



Untersuchungsbericht

Auftraggeber: Fa. OBO Bettermann GmbH & Co. KG
Hr. Holterhoff

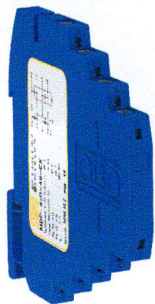
Anschrift: Postfach 1120
58694 Menden

Auftragsbeschreibung: Prüfung eines Überspannungsschutzes auf Verträglichkeit mit einem Foundation Fieldbus Segment.

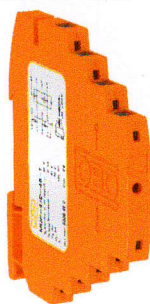
Prüflinge:

Artikel:	Nummer:
5098452	MDP-4/D-48-EX
5098450	MDP-4/D-48-T
5098380	FDB-2 24-M (metrisch)
5098390	FDB-2 24-N (NPT)

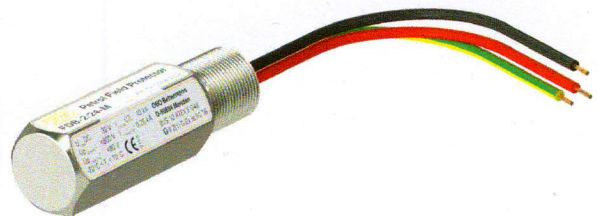
MDP-4/D-48-Ex



MDP-4/D-48-T



FDB-2 24-...



verwendete Messmittel.: Pepperl+Fuchs DM-AM
S#: 187225

Bearbeiter

R. Becker

Prüflabor

S. Seintsch

Test setup and procedure:

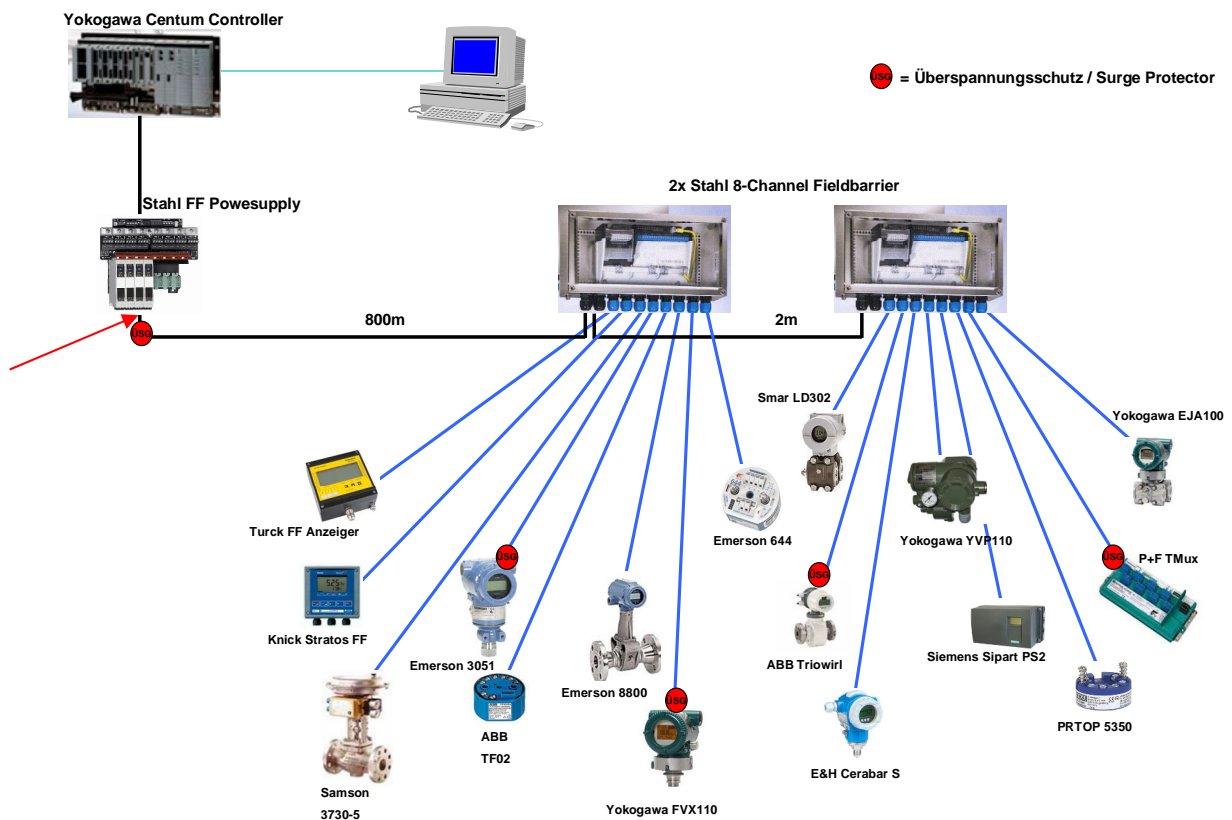
Foundation Fieldbus-Segment

The surge protector was added into an existent Foundation Fieldbus H1-Segment. The segment consists of 16 field devices with short (<5m) spur lines and 800m trunk line from the power supply to the first field barrier. The segment was supplied by a Stahl 9412 FF-power supply with a maximum current delivery of 500 mA. The actual current consumption of the segment was at about 280 mA.

For each field barrier, the surge protector FDB-2 24-... was mounted on two field devices. Additionally another surge protector type MDP-4/D was directly installed after the FF-power supply.

The bus communication was monitored over several days regarding to transmission errors. Furthermore the signal quality of each field device with and without surge protector was rated with the help of the oscilloscope pictures.

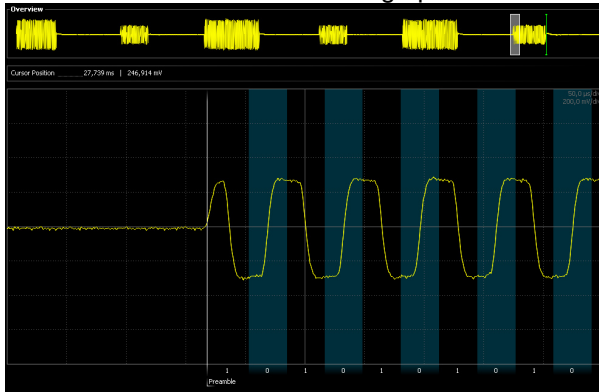
Test setup scheme:



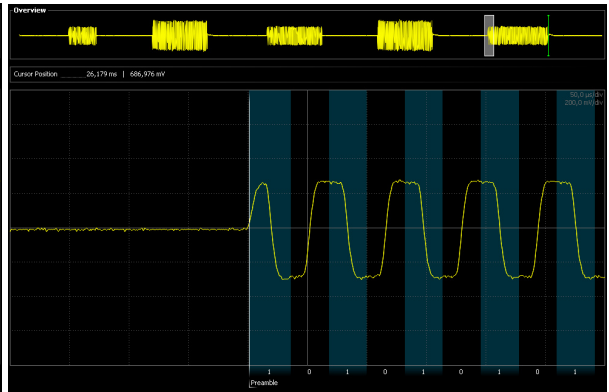
Segment structure, FF reference plant = measuring point signal quality

Result:

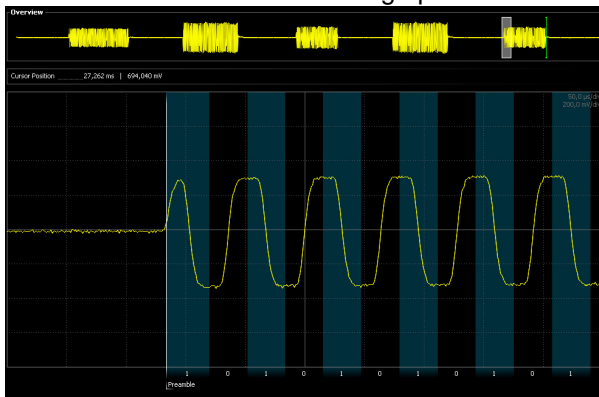
Field device add. 24 without surge protector



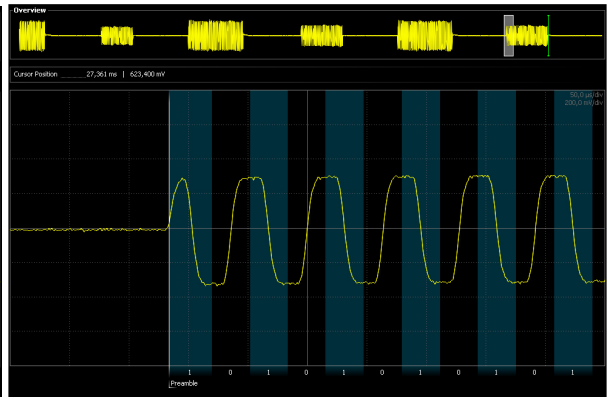
Add. 24 with FDB-2 24-... and MDP-4/D-...



