DIALOGUE-DISPLAY

RTB

Respon-sibility protects

Speed reduction

Every year, more than 1.4 million people around the world lose their lives in road traffic. That's why the World Health Organization (WHO) lists road traffic as the ninth most common cause of death worldwide. And forecasts indicate that the number of traffic deaths is expected to rise to more than two million.

Most accidents occur because of excessive speeds. A statement issued by the Berlin Senate demonstrates the importance of continuity in combating this cause of death: "In the case of a traffic accident involving a pedestrian, a certain speed reduction can make the difference between life and death."

Statistics from the Swiss Council for Accident Prevention (bfu) also confirm this. The likelihood that a pedestrian will be killed in a car accident increases with higher speeds:

- at 50 km/h, it is above 40 percent.
- at 40 km/h, it is 30 percent.
- at 30 km/h, it is 18 percent.

Driving too fast leads to death:

- At 65 km/h eight out of ten pedestrians who collide with a car DIE
- At 50 km/h eight out of ten pedestrians who collide with a car SURVIVE

Motivation for drivers

The Dialogue-Display helps to build friendly and personal communication with drivers. It appeals to human emotion through positive communication. In contrast to a catalog of official penalties, which has largely lost its deterrent effect long ago, positive motivation is much better received.

When a driver keeps to the speed limit, ***THANK YOU*** is displayed in green LED font. And when the speed limit is exceeded, a red *SLOW DOWN* lights up. This constructive dialogue has proven to be effective – and over the long term, without the effect diminishing!

- Increase in alertness
- Speed reduction
- No habituation effect

Proven effect

Lasting effect

Studies at the Technical University of Munich and the Technical University of Dresden prove that the Dialogue-Display produces a long-lasting reduction of high speeds, in particular, and thus makes a significant contribution to improving traffic safety.

Long-term study beginning in 2004 in Berlin

In 2004, a Dialogue-Display was installed in front of a kindergarten (30 km/h zone). Since then, speeds have stayed consistently low.

Previously:	Average speed = 38.1 km/h Data Berlin Senate
Value 2004:	Average speed = 28.9 km/h Data Dialogue-Display
Value 2007:	Average speed = 28.7 km/h Data Dialogue-Display
Value 2009:	Average speed = 29.5 km/h Data Dialogue-Display
Value 2017:	Average speed = 28,7 km/h Data Dialogue-Display
Value 2018:	Average speed = 28,9 km/h Data Dialogue-Display

Recommended locations for use

The UDV (German Insurers Accident Research), part of the German Insurance Association (GDV e.V.), published a research report entitled "Praise and Criticism Effects of the Dialogue-Display". It recommends the use of the Dialogue-Display to achieve the following objectives:

Objectives:

- Reducing speeds
- Reducing the risk of local accidents
- Reducing and abating noise
- Increasing awareness a. focus in areas of conflict

Locations:

- Crosswalks
- Kindergartens
- Schools
- Bus stops
- Facilities for seniors
- Accident blackspots

The comparison to dynamic speed displays carried out by the UDV also shows that the Dialogue-Display registered greater reductions of average speeds.

Chemnitz
Increased awareness of pedestrian priority

By installing a Dialogue-Display at a crosswalk, the number of drivers who stopped at the crosswalk increased by 130.6%. At the same time, the number of drivers who ignored the pedestrian crossing fell by 69.5 percent. Pedestrians were less frequently "pushed" off the street.

Horn-Bad Meinberg
More alertness toward bicyclists

The installation of a Dialogue-Display at a junction with crossing bicycle traffic reduced the number of speeders by more than 80 percent. The V85 (average speed reached or not exceeded by 85 percent of all drivers) fell from 48 to 38 km/h. Alertness was significantly increased, leading to no further instances of conflict between bicyclists and vehicle drivers.

Lemsell
Protection of cross-town routes

At the instigation of the Interior Ministry of Saxony-Anhalt, four additional measuring sites were installed along the short route through a village in addition to the Dialogue-Displays at the village limits. This proved that the Dialogue-Displays continued to have an effect as drivers passed through the village. For the first time, this study also conducted a separate examination of cars and trucks. The results clearly showed that the Dialogue-Display is also effective with professional truck drivers. The number of truck drivers who drove faster than 55 km/h was reduced by up to 67.7 percent.

