CLAIMS

1. A method for sensing AC current drain through one of a coiled and a structured current sensor made of a low ohmic metal alloy by a load attached to an electrical device selected from a group comprising AC outlet, AC plug, AC current sensing unit and AC current sensing adaptor each including said one of coiled and structured current sensor structured into a portion of at least one of a terminal selected from a group comprising a power pin, a power socket, AC terminal and combinations thereof for connecting and conducting the current drawn by said load through said current sensor, said electrical device further includes circuits comprising a CPU and a current signal amplifier for amplifying a voltage drop developing over said current sensor, said method comprising the steps of:

a. attaching a load to said AC device;

b. operating said load;

c. feeding the voltage drop developing over said current sensor made of low ohmic metal alloy to said amplifier;

d. amplifying said voltage drop signal; and

e. feeding the amplified signal to said CPU for processing.

2. The method according to claim 1, wherein said one of coiled and structured current sensor structured into the portion of said terminal is made to fit a size, a shape and a given low ohmic value for developing a voltage drop commensurate within one of a given current drain values and range, said CPU is fed with a voltage reference of said AC power for processing said amplified current drain signal coinciding with said reference for deriving the power consumed by said load.

3. The method according to one of claims 1 and 2, wherein said circuits further comprising at least one of an RF transceiver and an optical transceiver for communicating a processed data pertaining to at least one of the current drained and the consumed power via at least one of in air and through an optical cable respectively.

4. The method according to anyone of claims 1 to 3, wherein said power socket is structured with a plurality of sockets for use in a multi AC power outlet, each said socket includes individual current signal amplifier and one of said coiled and structured current sensor for feeding each individual voltage drop to said individual current signal amplifier for feeding the individually amplified signal to one port of a plurality of ports included in said CPU for processing.

5. The method according to anyone of claims 1 to 4, wherein said current sensor is one of structured into a portion of a combination terminal comprising said power pin with said power socket used in said AC current sensing adaptor and said coiled current sensor included in said AC current sensing unit.

6. The method according to anyone of claims 1 to 5, wherein said coiled current sensor is a primary coil of a current transformer and wherein a secondary coil of said transformer is structured to output one of a single step-up voltage for powering said circuits and multi step-up voltages for at least one of setting the amplification factor for said amplifier and feeding an overload alert signal to said transceiver.

7. The method according to anyone of claims 1 to 6, wherein said electrical device is enclosed in one of a body and a cover with a visible color coded ratings selected from a group comprising a power consumption range, a power consumption value, a current drain range, a current drain value, a power voltage range, a power voltage value, a colored front cover, a colored rear cover, a colored frame, a colored whole body and combinations thereof.

8. An apparatus for sensing AC current drain through one of a coiled and a structured current sensor made of a low ohmic metal alloy by a load attached to an electrical device selected from a group comprising AC outlet, AC plug, AC current sensing unit and AC current sensing adaptor each including said one of coiled and structured current sensor structured into a portion of at least one of a terminal selected from a group comprising a power pin, a power socket, AC terminal and a combination thereof;

said electrical device further includes circuits comprising a CPU and a current signal amplifier for amplifying a voltage drop developing over said current sensor by the current drawn by a connected load for feeding the amplified signal to said CPU for processing.

9. The apparatus according to claim 8, wherein one of said coiled and said structured into a portion of said terminal is made to fit a size, a shape and a given low ohmic value for developing a voltage drop commensurate within one of a given current drain values and range, said CPU is fed with a voltage reference of said AC power for processing said amplified current drain signal coinciding with said reference for deriving the power consumed by said load.

10. The apparatus according to one of claims 8 and 9, wherein said circuits further comprising at least one of an RF transceiver and an optical transceiver for communicating a processed data pertaining to at least one of the current drained and the consumed power via at least one of in air and through an optical cable respectively.

11. The apparatus according to anyone of claims 8 to 10, wherein said power socket is structured with a plurality of sockets for use in a multi AC power outlet, each said socket includes individual current signal amplifier and one of said coiled and structured current sensor for feeding each individual voltage drop to said individual current signal amplifier for feeding the individually amplified signal to one port of a plurality of ports included in said CPU for processing.

12. The apparatus according to anyone of claims 8 to 9, wherein said current sensor is one of structured into a portion of a combination terminal comprising said power pin with said power socket used in said AC current sensing adaptor and said coiled current sensor is included in said AC current sensing unit.

13. The apparatus according to anyone of claims 8 to 12, wherein said coiled current sensor is a primary coil of a current transformer and wherein a secondary coil of said transformer is structured to output one of a single step-up voltage for powering said circuits and multi step-up voltages for at least one of setting the amplification factor for said amplifier and feeding an overload alert signal to said transceiver.

14. The apparatus according to anyone of claims 8-13, wherein said electrical device is enclosed in one of a body and a cover with a visible color coded ratings selected from a group comprising a power consumption range, a power consumption value, a current drain range, a current drain value, a power voltage range, a power voltage value, a colored front cover, a colored rear cover, a colored frame, a colored whole body and combinations thereof.

CLAIMS

1. A method for sensing AC current drain by a load through one of a coiled and a structured current sensor made of low ohmic metal alloy included in an electrical device selected from a group comprising AC outlet (30), AC plug (40), AC current sensing unit and AC current sensing adaptor (20), said coiled (11A), (11B) is a primary coil of a current transformer wounded by one of at least in part by a wire made of said low ohmic alloy and by a conductive wire having a given low ohmic value, said structured (21R), (31R), (41R) is a cut and formed metal alloy sheet to fit into at least a portion of a terminal;

said low ohmic metal alloy is a solid metal conductor having an ohmic value calculated to develop a current signal corresponding to said current drained within a given current range through said current sensor included in said terminal selected from a group comprising a power pin (41P), a power socket (31), an AC power terminal and combinations thereof (21) for conducting the current drawn by said load (58) connected to said current sensor and dissipating heat generated by the current drawn, said electrical device further includes circuits comprising a CPU (50) and a

current signal amplifier (51) for amplifying said current signal, said method comprising the steps of:

a. attaching said load to said AC device;

b. operating said load;

c. feeding said current signal to said amplifier;

d. amplifying said current signal; and

e. feeding the amplified signal to said CPU for processing.

