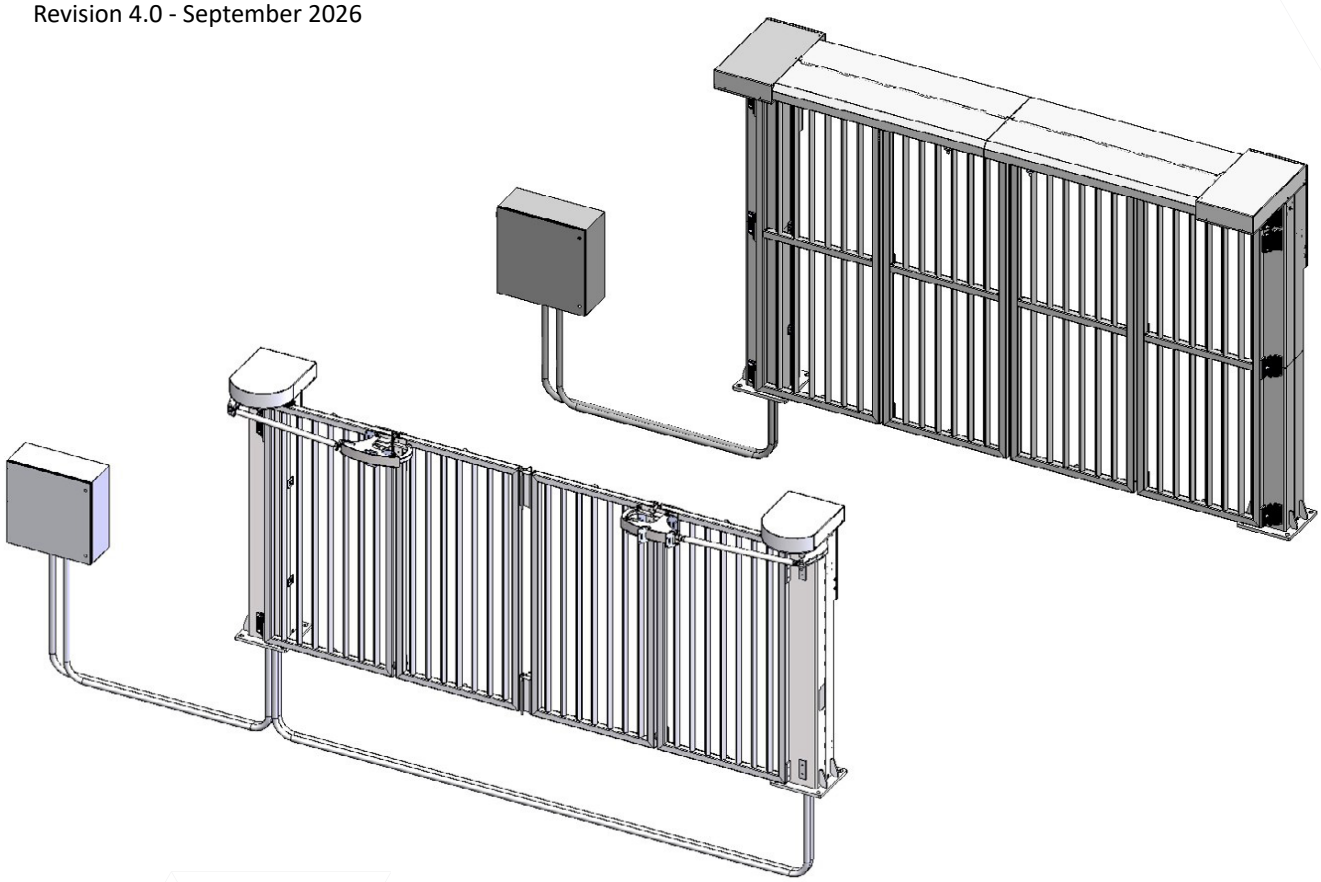
Revision 4.0 - September 2026



SPEEDGATE

INSTALLATION AND MAINTENANCE MANUAL

GEN II MODELS: PDTT SERIES AND PDXT-C SERIES
INTRODUCED 2021

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PERIMETER SECURITY

General Notices

- This installation and maintenance manual edition replaces all earlier versions.
- The specifications contained in this document may be changed without prior notice.
- Keep this manual in the operating area.
- Make sure that the maintenance is carried out in accordance with the directions. Use checklists for recording repairs and maintenance to the SpeedGate, and maintain permanent logs of all gate inspections, maintenance, servicing and repair activities. See ***"Inspection, Servicing and Maintenance" on page 157*** for general inspection and maintenance guidelines.
- Follow the safety instructions contained in the manual.
- Wallace Perimeter Security reserves the right to modify the SpeedGate manual without prior notification.
- This manual has been written with the utmost care and attention. However, the possibility of errors cannot be excluded. Wallace Perimeter Security is not liable for damage arising as a result of errors which occur in the manual. Please inform us immediately of any errors or omissions.

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Summary of Revisions

The following changes have been made to this manual since it was last revised (Revision 3.5, June 2025):

Manual Reference	Description	Revision Reason (Internal Use Only)
"Installation and Commissioning Checklist" on page 12	Added item 2.1.1 to remove the plug from the motor.	Technical Publications
"Safety Notices" on page 20	Moved this information to this location.	Technical Publications
"Common Industrial Symbols" on page 20	Moved this information to this location.	Technical Publications
"Important Safeguards and Instructions to Communicate to Owners/Users" on page 24	Revised the wording under "child safety" for regulatory purposes.	Order # 33152786 (March 25, 2026)
"Removing Plug from Gearbox Vent" on page 60	Moved the procedure to this location. Revised the procedure to explain the consequences of leaving the plug installed in the gearbox vent during gate operation. Replaced the illustrations.	Technical Publications
"Table 6: Photo eye wiring — one set" on page 78	Revised the wiring information for gates with one or two sets or photo eyes.	Technical Publications
"Table 7: Photo eye wiring — two sets" on page 78		
Refer to all diagrams in this range: ***Figure 30 on page 95*** to ***Figure 32 on page 99***	Revised the schematics so that vertical sensing edges ("72") are now wired to Output A of the multi-input module (MIM-62). Horizontal sensing edges ("85") are now wired to Output B of the MIM-62.	Product management
"Table 9: Photo eye wiring — one set" on page 111	Revised the wiring information for gates with one or two sets or photo eyes.	Technical Publications
"Table 10: Photo eye wiring — two sets" on page 111		
"2. Motor Brakes – Mandatory" on page 112	Replaced the two circuit illustrations with one because is this circuit is not affected by whether the gate has one or two sets of photo eyes.	Technical Publications
"3. Audible Warning Device – Mandatory" on page 113		
"4. Strobe Warning Device – Optional" on page 114		
"5. Traffic Light – Optional" on page 115		
"Operator Fault Codes" on page 144	Revised procedure for checking if a fault code is solved. Deleted the "common faults" table to remove duplicate fault codes.	Technical Publications

Manual Reference	Description	Revision Reason (Internal Use Only)
"Table 13: Operator Fault Codes" on page 145	Revised information about the following fault codes: • F.030 • F.031 • F.752 • F.7A2	Technical Publications
"SPEEDGATE 2-YEAR LIMITED PRODUCT WARRANTY" on page 167	Revised warranty according to consultation.	Product management

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Introducing SpeedGate

Important Information – Read this First!

THIS MANUAL SHOULD BE READ CAREFULLY PRIOR TO INSTALLING THE SPEEDGATE AND/OR PLACING IT INTO OPERATION.

This manual describes how the SpeedGate can safely be installed, used and maintained. The manual has been written for the use of persons responsible for the installation and maintenance of the SpeedGate.



The function of the Wallace Perimeter Security SpeedGate is to allow selective access. Make sure that the SpeedGate is clearly marked as a vehicular access control system, not intended for pedestrian use.



Children must never be allowed to play on or around the gate.

Wallace Perimeter Security is not liable for damage arising from any manner of use of the SpeedGate.

The Wallace Perimeter Security Gate System is applicable to a Class I, Class II, Class III or Class IV Gate System, and may only be installed at locations meeting the UL 325 definitions. Refer to *"Application: Identifying Gate System Category and Usage Class" on page 26*.

The following definitions have been extracted from the Underwriters Laboratories (UL) 325 Standards for Door, Drapery, Gate, Louver, and Window Operators and Systems. They need to be reviewed by both the designer of the system and the installer in order to make an accurate determination as to the appropriate classification of the gate site. The Wallace Perimeter Security Gate System is designed and intended for Class I through Class IV systems.

ENTRAPMENT:

The condition when an object is caught or held in a position that increases the risk of injury.

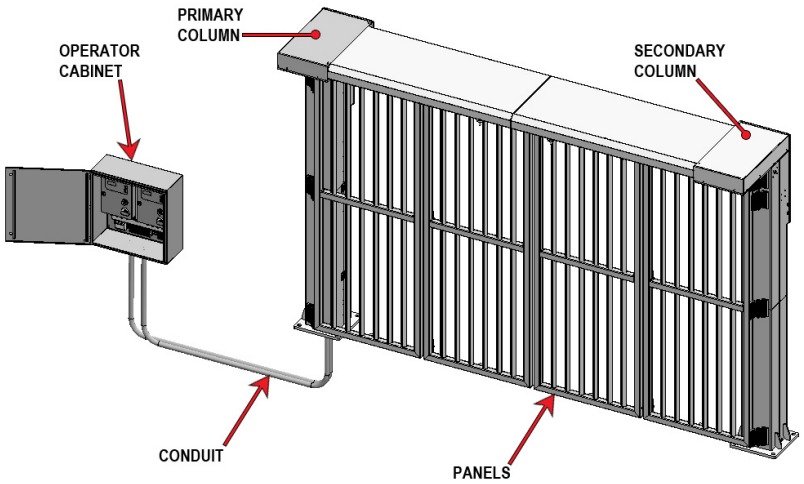
EXTERNAL ENTRAPMENT PROTECTION DEVICE:

A device, examples being an sensing edge, a photo eye, or similar entrapment protection device, which provides protection against entrapment when activated and is not incorporated as a permanent part of an operator.

Product Description

The SpeedGate is a bifolding gate that can be opened and closed within a short space of time (less than 8 seconds). The SpeedGate has been designed to allow selective access into a secured area, for security and control purposes.

PDTT Model



PDXT Model

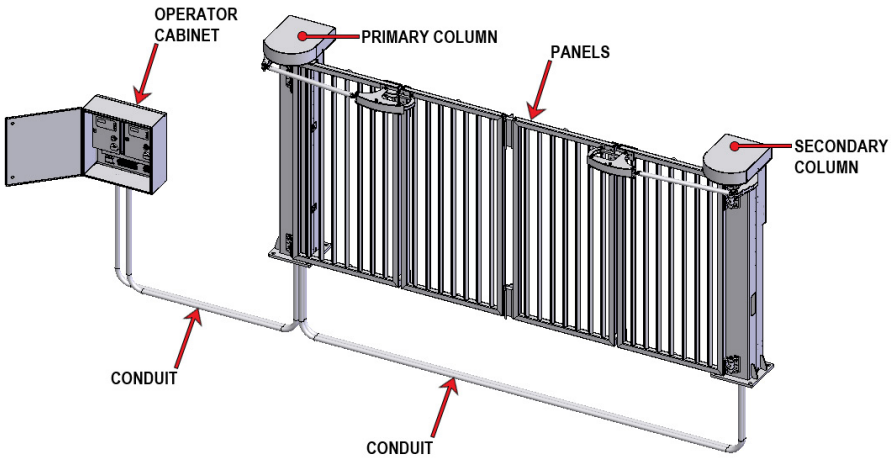


Figure 1: SpeedGate Overview

Generally, the SpeedGate consists of five main components, including three categories of safety devices:

Table 1: SpeedGate Main Components			
1.	**Columns**	The columns support the guide channel and the panels. The columns also house all of the drive components for the gate. The columns are anchored to a concrete foundation with anchor bolts.	
2.	**Panels**	The panels (gate leafs) are attached to the columns using hinges. The minimum opening and closing time for the panels is approximately 8 seconds.	
3.	**Drive Mechanism(s)**	The panels are driven by means of an electro-mechanical drive system. The drive mechanism is located in the column. In the event of a power failure, a manual brake disconnect can be used to manually open/close the gate.	
4.	**Operator Enclosure**	The operators can be operated by a push button station, vehicle detector loops, card access system and any device which when given a command switches a dry contact relay (the relay common is supplied by the operator). There are also foil keypads on the outside doors of the operators, each keypad commanding the corresponding operator and gate.	
5.	**Safety Devices for Obstruction and Entrapment Detection**		**Refer to Section**
5.1	Inherent Safety Device:	Reduced Speed Sensor / Torque Change Sensor	• ***"Inherent Entrapment Sensor" on page 28***
5.2	External Safety Devices:	Photo Eyes	• ***"External Entrapment Protection Sensors" on page 31*** • ***"External Entrapment Sensor Types" on page 36*** • ***"UL 325 Compliant Sensors" on page 33*** • ***"Installing Photo Eyes" on page 76*** • ***"Aligning Photo Eyes" on page 79*** • ***"1. Photo Eyes – Mandatory" on page 111***
		Audible Horn Device	• Info - ***page 23*** • ***"Open & Close Cycle" on page 28*** • ***"3. Audible Warning Device – Mandatory" on page 113***

Table 1: SpeedGate Main Components			
5.3	Additional Safety Devices:	Sensing Edges	• ***"External Entrapment Protection Sensors" on page 31*** • ***"External Entrapment Sensor Types" on page 36*** • ***"UL 325 Compliant Sensors" on page 33***
		Vehicle Detectors	• ***"Additional Safety Features" on page 43*** • ***"Installation Instructions for Optional Vehicle Detectors" on page 104*** • ***"8. Vehicle Loops" on page 123*** **See NOTE.**
NOTE: Vehicle detection ground-loop systems, while not required by UL Standards, are HIGHLY RECOMMENDED.			

Installation and Commissioning Checklist

Complete	Step	Description	Manual Section Reference(s)
	1.	Pallet shipped to site from Wallace Perimeter Security (WPS).	***page 46***
	2.	Install gate onto concrete anchors; ensure all components level. (Swing toward property side recommended.)	***page 47***
	2.1	Remove the plug from the gearbox vent in each gate column.	***page 60***
	3.	Mount operator cabinet.	***page 62***
	4.	**Complete electrical connections:**	***page 65***
	4.1	***Conduit between primary and secondary columns:***	***page 67*** ***page 69*** ***page 74***
	4.1.1	Low voltage wiring to post termination box, excluding the encoder and motor cables.	as above
	4.2	***Between the SpeedGate and the operator cabinet:***	as above
	4.2.1	Motor cables to be kept a minimum of 18 inches from the secondary (control) wiring.	as above
	4.2.2	Multi-conductor low voltage cable.	as above
	4.2.3	Encoder cables.	as above
	4.3	***Between the vehicle loops and the operator cabinet:***	as above
	4.3.1	Vehicle detector loops leads.	as above
	4.4	***From operator cabinet to building:***	as above
	4.4.1	Power supply (2 hots, 1 ground @ 208-240V single phase).	as above
	4.4.2	Control wiring.	as above; also ***page 110*** to ***page 123***

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Installation and Commissioning Checklist

Complete	Step	Description	Manual Section Reference(s)
	5.	Commissioning, following mechanical and electrical portions of the SpeedGate installation:	
		 The SpeedGate should only be operated by persons that were onsite for the final gate commissioning.	
	5.1	**CHECK BEFORE POWERING UP THE OPERATOR:**	
	5.1.1	***All fasteners for proper tension:***	—
	5.1.1-A.	Hinge bolts at 85 ft-lbs (115.26 Nm)	—
	5.1.1-B.	Drive pin bolts at 90 ft-lbs (122.02 Nm)	—
	5.1.1-C.	Security bolts, which secure the drive housing should be ½ a turn past hand tight.	—
	5.1.1-D.	All anchor bolts tightened to 210 ft-lbs (284.76 Nm)	—
	5.1.2	Safety devices for proper wire termination (photo eyes, sensing edges, loop detectors).	***page 76*** ***page 79*** ***page 81*** ***page 104***
	5.1.3	All wiring secure in wiring loops in motor drive housing, no straining at motor drive housing/column connection, no wires near drive mechanisms.	—
	5.1.4	Grease rod end bearings (drive linkage) and all gate hinges with lithium grease or synthetic grease (as provided). Recommended lubricant: Castrol Pyroplex® Protection ES	—
	5.1.5	Drive housing covers have been re-installed.	—
	5.1.6	Ensure any tools shipped with the gate (tamper-resistant drivers, etc.) have been stored in a secure place and gate users/ maintenance personnel made aware of their location.	—

Installation and Commissioning Checklist

Complete	Step	Description	Manual Section Reference(s)
	5.2	***Operator Power-up:***	
	5.2.1	Using the manual brake disconnect, move the gate's panels to the halfway point between the open and closed position. **Clear the gate travel area of all obstructions and apply power to the gate controller.**	***page 141***
	5.2.2	The LCD board on the top left-hand corner of the controller will display a "boot-up." Using the foil keypad buttons on each operator cabinet press the UP arrow and observe the gate panels. If the corresponding gate panel opens, the VFD motor wiring is correct. If the gate panels are not moving in the desired direction, follow step 5.3.3-J, under Setting Gate Limits, to resolve this.	—
	5.3	Set Gate Limits, in accordance with the following instructions, in the order that they are given.	See below.

Installation and Commissioning Checklist: Setting Gate Limits



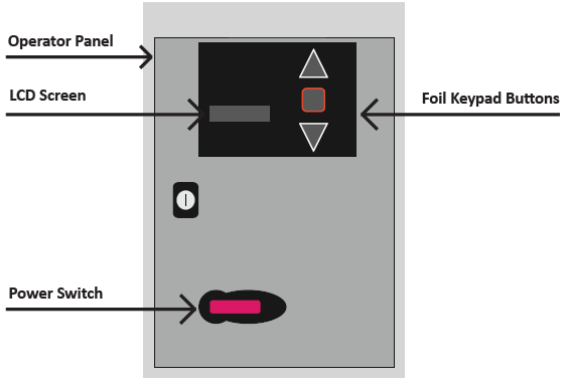
A. DO NOT SET GATE LIMITS UNTIL THE GATE IS INSTALLED, ALL WIRES ARE TERMINATED PROPERLY, AND ALL MECHANICAL ADJUSTMENTS (INCLUDING DRAWBAR) ARE COMPLETE.

B. ALL ENTRAPMENT SAFETY DEVICES MUST BE INSTALLED PRIOR TO SETTING THE GATE LIMITS.

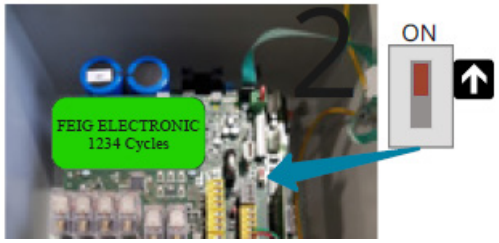
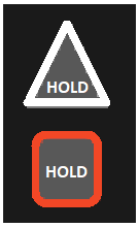
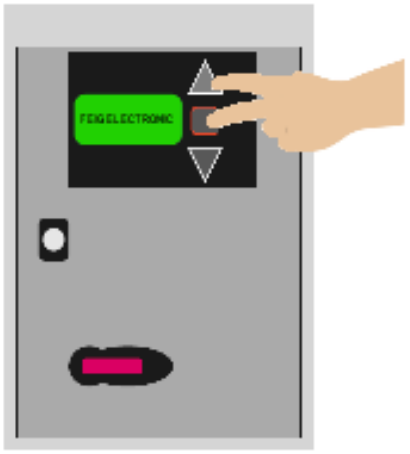
C. Set Gate Limits, in accordance with the following instructions, in the order that they are given.

⚠ WARNING

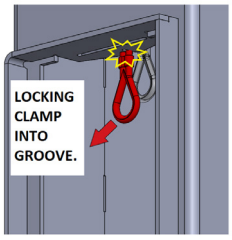
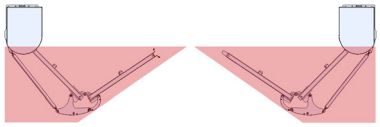
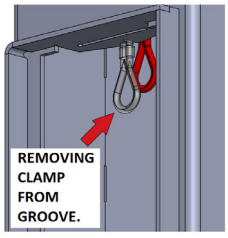
Do not change any other parameters than the ones listed in the instructions below. Doing so might cause the gate to not function properly possibly causing damage, severe injury and/or death.



Installation and Commissioning Checklist: Setting Gate Limits

Complete	Step	Description
	5.3.1	**STEP ONE OF SETTING GATE LIMITS** Ensure internal setting is ON. 
	5.3.2	**STEP TWO**
	5.3.2-A.	Using the foil keypad buttons (UP arrow, DOWN arrow, STOP button) which are located to the right of the LCD display: Press and hold UP arrow and STOP button simultaneously.  
	5.3.2-B.	On the LCD display there will be a description of the parameter on the top left, the parameter number located on the bottom left and the parameter value located on the bottom right.
	5.3.2-C.	Use the DOWN arrow to scroll down until parameter number 999 is located. This parameter is used to input the password to enable accessing the parameters which need to be changed.  
	5.3.2-D.	At parameter 999 use the STOP button by pressing it once to move the underscore to the parameter value on the right.  
	5.3.2-E.	Use the UP and DOWN arrows to scroll to the master password. [4 is the Gate's Master Password. Call Wallace Perimeter Technical Support at 1 (866) 300-1110 if a password reset is needed.]  

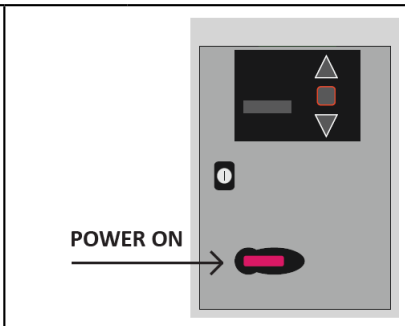
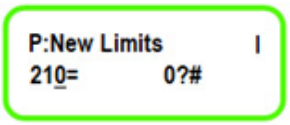
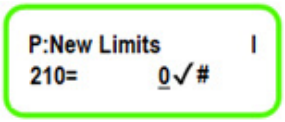
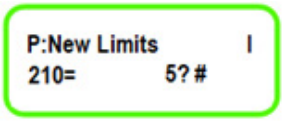
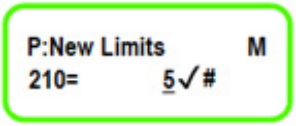
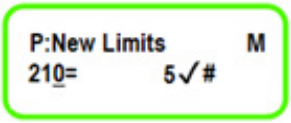
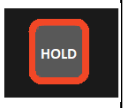
Installation and Commissioning Checklist: Setting Gate Limits

Complete	Step	Description	
	5.3.2-F.	Once you've reached the master password use the STOP button to lock the parameter in. To do this you must HOLD the stop button down until a check mark appears by the master password.	 
		Once the parameter value for the master password is locked in, press the STOP button again to return the underscore to the parameter 999 on the left.	 
	5.3.3	**STEP THREE: PROGRAMMING THE SPEEDGATE**	
	5.3.3-A.	Pull manual brake disconnect cable located inside each column and lock the cable clamp into the groove provided.	
	5.3.3-B.	Move gate panels to halfway point between open and closed positions.	 PANELS HALF-OPEN: TOP VIEW
	5.3.3-C.	Release manual brake disconnect (pull down on the cable and remove it from the groove) in each column to allow gate to be moved under power.	
	5.3.3-D.	Clear the gate travel area of all obstructions/persons, and place appropriate warning/signaling devices to allow for automatic gate movement.	

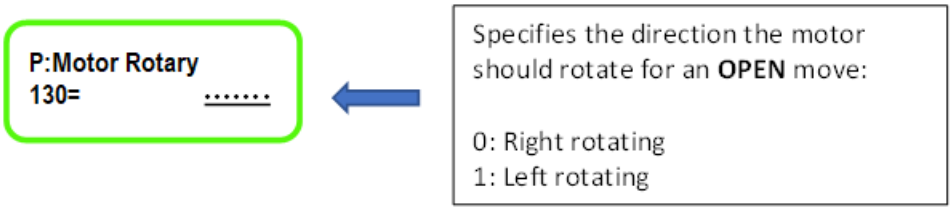
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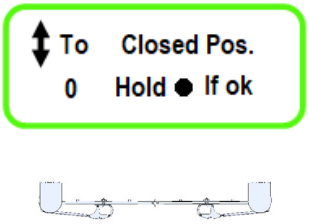
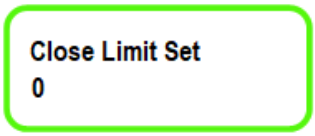
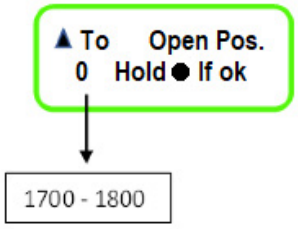
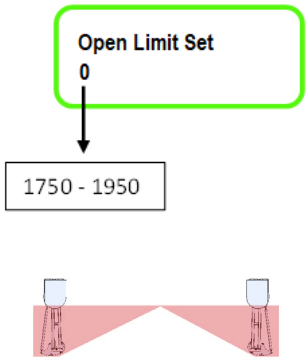
Installation and Commissioning Checklist: Setting Gate Limits

Complete	Step	Description	
	5.3.3-E.	IF THE OPERATOR POWER IS ON YOU ARE NOW IN PROGRAMMING MODE.	
	5.3.3-F.	Use the foil keypad buttons (UP arrow, DOWN arrow and STOP button), which are located to the right of the LCD display, to cycle through the available parameters.	
	5.3.3-G.	Hold the UP arrow to scroll to parameter 210.	 
		At parameter 210 use the STOP button by pressing it once to move the underscore to the parameter value on the right.	 
		Scroll up and change the value to 5. This parameter is used to set/reset the open and closed limits.	 
		Push stop button and HOLD to lock in the new parameter setting. Repeat on the other operator [bifold gate(s) include two operators] and check to make sure a check mark appears on the right-hand side of the screen.	 
		Once the parameter value for the set/ reset function is locked in, press the STOP button again to return the underscore to the parameter 210 on the left.	 
	5.3.3-H.	Follow the instructions on the LCD display, one operator at a time:	
	5.3.3-I.	Press and HOLD STOP to begin setting the limits.	 

Installation and Commissioning Checklist: Setting Gate Limits

Complete	Step	Description		
	5.3.3-J.	Push the down arrow to CLOSE the gate. If the gate panel OPENS, it means the motor is turning in the WRONG DIRECTION. This will require changing the direction of the motor rotation. ***Proceed to step 5.3.3-K if motor rotation is correct.***		 PANELS CLOSED: TOP VIEW
	     	**IF NECESSARY** to change direction of motor rotation, go to **parameter 130** by repeating steps 5.3.2-A. to 5.3.2-F above as summarized below: A. Press and hold UP arrow and STOP button simultaneously. B. Press DOWN arrow until **P.999** displays at left. C. Press STOP button once. D. Scroll with arrow until **4** (the master password, unless changed) displays at right. E. Press and hold STOP until checkmark appears. ✓ F. Press STOP to return to P.999. Scroll to **P.130**. G. Change setting to zero or 1, as required. 		
		H. Once the motor direction is correct, press STOP to bring cursor back under P.130 and then hold STOP to exit programming.		

Installation and Commissioning Checklist: Setting Gate Limits

Complete	Step	Description		
	5.3.3-K	Push the DOWN arrow until the gate panels are in the fully closed position. Be certain to check that both gate panels are closed so that the gate panels are aligned.		 PANELS CLOSED: TOP VIEW
	5.3.3-L	Hold the STOP button to enter this position as the “Close Limit.”		
	5.3.3-M	Hold the UP arrow to begin moving the gate into the OPEN position. The display should show a counter rapidly increasing while the gate is moving to the fully open position.		
	5.3.3-N	The gate bumpers should be touching each other. If they are, then press and hold the STOP button to enter this value as the “Open Limit.” **It is the installer’s responsibility to set obstacle detection on-site. Refer to *“Gate Settings: Obstacle Detection” on page 143*.** **See also *“Operator Fault Codes” on page 144*.**		 PANELS OPEN: TOP VIEW

To fine-tune the **OPEN LIMIT**, open the gate more, go to **P.230**, and **increase** the value accordingly.

100 units/increments = 1 ft (0.3048 m)

To fine-tune the **CLOSE LIMIT**, close the gate more, go to **P.221**, and **decrease** the value accordingly.

100 units/increments = 1 ft (0.3048 m)

Password (P.999 = 4, unless changed) must be entered to access this parameter.

Safety Information and Requirements

Safety and Information Notices

The following notices are used where applicable within this manual. Each notice contains information specific to the situation.

DANGER

Indicates death or severe injury will occur if the hazardous situation is not avoided.

WARNING

Indicates death or severe injury could occur if the hazardous situation is not avoided.

CAUTION

Indicates mild or moderate injury could occur if the hazardous situation is not avoided.

CAUTION

Indicates damage to equipment is probable if the hazardous situation is not avoided.

IMPORTANT

Additional important information.

NOTE

Just a note.

Information:
A comment containing important additional information.

Common Industrial Symbols

The following international safety symbols may appear on the product or in its literature. The symbols are used to alert you to potential personal injury hazards. Obey all safety messages that follow these symbols to avoid possible severe injury or death.



Attention - Take Notice



DANGER - No Children Allowed



DANGER - Keep Away



Entrapment Zone



Possible Pinch Point

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WALLACE PERIMETER SECURITY

Safety Information for SpeedGates

- SpeedGates provide convenience and security to users. However, because these machines can produce high levels of force, it is important that all persons involved in the design, installation, and use of SpeedGates are made aware of the potential hazards associated with improperly designed, installed, or maintained systems.
- Keep in mind that the SpeedGate is a fast-moving bifold gate system; entrapment can cause severe injury or death.
- Mount access control devices beyond reach of the gate. The control devices that operate the gate must be:
  - **Located in a clear line of sight to the gate.**
  - **Mounted beyond 6 feet (1.83 meters) of the gate to prevent users from touching or accessing the gate while operating the controls. People attempting to access the controls by reaching through or around the gate can be seriously injured or killed by the moving gate.**
  - **Incorporating a security feature to prevent unauthorized use.**
- The gate system must be properly grounded, and the incoming power voltage must match the voltage label on the junction box.
- Install enough external entrapment protection sensors so that pedestrians are protected from entrapment in both directions of the gate's travel, and all hazard areas and possible pinch points are fully protected. Review the information found in ***"External Entrapment Protection Sensors" on page 31*** and ***"Entrapment Protection and Pinch Points" on page 39***.
- Install the supplied WARNING signs on the inside and outside of the gate so they are clearly visible from both sides of the gate. Installing the signs is a requirement for UL 325 compliance.
- Open and close the gate to confirm that it was properly installed and to ensure reduced risk of entrapment. Verify the clearance between the gate and adjacent structures per UL 325 Safety Standards. Have a qualified technician test the gate monthly.
- Specifically, test the Inherent Entrapment Sensor (IES) and external entrapment protection sensors. The gate must stop upon contact with a rigid object, and stop or reverse direction, when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate system. Failure to adjust and test the gate system on a regularly maintained schedule can increase the risk of severe injury or death.

Safety Considerations for Designers, Installers and Users

⚠ WARNING

A moving gate can cause severe injury or death.

Automatic gate systems move gates with high force. Make sure gates and gate systems are installed to reduce the risks of entrapment. Verify your gate system complies with UL 325 Safety Standards and ASTM F2200 Gate and Fence Standards.

Ask for a copy of the gate system's product literature and review it. You are responsible for educating all gate system users about proper use of the automated gate system. Failure to adjust and test the gate system on a regularly maintained schedule can increase the risk of severe injury or death.

- Have a professional gate installer routinely test the entire gate system and entrapment protection sensors. Have a qualified service person make repairs to gate hardware to keep the gate running smoothly.
- Hazards associated with automatic gates can be reduced with proper site design, installation, and use. Installers, maintenance crews, and owners/users must read and follow the safety Instructions in this manual and review all the literature that accompanies this product. It is important that only qualified installers handle the installation of the SpeedGate gate system. A "qualified" installer has one of the following:
  - **A minimum of three years' experience installing similar equipment.**
  - **Proof of attending a Wallace Perimeter Security Technical Training seminar within the past three years.**
  - **Significant manufacturer endorsements of technical aptitude in gate system installation and operation.**
- Underwriter Laboratories (UL) and the American Society for Testing and Materials (ASTM) are responsible for current safety standards and regulations regarding gate systems and automated gates. To pass UL certification, all aspects of gate installation must comply with the appropriate safety standards. For the most up-to-date, ASTM F2200 Gate and Fence Standards, refer to https://www.astm.org/. For UL 325 Safety Standard, refer to https://www.ul.com/.
- All safety devices, namely photo eyes, sensing edges and audible alarms that have been installed in the SpeedGate must remain functional for the life of the SpeedGate.

- Requirements of UL 325 Paragraph 31.1.18:



The audio alarm signal provided with this system is a buzzer (horns, sirens, or bell). The signal shall have a frequency in the range of 700 to 3400 Hz, a cycle of the sound level pulsations of 1 to 2 per second, a sound level at least 100 dB 1 ft (305 mm) in front of the device, and not vary more than 8 dB over the voltage range of operation.

- **Never disable the audio alarm signal provided with this system and NEVER disconnect or cut its wires. The buzzer provides an alert that the gate is about to move and it must be functional in the event of entrapment regardless of UL 325 gate usage class. Disabling the warning buzzer may increase the risk or extent of injury if entrapment occurs.**
- Install the hazard WARNING signs provided with the SpeedGate immediately adjacent to the SpeedGate on both sides of the opening. The four (4) warning signs provided with this system must be installed where visible in the area of the gate. (One is to be installed on each side of the gate and on either side of the gate.) The sign must be clearly visible to persons located on the side of the gate on which the warning sign is installed. These warning signs must be securely attached, and the End User advised of the U.L. 325 requirement to keep them on the gate.
- SpeedGates are installed and operate so that there is sufficient clearance between the gate and adjacent structures, while both opening and closing, to minimize the risk of entrapment. There must be sufficient clearance between the moving gate panels and adjacent structures to prevent entrapment while both opening and closing. If the spacing is less than 16 inches (40.6cm), additional safety devices should be employed to respond to possible entrapment conditions.
- Bifolding sections of the SpeedGate should move toward private property when opening (away from the public/un-protected area).

Safety Standards - Installer's Responsibility

- Study the entire contents of this manual prior to installing, operating, or maintaining the SpeedGate gate system. Taking extra time to align the gate system and verify a fully functional installation will reduce maintenance, guarantee longest system life, and ensure customer satisfaction.
- Verify the gate system usage class for the site. Refer to ***"Application: Identifying Gate System Category and Usage Class" on page 26*** for gate classifications. Install SpeedGate only when the gate system class is correct for the site, size, and type of gate.
- Before operating the gate, move the gate in both directions. Make sure it is level and moves freely. A gate that swings easily reduces strain on operator components. **Gravity should play no part in the opening or closing of the gate.**



SpeedGates are not for pedestrian use. Always provide a separate pedestrian gate that is located away from the SpeedGate so as not to attract pedestrian use of the SpeedGate. Ensure proper signage is posted directing pedestrians to the walk-through gate. The automated gate entry is for vehicle use only. No one should cross the path of a moving gate.

- If a Pedestrian Gate is supplied, locate it far enough away from this gate system so as not to have it entice pedestrians to make use of the vehicular gate, or travel near the moving gate panel, even when in the fully open position.

- Always specify, as part of a complete gate system, the additional safety devices that can reduce the risk to pedestrians in the area of the SpeedGate.
- The gate system is only one component of the total gate operating system. It is the joint responsibility of the architect, site designer, purchaser, installer and end user to verify that the total system is appropriately configured for its intended use. Additionally, certain municipalities have established licensing, codes or regulations that regulate automated gate system design and installation. Consult local government agencies for up-to-date rules and regulations prior to gate system design or installation.

Important Safeguards and Instructions to Communicate to Owners/Users



NOTE

Gate system instructions must be given to the owner per UL 325 Safety Standards.

The following information is to be explained to the owners and users.

- Explain that a SpeedGate will sound an audible alarm for 2 seconds prior to any gate movement, and while the gate is in motion. Additional warning devices, both visual and audible, are available for integration into the gate controller. The UL 325 Safety Standard specifically requires that sensing edges or photo eyes or a combination of both devices be installed to protect against pedestrian entrapment in BOTH directions of the gate travel and where an entrapment hazard exists.

When you complete the installation, instruct the owner/users as follows:

- How to operate the SpeedGate correctly and safely.
- To not allow pedestrians and/or bicycles to use the SpeedGate.
- Child safety:
  - Child may be trapped resulting in serious injury or death. Do **NOT** allow children to walk or run around gate.
  - Never let children operate or play with door controls.
- How to disconnect power from the gate.
- How to use the manual brake disconnect by pulling down the manual brake disconnect under the drive motor secured inside the column, and manually pushing the gate(s) open and close.
- To contract a qualified service company for regular maintenance and safety checks to ensure correct function of the gate.

⚠ WARNING

A moving gate can cause severe injury or death. Start the gate system only when the gate's travel path is clear.

⚠ CAUTION

Before attempting a manual release, make sure the gate is not moving.

All access controls must be located far enough from the gate so that the user is prevented from coming into contact with the gate while operating the controls. Although this requires a site-dependent evaluation, typically a distance of 6 feet (1.83 meters) between the controls and any portion of the SpeedGate should be considered as meeting these installation criteria. Outdoor or easily accessible controls shall have a security feature to prevent unauthorized use. **It is strongly recommended that the Electrical Controls Enclosure be kept locked at all times, for which a locking door has been provided.**

Following the complete installation and testing of the system, the installer must provide to the end user a thorough briefing and demonstration of the gate system. See ***"End User Briefing Instructions" on page 165***. It is recommended that one copy of the instructions be signed by both the installer and end user, dated, and retained in a file by the installation company as a permanent record this briefing has been done.

Application: Identifying Gate System Category and Usage Class

The SpeedGate has been designed for use in allowing selective access for security purposes for motorcycles, passenger vehicles and larger transport vehicles.

This System is applicable to a Class I, Class II, Class III or Class IV Gate System, and may only be installed at locations meeting the UL 325 definitions.

The SpeedGate gate system, according to UL 325 Safety Standards, falls in the Bifold Gate categories for gate systems. Its usage class is determined by the area that the vehicular gate services. Four different vehicular usage classes are defined by UL 325:



Class I: RESIDENTIAL VEHICULAR GATE OPERATOR

Intended for use in a location of one to four single family dwellings or a parking area associated with one to four single family dwellings.



Class II: COMMERCIAL / GENERAL ACCESS VEHICULAR GATE OPERATOR

Intended for use in a commercial location or building such as multi-family housing units (five or more single family units), hotels, garages, retail stores or other buildings servicing the general public.



Class III: INDUSTRIAL / LIMITED ACCESS VEHICULAR GATE OPERATOR

Intended for use in an industrial location or building such as factories or loading docks or other locations not intended to service the general public.



Class IV: RESTRICTED ACCESS VEHICULAR GATE OPERATOR

Intended for use in guarded industrial locations or buildings such as an airport security area or other restricted access location, not servicing the general public, in which access is monitored by security personnel or via closed circuitry.

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If Pedestrians are expected to enter through the fence line, then they must use a separate access opening other than this Gate System. The Pedestrian Gate should be located far enough away from this gate system so as not to have it entice pedestrians to make use of the vehicular gate, or travel near the moving gate panel, even when in the fully open position.

The SpeedGate is not intended for allowing access to pedestrians and/or bicycles.

The SpeedGate is commonly used for securing the following:

- Airports
- Banks and/or Financial Bodies
- Borders
- Chemical and Petroleum Facilities
- Correctional Facilities
- Courthouses
- Embassies
- Military Installations
- Parking Lots
- Police Stations
- Public Transportation
- Seaports
- Transportation Logistics Facilities
- Water Treatment Facilities

Requirements of the Operator:

The SpeedGate can be operated automatically or by hand.

Underwriter Laboratories (UL) Mark:

The SpeedGate controller is provided with an Underwriters Laboratories (UL) listing mark for the United States and Canada, indicating this product complies with the UL 325 standard.

Safety Devices

Open & Close Cycle

Before any gate movements commence the gate must have an audible warning time (a minimum of 2 seconds), during which the audible device (horn, siren or bell; a buzzer) is activated. The exception is, of course, if the gate reverses there will be no clear time. The audible alarm is factory set to continue to pulse during the movement of the gate. If required, the alarm can be programmed to only activate during entrapment and fault events.

"Renewed command" means that a command (such as an open or close command) that was present at the time of obstruction detection must be ignored. An example of this could be a Card Reader that has a strike time of 8 seconds. If the gate begins to open and detects an obstruction, it is to reverse closed and remain there. The input from the Card Reader (assuming it is still present) will be ignored. Only if the contact is released and then made again will a new open or close cycle be started.

Inherent Entrapment Sensor

The SpeedGate is equipped with a Type A inherent entrapment sensor (IES) that complies with UL 325 Safety Standards. The IES responds to any impediment to gate travel by causing the gate to stop and reverse.

The SpeedGate IES and obstacle detector is a reduced speed sensor/torque change sensor, the absolute encoder located under the brake disconnect switch in each gate column. The IES senses the position of the gate for gate operation and reduced speed sensing when the gate has come into contact with an obstruction. Additionally, the IES monitors torque via acceleration and deceleration.

Utilizing the parameters explained in ***"Gate Settings: Obstacle Detection" on page 143***, the force exerted by the gate leaf must be adjusted so that under normal operating conditions, the controller will sense when the gate has come into contact with an obstruction and will reverse as per UL 325 regulations.