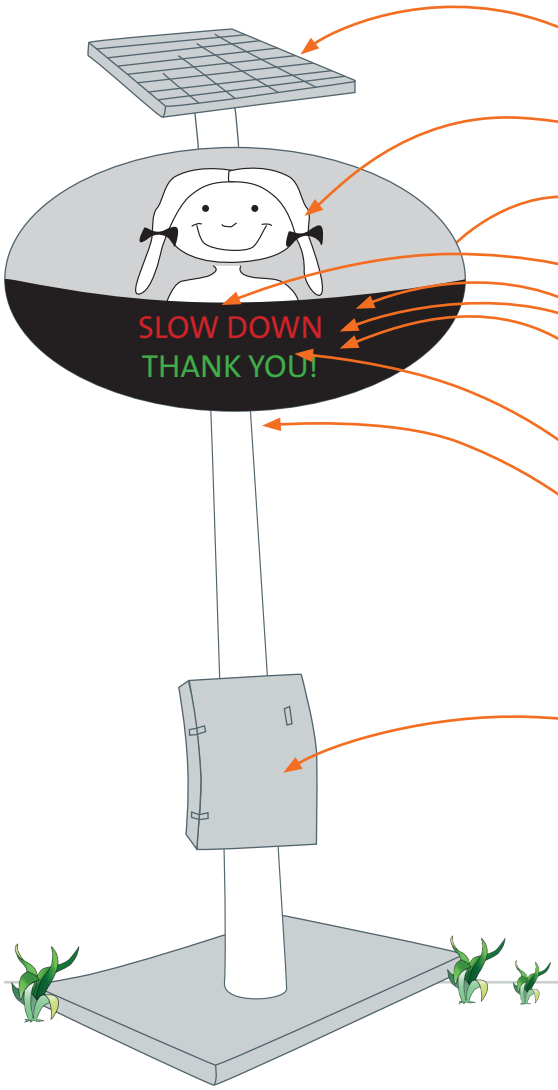
Gütersloh
Securing the train crossing

At a physically unsecured train crossing, the number of drivers moving at less than 30 km/h increased by 70.4 percent.

