



Intelpage 5

Contains Instructions For:

-Configuration

-Installation

-Operation

For PLASTIC EDITION

(Manual Revision 2.00)

Last updated 20/12/2006



Australian Office

PO Box 1037

OPDC WA 6916

AUSTRALIA

Phone +61 8 6240 0000

Fax +61 8 6240 0001

Email sales@commtechwireless.com

Web www.commtechwireless.com

United States Office

8301 Cypress Plaza Drive, Suite 105

JACKSONVILLE, FLORIDA 32256-4416

UNITED STATES

Phone +1 904 281 0073

Fax +1 904 281 0074

Email sales@commtechwireless.com

Web www.commtechwireless.com

NOTICE

This manual, software and electronic circuitry are copyrighted. All rights reserved. Under the copyright laws, this manual, software and electronic circuitry may not be copied, in whole or in part without written prior consent of Commtech Wireless.

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

Commtech Wireless makes certain limited warranties with respect to defective diskettes, documentation and electronic circuitry. Please see the associated information contained on this page.

SOFTWARE LICENSE STATEMENT

This manual, software and electronic circuitry are protected by international copyright laws. Under the copyright laws, this manual, software and electronic circuitry may not be copied, in whole or in part without written prior consent of Commtech Wireless, except in the normal use of the software to make an archival copy of the software for the sole purpose of backing up the software and protecting your investment from loss or damage.

LIMITED WARRANTY

With respect to the physical documentation and physical electronic circuitry enclosed herein, Commtech Wireless warrants the same to be free of defects in materials and workmanship for a period of one year from the date of purchase. In the event of notification within the warranty period of defects in material or workmanship, Commtech Wireless will replace the defective diskettes, documentation and electronic circuitry. The remedy for breach of this warranty shall be limited to replacement and shall not encompass any other damages, including but not limited to loss of profit, and special, incidental, consequential, or other similar claims.

Commtech Wireless specifically disclaims all other warranties, expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose with respect to defects in the documentation and electronic circuitry, and the program license granted herein, in particular, and without limiting operation of the program license with respect to any particular application, use, or purpose.

COMPLIANCE NOTICES

SAA (AUSTRALIA)

To ensure compliance with ACA Technical Standards, this equipment is labeled with a Telecommunications Compliance Label. For safety reasons, this equipment should only be connected to compliant telecommunications equipment in accordance with the manufacturer's instructions.

**FCC (USA)****Part 15**

This equipment has been tested and found to comply with FCC Rules and Regulations, Part 15 with the limits of a Class B digital device, designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate frequency energy and if not installed and used in accordance with the instructions, may cause interference harmful to radio communications. On the base of the equipment is a label containing an FCC Registration Number, if applicable.

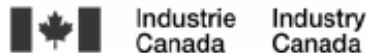
Part 90

This equipment has been tested and found to comply with FCC Rules and Regulations, Part 90.

FCCID: T5GPT5

**IC (INDUSTRY CANADA, INDUSTRIE CANADA)**

This class B digital apparatus complies with Canadian ICES-003. IC: 4767A-PT5

**CE (EUROPE)**

Commtech Wireless declare under our sole responsibility that the product Intelpage to which this declaration relates, is in conformity with the following standards and/or other normative documents.

- EN 300 224-2 v1.1.1 (2001-01)
- EN 55022: 1994 +A1: 1995 +A2: 1997
- EN 301 489 -2 v1.3.1 (2002-08)
- EN 60950-1: 2001

We hereby declare that all essential radio test suites have been carried out and that the above named product is in compliance to all the essential requirements of Directive 1999/5/EC.

The conformity assessment procedure referred to in Article 10(5) and detailed in Annex IV of Directive 1999/5/EC has been followed with the involvement of the following notified body:

Bay Area Compliance Laboratory Corporation, 1274 Anvilwood Ave., Sunnyvale, CA 94089, USA
 Identification mark: 1313 (*Notified Body Number*)

The equipment will also carry the class 2 equipment identifier (exclamation mark).

The technical documentation relevant to the above equipment can be made available for inspection on application to Commtech Wireless.

**ROHS & WEEE**

To minimize the environmental impact and take more responsibility to the earth we live, Commtech Wireless hereby confirms that the following product series comply with Directive 2002/95/EC (RoHS) and 2002/96/EC (WEEE) of the European Parliament.



