



FeeMaster Smart Entry Station

INSTALLATION MANUAL & USER GUIDE



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1. INTRODUCTION

1.1 Overview

The FeeMaster Smart Entry Station provides time and date stamped tickets to visitors as they enter a car park. The information contained on the ticket can be used to allow the ticket holder to exit the car park within a pre-set validity/grace period by presenting it to a barcode ticket reader at the exit barrier. Alternatively, the information on the ticket can be used to calculate the parking fee to be paid on exit by the use of a point-of-sales fee calculation console.

The control information is printed on the ticket as a barcode and contains the following:

- Site code
- Ticket issuing station code
- Ticket ID
- Date and time of issue
- Length of validity

The Entry Station must be located at the entrance to the car park adjacent to an inductive road loop. This road loop is connected to a loop detector that is used to detect the arrival of a vehicle at the entrance and arm the ticket issuer when the vehicle is present. This prevents the misuse of the ticket issuer by pedestrians. The driver of the vehicle is required to take a ticket from the ticket issuer before entering the car park. The action of pressing the ticket request button and then taking the dispensed ticket will cause the barrier to open to permit the vehicle to enter the car park.

The Entry Station can be installed without any need for cabling to the Exit Station or to the fee calculation console. A real time clock within the controller keeps the Entry Station synchronised to the rest of the system.

The contents and format of the ticket can be set locally at the controller. The options available are:

- Length of ticket
- Width of left-hand margin
- Ticket logo and text selected from up to 9 pre-loaded files (or suppressed)
- Time and date of issue (printed or suppressed)
- ASCII equivalent of the barcode (printed or suppressed)

1.2 Features

Issues tickets with individual serial numbers and the date & time of issue

Avoids errors due to visitors taking tickets issued before their arrival

User selectable ticket content and format

Robust and efficient ticket dispensing mechanism

Protected against abuse and fraudulent operation

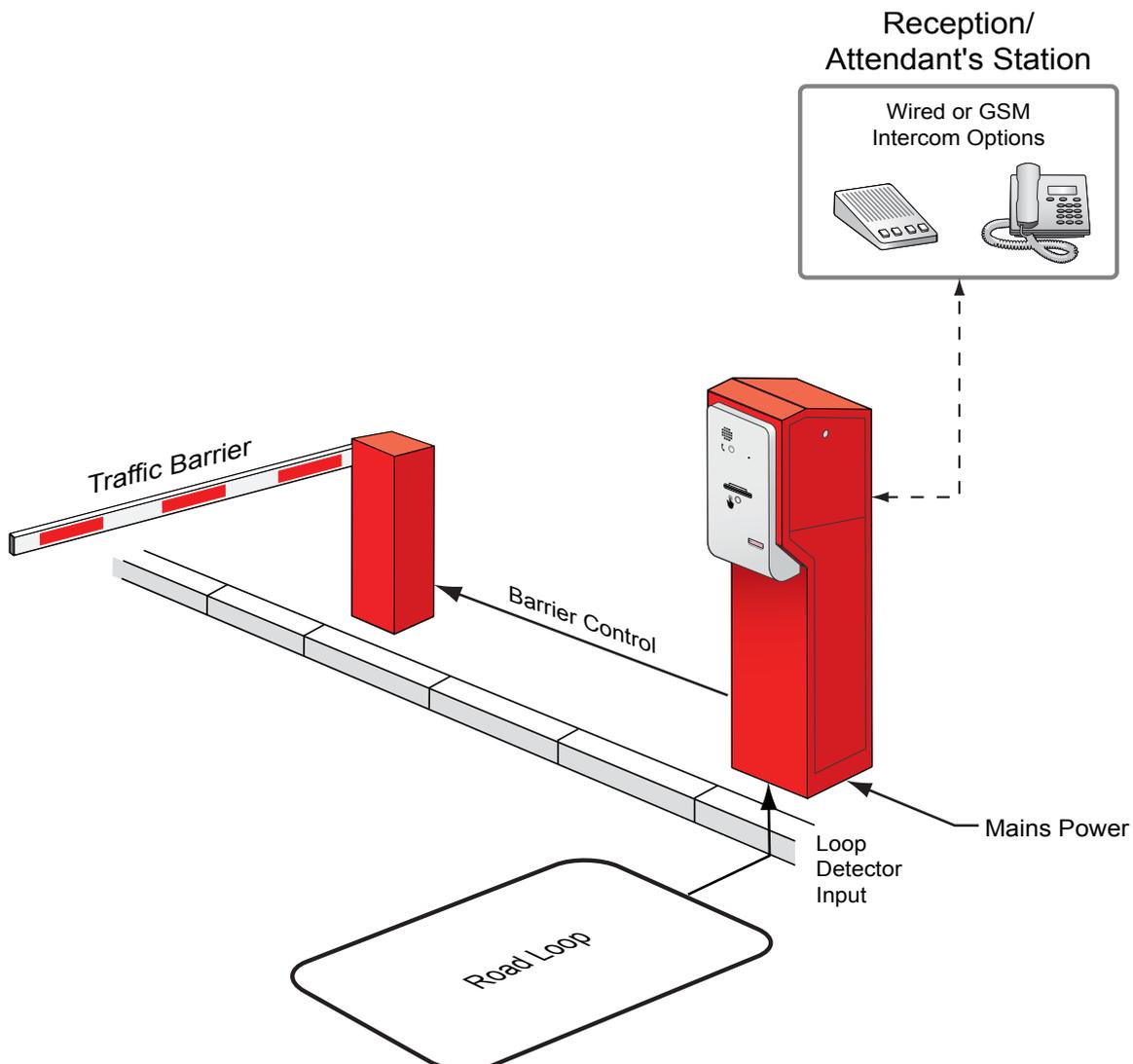
Integral intercom options (wired or GSM)

Easy paper reloading and maintenance

Integral mains converter, heater and loop detector

Optional smart card reader for staff and long-term visitors

1.3 Connections



- The Ticket issuer requires a single 240V AC supply.
- The feeder of the road loop is terminated on the integral loop detector.
- The control output to the barrier provides common, normally open and normally closed relay contacts.
- An optional 'wired' intercom slave unit is connected to the master unit using a single pair.
- An optional GSM intercom can be fitted to avoid the need for cabling to the attendant's station.

There is also a remote "Low Paper" alarm output that can be connected via normally open or normally closed relay contacts.

1.4 Operation

The Entry Station uses a simple algorithm to ensure that visitors to the controlled parking area are provided with a correctly time and date stamped ticket before entering. The controller unit has a real time clock to provide accurate time and date information. The normal sequence is as follows:

1. As a vehicle arrives at the Entry Station, the integral loop detector senses its presence over the adjacent road loop and signals this to the controller. The ticket dispensing process is then enabled within the controller.
2. The visitor presses the Ticket Request button on the panel. The controller instructs the ticket issuer to issue a ticket. The ticket issuer prints the ticket and delivers it to the collection slot via the ticket presenter.
3. When the visitor takes the ticket, a sensor in the ticket presenter indicates this to the controller, which in turn operates a relay to issue an 'open' request signal to the barrier control unit.
4. As the vehicle enters the parking area, the loop detector senses that the vehicle has left the entrance and the cycle is reset ready for the next vehicle.

The Entry Station has a number of features to protect it against fraudulent operation and malfunction due to operator error. These are:

- The entrance to the parking area is always controlled. There are several possible means of controlled entry depending upon the configuration of the entry system. The ticket-dispensing component, for its part, will only allow entry when a ticket is requested and taken. This avoids claims by visitors that they were not issued with a ticket when they entered the controlled parking area.
- A ticket will not be dispensed unless a vehicle is over the road loop at the time of the request. This prevents fraudulent operation and abuse.
- If a ticket is not taken within one minute of being dispensed, the ticket will be retracted back into the cabinet to prevent visitors from inadvertently taking a ticket that was dispensed earlier (e.g. where another visitor requested a ticket but then reversed off the loop without taking the ticket) and therefore incurring an additional charge for the period between the original ticket request and their arrival.
- The mechanism only permits visitors to take one ticket. However, if a visitor presses the Ticket Request button but is then distracted causing them to fail to take the ticket before it has been retracted, they can press the Ticket Request button again to receive a new ticket. This avoids the need for operator intervention.

