

# THE 455 D CONTROL PANEL: SUPPLEMENTAL INSTALLATION INSTRUCTIONS

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**Note:** These instructions supplement the installation manual for your operator. Be sure to review all safety information in the installation manual for your operator.

# THE 455 D CONTROL PANEL

## GENERAL DESCRIPTION

The FAAC 455 D control panel is used to operate the following models.

### Swing gate operators:

400	412
402	750
422	760

### Barrier gate operators:

610/615

The 455 D programming controls the following:

**Operating logic:** A, S, E, EP, B, and C logics available.

**Reversing device behavior:** Choose whether a triggered reversing device during closing immediately reverses gate movement or stops the gate and reverses gate movement when no longer triggered.

**Torque or Pressure:** Force adjustment for the 412 operator. Adjustable from 0 to 50.

**Caution:** For all hydraulic operators, the torque **must** be programmed to the maximum (50) setting.

**Pause time between opening and closing:** adjustable from 0 to 240 seconds.

**Opening/Closing time:** adjustable from 0 to 120 seconds.

**Leaf delay on closing:** adjustable from 0 to 4.1 minutes.

The 455 D control panel should be installed in an enclosure that is conveniently located as close as possible to the gate operator. All electrical connections from the control panel to the operator must be made in a weatherproof junction box.

The 455 D control panel requires a single-phase power supply voltage (115 VAC [ $\pm 10\%$ ] or 230 VAC [+6 or -10%], 50-60 Hz). The power supply should be protected by a 15 amp dedicated circuit breaker (not provided).

**The installer is responsible for grounding the operator system, for providing the main power**

**breaker switch, and for making sure that the entire gate system meets all applicable electrical codes. The installer should refer to the installation manual for a given operator for more information.**

**NOTE:** An installation is U.L. compliant only when you install the FAAC operators according to the UL325 standards.

## INSTALLING THE 455 D CONTROL PANEL

Locate the control panel in the most convenient position possible, considering the movement of the gate.

Installing the control panel consists of the following general steps:

- Connecting the main power to the control panel
- Connecting the activating device
- Connecting the operator to the control panel
- Checking the direction of the motor's rotation
- Connecting other devices to the control panel
- Set operating modes

## CONNECT THE MAIN POWER SUPPLY

**WARNING!** Turn the main power off before you make any electrical connections or before programming.

Wire the main power supply to control panel terminals in block J3 (see Figures 1 and 2). The installer is responsible for insuring that a separate, grounded circuit protected by a circuit breaker is between the control panel and the main power supply. All wiring should conform to applicable electrical codes, and all wiring and fittings should be weatherproof and/or suitable for burial.

Connect the ground to the grounding terminal in block J3 and connect the power wires to the terminals labeled N (neutral) and L (line).

**NOTE:** For a 230V system, a neutral is not needed. Connect one 115V line to the L (Line) and a second 115V line to the N (Neutral).

## CONNECT THE OPERATOR(S) TO THE CONTROL PANEL

**WARNING!** Turn the main power off before you make any electrical connections or before programming.

**CAUTION:** The operators are grounded only by the grounded circuit the installer provides.

### USING A JUNCTION BOX

If an operator is more than 2 ft away from the control panel, you must use a junction box for connection. Use a U. L. Listed cord grip where the operator cord enters the junction box.

**Note:** If you have a one-leaf gate design, the operator **must** be connected to Motor 1 (terminals 1, 2, & 3)

To wire up motor 1, connect the white wire to terminal 1 (on the J4 terminal strip), the black wire to 2, and the red wire to 3. Wire each leg of the capacitor (supplied) to terminals 2 & 3.

**Note:** If you want to delay the closing of one gate leaf in a two-leaf gate design, be sure to connect its operator to Motor 1.

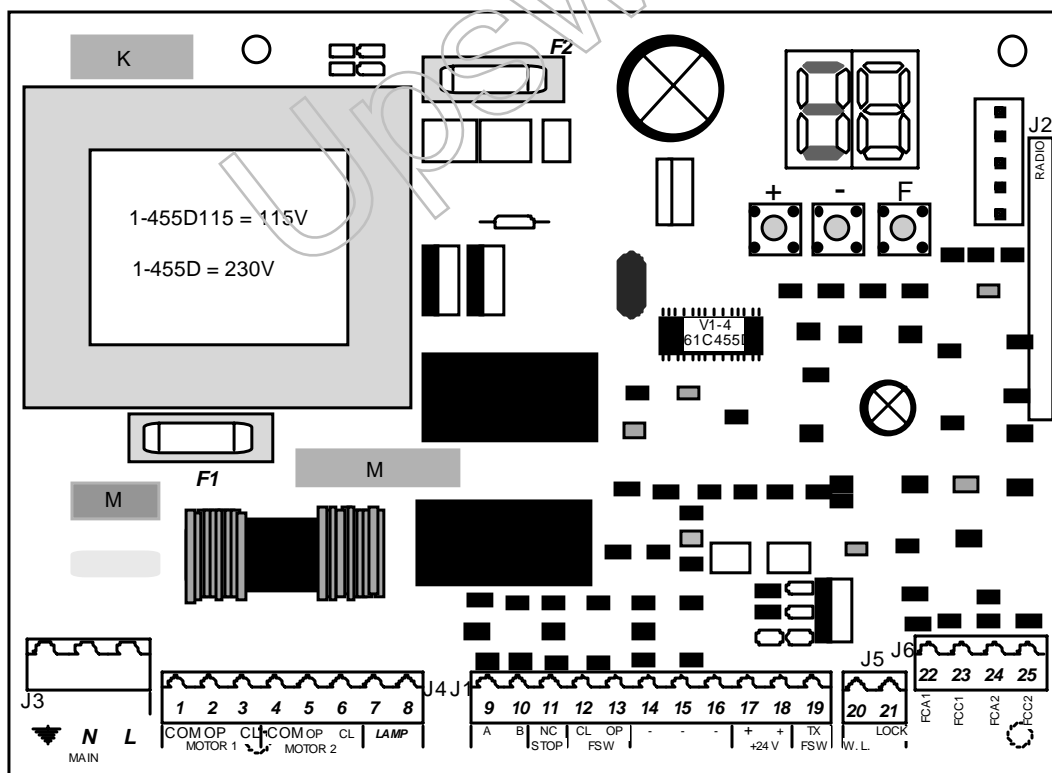
In order to wire motor 2 in a bi-parting system, connect the white wire to terminal 4 (on the J4 terminal strip), the black wire to 5, the red wire to 6. Wire each leg of the capacitor (supplied) to terminals 5 & 6.

