Uhlenbrock digital

IntelliSound 4- Module 32 500 and 32 504

The Sound module for all Locomotive decoders with SUSI Interface

Characteristics

- Intelligent Sound control with 320 second Sound buffer
- Efficient output final stage for 8 Ohm loudspeaker
- Generates the operating sounds of the locomotive, brake squeal and random noises while stationary e.g. auxiliary aggregates, coal shovelling etc.
- Simultaneous rendition of 4 independent sound channels
- 2 sound dependant special function outputs for fire box, smoke generator, and others
- Suitable for all DS3, DS4 and DSU Sounds
- Custom locomotive sounds and other sounds can be provided with the IntelliSound Creator and installed with SUSIkomm
- 12 additional adjustable sounds like e.g. whistle, bell, horn, uncoupling sound, door warning signal, or own custom sounds
- Function Mapping to f 28
- Switchable random sounds
- Realistic rendition of tramcar transmission, switch step in an E-Loco (only DS4), with adjustable switching time
- Sound adjusts with engine loading like up hill and down hill
- With smart start function: The Sound module stops the locomotive decoder, when starting until the vehicle's engine synchronise with the sound.
- Separate adjustable volume for almost all sound events (only DS4)
- Muting with fade in and out function
- Adjustable alternative volume e.g. for Night operation
- Input for Hall sensor e.g. for wheel synchronous chuffs in steam locomotives, or curve squeaking in electro and diesel locomotives
- Analogue operation with start-up and shut-down noises, when used with a suitable decoder
- Up to three modules can be connected to a locomotive decoder e.g. for multi-engine locomotives
- With solder pads for Energy buffer 71800 for interruption free sound
- Replaceable locomotive sounds, in additional diverse Sounds are available on the Internet. (www.uhlenbrock.de)

Description

IntelliSound 4 Modules plug into the SUSI interface of locomotive decoders which are marked with the corresponding logo.

The sound modules deliver faithful sounds like those in the prototype locomotives. With the intelligent Sound control the reproduced sounds are matched to particular operating situation, for example up hill and down hill.

When the locomotive starts the Sound module stops the motor (via the locomotive decoder) until the vehicle's sound is synchronised. So the engine howls e.g. with a diesel locomotive before it moves. If the loco is pulled up the brake squealing sounds. When stationary different random sounds are heard e.g. compressor, auxiliary generator and coal shovelling. The random sounds are switchable by special function key. With diesel locomotives the motor start-up and motor run down sounds can be heard. With Rail-cars or and with E-Locos the notching sounds of the situation are played. The module's two special function outputs are controlled directly by the sounds. So it is possible to have the fire box light flickering automatically while "coal shovelling" is heard or glowing of brake discs simulated. With the 4 channel technology the running sounds of the locomotive and 3 additional locomotive specific sounds can be controlled by function key. These are depending on loco type, whistle, horn, bell, door warning or self recorded sounds. The auxiliary sounds can be varied in length, - short on pulse results e.g. a short whistle, a longer on pulse results in a longer whistle. These auxiliary sounds are called up with function keys f0 - f28. The reproduction of steam locomotive running sounds can wheel-synchronous or be controlled by speed step.

If the locomotive drives out of view on the layout i.e. into the shadow station, then 'audio muting' with a function key, can be used to slowly fade out the entire sound of the locomotive and when it re-emerges to slowly fade the sound in again. Almost all sounds can have their volume independently set with CV programming.

In combination with a correspondingly suitable locomotive decoder the IntelliSound 4 module can even be in analogue mode with start-up and shutdown sounds.

'Own' sounds are provided with the auxiliary software "IntelliSound-Creator". Here entire locomotive sounds and self-recorded sounds can be created. The software is available from the website, www.uhlenbrock.de.

For loading all sounds the USB Sound loading adapter 31050 is required. The SUSIkomm Software is required for transferring the sounds into the IntelliSound 4 Modules and is supplied with the loading adapter or can be downloaded free of charge from our Internet site www.uhlenbrock.de. For transferring DS3 and DSU sounds Software version 3.0 is sufficient. For transferring DS4 sounds version 4.0 and above of the software is required.

