Instructions
DD-490 PROGRAMMER

napco security systems, inc.

INTRODUCTION

The Napco DD-490 Programmer is designed to:

- PROGRAM information into a memory chip which, when plugged into the circuitry of a NAPCO micro–processor type digital communicator, or control panel, will determine the unit's features and abilities.
- READ the information previously programmed into the memory chip.
- DUPLICATE the information from one memory chip to another.
- COMPARE one memory chip's information against that contained in a second memory chip.

Always remember: *your communicator or control panel is no better than the information you program into it.* So be careful; familiarize yourself with the programmer, its controls, and programming procedures. It will save you time and trouble in the future.

PROGRAMMING THEORY

The memory chip, sometimes called a PROM (Programmable Read Only Memory), is internally divided into 256 individual areas of memory called Locations. Each Location has been pre-designated as the memory for a specific feature or function. Entering (programming) Data into a Location will then define the capabilities of that particular function. By programming each Location with the desired information, a total operating "personality" is accumulated in the chip which, when placed in the circuitry of a digital communicator, or control panel, will direct the unit's reactions to various inputs.

CONTROLS
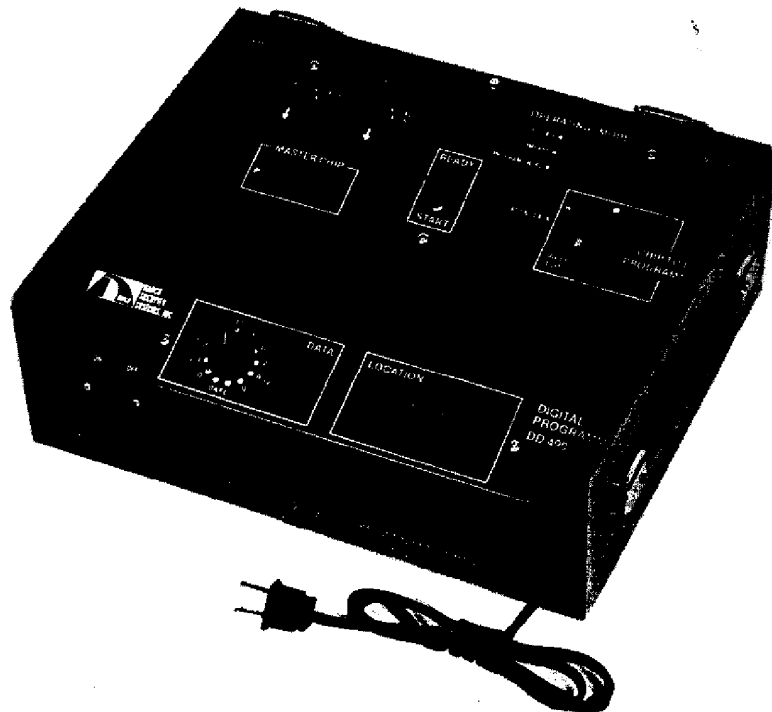
CHIP SELECTOR switch	Press the switch towards the color that matches the dot on the "CHIP TO BE PROGRAMMED" CAUTION: Programming a white memory chip while the switch is in the green position will damage the chip.
FUSE	Located on the lower right hand corner of the front panel, the fuse should be replaced when necessary by a 1¼", ¼ ampere slow-blow fuse.
ON/OFF switch	Located on the lower left hand corner of the panel, this switch will turn the programmer on and off. If the programmer is turned on while a memory chip is in a socket, an accidental, random programming might occur.
MASTER CHIP socket	Located on the left of the upper panel, this socket is used to hold either a 1) memory chip from which a duplicate is to be made, or 2) one which another chip (held in the CHIP TO BE PROGRAMMED socket) is to be compared against. Place the pre-programmed chip in the socket with its black dot facing the dot on the programmer. The lever should be in the vertical position while inserting the chip and then pushed down to lock the chip in place.
CHIP TO BE PROGRAMMED socket	Located on the right of the upper panel, this socket is used to hold a 1) blank chip which is to be programmed manually or 2) have Data duplicated into it from a master chip, 3) a chip that is to have its Data read on the LOCATION/DATA display or 4) a chip to be compared with a master chip. The chip is placed in the socket with its black dot facing the dot on the programmer. The lever should be in the vertical position while inserting the chip and then pushed down to lock the chip in place.
LOCATION Thumbwheel switch	By setting any number from 0 - 255, you can choose a Location (a pre-designated area in the chip's memory) into which the Data is entered. Remember: zeros must be used to fill any unused spaces when setting single or double digit numbers. Example: 003 or 021.
DATA rotary switch	This is a twelve position switch with numerals from 0-9. Four numbers also have a Roman numeral designation (I, II, III, IV). The knob is turned to the desired number which is to be entered into a chip's Location. To prevent accidental programming, keep the switch in one of the two Safe positions when not actively programming.

