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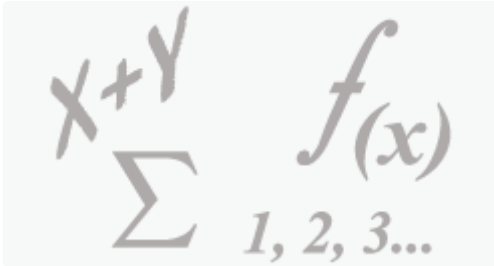
ISO 9001:2008

ISO 13485:2003

ISO14001:2004

REGISTERED

OUTPUT CABLE REGULATION CALCULATOR



Download (247 x 133)

When using a non-standard output cable with a power supply, it is useful to be able to understand the expected voltage of the new required cable for a custom application. By entering the wire gauge, cable length, output voltage and output current, the expected output regulation effect may be determined.

Since the output voltage regulation window is typically +/-5%, the window dimension may be thought of as a total of 10%. If we allow half of the 10% window for output cord voltage

regulation drop, then the other half of the window can be allocated for other forms of output voltage variation such as AC line regulation, temperature variance, and component variance.

The output regulation shown has 3 background colors possibly displayed after the calculation:

- Green:** Output Cord Regulation is less than 4%
- Yellow:** Output Cord regulation is between 4% and 5%
- Light Red:** Output Cord Regulation is greater than 5%

If output cord regulation is greater than 5%, then the +/-5% overall regulation requirement for the power supply may be impractical, and a wider specification, such as +/-7 or perhaps +5%, -10% may be needed.

AWG Cable Gauge

Output Voltage Rating

Cable Length (m)

Output Current Rating

Overall Cable Resistance (Ohms)

Percent Voltage Drop (Regulation)

Calculate

Factors Which can Effect the Accuracy of the Calculation:

Coaxial style cables such as UL1185, are required to have a center conductor specification compliant with the AWG (American Wire Gauge) standard. However the output spiral conductor is considered as a shield wire, and the gauge may deviate in copper cross sectional area, and resultant resistance. Therefore, when using a Globtek UL1185 cable, please use the following table to identify the proper cable AWG for the Calculation Program, and if creating a Specification for a custom product please show cable diameter if 16 gauge cable is to be used:

Globtek UL1185 Coaxial Cable Data for first Calculator input field

Diameter (mm)	Gauge Spec	Gauge used for Calculator	Note
3.5mm nom	18 Gauge	18.3	Resistance Slightly high
3.8mm nom	16 Gauge	17.9	Hi Resistance cable

4.3mm nom	16 Gauge	16.0	Lo Resistance cable
5.0mm nom	14 Gauge	14.0	True 14

Non-coaxial style cables such as UL2464 do not have any concern regarding this particular issue.

Temperature increase causes the cable wire resistance to increase by the temperature coefficient of 0.393% change per degree Celsius. This cable calculator is based upon a temperature of approximately 30C for the calculation of cable output regulation.

There may be normal variance in the manufacturing of the wire gauge, and a resultant resistance variance. Actual wire resistance may deviate from the expected value by approximately +/-5%.

[Link to formulas used for this Calculator](#)

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