## CHECK THE MOTOR'S DIRECTION OF ROTATION

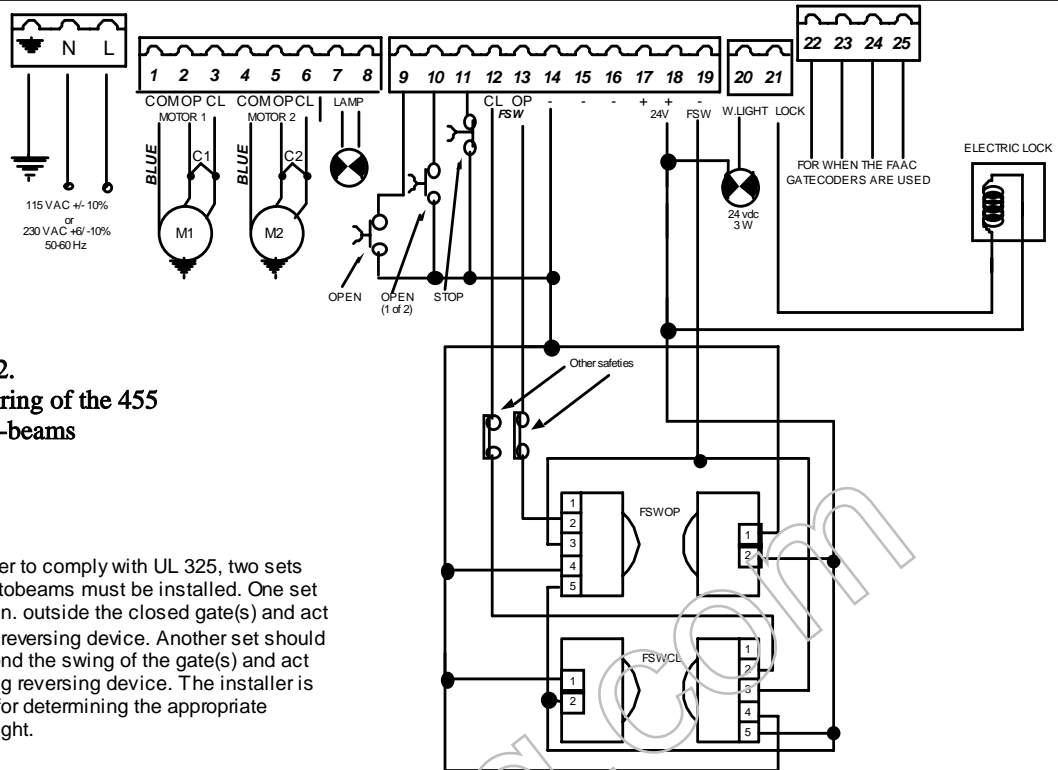
After you have connected the main power supply, and the operator(s) to the control panel, you need to check the direction of rotation for each operator motor in your gate design.

**Note:** To check a motor's direction of rotation, you must have three closed circuits on terminal block J1. Install one circuit between terminals 11 and 16, another circuit between terminals 12 and 19, and another circuit between terminals 13 and 19.

Figure 1. The 455 D Control Panel



J3 terminal block for main power supply		
J4 terminal block for connecting the operator(s)		
J1 terminal block for low-voltage accessories		
J2 quick connector port		
F Function Push Button		
— Programming Push Button		
+ Programming Push Button		
FUSES	220 VAC	115 VAC
F1 Main Power	5 A	10 A
F2 Accessories	800 mA	800 mA



**Figure 2.**  
**The terminal strip wiring of the 455**  
**D with photo-beams**

**NOTE:** In order to comply with UL 325, two sets of FAAC photobeams must be installed. One set should be 6 in. outside the closed gate(s) and act as a closing reversing device. Another set should be 6 in. beyond the swing of the gate(s) and act as an opening reversing device. The installer is responsible for determining the appropriate mounting height.

