

SMART BASE

THE SMART- BASE RECEIVER SPECIFICATION

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INTRODUCTION

The **SMART-BASE** is a versatile, event/ alarm receiver capable of accepting signals from **M.A.M.I. UHF TRANSMITTERS** and **TRACER** alarm control units. It is easy to operate, compact, and informative.

The **SMART-BASE** has been developed to provide the end user with many facilities and yet remain user-friendly. Features and advantages include:

1. Receives standard alarm signals from **UHF RADIO TRANSMITTERS** and **TRACER** control units.
2. Receives special signals designed to operate relay outputs
3. Buzzer provides audible indication of received alarms.
4. Two-Line **LCD** display.
5. On-board **1.5A** battery charger and **6.5A/H** backup battery.
6. Four on-board auxiliary relays.
7. Acknowledge button
8. A built-in real-time clock.
9. Date/time button (toggles between alarm record and clock /date display).
10. Optional printing of received alarms to a serial printer with time and date of the event.
11. Optional serial transmission of data to a host base station computer.
12. Optional **4-wire (I2C)** interface for mimic or relay panels
13. Intelligent storage of up to 16 previously received alarms.
14. Ability to define a specific group of transmitters from which signals can be monitored.
15. Various alarm display formats.
16. Optional 'custom made' messages operation.
17. On-board relay can be used to trigger external transmitter if alarm is not acknowledged within a certain time.

Simply the **SMART-BASE** is a radio receiver and decoder that can process incoming radio alarm signals and display them in a variety of ways. When the **SMART-BASE** receives an alarm signal from either a **UHF TRANSMITTER** or a **TRACER**, it can do any one (or a combination) of the following:

- Sound a buzzer.
- Display the number of the transmitter AND relevant triggered zone .
- Send the alarm information, date and time to a serial printer.
- Send an alarm code to a computer which uses **MAMI** monitoring software.
- Send the alarm information via the **I2C** interface to a **MIMIC PANEL**.

USAGE:

The **SMART-BASE** can be used in a variety of applications, ranging from the supervision of different types of sensors in an industrial environment to the monitoring of burglar alarms in a residential area. Typical applications include:-

- **ELECTRIC FENCE MONITORING.**

- **FIRE ALARM MONITORING**

- **PUMP MONITORING**

- **RESCUER** : A grid type multi-user **panic system** designed to cover a large area such as a townhouse complex or an old age home. Users can be anywhere within their repeater range, whilst guards on patrol can be anywhere within the grid and be able to summon help with their panic buttons.

- **MIMIC**: The **I2C**. interface can be used to send information to remote displays from the **SMART-BASE** receiver.

- **MOBILE BASE**: Mounting the **SMART-BASE** in a patrol vehicle gives the **RESPONSE UNIT** immediate access to incoming alarms.

PROGRAMMING THE SMART-BASE

The **SMART-BASE** may be programmed to suit the type of operation required. Programming is done using the **M.A.M.I. RKF_PROGRAMMER**.

The options and settings are stored in several registers:

SELECTING THE OPTIONS

Before programming the **SMART-BASE** unit, the installer must make the appropriate option selections from the choices given below in the sections '**OPTIONS REGISTER 1**' to '**CODE REGISTER C**'.

(Space is provided for your selection).

OPTIONS REGISTER '1'

Data is entered from bit 1 to bit 8 . Enter a '0' or a '1', corresponding to your choice.

A list of these choices are shown in the programming sheet below and are self explanatory.

The **different display formats** that appear on the LCD display and the printer when an alarm signal can be programmed using bits 1,2 and 3 and are shown in **appendix "A"**. For specific monitoring applications, the messages to be displayed may be **customized**.

ALARM ACKNOWLEDGE TIME REGISTER '4'

This register defines the time allowed to acknowledge an alarm signal. If the alarm is not acknowledged within this time, on-board relay number 1 will be activated for approximately 3 seconds. Use this facility to alert a control room if a guard has not acknowledged the alarm within the programmed time period. The acknowledge time is entered in 8-bit binary code.

RELAY OUT OPTION REGISTER "5"

This option allows the user to define which of the incoming alarms will activate **RELAY #3**. This relay remains activated until the acknowledge button is pressed.

LOWEST CODE REGISTER 'A'

This defines the **LOWEST** transmitter **ID** code that will be accepted by the **SMART-BASE**. Any received **ID** code below this number will be ignored. Data is entered from digit 1 to digit 4.

