Elevator Load Control Sensor

TURBO CELL

TURBOCELL, A SUBSIDIARY OF SANA COMPANY. HAS LED THE WAY IN ELEVATOR SAFETY AND SENSOR TECHNOLOGY SINCE 2016. SPECIALIZING IN LOAD SENSORS, PHOTOCELLS, AND ROPE TENSION MONITORING SYSTEMS, TURBOCELL PROVIDES HIGH-QUALITY PRODUCTS THAT MEET INTERNATIONAL STANDARDS. WE PROUDLY SERVE MARKETS IN IRAN AND NEARBY REGIONS. OUR COMPETITIVE EDGE LIES IN OUR EXCEPTIONAL PRODUCT QUALITY AND SPECIALIZED AFTER-SALES SERVICE, ENSURING LONG-LASTING RELIABILITY AND CUSTOMER SATISFACTION.

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TURBO CELL EN

Beyond The Saftey

About Turbocell

Turbocell, a subsidiary of SANA company. has led the way in elevator safety and sensor technology since 2016. Specializing in load sensors, photocells, and rope tension monitoring systems, Turbocell provides high-quality products that meet international standards. We proudly serve markets in Iran and nearby regions. Our competitive edge lies in our exceptional product quality and specialized after-sales service, ensuring long-lasting reliability and customer satisfaction.

2015
Establishment of the company

2016
Admission to the Science and Technology Park of Isfahan

2017
Commercialization of the first weight measurement sensor

2018
Initiation of R&D phase, production of elevator overload sensors, and obtaining a knowledge-based product certificate

2019
Commercialization of rope tension overload sensors under the TurboCell brand; admission to Sheikh Bahaei Park

2020
Development of the elevator product portfolio: production of various digital overload sensors and rope tension adjustment devices

2021
Production and launch of point-type elevator photocells and pressure transmitters under the Borna Sensor brand

2022
Capturing 70% of the elevator overload market in Iran

2023
Completion of the Borna Sensor product portfolio and establishment of Sanjesh Afzar Novin Arya Company

2024
Production of elevator curtain photocells

ELEVATOR WEIGHING SENSORS

Installing a digital overload system in elevators is essential for ensuring passenger safety by preventing excessive weight loads. It prolongs the lifespan of elevator components by minimizing mechanical stress. Additionally, it enhances energy efficiency and ensures compliance with safety regulations.

PG301

Load sensor designed
for installation on elevator ropes

PG301
for installation on elevator ropes:

The PG301 is designed to be installed on traction elevator systems to accurately measure the weight of the passengers. This system ensures precise load measurement, enhancing safety and operational reliability in elevators.
The PG301 comes equipped with two relay outputs, allowing for precise full-load and overload detection. One of the primary challenges in rope-based load sensors is the variation in load readings between the highest and lowest stops of the elevator. TurboCell's PG301 minimizes this issue by continuously measuring the dead weight at each stop, ensuring accurate and reliable weight monitoring.

Key Features:

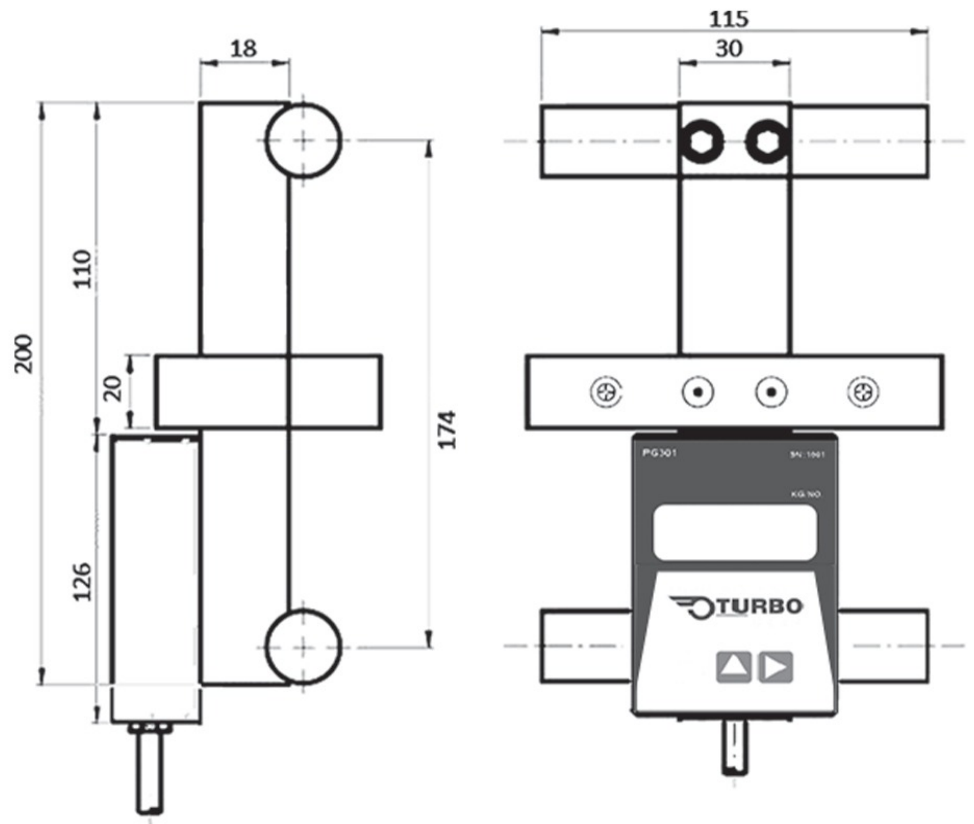
- Compatibility: Suitable for all traction systems.
- Easy and Quick Installation: Designed for simple and fast setup.
- Rope Size Compatibility: Supports rope sizes from 8 to 13 mm.

Display Unit Features:

- Precise Weight Measurement: Capable of measuring dead weight continuously at each stop.
- Dual Relay Outputs: Provides signals for full-load and overload conditions.
- User-Friendly Interface: Clear and intuitive for easy monitoring and setup.

PG301 Data sheet

Elevator Load Control Sensor
TURBO CELL



Specifications

Specifications - Loadcell Sensors	
Nominal Weight	2 Ton(for 1:1) 4Ton(for2:1) 8Ton(for3:1)
Maximum Load Capacity	3000 kg
Sensor Excitation Voltage	≥ 10 V
Output Type	4-wire load cell
Sensitivity	2 ± 0.1% mV/V
Accuracy	±0.1% FS
Operating Temperature	-20°C to +60°C
Body Material	Heat-treated steel with chrome-nickel coating

Specifications - Controller	
Input Voltage	18-30 VDC (24V standard)
Max Current Consumption	Less than 300 mA
Relay Output	1 / 2*
Protection Class	IP65
Cable Length	2 meters