If the IES is activated while the gate is opening or closing, the gate will immediately go into a "soft shutdown" mode.

Table 2: Inherent Entrapment Sensor (IES) Shutdown Modes

[1]**"Soft shutdown"** mode: In order to restore gate operation, a renewed open or close command must be given.

A normal command to operate the gate (open signal, card reader, close signal, vehicle presence on an Automatic Exit Loop) will return the Gate to operation. The auto close timer will not be functional until such a signal is received. This status is commonly referred to as a "Soft Shutdown" mode.

[2]**"Hard shutdown"** mode. In order to restore gate operation, the system must be manually reset by opening the operator cabinet door to access the panel and pressing and holding the stop button on the foil keypad (up arrow, down arrow, stop button) located to the right of the LCD display; i.e., hold to clear.

Following a Hard Shutdown, and prior to resetting the system, it is the sole responsibility of the user to ensure the area is free of obstructions and that it is safe to operate the Gate.

When an obstruction is encountered the first time in a gate cycle, F320 will appear on the LCD display if the gate shuts down while traveling in the open direction; F325 for the close direction. F395 will appear on the display if a second entrapment trip occurs in the same cycle (hard shutdown via the inherent reduced speed sensor/ torque change sensor).

If gate operation is not restored with a normal command (open signal, card reader, close signal, vehicle presence on an Automatic Exit Loop) or, in the case of a hard shutdown, a system reset, check the controller LCD display for additional troubleshooting error codes.

The prescribed solution will vary, depending on the display number indicated. When the fault or error is resolved, a normal command for a new open or close cycle will restore gate operation. Otherwise, the issue could be with the gate operator or another gate component.

ORIGINAL GATE POSITION	Obstacle Encountered, Activating the IES	Gate Response	System Mode
Opening	Yes	Gate should reverse to **closed** position and wait for a renewed command.	--

ORIGINAL GATE POSITION	Obstacle Encountered, Activating the IES	Gate Response	System Mode
Opening	Yes	Gate should reverse to **closed** position; if it encounters an infrared beam (photo eye) input* during reversing=hard shutdown. *or an sensing edge input, if programmed in the same manner as the photo eye	Hard Shutdown Mode[2]
Opening	Yes	Gate should reverse to **closed** position; if it encounters another obstacle during reversing [via the IES (reduced speed sensor/torque change sensor)] = hard shutdown.	Hard Shutdown Mode[2]
Closing	Yes	Gate should reverse to **open** position and wait for a renewed command (auto close timer= disabled).	--
Closing	Yes	Gate should reverse to **open** position; if it encounters an infrared beam (photo eye) input* during reversing = hard shutdown. *or an sensing edge input, if programmed in the same manner as the photo eye	Hard Shutdown Mode[2]
Closing	Yes	Gate should reverse to **open** position; if it encounters an obstacle [via the IES (reduced speed sensor/torque change sensor)] during reversing = hard shutdown.	Hard Shutdown Mode[2]

External Entrapment Protection Sensors

The SpeedGate is equipped with a Type A inherent entrapment sensor (IES) which is a reduced speed sensor/torque change sensor, as described in ***"Inherent Entrapment Sensor" on page 28***. The IES is an internal device built into the SpeedGate operator.

UL 325 Safety Standard compliance requires installation of external entrapment protection sensors, the number of which, depends on the entrapment hazards that exist at each particular installation.

To comply with UL 325, the following external sensors may be used:

- **Contact sensors, such as sensing edges**
- **Non-contact sensors, such as photo eyes**

The site designer or installer can choose either photo eyes or sensing edges or use these devices in combination. Whatever devices are used, protection in both the opening and closing directions of gate travel must be provided.

The UL 325 Safety Standard specifically requires that sensing edges or photo eyes or a combination of both devices be installed to protect against pedestrian entrapment in BOTH directions of the gate travel and where an entrapment hazard exists.

PHOTO EYES: One or more photo eyes shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate. Refer to ***"Figure 2: SpeedGate Common Entrapment Zones" on page 35***.

⚠ CAUTION

A photo eye or contact sensor is also required to protect against possible entrapment if the gate opens to a position less than 16 inches (40.6cm) from any object, such as a post or wall.

SENSING EDGES: One or more sensing edges shall be located on the inner and outer leading edge of a bifold gate where the risk of entrapment or obstruction exists. Locate also on the bottom edge(s), if the bottom edge(s) of a bifold gate is/are greater than 101.6 mm (4 in) but less than 406 mm (16 in) above the ground at any point in its arc of travel. [Refer also to Vehicular Gate Operators (or Systems) herein.]

SENSOR SECURITY: A hard -wired sensor shall be located and its wiring arranged so that communication between the sensor and gate is not subjected to mechanical damage.

SENSOR FUNCTION and COMMUNICATION: A sensor that transmits its signal to the gate system must be located so its signal is not impeded by building structures or other obstructions. All sensors must be installed so that they function as intended for the end-use conditions.

UL 325 LISTING: The sensing edges and photo eyes must be tested and labelled as "Recognized Components" under UL 325 in order to be deemed acceptable for use in a gate system. Study the safety instructions and consider your specific installation to determine where the greatest entrapment risks exist. Locate sensing edges and/or photo eyes accordingly.

Be certain that a sufficient number of sensors are used so that pedestrians are protected from entrapment in both directions of the gate travel and all hazard areas are fully protected. Refer to the UL website at https://www.ul.com/ for the most up- to-date list of gate system safety standards (UL 325). Refer to https://www.astm.org/ for a complete list of ASTM F2200 Gate and Fence Standards.

Choosing External Entrapment Protection

The site designer or installer must determine which external entrapment sensor devices will be installed, in addition to the supplied photo eyes, with the SpeedGate operator to meet UL compliance. The type(s) of entrapment sensor device systems are described below. For a complete listing of the requirements, see UL 325 Safety Standards.

NOTE

SpeedGate is equipped with a Type A inherent entrapment sensor (IES) that complies with UL 325. Any impediment to gate travel causes the gate to stop and reverse.

Usage Class	Inherent Type Device	External Type Device
Class I, II, III	A	B1, B2, C, or D
Class IV	A	B1, B2, C, D, or E

To comply with UL 325, refer to the chart and take the following steps:

1. Select the Usage Class according to the gate's locale and purpose.

2. The required UL 325 inherent Type A sensor is an integral part of the SpeedGate gate system. Based on the gate's usage class, choose External Type Devices: B1, B2, C, D, or E.

    - **To comply using B1 - install non-contact sensors (photo eyes or the equivalent).**

    - **To comply using B2 - install contact sensors (sensing edges or the equivalent).**

    - **To comply using a Type D device requires a CONSTANT HOLD push-button station. This CONSTANT HOLD push-button station must be the only device that opens and closes the gate. It can only be used where the gate and push-button station will be monitored by personnel 24 hours a day in full view of the gate area. An automatic closing device (such as a timer, loop sensor, or similar**

device) must NOT be employed. A Warning placard stating, "WARNING - Moving Gate has the Potential of Inflicting Severe Injury or Death - Do Not Start the Gate Unless the Path is Clear" must be placed adjacent to the gate system controls.

⚠ CAUTION

Compliance issues exist with a Type E device (audible warn before operate alarm). A Type E device is permitted as a means of external entrapment protection by UL 325 in Class IV applications, but it is not recommended by Wallace Perimeter Security because a buzzer warns, but cannot protect against possible entrapment. Wallace Perimeter Security highly recommends, even for Class IV use, that external entrapment protection (sensing edges or photo eyes) devices be installed to detect possible entrapment.

UL 325 Compliant Sensors

NOTE

All external entrapment protection sensors **must have N.C. sensor outputs** for monitoring and powering purposes.

For MOST installations, at least two (2) independent means of protecting against entrapment are required in each direction of gate travel (open, close). For ALL installations, at least two (2) independent means of protecting against entrapment are required in each direction where there is a risk of entrapment.

Entrapment protection device types include the **inherent** reversing sensor system (i.e., Type A), built into the SpeedGate operator, as described in the previous section.

To enable fully automatic operation, all bifold gate operators will require a minimum of ONE monitored **external** entrapment protection sensor to protect entrapment zones in either the open or close direction of travel (i.e., 1 for the open direction plus 1 for the close direction). However, an additional monitored sensor is required if there is a risk of entrapment in both directions of gate travel.

The preferred external entrapment solution for bifold gates is a photo eye (i.e., Type B1 – non-contact) for the close direction and/or a hard-wired wraparound sensing edge (i.e., Type B2 – contact) on the leading edge of the gate, which protects for both directions of gate travel.

The following sensors have been tested with Wallace Perimeter Security gate operators by an independent laboratory and certified to comply with UL 325 7th Edition. Select sensors from this list for UL compliant gate automation solutions. Contact the sensor manufacturer for specific recommendations for use.

Recommended External Entrapment Protection Sensors List for the Wallace Perimeter Security SpeedGate				
	Mfg. Part # or Model	**Brand**	**Reference**	**Max. Range**
Photo Eyes (Thru-Beam)	IRB-MON	EMX	Wallace Perimeter Security Part Number: **100620**	65 ft (19.8m)
Sensing Edges	Sentir Series **25.30 TT**	ASO Safety	https://www.asosafety.co.uk/products/contact-edges/pre-made/sentir-edge-2530/	-
Edge Wireless Kits	iGAZE RE Kit Mfg. Part Number: **IGAZEREKIT-UL**	Transmitter Solutions	https://transmittersolutions.com/safety-edges/igaze-re-safety-edge-kit/	65 ft (19.8m)
	WEL-200K	EMX	Wallace Perimeter Security Part Number: **100599**	-

The UL 325 Standard specifies, ***the operator shall monitor for the presence of every device at least once during each open and close cycle.*** For details regarding the purpose and application of operator monitoring, refer to ***"UL 325 Monitoring Requirement for External Entrapment Protection Devices" on page 102***.

Entrapment zones are now defined for each gate type. (Clauses 4.23, 4.24, 4.29, 4.34 of the Standard). Installers must assess each specific site and install sensors that protect all potential entrapment zones.

See ***"Figure 2: SpeedGate Common Entrapment Zones" on page 35***. Refer also to diagrams in ***"ENTRAPMENT AND PINCH POINTS" on page 40***.

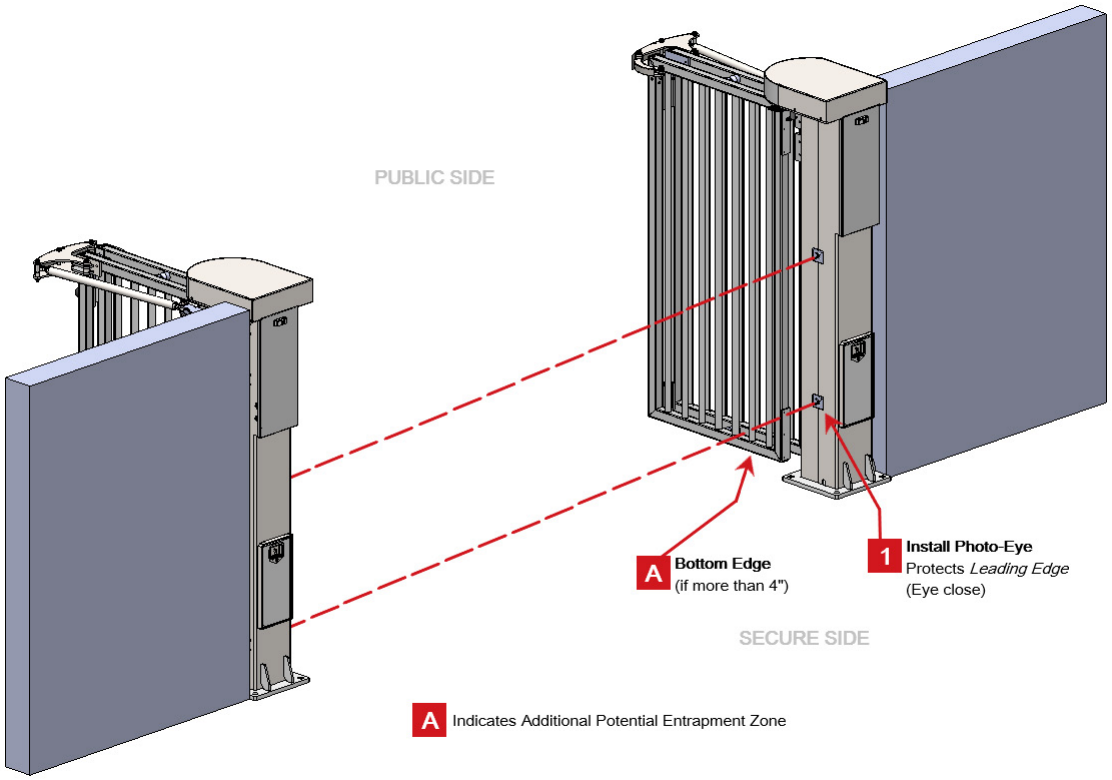


Figure 2: SpeedGate Common Entrapment Zones

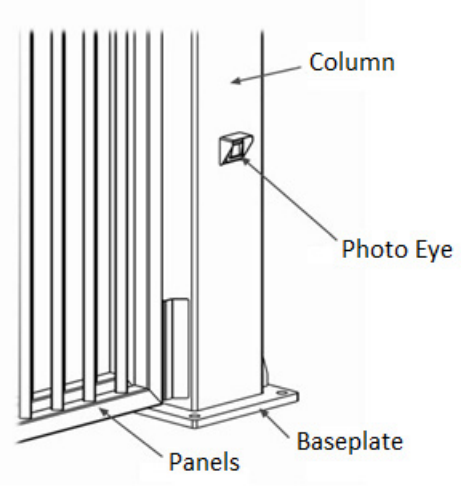
External Entrapment Sensor Types

PHOTO EYES:

Photo eyes are used to detect physical objects in the gate travel path. If they are blocked during the opening or closing motion of the gates, the gates will stop and reverse to the cycle start position. If the gate is at the open position and the auto close timer is activated, the gate will function as normally configured.

Photo eyes are mounted on the SpeedGate column. If there is a person situated in-between the columns, the light beam of the photo eyes is interrupted and a safety input is activated, preventing the gate from moving. The SpeedGate-designated height for bottom-mounted photo eyes is 24" (61 cm) above grade and, for the top pair (if included in the installation), 60" (152cm) above grade. Photo eyes are commonly mounted within 5" (13cm) of the gate panels in the closed position.

Refer to ***"Table 3: Tripped External Entrapment Sensor Modes" on page 37*** for a summary of photo eye responses to obstruction detection.



NOTE

The SpeedGate is shipped with one set of through-beam type photo eyes.

If a higher safety level is required, the SpeedGate can be equipped with two sets of photo eyes.

Figure 3: Infrared Beam Photo Eye

SENSING EDGES:

The ends of the outermost panel sections (where the risk of entrapment or obstruction exists) include a provision for fitting contact-pressure-sensitive sensing edges for connection to the control circuit. When installed sensing edges are pushed, they transmit a signal which interrupts the power and sends a signal to the gate to stop and react in accordance with UL 325 regulations. If the bottom edge of the gate is situated more than 4 inches (101.6 mm) above ground level at any point in its arc of travel, one or more contact sensors must be located on the bottom edge, as well.

If any sensing edge encounters an obstruction, the gate will stop and begin to reverse in less than 2 seconds. Refer to ***Table 3 on page 37***.

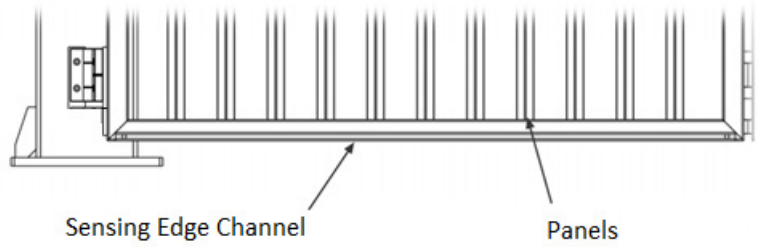


Figure 4: Sensing Edge Channel

Table 3: Tripped External Entrapment Sensor Modes

When an obstruction is encountered the first time in a gate cycle, F320 will appear on the LCD display if the gate shuts down while traveling in the open direction; F325 for the close direction. F395 will appear on the display if a second entrapment trip occurs in the same cycle (hard shutdown via the inherent reduced speed sensor/ torque change sensor).

If gate operation is not restored with a normal command (open signal, card reader, close signal, vehicle presence on an Automatic Exit Loop) or, in the case of a hard shutdown, a system reset, check the controller LCD display for additional troubleshooting error codes.

The prescribed solution will vary, depending on the display number indicated. When the fault or error is resolved, a normal command for a new open or close cycle will restore gate operation. Otherwise, the issue could be with the gate operator or another gate component.

ORIGINAL GATE POSITION	Obstacle Detected, Activating Photo Eye Input	Gate Response
Opening	Yes	Gate should reverse to **closed** position and wait for a renewed command.
Opening	Yes	Gate should reverse to **closed** position; if it encounters another infrared beam (photo eye) input* during reversing, another active safety input is triggered. *or an sensing edge input, if programmed in the same manner as the photo eye
Opening	Yes	Gate should reverse to **closed** position; if it encounters another obstacle during reversing [via the IES (inherent reduced speed sensor/torque change sensor)] = hard shutdown.

ORIGINAL GATE POSITION	Obstacle Detected, Activating Photo Eye Input	Gate Response
Closing	Yes	Gate should reverse to **open** position and restart the auto close timer.
Closing	Yes	Gate should reverse to **open** position; if it encounters another infrared beam (photo eye) input* during reversing, another active safety input is triggered. *or an sensing edge input, if programmed in the same manner as the photo eye
Closing	Yes	Gate should reverse to **open** position; if it encounters an obstacle ([via the IES (inherent reduced speed sensor/torque change sensor)] during reversing = hard shutdown.

Installer and User Safety Considerations

This section discusses SpeedGate safety considerations. Read this section carefully prior to installing and using the SpeedGate.

Safety and Health Hazards

The application of the SpeedGate is safe when used according to the stipulations of ***"Important Safeguards and Instructions to Communicate to Owners/Users" on page 24***. The positioning of the SpeedGate in a certain environment will give rise to new risks which will vary from installation to installation. The client should ascertain what risks will arise following installation. Generally speaking, the following risks can be identified.

Entrapment Protection and Pinch Points

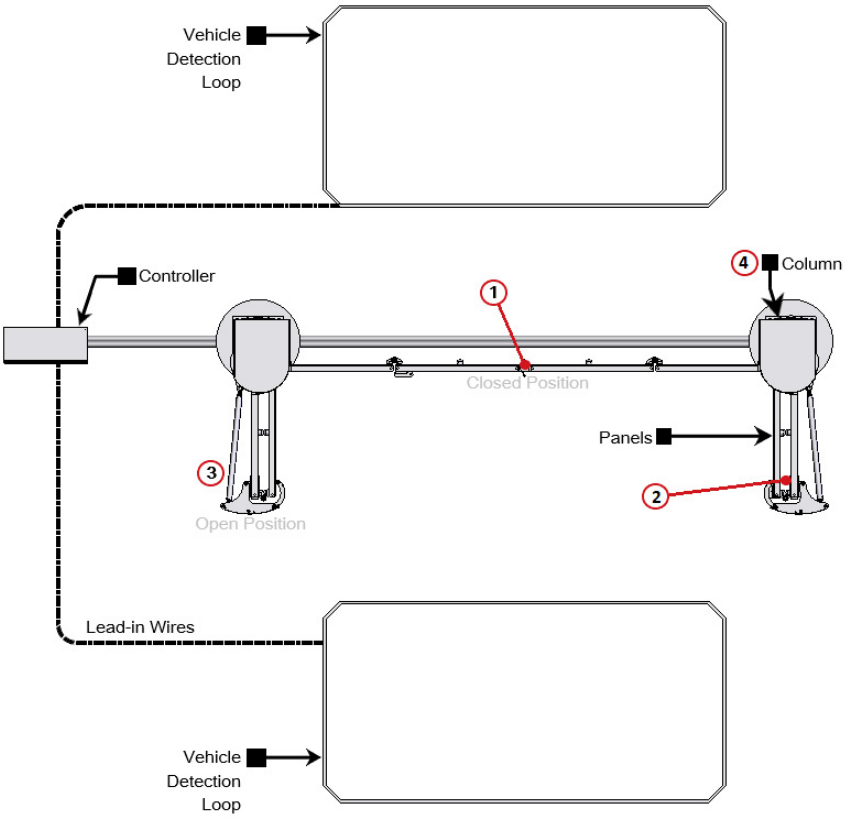


Figure 5: Top view of SpeedGate

ENTRAPMENT AND PINCH POINTS

Safety measures have been taken in the design of the SpeedGate in order to reduce these risks as much as possible. These risks can be limited even further by taking risks into account when positioning the gate and by observing the safety instructions.

1 Between the outermost panel sections.

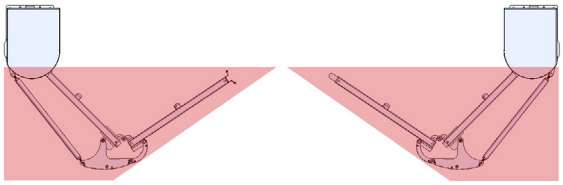




Figure 6: Panels Half-Open: Top View

2 Between the innermost and outermost panel sections.

3 Between the innermost panel section and a parallel wall or object.

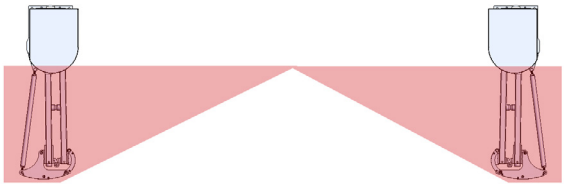




Figure 7: Panels Open: Top View

IN THE GATE STRUCTURE

4 Inside the Column: Between the moving parts in the drive box.

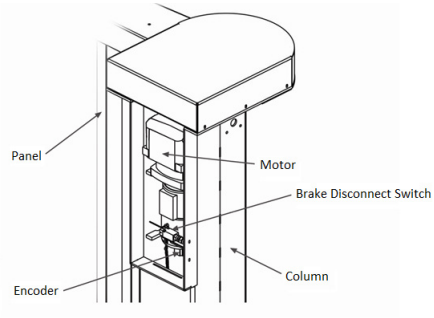




Figure 8: Inside the Column

5

Between Gate Panels:
Vehicles trapped between the panels of the SpeedGate.

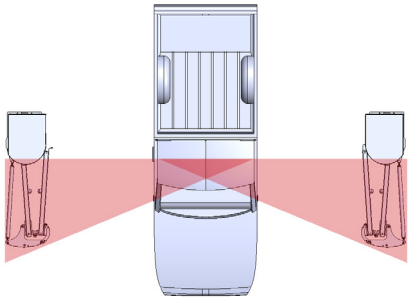


Figure 9: Vehicle Entry: Top View



6

Anywhere within the Gate System:
Possibility of injury because the Gate is operated by unqualified personnel.

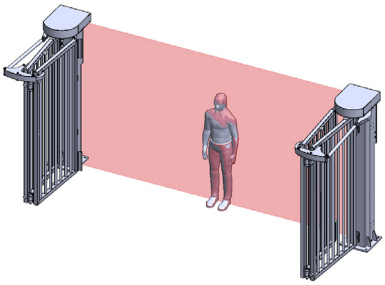


Figure 10: Qualified Personnel ONLY



Figure 11: Top view: DANGER!



7

Gate Panels:
Collision with the SpeedGate because vehicle attempts to proceed through gate during closing sequence.

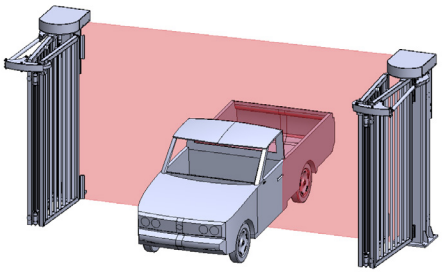


Figure 12: One Vehicle Entry Only per Cycle





Warning Signs

The hazard warning signs provided with the SpeedGate are mounted immediately adjacent to the SpeedGate on both sides of the opening. Two English language warning signs, and two French language warning signs (both official languages in Canada), are provided with each SpeedGate shipment, for a total of four signs. In Canada, mount all four signs. (In non-bilingual jurisdictions, a minimum of two signs are to be provided for field installation; one per opening side.)

The four (4) warning signs provided with this system must be installed where visible in the area of the gate but not ON the gate. One is to be installed on each side of the gate and on either side of the gate opening. Each sign must be clearly visible to persons located on the side of the gate on which the warning sign is installed. These warning signs will be securely attached and it is a UL 325 requirement to keep them visible and securely mounted.

The signs are to be installed NEAR the gate so they are visible from each side of the gate and should **NOT be installed ON the gate** since they should be seen whether the gate is fully open or fully closed. Refer to ***"Figure 14: Install Signage Near (not on) Gate" on page 43***. Specific locations shall be determined by the gate installer based on the particular circumstances for each installation.

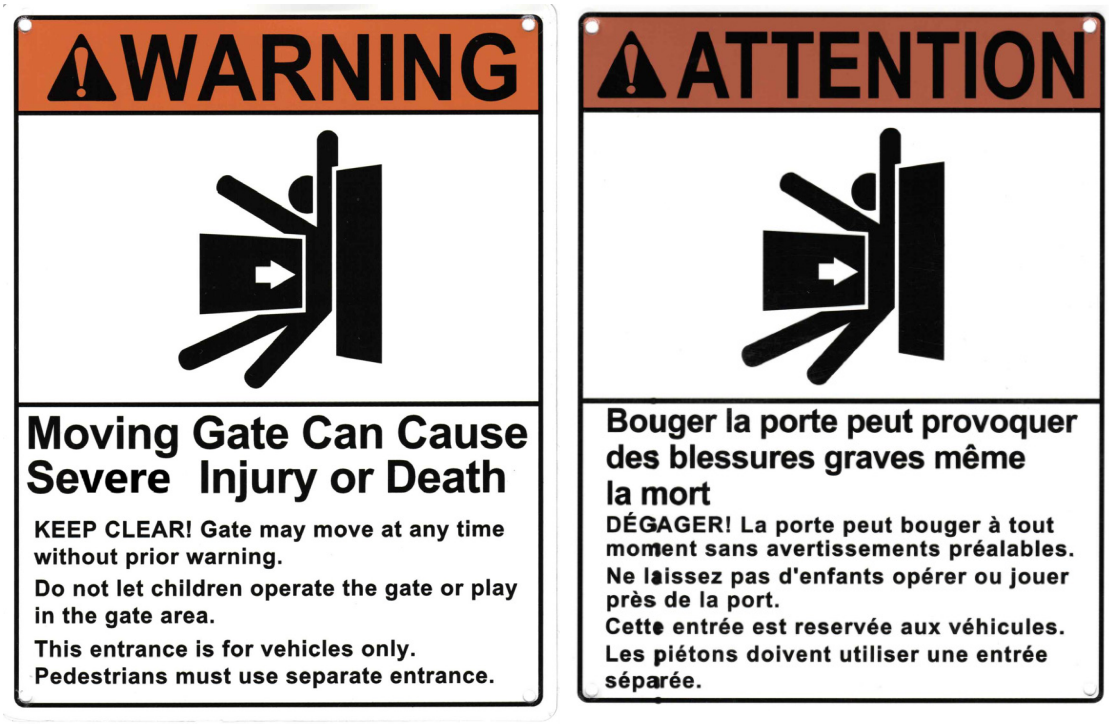


Figure 13: Warning Signs - Panneaux d'avertissement

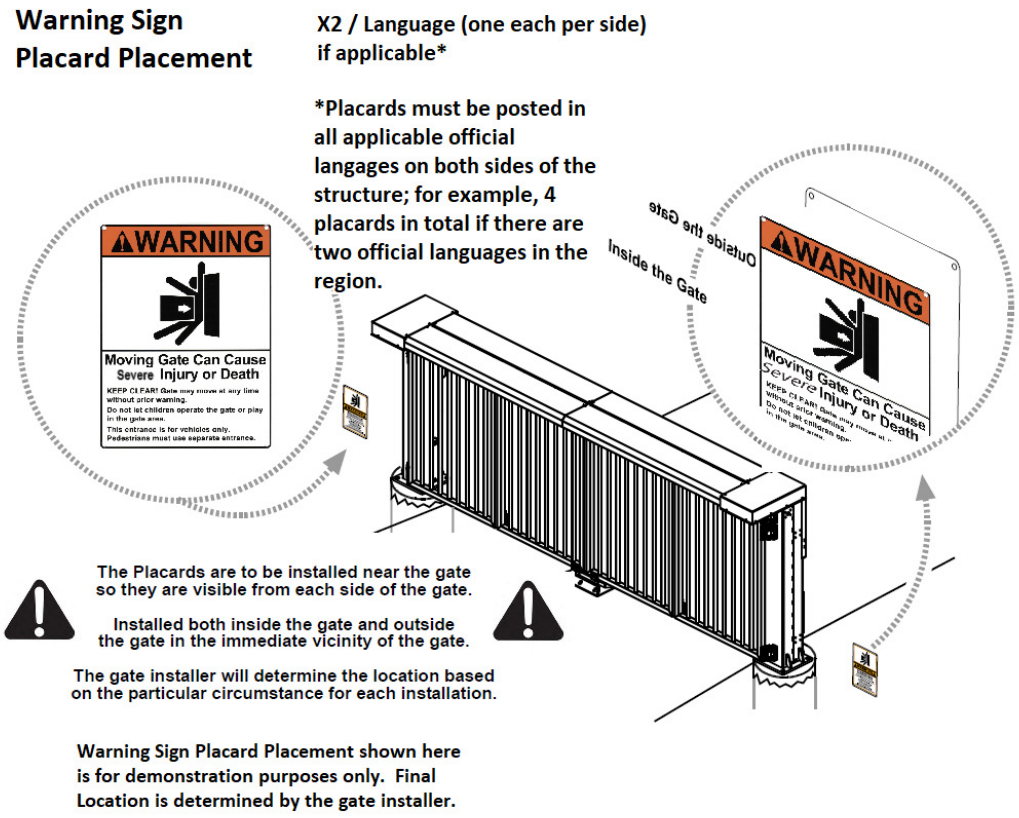


Figure 14: Install Signage Near (not on) Gate

Additional Safety Features

- The vehicle detector (optional; recommended) passes a small current flow through the in-ground laid “vehicle detection loop” which then becomes an inductive coil. When a vehicle passes over the loop the detector senses the resultant drop in the inductance, and this in turn stops the gate.
- The opening and closing force of the SpeedGate is restricted by gate controllers which also regulate the opening and closing times.
- The access doors on the column are provided with locks so that unauthorized access to the drive can be prevented.

Recommended Safety Precautions for the Immediate Vicinity

To ensure the safe use of the SpeedGate, measures will need to be undertaken in the immediate vicinity. The necessary measures will differ according to the situation. In general, the following measures will make a considerable contribution to the reduction of obstructions or unsafe conditions.

If pedestrians and/or bicycles regularly approach the SpeedGate once it has been installed, the risk of pedestrians and/or bicycles becoming trapped between the moving sections of the SpeedGate will increase. The following are several suggestions designed to reduce this risk.



- By the installation of the provided warning signs the danger zone will be indicated. This can be further enhanced by having markings on the road surface.

- **If Pedestrians are expected to enter through the fence line, then they must use a separate access opening other than this Gate System.** The Pedestrian Gate should be located far enough away from this gate system so as not to have it entice pedestrians to make use of the vehicular gate, or travel near the moving gate panel, even when in the fully open position.

- Safety should always be the paramount consideration when any automatic gate system is installed and operated. It is a UL 325 requirement of the installer to provide separate entrance and egress for pedestrian/cyclist use near the vehicular gate area.

- Someone must be available to take action as soon as possible when a dangerous situation arises.

- If there is a wall next to the SpeedGate with a gap of less than 16” (406mm), a sensing edge or a photo eye can be mounted on the wall. If someone becomes trapped between the wall and the panel as the Gate opens, the sensing edge or the photo eye will be tripped and the SpeedGate will stop.

- If the SpeedGate is to be operated manually, the primary power should first be disconnected. When the brake manual override is used it triggers an emergency stop via a micro limit switch so that the gate function is stopped. When operated manually, the SpeedGate should only be operated by adequately trained personnel who were onsite during the gate commissioning so that they are well acquainted with the operation of the SpeedGate.

- Traffic lights can be used to direct traffic through the gate opening. The SpeedGate operator provides contacts to control the switching of the traffic light.

- The traffic lights must not turn green until the SpeedGate has fully opened. The traffic light must turn red several seconds before the SpeedGate closes in order to give road users sufficient time to come to a stop. The traffic light must turn red whenever the SpeedGate is closed or is in motion.

- Place a sign next to the traffic light with the text: “One Vehicle Only per Cycle”.



- Adequate lighting can be placed near the SpeedGate to ensure good visibility on both sides of the gate.
- A maximum height sign must be indicated on the SpeedGate. A height signaling system can also be installed.

You are advised to place a security camera near the SpeedGate. This has the following advantages:

- Continual surveillance of the SpeedGate so that appropriate measures can be undertaken if a dangerous situation arises.
- A collision will be noticed.
- It is possible to show clearly what the cause of the collision was.
- Sabotage of the SpeedGate will be noticed immediately.

Safety Instructions for Maintenance

Use checklists for recording repairs and maintenance to the SpeedGate, and maintain permanent logs of all gate inspections, maintenance, servicing and repair activities.

Weekly inspections shall include checking the SpeedGate site lighting, testing the gate system to ensure all sensors (inherent and external entrapment devices) are operating in accordance with gate programming and UL standards, and ensuring photo eyes are clean. If used, sensing edges and vehicle detection loops must be tested and in good working order. See ***“Inspection, Servicing and Maintenance” on page 157***.

⚠ WARNING

Failure to properly test inherent and external entrapment devices on a weekly basis can increase the risk of severe injury or death.

SpeedGate Delivery and Unloading

1. Once the truck arrives, you will need a forklift with a minimum lifting capacity of 9,240 lbs (4191 kg) and 6 ft (2m) long forks (or fork extensions) to unload.



2. The crates are built with openings at the bottom to be securely lifted from the truck.



3. Crate may be unbalanced. Take care when lifting.



4. Crates are marked with “Open This Side” for unpacking.



5. The gates are bolted onto pallets with openings at the bottom to be securely lifted from the truck. Gate may be unbalanced. Take care when lifting.



6. The blue wrap has a built-in zipper opening for unpacking.



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SpeedGate Installation

The SpeedGate installation should only be carried out by personnel qualified by Wallace Perimeter Security.

REQUIRED FACILITIES:

The following facilities must be present at the installation site:

- Electricity for the operator cabinet (208 – 240V single phase, 2 hot wires, 1 ground wire).
- 20 AMP dedicated circuit breaker (recommended).
- Control wiring to the central controls (depending on the chosen control system).

INSTALLATION CONSIDERATIONS:



When carrying out all hoisting activities, make sure that the strength of the hoisting straps is sufficient to bear the weight to be hoisted. Pay attention to the angle of the hoisting straps. The greater the angle, the lower the drawing strength of the hoisting straps. (Consult the strap manufacturer for more information).

During installation, avoid damage to the coating layer of the SpeedGate if it is powder-coated.

The following step-by-step instructions for the installation and connection of the SpeedGate should be followed.

Footing and Foundation Installation

1. See standard product drawings for recommendations on foundation design. Final design by others.

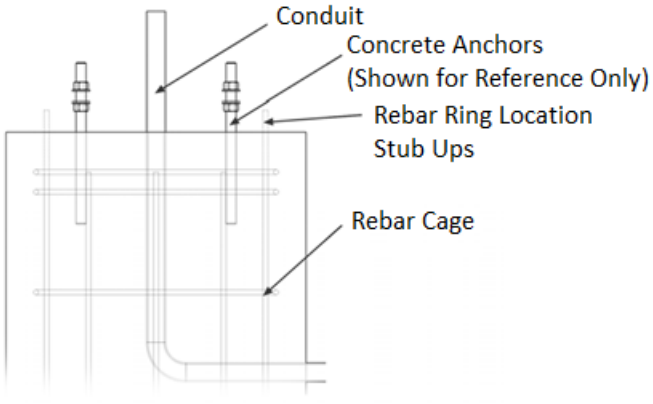
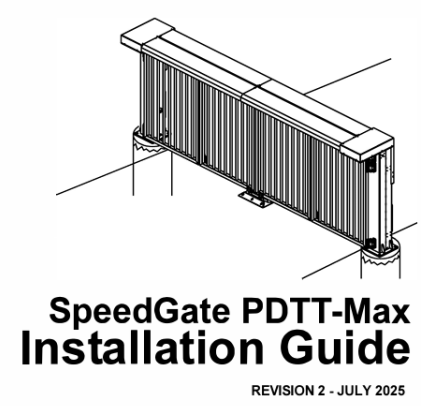


Figure 15: Typical Footing/Foundation

Assembly instructions herein pertain to PDXT (TRACKLESS) SpeedGate models.

For assembly instructions specific to PDTT (top track) SpeedGate Assembly, download the manual pictured below at: https://www.wallaceperimetersecurity.com/uploads/document/pdtt_folding_security_speedgate_installation_guide_pdf.t1753454917.pdf



NOTE

The footing details are a guideline and are only for reference, as local environmental and soil conditions should be taken into account. Contact Wallace Perimeter Security for more information.

2. Using a leveling device, check to see that the foundations for the SpeedGate are level with each other. In case of foundations that have been set to different elevations, the anchor bolts will need to be lengthened to accommodate the inconsistency. **SpeedGate columns should always be placed as close as possible to the concrete foundation, using leveling nuts in all cases.**

3. Place each steel anchor bolt template on the prepared foundations (see ***Figure 16 on page 49***) making sure that templates are aligned and centered on the foundations. If the SpeedGate is being installed near a wall, object or pre-existing opening make sure that each side of the template is the same distance from the wall, object or pre-existing opening. See SpeedGate site-specific general layout drawings that are provided by Wallace Perimeter Security for exact dimensions of the gate foundations.

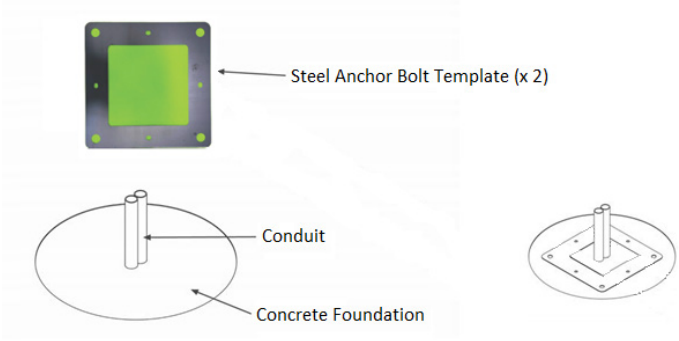


Figure 16: Anchor Bolt Template and Foundation

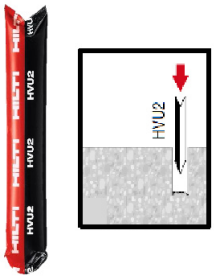
4. Ensure that the required conduits fit in the center of the anchor bolt template (see ***Figure 16 on page 49***). Using 1" grade 8 anchor bolts (or equivalent), imbed the anchors using epoxy chemical anchor (HILTI HVU2 1" X 8 1/4" or equivalent).

NOTE

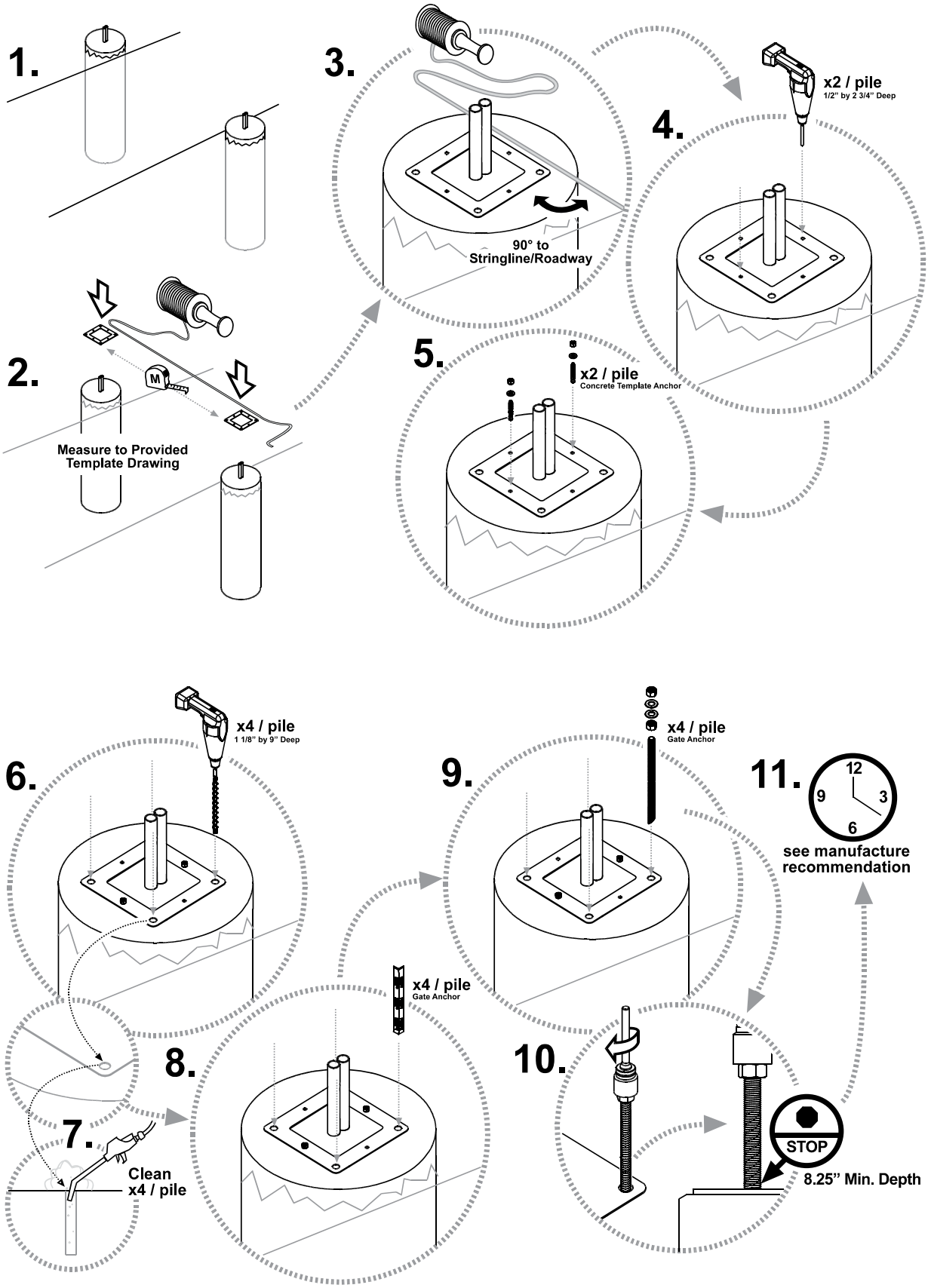
The manufacturer's written instructions must be read and followed prior to using the epoxy system.

