

### What is LED?

The light-emitting diode is a solid-state device. It comprises an alloy crystal in a reflective cup, chemically bonded to small wires. When electric current runs through the wires the crystal material reacts. This reaction takes the form of energy: mostly light, some heat.

Different alloys produce different colours, with different life-spans and brightness. R&D on the technology centres on sourcing the proper chemicals and alloys.

### LED advantages and disadvantages

#### Advantages:

Low maintenance; low voltage means an improved safety factor and low running costs; versatility; programmability; resistance to breakage; ease of transport, installation and repair; networking capability; considerable life-span

#### Disadvantages:

In most forms and applications, LED is still a more expensive upfront option. Brightness may still be beaten by neon in certain colours and applications; consumer ignorance and resistance remains a factor, aggravated by the poorer performance of the cheaper available systems

### Five of the biggest LED applications

- The Vodafone sign atop the San-ai Dream Centre Building, Tokyo
- The Fremont Street Experience, Las Vegas
- The Reuters and NASDAQ billboards, Times Square, New York – the largest publicly displayed LED screens in the world
- The blue Qwest beacon, Denver

### LED GELcore Installation Training Available

LEDs are not rocket science but they are an emerging technology being more widely used in signage applications. Major corporates are beginning to appreciate the energy savings and the overall cheaper cost of ownership of this technology over neon. Major customers such as David Jones, Hungry Jacks, KFC and Caltex have begun implementing this technology as their signage is updated.

To help the signage industry come up to speed, Switched on Innovations has designed a one day course that gives an overview of LED technology and systems and specifically a knowledge and competency in GELcore LED components and installation techniques.

Switched On Innovations Pty Ltd

Tel: 02 9948 8234

sally@switchedoninnovations.com.au

www.switchedoninnovations.com.au

"There's absolutely no question LED is going to pick up a substantial market share over neon," says Ed Darmanin, owner of Switched on Innovations, which supplies the Tetra brand of LED systems from GE's GELcore division. "You've got big companies who have started to convert to LED on a lot of their new sites. Many Toyota dealerships in North America do not use red neon in their signs and haven't for two years, for example."

Damian Normile, at Neon Products, (which also supplies GELcore), has noticed the change. "Three years ago 80 per cent of quotes were for large quantities of neon. Now 80 per cent of quotes are for LED. But the majority of the time we still recommend neon because of the cost of initial installation. A lot depends on the quality of the LEDs and the installation, and how hard it's being driven.

"For tiny jobs too small for neon sections, where neon may fail, or it's really intricate and there's a tight letter-stroke – that's where LED comes into its own. But we go for the right material for the right

application. It's horses for courses."

"LED is eating into neon demand – but it's not significant," insists Neil Uppington, executive director of Jefferson Bay Neon, which supplies Hansen LED. "It's still early days. LED is still quite expensive in the marketplace, but coming down in price.

"I'd only recommend LED over neon in certain circumstances," he continues.

"For a major lighting source and as a lighting medium, neon is far better. But LED, because of its low profile, is far more versatile to use in applications like poor lighting [such as in nightclubs], effect lighting and architectural applications."

"LED was born to be used in small internal signs," says Ed Darmanin.

"But they do [LED] sky signs in the US – six metres tall, outside. But there they still have acrylic faces on their large external sky signs – because of the snow – so you can light it with LED. Here, we have an open-channel letter where there's no face. But, what's coming

to Australia is an exposed neon look-alike product – an acrylic tube illuminated with LED, but formed to look like neon."

"LED is really going to take over the whole market for lighting and for visual display," asserts Volker Rademacher. "In Japan, for example, they have passed a law that from 2006 will not allow any new neon signs to be installed. And any neon sign that needs to be repaired must be repaired with LEDs. This is primarily because of [lower] power usage.

"But there will always be areas neon is going to be used where LEDs do not come to scratch," adds Rademacher. "Little, open-case signs, for example."

As the new technology, LED has a lot to shout about, but what are its real assets? A large part of the reputation is built on low running costs, and reliability.

"In pure running costs, you've got high voltage versus low voltage [in LEDs], so the savings are significant," says Neil Uppington.

Ed Darmanin describes this phenomenon as "a total cost of ownership sell. It's going to cost you more upfront, but you get your money back through substantially reduced energy and maintenance costs. Payback periods can be anything between one and three years depending on the product and kind of sign. If you talk red LED or the warm colours, the energy consumption is 80 per cent less than neon. That's a fact."

Advocates also say LEDs are a much tougher customer than neon-based signage. "If you've got a roll of it, it's easy to use, vandal-proof and waterproof and it can transport without being broken," says Damian Normile.

What can let it down is not the LED per se, says Darmanin, but the quality of the system it's part of.

"You can jump on our LED strip and

