

Safety Notes

- This product is not suitable for children under 14 years of age. Handle with care.
- This product is intended for indoor use only.
- This Elite Digital Control system is only to be operated with the Hornby recommended transformers.
- The transformer included is not a toy; it is a "Transformer for Toys".
- Before use the transformer should be examined for damage to the casing, plug pins and cables. In the event of such damage, the Elite unit should not be used until the transformer is replaced with a new Hornby recommended unit. Never attempt to open the unit yourself.
- Before cleaning any part, disconnect the transformer from the mains electricity supply.
- Do not use liquid for cleaning.
- Wires without a connecting means are not to be inserted into outlets.
- The output terminals of the transformers must not be connected directly, or indirectly, to the output of any other mains power supply.
- Please retain these details and the address for future reference.

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All Hornby products are guaranteed against defects in materials and workmanship for a period of 6 months and Hornby Digital electronics for 1 year from the date of purchase.

To qualify for the guarantee, the product must have been used and maintained according to the manufacturers instructions, and will only be covered when used in conjunction with officially approved Hornby accessories and components. While every possible care and attention has been taken by Hornby to ensure that the product arrives to you in pristine condition, we cannot accept liability for any subsequent misuse of the product. It is the responsibility of the consumer to ensure that the product is maintained as per the servicing details provided.

For reliable programming it is important that the track and wheels of all locomotives and wagons used with the Elite Digital system are kept clean. If any defect occurs during the guarantee period, then the item in the first instance should be returned to the place of original purchase. Alternatively, if any such defect occurs during the period of guarantee, then please contact your Hornby Service dealer for advice. Or, the product (or component), may be forwarded to Hornby Hobbies Ltd, carefully packed, with a covering letter enclosed giving full details to:

Repairs Department, Hornby Hobbies Ltd, Westwood, Margate, Kent CT9 4JX. UK.

Please include a copy of the original sales document showing the product reference number, date of purchase and from where purchased and any other requested information relating to the product. Please obtain a Certificate of Posting at the time of despatch.

Exclusions

Subject to the exclusions below, the product will be repaired or replaced free of charge, if the problem is found to be due to either workmanship or materials. The repair/replacement will be provided as promptly as possible without significant inconvenience to the consumer:

- The fault has been caused or is attributable to mis-use, negligent use or used contrary to the manufacturers recommendations.
- Accidental physical damage.

This guarantee is valid for products purchased in the United Kingdom and is in addition to, and does not diminish, your statutory rights. For further advice about your statutory rights contact your local authority Trading Standards Department or Citizens Advice Bureau.

This warranty only covers Hornby manufactured items. Please retain these details and address for future reference.



Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your local Authority or retailer for recycling advice.



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Please Note

These instructions are to be used in conjunction with **ALL** other Elite literature.

DIGITAL

Elite Version 1.4 Supplement

Elite Version 1.4 Operation and Procedures

General introduction

Welcome to the **Elite** update version 1.4. This version offers enhanced operation and additional features not available in previous upgrades of the **Elite**. New features include the ability to control up to 29 decoder functions plus support for the Hornby Sapphire decoder's unique capabilities of fuel simulation and automatic control cycle operations. Other changes include tuning of the user interface to improve access to many of the advanced features of the **Elite** controller.

Some of the procedures described in these instructions may appear lengthy due to the detailed descriptions given here, however once you are familiar with the various procedures described you will find that all the **Elite** operations are quite intuitive.

PLEASE NOTE: These instructions are to be used in conjunction with **ALL** other **Elite** literature.

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Changes in Operation

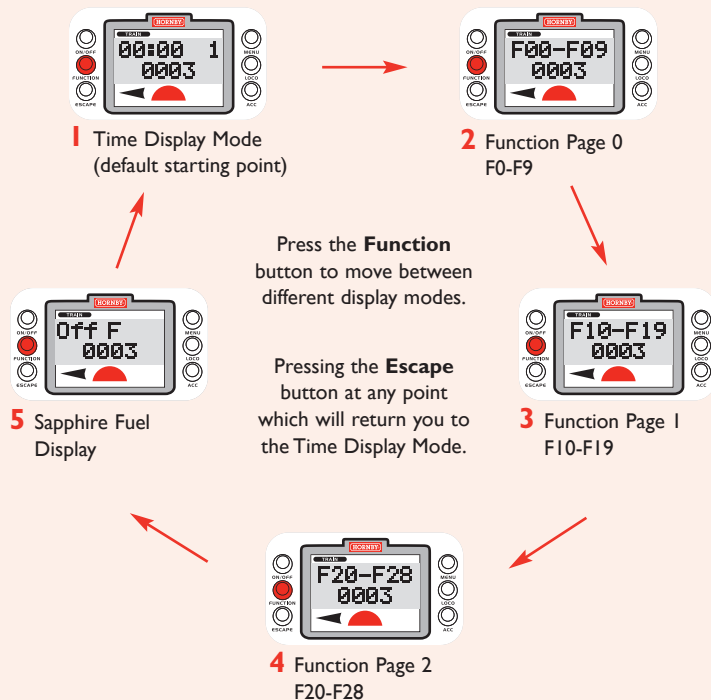
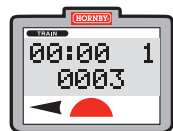
Changes to the main operation of the **Elite**

The main operation of the **Elite** user interface has been enhanced to allow the support of up to 29 decoder functions. All of the functions can be switched or controlled in a push button manner, i.e. momentarily or toggled on and off. For example momentary switching is ideal for the push button operation of a horn, whistle, etc.

The new user interface also supports the Hornby Sapphire decoder **Fuel Simulation** capability by providing a simple and easy way of displaying fuel levels within a dedicated display. Any locomotive fitted with a Sapphire decoder that is running **Fuel Simulation** can be accessed and fuel levels monitored.

