

CHT-R SERIES

CHT-8R

CHT-10R

CHT-12R

CHT-15R

USER'S MANUAL



DSP-Controlled Home Theater Subwoofer



CAUTION



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CONGRATULATIONS

Congratulations on your purchase of a Velodyne Classic Home Theater (CHT™-R) subwoofer. This system represents the state-of-the-art in low frequency reproduction. Read and follow the instructions below to insure safe and proper system operation.

Warning!

To prevent fire or shock hazard, do not expose this equipment to rain or moisture. To avoid electrical shock, do not open speaker enclosure or amp chassis cover. Please observe all warnings on the equipment itself. There are no user serviceable parts inside. Please refer all service questions to your authorized Velodyne dealer.

Prior to Installation

Please unpack the system carefully. Please save the carton and all packaging materials for future use. Record the serial number in the space provided on the warranty card for future reference.

Product Features and Controls

- DSP-controlled
- Four selectable presets for customized listening mode
- Night-mode setting
- Mute control
- Built-in 160 watt (RMS) power amplifier (CHT-8R)
- Built-in 185 watt (RMS) power amplifier (CHT-10R)
- Built-in 200 watt (RMS) power amplifier (CHT-12R)
- Built-in 1000 watt (RMS) power amplifier (CHT-15R)
- Adjustable (40 to 120 Hz) low-pass crossover with Subwoofer Direct setting
- Speaker-level inputs and outputs
- 85 Hz high-pass crossover
- Line-level inputs
- Signal sensing auto turn on/off with bypass option
- Variable volume control
- Selectable phase control (0, 90, 180, or 270 degrees)
- Dual staggered low-pass crossover; 12 dB/octave initial, 24 dB/octave ultimate
- Anti-clipping circuit
- Over excursion protection
- Slot loaded design

INSTALLATION

Your new subwoofer system provides for a number of installation options. Read all the installation information below in order to determine which installation option is best for your system. Remember to perform all installation procedures with system power turned off.

