



GSM-R Handhelds and Devices

The New Generation

focX[®]
by funkwerk

Innovation is our Philosophy

The Product Family

Since 1982 **Funkwerk** develops and produces train radio systems for the German and international markets.

GSM-R: Due to the overall market globalization that affects also the railway and other transportation networks the European railway operators are focusing on a homologated digital radio communication platform for seamless international train operations. The chosen standard is GSM-R which serves the PMR related needs for advanced speech call functionalities at best.

Funkwerk is proud to be the **European market leader** in the segment of GSM-R train radio terminals, the so called CabRadios.



f.locX® (Mobile GSM-R modem)



deskfocX® Wireless GSM-R Desk Terminal

In respect of the needs for suitable and rugged handheld equipment for the specific harsh environmental conditions in railway operations Funkwerk has developed the product family **focX**®. This has been done based on the respective specifications for the digital GSM-R standard as well as for the analogue UIC 751-3 standard.

The **focX**®- products have been designed for the specific market needs of the European railway operators. Based on the design concept a highly efficient technological platform for GSM-R can be offered.



The **f.locX** is a mobile GSM-R modem with battery, bluetooth interface and status indicators.

This modem is coupled to mobile devices via a low-power Bluetooth 4.0 and can be used in the GSM-R network for data transmission, voice communication and SMS.

The **f.locX** will be used together with an Android operating system is required, e.g. commercially available smart phones or tablets.



The **deskfocX**® is a complete GSM-R radio terminal as a comfortable desk device with handsfree equipment. The hardware and software of these is based on the 2W-GSM-R handheld product line **focX**®.

The handling is so easy, as those of a handheld.

All **focX**®-handhelds are already prepared with a transceiver that supports the future use of the **GSM-R frequency band extension from 4 to 7 MHz**.

Out of this product family the **Dual-focX**® is the world's first **OPS** (Operational Handheld for Shunting) that fulfills the whole set of functional requirements including Direct Mode according EIRENE FRS for shunting operations. With Direct Mode the handsets can also be used whenever a fixed GSM-R network infrastructure is not available.

The latest product from Funkwerk is a mobile GSM-R modem **f.locX**.

GSM-R-specific functions of the EIRENE device classes **GPH**, **OPH** and **OPS** can be realized with this combination. Data transfer of the operational data is possible over the GSM-R network, too.

Thus a secure transmission path (GSM-R) will be provided for regular smartphones and tablets, which are usually available only for a few months terminals.

Therefore the **f.locX** provides a safe GSM-R communication for already existing smartphones too.

The user has alternatively the possibility to telephone in the GSM-R net by means of the telephone handset or the handsfree equipment (PTT button, gooseneck microphone, loudspeaker).

IP 65 - When it matters

OPH & OPS Handhelds

focX®-Handhelds are designed for protection class IP65. With their dust and water-jet protection characteristics they are capable to be used under harsh environmental conditions.

The **DualfocX® / DualfocX®S** is the world's first **OPH** (Operational Purpose Handheld) / **OPS** (Operational Purpose Handheld for Shunting) that fulfills the whole set of functional requirements including Direct Mode according EIRENE FRS for shunting operations. With Direct Mode the handsets can also be used whenever a fixed GSM-R network infrastructure is not available.

Ideally this handheld is either suitable for railway operators who did not yet launch GSM-R throughout their whole service areas or for railway operators who want to use Direct Mode (simplex) based on the European-wide harmonized UIC 450 MHz frequency band in GSM-R traffic

The **ShuntfocX®** is Funkwerk's **OPS** (no Direct Mode) that comes with rugged design dedicated for GSM-R shunting operations in Point To Point calling mode or Group calling mode.

The **RailfocX®** is Funkwerk's **OPH** that is offered without the Shunting software application module of GSM-R. Also this handheld comes with rugged design for harsh environments, protection class IP65, transfective display at

The transfective display allows a good readability of user information even under direct sunlight exposure.

dualfocX®
by funkwerk

hot-spots where no additional GSM-R frequency resources are available (e.g. big shunting yards). In order to provide this capability this Dual mode handheld is equipped with an additional transceiver.

DualfocX® / DualfocX®S is able to listen to GSM-R and to the chosen 450 MHz channel at the same time. This allows implementing intelligent call pre-emption scenarios covering both radio technologies. Optionally the **DualfocX® / DualfocX®S** is also available with a GPS receiver, RF monitoring application, Geo-fencing application and lone worker function (tilting sensor).

shuntfocX®
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Optionally the **ShuntfocX®** is also available with a GPS receiver, RF monitoring application, Geo-fencing application and lone worker function (tilting sensor)

railfocX®
by funkwerk

240 x 320 pixels and impact-resistance for outdoor use. Optionally the **RailfocX®** is also available with a GPS receiver, RF monitoring application, Geo-fencing application and lone worker function (tilting sensor).



dualfocX®
(OPH)

dualfocX®S
(OPS)



shuntfocX®
(OPS)



railfocX®
(OPH)

As an innovative, efficient systems company, Funkwerk is oriented to the rapid development of communications, information, and security needs of transport companies, industrial companies and institutions.

Funkwerk has been a specialist in the communications systems field of business for many years and is market leader in the segment of GSM-R train radio terminals (Cab Radios).

By integrating pioneering technologies taking into account state of the art standards, Funkwerk creates integrated systems which even satisfy future expectations through their modularity.



System Solutions for Communications Technology

Funkwerk Aktiengesellschaft
Traffic & Control Communication

Im Funkwerk 5
D-99625 Köllda

Phone: **+49 (0) 3635 / 458 500**

Fax: **+49 (0) 3635 / 458 399**

Internet: **www.funkwerk-tcc.de**

Success based on innovation.