To accommodate these new features the **Elite** display now has 5 different display modes. To scroll through the different display modes the **Function** button on the left of the **Elite** display must be pressed.

Connect the **Elite** to the mains. The screen displays the start up sequence shown left.



Locomotive Control

Assigning a locomotive address to a controller

The **Elite** has two controllers with locomotive addresses being assigned to either controller.

On start up locomotive address 0003 is displayed. At this stage address 0003 is assigned to both controllers, therefore either controller can be used to operate 'Loco 3'.

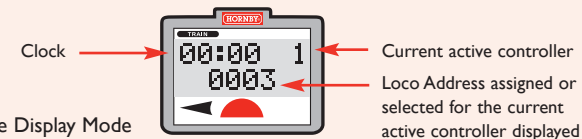


Fig. 1 Time Display Mode

To assign locomotives to a controller

From any display mode press the **Loco** button. Rotate the controller you wish to use to control the desired locomotive until the address is shown on the **Elite**'s display or alternatively you may enter the locomotive address manually via the keypad.

Press the controller until you hear an audible click.

The display will now revert to the 'Time Display Mode' showing the controller number and the new locomotive address as shown.

Pressing either controller will now take control of the locomotive assigned to that controller (in this example 'Loco 3' with controller 1 and 'Loco 8' with controller 2).

See page 6 for more information regarding selecting assigned locomotive addresses for control.

Selecting and controlling locomotives

This section describes how to select and control a locomotive address assigned to either controller.

The usual flow of events when controlling a locomotive is:

- Select the appropriate controller for the locomotive's address
- Select the address
- If desired, at this point it is possible to control speed and direction
- If desired, examine the Function Control Displays in order to operate or check the status of the locomotive's functions, e.g. lighting or sound.

We suggest that you methodically go through this sequence for each locomotive in turn. Once you are more experienced with the **Elite** you will find it is intuitive to operate and will be able to effortlessly switch between locomotives when making control adjustments... have fun!

NOTE: Selecting a controller is only possible while the **Elite** is in the **Time Display** mode. If you are not already in this mode press the **Escape** key. Once you are in **Time Display** mode press the controller you wish to access. See Fig. 1

Locomotive Control (continued)

'Quick select' of assigned locomotives

If the locomotive address you wish to control is not shown on the **Elite's** display you can cycle through the most recent 10 locomotives that have been assigned to that controller by repeatedly pressing the **Escape** button. The current speed and direction will be displayed for each locomotive in turn.

Function control

Once the desired locomotive address is displayed within the **Elite's** 'Time Display' mode you may immediately control speed and direction. However if you press the **Function** button it is possible to enter other screen modes allowing control of the locomotive's functions (and other features if a Sapphire decoder is fitted). Pressing the **Escape** key at any time will return you to the **Elite's** 'Time Display' mode.

See the following section for controlling locomotive functions, etc.

NOTE: Once a locomotive has been selected via the above procedure use the current active controller to operate the locomotive's speed and direction. The other controller will remain inactive. Any locomotive previously controlled with the inactive controller will continue in its last set state for speed, direction and function status.

NOTE: It is possible to control speed and direction with the active controller while the **Elite** is in any of the 5 display modes. If you forget which locomotive address you are controlling simply press the **Escape** key to return to the 'Time Display' mode. You can then read the locomotive address that is under control and then later return to any other display mode required.

REMEMBER: Only the active controller can be controlled at any one time. The other controller will remain inactive until it is selected for locomotive control via the 'Time Display' mode.

Locomotive functions

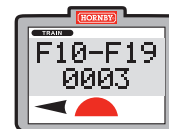
Controlling locomotive function

Elite version 1.4 supports the control of 29 decoder functions i.e. F numbers 0 to 28. All 29 functions can be activated in one of two ways. For example they may each be toggled on/off or be momentarily activated, for example in the way you may want to sound a locomotive horn or whistle.

Selecting 'Functions' for control



Function Page 0 (F0-F9)



Function Page 1 (F10-F19)



Function Page 2 (F20-F28)

Once you have selected the locomotive address you wish to control press the **Function** button to access the function control. See page 4.

The **Function** controls have been organised into 3 pages or screen displays (or function banks). **Page 0** Functions 0-9, **Page 1** Functions 10-19 and **Page 2** Functions 20-28. These correspond to the **Elite** display modes shown on the left. When accessing a function you must select the appropriate function page for the function number you wish to access.

Firstly, to familiarise yourself with the function control press the **Function** key.

The examples on page 8 describe the procedure for accessing various function numbers.

Locomotive functions (continued)

Function control examples



Page 0



Page 0, Function 0



Page 1



Page 1, Function 14



Page 2



Page 2, Function 28

Note: Each time a function is activated its corresponding icon will be illuminated within the appropriate **Function Page** to indicate that this function is now activated. See examples below. For **On/Off** or **Momentary** action of functions see page 9.

Examples of function control

For **Function 0** select **Function Page 0** by pressing the **Function** key until the screen display is as shown.

Press the 0 key on the key pad and the small **Function** number **0** will illuminate on the lower left of the display.

For **Function 6** – if not already selected, select **Function Page 0** as described above. Press the 6 key on the keypad. **Function Icon 6** will illuminate on the display.

For **Function 14** – if not already selected, select **Function Page 1** by pressing the **Function** key until the screen display is as shown.

Press the 4 key on the keypad. **Function Icon 4** will illuminate on the display.

For **Function 15** – if not already selected, select **Function Page 1** by pressing the **Function** key as described above and press the 5 key on the keypad. **Function Icon 5** will illuminate on the display.

For **Function 21** – if not already selected, select **Function Page 2** by pressing the **Function** key until the screen display is as shown.

