impro®

MODEL NUMBER: SGI912-1-1-GB-XX

IMPROX SUPAGATE PLUS

ImproX SupaGate Plus 4-Channel Controller
INSTALLATION MANUAL

SPECIFICATIONS

Working Environment	The SupaGate Plus is designed to work in an indoor or protected outdoor environment similar to IP20. The SupaGate Plus is, therefore, NOT sealed against water.	
Passive Frequency	125 kHz.	
RF Frequency	433.92 MHz.	
Security	ImproX DCT, Dynamic Code Transmission Technology.	
Input Voltage	10 V DC to 14 V DC.	
Power Requirements	**Current (mA)**	**Power (W)**
Input Voltage 12 V DC, 1 Antenna Reader, all Relays OFF	60	0.72
Input Voltage 12 V DC, 1 Antenna Reader, all Relays ON	220	2.64
Input Voltage 12 V DC, 2 Antenna Readers, all Relays OFF	100	1.2
Input Voltage 12 V DC, 2 Antenna Readers, all Relays ON	260	3.12
Relays		
Relay Output	4 Relays, each with NO, COM and NC contacts.	
Relay Contact Ratings	10 A at 28 V DC, 5 A at 220 V AC.	
Installer Interfaces		
LED Indicators		
7-Segment Display	2 Displays, Red (externally visible).	
Push-buttons	4 Push-buttons (externally accessible).	

INSTALLATION INFORMATION

Accessories

Find the following when unpacking the SupaGate Plus Controller:

- A SupaGate Plus housed in a Black tinted, Polycarbonate Plastic Cabinet. The SupaGate Plus consists of a 2-piece Top Cover and a Base.

CAUTION: DO NOT use the Metal-oxide Varistors (25 Vrms, 500 A, 77 V max clamping) with mains power applications.

- Four Metal-Oxide Varistors, 25 Vrms, 500 A, 77 V max clamping.
- Four Black tinted, Polycarbonate Plastic Standoffs.
- A 1 m (3 ft) Antenna Reader Connection Cable, with a 6-Way Friction Lock Header Connector at one end.
- Two Brass Wood Screws (3.50 mm x 25 mm).
- Two Wall Plugs (7 mm).
- An extra Serial Number Label.

General

Remember the following when installing the SupaGate Plus:

Read Range

CAUTION: The SupaGate Plus is susceptible to excessive RF interference, reducing the range. Always site test the SupaGate Plus, prior to installation, in its installation location for optimum RF read range.

- The SupaGate Plus has a tested RF read range of between 10 m to 30 m (11 yd to 33 yd) when used with the ImproX QT (XQT904-1-1-GB-XX).
- The passive read range varies from between 25 mm to 76 mm (1 in to 3 in) depending on the Antenna Reader and Tag used.

Antenna Reader Distance

The ideal cable distance between the SupaGate Plus and its Antenna Reader ranges between 2 m to 16 m (7 ft to 53 ft). Achieve this by using good quality screened, twisted pair cable.

Distance between Antenna Readers from the SAME SupaGate Plus

To avoid mutual interference, install the Antenna Readers alongside each other at least 150 mm (6 in) apart.

Distance between Antenna Readers from DIFFERENT SupaGates

To avoid mutual interference, install the Antenna Readers alongside each other at least 500 mm (20 in) apart.

Blank Space

Default Relay Selection

- For passive Tags presented to Antenna Reader 1, Relay 1 is automatically selected. For passive Tags presented to Antenna Reader 2, Relay 2 is automatically selected.
- When using the Normal (4-Digit) PIN-code, if you enter the PIN-code on Antenna Reader 1, Relay 1 is automatically selected. If you enter the PIN-code on Antenna Reader 2, Relay 2 is automatically selected.
- Buttons 1 to 4 on the ImproX (QT) Quad Transmitter activate Relays 1 to 4 on the SupaGate Plus Controller. If only Buttons 1 and 2 are pressed during the "Add RF Tags" procedure then only those Buttons will activate the relevant Relays. Buttons 3 and 4 will have no action. Any combination is available. See Figure 1 for Button locations.

