telecomFM

GSM-Route BRI 3G

Installation & User Guide

Version 4 – November 2011

1 Contents

2 Notices

2.1 Package Contents

The unit will be supplied with RJ45 Type connector

A. GSM-Route BRI 3G
B. Power Supply Unit
C. 2 x Antenna for GSM-Route BRI 3G 2 or
   1 x Antenna for GSM-Route BRI 3G 1
D. Unit Fixings
E. Fixing Templates
F. Installation Guide
G. 1 x 2 meter RJ45 connection cable

2.2 Guarantee

The GSM-Route BRI 3G is supplied with a 1-year return to base warranty which covers any defect in manufacturing and design. No other warranties whatsoever are given.

If a faulty unit is required to be returned within the terms of the warranty a completed Returns Form (p.15) should be attached and returned with the faulty unit.

TelecomFM shall accept no liability for any error or damages of any kind resulting from the use of this document or equipment it relates to.

No responsibility is assumed by TFM for the use or reliability of the GSM-Route BRI 3G when used in a situation or with other equipment not supplied or specified by TFM.

The wording in this document may change from time to time.
Please refer to the TelecomFM web site www.telecomfm.co.uk for the latest release.

2.3 Document Control

Date	Version	Change
Aug 2010	1	1st release of document
Sep 2010	2	Format update
Dec 2010	3	Name update
Nov 2011	4	Layout update

2.4 Safe and Efficient Use

Guidelines for Safe Use of the GSM-Route BRI 3G:
Please read this information before connecting the GSM-Route BRI 3G. The instructions are intended for your safety. Please follow these guidelines.

Recommendations for safe use of the product:

- Do not expose the product to liquid or moisture
- Do not expose the product to open flames
- Do not attempt to modify the product
- Do not use the product near medical equipment without requesting permission from your treating physician or authorised medical staff
- Do not use the product when in, or around aircraft, or areas showing the sign "turn off two way radio".
- Do not use the product in an area where the potential explosive atmosphere exists.
- The maximum operating ambient temperature of the equipment is 40°C.

Power Supply:

Connect the AC power supply adapter only to designated power sources.

Radio Frequency (RF) exposure and Specific Absorbsion Rate (SAR)

The GSM-Route BRI 3G is a low power radio transmitter and receiver. When turned on it emits low levels of radio frequency energy. Governments around the world have adopted international safety guidelines. ICNIRP (International Commission on Non-Ionizing Radiation Protection) and IEEE (The Institute of Electrical and Electronic Engineers) have developed guidelines to establish the permitted levels of radio wave exposure for the general population. Specific Absorption Rate (SAR) is the unit of measurement for the amount of radio frequency absorbed by the body when using a mobile phone. For GSM terminal equipment an MPE calculation is used to determine the safe working distance from the Terminal during normal use. The values stated are determined at the highest certified power levels in laboratory conditions. Actual radiated levels during normal use may be well below this value. This is because the RF transmitter is designed to work at minimum power where ever possible.

TelecomFM GSM-Route BRI 3G meets the legal requirements of ICNIRP encompassed within the following standards:

The GSM-Route BRI 3G complies with European standards EN 50383:2003, EN 50392:2002 and EN50385:2002 and with Council Recommendation 1999/519/EC relating to human exposure to RF energy. In accordance with these standards and in order to maintain safe levels of exposure to RF Energy, the GSM-Route BRI 3G and its antennae, during use, must be placed at a distance greater than 13.45cm from the human body.

3 Overview

3.1 Intended Use

The GSM-Route BRI 3G is connected to the customer's ETSI standard basic rate ISDN terminal equipment and, an ETSI standard basic rate ISDN network.
The GSM-Route BRI 3G can also be configured to work on ISDN trunk ports where basic rate ISDN is not available.

The GSM-Route BRI 3G will auto detect if an ISDN circuit is present. If GSM-Route BRI 3G detects that an ISDN circuit is not available, the unit will be configured for this setting.

The GSM-Route BRI 3G will Auto detect Point to Point or Point to Multi-Point On connection of an ISDN circuit.

The GSM-Route BRI 3G will direct outgoing calls either over the Mobile Network or the ISDN network according to its configuration.

Incoming calls from the GSM network will be directed to the customer's terminal equipment

3.2 Power Failure

In the event of loss of power to the unit, the ISDN lines connected through the GSM-Route BRI 3G, will connect the customer's terminal equipment directly to the ISDN network (if it exists) by means of a "Metallic" by-pass mechanism.

3.3 Mobile Signal Failure

In the event of the loss of the GSM network the unit may be configured to re-route the calls over ISDN.

3.4 ISDN Signal Failure

In the event of disconnection from the ISDN network, calls which were routed across the mobile network will continue to do so.