HIGHEST CODE REGISTER B. Any transmitter whose number is higher than this number will be ignored by the receiver.

On request the **SMART-BASE** can be configured so that the **installer** can program the range of transmitter numbers that can be received . The highest transmitter number to be received is programmed into register '**B**'.

Registers '**A**' and '**B**' will then define the "window" transmitter numbers that can be received by the **SMARTBASE**.

Valid codes are any decimal values between '**0000**' and '**9999**'.

The SMARTBASE has its own I . D. for special applications . This code is programmed into register "C" and is factory set to "0005" . No transmitters should be programmed with this code!! A code of 9000 is programmed for MIMIC / RELAY driver applications. (This is the first code used)

TO PROGRAM:
 1-HOLD THE SELECTED REGISTER KEY UNTIL A "P" IS DISPLAYED (EG. "3") **1** → **P**

2-ENTER EIGHT "0" OR "1" AS SELECTED **?** **0** OR **1**

TO VISUALIZE
 PRESS SHORTLY THE NUMBER OF THE REGISTER YOU WANT TO CHECK **?**

THE DISPLAY WILL SHOW, SEQUENTIALLY THE CONTENT OF THE REGISTER **0** OR **1**

PROGRAMMING THE OPTION REGISTER **1**

FACTORY-PROGRAMMED DEFAULT SETTINGS ENTER YOUR SELECTIONS HERE Smartbase 02/11/97

BIT NO.	1	2	3	4	5	6	7	8
	1	1						
	2	1						
	3	0						
	4	0						
	5	0						
	6	0						
	7	0						
	8	0						

RAW CODE	STANDARD MESSAGES	FARM MESSAGES	TRACER/RADIOCOM	CUSTOM 1	CUSTOM 2	PAGER MESSAGES
0	1	0	1	0	1	1
0	0	1	1	0	0	1
0	0	0	0	1	1	1

(IGNORE)

- 1 = LATCH FIRST ALARM 0 = ACCEPT ALL ALARMS
- 1 = UPDATE REMOTE MIMIC 0 = DO NOT UPDATE
- 1 = SEND DATA TO HOST COMPUTER 0 = DO NOT SEND DATA
- 1 = SEND DATA TO THE SERIAL PRINTER 0 = DO NOT SEND DATA

PROGRAMMING THE ACK. TIME REGISTER **4**

ACKNOWLEDGE TIME **4**

1	2	3	4	5	6	7	8
1	0	1	0	0	0	0	0

1 2 4 8 16 32 64 128

THE VALUE IS IN SECONDS AND IS REPRESENTED IN BINARY FORMAT
 (EXAMPLE SHOWN IS 5 SEC)

PROGRAMMING THE RANGE OF VALID CODES **A** **B** & **C**

I.D. CODE OF THE FIRST TRANSMITTER BEING MONITORED **A**

1	2	3	4
0	0	0	1

ENTER A 4-DIGIT NUMBER ← FACTORY DEFAULTS

I.D. CODE OF THE LAST TRANSMITTER BEING MONITORED **B**

1	2	3	4
0	0	1	0

ENTER A 4-DIGIT NUMBER ← FACTORY DEFAULTS

I.D. CODE OF THIS SMARTBASE **C**

1	2	3	4
0	0	0	5

ENTER A 4-DIGIT NUMBER ← FACTORY DEFAULTS

PROGRAMMING "RELAY-OUT" OPTION REGISTERS 5

TO PROGRAM:

1- HOLD THE SELECTED REGISTER KEY UNTIL A "P" IS DISPLAYED (E.G. "3")



2- ENTER EIGHT "0" OR "1" AS SELECTED



OR



TO VISUALIZE:

PRESS SHORTLY THE NUMBER OF THE REGISTER YOU WANT TO CHECK.



