F320

Heavy Duty Digital Keypad
The F320 is a digital keyless entry system designed for access control applications. The keypad is housed in a rugged cast aluminum enclosure that can be mounted to a pedestal or bolted directly to a wall. The die-cast keys have bright, easy-to-read yellow graphics.

Up to 120 entry codes, from 1 to 6 digits in length, can be programmed. They can activate either, or both, of the relay outputs. Relay #1 has a 5 Amp capacity. Relay #2 has a 1 Amp capacity.

Two LED indicators show the status of the entry system. The left LED lights red to indicate power, then turns green when access is granted. The right LED lights yellow when the keypad is in "lockout" condition (from too many incorrect code entries). The keypad's courtesy light can be always off, always on or be programmed to illuminate from 1-4 minutes after any keypress (default 2 minutes). An internal sounder beeps when each key is pressed.

The DOOR SENSE/INHIBIT input can be used two ways. If programmed for "door sense", a switch on the door detects forced entry or door ajar situations. If programmed for "inhibit", the input can be wired to a "service" switch or automatic timer that will disable the Relay #1 when required.

The REQUEST-TO-ENTER input can be wired to a pushbutton or fire access keyswitch to provide codeless entry for authorized personnel. The "anti-passback" feature prevents using the same code twice before the programmed time elapses.

The ALARM SHUNT output activates when access is granted. This output can be wired to shunt alarm contacts on the access door/gate to prevent triggering of an alarm when authorized access occurs.

Two solid state outputs, capable of switching 100 mA to common, are programmable to signal forced entry, door ajar, lockout, alarm circuit shunting, request-to-enter, and keypad active conditions.

The F320 is powered from a 12-24 Volt AC or DC source. Power can be obtained from the access device or a separate power supply. The EEPROM memory retains all entry codes and programming, even without power.
COMPONENT LOCATIONS

- RED/GREEN POWER/ACCESS INDICATOR
- YELLOW "LOCKOUT" INDICATOR
- NIGHT LIGHT
- TACTILE KEYPAD
- TERMINAL BLOCK J4 POWER AND INPUTS
- KEYLOCK
- JUMPER JP2 RESETS MASTER CODE
- TERMINAL BLOCK J3 OUTPUTS
- JUMPER JP1 REMOVE TO REDUCE BEEPER SOUND

Figure 1. Component Locations

WIRING DIAGRAM

TYPICAL GATE INSTALLATION WIRING

Figure 2. Wiring Diagram
To avoid damage to the unit from static discharges, connect the EARTH GROUND terminal to a good earth grounding point. Suggested wiring size is 18 AWG for earth ground and power (up to 500 feet of 18 AWG wire can be run for power, use larger wire for longer runs). Use 22 AWG or larger (depending on the load) for all other connections.

**CAUTION:** If the unit is AC powered, and one side of the power transformer secondary is connected to earth ground, connect the grounded side to the "-" power terminal of the unit.

Select a location for the keypad. For door access control installations, mount the keypad near the controlled door. For gate control installations, mount the keypad in clear view of the gate, but far enough from the gate so the user cannot touch the gate from the keypad.

**WARNING:** TO AVOID SERIOUS INJURY OR DEATH, MAKE SURE THAT THE UNIT IS FAR ENOUGH FROM THE GATE SO THAT THE USER CANNOT TOUCH THE GATE WHILE OPERATING THE KEYPAD. HOWEVER, THE GATE MUST BE FULLY VISIBLE FROM THE KEYPAD.

Pedestal Mounting
The F320 keypad can be mounted on a standard pedestal.

- Use four security bolts and locking nuts to secure the keypad's backplate to the pedestal (see Figure 3).

Wall Mounting
The F320 keypad can be mounted directly to a wall or flat surface.

- Use the appropriate fasteners to secure the keypad's back plate to the mounting surface.
- When mounting the keypad to a concrete wall, use concrete wedge anchors or molly anchors (see Figure 4).
Gate Control

- Route four wires between the gate and the keypad (two for power, two for control).
- Connect the gate operator's auxiliary or radio power output terminals to the keypads POWER input terminals (observe wiring polarity).
- Connect the gate operator's OPEN terminals to the keypad's Relay #1 COMMON & N.O. terminals.

