PRODUCT CATALOGUE 2022/23

Innovative traffic technology from one single source.

Safety by Berghaus

BERGHAUS
Verkehrstechnik

Mobile traffic light technology set in scene

The completely digital construction site is still a vision. Digital products are already a reality. Now you can experience our products as a 360° view:

- MPB 3400 Transportable Roadworks Traffic Signal System (more information: from page 20)
- MPB 4400 Transportable Roadworks Traffic Signal System (more information: from page 20)
- Mobile prewarner with LED technology (more information: from page 14)

Digital views on our website.

MBA - manually operated traffic light

The MBA - manually operated traffic light expands our portfolio of transportable traffic signal systems. This mobile traffic light is used in different versions for manual traffic control or for temporary closure of roadways, loading ramps, exits and access roads under supervision and at the discretion of the user.

More information from page 26

Flexible traffic light system MPB 3400

Whether for traffic-dependent regulation of one-way traffic at daily construction sites via radio or for longer-term use at junctions, exits or intersections as a wired version, for almost all application the inexpensive MPB 3400 traffic light standard equipment system is already the first choice.

More information from page 23

Red countdown display for vehicle-actuated mode

Red countdown display (waiting time display) or our traffic light systems MPB 3200 and MPB 3400 in fixed phase and vehicle-actuated green time extension mode (VA).

More information from page 33

Pioneering light for safe traffic control

Various different forms of yellow warning and flashing lights are used to attract the attention of road users when it comes to protecting roadwork sites, giving advance warning of police and fire brigade operations and drawing attention to special hazards in road traffic.

As a basic rule and with the exception of mobile warning trailers at the top and traffic cones for personal protection where flash lights are prescribed, warning lights are used in all other applications. For example, the German Guidelines for Safeguarding Roadwork Sites (RSA) recommend that socalled advance warning lights are positioned in pairs next to the carriageway to give road users ample advance warning of roadwork sites. This advance warning effect is enhanced by synchronizing the lamps so that they always light up at exactly the same time.

Temporary traffic control light systems as per RSA Part A 3.4.3 are used to control traffic safely through lane switches. Here several warning lights light up and go off consecutively, guiding the traffic safely through the changed road layout.

Self-synchronizing running light systems mounted in some cases on guide cones or collapsible signs – are used almost everywhere where the police and fire brigade are in operation. They provide effective protection thanks to the clear warning effect and quick, easy handling.

Bright LED lamps give active warning before construction sites and hazard situations, giving road users a clearly visible indication of the safe road layout.

Ordering Information

	Description	Order No.
1	**LED advance warning lamp 340 mm Ø (12 volt / 24 volt)** BASt test no.: V4-69-2011 – DIN EN 12352: L9H (day) / L9M (night) BASt-tested according to TL Warning Lights type WL 7, with reverse polarity protection and undervoltage protection. For 12 or 24 V input voltage. The luminous LED component is fitted in a splash-proof case and has a night-time reduction feature. Supplied with 4 m connection lead and fixture for 40 x 40 mm square tube. Mean power consumption (12 v): approx. 0.12 A, (24 V): approx. 0.08 A LED advance warning lamp as above, but for 230 V operation	**W 5305LB** **W 5304L**
2	**LED advance warning flashlight 340 mm Ø (12 volt / 24 volt)** BASt test no.: V4-73-2011 – DIN EN 12352: L9M (day) / L9L (night) Technical design as above, but with bright LED electronic flashlight. BASt-tested according to TL Warning Lights 90 type WL5. Mean power consumption (12 v): approx. 0.05 A – (24 V): approx. 0.04 A	**W 5306LB**
3	**LED advance warning lamp 200 mm Ø (12 volt / 24 volt)** BASt test no.: V4-55-2010 – DIN EN 12352: L8H (day) / L8M (night) with reverse polarity protection and undervoltage protection. For 12 V or 24 V input voltage. The particularly luminous LED component is fitted in a splashproof flat housing and has night-time dimming. Delivery includes 4 m connection lead. The lamp is fastened with 4 rubber pads with M6 thread. Mean power consumption (12 v): approx. 0.15 A, (24 V): approx. 0.09 A	**W 5301LF**
4	**LED advance warning flashlight 200 mm Ø (12 volt / 24 volt)** Technical design as above, but with bright LED electronic flashlight. Mean power consumption (12 v): approx. 0.05 A – (24 V): approx. 0.04 A	**W 5302LF**
	Mounting plate for flat advance warning lamps and flashlights with 52 mm Secura bracket for fastening the flat lamps from pictures 3 and 4 to 40 x 40 mm square tube or round tube.	**EE 0059**

Lamps for mounting on vehicles, so-called double warning light systems with synchronous or asynchronous flashing can be found on page 11.

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Our advance warning lamps, warning light systems, illuminated arrows and illuminated crosses are equipped with „smart“ control electronics.

All standard controllers offer:
- Automatic operating voltage detection 12 V or 24 V – very convenient for the user
- Electronic reverse polarity protection, i.e. the controller is not damaged in the event of reverse polarity
- Electronic undervoltage protection, gentle on the battery, protecting it from total discharge
- Luminosity automatically adjusted to the ambient brightness – practically glare-free

Ordering Information

	Description	Order No.
5	**GPS flash running light system with LED technology** No wiring is needed between the individual lights which are synchronised automatically by GPS signal without further ado as soon as the rocker switch is turned on. The identical lights are coded in series (1 to 10) just once during service. Up to 10 lights can be fitted on a beacon or similar as an LED running light chain. Other functions can be selected with the microswitch. Weight per light approx. 1 kg. Scope of supply: 1 LED GPS light with back-fitted continuous light, 200 mm Ø, yellow, light outlet **on one side**, including 6 V block battery	**BL 5315**
6	**GPS flash running light system with LED technology on battery housing** for four 6 V block batteries with integrated GPS LED running light electronic module as described above. Up to 10 of these lights can be used to set up a running light chain **without any wiring**. Light outlet **on one side**, 200 mm Ø. Weight per light approx. 3 kg. Scope of supply: 1 LED GPS light on large battery box incl. four 6 V batteries	**L 5369**
7	**GPS flash running light system with LED technology on TL traffic cone** permanently fitted, with integrated GPS LED running light electronic module as described above. Up to 10 of these lights can be used to set up a running light chain **without any wiring**. The power supply comes from two 6 V block batteries in the foot of the traffic cone. Scope of supply: 1 GPS LED light, 200 mm Ø, on TL traffic cone incl. 2 block batteries. 50 cm high, light outlet **on one side**, on TL traffic cone, weight approx. 6 kg 75 cm high, light outlet **on one side**, on TL traffic cone, weight approx. 8 kg	 **L 5367T** **L 5368T**
8	**TL traffic cone, retroreflecting, made of PVC, BASt-tested** according to the StVO and TL traffic cone 97. With foot made of recycling material. BASt-tested. **Foil Type RA1.** Weight class III. 50 cm high; weight: approx. 3 kg 75 cm high; weight: approx. 5.5 kg 50 cm high; design as above but with **foil type RA 2** 75 cm high; design as above but with **foil type RA 2**	BASt-tested hinged beacon as alternative to traffic directing cone: see page 68. **L 5330T** **L 5331T** **L 5332T** **L 5333T**
	Traffic cone, fluorescent, made of PVC non-reflecting, red fluorescent, with white stripes. 30 cm high; weight: approx. 0.6 kg 50 cm high; weight: approx. 1.5 kg 75 cm high; weight: approx. 4.5 kg	 **L 5340** **L 5341** **L 5342**

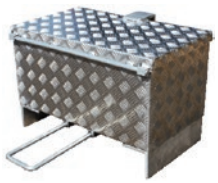
Our wireless flash running light systems need no remote control, start button, synchronising box or similar.

- The individual LED flash lights are synchronised automatically by the GPS signal.
- Our GPS flash running light systems are ready for immediate use: simple set up the individual LED flash lights in sequence one behind the other, turn the rocker switch on, ready!

Ordering Information

	Description	Order No.
9	 **LED flash light 200 mm Ø for slotting onto traffic cone** Yellow lens, 200 mm Ø, integrated LED flashlight electronic module, with external ON/OFF switch. The LED flashlight is supplied ready to operate including a 6 V block battery and is simply slotted with its aluminium holder onto our traffic cone. Light outlet on one side Light outlet on both sides	The slot-on LED flashlights illustrated above can also be supplied with GPS control. L 5310E L 5310D
10	 **LED flash light 200 mm Ø for slotting onto traffic cone** Yellow lens, 200 mm Ø, integrated LED flashlight electronic module, with external ON/OFF switch. The LED flashlight is supplied ready to operate including two 6 V block batteries and is simply slotted with its aluminium holder onto our traffic cone. Light outlet on one side Light outlet on both sides	The slot-on LED flashlights illustrated above can also be supplied with GPS control. L 5312E L 5312D
11	 **TL traffic cone with LED flashlight 200 mm Ø** retroreflecting, with permanently mounted LED flashlight, 200 mm Ø, yellow, with external ON/OFF switch and battery casing in the foot of the traffic cone. Two 6 V block batteries included in the scope of supply. 50 cm high, light outlet to one side; on TL traffic cone; weight 6 kg 50 cm high, light outlet to both sides; on TL traffic cone; weight 6 kg 75 cm high, light outlet to one side; on TL traffic cone; weight 8 kg 75 cm high, light outlet to both sides; on TL traffic cone; weight 8 kg	 L 5480T L 5481T L 5485T L 5486T
12	 **TL traffic cone with LED all-round flashlight 130 mm Ø** retroreflecting, with permanently mounted LED all-round flashlight, yellow, 130 mm Ø, with external ON/OFF switch and battery casing in the foot of the traffic cone. Two 6 V block batteries included in the scope of supply. 50 cm high, light outlet all round on TL traffic cone; weight: 6 kg 75 cm high, light outlet all round on TL traffic cone; weight: 8 kg	 L 5357T L 5365T
13	 **TL traffic cone with LED flash light 340 mm Ø** retroreflecting, with permanently mounted LED flashlight, 340 mm Ø, yellow, with external ON/OFF switch and battery casing in the foot of the traffic cone. Two 6 V block batteries included in the scope of supply. 75 cm high, light outlet on one side, on TL traffic cone; weight: 10 kg	 L 5353L
	Surcharge for TL traffic cone in reflective RA 2 film **All** TL traffic cones mentioned above can be produced with the flashing lamp also on the directing cone with highly retroreflective RA 2 film instead of reflective RA 1 film offered above. Surcharge for TL traffic cone with reflective RA 2 film, height: 50 cm Surcharge for TL traffic cone with reflective RA 2 film, height: 75 cm	 L 5498 L 5499

Ordering Information

	Description	Order No.
14 	**Temporary running light system type AL 12 LED** **without separate controller** for 12V or 24V battery operation. How it works: The lamps go on one after the other until all the lamps are on. Then all the lamps go off together at the same time. The sequence begins again from the beginning. Every LED lamp has continuous background light with photocell. Preferably used in the lane switch zones of motorway construction sites. The smart electronics make it possible to operate more than 10 LED lamps as temporary running light system in series. A complete system consists of: 1 power supply cable for feeding 12/24V, 10 lamps 200mm Ø, orange, with integrated LED electronics, each with connection lead and plug for easy connection of lamp to lamp. Weight approx. 23kg Mean power consumption (12v): approx. 1.05A – (24V): approx. 0.48A Version with square adapter Version with turn-around beacon	**W 5285LR** **W 5285LW**
15 EXPORT 	**LED flash running light system type LL 12 LED** with LED technology for 12 or 24V battery operation. As described above, but with signal pattern as LED flash running light system for export. How it works: the lights switch on briefly in sequence to create the impression of a running light pulse. This means that there is always only one light on at a time. Then the system starts the sequence again from the beginning. Scope of supply and weight as above. Mean power consumption (12v): approx. 0.28A – (24V): approx. 0.16A Version with square adapter Version with turn-around beacon	**W 5308LR** **W 5308LW**
16 	**Plastic battery protection casing** with lid, can be locked with normal padlock, suitable for 12V/180Ah battery Dimensions: 600x400x320mm (LxWxH); weight: approx. 5kg	**BA 1251**
17 	**Aluminium battery casing** Aluminium battery casing in theft-proof design with lock-picking prevention for the padlock and with a U-bar for mounting to the post of a crash barrier (also for SuperRail) or to mobile sign stands. The battery casing can be fastened with the steel U-bar both crosswise and lengthwise. The U-bar is secured under the battery casing so that it does not protrude into the battery compartment and take up unnecessary space. Dimensions: 630x440x420 mm (LxWxH); weight approx. 14kg Available in other designs on request.	**A 49590C**

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All lamps in our running light system are 100% identical. No separate controller is needed, thanks to the innovative electronics in the lamps.

- Any voltage supply possible at every lamp, therefore only low line losses
- Favourable parts management because every lamp can be used in every position
- Electronic reverse polarity protection, i.e. the controller is not damaged in the event of reverse polarity
- Electronic undervoltage protection, gentle on the battery, protecting it from total discharge
- Fast wiring (only necessary from one lamp to the next)

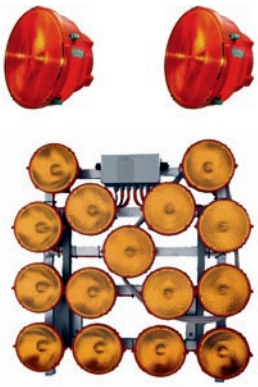
Safety marking on working and safety vehicles as per RSA

Working vehicles used for the construction, maintenance and cleaning of roads and road systems and for winter maintenance must be equipped with a red/white/red safety marking according to DIN 30710; this also applies when special rights are granted as per § 35 para. 6 StVO (e.g. driving and stopping on all parts of the road in any direction at any time).

When the RSA was published in 1995, this already standardised the warning features to be used on working and safety vehicles throughout Germany. In contrast to rotating beacon warning lights, the yellow warning lights, lighting cross LK9 or lighting arrow L15 which are also used on such vehicles in addition to the red/white/red warning markings are not, as frequently incorrectly presumed, part of the vehicle lighting system but specified as „additional safety gear" as per RSA (Part A 7.1 [7e]). They can be used on all working and safety vehicles marked according to § 35 StVO.

Protect your staff and your equipment, and give road users a professional warning!

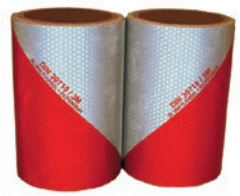
Ordering Information

	Description	Order No.
18	 **Illuminated arrow type L 8 LED (12 volt / 24 volt)** BASt test no.: V4-55-2010 With 8 mounted LED lamps in ultra-flat housing, 200 mm Ø, yellow, for 12 V or 24 V operation. Mounted on a frame. In the middle on the back there is a turning device to turn the arrow to point to the right or left. Also with night-time reduction feature. With 4.5 m connection lead and battery clamps. Mean power consumption (12 v): approx. 1.1 A, (24 V): approx. 0.53 A Dimensions: 1000 x 1200 x 170 mm (W x H x D), weight: approx. 9 kg	W 5194L
19	 **Illuminated cross type LK 9 LED (12 volt / 24 volt)** BASt test no.: V4-55-2010 With 9 ultra-flat LED lamps mounted on a profile frame, 200 mm Ø, yellow. Also with night-time reduction feature. Flashing frequency approx. 40 flashes/min. This illuminated cross lets you safeguard your vehicle correctly on the hard shoulder. It is fitted with a bracket and can be hung easily in the rear tailgate of a truck, for example. Mean power consumption (12 v): approx. 1.29 A, (24 V): approx. 0.7 A Dimensions: 1000 x 830 x 170 mm (L x W x H), weight: approx. 19 kg	W 5210L
20	 **Illuminated arrow L 15 LED (12 volt / 24 volt) as per RSA** BASt test no.: V4-55-2010 With 15 ultra-flat LED lamps mounted on a profile frame, 200 mm Ø, yellow, with fixture and cable remote control (cable 15 m long) for 12 V or 24 V operation. The corresponding arrow direction or the illuminated cross can be selected electrically using the remote control. Also with night-time reduction feature. The illuminated arrow can be used by simply hanging it from the rear tailgate of a truck and connecting up to the battery in just a few seconds. Mean power consumption (12 v): approx. 1.17 A, (24 V): approx. 0.66 A Dimensions: 990 x 1030 x 140 mm (L x W x H), weight: approx. 20 kg If requested, the illuminated arrow is also available in a double-sided version as L 30 e.g. for marking machines.	W 5200L
21	 **Lifting and lowering device for illuminated arrow made of steel (flat)** Electric lifting and lowering device on a flat frame. For fastening to your roof rack. The electric lifting and lowering function is triggered auto-matically when the illuminated arrow is switched on by means of the remote control supplied with the illuminated arrow. The lifting and lowering device is supplied without illuminated arrow and without vehicle-specific roof rack. Connection voltage: 12 V or 24 V. Dimensions: 1010 x 1010 x 180 mm (L x B x H), weight: approx. 40 kg	W 5260C
22	 **Illuminated arrow type L 15 LED with 2 LED flash lights 340 mm Ø** BASt test no.: V4-55-2010 (lamps 200 Ø); V4-73-2011 (lamps 340 Ø) Illuminated arrow L 15 LED with cable remote control and 8 m power cable, including two LED flash lights 340 mm Ø, permanently connected to the controller with two connection leads (each 1 m long) with 4-pin plug, operating voltage 12 V or 24 V, including undervoltage protection and reverse polarity protection together with night-time reduction feature. Mean power consumption (12 v): approx. 1.27 A, (24 V): approx. 0.75 A **Top element** for fitting in the illuminated arrow frame to accommodate the two flashlights when using a flat lifting and lowering device (W 5260C). **Additional support** for 2 LED flash lights 340 mm Ø, only necessary when using the electric or mechanical lifting and lowering device in picture 21. The additional support is inserted in the lifting and lowering device to hold the two flashlights in lowered state.	W 5220L W 5270 W 5272

Ordering Information

Description	Order No.
23  Switchable MobiLED symbols  Radio-controlled MobiLED LCD control device 	**MobiLED – mobile LED alternating traffic sign** LED sub-matrix with lifting and lowering device in powder-coated stainless steel frame. LED symbol tested as per EN 12966, specially for fast protection of construction sites: arrow left, arrow right, cross and road signs: roadworks 123, congestion 124 and hazard 101, with orange LED flashlights in each case. Lifting, lowering and image selection with the supplied LCD control device, by radio control without cable lead between LED panel and control device, only 12 V operating voltage has to be supplied in each case. Supplied without vehicle-specific roof rack. Dimensions: 1070 x 1200 x 200 mm (L x W x H); weight: approx. 32 kg	**LED 0110**
24  Radio-controlled MobiLED LCD control device 	**MobiLED – mobile alternating traffic sign – full matrix** as MobiLED, but with freely programmable full matrix red/white version red/orange/white version	**LED 0102** **LED 0101**
25 	**Double LED warning light system (12 volt / 24 volt)** BASt test no.: V4-69-2011 Synchronous blinking system for 12 V or 24 V consisting of **two LED blinking lamps 340 mm Ø**, for permanent connection, with 13 m connection lead, including undervoltage protection and reverse polarity protection together with night-time reduction feature. The lamps are fastened with 4 rubber pads with M8 thread. Mean power consumption (12 v): approx. 0.24 A, (24 V): approx. 0.15 A Our warning light systems are also available with 230 V LED, as LED flashlights or with halogen lamps, on request.	**W 5276LB**
	Synchronous blinking system with **two LED blinking lamps but ultra-flat 200 mm Ø**, otherwise function and equipment as order no. W 5276A. The lamps are fastened with 4 rubber pads with M6 thread. BASt test no.: V4-55-2010 Mean power consumption (12 v): approx. 0.28 A, (24 V): approx. 0.18 A	**W 5278LF**
26 	**Triple LED warning light system (12 volt / 24 volt)** BASt test no.: V4-69-2011 Alternating blinking system for 12 V or 24 V consisting of three **LED blinking lamps 340 mm Ø**, otherwise function and equipment as order no. W 5276LB. Mean power consumption (12 v): approx. 0.35 A, (24 V): approx. 0.22 A	**W 5283LB**
	Alternating blinking system with three **LED blinking lamps** but ultra-flat **200 mm Ø**, otherwise function and equipment as order no. W 5283LB. The lamps are fastened with 4 rubber pads with M6 thread. Mean power consumption (12 v): approx. 0.33 A, (24 V): approx. 0.25 A	**W 5284LF**
	Mounting plate for flat advance warning lamps and flashlights for fastening the lamps 340 mm Ø to 40 x 40 mm square tube or round tube with 52 mm Secura bracket.	**EE 0060**
	for fastening the ultra-flat lamps 200 mm Ø to 40 x 40 mm square tube or round tube with 52 mm Secura bracket.	**EE 0059**

Ordering Information

	Description	Order No.
27	**Vehicle safety marking** as per DIN 30710, foil type II, as per DIN 67520 Part 2, self-adhesive, flexible, removable	
	pointing to the right, 141 mm wide, per metre	**M 4680**
	pointing to the left, 141 mm wide, per metre	**M 4681**
	pointing to the right, 282 mm wide, per metre	**M 4682**
	pointing to the left, 282 mm wide, per metre	**M 4683**
	Vehicle safety marking as above but on magnetic foil	
	pointing to the right, 141 mm wide, per metre	**M 4684**
	pointing to the left, 141 mm wide, per metre	**M 4685**
	pointing to the right, 282 mm wide, per metre	**M 4686**
	pointing to the left, 282 mm wide, per metre	**M 4687**
28	**Rotating beacon**	
	12V, with halogen lamp H1: 12V/55W	**K 59012**
	24V, with halogen lamp H1: 24V/70W	**K 59024**
	Fastened on tube (stand). Please state the lens colour Lens: orange: ABG-no. K~ 18617 blue: ABG-no. K~ 18618	
29	**Rotating beacon**	
	Design with **LED lamp**, multi-voltage: 12/24V; fastened with 3 screws. Please select lens colour: blue or orange. Protection code IP65; authorisation ECE R65: E6 TA1 000036	**K 515DB**
30	**Rotating beacon**	
	Design with **LED lamp**, multi-voltage: 12/24V; flexible with fastening for socket pipe. Please select lens colour: blue or orange. Protection code IP65; authorisation ECE R65: E6 TA1 000036	**K 515FR**
31	**Rotating beacon**	
	Design with **LED lamp**, magnet and suction fastening; including spiral cord and plug for cigarette lighter or vehicle power supply socket. Please select lens colour: blue or orange. Protection code IP65	**K 0515M**

Ordering Information

Description		Order No.
32 	**Rotating beacon** Double flashlight with system of 3 magnets – TÜV-tested up to 250 km/h; flashing frequency: double flash >2 Hz; multi-voltage: 9 to 32 V; Protection rating: IP5K4K9K; Please state the lens colour. **COMET-M** approval ECE-R 65: TA1 E1 00 177, TB1 E1 00 177 **COMET-M LED** with LED technology approval ECE-R 65: TB21 E1 00 2814, TB1/TA1 E1 002872	 **K 00512A** **K 00512L**
33 	**Spare light covers for rotating beacons** Light cover for no. 28 (type 590/595) in orange or blue Light cover for no. 29, 30 and 31 (type 515) in orange or blue To be on the safe side, please always state the colour of the lens.	 **KE 5951** **KE 5952** **KE 5151** **KE 5152**
34 	**Adapters with socket as per DIN 14620** Stand for screw-fastening Stand for fixed mounting	 **KE 5622** **KE 5621**
35 	**Triopan Fireball** Microprocessor-controlled mini LED flashlight for use on collapsible signals, directing cones or metal surfaces. The spherical lens produces ideal light distribution and is easy to see. • Lamp class L2H as per EN 12352 • Flash strength corresponds to an L8L warning light • Magnetic base • Constant flash strength and brightness • Runs on 6 AA batteries: runtime up to max. 100 h (batteries not included) Two-sided light outlet, single flash, continuous light Dimensions: 120 x 50 mm, weight: approx. 0.5 kg Lens yellow Lens red Lens green Lens blue	 **K 65000** **K 65001** **K 65002** **K 65003**
36 	**Triopan directing cone adapter** • Suitable for Triopan Fireball • Simply fastened to directing cone • Lamp is switched on at the adapter • Simply inserted on the directing cone	 **K 65010**

Mobile warning trailers with bright LED lamps

Mobile warning trailers are used for traffic control at short-term roadwork sites. On motorways and expressways, mobile warning trailers (road sign Vz 616-30) are used with a sign height of 3600 mm. On main roads, country roads and city streets, i.e. roads with oncoming traffic, the smaller version (road sign Vz 616-31) is used with a sign height of 2500 mm. Apart from the difference in size, the pictures on the signs in each cases are the same.

Mobile warning trailers by Peter Berghaus GmbH are produced according to the regulations stipulated in the StVZO, StVO, RSA, ZTV-SA and TL97.

Equipped with the reliable Peter Berghaus electronics module, all mobile pre-warners and warning trailers are mounted on a chassis licensed for speeds of up to 100 km/h. The ex-works version already includes removable ball-type coupling and DIN eyebolt for being towed by a car or truck in the scope of supply.

Our warning devices offer maximum reliability and functionality!

