INFINITY ∞

MODEL RAILWAY CONTROL [and beyond]



GAUGEMASTER

Digital Wired Control System
Full Instruction Manual

INTRODUCTION

Welcome to Gaugemaster Infinity Digital Wired

Thank you for choosing Gaugemaster Infinity Digital Wired. Whether this is your first step into Digital model railway control or you are moving to Infinity from another DCC system, we want to make getting started as straightforward as possible. This manual will guide you through setting up your Infinity system, introduce its features and help you get the most from your layout. If you wish to jump straight in, this system is supplied with a Quick Start Guide to allow you to get set up and running, but we would recommend you do revisit this full instruction manual to make full use of the all the fantastic features Infinity Digital has to offer.

This manual covers the following versions of our Infinity Digital systems:

∞ **GMI-D04** Infinity Digital Wired
Designed for N, TT, HO and OO Scale layouts, with a 15V, 3.3A track output.
Written for Software Version: 2.00

Infinity Digital Wired gives you comprehensive control of your DCC locomotives and accessories, offering a range of features designed to make operating your railway easier and more enjoyable.

Infinity Digital follows conventional DCC protocols and is NMRA compatible, allowing you to use compatible DCC locomotives, decoders and accessories from manufacturers around the world. But Infinity is about more than simply controlling trains. You can build your own locomotive library, customise locomotive functions, name your locomotives and accessories, create accessory sequences and accessory routes as well as assign icons to make frequently used accessories easier to recognise. Features such as Multiple Working, Yard and Drive modes, scale speed and the optional fuel tank function give you even more ways to tailor the system to the way you operate your railway.

Your Infinity Digital Wired Model Railway Control System was designed, engineered and manufactured here in the UK by Gaugemaster, drawing on decades of experience helping modellers build and operate their layouts. We hope you enjoy using it as much as we have enjoyed creating it. It's Model Railway Control [and beyond].

A Note About These Instructions

These instructions cover everything you need to set up and operate your layout with Gaugemaster Infinity Digital Wired.

If you already have experience with another Gaugemaster Infinity system, much of the operation will feel familiar. However, we still recommend reading through these instructions to familiarise yourself with Infinity Digital Wired and any features or functions that may be different.

If you are completely new to Gaugemaster Infinity, don't worry. We understand that a large instruction manual can seem a little daunting at first, so we have divided it into four clear sections: 1: Setting Up Your Infinity Digital System and Customisation, 2: Locomotive Control & Customisation, 3: Accessory Control & Customisation, and 4: Expansion, Updates & Troubleshooting.

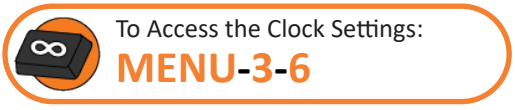
Each section takes you through the relevant features and functions step by step, allowing you to get comfortable with one area of the system before moving on to the next. You don't need to learn everything at once. Start with setting up your system and running your first locomotive, then explore the additional features and possibilities of Infinity Digital Wired as you become more familiar with it.

Key-Cuts

We understand that not everyone wants or needs to know the whys and hows behind every stage of a process. Sometimes, you simply want to know which buttons to press and get straight to where you need to be.

That's why we have included Key-Cuts throughout these instructions. A Key-Cut is a simple sequence of key presses that shows you the quickest route to the menu, setting or function being discussed, without having to follow the full step-by-step process.

For example, if you want to access the clock setting on your Infinity system, simply follow the Key-Cut shown below. Each element in the sequence represents the next key or option you need to select on your Infinity handset.



Once you become more familiar with Infinity Digital Wireless, you may find the Key-Cuts are a handy way to quickly return to the features and settings you use most often.

A Different Way to Learn

Although many of us enjoy a good instruction manual, we understand that everyone learns in different ways, and sometimes pages of instructions and diagrams can feel like a lot to take in.

We can't be there beside you every step of the way, but we have created the next best thing: a growing collection of Infinity How-To videos on our YouTube channel. These videos take you through many of the features and processes covered in this manual, allowing you to see exactly what to do and follow along with your own Infinity Digital Wired system.

To visit our YouTube channel simply scan the QR Code with your mobile phone or tablet to start watching, or alternatively visit: **www.gaugemaster.info/youtube**

SYSTEM SPECIFICATIONS

∞ **POWER SUPPLY INPUT:** 100-240v ~ 50/60Hz
The power supply has a UK "Figure 8" IEC C7 cable that can be replaced with an EU or US compatible cable for use in those localities.

∞ **POWER SUPPLY OUTPUT:** 15.0v 4A DC
Always use the correct power supply. An incorrect power supply can damage your system. There are no user serviceable parts. Do not attempt to repair. Not for outdoor use. Do not attempt to use if the cord is damaged. Adult use only.

∞ **TRACK TERMINAL OUTPUT:** 15.0v 3.2A max.

∞ **USB PORT:** USB-C Type C cable required (not supplied)
The USB port is for updating the firmware in the Base Unit only and must never be connected to other devices. Details on updating your system can be found in section **4.2 Updating Your Software** on page 59.

∞ **PLEASE NOTE:** Always store your system in warm dry conditions. Power supplies and Base Units are for indoor use only and never let any part of your system get wet. There are no user serviceable parts inside and if any part becomes damaged seek professional advice or replace the item before use.

WARNING: This product contains small magnets.

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1. SETTING UP YOUR INFINITY

Before you start running your trains, we'll take you through everything you need to get set up and ready to go. We'll begin with a few things to know before you start, check what's included in the box and introduce you to the different components of your system. From there, we'll guide you through the initial setup, help you find your way around the menus using the System Map and explore the various system settings available to you. By the end of this section, you'll be familiar with your Infinity controller and ready to take the next step towards operating your model railway.

1.1. BEFORE YOU BEGIN

Infinity Base Units do not have a dedicated ON/OFF button. When the system is not being used, the Base Unit draws very little current, so there is no need for a separate power switch on the unit itself. When you have finished using your Infinity system, simply switch off the power at the wall socket.

When you are ready to use your Infinity system again, switch the power back on at the wall socket and your Infinity Digital Wired system will be ready to use once again.

∞ Please Note
The screenshots used within these instructions are for illustration purposes only and may differ from those seen on the handset. If an update sheet is present, this takes precedence over those found in these instructions.

∞ Environment
This Gaugemaster Infinity system is a complex piece of electrical kit. Always use it in warm, dry conditions. The Base Unit, Handset and Power Supplies are for indoor use only and should never be allowed to get wet or exposed to moisture. There are no user-serviceable parts inside so if any part becomes damaged, please replace appropriately or contact us for further advice. Ensure the ventilation grills are kept clear to enable heat to escape - do not cover. Failure to do any of the above may invalidate the warranty. Do not use during electrical storms or near high-voltage equipment.

∞ Location
The Base Unit should be situated with adequate space around for ventilation. You'll need one Mains socket for your Infinity Wired Base Unit.

∞ Ease of Connection
We've included Green Connection Plugs to make installation really easy. You'll need a small flat-head screwdriver to tighten the terminals. These are designed to accept bare-ended wires.

∞ Wire

Always remember to use a suitable gauge of wire for all outputs and try to avoid unnecessarily long runs of wire as these can impede the flow of power. Make sure all connections are made as securely as possible with either soldered joints, dedicated connection blocks or track feeds as required, and check all insulating joints are working correctly.

∞ General Layout Maintenance

Although we think you will love the Infinity system, it's important to remember that you'll enjoy it even more if your track is kept clean, your wiring sound and your locomotives serviced. A great control system will not necessarily make a bad locomotive better.

∞ The Handset

The Handset connects to the base unit by the 3.5mm Jack cable. The handset also features rubber feet to prevent it sliding across smooth surfaces if placed down.

∞ Future Proofing

You'll notice a USB port on the back of the Base Unit. This will enable you to periodically update the firmware from the Gaugemaster website. Be sure to register your Infinity system online so we can notify you about all news and updates as they are made available.

∞ Support

The Gaugemaster website is a great resource to learn about the Infinity system and our physical shop ModelGIANT can offer technical assistance my email, over the phone, or in person. Contact details can be found in: **Section 4.3: Help & Technical Support** on page 60.

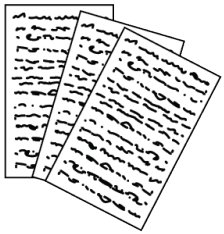
1.2. WHAT'S IN THE BOX?



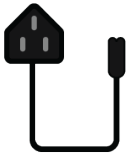
∞ Infinity Digital Handset & Cable



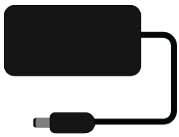
∞ Infinity Digital Base Unit



∞ Infinity Quick Start Guide and Instructions



∞ UK Power Cord Set



∞ Power Supply



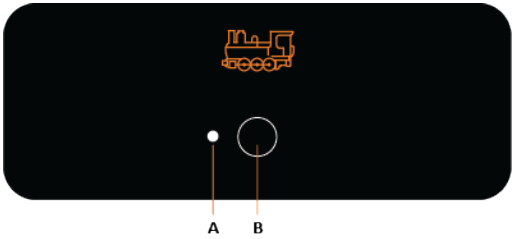
∞ Connection Plugs x3

Please note: contents may vary slightly from those illustrated

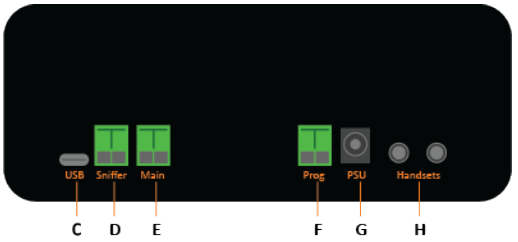
1.3. COMPONENT OVERVIEWS

The Base Unit Overview

Front View



Rear View



A - System Status LED:
GREEN = Connected to a handset and working.
GREEN (FLASHING) = Powered up but no Handset detected
RED = Stop button or Stop key has been pressed.
RED (FLASHING) = Short Detected
WHITE = Update mode initiated

B - Centre Button used as an Emergency Stop - press once to activate and again to release.

C - USB Port used for firmware updates.

D - DCC Sniffer Input Port*

E - Main Track Power Output*

F - Programming Track Output

G - Infinity Power Supply Input

H - Handset Connections For use with Infinity Wired Handsets†

*Green Plugs provided for easy connections.

†Additional Handsets available separately.

∞ The Main Track Output

Your layout track feed wires or power bus (a pair of cables running beneath your layout to feed the individual track sections) connect to the MAIN output on the Base Unit. The removable green plug makes connecting your wiring easier and should always be fully inserted into the socket when in use. Ensure all wires are securely fitted, with no loose strands exposed, and that all track connectors and feeder tracks used across your layout are suitable for DCC operation.

∞ The Programming Track Output

This is a dedicated output for programming locomotives and some accessory decoders. A separate section of track can be connected to this output, allowing you to safely read and change decoder settings. The programming output uses only a small amount of power, sufficient to communicate with the decoder but not to operate a locomotive normally. This provides a safe environment for setting up and checking your decoder before moving the locomotive to the MAIN track.

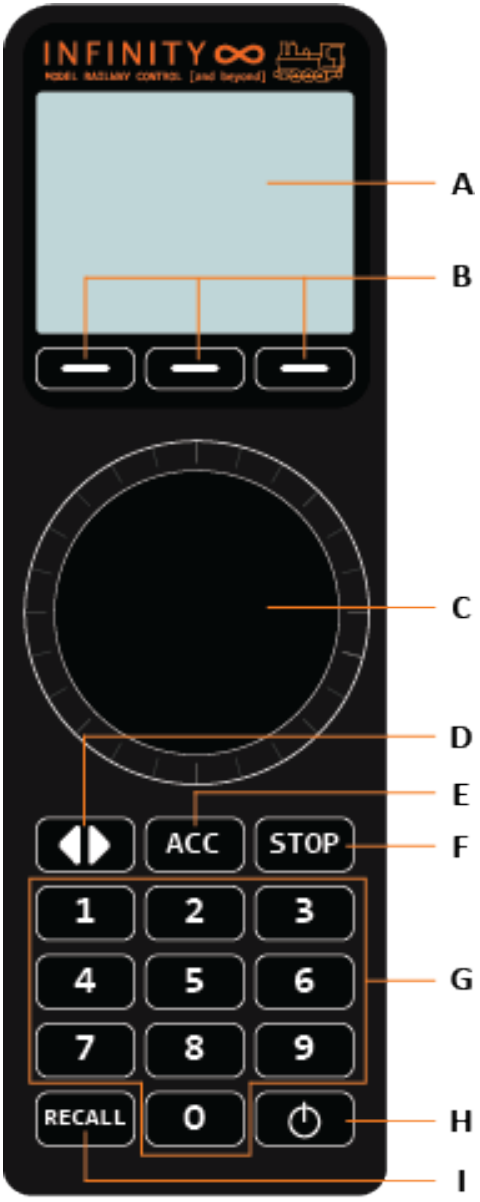
Please Note: The programming track and anything connected to this output must always remain completely separate from the MAIN track and all other Base Unit outputs. Connecting them together may damage the Infinity Base Unit and any damage caused in this way is not covered by the warranty.

∞ Base Unit Overload Protection

If the MAIN track becomes overloaded, the light on the Base Unit will flash RED and “MAX” begins to flash in place of the amperage reading on the Handset screen. After a few seconds of this, the unit will shut power and display the “Stop Screen”. Check your layout to identify and correct the cause of the overload. Once the problem has been resolved, press the Centre Button on the Base Unit or the “START” Key on the Handset. Your Infinity will return to normal operation and continue from where it left off.

The Handset Overview

Front View



A - **LCD Display**
See page 10 for details.

B - **Smart Keys**
The use of these keys varies depending on what you want to change or operate. The function of each key is displayed on the screen directly above them.

C - **Dial**
This has multiple functions - it changes the speed of the locomotive you have selected. Rotate to increase or decrease the speed. When the Loco is stationary, in “Yard Mode”, this dial can be used to switch direction. It is also used to move selection arrows in the menus.

D - **Direction Key** [< >]
In “DRIVE” mode, this will change the direction of your locomotive and, during text entry, this key can be used to switch the direction of the cursor.

E - **Accessory Key** [ACC]
This takes you to the “Accessories Menu” so you can operate all your accessories. A second press will take you to the “Accessory Sequence Menu”, and a third press takes you to the “Accessory Route Menu”.

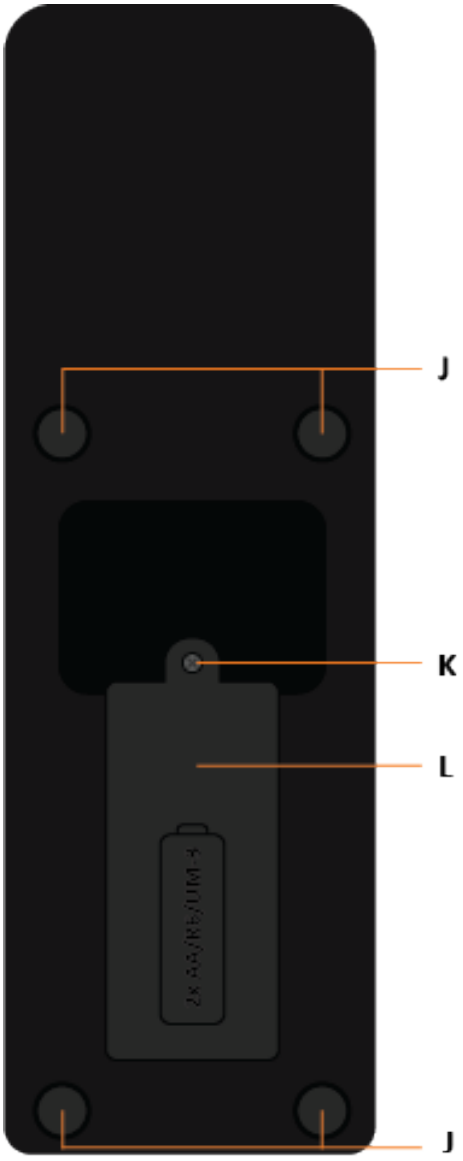
F - **Stop Key**
Use this key to stop the currently selected locomotive. Press and hold to cut the power from all outputs to the track.

G - **Numeric Keypad** (Keys 0-9)
These keys are used for activating locomotive functions and numerical inputs.

H - **Power Key** [⏻]
This key is used to exit any screen by pressing once where it returns you to the locomotive you are controlling.

I - **Recall Key**
Each press of this button takes you to the next locomotive in the Rosta. Pressing and holding this button will bring up a list of all the locomotives currently in the Rosta.

Rear View



End View



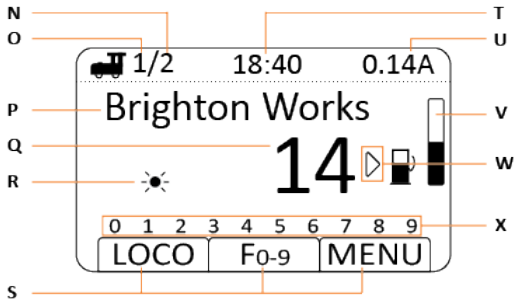
J - Handset Feet
Rubber feet to prevent scuffing and sliding when placing the handset down on flat surfaces.

K - Battery Cover Screw
Unused on this model

L - Battery Cover
Unused on this model

M - Jack Cable Socket
This is your Jack Cable connection point used for connecting your handset to your base unit.

The Handset Screen Overview



N - The Number of Locomotives In The Rosta

O - The Displayed Loco's Position In The Rosta

P - Locomotive Name
Displayed instead of "Loco" when entered

Q - Locomotive's Current Speed

R - Light Status Indicator
Only visible when "Function 0" is active

S - Function Indicator of Smart Key Below
These change depending on what screen is in use

T - System Clock
Only displayed when "Clock Function" is active

U - Current Amp Consumption of Layout

V - Current "Fuel Level" of Selected Loco
Only displayed when "Fuel Simulation" is active

W - Locomotive's Current Direction of Travel

X - List of Currently Active Loco Functions

1.4. INITIAL SYSTEM SET-UP

Throughout these instructions, we will guide you through connecting your layout to your Infinity controller and getting the most from your new system. We will assume your layout wiring is already in place, as every model railway is different and covering every possible arrangement simply wouldn't be practical.

