

Product description

The house amplifiers (in text - amplifiers) are intended for amplifying and distributing TV signals in cable TV networks. HA234R65, HA235R65, HA236R65, HA236R85 amplifiers are powered from the mains 230 V~. HD234R65, HD235R65, HD236R65, HD236R85 amplifiers are remote powered from line 24...65 V~ through RF IN port. All amplifiers are intended for indoor use only.

Safety instructions

Installation of the amplifiers must be done according IEC60728-11 and national safety standards.

Any repairs must be done by a skilled personnel.

HA234R65, HA235R65, HA236R65, HA236R85 amplifiers are powered from the mains 230 V~. The amplifiers are double isolated from the mains 230 V~.

HD234R65, HD235R65, HD236R65, HD236R85 amplifiers are remote powered from line 24...65 V~ through RF IN port.

In both cases voltage is dangerous to life.

To ensure safe operation of the amplifiers follow these instructions:

do not remove the cover of the power supply section, without disconnecting the unit from the powering;

earthing of the amplifiers must be done firstly before powering it;

do not plug the amplifiers into the mains supply if the power cord or plug are damaged;

do not plug the amplifiers into the mains supply until all cables have been connected correctly;

the mains socket must be easily accessible;

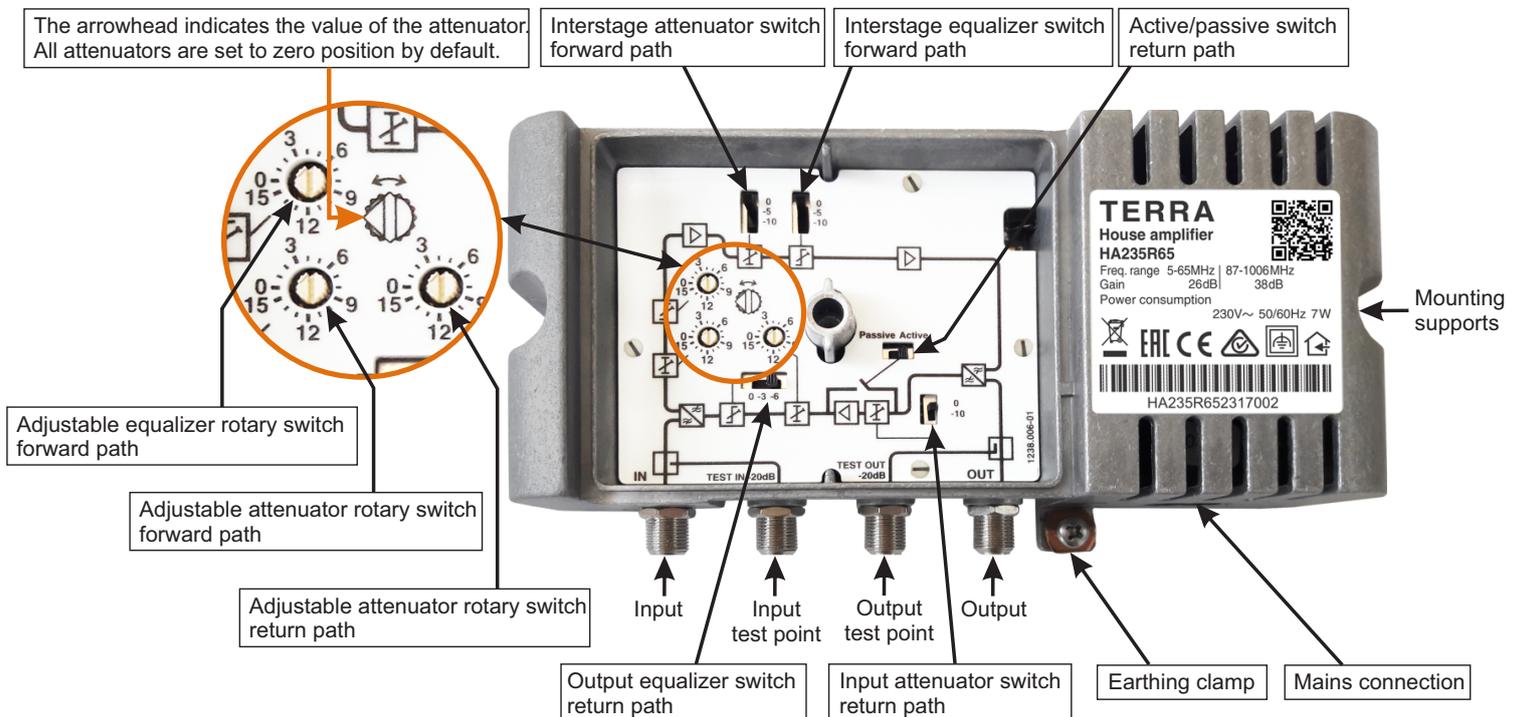
avoid placing the amplifiers next to central heating components and in areas of high humidity;

