

DIGITAL ENTERPRISE

# Semiconductor Facility FMCS, Gas Cabinet

# TSMC, the world's largest independent semiconductor foundry, Facility systems

## Project Information



## Products Used

Previous system	Now
Micrologix 1400	S7-1200

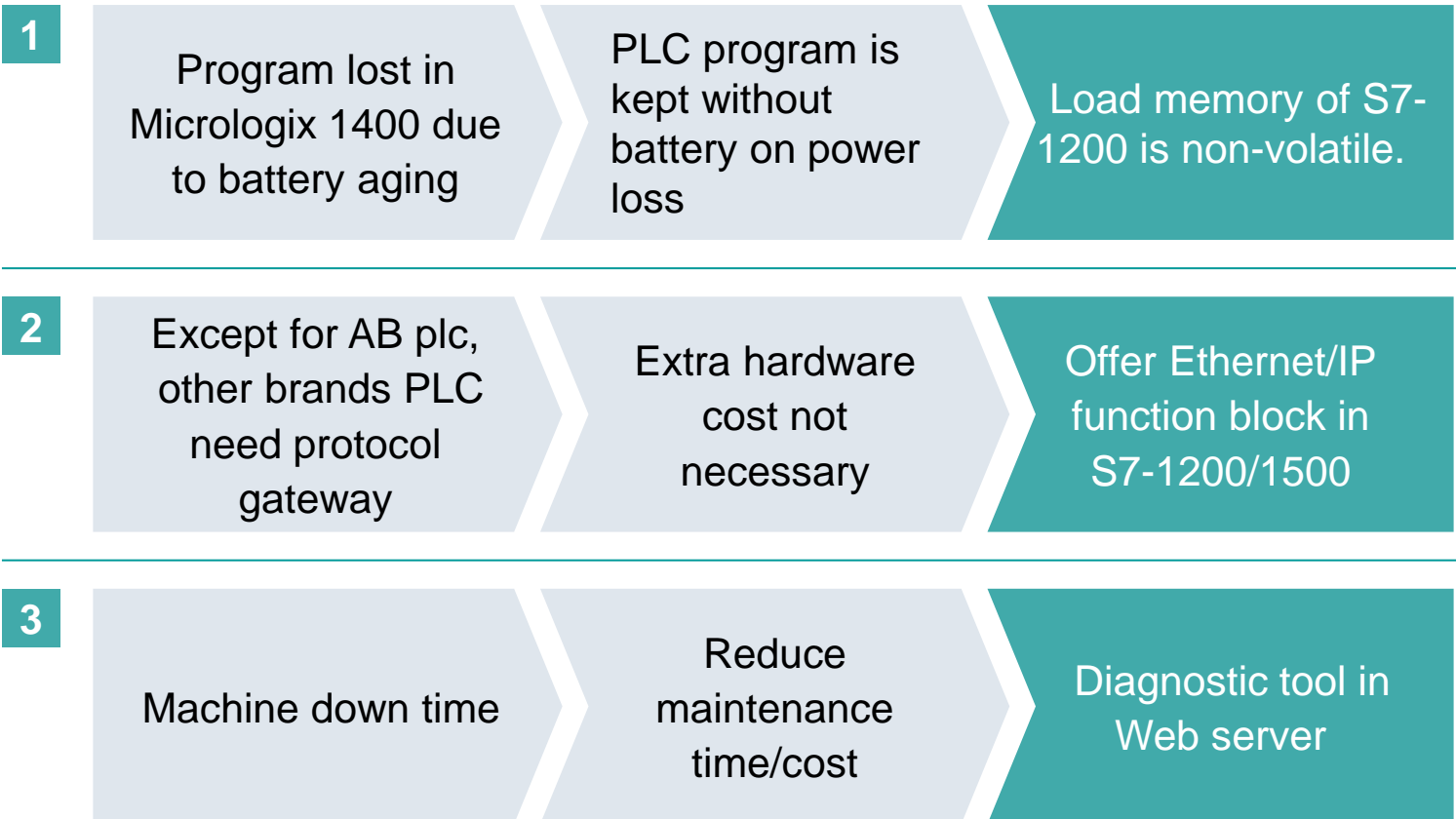
## Customer challenges



## Customer benefits

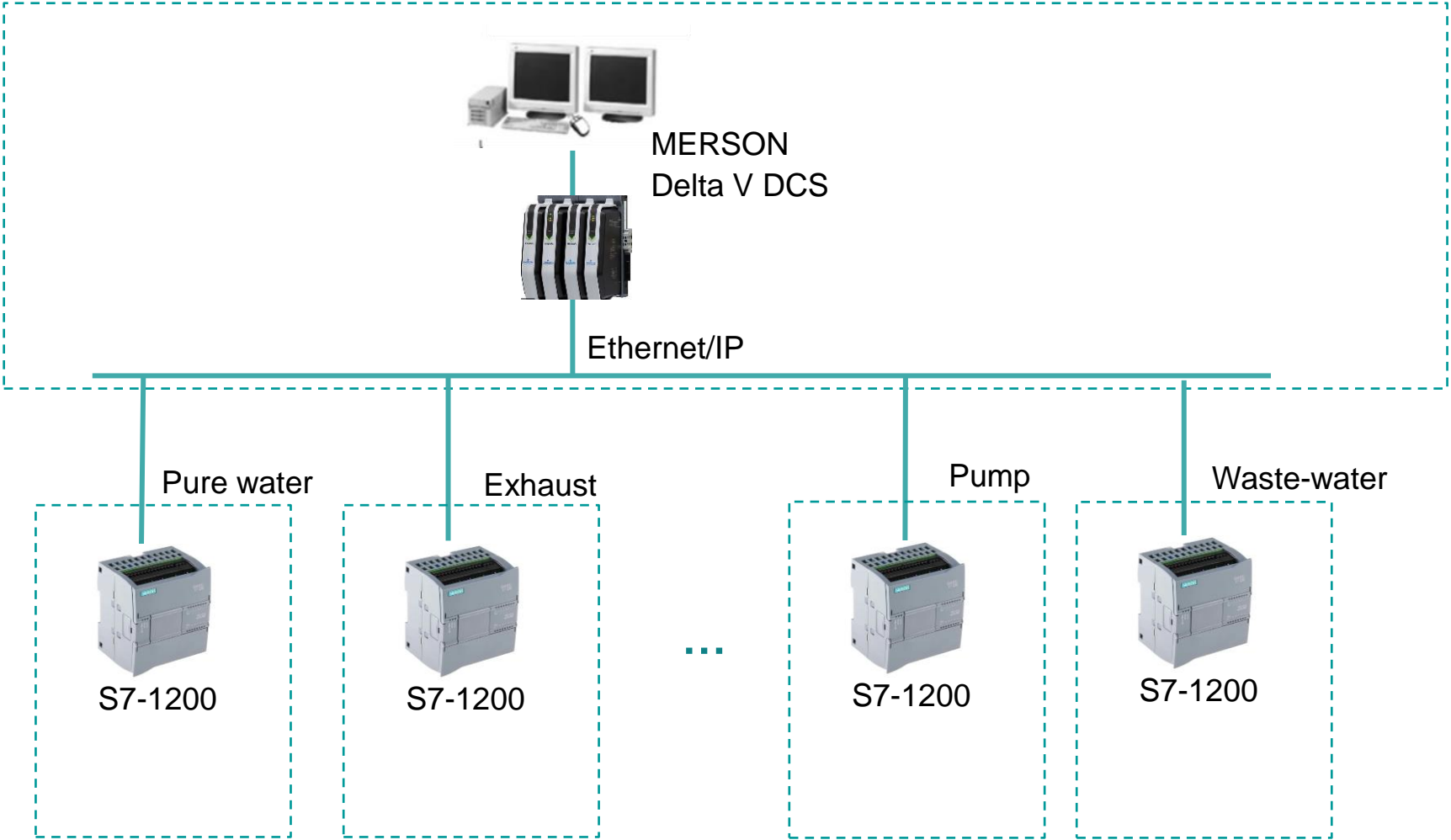


## Product/solutions



# TSMC, the world's largest independent semiconductor foundry, Facility systems integrate with DCS