

Installation

OVERVIEW

The DEMCO GATE ACCESS CONTROL SYSTEM is designed to operate up to 4 gates, each with an IN KEYPAD and/or an OUT KEYPAD. Each gate is wired as illustrated in the drawing of a "TYPICAL FACILITY CABLING" (Figure 3.1) at the end of this chapter. The JUNCTION BOX is the focal point for the installation. Power to the entire system is supplied from the 9 to 12 volt AC to DC unregulated wall adapter. The signals from the two keypads are routed through the JUNCTION BOX, then on to the ACCESS CONTROL COMPUTER (CONTROLLER). The relay in the GATE OPERATOR that actually opens the gate is triggered by the relay in the JUNCTION BOX. The CONTROLLER'S serial cable is connected to the serial port of the computer or, if in manual mode, directly to the printer.

TOOLS REQUIRED FOR INSTALLATION:

- Slotted screwdriver (medium)
- Philips screwdriver (medium)
- Spade tongue terminals for 18-22 gauge wire*
- Terminal crimping tool

*NOTE: Terminate all cables with spade tongue terminals.



BOX

INSTALLATION OF THE JUNCTION

Remove the cover from the JUNCTION BOX, and then remove the printed circuit board from the back mounting plate. Install the back mounting plate over or near where the cabling will enter the office from outside the building. Reinstall the printed circuit board onto the back mounting plate.

NOTE: A JUNCTION BOX is needed for each gate. When multiple junction boxes are required, daisy chain the power to each box.

NOTE: Along with each additional JUNCTION BOX, you need an additional GATE OVERRIDE SWITCH, and CABLE between the JUNCTION BOX and ACCESS CONTROL COMPUTER.

Connect the 9 to 12 volt AC to DC power adapter to the POWER IN terminals of TS5. Reference FIGURE 3.2 (TYPICAL JUNCTION BOX WIRING) at the end of this chapter.

NOTE: If an extension cord is needed, make sure it has a ground line (3 pin). This protects the operator from possible electrical shock, and protects the CONTROLLER from static electricity.

IMPORTANT: Before proceeding, plug the power adapter into the 110V AC wall outlet and make sure that there is 9 to 12 volts DC of the proper polarity at the POWER OUT terminals of TS5. Unplug adapter after testing polarity.

NOTE: We recommend that the 110 volts AC from the wall outlet supplying the power to the GATE ACCESS CONTROL SYSTEM'S AC to DC power adapter and the facility computer be connected to a line surge protector/conditioner.

Run a two-conductor cable from the NO and COM terminals of the JUNCTION BOX relay terminal strip (TS3) to the gate relay in the gate operator. Reference FIGURE 3.2

GATE OVERRIDE SWITCH INSTALLATION

Install the gate override switch per FIGURE 3.6A. The light inside the switch will light when the switch is latched. To override the system completely, wire a switch as in FIGURE 3.6B.

GROUNDING A JUNCTION BOX WITH LIGHTNING

SUPPRESSORS

IMPORTANT: For the lightning suppressor to protect the equipment properly, the **JUNCTION BOX** must be connected to a true earth ground. The AC/DC power adapter has a ground wire, which connects the Junction Box to the building's ground. This ground is not sufficient as a Lightning Suppressor ground, therefore a true earth ground must be installed. Review the last page of this chapter for "Minimum Earth Ground Requirements".

INSTALLING THE AC/MODEM SURGE SUPRESSOR

Install the AC/MODEM SURGE PROTECTOR into the AC outlet. Install the telephone line through the surge protector to the computer's modem per manufactures documentation.

IMPORTANT: The AC/DC power adapter from the junction box and the computer system must be plugged into this surge protector. Do not use any other surge protectors in the system.