if the amplifiers have been kept in cold conditions for a long time, keep it in a warm room no less than 2 hours before powering;

do not insert any objects into ventilation openings;

the ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains.

External view and operating controls



Test points

Input test point is bi-directional. It is used for return path signal measurement during return path adjustment as well as for forward path input signal monitoring during network troubleshooting.

Output test point is directional. It is used for forward path output signal measurement during forward path adjustment as well as for return path input signal injection during return path adjustment. In all cases test point gives 20 dB attenuation.

Manual in .pdf



Installation

Installation of the amplifiers must be done according the exact order:

for HA234R65, HA235R65, HA236R65, HA236R85

- 1) earthing
- 2) connecting RF IN and RF OUT ports in any order
- 3) powering

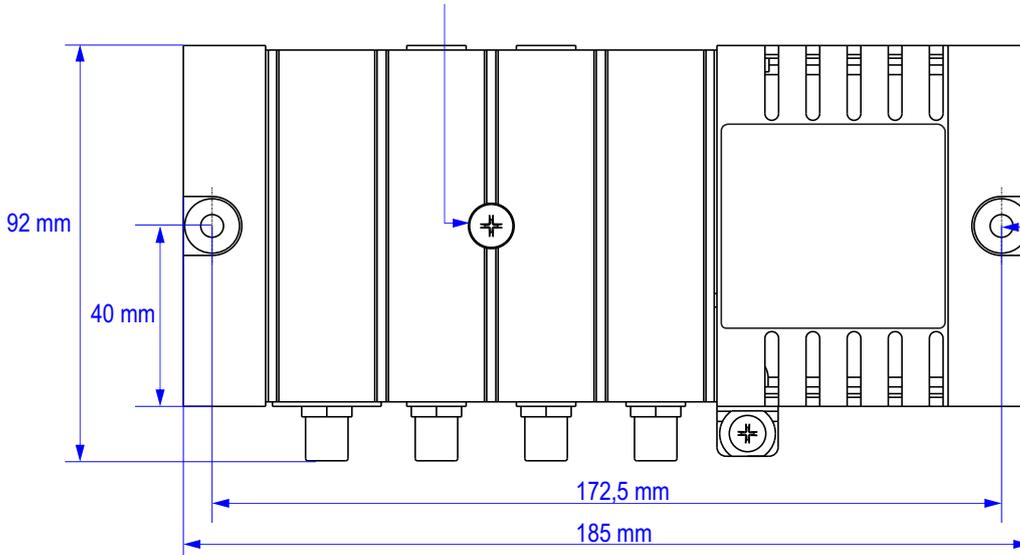
for HD234R65, HD235R65, HD236R65, HD236R85

- 1) earthing
- 2) connecting RF OUT port
- 3) connecting RF IN port

Deinstallation must be done in reverse order.

