

AiFill Control System

Introduction:

The *AiFill* Control System has been developed over the past 20 years by our experienced Packaged Gases / Process Engineers who have over 100 years of combined experience within the Packaged Gases / Process industry sectors.

AiFill has been adopted by all tier 1 gas producers and is successfully installed in over 50 plants throughout the World, including; Australia, Asia, Middle East, Africa and Europe. *AiFill* is an integral element of all of our automatic, fully integrated cylinder filling modules

Key features

- Modular building block construction (sequence builder) precoded
- Cost effective for CAPEX & OPEX
- Significant reduction in commissioning time
- Multi language
- Remote (secure) global support
- Highly flexible to cater all needs
- Based upon Siemens S7-1500 & 1200 PLC's
- Programmed using Siemens TIA software
- Siemens; reliable, safe and available worldwide

Summary of Key attributes:

- Plant view Entire plant on one screen or individual modules
- Recipe driven Generated / modified in seconds without the need for software engineers
- Sequence builder Generated / modified in seconds without the need for software engineers
- Filling technique flexibility; Pressure temperature, Mass Flow, Gravimetric
- Supply module(s) flexibility
- Filling Module(s) flexibility
- Analysis system interface
- Reports and Records Interface with client operating system
- Access control operation, function, management.
- Interaction / interface with Cold Fill bypass module
- Interaction / interface with our integrated or standalone vacuum systems









AiFill Control System



- Shared resources can be queued
- Recipes can be queued
- Each fill step is trended for later examination
- Auto fill certificate generation client requirements specific
- Maintenance counter; Valve cycles, buffer cylinder pressure cycles, pump run hours
- Add on RFID / Bar code reader system
- Graphical KPI reporting

Key benefits:

- Standard modular package;
 - o Pre-loaded and tested prior to despatch easy, fast, cost effective commissioning
 - o Hardware based on Siemens S7 PLC's reliable, safe and globally available
 - Integrated Recipe and Sequence builder enables clients to change / amend themselves no need for a software expert
- Flexible;
 - o Easy to change and add new filling recipes & sequences
 - Multi language for International use
 - o Interface with client operating system ERP, SAP, analysis systems etc
- Remote support;
 - \circ $\,$ Secure, easy and fast

Modules elements:

- Plant view;
 - o Total P&ID view
 - RYG coding
 - Fast and easy fault finding
 - Flexible and pre select zoom feature
 - Trending function

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- Recipes;
 - o Unlimited
 - Fast and easy to create / amend (by client)
 - Pre-installed sequences and / or client own
 - o Module specific
 - Change tracking facility
- Supply Modules;
 - Fast and easy to add new / additional
 - Pumps, compressors or bundles / cylinders
 - Caters for speed options; VSD, Dual, Mono
 - Line Control (temperature / pressure / flow)
 - Fast and easy fault finding
- Filling Modules;
 - Fast and easy to add new / additional
 - Guides operator through process steps / requirements
 - Provides status of sequence
 - Graphical view
 - Progress bars pressure / temperature
- Analysis Module;
 - o Links to fill record
 - Recipe driven
 - o User configuration calibration
 - o Batch / line analysis
- Reports & Records;
 - Standard integrated record Printable / Exportable
 - o Search / Filter facility
 - Fault finding identification
 - o Batch reports
 - Analysis reports
 - Maintenance reports and records









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- Access control;
 - Multiple logins
 - Page access by login
 - Function access by login operator, supervisor, Manager
 - o Auto language identification



- Remote support;
 - Secure VPN
 - o Client security policy
 - Changes log
 - ERP/MES Interface
 - Client CMS

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• Never standing still.....development:

- Remote factory testing (FAT)
- Remote commissioning / training
- $\circ \quad \text{SPC integration} \quad$
- o Centralised recipe management
- $\circ \quad \text{Unmanned filling} \quad$
- o Production planning
- $\circ \quad \text{Auto cylinder movement} \\$
- Auto cylinder storage