Press the 1 key on the keypad. **Function Icon 1** will illuminate on the display.

For **Function 28** – if not already selected, select **Function Page 2** by pressing the **Function** key as described above and press the 8 key on the keypad. **Function Icon 8** will illuminate on the display.

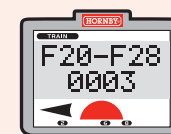
Multiple function control examples



Function Page 0 (F0-F9)
Function numbers 0, 1 and 6 are active



Function Page 1 (F10-F19)
Function numbers 10, 13 and 15 are active



Function Page 2 (F20-F28)
Function numbers 22, 26 and 28 are active

Toggle ON/OFF and Momentary action

Toggle ON/OFF

To toggle a function **On** or **Off** click and release the appropriate numbered key on the key pad, please do not hold the key down. This operation works the same way you would switch on a domestic light in your house.

Momentary action

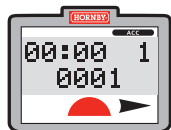
To momentarily activate a **Function** press and hold the appropriate numbered key down for as long as you wish. The **Function** will now activate for as long as you continue to keep the key pressed. The **Function** will cease as soon as you release the key.

Function Control in practice

If you are controlling many locomotives, it is good practice when you select a locomotive that you cycle through the different **Elite** function displays to check which **Functions** have been activated for that particular locomotive. Also, if the locomotive is running **Fuel Simulation**, you can check the current fuel level by examining the **Sapphire Fuel Display**. See page 12.

Points and Accessories

Accessing and controlling Points and Accessories



To access **Point** and **Accessory** control mode, press the **ACC** button on the right hand side of the **Elite's** display. The display will show the current status of the last accessed **Point** or **Accessory** address. If no **Point** or **Accessory** address has been accessed in this session since power up then address **0001** will be displayed.

'Quick select' of Point and Accessory addresses

If you have previously accessed a **Point** or **Accessory** address; then pressing the **Escape** will allow you to cycle through all previously accessed **Point** or **Accessory** addresses in the **Elite's** memory.

Controlling Points and Accessories

The **Elite** transmits two possible control positions in respect of **Points** or **Accessories**. Usually these will correspond with the switching of a Point. The two possible positions are indicated by the directional arrows on the **Elite** display.

Clicking the **LEFT** controller will switch the **Point** in one direction, clicking the **RIGHT** controller will set the **Point** in the opposite direction.

Note: When switching solenoid points motors, it is advised to wait a few seconds between each activation if the point motors are connected to the same point/accessory unit as this will allow the unit to recharge between each operation and helps to avoid 'switching failures'.

Using both controllers to control a **Point** or **Accessory** is a major change from the way previous versions of the **Elite** have operated. This change has been made so that if for any reason a Point failed to switch it is now possible to fire the Point again with a single click of the corresponding controller. Also, the control procedure is now aligned with the operation of the Hornby **Select** controller.



Selecting a new Point or Accessory address

While in **Loco** control mode, press the **Acc** button. The display will show the current status of the last accessed **Point** or **Accessory** address, or if no **Point** or **Accessory** address has been accessed in this session since power up then address **0001** will be displayed.

To enter a new **Point** or **Accessory** address for control press the **Acc** button again – the display will now be as shown.

This indicates that you are in **Acc** (**Accessory**) control mode.

Depending on which controller you use to select the **Acc** address, this number will show controller **1** or **2**. It is not relevant to the operation of an **Accessory** if controller **1** or **2** is displayed.

You may now either enter the **Point** or **Accessory** address via the keypad or by rotating one of the controllers. When the desired address has been entered, press either of the controllers. You will now have control of the selected **Point** or **Accessory**. See above for details for controlling the **Point** or **Accessory**, and also 'Quick' access to other previously entered **Point** or **Accessory** addresses.

When you have finished with the **Point** or **Accessory** control press the **Loco** or **Menu** button to return to **Loco** control mode.

Programming the Sapphire

Simple programming of the Sapphire decoder's unique features

The Hornby Sapphire decoder has two unique features that can be controlled and programmed via dedicated menus and displays within the **Elite** version 1.4. These two features are:

Fuel burn simulation

The locomotive will stop when the 'fuel' has been completely depleted. The term 'fuel' is used to describe both coal and diesel. See page 13.

Automatic control cycle

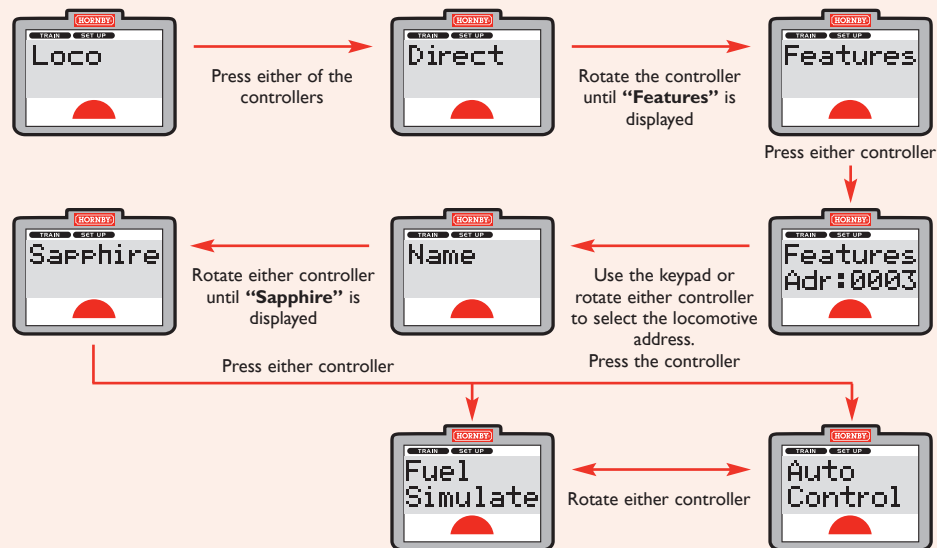
The Sapphire decoder can be programmed to carry out a sequence of events under fully automatic control without any user intervention. The control cycle can be set to run once or repeat from the start. See page 16.