2. INSTALLATION

2.1 Site Requirements

The entry pedestal must be located at the entrance barrier of the controlled parking area. It must be positioned at the side of the road so that drivers can comfortably reach the Ticket Request button and collect their tickets from their driving position when they stop their vehicles in front of the pedestal. The height of the pedestal is designed to accommodate most private vehicles when mounted on a standard height kerb. The pedestal must be secured to a concrete base using appropriate fixings. All cabling should be fed through the central hole in the base of the pedestal.

A road loop must be installed in the road adjacent to the pedestal with the feeder cable routed to the base of the pedestal. This loop will be used to detect the presence of vehicles at the pedestal. Sufficient space should be allowed between the loop and the barrier to allow for the barrier control and safety loops to be installed without the risk of crosstalk.

The system requires a 240V mains power supply, connected using cable appropriate to the type of installation.

2.2 Unpacking

The Entry Pedestal is delivered in two parts:

1. Pedestal, ready assembled with component units and all internal wiring. This comprises:
 - Painted steel roadside pedestal/ housing
 - Faceplate with ticket slot and buttons
 - Intercom unit (optional feature)
 - MP1-MIF-FMS smart card reader (optional feature)
 - Ticket Issuer Controller (TKT201)
 - Heater
 - Mains power adaptors: Controller (12VDC); Ticket Issuer (24VDC)
 - PD132 loop detector unit
 - Terminal connectors/circuit breaker (2A) mounted on DIN rail
2. Ticket Issuer Head comprising:
 - Control board module
 - Paper supply role module
 - Printer mechanism and auto cutter
 - Ticket presenter module
 - Base plate

Two keys are supplied for the upper side panel that provides access to the ticket issuer head.

Do not attempt to fit the issuer head to the pedestal until the pedestal is firmly fixed to the ground.

The issuer head is mounted on a base that slides between runners on the mounting plate inside the pedestal so that it can slide away from the front panel for ease of maintenance and paper roll replacement. The power cable and communication cable for the ticket issuer head connected at the rear of the issuer head. External cables enter the pedestal through the base and are terminated at the connectors on the DIN rail in the lower part of the cabinet.

You will need to remove the lower side panel to access the lower part of the cabinet for fitting and cable termination. To do this, remove the upper side panel, remove the two retaining screws at the top of the lower panel, lean the panel towards you slightly and then lift it out.

2.3 Mounting the Pedestal

There are four slotted holes in the base of the pedestal unit for securing it to a solid concrete base (see appendix A for dimensions). The large hole in the centre of the base is used for feeding external cables from below. Measure up and prepare a suitable concrete base and cable duct in a position that will allow the pedestal to be mounted in the best position for easy access by drivers to the buttons and ticket mouthpiece. Secure the pedestal to the base using suitable fixings. Feed the external cabling to the bottom of the pedestal cabinet (see section 2.4.)

2.4 External Connections

Figure 2.1 shows a schematic of the connections to the DIN rail at the bottom of the housing (see Appendix B for location).

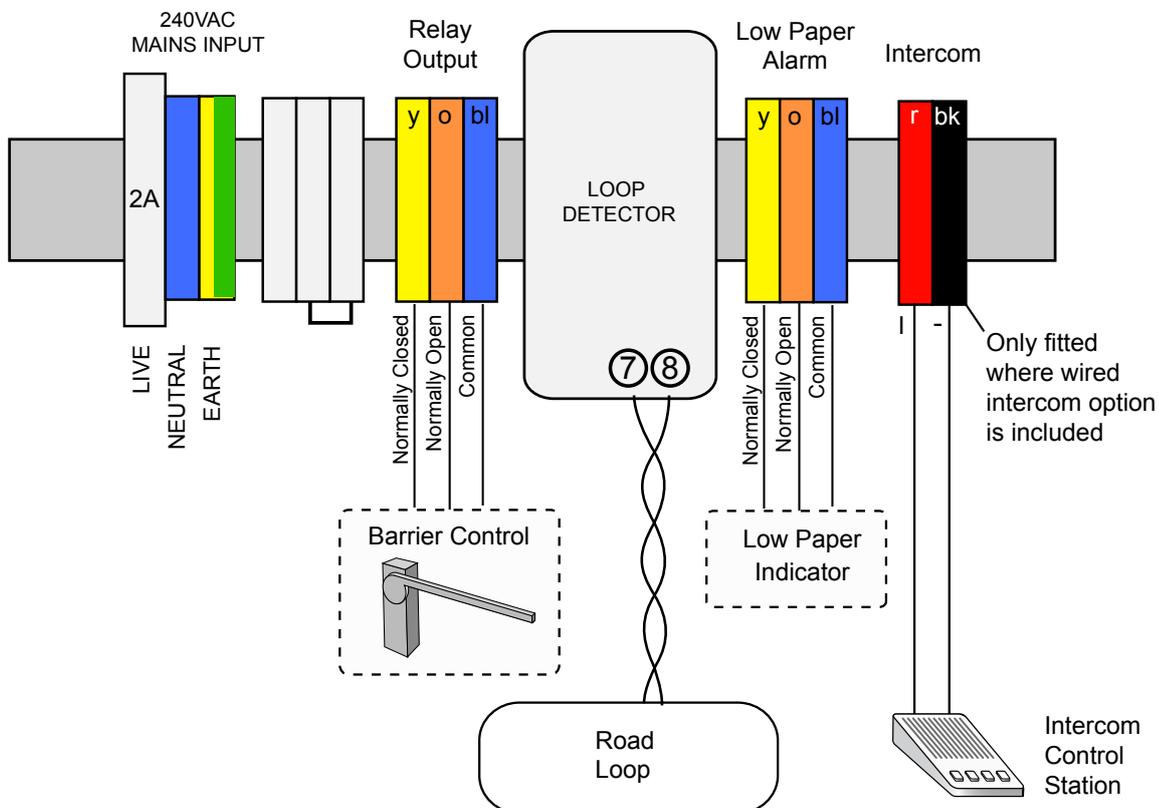


Figure 2.1 – DIN Rail Connections

2.4.1. Mains Supply

Connect a suitably insulated and protected mains cable to the circuit breaker and terminals. Do not connect power until the ticket issuer is fully installed.

2.4.2. Loop Detector Input

The feeder from the road loop must be terminated directly on terminals 7 & 8 of the relay mounting socket. For best detector performance, avoid joints in the feeder cable and ensure that the wires are twisted (Minimum 40 turns per metre). The relay output from the loop detector is wired to the controller input via the DIN rail connectors to allow for special arming requirements or the connection of an arming reset button in series with the loop detector.

NOTE: This applies to the Nortech PD132 loop detector. Refer to manufacturers documentation if a customer supplied loop detector is used (this will also require changes to internal wiring).

2.4.3. Barrier Control Output

The barrier control relay output includes common, normally open and normally closed contacts. Connect the outputs to the barrier control circuit as appropriate using a suitable cable.

2.4.4. Low Paper Alarm

The low paper alarm output includes common, normally open and normally closed contacts. Typically, the normally open and common outputs can be wired to a remote indicator lamp with a local low voltage power supply or battery wired in series with the input pair and the indicator lamp. A lamp test button wired in parallel to the input pair would be a useful addition.

2.5 Front Panel Components

The front panel provides the user interface comprising the ticket request button, ticket mouthpiece, intercom slave unit and (where fitted) the smart card reader.

