

GSM-R Trackside OPH User Guide



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1 Warning and Security

Please make a note of the serial number of the handset and SIM issued to you and keep in a safe place.

The enclosed GSM-R handset is issued for business use only in connection with the operations of the GB Rail Network and must not be used for any other purpose.

The GSM-R handset can ONLY be used by authorised personnel who are briefed to operate the handset.

With the issue of this handset to you, you are identified as the responsible person for this handset and are required to know its location at all times. If the handset is lost or stolen you **must immediately** inform NRT Telecoms Operation Centre on 01782 574 624 and British Transport Police providing the Handset Serial Number and SIM Number, along with your details and as much relevant information as possible.

GSM-R is the operational communications system for the GB Rail Network. Improper use of GSM-R can have serious consequences for the operation of the network and the safety of the people working on the Rail Network

1.1 Operational Use

In operational Use please note;

There may be occasions when calls cannot be made – in these instances, trackside telephones should be used as an alternative.

Safety must be observed at all times when using trackside phones – observe the GE/RT8000/HB1 – General Duties and Track Safety for Track Workers:

Section 4.3 by ensuring you are in a position of safety when using the handset.

All calls are recorded to assist with incident investigations.

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3 About the Contents

This document describes the main analogue and digital operation mode for GSM-R on the Funkwerk OPH handheld, including a general overview of the controls and functions. Please note safety instructions in the individual chapters

4 Safety Information

The handhelds are for operational railway communications only.

Note on use

Switch the handheld off if it is damaged or is not in perfect working order. Prevent it from being used and arrange for it to be tested by authorised personnel.

Protect the handheld from extreme weather conditions.

Do not expose the handheld to strong magnetic fields.

Radio interference

Switch off the handheld in all facilities in which you are asked to do so or there are signs restricting the use of mobile devices.

Switch off the handheld in areas in which the use of hand-held two-way radios is prohibited.

Interference

The handheld can cause interference with other electronic equipment, especially medical devices, for example, pacemakers. We recommend that the handheld always be carried on the side of the body facing away from medical devices.

Risk to your hearing

The handheld is equipped with a loudspeaker on the back for hands-free use. Do not place this loudspeaker in the immediate vicinity of your ears.

Storage

Where possible, store the handheld in the original packaging or in non-conductive packaging, which protects it against moisture and dirt.

Accessories

Only use accessories supplied by Network Rail Telecom.

4.1 Battery

Only use the rechargeable batteries supplied by Network Rail Telecom. Use the rechargeable batteries for their intended purpose only.

Completely charge the battery before using the handheld for the first time.

4.2 Charger and plug-in power supply units

Do not use chargers with any damage.

If damaged whilst in use turn off the power and disconnect from the Handset before unplugging the charger.

5 Controls and Buttons



5.1 Operating Elements

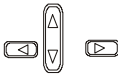








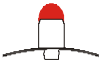
No.	Key	Description
1		Navigation buttons For navigating in the submenus. Press the buttons to move the selection marking or the cursor to the left, right, up or down.
2		Right-hand selection button Press the button to perform the function displayed function directly above the button.
3		Exit button To end a call or rejecting a GSM-R call. Exit from the Menu. Delete last number entered. To switch the handheld on and off (keep button pressed for 3-4 seconds).
4		Keyboard Buttons for direct input of the numbers and characters.
5		Accept-/ Send button For initiating or accepting a GSM-R calls. Press the button once to open the "Dialled numbers" submenu in the display.
6		Left-hand selection button Press the button to perform the function displayed function directly above the button.
7		PTT (Push-to-Talk button) Press and hold to send; release to receive. PTT is only available if you use semi-duplex in GSM-R
8		High / Low volume rocker switch For adjusting the loudness separately for the handset (earphone) and hands-free function.
9		Rotary knob (Not used)
10		Emergency button For initiating a GSM-R emergency call (REC). Currently Disabled

Table 1 Operating Elements


5.2 Switch on / off Handheld

Note:

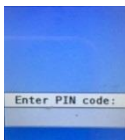
The battery must be fully charged before using the handheld for the first time.