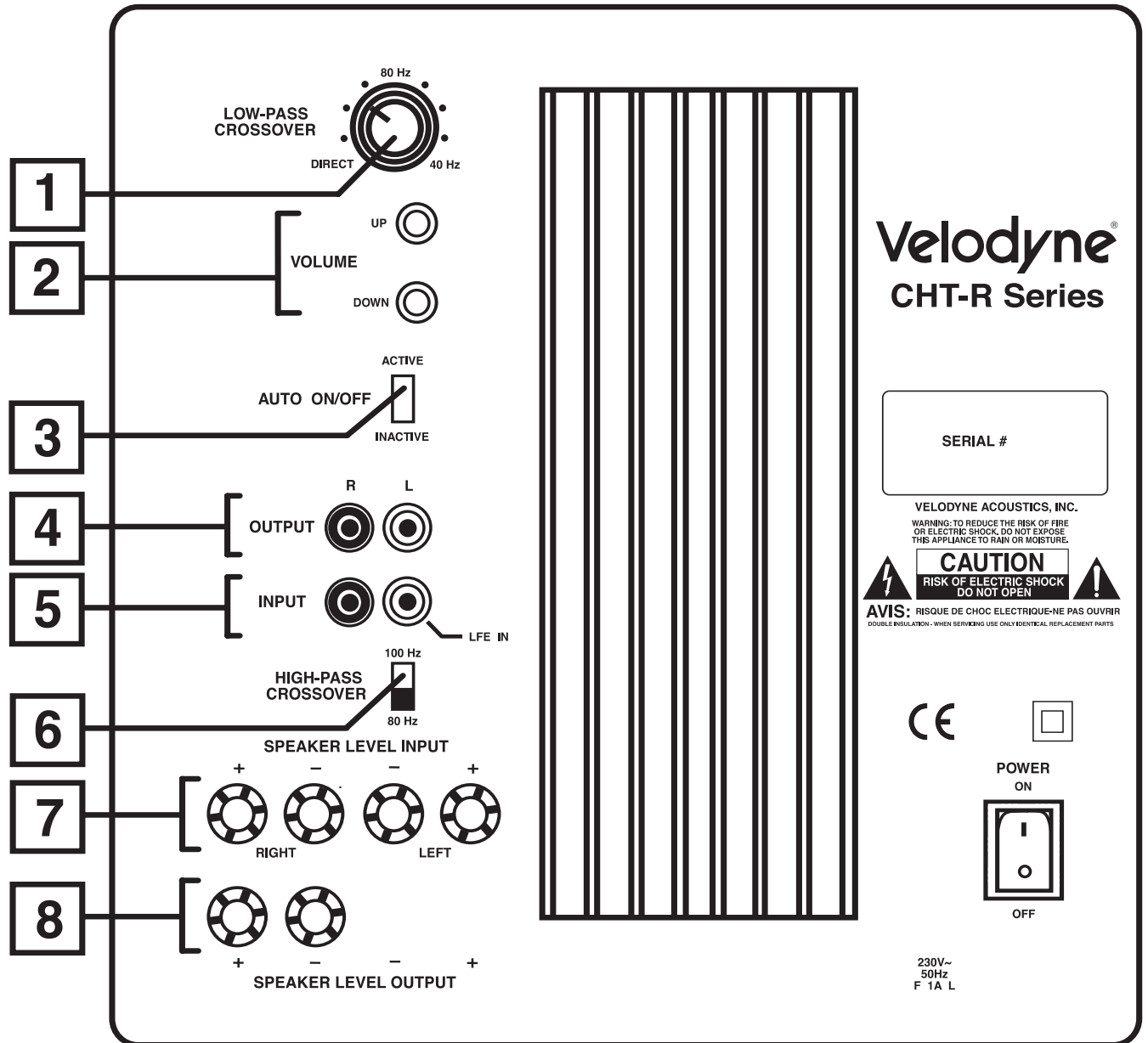


Figure 1. CHT-R Rear Panel Connections



Figure 2. CHT-15R Rear Panel Connections

REAR PANEL CONNECTIONS

Figure 1 shows the connections on the rear panel of the CHT-8R, CHT-10R and CHT-12R. Figure 2 shows the connections on the rear panel of the CHT-15R.

Following are brief descriptions of the connections described in Figure 1 and 2. More detail on these connections can be found on the next page.

(1) LOW-PASS CROSSOVER

Use this knob to select the high-frequency range at which you wish to cut off the signal to the subwoofer. When the knob is turned all the way to the left, the Subwoofer Direct feature is invoked and the subwoofer plays all frequencies up to 200 Hz.

(2) VOLUME Control

This control allows you to balance the output from the subwoofer to the main speakers in your system. This control should be set to achieve similar volume level from between both the main speakers and subwoofer. When pressing volume up or down, the speed at which the power light blinks indicates subwoofer volume - the faster the blinking, the louder the unit plays. After the volume is changed (up or down), there will also be 2 sets of center LED blinks. Slower blinks represent tens and faster blinks represent ones. If the LED blinks 3 times, pauses, then blinks 6 times, this means that the volume is set at 36. The volume range is from 1 to 99.

Note: Volume is also controllable by using the supplied remote, when defaults are restored. The default is 35 out of 100.

WARNING: Some manufacturers preset their receivers with the Sub-Out channel signal at a minimum level. It is very important to verify that your receiver Sub-Out channel is set to the same output as your front right and left channels. Refer to your receiver manual for the individual channel level adjustment procedure. If your receiver Sub-Out channel is set too low, the subwoofer may appear to have a weak output, it may sound noisy or distorted, and the Auto-On/Off feature may not work properly.

(3) AUTO ON/OFF Switch

The Auto-On/Off feature allows the subwoofer to turn itself off when not in use.

- With the Auto-On/Off switch set to ACTIVE, the subwoofer will monitor its input, and if there is no signal present for approximately 15 minutes, it will shut down and go into standby mode. As soon as a signal is present again, the subwoofer will immediately turn itself back on.
- With the Auto-On/Off switch set to INACTIVE, the auto-on/off feature is bypassed. The subwoofer will remain on until the power switch is turned off.

WARNING: If the Sub-Out channel signal level from your receiver is too weak, this feature will not operate properly. See Volume Control section (above).

(4) LINE OUTPUT

Connect these jacks to the LINE IN preamp input to use the CHT-R's internal high pass crossover. See below for a more detailed explanation of this crossover.

(5) LINE INPUT/LFE Input

Connect these jacks to the LINE OUT preamp output, LFE output, or subwoofer output jacks of your receiver/processor. If using the LFE output from your receiver or processor, plug the single cable into the "L"– LFE input or, for more signal, use a "Y" connector and feed the signal into both "R" and "L" inputs.

