



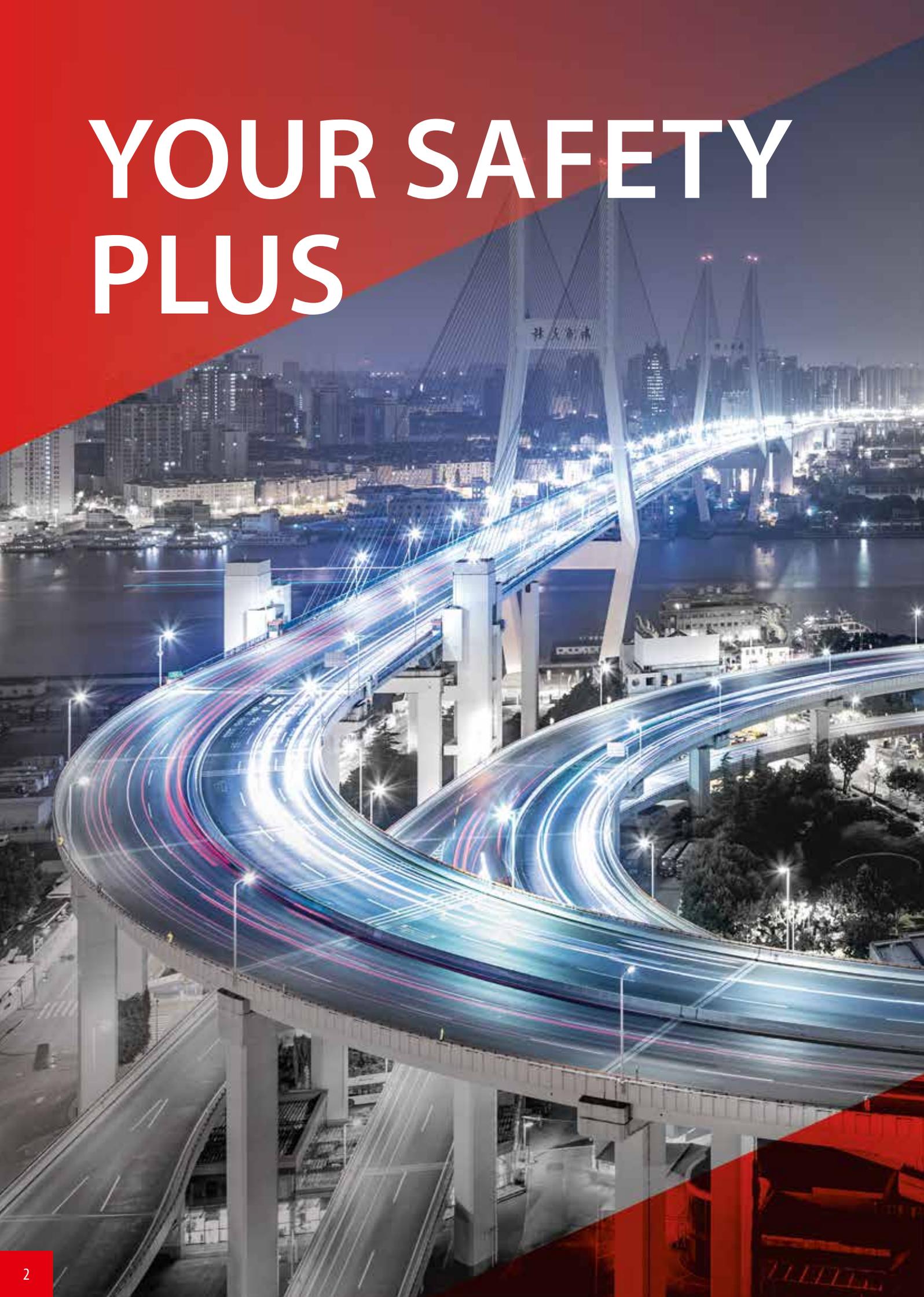
ROAD SAFETY SOLUTIONS.