You cannot check the motor's direction of rotation without these circuits (jumpers) or the accessories. When properly prepared for testing, the LEDS FSWOP, STOP, and FSWCL should be illuminated (see figure 3.5 on page 5).

**WARNING!** Running the operator—even for testing purposes—without a connected reversing device is potentially dangerous. Do not place yourself within the path of the moving gate during your test.

Disengage the operator(s) with the Manual Release key (see operator installation manual), and open the gate by hand about halfway.

Next, engage the operator(s) with the Manual Release key so that you can check the rotation of the motor(s).

To activate the operator(s) momentarily short across terminals 9 and 14.

Turn on the main power and send an activating signal to the operator. The gate leaf (or leaves) should open. If a gate leaf closes, then you need to turn off the main power and reverse the connection of the red and black wires on terminal block J4 for the operator controlling that leaf. Then you need to recheck the rotation direction again.

After having completed your test of the motor's direction of rotation, replace any test circuits you installed (between terminals 11 and 16, between 12 and 19, and between 13 and 19) with the proper reversing and stop devices. The instructions for installing such accessories follow.

## CONNECT OTHER DEVICES

**WARNING!** Turn the main power off before you make any electrical connections.

**POWER SUPPLY FOR ACCESSORIES:** You can access a 24 VDC output for supplying power to accessories through terminals 17 or 18, (+) and 14 or 15 or 16, (-) on terminal block J1. In most cases, this source can be used to power 24 VDC accessories.

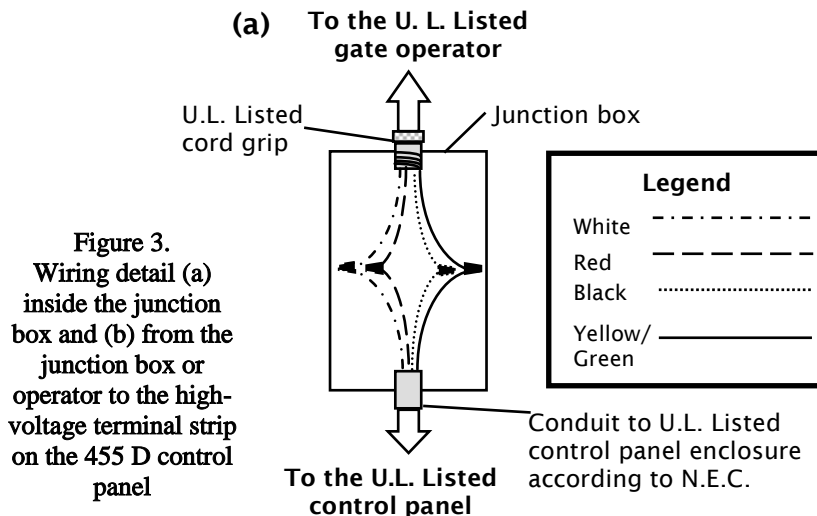
**NOTE:** The 455 D control panel allows a maximum accessory load of 800 mA.

**REVERSING DEVICES:** Reversing devices include photocells, inductive loops, and so forth. All of the reversing devices should have contacts of the normally closed (N.C.) type. Where you connect a device depends on whether you want the device to operate during opening or during closing.

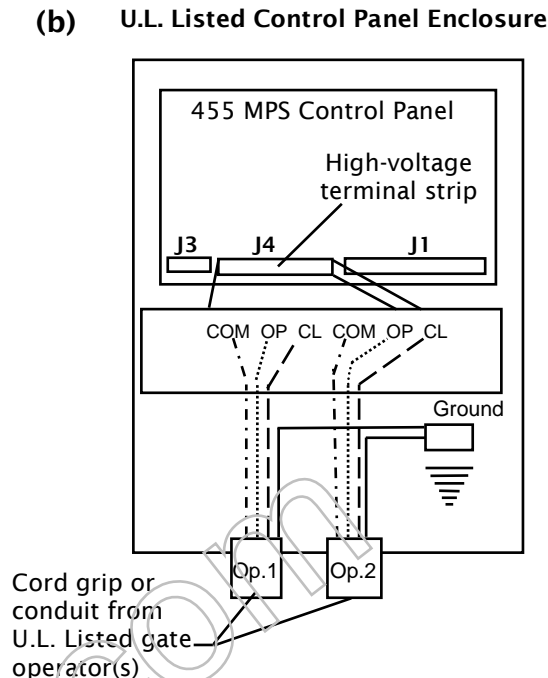
**NOTE:** UL **does not** recognize the FAAC system with loop detectors or safety edges. FAAC photobeams must be used to comply with UL 325.

To wire photobeams, refer to page 4 (see FSWOP for opening photobeams, and FSWCL for closing photobeams). Photobeams must be connected as shown. See also page 7 for the wiring of inductive loops. If using more than one reversing device, they must be wired in series.

**ACTIVATING DEVICES AND RADIO RECEIVER:** The activating devices and radio receiver for your gate must have



**Figure 3.**  
Wiring detail (a) inside the junction box and (b) from the junction box or operator to the high-voltage terminal strip on the 455 D control panel



normally open (N.O.) contacts. Connect such devices to terminals 9 and 14.

**NOTE:** The FAAC radio receiver plugs into the 5 prongs labeled J2 (Quick connect port).

Page 7 shows how to connect a three or four wire receiver.

