"Vent Van" TTS Sound Decoder Specifications

Operation	
Control Modes	DCC Only

Sound Functions	
Number of Sounds	29
Types of Sounds	Single Spot Sound, Looped Sound, Complex Looped Sound
Audio Amplifier Output	Class D. Power 1.68W @ 8 ohm
Speaker Impedance & Power Rating	8Ω 1 Watt
Number of Sound Channels	3

Physical	
Speaker Dimensions	40mm x 20mm
Dimensions Sound Decoder	27mm x 14mm x 5mm
Termination	8 Pin Plug NEM652 NMRA

WARNING Not suitable for children under 14 years of age. Handle with care. Please retain these details and the address for future reference.

5. Troubleshooting

Check Decoder Address

Reset Decoder

Reset Controller

Clean/Rails/Wheels/Pickups

Check Connections

For Customer Care contact:
+44 (0)1843 233525
or via website **www.hornby.com**

IMPORTANT
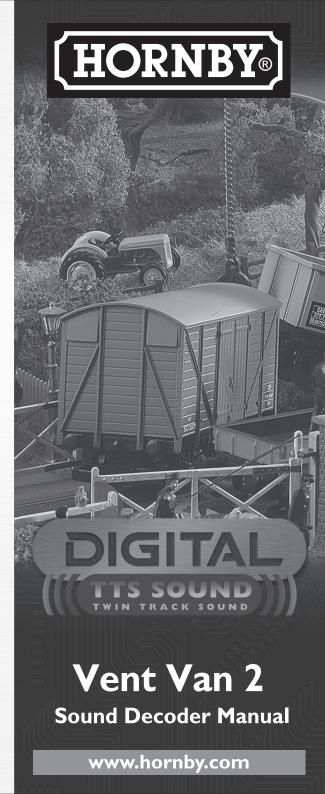**LIMITED WARRANTY.**

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DIGITAL
TTS SOUND
TWIN TRACK SOUND

Vent Van 2
Sound Decoder Manual

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1. Introduction

Your Hornby "Vent Van" is fitted with a "Hornby TTS decoder" which supports 29 different playable sound effects. Each sound is selected by function numbers F0 - F28 on your DCC controller. The decoder can playback a combination of 3 sounds at the same time. Volume level of each sound can be set individually.

Main Features

- Supports Short and Long decoder addresses
- 29 Sounds
- Single Play Sounds…
- Looped Continuous…
- Looped type Sounds with random elements…
- Three sound channels allowing for simultaneous play of any type of sound i.e. single, loop and random loops.
- It is possible to alter the volume of each sound through an individual dedicated CV. i.e. there is effectively a simple volume mixer on board the decoder.
- Volume may be adjusted in 9 steps, 0–8.

Installation on your layout...

The "Vent Van" primarily is designed as a "static van" that may be permanently "parked up" in a siding or other location.

While the wheel pickups are adequate for operation there will be some rail and pickup maintenance required over time. It is therefore recommended that the "Vent Van" be connected permanently to your DCC power system/bus. We have provided solder tags underneath the Van to facilitate a permanent connection to your layout's DCC power bus.

While the "Vent Van" is designed for static installation, it could be towed like any other wagon, but because of limited pick-up and wheel centres, continuity issues may occur when travelling over points and technical sections of your layout. Some sounds are useful while the van is being towed e.g. Wagons Passing. Some users may want to tow the van to a specific location and then activate various sounds in that location.

2. Basic Decoder CV Table

The TTS Vent Van decoder can be regarded as a locomotive type decoder for all programming and read-back functions. i.e. treat as if programming a locomotive. All programming modes are supported. i.e. Direct, Paged, Reg and Operational. Operational is sometimes known as "Programming on the Main."

CV	Default Value	Value Range	Description	
CV1	3	1-127	Short decoder address (1-127)	
CV7	xxx	Read only	Decoder Firmware Version PIC (Subject to Change)	
CV8	48	Read only**	Manufacturer ID **(All Reset = 8) (Sound Volume Reset Only = 5)	
CV17	192	192-231	Long Address High Byte	(128 - 10239)
CV18	100	0-255	Long Address Low Byte	
CV29	0	0 or 32	Used to Set Address Pointer 0 = Short Address 32 = Long Address	
CV158	xxx	Read only	Decoder Sound Version (Subject to Change)	
CV159	3	Read only	Decoder Sound ID	

Please note
Any CV numbers outside of the ranges listed in the tables in this leaflet are not supported. Attempts to programme will not result in any error message and readbacks will always come back as the value 255.

