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R1000 Super Spectrum™ Wireless Receiver

WI604C 5/96

DESCRIPTION

Napco's wireless system was designed for use with either an MA1008e or an MA1016e Wireless-Ready™ Control Panel. It comprises a receiver module and one or more companion transmitters. The receiver is the hardwired interface to the control panel. The transmitters are sensing devices located at doors, windows, etc. that report zone status and supervision information to the receiver without the use of wires.

THE R1000 RECEIVER/INTERFACE MODULE

The receiver module includes a wired interface to the control panel. The interface has two modes of operation, "Run" and "Learn", as selected by its RUN/LEARN button. In Learn Mode, transmitters are added to the receiver's E² memory. In the Run Mode, which is the normal operating mode, the receiver monitors each transmitter, updating transmitter condition as reports are received, and conveys this information to the control panel. Also monitored in this mode is the elapsed time since the last report from each transmitter. After about 11 hours without a supervisory or other type of report, transmitter condition will be updated to reflect a supervisory failure.

COMPATIBLE TRANSMITTERS

Any of the following Napco wireless transmitters (optional) may be used with the R1000 Receiver.

- **T1000WD Window/Door Sensor.** Used in place of wired magnetic reed switches, this supervised digitally-coded transmitter provides internal magnetic reed switches and/or terminals for an external device (selectable).
- **T1000MC1 Money Trap.** Stationary digitally-coded transmitter for use inside cash drawers.
- **T1000MD1 Pendant Transmitter.** Miniature digitally-coded portable emergency button.
- **T1000PB1 Panic Button.** Hand-held digitally-coded transmitter used in place of conventional wired panic buttons.

Other Recommended Peripherals

- **T1000PIR.** Dual-element passive infrared sensor.
- **T1000SMK Smoke Detector.** Supervised digital smoke detector.

SPECIFICATIONS, R1000 Receiver

Operating Temperature: 0° C to 49° C
 Storage Temperature: -20° C to +85° C
 Power Requirements: 12Vdc (supplied by panel)
 Antenna: 1/4-wave wire with F-Type connector
 Dimensions: 7" x 4 3/4" x 1 1/2" (HxWxD)

ORDERING INFORMATION

Note: Batteries are included with all transmitters.

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|----------|---|
| R1000 | Receiver/Interface with antenna |
| ERA1000 | Extended-Range Remote Antenna |
| T1000WD | Window/Door Transmitter, soft white |
| T1000WDB | Window/Door Transmitter, brown |
| T1000PB1 | Hand-Held Panic Button Transmitter |
| T1000MC1 | Money Trap Transmitter |
| T1000MD1 | Miniature Pendant Transmitter with neck-chain |
| WRH1000 | Water-Resistant Housing for T1000MD1 |
| T1000PIR | Passive Infrared Transmitter, soft white |
| T1000SMK | Supervised Digital Smoke Detector, soft white |
| 1604 | 9V NEDA Replacement Battery for Model T1000SMK |
| DL223A | Replacement Battery for T1000PIR |
| DL2032 | Replacement Batteries for T1000WD, T1000WDB & T1000PB1; life expectancy, 5 years |
| DL2450 | Optional Long-Life Batteries for T1000WD, T1000WDB & T1000PB1, life expectancy, 7 years |
| GP-23 | Replacement Battery for T1000MD1. |

INSTALLATION

Designing the System

In planning the layout of the system, give careful consideration to the location of the receiver. Regardless of where the control panel is mounted, the receiver should be centrally located within the premises, that is, approximately equally distant from all system transmitters. Choose a location as high above ground level as practical, keeping in mind that metal objects may adversely affect reception. Draw a layout of the system, identifying all proposed trans-

mitter locations and anticipated receiver location. Also include notations indicating construction materials in use. Although wood and wallboard construction will have little effect upon signal strength at the receiver, concrete or brick can reduce signal strength by up to 35%, while steel-reinforced concrete or metal lath and plaster can reduce transmitter strength as much as 90%.

