„Automotive source quality“

Spitzenberger & Spies – automotive supply simulation with optimum performance

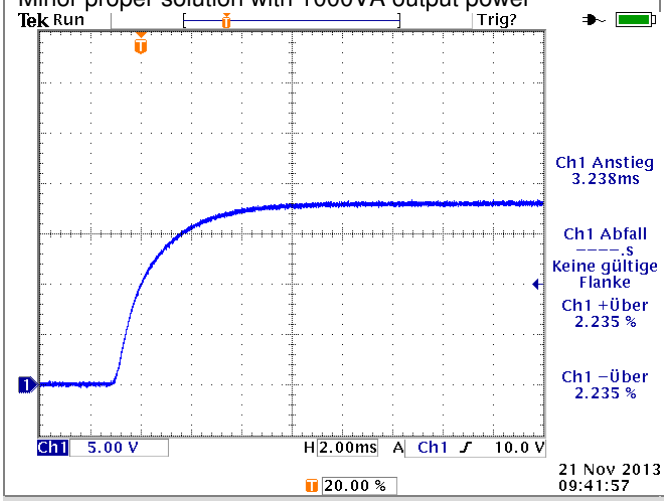
The relating standards:
ISO 7637
ISO 16750-2
ISO 21848
BMW GS 95002
and many manufacturer specific standards

Rise- and fall-time are one of the main quality points when looking at the performance of supply simulation systems. Comparing different technical solution ways a big quality difference is carried out.

The following measurements compare the performance of simple solutions with the performance of the Spitzenberger & Spies power sources. The upcoming result is, that minor proper solutions have an extremely reduced rise- and fall-time speed in comparison to the Spitzenberger & Spies system – **500 times slower**. Looking at the measurement values, the PAS/GN/Kfz has a rise-/fall-time around 5-10 µs, the minor solution is around 2.6-3.3 ms

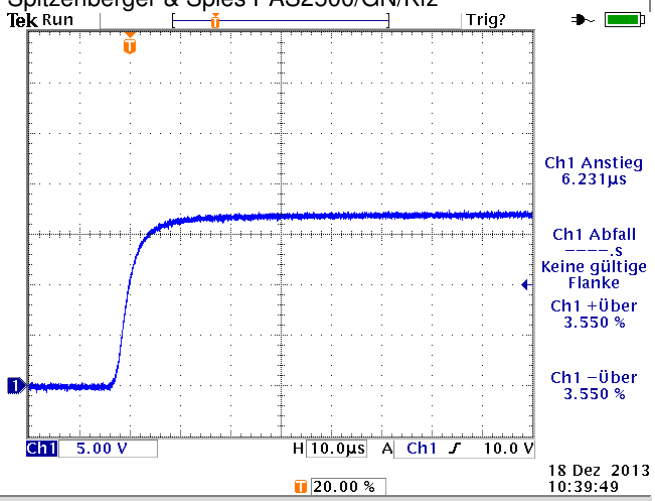
Comparison measurement 1:
Abrupt voltage change from 0V to 18V with a 10Ω load connected