SAFETY AND GENERAL INFORMATION

Important information on safe and efficient operation. Read this information before using the unit

Exposure To Radio Frequency Energy

Your Intelpage contains a low power radio transmitter. When it is ON, it transmits radio frequency (RF) energy. Your Intelpage is designed to comply with the following national and international standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy (EME):

- United States Federal Communications Commission, Code of Regulations; 47 CFR part 2 sub-part J
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition
- National Council on Radiation Protection and Measurements (NCRP) of the United States, Report 86, 1986
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- National Radiological Protection Board of the United Kingdom 1995
- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999
- Australian Communications Authority Radiocommunications (Electromagnetic Radiation-Human Exposure) Standard 1999

The maximum power density for a VHF or UHF Intelpage is 4.0 watts power output at a distance of 20cm (7.9 inch) is calculated at 0.79mW / cm². The recommended minimum distance between the Intelpage antenna and the human body or face is 30cm (12inches).

To assure optimal performance and make sure human exposure to radio frequency electromagnetic energy is within the guidelines set forth in the above standards, always adhere to the following procedures:

Antenna Care

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the device. Do NOT hold the antenna when the device is in use. Holding the antenna affects signal quality and may cause the Intelpage to operate at a higher power level than needed. Do not use Intelpage with a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result. The Intelpage antenna port shall only be connected to internal antennas located with the same building as the main equipment.

Electromagnetic Interference/Compatibility

Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility.

SELV warning

The Fusion Intelpage and Alarm Dispatch modules have been assessed as SELV throughout, all ports shall be connected to approved SELV circuits or an approved isolation unit shall be used.

Potentially Explosive Atmospheres

Do not operate the Intelpage in any area with a potentially explosive atmosphere. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death. Areas with potentially explosive atmospheres include fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles such as grain, dust, or metal powders, and any other area where you would normally be advised to turn off your vehicle engine. Areas with potentially explosive atmospheres are often but not always posted.

Blasting Caps and Areas

To avoid possible interference with blasting operations, do not use the Intelpage near electrical blasting caps, in a blasting area, or in areas posted: "Turn off two-way radio." Obey all signs and instructions.

Table of Contents

1	ABOUT THE INTELPAGE 5 (IN5)	7
1.1	Introduction	7
1.2	Features	7
1.3	Intelpage Kit	8
1.4	Front Panel	8
1.4.1	LED Indicators	8
1.5	Rear Panel	9
1.5.1	Connectors.....	9
1.5.2	Switch Settings.....	9
1.5.3	DC Input.....	9
1.5.4	Antenna Port.....	9
2	INSTALLATION	10
2.1	Enclosure Mounting	10
2.2	Antenna	10
2.3	Connecting Intelpage 5 to a Paging Terminal	11
2.3.1	Commtech Messenger	11
3	TECHNICAL INFORMATION	12
3.1	Transmitters	12
3.1.1	The installation of Multiple Transmitters and Aerials.....	12
3.1.2	VSWR	12
3.2	Types of Antennas	13
4	APPENDIX	14
4.1	Further Help and Support	14
4.2	Technical Specifications	14

About This Handbook

This manual is designed to assist with installation of the Intelpage 5. Every component of the system is described in a separate section of the manual with step-by-step instructions to facilitate hardware installation and software configuration..

Conventions.

❖ NOTE: A note preceded with this symbol indicates secondary information pertaining to the topic under discussion.

➔ IMPORTANT: A Right-pointing arrow followed by text in this manner presents important information.

⚠ WARNING: Warnings like this alert you to the fact that you might damage your equipment or lose data if you don't follow instructions carefully.

1 ABOUT THE INTELPAGE 5 (IN5)



1.1 Introduction

The Intelpage 5 is a high quality POCSAG transmitter, suitable for use where small-medium coverage is required.

1.2 Features

On-Site Paging

The Intelpage uses an internal transmitter to send instant messages *free of charge*¹. This makes it the ideal system for any company desiring to contact mobile staff without amassing a huge, ongoing communications bill. There are no monthly access fees or per-call charges with this device. The transmitter within the Intelpage will provide coverage for small-medium premises such as a hotel, school or business.

Synthesized Design

The transmitter within the Intelpage is a synthesized design capable of operating in the 148-174 MHz VHF band and the 450-470 MHz UHF band. This means it can operate on the majority of the world's onsite paging frequencies.

