Standards	Climatic conditions: EN 60721-3-3; Electrical safety: EN 61800-5-1, ASME17.5/CSA B44.1, UL840 pollution degree 2; Energy consumption: ISO 25745; EMC compatibility: EN 12015 (with integrated filter), EN 12016. Other elevator standards: EN 81-20, EN 81-50.		

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ADL500 • INPUT DATA

SIZES		1040	1055	2075	2110	2150
ULN · AC Input voltage	VAC	ADL550: Three-phase 230 - 380 - 400 - 460 - 480 Vac -15%+10% ADL530: Three-phase 230 - 380 - 400 - 460 - 480 Vac 15%+10% ADL510: Three-phase 380 - 400 Vac -15%+10%				
FLN · Input frequency	Hz	50/60 Hz, ± 5%				
Maximum input voltage unbalance		3 %				
Connection to TT and TN Networks		Yes, standard version				
Connection to IT Networks or Regenerative		Only on request (*), please contact the Gefran Customer Service.				
Choke		Sizes 1...2: Optional (DC or AC)				
Overvoltage threshold	VDC	820 Vdc				
Undervoltage threshold	VDC	@ 480 Vac = 470 Vdc @ 460 Vac = 450 Vdc @ 400 Vac = 391 Vdc @ 380 Vac = 371 Vdc @ 230 Vac = 225 Vdc				
DC-Link Capacity	µF	470	680	680	1020	1500
In · Effective input current (@ In out)						
@ 230 VAC	A					
@ 400 VAC	A	11	16	22	29	40
@ 480 VAC	A	10	15	20	26	37
THD @ I2n With optional external choke (*), According to EN 12015		< 35%				
No-load consumption (Energy rating):						
Stand-by consumption "Fan Off"	W	20	20	20	20	20
Fan consumption	W	8	10	10	10	16
Stand-by consumption "Fan On"	W	28	30	30	30	36

(*) ADL500 can only operate on IT networks devoid of any faults (between active parts and PE) or in the presence of temporary faults. Therefore an insulation monitor MUST be used to detect and enable prompt removal of any fault condition.

COOLING

SIZES		1040	1055	2075	2110	2150
Pv, Heat dissipation(*) (@ULN=230 ... 460VAC)	W	150	250	350	400	600
Fan capacity						
Heat sink	m^3/h	2 x 35	2 x 58	2 x 58	2 x 58	2 x 58
Internal	m^3/h	-	-	-	-	-
Minimum cabinet opening for cooling	cm^2	72	144	144	144	328

(*): values that refer to operation at default switching frequency.

ADL500 • OUTPUT DATA

SIZES		1040	1055	2075	2110	2150
In · Rated output current (fsw = default)						
@ Uln=230 Vac	A	9	13.5	18.5	24.5	32
@ Uln=400 Vac	A	9	13.5	18.5	24.5	32
@ Uln=460 Vac	A	8.1	12.2	16.7	22	28.8
Pn mot (Recommended motor power, fsw = default)						
@ Uln=230 Vac	kW	2	3	4	5.5	7.5
@ Uln=400 Vac	kW	4	5.5	7.5	11	15
@ Uln=460 Vac	Hp	5	7.5	10	15	20
Reduction factor *						
Kv (1)		0.95	0.95	0.95	0.95	0.95
Kt ADL550 (2)		1	1	1	1	1
Kt ADL510-530 (3)		0.90	0.90	0.90	0.90	0.90
Kalt (4)		1.2	1.2	1.2	1.2	1.2
Overload		ADL510 ADL530: 183% x 10 s ADL550: 183% x 10 s / 200% x 2 s				
Maximum Switching frequency	kHz	10				
U2 · Maximum output voltage		0.98 x Uln (Uln = AC Input voltage)				
f2 · Maximum output frequency	Hz	300				
IGBT braking unit		Standard internal (requires external resistor); braking torque 150% MAX				

(1) Kv : Standard internal (requires external resistor); braking torque 150% MAX

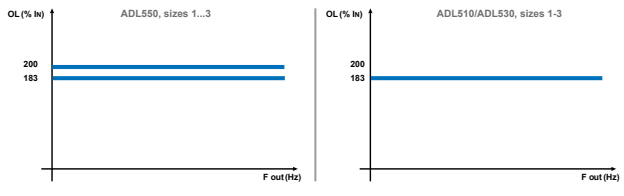
(2) Kt (ADL550): no derating..

(3) Kt (ADL510/ADL530): Derating factor for ambient temperature of 50°C (1% every °C above 40°C).

(4) Kalt : Derating factor for installation at altitudes above 1000 meters a.s.l. Value to be applied = 1.2% each 100 m increase above 1000 m.
E.g.: Altitude 2000 m, Kalt = 1.2% * 10 = 12% derating; In derated = (100 - 12) % = 88 % In

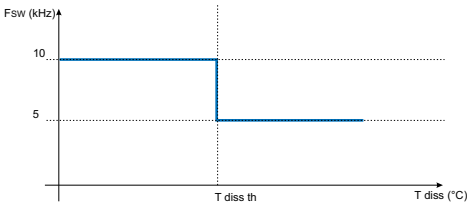
Derating values in overload condition (ADL5.0-...-4)

In overload conditions the output current DO NOT depends on the output frequency, as shown in the figure below.

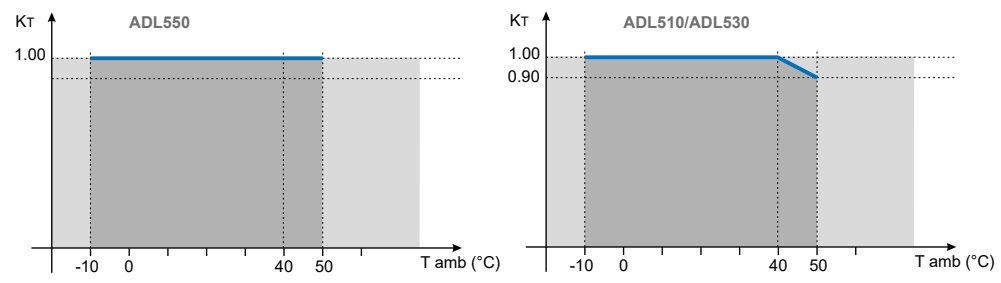


Derating values for switching frequency

The switching frequency is modified according to the temperature of the drive (measured on the heat sink), as shown in the figure below.



