crea

CREA SMART LABORATORY
AUTOMATION | eLEARNING | TRAINING

Quality advice, Superior Products & After Sales Service.

Industry 4.0

A major industrial transformation is upon us. Known as Industry 4.0, it is a complex framework based on the integration of cyber physical production systems (CPPS), intelligent products, instruments, networks and systems, all interconnected and communicating across entire processes with little or no human intervention.

With world-class manufacturing and research in high-value industries like Medical Technologies, Oil and Gas Exploration, Mining, Aerospace and general Research & Development, Australian business and Academia are well positioned to benefit from Industry 4.0 integration.

Internet of Things (IoT)

The Internet of Things (IoT) is the platform that brings together and coordinates information from diverse sources through a common language for devices and applications. Through secure communication with an IoT platform, data from many devices can be integrated. Here, sophisticated analytics can determine the most valuable data (knowledge) via applications that directly relate to specific needs or events.

Now, data can be shared allowing devices to communicate with each other in turn providing a better understanding of how things work and more importantly, how they work together. In a Laboratory setting, this can allow laboratory management system to communicate across various instruments to collect, collate and compare data.

Product Divisions

crea Particle Science

Particle Science
Specialising in the field of particle and surface sciences

crea Materials Testing

Materials Testing
Testing solutions for your aggregate, cement, coal, ore etc.

crea Petrochemical

Petrochemical
Instruments for all your ASTM and ISO test requirements

crea Analytical

Life Science
Assisting you with all your laboratory needs.
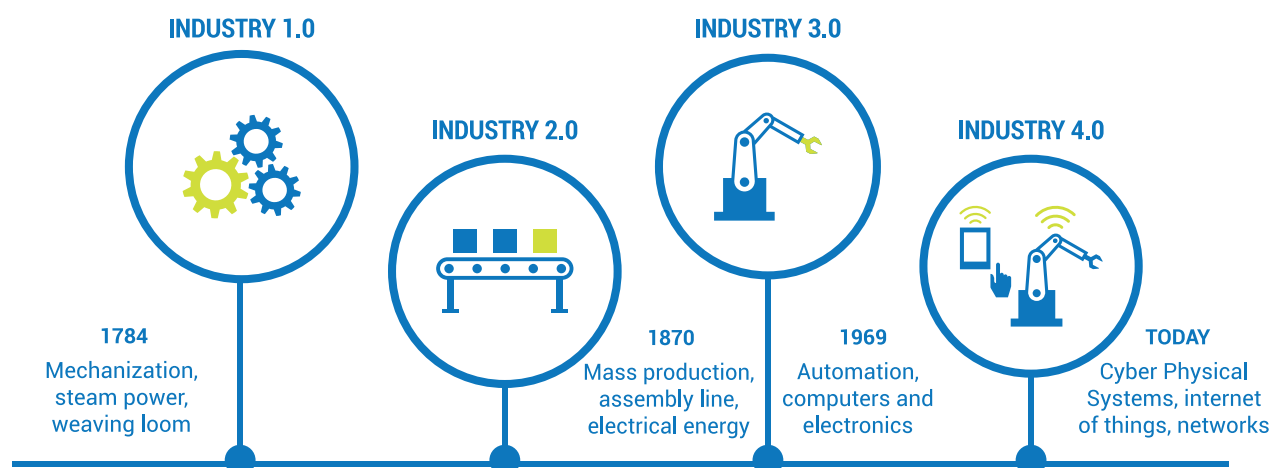
crea Fluid Analysis

Oil Analysis
From online to onsite to a complete laboratory setup.

Customer Care

Crea Laboratory Technologies have a comprehensive after sales service centre to provide fast and reliable trouble-shooting for your business.

Our commitment is to providing reliable service when you need it. Our qualified technicians have a complete knowledge base of our full range of products and are continually trained to keep up-to-date with ever evolving technology.

Our service structure includes both onsite and back to factory servicing, spare parts and accessories plus technical advice to ensure you're back up and running .....fast.

INDUSTRY 1.0

1784
Mechanization,
steam power,
weaving loom

INDUSTRY 2.0

1870
Mass production,
assembly line,
electrical energy

INDUSTRY 3.0

1969
Automation,
computers and
electronics

INDUSTRY 4.0

TODAY
Cyber Physical
Systems, internet
of things, networks

The increasing complexity of processes, interdisciplinary collaboration and the growth of regulatory requirements are all making laboratory scientists re-think the way they work. And while this applies in principle to every laboratory, not every laboratory is the same. The following are insights on what Industry 4.0 could mean for laboratories that carry out routine diagnostic tests, research and production.

