POWER HOUSE DISTRIBUTION

Volume 3

PHD NEWS

The Live WIRE

N-PE & MOV Protection for home and business

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THIS WEEKS TOP STORIES

> N-PE & MOV Configuration
> UPS Surge Protection
> PHD's Featured product
> Any Questions

TOPICS FOR NEXT WEEK

> Truth about lightning
> Difference between pure and modified Sine-wave wave forms
> PHD's Featured product
> Any Questions

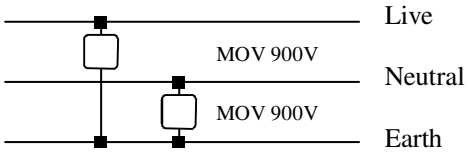
While the fitting of surge protectors on a main supply board is no longer obligatory, Powerhouse Distributions (PHD) recommends that for peace of mind and protection of sophisticated electronic equipment used in both home and office that proper surge protections is fitted on both the live and neutral connection entering the mains board.

International specification (IEC 60664-1) to which most of today's equipment will comply specifies the maximum differential mode surge that the equipment should be able to withstand without damage is 1500 Volt. A surge or a spike is a transient voltage that last for only a split second.

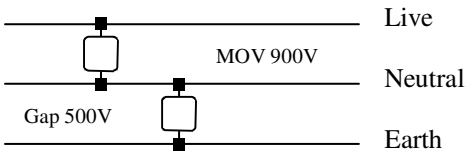
There are two types of protectors fitted. On the live a metal oxide varistor (MOV) unit is recommended and for the neutral a spark gap or as it is also referred to an N-PE type. The value in fitting both is in the way they are configured to ensure that surges over 1500V are bled off to earth and don't travel around the indoor wiring.

In the past it was common to fit the MOV type protectors between line and earth and neutral and earth. This however does not provide the protection required as referred to in the IEC 60664-1specification as can be seen in figure 1

Fig 1. The differential mode protection level is 1800V (sum of let through voltages which are in series between live and neutral) which is over the specified limit of 1500V



In figure 2, the MOV protector is fitted between live and neutral and a gap arrestor between neutral and earth



The differential mode protection level is now 900V (single device between live a neutral conductors), while the common mode protection level is 1400V (900+500=1400V) which is within the specifications of equipment conforming to the IEC specification. The spark-gap protector reduces the potential difference between N-PE to around 40V which ensures that the N-PE conductors are referenced as closely to each other as possible during a surge event this in turn eliminates the possibility of "spark over" between neutral and the earthed chassis of equipment.

By Warren Botten (Sales Manager)

UPS Protection

We still get a lot of enquiries about UPS Protection, and specifically what is the extent of the protection offered by different types of UPS systems. We have inserted this table from the PHD catalogue to correctly illustrate to you the difference, and hopefully answer your questions.

As you can see, an online double conversion UPS offers the best protection, from voltage disturbances, for that reason, we will only specify an online type UPS for a building, when the supply power to the building is of a poor quality or if there is a generator installed, how ever it is still recommended to test the supply quality prior to specifying a UPS system.

	AVR	Line Conditioner	Offline UPS	Line interactive UPS	True online UPS	Frequency converter
Surge	Limited protection	Full Protection	Limited protection	Limited protection	Good protection	Good protection
Spike	Limited protection	Full Protection	Limited protection	Limited protection	Good protection	Good protection
Sag	Good protection	Full Protection	Limited protection	Limited protection	Full Protection	Full Protection
Noise	Limited protection	Good Protection	Limited protection	Limited protection	Good protection	Full Protection
Black-out	No Protection	No Protection	Good Protection	Good Protection	Full Protection	No Protection
Frequency variations	No Protection	Good Protection	No Protection	Limited protection	Full Protection	Full Protection
Waveform distortions	No Protection	Good Protection	No Protection	Limited protection	Full Protection	Full Protection

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Featured Product

Powerhouse Distributions (PHD) has a great range of Din-rail circuit breakers and surge protection equipment

C & D Curve Circuit breakers (SABS APPROVED)

Moldered Case Circuit breakers

Class 1 & 2 Din Rail Mounted Surge protection (SABS APPROVED)

Any Questions ?

Only one question for this week it seems,

What is the difference between modified sinewave and pure sinewave wave forms and what equipment will they run.

Ah! Very good question, we will have to go a little more in-depth to answer this question, so stay tuned for next weeks, news letter where we will dedicate a section to answer just that, "Pure or modified pick carefully."

NEXT WEEK

Any Questions

If you have any power related questions that need answering, please feel free to send them to us

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