NISSSEN DEFENDER

DISCOVER THE NEW MOBILE CRASH
PROTECTION SYSTEM IN COMPLIANCE WITH CEN/TS 16786

YOUR SAFETY PLUS





Dear customers, partners and prospective customers,
Mobile crash attenuators, also known as mobile crash cushions for transport vehicles or truck mounted attenuators (TMA), are becoming increasingly important for traffic security. These safety devices are not time-consuming or expensive to deploy and significantly reduce the risks to personnel and road users. With CEN/TS 16786, a new test standard has now been issued, focusing more strongly on European conditions than previous standards.

As one of the first providers, we have designed a TMA in compliance with this standard. See for yourself the advantages offered by the DEFENDER and benefit from a safety plus in full compliance with standards.

A handwritten signature in black ink that reads "Vogt".

JAN VOGT

Managing Director

A handwritten signature in black ink that reads "Freund".

KAI FREUND

Managing Director

**TESTED
IN COMPLIANCE
WITH THE LATEST
STANDARD!**

DUAL PROTECTION

The Nissen DEFENDER combines two important functions: the necessary advance warning or barrier deployment for traffic lanes and protection of personnel, road users and service vehicles in the event of a rear-end collision.

The design consists of a warning panel allowing for customised configuration, a crash absorber, and a docking station that can be fitted to any of your service vehicles. The system is folded up out of the way during transportation. Once on site, the service vehicle is moved into the relevant position, the crash absorber is folded down via electrohydraulic action, and the warning panel is activated. Another unique benefit: the crash absorber can already be folded down and up again during transportation. In this way, the transport vehicle comes to a standstill while already being secured and can equally start again. Transport vehicles starting from a weight of 7.5 t are recommended – in Scandinavia, Belgium and the Netherlands as well as in Slovenia, Hungary, Croatia and Austria they are even mandatory.

Proven principle:

the crash absorber consists of a lightweight aluminium cushion incorporating internal honeycombs. In the event of a collision, they absorb the kinetic energy, thereby reducing the risk of injuries and damage to the service vehicle.

Easy upgrade option

The Nissen DEFENDER is based on the Nissen RAMBO II that is time-tested worldwide. These models can be easily brought to the standard technically required by CEN/TS 16786 by means of our tool kit and in only a few steps.