**NOTE:** For operator wiring specifics, refer to the gate operator's wiring diagram.

- If a request-to-enter pushbutton or fire access keyswitch is going to be used, route two wires from the keypad to the normally open switch. Connect the wires to the normally open switch and to the keypad's REQUEST-TO-ENTER and COMMON terminals.
- If an inhibit switch or timer is going to be used, route two wires from the keypad to the inhibit switch or timer relay. Connect the inhibit switch/timer terminals to the keypad's INHIBIT and COMMON terminals.

**NOTE:** If the INHIBIT input is going to be used, it must be programmed to select that input type. See the Programming Options section of this manual.

Door Control

- Install a low voltage electric door strike for unlocking the door.
- Choose a location for the power supply or transformer.
- Route two wires between the power supply and the keypad. Connect the power supply's output terminals to the keypad's POWER input terminals (observe wiring polarity).
- Route two wires between the door strike and the keypad. Connect one of the door strike wires to the keypad's Relay #1 N.O. terminal. Connect the other door strike wire to the keypad's POWER + terminal. Connect a wire between the keypad's POWER – terminal and the Relay #1 COMMON terminal.
- If a request-to-enter pushbutton or fire access keyswitch is going to be used, route two wires from the keypad to the normally open switch. Connect the wires to the normally open switch and to the keypad's REQUEST-TO-ENTER and COMMON terminals.
- To use the door sense feature to detect forced entry or door ajar conditions, install a normally closed door switch on the door and route two wires from the switch to the keypad. Connect the door switch to the keypad's DOOR SENSE and COMMON terminals.
- If an inhibit switch or timer is going to be used, route two wires from the switch or timer to the keypad. Connect the inhibit switch/timer terminals to the keypad's INHIBIT and COMMON terminals.

**NOTE:** Either door sense or inhibit can be used. Both features cannot be used at the same time.
FACTORY DEFAULTS

MASTER PROGRAMMING CODE ................... 123456
ENTRY CODE LENGTH .......................... 4 DIGITS
REQUEST-TO-ENTER OUTPUT ................. RELAY #1
ALARM SHUNT OUTPUT ....................... DISABLED
FORCED ENTRY OUTPUT ....................... OUTPUT #3
DOOR AJAR OUTPUT .......................... OUTPUT #4
RELAY #1 ON TIME ............................ 2 SECONDS
RELAY #2 ON TIME ............................ 2 SECONDS
SOLID STATE OUTPUT #3 ON TIME .......... 2 SECONDS
SOLID STATE OUTPUT #4 ON TIME .......... 2 SECONDS
DOOR SENSE/INHIBIT INPUT ................. DOOR SENSE
KEYPAD LOCKOUT OUTPUT .................... DISABLED
KEYPAD ACTIVE OUTPUT ..................... DISABLED
DOWNLIGHT ON-TIME ....................... 2 MINUTES
BEEPER SOUNDS WHEN KEY PRESSED ........ YES
BEEPER SOUNDS DURING RELAY #1 ........... NO
BEEPER SOUNDS DURING OUTPUT #3 ......... NO
BEEPER SOUNDS DURING OUTPUT #4 ........... NO
KEYPAD LOCKOUT COUNT .................... 3 TRIES BEFORE LOCKOUT
ANTI-PASSBACK TIME ....................... NO ANTI-PASSBACK

MASTER PROGRAMMING CODE.................... 123456
ENTRY CODE LENGTH .......................... 4 DIGITS
REQUEST-TO-ENTER OUTPUT ................. RELAY #1
ALARM SHUNT OUTPUT ....................... DISABLED
FORCED ENTRY OUTPUT ....................... OUTPUT #3
DOOR AJAR OUTPUT .......................... OUTPUT #4
RELAY #1 ON TIME ............................ 2 SECONDS
RELAY #2 ON TIME ............................ 2 SECONDS
SOLID STATE OUTPUT #3 ON TIME .......... 2 SECONDS
SOLID STATE OUTPUT #4 ON TIME .......... 2 SECONDS
DOOR SENSE/INHIBIT INPUT ................. DOOR SENSE
KEYPAD LOCKOUT OUTPUT .................... DISABLED
KEYPAD ACTIVE OUTPUT ..................... DISABLED
DOWNLIGHT ON-TIME ....................... 2 MINUTES
BEEPER SOUNDS WHEN KEY PRESSED ........ YES
BEEPER SOUNDS DURING RELAY #1 ........... NO
BEEPER SOUNDS DURING RELAY #2 ........... NO
BEEPER SOUNDS DURING OUTPUT #3 ......... NO
BEEPER SOUNDS DURING OUTPUT #4 ........... NO
KEYPAD LOCKOUT COUNT .................... 3 TRIES BEFORE LOCKOUT
ANTI-PASSBACK TIME ....................... NO ANTI-PASSBACK

