Power Quality Improvement Services Ltd
6-8 School Lane
Standish
WN6 0TD

Tel: 01257 434218

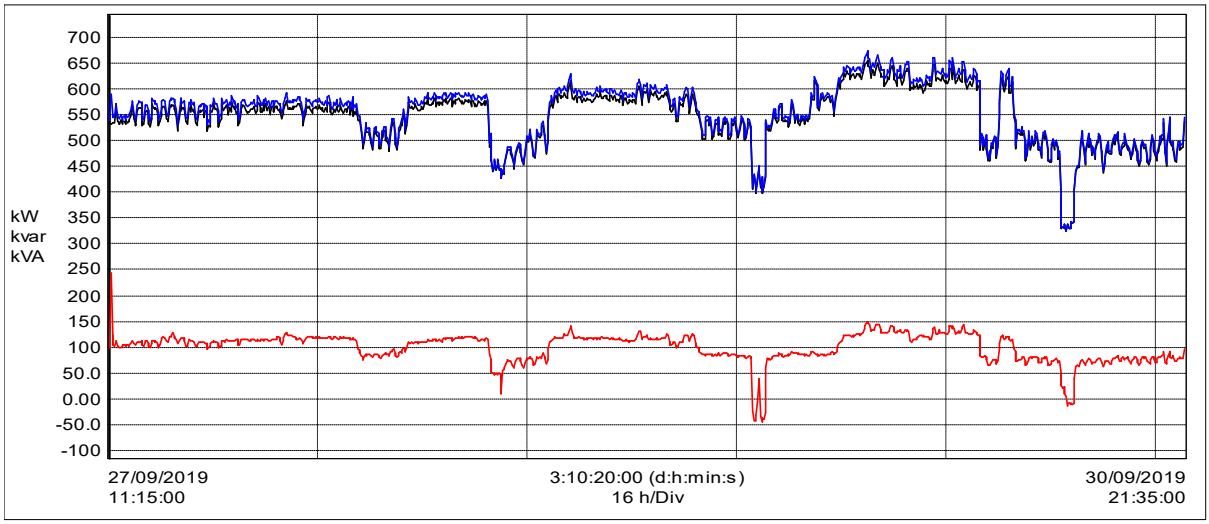
enquiries@pqis.co.uk
www.pqis.co.uk

Power Factor Correction Explained

Good power quality

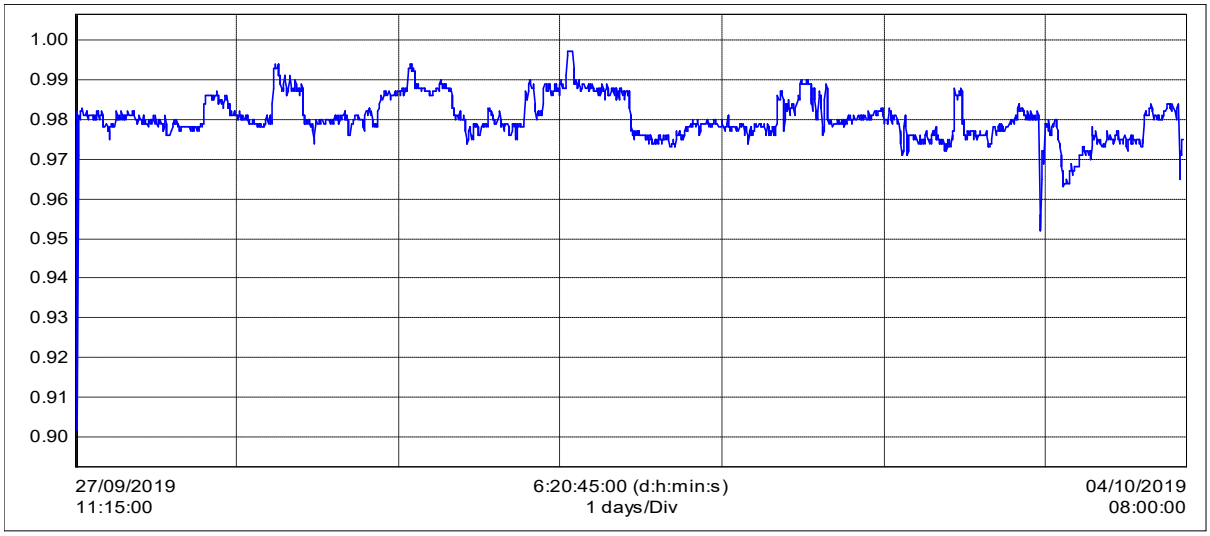
The graph illustrates a good power quality. The reactive power **(KVAR)** is low and the maximum demand **(KVA)** is close to the consumption **(KW)**. The power factor of the supply is consistently **0.98**.

Black: KW – Consumption **Blue: KVA – Maximum Demand** **Red: KVAR – Reactive Power**



Good Power Factor

The difference between the good and bad power quality achieved in the graphs on pages 1 and 2 is the power factor of the supplies. Power factor is a value from **0.00** to **1.00**, a power factor below is considered poor and efficiency improvements can be made.



