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EU Declaration of Conformity

Blake UK hereby declares that the radio equipment type PROMHD11L, PROMHD11M, PROMHD12M and PROMHD14M, PROMHD11V, PROMHD14V, PROMHD14R are in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet

2 Year Guarantee

This guarantee covers failure of your PROception product resulting from manufacturing defect within a period of 2 years from the date of supply to the end-user. This guarantee does not cover damage to the product caused by abuse, tampering, defective installation or natural causes such as lightning discharge. Repair or attempted repair, other than by the manufacturer, will render this guarantee void. This guarantee does not affect a consumer's statutory rights.

Performance data given are typical unless otherwise stated. We reserve the right to change product designs and specifications without prior notice.

Website: www.proception.co.uk

Email: support@proception.co.uk

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PD2011-9004-05

UHF Masthead Amplifiers Instruction Manual

www.blake-uk.com/mhdamp

PROception

This advanced range of masthead preamplifiers offers a choice of fixed gain, variable gain and return-path, all with an excellent combination of good input filtering, low noise figure and high output options. The return-path model has two modes of operation, allowing it to be used either as a straightforward multi-way aerial amplifier for off-air signal distribution, or as a return-path amplifier for distribution of the UHF loop-through output of a Sky* receiver. In the latter mode full support is provided for remote infrared receivers (eyes). The use of F connectors makes them easy to use with a wide range of cable sizes and helps to ensure good system screening.

All these amplifiers are compliant with the Radio Equipment Directive 2014/53/EU and meet the harmonised standard EN 303 354 for Class 0. As such they work on ALL current UK DTT channels including channel 60, are resilient to interference and overloading, and cope with multiple carriers. In cases of strong LTE interference a separate 4G filter should be fitted. These are supplied free by at800, or **higher performance models** can be purchased from www.blake-uk.com. (To **pass** channels **up to and including channel 59** use proLTE1/59, or **if** channels **58 and 59 are not required, use** proLTE1/57).

Features: (Whole Range)

- Channels 61-68 can be used for locally modulated signals.
- High input and output capabilities.
- Excellent noise figure.
- Suitable for both digital and analogue applications, fully DTT-compatible.
- Input filtered below 470 MHz to reduce risk of interference problems from CB, private mobile radio, TETRA, etc.

Features: (MHD-Standard Masthead Amplifiers, 1 and 2-Way available)

- 2- and 4-way amplifiers can be powered on any output.

Features: (MHDV-Variable Masthead Amplifiers, 1 and 4-Way available)

- Gain adjustable over a 15 dB range.
- Excellent noise figures, maintained over a wide gain range using inter-stage gain control.

Features: (MHD14R-Dual Mode Masthead Amplifier, 4-Way available)

- Dual-mode operation can operate as an aerial amplifier, or as a return-path amplifier with Sky* remote control facilities.
- Flexible powering options: 5 - 12 V in aerial-amplifier mode; 9 V from Sky* receiver in return-path mode.

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Application guides:

All amplifiers are suitable for digital terrestrial TV (DTT) applications, subject to appropriate product choice and proper attention to signal levels. The use of excessive gain is likely to lead to receiver overload problems and deterioration in reception. Therefore the best advice is to use the lowest gain product which will achieve adequate signal levels at the receiver(s) in a particular location. The maximum values are given in the product data tables.

MHD-Standard Masthead Amplifiers

PROMHD11L-low gain: 9 dB. This preamplifier is recommended when only a moderate amount of boost is required. This amplifier is ideal for use with digital benchmarked aerials to ensure good signal margin and freedom from impulse interference problems. Usually suitable for download lengths up to about 20 metres.

PROMHD11M- medium gain 16 dB. Recommended for weaker signal areas, or where longer downloads (up to around 30 40 metres of 100 size cable) need to be installed.