Bad Bentheim
Securing unusual bus stops

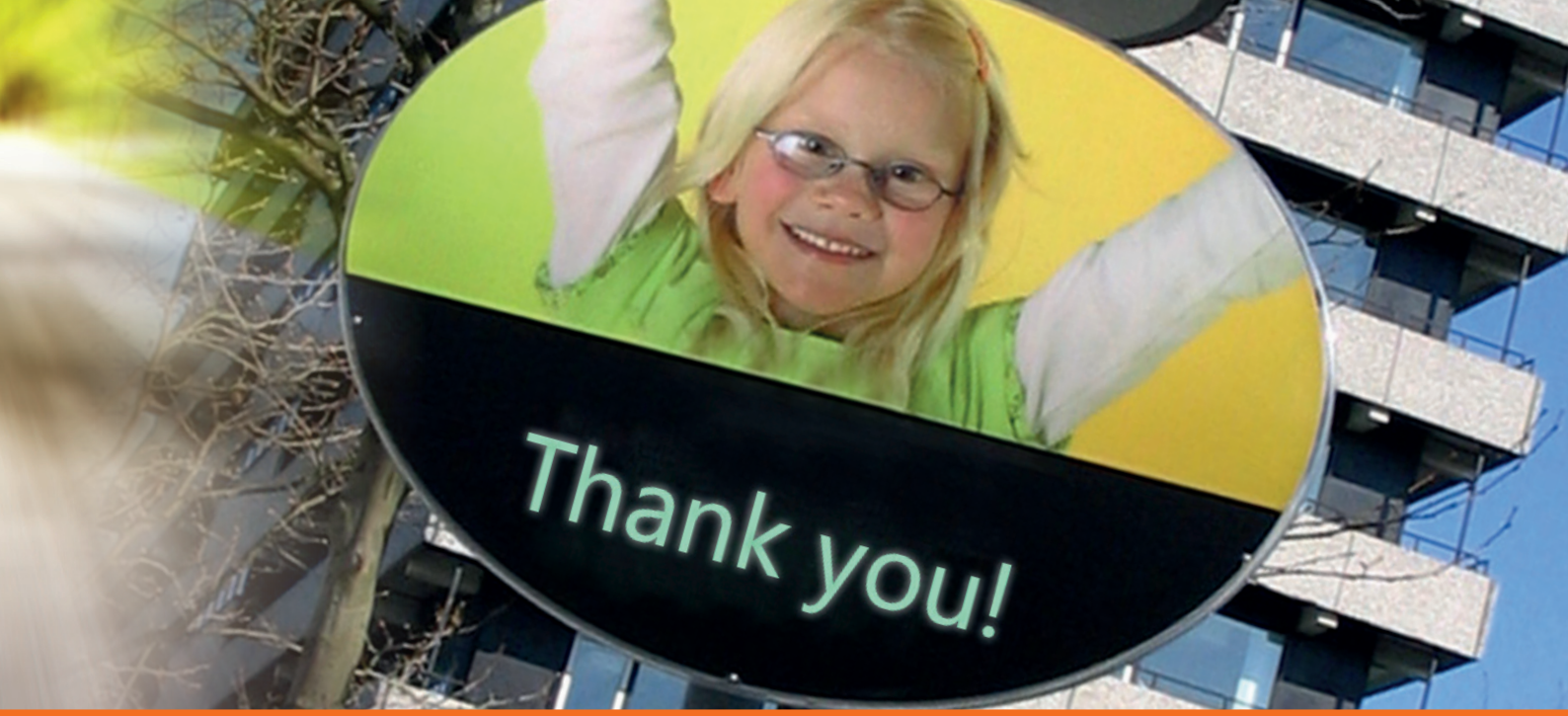
As part of a pilot project to improve the safety at bus stops, the County of Bad Bentheim decided to use the Dialogue-Display.big – the large version of the Dialogue-Display. The objective was to reduce the risk to school children at this dangerous bus stop. The Technical University of Munich learned that the results were best between 6 a.m. and 8 a.m. Speeds decreased by 5 to 9 km/h.

Technology and use



Modular construction

- Possible configuration with a solar module
- Image
- Radar speed sensors
- GSM interface
  Remote maintenance and data transmission via GPRS on an internet-based Cloud server; data evaluation with DD.web 4.0
- Bluetooth interface
  On-site configuration and data transmission
- Storage unit
  Intermediate storage of data in the Dialogue-Display
- LED display “Praise and Reproach”
- Classification module TOPO (see page 16)
  Classification according to 8 + 1 + F
- Solar battery with a charging regulator



Simple maintenance

The work required to service the Dialogue-Display is generally very low. The most significant factor for maintenance is the kind of power supply.

In the case of power supplied entirely by the battery, the battery must be changed and recharged at regular intervals.

Strong seasonal variation in sunlight hours per day means that the exclusive use of power from a solar panel cannot be guaranteed. Therefore, we also recommend a rechargeable battery to ensure operation of the system all year long.

If solar panels are used for power, they should be cleaned at least once a year.

Technology and use

Installation: ground sleeve/mobile foundation

The devices can also be installed for use at locations where no existing masts can be used. In both cases, it is important to ensure that the clearance zone of the street is maintained.

Mobile foundation

With an overall size of 110 x 100 cm, the device rests on 16 concrete slabs measuring 50 x 50 cm that ensure the necessary stability and prevent theft.

Ground sleeve and mobile mast

The ground sleeve that holds the mast for the device sits on a foundation. This makes installation possible at locations with different conditions. The ground sleeve can be closed with a cap after the mast has been removed.

Installation: existing mast

Among other possibilities, the Dialogue-Display can be installed on a light pole or streetlight. Existing electrical outlets - for example, for Christmas-light decorations - can be used.