Ambient temperature reduction factor



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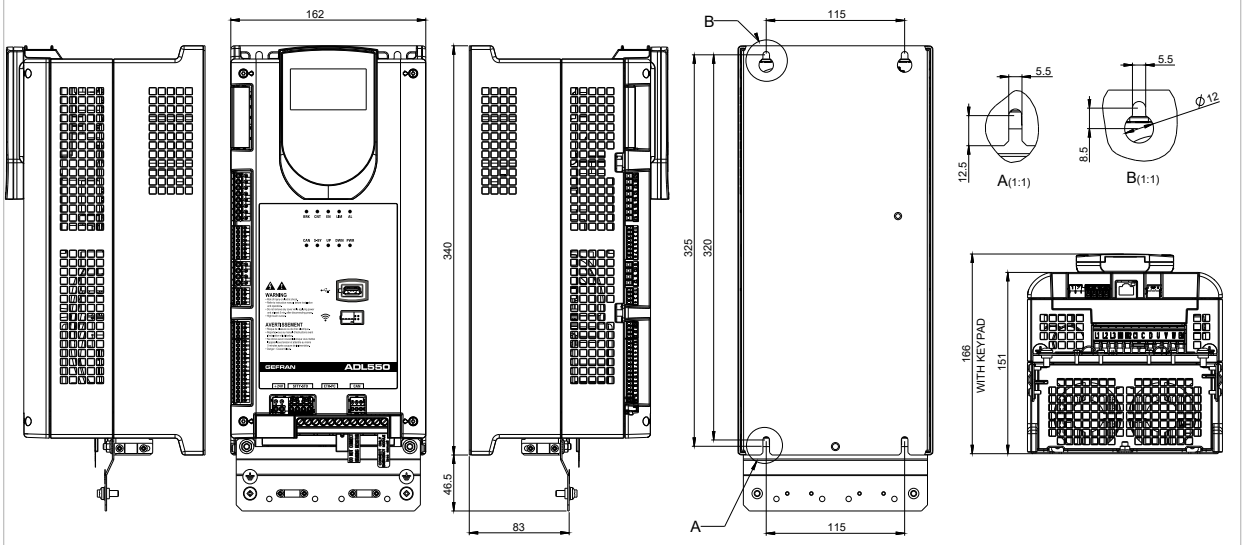
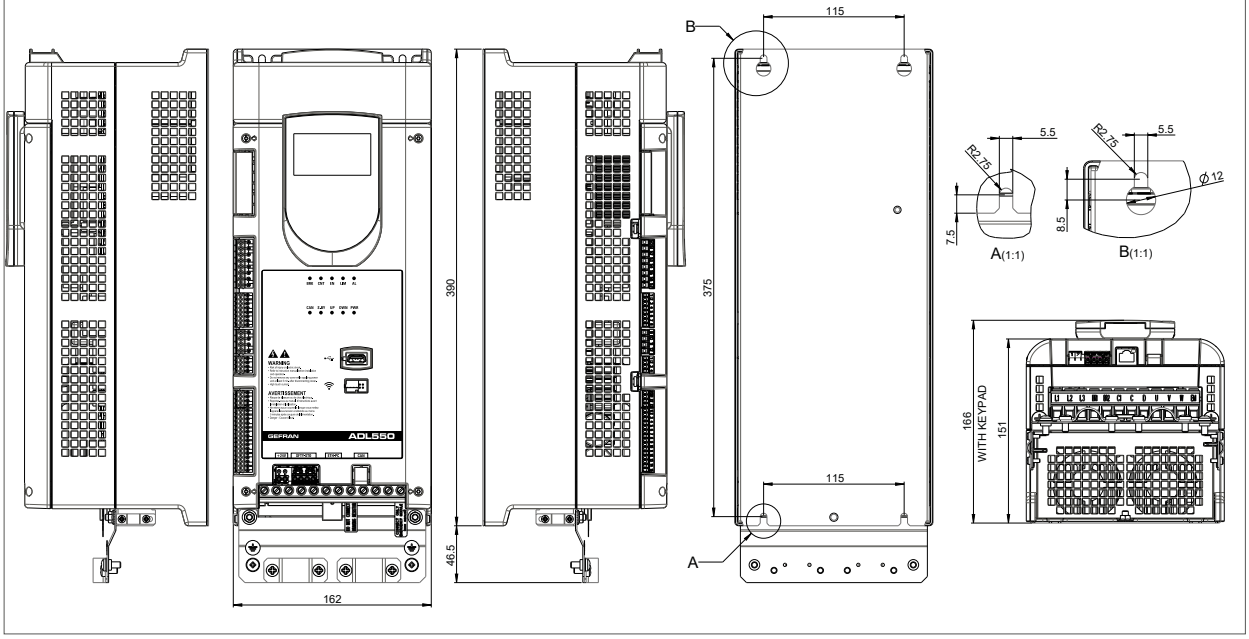
ADL500 • DIMENSIONS AND WEIGHTS

SIZE 1



SIZE 2



Sizes	Dimensions: Width x Height x Depth		Weight	
	mm	inches	kg	lbs
ADL510/530/550-**1**...	162 x 340 x 151	6.38 x 13.38 x 5.9	5.5	12.1
ADL510/530/550-**2**...	162 x 390 x 151	6.38 x 15.35 x 5.94	7.0	15.4

ADL500 • ORDERING CODES

PRODUCT IDENTIFICATION

ADL550 1 040 -X B L- F -4-EMS

Emergency Supply module:	[empty] = not included, EMS = integrated
Rated voltage:	4 = 230-400-480Vac, three-phase
EMI Filter:	[empty] = not included F = integrated
Lift application:	L = included
Braking unit:	X = not included, B = included
Keypad:	X = without integrated keypad
Inverter power in kW:	040 = 4kW, 055 = 5.5kW, 075 = 7.5kW, 110 = 11kW, 150 = 15kW
Mechanical dimensions of the drive:	1 = size 1, 2 = size 2
inverter series:	ADL550, ADL530, ADL510