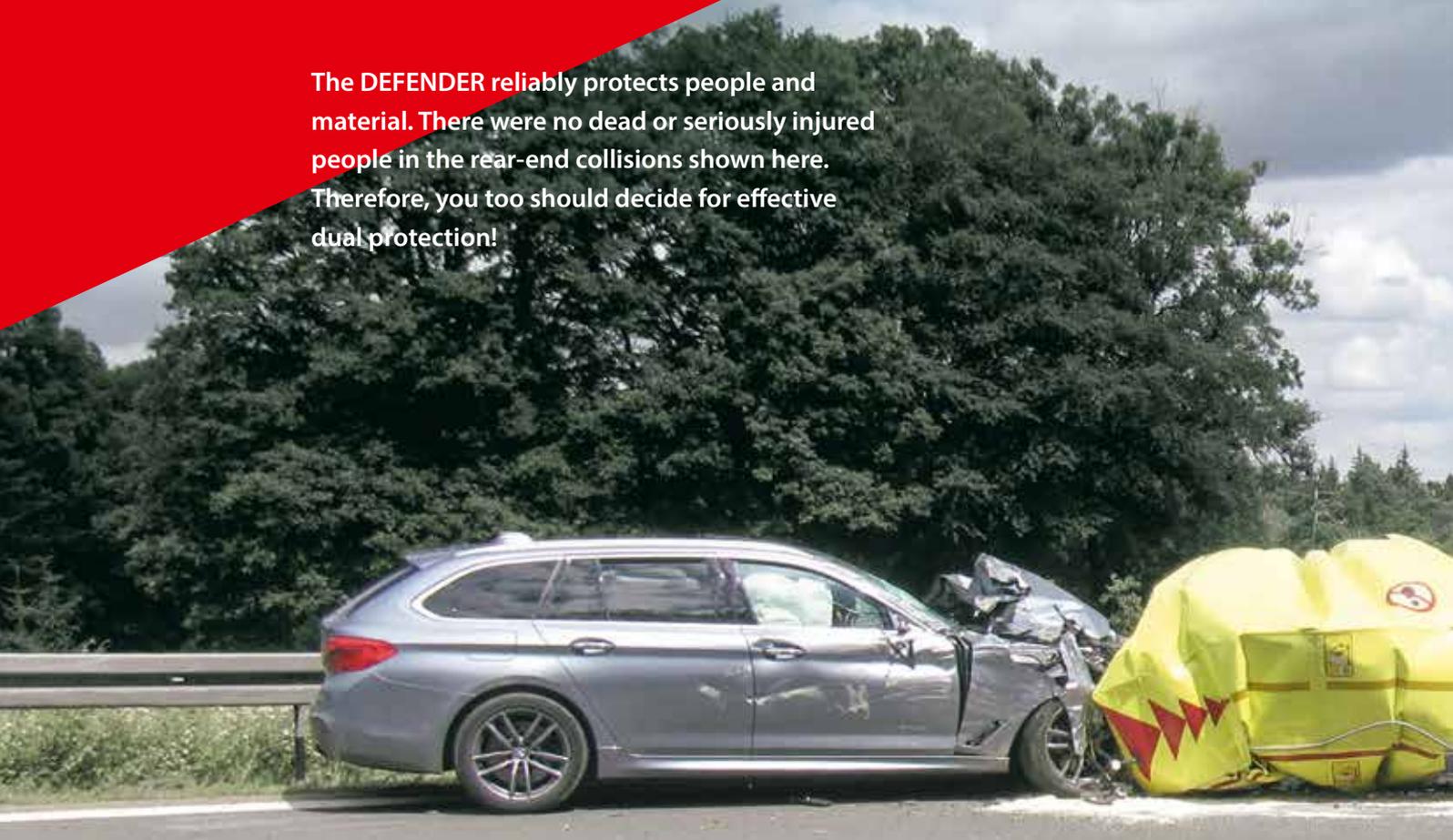


IN ONE SYSTEM



EFFECTIVE DUAL PR

The DEFENDER reliably protects people and material. There were no dead or seriously injured people in the rear-end collisions shown here. Therefore, you too should decide for effective dual protection!



PROTECTION

This rear-end collision happened on the motorway while mowing work was carried out on the median strip.

The pre-warning sign on the hard shoulder was hidden by high level truck traffic, so the driver noticed the danger zone too late. The driver of the car dodged the queue of cars in the right lane and crashed into the crash protection system. Thanks to the DEFENDER crash protection system, the driver of the car and also the driver of the truck were able to get out of their vehicles unharmed.



Even this serious rear-end collision has passed off without serious consequences – when this picture was taken the driver had already left the vehicle.



SAFETY TO A STA

The DEFENDER is tested in compliance with TS 16786:2018.

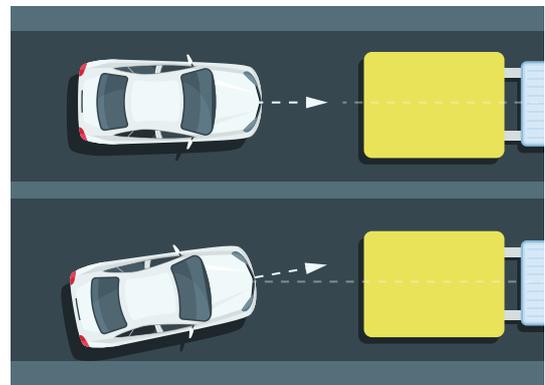
These are the latest testing specifications for mobile crash protection systems of the European Committee for Standardisation (Comité Européen de Normalisation – CEN). In contrast to the previous standards NCHRP and MASH, which are geared more strongly to conditions in the USA, the new standard carries conviction by the following items:



- The use of dummies so as to be able to assess the impacts of a rear-end collision
- Lighter vehicle weights in line with those that are common in Europe
- Limitation of the vehicle age to max. 7 years

Tested in all conditions

The DEFENDER meets and exceeds the requirements of the four crash tests up to 100 km/h: Head-on crash with vehicles of 900 or 2,000 kg in weight, respectively, and crash at an angle. In all tests, the DEFENDER achieves top scores, maximum absorption and reduced forward rolling of the transport vehicle, thus improving protection of the staff working in front of the vehicle.



