
NF21 SERIES
NUMERICAL CALL SYSTEM

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REV 09/18/00

DESCRIPTION

The NF21 Series Numerical Call System is used for paging by number. It consists of a data entry terminal, the NF21, and one or more remote displays. The system can be factory configured as a two, three, or four digit call system. Numbers to call are easily added or deleted from the system using the NF21 Terminal. Simply follow the prompting on the alpha-numeric display. Once a number is added to the system it is displayed on the terminal and sent to the remote displays, where it is flashed for about 6 seconds. It will then be displayed sequentially with other numbers that were previously stored in the NF21 Terminal. Each stored number is displayed for about 6 seconds, on both the terminal and the remote displays, until it is deleted from the system.

The NF21 terminal can be connected to as many as 50 remote displays at distances of up to 2000 feet away using a simple two-conductor cable such as Belden 8442. The remote displays, however do require local power to illuminate the digits.

For the most economical remote displays, the CC2000 Series Four-Inch, Four Digit Displays (same as the CC2000 Series System Clocks) are ideal for the NF21 Numerical System. Additional models are available for two, three, or four-digit remote displays using the AE Series Large Displays with the Option 354 installed. These models are available with 4", 8", or 12" high digits, which are visible from 5 feet to 500 feet away. Refer to the NF21 Series brochure for more detail.



Applications include nursery call systems for churches, order is ready systems, systems for restaurants, now serving systems, truck to dock systems etc.

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SPECIFICATIONS

NF21 TERMINAL

- Operating voltage: 12 VAC @ 500 mA maximum. A plug-in 120 VAC to 12 VAC power module is provided.
- Output Signal: Two-Wire RS232 signal which is compatible with ATS CC2000 Series Displays and AE Series Displays with Option 354 installed. A ten-foot signal cord is provided for connection to the user's wiring (not provided).
- Enclosure: Black, ABS plastic, sloping front, desktop enclosure with rubber feet measures 5"W x 5.4"L x 1.59"H.
- Keyboard: Clearly labeled, 16-Key, positive action keyboard for data entry and control.
- Display: 16 character, alphanumeric LCD display.

CC2000 SERIES DISPLAYS

- Operating voltage: 120 VAC 6 to 8 VA maximum depending on the model. Optional 24 VAC powered units are also available. Clearly labeled pigtail lead wires are provided.
- Input Signal: Receives a Two-Wire RS232 signal from the NF21 Terminal. Clearly labeled pigtail lead wires are provided.
- Enclosure: Black, ABS plastic, wall mount, 2-sided wall mount, and 2-sided ceiling mount enclosures are available. Dimensions: 12"W x 6.1"H x 3.5"D. A white, painted metal, flush mount enclosure is also available. Mounting brackets and/or hardware are provided, depending on the model. See the drawings at the back of this manual for your specific model number.
- Display: Four, Four Inch high, bright red LED, digits. Visible up to 150 feet away.

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AE SERIES DISPLAYS

AE Series Displays are available in sizes ranging from 1" high to 12" high digits, however for this application only the displays with 4", 8" and 12" high digits are typically used. Any of the two, three, and four digit, AE Series models with option AE-OPT-354 installed (RS232 Input) can be used with the NF21 System.

- Operating voltage: Standard power for the AE Series Displays is 120 VAC, 6 to 50 VA maximum, depending on the model. Optional power is available. Clearly labeled pigtail lead wires are provided.
- Input Signal: AE-OPT-354 provides an RS232 input for the AE Series Displays so they can receive a Two-Wire RS232 signal from the NF21 Terminal. Clearly labeled pigtail lead wires are provided.
- Enclosure: The standard enclosure for the AE Series is a Black, anodized aluminum wall mount enclosure. Optional flush mount, 2-sided wall mount, 2-sided ceiling mount, and NEMA rated enclosures are available. Mounting brackets and/or hardware are provided, depending on the model. See the drawings at the back of this manual for your specific model number.
- Display: Four-Inch, Eight-Inch, and Twelve-Inch high digits are available in two, three, and four digit models. Visible from 5 feet to 500 feet away. See the drawings at the back of this manual for your specific model number

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INSTALLATION

NF21 TERMINAL

The NF21 terminal sits flat on any desk much like a small desktop calculator. Clearly labeled power and signal jacks are provided on the back panel of the terminal.