Switch on

Trackside GSM-R Hand held

Press the Exit button .

The display and keypad light-up. The handheld performs a self-test. This can take several seconds.

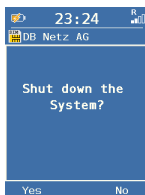



Enter the PIN provided with the phone.

Confirm with the left-hand selection button **OK**.

The handheld is now ready to use.

Switch off



1. Press and hold down the Exit button  for 3-4 seconds.
2. Confirm with the left-hand selection button **Yes**.
3. The handheld disconnects from the network and powers down.
4. Charge the battery.

Note:

While the handheld is switched off the battery will slowly discharge.

Regularly recharge the battery if stored for any length time before taking it for trackside use.

5.3 Status Displays in Status Field

The following symbols are displayed in the status field:
























Icon	Description	Icon	Description
	Battery status The number of bars indicates the available charging capacity: The battery is almost empty.		Receiving field strength of the network The number of bars indicates the current signal strength of the incoming (received) signal ≥ -103 dBm
	1 bar ≥ 5 % charged		-100 dBm ... -103 dBm
	2 bars ≥ 10 % charged		-96 dBm ... -99 dBm
	3 bars ≥ 40 % charged		-86 dBm ... -95 dBm
	4 bars ≥ 70 % charged		-78 dBm ... -85 dBm
	5 bars ≥ 100 % charged		≤ -77 dBm
	5 green bars = the battery is completely charged	88:88	Current time - Country-specific AM PM/
	1 bar = 15 to 30 % battery capacity		Network display / menu display – The current operating mode is displayed in the initial state. The selected items are displayed in the main menu
	2 bars = 30 to 50% battery		unread text messages exist in the message inbox.
	3bars = 50 to 75 % battery		missed call in GSM-R
	4bars = 75 to 90 % battery		Signaling the Shunting Mode
	bars = 90 % to 100 % battery capacity		
	The battery is defective.		

Table 3 Status Display in Status Field

5.4 Pictograms in the Display Field























	Incoming point-to-point call		Setup of a conference call
	Setup of a point-to-point call		Existing conference call
	Existing point-to-point call		Conference call is busy
	Point-to-point call is placed on hold		Conference call failed
	Waiting point-to-point call		Setup Group call
	Point-to-point call is busy		Setup Broadcast call
	Line is busy		Incoming Group- / Broadcast call
	No point-to-point call is possible, there is no connection or the connection will be lost.		Waiting Group- / Broadcast call
	Point-to-point call failed		Existing Group- / Broadcast call
	Call interrupt		Group- / Broadcast call failed
	Incoming conference call		Incoming / outgoing emergency call Emergency call active / emergency call ended

Table 4 Pictograms in the Display Field


5.5 Locking and Unlocking Keyboard

5.5.1




NOTICE


If the key guard button is pressed, the buttons are locked. If the key guard is activated, only emergency calls can be sent using the emergency call button or dialing 999

- ▶ On the home page, press the navigation button  and then the Asterisk * button , to activate or deactivate the button lock.


5.5.2 Manual Lock keyboard


1. Press the navigation up Arrow 
2. Press the Asterisk* button, bottom left key on keyboard.
The manual lock is activated.

5.5.3 Unlock Keyboard

1. Press the navigation up Arrow 
2. Press the Asterisk* button, bottom left key on keyboard.
The keyboard lock is deactivated.

6 Setting up and Terminating Calls




To make a call on the phone dial the required number and press the send button. 
The "Establishing call" message and the corresponding pictogram of the call destination appear in the display filed.

The call can be ended at any time by pressing the exit button. 

6.1 Outgoing Calls





Call on number dialled

1. Enter the number  to  using the keyboard to the initial state.
2. Push the send button .
3. Listen and speak like a conventional mobile phone.