via EIP

## Project architecture

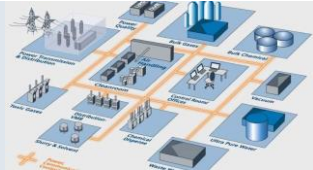


# Implementation of FMCS in SAMSUNG Electronics FAB Semiconductors, South Korea

## Project informationen



Implementation of Facility Monitoring Control System (FMCS) in SAMSUNG Electronics 3D NAND and DRAM production



end customer

Pyeongtaek

## Products used



### Previous systems

### Now

FactoryLink	WinCC OA
Rockwell ControlLogix	S7-400H
Rockwell Bulletin 1715	ET200M

## Customer challenges



## Customer benefits



## Products/ solutions



1

Minimal downtime of FMCS

Increased Fab operation efficiency via quality proven Siemens products

High availability systems (red. OA server & S7-400H)

2

Update system configuration and Replace defected modules during operation

Reduced risk in operation and maintenance work

S7-400H & red. IMs with H-CiR, FW-Update in RUN functions

3

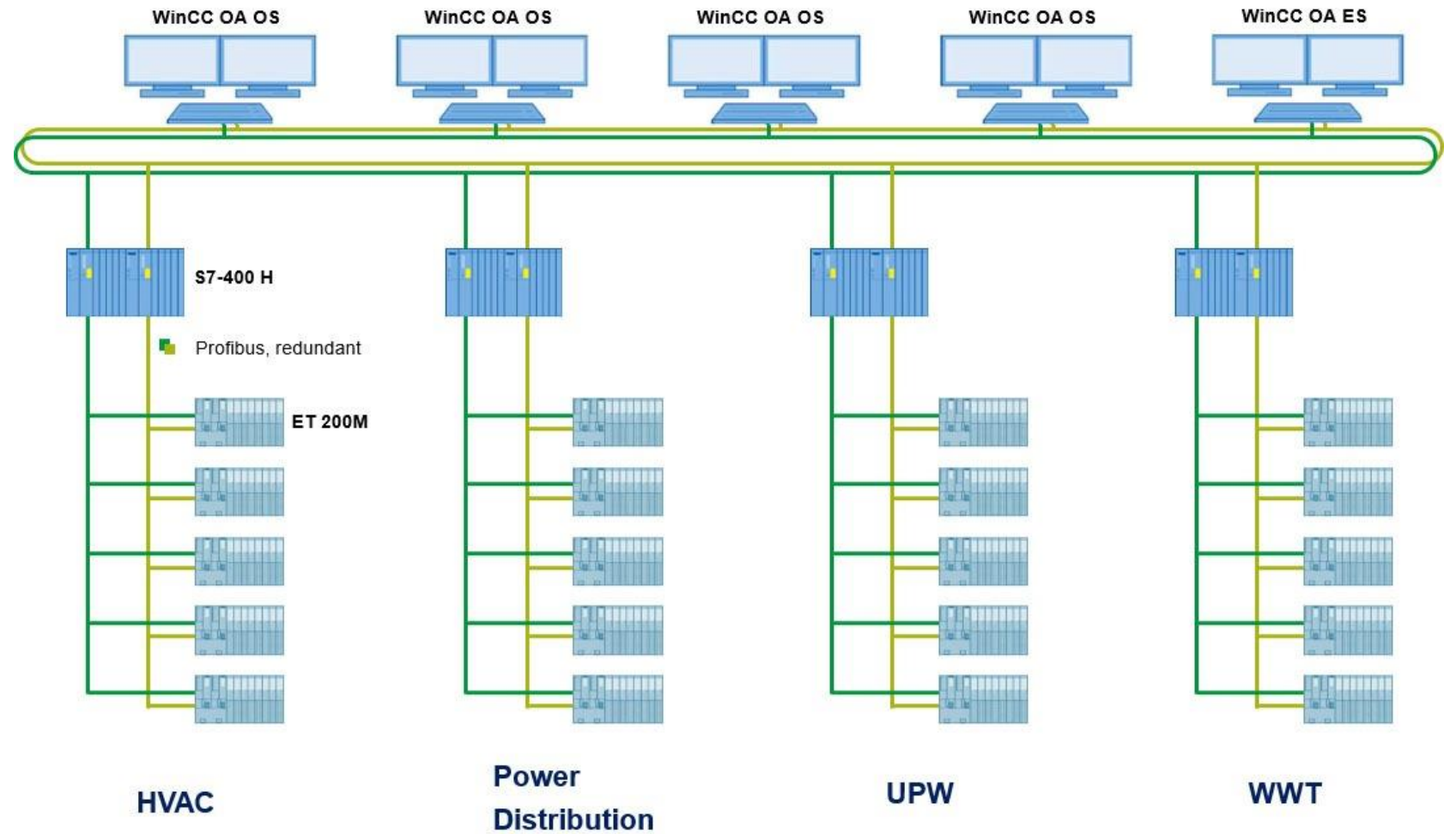
Technical support for Product/System failure during operation