THE DISPLAY WILL SHOW, SEQUENTIALLY THE CONTENT OF THE REGISTER



OR



REGISTER

5

RELAY 3

FACTORY-PROGRAMMED DEFAULT SETTINGS			ENTER YOUR SELECTIONS HERE		
BIT NO.					
1	0		→	INTRUSION will activate relay output.	<input type="radio"/> NOT REQUIRED
2	0		→	PANIC will activate relay output.	<input type="radio"/> NOT REQUIRED
3	0		→	TEST will activate relay output.	<input type="radio"/> NOT REQUIRED
4	0		→	DISARMING will activate relay output.	<input type="radio"/> NOT REQUIRED
5	0		→	ARMING will activate relay output.	<input type="radio"/> NOT REQUIRED
6	0		→	LOW BATTERY will activate relay output.	<input type="radio"/> NOT REQUIRED
7	0		→	MAINS FAIL.. will activate relay output.	<input type="radio"/> NOT REQUIRED
8	0		→	NOT USED	<input type="radio"/> NOT USED

THIS OPTION REGISTER ALLOWS THE USER TO CHOOSE WHICH OF THE ALARMS WILL ACTIVATE RELAY 3 .
THE RELAY WILL REMAIN ON UNTIL THE ACKNOWLEDGE BUTTON IS PRESSED.

PROGRAMMING PROCEDURE

Now that the programmable selections have been made, the **SMART-BASE** unit can be programmed. This is done using the **RKF programmer**.

The following procedure applies to all registers.

1. Remove power from the **SMART-BASE** receiver.
2. Disconnect the **LCD display** cable from the pinstrip adjacent to the microprocessor, noting carefully which row of holes in the ribbon cable Header connects to the pinstrip.
3. Plug the programmer ribbon cable onto the pinstrip, so that the cable passes over the **SMART-BASE** screw-connector strip.
4. While holding the "#" key apply power .
5. After a short delay release the "#" key, the '-' character will appear on the programmer. You can now start programming.
6. To program a particular register hold down that register number until a 'P' is displayed. Release the key, and enter the selections that you previously made.
7. To read an existing setting, press the register key **BRIEFLY**. The setting will be displayed sequentially on the programmer display.
8. If you wish to program another register, repeat steps 6 and 7 above.
9. When programming is complete, press the '#' key and remove the programmer from the **SMART-BASE pinstrip**.
10. Remove power from the **SMART-BASE**.
11. Reconnect the **LCD display** ribbon cable to the pinstrip and apply power .

TERMINALS - CONNECTIONS

The diagram at the end of this manual shows the connections for the **SMART-BASE**.

WHAT EQUIPMENT IS COMPATIBLE WITH THE SMARTBASE:

The **SMART-BASE** is normally used in conjunction with either **UHF (JACK , JACKAL &)** alarm transmitters or **TRACER/SNIPER** control panels with **RKU TX MOD**.

The SMART-BASE requires the following additional equipment to operate correctly:

- A **14 VAC** plug-in transformer.
- A stand-by battery (**BUILT INSIDE CASE**)
- An **antenna** on the correct operating **FREQUENCY , TYPE & GAIN**.

INSTALLATION HINTS

For the installer who is not familiar with radio receiver installations, there are a few guidelines well worth following that will make the installation easier. These are as follows:

- Contact **MAMI** for choice of antenna. The antenna is the most important item for good signal **RECEPTION**.
- Programming and testing of both transmitters and **SMART-BASE** should be done 'on the bench' before installing the equipment.
- Ensure that your coding and options are correctly programmed.
- Mount the antenna permanently only once you have tested the location and found it to give good communications.

USER OPERATION OF THE SMART-BASE

Once installed, the **SMART-BASE** is very simple to operate. When the unit is powered up, the on-board buzzer will sound briefly and the display will show the start-up message **SMART BASE' version X '.**

SETTING THE ON-BOARD CLOCK

To set the on-board clock:

- Briefly press the **CLOCK SET** switch at the base of the **SMART-BASE**.
- The display will prompt you to enter 'years'.
- Press the **ACK** button to increment the years. If the **ACK** button is held down, the years will increase at a faster rate.
- When you have reached the correct value for years, briefly press the **CLOCK SET** switch again.
The display will now prompt you to enter 'months'.
- Increment the months by pressing the **ACK** button on the **SMART-BASE**.
- Repeat the previous 3 steps until the date and time are entered.
- The display will show the start-up message.

VIEWING PREVIOUS ALARMS

The **SMART-BASE** has a very useful feature -it can store the last **16 Alarms** that were received. Pressing the **"ACK"** button briefly will scroll through previous alarms. (**'01'** is the most recent alarm, **'16'** is the oldest).

SWITCHING TO CLOCK DISPLAY

To toggle between clock display and alarm display, hold the **"ACK"** button down for **1 second**. The buzzer will sound, and the display will toggle between **date/time display and alarm display**. Release the **"ACK"** button after the buzzer sounds.