If you need help with your layout wiring, please get in touch. We're always happy to help! Alternatively, your local model railway shop, club or an experienced modeller can offer useful advice. The key to reliable DCC operation is ensuring every section of track receives power through secure connections with good electrical conductivity.

Connecting The Components

Now that you're ready to get started, the first step is to connect your Infinity Handset to the Base Unit using the cable supplied with your system. This is a 3.5mm jack cable, with a plug at each end. Simply insert one end into the socket at the bottom of your Handset and the other into either of the matching sockets on the rear of the Base Unit (see Fig. 1). Make sure both plugs are pushed fully into place to ensure a reliable connection.

Next, it's time to connect the power. Plug the supplied mains cord into the power supply, then connect the power supply's output lead to the socket labelled PSU on the rear of the Base Unit (see Fig. 2). Once everything is securely connected, plug the 3-pin mains plug into a suitable wall socket.



fig1: The Jack Cable connects between the handset and the base unit.

Now, let's connect your layout. With the power switched off, take the two wires from your track and connect one to each terminal of one of the supplied green plugs. It doesn't matter which way round the wires are connected, but make sure they are securely fitted, with no loose strands exposed. Insert the green plug into the socket labelled MAIN on the rear of the Base Unit (see Fig. 3). Depending on the size and complexity of your layout, you may need additional track feeds to ensure reliable power throughout, but these can be added later if required.



fig2: The Power Input Socket (PSU) on the Infinity Digital Wired Base Unit.

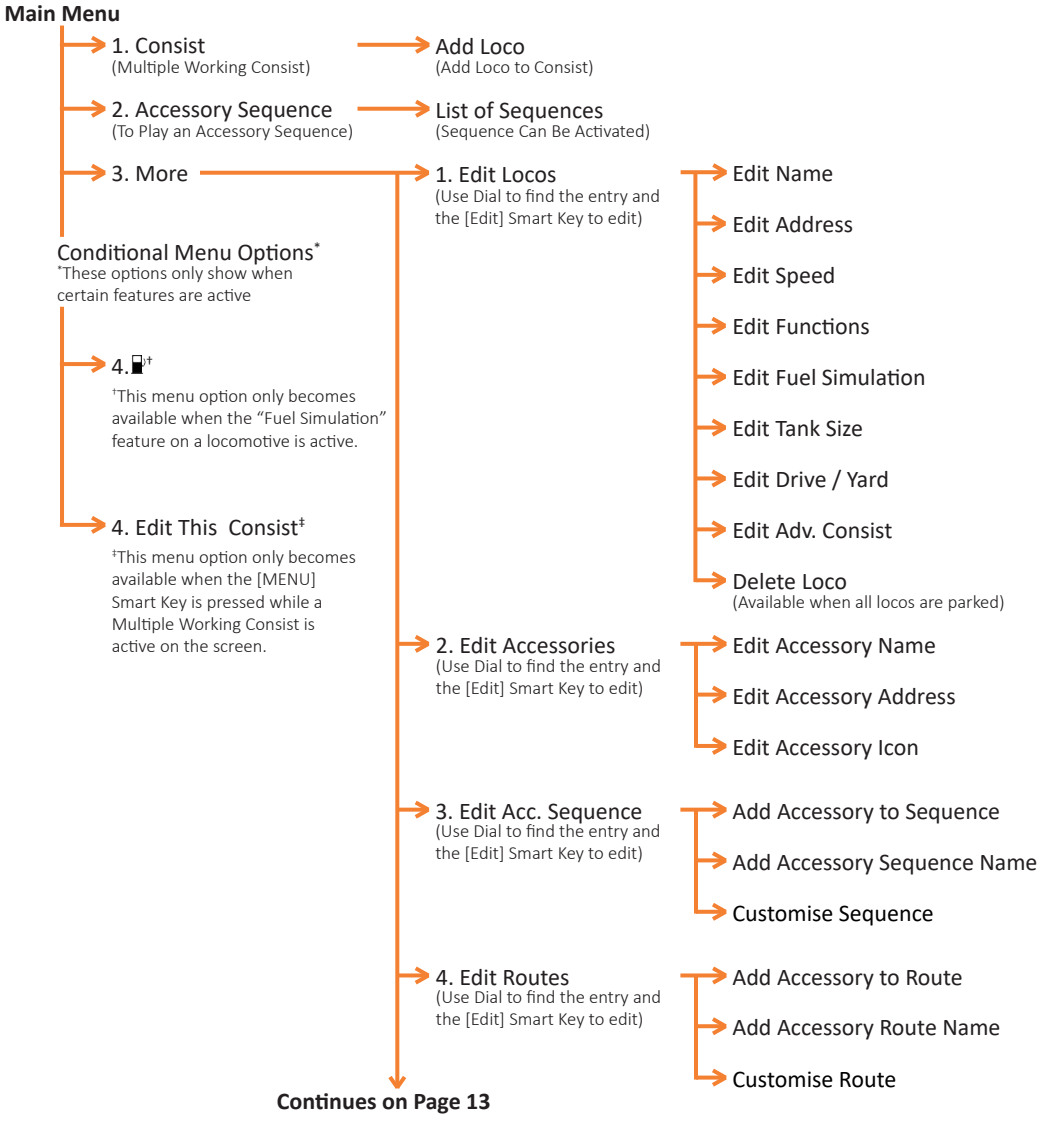
With everything connected, switch the power on at the wall socket. Your Infinity system will now start up and ready for you to begin exploring its features and taking control of your model railway.



fig3: The "Main" and "Prog" outputs on the Infinity Digital Wired Base Unit.

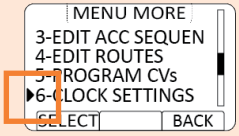
1.5. SYSTEM MAP

To help you explore the settings and customisation options available with your Gaugemaster Infinity system, we've included an easy-to-follow System Map showing the menus and options found on your Handset. This provides a handy overview of how everything is organised, making it easier to find your way around the system and discover the features available to you.

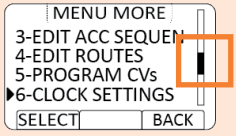


Continued from Page 12

- 5. Program CVs
  - 1. Program Track
    - Address/CV#
      - Read
      - Program
    - Value → Program
  - 2. Loco Main Track
    - CV Number
    - Value
    - Loco Number
- 6. Clock Settings
  - 1. Set Handset Time
  - 2. Scale Speed of Handset
  - 3. Show/Hide Clock
  - 4. Start Time
- 7. Handset
  - 1. Name
  - 3. Display Light
- 8. Share
  - 1. Share Locos
  - 2. Share Accessories
- 9. Child Lock → Lock Active Loco At Set Speed (Set Speed Using Dial)
- 10. About → View Handset Number
  - Add/View Handset Name
  - View Handset Version
  - View Base Unit Version



Top Tip: There are two ways to make selections in the handset:
1. Rotate the dial to locate the option. Press the “SELECT” Smart Key.
2. Press the assigned menu number on your keypad.



Top Tip: Whenever you see a scroll bar on the right of your screen, it means there are more menu options, or a list of items to scroll through. Use the dial to move down the list and see the additional options.

1.6. SYSTEM SETTINGS

Your Infinity system includes a range of useful settings that allow you to personalise your Handset and tailor its operation to suit your preferences. From adjusting the clock and display brightness to naming your Handset and enabling Child Lock, these features help make Infinity work the way you want it to. In this section, we'll guide you through each of these settings, showing you how to make adjustments and get the most from your Infinity system.

Handset Name

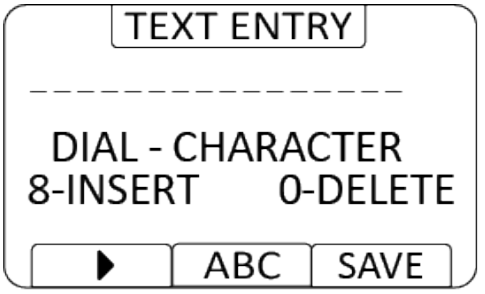
You can give your Gaugemaster Infinity Handset its own name, making it easy to identify and personalise your controller. This is particularly useful when using multiple Handsets on the same layout, especially in club environments or when operating your railway with friends, as everyone can quickly recognise which Handset belongs to them.

To Name Your Handset:
MENU-3-7-1



Press the "MENU" Smart Key → Press the [3] Key for "3 - MORE" → Press the [7] Key for "7 - HANDSET" → Press the [1] for "1 - NAME"

Once you are in the "HANDSET" Menu, press the [1] key for "1 - NAME" and the "TEXT ENTRY" screen will appear. By pressing the [0] key, you can remove the current text.



You can now enter your chosen Handset name using the dial. Turning the dial clockwise will scroll through the numbers 0–9, followed by the letters of the alphabet. Use the "ABC" or "abc" Smart Keys to switch between upper and lower case letters, and press the [>] key to move forward to the next character.

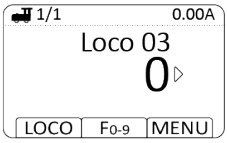
If you need to go back and change a character, simply press the [< >] key on your keypad to reverse the direction of the Arrow Key. You can then move backwards through your name to make any corrections. Once you're happy with your chosen name, press the "SAVE" Smart Key to save your changes.

Your personalised Handset name will now appear on the "ABOUT" screen, making it easy to identify your controller.

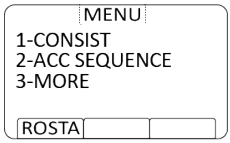
Display Light and Time-Out

To Adjust The Display Light:
MENU-3-7-2

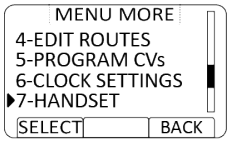
You can adjust the brightness of your Infinity Handset's display anywhere between 0% and 100%, allowing you to choose a level that best suits your preferences and operating environment. Whether you're using your layout in a brightly lit room or prefer a softer display, simply follow the steps below to set the brightness to a level that's comfortable for you.



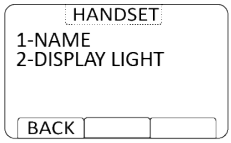
Press the "MENU" Smart Key



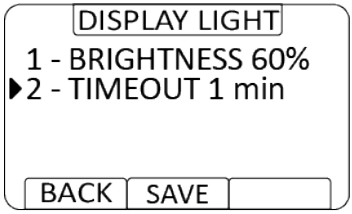
Press the [3] Key for "3 - MORE"



Press the [7] Key for "7 - HANDSET"



Press the [2] for "2 - DISPLAY LIGHT"



Rotate the dial to change the brightness level. Press the [SAVE] Smart Key to save your changes.

Your Infinity Handset is set to automatically dims the display after 1 minute of inactivity by default. However, you can personalise this setting to suit the way you use your layout, choosing a time out period anywhere between 0 and 60 minutes. To adjust this, follow the same steps as for changing the display brightness, but on the final screen, press the [2] key to select "2 - DISPLAY LIGHT". Rotate the dial to choose your preferred time out period, then press the [SAVE] Smart Key to confirm your selection.

Clock Settings

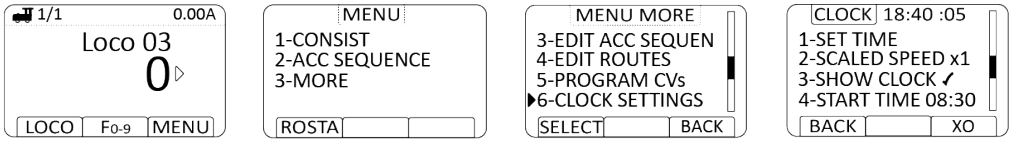
To Adjust The Clock Settings:
MENU-3-6

Your Infinity system features a built-in clock, which is handy for keeping an eye on the time while enjoying your model railway. However, for those who like to take their railway operations a little further, it can also become an important part of running your layout to a realistic timetable.

To make timetable operation even more enjoyable, Infinity includes a number of useful clock settings. You can adjust the speed at which time passes, allowing you to recreate a full day of railway operations in a much shorter period, or set a specific starting time so your operating session begins exactly when you want it to.

For example, here at Gaugemaster in Ford, we could set our clock to begin with the first train of the day, the **05:04 arrival from Bognor Regis to Littlehampton**, and work through the day's timetable from there. Whether you're recreating a busy main line or a quiet branch line, these features can add a whole new dimension to operating your model railway.

To access, set or adjust the clock settings, simply work through the following sequence.



Press the "MENU" Smart Key → Press the [3] Key for "3 - MORE" → Press the [7] Key for "7 - HANDSET" → Press the number key for the setting to be adjusted

∞ Setting The Time

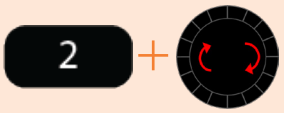
To set the clock, press [1] and enter your desired time using the numeric keypad. Once you are happy with your selection, press the "ENTER" Smart Key to confirm. Your Infinity clock will now display the time you have entered.

∞ Adjusting the Scale Speed

One of the more interesting features of the Infinity clock is the ability to change how quickly time passes, making it ideal for running your layout to a timetable.

To adjust this, press [2] to increase the scaled speed from x0 to x1. Each additional press increases the speed by one, up to a maximum of x63, allowing you to run your railway's timetable at up to 63 times normal speed.

Please Note: Pressing the "X0" Smart Key will pause the current scaled time. Pressing it again will resume the scale time.



Top Tip: You can adjust your clock's scaled speed without repeatedly pressing buttons! Simply press and hold **[2]** while rotating the control dial clockwise to increase the speed or anti-clockwise to decrease it. This is particularly useful when reducing the speed from x63 back to x1, saving you plenty of button presses!

∞ Showing Or Hiding The Clock

If you would prefer not to have the clock displayed on your Handset, you can easily switch it off without affecting your other settings.

Simply press [3] to toggle the clock display. A tick indicates that the clock will be visible, while a cross means it will be hidden.

∞ Setting a Start Time

If you regularly operate your layout to a timetable, you may find it useful to have the clock begin at a particular time each time you use your Infinity system. To do this, press [4] and enter your preferred starting time using the numeric keypad. Press the "ENTER" Smart Key to confirm your selection.

The time entered in "4 - START TIME" will also be used whenever your Handset is switched off and back on, allowing you to begin each operating session at your chosen time.

∞ Returning to the Driving Screen

Once you have finished adjusting your clock settings, press “BACK”, “BACK” and then “EXIT” using the Smart Keys to return to the main driving screen.

Alternatively, simply press the [RECALL] key or the [⏻] key to return directly to the driving screen, saving yourself a few button presses. All your clock settings will be retained and ready to use.

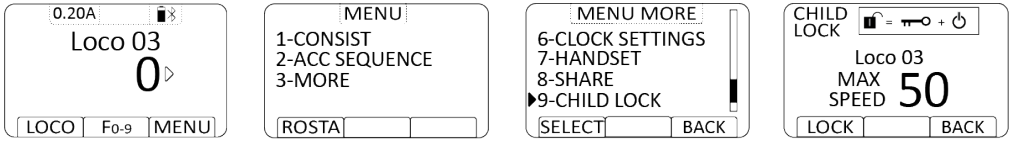
Child Lock

Please Note: This option is only available when you have at least one locomotive active in your Rosta.

To Set The Child Lock:
MENU-3-9-LOCK

The Child Lock feature allows you to limit the functions available on your Infinity Handset, making it ideal for younger operators, visitors or anyone who simply wants to enjoy running trains without accidentally changing important settings.

When enabled, the Handset is restricted to speed, direction and refuelling controls, helping to protect your system from unwanted changes. You can also set a maximum operating speed to help prevent trains from running too fast and reduce the risk of accidents on your layout. To enable Child Lock and set your preferred maximum speed, simply follow the steps below.



Press the “MENU” Smart Key → Press the [3] Key for “3 - MORE” → Press the [9] Key for “9 - CHILD LOCK” → Rotate the dial to set “Max Speed” level. Press the [LOCK] Smart Key

Once “Child Lock” has been deployed, you’ll see a locked padlock symbol appear in the top left of the screen. To unlock the handset you’ll need to press the [🔑] Smart Key and the [⏻] Key together to remove it and return your handset to full control.

2. LOCO CONTROL & CUSTOMISATION

Now that your Infinity system is set up, it's time to bring your locomotives to life! In this section, we'll guide you through everything from programming decoders and adding locomotives to your library, to taking control of their speed, direction and functions. We'll also explore the many ways you can personalise your locomotives, including naming, control settings and fuel simulation, before introducing Multiple Working, allowing you to operate several locomotives together. Whether you're running your first train or managing a busy fleet, this section will help you get the most from your Infinity system.

2.1. LOCOMOTIVE SET-UP

Before you can take control of your locomotives, it's useful to understand how DCC decoders work. These small electronic devices allow your Infinity system to communicate with each locomotive, controlling everything from speed and direction to lighting, sound and other functions.

Some locomotives come with a DCC decoder already installed, often described as DCC-Fitted or DCC-Sound, while others may be DCC-Ready, meaning they have a socket designed to accept a compatible decoder. Analogue locomotives require a decoder to be fitted before they can be used with your Infinity Digital System, and older models that are not DCC-Ready may need either a socket installing or a decoder hard-wiring in. If you're unsure which decoder your locomotive needs or how to install one, your local model railway shop or our team here at Gaugemaster will be happy to offer advice.

Once a decoder is installed, it can be programmed to suit your locomotive and the way you want to operate it. One of the most important settings is its DCC address, which allows Infinity to identify and control each locomotive independently. New decoders and DCC-Fitted locomotives are generally supplied with a default address of 3, so you'll usually want to change this to a unique number, particularly if you have several locomotives on your layout.

There are, however, some exceptions. Multiple units fitted with more than one decoder, such as a two-car unit with a decoder in each end, will generally need both decoders set to the same address so they respond together. Depending on how the decoders and motors are installed, you may also need to reverse the direction of one decoder's motor output to ensure both vehicles travel in the same direction.

In this section, we'll explore the different ways to read and programme your decoders, including using a dedicated Programming Track or making changes directly on your main layout. Whether you're setting up a new locomotive or adjusting an existing one, Infinity makes it straightforward to get everything running just the way you want.