Minor proper solution with 1000VA output power



Measured rise-time 3.238ms

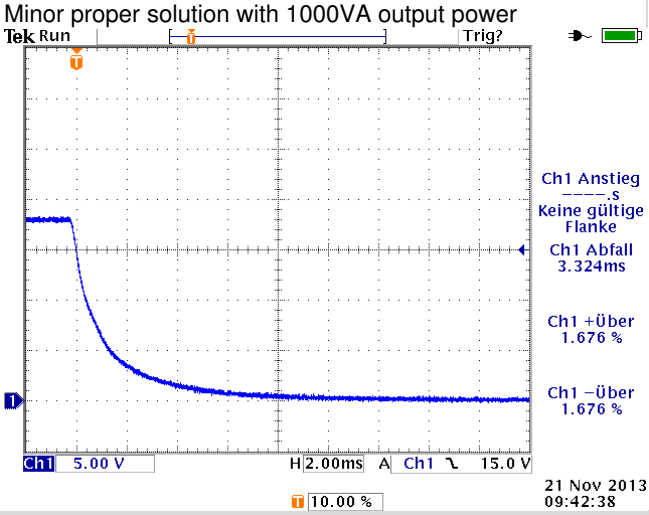
Spitzenberger & Spies PAS2500/GN/Kfz



Measured rise-time 6.231µs

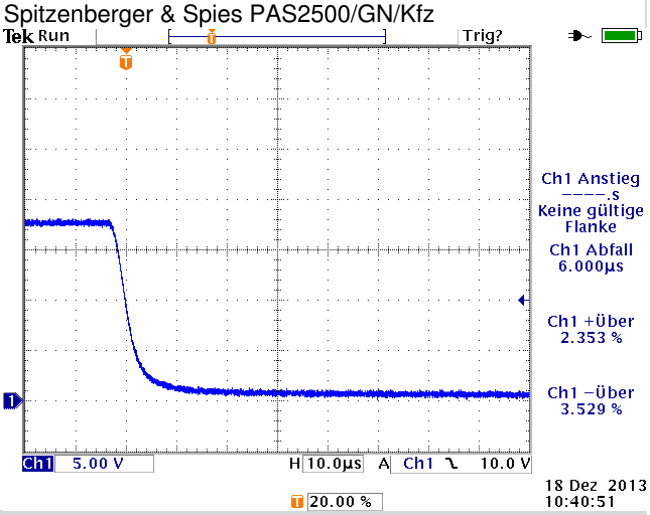
Comparison measurement 2:
Abrupt voltage change from 18V to 0V with a 10Ω load connected

Minor proper solution with 1000VA output power



Measured fall-time 3.324ms

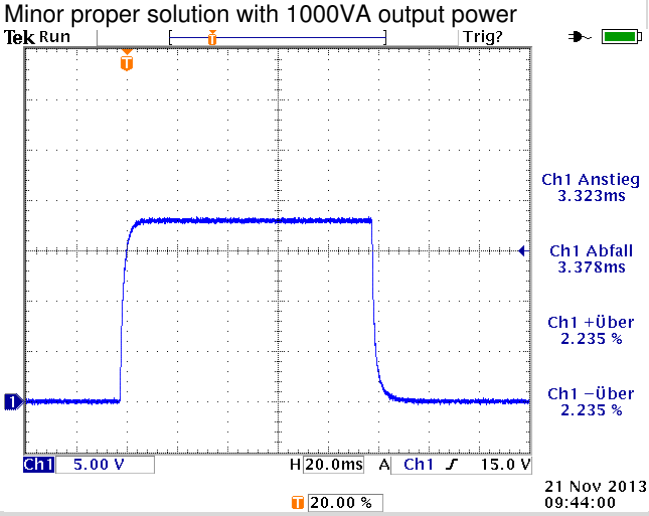
Spitzenberger & Spies PAS2500/GN/Kfz



Measured fall-time 6.000µs

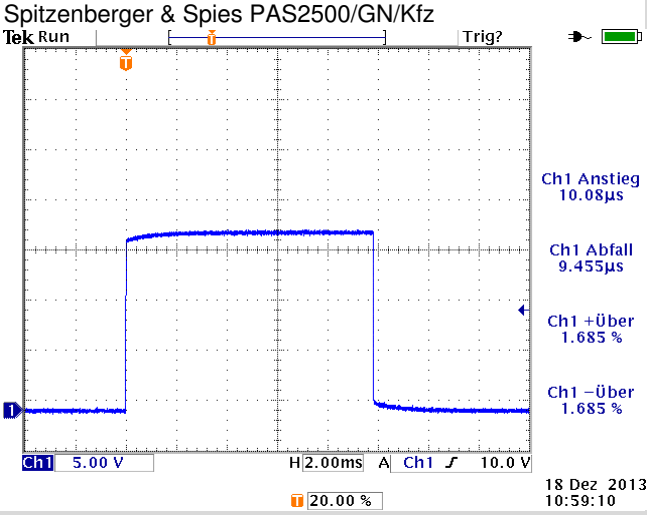
Comparison measurement 3:
Abrupt voltage change from 0V to 18V and back to 0V with a 10Ω load connected at a time resolution of 20ms/DIV

