

INSTALLATION AND USER INSTRUCTIONS

This starBOX hub allows the installation of a modern house-wide radio and television distribution system. Using a simple radial star-wiring concept, the starBOX system can distribute all the usual off-air analogue and digital broadcast signals to up to eleven outlets around the home – a master outlet, plus up to ten extension rooms.

In addition, the output channels from set-top equipment such as satellite and digital receiver boxes, PVRs, DVD players or recorders and VCRs at the master location can be made available in all extension rooms.

The starBOX is compatible with the Sky* remote control extender system, allowing a Sky, Sky+* or Sky HD* receiver to be controlled from the extension rooms, simply by adding one or more infrared receiver 'eyes' such as the PROception proSAT1EYE. A CCTV door or security camera (or similar auxiliary TV source) can also be connected to the system and can be viewed on any connected TV set.

Principles

This section provides a brief technical overview of the starBOX system.

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.

'2-cable' combined-return version

This new starBOX version differs from the proSTR5S and proSTR10S models in that it requires only two RF cables between the hub and the master location. This is achieved by diplexing the SAT 2 and UHF return signals onto a common cable. **Please note that this model is not interchangeable with the proSTR10S and does not support use of the starLINK universal remote control extender system.**

Sources and inputs

Separate input connectors on the proSTR10CRS starBOX allow connection of the following sources:

- **FM ANT** (87.5 to 108 MHz) – for VHF/FM radio from a suitable FM aerial.
- **DAB ANT** (210.5 to 230 MHz) – for Band III DAB digital radio from a suitable aerial, such as a vertical half-wave dipole.
- **UHF ANT** (470 to 854 MHz) – for analogue or digital TV from the main aerial. This input is powered at approx. 8 V DC, allowing the use of a PROception proMHD11L masthead preamplifier where necessary in weak signal areas, or where the aerial downlead is unusually long.
- **CCTV (UHF)** – this is a second, lower-gain, UHF input and allows connection of an auxiliary source such as a camera. The input must be a modulated UHF signal: sources which provide baseband audio and video (CVBS) must be connected via a separate UHF modulator.
- **LNB 1** – a satellite (IF) input for the first (or only) feed from a satellite dish.

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

Proception Limited,
177-187 Rutland Road
SHEFFIELD
S3 9PT
United Kingdom

Web: <http://www.proception.co.uk/>
e-mail: support@proception.co.uk



PD2011-9041-01

- **LNB 2** – provided for use when a second satellite feed is required, e.g. for a twin-tuner PVR, such as Sky+.

Note: in communal systems where the FM, DAB, UHF and SAT signals arrive on a single cable from a multiswitch system (also known as an Integrated Reception System or IRS) use the proSTR5M starBOX instead of the 'S' or 'CRS' versions. The 'M' version has a 'combined input' specifically for this application.

Outputs and UHF return

■ **MASTER OUT** – this output carries the off-air FM, DAB and UHF aerial signals as well as the CCTV feed and satellite signals from LNB 1 IN. All signals are combined in high-grade frequency-selective combiners, to ensure minimal interaction. MASTER OUT is usually connected to a master outlet plate at the master location – i.e. the location of the main TV and set-top equipment.

■ **SAT 2 & UHF return** – this is a bi-directional port which acts as an output for the second satellite feed from LNB 2 and as an input for a return UHF feed from the equipment at the master location. It is usually connected to the master outlet plate where it is split, via a diplexer to provide separate SAT 2 (out) and UHF RETURN (in) connections. The return feed provides the UHF signal for distribution to the extension room outputs. It should come from the last item in the UHF loop-through chain so that it carries the off-air and CCTV UHF signals, together with any set-top equipment modulator outputs. The remote control return path from the extension room outlets also operates via this port.

■ **OUT 1 to OUT 10** – these are the extension room outlets and carry FM and DAB radio from the respective aerial inputs as well as the UHF return signal connected to UHF RETURN. These outputs do not carry satellite IF signals. Each of the outputs is powered at approximately 9 V DC to power an infrared receiver 'eye' such as a PROception proSAT1EYE.