ADL510 - 230-400-480VAC THREE-PHASE

CODE	TYPE	Pn at 400Vac	CONFIGURATION
S9DL5101	ADL510-1040-XBL-4	4kW	Integrated Braking Module - External EMC Filter
S9DL5102	ADL510-1055-XBL-4	5.5kW	Integrated Braking Module - External EMC Filter
S9DL5103	ADL510-2075-XBL-4	7.5kW	Integrated Braking Module - External EMC Filter
S9DL5104	ADL510-2110-XBL-4	11kW	Integrated Braking Module - External EMC Filter
S9DL5105	ADL510-2150-XBL-4	15kW	Integrated Braking Module - External EMC Filter
S9DL5121	ADL510-1040-XBL-F-4	4kW	Integrated Braking Module - Integrated EMC Filter
S9DL5122	ADL510-1055-XBL-F-4	5.5kW	Integrated Braking Module - Integrated EMC Filter
S9DL5123	ADL510-2075-XBL-F-4	7.5kW	Integrated Braking Module - Integrated EMC Filter
S9DL5124	ADL510-2110-XBL-F-4	11kW	Integrated Braking Module - Integrated EMC Filter
S9DL5125	ADL510-2150-XBL-F-4	15kW	Integrated Braking Module - Integrated EMC Filter
S9DL5141	ADL510-1040-XBL-4-EMS	4kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5142	ADL510-1055-XBL-4-EMS	5.5kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5143	ADL510-1075-XBL-4-EMS	7.5kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5144	ADL510-2110-XBL-4-EMS	11kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5145	ADL510-2150-XBL-4-EMS	15kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5161	ADL510-1040-XBL-F-4-EMS	4kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5162	ADL510-1055-XBL-F-4-EMS	5.5kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5163	ADL510-2075-XBL-F-4-EMS	7.5kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5164	ADL510-2110-XBL-F-4-EMS	11kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5165	ADL510-2150-XBL-F-4-EMS	15kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module

ADL530 - 230-400-480VAC THREE-PHASE

CODE	TYPE	Pn at 400Vac	CONFIGURATION
S9DL5301	ADL530-1040-XBL-4	4kW	Integrated Braking Module - External EMC Filter
S9DL5302	ADL530-1055-XBL-4	5.5kW	Integrated Braking Module - External EMC Filter
S9DL5303	ADL530-2075-XBL-4	7.5kW	Integrated Braking Module - External EMC Filter
S9DL5304	ADL530-2110-XBL-4	11kW	Integrated Braking Module - External EMC Filter
S9DL5305	ADL530-2150-XBL-4	15kW	Integrated Braking Module - External EMC Filter

CODE	TYPE	Pn at 400Vac	CONFIGURATION
S9DL5321	ADL530-1040-XBL-F-4	4kW	Integrated Braking Module - Integrated EMC Filter
S9DL5322	ADL530-1055-XBL-F-4	5.5kW	Integrated Braking Module - Integrated EMC Filter
S9DL5323	ADL530-2075-XBL-F-4	7.5kW	Integrated Braking Module - Integrated EMC Filter
S9DL5324	ADL530-2110-XBL-F-4	11kW	Integrated Braking Module - Integrated EMC Filter
S9DL5325	ADL530-2150-XBL-F-4	15kW	Integrated Braking Module - Integrated EMC Filter
S9DL5341	ADL530-1040-XBL-4-EMS	4kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5342	ADL530-1055-XBL-4-EMS	5.5kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5343	ADL530-1075-XBL-4-EMS	7.5kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5344	ADL530-2110-XBL-4-EMS	11kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5345	ADL530-2150-XBL-4-EMS	15kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5361	ADL530-1040-XBL-F-4-EMS	4kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5362	ADL530-1055-XBL-F-4-EMS	5.5kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5363	ADL530-2075-XBL-F-4-EMS	7.5kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5364	ADL530-2110-XBL-F-4-EMS	11kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5365	ADL530-2150-XBL-F-4-EMS	15kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module

ADL550 - 230-400-480VAC THREE-PHASE

CODE	TYPE	Pn at 400Vac	CONFIGURATION
S9DL5501	ADL550-1040-XBL-4	4kW	Integrated Braking Module - External EMC Filter
S9DL5502	ADL550-1055-XBL-4	5.5kW	Integrated Braking Module - External EMC Filter
S9DL5503	ADL550-2075-XBL-4	7.5kW	Integrated Braking Module - External EMC Filter
S9DL5504	ADL550-2110-XBL-4	11kW	Integrated Braking Module - External EMC Filter
S9DL5505	ADL550-2150-XBL-4	15kW	Integrated Braking Module - External EMC Filter
S9DL5521	ADL550-1040-XBL-F-4	4kW	Integrated Braking Module - Integrated EMC Filter
S9DL5522	ADL550-1055-XBL-F-4	5.5kW	Integrated Braking Module - Integrated EMC Filter
S9DL5523	ADL550-2075-XBL-F-4	7.5kW	Integrated Braking Module - Integrated EMC Filter
S9DL5524	ADL550-2110-XBL-F-4	11kW	Integrated Braking Module - Integrated EMC Filter
S9DL5525	ADL550-2150-XBL-F-4	15kW	Integrated Braking Module - Integrated EMC Filter
S9DL5541	ADL550-1040-XBL-4-EMS	4kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5542	ADL550-1055-XBL-4-EMS	5.5kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5543	ADL550-1075-XBL-4-EMS	7.5kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5544	ADL550-2110-XBL-4-EMS	11kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5545	ADL550-2150-XBL-4-EMS	15kW	Integrated Braking Module - External EMC Filter - Integrated EMS module
S9DL5561	ADL550-1040-XBL-F-4-EMS	4kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5562	ADL550-1055-XBL-F-4-EMS	5.5kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5563	ADL550-2075-XBL-F-4-EMS	7.5kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5564	ADL550-2110-XBL-F-4-EMS	11kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module
S9DL5565	ADL550-2150-XBL-F-4-EMS	15kW	Integrated Braking Module - Integrated EMC Filter - Integrated EMS module

OPTIONS

AC INPUT CHOKE - ADL510/530/550-....-4

CODE	TYPE	1040	1055	2075	2110	2150
S7AAG	LR3y-2040	1				
S7AB5	LR3y-2055		1			
S7AB6	LR3y-2075			1		
S7AB7	LR3y-3110				1	
S7AB8	LR3y-3150					1

DC INPUT CHOKE - ADL510/530/550-....-4

CODE	TYPE	1040	1055	2075	2110	2150
S7AI10	LDC-004	1				
S7AI11	LDC-005		1			
S7AI12	LDC-007			1		
S7AI13	LDC-011				1	
S7AI14	LDC-015					1

AC OUTPUT CHOKES - ADL510/530/550-....-4

CODE	TYPE	1040	1055	2075	2110	2150
S7FG3	LU3-005	1				
S7FG3	LU3-005		1			
S7FG3	LU3-005			1		
S7FG4	LU3-011				1	
S7FH2	LU3-015					1

EXTERNAL BRAKING RESISTORS - ADL510/530/550-....-4

CODE	TYPE	1040	1055	2075	2110	2150
S8SZ3	RFPR 750 D 68R	1				
S8SZ3	RFPR 750 D 68R		1			
S8SZ3	RFPR 750 D 68R			1		
S8SZ5	RFPR 1900 D 28R				1	
S8SZ5	RFPR 1900 D 28R					1