The connection is established. The display shows the call number and the dialing symbol.

Call from the phonebook

1. Open the menu **Phonebook**  **Phonebook entry [x]**.
 2. Push the send button .
- Or**
2. Press the left-hand selection button **Select**.
 3. Select the entry **Call**.
 4. Confirm with the left-hand selection button **Select**.
- The display shows the call number and the dialing symbol.

NOTE:

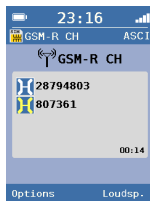
Call to Rail Net extensions use 901 XXX XXXXX

Calls to fixed terminals use functional numbers 7XXX XXXX

6.2 Hold

During existing calls it is possible to place the existing call on hold and to setup another call. You can toggle between the two calls.

Initiate state



You are already on a call.

1. Press the left-hand selection button **Options**.
2. Select the entry **Add call**.
The first call is put on hold.
3. Call a number or select a number from your phone book.
The second call is now live.

Symbol explanation

Icon	Description
	Call is on hold
	Call is active

Table 21 Symbol of Call


Swap

1. Press left-hand selection button **Options**.
2. Select the entry **Swap**, to alternately speak to the two phones.
You can toggle between the two calls as often as you like. The appropriate pictogram of the active connection appears.

End call

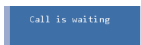
1. During the call Press the left-hand selection button **Options**.
2. Select the entry **End call**, to terminate the call with a phone.

End all calls

1. To terminate all calls, push the exit button , or the left selection button **Options** ⇒ **End all calls**

6.3 Receiving a Call during Existing Call

Initiate state



Whilst on a call if another call is incoming.

The following status message "Call is waiting" appears.

Take

You can take second call, this places the first is placed on hold.

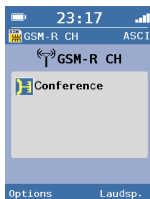
Abort

You can reject the second incoming call.

Replace

You can replace the active call with the incoming call. The initial call will be terminated.

- Select an entry.





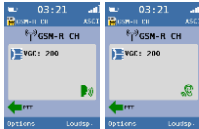
6.4 Setting up a Group Call or Broadcast Call


Requirement:

A Group call or Broadcast call can only be set up using group programmed on the SIM.

Group- and Broadcast call from the phonebook:

1. Open the menu **Phonebook** ⇒ **Broadcast call** ⇒ **VGC[x] / VBC[x]**.
2. Push the send button  .
The display shows the VGC / VBC and the dialling symbol.
3. Press down the PTT button to speak.
4. Release the PTT button after speech.
5. Push the exit button  , to terminate the outgoing call.
The display shows the VGC / VBC and the derogation symbol.

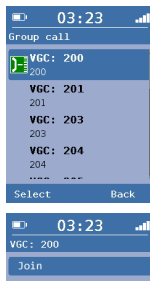



- Or**
1. Open the menu **Phonebook** ⇒ **Broadcast call** ⇒ **VGC[x] / VBC[x]**.
 2. Press the left-hand selection button **Select**.
 3. Select the entry **Call**.
 4. Confirm with the left-hand selection button **Select**.
The display shows the VGC / VBC and the dialling symbol.
 5. Press down the PTT button to speak.
 6. Release the PTT button after speech.
 7. Push the exit button  , to terminate the outgoing call.
The display shows the VGC / VBC and the derogation symbol.

6.5 Incoming Group Calls

Incoming group calls are set up with a pre-determined priority level. Existing speech or data connections with a lower priority will be terminated.

The incoming group call is announced by an attention tone.



6. Confirm with the left-hand selection button **Select**.
7. Select the entry **Join**.
8. Confirm with the left-hand selection button **Select**.
The display shows the VGC and the dialling symbol.
5. Press down the PTT button to speak.
6. Release the PTT button after speech.
7. Push the exit button  , to terminate the outgoing call.
The display shows the VGC and the derogation symbol.