Important: please understand that the UHF path to the extension room outlets comes entirely from the UHF RETURN feed. There is no direct bypass from the aerial and CCTV inputs to the extension rooms. Therefore there must always be a path or connection between MASTER OUT and UHF RETURN, **otherwise no TV signals will reach the extension rooms**. This path is usually provided at the master location, as explained above. In the event that no master equipment is installed, a link should be connected between the TV output and the RETURN connectors at the master outlet plate. (Alternatively MASTER OUT and SAT 2 & UHF RETURN may be linked directly at the starBOX unit, if the SAT 2 facility is not being used.)

Remote control operation

This '2 cable' combined-return starBOX is compatible with the remote control extender system built into Sky satellite receivers. Infrared receiver units such as the PROception proSAT1EYE can be used to control a Sky Digibox, Sky+ PVR or Sky HD receiver. In this system one or more remote receiver 'eyes' communicate directly with the Sky equipment via the starBOX and it is **essential** that the UHF RETURN input of the master outlet plate is fed directly from the RF OUT-2 connector of the Sky receiver (see connection diagram, Fig. 2). The 9 V 'second outlet power' should be enabled on the Sky receiver (for how-to details see page 4).

Safety Instructions

OVERHEATING

This starBOX 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 building void. Mains powered equipment should not be left resting on a carpet.

WATER AND FIRE RISKS

The appliance 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 appliance. To prevent risk of fire, no object with a naked flame should be placed on or near the appliance, or its associated wiring.

MAINS PLUG AND DISCONNECTION FROM THE SUPPLY

The appliance is supplied with a standard fused plug fitted. If this is unsuitable, refer to the instructions below. If you need to change the fuse in the fitted plug, a 3 Amp fuse to BS 1362 carrying the ASTA or BSI approval mark must be used. Always replace the plastic fuse carrier when renewing the fuse. The plug (or other means of disconnection from the supply, if used) should remain readily accessible for operation when necessary. The LED power indicator on this equipment should not be regarded as providing reliable indication of supply disconnection.

CHANGING THE PLUG

If the fitted mains plug is not suitable for the socket-outlets in use, it should be cut off and a new plug fitted.

Wiring the new plug: Instructions supplied with the new plug should be followed. The brown wire must be connected to the live (L) terminal of the plug and the blue wire to the neutral (N) terminal. Neither wire should be connected to the earth (E) terminal of a 3-pin plug (the appliance does not require an earth connection). Ensure that the cord grip in the plug is correctly used and clamps the sheath of the cord firmly.

Fuse Rating: If the new plug is a fused type, the fuse fitted should be rated at not more than 3 Amp.

Caution: The old plug should be destroyed immediately since it would be dangerous if plugged into a live socket.

Technical data

proSTR10CRS – '2-cable' combined-return Solo starBOX					
Antenna inputs	FM ANT IN	DAB ANT IN	CCTV IN (UHF) ¹	UHF ANT IN	LNB 1 IN
Signal frequency ranges	87.5 .. 108 MHz	210.5 .. 230 MHz	470 .. 854 MHz	470 .. 854 MHz	950 .. 2150 MHz
Gain or loss to MASTER OUT	2 dB gain	2 dB gain	8 dB loss	3 dB gain	2 dB loss
VHF bypass to distribution outputs	2 dB gain	2 dB gain	–	–	–
Max. recommended input level ²	66 dB μ V	60 dB μ V	– (passive)	76 dB μ V	– (passive)
Input filter rejection	–	–	–	≥ 26 dB ³	≥ 43 dB ⁴
Line power for UHF preamplifier ⁵	–	–	–	8 V at ≤ 25 mA	–
LNB 2 input					
Insertion loss to SAT 2 & UHF RTN	2 dB (950 .. 2150 MHz)				
Line power pass	20 V DC at 250 mA max. (also applies to MASTER OUT to LNB 1 IN)				
Distribution section					
Signal frequency range (UHF)	470 .. 854 MHz (via SAT 2 & UHF RETURN)				
Number of distribution outputs	10				
Gain to distribution outputs	3 dB				
Max. recommended input level	75 dB μ V				
RF return path frequency range	5 .. 10 MHz (gain approx. 2 dB from each distribution o/p to SAT 2 & UHF RETURN)				
Remote control compatibility	proSAT1EYE (Mk 1 or Mk 2 versions)				
IR receiver (eye) line power	9 V DC at 10 mA present at all distribution outputs				
General					
Mains power requirement	230 V 50 Hz at 8 W (10 VA)				
Signal connector type	'F' (IEC 60169-24)				
Operating temperature range	-10 .. +40 °C				
Standards compliance	Safety: BS EN 60065:2002; EMC: BS EN 50083-2:2001; bonding terminal provided				