5. Ensure minimum of 4" (10cm) thread exposed above foundation. See chemical anchor installation guide accompanying the product for depth of anchor holes. HILTI anchors and epoxy are available from Wallace Perimeter Security.

The installer shall read and follow the manufacturer's written instructions for HILTI HVU2 1" X 8 1/4" accompanying the shipped adhesive capsule product. Refer to summary and step-by-step diagram on the following pages.

SUMMARY OF DIAGRAM STEPS 1 TO 11:	
STEPS 1, 2, 3	As indicated in diagram on following pages. (Place each steel anchor bolt template on the prepared, leveled foundations and center the conduits.)
STEP 4	On both concrete piles: Drill two (non-corner) 1/2” by 2 3/4” deep holes directly opposite one another into the pre-drilled steel anchor bolt template.
STEP 5	On both concrete piles: Insert two wedge anchors into the 1/2” by 2 3/4” deep holes.
STEP 6	On both concrete piles: In the four corners of each pre-drilled steel anchor bolt template, drill 1 1/8” by 9” deep holes.
STEP 7	On both concrete piles: Use a hand-operated air pump in combination with a hole-cleaning brush to clean debris and dust from each of the drill holes prior to anchor installation.
	On both concrete piles: Check the setting depth in each of the 1 1/8” by 9” deep (four-corner) hammer-drilled holes. **Ensure minimum of 4” (10cm) thread is exposed above the foundation.**
STEP 8	On both concrete piles: Insert the HILTI foil (mortar) capsule with the peak ahead (tapered end) to the back of the hole. 
STEP 9	Using 1” grade 8 anchor bolts (or equivalent), embed the anchors; drive with plugged tool into the hole(s). A nut and washer shall be tightened on each anchor bolt.
STEP 10, 11	8¼” is the minimum depth for driving the anchor into the hole. Refer to manufacturer’s instructions for appropriate curing time.

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1.
2.
Measure to Provided
Template Drawing
3.
90° to
Stringline/Roadway
4.
x2 / pile
1/2" by 2 3/4" Deep
5.
x2 / pile
Concrete Template Anchor
6.
x4 / pile
1 1/8" by 9" Deep
7.
Clean
x4 / pile
8.
x4 / pile
Gate Anchor
9.
x4 / pile
Gate Anchor
10.
STOP
8.25" Min. Depth
11.
12
3
6
9
see manufacture
recommendation

Gate Installation

Use extreme caution when handling, moving, or slinging the panel sections. Black sensing edges may be installed (one horizontal on bottom of outer panel section, two vertical on inner panel section). They are susceptible to damage if mishandled. Always use blocking when working with panels to prevent damage to sensing edges.

1. Using slings and/or appropriate straps, secure a strap onto the lifting assembly that is provided with the gates. Once secure, begin lifting until strap is taut but not lifting the gate. The gate can now be unbolted from the shipping skid. Once all bolts are unfastened raise the gate up and place onto the concrete anchors in the concrete foundation.

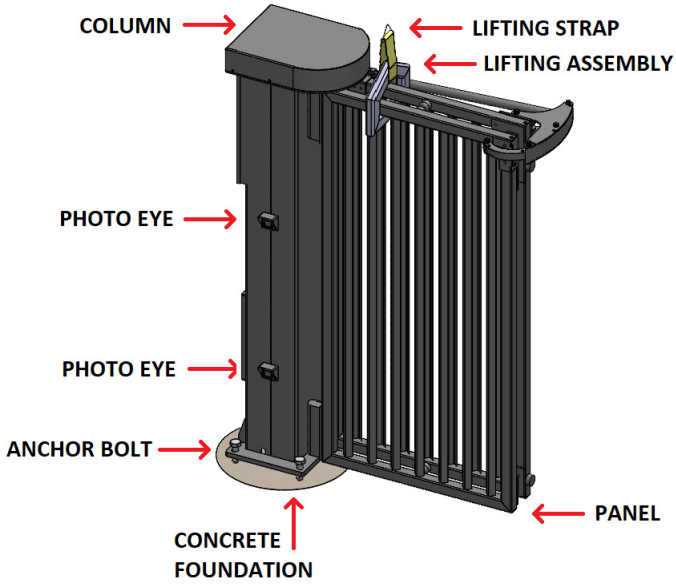
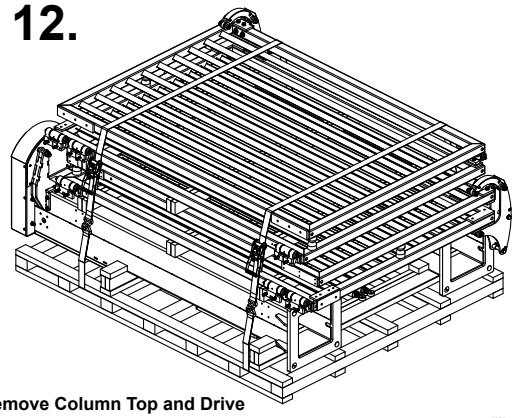


Figure 17: Gate and Lifting Assembly

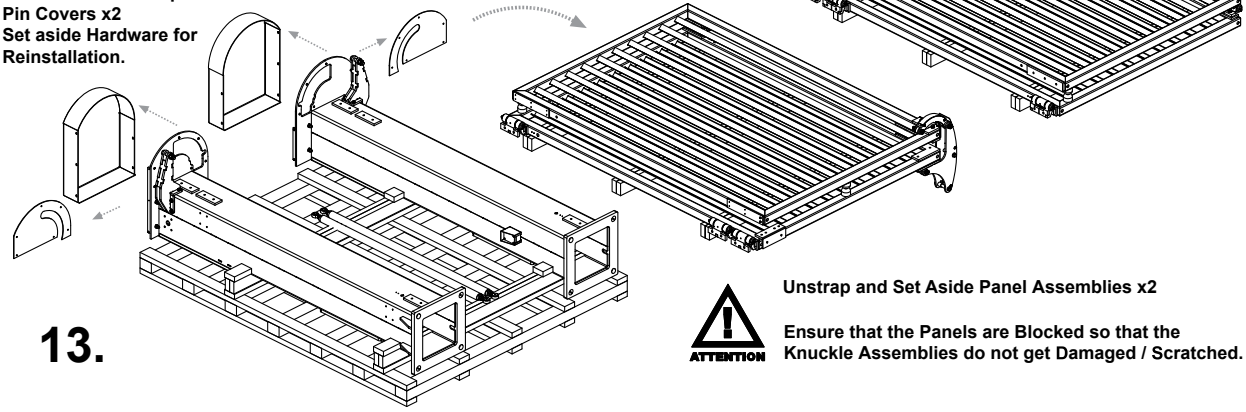
NOTE: These instructions pertain to PDXT (trackless) SpeedGate models. Assembly instructions specific to PDTT (top track) SpeedGate models include steps for horizontally hoisting and lowering the top track onto gate column brackets, as depicted in the Wallace Perimeter Security SpeedGate PDTT-Max Installation Guide available at: https://www.wallaceperimetersecurity.com/uploads/document/pdtt_folding_security_speedgate_installation_guide_pdf.t1753454917.pdf

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12.



Remove Column Top and Drive Pin Covers x2
Set aside Hardware for Reinstallation.

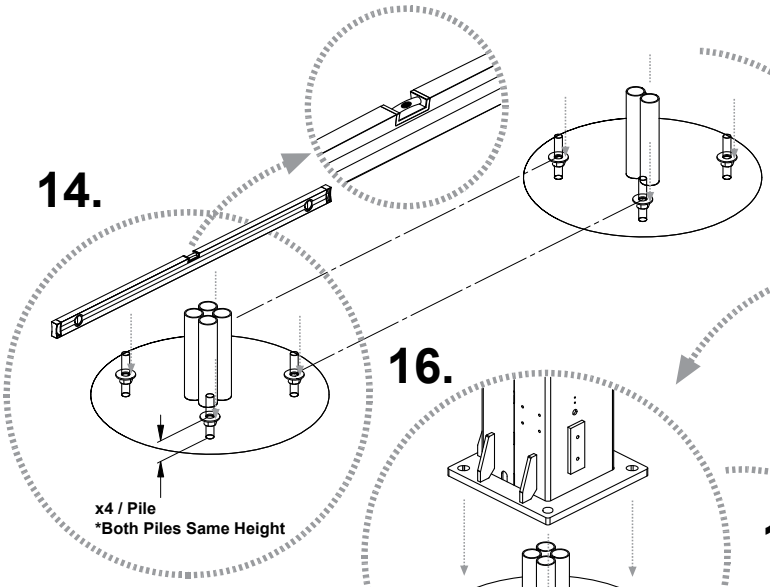


13.

Unstrap and Set Aside Panel Assemblies x2

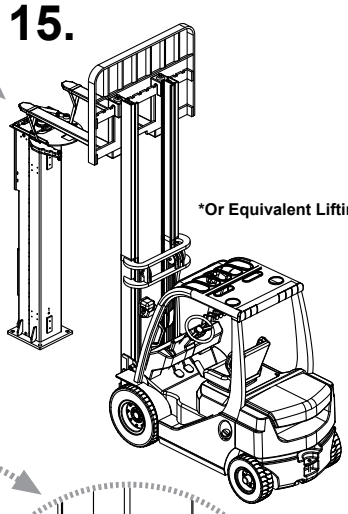
Ensure that the Panels are Blocked so that the Knuckle Assemblies do not get Damaged / Scratched.

14.



x4 / Pile
***Both Piles Same Height**

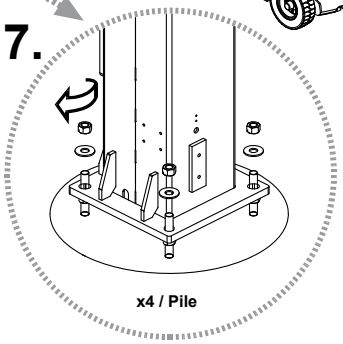
15.



***Or Equivalent Lifting Device**

16.

17.



x4 / Pile

2. Place columns using leveling nuts/washers, maintaining base flange plate as close to the pile surface as possible. Refer to diagram steps 14 to 17.

Columns are left/right side specific. Take note of the photo eye plate and hinge mounting hole locations. Photo eye location cut-out should face toward the gate opening; the hinges (see ***Figure 18 on page 54)*** should face toward the Secure Side (this will allow for the gate to swing into the property when opening). If you require the gate to open AWAY from the Secure Side, reverse the location of the hinge mounting holes. As per UL 325 a SpeedGate opening toward the Public Side must have the panels remain over the owner's property and not move out onto a public sidewalk or street.

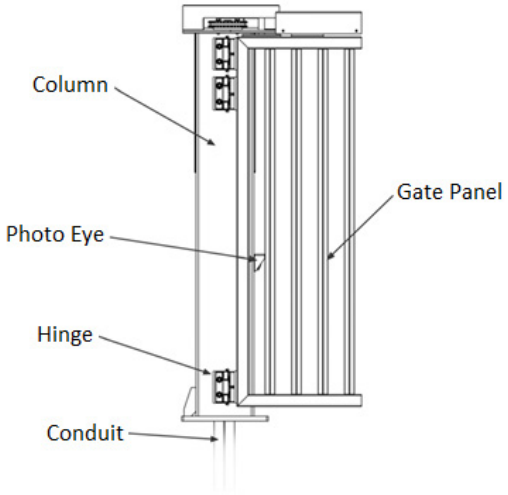


Figure 18: Photo Eye Plate and Hinge Mounting Locations

3. Secure both columns using nuts/washers. Column anchor bolts should be tightened firmly – they may need to be loosened during guide channel installation for PDTT (top track) models. All anchor bolts should be tightened to 210 ft-lbs (284.76 Nm). See ***Figure 19 on page 54***.

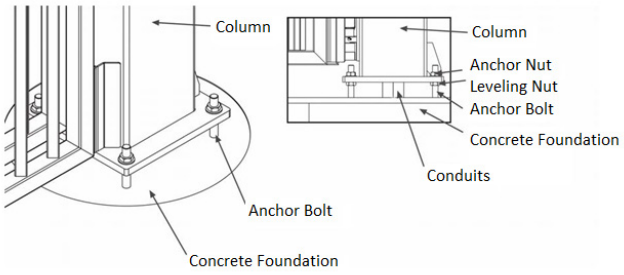
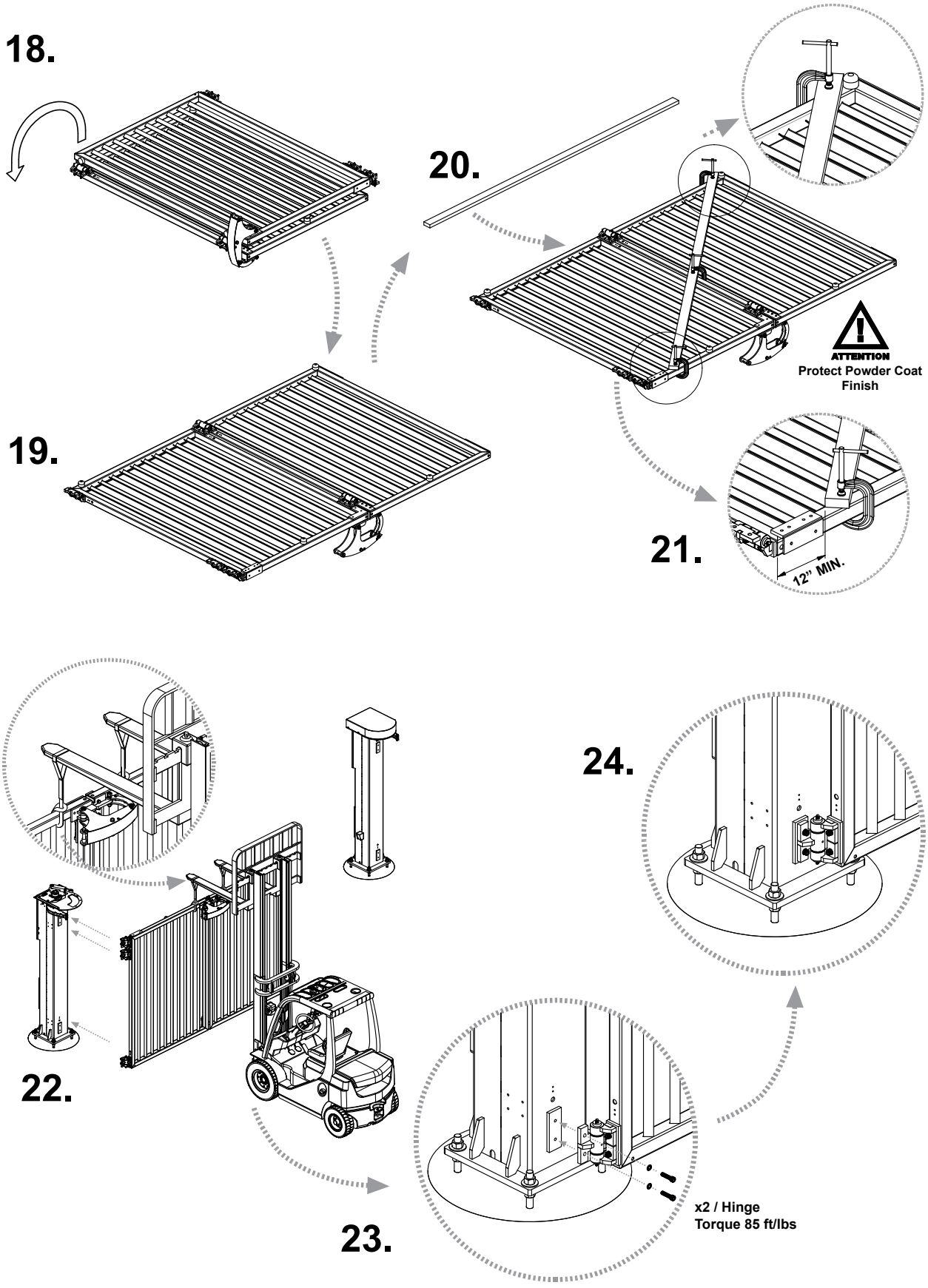
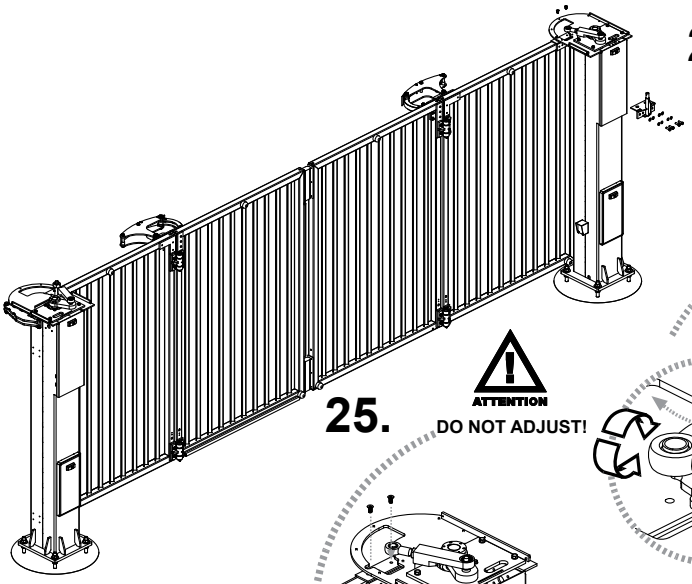


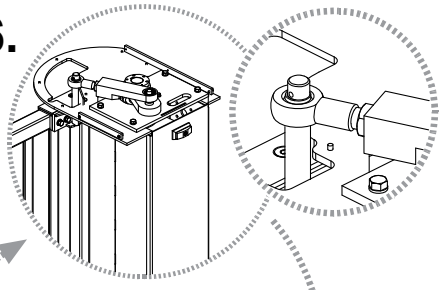
Figure 19: Securing of Columns

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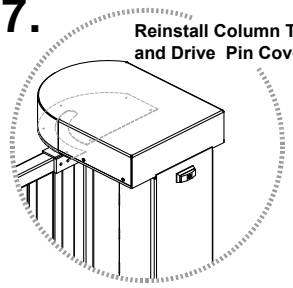

18.
20.
ATTENTION
Protect Powder Coat Finish
19.
21.
12" MIN.
24.
22.
23.
x2 / Hinge
Torque 85 ft/lbs



26.



27.

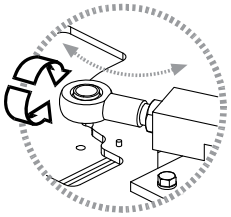


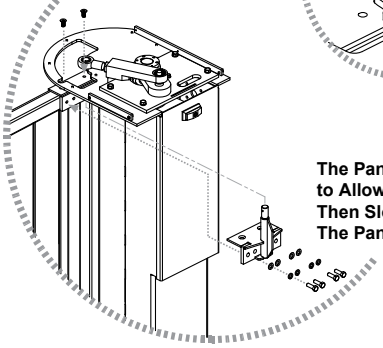
Reinstall Column Top
and Drive Pin Covers x2

25.

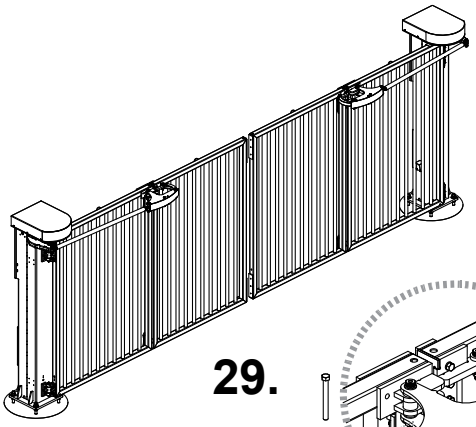
ATTENTION

DO NOT ADJUST!

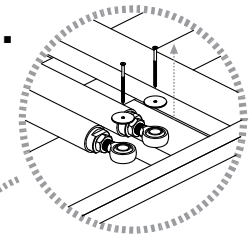




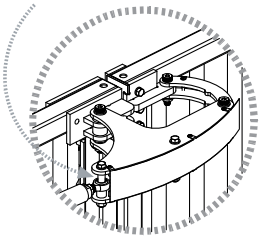
The Panel will need to be Swung Partially Open
to Allow the Drive Pin to be inserted into the Rod End.
Then Slowly Close the Panel Until the Side Bolt Holes Align.
The Panel Must be Fully Closed to Install the Top Bolts.



28.

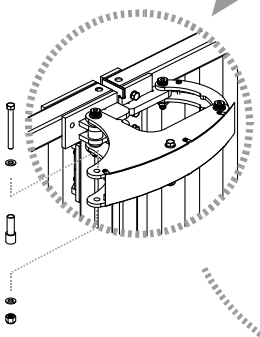


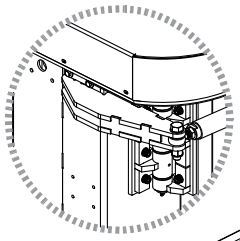
Tighten Until Spacer is Touching
Both Plates, NO Further
Do Not Over Tighten

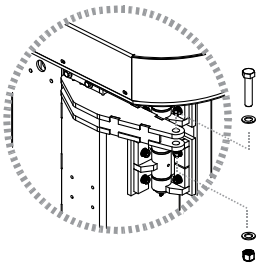


Unscrew Drawbars from
Shipping Pallet

29.

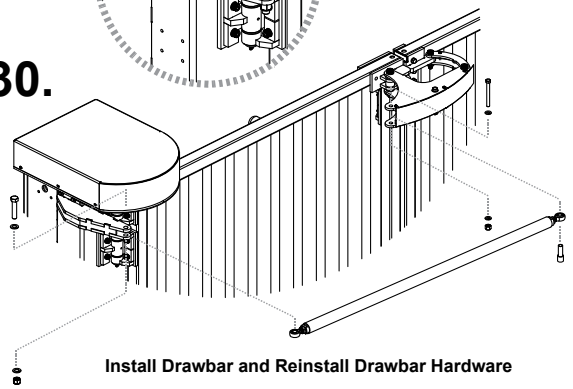






Remove Preinstalled Drawbar Hardware
From Column Drawbar Mount and
Panel Linkage

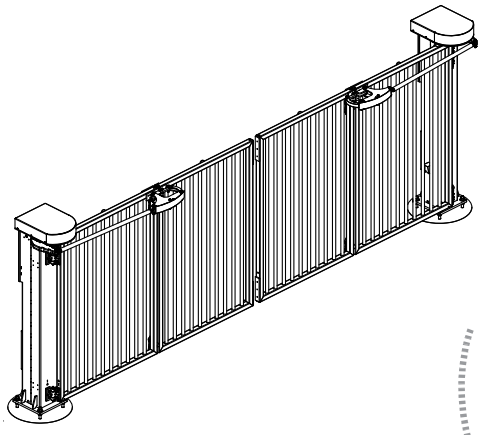
30.



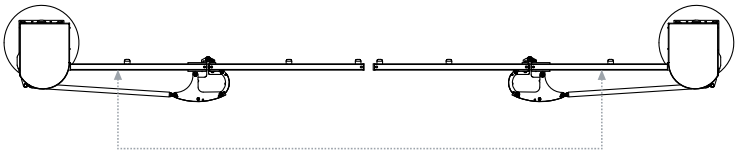
Install Drawbar and Reinstall Drawbar Hardware

Phone: 866.300.1110 wallaceperimetersecurity.com

WALLACE
PERIMETER SECURITY

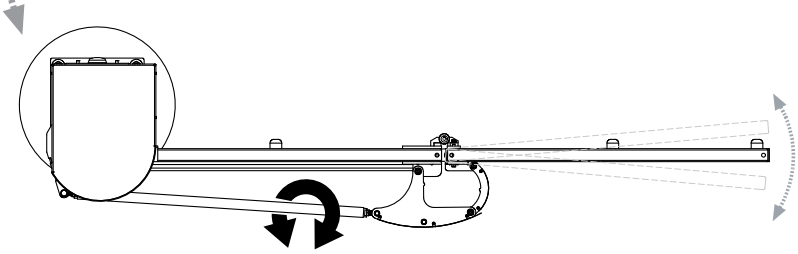


31.



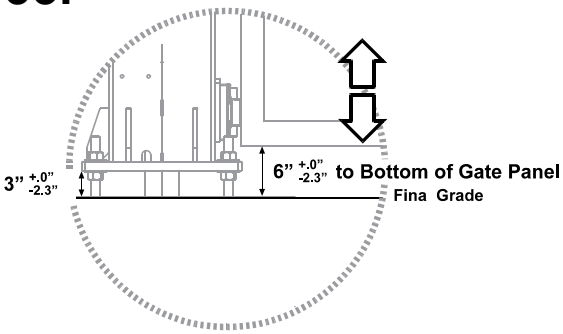
Once Drawbars are Installed, the Faces P1 & P4 Panels Must be Aligned

32.

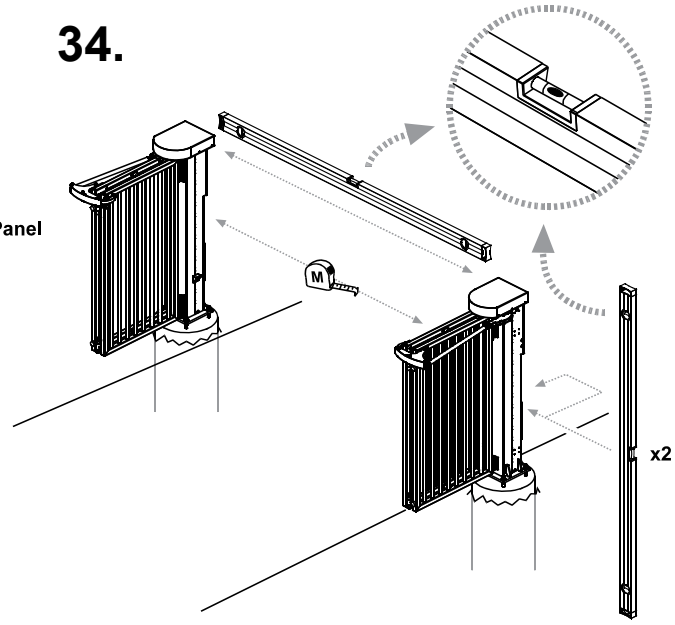


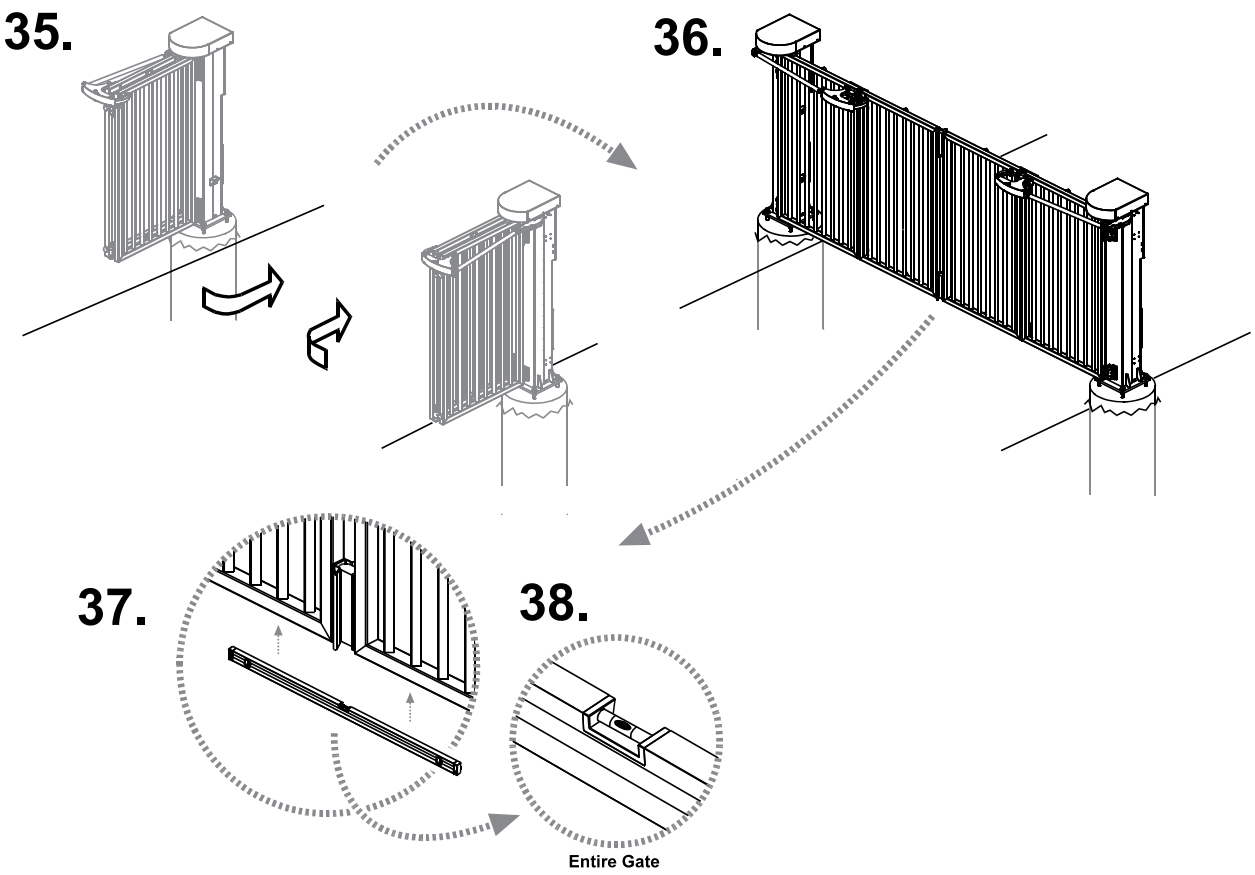
Adjust Drawbars to Align P2 & P3 Panels as Needed. Once Panels are Aligned Re-tighten Drawbar Jam Nuts

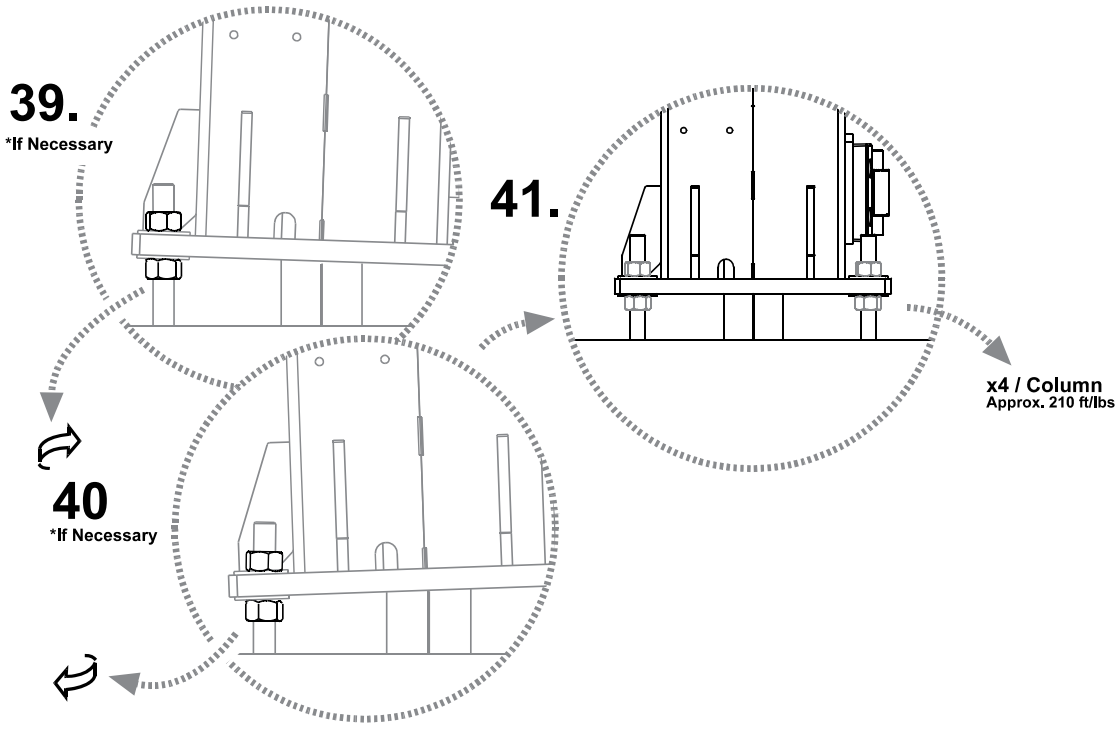
33.

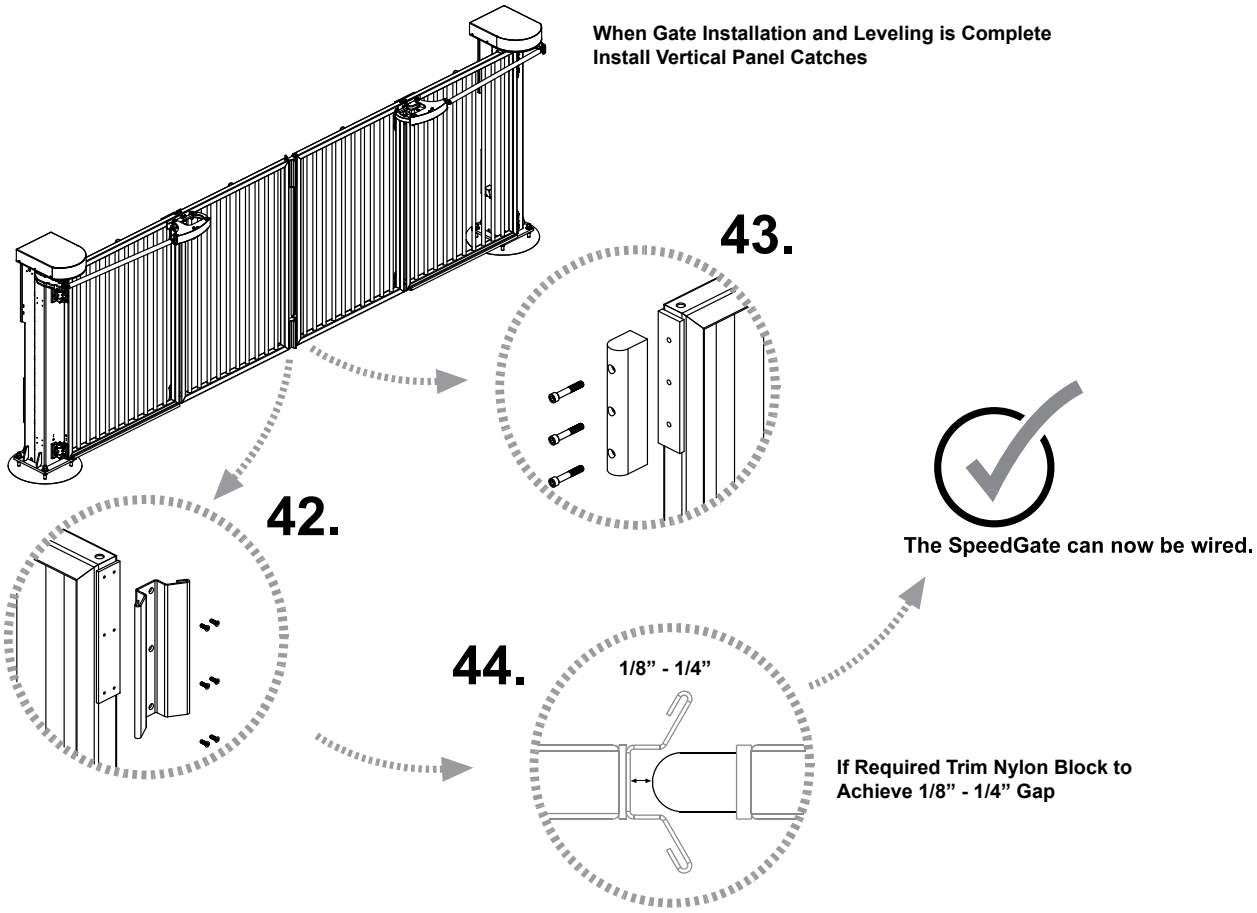


34.




35.
36.
37.
38.
Entire Gate


39.
*If Necessary
41.
x4 / Column
Approx. 210 ft/lbs
40
*If Necessary



4. Once all gate components have been assembled and installed, double check all components for level/ square fitting. Using non-shrink grout, fill the area between the SpeedGate column base plates and the concrete foundation.

Removing Plug from Gearbox Vent

The purpose of the gearbox vent plug is to prevent oil leakage during storage/transport. Once the plug is removed, the built-in vent valve is active, and no further action is required.

CAUTION

If the plug remains installed in the gearbox vent during gate operation, internal gearbox seals might become damaged. If internal seals are damaged, replace the motor-gearbox assembly, or repair the gearbox.

Before operating the gate, remove the plug from the gearbox vent in each column as follows:

1. Insert the operator key into the upper column access door lock (1) and turn the key until the lock pops out toward you.
2. Remove the upper access door (2).
3. Pull the rubber plug (3) out of the vent (4) that is on top of the gearbox. Discard the plug.
4. Repeat steps ***1*** to ***3*** for the remaining gate columns.

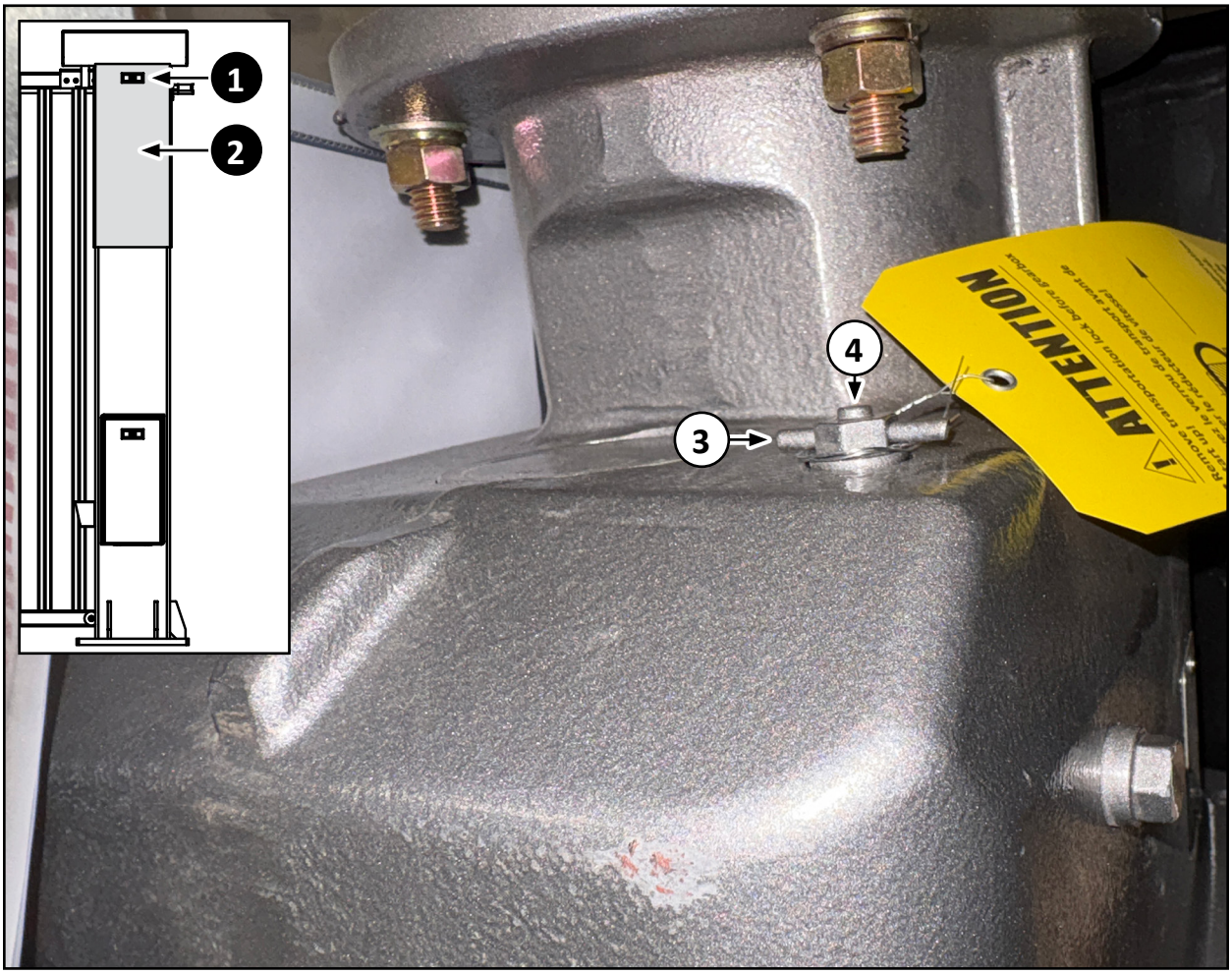


Figure 20: Column access door and motor-gearbox assembly

Vehicular Gate Operators (or Systems)

- The operator is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the gate such that persons will not come in contact with the vehicular gate during the entire path of travel of the vehicular gate.
- For a gate operator utilizing Type B2, contact entrapment protection in accordance with 32.1.1:

One or more contact sensors shall be located where the risk of entrapment or obstruction exists on a bifold gate, such as:

- At the inner and outer leading edge,
- Between the outer column panel and the inner bifold panel of an opening bifold gate,
- Between the outer/column panel and any obstruction within 406mm (16 in) of the gate panel when it is in the fully open position,
- At hinge points depending on the construction of the gate,
- On the bottom edge(s), if the bottom edge(s) of a bifold gate is/are greater than 101.6 mm (4 in) but less than 406 mm (16 in) above the ground at any point in its arc of travel.

