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REPORTER 8102

RADIO MONITORING STATION

The Reporter 8102 is designed to receive transmitter codes in a control room or operate as a stand alone intelligent repeater. It incorporates a transceiver, decoder, power supply, backup battery and can be used as either a base station or a repeater. The Reporter X20 coding system enables it to receive 20 by 8000 transmitter codes.

Incoming code information can be read off a four line LCD display .

Reporter 8102 is designed to meet all your security monitoring needs. Software upgrades enables the user to upgrade equipment with ease.

USERS MANUAL

CONTENTS **PAGE NO**

RS 232 CABLE CONNECTION TO COMPUTER

REPORTER **COMPUTER**

DB 9 Female **DB 9 Female** **DB 25 Female**
Pin 3 - Data Tx --------- Pin 2 - Data Rx Pin 3 - Data Rx
Pin 5 - Data Ground --- Pin 5 - Data Ground Pin 7 - Data Ground

TELEMETRY INFORMATION	DECODER OUTPUTS		ASCII CONVERSIONS	
Telemetry Function	**Standard3**	**Digit**	**Hex**	**Decimal**
alarm	0	000	30	48
lock up	1	001	31	49
open up	2	002	32	50
emergency	3	003	33	51
telemetry 1	4	004	34	52
telemetry 2	5	005	35	53
telemetry 3	6	006	36	54
telemetry 4	7	007	37	55
mains fail	è	010	8A	138
mains restore	ï	011	8B	139
customer test	î	012	8C	140
engineer test	ì	013	8D	141
customer duress	Ä	014	8E	142
customer error	≤	015	8F	143
medical alert	É	016	90	144
power up	æ	017	91	145
fire alarm	Æ	018	92	146
fridge alarm	ô	019	93	147
status lock	ö	020	94	148
status lock	ò	021	95	149
status lock	û	022	96	150
status lock	ù	023	97	151
status lock	ÿ	024	98	152
status lock	Ö	025	99	153
status lock	Ü	026	9A	154
status lock	¢	027	9B	155
status open	¿	040	A8	168
status open	⌐	041	A9	169
status open	¬	042	AA	170
status open	½	043	AB	171
status open	¼	044	AC	172
status open	¡	045	AD	173
status open	«	046	AE	174
status open	»	047	AF	175
telemetry 5	╝	060	BC	188
telemetry 8	┐	063	BF	191

LOOP TEST TRANSMITTER

In order to test repeater and decoder operation, a loop test transmitter must be installed in the control room. The transmitter can be activated by a switch or remote to send a code to the repeater network in order to determine if all repeaters are receiving and communicating with the base station. The activation can be done manually or with a timing circuit. It is important to note that this operation will assist you to identify repeater network, range or no coding trouble shooting.

TROUBLE SHOOTING

Most problems with your Reporter 8102 can be solved by one or more of the following solutions. If after trying these solutions, you still have problems, contact RDC and one of our service technicians will assist you.

- Check the AC adapter connections to the wall outlet and to the Reporter.
- Be sure the AC 3 pin plug is connected to a live outlet (Test with DVM or AC lamp).
- Be sure that the battery is connected and charging in case of AC failure.
- Check that computer and printer connections are correct and secure (Only use original cables as supplied).
- Do audio checks to ensure that incoming codes are decoded.
- The printer will only operate when Switch Bank (SW) 2 number 1 is switched on.
- Check that your antenna connector to the base station is correct and secure.

BEFORE CALLING FOR TECHNICAL SUPPORT

Before calling Technical Support, please have the following information available. This will assist the Technician in helping you quickly and more efficiently :

- A brief description of the problem.
- Network information : Repeater locations and Numbers, Base station location and antennas installed on all equipment.
- Startup printout from base station (This will indicate software and parity settings).
- Printout of loop test transmitter tested from control room (Indicating repeaters received).

CHANGING BETWEEN BASE STATION AND REPEATER OPERATION

The change from base station to repeater or the other way around is done by Switch Bank Number 2 labelled as SW 2.

BASE STATION SETTINGS
(Note protocol settings in this mode)

SW2

1,2,3,4 in **off** position

REPEATER AND REPEATER NUMBER SETTINGS
No changes to SW1 or SW3 required.