CV7 and CV158 contain version numbers. These may change over the lifetime of the product. If necessary, carry out a readback to ascertain which version you have. Generally, version 010 or 000 will indicate the first release of the firmware in each case.

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3. CV Notes

CV8. Manufacturers ID and Reset

If read, this CV will report the manufacturers ID for Hornby Hobbies 48.

Writing the value "8" to CV8 will perform a "general reset" of all CV variables to factory default values. The decoder also has a unique feature i.e. writing the value "5" to CV8 will reset all sound volume levels to default levels.
i.e. CV160 to CV 189 will be returned to default values i.e. 4.
All other CV values (non-sound related) will be left as programmed by the user.

CV29. Decoder Basic Configuration

Ref	Function	Add this value to activate function
Bit5	Long or Short Address	Add 32 if required to manually control of long address selection

Further Notes re CV29 (Default = 0)

Bit5 (Add 32 to enable) The decoder stores short addresses in CV1 and Long Addresses in CV17 and CV18. Bit5 is used to tell the decoder where to find its allocated address. i.e. for Long Addresses Bit5 is enabled. This feature is usually handled automatically. It is not usually necessary to edit the value of this bit.

Please note, if a decoder is returned to default settings i.e. address 03 etc., if Bit5 is turned "on" to make the decoder operate in "Long Address" mode, the decoder will respond to address 100. Turning Bit5 to the "off" state will return the decoder to "Short" Address mode. ie. address 03.

If the decoder has been previously used with both short and long addresses, toggling Bit5 on/off allows the decoder to use either the short or long address previously programmed.

4. Playing Back Sounds on the Vent Van

The table supplied lists all 29 available sounds. The sounds have been divided into "Scenario Groups" for easy reference. However, any sound from any "Group" can be played with any other sound in the list up to a maximum of 3 at any one time.

Please note, some controllers only offer "toggle" control for function activation. i.e. Once the function key is pressed it remains "On." If a specific sound is designed to play once for a predetermined duration, the function key will need to be pressed again to return the controller to "function off" status before it is possible to activate the same function again. e.g. the Hornby SELECT operates in this manner while the Hornby ELITE has both "toggle" and "momentary" control of functions, which is ideal for controlling both "Play Once" and "Looped" spot sounds. Please check your controller's manual for more information.

Please note, if your controller does not display the current status of any particular function it may be necessary to keep a note of the sounds that you have currently enabled. The Vent Van can play many different sounds and it can be quite difficult to keep track of what sounds are actually enabled at any one time.

There are Three Types of Sound Available

Single Play… this is where a sound plays once for a specific time when the associated Function number is enabled. The function should be used as a "momentary" action i.e. not toggle on/off. Please note that some sounds are quite long in this group due to the nature of the sound event that they portray. E.g. a loco arriving etc. See notes re "Channel Release time."

Looping… this is where a sound plays continuously for as long as the associated Function number is enabled. The nature of these sounds does not contain a random element and the loop is a basic playback of one sound segment repeating. This is a toggle on/off function.

Random Looping... this is where a sound plays continuously for as long as the associated Function number is enabled. These sounds loop, but the loop is divided into segments and each segment is played in a pseudo random order, thus allowing some variation on the sound loop playback. This is a toggle on/off function.

Channel Release Time… if all 3 channels are occupied with sounds playing, for a new sound to be played it is necessary for one of the three sound channels to be released. Depending on which channels are currently playing there will be a specific time before that playback channel will become free after the sound has been disabled. i.e. function turned off. Each sound has a maximum release time value i.e. it is the maximum time required to let the sound finish playing before the channel becomes free.

Looped sounds, which are in mid playback loop will need to finish the current loop segment before the channel can be released to play a new sound. Also, single play sounds will need to complete playback before the channel is released. We have indicated on the sound list the maximum wait time that may be involved in each sound case. Depending on how long the current sound has been playing when it is "disabled" the channel wait duration can be up to the time quoted in the table.