PROMHD11H- high gain 27 dB. This preamplifier is useful where exceptionally long cable runs (up to 100 m of 100 size cable) are involved such as with a remotely mounted antenna serving a house in a deep valley. This amplifier may also be used with passive distribution accessories (splitters and taps) to construct a small distribution system to feed a number of points.

PROMHD12M- 2-way masthead, 10 dB gain.

PROMHD14M- 4-way masthead, 10 dB gain. These multi-output amplifiers provide popular DTT-compatible solutions to the problem of adding multiple TV points to an older building. Both amplifiers can be powered via any of their outputs, providing flexibility in the location of the power unit.

Fig.1 Basic masthead amplifier installation diagram

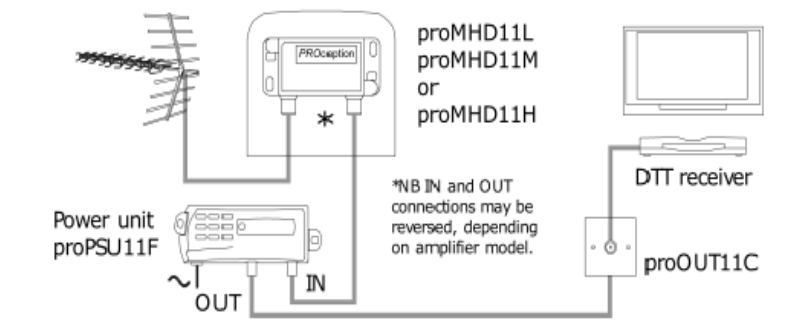


Fig.2 PROMHD11H in a simple distribution system

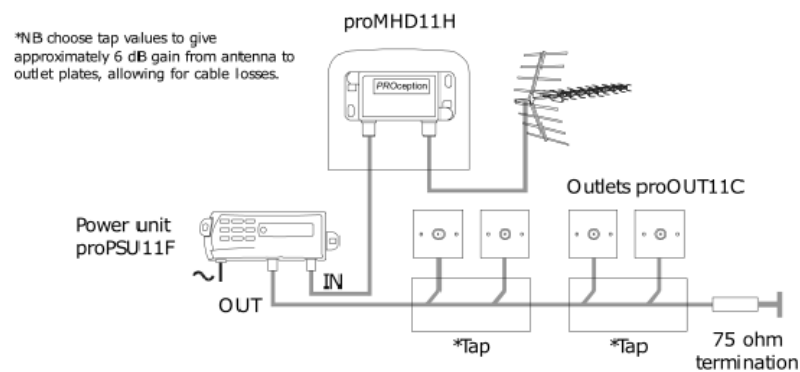


Fig.9 fixing to flat surface

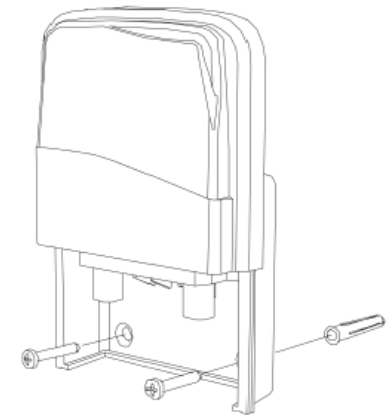
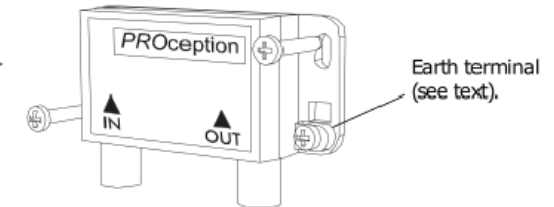


Fig.10 Fixing the amplifier module directly (indoor application only, discard mouldings).



Signal connections:

To preserve RF screening integrity the signal connections to the amplifier should be made using good quality coaxial cable and connectors. This is particularly important with DTT to minimise the ingress of impulsive electrical interference. The use of cable benchmarked under the CAI scheme is recommended. Crimp F connectors, used in accordance with the manufacturers instructions, will give the best results. The importance of achieving sound braid connections cannot be over stressed. Connectors should be tightened with a spanner, not left finger-tight.