SW2 - Settings to select repeater No.1

SW2 - Settings to select repeater No.2

SW2 - Settings to select repeater No.3

SW2 - Settings to select repeater No.4

SW2 - Settings to select repeater No.5

SW2 - Settings to select repeater No.6

SW2 - Settings to select repeater No.7

TALK THRU SETUP

In talk thru mode repeater's number 6 and 7 can be received and retransmitted to the base station via repeater number 1. Switch settings are only altered on **repeater number 1** to allow repeater talk thru.

To allow repeater number 6 talk thru repeater number 1

To allow repeater number 7 talk thru repeater number 1

It is important to note that repeaters should **not** be **set** with the **same ID number**.
The printer and computer ports do not operate when in repeater mode.

RF power selection **5** or **15 Watt** can be done via jumper on the RXTX board situated inside the aluminum enclosure.

RS 232 SERIAL PORT PROTOCOL

The base station is supplied with Standard RDC format selected.

Base Station Protocol	SW 2 - Switch Selection
Chubb format	6 off , 7 off
Standard RDC format	6 off , 7 on
Serial Printer mode	6 on , 7 off
3 Digit Telemetry format	6 on , 7 on

A transmitter activation is received many times by the Reporter Base Station. If all these activations must be sent to the computer, select SW2 number 5 **ON**. Advantage: Code count and repeater numbers can be recorded on computer.
If only the first activation per code received is to be sent to the computer, select SW2 number 5 **OFF**. Advantage: Traffic reduction in multipal port monitoring on computer.
Factory setting is SW2 number 5 **ON** (recommended).

Reporter standard
Output String = 7 Characters

```
CHARACTER 1 2 3 4 5 6 7
          I     I I I
          I     I I I  $ OD Carriage Return
          I     I      Repeater Number
          I     Telemetry
          Code Number
```

Protocol with alpha prefix (SW3 number 2 ON)
Output string = 1 Character added in front

```
CHARACTER 1 2 3 4 5 6 7 8
          I I
          I I All other formats follow
          I I_____________
          I
          Alpha Prefix
```

3 Digit telemetry format

```
CHARACTER 1 2 3 4 5 6 7 8 9
            I     I   I I
            I     I   I  $ OD Carriage Return
            I     I      Repeater Number
            I     3 Digit Telemetry
            Code Number
```

Chubb format

```
CHARACTER 1 2 3 4 5 6 7
            I     I I I
            I     I I I  $ OD Carriage Return
            I     I      Chubb Telemetry
            I     Space
            Code Number
```

Repeater Information	Chubb Telemetry
0 = Local / Direct	0 = Telemetry 1
1 = Repeater No. 1	1 = Telemetry 4
2 = Repeater No. 2	2 = Emergency
3 = Repeater No. 3	3 = Alarm
4 = Repeater No. 4	5 = Telemetry 2
5 = Repeater No. 5	6 = Telemetry 3
6 = Repeater No. 6	8 = Open Up
7 = Repeater No. 7	9 = Lock Up

Data Out Information

Board Rate = 9600	Parity = No
Data Bits = 8	Stop Bits = One
Handshake = No	Data Output = Standard ASC11

SAFETY INFORMATION

The Reporter 8102 is designed, tested and approved by the S.A.B.S according to Mobile Radio standards. To insure it is installed safely and operating correctly, follow all safety and operating instructions in this manual.

- Do not use liquid cleaners or aerosol cleaners. Use a dry cloth for cleaning.
- Do not operate the Reporter 8102 on 220v AC with any covers removed.
- Disconnect 220v and 12v supply when making adjustments to C P U switch settings.
- Do not operate Reporter near water; for example, kitchen sink or laundry tub.
- Do not connect external chargers or batteries to the internal 12 Volt supply.
- Disconnect power to the Reporter when connecting printer or computer ports.
- Slots and openings on the cover are provided for ventilation. To protect your Reporter from over heating, these openings should never be blocked.
- When transporting or not in use, always disconnect the internal battery.