Once the display shows "**Sapphire**" press the controller and you will then be shown either the "**Auto Control**" or "**Fuel Simulate**" programming menu sections. You may toggle between either programming section by rotating either controller. Once the desired programming section is shown, press either controller to enter the desired programming section.

How to access the Sapphire programming menus

The flow diagram below shows how to enter the **Elite's** Sapphire programming menus.

First press the **Menu** button.



Fuel simulation

Programming Sapphire Fuel Simulation



Fuel Simulation

First an initial fuel quantity has to be set after which you may then run **Fuel Simulation**. This initial fuel quantity is used every time you choose to refuel the locomotive.

To set the initial fuel quantity go to the "**Fuel Simulate**" section of the Sapphire programming menu as shown on page 12.

To set the initial fuel quantity

Press either controller.

Enter the initial fuel quantity via the keypad or by rotating either controller.

Press either controller to confirm – a red LED illuminates for approx. 4 seconds while the fuel quantity is programmed into the decoder.

Press the **Menu** button to return to **Loco** control, the **Fuel Simulation** is now ready to run.

Fuel simulation (continued)

Running the Fuel Simulation



Press the **Loco** button and select the locomotive with which you wish to run the simulation and then cycle through the display pressing the **Function** button until you get to the **Fuel Simulation** mode display. See page 4.

To switch on the simulation

Press the **On/Off** button to turn on the simulation.

When the fuel quantity has been read back from the decoder the fuel left will be displayed.

This example shows an initial fuel quantity of 15. Rotate the relevant controller and take control of the locomotive. After a while it will be noticed that the 'fuel' quantity will deplete at a rate dependent on the locomotive throttle setting.

When a locomotive runs out of fuel it will stop and will require refuelling. If a locomotive is equipped with headlights/rearlights they will flash when the fuel has been fully depleted.

See the following page regarding **Refuelling**.

Note: The Sapphire decoder calculates the rate of 'fuel consumption' based on the speed value being transmitted by the controller. For example a higher speed value will be required for a locomotive under a heavy load in order to maintain speed as opposed to a lightly loaded locomotive running at equivalent speed. Fuel will be consumed faster the higher the speed step transmitted from the controller. This means that the actual speed of the locomotive is not the governing factor regarding 'fuel consumption' but the actual throttle setting.



Refuelling

Return to the **Sapphire Fuel Display** mode and press the **On/Off** button once to turn the **Fuel Simulation** off. This will cause the throttle for the locomotive to be set to minimum (stationary). Press the **On/Off** button once more to refuel and restart the simulation. You will now have to set a new throttle setting. This process can be repeated as many times as desired.

How many locomotives can I run with Fuel Simulation at the same time?

During the simulation the **Elite** only reads back the locomotive address that is designated within the **Fuel Display** thus you can run as many Sapphires with fuel simulation as you wish up to the control limitation of the **Elite** of 254 locomotives.

You can switch to other locomotives and control them while the simulation is running – returning to the locomotive running the **Fuel Simulation** to check fuel status as desired. The **Fuel Simulation** function is a Sapphire based function, once it is turned on the Sapphire will continuously calculate fuel values whether it is being monitored by the **Elite** or not.

Choosing initial fuel quantities

Generally a locomotive running at maximum throttle setting will stop after a few minutes if the fuel quantity is set to 10, however this is a very rough guide. It is probably best to start at a value of 5 and work upwards until you find the optimum quantity for your needs. The maximum quantity you can set is 254.

Advanced Simulation

The **Elite** display feature only offers support for **Fuel only** simulation, however the Sapphire decoder is actually capable of **Water** and **Fuel** simulation.

This does involve the setting of two independent quantities which will be used in the consumption calculation. Using the CV read back capabilities of the Sapphire and utilising **RailCom** it is possible to monitor both water and fuel levels as they are calculated. Carrying out this type of simulation involves some experience in dealing with CV values, etc. Please refer to the Sapphire instruction leaflet for the full set of CVs involved in the complex simulation. The **Elite Fuel**

Consumption display feature sets **Water** to maximum automatically thus even though the water quantity is being depleted, it will not run out before the **Fuel** therefore **Water** is ignored.

Automatic Control Cycle (ACC)

The Sapphire's Automatic Control Cycle (ACC)

The **Elite** has a dedicated menu feature that simplifies the process of setting up the Sapphire's **Automatic Control Cycle** feature therefore no deep knowledge of CV manipulation is required.

An **ACC** is made up of a series of Events which are selected for use within the **ACC** by **Control** parameters, thus setting up the **ACC** is executed in two parts i.e. **Event** and **Control**.

In the **Event** part of the programming menu actions can be set up for the desired locomotive to carry out. For example an optional initial delay and then speed, direction and time parameters. See page 18.

In the **Event Control** part of the programming menu **Event(s)** may be selected which can run and if needed stop the **ACC** from running. See page 21.

First go to the “**Auto Control**” section of the Sapphire programming menu as shown on page 12.

Then to select either “**Event**” or “**Control**” programming follow the procedure below.

In the flow diagram below, rotating either controller will cause the display to toggle between “**Event**” and “**Control**”. Setting up the **ACC** involves first the use of the “**Event**” area of the programme menu and then the “**Control**” section of the programming menu.