DS3 sounds continue to be available for download, free of charge. The new DS4 sounds can be obtained as they become available. The latest information regarding this is available from our internet site www.uhlenbrock.de.

Installing a Sound Module

SUSI interface

Insert the SUSI plug into the SUSI socket of your decoder. The sound module is supplied with power and data from the decoder.

Loudspeaker

To the unconnected black wires from the IntelliSound 4 module you can connect 8 Ohm loudspeakers from our assortment. Every loudspeaker requires a resonance shell. Sometimes the locomotive housing or wagon chassis can be used as a resonance shell. If this is not possible we offer a number of speakers with resonance shell. As a general rule: "The larger the loudspeaker, the fuller the sound".

If a speaker with a resonance shell is used then it must be glued to the housing completely air tight. Also seal the cable outlet and mounting holes on the speaker.

The loudspeaker is then installed in the vehicle in such a way as to have the largest possible opening to the outside of the vehicle.

Due to the increased power output it may be necessary to reduce the volume with CV programming when smaller speakers are used.

Additional Connections

On the underside of the module there are solder pads for connecting auxiliary functions such as fire box, smoke generator and wheel pulses for synchronous smoke (see the sketch below).

Sound dependent Auxiliary Functions

Outputs SA1 and SA2 can be used to control loads that are sound dependent.

In a steam locomotive a smoke generator can be connected to SA1 and a light in the fire box connected to SA2.

In electro-locomotives or trams two lights can be connected. A simulator for glowing brake discs can be connected to SA1 or a brake light and pantograph disconnection arc is available on SA2.

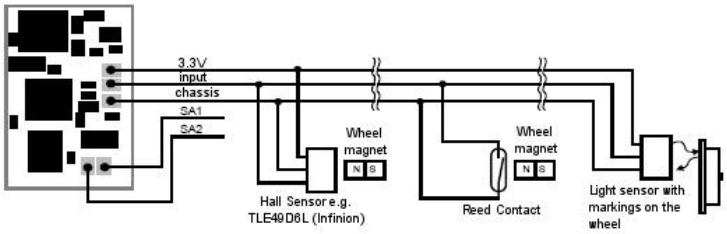
On diesel locomotives only output SA1 is used for glowing brake discs.

With the mentioned loads the other pole is connected to the +20V of the locomotive decoder, or added to the red SUSI wire on the solder pad on the sound module. With LEDs please take care with the correct current limiting resistor and the polarity.

External input for e.g. Wheel rotation pulses

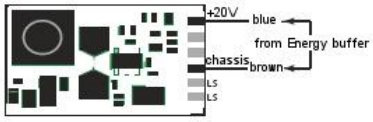
For production of wheel synchronous smoke puffs on a steam locative or curve squeaking on an electro locomotive or diesel the sound module has a sensor input. As sensor a reed contact or a Hall sensor can be used in conjunction with a magnet on one of the locomotive wheels (bogie for curve squealing) or a light gate with the appropriate markings on one of the locomotive wheels.

The reed contact, the Hall sensor or the light gate are shown in the diagram below, with the location of the solder pads.



Connecting an Energy buffer 71800

For interruption-free sound enjoyment an Energy buffer 71800 can be connected to the sound module as shown in the diagram.



Fastening the Sound module into the Vehicle

Using the double sided adhesive pad provided, affix the decoder to the desired location in the locomotive. The adhesive pad protects the decoder from coming in contact with conducting surfaces and holds it in place.

Please note that according to the EMV laws the component may only be operated in vehicles that carry the CE symbol.

Start-up

Double check the correct installation with a continuity tester or an Ohmmeter.

When placing the device make sure it does not come into contact with any conducting surfaces in the vehicle. Also ensure that a shot circuit cannot occur when the locomotive is close, and that the wire is not cinched.

A short circuit can destroy the component and eventually the locomotive electronics!

Switching the Sound on and off

Individual sounds can be turned on and off with special function keys on the digital center. Assignment of sounds to the function key is done with CV's 903 to 931. When delivered the sounds are assigned as shown in the Table.

