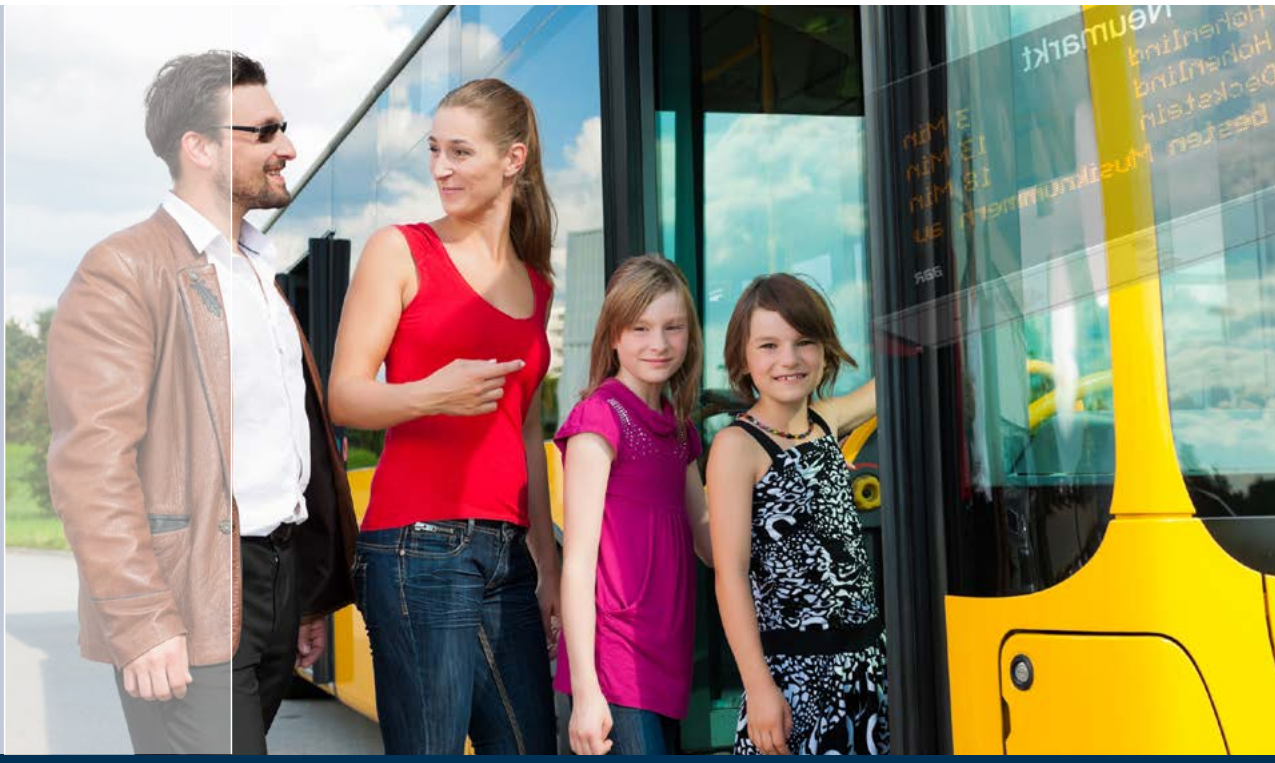
BBR VERKEHRSTECHNIK



Well-Informed to Your Destination

MOFIS® Dynamic Passenger Information System

Well-Informed to Your Destination

MOFIS® Dynamic Passenger Information System

Station equipped with a dynamic passenger information display device

Our ***MOFIS®*** Dynamic Passenger Information (DPI) System is implemented in a modular way to provide up-to-date passenger information at bus stops and train platforms. As a default, passengers are supplied with predicted departure times and specific information. Under fault conditions or when vehicles cannot be located, scheduled departure times are displayed instead of dynamic information.

Depending on the respective configuration, our ***MOFIS®*** system can assist the operator in optimising procedures such as managing and optimising connections. For this aim, a driver could receive a generated hint that he shall wait for another bus or train which is about to arrive shortly later.