2.2. DECODER PROGRAMMING

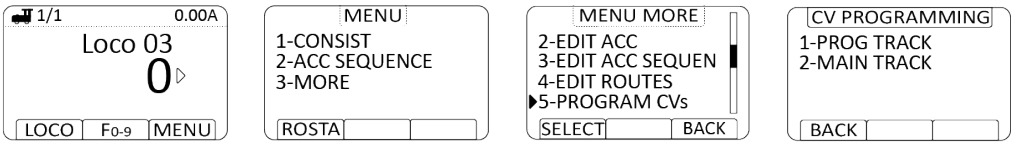
When it comes to changing a locomotive's DCC address, we've made the process as straightforward as possible. The easiest way to do this is by using a Programming Track, which is simply a separate section of track connected to the "PROG" output on the rear of your Infinity Base Unit. In this section, we'll guide you through changing a locomotive's address using either the Programming Track or the Main Track, as well as showing you how to read a locomotive's existing address using the Programming Track. If you need a reminder on connecting your Programming Track, take a look at page 8.

Reading On The Programming Track

To Read A Loco Address:
MENU-3-5-1-READ

Before programming a locomotive, it's always a good idea to check that its decoder is responding correctly, particularly if you have recently installed it yourself. Reading the decoder is a simple way to confirm that your Infinity system can communicate with it before making any changes to its settings.

Unlike the MAIN track output, the Programming Track uses a low-power output designed specifically for reading and programming decoders. This helps reduce the risk of damage if a decoder has been incorrectly installed or wired, making it a useful first check before placing your locomotive onto the fully powered main layout. To read a locomotive's existing DCC address, ensure it is the only locomotive on your Programming Track.



Press the "MENU" Smart Key → Press the [3] Key for "3 - MORE" → Press the [5] Key for "5 - PROGRAM CVs" → Press the [1] Key for "1 - PROG TRACK"

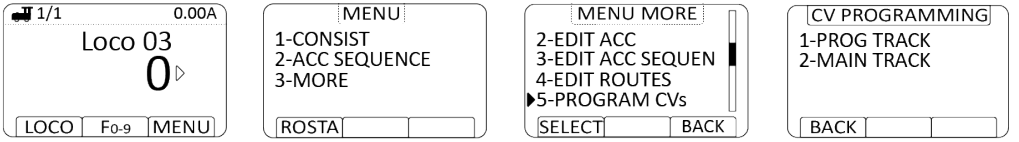
Once here, you can press the "READ" Smart Key, and your system will attempt to read the Locomotive Address of the decoder. For new locomotives or decoders this should come back as: "LOCO ADDRESS 3". Other locomotives should come back as their previously programmed number instead of the "3".

From this screen you also have the ability to read all the CVs of your decoder. CV stands for Configuration Variable. These are settings stored within a DCC decoder that control how your locomotive behaves, from its acceleration to braking and other functions. Each CV has a number and a value that can be adjusted to customise your locomotive's operation. Think of them as the individual settings that allow you to fine-tune how your locomotive runs. To read a CV, make sure you are on the top line, and enter the number of the CV you wish to read using the numerical keys, then press the "READ" Smart Key. The CV Value will then be displayed.

Programming on the Programming Track

Using the Programming Track is the simplest way to change a locomotive's DCC address. As this is a separate section of track connected to the "PROG" output on your Infinity Base Unit, you can make changes without affecting other locomotives on your layout.

Before getting started, make sure the locomotive you wish to programme is the only one on the Programming Track. This ensures that any changes you make are applied to the correct locomotive. Once you're ready, follow the steps below to give your locomotive its new address.



Press the "MENU" Smart Key → Press the [3] Key for "3 - MORE" → Press the [5] Key for "5 - PROGRAM CVs" → Press the [1] Key for "1 - PROG TRACK"

Once you have reached the programming screen, you can change your locomotive's DCC address and adjust its Configuration Variables (CVs). These are settings stored within the decoder that determine how your locomotive behaves, from its acceleration and braking to lighting, sound and other functions.

A word of advice before you begin! Many DCC-Fitted and DCC-Sound locomotives come with CV settings that have already been carefully configured by the manufacturer to suit that particular model. In most cases, these settings work very well straight out of the box, so we recommend trying your locomotive on your layout before making any adjustments. Even a small change to a CV can make a noticeable difference to how your locomotive performs.

As mentioned earlier, some multiple units contain two or more decoders, which may require additional configuration to ensure they operate together correctly. This is particularly important if you have installed the decoders yourself, as you may find that one motor needs its direction reversed to ensure both vehicles travel in the same direction. This can be achieved by adjusting CV29, which controls the decoder's direction of travel alongside several other important functions. However, changing this setting incorrectly could affect how your locomotive operates, so we recommend consulting your decoder's instructions or contacting the manufacturer before making any adjustments. Factory-fitted decoders will generally have these settings configured correctly, so further changes should not normally be necessary.

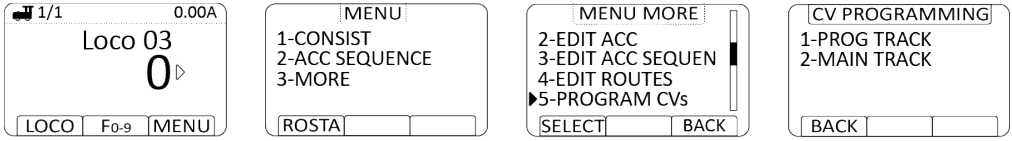
To programme a CV, make sure the top line of the programming screen is selected and enter the CV number you wish to change, for example 5. Then move down to the Value field and enter the required value. Once you are happy with your selection, press the "PROG" Smart Key to write the new setting to the decoder.

Top Tip: CV8 is commonly used for manufacturer identification, but writing a particular value to it can also trigger a factory reset on many decoders. Always check your decoder's instructions before changing a CV, particularly if you are unsure what it controls.

Programming on the Main Track

As well as using a dedicated Programming Track, your Infinity system allows you to make changes to locomotive decoders directly on your main layout. Often referred to as Programming on the Main (PoM), this is particularly useful when you want to fine-tune a locomotive's settings without having to remove it from your layout.

The process is very similar to programming on the Programming Track, but this time select "MAIN TRACK" from the programming menu instead of "PROG TRACK".



Press the "MENU" Smart Key → Press the [3] Key for "3 - MORE" → Press the [5] Key for "5 - PROGRAM CVs" → Press the [2] Key for "2 - MAIN TRACK"

Once on the programming screen, you will see three fields:

- **CVxx:** On the first line, enter the number of the Configuration Variable you wish to change.
- **VALUE: xx** On the second line, enter the new value you want to assign to that CV.
- **LOCO xx:** On the third line, select the address of the locomotive you wish to program.

Once you have entered the required information, press the "PROG" Smart Key to send the new setting to your chosen locomotive. Unlike programming on a dedicated Programming Track, you do not need to remove other locomotives from your layout. Infinity sends the programming command to the selected DCC address, allowing you to adjust one locomotive without affecting others that have different addresses.

Please Note: Always double-check the locomotive address before programming, particularly if you have more than one locomotive using the same address. Any compatible decoder responding to that address may receive the programming command.

DCC decoders contain a wide range of Configuration Variables (CVs), allowing you to adjust how your locomotives operate, and here are a few of the main ones.

CV1 - Locomotive Address - Sets the loco's short DCC address, usually between 1 and 127, depending on the decoder.

CV2 - Start Voltage - Adjusts the minimum motor voltage to help your locomotive start moving smoothly at low speeds.

CV3 - Acceleration - Controls how quickly your locomotive accelerates, allowing for more realistic, gradual starts.

CV4 - Deceleration - Controls how quickly your locomotive slows down, helping to create realistic braking and stopping.

CV5 - Maximum Speed - Sets the max. motor voltage or speed limit, allowing you to reduce a locomotive's top speed.

CV8 - Manufacturer ID / Decoder Reset - Normally identifies the decoder manufacturer. On many decoders, writing a value of 8 to CV8 will restore the factory settings, although the reset procedure varies between manufacturers.

CV29 - Decoder Configuration - Controls several important settings, including the locomotive's direction of travel, speed-step configuration and whether short or long addressing is used.

Please Note: Not all decoders support every CV, and the available values and their effects can vary between manufacturers. Always consult your decoder's instructions before making changes, particularly to CV8 and CV29. Resetting a decoder may erase customised settings, including sound configurations and function assignments, while incorrectly changing CV29 can affect how your locomotive operates.

2.3. THE LOCOMOTIVE LIBRARY

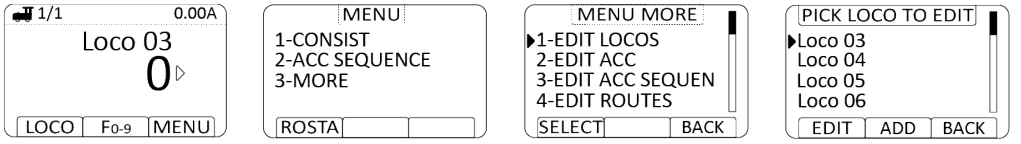
Your locomotive library is at the heart of the Infinity system, capable of storing up to 200 locomotives, each with its own fully customisable settings. Every locomotive can be given a unique name, personalised function controls and individual running characteristics, including its operating mode and assigned speed steps.

All of these preferences are saved within the locomotive library, allowing you to quickly recall and operate your locomotives without having to configure them each time. Once a locomotive has been programmed, it can be added to the library, ready for immediate operation or further customisation whenever required.

Adding A Locomotive To The Library

To Reach The Add Loco Screen:
MENU-3-1-ADD

Your Infinity Digital Handset comes with seven pre-loaded locomotives in its library, all configured with default settings and identified by numbers ranging from 003 to 010. These entries can be edited and customised to suit your requirements at any time. The locomotive library acts as the main collection from which your Locomotive Rosta is created, a feature we will explore in more detail later. You can add new locomotives to the library at any time, as well as edit existing entries or delete those you no longer require. To add a new loco to your library:



Press the “MENU” Smart Key → Press the [3] Key for “3 - MORE” → Press the [1] Key for “1 - EDIT LOCOS” → Press the “ADD” Smart Key

To add a locomotive to your library, the only essential information required is its Address. However, we recommend also giving your locomotive a Name to make it easier to identify. By default, the system automatically assigns the next available number above your highest existing locomotive number, using this as both the Address and Name.

To enter a locomotive name, you enter the characters in the same way as setting your handset name using the dial. Turning the dial clockwise will scroll through the numbers 0–9, followed by the letters of the alphabet. Use the “ABC” or “abc” Smart Keys to switch between upper and lower case letters, and press the [>] key to move forward to the next character. If you need to go back and change a character, simply press the [< >] key on your keypad to reverse the direction of the Arrow Key. You can then move backwards through your name to make any corrections. Once you’re happy with your chosen name, press the “SAVE” Smart Key to save your changes.

Additional settings can also be configured at this stage, allowing you to personalise how your

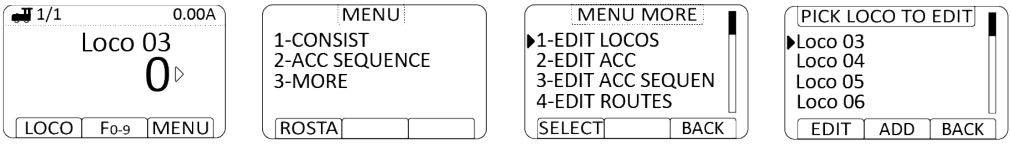
locomotive operates. We will explore these options in more detail in **Section 2.4: Customising a Locomotive**. Once you are happy with your settings, press the "SAVE" Smart Key. Your locomotive will be added to the library, and you will automatically return to the locomotive list.

Top Tip: When you come to add the locomotive, if you can't remember the address, there is a short-cut to programming in this menu. Navigate to option 2 for the address and press the "SELECT" smart key. This will take you to a secondary programming screen just for the loco address. Here you can read the address or reprogram it. If you do program it, the new address will be automatically added to the library record.

Editing A Locomotive In The Library

To Reach The Edit Loco Screen:
MENU-3-1-EDIT

If you need to make changes to a locomotive already stored in your library, you can easily edit its settings at any time. The process is very similar to adding a new locomotive, but instead of pressing the "ADD" Smart Key, simply use the dial to locate and find the locomotive you wish to modify, then press the "EDIT" Smart Key:



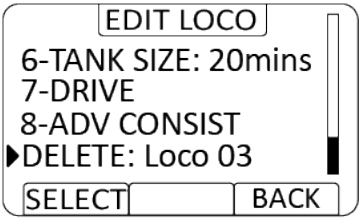
Press the "MENU" Smart Key → Press the [3] Key for "3 - MORE" → Press the [1] Key for "1 - EDIT LOCOS" → Use the Dial to find your Loco and press the "EDIT" Smart Key

As with adding a new locomotive, you can amend any of the available settings to suit your requirements. There is no need to configure every option, as the only essential setting is the Locomotive Address. All other settings can be customised as required or left unchanged.

Deleting A Locomotive From The Library

Please Note: Deleting a locomotive will permanently remove the locomotive and its saved settings from your library and cannot be undone.

There may be occasions when you wish to remove a locomotive from your library entirely. To delete an entry permanently, you must first ensure that your Locomotive Rosta is completely empty, with all locomotives and consists parked. A quick way to achieve this is to press and hold the [RECALL] key from the Drive Screen to open the Rosta list. From here, select each locomotive or consist in turn and press the "PARK" smart key.

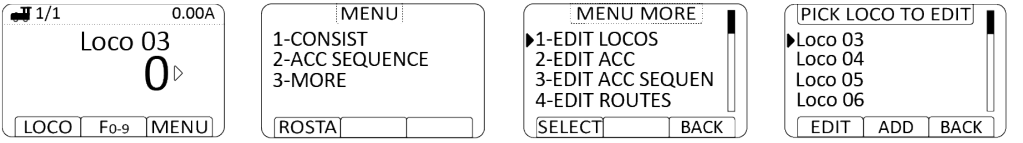


Once the Rosta is empty, access the "EDIT LOCO" menu as described previously. Locate and select the locomotive you wish to delete, then scroll to the bottom of its settings. The final option will be "DELETE: (Loco Name)".

2.4. CUSTOMISING A LOCOMOTIVE

Once your locomotive has been added to the library, it is ready to run. However, you can also customise a range of settings directly through your Infinity Digital Handset, allowing you to tailor how each locomotive operates without having to reprogram or alter the decoder itself. This means less programming and more control, with many of your preferences stored directly in the handset.

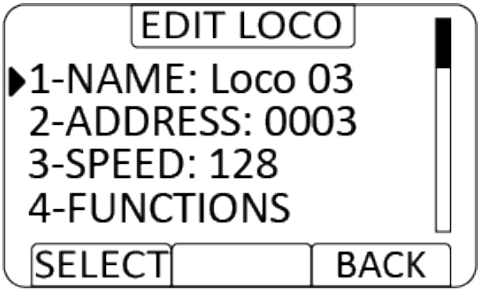
To get started, simply access the locomotive's "EDIT LOCO" screen, where you will find a range of customisation options. We will take you through each of these settings and explain how they can be used to get the most from your locomotives. To reach this screen:



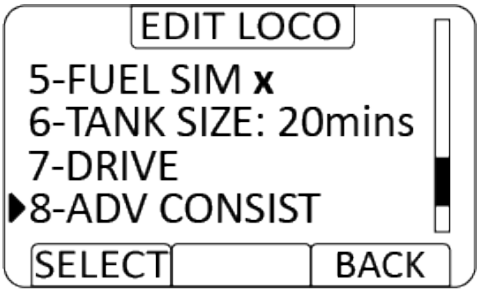
Press the "MENU" Smart Key → Press the [3] Key for "3 - MORE" → Press the [1] Key for "1 - EDIT LOCOS" → Use the Dial to find your Loco and press the "EDIT" Smart Key

You will then be faced with the following customisable options:

Options 1 to 4 of the "Edit Loco" screen.



Options 5 to 8 of the "Edit Loco" screen.



Locomotive Name

Once in the locomotive editing screen, you can change the Locomotive Name in the same way as you would when adding a locomotive to the library. Each name can contain up to 16 characters, including spaces, giving you plenty of flexibility when identifying your locomotives.

For example, you could use the locomotive's name, such as "Brighton Works" for an LB&SCR Terrier, the name of a complete train, such as "Brighton Belle" for a 5-BEL unit, or simply its running number, such as "915" for a Southern Railway Schools Class locomotive. The name is used purely to identify the locomotive within your Infinity Digital Handset and does not affect the decoder address or any settings stored within the locomotive itself.

Locomotive Address

To edit a locomotive address setting you will need to have the locomotive parked. If the locomotive is still active, you will find the option for changing the locomotive number replaced with the text “LOCO IN USE:” followed by the currently set address. To change the address here simply navigate to the option using the Dial and key in the desired number.

This option allows you to change the Locomotive Address assigned to an entry in your library. It is important to remember that changing this setting does not reprogram the decoder itself. It simply changes the address that your Infinity Digital Handset uses to communicate with the locomotive. The address stored in your library must match the address programmed into the locomotive’s decoder for it to respond correctly. If you change the decoder address through programming, you will also need to update the corresponding address in your locomotive library to match.

Locomotive Speed Steps

Speed steps are the number of integers between stand-still and the top speed of a locomotive. The higher number of speed steps, the finer the control that can be achieved. Some decoders will operate on all three speed steps, while others require specific ones to operate correctly.

To edit the speed steps of your locomotive, from the main “EDIT LOCO” screen, press the [3] key to toggle between the 14, 28, and 128 options or navigate using the dial to option 3 and press the “SELECT” Smart Key. Setting the speed steps at 14 will make your Locomotive respond much more sensitively to each turn of the dial, whereas setting them to 128 will mean that it may take several turns of the dial to achieve the same effect resulting in finer control of the locomotive(s). We recommend having the Speed Steps on 128 for optimum control.

Top Tip: You can also change the Speed Steps in the Main Menu when your locomotive is selected. Press “MENU” followed by the [4] key to switch between the three states.

Locomotive Functions

Many locomotives come equipped with a range of additional functions, from sound and lighting effects, to operating features such as smoke generators and moving parts. On DCC-Sound fitted locomotives, the first few functions are often assigned to common sounds, such as whistles, horns or the locomotive’s running sounds. On locomotives without sound, these functions may instead control additional lighting features.

The Gaugemaster Infinity Digital system supports up to 69 functions (F0 to F68) per loco. While not every locomotive or decoder will use all of these, you have the flexibility to customise the operation of as many functions as your locomotive supports.

Different decoders assign different features to each function number, and you may wish to change how these functions respond when activated from your handset. For example, some functions are best left switched on until you choose to turn them off, while others may only need to operate briefly.

