Radford.

Installation Manual

Prepared by

Dominic Casey for
Woolworths

(01/11/2021)

Revision 2.1

Woolworths
Itab
Alphagate

Kit 1 manual

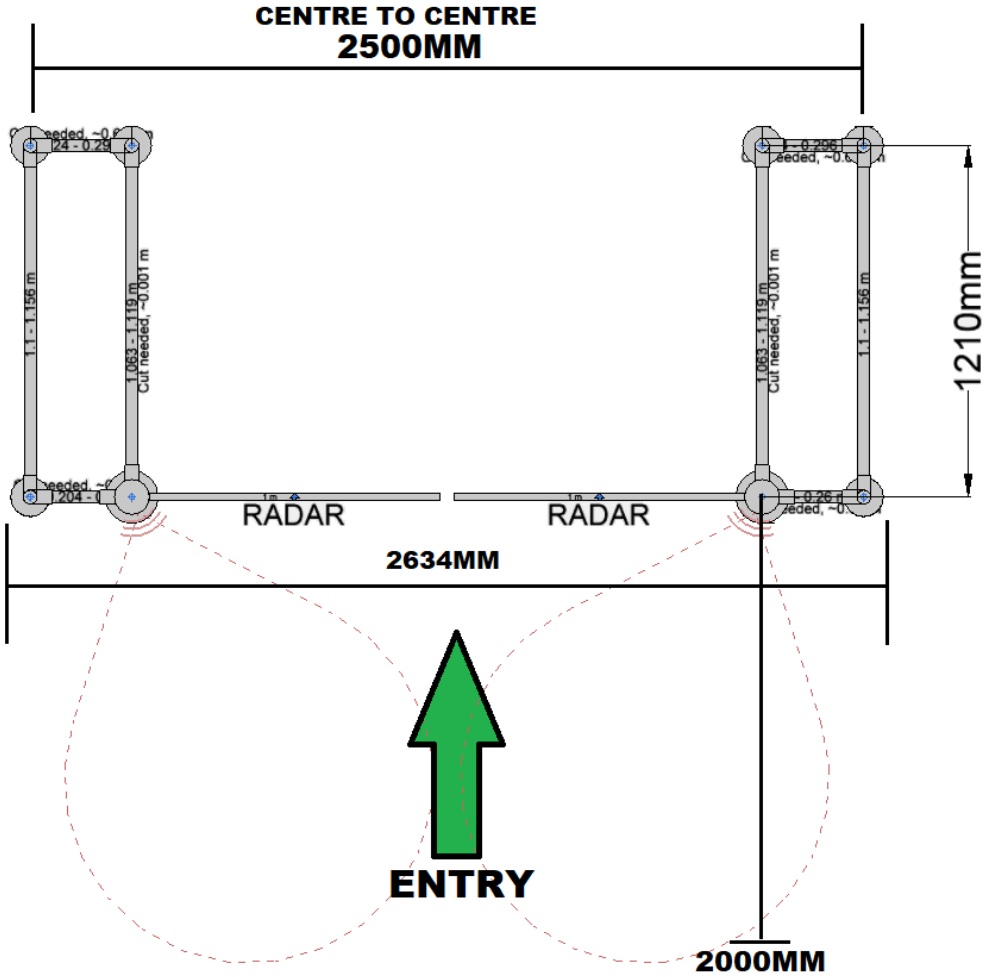
Created by Dominic Casey C/o Radford Retail Solutions P/L on 28/7/2021.

This document has been produced for the sole purpose of **retrofitting** the existing (in situ) Woolworths's **phase one (**EQC1471) Itab autogate to include the fitting of Child Safe Sensors (CSS), Polycarbonate arms and outer low level protection rail.

******* See important notes below, before you start this retrofit: *******

- No floor drilling is allowed on this site without Builder's/Architect's permission - silicone base plate of end-posts to the ground and ensure excess silicone is professionally cleaned form floor and base plate.

- Outer bumper end-posts must be fixed to the existing bollard and rail by using fixings provided.Video is available (scan the below item 4 QR code) to assist with CSS installation and commissioning.



WW phase one retrofitting and commissioning document, summarised:

1. **Unpack materials from carton and ensure all components are accounted for and fully intact.**

Bill of materials:

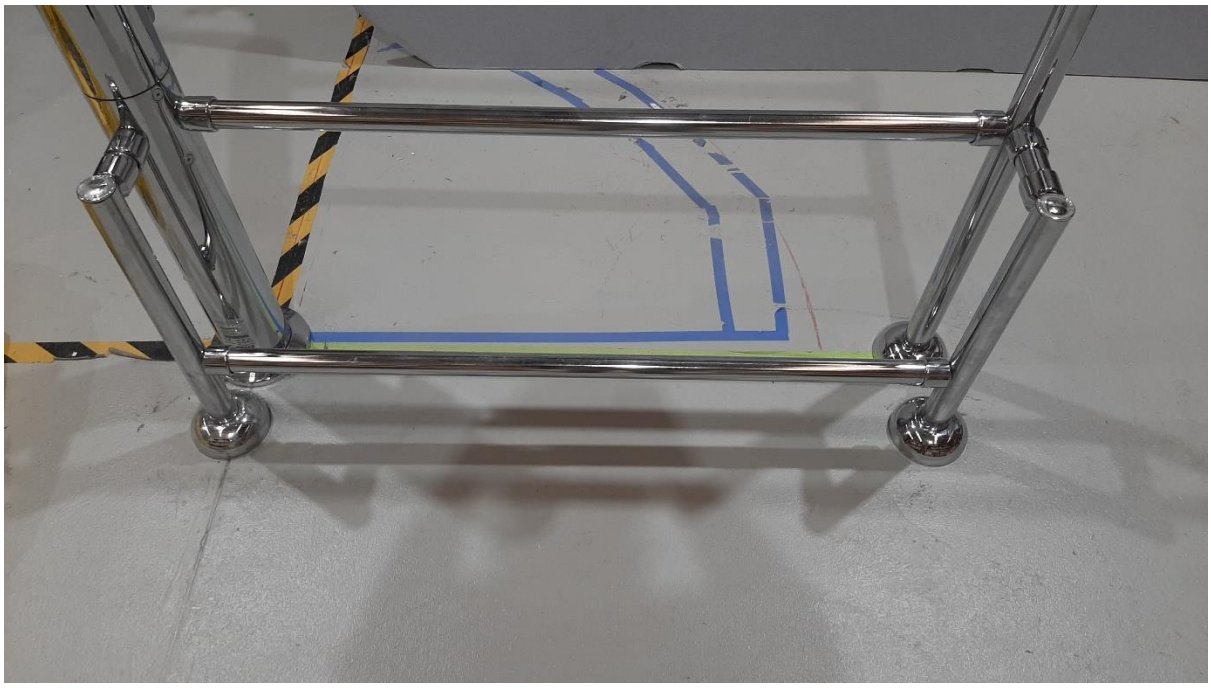
- 2 x 10750-80P Polycarbonate arms with stickers fitted (delivered by others)
- 1 x 10360-10 Lid for Childsafe, LH
- 1 x 10259-00 Lid for Childsafe, RH
- 2 x 10358-30 Childsafe Bracket
- 1 x 11707-91 Childsafe sensor kit, LH
- 1 x 11707-92 Childsafe sensor kit, RH
- 2 x Radar white plastic covers
- 1 x Misc. arm fixings kit
- 1 x bumper kit:
    - 4 x end posts
    - 4 x cross rails
    - 6 x rail cups (2 spare)
    - 6 x cross rail (2 spare)
    - 1 x fixings kits
    - 1 x radar cover strip (white plastic)

