

Package Contents

The unit will be supplied with:

- GSM-Route BRI
- Power Supply Adapter and cable
- 2 x GSM Antenna for GSM-Route BRI 2
- Unit Fixings
- Fixing Template
- This Installation Guide
- Safety Earth cable, (SEG Safety Earth Ground)
- 1 x 2 meter RJ45 connection cable
- 1 x RJ45 type serial cable for programming

Notices

Emergency Calling

This GSM Gateway must be used with Customer Equipment that routes an emergency call to triple zero (000) via other Network interfaces.

Guarantee

The GSM-Route BRI 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 contact your local dealer. TelecomFM or its agents 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 or its agents for the use or reliability of the GSM-Route BRI 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 web site www.telstrom.net for the latest release.

Intended Use

The GSM-Route BRI is intended to be connected to the customer's ETSI standard basic rate ISDN terminal equipment (PBX) and optionally to an ETSI standard basic rate ISDN network (NTU).

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

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

The GSM-Route BRI will direct outgoing calls either over the Mobile Network or the ISDN network according to its configuration. The configuration it is shipped with is to direct all mobile prefixes to the GSM network. In order to change this, refer to the **programming** section.

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

Power Failure

In the event of loss of power to the unit, the ISDN lines connected through the GSM-Route BRI, will connect the customer's terminal equipment by means of a "Metallic" by-pass mechanism.

Mobile Signal Failure

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

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.

Power Supply

The GSM-Route BRI operates from a nominal 100-240v. AC supply, 47-63 Hz.. The Power Supply Unit (PSU) supplied with the GSM-Route BRI is fully compliant with: UL1950, TUV EN60950, BS7002, CSA22.2. Ensure that you use the power supply reference part no. KWM24F-OX01, as supplied.

Warning: Do not attempt to work on the GSM-Route BRI with the mains connected.

Safety Instructions

Failure to follow all instructions may result in improper operation of the GSM-Route BRI 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 should only be installed or maintained by qualified PBX personnel.
2. The GSM-Route BRI should only be installed according to the instructions in this manual.
3. Do not attempt to connect the GSM-Route BRI whilst the associated PBX is in use.
4. Do not attempt to install the GSM-Route BRI during an electrical storm.
5. Use caution when installing or modifying ISDN lines when connecting to the GSM-Route BRI
6. Connect the power supply lead to the GSM-Route BRI before switching on the power. (see figure 2)
7. Ensure that the GSM-Route BRI is bonded to Safety Earth Ground using the earth cable provided. (see figure 2)



QUICK SETUP GUIDE

1. Connect the antennas and insert SIM cards.
2. Connect supplied Safety Earth ground cable.
3. Power up and wait for unit to initialise.
4. Connect RJ45 straight through cable from TE of the unit to the PBX. (**Scenario A**) refer to other scenarios.
5. You will hear the unit click and detect its setup.
6. LEDs 22&23 will flash (75ms/3s on/off) when PBX is connected.
7. During initialisation LEDs 18 & 19 will flash once every 6 seconds while looking for a GSM base station. After a short while they will flash according to signal strength.
8. Go off hook and access the trunk of the unit. Dial a GSM number (the unit has been pre programmed with all GSM prefixes to route via GSM) and you should hear a tone "Diddley Doo"!
9. For incoming GSM calls you will need to setup MSN.

Positioning the GSM-Route BRI

Select a suitable location to install the GSM-Route BRI 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. (see figure 1)
- mount antennas vertically with a minimum distance of 330mm away from each antenna. (see figure 1)

The signal strength will be degraded if you install the GSM-Route BRI 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.
- mount the antennae horizontally

You must NOT

- install your GSM-Route BRI outdoors.
- expose the GSM-Route BRI to water or moisture, i.e. basements or outbuildings.
- expose the GSM-Route BRI 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).

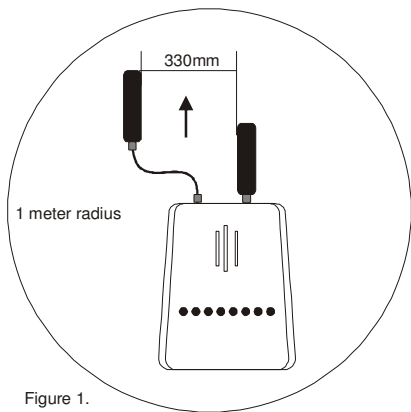


Figure 1.