To customise these settings, first, access the “EDIT LOCO” menu and press [4] to select

“4 - FUNCTIONS” or navigate to the option using the Dial and press the “SELECT” Smart Key. Then, using the Dial, scroll to the function number you wish to adjust. You can find details of the available functions and their assigned numbers in the instructions supplied with your locomotive or decoder. Once you have selected the required function, press the [SELECT] Smart Key to switch between the two available operating modes:

∞ **TOGGLE**: Press the function button once to activate the function, then press it again to switch it off. This is ideal for features such as lights or continuous running sounds.

∞ **MOMENTARY**: The function remains active only while the function button is held down, switching off when released. This is particularly useful for whistles, horns and other short-duration effects.

Press the “BACK” followed by the “SAVE” Smart Keys and these settings are then stored within your loco library and allow you to tailor how each function operates from your Infinity Digital Handset, without changing the function assignments programmed into the decoder itself.

Top Tip: Many British locomotives use Function 1 to turn the running sounds on and off, where as European locos use Function 2. The default setting for the Infinity is Momentary for Function 2, so changing this to Toggle will keep the sound on for European locos.

Fuel Simulation and Tank Size

To add an extra element of realism and enjoyment to operating your model railway, the Infinity Digital system includes a Fuel Simulation feature. This allows you to simulate your locomotive consuming fuel as it travels around your layout, with the fuel level gradually decreasing in proportion to its speed and running time. If the fuel runs out, your locomotive will come to a stop until it is refuelled. You can even set the amount of simulated fuel your loco contains.

∞ Fuel Simulation

Fuel Simulation can be enabled or disabled individually for each locomotive, allowing you to choose which locomotives use this feature. Although designed to replicate fuel consumption, it can also be used with electric locomotives. Just think of it as the driver’s caffeine level instead!

To enable Fuel Simulation, access the “EDIT LOCO” screen as described previously and navigate to option 5 to toggle the feature ON or OFF. Once you have made your selection, press the “SAVE” Smart Key to store your changes.

∞ Fuel Tank Size

Alongside Fuel Simulation, you can also customise the Fuel Tank Size for each locomotive. This determines how long your locomotive can operate before its simulated fuel supply runs out.

The Tank Size is measured in minutes and represents the amount of time your locomotive can run at a constant maximum speed before exhausting its fuel supply. However, just like a real vehicle, fuel consumption varies depending on how fast you travel. The slower your locomotive runs, the longer its fuel will last.

To adjust the Tank Size, access the main “EDIT LOCO” screen and using the dial locate option 6 and press the “SELECT” Smart Key or press the [6] key to open the Tank Size settings. Using the dial, rotate clockwise to increase the Tank Size or anticlockwise to decrease it. Once you have selected your preferred Tank Size, press the “BACK” Smart Key to return to the main “EDIT LOCO” menu, then press “SAVE” to store your changes.

Top Tip: The Tank Size represents the time it takes for your locomotive to run out of fuel when travelling continuously at maximum speed. For example, if you set the Tank Size to 10 minutes, your locomotive will run for approximately 10 minutes at full speed before running out of fuel. At half speed, the same amount of fuel will last approximately 20 minutes.

When Fuel Simulation is enabled, a fuel level indicator will appear on the locomotive’s Drive Screen, allowing you to monitor fuel consumption and refuel when required. We will explain how to use this feature during operation in the Fuel Simulation section later in this guide.

Locomotive Control Style - “Drive” and “Yard” Modes

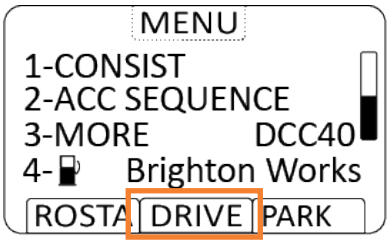


The Gaugemaster Infinity Digital system offers two different methods of locomotive control: “Drive” and “Yard” modes. These allow you to choose how your locomotive’s speed and direction are controlled, depending on your personal preference and the type of operation you are undertaking.

Every locomotive in your library is set to “Drive” mode by default, but you can change this to Yard Mode at any time. Drive Mode uses the dial to control speed and a separate button to change direction, while Yard Mode allows you to control both speed and direction using the dial alone, making it particularly useful for shunting operations.

To change the driving mode you can locate option 7 from the list using the dial and press the “SELECT” smart key which will alternate between the two modes. Then press the “SAVE” key to lock in the selection. This setting is stored individually for each locomotive, allowing you to choose the driving mode that best suits each one without affecting any others in your library.

Some modellers may prefer to switch between driving modes during an operating session, particularly when a locomotive changes duties, such as moving from main line running to shunting in a yard. Rather than having to return to the locomotive’s editing settings each time, Infinity Digital allows you to switch between Drive Mode and Yard Mode directly from the “MAIN MENU”, making it quick and convenient to adapt your controls to the task at hand.



We will explore how both driving modes work in more detail in: Section **2.5: Operating Locomotives** later in this guide.

2.5. OPERATING A LOCOMOTIVE

With your locomotives programmed, added to your library and customised to suit your preferences, it's time to get them moving! The Gaugemaster Infinity Digital system offers a range of intuitive controls and operating features, giving you the flexibility to run your locomotives exactly how you want.

In this section, we'll take you through the everyday operation of your locomotives, from selecting a locomotive and controlling its speed and direction, to using functions, managing your Locomotive Rosta and making the most of the additional features available.

Whether you're running trains around your layout or carrying out more involved shunting operations, Infinity Digital puts you firmly in control.

To make the following sections easier to follow, we will use the same locomotive and settings throughout our examples. This will help demonstrate how the different controls and features work together during operation.

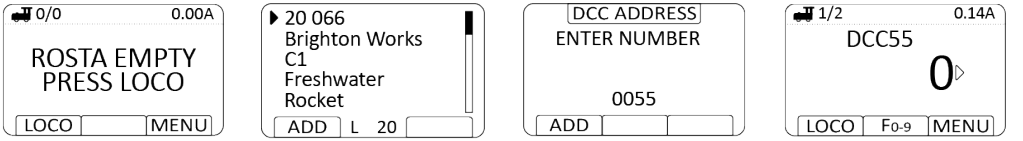
For these examples, we will be using a DCC-Sound-fitted LB&SCR Terrier locomotive, "Brighton Works", which we have already programmed, added to our locomotive library and customised with the following settings:

- **Loco Name:** Brighton Works
- **Address:** 40
- **Speed Steps:** 128
- **Functions:** Default
- **Fuel Sim:** Off
- **Tank Size:** 10mins
- **Mode:** Drive

The Quick Select Method

If you have already worked through the Quick Start Guide, you will be familiar with this method of selecting a locomotive. It is a quick and straightforward way to get a locomotive running, provided you know its decoder address.

Simply place your locomotive on the layout, ideally having already checked its decoder settings to ensure everything is configured and working correctly. Then, from the "Drive Screen", press the "LOCO" Smart Key:



Press the "LOCO" Smart Key → Key in the Decoder Address → Press the "ADD" Smart Key → Your Locomotive is Now Controllable

Once selected, your locomotive will be ready to operate, although the information displayed and available settings will be limited to the basics. This is ideal if you simply want to test a loco or temporarily run a friend's loco on your layout without adding it to your collection.



To Quick Select a Locomotive
LOCO-[DECODER NUMBER]-ADD
In our working example this would be: "**LOCO-40-ADD**"

However, for regular operation, we recommend adding your locomotive to the Locomotive Library as outlined in Section **2.3 The Locomotive Library**. This allows you to take full advantage of the customisation options and additional operating features that the Gaugemaster Infinity Digital system has to offer. It also means you no longer need to remember individual decoder addresses, as your locomotives can be easily identified and selected using their customised names and settings, with all the information you need displayed directly on your handset.

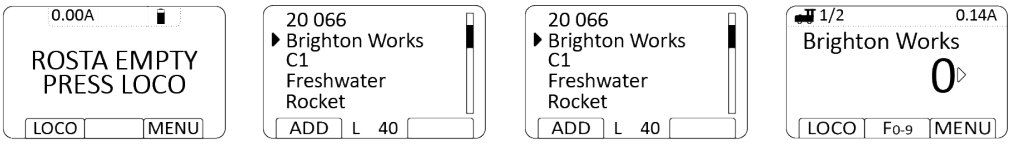
To operate another locomotive, simply repeat the process using its decoder address. Each locomotive selected in this way will be added to your Locomotive Rosta, allowing you to quickly switch between the locomotives you are operating. We will explore how the Locomotive Rosta works and how to manage your locomotives within it in the following section.

The Loco Rosta Method

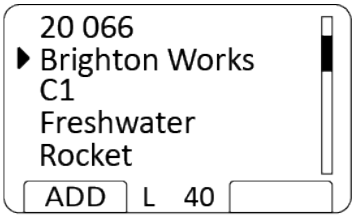
We have already explored how the Locomotive Library acts as the main storage area for your locomotives, much like a traditional library holds a collection of books. Gaugemaster Infinity Digital also features a Locomotive Rosta, sometimes referred to as the Locomotive Stack, which provides a convenient way to manage the locomotives you are currently operating.

Continuing with our library analogy, if the Locomotive Library is the collection of books on the shelves, the Locomotive Rosta is the pile of books you have taken out to read, or have ready to read next.

How you use your Rosta is entirely up to you. Some modellers may choose to include only the locomotives required for a particular operating session, while others may prefer to keep every locomotive currently on their layout in the Rosta. With space for up to 20 entries, it provides a quick and convenient way to access and switch between your active locomotives without having to search through your entire library each time. Before you can run a locomotive, you need to add it to the Locomotive Rosta from the Locomotive Library.



Press the "LOCO" Smart Key → Find the Locomotive Using the Dial → Press the "ADD" Smart Key → Your Locomotive is Now In the Rosta



It is worth noting that the screen layout changes slightly when accessing the Locomotive Library, compared with the other menus on your Infinity Digital Handset.

When viewing the library, the centre Smart Key option is replaced by a display indicator beginning with “L”, followed by the decoder address assigned to the currently selected locomotive in your library. As you scroll through the list using the dial, you will notice this number changing to reflect the address of each locomotive.

Once you have selected a locomotive and added it to your Rosta, it is ready to operate.

RECALL

Top Tip: Pressing the “RECALL” key will toggle through all the locomotives and consists in the Locomotive Rosta. The number in the top left of the screen illustrates the position of the currently selected loco in relation to the Rosta, eg, position 2 of 7.



Locomotive Control

Now that we have covered how to programme your locomotives, add them to your Locomotive Library and Rosta, and customise their settings, it’s time to get them moving! Before you can control a locomotive, it must first be added to your Locomotive Rosta, if you haven’t already done so. Once added, you can access its controls through the “Drive Screen”.

The quickest way to access the Drive Screen from any menu is to press the [RECALL] key. This will take you directly to the locomotive you most recently controlled. Pressing [RECALL] repeatedly will cycle through the locomotives in your Rosta, allowing you to quickly switch between them.

Alternatively, press and hold the [RECALL] key to display the full Rosta list. From here, use the dial to scroll through your available locomotives and select the one you wish to operate.

∞ Operating Locomotives in Different Driving Modes

Once you have selected your locomotive, controlling its speed and direction is straightforward. However, the way the dial operates will depend on whether you have selected Drive Mode or Yard Mode for that locomotive.

Drive Mode

In “Drive Mode”, speed and direction are controlled independently. Rotate the dial clockwise to accelerate your locomotive and anticlockwise to decelerate. To change direction, use the [<>] direction key, ideally bringing your locomotive to a complete stop before doing so. This mode is particularly useful for general running, where you may wish to maintain a consistent direction of travel over longer distances.

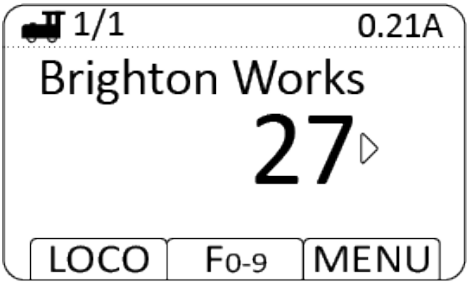
Yard Mode

In "Yard Mode", both speed and direction are controlled using the dial, making it particularly useful for shunting operations and frequent changes of direction. Rotate the dial clockwise to accelerate and anticlockwise to decelerate, just as you would in Drive Mode. However, once the displayed speed reaches 0, pause for one second before continuing to rotate the dial in the same direction. Your locomotive will then begin accelerating in the opposite direction. This allows you to move backwards and forwards without needing to press a separate direction button, making it ideal for manoeuvring locos and rolling stock around sidings and yards.

Top Tip: Pressing the [STOP] button will bring your loco to an immediate stop. Pressing longer on the [STOP] Key will stop all the locomotives on the layout and you will need to press the "START" Smart Key to resume, this also turns off the track power to all sections.

Bonus Tip: Pressing the button on the front of the Base Unit also shuts down the layout.

Remember, each locomotive can have its own driving mode, and you can switch between the two methods whenever required to suit your operating preferences.



Our example screen to the left shows a basic operating screen for our working example loco.

Brighton Works is travelling in the forward direction at a speed of 27 and is currently the layout is pulling 0.21amps.

Of course there are other things we can also do with our loco such as fuel and functions.

Operating Locomotive Functions

At any point while operating your locomotive, you can activate its available functions directly from your Infinity Digital Handset. These may include lighting, sound effects or additional features such as smoke generators and moving parts. The Gaugemaster Infinity Digital system supports 69 individual functions per locomotive, although the number available will depend on the locomotive and decoder fitted.

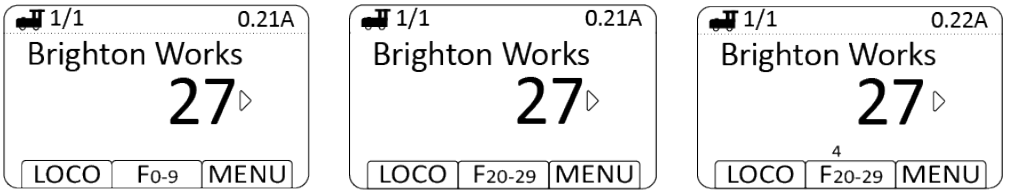
To make these functions easier to locate, operate and monitor, they are organised into groups of ten called "Function Groups", starting with functions 0–9, followed by 10–19, 20–29 and so on. The final Function Group contains functions 60–68, bringing the total to 69 individual functions, as Function 0 (F0) is included in this count. As the most commonly used functions are generally assigned to the lower function numbers, 0–9 is the default Function Group displayed when operating a locomotive.

On most DCC-fitted locomotives, Function 0 (F0) is used to switch the locomotive's main directional lighting on and off, where fitted. On DCC-Sound-fitted locomotives, Function 1

(F1) is commonly used to activate or deactivate the main running sounds, such as the engine starting up or the continuous sounds of a steam or diesel locomotive. Other functions may operate whistles, horns, additional lighting or individual sound effects. However, these assignments can vary between manufacturers and decoders, so we recommend checking the instructions supplied with your locomotive to confirm which functions are available.

Activating a function is straightforward. For example, to operate Function 0, simply press the [0] key on your handset. To operate Function 1, press [1], and so on. Depending on how you have configured the function in your Locomotive Library, it will either remain active until pressed again (Toggle) or operate only while the key is held down (Momentary).

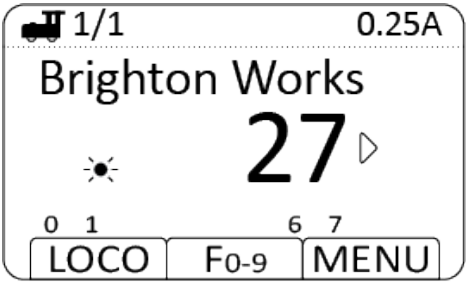
If you wish to operate a function above 9, such as Function 24, you will first need to switch to the appropriate Function Group. In the following example, you would select the 20–29 group before activating Function 24 using the [4] key.



Press the [F 0-9] Smart Key. "F0-9" Will Flash → Press the [2] Key for Function Group 20-29 "F 0-9" becomes "F20-29" → To Activate Function 24, Press the [4] Key. "4" Appears on Screen

If you were after function 33, you would instead press the [3] key when selection the function group, then [3] to activate function 33. The same steps above can be followed for all the functions selecting 3 for functions 30-39, 4 for functions 40-49, 5 for functions 50-59 and 6 for functions 60-68.

Top Tip: Although function numbers display on screen when they are activated, only functions set to "Toggle" will remain on screen when the key is released. The numbers for "Momentary" functions will disappear once the function key is released.



You will see in our example screen that a number of functions have now been activated. F1 has turned the sound on, F6 is a firebox glow and F7 is the sound of shovelling coal.

A later function F14 has been switched on to simulate flange squeal, but as this is in a later Function Group it is not currently displayed on screen.

F0 has also been turned on for directional lamps, and this has also activated the light symbol on the screen.

Fuel Simulation

With Fuel Simulation enabled, you can add an extra element of realism to your operating sessions by keeping an eye on a locos fuel consumption as it travels around your layout. Just like a real locomotive, the simulated fuel supply will gradually decrease as you run, eventually bringing your locomotive to a stop if you run out.

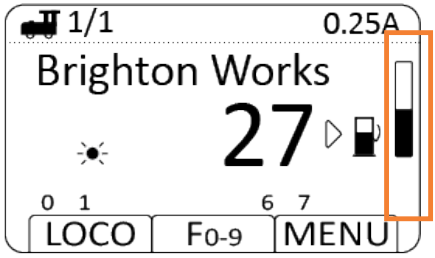
When Fuel Simulation is enabled, a fuel level indicator will appear on the right-hand side of the Drive Screen, allowing you to monitor how much fuel remains. As you operate your locomotive, the fuel level will gradually decrease according to its speed. The faster you travel, the quicker the fuel is consumed, while running at slower speeds will allow your fuel to last longer. The rate of consumption is determined by the Tank Size you assigned when customising your locomotive, as explained earlier in this guide.

When your locomotive's fuel level begins to run low, the fuel icon will flash, warning you that it is time to refuel. If you continue running without replenishing the fuel supply, your locomotive will eventually come to a stop.

Top Tip: For an extra challenge, try planning your operating sessions around your locomotive's fuel level. You could even designate a particular siding or depot on your layout as a refuelling point, bringing your loco in for fuel before returning to its duties!

