

Rope Position Detection Nexo System





Proven for many years – enhanced in every detail

In 1999, Doppelmayr introduced a worldwide unique, fail-safe system that monitors the position of the haul rope directly at the sheave assemblies of ropeway installations. To this day, the rope position detection system (RPD) is the unrivaled safety standard for ropeways. It recognizes rope displacement from the sheave groove at an early stage and thus significantly reduces the risk of deropement.

Twenty years later, a complete redevelopment is being launched onto the market: the RPD Nexo system.

When redeveloping the system, the design engineers were able to incorporate worldwide long-term experience in day-to-day operation. The result: even greater resilience to environmental influences of all kinds, very straightforward accessibility and maintenance, plus comprehensive diagnostic functions – the RPD Nexo system has been enhanced in every detail.

This innovation brings ropeway operators absolute operational efficiency, high availability of the ropeway installation and maximum safety for passengers – perfectly in line with SMART Ropeway, the digitalization concept of Doppelmayr/Garaventa.

The RPD Nexo system is a complete redevelopment

Safe and reliable

The RPD Nexo system guarantees safety in every situation. As an absolutely reliable early warning system, it operates with non-contact sensors and a fail-safe bus system from tower to tower.

Rope displacement – caused by wind, misalignment or worn components – is detected immediately by the RPD Nexo sensor. The ropeway is automatically slowed down or stopped.

Notifications of the RPD Nexo system are displayed and conveniently and rapidly accessible from the control room through the visualization of the ropeway control system Doppelmayr Connect.

The RPD Nexo system detects the following situations:

- Rope in normal position
- Rope deviation from the groove
- Deropement beyond side plate
- Blocked sheave
- Excessive sheave liner wear
- ◄ Lost sheave

Advantages:

- Rope displacement detected at an early stage
- Automatic slowdown or shutdown of the ropeway installation
- Higher availability of the ropeway
- Ease of work for ropeway attendants







Normal operation

Slowdown of the ropeway

Ropeway is stopped





Robust and resilient

The RPD Nexo system stands out especially for its high reliability and resilience to environmental influences of all kinds:



Comprehensive diagnostic functions

Via the ropeway control system Doppelmayr Connect, the customer has a permanent overview of all data. The serial communications bus that connects all RPD Nexo sensors offers immediate diagnosis options, for instance, if there is a defect in the sensor chain. The system pinpoints the source of the error and indicates the number of the affected tower and sensor. Apart from the automatic diagnostic functions in the ropeway control system, a diagnostic device can be connected directly to each terminal box (at the tower base and tower yoke). In addition, each sensor has a bi-color LED operation indicator.



Universal in application

The RPD Nexo system is calibrated to each rope type. This provides the advantage that irrespective of the sheave geometry, rope diameter and rope type, always the maximum possible range of deviation from the rope's ideal position ('Rope off center') is used. Thus, the sensitivity of the rope position detection system is independent from geometry. Possible erroneous activation, especially during grip passage over hold-down sheave assemblies, is prevented.

Maintenance-friendly

The wiring of the RPD Nexo sensor is located on the back of the sheave assembly. The newly developed lockable plug-in connection is weatherproof and easily accessible from the tower platform. Maintenance work and sensor replacement are thus substantially simplified.

The RPD Nexo system can also be retrofitted on existing ropeway installations



Technical data

Certification:	CE, TÜV-Süd
Weight:	1200 g
Ambient temperature:	-40°C to +50°C
Air humidity:	0% to 100% rH
Lightning protection:	Lightning protection class II /
	DIN EN 4892-3
Vibration:	Acceleration
	1.94 to 3.61 grms1
	for 24 h at -40°C to +80°C
Shock:	Acceleration 12 g,
	for 11 ms at -40°C to +80°C

Hail resistance:	HW 3 (hail diameter 30 mm,
	12.3 g, 23.9 m/s)
Protection class:	IPX9K / IPX7
Chemical stability:	Acid rain (H ₂ SO ₄ , HNO ₃)
	and aggressive gases (H_2S , SO_2)
UV resistance:	ISO 4892-3 (cycle 1)
Safety class:	SIL 3 as per EN ISO 61508 /
	AK 4 as per EN 13243
Big input voltage range:	18-48 V
Energy-efficient:	17 mA (with 48 V)







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