RECEIVING ALARMS

The SMART-BASE will receive an alarm whether in clock display mode or alarm display mode. When an alarm is received, the following sequence occurs:

- The **LCD** display is updated automatically to show the new alarm.
- The alarm message format depends on the programmed configuration of the **SMART-BASE**.
- The on-board buzzer sounds.
- If the **SMART-BASE** is linked to a computer, mimic or printer, data is sent to that device.
- Press the ack button **BRIEFLY to silence the buzzer**.
If a **'PANIC CANCEL'** alarm is received from a transmitter, the previous alarm from that transmitter will be removed from the **16-alarm** storage buffer.

Appendix A

SMART BASE MESSAGES

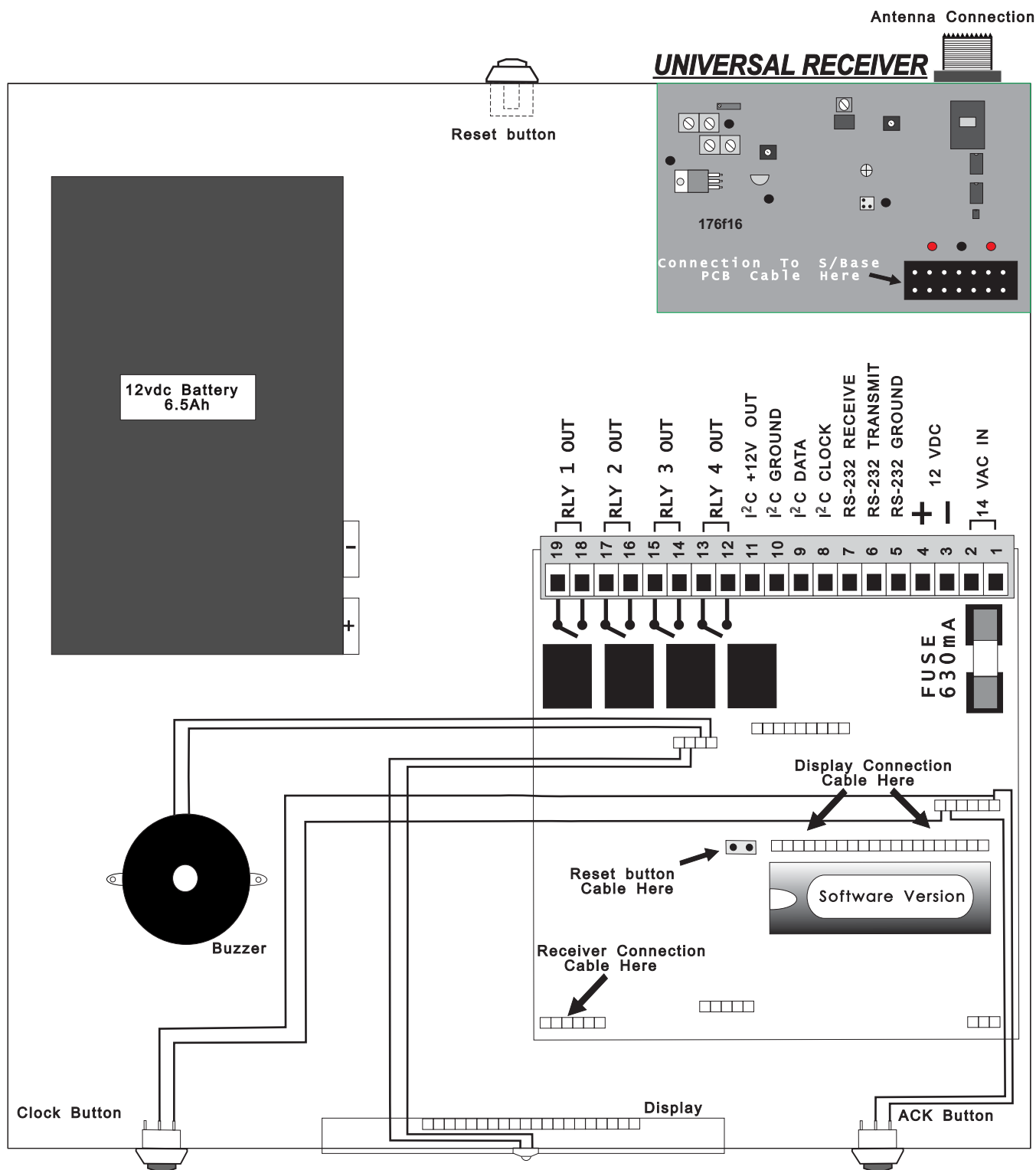
RAW CODE (XXXXX000)