REPORTER 8102 FEATURES

GENERAL

- Intelligent 60 minute autotest for testing repeaters
- Unique individual system coding - prevents system cross talk
- Existing microprocessor controlled transmitters can be upgraded to utilise the features of the 8102 system
- Self contained unit
- Small size - big features
- Unique X20 coding system which enables up to 20 users to share one radio frequency
- Each one of the 20 Multi-Users can have up to 8000 code numbers
- 100 Different telemetry conditions can be supported
- 4 Line x 16 character display which displays code number, telemetry (in English), date, time and number of times each code is received
- One unit is switch programmable to be a decoder or a repeater, which enables one unit to provide backup for both decoder and repeater
- Operator code acknowledge and printout
- Internal battery and 3 amp fast charger

AS A CENTRAL STATION DECODER

- English language code and telemetry display
- Repeater interrogation
- Internal real time clock and calendar
- Parallel printer port
- External buzzer output with remote reset input
- Single antenna operation
- Programmable RS-232 serial output for connection into computer
- RS-232 output is compatible with all popular control room software
- RS-232 output selectable for remote printer, terminal or computer

AS A REPEATER

- Engineering test facility
- Built-in anti lock-on device
- Single or dual antenna operation
- Up to 7 repeaters may be used on one system to improve range and to ensure reliable communications in difficult areas
- Repeater talk thru facility

REPORTER 8102 SPECS

GENERAL

- Frequency range : 136-174 MHz (non synthesized)
- Channel spacing : 12.5 or 25 Khz
- Frequency stability : 5ppm
- Operating temperature range : -10 to +60 C
- Antenna Impedance : 50 Ohms
- Dimensions: W=225mm, D=285mm, H=82mm
- Weight: 7 kg

TRANSMITTER

- Output power: 5 or 15 watts jumper selectable
- Spurious output : better than -60dB below carrier
- Harmonic output : better than -60dB below carrier
- Modulation type : FM
- Deviation : 12.5 Khz Spacing : adjustable between 1.0 and 5.0 Khz
- Antenna mismatch capability : continuous operation into open or short circuit

RECEIVER

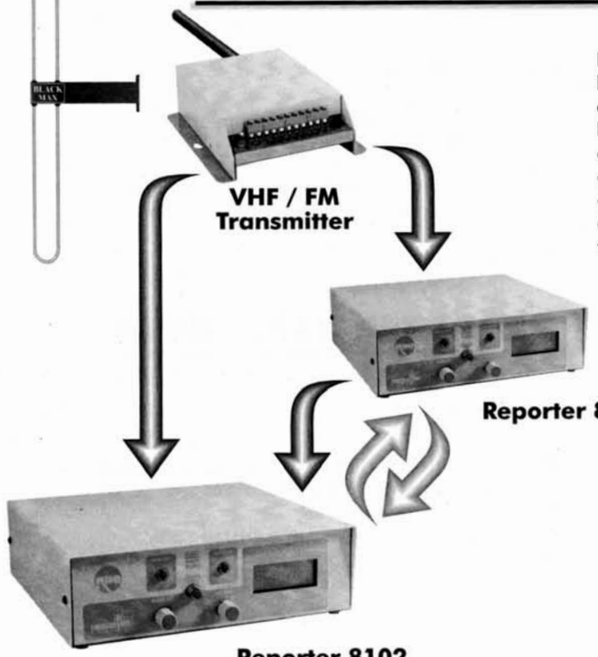
- Description : Crystal controlled, non synthesized, dual conversion, super - heterodyne type with FET front end and mixer, 10.7 and 0.455 MHz
- I.F.frequencies and multistage crystal filters
- Sensitivity (12 dB Sinad) : -118dBm and 0.35 uV
- Squelch threshold : -120 dBm 0.25 uV
- Selectivity:
  Adjacent channel : -90dB
  Inter modulation : -70dB
  Spurious Rejection : -70dB

POWER SUPPLY

- 12 volts D.C. with internal 6.5 Ah battery and internal heavy duty 3 amp continuous voltage and current controlled charger
- Power Consumption:
  Receiver and decoder : 350 mA
  Transmit 5 watt : 1.5 amps
  15 watt : 3.5 amps

In our quest for a better product we reserve the right to change the above specifications

