ENG

MOTION CONTROL

# LIFT CONTROL SYSTEMS • ICS-ADL300

## THE INTEGRATED PREMIUM SOLUTION FOR ELEVATORS

GEFRAN

COD. 82291B

With fifty years of experience, Gefran is the world's leading designer and producer of solutions for **measuring, controlling, and driving industrial production processes**.
We have branches in 14 countries and a network of over 80 worldwide distributors.

## QUALITY AND TECHNOLOGY

Gefran components are a **concentration of technology**, the result of constant research and of **cooperation with major research centers**.
This makes Gefran synonymous with quality and expertise in the design and production of:

- **sensors** for measuring main variables such as **temperature, pressure, position and force**
- **state-of-the-art components and solutions for indication and control**, satisfying demands for optimization of processes and intelligent management of energy consumption
- **automation platforms** of various complexities
- **electronic drives and electric motors** in AC and DC for all industrial automation, HVAC, water treatment and lift needs.

**Gefran's know-how and experience guarantee continuity and tangible solutions.**

## SERVICES

A team of Gefran experts works with each customer to select the ideal product for its application and to help install and configure devices (technohelp@gefran.com).

Gefran offers a wide range of courses at different levels for the technical-commercial study of its product as well as specific courses *on demand*.

HOME LIFT

LOW RISE

MEDIUM RISE

HIGH RISE

## LIFT CONTROL SYSTEMS

Modernizations of existing systems, new systems with and without machine room, applications with synchronous and asynchronous motors with and without gearbox, can be tackled in a targeted and simple way with Gefran drives

Flexible and complete thanks to a wide range of options and dedicated accessories, the inverters of the SIEIDrive - LIFT series are the fast, immediate solution for all application requirements.

The thousands of systems operating all over the world are the best evidence of Gefran's skill and the absolute quality of the product.

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**.

# ICS-ADL300 • DESCRIPTION

## THE INTEGRATED SOLUTION FOR ELEVATORS

ICS (Integrated Control System) is the new elevator platform developed by Gefran, in which 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.

### " LIFT Controller inside "

The system also incorporates the typical car functions, thanks to two specific external cards: car roof card and operator card, connected to the control unit by dedicated fieldbuses.

### " Lower costs with Plug & Play logic "

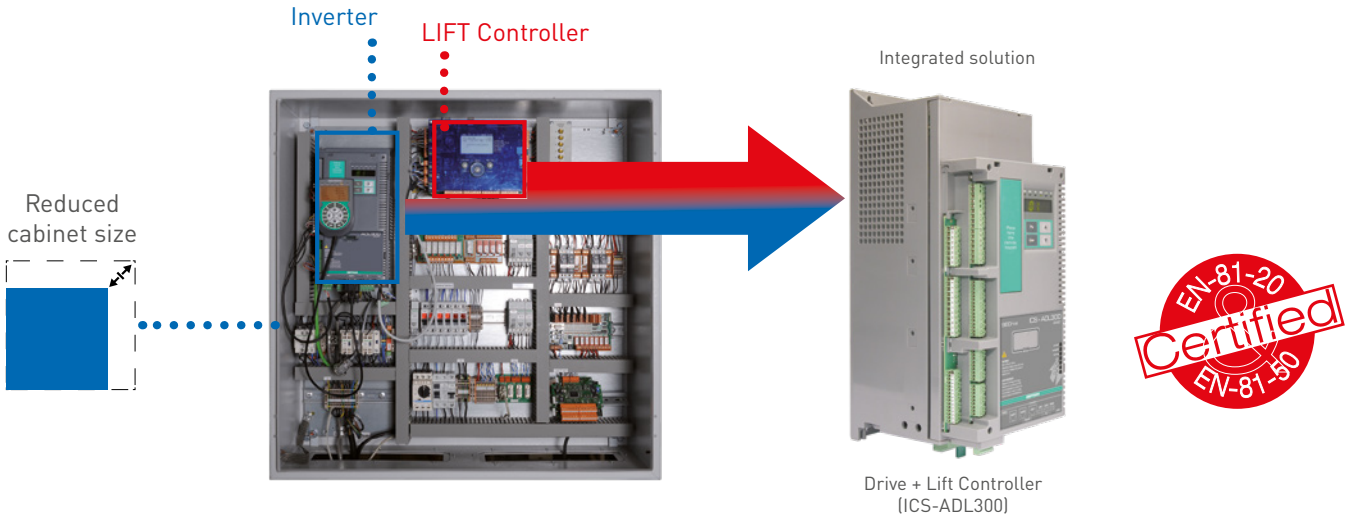
Unlike traditional systems, in which the inverter and control card are separate units which require dedicated wiring and programming, the integrated solution reduces design, installation and maintenance costs, thanks to Plug & Play logic.

### " One programming environment for drive and control card "

A single configuration environment structured into thematic menus allows the fast and user-friendly programming of the inverter and the control card. The possibility to configure various user profiles (installer, maintenance personnel, expert programmer), each with specific credentials, limits access to a limited subset of menus.
Cutting-edge software with all of the advanced functions required by modern systems, allows the proposal of the product for a wide range of applications, such as High Rise, Medium Rise and Low Rise, both at high and low speed, with different traffic profiles. Applicable to freight and passenger elevators, with control panel in a room-less machine configuration (RLM).

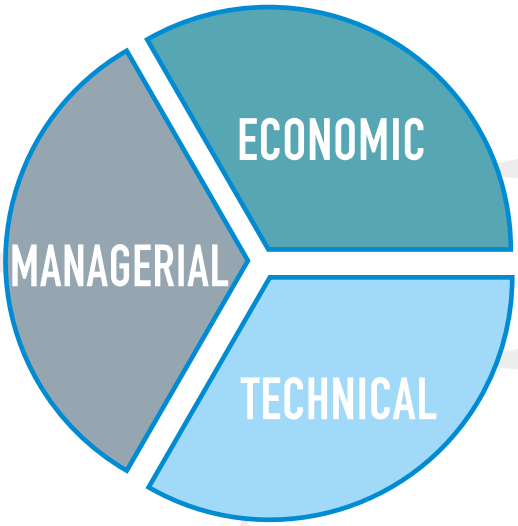
### " The first Certificated Contactorless Integrated Lift "

The complete system is the ideal solution for manufacturers who work solely with Gefran for both the inverter and the control system, and especially for those who want to propose cost-effective and innovative solutions for modernizations and new installations.




An example of elevator control panel with separate inverter and control card

# ADVANTAGES OF AN INTEGRATED SOLUTION




## SINGLE INTERFACE FOR:

- Customer Service
- Handling Orders
- Delivery Times

## SIMPLIFIED INSTALLATION AND MAINTENANCE:

- Less wiring time
- Smaller cabinet
- Rapid and easy configuration
- Less maintenance time
- Less system complexity
- Less troubleshooting time

## PREMIUM FUNCTIONALITY:

- High performance
- Comfort
- Safety
- Quality
- Specific certifications
- CONTACTORLESS operation

## HIGH PERFORMANCE

- Direct landing.
- 200% overload for 10 sec.
- Integrated braking unit up to 55kW.
- Position control.

## SAFETY

- UCM* according to 5.6.7.3 of EN 81-20:2014 and 5.8 of EN 81-50:2014 ( 9.11.3 and F.8 of EN 81-1:1998+A3:2009).
- Safety Torque Off (STO) EN61800-5-2-2007 SIL3 certification.
- Integrated safety.
- cULus (UL508C)