Sound number	Type of Sound	Factory setting
1	Bell, whistle or horn	Special function f4
2	Whistle or horn	Special function f2
3	Running sounds	Special function f1
4	Uncoupling and door warning	Special function f3
5	Mute function	Special function f8

If the locomotive travels out of the visible range of the layout, e.g. into the shadow station, then by switching the mute function (f8 "on", factory setting) the entire sound is faded out. Internally the module keeps rendering the sound according the diving situation. If the mute is switched off again then the sound is faded back in and can be heard again in keeping with the current running situation.

Volume

The overall volume can be changed with CV 902. In CV 908B an alternative volume (e.g. for night operation) can be setup, and can then be switched with a special function key programmed into CV 914A. The volume the auxiliary sounds can be adjusted in Bank B (see CV-Table).

Setting the dynamic Characteristics of the Sound

Some sound characteristics change according to current running state of the vehicle and can be adapted to the type of locomotive being used. The settings affect load regulation (up/down hill), the speed step at which the brake squealing cuts in and the speed step at which the cooling fan cuts in for electric locomotives.

CV 937 changes the sensitivity to load regulation. If this is set to a value of 1 then the sound reacts to the load change rapidly. A value of 8 results in a slower reaction. Using CV 938 you can set the speed step at which the sound changes with uphill (load increase) running and with CV 939 the speed step at which the sound changes when running down hill (load reduction). All values depend on the decoder and the locomotive being used and must be determined by test runs.

CV 936 specifies the speed step at which the brake squealing cuts in when the speed of the locomotive is reduced.

CV 934 specifies the speed step at which an electric locomotive turns on the sound for the cooling fan.

The repetition rate of the chuffs in steam locomotive sound can be adjusted. CV 938 sets the time between 2 chuffs at the top speed and CV 939 set the time between 2 chuffs at the lowest speed. The higher the value is in the respective CV the longer the time between the chuffs. CV 937 specifies the that the idle sound is heard during idle running.

All factory default values for Uhlenbrock Locomotive decoders are usable with H0 Locomotives, but can be changed to suit other locomotives without problems.

Loading new Sounds into the Module

If a new sound is to be loaded into the module then it must be separated from the locomotive decoder and the connected to the IntelliSound Loading Adapter with the SUSI plug.

The operating steps to load the sounds are outlined in the instructions for IntelliSound Loading Adapter.

A large selection of free DS3- Sounds can be found on our Internet site "www.uhlenbrock.de".

Loading DS4 and own Sounds into the Module

With the "IntelliSound-Creator" Software you become the sound engineer. With this Software you can create your own locomotive and auxiliary sounds. These, as the DS4 sounds, can then be uploaded into the IntelliSound 4 modules with the SUSIkomm Software (from Version 4.0).

Operating several Sound or Function modules on a Loco Decoder

When several (up to three) Sound or Special function modules are operated with a decoder with SUSI interface then each module can be assigned an CV address range in CV 897 so that all module can be programmed independently of each other. Firstly each module is individually connected to the locomotive decoder. Each module can now have its own address range assigned in CV 897 (1, 2 or 3, see CV Table). If after that all the modules are connected together they can be addressed and programmed using their own CV address range. The changed CV addresses depending on the CV address range are specified in the list of CV's. Please note the explanation in the previous sections refer to address range 1. When changing the address range you must remember to use the CV addresses for the 2nd and 3rd address range from the list of CV's.

Programming

In the factory default state all decoder options are changed using configuration variables (CVs) according to the DCC standard. The sound module can be programmed with SUSIkomm software and Sound Loading Adapter, or via the locomotive decoder. The decoders can be programmed by an Intellibox, DCC Centre and Motorola Centre.

With other makes of locomotive decoder follow the instructions for that decoder.

Programming with the Intellibox

Irrespective of the format to be driven later, we recommend that the decoder be programmed via the programming menu for DCC decoders. For the exact process please read the appropriate chapter in the Intellibox manual.