To refuel your locomotive, press the "MENU" Smart Key from the Drive Screen, followed by [4], identified by the fuel pump symbol. From here, you can replenish your locomotive's fuel supply by holding down the refuelling control until you have reached your desired level, whether that is just enough to continue your journey or a completely full tank.

Remember, Fuel Simulation is an operating feature of your Infinity Digital Handset and does not alter the locomotive's decoder settings. It is entirely optional and can be enabled or disabled individually for each locomotive through its settings in the Locomotive Library.

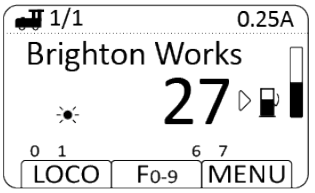


With Fuel Simulation active, the fuel level is displayed in the bar on the right of the screen. The capacity of the fuel is set in the Locomotive settings. This bar drops proportionally to the speed the locomotive is travelling. In this example, the locomotive will soon need to be refuelled.

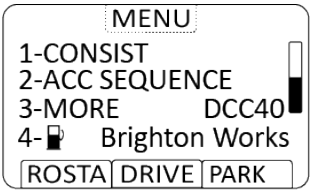
Parking Your Locomotives

When you have finished operating a locomotive, you can remove it from your Locomotive Rosta using the “PARK” function. Parking a locomotive simply removes it from your active Rosta without deleting it from your Locomotive Library, meaning all its customised settings and details are retained for the next time you wish to use it.

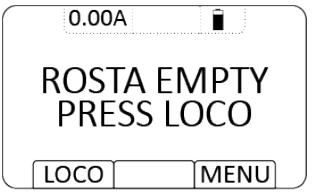
This is particularly useful for keeping your Rosta organised, allowing you to remove locomotives that are no longer required during an operating session while keeping them available for future use. To park a locomotive, first ensure that the locomotive you wish to remove is selected and displayed on the Drive Screen, then follow these steps:



Press the “MENU” Smart Key →



Press the “PARK” Smart Key →



The Locomotive is Parked

2.6. MULTIPLE WORKING AND CONSISTS

Operating two or more locomotives together, commonly known as consisting or multiple working, allows locomotives to work in tandem as a single unit. Whether you’re double-heading a passenger service, hauling a heavy freight train or recreating more complex railway operations, Gaugemaster Infinity Digital makes controlling multiple locomotives together easier than ever.

At the heart of this is our innovative Multiple Working feature, which offers a simpler, more flexible approach to traditional DCC consisting. Rather than having to programme individual decoders or continually switch between locomotives, Multiple Working allows you to group locomotives together and control their speed and direction simultaneously, all from a single set of controls.

One of the key advantages of Multiple Working is the ability to control functions independently on each locomotive within the group. This means you can operate individual lighting, sound and other features while maintaining synchronised movement across the entire consist, bringing an extra level of realism and flexibility to your layout.

For those who prefer a more traditional approach, Infinity Digital also supports Advanced Consisting, which uses decoder programming to group locomotives under a shared consist address. While this method requires a little more setup and offers less flexibility, it remains an

option for modellers familiar with conventional DCC consisting.

In this section, we will guide you through creating and operating consists using our Multiple Working feature, before exploring the traditional Advanced Consisting method for those who wish to use it.

Multiple Working Consist

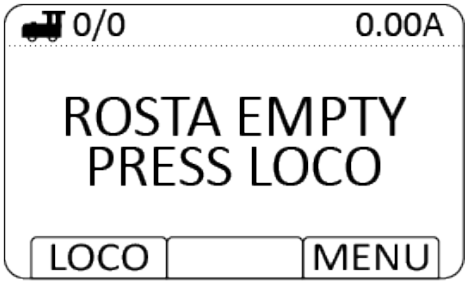
The Gaugemaster Infinity Digital Multiple Working feature offers a new and intuitive way to operate two or more locomotives together, without the need for complicated decoder programming. Unlike traditional DCC consisting, Multiple Working allows you to group locomotives directly through your Infinity Digital Handset, making it quick and straightforward to create, manage and operate consists.

Once grouped, all locomotives within the consist respond together to speed and direction commands, allowing you to control the entire formation as though it were a single locomotive. However, one of the key advantages of Multiple Working is the ability to control functions independently on each locomotive, giving you the flexibility to operate individual lighting, sound effects and other features without affecting the rest of the group.

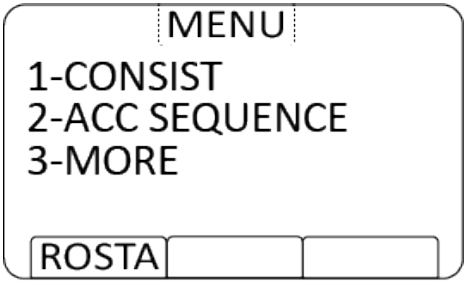
Whether you're double-heading a passenger train, operating multiple locomotives on a heavy freight service or positioning a locomotive at each end of a train, Multiple Working provides a flexible and realistic way to bring your locomotives together. This is particularly useful for recreating modern main line steam excursions, where a steam locomotive may lead the train with a diesel locomotive attached at the rear, or for operating push-pull services and other more complex railway movements.

In the following steps, we'll take you through how to create a Multiple Working Consist, configure the locomotives within it and operate them together using your Infinity Digital Handset.

The Multiple Working Consists are all set up through the Consist Menu. To access the menu:



Press the "MENU" Smart Key



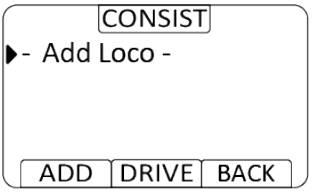
Press the [1] Key for "1 - CONSIST"

Adding A Locomotive To A Multiple Working Consist

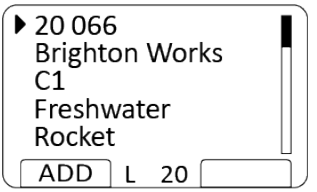
Access the “CONSIST MENU” as described previously, then follow the steps below to create your Multiple Working Consist. Each consist can contain up to four locomotives, which can be individually configured before being grouped together for simultaneous operation from your Infinity Digital Handset.



To Add a Loco To A Multiple Working Consist:
MENU-1-ADD-[DIAL]-ADD
For the following loco(s): “**ADD-[DIAL]-ADD**”



Press the “ADD” Smart Key →



Find the desired locomotive and press the “ADD” Smart Key →



The Locomotive has been successfully added to the Consist

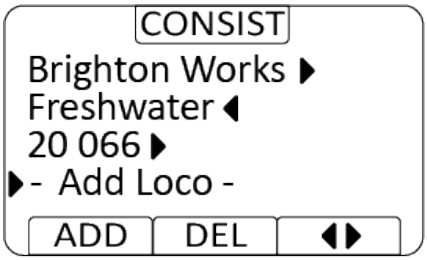
Once you have added all the locomotives you require, you may need to adjust their individual directions of travel to ensure they operate together correctly. This is particularly important when locomotives are facing opposite directions within the same consist.

∞ Setting The Locomotive Direction

To change the direction of a locomotive in a Multiple working Consist, use the dial to locate and select it from the consist list, then press the [< >] direction key to reverse its direction of travel. Pressing the same key again will return it to its previous setting. The arrows displayed on screen indicate the selected direction of travel for each locomotive.

You can adjust the direction of every locomotive in the consist except the first, or lead locomotive. The lead locomotive acts as the reference for the entire consist, so you will need to decide whether each additional locomotive should travel in the same direction as the lead locomotive or in the opposite direction. The direction of the lead locomotive is then the one seen and selected when the consist is operated. For example, if you are operating two locomotives facing opposite directions but want them to move together, you will need to reverse the direction setting of the second locomotive to ensure both travel in the same physical direction.

Once you are happy with your settings, your consist is ready to be saved. Use the dial to return to the *first* locomotive in the consist list, then press the “BACK” Smart Key. Please note that the “BACK” option will only appear when you have returned to this position. Alternatively, you can press the [RECALL] key at any time to save your consist and return directly to the main “Drive Screen”, ready for operation.



Our example loco Brighton Works has now been added to a Multiple Working Consist. Shown on our example screen, “Brighton Works” is the primary locomotive, with “Freshwater” added to the consist in reverse to help us double head our train.

The locomotives might need a little help ascending our fictional gradients so we have added a class 20 as a banking locomotive - a support locomotive that runs behind a train that provides power or extra traction.

Operating a Multiple Working Consist

Now that you have created and saved your Multiple Working Consist, you are ready to operate your locomotives together. From the Drive Screen, press the [RECALL] key to cycle through the active locomotives and consists in your Locomotive Rosta until you reach the consist you wish to control. Once selected, you can operate the speed of all locomotives within the consist together using the dial, just as you would with an individual locomotive.

To reverse the direction of the entire consist, press the [< >] direction key on your handset. You will notice that all the direction arrows on screen change to indicate the direction of travel relative to the individual locomotive. Pressing the same key again will return all locomotives to their original directions.

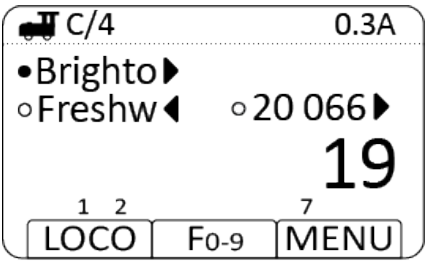
∞ Operating Individual Locomotive Functions

One of the key advantages of Infinity Digital’s Multiple Working feature is the ability to control functions independently on each locomotive within the consist. Functions are activated in the same way as when operating an individual locomotive, but with the added flexibility of choosing which locomotive responds.

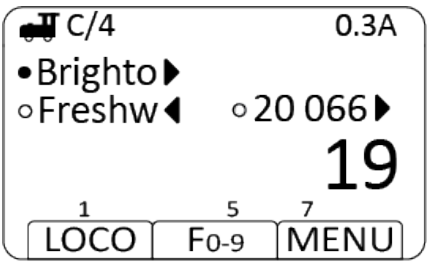
Unlike traditional consisting methods, this allows you to recreate more realistic railway operations. For example, you could sound the horn or whistle on only the lead locomotive, rather than every locomotive in the consist, or independently control the lighting on each locomotive to reflect its position within the train.

To select which locomotive you wish to control, press the “TOGGLE” Smart Key, represented on screen by [◦ •]. Each press cycles through the locomotives within your consist. An empty circle appears beside each locomotive in the list. When a locomotive is selected, its circle becomes filled, indicating that it is the locomotive whose functions you are currently controlling.

Once you have selected the required locomotive, simply press the corresponding function key to activate or deactivate the desired feature, just as you would when operating a locomotive individually.



The lead locomotive Brighton Works is selected here, denoted by the full circle next to the locomotive name. Functions 1, 2 and 7 can be seen on screen as active.



Here we now see Freshwater selected. The full circle now appears next to this locomotive. Functions 1, 5 and 7 are selected.

The functions selected and visible are all set to “Toggle”. Remember that when “Momentary” functions activate, the number will flash on screen before disappearing.

When operating a Multiple Working Consist, you will notice that the [◦ •] Smart Key has replaced the usual Function Group Smart Key on the Drive Screen. This allows you to switch between the locomotives within your consist, but means that accessing the higher function numbers requires an additional step.

To access these functions, press the “MENU” Smart Key. You will notice that the centre Smart Key now displays [F0-9], indicating the currently selected Function Group. As with operating an individual locomotive, you can use this Smart Key to cycle through the available Function Groups, allowing you to access functions beyond the default 0–9 range.

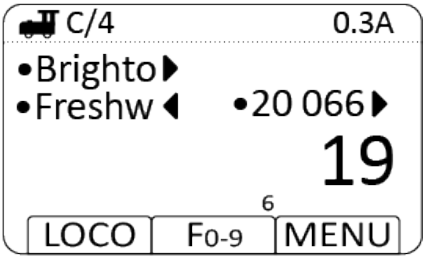
Once you have selected the required Function Group, press the [RECALL] key to return to the Drive Screen, where you can activate the functions using the corresponding number keys.

∞ Operating Functions on All Locomotives

There may be occasions when you wish to activate the same function across every locomotive in your consist simultaneously. This can be particularly useful when operating locomotives equipped with features such as braking simulations, where multiple locomotives may need to respond to the same function command.

To achieve this, continue pressing the “TOGGLE” Smart Key until all the circular indicators beside the locomotives are filled. This indicates that all locomotives within the consist are selected for function control. You can then activate the required function using the corresponding function key, and the command will be sent to every locomotive in the consist simultaneously.

Top Tip: Remember that function assignments can vary between locomotives and decoders. Before activating a function across the entire consist, check that the same function number controls the intended feature on each locomotive.

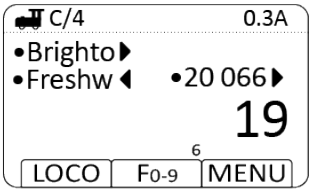


For our working example, you can see full circles next to all three locomotives. This denotes function control for all locomotives is active.

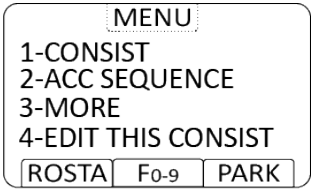
Functions, including those in the higher Function Groups, can be activated in the same way as when a single loco is selected.

Editing A Multiple Working Consist

If you need to change the direction of an individual locomotive after creating your Multiple Working Consist, you can easily return to its settings without having to recreate the entire consist. From the Drive Screen, press the [RECALL] key until the consist you wish to edit is displayed. Then press the "MENU" Smart Key, where you will find an additional option: "4 - EDIT THIS CONSIST".



Press the "MENU" Smart Key



Press the [4] Key for "4 - EDIT THIS CONSIST"

Press [4] to access the consist editing screen, where you can adjust the direction of individual locomotives as required. Follow the instructions in the **Adding a Locomotive to a Multiple Working Consist** section to make your changes, then save your updated consist before returning to operation.

∞ Removing A Loco from a Multiple Working Consist

If you wish to remove an individual locomotive from an existing Multiple Working Consist, you can do so without having to delete and recreate the entire consist. First, follow the steps outlined in the previous section to access "4 - EDIT THIS CONSIST". Once in the consist editing screen, use the dial to move the selection arrow to the locomotive you wish to remove.

With the required locomotive selected, press the "DEL" Smart Key to remove it from the consist. The remaining locomotives will stay grouped together, allowing you to continue operating your updated consist.

Disbanding A Multiple Working Consist

Once you have finished operating your Multiple Working Consist, you can disband it by using the “PARK” function, just as you would when parking an individual locomotive.

Parking the consist will automatically disband the group, returning all locomotives to individual control. Unlike parking a single locomotive, however, the locomotives from the disbanded consist will remain in your Locomotive Rosta, ready to be selected and operated independently.

Advanced (Classic) Consisting

Advanced Consisting is not for the faint-hearted! Although our Multiple Working Consist feature offers a simpler and more flexible way to operate locomotives together, we recognise that some modellers are familiar with traditional Advanced Consisting and may prefer this method. Advanced Consisting is a more permanent way of grouping locomotives together using CV19, a Configuration Variable within each decoder. Normally set to 0 (disabled), programming the same consist address into CV19 across multiple locomotives allows them to respond to the same speed and direction commands as a single unit.

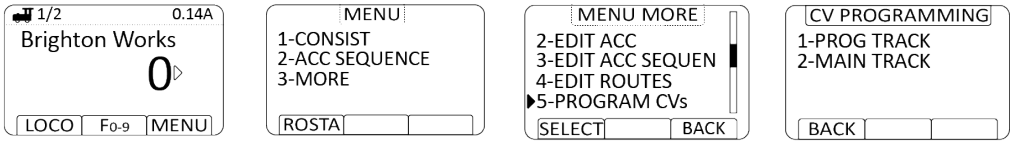
Unlike Multiple Working, this requires changes to the decoders themselves, typically using a programming track. While Advanced Consisting is active, locomotives respond to the consist address rather than their original addresses for speed and direction commands. Their original addresses remain stored and can be used again by resetting CV19 to 0.

CV19 also determines each locomotive’s direction within the consist, but changing this requires further programming. Function control can also be more restricted, with additional decoder programming sometimes needed to determine which functions respond to consist commands. For those regularly changing locomotive combinations or wanting independent control of lighting and sounds, Infinity’s Multiple Working feature offers a more convenient and versatile alternative.

There are two ways to set an advanced consist with the Gaugemaster Infinity Digital. One is by directly programming the CVs in the “CV Programming Menu” or by entering the Consist number in the “Adv Consist Menu” within the “Edit Locomotive Menu”.

∞ Setting Advanced Consists on the Programming Track

Using the Programming Track is the safest way to change a locomotive’s CV. As we covered in Section **2.2: Decoder Programming**, you need to put the locomotive on the Programming Track and enter the CV Programming Menu.



Press the “MENU” Smart Key → Press the [3] Key for “3 - MORE” → Press the [5] Key for “5 - PROGRAM CVs” → Press the [1] Key for “1 - PROG TRACK”

Once in the programming screen, use the numerical keys to enter the CV number, in this case 19. Then, use the dial to move down to the “VALUE” field and enter your chosen consist address. For this example, we have selected 70. Once both values have been entered, press the “PROG” Smart Key to programme the consist address into the locomotive’s decoder.

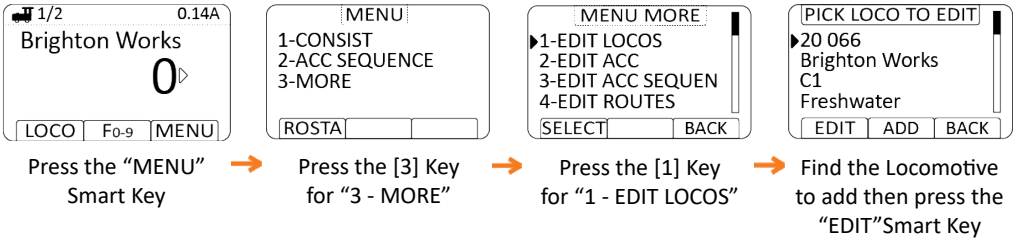
Repeat this process for each additional locomotive you wish to include in the consist, ensuring they are all assigned the same consist address. Remember, if a locomotive needs to operate in the opposite direction, you will need to add 128 to the CV19 value. In our example, this would mean entering 198 instead of 70.