(6) HIGH PASS CROSSOVER Switch

This switch selects the frequency for the high pass crossover. This crossover is functional on both line and speaker-level outputs. Smaller speakers with limited low frequency output may perform better using the higher 100 Hz setting that will reduce the low frequencies sent to them. Larger speakers with greater low frequency output may be able to handle the 80 Hz setting without strain.

(7) SPEAKER LEVEL INPUT Terminals

Connect these input terminals to the speaker output terminals of your amplifier or receiver. If you use this method of connection, when you go to the receiver speaker set up menu, make sure you select the large speaker option.

(8) SPEAKER LEVEL OUTPUT Terminals

Sends a crossed-over speaker-level signal to the front speakers. See below for a more detailed explanation of this crossover.

REAR PANEL CONNECTIONS – DETAILED EXPLANATION

Your new subwoofer is equipped with both speaker-level and line-level inputs. Use the RCA/Phono type "INPUT" jacks when connecting your subwoofer to a pre-amp, signal processor, or line-level crossover. The "SPEAKER LEVEL INPUT" jacks connect directly to the speaker outputs of an integrated amplifier or receiver. Your amplifier section will notice no additional loading effects when you use these inputs because of their high impedance.

Note:

Do not use both the RCA/Phono "INPUT" connections and "SPEAKER LEVEL INPUT" connections simultaneously.

Low-Pass Crossover

Both sets of inputs sum the left and right channels together and the resulting signal is passed through an adjustable low-pass crossover before being amplified. The crossover control allows you to adjust the upper limit of the subwoofer's frequency response from 40 to 120 Hz. The subwoofer's response will begin rolling off above the frequency you set this control to.

You should set the crossover frequency to obtain a smooth and seamless transition from the subwoofer to the main speakers in your system. If your main speakers are smaller units with limited low frequency output, you may wish to choose a higher frequency (such as 100 -120 Hz) than you would with larger speakers which have greater low frequency output. With larger speakers, you might start with this control set lower, such as 80 Hz.

Subwoofer Direct

Subwoofer Direct is a setting on the low-pass crossover knob and will allow frequencies up to 200 Hz into the subwoofer. See below for a more detailed explanation of this feature.

Speaker Level Output/Line Level Output

When connected in this fashion, your satellite speakers will be crossed over at 80 Hz. This removes the lower bass from your satellites, enabling them to do a better job reproducing high frequencies and giving your receiver's amp more headroom (up to 50% more power).

You may also connect your satellites directly to your receiver or amplifier along with the subwoofer if you wish to bypass this crossover.

Caution!!!

To avoid damage to your main amplifier, be sure to maintain correct polarity when making all connections. Red (positive) to red, and black (negative) to black. Be sure that all connections are tight, and that there are no loose strands or frayed wires.

Power Switch

The master power switch is located on the lower right half of the unit. This rocker style switch is the main on/off for the unit. This switch should be set to position 1 for on (up), 0 for off (down).

A Word About Your Receiver's Crossover and the CHT-R Crossover

Your Velodyne CHT-R subwoofer is designed to operate using the full range audio signal for input when using the built-in crossover (controlled by the dial on the back panel). Many home theater processors/receivers (Dolby Digital®, DTS®, THX®) have a "subwoofer out" jack that performs this same function and are designed to be used with a powered subwoofer.

In these installations, you may want to bypass the crossover in either the processor or the Velodyne subwoofer. In some cases, you may want to use BOTH crossovers. To do this, you can use both your processor's crossover and the one internal to the Velodyne sub. You should stagger the frequencies (i.e., 120 Hz subwoofer, 80 Hz processor) for best results.

To bypass the subwoofer's internal crossover when the unit is being fed a low pass signal from another crossover, simply locate the knob marked "LOW-PASS CROSSOVER" on the rear panel of the subwoofer and turn it counterclockwise to the "DIRECT" position. This will eliminate the internal crossover from the signal path.

Note:

If not using an external crossover, you should use the built-in crossover for optimal performance. When using a single RCA sub out from the processor, it does not matter which line level input (L/R) is used.

INTERCONNECT CABLES

When installing your new Velodyne subwoofer using the line-level connections, you should always use shielded phono cables. There are many decent cables available today, most any of which will work perfectly well. We do recommend that you keep the length of cable as short as possible to avoid any potential noise problems.