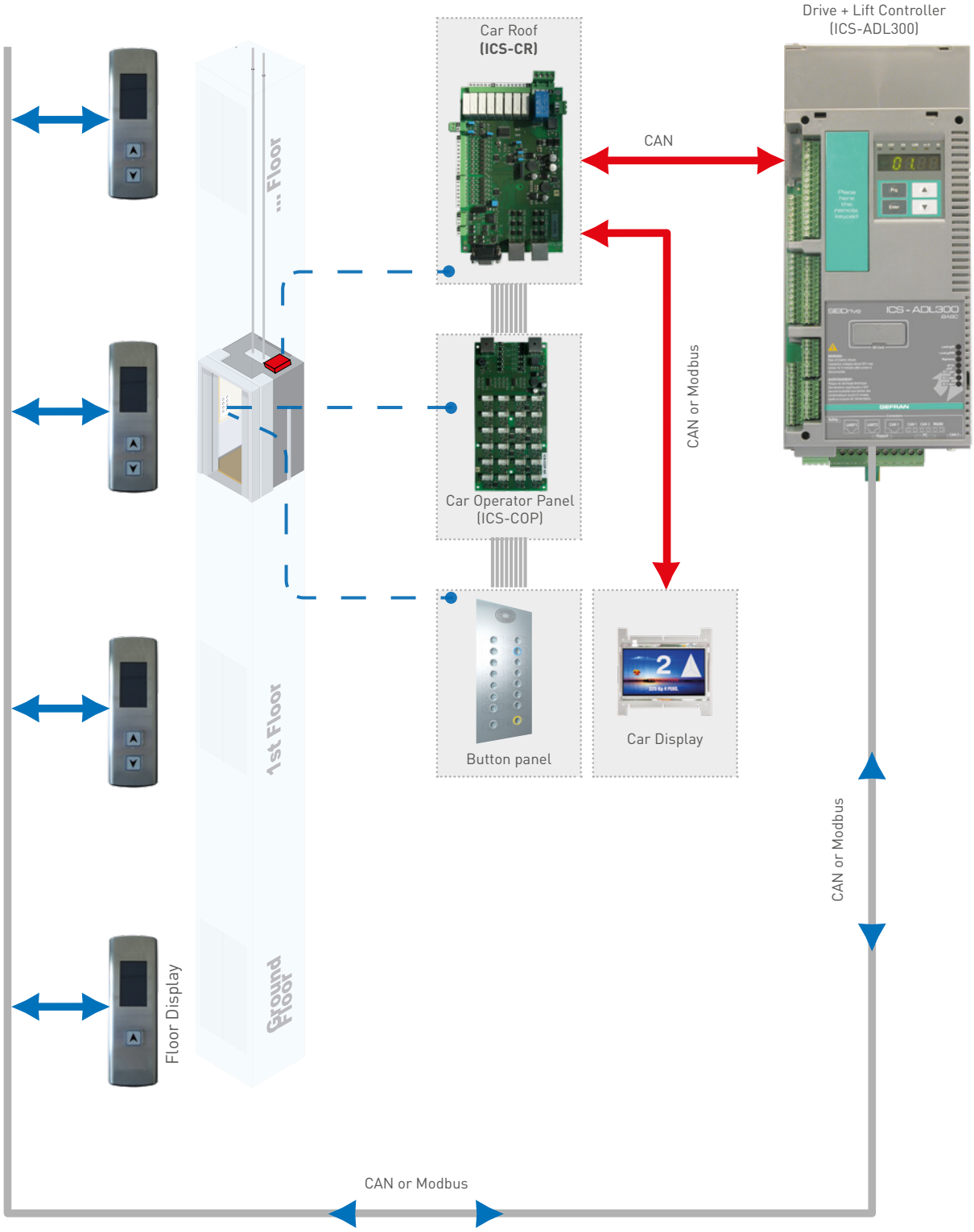
** Unintended car movement*

## COMFORT

- Floor alignment with less than 2 mm tolerance
- No vibrations.
- Anti-rollback.
- Contactorless.

# ICS SYSTEM ARCHITECTURE

- Complete control system for passenger and freight elevators
- Perfect for Low Rise, Medium Rise and High Rise systems
- Plug & Play installation of system parts
- **The first integrated lift capable of using displays with Modbus communication on serial RS485 and with CAN communication.**



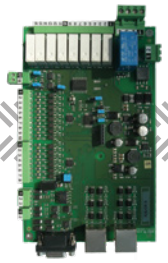
# SYSTEM COMPONENTS

## ICS-ADL300 + CARDS

### ICS-ADL300 BASIC

- Built-in I/Os and Feedback card (Absolute Sincos + Digital Incremental or EnDat + SSI).
- Integrated Control card (Inside).
- Power Range 4kW – 75 kW 3ph version.
- Power Range 1.5kW – 5.5kW 1ph version.

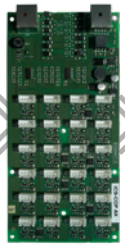
CAR ROOF CARD



### CAR ROOF PANEL (ICS-CR)

- The ICS-CR card manages the complete operation of the car and sends all the information to the controller via a dedicated CAN bus communication.
- It manages the operation of car doors, ventilation and lighting, as well as the load sensor.

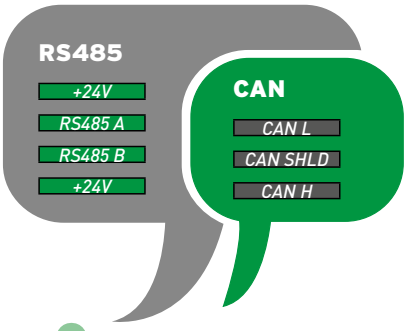
CAR CARD



### CAR OPERATOR PANEL (ICS-COP)

- Interface card between button panels and Car Roof Card (ICS-CR).
- Collects commands received by car and transfers them to the car roof card and then to the control card.

## OPTIONS




### WE THINK «OPEN» TO MEET THE NEEDS OF THE MARKETPLACE

Gefran supplies the ICS solution with floor and car display with either an RS485 interface or a CAN interface.
«*OPEN*» solutions are possible with the display (RS485 or CAN) supplied by third parties.

CAR DISPLAY

### CAR DISPLAY (ICS-CD)

- 7 inch car TFT display.
- Communication with ICS-CPU control system via dedicated CAN channel (CAN 1) or RS485.
- UNI EN 81-70.
- Button panel and buttons (optional).

FLOOR DISPLAY (SIMPLEX)

### SIMPLEX FLOOR DISPLAY (ICS-FD)

- 2.8 inch floor display.
- Double figure in segments.
- Communication with ICS-CPU control system via dedicated CAN channel (CAN 2) or RS485.
- Indication of direction and signals.
- UNI EN 81-70.
- Button panel and buttons (optional).

# MAIN FUNCTIONS

> **Maintenance and Inspection mode**: during maintenance and inspection, the operator can run the car at a controlled speed by using the button panel in the control panel or on the car roof.

> **Independent Run mode**: when this automatic mode is selected, the elevator closes the doors automatically and ignores all of the calls coming from outside, for a non-stop run to the destination floor.

> **Operator mode**: the elevator excludes automatic mode and works in the presence of an operator who controls all operations. During car movement, the operator can ignore all of the calls coming from outside or accept them selectively, controlling the car's direction and opening of the doors.

> **Return to floor in case of fire**: when the system receives the fire signal, the elevator ignores all floor calls and keeps the doors closed until the car reaches the evacuation floor.

> **Firefighter control**: when fire mode is active, automatic operation of the doors is disabled and opening is controlled manually from inside the car, which can happen only when the car has reached the landing floor.

> **Automatic return to floor**: if no calls from inside the car or from the floors are not received after a certain (programmable) time, the car is returned to the landing floor.

> **Return to floor at night**: during the night, every time the elevator completes a run it always returns to the selected floor.

> **Deceleration at floor**: when the doors open, the cables can be subject to considerable elastic deformation due to the entrance/exit of people or goods into/from the car. When the doors are open, the system realigns the car to the floor with millimetric precision.

> **Overload**: if the car is loaded with a weight exceeding its nominal capacity, the elevator goes into overload condition. A buzzer and a signal light indicate overload status and prevent closing of the doors.

> **Earthquake**: in case of earthquake, the system receives a signal from the earthquake sensors that takes the car to the nearest floor, opens the doors, and puts the car in stop status.

> **Anti-vandalism**: based on the number of people in the car, the system determines the maximum allowed number of requests. If this number exceeds the set limit, the system considers it an improper use and cancels all calls. The passengers then have to re-select their destinations.

> **Full collective**: calls from floors are recorded with the car available or not available. Calls from floors and requests in car are executed in logical order based on the direction of the car. Two call buttons on each intermediate floor are required: one up and one down (only one button at the top and bottom floors).

> **Down (up) collective**: calls from floors are recorded by pushing the single button on each floor. If the car is free or going down (up), it responds to calls from the highest (lowest) floor, then to the others, during its downward run toward the main floor. Calls in the car are recorded instantaneously and executed in logical order based on the direction of the car.

> **Call management with full car**: when the car runs with a full load, the system ignores floor calls. These calls are stored and served during the next run (Simplex systems) or by the other car (Duplex systems).

> **Double stop management**: once the selected destination floor is reached, the elevator can manage independent opening of the two car doors based on the recorded call (for example, there may be two separate offices or services on the same floor).

> **Time management**: the elevator can exclude a specific floor or a specific stop in a programmable time band (for example, use of the swimming pool in a hotel is blocked from midnight to 6 AM).

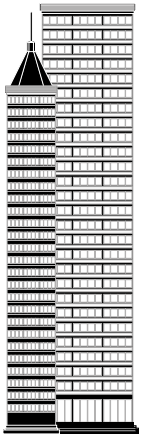
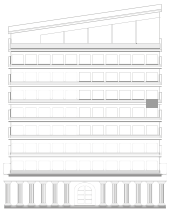
> **Energy efficiency**: the system can switch off the lights and air conditioning if it receives no calls for a certain time.

