

Shaft copying systems

Safe-System	LES03 / SGT02	Electronic overspeed governor
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To trigger electromechanical safety gears, the SIL3-certified sensor Ants LES03 can be combined with the SIL3-certified Safety Gear Trigger SGT02. This means that classic mechanical solutions with all the relevant components can be replaced. This reduces both the complexity in the installation process and the number of components in the safety circuit of the elevator system.

The state of the safety gear is constantly monitored by the SGT02 and can also be safely and easily reset after safe tripping. The safe system not only provides a high level of safety for passengers, but also realizes refuge spaces during the installation and maintenance of the elevator systems (shield mode).

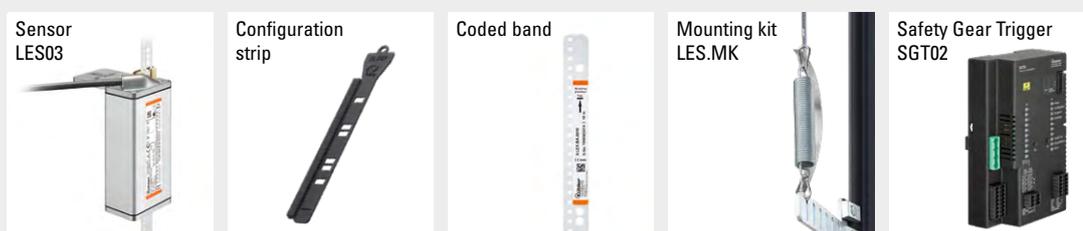
Perfectly suited for the modernization of elevator systems!



Features and benefits

- **Electronic overspeed governor**
In combination with the sensor Ants LES03, the SGT02 can replace traditional mechanical overspeed governors.
- **Control-independent**
The electromechanical safety gear is triggered independently of the control system, making the system ideal for modernization projects.
- **Absolute position detection**
In addition to the function as electronic speed limiter, the 100% slip-free recorded position data can optionally be transmitted to the control via CANopen Lift. CAN/SSI/RS485 are also possible on request.
- **Overspeed**
When the Ants LES03 sensor detects an overspeed, the SGT02 triggers the electromechanical safety gear. The system can be combined with different safety gears available on the market.
- **Condition monitoring and reset**
The SGT02 also takes over the monitoring and resetting of the respective safety gear. In addition to direct evaluation, the status information can also be processed by a control system if required.
- **Establishment of refuge spaces (Shield-Mode)**
In addition to safety for assembly personnel in accordance with the requirements of EN 81-21, the Shield mode of the SGT02 sets new standards for the safety of installation, service and maintenance personnel.
Even during scaffold-free assembly, the system independently forms position- and speed-dependent refuge spaces.
- **Self learning system**
Due to the respective highest and lowest approached position in the elevator shaft, refuge spaces are automatically produced.
- **Easiest validation**
From plant approval to annual inspection - the reduced complexity simplifies validation processes and guarantees the highest safety standards.
- **Visual and audible status indication**
All safety-relevant parameters can be checked quickly.
The simple menu navigation as well as visual and acoustic assistance will inspire not only installers but also approved inspection agencies (ZÜS).

Required components for the use of the LES03 / SGT02 Safe-System



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Order code Sensor	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;">8.LES03</td> <td style="padding: 2px 5px;">.</td> <td style="padding: 2px 5px;">X</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">X</td> <td style="padding: 2px 5px;">.</td> <td style="padding: 2px 5px;">11</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">.</td> <td style="padding: 2px 5px;">0000</td> </tr> <tr> <td style="font-size: 8px;">Type</td> <td></td> <td style="font-size: 8px;">a</td> <td></td> <td></td> <td style="font-size: 8px;">b c</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	8.LES03	.	X	1	1	X	.	11	1	1	.	0000	Type		a			b c						
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Type		a			b c																				

