Wheel Slide Protection System

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Model</th>
<th>CDT 731-TG</th>
<th>PST 731-TG</th>
<th>STM 731-TG</th>
<th>CPU 83x-TG</th>
<th>Qty/3: 3</th>
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<tbody>
<tr>
<td>Speed measurement and valve control</td>
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</table>

- Max. 4 speed sensors
- Digital format display: 400 pulses/revolution
- 12 MHz processor
- Storage area: 128 MB
- 2 separate rotational speed channels
- 90° phase-shifted signals for direction detection
- Max. 3 modules per system
- 1 module per system
- Max. 6 sensors per system
- 1 module per system
- Max. 6 valves per system

- IP30
- IP30
- IP67
- IP30
- IP65
- DIN 40050

- Supply voltage: 24/36 VDC (with PSM module, also 72 V and 110 V)
- Rated voltage during brake (≤ 40 °C - 176 °C)
- Ambient temperature: (≤ 40 °C - 176 °C)
- Storage: 40 °C - 70 °C

Refer to the system manuals for more information.

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WWW.SELECTRON.CH
WHEEL SLIDE PROTECTION SYSTEM
UP TO SIX AXLES

**WHEEL SLIDE PROTECTION SYSTEM**

**SYSTEM OVERVIEW**

**WHEEL SLIDE PROTECTION SYSTEM**

**Up to six axles**

**Train Control and Monitoring System (TCMS)**

**Vehicle Control Unit (VCU)**

**Non-safety-relevant application**

**Wheel slide protection controller up to SIL 2**

**TCMS (Train Control and Monitoring System)**

**Vehicle Control Unit (VCU)**

**Vehicle bus**

**Encoder**

**Wheel slide protection valve**

**REFERENCES**

**“SAFETY-RELEVANT ACCORDING TO ESTABLISHED RAIL STANDARDS”**

**POSSIBLE SYSTEM ARCHITECTURE WITH SIX BOGIES**

A FLEXIBLE AND COMPLETE SOLUTION WITH WHEEL SLIDE PROTECTION CONTROLLER, ROTARY ENCODER, AND WSP VALVE MODULAR SYSTEM FOR STRAIGHTFORWARD IMPLEMENTATION ON YOUR RAIL VEHICLES

**Significant Functions**

- Wheel slide protection for vehicles with speeds up to 200 km/h
- Can be used in new vehicles and for modernization
- Easy installation
- Control of up to 6 wheel slide protection valves per system
- Encoder broken wire monitoring
- Automatic activation in case of operation
- Module for different wheel slide protection configurations
- Output of the vehicle speed in the vehicle bus up to SIL 2
- Integration in rail vehicle control and management system for straightforward system diagnosis
- Flexible project planning
- Support in setting the control parameters
- Support for commissioning and approval
- Safety-oriented (SIL) valve outputs according to EN 61508, EN 50128, EN 50129
- Monitored counter inputs for speed measuring
- Calculation of speed and acceleration of the axle
- Can be expanded with max. 3 wheel slide protection modules (CDT 731-TG)
- Diagnosis and fault visualization
- Galvanically isolated power supply for the speed sensors
- Motorized wheel diameter
- Selection, type REN
- Selectron, type REN
- Selectron, type REN (or others)
- Knorr-Bremse valves
- (or others)

**Stadler Rail, FLIRT**

**BLS, EW II Stadler Rail, DOSTO transport publics fribourgeois**
**Wheel Slide Protection System**

**UP TO SIX AXLES**

**Train Control and Monitoring System (TCMS)**

Vehicle bus

Non-safety-relevant application

Wheel slide protection controller up to SIL 2

TCMS (Train Control and Monitoring System)

Possible System Architecture with Six Bogies

**A FLEXIBLE AND COMPLETE SOLUTION WITH WHEEL SLIDE PROTECTION CONTROLLER, ROTARY ENCODER, AND WSP VALVE MODULAR SYSTEM FOR STRAIGHTFORWARD IMPLEMENTATION ON YOUR RAIL VEHICLES**