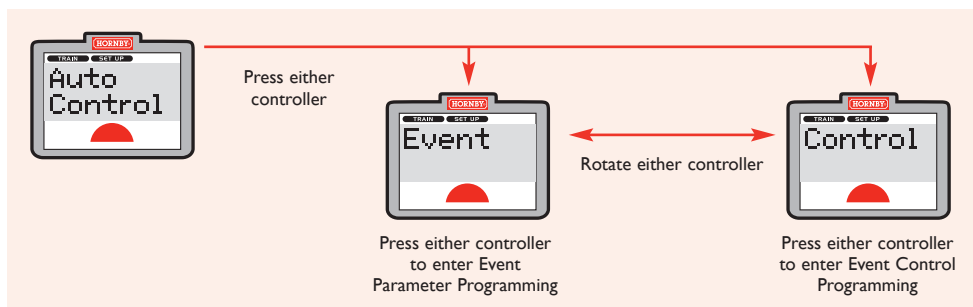
Go to page 18 for details of the “**Event**” parameters and the procedures for entering values.

Go to page 21 for details of the **Event Control** parameters and the procedure for selecting how the programmed **Events** will operate.

The procedure for disabling **ACC** is described on page 23.

An example of setting up a full **ACC** is given on page 18.

Note: We recommend that you work through this example to understand how the complete **ACC** programming procedure functions.



ACC Event Parameters Description

There are 4 possible locomotive **delay time/speed/direction/duration Events** that can be set to run consecutively. There is also an optional **Event Delay** parameter that allows the operator to set a delay time before the 4 possible locomotive **speed/direction/duration Events** start running. The **ACC** starts as soon as the locomotive is placed on the track and powered. Using the **Event Delay** parameter will prevent the locomotive trying to run while being placed on the track.

Note: An **ACC** can be set to automatically repeat or be set to run through once. See **Event Control** menu.

When an **ACC** is set to 'repeat' the cycle will return to the first locomotive **delay time/speed/direction/duration Event** set after the initial delay time that has been set in the “**Event Delay**” parameter. The **Initial Delay** time will not be used on subsequent cycles. When the track is powered down/up in the case of an EMERGENCY STOP or the locomotive is removed/replaced on the track the **ACC** will commence using the “**Event Delay**” time.

Note: When planning an **ACC** it is often worth making a note of exactly what you are intending to do. This will help you keep track of the parameter values that have been set. The **Elite** does not have the ability to read back the parameter values set when using the **ACC** programming feature.

Note: Each parameter value of the **ACC** is stored in specific CV locations – **delay time/speed/direction/duration** for each event.

It is therefore possible to read back and verify all **ACC** parameters via the appropriate CVs using the standard programming functions of the **Elite**. You will need to consult the Sapphire instruction leaflet for the list of **ACC** CV locations and follow the usual CV programming/read back procedures of the **Elite**.

In practice using the procedure described on the following pages is quick and easy and verification of parameters is not really necessary provided you have kept notes and are methodical in your approach.

A complete example of the programming procedure for a specific **ACC** is given in the next section.

Part 1 – Programming the **Event** Parameters is described on page 18.

Part 2 – Programming the **Event Control** Parameters is described on page 21.

Setting the Event Control Parameters

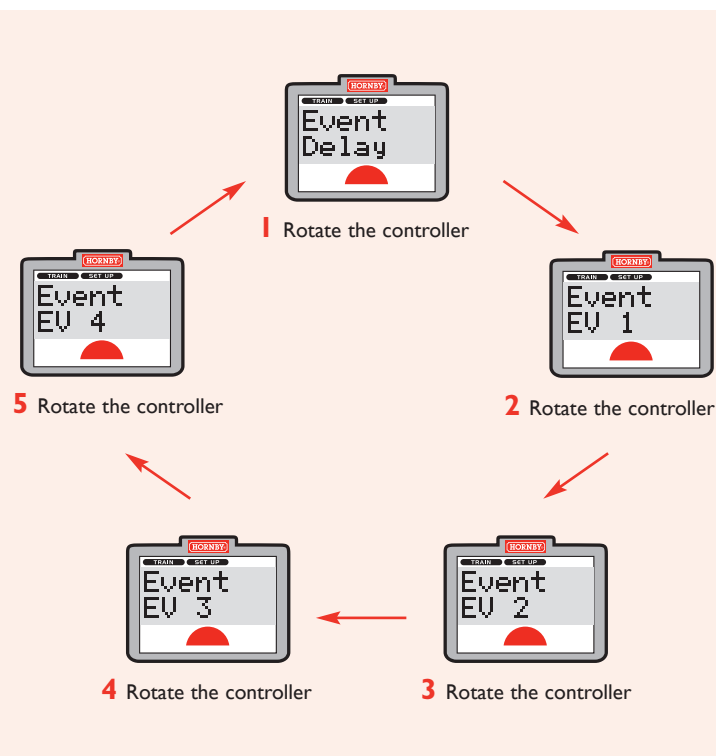
The Sapphire's Automatic Control Cycle (ACC) (continued)

Example: To set the Sapphire **ACC** so that a locomotive can carry out the following actions.

- After an initial delay of 20 seconds.
- The locomotive will run forwards at speed 50; for 10 seconds.
- The locomotive will then stop for 5 seconds.
- The locomotive will then run in the opposite direction at speed setting 25; for 30 seconds.
- The locomotive will then stop for 7 seconds before restarting the cycle.

Part 1 – Setting the Event parameters

With the display showing “Event” (page 16) press the chosen controller. The screen is now set for the **Event** sub-headings.



Setting the initial Event Delay parameter

With the **Elite** display showing “Event Delay” press the chosen controller. Screen display is then as shown.

Press the controller to move from hours to minutes to seconds. Note how the relevant letters change case. This signifies the relevant input section.

Use the keypad or controller to set the time parameter. Press and release the controller once the desired value has been set.