**DECODER CARD:** If you are installing the Digicard magnetic card reader, or the Digikey keyboard, use the quick-fit connector J2 for the DS decoder card (see Figure 1).

**NOTE:** If your using both a receiver and decoder, hard wire the decoder and plug in the receiver.

**OPEN/HOLD OPEN DEVICE:** To open and hold open the gate, simply maintain a contact across terminals 9 and 14. ("A" Mode only)

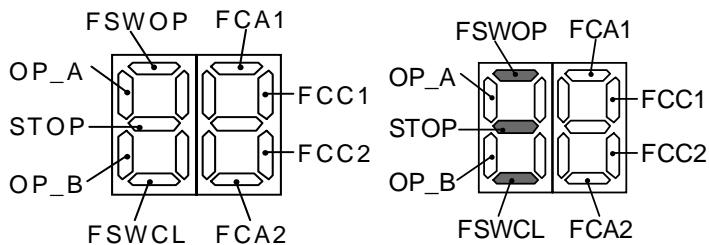
**STOP BUTTON:** The stop button you install must have normally closed (N.C.) contacts. Multiple stop buttons must be wired in series. Connect your stop device between terminals 11 and 16.

**NOTE:** The 455 will not operate the motors without a closed circuit between 11 & 16.

**The LED Indicators:** The nine light emitting diodes (LEDs) on the control panel can be used to check for the proper function of the devices attached to the panel. The LED lights are on whenever the contacts are closed across each of the respective terminals.

OP\_A and OP\_B (Partial Opening) should illuminate only when an activating signal is sent for 2 and 1 gate leaves, respectively. STOP should be illuminated except when the stop button is pressed. FSWOP and FSWCL should be illuminated except when the reversing devices, for

LED	On	Off
OP_A	Command Given	No Command
OP_B	Command Given	No Command
Stop	No Command	Command Given
FSW Open	Opening reversing devices clear	Reversing device triggered
FSW Close	Closing reversing devices clear	Reversing device triggered
FCA1 FCC1	Flashes when gate coder is in use. Operator 1	
FCA 2 FCC 2	Flashes when gate coder is in use. Operator 2	



This display shows the meaning of each LED.

This display shows the normal status of the control panel.

**Figure 3.5 The 455 D display.**

opening and closing, respectively, are triggered. Use the LEDs and the next table to determine if the accessory devices you have installed are operating properly.

**Electric Locks:** An electric lock can be wired to the 455 D in terminals 18 and 21 (12Vac pulsed provided). If a reversing stroke is needed to allow the electric lock to release, this must be done in advanced programming.

See page 7 for the connections for a magnetic locking device.

**WARNING LIGHT:** Connect a warning light to terminals 18 and 20 in the group labeled *W.LIGHT* in terminal block J1 and J5. The terminals provide an output voltage of 24 VDC, maximum power 3 Watts. This output voltage will power most 24 VDC warning lights.

**NOTE:** The behavior of the warning light varies according to the logic you have set.

**LOGICS A, S, E, EP, AND B:** The warning light is on steadily during opening and the pause phase. During closing, the light flashes.

**LOGIC C:** The warning light is on steadily during opening and flashes during closing.

## SET OTHER OPERATING CONTROLS

**WARNING!** Turn the main power off before you make any electrical connections.

You need to program the control panel for your gate's operation. The 455 D Control Panel has on board programming that controls a wide range of functions.

### OPERATING LOGICS

**NOTE:** The 455 provides inputs for opening reversing devices and closing reversing devices. FAAC strongly recommends the use of reversing devices, such as photocells or other non-contact sensors.

- **A (automatic):** The gate opens on command and automatically closes after a pause phase. A second command while opening is ignored; a second command during the pause phase interrupts the pause time; a second command during closing reopens the gate. A maintained open command will hold the gate open.
- **S (security):** The security mode is like A logic except that a second command during opening immediately closes the gate. A maintained open command will not hold the gate open.

- **E (semi-automatic):** This mode requires a command to open and a command to close. A second command during opening stops the gate. A second command during closing reopens the gate.
- **EP (semi-automatic, step by step):** This mode requires a command to open and a command to close. A second command during opening or closing causes the gate to stop. A third command then reverses the previous motion of the gate.
- **B (manned, pulsed):** This mode is designed for guard station use and requires a three-button switch (pulsed) to open, close, and stop the gate.
- **C (manned and constant):** This mode requires constant pressure switches. One to open and one to close. No pressure on a switch stops the gate.

The three programming push buttons allow the programming of the torque (or pressure), the pause time between opening and closing, and the leaf delay on closing.

**WARNING!** Turn the main power off before you make any electrical connections.

For all FAAC hydraulic operators using the 455 D control panel, the force **must** be set at its maximum setting of 50 in order to supply the correct voltage to the operator.