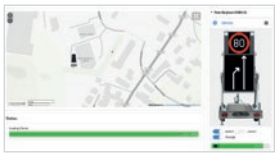
Ordering Information

Description	Order No.
37 TL-tested  **Mobile warning trailer type AM 3 TL** For protecting work on motorways, mounted on a trailer licensed for speeds of up to 100 km/h. Corresponds to the requirements of TL 97 Mobile Warning Trailers, StVO, RSA and ZTV-SA. Road sign size 2200 x 3600 mm (W x H) with type RA 2 adhesive high intensity prismatic grade retroreflecting foil, equipped with 24 LED halogen lamps 200 mm and 2 LED flash lights 340 mm Ø. The upper part of the panel is raised electrically by a motor. Power supply from a 12 V battery. Road sign Vz 222/222-10 (blue arrow) fitted to the lower section. The arrow can be adjusted with an electric motor. The blue arrow has a peep-hole to observe approaching traffic. Raising and lowering the top of the panel and selecting the four different signals can be selected from the driver's cab of the towing vehicle with the supplied cable remote control. The whole superstructure of the mobile warning trailer is galvanised. Supplied in the standard version with tow bar adjustable in height, removable ball-type coupling and DIN eyebolt, parking brake, and lockable battery casing. (supplied without battery). AM 3 TL with loading area (1200 x 1200 x 310 mm) and LED illuminated arrow and LED flashlights	**TW 4924LE**
Surcharge for radio remote control	**TW 4932**
Surcharge for fitting a processor-controlled battery charger, L3 automatic charger 230 V / 12 V - 30 A, with charge, recharge and charge retention function	**TW 4941LB**
38 TL-tested  **Mobile warning trailer type AM 4 TL** Design with LED lamps as described above, but with large drive-on loading area (3520 x 1850 x 400 mm) as standard feature. Supplied without battery. On request, AM 4 TL can also be mounted on a trailer with tandem axle. Accessories such as radio remote control and processor-controlled battery charger: see AM 3 TL. Devices for data transfer to traffic control centres can be found on page 33. More accessories possible on request, e.g. electric winch with radio remote control.	**TW 4925L**
39 BASt-tested  **Warning speed bumps** For placing on the road surface 150 m before the mobile warning trailer. Gives a clear warning to the road user who has missed the mobile warning trailer up to that point. Three speed bumps should be used at intervals of approx. 3 m. Made of signal yellow special polyethylene with roughened undersurface, reflectors and recessed handles. 2000 mm long, 230 mm wide, 30 mm high, weight: 18 kg Price per warning speed bum	**G 8000**

Ordering Information

Description	Order No.
40   **Mobile prewarner with LED technology: MV-LED** with flexible depiction of bright traffic signs, texts, pictograms and moving images as prewarning for roadworks, changed road layouts or information about events. Mounted on an unbraked trailer (gross vehicle rating 750 kg) with parking brake, licensed for speeds of up to 100 km/h. Tow bar adjustable in height with removable ball-type towing device and DIN eyebolt, accommodated in lockable battery compartment with space for two batteries and an optional charger. Supplied without battery. The upper LED display sign (outer dimensions 1115 x 1115 mm) has 2304 red and white LEDs (48 x 48 px) preferably for depicting round or triangular traffic signs. The lower LED display sign (1405 x 1720 mm) has 5120 white LEDs (64 x 80 px). The LED display signs with lighting tested as per EN 12966 are hinged down for transport with the display area face downwards with electrical locking for protection from the weather. Furthermore, a BASt-tested double LED warning light system is fitted to the top of the display sign. Operation is very simple and carried out intuitively at the graphic control device of the prewarner; the optional radio remote control can also be used for all functions during transport.	Can also be transported on our AM 4 TL trailer! **W 4950L**
	MV-LED as above, but with lower LED display sign in red/white.	**W 4951L**
	MV-LED as above, but upper and lower LED display sign with LED technology in RGB, 24 bit, TrueColor, 16.78 million colours.	**W 4952L**
41  **Radio remote control with illuminated graphic LCD display** for MV-LED, AV-LED or TOP-LED 2. Signal patterns appear in the colour display; with active feedback for all settings incl. lifting and lowering the display sign; remote control stored and loaded in the corresponding battery compartment. Please state the type of LED prewarner when ordering.	**W 4954F**

Ordering Information

Description	Order No.
42  **Mobile prewarner with overhead signs – TOP-LED 2** Technical features as MV-LED, but also with overhead LED display sign in landscape format to warn of approaching hazard situations at a height of six metres above the carriageway. The stainless steel battery casing has space for three 12V/230Ah batteries and a fully automatic battery charger. The inertia system is adjustable in height and the 12/24 V voltage transformer for automatic voltage detection is compatible with MAN-TGA and TGS. The chassis is hot-dip galvanised and the pump casing is made of stainless steel. The TOP-LED 2 has hydraulic tilt protection with 4 hydraulic outriggers and is approved for wind speeds up to 85km/h.	**W 49450**
43  **GTMS Global Traffic Management System – software** Global Traffic Management System for mobile LED prewarners MV-LED and TOP-LED 2. GMTS not only gives you remote control of locally installed LED prewarners but also allows for realtime online monitoring. GTMS is based on the internet and can be accessed wherever internet is available by entering the corresponding user name and password. The control works with any mobile device regardless of the operating system (Android, iOS, Windows, etc.). • Server-based data transfer and internet connection with GPRS/3G/4G • Control of up to 9999 LED panels • Display with a range of additional features e.g. image selection, voltage display, brightness, etc. • Image tool for creating images and texts that can then be shown on the LED display • GPS sensor for positioning and display on internet-based map material • Data log for tracking Usage fee for one GTMS access via internet server for one device. Billing for twelve months in advance. The contract is automatically renewed one year at a time unless terminated in writing six months before expiry. Price without SIM card.	**LED 0041**
GTMS Global Traffic Management System – hardware Global Traffic Management System for mobile LED prewarners MV-LED and TOP-LED 2. Server-based data transfer and internet connection with GPRS/3G/4G, supplied without SIM card. GTMS hardware including installation in the factory	**LED 0040**

Ordering Information

Description	Order No.
44  **Add-on prewarner with LED lamps – AV-LED** as described for MV-LED, but for mounting swiftly as needed on the loading area e.g. of any flatbed vehicle, therefore without chassis. Fitted with receiver shoes for forklift trucks and lashing eyelets for safe attachment on the loading area.	**W 4959L**
AV-LED as above, but with lower LED display sign in red/white.	**W 4959M**
AV-LED as above, but upper and lower LED display sign with LED technology in RGB, 24 bit, TrueColor, 16.78 million colours.	**W 4959N**
45  **Mobile prewarner type MV 5** for fastening to the rear tailgate board of a truck or for fastening quickly to the crash barrier. For simple indication of changed road layout! Consisting of: traffic control sign 1250 x 1600 mm with type RA 2 adhesive high intensity prismatic grade retroreflecting foil, with threaded rivets to fasten removable plastic arrows, set of plastic arrows to indicate road narrowing and another set to show lane switch „use hard shoulder", fixtures for fastening to shaft tube, changeable road sign on both sides 80 and 100 km/h (road signs Vz 274-80/100), LED double warning light system 340 mm Ø, 12 V or 24 V (supplied without battery).	For flexible, universal and swift mounting on flatbed vehicle or trailer, asrequired!
MV 5 complete, with LED double warning light system and foil type RA 2	**W 4997**
Crash barrier fixture for Sigma, IPE 100 posts and for Superrail	**VZ 5101S**
Rear tailgate board fixture	**W 4998**

The ex-works scope of supply for MV-LED, AV-LED and TOP-LED 2 includes: Editing software for preparing own texts and symbols; including USB 2.0 interface cable for programming the control unit and radio remote control. All signs and fonts are saved in bitmap image format and can be prepared by the user in person on the computer.

Custom-made SM 10 loaded with traffic safety material ready for use.

Ordering Information

Description		Order No.
46 	**Mobile warning trailer type SM 10 (road sign 615)** road sign size 1700 x 2500 mm (W x H) with type RA 2 adhesive high intensity prismatic grade retroreflecting foil, with 3 LED flash lights 340 mm Ø, complete with electronic controller and electrically adjusted blue arrow (road sign Vz 222). Mounted on a licensed trailer for speeds of up to 100 km/h. Without brakes but with parking brake. Supplied without battery. Galvanised superstructure, aluminium tailgates and battery casting. Loading area: 1590 x 1095 x 400 mm (L x W x H) Gross weight: 750 kg; net weight: 450 kg Scope of supply: Tow bar adjustable in height with ball-type coupling and DIN eyebolt, removable. Lockable battery casing mounted on the loading area. Dimensions: 540 x 1110 x 310 mm (L x W x H)	**W 49102**
47 	**Mobile warning trailer type SM 40 (road sign 616-31)** road sign size 1700 x 2500 mm (W x H) with type RA 2 adhesive high intensity prismatic grade retroreflecting foil, with LED illuminated arrow L15 and double warning light system, consisting of: 2 LED flash lights 340 mm Ø, complete with electronic controller and electrically adjusted blue arrow (road sign Vz 222). Mounted on a licensed trailer for speeds of up to 100 km/h. Without brakes but with parking brake. Supplied without battery. Galvanised superstructure, aluminium tailgates and battery casting. Loading area: 1590 x 1095 x 400 mm (L x W x H) Gross weight: 750 kg; net weight: 450 kg Scope of supply: Tow bar adjustable in height with ball-type coupling and DIN eyebolt, removable. Lockable battery casing mounted on the loading area. Dimensions: 540 x 1110 mm x 310 mm (L x W x H)	**W 49420L**
48 	**Do-It-Yourself sign superstructure type SM 10 (road sign 615)** Consisting of two sign halves with hinge mechanism and mounting bar. Measuring 1700 x 2500 mm (W x H), with RA 2 adhesive, highly reflective microprismatic foil, equipped with road sign Vz 123 and 222, three LED flashlights 340 mm Ø, including electronic trigger and manually adjustable blue arrow. Supplied without battery, chassis and rods for supporting the upper section of the sign when hinged down. Weight approx. 72 kg	**W 49101L**
49  View showing both hinged halves of the SM40 super-structure at the same time. Composite photo as basic picture.	**Do-it-yourself sign superstructure type SM 40 (road sign 616-31)** Consisting of two sign halves with hinge mechanism and mounting bar. Measuring 1700 x 2500 mm (W x H), with RA 2 adhesive, highly reflective microprismatic foil, equipped with road sign Vz 222, two flashlights 340 mm Ø and LED illuminated arrow L15, including electronic trigger and manually adjustable blue arrow. Weight approx. 92 kg	**W 49402L**
	Lockable Do-It-Yourself battery casing type SM Made of aluminium chequered plate. Complete with lock, with enough space e.g. for two 12V/180Ah batteries, battery charger and cable remote control with cable lead. Dimensions: 540 x 1110 x 310 mm (L x W x H)	**WEA 300**

Source: Wieser, Austria

Mobile traffic light technology for professional use – Made in Germany.

Peter Berghaus GmbH has been making mobile traffic lights for temporary traffic control for more than 60 years.

Mobile controllers, signal heads, mobile battery trailers and complete traffic light systems are made in Germany, developed and produced at our own facilities, and sent out to customers all over the world. All traffic lights are made ready for direct use with the specific national colour sequence and also with digital radio modules on request, naturally here again in accordance with the national regulations applicable in each case.

The mobile lower battery casings made of aluminium chequered plate, which hold the traffic lights sturdily and can take up to four batteries, are made directly by Berghaus as well. Inhouse production also permits individual responses in reaction to special customer requests. For example, the battery casings can be produced in corporate colours or as trailers that can be coupled onto vehicles.

Berghaus traffic lights are already equipped with energy-saving bright LED lamps ex works and tested as per EN 12368/DIN 67527-1. Directional radar detectors warrant reliable vehicle-actuated operation for green phase extension at the traffic lights or green on request.

The product range features mobile traffic lights in many different versions for simple control of one-way traffic, T-junctions, crossroads and pedestrians, on request also with red countdown display for vehicle-actuated mode or fixed phase mode, priority for local public transport, radio remote control, SMS notification, fire brigade control, coordination with progressive signalling, solar panel and much more besides.

MPB 1400

Quartz-controlled signal system for one-way traffic, export version also for T-junctions and crossroads

- Can be upgraded for T-junctions or crossroads by simply adding additional identical signal heads
- Simple handling with menu-guided infrared remote control
- Menu language in English, German, French, Spanish, Dutch, Italian or Turkish (other languages possible)
- Fixed-phase operation, manual operation with continuous green or continuous red, flashing, lamps off
- Innovative LED lamps (with lighting test as per DIN EN 12368) with night-time reduction feature

MPB 3400

Radio-controlled signal system, vehicle-actuated for alternating one-way traffic, can be extended for crossroads

- For universal use with radio, cable and quartz control
- Clearly arranged controls, all at a glance.
- All signal heads identical: can be extended immediately by simple addition of more signal heads to obtain T-junction or crossroads control – also with radio control
- In contrast to the competition, a crossroads traffic light consists of four identical full traffic lights that can be combined at random, instead of one transmitter and three receivers
- Vehicle-actuated control with directional radar detectors
- Fixed phase mode, request mode, green phase extension, manual operation, flashing, lamps off, green on request (continuous red)
- Different modes can also be mixed, for example: main road with green phase extension and side road (or roadworks exit) on request
- Innovative LED lamps (with lighting test as per DIN EN 12368) with night-time reduction feature

MPB 4400

Radio-controlled signal system, vehicle-actuated for alternating one-way traffic, can be extended for crossroads

Technical features as MPB 3400 and **also**:

- Simple handling with menu-driven handheld terminal for up to 4 signal groups
- Programming possible on a laptop with AmpelTools for up to 12 signal heads with max. 24 monitored and 24 parallel signal heads
- Radio actuation of maximum 8 signal heads (export version)
- Printout of all relevant data possible from the working traffic lights on site
- Timed program changeover with day and week programs for flexible traffic control
- Also for pedestrians, local public transport, coordination with progressive signalling, SMS module, fire brigade control, and much more besides

Ordering Information

	Description	Order No.
50	 **MPB 1400 LED, quartz-controlled traffic light system for alternating one-way traffic, T-junctions and crossroads control (export)** Consisting of two flat LED signal heads including mounting tube and battery casing for one 12V/180Ah battery. A hand box with dialogue technology is necessary for convenient adjustment of parameters and times, and for GPS synchronising the systems (please order hand box separately, order no. PB 1450). • Clearance time and green phase can be adjusted separately up to max. 999 seconds for every signal head • Accommodated in flat housing with LED technology already as a standard feature (with lighting test as per DIN EN 12368) • Night-time reduction feature to protect the batteries and for longer intervals between changing the batteries • Data buffering when changing the battery • Manual mode with infrared remote control Complete LED signal system (2 signal heads) on battery casing. Additional LED signal head on battery casing for extending the signal system for traffic control at T-junction and crossroads situations.	**N 14500** **N 14501**
	MPB 1400 LED, quartz-controlled traffic-light system for alternating one-way traffic (figure p. 21 above) as described above but with casing for max. two 12V/180Ah batteries. Weight of a signal head MP 1400 on casing approx. 34kg.	**NEW:** LED technology as standard feature **PB 1400L**
51	 **Hand box for MPB 1400, quartz-controlled signal system** for operating both the export and the TL-tested versions of MPB 1400. For entering data simply by dialogue with synchronisation of the traffic signals for alternating one-way traffic, T-junction and cross-roads situations.	**PB 1450**
52	 **FG 2 cable-controlled traffic light system for pedestrian crossings and alternating one-way traffic, 12V DC/230V AC** For pedestrian crossings with request or automatic mode including request counter, battery-saving blanking as per RiLSA and much more besides. FG 2 also controls alternating one-way traffic (vehicle-actuated as an option). It is operated at a clearly structured keyboard panel with LCD display. Two signal stands offer space for the central controller and two 12V/180Ah batteries. The two-part galvanised signal masts measuring 6m high to which the signal heads are fastened also act as overhead cabling unit. The system is supplied completely ready for use with 4 roadway signal heads and 2 pedestrian signal heads including signal head and wreath holder, 2 request push-buttons, 2 masts and 2x30m connection lead. Weight of the complete FG approx. 270kg incl. mast. System complete for 12V battery operation System complete for 12V battery operation and 230V mains operation (with power supply unit) Surcharge for upgrading all six signal heads in the traffic light system FG 2 with **LED lamps** when purchasing a new traffic light system.	Other accessories including acoustic signal head and tactile request push-button for the partially sighted can be found on page 35. **PB 41000** **PB 41500** **EH 2700**
53	 **Special tow bar** for easier transport of the signal stand	**MP 4024**
54	 **Controller FG 2 R in its own housing – for pedestrian crossings and alternating one-way traffic 12V DC/230 VAC** – ideal for installation with own signal head stands, e.g. if there is not enough space on site for the orange battery casing. Scope of functions as described above, supplied with 4 roadway signal heads, 2 pedestrian signal heads, 2 request push-buttons and cables, but without holders, masts, stands, etc.	**PB 41550R**

Ordering Information

Description	Order No.
55 	
MPB 3400 LED, radio-controlled signal system, vehicle-actuated for alternating one-way traffic, can be extended for crossroads. NEW: LED technology as standard feature	
Mobile traffic light system for radio, cable and quartz-controlled alternating one-way traffic. Further signal heads can be simply added to obtain a T-junction or crossroads system. With radar detectors for vehicle-actuated control. Consists of two signal heads in LED technology with integrated control, mounting tube and mobile battery casing to take two batteries (12 V / 180 Ah).	
Radio-controlled traffic light (2 signal heads), vehicle-actuated	**PB 3400L**
Radio-controlled additional signal head, vehicle-actuated	**PB 3401L**
MPB 3400 LED, cable-controlled traffic light, vehicle-actuated as described under 55 but without radio control	
Cable-controlled traffic light, vehicle-actuated	**PB 3450L**
Cable-controlled additional signal head, vehicle-actuated	**PB 3451L**
MPB 3400 LED, radio-controlled traffic light as described under 55 but without radar detector	
Radio-controlled traffic light	**PB 3500L**
Radio-controlled additional signal head	**PB 3501L**
MPB 3400 LED, cable- and quartz controlled traffic light as described under 55 but without radio control and without radar detector	
Cable- and quartz-controlled traffic light	**PB 3550L**
Additional cable- and quartz-controlled signal head	**PB 3551L**
Surcharge multi-frequency technology* when purchasing new system with field strength display per signal head MPB 3400	**EF 0802**
56 	
MPB 3400 LED type "K" in compact housing, for alternating one-way traffic, can be extended for crossroads NEW: LED technology as standard feature	
as described under 55, functions and respective equipment same in each case but in compact housing, control fitted in green chamber.	
Radio-controlled traffic light (2 signal heads), vehicle-actuated	**PB 3400LK**
Additional radio-controlled signal head, vehicle-actuated	**PB 3401LK**
MPB 3400 LED, cable-controlled traffic light, vehicle-actuated Type "K" as described above but without radio control	
Cable-controlled traffic light, vehicle-actuated	**PB 3450LK**
Cable-controlled additional signal head, vehicle-actuated	**PB 3451LK**
MPB 3400 LED, radio-controlled traffic light Type "K" as described above but without radar detector	
Radio-controlled traffic light	**PB 3500LK**
Radio-controlled additional signal head	**PB 3501LK**
MPB 3400 LED, cable- and quartz controlled traffic light Type "K" as described above but without radio control and without radar detector	
Cable- and quartz-controlled traffic light	**PB 3550LK**
Additional cable- and quartz-controlled signal head	**PB 3551LK**
Weight of all signal heads MPB 3400 with casing approx. 45 kg. You will find the traffic light connecting cable on page 29.	

* more information on page 32.

Ordering Information

Description	Order No.
57 	
MPB 4400 LED, radio-controlled traffic light, vehicle-actuated for one-way interchange - extendable to the crossing Consisting of two LED signal heads, radio/cable/quartz control. With case for two batteries 12V/180Ah. Signal protection as per RiLSA. This vehicle-actuated radio traffic light system should be used where high volumes of traffic are expected at different times. The standard system is equipped with radar detectors. Additional signal heads can be added with radio or cable control to turn this system into a crossroads traffic light system. The corresponding programming device (no. 59) is required to program the traffic light system. **NEW:** LED technology as standard feature	
Traffic light (2 signal heads) radio-controlled – vehicle-actuated. Signal head radio-controlled, vehicle-actuated	**PB 4400L** **PB 4401L**
MPB 4400 LED, cable-controlled traffic light, vehicle-actuated as described under no. 57, but without radio control	
Traffic light cable-controlled, vehicle-actuated Signal head cable-controlled, vehicle-actuated	**PB 4500L** **PB 4501L**
MPB 4400 LED, radio-controlled traffic light as described under no. 57, but without radar detectors	
Traffic light radio/cable/quartz control Signal head radio/cable/quartz control	**PB 4600L** **PB 4601L**
MPB 4400 LED, quartz and cable-controlled traffic light as before, but without radio control	
Traffic light quartz and cable-controlled Signal head quartz and cable-controlled	**PB 4700L** **PB 4701L**
Weight of all signal heads MP 4400 on casing approx. 45kg.	
58 	
MPB 4400 LED, cable-controlled traffic light 42 volt Consisting of two LED signal heads. With signal protection as per RiLSA, supplementary equipment for 42V operation. The signal heads are connected with a single cable (twisted pair) for data transfer and power supply. This traffic light is ideal particularly for long-term roadwork sites because the power supply of 230V AC only has to be connected to one signal head as described above. As a safeguard in the event of a mains voltage failure at the roadwork site, each signal head can also be equipped with a 12 V battery: the controller changes over automatically to battery power in the event of a power failure. Operation without mains voltage is then possible for up to one week (no charging function). The corresponding programming device (no. 59) is required to program the traffic light. **NEW:** LED technology as standard feature	
Traffic light (2 signal heads) cable-controlled – 42 volt Signal head cable-controlled – 42 volt	**PB 4750L** **PB 4751L**
Surcharge multi-frequency technology* when purchasing new system with field strength display per signal head	**EF 0800**
Traffic light connection cables and accessories can be found on p. 27.	

* more information on page 32.

Ordering Information

Description		Order No.
59 	**Programming device for MPB 4400** Programming device 1/4 VA, for alternating one-way traffic, T-junction and crossroads traffic, vehicle-actuated	**PB 4414**

Our MPB 4400 traffic light systems are adjusted quickly and easily – even without any special previous knowledge.

Once you have switched on the corresponding programming device, it asks you all the relevant parameters in a dialogue. For example, for alternating one-way traffic, it only asks how long the roadwork site is (e.g. 50 m) and the permitted speed (e.g. 30 km/h). This is then used to automatically calculate the clearance time which the user can only change by increasing it, for safety reasons. The green phase is then queried separately for each side. That already completes programming for a quartz-controlled alternating one-way traffic system.

Now simply put the programming device in the traffic light and press the button to transfer the program.

By the way, our programming device can also be used to compile the signal timetable completely independently of the actual traffic light system, for example Monday mornings in the office. Once the traffic lights have been set up on site at the roadwork site, for example on Wednesday, the fitter simply places the programming device in the signal head and transfers the data already programmed on Monday to the traffic lights – and that's that!

Bestellinformationen

Description	Order No.
60 	**MBA - manually operated traffic light for manual traffic control under the supervision and at the discretion of the user** This mobile traffic light is available in different versions for manual traffic control or temporary closure of lanes, loading bays, exits and entrances, under the supervision and at the discretion of the user. The standard MBA has commercially available 12V halogen lamps, although each signal head can also be fitted with energy-saving LED modules as an option. Depending on the specific application, the MBA can be supplied with different mobile battery casings to take one to four 12V / 180 Ah batteries. Operation is by hand directly at the traffic light by the user present on the spot. As an option, additional accessories are available to adjust each signal head to the specific needs of the customers. These include for example a handy cable or radio remote control, individual time control for an automatic workflow or power supply units for 230V operation. The version with one single MBA signal head is suitable for use as a hand-operated gatekeeper traffic light to control access to weighbridges, loading bays or company premises. The version with two signal heads is ideal for example when felling trees to completely and reliably stop the flow of traffic for a short period of time, because road users notice and accept a red traffic light far better than flags or hand signs. Whether with just one or two signal heads, the features and functions of manually operated traffic lights MBA can be adjusted ex works to bring them perfectly in line with the user's requirements. Please consult us about your specific application and we will gladly provide you with a corresponding offer for an MBA customised to your manual traffic control.	

Ordering Information

Description	Order No.
61  For transportation purposes, the signal head can be moved to a transport fitting and the barrier dismantled.	**Mobile barrier system 12V type PB – with traffic light connection** Mounted on mobile battery casing that accommodates four batteries (12V / 180Ah) and can be weighed down with two concrete slabs (A 5353, optional). The mobile barrier system consists of a round barrier arm, length 3,000 mm, fitted with reflecting red-and-white foil type RA1, with clip-out feature: when pushed from the front the barrier opens out to the back and can be fixed in the original position by hand again. Emergency unlocking also included. Battery case (locked) for four batteries 12V / 180Ah. The system is fitted with a light barrier to check that the swivel range of the barrier arm is free. The barrier is controlled by the signal system; manual control of the barrier is also possible. The barrier has a transport fitting for Berghaus signal systems. Every Berghaus signal system equipped with a parallel output can be used with the barrier. Dimensions: approx. 960 x 640 mm (without barrier arm)	**A 23800**
62  Optional radio remote control	**Mobile barrier system 12V type PB** Mounted on mobile case. As described above but without connection for Berghaus traffic light system. Various options are available for controlling the barrier system, e.g. by radio remote control, directional radar detector, PB-Cam video detector, local public transport receiver, time module etc. Please just ask about the options!	**A 23820**

Mobile barrier system – with and without traffic light

The mobile barrier system can be used for selective control of vehicle traffic outside pedestrian areas, e.g. the system can be handled as required by an operator using the optional radio remote control. On request, the barrier can also be automatically controlled by directional radar detector, PB-Cam video detectors, local public transport receiver, time module or directly by a Berghaus traffic light with parallel outlet.

