

# DIZ

## DOEPKE-INFO-ZEITUNG

FREE CUSTOMER NEWSLETTER BY DOEPKE SCHALTGERÄTE GMBH

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## The Florian tower in all its glory

### Dupline bus system controlling the technology in the Dortmund television tower

Dortmund's viewing and television tower has been one of the highest structures in the country for years. At over 200 metres, it overlooks more than just the Westfalenpark, where it was constructed in record time in 1959 using state-of-the-art methods.

Two viewing platforms at a height of over 140 metres above the ground invite visitors to take in the view. A particular highlight of the television tower is the revolving restaurant. Above the levels accessible to the public are the communications and aerial installations of the Florian. It delivers Dortmund and the surrounding area with 24 digital television stations as well as radio stations.

Doepke has also successfully made its own contribution towards this television tower, which is the oldest in the world with a revolving restaurant – the majority of the lighting both inside and outside is now being controlled via Dupline, as are the warning lights for air traffic on the top of the tower and on the platform ring, and the interior lighting in the maintenance rooms.



Bayern Munich fans look away: three screenshots from the bus visualisation system of the Florian tower

With a total of around 40 switching points, it is not just lighting being activated. Monitoring of the pipework trace heating in particular also plays a central role. This guarantees that the water in the pipework does not freeze. In order to prevent the safety glass in front of the LEDs of the air traffic warning lights from fogging up in the event of a temperature change, the heating of the light arrangement is dependent on the outside temperature.

The 15" touch panel provides an ideal monitoring capability. The display can list up to 60 potential faults from the bus, which enables what would previously have taken laborious steps

and the occasional uncertainty to be ascertained quickly. This not only offers enormous assistance to the "tower attendants", it also represents a great stride forwards in terms of safety.

Dortmund's city landmark has truly found a reliable building controller in Dupline.



Jochen Janßen  
Head of Product Management



## Ever heard of Fidi?

### One of the small life-savers in electrical distribution

Some of you with knowledge of Germany may associate Fidi with the short-form names for Friedrich, Friederike or even Elfriede. This form is certainly common in East Frisia, Germany. In the same way as farmers and animal owners give names to their most beloved animals, electrical fitters do the same in this region with a protection mechanism that has gained affection – the residual current device.



▲ Switching off on holiday

► Most accidents happen at home



Amongst all the acronym confusion (be it FI, RCCB, DI or RCD) often expected of us by the experts, we call our little life-saver by the fond and catchy name "Fidi". Whether it is now FI for residual current protection or DI for differential current monitoring, one way or another Fidi protects us completely unassumingly round the clock, housed in its small, silent distributor, from the consequences of hazardous insulation faults.

Fortunately, serious cases are the exception, but Fidi would like just one thing – to be able to prove its capabilities every now and again. This is why its master should at least press the test button occasionally to ascertain correct tripping. Fidi also gets some exercise this way, and joint problems are prevented.

But what is the situation really like? Hasn't Fidi, with its more traditional technology for the standard of installation to which we are now accustomed, been redundant for some time? What is actually the point when potential equalisation, creepage and air distances, protection class II (with increased and dual insulation) and

other normative measures are supposed to be making electrical installations intrinsically safe?

If you, as an electrical fitter, are also one of those who are more interested in Kamikaze electrics than the sights when on holiday, to the dismay of your companion, or one of those who likes shaking their head at "it will happen one day" situations in everyday life, you will agree that Fidi is an absolutely essential emergency brake, and is perhaps even more important than ever because:

- » more and more laymen are repairing their defective electrical devices themselves
- » it is not uncommon for DIY enthusiasts to remove electrical socket covers before wallpapering
- » protection-isolated electrical devices from dubious manufacturers certainly create a reliable impression
- » the damaged cable on the vacuum cleaner is only noticed when there is an electric shock when plugging it in

- » rodents are not bothered about whether a photovoltaic cable has dual insulation, both variants taste good
- » a risk emanating from electrical current is simply not seen by many and is dealt with carelessly.

Despite top quality electrical installations, we therefore know of enough examples where the situation can get really dangerous. It is certainly a good thing then that we still have Fidi after more than 50 years of service, and that it is being stipulated by many official bodies. It is also good that resourceful developers have toughened up the young Fidis for the challenges of modern electrical consumers and networks. The old ones have their problems here, but our all-mains primer will be glad to tell you more... ■



Gerold Roofls

Head of Development and Construction

## 7th Annual Electrical Safety Conference held in Darmstadt in 2013

The end of November saw representatives from industry and business gather in Darmstadt to debate aspects of electrical safety. Personal and investment protection, and risks from harmonics, were just a few of the topics.