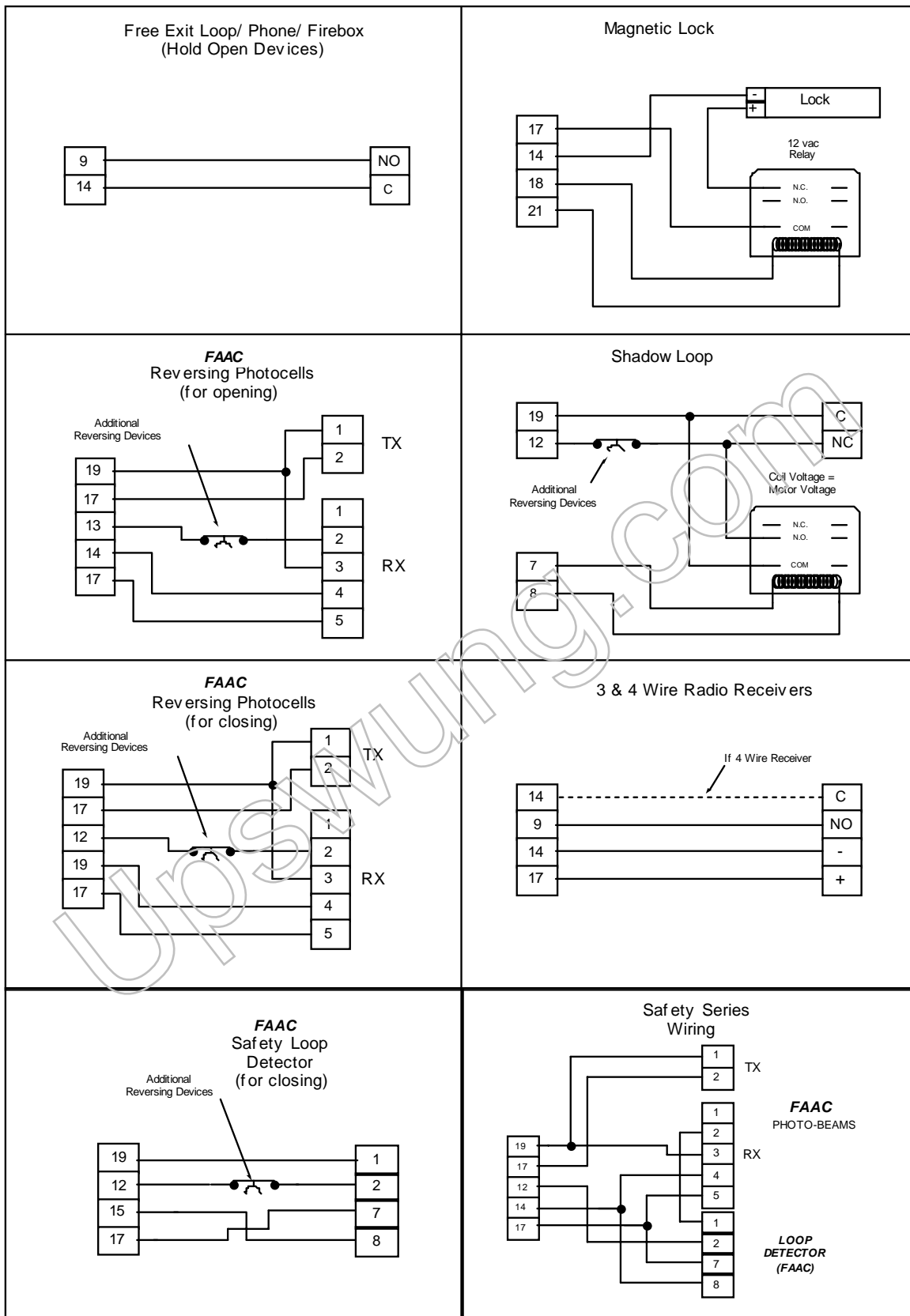
**PAUSE TIME:** The pause time between opening and closing can be adjusted from 0 seconds to 4 minutes. Time is adjusted in one-second increments from 0–59 seconds. When 60 seconds is reached, time is adjusted in 10 second increments up to 4 minutes. i.e. if display shows 2.5, it means 2 minutes and 50 seconds.

**LEAF DELAY:** You may choose to delay one leaf on closing for overlapping gate leaves. Be sure the operator on the leaf for delayed closing is connected to Motor 1. On opening, the leaf connected to Motor 2 is delayed 2.5 sec.

**NOTE:** If an opening leaf delay is desired, it must be enabled in the Advance Programming. However, if enabled, you cannot *adjust* this opening delay of the operator connected to Motor 2.

The closing leaf-delay time is adjustable from 0 to 4 minutes.

**NOTE:** If the opening/closing time is set at less than the leaf delay time, the delayed leaf closes at the end of the closing time.



NO = Normally Open, NC = Normally Closed, C = Common, TX = Transmitter, RX = Receiver

Figure 4. Common Accessories wired to 455 D

## PROGRAMMING

To program the automated system, the “Programming Mode” must be accessed.

Programming is split into two parts: BASIC and ADVANCED.

### BASIC PROGRAMMING

To access BASIC PROGRAMMING, press the “F” key.

- If you press it (and hold it down), the display shows the name of the first function.
- If you release the key, the display shows the value of the function that can be modified with keys + and – .
- If you press and hold down the “F” key again (and hold it down), the display shows the name of the next function, etc.
- When you reach the last function, press “F” to exit the program, and the display resumes showing the status of the inputs.

The table on the right shows the sequence of functions accessible in BASIC PROGRAMMING.