REPORTER 8102 SINGLE USER OPERATION

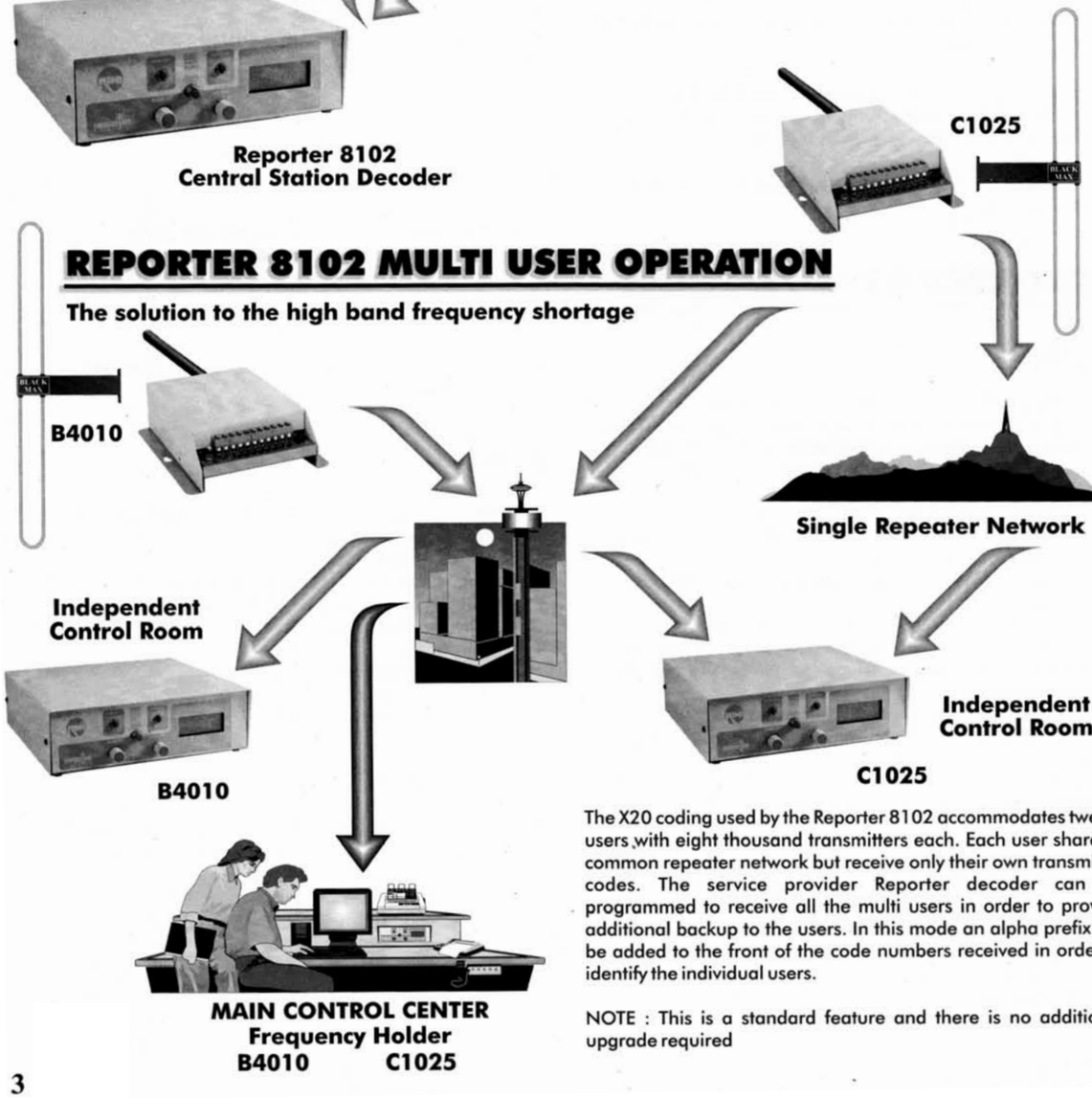


In standard operation transmitters are received by the Reporter base station followed by the Reporter repeaters which will download the code information in repeater number order. The base and repeaters can store multiple code numbers and download them as free airtime is available. The Reporter base can accommodate eight thousand transmitters which can be extended by another nineteen times eight thousand . In this mode an alpha prefix is used to identify each string of eight thousand transmitter code numbers.

NOTE : The base will transmit a 7999 engineer test to the repeaters if no codes were decoded for 60 minutes.