In special situations where a red traffic light on its own is not sufficient for individual control of vehicle traffic, the additional barrier at a mobile traffic light generates greater acceptance. The barrier makes it impossible to drive through the temporary road closure or to enter the blocked area without permission. Possible applications and uses for selective access control of vehicle traffic include vehicle access to company premises, car park control, weighbridge access, control lights for segregating the flow of vehicles, restricting passage/access at events to authorised vehicles only, entry/exit for emergency services and the fire brigade, entry/exit for construction site vehicles, etc. As an option, the mobile barrier system can also be used at roadworks to give priority to buses or trams while individual vehicles are held back.

Ordering Information

Description	Best.-Nr.
63  **MPB 44 M master controller** Universal traffic light system for flexible control of up to maximum 12 signal groups, for example at pedestrian crossings with request function as well as vehicle-actuated alternating one-way traffic, T-junction or crossroads situations, possibly with additional turning lane, blinking light or waiting signal. The MPB 44 M/S series is based on the outstandingly proven MPB 4400 system which has been popular for many years. Operation is also the same so that no relearning is necessary. Depending on the technical features, already existing MPB 4400 traffic lights can be simply integrated in the new system. Supplied with 1 VEH LED signal head (without own control PCB), with 4m cable and plug for connecting directly to master controller MPB 44 M, incl. radar detector and holder. The MPB 44 M controller is equipped as follows: • central emergency-off switch for the complete traffic light system • residual current-operated device (RCD switch) • digital AC metre showing the 230V energy consumption • 230/42V transformer for central power supply to all signal heads directly from the controller via the data cable • programming of up to 4 groups directly in the controller via the display • selection switch for immediate manual traffic light control for manual mode, blinking lamp, lamps off and continuous red • programming interface for 12 signal groups (laptop connection) • connection for an external printer or laptop (USB and serial) • freely accessible 230V service power socket • connection for parallel signal head and SMS messaging module • synchronous input for coordination of progressive signalling • automatic mains/battery changeover for 12V battery operation • MPB 44 S control PCB for the first carriageway signal head	**PB 4451**
64  **MPB 44 S slave signal head** equipped in each case with its own MPB 44 control PCB that also covers the connected additional equipment and communicates with the central MPB 44 master controller via one cable for databus and 42V power supply. All signal heads are equipped with LED technology and a 42V AC/12V DC power supply unit. There is also a connection for 12V power supply with automatic changeover for possible battery operation of the signal head. All carriageway signal heads are prepared for directional radar detectors for vehicle-actuated traffic light control or for our PB-CAM as video detector for registering traffic volumes. There is also an output for a parallel signal. A request traffic light for pedestrians is provided by plugging request buttons directly into the signal head without needing additional wiring from the button to the controller (holder included in the scope of supply). Carriageway signal head, red/amber/green, LED technology Pedestrian signal head with symbols, red/green, LED technology	**PB 4463** **PB 4462**

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Just one single cable is needed to operate the MPB 44 system.

Just one cable is now responsible for data transfer between master controller and the individual slave signal heads in up to 12 groups together with the central 42V power supply from the controller, thus clearly minimising the wiring workload on site (see diagram). No extra cables are needed for power supply, detectors, buttons and data bus so that this one-cable solution saves lots of time and costs in installing and dismantling the traffic light systems.

Ordering Information

	Description	Order No.
65	 **Traffic light connecting cable for 12 volt technology** Traffic light connecting cable, red, ring with plug and coupling. 50 m long, weight approx. 5.2 kg Ring as above but 100 m long, weight approx. 10.6 kg	 MP 4040 MP 4041
66	 **Retrofitting kit for vehicle-actuated operation** consisting of a fixture for fitting to the pole of the signal head together with a directional radar detector. Can be retrofitted by the customer. Retrofitting set for cable-controlled traffic light, price per signal head Retrofitting set for radio-controlled traffic light, price per signal head	 MP 4006 MP 4007
67	 **Isolating transformer 230 volt / 42 volt AC** mounted in a splash-proof case. Input voltage 230 V AC, output voltage 42 V AC. One cable with earthed plug on 230 V side, two plug connections on the 42 V side. The 42 V side can be connected to any signal head. Max. output power 500 VA	 MP 4065H
68	 **Battery station 12V / 42V** Mounted in a splash-proof case. For central power supply at short-term roadworks if no mains voltage available when central 42V power is needed. Input voltage 12V DC, output voltage 42V AC. Connections: battery cable for 12V, two plug-in connections for 42V. The 42V side can be connected to any signal head. **Battery station / converter 12 V DC / 230 V AC** as above, but input voltage 12V DC, output voltage 230V AC for connection to controller MPB 44 M/S.	 MP 4105 MP 4106
69	 **Special cable for 42 volt technology** Traffic light connection cable with power supply lead, yellow, ring with plug and coupling, 30 m long, weight approx. 5.5 kg Ring as above but 50 m long, weight approx. 8.5 kg Ring as above but 100 m long, weight approx. 16.5 kg	 MP 4035 MP 4036 MP 4037
70	 **Retrofitting set for signal head with 42 volt technology** Every signal head type MPB 3200, 3400 and MPB 4400 can be retrofitted with the power supply unit for 42 V AC / 12 V DC. But this retrofitting has to be done in the factory because the signal head also has to be rewired. Price per signal head including installation.	 MP 4064

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Already for medium-term roadworks, it can make financial sense to operate the cable-controlled traffic light system with 42 V technology.

The advantages of traffic light systems operating with our 42 V technology are quite obvious:

- Central power supply 230 / 42 V for all signal heads from one single point
- Data bus and power supply in one joint cable
- Automatic changeover to battery operation when there's a power failure on site (and back again), therefore immune to interference, low-maintenance and with power reserves for up to one week

Ordering Information

		Description	Order No.
71		**Battery casing for one battery 12V/180Ah, with stand pipe** Mobile battery casing made of sheet aluminium to take one battery 12V/180Ah. Solid rubber wheels make it easier to transport the battery casing which can be locked with a normal padlock. Weight 16.5kg	**A 49590**
72		**Battery casing for two batteries 12V/180Ah, with stand pipe** Mobile battery casing made of sheet aluminium to take two batteries 12V/180Ah. Solid rubber wheels make it easier to transport the battery casing which can be locked with a normal padlock. This version offers special advantages with the removable stand pipe and stacking capability. Weight 24.5kg	**A 49600**
73		**Battery casing for four batteries 12V/180Ah, with stand pipe** Mobile battery casing made of sheet aluminium to take four batteries 12V/180Ah. Solid rubber wheels make it easier to transport the battery casing, even when it contains four batteries. Two holding tubes are welded to the back of the battery casing for 6m high overhead cabling masts (40x40mm). The battery casing can be locked with a normal padlock. Weight 31kg	**A 49610**
74		**Mobile battery casing** Mobile battery casing made of aluminium with hinged mast for traffic lights in the MPB series, to take two batteries 12V/180Ah. Powder-coated, with pneumatic tyres, with jockey wheel adjustable in height with parking brake and wheel chocks, with towing device for transport within the roadworks. Ideal for traffic-light control within a travelling site, for example when resurfacing the road. The traffic light can be moved individually either by a vehicle or by hand while the work continues, according to progress being made on site.	**A 49611**
75		**Hinged mounting tube** For easy transport of the signal system in vehicles with limited height. The upper part of the traffic light can be hinged down to a height of approx. 1m for transport. Fits all Berghaus casings with removable mounting tube which is simply replaced by the hinged mounting tube. Supplied with cover and transport hood no. EP 6028. Hinged mounting tube – Set for one signal head MPB 3200/MPB 3400 K Hinged mounting tube – Set for one signal head MPB 1400/MPB 3400 Hinged mounting tube – Set for one signal head MPB 4400	 **A 49695** **A 49696** **A 49691**
76		**Electronic changeover device for batteries** For convenient connection of two batteries even with different charge levels without any compensation current flowing between the batteries. The electronic changeover device can also be used to change the batteries for a traffic light system without interrupting operations. Equipped with reverse polarity protection and a test button for checking the charge of the connected batteries. Electronic changeover device for two batteries Electronic changeover device for four batteries as above, but type „power“ for two batteries (e.g. for warning trailers) as above, but type „power“ for four batteries (e.g. for FG 2 traffic light)	 **A 46500** **A 46501** **A 46502** **A 46503**
77		**Cover and transport hood for signal head** Cover and transport hood for 3-aspect signal head 210mm, made of UV-resistant plastic, with rubber hook, black, stackable as above, but with additional cover for MPB 4400 control chamber	 **EP 6028** **EP 6028S**

Ordering Information

	Description	Order No.
78 	**Special MPB test unit** for quick and easy testing of the cable bus outputs for polarity and level strength, testing of the detector connection to the traffic signal heads (even at the construction site) together with cable continuity test of (installed) MPG traffic light connection cables 12V and 42V at a glance. Can also be used out of doors (IP 65). Suitable for MPB 3200, MPB 3400, MPB 4000 and MPB 4400 Special MPB test unit Transmitter for cable test (only for use with MPB test unit).	 **MP 4075** **MP 4076**
79 	**Battery 12V/180Ah** Brand battery for power supply to all battery-operated traffic light systems, filled and charged. Dimensions: 513x223x223mm (LxWxH), weight 50kg	 **A 46050**
80 	**Battery protection box** Battery protection box, made of special plastic, resistant to battery acid, offers the battery 12V/180Ah additional protection during transport.	 **A 46200**
81 	**Battery charger 12V/24V, input voltage 230V** **L1**: output 12V, charging current 10A (not illustrated) **L2**: output 6V/12V,charging current 12A (18A eff); electronically controlled **with conservation charging** – ideal for our battery 12V/170Ah **L3**: L3: output 12V, loading current 30A (not illustrated) with **charge, recharge and charge retention function** – ideal for installation in our mobile warning trailers	 **A 47000** **A 47170A** **A 47173LB**
82 	**Mains power supply unit** All battery operated traffic light systems and units can also be supplied with 230V mains power if the power supply unit type N1, 6-8 amp or type N2, 20-25 amp is used instead of the battery. **Mains power supply unit type N1**: 6A steady current **Mains power supply unit type N1A**: 6-8A steady current; automatic mains/battery changeover – as uninterruptible power supply (not illustrated) **Power supply unit type N2:** 20-25A steady current (not illustrated)	 **A 44000** **A 44002** **A 45000**
83 	**Solar module for mobile traffic-light systems and advance warning flashlights** The solar module (80W) can be used to operate LED advance warning lights, for example, or mobile traffic-light systems independently of any grid power supply over a longer period of time with only one battery. The dangerous weekly procedures involved in changing batteries right across all the lanes of busy motorways are now no longer necessary. The frame holder of the solar module is equipped with a 60mm round tube and can be aligned (southeast to southwest) separately from the position of the square tube or traffic-light casing. Solar module on frame holder, complete with connection cable, socket pipe 70x70mm with clamping screws for slotting over square tube 60x60mm, e.g. for use with **LED advance warning lights**. Charge controller with reverse polarity protection, overcharge protection and total discharge protection (IP 65) Solar module on frame holder, e.g. for use with our **mobile traffic-light systems**. Charge controller as described above, but for mobile traffic lights	 **PB 4851A** **PB 4860** **on request** **PB 4860L**

Ordering Information

	Description	Order No.
84	 **Retrofit kit from halogen to LED technology** LED traffic light module set for **red, yellow and green** for use with cable- or radio-controlled signal heads of the MPB 3200, 3400 or 4400 series, consisting of three complete modules red/yellow/green super bright, with connectors protected against polarity reversal, incl. mounting material, for self-installation in the signal head. Dimmable - automatic adjustment to ambient brightness. No more phantom effect as no reflectors are used. Photometrically tested according to DIN EN 12368. Please state the serial numbers of your signal heads when enquiring. Retrofit kit red/yellow/green for one signal head	**EH 2130S**
85	Picture shows MPB 4400  **Surcharge multi frequency technology with field strength display** Surcharge for multi-frequency technology with field strength display when purchasing a new signal head. **MPB 4400** **MPB 3400** Surcharge per signal head This helps you to find a free radio channel even in conurbation areas.	**EF 0800** **EF 0802**
86	 **HF power tester – handy tester for radio modules** HF power tester – hand-held device for quickly testing the correct transmitting power of our radio modules – also on site at the roadworks. Scope of supply including 50 cm antenna connection cable with straight BNC plug and angle plug. Test power: 100 mW For customers outside Germany, we can gladly also supply other versions on request according to the specific national regulations.	**EF 0100A**
87	 **Radio hand-held transmitter (1 channel) for MPB 3200, 3400, 4400** Mini hand-held transmitter 433 MHz for 1-channel universal receiver Universal receiver 1 channel, 433 MHz, complete in housing with potential-free NO contact (normally open) and 5 m connection lead with 4-pin plug. Operating voltage: 12-24 V DC	**EP 2461** **EP 2460**
88	 **Radio hand-held transmitter (8 channels) for MPB 3200, 3400, 4400** Type HS-PB, 433 MHz with optical and acoustic reception feedback (maximum range up to 1000 m). Up to 8 different functions can be selected by radio, including: automatic, manual mode, flashing, lamps off, continuous red. **Hand-held transmitter:** MPB 4400 MPB 3400 MPB 3200 **8-channel receiver:** MPB 4400 MPB 3400 MPB 3200 Please ask about the version for other traffic-light types or with other radio-controlled switching possibilities.	 **EP 2462** **EP 246C** **EP 246B** **EP 2463** **EP 2464B** **EP 2464A**

Ordering Information

	Description	Order No.
89	 Version MPB 3200 MPB 3400 MPB 4400 **Red countdown display for vehicle-actuated mode** Red countdown display (waiting time display) or our traffic light systems MPB 3200 and MPB 3400 in fixed phase and vehicle-actuated green time extension mode (VA). In a separate housing for mounting next to the red chamber. In vehicle-actuated mode, the 3-digit red LED display gives a dynamic display of the currently remaining red phase up to 999 seconds (display can be changed over to maximum 9 minutes 59 seconds). The intensity of the display is adjusted automatically to the brightness of the surroundings. The signal head has to be fitted with a corresponding connection socket to operate the device. Unit price, including bracket for connection to signal systems type MPB 3200 and MPB 3400 (VA and fixed phase mode).	**A 24350**
	 Version MPB 1400 **Red countdown display for fixed phase mode only** Red countdown display (waiting time display) as described above but for fixed phase mode only, for mounting above the red chamber. Unit price, including bracket for connection to MPB 1400 MPB 3200, MPB 3400, MPB 4400 (fixed phase mode only)	**A 24300** **A 24301**
90	 Picture similar **Berghaus MONITOR – monitoring and positioning system for mobile traffic light systems** The Berghaus MONITOR lets you monitor the current position and correct functioning of your mobile Berghaus traffic light systems all over the world, from the computer or your smart phone. You can receive automatic notification by SMS or e-mail for example in plenty of time before batteries need changing, or immediately in case of possible malfunctions. **Hardware**: connection box for mobile traffic light systems MBP 3200, MPB 3400 or MPB 4400 including installation and wiring.	**PB0500**
	 Access to using the **Berghaus MONITOR web interface** including the necessary SIM card. Access to the Berghaus MONITOR web interface gives you worldwide access to the current GPS position of the traffic light systems, the specific battery voltage, possible error messages and the daily logbook which is produced automatically for documentation purposes. This makes it easier to follow up battery warnings, defective lamps or transmission problems and much more besides, even in retrospect.	**PB0501**
91	 Picture similar **Berghaus MONITOR – monitoring and positioning system for LED prewarners and mobile traffic light systems** Use the Berghaus MONITOR to monitor the current position of your mobile Berghaus warning trailer, the current function (switching status illuminated arrow and mechanical arrow), the completed distance and speed (tracking), the daily logbook and much more besides, simply from the computer or your smart phone. **Hardware:** connection box for mobile warning trailers including installation and wiring.	**TW 4960**
	 Access to using the **Berghaus MONITOR web interface** including the necessary SIM card. Automatic transfer of the data to traffic control centres is possible without any problems, as currently stipulated for example in Hesse (DORA system) and Bavaria.	**TW 4961**

Ordering Information

Description		Order No.
92 	**Pedestrian request push-button (for MPB 4400 and EPB)** Pedestrian request push-button with LED light and fastening tube, completely wired, including 3.5 m cable with angled 4-pin EVG plug.	**MP 4030**
	Mast holder for pedestrian request push-button	**EE 0022**
	Pedestrian request push-button with fastening tube, completely wired, including 4 m cable with angled 4-pin EVG plug	**EP 6005A**
93 	**Interface for control printer for up to four signal groups** This interface can be used to transfer the data via the optical interface between traffic light and printer respectively between traffic light and laptop. If a printer is connected to the interface, the following printouts can be selected: actual signal timetable, nominal signal timetable, interim time matrix, program switching points, fault report and green/green locking matrix. Interface for printing up to four signal groups.	**MP 4016**
	Interface for control printer for up to twelve signal groups and laptop As order no. MP4016. If a laptop is connected to the interface, up to twelve signal groups can be programmed. Interface for printout and programming of up to twelve signal groups.	**MP 4017**
	USB serial adapter Interface converter with optocoupler for transmitting a galvanically isolated signal, potential-free, from USB to serial interface RS 232, including driver software.	**EP 2552**
	PC cable connection lead for MPB 4400, with plug connectors 9/25 pin, approx. 3 m long.	**MP 4046**
94 	**Control printer for up to four signal groups** for traffic light system MPB 4400. With this control printer, all data can be printed directly from the controller via interface MP 4016. All printouts are possible as described above. Power is supplied by integrated batteries or a plug-in power supply unit.	**MP 4015**

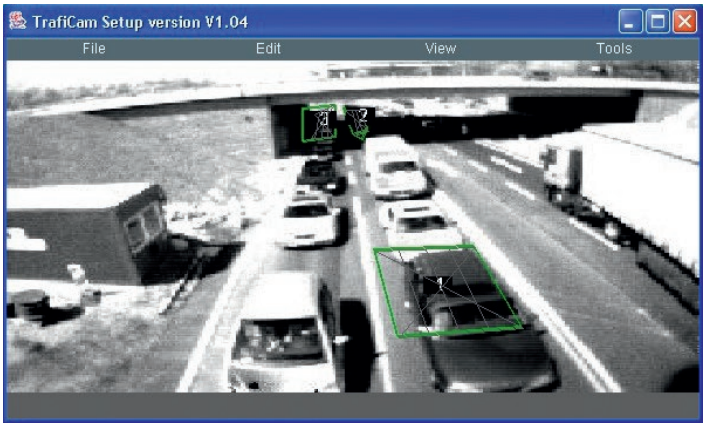
„AmpelTools" laptop programming software can be found on page 39.

Ordering Information

Description	Order No.
95  **Set for fitting a complete pedestrian crossing with acoustic and tactile signal transmitters** Additional feature for the visually impaired as per RiLSA. This set can be used to provide an orientation signal (continuous pilot signal, then a clearance signal when the traffic light changes to green) emitted by an acoustic signal transmitter. This feature is already available at increasing numbers of stationary traffic light systems. The special request button for the visually impaired are fitted with tactile signal transmitters on the underside of the button which vibrate when the traffic light changes to green to indicate the green phase. Similarly, a tactile arrow symbol under the button shows the direction and type of pedestrian crossing. Depending on the crossroads controller at which the set is to be used, a corresponding connection box is required or the mobile signal system has to be prepared with an additional connection socket. Please ask us to send you an individual offer for the set as additional feature for the visually impaired, stating the type of your signal system!	
 **Set for traffic light systems type EPB 12/EPB 24/EPB 48** **42 volt** version; set consisting of two pedestrian signal heads with integrated acoustic modules, in the 3rd chamber in each case and with two request push-buttons for a pedestrian crossing; for connecting to crossroads controllers type EPB 12, EPB 24 and EPB 48.	**EP 6031AC**
96  **Set for traffic light systems type MPB** **12 volt** version; set consisting of two acoustic modules with holder in separate signal head chamber and two request push-buttons for a pedestrian crossing; for connecting to suitably equipped mobile connectors type MPB 4400 or MPB 4000 (additional socket needed).	**MP 4070**
 **Set for pedestrian traffic light systems type FG 2** **12 volt** version; set consisting of two separate acoustic modules with holder and two request push-buttons for a pedestrian crossing; for connecting to mobile controllers type FG 2.	**FÜE 598**
97  **Special test signal head for our EPB series** Handy test signal head for quick and easy function test of controllers, cable lines and signal heads immediately at the signal system. Permits effective troubleshooting on site with no great workload, with fast localization e.g. of a wire break in a traffic signal cable or of a defective signal head, with subsequent specific elimination of the fault. Waterproof housing for outside use (IP 65) with carrying strap contains four signal lamps 100 mm (2 x red, 1 x yellow and 1 x green, bulbs 42 V/40 W Ba 20 d). Connected to the controller or cable line with approx. 3 m connection lead with 7-pin connector for EPB 6000S or with 13-pin plugin adapter for EPB 12, EPB 24 and EPB 48 on request.	
Special test signal head	**EP 2429**
Plug-in adapter for testing EPB 12, EPB 24 and EPB 48	**EP 4881**

Ordering Information

	Description	Order No.
98	**PB CAM video detector V.3.0** for all vehicle-actuated traffic light systems in the EPB and MPB series by Peter Berghaus GmbH for detecting the presence of vehicles in the vicinity of traffic light systems. The detection system has eight free monitoring zones. On installing the PB CAM, these are simply drawn on the laptop or PC monitor as virtual contact loops in the course of the road. Up to eight detection zones can be allocated quickly and easily using the mouse in any size and direction to the four freely configurable switching outputs. The power supply for the PB CAM comes from the traffic light controller. PB CAM is supplied complete with approx. 6 m connection lead with plug connector, galvanised rotating and swivelling fixture and the necessary software.	**EP 2370T3**
99	**Connection lead PB CAM with connection module** Connection lead between PB CAM and connection module, for outdoor use, 12 x 0.25 mm screened cable (black), complete with 12-pin water-proof metal plug and coupling. Cable: 10 m long Cable: 30 m long Cable: 50 m long Cable: 100 m long	**EP 2380** **EP 2381** **EP 2382** **EP 2383**
100	**Connection module for Berghaus PB CAM Video detector type 3** Connection module for Berghaus PB CAM video detector type 3 for installation in the immediate vicinity of the traffic light controller, complete in waterproof housing with evaluation PCB, 1 x USB connector for camera, 1 x camera jack, 1 x PC jack, 4 x jacks for output 1 to 4 and fixture.	**EP 2371T3**
101	**PC connection lead for PB CAM video detector V.3.0** PB CAM type 3 connection lead for programming using a laptop or PC. USB type A to USB type B version, cable length: 3 m	**EP 2372T3**



Our PB CAM offers you essential advantages of smart traffic telematics.

- No damage to the road surface by cutting it up for the detection loops
- Installed in next-to-no time, extremely simple and very flexible to use
- Simple with automatic alignment after transmitting the configuration
- Individual configuration by clicking the mouse for up to eight monitoring zones, also with different directional evaluation
- Different detection zones can be allocated to the same switching outputs or linked (holding time up to 3 minutes)

Ordering Information

Description	Order No.
102 **EPB 24 multiprocessor – local controller system** Controller system type EPB 24 multiprocessor (master and slave) for local control of up to 24 signal groups with maximum 48 power cards for 96 three-aspect, fully monitored LED traffic light signal heads. The multiprocessor system with separate processors for control and monitoring systems offers the greatest possible safety. The system has extensive protection and control functions: red/yellow/green light monitoring, minimum green phase and intermediate phase monitoring, green/green, red, yellow, green status monitoring, cycle and under-voltage monitoring. The EPB 24 multiprocessor controller offers many modes and additional functions as a standard feature ex works, such as: Fixed-phase or vehicle actuated (VA) mode with normal day programs and public holiday programs; VA mode with green phase extension or green phase on request; request mode (basic setting: continuous red); coordination mode (progressive signal system with GPS); manual, flashing and blanking mode; test mode (without outside equipment); cycle mode (testing correct connection and allocation of signal heads); changing green phase parameters and progressive signalling parameters during on-going operation; overprogramming without having to switch the traffic lights off.	
 EPB 24 Master for max. 8 power cards or with no power cards*	
EPB 24 crossroads controller „Master“ for up to 8 power cards. Dimensions: 615 x 1550 x 375 mm (W x H x D), weight: approx. 130 kg	**EPB 2400**
EPB 24 P crossroads controller "Master" as above, but with fitted **panel PC** with touchscreen and USB socket for data transfer. Basic unit with slots for 8 power cards.	**EPB 2400P**
EPB 24 PF crossroads controller "Master" as above, but with fitted **panel PC** with touchscreen and USB socket for data transfer and **modem system for secure remote access** via the internet and fault information by e-mail. Basic unit with slots for 8 power cards.	**EPB 2400PF**
 EPB 24 Slave as mast distribution unit for max. 4 power cards	
EPB 24 crossroads controller „Slave“ as mast distribution unit for up to 4 power cards. Dimensions: 370 x 380 x 350 mm (W x H x D), weight: approx. 15 kg	**EPB 2412**
Power card EPB 24 to actuate one signal group	**ESP 953**

New user interface for controller EPB 24

Optional panel PC fitted to the controller with touch-screen. Inputs, queries and polling now possible directly at the controller without any great effort instead of needing a laptop with AmpelTools as in the past. Programming data such as green phases / progressive signalling can now be changed or adjusted on site; also possible to record planned/actual data, interim time and interlocking matrix and save the data on a USB stick.