3.5 Power Supply

The GSM-Route BRI 3G operates from a nominal 100-240v. AC supply, 50-60 Hz.

Please ensure that you use only the power supply supplied with the GSM-Route BRI 3G

3.6 Warning

Do not attempt to work on the GSM-Route BRI 3G with the mains connected

3.7 Safety Instructions

Failure to follow all instructions may result in improper operation of the GSM-Route BRI 3G and/or the risk of electrical shock.

All installation personnel should consult the information contained in this manual before attempting to install this product.

All installation engineers should adhere to the following instructions:

1. The GSM-Route BRI 3G should only be installed or maintained by qualified personnel who have been trained by TelecomFM or one of their certified representatives.

2. The GSM-Route BRI 3G should only be installed according to the instructions in this manual.

3. Do not attempt to connect the GSM-Route BRI 3G whilst the associated PABX is in use.

4. Do not attempt to install the GSM-Route BRI 3G during an electrical storm.

5. Use caution when installing or modifying ISDN lines when connecting to the GSM-Route BRI 3G

6. The mains AC power socket or switched spur outlet should be installed near to the GSM-Route BRI 3G and should be easily accessible.

7. Connect the power supply lead to the GSM-Route BRI 3G before switching on the power.

4 Standard Installation

4.1 Siting the GSM-Route BRI 3G

Select a suitable location to install the GSM-Route BRI 3G in order to optimise the signal strength

- on, or near an exterior wall,
- close to a window
- on the top floor of the building.
- at least 1 metre away from other sensitive electronic equipment.

The signal strength will be degraded if you install the GSM-Route BRI 3G antennae:

- on walls that contain a large amount of wiring, steel, or metal construction material.
- on walls with unusually thick masonry.
- in metal buildings or in rooms with large areas of metal.

You must NOT

- install your GSM-Route BRI 3G outdoors.
- expose the GSM-Route BRI 3G to water or moisture, i.e. basements or outbuildings.
- expose the GSM-Route BRI 3G to direct sources of heat or cold e.g. air conditioning, heaters or direct sunlight
- cover or place obstructions on or around the unit's antenna(e).

4.2 Tools Required

The minimum tools required to carry out an installation of a single GSM-Route BRI 3G is
as follows:

ISDN Test Telephone,
Screwdriver,
Power Drill

4.3 Pre-Installation

Prior to the commencement of installation work, check with the customer that:

1 the supporting paperwork is correct,
2 the ISDN circuit/ports detailed on the paperwork is/are correct,
3 the customer is in agreement with the proposed siting of the GSM-Route BRI 3G.
4 SIM cards are available for installation.