Channel Occupancy Warning… The Vent Van can reproduce quite complex sound combinations and it is sometimes difficult to tell exactly how many sounds are playing at one time, i.e. all 3 channels could be occupied with looping type sounds and playback of any further sounds will not be possible until one of the loops is manually disabled freeing up a channel it is not possible to play any other sounds.
We have therefore included a feature to try and provide a warning that you are about to play back 3 looped type sounds. i.e. looped sounds that could occupy all three channels permanently.
Summary… Warning Operation… If two loops are playing and a third loop selected/enabled for playback an "old type" telephone will ring before the third looped sound commences playing.
• **Note..** This system will work in most cases however, if a sound has been disabled in order to free up a channel but it is still playing through to the end of it's cycle and a new sound is enabled, the "warning telephone" may not ring. Please be aware of the Channel release information described above.
• **Note..** If all three channels are busy playing sounds an enabled new sound will not work. The controller will show the function as enabled but the sound will not play. The correct procedure is to disable the new sound and then release one of the occupied channels by disabling another sound, then reselect and enable the desired sound.

5. Volume Setting CVs

There are 9 possible settings i.e. 0-8. 0 is no sound, while 8 is full volume. The sound set of the Vent Van has not been specifically balanced relative to each other. You can use the CV range CV160 -CV189 to set individual; volume levels for each sound. See table supplied. (The default value for all volume CVs is 4.)

CV190 is used to quick set all sounds to a level between 0 – 8.

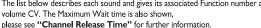**Suggested Sound volume Set-up Procedure.**

The simplest way of setting up an overall volume level is probably to select a sound which appears to be particularly loud at default volume setting and then set it to an acceptable level using CV190. This operation will set all sounds relative to each other to the same volume value. (Not necessarily equal volume but pre-sets the starting point for further adjustment.)
Now carry out individual adjustment to each sound using the associated CV as specified in the table supplied.

It is recommended that the volume setting CV adjustment procedure is executed in "Operate Mode." i.e. with the Vent Van sitting or connected to the "Main Track." In this way, it is possible to play a sound and adjust its volume as you go i.e. you will hear the volume change as you make changes to its volume CV value.

6. The Sounds

The list below describes each sound and gives its associated Function number and volume CV. The Maximum Wait time is also shown, please see **"Channel Release Time"** for further information.

Large Station, Transport etc.		Sound Type	Max Wait Time	Volume CV	
F0	Large busy main railway station ambient sounds	Random Looping	13 Seconds	CV160	
F1	Electric Train Arrives	Single Play	11 Seconds	CV161	
F2	Electric Train Passing	Loop	11 Seconds	CV162	
F3	Electric Train Depart	Single Play	14 Seconds	CV163	
F4	Steam Locomotive taking on Coal from tower/chute	Loop	12 Seconds	CV164	
F5	Steam Locomotive taking on Water from water tower	Loop	10 Seconds	CV165	
F6	Passing Flat Wagons	Loop	6 Seconds	CV166	
F7	Level Crossing Warning	Loop	1 Second	CV167	
F8	Signalman Sets Multiple Points	Single Play	12 Seconds	CV168	
F9	Diesel Double Decker Bus (AEC RT) - Stop to Stop	Loop	29 Seconds	CV169	
F10	Twin Engine propeller aeroplane fly over (DC3)	Single Play	12 Seconds	CV170	
Around the Farm					
F11	Cattle and Sheep Auction	Loop	9 Seconds	CV171	
F12	Sheep	Random Loop	2 Seconds	CV172	
F13	Cattle	Random Loop	3 Seconds	CV173	
F14	Old Diesel Tractor	Loop	5 Seconds	CV174	
F15	Shepherd with his Sheep dog herding Sheep	Random Loop	8 Seconds	CV175	
In the Village/Town					
F16	Bin Collection (Diesel Lorry)	Loop	20 Seconds	CV176	
F17	Milkman with electric Milk float - Door to Door	Loop	24 Seconds	CV177	
F18	Milkman with horse drawn cart - Door to Door	Loop	19 Seconds	CV178	
F19	Ice Cream Van (Chimes - Greensleeves)	Loop	20 Seconds	CV179	
F20	Church bells (Full Peal) Maybe a wedding?	Loop	9 Seconds	CV180	
Incidents and Emergencies					
F21	Speeding Car - Coming and going.	Random Loop	6 Seconds	CV181	
F22	Car Crash!	Single Play	11 Seconds	CV182	
F23	Breaking a glass window	Single Play	3 Seconds	CV183	
F24	Old type Burglar Alarm Bell	Loop	2 Seconds	CV184	
F25	Modern Burglar Alarm	Loop	2 Seconds	CV185	
F26	Emergency Vehicle - Bell - Fire/Ambulance/Police (1920 - 1970)	Loop	5 Seconds	CV186	
F27	Emergency Vehicle - Nee Nah - Fire/Ambulance/Police (1970 - 2000)	Loop	4 Seconds	CV187	
F28	Emergency Vehicle - Yelper - Fire/Ambulance/Police (2000 - Present)	Loop	9 Seconds	CV188	
Special					
	Telephone Ring - System Channel Occupancy Warning			CV189	
	Quick Set all Volumes- Not Readable			CV190	