* Figure shows variant with panel PC.

Ordering Information

Description	Order No.
103	
	**Mobile camera system (module set)** The module set is an autonomous camera system that can be used both in connection with and independent from traffic light systems in order to monitor the traffic situation at roadworks. The swivel/tilt camera with infra-red technology offers an almost all-round view of the roadworks by day and night. Working via the internet, it gives authorised users in the office, at the maintenance station or en route an overview at any time of the traffic situation on site. The complete module set of the mobile camera system consists of: • IP67 casing (lockable) • GPRS/UMTS mobile radio VPN router (supplied without SIM card) • Swivel/tilt IP camera with infrared technology for day/night operation, HD 720p, resolution up to 1280x720 in robust weatherproof casing with heating • Connection lead with 4-pin plug for connecting to 12V DC • Holder for mounting to mast The 12V power supply is provided by a 4-pin plug that fits in the detector socket of all vehicle-actuated traffic light systems in type series EPB and MPB by Peter Berghaus GmbH.	**EP 2350**
104	
  enabled for AmpelTools	**CPU simulation module for EPB 12/EPB 24/EPB 48** The CPU simulator set can be used for detailed testing of the program sequences in every second of the cycle and with all monitoring functions for all hitherto prepared signal timetable programmes for EPB 12, EPB 24 or EPB 48 crossroads controllers working on the computer/laptop under real conditions. Instead of blocking a real EPB traffic light controller in the workshop, the controller can already be brought to the roadworks because the practical tests (as per RiLSA 2015) can be depicted with the CPU simulator. The complete CPU simulation module consists of: • portable desktop/standalone casing with plug-in power supply unit • CPU card for EPB 12/EPB 24/EPB 48 with Eprom for simulation • also enabled for AmpelTools from version 1.20	**EP 2514**

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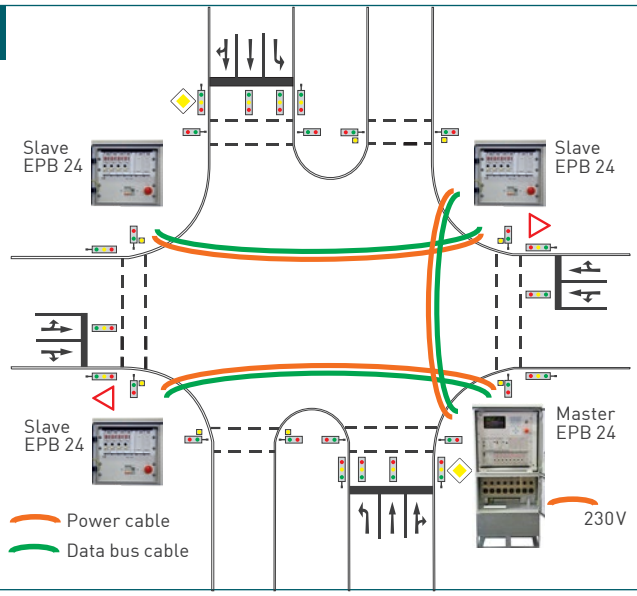
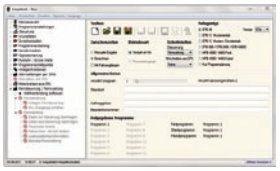


Every time you use our EPB 24 you can make considerable savings in terms of the costs for material, transport and personnel.

The use of our local controller systems EPB 12 or EPB 24 considerably reduces the wiring required (by up to 50%). The wiring for signal heads, push buttons and radar detectors etc. **no longer** has to be installed and routed through to a central point but just to the slave distribution units EPB 12 or EPB 24 at the specific corner points of the crossroads.

Extensive wiring across the streets is no longer needed because all devices in our multiprocessor system only have to be connected with one single databus cable (as an open loop line) and possibly with a power supply cable. This not only reduces installation time and cable lengths but also makes it possible to use lighter overhead road cabling systems. That saves both time and money!

Ordering Information

Description	Order No.
105	
	**AmpelTools program** Software program (Language switch German/English) for compilation and calculation of signal times and for programming traffic lights. AmpelTools is a single application that combines the AmpelPlan and AmpelWin software products that have been popular for many years now. Use AmpelTools on your Windows computer for simple, clearly structured compilation of extensive signal timetables and other documents pursuant to RiLSA. In just a few steps, you can easily put together interim time calculations and graphic signal timetables with automatic error checks, such as interim time infringement and conflict monitoring, and much more besides. The signal time documents compiled with AmpelTools can be used straightaway for programming controllers in the current series (EPB 12, EPB 24, EPB 48 and MPB 44 M) or also older generations (EPB 800, EPB 2400, EPB 6000S). AmpelTools is also ideal for the MPB 4400 series, particularly when using this mobile traffic light system to control more complex traffic situations. AmpelTools summarises signal time planning and programming in one single step. There is no need to export the phase plans, as the compiled data are transferred directly from AmpelTools to the traffic light controller, without any detours. The clearly structured screen makes it particularly easy to handle the software. To program your control unit from CPU version 7.xx, Ampeltools version 2.xx or higher is required, but all previous CPU versions are supported (only 64 bit from Win 7).	**EP 2518**
	Ampeltools up to and including version 1.74 only supports CPU versions up to 6.9x (32 + 64 Bit from WinXP)	**EP 2512**
	The following additional modules can be used to extend AmpelTools:	
 AmpelDruck plugin	**AmpelDruck plugin** The AmpelDruck plugin (print feature) is an addition to AmpelTools for direct, live, graphic printing straight from the current EPB 12, EPB 24, EPB 48, FG 2 and MPB 44 M/S controllers. (Printer interface MP 4017 is needed for MPB 4400). The program cycle that is currently running is printed directly from the printer interface of the traffic lights on site. Ideal also as verification of correct programming.	**EP 2513**
 AmpelSim plugin	**AmpelSim plugin** The AmpelSim plugin together with the CPU simulator hardware module (see picture no. 101) can be used for testing the functions of prepared signal timetable programs under practical conditions with all monitoring features (as required in RiLSA 2015) at any location remote from the EPB 12, EPB 24 or EPB 48 controller.	**EP 2514**

We will also program your traffic light control: Simply send us your documents and requests, e.g. by e-mail. Our technicians will create the corresponding signal timetables, compile and test the necessary data file and send you these documents with the programming results, often on the same day.

Ordering Information

Description	Order No.
106 Also with LED!  **Signal head 200 mm / 300 mm Ø, 42 volt (type „Austria“) for our crossroads controllers EPB 12, EPB 24 and EPB 48** Made of impact-resistant plastic, orange, lens 200 mm / 300 mm Ø. Ready wired, with lens hoods, reflectors, bulb holders type BA 20 d, electric light bulbs 42 V / 40 W, including 2 x 1 m cable with plug and coupling for EPB 12, EPB 24 und EPB 48 and signal head fixture for plug-in system (please state colour of lens).	
Signal head 200 mm Ø, 1-aspect	**EP 6020A**
Signal head 200 mm Ø, 2-aspect	**EP 6021A**
Signal head 200 mm Ø, 3-aspect	**EP 6022A**
Signal head 300 mm Ø, 1-aspect	**EP 6023A**
Signal head 300 mm Ø, 2-aspect	**EP 6024A**
Signal head 300 mm Ø, 3-aspect	**EP 6025A**
Signal head with LED lamp 42V, 200 mm Ø, orange	**EP 6101**
Signal head with LED lamp 42V, 200 mm Ø, red/green	**EP 6105**
Signal head with LED lamp 42V, 200 mm Ø, red/orange/green	**EP 6108**
Signal head with LED lamp 42V, 300 mm Ø, orange	**EP 6150**
Signal head with LED lamp 42V, 300 mm Ø, red/green	**EP 6154**
Signal head with LED lamp 42V, 300 mm Ø, red/orange/green	**EP 6157**
107 Also with LED!   **Signal head 200 mm / 300 mm Ø, Typ Austria, for permanent installation** Made of impact-resistant plastic, orange, lens 200 mm / 300 mm Ø. Ready wired, with lens hoods, reflectors and bulb holders type E 27, but without electric light bulbs (please state colour of lens).	
Signal head 200 mm Ø, 1-aspect	**A 31000**
Signal head 200 mm Ø, 2-aspect	**A 32000**
Signal head 200 mm Ø, 3-aspect	**A 33000**
Signal head 300 mm Ø, 1-aspect	**A 34000**
Signal head 300 mm Ø, 2-aspect	**A 35000**
Signal head 300 mm Ø, 3-aspect	**A 36000**
Also available as **flash light** or with **symbols** and / or 12 volt DC, 40 / 42 volt AC or 230 volt AC **LED-technology** at a surcharge.	
Universal wall fixture (pair) for **signal heads 200 mm / 300 mm Ø**.	**A 37005**
Signal heads 100 mm Ø for permanent installation (standard type) are available on request.	
108  **Cover hood for signal heads** made of weather-proof tarpaulin material, with fixing straps, for covering and decommissioning stationary and mobile signal heads.	
Cover hood for signal head 200 mm Ø, 3-aspect	**EP 6035**
Cover hood for signal head 300 mm Ø, 3-aspect	**EP 6035A**

Ordering Information

	Description	Order No.
109	**Detector and push-button cable for all controllers** Heavy-duty detector and push-button cable specially for outdoor use, oil-proof, wear-resistant, orange, weight per 100 m approx. 18 kg.	
	Ring with 4-pin EVG plug and coupling, 10 m long	**EK 0010**
	Ring with 4-pin EVG plug and coupling, 30 m long	**EK 0030**
	Ring with 4-pin EVG plug and coupling, 50 m long	**EK 0050**
	Ring with 4-pin EVG plug and coupling, 70 m long	**EK 0070**
	Ring with 4-pin EVG plug and coupling, 100 m long	**EK 0100**
110	**Traffic light connecting cable for EPB 12, EPB 24 and EPB 48** Heavy-duty traffic light connection cable specially for outdoor use, oil-proof, wear-resistant, orange, weight per 100 m approx. 14 kg.	
	Ring with 6-pin screw plug and coupling, 10 m long	**EK 6210**
	Ring with 6-pin screw plug and coupling, 30 m long	**EK 6230**
	Ring with 6-pin screw plug and coupling, 50 m long	**EK 6250**
	Ring with 6-pin screw plug and coupling, 70 m long	**EK 6270**
	Ring with 6-pin screw plug and coupling, 100 m long	**EK 62100**
	These cables can be used for our controller series EPB 12, EPB 24 and EPB 48, for the master and also for the slave units.	
111	**Data bus cable for EPB 12, EPB 24 and EPB 48** Heavy duty data bus cable for connecting the master and slave units in our EPB 12 m, EPB 24 and EPB 48, specially for outdoor use, oil-proof, wear-resistant, green, weight per 100 m approx. 17 kg.	
	Ring with 7-pin EVG plug and coupling, 5 m long	**EP 4860**
	Ring with 7-pin EVG plug and coupling, 10 m long	**EP 4861**
	Ring with 7-pin EVG plug and coupling, 30 m long	**EP 4862**
	Ring with 7-pin EVG plug and coupling, 50 m long	**EP 4863**
	Ring with 7-pin EVG plug and coupling, 70 m long	**EP 4864**
	Ring with 7-pin EVG plug and coupling, 100 m long	**EP 4865**
112	**Power supply cable for EPB 24 and EPB 48** Heavy duty power supply cable for supplying power from master to slave units in our EPB 24 and EPB 48, specially for outdoor use, oil-proof, wear-resistant, orange, weight per 100 m approx. 18 kg.	
	Ring with 5-pin screw plug and coupling, 10 m long	**EP 4869**
	Ring with 5-pin screw plug and coupling, 30 m long	**EP 4870**
	Ring with 5-pin screw plug and coupling, 50 m long	**EP 4871**
	Ring with 5-pin screw plug and coupling, 70 m long	**EP 4871A**
	Ring with 5-pin screw plug and coupling, 100 m long	**EP 4872**
113	**Traffic light connecting cable only for FG 2 pedestrian traffic light** Heavy duty traffic light connection, specially for outdoor use, oil-proof, wear-resistant, blue, weight per 100 m approx. 18 kg.	
	Ring with 7-pin screw plug and coupling, 15 m long	**EK 0215**
	Ring with 7-pin screw plug and coupling, 30 m long	**EK 0230**
	Ring with 7-pin screw plug and coupling, 50 m long	**EK 0250**
	Ring with 7-pin screw plug and coupling, 100 m long	**EK 02100**

Mobile mounting devices by Berghaus are made in accordance with the „Technical Delivery Conditions for Mounting Devices for Signs and Traffic Devices at Construction Sites“ (TL Mounting Devices 97) and tested by an IfS-certified expert. The stability classes assigned to the product can be simply read off the respective name-plate. This makes it easy to select the right TL base plate holder (or sign stand) and the necessary number of base plates required to achieve the necessary stability to ensure that road signs are mounted swiftly and safely and, in accordance with the guidelines, „sturdily, clearly visible and secured against rotation.“

Sign stands · Crash barrier holders · Ground anchors – tested as per „Mounting Devices 97“

TL-tested mounting devices for signs and traffic light systems
We produce a wide range of different mounting devices to cover practically every application for fast, stable mounting of road and information signs, for overhead cabling of signals, as stand masts and high arms for traffic light systems. Mobile mounting devices by Peter Berghaus are manufactured according to the Technical Delivery Conditions for Mounting Devices for Signs and Traffic Systems at Roadwork Sites (TL Mounting Devices 97), and tested by certified experts. The large round and lattice aluminium masts have also undergone structural analysis testing.

All steel or aluminium sign stands are marked according to the TL Mounting Devices. The tested stability safety classes attributed to the product (K) are obvious at a glance. This makes it easy to erect signs and road systems with all due stability quickly and safely according to the TL.

Colour-coded allocation of the mounting devices
Have you ever been uncertain which TL sign stand you should select and how many K1 base plates you need for safe and stable mounting of mobile road signs?
While the ZTV-SA gives clear stipulations for road sign size and mounting height for use inside and outside built-up areas, it is often difficult to put the official table into practice. This is why we have colour-coded our sign stands to allocate them to the entries in the table, as you can see on the next few pages.

By the way, higher stand classes include lower classes. For example, a K8 sign stand (green dot in the table) can also be used to mount road signs marked in our allocation with a purple, black, orange or yellow dot. This then helps you to always choose the right TL mounting device from our product range.

Table A-2: Page 1

Allocation of the mounting devices inside built-up areas (0,25 kN/m²)

Allocation of the mounting devices inside built-up areas (0.25 kN/m²) based on ZTV-SA, Annex 3, stability class as per TL Mounting Devices for Mounting Signs. All details are to be seen as a recommendation in combination with mounting devices by Peter Berghaus GmbH under **idealised** conditions. **Due consideration must always be given to the actual circumstances prevailing on site by the company concerned.**

Description	Road sign	Size 2 Mounting height in metres 2.2	2.0	1.5	0.6
Round sign	Ø 600 mm	K2	K2	K1	K1
Triangular sign	SL 900 mm	K2	K2	K2	K1
Square sign	SL 600 mm	K2	K2	K2	K1
Rectangular sign	900x600 mm	K3	K3	K3	K2
One-way street	800x300 mm	K2	K1	K1	K1
Traffic control board	1000x1500 mm	K6	K6	K5	K3
2 round signs	Ø 600 mm	K4	K3	K3	K2
Round sign with additional sign, one line	Ø 600 mm 330x600 mm	K3	K3	K2	K1
Traffic control board with round sign	Ø 600 mm 1120x875 mm	2 x K5	K8	K7	K5
2 triangular signs	SL 900 mm	K4	K4	K3	K2
Triangular sign with additional sign, one line	SL 900 mm 330x600 mm	K3	K3	K3	K2
Triangular sign with additional sign, three lines	SL 900 mm 600x600 mm	K4	K4	K4	K2
Square sign with additional sign, three lines	SL 600 mm 600x600 mm	K5	K4	K4	K2
"Stop" sign	SL 900 mm	K2	K2		
Diversion with number code	900x600 mm	K3	K3	K3	
End of diversion	350 x1050 mm	K2	K2	K2	
Sign 500 with additional sign, one line	1120x875 mm 330x600 mm	K7	K7	K6	K4
Triangular sign with round sign	SL 900 mm Ø 600 mm	K4	K4	K3	K2
Triangular sign with additional sign on board, two lines	SL 900 mm 450x600 mm	K7	K6	K5	K3
Two triangular signs and round sign	SL 900 mm	K7	K6	K5	K4
Triangular sign with additional sign, one line, and round sign	SL 900 mm 330x600 mm Ø 600 mm	K5	K5	K4	K3

Table A-1: Page 1

Allocation of the mounting devices outside built-up areas (0.42 kN/m²)

Allocation of the mounting devices outside built-up areas (0.42 kN/m²) based on ZTV-SA, Annex 3, stability class as per TL Mounting Devices for Mounting Signs. All details are to be seen as a recommendation in combination with mounting devices by Peter Berghaus GmbH under **idealised** conditions. **Due consideration must always be given to the actual circumstances prevailing on site by the company concerned.**

Description	Road sign	Size 2 Mounting height in metres Lower edge road sign 2.0	1.5	0.6
Round sign	Ø 600 mm	K2	K2	K1
Triangular sign	SL 900 mm	K3	K2	K1
Square sign	SL 600 mm	K3	K3	K2
Rectangular sign	900x600 mm	K5	K4	K2
Traffic control board	1000x1500 mm	2 x K9	2 x K9	2 x K5
2 round signs	Ø 600 mm	K5	K5	K3
Round sign with additional sign, two lines	Ø 600 mm 450x600 mm	K6	K4	K3
Round sign with additional sign, three lines	Ø 600 mm 600x600 mm	K7	K5	K3
Traffic control board with round sign	Ø 600 mm 1000x1500 mm	2 x K9	2 x K9	2 x K8
2 triangular signs	SL 900 mm	K6	K5	K3
Triangular sign with additional sign, two lines	SL 900 mm 450x600 mm	K6	K5	K3
Triangular sign with additional sign, three lines	SL 900 mm 600x600 mm	K7	K6	K3
Triangular sign with round sign	SL 900 mm Ø 600 mm	K6	K5	K3
Triangular sign with additional sign on board, two lines	SL 900 mm 450x600 mm	2 x K6	K7	K5
Triangular sign with additional sign on board, three lines	SL 900 mm 600x600 mm	2 x K6	K8	K5
Square sign with additional sign, two lines	SL 600 mm 450x600 mm	K6	K5	K3
Square sign with additional sign on board, three lines	SL 600 mm 600x600 mm	K7	K6	K3
Sign 500 with additional sign, one line	1000x1500 mm 330x600 mm	2 x K9	2 x K9	2 x K8
Triangular sign with additional sign, one line, and round sign	SL 900 mm 330x600 mm Ø 600 mm	K7	K7	K4
Round sign with sign 500 and additional sign, one line	Ø 600 mm 1000x1500 mm 330x600 mm	2 x K9	2 x K9	2 x K8

Table A-1: Page 2

Allocation of the mounting devices outside built-up areas (0.42 kN/m²)

Allocation of the mounting devices outside built-up areas (0.42 kN/m²) based on ZTV-SA, Annex 3, stability class as per TL Mounting Devices for Mounting Signs. All details are to be seen as a recommendation in combination with mounting devices by Peter Berghaus GmbH under **idealised** conditions. **Due consideration must always be given to the actual circumstances prevailing on site by the company concerned.**

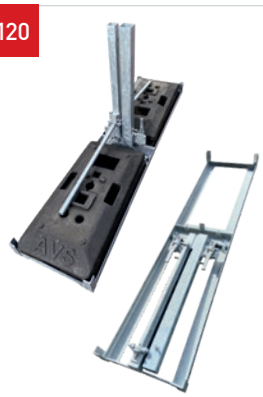
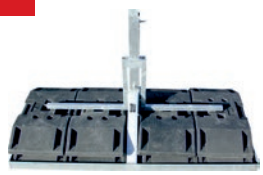
Description	Road sign	Size 3 Mounting height in metres Lower edge road sign 2.0	1.5	0.6
Round sign	Ø 750 mm	K4	K3	K2
Triangular sign	SL 1260 mm	K6	K5	K3
Square sign	SL 840 mm	K6	K5	K3
Rectangular sign	1260x840 mm	2 x K5	K7	K5
Traffic control board	1250x1600 mm	2 x K9	2 x K8	2 x K5
2 round signs	Ø 750 mm	2 x K5	K7	K5
Round sign with additional sign, two lines	Ø 750 mm 562x750 mm	K7	K7	K4
Round sign with additional sign, three lines	Ø 750 mm 750x750 mm	2 x K5	K7	K5
Traffic control board with round sign	Ø 750 mm 1250x1600 mm	2 x K9	2 x K9	K9
2 triangular signs	SL 1260 mm	–––	–––	–––
Triangular sign with additional sign, two lines	SL 1260 mm 562x750 mm	2 x K6	K8	K5
Triangular sign with additional sign, three lines	SL 1260 mm 750x750 mm	2 x K6	2 x K5	K6
Triangular sign with round sign	SL 1260 mm Ø 750 mm	2 x K6	K8	K5
Triangular sign with additional sign on board, two lines	SL 1260 mm 562x750 mm	2 x K8	K9	K8
Triangular sign with additional sign on board, three lines	SL 1260 mm 750x750 mm	2 x K9	2 x K8	2 x K6
Square sign with additional sign, two lines	SL 840 mm 562x750 mm	2 x K6	K8	K6
Square sign with additional sign on board, three lines	SL 840 mm 750x750 mm	K9	2 x K6	K7
Sign 500 with additional sign, one line	1250x1600 mm 412x750 mm	2 x K9	2 x K9	K9
Triangular sign with additional sign, one line, and round sign	SL 1260 mm 412x750 mm Ø 750 mm	K9	2 x K6	K7
Round sign with sign 500 and additional sign, one line	Ø 750 mm 1250x1600 mm 412x750 mm	Special con-struction required	2 x K9	2 x K9

Ordering Information

Description		Order No.
114 	K4 **TL sign stand type „City Start“** Sign stand* made of aluminium for 40 x 40 mm poles. Ideal for inner city use where only restricted space is available. Tested as per TL Mounting Devices 97 up to **K4** with four base plates K1. Weight: approx. 4.5 kg. Inside dimension approx. 444 x 830 (height 670) mm.	**EE 0740**
115  	K6 **TL sign stands: hinged stand** Hinged, handy sign stand* made of aluminium to take 40 x 40 poles. For swift sign mounting at (one-day) roadworks. Ideal for transport in the service vehicle. Tested to TL Mounting Devices 97 with five K1 base plates up to **K6**. Weight: approx. 16 kg. Inside dimension approx. 458 x 910 mm. Transport size: 475 x 1170 (height 165) mm, height mounted 970 mm. **Storage and transport rack for hinged stands** for safe transport and simple forklift loading of up to 10 sign stands EE0 760 • Optimised load securing function: no longer any need to secure each individual sign stand • Space-saving stacks: up to three transport racks can be stacked in the warehouse • Structured warehouse organisation: up to 30 hinged stands can be stored on just one square meter Dimensions: approx. 1.000 x 1.000 x 1.560 mm, height mounted 1.370 mm. Weight: approx. 30 kg.	**EE 0760** **AL 0760**
116 	K9 **TL sign stand 40 x 40 mm and 60 x 60 mm, long version** Sign stand* made of aluminium for 40 x 40 mm- or 60 x 60 mm poles, with peripheral angled frame to take up to 8 base plates K1. Tested as per TL Mounting Devices 97 up to **K9** with 8 base plates K1. Inside dimension on each side approx. 445 x 900 (height 1000) mm. Weight: approx. 20 kg. **Safety bar** for aluminium stand EE0750T (necessary to fulfil the TL) for additional securing of the base plates. Weight: approx. 2 kg	**EE 0750T** **EE 0751T**
117 	K8 **TL sign stand 60 x 60 mm** Sign stand* made of aluminium with peripheral angled frame to take up to 10 base plates K1. For 60 x 60 mm poles. Ideal for overhead cabling systems and for mounting traffic control boards. Tested as per TL Mounting Devices 97 up to **K8** with 10 base plates K1. Weight: approx. 24,5 kg. Inside dimension on each side approx. 458 x 900 (height 1000) mm. **Safety bar** for aluminium stand EE 0735 (necessary to fulfil the TL) for additional securing of the base plates. Weight: approx. 2 kg	**EE 0735** **EE 0731**
118 	2xK9 **TL sign stand 60 x 60, longer version** TL stand* made of aluminium for 60 x 60 mm pole, peripheral angled frame to take up to 16 base plates K1. Ideal for overhead cabling systems and for mounting traffic control boards. Tested as per TL Mounting Devices up to **2 x K9**. Inside dimension on each side approx. 900 x 934 (height 1000) mm. Weight: approx. 34.5 kg **Safety bar** for TL sign stand EE 0725 (necessary to fulfil the TL) for additional securing of the base plates. Weight: approx. 2.8 kg	**EE 0725** **EE 0721**

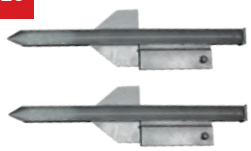
*Base plates K1 are not included. You can find them on page 71.