Mounting and Wiring the Receiver

After its location has been determined, remove the front cover and orient the receiver so that the antenna connector is at the top. Allowing at least 12 inches clearance for the antenna, mount the receiver using two screws of a type suitable to the mounting surface through the two large oval holes in the rear cover (see *Wiring Diagram*). Do not install the antenna at this time. Using 4-conductor cable, wire the receiver to the control panel in accordance with the following table.

R1000	MA1008e	MA1016e
1 (+)	7 (REMOTE POWER +)	6 (REMOTE POWER +)
2 (-)	8 (REMOTE POWER -)	7 (REMOTE POWER -)
3 (CLK)	9 (KEYPAD CLOCK)	9 (KEYPAD CLOCK 2)
4 (DATA)	20 (ZONE 5 +)*	35 (ZONE 13 +)*

*This zone may also be used as a wireless zone or normally-closed wired zone. Be sure that (a) an end-of-line resistor is installed on the zone and (b) NO EOL RESISTOR is not programmed.

Table 1. R1000 terminal connections to the panel.

GETTING UP AND RUNNING

Before applying power to the control panel and receiver, install transmitter batteries (or remove battery protection strips) to power up the transmitters. Transmitters are put onto the system in the following sequence. Each procedure is covered in detail in the subsequent paragraphs.

- **Map the Transmitters.** Each transmitter must first be mapped to a zone (MA1008e, Zones 1–8; MA1016e, Zones 1–15). Each may be mapped to its own zone, or any number of transmitters (up to 8 in the MA1008e or 16 in the MA1016e) may be mapped to one or more zones.
- **“Learn” the Transmitters.** In the Learn Mode, the receiver memorizes the identity of each transmitter by its unique ID code.
- **Test the Transmitters.** Each transmitter must be tested to verify that it activates the expected outputs, displays correctly at the keypad and restores properly.

Mapping the Transmitters

Assign a number to each transmitter in the system and record that number, and its designated zone number, on the small Transmitter ID label supplied with each Napco transmitter. Affix the label to the transmitter case.

Power up the control panel and receiver. Transmitters are mapped to their designated zones by programming the panel with the data entered in the Transmitter/Zone Map in Table 2. (For keypad programming information, refer to the installation instructions furnished with the control panel in use.) To map the transmitters to their designated zones,

1. Enter the zone number selected for each transmitter into the corresponding ZONE box in Table 2.
2. Program that zone number into the indicated LOCATION.

Examples. To map Transmitter #3 to Zone 6 of an MA1008e, program a “6” in Location 310. Similarly, to map Transmitter #12 to Zone 13 of an MA1016e, program a “D” (representing “13”) into Location 847.

Note: In MA1016e installations: (1) Two-digit zone numbers, i.e. Zones 10–14, are entered as 0, B, C, D, and respectively. (2) It is recommended that (a) wireless panic buttons be mapped to Zone 15 or, in split systems, to Zones 7 (Area 1) and 15 (Area 2); and (b) pendant emergency transmitters be mapped to Zone 14, which, in partitioned systems, should be programmed as a common zone.

Learning the Transmitters

Assemble all transmitters close to the receiver in assigned numerical order. When learning a transmitter, hold it within about one foot from the receiver’s antenna terminal. **Note:** Transmitters *must* be learned consecutively, starting from #1; skipped numbers are not permitted.

1. If the receiver has not yet learned any transmitters, it will automatically power up in the Learn Mode (LED flashes about twice per second). In this mode, the receiver learns devices that are supervised (see transmitter instructions). If it has previously learned at least one transmitter, the receiver will power up in the Run Mode (no LED indication). To enter the Learn Mode from the Run Mode (to add transmitters to the system), press the RUN/LEARN Button; the LED will start to flash. **Note:** To clear E² memory and restart the learning process from the beginning, hold down both the UNSUPERVISED TRANSMITTERS and the RUN/LEARN Buttons. When the LED comes on steady, release the buttons. The LED will start to flash after a few seconds.

