



**ORION**  
HIGH PERFORMANCE CAR AUDIO

*subwoofer  
owner's manual*

**HP10D2**

**HP10D4**

**HP12D2**

**HP12D4**

**POWERED BY HARDCORE ATTITUDE**

<b>SPECIFICATIONS</b>					
Directed Part Number	27202	27207		27212	27217
Model Number	HP10D2	HP10D4		HP12D2	HP12D4
Fs (free-air resonance)	31.42	33.14		29.46	27.75
Vas (equivalent compliance, cu. ft.)	0.62	0.56		1.79	1.78
Vas (equivalent compliance, liters)	17.42	18		50.72	50.44
Qms (Q, mechanical)	5.57	5.31		5.24	4.99
Qes (Q, electrical)	0.59	0.63		0.58	0.63
Qts (total driver Q)	0.53	0.57		0.52	0.56
Re (DC resistance, ohms)	3.8	6.85		3.8	6.8
Z (nominal impedance, ohms)	4	8		4	8
Le (inductance, mh)	2.01	2.79		2.01	2.85
Efficiency (2.83v/1M, dB)	84.79	82.72		87.25	84.94
Xmax (one-way linear excursion, in.)	0.55	0.55		0.55	0.55
Xmax (one-way linear excursion, mm)	14	14		14	14
Power (continuous power handling)*	500 watts	500 watts		500 watts	500 watts
Peak power handling (music)**	1000 watts	1000 watts		1000 watts	1000 watts
Mms (total moving mass, grams)	205	182		247	226
Cms (mechanical compliance, $\mu$ M/N)	125	127		147	146
Bl (motor strength, Tesla-M)	16.22	20.1		16.43	20.59
Sd (effective radiating area, sq. m.)	0.033	0.033		0.050	0.050
Sd (effective radiating area, sq. in.)	51.15	51.15		77.5	77.5
Frequency range (Hz)	40-2.5k	40-2.5k		30-2.5k	30-2.5k
Energy Bandwidth Product (EBP)	53	53		46	44
<b>Driver Physical Dimension</b>					
Speaker Displacement (cu. ft.)	0.077	0.077		0.096	0.096
Mounting hole diameter (in.)	9	9		11	11
Mounting depth (in.)	6.5	6.5		7	7
Basket diameter (in.)	10.25	10.25		12.35	12.35
<b>Recommended Enclosures</b>					
Typical Sealed Enclosure (cu. ft.)	0.55	0.65		1.25	1.35
SPL Sealed Enclosure (cu. ft.)**	0.35	0.35		0.65	0.55
Low Qtc Sealed Enclosure (cu. ft)*	0.65	0.65		2.05	2.15
Vented Enclosure (cu. ft.)***	0.95	0.95		1.35	1.45
Port Tuning Frequency (Hz)	44	44		40	40
Port Diameter (inside in.)	3	3		4	4
Equivalent Square Port (in.)	2.65 x 2.65	2.65 x 2.65		3.54 x 3.54	3.54 x 3.54
Port Length (in.)	8	8		12.5	11.5

- Parameters listed are for conventional applications only, for further help please call Tech Audio Support
- Recommend enclosure are **NET Box Volumes**, speaker and port displacement are **NOT** calculated into the volume of the enclosure, you will need to add these volumes to calculate **GROSS** volume for the enclosure.
- The approximate volume of air displaced by the port can be calculated by using the square port area (H x W) times the port length and then divide by 1728 to get cubic feet.
- Please call Technical Audio support for further specifications and information: 1-800-876-0800 ext. 2032

- \* For **SQ** (sound quality applications) amps should be between **Pe** and **Peak** power ratings.
- \*\* SPL usage only! Not rated for continuous use at this level.
- \*\*\* Sub-sonic filters should always be used and adjusted specifically for vented box designs.

Specifications subject to change without notice © 2005 Directed Electronics, Vista, CA.—all rights reserved



# Warranty

## LIMITED TWO YEAR CONSUMER WARRANTY:

Directed Electronics promises to the original purchaser, to replace this product should it prove to be defective in workmanship or material under normal use, for a period of two years from the date of purchase by the dealer as indicated by the date code marking of the product **PROVIDED** the product was installed by an authorized Directed dealer. During this two year period, there will be no charge for this replacement **PROVIDED** the unit is returned to Directed, shipping pre-paid. If the unit is installed by anyone other than an authorized Directed dealer, the warranty period will be 1 year from date of purchase by the dealer as indicated by the date code marking of the product. During this 1 year period, there will be no charge for this replacement **PROVIDED** the unit is returned to Directed, shipping pre-paid. This warranty is non-transferable and does not apply to any unit that has been modified or used in a manner contrary to its intended purpose, and does not cover damage to the unit caused by installation or removal of the unit. This warranty is void if the product has been damaged by accident or unreasonable use, neglect, improper service or other causes not arising out of defects in materials or construction. **ALL WARRANTIES INCLUDING BUT NOT LIMITED TO EXPRESS WARRANTY, IMPLIED WARRANTY, WARRANTY OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, AND WARRANTY OF NON-INFRINGEMENT OF INTELLECTUAL PROPERTY ARE EXPRESSLY EXCLUDED TO THE MAXIMUM EXTENT ALLOWED BY LAW, AND DIRECTED NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY LIABILITY IN CONNECTION WITH THE SALE OF THE PRODUCT. DIRECTED HAS ABSOLUTELY NO LIABILITY FOR ANY AND ALL ACTS OF THIRD PARTIES INCLUDING ITS AUTHORIZED DEALERS OR INSTALLERS.** Unit must be returned to Directed, postage pre-paid, with: consumer's name, telephone number, and address, authorized dealer's name and address, and product description. **IN ORDER FOR THIS WARRANTY TO BE VALID, YOUR UNIT MUST BE SHIPPED WITH PROOF OF INSTALLATION BY AN AUTHORIZED DIRECTED DEALER. ALL UNITS RECEIVED BY DIRECTED FOR WARRANTY REPAIR WITHOUT PROOF OF DIRECTED DEALER INSTALLATION WILL BE COVERED BY THE LIMITED 1 YEAR PARTS AND LABOR WARRANTY.** Note: This warranty does not cover labor costs for the removal and reinstallation of the unit.

**BY PURCHASING THIS PRODUCT, THE CONSUMER AGREES AND CONSENTS THAT ALL DISPUTES BETWEEN THE CONSUMER AND DIRECTED SHALL BE RESOLVED IN ACCORDANCE WITH CALIFORNIA LAWS IN SAN DIEGO COUNTY, CALIFORNIA.**



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