System earth bonding:

Earth bonding terminals are provided on the amplifier castings for use where necessary. Distribution systems supplying signals to more than one household should comply with the safety requirements of BS EN 60728-11. This effectively requires the system to be earth bonded. (The use of isolated outlet plates is no longer recommended since they compromise screening integrity and allow ingress of interference.)

Related Products:

Link to Website:

PROPSU11C: 1-Way IEC-Type Inline Power Supply	www.blake-uk.com/propsu11c
PROPSU11F: 1-Way F-Type Inline Power Supply	www.blake-uk.com/propsu11f
PROPSU12F: 2-Way F-Type Inline Power Supply	www.blake-uk.com/propsu12f
Distribution Amplifiers: 4, 6 & 8-Way FM/DAB/UHF Distribution Amplifiers	www.blake-uk.com/proamp24-28
PROLINK22: Flexible 'I/O Link' RF Modulator for Sky	www.blake-uk.com/prolink22
PROCON12: F Male Crimp-On Black - RG6/100	www.blake-uk.com/procon12
PROCON22: F Male Snap Seal / Compression - RG6/100	www.blake-uk.com/procon22

Powering options:

Power for operation in aerial-amplifier mode can be supplied by a PROception PROPSU11F or PROPSU12F 12V power unit connected in any of the output lines (Fig. 6). The amplifier can also be powered at 5 V from certain DVB-T (Freeview) receivers which have an option to provide power on their antenna sockets. A separate power unit will not be required if this type of receiver is in use on any of the outputs, provided that it can be left connected continuously to the mains supply.

In return-path mode 9V power is provided to the input of the PROMHD14R by the Sky* receiver (Fig. 7). The latter must be configured in its INSTALLER SET-UP menu to provide power on RF OUT-2. On the Sky handset press SERVICES, 4, 0, 1, SELECT, then select the SECOND OUTLET POWER SUPPLY option. Set this to be ON (the default state is OFF), SAVE SETTINGS and BACK UP out of the menus. Sky* receivers can supply sufficient current to power the PROMHD14R together with up to four PROSAT1EYE infrared receivers.

Features	PROMHD14R
Signal frequency range	Forward: 470-862MHz; Return: 5-10MHz
Noise figure, typical and (max.)	2.8 (3.2) dB
Forward gain	4.5dB
Return gain	3dB (active in return-path mode only)
Output capability	88dB μ V
Maximum recommended input	84dB μ V
Isolation between outputs	>16dB
DC power requirement	Aerial-amplifier mode: 5-12V DC @20mA; Return-path mode: 9V DC @25mA
Infrared remote receiver power out	8.5V@10mA max. (each output), active in return path mode only, s/c protected
Input filter characteristic	>26dB rejection (relative to passband gain) for all frequencies <400MHz
Signal connector type	'1F'(IEC 60169-24)
Operating temperature range	-20 - +50 °C

Notes:

- The maximum output level per multiplex is per the table in dBuV when there are eight equal level multiplexes. If the number of multiplexes to be carried is not eight please refer to our Mux guide at www.blake-uk.com/muxcap.
- Limiting values 4.8-12.6V (power via output, aerial-amplifier mode). Built-in surge protection is provided.
- Limiting values 8.5-12.6V (powered via input, return-path mode). Built in surge protection is provided. Current loading given in table excludes consumption of remote infrared receivers.

Fixing:

Methods for mounting the amplifier are illustrated in Fig. 8 to 10. The cable tie fixing is intended to support the weight of the amplifier only. Cables should be taped to the mast at intervals of approximately 400 mm to ensure that their weight is adequately supported. When used in return-path mode the amplifier will usually be mounted on an outside wall. A high fixing position is recommended to reduce the risk of tampering or vandalism.

