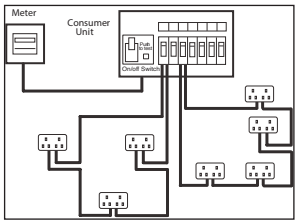
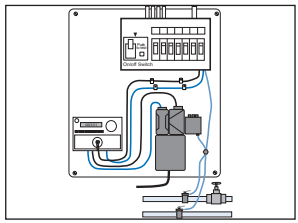
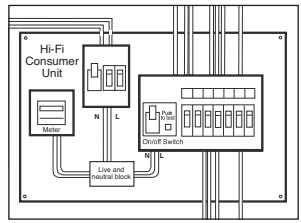
CONNECT WITH YOUR MUSIC™

# UPGRADING YOUR MAINS WIRING




One of the biggest mains upgrades you can make is to the mains wiring that supplies your Hi-Fi system. **Russ Andrews** explains how to do it.

# Introduction

Your consumer unit ('fuse board') will have a number of circuits serving different areas and functions in your home, *e.g.* one circuit for lighting, another one for downstairs sockets, one for upstairs sockets and so on. My recommendation for upgrading your mains wiring is to add another, dedicated circuit that only your Hi-Fi system is connected to. By increasing the isolation of your Hi-Fi from your other circuits, you greatly reduce the mains noise problem from household appliances and you ensure the best possible delivery of current to your system. The improvements in sound quality from doing this can be enormous and is more than worth the effort and cost.

### Safety Notice

These instructions describe the wiring system in use in the UK only – wiring systems vary from country to country so do check with your local codes and laws to make sure you are not breaking the law. At the time of writing (Dec 2018) they have been prepared with reference to the 18th Edition wiring regulations* and if your electrician follows our approach your installation will be safe and comply with the relevant regulations. Adding a new mains circuit isn't a DIY task – the work is complex and here in the UK must be compliant with Part P of the Building Regulations. Your electrician will be able to ensure that the new cable is routed safely and tidily, and supply a certificate of compliance once the job is done.

* read more about the 18th Edition regulations on page 4.

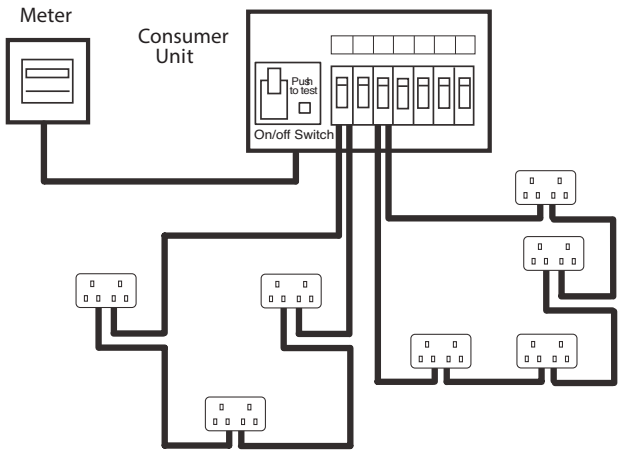
# Wiring Circuit

In the UK there are two basic types of circuit for house wiring: the ring circuit and the radial or spur circuit.

A ring circuit consists of a continuous loop of cable running out from the consumer unit and back again with one or more sockets connected to it.

A radial or spur circuit is wired with a single cable running from the consumer unit terminating at the furthest socket.

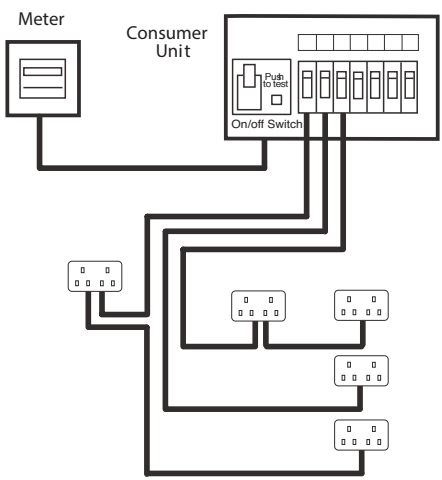
The advantage of a ring circuit is that looping the wire back to the consumer unit doubles the current handling capability of the circuit; the impedance is halved as current flows in both directions. The wire in a radial (spur) would need to be much larger to match the lower impedance of a ring. Low impedance is very important even if the current demand is low since it has a marked effect on the bass performance and treble sweetness of a Hi-Fi system.