BASIC PROGRAMMING

When the F320 is in programming mode, both LEDs will turn off until programming begins. After a programming option number is entered the yellow LED will blink. This indicates that the F320 is ready to accept the new programming data. After the new data entry is complete, the green LED will light while the data is being stored. The red LED will light if any programming data is entered incorrectly, and the command will have to be fully re-entered.

Entering Programming Mode

The 6-digit Master Programming Code (default = 123456) is used to enter Programming Mode.

Press:  #  9  #  Master Code

Master Code = the current 6-digit Master Programming Code

Exiting Programming Mode

Press:  *  *  #

The red LED will light when Programming Mode is exited.

NOTE: The F320 will automatically exit Programming Mode after two minutes of inactivity.

Re-entering a Command After a Mistake

If the red LED lights, indicating an incorrect entry, or a wrong key is pressed during programming, to clear the keypad and re-enter the command:

Press:  *  9  #

Setting Entry Code Length

Press:  0  3  #  Length  #

Length = 1 - 6 for entry code length

NOTE: If the Entry Code Length is going to be changed from the factory default of four digits, make this change first, before programming any entry codes.

Adding a New Entry Code

Press:  0  1  #  Code  #  Code  #  Action  #

Code = The new entry code: 1-999999, depending on code length

Action = Relay output entry code will activate as follows:

1 = Relay #1, timed open
2 = Relay #2, timed open
3 = Both Relays, timed open
10 = Relay #1, toggled
20 = Relay #2, toggled
30 = Both Relays, toggled
12 = Relay #1 toggled; Relay #2, timed open
21 = Relay #1, timed open; Relay #2 toggled

Erasing a Single Entry Code

Press:  0  2  #  Code  #  Code  #

Code = The entry code to delete.

Erasing All Entry Codes

Press:  9  7  #  0  0  0  0  0  0  #  0  0  0  0  0  #

Code = The entry code to delete.

NOTE: The green LED will light while the memory is being erased. This may take up to 15 seconds.

Changing the 6-Digit Master Programming Code

Press:  9  8  #  Master Code  #  Master Code  #

Code = The new 6-digit Master Programming Code

New master code: __________________________

NOTE: Leading zeros (zeros before the code number, i.e. 0001) do not need to be entered when programming a new entry code. The F320 will internally add any zeros to fill all digits determined by the entry code length setting. Leading zeros will have to be entered by the user when entering their code to gain access.
PROGRAMMING OPTIONS

Select Door Sense or Inhibit Input  Default: Door Sense
The input on terminal block J4, terminal #3 can be programmed for DOOR SENSE or INHIBIT.

**Press: 1 0 # Input**

Input = 1 for Inhibit,
= 0 for Door Sense

When programmed for DOOR SENSE, if an open condition on the input occurs before access is granted (with an entry code or with the request-to-enter input) a FORCED ENTRY output will occur. If an open condition remains 60 seconds after a relay activation for access, a DOOR AJAR output will occur.

When programmed for INHIBIT, a closed condition on the input will prevent relay #1 from activating when access is requested (with an entry code). This mode is typically used with an external timer to disable the access device at certain times.

Select Forced Entry Output  Default: Output #3
Sets which output activates if the Door Sense input opens before access is granted. This output is not timed.

**Press: 1 1 # Output**

Output = Output to Activate (0-4)
1 = Relay #1  2 = Relay #2  3 = Output #3
4 = Output #4  0 = No Output

Select Door Ajar Output  Default: Output #4
Sets which output activates if the Door Sense input stays open after access is granted. This output is not timed.

**Press: 1 2 # Output**

Output = Output to Activate (0-4)
1 = Relay #1  2 = Relay #2  3 = Output #3
4 = Output #4  0 = No Output

Select Keypad Lockout  Output Default: No Output
Sets which output activates when the keypad is “locked out” after too many incorrect entry code attempts. The lockout time is 60 seconds.