Versatility

The Intelpage is very configurable. A series of switches on the rear panel enable the unit to be interfaced with almost any piece of paging equipment.

¹ Note: Some countries require annual radio licenses

1.3 Intelpage Kit

Your Intelpage kit will contain:

- Intelpage unit
- 12 VDC power supply with mains cable
- Plastic wall mount bracket
- Whip antenna with 90deg adapter
- Communications cables
 - Blue – straight through cable (RJ45 to RJ45)
- CD containing manuals and configuration programs
- This Intelpage 5 Installation Manual

1.4 Front Panel

1.4.1 LED Indicators

- **Power LED (Yellow)**
Indicates that power is applied to the back of the unit and that it is operational.
- **Transmitter Indicators**
 - PTT LED (Yellow)
Indicates that the externally connected POCSAG transmitter is currently busy transmitting (“Keyed up”)
 - Data LED (Red)
Indicates POCSAG data activity.
 - Carrier Detect LED (Yellow)
Indicates channel is busy.

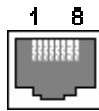
1.5 Rear Panel



1.5.1 Connectors

- **Tx Input**

The Intelpage 5 contains an internal paging transmitter. The rear connector is an RJ45 type, 8 pin - socket. Pin numbers are viewed from the back of the unit. (socket view)



The pinouts are described below.

Pin No.	Name	Description
1	AudioP	Audio – High side of balanced connection
2	AudioN	Audio – Low side of balanced connection
3	Mode/Txd	{Audio Data} mode selection OR when in programming mode: Serial Transmit Data output to transmitter.
4	Ptt	Push To Talk/ Transmit (active-low-input)
5	Gnd	Ground
6	Data	Digital Data (active-high-input)
7	Rxd	Serial Transmit Data input from the transmitter.
8	Busy	Carrier detect (active-low-output)

1.5.2 Switch Settings

- **Transmitter Settings**

Five position DIP switch which configures the interface properties. Each setting can be enabled (on) or disabled (off). Busy Invert, Data Invert, PTT Invert, PTT Pullup, Busy TTL

(Busy is also known as Carrier Detect or C.D.)

1.5.3 DC Input

This connector is used to supply power to the unit. The CMM requires 12VDC @ 2amps regulated. You will have been supplied with a suitable power supply with mains lead which will plug straight into this socket.

1.5.4 Antenna Port

The antenna port is an opening to allow connection of the antenna to the internal transmitter. The connector is a standard BNC 50ohm.

2 INSTALLATION

2.1 Enclosure Mounting

Before mounting the enclosure, you will need to decide where to place the unit. The Intelpage comes default with rubber feet installed, allowing it to sit on a desk or table, or be stacked upon other plastic Fusion Series modules.

The kit also includes a wall mounting bracket. To install this bracket:

1. Use a philips screwdriver to remove the four screws holding the rubber feet
2. Seat the bracket on the base of the unit. It will only fit one way around.
3. Use the screws that used to hold the rubber feet in position, to hold the wall mount bracket in position.



2.2 Antenna

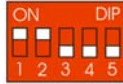
A suitable antenna capable of handling 5 watts must be connected to the BNC connector on the rear panel. The antenna for the unit must not be mounted within 5 metres of any other sensitive electronic equipment including other Fusion series products, routers, computers or phone systems. See the technical information section below for further information.

▲ WARNING: The antenna must be placed at least 5 metres away from other electronic equipment to prevent interference.

2.3 Connecting Intelpage 5 to a Paging Terminal

The unit can be connected to almost any paging system worldwide. DIP switches on the front panel of the unit customize the way the Intelpage 5 operates.

If you are connecting the Intelpage 5 to any **CommtechWireless** equipment such as Commtech Messenger, Fusion ADM, Fusion Central or Fusion TIM, the dip switch configuration is as follows.