SIGNAL WIRING

A 10 foot cable with A 3.5 mm phone plug is provided for the RS232 output signal from the NF21 Terminal to the wiring for the remote displays (supplied by others) Plug this cable into the Signal jack on the back panel of the terminal. The other end of the cable has two stripped ends for connection to the two-conductor cable of the remote displays.

POWER WIRING

***BE SURE ALL SYSTEM WIRING IS COMPLETE
BEFORE APPLYING POWER TO THE NF21 TERMINAL.***

A power module (ATS P/N 0900-7015) is provided for powering the terminal. Plug the power connector from the power module into the Power jack on the back panel of the terminal. The other end of the power module can be plugged into a standard 120 VAC power outlet.



Refer to the wiring diagram provided.

CC2000 SERIES REMOTE DISPLAYS

MOUNTING

CC2000 Series Remote Displays are available in several types of enclosures, including wall mount, flush mount, double sided wall mount and double sided ceiling mount. Mounting brackets and hardware are provided depending on the specific model. See the CC2000 / AE Series Mounting Bracket Instruction page. See the drawing at the back of this manual for more detail on your specific models.

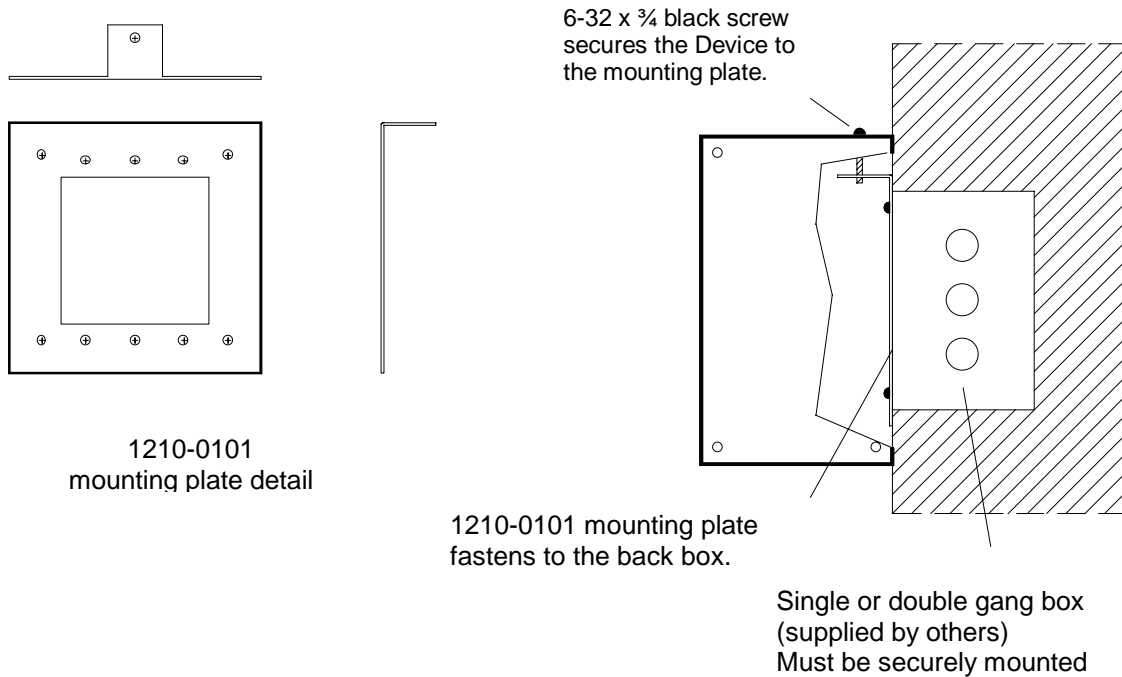
WIRING

The CC2000 Series Remote Displays are usually powered by 120 VAC. Clearly labeled, pigtail lead wires are provided for all power and signal connections. See the NF SERIES wiring diagram for more detail. All wiring must be done to meet local codes.