**Press: 1 3 # Output**

Output = Output to Activate (0-4)
1 = Relay #1  2 = Relay #2  3 = Output #3
4 = Output #4  0 = No Output

Select Keypad Active Output  Default: No Output
Sets which output activates when any keys are pressed. This output is timed.

**Press: 1 4 # Output**

Output = Output to Activate (0-4)
1 = Relay #1  2 = Relay #2  3 = Output #3
4 = Output #4  0 = No Output

Select Alarm Shunt Output  Default: No Output
Sets which output activates during the time access is granted. (Use this output to shunt alarm contacts attached to the access door) This output may be timed or latched.

**Press: 1 5 # Output**

Output = Output to Activate (0-4)
1 = Relay #1  2 = Relay #2  3 = Output #3
4 = Output #4  0 = No Output

Select Request-to-Enter Output  Default: Relay #1
Sets which output activates when the Request-to-Enter input is grounded. This output remains activated for at least the length of time specified by the On-times for the relays or outputs. If the Request-to-Enter input continues to be grounded beyond the time specified by the On-times for the relays or outputs, the output will remain activated as long as the Request-to-Enter input remains grounded.

**Press: 1 6 # Output**

Output = Output to Activate (0-4)
1 = Relay #1  2 = Relay #2  3 = Output #3
4 = Output #4  0 = No Output

Select Door Ajar Output  Default: Output #4
Sets which output activates if the Door Sense input opens before access is granted. This output is not timed.

**Press: 1 2 # Output**

Output = Output to Activate (0-4)
1 = Relay #1  2 = Relay #2  3 = Output #3
4 = Output #4  0 = No Output

Select Door Ajar Output  Default: Output #4
Sets which output activates if the Door Sense input stays open after access is granted. This output is not timed.

**Press: 1 2 # Output**

Output = Output to Activate (0-4)
1 = Relay #1  2 = Relay #2  3 = Output #3
4 = Output #4  0 = No Output

Select Keypad Lockout  Output Default: No Output
Sets which output activates when the keypad is “locked out” after too many incorrect entry code attempts. The lockout time is 60 seconds.

**Press: 1 3 # Output**

Output = Output to Activate (0-4)
1 = Relay #1  2 = Relay #2  3 = Output #3
4 = Output #4  0 = No Output

Select Keypad Active Output  Default: No Output
Sets which output activates when any keys are pressed. This output is timed.

**Press: 1 4 # Output**

Output = Output to Activate (0-4)
1 = Relay #1  2 = Relay #2  3 = Output #3
4 = Output #4  0 = No Output

Relay #1 On-time  Default: 2 Seconds
Sets the length of time Relay #1 activates when triggered.

**Press: 2 1 # Seconds**

Seconds = Output time in seconds (0-60)

Relay #2 On-time  Default: 2 Seconds
Sets the length of time Relay #2 activates when triggered.

**Press: 2 2 # Seconds**

Seconds = Output time in seconds (0-60)

Solid-state Output #3 On-time  Default: 2 Seconds
Sets the length of time Output #3 activates when triggered.

**Press: 2 3 # Seconds**

Seconds = Output time in seconds (0-60)  99 = Toggle mode

Solid-state Output #4 On-time  Default: 2 Seconds
Sets the length of time Output #4 activates when triggered.

**Press: 2 4 # Seconds**

Seconds = Output time in seconds (0-60)  99 = Toggle mode

Set Downlight On-Time  Default: 2 Minutes
Sets the time duration that the downlight remains on after a key press.

**Press: 2 5 # Duration**

0 = Always off  1 = 1 minute  2 = 2 minutes  3 = 3 minutes
4 = 4 minutes 99 = Always on
Beep Sounds on Keystrokes  Default: Yes
Selects whether or not the keypad beeps as each key is pressed.

Press: 4 0 # Sound #
Sound = 1 for Yes = 0 for No

Beep Sounds During Relay #1  Default: No
Selects whether or not the keypad beeps during Relay #1 activation.

Press: 4 1 # Sound #
Sound = 1 for Yes = 0 for No

Beep Sounds During Relay #2  Default: No
Selects whether or not the keypad beeps during Relay #2 activation.

Press: 4 2 # Sound #
Sound = 1 for Yes = 0 for No

Beep Sounds During Output #3  Default: No
Selects whether or not the keypad beeps during Output #3 activation.

Press: 4 3 # Sound #
Sound = 1 for Yes = 0 for No

Beep Sounds During Output #4  Default: No
Selects whether or not the keypad beeps during Output #4 activation.