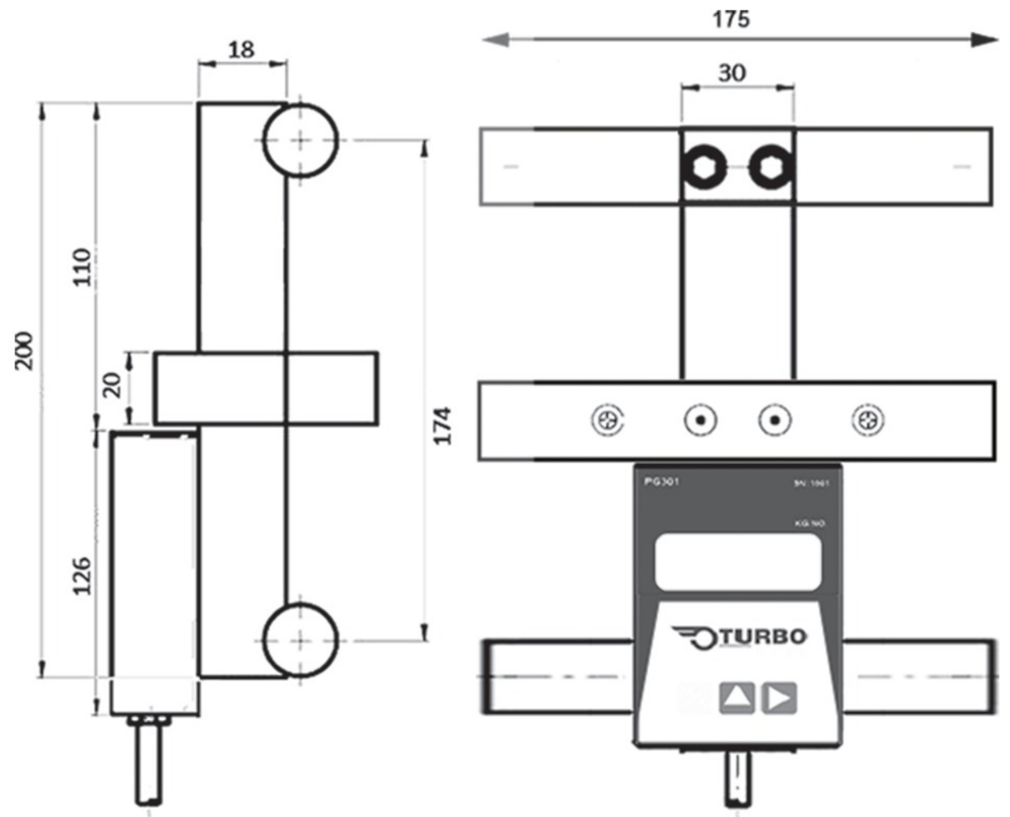
*By customer order

PG311

Load sensor designed
for installation on elevator ropes

PG311 Data sheet

Elevator Load Control Sensor
TURBO CELL



PG311
for installation on elevator ropes:

The PG311 is designed to be installed on traction elevator systems to accurately measure the weight of the passengers. This system ensures precise load measurement, enhancing safety and operational reliability in elevators.
The PG311 comes equipped with two relay outputs, allowing for precise full-load and overload detection. One of the primary challenges in rope-based load sensors is the variation in load readings between the highest and lowest stops of the elevator. TurboCell's PG311 minimizes this issue by continuously measuring the dead weight at each stop, ensuring accurate and reliable weight monitoring.

Key Features:
• Compatibility: Suitable for all traction systems.
• Easy and Quick Installation: Designed for simple and fast setup.
• Rope Size Compatibility: Supports rope sizes from 8 to 13 mm.

Display Unit Features:
• Precise Weight Measurement: Capable of measuring dead weight continuously at each stop.
• Dual Relay Outputs: Provides signals for full-load and overload conditions.
• User-Friendly Interface: Clear and intuitive for easy monitoring and setup.

Specifications

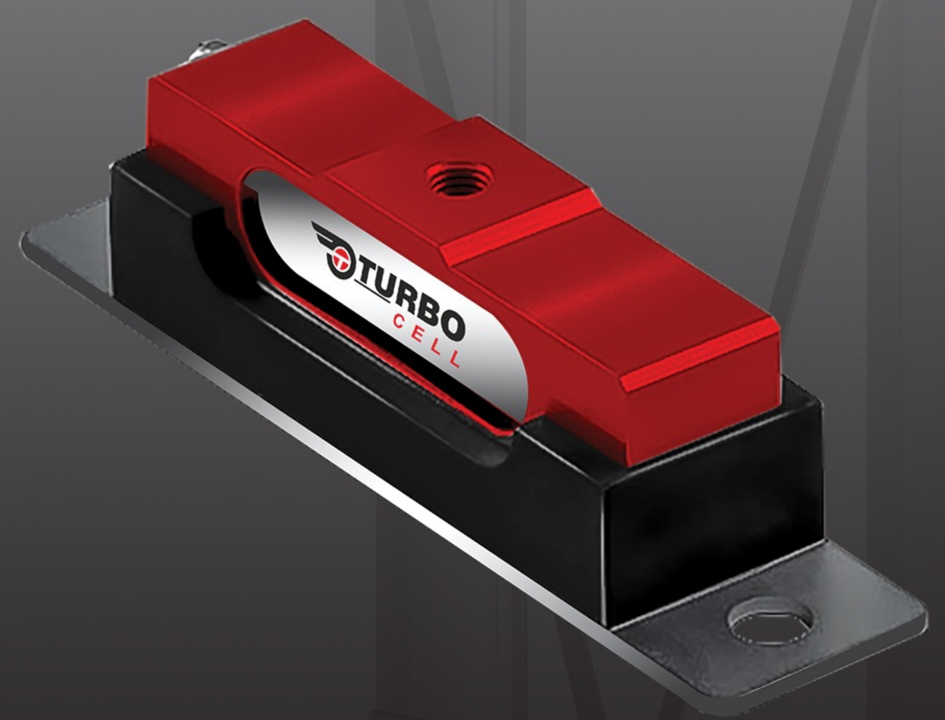
Specifications - Loadcell Sensors	
Nominal Weight	2 Ton(for 1:1) 4Ton(for2:1) 8Ton(for3:1)
Maximum Load Capacity	3000 kg
Sensor Excitation Voltage	≥ 10 V
Output Type	4-wire load cell
Sensitivity	2 ± 0.1% mV/V
Accuracy	±0.1% FS
Operating Temperature	-20°C to +60°C
Body Material	Heat-treated steel with chrome-nickel coating

Specifications - Controller	
Input Voltage	18-30 VDC (24V standard)
Max Current Consumption	Less than 300 mA
Relay Output	1 / 2*
Protection Class	IP65
Cable Length	2 meters

*By customer order

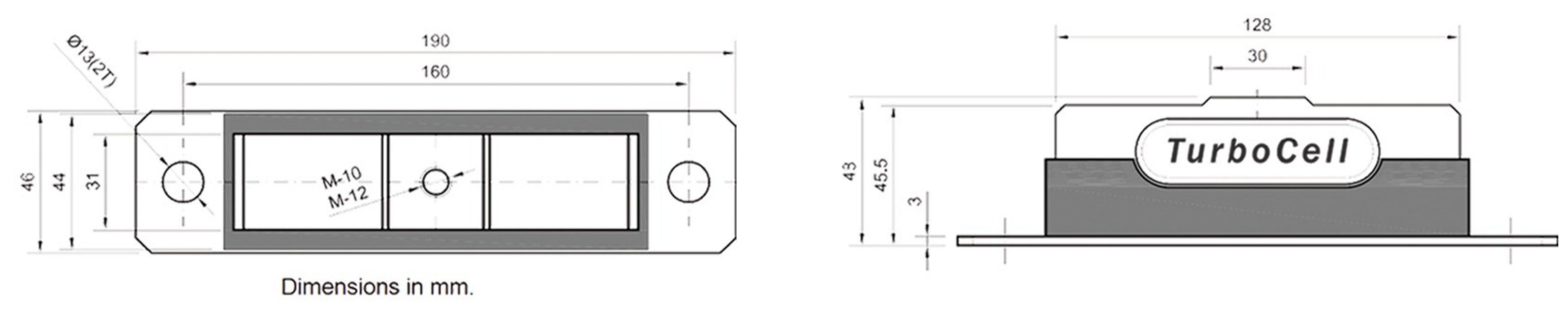
PG302

Load sensor designed
for under cabin installation



PG302 Data sheet

Elevator Load Control Sensor
TURBO CELL



Specifications

Specifications - Junction Box	
Output Cable Length	4 meters
Operating Temperature	-20°C to +50°C
Body Material	Plastic
Input Socket	4-pin Phoenix connector (for each load cell)
Protection Class	IP54