### ADVANCED PROGRAMMING

To access ADVANCED PROGRAMMING, press the “F” key and, as you hold it down, press the “+” key:

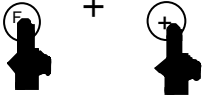
- If you release the “+”, the display indicates the name of the first function.
- If you release the “F” key, too, the display shows the value of the function that can be modified with keys “+” and “–”.
- If you press the “F” key (and hold it down), the display shows the name of the next function, and if you release it, the value that can be modified with keys “+” and “–”.
- When you reach the last function, press the “F” key to exit the program, and the display resumes showing the status of the inputs.

The table on page 9 shows the sequence of functions accessible in ADVANCED PROGRAMMING:

PROGRAM BUTTONS		
+	-	F
LEFT	MIDDLE	RIGHT

BASIC PROGRAMMING		
		
Display	Function	Default
LO	<b>OPERATING LOGICS</b> A = Automatic (Timer to Close) E = Semi Automatic S = Security EP = (Semi-Automatic) Step by Step B = Manned, Pulsed C = Manned, constant	E
PA	<b>PAUSE TIME</b> This is the time between open and closing and is adjustable from 0 to 4 min. This is only true in “A” Mode. (see pause time description)	0
F1	<b>FORCE/TORQUE MOTOR 1</b> This adjusts the force / torque that motor 1 is applying to the gate leaf. Setting is 0 to 50.*	25
F2	<b>FORCE/TORQUE MOTOR 2</b> This adjusts the force / torque that motor 2 is applying to the gate leaf. Setting is 0 to 50.*	25
cd	<b>CLOSING LEAF DELAY</b> Delays the closing of operator wired into motor one outputs. Adjustable from 0 to 4 minutes (Same as pause time)	0
LL	<b>MOTOR RUN TIME</b> This enables where you choose from “simple” learning or “complete” learning of the motor run time. See page 10 & 11 for complete details.  Simple Learning  ≈ 1 s.  Complete Learning  > 3 s.	
In	<b>EXIT PROGRAMMING</b> Exit from programming and return to display of inputs status.	

\* With Hydraulic operators the Force/Torque must be set to the maximum setting of 50.

ADVANCED PROGRAMMING		
		
Display	Function	Default
bo	<b>MAXIMUM TORQUE AT INITIAL THRUST:</b> The motors operate at maximum torque (ignoring the torque setting) at start of movement. Useful for heavy leaves. 4 = Enable No = Disabled	no
cs	<b>LAST STROKE AT CLOSING:</b> The motors are activated at full speed for 1s to facilitate locking of the electric lock. 4 = Enable No = Disabled	no
rs	<b>REVERSING STROKE:</b> Before opening, while the gate is closed, the motors thrust to close for 2 s thus facilitating release of the electric lock. 4 = Enable No = Disabled	no
od	<b>LEAF 2 OPENING DELAY (2s):</b> Enables delayed start (at opening) of leaf 2, avoiding interference between leaves. 4 = Enable No = Disabled	no
fs	<b>FAIL SAFE:</b> If this function is activated, it enables a function test of the photocells before any gate movement. If the test fails (photocells not serviceable), the gate does not start the movement. 4 = Enable No = Disabled	no
pf	<b>PRE FLASHING (5s):</b> Activates the flashing lamp for 5s before start of movement. 4 = Enable No = Disabled	no
el	<b>ELECTRIC LOCK ON LEAF 2:</b> For using the electric lock on leaf 2 instead of on leaf 1. 4 = Enable No = Disabled	no

Display	Function	Default
sp	<b>INDICATOR-LIGHT:</b> If 0 is selected, the output functions as a standard indicator-light (lighted at opening and pause, flashing at closing, and off when gate closed). Different figures correspond to timed activation of the output, which can be used (via a relay) to power a courtesy lamp. Time can be adjusted from 0 to 59s in 1s increments, and from 1.0 to 4.1 min. in 10s steps. 0 = Standard Indicator-Light From 1 to 4.1 = Timed Output	0
ph	<b>CLOSING PHOTOCELLS REVERSE AT RELEASE:</b> Enable this function if you want the closing photocells to stop the gate movement and reverse it after the beam is cleared. Default setting is immediate reverse. 4 = Enable No = Disabled	no
ad	<b>A.D.M.A.P. FUNCTION:</b> If this function is enabled, the safety devices operate in compliance with French standard NFP 25/362. 4 = Enable No = Disabled	no
rs	<b>ASSISTANCE REQUEST (COMBINED WITH NEXT FUNCTION):</b> If activated, at the end of countdown (settable with the next function, i.e. "Cycle programming") it effects 8s of pre-flashing at every Open pulse (job request). Can be useful for setting scheduled maintenance jobs. 4 = Enable No = Disabled	no
nc	<b>CYCLE PROGRAMMING:</b> For setting count down of system operation cycles. Settable (in thousands) from 0 to 99 thousand cycles. The displayed value is updated as cycles proceed. This function can be used to check use of the board or to exploit the "Assistance Request" function.	0
in	<b>EXIT PROGRAMMING:</b> Exit from programming and return to display of inputs status.	

## LEARNING OF OPERATING TIMES

**WARNING:** During the learning procedure, the safety devices are disabled! Therefore, any traffic must be avoided in the path of the gate leaf(s).

**NOTE:** Must start with gate(s) in the closed position.

Opening/closing time is established by the learning procedure which varies slightly according to whether you are or are not using Gatecoders.