REPORTER 8102 MULTI USER OPERATION

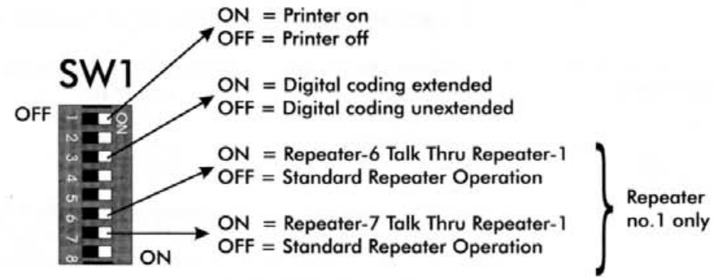
The solution to the high band frequency shortage

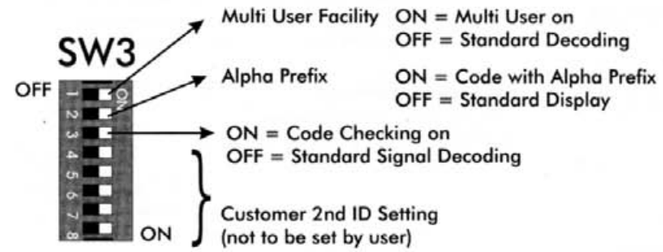


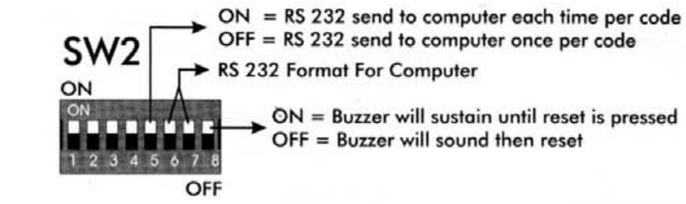
The X20 coding used by the Reporter 8102 accommodates twenty users with eight thousand transmitters each. Each user shares a common repeater network but receive only their own transmitter codes. The service provider Reporter decoder can be programmed to receive all the multi users in order to provide additional backup to the users. In this mode an alpha prefix will be added to the front of the code numbers received in order to identify the individual users.

NOTE : This is a standard feature and there is no additional upgrade required

SWITCH SETTING INSTRUCTIONS







SW2 SWITCH NO 1-4
SETTINGS FOR REPEATER OPERATION

REP 1	**REP 2**		**REP 3**		**REP 4**		**REP 5**		
1 - ON	1 - OFF		1 - ON		1 - OFF		1 - ON		
2 - OFF	2 - ON		2 - ON		2 - OFF		2 - OFF		
3 - OFF	3 - OFF		3 - OFF		3 - ON		3 - ON		
4 - OFF	4 - OFF		4 - OFF		4 - OFF		4 - OFF		
REP 6	**REP 7**								
1 - OFF	1 - ON								
2 - ON	2 - ON								
3 - ON	3 - ON								
4 - OFF	4 - OFF								

SW2 SWITCH NO 1-4
SETTINGS FOR BASE OPERATION

BASE
1 - OFF
2 - OFF
3 - OFF
4 - OFF

OTHER PRINTOUTS RECEIVED FROM REPORTER

Code Received Print Out

Mode D	Rep L	Frame 1	Code 4129	Alarm	01-01-97	16:33:10	Count 1
Mode X	Rep 5	Frame 1	Code 4129	Alarm	01-01-97	16:33:12	Count 2

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

1) Reporter decoding mode: D = Digital local
X = X20 Type coding
d = Digital Repeated

2) Repeater Number information: L = Local Reception (Direct)
1 to 7 indicates the repeater received ID number

3) Frame No: Indicates frame sent by transmitter.

4) Code Number: Code number of transmitter received.

5) Telemetry Information:
Indicates telemetry received from transmitter .

6) Date: Date stamp when code was received.

7) Time: Time stamp when code was received.

8) Count: Indicates received count from transmitter.
(Direct + Repeater)

60 Minute self test print out

Indicates when the Reporter performs a 7999 engineer test.

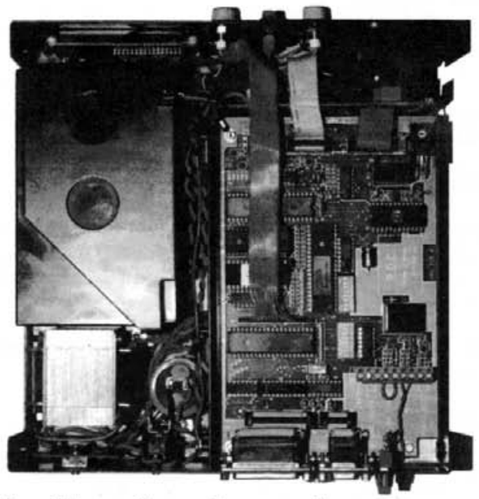
**** 60 Minute Self Test Date 01-01-97 Time 16:30:49 ****

FINDING SWITCHES AND SWITCH BANKS

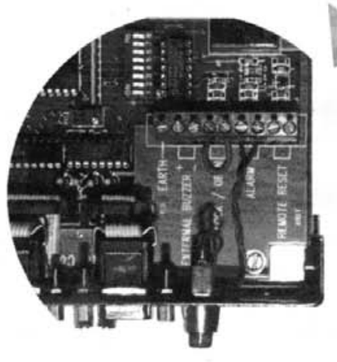
There are three sets of switch banks on the CPU of the Reporter 8102. The switches are used to alter the functions or operation of the Reporter.