We recommend that you contact the street lamp operating company to determine if installation of the system and/or the power supply can be secured through the street lamps.

Important to know about installation

Installation should ideally be at a height of 250 cm (lower edge). A universal bracket makes it possible to mount and easily adjust the Dialogue-Display horizontally on masts with a diameter of 7.6 to 15 cm.

The device can be operated at both 12 V and 230 V.

Installation usually occurs on the right side of the street, although it is important to maintain the street's clearance zone. Dialogue-Displays may not be used together with official road traffic signs on the same mast.

If solar power supply is used, it is important to ensure that direct sunlight can reach the solar panel.

Variants

Freely designed image

Devices in every variation (Dialogue-Display, Dialogue-Display.big) can be provided with individually designed images. This opens up a wide variety of applications for different purposes.

It is possible to choose from a large catalog of existing image designs. These images can also be adjusted to meet customer requirements if requested.

Customized texts

RTB is happy to redesign the look of the device according to customers' ideas. Customers can also provide us with their own image files.

Dialogue-Display

The Dialogue-Display is characterized by individualized, dynamic feedback for the vehicle driver.

By means of praise (*THANK YOU*) or a warning (*SLOW DOWN/DRIVE QUIETLY*), drivers receive direct feedback about their driving behavior, enabling them to react accordingly.

This direct, emotional address ensures a clear increase in alertness. This effect is strengthened by the social control exerted by other participants in traffic.

Standard equipment

- Image (chosen by the customer)
- LED display "Praise and Reproach"
- 12 V power connection
- Storage unit
- Frontal sensor for determining speed

Variants

Dialogue-Display with speed display

The speed display is an extension of the Dialogue-Display.

This display makes it possible to show the actual speed of a vehicle or the allowed speed limit together with additional praise or reproach.

Example: When a driver observes the speed limit, green LEDs display the vehicle's speed and the words *THANK YOU*. When a driver does not observe the speed limit, red LEDs display the vehicle's speed and the words *SLOW DOWN*.

Standard equipment

- Image (chosen by the customer)
- LED display "Praise and Reproach"
- LED speed display
- 12 V power connection
- Storage unit
- Frontal sensor for determining speed

Dialogue-Display.big

According to statistics, many accidents—sometimes serious—occur on highways. For example, on stretches where there are deer and other wild game, at accident blackspots, or on stretches where drivers typically drive at high speeds, the oversized Dialog-Display.big is an excellent option. It is a dynamic display system used to increase awareness of drivers and reduce speeds.

The Technical University of Dresden showed in a scientific study conducted in Bad Bentheim that the effectiveness of the Dialog-Display.big had a lasting impact (reducing risk at bus stops on rural routes).

Standard equipment

- Image (chosen by the customer)
- LED display (customizable, e.g. Caution – Danger)
- 12 V power connection
- Storage unit
- Frontal sensor for determining speed

