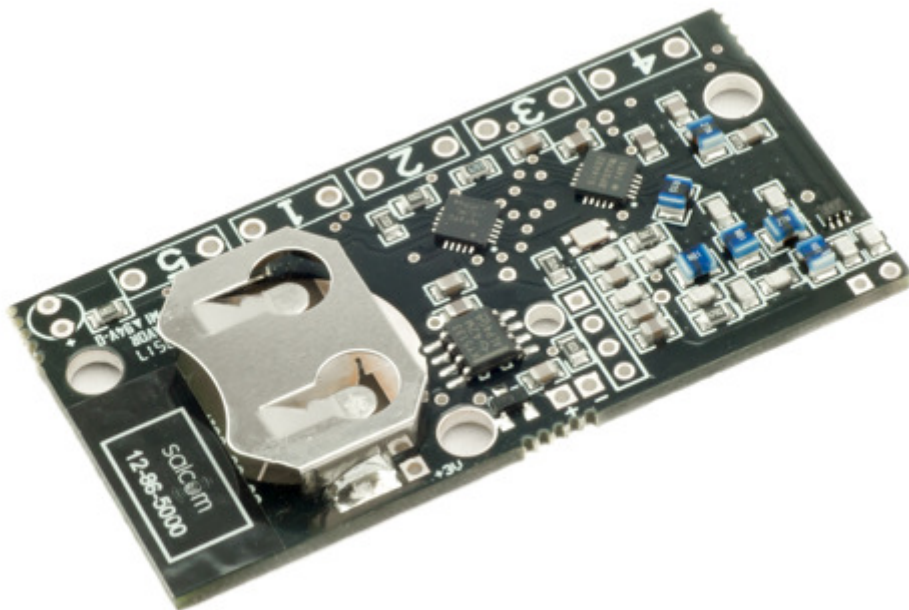


12-86-5000

PCB Transmitter



PRODUCT MANUAL

Version 1.01

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Salcom Product Documentation

This document is designed to familiarise you with Salcom products and guide you through the hardware, configuration, installation and overall system management.

Salcom is an environmentally conscious company and in an effort to conserve paper no longer prints manuals with shipped products. All relevant documentation can be downloaded in PDF form from our website www.salcom.com

Warranty and Disclaimer

Salcom products are warranted for a period of 12 months from the date of purchase against faulty materials and workmanship. Should any fault occur the unit should be returned to the vendor, freight pre-paid. Please include a description of the fault to assist with prompt return. Any unauthorised alterations or repairs will invalidate the warranty.

All information provided in this document is carefully prepared and offered in good faith as a guide in the installation, use and servicing of Salcom products. Installers must ensure that the final installation operates satisfactorily within the relevant regulatory requirements. Salcom accept no responsibility for incorrect installation. We reserve the right to change products, specifications and installation data at any time without notice.

Product Overview

The 12-86-5000 is a small, low cost, Paging Transmitter PCB and inherits all 12-86-5000 type approvals.

The 12-86 range of products are POCSAG direct to pager transmitters, allowing low cost systems to be developed since intermediate receivers and transmitters are not required for short range applications.

Although the 12-86 is a low power transmitter, when used as a call-point paging transmitter a direct line of sight range of up to 800 metres can be expected. When used within buildings the range will be reduced depending on the building.

The 12-86-5000 is supplied as a bare PCB while the 12-86-5005 offers 5 switches, an aerial and can be fitted with a single LED.

Both options can be integrated into a customers' own product housing.

Operation

The 12-86 range of products are POCSAG direct to pager transmitters, allowing low cost systems to be developed since intermediate receivers and transmitters are not required for short range applications.

12-86 transmitters support up to 5 inputs, each of which can be programmed with up to a 35-character message. Programming can be either with a serial programming cable that can be purchased separately or preprogrammed when supplied. Once operating frequency has been set the 12-86-0000 messages can be changed using programming software with an optional programming lead, or without programming leads using a PC with LCD monitor. Programming software when used with an LCD monitor can be used to transmit data as a low rate flashing sequence detected by a light sensor within the transmitter. This visual programming method works well with most modern high contrast LCD panel monitors without needing the transmitter case being opened.