ZONE_1:	Circuit 1	ROBBERY 1	Circuit 1
ZONE_2:	Circuit 2	ROBBERY 2	Circuit 2
ZONE_3:	Circuit 3	AMBULANCE	Circuit 3
ZONE_4:	Circuit 4	FIRE !	Circuit 4
ZONE_5:	Circuit 5	ATTACK !!	Circuit 5
ZONE_6:	Circuit 6	FRIDGE	Circuit 6
ZONE_7:	Circuit 7	CONTROL 1	Circuit 7
ZONE_8:	Circuit 8	RESPONDS	Circuit 8
CONTROL1 = 1	Panic	Panic	Panic
CONTROL1 = 2	Medical	Medical	Duress / Medical
CONTROL1 = 3	Panic cancel	Check in	Check in
CONTROL1 = 4	Fire	Fire	Armed
CONTROL1 = 5	Undefined	Undefined	Disarmed
CONTROL1 = 6	Undefined	Undefined	Mains Fail
CONTROL1 = 7	Undefined	Undefined	Battery Low

	CUSTOMIZED (XXXXXX100)	CUSTOMIZED (XXXXXX101)	CUSTOMIZED (XXXXXX110)	PAGER
ZONE_1:	-----	-----	-----	GO TO POINT 1
ZONE_2:	-----	-----	-----	GO TO POINT 2
ZONE_3:	-----	-----	-----	GO TO POINT 3
ZONE_4:	-----	-----	-----	GO TO POINT 4
ZONE_5:	-----	-----	-----	CALL ROUTINE
ZONE_6:	-----	-----	-----	CALL URGENTLY
ZONE_7:	-----	-----	-----	CALL EMERGENCY
ZONE_8:	-----	-----	-----	CANCEL CALL
CONTROL1 = 1	-----	-----	-----	EMERGENCY !!!
CONTROL1 = 2	-----	-----	-----	-----
CONTROL1 = 3 :	-----	-----	-----	-----
CONTROL1 = 4	-----	-----	-----	-----
CONTROL1 = 5	-----	-----	-----	-----
CONTROL1 = 6	-----	-----	-----	-----
CONTROL1 = 7	-----	-----	-----	-----

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SMART BASE Connections



Programming

- 1- insert programmer
- 2- hold "#" on the keypad
- 3- apply power
- 4- release key
- 5- a "-" will appear to indicate programming mode

NOTE : FOR OPTIONAL SERIAL LINK TO COMPUTER/PRINTER,
USE FEMALE SERIAL CONNECTOR TYPE D25.
CONNECT R-BASE INPUT 6 TO PIN 3 OF D25,AND
INPUT 5 (GROUND) TO PIN 7 OF D25.

M.A.M.I.



MANUFACTURING AND MINOR INVENTIONS

TECHNICAL SPECIFICATIONS

- BOX DIMENSIONS..... - 260mm x 110mm x 50mm
- POWER INPUT..... - 14VAC 50Hz
- CURRENT CONSUMPTION.....- 220mA
- (STANDBY, NO ACTIVATED RELAYS)
- CURRENT CONSUMPTION.....- Less than 400mA
- (STANDBY, 4 ON-BOARD RELAYS AND BUZZER ACTIVATED)
- OUTPUT RELAY MAXIMUM CURRENT.....- 1.0A 24v dc
- RECEIVER SENSITIVITY.....- Better than 0.3uV at 12dB SINAD
- RECEIVER SELECTIVITY.....- Better than 30dB.
- OPERATING FREQUENCY.....- UHF (402 to 404 Mhz) no license required
- APROXIMATE RANGE (from transmitter)..... 1 ----> 5 KM

NOTE: The range achieved is dependent on type of BASE ANTENNA USED

SERIAL DATA FORMAT TO PRINTER / HOST COMPUTER

- RS232-C 1200 BAUD
- 8 data bits
- No parity
- 1 stop bit

Note for users linking the SMART-BASE to a host computer:

The SMART-BASE is transparent to certain signals from the JACK R and TRACER control transmitters. These signals will not generate an alarm on the SMART-BASE itself, but the received code WILL be transmitted to the host computer where full monitoring takes place. These signals are as follows:

- System armed
- System disarmed
- Wireless battery low
- Mains Failure
- System backup battery low

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