# SYSTEM CHARACTERISTICS

| | ICS-ADL300 |
|---|---|
| **Applications** | • Passengers & freight elevators<br>• High Rise Buildings & Home Lift<br>• Gearless & Geared motors<br>• For machine room & and Room-less (MRL) systems<br>• New installations & modernizations |
| **Number of elevators** | Simplex - Duplex - Group (up to 8) |
| **Number of stops** | Up to 64 |
| **Number of floors** | Up to 64 |
| **Speed range** | Up to 3 m/s |
| **Car door operation** | Up to 3 independent doors |
| **Car display/button panel** | Up to 2 |
| **Communication & Wiring system type** | CAN bus serial communication (shielded cables) or RS485 serial communication |
| **Call management** | Full Selective - Down Selective - Up Selective |
| **Stand-by Mode** | External +24VDC power supply |
| **Safety (EN81-1 + A3)** | Two Contactors - One Contactor - CONTACTORLESS |
| **Approvals** | CE, UL508C |
| **Commissioning with full load** | Motor phasing and self-learning with the motor stopped are performed automatically with a single command |
| **Express arrival** | The arrival at the floor follows an optimized speed curve, with no jolts |
| **Deceleration at floor** | The system automatically corrects the arrival at the floor before opening the doors |
| **Position of the Floor & Self-learning** | The system automatically learns and memorises the distances and position of the floor |
| **Emergency Mode** | In the event of failure of the power circuit, the car automatically goes to the nearest floor |

# APPLICATIONS AND GUIDE TO SELECTION

Different applications require specific products for both regenerative and traditional solutions.
The product-solution match is not binding. The following table gives a number of examples based on systems already installed.

| | HIGH RISE | MID RISE | LOW RISE | HOME LIFT |
|---|---|---|---|---|
| **Profile** | • Height: 90+ m<br>• Floors: 30+<br>• Speed Range: 2.5...5 m/s | • Height: 18...90 m<br>• Floors: 6...30<br>• Speed Range: 0.8...2.5 m/s | • Height: 12...18 m<br>• Floors: 3...6<br>• Speed Range: 0.6 ... 0.8 m/s | • Height: 4...8 m<br>• Floors: 1...2<br>• Speed Range: 0.3 ... 0.6 m/s |
| **Requirements** | • High Speed<br>• Reliability<br>• Smooth Acceleration and Ride comfort<br>• Limited passengers' waiting and travel time<br>• Regenerative Solution | • Cost Saving<br>• Space Saving<br>• Low Energy Consumption<br>• Smooth Acceleration and Ride comfort<br>• Regenerative Solution | | • Cost Saving<br>• Space Saving (MRL)<br>• Low Energy Consumption<br>• Easy Commisioning |
| **Specific functions** | • Premium components and design<br>• Pre-torque and precise landing at floor<br>• Door pre-opening<br>• AFE regenerative units. | • Optimized hardware solutions<br>• Pre-torque and precise landing at floor<br>• Contactor-less<br>• External +24VDC power supply for stand-by control<br>• AFE Regenerative units. | | • Optimized hardware solutions<br>• Contactor-less<br>• External +24VDC power supply for stand-by control<br>• Rapid commissioning. |
| **Rigenerative** | <br>AFE200 + ICS-ADL300 | | | |
| **Non RIgenerative** | <br>ICS-ADL300-4, ICS-ADL300-2T | | | <br>ICS-ADL300-2M |
| | | <br>ICS-VDL100 | | |

# GENERAL CHARACTERISTICS

## UNIVERSAL MECHANICAL STRUCTURE

The extremely compact **ICS-ADL300** reduces the size of conventional lift systems and it is suitable for installation in roomless systems.

## I/O MANAGEMENT

**ICS-ADL300**, integrates as standard:

- n. 25 Digital Inputs NPN/PNP + 1 Digital Input (Enable);
- n. 8 Digital Outputs;
- n. 4 Analog Inputs;
- n. 6 Relay Outputs;
- n. 4 Digital Inputs «Heavy Current Detection»

## SD CARD PORT

The SD memory card makes saving and loading data and configurations with the **ICS-ADL300** very simple.

Special adapter required
KIT KEY SD-CARD, cod. S574L.

## ENCODER MANAGEMENT

The **ICS-ADL300** interfaces with all the main feedback devices:

**ICS-ADL300**, integrates as standard:

- Input for 5 Vdc TTL incremental digital encoder (Sincos version)
- Input for absolute SinCos encoder (Sincos version)
- Input for absolute Endat / SSI encoder ( -ED version)

## "SAFETY" INPUTS

for use with a single output contactor or in contactorless mode.

## BACK-UP POWER SUPPLY

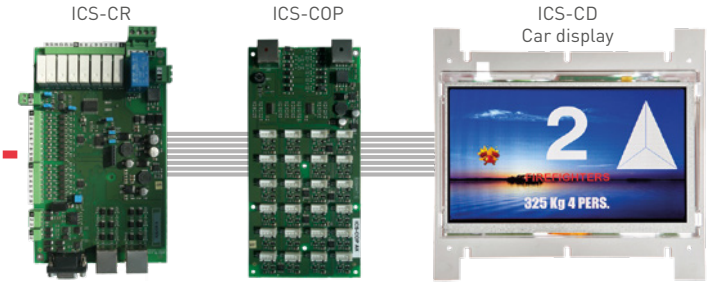
The **ICS-ADL300** guarantees operation even in the event of a power failure.

It features an automatic return-to-floor function managed by an external device such as UPS or buffer battery via a single phase 230V AC power supply (with EMS module).

## INTEGRATED KEYPAD

The integrated programming keypad allows fast programming and immediate start-up.

- 1-line x 4-character alphanumerical LED display with sign
- Simple parameter modification
- Menu and individual parameters displayed in numerical format
- Fast navigation keys
- Alarms / messages and startup wizard displayed in text format
- Resetting of alarms from keypad.



ICS-FD
Floor display

## CONFIGURATION TECHNOLOGY

For peer-to-peer programming via PC, ***ICS-ADL300*** integrates as standard the RS232 serial line with **Modbus RTU** protocol.

## OPTIONAL PROGRAMMING KEYPAD

The optional KB-ADL programming keypad featuring full display of parameters and variables in 5 languages makes the **ICS-ADL300** extremely intuitive and easy to use.

It has a strip of magnetic material on the back so that it can be attached to the front of the drive or other metal surface (e.g. door of the electrical panel).

The keypad can be used remotely from distances of up to 15 m. A 70 cm-long connection cable is supplied as standard.

Up to 5 sets of parameters can be saved using the KB-ADL keypad and sent to other drives.

- 5 line x 21 character display
- Alphanumeric plaintext
- Complete information regarding each parameter
- Fast navigation keys
- Key for displaying the last 10 parameters that have been changed
- DISP key for rapid display of operating parameters
- Uploading-Downloading and saving of 5 complete sets of drive parameters

# TECHNICAL CHARACTERISTICS OF THE INVERTER

| MODEL | ICS-ADL300-2T | ICS-ADL300-2M | ICS-ADL300-4 |
|---|---|---|---|
| **Control mode** | Field Oriented Control | Field Oriented Control | Field Oriented Control |
| **Power** | 5.5 ... 37kW | 1.1 ... 5.5kW | 4 ... 75kW |
| **Voltage** | 3 x 200-230Vac, ±10%<br>50/60Hz | 1 x 200 Vac, ±10%<br>1 x 230 Vac, -15%+10%<br>50/60Hz | 3 x 230-400-480Vac, -15%+10%,<br>50/60Hz |
| **Motor type** | Asynchronous / Synchronous | Asynchronous / Synchronous | Asynchronous / Synchronous |
| **Speed control (Accuracy)** | ± 0.01% Motor rated speed (1) | ± 0.01% Motor rated speed (1) | ± 0.01% Motor rated speed (1) |
| **Overload** | up to 200% In * 10" (up to 11kW)<br>up to 180% In * 10" (≥ 15kW) | up to 200% In * 3" | up to 200% In * 10" (up to 22kW)<br>up to 180% In * 10" (≥ 30kW) |
| **Max output frequency** | 300Hz | 300Hz | 300Hz |
| **EMI filter** | Integrated (ICS-ADL300.-F models)<br>(EN 12015; EN 61800-3 category C2 and C3) | Optional external<br>(EN 12015; EN 61800-3 category C2 and C3) | Integrated (ICS-ADL300.-F models)<br>(EN 12015; EN 61800-3 category C2 and C3) |
| **Choke** | DC side choke: no<br>AC side choke: external optional | no | DC side choke: integrated (sizes ≥ 4300), external optional on lower sizes<br>AC side choke: external optional |
| **Braking unit** | Integrated up to 30kW with external resistor | Integrated with external resistor | Integrated up to 55kW with external resistor |
| **Port for SD card** | yes | | |
| **Dimensions for roomless applications** | yes | | |
| **Emergency operation** | Optional (UPS or buffer battery with EMS module) | | |
| **Max system speed** | 3.0 m/s | 1.0 m/s | 3.0 m/s |
| **Serial communication** | RS232 connector, used for programming (PC) and control (Modbus communication standard in all drives).<br>RS485 connector (for optional keypad). | | |
| **Protection class** | IP20 | | |
| **Immunity / Emissions** | In compliance with EN 12015 electromagnetic compatibility directive, using internal filter<br>(ICS-ADL300-...-2M series with optional external filter) | | |
| **Operating temperature** | -10...45°C (32°...113°F), +45°C...+50°C (+113 ... +122°F) with derating | | |
| **Altitude** | Max 2000 m. (up to 1000 m without derating) | | |
| **Markings** | CE, Complies with the EC Directive concerning low voltage equipment<br>(Directives LVD 2014/35/EC, EMC 2014/30/EC, Lift 2014/33/EC ) | | |
| | cULus (UL508C) | | |

