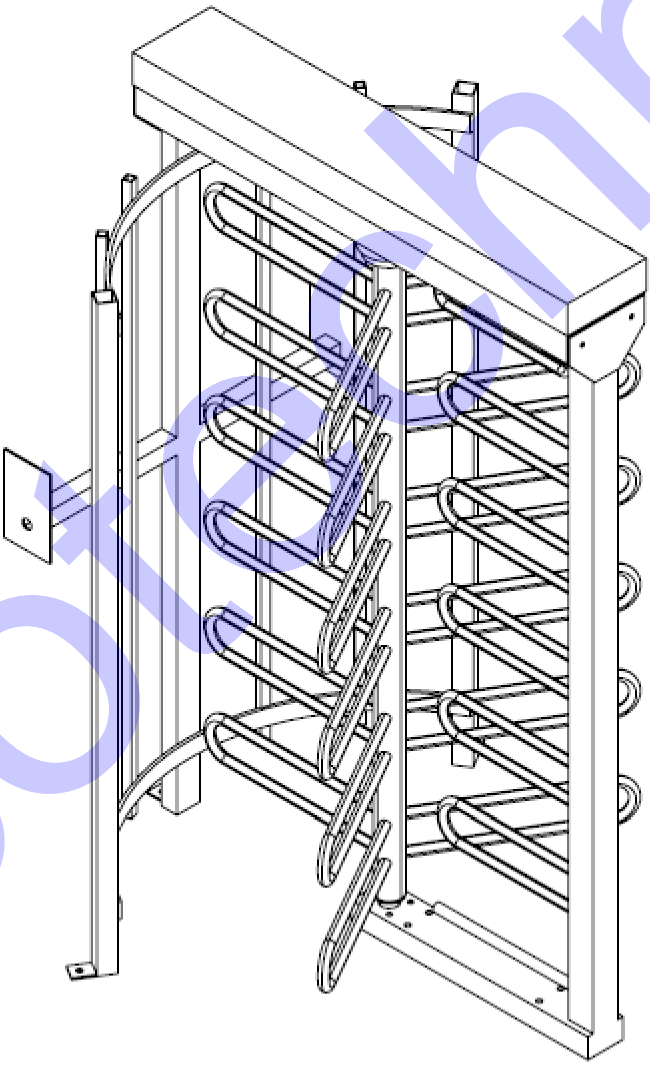
Scotechnics

Operation & Maintenance Manual
Turnstile S110



Scotechnics Ltd

33-35 Lime Road
Broadmeadow Ind Estate
Dumbarton
G82 2RP
www.scotechnics.com

Contents

Thank You

Scotechnics Ltd would like to thank you for your custom. You have selected one of the highest quality and cost effective products available for effective control of pedestrian traffic.
This manual will get you familiar with your turnstile and enable you to make the most of the equipment's features.

Contacting us

Any queries regarding the operation or maintenance of this equipment should be referred to:

Scotechnics Ltd
33-35 Lime Road
Broadmeadow Ind Estate
Dumbarton
G82 2RP
sales@scotechnics.com

www.scotechncis.com

***Service Division*:**

Tel:08456 732 106
Fax:08456 732 107

Disclaimer

The information contained in this manual is a guide only, and whilst we have made every effort to be accurate and correct at the time of issue, there may be printing errors which we cannot be held responsible for.

Copyright

Chapter 1

Profile

Type:

120 Degree Full Height Electronic Controlled Mild Steel
Bi-directional Internal/External Turnstile
Trombones style as standard. Straight arms option available on request

Supply:

230/240 Volt Single Phase 50/60Hz rated at 10 Amp

Override:

Turnstile fails locked or safe under power failure

Surface finish:

Shot blasted, Zinc primed & Powder Coated

Component List (Single Turnstile):

✓ Frame and Rotor

1. 120 Degree Rotor
2. Walkway End Frame
3. Stator Frame
4. Top Box
5. Lid

✓ Electro Mechanical Head (available as standard mechanical only)

✓ Control Panel (IP Rated Box)

Component List (Double Turnstile):

✓ Frame and Rotor

1. RH 120 Degree Rotor
2. LH 120 Degree Rotor
3. Walkway End Frames
4. RH Stator Frame
5. LH Stator Frame
6. Double Base Plate
7. Top Box
8. Lid

✓ Electro Mechanical Heads (available as standard mechanical only)

✓ Control Panel (IP Rated Box)

Chapter 2

General Specification

2.1 Frame and Rotor

✓ High quality channel, flat and rolled hollow section (RHS) low carbon mild steel

✓ All welds continuous providing high integrity, highly rigid structure

✓ All personnel passage surfaces dressed and smoothed for safe ease of passage

✓ Standard max vertical gap:

  * 165mm between rotor arms.
  * 110mm between lowest arm and ground level.

✓ Trombone arms 25mm diameter steel tube.

✓ Rubber coupling of rotor to mechanism head to minimise vibration and noise

✓ Walkway designed to filter and ease free flow of pedestrian traffic

✓ Pre-greased sealed for both mechanism head and bearings on rotor for long and reliable life

2.2 Head mechanism

✓ Heavy duty plated mechanism with continuously rated solenoids, designed for high use and long periods of non-use.

✓ High quality limit switching.

✓ Minimal play at rotor tip to ensure no pedestrian passage while locked.

✓ Non return mechanism prevents unauthorised access with rotor both moving and at rest.

2.3 Control system

✓ Fully tested and certificated robust, reliable relay logic control panel, housed in IP55 rated enclosure within top box unit. PLC based panel also available.

✓ Interfaces with all available access control systems, versatility to accommodate specialist requirements.

✓ Standard operating range: -10 to +45 Degree centigrade

✓ Includes

  * Switch mode pin rail P.S.U 230/240V AC input
  * 24V DC 2.5A output for control circuit

✓ Local double pole mains isolation for safety and maintenance purposes

2.4 Optional accessories

- ✓ Lighting
- ✓ Canopy
- ✓ Card access systems
- ✓ Factory fitted entry/exit push buttons
- ✓ Direction indicators