Ring Circuits

A dedicated Hi-Fi ring circuit – for it is a ring that I recommend – should be wired with at least 4mm$^2$ twin and earth cable. If you have to wire with a spur, it should be at least 6mm$^2$.

The best performance can be had by using our special Russ Andrews Mains Install Cable, which is made with woven Kimber Kable. We have two types available - the best using the purest copper and insulation, and a lower cost alternative featuring the same woven design, but using a different grade of copper and PVC insulation.




Radial (spur) circuits

# The Consumer Unit

Your mains circuits terminate at your consumer unit (fuse board), which will be close to your supply meter. Most modern consumer units have each circuit connected to the supply via a circuit breaker (called an MCB) which provides protection (it trips off in the event of a fault) and allows you to turn off individual circuits. The consumer unit is in turn protected by a Residual Current Device (RCD). RCDs are now used in place of the old-style isolator switches and modern consumer units are installed with them as standard; a requirement of the 18th Edition regulations is that all domestic circuits must be protected by an RCD.

When installing your Hi-Fi mains circuit, your electrician can either use a spare circuit in your existing consumer unit, or – preferably – fit a new, additional consumer unit dedicated to your Hi-Fi system in parallel to the existing one.

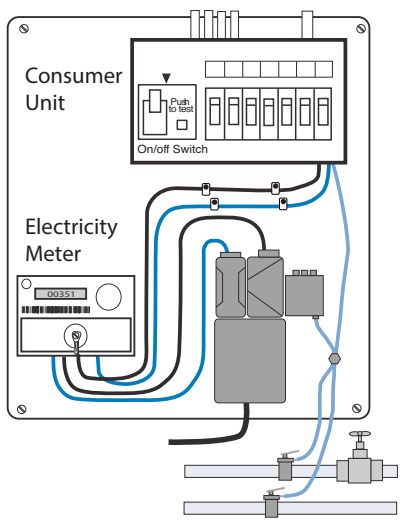
Over the years we've tested many Consumer Units and we offer what we believe to be the very best-performing compliant unit, suitable for wiring one mains circuit.

The unit incorporates a 32A MCB and is additionally protected by a 40A RCD with a 30mA trip current. All parts have been tested and chosen by Russ for their performance; we additionally treat the conductive parts with DeoxIT contact enhancer and the unit benefits from our Super Burn in Process.

## About the 18th Edition Wiring Regulations

The 18th Edition Wiring Regulations (BS 7671:2018) come into force on 1st January 2019 and there are changes that have affected the type of consumer unit that we supply. The new regulations state that consumer units must be housed in a metal enclosure and domestic circuits must be protected by an RCD (previously it was acceptable to omit RCD protection for a Hi-Fi mains circuit, as long as it was suitably marked).

Existing installations that were compliant with the old regulations do not need to be altered, but new installations must comply with the new regulations from 1st January 2019. Our Russ Andrews upgraded Consumer Unit complies with the 18th Regulations, being fitted with both a suitable RCD and in a full metal enclosure.



# The Sockets

You shouldn't overlook the wall sockets when upgrading your mains wiring – they are the final link to your system. All mains sockets sound different – often each socket in a double sounds different! – and switched ones sound particularly bad.

We have three types - SuperSocket II, UltraSocket and Signature Socket. SuperSockets are fine-sounding sockets which we treat with DeoxIT contact enhancer; UltraSockets are one of the best performing mains sockets we've tested. They have superior contacts (which are cryogenically treated) and are treated with DeoxIT contact enhancer. Our Signature Sockets are the very best sockets we offer, giving you a double advantage: all contacts are both rhodium plated and treated with our exclusive Process Q.

Incidentally, you can upgrade your mains sockets at any time – even if you aren't upgrading your mains wiring. Switch the power off at the consumer unit and check the circuit isn't live before removing the socket.

All our sockets are a straight swap for your existing ones and are a simple and effective system upgrade.

**Safety Notice**
Before removing existing sockets, switch off the mains at the consumer unit, and if in doubt consult a qualified electrician. All our sockets are supplied with full fitting instructions.

