Safety Instructions

OVERHEATING

This modulator (including its AC mains power adapter) is intended for use in moderate climates only. It should not be used in tropical regions. The recommended ventilation clearances and other precautions given in the relevant section of this instruction leaflet should be observed to prevent overheating. No unit should be fixed where it is likely to become smothered by soft furnishing fabrics such as curtains, or by thermal insulation material in a roof space or other building void. Mains powered equipment should not be left resting on a carpet.

WATER AND FIRE RISKS

This apparatus is not waterproof. It is intended for indoor use only and must not be fixed where it could be exposed to dripping or splashing water. Objects containing liquids should not be placed on or near the equipment. To prevent risk of fire, no object with a naked flame should be placed on or near the modulator, the power adapter, or their associated wiring.

MAINS ADAPTER AND DISCONNECTION FROM THE SUPPLY

The power adapter supplied with the modulator is intended for use with a 13 A socket-outlet complying with BS 1363. The socket should remain readily accessible so that the power unit and modulator can be disconnected from the supply when necessary. The LED power indicator on this equipment should not be regarded as providing reliable indication of supply disconnection.

Any new wiring installed to supply power to this apparatus should comply with BS 7671 (the IET Wiring Regulations) and, where relevant, Part P of the building regulations. If in doubt consult a qualified electrician.

SYSTEM EQUIPOTENTIAL BONDING

Distribution systems supplying signals to more than one household should comply with the safety requirements of BS EN 60728-11. This effectively requires earthed equipotential bonding of the system. (The use of isolated outlet plates is no longer recommended since they compromise screening integrity and allow ingress of interference.) Bonding may be effected using a product from the *PRO*ception proBAR range of equipotential bonding blocks and bars.

2-Year Guarantee

This guarantee covers failure of your *PRO*ception 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. Proception Limited reserves the right to change product designs and specifications without notice

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*PRO*ception

proMOD32 UHF Modulator with Remote Control Extension

INSTRUCTIONS FOR INSTALLATION AND USE

The proMOD32 is a versatile UHF analogue modulator for home use for distribution of set-top box outputs to TVs in other rooms, with comprehensive remote control extension support. The unit is compatible with the I/O port provided on newer Sky receivers, where it replaces the discontinued 'RF OUT - 2' facility.

Other applications include distribution of DVD player outputs, etc.

Features

- Two AV inputs with automatic source selection.
- Compatible with Sky I/O Port. Replaces Sky's 'RF-2' facility, including remote control.
- RGB-enabled SCART output for local TV – useful for sources with only one SCART connector.
- RF return path for remote control extension to Sky receiver and IR blaster.
- RF loop-through with built-in LTE filter. Powered output for distribution amplifier and IR 'eyes'.
- RF output coverage: channels 21 – 60. Tuning signal and tone for receiver set-up

Location

The modulator can be located in any convenient position and does not require fixing. Clearance of at least 50 mm should be allowed above and around the unit for ventilation. Avoid positioning the modulator on top of a stack of other equipment as this may result in overheating

Do not leave the modulator resting on a carpet or install it where it may become smothered with curtains or other soft furnishing fabrics. When installing the modulator in a roof space ensure that it will not come into contact with thermal insulation material.