When using speaker level connections, use a quality speaker cable that mates well with the connectors (at least 14-gauge). Be very careful to avoid any loose or frayed strands that could result in a short, causing a dangerous condition and possible damage to your unit. Cables of extremely large size are typically not required. Extremely large gauge wire may not properly fit in the binding posts, resulting in a poor connection and possible short circuits.

Placement

True subwoofers operate at extremely low frequencies, which are primarily omni-directional. While it is recommended that the subwoofers be placed on the same plane as the satellite speakers, room and system conditions often dictate otherwise. Keep in mind that frequency response and output level can be drastically influenced by placement, depending on the acoustic properties of your listening room. Typically, the optimum location for a subwoofer is in a front corner of your listening room. This location will usually offer the greatest output levels and optimum low frequency extension. The worst location for a subwoofer is typically far away from any walls, close to the center of your room and near an opening or door way. Avoid these locations when possible. When using a pair of Velodyne subwoofers in stereo, it is preferable to place each subwoofer near the satellite of the same channel. Typically, a minimum distance of one to two feet from your TV to the subwoofer will be adequate to avoid any magnetic interference.

Caution!

This subwoofer has electronics built into the cabinet. Do not place the cabinet next to sources of heat such as furnace registers, radiators, etc. Do not place the unit near sources of excessive moisture, such as evaporative coolers, humidifiers, etc. The power cord should be routed in such a way that it will not be walked on, pinched, or compressed in any way that could result in damaging the insulation or wire.

This section addresses day-to-day usage of your CHT-R subwoofer.

Remote Control

Figure 3 shows the remote control, enabling you to easily choose whatever listening mode you desire.



Figure 3. Remote Display

POWER - This button forces your CHT-R unit into standby mode. The woofer will not play and the LED will turn off. The unit will remain in this mode until the POWER button is pressed again. To fully deactivate (i.e. power down) the unit, turn off the power switch on the back panel.

MUTE - This button mutes the subwoofer. The light on the subwoofer will blink slowly if the unit is muted. To unmute the subwoofer, press the MUTE button again.

PHASE - These buttons allow you to optimize the subwoofer performance for the location and your listening position. Select the switch position at which you hear the most bass. The light will blink according to the following schedule:

| | |
|-------------|----------|
| 0 degrees | 1 blink |
| 90 degrees | 2 blinks |
| 180 degrees | 3 blinks |
| 270 degrees | 4 blinks |

LIGHT - If you wish, you can deactivate the power light on your CHT-R unit. To do this, press the LIGHT button on your remote. The light will turn off. To reactivate the light, press the LIGHT button again.

NIGHT - Night mode limits the maximum output of the subwoofer for later night listening or to be more considerate of close neighbors. Press the night button to turn the night mode feature on or off. Night mode, when active, is indicated by the reduced intensity of the light.

VOLUME CONTROL - This control allows you to balance the output from the subwoofer to the main speakers in your system. This control should be set to achieve similar volume level from between both the main speakers and subwoofer. When pressing volume up or down, the speed at which the power light blinks indicates subwoofer volume - the faster the blinking, the louder the unit plays. Slower blinks represent tens and faster blinks represent ones. After the volume is changed (up or down) there will also be 2 sets of center LED blinks. If the LED blinks 3 times, pauses, then blinks 6 times, this means that the volume is set at 36. The volume range is from 1 to 99.

Note: The volume can also be adjusted via the buttons on the back panel of the subwoofer. These buttons have the same effect as pressing the up and down volume buttons on your remote.

WARNING: Some manufacturers preset their receivers with the Sub-Out channel signal at a minimum level. It is very important to verify that your receiver Sub-Out channel is set to the same output as your front right and left channels. Refer to your receiver manual for the individual channel level adjustment procedure. If your receiver Sub-Out channel is set too low, the subwoofer may appear to have a weak output, it may sound noisy or distorted, and the Auto-On/Off feature may not work properly.