Here is where you find them.....

Remote Reset and External Buzzer Connection



Top View - Cover Removed



Remote Reset : Used for external reset switch / remote connection.
A closed contact is required for reset.

External Buzzer : Output at 12 volt and 1 ampere maximum load.
Note polarity on terminal block.

UNPACKING YOUR EQUIPMENT

WHAT YOU SHOULD HAVE

BASE STATIONS

Reporter 8102

Power Cable

RS 232 Cable

REPEATERS

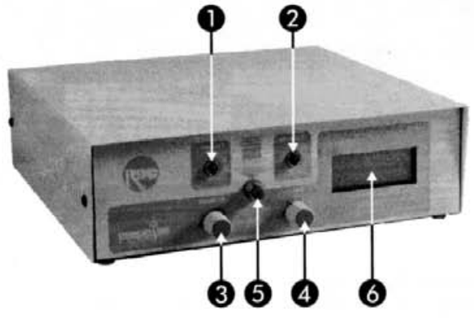
Reporter 8102

Power Cable

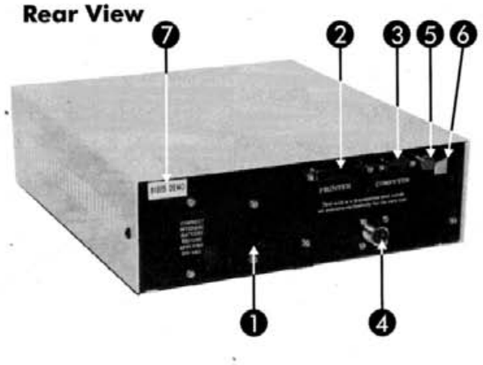
LOCATION OF CONTROLS AND PORTS

CONTROLS

1. Transmit LED: Indicates when 8102 is transmitting data.
2. Monitor LED: Indicates microprocessor operation.
3. Squelch Control: This control is used to select desired squelch threshold level. It does not affect signal reception.
4. Volume Control: Rotating the control clockwise will increase the volume.
5. Reset Switch: Used to retrieve information from the display and setting up time and date.
6. LCD Display: 4 Line display indicating code and telemetry information with time and date in English.



Rear View



PORTS

1. Power Jack: Receives 220v AC through 15AMP kettle cord.
2. Printer Port: Accommodates all makes of dot matrix parallel printers.
3. RS232 Port: Communicates in 4 different Protocols.
4. Antenna Connector: Accommodates PL259 connector and 50 OHM antenna's.
5. Time set Switch: Initializes time and date set mode.
6. Optional Extra: Fits socket for external 12v DC input (e.g. Solar Panel).
7. Label: Indicating setup as base or repeater.