## WEIGHTS AND DIMENSIONS

| INVERTER | Dimensions: Width x Height x Depth | | Weight | |
|---|---|---|---|---|
| | mm | inches | kg | lbs |
| **ICS-ADL300-1...** | 162 x 343 x 188 | 6.38 x 13.50 x 7.4 | 5.8 | 12.8 |
| **ICS-ADL300-2...** | 162 x 396 x 188 | 6.38 x 15.59 x 7.4 | 7.8 | 17.2 |
| **ICS-ADL300-3...** | 235 x 401 x 208.4 | 9.25 x 15.79 x 8.21 | 10.5 | 23.5 |
| **ICS-ADL300-4...** | 267.6 x 616 x 305 | 10.53 x 24.25 x 12.01 | 32 | 70.6 |
| **ICS-ADL300-5...** | 311 x 767 x 360.4 | 12 x 30.2 x 14.18 | 60 | 132.3 |

| CARDS | Dimensions: Width x Height x Depth | | Weight | |
|---|---|---|---|---|
| | mm | inches | g | oz. |
| **Car Roof (ICS-CR)** | 180 x 110 x 20 | 7.09 x 4.33 x 0.79 | 200 | 7.05 |
| **Car Operator (ICS-COP)** | 130 x 80 x 20 | 5.12 x 3.15 x 0.79 | 65 | 2.29 |

| DISPLAY | Dimensions: Width x Height | |
|---|---|---|
| | mm | inches |
| **Car Display (ICS-CD)** | 154 x 86 | 6.1 x 3.4 |
| **Simplex Floor Display (ICS-FD)** | 67.5 x 70 | 2.65 x 2.75 |

# GF_eXpress PROGRAMMING SOFTWARE

GF_eXpress is the software tool used to configure all the drives available in the Gefran catalogue.

Product selection is immediate by mean of a drop down menu and thanks to the graphical interface the configuration is easy and intuitive.

### Configure your Drive

LìThe configuration of the drive is organized in various contextual menus, available in 6 different languages, where the operator through a graphical layout is guided step by step in the configuration process, with clear indication of the available parameters and the range of possible values to set.

The specific menu "Lift" groups all the parameters strictly related to the elevator systems.
Divided by functional contexts, the setting of parameters about mechanical data, lift sequences, acceleration and deceleration ramps, multispeed setting, is fast and easy.

For the commissioning two modes are available: easy and expert, where the operator can select to perform a faster configuration with a limited set of parameters, or a refined configuration where the setting of more parameters is required.

The selected product can be configured using a text interface or a guided graphical interface.

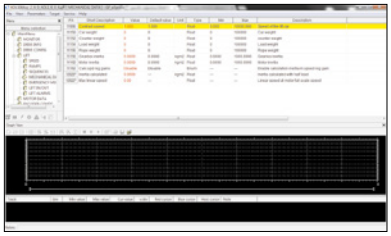
To check and monitor the configuration, the integrated Oscilloscope can simultaneously monitor up to 8 curves.
The reference value for the curve being displayed can be selected from among all the variables that are available for the selected drive.

### Save time with Wizard and Still Autotune

Thanks to the Wizard, the start-up of the motor is easy and fast by filling the parameters requested step by step.

The still autotune is quickly performed, avoiding operators to decouple the car from the ropes, assuring a safe working environment, and a faster commissioning.

### Export your configuration

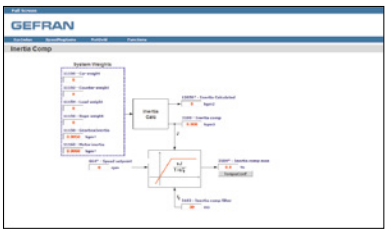


All details for configuration of each single device are sent out in XML format to facilitate expansion of the catalogue and parameters.
The parameters can be exported and printed.

### Customize the tool

Based on different needs and context, the tool allows to create and store recipes, where the configuration can be saved with a sub-set of configured parameters.

Custom parameter menus with a limited sub-set of data can be created, to enable a better and more effective device configuration.




It's possible the management of parameter archives for multiple configurations.

GF_eXpress is indisputably the perfect tool to allow a fast, flexible, intuitive and easy commissioning of the drive for the elevator systems.

## TECHNICAL DATA

**Operating systems:**
> Windows ® 2000, XP, Vista, Windows 7.

**Minimum PC requirements:**
> Pentium class CPU
> RAM 512 MB
> Free space of > 200 MB
> Graphic card min. VGA (1024x768)
> N. 1 RS232 or USB serial port
> N. 1 Ethernet port
> CD-ROM drive

## SOFTSCOPE: INTEGRATED SOFTWARE OSCILLOSCOPE

SoftScope is a software oscilloscope with synchronous sampling (buffered with a minimum sampling time of 1ms).
Using SoftScope the user can fast and easily display some specific variables.
To give an example: commissioning variables, variables to test performance of the systems, or variables to tune for control system optimization, can be monitored without the need of external oscilloscopes.

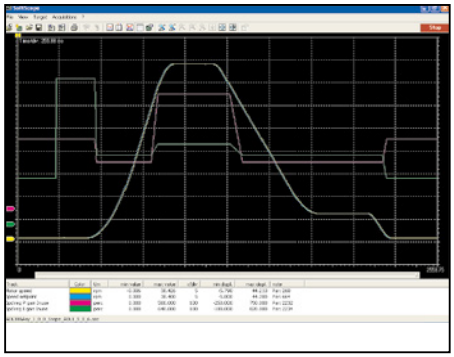
To understand if the approach to the floor is following the wished ramps or there is some rollback in the system, thanks to the SoftScope the analysis is faster and accurate.
It' is possible to analyse the speed profile of the car showing details about actual floor approach, ramps, jerks.

The curves can be displayed with different colours and they can be singularly enabled/disabled.

The zoom function allows enlargement of the details, while the cursor allows detection of the signal peaks and duration.

Trigger conditions (e.g. climbing leading edge of a specific signal), recording

quality (a multiple of the basic clock at 1ms), recording duration period are parameters that the tool allows to control.



The displayed curves can be printed and stored in ASCII format and can be used with the most common data processing tools (for example Excel, Matlab).

# CHOOSING THE INVERTER - INPUT DATA

| SIZES - ICS-ADL300-...-4 | | 1040 | 1055 | 2075 | 2110 | 3150 | 3185 | 3220 | 4300 | 4370 | 4450 | 5550 | 5750 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ULN • AC Input voltage** | VAC | Three-phase network 230 - 400 - 480 Vac -15%+10% | | | | | | | | | | | |
| **FLN • Input frequency** | Hz | 50/60 Hz, ± 5% | | | | | | | | | | | |
| **Overvoltage threshold** | VDC | 820 VDC | | | | | | | | | | | |
| **Undervoltage threshold** | VDC | 225 VDC (@ 230 VAC); 391 VDC (@ 400 VAC); 450 VDC (@ 460 VAC); 470 VDC (@ 480 VAC) | | | | | | | | | | | |
| **DC-Link Capacity** | µF | 470 | 680 | 680 | 1020 | 1500 | 2250 | 2700 | 2350 | 2350 | 2800 | 4700 | 5600 |
| **In • Effective input current (@ In out)** | | | | | | | | | | | | | |
| @ 230 VAC | A | 12 | 17 | 23 | 31 | 42 | 50 | 55 | 55 | 72 | 89 | 97 | 136 |
| @ 400 VAC | A | 11 | 16 | 22 | 29 | 40 | 47 | 53 | 55 | 72 | 89 | 97 | 136 |
| @ 480 VAC | A | 10 | 15 | 20 | 26 | 37 | 45 | 50 | 49 | 65 | 81 | 89 | 122 |
| **THD with DC choke @ I2n** (according to EN 12015) | | < 35% | | | | | | | | | | | |
| **No-load consumption (Energy rating):** Stand-by consumption "Fan Off" | W | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 25 | 25 | 25 | 25 | 25 |