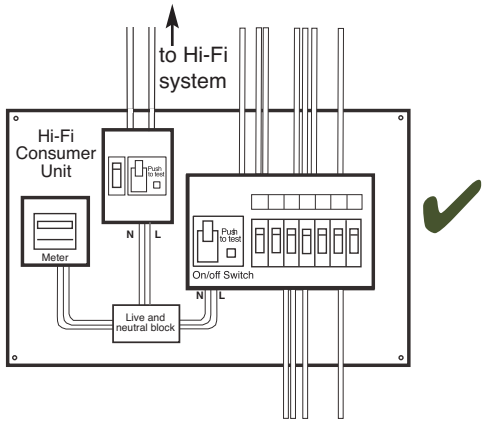

**SuperSocket II available with and without earth terminal** *Code: 1803*


**UltraSocket available with and without earth terminal** *Code: 1901*

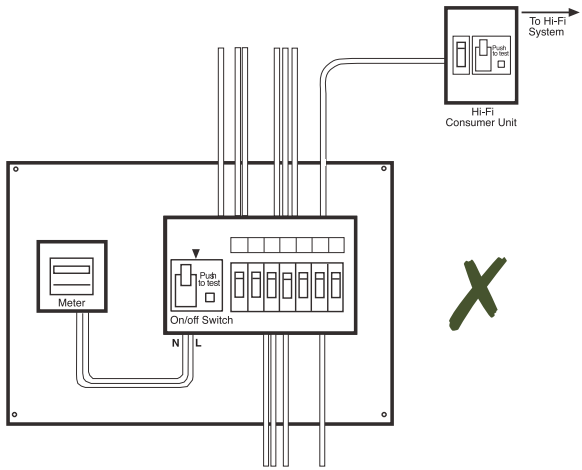

**Signature Socket available with and without earth terminal** *Code: 1935*

# What to do

*These instructions describe how a dedicated mains circuit can be added to supply your Hi-Fi system. It describes the wiring system in use in the UK only – wiring systems vary from country to country so get your electrician to check with your local codes and laws to make sure you are not breaking the law or doing something incompatible with your local systems.* ***For compliance, work must be carried out by a qualified electrician.***



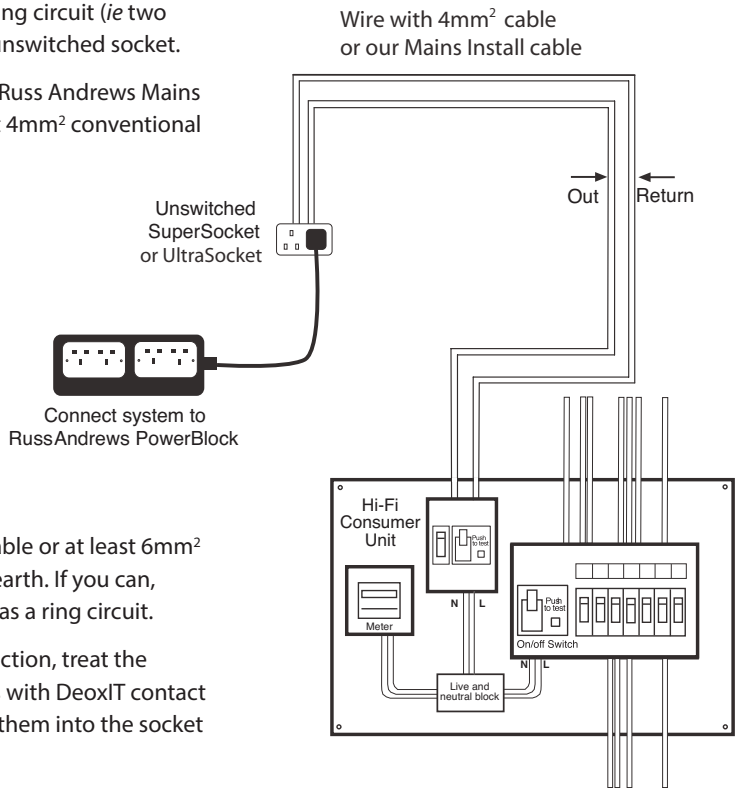

**Fit a dedicated Hi-Fi consumer unit** wired in parallel to the existing consumer unit as shown. Do NOT add it to an existing spare outlet from the original unit. We have researched and tested and found the best sounding consumer unit for the best performance.



**Wire the circuit with a low impedance ring main cable** (such as Russ Andrews Mains Install Cable) in a local ring circuit (*ie* two lengths of cable) to an unswitched socket.

If you are not using our Russ Andrews Mains Install cable, use at least 4mm$^2$ conventional twin and earth cabling. If the distance from your consumer unit to your Hi-Fi room is very large, and you can't run to two lengths of cable, you can fit a radial circuit (using a single run of cable terminating in one socket): wire this with our Mains Install cable or at least 6mm$^2$ conventional twin and earth. If you can, always wire your circuit as a ring circuit.