- | | |
|--|--|
| <p>a <i>Type of mounting</i>
1 = with mounting plate
2 = without mounting plate (T-slot mounting)</p> <p>b <i>Interface / supply voltage</i>
1 = CAN / 10 ... 30 V</p> <p>c <i>Type of connection</i>
1 = cable, 3 m [9.84'], open cable end
A = cable, special lengths, shielded, open cable end *)</p> <p>*) Special lengths on request: 5 m, 7 m, 10 m
order code expansion .XXXX = length in dm
ex.: 8.LES03.111A.1111.0000.0050 (for cable length 5 m)</p> | <p>d <i>Interface profile</i>
11 = CAN (1-channel), proprietary</p> <p>e <i>Rated speed of the elevator system</i>
1 = not preset
The rated speed must be taught in once with the „Configuration strip“.
The speed for the installation mode is preset with 0.3 m/s.</p> |
|--|--|

Order code Configuration strip	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;">8.CS</td> <td style="padding: 2px 5px;">.</td> <td style="padding: 2px 5px;">1111</td> <td style="padding: 2px 5px;">.</td> <td style="padding: 2px 5px;">XXXX</td> </tr> <tr> <td style="font-size: 8px;">Type</td> <td></td> <td></td> <td></td> <td style="font-size: 8px;">a</td> </tr> </table>	8.CS	.	1111	.	XXXX	Type				a
8.CS	.	1111	.	XXXX							
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- a** *Rated speed*
XXXX = cm/s
Ex.: 8.CS.1111.0160 (for 1.6 m/s)

Order code Coded band, absolute	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;">8.LEX.BA</td> <td style="padding: 2px 5px;">.</td> <td style="padding: 2px 5px;">XXXX</td> </tr> <tr> <td style="font-size: 8px;">Type</td> <td></td> <td style="font-size: 8px;">a</td> </tr> </table>	8.LEX.BA	.	XXXX	Type		a
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<p>a <i>Measuring lengths</i> XXXX = lengths in meters (max. length = 392 m)</p>	<p><i>Standard lengths</i></p> <table border="0"> <tr> <td>0010 = 10 m</td> <td>0040 = 40 m</td> <td>0090 = 90 m</td> </tr> <tr> <td>0015 = 15 m</td> <td>0050 = 50 m</td> <td>0100 = 100 m</td> </tr> <tr> <td>0020 = 20 m</td> <td>0060 = 60 m</td> <td>0392 = 392 m</td> </tr> <tr> <td>0025 = 25 m</td> <td>0070 = 70 m</td> <td>Intermediate lengths < 100 m as from 5 pieces,</td> </tr> <tr> <td>0030 = 30 m</td> <td>0080 = 80 m</td> <td>> 100 m on request</td> </tr> </table>	0010 = 10 m	0040 = 40 m	0090 = 90 m	0015 = 15 m	0050 = 50 m	0100 = 100 m	0020 = 20 m	0060 = 60 m	0392 = 392 m	0025 = 25 m	0070 = 70 m	Intermediate lengths < 100 m as from 5 pieces,	0030 = 30 m	0080 = 80 m	> 100 m on request	<p><i>Stock types</i></p> <table border="0"> <tr> <td>0010 = 10 m</td> <td>0030 = 30 m</td> </tr> <tr> <td>0015 = 15 m</td> <td>0040 = 40 m</td> </tr> <tr> <td>0020 = 20 m</td> <td>0392 = 392 m</td> </tr> <tr> <td>0025 = 25 m</td> <td></td> </tr> </table>	0010 = 10 m	0030 = 30 m	0015 = 15 m	0040 = 40 m	0020 = 20 m	0392 = 392 m	0025 = 25 m	
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Mounting kit LES.MK	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;">8.LES.MK.0001</td> </tr> </table>	8.LES.MK.0001
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Mounting kit for sensor Ants LES03

Order code SGT02	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px 5px;">8.SGT02</td> <td style="padding: 2px 5px;">.</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">X</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">.</td> <td style="padding: 2px 5px;">11</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">X</td> </tr> <tr> <td style="font-size: 8px;">Type</td> <td></td> <td></td> <td style="font-size: 8px;">b</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="font-size: 8px;">d</td> </tr> </table>	8.SGT02	.	1	X	1	1	.	11	1	1	X	Type			b							d
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Type			b							d													

