



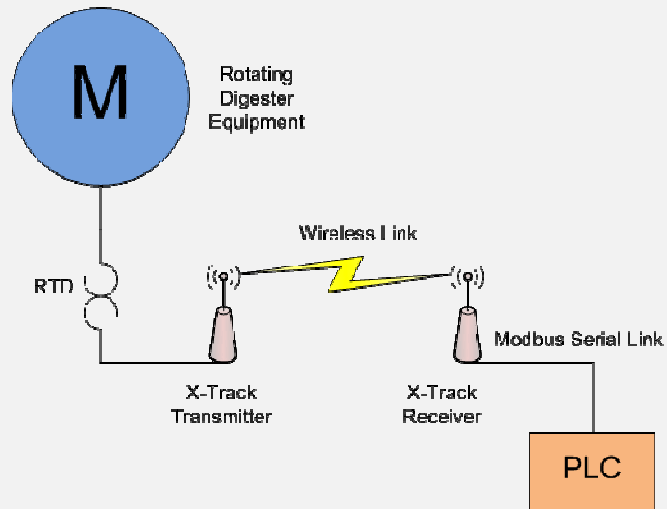


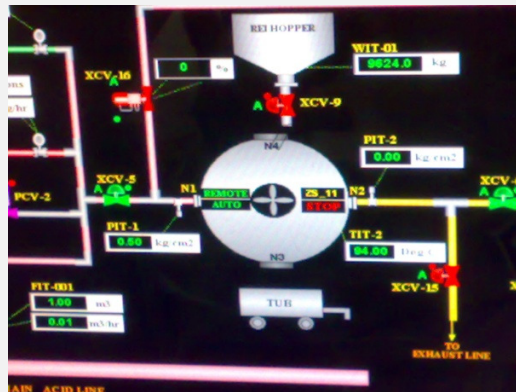
X-Track Implementation at Dhrangadhra Chemical Works, Tuticorin, India for Wireless Temperature Monitoring

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| <p>ABOUT THE CLIENT</p> | <p>DCW (Dhrangadhra Chemical Works) is a \$250million publicly listed company. DCW is engaged in manufacturing basic chemicals such as caustic Soda, synthetic rutile, soda ash among other chemicals. DCW has a dedicated Ilmenite plant at its chemical factory in Tuticorin.</p> |
| <p>CLIENT CHALLENGE</p>  <p style="text-align: center;">Rotary Digester</p>  <p style="text-align: center;">Ilmenite Plant</p> | <p>The duration of Ilmenite manufacturing process is around 16 hours and consists of 12 different stages. The core chemical reaction consists of treatment of Ilmenite ore with acid and superheated steam inside the digester. The digester temperature varies continuously from 400C to 1300C during the above reaction. The reaction time is controlled based on the real time temperature inside the digester and has a critical impact on the quality of the output product. Without a real time temperature monitoring system, the digester temperature and reaction time is estimated by heuristic techniques only. This creates unnecessary plant overheads and hampers the product quality.</p> <p>Another key issue highlighted by DCW Management was the associated safety hazard in the Ilmenite plant. The unchecked digester temperature was placing the safety of the plant operators at a risk.</p> <p>A conventional wired system is not feasible as the digester is continuously rotating. DCW wanted to verify the system effectiveness via a pilot installation in their trial digester. The long term plan is to carry out the system implementation for 30 digesters in the plant.</p> <p>The stated essential requirement was for a cost effective wireless monitoring system meeting all DCW technical and safety requirements.</p> |
| <p>KEY REQUIREMENTS</p> | <p>A wireless monitoring solution which:</p> <ol style="list-style-type: none"> a) works real time b) ensures operator safety c) reduces plant overheads d) Helps plant operators to continuously monitor remotely e) is cost effective f) can be replicated across 30 digesters g) helps improve product quality through accurate temperature control |
| <p>EXPERION SOLUTION</p>  <p style="text-align: center;">Transmitter</p>  <p style="text-align: center;">Receiver</p> | <p>DCW evaluated several vendors including leading industry players for a real time wireless monitoring system meeting their key requirements. The company was pleased with the results from Experion X-Track Pro. Hence, DCW chose Experion as the solution provider and partner in this initiative.</p> <p>Experion recommended integrating the monitoring system with Honeywell PLC based SCADA system. This enabled plant operators to continuously monitor the digester temperature from the control room.</p> <p>X-Track Pro is an X-Track product variant designed and developed for handling diverse requirements of process industries. X-Track is a real time wireless parameter monitoring system designed and developed by Experion for a host of businesses. X-Track offers a wide range of solutions for real time monitoring of critical parameters such as temperature, humidity, pressure, speed and flow.</p> <p>Experion implemented X-Track Pro system at DCW's Ilmenite plant. X-Track Pro battery powered transmitter was installed on the digester surface and connected to a RTD probe for measuring digester temperature. The receiver was installed on a supporting beam in the factory floor. The state of the art Zigbee wireless protocol was used for communication between transmitter and receiver. X-Track Pro receiver was connected to Honeywell PLC inside the control room via an RS-485 serial interface. The digester temperature data was measured and transmitted at a 30 second time interval as specified by DCW. The measured temperature data was displayed in the DCW SCADA system. Both X-Track Pro modules were provided with IP-65 enclosures in view of the hazardous deployment environment.</p> |



X-Track Pro System Overview

The efficiency of X-Track Pro wireless system has encouraged DCW to explore other possible uses. Based on the success of X-Track Pro in Ilmenite plant, DCW is considering the solution for it's Chlor Alkali plant.



SCADA Mimic Diagram

BUSINESS BENEFITS

1. X-Track Pro benefits DCW by generating a marked improvement in the product quality by providing more accurate control of temperature variations automatically without manual intervention.
2. X-Track Pro facilitates optimization of the manufacturing process, saving valuable time, effort and costs.
3. Monitoring the digester temperature via SCADA system ensures data accuracy for operational planning and scheduling.
4. Enhanced plant operator safety in hazardous working conditions.

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