Chapter 3

Access flow times

Full Height Turnstiles

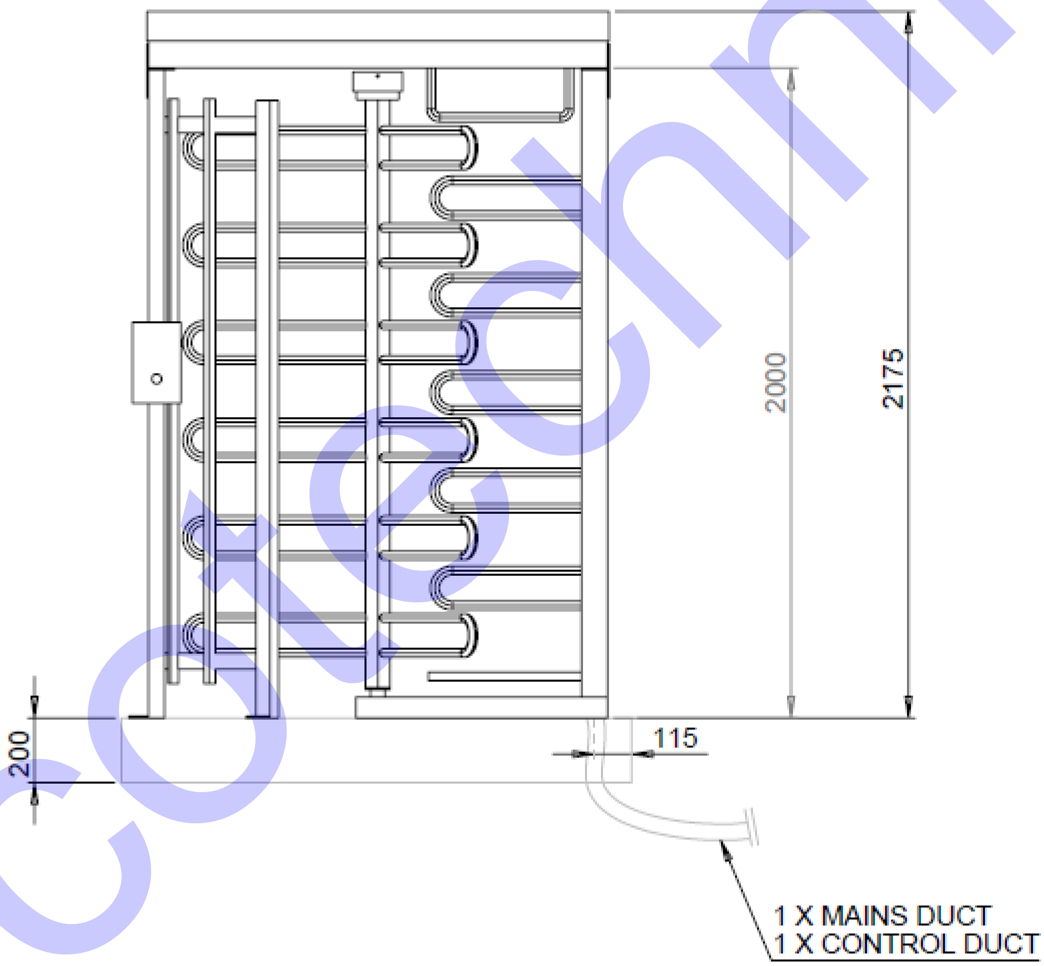
Type of Reader	Access Flow Time (per person, per walkway – One direction Only)
Foot pedal (Simple In and Out) No Keypad	5 seconds
Insertion type reader With keypad using 4 digit pin code	8 seconds
Swipe card reader No Keypad	4 seconds
Swipe card reader With keypad using 4 digit pin code	7 seconds
Proximity reader Up to 150mm sense range	3.5 seconds

The above data / information was found to be typical at the time of testing, however due to varying circumstances and conditions which may be prevalent on individual sites, the above times are only offered as a guideline. It is strongly recommended that if more accurate access flow times are required / critical, then measurements should be undertaken on site.

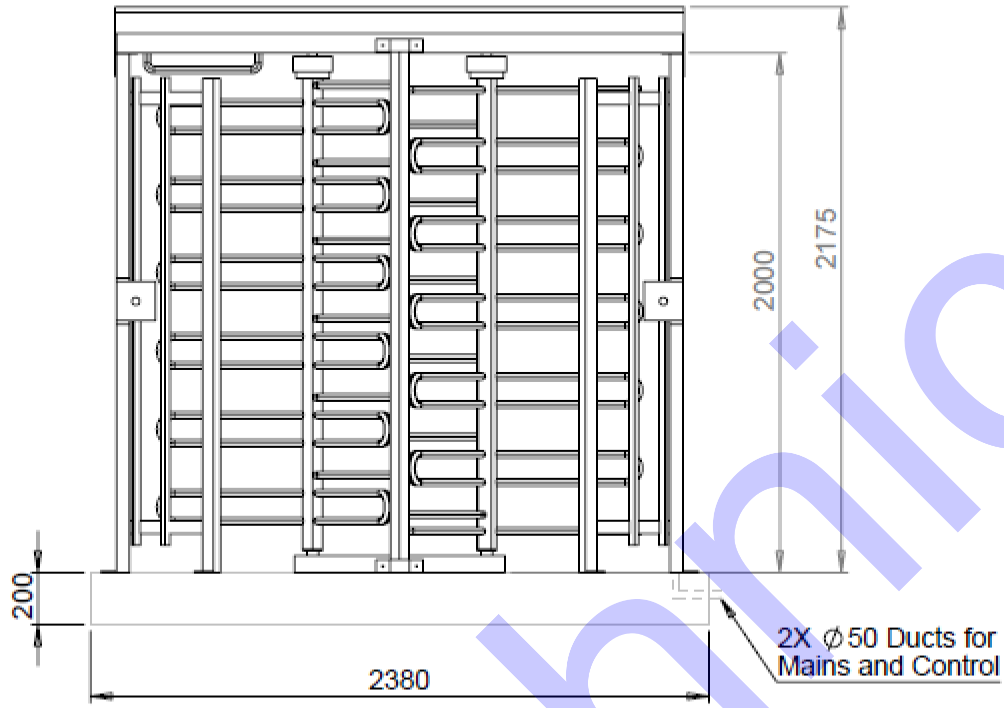
Chapter 4

Installation

✓ Concrete base and ducts to be constructed as depicted below



The below installation drawing is applicable for the double version of the turnstile,



Important!!!