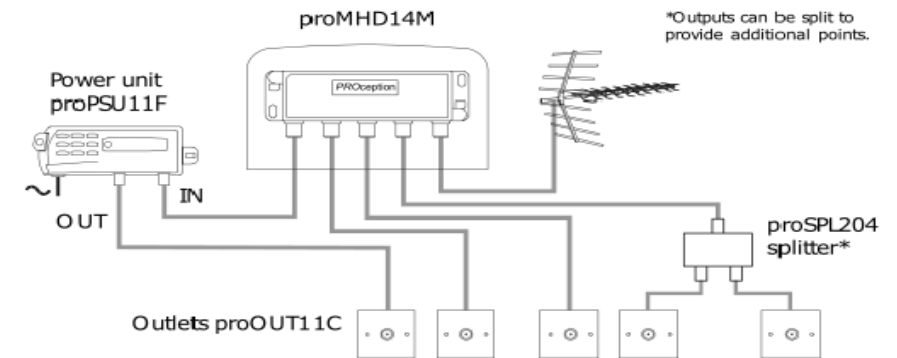
Being fully screened, the amplifier will not be affected by proximity to an antenna. However clearance of not less than 300 mm from the nearest part of the antenna should be observed to avoid degrading the antenna's performance. Manufacturer's instructions regarding routing of the cable from the antenna terminal box must be followed if provided.

* Sky and Sky+ are registered trade marks of British Sky Broadcasting Group PLC.

Freeview is a registered trade mark of the British Broadcasting Corporation.

I/O Port Replicator needed for Sky box DXR850/890; See Supplementary Installation Instructions to introduce PROception PROLINK22 'RF replicator'

Fig.3 PROMHD14M installation diagram (PROMHD12 similar)



Features	PROMHD11L	PROMHD11M	PROMHD12M	PROMHD14M	PROMHD11H
Number of outputs	1	1	2	4	1
Signal frequency range	470-862MHz				
Noise figure	1.8dB	1.7dB	1.8dB	2.2dB	1.8dB
Gain	9dB	16dB	10dB	10dB	22dB
Output capability	90dB μ V	92dB μ V	89dB μ V	85dB μ V	102dB μ V
Max recommended input	80dB μ V	75dB μ V	78dB μ V	74dB μ V	74dB μ V
Isolation between outputs	-	-	20dB	30dB	-
DC power requirement	5-12V@25mA			12V@50mA	
Input filter characteristic	>26dB rejection (relative to passband gain) for all frequencies <400MHz				
Signal connector type	'IEC'(IEC 60169-2)				
Operating temperature	-10 - +40 °C				

Notes:

- The maximum output level per multiplex is per the table in dBuV when there are eight equal level multiplexes. If the number of multiplexes to be carried is not eight please refer to our Mux guide at www.blake-uk.com/muxcap.
- Through-power to the input is not provided (all products have a DC grounded input).

Powering and power units:

All amplifiers are compatible with the PROPSU11C and PROPSU11F power units and also with multiway amplifiers types PROAMP24, PROAMP26 and PROAMP28. The PROMHD14M amplifier may be powered via any of its four outputs. Amplifiers PROMHD11L and PROMHD11M can also be powered at 5 V from certain DVB-T receivers which have an option to provide power on their antenna sockets (European E-book specification).

MHDV-Variable Masthead Amplifiers

See application guide diagrams on page 4.

PROMHD11V-This single-output low-noise preamplifier offers gain adjustable between 7 and 22 dB, allowing it to be used for almost all applications where UHF signals need to be boosted, including feeding very long download cable runs (up to 100m of 100 size cable). This amplifier may also be used with passive distribution accessories (splitters and taps) to construct a small distribution system to feed a number of points.

PROMHD14V-This 4-output amplifier provides a popular DTT-compatible solution to the problem of providing multiple TV points in an older building. The gain can be adjusted over the range 1 to 16 dB, allowing satisfactory operation of the system over a wide range of received signal level. The amplifier can be powered via any of its outputs, providing flexibility in the location of the power unit.