2. If Transmitter #1 is a device to be supervised, activate it. The receiver LED will come on for about 2 seconds. A 2-second tone will sound at the keypad indicating Transmitter #1 has been learned and mapped. The LED will start to flash again to indicate that it is ready to learn Transmitter #2. **Note:** To learn an unsupervised transmitter or a transmitter that does not send a restore transmission (see transmitter instructions), press the receiver AUTO RESTORE Button; the LED will flicker rapidly, indicating that the receiver is learning a device that does not send a restore. Activate the transmitter as above. Be sure to press the AUTO RESTORE Button before *each* unsupervised or non-restoring transmitter; pressing the NEXT Button will default to a supervised transmitter.

A continuous *pulsing* tone at the keypad indicates that the transmitter has been learned but not mapped and requires mapping. In the MA1008e, the pulsing will stop after about 2 seconds; in the MA1016e, hold down Key [9] to reset. Be sure to map the unmapped transmitter. **Note:** Early-production MA1016e panels will give no special indication of a transmitter that has been learned but not mapped. (A 2-second steady tone will sound at the keypad whether the transmitter is mapped or not.)

3. Repeat Step 2 for Transmitter #2 and for all other system transmitters (up to 8 in the MA1008e; 16 in the MA1016e), in numerical order. **Note:** If a previously-learned transmitter is activated, the LED will signal two 1-second flashes, then the receiver will revert to the Learn Mode (the keypad sounder will *not* beep).

4. After all transmitters have been learned by the receiver, press the RUN/LEARN button on the receiver. The LED will go out. **Note:** (1) The receiver will not leave the Learn Mode

TX.	DESCRIPTION	MA1008e		MA1016e	
		ZONE	LOC.	ZONE	LOC.
#1			308		836
#2			309		837
#3			310		838
#4			311		839
#5			312		840
#6			313		841
#7			314		842
#8			315		843
#9		MA1008e limited to 8 transmitters			844
#10					845
#11					846
#12					847
#13					848
#14					849
#15					850
#16					851

Table 2. Transmitter/Zone maps for MA1008e and MA1016e.

unless it has learned at least one transmitter. (2) If no buttons have been pressed and no transmitters learned for 5 minutes, the receiver will automatically revert to the Run Mode (unless no transmitters have been learned).

Testing the Transmitters

Test each transmitter by pressing its test button to confirm that it has been properly learned by the receiver. Thread the antenna onto the receiver's "F" connector. Retest each transmitter at its proposed location (prior to mounting) to confirm that its signal has been received, as indicated by a 2-second tone at the keypad. Check that the transmitter trips the proper zone and activates the expected outputs.

PROGRAMMING

The panel can report a trouble condition to the central station in the event of data failure from the receiver (System Trouble 6) if programmed as follows.

MA1008e: Program Report Day Trouble ("8" in Loc. 168).

MA1016e: Program Zone 13 for Report Trouble.

Receiver failure restore occurs after the panel receives valid data from the receiver, however no restore report will be sent to the central station.

SYSTEM TROUBLES

Any of the following system troubles displayed at the keypad are related to wireless operation:

"4" – TRANSMITTER SUPERVISORY. Indicates that a transmitter has not "checked in" for more than 11 hours. If PCD2000 Quickloader™ software is available, both the zone number and transmitter number can be readily identified. At the keypad, the zone to which the transmitter is mapped may be identified as follows: (1) Hold down Key

[9] to reset the keypad. (2) Arm and disarm the panel. (3) Hold down Key [9] again. (4) Hold down Key [4] to display the zone with the problem transmitter. If this system trouble was preceded by a system trouble "5", check the transmitter for a dead battery. Also, check for an object in the path of the transmitter blocking reception.