Speed category 100, testing matrix

Test	Total mass	Impact - speed	Angle of approach and position of the point of impact
T-TMA100-1	900 Kg	100 km/h	Straight, centre
T-TMA100-2	2.000 Kg	100 km/h	Straight, centre
T-TMA100-3	2.000 Kg	100 km/h	Straight, centre
T-TMA100-4	2.000 Kg	100 km/h	Vehicle front ¼ offset at 10°

NDARD



Mobile crash protection systems

DEFENDER



CRASH ABSORBER

- Lightweight aluminum cushion with flexible honeycomb structure
- Corrosion-free and waterproof
- Vehicle lighting
- Tested according to CEN TS 16786
- Different paintwork in RAL colours possible
- Dimensions: 2310 x 3314 x 707 mm (W x L x H)

DOCKING STATION

- Robust steel construction
- Easy assembly with safety bolts
- 24 V hydraulic unit
- Dimensions: 2366 x 1397 x 600 mm (W x L x H)

WARNING BOARD

- Warning board according to German standards, 3600 x 2200 mm
- Chevron patterned plate and directional arrow with microprismatic retroreflective foil
- Light arrow system with 2 LED advance warning lights 340 mm Ø (L9H/M according to EN12352) and 25 individually monitored LED warning lights 220 mm Ø (L8H according to EN12352) with automatic brightness adjustment.
- Directional arrow with motor revolution, mechanical emergency adjustment and automatic light arrow adjustment

ACCESSORIES AND OPTIONS

- Optional LED variable message signs instead of the light arrow system and / or the motorized directional arrow
- Combined cable / radio remote control with touchscreen
- Transport trolley to replace the system
- Rockinger coupling
- Forklift holder for simplified assembly
- XL battery box for holding up to two batteries and other accessories
- Battery guard to protect the electronics
- Acoustic signal transmitter for the remote control
- Control and monitoring system

Technical data

Total length	4466 mm
Total width	2366 mm
Height lowered	(Work position): 3664 mm
Height lifted	(Transport position): 3719 mm
Weight	(cushion) 350 kg
Weight	(docking station) 765 kg

Mobile crash protection system DEFENDER

Ref. No.

Warning board with docking station and crash cushion Defender

129 741-XXX-YYY



Defender version Finland



Defender in application



More information
NIS-03288
To be entered on nissen-germany.com

PREPARED FOR EVERY EVENTUALITY

The DEFENDER can be configured to suit your exact requirements. You can choose conventional warning panels with light arrows, variable message signs from Nissen's VarioSign LED System, or a combination of both. In addition, designs incorporating sliders or lift functions are also possible. For vehicles with trailers to which the universal coupling cannot be mounted, Nissen offers you practical adapters.

TMA with slider

- Vertically extending warning panel
- Chevron patterned plates and directional arrow with microprismatic retro-reflective foil, type RA2C or RA3C
- Luminous arrow system with two LED-TL advance warning beacons (L9H) and 25 separately monitored LED-TL warning beacons (L8H)
- Directional arrow with motor revolution, mechanical emergency adjustment and automatic luminous arrow adjustment



TMA with light arrows

- Light arrow device
- Chevron patterned plates and directional arrow with microprismatic retro-reflective foil, type RA2C or RA3C
- Luminous arrow system with two LED-TL advance warning beacons (L9H) and 25 separately monitored LED-TL warning beacons (L8H)
- Directional arrow with motor revolution, mechanical emergency adjustment and automatic luminous arrow adjustment