EXTERNAL BRAKING UNIT - ADL510/530/550-....-4

CODE	TYPE	DESCRIPTION
S9D55	BUy 1020	In = 20A, UL mark
S9D56	BUy 1050	In = 50A, UL mark
S9D57	BUy 1085	In = 85A
S9DB01	BU200-2150-4	In = 150A
S9DB02	BU200-2300-4	In = 300A

VARIOUS

CODE	TYPE	DESCRIPTION
S5DL408	EXP-IO1-ADL500	I/O Expansion
S5DL434	EXP-DCP-ADL500	DCP3-DCP4 protocol card
S52969WF	Wi-Fi Drive Link	Wi-Fi external module
S5P11T	KB-ADL500	Programming Keypad
S5P11TK1	KIT REMOTE KB-ADL500 5MT	RJ45 keypad remoting kit, L=5m
S5P11TK2	KIT REMOTE KB-ADL500 10MT	RJ45 keypad remoting kit, L=10m

GEFRAN
BEYOND TECHNOLOGY

ADL550-ICS • GENERAL CHARACTERISTICS

EXPANSION CARDS

DCP3 and DCP4 Protocols

DCP3 for use in EFC (Elevator Floor Control) mode.

DCP4 for use in EPC (Elevator Positioning Control) mode).

OR

EXTRA I/O CONFIGURATION

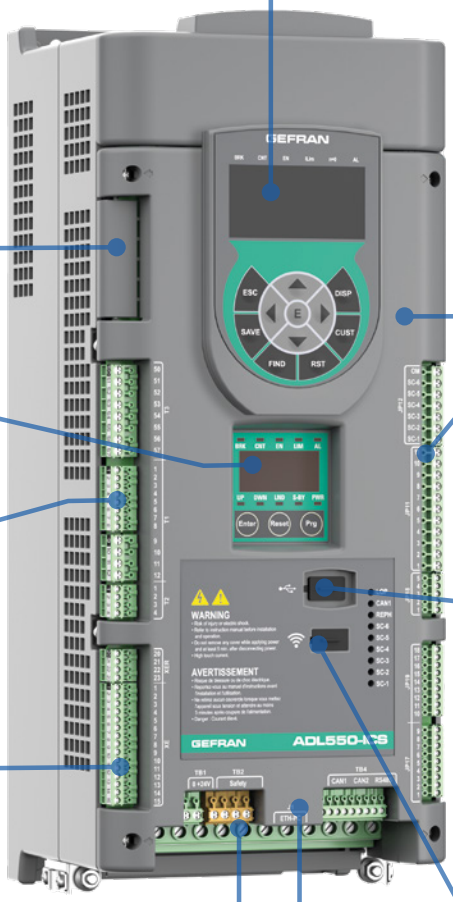
All in one board with:

> 4 Digital Inputs
> 2 Relay Output.

OPTIONAL PROGRAMMING KEYPAD

The optional programming keypad is easy to use and always ready.

DCP4
DCP3



GREEN SOLUTIONS AND FEATURES

> Regenerative configuration with the AFE200 external modules.
> Stand-by feature that deactivates the power section when the system is stopped.
> Compatible with supercapacitor charging system for maximum energy efficiency.

INTEGRATED KEYPAD

The built-in programming keypad enables quick and easy drive setup.

LIFT CONTROL CARD

Card integrated to control Lift functions: safety chain, 6 relay outputs and 16 digital inputs.

INPUT / OUTPUT

Analog input	1+PTC	1+PTC	1+PTC
Digital input	8-1 Enable	8-1 Enable	8-1 Enable
Digital output	4 (Relays)	4 (Relays)	4 (Relays)
Fast digital input	2	0	0

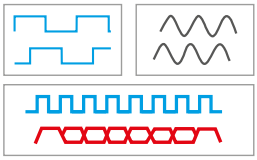
USB PORT

> Uploading and downloading drive parameters.
> Upload the parameters for the desired motor, selecting it from the database.
> Uploading languages and applications on board the drive.

USB 2.0

UNIVERSAL INTEGRATED MULTI-ENCODER

Selects the encoder type from the parameter without adding dedicated boards, such as: SinCos, Endat, Biss, Digital Incremental.



Wi-Fi PLUGIN

External module for local wireless communication with the inverter.

SAFETY FUNCTIONS

Safety features to prevent accidental motor start:

> SBC Safe Brake Control
> SBT Safe Brake Test
> STO Contactorless SIL3 (Category PLe).

EN 81-20 CERTIFIED
EN 81-50 CERTIFIED
STO SIL3 SAFETY CLEARANCE

ETHERNET PORT

RJ-45 port for PC configuration with Modbus TCP/IP protocol.

It can also be used to connect the drive to a gateway for remote control.

Modbus

HTTP + SSL = HTTPS
(Hypertext Transfer Protocol) (Secure Socket Layer) (Hypertext Transfer Protocol Secure)

MODEL	ADL550-ICS
Control Mode	V/f open loop and closed loop, Field oriented control open loop and closed loop
Input Voltage (Output Power)	3 x 230VAC (4-15kW), 3 x 400VAC (4-15kW), 3 x 480VAC (4-15kW)
Motor Type	Asynchronous and Synchronous
Speed Accuracy	± 0.01% rated motor speed
Analog Inputs	1
Digital Inputs	8 + 1 Abilitazione
Digital outputs	4 (a relè)
Fast Freeze Inputs	2
Overload	183% x 10s / 200% x 2s
Max Output Freq.	300Hz
EMI Filter	Integrated (ADL550-...-F models)
Choke	Integrated above 22kW
Braking Unit	Integrated
USB Port	Yes
Wi-Fi Module	Optional
Emergency operation	Battery powered (48-96 DC V) UPS (230V single-phase)
Functions	> Calculation of energy savings in regenerative configuration > Optimized management of emergency battery consumption > Motor with peripheral encoder control > Start & Stop (Stand-by feature) > Smooth Emergency > CANopen lift 417 > DCP3 – DCP4 with internal optional card > Universal multi-encoder card integrated > Wireless control through Webapp > USB port for import / export of drive files and language motors selection > Sensorless control optimized for asynchronous motors.
Communication	Modbus TCP (RJ45 port)
Protection level	IP20
Safety features	> Safe torque off SIL3 (Contactorless). > Safe brake test (SBT) > EBC Electronic Brake Control SIL3
Operating temperature	50°C
Altitude	Max 2000 m. (up to 1000 m without derating)
Marks	CE *, cULus (UL508C). ** Compliant with CE directive on low-voltage equipment (Direttive LVD 2014/35/EU, EMC 2014/30/EU, Lift 2014/33/EU, RoHs 2011/65/EU.*
Standards	Climatic conditions: EN 60721-3-3; Electrical safety: EN 61800-5-1, ASME17.5/CSA B44.1, UL840 pollution degree 2; Energy consumption: ISO 25745; EMC compatibility: EN 12015 (with integrated filter), EN 12016. Other elevator standards: EN 81-20, EN 81-50.
Options	The following options are available to complete the system: > ICS-CR (Integrated Control System Car Roof card) manages the complete operation of the car and sends all the information to the controller via a dedicated CAN bus communication; > ICS-COP (Integrated Control System Car Operator Panel) card that interfaces between control panels and Car Roof Card. It collects commands such as call booking or special commands like fire brigade calls; > ICS-CD (Integrated Control System Car Display) 7 inch TFT car display, shows floor indications, direction, overload, etc. It communicates with the ICS-CPU control system via a dedicated CAN channel (CAN 1) or RS485 > ICS-FD (Integrated Control System Floor Display) a choice of many LCD or TFT displays are available.