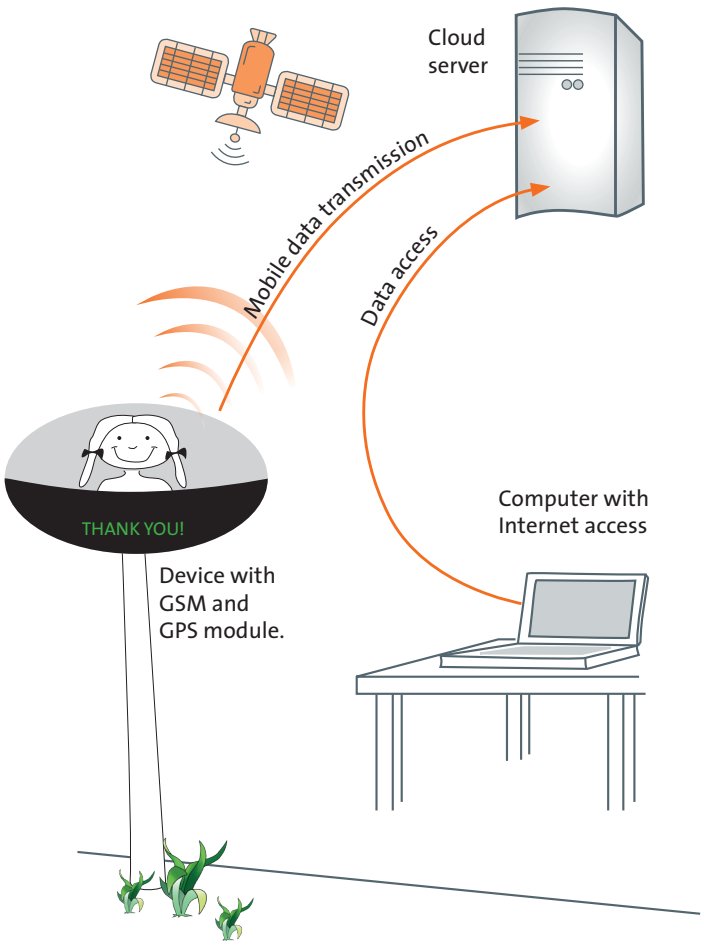
Data transmission

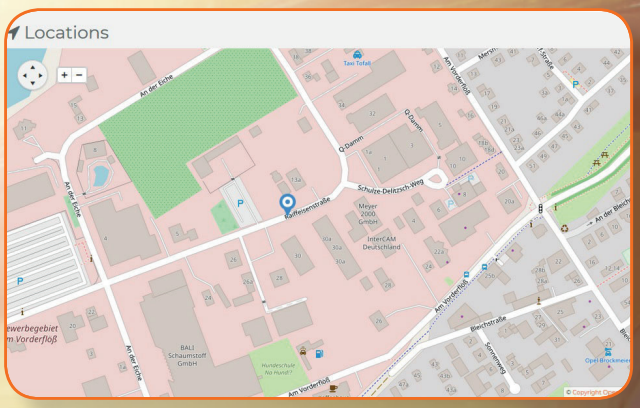
Automatic data transmission

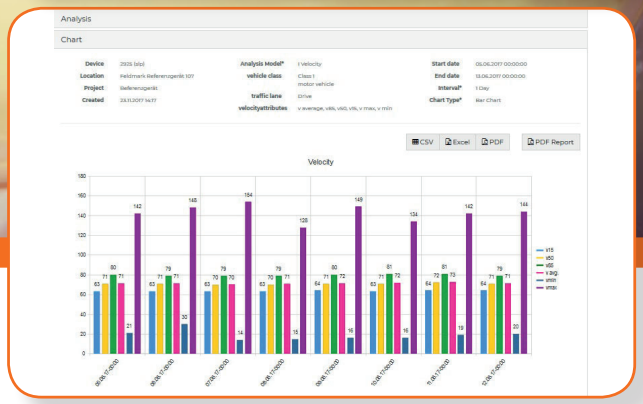
The traffic data collected by these devices are sent to a cloud server. This requires the integration of a GSM module and the availability of a SIM card from a mobile telephone provider.

In addition to traffic data, the device saves its location coordinates in every data set. The current position of the device can be precisely determined via GPS.

In the event of theft, an automatic warning is generated and it is possible to ascertain the coordinates and time via a GPS signal. Of course, all data are secured by means of an https protocol.







Evaluations

DD.web 4.0: Convenient evaluation

DD.web 4.0 is an Internet platform that offers customers a variety of services:

- High standard of safety through encrypted https connection
- Legal distribution is the responsibility of the customer: As an administrator, you can decide what rights should be given to which user
- Improved communication between the users through group news
- Establish contact with support directly in DD.web 4.0 Hotline
- Free language selection
- Comprehensive analytics (speed, traffic volume, classification results)
- Dynamic speed and time intervals configurable for evaluation models
- Individual retrieval of vehicle data (Raw data)
- Location and order management
- Operational control of the device
- Detailed setup of the locations, with photos, descriptions and card usage
- PDF document creation
- Export function