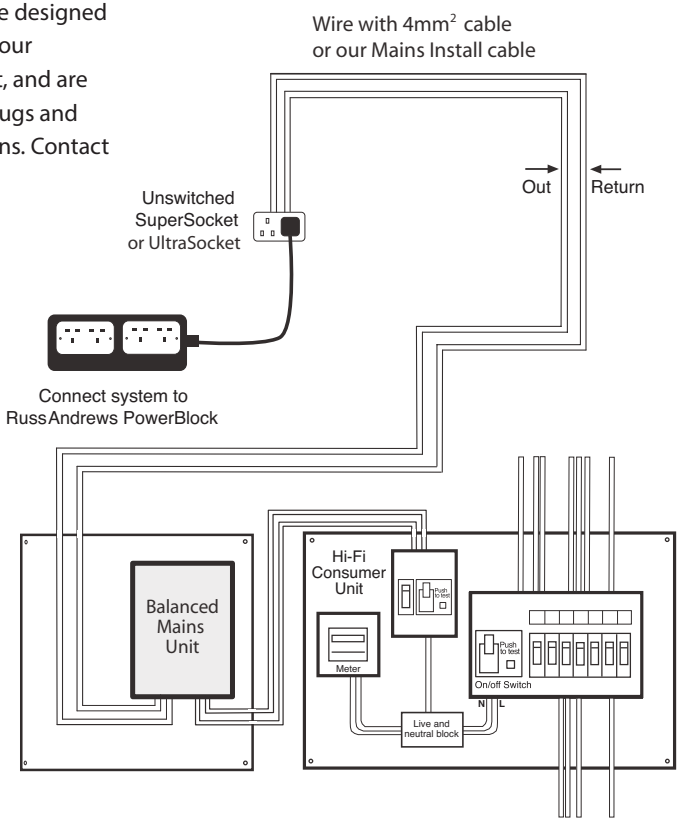
To ensure a good connection, treat the bare copper conductors with DeoxIT contact enhancer before fitting them into the socket and consumer unit.




*Hi-Fi mains circuit wired from a dedicated Hi-Fi consumer unit.*

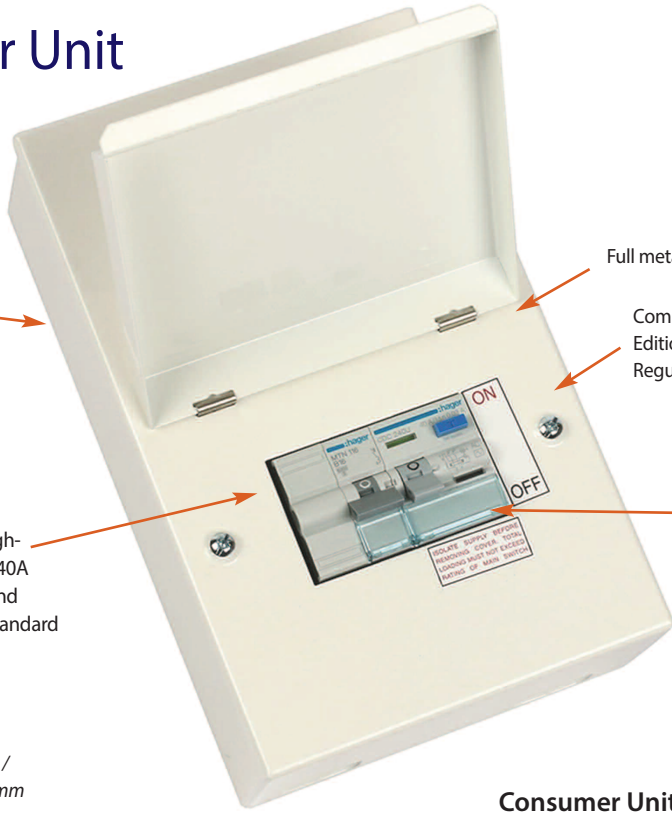
# Fitting Balanced Mains

You can incorporate balanced mains into a dedicated mains circuit and we recommend doing so for the very best performance. We can supply install versions of both our 1500 and 3000 Balanced Mains Units; both are designed to be wall-mounted close to your dedicated Hi-Fi consumer unit, and are hard-wired, eliminating the plugs and sockets of the standard versions. Contact us for more information.