Mounting the GSM-Route BRI

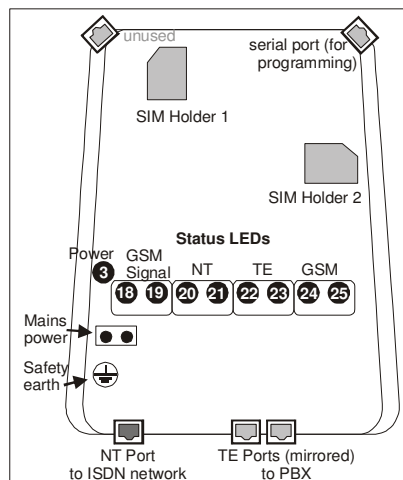
1. Neatly locate and mount the GSM-Route BRI using the supplied fixing template.
2. Open the cover by pushing the two clips at the bottom of the case.



3. Connect the Safety Earth Ground.
4. Connect Antennae(s) (see figure 1)
5. Insert SIM cards into the SIM holders (see figure 2)
6. Power up the unit. When the power is connected the amber LED 3 will be lit and the unit will initialise.
 - When the GSM Module(s) are connecting to a network its status LEDs 24 & 25 will produce long flashes (600ms/600 ms On/Off).
 - If the GSM module has no SIM card inserted its status LEDs 24 or 25 will flash 'SOS' on its associated LED.
 - When a GSM module has logged onto a network its status LEDs 24 & 25 will produce short flashes (75ms/3s On/Off). (refer to figure 3)
 - The signal strength on Module 1 is displayed as LED 18 and Module 2 is LED 19. (refer to figure 3)
 - If the Basic Rate ISDN interface is activated the status LEDs 20 & 21 will produce short flashes (75ms/3s On/Off).
 - When the Terminal Equipment Interface is activated the status LEDs 22 & 23 will produce short flashes (75ms/3s On/Off).

| GSM Signal | | |
|------------|-------------|-----------|
| LED | 1 flash | = poor |
| 18 19 | 2-4 flashes | = average |
| | 5-8 flashes | = good |

Figure 3



Main board - figure 2

Installation Scenarios

There are three scenarios for installing the BRI Route GSM and scenario

- A. Installed from the TE port to the PBX. The PBX handles the least cost routing of calls. (refer figure A.). LEDs 22 & 23 should blink red (refer figure 2.)

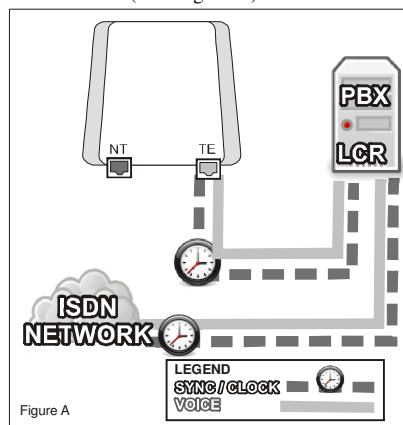


Figure A

- B. Installed as scenario A, but only the ISDN clock/sync is received from the ISDN network to the NT port. In this setup voice calls are NOT carried from the ISDN network to the unit and usually the NTU on the wall has two mirrored TE ports, one going to the PBX and one going (for Clock) to the BRI Route GSM. (refer figure B.) Note: requires setting to **Track Mode**, refer to setting **ISDN Synchronisation**. LEDs 20, 21 and 22, 23 should blink red (refer figure 2.) Note: When the GSM Route BRI is functioning normally, and it detects that there is no ISDN connection on the NT port, it then uses an accurate internally generated clock. This accurate clock cannot be synchronised with any ISDN

connections if it is not connected to them. When the GSM Route BRI is forced into **Track mode**, you can plug an ISDN "NT" or S0 trunk connection into the NT port of the GSM Route BRI. This will then use the clock synchronisation from the ISDN NT Network connection (ignoring the B and D channel information).

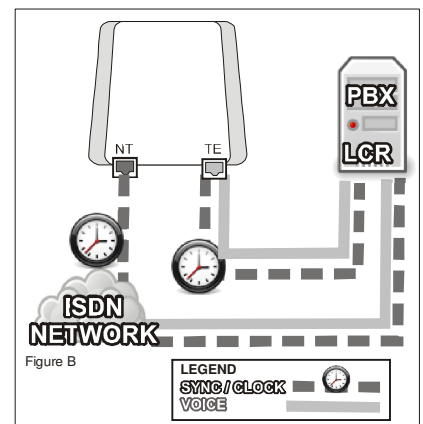


Figure B

- C. Installed in series between the ISDN networks (NTU) and the PBX. The BRI Route GSM handles the routing of calls. (refer figure C.) LEDs 20,21 and 22,23 should blink red (refer figure 2.)