| SIZES - ICS-ADL300-...-2T | | | 2055 | 3075 | 3110 | 4150 | 4185 | 4220 | 5300 | 5370 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ULN • AC Input voltage** | VAC | Three-phase network: 200 Vac ±10%, 230 Vac ±10% | | | | | | | | | |
| **FLN • Input frequency** | Hz | 50/60 Hz, ± 2% | | | | | | | | | |
| **Overvoltage threshold** | VDC | 500 VDC | | | | | | | | | |
| **Undervoltage threshold** | VDC | 196 VDC (@ 200 VAC), 225 VDC (@ 230 VAC), | | | | | | | | | |
| **DC-Link Capacity** | µF | | 1020 | 1500 | 2700 | 2350 | 2350 | 2800 | 4700 | 5600 | |
| **IN • AC input current without choke** | | | | | | | | | | | |
| @ 200-230 VAC | A | | 31 | 42 | 53 | 55 | 72 | 89 | 97 | 136 | |
| **THD with DC choke @ I2n** (according to EN 12015) | | < 35% | | | | | | | | | |
| **No-load consumption (Energy rating):** Stand-by consumption "Fan Off" | W | | 20 | 20 | 20 | 20 | 20 | 20 | 25 | 25 | |

| SIZES - ICS-ADL300-...-2M | | 1011 | 1015 | 2022 | 2030 | 3040 | 3055 |
|---|---|---|---|---|---|---|---|
| **ULN • AC Input voltage** | VAC | Single-phase network: 1 x 200 –10%....+10%, 1 x 230 –15%....+10% | | | | | |
| **FLN • Input frequency** | Hz | 50/60 Hz, ± 2% | | | | | |
| **Overvoltage threshold** | VDC | 410 Vdc | | | | | |
| **Undervoltage threshold** | VDC | 196 Vdc (@ 200 Vac); 225 Vdc (@ 230 Vac) | | | | | |
| **DC-Link Capacity** | µF | 2200 | 2200 | 4050 | 4050 | 4950 | 4950 |
| **In • Effective input current (@ In out)** | | | | | | | |
| @ 230 Vac | A | 16 | 18 | 24 | 31 | 35 | 50 |
| **No-load consumption (Energy rating):** Stand-by consumption "Fan Off" | W | 20 | 20 | 20 | 20 | 20 | 20 |

# CHOOSING THE INVERTER - OUTPUT DATA

| SIZES - ICS-ADL300-...-4 | | 1040 | 1055 | 2075 | 2110 | 3150 | 3185 | 3220 | 4300 | 4370 | 4450 | 5550 | 5750 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **$I_N$ • Rated output current** (fsw = default) | | | | | | | | | | | | | |
| @ $U_{LN}$=230 $V_{AC}$ | A | 9 | 13.5 | 18.5 | 24.5 | 32 | 39 | 45 | 60 | 75 | 90 | 105 | 150 |
| @ $U_{LN}$=400 $V_{AC}$ | A | 9 | 13.5 | 18.5 | 24.5 | 32 | 39 | 45 | 60 | 75 | 90 | 105 | 150 |
| @ $U_{LN}$=460 $V_{AC}$ | A | 8.1 | 12.2 | 16.7 | 22 | 28.8 | 35.1 | 40.5 | 54 | 67.5 | 81 | 94 | 135 |
| **$P_N$ mot** (Recommended motor power, fsw = default) | | | | | | | | | | | | | |
| @ $U_{LN}$=230 $V_{AC}$ | kW | 2 | 3 | 4 | 5.5 | 7.5 | 9 | 11 | 15 | 18.5 | 22 | 30 | 37 |
| @ $U_{LN}$=400 $V_{AC}$ | kW | 4 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 |
| @ $U_{LN}$=460 $V_{AC}$ | Hp | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 |
| **Reduction factor *** | | | | | | | | | | | | | |
| $K_V$ (1) | | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| $K_T$ (2) | | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| $K_{ALT}$ (3) | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| **Overload** | | 200% * 10 sec with output frequency more than 3 Hz<br>150% * 10 sec with output frequency less than 3 Hz | | | | | | | 180% * 10 sec with output frequency more than 3 Hz<br>150% * 10 sec with output frequency less than 3 Hz | | | | |
| **Maximum Switching frequency** | kHz | 10 | | | | | | | | | | | |
| **U2 • Maximum output voltage** | | 0.98 x $U_{LN}$ ($U_{LN}$ = AC Input voltage) | | | | | | | | | | | |
| **f2 • Maximum output frequency** | Hz | 300 | | | | | | | | | | | |
| **IGBT braking unit** | | Standard internal (requires external resistor); braking torque 150% MAX | | | | | | | | | | | Optional External |

| SIZES - ICS-ADL300-...-2T | | 2055 | 3075 | 3110 | 4150 | 4185 | 4220 | 5300 | 5370 |
|---|---|---|---|---|---|---|---|---|---|
| **Rated output current CA** (duty cycle 80%) | | | | | | | | | |
| @ $U_{LN}$=200-230 $V_{AC}$ | A | 24.5 | 32 | 45 | 60 | 75 | 90 | 105 | 150 |
| @ $U_{LN}$=200-230 $V_{AC}$ | kVA | 9.8 | 12.8 | 17.9 | 23.9 | 29.9 | 35.8 | 41.8 | 59.8 |
| **$P_N$ mot** (Recommended motor power) | | | | | | | | | |
| @ $U_{LN}$=200-230 $V_{AC}$ | kW | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 |
| @ $U_{LN}$=200-230 $V_{AC}$ | Hp | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |
| **Reduction factor *** | | | | | | | | | |
| $K_T$ (2) | | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| $K_{ALT}$ (3) | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| **Overload** | | 200% *10 sec with output frequency more than 3 Hz<br>150% * 10 sec with output frequency less than 3 Hz | | | | | | 180% * 10 sec with output frequency more than 3 Hz<br>150% * 10 sec with output frequency less than 3 Hz | |
| **Maximum Switching frequency** | kHz | 10 / 5 according to Heat-sink temperature | | | | | | | |
| **U2 • Maximum output voltage** | | 0.98 x $U_{LN}$ ($U_{LN}$ = AC Input voltage) | | | | | | | |
| **f2 • Maximum output frequency** | Hz | 300 | | | | | | | |
| **IGBT braking unit** | | Standard internal (requires external resistor); braking torque 150% MAX | | | | | | | Optional External |

* The derating factors shown in the table below are applied to the rated DC output by the user. They are not automatically implemented by the drive: Idrive = In x Kalt x Kt x Kv
(1) Kv : Derating factor for mains voltage at 460Vac and power supply from AFE200.
(2) Kt : Derating factor for ambient temperature of 50°C (1% every °C above 45°C)
(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

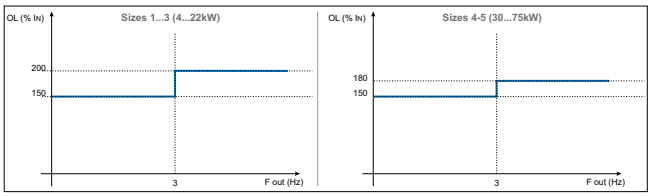
# CHOOSING THE INVERTER – OUTPUT DATA

| SIZES – ICS-ADL300-...-2M | | 1011 | 1015 | 2022 | 2030 | 3040 | 3055 |
|---|---|---|---|---|---|---|---|
| **In • Rated output current (fsw = default)** | | | | | | | |
| @ ULN=230 VAC | A | 6 | 6.8 | 9.6 | 13 | 15 | 22 |
| **Pn mot** (Recommended motor power, fsw = default) @ ULN=230 VAC | | | | | | | |
| | kW | 1.1 | 1.5 | 2.2 | 3 | 4 | 5.5 |
| | Hp | 1.5 | 1.5 - 2 | 2 - 3 | 3 | 5 | 7.5 |
| **Reduction factor** | | | | | | | |
| KT (1) | | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| KALT (2) | | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| **Overload** | | 200% *3 sec with output frequency more than 3 Hz<br>150% * 3 sec with output frequency 0 ... 3 Hz | | | | | |
| **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 | | | | | |

* The derating factors shown in the table below are applied to the rated DC output by the user. They are not automatically implemented by the drive:
Idrive = In x Kalt x Kt
(1) Kt : Derating factor for ambient temperature of 50°C (1% every °C above 45°C)
(2) 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

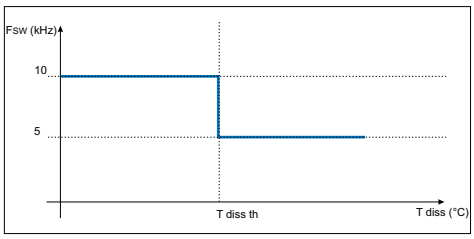
### Derating values in overload condition (ICS-ADL300-...-4 / ICS-ADL300-...-2T)

In overload conditions the output current depends on the output frequency, as shown in the figure below.