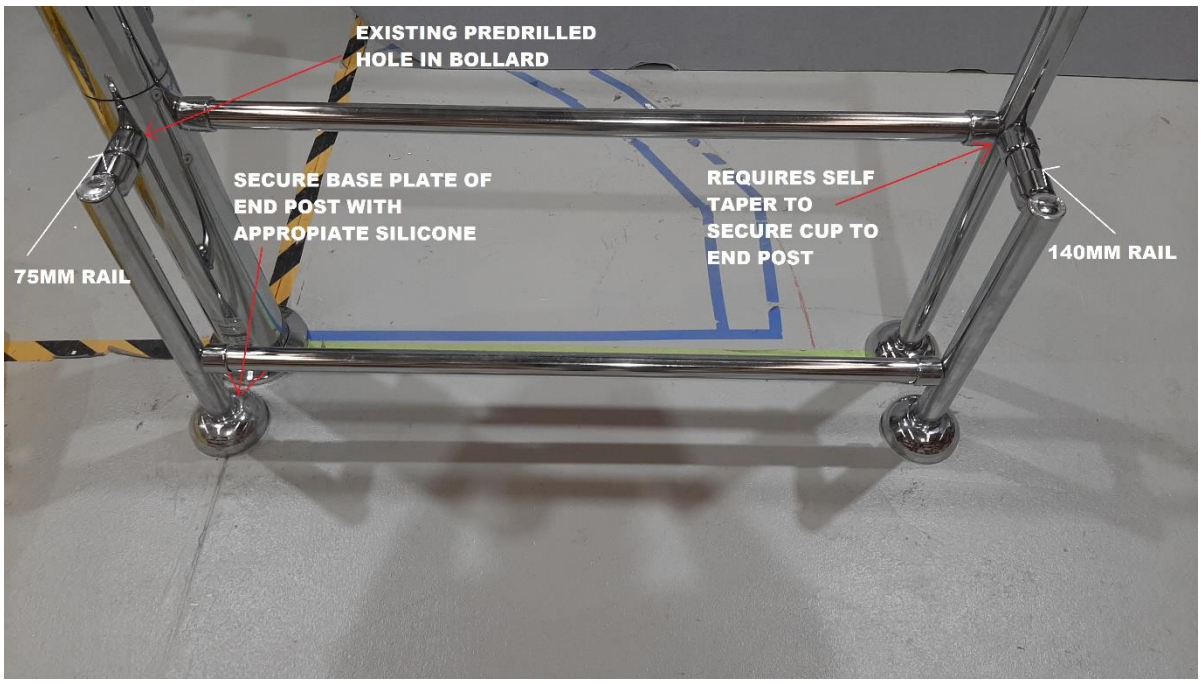
1.Installation of lower bumper rail kit

Please note that drilling floors for the installation of the lower bumper rail kit is strictly not allowed under any circumstance without prior permission from builder/architect.

The lower bumper rail consists of 4 end posts and 4 cross rails and its aim is to prevent objects being placed close the gates and surrounding area that may interfere with sensors and gate operation.

Please see image below of lower bumper rail install on right hand side of welcome gate, mirrored on left hand side:

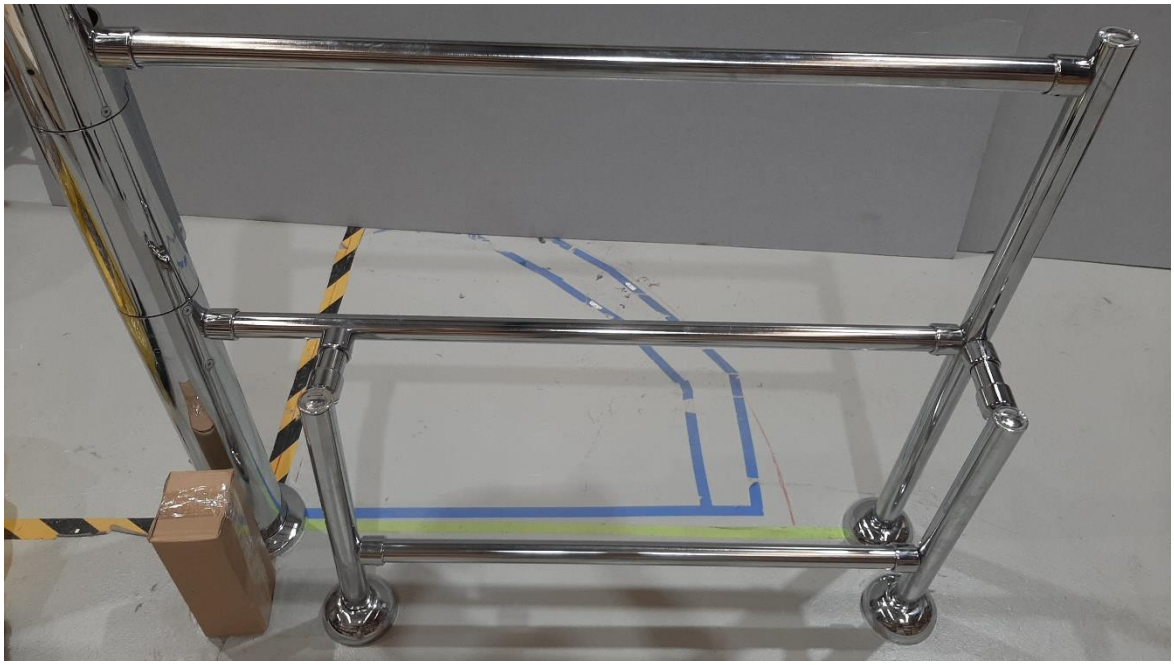


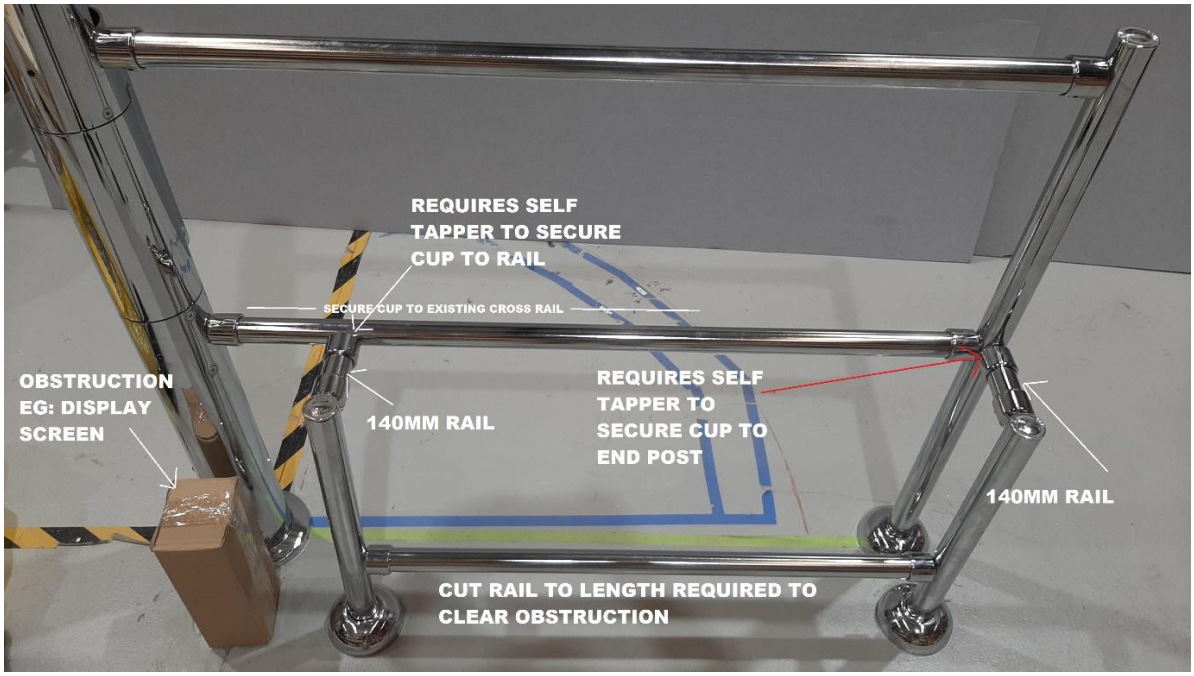


Please ensure that the lower bumper rails always run parallel to the existing cross rails during installation.

Installation of lower bumper rails if obstruction is present:

If a fixed obstruction such as a digital screen is preventing installation of lower bumper rails the following solution can be applied utilising extra cups provided within the kit provided.

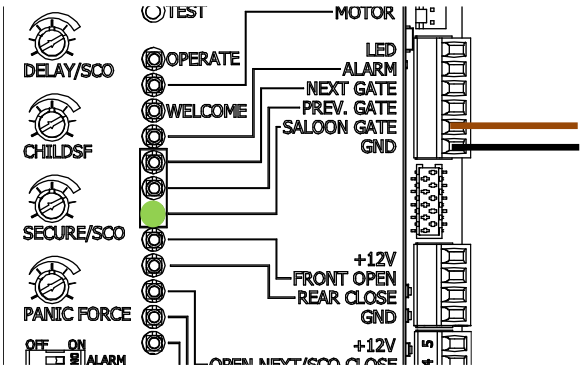




Please ensure that the lower bumper rails always run parallel to the existing cross rails during installation.

2. Check synchronisation cable connections:

Saloon and ground to be connected to both facing gates. The LED for saloon gate should be steady green on both gates when correctly connected.



Note when gates are triggered by their inbuilt (top mounted) radar sensors they will operate as one couple – whichever sensor is triggered first will trigger the gates to drive to the open at the same time as one gate couple.

Check that all existing hardware is properly secured into the ground before retrofitting works commence.

Adequate fixings penetrating at least 65mm **into** the **floor** with flat washers and spring washers should have been used. If floor concrete is inadequate for standard fixings, Chemset-bolt solution or similar should now be used to repair any loose bolts.

(Important: report back to Woolworths any **ground-fixings or other defects** that need any follow up works – see checklist on sign-off document)

3. Fit polycarbonate arms to Woolworths Itab Alphagates

Carefully remove glass arms and fit new polycarbonate arms ensuring all fixings, spacers and rubber seals are correctly and firmly refitted.