Reduced maintenance cost

Setup 24/7 service network with system integrator

# Implementation of FMCS in SAMSUNG Electronics FAB Semiconductors, South Korea

## Project architecture



# Japan Material Co. Ltd. SIMATIC SY-1500 / Semiconductor Utility OEM for semiconductor gas cabinet, Japan

<b>Customer profile</b>	JAPAN MATERIAL Co., Ltd., Komono, Präfektur Mie, Japan. Gas cabinet maker specializes in special gas for semiconductors, >1000 Employees, <a href="http://www.j-material.jp/">http://www.j-material.jp/</a>
<b>Project information</b>	Winbond plant expansion project in Takao, Taiwan; Flash M. wafer 12". JM has done Winbond projects in the past. Approximately 200 gas cabinets to be supplied
<b>Customer objectives</b>	3 different equipment configs. / 3 programs → Load for engineers Integrating HMI to the PLC engineering platform The space issue with OMRON PID controllers
<b>Siemens' solution</b>	Standardization and Configuration Control function allows dynamic switching from hardware to hardware using only 1 program. Getting TS certificate of HMI has opened the door to the full benefit of TIA, providing the "One Stop Solution" to JM. -Reducing approx. 300mm in space, 1,500€ in cost.
<b>Customer value</b>	Efficient engineering with TIA portal One-stop solution through PROFINET communication Cost & Space reduction by built-in PID controller



# Japan Material Co. Ltd. SIMATIC SY-1500 / Semiconductor Utility OEM for semiconductor gas cabinet, Japan

## Project Information

SIMATIC S7-1500 /  
Semiconductor Utility



OEM

Komono

## Products Used

Previous system	Now
OMRON CJM-CPU15	CPU 1515-2PN
OMRON CJ1 Local I/O	ET 200SP Distributed IO
Phoenix contact LAN SW OMRON Temperature controller (E5EC) → 8 per machine	SCALANCE XB005 PID control FB in S7
Shneider Pro-face HMI	TP1200 Comfort