Programming with DCC devices

Use the programming menu in your DCC Centre to program the decoder CVs in either register, direct CV or page programming mode. It is also possible to program the decoder on the main line using a DCC Centre. Refer to the manual of your control centre for full instructions on the process.

Programming with a Märklin Center

With a Märklin center all CVs can be programmed, but not read.

1. Switch Center off and on.
2. Select the address of the decoder and switch the light on.
3. Operate the direction change-over 5 times in quick succession with the stationary locomotive (speed step 0), until the light turns off.
4. Set the speed controller to "zero". The rear light now flashes slowly 4 times.
5. Enter the number of the CV that is to be programmed.
6. Briefly operate the direction change-over. The rear light flashes fast 4 times.
7. Enter the desired value for CV e.g. a locomotive address.
8. Briefly operate the direction change-over. The rear light flashes slowly 4 times.

If further CV's are to be programmed repeat points 5-8.

If programming is to be terminated switch the center to "STOP" or set the address to "80" and briefly operate the direction change-over.

Since a Motorola digital center from Märklin only accepts inputs of 01 to 80, the value "0" must be entered by entering the address as "80".

Page-Register for inputting CV-Numbers greater than 79

CV addresses larger than 79 can only be programmed with the help of the page register, CV66. If CV66 has a value higher than 0, then the contents of CV66 times 64 will be added to every address entered. The entered value must lie in the range 1 to 64. When leaving Motorola programming mode the page register (CV66) is automatically reset to zero.

Example

If CV82 is to be programmed with a value of 15, then CV66 must first be programmed with a value of 1. Subsequently, CV18 can be programmed with a value of 15. The decoder places the value 15 into CV82, which is derived from multiplying the contents of the CV66 (in example 1) by 64 (thus 64) and then adding the entered CV address (18).

Offset-Register for entering CV values greater than 79

CV values larger 79 can be programmed only with the help of the offset register. The offset register is CV65. If CV65 contains a value > 0, then all following programmed values are calculated by multiplying the contents of CV65 by 4 and adding the result to the entered value. When leaving Motorola programming mode the offset register (CV65) is automatically reset to zero.

Example

CV49 is to be programmed with a value of 157, then CV65 must first be programmed with the value of 25. Subsequently, CV49 can be programmed with a value of 57. The decoder places the value 4 * 25 + 57 into CV49.

Note: When programming CV65 and CV66 the contents of the offset and page registers have no effect.
Note: When you leave Motorola programming mode the Page and the Offset Registers (CV 65, CV 66) are automatically set to Zero.

Programming with a Mobile Station 1 (60652) (for Dec. 76560 and 76420 from Version 25)

The programming menu is located under the Lok menu of the Mobile Station only for certain locomotives. A locomotive which has a programmable decoder must be selected from the database.

Proceed as follows:

1. Before programming remove all locomotives except the one to be programmed from the track!
2. Set a new locomotive and select part No. 36330. Locomotive Ee 3/3 is shown on the display.
3. Press the “MENU/ESC” key and select the “CHANGE LOCO” icon. Here you will find Register Programming as the last item, with “REG” designation. Use this function to change the CV‘s of the decoder. You can write CV’s with this function.
4. Enter the CV number and confirm with the reversing button.
5. Subsequently enter the value for the CV and confirm with the reversing button.

The Mobile Station now programs the CV with the desired value.

Programming with a Mobile Station 2 (60653)

Use the DCC programming menu in the Mobile Station 2.