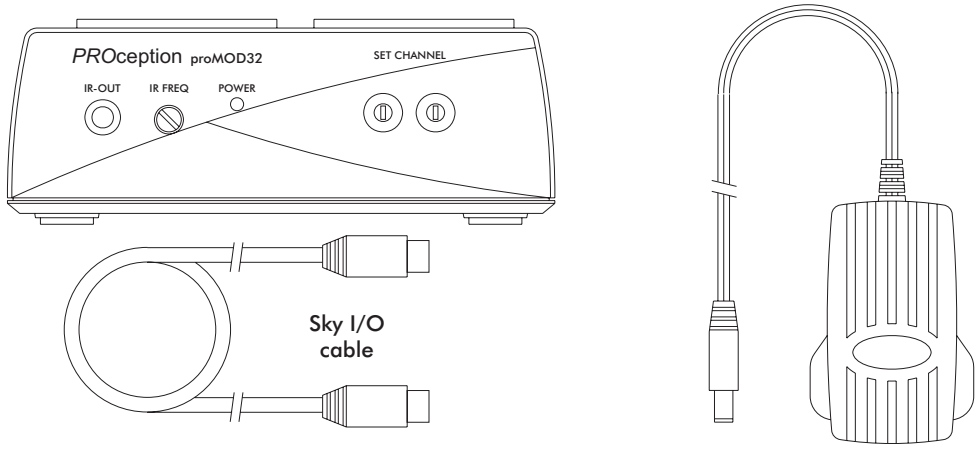

Fig. 1 – The modulator and accessories supplied.

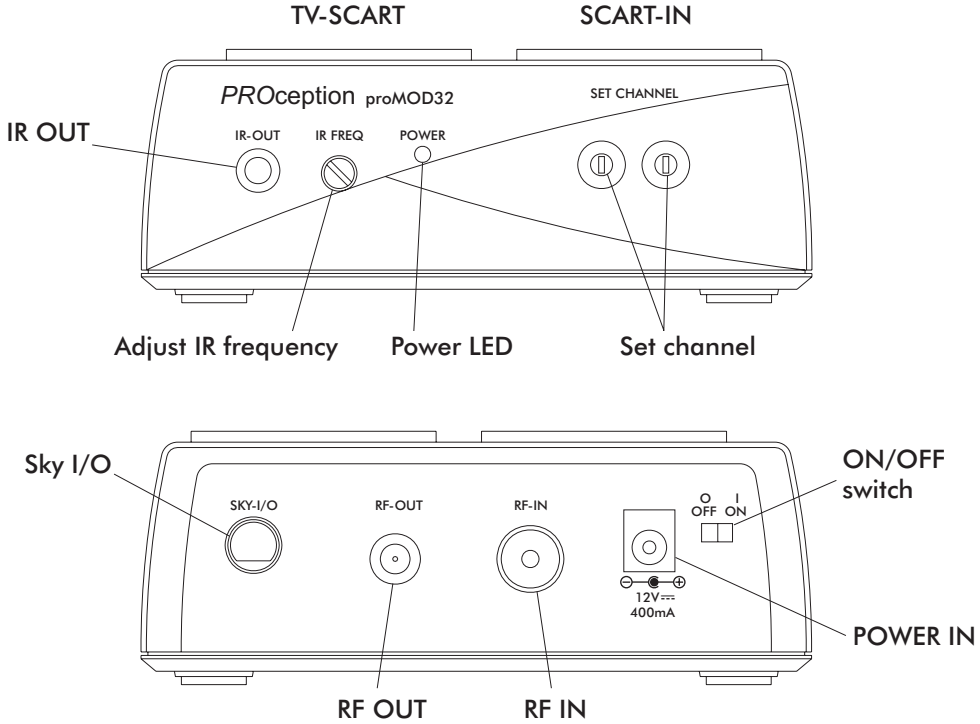

Fig. 2 – Identification of modulator connections and controls.

Power supply

Use only the AC mains power adapter (power supply unit) supplied with the modulator.

RF signal connections

To preserve screening integrity the RF connections to the modulator should be made using good quality coaxial cable and connectors. The use of CAI 'benchmarked' cable is recommended.

The modulator output appears on RF-OUT, and is normally used for feeding remote TV equipment, either directly or via a suitable amplifier such as the *PRO*ception proAMP104X (indoor) or proMHD14R (outdoor). The loop-through input, RF-IN, is normally used for off-air signals coming directly from an antenna or looped-through other equipment.

If a local RF feed is required this is best obtained using a 2-way splitter (*PRO*ception proSPL204) connected before RF-IN. Do not split RF-OUT, other than by means of one of the amplifiers mentioned above.

AV connections

The modulator has two AV inputs: the SKY- I/O port and SCART-IN.

- SKY-I/O is only for use with Sky equipment fitted with the same type of connector. Connect using the cable supplied.
- SCART-IN is for general use with equipment having one or more SCART outputs. The input to SCART-IN is looped through to TV-SCART for a local TV, where required.

