PRODUCT INFORMATION

Information in the vehicle – in colour, in motion and up to date

Multifunctional Display MFD

In this information age, bus and lightrail passengers expect to be provided with comprehensive up-to-date information about their route, transfers or timetable deviations. ebblo's Multifunctional Displays MFD visualise these details and are an eye-catcher in every vehicle. Our MFDs are also prepared for multimedia requirements in the context of infotainment, such as news or advertising.

A wide range of prompt information makes urban public transport much more appealing for passengers. The attractive, versatile Multifunctional Display MFD enables the control centre to keep commuters and visiting passengers informed about the current operational situation. References particularly to transfer connections give passengers valuable recommendations about their ongoing journeys. Departure times are constantly updated in the case of incidents or delays.

Here are some examples for passenger information:

Path: In addition to the current position, the next stops and terminal stop are also shown. As an option, the whole journey can be shown as a pattern.

Journey times: The passenger knows how long the journey will probably take.

Interchange advice: Interchange advice gives the passenger the necessary information for changing to other routes and other means of transport.

Transfers: The next departure times for buses, trams or trains make it easier for passengers to continue their journey.

Modern operations control systems send the data by wireless communication to the ebblo on-board computer in the vehicle which prepares the information and sends it to the MFDs. The MFDs are capable of processing large quantities of data and visualising the information in colour, in high resolution and in motion. Designed as single or double DPI signs, they fit in perfectly with our AVLC system and supplement the other components for dynamic passenger information before and during a journey.

The MFDs can also be used in partnership with other companies, for example on the tourism or advertising sector. This kind of cooperation can be facilitated by installing two 15"|19" MFDs or the continuous extra wide display of the MFD Ultra-Wide. This latest member of the product family with its 29.4" display also offers maximum scope for individual layout design.

The ebblo displays also offer many advantages to transport operators that have not yet installed ebblo on-board computers in their vehicles.

At any point in time, various screen layouts provide important information for the passengers. Here are some examples:

Route sequence

The route sequence is the most important guide for passengers. It shows them which route they are currently using, where the vehicle is at this moment in time, which direction it is travelling in and where it will stop next. The

time is also stated so that passengers know exactly how long it's going to take to get to their destination.

Transfer screen

This provides information about transfer possibilities at the next stops, including connections for other companies together with the operator's own transfers. The transfer screen shows not only the departure time and departure position but also current details about delays, failed transfers, etc. This is where the MFD differs from DPI signs of other makes.

Passenger information

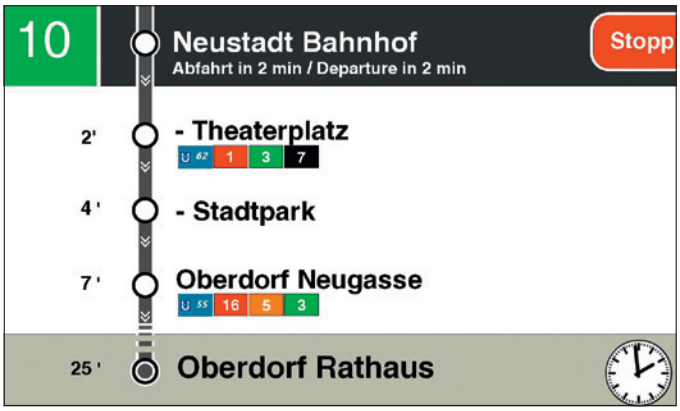
This information panel provides one-off or recurrent information about special situations (accidents, changes in the run, road works).

Specific location or time-related information

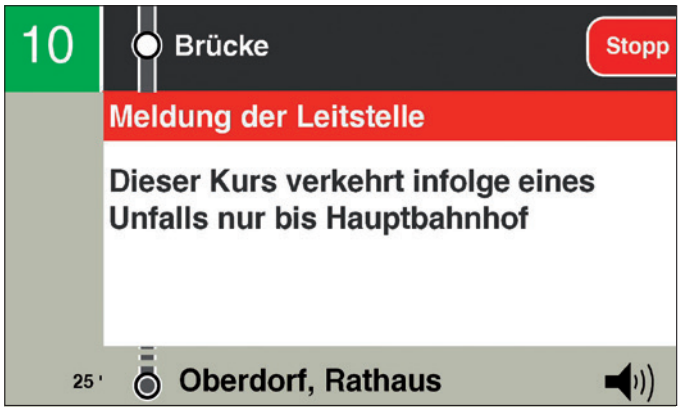
One pioneering new possibility consists in providing specific information en route about tourist attractions or local services.

Advertising pictures or videos

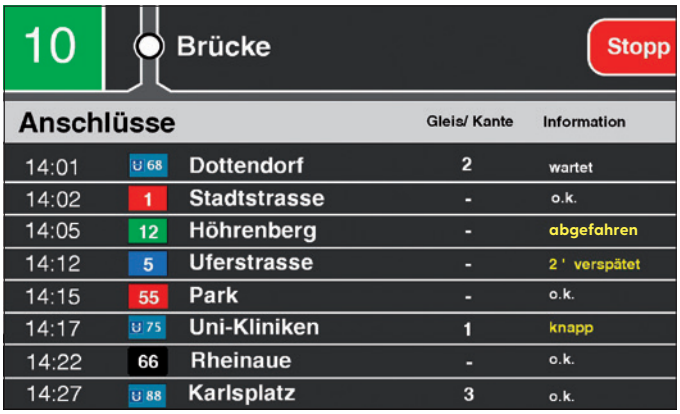
MFDs can be used to show advertising in the vehicles, thus generating additional earnings, with advertising alternating with the passenger information. However, the system entails a priority function so that important passenger information is always given preference over advertising content. If a double screen or an MFD Ultra-Wide is available, advertising can also be displayed parallel to the route sequence.