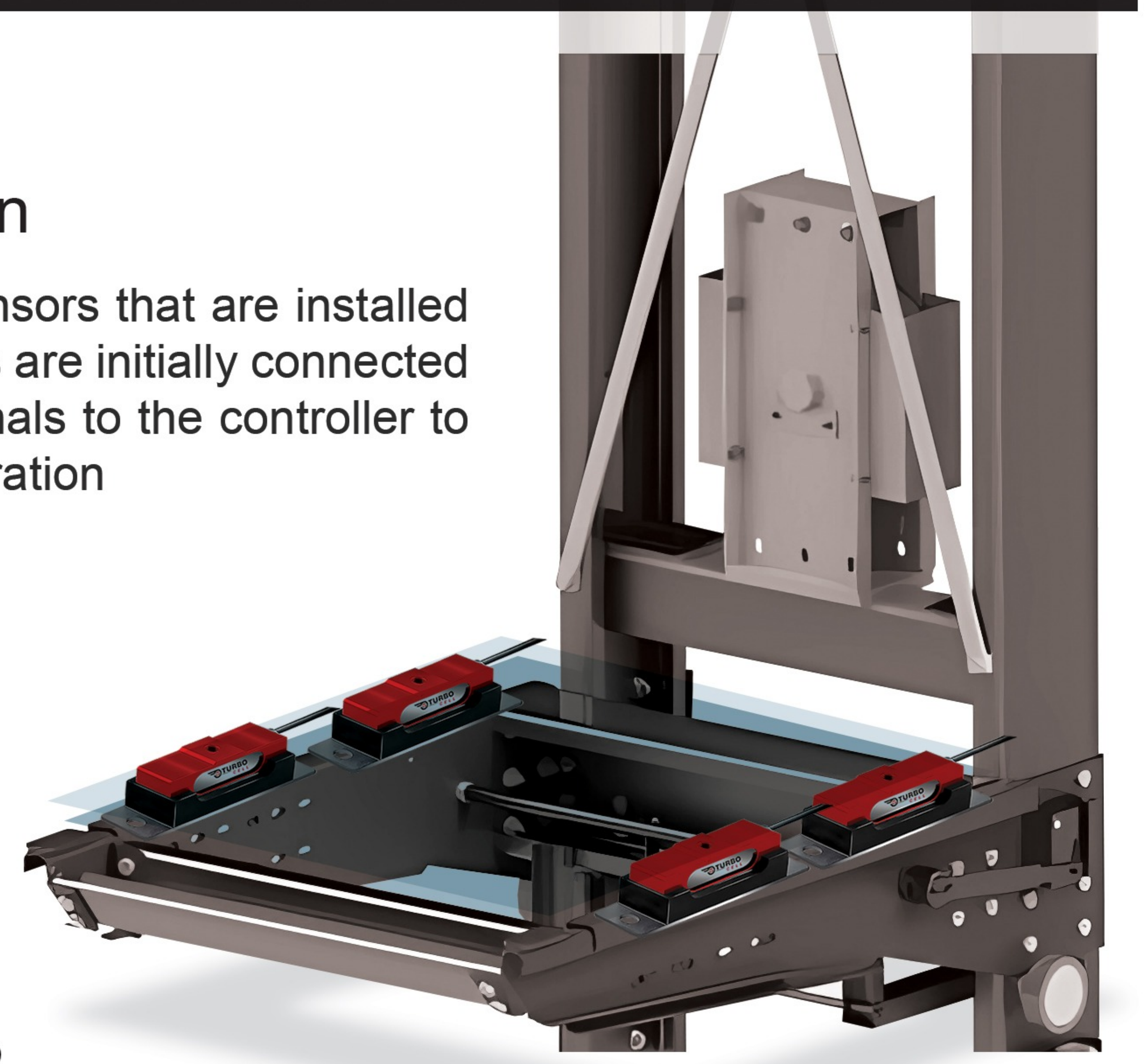
Specifications - Loadcell Sensors	
Nominal Weight (Per Sensor)	800 kg
Maximum Load Capacity	1500 kg
Sensor Excitation Voltage	≥ 10 V
Output Type	4-wire load cell
Sensitivity	2 ± 0.1% mV/V
Accuracy	±0.1% FS
Cable Length	1.5 meters
Protection Class	IP66
Operating Temperature	-20°C to +60°C
Body Material	Anodized Aluminum

Specifications - Controller	
Analog Output	4-20 mA*
Input Voltage	18-30 VDC (24V standard)
Max Current Consumption	Less than 300 mA
Relay Output	1 / 2* / 3*
Protection Class	IP54

*By customer order

PG302
Load sensor under cabin

PG302 model comes with four sensors that are installed underneath the cabin. The sensors are initially connected to one another and then send signals to the controller to measure weight and perform calibration



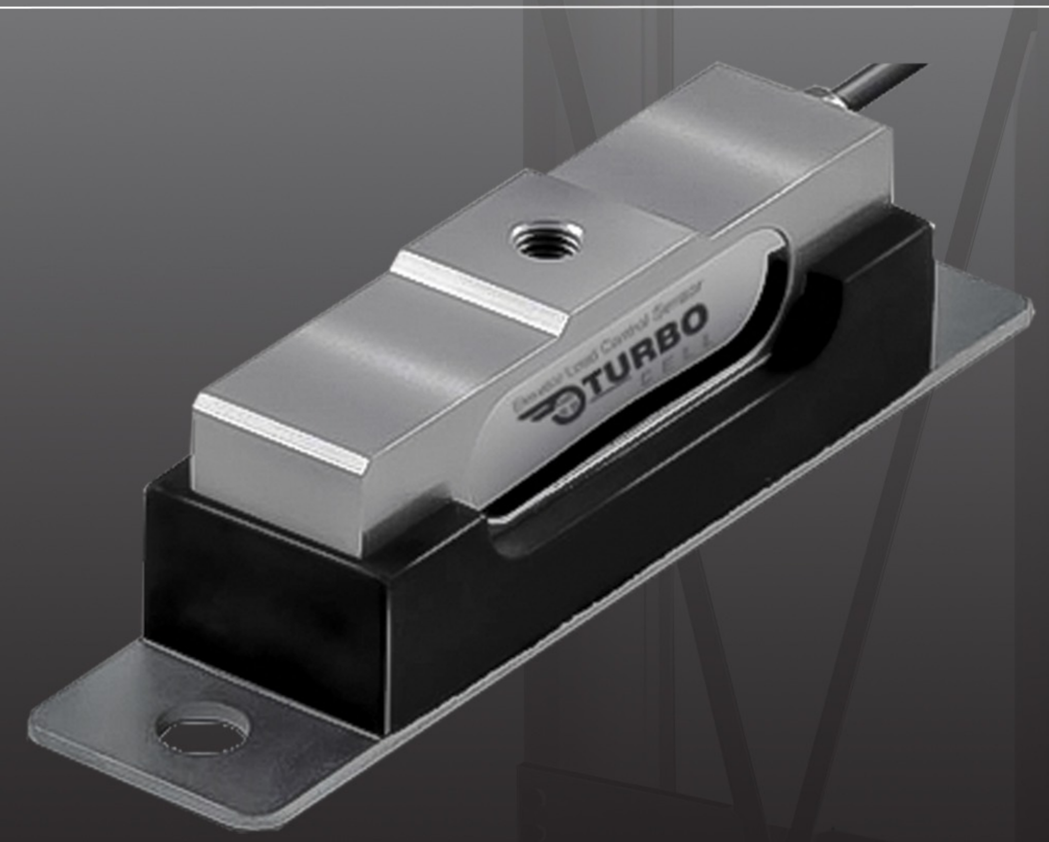
The controller of PG302

is equipped with three relay outputs and an analog output. These outputs provide precise passenger weight data to the control panel, leading to reduced energy consumption and improved elevator movement.