## LEARNING OF NORMAL TIMES

Normal learning (i.e. without Gatecoders) can be done in two different ways:

### SIMPLE LEARNING

Close the gates, enter "BASIC PROGRAMMING", select the TIME LEARNING function and press the + push-button for 1 second the display begins flashing and the leaves begin the opening movement.

Wait for the leaves to reach the opening positive stop and then supply an OPEN A command after the desired motor run time has been reached (by push-button or radio control) to stop the movement: the leaves stop and the display stops flashing. One more command given will close the gate.

The procedure has ended and the gate is ready to operate.

### COMPLETE LEARNING

#### NOTES:

- If you do not wish to slow the gate operator(s) down, wait for the gate to reach its positive stop and supply two (2) consecutive open commands (within 1 second).
- If only one gate operator (1) is used, you must go through the entire programming procedure, as if you were programming for two gate operators (2). When the operator has finished opening, supply 5 open commands until the gate operator begins to close, and then resume normal operations.

Close the gates, enter "BASIC PROGRAMMING", select the TIME LEARNING function and press the + push-button for more than 3 seconds: the display begins flashing and leaf 1 begins opening. The following functions can be commanded by the OPEN A (by push-button wired to terminals 9 and 14, or radio control):

- When gate operator (1) reaches the position that you want it to slow down, an open command must be given to start the slow down phase.
- When gate operator (1) reaches the positive stop and the desired motor run time has been reached, an open command must be given to shut the motor off. At this point gate operator (2) will automatically start to open.
- When gate operator (2) reaches the position that you want it to slow down, an open command must be given to start the slow down phase.
- When gate operator (2) reaches the positive stop and the desired motor run time has been reached, an open command must be given to shut the motor off. At this point gate operator (2) will automatically start to close.
- When gate operator (2) reaches the position that you want it to slow down, an open command must be given to start the slow down phase.
- When gate operator (2) reaches the positive stop and the desired motor run time has been reached, an open command must be given to shut the motor off. At this point gate operator (1) will automatically start to close.
- When gate operator (1) reaches the position that you want it to slow down, an open command must be given to start the slow down phase.
- When gate operator (1) reaches the positive stop and the desired motor run time has been reached, an open command must be given to shut the motor off.

The display stops flashing and the gate is ready for normal operation.

## LEARNING TIMES WITH GATECODER

Learning with the Gatecoder can be done in two different ways:

### SIMPLE LEARNING

Close the gates, enter "Basic Programming", select the TIME LEARNING function and press the + push-button for 1 second: the display begins flashing and the leaves begin the opening movement.

The movement stops automatically when the opening positive stop is reached and the display stops flashing.

The procedure has ended and the gate is ready to operate, using default slow down automatically set by the control panel.

## COMPLETE LEARNING

### NOTES:

- If only one gate operator (1) is used, you must go through the entire programming procedure, as if you were programming a gate operator (2). When the gate operator (1) has finished opening, supply 5 open commands until the gate operator begins to close, and then resume normal operations.

Close the gates, enter "BASIC PROGRAMMING", select the TIME LEARNING function and press the + push-button for more than 3 seconds: the display begins flashing and leaf 1 begins opening movement. The following functions can be commanded by the OPEN A command (by radio control or key push-button):

- When gate operator (1) reaches the position that you want it to slow down, an open command must be given to start the slow down phase. When the gate operator reaches its positive stop, the operator will automatically shut off.
- An open command must be given to start opening gate operator (2).
- When gate operator (2) reaches the position that you want it to slow down, an open command must be given to start the slow down phase. When the gate operator reaches its positive stop, the operator will automatically shut off.
- An open command must be given to start closing gate operator (2).

- When gate operator (2) reaches the position that you want it to slow down, an open command must be given to start the slow down phase. When the gate operator reaches its positive stop, the operator will automatically shut off.
- An open command must be given to start closing gate operator (1).
- When gate operator (1) reaches the position that you want it to slow down, an open command must be given to start the slow down phase. When the gate operator reaches its positive stop, the operator will automatically shut off.

The display stops flashing and the gate is ready for normal operation.

### NOTES:

- The open command to slow down the gate should be given before the gate reaches the positive stop to prevent the gate from hitting the stop at full speed. The positive stop could be mistaken for an obstacle and then upon hitting it, the gate(s) would automatically reverse on contact.

## AUTOMATED SYSTEM TEST

When you have finished programming, check if the system is operating correctly.

Most important of all, check that the force is adequately adjusted and that the safety devices are operating correctly.

If pressure adjustments on hydraulic operators are not set before programming. It may need to be reprogrammed for desired results.

**A (Automatic) Logic (455 D)**

Gate Status	Open A	Open B	Stop	Opening Reversing Device(s)	Closing Reversing Device(s)	Warning Light
<b>Closed</b>	Opens both leaves and closes them after pause time	Opens single leaf connected to Motor 1 and closes it after pause time	No effect	No effect	No effect	Off
<b>Opening</b>	No effect	No effect	Stops	Stops; gate closes when reversing device no longer triggered	No effect	On
<b>Opened</b>	Interrupts the pause time	Interrupts the pause time	Stops	No effect	Gate remains open until reversing devices no longer triggered	On
<b>Closing</b>	Opens both leaves	Opens leaf	Stops	No effect	Depends on DIP switch 4	Flashes
<b>Stopped</b>	Closes the leaves	Closes the leaf	No effect (opening is inhibited)	No effect	No effect (opening is inhibited)	On