Once all locomotives have been programmed, they will respond together to commands sent to the shared consist address, allowing you to operate them as a single unit. Unlike with our Multiple Working Consists, activating functions will only activate on all locomotives, individual control is not possible in this type of consist.

Top Tip: If you wish to change the locomotive direction in an advanced consist, add 128 to the consist number value. For example, if you wish to consist locos 40 and 8 into a consist of 70, with number 8 reversed; Loco 40 should have CV19 programmed to 70, and Loco 8 should have CV19 programmed to 70+128 which equals 198.

∞ Setting Advanced Consists in the Edit Loco Menu

Advanced Consisting can also be configured through the “EDIT LOCO” menu. This provides another way to access the consist settings for a locomotive already stored in your library. To do this, navigate to the menu:



Press the “MENU” Smart Key → Press the [3] Key for “3 - MORE” → Press the [1] Key for “1 - EDIT LOCOS” → Find the Locomotive to add then press the “EDIT”Smart Key

Once in this screen, using the keypad, key in the new Advanced Consist Address the consist will be controlled by, eg 70. The number assigned must be between 001 and 127 inclusive. You can then set the direction the locomotive is set to and press the “PROG” Smart Key. A message will then flash up with “DONE” once complete. The locomotive is now set to the chosen address and will not respond to its standard address until removed from the consist by setting the Consist Address to 0. Repeat this process for all locos you wish to run as part of this consist.

You can then go ahead and add a new locomotive to your library and assign the locomotive address as the chosen consist address.

Top Tip: Unlike in the first method, this screen negates the need to add 128 to the consist number to reverse direction. Changing the direction using the [< >] automatically applies the additonal number.

3. ACCESSORY SET-UP AND CONTROL

Accessories are a significant part of realistic model railway control. We use the term “accessory” here to describe an electrical component that is operated from your Gaugemaster Infinity Digital Controller such as Point Motors, Signals, Sound Modules and Lighting. Some accessories can be controlled with the traditional methods, however this system is designed to operate them all with ease, allowing you to take full control.

There are a number of options when it comes to Accessory connection, so we always recommend that you check with the product manufacturers instructions for correct installation. Like locomotives, some accessories such as the Train-Tech signals, have decoders already built into them, and others require them to be added.

∞ Point Motors
These are devices used to switch the points from one position to the other. They generally come in two kinds; Solenoid and Slow action. They are mounted either to the side or underneath a set of points.

∞ Signals
Used to control the positioning of trains and locomotives, these are usually found beside the track or above in gantries. They can be formed of a single multi-coloured light or in combinations with multiple lights known as aspects.

∞ Sound Modules
As the name suggests, sound modules add an audio dimension to your layout. They can be small modules designed to emit a small selection of sounds or larger modules with programmable outputs and controls. Each are usually supplied with their own speaker.

∞ Lighting
Anything from internal building lights to street lighting and ambient lighting, layouts can employ a combination of bulbs and LEDs to create realistic lighting effects.

∞ Other Accessories
Of course, there are a host of other accessories that could also be found on layouts from turntables and level crossings to moving figures and display screens, all these can also be connected and controlled by your Gaugemaster Infinity Digital in one way or another.

In general, we would always recommend running another set of wires known as an “Accessory Bus” around your layout to connect all your accessories to. This makes fault finding a lot easier as either the track or the accessories can be disconnected with ease, halving the possibility where an error could be found. These can be connected to via the Green Plug to the “Main Track” output along with your track feeds. Like with your locomotives, they will also need setting up and programming.

3.1. SETTING UP ACCESSORIES

As we have established, each accessory requires a decoder to be able to be controlled by the Gaugemaster Infinity Digital system. The Gaugemaster Infinity Range contains a selection of Accessory Modules, also known as accessory decoders, that allow non-digital components to interface with a digital system, but Infinity will also control other manufacturers of accessory decoder.

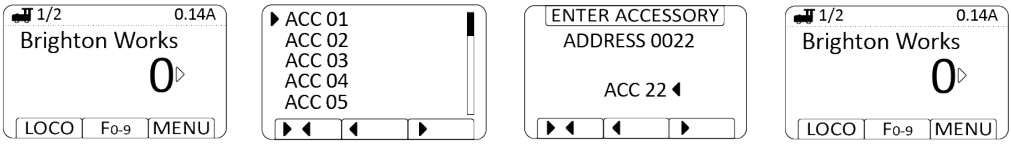
Programming can be split into two styles. Learn Mode Programming and CV Mode Programming. Learn Mode programming is becoming the go-to style of programming for more modern accessory decoders as it is quick and easy to set up. CV Mode programming is the more traditional method and also allows deeper control on modules programmed this way.

Learn Mode Programming

Many digital accessory decoders feature a Learn Mode, providing a quick and straightforward way to assign an accessory address without having to programme Configuration Variables (CVs) manually. This is particularly useful when installing points, signals and other accessories, as the decoder can often be programmed while already connected to your layout.

Learn Mode works by placing the accessory decoder into a programming state while connected to the accessory bus or main track output, where it waits to receive a command from your Infinity Digital Handset. When you send an accessory command using your chosen address, the decoder recognises this and stores the address for future operation.

To programme an accessory using Learn Mode, first ensure that the accessory decoder is correctly connected and receiving power. Following the manufacturer's instructions, activate its Learn Mode, usually by pressing a button on the decoder itself. Then, using your Infinity Digital Handset:



Press the "ACC"Key on the Handset When on the "Drive Screen" → Key in the Address You Wish To Set, e.g. 101 → Activate using the [> <] Smart Key or the [< >] Key → Press the [RECALL] Key to Return to the "Drive Screen"

The decoder should then recognise and store the selected address, allowing you to operate the accessory using that number. Depending on the decoder, Learn Mode may end automatically once the address has been received, or you may need to exit it manually.

Top Tip: The exact Learn Mode procedure can vary between manufacturers and decoder types. Some decoders may also use multiple addresses or require additional programming. Always refer to the accessory decoder instructions for the correct method.

CV Mode Programming

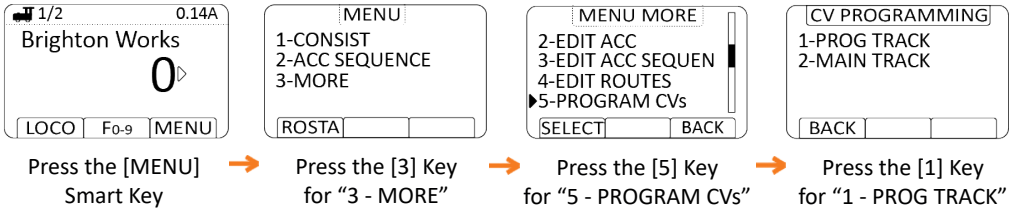
Some digital accessory decoders require their addresses and operating settings to be configured through Configuration Variable (CV) Programming, rather than using a Learn Mode. This allows specific values to be written directly to the decoder, determining how it responds to commands from your Infinity Digital Handset.

Unlike Learn Mode, which can often be used while the decoder is installed on your layout, this method requires the accessory decoder to be connected to the dedicated “PROG” output on your Infinity Digital Base Unit. This provides an isolated programming connection, allowing you to configure the decoder without affecting other accessories or locomotives on your layout.

To programme an accessory decoder, first disconnect it from your layout and connect it to the “PROG” output, following the decoder manufacturer’s instructions. From your Infinity Digital Handset, access the CV Programming menu and select “PROG TRACK”. Enter the required CV number on the first row and navigate down to “VALUE” and enter the value you wish to assign. Press the “PROG” Smart Key to write the setting to the decoder.

Once on the “CV Prog Track” screen, enter the CV and the CV Value.

To Access CV Programming:
MENU-3-5-1



Press the [MENU] Smart Key → Press the [3] Key for “3 - MORE” → Press the [5] Key for “5 - PROGRAM CVs” → Press the [1] Key for “1 - PROG TRACK”

The CVs used to assign accessory addresses and configure additional features can vary considerably between decoder manufacturers. Some may require more than one CV to establish an address, while others offer additional settings for operating modes, output behaviour or timing. Always consult the instructions supplied with your decoder to identify the correct CV numbers and values.

Once programming is complete, disconnect the decoder from the programming output and reconnect it to your layout. You can then test the accessory using its assigned address from your Infinity Digital Handset to confirm that it operates as expected.

Top Tip: Not all accessory decoders support programming through a dedicated programming track, and some may require alternative programming methods or specific connections. Always check the manufacturer’s instructions before connecting an accessory decoder to the “PROG” output, and never connect the programming output directly to your main layout wiring.

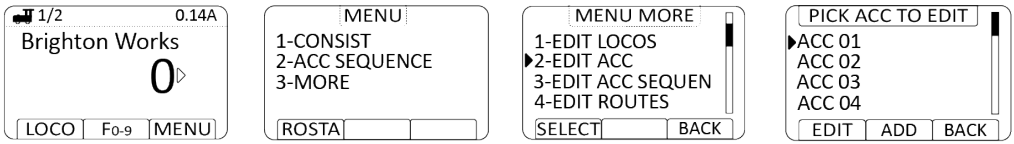
3.2. ACCESSORIES

Once your accessory decoder has been programmed, the next step is to configure the accessory on your Gaugemaster Infinity Digital Handset. This allows you to make the most of the system's accessory control features by giving each accessory its own address, name and identifying icon, making it easier to recognise and operate directly from your handset.

Setting Up An Accessory

Each accessory can be assigned an Address, which must match the address programmed into its decoder, along with a Name to help you identify it, such as "Station Points" or "Platform Signal". You can also select a suitable Icon to represent the type of accessory being controlled, making it easier to distinguish between different accessories on your layout.

These details are stored within your Infinity Digital Handset and do not change the settings programmed into the accessory decoder itself. To configure an accessory:



Press the "MENU" Smart Key → Press the [3] Key for "3 - MORE" → Press the [2] Key for "2 - EDIT ACC" → Find the accessory. Press the "EDIT" Smart Key

From this menu, you can customise your accessory's settings, including its Name, the Address used to communicate with its decoder and the Icons displayed on your handset to represent its operation. These settings allow you to easily identify and control each accessory to suit your layout.

Top Tip: When first setting up a layout, we recommend you amend the accessories already listed to start with. If you need more, you can add a new accessory to the list by pressing the "ADD" Smart Key.

∞ Adding or Editing the Accessory Name

To set the Accessory Name, press [1] to open the "TEXT ENTRY" screen. Here, you can customise the name displayed for your accessory, making it easier to identify when operating your layout.

To enter a new name, first remove the existing text, such as the default "ACC 01", or any previously assigned name, by pressing [0] repeatedly. Then, use the dial to select the characters you wish to enter. Rotating the dial clockwise cycles through the numbers 0–9, followed by the letters of the alphabet.

Press the “ABC” or “abc” Smart Key to switch between uppercase and lowercase letters. Use the arrow Smart Key to move the cursor to the next character position. If you need to move backwards instead, press the [< >] direction key on your keypad to reverse the direction of the arrow Smart Key. You can also press [8] to insert a space or [0] to delete a character.

Once you are happy with your accessory’s name, press the “BACK” Smart Key to return to the main editing menu, followed by “SAVE” to store your changes.

∞ Setting the Accessory Address

From the main “EDIT ACCESSORY” menu, press [2] to access the “DCC ADDRESS” entry screen. This allows you to assign the digital address your Infinity Digital Handset will use to communicate with the accessory decoder.

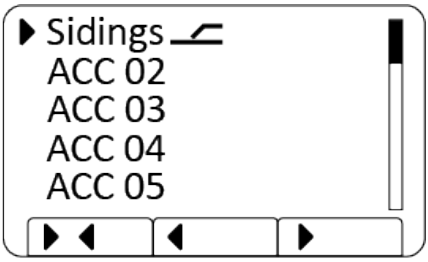
Using the numeric keypad, enter your chosen accessory address between 1 and 2044. Remember, this number must match the address programmed into the accessory decoder itself for the accessory to respond correctly. Once you have entered the required address, press the “BACK” Smart Key to return to the main “EDIT ACCESSORY” menu, where you can continue customising your accessory or save your changes.

∞ Setting the Accessory Icons

To make identifying and operating your accessories easier, Gaugemaster Infinity Digital includes a range of Accessory Icons covering many different types of operation. Each icon has a suggested use, but you are free to choose whichever best suits your layout and the accessory being controlled. These icons provide a clear visual indication of an accessory’s function, making it easier to recognise and operate without having to remember individual accessory addresses. Combined with a customised name, they allow you to identify your accessories at a glance.

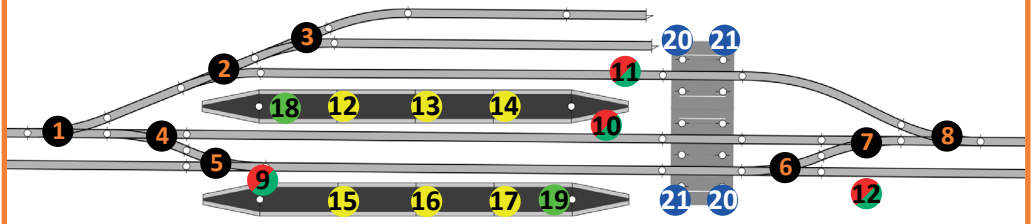
For example, “ACC 01” could be renamed “BAY PLATFORM” and assigned the Point Open/Closed icons to represent a set of points leading into a locomotive shed. Meanwhile, “ACC 02” could be renamed “STATION” and use the Sound/Mute icons to control a station sound module. The choice is entirely yours, allowing you to tailor the accessory controls to suit the way you operate your layout. The available icons and their suggested uses are shown below:

◀ ▶	Left/Right
✕ ✓	No/Yes
⟋ ⟋	Point Open/Closed
○ ●	Off/On (Icons)
OFF ON	Off/On (Text)
⟋ —	Semaphore Signal Off/On Level Crossing Barriers
R G	Signal Red/Green
Y Y	Signal Yellow/Double
○ ☼	Light Off/On
🔊 🔇	Sound On/Off
STOP AUTO	Stop/Auto
⬬ ⬭	Switch On/Off



For our working example for accessories, we have added an accessory and called it "Sidings" as on our example layout we have a single point diverting the track into two sidings. We have given it the address of 3, and assigned the "Point Open/Closed" symbols.

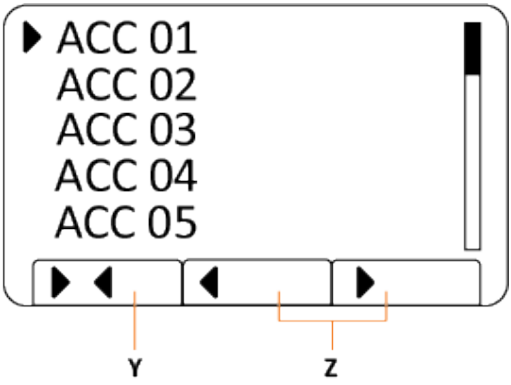
The layout plan below provides an example to help explain the accessory operation.



0 Point
0 Signal
0 Building/Street Light
0 Level Crossing Light
0 Other Accessory

Operating Accessories

Once your accessories have been configured, you can operate them directly from your Infinity Digital Handset. Press the [ACC] key on the top row of the keypad to open the Accessories Screen, where you will the list of Accessories in your Accessory Library long with their symbols.



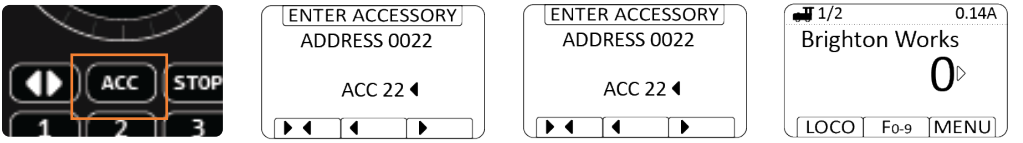
To operate an accessory, use the dial to scroll through the list and locate the one you wish to control. Once selected, you can activate it using the Smart Keys:

Y – Momentary Control: This Smart Key acts as a momentary switch, sending an operating command when pressed and the opposite command upon release. It is particularly useful for accessories such as sound modules that require a brief activation.

Z – Toggle Control: These Smart Keys allow you to switch between two operating states, such as On/Off, Left/Right or Red/Green, depending on the type of accessory and the icons you have assigned.

∞ Operating Accessories Not In the Accessory Library

You can also operate accessories that have not been added to your accessory library. This is particularly useful when programming or testing accessories to make sure they are working correctly before committing them to the system library - although you can of course edit accessories at a later date. From the Accessories Screen, simply enter the required Accessory Address using the numeric keypad to select it directly. This provides a quick and convenient way to control or test accessories without having to configure a library entry first.



Press the "ACC" Key → Key in the Address You Wish To Set, e.g. 22 → Activate using the [> <] Smart Key or the [< >] Key → Press the [RECALL] Key to Return to the "Drive Screen"

ACC

Top Tip: Press [ACC] once to quickly access and operate Accessories.
Press [ACC] a second time to access and play Accessory Sequences.
Press [ACC] a third time to access and play Accessory Routes.
Accessory Sequences and Routes provide options for operating multiple accessories from one command. Read on to find out how they work and what they can do.

Firing All Accessories

At the end of your accessory list, you will find an additional command labelled "FIRE ALL ACCs". This feature allows you to send a sequence of commands to every accessory in your list, helping to ensure that their actual positions or operating states match those displayed on your Infinity Digital Handset.

When "FIRE ALL ACCs" is selected, the "FIRE" Smart Key becomes the only available option. Pressing this Smart Key starts a sequence in which the handset communicates with each accessory individually, rather than activating them all at once. As the sequence progresses, the screen will display each accessory in turn. Importantly, the system does not simply switch every accessory to a new position. Instead, it sends the direction already displayed on handset, ensuring that its physical position or operating state corresponds with the setting stored in the handset.

This feature is particularly useful after carrying out maintenance, moving a layout or making adjustments to accessories, where their physical positions may have changed. Running the "FIRE ALL ACCs" sequence provides a quick and convenient way to restore the intended accessory settings across your layout.

Top Tip: Make sure any locomotives and rolling stock are clear of point work prior to using the "FIRE ALL" feature. Failure to do so could result in derailment, short circuits, and damage to electrical circuits.