# What you will need

## Consumer Unit




Suitable for one Hi-Fi or Home Cinema ring or spur (single phase)

Full metal enclosure

Compliant with 18th Edition IET Wiring Regulations (BS 7671: 2018)

Fitted with high-performance 40A 30mA RCCB and 32A MCB as standard

Conductive parts treated with DeoxIT contact enhancer and our Super Burn In process

25 YEAR WARRANTY

60 DAY MONEY BACK GUARANTEE

*Full instructions included*

*Dimensions: Height: 240mm / Width: 147mm / Depth: 100mm*

Code: 1920

**Consumer Unit** **£269.00**

## Monitor your mains voltage

There's no question that high voltages can affect Hi-Fi equipment; amplifiers with large transformers can be noisier and have more hum; the sound can be subjectively harsher and more distorted, equipment can run hotter and you may experience failure of the internal fuses. Low voltages are a problem too, and can reduce an amplifier's output and increase distortion.

Your electricity supplier is obliged by law to deliver 230V +10% -6%, which gives a minimum of 216.2V and a maximum of 253V. Over the last few years we've seen a tendency for houses to receive higher mains voltages than the nominal 230V. Clearly it's worth keeping an eye on your mains voltage and if your voltage exceeds the maximum, or is below the minimum, there's a case for contacting your supply company.

Our mains voltage meter is simple to use – just plug it into any spare socket.


60 DAY MONEY BACK GUARANTEE

*Code: 1408*

**Mains Voltage Meter** **£50.00**

*Dimensions: 104mm x 60mm x 58mm HWD*
*2 year warranty.*

# Mains Install Cable

Russ Andrews Mains Install uses Kimber Kable's famous weave. We have two grades available: the best with the highest purity copper and insulation, and a lower-cost alternative using a slightly different grade of copper and insulation but maintaining the woven design.

**Russ Andrews Superior Mains Install cable**
Code: 1515 **£92.00 per metre**

**Russ Andrews Mains Install cable**
Code: 1520 **£40.00 per metre**

*Russ Andrews Superior Mains Install cable*

*Russ Andrews Mains Install cable*

Russ Andrews Mains Install cable is supplied single insulated. **When installed it should be double insulated *ie.* run in a suitable conduit.** We can supply it ready encased in suitable Mains Install Cable Sheathing if you wish.

**Mains Install Cable Sheathing**
Code: 1001 **£4.10 per metre**

*Fitted free if ordered at the same time as Mains Install cable*

# Sockets

**SuperSocket II™** is fine-performing unswitched wall socket that is treated with DeoxIT® contact enhancer. Available as a double socket with or without earth.

We can supply backing boxes for surface mounting all of our sockets.


**SUPERSOCKET II™** *code 1803*

| | |
|---|---|
| **DOUBLE** | **£27.00** |
| **DOUBLE WITH GROUND** | **£37.00** |

***Safety notice***
*Before removing existing sockets, switch off the mains at the consumer unit, and if in doubt consult an electrician. All our sockets are supplied with full fitting instructions.*

# Sockets (cont.)

**UltraSockets™** are one of the best 13A mains sockets we have tested. Supplied as a single socket only, UltraSockets are a straight swap for existing single and double 13A wall sockets.



- Very high pressure terminals
- Nickel plated earth connection
- DCT and DeoxIT treated
- Single and double faceplates are a straight swap for existing single and double sockets
- Sockets are BS1363 certified and high impact and fire resistant for your peace of mind

## ULTRASOCKET™

order code 1901

| | |
|---|---|
| SINGLE FACEPLATE | **£79.00** |
| DOUBLE FACEPLATE | **£89.00** |
| DOUBLE FACEPLATE WITH EARTH/GROUND TERMINAL | **£99.00** |

Our top-of-the-range **Signature Sockets** are the only choice if you demand the very best. With phosphor bronze copper alloy contacts, heavily plated with rhodium and then treated with Process Q, we believe they are a must for anyone who expects the very best performance from their system.


## SIGNATURE SOCKET™

order code 1935

| | |
|---|---|
| DOUBLE | **£199.00** |
| DOUBLE WITH EARTH/GROUND TERMINAL | **£209.00** |

# Mains Install Accessories

Surface mount backing box for double SuperSocket
*Code: 1808* **£7.50**

Surface mount backing box for single SuperSocket
*Code: 1808* **£3.50**

**Stripped threads on your back box?**

Back box savers are an ingenious way to fit sockets to an embedded metal back box with damaged threads.

Back Box Saver *Code: 1919* **£3.99**


DeoxIT® improves the conductivity of contacts by dissolving resistive oxides from the metal surfaces and provides long-lasting protection from further oxidation. DeoxIT can be used on all mains plugs and sockets.

DEOXIT DP5 *code 5443*
PUMP SPRAY 150ml **£32.95**
*25% concentration (£19.96 per 100ml)*