

TSS 500N10

TELECOM SURGE GENERATOR AS PER ITU / FCC UP TO 10 KV



FOR TESTS ACCORDING TO ...

- > EN 60950-1
- > EN 61000-4-5
- > FCC 97-270 (part 68)
- > IEC 60065
- > IEC 60950-1
- > IEC 61000-4-5
- > ITU-T K.17
- > ITU-T K.20
- > ITU-T K.21
- > ITU-T K.28
- > ITU-T K.45

TSS 500N10 - 10 KV TELECOM SURGE GENERATOR FOR 10/700 US TEST PULSE







Telecommunication networks are exposed to lightning events. Therefore telecommunication equipment being connected to the outside world need to have appropriate protection to show an acceptable immunity to surge transients in order not to fail in case of lightning events. Telecom Surge Simulators of the TSS 500N series are used to proof the immunity of telecommunications equipment.

The TSS 500N10 is used to perform tests as per EN/IEC 61000-4-5 and related standards and complies with the requirements of ITU-T and FCC 97-270 (part 68) for Surge B pulse. It also generates the Surge voltage pulse 1.2/50 us as per EN/IEC 60950.

HIGHLIGHTS

- > **Standalone tester for 10/700 us pulse as per EN/IEC 61000-4-5**
- > **Test voltage up to 10 kV**
- > **Complies to ITU-T for enhanced level testing**
- > **Complies to FCC part 68 (Surge B pulses)**
- > **Built-in CDNs for 2-wire and 4-wire applications**

APPLICATION AREAS

- | | |
|--|---|
|  INDUSTRY |  TELECOM |
|  COMPONENTS |  RESIDENTIAL |
|  MEDICAL | |
|  BROADCAST | |

TECHNICAL DETAILS

TELECOM SURGE GENERATOR

| AS PER ITU AND ETS RECOMMENDATIONS | |
|---|-----------------------------------|
| | Pulse 1.2/50 us |
| Voltage (o.c.) | 500 V - 10,000 V ± 10% |
| Rise time*) | 1 us ± 30% |
| Pulse duration*) | 50 us ± 20% |
| Energy storage capacitor | 1 uF |
| | Pulse 10/700 us |
| Voltage (o.c.) | 500 V - 10,000 V ± 10% |
| Rise time*) | 6.5 us ± 30% |
| Pulse duration*) | 700 us ± 20% |
| Energy storage capacitor | 20 uF |
| Polarity | Positive, negative or alternating |
| Counter | 1 - 30,000 or endless |
| *) definition of waveform parameters as per IEC 60469-1. As per IEC 61000-4-5 this is considered to be equal to the waveform parameter definition as per IEC 60060-1 for the 1.2/50us pulse and CCITT for the 10/700us pulse. | |

| AS PER FCC PART 68 | |
|--------------------------|--|
| | Surge Pulse B |
| Voltage (o.c.) | 500 V - 10,000 V ± 10% |
| Front time | 9 us ± 30% |
| Pulse duration | 720 us ± 20% |
| Current (s.c.) | 12.5 - 250 A for T1 to COM or T2 to COM |
| Rise time | 5 us ± 30% |
| Pulse duration | 320 us ± 20% |
| Energy storage capacitor | 20 uF |
| Polarity | Positive, negative or alternating |
| Counter | 1 - 30,000 or endless |

TELECOM SURGE GENERATOR

| AS PER EN/IEC 61000-4-5 | |
|--------------------------|--|
| | Pulse 10/700 s |
| Voltage (o.c.) | 500 V - 10,000 V ± 10% |
| Rise time*) | 10 us ± 30% |
| Pulse duration*) | 700 us ± 20% |
| Current (s.c.) | 12.5 - 250 A for T1 to COM or T2 to COM |
| Rise time*) | 5 us ± 20% |
| Pulse duration*) | 320 us ± 20% |
| Energy storage capacitor | 20 uF |
| Source impedance | 40 ohm |
| Polarity | Positive, negative or alternating |
| Counter | 1 - 30,000 or endless |

| COUPLING AS PER | |
|------------------|---|
| ITU-T | 2-wire: T1 and T2 with 25 ohm each |
| FCC part 68 | 2-wire: T1 and T2 with 25 ohm each |
| EN/IEC 61000-4-5 | 4-wire: T1, T2, T3, T4 with 25 ohm each |

| TRIGGER | |
|-------------|------------------------------------|
| Automatic | Automatic pulse release |
| Manual | Single pulse release |
| External | External pulse release |
| CRO trigger | 5V trigger signal for oscilloscope |

TECHNICAL DETAILS

GENERAL DATA

TEST ROUTINES

| | |
|------------------------|---|
| Quick Start | Immediate start; easy-to-use and fast |
| User Test routines | Change Polarity after n pulses Change voltage after n pulses |
| Standard Test routines | IEC 61000-4-5 Level 1,000 V IEC 61000-4-5 Level 2,000 V IEC 61000-4-5 Level 4,000 V FCC part 68, Pulse B Metallic 1,000 V FCC part 68, Pulse B Longitudinal 1,500 V |
| Service | Service, setup, self test |

INTERFACE

| | |
|--------------------|---|
| Optical interface | Opto link, 3 m cable USB A connector |
| Parallel interface | IEEE 488, addresses 1 - 30 |

SAFETY

| | |
|----------------|-------------------------|
| Safety circuit | Control input (24V dc) |
| Warning lamp | Floating output contact |

GENERAL DATA

| | |
|----------------------|---|
| Dimensions, weight | 19"/9 HU, 420 mm x 448 mm x 500 mm, 37.1 kg |
| Supply voltage | 115/230 V +10/-15% |
| Fuses | 2x 2 AT (230V) or 2x 4 AT (115V) |
| Temperature | 10° C to 35° C |
| Rel. humidity | Max. 85 %, non condensing |
| Atmospheric pressure | 86 kPa (860 mbar) to 106 kPa (1,060 mbar) |

ALTERNATIVE CONFIGURATIONS

| | |
|--------|---------------------------------------|
| T1-N10 | 0.5/700us up to 10kV |
| T2-N10 | 100/700us up to 10kV |
| | to replace one of the standard pulses |

OPTIONS

OPTIONS

| | |
|---------------|--|
| CNV 504T5 | Coupling/decoupling network for unshielded symmetrical lines (communication lines) as per IEC/EN 61000-4-5 Ed.3 (fig. 10) for 4 lines. |
| CNV 508T8 | Coupling/decoupling network for unshielded symmetrical lines (communication lines) as per IEC/EN 61000-4-5 Ed.3 (fig. 10) for 8 lines. |
| iec.control 1 | Software to control the test, including standard library, test report facility and data conversion generator |

COMPETENCE WHEREVER YOU ARE



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Information about scope of delivery, visual design and technical data correspond with the state of development at time of release. Subject to change without further notice.