Operator Cabinet Installation Considerations

For mounting the Operator Cabinet you are advised to consider the following.

- Mount the Operator Cabinet in a secure location. It is recommended to be mounted on the secure side of the fence line.
- The operator enclosure can be located up to 30 feet (9.1 meters) overall run distance away from the gate, provided it is within sight from the gate structure.
- Mount the Operator Cabinet in a location as near as is practical to the SpeedGate so as to minimize the electrical wiring requirements between the SpeedGate and the Operator Cabinet.
- Mount the Operator Cabinet in a location that allows a direct line of sight between it and the SpeedGate so that prior to any operation of the gate the area can be scanned for obstruction considerations.
- Mount the Operator Cabinet in a location which allows adequate work space around it and will not place the installer within reach of either the moving gate panels or vehicle traffic. A minimum distance of 6 feet (1.8m) is set forth in UL 325 for all controls which can operate the gate.
- Mount the Operator Cabinet in a location that facilitates the wiring of the vehicle detector loop leads to the Operator Cabinet.

The Operator Cabinet's dimensions and mounting holes are shown on ***Figure 21 on page 62***.

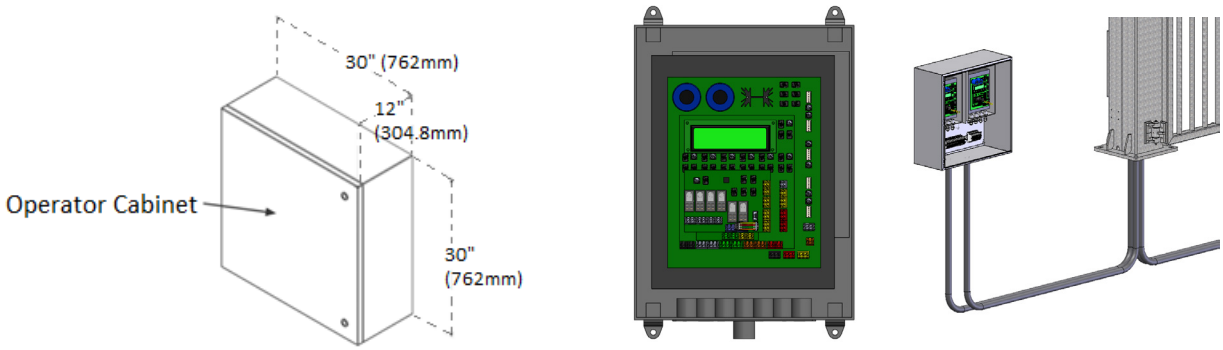


Figure 21: Operator Cabinet Mounting Holes

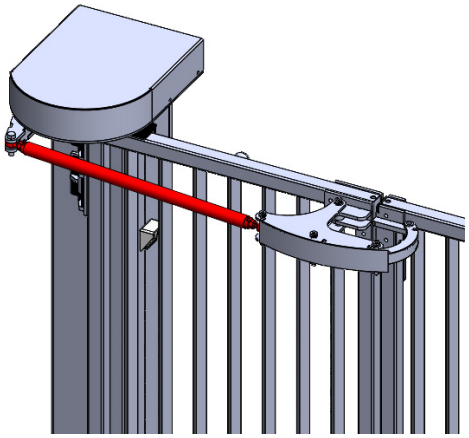
Installation Adjustments

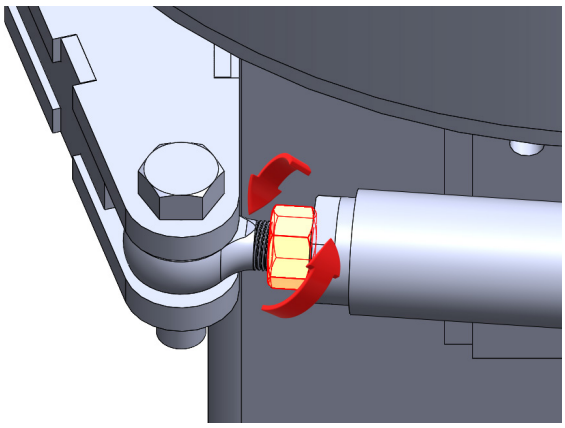
Drawbar Adjustment Procedure

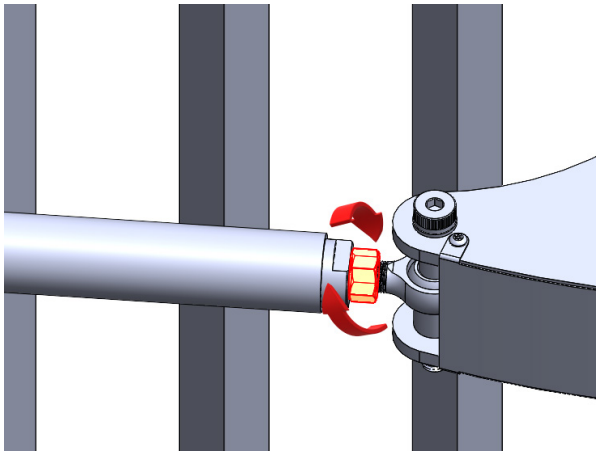
⚠ WARNING

Deactivate gate during drawbar adjustment.

The SpeedGate gate uses a length-adjustable drawbar to align and center the panels.





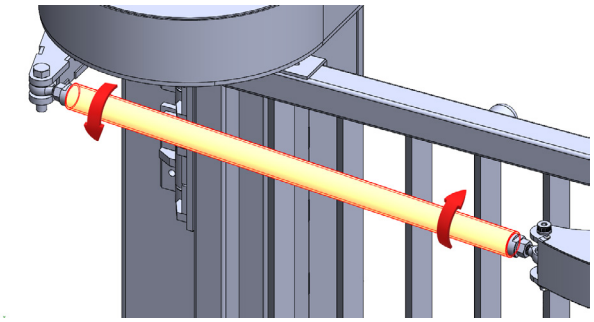


1. To complete the drawbar adjustment, first ensure the gate is in the fully closed position. To move the gate closed manually, use the manual brake disconnect located under the motor in each column. Pull down on the cable until you see the cable clamp and lock the clamp into the groove provided along the top edge of the lower access door opening. Refer to ***"Manual Operation Using the Brake Disconnect Cable" on page 141***.

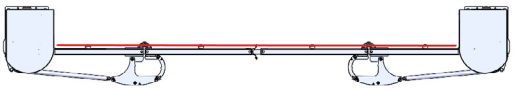
   Close the gate, then release the manual brake disconnect by pulling down on the cable and removing it from the groove so that it hangs free. Releasing the manual brake disconnect ensures the gate will not move and drawbar will not drift as you complete the adjustment.

2. You will need a 1-1/8 inch wrench to loosen off the nuts on either side of the drawbar. A 1-1/4 inch wrench is required to hold the drawbar in place while loosening off each nut. The threading on each side is opposite.

3. Once the nuts have been loosened, a 1-1/4 inch wrench may be used to rotate the drawbar either clockwise or counterclockwise. The direction of rotation will either shorten or lengthen the drawbar, moving the gate panels toward you or away from you.



4. Once adjusted so that the gate panels are square at a 90-degree angle to the roadway, tighten the nuts on either end of the drawbar to lock in the current position.



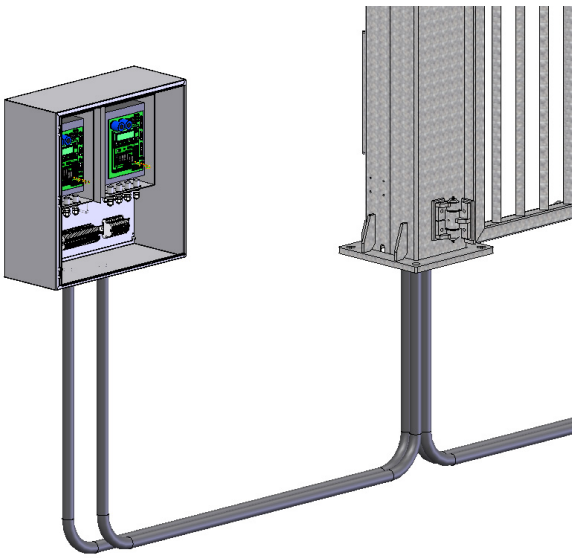
NOTE

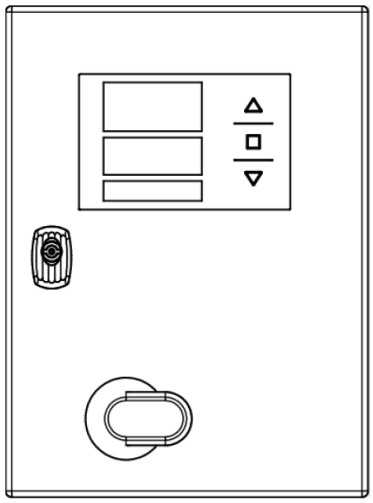
The gate should be installed, all wires terminated properly, and all mechanical adjustments, (including drawbar) made **prior to setting the gate limits** via the foil keypad on the controller in the Operator Cabinet.

5. Set the gate limits. Refer to ***"Installation and Commissioning Checklist: Setting Gate Limits" on page 14***.

6. **Ensure traffic, both pedestrian and vehicle, is clear** and then test the gate. Turn operator power ON and press the operator foil keypad up arrow to test the gate open cycle.

   Test the gate close cycle by pressing the operator foil keypad down arrow.





7. Ensure the open limit is suitable and the gate, when closed, does not bind on the steel vertical catches. If there is binding, further adjust the drawbar or electronic limit as needed.

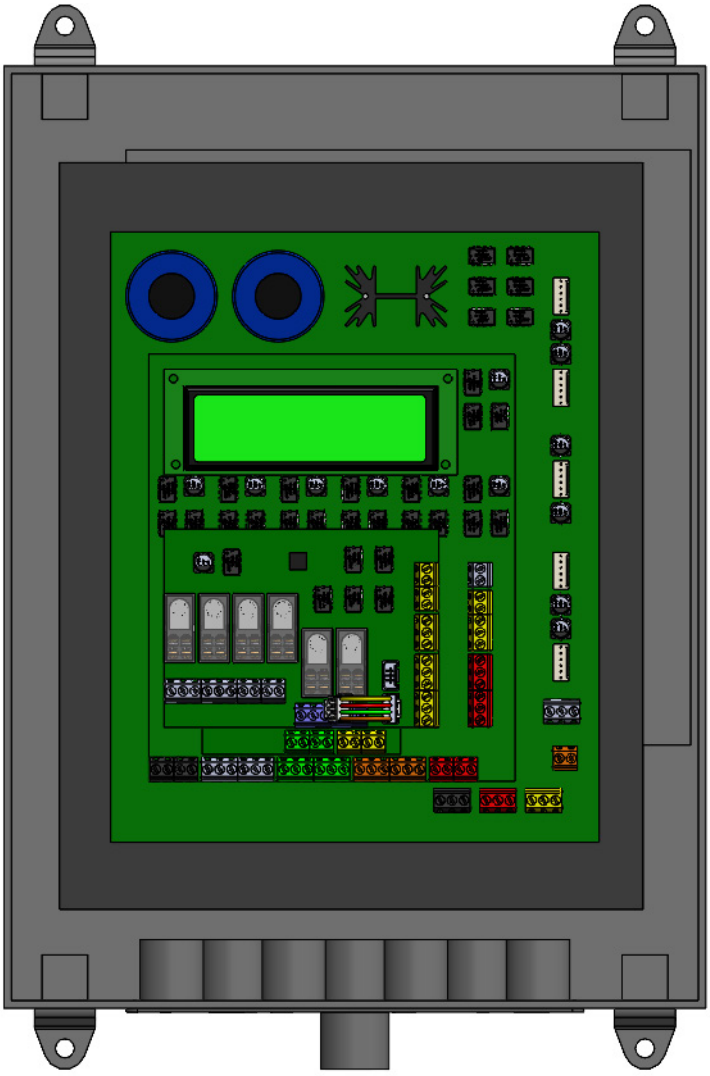


Wiring Installation



ELECTRICAL CONNECTION SAFETY PRECAUTIONS:

- You must disconnect all supply circuits before opening the enclosure to access the terminals!
- Any wiring, testing and maintenance work on an open controller shall only be performed when power has been turned off.
- When the controller has been turned off, dangerous voltage levels can still be present for up to 5 minutes.
- There is no isolation between the power stage and the motor terminal.
- Touching electronic components is dangerous due to residual voltages.
- Before switching on the gate controller for the first time and after completion of the wiring, check whether all connections are tight.
- Before turning on the controller's supply for the first time, make sure that the detector/ sensor cards (plug-in modules) are inserted in the right places. Incorrect insertion of the cards may damage the controller, as well as the installation of non-approved third-party equipment.
- After completing the installation, check the correct configuration of the system and the proper functioning of the safety systems. Parameter settings and the speed as well as the operation of the safety devices must be checked.
- Switching on or operating the controller when condensation is present is not permitted. This can destroy the controller.
- The controller may only be opened if the supply voltage has been switched off on all poles.
- Never operate the controller without connecting the protective earth conductor. The absence of a protective earth conductor will result in hazardous voltages on the controller's enclosure due to high leakage capacitances.
- Hazardous voltages remain stored in the DC bus capacitors for up to 5 minutes after power has been turned off. The discharge time until voltages fall below 50 VDC is a maximum of 5 minutes. Touching internal controller components within this discharge time is hazardous.
- A defective switching power supply can considerably increase the discharge time of the DC bus capacitors before reaching a voltage less than 50 VDC. In this case, discharge times of up to 10 minutes may be possible.
- If the voltage of the 24 V regulator is short-circuited or overloaded, the switching power supply will not start up even though the DC bus capacitors are charged. The displays remain off. The power supply can only be restarted after eliminating the short circuit or overload condition.
- Screw the cables to the terminals before placing the terminals on the pin connectors. This ensures safe contact between terminals and connectors.





Turn the controller OFF prior to performing wiring, testing and maintenance work! THEN WAIT.

Dangerous voltage levels can commonly remain for 5 minutes.

If the switching power supply is defective, voltage discharge times (to fall below 50 VDC) of 10 minutes may occur.



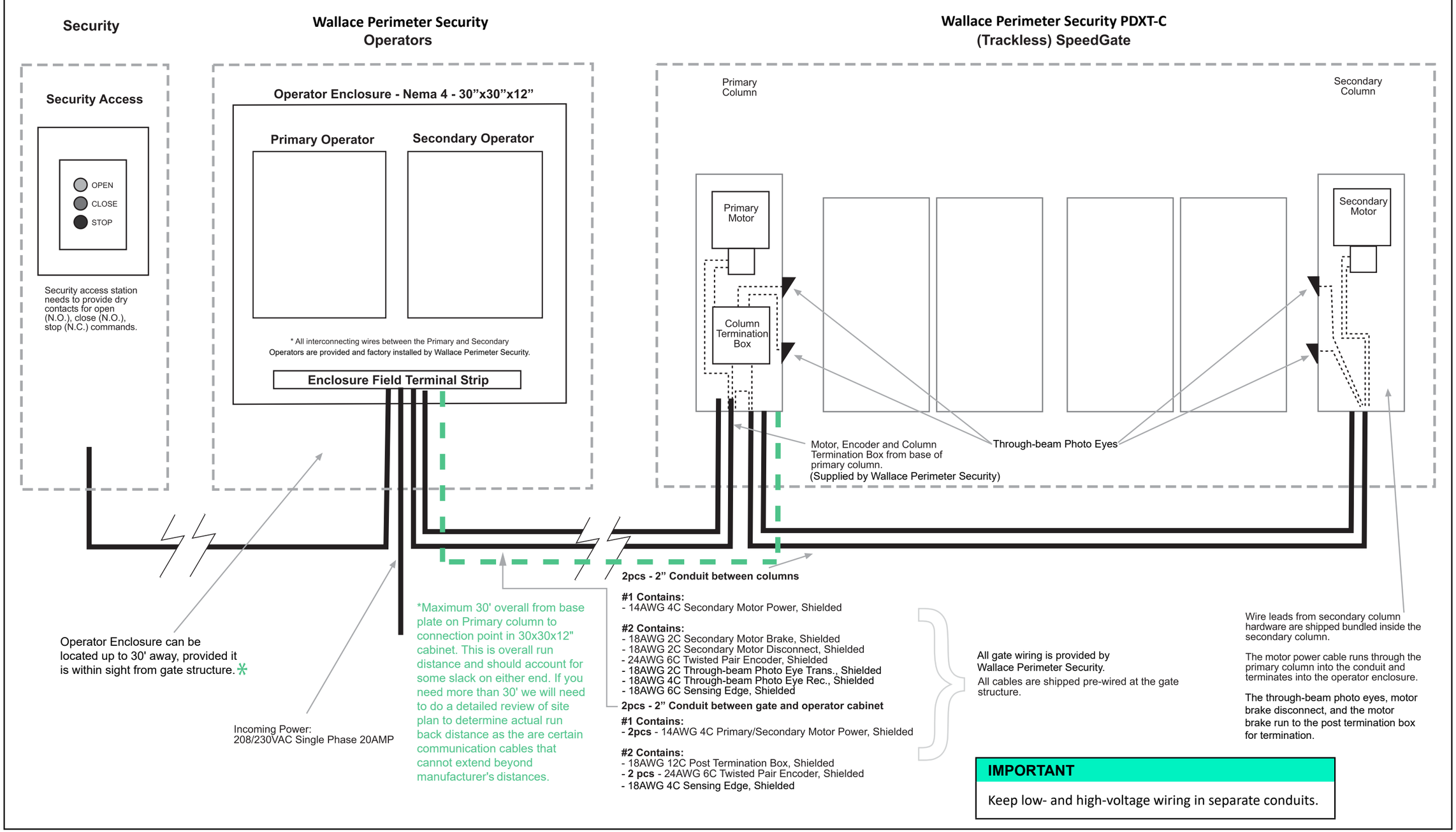


Figure 22: PDXT-C Electrical Point-to-Point Diagram

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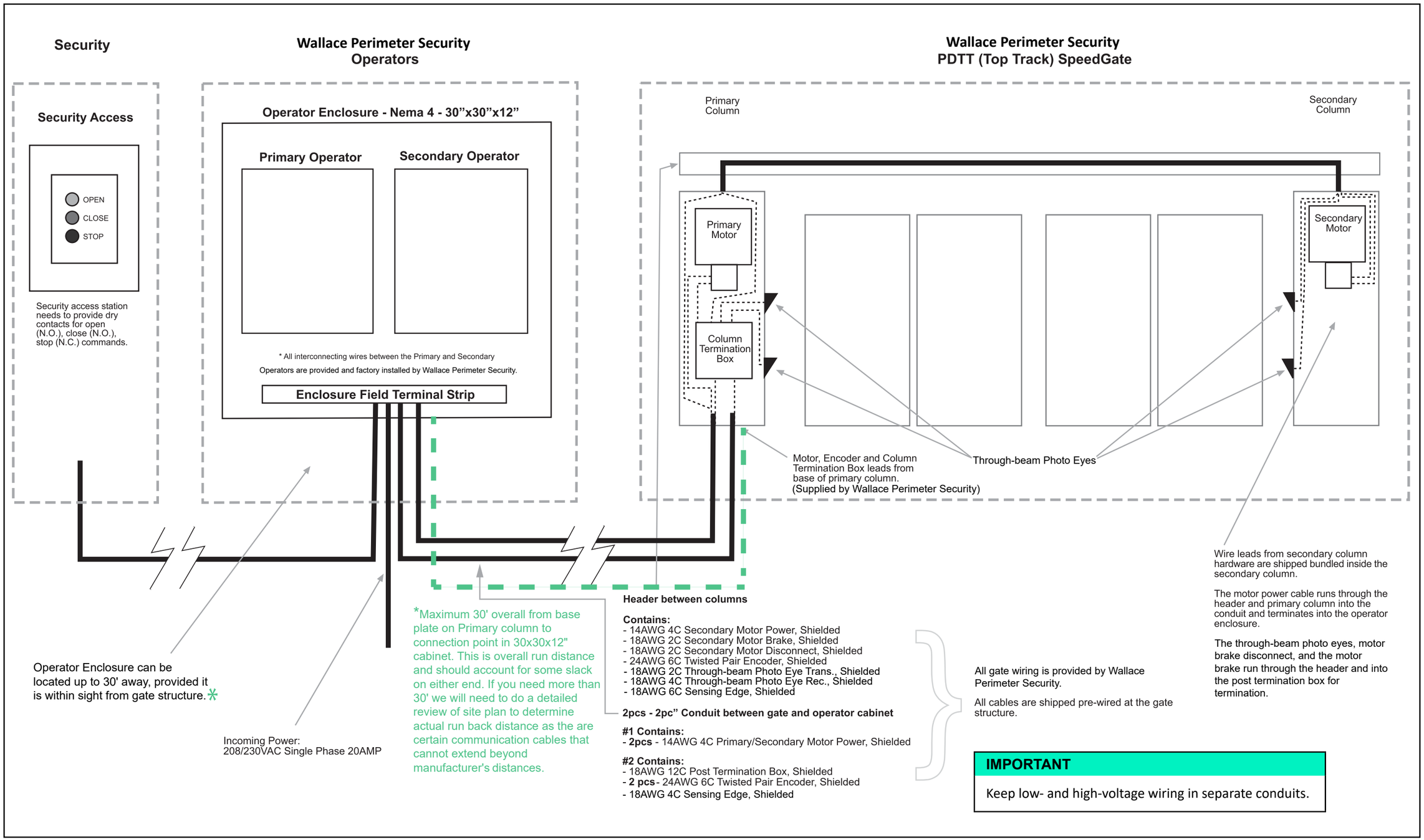


Figure 23: PDTT Electrical Point-to-Point Diagram

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⚠ WARNING

Wiring, testing and maintenance work on an open controller may be performed only without power.

Supplying a gate operator with the right electrical service is crucial to the performance of the operator and the life of its electrical and mechanical components. If the wire size used is too small the resulting voltage loss, especially during motor starting, will prevent the motor from attaining its rated horsepower. The percent of horsepower lost is far greater than the percentage of the voltage loss. A voltage loss could also cause the control components to chatter while the motor is starting, substantially reducing their life due to the resultant arcing. **There is no way to restore the lost performance resulting from undersized wires, except to replace them; therefore, it is much more economical to choose a sufficient wire size at the initial installation.**



All gate wiring is provided by Wallace Perimeter Security. All cables are shipped pre-wired at the gate structure. All interconnecting wires between the Primary and Secondary Operators are provided and factory installed by Wallace Perimeter Security.

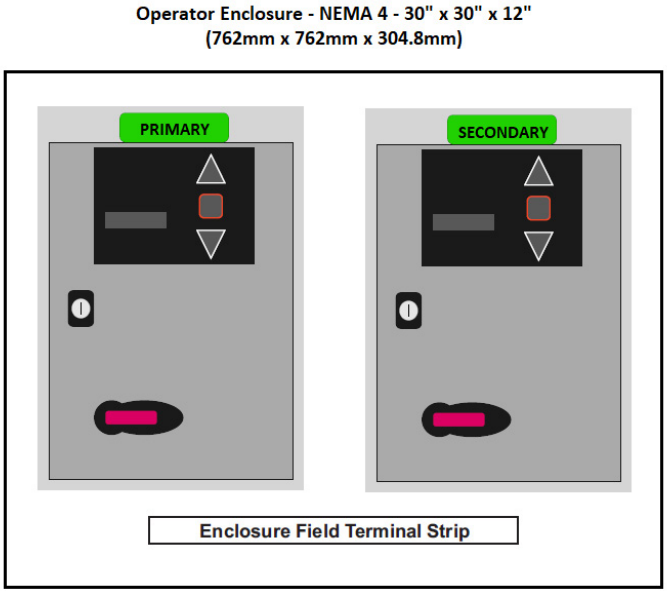
Always connect in accordance with the National Electrical Code (NEC), Article 430 - Motors, Motor Circuits and Controllers, and other local codes that may apply.

Primary & Secondary Operator for a Standard Post Drive Gate SpeedGate

The operator enclosure can be located up to 30 feet (9.1 meters) overall run distance away from the gate, provided it is within sight from the gate structure.

NOTE

The Operator Cabinet location must be pre-determined so that the Post Termination Box can be installed into the column that will be nearest the Operator Cabinet.



Single or dual motor applications may be installed, depending upon gate configuration.

- If a single folding gate is required, up to 11.5 feet (3.5m)- PDXT Series [or 12 feet (3.66m)- PDTT Series] wide, only two folding gate panels hinged together, one (primary) operator and one column housing one gate motor are required. The remaining column is utilized to mount exterior photo eyes, as is the first.

- If a dual folding gate is required, up to 23 feet (7.01m)- PDXT Series [or 24 feet (7.31m)- PDTT Series] wide, four folding gate panels (two panels to fold one way; two panels to fold the other way), both operators (primary and secondary) and two columns housing one gate motor each are required. Photo eyes are mounted on each column exterior.

NOTE

It is important to consider not only user vehicle traffic size and type when ascertaining whether to employ a single or a dual configuration, but also how vehicles will be entering the gate. For example, straight-in or requiring hard 90-degree turns in a limited zone of space, in which case a dual configuration should be employed, even if user vehicles are deemed smaller-sized.

Wire Sizes, Types and Locations

Table 4: Wire Gauge Sizes, Types and Locations applicable to PDTT and PDXT Models	
Wire Gauge	**Type**
	Between Columns 1 and 2*
14AWG	4C Secondary Motor Power, Shielded
18AWG	2C Secondary Motor Brake, Shielded
18AWG	2C Secondary Motor Disconnect, Shielded
24AWG	6C Twisted Pair Encoder, Shielded
18AWG	2C Through-beam Photo Eye Transmitter, Shielded
18AWG	4C Through-beam Photo Eye Receiver, Shielded
18AWG	6C Sensing Edge, Shielded
	Conduit Between Gate and Operator Cabinet:
14AWG	4C Primary/Secondary Motor Power, Shielded (2pcs)
18AWG	12C Post Termination Box, Shielded
24AWG	6C Twisted Pair Encoder, Shielded (2pcs)
18AWG	4C Sensing Edge, Shielded
	*Header Between Columns 1 and 2 for PDTT (TOP TRACK) Model; OR 2" Underground Conduit Between Columns 1 and 2 for PDXT (TRACKLESS) Model.

Incoming Power: 208/230VAC Single Phase 20AMP	
Wire leads from secondary column hardware are shipped bundled inside the secondary column.	
PDTT (TOP TRACK) Model	**PDXT (TRACKLESS) Model**
The motor power cable runs through the header and primary column into the conduit and terminates into the operator enclosure.	The motor power cable runs through the primary column into the conduit and terminates into the operator enclosure.
The through-beam photo eye, motor brake disconnect and the motor brake run through the header into the Post Termination box for termination.	The through-beam photo eye, motor brake disconnect and the motor brake run to the Post Termination box for termination.
Security access station needs to provide dry contacts for open (N.O.), close (N.O.), stop (N.C.) commands.	

The electrical connections for a SpeedGate are as follows:

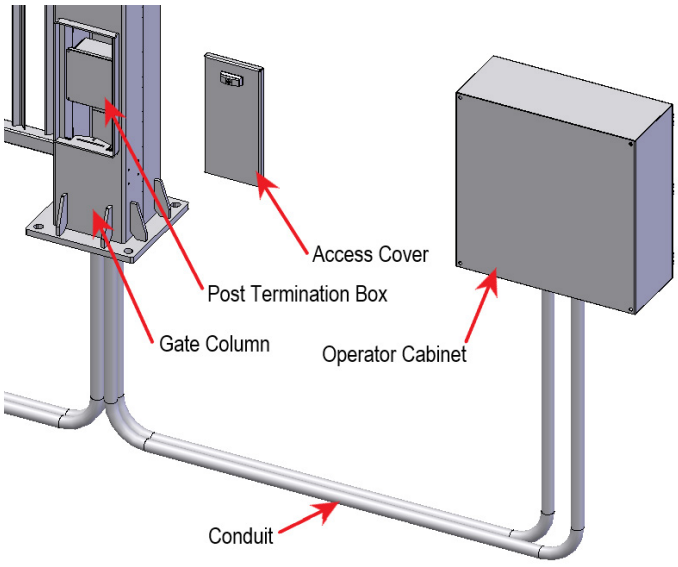
Table 5: SpeedGate Electrical Connections		References
1.	**Conduit Between Primary and Secondary Columns**	
	Run through header between Columns 1 and 2 for PDTT (TOP TRACK) Model; OR 2" underground conduit between Columns 1 and 2 for PDXT (TRACKLESS) Model.	• ***"Figure 22: PDXT-C Electrical Point-to-Point Diagram" on page 67*** • ***"Figure 23: PDTT Electrical Point-to-Point Diagram" on page 69***
1.1	Low voltage wiring to Post Termination Box, excluding the encoder and motor cables:	
	The Post Termination Box is in the column that is located nearest to the Operator Cabinet. All of the gate safety inputs except for the vehicle detector loop leads terminate into the Post Termination box. The multi-conductor low voltage cable connects the Post Termination box to the operator cabinet. All wires from the secondary column terminate into the Post Termination box located in the Primary Column.	• ***"Electrical Circuits – Post Termination Box" on page 110***
		

Figure 24: Location of Post Termination Box

Table 5: SpeedGate Electrical Connections		References
2.	**Between the SpeedGate and the Operator Cabinet**	
2.1	Motor cables to be kept a minimum of 18 inches (46cm) from the secondary (control) wiring.	--
2.2	Multi-Conductor Low Voltage Cable (see 1.1 above)	--
2.3	Encoder Cables	• ***"5. Encoders" on page 118*** to ***page 120***
3.	**Between the Vehicle Loops and the Operator Cabinet**	• ***"Installation Instructions for Optional Vehicle Detectors" on page 104*** • ***"8. Vehicle Loops" on page 123***
3.1	Vehicle Detector Loops Leads	
4.	**From Operator Cabinet to Building**	
4.1	Power Supply (2 hots, 1 ground @ 208-240V single phase)	• ***"Wiring Installation" on page 65***
4.2	Control Wiring	

Installing Photo Eyes

DANGER

To prevent death or severe injury due to electrical shock, de-energize the gate operator(s) as follows before performing any electrical work on the gate:

- Disconnect electrical power at the circuit breaker.
- Follow any lockout/tagout procedures.
- Turn off the AC and DC power switches located inside the gate operator(s).

WARNING

To prevent death or severe injury due to contact with the gate:

- Ensure that the area around the gate is free of bystanders.
- Restrict gate access.
- De-energize the gate operator(s) before working in the gate area unless you are instructed to energize the gate operator(s).

IMPORTANT

Install all entrapment safety devices, including photo eyes, before setting gate limits.

NOTE

For UL 325 compliance, all external entrapment protection sensors **must have normally-closed (N.C.) sensor outputs** for monitoring and powering purposes.

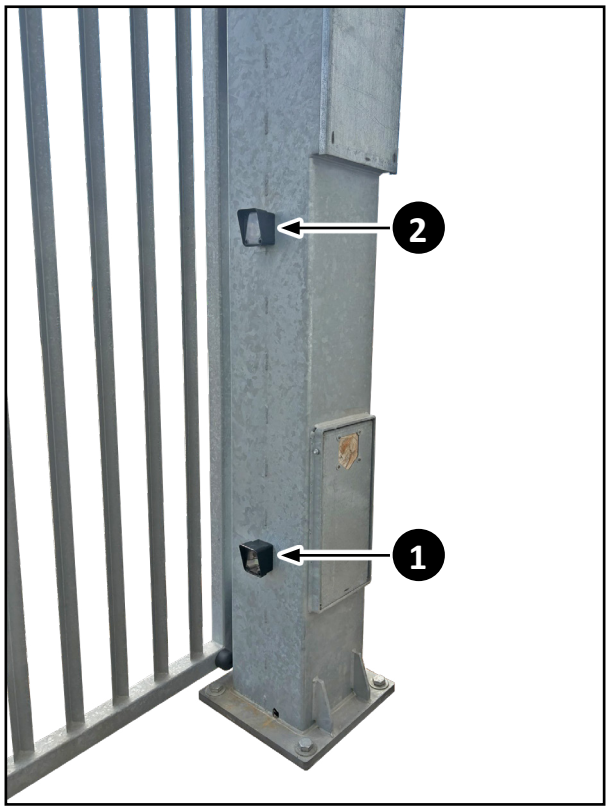


Figure 25: Photo eye column mounting

The SpeedGate is shipped with one set of through-beam type photo eyes (1) (receiver shown).

If a higher safety level is required, the SpeedGate can be equipped with a second set of photo eyes (2) (receiver shown).

Through-beam type photo eyes are shipped pre-wired and terminate into the Post Termination connection board located in the Primary Column. Through-beam sensors have a transmitter (emitter) and a receiver, and trigger whenever the beam between the two is interrupted.

For installation of other photo eye types (e.g., retro-reflective), follow the manufacturer's instructions. **The best way to ensure a quality installation is to employ a professional installer experienced with photo eyes.**

Wire Gauge and Type:

- 18 AWG, 2C: Through-beam Photo Eye Transmitter, Shielded
- 18 AWG, 4C: Through-beam Photo Eye Receiver, Shielded

IMPORTANT

When unpacking photo eyes, do **NOT** discard the receiver sunshields (1) ("alignment cones"). The sunshields are effective at reducing the effects of solar interference or crosstalk.

Mount photo eye receivers to columns with the shields intact and adjust as required. If two sets of photo eyes are being installed on one column and crosstalk is occurring, remounting photo eyes in the following configuration may eliminate this issue:

- Install the transmitter above the receiver on one column.
- Install the receiver above the transmitter on the opposing column.
- Angle the top device upward and bottom device downward to avoid crosstalk.

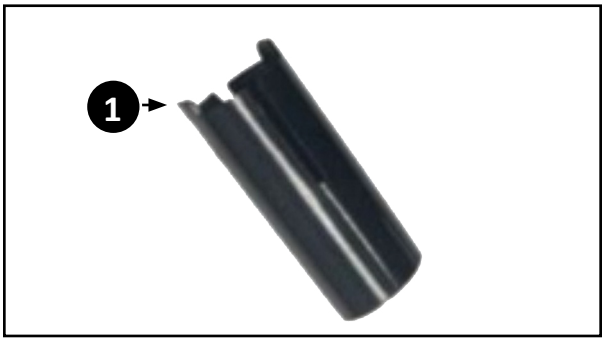


Figure 26: Photo eye sunshield

1. Remove cover from photo eye by removing the four corner screws. The cover should not be placed on photo eye until the photo eye transmitter and receiver are aligned.
2. ***Figure 27*** shows the wiring and DIP switch settings of an EMX-MON photo eye (typical through-beam wiring), the type of photo eye normally shipped with a SpeedGate by Wallace Perimeter Security.

NOTE

The operator cycles power to the receiver while monitoring the receiver normally-closed (N.C.) contacts for proper operation.

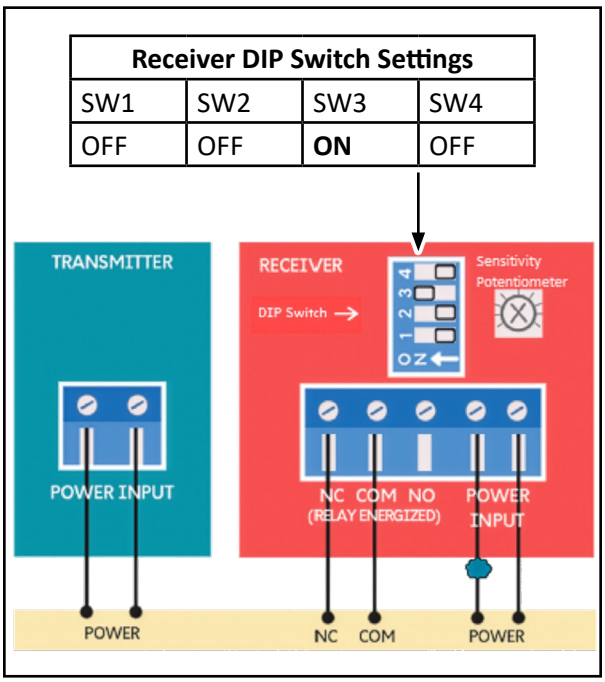


Figure 27: EMX-IRB-MON Photo Eye Wiring

3. Typical EMX photo eye connections to the post termination box:
   - For SpeedGates with one set of photo eyes, refer to ***Table 6 on page 78***.
   - For SpeedGates with two sets of photo eyes refer to ***Table 7 on page 78***.

Table 6: Photo eye wiring — one set	
Primary Column Bottom Receiver:	+24 (4C, white), top terminal #6
	-24 (4C, black), top terminal #10
	COM (4C, red), top terminal #3
	NC (4C, green), top terminal #15
Secondary Column Bottom Transmitter:	+24 (2C, white), top terminal #1
	-24 (2C, black), top terminal #8

Table 7: Photo eye wiring — two sets	
Primary Column Top Transmitter:	+24 (2C, white), top terminal #3
	-24 (2C, black), top terminal #9
Primary Column Bottom Receiver:	+24 (4C, white), top terminal #6
	-24 (4C, black), top terminal #10
	COM (4C, red), bottom terminal #7
	NC (4C, green), top terminal #15
Secondary Column Top Receiver:	+24 (4C, white), top terminal #5
	-24 (4C, black), top terminal #11
	COM (4C, red), top terminal #4
	NC (4C, green), top terminal #7
Secondary Column Bottom Transmitter:	+24 (2C, white), top terminal #1
	-24 (2C, black), top terminal #8

IMPORTANT

Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

4. Connect post termination connection board to operator cabinet. For connection details, refer to the schematics supplied with the controller.

Aligning Photo Eyes

To test alignment, photo eyes must be installed in columns. If two pairs of photo eyes have been supplied with a gate, ensure that the transmit/receive photo eyes are mounted accordingly – **transmitter above receiver on one column; receiver above transmitter on the opposing column.**

The SpeedGate-designated height for bottom-mounted photo eyes is 24” (61cm) above grade and, for the top pair (if included in the installation), 60” (152cm) above grade. Photo eyes are commonly mounted within 5” (13cm) of the gate panels in the closed position.



The cover should not be placed back on the photo eye until the photo eyes are aligned.



NORMAL OPERATION: All LEDs need to be solid green. When obstruction in-between photocells occurs, the green LED on the receiver will start blinking.

1. Remove front cover and, when necessary, loosen the two alignment screws. Make sure the green transmitter LED remains lit. Place the black sunshield (alignment cone) on the receiver(s) and angle to achieve alignment with the transmitter.

2. The photo eye transmitter and receiver green LEDs will be lit when powered. Confirm receiver LED is still on, and use the LEDs to verify photo eye alignment. Refer to ***“Table 9. Verification of Photo Eye Alignment” on page 80***.

3. Install and adjust sunshield on receiver(s) to reduce the effects of solar interference or crosstalk.

4. Ensure DIP switch setting 3 is ON.

5. When the photo eye is successfully aligned place the photo eye cover back on.

Table 9. Verification of Photo Eye Alignment		
	Green transmitter LED ON.	Power present and transmitter is functional.
	Green receiver LED ON.	Successful system alignment, power present and receiver is functional.
	Green receiver LED FLASHING.	Obstruction between photo eyes is present. (On the receiver side, single-pole relay clicks.)
	Green receiver LED FLASHING when there is NO OBSTRUCTION present.	FAULT: Beam blocked or not aligned. The receiver is not "seeing" the transmitter. Recommended action(s): 1. Clean the sensor (beam output and receiver) with a soft, clean, dry cloth. 2. Re-align transmitter and receiver. 3. Check voltage and current with multimeter.
	TEST:	
	1) Place an obstruction (e.g., hand) in front of the receiver. Green receiver LED should be ON and flashing, indicating obstruction detection.	
	2) Remove obstruction from the receiver. Green receiver LED should be ON and not flashing.	



Optical crosstalk occurs when a photo eye receiver responds to light from an adjacent emitter. Crosstalk is occurring if the transmitter is solid green and the receiver appears dead (LED not lit), except when an obstruction is detected, in which case the green receiver LED commences flashing.

If re-alignment or repositioning of transmitter and receiver does not resolve crosstalk and/or the interference is occurring at a site with more than one SpeedGate, decrease the sensitivity setting on the receiver to the position where the green LED on the receiver starts to flash. Then increase sensitivity setting one quarter turn.

Installing Sensing Edges

Sensing edges (edge sensors) are CONTACT safety devices installed on automatic gates at potential crushing or shearing points.

The ends of the outermost gate panel sections (where the risk of entrapment or obstruction exists) include a provision for fitting contact-pressure-sensitive sensing edges for connection to the control circuit. When installed sensing edges are pushed, they transmit a signal to the gate to stop and react in accordance with UL 325 regulations.