Although the 12-86 is a low power transmitter, a direct line of sight transmission range of up to 200 metres can be expected. Transmit range within buildings is reduced, but still considerable having proven to be effective in some cases between floors and across buildings.

The transmitter is ideally suited to retail assistance, care home emergency applications and commercial paging use. Using a POCSAG receiver the 12-86-5000, as with all paging transmitters, can also be used for any general remote-control application (turning on lights, disabling alarms etc.)

The red transmit LED, when fitted, can also be used as an indication of battery health, and should the LED be dim or fail to light, the CR2032 button cell should be replaced.

Programming

In order to program the 12-86-5000 PCB, programming software should be downloaded from the Salcom website (www.salcom.co.nz).

A Salcom 12-47 programming lead is required to program the 12-86 transmitters (the same lead used to program the 11-85 transmitters). This may be purchased separately. The 12-47 programming lead requires the availability of a PC with a serial port, running windows XP.

Connect the 12-47 as shown below, with the dot (circled in yellow) on the 12-47 socket towards the centre of the PCB (mating with the square pad).



The 12-86 Programming Software allows the transmitter frequency and button messages to be set.

1. Press "Connect". The red LED will light, as a message is transmitted. After the message has been sent, the green LED above the 4th button will light for approximately 1 second. The status at the bottom of the 12-86 configuration tool will indicate if successfully connected.
2. Press "Read". The current configuration is read from the 12-86-5000.
3. Make any required changes.
4. Press the "Program" button.
5. Press "Disconnect", then remove programming lead.

General Configuration

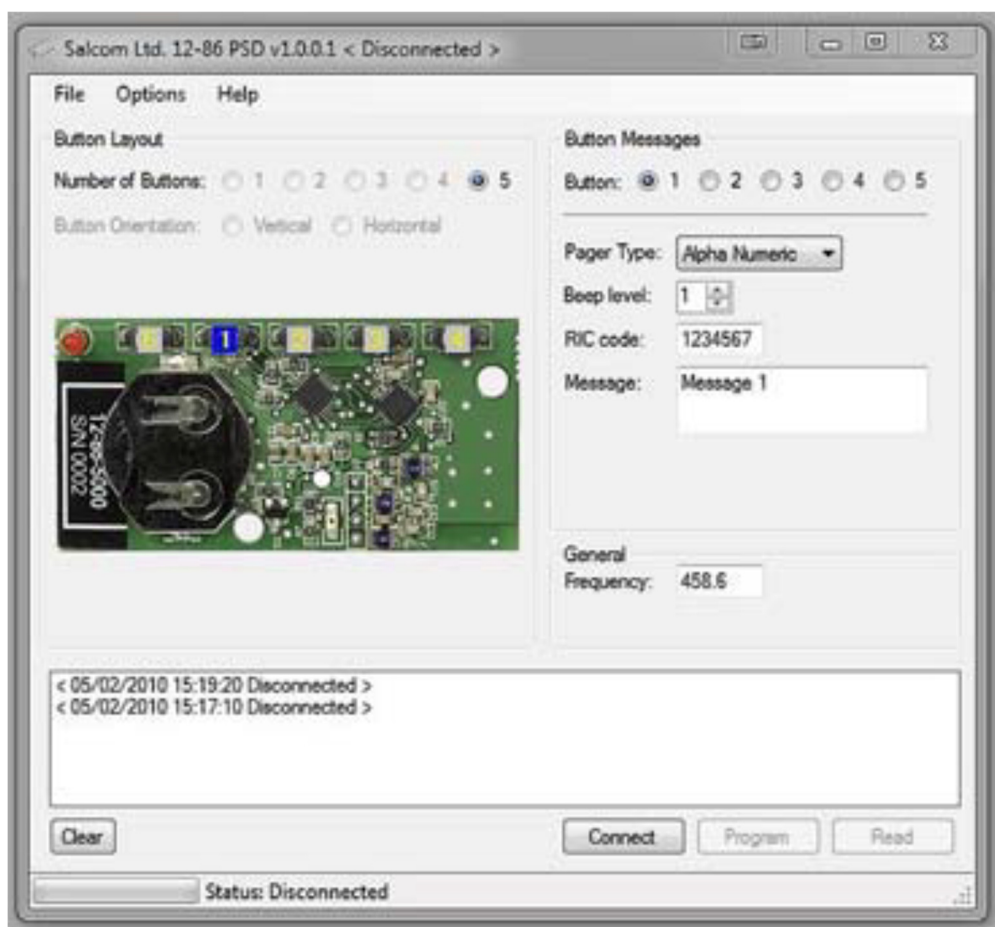
Button Messages: Select the button to view the message, CapCode and beep level assigned to that button. New button settings can be entered, but will not be written until the program button is pressed. The program button only needs to be pressed after all button details have been populated.