Figure 1: Button Configuration for the ImproX (QT) Quad Transmitter Programmed in "Dynamic Code Transmission Mode"

- The ImproX (QT) Quad Transmitter has its own passive Tag, separate from the transmitted codes. Presenting the ImproX (QT) Quad Transmitter passive Tag to Antenna Reader 1 drives Relay 1, likewise, presentation to Antenna Reader 2 drives Relay 2.

	Relay 1	Relay 2	Relay 3	Relay 4
Quad Transmitter	Button 1	Button 2	Button 3	Button 4
Passive Tag	Antenna Reader 1	Antenna Reader 2	-	-
4-Digit PIN-code	Antenna Reader 1	Antenna Reader 2	-	-
5-Digit PIN-code (Antenna Reader 1 or 2)	PIN XXXX1	PIN XXXX2	PIN XXXX3	PIN XXXX4
Request to Exit (RTE) Input	RTE Door 1	RTE Door 2	-	-

Table 1: Relay Allocation Summary

Arc Suppression

Snubber devices are recommended for EMF Flyback and Arc Suppression when driving an inductive load with the Relay, see Figure 2.

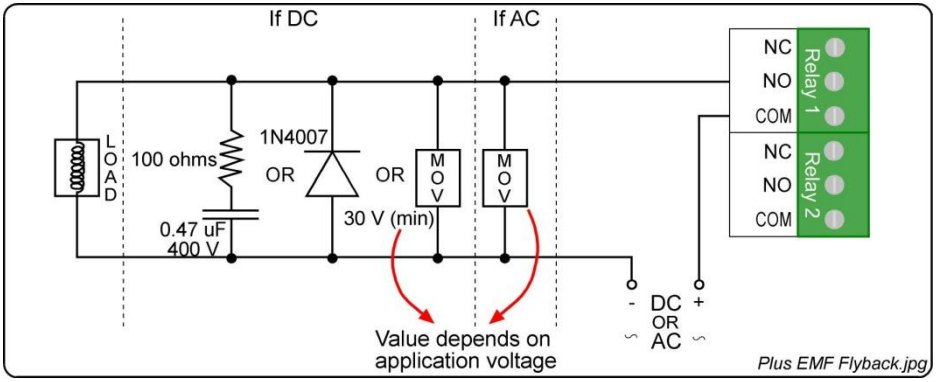


Figure 2: EMF Flyback and Arc Suppression

MOUNTING THE SUPAGATE PLUS

CAUTION: DO NOT mount the Controller on or close to a metal surface.

CAUTION: Mount the SupaGate Plus in a suitable indoor location, or protected outdoor location. Mounting the SupaGate Plus in a location unprotected against rain will damage the SupaGate Plus.

CAUTION: Make certain that you mount the Controller on a vibration-free surface.

NOTE: If you intend mounting the SupaGate Plus on a damp wall, use the supplied standoffs to position the SupaGate Plus away from the wall.

NOTE: Test the SupaGate Plus, in the proposed installation location before mounting in position, ensuring the read range meets your needs.

For best performance, position the Controller for clear line-of-sight in the direction of the movement. The antenna should be in the vertical plane.

