

ANALYSIS OF POWER PROBLEMS ...

... in Port Crane Systems





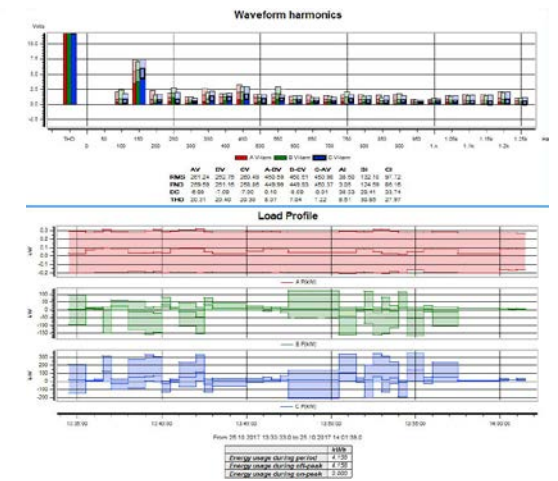
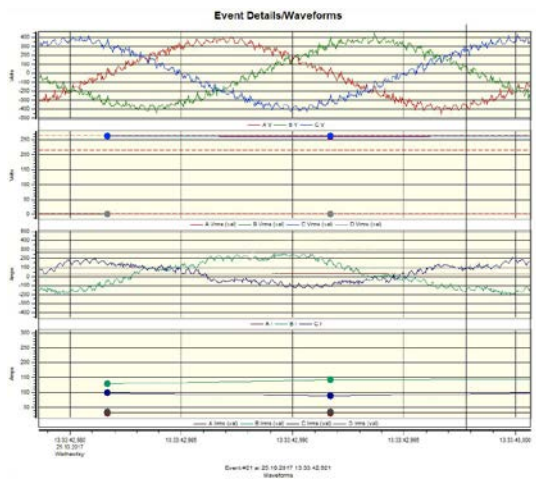
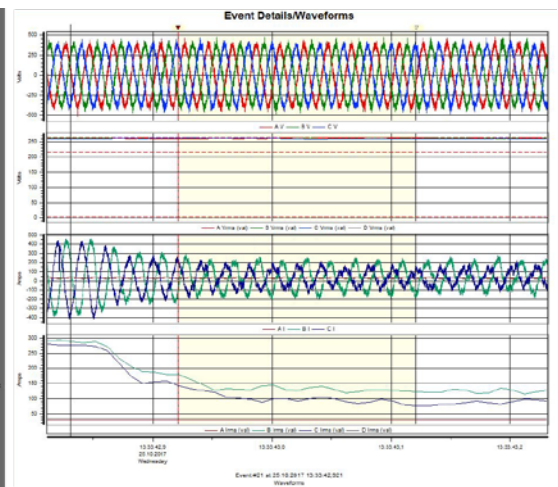
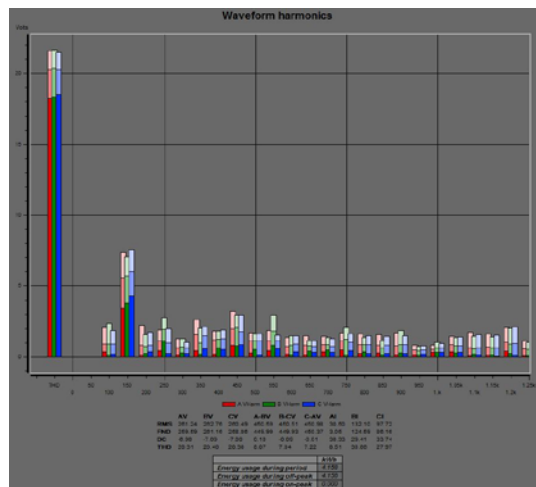
Analysis of Power Problems in Port Crane Systems

Initial Situation

A port facility in the Mediterranean region was having problems with its crane systems. Only three of ten cranes could be used simultaneously. As soon as an additional crane was started up, it was no longer possible to control and operate the others. The customer contacted GOSSEN METRAWATT in order to pinpoint and eliminate the causes of this problem.

Solution

Based on the description of the symptoms, the team from GOSSEN METRAWATT suspected one or more power disturbances in the cranes' power supply system. The cranes' response after power on was analyzed using a MAVOWATT 270-400 with 400 Hz option, and the cause of the fault was narrowed down. Thanks to the large 7" color LCD with touch function, operation is convenient and information is provided immediately concerning on-site power quality. Critical values are highlighted at the display in red, and can thus be quickly recognized and analyzed. Due to the fact that the MAVOWATT 270-400 with high transient option is capable of detecting transients down into the microsecond range, GOSSEN METRAWATT was able to determine in detail when inrush peaks occur and which consuming devices they're caused by.





Thanks to the reliability and excellent performance of the MAVOWATT 270-400, it was possible to record more than 13,000 events during this measurement over a period of 30 minutes in accordance with IEC 61000-4-30 (see top graph). The team decided to analyze the acquired data with the help of the included Dranview software in order to evaluate the large number of messages/events. The port authority was especially interested in harmonic disturbances in the power system. The capabilities of the hardware made recording up to the 127th harmonic possible, and permitted a clear-cut picture of the situation. High stress and measurement distortions caused by the frequency converters could be tackled by means of the anti-aliasing filter in the Mavowatt. Positive experience with the MAVOWATT 270-400 and Dranview software prompted the end customer to order two instruments in order to investigate and eliminate other problems within the port's power supply system. The customer also ordered external GPS receivers in order to synchronize his measurements.



MAVOWATT devices enable the service technician to discover and locate problems at a glance.

GMC INSTRUMENTS

 **GOSSEN METRAWATT**
 **CAMILLE BAUER**

GMC-I Messtechnik GmbH

Südwestpark 15 ■ 90449 Nürnberg ■ Germany

Phone: +49-911-8602-111 ■ Fax: +49-911-8602-777

www.gossenmetrawatt.com ■ info@gossenmetrawatt.com