Due to an abundance of interfaces to third-party systems, already existing data can often be reused for dynamic passenger information without the need for additional processing. Importing timetable data and route information is as easy as exporting operational logs and display data.

ARIANE DPI Server

Most public transport operators generate dynamic passenger information centrally and transmit it to the respective display media. In the ***MOFIS®*** system, these tasks are assigned to a central DPI server. All ***ARIANE*** interfaces comply with the Ethernet standard. Via these interfaces, ***ARIANE*** receives the vehicle location messages and the nominal timetable data (VDV452), from which the departures times can be forecasted for all stations. For this purpose, location information is gathered from ITCS systems, interlocking units and receiver devices along the route (infrared beacons, coupling coils etc.). The specific vehicle messages allow an assignment to scheduled routes. Since the nominal driving time between the stations along a route is known, the ***ARIANE*** DPI server can calculate the timetable status by a comparison of nominal and actual times and thus the departure forecasts for all subsequent stations. Both incoming messages and nominal timetable data are stored in a central database. Via a freely selectable number of operator consoles with graphic user interfaces, the current displays of connected media can be visualised and controlled by the Operation Control Centre (OCC) personnel.

In accordance to the customer's requirements, the calculated departure forecasts can be displayed on connected output media such as DPI displays, internet etc.. Due to the used data structures in compliance with the public transport data model, the particular media are assigned to those stations at which their departure forecasts shall be shown. DPI displays on platforms and bus stops usually just display the forecasts for this particular spot. In distinction to them, larger display screens e.g. in passages or along the walkways to a station are providing departure time forecasts for more than one station along with information for changing between different public transportation means.

By default, the forecasts are provided per display device in chronological order. Alternate sorting rules can be also configured, e.g. showing the next journey for each route on top of the table. This method could be useful for an overview display when the operating lines have different station times.

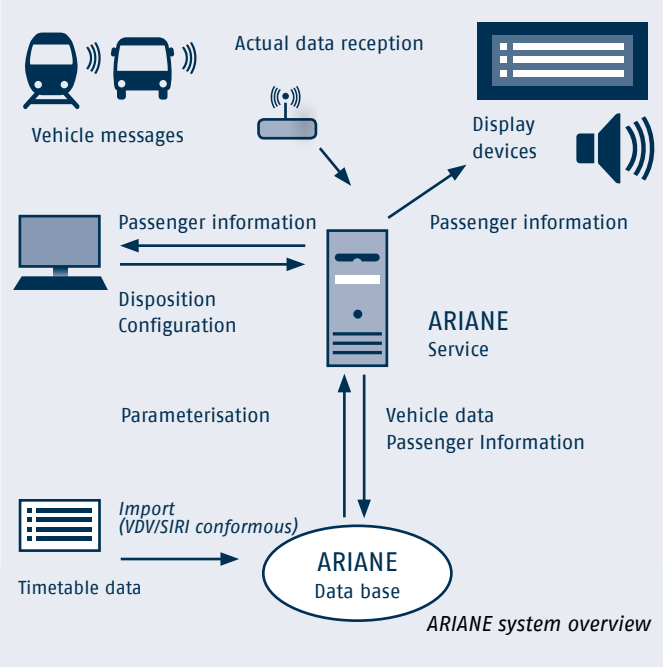
The ***ARIANE*** DPI server can be easily configured via a graphical user interface, through which all configurable options can be accessed. This includes the migration of third-party DPI diplays.

Due to the consequent application of Ethernet technology, all connected systems (computers and displays with embedded controller modules) can be easily maintained from a remote console. Additionally, all standard protocols e.g SNMP, UDP broadcast etc. can be applied for failure management.

Depending upon availabilty requirements, ***ARIANE*** can be run as a background service on a PC, server or in a virtual environment, which can be also provided by the customer, if so required. All process data such as the data telegrams sent to the DPI displays is logged and can be accessed postmortem diagnosis purposes. The system architecture provides suffient capacity for calculating dynamic passenger information for public transport operators even in larger cities. It can be connected to a large number of outdoor display media (DPI displays), to the extent that a data capacity for more than 10000 stations and display devices can be achieved.