- CONCRETE TO BE CAST A MINIMUM OF 7 DAYS BEFORE INSTALLATION OF EQUIPMENT
- FOUNDATIONS SHOULD BE SMOOTH, FLAT AND LEVEL
- MAINS SUPPLY 230V 10AMP

✓ Concrete base should be cast at least 7 days before the installation of turnstile

✓ Concrete for base to BS 8500-2:2006 Specification

✓ Concrete base to be flat and level +/-5mm over the whole turnstile area

✓ Trim(if required) any protruding ducts to base level

✓ Using suitable approved lifting apparatus offer the turnstile to the firm and level concrete base

✓ Ensure turnstile is in correct installation position prior to pulling mains and control cable through

✓ Pull mains cable and control cable through access points in base of turnstile frame to top of turnstile

✓ Lower turnstile onto base and ensure unit is level (use galvanised packers if required)

✓ Bolt down turnstile using stud anchors, tighten and re-check / re-adjust level (if required)

✓ Terminate, connect and gland in mains cable and control cable (as required)

✓ Provide power supply to unit, test and commission system

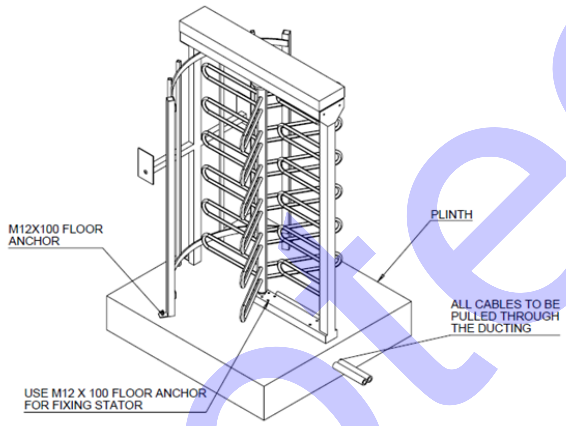
Chapter 5

Guide to Physical Installation

Upon delivery, the Turnstile will either be flat packed on a pallet or shrink wrapped and free standing. If delivered in the flat packed state, you must assemble the turnstile making sure that everything is aligned. Check for any physical damage or defects before you sign!

5.1 Turnstile delivered fully assembled

Follow the instructions below carefully.
Note: The plinth has to be prepared correctly and has to be absolutely level and true.



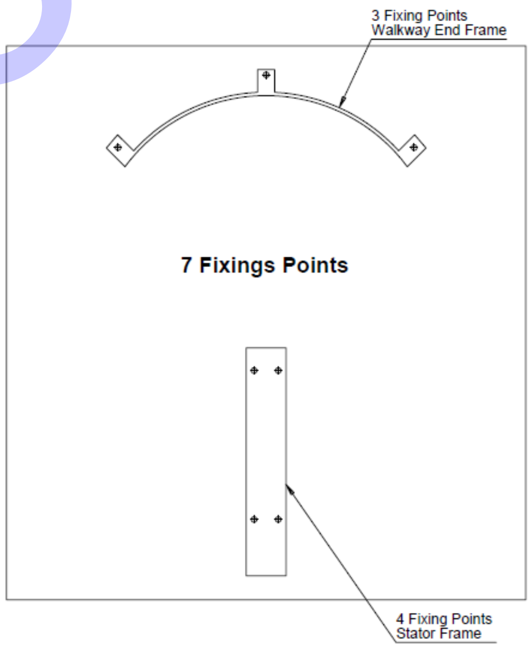
(a) Lower the turnstile onto the plinth (1600X1500X200mm) and visually align

(b) Make sure the duct is in the centre of the cable channel in the frame

(c) Make sure all cables are pulled through the ducting before bolting down

(d) Using one M12X100 fixing, bolt down through one of the holes, it is advisable to blow the excess dust out of the hole before inserting the bolt

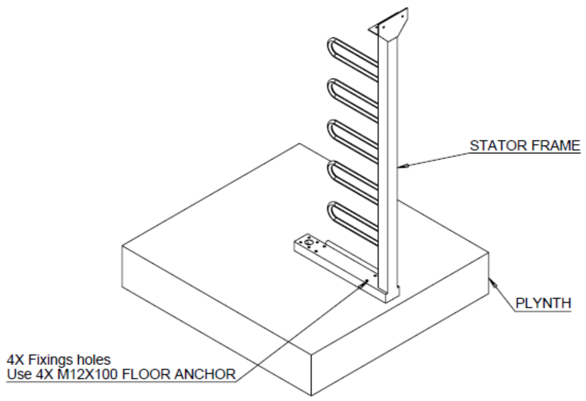
(e) Now make sure that the turnstile is now aligned perfectly, continue to bolt down through the other holes using the remaining M12X100 bolts



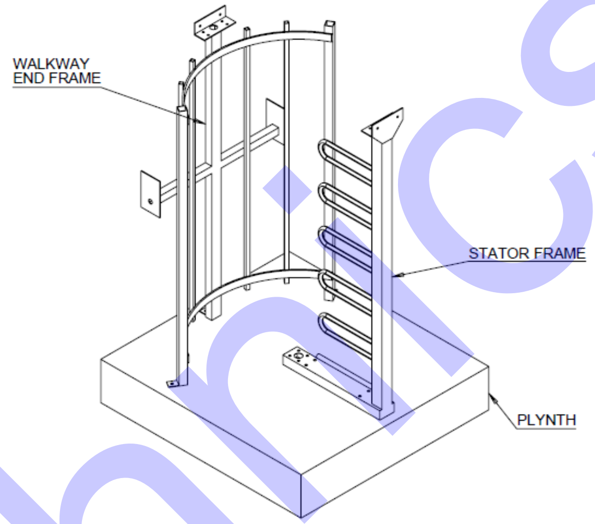
(f) The above depicts the fixings points from a plan view

5.2 Turnstile is delivered flat packed on a pallet

Follow the instructions below carefully.
Note: The plinth has to be prepared correctly and has to be absolutely level and true.

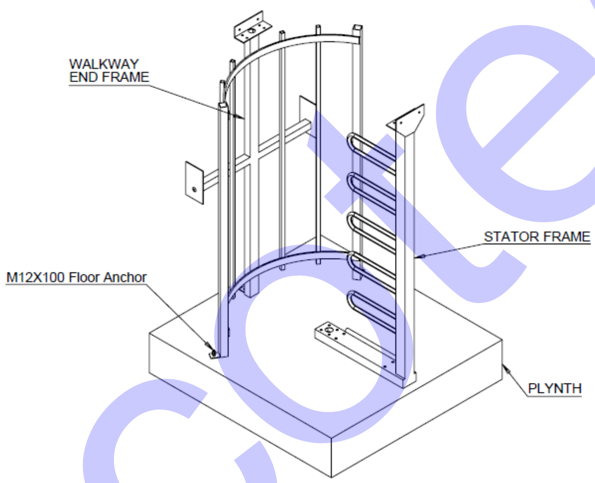


(g) Fix stator frame down to the plinth using the M12x100 floor anchor bolt making sure the duct is in the centre of the cable channel in the frame

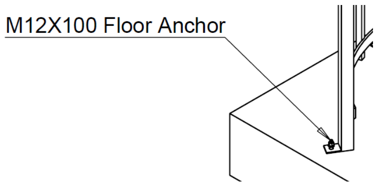


(h) Measure back from outside of Stator Frame 1422mm to outside of Walkway End Frame