4.4 GSM-Route BRI 3G Motherboard

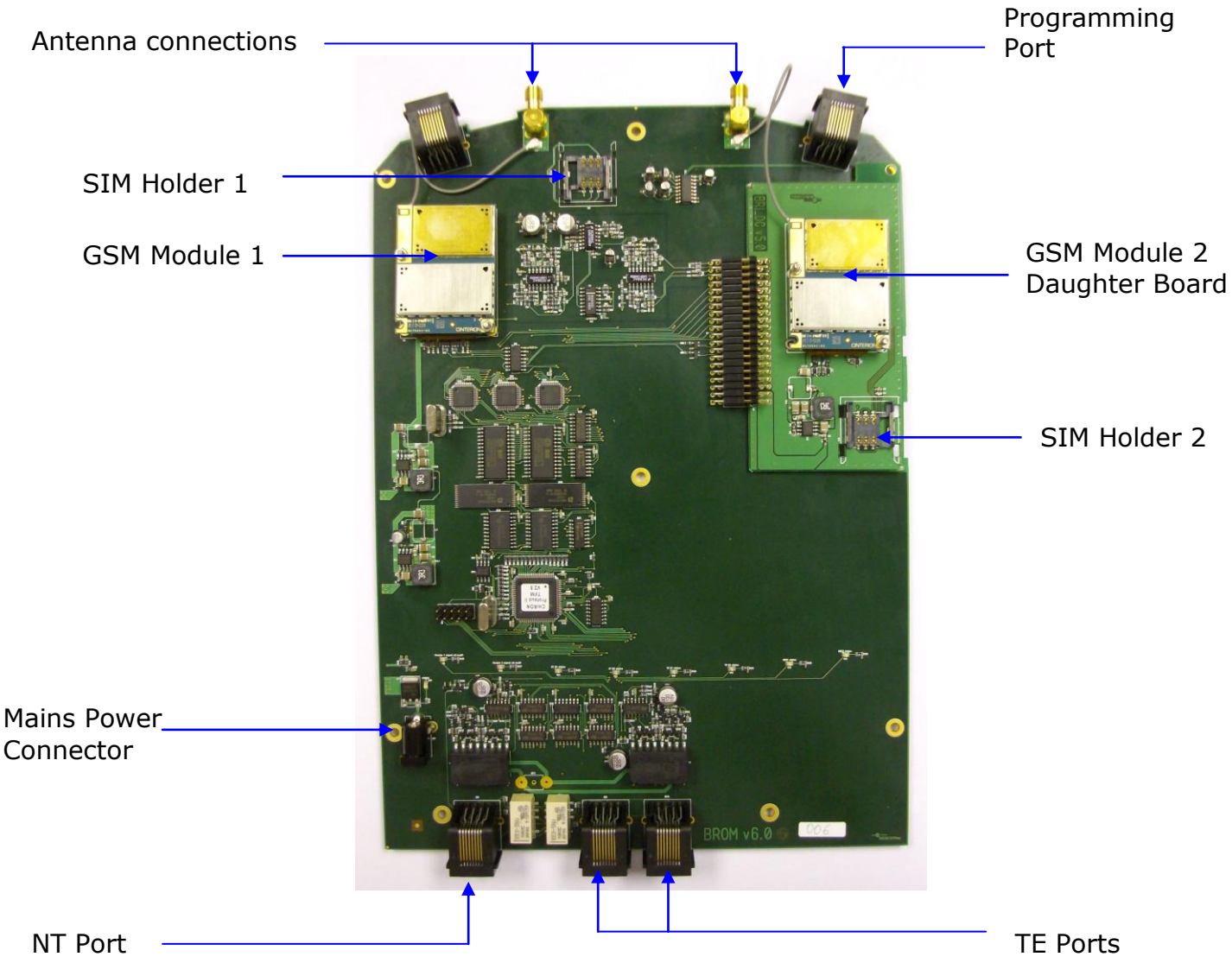

Figure 1

4.5 Locating GSM-Route BRI 3G

1. Neatly locate and mount the GSM-Route BRI 3G in the agreed position using the fixing template. Ensure that the wall is flat and the chassis is not bowed or misaligned.

2. Connect Antennae

3. Insert SIM cards into the SIM holders (see figure 1 page 8)

4.6 Power LED Sequence

- Power up the unit. When power is connected the power ON amber LED 3 will be lit. During the first 15 seconds the GSM-Route BRI 3G will auto detect if an ISDN circuit is available and what protocol it is set for (Point to Point) or (Point to Multi – Point) then it will reset the unit with the correct settings.
- When the GSM Module(s) are connecting to a network its status LEDs GSM1 and GSM2 will produce long flashes (600ms/600 ms On/Off).
- If the GSM module has no SIM card inserted its status LEDs GSM1 and GSM2 will flash 'SOS' on its associated LED.
- When a GSM module has logged onto a network its status LEDs GSM1 and GSM2 will produce short flashes (75ms/3s On/Off).
- If the Basic Rate ISDN interface is activated the status LEDs NT B1 and NT B2 will produce short flashes (75ms/3s On/Off).
- When the Terminal Equipment Interface is activated the status LEDs TE B1 and TE B2 will produce short flashes (75ms/3s On/Off).
- The signal strength for Module 1 is displayed on Module 1 Signal Strength LED (See signal strength Indication)
- The signal strength on Module 2 is displayed on Module 2 Signal Strength LED (See signal strength Indication)

LED Indication Status LEDs

Power status – Amber	Power LED
GSM Module 1 status –Green	GSM Status 1
GSM Module 2 status –Green	GSM Status 2
ISDN customer side	TE B1 Status
ISDN customer side B2 Red	TE B2 Status
ISDN network side B1 Red	NT B1 Status
ISDN network side B2 Red	NT B2 Status
Signal strength	Module 1 Signal Strength
Signal strength	Module 2 Signal Strength

Signal Strength Indication

During power up module 1 and 2 signal status LEDs will flash once every 6 seconds while looking for a base station.

After this time the LEDs will flash independently according to the signal received, as below:

0 – 1 flash = poor signal strength
2 – 4 flash = average signal strength
4 – 8 flash = good signal strength

For guidance purposes you require a minimum of 1 flash. If there is no signal indication then you will need to adjust the antenna(e) or find a more suitable location for the GSM-Route BRI 3G

4.7 Connecting the ISDN

1. Connect the customer's Terminal Equipment to the GSM-Route BRI 3G TE RJ45 port using a straight through RJ45 cable.

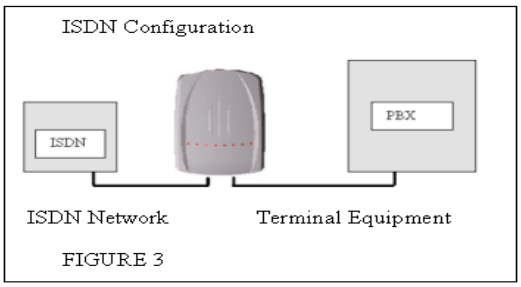

FIGURE 3

2. If a connection to the ISDN network is required, connect the standard basic rate ISDN to the GSM-Route BRI 3G NT RJ45 port using a straight through RJ45 cable. The unit will reset after 15 seconds then automatically configure itself to the ISDN circuit.(see figure 3)