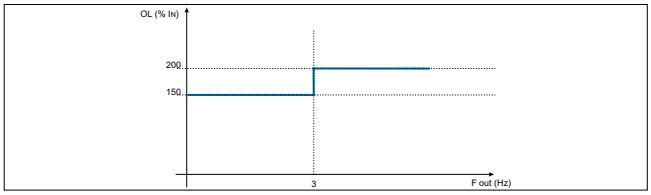

### Derating values for switching frequency

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

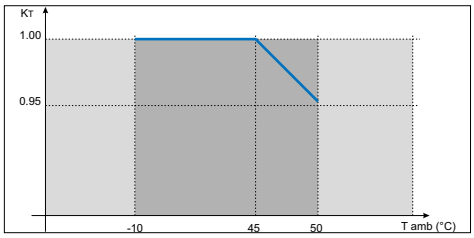



### Derating values in overload condition (ICS-ADL300-...-2M)

In overload conditions the output current depends on the output frequency, as shown in the figure below.




### Ambient temperature reduction factor




Function not allowed

Range of ambient temperatures allowed

# MODELS

| MODELS | CODE | POWER (kW) | NOTE |
|---|---|---|---|
| **ICS-ADL300-...-4 (3ph 230 - 400 - 480 Vac)** | | | |
| ICS-ADL300-1040-KBL-4 | S9ICS21 | 4 | • Integrated keypad with LED display<br>• Safety function<br>• 8 Digital Inputs + Enable and 4 Relay Outputs<br>• Integrated Braking unit<br>• 5 Vdc TTL SinCos incremental digital encoder<br>• Without EMI filter |
| ICS-ADL300-1055-KBL-4 | S9ICS22 | 5,5 | |
| ICS-ADL300-2075-KBL-4 | S9ICS23 | 7.5 | |
| ICS-ADL300-2110-KBL-4 | S9ICS24 | 11 | |
| ICS-ADL300-3150-KBL-4 | S9ICS25 | 15 | |
| ICS-ADL300-3185-KBL-4 | S9ICS26 | 18.5 | |
| ICS-ADL300-3220-KBL-4 | S9ICS27 | 22 | |
| ICS-ADL300-4300-KBL-4 | S9ICS28 | 30 | |
| ICS-ADL300-4370-KBL-4 | S9ICS29 | 37 | |
| ICS-ADL300-4450-KBL-4 | S9ICS30 | 45 | |
| ICS-ADL300-5550-KBL-4 | S9ICS31 | 55 | |
| ICS-ADL300-5750-KXL-4 | S9ICS32 | 75 | |
| **ICS-ADL300-...-2T (3ph 200 - 230 Vac)** | | | |
| ICS-ADL300-2055-KBL-2T | on request | 5.5 | • Integrated keypad with LED display<br>• Safety function<br>• 8 Digital Inputs + Enable and 4 Relay Outputs<br>• Integrated Braking unit<br>• 5 Vdc TTL SinCos incremental digital encoder<br>• Without EMI filter<br>• Without CAN |
| ICS-ADL300-3075-KBL-2T | on request | 7.5 | |
| ICS-ADL300-3110-KBL-2T | on request | 11 | |
| ICS-ADL300-4150-KBL-2T | on request | 15 | |
| ICS-ADL300-4185-KBL-2T | on request | 18.5 | |
| ICS-ADL300-4220-KBL-2T | on request | 22 | |
| ICS-ADL300-5300-KBL-2T | on request | 30 | |
| ICS-ADL300-5370-KXL-2T | on request | 37 | |
| **ICS-ADL300-...-2M (1ph 200 - 230 Vac)** | | | |
| ICS-ADL300-1011-KBL-2M | on request | 1.1 | • Integrated keypad with LED display<br>• Safety function<br>• 8 Digital Inputs + Enable and 4 Relay Outputs<br>• Integrated Braking unit<br>• 5 Vdc TTL SinCos incremental digital encoder<br>• Without EMI filter<br>• Without CAN |
| ICS-ADL300-1015-KBL-2M | on request | 1.5 | |
| ICS-ADL300-2022-KBL-2M | on request | 2.2 | |
| ICS-ADL300-2030-KBL-2M | on request | 3 | |
| ICS-ADL300-3040-KBL-2M | on request | 4 | |
| ICS-ADL300-3055-KBL-2M | on request | 5.5 | |

They are available on request versions with encoder Endat and versions with integrated EMI filter.

**ICS-ADL300B XXXX - KXL - F XX**

**Inverter Lift series**
ICS-ADL300B

**Mechanical dimensions of the drive:**
1 = size 1
2 = size 2
3 = size 3
4 = size 4
5 = size 5

**Inverter power in kW:**
004 = 0.4 kW
007 = 0.75 kW
015 = 1.5 kW
022 = 2.2 kW
037 = 3.7 kW
055 = 5.5 kW
075 = 7.5 kW
110 = 11.0 kW

**Keypad:**
K = Integrated
(1-line x 4-character alphanumerical LED display)

**Braking unit:**
X = not included
B = included

**Lift application:**
L = included

**EMI FILTER:**
F = included
(empty) = not included

**Rated voltage:**
2M=230 Vac, 1ph
2T=230 Vac, 3ph
4=400 Vac, 3ph

# ACCESSORIES & OPTIONS

## KEYPAD

| Models | | Code | Description |
|---|---|---|---|
| | **KB-ADL** | S5P2T | Programming keypad with memory |
| | **5-meter keypad cable** | 8S8F59 | 5-meter keypad extension |
| | **10-meter keypad cable** | 8S874C | 10-meter keypad extension |

## EXTERNAL BRAKING UNIT

| Models | | Code | Description |
|---|---|---|---|
| | **BUy 1020** | S9D55 | Braking unit for 230Vac...480Vac lines, In= 20Arms, UL mark |
| | **BUy 1050** | S9D56 | Braking unit for 230Vac...480Vac lines, In= 50Arms, UL mark |
| | **BUy 1085** | S9D57 | Braking unit for 230Vac...480Vac lines, In= 85Arms, UL mark |

## OTHERS

| Models | | Code | Description |
|---|---|---|---|
| | **KIT KEY SD-CARD** | S72644 | Adapter for SD card (memory for loading data) |
| | **KIT-POWER-SHIELD** | S726101 | Power cable shielding kit for sizes 1 and 2 |
| | **KIT-POWER-SHIELD** | S726501 | Power cable shielding kit for size 3 |

## DISPLAY

| Models | | Code | Description |
|---|---|---|---|
| | **ICS-FD** | on request | Floor Display |
| | **ICS-CD** | on request | Car Display |

There are a wide range of displays and control panels, for information contact the Gefran Sales Department.

| INPUT SIDE EXTERNAL FUSES | | | DC INPUT EXTERNAL FUSES | |
|---|---|---|---|---|
| Sizes ICS-ADL300-...-4 | Europe | | Europe | |
| | Model | Code | Model | Code |
| 1040 | GRD2/20 | F4D15 | GRD2/16 | F4D14 |
| 1055 | GRD2/25 | F4D16 | GRD2/16 | F4D14 |
| 2075 | GRD3/35 | F4D20 | GRD2/20 | F4D15 |
| 2110 | Z22GR40 | F4M16 | GRD3/35 | F4D20 |
| 3150 | Z22GR63 | F4M17 | GRD3/50 | F4D21 |
| 3185 | Z22GR80 | F4M19 | GRD3/50 | F4D21 |
| 3220 | Z22GR80 | F4M19 | S00C+/üf1/80/80A/690V | F4EAF |
| 4300 | Z22GR80 | F4M19 | S00C+/üf1/80/80A/690V | F4EAF |
| 4370 | Z22GR100 | F4M21 | S00C+/üf1/80/100A/690V | F4G18 |
| 4450 | Z22GR100 | F4M21 | S00C+/üf1/80/125A/690V | F4EAJ |
| 5550 | S00/üf1/80/200A/690V | F4G23 | S00C+/üf1/80/160A/690V | F4EAL |
| 5750 | S00/üf1/80/200A/690V | F4G23 | S00/üf1/80/200A/690V | F4G23 |