Tuning signal

When first switched on the modulator outputs a tuning signal comprising two vertical bars and an audio tone on the chosen channel. This will assist in tuning the TV receiver(s) fed from RF-OUT. The tuning signal remains present if the channel setting is changed, making it easy to retune TVs to the new channel.

Once an AV input is selected, by applying a signal to SKY-I/O or SCART-IN, the tuning signal will disappear. To restore the tuning signal, switch the modulator off and on again at the rear panel switch, ensuring that no AV input is present.

Technical data

RF input and output	
Operating frequency range (loop-through)	87.5 – 790 MHz (Band II – Ch E60)
Loop-through gain	0 – 3 dB (approx. −3 dB for Ch E60)
Modulator output channels	E21 – E60, switch selectable
Modulator RF output level	70 – 75 dBμV (peak sync)
Modulation characteristics	
Modulation type	DSB AM with FM mono sound at +6 MHz
TV system	UK System I generally to ITU-R Rec. BT 470 [1]
Video input (Sky I/O port and SCART-IN)	CVBS 1 V p-p (internal 75 Ω termination)
Buffered video output (TV SCART)	CVBS 1 V p-p (with external 75 Ω termination [2])
Audio input sensitivity at Sky I/O port	1.5 V RMS sine for ±27 kHz deviation [3]
Audio input sensitivity at SCART-IN	0.5 V RMS sine for ±27 kHz deviation [3]
Remote control	
Power available at RF-OUT	9 V DC at 75 mA max. (s/c protected)
Remote control type (Sky I/O)	Hard-wired over Sky I/O interface
Remote control type (other)	Infrared re-emission using IR blaster
Infrared regenerated carrier frequency	Adjustable over approx. 30 – 40 kHz
Connectors and standards	
RF-IN	'IEC' (female) (IEC 61169-2)
RF-OUT	Type-F (female) (IEC 61169-24)
Sky I/O	10-pin mini-DIN (proprietary interface)
IR-OUT	3.5 mm mono jack
DC power	2.1/5.5 mm DC jack
General	
Operating temperature range	0 – +40 °C
DC power requirement	12 V (nominal) at 400 mA max. [4]
Safety standard	BS EN 60065
EMC standards	BS EN 55013 & BS EN 55020

Notes

1. Tolerances given in the ITU-R Recommendation are not applicable.
2. Termination is normally provided in the TV receiver.
3. Applies for 1 kHz modulating frequency with both L & R channels driven.
4. Use only with the AC power adapter supplied.

Summary table of connections and controls

The following table provides more detail about each port or feature of the modulator.

Connector etc.	Location	Description and notes
RF-IN Connection optional	Rear panel	Input to RF loop-through path, usually connected to antenna or to output from another device. May be left unconnected if there is no RF input. Frequency coverage 87.5 – 790 MHz (FM Band II – UHF channel 60). Low-pass filtered above Ch. 60 to reduce '4G' interference. Additional external filtering may be required if there are high power transmitters nearby. This input is DC-blocked and will not be damaged if powered (24 V max.).
RF-OUT Connection required	Rear panel	RF output to TV, distribution amplifier or IR 'eye'. Carries the input signals at RF-IN (if any) together with the modulated output channel and accepts remote control command signals in the reverse direction. This output is powered at approx. 9 V DC (max. load 75 mA) to supply an amplifier and/or IR eyes. Short-circuit protected. Do not connect to a resistive attenuator unless DC-blocked, otherwise the attenuator may burn out.
SKY I/O Connection optional	Rear panel	If using this modulator with an I/O-port-equipped Sky receiver connect this port directly to the Sky box using the lead supplied. This input is activated when video output is detected from the Sky box (see AV source selection on page 3).
POWER	Rear panel	12 V DC input. Use only the mains power adaptor supplied.
OFF-ON Control	Rear panel	ON-OFF switch. When switched OFF the modulator is completely powered-down, i.e. the RF loop-through and 9 V output power are both inactive.
SCART-IN Connection optional	Top	SCART input connector for AV input from set-top boxes, DVDs, etc. This input is activated when pin 8 is asserted (see AV source selection on page 3). Note that phono-SCART adapters cannot be used unless arrangements are made to drive SCART pin 8. RGB and control lines not used in the modulator are passed through to TV-SCART.
TV-SCART Connection optional	Top	RGB-enabled SCART output for local TV, intended for use where a source only has one SCART output connector. If the source has two or more SCART connectors it is usually best to connect the 'recorder SCART' port to SCART-IN and use a second SCART for the local TV.
IR-OUT Optional	Front panel	3.5 mm jack for connecting an IR blaster *PRO*ception proMOD32-IRBLAST (not supplied) or similar device.
IR FREQ Control	Front panel	Allows adjustment of the regenerated IR carrier frequency emitted by a blaster (see note). Adjust for best blaster control range. This control has no function if no blaster is connected.
POWER	Front panel	Power-on indicator only. Does not indicate safe isolation from the mains.
SET CHANNEL Controls	Front panel	Set desired RF output channel using a small screwdriver. Valid setting range is 21 to 60. If an invalid channel number is set the modulator RF output will be disabled (input loop-through remains active).

