

CASE STUDY

THE PRISON

SDC Industries installed the Varmatic Vario Voltage Optimiser in various prisons throughout Scotland. The particular prison we will focus on for this case study is a medium-sized building, catering for over 100 prisoners. The prison includes a housing block, recreational areas (Regimes), kitchen/canteen, workshops and offices.



The managers of each prison were looking at ways to save costs, and to make their prisons more energy efficient. The management team were aware of the benefits of voltage optimisation, and decided to invite companies to tender for supply and installation of this type of equipment. SDC Industries arranged to survey each site, and from the information obtained, provided a detailed quotation, which enabled us to be named as the preferred supplier.

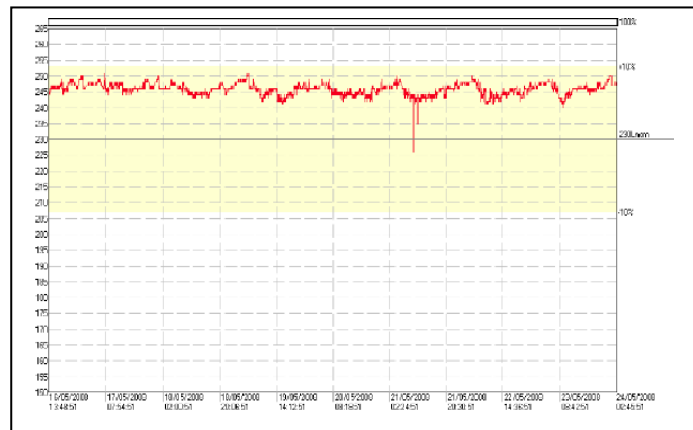
A voltage logger was sent by post to the prison, and was installed from 16 May 2008 to 24 May 2008. From the half hourly data obtained, and from analysing the load details, SDC Industries engineer advised that installation of a 150KVA Varmatic Vario would be required.

Installation would be performed on the incoming busbars after the main circuit breaker. This would not involve any co-ordination with the prison electricity/utilities supplier, as no access is required to the incoming busbars which are fed from the transformer.

In this instance, the Varmatic Vario was delivered to site and accommodated in the electrical switchroom. Our installations team arrived at site early to carry out the preparatory works before fitting the unit. The works were completed in one day.

For this particular installation, SDC Industries manufactured and installed the unit. No external sub-contractors were involved. There are usually two enclosures – one for the distribution box, and one to hold the optimiser. For this particular installation, because space was an issue, the unit was re-designed by our engineering staff, to accommodate both sections in one single cabinet.

**INFORMATION FROM VOLTAGE LOGGER
16 MAY 2008 – 24 MAY 2008**



150KVA Varmatic Vario

COST SAVINGS

SIZE OF VARMATIC VARIO	:	150KVA
UNIT SIZE**	:	Control Panel and Optimiser (in same cabinet) : 1800mm long x 600mm deep x 600mm high
NUMBER OF WEEKS SYSTEM IN FULL OPERATION	:	52 WEEKS PER ANNUM x 7 DAYS PER WEEK x 24 HOURS PER DAY
OPTIMISATION LEVEL	:	8%
LEVEL OF SAVINGS	:	10%
ANNUAL ELECTRICITY COSTS (WITHOUT VARMATIC VARIO)	:	£58,800
ANNUAL ELECTRICITY COSTS (WITH VARIO)	:	£52,920
ANNUAL TOTAL SAVINGS (10%)	:	£5,880

**Sizes can be subject to change – please check before ordering. Both the optimiser and the control panel were integrated in one cabinet for this particular installation.

CO2/CARBON SAVINGS

TOTAL KWH USED PER ANNUM = 840,000KWH

TOTAL KWH SAVINGS PER ANNUM = 84,000KWH

TOTAL CO2 SAVINGS PER ANNUM = 84,000KWH x 0.43* = 36,120KG CO2

*Calculation taken from National Energy Foundation (www.nef.org)