Figures 2.2 and 2.3 show the front panel without and with the smart card reader respectively:

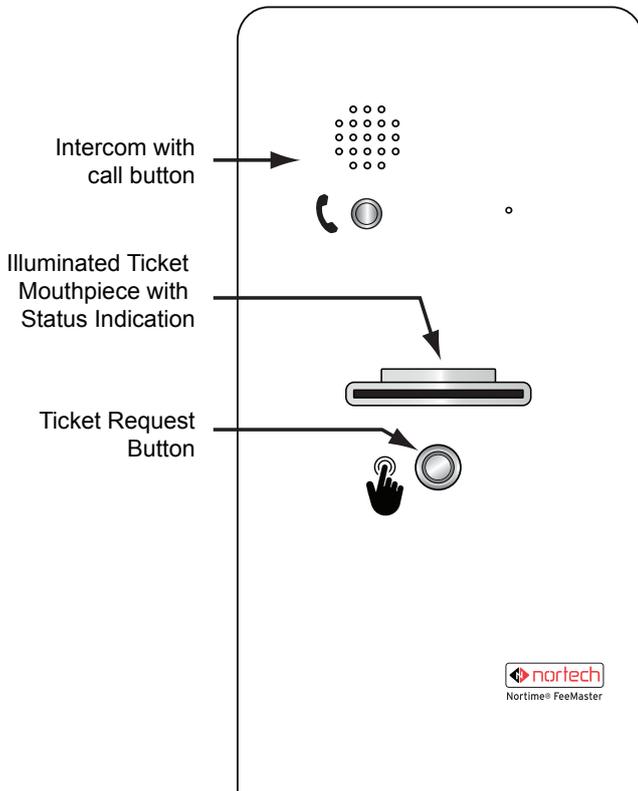


Figure 2.2

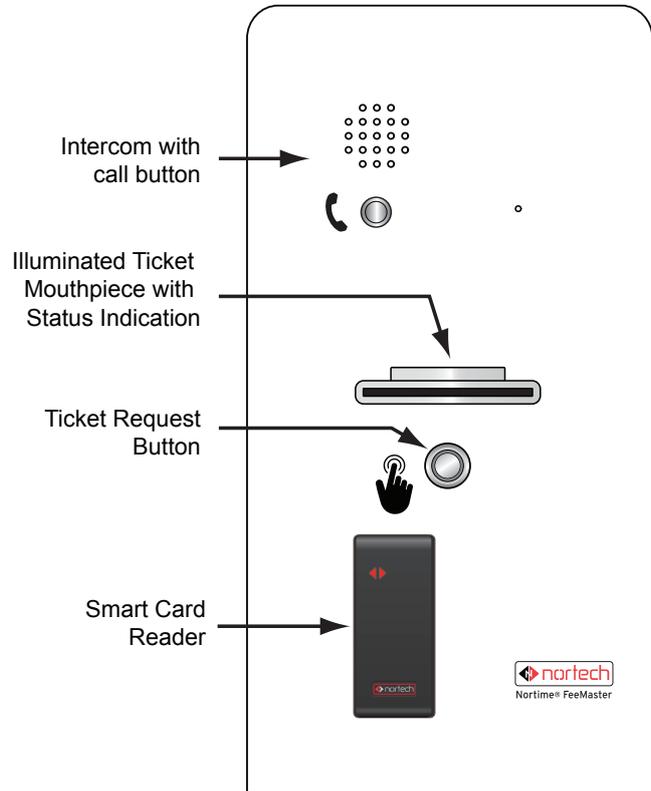


Figure 2.3

2.6 Fitting the Ticket Issuer Head

Referring to Figure 2.4:

1. Carefully place the ticket issuer on the right-hand end of the plinth as you view it through the door aperture. Ensure that the base plate of the ticket issuer fits within the guides on the plinth.
2. When correctly seated on the plinth, slide it towards the pedestal faceplate, checking that the ticket snout passes cleanly through the aperture in the faceplate.
3. Once fully engaged with the faceplate, lock it in position by tightening the locking screw in the base plate.

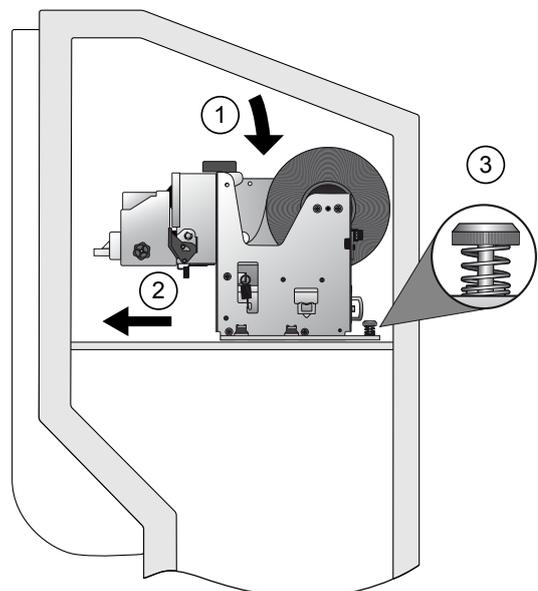


Figure 2.4



Always lift the ticket issuer by gripping the side plates and/or base plate. Never attempt to lift it by the green handle. This is used to release the printer mechanism.

2.7 Identifying the Parts of the Ticket Issuer Head

Figure 2.5 is a view of the right-hand side of the ticket issuer (front panel to the left) and Figure 2.6 is a view of the left-hand side of the issuer head (front panel to right).