Minor proper solution with 1000VA output power



Measured rise-time 3.323ms
Measured fall-time 3.378ms

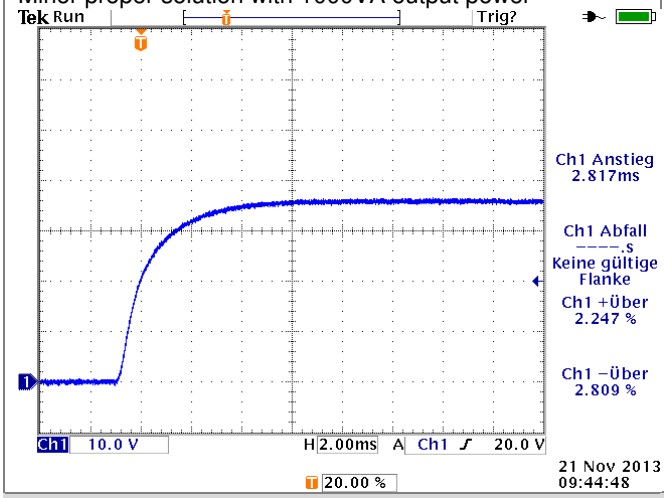
Spitzenberger & Spies PAS2500/GN/Kfz



Measured rise-time 10.08µs
Measured fall-time 9.455µs

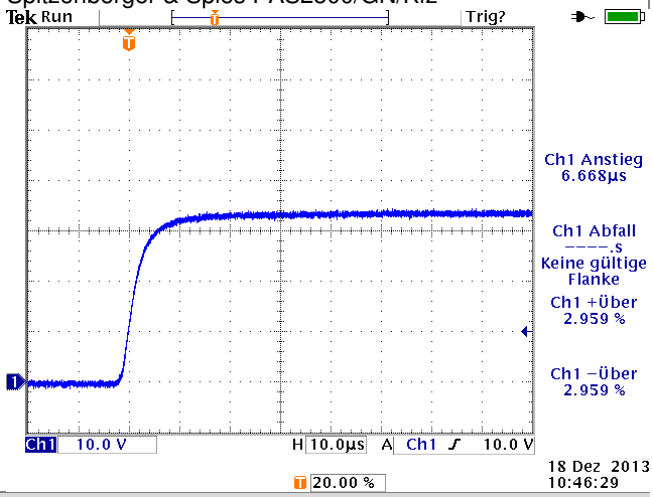
Comparison measurement 4:
Abrupt voltage change from 0V to 36V with a 10Ω load connected