ARIANE Central Data Hub

The ***ARIANE*** DPI server comprises an integrated data server as well as all interfaces widely used by public transport services. It covers the common VDV interfaces 452, 453, 454 and 461 and various proprietary interfaces e.g. to interlocking units or Excel import formats for the nominal data import. The VDV interfaces are in use not only for data import, but also for exporting data to adjacent public transport carriers or associations. Thanks to this system layout, a display of dynamic data in the Internet or on mobile devices can achieved quite easily. Therefore, the ***ARIANE*** server can operate as central data hub simultaneously to its usual tasks as server. In this role as central data hub, ***ARIANE*** can take advantage from its vehicle- and tour-based perspective. The purchase of a separate central data hub is thus not necessary.



ARIANE system overview

Organising per Mouse Click

MOFIS® Dynamic Passenger Information System

ITCS light

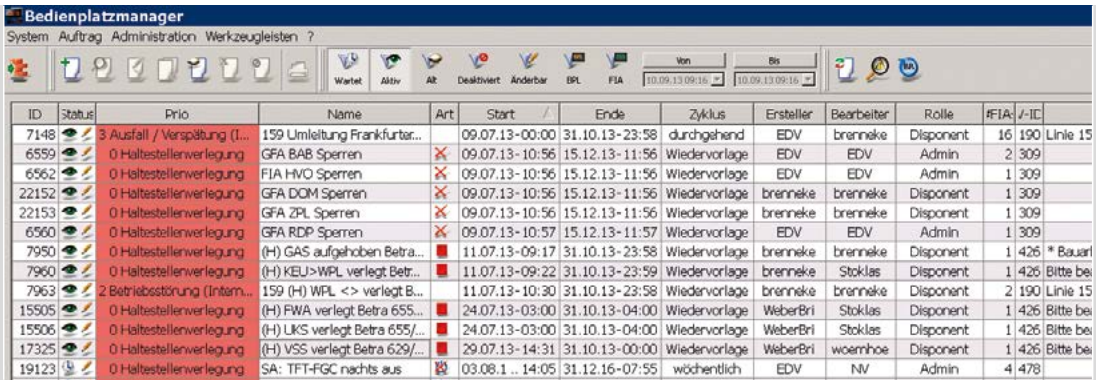
When a public transport operator already has a RBL/ITCS system in use, ***ARIANE*** can either take over its localisation messages or pre-calculated departure forecasts for further processing. If this is not the case, ***ARIANE*** can be supplemented by an ITCS light which detects vehicle locations through built-in GPRS/GPS modems and submitting them to the OCC. An evaluation of other systems such as inductive coupling coils or loops, infrared beacons, traffic light controllers etc. is also possible.

Scalability

The modular structure of our ***MOFIS®*** system enables a high amount of scalability. This means that it can be customised on the individual demands of the particular public transport operator. Fully equipped, ***ARIANE*** can serve as both DPI server and data hub. However, a usage in just one of these roles is thinkable, too. It is up to the customer which interfaces and functionalities need to be activated for his preferred solution.

The MOFIS® Operator Console

The operator console serves as the direct interface between operating staff and the ***MOFIS®*** system. It can be installed on an arbitrary number of consoles and PCs, respectively and is designed for multi-screen operation.