PG312

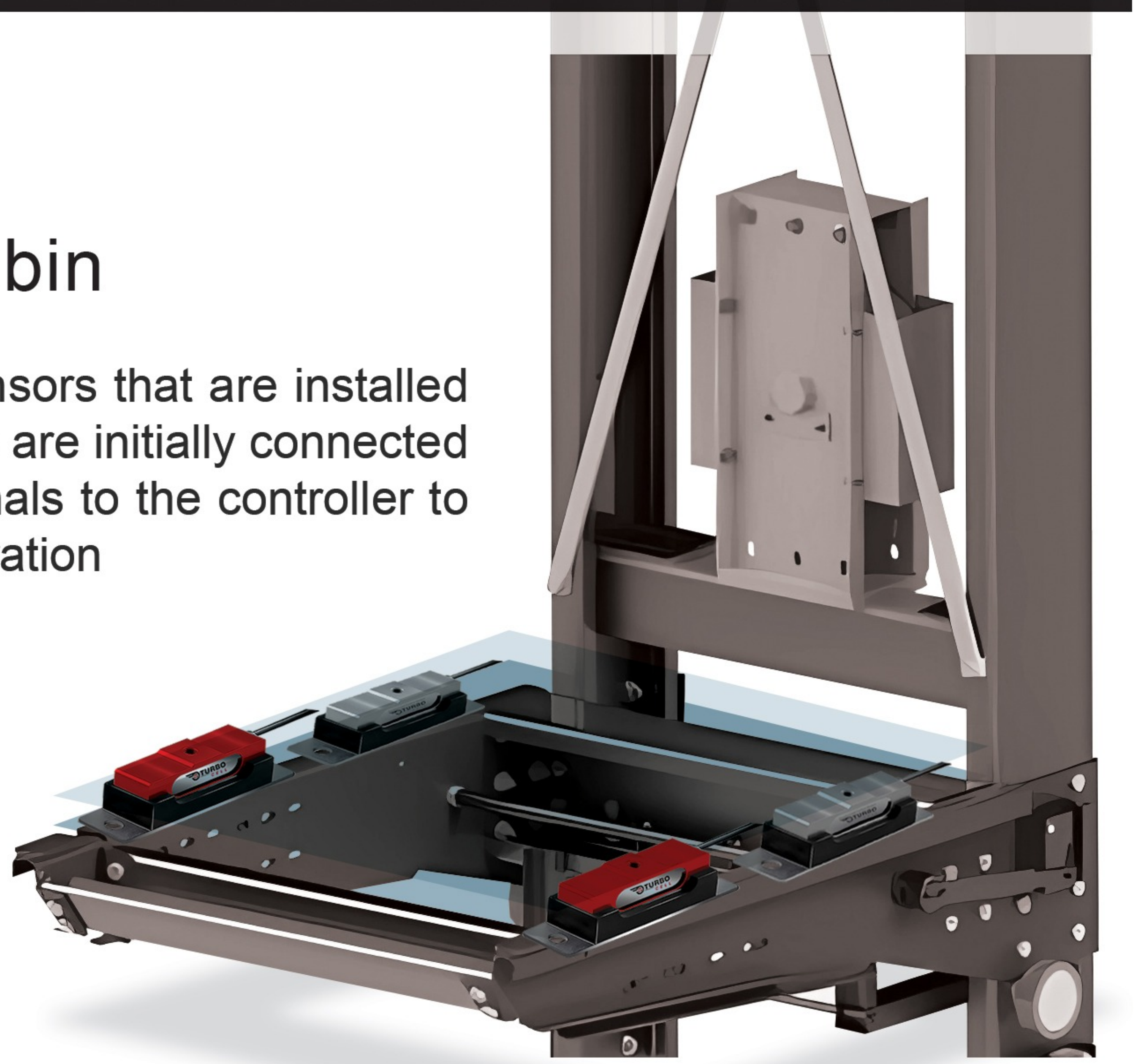
Load sensor designed

for under cabin installation



PG312
Load sensor under cabin

PG312 model comes with four sensors that are installed underneath the cabin. The sensors are initially connected to one another and then send signals to the controller to measure weight and perform calibration

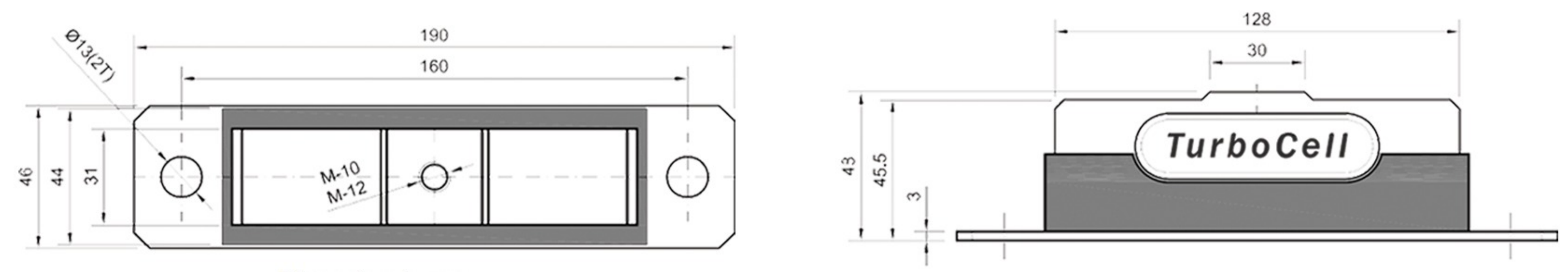


The controller of PG312

is equipped with three relay outputs and an analog output. These outputs provide precise passenger weight data to the control panel, leading to reduced energy consumption and improved elevator movement.

PG312 Data sheet

Elevator Load Control Sensor
TURBO CELL



Dimensions in mm.

Specifications

Specifications - Junction Box

Output Cable Length .... 4 meters
Operating Temperature .... -20°C to +50°C
Body Material .... Plastic
Input Socket .... 4-pin Phoenix connector (for each load cell)
Protection Class IP54

Specifications - Loadcell Sensors

Nominal Weight (Per Sensor) .... 800 kg
Maximum Load Capacity .... 1500 kg
Sensor Excitation Voltage .... ≥ 10 V
Output Type .... 4-wire load cell
Sensitivity .... 2 ± 0.1% mV/V
Accuracy .... ±0.1% FS
Cable Length .... 1.5 meters
Protection Class IP66
Operating Temperature .... -20°C to +60°C
Body Material .... Anodized Aluminum

Specifications - Controller

Analog Output .... 4-20 mA*
Input Voltage .... 18-30 VDC (24V standard)
Max Current Consumption .... Less than 300 mA
Relay Output ....1 / 2* / 3*
Protection Class IP54