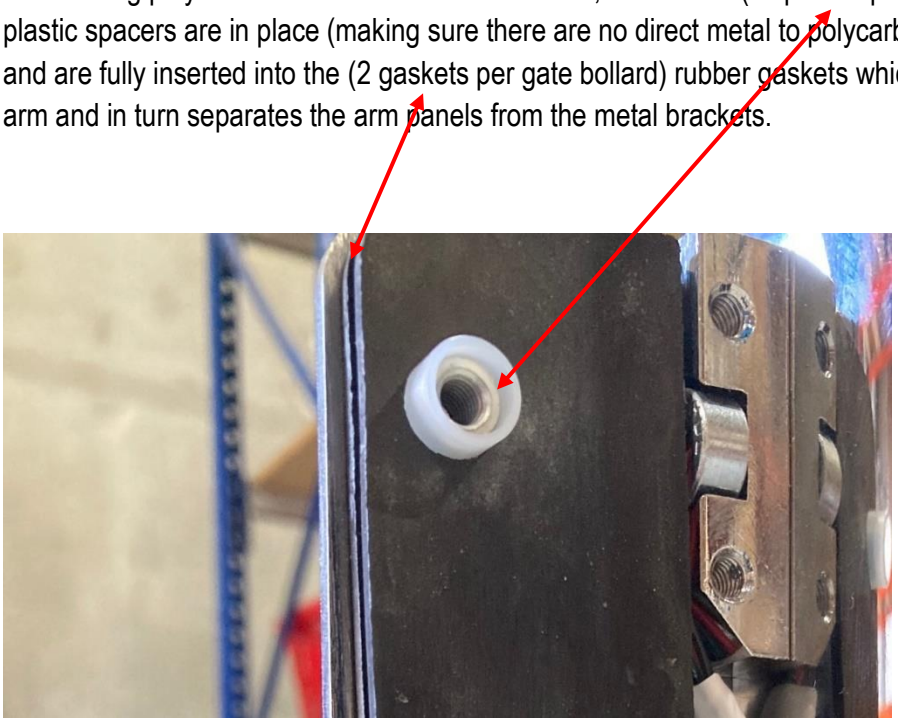
Remove ALL polycarbonate arm protective coverings including the section that is inserted into fixing bracket as this may reduce the LED visibility of the gate arm lighting.

Do not tighten post cups set screws until polycarbonate panels are fully installed into fixing brackets.

When fitting polycarbonate arms into their brackets, ensure the plastic spacers are in place (make sure there is no metal to polycarbonate) separating the polycarbonate from the metal brackets.

Gently tighten bracket screws until the plastic spacer flattens up tight to the polycarbonate.

When fitting polycarbonate arms into their brackets, ensure the (2 spacers per gate bollard) plastic spacers are in place (making sure there are no direct metal to polycarbonate contact) and are fully inserted into the (2 gaskets per gate bollard) rubber gaskets which sandwiches the arm and in turn separates the arm panels from the metal brackets.



Please note operating the gates with loose arm-fixings, missing screws or missing rubber seals will damage the arms over a very-short period of time.

(Important: report to Woolworths any **missing screws or caps** that may need follow up works when completing checklist on sign-off document)

While fitting arms to Itab Alphagates please note the following important points:

It's very important to make sure that ALL components are fitted to the gate arm bracket correctly before placing the polycarbonate arm into the metal bracketry, otherwise breakage is likely to occur either on the spot or later during normal operations.

Ensure the rubber gaskets (there are two, one each side of the polycarbonate panel) are fitted correctly – no polycarbonate arm materials should come into direct contact with metal components at any time.

Ensure **BOTH** plastic spacers are fully intact and firmly in place on metal mounting shaft – no glass to come into direct contact with metal components at any time.

Ensure cables associated with LED lighting strip are not damaged before fitting (and during fitting) of arm panels.

Arms should be placed with equal spacing (there should always be a minimum of 100mm for safety reasons) between panels which are fitted in sloping offset design – see image below.

All fixing screws should have thread lock applied to their ends before final tightening, ensuring they are firmly countersunk flush into outside-metal fixing panel.

BEFORE POWER IS CONNECTED TO GATE YOU MUST FULLY UNDERSTAND THE FOLLOWING IMPORTANT INFORMATION.

The gate will be severely damaged if you don't strictly understand and follow the arm adjustment process as follows:

Commission newly installed gate arms:

Arm adjustment process:
If the gate arm needs to be adjusted for alignment, loosen the screw that holds the coulisse (electronic encoder circuit/position sensor) with 3mm Allen key and move the coulisse a little bit to the left or to the right depending on how the gate arm needs to be adjusted.

Move carefully as **small** movements is enough to adjust the gate arm several centimetres. When the gate arm is satisfactory adjusted, gently fasten the screw again (do not over tighten).
To be able to do this adjustment successfully, the power needs to be switched **on** to the gate (ensure key is switch on) however you must always make sure **no** sensors (**DISCONNECT ALL RADAR AND**

CSS COMPLETELY) are in circuit while the screwdriver is in Coulisse (electronic encoder circuit/position sensor) otherwise if the sensor triggers the motor to activate the screwdriver will move with the shaft and jam against the stops – this will damage the Coulisse beyond repair and void all warranty!

Move (3mm) Allen key to the right ← gate arm moves to the left

Move (3mm) Allen key to the left ← gate arm moves to the right

4. Fit child safe sensor device as per enclosed video.

See video link below before commissioning of sensor by scanning the below barcode or login on to: https://youtu.be/ImyngCrtN0s

CSS summary:

CSS are ultrasonic sensors that are used as a safety device to help protect children from being injured by the moving gate arm during normal operations.

This ultrasonic sensor is a presence sensor designed to detect the presence of a person in the area behind the gate arm arc, where the gate arm swings between open and closed positions.

It is very important that there are no obstacles within the gate arm detection area as the device cannot tell the difference between a person or an object.

Each gate bollard has its own independent CSS unit and has a range adjustment that needs to be carefully adjusted to each individual gate. It is rare to get the CSS to detect a presence throughout the full ninety degrees range of the gate arm arc, without the signal interfering with the normal operations of the opposite gate arm therefore time must be given to careful CSS adjustments during commissioning.

The detection of the CSS would typically be adjusted to cover less-than the full length of the gate arm – only detecting say 75% of the gate arm length resulting – adjustment will be listed further below.

Caution:

- The CSS units are sensitive devices and should be always handled with care.