KEYPADS

Run a 4 conductor (two sets of twisted pairs) shielded cable (Belden # 8723 or equivalent) between the JUNCTION BOX and each KEYPAD. Use FIGURE 3.3 to terminate the cable at the KEYPADS. Then connect the cables to JUNCTION BOX terminal strips TS1 and TS2 using FIGURE 3.2.

INSTALLATION OF THE

NOTE: The cable shield wire is terminated at the JUNCTION BOX, but not at the KEYPADS.

NOTE: Each gate can have an IN KEYPAD and/or an OUT KEYPAD; make sure you can identify the cables when you terminate them at the JUNCTION BOX.

Ground each keypad to the housing or to earth ground, to prevent possible electrical shock to the operator.

WIRING THE KEYPAD LIGHT

NOTE: The keypads are shipped with 24 volt T-1 3/4 Midget Grooved light bulbs (generic #327). To light the keypad light, supply 24 volts AC or DC from the gate operator to the left two terminals of the terminal strip on the back of the keypad. Reference FIGURE 3.3 or 3.4.

WIRING THE KEYPAD LIGHT FOR VEHICAL SENSING

If this voltage is supplied through a vehicle sensing system, the light will be lit only when there is a vehicle present at the gate. The KEYPAD will sense this voltage when an access code is entered. This "vehicle present" information is sent to the CONTROLLER along with the access code for further analysis. Wire the lights using figure 3.9B if the output of the vehicle sense system has a DPDT output, or add an additional DPDT relay to the system and wire the relay using figure 3.9A. Turn on option switch 1 to inhibit access if a vehicle is not sensed at the gate (see option switch settings further on in this chapter).

IMPORTANT: Supply the voltage to the keypad light at the terminal strip only. If this voltage is not sensed at the terminal strip, the vehicle sense function is defeated.

INSTALLATION OF THE KEYPADS WITH LIGHTNING SUPPRESSORS

Install the keypads as described above, except terminate the four conductor signal cable and the two conductor for the light to the terminal strip on the SURGE SUPPRESSOR printed circuit board. Reference FIGURE 3.4.

IMPORTANT: The LIGHTNING SUPPRESSOR printed circuit board

must be connected to true earth ground. The keypad housing is not adequate. Connect the ground to the grounding lug on the LIGHTNING SUPPRESSOR printed circuit board. Review the last page of this chapter for "Minimum Earth Ground Requirements".



INSTALLATION OF THE CONTROLLER

Mount the CONTROLLER near both the computer and printer. Keep in mind that there may be occasions when the computer is not available, and the CONTROLLER may need to output directly to the printer.

Remove the cover from the CONTROLLER, then remove the printed circuit board from the back mounting plate. Install the back mounting plate in a convenient location in the office. Reinstall the printed circuit board onto the back mounting plate.

Connect the 3 conductor CONTROLLER power cable to the POWER OUT terminals of TS5 in the JUNCTION BOX. Reference FIGURE 3.2.

Insert the red plastic receptacle of the 6 conductor shielded cable, provided with each JUNCTION BOX, into the appropriate 12-pin header inside the CONTROLLER. The four 12-pin headers are defined from left to right as gate 1, gate 2, gate 3, and gate 4. This 12-pin header should be installed with the cable flowing to the bottom of the CONTROLLER. Pin 1 is on the left side of the connector, and pin 12 is on the right.

IMPORTANT: The receptacle itself is marked the opposite way, that is, pin 1 is on the right, and pin 12 is on the left. Follow FIGURE 3.5 and not the pin numbers on the receptacle.

Connect the other end of the 6-conductor cable to TS4 of the JUNCTION BOX

according to FIGURE 3.2.

NOTE: The shield wire of the 6-conductor cable is grounded at the Junction Box by connecting it to the nut to the right of terminal strip TS4.

If the CONTROLLER is going to be operated manually from the keypad of the CONTROLLER, connect the serial cable to the printer's DB25 or RJ- 11 connector. Make sure the "OUTPUT TO" switch on the CONTROLLER is in the "PRINTER" position.