Note

The IR-re-emission (blaster) control system is compatible with most equipment using 'carrier' type remote control systems with carriers in the 30–40kHz range (e.g. RC-5 & RC-6). It is not compatible with older 'pulse' type remote controls, nor with irDA-based systems and equipment using non-standard carrier frequencies (e.g. B & O Beolink).

AV source selection

To provide a modulated signal at least one AV source needs to be activated. The Sky I/O input is activated when the receiver is brought out of standby. SCART-IN is activated when a connected device applies a voltage to pin 8 of the SCART-IN connector.

- If neither input is active the modulator outputs an unmodulated carrier signal.
- If one source is active it provides the modulated output.
- If both sources are active the more recently activated one provides the output.
- If a source providing the output is de-activated while another source is present the output will switch to the latter source.

Using the optional infrared blaster

The modulator facilitates direct ('hard-wired') remote control over the Sky I/O interface in a similar manner to the previous 'RF-2' connection. An infrared blaster is not required if a Sky set-top box is the only source equipment to be controlled from a remote room.

A wide range of other equipment such as Freeview receivers, PVRs, DVD players etc. can be controlled remotely if a *PRO*ception proMOD32-IRBLAST blaster is fitted. This simply plugs into the IR-OUT jack on the front panel and is used with one or more proSAT1EYE IR 'eyes' in the remote room(s) and the remote handset(s) for the equipment concerned.

Choosing and setting the output RF channel

Choice of an appropriate modulator channel setting is important to avoid interference problems. The modulator output should not be set on a channel used by any off-air multiplex signal carried on the system. Using a channel which coincides with an off-air signal is a common cause of a noisy looking modulator picture.

Avoid adjacent channel and 5-channel offset relationships (N±1 and N±5) with any other analogue signal carried on the system.

To check for interference caused by the modulator, switch off the modulator at the front panel. To check for interference caused by an off-air signal, unplug or switch off the antenna feed at RF-IN.

Set the desired output channel using the two rotary switches on the front of the modulator, using a small screwdriver. The selected channel must be in the range 21–60. If the channel is set out-of-range the modulated RF output will be disabled.

Application examples

- Fig. 3 shows the basic application with a Sky receiver or PVR without RF-2 capability. The example assumes that the main TV is fed only from the Sky receiver. The modulator is linked using the Sky-I/O cable and the RF loop-through provides off-air terrestrial signals (Freeview) for use in the remote location (typically a bedroom). The proSAT1EYE infrared 'eye' allows the Sky box to be controlled from this location. An IR blaster is not required in this case.
- Fig. 4 is similar to the Sky system above, with the addition of a 4-way amplifier and additional IR eyes to permit control from any room.
- The system in Fig. 5 is based around a twin-tuner terrestrial PVR with HDMI connection to the TV display. Off-air signals are looped through the PVR and the modulator to the remote room. Since this is a non-Sky application an infrared blaster is required to relay commands to the remote room. An amplifier can be added to this system, as in Fig. 4
- Fig. 6 shows the use of both AV inputs, SCART-IN being fed from an older type of DVD player with SCART output. It also shows how a diplexed VHF & UHF aerial feed can be passed through the modulator to provide a radio feed in the remote room.