Sensing edges or photo eyes or a combination of both devices must be installed to protect against pedestrian entrapment in BOTH directions of the gate travel and where an entrapment hazard exists. The preferred external entrapment solution for bifold gates is a photo eye (i.e., Type B1 – non-contact) for the close direction and/or a hard-wired sensing edge (i.e., Type B2 – CONTACT) on the leading edge of the gate, which protects for both directions of gate travel.

In a single bifold gate there will be a total of one vertical and two horizontal sensing edge sections. In a double bifold gate there will be a total of two vertical and four horizontal sensing edge sections.

Leading sensing edges (vertical) should be programmed to operate when the gate is moving in the CLOSE direction. Horizontal sensing edges should be programmed to operate when the gate is moving in the OPEN direction.

Your Wallace Perimeter Security (WPS) bifold gate uses SENTIR Safety Contact Edges by ASO Safety Solutions with MILLER EDGE Multi-Input Modules.

NOTE

- Component placement instructions herein are subject to change. Connections are correct.
- The following parts from WPS are subject to change.

WPS Part Number	Description
100543	Sensing Edge - SENTIR 5 ft Contact Edge, with Mounting Channel, Attachment and Resistor Set, and Link Kit
100537	ASO-1502-0430 – SENTIR Edge 25.30 TT Contact Profile with length: 25 m (82 ft), priced per foot

Mfg. Part Number	Description	Quantities
100904	MILLER EDGE Multi-Input Module The Solution – MIM-62	WPS supplies one multi-input module when six sensing edges are ordered. (SpeedGate models).

NOTE

UL325 standard requires gate operators to monitor the presence of all external entrapment sensors, including non-contact (photo eyes) and contact (sensing edge) sensors. Your WPS gate operator monitors all external entrapment sensors connections by looking for normally-closed (NC) contacts connected to input terminals.

Table 8: Required tools	
Impact drill	Drill with vari-bit for knocking out conduit holes
Phillips screwdriver	Appropriate conduit or cabling connectors
Wire strippers	Soapy water for lubricating sensing edge rubber inserts
Fish tape	Electrical tape

Step 1: Installing Sensing Edges onto Gate Panels

DANGER

To prevent death or severe injury due to electrical shock, de-energize the gate operator(s) as follows before performing any electrical work on the gate:

- Disconnect electrical power at the circuit breaker.
- Follow any lockout/tagout procedures.
- Turn off the AC and DC power switches located inside the gate operator(s).

WARNING

To prevent death or severe injury due to contact with the gate:

- Ensure that the area around the gate is free of bystanders.
- Restrict gate access.
- De-energize the gate operator(s) before working in the gate area unless you are instructed to energize the gate operator(s).

The process for installing sensing edges is described below.

Each sensing edge has a 8.2 kΩ terminating resistor that goes dead short (closed circuit) when activated. However, for UL compliance control electronics must output a normally-closed (NC) contact or voltage signal to the gate controller. To fulfill this requirement, the Multi-Input Module (MIM-62) output interface includes an NC relay contact setting that opens when the 8.2 kΩ terminating resistor goes dead short. (The MIM-62, designed for 10 kΩ sensing edge termination, works effectively with 8.2 kΩ termination.)

For additional installation details, refer to ***Figure 28 on page 85*** and ***Figure 29 on page 87***.

1. The sensing edges generally consist of one rubber section. Along with each rubber section there will be an accompanying aluminum channel section of the same length.

   In a single bifold gate there will be a total of one vertical and two horizontal sections. In a double bifold gate there will be a total of two vertical and four horizontal sections.
2. Using self-tapping screws, or hardware for drilled holes, securely fasten the aluminum channel to the gate panel leading edge.
3. Drill a hole from the end of each side of the aluminum channel into the gate frame. Make sure the hole is large enough so that you can fit cable through the gate frame.
4. Lubricate the outer lips of the rubber edge with soap and water, and then slide the rubber edge into into the aluminum channel.

IMPORTANT

Sensing edges come in two cabling formats: one format has a resistive end and a cable end, whereas the other format has two cable ends for connecting sensing edges in series.

- **Only install sensing edges that have a resistive end and a cable end. Never connect sensing edges in series.**
- Each sensing edge will be independently connected to its own input on the MIM-62 Multi-Input Module. Up to 6 such inputs are provided on each module, with two normally-closed (NC) output relays. As shown in the connection diagrams, one relay connects to sensing edge inputs programmed at the gate controller to operate in the gate CLOSE direction. The other relay connects to sensing edge inputs programmed to operate in the gate OPEN direction.

5. Insert the sensing edge cable into the hole that was drilled into the aluminum channel and gate frame.
6. Route the cable to the MIM-62.
7. Connect the sensing edge leads to the MIM-62 and controller. For instructions, refer to ***"Step 2: Connecting the Sensing Edge Leads to the MIM-62 and Controller" on page 89.***
8. Program the controller. For instructions, refer to ***"Step 3: Programming the Operator (Controller) to Accept Sensing Edge Inputs" on page 101***.
9. Test the sensing edges. For instructions, refer to ***"Step 4: Testing the Sensing Edges" on page 101***.

IMPORTANT

SpeedGate controllers are currently factory programmed to use sensing edge terminal 72 input for CLOSE direction operation, and terminal 85 input for the OPEN direction. DO NOT PERFORM FIELD PROGRAMMING OR RETROFITS ON AN EXISTING MODEL YOURSELF. CALL WPS TECHNICAL SUPPORT AT 1-866-300-1110.

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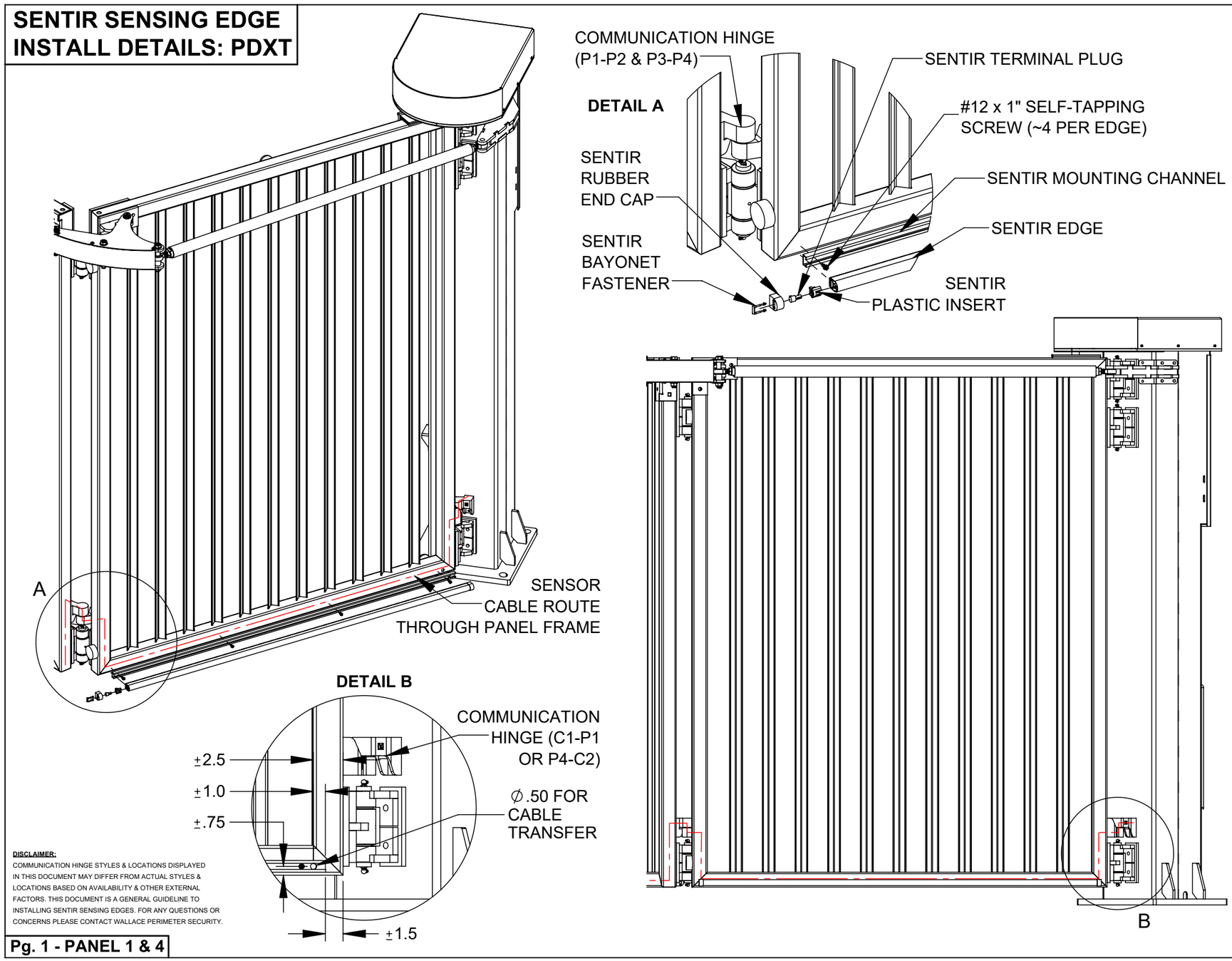


Figure 28: Sensing edge installation on panels 1 and 4 of a PDXT (PDTT is similar)

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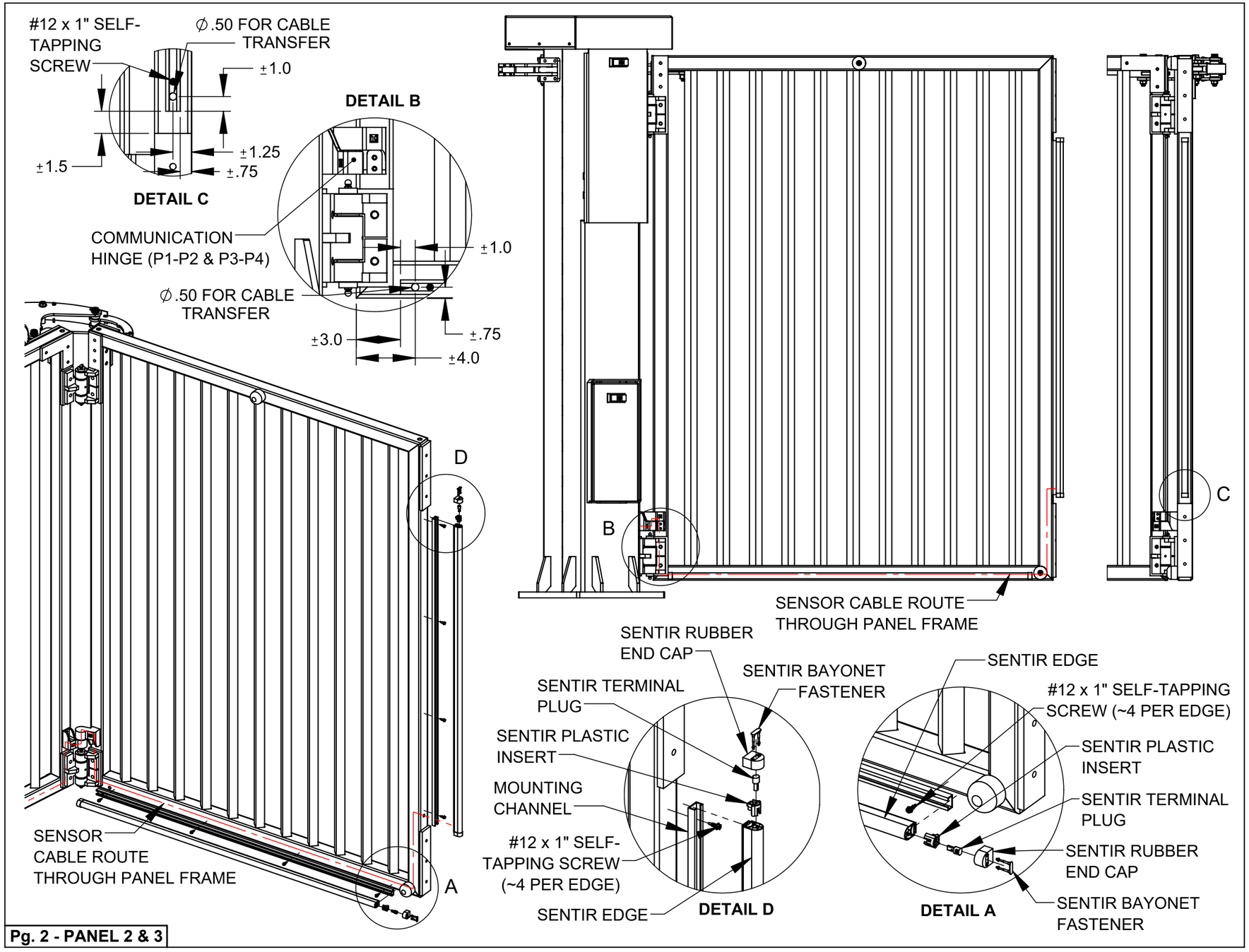


Figure 29: Sensing edge installation on panels 2 and 3 of a PDXT (PDTT is similar)

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Step 2: Connecting the Sensing Edge Leads to the MIM-62 and Controller

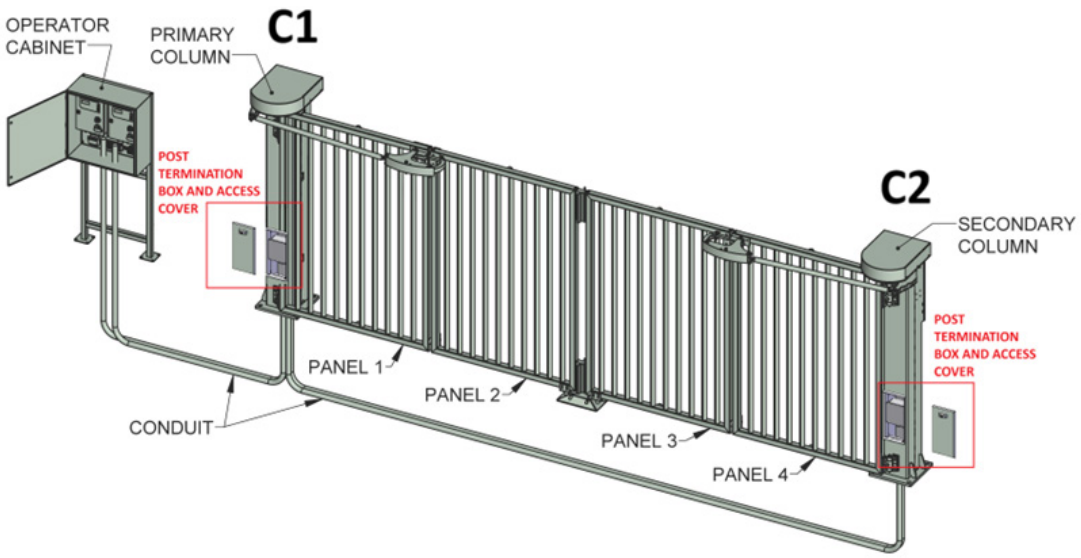
⚠ WARNING

To prevent death or severe injury due to contact with the gate:

- Ensure that the area around the gate is free of bystanders.
- Restrict gate access.
- De-energize the gate operator(s) before working in the gate area unless you are instructed to energize the gate operator(s).

All SpeedGate safety inputs, except vehicle detector loop leads, terminate into the post termination box. The post termination box is located in the primary column, and 18-gauge multi-conductor low voltage cable connects the post termination box to the operator cabinet, via conduit. Current SpeedGate models include a second post termination box located in the secondary column, designed for mounting the second of two MIM-62 units. **Retrofits are possible only with assistance from WPS. If you need a retrofit, call WPS Technical Support at 1-866-300-1110.**

In a dual gate configuration, which is the most common, there are two gate operators (primary and secondary) housed in one operator cabinet. The primary operator controls the gate motor in the column closest to the controllers. The secondary operator controls the gate motor in the column furthest from the controllers.



Current SpeedGate models provide a mounting location for one MIM-62 inside the lid of the post termination box in the primary column, with cable strain relief and additional terminal blocks. The secondary column only has a post termination box for sensing edge connection. Additional cable is provided for running through conduit and connection to the Operator (controller).

- Each MIM-62 will accept up to 6 inputs (separate monitored devices) and connect them to either of two outputs for open and close directions. **WPS gates use the inputs for sensing edges only.**

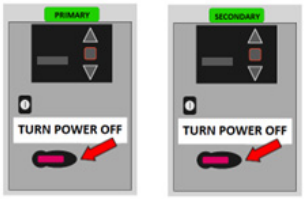
- Your WPS gate operator monitors all external entrapment sensors connections by looking for NC contacts connected to input terminals.

- **<u>MIM-62 input Channels 1 and 2 must be used, and are always assigned to Output A</u>.** The other input channels may be assigned to either Output A or Output B using the Input Assignment Switch on the rear panel. Use of all 6 inputs is not required.

- **Each of the Output circuits of MIM-62 should be set to "Relay" (normally closed) by the Output Type selection switch on the rear panel.**

Install Module and Test

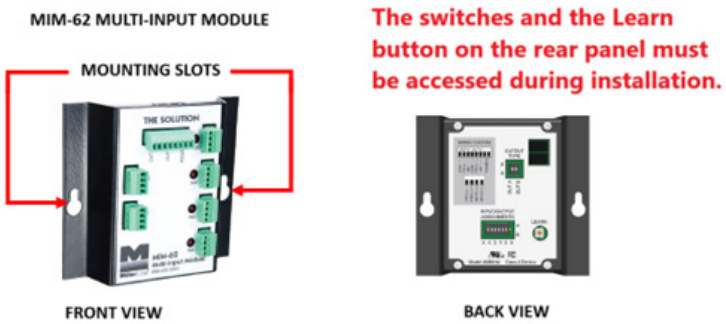
A. CLOSE both gates. Turn OFF power from both operators. Turn OFF AC power at the source (circuit breaker panel) before accessing the wires in the SpeedGate junction boxes. Follow facility Lock Out/ Tag Out procedures.



The primary operator controls the gate motor in the column closest to the controllers. The secondary operator controls the gate motor in the column furthest from the controllers.

B. One MIM-62 will be mounted inside the lid of the post termination box (in the primary gate column). If already mounted, you will need to loosen the mounting slot screws and temporarily remove the unit(s), as the switches and the Learn button on the rear panel of MIM-62 must be accessed during installation. **Run the provided cable through conduit for connection to the Operators (controllers).**

THERE ARE TWO MOUNTING SLOTS ON THE TOP COVER OF MIM-62.



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WALLACE PERIMETER SECURITY

C. Connect the sensing edge leads (Blue/Brown wires in heavy black jacketed sensing edge lead) from each panel to the MIM-62 in the post termination box for the primary operator, and the secondary operator, as applicable. Make sure the sensing edge wiring is not pinched/kinked in at panel to column connection. **See connection diagrams following item I.**

Leave enough slack in your wiring to allow removal of MIM-62 if/when re-learning is required.

D. When all sensing edge inputs are connected to MIM-62's, **ENSURE NO ONE IS STANDING IN THE PATH OF THE GATE BECAUSE OPERATOR(S) WILL RECYCLE DURING START-UP.** Turn ON the power at the circuit breaker panel, and switch ON the operators. MIM-62 should display a brief light test followed by blinking of the Output A and Output B indicators. The Learn Mode LED on the rear panel will also be lit. This indicates that MIM-62 is in Learn Mode, and will display the present condition of each input channel's sensor:

LED Status	Indication	Applicable to Wire Connections Herein (NC inputs at MIM-62 front and Relay outputs at MIM-62 rear)	Not Applicable
ON: solid	Open circuit (faulty wiring or nothing connected)	**X**	
BLINKING	10K ohm terminated sensor (no fault indicated)		**X**
OFF: solid	Normally Closed sensor (no fault indicated)	**X**	
FAST BLINK	Pulsed sensor (no fault indicated)		**X**

E. If there is a fault, correct any wiring or make selection changes before proceeding.

NOTE: The LEDs behave differently in Learn Mode versus Run Mode.

F. When all intended devices are connected and indicating no faults, momentarily press the Learn button on the rear panel. The lights should flash, and then all the LEDs should go OFF, except the green power LED. **Test each sensing edge to confirm the associated red LED turns ON when the device is activated.**

G. MIM-62's should be operational and may be mounted to mounting location(s).

H. Troubleshooting the MIM-62

If sensing edges are not functioning, check for proper power connections, including polarity, if necessary.

If, after the Learn button is pressed, one or both outputs are in fault (yellow LED ON), check to see which red LEDs are ON. Confirm the sensing edge is connected to the assigned channel. If it is working, confirm the output of the edge is connected properly to the input connector.

If re-learning MIM-62 is necessary:

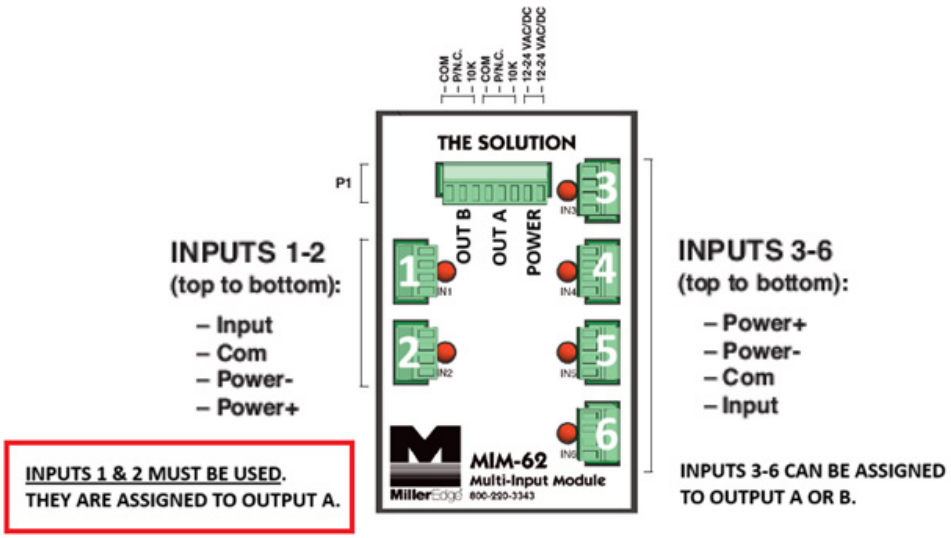
a. Press the Learn button to clear settings.

b. Press the Learn button to learn new settings.

This means that after connections have been modified, pressing the Learn button twice will clear old settings, and activate the device to self-learn the new settings.

IMPORTANT: Input Channels 1 and 2 must be used, and are always assigned to Output A. Otherwise, the MIM-62 will not "learn" new programming.

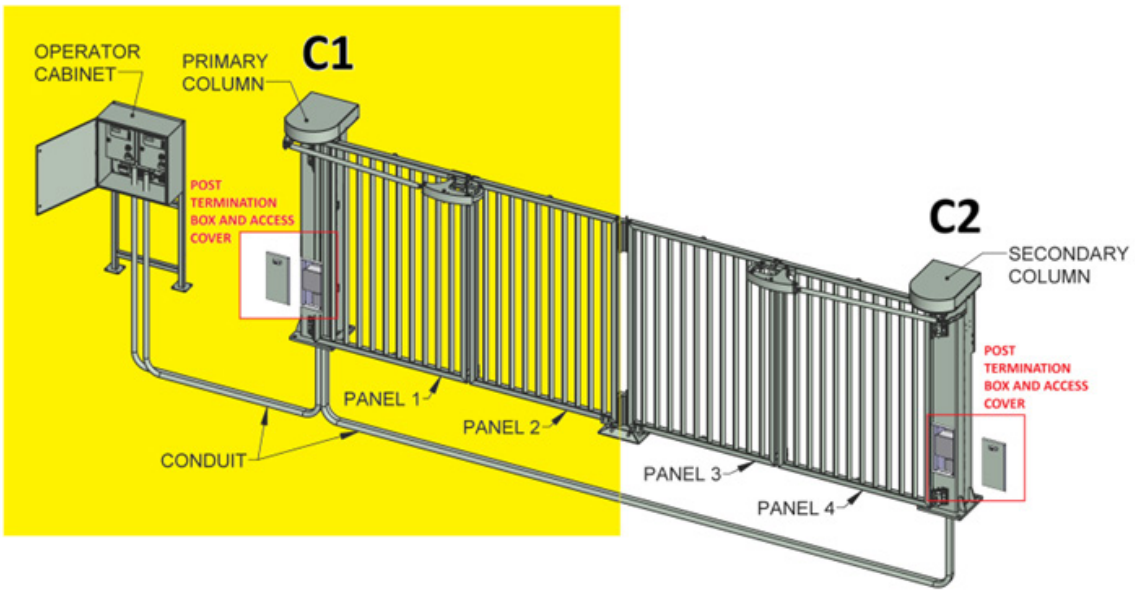
If all sensing edges and MIM-62's are working **(no red or yellow LEDs)**, and an operator is still reporting a fault, check your wiring, and confirm MIM-62 outputs are connected properly to the operator's inputs. Also, confirm the Output Interface is set correctly to 'Relay,' NOT 'Pulsed'.



I. Location of Post Termination Boxes Housing MIM-62's:

As shown in the following illustration, dual-folding gates include two posts (columns) with a total of four folding gate panels attached.

The C1 (Pl 1 & P2) side is located at gate column 1, which is on the left-hand side (closest to the controller) and attaches to gate panels 1 and 2. One MIM-62 will be mounted inside the lid of the post termination box at C1 (the primary gate column).



The C2 (P3 & P4) side is located at gate column 2, which is on the right-hand side and attaches to gate panels 3 and 4. It is a mirror image of the C1 side.

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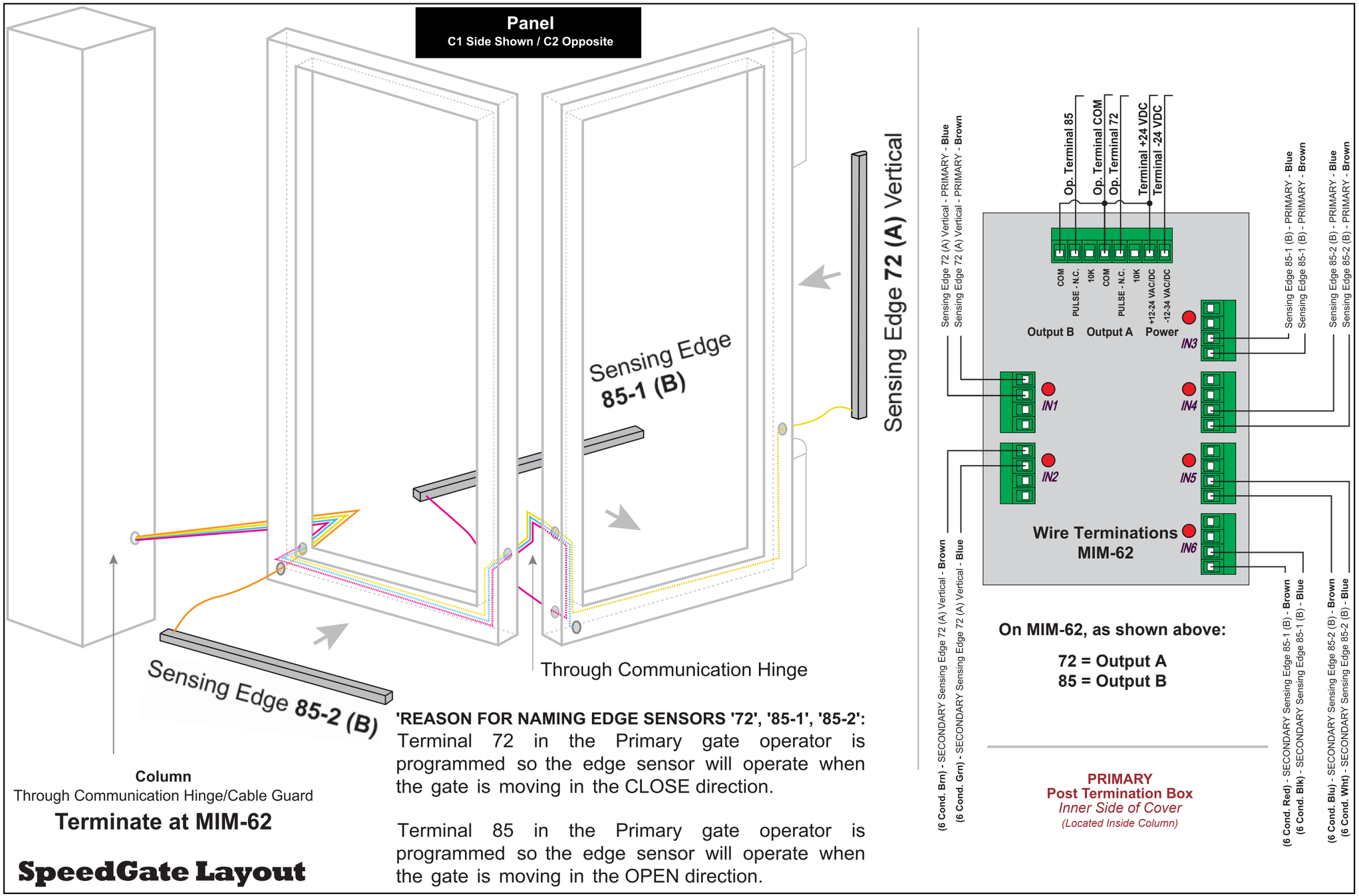
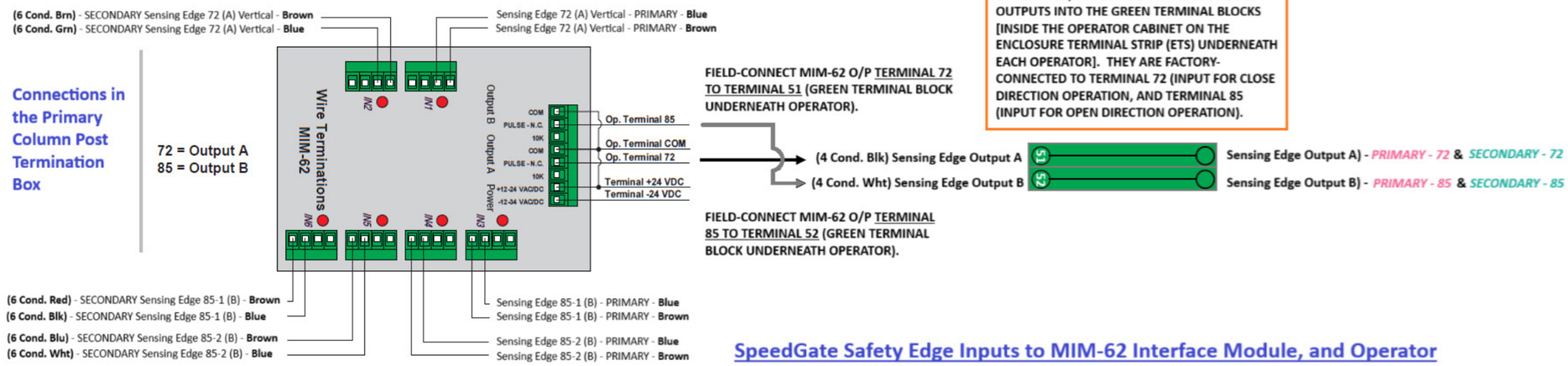


Figure 30: Connection of sensing edge leads from each panel to the MIM-62 on a SpeedGate

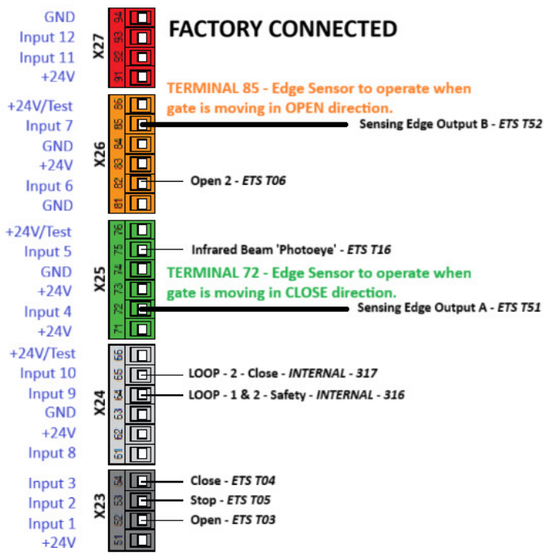
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1 FIELD CONNECTIONS



SpeedGate Safety Edge Inputs to MIM-62 Interface Module, and Operator

DIAGRAMS BELOW ARE PROVIDED FOR INFORMATION PURPOSES ONLY.



THESE ARE FACTORY-INSTALLED EDGE SENSOR CONNECTIONS TO THE PROCESSOR CIRCUIT BOARD IN THE PRIMARY OPERATOR TERMINAL BLOCK. **NO FIELD ACTION IS REQUIRED HERE**.

SpeedGate controllers are currently factory programmed to use Edge Sensor terminal 72 input for CLOSE direction operation, and terminal 85 input for the OPEN direction. **DO NOT PERFORM FIELD PROGRAMMING OR RETROFITS ON AN EXISTING MODEL YOURSELF. CALL WPS TECHNICAL SUPPORT AT 1-866-300-1110.**

Connections in the Secondary Column Post Termination Box

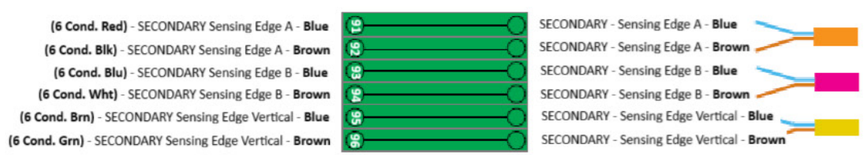
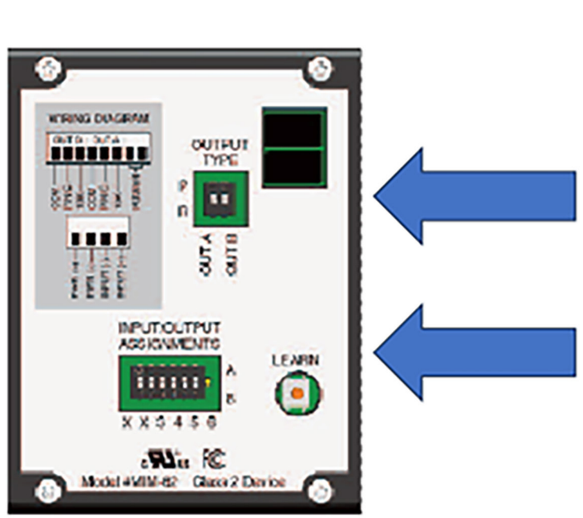


Figure 31: Sensing edge wiring connections to the primary and secondary column post termination boxes, and gate controller sensing edge circuit information

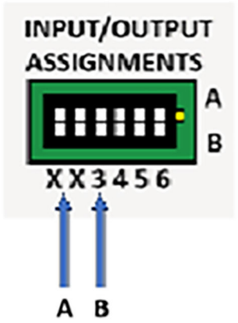
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2 MIM-62 OUTPUT TYPE AND DIP SWITCH SETTINGS



REAR VIEW OF MIM-62





THESE ARE FACTORY SETTINGS, PROVIDED FOR REFERENCE.

INPUT CHANNELS 1 AND 2 ("XX") ARE HARD-WIRED FOR OUTPUT A. **OUTPUT A** WILL BE PROGRAMMED TO ACTIVATE THE SENSORS WHEN THE GATE IS **CLOSING**.

MIM-62 INPUTS	SENSING EDGE	Connect to MIM-62 WIRE COLOR
IN1	72 (A) VERTICAL- PRIMARY	**Blue**
	72 (A) VERTICAL- PRIMARY	**Brown**
IN2	**(6 Cond. Brown)** - 72 (A) VERTICAL - SECONDARY	**Brown**
	(6 Cond. Green) - 72 (A) VERTICAL - SECONDARY	**Blue**

SET THE DIP SWITCHES FOR INPUTS 3 TO 6 FOR OUTPUT B. **OUTPUT B** WILL BE PROGRAMMED TO ACTIVATE THE SENSORS WHEN THE GATE IS **OPENING**.

MIM-62 INPUTS	SENSING EDGE	Connect to MIM-62 WIRE COLOR
IN3	85-1 (B) PRIMARY	**Blue**
	85-1 (B) PRIMARY	**Brown**
IN4	85-2 (B) PRIMARY	**Blue**
	85-2 (B) PRIMARY	**Brown**
IN5	**(6 Cond. Blue)** 85-2 (B) SECONDARY	**Brown**
	(6 Cond. White) 85-2 (B) SECONDARY	**Blue**
IN6	(**6 Cond. Red**) 85-1 (B) SECONDARY	**Brown**
	(**6 Cond. Black**) 85-1 (B) SECONDARY	**Blue**

Figure 32: SpeedGate: MIM-62 Interface Module Settings

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Step 3: Programming the Operator (Controller) to Accept Sensing Edge Inputs

SpeedGate controllers are currently factory programmed to use sensing edge terminal 72 input for CLOSE direction operation, and terminal 85 input for the OPEN direction. **DO NOT PERFORM FIELD PROGRAMMING OR RETROFITS ON AN EXISTING MODEL YOURSELF. CALL WPS TECHNICAL SUPPORT AT 1-866-300-1110.**

Step 4: Testing the Sensing Edges

Confirm that each sensing edge stops and/or reverses as programmed. Test by placing a rigid obstruction in the path of the gate travel (OPEN and CLOSE) so that the sensing edge(s) will make contact.

The gate should react as programmed upon contact with the obstruction. If it does not, troubleshoot to ensure that the sensing edges function as programmed. Upon resolution of any issues, advise the user of the gate to be certain to retest this vital function weekly.

UL 325 Monitoring Requirement for External Entrapment Protection Devices

In accordance with the UL 325 standard, after July 31st, 2018, all bifold gate operators will need a minimum of 2 external entrapment sensors (1 open direction and 1 close direction) installed before automatic operation is allowed, but all potential entrapment zones must be protected or eliminated.

ALL external entrapment protection sensors including non-contact (photo eyes) and contact (sensing edge) sensors must be monitored, and the operator must verify the presence of every device at least once during each open and close cycle.

Terminal 40 in the SpeedGate operator enclosure terminal strip is designated for monitoring of all external entrapment sensor connections by looking for NC contacts connected to input terminals and cycling the power.

Additional sensor inputs, if required, can be made available by installing additional blocks on the I/O expansion board.

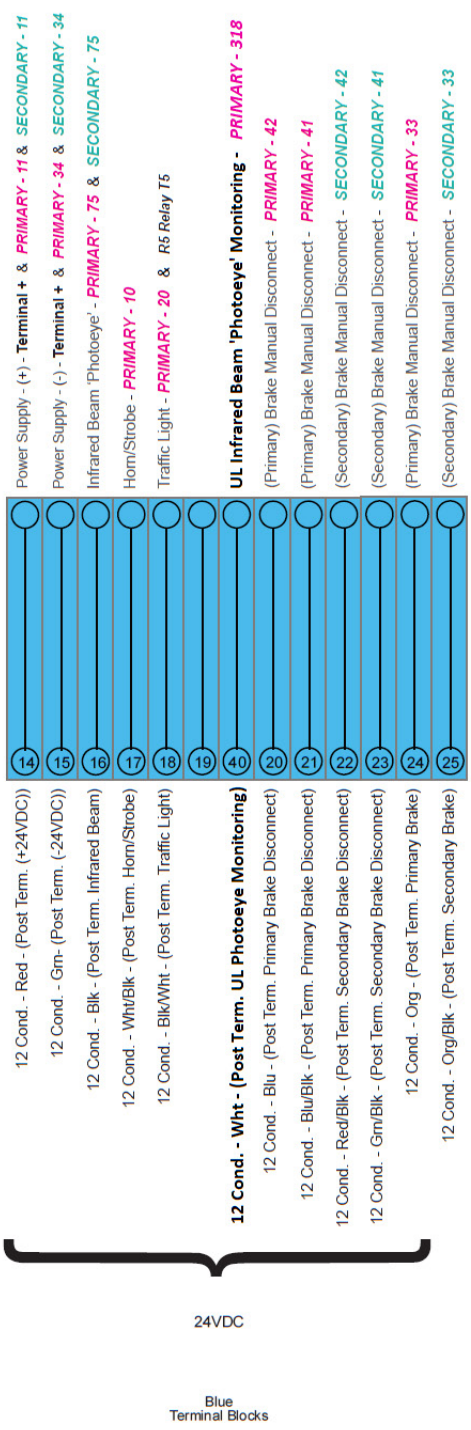
Upon monitoring, should any device not be present, or a fault condition occur that precludes the sensing of an obstruction, including an interruption of the wireless signal to the wireless device or an open or short circuit in the wiring that connects the external entrapment device to the operator and the device's supply source, the operator shall function with constant pressure for the direction of travel being protected, or shall only be able to be moved manually.

The gate operator monitors the "presence" of each entrapment protection sensor. When the operator no longer detects a sensor, it will cease automatic operation in the direction of the missing or failed sensor.

Qualified personnel must be physically present at the site of the gate system to troubleshoot monitoring faults. If a fault in the entrapment protection system is detected, fault number **928** will appear on the bottom left of the operator panel LCD diagnostic display. For troubleshooting details, refer to "F.928" in ***Table 13 on page 145***.

When the fault or error is resolved, a normal command for a new open or close cycle will restore gate operation.

Prior to resuming normal operation, it is the sole responsibility of the user to ensure the area is free of obstructions and that it is safe to operate the gate.