- Please make sure there are no-loose fixings on the child safe bracketry as this will produce slight movements creating false triggering to occur.

- The store manager needs to be advised **not** to place baskets, shopping carts or any other objects close to the child safe sensor detection area behind the gate arm.

  Ideally there should be no objects placed near the entry gates that would cause a patron to stop before being fully into the store and well clear of the entry gate area.

- Please make sure there are no wires or objects blocking or touching the child safe sensors as this will product false triggering.

- Please be careful of the sensor on the CSS device as this is a sensitive part and can be damaged easily, particularly while installing and removing the front cover gate bollard plate. **Important**: the metal case should not touch the metal casing of the sensor – see below image.

(Replace “newly supplied” radar sensor cover strip I before CSS commissioning begins)

(Cover slides in and out without fixings - join to the side away from cut out)

Setting the range of the child safe sensor:

It is recommended to set as big a detection area as possible, the larger the protection area the safer the entrance will be.

To adjust the range for the detection area, turn the potentiometer clockwise to increase the detection area and anti-clockwise to reduce the detection area – see chart below.

The Woolworths arm size in this instance is 1000mm long and as per the below chart the number 5 should be selected as this matches the 1000mm range.

Please note, due to site and device differences the number 5 is the starting point for commissioning purposes – further adjustments up or down may be required.

As mentioned earlier, in most cases you will not achieve full ultrasonic coverage behind the entire gate arms arc and a compromise will need to be established.

Adjustment compromises:

Each gate arm operates independently - consider the following example: if say the left gate arm arc has more coverage than its own length (too much coverage) it may detect beyond length of its gate arm and detect the presence of the opposite gate arm, this in turn will wrongly stop the

gate from operating. *(The compromise will be to reduce the range back to no more than the gate arm length, rendering a small area between both gate arm ends not **no** detection at all)*
During normal operations, a patron would approach the gates at average walking speed whereby the radar would pick them up at a triggering distance of **2 meters** away – as per checklist below. In this situation (triggering the radar at 2 meters) the gates would usually be fully open **before** an approaching patron passes the gate bollards, remember the radar produces a continues triggering signal to open the bollard so long as the patron keeps moving towards the gate bollard, therefore as the patron steps into the rear gate arm arc its presence will trigger the ultrasonic sensor to keep the gate arm open until the entering patron is almost into the store.

There may be an issue if a patron walks into the store very **fast** (or is moving fast on a mobility scooter) as the gate arm may not be fully open to the 90-degree position before they pass the gate bollard. In this instance the gate arm (not being fully open as the patron crosses the line to store-side) may be a hindrance to the entering patron - *to deal with this potential issue we recommend an adjustment of the CSS potentiometer to max time delay, by turning fully left, thus allowing the CSS max time-delay before it triggers the gate bollard to a stop.*

Important: store staff need to be **advised** that any object placed in the arc of the gate arms may trigger the CSS keeping the gates in a stopped position indefinitely, until the object is removed**.**

The store manager should also be **advised** that its strongly recommended that **NO** hand sanitizer units, trolley sanitiser units, leaflet display units, baskets or any other objects be placed on the approaching walkway to the gate entry that might encourage the entering patron to **"stop**" until they are well and truly inside the store – the security gates deliver the best performance and less maintenance issues with smooth nonstop patron throughput.

Setting	Range (cm)
0	75
1	80
2	85
3	90
4	95
5	**100**
6	105
7	110
8	115
9	120
A	125
B	130
C	135
D	140
E	145
F	150

Ideally for the 1000mm arms & adjust up or down as required – see checklist.

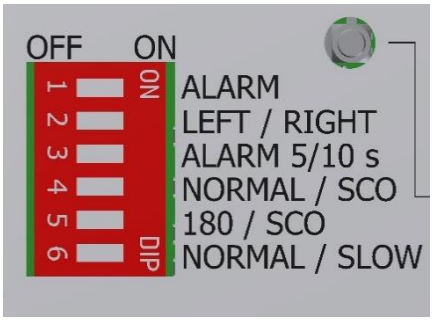
5. Re-check overall gate commissioning for main gate bollards:

Dip switches positions:

Set up dip switches in each gate bollard, as per its installed position.
(upon entry to store, the gate on your left is considered a left-hand gate & the gate on your right is considered right-hand gate)

Dip switch block settings:

1 = right position
2 = left **or** right position (as required)
3 = right position
4 = left position
5 = left position
6 = left position



6. Set up Master & Slave function in gate bollards to operate as a couple:

- **Left-hand gate** = set DELAY/SCO and SECURE/SCO potentiometers to maximum (fully to the right-hand position).
  (Set CHILDF potentiometer fully to minimum (left hand) position)

- **Right hand gate** (Master) = set DELAY/SCO potentiometer to full left and then approx. 25% of its full range to the right position as a starter point before final timing adjustments are made later.
  (Set CHILDF and SECURE/SCO potentiometer to the fully to left hand position)

- Check that the gate synchronization cable is correctly connected between both gates (saloon to saloon and ground to ground) this then ensures the gate couple will be controlled as one-unit and **all** adjustments made to the right-hand controller delay timer will control both right and left-hand gates alike.

(The right-hand gate is always set up as the master-gate.)

Double-check final settings for PCB potentiometers as below before commissioning gates:

(Left hand gate)

← Set fully to right position (to set up master & slave function)

← Set fully to left position

← Set fully to right position (to set up master & slave function)

← Set to mid position

(Right hand gate)

←Wind fully left, then adjust slightly to the right “as required” for a 2 seconds delay.

← Set fully to left position

← Set fully to left position (to set up master & slave function)

← Set to mid position

PCB controller timing set up:

- Remove the lid on top of **each** gate bollard and **disconnect** the radar electrical connectors on **both** gate bollards to (**temporarily**) render the radars out of circuit.

- Power up gates and press the test button on the master gate (right hand gate) and both gates should now operate as a saloon-gate couple **(both gates should open and close at the same time).**

- The gate couple (both left and right-hand gates) should open **into** the store, stopping in the 90-degree (fully open) position and remain open for a pre-set time before driving back to the fully closed position.