Application examples

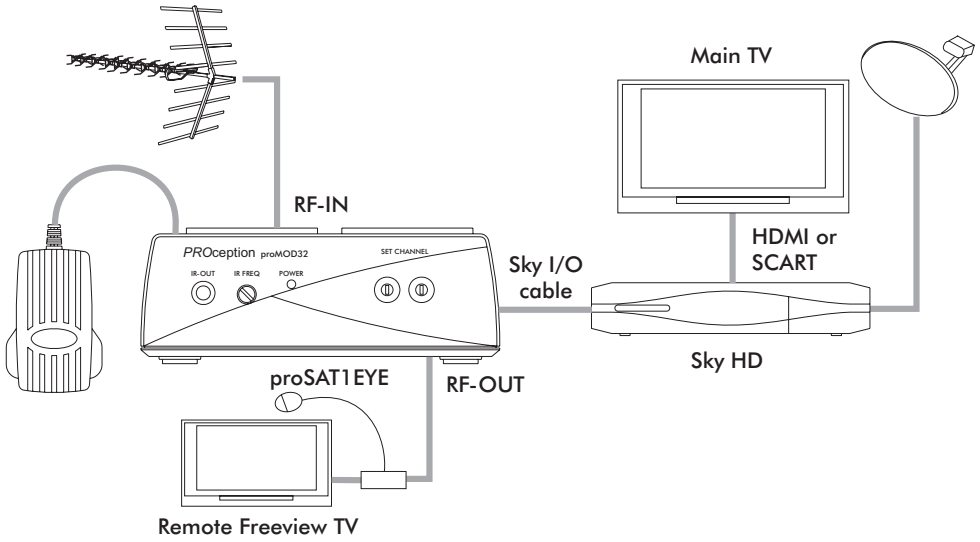

Fig. 3 – Basic Sky application.

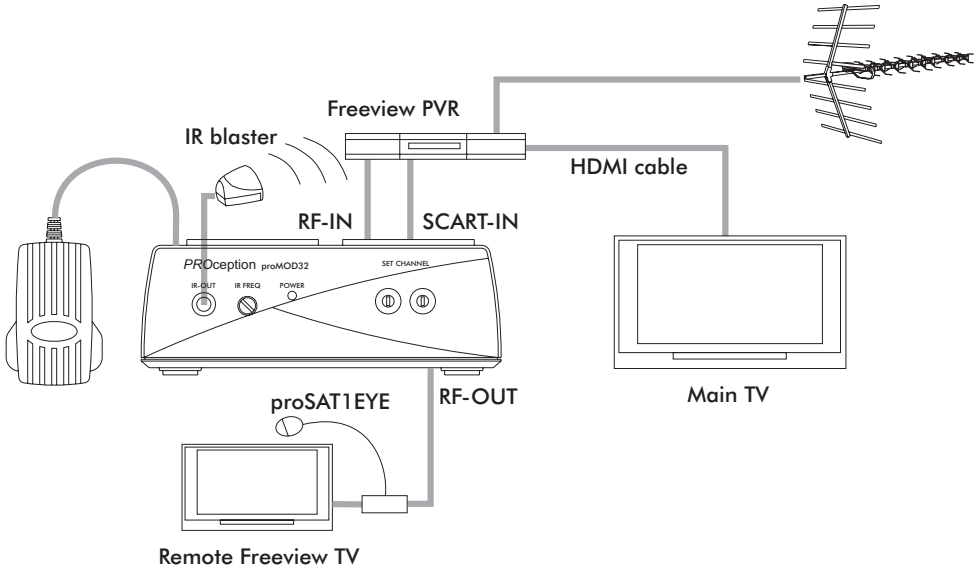

Fig. 5 – Digital terrestrial application with PVR.

