



UMIP®  
LICENCE

# Microshocks Climbing Protection System

nationalgrid



## CASE STUDY

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### FACTFILE

- > **Invented by:** Professor Simon Rowland and Yasir Ahmed, School of Electronic and Electrical Engineering
- > **Application:** Energy sector
- > **Licensed to:** Pammenter & Petrie Ltd and Total Access UK Ltd in 2012
- > **IP:** Patent
- > **Funded by:** Collaborative partner National Grid provided research funding through Ofgem's Innovation Funding Incentive (IFI)
- > **Awards:** IET Innovation Awards "Highly Commended" in Product Design and Power/Energy categories



**"An innovative  
solution to  
the problem  
of microshocks"**

*Professor Simon Rowland, co-founder*

# ABOUT MICROSHOCKS CLIMBING PROTECTION SYSTEM

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**Research undertaken by Professor Simon Rowland and his EngD student Yasir Ahmed in the School of Electrical and Electronic Engineering has led to an innovative solution to the problem of microshocks. Microshocks are electrical discharges sometimes experienced by overhead linesmen working on high voltage transmission systems.**

The novel system safeguards workers from the discomfort of receiving such microshocks which are unpleasant and can even be painful. Where microshocks are severe, working activity may have to be postponed or re-scheduled. Therefore, as well as providing a much better working environment for line workers, the system offers the benefits of more reliable maintenance planning and a cost saving for industry. The CE marked product is now on sale to distribution and transmission network operators.

CEO Graham Burnett of Total Access (UK) Ltd and Nathan Pammenter, General Manager of Pammenter and Petrie Limited, commented: "Both our companies have a long history of working with National Grid on projects to help improve safety. We were delighted to be part of the development team that helped practically solve a day to day potential issue of microshocks. It's a first for the industry and we are proud to be part of it."

Wayne Steel, OHL Equipment & Procedures Engineer, National Grid commented: "For a number of years, National Grid had been receiving reports back from numerous linesmen with regard to them receiving 'microshocks' whilst climbing the step legs of certain towers. We therefore approached Professor Simon Rowland in order to hopefully come up with an engineered solution to this phenomenon which was affecting a number of our staff. Through liaising between UMIP and our suppliers at the time, we developed a system which after undergoing numerous tests and field

trials can now be inherently built into the PPE the linesmen use on a day to day basis. Since rolling this out to approx 50 linesmen who suffered from microshocks, no further reports with regard to receiving microshocks have been received."

We met up with co-inventor, Professor Simon Rowland, to find out more about his experiences of the licensing process...

## **Was the application of the discovery/invention apparent from the outset?**

Yes it was. We started with the problem of microshocks which has been known about for many years. In particular National Grid wanted a solution which would be invisible to the linesmen, so we did have some guidelines to work within in order to address the microshocks issue. Overall we succeeded in providing a solution which does not use any additional equipment: just a one-for-one swap with what appears to be 'normal' linesmen kit.

## **How important was the funding?**

The funding was critical. Indeed National Grid provided research funding to allow us space for fundamental work, and to enable a deep understanding of the problem. The solution which came then benefitted from innovation funding in order to turn the idea into reality with support from industrial partners.

## **How do you feel you have benefited from licensing this technology out?**

The licensing led by Clare Wood from UMIP enabled a complete commercial solution to be generated, and tested including robust sourcing. The move from our prototype to final product was made possible by working with and through our licensees. Indeed our product was fully tested and verified with National Grid as an end-user which has been extremely valuable.



*Yasir during the testing phase of the prototype harness and lanyard combination at NGT Dains Sub Station*



### **How did you manage to juggle this with your other activities?**

Academics have endless juggling acts to perform. Transformation of ideas into commercial products is a great pleasure and challenge. The involvement of UMIP, National Grid and the licensees made this relatively easy. In particular the EngD student was recruited by National Grid and he became a champion within the company, helping the final qualification processes.

### **What did you especially value from the University during this process?**

The knowledge of commercial structures and frameworks offered by UMIP, and their process management of the Intellectual Property (IPR).

### **What were your aspirations for getting involved in the commercialisation process?**

It's a natural progression of engineering research. New product development is extremely rewarding. Few have the pleasure of taking products from inception and IPR generation all the way through to commercialisation.

### **Do you have any advice for colleagues thinking of licensing a discovery?**

It is important always to think strategically, you have to actively search out and take opportunities.

### **What does the future hold for the Microshocks Climbing Protection System?**

We hope to see it used world-wide, improving working conditions for linesmen and improving efficiency regardless of location.

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“It’s a first for the industry and we are proud to be part of it”

*Graham Burnett, CEO, Total Access (UK) Ltd and Nathan Pammenter, General Manager of Pammenter and Petrie Limited*



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