Quantity Classes / Groups		Designation of the vehicle classes/groups (with code)										
1		Car (64) nk Car										
2		Car-like (32) nk Car						Truck-like (33)				
5+1		nk Car (6)		CarG (1)			CarA (2)	Truck (3)	Truckk (4)		Bus (5)	
8+1		nk Car (6)		Motorcycle (10)	Car (7)	Truck (11)	CarA (2)	Truck (3)	TruckA (8)	Tractor-trailer truck (9)	Bus (5)	
8+1+F	Bicycle (230)	nk Car (6)		Motorcycle (10)	Car (7)	Truck (11)	CarA (2)	Truck (3)	TruckA (8)	Tractor-trailer truck (9)	Bus (5)	
Basic classifi-cation	Bicycle (230)	nk Car (6)	Partially covered Car (250)	Motorcycle (10)	Car (7)	Truck (11)	CarA (2)	Truck (3)	TruckA (8)	Tractor-trailer truck (9)	Bus (5)	

Combi-nations

Precise traffic data acquisition

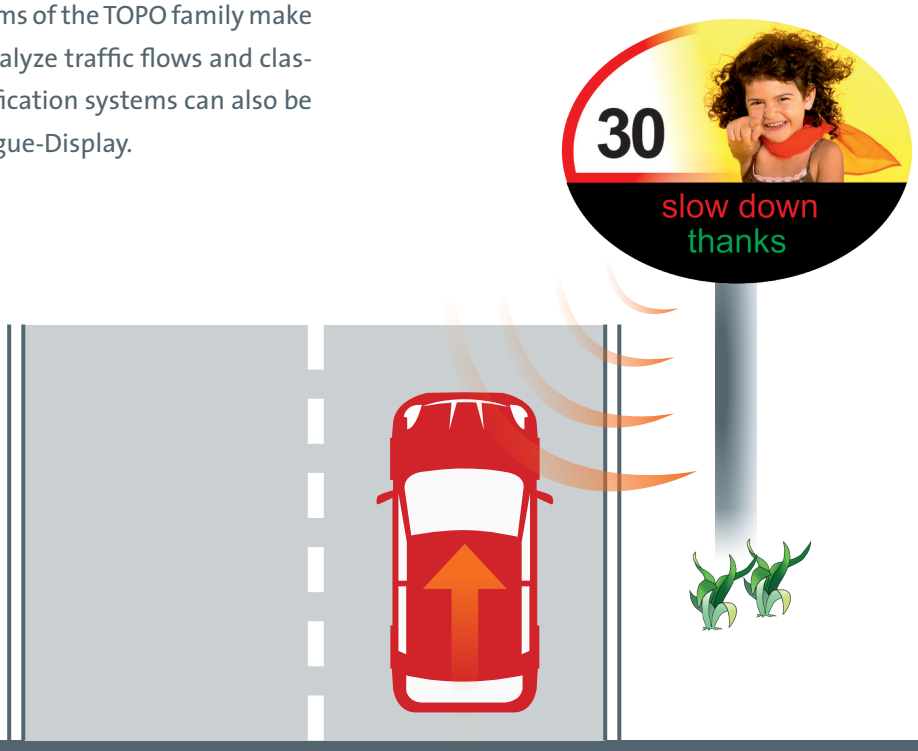
Significantly increasing traffic and the growing load on the road network, especially in inner cities, are posing new challenges for municipalities.

Environmental factors, such as small particulate pollution or increasing noise pollution, also come into play. Optimally managing traffic volumes requires a precise foundation of data.

The hybrid detector systems of the TOPO family make it possible to precisely analyze traffic flows and classify vehicles. These classification systems can also be integrated into the Dialogue-Display.

Hybrid detection systems

The TOPO systems based on hybrid technology can be used for measuring the length and speed of vehicles. The exact classification according to 8+1 vehicle classes in accordance with TLS 2012 (technical delivery conditions for route stations) is done by means of the classification characteristics of vehicle length, axle spacing and acoustic recording. Distinguishing between trucks and buses or between motorcycles and small cars occurs almost without any error.