Frequency: The transmit frequency between 440 and 470MHz to be set, 25kHz channel spacing.

Pager Type: If set to "alphanumeric", then any message can be set into the message box, and can only be used with pagers that support alphanumeric messages. When "numeric" is set then only 0,1,2,3,4,5,6,7,8,9,0,[,],-,E and U characters can be used. Tone only pagers are supported by leaving the message box empty.

Beep Level: Pager beep priority set - 1 highest, 4 lowest.

CapCode: Pager ID. Valid codes are 0000008 to 2000000




Battery Replacement

Care must be taken when replacing the CR2032 coin cell. The battery must be fitted with the '+' up and the '-' touching the PCB. Incorrect battery installation will rapidly discharge the coin cell, and may damage the transmitter.

After battery replacement, test that the 12-86 is functional by sending a test message and verifying the red LED lights. If the unit fails to operate, remove battery, confirm correct battery orientation and reinsert.

Technical Specification

Technical Specification 12-86-5000 – UHF Transmitter PCB		
Frequency Range	440-470MHz - UHF	
Frequency Selection	User configurable	
Power Supply	3V CR2032 button cell	
Battery Life	Approx. 1000 transmissions Approx. 10 years standby	
Power Consumption	Standby: 100nA Transmit: 45mA	
Transmit Power	10mW	
Channel Spacing	25kHz	
Modulation	FSK with NRZ data	
Deviation	±4.5kHz	
Transmit Duty Cycle	Up to 20%; Maximum 30 seconds on time	
Baud Rate	512	
Message Format	POCSAG	
Configuration Application	12-86 configuration tool	
Programming Cable	12-47-0000 (Board header to DB9) Can be used with a USB to RS232 DB9 Serial Adapter Cable 12-48-0000 (Board header to mini USB)	
Serial Port	9600, N, 8, 1; RS232	
Discrete Inputs	0 buttons (12-86-5000) or 5 buttons pre-fitted (12-86-5005)	
RF Connector	Internal aerial (12-86-5005 only)	
Environmental Protection	Not suitable for outdoor use and should be protected from adverse environmental conditions	
Operating Temperature	-10°C to +55°C (+14°F to +131°F)	
Weight	90g	
Enclosure Dimensions	50mm x 113mm x 46mm (WxDxH)	
Enclosure Material	N/A	
Colour	PCB colour dependant	
Type Approvals	AS/NZS 4769.1:2000 + Amendment 1:2002 (RF) EN 300-224-2 (RF) FCC CFR47 Part 90 (RF) EN 301 489-2 V2.1.0 (EMC) EN 60950-1:2006 (Safety)	

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- This 'tick of approval' means we've met all the New Zealand Government's eligibility criteria, which should give you huge amounts of confidence in what you're buying.
- The Programme employs a global monitoring service, Yellow Brand Protection, that trawls the web for illegitimate use of the FernMark. This means that when you see the FernMark on a product, you know it's an authentic New Zealand product.

