becker®
MINING SYSTEMS

PDS4.0

Proximity Detection System

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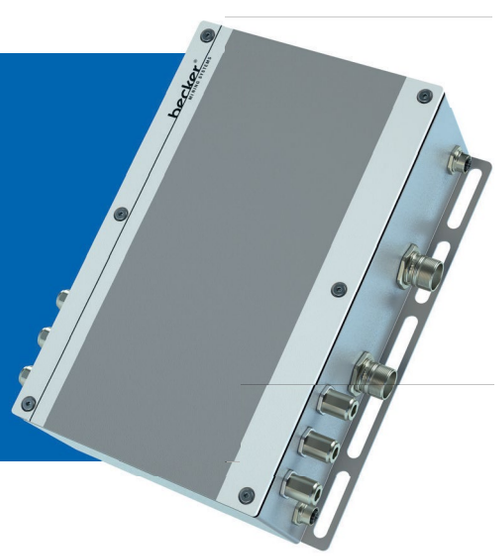
The Proximity Detection System (PDS4.0) is designed to prevent injury and possible loss of life during the operation of mining vehicles in close proximity to mining personnel. This system provides an early warning indication that alerts the operator of the presence and number of personnel and vehicles in the vehicle's vicinity.

This system facilitates bi-directional notification and alert messaging against potential collisions between the following:

- **Vehicle to Person:**
  Warns operator and interacts with vehicle in case of person in close proximity.
- **Vehicle to Vehicle:**
  Warns operator and interacts with vehicle in case of vehicles in close proximity.

- RF-ToF, UHF
- Wi-Fi interface
- Detection zone ranges customisable
- Relay and GPIO vehicle interface
- System self diagnostics ensuring safe operation
- Operator ergonomic alert with optional event logging



OMI – Operator Machine Interface

The OMI is a touch screen visualisation unit for the vehicle operator. It is connected to the PDS4.0 main unit, which is the central processing unit between the driver and the multiple detection sensors mounted around the vehicle.

Modular Design

Since not all requirements and vehicles are the same, the PDS4.0 was designed with modularity and customization in mind.

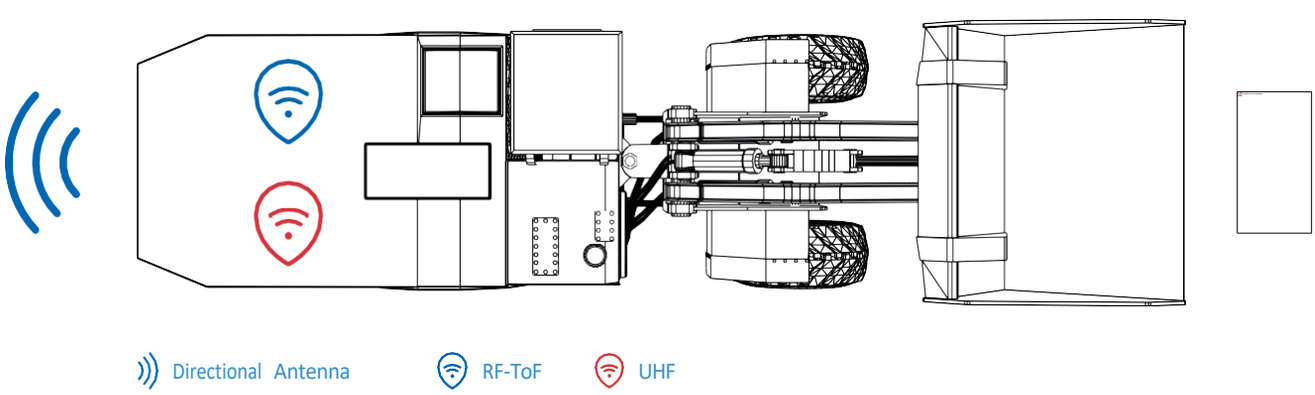
From the simplest system, consisting of only UHF detection together with the OMI, to a fully-fledged system with multiple detection points consisting of both available technologies, the customer can adjust the system to their needs. The modular design of the PDS4.0 modules itself makes it simple to add and replace individual modules, and by adding a PDS4.0 slave unit to the master device, the system can be expanded even further.

Point of Detection

The scalable system (UHF and RF-ToF) is suitable for all customer applications.

Our specially developed antennas can cover the entire WiFi spectrum and thus quickly determine the exact position of the re- mote station.

The number and orientation of the antennas allow for different combinations of triggers. The system can be adjusted to the specific use case, such as the direction and volume of the vehicle or machine.