Table of CVs (Configuration Variables) for the Sound module

CV Address Range 1	CV Address Range 2	CV Address Range 3	Description	Value Range	Factory default
897	897	897	**SUSI Address range** 1 = from 900 to 939 2 = from 940 to 979 3 = from 980 to 1019	1-3	1
900	940	980	**Manufacturer ID**	-	85
901	941	981	**Software version**	-	varies.
902	942	982	**Sound Volume**	50-200	192
903	943	983	**function activated Sound Number x** (x = value of CV) x = 0 no Sound is activated x = 1 Whistle or Horn 2 x = 2 Bell or Horn 1 x = 3 operating noises of the locomotive x = 4 uncoupling or door alarms x = 5 conductor whistle short x = 6 station announcement x = 8 All sounds On/Off x = 11 Departure announcement x = 12 conductor whistle long x = 13 Injector / compressed air x = 14 Coal shovelling / door closing x = 15 Pump **/** compressor x = 16 Warning whistle x = 17 Blow off / not used x = 18 Vibrator / not used x = 19 Shunting notice x = 20 Announcement 2 x = 21 Braking air x = 22-25 Varies / not for all modules x = 93 Brake squealing manual x = 95 Smoke generator always at maximum x = 96 Smoke generator always off x = 97 Braking sounds off by function x = 98 Exhaust manual (E-Loco) by function x = 99 Starting hiss manual (steam loco) x = 200 Custom sound (only DSU) x = 201 Custom sound (only DSU) x = 202 Custom sound (only DSU) x = 203 Custom sound (only DSU)	0-25 93-99 200-203	0

CV Address Range 1	CV Address Range 2	CV Address Range 3	Description	Value Range	Factory default
904	944	984	**f1 activated Sound Number x** value of x according to CV903/943/983	as above	3
905	945	985	**f2 activated Sound Number x** value of x according to CV903/943/983	as above	2
906	946	986	**f3 activated Sound Number x** value of x according to CV903/943/983	as above	4
907	947	987	**f4 activated Sound Number x** value of x according to CV903/943/983	as above	1
908	948	988	**f5 activated Sound Number x** value of x according to CV903/943/983	as above	16
909	949	989	**f6 activated Sound Number x** value of x according to CV903/943/983	as above	6
910	950	990	**f7 activated Sound Number x** value of x according to CV903/943/983	as above	0
911	951	991	**f8 activated Sound Number x** value of x according to CV903/943/983	as above	8
912	952	992	**f9 activated Sound Number x** value of x according to CV903/943/983	as above	5
913	953	993	**f10 activated Sound Number x** value of x according to CV903/943/983	as above	0
914	954	994	**f11 activated Sound Number x** value of x according to CV903/943/983	as above	15
915	955	995	**f12 activated Sound Number x** value of x according to CV903/943/983	as above	0
916	956	996	**f13 activated Sound Number x** value of x according to CV903/943/983	as above	11
917	957	997	**f14 activated Sound Number x** value of x according to CV903/943/983	as above	14
918	958	998	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	0
919	959	999	**f16 activated Sound Number x** value of x according to CV903/943/983	as above	12
920	960	1000	**f16 activated Sound Number x** value of x according to CV903/943/983	as above	9
921	961	1001	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	0
922	962	1002	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	0
923	963	1003	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	0
924	964	1004	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	0
925	965	1005	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	0
926	966	1006	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	0
927	967	1007	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	0
928	968	1008	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	200
929	969	1009	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	201
930	970	1010	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	202
931	971	1011	**f15 activated Sound Number x** value of x according to CV903/943/983	as above	203
933	973	1013	Sound switch off time with long standing: 0=off, 1-255=sec.	0-255	0
934	974	1014	**Trigger level for electrical exhaust on an E-loco** 0 = immediately upon starting, 255 off = no exhaust noise	0-255	200
935	975	1015	**Configuration** **Value** Bit 0 = 0 Chuff is only controlled by wheel sensor 0 Bit 0 = 1 Chuff of a steam loco is controlled automatically and by wheel sensor 1 Bit 1 = 1 Pause before repeating whistle 2 Bit 2 = 1 Halve chuffs 4 Bit 3 = 1 Brake squeal by speed step 0 = off 8 Bit 4 = 0 Flickering fire box Bit 4 = 1 Fire box output when fireman shovels 16 Bit 6 = 1 Change fader time to 8 seconds and on automatically at power on 64 Bit 7 = 0 The end step is always on Bit 7 = 1 The end step is off when sound is off 128	0-223	137
936	976	1016	**Level for Brake squealing** 255 = no brake squealing	10-255	80
937	977	1017	**Idle time in seconds** 0 = idle off 255 = idle always on	0-255	15
938	978	1018	**Time between two chuffs** at maximum locomotive **switches** speed without contact	0-100	0
939	979	1019	**Time between two chuffs** at minimum locomotive speed without contact	50-255	245
1021	1061	1101	**Setting that determines which bank A-C is programmed** For following settings: Bank A = 1, B = 2, C = 3	0, 1, 2, 3	0
The following expert CVs (Bank A) can only be programmed when CV 1021 is set to 1. Set CV 1021 back to 0 when programming is completed!					
900A	940A	980A	Hardware Version (Product ID)	-	-
901A	941A	981A	Additional Hardware/Software information	-	-
903A	943A	983A	Relative volume for custom sound – number 200	25-255	128
904A	944A	984A	Relative volume for custom sound – number 201	25-255	128
905A	945A	985A	Relative volume for custom sound – number 202	25-255	128
906A	946A	986A	Relative volume for custom sound – number 203	25-255	128