After ‘seconds’ (“SS”) have been set the display will return to “Event Delay” as shown.

For this example input 20 in the ‘seconds’ section and then click a controller.

Note: If no initial delay is required set the **Event Delay** parameter to zero seconds.

Note: The **Event Delay** parameter is only used once in the **ACC**. When the initial delay has been completed the **ACC** will continue to run, cycling through each **speed/direction/duration** Event in sequence.

The next stage after setting up the **Event Delay** parameter is to configure each of the actual locomotive running **Events** for **speed/direction/duration** as desired in the **ACC**.

Setting the Event Parameters (continued)

Part 1 – Setting the Event parameters (continued)



Setting the locomotive speed/direction/duration Event parameters

Rotate the selected controller so that the **Event** sub-menus are cycled (page 18). Select “**EV 1**” and press the controller.

Use the keypad or a controller to set the speed parameter.

Press the controller when the desired value has been set. You will then move to the next sub-menu.

Rotate a controller to set the locomotive direction parameter: “**Normal**” or “**Reversed**”. Press the controller when the desired direction has been set. In this example the direction was already set to “**Normal**”. Press the controller to move to the next sub-menu.

Use the keypad or rotate a controller to set the time parameters. Press the controller when the desired value has been set which in this instance is 10 seconds.

Press the controller to move between hours, minutes and seconds.

After ‘seconds’ have been set the display will return to “**Event EV 1**” as shown.

The EV number shown at the end of this part of the procedure will be dependent on the EV number you have been setting.

EV 1 (Loco speed/direction/duration) has now been set.

To set the remainder of the locomotive speed/direction/duration **Events** in our **ACC** example continue as follows:

With the **Elite** display showing “**EV 1**” simply rotate either controller and press to select the next **Event**. The programming procedure for each ‘EV’ is identical. It is best to work methodically through each **Event** in sequence. i.e. **EV 1**, **EV 2**, **EV 3** and then **EV 4**.

For our example set each of the following **Events** thus:

EV 2 – Stop (speed=000) for 5 seconds. If desired, you can control the locomotive directional lighting by changing the locomotive direction parameter. e.g. the locomotive directional lighting is set to correspond with the next **Event**.

EV 3 – Run in the opposite direction at speed setting 25 for 30 seconds.

EV 4 – Stop for 7 seconds, you can set the direction parameter if you wish.

When you have finished configuring **Events** press the **Escape** button and go to page 21.

Setting the Event Control Parameters

Part - 2 Setting the Event Control parameters



Rotate the controller



Press and release either controller



Rotate either controller



Rotate either controller



Rotate either controller



Rotate either controller

See page 22 for detail of setting Event Control Parameters



Rotate either controller



Rotate either controller



Rotate either controller



Setting the Event Control Parameters (continued)

Part 2 – Setting the Event Control parameters (continued)

Follow the flow diagram (previous page) to access each possible **Event Control** option.

Each of the displays shows a different **Event Control** option.

The “**Control Disable**” option will be used later to disable the **ACC**. See **Disabling/Stopping ACC** on page 23.

The first 4 displays are ‘run once’ options (**Control EV 1, EV 1-2, EV 1-3, EV 1-4**).

The following 3 displays allow you to select a ‘run continuously’ option (**Control EV 1-2R, EV 1-3R, EV 1-4R**).

In our example we wish to run all 4 programmed EVs on a continuous basis. To set our **ACC** running, scroll through each display option until you get to “**Control EV 1-4 R**”.

Press and release either controller. The **ACC** will start to run as soon as the controller is clicked.

The display will now show “**Control**”.

Press the **Menu** button to return to ‘normal’ locomotive control (i.e. to manually control non-ACC locomotives).

Note: While the **ACC** is running, it is not possible to control the locomotive manually. However, locomotive functions e.g. lighting may be manually controlled.

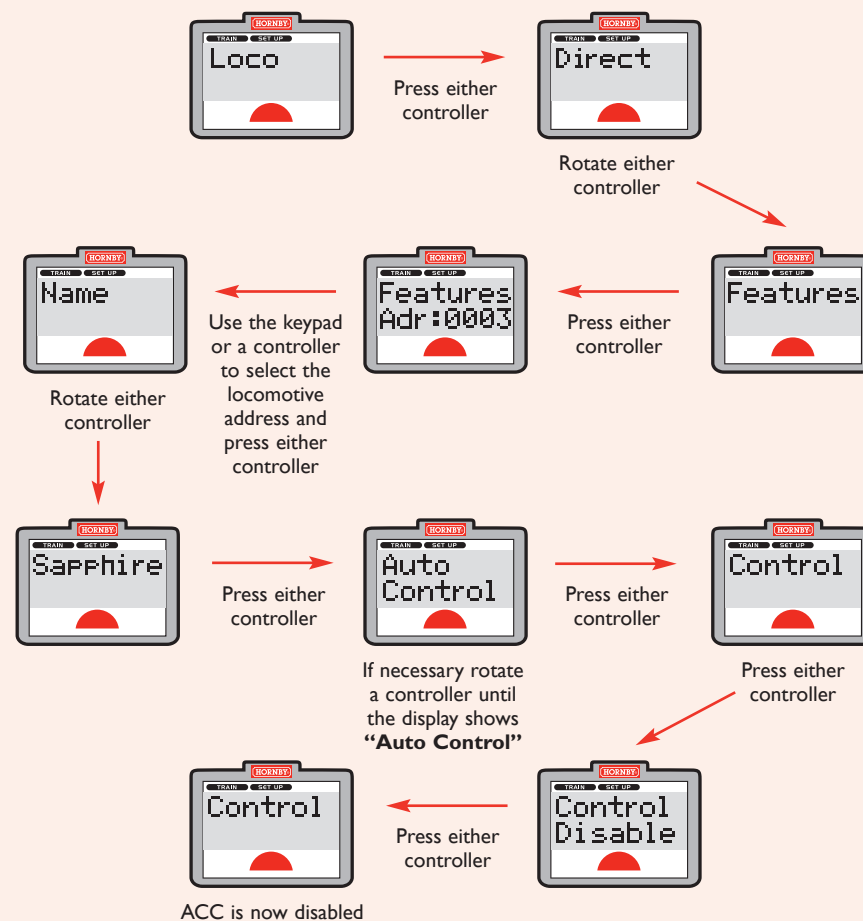
Note: The **Emergency Stop** button will halt all locomotives on the layout including those under **ACC** operation.