<p>b <i>Version electromechanical safety gear</i> 1 = with electrical reset 2 = without electrical reset</p> <p>d <i>Electromechanical brake (see table)</i> 1 = Type 1 2 = Type 2</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Manufacturer</th> <th style="text-align: left;">Product</th> <th style="text-align: left;">Order code</th> </tr> </thead> <tbody> <tr> <td rowspan="5" style="vertical-align: middle;">Dynatech</td> <td>eASG - 65 UD</td> <td rowspan="5" style="vertical-align: middle;">8.SGT02.1112.1111</td> </tr> <tr> <td>eASG - 100 UD</td> </tr> <tr> <td>eASG - 120 UD</td> </tr> <tr> <td>eASG - 121 UD</td> </tr> <tr> <td>eASG - 221 UD</td> </tr> <tr> <td rowspan="3" style="vertical-align: middle;">Wittur</td> <td>ESG-17BS</td> <td rowspan="3" style="vertical-align: middle;">8.SGT02.1212.1112</td> </tr> <tr> <td>ESG-25BS</td> </tr> <tr> <td>ESG-25U</td> </tr> </tbody> </table>	Manufacturer	Product	Order code	Dynatech	eASG - 65 UD	8.SGT02.1112.1111	eASG - 100 UD	eASG - 120 UD	eASG - 121 UD	eASG - 221 UD	Wittur	ESG-17BS	8.SGT02.1212.1112	ESG-25BS	ESG-25U
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Accessories	Order no.
EMC - Shield terminal	For an EMC-compliant installation of the cable
	8.0000.4G06.0312

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Technology in detail

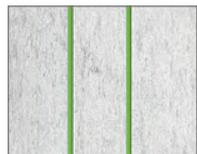
Conventional elevator system – mechanical components

In conventional elevator systems, detecting the position of the elevator car and the resulting triggering of safety functions involves a great deal of effort. Numerous mechanical components from magnetic flags to limit switches and ramps are used for this purpose. This leads to high installation, maintenance and cost efforts. In the event of a malfunction, troubleshooting can be correspondingly time-consuming.

In this design, the high safety requirements for elevator systems are mainly met by redundant components. With the entry into force of EN 81-20/21/50, the safety requirements for passenger and freight elevators have increased even further. The design of conventional elevator systems is therefore becoming even more complex.



Mechanical overspeed governor



Governor rope



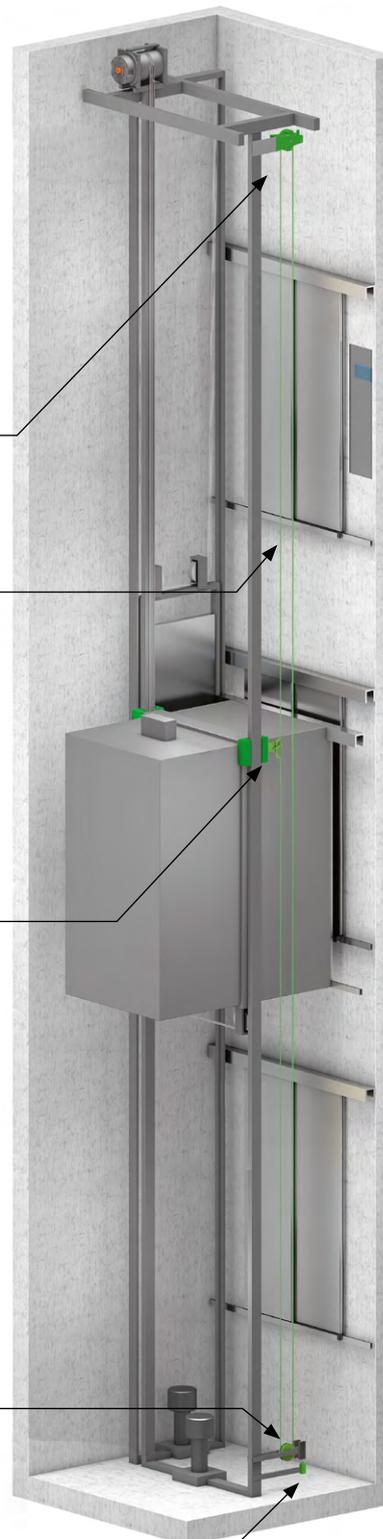
Mechanical trigger of the safety gear



Tensioning device for overspeed governor



Switch for slack rope monitoring (governor rope)



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Technology in detail

LES03 / SGT02 – Perfectly suited for modernization projects

By combining the Ants LES03 sensor with the SGT02 Safety Gear Trigger, the classic mechanical speed limiter can be replaced. This saves time and costs.

