MINDA PERSONAL PROTECTION SYSTEM

RX-400
MINDA Portable Receiver

Operating Instruction

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RECEIVER RX-400 - Quick guide

Each 'MINDA' TX-400 receiver can display two status indications from up to four different transmitter units, coded 1-4 and all operating with the same group code. Pressing the RED button on a 'key-fob' style transmitter should light the Red LED on the receiver, whilst the BLACK one lights the Green LED.

'BEEP' mode is selected by moving the On/Off switch in the direction away from the eight LED's, and 'SILENT' mode is selected by moving the On/Off switch towards the eight LED's.

Briefly pressing the 'Reset' button will cancel any audible alert, initiate a 'lamp-test' and extinguish any LED's that may have been illuminated prior to resetting.

Additional alerts provided

1. A Transmitter Low-Battery alert causes the appropriate LED indicator on the receiver to 'blink' out briefly about once per second.

2. A Receiver jamming alert will cause a series of audible 'beeps' to be generated. If this occurs you should move to an interference-free location and as soon as the interference clears the 'beeps' will cease.

TRANSMISSION RANGE.

When using the 'MINDA' system over a line-of-sight path you are likely to obtain a working distance in excess of 100 yards, whereas in a busy street, hotel or station the range will be noticeably less.

It is recommended that, before using a 'MINDA' system in a 'live' operational situation, you carry out a few tests in the location(s) of interest to confirm consistent and reliable operation.

'MINDA' SYSTEM - FULL USER'S GUIDE

GENERAL.

A system, comprising transmitter(s) and receiver, will have been supplied programmed with a specific 'Group Identity' out of the 255 possible codes available. This is set during production to '94' (hex.) unless an alternative group code identity has been requested by a particular customer.

Individual transmitters will also have been programmed with a Unit Identity (1,2,3 or 4), which will be shown on the label on the back of the case. The micro-processor controlled receiver will only respond to signals from those transmitters sending the same 'group-code' identity that it has been pre-programmed to accept. This capability minimizes the risk of interference between similar systems that happen to be operating within radio range of one another.

'MINDA' transmitter and receiver units can be reprogrammed to different codes if required, but this operation requires the use of workshop facilities including a PC, software and a special interface unit. Contact your supplier for more details.

THE 'MINDA' RECEIVER RX-400.

Each 'MINDA' receiver can display two status indications from up to four different transmitter units, coded 1-4 and all operating with the same group code. Pressing the RED button on a 'key-fob' style transmitter should light the Red LED on the receiver, whilst the BLACK one lights the Green LED.

Operation

The receiver is very easy to use, and has two modes of operation, 'SILENT' and 'BEEP'. If the 'BEEP' mode is selected by moving the On/Off switch in the direction away from the eight LED's, when a 'wanted' signal is received the appropriate status LED will light and an audible pulsed tone alarm will be heard. The tempo of this pulsed tone is faster for a 'Red' alarm than for a 'Green' alarm, thereby facilitating the aural identification of 'Urgent' and 'Non-Urgent' transmissions.

When 'SILENT' mode is selected by moving the On/Off switch towards the eight LED's, the appropriate LED will still light but all audible tone signals are inhibited. Silent signaling will be provided by means of a built-in vibrator.

Whenever the receiver is initially switched on, all of the eight large LED's will be briefly illuminated, in pairs, to provide a 'lamp-test' and give visual confirmation that the microprocessor is operating correctly. The small red LED adjacent to the On/Off switch will then flash regularly as long as the receiver is operating but not receiving any signals. As soon as the receiver detects a signal the red LED will light continuously. BE AWARE that any signal received will cause this to happen, whether it is local electrical interference, a transmission with a different group code, or a 'wanted' signal from a transmitter on your own group code.

Briefly pressing the 'Reset' button will cancel any audible alert, initiate a 'lamp-test' (see above) and extinguish any LED's that may have been illuminated prior to resetting.

Additional alerts provided

1. Transmitter Low-Battery alert.

A valid transmission received from a transmitter with a weak, but not completely flat, battery will cause the appropriate LED indicator on the receiver to 'blink' out briefly about once per second. This will indicate to the operator that that particular transmitter should have its battery replaced at the earliest opportunity.

2. Receiver jamming alert

Any signal received on the frequency will cause the receiver to lock-on, whether it is local electrical interference, a transmission with a different group code, or a 'wanted' signal from a transmitter on your own group code. However, if the 'MINDA' receiver is 'jammed' by a continuous unrecognized signal, then after a short period of time (set during manufacture to 5 seconds, but re-programmable) it produces a series of audible 'beeps' to alert the user and enable him to move to an interference-free location. As soon as the interference clears the 'beeps' will cease.