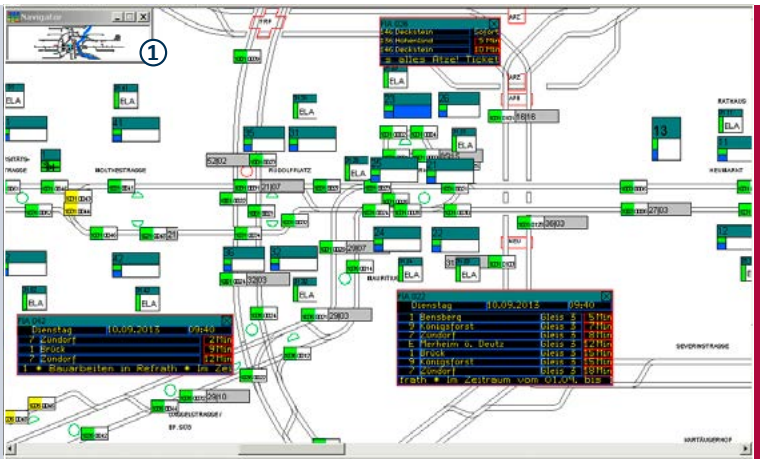


ID	Status	Prio	Name	Art	Start	Ende	Zyklus	Ersteller	Bearbeiter	Rolle	#FIA	J-ID	
7148		3 Ausfall / Verspätung (I...	159 Umleitung Frankfurter...		09.07.13-00:00	31.10.13-23:58	durchgehend	EDV	brenneke	Disponent	16	190	Linie 15
6559		0 Haltestellenverlegung	GFA BAB Sperren		09.07.13-10:56	15.12.13-11:56	Wiedervorlage	EDV	EDV	Admin	2	309	
6562		0 Haltestellenverlegung	FIA HVO Sperren		09.07.13-10:56	15.12.13-11:56	Wiedervorlage	EDV	EDV	Admin	1	309	
22152		0 Haltestellenverlegung	GFA DOM Sperren		09.07.13-10:56	15.12.13-11:56	Wiedervorlage	brenneke	brenneke	Disponent	1	309	
22153		0 Haltestellenverlegung	GFA ZPL Sperren		09.07.13-10:56	15.12.13-11:56	Wiedervorlage	brenneke	brenneke	Disponent	1	309	
6560		0 Haltestellenverlegung	GFA RDP Sperren		09.07.13-10:57	15.12.13-11:57	Wiedervorlage	EDV	EDV	Admin	1	309	
7950		0 Haltestellenverlegung	(H) GAS aufgehoben Betra...		11.07.13-09:17	31.10.13-23:58	Wiedervorlage	brenneke	brenneke	Disponent	1	426	* Bauarl
7960		0 Haltestellenverlegung	(H) KEU>WPL verlegt Betr...		11.07.13-09:22	31.10.13-23:59	Wiedervorlage	brenneke	Stoklas	Disponent	1	426	Bitte be
7963		2 Betriebsstörung (Intern...	159 (H) WPL <> verlegt B...		11.07.13-10:30	31.10.13-23:58	Wiedervorlage	brenneke	brenneke	Disponent	2	190	Linie 15
15505		0 Haltestellenverlegung	(H) FWA verlegt Betra 655...		24.07.13-03:00	31.10.13-04:00	Wiedervorlage	WeberBri	Stoklas	Disponent	1	426	Bitte be
15506		0 Haltestellenverlegung	(H) UKS verlegt Betra 655/...		24.07.13-03:00	31.10.13-04:00	Wiedervorlage	WeberBri	Stoklas	Disponent	1	426	Bitte be
17325		0 Haltestellenverlegung	(H) VSS verlegt Betra 629/...		29.07.13-14:31	31.10.13-00:00	Wiedervorlage	WeberBri	woernhoe	Disponent	1	426	Bitte be
19123		0 Haltestellenverlegung	SA: TFT-FGC nachts aus		03.08.1 .. 14:05	31.12.16-07:55	wöchentlich	EDV	NV	Admin	4	478	

List of operating jobs

Simple and clearly arranged display

- Navigator for easier orientation ①
- Common CAD format for the import of graphic objects (e.g. schematic track layouts)
- Clear display and editing of parameterisation data and system messages
- Status display already during the yet ongoing input of special announcements or ticker texts
- Simple rescaling of particular graphic objects
- Convenient selecting of MOFIS objects (display devices, coupling coils etc.) through predefined or freely adjustable selection criteria



A simplified map of the monitored section comprising all display devices on site allows a good overview of the current operational status. Additionally, status and displayed content of these devices as well as system error messages are shown.