Minor proper solution with 1000VA output power



Measured rise-time 2.817ms

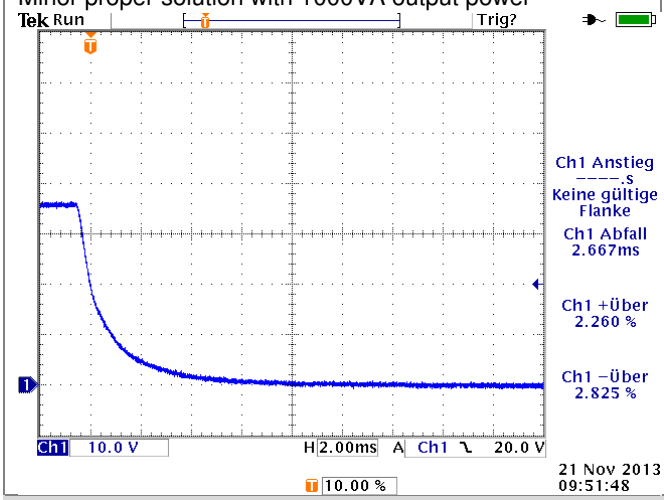
Spitzenberger & Spies PAS2500/GN/Kfz



Measured rise-time 6.231µs

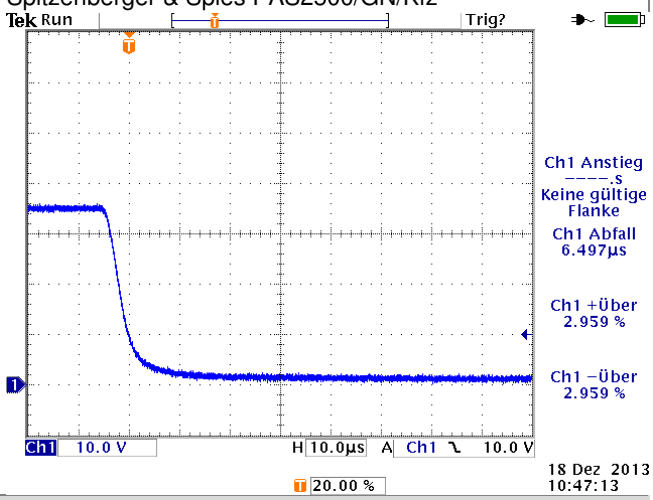
Comparison measurement 5:
Abrupt voltage change from 36V to 0V with a 10Ω load connected

Minor proper solution with 1000VA output power



Measured fall-time 2.667ms

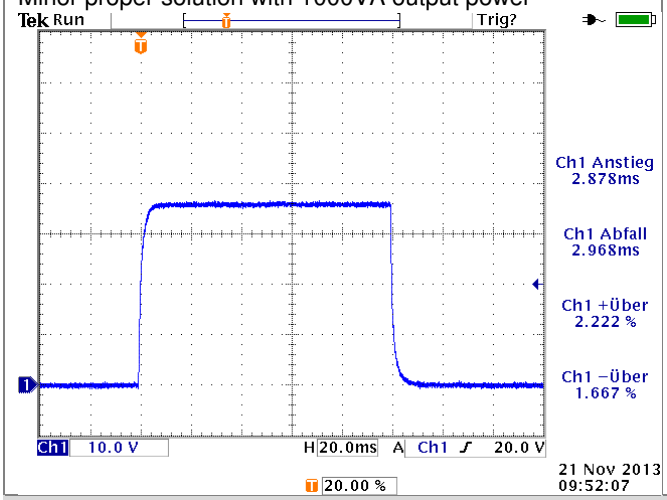
Spitzenberger & Spies PAS2500/GN/Kfz



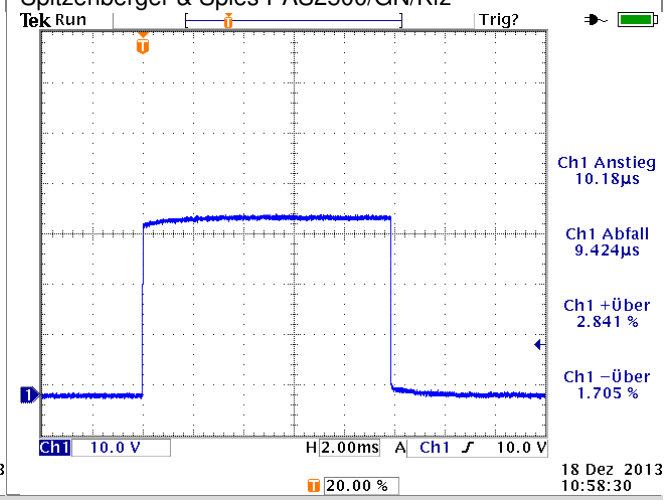
Measured fall-time 6.497µs

Comparison measurement 6:
Abrupt voltage change from 0V to 36V and back to 0V with a 10Ω load connected at a time resolution of 20ms/DIV