- Real-life time delay can be tested by triggering radars during radar set up step during commissioning. (time delay potentiometer will adjust this timing - remembering left is least).

- The time-lapse (time gates remain fully open) for both gate bollards can now be adjusted by the master (right-hand) gate DELAY/SCO potentiometer whereby both gates should operate and close at the same time.

  The recommended time delay (time-lapse) between the gates **after** they have **reached** the fully opened position and the time the gates **start** to drive back to the closed position, should be approx. two (2) seconds.

- Adjust panic force potentiometer (break out function): wind to full left (off) position and then wind to the full right before setting to the approx. mid position.

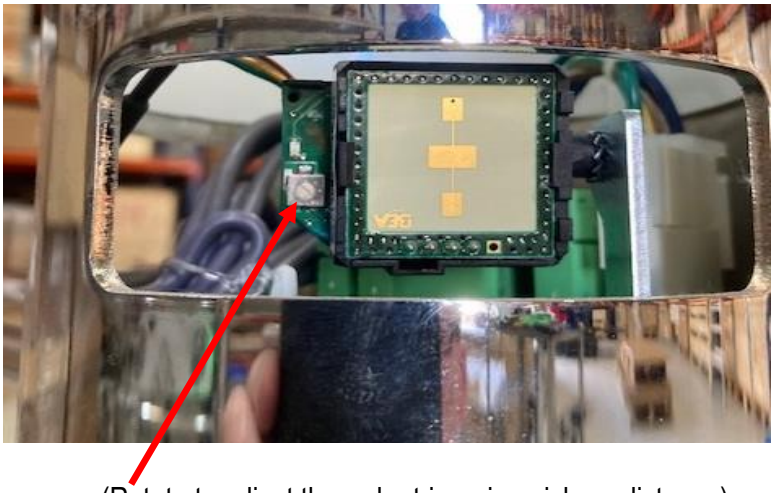
  Note: as gate arm drive to the open position, at the last 10 to 15 degrees the gate slows down before coming to a full stop at the 90-degree position.

  Breakout adjustments may be required help reduce excessive arm movements when the gate arm reaches the fully stopped position.

7. Sensor adjustments:

Important: sensor adjustments must be done in the following sequence:

a. Radar should be adjustments to detect approaching patron from 2 meters away.
b. Child safety sensor adjustments (item 6 should be complete before next steps)



(Rotate to adjust the radar triggering pick-up distance)

Radar adjustments:

Both gates in the saloon-gate couple are fitted with individual radar controllers (either radar will trigger the gate couple) to trigger the gate-couple to operate as one unit.

- Ensure the electrical connectors are back onto the radar units and adjust the mechanical radar bracket on **each** gate into position - the radars should be pointing in the general forward position and slightly into the middle of the gate arms centre.

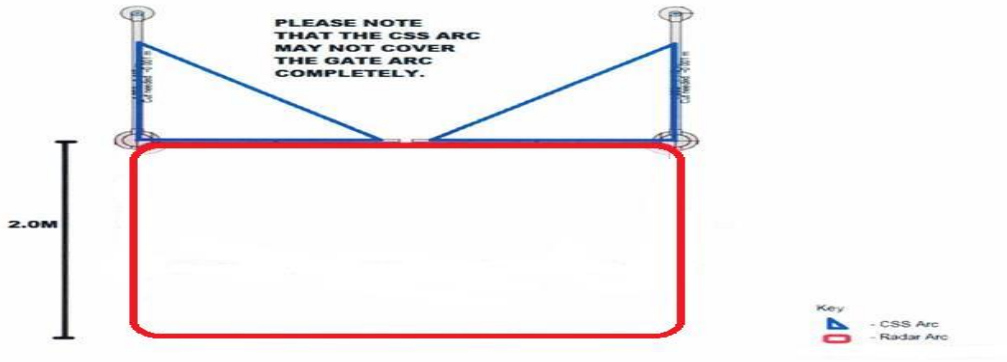
  Radar should also be pointing **slightly** down towards the floor to pick up shopping trolley wheels as a trolley approach and to avoid ghost signals being sent.

- Remove the inner white plastic radar cut-out cover (slides out by hand) and adjust the radar approach sensor triggering distance potentiometer on the top of radar sensor to the full left-hand (off) position, then adjust in small increments to the right until the gate is picking up a forward **moving** person or object at 2 meters, measured from the gate arm. See radar/CSS range diagram below.

- Disconnect **each** radar electrical connector (one at a time) and test the remaining in-circuit radar sensor distance picks up a trigger signal from 2 meters from the gate bollard and opens both gates fully – each individual gate bollards radar sensor should pick up people approaching across the full width of the arm and a little overlap to the other arm position.

- Ensure electrical connectors are re-connected firmly into both radar units and ensure cables are secured with a cable-tie to prevent false triggering. Please also note that **loose** radar brackets (or gate bollards) will cause **false** triggering.

Sensor adjustments range



8. Ensure LED cable are set up for Woolworths's polycarbonate arm lighting:

Woolworths's operations: (PCB wiring colours: 1 = not used, 2 = blue, 3 = red, 4 = green & 5 = black)
Arm lighting colours: Normal closed & while opening = green (Breakout = green)

Wire link to be terminated to OPEN NEXT/ SCO CLOSE & CHILDSAFE terminals.

Adding a cable link between OPEN NEXT/SCO CLOSE and CHILDSAFE will have the following effect on gate operation when the child safe sensor has been activated with the gates in the closed position.