6.6 Calling the Operational Terminals

There are two ways to call the operational terminals



1. Dialling the short code
When using the Short code the GSM-R Network will decide which terminal to route the call to
2. Dial the terminal phone number

6.6.1 Calling the Signaller

Dialling the Short code:



1. Enter the 1200 using the keyboard.
2. Push the send button .
The display shows the called number and the dialling symbol.
3. Listen and speak like a conventional mobile phone.
4. Push the exit button , to terminate the outgoing call.

Dialling the signaller terminal number:



1. Look up the number from the phone book provided by Network Rail Telecom
2. Enter the phone number using the keyboard.
3. Push the send button .
The display shows the called number and the dialling symbol.
The connection is established.
4. Listen and speak like a conventional mobile phone.
5. Push the exit button , to terminate the outgoing call.

6.6.2 Calling the Route Controller



Dialling the Short code:

1. Enter the 1300 using the keyboard.
2. Push the send button .
The display shows the call number and the dialling symbol.
3. Listen and speak like a conventional mobile phone.
4. Push the exit button , to terminate the outgoing call.
The display shows the call number and the derogation symbol.



Dialling the Route Controllers terminal number:

1. Look up the number from the phone book provided by Network Rail Telecom
2. Enter the functional number using the keyboard.
3. Push the send button .
The display shows the call number and the dialling symbol.
4. Listen and speak like a conventional mobile phone.
5. Push the exit button , to terminate the outgoing call.

Dialling the Short code:

1. Enter the 1400 using the keyboard.
2. Push the send button  .
The display shows the call number and the dialling symbol.
3. Listen and speak like a conventional mobile phone.
4. Push the exit button , to terminate the outgoing call.
The display shows the call number and the derogation symbol.

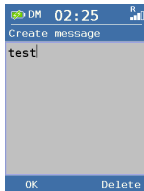
Dialling the ECR terminal number:

1. Look up the number from the phone book provided by Network Rail Telecom
2. Enter the functional number using the keyboard.
3. Push the send button  .
The display shows the call number and the dialling symbol.
4. Listen and speak like a conventional mobile phone.
5. Push the exit button , to terminate the outgoing call.

6.7 Create Message

The handheld can send other OPH handsets messages. Your handheld supports sending messages beyond the character limit for a single message. Longer messages are sent as two or more messages.

You have the ability to send text messages or flash messages. A flash message will appear immediately on the recipient's device.



1. Open the menu **Messages** ⇨ **Create message**.
2. Select the entry **Text message** or **Flash message**.
3. Create the message.
4. Press the left-hand selection button **OK**.
5. Add the call number of the receiver or select a number from your phone book.
6. Press the left-hand selection button **OK** or **Select**, to send the message.

The message is sent.


6.8 Incoming messages

If you received a flash message, the message appears immediately on the display



If you have received a text message, the following status message "New Message! Show?" Appears.

- To read the text message press the left-hand selection button **Yes**.
- If you do not want to read the text message press the right-hand selection button **No**.

To help you remember, that there is an unread text message in your inbox, the following icon:  appears in the status display

To open the unread text message, proceed as follows:

1. Open the menu **Messages** ⇨ **Inbox**.

Symbol explanation



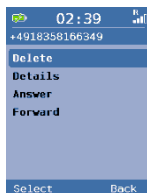
Icon	Description
	unread message
	read message

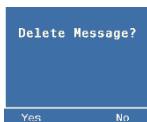
Table 23 Symbol Short Messages

2. Select the unread text message.
3. Press the left-hand selection button **Select**, to open the received text message.

6.9 Text- or Flash Messages Options



S



Delete

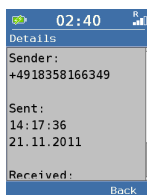
► After you open the message, press the left-hand selection button **Options**.