The safe position and speed detection in combination with the taught rated speed of the elevator system means that, in addition to the traditional functions of an overspeed governor, requirements of EN 81-21 can also be covered. The safe system triggers the release of the electromechanical safety gear..

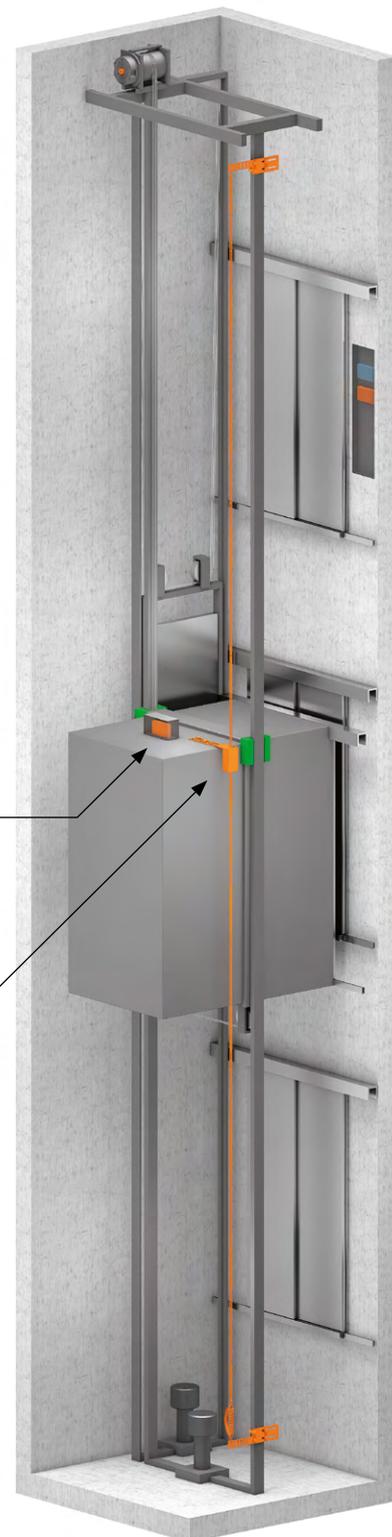
In addition to triggering, this is also monitored and can be reset. In addition, both the safe position and speed values of the control system are available to implement classic tasks of a shaft copying system, such as positioning the car.



Kübler Safety Gear Trigger SGT02



Kübler sensor LES03



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Kübler Safe-System			
Realizable elevator and Safety functions	Standard references	SIL	Safe-System LES03 / SGT02
Absolute position feedback	no standard reference	–	✓
Overspeed pretripping 115 %	EN 81-20: 5.6.2.2.1.6	2	✓
Triggering electromech. safety gear in case overspeed	EN 81-20: 5.6.2.2.1	3	✓
Status control of electromechanical safety gear	EN 81-20: 5.6.2.1.5	1	✓
Reset control of electromech. safety gear	no standard reference	3	✓
Triggering electromechanical safety gear in case of upwards movement	EN 81-20: 5.6.6.5	2	✓
Triggering electromechanical safety gear in case of activating emergency braking switch	no standard reference	3	✓
Inspection limit switch within reduced shaft head / pit	EN 81-21: 5.5.3.4, 5.7.3.4	2	✓
Shield Mode: triggering of electromechanical safety gear for ensuring refuge space	EN 81-21: 5.5.2.3, 5.7.2.3	2	✓
Triggering switch for opening safety circuit (within reduced shaft head / pit)	EN 81-21: 5.5.2.3.3 f)	2	✓
Reset device control	EN 81-21: 5.5.3.3 c)	2	✓
Shield Mode: refuge space during scaffoldless installation	no standard reference	3	✓
Overspeed during inspection (0.63 m/s)	EN 81-20: 5.12.1.5.1 e)	–	✓
Safe configuration management for accelerated approval process	no standard reference	–	✓

Use cases triggering electromechanical safety gear

Refuge space installation (Shield Mode)

Shield Mode Installation ensures a refuge space for the employees even before the elevator is put into operation. During scaffoldless installation, such as rail fastening, a refuge space is created sequentially according to the progress of the installation. Depending on the position, the car is secured with a tolerance of ± 5 cm.