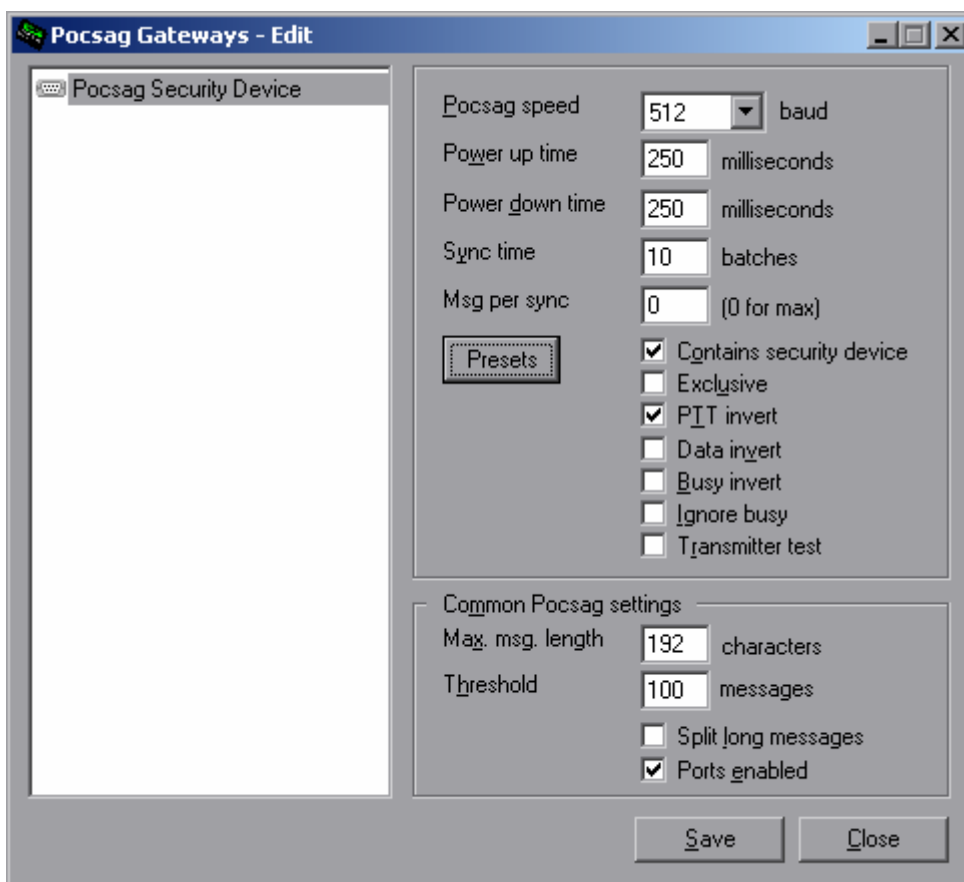


The DIP switches on the Intelpage 5 come preconfigured as above. If you are connecting the unit to a third party encoder, consult its documentation for the transmitter settings required.

2.3.1 Commtech Messenger

If you are connecting the the Intelpage 5 unit to a Commtech Messenger system, you must be using an “RS232” type connector set and the supplied straight through RJ45-RJ45 cable (blue).

Once the DIP switches on the Intelpage 5 are configured properly, the Commtech Messenger software must be setup to match to ensure correct operation. From the Commtech Messenger main screen select Interfaces-> Pocsag. From here the correct settings are easily achieved by clicking the “Presets” button and selecting “Commtech Transmitter”.



3 TECHNICAL INFORMATION

3.1 Transmitters

Thick steel and concrete, large magnetic and electric fields, and terrain and weather conditions will affect transmitter efficiency, so you will need to test the coverage of your local area transmitter at some stage of installation.

When you perform the test you should pay particular attention to the quality of the messages that you receive on the test pager. If you receive corrupted messages then it is possible that you will have problems sending messages to that region.

If you find that you are receiving corrupted messages then you should consider the following methods for improving transmission quality:

- Move the antenna to a position that gives it a clear line of site to all areas you wish to cover.
- Reduce the length of the cable connecting the aerial to transmitter.
- Use the appropriate coaxial cable to connect the aerial to transmitter which will suit the length of the cable run. For example use RG213 for runs up to 20 meters and use LDF440 for runs over 20 meters.
- Choose another type of antenna for the transmitter.
- Position the antenna in a higher location or use an antenna with a higher gain.

Increase the transmitter power. There are a number of objections to this method, such as local restrictions on aerial power. In addition, doubling the transmitter power to the aerial only gives an increase in range of a factor of 1:19 (fourth root).

3.1.1 The installation of Multiple Transmitters and Aerials

For buildings in an area with good field strength outside but weak reception within, possibly caused by shielding due to reinforcement in suspended slabs, metal plating and other building materials:

- The supply lead to the aerial can serve as a radiator, effectively providing a 5 meter (yard) range from the cable
- The supply from open (leaky) coaxial cable as a line radiator lead to a 50 Ω terminator (the cable is in effect the aerial).