Press: 4 4 # Sound #
Sound = 1 for Yes = 0 for No

Keypad Lockout Count  Default: 3 Tries
Sets the number of incorrect entry code attempts allowed before the keypad “locks out”.

Press: 5 0 # Attempts #
Attempts = Number of attempts before lockout (2-7)

Anti-passback Time  Default: No Anti-passback
Sets the length of time an entry code will not function after it is used.

Press: 5 1 # Minutes #
Minutes = Time in Minutes (1-4)
0 = No Anti-passback

Master Reset

✦ CAUTION: Performing a master reset will clear the entire memory of the F320 and return all programmable options to the factory default values. ALL ENTRY CODES WILL BE ERASED.

STEP 1 Disconnect power from the keypad.
STEP 2 Press and hold down the * and # keys.
STEP 3 Apply power to the keypad, continue holding the keys down until the red LED starts flashing.
STEP 4 Release the keys. The red and yellow LEDs will remain lit until the process is complete, then the yellow LED will go out.

Resetting the Master Code

STEP 1 Open the F320 case.
STEP 2 Locate jumper JP2. This jumper is used to reset the master code.
STEP 3 With power applied to the keypad, remove jumper JP2. The keypad will begin to beep, signaling that the code has been reset.
STEP 4 Replace jumper JP2.
THE MASTER PROGRAMMING CODE IS NOW 123456.
**Solid State Outputs**

The two solid state outputs (Output #3 & Output #4) can be programmed to activate during various conditions. These outputs can be used to activate indicators or sounders. See Figure 7 for wiring examples using the solid state outputs.

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**Beeper Sound Level**

The keypad’s beeper can be set to low or high level.

- If the keypad’s beeper is too loud for the keypad’s location, remove jumper JP1 (see Figure 8).

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**Locking Keypad**

After the installation is complete. Lock the keypad using the keylock (see Figure 9).
F320 OPERATION

✓ Users of the F320 have up to 40 seconds to key in their entry code.
✓ Up to eight seconds are allowed between each keystroke.
✓ All digits of the entry code must be entered. Example: If the code is 0042, the user must enter "0 0 4 2".
✓ If the wrong key is pressed, pressing the * key will reset the keypad. The correct code can then be re-entered.
✓ After a correct code is entered, the red LED will turn green and the programmed relay will activate for the programmed time.
✓ If the number of incorrect codes entered exceeds the keypad lockout count, the yellow LED will light, indicating that the keypad is locked out. The lockout will remain for one minute.
✓ After a valid code has been entered, it will be unusable until the anti-passback time expires.

Figure 10. Operating F320
GTO LIMITED TWO YEAR WARRANTY

Gates That Open, LLC gate openers and accessories are covered under warranty by the manufacturer against defects in materials and manufacturer workmanship for a period of two (2) years from date of purchase, provided the recommended installation procedures have been followed.

In the case of product failure due to defective material or manufacturer workmanship within the two (2) year warranty period, the product will be repaired or replaced (at the manufacturer’s option) at no charge to the customer, if returned freight prepaid to GTO, 3121 Hartsfield Road, Tallahassee, Florida, USA 32303.

IMPORTANT: Call (800) 543-1236 for a Return Goods Authorization (RGA) number before returning accessory to factory. Products received at the factory without an RGA number will not be accepted. Replacement or repaired parts are covered by this warranty for the remainder of the two (2) year warranty period or six (6) months, whichever is greater. GTO will pay the shipping charges (equal to United Parcel Service GROUND rate) for return to the owner of items repaired under warranty.

The manufacturer will not be responsible for any charges or damages incurred in the removal of the defective parts for repair, or for the reinstallation of those parts after repair. This warranty shall be considered void if damage to the product(s) was due to improper installation or use, connection to an improper power source, or if damage was caused by electrical power surge, lightning, wind, fire, flood, insects or other natural agent.

After the two (2) year warranty period, GTO, will make any necessary repairs for a nominal fee.

Call GTO at (800) 543-1236 for more information. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state. This warranty is in lieu of all other warranties, expressed or implied.

NOTE: Verification of the warranty period requires copies of receipts or other proof of purchase. Please retain these records.

FCC NOTICE

Changes or modifications not expressly described in this manual or approved by the manufacturer could void the user’s authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.