

PDtect[®] 4-mobile

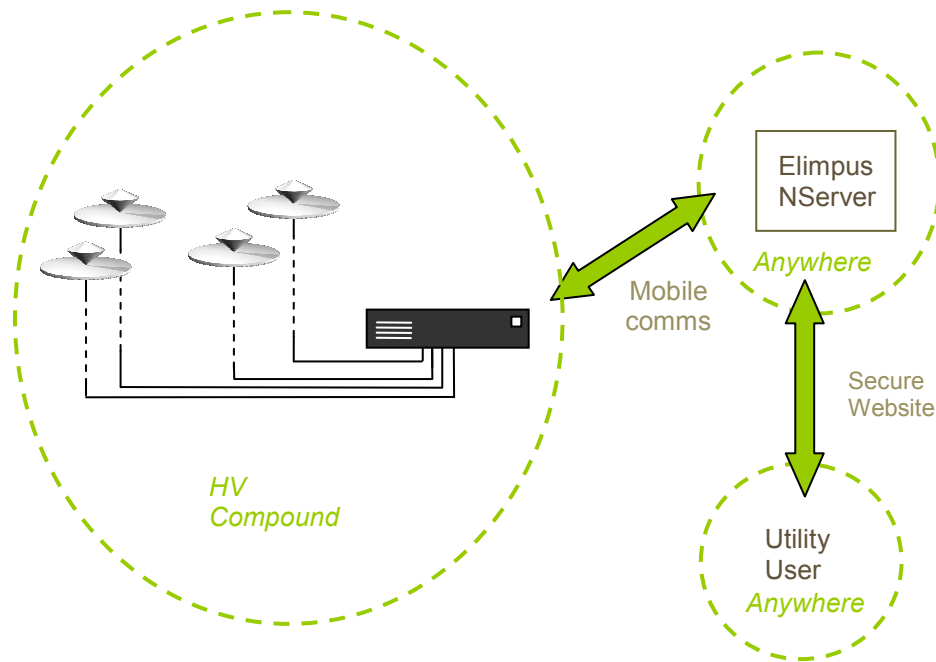
Relocatable, trailer-mounted radiometric PD detection and location system suitable for air-insulated substations. Bespoke ultra-high-speed recording unit records and logs PD events. GPRS/3G mobile phone communications used to transfer data to Elimpus web server for user results. Powered from 230 Vac.



PDtect[®] technology

The Elimpus PDtect[®] series of radiometric PD locators detect the presence of partial discharge (PD) through the reception of radio frequency impulses emitted from stressed insulation. Due to the ultra-high bandwidth (0.01 – 0.75 GHz) and ultra-high speed sampling rate (1.5 G samples per second), the locator is able to determine the direction of arrival of a PD impulse by tracing its propagation across a four antenna array. Thus, by computer analysis of the recorded signals, the source of the PD can be located and its severity assessed.

