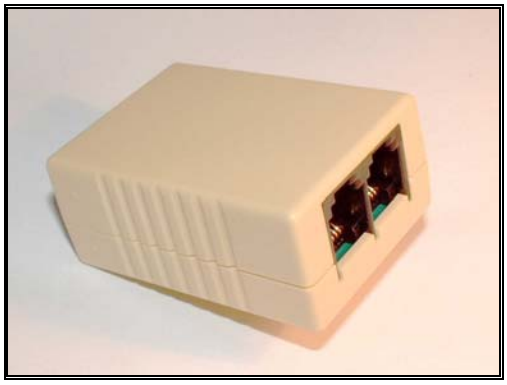
TLB-1



Timed-Line-Break Regenerator
Users Programming Guide

Introduction

The Solwise TLB-1 generates a 'timed line break' when it hears a short DTMF tone sequence, for instance **'* *'**.

A timed-line-break is the most popular signal used by telephone systems to initiate a *recall*, for instance to put a call on hold or transfer it to another extension. The TLB-1 can thus regenerate a 'hold' signal when the telephone has no hold or recall key. It is also especially useful where the *link* to the telephone blocks the recall signal. This is often the case with a Voice-over-IP link between a head-office telephone system and a sub-office or home–worker.

The TLB-1 can be reprogrammed in service by the installer or user by means of special sequences of DTMF tones 'dialled' at a connected telephone.

This programming guide explains how to use and configure the various options available on the unit. Symbols marked within square braces denote digits to be dialled on the phone keypad e.g. **'[4]'** – indicates dial a '4' digit.

Setup and Normal Operation

Connect the TLB-1 between a telephone and a telephone line. Ensure that the 'Line' and 'Phone' sockets are connected appropriately.

If the connections are correct, the LED will light on the unit when the phone is taken off-hook.

When a line-break activation sequence is received by the unit, the LED will switch off and the unit will force a timed-line-break signal on the phone line. The LED will light again once the timed line break has expired.

Basic Programming Instructions

To reprogram any of the available options on the interface, follow this sequence of operations:

1. Take the phone handset off the hook to activate the VoIP Interface unit – LED illuminates. The phone must remain off-hook during all programming operations. During programming all your key strokes will also be registered by the telephone line so you may want to ensure that the phone line is in a 'deaf' state, for instance, on a call rather than giving dial-tone.

2. Dial the 'programming mode activation' digit sequence on the phone keypad – this is a special access code of digits that is selected so that it is unlikely to be dialled during normal telephone usage. Once in command mode, the LED will blink continuously.

3. Dial a further digit from the command list in Table 1 to select the command required.

4. If you selected [1] - 'change line break timeout period', just type a single digit timing code selected from the list in Table 2. The new time code will be saved to permanent memory in the unit. The unit will save this new setting immediately before returning to command mode to allow you to enter further commands if required (LED blinking). You will need to determine the correct line-break period for your particular telephone system or line.

5. Select [2] - 'change line break activation code' to type in a new line break activation sequence **remembering that the sequence must not contain the digit '0'**, all other digits, in any order are **permitted but please read the section on sequence restrictions to ensure that your new sequence is acceptable**. Once you have typed the last digit of the desired sequence, type a '0' to save the new sequence to permanent memory. (Note that the **maximum length** of this sequence is **8 digits**; if more than 8 digits are entered, the unit will ignore the new sequence and return to command mode)

6. Select [3] - 'change programming mode activation code' to type in a new activation sequence **remembering that the sequence must not contain the digit '0' and must not contain the line break sequence anywhere within it*** , all other digits in any order are permitted. Note that the **maximum length** of this sequence is **20 digits.** Type a '0' to save the new sequence to permanent memory.

7. Select [4] - 'exit command mode', and the unit returns to normal operation with the LED lit permanently.

8. Select [5] – 'check line break timeout period', and the LED will flash a number of times corresponding to the value selected in the timing table; e.g. for 85 milliseconds, which is option 3 in the table, the LED will flash 3 times. The unit then returns to command mode to allow you to enter further commands if required (LED flashing).

9. Once programming is complete, put the phone back on-hook.

Programming Command Summary

Cmd No.	Command Function	Key	Comments
1	Change line break timeout period	[1]	Use this command to select a new line break time period for the unit from the list of options given in table 2. This will normally be specified by your telephone system provider. Programming restrictions:- Note that the sequence cannot contain the digit '0' and must be between 2 and 8 digits in length.
2	Change line break activation code	[2]	This command allows the default line break activation code to be changed. The line break code will usually be a short digit sequence for ease of use.
3	Change program mode activation code	[3]	This command allows the default programming mode activation code to be changed. This command would normally only be used if the default code is being falsely activated by normal user dialling activity. The programming mode sequence will usually be a fairly long sequence as it will be used infrequently and must not be activated falsely by normal dialling activity. Programming restrictions:- Note that the sequence cannot contain the digit '0' and must be between 2 and 20 digits in length. The LBD activation sequence must not be contained within the programming sequence as this will cause a timed line break to occur in the middle of entering the programming activation code.
4	Exit programming mode	[4]	This command exits programming mode and returns the unit to normal operation.
5	Verify line break selection	[5]	This command causes the LED to indicate the current line break timer selection from Table 3. The user should count the number of blinks.
6	Save new activation code	[0]	This only operates whilst entering a new sequence (i.e. only whilst already within commands 2 or 3). The command signals the end of the new sequence and causes it to be stored to memory