As in previous years, the event was a complete success. In front

of a packed audience, qualified specialists provided an overview of the broad subject matter. The event focused on theoretical issues such as the liability law for skilled electricians, and on practical hints and tips for safe electrical installations. At the very heart of this field are of course personal protection and fire prevention, and in detail the

growing demand for all-mains sensitive Type B residual current circuit-breakers (also due to the increased use of frequency converters for controlling the speed of devices). In this context, the diagnosis and prevention of harmonics is a subject that is often underestimated. ■



Günter Grünebast

Head of Standardisation/Testing/Certification

## STANDARDISATION

### DIN EN 0100-722

Construction of low voltage installations – Part 722: Power supply of electric vehicles

This construction regulation (and a newer draft from January 2013) stipulates that a separate residual current device (RCD) must be used for every connection point (so for every vehicle charged) unless the "protective separation" measure is deployed.

The residual current device must be Type A as a minimum and exhibit a rated residual current  $\leq 30$  mA. For multiphase charging, or when it is not known whether a vehicle to be charged is able to generate smooth DC fault currents  $> 6$  mA in the event of a fault, additional measures must be taken when these DC fault currents occur. This can be achieved, for example, by using a Type B or B+ residual current device. Alternatively, Type A RCDs can be used when additional measures guarantee that the function of the Type A residual current device is not impacted by smooth DC fault currents  $> 6$  mA.

A Type A residual current circuit-breaker with integrated extra function that detects smooth DC fault currents and isolates at a maximum of 6 mA would therefore be ideal for charge columns and wallboxes.

There are currently no clear-cut statements from electric vehicle manufacturers across the globe on whether any smooth DC fault currents  $> 6$  mA can be anticipated in the event of a fault. ■

## What to do when the steel cutter is on strike

### Unexpected tripping clarified with the DRCA 1 system

It is not uncommon for residual current circuit-breakers to trip unexpectedly after electrical machinery is installed. This often cannot be put down to substandard installation; characteristics inherent to the design mean momentary leakage currents can occur that cannot be differentiated from actual fault currents by the switch. Additional EMC filters represent one possible solution.

#### Initial situation

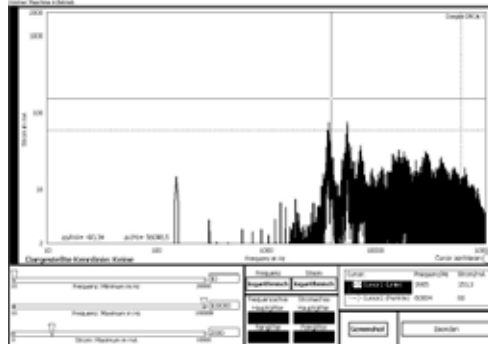
Some time ago a new machine for cutting steel was installed at a steel treatment plant in Plauen, Germany. The machine includes two carriages that transport the steel and move it to the correct position. The carriages are operated by means of frequency converters. The upstream Type B residual current circuit-breaker kept tripping during normal operation. This behaviour was particularly noticeable when one of the carriages started up.

#### Analysis

A DRCA 1 from Doepke was deployed for the analysis. The system comprises a measuring transformer, a test box and a notebook with analysis software. It enables leakage currents to be shown over a broad frequency range in order to be able to examine their magnitudes and the spectrum, and to draw conclusions on their origin. This is the decisive step in initiating appropriate countermeasures.

Initially, no particular leakage currents were noticeable in no-load operation. Whilst minimal "background noise" was displayed, it was always within the non-hazardous range below the threshold causing the residual current circuit-breakers installed to trip.

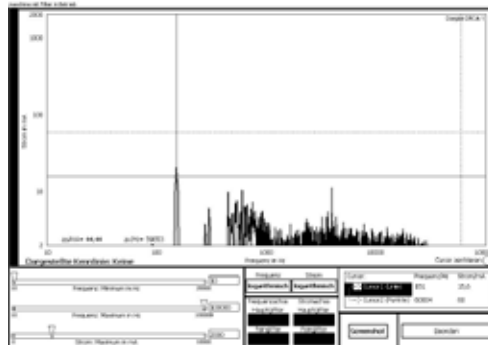
The situation changed dramatically when one of the carriages was switched on – the leakage currents increased significantly:



We can see at first glance that the leakage currents occurred in the range of several thousand kHz. This pronounced interference in the high frequency range was an indication that additional EMC measures had to be taken. The analysis program also showed clearly that the residual current circuit-breaker deployed had a load of 82% and was therefore about to trip.

#### Countermeasure

The situation with additional EMC filter:



▲ The test set-up: DRCA 1 and notebook in the bottom right of picture. The converter is only fitted loosely for diagnostics. The loosely installed EMC filter, fitted for test purposes, is in the bottom left of the distribution box.