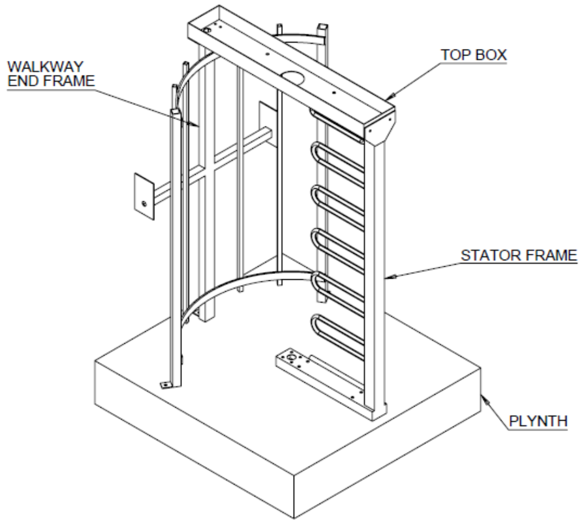
(i) Position Walkway End Frame central



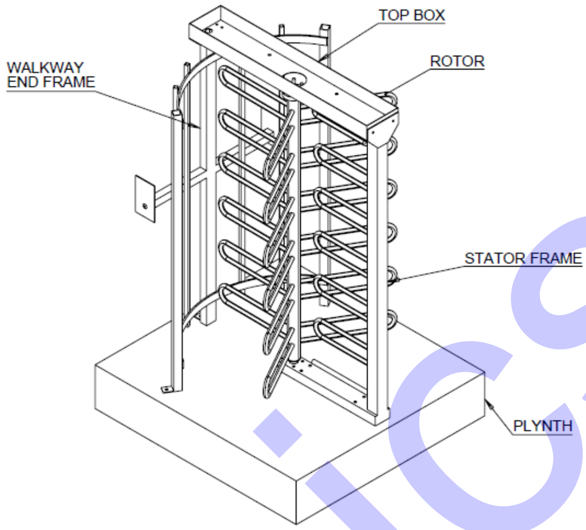
(j) Using one M12X100 fixing, bolt down through one hole of the Walkway End Frame holes; it is advisable to blow the excess dust out of the hole before inserting the bolt



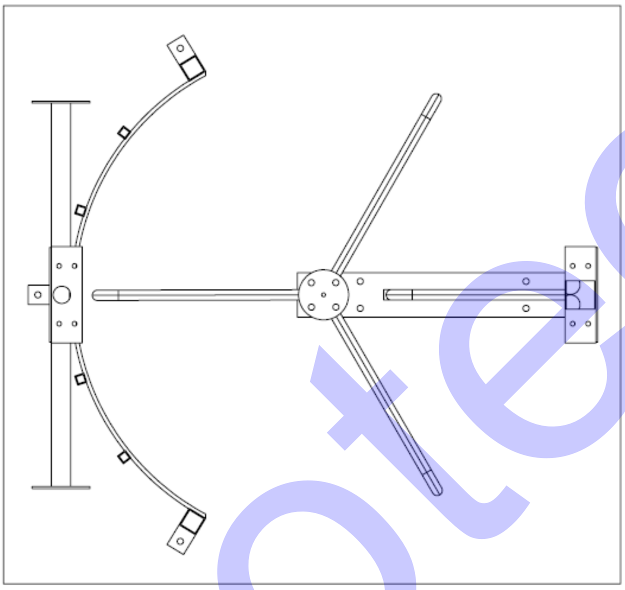
(k) Make sure that the Walkway End Frame is perfectly aligned with the Stator Frame, then continue to bolt down through the other holes using the remaining M12X100 bolts



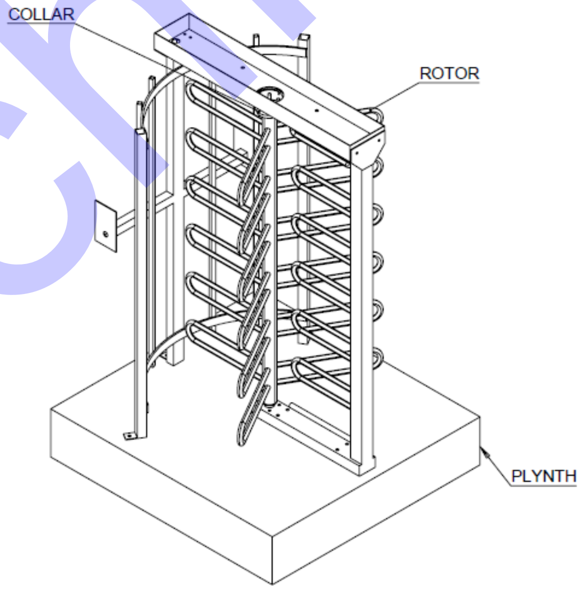
(l) Fix the top box to the Walkway End frame and the Stator frame using the provided fixing pack



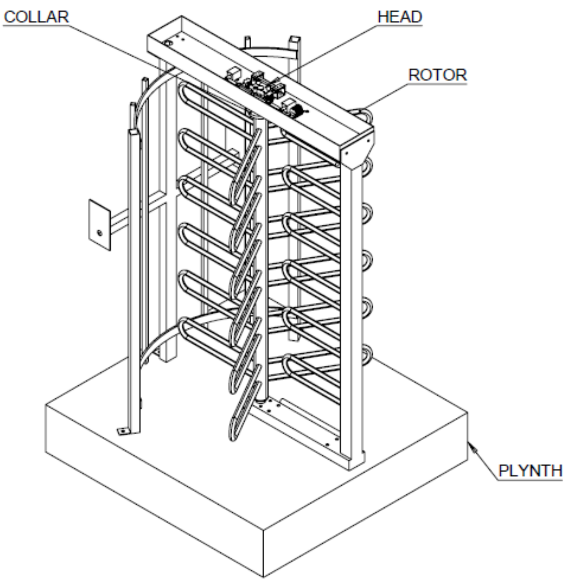
(m) Lift Rotor in position: lift Rotor through the Top Box and drop down pinion shaft (bottom of the Rotor) into the Stator frame bearing



(n) Make sure the line of trombones in between studs on Rotor are aligned with the centre of The Walkway End frame as depicted above

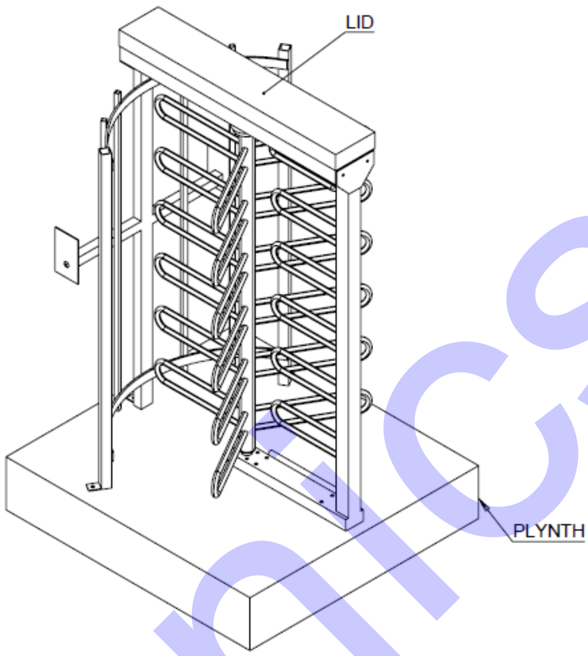


(o) Drop Turnstile Collar through the Top Box over the top of the Rotor.