Ordering Information

		Description	Order No.
119		K8	**TL sign stand 60 x 60, long version** TL stand* made of galvanised steel for 60 x 60 mm pole. Peripheral angled frame to take base plates K1. Tested as per TL Mounting Devices up to **K8**. Weight: approx. 28 kg. Inside dimension on each side approx. 438 x 900 (height 750) mm. **Safety bar** (necessary to fulfil the TL) for additional securing of the base plates. Weight: approx. 4,2 kg Complete designation EE 0165	**EE 0160** **EE 0161**
120	 	K8	**TL sign stand: hinged stand, up to K8** Hinged, compact sign stand* made of galvanised steel, to take shaft tubes 40 x 40 or 60 x 60 mm. Peripheral angled frame to take K1 base plates. Maximum base plate size same as inside dimensions 880 x 430 mm. Safety bar included. Tested as per TL Mounting Devices 97 up to **K8** with 4 K1 base plates. Inside dimensions on each side: approx. 880 x 430 mm Transport dimensions: approx. 1950 x 480 (height 160 mm), Height when erected: approx. 950 mm; weight: approx. 49 kg. **Transport shoe for hinged stand** Transport shoe for hinged stand EE0185. For quick and easy forklift loading of the hinged stands. The transport shoe is fitted in the middle under the first hinged stand and other hinged stands are then stacked on top of it. Dimensions: approx. 580 x 450 x 140 mm; Weight: approx. 15 kg	**EE 0185** **EE 0185T**
121		K8	**TL sign stand 60 x 60, small version** TL stand* made of galvanised steel for 60 x 60 mm pole, peripheral angled frame to take up to 10 base plates K1. Tested as per TL Mounting Devices up to **K8** with 10 base plates. Weight: approx. 42 kg. Inside dimension on each side approx. 402 x 805 (height 960) mm. **Safety bar** (necessary to fulfil the TL) for additional securing of the base plates. Weight: approx. 4.5 kg Complete designation EE 0195	**EE 0190** **EE 0191**
122		2xK9	**TL sign stand 60 x 60, long version** TL stand* made of galvanised steel for 60 x 60 mm pole. Peripheral angled frame to take up to 16 base plates K1. Tested as per TL Mounting Devices 97 up to **2 x K9**. Inside dimension on each side approx. 805 x 805 (height 960) mm. Weight: approx. 59 kg. **Safety bar** (necessary to fulfil the TL) for additional securing of the base plates. Weight: approx. 6 kg. Complete designation EE 0145	**EE 0140** **EE 0141**
123			**Stand for overhead cabling systems** Galvanised, for poles 60 x 60 mm. Ideal as support for overhead control lines and cabling at crossroads traffic light systems. The safety bar means that concrete stones cannot be removed. The scope of supply includes a stand and a safety bar. Astructural analysis test certificate can be provided on request. Weight including safety bar: approx. 40 kg. Inside dimension on each side approx. 495 x 648 (height 600) mm. **Concrete stone** Dimensions: 625 x 220 x 130 mm (L x W x H), weight: approx. 38 kg	**A 5354** **A 5353**

*Base plates K1 are not included. You can find them on page 71.

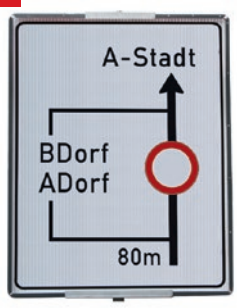
Ordering Information

	Description	Order No.
124	 **TL crash barrier holder** made of galvanised steel, to take poles 40x40 and 60x60 mm. The crash barrier holder is fastened with a screw to the U-profile of the crash barrier (**Superrail posts, Sigma, IPE 100**). Depending on the use of the pole, the crash barrier holder can be used for traffic control boards or road signs. Tested as per TL Mounting Devices 97. Weight: approx. 7 kg	**VZ 5101S**
125	 **TL crash barrier holder** made of galvanised steel, to take poles 40x40 and 60x60 mm. The crash barrier holder is fastened with a screw to the U-profile of the crash barrier (**Superrail posts, Sigma, IPE 100**) or also fastened to crash barriers with a middle or upper rail, such as the **Super-Rail Eco**. In this system, the pole that holds the road sign is fitted between the crash barrier and the upper rail. Weight: approx. 10.2 kg	**VZ 5111SM**
126	 **TL Crash Barrier Fixture ABU** Made of galvanised steel, to take shaft tubes 40x40 or 60x60 mm. Attachment with a clamping bracket is a safe, rational and low-cost method for fixing signs to existing **Sigma and IPE 100** crash barrier posts etc. Insert nose, fit bracket then lock inserted shaft tube with a wing bolt, that's all! Tested as per TL Mounting Devices 97. **For Poles:** 40x40 mm, round tubes diameter 42 mm, weight approx. 5 kg 60x60 mm, round tubes diameter 60 mm, weight approx. 5.8 kg	**VZ 5112SN** **VZ 5113SN**
127	 **TL crash barrier holder with side arm** TL crash barrier holder **(Superrail posts, Sigma, IPE 100)** for 40x40 mm or 60x60 mm poles as above but with side arm for mounting the sign outside the immediate traffic area. Tested as per TL Mounting Devices 97. Weight: approx. 18 kg	**VZ 510SA**
128	 **TL ground anchor** TL ground anchor made of galvanised steel for 40x40 mm poles. Tested as per TL Mounting Devices 97. Weight: approx. 9 kg TL ground anchor made of galvanised steel for 60x60 mm poles. Tested as per TL Mounting Devices 97. Weight: approx. 9.2 kg	**EE 0130** **EE 0131**
129	 **Universal TL ground anchor** Solid TL ground anchor made of powder-coated steel for 40x40 mm or 60x60 mm poles. Tested as per TL Mounting Devices 97. Weight approx. 17.8 kg	**EE 0134**
130	 **Wind brace** for supporting traffic control boards fastened just with ground pegs. Wind brace complete for 40x40 mm pole, consisting of: 2 extending telescopic tubes, fixture for 40x40 mm pole, adjustable in height, 2 ground pegs, small version. as above but for 60x60 mm pole or individual parts as spares: • 1 extending telescopic tube • 1 fixture for 40x40 mm pole, adjustable in height • 1 fixture for 60x60 mm pole, adjustable in height • 1 ground peg, small version	**EE 0200** **EE 0200A** **EE 0201** **EE 0202** **EE 0203** **EE 0204**

Ordering Information

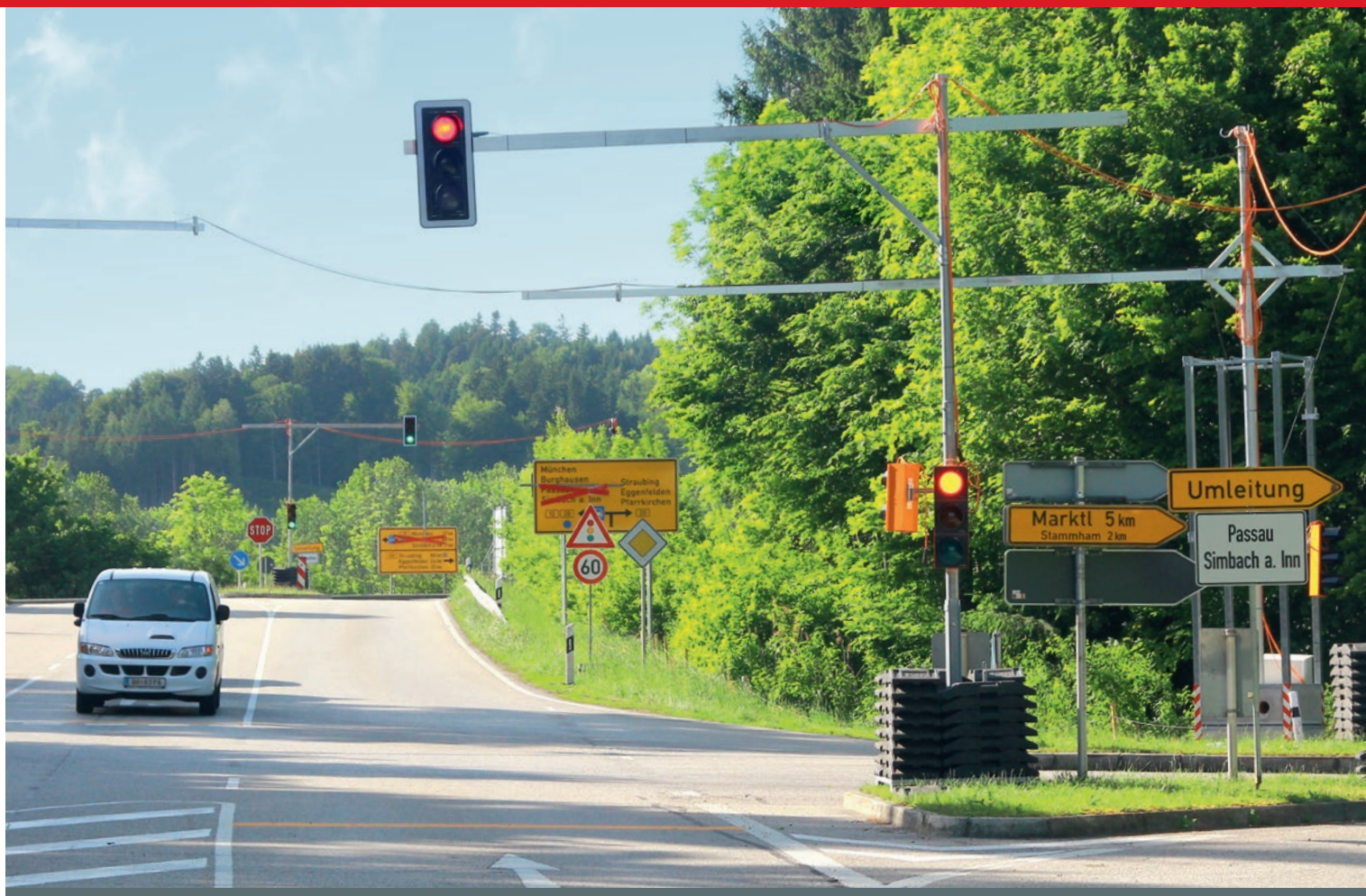
	Description	Order No.
131		
	Poles	
	made of **galvanised** rectangular tube, dimensions:	
	40x40x1.000x1,5mm	S 4822
	40x40x1.200x1,5mm	S 4823
	pole walls 1.5mm thick for 40x40mm: 40x40x1.500x1,5mm	S 4824
	weight per m: approx. 2kg 40x40x2.000x1,5mm	S 4825
	40x40x2.500x1,5mm	S 4826
	40x40x3.000x1,5mm	S 48260
	40x40x4.000x1,5mm	S 48262
	40x40x6.000x1,5mm	S 48261
	pole walls 2.0mm thick for 60x60mm: 60x60x2.000x2mm	S 4827
	weight per m: approx. 4kg 60x60x3.000x2mm	S 4828
	60x60x4.000x2mm	S 4828A
	60x60x6.000x2mm	S 4829
	pole walls 3.0mm thick for 60x60mm: 60x60x6.000x3mm	S 4829A
	weight per m: approx. 5.5kg	
	made of **aluminium** rectangular tube, dimensions:	
	40x40x2.000x2mm	S 4825C
	40x40x2.000x3mm	S 4825B
	40x40mm, pole walls 2mm thick: 40x40x3.000x2mm	S 48260C
	weight per m: approx. 0.8kg; 40x40x3.000x3 mm	S 48260B
	40x40mm, pole walls 3mm thick; 40x40x6.000x2mm	S 48261A
	weight per m: approx. 1.2kg; 40x40x6.000x3mm	S 48261B
	60x60x3.000x3mm	S 4828C
	60x60mm, pole walls 3mm thick: 60x60x3.000x4mm	S 4802
	weight per m: approx. 1.9kg; 60x60x4.000x3mm	S 4828B
	60x60mm, pole walls 4mm thick; 60x60x4.000x4mm	S 4804
	weight per m: approx. 2.4kg; 60x60x6.000x3mm	S 48291
	60x60x6.000x4mm	S 4806
	Dismountable mast for overhead cabling systems	
	divided mast made of aluminium rectangular tube, ideal for fast installation of overhead cabling systems	
	lower section: 60x60x3000x4mm	EE 0026A
	upper section: 60x60x3000x4mm (with shaft 50x50x4mm)	EE 0027A
132		
	Clamp without eyelet	
	for road signs, galvanised, for poles 40x40mm, weight: 0.2kg	S 4830
	for road signs, made of plastic, for poles 40x40 mm, weight: 0.1kg	S 4832
133		
	Wreath fixture for overhead cabling systems	
	for fastening the cables in overhead cabling systems. Inserted in the upper end of the pole and fastened with a clamping screw, weight: 1.3kg.	
	Wreath fixture for pole 40x40mm	MP 4023
	Wreath fixture for pole 60x60mm	EE 0032
134		
	Fixture for signal head	
	Galvanised, for pole 60x60mm, with three tube holders as fixture for signal head and request push-button. Weight approx. 1.8kg	EE 0030
135		
	Hinged fixture for signal head	
	Galvanised, hinged fixture for rectangular mast 60x60mm, with fixture for one signal head. Weight approx. 1.4kg	EP 6095

Ordering Information

	Description	Order No.
136	 **Small arm** Galvanised, small arm, extends from approx. 30 to 60 cm, for fastening a signal head. Weight: approx. 1.5 kg	EE 0036
137	 **Arm for radar detector** Aluminium arm for fastening a radar detector, approx. 50 cm long, weight: approx. 1 kg	EE 0035A
138	 **Hinged fixture for stationary arm** Galvanised, inner diameter 120 mm, for temporary attachment of a signal head, e.g. to an existing traffic light mast. With clamping screws for lateral adjustments, therefore fits on tube masts with a diameter of up to 120 mm. Weight: approx. 2.6 kg	EE 0038
139	 **Hinged fixture for round mast** Galvanised, inner diameter approx. 110 mm, for temporary attachment of up to 3 signal heads to a round mast, such as our rotating and tilting mast or aluminium round mast. Hinged, therefore also ideal for subsequent installation. Weight approx. 2.3 kg	EE 0037
140	 **Road sign magazine** Galvanised, with 18 or 42 slots to take or transport of 54 up to max. 126 road signs for our quick-fitting system per metre (three road signs on top of each other in each case). Road sign magazine, 1 m long, for up to 54 road signs Road sign magazine, 2 m long, for up to 126 road signs **Road sign holding tube** quick-fitting system, galvanised, consisting of galvanised steel, 40 x 40 mm and support 35 x 35 mm. Short retaining tube, which tapers at the bottom and protrudes slightly above the shield. The sign is permanently mounted with carriage bolts. The traffic sign magazine is ideally used for transport and storage. For on-site installation: use a 40 x 40 mm square tube - in the length of the desired installation height (lower edge of VZ) - and attach the signs, which are equipped with a retaining tube, to the top. In this way, traffic signs can be combined as desired in a matter of seconds. Short holding tube for round signs Ø 600 mm Short holding tube for round or triangular signs SL900 mm Short holding tube for additonal sign max. height 350 mm	EE 0300 EE 0302 S 4841 S 4842 S 4840
141	 **Traffic control boards** Traffic control board VZ 500, 3 mm aluminium, with edged and sealed protective edge with drilled holes. The highly reflective **microprismatic foil type RA 2** fits well protected inside the reinforced edge. Blank board without wording, just with black edge. The back is painted grey (RAL 7043 as per DIN). **Traffic control board size 2** Board size 1250 x 1600 mm, foil type RA 2, weight: approx. 20.8 kg **Traffic control board size 3** Board size 1250 x 2000 mm, foil type RA 2, weight: approx. 26 kg **Stock pallets for traffic control panels available on request.**	 VZ 4533 VZ 4535

Ordering Information

	Description	Order No.
142	 **Traffic control board: „Night construction site“** BASt test number: V4-69-2011 Traffic control board for night construction sites, complete with BASt-tested double warning light system Ø 340 mm with **LED technology** (12 V / 24 V) and with traffic sign 123 „Roadworks“ in size 3. Traffic control board made of 3 mm aluminium, with edged and sealed protective edge with drilled holes. The highly reflective **microprismatic foil type RA 2** fits well protected inside the reinforced edge, size: 1600 x 1250 mm. Mean power consumption (12 v): approx. 0.24 A, (24 V): approx. 0.15 A	**VZ 4570L**
143	  **Aluminium telescopic mast for traffic control boards** for quick and easy mounting of traffic control boards with maximum edge thickness of 50 mm by just one person. The telescopic mast system consists of 60 x 60 mm mast, lower U-profile fixture (freely adjustable) and extending telescopic mast with U-profile and lockable pin. The traffic control board is simply pushed into the upper fixture from below, raised to the required height, lowered onto the bottom U-profile and fixed with the clamping screw. That's all! Weight: approx. 12.6 kg	**EE 0791**
144	 **Fixture for traffic control board** Fixture for traffic control board with reinforced edge, galvanised. The sliding clamp holder makes it easy to mount traffic control boards at different heights; the fixture can also be adjusted to the side. The fixing screw in the holder securely retains the traffic control board which can be up to 40 mm thick to prevent it from moving sideways. Fixture for pole 40 x 40 mm, weight: approx. 2.9 kg Fixture for pole 60 x 60 mm, weight: approx. 3.3 kg	**EE 0105** **EE 0106**
145	 **Crossing out device** The crossing out device is clamped with the provided spacers to the traffic control boards without damaging the foil on the road sign. It consists of retroreflecting foil type RA 2 in red and clearly decommissions the road sign, without actually touching the worded surface. Crossing out made of aluminium for traffic control boards measuring 1250 x 2000 mm, complete with fixture Crossing out made of aluminium for traffic control boards measuring 1250 x 1600 mm, complete with fixture Crossing out device made of aluminium for traffic control boards, extending from 2 m up to 4 m, complete with fixture	**M 4750A** **M 4749A** **M 4751A**
146	 **Partial crossing-out device** as described above but with arm for decommissioning only partial areas of the road sign. Adjustable partial crossing-out device made of aluminium for large signs, complete with fixture. with cross 650 mm wide, arm 800 mm long with cross 1000 mm wide, arm 1000 mm long	**M 4752A** **M 4752B**



Mobile overhead cabling units and mobile mast systems

Mobile masts are indispensable when setting up temporary traffic safety measures. They are used for example as sturdy traffic light masts for high signals and also for the installation of overhead signals, depending on the specific version. The overhead cabling units and masts now with heights of 7 m respectively 7.9 m ensure safe overhead cabling way out of reach of pedestrians or vehicles. According to the pertinent regulations, overhead cabling above roads must have vertical clearance of at least 5 m for 50V and at least 6 m for higher voltages such as 230V mains voltage.

Berghaus Traffic Technology offers various mobile mast systems from its own production for overhead cabling at great heights and across long distances for the installation of temporary traffic light masts and high signals in varying quantities and heights, with or without side arm and modular installation systems for large signs. The masts are reliably weighed down with commercially available recycled base plates or various concrete pedestals from our range, depending on the mast system.

Structural calculations are available for many applications.

Ordering Information

Description | **Order No.**

147

With structural analysis test!

Overhead cabling units up to 7 m high

For stable installation of signal systems and overhead cabling at heights of up to 7 m. Ideal for long-term roadworks with our EPB mobile traffic light systems because the great height of the 7 m mast also makes it possible to take mains cables across the road. Overhead cabling systems for 230V mains voltage must have minimum vertical clearance of 6 m in the middle of the road. With structural analysis test for overhead cabling 7 m high, up to 3 traffic light signal heads and one EPB24 slave controller fitted to the mast.

Consisting of:	Order No.
1. TL sign stand 60 x 60 mm made of aluminium	EE 0735
2. Safety bar for sign stand	EE 0731
3. Steel shaft tube 60 x 60 x 6000 x 3 mm	S 4829A
4. Top element to extend shaft tube to 7 m height	S 4829F
5. Wreath fixture made of galvanised steel	EE 0032

Also needed to achieve the required stability:
12 K1 base plates *

148

With structural analysis test!

Overhead cabling unit with battery casing

For stable installation of signal systems and overhead cabling at heights of up to 6 m with simultaneous power supply. Ideal for long-term roadworks with our MPB mobile traffic light systems as the batteries provide the necessary voltage for several signal heads at the same time. No need for additional individual battery casings. With structural analysis test for overhead cabling 6 m high and up to 3 traffic light signal heads fitted to the mast.

Consisting of:	Order No.
1. TL sign stand 60 x 60 mm made of aluminium	EE 0735
2. Safety bar (half) for sign stand	EE 0732
3. Battery casing on the sign stand for 4 batteries	A 49590F
4. Steel shaft tube 60 x 60 x 6000 x 3 mm	S 4829A
5. Wreath fixture made of galvanised steel	EE 0032

Also needed to achieve the required stability:
6 K1 base plates* and 4 batteries 12V / 170Ah

*Base plates K1 are not included. You can find them on page 71.

Ordering Information

Description	Order No.
149 With structural analysis test!  **Aluminium round mast construction** in lightweight, stable aluminium version. Height: 6 m. Ideal for a robust overhead cable system or for safe equipment of a pedestrian crossing, for example. The aluminium round mast stands securely in the concrete pedestals. A locking holder secures the mast to prevent unintentional twisting in the concrete pedestals. A structural analysis test certificate can be provided on request. The aluminium round mast system includes the following parts: 1. Concrete pedestal BS 2, weight: approx. 645 kg 2. Aluminium round tube, length 6000 mm, Ø 100 mm 3. Signal head holder with suspension eyelets, for signal mast 4. Signal head holder with suspension eyelets, for signal mast (hinged) 5. Cable wreath (required for overhead cables) 6. Locking holder, secures the round mast against twisting	**BET 002** **AL 1030A** **A 5405** **EE 0038** **A 5407Z** **AL 1035A**
150 With structural analysis test!  **Aluminium lattice mast construction** in lightweight, stable aluminium version. Height: 5.50 m (with top element 6m height.) The 500 x 500 mm lattice mast construction in modular design is ideal for many different uses in traffic technology. The lattice mast can already be made using only two vertical aluminium supports and two connecting clamps. The lattice mast can be installed by means of various mounting elements with or without transverse arms and can therefore also be used for crossing roads with overhead cables, for mounting signs or signal heads above the carriageway. The aluminium lattice mast stands securely in the concrete pedestals. A structural analysis test certificate can be provided on request. The aluminium round mast system includes the following parts: 1. Concrete pedestal BS 2, weight: approx. 645 kg (min. of two pedestals must be used) 2. Vertical aluminium support, length 5000 mm, width 500 mm 3. Connecting clamp for creating a lattice mast 4. Mounting element with safety clip for crossbeam 5. Aluminium crossbeam, lenght 6000 mm, witdth 500 mm 6. Hinged signal head holder for horizontal arm 60 x 60 mm 7. Hinged signal head holder for vertical square tube 60 x 60 mm 8. Bracing set for bracing the crossbeam 9. Top element for extending to 6 metres in height **Also available as cable bridge on request.**	**BET 002** **AL 1000** **AL 1020** **AL 1011** **AL 1001** **EP 6090** **EP 6095** **AL 1015** **AL 1012**
151  **Concrete pedestal BS 2** reinforced, with 4 pcs. tube connections for tubes 60 x 60 and 1 round tube 100 mm Ø, dimensions: 1200 x 800 x 300 mm (L x W x H), weight: approx. 645 kg, stackable, purpose: road overhead crossing systems, extension arm masts, large-size signs, colour signal-yellow	**BET 002**

Ordering Information

Description	Order No.
152 With structural analysis test!  **Steel round mast construction up to height of 7.90 m** in modular steel design, dismountable mast up to height of 7.90 m. Ideal for long-term roadworks for stable installation of signal systems and overhead cabling, for safe equipment of a pedestrian crossing or when using our mobile traffic light systems type EPB. The great height of the 7.90 m mast also makes it possible to carry mains cables safely across the road, as minimum vertical clearance of 6 m in the middle of the road is specified for overhead cabling with 230V. The steel round mast stands securely in robust concrete pedestals. A special locking holder secures the mast to prevent unintentional twisting in the concrete pedestals. The mast reaches a height of 6 m when installed without the upper socket pipe. With structural analysis test for overhead cabling at a height of 6 and 7.90 m, up to 3 traffic light signal heads and one EPB24 slave controller fitted to the mast. The steel round mast system includes the following parts: 1. Concrete pedestal BS 2, weight approx. 645 kg 2. Lower pipe with clamping screws at the top, length approx. 2000 mm 3. Upper pipe, length 4300 mm 4. Additional socket pipe 2300 mm for extending to height of 7.90 m 5. Signal head holder with suspension eyelets, for signal mast 6. Signal head holder with suspension eyelets, for signal mast (hinged) 7. Cable wreath, new type, for overhead cabling 8. Hinged locking holder, secures round mast on BS2 to prevent unintentional twisting.	**BET 002** **A 5421B** **A 5422Z** **A 5410Z** **A 5405** **EE 0037** **A 5407Z** **AL 1035A**
153 With structural analysis test!  **Steel round mast construction up to height of 7.90 m with crossbeam** in modular steel design, dismountable mast up to height of 7.90 m and side crossbeam. Ideal for long-term roadworks for stable installation of signal systems with a high signal over the road, overhead cabling, for safe equipment of a pedestrian crossing or when using our mobile traffic light systems type EPB. Technical features as described above, but also with side crossbeam for a high signal up to Ø 300 mm over the road. The mast reaches a height of 6 m when installed without the upper socket pipe. With structural analysis test for overhead cabling at a height of 6 and 7.90 m, up to 4 traffic light signal heads and one EPB24 slave controller fitted to the mast. The steel round mast system with crossbeam includes the following parts: 1. Concrete pedestal BS 2, weight approx. 645 kg 2. Lower pipe with clamping screws at the top, length approx. 2000 mm 3. Upper pipe, length 4300 mm 4. Additional socket pipe 2300 mm for extending to height of 7.90 m 5. Signal head holder with suspension eyelets, for signal mast 6. Signal head holder with suspension eyelets, for signal mast (hinged) 7. Cable wreath, new type, for overhead cabling 8. Hinged locking holder secures round mast on BS2 to prevent unintentional twisting. 9. Transverse shoe for mounting the crossbeam 10. Aluminium rectangular tube as crossbeam 120 x 50 x 4000 mm 11. Aluminium rectangular tube as crossbeam 120 x 50 x 6000 mm 12. Signal head holder with suspension eyelet for crossbeam 13. Transverse stiffening system for crossbeam with holders	**BET 002** **A 5421B** **A 5422Z** **A 5410Z** **A 5405** **EE 0037** **A 5407Z** **AL 1035A** **A 5406** **A 5402** **A 5403** **A 5404** **A 5411**

Ordering Information

Description	Order No.
154	
With structural analysis test!	
	