In diagnostic test laboratories, samples must be processed and analysed quickly, accurately, with full traceability and in accordance with certified quality criteria and established standards. These are demanding requirements which can more easily be met with the help of digitalization and automation. From automated logging of the samples to the final printout of test reports and certificates. Ideally, with specialised software and all the instruments and equipment linked to a data network, the entire processing sequence can be fully automated.

Functional surfaces with integrated devices such as scales, stirrers, heating and cooling plates provide an ideal opportunity. The preparation of a solution is instructed, monitored and documented via a digital protocol and the data is then stored. The biggest time factor for most laboratories is manual labour and is an area where most errors occur. Robotic systems and machines are the best tools for methodical screening, ensuring a high degree of reproducibility.

With regard to Research laboratories, here the emphasis is often on flexibility. Interdisciplinary working calls for top-to-bottom digitalization. Those collaborating on projects are often at different locations, however there is a need to exchange data on a regular basis in a standardized way. In research and development laboratories it is a well-documented that quality improvements and reproducibility can be achieved through automation. Automation solutions set the bar higher than strict standardisation.

Conversely, production laboratories are subject to free market pressures. Here, efficiency, process optimisation, security and flexibility are key priorities. Process automation should be a necessary requirement once reaction parameters are established.

Smart materials with sensors and actuators (eg: emergency cooling) make it possible to digitally monitor and control reaction vessels continuously, improving safety where potentially dangerous processes are involved.

Lab furniture with functional surfaces and integrated instruments and devices, including robotic systems, make standardising procedures far easier. In this way, production can be constantly adapted to changing market needs.

There is no doubt that Industry 4.0 improves planning, control and quality outcomes. The time has come for Laboratories to start considering the implementation laboratory IT system and a good data networks.

Supervisory Control & Data Acquisition (SCADA)

The **SOLDAS® IR4.0** is a revolutionary Industry 4.0 Supervisory Control and Data Acquisition (SCADA) System combining the Internet of Things (IoT) platform and the Cloud. **SOLDAS® IR4.0** connects SOLTEQ instrument sensors and controllers with SOLTEQ software allowing you to perform process control, data acquisition and analysis remotely.

The **SOLDAS® IR4.0** system can be easily accessed via a PC, mobile or tablet device to monitor and control processes running anywhere in the world, and anytime of day.

Key Features

- Data Logging
- Signal Analysis
- Process Control
- Real-time Display
- Industry 4.0 Compliance
- Mobile App
- Cloud Computing
- Web UI
- LMS
- OPC Server

Educational Application

The **SOLDAS® IR4.0** allows the user to create shared virtual environments to generate, obtain, manipulate, display or evaluate the experimental progress.

The **SOLDAS® IR4.0 is** ideal for learning environments providing access at students or colleagues any time.

PLC

OPC Server

Web User Interface

Sensors

Laboratory Mgmnt Systems LMS

Devices

Databases

Artificial Intelligence Cloud Services &

Connectivity & Control

The **SOLDAS® IR4.0** offers real time control, connectivity, data handling and visualisation in a compact yet powerful package.

Computer Aided Learning

The **SOLCAL®** software is a suite of computer aided learning modules designed to complement laboratory classes and improve the student learning curve. As a web based system, **SOLCAL®** can be used as an online learning environment or module and is particularly useful where access to laboratory facilities is limited or restricted.

By incorporating the Internet of Things (IoT), resources can now be shared across various study groups and campuses reducing the cost of capital investment for technical education providers. Once exercises are completed, questions and answer session can be conducted to evaluate learning outcomes.

Key Features

- Web Based Presentation
- Augmented / Virtual Reality
- Process Modelling*
- Real-time Access to Teaching Equipments*
- Experiment Manuals and Sample Results
- Q & A Session

* Selected Models Only
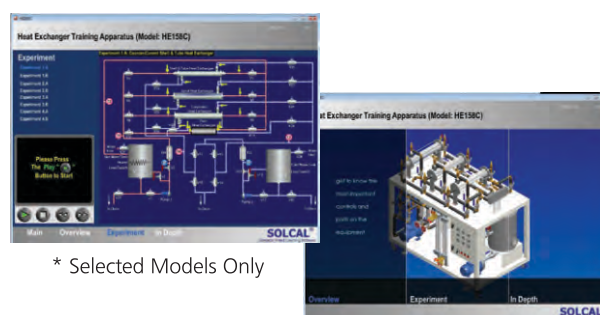
Computer Based Training

SOLSIM® computer based training software allows you to easily create equipment simulations and modelling. Thanks to the systems web based capabilities, students and researchers can now conduct experiments from anywhere without the physical presence of equipment.

Key Features

- Reinforce Current Learning
- Ability to Create Simulations
- Performance Assessment
- Evaluate Learning
- Remote Access & Learning

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