(p) Lift Turnstile's Head into position

(q) Make sure the Rotor is fully vertical before tightening up the turnstile's Head



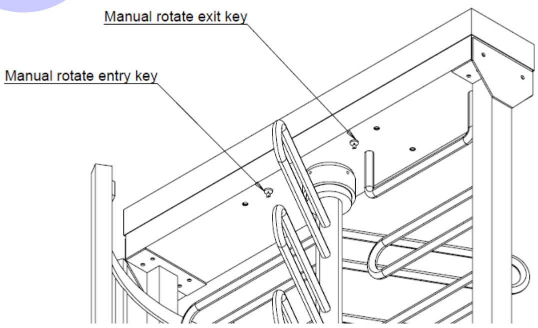
(r) Lift the Turnstile's Lid into position

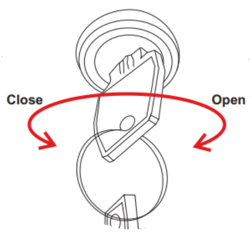
5.3 Manual release guide

This is a brief overview of how to set the turnstile in manual mode.

The keys may not be inserted as shown. The keys may either be strapped to the turnstile frame when sent out for delivery or handed to the customer on completion of the installation.

The turnstile is manually released using the key to operate the fitted radial Cam lock. Only quarter of a turn is required to manual release the turnstile.





Zoom showing the key operation. Ensure not to force the key because it only takes a quarter turn release.

Chapter 6

Operation and Safety

6.1 Operation

Important!!! It is very important for all users to follow the steps below whilst operating the turnstiles. All Scotechnics'turnstile would have a clear displayed sticker reminding the users of the following:

- ✓ WALK THROUGH SLOWLY WITH REDUCED LENGTH OF STEP
- ✓ CONTROL THE SPEED OF ROTATION BY HOLDING THE HORIZONTAL STEEL BAR IN FRONT OF YOU
- ✓ WAIT FOR THE PERSON IN FRONT OF YOU TO CLEAR THE TURNSTILE BEFORE PROCEEDING THROUGH
- ✓ ITEMS TOO LARGE FOR THE TURNSTILE SHOULD BE REPORTED TO SECURITY

Following installation, commissioning and connection of power supply and method of access control, the system will operate as follows:

1. The turnstile is sent a signal by the chosen method of access / egress (push button, proximity reader, etc.)
2. On receipt of that signal, the solenoid is energised and activates the release mechanism on the turnstile head
3. This allows the head mechanism to rotate one index point, which enables free passage to the pedestrian traffic
4. During the head rotation, at factory pre-set limits, the microswitch activates to de-energise the solenoid and lock the mechanism back into its parked position until receiving another signal
5. At any time should the unit lose power, the turnstile could either fail safe or locked on entry to maintain maximum security depending upon customers' request.
6. The turnstile is manually released using a key to operate the fitted radial Camlock. The key is provided to the customer on completion of the installation or at handover if the product is supplied only.

6.2 Safety

On completion, or at handover, Installations Engineers will fully instruct nomi-nated personnel in the operating procedures of the equipment installed.

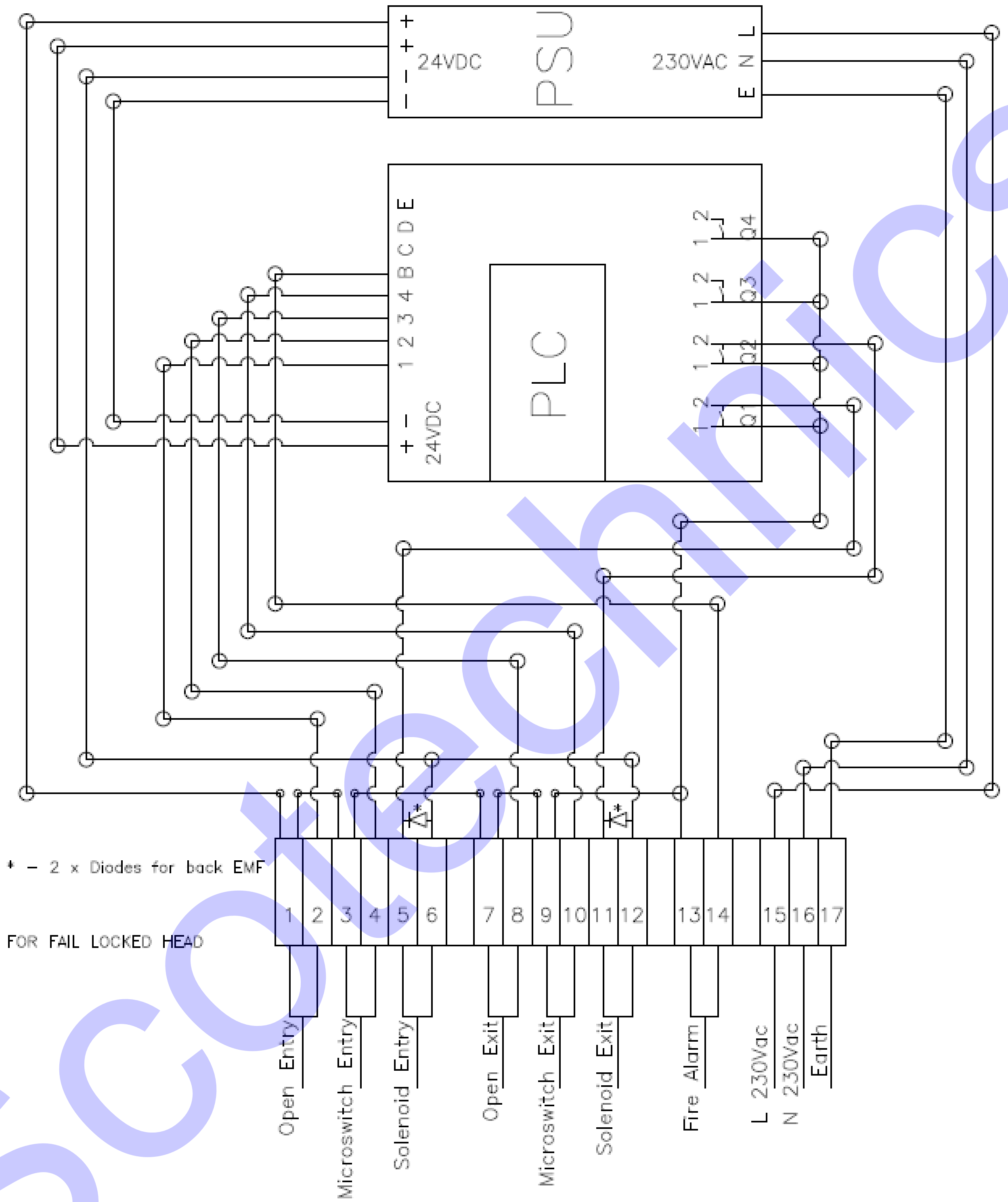
It is the customer's responsibility to ensure that all staff, visitors or any other users of the system are fully aware of and familiar with the equipment's correct control / operation procedures. This can be undertaken by written instruction or warning / advisory notices at the entrance / exit to avoid any confusion.