OPERATING MODE three position switch	Selects one of three functions:
	• Duplicate — the information in the Master Chip is transferred to a Chip To Be Programmed.
	• Compare — this verifies that the information held in the Chip To Be Programmed is the same as that in the Master Chip.
	• Program/Read — displays existing information and enters new Data into the Chip To Be Programmed.
READY light (green)	Indicates that the unit is clear and ready to perform one of the three Operating Modes.
START switch	Pressing this will activate the unit to perform whichever Operating Mode function has been selected, or will continue the Compare procedure if it has been stopped with a flashing FAULT light.
LOCATION/DATA display	In the Read or Compare mode, pressing this switch will cause the LOCATION/DATA display to read out the 3-digit Location, digit by digit, and then the Data.
DISPLAY FAULT LOCATION switch	In the Read or Compare mode, pressing this switch will cause the LOCATION/DATA display to read out the 3-digit Location, digit by digit, and then the Data.
FAULT light (red)	This will flash if 1) a number larger than 255 is set on the LOCATION thumbwheel switch when the unit is in the Program/Read mode, 2) there is a difference between chips being Compared, or 3) if an attempt was made to Duplicate with either a blank or "no memory" chip in the MASTER CHIP socket. The light will continue to flash until reset.
FAULT INDICATOR CLEAR switch	In the Compare mode it stops the FAULT indicator from flashing, returns the unit to a ready condition, and resets the mode for another cycle. In the Program/Read mode, it stops the FAULT indicator after the LOCATION switch has been set to a number lower than 256. In the Duplicate mode it stops the FAULT light if an attempt was made to duplicate with either a blank or "no memory" chip in the MASTER CHIP socket.

TO PROGRAM information into a memory chip:

☐ 1. Turn the ON/OFF switch "On".

☐ 2. Place the memory chip to be programmed into the CHIP TO BE PROGRAMMED socket with its black dot facing the dot on the programmer. The lever should be in the vertical position while inserting the chip and then pushed down to lock it in place.

☐ 3. Move the OPERATING MODE switch to the "Program/Read" position.

☐ 4. Set the DATA rotary switch to the desired number or zone to be programmed.

☐ 5. Set the LOCATION thumbwheel switch to the Location into which the Data is to be programmed. Zeros must be used to fill any unused spaces when setting single or double digit numbers on the thumbwheel. Example: 003 or 021. No number over 255 can be used. To do so will cause the red FAULT light to flash. This can be stopped by resetting the LOCATION switch and pressing the FAULT INDICATOR CLEAR switch.

☐ 6. Check the LOCATION/DATA display to be sure a decimal point is shown. This indicates a blank Location.

☐ 7. The green READY light should be on.

☐ 8. Press the START switch to program in the information.

☐ 9. The programmed Data will show on the LOCATION/DATA display.

TO PROGRAM A SECOND NUMBER INTO A SINGLE LOCATION *(As when programming time)*

1. Set the DATA rotary switch to the second number to be programmed.

2. Press the START switch to program.

3. The LOCATION/DATA display will read out the total entry.

TO READ a memory chip's information:

CAUTION

At no time during this operation should the START switch be pressed.

☐ 1. Turn the ON/OFF switch "On".

☐ 2. Place the memory chip to be read in the CHIP TO BE PROGRAMMED socket with its black dot facing the dot on the programmer. The lever should be in the vertical position while inserting the chip and then pushed down to lock it in place.

☐ 3. Move the OPERATING MODE switch to the "Program/Read" position.

☐ 4. Set the LOCATION thumbwheel switch to the Location you wish to read. Zeros must be used to fill any unused spaces when setting single or double digit numbers. Example: 003 or 021. No number over 255 can be used. To do so will cause the red FAULT light to flash. This can be stopped by resetting the LOCATION switch and pressing the FAULT INDICATOR CLEAR switch.

☐ 5. The LOCATION/DATA display will show the programmed Data stored in the Location.

☐ 6. Data displayed can be interpreted by referring to the "Data Display Guide" at the end of these instructions.

TO DUPLICATE information stored in a memory chip (the Master Chip) by transferring it to a second memory chip (the Chip To Be Programmed):

☐ 1. Turn the ON/OFF switch "On".

☐ 2. Place the memory chip whose information you wish to copy into the MASTER CHIP socket with its black dot facing the dot on the programmer. The lever should be in the vertical position while inserting the chip and then pushed down to lock it in place.