When power is restored to the track all locomotives under **ACC** will restart which means that they will commence running their full **ACC** cycles, including any “**Initial Delay**” times if set.

Turning off an ACC operation within a specific locomotive

From the locomotive control screen press the **Menu** button.

Follow the flow diagram below.



Press the **Menu** button to return to normal locomotive control

Configuring a decoder

What is CV29?

All decoders have a 'special' CV that allows the configuration of a range of basic decoder parameters. This is CV29. The **Elite** has a built in programming menu that allows very easy programming of these parameters without the need for 'binary' calculations to work out the 'decimal' values required to set the desired parameters within CV29.

Below is a brief description of each parameter controlled by the value programmed into CV29. For full detailed information regarding CV29, etc. please consult NMRA DCC Standards.

DIRECTION

Used to change the default direction which can be set to run the locomotive in reverse when the controller is indicating a forwards direction. This CV is usually set to default **"Normal"**. Changing to **"Reverse"** can be useful if a motor has been 'wired in reverse' in order to correct direction of running without dismantling the locomotive and rewiring the motor.

FUNCTION LIGHTING

Speed step setting for headlight/rearlight control. Some decoders do not read the 'direction' correctly from the speed command sent from the controller. Changing this parameter within CV29 tells the decoder where to find the direction information within the speed command. On most decoders lighting direction is handled correctly no matter which speed step setting is used i.e. 14, 28 or 127 speed steps.

POWER CONVERSION

Loco decoders usually by default can operate under DC control on an analogue layout. However, you can disable this feature by changing this parameter. If a decoder fitted locomotive is not going to be run on any analogue layout Hornby® recommends that the parameter is set to **"DCC Only"**.

RAILCOM

Some advanced decoders support **"RailCom"**. This is a feature which enables a decoder's CVs to be 'read back' while the locomotive is on the 'main' track. The Sapphire automatically uses this feature during Fuel Simulation. It is possible to disable/enable RailCom with this parameter. If running a Sapphire with **"Fuel Simulation"** set to **"Enable"**.



SPEED TABLE

By default the way a locomotive responds to the throttle is governed by CV2, 5 and 6. These CVs govern **Vstart**, **Vhigh**, and **Vmid**, which sets a basic 'speed curve'. However, advanced decoders allow you to build a custom speed curve by programming values into CVs 77-94. This parameter in CV29 allows you to choose which speed curve to apply. The Sapphire supports advanced 'speed curves'.

ADDRESS LENGTH

Most decoders can be programmed with either **"Short"** or **"Extended"** address. e.g. Short addresses 1-127, long addresses 1-9999, where each type of address stored is different. This parameter is usually handled automatically when programming a decoder.

DECODER FUNCTION TYPE

Some decoders can operate either **Loco** or **Accessory** modes. The 'type' can be set with this parameter.

Note: If a feature is not supported within CV29 on a particular decoder you will not be able to programme it, however nothing will change if you do attempt to change it with the **Elite**.

Note: R8249 Hornby DCC Locomotive Decoder only supports **Direction**, **Function Lighting**, **Power Conversion** and **Address Length**.

Programming CV29 with Config menu

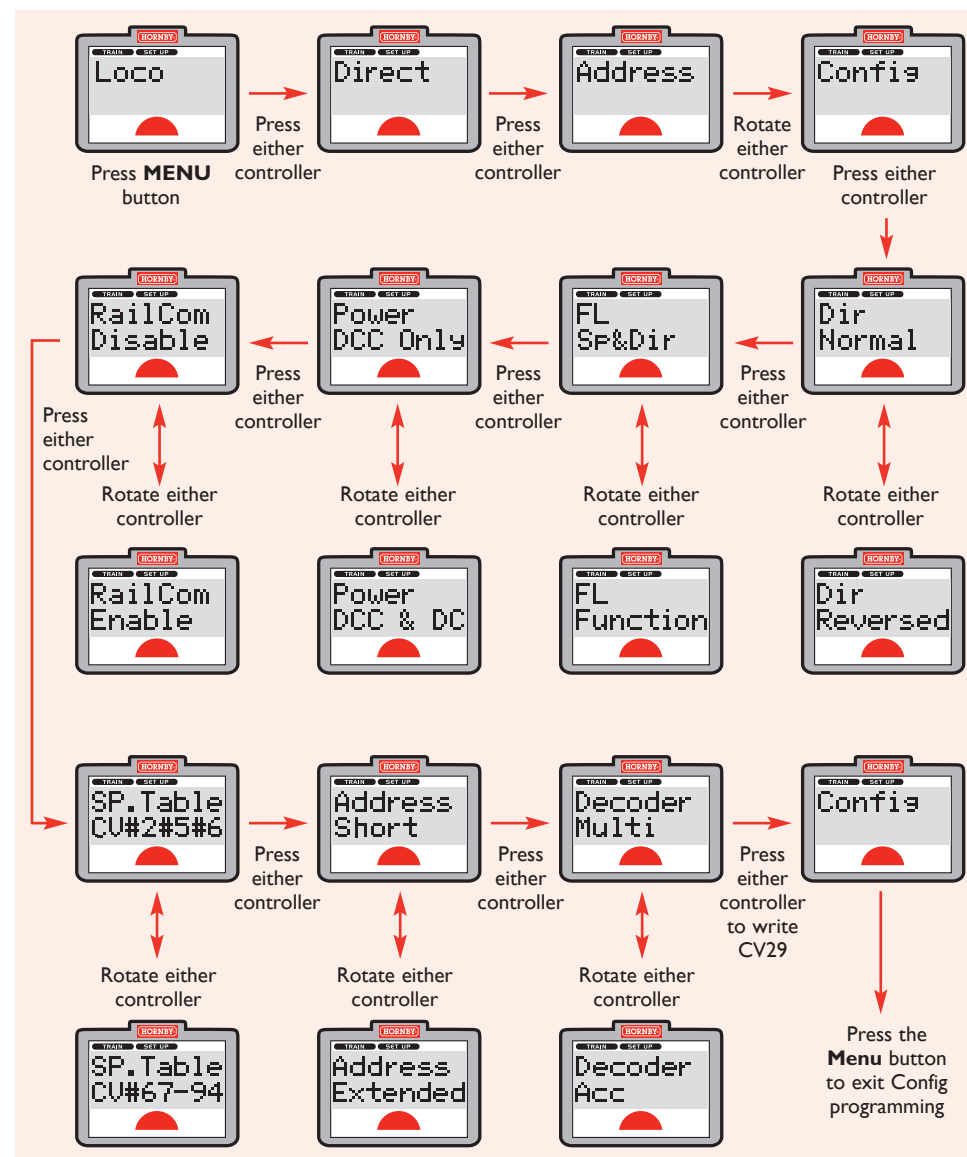
Programming CV29 with the **Elite** Config menu