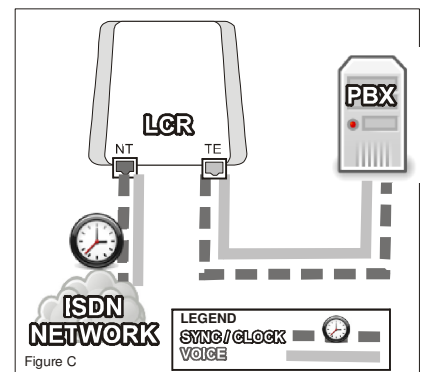


Figure C

Using a straight through RJ45 cable connect as per scenario **A,B** or **C** depending on your situation. The unit will self reset after 15 seconds then automatically configure itself to the ISDN circuit. Scenario **B** requires setting it into Track. (refer to Setting ISDN Synchronisation)

Configuring the unit

The unit has been pre-programmed so no configuration (via the supplied serial cable) is necessary in most instances.

Digit Stripping:

This is used in some cases when the PBX has inserted routing information before the number dialled. The GSM-Route BRI can be configured to recognise this prefix and strip it.



To turn this off:



Setting the MSN (incoming GSM)

For incoming mobile calls you can direct them to a destination in the PBX. You can set both SIMs to go to the same destination in the PBX or separate. Replace nnnn with the MSN number(s).



To turn this off:



Setting Point to Point or Multi Point

The GSM BRI Route automatically detects its environment for self setup. However you can manually override this.



Setting Volume and Microphone Levels

The GSM BRI Route is automatically set at the optimum levels; however you can manually override this. Enter the value 1 to 5 (1 is lowest and 5 being highest)



Setting ISDN Synchronisation

The GSM BRI Route automatically detects its environment but in some situations requires to be manually set. Scenario B requires Track Mode to be set.



Testing the GSM-Route BRI

Go off hook and access one of the trunks connected to the BRI Route GSM and:

1. Make an outgoing test call over module 1. Once Connected the Red Status LED corresponding to the channel being used will come on. The Green Status LED for module 1 will come on showing that the call has been routed correctly. A confidence tone will be heard at this stage.
2. Make an outgoing test call over module 2, once connected the Red Status LED corresponding to the channel being used will come on. The Green Status LED for module 2 will come on showing that the call has been routed correctly. A confidence tone will be heard at this stage.
3. Make an incoming call to each GSM module.

Programming

If you need to programme the GSM-BRI Route (in most cases it is automatic and just requires calling it to configure MSNs) use the supplied serial cable and download the configuration tool from: <http://telstrom.net/bri-route-config.zip>

Training Material

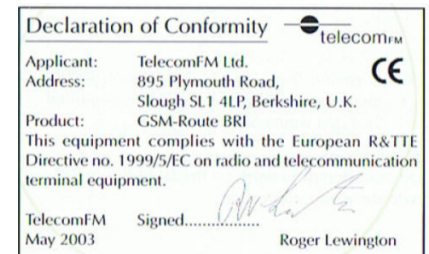
If you would like to view the training videos for this product please visit: www.telstrom.net/training

For support please contact your local dealer.

Frequently Asked Questions

- Q The unit will not power up.
 - A Ensure the power adapter and cable have been connected correctly.
- Q How do I remove the "Didleydoo" GSM confidence tone?
 - A Use the manual programming tool.
- Q The unit will not route to the GSM network. i.e. You do not hear the confidence tone. "Didley Doo"
 - A Ensure the LEDs 18&19 are flashing with a good signal strength.
 - A Check the SIMs are active and inserted correctly. Try them in a mobile phone.
 - A Are you calling a mobile number?
 - A Check with the help desk.
- Q I want to route numbers other than the standard GSM prefixes.
 - A Use the manual programming tool.
- Q A slight ticking sound is heard in calls.
 - A Setup the unit to Scenario B
- Q GSM Noise is heard during calls
 - A Ensure the unit AND antenna(s) are mounted correctly.
- Q GSM signal quality is poor.
 - A Ensure the antenna(s) have been mounted vertically and close to a window if possible.
 - A An optional Yagi (external) antenna can be purchased.
- Q Green LEDs 24&25 Flash SOS
 - A Check SIM(s) cards
 - A Check SIM(s) are seated correctly
 - A Check programming
- Q RED LEDs 20&21 not lit
 - A Check ISDN circuit is live and connected
- Q RED LED 26 flashing on/off
 - A Check ISDN circuit is live and connected
- Q RED LEDs 22&23 not lit
 - A Check terminal equipment is connected (PBX)

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