Design Germany



Design Finland

TMA with LED variable message signs

- Powder-coated aluminium profile housing (AlMg3)
- Full matrix for displaying freely programmable static or dynamic texts, symbols and animations
- Good recognisability from almost every perspective and even from long distances
- Certified in compliance with EN 12966:2005+A1:2009 CE
- Grid dimension 20 mm
- Optionally classic (4 colours) or RGB (256 colours)
- Premium quality light-emitting diodes with a long service life
- Continuous brightness adjustment, automatic or manual
- Available in different arrangements and sizes on the warning panel (sign at the top, sign at the bottom, sign at the top and bottom)



MORE FUNCTIONS, M

Nissen offers you an extensive choice of accessories allowing you to extend the functionality of your mobile crash protection system and customise it to your specific requirements.

Electrical equipment

Battery monitor

Ensure the long-term performance of your mobile crash protection system. The battery monitor that is integrated as a standard feature sends you a warning in advance, before the capacity of your battery is too low for operation. The device also monitors the charging process and protects against overloading. This way, you can effectively prevent unforeseen breakdowns and damage to the electrical system.

Charge booster

The on-board battery of your mobile crash protection system does not get a sufficient charge from the generator of the towing vehicle because after the engine is started, the charging voltage and the charging current are regulated to protect the starter battery. Our charging boosters ensure that the on-board battery is reliably charged, even over short distances. This shows a measurable extension of the service life and improves the failure safety.

Operation

Operating hours meter

The detailed documentation of the use of your mobile crash protection system allows you to detect wear and tear in advance and replace parts like bulbs, batteries or mechanical components before an imminent failure. The operating hours meter also provides you with critical information to make your billing easier.

Interface package XML

This module enables secure data exchange between several devices. It makes it possible to remotely control crash protection systems equipped with the XML interface package – including all functions. In addition, your system can also send data to control systems.

NiBus modem

This digital data interface lets you control and monitor our mobile crash protection systems in compliance with safety standards, regardless of your location. In addition, the NiBus modem can also be used to integrate systems into common construction site management systems.

Equipment

Rockinger coupling

Equip your mobile crash protection system with a robust Rockinger coupling for trailers weighing up to 3.5 tonnes and in this way increase your scope of application.



Height adjustment in transport position

Our mobile Defender crash protection system can be equipped with an additional hydraulic circuit allowing the system to be lowered in the transport position. Ideal for low bridge clearance heights, which are for instance common in Switzerland.

MORE ADVANTAGES

Use the following accessories to customise the DEFENDER to your exact requirements:

Version for road works head location	•
Slider version	•
Mounting plate for attaching to the towing vehicle	•
Rockinger coupling	•
Transporter for docking station	•
Fork lift adapter for docking station	•
Battery box XL	•
Battery monitor	Standard
Charger 12V 35A	•
Power supply plug	•
Charging connector 12/24V	•
Cable drum	•
LED light module for toll recognition, Switzerland	•
Height adjustment in transport position	•
Preparation, CB warning system	•
CB warning system	•
Preparation, NiBus modem	•
NiBus modem	•
Monitoring device	•
XML interface package	•
Onboard power supply 12V	•
Onboard power supply 24V	Standard
Onboard power supply, LED 12/24V	•
Manual control Pro-Remote	Standard
Manual control Touch Remote Colour	•
Lead/gel battery (140Ah or 210Ah)*	•
Lead/acid battery (180Ah or 230Ah)*	•
Foil for almost any country-specific requirements	•
Varnishing of the cushions in different RAL colours possible	•
Switchable flash units and beacons (ECE-R65)	•
Roll-off container for warning panel	•

*Only in connection with battery box XL



SAFETY FROM A SINGLE SOURCE

Everything under control

The DEFENDER is compatible with the Nissen operating concept and can be operated easily and conveniently using the Nissen Touch Remote Color and Standard-Remote or Pro-Remote manual controls. This means you can control almost all the functions of your mobile crash protection system via a cable or wirelessly with Bluetooth. This includes raising and lowering the crash absorber, the lights on the warning panel and, of course, the symbols and wording on our LED variable message signs. A special highlight: both manual controls are

compatible with all Nissen systems and can access up to eight devices.