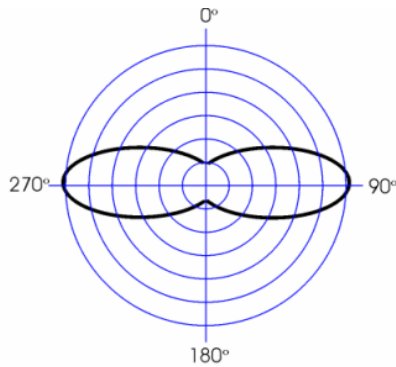
3.1.2 VSWR

▲ WARNING: VSWR is a measure of impedance mismatch between the transmission line and its load. The higher the VSWR, the greater the mismatch. A high VSWR means some of the transmitted signal is being reflected at the antenna, back down the coax line and back into the transmitter itself. If this value is too high, the amount of power reflected back into the transmitter can damage the transmitter. The minimum VSWR, i.e., that which corresponds to a perfect impedance match is 1. It is essential that the VSRW of the antenna and coax connected to the amplifier is set to 1.5 or better using a SWR meter. If this test is skipped, permanent damage may result to the amplifier. Damage will also occur to the unit if the amplifier is set to transmit if no antenna is connected to the unit. To transmit without an antenna connected to the unit, use a dummy load capable of handling at least 5 watts.

3.2 Types of Antennas

Co-linear (Commtech part #'s CL-A-VHF and CL-A-UHF)

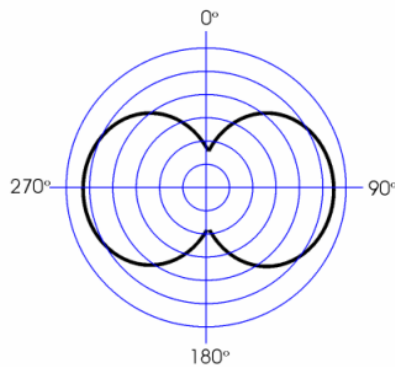
Co-linear antennas are most suited for installations which require maximum range. The general coverage pattern for this type of antenna is shown below.



(side view of site)

Mopole (Commtech part #'s MO-GIA-VHF or MO-GIA-UHF)

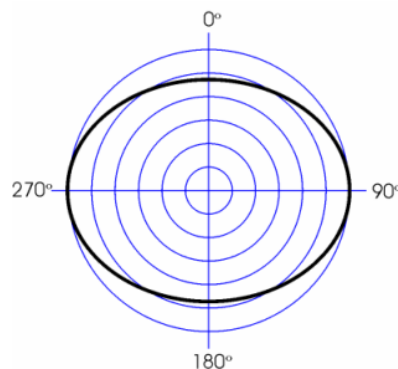
Mopole antennas are most suited for installations which require good building penetration and range. It is a good general purpose antenna. The general coverage pattern for this type of antenna is shown below.



(side view of site)

Side Mounted / Unity Gain Dipole (Commtech part #'s DIPOLE-VHF or DIPOLE-UHF)

Dipole antennas are most suited for installations which require excellent building penetration. The general coverage pattern for this type of antenna is shown below.



(side view of site)



4 APPENDIX

4.1 Further Help and Support

Contact your Place of Purchase

A Commtech Wireless Authorized Distributor or Dealer sets up most systems. Contact your place of purchase with inquiries beyond the scope of this manual.

This Product is Not Field Serviceable

Should a fault develop with the hardware or software, contact your place of purchase for the most appropriate form of action. Do not attempt to open or repair any of the products as this may void any warranty.

4.2 Technical Specifications

Note: Specifications subject to change without any notice

Equipment type.....	POCSAG transmitter
Frequency range	VHF - 148-174 MHz. UHF - 440-470 MHz Synthesized
Internal Transmitter	adjustable up to 4 watts
Power supply	12VDC @ 2Amps regulated
External led indicators	power, ptt, data, carrier detect
Interface ports.....	Pocsag: RJ45f with selectable RS232/TTL level
External antenna connector.....	BNC Female 50ohm
External switches.....	5 way DIP switch for interface config
Supported protocols	POCSAG
Dimensions.....	255 x 230 x 70 mm / 10 x 8 x 2.7 inches
Weight	700g / 1.5lb nett
Ambient temperature operating range.....	0 – 50 °C (20-90% RH non condensing)
Storage temperature range	-10 – 60 °C (10-95% RH non condensing)