12 Cond. - Red - (Post Term. (+24VDC))
12 Cond. - Grn- (Post Term. (-24VDC))
12 Cond. - Blk - (Post Term. Infrared Beam)
12 Cond. - Wht/Blk - (Post Term. Horn/Strobe)
12 Cond. - Blk/Wht - (Post Term. Traffic Light)
12 Cond. - Wht - (Post Term. UL Photoeye Monitoring)
12 Cond. - Blu - (Post Term. Primary Brake Disconnect)
12 Cond. - Blu/Blk - (Post Term. Primary Brake Disconnect)
12 Cond. - Red/Blk - (Post Term. Secondary Brake Disconnect)
12 Cond. - Grn/Blk - (Post Term. Secondary Brake Disconnect)
12 Cond. - Org - (Post Term. Primary Brake)
12 Cond. - Org/Blk - (Post Term. Secondary Brake)
14
15
16
17
18
19
40
20
21
22
23
24
25
Power Supply - (+) - Terminal + & PRIMARY - 11 & SECONDARY - 11
Power Supply - (-) - Terminal + & PRIMARY - 34 & SECONDARY - 34
Infrared Beam 'Photoeye' - PRIMARY - 75 & SECONDARY - 75
Horn/Strobe - PRIMARY - 10
Traffic Light - PRIMARY - 20 & R5 Relay T5
UL Infrared Beam 'Photoeye' Monitoring - PRIMARY - 318
(Primary) Brake Manual Disconnect - PRIMARY - 42
(Primary) Brake Manual Disconnect - PRIMARY - 41
(Secondary) Brake Manual Disconnect - SECONDARY - 42
(Secondary) Brake Manual Disconnect - SECONDARY - 41
(Primary) Brake Manual Disconnect - PRIMARY - 33
(Secondary) Brake Manual Disconnect - SECONDARY - 33
24VDC
Blue
Terminal Blocks

Installation Instructions for Optional Vehicle Detectors

For SpeedGates using vehicle detectors, they are only to be used for vehicular traffic and the loops should not be less than 60 feet square (5.6 square meters).

NOTE

Vehicle detection ground loop systems, while not required by UL Standards, are **HIGHLY RECOMMENDED** for Automatic Exit and Obstruction Sensing Only.

The vehicle detector passes a small current flow through the in-ground laid "loop" which then becomes an inductive coil. When a vehicle passes over the loop the detector senses the resultant drop in the inductance, and this in turn actuates its output relay.

The best way to ensure a quality installation is to employ a professional installer experienced with vehicle detection ground-loop systems.

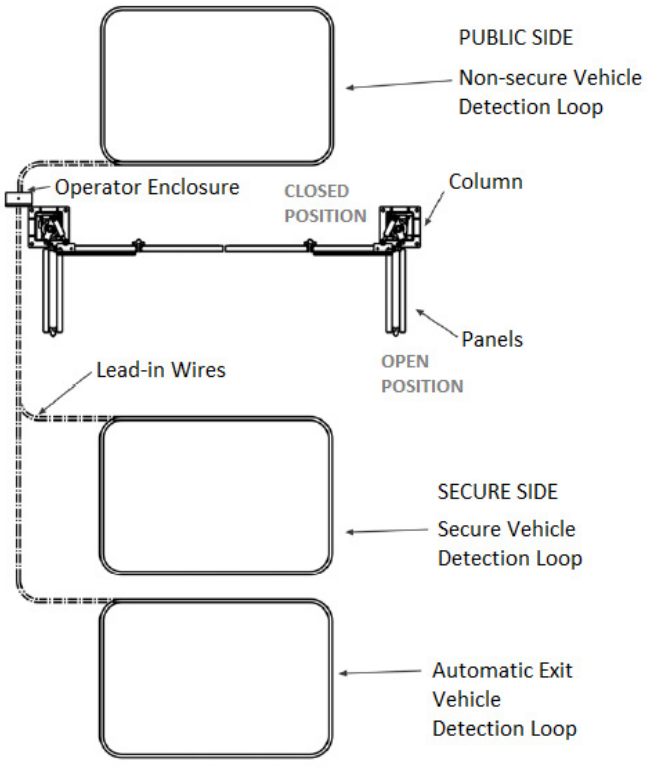
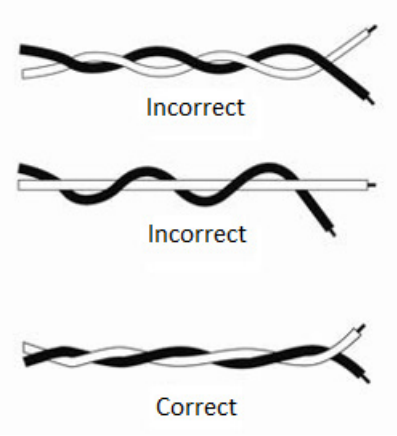


Figure 33: Loop Layout

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Installation of Vehicle Detection Ground-Loop Systems	
	 Induction loop lines must be routed separately from all other connecting lines and with the greatest possible distance away from the motor wiring and live lines in order to minimize potential interference. The loop lines must be twisted in pairs up to the internal terminals of the control system.
1.	Install ground loops, inside (“secure” side) and outside (“public” side), as indicated on ground loop installation instructions provided by the manufacturer. Configurations differ depending on the application. The ground loop(s) size and dimension are to be determined by the types of vehicles using the gate.
2.	Ground loops shall be at least 3 ft (91cm) from the face of the gate on the public side; at least 3 ft (91cm) away from the panels in the open position on the private side of the gate.
3.	If the ground loops are placed too close to the gate, the gate panels may activate the loop when they are opening. Ground loop “home run” leads should be saw-cut/trenched to operator cabinet. Ensure that the ground loop leads are twisted as per the manufacturer’s specifications.
3.1	**Saw Cut Loop Installation:**
3.1.1	Mark the loop layout on the pavement. Be aware that sharp inside corners can damage the loop wire insulation.
3.1.2	Set the saw to cut to a depth (typically 1.25” to 1.5”; 31.75mm to 38.1mm) that ensures a minimum of 1” (25.4mm) from the top of the wire to pavement surface. The saw cut width should be larger than the wire diameter to avoid damage to the wire insulation when placed in the saw slot. • Cut the loop and feeder slots. • Remove sharp inside corners. The corners of the cut must be at an angle or core drilled to relieve stress on the wires. • Remove all debris from the saw slot with compressed air. • Check that the bottom of the slot is smooth. A greater depth should be used in softer pavement materials to better protect the loop wire insulation for a longer period of time against damage from surface erosion and wear. Care should be taken to avoid cutting all the way through the pavement material. If possible, the saw cut depth should not exceed one half the thickness of the pavement material.

Installation of Vehicle Detection Ground-Loop Systems	
3.1.3	It is highly recommended that a continuous length of wire be used to form the loop and feeder to the detector. Loop wire is typically 14, 16, 18, or 20 AWG with cross-linked polyethylene insulation which is very resistant to moisture absorption and provides good abrasion resistance.
3.1.4	The wire used in the loop should have an insulation rated for direct burial. Since moisture can cause significant changes in the dielectric constant of the wire insulation, which results in excessive loop (frequency) drift, choose a wire with an insulation which is impervious to moisture. Wires with Polyvinyl Chloride (PVC) insulation (i.e., those labeled TFFN, THHN, and THHN-THWN) should NOT be used since they tend to absorb moisture and crack easily.
3.1.5	Avoid potential damage to the loop wire by inserting the wire in the bottom of the saw slot using a wooden stick or other blunt instrument. Ensure wires are pressed firmly into the slot. Loose wires can cause false calls due to vibration or sudden movement. **CAUTION** NEVER use a screwdriver or a sharp object for loop insertion, as this can puncture loop wire.
3.1.6	In most cases, the saw cut will end at the edge of the pavement or at a stub-out for a conduit. Where the wires leave the saw cut they must be twisted together with a minimum of six (6) twists per foot (30.5cm). See ***Figure 34 on page 106***.  Figure 34: Correct Loop Wire Twist Configuration

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Installation of Vehicle Detection Ground-Loop Systems

4. The "loops leads" cable used to extend the lead-in to the cabinet should consist of a shielded twisted pair of wires with high density polyethylene insulation. The shield should be floated (left unconnected and insulated) at the splice point between the loop wires and the feeder cable and should be grounded to earth ground at the cabinet end only. Any other grounding arrangement can lead to grounded loops and cause erratic system operation.

Loop Perimeter (Imperial Measurement)	**Number of Turns in the Loop**
14 feet to 26 feet	4
27 feet to 45 feet	3
46 feet to 100 feet	2
101 feet and up	1

Loop Perimeter (SI Metric Measurement)	**Number of Turns in the Loop**
4.3 meters to 8 meters	4
8.2 meters to 13.7 meters	3
14 meters to 30.5 meters	2
30.8 meters and up	1

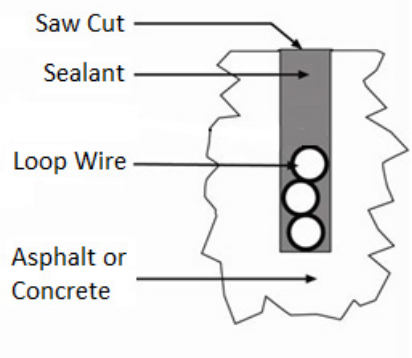
5. All splices MUST be soldered, even when initially formed with crimp type splices.

CAUTION

When soldering, use only enough localized heat to adequately flow the solder through the connection without melting or burning the surrounding insulation. Each splice point must be protected with a moisture-proof seal. **Failure to observe these two precautions are the two most common causes of loop related problems in this type of system.**

6. ***Another common problem is caused by loose connections at the terminal strip in the cabinet. Crimp type terminals should be soldered in the crimp sleeve and the screws securing the terminals to the terminal strip securely tightened down. Adding lock washers is a further deterrent to the screws loosening up due to vibration or the passage of time.***

7. The loop leads from the vehicle loops will need to run directly into the Operator Cabinet. Channel 1 Loop (which can be configured as an Entrance Loop OR an Exit Loop) typically terminates into terminal #30 and #31. Channel 2 Loop (configuration dependent upon Chanel 1 function) typically terminates into terminal #32 and #33.

Installation of Vehicle Detection Ground-Loop Systems	
8.	If an automatic exit loop is required, a third detector relay will be required. If an automatic exit loop is required, a third detector relay will be required (not supplied by Wallace Perimeter Security). This auxiliary detector should be powered from terminals #1 and #2 and wired as a N.O. contact to terminals #1 and #3.
9.	Choose a sealant carefully to match the application and the pavement type. Hard setting epoxies should not be used with asphalt. Caution should be observed when using hot sealants, as high temperatures can damage or destroy wire insulation. Please refer to the jurisdiction/ state's department of transportation specs for traffic light loop sealant.
9.1	When properly applied, the sealant should completely cover the loop wire(s). Since the sealant forms a barrier between the wire and the environment, it is essential that the wire(s) are completely covered. See ***Figure 35 on page 108*** for the proper end result.  Figure 35: Proper Sealant Application
9.2	There MUST be no voids which might allow water to collect within the slot. The water will freeze and expand during freezing conditions. Freeze/thaw cycling will eventually push the loop wires up and out of the slot, resulting in a loop failure.
10.	**Loop Diagnostics** The following tests cannot guarantee a functioning loop, but failure of either test means that the loops are definitely suspect, even if still functional at the time of testing.
10.1	**TEST 1** - Resistance of the loop and loop lead wires should not exceed 4.0 ohms.
10.2	**TEST 2** - The resistance to earth, as measured with a 500V "Megger", should be 100 Megohms or more. Loops may function at less than 100 Megohms but will not be reliable (e.g., when the ground is wet from rainfall). Low resistance indicates broken or moisture-saturated insulation. This is common if inappropriate wire insulation has been used.

Optional Gate Status Proximity Sensors and Mounting Plates

If ordered, gate status proximity sensors and mounting plates are shipped in the parts crate(s) to lessen the chance of damage during shipping. The mounting plates are to be mounted after the gate is installed. Once the switches have been mounted, fasten with the provided self-tapping screws. For wiring of the proximity switches please follow the wiring diagram provided with the sensors.

Optional Strobe / Traffic Lights

Strobe/Traffic light(s) are mounted using the provided self threading fasteners. The mounting location is determined by the customer, but the bottom of the strobe/traffic light must be mounted no lower than 7 feet (2.13 m). The wiring must be pulled to the post termination box. Holes for wiring must be drilled after mounting location has been determined. The wiring passes through the bottom of the base plate.

Electrical Circuits – Post Termination Box

All the gate safety inputs except for the vehicle detector loop leads terminate into the post termination box.

The multi-conductor low voltage cable connects the post termination box to the Operator Cabinet. All wires from the secondary column terminate into the post termination box, located in the primary column.

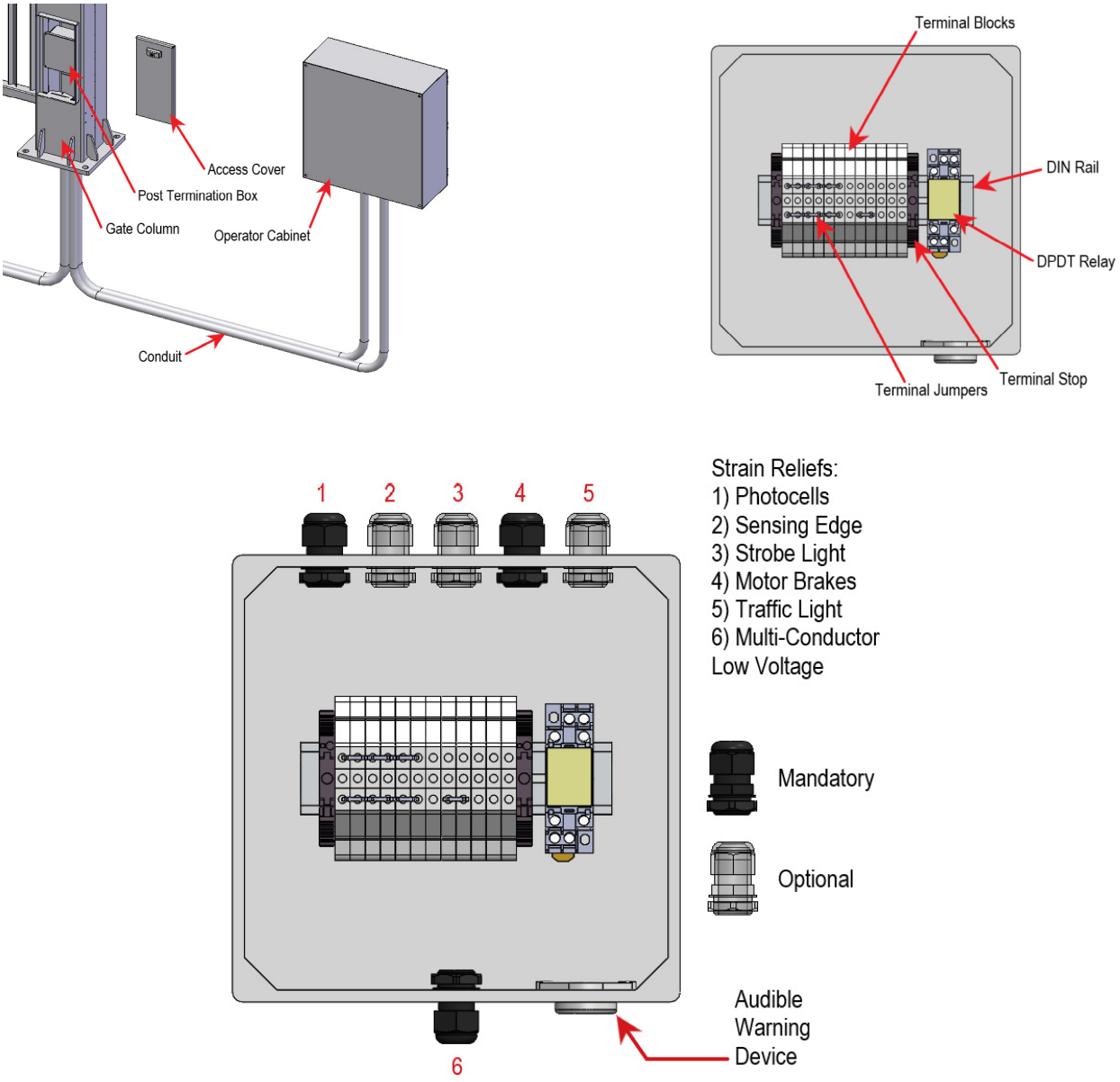


Figure 36: Post Termination Box

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1. Photo Eyes – Mandatory

This input allows for the photo eyes as secondary safety devices which monitor the path between the gate.

Typical (example-only; model **EMX-MON**) photo eye connections to the post termination box are shown below.

- For one set of photo eyes, refer to ***Table 9 on page 111***.
- For two sets of photo eyes, refer to ***Table 10 on page 111***.

Table 9: Photo eye wiring — one set	
Primary Column Bottom Receiver:	+24 (4C, white), top terminal #6
	-24 (4C, black), top terminal #10
	COM (4C, red), top terminal #3
	NC (4C, green), top terminal #15
Secondary Column Bottom Transmitter:	+24 (2C, white), top terminal #1
	-24 (2C, black), top terminal #8

Table 10: Photo eye wiring — two sets	
Primary Column Top Transmitter:	+24 (2C, white), top terminal #3
	-24 (2C, black), top terminal #9
Primary Column Bottom Receiver:	+24 (4C, white), top terminal #6
	-24 (4C, black), top terminal #10
	COM (4C, red), bottom terminal #7
	NC (4C, green), top terminal #15
Secondary Column Top Receiver:	+24 (4C, white), top terminal #5
	-24 (4C, black), top terminal #11
	COM (4C, red), top terminal #4
	NC (4C, green), top terminal #7
Secondary Column Bottom Transmitter:	+24 (2C, white), top terminal #1
	-24 (2C, black), top terminal #8

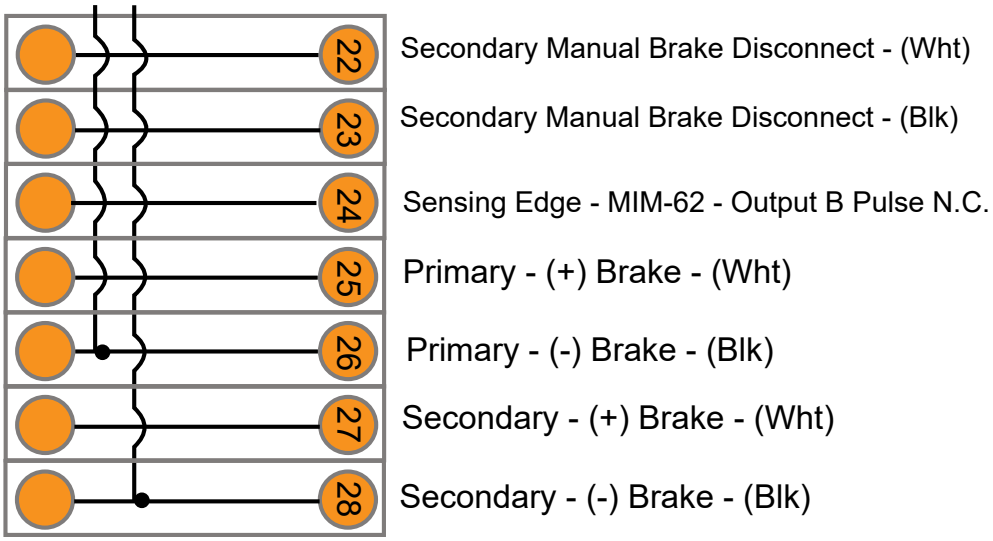
Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

2. Motor Brakes – Mandatory

Each column motor has a 24VDC brake which must be disengaged to allow motor operation. The brake is mechanically engaged and must have power to disengage.

Typical (example-only) motor brake connections to the post termination box are shown below.

PRIMARY COLUMN MOTOR BRAKE:	Uses terminals (+) 25 and (-) 26
SECONDARY COLUMN MOTOR BRAKE:	Uses terminals (+) 27 and (-) 28



Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

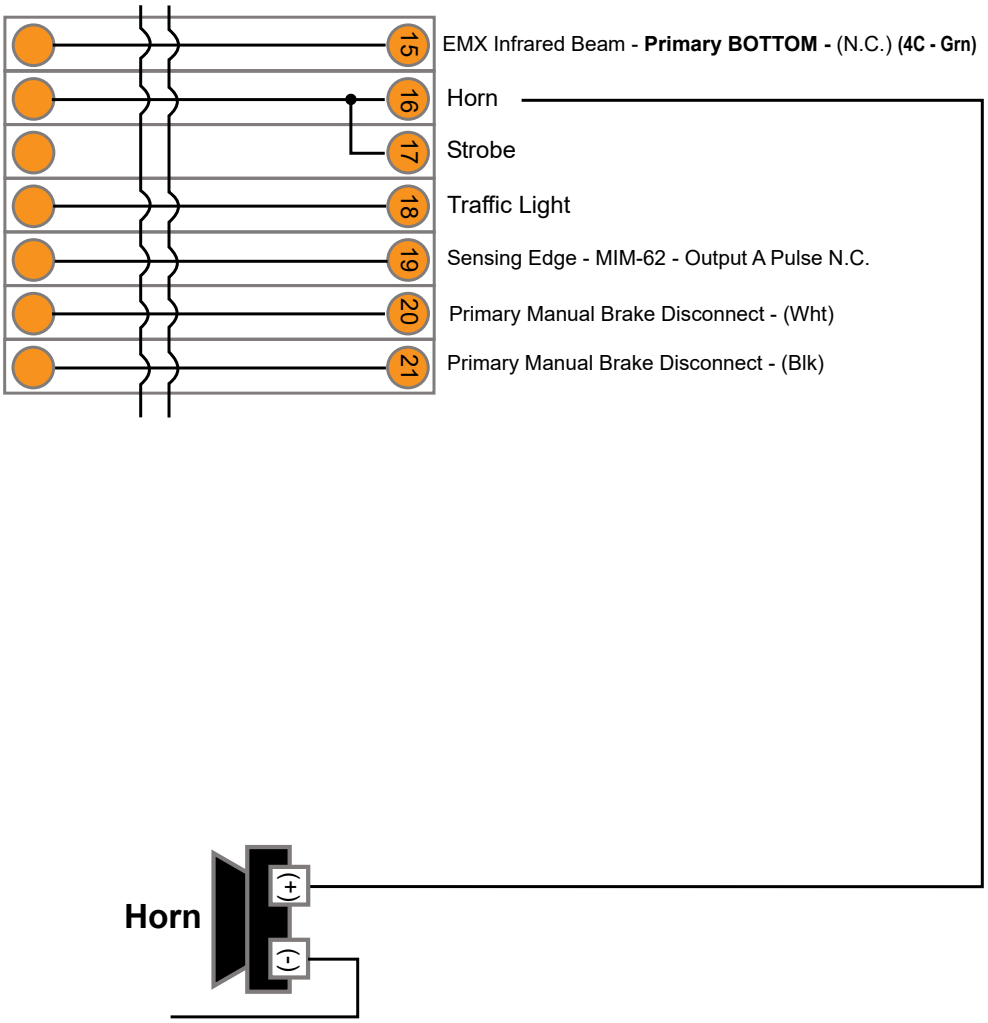
3. Audible Warning Device – Mandatory

WARNING

Never disable the audio alarm signal provided with this system and NEVER disconnect or cut its wires. The buzzer provides an alert that the gate is about to move and it must be functional in the event of entrapment regardless of UL 325 gate usage class. Disabling the warning buzzer may increase the risk or extent of injury if entrapment occurs.

This output is for a 24VDC audible warning device ("horn") to be used as a pre-warning (minimum of 2 seconds) to gate movement. The audible alarm will continue to pulse during the movement of the gate. Typical (example-only) horn connections to the post termination box are shown below.

AUDIBLE WARNING DEVICE:	(+) horn terminal connects to terminal #16

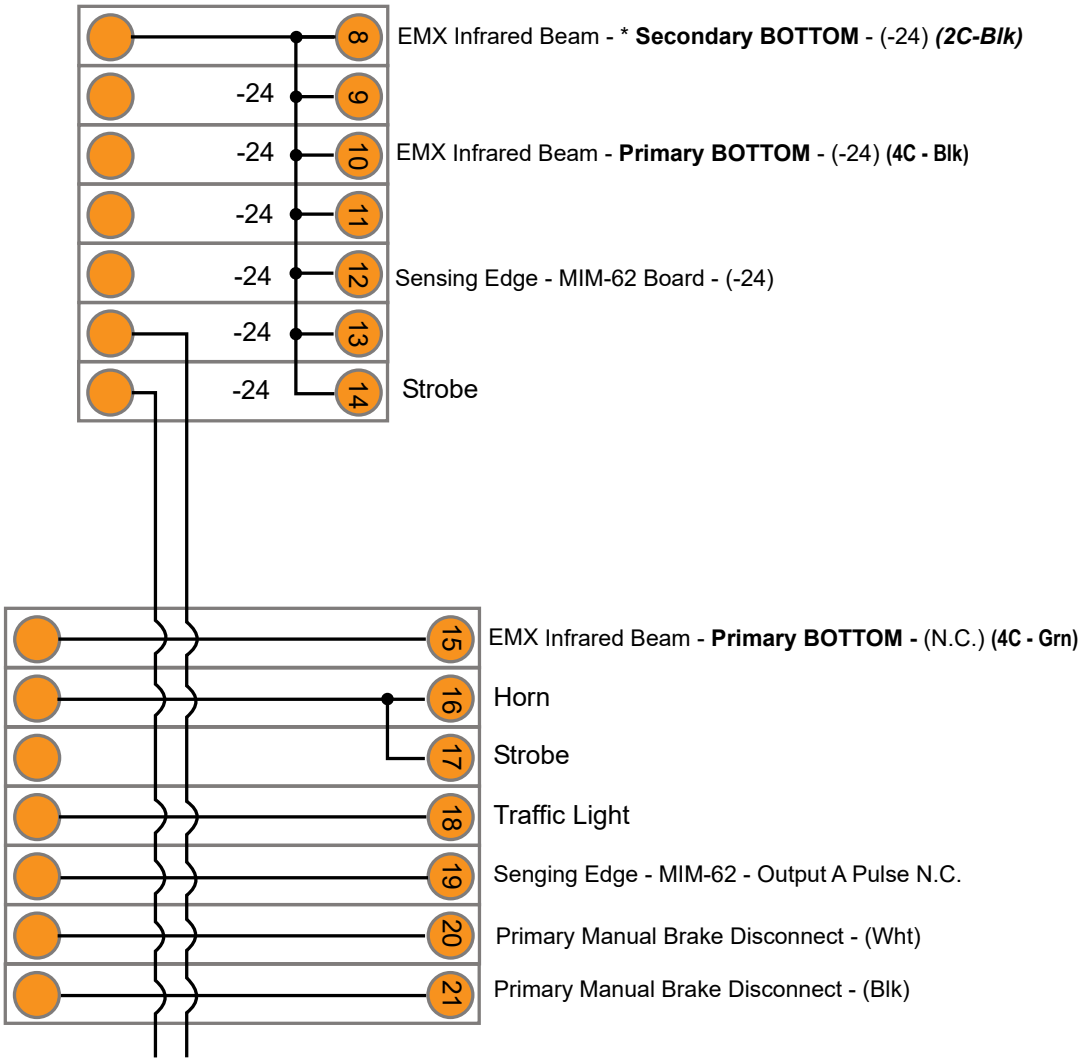


Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

4. Strobe Warning Device – Optional

This output allows connections for a 24VDC strobe light to be used as a pre-warning to gate movement. Typical (example-only) strobe connections to the post termination box are shown below.

STROBE LIGHT:	Uses terminals (-) 14 & (+) 17

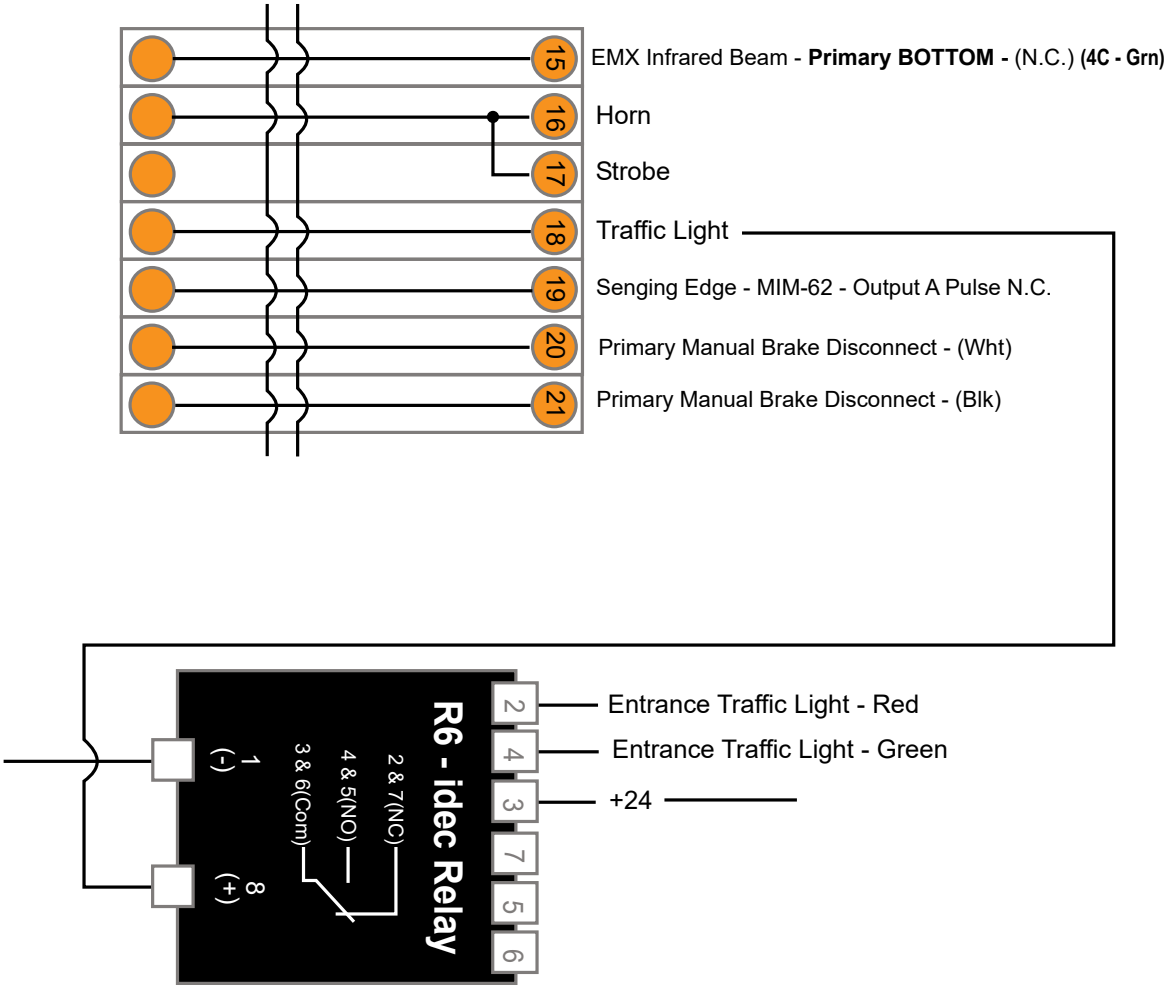


Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

5. Traffic Light – Optional

This output allows for a red and green traffic light as an additional precautionary device. This will permit greater control over the vehicle movements in and around the SpeedGate. Typical (example-only) traffic light connections to the post termination box are shown below.

TRAFFIC LIGHT	Uses terminals
24VDC traffic light inputs:	Terminal (-) #18, red light into Relay 06 terminal #2
	Green light into Relay 06 terminal #4



Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

Electrical Circuit – Operator

1. Any Open Device

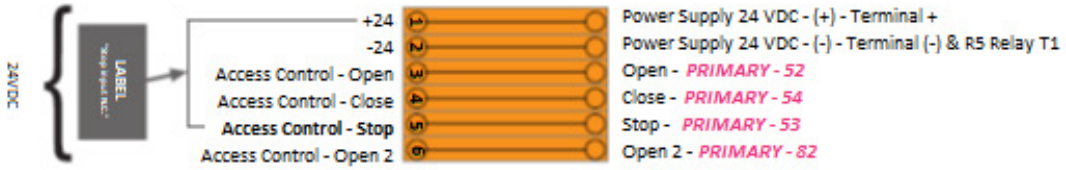
Any device used to open the gate, such as a pushbutton, key switch or access system typically connects to terminal #3 and #6 in the primary operator.

2. Any Close Device

Any device used to close the gate, such as a pushbutton, key switch or access system typically connects to terminal #4 in the primary operator.

3. Any Stop Device

Any device used to stop the gate during movement, such as a pushbutton key switch or access system typically connects to terminal #5 in the primary operator.



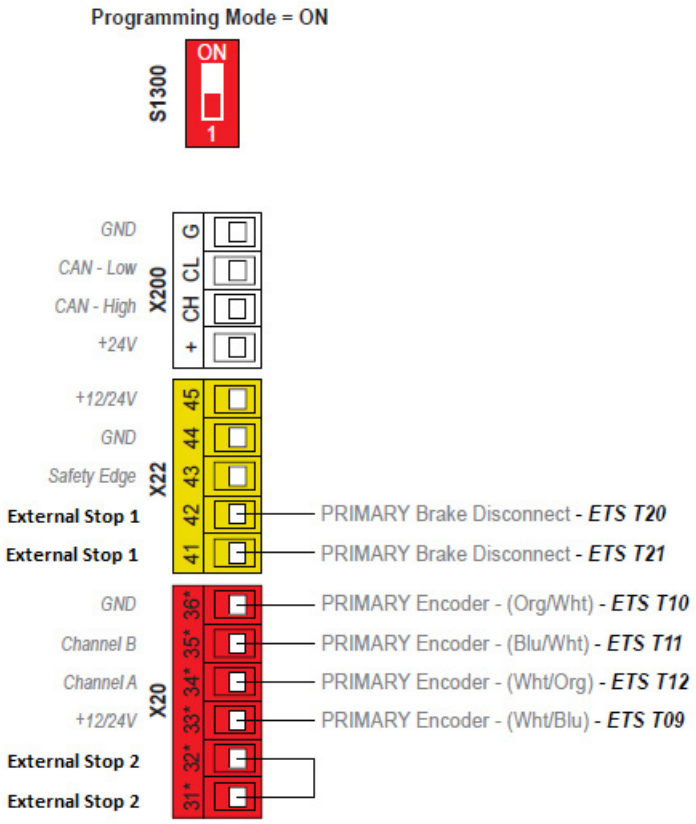
Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

4. External Stop Device

External stop device is defined as any N.C. maintained pull-to-release, maintained twist-to-release and/or maintained twist-key-to-release device used for an external stop, which when activated, shuts down all gate functions. There is 1 (N.C.) external stop input, external stop 1 terminals #41 to #42. Terminals #31 and #32 are provided for an additional external stop input, if needed. To install an external device the corresponding jumper needs to be removed. Typical example:

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4. External Stop Device



Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

5. Encoders

Each motor, which is housed in each column, has an encoder. The encoder is used to track the motor's position and to ensure accurate torque monitoring.

The primary column's encoder typically terminates into the Primary Operator terminals White wire/Blue ferrule - #9, Orange wire/White ferrule- #10, Blue wire/White ferrule - #11, White wire/Orange ferrule- #12 and the encoder ground into #13.

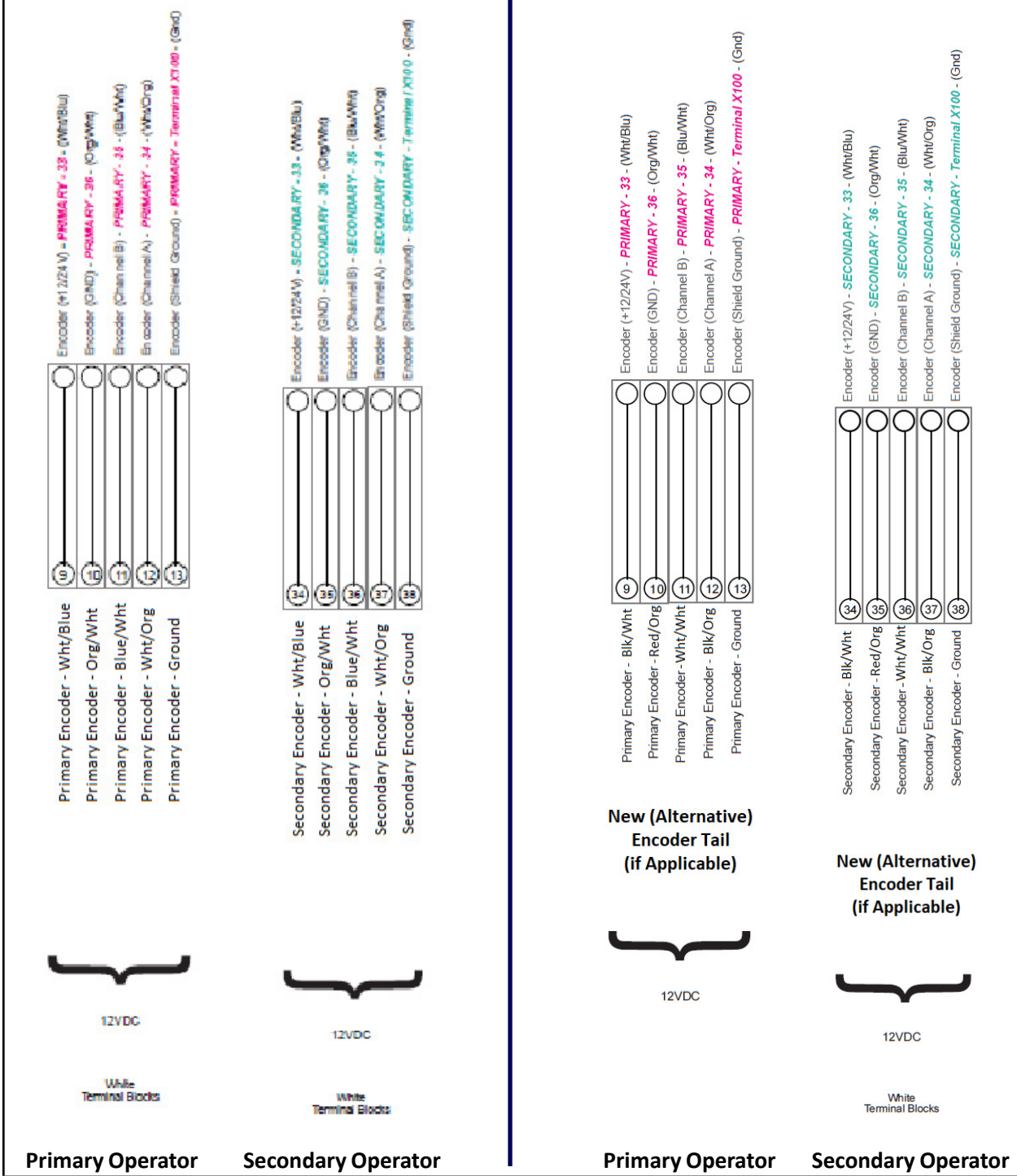
The secondary column's encoder typically terminates into the Secondary Operator terminals White wire/Blue ferrule - #34, Orange wire/White ferrule- #35, Blue wire/White ferrule - #36, White wire/Orange ferrule - #37 and the encoder ground into #38.

Termination points for ALTERNATIVE cable type, if supplied in lieu of the above:

The primary column's encoder typically terminates into the Primary Operator terminals Black wire/White ferrule - #9, Red wire/Orange ferrule - #10, White wire/White ferrule - #11, Black wire/Orange ferrule - #12 and the encoder ground into #13.

The secondary column's encoder typically terminates into the Secondary Operator terminals Black wire/White ferrule - #34, Red wire/Orange ferrule- #35, White wire/White ferrule - #36, Black wire/Orange ferrule - #37 and the encoder ground into #38.