Route sequence



Control centre message



Transfer screen

Example of ceiling installation

Sizes and shapes

The Multifunctional Displays are available as flatscreens in various sizes for installation as single or double DPI signs. The high standard of workmanship means that the DPI signs can be used in adverse environments and work reliably even in demanding conditions. The maintenance workload for transport companies is minimal.

Master – slave

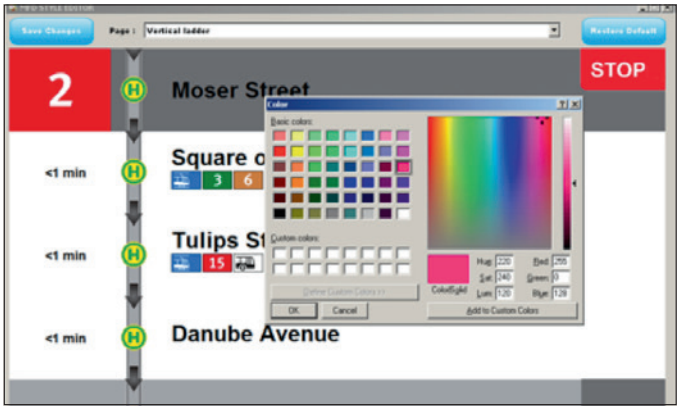
If a vehicle has several MFDs, one of them fitted with a CPU acts as master and operates the others as slaves. It is worth noting that the master and slaves can show different content.

Installation

Installation is possible under the vehicle roof, in panelling or on holding rails.

Flexible layouts: Style Editor and Layout Designer

Every MFD customer is offered several standard layouts for route sequences, transfer screens, etc. A Style Editor is also available as an option. The Style Editor lets the customer define the text characteristics (font, colour and size) or design the backgrounds to bring the layout in line with the corporate identity of the transport operator.



Style Editor

Content Management: Playlist Editor

If required, a Content Management System (CMS) can be used to operate the MFD. Content editing and CMS administration is carried out by an external service provider or the transport operator.

The ebblo Playlist Editor lets the customer determine which content is to be displayed on the MFDs at what time. Certain content is then shown according to position, route or vehicle.

The highlights at a glance

- All the latest passenger information
- Transfer screen with status information
- Incidents are promptly reported
- All from a single source: minimum maintenance and provision workload for transport operators, optimum data loading
- Fully integrated in the operations control system
- Master and slaves with different content as an option
- Advertising content and video films
- Ethernet interface, integrated Ethernet switch
- In IBIS-IP vehicles, the MFD software can also run on suitable on-board computers to control the various MFDs with the HTML Display Service.

Example configuration MFD Ultra-Wide

Product features / technical data

- Attractive design
- Bright display, excellent optical properties
- Automatic brightness adjustment
- Display sizes: 15.6", 19" widescreen, 29.4" Ultra-Wide
- Master – slave
- Display can be switched on and off by software
- Heating and temperature monitoring for display protection
- Third-party displays can also be connected to a master using DVI
- Smooth playback of high-resolution videos
- Standard layouts based on the FIS commun regulation
- Monitoring and recording of: ON/OFF, temperature, brightness (lighting current) and input voltage
- Supply voltage:
  – 15,6" / 19": 8,4–36 V DC
  – 29,4": 16–52 V DC

Master 15,6" / 19"
- CPU
- Intel Atom 330, 1.6 GHz or better
- Dual core
- 2 GB RAM
- 16 GB solid state disk
- Two independent video channels
- Integrated Ethernet switch

Master 29,4"
- CPU
- Intel Celeron J1900
- Dual core
- 4 GB RAM
- 32 GB solid state disk
- Integrated Ethernet switch

Display 15,6"
- 15.6" (40 cm) diagonal
- 1366 × 768 resolution
- 300 cd/m² brightness

Display 19"
- 19" (48 cm) diagonal
- 1440 × 900 resolution
- 300 cd/m² brightness

Display 29,4"
- 29.4" (75 cm) diagonal
- 1920 × 720 resolution
- 700 cd/m² brightness

Master interfaces
- 2× Ethernet 100 MBits/s
- 1× DVI output (HDMI plug)
- 1× USB

Slave interfaces
- 1× DVI input (HDMI plug)

Dimensions and weights 15.6"

Master
- Dimensions 402 × 250 × 93 mm
- Weight approx. 6 kg

Slave
- Dimensions 402 × 250 × 48 mm
- Weight approx. 5 kg

Dimensions and weights 19"

Master
- Dimensions 464 × 302 × 93 mm
- Weight approx. 7.5 kg

Slave
- Dimensions 464 × 302 × 48 mm
- Weight approx. 6.5 kg

Dimensions and weights 29.4"

Master
- Dimensions 800 × 305 × 65 mm
- Weight approx. 10 kg

Ambient specifications
- Storage temperature: -20 °C to +60 °C
- Operating temperature G2i: 0 °C to +50 °C
- Operating temperature Ultra-Wide: -25 °C to +55 °C
- RoHS compliant

EMC conformity
- CE Directive 2004/108/EC
- e1 Directive 2009/19/EC
- EMC and electrical properties as per EN50155

Subject to change without notice | Status February 2026 | #889072

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