Notes

1. CCTV IN is an auxiliary UHF input and can be used for any UHF (modulated) signal source. This input should always be terminated in 75 Ω if not used (a suitable termination is supplied with each unit).
2. Maximum UHF signal levels are given for 5 analogue TV channels plus up to 6 DTT multiplexes at ≤ -14 dB relative level (FM radio signals should not exceed -10 dB relative to analogue TV).
3. For all frequencies ≤ 400 MHz ('TETRA filtering').
4. For all frequencies ≤ 854 MHz (LNB wideband noise filtering).
5. Recommended preamplifier is PROception type proMHD11L (use only in weak signal areas or where there is a long cable run from the UHF antenna).

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

† "Freeview" is a registered trade mark of DTV Services Ltd.

The PROception starLINK universal remote control system is not supported by this starBOX model. Third-party universal remote extenders which operate using an RF return path working the 5 to 10 MHz range may be suitable for controlling non-Sky equipment. However Proception does not guarantee interoperability of the starBOX with such products and cannot provide related technical support.

Installation notes

Installation fixed wiring plan

The fixed wiring for a full installation is shown in Fig. 1. Signal sources not required may of course be omitted. Any number of extension rooms may be connected, up to the maximum of ten. The diagram also shows how the two 'spare' outputs from a quad LNB can be wired to single 'F' outlets in an extension room or rooms to allow additional local satellite equipment to be used for Sky Multiroom*.

starBOX location and fixing

Choose a suitable central location to fix the starBOX unit. The location must be dry and not subject to prolonged ambient temperature conditions of less than -10 °C or more than +40 °C. Fix the starBOX unit to a sound vertical surface such as a wall or equipment mounting board. Ventilation gaps of at least 50 mm should be left around the front and all sides of the unit. More clearance will be required above, below and to the left of the unit to allow access for the signal cables.

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

Cables and signal connections

To preserve RF screening integrity the signal connections to the unit should be made using good quality coaxial cable and connectors. This is particularly important with digital terrestrial TV (DTT) to minimise the ingress of impulsive electrical interference from home appliances, and with digital satellite TV to prevent missing channels. The use of CAI 'benchmarked' cable is strongly recommended.

All signal connections are made with Type-F connectors. The use of good quality crimp or compression connectors, used in accordance with the manufacturer's instructions will give the best results. The importance of achieving sound braid connections cannot be over-stressed. Completed connections should always be tightened with a spanner – leaving them finger-tight can sometimes lead to poor connections and attenuation of the signal.

If the CCTV input is not used, the 75 Ω terminator plug supplied must be left in place. Any other unused connectors may be left open.

Mains supply connection and safety notes

The starBOX is supplied with a fitted mains plug and may be plugged directly into a 13 A (BS 1363) socket outlet. If socket outlets of a different type are in use, please refer to the safety instructions on page 11. The mains plug should remain readily accessible to permit disconnection of the unit from the supply.