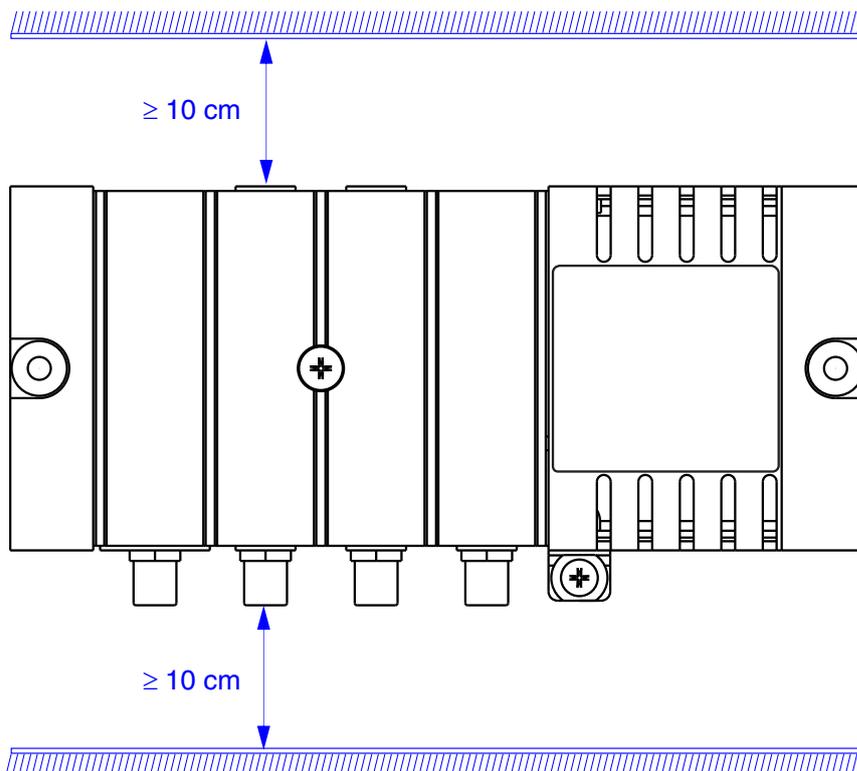
- Mount the amplifiers in vertical position with RF connections underneath.

The cover should be fastened with a torque 2...2.2 Nm. Key included in a package.