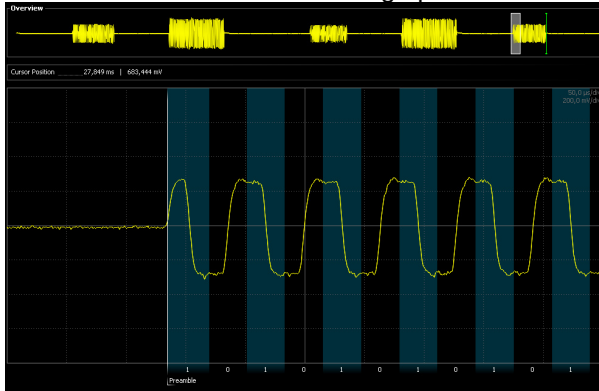
Field device add. 27 without surge protector



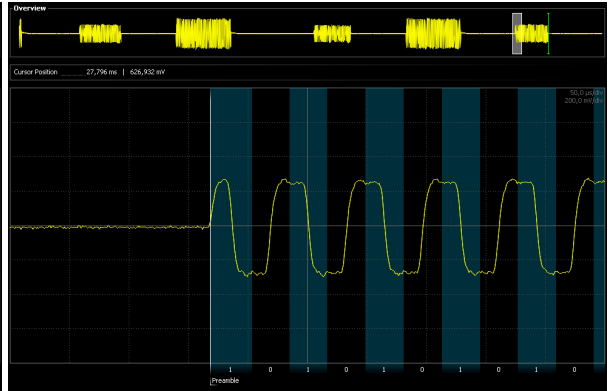
Add. 27 with FDB-2 24-... and MDP-4/D



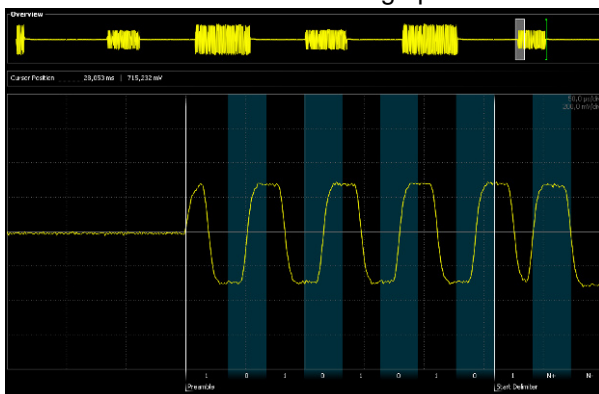
Field device add. 30 without surge protector



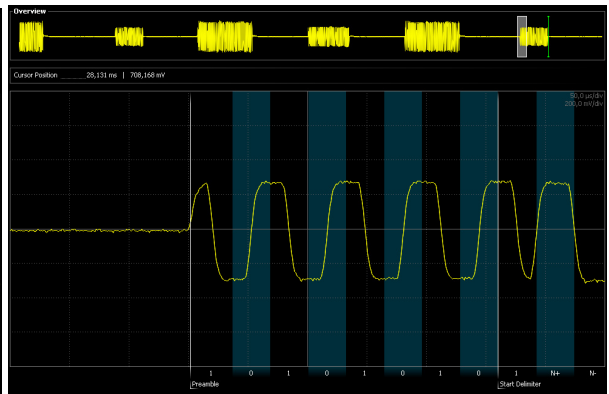
Add. 35 with FDB-2 24-... and MDP-4/D



Field device add. 35 without surge protector



Add. 35 with FDB-2 24-... and MDP-4/D



Conclusion

Compared to the original condition (without surge protector), there is no influence on the signal quality of the field devices provided with FDB-2 24-... and MDP-4/D-... visible.

During the endurance test, no communication errors were recorded on this fieldbus segment (see measurement reports in the Annex). An influence of the surge protector FDB-2 24-... respectively MDP-4/D-... on the signal quality and stability of the communication was not detected.

The surge protector MDP-4/D-... includes a series resistance of about 4 Ω , which is equal to the resistance of about 100 m fieldbus cable. This should be considered while planning the segment.

Annex:

Measurement reports: snapshot_FF_48h_mitSP.pdf, snapshot_FF_ohneSP.pdf