In Figure 3, a Tag moving along Motion 1 will be in line-of-sight of the antenna throughout the 10 m distance from first detection to the Controller. However, a Tag moving along Motion 02 will move out of line-of-sight of the antenna once it reaches Point A in Figure 3

Blank Space

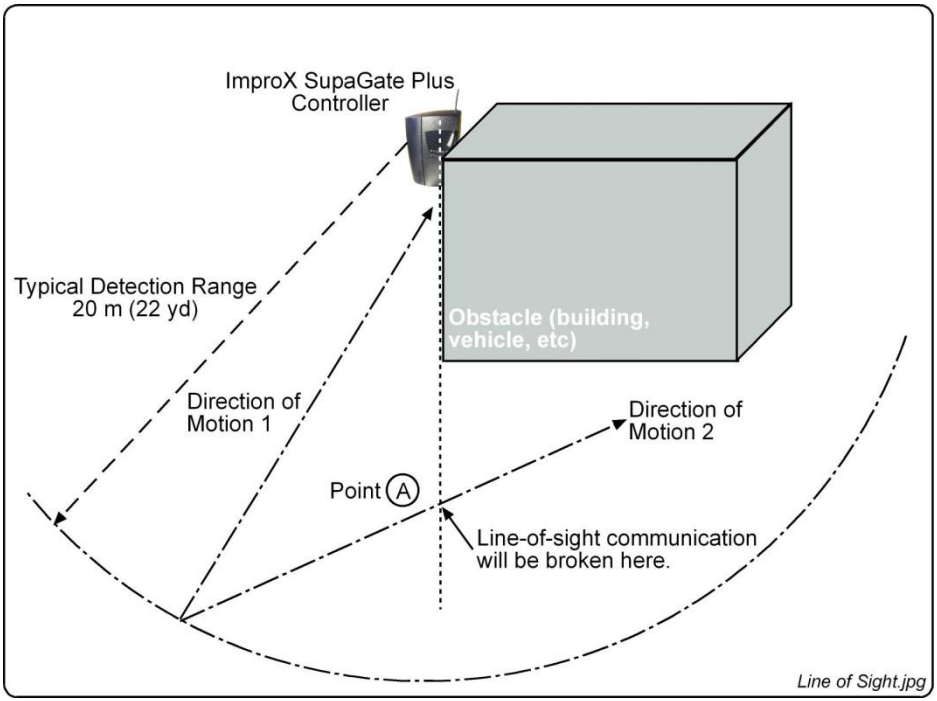


Figure 3: Line of Sight

1. After removing the SupaGate from its packaging, straighten the flexible Antenna, this ensures an improved RF read range.
2. Position the SupaGate in clear line-of-sight, preferably 1.50 m to 2 m (5 ft to 6 ft) above the ground, in the direction of movement, with the Antenna vertical.
3. Secure the Cabinet to the mounting surface, using two suitable screws and wall plugs (supplied), nuts and bolts or rivets.

Blank Space

CONNECTING THE SUPAGATE PLUS

Figure 4 shows the layout of the SupaGate Plus.