☐ 3. Place a blank (un-programmed) memory chip in the CHIP TO BE PROGRAMMED socket with its black dot facing the dot in the programmer. The lever should be in the vertical position while inserting the chip and then pushed down to lock it in place.

☐ 4. Move the OPERATING MODE switch to the "Duplicate" position.

☐ 5. The green READY light should be on.

☐ 6. Press the START switch to start the duplicating.

☐ 7. The green READY light will go out while duplicating is in process, and return when the cycle is complete.

ALWAYS "COMPARE" YOUR NEWLY DUPLICATED CHIP

The results of the Duplication process must always be verified by Comparing the two chips (see TO COMPARE) *before* the newly programmed chip is ever used. A defective or partially programmed memory chip may have unknowingly been used as the Chip To Be Programmed. If not Compared, this would go unnoticed, causing great confusion later on.

TO COMPARE one memory chip's (the Chip To Be Programmed) information content against a second memory chip (the Master Chip):

☐ 1. Turn the ON/OFF switch "On".

☐ 2. Place the memory chip whose information you wish to verify into the CHIP TO BE PROGRAMMED socket with its black dot facing the dot on the programmer. The lever should be in the vertical position while inserting the chip and then pushed down to lock it in place.

☐ 3. Place the Master Chip in the MASTER CHIP socket with its black dot facing the dot on the programmer. The lever should be in the vertical position while inserting the chip and then pushed down to lock it in place.

☐ 4. Move the OPERATING MODE switch to the "Compare" position.

☐ 5. The green READY light should be on.

☐ 6. Press the START switch once.

☐ 7. The green READY light will go out as the unit starts at Location 000 and checks all Locations in numerical order.

☐ 8. A.   If the green READY light returns in a few seconds, the comparison will have been completed and judged correct.

   B.   If the red FAULT light flashes, the unit will have found a difference between the Data in the two chips and the incorrect Data stored in the Chip To Be Programmed will appear on the LOCATION/DATA display. To find the Location of the faulty Data, press the DISPLAY FAULT LOCATION switch. The display will first read out the three-digit Location, digit by digit, and then the Data.

   To continue the Compare cycle, press the START switch again. If the green READY light returns, the remaining Locations are correct. If the red FAULT light flashes, repeat the above procedure to find the additional fault's Location. Continue this process until all the Chip To Be Programmed's faulty Data has been found and the green READY light returns.

☐ 9. If at anytime it is desired to start the Compare cycle over, the FAULT INDICATOR CLEAR switch is pressed. The green READY light should go on and the cycle reinitiated.

CAUTION
USE ONLY NAPCO MEMORY CHIPS.
TO DO OTHERWISE WILL DAMAGE
YOUR COMMUNICATOR OR CONTROL PANEL.

DATA DISPLAY GUIDE

IF THE DISPLAY READS | THESE WERE THE POSSIBLE DATA ENTRIES

IF THE DISPLAY READS	THESE WERE THE POSSIBLE DATA ENTRIES
.	BLANK LOCATION
1	1 or I
2	2 or II
3	3 or III and I
4	4 or III
5	5 or III and I
6	6 or III and II
7	7 or III, II, and I
8	8 or IV
9	9 or IV and I
10	10 or IV and II
.b	11 or IV, II, and I
.C	12 or IV and III
.d	13 or IV, III, and I
.E	14 or IV, III, and II
.F	15 or IV, III, II, and I

NOTE:
10 is programmed with a 0, or an 8 followed by a 2 (8 + 2)
11 is programmed by an 8 followed by a 3 (8 + 3)
12 is programmed by an 8 followed by a 4 (8 + 4)
13 is programmed by an 8 followed by a 5 (8 + 5)
14 is programmed by an 8 followed by a 6 (8 + 6)
15 is programmed by an 8 followed by a 7 (8 + 7)

DATA DISPLAY CORRECTION

If, through a mistake in programming, you have entered the wrong Data into a Location, it can be corrected by using this chart. Example: The programmer's present display readout shows a 2, but you would like the display readout to show a 7. Refering to the chart, follow the 2 column across to where it intersects the vertical 7 column. You'll find a '5'. Program in a '5' to get the desired Data display readout.

DESIRED DATA DISPLAY READOUT

PRESENT DATA DISPLAY READOUT

2		4		6	8	8+2	8+4		8+8
1		4	5			8	9	8+4	8+5
			4			8			8+4
	1	2	3			8	9	8+2	8+3
		2				8			8+2
		1				8		8	8+1
									8.
			1	2	3	4	5	6	7
						2		4	6
						1		4	5
									4.
							1	2	3
									2
									1