Minor proper solution with 1000VA output power



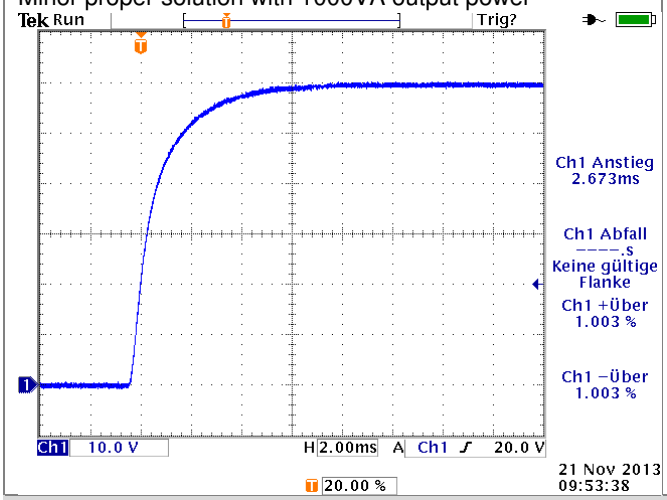
Spitzenberger & Spies PAS2500/GN/Kfz



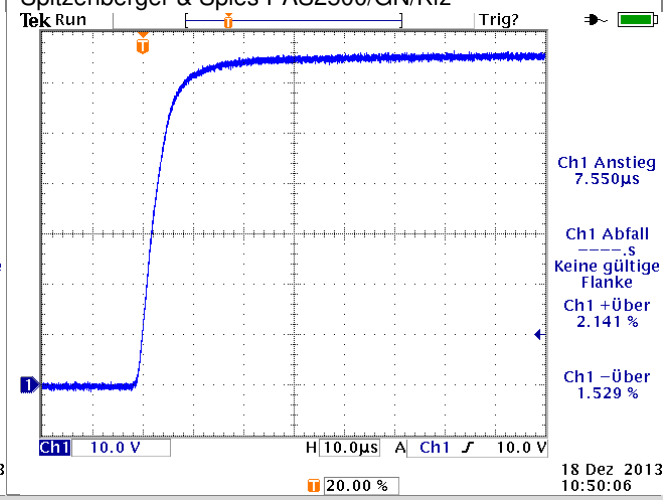
Measured rise-time	**2.878ms**	**Measured rise-time**	**10.18µs**
Measured fall-time	**2.968ms**	**Measured fall-time**	**9.424µs**

Comparison measurement 7:
Abrupt voltage change from 0V to 59.3V/70V with a 10Ω load connected (the minor proper solutions has a maximum voltage of 59.3V)