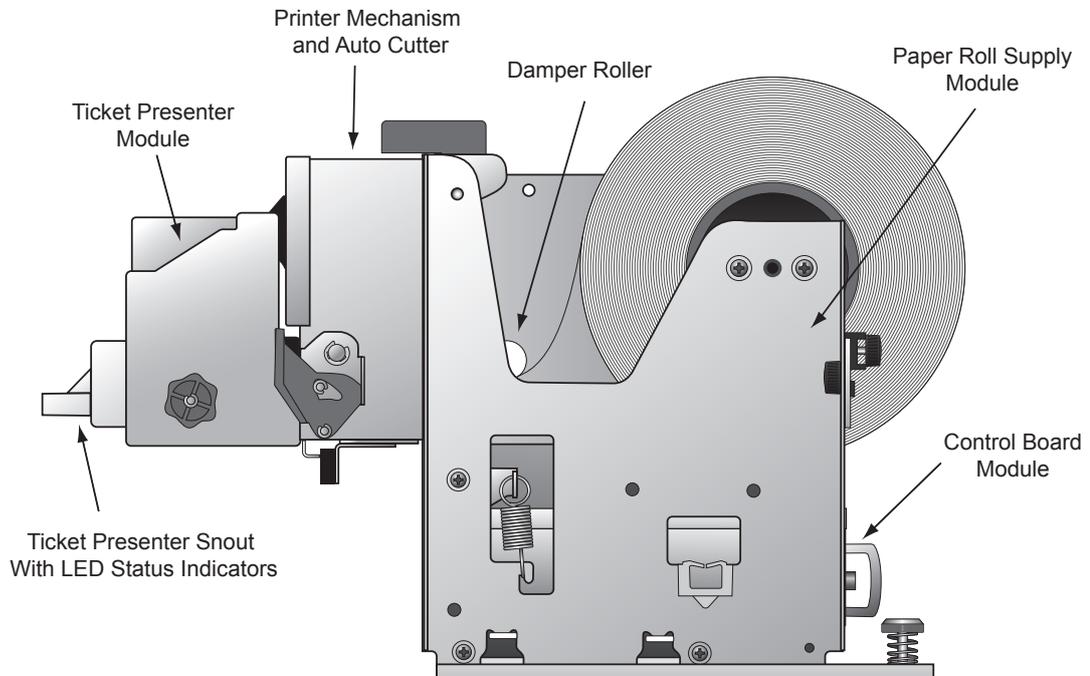


Figure 2.5 - Issuer Assembly - Right-hand Side

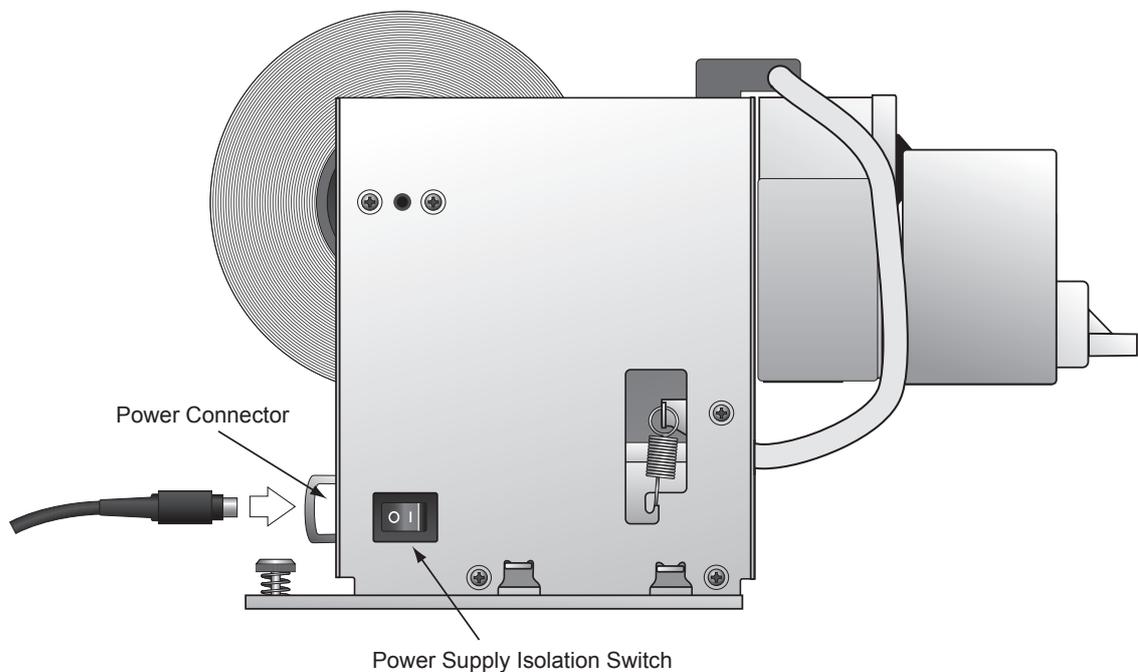


Figure 2.6 - Issuer Assembly - Left-Hand Side

The paper is fed to the ticket issuer from the top of the roll under the damper roller into the entry slot. Each ticket is printed, cut and then delivered into the ticket presenter where it can be collected via the issuing slot on the front panel. The ticket issuer mechanism has a separate power isolation switch that can be switched off during any maintenance activity (see Figure 2.6).

2.8 Connectors

The ticket issuer is powered from a 24VDC mains adaptor mounted within the pedestal. The power lead plugs into the 3-pin socket on the rear panel of the control board module (see figure 2.7).

The control interface between the controller mounted within the pedestal and the ticket issuer head is connected via an RS232 cable terminated at the issuer head end in a male 25-pin D-type connector. This must be plugged into the corresponding socket on the rear panel of the control board module (see figure 2.7).

Figure 2.7 shows the connections on the rear of the assembly.

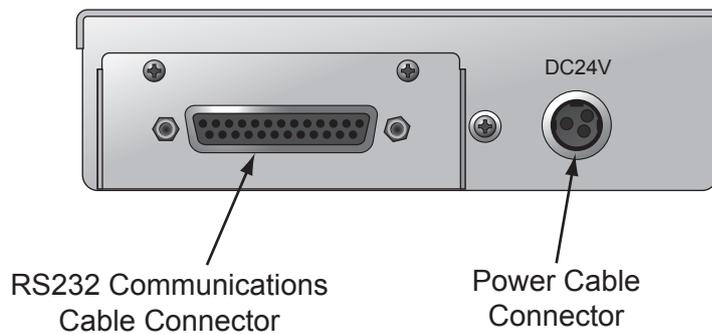


Figure 2.7 Rear Panel Connections

Figure 2.8 shows the front panel controls and indicators.

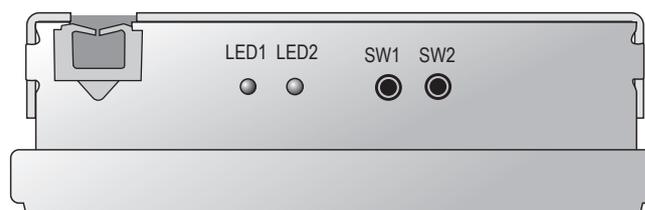


Figure 2.8 Front Panel Controls

Functions:

LED1 (green)	Power on
LED2 (red)	Fault
SW1	Feed and discharge paper
SW2	Clear fault

3. Replacing Paper Roll

Note: It is strongly recommended that only Nortech thermal paper (part number 552-650) is used, as papers with the wrong specification may cause jamming and/or cutter failure. Refer to section 5 for the thermal paper specifications.

The paper roll should be changed as soon as possible once the **Paper Low Indicator** or the **Remote Low Paper Alarm** (where installed) becomes active.

3.1 Removing Paper

Follow these steps with reference to figures 3.1 and 3.2 to remove the paper.

1. Unscrew the issuer head retaining screw and slide the ticket head assembly away from the pedestal front panel as far as it will go.
2. Pull the release lever towards the front of the assembly so that the ticket presenter module hinges forward.
3. Gently pull the paper back through from under the damper roller.
4. Carefully reposition the ticket presenter module in the vertical position and ensure that it locks in position.

NOTE: If there is a short length of paper trapped in the presenter unit, you can release it by turning the knob at the side of the presenter anti-clockwise so that it feeds out through the mouth.

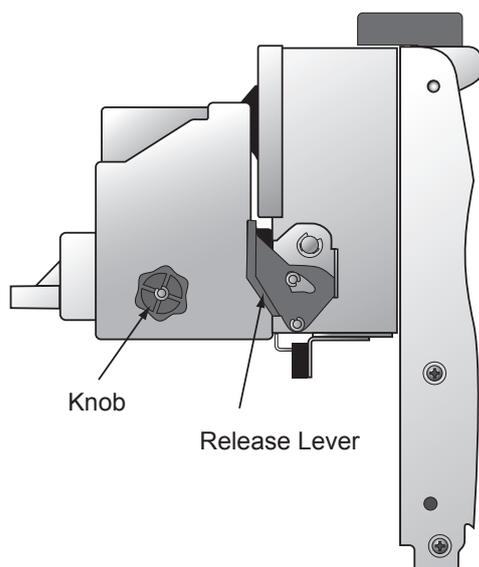


Figure 3.1

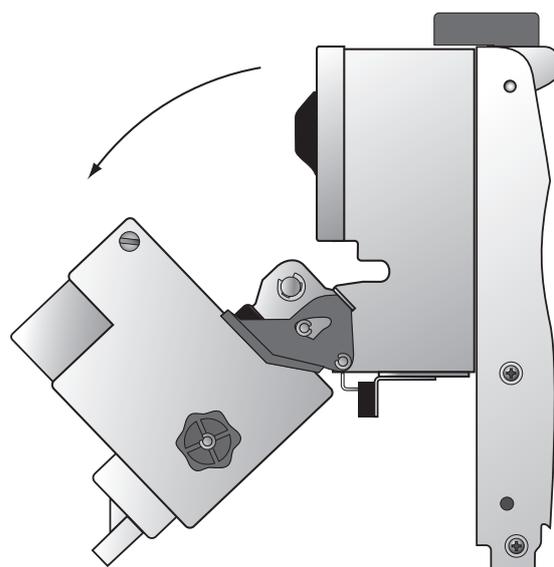


Figure 3.2

3.2 Loading Paper

Lift the paper roll spindle from the spindle bushes and remove the sprung roll holder (with green locking bush) and empty paper roll from the spindle. Insert the spindle into the new paper roll as shown in Figure 3.3 and fit the roll holder so that it holds the paper roll firmly.