*By customer order

PG303

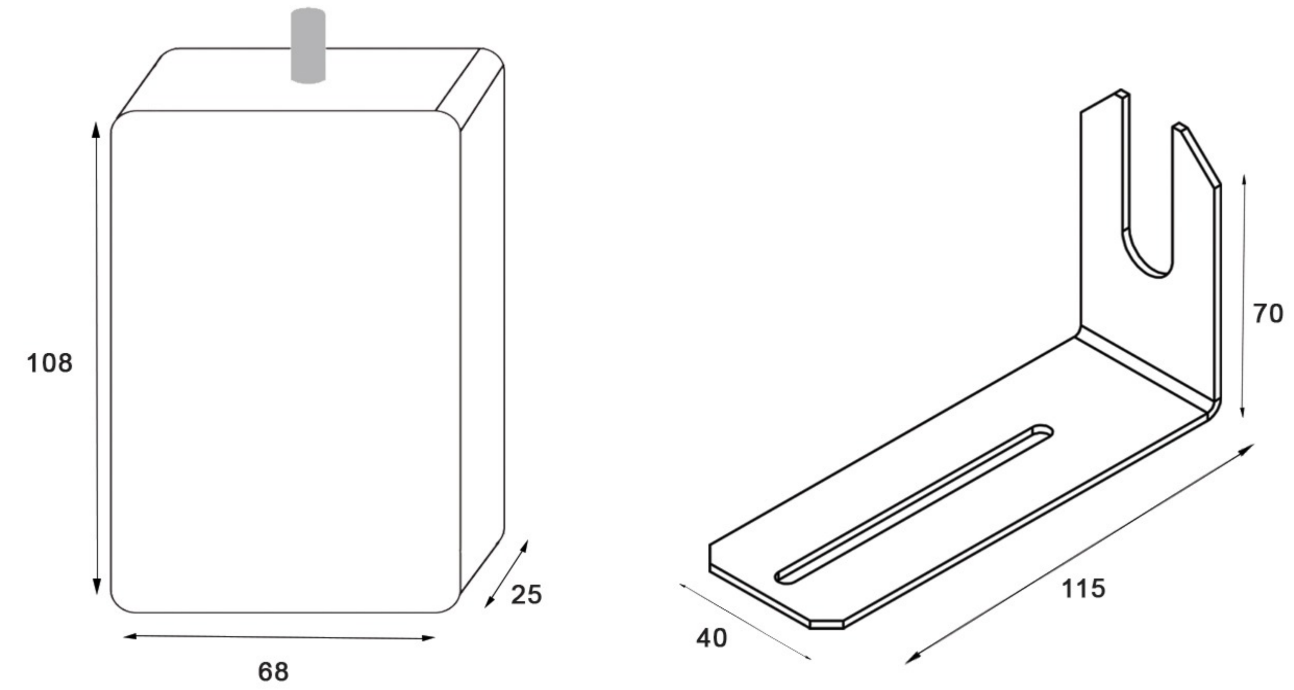
MAGNETIC LOAD SENSOR

This device operates on a magnetic displacement sensor that utilizes Hall effect technology to measure the displacement caused by weight on the cabin. It can be installed either under the cabin or on the cabin roof, providing flexibility for various elevator configurations. This sensor is particularly recommended for installation in residential elevator systems with a capacity of up to 8 passengers. The PG303 is a cost-effective solution that ensures safety and reliability.

The PG303 model is designed for all elevators to prevent overloads effectively. It replaces conventional mechanical overload switches, overcoming their limitations and enhancing reliability. This sensor is a high-quality, cost-efficient solution to ensure optimal performance and safety in elevator systems.

PG303 Data sheet

Elevator Load Control Sensor
TURBO CELL



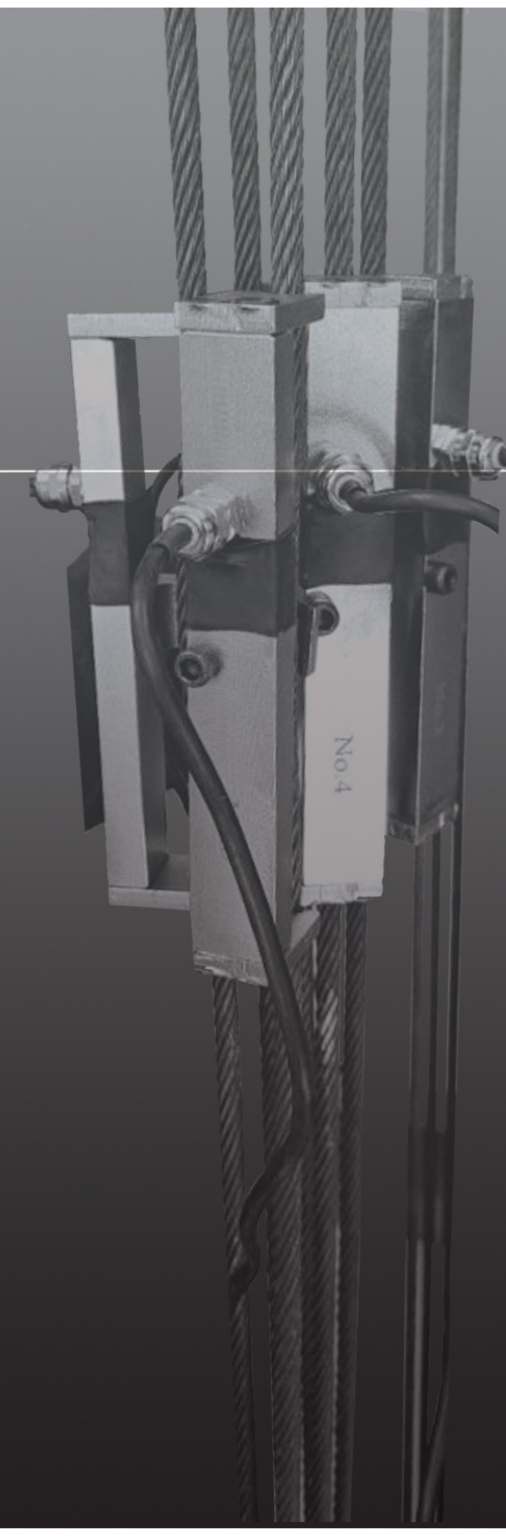
Specifications

Specifications - Loadcell Sensors	
Nominal Weight	up to 8 passengers
Operating Temperature	-20°C to +60°C
Magnet Diameter	16mm
Material	ABS
Weight	0.5 kg
Total Error	< 10%
Detection Distance	15–50mm

Specifications - Controller	
Input Voltage	18-30 VDC (24V standard)
Max Current Consumption	Less than 300 mA
Relay Output	1
Protection Class	IP65
Cable Length	5 meters

Elevator accessories

Using high-quality installation tools is essential for elevator technicians to ensure precision, safety, and efficiency in their work. Proper tools minimize installation errors, reduce maintenance needs, and enhance the longevity of elevator components. For example, a rope tensioning device helps maintain balanced cable tension, preventing uneven wear and ensuring smooth, reliable elevator operation.



PG304

RTMS
Rope Tension Monitoring System

Maintaining uniform rope tension is one of the most critical aspects of elevator installation and operation, especially in gearless systems. Unequal rope tension can result in:

- **Sheave and Rope Wear**
- **Elevator Cabin Vibrations**
- **Increased Wear and Tear on Motors and Rails**

PG304

Rope Tension Monitoring System

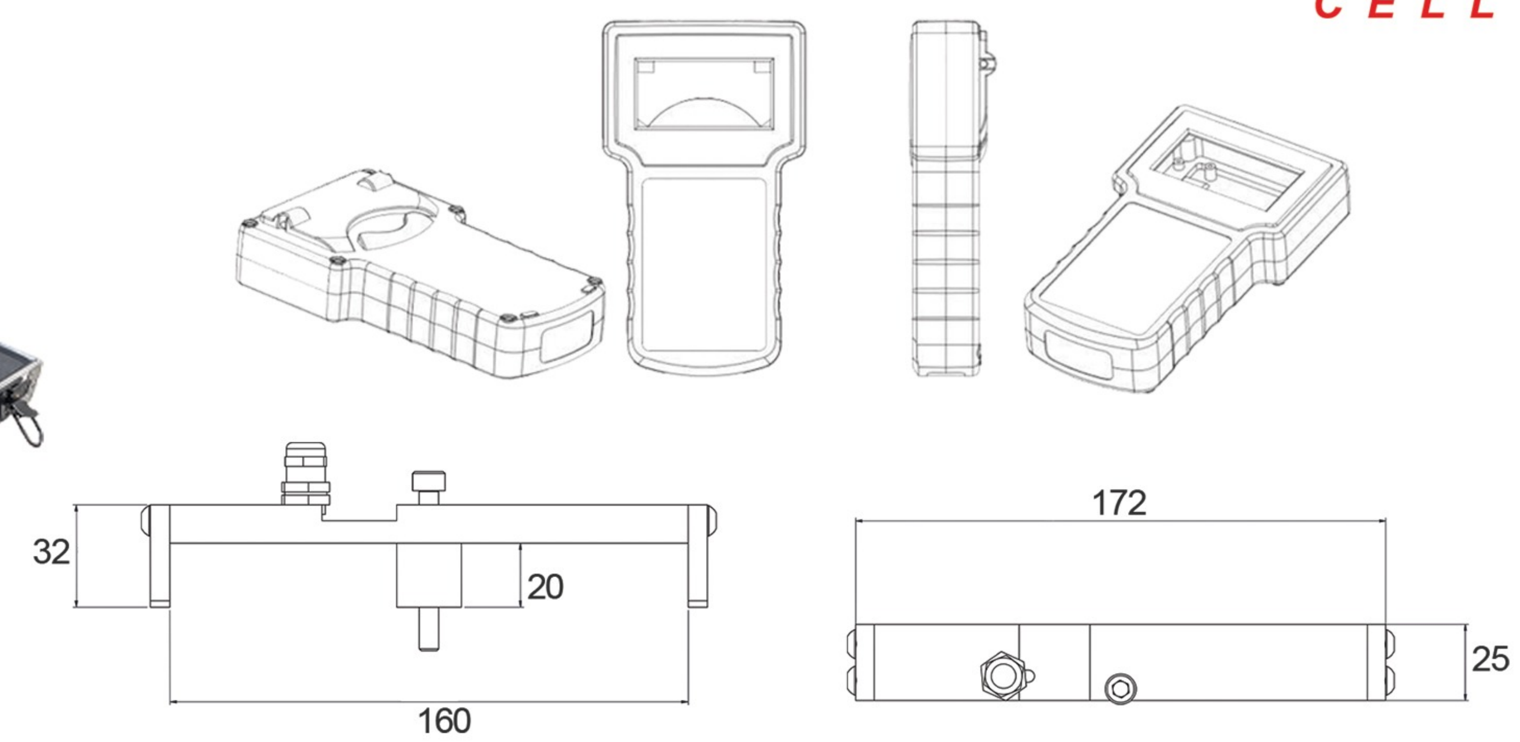
TurboCell's RTMS is equipped with 8 high-precision sensors, each installed on individual ropes to measure and display the tension through an advanced monitor. This allows for quick and precise adjustment of each rope's tension, ensuring optimal performance and longevity of elevator components.