Your benefits at a glance

- Intuitive and safe operation
- Optional cable or wireless manual control
- Backlit keypad
- Uniform operating concept for all Nissen systems
- Robust and impact-resistant housing



Touch Remote Colour

- Large 5.7" full colour touch screen display with Automatic day/night adaptation
- multicolour LED-status indication (to show up e.g. radio operation, charging status and error signal)
- Combined cable/radio remote control
- Operation of the most important features via keypad
- Favourite combinations freely programmable via touch screen
- Functions keys freely programmable
- Useable for all Nissen systems
- max. 12 radio connections storable



Dimensions (LxWxH)
211 x 141 x 39 mm



Weight
680 g

Touch Remote Colour

Ref. No.

Touch Remote Colour
radio/cable remote control (bluetooth) with touch screen
and illuminated keypad (without cable)

329 236-1

Accessories and Spare parts

Ref. No.

Charging tray for remote control Touch-Remote Colour without cable function,
2 m connection cable

329 238-1

Charging tray for remote control Touch-Remote Colour with cable function,
2 m connection cable with 6 pole sleeve plug

329 238-11

Charging tray for remote control Touch-Remote Colour without cable function,
2 m connection cable with vehicle plug

329 238-2

Dashboard bracket

329 238-21

Operating time with one battery set

Lithium-Ferro-Akku. 6000 mAh

Operation time: approx. 12 hrs.

Charging time batteries:

- on charging cradle: approx. 4 hrs.

- with active cable connection: approx. 8 hrs.



Connector dashboard holder



Charging tray with vehicle plug



Touch Remote in the charging tray



6 pole sleeve plug and vehicle plug



Standard- and Pro-Remote

- Universal remote control for secure and easy operating also of complex devices via cable connection
- Large operating keys
- Illuminated keypad
- Easily readable large display with additional touch screen function



Dimensions (LxWxH)
215 x 130 x 45 mm

Weight

Standard-Remote: 480 g
Pro-Remote: 700 g

Standard- and Pro-Remote

Ref. No.

Pro-Remote II radio/cable remote control - Bluetooth touchscreen (without cable)	329 231-12
Standard-Remote cable remote control touchscreen (without cable)	329 232-2

Accessories and Spare parts

Ref. No.

Holder and charging cradle for radio remote control Pro-Remote	329 230-1
Holder and charging cradle for radio remote control Pro-Remote 90 – 264 V AC version including adapter useable for EU, US, UK and AU	329 230-11
Holder and charging cradle for radio remote control Pro-Remote with 2 pin vehicle plug	329 230-12
Holder for cable remote control Standard-Remote	329 230-2
Dashboard holder with ball joint arm for remote controls for mounting at holders	329 230-21



Standard-Remote



Pro-Remote



Holder and charging cradle



Holder and charging cradle with dashboard holder



More information
NIS-01785
To be entered on nissen-germany.com

TOGETHER FOR YOU

Just as our developments convince you through their quality and functionality in use, we consequently ensure that you always feel well advised by Nissen. Our team of experienced and competent specialists will find a solution for all of your concerns.

Whether you ask for help from your contacts in Tönning or on-site through our internationally organized sales department - we are a team and are always there for you. What can we do next for you?



A CALL IS ENOUGH



Do you need a larger delivery of safety barriers at short notice? Do you want an offer for a mobile warning trailer or do you have questions about the versatility of our VarioSign LED systems? Our team in Tönning can be reached by phone and e-mail. We speak your language and handle your concerns as quickly and reliably as possible. And there is always time for a few personal sentences - we look forward to hearing from you!

GERMANY



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INTERNATIONAL

WE'RE HERE TO SUPPORT YOU

Wherever you need us – the sales specialists in our team will visit you personally at almost every location. Benefit from our tailor-made solutions for individual conditions.

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Important:

All products must only be installed and operated by trained personnel. Operating instructions, installation instructions and the relevant regulations must be strictly observed.

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