

# Modular, Cost-effective Wireless Sensor/Control System for Chemical Process Industry

## EXECUTIVE SUMMARY

A comprehensive wireless sensor/control system (utilizing conventional sensors and actuators, proprietary wireless IO module and algorithms to establish secure and reliable communication) that provides flexible process solutions to fine/specialty chemicals industry.

## BACKGROUND

There are several advantages to deploying wireless control systems in chemical processes – reduced footprint, adaptability, lower maintenance etc. Currently, these systems are available only at a prohibitive cost for medium & small scale chemical industries. An affordable, adaptable, secure wireless process control system would enlarge the customer base, and improve efficiencies across this industry.

## TECHNOLOGY DESCRIPTION

NCL scientists have developed the concept of a comprehensive, low-cost, modular, wireless process control system that provides flexible solutions to medium and small scale fine chemicals/specialty chemicals industries. NCL scientists have worked with external collaborators to realize these concepts into practice. This system utilizes conventional sensors and actuators (hence keeping the cost low and easily adaptable), works on a proprietary wireless IO module and algorithms to establish secure and reliable communication, and comes with a custom-developed user-interface system that allows easy and remote monitoring/control of process parameters. Also, this can be custom-fit to the specific needs of clients.

## MARKET POTENTIAL

- The various advantages in utilizing wireless process control systems is widely documented, with cost savings in processes ranging from 3-20%\*
- In 2007, the worldwide 'Monitoring & Control' market was reported to be €188B, with a projected growth of 6.9% p.a.\*\*  
\* [Ref1](#) \*\* [Ref2](#)

## VALUE/ADVANTAGES

- Low-cost, fully integrated system
- Use of Wi-Fi protocol and proprietary algorithms and IO module will ensure high level of data security
- Modular design of supervisory data acquisition and control system (SCADA) allows it to be easily customized for various user needs
- Eliminate wiring between reactor to control room – reducing installation cost and future plant modifications
- Modular nature of the wireless IO system allows it to be easily adapted to different process needs

## APPLICATIONS

- For monitoring and controlling various chemical processes in fine chemicals and specialty chemicals industries

## TECHNOLOGY STATUS

- Developed as part of the *Indus Magic* program
- Demonstrated and tested at the lab scale plants. On the lookout for potential partners for spin-off and licensing.