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ADL550-ICS • INPUT DATA

SIZES		1040	1055	2075	2110	2150
ULN · AC Input voltage	VAC	ADL550: Three-phase 230 - 380 - 400 - 460 - 480 Vac -15%+10% ADL530: Three-phase 230 - 380 - 400 - 460 - 480 Vac 15%+10% ADL510: Three-phase 380 - 400 Vac -15%+10%				
FLN · Input frequency	Hz	50/60 Hz, ± 5%				
Maximum input voltage unbalance		3 %				
Connection to TT and TN Networks		Yes, standard version				
Connection to IT Networks or Regenerative		Only on request (*), please contact the Gefran Customer Service.				
Choke		Sizes 1...2: Optional (DC or AC)				
Overvoltage threshold	VDC	820 Vdc				
Undervoltage threshold	VDC	@ 480 Vac = 470 Vdc @ 460 Vac = 450 Vdc @ 400 Vac = 391 Vdc @ 380 Vac = 371 Vdc @ 230 Vac = 225 Vdc				
DC-Link Capacity	µF	470	680	680	1020	1500
In · Effective input current (@ In out)						
@ 230 VAC	A					
@ 400 VAC	A	11	16	22	29	40
@ 480 VAC	A	10	15	20	26	37
THD @ I2n With optional external choke (*), According to EN 12015		< 35%				
No-load consumption (Energy rating)):						
Stand-by consumption "Fan Off"	W	20	20	20	20	20
Fan consumption	W	8	10	10	10	16
Stand-by consumption "Fan On"	W	28	30	30	30	36

(*) ADL500 can only operate on IT networks devoid of any faults (between active parts and PE) or in the presence of temporary faults. Therefore an insulation monitor MUST be used to detect and enable prompt removal of any fault condition.

COOLING

SIZES		1040	1055	2075	2110	2150
Pv, Heat dissipation(*) (@ULN=230 ... 460VAC)	W	150	250	350	400	600
Fan capacity						
Heat sink	m^3/h	2 x 35	2 x 58	2 x 58	2 x 58	2 x 58
Internal	m^3/h	-	-	-	-	-
Minimum cabinet opening for cooling	cm^2	72	144	144	144	328

(*): values that refer to operation at default switching frequency.

ADL550-ICS • OUTPUT DATA

SIZES		1040	1055	2075	2110	2150
In · Rated output current (fSW = default)						
@ ULN=230 VAC	A	9	13.5	18.5	24.5	32
@ ULN=400 VAC	A	9	13.5	18.5	24.5	32
@ ULN=460 VAC	A	8.1	12.2	16.7	22	28.8
PN mot (Recommended motor power, fSW = default)						
@ ULN=230 VAC	kW	2	3	4	5.5	7.5
@ ULN=400 VAC	kW	4	5.5	7.5	11	15
@ ULN=460 VAC	Hp	5	7.5	10	15	20
Reduction factor *						
KV (1)		0.95	0.95	0.95	0.95	0.95
KT (2)		1	1	1	1	1
KALT (3)		1.2	1.2	1.2	1.2	1.2
Overload		183% x 10 s / 200% x 2 s				
Maximum Switching frequency	kHz	10				
U2 · Maximum output voltage		0.98 x ULN (ULN = AC Input voltage)				
f2 · Maximum output frequency	Hz	300				
IGBT braking unit		Standard internal (requires external resistor); braking torque 150% MAX				

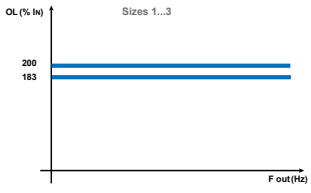
(1) Kv: Standard internal (requires external resistor); braking torque 150% MAX

(2) Kt: no derating.

(3) Kalt : Derating factor for installation at altitudes above 1000 meters a.s.l. Value to be applied = 1.2% each 100 m increase above 1000 m.
E.g.: Altitude 2000 m, Kalt = 1.2% * 10 = 12% derating; In derated = (100 - 12) % = 88 % In

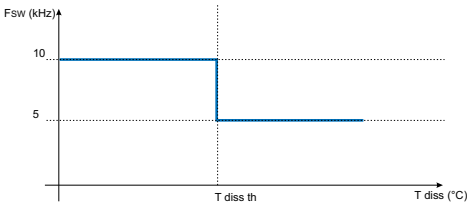
Derating values in overload condition

In overload conditions the output current DO NOT depends on the output frequency, as shown in the figure below.

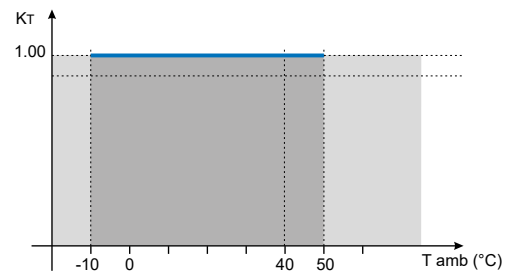


Derating values for switching frequency

The switching frequency is modified according to the temperature of the drive (measured on the heat sink), as shown in the figure below.