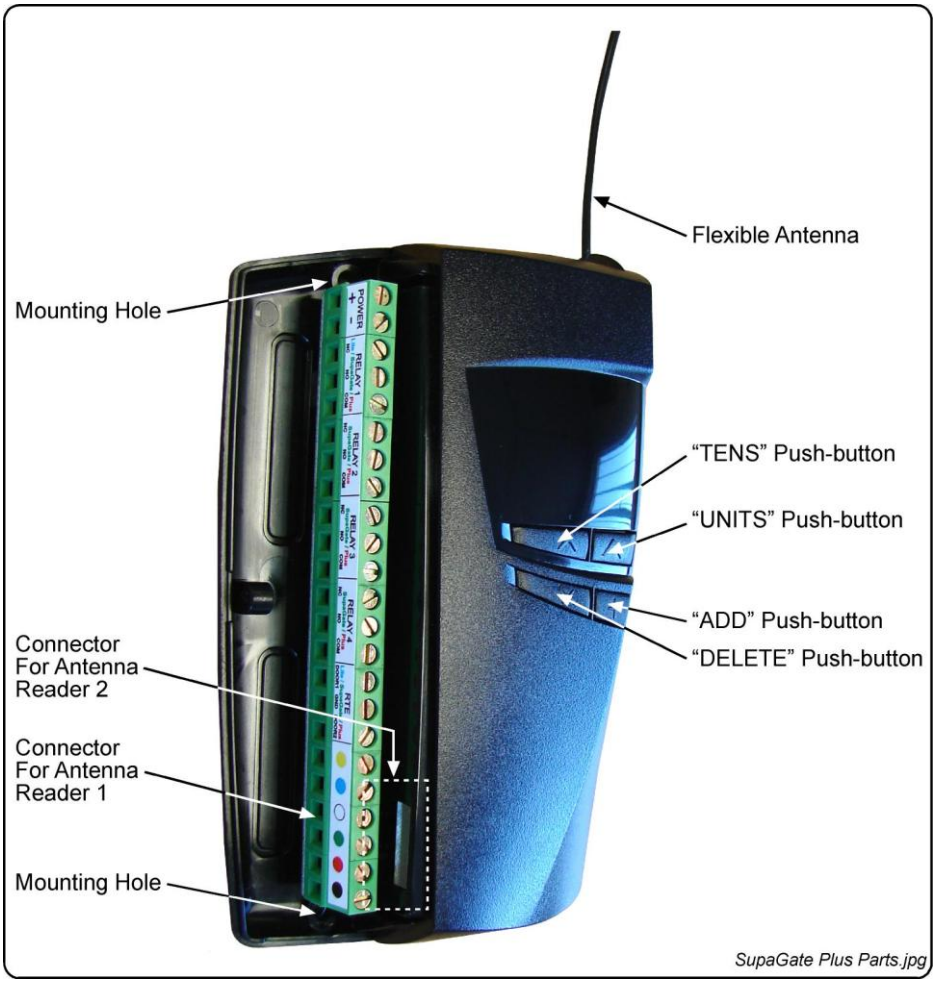


Figure 4: SupaGate Plus Layout

Blank Space

Figure 5 shows a typical connection diagram for the SupaGate Plus Controller.