PDT-0101 Proximity Detection Tag

The Proximity Detection Tag and cap-lamp Tag interacts with the PDS4.0 by detecting signals, responding to RF-ToF ranging requests and transmitting its ID and relevant information on the UHF band, which is also compatible with Becker Tagging and Tracking Systems.

PDC-0201 RF-ToF-Antenna

The PDC-0201 omni-directional antenna is connected to the PDS4.0 and transmits and receives ranging data packets in rapid frequency. The RF-ToF transceivers accurately measure the relatively miniscule difference in “time of flight” which allows the technology to measure up to 50m in omni-directional way.

PDC-0202 RF-ToF-Antenna

The PDC-0202 antenna is suitable directional antenna that goes with the PDS4.0. It also alows to measure up to 50 m in directional way.

PDC-0301 UHF-Antenna

The UHF-Antenna transmits and receives UHF data packets in the near and far range.

It is an antenna for vehicles with omni-directional characteristics.

Depending on the geographic region of application, the frequency is 433MHz.

PDC-5101 Vehicle Interface Module

The PDS4.0 Vehicle Interface Module serves as a line distributor for connecting external devices that should be controlled via the PDS4.0 system, such as breaking systems, machine controles, etc.

PDC-5103 LED Strip

The multicolor LED Strip indicates the current state of the PDS4.0. Thereby giving feedback for the driver about detected Tags that are in range. Seven configurable colors can be used. Signal colors are controlled by the vehicle interface module.

Customized Services

We support our customers and partners from initial concept to final commissioning and are also at your side with our customized services. Local subsidiaries and distributors ensure fast service support.

Custom System Designs

Every mine is different, so should a system layout be: From energy supply to communication systems and transport solutions. We analyse all the available information and find the best possible solution.

Comprehensive Maintenance & Repair

Not only do we offer year on year support contracts, to keep your operation running - At Becker Mining you can always count on our workshop to overhaul and repair products. No matter how old your products.

Onsite technical assistance

Our technicians can support your team on-site or remotely to get things done right.

Emergency Support

We offer emergency onsite support for our customers. Depending on geographic and travel distance, on-site service can be as quick as 6 hours.

Technical Trainings & Workshops

With your Becker products you can count on technical trainings for all your staff. Depending on your needs we suggest regular workshop onsite and remote to keep technicians up to speed with your Becker products.

Contact Us

Becker Mining Systems accompanies and supports you from the first moment to find the best solution for your needs.

Send an inquiry and contact a sales representative today – we help you and your company to focus on the essentials.

sales@au.becker-mining.com

Technical Data

PDS4.0 Main Device	
Input Voltage	8 V to 30 V DC
Power Consumption	≤ 120 W
Width x Height x Length	Approx. 310 x 230 x 105 mm
Ambient Temperature	-20 °C to 60 °C
Weight	Approx. 6.5 kg

OMI Operator Machine Interface	
Touchscreen Size	7"
Width x Height x Length	Approx. 200 x 250 x 60 mm
Ambient Temperature	-5 °C to 38 °C

PDT-0101 Proximity Detection Tag	
Width x Height x Length	Approx. 31 x 62 x 100 mm (w/o clip)
Ambient Temperature	-20 °C to 40 °C
Weight	Approx. 0.15 kg (w/o clip)
Ingress Protection	IP 65
Battery Capacity	3400 mAh (up to 32h runtime); inductive charging
User Interaction	RGB light; Buzzer (85 dB); Button

PDC-0201 RF-ToF-Antenna	
Frequency	2.45 GHz
Width x Height x Length	Approx. 98 x 55 x 98 mm
Weight	Approx. 0.25 kg

Technical Data

PDC-0202 RF-ToF-Antenna	
Frequency	2.45 GHz
Diameter x Height	Approx. Ø 47.8 x 28.5 mm
Weight	Approx. 0.13 kg

PDC-0301 UHF-Antenna	
Frequency	410 MHz to 470 MHz
Width x Height x Length	Approx. 145 x 142 x 80 mm
Weight	Approx. 0.5 kg

PDC-5101 Vehicle Interface Module	
Width x Height x Length	Approx. 190 x 75 x 61 mm
Ambient Temperature	-20 °C to 55 °C
Weight	650 g
Ingress Protection	IP 65
Number of Terminals	18
Core Cross-Section	0.5 mm² to 2.5 mm²

PDC-5103 LED Strip	
Length of supply cable	3 m
Length of strip	1.5 m
Power supply	12 V DC
Power consumption	~ 6 W/m
Luminous flux	~ 120 lm/m
Core color	RGB

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