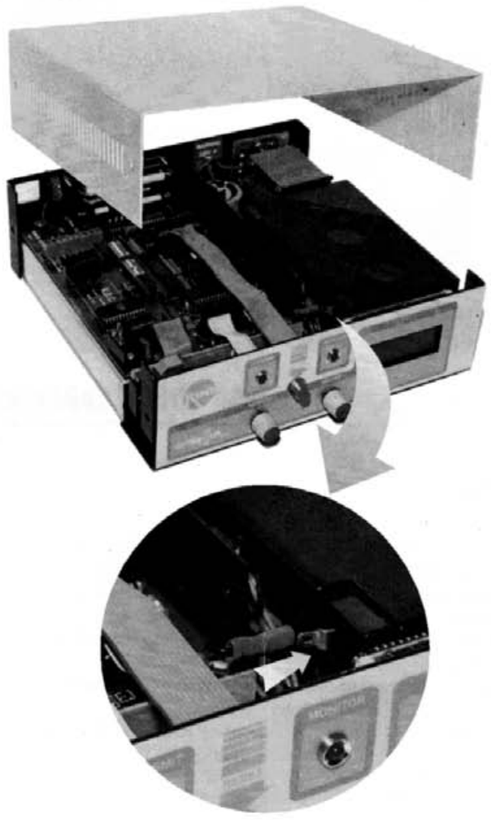
INSTALLATION

1) Connect Antenna

2) Connect Printer

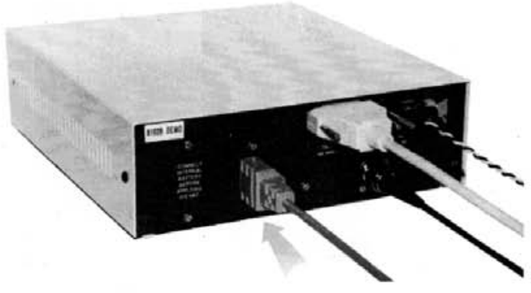
3) Connect RS 232 Cable to computer
Note: Do not extend cable longer than 9 meters
Do not connect directly to more than one computer

4) Connect battery terminal onto battery
Note: Ensure firm connection without double touch



5) Replace lid on base station
Use key supplied with Reporter 8102

6) Connect 220v ac cord
Note: Ensure that wall socket is on and operating



YOU ARE NOW READY TO RECEIVE INCOMING CODES

OPERATION

Start Up Display

Reporter 8102 ← a) Reporter Model
$Revision: 1.2 ← b) Software Version Installed

Start Up Print Out

RADIO DATA COMMUNICATIONS (PTY) LTD
Reporter Model 8102
"Revision" 1.2
Date 06-02-97 Time 7:39:19
Digital Code Prefix = 4
Encoder Type = 5
Number System = D
Rom_ID_1 = 1
Rom_ID_2 = 0
Rom_ID_3 = 1

NOTE :Startup printout information will assist a service technician to check CPU settings.

Volume and Squelch controls

Volume and Squelch controls on the front of the Reporter is available for the user to select a comfortable audio level. It is important to monitor radio signals to ensure that incoming codes are decoded.

NOTE : Adjustment of both these controls have no affect on code reception.

Monitor and Transmit indicators

Monitor LED should flash approximately once every second, indicating that the processor is operating correctly.

Transmit LED indicates when the Reporter initiates a 60 minute repeater engineer test. As a repeater it will indicate when received data is repeated to the base station.

RESET BUTTON

Time and date printout

This is achieved by depressing the reset button and releasing.

Print Out

****Date 01-01-97 ****Time 15:30:49

Buzzer reset / code acknowledge

After a code is received the buzzer can be reset by depressing the reset button. This feature is enabled with SW 2 number 8 switched on.

Code Acknowledge Print Out

****4129 Alarm received 16:33 .....acknowledged 16:38

Code received information check

Information can be retrieved of codes on the display by depressing the reset button and holding it down.

Standard display		Display With Reset Switch Depressed			
1101	Alarm	12:06	05-02	12	*
5052	Emergency	12:08	05-02	3	*
1219	Open Up	09:01	06-02	9	*
2525	Lock Up	17:25	06-02	6	*
		❶	❷	❸	❹

1) Code number received by reporter.

2) Telemetry received from transmitter.

3) Time when code was received.

4) Date (DD:MM) code was received.

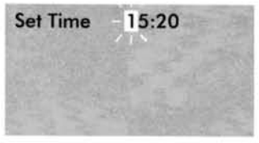
5) Indicates total count received from transmitter. (Direct + Repeater)

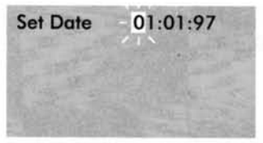
6) * Appears when code acknowledge has been done with reset button.

TIME AND DATE SET

Time and date set mode is entered by depressing the time set button on the back of the reporter for at least one second. Time and date settings are altered by depressing the reset button.

Decoder will start with a "**BEEP**" you are now in **time and date set mode**.





The cursor will flash on the time first and move from left to right. When the cursor is on the digit that needs to be altered - press reset button in short intervals to increment the digit until correct setting is achieved. The cursor will then continue moving onto the date where the same procedure can be used to alter the digits.

NOTE : If codes are received during this time they will be displayed , printed and sent to the computer when the Reporter returns to normal operation.
In base station mode the reporter will transmit a 7999 engineer test if the date is altered.