The processor module, with its keypad and LCD display, offers the system planner a catalogue of features designed to customise the dimming installation to the precise needs of the venue. Dimmer patching (assigning dimmers to different DMX channels, or controlling a number of dimmers from the same channel number), 99 preset 'memories', maximum and minimum output voltage per dimmer, non-dim operation at any control level, a choice of dimmer response times: fast (for flashing effects with low wattage lamps), standard, or slow (to protect large filament loads), dimmer law selection (linear power law, square or S-law) and alpha-numeric dimmer identification for advanced control and monitoring systems.

A unique feature aimed at the installation designer is SWC - System Wide Control. LD90 is equipped to accept commands from a handheld programmer connected through a twin-core cable to all racks (see this page for further details).

Electrical contractors have already complemented the design on the ease of installation, the ability to wall or floor-mount the LD90, and the attention to detail in the cable termination area with spare DIN rail space for custom terminals. For new buildings, the ability to install the rack metalwork in advance of the electronics is seen as a great advantage. And for those 'refurbishment' jobs, LD90's size and configuration means that they can be quickly installed in place of many earlier analogue dimmers such as Strand STM, JTM or Permus racks without the expense of replacing switchgear, power cables and load cables.

Users will benefit from the reliability of the most up-to-date circuit design, with a processor pcb made in Strand's plant in Scotland using surface-mounted component technology. There is also an obvious visual improvement in dimming provided by a 2000 step fade resolution which gives a noticeably smoother fade over the previous generation of memory desk and analogue dimmer which was working on 256 steps between off and full on. The users will also be comforted to know that LD90 meets all current standards, including EMC (Electromagnetic Compatibility) regulations.

And most importantly of all for the client, the price of a basic fully populated 24 x 2.5kW or 12 x 5kW rack, as part of the Strand Eurosystem through Main Distributors, is less than the analogue dimmer it replaces! ✍
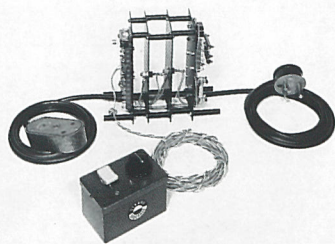
Strand's first thyristor dimmer in 1959 – known inside Strand as SD/WH.

Remote controlled Saturable Reactor dimmers of nearly 40 years ago were heavy; very heavy indeed at 28kg (62lb) for a 2kW dimmer! This weight imposed a practical restriction on height to 18 dimmers. When system LC (Len's Choke) extended the control of reactor dimmers to presetting by a control signal amplifier using very early transistors, the weight remained high and the rack height remained the same.

THE EVOLVING DIMMER RACK

The first 220/240V SCR dimmer was demonstrated by Strand in April 1959 on the same occasion as the first level memory control, 'KTV'. This dimmer, known internally as SD/WH (Sandwich Dimmer, We Hope) was so expensive that it was shown as a pie-in-the-sky future possibility (the first pair of thyristors, brought in from the USA had cost the princely sum of £700!). It eventually evolved into the CRD dimmer rack, but was still so expensive that Strand anticipated that it would be mixed 25:75 with LC dimmers (but in print suggested a 50:50 mix).

Therefore, logically at the time, the CRD rack was again the same height and of course the control signal interface had to be common. In the event no job ever did mix the two types of dimmer, but the die was cast for Strand analogue control polarity (0V off, minus 10V full on).

It was 1965 that the JTM workhorse and theatre-affordable Thyristor dimmers were launched. The overall weight was very much reduced and the height reduced marginally. This was succeeded by STM, virtually identical, but employing the then new silicon transistors in the trigger cards.

The direct line of succession was then Permus, which now gives way to the all-digital LD90 for the workhorse package of today and tomorrow. There are other parallel threads: CRD evolved into a series of plug-in types culminating in EC90, and then there was the Mini portable pack evolution starting with what was known internally as 'Upset' because it coincided with the development of Threeset and Lightset.

SYSTEM WIDE CONTROL
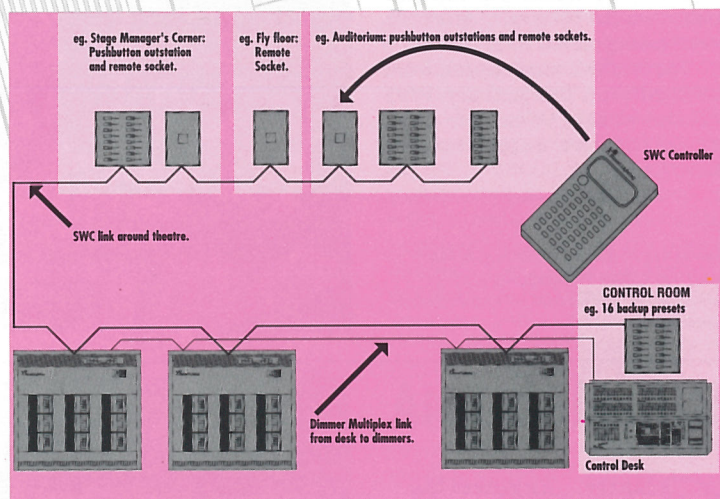
One of the most exciting features of the LD90 dimmer is its System Wide Control (SWC) capability. It adds a great amount of functionality to the LD90 system, and opens the doors on some predicted and imagined requirements for the future.

SWC is the name given by Strand to a new concept in dimming system control. It is a communications bus which links all LD90 dimmer racks in the system (wherever they are placed in the building), to remote pushbutton stations and socket boxes for the SWC handheld control. Using the hand held control, dimmers may be set to a level, faded up or down, directed to respond to the MUX input signal from the main desk, or switched off completely.

Preset memories, including fade times, may be recorded and executed. Riggers' functions on the handheld unit include lamp test facility, and 'remainder dim'.

SWC is designed as a tool for the user and system designer. Typical applications would be for hand held units to be used as riggers' controls or as mini control systems (for the stage manager, production desk or as an independent backup), and for the push button outstations to be used for dedicated presets for houselights, working lights or backup states and to provide basic local control for concert halls and architectural applications. ✍

LD90 AND EMC
Meeting the requirements of the new European Electro-magnetic Compatibility Directive 89/336/EEC was an important aim in the development of LD90. Strand has published a briefing paper by David Bertenshaw, Corporate Research and Development Director, on the objects and intentions of the Directive, including Strand Lighting's response. A copy of this document, Facts Sheet 11, is available on request.
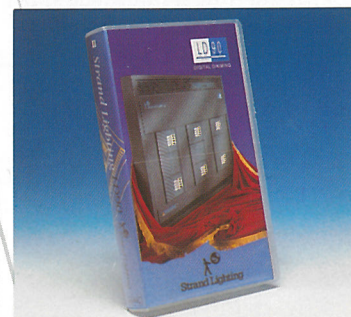
NOW SEE THE VIDEO!

With so many people asking to know more about LD90, we've decided to make a short video to explain the main features of this exciting new dimmer.

The VHS PAL video takes you through the basic and optional features, and includes details of installation and programming. If you want to see the video *Focus on LD90,* contact your local Strand Main Distributor, or register your interest on the attached reply card.