Check that the end of the roll is cut correctly to ensure correct paper loading.

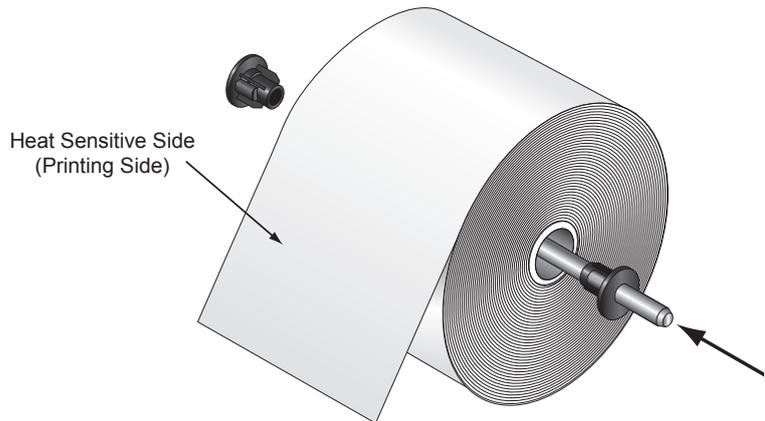
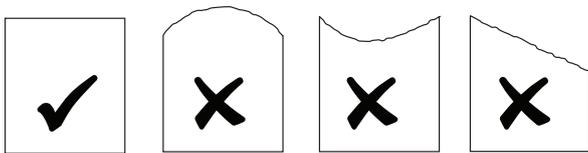


Figure 3.3

Slot the spindle into the spindle bushes as shown in Figure 3.4, and press it home to ensure that it held firmly.

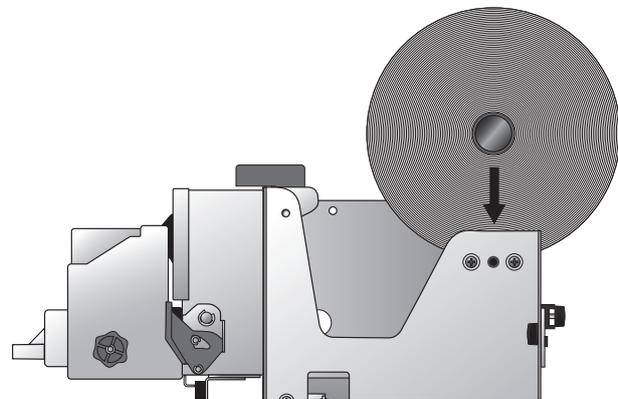


Figure 3.4

The printer mechanism can be tilted forward to allow easy access for feeding the paper. To do this, hold down the main assembly with one hand while lifting the large green handle at the top of the printer mechanism with the other hand (see Figure 3.5). Once it is disengaged from the retaining pins, carefully tilt the top forward until it comes to rest (see Figure 3.6).

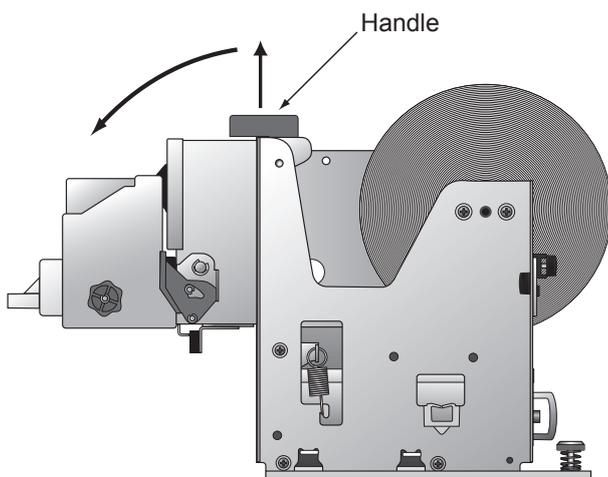


Figure 3.5

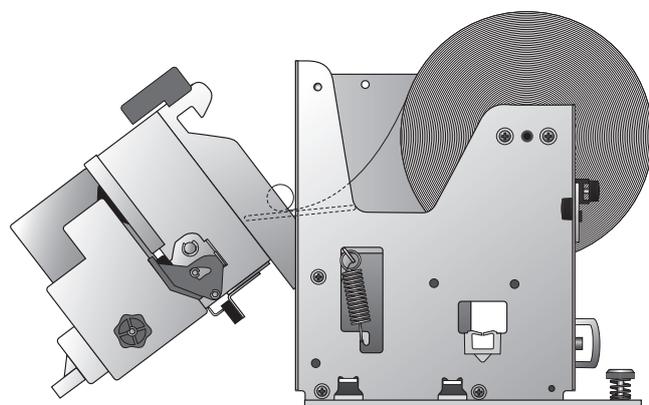


Figure 3.6

Now, with reference to figures 3.6 and 3.7, feed the paper off the top of the roll, under the damper roller, and into the paper slot, being careful to ensure that the paper enters between the two paper guides. Gently ease the paper forward until it is detected by the sensor. The drive motor will then

engage and pull the paper through. It will feed and cut a length of blank paper as it sets itself up.