**S (Security) Logic (455 D)**

Gate Status	Open A	Open B	Stop	Opening Reversing Device(s)	Closing Reversing Device(s)	Warning Light
<b>Closed</b>	Opens both leaves and closes them after pause time	Opens single leaf connected to Motor 1 and closes it after pause time	No effect	No effect	No effect	Off
<b>Opening</b>	Closes both leaves	Closes leaf	Stops	Stops; gate closes when reversing device no longer triggered	No effect	On
<b>Opened</b>	Closes both leaves	Closes leaf	Stops	No effect	Gate remains open until reversing devices no longer triggered	On
<b>Closing</b>	Opens both leaves	Opens leaf	Stops	No effect	Depends on DIP switch 4	Flashes
<b>Stopped</b>	Closes the leaves	Closes the leaf	No effect (opening is inhibited)	No effect	No effect (opening is inhibited)	On

**B (Manned, Pulsed) Logic (455 D)**

Gate Status	Open A	Open B	Stop	Opening Reversing Device(s)	Closing Reversing Device(s)	Warning Light
<b>Closed</b>	Opens 1 or both leaves	No effect	No effect	No effect	No effect	Off
<b>Opening</b>	No effect	No effect	Stops	No effect	Stops	On
<b>Opened</b>	No effect	Closes 1 or both leaves	No effect	No effect	No effect	On
<b>Closing</b>	No effect	No effect	Stops	Stops	No effect	Flashes
<b>Stopped</b>	Opens 1 or both leaves	Closes 1 or both leaves	No effect	No effect	No effect	On

**E (Semi-automatic) Logic (455 D)**

Gate Status	Open A	Open B	Stop	Opening Reversing Device(s)	Closing Reversing Device(s)	Warning Light
Closed	Opens both leaves	Opens single leaf connected to Motor 1	No effect	No effect	No effect	Off
Opening	Stops	Stops	Stops	Stops; gate closes when reversing device no longer triggered	No effect	On
Opened	Closes both leaves	Closes leaf	Stops	No effect	No effect (opening is inhibited)	On
Closing	Closes both leaves	Closes leaf	Stops	No effect (opening is inhibited)	Depends on DIP switch 4	Flashes
Stopped	Closes the leaves	Closes the leaf	No effect (opening is inhibited)	No effect	No effect (opening is inhibited)	On

**EP (Semi-automatic, Step by Step) Logic (455 D)**

Gate Status	Open A	Open B	Stop	Opening Reversing Device(s)	Closing Reversing Device(s)	Warning Light
Closed	Opens both leaves	Opens single leaf connected to Motor 1	No effect (opening is inhibited)	No effect (opening is inhibited)	No effect (opening is inhibited)	Off
Opening	Stops	Stops	Stops	Stops; gate closes when reversing device no longer triggered	No effect	On
Opened	Closes both leaves	Closes leaf	Stops	No effect	No effect (opening is inhibited)	On
Closing	Stops	Stops	Stops	No effect (opening is inhibited)	Depends on DIP switch 4	Flashes
Stopped	Gate leaves reverse direction	Gate leaf reverses direction	No effect (opening is inhibited)	No effect (opening is inhibited)	No effect (opening is inhibited)	On

**C (Manned and Constant) Logic (455 D)**

Gate Status	Open A	Open B	Stop	Opening Reversing Device(s)	Closing Reversing Device(s)	Warning Light
Closed	Opens 1 or both leaves	No effect	No effect	No effect	No effect	Off
Opening	No effect	No effect	Stops	No effect	Stops	On
Opened	No effect	Closes 1 or both leaves	No effect	No effect	No effect	On
Closing	No effect	No effect	Stops	Stops	No effect	Flashes
Stopped	Opens 1 or both leaves	Closes 1 or both leaves	No effect	No effect	No effect	On

# SAFETY IN GATE DESIGN

- A gate is a potential traffic hazard, so it is important that you locate the gate far enough away from the road to eliminate the potential of traffic getting backed up. This distance is affected by the size of the gate, how often it is used, and how fast the gate operates.
- The operator you choose to install on your gate must be designed for the type and size of your gate and for the frequency with which you use the operator.
- Your gate must be properly installed and must work freely in both directions *before* the automatic operator is installed.
- An automatic operator should be installed on the inside of the property/fence line. Do not install the operator on the public side of the property/fence line.
- Outward swinging gates with automatic operators should not open into a public area.
- Pedestrians should not use a vehicular gate system. Prevent such inappropriate use by installing separate gates for pedestrians.
- The operating controls for an automatic gate must be secured to prevent the unauthorized use of those controls.
- The controls for an automatic gate should be located far enough from the gate so that a user cannot accidentally touch the gate when operating the controls.
- Exposed, reachable pinch points on a gate are potentially hazardous and must be eliminated or guarded.
- It is extremely unsafe to compensate for a damaged gate by over tightening a clutch or increasing hydraulic pressure.
- An automatic gate operator should not be installed on a gate if people can reach or extend their arms or legs through the gate. Such gates should be guarded or screened to prevent such access.

## MAINTENANCE

### THE 455 MPS CONTROL PANEL

Keep the control panel free from spider webs, insects, etc. Otherwise, the control panel requires no maintenance.

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