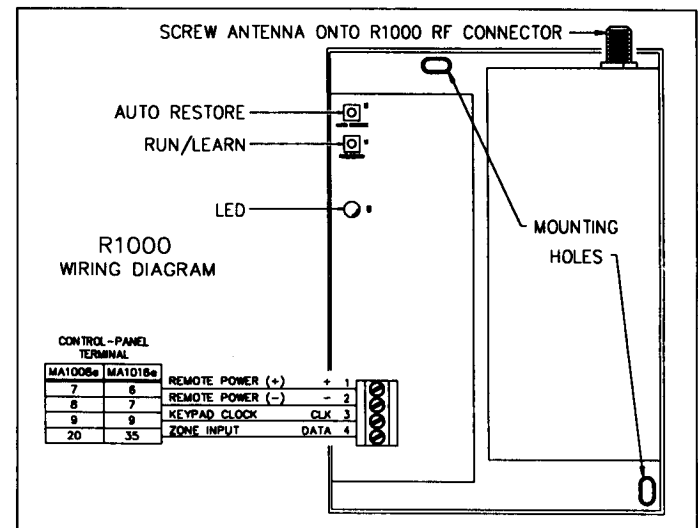
"5" – TRANSMITTER BATTERY. Indicates a low-battery condition. If PCD2000 Quickloader software is available, both the zone number and transmitter number can be readily identified. At the keypad, the zone number may be identified as follows: (1) Hold down Key [9] to reset the keypad. (2) Arm and disarm the panel. (3) Hold down Key [9] again. (4) Hold down Key [5] to display the zone with the problem transmitter. **Note:** If all transmitters were installed at the same time, it is advisable to replace all batteries at this time to preclude service callbacks.

"6" – SYSTEM TROUBLE 6. Receiver trouble (data failure between receiver and control panel). Check the wiring between the receiver and the panel. Also check for a short on the zone input terminals (MA1008e: Zone 5; MA1016e: Zone 13).

R1000 QUICK-REFERENCE GUIDE

LED INDICATION	CONDITION
OFF	Run Mode.
FLASHES – TWICE/SEC.	Ready to learn a transmitter that is to be supervised.
RAPID FLICKER	Ready to learn a transmitter that is not to be supervised or needs auto-restore.
FLASHES – 1 SEC. ON/OFF/ON/OFF	Transmitter already learned.
ON – 4 SEC.	Transmitter learned successfully.
ON	(With both buttons depressed.) All transmitters erased successfully.

Table 3. Receiver LED Indications.



Wiring Diagram.

Caution: This equipment generates and uses radio-frequency energy. If not installed using conventional installation practices for rf devices, it may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference. However, there is no guarantee that interference will not occur in a particular installation. If it has been found to cause interference to radio or television reception, which can be determined by removing and reapplying ac and battery power to the equipment, the installer is encouraged to try to correct the interference by one or more of the following measures: reorient the receiving antenna; connect the power transformer to a different outlet so that the control panel and radio or television receiver are on different branch circuits; relocate the control panel with respect to the radio or television receiver.

TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE/REMEDY
Transmitter does not get learned.	<ul style="list-style-type: none"> ● Check that battery is installed and protection strip is removed. ● If R1000 LED is not flashing it is not in the Learn Mode and at least one transmitter has been learned. (R1000 automatically reverts to Run Mode after 5 minutes unless no transmitters have been learned.) ● Each transmitter must be set to a unique address. (If two are set alike, the second will not be learned.)
Transmitter gets learned but does not work afterwards	<ul style="list-style-type: none"> ● Not a Napco T1000-Series transmitter.
Keypad does not display status (fault).	<ul style="list-style-type: none"> ● Transmitter learned but not mapped. ● Mapped zone programmed for "NO EOL RESISTOR" (transmitter cannot cause a fault). Reprogram zone. ● R1000 in Learn Mode (LED flashing), Press RUN/LEARN Button. ● 24-Hour silent zones do not display at the keypad.
Zone always displays fault.	<ul style="list-style-type: none"> ● Hardwired zone is faulted or end-of-line resistor not installed. ● T1000WD tamper switch activated. Replace cover. ● Non-auto-restoring transmitter (T1000MC1, T1000MD1, etc.) learned as a supervised transmitter. Relearn as an auto-restore transmitter (press the AUTO RESTORE Button before activating the transmitter).
Keypad sounder does not beep in Learn or Test Mode.	<ul style="list-style-type: none"> ● Check R1000 wiring to control panel. Check CLK and DATA lines for shorts to ground.
Transmitter does not activate expected outputs on alarm.	<ul style="list-style-type: none"> ● Check control-panel programming of zone to which transmitter is mapped.
Transmitter Supervisory Failure (System Trouble 4) displayed.	<ul style="list-style-type: none"> ● Hold down [9] to reset keypad. Arm; disarm; hold down [9]; then hold down [4] to display zone of problem transmitter. Check for unsupervised transmitters that were learned in the supervised Learn Mode. Relearn in unsupervised Learn Mode.
Transmitter Low Battery (System Trouble 5) displayed.	<ul style="list-style-type: none"> ● Hold down [9] to reset keypad. Arm; disarm; hold down [9]; then hold down [5] to display zone of problem transmitter.

