

- [0016] first and second circuit board substrate on which the electronic componentry is mounted and including an arrangement of conductive tracks, and
- [0017] electrical connection means provided in the circuit board substrate and connected to said conductive tracks,
- [0018] wherein said electrical connection means is directly electrically and physically connected to the at least one light source to conduct said electrical power distributed by the electronic componentry to said at least one light source, and
- [0019] further electrical connection means are provided between said first and second circuit board substrates
- [0020] wherein further electrical connection means are provided between said first and second circuit board substrates.
- [0021] Preferably, the light source is provided substantially in a display plane and the first circuit board substrate is substantially planar and positioned over the at least one light source substantially parallel with the display plane.
- [0022] Preferably, the second circuit board substrate is arranged substantially perpendicularly to the plane of the first circuit board substrate and the display plane.
- [0023] Preferably, said at least one light source comprises a plurality of tubular light sources having proximal and distal ends, the tubular light sources aligned in a row and substantially in the same plane as the first circuit board substrate, the distal ends of the plurality of tubular light sources connected together and to a ground connection of the electronic componentry and the proximal ends connected to receive electrical power from the electronic componentry through the electrical connection means.
- [0024] Preferably, said first circuit board substrate includes at least one substantially straight edge adjacent to which said further electrical connection means is provided, the further electrical connection means including mechanical connection means provided on the first circuit board substrate along the substantially straight edge and including conductive pin means providing at least part of said further electrical connection means.
- [0025] Preferably, said mechanical connection means comprise standard board to board connectors.
- [0026] Preferably, said electronic componentry includes a plurality of control means, each of which control the distribution of power to more than one light source, each control means receiving feedback of the electrical power consumption of its selected number of light sources and adjusting the power supplied to the selected number of light sources accordingly.
- [0027] Preferably, the electronic componentry includes inverters, each control means controls more than one inverter and each inverter powers more than one light source.
- [0028] Preferably, a cooling means is also provided wherein said control means also receives feedback on a temperature within the display apparatus and adjusts the amount of cooling provided to at least said selected number of light sources by said cooling means accordingly.
- [0029] Preferably, the display apparatus is a multi-layer display.
- [0030] In a further aspect, the invention consists in a power distribution system for at least one light source within a display apparatus wherein a control means controls the distribution of power to the at least one light source by carrying out the steps of:
- [0031] i) detecting the electrical power consumed by the at least one light source,
 - [0032] ii) determining whether the electrical power consumed by the at least one light source is within predetermined limits,
 - [0033] iii) regulating the electrical power supplied to the at least one light source based upon the detected power consumption to maintain or return the power consumed by the at least one light source between said predetermined limits, and
 - [0034] iv) repeating steps (i) to (iv).
- [0035] Preferably, the step of regulating the electrical power supplied to the at least one light source comprises providing the light source with a first light source brightness controlling power signal and a second light source current controlling power signal.
- [0036] Preferably, said display apparatus includes a plurality of control means, each of which are connected to an associated inverter to control the power distributed to more than one fluorescent light source, wherein a capacitor associated with each fluorescent light source and its associated inverter.
- [0037] Preferably, the power consumed by the at least one light source is determined by sensing the current through the at least one light source.
- [0038] Preferably, said display apparatus also includes a temperature sensor which provides said control means with an indication of the temperature in the vicinity of the at least one light source and the control means also carries out the steps of:
- [0039] iia) determining whether the temperature of the at least one light source is within predetermined limits, and
 - [0040] iiia) adjusting the power supplied to the at least one light source based upon the temperature indication to maintain or return the temperature of the at least one light source between said predetermined limits.
- [0041] Preferably, the display apparatus also includes cooling means adapted to provide variable cooling to the at least one light source, wherein the control means also carries out the step of:
- [0042] iiib) controlling the electrical power supplied to the cooling means based upon the temperature indication to maintain or return the temperature of the at least one light source between said predetermined limits.
- [0043] Preferably, the respective steps of regulating and adjusting the electrical power supplied to the at least one light source and the step of controlling the power supplied to the cooling means occur by pulse width modulating the