Control of the DPI displays is achieved through an order management system. This system allows the operator to define automated display operation sequences such as when to power up/down, when to display graphics, static text and scrolling text, and when to issue special announcements. The system also allows the operator to define to which individual display or display groups the automated operation sequences apply. The operation sequences can then be performed cyclically during predetermined intervals. Different priorities can be assigned to operation sequences so that e.g. important service information could be interlaced with advertisements during service hours, after which only the advertisements would be displayed. It is equally easy to create operation sequences that e.g. display a scrolling message only during working days between 12:00 and 13:00. Frequently performed operation sequences can be run automatically from predefined templates, thus freeing the operator to respond quickly to atypical situations.

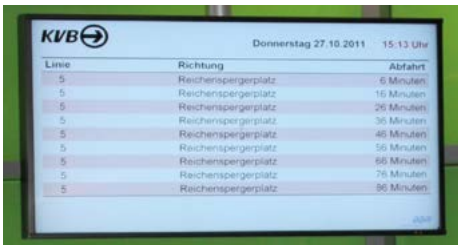
Display operation sequences can be automatically controlled from external information management systems in collaboration with the ***ARIANE*** DPI server. Information concerning service cancellations can be forwarded from an operations management system, via a standard VDV454 interface, to replace the associated departure information with cancellation messages on all affected DPI displays. The cancellation messages are then automatically removed once the scheduled service is resumed. These automated processes significantly reduce the burden on OCC staff during busy situations associated with service interruptions. The operation log, which is presented in a tree structure format, illustrates the current system state and provides access to all logged messages. Certain types of events or data can be defined in the operation log, so that they can be filtered and displayed separately in user definable categories (e.g. cancellations or delays). This facilitates access to all previously displayed content for any given DPI display and to easily edit specific passenger messages.

The system can be enhanced and customised by the operator himself. This can be accomplished through adding and configuring new objects.

Information on the Spot

MOFIS®MEDIA Passenger Information Display

MOFIS®MEDIA.LED Large area display device



MOFIS®MEDIA.TFT

MOFIS®MEDIA.ECO

Passenger Information Display MOFIS®MEDIA

Our ***MOFIS®*** passenger information system is able to control an abundance of various DPI display devices, both our own products and those from other manufacturers. The usage of standard protocols and a highly flexible software makes this possible. As your system supplier, we are able to provide you a broad portfolio of solutions for your demands in dynamic passenger information.

- ***MOFIS®MEDIA.LED***
  Customised display design featuring extra bright amber special LEDs to meet all customer demands
- ***MOFIS®MEDIA.TFT***
  Sharp and high-contrast Full-HD colour displays for indoor and outdoor operation
- ***MOFIS®MEDIA.ECO***
  Power-saving display devices with independent ecologic power supply (e.g. by photovoltaic panels)
- ***MOFIS®MEDIA.MIP***
  Up-to-date information on stations via interactive touchscreens

Would you like to learn more about our range of display devices? http://www.bbr-vt.de/en/products/passenger-information.html

MOFIS®MEDIA.MIP in operation

LED display device with loudspeakers for audio announcements

Audio

Nowadays, disability access becomes increasingly important in the field of public transport. Besides optical displays, crucial cornerstones for dynamic passenger information systems are audio announcements for visually impaired passengers.

The ***MOFIS®*** system offers various audio output options:

One possibility is to implement a reader function (Text-To-Speech) which quotes the display content (departure forecasts and specific information) on demand. This can be accomplished by pushing a button which is equipped with a beep tone and mounted close to the display device.

Another option could be an automated announcement triggered by a train arriving at the station. This would not need a specific request, but could be triggered by all incoming trains. If requested, it is also possible to access on prepared sound files stored in a database. Alternatively, separate loudspeakers or already existing ELA systems of other manufacturers can be used.

In both cases, the audio information can be output through loudspeakers in the bottom of the display. The focused sound emmision affects only the area directly under the display device. The sound volume can be also regulated individually and time-controlled from a remote console. This way, a DPI system with disability access can be realised everywhere throughout a transport network.

Button for text-to-speech functionality

BBR Verkehrstechnik GmbH
Pillaustrasse 1e
D-38126 Braunschweig

T +49.531.27 300-0
F +49.531.27 300-980
info@bbr-vt.de

bbr-vt.com

4/2015 cover photo: © kzenon - Fotolia.com