3.3. ACCESSORY SEQUENCES

While controlling accessories individually is useful, Gaugemaster Infinity Digital takes accessory control a step further with Accessory Sequencing. This advanced feature offers a new approach to traditional route setting, allowing you to operate multiple accessories together using a single command.

Rather than simply operating several sets of points, Accessory Sequencing allows you to combine different types of accessories into one coordinated sequence, including Points, Signals, Smart Screens, Level Crossings and other digitally controlled features. This opens up a wide range of possibilities for creating more realistic and engaging operations across your layout, without having to control each accessory individually.

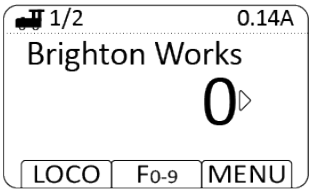
You can also introduce customisable delays between individual commands, allowing accessories to operate in a timed sequence rather than all at once. For example, you could create a sequence that closes a level crossing, changes a signal to proceed and sets the points for an approaching train, with each action taking place at the appropriate interval.

Whether you're setting a route through a busy station, coordinating movements around a goods yard or bringing a level crossing to life, Accessory Sequencing makes it easier to manage multiple accessories and recreate realistic railway operations with just a single command.

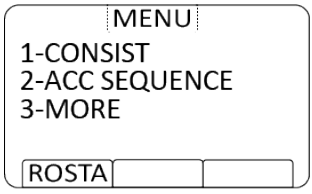
Configuring Accessory Sequences

To Edit an Accessory Sequence:
MENU-3-3-[DIAL]-EDIT

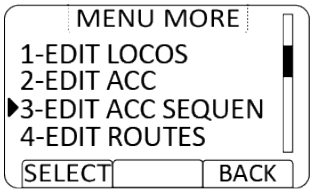
Creating an Accessory Sequence is quick and straightforward. Once you have configured the individual accessories as described in the previous section, you can begin combining them into a sequence that allows multiple accessories to be operated with a single command. Follow the steps below to create your Accessory Sequence:



Press the "MENU" Smart Key



Press the [3] Key for "3 - MORE"



Press the [3] Key for "3 - EDIT ACC SEQUENCE"

From this screen, use the dial to scroll through the 20 available Accessory Sequences and select the one you wish to configure. Once selected, press the "EDIT" Smart Key to open the "Edit Sequence" screen to set-up the sequence. To help explain this, we will use the example layout shown previously and work through a plausible scenario.

∞ Naming a Sequence
First, press the “NAME” Smart Key to give your Accessory Sequence a recognisable name. The naming process is identical to that used when naming individual accessories, using the same controls to select characters and move the cursor.

For example, you might name your sequence “Plat2 NonStop”. Once you have entered your chosen name, press the “SAVE” Smart Key to confirm it and return to the “EDIT ACC SEQUENCE” menu, where you can continue configuring your sequence.

∞ Adding Accessories to a Sequence
Press the “ADD” Smart Key to begin adding accessories to your sequence, selecting them in the order you wish them to operate. You can include up to 10 accessories in a single sequence, allowing you to coordinate several actions with one command.

As you add accessories, you will notice a number displayed alongside each entry. The first accessory will show 0, while subsequent accessories will initially show 1. These numbers represent the delay, in seconds, before each accessory is activated. By default, the first accessory operates immediately when the sequence begins, followed by a one-second delay before the second accessory activates, another one-second delay before the third, and so on.

You can customise these delays independently for each accessory, giving you complete control over the timing of your sequence. To adjust a delay, use the dial to highlight the accessory you wish to change, then enter the required delay in seconds using the keypad.

For example, you could set the delay for the second accessory to 5 seconds and the third accessory to 3 seconds. When the sequence is activated, the first accessory will operate immediately, the second will activate five seconds later, and the third will activate a further three seconds after that. This creates a sequence lasting 8 seconds from the first accessory activation to the last.

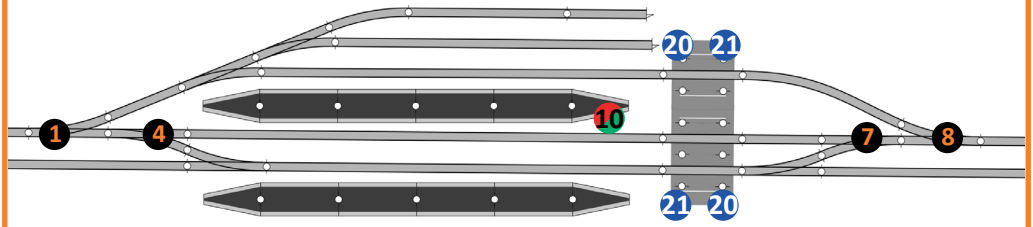
By adjusting these timings, you can create realistic sequences of movements, such as operating points, changing signals and activating level crossings in a carefully controlled order.

Top Tip: With a maximum of 10 accessories per sequence, you can save entries by assigning the same DCC Address to accessories that always operate together. For example, on our demonstration layout, the four level crossing gates and associated lights share just two DCC Addresses, 20 and 21, allowing them to operate in pairs. This lets you control more accessories within a single sequence without needing additional entries.

To change the operating state of an accessory within your sequence, such as setting a point to the correct direction or selecting the required signal aspect, use the [< >] key to toggle between the available options. This ensures each accessory operates in the required state when the sequence is activated.

For our working example, we are going to look at creating a sequence to perform the required actions for a non-stop express train to pass through platform 2.

- ∞ As the train approaches, the Accessory Sequence is activated.
- ∞ Point (1) needs to be set to the primary position (straight).
- ∞ Point (4) needs to be set to the primary position (straight).
- ∞ Point (7) needs to be set to the primary position (straight).
- ∞ Point (8) needs to be set to the primary position (straight).
- ∞ Level Crossing Lights activate and Gates descend with Sound Activated.
- ∞ Signal (10) is set to Green to allow the train to proceed through the station.



Setting Up Level Crossings: To create the sequence here we would be using two pairs of the Train-Tech Level Crossings "**TTLC10P**" for the lights and four Servo Controller Starter Packs "**TTSVP1**" to move the barriers up and down. This creates a fully functioning level crossing, but could be scaled back if only two gates are used, or if a single barrier level crossing is modelled. The two opposing lights and Servo Controllers would all be programmed to number 20, and the remaining components to number 21.

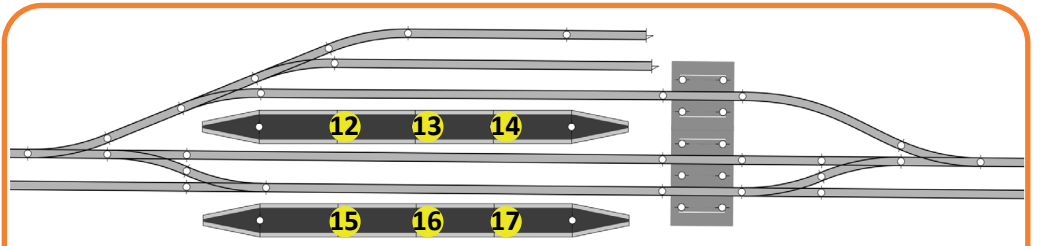
The Accessory Sequence could then be programmed as such:

- 0 Point 1 (Straight, 0s delay)
- 1 Point 4 (Straight, 1s delay)
- 1 Point 7 (Straight, 1s delay)
- 1 Point 8 (Straight, 1s delay)
- 3 Crossing 20 (On, 3s delay)
- 5 Crossing 21 (On, 5s delay)
- 5 Signal 10 (Green, 5s delay)

If you wanted the sequence to be more realistic on the level crossing, separating the Level Crossing Lights from the gates closing would allow an extra delay to be added between the lights starting and the gates going down.

Once the above is set, your Sequence is good to go. Bear in mind that once the train has passed through the station you may need another sequence to reset the line. You could program the following sequence to turn all the Level Crossing off and lift the crossing gates in one go and set the signal to red.

Top Tip: When setting up a sequence, the centre Smart Key becomes the "PLAY" Smart Key. Pressing this will run the sequence. This allows you to test the sequence and make any required changes, before leaving this menu.



You could also use Accessory Sequencing for more realistic activation of other accessories too. Street, building lights and station lights never all come on at once, and an Accessory Sequence would be perfect to start them more realistically. With a Train-Tech Smart Light or LEDs Connected to a Lighting Decoder, the following could be set:

- 0 Building Light comes on (Address 13, 0s delay)
- 3 Building Light comes on (Address 16, 3s delay)
- 2 Platform Light comes on (Address 12, 2s delay)
- 3 Platform Light comes on (Address 14, 2s delay)
- 0 Platform Light comes on (Address 15, 0s delay to activate alongside previous light)
- 2 Platform Light comes on (Address 17, 2s delay)

These Accessories could then be turned off as you wish, or another sequence could be created to turn them off more realistically. You could use the same settings and simply change the operating direction to the opposing option to turn the lights off.

Operating Accessory Sequences

Operating an Accessory Sequence is just as straightforward as controlling an individual accessory. Simply press the [ACC] key twice to open the Accessory Sequences screen, then use the dial to scroll through your saved sequences.

Once you have highlighted the sequence you wish to operate, press the “PLAY” Smart Key to begin. The accessories will then activate automatically in the programmed order, following any delays you have configured between them.

Accessory Sequences are also a fantastic way to bring your layout to life, adding movement, sound and animation to scenes beyond traditional railway operations. For example, you could trigger the sound of a dog barking, followed a second later by an animated figure falling over, or play the sound of a chainsaw revving just before a tree begins to fall.

By combining different accessories with carefully timed delays, you can create entertaining and realistic scenes that add a whole new dimension to your layout. The possibilities are almost endless with Infinity Digital’s Sequence Feature, and we look forward to seeing the imaginative scenarios you create!

3.4. ACCESSORY ROUTES

While Accessory Sequences are ideal for combining different actions and creating realistic scenes around your layout, there are times when a more direct approach to accessory control is required. This is where Accessory Routes come in. Configured in much the same way as Sequences, Accessory Routes are designed for the practical demands of railway operation, allowing multiple accessories to be set quickly with a single command.

A typical example would be setting a route for a locomotive to travel through a station or junction, where several sets of points and signals need to be changed to their correct positions. Unlike Accessory Sequences, which are limited to 10 accessories, Accessory Routes can accommodate larger combinations, making them particularly useful for complex track layouts such as large sidings and busy station approaches.

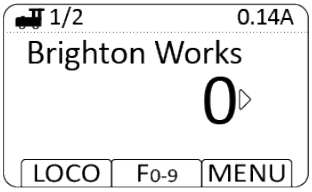
You can store up to 50 Accessory Routes in the Accessory Route Library, with each route containing up to 45 accessories. This provides a quick and convenient way to manage points and signals across your layout, reducing the need to operate each accessory individually and making route setting a much simpler process.

Configuring Accessory Routes

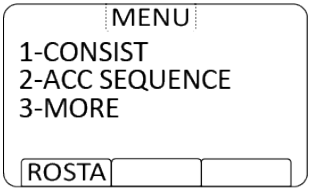
Creating an Accessory Route is just as quick and straightforward as setting up an Accessory Sequence. Once you have configured the individual accessories as described in the previous section, you can begin combining them to create your chosen route.

To Edit an Accessory Route:
MENU-3-4-[DIAL]-EDIT

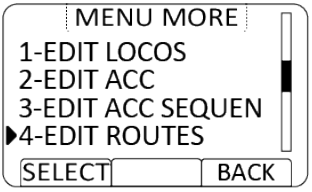
Before programming, we recommend planning your route and making a note of the accessories required, including the correct positions for each point and signal. Working backwards from your destination towards your starting point can help ensure that no accessories are overlooked or incorrectly set, particularly when configuring more complex routes. To set an Accessory Route:



Press the “MENU” Smart Key



Press the [3] Key for “3 - MORE”



Press the [4] Key for “4 - EDIT ROUTES”

From this screen, use the dial to scroll through the 50 available Routes and select the one you wish to configure. Once selected, press the “EDIT” Smart Key to open the “EDIT ROUTE” screen to set-up the Route.

∞ Naming a Route

First, press the “NAME” Smart Key to give your Accessory Route a recognisable name. The naming process is identical to that used when naming individual accessories, using the same controls to select characters and move the cursor. Once set, the name will appear after the relevant “R” number in the Route list. For example, giving the first route the name of “Bay Platform” would result the list displaying “R1-Bay Platform”. To finish, press the “BACK” Smart Key to confirm and return to the “EDIT ROUTE” screen.

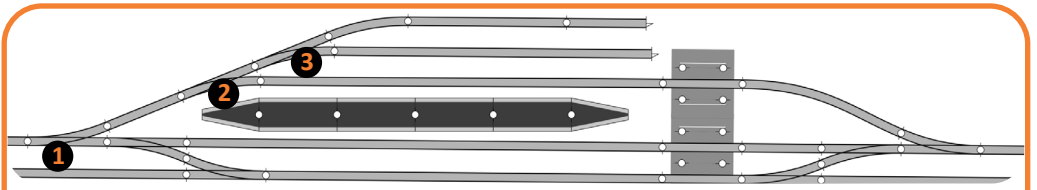
∞ Adding An Interval Value

Unlike the Accessory Sequences, Accessory Routes do not have customisable delays between the activation of each Accessory. Instead of the delays, there is instead one “INTERVAL” setting that governs the delay between every accessory in the route. This is done to allow each accessory to activate sequentially so not to cause a big power drain on the system. This is set in tenths of a second (one decimal place after a second) to allow fine control between 0.1 and 9.9 seconds.

∞ Adding Accessories to a Route

Once you have created your Accessory Route, you can begin adding the accessories required. With the “INTERVAL” line highlighted, the “ADD” Smart Key will appear. Press this to open your accessory list, then use the dial to scroll through and locate the accessory you wish to include. Once you have found the required accessory, press the “ADD” Smart Key again to add it to your route. Repeat this process for each additional accessory, remembering that, just like Accessory Sequences, accessories will operate in the order they are added to the route.

Accessory Routes also allow you to specify the required position or operating state of each accessory. With the arrow highlighting the accessory in your route list, press the [< >] key to toggle between its two available states. This ensures that points, signals and other accessories are set to the correct positions when the route is activated.



Route could be set up to gain access to the two sidings, with a route for each. The only difference between the two routes is the position of the final point meaning both routes share a similar set up.

Top Siding - Route 1:
- Point 1 (Address 1, diverging position)
- Point 2 (Address 2, straight position)
- Point 3 (Address 3, straight position)

Bottom Siding - Route 2:
- Point 1 (Address 1, diverging position)
- Point 2 (Address 2, straight position)
- Point 3 (Address 3, diverging position)

∞ Stacking Routes

Accessory Routes include one final feature that allows you to activate another route automatically as the last operation in the current route. This is particularly useful when

creating more complex routes that require a larger number of accessories to operate together.

Once you have added all the required accessories, scroll to the final option in the list, labelled “Play Next Route”. Highlight this option using the dial, then press the “ROUTE” Smart Key to open the Accessory Route Library. From here, select the route you wish to activate next.

You can link one additional route to each Accessory Route, but this does not prevent you from creating longer chains. For example, the second route could be configured to activate a third, allowing several routes to operate in succession from a single command. The additional routes do not need to be configured before they are linked, so you can plan your route structure first and return to programme the individual accessories later.

To remove a linked Accessory Route, use the dial to highlight the “PLAY (Your Route Name)” entry, then press the “DEL” Smart Key. This will remove the link to the additional route and return the option to “PLAY NEXT ROUTE”, allowing you to select a different route if required.

Top Tip: If you miss an accessory when adding the routes, navigate to the one before the position the missed route should be in, then press the “ADD” Smart Key. This will add the accessory below the selected entry rather than at the end.

Operating Accessory Routes

Operating an Accessory Route is just as straightforward as controlling an individual accessory or running an Accessory Sequence. Simply press the [ACC] key three times to open the Accessory Routes screen, then use the dial to scroll through your saved routes.

Once you have highlighted the required route, press the “PLAY” Smart Key to activate it. The accessories will then operate automatically in the programmed order, setting the points, signals and other equipment to their designated positions. If you have linked another route using the “Play Next Route” feature, this will also activate automatically once the current route has finished.

Accessory Routes are particularly useful for managing train movements around busy stations, junctions and goods yards, where several points and signals may need to be changed before a train can proceed. Rather than operating each accessory individually, a single command can establish the required route, making layout operation quicker and more convenient.

By combining multiple accessories and linking routes together, you can simplify even complex track arrangements, allowing you to concentrate on driving your locomotives and managing railway operations. Whether directing trains into station platforms, arranging movements through a junction or setting up a route through a busy goods yard, Accessory Routes provide a practical and flexible way to control your layout.

Top Tip: Just with accessories, you can head into the Accessory Sequence and Accessory Route Menus and activate the accessories by pressing the relevant number keys. For example if you press [1] followed by [5], in the route menu, route 15 will activate.

4. SYSTEM MANAGEMENT

Your Gaugemaster Infinity Digital system has been designed to grow alongside your model railway, with options for expanding its capabilities and keeping its software up to date as new features and improvements become available.

In this section, we will look at the different ways you can expand your Infinity system, including adding additional handsets and making use of the Sniffer Port. We will also guide you through downloading and installing software updates, helping you get the most from your controller as the Infinity range continues to develop.

Finally, we will explain the warranty cover available for your Infinity system, including our Standard and Extended Warranty options, before providing troubleshooting guidance to help you identify and resolve common issues.

4.1. EXPANDING YOUR SYSTEM

There are two ways to expand your Gaugemaster Infinity Digital Wired system: by adding an additional handset or by connecting compatible equipment through the Sniffer Port. Both options allow you to extend the capabilities of your system, providing greater flexibility as your layout develops.

Adding An Additional Handset

Expanding your Infinity Digital system with an additional handset couldn't be simpler. Just connect the new handset to the second handset socket on the rear of the Base Unit, and both devices will automatically recognise each other, allowing you to begin using your additional handset straight away.

If the new handset is running an older version of the Infinity software than the Base Unit will initiate an automatic update. A status bar will appear on the handset screen showing the progress and the handset will restart once the process is complete.