Key Features

1. 8 High-Precision Sensors – Dedicated to each individual rope.
2. Calibration-Free Operation – Eliminates setup time and ensures accuracy.
3. User-Friendly Interface – Intuitive and easy to operate.
4. Advanced Display Unit – Simultaneously monitors all 8 sensors.
5. Durable Carrying Case – The tool comes in a specially designed carrying case that protects the sensors from damage and includes all necessary accessories for operation.
6. Quick Installation – Designed for fast and hassle-free setup.

PG304 Data sheet

Elevator Load Control Sensor
TURBO CELL



Specifications

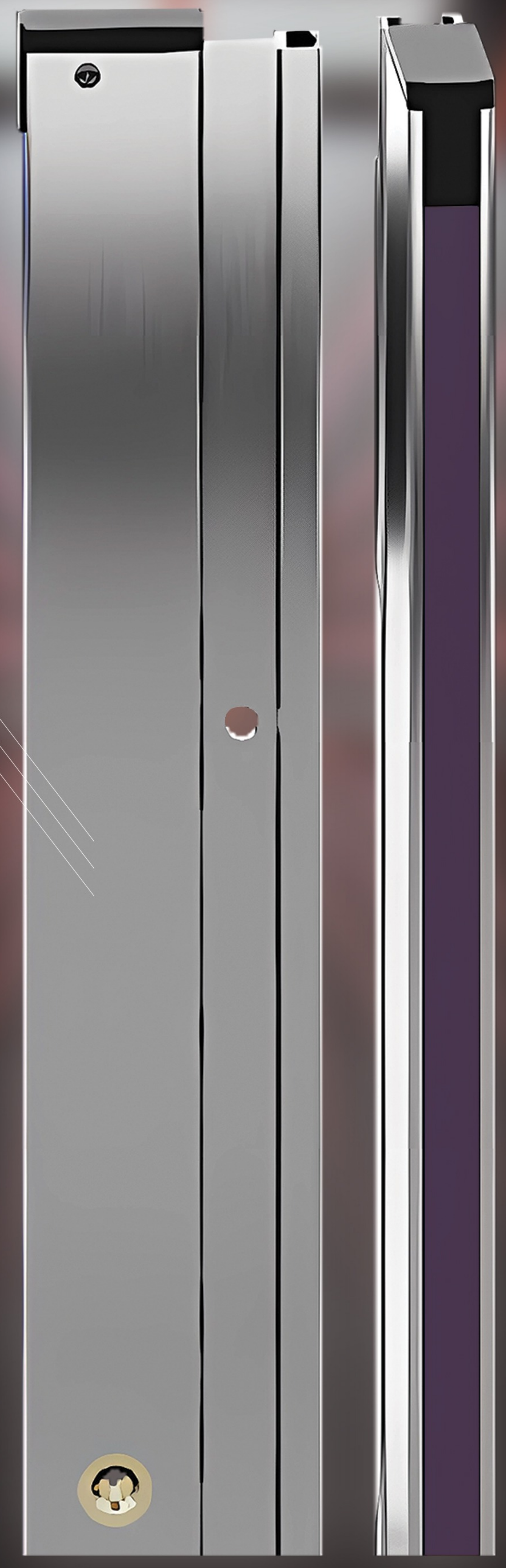
Specifications for each Loadcell Sensors	
Nominal Weight	1000 Kg
Maximum Load Capacity	1500 kg
Sensor Excitation Voltage	≥ 10 V
Output Type	4-wire load cell
Sensitivity	2 ± 0.1% mV/V
Accuracy	±0.1% FS
Operating Temperature	-20°C to +60°C
Body Material	Heat-treated steel with chrome-nickel coating
Protection Class	IP66
Cable Length	2m
Number of sensors	8

Specifications - Controller	
Input Voltage	9VAC
Max Current Consumption	Less than 500 mA
Number of sensor's input channel	8
Protection Class	IP65
Display type	graphical LCD

Power Adapter Specifications	
Input Voltage	220 VAC
Output Connector	Single Pin Connector
Plug Type	Standard two-pin plug
Current Rating	1000 mA
Output Voltage	9 VDC

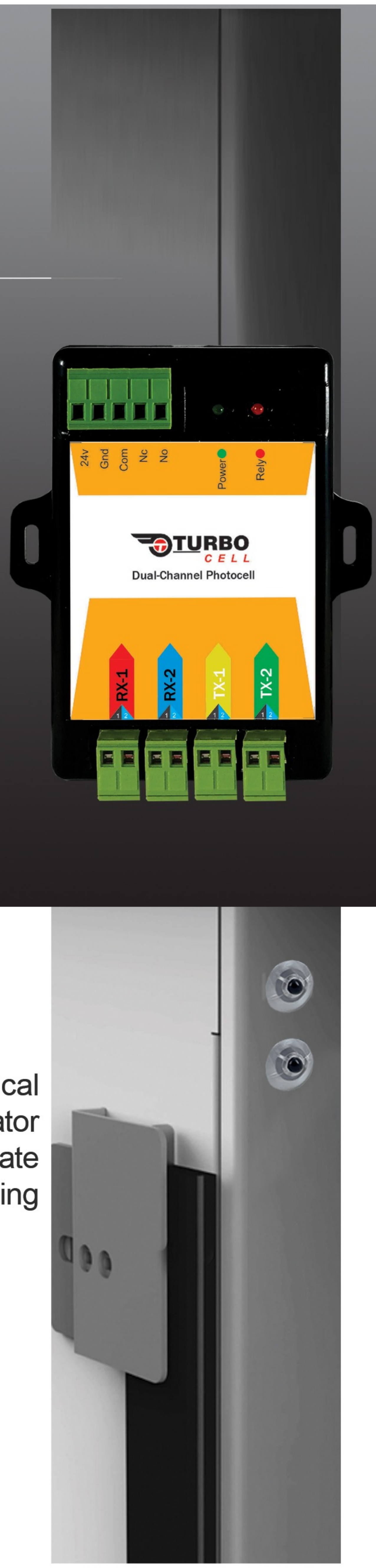
Elevator Photoelectric sensors

Photocell sensors in elevators are crucial for passenger safety, preventing doors from closing when obstacles are detected. They enhance accessibility by ensuring smooth and secure entry, especially for individuals with mobility challenges. Additionally, they improve operational efficiency and reliability, reducing the risk of accidents and mechanical wear.



