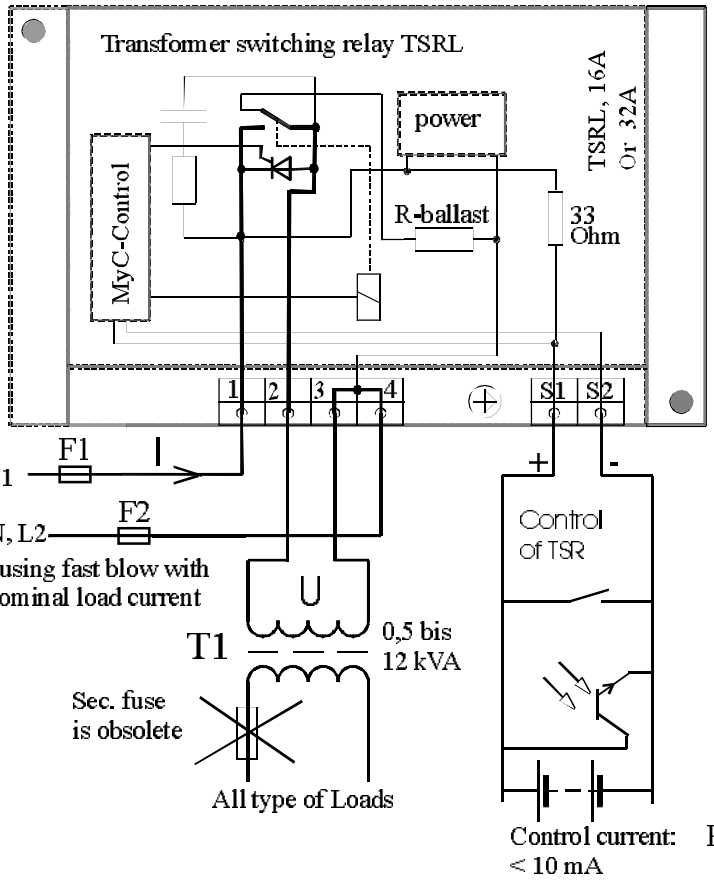
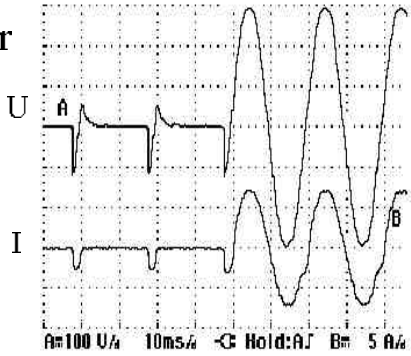
Transformer switch on without inrush current peaks

Inrush current avoiding with a TSR
Transformer switching relay
Switch on after premagnetising of the transformer

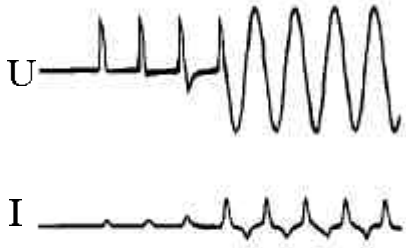


Switched on with load with a TSRL



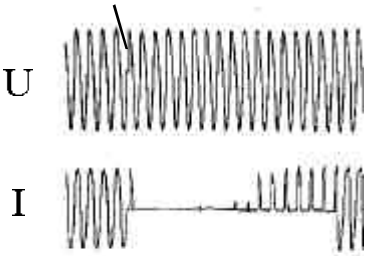
I peak = Inom = 7A peak
= current of nominal load

Switch on in no load state



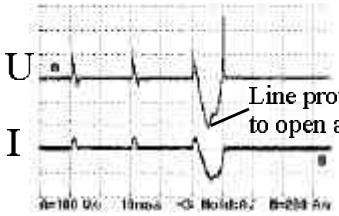
I max. = I no load
(visible is a typically no load current)

Reaction on voltage sags with TSR



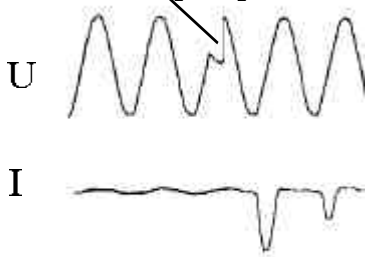
I max. = Inominal

Switch on with short circuit



A 16A B-typ line protector
trips directly after switch on.
No damage of TSRL until 400A
for 10msec.

Reaction on voltage sags without TSR



Imax. = U peak div. with
(R line + R copper prim.)
= 200 A peak,
each fuse is blowing then

Advantages with a TSR:

No limit in repetition of switching, no waiting time.
Fast blowing fuses with nominal current value useful.
No overheating of transformer
No damage when short circuit by correct fusing
Avoid inrushes after voltage sags.
Allows transformers with low losses and max. Induction .
Replace contactor and inrushcurrent limitor and saves monney
in cases when transformer must be switched often.

US_tsr02-e.cdr
EMEKO Ing.Büro Freiburg, 28.03.00