Gain control adjustment:

Both amplifiers are supplied with the gain controls set to minimum. When installation work (including aerial alignment) is complete, the gain control should be adjusted to obtain satisfactory results. To adjust the gain use a small (3 mm) flat-blade screwdriver, or a suitable service engineers trimming tool. The control should rotate freely between its end-stops and requires very little force to adjust. Take care not to apply excessive force, particularly at the ends, as this could result in damage to the amplifier. When working outdoors in wet weather, take care not to let rain water enter through the gain

Fig.4 PROMHD11V basic masthead amplifier installation diagram

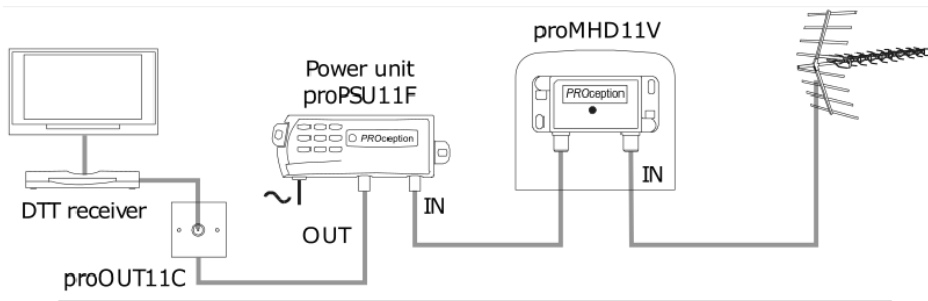
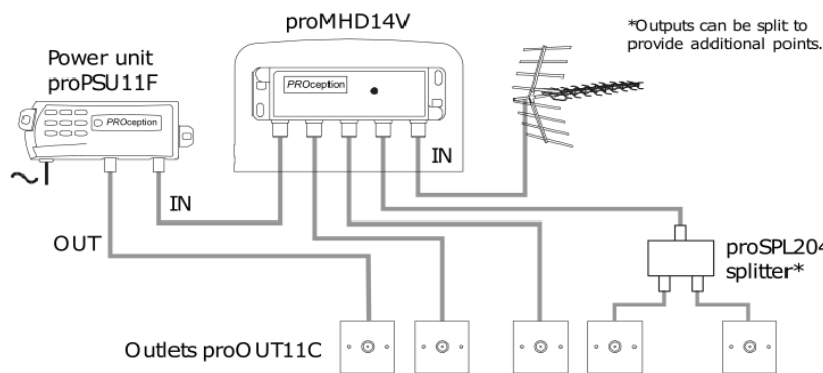


Fig.5 PROMHD14V installation diagram



Powering and power units:

Both amplifiers are compatible with the PROPSU11F (1-way) and PROPSU12F (2-way) power units and also with multi-way amplifiers types PROAMP24, PROAMP26 and PROAMP28. The PROMHD14V distribution amplifier may be powered via any of its outputs. Use of the PROPSU11C (1-way IEC connector) power unit should be restricted to single-point applications only, in conjunction with the PROMHD11V amplifier.

PROMHD14R-Dual Mode Masthead Amplifier

Aerial-amplifier mode: in this mode the proMHD14R functions as a straightforward 4-way UHF masthead amplifier. The input will usually come directly from the UHF antenna. Power (5 - 12 V DC) can be supplied via any of the four outputs, providing flexibility in the location of the power unit. In this mode no power is passed to the other outputs and the return-path amplifier stage is disabled.

Return-path mode: this mode is automatically enabled when the amplifier is powered via its input. Usually the input will be fed directly from the second RF output (RF OUT-2) of a Sky Digibox or Sky+* receiver or a Sky Digibox with an I/O port# which should have its 9V second outlet powering enabled (see over). In return-path mode power is present at all outputs for powering remote infrared receiver eyes, such as the PROception proSAT1EYE. Infrared receiver power is individually short-circuit protected, so that a DC short at any output will not affect operation of remote control via the other outputs.

