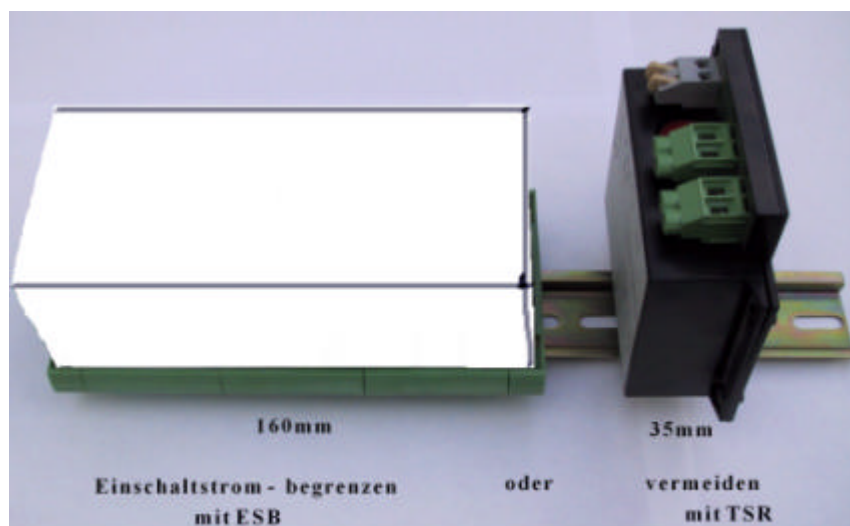


Inrush current of **single phase Transformers**: limiting or **AVOIDING** ?

Picture on Top hat rail shows:

Left a purchaseable Inrush current limiter, so called ESB, (Einschaltstrombegrenzer) for 100V until 260V, 32A.

Right a TSR, (Transformer Switching Relais), **TSRL**, for **95V bis 560V, 32A**, purchaseable at FSM-Elektronik



Inrush current limiting, with ESB or avoiding with TSR

Difference Criterias:	Attributes: ESB ...	Attributes: TSRL 23101300
<i>Lenght on Top hat rail:</i>	160 mm	35 mm
<i>Price:</i>	By chance €80.-	Dep. on Attributes by chance €70.-
<i>Switching rate, (repetitive):</i>	1 per Minute	One after the other, without rate limit until 5 Mill.
<i>controlable:</i>	Only with additional contactor	Controlable with control input to switch on and off.
<i>Inrush Current height:</i>	Min. 60Aeff, on load and 230V, depends on load	No load current or max. nominal current of load.
<i>Influence of load:</i>	Load depending, because of second Inrush peak on closing relay bridge	Load independent
<i>Principal of function:</i>	4 Ohm 100W Resistor after short time delay bridged with relay	Premagnetizing, than Thyristor bridged with Relay. Patented
<i>Fusing of transformer:</i>	Must slow blow fusing	Fast blow fusing possible
<i>Living time under load Number of switchings:</i>	20.000 switchings, because of relay switches the full load current	5 Millions switchings, because relay switches under Thyristor protection
<i>Protection for Overload , par example switching on a short current circuit:</i>	ESB can be damaged.	Short current protected on fast blow fusing.
<i>Current limiting after power line short time dips, correspond EN 61000-4-11 :</i>	No, because current limiting resistor is bridged with relay with switch off delay.	Yes, with option: short time dips protection. Fast cut off and new start.

Why do you take inrush current limiters further, when Transformer switching relays are the intelligent solution for inrush current avoiding of Transformers? Also 3 phase Transformer switching Relays purchaseable until 500 kVA Transformers. Also fast switching with pulse groups of transformers, when low volt heating is usable, par example.

Sincerely, EMEKO-engineering office, Dipl. Ing. (FH) Michael Konstanzer, Britzinger-str. 36, D79114 Freiburg
Tel.0761- 441803, Fax: 0761 441888, E-mail:emeko@t-online.de, www.emeko.de