CV Address Range 1	CV Address Range 2	CV Address Range 3	Description	Value Range	Factory default
914A	954A	994A	Special function switches alternative volume from CV 908B	0-28	21
919A	959A	999A	**Configuration** **Value** Bit 0 = 1 A diesel loco is forced into idle when the speed step in the center = 0 1 Bit 1 = 1 Switch off brake squeal as soon as the speed step is larger the 0 again 2 Bit 2 = 1 Channel 1 also without idle noises (if necessary not when running) 4 Bit 5 = 1 Channel 4 also without idle noises (if necessary not when running) 32	0-39	0
922A	962A	1002A	Speed step at which the curve squealing starts	0-127	16
923A	963A	1003A	Speed step at which the curve squealing stops	0-127	48
924A	964A	1004A	**Special function for switching the external input on an E-loco or diesel for curve squealing is switched off** Value 0-28 are mapped to functions f0 to f28 Value = 31 curve squealing always active	0-28 31	31
925A	965A	1005A	**Special function with which the waiting time in CV 926A can be switched off** Value 0-28 are mapped to functions f0 to f28 Value = 31 no switching off	0-28 31	31
926A	966A	1006A	**Starting delay** In 32ms steps (30 = 1 second, 254 = 8, 13 seconds 0 = none, 255 = off (delay is sound controlled)	0-254	255
927A	967A	1007A	In Steam locos the load time when activated by acceleration	5-20	5
928A	968A	1008A	In Steam locos the load time when activated by load increase	5-20	5
929A	969A	1009A	Steam output (SA1) when stationary with sound on 0-100%	0-100	20
930A	970A	1010A	Steam output (SA1) when running with sound on 0-100%	0-100	80
931A	971A	1011A	Steam output (SA1) in idle with sound on 0-100%	0-100	35
932A	972A	1012A	Steam output (SA1) when moving off with sound on 0-100% During the delay (CV 926A) a connected smoke generator is preheated with this value	0-100	100
The following settings are for automatically triggered sounds when driving off					
933A	973A	1013A	Delay time for automatic triggering of sound number 16 (Short whistle) 0 = always, 255 = never	0-255	255
934A	974A	1014A	Duration of automatic sound function 99 (Start hiss) 0 = starting at 1 second, 255 = never	0-255	90
The following setting are for dynamically triggered sounds					
935A	975A	1015A	Recognition “faster”	120-138	131
936A	976A	1016A	Recognition “slower”	120-138	125
937A	977A	1017A	**Sensitivity to load changes** 1 = react very fast to 8 = reacts very slowly	1-8	6
938A	978A	1018A	**Minimum trigger level with engine load increase** 128 = tone change with load increase switched off	0-128	3
939A	979A	1019A	**Minimum trigger level with engine load decrease** 128 = tone change with load decrease switched off	0-128	3
The following expert CVs (Bank B) are only programmable if CV 1021is set to 3. Set CV 1021 back to 0 when programming of bank B is completed! **The following settings are for sound parameters.**					
900B	940B	980B	Volume for chuffs (only steam locos)	0-255	255
901B	941B	981B	Volume for sound number 1	0-255	255
902B	942B	982B	Volume for sound number 2	0-255	255
903B	943B	983B	Volume for sound number 3	0-255	255
904B	944B	984B	Volume for sound number 4	0-255	255
905B	945B	985B	Volume for sound number 5	0-255	255
906B	946B	986B	Volume for sound number 6	0-255	255
907B	947B	987B	Volume for sound number 7	0-255	255
908B	948B	988B	Alternative Volume (Switchable by function in CV 914A)	0-255	64
909B	949B	989B	Volume for sound number 9	0-255	255
910B	950B	990B	Volume for sound number 10	0-255	255
911B	951B	991B	Volume for sound number 11	0-255	255
912B	952B	992B	Volume for sound number 12	0-255	255
913B	953B	993B	Volume for sound number 13	0-255	255
914B	954B	994B	Volume for sound number 14	0-255	255
915B	955B	995B	Volume for sound number 15	0-255	255
916B	956B	996B	Volume for sound number 16	0-255	255
917B	957B	997B	Volume for sound number 17	0-255	255
918B	958B	998B	Volume for sound number 18	0-255	255
919B	959B	999B	Volume for sound number 19	0-255	255
920B	960B	1000B	Volume for sound number 20	0-255	255
921B	961B	1001B	Volume for sound number 21	0-255	255
922B	962B	1002B	Volume for sound number 22	0-255	255
923B	963B	1003B	Volume for sound number 23	0-255	255
924B	964B	1004B	Volume for sound number 24	0-255	255
925B	965B	1005B	Volume for sound number 25	0-255	255
933B	973B	1013B	Volume of curve squealing	0-255	255
936B	976B	1016B	Volume for switching	0-255	128
937B	977B	1017B	Volume for brake squealing	0-255	255
938B	978B	1018B	Volume for direction change	0-255	128
The following expert CVs (Bank C) are only programmable if CV 1021is set to 3. Set CV 1021 back to 0 when programming of bank C is completed! **The following settings are for sound parameters.**					
900C	940C	980C	Diesel notch after idle	20-127	40
901C	941C	981C	Speed step for next highest gear	20-127	30
902C	942C	982C	Speed step for next highest gear	20-127	60
903C	943C	983C	Speed step for next highest gear	20-127	90
904C	944C	984C	Speed step for next highest gear	20-127	127
905C	945C	985C	Speed step for next highest gear	20-127	127
906C	946C	986C	Speed step for next highest gear	20-127	127
907C	947C	987C	Speed step for next highest gear	20-127	127
908C	948C	988C	Speed step for next highest gear	20-127	127