The relatively low forward gain of the amplifier (4.5 dB) is sufficient to compensate for additional downlead cable losses in most systems, whilst avoiding intermodulation and other overload problems which easily result from the use of excessive gain. Where more gain is needed in aerial-amplifier mode (for example in installations with very long cable runs, or in weak signal areas) the proMHD14M or proMHD14V masthead amplifiers should be considered (these alternative products do not provide return-path capability).

Fig.6 PROMHD14R aerial amplifier installation diagram showing two (optional) methods for splitting outputs

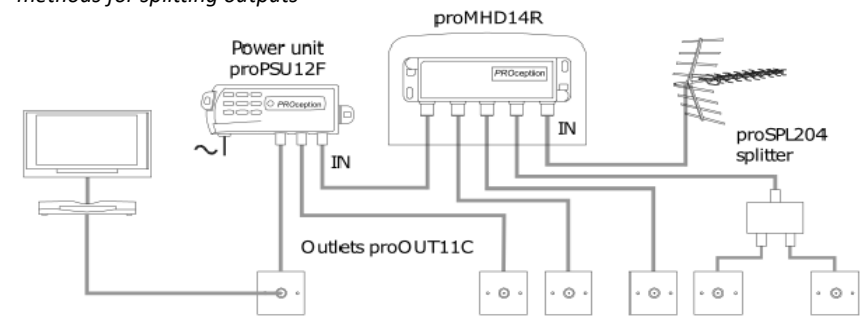
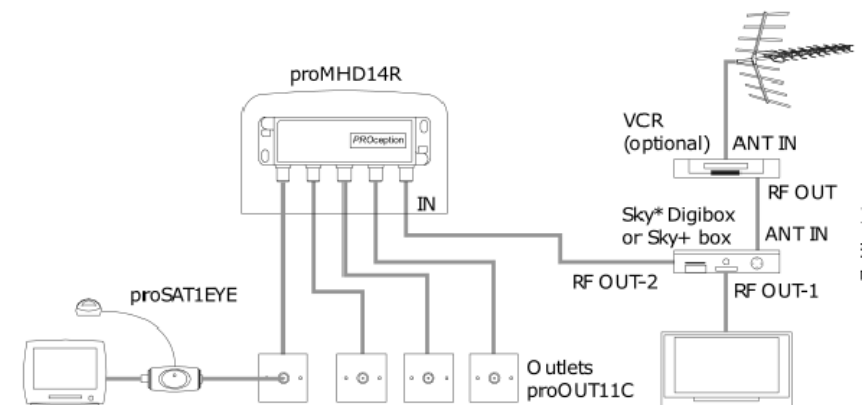


Fig.7 PROMHD14R return path application with Sky* box. Note: dish and SCART connections omitted for clarity.



Features	PROMHD11V	PROMHD14V
Number of outputs	1	1
Signal frequency range	470-862MHz	
Noise figure	2.2 (2.6) dB	2.2 (2.6) dB
Gain	7-22dB	1-16dB
Output capability	102dBµV	94dBµV
Maximum recommended input	80dBµV	80dBµV
Isolation between outputs	-	> 16dB
DC power requirement	12V@50mA	
Input filter characteristic	>26dB rejection (relative to passband gain) for all frequencies <400MHz	
Signal connector type	'1F' (IEC 60169-24)	
Operating temperature range	-10 - +50 °C	

Notes:

- Noise figures in table apply at maximum gain. Typical noise figure at 10dB gain reduction is 4dB for both types.
- The maximum output level per multiplex is per the table in dBuV when there are eight equal level multiplexes. If the number of multiplexes to be carried is not eight please refer to our Mux guide at www.blake-uk.com/muxcap.
- Through-power to the input is not provided (all products have a DC grounded input).