Ambient temperature reduction factor



Function not allowed

Range of ambient temperatures allowed

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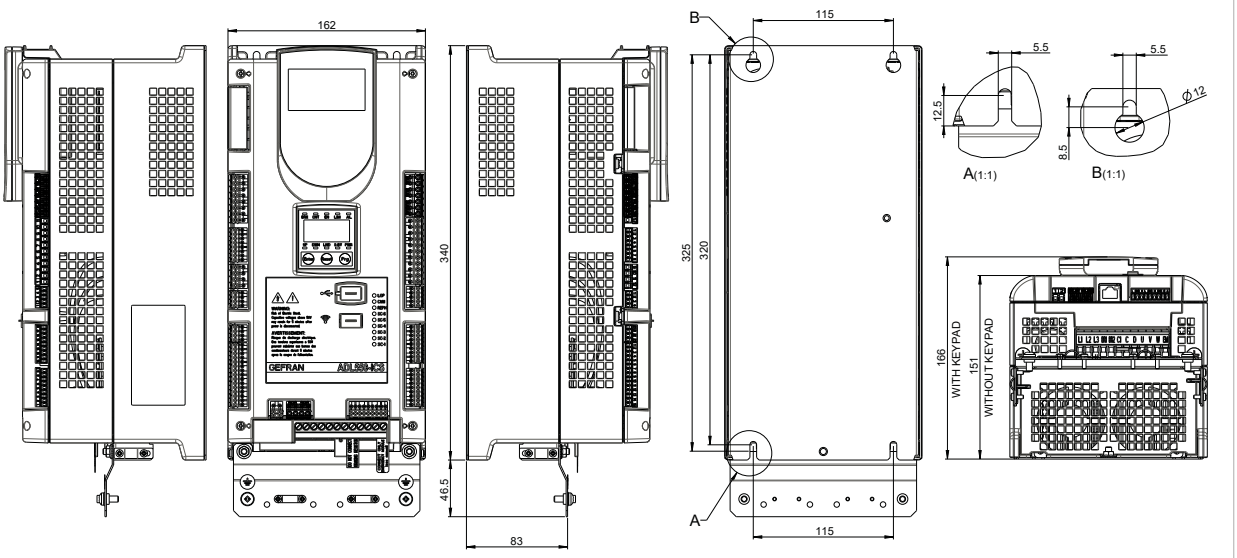
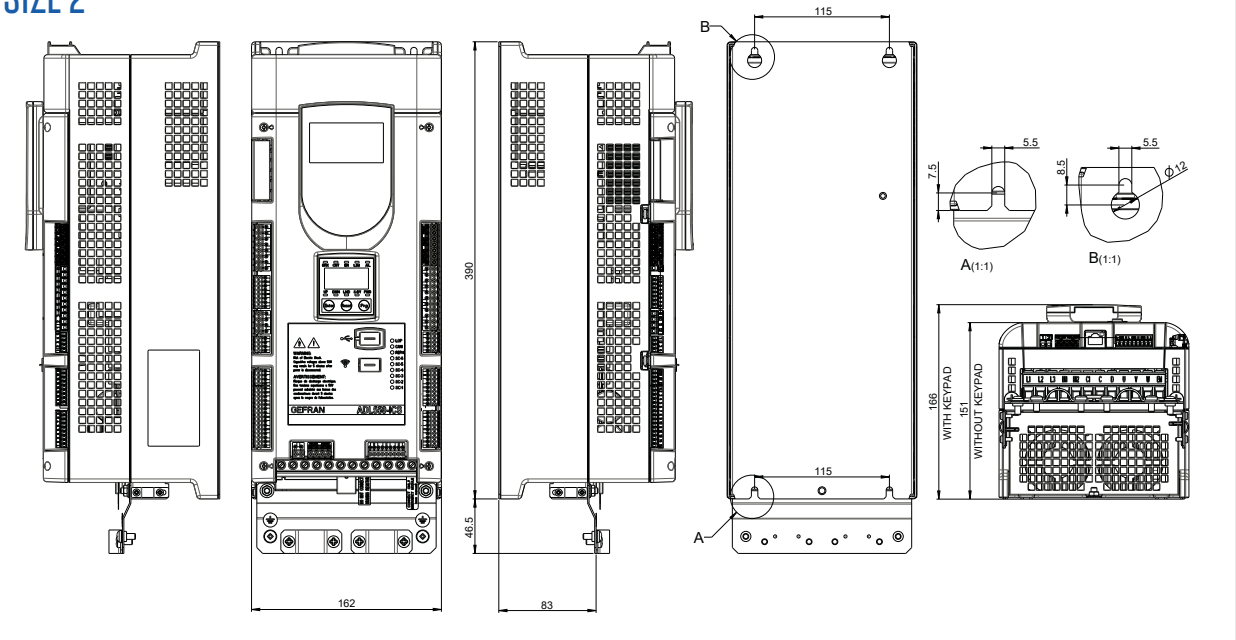
ADL550-ICS • DIMENSIONS AND WEIGHTS

SIZE 1



SIZE 2



Sizes	Dimensions: Width x Height x Depth		Weight	
	mm	inches	kg	lbs
ADL550-ICS-**1**...	162 x 340 x 151	6.38 x 13.38 x 5.9	5.5	12.1
ADL550-ICS-**2**...	162 x 390 x 151	6.38 x 15.35 x 5.94	7.0	15.4

ADL550-ICS • ORDERING CODES

PRODUCT IDENTIFICATION

ADL550-ICS 1 040 -K B L- F -4-EMS

Emergency Supply module:	[empty] = not included, EMS = integrated
Rated voltage:	4 = 230-400-480Vac, three-phase
EMI Filter:	[empty] = not included F = integrated
Lift application:	L = included
Braking unit:	X = not included, B = included
Keypad:	K = integrated Keypad 1-line x 4-character alphanumerical LED display
Inverter power in kW:	040 = 4kW, 055 = 5.5kW, 075 = 7.5kW, 110 = 11kW, 150 = 15kW
Mechanical dimensions of the drive:	1 = size 1, 2 = size 2
Inverter series ADL550-ICS	