PG305

Photoelectric Beam Sensor
for under cabin installation



PG305
Photoelectric Beam Sensor

The PG305 Photocell Sensor is an advanced duabl channel optical sensor designed to enhance the safety and functionality of elevator doors. It reliably detects obstacles to ensure the doors operate smoothly and safely, reducing the risk of accidents and improving the overall user experience.

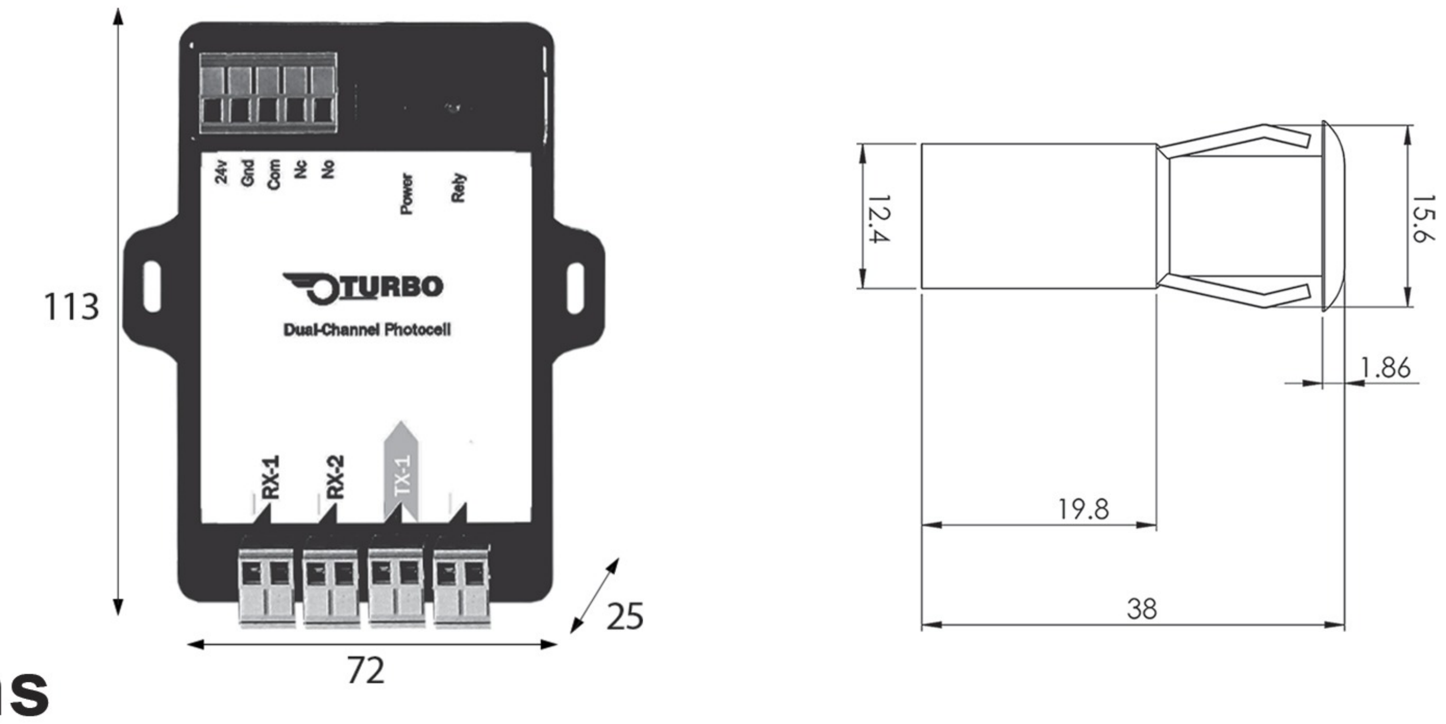
these sensors offer easy installation and aesthetic appeal for elevator cabins and with transparent, sleek design and easy-to-install socket connection, its provides reliable and efficient safety performance, making it an essential component for modern elevator systems.

Key Features:

• Wide Detection Range: Ensures comprehensive safety coverage by detecting objects across a broad area.
• High Sensitivity:Detects even slight movements, preventing door closure on passengers or objects.
• Plug-and-Play Design: The socketed and transparent structure allows for easy installation and contributes to an aesthetically pleasing cabin appearance.
• Quick and Easy Installation: Designed for fast setup, minimizing downtime.
• Energy Efficient: Optimized for low power consumption to promote sustainable building practices.

PG305 Data sheet

Elevator Load Control Sensor
TURBO CELL



Specifications

Specifications - Controller	
Input Voltage	18-30 VDC (24V standard)
Operating Temperature	-20°C to +60°C
Max Current Consumption	Less than 50 mA
Body Material	Abs Plastic
Protection Class	IP54
Relay Output	1
Response Time	less than 500mS

Specifications – Photoelectric Beam	
Detection Range	2meters
Number of receiver	1*/2**
Number of transmitter	1*/2**
Cable Length	5 m
Protection Class	IP66

PG306

Photoelectric Beam Sensor
for under cabin installation

PG306

Photoelectric Beam Sensor

The PG306 Photocell Sensor is an advanced single- channel optical sensor designed to enhance the safety and functionality of elevator doors. It reliably detects obstacles to ensure the doors operate smoothly and safely, reducing the risk of accidents and improving the overall user experience.

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Key Features:

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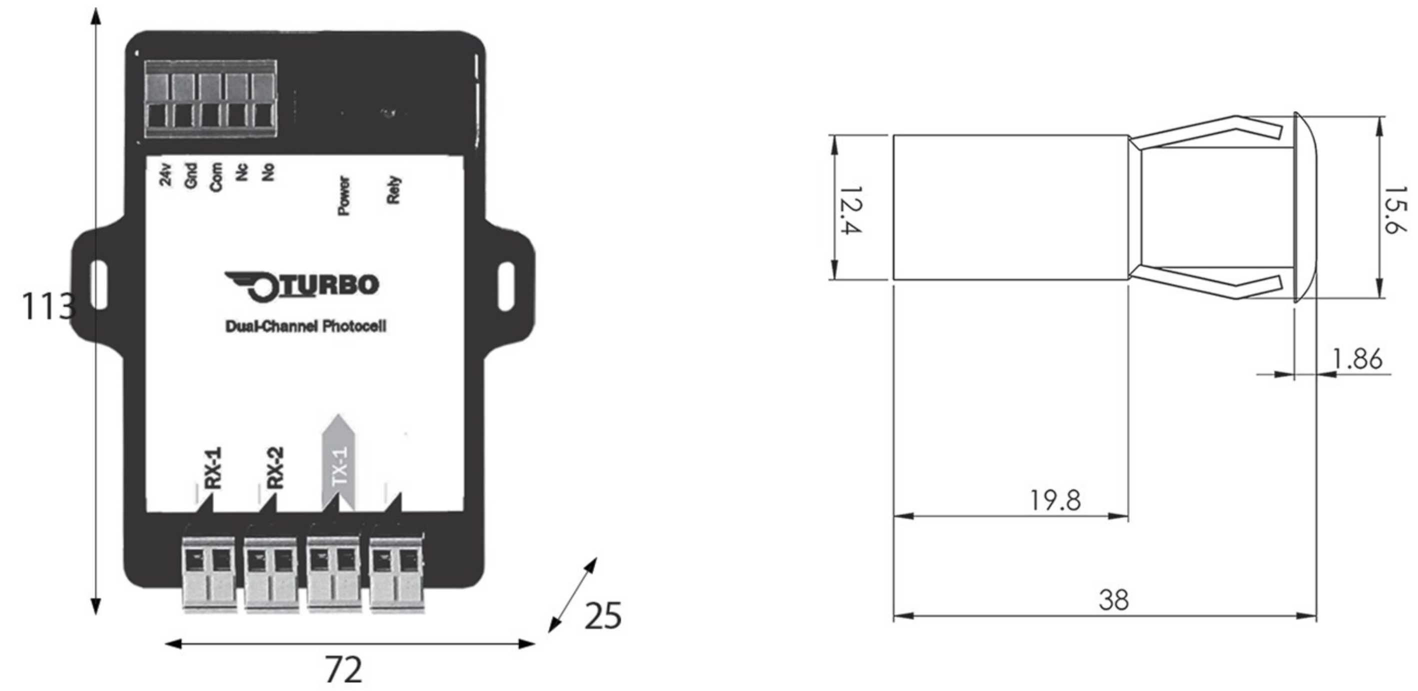
PG306 Data sheet