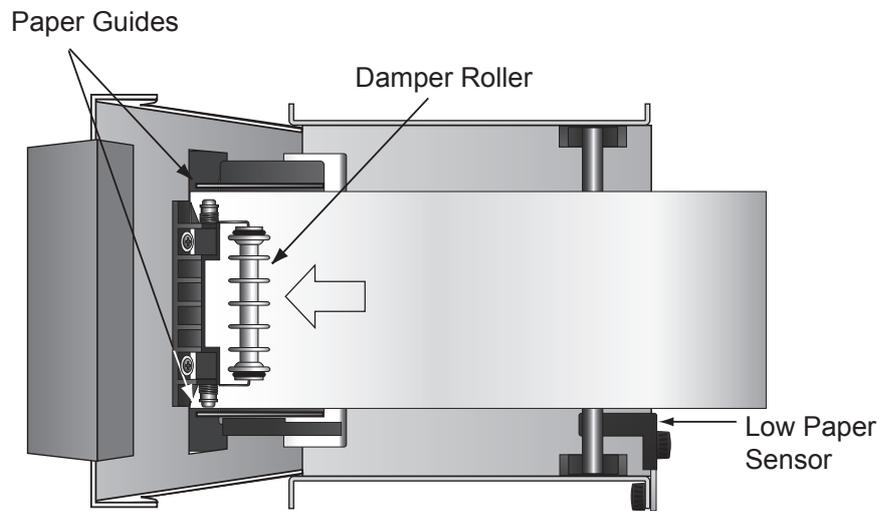


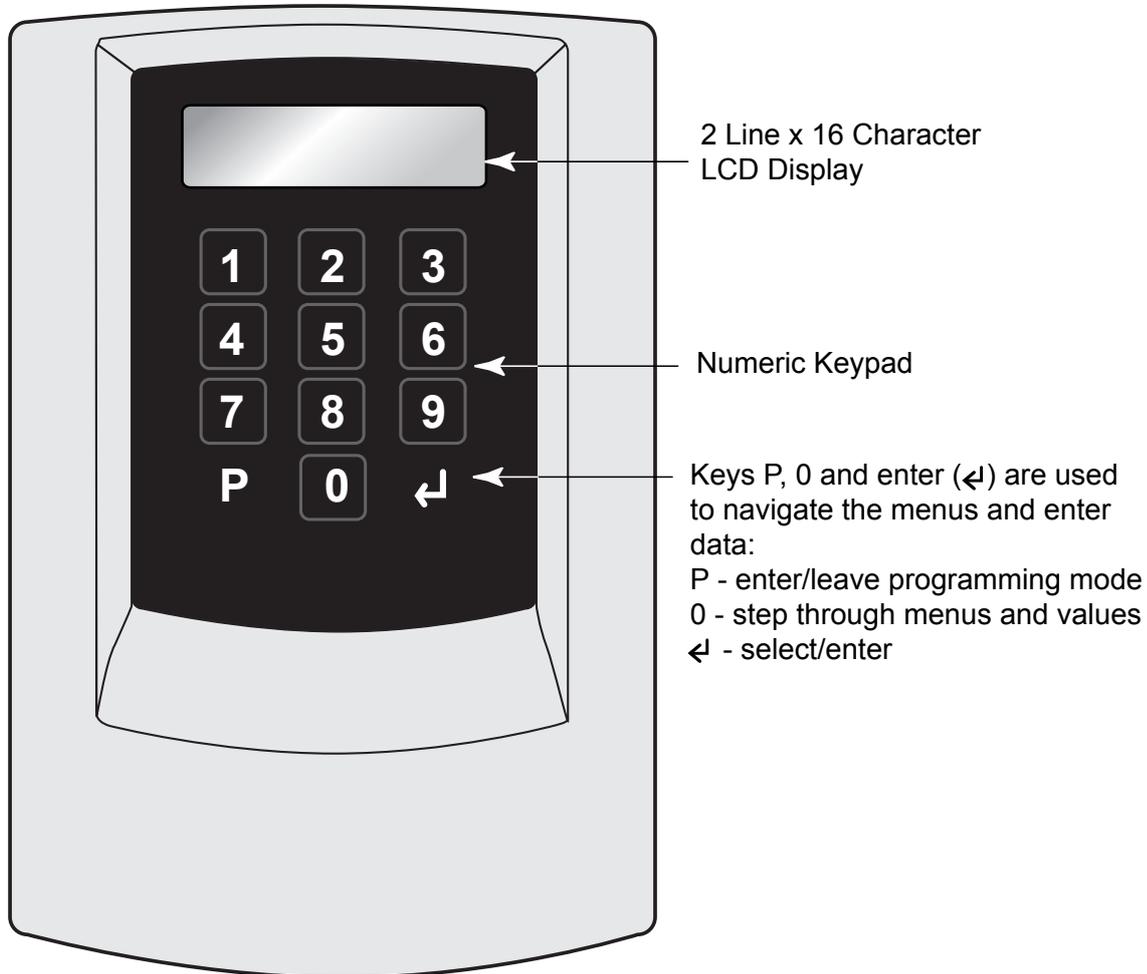
Figure 3.7

Put the printer mechanism back into its normal state by returning it to the vertical position and then lifting it to engage the hooks in the side plates over the retaining pins. Once it is seated correctly take up any slack in the paper and check that the mechanism is ready by ensuring that the fault light is extinguished.

The issuer head can now be returned to its operating position behind the faceplate and the retaining screw tightened to lock it in place.

4. PROGRAMMING THE TICKET ISSUER CONTROLLER

4.1 Programming Overview



Refer to Appendix B to locate the TKT201 Ticket Issuer Controller. Appendix C shows the connections to the TKT201 Ticket Issuer Controller.

The TKT201 is designed to control both the ticket issuer and a smart card reader for reading FeeMaster Smart cards so that entry can be granted in one of two ways:

- Ticket issued and taken
- Valid card presented to the reader

Therefore the controller must be able to evaluate the information presented from cards as well as provide information to the ticket issuer head to produce tickets. If no card reader is fitted to the system, ignore all sections marked “*CR*” as they do not relate to the ticket issuer.

The controller is programmed using the 12-digit keypad and 2-line LCD screen. The system is arranged as a hierarchical menu structure that can be navigated using the P , 0 and ↵ (enter) keys. The top line of the screen displays the current menu item and the bottom line displays the parameters.

When you power up the control unit, the screen will display the product code and the version number:

TKT201 Vx.xx

(This will be referred to as the 'opening display' throughout this guide).

This opening display is the starting point for any new procedure described in this guide. The screen will revert back to the opening display after 30 seconds of inactivity (30 seconds since last key was pressed).

Press **Ⓟ** (program) to enter the programming mode.

The following programming menu items are available:

Program Cards – used to change the validity of FeeMaster Smart cards. *CR*

Verify Cards – used to verify card settings. *CR*

Configuration – to configure the way the ticket issuer operates.

Ticket – to configure the contents and format of the ticket.

Date/Time – to set the real time clock in the controller.

Card Test – this allows card information to be read to the screen. *CR*

Clear Events – future feature.

Press **⓪** repeatedly to select the required menu item. Press **↵** (enter) while that item is displayed on the screen. The first parameter of that item will then be displayed in the bottom row of the screen.

To enter or change a parameter, type the new value and press **↵** (enter). The unit will then move to the next parameter.

Press **Ⓟ** to escape from a menu item. This will take you to the head of the other menu item. Press **↵** to enter that menu item or press **Ⓟ** again to leave programming.

4.2 Programming Detail

4.2.1. Program Cards *CR*

To programme cards, at the opening display press \textcircled{P} once. The following is displayed:

Program Cards

Press \textcircled{E} and carry out the following procedure:

Display

Action

Program Cards
From Card:

Enter the first card number & press \textcircled{E}
(card number must be between 2 and 4000)

Program Cards
To Card:

Enter the last card & press \textcircled{E} .
(card number must be greater than that entered in the previous step and no greater than 4000. For single card validation, simply press \textcircled{E}).

Program Cards
Rdr1 no

Use $\textcircled{0}$ to toggle between 'Yes' or 'No' to indicate validity on reader 1 and press \textcircled{E}

Program Cards
Capt no

Use $\textcircled{0}$ to toggle between 'Yes' or 'No' to indicate whether these cards should be captured at reader 1 and press \textcircled{E}

4.2.2. Verify Cards *CR*

To reach this menu item from the initial display, press \textcircled{P} once and then press $\textcircled{0}$ repeatedly until the following screen is displayed:

Verify Cards

Press \textcircled{E} to enter the menu item, enter the card number at the prompt 'Card:' and then press 'Enter'. You will see a display similar to:

Card: 0012-0055
R1-VC

The first number is the card number that you entered ('12' in this case) and the second number represents the last consecutive card number above the one you entered that has the same configuration.

R1 = refers to reader 1 (only one reader supported by this controller)

'XX' = card not valid, card not capture.

'XC' = card not valid, card capture.

'VX' = card valid, card not capture.

'VC' = card valid, card capture.

Note: For Exit Tokens (Card 0000), these values are fixed at 'VC' and cannot be changed using 'Program Cards'. The values displayed in 'Verify Cards' for card 0000 should be ignored.

For Short Stay (Card 0001), the standard setting is 'VX'. Capture should not be activated for normal Short Stay applications.

4.2.3. Configuration

This includes settings that affect both the card reader and the ticket issuer.

To reach this menu item from the initial display, press P once and then press O repeatedly until the following screen is displayed:

Configuration

Press O once. The first parameter will be displayed on the bottom line. Set the parameters as follows:

Display	Action
Configuration Relay1: x>	Enter a value of between 1 and 300 to set the pulse duration for relay 1 in 1/10th second & then press O .
Configuration Node: x>	This parameter is not currently used. *CR* Press O .
Configuration Ex xxxxxx	Expired non-zero cards can be processed in 3 different ways depending upon the application. These are *CR* CAP NOT = capture card and do not allow exit CAP OUT = capture card and allow exit RET = return the card and do not allow exit Press O to step through the options and press O when the desired option is displayed.
Configuration Cp last day? No	The 'Capture last day' option allows the capture of unexpired cards on the last day of their validity. *CR* Press O to toggle the 'Capture last day' option between 'Yes' and 'No' and press O when the desired state is displayed.
Configuration Site:xxxx	All encoders and readers associated with the same system must have a common site code (between 1 and 2000). This site code is set here for this controller. The site code will be included within the barcode on the ticket. Type the site code and press O .

```
Configuration  
Rdr1 ATB:xx>
```

Anti-timeback (ATB) prevents a card being used twice on the same reader within a given period. *CR*

Enter the ATB period in minutes (between 1 and 30 minutes) and then press \odot .