Motorcycle noise

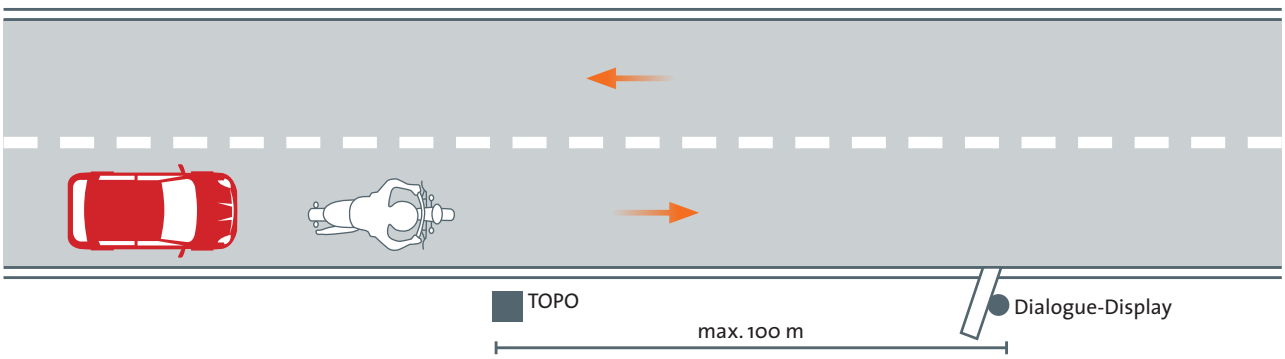
Noise can make you sick. This finding is supported by numerous scientific studies. In adults, noise mainly affects the cardiovascular system, while in children it affects the mental functioning of the brain. Noise can make you ill even at sound pressure levels well under 85 decibels – even if the sound is not perceived as disturbing.

It is estimated that in Germany alone 4,000 heart attacks occur each year due to road traffic noise.

Particularly affected are places that lie along popular motorcycle routes, because here the weekend travel of bikers and their motorcycles create additional noise pollution beyond that of the usual traffic. This is exactly where the TOPO system is designed to intervene. Guide-post counting devices with acoustic sensors quickly recognize whether the passing vehicle is a motorcycle and simultaneously measure speed and volume. If the unit determines that volume limits have been exceeded (threshold in dba is configured individually), the rider receives feedback just a few meters further down the road through a downstream Dialogue-Display requesting a speed reduction (Slow down/Thank you/Quiet).

The use of this device combination has already proven its worth and has been scientifically verified in many places. Consistently positive results confirm the effectiveness in reducing motorcycle noise.

Installation of motorcycle noise system
(TOPO / Dialogue-Display)



Service

First class service

RTB guarantees its Dialogue-Displays for five years.

RTB offers a wide range of services, from planning to installation.

This means, specifically:

- Personal guidance before a purchase or installation, including a presentation of the device on-site
- Customized quotations and implementation planning
- Informational presentations (for example, in city council meetings)
- Training sessions for technicians free of charge
- Instruction in configuring and installing devices on-site

Overview

Power supply	Permanent supply of 230 V Use with a battery/exchangeable battery Power supply with solar energy Power supply via night charging
GSM interface	Transmission of the captured traffic data to a cloud server and of warning messages via mobile network
Bluetooth interface	Interface for configuring and analyzing data, which can however only be used in connection with the corresponding computer-controlled Bluetooth stick.
Netbook	For configuring the Dialogue-Display and traffic data retrieval. The software needed for this configuration, DD.connect, comes installed.
DD.web 4.0	Internet-based data evaluation program.

DIFFERENT than the OTHERS!

This is the premise we work on. We want to attract your attention with innovative strength, the highest quality and an excellent service. User-friendliness of our products and customer orientation are most important for us. We are doing everything for a reliable, partner-like cooperation.

Drawing on many years of experience, RTB develops, produces and sells innovative solutions for road traffic. In addition to supplemental equipment for traffic light signal systems, radar and laser systems for speed reduction and certified traffic data recording systems, our product range also includes parking ticket machines, innovative systems for electromobility and effective parking lot management.

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