5. Encoders



Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

5. Encoders

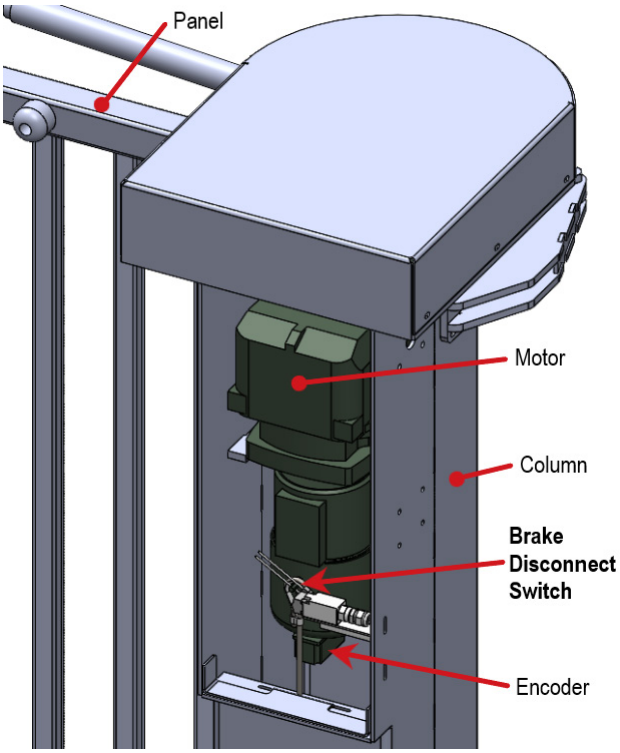


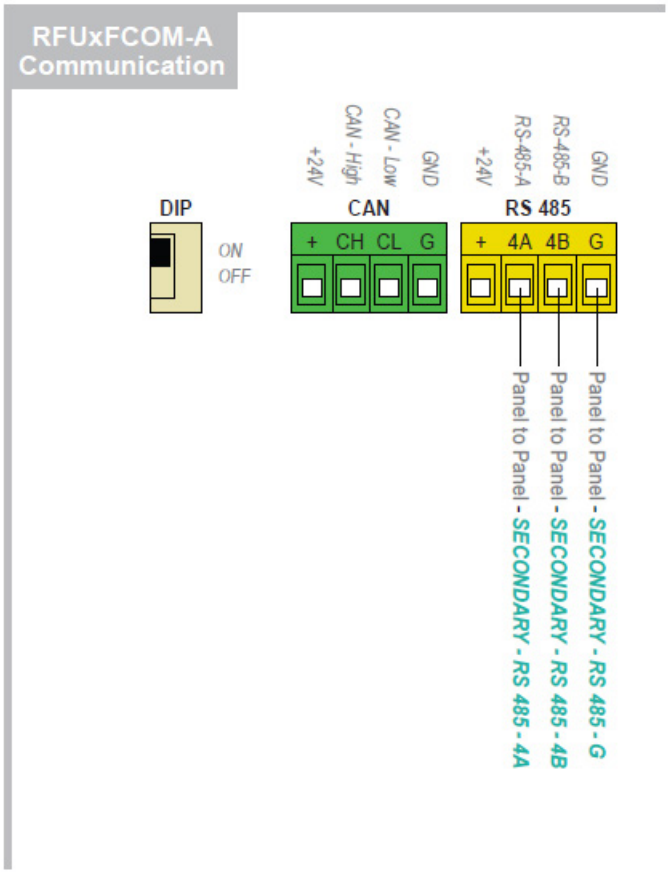
Figure 37: Motor Encoder Location

Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

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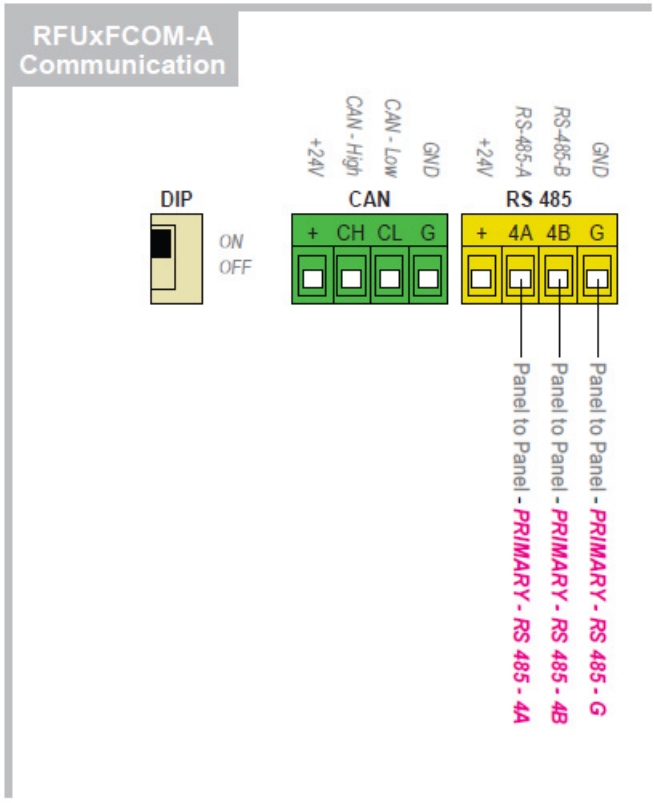
6. Interlock

Expansion board RFUxFCOM (or other authorized communication devices) can be plugged into the RS485 interface for communication between primary and secondary controllers on a single gate.



Primary Operator

6. Interlock



Secondary Operator

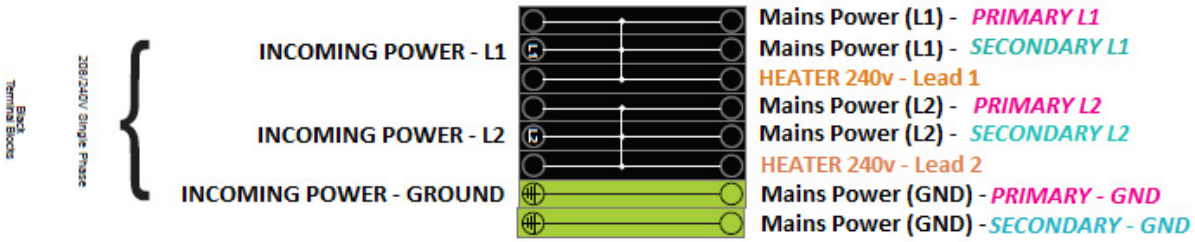
Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

7. Heater

Wallace Perimeter Security recommends a self-regulating heater be installed in colder climates, rated for the supplied voltage 208-240V. This option can be specified when the SpeedGate is ordered.

A typical Wallace Perimeter Security shop installation for a FEIG Gen II (SpeedGate model introduced in 2021) is wired as indicated below. This configuration allows the heater to remain ON as long as incoming power is present. FEIG Gen I models (i.e., pre-2021) enable heater operation only when the operator is ON.

Connect to terminals L1 & N.



Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

8. Vehicle Loops

The loop leads from the vehicle loops will need to run directly into the Operator Cabinet enclosure terminal strip.

Loop 1 (Channel 1 Loop):
Channel 1 Loop (which can be configured as an Entrance Loop OR an Exit Loop) typically terminates into terminal #30 and #31.

Loop 2 (Channel 2 Loop):
Channel 2 Loop (configuration dependent upon Chanel 1 function) typically terminates into terminal #32 and #33.

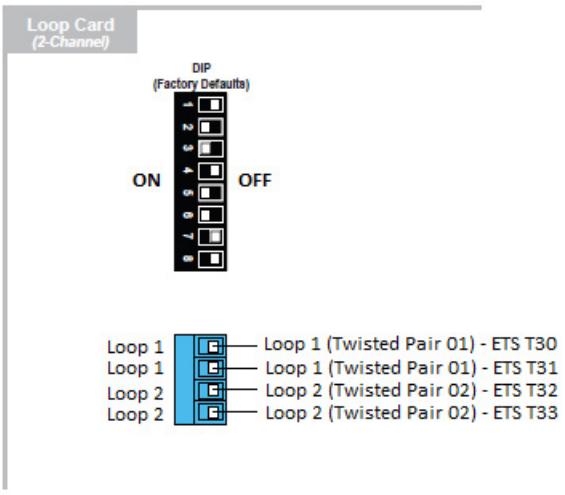
8. Vehicle Loops

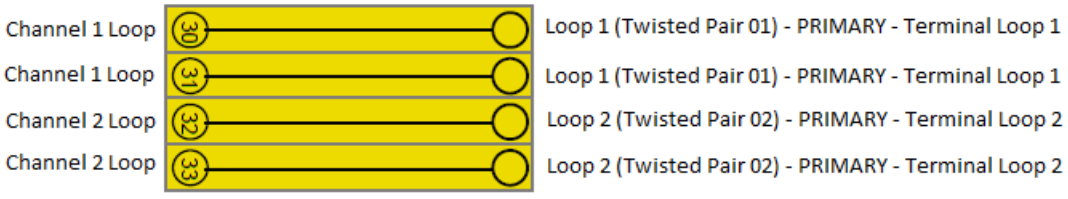
⚠ WARNING

Pay close attention to the functions selected for each channel and configure accordingly.

If an automatic exit loop is required, a third detector relay will be required (not supplied by Wallace Perimeter Security). This auxiliary detector should be powered from terminals #1 and #2 and wired as a N.O. contact to terminals #1 and #3.

Call Wallace Perimeter Security Technical Support at 1 (866) 300-1110 for assistance, if required.





Always refer to site-specific drawings issued for the project you are working on for actual electrical connections and installation methods.

PDXT-C Sample Wiring Diagrams

IMPORTANT

The following wiring diagrams are samples only. For actual electrical connections and installation methods, always refer to site-specific drawings issued for the project you are working on

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NOTES:

Wiring Diagrams

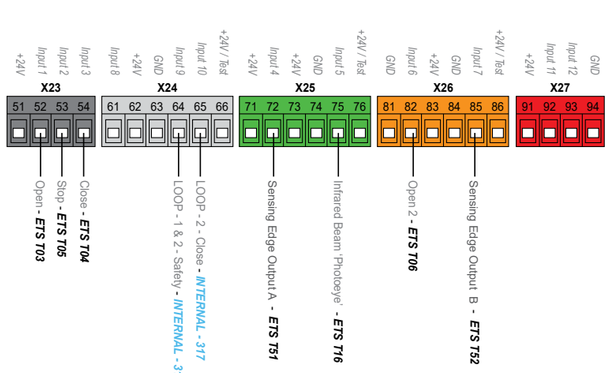
WALLACE PERIMETER SECURITY

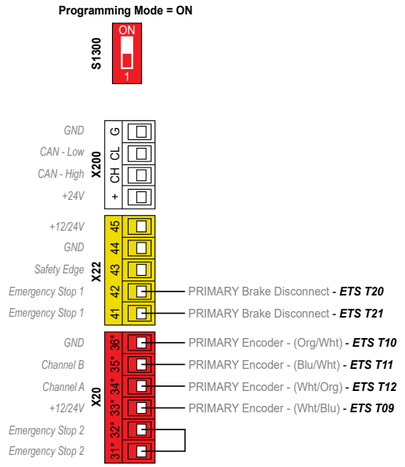
Job Title:
Standard

FEIG ELECTRONIC Gen.II Operator

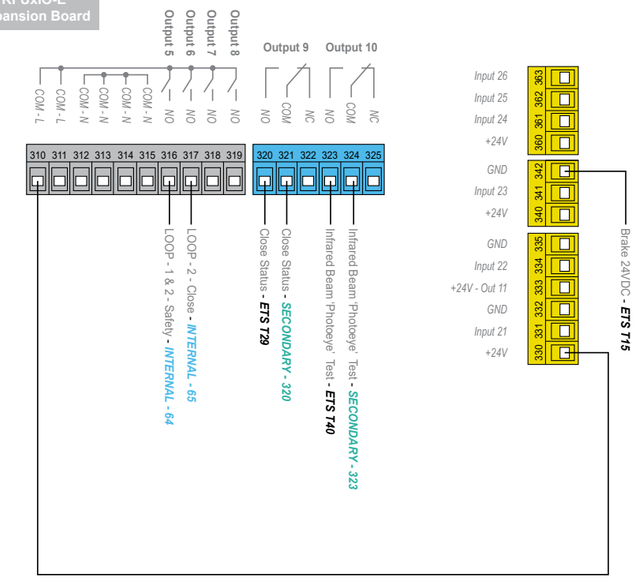
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Processor Circut Board

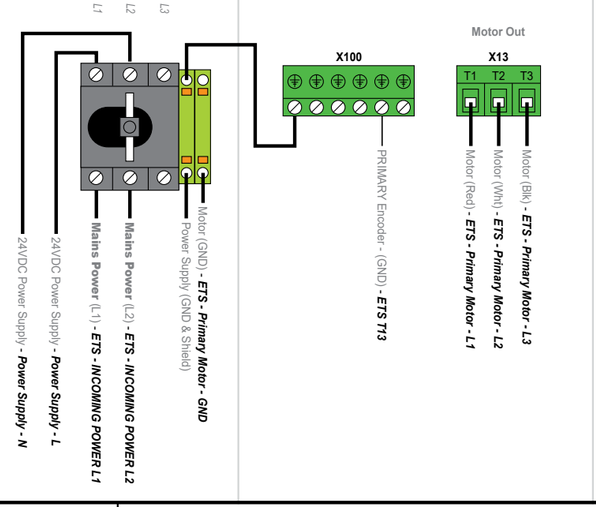


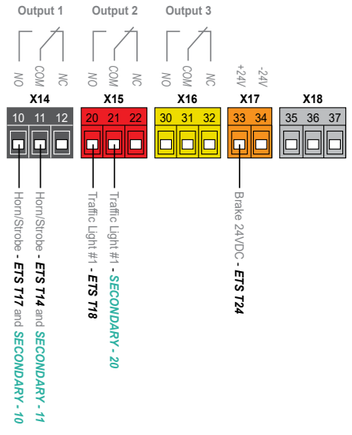


RFUxIO-E Expansion Board

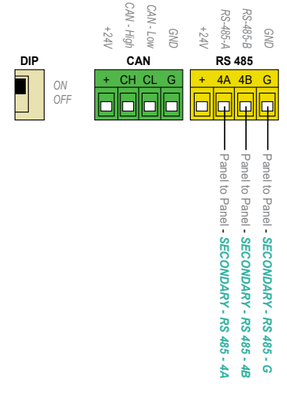


Power Supply, Motor, Relay, Brake

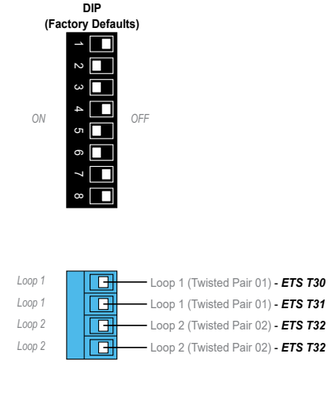




RFUxFCOM-A Communication



Loop Card (2-Channel)



WALLACE PERIMETER SECURITY

Job Title: **Standard**

IMPORTANT

This is a sample wiring diagram. Always refer to site-specific drawings.

Gate Type: **PDXT-C**

Enclosure Terminal Strip = ***ETS***
Secondary Panel = ***SECONDARY***
Internal Wiring = ***INTERNAL***

Connection Diagram
TST FU3F

PRIMARY

FEIG ELECTRONIC

Gen.II Operator

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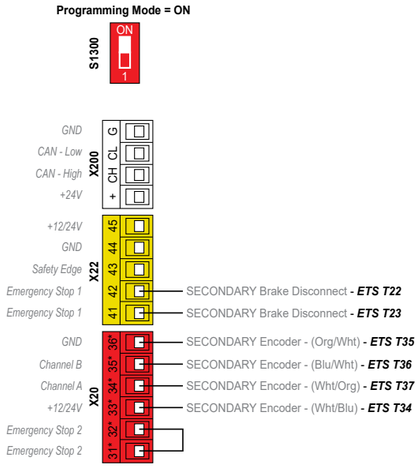
Processor Circut Board



Sensing Edge Output B - ***ETS T51***

UL Infrared Beam 'Photoeye' Monitoring - ***ETS T16***

Sensing Edge Output A - ***ETS T52***



SECONDARY Brake Disconnect - ***ETS T22***

SECONDARY Brake Disconnect - ***ETS T23***

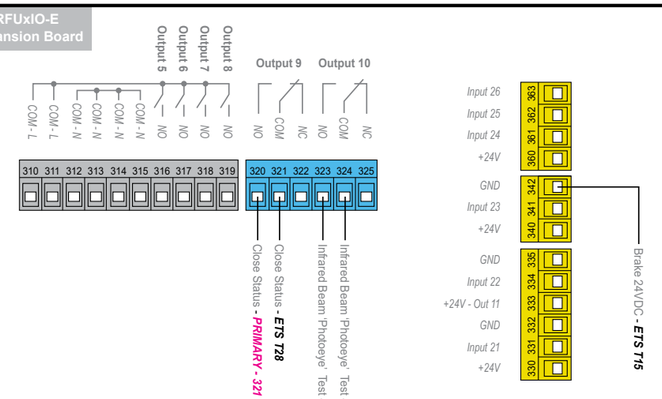
SECONDARY Encoder - (Org/Wht) - ***ETS T35***

SECONDARY Encoder - (Blu/Wht) - ***ETS T36***

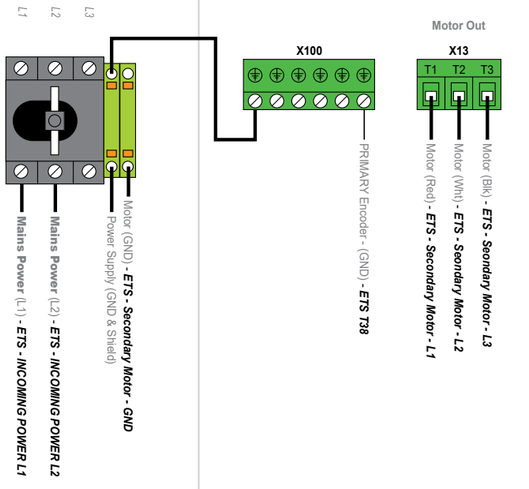
SECONDARY Encoder - (Wht/Org) - ***ETS T37***

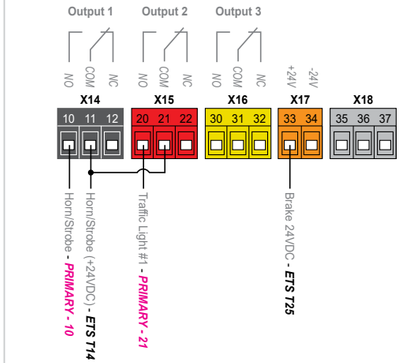
SECONDARY Encoder - (Wht/Blu) - ***ETS T34***

RFUxIO-E Expansion Board

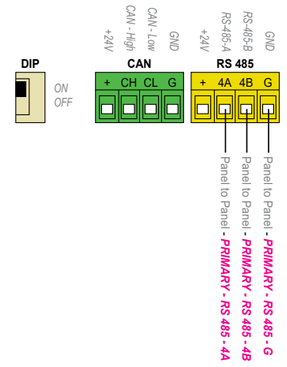


Power Supply, Motor, Relay, Brake





RFUxFCOM-A Communication



WALLACE PERIMETER SECURITY

Job Title: **Standard**

IMPORTANT

This is a sample wiring diagram. Always refer to site-specific drawings.

Gate Type: **PDXT-C**

Enclosure Terminal Strip = ***ETS***
Primary Panel = ***PRIMARY***
Internal Wiring = ***INTERNAL***

Connection Diagram
TST FU3F

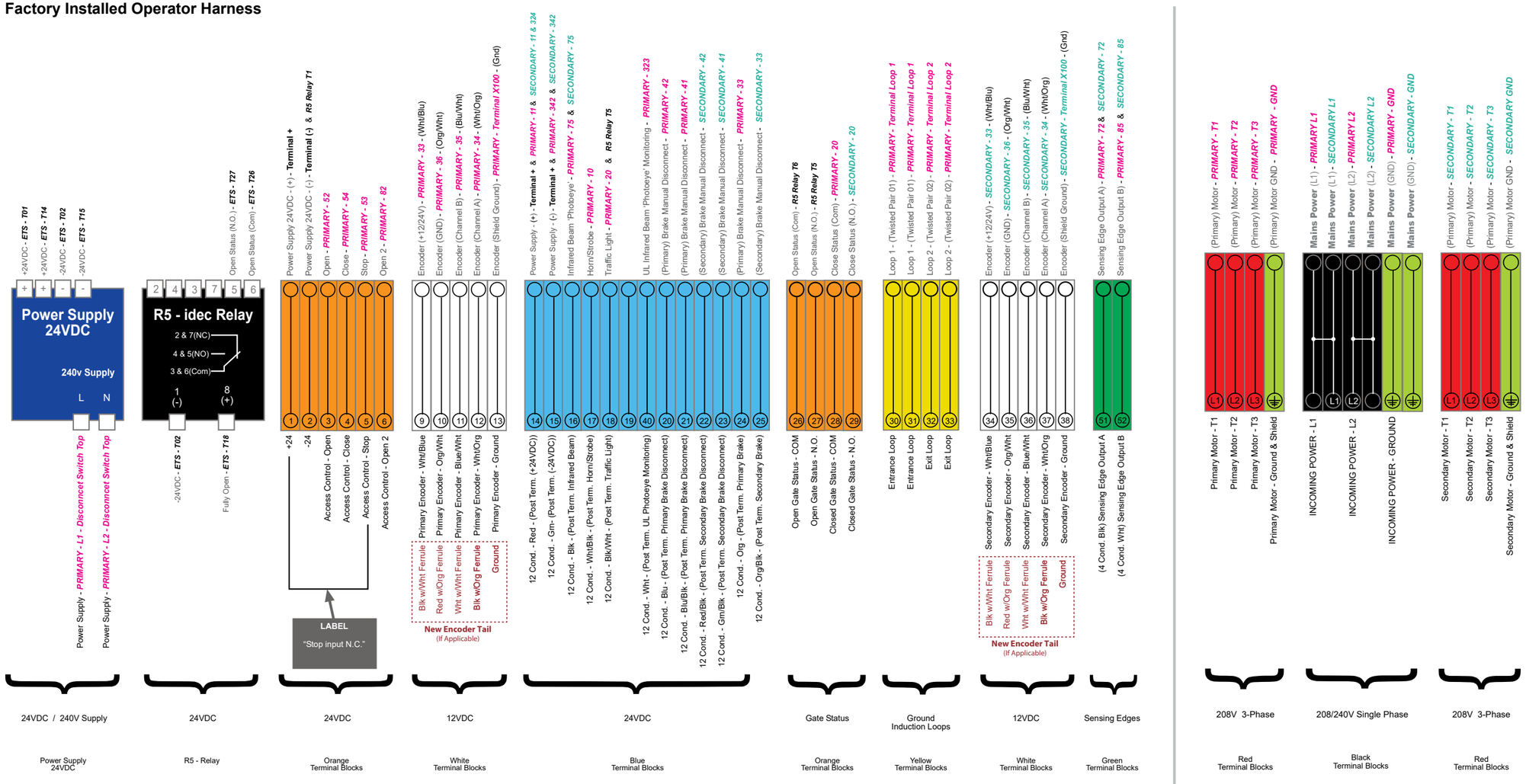
SECONDARY

FEIG ELECTRONIC

Gen.II Operator

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Factory Installed Operator Harness



Field Wiring (Harness from Gate Structure)

WALLACE PERIMETER SECURITY

Job Title: **Standard**

IMPORTANT

This is a sample wiring diagram. Always refer to site-specific drawings.

Gate Type: **PDXT-C**

Primary Panel = ***PRIMARY***
Secondary Panel = ***SECONDARY***

Connection Diagram TST FU3F

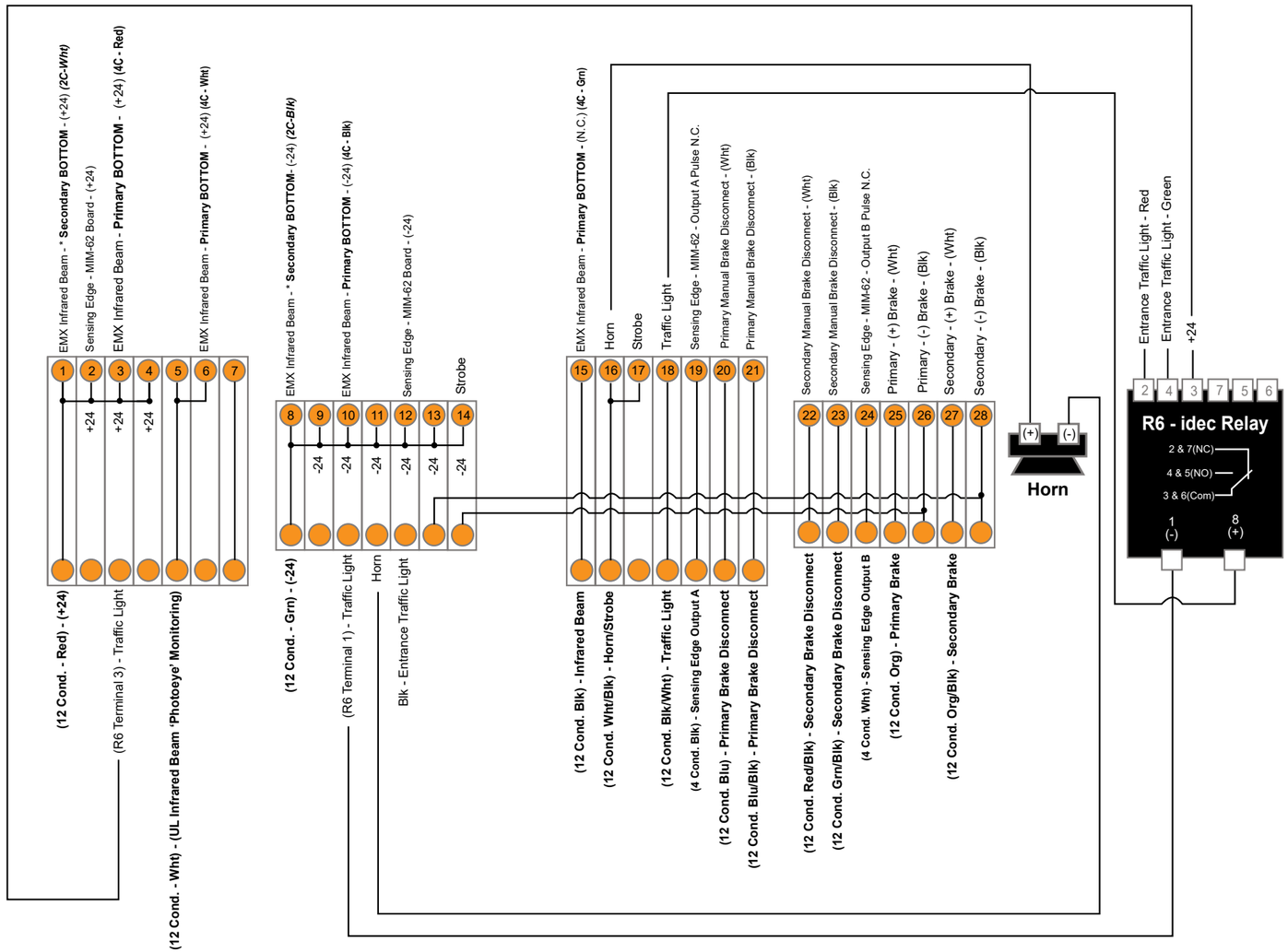
Enclosure Terminal Strip

FEIG ELECTRONIC

Gen.II Operator

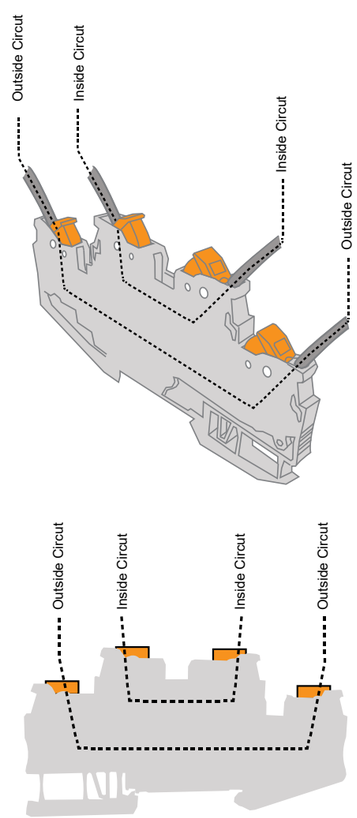
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From Gate



From Controller & Primary Column

Terminal Block Detail



WALLACE PERIMETER SECURITY

Job Title: **Standard**

IMPORTANT

This is a sample wiring diagram. Always refer to site-specific drawings.

Gate Type: **PDXT-C**

The idec relay(s) is a double pull double throw relay (DPDT).

Connection Diagram TST FU3F

Post Termination Box

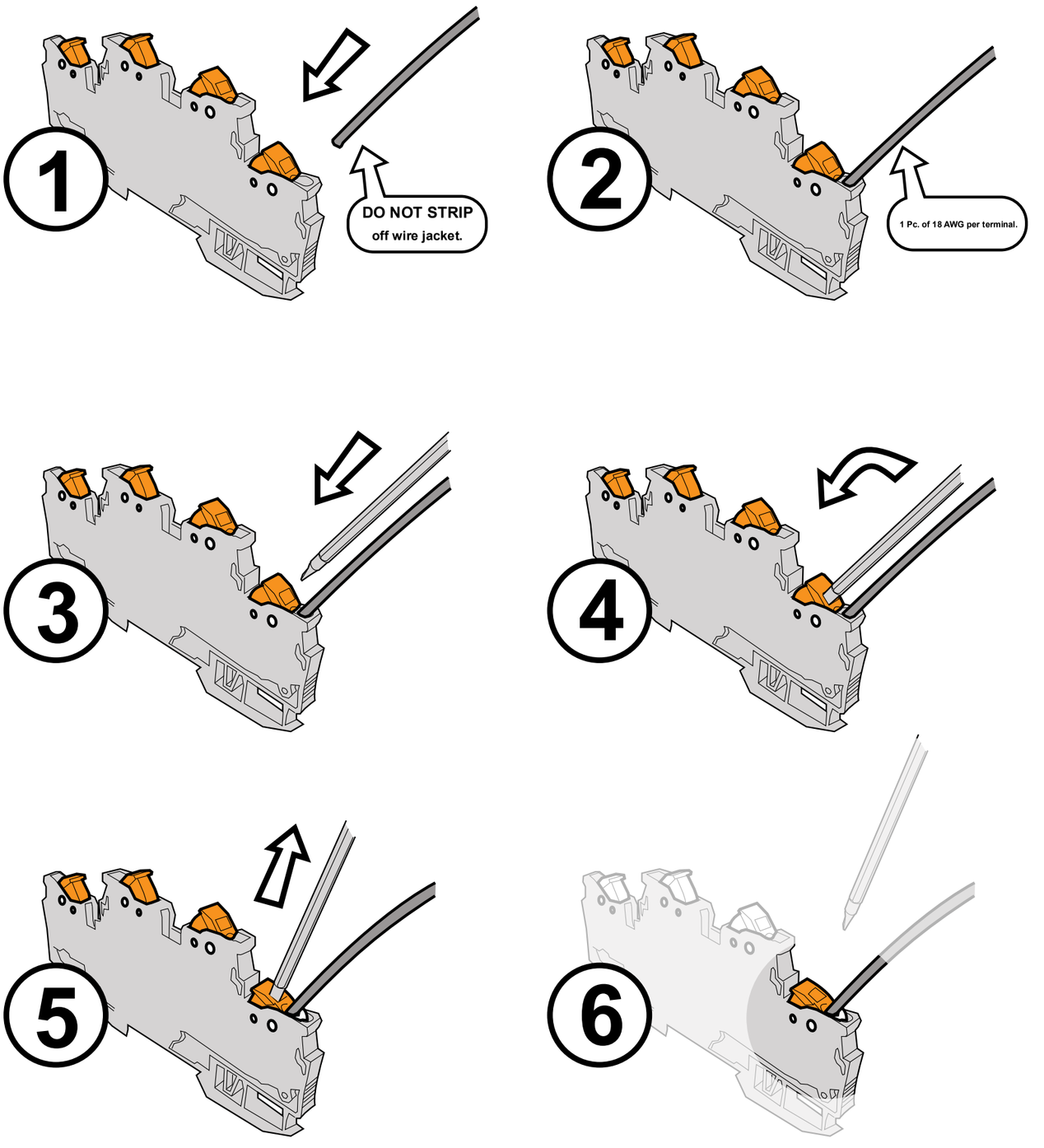
FEIG ELECTRONIC

Gen.II Operator

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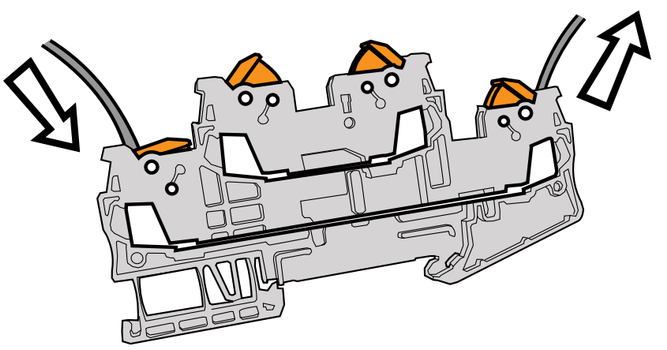
Post Termination Box - Reference Diagram

Detail
Follow steps 1 to 6 to ensure proper termination of wire into terminal block

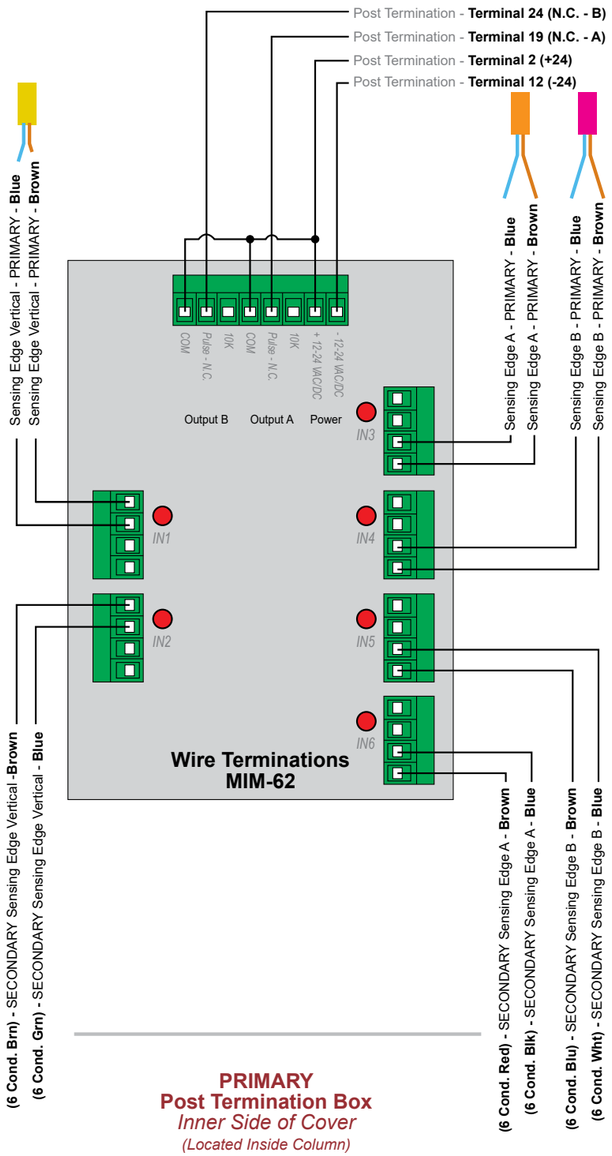


Detail
Side view of knife terminal block; indicating which terminals correlate.

The two outer terminals correlate and the two inner terminals correlate.

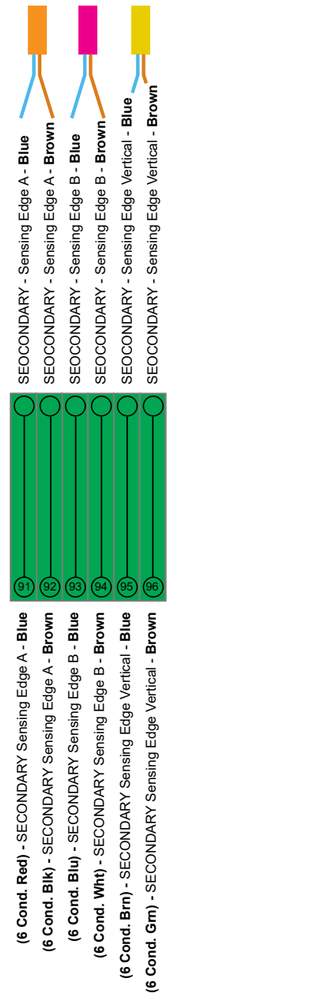


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PRIMARY
Post Termination Box
Inner Side of Cover
(Located Inside Column)

SECONDARY
Post Termination Box
(Located inside Column)



IMPORTANT

This is a sample wiring diagram. Always refer to site-specific drawings.

WALLACE PERIMETER SECURITY

Job Title:
Sensing Edges

Gate Type:
PDXT-C

The idec relay(s) is a double pull double throw relay (DPDT).

Connection Diagram
TST FU3F

Post Termination Box

FEIG ELECTRONIC

Gen.II Operator

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Manual Operation Using the Brake Disconnect Cable

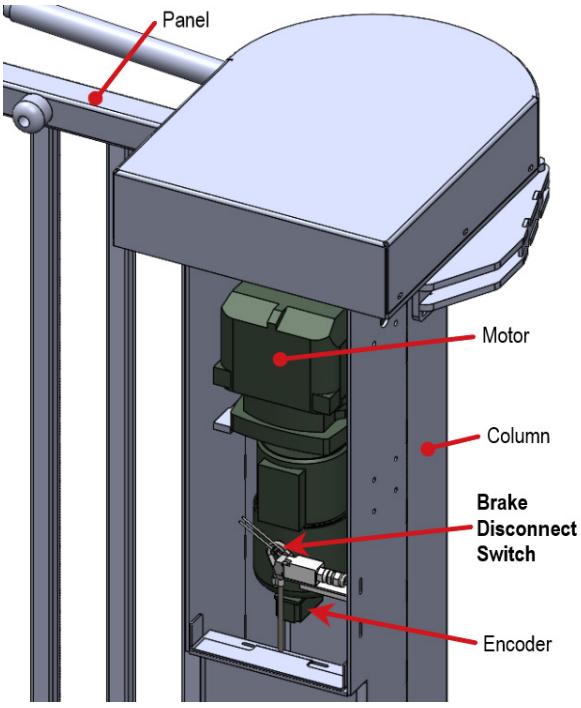
To manually move the SpeedGate by hand follow the instructions below.

Before beginning the procedure ensure:

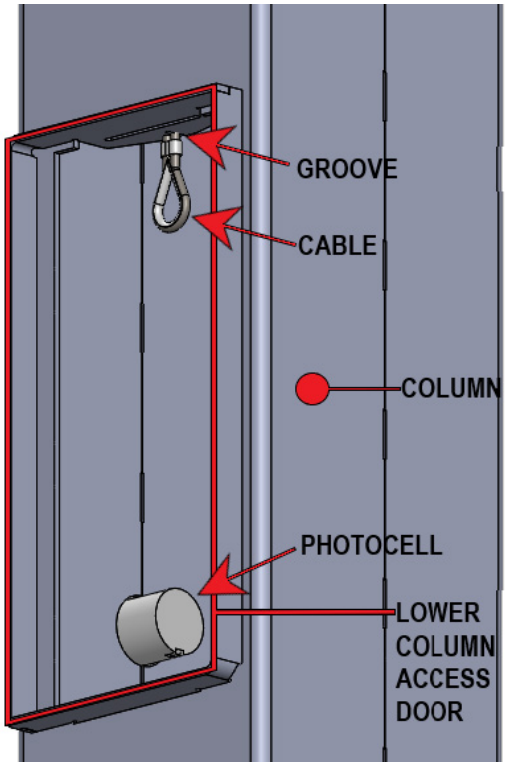
- You have the access door keys and operator keys.
- The gate is not moving.

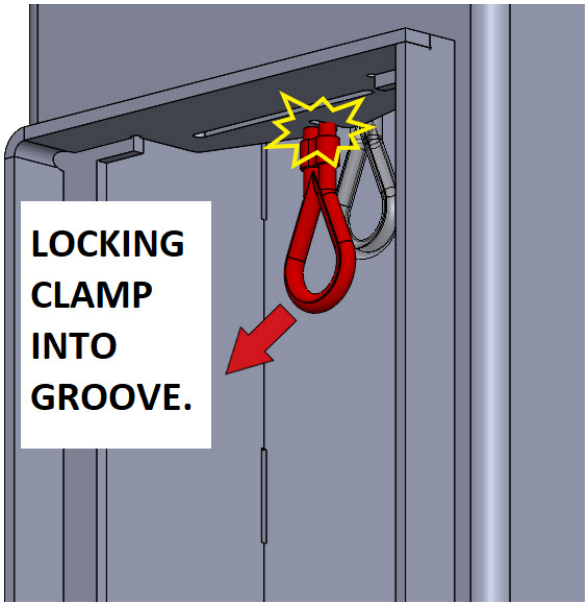
1. Ensure that both operator DC switches are powered OFF. **If no automatic gate movement is possible then you may proceed to step 2.**

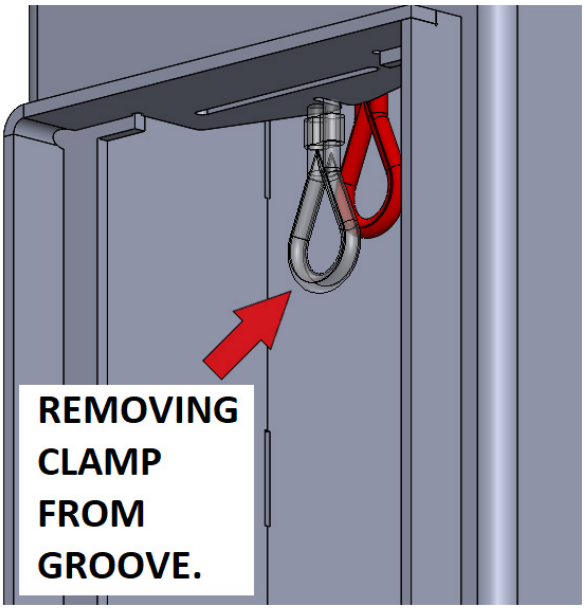
2. Remove the Lower Access Doors on both columns so that the brake disconnect cable is visible. The cables should be free hanging.



3. In one column pull down on the cable until you see the indicated cable clamp, and lock the clamp into the groove provided. It is located on the inner edge in the center along the top edge of the Lower Access Door Opening. Repeat for the other column.







4. Either side of the gate can now be manually moved. To move the gate for a column either push or pull on the inner (middle) hinged section between the gate panels for the corresponding column. DO NOT FORCE; the panel should move freely with little force applied.

5. Once all work/maintenance around and/or on the gate has been completed you may return the gates to their original position before they were manually moved. (If the gates are to be left open proceed to step 6.)

6. Make sure the gate is not moving.

7. In one column pull down on the cable and remove it from the groove. It should now be free hanging which re-engages the brake. Repeat for the other column.



If the gates are to be manually operated or to be left open for an extended period of time it is recommend that the Lower Access Doors are placed back on the column so that the gates are secure.