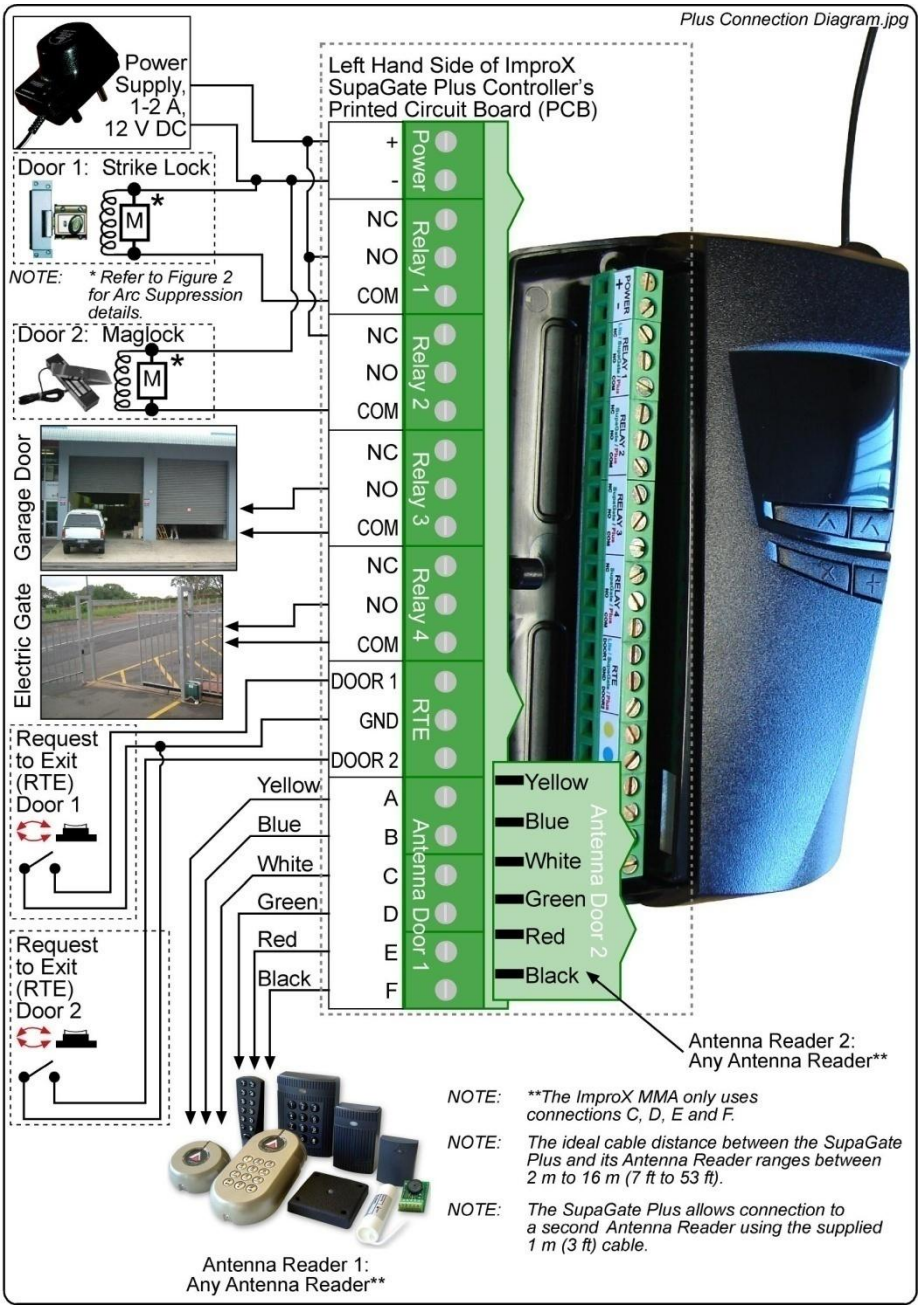
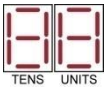
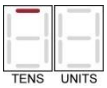
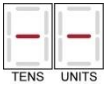
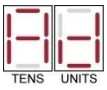
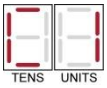
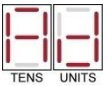
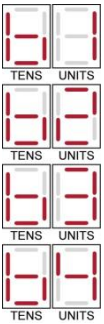
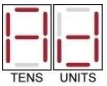
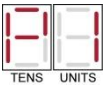


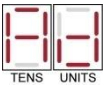
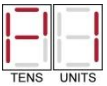
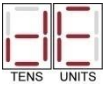
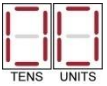
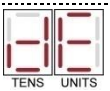
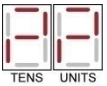
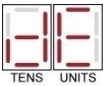
Figure 5: Typical SupaGate Plus Electrical Connections

USER INFORMATION

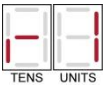
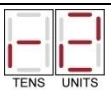
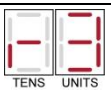
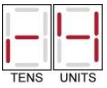
Mode and Action	7-Segment Display LED	
	Displays	**Duration**
POWER-UP		2 seconds then enters Run Mode
RUN MODE **Reading Tags**		Rotates in a circular manner
Unknown Tag		2 seconds
Tag Found	Displays the Tag Memory Location (01-99)	2 seconds
PROGRAMMING MODE **Adding Passive Tags** 1. In Run Mode press the "ADD" Push-button for less than 1 second. 2. Press the "TENS" and "UNITS" Push-buttons until the desired Tag Location is shown. 3. Present the Passive Tag to the Antenna Reader. 4. Press "ADD" to return to Run Mode. *NOTES:* • *Each new Tag Code received will display the Location at which it is being added.* • *If the Tag already exists, it will be deleted and re-added in the same location.* • *Ensure you present the Passive Tag to both Antenna Readers to gain access to both doors. If you enroll the Passive Tag only on Antenna Reader 1, access is only granted at Antenna Reader 1. Antenna Reader 2 does not give an allowed or denied signal. Antenna Reader 2 simply reports the Tag Location number on the SupaGate's 7-segment display.*		1 second
	Displays the first free Location (01-99)	2 seconds
	Displays the Passive Tag (Card) number as follows: 	