4.8 Connecting to ISDN Trunk ports

1. If no connection to an ISDN circuit is required, Connect the ISDN Trunk Port of the PBX to the GSM-Route BRI 3G TE RJ45 port using a straight through RJ45 cable. The unit will reset after 15 seconds then automatically configure itself to this setting. (see figure 4)

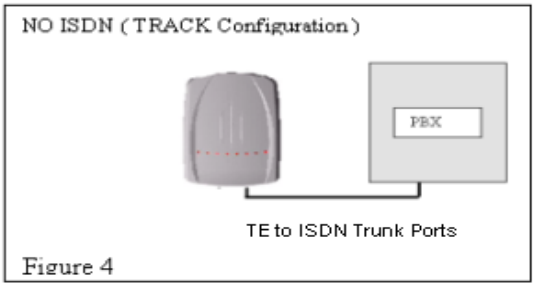

Figure 4

4.9 Programming Via a Local Digital Management Centre If Applicable

1. If the unit is to be remotely managed, contact your designated Remote Management Center and inform them as to the template to be used.

2. When you initiate a call home either connect your ISDN phone to the TE port direct, or access the PBX and proceed with the following:

   Off-hook
   Dial '0000' or Dial '0##1' (Only applicable if in the routing code)
   On-hook

3. This will dial the call home number that is in the configuration map.

4. When connected the two Green Status LED's GSM1 and GSM2 will flash intermittently indicating that data is being transfer to and from the device during the programming sequence. GSM1 represents transmitted data, GSM2 represents receiving data. Once the programming sequence is complete the Green Status LEDs will return to reflecting the modules' status.

4.10 Programming Using the Unmanaged Local Programmer If Applicable

1. If the unit is **NOT** remotely managed and has not been pre-programmed you will need to locally program the unit.

   Please refer to the Unmanaged Local Programming Guide or contact the distributor you purchased the unit from.

4.11 Testing the GSM-Route BRI 3G over the GSM modules

1. Make an outgoing GSM test call over each module. Once the call is connected the Red Status LED corresponding to the TE channel will light up followed by the GSM status LED. This shows the call has been routed correctly.

2. Make an incoming GSM test call over each module. Once the call is connected the Red Status LED corresponding to the TE channel will light up followed by the GSM status LED. This shows the call has been routed correctly.

4.12 Testing the GSM-Route BRI 3G over the ISDN network

1. Make an outgoing ISDN test call over each channel. Once the call is connected the Red Status LED corresponding to the TE channel will light up followed by the NT status LED. This shows the call has been routed correctly.

2. Make an incoming ISDN test call over each channel. Once the call is connected the Red Status LED corresponding to the TE channel will light up followed by the NT status LED. This shows the call has been routed correctly.

4.13 Before Leaving Site

Advise the Customer of their new GSM numbers.

Fill in all site documentation, obtain an acceptance signature from the customer and leave a copy of the documentation with the customer. This will be the site record.

5 Trouble Shooting Guide

PROBLEMS	RECOMMENDATIONS
GSM-Route BRI 3G will not power up	Check the lead into the chassis Check the Power Supply Unit Check for mains power
Unit will not dial home over ISDN	Check that the ISDN circuit is live
Unit will not dial home over GSM	Check that the SIMs are live Check Management Programming ISDN set to false with correct GSM number
Unit will not route	Check programming with TFM help desk (If applicable) Check programming with Unmanaged local Programmer (If applicable)
Misrouting problems	Verify programme with TFM help desk (If applicable) Force new download by dialing 0001 or 0000 If not managed check programming with Unmanaged local Programmer
No Incoming ringing	Check ISDN circuit is live
One-way transmission	Check respective network
Noise Is Heard during calls	The GSM may be too close to other electronic devices
Reception over GSM is Poor	Check signal strength and location Check aerial installation and positioning
Not connecting to GSM trunks when dialing out through PBX	Check that they are in the correct trunk group with cyclic hunting
Green Status LEDs GSM1 and GSM2 flash SOS	Check SIM card Check SIM is seated correctly in SIM holder Check programming
RED Status LEDs NT B1 and NT B2 not lit	Check ISDN circuit is live and connected
RED Active LED flashing on/off	Check ISDN circuit is live and connected
RED Status LEDs TE B1 and TE B2 not lit	Check terminal equipment is connected (PBX)

6 Returns Form

Unit Serial No.	

Date Of Installation	

Return Date	

Returned From

Company Address	
	Post Code

Fault Details

Returns Number……..