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Application Note 30229 Black Rock – Co Mayo

Lighthouse History :

First lit on 1st June 1841 the Commissioners of Irish lights upgraded the clockwork weight driven prismatic lens lit by wick burners to a PV burner to increase intensity. In 1974 the clockwork and lens assembly was removed and replaced with a smaller prismatic lens assembly in keeping with the light source of the day, a 22mm acetylene mantle from the previous 55mm. Rotation was changed from clockwork to a AGA dalen pedestal which turned the lens by the expansion of the gas as it passed to the burner.

Commissioners of Irish lights sought to reduce maintenance costs by removal of need to change bulky acetylene cylinders by solar powering the station. The aim was to find a little source and equipment which could meet the duty given the latitude and weather conditions of the station.

Black Rock County Mayo from service helicopter.

In 1999 the complete assembly was removed and replaced with a **PRL400** pedestal equipped with a **PA2 lampchanger** and 2 x 35 watt Cdmt lamps. Like the Dalen pedestal before, rotation was maintained 24 hours a day to prevent the sun damaging the equipment due to reverse focusing of its rays.

The Dalen lens could have been reutilised and mounted on a PRL600 pedestal however CIL opted for the lighter weight PRL400 and removed the lens.

PRL 400 shown here with 8 full panel lenses

The **PRL400** having 8 panels and thus able to rotate slower than a 6 panel optic was able to achieve a character of Fl every 12 sec and large flash length of 0.3 sec and range of 20 miles with a small 35 watt Cdmt lamp.

The **PRL400** pedestal is provided with two separate drive boards electrically isolated from the other thus providing two duty drives each individually capable of driving the lens array should the other fail.

IALA AISM

INDUSTRIAL MEMBER INTERNATIONAL ASSOCIATION OF LIGHTHOUSE AUTHORITIES

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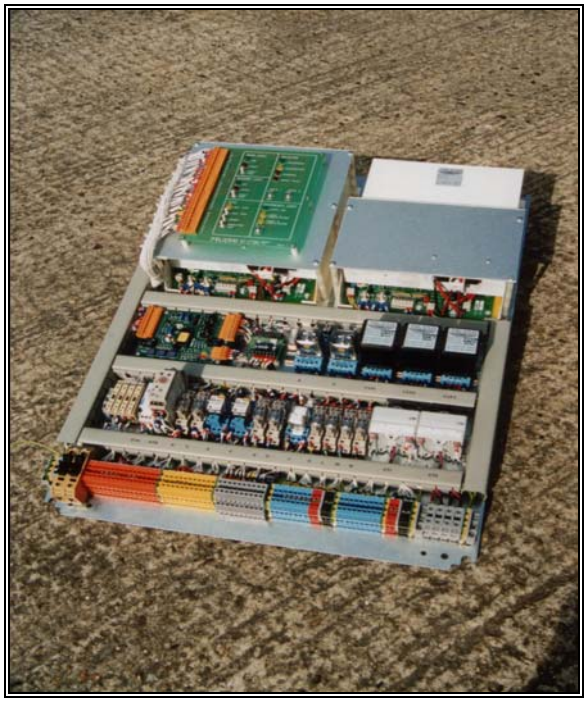
To improve on efficiencies in lamp ballasts rather than employ DC to mains then the traditional Mains to lamp voltage a High Frequency **HID** ballast was employed driven from the large solar charged batteries.

Latter stations like **Bull Rock** employed a separate driver for each lamp as shown below however for this station the one **HID** driver was employed. Load disconnected then re-ignited when the **PA2 lampchanger** changed lamps.

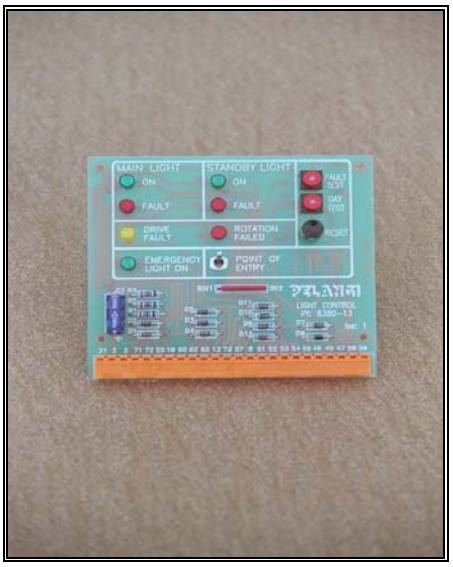


12 volt PRL400 control board with built in dual ballast, LED indicator boards and twin PE cell.

With one 12 volt DC powered 600mm x 600mm stainless steel central control cubicle it was possible to monitor the PRL400 and drive the PA2 lampchanger with remote monitor contacts and internal local LED indication of station status. The cubicle also provided the switch over to emergency light in the event of failure of second lamp or rotation failure of the second drive.

It offered a compact solution means for direct connection to Irish Lights Monitoring system in one cubicle.

Subsequent variations at **Bull Rock** introduced dual lamp drivers and at **Inishtrahull** the internal LED indication was mounted on the outside of the panel but the concept remained and formed the basis for 10 subsequent stations.



Built in Station LED Indicator Board

PA10 Twin PE control Relay.

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