Mode and Action	7-Segment Display LED	
	Displays	**Duration**
Adding RF Tags 1. In Run Mode press the "ADD" Push-button for less than 1 second. 2. Press the "TENS" and "UNITS" Push-buttons until the desired Tag Location is shown. 3. Press only the Buttons on the ImproX (QT) Quad Transmitter that are required to be allowed. 4. Press "ADD" to return to Run Mode. *NOTES:* • *Each new Tag Code received will display the Location at which it is being added.* • *If the Tag already exists, it will be deleted and re-added in the same location.*		1 second
	Displays the first free Location (01-99)	2 seconds
	Displays the Button Number as follows: 	
Adding Normal (4-Digit) PIN-codes 1. In Run Mode press the "ADD" Push-button for less than 1 second. 2. Press the "TENS" and "UNITS" Push-buttons until the desired Tag Location is shown. 3. Enter your 4-digit PIN-code on the Keypad Antenna Reader, followed by the "#" Key on the Keypad Antenna Reader. 4. Press "ADD" to return to Run Mode. *NOTE: Ensure you enter the complete 4-digit code, followed by the "#" Key to gain entry.*		1 second
	Displays the first free Location (01-99)	2 seconds
	Displays the PIN-code as follows: 	

Blank Space

Mode and Action	7-Segment Display LED	
	Displays	**Duration**
Adding Special (5-Digit) PIN-codes The PIN-code entered activates only the Relay specified as the 5th digit of the PIN-code. 1. In Run Mode press the "ADD" Push-button for less than 1 second. 2. Press the "TENS" and "UNITS" Push-buttons until the desired Tag Location is shown. 3. Enter your 4-digit PIN-code on the Keypad Antenna Reader, followed by a single digit reference to the Relay you want to activate (See Table 1). Press the "#" Key on the Keypad Antenna Reader to complete the entry. 4. Press "ADD" to return to Run Mode. *NOTE: Ensure you enter the complete 5-digit code, followed by the "#" Key to gain entry.*	 Displays the first free Location (01-99) Displays the PIN-code as follows: 	1 second 2 seconds
Deleting Tags and PIN-codes 1. In Run Mode press the "DELETE" Push-button. 2. Press the "TENS" and "UNITS" Push-buttons until the desired Tag Location is shown. 3. Press "DELETE" to delete the desired Location. 4. Specify more Locations to be deleted, or press "DELETE" to return to Run Mode.	  	1 second 2 seconds
Bulk Delete 1. Power down the SupaGate Plus. 2. Power up the SupaGate Plus while simultaneously pressing the "ADD" and "DELETE" Push-buttons. 3. "??" is displayed, after 2 seconds all is deleted and "dE" is displayed.	 	