8. The Lower Access Doors may now be placed back on the gate.

9. If the gates are to be placed back in to automatic operation the operators may be powered ON. The gate is now ready to be automatically operated. Use your typical activation method to return gate to normal operation.

Gate Settings: Obstacle Detection

Setting the Reduced Speed Sensor/Torque Change Sensor

The SpeedGate Inherent Entrapment Sensor (IES) will consist of a Reduced Speed Sensor/Torque Change Sensor, the absolute encoder located under the brake disconnect switch in each column. The IES senses the position of the gate for gate operation and reduced speed sensing when the gate has come into contact with an obstruction. Additionally, the IES monitors torque via acceleration and deceleration.

The force exerted by the gate leaf must be adjusted so that under normal operating conditions, the controller will sense when the gate has come into contact with an obstruction and will reverse to the cycle starting position. The gate will wait at this position for a renewed command.

Setting the Obstacle Detection

It is the installer's responsibility to set obstacle detection on-site. Only adjust the parameters listed below.

Refer to ***"Installation and Commissioning Checklist: Setting Gate Limits" on page 14*** for a description of how to use the Operator and setting/changing parameters.

The reduced speed sensor/torque change sensor has a number of parameters than can be adjusted to fine tune the gate for its final installation location. Environmental factors, such as wind load and snow can determine how the obstruction detection functions, as well as the height and width of the gate.

Setting the Obstacle Detection		
Parameter **P.480** must be set to 5. Detection of motor torque change.		
Smaller values mean obstacle is detected earlier. Larger values mean obstacle is detected later.		
P.171 =	100% (OPEN – Deceleration)	These factory values may have to be adjusted to match site conditions.
P.172 =	100% (OPEN – Acceleration)	
P.173 =	100% (OPEN – Travel)	
P.176 =	100% (CLOSE – Deceleration)	
P.177 =	100% (CLOSE – Acceleration)	
P.178 =	100% (CLOSE – Travel)	
P.179 =	30% (Additional Factor Added into P.171-173 & 176-178)	



Sensitivity must be properly tested after installation in order to comply with UL325 requirements.

If further assistance is required, please contact Wallace Perimeter Security at 1-866-300-1110 or email our technicians at: service@wallaceperimetersecurity.com

Troubleshooting

Operator Fault Codes

DANGER

To prevent death or severe injury due to electrical shock, de-energize the gate operator(s) as follows before performing any electrical work on the gate:

- Disconnect electrical power at the circuit breaker.
- Follow any lockout/tagout procedures.
- Turn off the AC and DC power switches located inside the gate operator(s).

WARNING

To prevent death or severe injury due to contact with the gate:

- Ensure that the gate area is free of bystanders.
- Restrict gate access.
- De-energize the gate operator(s) before working in the gate area unless you are instructed to energize the gate operator(s).

CAUTION

To prevent damage to the gate, ensure that the gate area is free of obstructions before resuming gate operation.

Depending on the severity of the fault, some faults will clear themselves from the operator's LCD display once you solve the cause of the fault, whereas other faults will require you to manually clear them before you can try operating the gate.

To check if you have solved a fault, do the following:

1. With the operator powered up and the LCD displaying FEIG ELECTRONIC with a cycle count, clear the fault by pressing and holding STOP (☐) on the foil keypad (1) for two seconds.

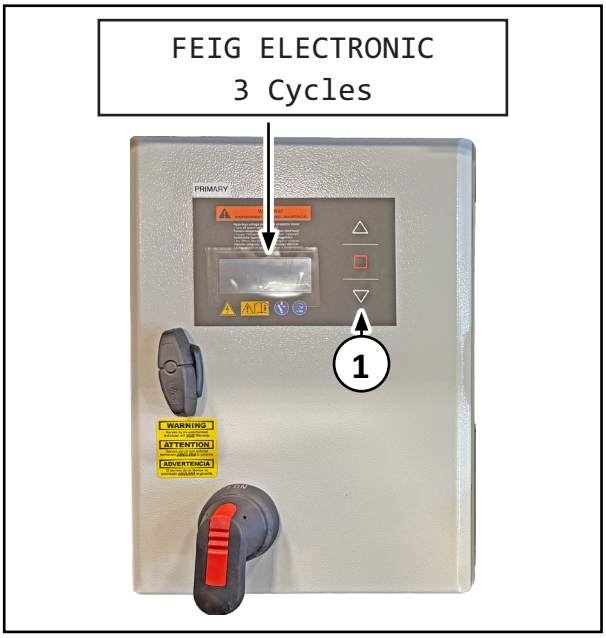


Figure 38: SpeedGate operator

2. Move the gate by pressing UP (△) or DOWN (▽) on the foil keypad.
   - If the fault code does **NOT** appear, no further troubleshooting is required.
   - If the fault persists, try the next solution, then repeat these steps 1 and 2.

For more information about operator LCD messages and faults, refer to the following:

- For LCD messages and terminal identification information to help troubleshoot tripped inputs, refer to
  - ***"Table 11: Inputs on the Operator (for SpeedGate models introduced in 2021 - FEIG Gen II)" on page 145,*** or
  - ***"Table 12: Inputs on the Operator (for SpeedGate models introduced PRIOR to 2021 - FEIG Gen I)" on page 145.***
- For a list of fault codes, refer to ***Table 13 on page 145***.

Table 11: Inputs on the Operator (for SpeedGate models introduced in 2021 - FEIG Gen II)		
Input	**FEIG II Terminal(s)**	**LCD Display**
External Stop 1	41 & 42	F.211 External Stop 1 tripped
External Stop 2	31 & 32	F.212 External Stop 2 tripped
Open Input	52	Open Input 1
Close Input	53	Stop Input 2
Infrared Beam Input	75	Photo Eye Input 5
Stop	54	Close Input 3
Loop Safety Input	64	Stop Input 9
Loop Close Input	65	Close Input 10

Table 12: Inputs on the Operator (for SpeedGate models introduced PRIOR to 2021 - FEIG Gen I)		
Input	**FEIG I Terminal(s)**	**LCD Display**
External Stop 1	1 & 2	F.211 External Stop 1 tripped
External Stop 2	3 & 4	F.212 External Stop 2 tripped
Open Input	6	Open Input T06
Close Input	8	Close Input T08
Infrared Beam Input	12	Photo Eye Input T12
Stop	14	Stop Input T14
Loop Safety Input	18	Stop Input T18
Loop Close Input	20	Close Input T20

Table 13: Operator Fault Codes		
Fault	**Description**	**Cause**
Improper End Positions		
F.000	Gate position too far open.	• Too small a parameter value for upper emergency limit switch. • Value of parameter **P.233** (limit switch band) too small. • Mechanical adjustments potentially required.
F.005	Gate position too far closed.	• Too small a parameter value for lower emergency limit switch. • Lower limit switch range (limit switch band) too small. • Mechanical brake defective or improperly set.
Positioning Errors in Gate Movement		
F.020	Run time exceeded (during opening, closing or deadman).	Current motor run time has exceeded set maximum run time, gate may be sticking or is blocked.

Table 13: Operator Fault Codes

Fault	Description	Cause

F.030	Motor stall.	Usually caused by an obstruction blocking the gate movement or the motor brake (24 VDC) not getting power, thus not releasing, and stalling the motor.
		
		Possible causes are:
		
		• Gate or motor is obstructed.
		• Mechanical wear and tear.
		• ***Primary*** column encoder wires are connected to the secondary column encoder ETS terminals 34–38, while the ***secondary*** column encoder wires are connected primary column encoder ETS terminals 9–13. If the wiring is mixed up, then correct it by:
		  • Connecting the primary column encoder wires to the ETS terminals 9–13, and
		  • Connecting the secondary column encoder wires to the ETS terminals 34–38.
		• Too little speed. Examples of causes:
		  • Mechanical resistance is slowing the gate down.
		  • A motor running parameter value is set too low.
		CAUTION
		To prevent damage to the gate, call Wallace Perimeter Security at 1-866-300-1110 and consult Technical Support before adjusting motor running parameters.
		• The motor brake relay on the controller has failed.
		• The motor brake wiring is faulty.
		• The motor brake wiring diode in the NORD junction box is faulty or is installed in the wrong direction.
		• The motor brake is faulty.
		• The hardware the secures the absolute encoder to the motor is too loose.
		• The absolute encoder is faulty.
		• The absolute encoder cable is faulty.
		• The gate limits are set improperly.

Table 13: Operator Fault Codes		
Fault	**Description**	**Cause**

F.031	Detected rotational direction deviates from expected.	F.031 means an obstruction is causing the gate to reverse direction. Once you clear the fault, the gate should still be able to move, but slowly and laboriously. In most cases, the "obstruction" is worn mechanical parts that cause the gate to close haphazardly in such a way that forces the motor to reverse direction.
		
		Possible causes are:
		
		• Gate traffic, such as vehicles tailgating each other, makes the gate continuously partially open and close, simulating an obstruction.
		
		• There is a physical obstruction blocking the gate from moving.
		
		• The gate limits are set outside of the acceptable range.
		
		• Mechanical wear and tear.
		
		• The absolute encoder is faulty.
		
		• Parameters P.333 and/or P.380 are improperly set, causing the gate to respond too quickly after the gate stops, whether due to a triggered safety input (P.333) or any reason except a triggered safety input (P.380):
		
		  • Parameter 333 controls how fast the gate moves after a safety input, such as a photo eye, is triggered. A value of 800–1000 milliseconds (ms) is acceptable.
		
		  • Parameter 380 controls how fast the gate moves after it stops for any reason except triggered safety inputs such as photo eyes or sensing edges. A value of 800–1800 ms is acceptable.
		
		  • If the value is too small, the gate will try to move too quickly, and might interpret the signal as an obstruction.
		
		  • If the gate is only functional when the value is too large (slower gate movement) this indicates that the software might be compensating for improperly maintained mechanical parts.
		
		⚠ WARNING
		
		Parameter 333 controls how fast the gate moves after safety inputs, such as photo eyes, are triggered. To prevent death or severe injury due to prolonged contact with the gate, never exceed a value of 1000 milliseconds (ms) for parameter 333. If the value exceeds 1000 ms, the gate might respond too slowly in the event of a hazardous/entrapment incident.

F.060	Breakaway Failure	This function is NOT USED. Ensure Parameter **P.870** is set to **zero**.

Table 13: Operator Fault Codes		
Fault	**Description**	**Cause**
Maintenance Counter Exceeded		
F.080	Fault: Maintenance is required.	Service counter has expired.
Parameters Not Set		
F.090	Controller not parameterized.	The basic parameters **(P.205, P.100 to P.103)** for the TST FU3F controller have not yet been set.
Safety Circuit Faults		
F.201	Internal Safety Circuit test failure.	• Service switch OFF when attempting to enter programming (parameterizing) mode. • Internal parameter or EEPROM checks defective. Pressing the STOP key provides additional information about the cause. • Failed watchdog relay or failed circuit board relay.
F.211	External Stop 1 tripped.	The external stop circuit was interrupted starting at Input 1. In the operator, terminals 1 and 2 are for the external stop circuit #1. These terminals are normally jumped. Ensure that the jumper is seated properly in both terminals. *This error would be tripped by the brake disconnect switch on FEIG Gen II (i.e., SpeedGate models introduced in 2021).*
F.212	External Stop 2 tripped.	The external stop circuit was interrupted starting at Input 2. In the operator, terminals 3 and 4 are for the external stop circuit #2. These terminals are used for the manual brake disconnect. There is a normally-closed (NC) limit switch that is tripped when the manual brake disconnect is used. Make sure the manual brake disconnect is released on the corresponding column. If you are still seeing the error, check for the following: • The wires in terminals 3 and 4 are not seated properly. • The wires in the NC limit switch are not seated properly. • There is a short in the wire. *This error would be tripped by the brake disconnect switch on FEIG Gen I (i.e., SpeedGate models introduced prior to 2021).*
F.360	Short circuit detected on sensing edge input.	Short circuit detected on sensing edges with normally closed contact.
F.361	Number of sensing edge trips for closing has reached set limit.	Parameterized, maximum number of sensing edge trips during a gate cycle was exceeded.

Table 13: Operator Fault Codes		
Fault	**Description**	**Cause**
F.362	Redundancy error with short circuit.	• One of the processing channels for short circuit detection does not react identically with the second channel. • Controller board defective.
F.363	Interruption on sensing edge input.	• Connection cable defective or not connected. • Termination resistor incorrect or missing. • Jumper J600 incorrectly set.
F.364	Sensing edge testing failed.	• Sensing edge was not activated as expected when requesting a test. • The time between request for testing and actual testing not synchronized.
F.365	Redundancy error with interruption.	• One of the processing channels for interruption detection does not react identically with the second channel. • Controller board defective. • Dynamic optical system sensing edge connected but not set in Parameter **P.460**.
F.366	Too high a pulse frequency for optical sensing edge.	• Defective optical sensing edge. • Defective input for internal sensing edge.
F.369	Internal sensing edge incorrectly parameterized.	An internal sensing edge is connected but deactivated. Either there is an obstruction tripping the sensing edge or the operator was not parameterized properly. The following parameters must be set to the indicated values: **P.460 = 0** **P.462 = 2** If this still does not clear the error the wiring or sensing edge might have become damaged and must be replaced.
F.371	Number of edge trips for external sensing edge has reached set limit.	Parameterized, maximum number of sensing edge trips during a gate cycle was exceeded.
F.372	Redundancy error with short circuit.	• One of the processing channels for short circuit detection does not react identically with the second channel. • Controller board defective.

Table 13: Operator Fault Codes		
Fault	**Description**	**Cause**
F.373	Fault in the sensing edge (message comes from module).	• Cable break to sensing edge, no edge connected, edge termination resistor incorrect or defective. • Jumper for termination resistor in wrong position. • Sensing edge processing selected with Parameter **P.470**, but module not plugged in or wrong module.
F.374	Sensing edge testing failed.	• Pre-limit switch for sensing edge incorrectly set or defective. • Processing module defective. • Sensing edge defective.
F.379	Sensing edge detection defective (coding pin or parameter setting).	• No module plugged in but was reported as present by a parameter. • The controller was started up with a different module than the one currently plugged in.
F.385	Fault in pre-limit switch for sensing edge.	Pre-limit switch for turning off the sensing edge or reversing after sensing edge tripping remains tripped even in the upper end position.
General Hardware Faults		
F.400	Controller hardware reset detected.	• Excessive noise on supply voltage. • Internal watchdog tripped. • RAM error.
F.401	Watchdog error.	Internal watchdog has released.
F.40A	Software exception.	Internal error.
F.410	Over-current (motor current or intermediate circuit).	• Wrong motor data set (P100 - P103). • Non-adjusted voltage increase / boost set (P140 or P145). • Gate sticks.
F.420	Over-voltage in intermediate circuit Limit 1.	• Brake chopper interference / defective / missing. • Feed voltage much too high. • Motor feeds back too much energy in generator mode, gate motion energy cannot be sufficiently brought down.
F.425	Over-voltage line supply.	The supply voltage for the controller is too high.
F.426	Under-voltage line supply.	The supply voltage for the controller is too low.
F.430	Temperature cooler outside of working range Limit 1.	• Excessive load on final stages or brake chopper. • Ambient temperature too low for controller operation. • Clock frequency of final stage too high (Parameter P.160).

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WALLACE PERIMETER SECURITY

Table 13: Operator Fault Codes		
Fault	**Description**	**Cause**
F.440	Over-current in intermediate circuit Limit 1.	• Boost not adjusted. • Gate sticks.
F.510	Motor / intermediate circuit over-current Limit 2.	• Wrong motor data set (P.100 – P.103). • Non-adjusted voltage increase / boost set (P.140 or P.145). • Gate sticks.
F.515	Motor protection function detected over-current.	• Incorrect motor curve (motor rated current) set (P.101). • Too much boost (P.140 or P.145).
F.519	IGBT driver chip detected over-current.	• Short circuit or ground fault on motor terminals. • Motor rated current setting significantly inaccurate (P.100 doesn't match nameplate rating for the motor). • Too much boost applied (P140 or P145 settings too high). • Motor winding defective. • Momentary interruption of the External Stop circuit.
F.520	Over-voltage in intermediate circuit Limit 2.	• Brake chopper interference / defective / missing. • Feed voltage much too high. • Motor feeds back too much energy in generator mode, gate motion energy cannot be sufficiently brought down.
F.521	Over-voltage in intermediate circuit.	• Input voltage supply too low, usually at load. • Load too great / final stage or brake chopper fault.
F.524	External 24 V supply missing or too low.	• Overload but no short circuit. • When 24V is shorted the controller voltage does not ramp up and indicator light V306 comes on.
F.525	Over-voltage at the line supply input.	• The line supply for the Controller is too high. • Line supply is fluctuating.
F.530	Temperature cooler outside of working range Limit 1.	• Excessive load on final stages or brake chopper. • The operator is below the operating temperature of -10°C (14° F). The operator(s) enclosure(s) will either require a heater or a thermal blanket. • This setting can optionally be turned OFF. • Clock frequency of final stage too high (Parameter P.160).
F.540	Over-current in intermediate circuit Limit 2.	• Boost not adjusted. • Gate sticks.

Table 13: Operator Fault Codes		
Fault	**Description**	**Cause**
Positioning System Faults		
F.700	Position sensing defective.	For electronic limit switches: • After activation of the factory parameters (Parameter P.990) the corresponding positioning system was not parameterized. • Calibration not completed or is incorrect and must be repeated. • When activating the intermediate stop the intermediate stop is not positioning/responding accurately. • Synchronization not finished or reference switch defective.
F.720	Synchronization error in position sensing with incremental encoder.	• Intermediate stop position is less than the minimum incremental value (25). • Synchronization was not finished. • The selected reference switch was not reached or is outside its tolerance. • The incremental encoder is not counting or the gate is blocked (also F.030, lag error). • Incremental inputs IN 9 and IN 10 are reversed (also F.031 rotation error).
F.750	Protocol Transmission error.	Defective hardware or electrically noisy environment.
F.751	Synchronization FUE <-> absolute encoder.	• Defective hardware or electrically noisy environment. • Absolute encoder is faulty.

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Table 13: Operator Fault Codes		
Fault	**Description**	**Cause**

F.752	Timeout with protocol transmission.	The operator cannot communicate with its encoder. The half of the gate controlled by that operator should **NOT** be able to run. The other half of the gate, assuming there are no faults on that operator, should be able to run.
		• At least one wire in the encoder-to-controller circuit is connected to the incorrect terminal.
		• Absolute encoder is faulty.
		  • If a new encoder does **NOT** clear the error, replace the encoder cable.
		• Absolute encoder cable is faulty.
		• Electromagnetic interference, sourced from:
		  • Low voltage encoder cable sharing a conduit with high voltage wires, such as the gate motor wires. If possible, move the low voltage wiring out of the conduit shared with high voltage wiring. Otherwise, install ferrite cores onto both ends of the encoder cable.
		  • Nearby high voltage installations such as electrical wires and transformers. To solve this problem, install ferrite cores onto both ends of the encoder cable.
		  • Faulty motor brake.
		• The operator controller is faulty.

F.760	Position outside of window.	• Position encoder drive defective. • Absolute encoder processing electronics defective. • Defective hardware or electrically noisy environment. • Encoder battery dead.
F.761	Distance Channel 1 <-> Channel 2 outside allowed window.	• Position encoder drive defective. • Defective hardware or electrically noisy environment.
F.762	Electronic limit switch positions incorrect.	• Upper limit switch E0 or intermediate limit switch E1 has exceeded the valid limit range. • Controller not yet initialized. • Position values during calibration not correct or values are no longer valid.
F.763	DES-B Error	Position encoder drive defective -> make a reset.
F.770	Gate transmission ratio is set too high.	The value of Parameter P.202 is not 13.

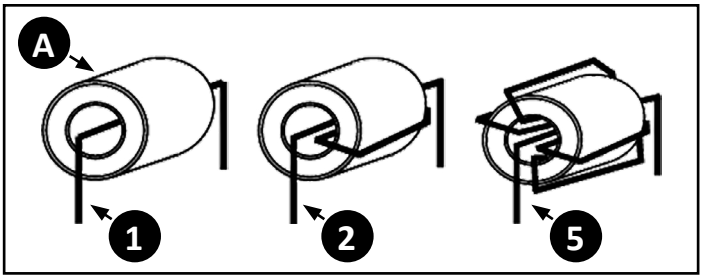
Table 13: Operator Fault Codes		
Fault	**Description**	**Cause**
F.7A2	Communication failure between COM boards.	F.7A2 might occur when there is a communication error between primary and secondary gate controllers commonly caused by electromagnetic interference (EMI) from other sources. To reduce EMI, add ferrite cores (A) at either end of the cable. Install ferrite cores as follows: • Ideally, twist the cable five times (5) around the ferrite core. In some instances, multiple twists may be required. • Two wire turns (2) provide four times the impedance of one turn (pass-through) (1) the ferrite core. Also, with each added turn, the peak impedance shifts to a slightly lower frequency.  Figure 39: Ferrite core installation over a cable, Laird™ part number LFB259128
Internal System Faults		
F.915	Communication error between main board processor and I/O processor.	Hardware defect.
F.920	Internal 2.5 V reference voltage incorrect.	Hardware defect.
F.921	Internal 15 V voltage incorrect.	Hardware defect.
F.922	External Stop circuit not complete.	• Not all External STOP inputs are separately jumpered although the entire External Stop circuit is jumpered. • Redundant checking of the External Stop circuit tripped.
F.928	Photo Eye input failed monitoring test.	• Issues with photocells or photocell circuit need to be addressed. • Also possible if the primary operator LCD displays fault **F.7A2** at the time the monitoring test is run; secondary operator will fail, displaying fault **F928**.
F.930	External watchdog incorrect.	Defective hardware or noise-saturated environment.

Table 13: Operator Fault Codes		
Fault	**Description**	**Cause**
F.931	ROM error.	• Wrong EPROM code. • Defective hardware or noise-saturated environment.
F.932	RAM error.	Defective hardware or noise-saturated environment.
F.935	Stack error.	• User Stack or System Stack overflow. • Defective hardware or noise-saturated environment.
F.960	Wrong parameter checksum.	• New EPROM version with different parameters. • Controller not yet initialized.
F.961	Checksum from calibration values, etc.	• New EPROM version with different EEPROM structure. • Controller not yet initialized.
F.962	Converter parameters not valid.	• New EPROM version. • Controller not yet initialized.
F.963	Ramp parameters not valid.	• New EPROM version. • Controller not yet initialized.
F.964	Program version / manufacturer code.	• New EPROM version. • Controller not yet initialized.
F.970	Parameter block error.	• New EPROM version. • Controller not yet initialized. • Some parameter is invalid.

Details on How to Operate the Gate

Following a Hard Shutdown, and prior to resetting the system, it is the sole responsibility of the user to ensure the area is free of obstructions and that it is safe to operate the Gate. Refer to ***"Table 2: Inherent Entrapment Sensor (IES) Shutdown Modes" on page 29*** and ***"Table 3: Tripped External Entrapment Sensor Modes" on page 37*** for more detailed information about resetting the gate operator.

The gate pathway and surrounding areas should be checked for obstructions and confirmed all-clear before operation is resumed.

Controlled Constant Contact Operation

Controlled constant contact sustained operation requires a controlled constant contact open command with a controlled constant contact close command. This mode of operation requires qualified personnel to depress and continue to hold down the open or close push-button during gate operation. When the gate is in manual automatic operation it is up to the user to ensure that the gate area is clear of obstacles. When the area is clear and safe only then should the gate be given a command.

Automatic Controlled Momentary Operation

Automatic controlled momentary operation uses a controlled open command with a timer to close OR uses a controlled open command with a controlled close command (e.g., card access). When the gate is in automatic operation it is up to the customer to provide adequate signage and road markings to indicate the unsafe zone of the gate.

Inspection, Servicing and Maintenance

How to Maintain a SpeedGate

Maintenance should be only carried out by facility personnel or persons that are familiar with the SpeedGate. Please contact Wallace Perimeter Security for a maintenance provider in your area. Repairs should only be carried out by personnel that were onsite during the gate commissioning and received adequate information regarding repairs, or are pre-approved by Wallace Perimeter Security. No repairs should be carried out unless Wallace Perimeter Security has been consulted first.



Alterations to the SpeedGate which could have a negative effect on the safety of the SpeedGate are not permitted.

The SpeedGate owner is responsible to ensure that all personnel have received, read and signed the instructions found in ***"End User Briefing Instructions" on page 165***. Personnel that have received the end-user briefing are qualified to perform SpeedGate cleaning and maintenance.

The operators must be turned off whenever assembly and maintenance activities are being carried out. When the gate safety components are being checked for good working order the gate should be checked for any obstructions before operators are turned on. Only if all areas are clear can the operators be turned back on.

Use checklists for recording repairs and maintenance to the SpeedGate, and maintain permanent logs of all gate inspections, maintenance, servicing and repair activities.

Maintenance, Repair and Servicing Assistance

To aid in restoring compromised gate operation to normal operation, contact your Wallace Perimeter Security (WPS) authorized service provider for assistance.



By Telephone: Call WPS at **1 (866) 300-1110** and request to speak with a Wallace Perimeter Security service technician. Be prepared with the **serial number of the gate**, and a description of the specific problem with the gate, prior to calling.



By Email: Email our technicians at: service@wallaceperimetersecurity.com for immediate attention. Include **serial number of the gate** and concise description of the problem with the gate in your email.



Via the WPS Tech Support Portal: https://support.wallaceperimetersecurity.com/

1. Log in by providing your email address and assigned customer password.
2. Click on request support at bottom of the WPS Technical Support Portal page.
3. Fill in our Support Request form by providing the following information:

- Name
- Company
- Email Address
- Phone Number
- Product Type
- Product Location (City/Town)
- Product Location (Province/State)
- Serial Number (Last 4 Digits)
- Description of Issue/Request
- Attachments - You may attach up to five images to your support request. They will need to be provided in .jpg format at no more than 2MB in size each.

Maintenance Schedules

Maintenance is essential in order to guarantee the safety and the satisfactory operation of the SpeedGate. Maintenance checks should be conducted only by qualified maintenance personnel. The following maintenance interval checklists are provided to record repair requirements, maintenance performed and additional observations pertinent to the SpeedGate. Checklists must be dated, signed and retained for record-keeping purposes.



Turn OFF power to the gate whenever assembly and maintenance activities are being carried out.

After turning off the controller, dangerous voltage levels remain present for up to 5 minutes. Touching electronic components is dangerous due to residual voltages. Never operate the controller while the cover is removed.

SpeedGate Weekly Maintenance Checklist

1-SPEEDGATE WEEKLY MAINTENANCE CHECKLIST	Checked	Good	Needs Attention	N/A
SpeedGate Serial Number:				
To be carried out by end user the first workday of every week:				
1. Perform a general visual inspection.				
2. Check that lighting at the SpeedGate site is in good working order.				
3. Check that the SpeedGate is in good working order, in conformance with UL standards. Test the Gate System. The gate MUST react as programmed (e.g., stop/reverse on contact with a rigid object). The gate MUST react as programmed (e.g., stop/reverse when an object breaks the photo eye infrared beam) while the gate is in the Closing cycle. Failure to properly test inherent and external entrapment devices on a weekly basis can increase the risk of severe injury or death.				
4. Check that the Reduced Speed/Torque Change Sensor (the inherent entrapment sensor) is in good working order.				

1-SPEEDGATE WEEKLY MAINTENANCE CHECKLIST	Checked	Good	Needs Attention	N/A
5. Clean photo eyes (external entrapment protection sensors) with a soft, clean, dry cloth and ensure they are in good working order.				
6. If used in particular application: Check that the sensing edges (external entrapment protection sensors) are in good working order.				
7. If used in particular application: Check that the vehicle detection loops are working.				
Comments/Recommendations:				

Customer Signature:		Customer Name (Print):
Signature of Maintenance Inspector:		Maintenance Check Performed by (Print Name):
Date:		Date of next Maintenance Inspection:
Cycle Count:		

SpeedGate Quarterly Control Maintenance Checklist

2-SPEEDGATE QUARTERLY (EVERY THREE MONTHS) CONTROL MAINTENANCE CHECKLIST	Checked	Good	Needs Attention	N/A
SpeedGate Serial Number:				
To be carried out by maintenance personnel:				
1. Perform a general visual inspection.				
2. Visually inspect the Operator cabinet for moisture.				
3. Visually inspect the Operators for moisture.				

2-SPEEDGATE QUARTERLY (EVERY THREE MONTHS) CONTROL MAINTENANCE CHECKLIST	Checked	Good	Needs Attention	N/A
4. Ensure that the Operator cabinet is secured properly.				
5. Clean the SpeedGate.				
Comments/Recommendations:				

Customer Signature:		Customer Name (Print):
Signature of Maintenance Inspector:		Maintenance Check Performed by (Print Name):
Date:		Date of next Maintenance Inspection:
Cycle Count:		

SpeedGate Quarterly Gate Drive System Maintenance Checklist

3-SPEEDGATE QUARTERLY (EVERY THREE MONTHS) GATE DRIVE SYSTEM MAINTENANCE CHECKLIST	Checked	Good	Needs Attention	N/A
SpeedGate Serial Number:				
All drive mechanism maintenance activities must be carried out by maintenance personnel or personnel pre-approved by Wallace Perimeter Security and recorded in an equipment maintenance logbook.				
1. Perform a general visual inspection.				
2. Remove covers.				
3. Grease drive linkage rod end bearing with lithium grease or synthetic grease. Recommended lubricant: **Castrol Pyroplex® Protection ES**				
4. Visually inspect the drive linkage for wear.				

3-SPEEDGATE QUARTERLY (EVERY THREE MONTHS) GATE DRIVE SYSTEM MAINTENANCE CHECKLIST	Checked	Good	Needs Attention	N/A
5. Check torque on motor bolts (105 ft-lbs) (142.36 Nm).				
6. Check torque on motor mount plate (105 ft-lbs) (142.36 Nm).				
7. Check torque on drive pins (90 ft-lbs) (122.03 Nm).				
8. Visually inspect the motor and gearbox for wear and leaks.				
9. Check brakes to see if they disconnect properly.				
Comments/Recommendations:				

Customer Signature:		Customer Name (Print):
Signature of Maintenance Inspector:		Maintenance Check Performed by (Print Name):
Date:		Date of next Maintenance Inspection:
Cycle Count:		

SpeedGate Semi-Annual Maintenance Checklist

4-SPEEDGATE SEMI-ANNUAL (EVERY SIX MONTHS) MAINTENANCE CHECKLIST	Checked	Good	Needs Attention	N/A
SpeedGate Serial Number:				
Maintenance should be carried out by qualified personnel that were onsite during the gate commissioning in accordance with an equipment maintenance log timeline. An ongoing record must be kept of all gate maintenance and servicing activities.				
1. Perform a general visual inspection.				

4-SPEEDGATE SEMI-ANNUAL (EVERY SIX MONTHS) MAINTENANCE CHECKLIST	Checked	Good	Needs Attention	N/A
2. Lubricate all revolving parts (every 10,000 cycles or six months). Recommended gate hinge lubricant: **Castrol Pyroplex® Protection ES**, a synthetic lithium complex grease. Grease the gate hinge opening leading to the pin on the top and on the bottom, using a grease gun. Locate the Zerk fitting (grease gun end nipple), and squirt grease into the opening(s) until it flows from the bearing. Wipe away any excess grease with a paper towel or shop rag. While it is highly important to inspect the gate hinges for adequate lubrication every six months/10,000 cycles, it is of equal importance to **AVOID EXCESSIVE LUBRICATION**. Too much grease being forced into a gate hinge can cause blockage and damage to the internal rolling elements. If existing lubrication levels appear adequate, and there is no apparent binding or noise in proximity to the hinges, further lubrication is unnecessary.				
3. Inspect fastenings that use bolts and nuts, specifically those of revolving elements.				
4. Clean the photo eye faces with a soft, clean, dry cloth.				
5. Check the operation of the photo eyes and the sensing edges.				
6. Check the movement of the gate:				
6.1 Make sure that the fully closed position is correct. Adjust drawbars and/or electronic limits as needed.				
6.2 Make sure that the fully open position is correct. Adjust drawbars and/or electronic limits as needed.				
6.3 Ensure gate is moving smoothly.				
Comments/Recommendations:				

Customer Signature:		Customer Name (Print):
Signature of Maintenance Inspector:		Maintenance Check Performed by (Print Name):
Date:		Date of next Maintenance Inspection:
Cycle Count:		

SpeedGate General Maintenance Checklist

5-SPEEDGATE GENERAL MAINTENANCE CHECKLIST	**Checked**	**Good**	**Needs Attention**	**N/A**
SpeedGate Serial Number:				
The following checklist is intended to record repair requirements, maintenance performed and additional observations pertinent to the SpeedGate. Checklists must be dated, signed and retained for record-keeping purposes.				
1. Physical structure - no damage.				
2. Secure hinge bolts - (90 ft-lbs) (122.03 Nm) torque.				
3. Secure bolts at drive pins and guide roller wheel or captured roller assembly to (90 ft-lbs) (122.03 Nm); (top of panels).				
4. Check guide roller wheel or captured roller assembly for abnormal wear/improper function (running freely/smoothly in center of guide roller channel).				
5. Check all electrical cables for proper clearance from all moving parts inside column. Fasten as required.				
6. Check post termination box for weather-tight seal. Check seal on gear boxes for leaks (gearbox in each column).				
7. Check photo eye operation; clean lens with soft, clean, dry cloth (if equipped).				
8. External Stop button (if equipped) functional.				

5-SPEEDGATE GENERAL MAINTENANCE CHECKLIST	Checked	Good	Needs Attention	N/A
9. Accessory devices secure in cabinet (loop relays, etc).				
10. Auto-close timer, interlock functional (if enabled).				
11. Cabinet thermal cover installed correctly (if equipped).				
12. Center catch shoe functional/secure (if installed).				
13. Control cabinet clean/dry.				
14. Control cabinet fasteners secure.				
15. Heater operational (if equipped).				
16. Sensing edges - no rips/tears, function OK (if equipped).				
17. Obstruction loop/free exit loop (i.e., Channel 1 or Channel 2 Loop, as programmed) - operational/ good condition (if equipped).				
Comments/Recommendations:				

Customer Signature:		Customer Name (Print):
Signature of Maintenance Inspector:		Maintenance Check Performed by (Print Name):
Date:		Date of next Maintenance Inspection:
Cycle Count:		

End User Briefing Instructions

The following instructions regarding intended operation of the gate shall be provided to the End User. This is to be done by the installer as a required part of the installation procedures.

⚠ WARNING

To reduce the risk of severe injury or death:
READ AND FOLLOW ALL OF THESE INSTRUCTIONS.

1. Ensure the installer of the SpeedGate has provided the End User with a complete review, demonstration thereof, and supporting documentation of the following:

    a. A complete copy of the Installation Manual, which will include mechanical and electrical drawings and instructions for the proper operation and service of the gate system.

    b. The normal Sequence of Operation as to how the Gate will behave in both the opening and closing cycles:

        i. When a controlled open command is given the gate panels begin to move from the closed position.
        ii. The gate panels will accelerate to the maximum operating speed until the gate panels reach the pre-open position.
        iii. At the pre-open position (factory set), the gates will decelerate and come to a controlled stop at the fully open position.
        iv. After receiving a controlled close command or elapse of the timer-to-close, the gate panels will move from the open position to the close position.
        v. The gate panels will accelerate to the maximum operating speed until they have passed the pre-open position.
        vi. At the pre-closed position, the gate panels will decelerate until they come to a fully closed position.

    c. The Obstruction Detection Devices and how the Gate will behave should any of these devices encounter an obstruction. This must include the proper steps to take following both a “Soft Shutdown” and a “Hard Shutdown”.

    d. The electrical (on/off) disconnect within the electrical controls enclosure.

    e. The manual disconnect / mechanical drive; how to properly use it and return the system back to normal operation following use of the manual disconnect.

2. Never let children operate or play with gate controls, or play in the vicinity of the Gate. If a remote control is provided with this system, always keep it away from children.

3. Always keep people and objects away from the gate.



4. **NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.**

5. a) Test the Gate System weekly. The gate MUST react as programmed (e.g., stop/reverse on contact with a rigid object). The gate MUST react as programmed (e.g., stop/reverse when an object breaks the photo eye infrared beam) while the gate is in the closing cycle. Failure to properly test inherent and external entrapment devices on a weekly basis can increase the risk of severe injury or death.

   b) Test the gate operator monthly. The gate MUST reverse on contact with a rigid object or stop when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of severe injury or death.

6. Use the manual brake disconnect only when the gate is not moving. When the manual brake disconnect cable is pulled a micro-switch will disable the electrical operation of the gate.

7. **KEEP THE GATE SYSTEM PROPERLY MAINTAINED.** This Gate System is not a toy. Read the owner's manual thoroughly. Only allow trained and qualified technicians to service the gate system, for both mechanical as well as electrical repairs.

8. The Gate System is for vehicles only. Pedestrians must use a separate gate.

9. SAVE THESE INSTRUCTIONS.

Installer's (OR SpeedGate Owner) Name Printed:		End User's Name (Printed):
Installer's (OR SpeedGate Owner) Signature:		End User's Signature:
Site:		Date:

SPEEDGATE
2-YEAR LIMITED PRODUCT WARRANTY

For a period of 2 Years from date of delivery, ASSA ABLOY, 10225458 Manitoba Ltd. O/A Wallace Perimeter Security ("WPS") warrants the product delivered to Buyer as follows: (1) the hardware shall be free from defects in material and workmanship and will conform to the applicable WPS specification and the terms of this proposal, and (2) the software and firmware will conform to the applicable WPS specifications and the terms of use.

This warranty shall be construed and interpreted in accordance with the provincial law of Manitoba and the common law of the Government of Canada.

If a defect occurs during the warranty period, Buyer shall return the product to a WPS facility for repair or replacement. WPS shall determine in its sole discretion whether to repair or replace any defective product covered by this warranty. Buyer shall prepay the cost of shipping the product to WPS or to the designated facility and bear the risk of loss while the product is in transit. WPS shall pay the shipping charges to return the product to the Buyer and bear the risk of loss during transit, unless WPS determines that the defect is not covered by this warranty, in which event WPS shall immediately notify the Buyer and request instruction regarding disposition. Buyer's sole and exclusive remedy for defects in products covered by this warranty is limited to the correction of the defect by repair or replacement.

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by Buyer, Buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications of the product or improper site preparation or maintenance. This warranty shall also not apply to products that have been subjected to testing for other than specified electrical characteristics or have been subjected to mishandling, misuse, neglect, improper testing, repair, alteration, damage, assembly or processing that alters physical or electrical properties.

IN NO EVENT SHALL WPS BE LIABLE BY VIRTUE OF ANY WPS WARRANTY OR OTHERWISE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGE RESULTING FROM THE USE OR LOSS OF USE OF THE PRODUCT OR OTHERWISE. THIS WARRANTY SHALL BE APPLICABLE ONLY IF THE PRODUCT SHALL STILL BE THE PROPERTY OF THE ORIGINAL BUYER OR USER (OR IF THE ULTIMATE BUYER OR USER IS A NATIONAL GOVERNMENT ORGANIZATION). NO OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED AND INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE HAS BEEN OR WILL BE MADE BY OR ON BEHALF OF WPS OR BY OPERATION OF LAW WITH RESPECT TO THE PRODUCT OR ITS INSTALLATION, USE, OPERATION, REPLACEMENT OR REPAIR. THIS WARRANTY WILL BE CONSIDERED NULL AND VOID IF THE MAINTENANCE PROCEDURES AS OUTLINED IN THE OWNER'S MANUAL HAVE NOT BEEN ADHERED TO AND DOCUMENTED.

The validity of the warranty is based upon proof of documented preventative maintenance.

Parts manufactured by third parties are covered solely by third-party warranties, if any.

Additional Warranty - WPS hinges carry a **Lifetime Warranty** and should failure occur at any time during the lifecycle of the gate they will be replaced at no charge to the Buyer.

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Technical Specifications

Technical Data: PDTT Series Specifications	
MAX Height[1]	14 ft (4.27 m)
MAX Width[2]	24 ft (7.31 m)
Opening Speed	8 seconds
Finish	Hot dip galvanized, Powder coat options
Power Requirements	Voltage 208-240 V, Frequency 60 HZ, Current 20 AMP dedicated circuits, Single phase
Battery Back-up	Add on
Listed to UL 325 (class 1, 2, 3 & 4)	

Technical Data: PDXT Series Specifications	
MAX Height[1]	10 ft (3.05 m)
MAX Width[2]	18 ft (5.49 m); 23 ft (7.01 m) for heights < 10 ft (3.05 m)
Opening Speed	8 seconds
Finish	Hot dip galvanized, Powder coat options
Power Requirements	Voltage 208-240 V, Frequency 60 HZ, Current 20 AMP dedicated circuits, Single phase
Hydraulic Option	Yes
Battery Back-up	Add on
Listed to UL 325 (class 1, 2, 3 & 4)	

1. Other available heights (for PDXT models only): 6 ft (1.83m), 8 ft (2.44m).

2. Specifications herein are representative of four-fold gates: two gate panels to fold one way (left hand gate with hinges on left side); two gate panels to fold the other way (right hand gate with hinges on right side). Four-fold gates, defined as bifolding gates, are mounted on two separate columns.

   Single-folding (i.e., two panels mounted on one column) “half” gates follow essentially the same dimensional requirements as four-folds, with gate width cut in half: up to 11.5 feet (3.5m)- PDXT Series [or 12 feet (3.66m)- PDTT Series].

3. Infill, panel, hardware and support selections are dependent on gate height and weight. Height affects the gate’s wind load. The taller the gate, the exponentially greater the wind load. Also, solid infill increases wind load; maximum available size recommendations vary accordingly. Installation applications, such as high traffic flow areas, are another instance in which recommended gate size may be less than the maximum.

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