The following options are available:

- Delete
- Details
- Answer
- Forward

1. Select the entry **Delete**.
2. Confirm with the left-hand selection button **Yes**.

Yes - the text- or flash message will be irrevocably removed. No - you find the text- or flash message in the inbox.



Details

The "Details" option display's the sender, the date and time of received text- or flash message.

Answer

With the option "Answer" you can reply to a received text- or flash message with a new message to the originator.

1. Select the entry **Answer**.
2. Confirm with the left-hand selection button **Select**.
3. Create the message.
4. Press the left-hand selection button **OK**.

Forward

With the option "Forward" you can forward a received text- or flash message to another recipient.

1. Select the entry **Forward**.
 2. Confirm with the left-hand selection button **Select**.
 3. Add the call number of the receiver or select a member from your phone list.
 4. Press the left-hand selection button **OK** or **Select**.
- The text message is received.

7 Menu Overview




The handheld provides a number functions for the user. These functions are accessible via the menus. The handheld's navigation concept is based on the principle of reaching the required functions with the least possible steps.

7.1 Menu Description








Main menu GSM-R

The main menu is accessed on the main page

1. On the main page, press the **Menu** navigation button to open the main menu.
2. Use the    buttons to select the required submenu.
3. Open the menu using the left-hand selection button **Select**.

Main Menu

Symbol	Name	Short Description
	Messages	This menu contains functions related to text messages.
	Protocols	This menu contains information on incoming and outgoing calls.
	Phonebook	This menu contains functions related to phone book and group lists.
	Setup	This menu contains configure the settings of your handheld
	Registration	This menu is for train driver versions of the OPH.

Main Menu

7.2 Messages Menu



Name	Short Description
Create message	create new message
Inbox	List of the unread / read and received short text messages
Outbox	List of written short text messages, which have not yet been sent
SIM messages	List of the stored short text messages on the SIM card
Drafts	List of created but not sent short text messages
Sent items	List of the sent short text messages
SMS CB	Not in use
Message options	Settings of the message control centre, the validity period, the sent report, save sent short text messages
Delete list	Option for deleting individual messages

Message Menu

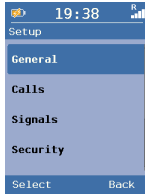
7.3 Phonebook Menu



Name	Short Description
Add contact	Add new entry to the phone book
Service number	Dial predefined service numbers
Group call	Select and start group call via ID
Broadcast call	Select and start collective call via ID
Entry [x]	List of saved contacts

Phonebook Menu

8 Adjust Settings



The handheld can be adapted in a limited way to personal needs. The following settings only can be changed:

- General Settings (Language, Date / Time, Brightness,...)
- Net settings

Changes can be made at any time. The input is cancelled if a state change occurs during setting mode.

8.1 General



- Open the menu **Setup ⇒ General**.
A list of all available general settings appears

8.1.1 Set Date / Time

In standby mode, the time is always displayed in the status bar.

- Open the menu **Setup ⇒ General ⇒ Date / Time**.

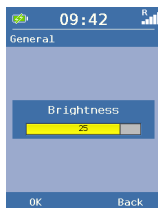
Change date

1. Select the entry **Date**.
A date input field appears.
2. Enter the new date.
The date is displayed in DD-MM-YYYY format.
3. Confirm your entry with the left-hand selection button **OK**.

Change time

1. Select the entry **Time**.
A time input field appears.
2. Enter the new time.
The time is displayed in hh:mm format.
3. Confirm your entry with the left-hand selection button **OK**.

8.1.2 Set Brightness



The TFT displays background brightness can also be individually adjusted.

1. Open the menu **Settings** ⇒ **General** ⇒ **Brightness**.

The brightness level is depicted in the status field by the blocked in levels. A 30-step fine adjustment is possible.

2. Press the navigation button **<◁** and **▷>** until set the desired brightness.

Confirm with the left-hand selection button **OK**. The selected background brightness is set.

8.2 Set Message Settings

Using this menu you can specify the settings for messages.