Elevator Load Control Sensor



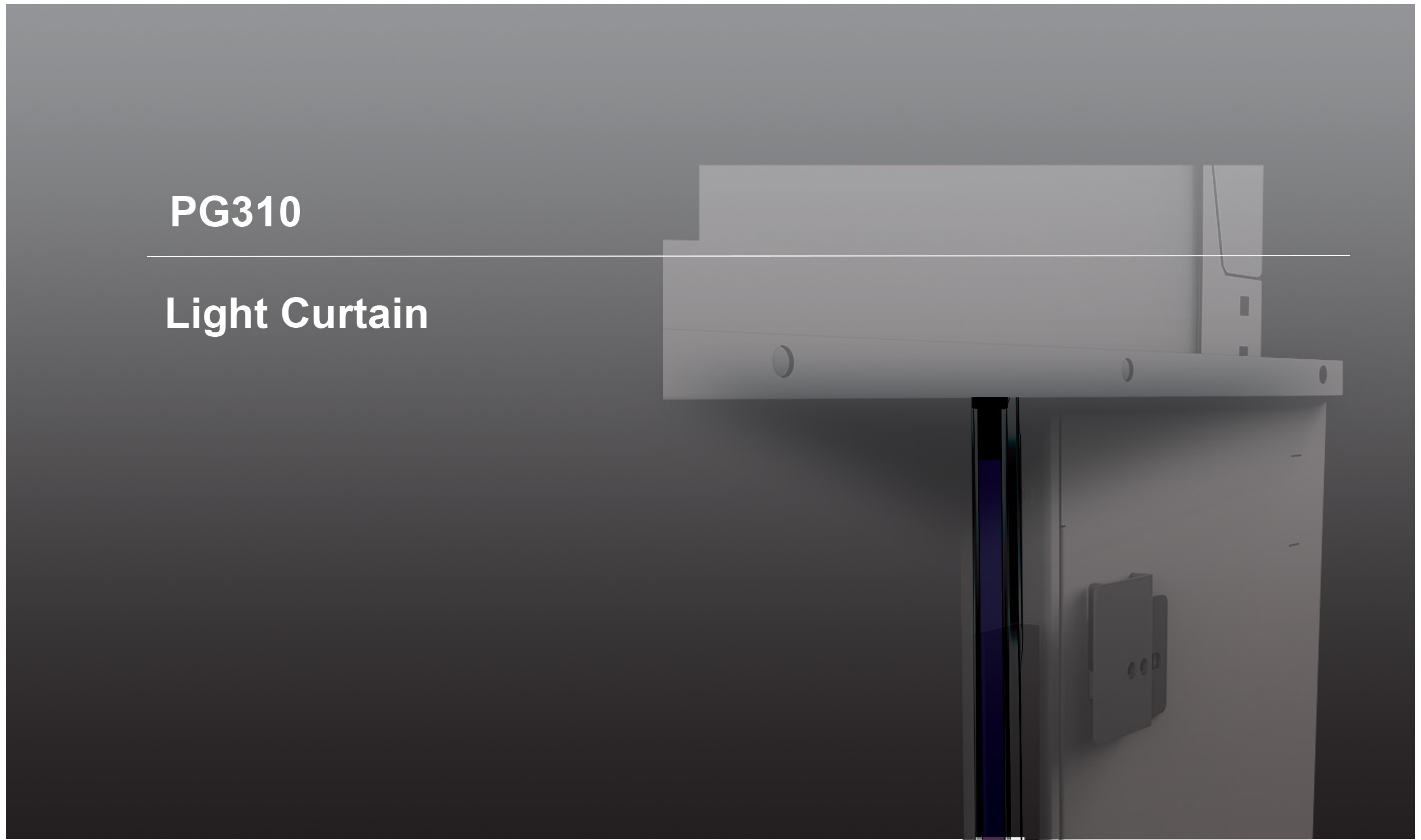
Specifications

Specifications - Controller

Input Voltage ....18-30 VDC (24V standard)
Operating Temperature .... -20°C to +60°C
Max Current Consumption .... Less than 50 mA
Body Material.. Abs Plastic
Protection Class IP54
Relay Output 1
Response Time .... less than 500mS

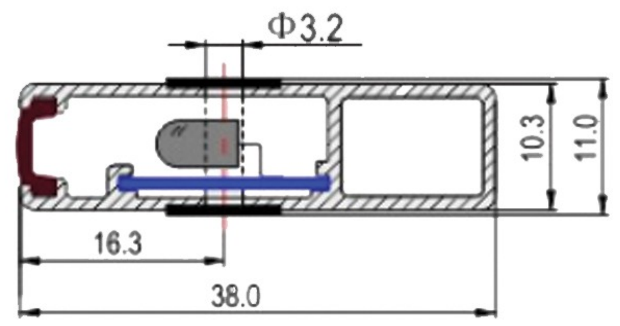
Specifications – Photoelectric Beam

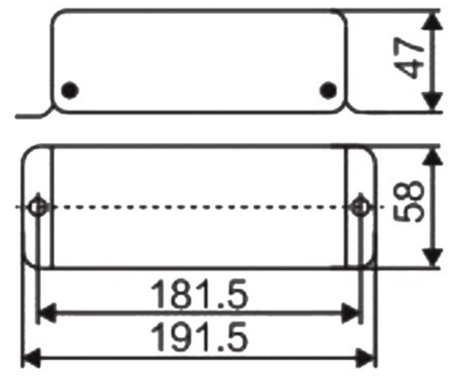
Detection Range.. 2meters
Number of receiver 1*/2**
Number of transmitter 1*/2**
Cable Length .... 5 m
Protection Class IP66

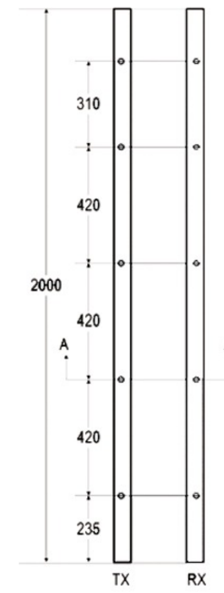


PG310 Data sheet

Elevator Load Control Sensor
TURBO CELL







PG310
Light Curtain

The TurboCell PG310 light curtain is designed with advanced infrared technology to enhance safety in elevator systems and prevent users from colliding with elevator doors. With its high response speed and precise detection, this device is an ideal choice for various environments.

Features & Capabilities:

- High-precision obstacle detection: Reliable and fast performance
- Easy installation and setup: Comes with a complete mounting kit
- Durability in various environmental conditions: Stable performance in diverse temperatures and humidity levels

Transmitter (TX) and Receiver (RX) Specifications

Number of Infrared Diodes 32
Number of Light Beams 154
Highest Detection Point .... 1800 mm
Lowest Detection Point .... 20 mm
DeviceDimensions .... 8×35×2000 mm
OperatingTemperature .... -20°C to +65°C
Response Time .... ≤100 ms
Resistance to Ambient Light .... Up to 100,000 lux

Misalignment Tolerance

- Vertical .... ±20 mm
- Horizontal .... ±3 mm
- Angular .... ±7°
- Protection Class IP54

Controller Specifications

Operating Voltage 220VAC
Operating Frequency .... 50/60 Hz
Current Consumption .... ≤50 mA
Power Consumption .... 3 W
Operating Temperature .... -20°C to +65°C

Relay Output

- Compatible with elevator control systems
- Error indicator with red LED
- Power indicator with yellow LED
- Protection Class IP31

list

Elevator Load Control Sensor

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