In accordance with the Machinery's Directive and CE marking, risk assessments will be completed for this project, copies will be made available on request.

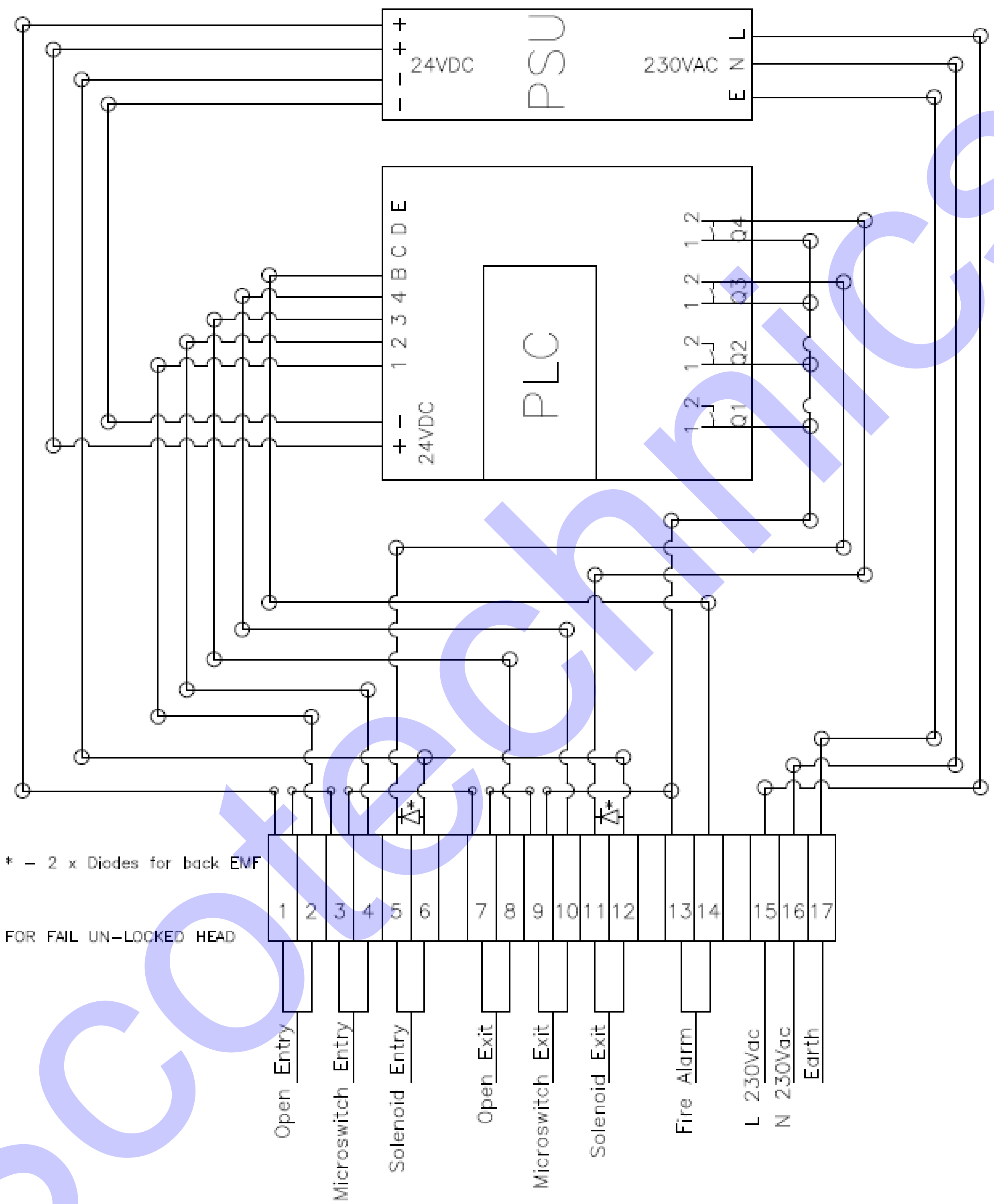
Chapter 7

Connections

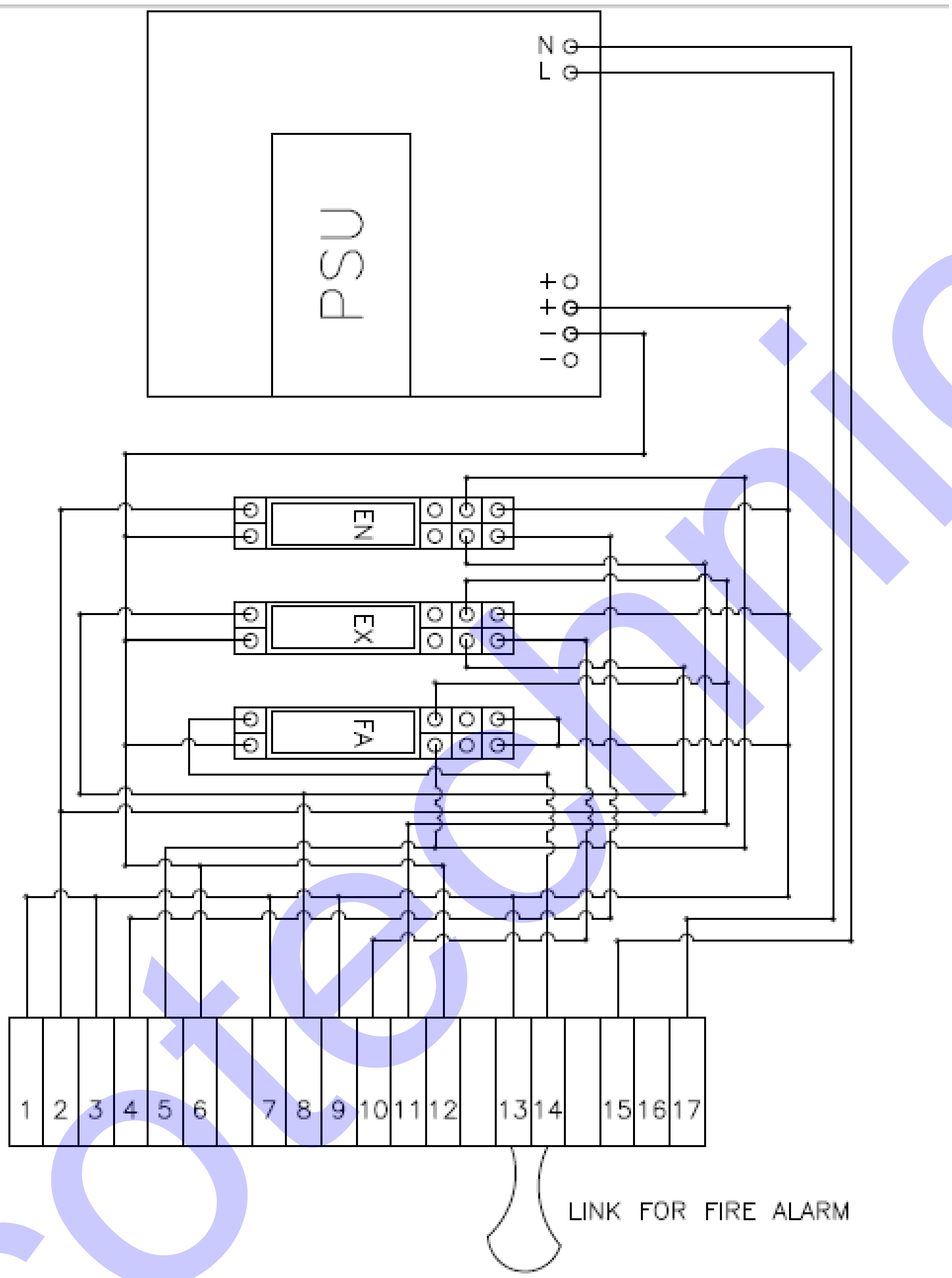
7.1 Zelio Panel Wiring Diagram (Fail Locked)



7.2 Zelio Panel Wiring Diagram (Fail Unlocked)