Minor proper solution with 1000VA output power



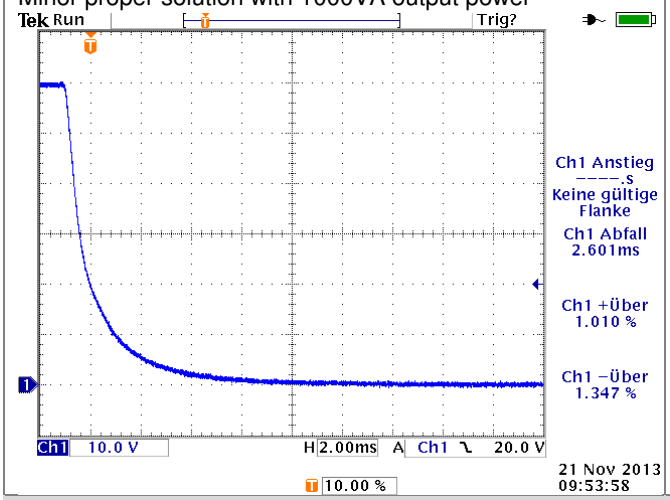
Spitzenberger & Spies PAS2500/GN/Kfz



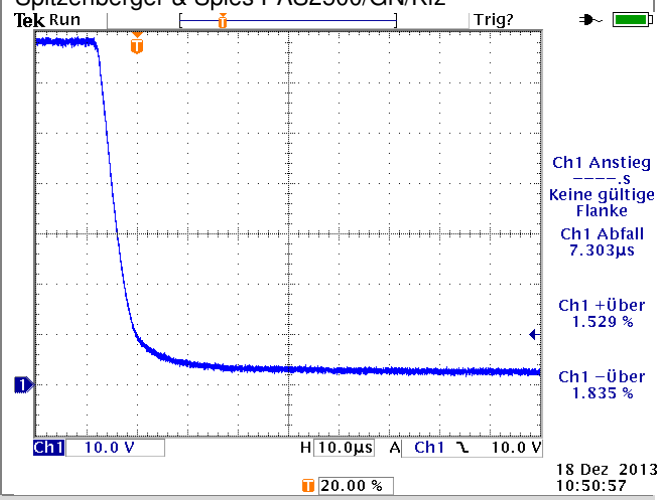
Measured rise-time	**2.673ms**	**Measured rise-time**	**7.550µs**

Comparison measurement 8:
Abrupt voltage change from 59.3V/70V to 0V with a 10Ω load connected
(the minor proper solutions has a maximum voltage of 59.3V)

Minor proper solution with 1000VA output power



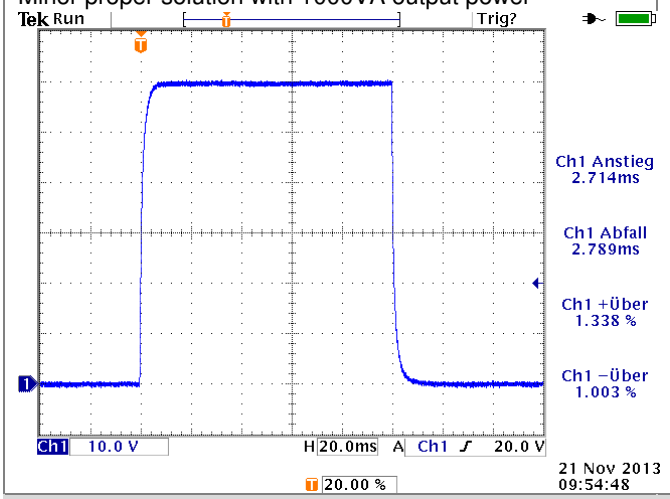
Spitzenberger & Spies PAS2500/GN/Kfz



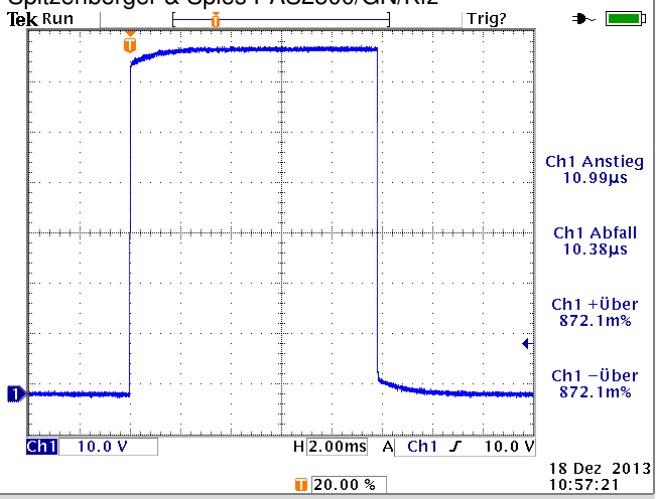
Measured fall-time	**2.601ms**	**Measured fall-time**	**7.303µs**

Comparison measurement 9:
Abrupt voltage change from 0V to 59.3/70V and back to 0V with a 10Ω load connected
(the minor proper solutions has a maximum voltage of 59.3V)
at a time resolution of 20ms/DIV

Minor proper solution with 1000VA output power



Spitzenberger & Spies PAS2500/GN/Kfz



Measured rise-time	**2.714ms**	**Measured rise-time**	**10.99µs**
Measured fall-time	**2.789ms**	**Measured fall-time**	**10.38µs**