Alternatively the plug may be cut off and the amplifier wired into a readily accessible fused connection unit, fitted with an approved 3 A fuse to BS 1362. This method of connection is recommended for permanent distribution system applications, since it reduces the risk of tampering and accidental disconnection.

If the unit is **not** connected to the mains using the fused plug supplied, or a fused connection unit, it must be protected by means of a fuse or MCB at the final distribution board of rating not exceeding 6 A. A readily accessible local isolating switch should be provided to allow the unit to be disconnected from the supply when necessary. Any fixed wiring installed to supply power to this starBOX should comply with BS 7671 (IEE wiring regulations) and, where relevant, Part P of the building regulations. The starBOX is of Class 2 construction and does not require a protective earth connection. This does not obviate the need to provide a circuit protective (earth) conductor in the supply wiring, as required by BS 7671.

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. (Isolated outlet plates cannot be used with starBOX units for functional reasons.) Although not mandatory in single households, the use of system equipotential bonding is strongly recommended for all installations. All starBOXes are provided with a bonding terminal. A bonding conductor of 4 mm² should be provided, connected to the main earth terminal of the electrical installation which supplies the unit. Bonding may be effected using PROception proBAR5 or proBAR8 equipotential bonding bars.

User's equipment connections

Master location

Figs. 2, 3 and 4 show typical wiring diagrams for the user's equipment at the master location. Some points to note are:

- When using a Sky satellite receiver, the RETURN connection to the master outlet plate should come directly from RF OUT-2 of the Sky unit (Fig. 2). RF OUT-1 should be connected to the local main TV. The starBOX provides power for remote 'eyes' on all extension room outputs and remote control of the Sky box from extension rooms only requires the fitting of IR receiver 'eyes' in the room(s) concerned – see opposite and Fig. 5. Note that some Sky receivers require their RF OUT-2 power option to be enabled in order for remote control extension to work. On the Sky handset press SERVICES, 4 to enter the SYSTEM SETUP MENU. Then ignore the on-screen options and press 0, 1, SELECT to enter the INSTALLER SETUP MENU. Select the RF OUTLETS OPTION, choose RF Outlet Power Supply and set this ON. Then choose Save New Settings and press SELECT, followed by BACKUP three times to exit from the menus.
- For installations without a Sky receiver it will usually be necessary to use a 2-way passive splitter to provide the UHF return feed (Figs 3 & 4) If the splitter is connected after the set-top equipment (as Fig. 3) then the output channels from the latter will be available in the extension rooms. If the splitter is connected before such equipment (as Fig. 4) then the equipment's output channels will only be available on the main TV.
- **TV signals (UHF) will only be available in the extension rooms if a feed is provided to the RETURN connection,** as described above and explained in the 'Principles' section on page 2.

Fig.4 - Example main viewing location connection diagram for Freeview system (with box output not distributed to extension rooms).