- Child safe sensor will stop arm movement as normal
- Audible alarm now activates upon Child safe sensor activation
- Gate arms now flash red with alarm activation

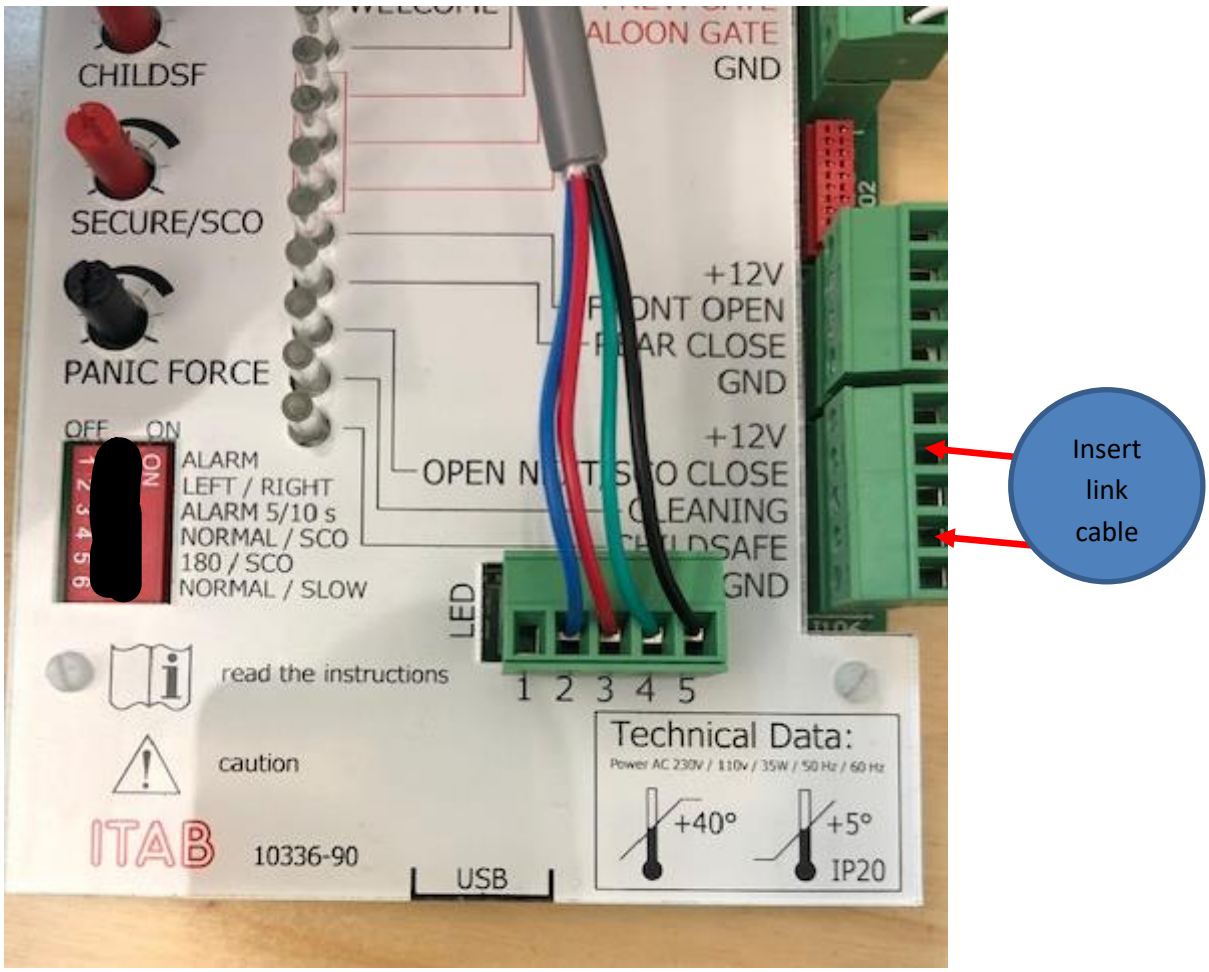
Gates will flash red when the Child safe sensor has been activated while gates are in the open position as patrons enter the store. (please note audible alarm will not activate if gates have received an open trigger from radar sensors)

This function allows for the following: Patrons will be alerted not to exit via the welcome gates.

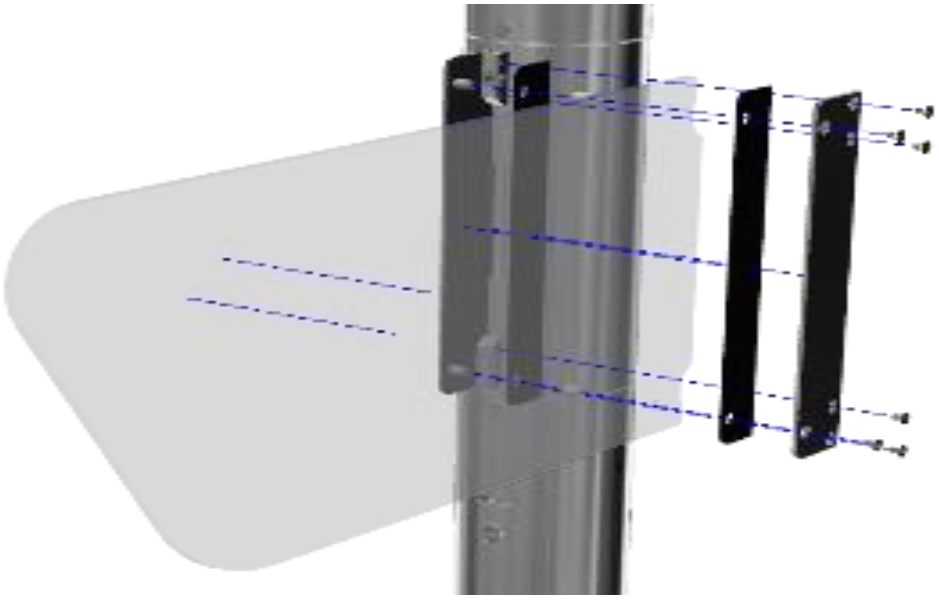
Staff will be alerted to objects being placed within Child safe zone

Delivers a clear indication of Child safe sensor activation

Please see photo indicating where wire link must be placed to achieve this function within the Child safe block connector located on the main PCB



9. Arm assembly components breakdown)



(Woolworths ltab entry gate arms orientation)

See separate sign-off checklist.