Note: When you run through the procedure outlined in the flow diagram on page 27 you must complete the entire sequence by selecting the desired parameter value of each parameter as you progress through the sequence.

Each of the 7 parameters controlled by CV29 may be toggled between two different states by rotating either controller; when the desired parameter is displayed press either controller to move on to the next parameter. At the end of the sequence pressing either controller will write CV29 (the red light will flash). When the Write sequence has finished the display will show “Config”.

It is recommended that you click the **Menu** button now to return to **Loco Control** mode.

See the flow diagram on page 27.



CV Programming procedure

The CV programming procedure found under **Menu** > “**Loco**” now remembers the last CV number programmed, thus making access to CVs quicker during the programming procedure.

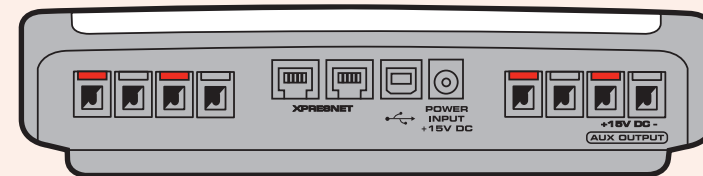
Please see your **Elite** manual for details of CV programming.

Address programming of 'dummy' cars i.e. decoders with no motor attached

Unlike earlier versions of the **Elite**, version 1.4 allows address programming of 'dummy' cars. The Pendolino, HST, etc. locomotives carry decoders in their 'dummy' cars for the sole purpose of controlling directional lights. These decoders have to be programmed with the same address as the 'driven' car's decoder for directional lighting to work correctly under **Function** control from the controller.

Note: It is not possible to read back a decoder without a load connected (i.e. no motor).

The **Elite** Input and Output connections



All connections to the Hornby **Elite** are carried on the rear panel of the controller.

TRACK – This is the main DCC power output connected to the track. For troubleshooting purposes the output can usually be measured with an AC voltmeter. The reading should be approximately 15-16V AC.

PROG – This is the DCC programming output which connects to a dedicated programming track or siding arrangement. Unlike the TRACK output it is 'current limited' thus it will not 'blow up' a decoder if an error has been made in hard wiring/connection to the locomotive, etc. This output connection is only live during programming (pulses of 15-16V AC).

XPRESSNET – These two sockets are RJ12 types, and are used for the connection of 'Walkabout' units and other equipment that supports the XpressNet bus standard. Typically, you will connect Walkabout **Select** controller/s to these sockets.

Note: When connecting Walkabouts do not connect them in a 'daisy chain'. When connecting two Walkabouts, connect one to each socket. If you wish to use more than two Walkabouts you will require 'wye adapters' R8237 Hornby Digital RJ12 Connecting Socket.

All Walkabouts must be connected with cable type R8266 (round cross section). Do not use R8236 (flat cross section).

Note: R8236 is only used to connect R8239 Hornby DCC Booster units.

USB Port – This connection is for a standard USB cable, not miniature types as supplied with smart phones or cameras. The USB port is used to connect to a computer in order to install downloadable updates or for use with computer based DCC control software, e.g. Hornby RailMaster.

POWER – The power input socket is connected to the supplied P9300W (previously C7024) Hornby 15 Volt; 4 Amp power supply in the UK. In the USA the P9303 (previously C7033) – Digital 15 Volt 4 Amp power supply may be used (see Scalextric USA).

BOOST – This output connection is used to feed a low power version of the DCC track signal to drive one or more R8239 Hornby DCC Booster units. (The BOOST output must not be connected to the main track/power bus!) For troubleshooting purposes the output can usually be measured with an AC voltmeter. The reading should be approximately 15-16V AC.

AUX OUTPUT – Suitable for powered accessories not connected to the DCC system. On small layouts the AUX OUTPUT can be used to power lighting, etc. However, any current drawn from this output will have a limiting effect on the maximum number of locomotives it is possible to run from the **Elite**. This is because locomotive power is shared with the AUX OUTPUT. Therefore, it is recommended to drive accessories etc. from external power supplies.