

UK 13A Fused Mains Plug

By G8MNY

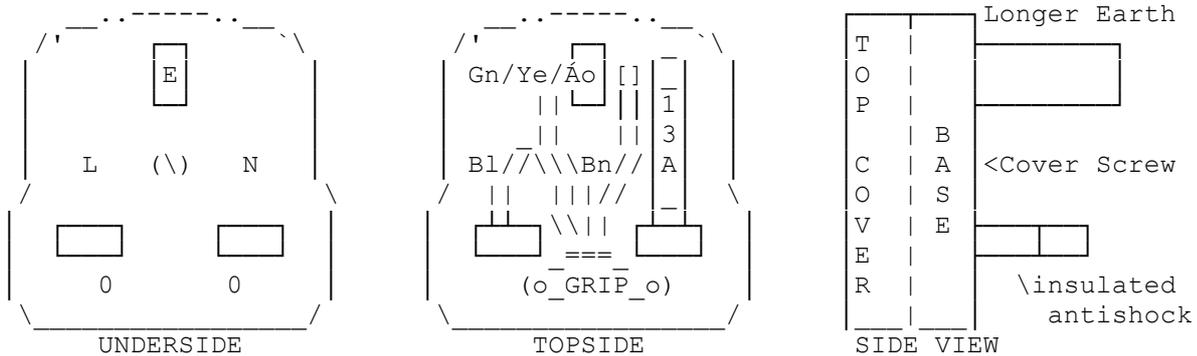
(Updated Mar 08)

(8 bit ASCII Graphics use code page 437 or 850)

After some intermediate courses where students have to attach a mains lead to a plug PROPERLY, I came up with this to add some flesh to the subject! I also found girl guides can take 20mins to fit one, having never used any hand tools, or seen their Dads fit a mains plug anymore (a lost skill).

UK 13A FUSED MAINS PLUG

This type of plug is only used in the UK & some of its dependants. It is the highest power item part most people deal with. Correct fitting & use IS A LIFE & DEATH MATTER! The 13A Rating enables up to 3kW to be safely drawn from the plug.



The UK Standard BS1362 was introduced in the 1960s with the higher current ring mains wiring system. Rings are rated at 20/30A for domestic, & up to 60A for industrial sites. All sockets are shuttered, to prevent non fused plug (& finger!) access.

Fuse rating is only supposed to protect the appliance lead! Appliances should be separately fused with a more appropriate fuse as needed.

The 1" x 1/4" BS1362 Mains plug Fuses are fast high voltage type, ceramic body, normally sand filled to quench arcing when rupturing. The peak rupture current rating is 6,000 Amps @ 240V !!!! (e.g. the fuse must stop arcing & break that current!)

Fuse Print	Max Continuous Rating	Typical Blow Surge	Typical Peak Break Power
Brown	13A	26A	9 kW
Black	10A *	20A	7 kW
Black	7A *	15A	5 kW
Black/Blue	5A *	10A	3.5kW
Red	3A	6A	2 kW
Black	2A *	4A	1.4kW
Black	1A *	2A	700W

* It can be difficult to obtain these values, but they are available.

N.B. The right fuses does not protect you from DEATH, but may stop an electrical overload fire!

COMMON PLUG FEATURES

- 1/ 3 Pin. Larger Earth Pin.
- 2/ Strong oblong pin section for high contact area.
- 3/ Earth pin connects 1st & disconnect last, & operates the socket shutter.
- 4/ Part Insulated Live & Neutral Pins to stop finger shocks.
- 5/ Fuse to limit the high ring current available to limit damage.
- 6/ Universal Cord grip.
- 7/ As with other plugs LIVE is on the Right.

PLUG TYPES

Although all made to the same standard, the designs do vary with make & price. Older plugs designs have all metal pins (better for high currents!), & should ideally be replaced especially in wet use areas.

Some types & features to look out for...

- Clear Body, (for easier PAT visible inspections).
- Moulded on types (new appliances) with a fuse access flap/carrier.
- Fuse rating inspection hole.
- High contact area wrap around terminals. (safety plug)
- Easy wedge cord grip. (safety plug)
- Two position cord grip, for large & small cables.
- Easy pull out types with large ring handles.
- Rubber body, for those indestructible uses.
- Soft plastic (nylon), more rigid than rubber & keep their shape.
- Bakerlite/Urea, cheap, easily broken, but higher temperature rated.
- With Neon Indicator.
- With ON/OFF switch.
- Multi coloured plugs.
- Surge protected plugs, computers.
- Earth Leakage Trip plugs, for outdoor appliances.
- Energy savers, for fridges/Pumps.
- Timer Plugs, for lights etc.
- Remote IR controlled plugs. (For lazy people!)

LEADS

Available in 2 core or 3 core, ratings 3A, 6A, 10A, 13A, 15A, & 20A.

- a/ Only Double insulated leads are allowed. No bell/LS wire!
- b/ Make sure the appliance is double insulated if it has a 2 core lead.
- c/ Use proper mains joiners in the leads if the lead is too short.
- d/ Only Blue, Brown & Yellow/Green leads should be used.
- e/ Use the correct current rated lead for the job. 1A-15A flex
- f/ Use the right type of lead for the job..
 - e.g. Rubber/heat proof leads for hot jobs, Irons, Toasters, Fires.
 - NO solid lead for flexible work,
 - Screened mains lead for improved RFI protection.

WIRING UP (11 steps blow by blow)

=====

- 1/ Remove plug top cover, do not loose screw if not captured. If cover has lead hole place over lead, the right way around NOW!
- 2/ Cut off the outer of the lead to the right length, making doubly sure the inner insulation is not damaged.
- 3/ Offer up the lead & measure off each colour wire to the right terminal & strip the wire insulation off, not damaging the wires.

- 4/ For thick wires just stripped wire to length & trim excess length off, twist bare ends for stability (do not solder). For thin wires consider twisting & folding the wire to make it a suitable size to the terminal if needed. (some people make the earth lead a fraction longer so it is the last to disconnect on a lead rip out!)
- 5/ Loosen terminal post screw, insert wire into the right hole making sure no strands miss the hole. Brown-Live, Blue-Neutral, Green/Yellow-Earth.
- 6/ Screw up tight! & Redo for 5 & 6 for all wires.
- 7/ Route the wires correctly around the plug, making sure that they will not be trapped by the top cover.
- 8/ Place wire under cable clamp & do it up firmly. This can be difficult for thin or thick cables! See if clamp has 2 positions & use appropriately.
- 9/ Double check wire colour code LAST CHANCE!!!
- 10/ Double check the fuse rating is correct.
- 11/ Place plug cap on & screw up. Again checking for crushed wires badly fitting cap etc.

Y don't U send an interesting bul?

73 de John G8MNY @ GB8CIP