Rotating and tilting mast	
in mobile, robust design, insertable. Height: 6 m, can be extended to 7.9 m. The upper insert tube can be fitted with a transverse shoe in order to mount a rectangular crossbeam 120 x 50 mm. The mast is weighted with base plates* as required. The scope of delivery includes four shaft tubes with chain eyelet, height 1 m to stabilise the stacked beacon feet. A structural analysis test certificate can be provided on request.	
The rotating and tilting mast includes the following parts:	
1. Rotating and tilting mast, 6 m, new type	**A 5401Z**
2. Additional insert mast for extending to 7.9 m height	**A 5410Z**
3. Aluminium rectangular tube as crossbeam 120 x 50 x 4000 mm	**A 5402**
4. Aluminium rectangular tube as crossbeam 120 x 50 x 6000 mm	**A 5403**
5. Holder for crossbeam with suspension eyelets, for signal head	**A 5404**
6. Holder for signal mast with suspension eyelets, for signal head	**A 5405**
7. Holder for signal mast with suspension eyelets, for signal head (hinged)	**EE 0037**
8. Transverse shoe for mounting the crossbeam	**A 5406**
9. Cable wreath (required for overhead cables)	**A 5407Z**
10. Transverse stiffening system for arm with holders	**A 5411**
11. Bracing set for bracing the crossbeam	**A 5419**
12. Holder for pedestrian push-button	**A 5428**
155	
With structural analysis test!	
	
Aluminium lattice mast with crossbeam	
in portable, modular version. Height 6 m. The universal aluminium lattice mast system allows for quick and safe mounting for example as signal mast with up to 8.70 m arm projection, as sturdy sign gantry, as lane control signal and for blocking carriageways, and as mounting device for roadworks warning signs and large-size signs. The combination of standard elements together with a basic system results in many different applications with and without arm. A structural analysis test certificate can be provided on request.	
The aluminium lattice mast includes the following parts:	
1. Aluminium round mast Ø 140 x 6000 mm	**AL 2001**
2. Aluminium rectangular tube 80 x 80 x 5000 mm	**AL 2000**
3. Connection braces for producing the lattice mast	**AL 2011**
4. Round mast retainer for stabilising the round mast	**AL 2012**
5. Aluminium top element for round tube with bracket for arm	**AL 2002**
6. Aluminium rectangular tube (for middle of arm) 120 x 60 x 4 x 6000 mm	**AL 2006**
7. Aluminium rectangular tube (for end of arm) 100 x 50 x 4 x 6000 mm	**AL 2007**
8. Signal head/detector bracket for arm 120 x 60 mm, hinged	**AL 2009**
9. Signal head/detector bracket for arm 100 x 50 mm, hinged	**AL 2010**
10. Signal head/detector/button bracket for square tube 80 mm, hinged	**AL 2008**
11. Cable wreath (required for overhead cables)	**A 5407Z**
12. Cable guide bracket for the back of the arm	**AL 2004**
13. Top element for the tip of the mast with cable guide and receptacle for cable wreath	**AL 2003**
14. Brace set with steel cable, signal head bracket, clamp and shackle	**AL 2005**
Without cross arm also ideal for safe mounting of large-size signs and roadworks warning signs!	
Also available as cable bridge on request.	
The necessary concrete pedestal BS4 is featured on the next page.	

*Supplied without K1 base plates, see page 71.

Ordering Information

Description	Order No.
156	
With structural analysis test! 	
Universal aluminium mounting system in portable, modular and practical version. The universal aluminium mounting system is ideal for fast, stable mounting of planning boards, diversion signs, roadworks signs and large signs announcing events. The basic system can be combined with our standard elements so that many different applications can be produced time and again using the same modular components. Structural analysis test reports are available for the most common sign sizes and mounting heights, and are supplied together with the order. At least two large sign holders are required for each sign; at the same time, these constitute the cross link between the round mast and the square masts. In addition, a corresponding number of concrete pedes-tals BS 4 will be required depending on the application. The aluminium mounting system consists of the following parts: 1. Aluminium round mast Ø 140 x 6000 mm 2. Aluminium square tube 80 x 80 x 6000 mm 3. Aluminium large sign holder for max. 70 mm sign edge width	**AL 2001** **AL 2000A** **AL 2049**
Structural calculations of the wind load as per **Euro code EC1** can be provided for the most common sign sizes and installation heights, as in the following examples (not to scale):	

Sign size (H x W)	Area in m²	Structural height	Concrete pedestal BS4
1500 x 2500 mm	3,75	2200 mm	2 piece
2000 x 3000 mm	6	2200 mm	2 piece
3000 x 2000 mm	6	2000 mm	3 piece
3000 x 3000 mm	9	2000 mm	3 piece
3500 x 3000 mm	10,5	2000 mm	2 x 2 piece
3000 x 4000 mm	12	2000 mm	2 x 3 piece
3000 x 4800 mm	14,4	2000 mm	2 x 3 piece
5000 x 3000 mm	15	2000 mm	2 x 3 piece
3600 x 4500 mm	16,2	2500 mm	2 x 4 piece

157	
	
Concrete pedestal BS 4 stackable, purpose: road overhead crossing systems, extension arm masts, large-size signs, reinforced, with 4 pcs. tube connections for tubes 60 x 60, 85 x 85 and 1 round tube 140 mm Ø, dimensions: 1200 x 1200 x 670 mm (L x W x H), weight: approx. 1775 kg Spindles for height adjustment are available as an accessories set (4 in a set).	**BET 004**

Our aluminium mounting system lets you save both time and money.

The practical, modular system with structural analysis test consists of top quality standard components which can be re-used time and again. With only four different parts, it is very quick and easy to mount. Compact concrete pedestals with practical loading openings guarantee maximum stability and uncomplicated handling during loading. The system can be extended as required simply by adding further stable concrete pedestals and lightweight but highly robust aluminium masts. This guarantees an appearance which always looks professional even for roadworks signs in differing formats. Low-cost system: thanks to the modular standard, no individual special designs are necessary: bizarrely constructed wooden structures or astoundingly complicated, time-consuming steel formations along Germany's roads are at long last a thing of the past!

Maintenance documentation Service Control – GPS-controlled, reliable and counterfeit-proof

The traffic regulations stipulate who is responsible for workplace safety at construction sites on public roads; among others, this person has to warrant the prescribed controls and inspection trips.

According to the official regulations ZTV-SA 97 „Additional Technical Contract Conditions and Guidelines for Work Involved in Safeguarding Roadworks", construction sites of longer duration must be inspected at least twice a day, namely at daybreak and when it starts to get dark. Similarly, at least one inspection has to be carried out on each work-free day. The traffic safety measures also have to be inspected again immediately after extreme weather conditions or a storm. Records must be kept of these inspection times.

Service Control GPS permits comprehensive checks of all maintenance criteria stipulated in point 7 (6) of ZTV-SA 97 in next-to-no time. Reliable records are kept of your daily construction site inspection trips, giving you counterfeit-proof documentation with date, exact time, coordinates (GPS) and an indication of the work performed. You can reliably verify at all times that and when you fulfilled your inspection obligations and were on site to check road signs, road markings, directing elements, lighting and protection systems without any shadow of a doubt. With every inspection, the respective current status of each traffic safety measure is registered using the menu of the Service Control GPS, with exact documentation of the maintenance work performed.

Similarly, Service Control GPS gives clients and road construction authorities reliable evidence that the stipulated construction site inspection trips really were carried out in the framework of the traffic safety obligations.

Ordering Information

	Description	Order No.
158	**Service Control GPS** The handy Service Control GPS unit allows you to extensively check all maintenance criteria demanded in point 7 (6) of the ZTV-SA 97 with electronic recording of your daily inspection trips. You receive counterfeit-proof documentation with date, exact time, coordinates (GPS) and the work performed. You can verify at all times that and when you fulfilled your inspection obligations and checked road signs, road markings, directing elements, traffic, lighting and protection systems on site. Service Control GPS features: • Robust industrial housing, IP code IP 65/DIN EN 60529 • OLED graphic display, excellent legibility even at subzero temperatures • Display of charge status and satellite signal strength • Intuitive handling with four soft keys and two additional buttons • Integrated clock and GPS module for precise position tracking • Printout and data storage with digital signature, therefore counterfeit-proof • Integrated RFID reader for all Berghaus ID tags • Internal memory with capacity for up to 499 maintenance cycles • LiPo high-powered battery for extended operating times	SC 1000
159	**Table fixture for Service Control GPS** Table fixture for Service Control GPS with connection for printer and battery charger. Including 230 volt USB charge adapter.	SC 1032
160	**Vehicle fixture for Service Control GPS** Vehicle fixture with USB lead and 12 volt charge adapter for the cigarette lighter. The Service Control GPS is automatically recharged in this fixture during inspection trips.	SC 1020
161	**Printer for Service Control unit** The printer can be used to print out all data collected in the Service Control unit. You will then receive a complete documentation of your maintenance trips sorted according to roadwork sites. Daily hand-written reports from your roadwork site team are no longer required. Printer with serial interface including connection cable	SC 0030
162	**Identification badge** Each identification badge includes only its allocated, individual identifying number, which cannot be manipulated. It is assigned to a roadwork measure and is permanently installed on site. The identification badge is used to check in and check out each maintenance team member at the correspondingly marked roadwork site. At the start of any maintenance work, the technician reads the RFID code of the ID tag into the Service Control GPS for an electronic record of his presence on site and of the performed maintenance work.	SC 0010

It is impossible to manipulate the data recorded by the Service Control GPS: The Service Control GPS comprises a self-contained system that manages without a computer. All the data bear a digital signature so that it is not possible to change the logs in retrospect. This provides reliable verification of the place, time and scope of performed maintenance work.

LED lighting systems – mobile lamps in daylight quality

Mobile LED lighting systems are the ideal solution for roadworks and incidents in temporary need of plenty of light. They can also be used as a reliable light source for events, festivals and major gatherings.

The mobile LED lighting systems are installed ready for operation with just a couple of simple actions in a few minutes. They are equipped with high-powered LED lamps and resistant to vibrations and shocks; it is impossible for the glass lamp to break. Depending on the specific version, mobile LED lighting systems are manufactured to be rain- and weatherproof for permanent use with IP code IP54 or IP65. In contrast to conventional technology, the mobile LED lighting systems go on and off without any start-up delay. Ballast units or complicated wiring are also superfluous, nor do the units need to cool down before they can be dismantled.

The mobile LED lighting systems turn night into day at roadworks and construction sites or even events. Set them up, switch them on: they're ready!

Ordering Information

Description		Order No.
163  Example with tripod	**Powermoon LEDMoon 400** Approx. 50,000 lumen luminous power, **230 V AC**, 50 Hz in new LED technology for connecting directly to 230 V – no electronic ballast needed. Switched on and off with no starting delay, no cooling down necessary. Resistant to vibrations and shocks; it is impossible for the glass lamp to break thanks to LED technology with very long service life >30,000 hours. IP code IP54, therefore rain- and weatherproof (permanent use). The LED Powermoon is packed for transport in a padded textile case. Supplied without tripod. Weight approx. 11 kg	PO 0050
	Powermoon LEDMoon 600 Approx. 75,000 lumen luminous power, **230 V AC**, 50 Hz in new LED technology for connecting directly to 230 V, otherwise same features as above. Supplied without tripod. Weight approx. 12 kg	PO 0100
164 	**Powermoon LED Master 400** Approx. 50,000 lumen luminous power in new LED technology, con-nection lead with NATO plug for connecting directly to **12 V / 24 DC** – no electronic ballast needed. Current consumption 41 V at 12 V / 20 A at 24 V. Switched on and off with no starting delay, no cooling down necessary. Resistant to vibrations and shocks; it is impossible for the glass lamp to break thanks to LED technology with very long service life >30,000 hours. IP code IP54, therefore rain- and weatherproof (permanent use). The LED Powermoon is packed for transport in a padded textile case. Supplied without tripod. Weight approx. 11 kg	PO 0200
	Powermoon LED Master 800 Approx. 90,000 lumen luminous power, **12 V / 24 DC**, current consump-tion 70 A at 12 V / 35 A at 24 V, connection lead with NATO plug, other-wise same features as above. Supplied without tripod. Weight approx. 13 kg	PO 0310
165 	**Fiberjack tripod compact** Telescopic tripod made of fibreglass reinforced plastic (GRP), rustproof, non-bending, non-conductive, light weight. Fittings of stainless steel or aluminium. Equipped with an attachment cone to take the lamp (DIN 14640) and integrated bracing triangle to fasten the supplied bracing set. Max. telescopic height **3.20 m**, transport length 1.22 m, weight approx. 10 kg	PO 1110
	Fiberjack tripod standard Telescopic GRP tripod as above, but with maximum telescopic height of **4.70 m**, transport length 1.80 m, weight approx. 11.5 kg	PO 1115

Ordering Information

Description	Order No.
166   **Pocketmoon** Mobile lighting system for rapid use, produces glare-free light in a radius of approx. 10 metres. Ideal as fast incident or roadworks lighting. Pocketmoon has a ball-shaped head for adjusting the direction of light and has a magnetic base for connection with the tripod or another magnetic surface. The LED lamp can be carried in a practical case for transport purposes, together with the 3.5 m high tripod. The transport weight is just 6 kg including tripod. Pocketmoon is therefore an ideal mobile lighting solution for many applications. Scope of supply: • Pocketmoon Powerdisk LED panels, waterproof and break-proof, no cooling down necessary • including tripod made of corrosion-resistant stainless steel, max. telescopic height 3.5 m • including 230V power unit • including 12V battery connection cable • packed completely ready for use in Softcase bag Dimensions: approx. 100 x 38 x 6 cm; total weight: approx. 6 kg	**PO 2050**
167  Example with tripod **Powermoon Transformer** Glare-free LED lighting balloon without balloon casing, twice as bright as a metal vapour lamp. Intelligent lighting system with the lamps transmitting control and switching signals to each other across a distance of 300 meters. Large roadworks or incident sites can be illuminated with e.g. 100 lamps across a length of up to 25 kilometres with central control from the Powermoon smartphone app. Attributes of the Powermoon transformer: • Ideal as universal lighting system for incidents or events, camps, roadworks, as crane lights and for replacing metal vapour lamps on light towers. • Glare-free like a textile balloon lamp, but without any fabric • Daylight in a radius of more than 60 metres or across a distance of 80 to 90 m • Patented 6-segment module system for variable light field. Permits radial and longitudinal oval light fields for roadworks and track construction. • Dimmed and switched by the new Powermoon smartphone app or by manual control • 12 DALI-controlled individual circuits for highly reliable operation • Self-cooling / passive cooling without fan • Ultralight robust carbon frame • Impact-resistant polycarbonate glass • Waterproof (IP67) and pressure-washer resistant • Every lamp can be extended with additional modules to 450,000 lumen **Powermoon Transformer 75 k, 75,000 lumen** with 230V safety plug, luminance: 75,000 lumen, triple variable light field, dimmable, with three angled LED lighting panels, supplied without tripod, weight approx. 8.2 kg **Powermoon Transformer 150 k, 150,000 lumen** with 230V safety plug, luminance: 150,000 lumen, 6-fold variable light field, dimmable, with six angled LED lighting panels, supplied without tripod, weight approx. 13.9 kg	**PO 2075** **PO 2150**

Ordering Information

Description		Order No.
168 	**LED Hand lamp** Robust, compact design. Power supplied by 6 V block battery 4R25, order no. G 4510, supplied without battery.	K 735
169 	**Mobile LED floodlight in practical case** Rechargeable mobile LED lighting system with Li-Ion battery and 230 V battery charger Luminous power up to 18.000 lm. Great luminous range up to 150 m, broad illumination with various fit-on lenses: diffused, orange, red. Six light modes for long operating time with one battery charge. Horizontal and vertical adjustment of LED lamp head. Telescopic stand, fully variable up to 1.60 m in height (upper edge LED lamp). Complete unit directly ready for use with all accessories in a compact case. Light weight, weatherproof, impact- and shock-proof. Technical data: Luminosity: standard 14.400 lm, boost 18.000 lm Light source: 18 x Cree XP-L Power LEDs Light modes: boost, 100 %, 75 %, 50 % brightness, 10%, blinking Burn time: 100 % brightness up to 5 h; 75 % up to 6 h; 50 % up to 9 h; 10% up to 49 h, blinking up to 17 h Rotary LED adjustment: 360° horizontal, 180° vertical, height up to 1.6 m Power supply: Li-Ion battery 54,4 Ah standby time up to 970 h Recharging: with 230 V AC battery charger Charging time: approx. 12 h IP code: IP66 Dimensions: approx. 520 x 410 x 210 mm Weight: approx. 14,8 kg	K 750
170 	**Mobile LED light mast system with generator, battery and solar module** Mobile LED light mast on trailer, complete with generator, battery and solar module as complete hybrid solution for reliable, grid-independent, extensively automated roadworks lighting. Trailer (750 kg) with integrated low-noise 2-cylinder diesel engine (Kubota), water-cooled, very low fuel consumption with start/stop system, large tank capacity of 145 l (up to 60 night-time missions with one tank of fuel), including solar module (350 Wp) and 600 Ah gel battery pack. Equipped with electric telescopic galvanised steel mast, max. height 8 m. Including four highly efficient energy-saving 150 watt LED floodlight spots (approx. 59,000 lumen/600 watt LED). Two brightness settings. Long service life up to 70,000 hours. Immediate bright light in contrast to conventional halogen lamps – no warming up or cooling down necessary, and shock-resistant. The mobile LED light mast system is equipped with smart energy management. The diesel generator starts up only as needed for an average of two to three hours per night. Automatic ON/OFF is also possible with the fitted daylight sensor. The mobile LED light mast system is ideal for mobile, fast use as roadworks lighting in civil engineering and road construction, at events or for use by fire brigades, police or emergency services. The well conceived hybrid solution with low-consumption generator, battery and solar module is ideal for lengthy grid-independent lighting assignments.	F 3200

DSD speed display system with immediate behaviour feedback and integrated success check.

The new DSD speed display, also known as dialogue display, works with radar technology and high-powered LEDs to make an active contribution to more traffic safety. Modern sensors capable of registering speeds already from 3 km/h make DSD ideal for use even in play streets. Suitable also for temporary use to reduce speeds in residential areas, near retirement homes, near schools or at roadworks. The break-proof lightweight unit is swiftly installed by one person in just 5 minutes. Various energy supply solutions round the system off.

DSD: reduces speed for maximum safety!

As an option, the myTrafficData online portal can be used to produce reports and configure the DSD. How heavy is the traffic at a certain time of day? How far are vehicle speeds being reduced? You can produce detailed, meaningful reports directly online with the DSD smart.

The web-based myTrafficData program package acts as the communications centre for your DSD measuring system. It gives you secure access to your data and systems wherever you are. myTrafficData lets you create set-up files, visualise graphics and reports, manage your systems and measuring points and even process external data formats.

Ordering Information

		Description	Order No.
171		**DSD speed display system light** LED speed display system DSD Gen 5 "light" for measurement and display of vehicle speeds. • Range up to 200 m • Measures speeds from 3 to 199 km/h • Numbers approx. 340 mm high • Yellow display • with automatic brightness control • with red-and-white edging • including Bluetooth module • Weight approx. 6.0 kg • With safety function (on reaching the stipulated limit value, a happy or sad face appears alternating with the speed.)	**DSD 001**
		DSD speed display system smart LED speed display system DSD Gen 5 "smart" for measurement and display of vehicle speeds. As above but including data logging module	**DSD 002**
		DSD manual control Manual control function for DSD for manual adjustment of the limit value directly at the device	**DSD 011**
		DSD colour change red/green Speed colour change function (red/green)	**DSD 015**
172		**DataCollector hand terminal for DSD** DataCollector hand terminal for DSD smart, for device set-up and data transfer via Bluetooth®, range approx. 80 m with visual contact, with SD card slot, including SD card	**DSD 103**
173		**Battery for DSD speed display system** 12V / 18Ah battery for DSD, runtime approx. 10 days	**DSD 010**
174		**DSD automatic fast battery charger** Automatic fast battery charger for DSD speed measuring system	**DSD 095**
175		**DSD power unit for 230 V** DSD power unit for 230V power supply (e.g. street lamp) in weather-proof housing with mains cable 5 m, automatic recharging overnight, runtime in case of mains failure approx. 3 days, can be plugged into mast holder (order no. DSD090)	**DSD 093**
176		**Solar unit for DSD light and smart** Solar system 100 W for DSD light and smart, incl. 18Ah backup battery and holder	**DSD 050**

Ordering Information

	Description	Order No.
177	  **DSD steel tripod** Steel tripod for DSD, max. height 2.1 m weight 22 kg	**DSD 100**
178	 **DSD mast and tripod holder** Mast and tripod holder for DSD for mounting on tripod or attaching to sign or light mast (diameter 60-160 mm), incl. mounting tool. With compartment to take a 12V /18Ah DSD battery or a 230V power unit	**DSD 090**
179	 **Smartphone app DSD light** Smartphone app DSD light, for setting up DSD light from smart phone or tablet, only suitable for Android devices **Smartphone App DSD smart** Smartphone App DSD smart, for setting up and evaluating DSD smart from smart phone or tablet, only suitable for Android devices	**DSD 101** **DSD 102**
180	 **DSD "WebReporter" software** "WebReporter" software for DSD speed display system Smart internet-based communication platform • for system configuration and data evaluation • swift compilation of meaningful reports • data processing in graphics and tables • suitable for presentation in .pdf format • output of v15, v50, v85 • intuitive user interface • no software installation necessary • internet access sufficient • customer section with password protection • no subscription: one-off costs for unlimited usage • basic licence for 1 user and 1 system	**DSD 104**

Height warning system type HWA – quick and easy

The mobile height warning system HWA by Peter Berghaus GmbH serves the purpose of preventing damage to bridges and vehicles not only during construction work or when the road layout has been changed. At a certain distance before the bridge or underpass, a heated special light barrier system with directional logic measures the height of all entering vehicles. If the adjusted vehicle height is exceeded, an acoustic alarm is triggered for five seconds. At the same time, the bright two-aspect 300 mm Ø LED signal heads positioned about 30 metres before the bridge or underpass switch from amber to continuous red for this particular vehicle. The vehicle that is too high is stopped, thus effectively preventing accidents with damage to building structures and vehicles.

The system is reset with a key, a time module, by radio or SMS message, depending on the option. The height warning system can be installed quickly and easily at any location using our mobile mast system. Precise alignment is possible with our laser alignment set, available separately. Power is supplied by 12 V batteries or from the 230 V mains supply. The control unit is accommodated in a watertight lockable casing (IP66) and is equipped with a mains/battery changeover function as a standard feature, together with low voltage protection and reverse polarity protection.

All parts such as light barriers, horn, signal heads and key-operated push buttons are connected by means of watertight plug-in connectors (IP67). Typical applications for the mobile height warning system include for example: bridge structures, railway underpasses, tunnel roads and entrances to depots, underground car parks or multi-storey car parks etc.