7.3 Relay Panel Wiring Diagram (Illustration)

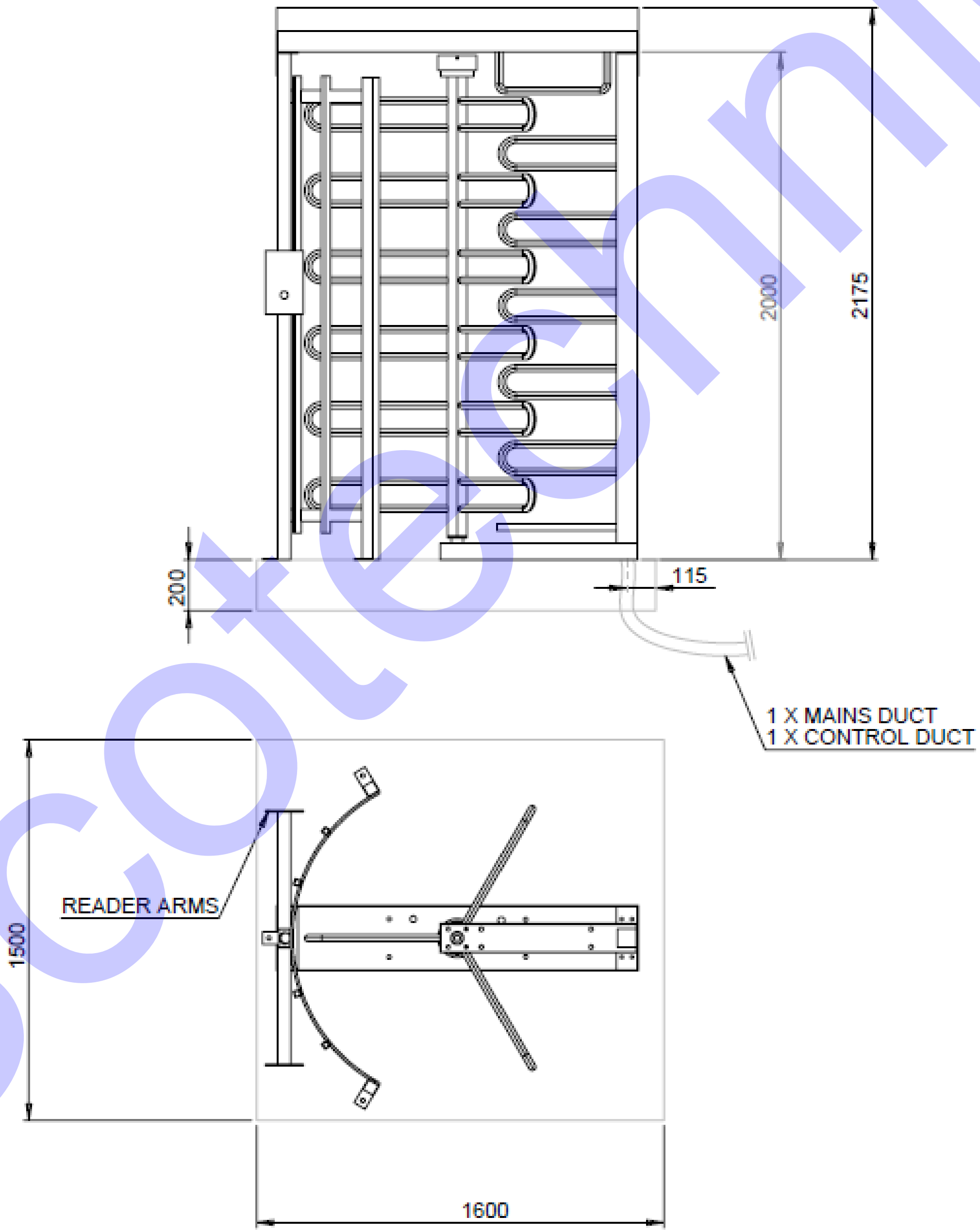


7.4 Relay Panel Wiring Connection Details

Input Pin	Details
1 - 2	OPEN SIGNAL ENTRY
3 - 4	MICROSWITCH ENTRY
5 - 6	SOLENOID ENTRY
7 - 8	OPEN SIGNAL EXIT
9 - 10	MICROSWITCH EXIT
11 - 12	SOLENOID EXIT
13 - 14	FIRE ALARM INPUT N/C
15	NEUTRAL INPUT
16	EARTH INPUT
17	230V AC LIVE INPUT