ADL550-ICS - 230-400-480VAC THREE-PHASE

CODE	TYPE	Pn at 400Vac	CONFIGURATION
S9DLI5501	ADL550-ICS-1040-KBL-4	4kW	Integrated Lift Control card - Integrated Braking Module - External EMC Filter
S9DLI5502	ADL550-ICS-1055-KBL-4	5.5kW	Integrated Lift Control card - Integrated Braking Module - External EMC Filter
S9DLI5503	ADL550-ICS-1075-KBL-4	7.5kW	Integrated Lift Control card - Integrated Braking Module - External EMC Filter
S9DLI5504	ADL550-ICS-2110-KBL-4	11kW	Integrated Lift Control card - Integrated Braking Module - External EMC Filter
S9DLI5505	ADL550-ICS-2150-KBL-4	15kW	Integrated Lift Control card - Integrated Braking Module - External EMC Filter
S9DLI5521	ADL550-ICS-1040-KBL-F-4	4kW	Integrated Lift Control card - Integrated Braking Module - Integrated EMC Filter
S9DLI5522	ADL550-ICS-1055-KBL-F-4	5.5kW	Integrated Lift Control card - Integrated Braking Module - Integrated EMC Filter
S9DLI5523	ADL550-ICS-1075-KBL-F-4	7.5kW	Integrated Lift Control card - Integrated Braking Module - Integrated EMC Filter
S9DLI5524	ADL550-ICS-2110-KBL-F-4	11kW	Integrated Lift Control card - Integrated Braking Module - Integrated EMC Filter
S9DLI5525	ADL550-ICS-2150-KBL-F-4	15kW	Integrated Lift Control card - Integrated Braking Module - Integrated EMC Filter
S9DLI5541	ADL550-ICS-1040-KBL-4-EMS	4kW	Integrated Lift Control card - Integrated Braking and EMS modules - External EMC Filter
S9DLI5542	ADL550-ICS-1055-KBL-4-EMS	5.5kW	Integrated Lift Control card - Integrated Braking and EMS modules - External EMC Filter
S9DLI5543	ADL550-ICS-1075-KBL-4-EMS	7.5kW	Integrated Lift Control card - Integrated Braking and EMS modules - External EMC Filter
S9DLI5544	ADL550-ICS-2110-KBL-4-EMS	11kW	Integrated Lift Control card - Integrated Braking and EMS modules - External EMC Filter
S9DLI5545	ADL550-ICS-2150-KBL-4-EMS	15kW	Integrated Lift Control card - Integrated Braking and EMS modules - External EMC Filter
S9DLI5561	ADL550-ICS-1040-KBL-F-4-EMS	4kW	Integrated Lift Control card - Integrated Braking Module, EMC Filter and EMS module
S9DLI5562	ADL550-ICS-1055-KBL-F-4-EMS	5.5kW	Integrated Lift Control card - Integrated Braking Module, EMC Filter and EMS module
S9DLI5563	ADL550-ICS-1075-KBL-F-4-EMS	7.5kW	Integrated Lift Control card - Integrated Braking Module, EMC Filter and EMS module
S9DLI5564	ADL550-ICS-2110-KBL-F-4-EMS	11kW	Integrated Lift Control card - Integrated Braking Module, EMC Filter and EMS module
S9DLI5565	ADL550-ICS-2150-KBL-F-4-EMS	15kW	Integrated Lift Control card - Integrated Braking Module, EMC Filter and EMS module

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OPTIONS

AC INPUT CHOKE - ADL550-ICS-....-4

CODE	TYPE	1040	1055	2075	2110	2150
S7AAG	LR3y-2040	1				
S7AB5	LR3y-2055		1			
S7AB6	LR3y-2075			1		
S7AB7	LR3y-3110				1	
S7AB8	LR3y-3150					1

DC INPUT CHOKE - ADL550-ICS-....-4

CODE	TYPE	1040	1055	2075	2110	2150
S7AI10	LDC-004	1				
S7AI11	LDC-005		1			
S7AI12	LDC-007			1		
S7AI13	LDC-011				1	
S7AI14	LDC-015					1

AC OUTPUT CHOKES - ADL550-ICS-....-4

CODE	TYPE	1040	1055	2075	2110	2150
S7FG3	LU3-005	1				
S7FG3	LU3-005		1			
S7FG3	LU3-005			1		
S7FG4	LU3-011				1	
S7FH2	LU3-015					1

EXTERNAL BRAKING RESISTORS - ADL550-ICS-....-4

CODE	TYPE	1040	1055	2075	2110	2150
S8SZ3	RFPR 750 D 68R	1				
S8SZ3	RFPR 750 D 68R		1			
S8SZ3	RFPR 750 D 68R			1		
S8SZ5	RFPR 1900 D 28R				1	
S8SZ5	RFPR 1900 D 28R					1

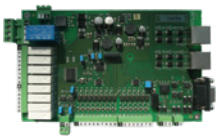
EXTERNAL BRAKING UNIT - ADL550-ICS-....-4

CODE	TYPE	DESCRIPTION
S9D55	BUy 1020	In = 20A, UL mark
S9D56	BUy 1050	In = 50A, UL mark
S9D57	BUy 1085	In = 85A
S9DB01	BU200-2150-4	In = 150A
S9DB02	BU200-2300-4	In = 300A

VARIOUS

CODE	TYPE	DESCRIPTION
S5DL408	EXP-IO1-ADL500	I/O Expansion
S5DL434	EXP-DCP-ADL500	DCP3-DCP4 protocol card
S52969WF	Wi-Fi Drive Link	Wi-Fi external module
S5P11T	KB-ADL500	Programming Keypad
S5P11TK1	KIT REMOTE KB-ADL500 5MT	RJ45 keypad remoting kit, L=5m
S5P11TK2	KIT REMOTE KB-ADL500 10MT	RJ45 keypad remoting kit, L=10m

CARDS, PANELS AND DISPLAY



CODE	TYPE	DESCRIPTION
On request	**ICS-CR**	Integrated Control System Car Roof card. The ICS-CR card manages complete cabin operation, sending all information to the controller via a dedicated CAN bus communication.
On request	**ICS-COP**	Integrated Control System Car Operator Panel Card that interfaces between button panels and Car Roof Card (ICS-CR).
On request	**ICS-CD**	Integrated Control System Car Display Cabin Display: 7 inch TFT. Communication with ICS-CPU control system via dedicated CAN channel (CAN 1) or RS485.
On request	**ICS-FD**	Integrated Control System Floor Display This display is positioned in the floor. It is possible to select the display based on the wished technology (e.g. LCD, TFT). The communication with the ICS-CPU can be via CAN or RS485.
On request	**Push buttons and covers**	This are optional parts, Gefran can provide these parts, in alternative the customers are free to connect their selected parts.

Floor Display

Push buttons

GEFRAN
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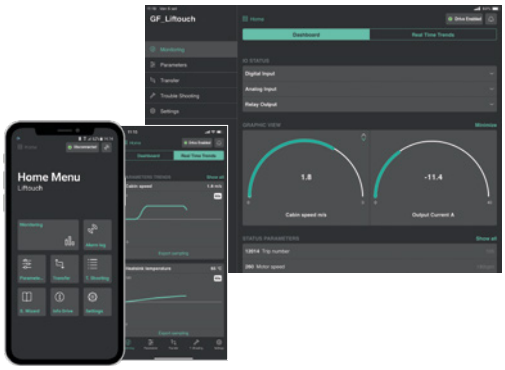
ADL500 and ADL550-ICS • DRIVE PROGRAMMING

GF_LifTouch - WEBAPP



Fully responsive WebApp, compatible with all major browsers on smartphones, tablets and PCs, and with any operating system.