Blank Space

Mode and Action	7-Segment Display LED	
	Displays	**Duration**
Replacing Lost Tags 1. Delete the lost Tag from its Tag Location. (See the "Deleting Tags" section). 2. Add the new Tag to the abovementioned Tag Location. (See the "Adding Tags" section).	Displays the first free Location (01-99) Displays selected Tag Memory Location	2 seconds
Set Relay Durations 1. In Run Mode press the "ADD" Push-button for longer than 1 second. 2. Press the "TENS" and "UNITS" Push-buttons to specify the duration of Relay 1 in seconds (00 = Toggled Mode). *NOTE: The factory default setting is 01.*	 Displays the Relay Drive Time in seconds (01–99 seconds)	1 second
1. Press the "ADD" Push-button for less than 1 second. 2. Press the "TENS" and "UNITS" Push-buttons to specify the duration of Relay 2 in seconds (00 = Toggled Mode). *NOTE: The factory default setting is 01.*	 Displays the Relay Drive Time in seconds (01–99 seconds)	1 second
1. Press the "ADD" Push-button for less than 1 second. 2. Press the "TENS" and "UNITS" Push-buttons to specify the duration of Relay 3 in seconds (00 = Toggled Mode). *NOTE: The factory default setting is 01.*	 Displays the Relay Drive Time in seconds (01–99 seconds)	1 second
1. Press the "ADD" Push-button for less than 1 second. 2. Press the "TENS" and "UNITS" Push-buttons to specify the duration of Relay 4 in seconds (00 = Toggled Mode). *NOTE: The factory default setting is 01.*	 Displays the Relay Drive Time in seconds (01–99 seconds)	1 second
3. Press "ADD" for less than 1 second to go back to Run Mode.		

Blank Space

COMPLICATED CONCEPTS

- If a 5-digit PIN-code is registered on Antenna Reader 1, specifying Relay 2 as the Relay to be driven, then the 4-digit part of the PIN-code can be entered at Antenna Reader 2, driving Relay 2. No action results from the 4-digit PIN-code being entered on Antenna Reader 1.
- If the Tag + PIN-code function is required, then register a Tag at Antenna Reader 1 and a 5-digit PIN-code specifying Relay 2. Relays 1 and 2 can then be wired in series. Appropriate Relay durations need to be chosen.
- If the incorrect PIN-code is entered 3 times in succession, the Keypad locks for 20 seconds. During this period the RF System remains operational.
- If you select Button 1 on the ImproX (QT) Quad Transmitter to activate Relay 1, presenting the ImproX (QT) Quad Transmitters passive Tag to Antenna Reader 1 automatically activates Relay 1. This is because both the passive Tag and the RF Tag code on an ImproX (QT) Quad Transmitter have the same unique serial number. This only utilizes 1 of your 99 Locations.

Blank Space

TAG LOCATIONS

Document all Tag owners at their respective Tag Memory Locations (in the SupaGate Plus) using Table 2. This list provides an easy reference when you need to delete Tags from the SupaGate Plus.

	Owner	Relay or PIN-code						Owner	Relay or PIN-code				
		1	2	3	4	5/R			1	2	3	4	5/R
01							27						
02							28						
03							29						
04							30						
05							31						
06							32						
07							33						
08							34						
09							35						
10							36						
11							37						
12							38						
13							39						
14							40						
15							41						
16							42						
17							43						
18							44						
19							45						
20							46						
21							47						
22							48						
23							49						
24							50						
25							51						
26							52						

	Owner	Relay or PIN-code						Owner	Relay or PIN-code				
		1	2	3	4	5/R			1	2	3	4	5/R
53							77						
54							78						
55							79						
56							80						
57							81						
58							82						
59							83						
60							84						
61							85						
62							86						
63							87						
64							88						
65							89						
66							90						
67							91						
68							92						
69							93						
70							94						
71							95						
72							96						
73							97						
74							98						
75							99						
76													

Table 2: Tag Location Table

Blank Space

GUARANTEE OR WARRANTY

CAUTION: We reserve the right to nullify the products guarantee or warranty where you have not properly installed the Metal-oxide Varistors.

This product conforms to our Guarantee or Warranty details placed on our Web Site to read further please go to www.impro.net.

USER NOTES

This manual is applicable to the SupaGate Plus 4-Channel Controller, SGI912-1-1-GB-01. (The last two digits of the stock code indicate the issue status of the product).			
SGI302-0-0-GB-06	Issue 07	Apr 2008	ImproX SupaGate Plus\English Manuals\LATEST ISSUE\XSupaGt+-insm-en-07.docx