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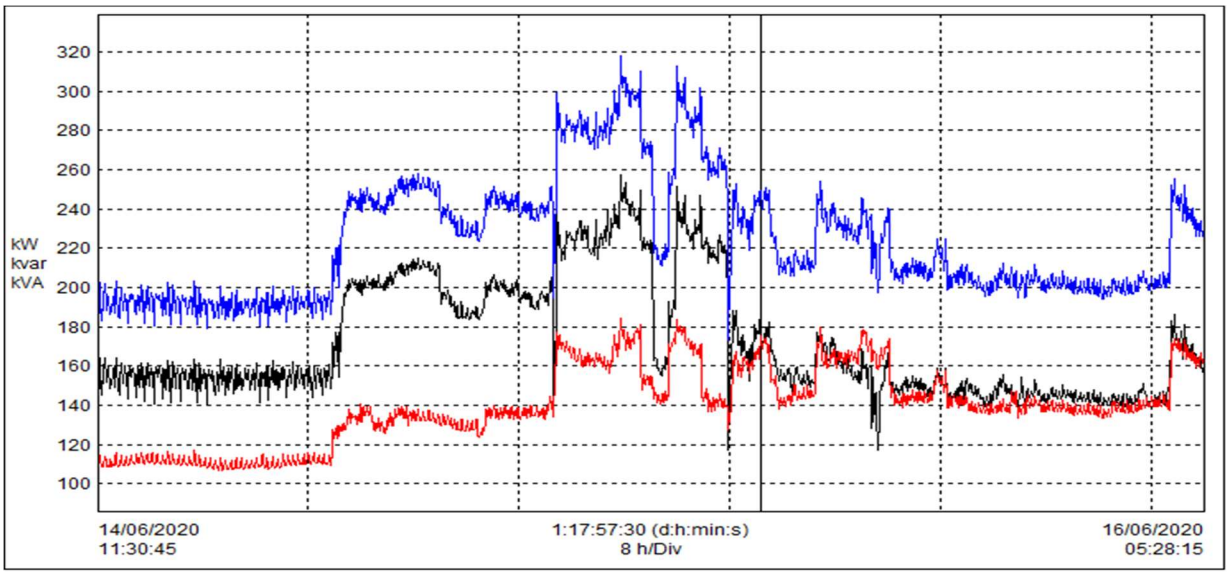
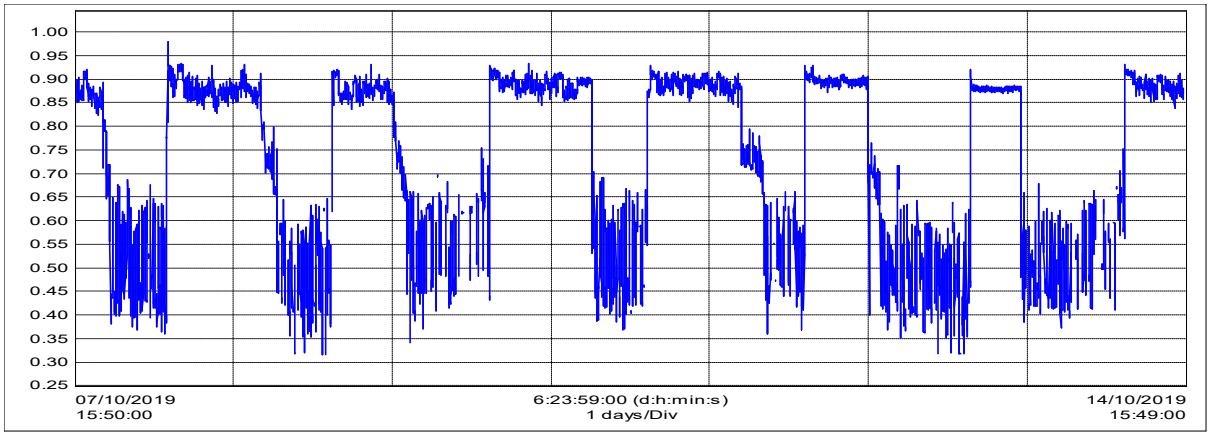
Bad power Quality

A supply with a low power factor has a high reactive power **(KVAR)** which inflates the maximum demand **(KVA)** higher than the consumption **(KW)**. The power factor achieved for this supply is consistently less than **0.85**



Low Power Factor

A low power factor is caused by the connection of inductive loads i.e. motors to an electricity supply.



Power Factor Correction

To improve the power factor of an electrical system a power factor correction unit is installed. A correctly specified power factor correction unit will achieve a consistent power factor of 0.98.

A good power factor reduces reactive power **(KVAR)**, maximum demand **(KVA)** and system losses **(KW)** of an LV electricity supply. This increases capacity of the system and reduces electricity costs.