**Significant Functions**

- Wheel slide protection for vehicles with speeds up to 300 km/h
- Can be used both in new vehicles and for modernization
- Diagnostic
- Control of up to 6 wheel slide protection valves per system
- Encoder, broken wire monitoring
- Automatic activation in case of operation
- Modular for different wheel slide protection configurations
- Encoder connected to the vehicle bus via CAN bus
- Output of the wheel speed in the vehicle bus up to SIL 2
- Integration in rail vehicle control and management system for straightforwardsystem diagnosis
- Flexible project planning
- Support in setting the control parameters
- Support for commissioning and approval
- Safety-oriented (SIL) valve outputs according to EN 61508, EN 50128, EN 50129
- Monitored counter inputs for speed measuring
- Calculation of speed and acceleration of the axle
- Can be expanded with max. 3 wheel slide protection modules (CDT 731-TG)
- Diagnosis and fault visualization
- Galvanically isolated power supply for the speed sensors
- Wake-up circuit
- Input of wheel diameter

**Selectron, type REN**

Knorr-Bremse valves

REFERENCES
TECHNICAL DATA

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>CDT 731-TG</td>
<td>Speed measurement and valve control</td>
</tr>
<tr>
<td>PST 731-TG</td>
<td>Shaker- and power supply module</td>
</tr>
<tr>
<td>SIT 704-TG/154/081</td>
<td>Rotation speed sensor</td>
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<tr>
<td>CPU 83x-TG</td>
<td>Controller</td>
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</tbody>
</table>

**System Overview**

Wheel Slide Protection System

**Tailored for Rail Vehicles**

**Technical Data**

- **Speed measurement and valve control**
  - Max. 4 speed sensors
  - Digital display
  - 2000 pulses per revolution
  - 30 MHz frequency

- **Valve control**
  - Standard 1/2" NPT
  - Power consumption
  - Digital feedback for direct valve control
  - Voltage tolerance: +25% / -30%

- **Digital input/output**
  - 1 x Ethernet
  - 2 x CAN
  - 1 x RS 485

- **Input frequency**
  - Max. 45 kHz
  - 5 button keypad
  - Broken wire detection
  - 64 MB memory
  - Max. 2 WSP valves
  - Standby: only 10mA

- **Power consumption**
  - Digital wake-up input: 45 mA
  - Power consumption: 7 W (per coil)
  - 2 separate rotational speed channels
  - 90° phase-shifted signals for direction detection

- **Valve monitoring**
  - SIL 2
  - Wake-up input from rotary encoder

- **Max. 1 A per valve coil**
  - Digital wake-up input
  - 1 x Ethernet
  - CBus for extension modules

- **Nominal power**
  - (for each coil) 7 W

- **Current consumption**
  - 3 mA

- **IP protection**
  - IP30
  - IP65

- **Supply voltage**
  - 24/36 VDC (with PSM module, also 72 V and 110 V)

- **Ambient temperature**
  - -40 °C ... +70 °C

**Refer to the system manuals for more information.**
TECHNICAL DATA

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
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</thead>
</table>
| Speed measurement and valve control | · Max. 4 speed sensors
| Display- and power supply module | · 4-digit Flomod display
| Rotation speed sensor | · 200 pulses/revolution
| Controller | · 32-bit µprocessor
| Valve | · Max. operating pressure 8.5 bar

- **Max. 2 WSP values**:
  - Standby: only four
  - Displayed: four
- **Max. 1 A per valve coil**:
  - Digital wake-up input
- **Digital V-level for direct relay control**:
  - 2x CAN
  - 1x RS 485
- **Voltage tolerance**:
  - +25% / –30%
- **Max. 1 A per valve coil**
- **Current consumption**:
  - 45 mA
- **Current consumption standby**:
  - 3 mA
- **Supply voltage**:
  - 24/36 VDC (with PSM module, also 72 V and 110 V)
- ** Ambient temperature class**:
  - Tx –40 °C ... +70 °C

Refer to the system manuals for more information.