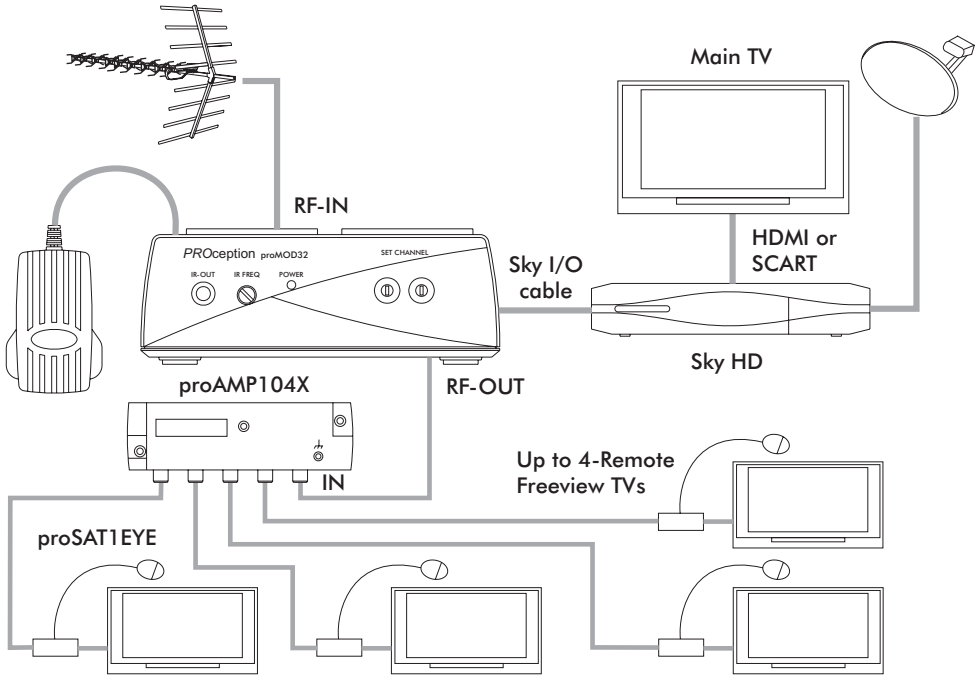

Fig. 4 – Sky application with multiple remote rooms.

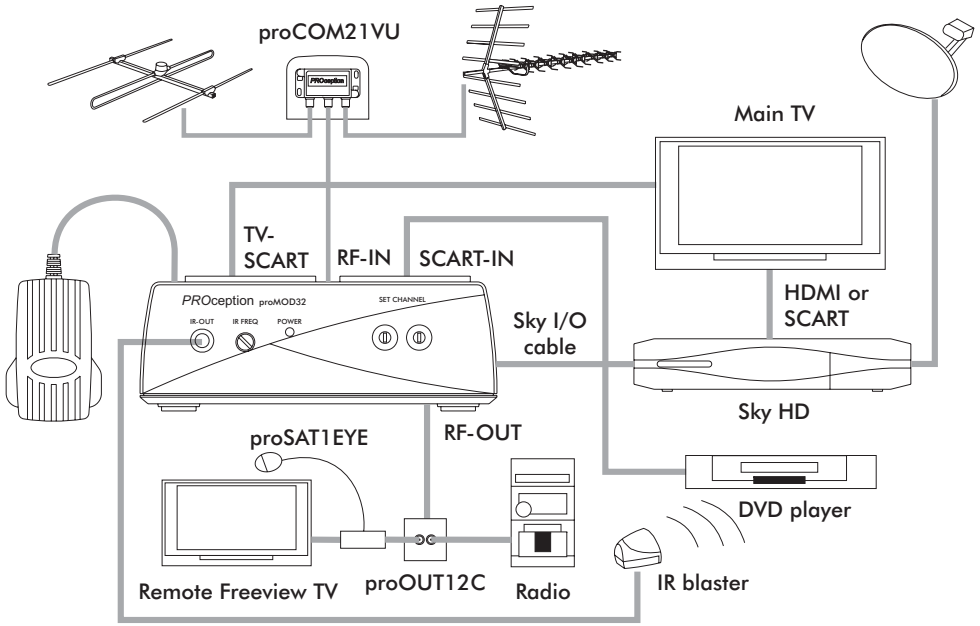

Fig. 6 – Sky application with DVD and VHF radio.