After an additional filter was installed, the leakage currents were measured again. It was evident that they had been reduced to a minimum by the filter. The residual current circuit-breaker which had previously been almost under full load only had a loading of 8% as a result, and was therefore far from tripping.

The system operator immediately installed this type of EMC filter on a long-term basis. Since installation, the machine has been running reliably and productively. Apart from the DRCA-1 measurement and the installation of the filter, no other measures had to be taken. ■



Holger Meier  
Sales Promotion

## Space-saving even when demands are high

### Special currents require special devices: new contactors offer high performance in enclosed spaces

There is not always enough room in the distributor when high currents require switching. As described here in the past, installation contactors are indispensable for switching high loads.

There is not always enough space in existing switching devices to implement any of the system operator's extensions. Expensive upgrading of the distributor is inevitable in such cases. The space required is also a factor in the design of new switching devices.

The new Doepke HS 40 S-20 and HS 63 S-20 installation contactors feature particular space-

saving attributes. Both devices, with two normally opened contacts and a rated current of 40 A and 63 A respectively, utilise only two module widths on the mounting rail, meaning a space saving of 33% compared to conventional devices.

The new contactors also have the same benefits as the previous devices in the HS series; the non-humming solenoid, the switch position display, large terminals and upgrade capability with the HSH 11 auxiliary switch, to name just a few.

The new devices are being offered at comparable prices to the conventional (wider) variants, and so

the new installation contactors have the potential to save on resources. It is not always a matter of space – savings will also be evident in financial costings. ■



Heino Thoben-Mescher  
Product Management

# Female colleagues from the trade sector come to visit Anniversary in Dubai

## The "Famo ladies" in Norden

For 15 years now, specialist wholesalers FAMO in Bremerhaven have been organising plant visits for female customers only. In September 2013, it was Doepke's turn to welcome the ladies' group.

When the tradition started a few years back, it was mainly visits to manufacturers of household appliances that were on the agenda. However, the technical background and the interest shown by attendees soon resulted in a broadening of the visitor programme. Many of the ladies are decision-makers within their own businesses who are looking to learn about the sourcing of switches, lights



Group picture of the ladies: the party in front of the main Doepke entrance

and, not least of all, residual current circuit-breakers, from their own perspectives. Two days of training provided ample opportunity for this.

The schedule took the ladies through the plant as well as to the island of Norderney and the town of Norden.

## Congratulations on your 10-year anniversary



Jose Cleetez, Sales Manager at Doepke International Trading Ltd., Dubai

It is now ten years since Mr Cleetez took up his position at Doepke International Trading.

The electrical engineer began his professional career in the engineering department at a pharmaceutical company, but soon switched to the electrical industry where he moved into Sales. He then worked at a different company for a couple of years before joining Doepke in 2003 to work in this field. Mr Cleetez likes spending his free time with his children, for example going on outings together. We wish Mr Cleetez all the best for his anniversary, and also many more successful and dynamic years with our company.

## Việt Nam – a fantastic trip

### The Doepke angel was spotted a number of times in South East Asia

It was a very special kind of holiday; over a period of three weeks, we (a six-strong party including a native Vietnamese lady) were honoured to get to know this fantastic country.

Landing in Hanoi, we discovered a capital city that never sleeps. Of course, we could not miss out on the nearby Ha-Long Bay. The next port of call was Vũng Tàu, a holiday paradise on the Chinese Ocean. Then it was off to the largest city in the country, Saigon or Ho-Chi-Minh City. Here, we were able to experience first hand the impressive views of the Mekong delta.



The last stop was the holiday metropolis of Danang in the middle of the country. Given their proximity, Huế, with the Purple Forbidden City of the last Kaiser, and Hội An, with the once largest port in South East Asia,

were must-sees on the agenda.

One thing was clear after the 3,000 kilometres and more we travelled – we would have to return some day. The people, the scenery, the cli-

mate and not least of all the extraordinary food, are unparalleled.



Jochen Janßen Head of Product Management

### DATES/NOTES

**Specialist training in Building Technology**  
28/01 – 30/01  
LIV Mecklenburg-Vorpommern, Rostock, Germany

**Middle East Electricity (MEE)**  
11/02 – 13/02  
Sheikh Saeed Hall, S1B20 Dubai

**Light + Building**  
30/03 – 04/04  
Frankfurt Trade Fair Hall 8, Stand C 51

### PUBLISHER

**Doepke**

Schaltgeräte GmbH

Stellmacherstraße 11  
26506 Norden

Telefon: +49 4931 1806-0  
Telefax: +49 4931 1806-101  
E-Mail: info@doepke.de  
www.doepke.de

### QUARTERLY QUOTE

*If we had no winter,*

*the spring would not be so pleasant.*

*Anne Bradstreet*