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7. It is only the limit of your Imagination

The sounds in this Vent Van are divided into various groups. Any sound, from any group can be played with any other; up to the limit of 3 sounds at any one time. You may have decided to portray different real-life scenarios, scenes and incidents on your layout, with this TTS vent van we have provided many useful sounds that will bring life to your layout. If you have the first Vent Van installed on your layout this second van will add a further 29 sounds and in combination allow 6 sounds to be played back at any one time. Do feel free to experiment with the sounds available, there are many combinations of sounds possible that can be integrated into your layout...

The first group of sounds listed are all related to railway sounds i.e. a busy mainline station and external railway sounds, there is also a bus and an aircraft fly over for good measure. Enable the "Main Railway Station" scene by pressing **F0**, the continuous random looped sound of a "large busy railway station" will play. Trains will arrive, doors will slam, announcements will be made, and passengers will walk about the platform. You can then add **F1** (Electric train arriving) or possible **F2** and **F3** to give added depth to the scenario by adding a passing and departing electric trains. All this would make for a very busy mainline station. For a quieter station try just playing the sounds of the arriving, passing and departing electric trains individually i.e. a less busy station could be created. Close by the station, in a siding, "steam locomotives" are taking on coal and water... **F4** and **F5**. Flat wagons could pass by **F6** adding to the overall sound scape you are creating.
Further down the line there might be a level crossing with a signal box. **F7** activates a level crossing warning sound while **F8** will play the sound of a signalman setting several points in one go.
There is a bus stop nearby where a diesel double decker bus is stopping… Press **F9** for the sound of an AEC RT bus stopping. The conductor will ring the bell and the bus moves off. A Douglas Dakota DC3 flies over... **F10**

In the second group of sounds we move away from the station and to the countryside. Down the line there is a farm. The sound of a Sheep and Cattle auction is in the air **F11**. Try adding extra sheep and cattle sounds with **F12** and **F13**. **F14** plays an old diesel tractor sound. Some way off a shepherd is working his sheep dog. **F15**.

In the third group of sounds we move on to a small town or maybe a village... many familiar sounds can be heard. **F16** will play the sound of bin men on a collection. **F17** and **F18** will play the sound of a milkman on his round. We have two different periods of milkmen here... **F17** is more modern with an electric milk float. **F18** is from an earlier period where the milkman has a horse and cart. Other sounds you might hear include an ice cream van playing a familiar tune **F19** or the sound of the full peal of church bells in a wedding celebration. (**F20**) You may want to add the sounds of the bus and aeroplane (**F9** and **F10**,) these sounds could also fit into the town/village scenario.

The final group of sounds i.e. **F21** to **F28**, cover the emergency services and incidents that may happen in a city, town or village. You may have already modelled these sorts of scenes on your layout, now you have sounds to support them. If you haven't modelled these sorts of things on your layout, the sounds on the Vent Van are a good excuse to add them!
There is a range of emergency vehicle sounds covering 3 roughly different periods ranging from the 1920s through to the modern day... **F26**, **F27** and **F28**.
These vehicles could be responding to various incidents. e.g. Maybe a speeding car crashes... try this.. press **F21** you will hear a speeding car randomly accelerating and decelerating. To make the car crash, press **F22** and then immediately press **F21** again (to turn off the sound of the speeding car.) The car sound will stop ending in the sound of a car crash. You can follow this with an Emergency vehicle bell or sirens. (**F26**, **F27**, **F28**)
The speeding car sound **F21** could be left running without ending in a crash.. **F21** is a random loop and will play for as long as you wish.. you could have a police chase, try adding one of the Emergency vehicle sounds.. **F26**, **F27**, **F28**.
Or maybe there is a smash and grab at the town jewellers? Play **F23** for the sound of Breaking a glass window, choose and play one of the burglar alarm sounds e.g. **F24** (older alarm bell) or maybe **F25** (modern alarm siren.) You could add the "Speeding Car" as a getaway vehicle (**F21**).. before giving chase with the police etc.. **F26**, **F27**, **F28**.
The sounds in this last group certainly allow you to create some mayhem on your layout…. Have fun!