PDtect®4-mobile – an introduction



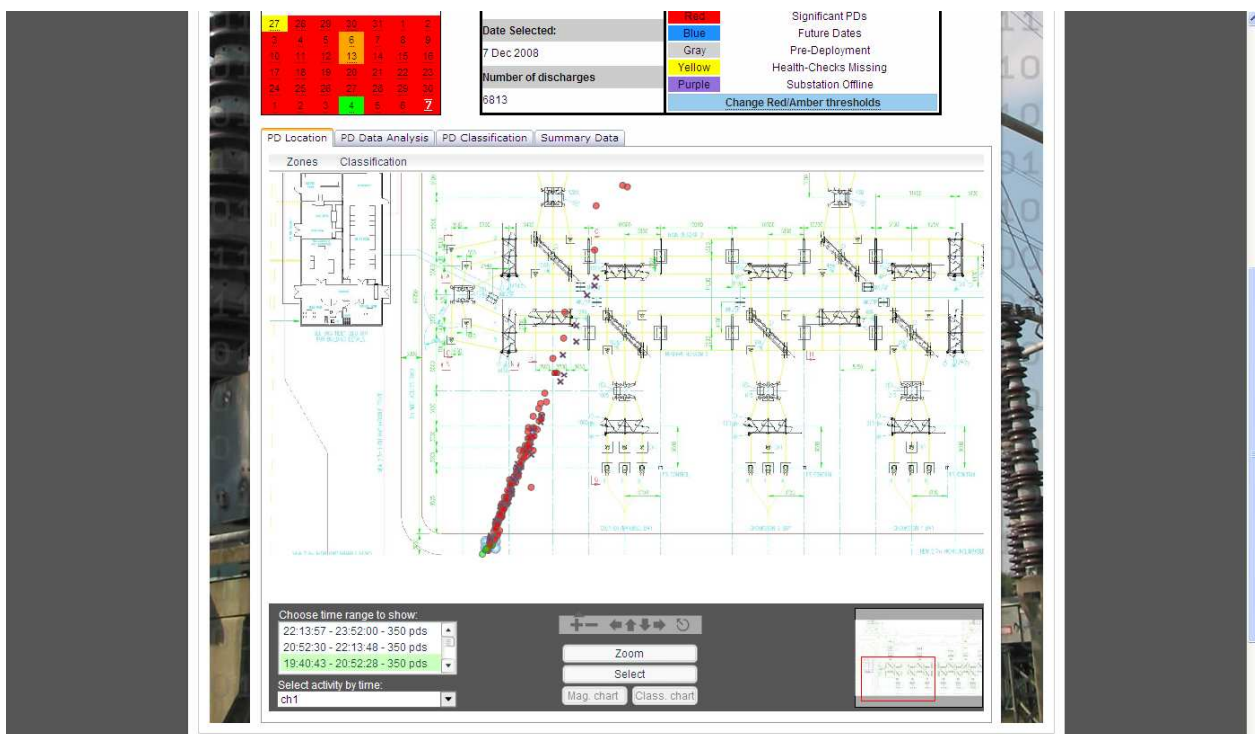
PDtect4-mobile overview

The PDtect®4-mobile allows the use of Elimpus' PDtect® technology from a mobile, relocatable platform that is ideal for temporary PD measurement campaigns lasting up to several months. PDtect®4-mobile provides continuous monitoring for PD effects within the local high-voltage compound. PDtect®4-mobile is housed in a trailer which can be trailed from site to site. The trailer provides a secure and temperature-controlled environment for the sensitive radiometric PD monitoring system. Communicating via mobile phone-based data services, data recorded from PDtect®4-mobile is up-loaded every 90 seconds to a web server running the Elimpus NServer software. NServer calculates the PD position which is served to the user using secure, password protected accounts. NServer allows the user to see the PD position superimposed onto a plan view of the local substation, along with other PD metrics including time of capture and amplitude. Additionally, the user can set alerts for a variety of PD behaviour patterns; the alerts are communicated by either email, or SMS message. The use of internet technology allows the user to log into NServer from any location, along with the flexibility to site the NServer hardware in the most convenient and appropriate location, e.g. in the substation, in the Head Office, or contracted out to a third party.

PDtect®4-mobile – main features

The salient features of PDtect®4-surveyor are:

- PDtect4 system fitted into a road-legal (EU) trailer.
- Trailer can be located in, or close, to the high-voltage compound.
- Four antenna array is located underneath the dielectric roof of the trailer.
- Simple and rapid deployment of the trailer.
- Wideband diskcone antennas give high sensitivity to PD impulses.
- On site recording hardware monitors for PD 24 hours a day, 365 days a year.
- NServer web software collects site recorded data and processes PD positions.
- Site recorded data uploaded to NServer every 90 seconds for near real-time PD display.
- Ability to set alerts for PD rate of emission and amplitudes metrics



Screenshot of NServer web screen showing PDtect®4-mobile results

PDtect®4-mobile – component parts



Component parts of PDtect®4-mobile:

1. Trailer unit (1 off)
2. Mains lead (1 off)
3. RCD unit (1 off)
4. Earthing lead (1 off)



PDtect® 4-mobile – specifications

| | | |
|---------------|--------------------------------------|------------------------------|
| Array | Array dimensions | |
| | Antenna type | Diskcone |
| | Number of antennas | 4 |
| Trailer | Weight | 450 kg |
| | Dimensions (W x L x H) | 1.59 x 2.95 x 1.85 m |
| | Supply voltage | 230 Vac |
| | Current drawn (typical) | 1 A |
| | Current drawn (max) | 2 A |
| | Sampling rate per channel | 1.5 GSps |
| Data comms | GPRS/3G modem | Yes |
| | Dual sim capability | Yes |
| Leads | Mains cable length | 20 m |
| | Mains cable type | Armoured |
| | RCD cable protection | Yes |
| | Earthing cable length | 7 m |
| | Earthing cable type | Aluflex, 150 mm ² |
| Certification | Tested to IEC61010-1:2001, CE marked | |
| Environmental | Operating temperature range | -10°C to +40°C |
| | Internal trailer heating | Yes |
| | Internal trailer fan cooling | Yes |
| | Internal trailer air-conditioning | On request |

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