Ordering Information

Description	Order No.
181  **Height warning system type HWA** The mobile height warning system HWA serves the purpose of preventing damage to bridges and vehicles not only during construction work or when the road layout has been changed. Typical applications include for example: bridge structures, railway underpasses, tunnel roads and entrances to depots, underground car parks or multi-storey car parks, etc. The height warning system HWA consists of: • 2 light barriers for height detection with directional logic system, heater and weather protection cover, with fixture for inserting on aluminium profile tube 120 x 50 mm, completely assembled as well as with 4-pin plug • 2 signal heads, 2-aspect, 300 mm Ø, with LED technology, lens colour: red and yellow, with fixture for mast assembly, complete with connection cable and 7-pin plug • 1 IP76 signal horn in weatherproof design, complete with fixture for mast assembly, connection cable and 4-pin plug • 1 key-operated push-button for clearing/resetting the system, complete with fixture for mast assembly, connection cable and 4-pin plug (delivery incl. 2 keys) • 1 control unit in waterproof housing, lockable, with control elements, fuses, plug-in connections for signal heads, horn, light barriers, key operated push-button, fixture for mast assembly. Operating voltage 230 VAC and 12 V DC with automatic mains/battery changeover	**HWA 0001**

For safe, vibration-free mounting, we recommend the use of our rotating and tilting mast system. You will find this mounting device on page 54.

Directing installations and blocking devices

Roadwork sites involving road and motorway construction or general changes in road layout put many road users under increased stress by confronting them with an unusual situation. This is intensified especially at night or when it is raining and makes them feel even less certain in road traffic.

In the case of roadwork measures, it is therefore especially important to implement a clear traffic directing system that excludes the weak points in the traffic safeguarding measures right from the start and makes the traffic flow quite clear. A foresighted, carefully executed traffic safeguarding system makes it much easier for the road user to pass through the roadwork site. This means that accidents in the roadwork site area can be reduced to a minimum, and all road users and roadwork site personnel are provided with a maximum of protection.

Peter Berghaus GmbH offers an extensive range of products with directing installations, blocking devices and accessories for all traffic areas, including for example plastic directing walls, which can be filled with water and are often used on company premises, or plastic road barriers with contact strips, which are commonly also called anti-fall devices, TL safety beacons for traffic control purposes, and BASt-tested directing kerbs and directing humps.

You will find everything required for reliable safeguarding of road and motorway construction work measures according to RSA, ZTV-SAand also StVO in our production and delivery programme.

Ordering Information

	Description	Order No.
182	 **TL beacon light „TopLED“** – BASt Test no. V4-13-2001/V4-14-2001 With LED, lens Ø 180 mm, yellow, switchable flashing and continuous light. Certified according to TL Warning Lights and TL safety beacons. The light is operated with only one battery; weight: approx. 0.8 kg; packaging unit 10 pieces Light outlet on one side Light outlet on both sides	 **G 4671** **G 4672**
183	 **TL safety beacon** – BASt Test no. 942 K 001 TL safety beacon type D605S. The beacon is locked firmly in place by being rotated 90° in the base plate. This provides a crash-safe system. The white plastic body is provided with an all-around foil protective edge; weight: approx. 4.5 kg Storage and transport frame available on request. **Hatched beacon** with **foil type RA 2,** one-sided, pointing left **Hatched beacon** with **foil type RA 2,** one-sided, pointing right **Hatched beacon** with **foil type RA 2,** double-sided, pointing left and right **Arrow beacon** with **foil type RA 2,** one-sided, pointing left **Arrow beacon** with **foil type RA 2,** one-sided, pointing right **Arrow beacon** with **foil type RA 2,** double-sided, pointing left and right	 **B 5810** **B 5811** **B 5812** **B 5810P** **B 5811P** **B 5812P**
184	 **TL beacon light „OptiLED“** – BASt test no. V4-47-2011 With LED, yellow lens, changeover blinking/continuous light. Operated with slimline battery 6 V/12 Ah (order no.: G 4560) in lamp housing (supplied without battery). For turn-around beacon, WD system. Light outlet on one side.	 **G 4810**
185	 **TL safety beacon as turn-around beacon** – BASt test no. V4-11/2014 As described above, but with WD system. Simply turns through 180 degrees for use pointing to the left or right. For use with beacon light OptiLED (order no. G 4810). Storage and transport frame available on request. **Arrow turn-around beacon** with **RA 2 foil**, one-sided, pointing to the left or right.	 **B 5700**
186	 **TL beacon light base plate** – BASt Test no. 942 K 001 TL beacon base plate type D300M made of recycling material for use with the TL beacons. With opening 60 x 60 mm, 40 x 40 mm, 2 x 42 Ø, as well as for beacons with D-, M- or WD-system. The base plate has two handles, a battery trough, and is stackable. In addition, the base plate is equipped with an anti-slip system. Dimensions: 870 x 420 x 110 mm (L x W x H); Weight: approx. 28 kg	 **B 5850**
187	 **Hinged beacon** – BASt test no. 99 2K 09/LU as quick alternative to the beacon set or to the traffic cone. Quick alternative to the beacon set or directing cone. Takes up little space in transport and is ready in next-to-no time. BASt-tested as per TL safety beacons. Base plate equipped with non-slip system. Weight approx. 12 kg; Dimensions: 970 x 215 mm, base plate: 750 x 187.5 mm reflective film. Also available on request with reflective film or as arrow beacon! With **RA 2 film**, one-sided, pointing to the left With **RA 2 film**, one-sided, pointing to the right With **RA 2 film**, two-sided, pointing to the left and right	 **B 5871** **B 5872** **B 5870**

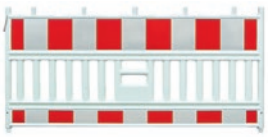
Ordering Information

	Description	Order No.
188	 **Star LED signal light** Changing light bulbs is a thing of the past, thanks to new light-emitting diode technology, with handle, lens 180 mm Ø, switchable flashing light or continuous light. With electronic twilight detector and space for two 6 V block batteries. With „Secura" anti-theft device; weight: 1.1 kg Operation/h approx: 3,400 h flashing with 2 x 7 Ah batteries 850 h static with 2 x 7 Ah batteries 8,000 h flashing with 1 x 50 Ah batterie 2,000 h static with 1 x 50 Ah batterie Lens yellow Lens red Universal spanner for detector and anti-theft device	 **BL 5270** **BL 5271** **E 2641**
189	 **LED flash signal light** with handle, 200 mm Ø, yellow lens with electronic LED flash. With external ON/OFF switch. Supplied with two 6 V batteries. LED flash signal, light light outlet to one side LED flash signal, light light outlet to both sides Secura fixture for flash signal light Fixture for fastening on a collapsible sign	 **BL 5300** **BL 5301** **BL 0001** **BL 0002**
190	 **Block battery 4R25, zinc-coal 6 V/7 Ah** Power supply for beacon and signal lights **Block battery 4R25, air-oxygen, 6 volts/50 Ah** Power supply for beacon and signal lights. This battery has a conside-rably higher capacity then a zinc-coal battery. Packaging unit 20 pieces	**G 4510** Special prices available for larger quantity purchases! **G 4580**
191	 **Slimline battery, air-oxygen, 6 V/12 Ah** Power supply for beacon light OptiLED (order no. G 4810). The flat slim-line battery is inserted in the back of the light. Packaging unit 24 pieces	**G 4560**
192	 **Compact battery, 6 volts/60 Ah** Compact battery, 6 V/60 Ah, air-oxygen version for long-term roadwork sites, mercury-free and cadmium-free. Packaging unit 5 pieces **Compact battery, 6 volts/120 Ah** Compact battery, 6 V/120 Ah, air-oxygen version for long-term roadwork sites, mercury-free and cadmium-free. Packaging unit 5 pieces	 **G 4584** **G 4585**
193	 **Battery casing** made of plastic for two 6V block batteries 4R25. With separate lid and low-heat device plug (2-pin) for connecting the light cable. Suitable for both zinc-coal batteries and air-oxygen batteries. Supplied without batteries	 **G 4660**

Ordering Information

	Description	Order No.
194	 **Foil barrier tape** Warning tape made of polyethylene, with practical dispenser in special box, roll 500 m long, 80 mm wide, red-and-white hatched marking on both sides. Weight: 1.3 kg	**M 4613**
195	 **Barrier holder** For fastening foil barrier tape and holding boards. Barrier holder with safety hanger, 1300 mm long, painted red, weight: 1.7 kg	**S 5136**
196	 **Warning flags** made of cotton, hemmed all-round, cloth, approx. 500 x 500 mm round stick 800 mm long; weight: 0.2 kg made of cotton, hemmed all-round, cloth, approx. 750 x 750 mm round stick 1,000 mm long; weight: 0.3 kg	**W 4906** **W 4910**
197	 **Collapsible sign** fluorescent, with three times road sign Vz 101 „Hazard“, including pro-tection case. Side length 700 mm, daylighting Side length 900 mm, daylighting Side length 700 mm, retroreflective Side length 900 mm, retroreflective	Other symbols and lettering on request. **VZ 0070** **VZ 0090** **VZ 0105** **VZ 0110**
198	 **Masking tape for crossing out road signs** self-adhesive masking tape made of black fluorescent orange-and-black foil, suitable for crossing out retroreflecting road signs. Dimensions: 33 m long, 75 mm wide Dimensions: 33 m long, 50 mm wide **Retroreflecting** masking tape, dimensions: 12.5 m long, 75 mm wide	**M 4614** **M 4614A** **M 4614R**
199	  **Traffic mirror, rectangular / round** made of acrylic glass, for indoor and outdoor use. With curved mirror surface in waterproof plastic case, with tilting joint and universal pipe clip, diameter 48 to 90 mm. Dimensions: 400 x 600 mm, weight: approx. 6 kg 600 x 800 mm, weight: approx. 9 kg 800 x 1.000 mm, weight: approx. 14 kg 800 mm diameter; weight: approx. 11 kg	**VZ 1040** **VZ 1041** **VZ 1042** **VZ 1051**

Ordering Information

Description		Order No.
200 	**Directing wall made of plastic, type M** For quick and easy use in town and on country roads. The weight can be increased by filling the directing wall with water, sand, etc. Including connecting element. Dimensions: 1070 x 400 x 490 mm (L x W x H); volume approx. 7 5 litres Weight: 7 kg Element, colour red Element, colour white	 **G 4600R** **G 4600W**
201 	**Mobile road barrier** made of plastic, dimensions 2000 x 1000 mm, road barrier: 250 mm high, contact strip: 100 mm high, foil type 1 retro-reflecting, including lamp supports. According to TL Road Barriers and to the ZTV-SA regulations. For use with the K1 beacon base plate type universal. Weight approx. 12 kg; supplied without lamps and base plates.	 **S 5104**
202 	**K1 beacon base plate for road barrier and TL mounting devices** K1 beacon base plate type universal, made of recycling material, with opening 60 x 60 mm and 40 x 40 mm and 2 openings 42 mm round tube. Weight: approx. 28 kg Dimensions: 782 x 400 x 100 mm (L x W x H)	 **B 4669**
203 	**K1 beacon base plate for mobile road barrier, TL mounting devices and other universal uses** K1 beacon base plate type W, made of recycling material, with 2 openings 60 x 60 mm and 3 openings 40 x 40 mm or 42-mm round tube. Weight approx. 28 kg Dimensions: 800 x 400 x 115 mm (L x W x H)	 **B 4675**
204 	**Storage and transport rack for mobile road barriers** Rack for mobile road barriers, made of metal, hot-galvanised, for storage and transport of up to 20 portable crash barriers made of plastic or steel (2 m), with pick-up rails for transport by fork-lift truck. Stacking support for above mentioned storage and transport rack, price per piece (4 pieces required per rack)	 **S 5106** **S 5106A**
205 	**Mobile road barrier (self-standing)** made of plastic, dimensions 2000 x 1000 mm, road barrier: 250 mm high, contact strip: 100 mm high, foil type 1 retro-reflecting, including lamp supports. The individual elements are connected with a hook-and-eye system. Tested as per no. 3 of the TL Road Barriers and produced according to the ZTV-SA regulations. Erected on the rotating feet permanently fitted to the grid. Weight approx. 19 kg; supplied without lamps	 **S 5170**

Ordering Information

Description		Order No.
206	**Directing kerb made of recycling material** BASt-tested	
	With openings of 60 x 60 and 40 x 40 mm. The elements can be easily connected to one another by means of a simple joint (dovetail). One marking stud R4 each is installed on the two slanted sides. To avoid accidents, please use beginning and ending piece for directing kerbs which are slanted on one side. Dimensions: 750 x 340 x 200 mm (L x W x H) Weight: 33 kg	
	Directing kerb, colour red	**G 4450**
	Directing kerb, colour white	**G 4451**
	Beginning piece, colour red	**G 4452**
	Ending piece, colour white	**G 4453**
207	**Directing hump made of recycling material** BASt-tested	
	Directing hump made of recycling material for placing on the road surface. Equipped with non-slip system and with socket devices for visible signage and illuminated bars. Coupling hooks and safety screws give the elements the necessary stability, while combining them with sufficient flexibility for going round bends. Please use the suitably lowered end pieces A and B at the start and end of the directing hump. Dimensions: 1000 x 270 x 90 mm (L x W x H); colour: yellow Weight: approx. 16.5 kg	Also available with arrow film or in other directions.
	Directing hump	**G 4900**
	End piece A, with coupling hook	**G 4901**
	End piece B, with safety screw	**G 4902**
	Illuminated bar, two-sided, with 14 yellow reflectors	**G 4903**
	Visible signage, (mini beacon) with flexible rubber adapter, without handle, dimensions: 155 x 680 mm (W x H), weight: approx. 1 kg	
	RA 2 film, two-sided, pointing to the left and right	**G 5000**
	RA 2 film, two-sided, pointing to the left and right	**G 5000A**
208	**Carriageway humps made of recycling material**	
	Carriageway hump or speed bumps made of recycling material, with reflectors and structured surface. Carriageway hump for 10 km/h:	
	Middle part, colour yellow 500 x 430 x 60 mm (L x W x H), weight 11.1 kg	**G 7050**
	Middle part, colour black 500 x 430 x 60 mm (L x W x H), weight 11.1 kg	**G 7051**
	End part, colour yellow 215 x 430 x 60 mm (L x W x H), weight 4 kg	**G 7052**
	End part, colour black 215 x 430 x 60 mm (L x W x H), weight 4 kg	**G 7053**
	Carriageway hump for 20 km/h:	
	Middle part, colour yellow 500 x 430 x 50 mm (L x W x H), weight 10.4 kg	**G 7054**
	Middle part, colour black 500 x 430 x 50 mm (L x W x H), weight 10.4 kg	**G 7055**
	End part, colour yellow 215 x 430 x 50 mm (L x W x H), weight 4 kg	**G 7056**
	End part, colour black 215 x 430 x 50 mm (L x W x H), weight 4 kg	**G 7057**
	Fastening set for carriageway hump, 2 screws M13 – 10 x 110 mm incl. washer and dowel	**G 7060**

Marking foil and accessories

Changed road layouts or roadwork situations put many road users under considerable stress. Unusual routing, larger volumes of traffic, narrower lanes and speed limits demand the full attention of every motorist. Stressful conditions like these are further compounded when it gets dark and rains.

Yellow lane marking lines through roadworks and at changed road layouts make a considerable contribution to safety. Highly reflective temporary lane markings give road users a clearly visible indication of where to go, particularly in the dark and in wet driving conditions.

Temporary yellow markings can be produced with different materials such as marking paint, spray plastic, thermoplastic or lane marking foil. Marking materials used at roadworks must withstand being rolled over by heavy commercial vehicles throughout the entire duration of the construction work, with a clear directional effect in every weather. Once the construction work has finished, the temporary marking has to be removed again. The marking material must therefore be selected so that it can be removed from the road surface again gently and without leaving any residues, in an environmentally friendly procedure that is appropriately fast.

Berghaus Traffic Technology therefore offers a complete range of temporary lane marking foils for all traffic categories with outstanding day and night visibility, available in various widths and colours. The adhesion properties of the foils can be enhanced by using a primer that is specially rated to the different marking foils and applied to the road surface; this primer coating is indispensable for long-term construction work. The offered foil laying devices make it easier to apply the lane marking foils. BASt-tested marking studs, reflector elements, visual signs and two-component adhesive round off the lane marking range.

Ordering Information

Description	Order No.
209  **Thin-layer marking foil** BASt Test no. 95 1A 11.26 These foils are self-adhesive, reflecting and are used for short-term changes in the road layout. They are easy to use. We recommend applying a primer for even better adhesion. Marking arrows available on request. Roll 100 m, 12 cm wide, yellow Roll 100 m, 12 cm wide, white Roll 100 m, 15 cm wide, yellow Roll 100 m, 15 cm wide, black Roll 100 m, 25 cm wide, white Roll 100 m, 25 cm wide, yellow	 **MG 4650** **MG 4651** **MG 4652** **MG 4653** **MG 4657** **MG 4658**
210  **Primer** For laying and remove the thin-layer marking foil without any problems, it is advisable to prepare the base surface with primer. Approx. 5 kg primer are required for 100 m foil. Packing drum, 7 kg Packing drum, 35 kg	 **MP 4601** **MP 4600**
211  **Thick-layer marking foil** BASt-tested This foil is free of all pollutants. It is highly suitable for long-term roadwork measures. This foil is reflecting with net reinforcement. The higher stability of this foil means it is very easy to remove markings. Available as type I or type II, in 12 cm, 15 cm and other widths in each case, yellow or white. Thick-layer marking foil and primer available on request.	
212  **Silver-bronze for pre-marking** Silver-bronze for pre-marking, per tub 5 kg Silver-bronze for pre-marking, per tub 10 kg	 **M 4612B** **M 4612A**
213  **Foil laying device** We recommend this foil laying device for longer marking distances. It glues and presses down each individual marking foil simultaneously. The pre-marking line can be followed exactly using the sighting device in the front section. The foil laying device is completely hot-galvanised. Weight: 40 kg	 **MP 4603**
214  **Foil-pressing roller** Shorter marking distances can be laid by hand. For this purpose, the foil-pressing roller is an effective aid, which is used to press down the foil after being laid. Replacement roller for foil-pressing roller	 **MP 4605** **MP 4906**

Ordering Information

		Description	Order No.
215		**Distance measuring unit** folding, with parking stand and measured value resetting, indispens-able, e.g., during marking work, measuring range 9999.9 metres. Protective bag made of nylon	**M 4700** **M 4705**
216		**Marker with base plate** BASt Test no. 96 1Z 17.02/KE The BASt-tested markers are ideal for the purpose of carriageway separation. Covered with glued-on foil type II (foil size 40 x 40 mm). To be glued on or screwed on (without fastening screws). Dimensions 300 x 120 mm (H x W) Markers, incl. foot with reflectors, two-sided	**MB 3030**
217		**Plastic reflector element** BASt Test no. V4-64/2010 Plastic reflector element, yellow, with two-sided reflector element 40 x 14 mm and predrilled rubber plate for fastening	**G 3058**
218		**Marking stud Ø 120 mm** BASt Test no. V4-30/2000 made of polyethylene, yellow (RAL1023), 120 mm Ø, 19 mm high one-sided, 2 reflectors (R 2) two-sided, 4 reflectors (R 4) Also available in white or made of aluminum.	**M 4615** **M 4616**
219		**Adhesive for marking studs** Cold adhesive, two components (tub 10 kg) incl. hardening powder	**M 4618**

Mobile crash barriers – mobile road restraint systems

Mobile crash barriers at roadworks clearly enhance traffic safety. They reliably separate opposing traffic flows, protect road users from leaving their lane and prevent severe accidents caused by oncoming traffic. Mobile crash barriers also provide extensively safe working conditions within the roadworks area.

Peter Berghaus has been producing mobile road restraint systems for more than 20 years now. Intensive development work and extensive practical experience flow into all our products. We can offer a suitable, tested ProTec crash barrier for practically every possible application. In opting for a mobile crash barrier by Peter Berghaus, you will also benefit from these advantages, such as tested safety with high containment levels; reflectors in protected recesses, fitted at the same height in all ProTec systems; generous water drainage opening - water does not accumulate at the barrier, nor does it get splashed up onto the windscreen of the vehicle behind; low ASI values with a great focus on passenger safety; quick and easy installation, as ProTec crash barriers are unloaded swiftly on site and positioned and fitted with just one or two screws; highly economical storage, loading and transport capacities thanks to the compact design; and much more besides.

Mobile crash barriers in the ProTec family can be used to cover all possible uses from A to D pursuant to the ZTV SA with professional installation, force-fit transition and absolute precision. Starting, end and transition structures for fastening to permanent crash barrier elements and mobile (ProTec) systems are also available, together with dilatation sections (length compensation elements) and the „ProTec-Exit“ quick-action opening for emergency services.

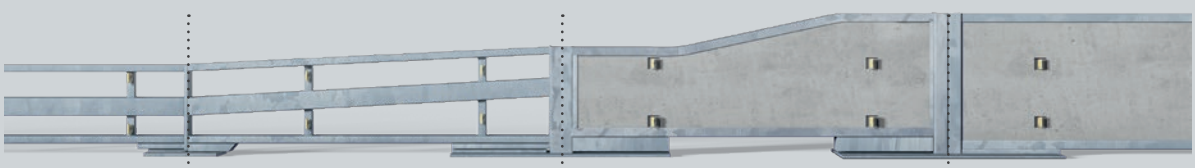
More information about our comprehensive product range with mobile crash barrier systems is also available on the internet at **www.mobile-schutzwaende.de**.

Advantages of the ProTec family at a glance:

- test conditions as per DIN EN 1317-2
- smallest effective range class
- narrow structural width needs minimum space requirements
- quick and easy installation
- reflectors mounted in protected recess
- generous water drainage opening under the crash barrier
- no risk of aquaplaning or of dirt accumulating in front of the crash barrier
- systems with successfully tested tipping length limitation (KLB element)
- rubber-based stands protect the road surface
- low element weight for high transport loading volume
- wide range of connection and special elements
- repair elements for swift reconstruction after an accident
- force-fit connections available for all ProTec barriers

The ProTec family consists of several successfully tested mobile crash barriers – for all application areas of mobile road restraint systems pursuant to the ZTV-SA. Despite differing shapes and structures, all mobile crash barriers in the ProTec family can be combined with each other and fitted together with force-fit connections. Mobile crash barriers in the ProTec family can also be combined with stationary restraint systems or mobile systems by other manufacturers with a force-fit connection.

Combination example for a force-fit connection across the whole ProTec family.