2. The method according to claim 1, wherein said ohmic value is calculated to develop a voltage drop corresponding to said current signal includes the metal alloy resistivity, the physical size and shape of one of said coil and said terminal (21R,) (31R), (41R) for developing a voltage drop within said given current drain range, said CPU (50) is fed with a voltage reference of said AC power for processing said amplified current signal coinciding with said reference for deriving the power consumed by said load.

3. The method according to one of claims 1 and 2, wherein said circuits further comprising at least one of an RF transceiver (53) and an optical transceiver (56) for communicating a processed data pertaining to at least one

of the current drained and the consumed power via at least one of in air and through an optical cable respectively.

4. The method according to anyone of claims 1 to 3, wherein said power socket (30) is structured with a plurality of sockets for use in a multi AC power outlet, each said socket (30) includes individual current signal amplifier (51) and one of said coiled and structured current sensor for feeding each individual current signal to said individual current signal amplifier (51) for feeding the individually amplified signal to one port of a plurality of ports included in said CPU (50) for processing.

5. The method according to anyone of claims 1 to 4, wherein said current sensor is one of structured into a portion of a combination terminal (21) comprising said power pin (21P) with said power socket (21S) used in said AC current sensing adaptor (20) and said coiled current sensor (11A), (11B) included in said AC current sensing unit.

6. The method according to anyone of claims 1 to 5, wherein said current transformer (2D), (2E) includes a secondary coil (12A), (12B) of said transformer (2A), (2B) structured to output one of a single step-up voltage for powering said

circuits and multi step-up voltages (12D), (12E) for at least one of setting the amplification factor for said amplifier (51) and feeding an overload alert signal to said transceiver (53), (56).

7. The method according to anyone of claims 1 to 6, wherein said electrical device is enclosed in one of a body (20), (30), (40) and a cover with a visible color coded ratings selected from a group comprising a power consumption range, a power consumption value, a current drain range, a current drain value, a power voltage range, a power voltage value, a colored front cover, a colored rear cover, a colored frame, a colored whole body and combinations thereof.

8. An apparatus for sensing AC current drain by a load through one of a coiled and a structured current sensor made of a low ohmic metal alloy included in an electrical device selected from a group comprising AC outlet (30), AC plug (40), AC current sensing unit and AC current sensing adaptor (20), said coiled (11A), (11B) is a primary coil of a current transformer wounded by one of at least in part by a wire made of said load ohmic alloy and conductive wire having a given low ohmic value said structured (21R), (31R),

(41R) is a cut and formed metal alloy sheet to fit into at least a portion of a terminal;

said low ohmic metal alloy is a solid metal conductor having an ohmic value calculated to develop a current signal corresponding to said current drained within a given current range through said current sensor included in said terminal selected from a group comprising a power pin (41P), a power socket (31), an AC power terminal and combinations thereof (21) for conducting the current drawn by said load (58) connected to said current sensor and dissipating heat generated by the current drawn;

said electrical device further includes circuits comprising a CPU (50) and a current signal amplifier (51) for amplifying said current signal developed over said current sensor by the current drawn when said load is attached to said electrical device and feeding the amplified signal to said CPU for processing when said load is operated.

9. The apparatus according to claim 8, wherein said ohmic value is calculated to develop a voltage drop corresponding to said current signal including the metal alloy resistivity, the physical size and a shape of one of said coiled and said terminal (21R), (31R), (41R) for developing

said current signal within said given current drain range, said CPU (50) is fed with a voltage reference of said AC power for processing said amplified current drain signal coinciding with said reference for deriving the power consumed by said load.

10. The apparatus according to one of claims 8 and 9, wherein said circuits further comprising at least one of an RF transceiver (53) and an optical transceiver (56) for communicating a processed data pertaining to at least one of the current drained and the consumed power via at least one of in air and through an optical cable respectively.

11. The apparatus according to anyone of claims 8 to 10, wherein said power socket (30) is structured with a plurality of sockets for use in a multi AC power outlet, each said socket (30) includes individual current signal amplifier (51) and one of said coiled and structured current sensor for feeding each individual current signal to said individual current signal amplifier (51) for feeding the individually amplified signal to one port of a plurality of ports included in said CPU (50) for processing.

12. The apparatus according to anyone of claims 8 to 9, wherein said current sensor is one of structured into a portion of a combination terminal (21) comprising said power pin (21P) with said power socket (21S) used in said AC current sensing adaptor (20) and said coiled current sensor (11A), (11B) is included in said AC current sensing unit.

13. The apparatus according to anyone of claims 8 to 12, wherein said current transformer (2D), (2E) includes a secondary coil (12A), (12B) of said transformer (2A), (2B) structured to output one of a single step-up voltage for powering said circuits and multi step-up voltages (12D), (12E) for at least one of setting the amplification factor for said amplifier (51) and feeding an overload alert signal to said transceiver (53), (56).

14. The apparatus according to anyone of claims 8-13, wherein said electrical device is enclosed in one of a body (20), (30), (40) and a cover with a visible color coded ratings selected from a group comprising a power consumption range, a power consumption value, a current drain range, a current drain value, a power voltage range, a power voltage value, a colored front cover, a colored rear cover, a colored frame, a colored whole body and combinations thereof.