CC2000 / AE SERIES MOUNTING BRACKET INSTRUCTIONS

MOUNTING

The C2000 and AE Series Displays can be mounted in a variety of ways. Things to consider for mounting include ambient light, viewing area, ambient temperature, dirt or dust. Most wall mount models are supplied with one or more 1210-0101 mounting brackets for wall mounting to a single or double gang box. See the detail below. For other mounting options, such as ceiling mounts or double-sided mounts, refer to the specific drawings.



WIRING

There are many wiring configurations, depending on the functions used and the options installed.

On most standard units, clearly labeled pigtail leads wires are provided for the power at the back panel of the unit. Additional pigtail leads are provided for the RS232 Input signal. See the wiring diagrams for more detail at the back of this manual.

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OPERATION

APPLYING POWER

Before applying power, be sure all field wiring is completed to meet all local codes. Apply power to the NF21 Terminal by plugging the power module into the 120 VAC power outlet. Apply power to the remote displays, which are normally hardwired to a circuit breaker controlled circuit. The remote displays will rotate during the power on self-test. A version number will appear for a few seconds, then all remote displays will be blank. During this power on self-test, the NF21 Terminal will display a version message for a few seconds:

NF21 Ver. 1.00

Then, when the self test is complete, it will display the message:

- No Calls -

The system is now ready for use.

ENTERING A NUMBER

NF21 Numerical Call Systems are factory configured for 2, 3, or 4-digit paging. This manual will assume a 4-digit system. For 2 or 3-digit systems the operation is the same.

Simply key in the desired 2, 3, or 4-digit number you wish to call. The NF21 display will read:

Number? 1234

The example shows the number 1234 has been keyed in. Now press the [A] ADD key to add the number to the system for paging. The NF21 display will read:

Now Calling 1234

The remote displays will flash the number just entered (1234) for about 6 seconds. After this time it will display the number without flashing. Up to 32 numbers with values from 1-9999 (1-99 for a 2-digit system, 1 – 999 for a 3-digit system) can be added to the system. Each time a number is added, it will be flashed for about 6 seconds. Then, all numbers stored in the system will be displayed in numerical order for about 6 seconds at a time. All stored numbers will be repeated until they are deleted from the system.

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If you try to add more than 32 numbers to the system at a given time, the NF21 terminal will alert you that the system is full. It will read:

No More Room

Press any key to clear this message. Numbers will now have to be deleted to make room for the new numbers to add (32 maximum).

DELETING A NUMBER

There are two ways to delete a number from the system.

- 1) One way to delete a number from the system is to key in the desired number to delete. The NF21 terminal will read:

Number? 1234

The example shows the number 1234 has been keyed in. To delete this number, press the [D] DELETE key. The number will be deleted from the stored numbers in the system and the NF21 terminal will return to displaying the numbers being called.

- 2) Another way to delete a number from the system is to press the [D] DELETE key when that number is being called:

If all the numbers are deleted from the system, the remote displays will go blank and the NF21 Terminal will show:

- No Calls -

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INSTALLATION

TECHNICAL SUPPORT

For any questions concerning installation and operation of this product, contact our factory at:

**PHONE (800) 444-7161
OR
FAX (318) 797-4864**

SERVICE POLICY

It is recommended that all service for this product be done by the factory or by a factory authorized service representative. Applied Technical Systems will provide ongoing service support in and out of warranty. Send your repairs to:

**APPLIED TECHNICAL SYSTEMS
849 KING PLACE
SHREVEPORT, LA 71115**

**APPLIED TECHNICAL SYSTEMS
WARRANTY POLICY**

ATS warrants its products to be free of defects in material and workmanship for a period of 24 months from the date of purchase. ATS will repair or replace any product returned to its authorized factory service center within the warranty period so long as there is no evidence that the product has been abused, misused, damaged by lightning, overloads of any kind or water, or altered in any way.

Products returned for warranty must be returned with freight prepaid. ATS will pay normal freight charges to return the product to the customer. Special premium freight requested by the customer will be charged to the customer.

ATS disclaims any warranties expressed or implied, including merchantability and/or fitness for a particular purpose. In no event shall ATS be held liable for incidental or consequential damages.