IMPORTANT: The CONTROLLER can only print to serial printers.

The serial printer should be set to the following configuration:

- 4800 baud
- One stop bit
- Odd parity
- No parity check
- 8 bit word length

Note: If the printer double-spaces between lines, turn off the Auto Line Feed option of the printer.

To operate the CONTROLLER from a computer, connect the serial cable from the CONTROLLER to the DB25 of the computer's serial port. Make sure the "OUTPUT TO" switch on the CONTROLLER is in the "COMPUTER" position.

INSTALLING SERIAL PORT

Install the serial port provided with the DEMCO system in your computer according to the manufacturer's instructions. The serial port supplied with the system has been preset to COM 3, IRQ 4.

IMPORTANT: After the software is installed, if communications between the access control computer and the facility computer results in an error message "Unable to read/write to CONTROLLER", check the following items:

1. Make sure the modem hardware is not set for COM 1 or COM 3.
2. Some facility computers have built-in communications ports, make sure COM 1 and COM 3 are turned off.
3. Some facility computers have add-on multifunction cards, make sure COM 1 and Com 3 are turned off.

NOTE: If you must replace the serial card, most inexpensive cards are adequate. Configure the port for COM 3, IRQ 4.

IMPORTANT: To change the communication port used by the Gate Access Control system, use the `COM_CONF.EXE` program in the `\DEMCO` or `\GATE` subdirectory. `COM_CONF.EXE` must be in the same directory as the `DEMCO.EXE` program. See Chapter 6 for details on using `COM_CONF.EXE`.

SETTING THE OPTION SWITCHES IN THE CONTROLLER

The option switches are a set of eight-slide switch located at IC23 on the CONTROLLER printed circuit board. Move the slide switch to the "ON" position (to the right) to select an option.

OPTION SW 1 - VEHICLE SENSING OPTION - If switch 1 is "ON", the CONTROLLER will deny access if a vehicle is not sensed by the keypad when the access code was entered.

NOTE: Any valid access code with a Time Zone of 7 will open the gate with or without a vehicle being sensed by the VEHICAL SENSING SYSTEM.

OPTION SW 2,3 - GRACE PERIOD FOR EXITING - The following are the settings for switches 2 and 3.

SW 2	SW3	GRACE PERIOD
OFF	OFF	NO GRACE PERIOD
OFF	ON	15 MIN.
ON	OFF	30 MIN.
ON	ON	24 HOURS

OPTION SW 4 - ANTI PASSBACK - If switch 4 is "ON", the gate will not be opened if the tenant tries to exit without entering, or enter without exiting.

CAUTION - This option should be used only when the manager is on the premises to allow these tenants to exit without damaging the gate.

OPTION SW 5 - BEEP WHEN GATE IS OPENED - When "ON", the controller will beep when the gate is opened telling the manager that a tenant has entered or exited the site.

OPTION SW 6 - NOT USED

OPTION SW 7 - NOT USED

OPTION SW 8 - BAUD RATE CHANGE - The serial communications baud rate is normally set to 4800, by selecting this option, the baud rate is changed to 9600.

NOTE: Always leave this switch "OFF". This switch is used for testing by the manufacturer.

GATE ACCESS CONTROL OPERATIONAL TEST

Apply power to the system by plugging the AC/DC power adapter into the 110 volt wall outlet. At this point, the system should be fully functional. A single access code of 911911 with a Time Zone of 7 was added to the CONTROLLER's memory during final factory test. Each keypad should open the gate when *911911# is entered. If any keypad does not open the gate, first check the wiring, then follow the procedure outlined in CHAPTER 11 (TROUBLE SHOOTING THE SYSTEM).

NOTE: The system can be tested without having the facility computer or printer on site.

To operate the Gate Access Control System in the manual mode (CONTROLLER connected to a printer) proceed to chapter 5; to operate the system under computer control, proceed to chapter 6.