∞ Sharing Locomotives to a New Handset

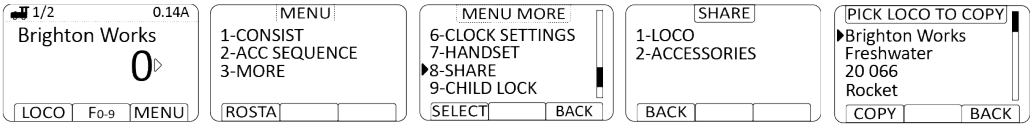
When adding a second handset, your original handset will already contain your saved locomotive and accessory settings. Fortunately, there is no need to enter all this information again. Gaugemaster Infinity Digital includes a convenient sharing feature that allows you to copy the details of your chosen locomotives and accessories from your existing handset to the new one.



To Select A Locomotive To Share:
MENU-3-8-1-[DIAL]

This makes setting up an additional handset much quicker and easier, allowing you to transfer the information you need without having to configure everything from scratch. To copy a locomotive to another handset, first, press the “MENU” Smart Key on the original Handset to open the Main Menu and press [8] to select “8 - SHARE”. From the Share Menu, press [1] to select “1 - LOCO”, then use the dial to scroll through your Locomotive Library and highlight the locomotive you wish to share.

Press the “COPY” Smart Key to send the locomotive’s details to the Base Unit. The word “COPYING” will flash on the screen while the data is being copied.



Press the “MENU” Smart Key → Press the [3] Key for “3 - MORE” → Press the [8] Key for “8 - SHARE” → Press the [1] Key for “1 - LOCO” → Find the Loco using the Dial. Press the “COPY” Smart Key

The locomotive has now been copied to the Base Unit. With both the new and old handset plugged in, on the new handset, access the “EDIT LOCO” screen as if you were adding a new locomotive. If you need a reminder on this, refer back to **Section 2.2 Adding Locomotives To The Library**. Once in the Locomotive Library, press the “ADD” Smart Key. The locomotive that was just shared will automatically populate the screen so simply press the “SAVE” Smart Key to finish.

Top Tip: Gaugemaster Infinity Digital allows you to transfer individual locomotives and accessories rather than copying your entire Library. This is particularly useful when sharing control with a second operator, as you can transfer only the entries they need while retaining access to everything on your primary handset.

∞ Sharing Accessories to a New Handset

Sharing accessories between handsets follows the same process as sharing locomotives. From the “SHARE” menu on your original handset, press [2] to select “2 - ACCESSORIES”. This will display your Accessory Library, allowing you to use the dial to locate the accessory you wish to transfer.



Once highlighted, press the “COPY” Smart Key to copy the accessory’s details to the Base Unit. On the second handset, open the “EDIT ACCESSORY” screen and press the “ADD” Smart Key. A new accessory entry will appear, automatically populated with the details of the shared accessory.

Simply press the “SAVE” Smart Key to complete the transfer and add the accessory to the second handset’s Library.

∞ Accessory Sequences and Routes

Unlike individual locomotives and accessories, Accessory Sequences and Accessory Routes cannot be copied between handsets. However, this provides an additional benefit, as each handset has its own independent Library of Sequences and Routes.

Adding a second handset effectively doubles the number of available slots, giving you 20 additional Accessory Sequences and 50 additional Accessory Routes to configure. This allows each operator to create their own combinations of accessories and route settings, providing even greater flexibility when operating larger or more complex layouts.

This is particularly useful when dividing a layout into different operating areas. For example, one handset could be configured to manage the main station and locomotive yard, while the second controls a goods yard or fiddle yard. Each operator can then have their own dedicated Routes and Sequences for their area, making it easier to manage movements independently without having to navigate through accessories used elsewhere on the layout.

The Sniffer Port

The Sniffer Port provides a convenient way to expand your Gaugemaster Infinity Digital system by connecting another DCC control system. Commands from the additional controller are received through the Sniffer Port and relayed to the locomotives and accessories on your layout through the Infinity Base Unit.

This is particularly useful if you already own another DCC controller and wish to continue using it alongside your Infinity system. However, it also offers an exciting opportunity to expand your Infinity Digital Wired system with wireless control as your layout grows.

By connecting a compatible Infinity Digital Wireless system through the Sniffer Port, you can introduce wireless operation to your existing layout without replacing your original controller. This gives you the freedom to operate locomotives away from the main control position, while opening up further expansion possibilities through the additional Infinity Digital environment.

∞ Connecting Another DCC System

To connect an additional DCC system, take the main track output from the external controller and connect its two wires to a suitable green connector plug. Insert this plug into the “SNIFFER” port on the Infinity Digital Wired Base Unit.

IMPORTANT: The output from another DCC system must ONLY be connected to the “Sniffer Port”. Never connect it to the “MAIN”, “PROG” or any other socket on the Infinity Base Unit, as doing so could damage one or both systems.

Once connected, commands from the external DCC controller will be received by Infinity and passed to the appropriate locomotives and accessories on your layout.

∞ Guest Locomotives
When a locomotive is operated using the additional DCC controller, it will also appear on your Infinity Handset as a Guest Locomotive. These locomotives are identified by the name “DCC”**, where the asterisks represent the locomotive’s DCC decoder address.

For example, a locomotive with decoder address 25 would appear as “DCC25”.

To check whether a locomotive is being controlled as a Guest Locomotive, select it on your Infinity Handset and press the “MENU” Smart Key. If it is a guest, the word “GUEST” will be displayed on the screen.

This makes it easy to identify locomotives being operated through the Sniffer Port while using your Infinity system.

4.2. UPDATING THE SOFTWARE

Keeping your Gaugemaster Infinity software up to date ensures you can take advantage of the latest features, improvements and refinements as they become available. This section will guide you through the process of updating both Infinity Analogue and Infinity Digital systems, helping you complete the update quickly and easily.

Important Information Before You Start:

You Will Need:
∞ Windows 11 PC or Higher Required: Software updates must be carried out using a Windows PC or laptop. Android, iOS, Linux and macOS devices are not supported. Previous versions may work, however these are not recommended or supported.

∞ A USB Cable: The required cable will depend on the computer the updates is being used to update the Infinity system. The Gaugemaster Infinity requires a USB-C type connection. Most PCs will require either a USB-A to USB-C or a USB-C to USB-C type cable.

∞ The Correct Software: Infinity Digital Wired (This System) requires different software to the Infinity Digital Wireless. Attempting to install software intended for the wrong system will result in an error during the update.

Before starting, we recommend reading through the update instructions in full to familiarise yourself with the process. Updating an Infinity Base Unit should typically take no more than a few minutes, provided you have everything ready beforehand. Software and full instructions are available on the Gaugemaster Website: **gaugemaster.info/infinity-updates**

4.2. HELP & TECHNICAL SUPPORT

If you haven't found the answer you're looking for in this manual, don't worry. There are several ways to get additional help with your Gaugemaster Infinity system.

Our website features a dedicated Troubleshooting Guide, covering common issues, useful advice and solutions to help you get the most from your Infinity system. To view the online guide, scan the QR Code or visit: **gaugemaster.info/infinity-troubleshooting**

Your local Gaugemaster stockist is also a great place to seek advice. We are continually working with our dealers to develop their knowledge of the Infinity range, helping them provide assistance as the system continues to grow. Besides, who really needs an excuse to visit their local model railway shop?

You can find a list of all our stockists as well as those that are Gaugemaster Infinity Accredited Dealers at: **gaugemaster.info/stockists**

Of course, our dedicated technical support team here at Gaugemaster is always happy to help. Whether you have a question about setting up your system, need assistance with a particular feature or have encountered issues you cannot resolve, we will do our very best to assist you.

Contact Gaugemaster Infinity Support

You can contact Gaugemaster Infinity Support:

- **By Email:** infinitysupport@gaugemaster.co.uk
- **By Phone:** +44 (0) 1903 884 321
- **In Person:** ModelGIANT, Gaugemaster House, Ford Road, Arundel, West Sussex, BN18 0BN

When contacting us, please provide as much information as possible about the issue you are experiencing, including any error messages and the steps you have already taken to resolve it. We will also ask which version of the Infinity software you are running, which can be found in the "ABOUT" section of your system. Having these details ready will help us identify the issue and provide the most appropriate advice, getting you back to enjoying your model railway as quickly as possible.

Find Out More

You can discover more about the Gaugemaster Infinity Digital range on our website, where you can explore the complete range of controllers, accessories and expansion options available to help you get even more from your Infinity system.

You will also find the latest software updates, instruction manuals and additional support information, helping you keep your Infinity Digital system up to date and make the most of its features as the range continues to develop. Visit: **gaugemaster.info/infinity-digital**

4.3. THE INFINITY WARRANTY

At Gaugemaster, we take pride in the design and manufacture of our Infinity control systems, and we want you to enjoy many years of reliable operation from your purchase. That's why every new, eligible Gaugemaster Infinity product comes with a 12-month manufacturer's warranty, providing protection against manufacturing, assembly, design and material defects.

For additional peace of mind, we also offer a FREE Extended Warranty, providing a further two years of protection, bringing your total warranty period to three years. Simply register your new Infinity product online within 30 days of purchase and retain your proof of purchase.

The following section explains what is covered by the warranty, how to make a claim and the terms and conditions that apply. You will also find details of how to register for the Extended Warranty. This manufacturer's warranty is provided in addition to your statutory consumer rights and does not affect those rights.

Warranty Terms and Conditions:

1. Standard Warranty

- The Gaugemaster Infinity Standard Warranty is provided by Gaugemaster Controls Ltd. (hereinafter referred to as "Gaugemaster") and is valid for 12 months from the original date of purchase of a new, eligible product supplied by an authorised Gaugemaster retailer or supplier.
- The warranty covers defects arising from manufacturing, assembly, design or materials under normal use, provided the product has been operated in accordance with the manufacturer's instructions.

1.1 Proof of Purchase

- Valid proof of purchase is required when submitting a warranty claim. This may include an original sales receipt or an invoice issued by an authorised online retailer.
- If satisfactory proof of purchase is not provided, Gaugemaster may be unable to process the claim under the manufacturer's warranty.
- Products purchased second-hand from private individuals are not covered by this voluntary manufacturer's warranty.

1.2 What the Warranty Covers

- The Standard Warranty covers faults attributable to manufacturing or assembly defects, defective materials or components, and design defects affecting the normal operation of the product.
- Where a valid warranty claim is accepted, Gaugemaster will arrange an appropriate repair or replacement at its discretion, subject to the applicable terms and the customer's statutory rights.
- Gaugemaster will endeavour to complete repairs within a reasonable period, subject to the availability of replacement parts and components.

1.3 Warranty Exclusions

- The manufacturer's warranty does not cover faults or damage resulting from:
  a. Accidental damage, dropping the unit, misuse or improper handling.
  b. Exposure to excessive temperatures, moisture, liquids or unsuitable operating environments.
  c. Normal wear and tear arising from reasonable use.
  d. Unauthorised repairs, alterations or modifications, where these have caused or contributed to the fault.
  e. The installation or replacement of electronic components by unauthorised persons, where the work has caused or contributed to the defect.
  f. Use of the product for purposes outside those specified by Gaugemaster.
  g. Failure to follow the installation, operating or safety instructions provided in this manual, where this has caused or contributed to the fault.
  h. Incorrect electrical connections, including connections between outputs or sockets contrary to the instructions provided.
- Opening or modifying a unit may affect warranty eligibility where the action has caused or contributed to the fault.
- These exclusions do not limit any rights or remedies available under applicable consumer legislation.

1.4 Inspection and Repairs

- All products submitted for warranty repair will be inspected by Gaugemaster before repair work is undertaken.
- If the fault is covered by the manufacturer's warranty, Gaugemaster will arrange the necessary repair or replacement without charging for the covered work.
- If the fault is found to fall outside the warranty conditions, Gaugemaster will contact the customer to explain the findings and advise of any proposed charges.
- No chargeable repair work will be undertaken without the customer's prior approval.
- Customers may choose not to proceed with a chargeable repair and request the return of their product, subject to any applicable return costs.

1.5 Warranty Period Following Repairs

- Repairs or replacement components provided under warranty do not restart the warranty period.
- Where Gaugemaster supplies a complete replacement product, the applicable warranty arrangements will be confirmed at the time of replacement.
- Nothing in this provision limits the customer's statutory rights.

2. Making a Warranty Claim

- Warranty claims should be made directly to Gaugemaster Controls Ltd.
- If you experience a problem with your Infinity system, we recommend consulting the troubleshooting information in this manual before submitting a claim.
- If the issue cannot be resolved, please contact Gaugemaster for assistance; by Phone: **+44 (0) 1903 884 321** or by Email: **infinitysupport@gaugemaster.co.uk**
- If your product needs to be returned for inspection, please send it to:
  Infinity Service, Gaugemaster Controls Ltd., Gaugemaster House, Ford Road, Arundel, West Sussex, BN18 0BN, United Kingdom.
- Please include your name, return address, contact details, valid proof of purchase and a description of the fault or problem experienced.
- Where possible, please also provide details of any troubleshooting already undertaken and the software version currently installed on your Infinity system.

2.1 Products Damaged or Incomplete on Arrival
- If your product arrives with missing components, damaged packaging or damage sustained during delivery, please contact the retailer or supplier from whom it was purchased as these issues are not covered through the manufacturer's repair warranty.
- This does not affect your statutory rights against the retailer.

3. Postage and Shipping
- The following arrangements apply to products returned under the voluntary manufacturer's warranty.

3.1 Sending Products to Gaugemaster
- Customers are normally responsible for arranging and paying for the initial postage of products returned directly to Gaugemaster for inspection.
- We recommend using a tracked and appropriately insured delivery service. Customers should retain proof of postage.
- Any postage reimbursement required under applicable consumer law will be honoured.

3.2 Returning Completed Warranty Repairs
- For accepted warranty repairs, Gaugemaster will cover the cost of returning the repaired product to an address within mainland United Kingdom.
- Additional delivery charges may apply to destinations outside mainland United Kingdom, subject to applicable consumer rights.

3.3 Repairs Outside the Warranty
- Where a product is found to be outside the manufacturer's warranty, any applicable return postage costs will be explained before the customer decides whether to proceed with a chargeable repair.

3.4 International Returns
- Customers returning products from outside the United Kingdom should contact Gaugemaster before arranging shipment.
- Any applicable customs duties, import charges, export charges or additional shipping costs will be discussed with the customer where relevant.
- Gaugemaster will select an appropriate and cost-effective delivery method when returning repaired products.

4. Software, Settings and Stored Data
- Gaugemaster Infinity systems may contain user-configured information, including locomotive details, accessory settings, Accessory Sequences and Accessory Routes, and although every reasonable effort will be made to preserve this information during inspection, servicing or repair, stored settings and user data may be lost or reset.
- Where possible, we recommend making a record of important settings before returning your system for service.
- Gaugemaster cannot guarantee the preservation of user-configured data during repairs or software updates. This provision does not exclude liability where it cannot lawfully be excluded.

5. Repairs Outside the Warranty
- Gaugemaster may be able to provide a chargeable repair service for Infinity products that are no longer covered by the manufacturer's warranty or where the fault falls outside the warranty conditions.
- All out-of-warranty repairs must be approved by Gaugemaster before the product is returned.
- Following inspection, we will advise whether a repair is possible and provide details of any applicable charges.
- Repair work will only proceed once the customer has approved the proposed costs.

6. FREE Extended Warranty
- For additional peace of mind, Gaugemaster offers a FREE two-year Extended Warranty on eligible Infinity products.
- When combined with the 12-month Standard Warranty, this provides a total of three years of manufacturer's warranty cover from the original purchase date.
- To qualify for the Extended Warranty, you must purchase a new, eligible Gaugemaster Infinity product from an authorised supplier, register your product online within 30 days of the original purchase date, retain valid proof of purchase and comply with the terms and conditions of the Standard Warranty.
- The Extended Warranty provides the same level of cover as the Standard Warranty, subject to the same exclusions and conditions, but extends the period of protection by an additional two years.

6.1 Registering Your Infinity Product
- Registering your Infinity product is quick and straightforward. Simply visit the Gaugemaster Infinity Warranty page and complete the online registration process within 30 days of purchase.
- Warranty Registration: **gaugemaster.info/infinity-warranty**
- Please retain your original proof of purchase, as this may be required if you make a warranty claim.

6.2 Extended Warranty Conditions
- The Extended Warranty applies only to eligible products successfully registered within the required period.
- The additional two years of cover begins immediately after the original 12-month Standard Warranty expires.
- Registration does not alter the original purchase date or restart the warranty period.
- The Extended Warranty remains subject to the applicable Standard Warranty terms and conditions.

7. Your Statutory Rights
- This manufacturer's warranty is provided voluntarily by Gaugemaster Controls Ltd. and is separate from your statutory rights as a consumer.
- These rights may apply independently of the manufacturer's warranty and may continue beyond its expiry.
- Nothing in this warranty excludes, restricts or otherwise affects your statutory consumer rights.

8. Warranty Terms and Updates
- Gaugemaster may update these warranty terms from time to time.
- Any changes will apply in accordance with applicable law and will not retrospectively remove or reduce warranty benefits already granted to customers.
- The warranty terms applicable to your purchase will remain effective for the relevant warranty period, unless subsequent changes provide additional benefits or are otherwise agreed in accordance with the law.
- The latest warranty information, registration details and applicable terms can be found at: **gaugemaster.info/infinity-warranty**

4.4. PUBLICATION INFORMATION

This manual has been written for Gaugemaster Infinity Digital Wired Software Version 2.0. Features, functions and operating procedures may change with future software updates. Please refer to any supplementary update sheets provided for details of amendments or additional features introduced in subsequent versions.

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Track diagrams featured throughout this manual have been created using AnyRail model railway track planning software and are reproduced with the kind permission of AnyRail.

Latest Instructions
The latest versions of all Gaugemaster Infinity instruction manuals, supplementary guides and software update information can be found on our website:
gaugemaster.info/infinity-instructions

Finally, thank you for choosing Gaugemaster Infinity Digital. We have put a great deal of care and attention into developing a control system that makes operating your model railway both enjoyable and rewarding, and we hope it becomes an important part of your hobby for many years to come. Whether you're taking your first steps into digital control or managing a large and complex layout, we're delighted to be part of your model railway journey. From everyone here at Gaugemaster, we wish you many happy hours of railway modelling!

This product is not a toy and contains small parts which may harm or choke a child.
Not recommended for children under 14 years old unless supervised by an adult.
Not suitable for use outside or wet conditions. Do not leave unattended when in use.

Warning: Contains magnets. Keep away from pacemakers and other implanted medical devices.

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