Table 4. Troubleshooting Guide.

NAPCO LIMITED WARRANTY

NAPCO SECURITY SYSTEMS, INC. (NAPCO) warrants its products to be free from manufacturing defects in materials and workmanship for thirty-six months following the date of manufacture. NAPCO will, within said period, at its option, repair or replace any product failing to operate correctly without charge to the original purchaser or user.

This warranty shall not apply to any equipment, or any part thereof, which has been repaired by others, improperly installed, improperly used, abused, altered, damaged, subjected to acts of God, or on which any serial numbers have been altered, defaced or removed. Seller will not be responsible for any dismantling or reinstallation charges.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF NAPCO.

Any action for breach of warranty, including but not limited to any implied warranty of merchantability, must be brought within the six months following the end of the warranty period. IN NO CASE SHALL NAPCO BE LIABLE TO ANYONE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, EVEN IF THE LOSS OR DAMAGE IS CAUSED BY THE SELLER'S OWN NEGLIGENCE OR FAULT.

In case of defect, contact the security professional who installed and maintains your security system. In order to exercise the warranty, the product must be returned by the security professional, shipping costs prepaid and insured to NAPCO. After repair or replacement, NAPCO assumes the cost of returning products under warranty. NAPCO shall have no obligation under this warranty, or otherwise, if the product has been repaired by others, improperly installed, improperly used, abused, altered, damaged, subjected to accident, nuisance, flood, fire or acts of God, or on which any serial numbers have been altered, defaced or removed. NAPCO will not be responsible for any dismantling, reassembly or reinstallation charges.

This warranty contains the entire warranty. It is the sole warranty and any prior agreements or representations, whether oral or written, are either merged herein or are expressly cancelled. NAPCO neither assumes, nor authorizes any other person purporting to act on its

behalf to modify, to change, or to assume for it, any other warranty liability concerning its products.

In no event shall NAPCO be liable for an amount in excess of NAPCO's original selling price of the product, for any loss or damage, whether direct, indirect, incidental, consequential, or otherwise arising out of any failure of the product. Seller's warranty, as hereinabove set forth, shall not be enlarged, diminished or affected by and no obligation or liability shall arise or grow out of Seller's rendering of technical advice or service in connection with Buyer's order of the goods furnished hereunder.

NAPCO RECOMMENDS THAT THE ENTIRE SYSTEM BE COMPLETELY TESTED WEEKLY.

Warning: Despite frequent testing, and due to, but not limited to, any or all of the following; criminal tampering, electrical or communications disruption, it is possible for the system to fail to perform as expected. NAPCO does not represent that the product/system may not be compromised or circumvented; or that the product or system will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; nor that the product or system will in all cases provide adequate warning or protection. A properly installed and maintained alarm may only reduce risk of burglary, robbery, fire or otherwise but it is not insurance or a guarantee that these events will not occur. CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE, OR OTHER LOSS BASED ON A CLAIM THE PRODUCT FAILED TO GIVE WARNING. Therefore, the installer should in turn advise the consumer to take any and all precautions for his or her safety including, but not limited to, fleeing the premises and calling police or fire department, in order to mitigate the possibilities of harm and/or damage.

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