EMP protection for secure connectivity

Edition 2024

HUBER+SUHNER

Four decades of experience in developing and manufacturing coaxial lightning EMP and NEMP protectors

Quarter-wave shorting stub (Series 3400/3407)

- Series 3407 includes a high-pass filter for unmatched low energy residuals for nuclear EMP
- Broadband and narrowband units available
- Maintenance-free
- Highest surge current handling capability, up to 100 kA

Gas discharge tube (Series 3401/3402)

- Continuous bandwidth from DC up to 3 GHz: 3401 series up to 1 GHz, 3402 series up to 3 GHz
- DC/AC power via coaxial cable
- Replaceable gas discharge tube
- SEMPER self-extinguishing technology available
- Surge current handling capability up to 30 kA

### Hybrid fine protectors (Series 3403)

- Hybrid two-stage technology to provide simultaneous DC let-through and low residual energy
- Additional protection compared to standard GDT protectors
- Broadband operation
- DC/AC power via coaxial cable
- Comes with both installed or replaceable GDT

Slim-line GDT (Series 3406)

- Features an extra small profile for high density connectivity interfaces
- Broadband operation from DC up to 6 GHz
- DC continuity for remote power
- Permanently installed GDT
- Varying interfaces available for protected and unprotected sides

High power/low-IM GDT hybrid (Series 3409 and 3410)
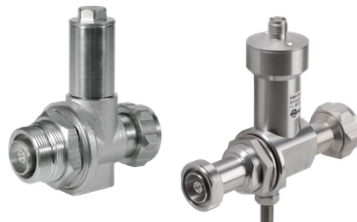
- Series 3409 provides excellent low PIM performance
- Series 3410 has the feature to inject DC through a dedicated port
- RF peak power not limited by gas discharge tube
- Gas discharge tube installed
- Semper self-extinguishing functionality possible

Data line protectors (Series 3414)

- Optimised protectors for twisted pair data lines
- Coarse and fine protection
- Available up to Cat6 in channel class E
- Supports "Power-over-Ethernet"
- RJ45 as well as MIL-38999 interface available
- Indoor and outdoor options

How to select the right protector

## Important decision criteria

To find the most appropriate EMP protector, we will help guide you through the list of criteria to evaluate your specific requirements..

The first four evaluation criteria items are the most important.

- **DC continuity for powering of remote equipment**
  - DC supply voltage
- **Frequency range**
  - operating band
  - AISG band
  - telemetry band
- **Passive intermodulation requirements**
- **RF power maximum**
  - continuous wave
  - peak power
- Protection requirements
  - surge current handling capability
  - residual pulse energy/voltage

- RF requirements
  - return loss (RL)
  - insertion loss (IL)
- Connector interfaces
- Mounting/grounding requirements
  - bulkhead mount
  - screw mount
- Environmental requirements
  - IP rating
- Material requirements
- Selection of the gas discharge tube for GDT lightning EMP protectors according the RF power

The above criteria should be considered with the provided selection flow chart shown below. Product details can be found on the related product detail specification/data sheet.

Selection flow chart for HUBER+SUHNER lightning/EMP protectors
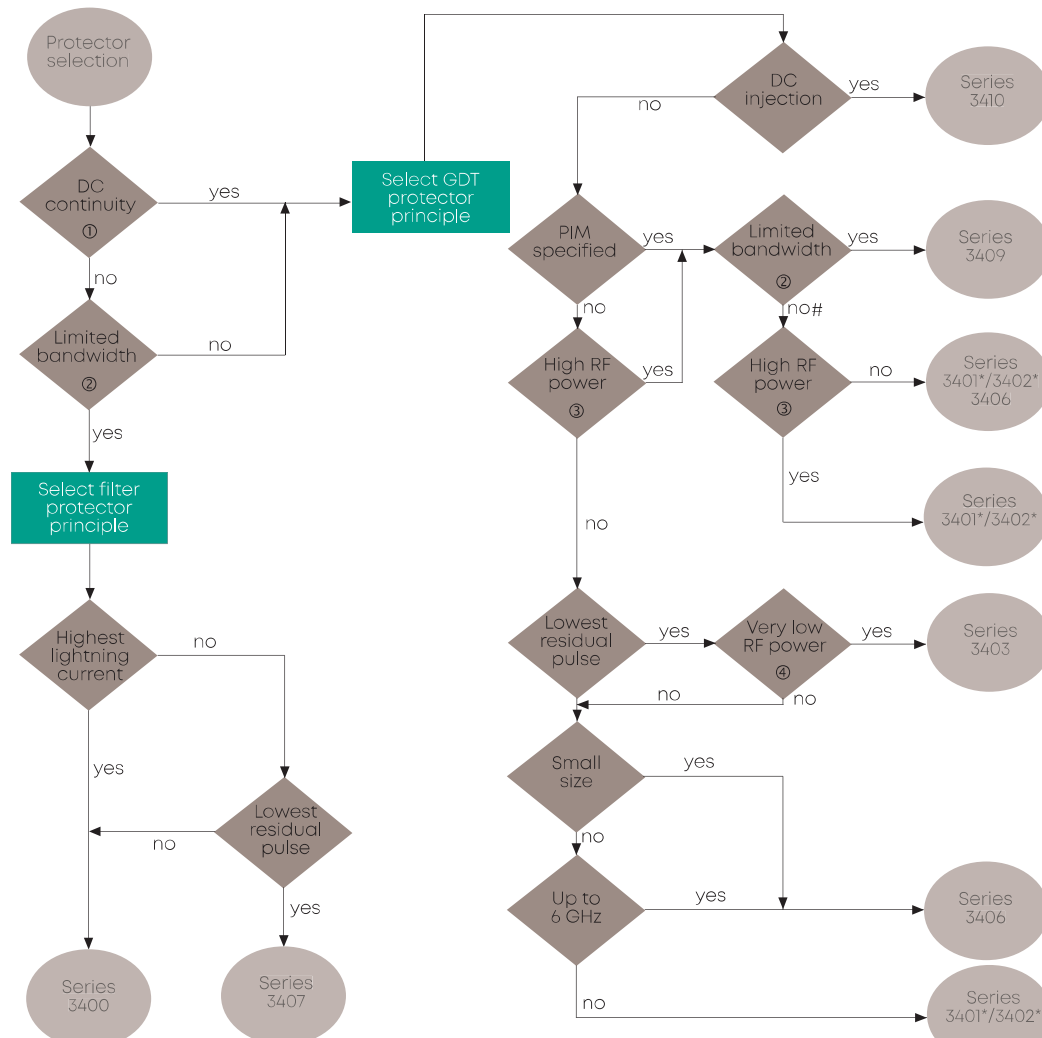
Notes

1 DC continuity DC can be supplied on the centre conductor for remote powering

2 Limited bandwidth no broadband operation only specific frequency bands can be transmitted

3 High RF power application with more than 7 kW (CW) transmission power

4 Very low RF power application with less than 50 W (CW) transmission power

\# No protector solution available featuring broadband operation and low PIM

* Specific GDT has to be selected according to the transmitted RF power and DC supply voltage

Connecting – today and beyond

For more information on the complete HUBER+SUHNER portfolio of surge protection devices, click on or scan the QR code

HUBER+SUHNER AG
Degersheimerstrasse 14
CH-9100 Herisau
Switzerland
Phone +41 71 353 41 11
hubersuhner.com