Ease to use

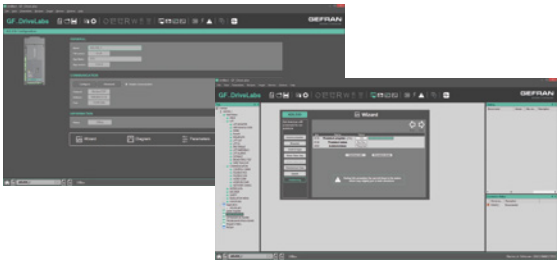
Always keep track of the drive status, but with the intuitiveness of a common mobile app.

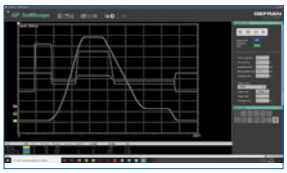
Internet security

Secure communications guaranteed by the HTTPS protocol and 4 different password protected access profiles.

GF_DriveLabs – CONFIGURATOR

Enhancement of Gefran PC configurator features in the same "family feeling" programming.





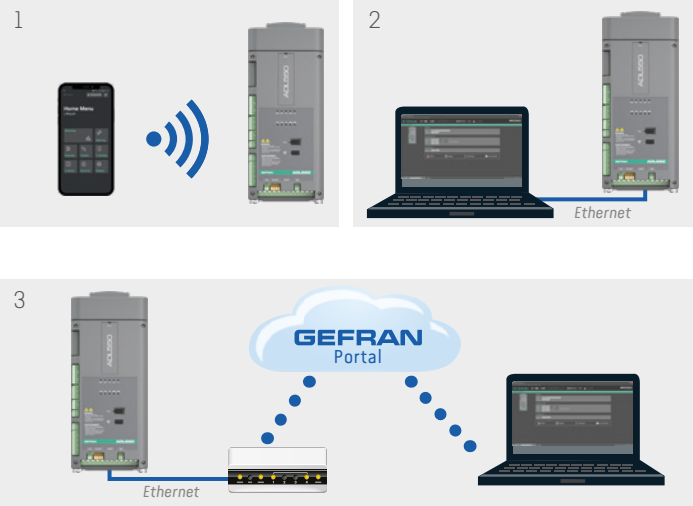
Oscilloscope Real time

Built-in synchronous sampling Softscope with 1ms period, integrated with the configuration software.

Levels of access

4 different levels of access to allow different operators to view parameters and features of interest using access selection.

CONNECTIVITY - DIFFERENT WAYS TO CONNECT TO THE DRIVE



GF_Liftouch WebApp connection

> Direct Wi-Fi connection using an optional module (1).

> Wired connection via the Ethernet port using the Modbus TCP protocol (2).

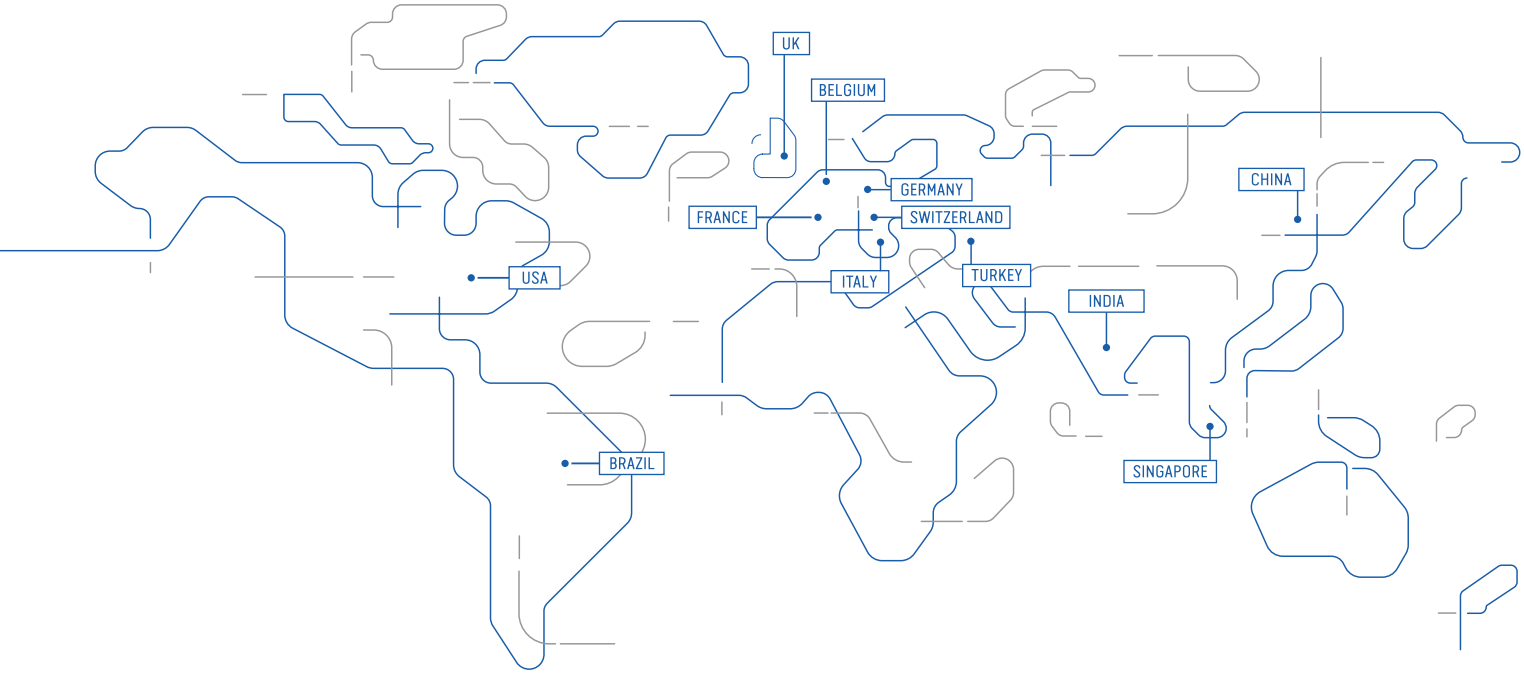
> Remote connection with drive connected to a gateway with SIM card and data connection. By logging onto the Gefran portal, it is possible to monitor and manage the in-field drives and access them directly (3).

GF_Drivelabs Configuration tool

> Wired connection via the Ethernet port using the Modbus TCP protocol (2).

COD. 82091

FM 608910



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