More about the Battery Economizer

The battery economizer operates by switching the receiver on for a very brief period, looking for a signal, and if nothing is found switching it off again. If a signal is found, the receiver 'locks-on' for long enough to process and display any alarm signal that may have been received. The small red LED adjacent to the On/Off switch displays the status of the battery economizer circuit. While the receiver is in the pulsing 'standby' mode it is, in fact, switched on for less than two percent of the

time, thereby dramatically extending 'MINDA''s operating endurance before a change of battery is required.

The slight penalty for this feature is that an incoming alarm transmission must last long enough to catch the receiver during one of its 'on' periods to ensure that it is recognized and decoded. In practice this should not cause any problems provided that the transmitter button is held down for at least one second. This short imposed delay also reduces the chances of accidental false-alarms when the transmitter is carried loose in a pocket.

Battery

The 'MINDA' RX-400 receiver uses a 9 volt Alkaline battery (Duracell MN 1604 or equivalent) which should be capable of providing power for more than 1000 hours. The actual battery life obtained will depend very much on the number of alerts received whilst it is being used.

To replace the receiver battery, slide open the battery-box cover, lift out the battery and carefully remove the connector. Inspect the connector and, if necessary, adjust the position of the spring-leaves to ensure good contact, and fit it on to the new battery. Dress the leads to one side of the new battery and slide the battery-box cover on until it clicks into place.

TRANSMISSION RANGE.

When using the 'MINDA' system over a line-of-sight path, a range of greater than 100 yards is likely, whereas in a busy street, hotel or station the range will be noticeably less.

It is recommended that, before using a 'MINDA' system in a 'live' operational situation, a few tests are carried out in the location(s) of interest to confirm consistent and reliable operation.

GETTING THE BEST RESULTS FROM 'MINDA'.

To maximize the effectiveness and communications range of a 'MINDA' alarm system there are some simple 'tricks' that really do work and which, on all occasions when it is practical and convenient to use them, can be used to enhance its performance. These are....

When carrying and using the 'MINDA' receiver, try to allow the antenna wire to hang freely from the receiver case and also remember that audible warnings from the built-in 'beeper' may be somewhat muted if the small hole on the label side of the unit is significantly obstructed.

Remember that the human body is largely comprised of water. When using a transmitter, face in the direction of the receiving location so that your own body does not obstruct the emitted radio signal. If possible, hold the transmitter away from your body so that there is free space around its antenna. NEVER shorten or wrap up the transmitter antenna wire.

When using a 'MINDA' transmitter or receiver inside a vehicle, try to ensure that its antenna is kept above the window line to ensure that signal levels are maximized.

If you are in the street and communications get difficult, try holding the unit just above the roof of a parked car with the antenna wire pointing upwards. By doing this the metal roof of the vehicle will act as a counterpoise earth and so enhance the signals.

UNITED STATES OF AMERICA FCC COMPLIANCE:

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:
1. THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
2. THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

U.K RADIO AUTHORITY'S COMPLIANCE:

The unit is fully compliant with the U.K. Radio Authority's Specification MPT1340 for short-range radio alarm systems.

'MINDA' operates in the 418MHz radio frequency band, which in the U.K. has been allocated for general short-range operation by low-power security systems and car alarms.

LICENSING
All 'MINDA' products are license-exempt when used in the USA and the U.K.

WHAT IS ACTUALLY TRANSMITTED
Whenever a 'MINDA' transmitter operates, the actual digital data message transmitted contains all of the following pieces of information, repeated a number of times:
< I am a 'MINDA' transmitter >
and *< My Family Identity Code is 'xxx' >*
and *< I am Unit No. 'y' >*
and *< My alarm status is 'Red/Green' >*
and *< My battery status is 'OK/Low' >*

If the first two pieces of data in the above message exactly match the information programmed into a 'MINDA' receiver, then the rest of the information will be decoded and displayed on the LEDs. If they do not match, the entire message is ignored.

GUARANTEE
Tactical Technologies Inc. guarantees to make good any faults due to defective materials or workmanship for a period of 12 months from the date of purchase. Where the fault is the result of misuse, negligence or inexpert repair, Tactical Technologies Inc. reserve the right to make a charge to cover the extra costs involved.

RE-PROGRAMMING OF OPTIONS
The configuration of an RX-400 'MINDA' receiver, and any of the 'MINDA' range of intelligent transmitters, can be changed by re-programming them using a PC and a 'MINDA' custom-designed interface. This work requires some specialist technical knowledge as well as access to a PC and peripherals and, for this reason, most customers will probably find it more convenient to return the equipment to Tactical Technologies Inc. for re-programming.

Those customers who do have in-house technical expertise and sufficient 'MINDA' units to make an investment in programming software cost-effective, may wish to consider purchasing the special 'MINDA' programming kit which comprises hardware interface cables and connectors, custom software on disk, and full instructions. Further details and prices on this kit can be obtained from Tactical Technologies Inc.