Safety functions operation

Overspeed
Elimination of the mechanical overspeed governor: In case of overspeed the safety circuit will be open respectively the electromechanical safety gear will be triggered by the Kübler Safe System.

Refuge space maintenance (Shield Mode)

Before entering the shaft with reduced shaft head / pit acc. to EN 81-21, the **Shield Mode Maintenance** will be activated via the door release. A refuge space that enables safe working for the maintenance employees is created.

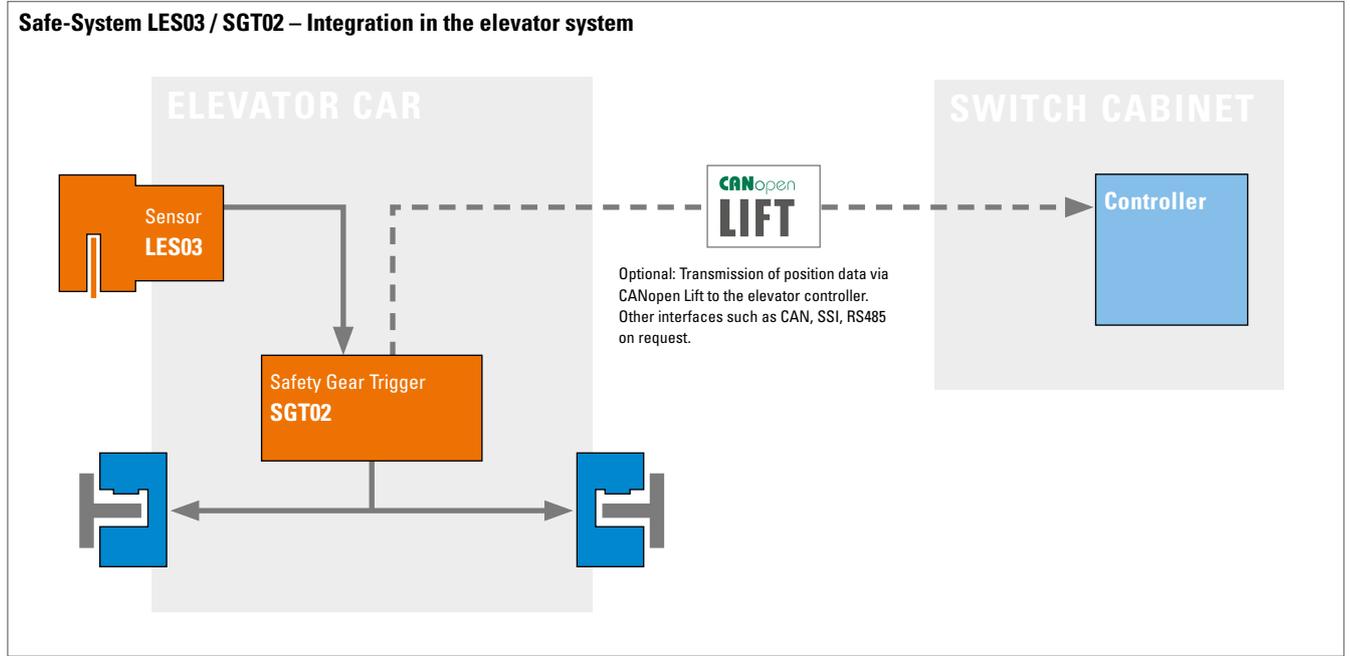
A protective space that enables safe working for maintenance personnel is automatically established based on the highest or lowest position approached.

- Acoustic warning signal from 1.9 m
- Pre-triggering at 1.4 m (safety circuit opens for 3 s)
- Triggering at 1.3 m (catch)

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Technology in detail



Teach-in of the rated speed via configuration strips

The configuration strip for the respective rated speed is inserted into the LES03 sensor during commissioning. An LED visualizes the respective taught-in rated speed with a flashing pattern. In this way, the certifying agency can also validate the configuration at any time.

Corresponding configuration strips are available for different rated speeds.

Can be assembled into sets by means of fastening eyelet

Fastening eyelet

Rated speed

Guide bar

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Technology in detail

Coded band fastening with Mounting Kit LES.MK