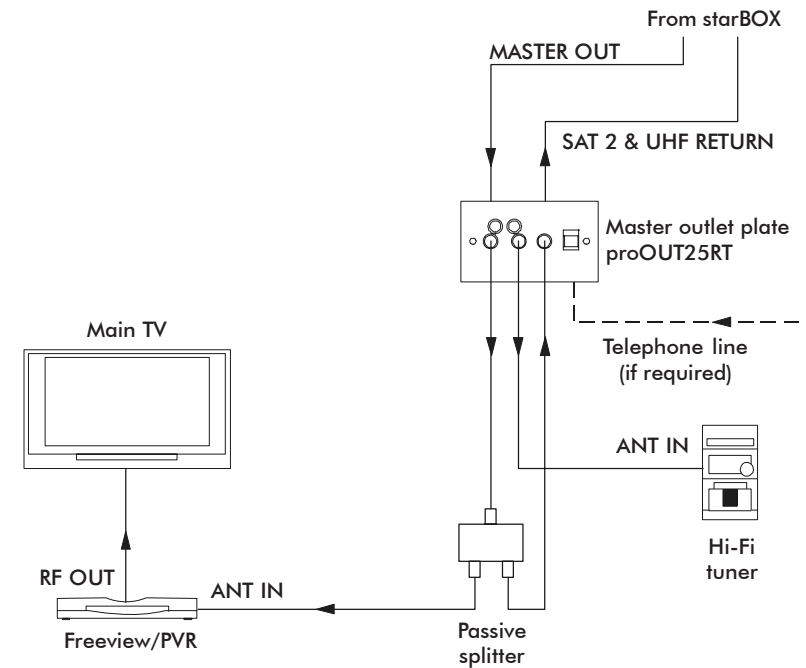
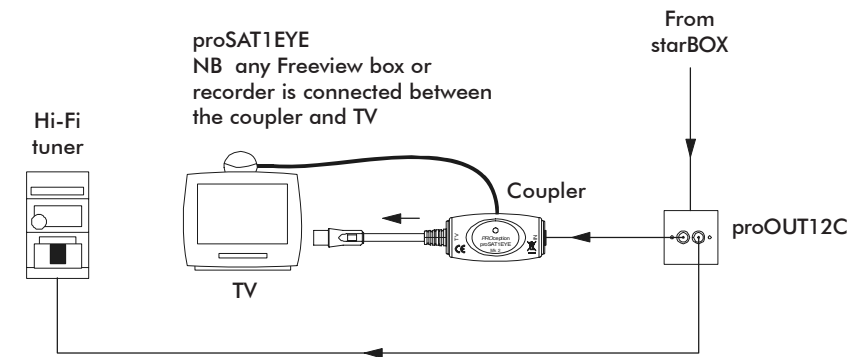


Fig.5 - Extension room installation with remote control for Sky.



Note: SCART and telephone connections have been omitted from these diagrams for clarity.

Fig.2 - Main viewing location connection diagram for Sky system with remote control.

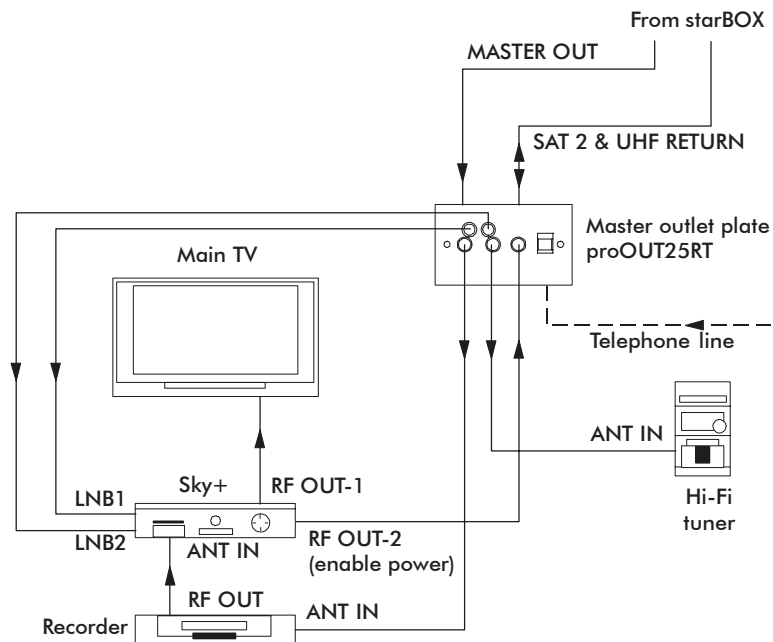
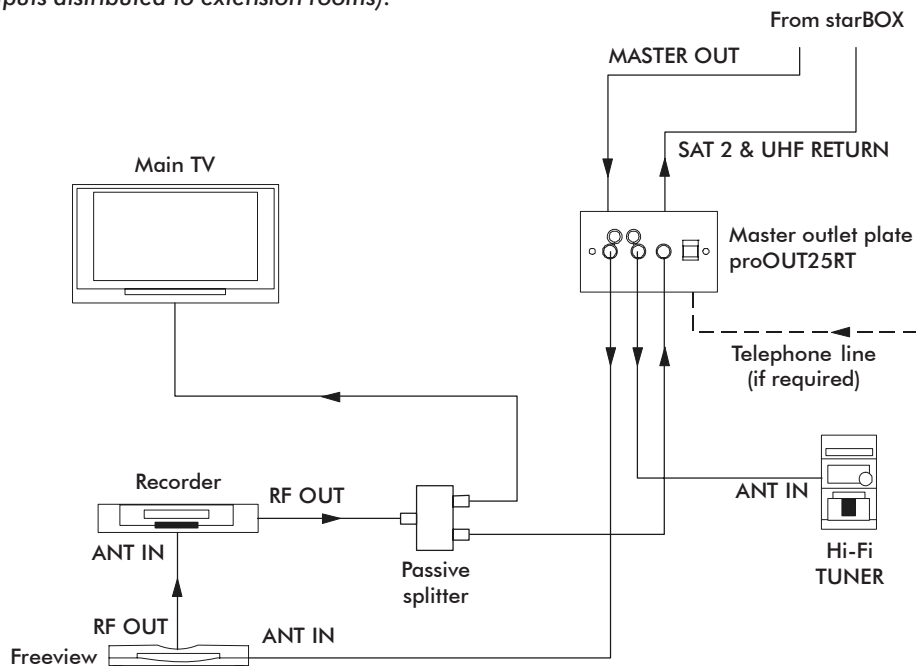