Table 1 – VoIP Interface Programming Command Options

Timed Line Break Timing Options

Timed Line Break Setting	Keypad Code	Note
65 milliseconds	[1]	BT Lines, many UK phone systems
75 milliseconds	[2]	
85 milliseconds	[3]	
100 milliseconds	[4]	
120 milliseconds	[5]	
140 milliseconds	[6]	
166 milliseconds	[7]	
200 milliseconds	[8]	Typical setting for phone systems
300 milliseconds	[9]	
600 milliseconds	[0]	

Table 2 – VoIP Interface Timed Line Break timing period options

Factory Default Settings

Command	Default Setting
Timed line break timeout period	**65 milliseconds**
Timed line break activation code	**[* *]**
Program mode activation code	**[* 1 2 3 4 # * # * # * 4 3 2 1 *]**

Table 3 – Factory Default Settings

Programming Examples

Example #1 - Changing the timed line break timing setting to 85 milliseconds

1. Take the phone handset off the hook and leave it off-hook during the programming cycle.

2. First, dial in the programming mode activation sequence – e.g. the default factory setting is [* 1 2 3 4 # * # * # * 4 3 2 1 *]. The unit enters programming mode and the LED blinks continuously to indicate this. Note that when entering this sequence, there is a 3-second timeout period between digits, any pause of longer than 3 seconds between any digits in the sequence will cause the unit to ignore the sequence.

3. Once in command mode, (blinking LED), the timeout period extends to 1 minute to give you the opportunity to take your time whilst entering commands. Now dial the correct command selection digit for changing the time break period - [1].

4. Now, referring to Table 2 – VoIP Interface Timed Line Break timing period options, dial the correct digit for the desired new time break period, e.g. for 85 milliseconds, dial a [3].

5. The unit will save the new value immediately before returning to command mode operation with the LED blinking. You may check the new setting by using command option [5].

6. You may now enter any other commands as required or exit from command mode altogether. To exit command mode dial [4]. The LED will return to 'steady on', indicting that the unit is back in normal mode.

7. The phone handset may now be placed back on-hook.

Example #2 - Changing the timed line break activation code to [# 2 #]

1. Take the phone handset off the hook and leave it off-hook during the programming cycle.

2. First dial in the programming mode activation sequence – e.g. the default factory setting is **[* 1 2 3 4 # * # * # * 4 3 2 1 *].** The unit enters programming mode and the LED blinks continuously.

3. Now dial the correct command selection digit for changing the time break activation sequence **[2]**.

4. Now dial the digits in the new sequence, remembering that you cannot use the zero digit [0] e.g. **[# 2 #].**

5. Finally dial a **[0]** digit to indicate the end of the new sequence.

6. The unit will now save the new sequence and return to 'programming mode' (blinking LED) to allow the entry of further setup commands. When no further command changes are required, dial **[4]** to exit programming mode. The unit will then return to normal operation with the LED on.

7. The phone handset may now be placed back on-hook.

Restore Factory Defaults

This emergency command allows a special (unchangeable) default sequence to be entered that returns the unit to the known factory default state for all settings, as given in ***Table 3 – Factory Default Settings***. This command is useful, if for example, a new program mode activation sequence is entered in error or cannot be remembered later.

1. To restore factory defaults, just lift the phone handset to start normal operation (LED lit) and enter the following long digit sequence;

   [0 # 0 # 0 # 0 * 0 * 0 * 1 2 3 4 5 6 7 8 9 * 0 #]

2. The unit will indicate successful operation by a short sequence of rapid LED flashes. The unit will then restore all internal settings to those given in table 3 and return to normal mode (LED on).

Important - Sequence Restrictions

The unit accepts 3 different sequences, 'line break activation', 'enter command mode' and 'restore defaults'. If, for example, the line break

sequence is changed, then the new sequence must not be accidentally contained within either the command mode or restore defaults sequences.

As an example, assume that a new line break sequence of [1 2 3] is desired. It would not be possible to use this sequence as it is wholly contained within the command mode sequence (which by default is [* **1 2 3** 4 # * # * # * 4 3 2 1 *]) and would cause an unintentional line break to be activated when the user was in the middle of entering command mode. **The unit automatically detects and rejects any such 'illegal' sequence and signals that this has occurred by issuing a series of very rapid LED flashes.**

Specifications:

Line Break Timing:	User programmable 65, 75, 85, 100, 120, 140, 166, 200, 300 or 600ms, default 65ms.
Line break activation code:	User programmable, default '**'
Line maintenance current:	1mA @ 5V is provided during the line break to maintain line presence for the telephone device.
Programming interface:	Telephone keypad DTMF / LED confirmation.
Power Supply:	Line powered.
Activity indicator:	LED
Connectors:	RJ11 in/out
Configurations:	Single line unit in small plastic enclosure. Multiple lines in 19" Rack Mount (8 and 16 port variants)

Version 1.0 April 2005

Solwise Ltd.
13-15 Springfield Way,
Anlaby,
Hull, HU10 6RJ