What is the difference between linear and iesy switched-mode types DC / DC Converters?

For years, linear voltage reducers have been used to convert 24VDC to 12VDC. Linear reducers are technically quite primitive, being, in effect, little more than a resistor. This method of reducing voltage has the disadvantage of being very inefficient and, as a result, at least 50% of the input power is wasted and given off in the form of heat. To deal with the heat a heat sink is required, increasing the overall size of the reducer and restricting the positioning of it.

iesy Switched Mode Converters, however, work in a much more sophisticated and efficient way. At the input is a switch (power FET) which converts the input voltage into a square wave. The square wave has a 50% duty cycle (50% on, 50% off) and, when this signal is put through a rectifier with a capacitor, the output voltage is 50% of the input voltage.
Because the resistance of the switch is low, power loss is reduced and efficiency as high as 95% can be achieved.

The greatest practical benefit of switch-mode reducers can be clearly shown as follows:

Example 1: 20 Amp linear converter supplying an average load of 50% (10 Amps):
Input power: 24Vx10A = 240Watts
Output power: 13,5Vx10A = 135 Watts
Power loss = 105 Watts
This means that, over the course of an 8 hour working day, 840 Watts of power is wasted.

Example 2: 20 Amp 85% efficient switched-mode converter supplying an average load of 50% (10A):
Output power: 13,5V x 10A = 135 Watts.
Input power: 135 Watts : 85 (% efficiency) x 100 = 158 Watts
Power loss = 23 Watts

The difference between linear and switched-mode reducers of the same power output is significant and, when running at maximum load, switched-mode converters become even more efficient. In the above examples, the switched-mode would use 82 Watts per hour less energy than the linear. Over the course of the year, the saving in fuel costs alone would be considerable.

Other benefits of switched-mode converters are as follows:
-smaller size due to less need for heat dissipation;
-greater flexibility in choice of installation location;
-increased battery life
-longer life of the converter itself;
-low standby current drain.

A common problem with many switched-mode converters is that they create significant amounts of radio interference, especially around 27MHz., the frequency used for CB radio. iesy converters are all heavily filtered and are guaranteed not to produce such interference.

Difference, with *or* without galvanic isolation

Safe isolation. You have the choice. The iesy voltage converter with common ground of input and output (Not Isolated) are of simple construction and therefore particularly compact and inexpensive.
Some vehicle manufacturers, however, require that the voltage converter must be against "mass loss" protection. This means that the output voltage must not be exceeded, even if the mass on the supply and / or the output side is no longer available. This request requires the isolated converters. Also prevented the isolated structure that can occur in the event of an internal defect, a direct connection between input (e.g. 24V) and connected to the output 12V device.