Fig.3 - Example main viewing location connection diagram for Freeview system (with box outputs distributed to extension rooms).



- If no equipment is in use at the master location connect a short lead between the TV and RETURN connectors at the master outlet (or between MASTER OUT and SAT 2 & UHF RETURN at the starBOX itself, if SAT 2 is not being used) to provide TV signals in the extension rooms.

Extension rooms

Fig. 5 shows a typical extension room installation with an infrared receiver 'eye.' Points to note when using remote control extension are:

- Any signal outlet plate used must be non-isolated, and must provide DC continuity to the TV outlet, to enable power from the starBOX to reach the receiver eye.
- The coupler part of the receiver eye must be connected the right way round – that is with the male coax connector facing the TV and the incoming signal connected to the female port. **Remote control functions will not work if the coupler is connected the wrong way round.**
- Set-top equipment such as a Freeview* box or recorder to be used in an extension room should be connected between the remote control coupler and the TV. Signals from this equipment will not be available in other rooms.
- Ensure that all wiring between the starBOX and the coupler provides reliable DC continuity. The most common cause of remote control problems is poor connections in the extension rooms, resulting in loss of power to the IR receiver eyes.

Tuning

To view output programmes from master location set-top equipment, the extension room TVs must be tuned-in to the output channel(s) of the equipment concerned. To tune-in these TVs leave a tape or disk playing on a VCR or DVD player, or select a known channel on a digital receiver, then tune an unused channel setting on each of the remote TVs into the video or digital programme. For instructions on how to tune a TV refer to its instruction manual or the manufacturer's help line or Web site. Similar tuning will be required for the CCTV camera output, where installed.

Where more than one item of set-top equipment is connected in the system you may experience severe interference (patterning) when more than one output channel is present. In this case the output channel number (modulator channel) for one or more items will need to be changed, and the relevant TV(s) retuned. If further set-top equipment is to be used in an extension room it should be connected between the eye coupler and the TV. The output channel from such equipment will only be available in that extension room.

To use a satellite receiver in an extension room a separately-wired feed from a dish/LNB is required, as shown in Fig. 1. This option can be of interest where a Sky+ PVR is in use at the master location and an older Digibox has been retained for use in another room (Sky Multiroom subscription).

Fig.1 - Full installation fixed wiring.