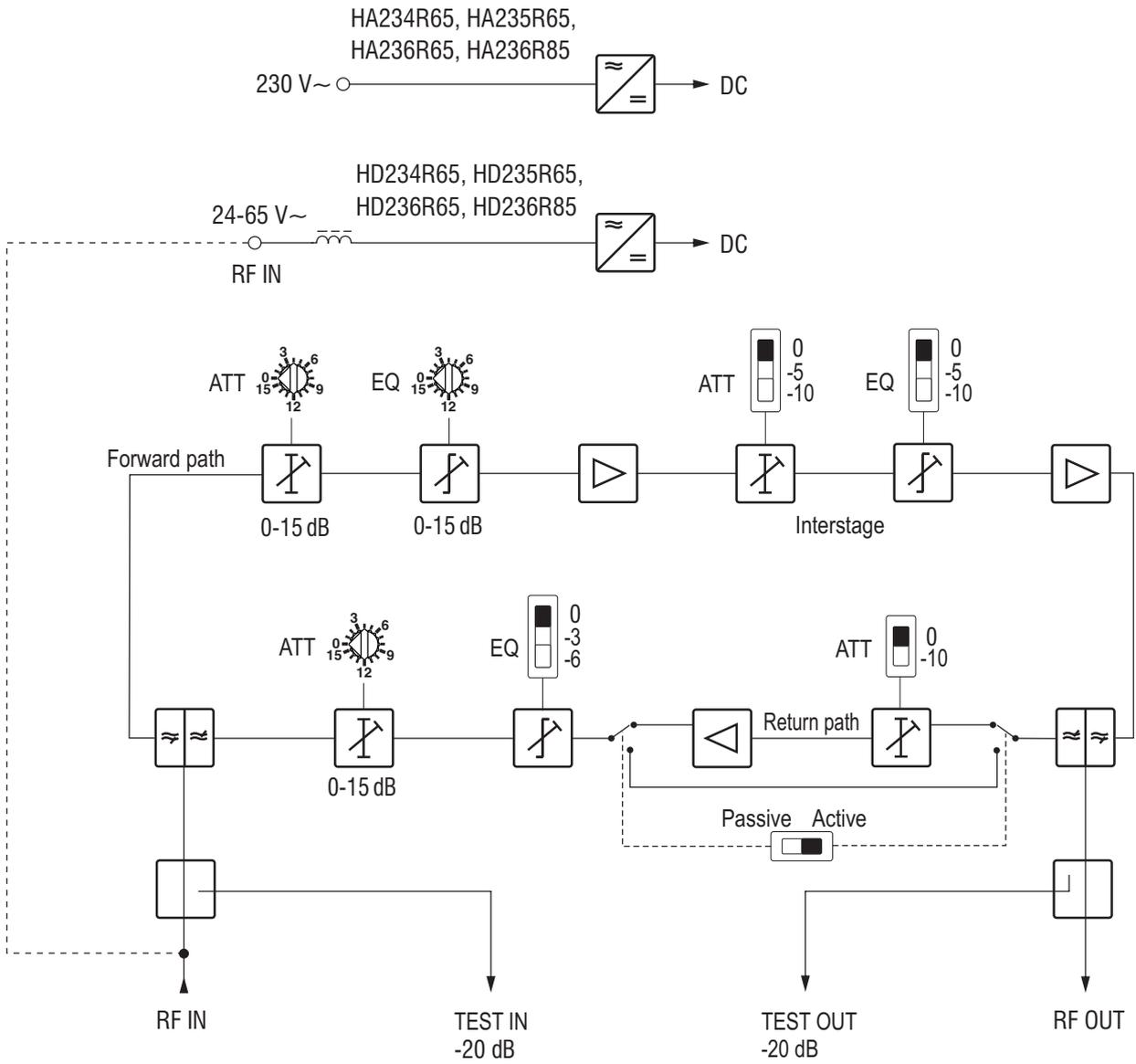


The amplifiers must be fixed with steel screws \varnothing 4-4.5 mm. The screws are not included in a package.

- Free space of installed amplifiers must be at least 10 cm.



Block diagram



-  Risk of electric shock.
-  This product complies with the relevant clauses of the European Directive 2002/96/EC. The unit must be recycled or discarded according to applicable local and national regulations.
-  Equipment intended for indoor usage only.
-  Equipment is double insulated from the mains, with functional earthing.
-  Functional earthing. Connect to the main potential equalization.
-  Protective earthing. Connect to protective earthing bar.
-  This product is in accordance with following norms of EU: EMC norm EN50083-2, safety norm EN IEC62368-1, RoHS norm EN50581.
-  This product is in accordance with Custom Union Technical Regulations: "Electromagnetic compatibility of technical equipment" CU TR 020/2011, "On safety of low-voltage equipment" CU TR 004/2011.
-  This product is in accordance with safety standard AS/NZS 60065 and EMC standards of Australia.

Technical characteristics

Type	HA234R65 HD234R65	HA235R65 HD235R65	HA236R65 HD236R65	HA236R85 HD236R85
Forward path				
Frequency range	87- 862 MHz	87- 1006 MHz	87- 1218 MHz	108- 1218 MHz
Gain	38 dB			
Input attenuator adjustment, rotary switch	0...15 dB by 1 dB step			
Input equalizer adjustment, rotary switch	0...15 dB by 1 dB step			
Interstage attenuator	-10/-5/0 dB			
Interstage equalizer	-10/-5/0 dB			
Flatness*	±1 dB			
Input and output return loss	≥ 14 dB at 40 MHz; -1.5 dB/oct., but not less 10 dB			
Output level CTB,CSO (EN60728-3)**	105/107 dB μ V		105/106 dB μ V	
Noise figure, typical	7 dB			
Input test point (-20 dB) flatness at ≤790 MHz	±2.5 dB	±2 dB	±2.5 dB	
Output test point (-20 dB) flatness	±0.5 dB			
Return path				
Frequency range	5-65 MHz			5-85 MHz
Gain, switchable (active / passive)	26/-7 dB			
Input attenuator (for active path)	-10/0 dB			
Output attenuator adjustment	0...15 dB by 1 dB step			
Output equalizer	-6/-3/0 dB			
Flatness	±1 dB			±1.5 dB
Return loss	> 14 dB			
Noise figure	7 dB (active, 0 dB input attenuator)			
Output level IMD3=60 dB (EN60728-3) at 0 dB output attenuator and equalizer	112 dB μ V (active) 119 dB μ V (passive)			
General				
for HA23xRxx :				
Supply voltage limit values, power consumption	198-250 V~ 50/60 Hz 7 W			
for HD23xRxx :				
Supply voltage limit values, power consumption	24-65 V~ 50/60 Hz 6.5 W			
Current consumption	24 V~ 0.48 A 42 V~ 0.32 A 65 V~ 0.24 A			
Operating temperature range	-20° ÷ +50° C			
Dimensions/Weight (packed)	185x91x47 mm/ 0.7 kg			

* measured 10 MHz after the starting frequency of forward path

** with 0/5 dB interstage equalizer