PRESETS - There are four presets, consisting of Movies, R&B – Rock, Jazz – Classical, and Games. As a preset is chosen, the light flashes the corresponding number of times. The presets provide the following characteristics for bass reproduction:

- | | |
|-------------------|--|
| Movies: | Maximum output and impact for explosions and other action adventure movie content. |
| R&B – Rock: | Provides the driving bass found in today's rock music. |
| Jazz – Classical: | The tightest, cleanest, lowest distortion bass. |
| Games: | Maximum loudness available for the impact of video games. |

The following table indicates musical style and which preset is recommended for it.

| MUSICAL STYLE | SUGGESTED PRESET |
|-------------------------------|--------------------------------|
| Action Adventure Movies | Movies |
| Country – Rock | R&B – Rock |
| Country – Soft | Jazz – Classical |
| Folk | Jazz – Classical |
| Indie Music | R&B – Rock |
| Pop | R&B – Rock |
| Rock | R&B – Rock |
| Alternative Rock | Jazz – Classical |
| Blues | Jazz – Classical |
| Broadway and Vocalists | Jazz – Classical |
| Children’s Music | Jazz – Classical |
| Christian and Gospel | Jazz – Classical |
| Classic Rock | R&B – Rock |
| Classical | Jazz – Classical |
| Dance and DJ | R&B – Rock |
| Hard Rock and Metal | R&B – Rock |
| Latin Music | R&B – Rock |
| Miscellaneous | Jazz – Classical |
| Movies – Non-Action Adventure | Jazz – Classical |
| New Age | Jazz – Classical |
| Opera and Vocal | Jazz – Classical |
| R&B | R&B – Rock |
| Rap and Hip-Hop | R&B – Rock |
| Soundtracks | R&B – Rock or Jazz – Classical |
| Video Games | Games |

Each preset has its own characteristics with respect to subsonic filter, volume differential, and a single equalizer (EQ) in order to optimize the listening mode for the preset.

The following table shows the settings for various presets:

| Preset | Subsonic Filter Frequency | EQ Frequency | EQ Level | Volume Differential |
|------------------------------|----------------------------------|---------------------|-----------------|----------------------------|
| Movies | 24 Hz | 37 Hz | +4 dB | +8 dB |
| R&B – Rock | 27 Hz | 52 Hz | +3 dB | +5 dB |
| Jazz – Classical (Reference) | 24 Hz | N/A | N/A | N/A |
| Games | 34 Hz | 62 | +4 dB | +4 dB |

RESTORE DEFAULTS – This feature allows you to restore default settings for your CHT-R Subwoofer. By pressing Presets in EXACTLY the following order on the remote, the unit's power light will blink three times indicating that you have restored defaults.

1. Movies
2. R&B – Rock
3. Jazz – Classical
4. Games
5. Games
6. Jazz – Classical
7. R&B – Rock
8. Movies

When you press the presets in the above order, the power light will blink three times indicating that you have restored defaults. The default preset is Jazz/Classical, and the unit's volume is reset to level 35 (out of 100).

CARE OF YOUR SUBWOOFER

Do not use any harsh detergents or chemicals to clean the cabinet. Abrasives, detergents, or cleaning solutions will damage the finish on the cabinet. We recommend using a damp cloth to clean the front, back and sides. Use a soft cloth with a good quality furniture polish to clean the hand-rubbed, black lacquer, painted top.

During normal conditions, the subwoofer may be left on continuously without any problems. If you plan to leave the unit unused for an extended period of time, we recommend that you turn off the unit by the master power switch on the rear panel.

TROUBLESHOOTING AND SERVICE

Before seeking service for your subwoofer, please re-check all systems. Following is a simple troubleshooting guide to assist you.

1. Verify that the unit is plugged in and power outlet used is active.
2. Is the power switch on?
3. Is unit receiving an input signal from your source?
4. Have all controls on subwoofer (volume, crossover, phase, etc.) been properly set?
5. If unit has been running at high levels, one of the protection circuits may be engaged. Has the built-in amplifier overheated?
6. Has the power button been depressed on the remote?
7. Is the remote non-responsive? We recommend replacing the batteries in the remote.

If the protection circuitry is active, the unit may cycle on and off until operating parameters return to normal. Under more serious conditions, the unit may shut off completely. Normal operation will return upon cooling, but you may be required to turn the power off and then on again to reset the unit.

The following conditions require service by a qualified technician:

1. The power cord has become damaged.
2. The unit does not appear to operate normally or exhibits a marked change in performance.
3. The unit has been exposed to water.
4. Some part of the cabinet or circuitry is physically damaged.

Thank You for Purchasing a Velodyne!