Chapter 8

General arrangement drawings



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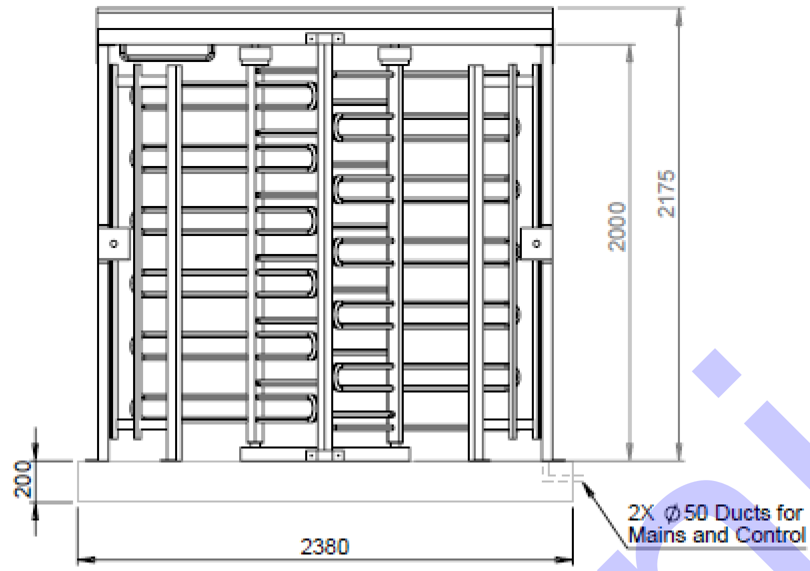

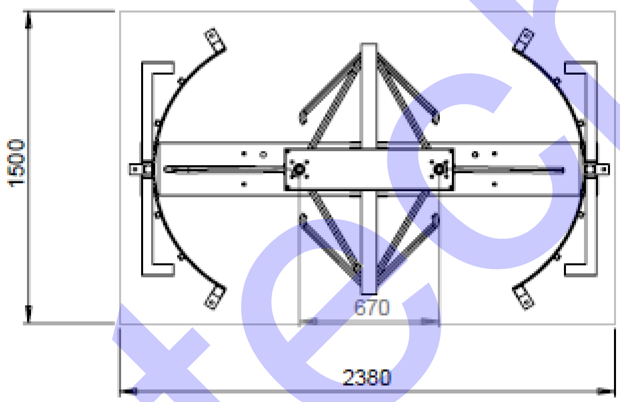

Chapter 9

Service and Maintenance

Scotechnics Limited strongly recommend that serious consideration is given to taking out a Service and Maintenance Package to maximise equipment life, minimise down time and reduce overall costs.

9.1 General

- ✓ Check turnstile is operating and functioning correctly
- ✓ Check general overall conditions of equipment, i.e., age, wear and tear, etc
- ✓ Wipe down turnstile and check for tar spots, signs of damage, rust, etc
- ✓ Check condition and secureness of any fitments, i.e., lights, etc
- ✓ Record / report any potential concerns as to future reliability of equipment

9.2 Head mechanism

- ✓ Remove turnstile lid / cover and visually inspect mechanical head operational workings
- ✓ Check smoothness and operation of unit in both directions
- ✓ Check all sensors and micro switches for correct operation, replace or adjust as required
- ✓ Inspect damper assembly, lubricate as necessary
- ✓ Check paddle / locking arm pivots, all springs and indexing system for wear and tear, replace, lubricate as required
- ✓ Check all fixing bolts on turnstile head and control panel are secure and tighten as necessary
- ✓ Check solenoid operation for smoothness, clean and lubricate as required
- ✓ Check ratchet for ease of operation

9.3 Control panel

- ✓ Check tightness of connections and clean as required
- ✓ Check integrity and security of cables
- ✓ Check Relays for correct operation, replace or adjust as required
- ✓ Check all earth connections
- ✓ Refit lid and tighten down

Chapter 10

Troubleshooting Guide

ERRORS	CAUSE	REMEDY
No display on PLC screen	No power	Check mains supply
	Main fuse blown	Check and replace fuse
	ELV fuse blown	Check and replace fuse
	Faulty PLC unit	Test for 24Vdc at the terminals of PLC
Rotor carries on spinning after transit	Too long of an open signal	Reduce open signal time
	Limit switch faulty	Test limit switch
	Fire alarm signal activated	Check fire alarm signal
	Manual release key activated	Check manual release key
Display is visible,but open signals have no effect	Wiring fault	Check wiring from controller to open connector in panel
	PC fault	Press the Z1 and Z2 keys on PLC to test functions locally
		Link 1-2 or 5-6 in the panel to test wiring locally
External lighting not illuminating	Lamp faulty	Check and replace lamp
	Photocell faulty	Check and replace lamp
	wiring fault	Check for 230Vac at the lamp connections
Excessive noise during transit	Head fault	Assess head for wear and tear
	Bottom bearing fault	Grease all movable parts
	ELV fuse blown	Check and if required replace bottom bearing
Open signals have no effect	Relays have become loose	Check seating of relays
	Fault on relays	Check to see functions of relays

Chapter 11

Warranty

Equipment, which is purchased on a supply only basis, will carry a 12-month warranty. This covers the equipment only and not any remedial installation, repairs or service costs, or calls requiring the attendance of our engineers to site.

Any defects identified with the equipment within that time, as a result of material, manufacturing or production faults, will be, providing the items are returned to Scotechnics Ltd, suitably repaired or replaced at the company's discretion.

All equipment supplied by Scotechnics Limited carries 12-month warranty cover, commencing from date of invoice

Any warranty guarantee will be invalidated if:

- Installation or maintenance is carried out by personnel not authorised by Scotechnics Limited
- Repairs are carried out by personnel not qualified by Scotechnics Limited
- Repairs are performed without prior consent of Scotechnics Limited
- The equipment is not maintained in accordance with recommended maintenance schedules / periods
- The equipment is subjected to operational misuse, malicious or accidental damage
- The turnstile is not supported by a fixed structure

Extended warranty cover and routine maintenance agreements are available. Please inquire if this service is of interest to you.