Technical data for fuses, including dimensions, weights, power leakage, fuse carriers etc. are reported in the corresponding manufacturers' data sheets:

| | |
|---|---|
| GRD... , Z22... , S... | Jean Müller, Eltville |
| A70... | Ferraz |
| FWP... | Bussmann |

| INPUT SIDE EXTERNAL FUSES | | |
|---|---|---|
| Sizes ICS-ADL300-...- | Europe | |
| | Model | Code |
| -2T | | |
| 2055 | GRD2/25 | F4D16 |
| 3075 | GRD3/35 | F4D20 |
| 3110 | Z22GR40 | F4M16 |
| 4150 | Z22GR63 | F4M17 |
| 4185 | Z22GR80 | F4M19 |
| 4220 | Z22GR80 | F4M19 |
| 5300 | Z22GR80 | F4M19 |
| 5370 | Z22GR100 | F4M21 |
| -2M | | |
| 1011 | GRD2/25 | F4D16 |
| 1015 | GRD2/25 | F4D16 |
| 2022 | GRD3/35 | F4D20 |
| 2030 | Z22GR40 | F4M16 |
| 3040 | Z22GR63 | F4M17 |
| 3055 | Z22GR80 | F4M19 |

| | Sizes ICS-ADL300 | | Rated Choke [mH] | Rated current [A] | Saturation current [A] | Model | Code | Dimensions: W x H x D mm [inches] | Weight kg [lbs] |
|---|---|---|---|---|---|---|---|---|---|
| | -...-4 | ...-2T | | | | | | | |
| INPUT CHOKE | 1040 | - | 1.63 | 9 | 18 | LR3y-2040 | S7AAG | 120 x 125 x 65 [4.7 x 4.9 x 2.6] | 2 [4.4] |
| | 1055 | 2055 | 1.29 | 13.5 | 24.5 | LR3y-2055 | S7AB5 | 120 x 125 x 75 [4.7 x 4.9 x 2.6] | 2.2 [4.4] |
| | 2075 | 3075 | 0.89 | 18 | 36.5 | LR3y-2075 | S7AB6 | 150 x 155 x 79 [5.9 x 6.1 x 3.1] | 4.9 [10.8] |
| | 2110 | 3110 | 0.68 | 24 | 46.5 | LR3y-3110 | S7AB7 | 150 x 155 x 79 [5.9 x 6.1 x 3.1] | 5 [11] |
| | 3150 | 4150 | 0.51 | 32 | 61 | LR3y-3150 | S7AB8 | 150 x 169 x 85 [5.9 x 6.7 x 3.3] | 5.5 [12.1] |
| | 3185 | 4185 | 0.35 | 39 | 83 | LR3-022 | S7FF4 | 180 x 182 x 130 [7.1 x 7.2 x 5.1] | 7.8 [17.2] |
| | 3220 | 4220 | 0.35 | 44.5 | 83 | LR3-022 | S7FF4 | 180 x 182 x 130 [7.1 x 7.2 x 5.1] | 7.8 [17.2] |
| | 4300 | 5300 | 0.24 | 53 | 124 | LR3-030 | S7FF3 | 180 x 160 x 185 [7.1 x 6.30 x 7.3] | 8.2 [18.1] |
| | 4370 | 5370 | 0.18 | 70 | 154 | LR3-037 | S7FF2 | 180 x 160 x 185 [7.1 x 6.30 x 7.3] | 9.5 [20.9] |
| | 4450 | - | 0.13 | 85 | 214 | LR3-055 | S7FF1 | 180 x 180 x 185 [7.1 x 7.1 x 7.3] | 12 [26.5] |
| | 5550 | - | 0.148 | 93 | 350 | LR3-090 | S7D19 | 300 x 205 x 265 [11.8 x 8.1 x 10.4] | 30 [66.1] |
| | 5750 | - | 0.148 | 130 | 350 | LR3-090 | S7D19 | 300 x 205 x 265 [11.8 x 8.1 x 10.4] | 30 [66.1] |
| OUTPUT CHOKE | 1040 | - | 0.87 | 16 | 34 | LU3-005 | S7FG3 | 180 x 170 x 110 [7.1 x 6.7 x 4.3] | 5.8 [12.8] |
| | 1055 | 2055 | 0.87 | 16 | 34 | LU3-005 | S7FG3 | 180 x 170 x 110 [7.1 x 6.7 x 4.3] | 5.8 [12.8] |
| | 2075 | 3075 | 0.51 | 27 | 57 | LU3-011 | S7FG4 | 180 x 180 x 130 [7.1 x 7.1 x 5.1] | 8 [17.6] |
| | 2110 | 3110 | 0.51 | 27 | 57 | LU3-011 | S7FG4 | 180 x 180 x 130 [7.1 x 7.1 x 5.1] | 8 [17.6] |
| | 3150 | 4150 | 0.43 | 32 | 68 | LU3-015 | S7FH2 | 180 x 160 x 170 [7.1 x 6.3 x 6.7] | 7.5 [16.5] |
| | 3185 | 4185 | 0.33 | 42 | 72 | LU3-022 | S7FH3 | 180 x 160 x 170 [7.1 x 6.3 x 6.3] | 8 [17.6] |
| | 3220 | 4220 | 0.33 | 42 | 72 | LU3-022 | S7FH3 | 180 x 160 x 170 [7.1 x 6.3 x 6.3] | 8 [17.6] |
| | 4300 | 5300 | 0.24 | 65 | 112 | LU3-030 | S7FH4 | 180 x 170 x 185 [7.1 x 6.3 x 7.3] | 10 [22] |
| | 4370 | 5370 | 0.18 | 80 | 140 | LU3-037 | S7FH5 | 180 x 170 x 185 [7.1 x 6.3 x 7.3] | 10 [22] |
| | 4450 | - | 0.12 | 120 | 205 | LU3-055 | S7FH6 | 240 x 170 x 216 [9.4 x 6.3 x 8.5] | 16 [35.3] |
| | 5550 | - | 0.12 | 120 | 205 | LU3-055 | S7FH6 | 240 x 170 x 216 [9.4 x 6.3 x 8.5] | 16 [35.3] |
| | 5750 | - | 0.07 | 200 | 330 | LU3-090 | S7FI0 | 180 x 195 x 165 [7.1 x 7.7 x 4.5] | 15 [33.1] |

# ACCESSORIES & OPTIONS

| | Sizes ICS-ADL300 | | Filter type (AC mains voltage 400 Vac ±10%) | Code | Conducted emissions according to EN 12015-EN 61800-3 : Category / Motor cable length | Dimensions: W x H x D mm [inches] | Weight kg [lbs] |
|---|---|---|---|---|---|---|---|
| EMC FILTER | -...-4 | ...-2T | | | | | |
| | 1040 | - | EMI-FTF-480-7 | S7GHL | EN 12015-C2 / 10 m | 190 x 40 x 70 [7.48 x 1.57 x 2.76] | 0.6 [1.3] |
| | 1055 | 2055 | EMI-FTF-480-16 | S7GHO | | 250 x 45 x 70 [9.84 x 1.77 x 2.76] | 0.8 [1.8] |
| | 2075 | 3075 | EMI-FTF-480-16 | S7GHO | | 250 x 45 x 70 [9.84 x 1.77 x 2.76] | 0.8 [1.8] |
| | 2110 | 3110 | EMI-FTF-480-30 | S7GHP | | 270 x 50 x 85 [10.63 x 1.97 x 3.35] | 1 [2.2] |
| | 3150 | 4150 | EMI-FTF-480-30 | S7GHP | | 270 x 50 x 85 [10.63 x 1.97 x 3.35] | 1 [2.2] |
| | 3185 | 4185 | EMI-FTF-480-42 | S7GOA | | 310 x 50 x 85 [12.20 x 1.97 x 3.35] | 1.3 [2.9] |
| | 3220 | 4220 | EMI-FTF-480-42 | S7GOA | | 310 x 5 x 85 [12.20 x 1.97 x 3.35] | 1.3 [2.9] |
| | 4300 | 5300 | EMI FTF-480-75 | S7GOC | | 270 x 80 x 135 [10.63 x 3.15 x 5.31] | 2.6 [5.7] |
| | 4370 | 5370 | EMI FTF-480-75 | S7GOC | | 270 x 80 x 135 [10.63 x 3.15 x 5.31] | 2.6 [5.7] |
| | 4450 | - | EMI FTF-480-100 | S7GOD | | 270 x 90 x 150 [10.63 x 3.54 x 5.91] | 3 [6.6] |
| | 5550 | - | EMI FTF-480-130 | S7GOE | | 270 x 90 x 150 [10.63 x 3.54 x 5.91] | 3.6 [7.9] |
| | 5750 | - | EMI FTF-480-180 | S7GOF | | 400 x 120 x 170 [15.75 x 4.72 x 6.69] | 6.2 [13.7] |
| | -...-2M | | | | | | |
| | 1011 | | EMI-FN2410-230-25 | S7EMI1 | EN 12015-C2 / 10 m | 130 x 93 x 76 [5.12 x 3.66 x 2.99] | - |
| | 1015 | | EMI-FN2410-230-25 | S7EMI1 | | 130 x 93 x 76 [5.12 x 3.66 x 2.99] | - |
| | 2022 | | EMI-FN2410-230-32 | S7EMI2 | | 130 x 93 x 76 [5.12 x 3.66 x 2.99] | - |
| | 2030 | | EMI-FN2410-230-32 | S7EMI2 | | 130 x 93 x 76 [5.12 x 3.66 x 2.99] | - |
| | 3040 | | EMI-FN2410-230-45 | S7EMI3 | | 130 x 93 x 76 [5.12 x 3.66 x 2.99] | - |
| | 3055 | | EMI-FN2410-230-60 | S7EMI4 | | 165 x 115 x 100 [6.5 x 4.52 x 3.93] | - |