CV Address Range 1	CV Address Range 2	CV Address Range 3	Description	Value Range	Factory default
909C	949C	989C	Speed step for next highest gear	20-127	127
910C	950C	990C	Speed step for next highest gear	20-127	127
911C	951C	991C	Speed step for next highest gear	20-127	127
912C	952C	992C	Speed step for next highest gear	20-127	127
913C	953C	993C	Speed step for next highest gear	20-127	127

Technical Data

Sound channels for reproduction:	4
Maximum duration of stored sounds:	320 seconds
Power usage:	up to 160 mA
Dimensions:	17.8 x 11.0 x 4.7 mm

Guarantee declaration

Each component is tested for its complete functionality before distribution. If a fault should arise within the guarantee period area of 2 years, we will repair the component free of charge upon production of proof of purchase. The warranty claim is void if the damage was caused by inappropriate treatment.

Please note that, according to EMV law, the component may only be installed in vehicles which carry the CE logo.

Uhlenbrock digital

Our Contact Details:

We are available if you have any questions!

Internet: FAQs can be found on www.uhlenbrock.de

E-Mail: service@uhlenbrock.de

Hotline: +49 (0)2045 8583-27, Wed from 16:00 to 18:00 and Mon - Tue - Thur - Fri from 14:00 to 16:00

Premium Hotline: +49 (0)900 1858327 When it is urgent …. Mon – Fri 10:00 to 16:00

Service: In the event of a defect or failure send the unit together with the invoice and a short description of the fault back to us for repair.

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Made in Germany

Electronic devices do not belong in household rubbish

Part No. 32 500