SPECIFICATIONS

| Specifications | CHT-8R | CHT-10R | CHT-12R | CHT-15R |
|--|--|--|--|--|
| Cabinet (H/W/D) (cm) | 15" x 12" x 15.75" 37.5 x 30 x 39 | 16" x 15" x 17.75" 40 x 37.5 x 44 | 18" x 15" x 19" 45 x 37.5 x 47.5 | 21" x 18.4" x 20.75" 52.5 x 46 x 52 |
| Frequency Response | 35 Hz - 140 Hz (+/-3dB) | 28 Hz - 140 Hz (+/-3dB) | 25 Hz - 140 Hz (+/-3dB) | 23 Hz - 140 Hz (+/-3dB) |
| High Pass Crossover | 80 Hz or 100 Hz (6dB/octave slope) | | | |
| Low Pass Crossover | 40 Hz - 120 Hz (12dB/octave, 24dB ultimate) | | | |
| Amplifier (Class A/B) (Class D for CHT-15R) | 350 watts Dynamic /160 watts RMS power | 375 watts Dynamic /185 watts RMS power | 400 watts Dynamic /200 watts RMS power | 1000 watts Dynamic /1000 watts RMS power |
| Woofers | 8" forward firing | 10" forward firing | 12" forward firing | 15" forward firing |
| Magnet | 40 oz. | 40 oz. | 55 oz. | 70 oz. |
| Voice Coil | 2" two-layer copper | 2" four-layer copper | 2" four-layer copper | 2.5" four-layer copper |
| Inputs | Line-level and speaker-level | | | |
| Outputs | Line-level and speaker-level | | | |
| Warranty | Two years (parts and labor) | | | |
| Shipping Weight (approx.) | 44 lbs. (20 kg) | 55 lbs. (25 kg) | 61 lbs. (28 kg) | 75 lbs. (34 kg) |

FOR YOUR RECORDS. . .

Date Purchased _____

Dealer _____

Serial # _____

**NOTE: Please complete and return your warranty card within ten (10) days or*

Register. . . ON LINE . . . It's faster . . . and easier
www.velodyne.com

LIMITED WARRANTY

VELODYNE ACOUSTICS, Inc. ("VELODYNE") warrants all electronics and powered subwoofers for a period of two years and full range speakers for a period of five years. All VELODYNE products have a warranty from the date of purchase against defects in materials and workmanship subject to the following conditions:

1. VELODYNE is not responsible for defects which result from the use of an amplifier or controller other than the one originally supplied with the unit (subwoofer) or defects which result from modifications or repairs made by any component of the system by anyone other than a VELODYNE factory authorized service representative.
2. This warranty is void if any repairs or service covered by the terms of this warranty are made to any component of the system by anyone other than a VELODYNE factory authorized service representative.
3. VELODYNE is not responsible for damage caused by accidents, abuse, misuse, natural or personal disaster or unauthorized modification. The VELODYNE products are not intended for professional or commercial use and VELODYNE is not responsible for damage resulting from such use.
4. The VELODYNE product warranty is limited to units that are purchased from authorized VELODYNE dealers and finalized within authorized dealer locations.
5. This warranty is nontransferable under any condition.

TO OBTAIN SERVICE

Information regarding service may be obtained from the dealer from whom you purchased the unit, or by contacting VELODYNE customer service. Warranty service must be performed by a VELODYNE factory authorized service representative within the warranty period set forth above. If VELODYNE determines the unit is defective, VELODYNE will, at VELODYNE's option, repair or replace the product at no charge if the product is forwarded prepaid to a factory authorized service representative. Products forwarded to the factory authorized service representative should be shipped securely and properly packaged, insured and freight prepaid.

OTHER VELODYNE PRODUCTS

110V

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DD-10
DD-12
DD-15
DD-18

**Digital Drive 1812
Signature Edition**

DLS™-R Series

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DLS-3750R
DLS-4000R
DLS-5000R

DPS™ Series

DPS-10
DPS-12

MiniVee™

SMS™-1

SPL™-R Series

SPL-800R
SPL-1000R
SPL-1200R
SPL-1500R

SubContrator™ Series

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VRP-1000
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VX-10

230V

DD® Series

DD-10
DD-12
DD-15
DD-18

**Digital Drive 1812
Signature Edition**

CHT-R Series

CHT-8R
CHT-10R
CHT-12R
CHT-15R

SMS™-1

SPL-800i

SPL™-R Series

SPL-800R
SPL-1000R
SPL-1200R
SPL-1500R

SubContrator™ Series

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SC-IF/SC-IC

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