| | Sizes ICS-ADL300 | Ebr (1) [kJ] | Ebr (2) [kJ] | Pnbr [W] | Rbr [Ω] | Encl. | Resistor type | Code | Dimensions: W x H x D mm [inches] | Weight kg [lbs] |
|---|---|---|---|---|---|---|---|---|---|---|
| BRAKING RESISTORS (SPEED RANGE ≤1 m/s) | -...-4 | | | | | | | | | |
| | 1040 | 7.5 | 38 | 750 | 100 | IP44 | RFPD 750 DT 100R | S8SY4 | 200 x 70 x 108 [7.9 x 2.8 x 4.17] | 1.7 [3.75] |
| | 1055 | 7.5 | 38 | 750 | 68 | IP44 | RFPR 750 D 68R | S8SZ3 | 245 x 75 x 100 [9.6 x 2.95 x 3.9] | 2.7 [5.95] |
| | 2075 | 7.5 | 28 | 750 | 68 | IP44 | RFPR 750 D 68R | S8SZ3 | 245 x 75 x 100 [9.6 x 2.95 x 3.9] | 2.7 [5.95] |
| | 2110 | 7.5 | 28 | 1200 | 49 | IP44 | RFPR 1200 D 49R | S8SZ4 | 310 x 75 x 100 [12.2 x 2.95 x 3.9] | 3.2 [7.1] |
| | 3150 | 19 | 75 | 1500 | 28 | IP44 | RFPR 1900 D 28R | S8SZ5 | 365 x 75 x 100 [14.4 x 2.95 x 3.9] | 4.2 [9.3] |
| | 3185 | 40 | 150 | 4000 | 15.4 | IP20 | BRT4K0-15R4 | S8T00G | 625 x 100 x 250 [24.6 x 3.9 x 9.8] | 7.0 [15.43] |
| | 3220 | 40 | 150 | 4000 | 15.4 | IP20 | BRT4K0-15R4 | S8T00G | 625 x 100 x 250 [24.6 x 3.9 x 9.8] | 7.0 [15.43] |
| | 4300 | 40 | 150 | 4000 | 11.6 | IP20 | BRT4K0-11R6 | S8T00H | 625 x 100 x 250 [24.6 x 3.9 x 9.8] | 7.0 [15.43] |
| | 4370 | 40 | 150 | 4000 | 11.6 | IP20 | BRT4K0-11R6 | S8T00H | 625 x 100 x 250 [24.6 x 3.9 x 9.8] | 7.0 [15.43] |
| | 4450 | 40 | 150 | 8000 | 7.7 | IP20 | BRT8K0-7R7 | S8T00I | 625 x 165 x 250 [24.6 x 6.5 x 9.8] | 10.0 [22.04] |
| | 5550 | 40 | 150 | 8000 | 7.7 | IP20 | BRT8K0-7R7 | S8T00I | 625 x 165 x 250 [24.6 x 6.5 x 9.8] | 10.0 [22.04] |
| | 5750 | External braking unit (BUy series, optional) | | | | | | | | |
| | ...-2T | | | | | | | | | |
| | 2055 | 12 | 43 | 1200 | 49 | IP44 | RFPR 1200 D 49R | S8SZ4 | 310 x 75 x 100 [12.2 x 2.95 x 3.9] | 3.2 [7.1] |
| | 3075 | 19 | 75 | 1500 | 28 | IP44 | RFPR 1900 D 28R | S8SZ5 | 365 x 75 x 100 [14.4 x 2.95 x 3.9] | 4.2 [9.3] |
| | 3110 | 40 | 150 | 4000 | 15.4 | IP20 | BRT4K0-15R4 | S8T00G | 625 x 100 x 250 [24.6 x 3.9 x 9.8] | 7.0 [15.43] |
| | 4150 | 40 | 150 | 4000 | 11.6 | IP20 | BRT4K0-11R6 | S8T00H | 625 x 100 x 250 [24.6 x 3.9 x 9.8] | 7.0 [15.43] |
| | 4185 | 40 | 150 | 4000 | 11.6 | IP20 | BRT4K0-11R6 | S8T00H | 625 x 100 x 250 [24.6 x 3.9 x 9.8] | 7.0 [15.43] |
| | 4220 | 40 | 150 | 8000 | 7.7 | IP20 | BRT8K0-7R7 | S8T00I | 625 x 165 x 250 [24.6 x 6.5 x 9.8] | 10.0 [22.04] |
| | 5300 | 40 | 150 | 8000 | 7.7 | IP20 | BRT8K0-7R7 | S8T00I | 625 x 165 x 250 [24.6 x 6.5 x 9.8] | 10.0 [22.04] |
| | 5370 | External braking unit (BUy series, optional) | | | | | | | | |
| | ...-2M | | | | | | | | | |
| | 1011 | 1.5 | 11 | 200 | 100 | IP44 | RF 220 T 100R | S8T0CE | 300 x 27 x 36 [8.7 x 1.06 x 1.41] | 0.5 [1.10] |
| | 1015 | 1.5 | 11 | 200 | 68 | IP44 | RF 220 T 68R | S8T00T | 300 x 27 x 36 [8.7 x 1.06 x 1.41] | - |
| | 2022 | 2.5 | 24 | 300 | 34 | IP44 | RF 300 D 34R | S8T0CH | 260 x 38 x 106 [10.24 x 1.5 x 4.17] | 1.4 [3.09] |
| | 2030 | 2.5 | 24 | 300 | 34 | IP44 | RF 300 D 34R | S8T0CH | 260 x 38 x 106 [10.24 x 1.5 x 4.17] | 1.4 [3.09] |
| | 3040 | 4.5 | 43 | 750 | 26 | IP44 | RFPD 750 DT 26R | S8T0CZ | 200 x 70 x 106 [7.9 x 2.8 x 4.17] | 1.7 [3.75] |
| | 3055 | 4.5 | 43 | 750 | 26 | IP44 | RFPD 750 DT 26R | S8T0CZ | 200 x 70 x 106 [7.9 x 2.8 x 4.17] | 1.7 [3.75] |

(1) Max overload energy, 1"- duty-cycle 10%.
(2) Max overload energy, 30"-duty-cycle 25%.

# NOTE

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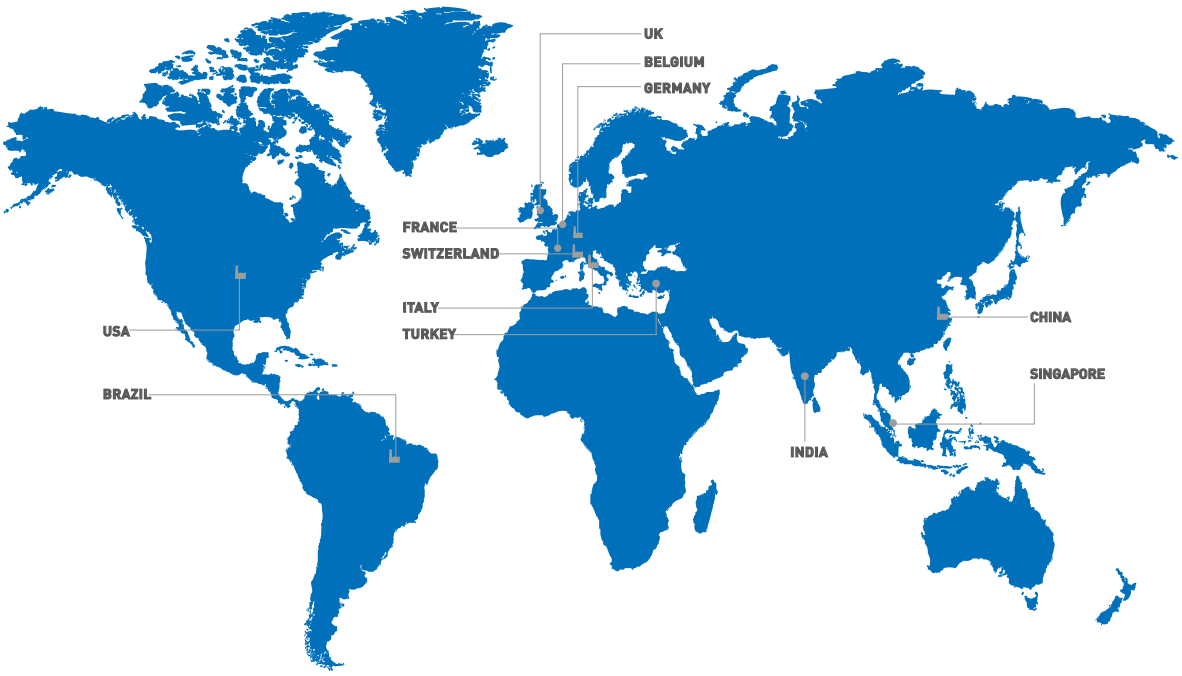



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