M015N | DC/DC Converter

Adjustable maximum 1.5A Input: 6-28 V/DC Output: 3-15 V/DC
The input voltage must be at least 3V higher than the adjusted output voltage. The adjusted output voltage is stabilized or short circuit-proof.

Depending on the load the module may heat up. In case of dissipation of < 3W a well ventilated mounting should be sufficient (do not wrap in heat-insulating materials.). In case of loads of 3-10 watt the cooling angle of the module must be screwed onto a cooling metal surface. In case of a full load of 10W a ribbed heat sink of a dimension of approx. 60 x 60 x 20 mm or similar is recommended.
General rule: The cooling angle at the module should not heat up to more than 40C degrees during operation (can still be touched with the finger without burning oneself). If the cooling angle gets much hotter, the heat sink is too small or the heat contact between cooling angle and heat sink is insufficient (cooling angle does not lie flat on it). If the module gets too hot during operation, it switches off automatically and switches on again after cooling down. The necessity to cool the module may either be tested (check whether it gets too hot) or calculated: potential difference between input and output voltage multiplied by the current makes the dissipation in watt.
Example: Input voltage: 24 volt. Adjusted output voltage: 12 volt. A current of 0.5 ampere flows. Calculation: potential difference between input and output voltage is 12V (24V input minus 12V output = DC 12 V difference).
12 V differential voltage multiplied by the current of 0.5A makes a dissipation of 6 watt at the module (12 V x 0.5A = 6 W). Thus the module must be cooled. In case of overload, the module will not be damaged, it only switches off for some time. During continuous operation a dissipation of approx. 10 watt must not be exceeded.
Connect the module according to the drawing. It is necessary to interpose a safety fuse of 1.5 A in the line in. The desired output voltage is adjusted by means of the trimming potentiometer on the module. You may either orientate yourself by the scale of the trimming potentiometer or check the adjustment by means of a measuring instrument at the output of the module if the voltage is to be adjusted very precisely.
The light-emitting diode on the module must light, if the input voltage is switched on. By lighting the LED indicates that there is an input voltage and that the trimming potentiometer for adjustment of voltage at the module is working. If the trimming potentiometer is defect as a result of mechanical force or humidity, the output voltage will be uncontrolled (may increase). In this case the LED does not light despite the fact that the input voltage is switched on and the module must be put out of action immediately.
Important note: The module may only reduce voltage, thus it produces a lower output voltage from a higher input voltage. It is not possible to reverse this function.
Setting into operation:
If everything is connected correctly the input voltage can be switched on and the equipment is ready for operation.
Use as directed:
For operation of equipment with lower operating voltage at a voltage source with a higher operating voltage within the scope of the indicated technical data.
E.g.12 V radios can be connected to a 24V battery or a transistor radio with an operating voltage of 9V can be connected to a 12V car battery.
Check list for troubleshooting:
1. The output voltage is lower than the adjusted output voltage -
The input voltage is too weak and breaks down under load (the input voltage is less than 3 V higher than the output voltage).
The module is loaded with a current higher than permissible at maximum (1.5 A).
The module is overheated, the overheat protection in the module has triggered.
There is a short circuit inside the output circuit. The module is connected incorrectly or connected the wrong way round.
2. Equipment connected at the output of the module hums -
The input voltage is not clear DC voltage (e.g. From a battery or screened power supply), but is an AC voltage or unscreened DC voltage (battery charger).
Technical data:
Input voltage: 6-28VDC | Output voltage adjustable: 3-5V (electronically stabilized) | Note: The input voltage must be at least 3V higher than the adjusted output voltage | Max. Output current: 1.5 A | Max. Dissipation: approx. 3 W without heat sink, approx. 10 W with heat sink (not enclosed) | Dimensions: approx. 60 x 45 x 20 mm (without lateral fastening straps)