ProTec 50 City

Containment level	T1
Effective range	W2
ASI value	A
Structural width	0.24 m
Height	0.50 m
Element length	2 m
Min. installation length	135 m
Ground anchoring	no
Weight per m	23.5 kg

ProTec 50

Containment level	T1
Effective range	W2
ASI value	A
Structural width	0.24 m
Height	0.50 m
Element length	6 m
Min. installation length	149 m
Ground anchoring	no
Weight per m	28.7 kg

ProTec 51

Containment level	T1/T3
Effective range	W2/W3
ASI value	A/A
Structural width	0.24 m
Height	0.50 m
Element length	6 m
Min. installation length	136 m
Ground anchoring	yes**
Weight per m	28.7 kg

ProTec 80

Containment level	T1/T3/H1
Effective range	W1/W2/W6
ASI value	A/A/A
Structural width	0.24 m
Height	0.50 m
Element length	6 m
Min. installation length	156 m
Ground anchoring	no/no/yes*
Weight per m	80 kg

ProTec 100

Containment level	T1/T3/H1
Effective range	W1/W2/W6
ASI value	A/A/A
Structural width	0.25 m
Height	0.56 m
Element length	6 m
Min. installation length	137 m/118 m
Ground anchoring	no/no/yes**
Weight per m	124 kg

ProTec 120

Containment level	T1/T3/H1
Effective range	W1 / W2 / W5
ASI value	A/A/A
Structural width	0.30 m
Height	0.60 m
Element length	10 m
Min. installation length	120 m/150 m
Ground anchoring	no/yes*
Weight per m	163 kg

ProTec 121

Containment level	T1/T3/H1
Effective range	W1/W1/W5
ASI value	A/A/B
Structural width	0.24 m
Height	0.63 m
Element length	10 m
Min. installation length	156 m
Ground anchoring	no/no/yes*
Weight per m	170 kg

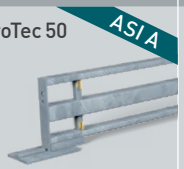
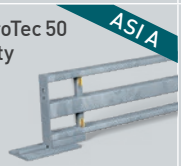
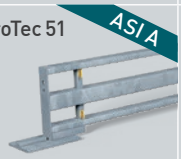
ProTec 160

Containment level	H1
Effective range	W4
ASI value	B
Structural width	0.50 m
Height	0.80 m
Element length	10 m
Min. installation length	120 m
Ground anchoring	yes*
Weight per m	300 kg

ProTec 161

Containment level	T1/T3/N2/H1/L1
Effective range	W1/W1/W3/W3/W3
ASI value	A/A/B/B/B
Structural width	0.25 m
Height	0.80 m
Element length	10 m
Min. installation length	126 m
Ground anchoring	no/no/yes*/yes*/yes*
Weight per m	315 kg

* only start fasten to the ground ** only start/end fasten to the ground

Containment level \ Effective range	W1	W2	W3	W4	W5	W6
T1	ProTec 100 ASI A 	ProTec 50 ASI A 				
	ProTec 120 ProTec 121 ASI A 	ProTec 50 City ASI A 				
	ProTec 80 ASI A 	ProTec 51 ASI A 				
	ProTec 161 ASI A 					
T3	ProTec 121 ASI A 	ProTec 100 ASI A 	ProTec 51 ASI A 			
	ProTec 161 ASI A 	ProTec 120 ASI A 				
		ProTec 80 ASI A 				
N2			ProTec 161 ASI B 			
H1			ProTec 161 ASI B 	ProTec 160 ASI B 	ProTec 120 ASI B 	ProTec 80 ASI A 
					ProTec 121 ASI B 	ProTec 100 ASI A 
L1			ProTec 161 ASI B 			

Ordering Information

Description	Order No.
220  **Crash barrier ProTec 51** The narrow and light crash barrier system fulfils containment level T1/W2 and T3/W3 with the ideal impact force level „A". Low dead weight of just 28.7 kg per m. Structural width 24 cm. Reflectors are fastened to each side at the top and bottom of the crash barrier at regular intervals. Generous water drainage opening of 5 m length for every 6 m element. Dimensions: 500 x 240 x 6000 mm (H x W x L), weight: approx. 28.7 kg/m Price per m.	**PT 05010**
221  **Starting/end piece for ProTec 50/51** Starting piece and end piece for crash barrier ProTec 51. Dimensions: 500 x 240 x 5000 mm, weight: approx. 130 kg	**PT 0505**
222  **Transition element ProTec 50/51 to ProTec 100** Transition element for mobile crash barrier ProTec 50/51 to system ProTec 100 or vice versa. Dimensions: 500 x 240 – 250 x 2000 mm, weight: approx. 66 kg. **Transition element ProTec 50/51 to ProTec 120** Transition element as above, but to ProTec 120 or vice versa. Dimensions: 500 – 600 x 240 – 250 x 2000 mm, weight: approx. 73 kg	**PT 0513** **PT 0512**
223  **Dilatation element for ProTec 51** Length compensation element for our mobile crash barrier ProTec 50/51. Dimensions: 500 x 240 x 6000 mm, weight: approx. 195 kg	**PT 05481**
224  **Tilting length limiting element (KLB) for ProTec 51** Tilting length limiting element for mobile crash barrier ProTec 50/51. Dimensions: 500 x 240 x 1980 mm, weight: approx. 93 kg	**PT 05471**

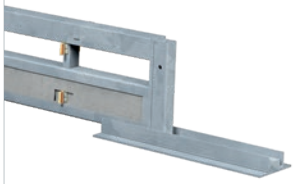
Application areas according to Figure 2 (ZTV-SA)		Relevant vehicle type	Proved containment level acc. to DIN EN 1317-2	Proved level of the range of effectiveness
Dis.	Location of road restraint system			
A	Between roadwork site and oncoming traffic	Passenger car	≥ T2	≤ W4
		Lorry	≥ H1	Adapted to location (≤ W8)
B	Between roadworks and flowing traffic	Passenger car	≥ T1	≤ W3
		Lorry	≥ T3	Adapted to location (≤ W8)
C	Between roadwork site and flowing-off traffic	No road restraint system required		
D	Between roadwork site and opposite flows of traffic	Passenger car	≥ T1	≤ W3
		Lorry	≥ T3	≤ W4
E	Between opposite flows of traffic in the diversion area	Passenger car	≥ T2	≤ W4
		Lorry	≥ H1	≤ W4

Suitable mobile road restraint systems

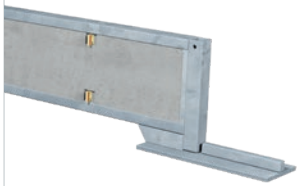
Table 5 here on the right shows an excerpt taken from chapter 6.11 of the ZTV-SA („Additional Technical Contract Conditions and Guidelines for the Work Involved in Safeguarding Road Works") which explains the criteria for using mobile crash barriers.

These application areas (A to D) are illustrated with an example on page 85.

Ordering Information

Description		Order No.
225 	**Crash barrier ProTec 50 City** ProTec 50 City is the „handy" version of the proven mobile crash barrier ProTec 50, designed for urban use. As in all ProTec crash barriers, reflectors are fitted at regular intervals at the top and bottom on either side. There's a generous water drainage opening. Although intended for urban use, ProTec 50 City has been successfully tested under the same strict conditions that apply for use on the motorway. ProTec 50 City mastered the impact tests at 80 km/h with containment level T1 and effective range W2 at the ideal impact force level „A". In addition, the speed limit through urban roadworks is usually reduced to just 30 km/h which makes these excellent test results even more impressive, with further positive implications for safety in the event of a vehicle colliding with the crash barrier. The low element weight of just 23.5 kg per metre and the easily handled element length of 2 m with a structural width of 24 cm make this crash barrier particularly suitable for city use. The narrow crash barrier ProTec 50 City is the ideal choice for safe roadworks in the urban setting, particularly when space is at a premium! Dimensions: 500 x 240 x 2000 mm (H x W x L), weight: approx. 23,5 kg/m Price per m.	**PT 0500C**
226 	**Turning element ProTec 50 City** Turning element for using the mobile crash barrier ProTec 50 City in narrow curves or lane switches. Dimensions: 500 x 240 x 600 mm, weight: approx.30 kg	**PT 0509C**
227 	**Crash Barrier ProTec 80** The new mobile crash barrier ProTec 80 is an ideal combination of the open, lightweight ProTec 50 with the sturdy stability of the compact ProTec systems, but with a clearly reduced weight of just 80 kg per metre. It has a structural width of 24 cm. The reduced transport costs thus make ProTec 80 even more efficient. Tested successfully to DIN EN 1317: T1/W1, T3/W2 and H1/W6, each with impact force levels A. Dimensions per element: 500 x 240 x 6,000 mm (H x W x L), weight approx. 80 kg/m	**PT 0800**

Ordering Information

Description		Order No.
228 	**Crash barrier ProTec 100** Very narrow, compact crash barrier system ProTec 100 fulfils containment level T3/W2 with the extremely low impact force level „A“. Minimum space requirements thanks to structural width of 25 cm. Two reflectors are fastened to each side of the crash barrier at intervals of approx. 1.40 m. Generous water drainage opening of 4 m length for every 6 m element. Dimensions: 560 x 250 x 6000 mm (H x W x L), weight: approx. 124 kg/m Price per m.	**PT 1000**
229 	**Starting / end piece for ProTec 100** Starting piece and end piece for crash barrier ProTec 100. Dimensions per element: 560 x 250 x 5000 mm, weight: approx. 500 kg	**PT 1005**
230 	**Dilatation element for ProTec 100** Length compensation element for our mobile crash barrier ProTec 100. Dimensions: 560 x 100 x 1130 up to 1800 mm, weight: approx. 174 kg	**PT 1046**
231 	**Tilting length limiting element (KLB) for ProTec 100** Tilting length limiting element for mobile crash barrier ProTec 100. Dimensions per element: 560 x 120 x 2500 mm, weight: approx. 300 kg	**PT 1007**

Levels of the range of effectiveness	
Classes of the levels of the range of effectiveness (W)	Levels of the range of effectiveness
W1	W ≤ 0,6 m
W2	W ≤ 0,8 m
W3	W ≤ 1,0 m
W4	W ≤ 1,3 m
W5	W ≤ 1,7 m
W6	W ≤ 2,1 m
W7	W ≤ 2,5 m
W8	W ≤ 3,5 m

The range of effectiveness is similar to the German school report marks.

The smaller the number, the better the result. The range of effectiveness is specified in W1 to W8. These figures refer to real dimensions. W8, e.g., means that a protective wall moves by 3.5 metres in a crash (according to DIN EN 1317). What is measured here is the deflection after a crash from the front edge of the wall to the rear edge of the wall. This means that the total space required by a protective wall with a range of effectiveness of W8 is smaller than or equal to 3.5 metres! With W1, the space required would only be 0.6 metres. However, not every wall is capable of completing a test with a result of W1. If you require a protective wall or would like to invite tenders successfully, find out first which systems are available on the market with which ranges of effectiveness. Just ask us. We will be glad to advise you!

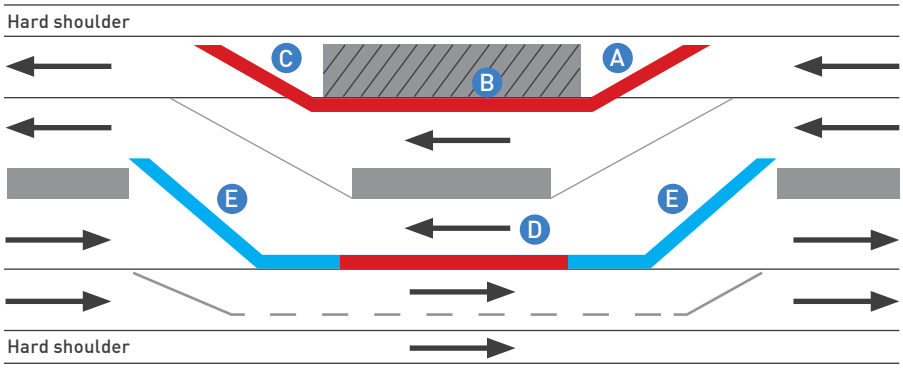
Ordering Information

Description		Order No.
232 	**Crash barrier ProTec 120** Compact crash barrier system with high containment levels T3/W2 and H1/W5 and extremely low impact force level „A". Minimum space requirements thanks to structural width of 30 cm. Two reflectors are fastened to each side of the crash barrier at intervals of approx. 1.40 m. Generous water drainage opening of 8 m length for every 10 m element. Dimensions: 600 x 300 x 10000 mm (H x W x L), weight: approx. 163 kg/m Price per m.	**PT 1200**
233 	**Crash barrier ProTec 121** Narrow, compact crash barrier system with high containment levels T3/W1 and H1/W5 and impact force level „B". Minimum space requirements thanks to structural width of 24 cm. Two reflectors are fastened to each side of the crash barrier at intervals of approx. 1.40 m. Generous water drainage opening of 8 m length for every 10 m element. Dimensions: 630 x 240 x 10000 mm (H x W x L), weight: approx. 170 kg/m Price per m.	**PT 12100**
234 	**Starting / end piece for ProTec 120 / ProTec 121** Starting piece and end piece for crash barrier ProTec 120. Dimensions: 600 x 300 x 5000 mm, weight: approx. 600 kg Starting piece and end piece for crash barrier ProTec 120. Dimensions: 630 x 240 x 5000 mm, weight: approx. 600 kg	**PT 1205** **PT 12105**
235  Example	**Transition element ProTec 100 to ProTec 120** Transition element for mobile crash barrier ProTec 100 to system ProTec 120 or vice versa. Dimensions: 560 – 600 x 250 – 300 x 2000 mm, weight: approx. 330 kg	**PT 1012**
236 	**Dilatation element for ProTec 120 / 121** Length compensation element for our mobile crash barrier ProTec 120. Dimensions: 600 x 300 x 1130 up to 1800 mm, weight: approx. 240 kg Length compensation element for our mobile crash barrier ProTec 121. Dimensions: 600 x 300 x 1850 up to 2510 mm, weight: approx. 300 kg	**PT 1246** **PT 12146**
237 	**Transition element for ProTec 120 to stationary crash barrier** Transition element from ProTec 120 to a stationary B-crash barrier. Supplied without middle stands. Dimensions per element: 750 x 120 x 1150 mm, weight approx. 59 kg Transition element for right Transition element for left	 **PT 1210** **PT 1212**

Ordering Information

	Description	Order No.
238 	**Crash barrier ProTec 160** Narrow, compact crash barrier system with high containment level H1/W4 and low impact force level „B". Minimum space requirements thanks to structural width of 50 cm. Two reflectors are fastened on either side of the crash barrier at intervals of approx. 1.40 m. Generous water drainage opening of 8 m length for every 10 m element. Dimensions: 800 x 500 x 10000 mm (H x W x L), weight: approx. 300 kg/m Price per m.	**PT 1600**
239 	**Transition element ProTec 120 to ProTec 160/161** Transition element from mobile crash barrier ProTec 120 to the ProTec 160 system or vice versa, e.g. for transition from application area D to E. Dimensions per element: 600 – 800 x 300 – 500 x 2000 mm, weight: approx. 530 kg	**PT 1612**
240 	**Crash barrier ProTec 161** Narrow compact crash barrier system with containment levels T1/W1, T3/W1 and low impact force level "A" and also N2/W3, H1/W3, L1/W3 and impact force level "B". Minimum space requirements thanks to very slight structural width of just 25 cm. 14 reflectors fitted to each side of the crash barrier. Generous water drainage opening. Dimensions: 800 x 250 x 10,000 mm (H x W x L), weight: approx. 315 kg/m. Price per metre:	**PT 16100**
241 	**Lowering element for ProTec 161** Start and end piece for crash barrier ProTec 161 Dimensions per element: 807 x 250 x 5,000 mm (H x W x L), Weight: approx. 1,060 kg	**PT 16105**

Application areas for transportable road restraint systems on two-lane roads
for example ProTec 120/121 + ProTec 160/161



Direction of traffic

Portable crash barrier ProTec 120/121
Portable crash barrier ProTec 160/161

Application area

Roadworks zone

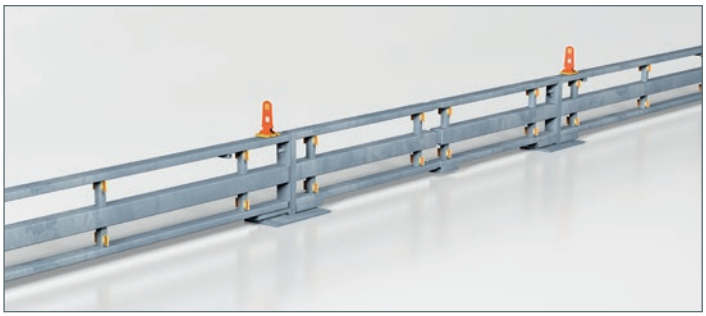
The ProTec family can be used to protect the entire road layout in roadworks pursuant to ZTV-SA 97, both in the transition area (E) and for separating flows of oncoming traffic (D).

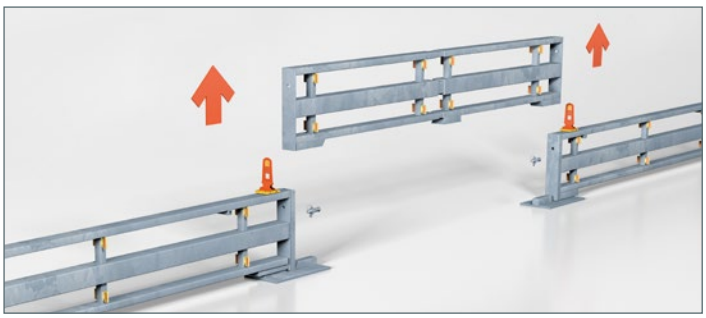
Table 5 in chapter 6.11 of the ZTV-SA („Additional Technical Contract Conditions and Guidelines for the Work Involved in Safeguarding Road Works") explains the criteria of use for mobile crash barriers (see the table on page 80 of this catalogue). These application areas are illustrated in Fig. 2 of the ZTV-SA. We have produced the diagram shown here on the basis of Fig. 2 of the ZTV-SA, featuring our ProTec crash barriers in accordance with the tested properties. See for yourself: we can now cover **all application areas** from A to D and the necessary transitions from E to D and back again **with just one product family**! Special adapters ensure a precise **force-fit connection** from ProTec 120 to ProTec 160/161 and vice versa.

Whether traffic control is necessary between roadworks and oncoming or parallel traffic, between contraflow traffic or even in transition areas: **when it comes to safety at roadworks, mobile crash barriers from the ProTec family are always first choice!**

Ordering Information

Description	Order No.
242  **ProTec-Exit 50 – quick access for emergency services** In an emergency, our ProTec-Exit 50 can be opened quickly without any tools by road maintenance crews, the police, fire brigade or emergency services. All that is necessary is to loosen the cotter pin at the ProTec-Exit 50 elements and remove the interlocking wedge, then the crash barrier can be opened. The modular design permits openings from three metres up to any required length, depending on local conditions. ProTec-Exit 50 is highly versatile in use; for 4:0 or 3:1 road layouts it should preferably be fitted several times along the crash barrier which can often extend for several kilometres, or also at tunnel entrance and exit points. The removable ProTec-Exit 50 elements are ideal not only for the emergency services: if necessary, they can naturally also be used to guide traffic away through the emergency opening. Complete „ProTec-Exit 50" emergency opening system consisting of: • 2 rigid ProTec-Exit 50 elements • 1 flexible ProTec-Exit 50 element • 4 quick connectors for opening without tools • 2 middle stands • Visual signs to make it quick and easy to find the ProTec-Exit 50 Length approx. 9 m; total weight approx. 325 kg	**PT 0549**





We have developed ProTec-Exit 50 and ProTec-Exit 120 as easily separated elements for mobile crash barriers that can be opened quickly in an emergency without needing tools. Just a couple of simple actions are all it takes to release the force-fit connection of the crash barriers and open the ProTec-Exit 50 or ProTec-Exit 120 elements.

The resulting emergency opening then gives the fire brigade, emergency services and police easy access through the otherwise closed, mobile crash barrier. In special cases it is also possible for traffic to be diverted away through the emergency opening.

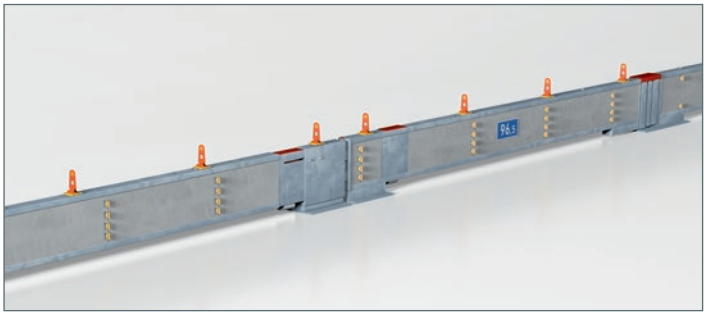
Please scan the corresponding QR code with your smart phone to see an animation of the ProTec-Exit system!

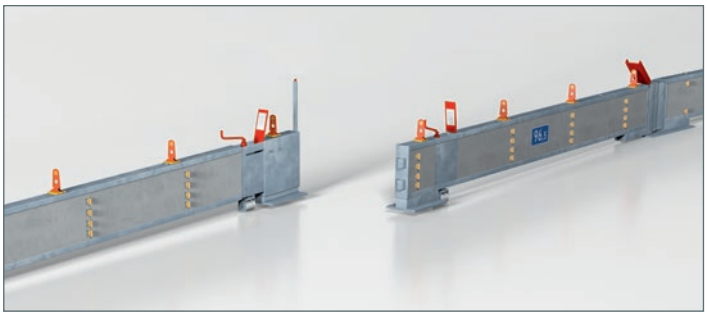
ProTec-Exit 50

ProTec-Exit 120

Ordering Information

Description	Order No.
243  **ProTec-Exit 120 – quick access for emergency services** ProTec-Exit 120 can be put at any point in the road layout. Reflecting visual signs clearly indicate the start and end of the ProTec-Exit 120 for emergency services even at night or during poor weather conditions. In closed condition, it has a force-fit connection which can be quickly opened by hand in an emergency to create a wide opening for the emergency services to drive through. In the standard version, ProTec-Exit 120 with its two fully hinged gates of five metres each produces an opening of altogether ten metres. The ProTec-Exit 120 is recommended for use in lengthy 4:0 or 3:1 road layouts at repeated intervals along the crash barrier which can often be several kilometres long. It can also be retrofitted to mobile ProTec crash barriers that have already been installed on site by simply replacing the corresponding elements on the spot. The large gates of the ProTec-Exit120 which can be opened without tools are ideal not only as quick access for the emergency services: in special cases they can naturally also be used by the police to swiftly guide traffic away from the confined roadworks through this large emergency opening. Length approx. 10 m; total weight approx. 1805 kg	PT 1249





Ordering Information

Description	Order No.
244 **Mobile attenuators for ProTec crash barriers** Energy-absorbing attenuators are fitted at the start of a mobile crash barrier and offer road users additional protection at road works and changed road layouts. Attenuator SMA type 80 WZ, tested as per EN 1317 Part 3, non-redirective, speed class 80 Km/h, redirective range Z1, permanent lateral displacement D3, ASI B, requires no maintenance, without connection element on mobile crash barrier type ProTec: this has to be ordered separately (always state which ProTec system is involved!). Dimensions attenuator: approx. 680 x 750 x 3600 mm (H x W x L) Weight attenuator with base plate approx. 1250 kg	**PT 5100**
 Attenuator SMA type 110 WZ, anchored, tested as per EN 1317 Part 3, non-redirective, speed class 110 Km/h, redirective range Z1, permanent lateral displacement D1, ASI B, requires no maintenance, without connection element on mobile crash barrier type ProTec: this has to be ordered separately (always state which ProTec system is involved!). Dimensions attenuator: approx. 660 x 750 x 6000 cm (H x W x L) Weight attenuator with base plate approx. 1500 kg	**PT 5110**
245 **TMA (Truck Mounted Attenuators)**  Truck mounted attenuators (TMA) fastened to the rear of working vehicles (trucks) consist of yielding aluminium honeycombs on the inside. In the event of an accident, the impact energy of the vehicle is converted into deformation energy, most of which is absorbed by the TMA, with clearly reduced accident consequences, both for company staff and for road users. We offer TMA truck mounted attenuators (impact pads) including mobile warning trailers for coupling to trucks. Please ask us about TMA!	

Ordering Information

Description	Order No.
246  **Sign Scout (8th edition)** „With safety from Berghaus…“ List of German traffic signs, practical tips regarding stable construction site road signs and regarding the use of portable traffic signal systems – a useful companion for your trouser pocket; 64 pages	RW 0100
247 **Road signs** Retroreflecting road signs as per StVO (German road traffic code) are available in all stipulated sizes, foil types, versions with and without reinforced edging or individual tests. Please ask for the required signs!	

Excerpt from the delivery programme

General conditions of sale, delivery and payment

The following conditions apply exclusively to all business transactions with us. Deviating purchasing conditions as well as other agreements do not become a part of the contract unless confirmed by us in writing.

General information
With this catalogue, all previous catalogue, price lists and price agreements lose their validity. This price list is subject to technical changes and errors. All pictures similar.
Dimensions and weights are approximate.

Conditions of delivery and payment

Prices:

Our prices are always understood in Euro (€), which also means ex works and without packaging, unless otherwise agreed. The list prices do not include the respectively and additionally accruing statutory taxes.

Offers, brochure information, advertisements, and list prices are always without engagement and not binding for us.

If the date of payment is exceeded, default interest to the amount of 8 % above the base lending rate of § 247 BGB (German Civil Code) will be charged.

Delivered goods remain our property until payment has been made in full. In case of a sale to third parties prior to full payment of the goods, the seller acquires, without further ado, the right to claim the purchase price demand specified for the third-party purchaser.

Furthermore, the purchaser is obliged, upon the request of the seller, to assign these claims of seller expressly to the third-party purchaser. If the purchaser collects these claims on his own, he does so on a trust basis on account of the seller who is entitled to the collected proceeds and to whom the collected proceeds must be delivered.

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The shipping procedure is carried out from here always at the risk of the purchaser, even if carriage-paid delivery has been agreed.

Delivery time:

Adherence to the delivery time is provided to a large extent. If the delivery time is exceeded on our part, you are not entitled to any damage claims or to a cancellation of the order. According to the circumstances in each case, events of force majeure release us either in whole or in part from the incurred obligations.

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Invoicing is provided in Euro (€) according to the list prices, deductions, conditions, and surcharges for special versions applicable on the day of delivery.

Mobile crash barriers ProTec

The ProTec family

For every application - from small urban construction sites to kilometer-long motorway stretches, with small construction widths or low dead weight - the ProTec family offers a solution. Whether ProTec 50 for narrow partitions and in inner-city areas, ProTec 120 as a compact variant or ProTec 161 with extremely high stability - every construction site situation can be equipped individually. Also for accidents and other emergencies, there are special solutions for fire departments, rescue services and police to reach the danger zone quickly.
All elements of the ProTec series are quick and easy to assemble. They can be connected with each other, but also with stationary guards or transportable systems from other manufacturers. All ProTec safety barriers and accessories are tested for containment levels T1, T2, T3 and H1. Rubber underlaid stands protect the road surface, even when the barrier is stationary for long periods. A large water passage ensures that there is no risk of aquaplaning and dirt accumulation.

ProTec 161

ProTec 161 - the narrow safety barrier. Successfully tested according to DIN EN 1317 with an effective range of W3 for containment levels N2, H1 and L1.

Mobile attenuators for ProTec crash barriers

Energy-absorbing attenuators are fitted at the start of a mobile crash barrier and offer road users additional protection at road works and changed road layouts.

ProTec 100 - digitally set in scene

Exciting views on our website: The ProTec 100 and the special elements of the system as 360° view and as video.

More information on page 76.

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