Woolworths Itab autogates Phase 1 retofit installation checklist & sign off document (D. Casey July 20, 2021)			
Complete the following check list when installation is complete:	**√**	**X**	**Manual**
	Yes	**No**	**Check**
Site manager to check that gates are fully operational by ticking the boxes and signing below:			**(Ref. item #)**
Are final layout **dimensions compliant,** as per below drawing - measure gate layout?			Page 1
Are all gate **arm LED** colours operating **compliantly** (green for normal closed and opening - red for breakout position)?			8
Are all **audible alarms compliant** (sounding when arm is pushed in or out) with emergency breakout ?			5
Are audible alarms tested so as both alarms sound for **10 seconds** (select left position on dip switch 3)?			5
Are both gate bollard radars individually tested to trigger gates open at **2.0 meters** away from gate arms?			7
Are **jointly-operated** gate bollard radars tested to trigger gates open from (**approx. 2.1 x 2.0 meter approach box area**)?			7
Are gates operating as a saloon pair (either radar should trigger both arms **open** together) at the same time?			2
Are gates operating as a saloon pair (gate arms should **close** together **2 seconds after** resting in opened fully position)?			6
Has operations been tested for **delay** of closing gate (**beyond 2 seconds**) if patron is still in the gate arm opening arc.?			6
Are gates tested to **auto-reset** after break out has occurred (test by pushing arms into the breakout position) ?			N/A
Are allgates bollards tested for **strong resistance** (adjustment from breakout force pot.) to avoid false alarming?			6
Are all gate bollards tested to identify to **slow down** for the approx. 10 degrees of opening arc.)?			N/A
Are posts and cross rails **aligned straight** with gate bollards (stay within centre of guide rails at 90 degree to arms)?			3
Are there a minimum of **40 mm gap** between gate arms when in the fully closed position?			Page 1
Are all gate arms straight and **fully aligned** (when doing adjustments avoid damaging the gate) with each other?			Page 1
Are gate arm plastic **spacers** fitted into all gate arms (2 per gate)?			3
Are gate arms fitted with fully in tact rubber **gaskets** seperating the arms from metal brackets(2 per gate)?			3
Are gate arms fitted with all original **matching** fixing screws (12 per gate arm)?			9
Are gate bollards top covers fitted with original **matching** fixing screws (3 per bollard)?			N/A
Are gate bollard front cover plates fitted with original **matching** fixing screws (2 per bolard)?			N/A
Are gate bollard cups fitted with original **matching** grub screw (2 per cup) ?			N/A
Are all upright posts cups fitted with original **matching** grub screws (check all cups attached to post)?			N/A
Page 1/4			
Ensure the CSS units are operating correctly on both gate arms, independently:	**√**	**X**	**Manual**
Has the CSS been tested to ensure they prevent the arms from moving when someone steps into the **gate arc** signal?			Video
Has the CSS been tested to ensure they do trirrering signal does **not overlap** the other gate arms arc.?			Video
Has the CSS been tested to ensure they are **not** triggering before passing the bollards **centre position** on approach?			Video
Has the CSS been tested to ensure they are **not** triggering when a box is placed close up against the lead out rails?			Video
Other items:			
Has key operation been **demonstrated** to store staff (in case staff needs to be isolated gate bollards to remain open)?			N/A
Has decomissioned equipment been **handed back** to site manager (technician to take photo) ?			N/A
Please confirm the following photos and videos of the works have be sent to Woolworths with this checklist:			
Photos showing the gate open and closed from **inside store?**			N/A
Photos showing the gate open and closed from **outside store?**			N/A
Photos showing the gate **panel alignment** when in an open and closed position?			N/A
Photos showing the **use** of the gate arm, **rubber gasgets**, sleeve on both gate panels?			N/A
Photos showing the use of the **plastic spacer** on the gate panels?			N/A
Photos showing that there are no **screws missing** on the arm fixing brackets?			N/A
Videos validating gates operations:			
Videos showing the gates operate when objects are placed against the railing on both sides?			N/A
Videos showing the blind spot in the centre of the gate area?			N/A
Videos showing that the front sensors are triggered at a distance of 2 M?			N/A
Follow up works required:			
Are you satisfied that the **finished** works are **compliant** and the layout is suitable to preform its intended operations?			N/A
Are there ground work fixings **follow up** required?			N/A
Are there any screws or rubber/plastic bungs needing **replacing**?			N/A
Are there any covers needing **replacing?**			N/A
Are there any **keys** needed to be **supplied** to the store?			N/A
Is there any equipment **left behind** for Woolworths perusal (if yes please was the store manager notified of location)?			N/A
Page 2/4			

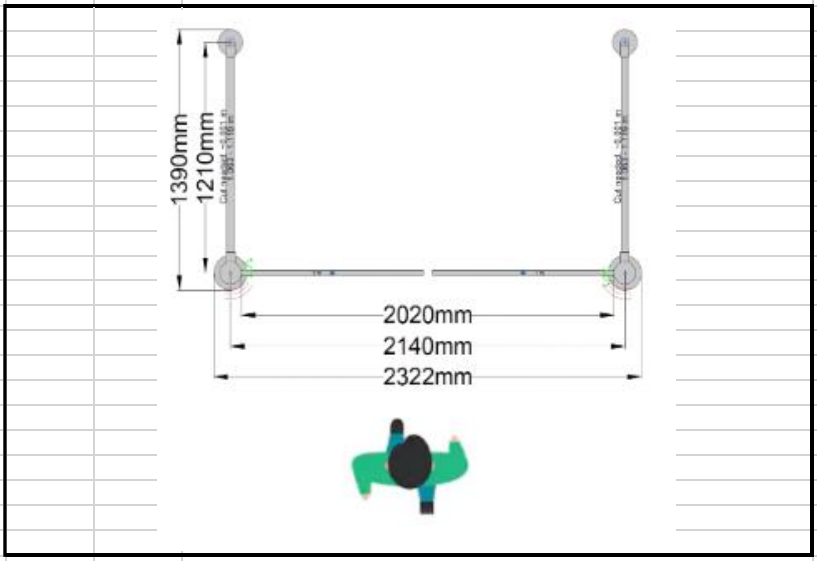
(Woolworths sign-off document)

Store name:
Store address:

Store number:
Store managers name:
Store managers signature:
Date:

Contractor company name:
Technicians name:
Technicians signature:
Date:

				Please make notes of any follow works required below:			



Woolworths Phase 1 upgraded (Prepared by D. Casey C/o Radford Retail Solutions P/L, July 20,02021)

20/7/2021