Open the menu **Messages** ⇒ **Message options**⇒



Message centre

The message centre is configured by the network and is not changeable.

Validity

Determining the maximum duration the message centre will try to deliver a message for. After this time the message will be discarded

Sample: 1 hour, 12 hours, 1 day, 1 week, Maximum Time

Save sent message

Select whether the sent message is saved.

Delivery Report

The delivery report will serves as evidence that the message reaches the recipient.

8.3 Phonebook

There are two ways to get to a phone book entry:

- Open on the home page the left-hand selection buttons **Names**.
- Open the menu **Phonebook**.



Symbol explanation	
Icon	Description
	Contacts which are stored on the SIM card.
	Contacts which are stored in the handheld.

Table 15 Symbol contacts

8.3.1 Add contact

Name :

mustermann

Call number:

12345678

1. Open the menu **Phonebook** ⇒ **Add contact**.
2. Add the contact name.
Enter names using the keyboard.
3. Confirm your entry with the left-hand selection button **OK**.
4. Enter the recipient number.
Enter numbers using the keyboard.
5. Confirm your entry with the left-hand selection button **OK**.
The new contact is saved in the phone book and the handheld automatically returns to the phone book menu.

8.3.2 Edit Contact

20:09

mario

Call

Delete

Move

Copy

Edit

Select

Back

1. Select the contact to be changed.
2. Press the left-hand selection button **Select**.
3. Select the entry **Edit**.
4. Enter the new contact information.
5. Confirm with the left-hand selection button **OK**.
6. The changes are applied.

8.3.3 Delete Contact

09:48

mustermann

Call

Delete

Move

Copy

Edit

Select

Back

02:27

mustermann

Delete contact?

Yes

No

1. Select the contact you want to remove from the list.
2. Press the left-hand selection button **Select**.
3. Select the entry **Delete**.
4. Confirm with the left-hand selection button **OK**.

9 GSM-R Handheld Warranty and Returns

9.1 Terms of Warranty

The GSM-R handheld issued via NRT are warranted for 12 months from time of delivery against manufacturing defects.

9.2 Warranty Process

All warranty issued are raised with the unit supplier by contacting their help desk on 01724 292 200

The help desk will supply a return number for inclusion with the unit:

For battery issues a replacement will be supplied directly. The old battery being returned to the supplier once the replacement is received the failed is to be returned to the supplier. Failure to return will result in a charge for the new battery against the user cost centre.

The SLA for replacement batteries is 15 working Days

Failed Handhelds should be returned without the battery and SIM. On receipt the unit will be tested and replacement delivered.

If the unit is No Defect Found there will be a handling charge against the users cost centre.

The SLA for testing units is 25 working days

The SLA for replacement of defective units is 40 working days

9.3 Warranty Return Address

Send ALL warranty returns to:

GSM-R Repairs

Billet Lane

Normanby Enterprise Park

Scunthorpe

DN15 9YH

9.4 Breakage and Out of Warranty Repairs

The Handhelds are sealed unit and it is NOT commercially viable to repair the units. Any units that fail outside warrantee or are damaged will be replaced with new units at cost to the users cost centre.

9.5 Network Support

The GSM-R network has been design to support calls between Cab Radios and Signallers. Whilst GSM-R hand portable will receive good trackside coverage, Network Rail Telecom is providing the service on a Best Endeavours and will not be tracking reports of poor coverage.

10 Useful Numbers

Calling From	Calling to	Code		Format
Handheld	Local Signaller	1200		
Handheld	Local Route Control	1300		
Handheld	Local ECR	1400		
Handheld	Calling out to NR Extensions	901		901 085 XXXXX
NR Extensions	Handheld	018		01 8XXXXXX
Handheld	Calling Rail Net Extensions	901		901 XXX XXXXX
Rail Net Extensions	Handheld			
Handheld	Handheld	05555		05555 83X XXX
Signaller	Handheld	05555		05555 83X XXX

11 Personal Address book

[illegible]