To disable this feature, set this value to '0'.

```
Configuration  
Password No
```

Press \odot to toggle the Password option 'Yes' or 'No' and press \odot when the desired state is displayed. *CR*

If set to 'Yes', you will be prompted for a four-digit number. Enter a 4-digit number and press \odot .

You will then need to enter this number whenever you select programming mode from the opening display. (See warning below)



IF YOU LOSE YOUR PASSWORD YOU WILL BE PERMANENTLY LOCKED OUT OF THE CONTROLLER PROGRAMMING MENUS. PLEASE CONTACT THE INSTALLER IF THIS OCCURS.

4.2.4. Ticket

This includes settings specific to the ticket issuer.

To reach this menu item from the initial display, press **Ⓟ** once and then press **⓪** repeatedly until the following screen is displayed:

```
Ticket
```

Press **⓪** once. The first parameter will be displayed on the bottom line. Set the parameters as follows:

Display

```
Ticket
Barcode? No
```

Action

If the barcode is to be used as a means of identifying the validity of the ticket then set this to 'Yes'. The following settings will be enabled. If the barcode is not required (visual checking only) then set this to no and go straight to 'Date/Time?'

Press **⓪** once to toggle between 'Yes' and 'No' and then press **⓪** when the desired state is displayed.

If Barcode Activated:

```
Ticket
Issue #:x>
```

Issuing station ID. Each ticket issuer on the site should be allocated a unique 2-digit number. This value is included within the barcode on the ticket.

Enter the issuing station number and press **⓪**.

```
Ticket
ID #:xxxx
```

Each ticket is given a unique number between 0 and 65,000. The number set here will be given to the first ticket printed and will increment for subsequent tickets. The value will start at 0 when it reaches the maximum.

Enter the first ticket number and press **⓪**.

```
Ticket
Mins? Yes
```

Duration of ticket validity – unit value. This sets the units used for the validity period. The options are:

- Minutes
- Hours
- Days
- Weeks
- Years

The unit value shown is that last set (default is minutes). To change the unit value, press **⓪** once to toggle to 'No' and press **⓪**. Do this for each value unit the desired value is shown. Press **⓪** while it is set to 'Yes' to take you to the next screen where you can set the amount of these units.

```
Ticket  
Time #:xx
```

Number of units of ticket validity. Once the unit value is set in the previous step, the number of units can be set between 1 and 99.

e.g. if the above setting is 'Weeks? Yes' and this value is set to '2', the ticket will be valid for exactly 14 days.

Enter a value between 1 and 99 and press \leftarrow .

```
Ticket  
Ascci? Yes
```

This allows you to choose whether or not the information in the barcode is also printed in readable (Ascci) form.

Press $\textcircled{0}$ once to toggle between 'Yes' and 'No' and then press \leftarrow when the desired state is displayed.

```
Ticket  
Check? Yes
```

This allows you to choose whether or not a check number is added to the ticket barcode. This will only be effective if the ticket reader controller is set to read and validate the check number.

This feature safeguards against the use of fraudulent tickets.

Press $\textcircled{0}$ once to toggle between 'Yes' and 'No' and then press \leftarrow when the desired state is displayed.

```
Ticket  
Date/time? Yes
```

This allows you to choose whether or not the date and time of issue is printed on the ticket.

Press $\textcircled{0}$ once to toggle between 'Yes' and 'No' and then press \leftarrow when the desired state is displayed.

```
Ticket  
Logo #:x
```

The ticket issuer head can be delivered with up to 9 logo images stored. Use this parameter to choose which logo to print on the ticket.

Enter a value between 1 and 9 and press \leftarrow

```
Ticket  
Lines:x>
```

Sets the number of blank lines at the bottom of the ticket.

Enter a value between 1 and 9 and press \leftarrow

```
Ticket  
L margin:xx>
```

Use this parameter to set the width of the left-hand margin (number of characters) so that the text is correctly aligned on the ticket

Enter the margin width in characters and press \leftarrow

```
Ticket line0  
Change? No
```

This feature is no longer supported. Do not make any changes to these settings to avoid corruption to information on the ticket.

4.2.5. Date & Time

Although the date and time settings are factory set, it is advisable to check them briefly before entering specific installation details. The date will also need to be changed twice a year at the beginning and end of 'Daylight Saving Time'.

To enter this menu item press \textcircled{P} from the opening display and press $\textcircled{1}$ once to display the following screen:

Date/time

Press $\textcircled{4}$ once. The first parameter will be displayed on the bottom line. Set the parameters as follows:

Display
Action

Date/time Year: xx

Enter the year as two digits and press $\textcircled{4}$.

Date/time Month: xx

Enter the month in two-digit format and press $\textcircled{4}$.

Date/time Date: xx

Enter the day of the month as two digits and press $\textcircled{4}$.

Date/time Day: x

Enter a number corresponding to the day of the week, where 1 = Monday, 2 = Tuesday, etc.

Date/time Hour: xx

Enter the current hour as two digits and press $\textcircled{4}$.

Date/time Min: xx

Enter the current minute as two digits and press $\textcircled{4}$.

Date/time Sec: xx

Enter the current second as two digits and press $\textcircled{4}$.

On completion of these parameters, the unit will move to the 'Card Test' menu item.

4.2.6. Card Test *CR*

This allows an engineer to check the start time & date and end time & date of a card.

To reach this menu item from the initial display, press P once and then press O repeatedly until the following screen is displayed:

```
Card Test
```

Press O to enter the item. The following screen is displayed:

```
Swipe card
```

Present the card to reader 1. The screen display will appear as follows:

```
S hh:mm dd/mm/yy  
E hh:mm dd/mm/yy
```

Where **S hh:mm dd/mm/yy** is the validity period start time and date and

E hh:mm dd/mm/yy is the validity period end time and date.

Further cards can be presented to reader 1 – the display will change accordingly.

4.2.7. Clear Events *CR*

Future feature.

5. TECHNICAL SPECIFICATIONS

5.1 General Specifications

Supply voltage:	240V AC (24V DC and 12V DC mains adaptors included)
Housing	Powder-coated steel pedestal with access panel.
Standard Fittings	Ticket issuer mechanism, TKT201 ticket issuer controller, power adaptors, heater, and PD132 loop detector.
Optional Fittings	MP1-MIF-FMS smart card reader, wired or GSM intercom unit.
Overall Dimensions in mm	1200 x 381 x 275 (H x D x W)
Output Signals	Voltage free relay contacts (30V DC, 2A)

5.2 Recommended Paper

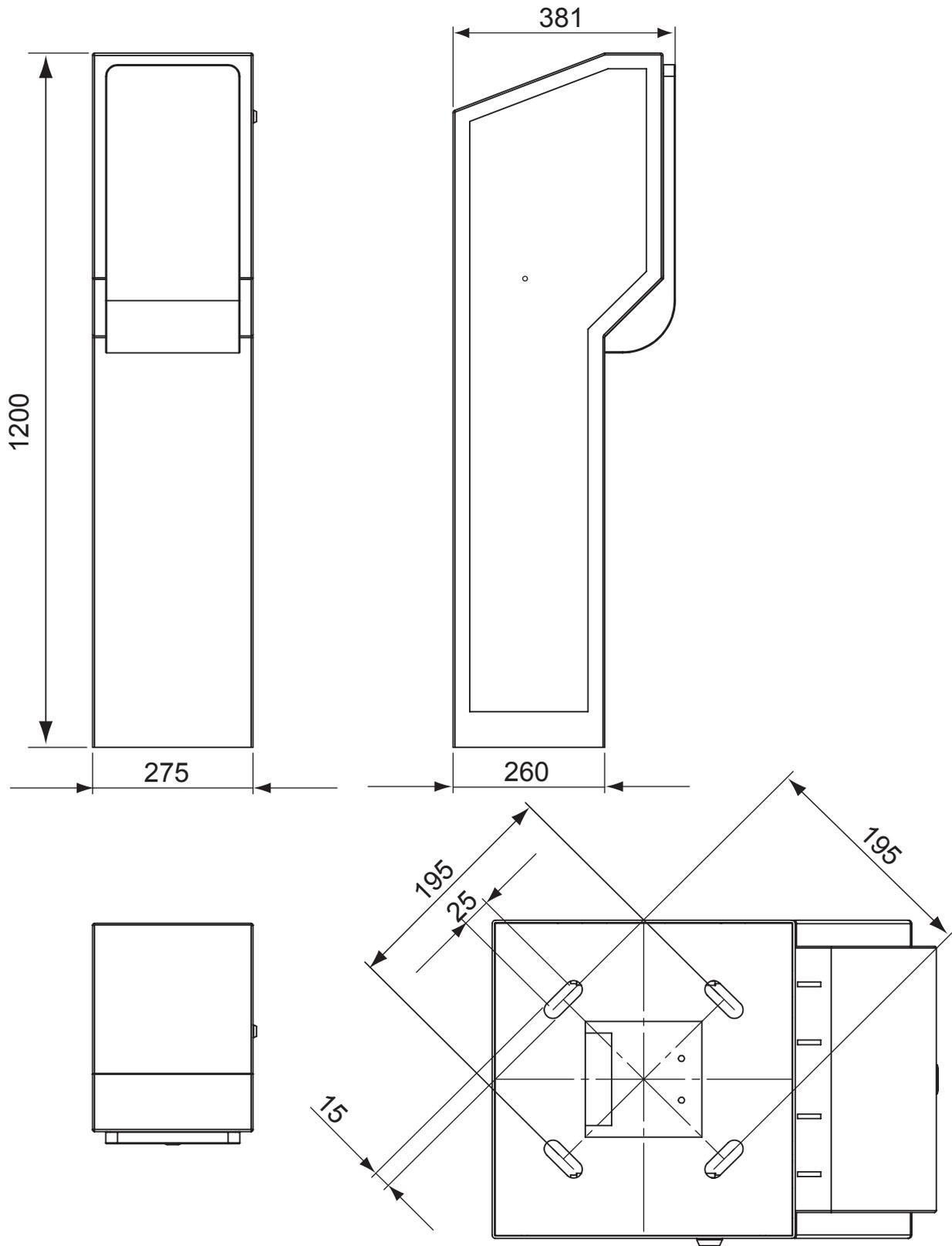
Type	Thermal Paper
Paper width	80 ± 0.5mm
Paper thickness	65 µm to 75 µm
Maximum roll diameter	150mm
Printing surface	Outer side of roll
Nortech part number	552-650

Note: Nortech Control Systems will not be responsible for any failure of the ticket dispensing mechanism where paper other than that supplied by Nortech Control Systems is used.

5.3 Issuer Head Specification

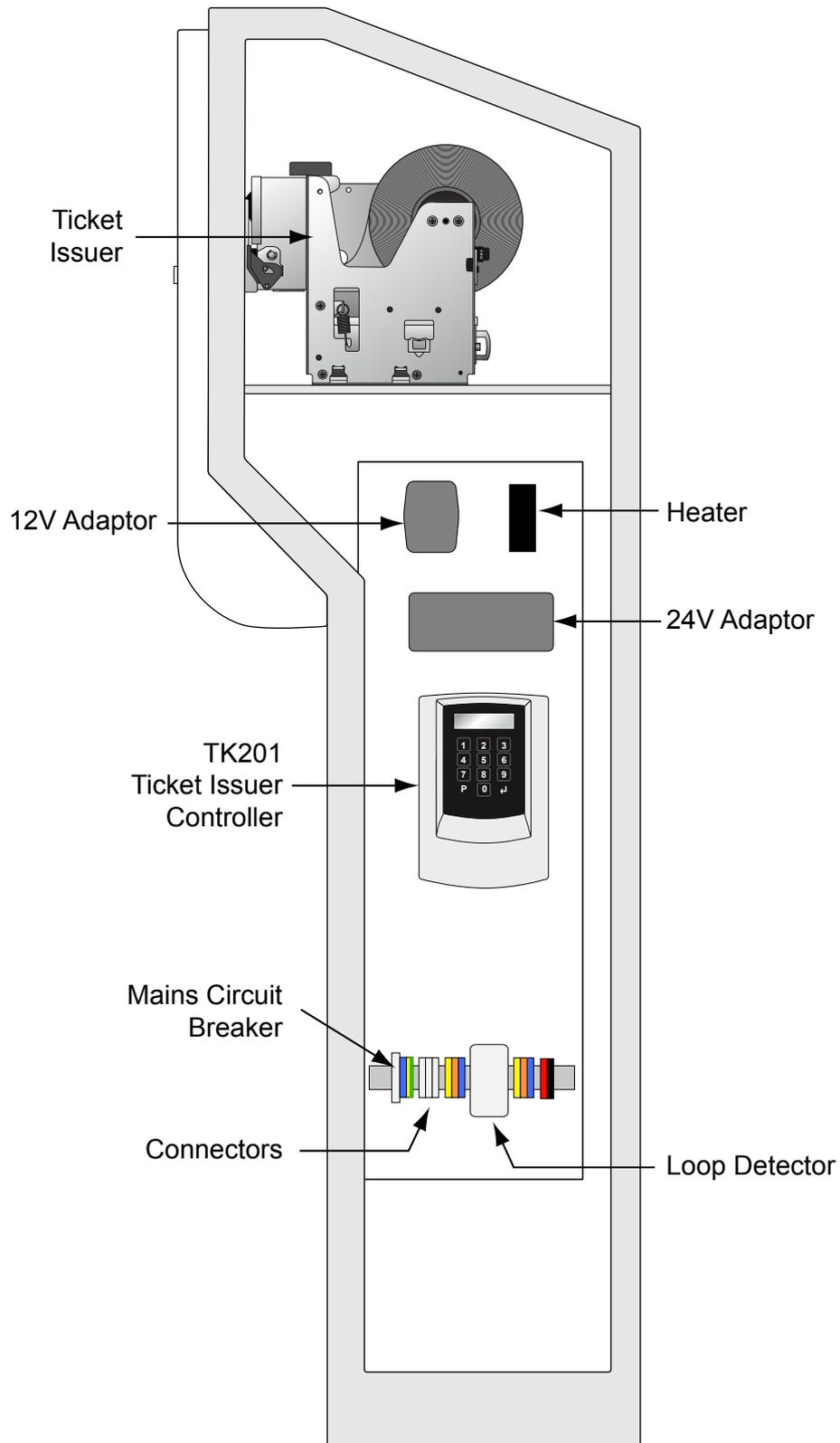
Printing Method	Direct Line Thermal Printing Method
Printing Region	Max. 80 mm
Dot Configuration	640 Dots/Line
Print Speed	Maximum 150 mm/s
Paper Feed	Thermal Mechanism Module - Friction Feed Method Presenter Module Roller - Friction Feed Method
Cuttable Sheet Length	75 to 300mm
Print Head	Line Thermal Head
Presenter	With Recovery Function

APPENDIX A – PEDESTAL DIMENSIONS



APPENDIX B – PEDESTAL COMPONENTS LAYOUT

To access the controller and the connectors



APPENDIX C – TICKET ISSUER CONTROLLER CONNECTIONS