## Customer challenges

**1. 3 different equipment configs. /  
3 programs**  
→ Load for engineers

**2. Integrating HMI to the PLC  
engineering platform**

**3. The space issue with OMRON  
PID controllers**

## Customer benefits

**1. Increase of engineering efficiency  
by 30%**

**2. One-stop solution through  
PROFINET communication**

**3. Cost (1.500€) & Space reduction by  
built-in PID controller**

## Product/solutions

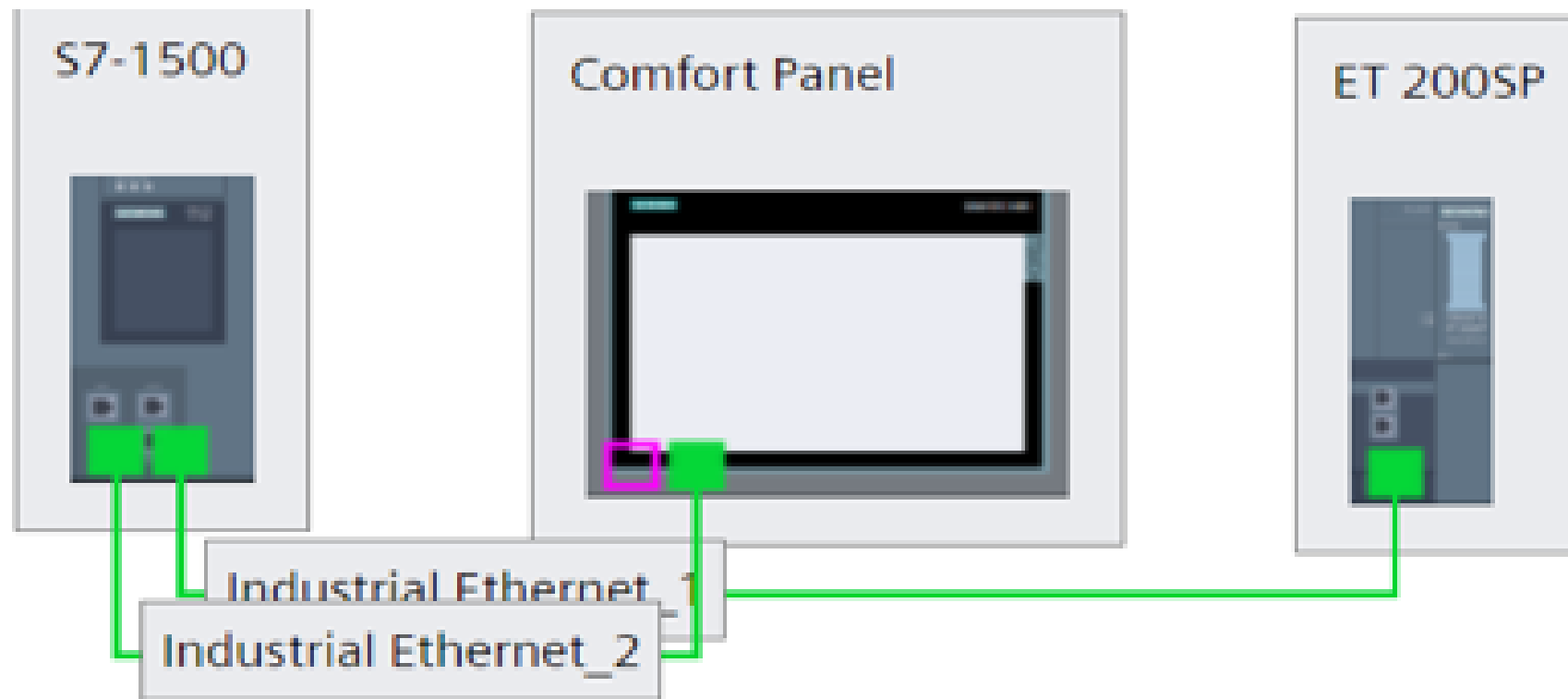
**1. TIA Portal**

**2. PROFINET**

**3. CPU 1515-2PN**

# Japan Material Co. Ltd. SIMATIC SY-1500 / Semiconductor Utility OEM for semiconductor gas cabinet, Japan

## Project architecture







# Diversified Fluid Solutions

Increased Control and Connectivity for Gas Distribution in the Semiconductor Market

## Customer benefits



Reduction of service costs by 30%

ET 200SP CPU technology integrated

Increase in availability

Comfort Panel sm@rt server

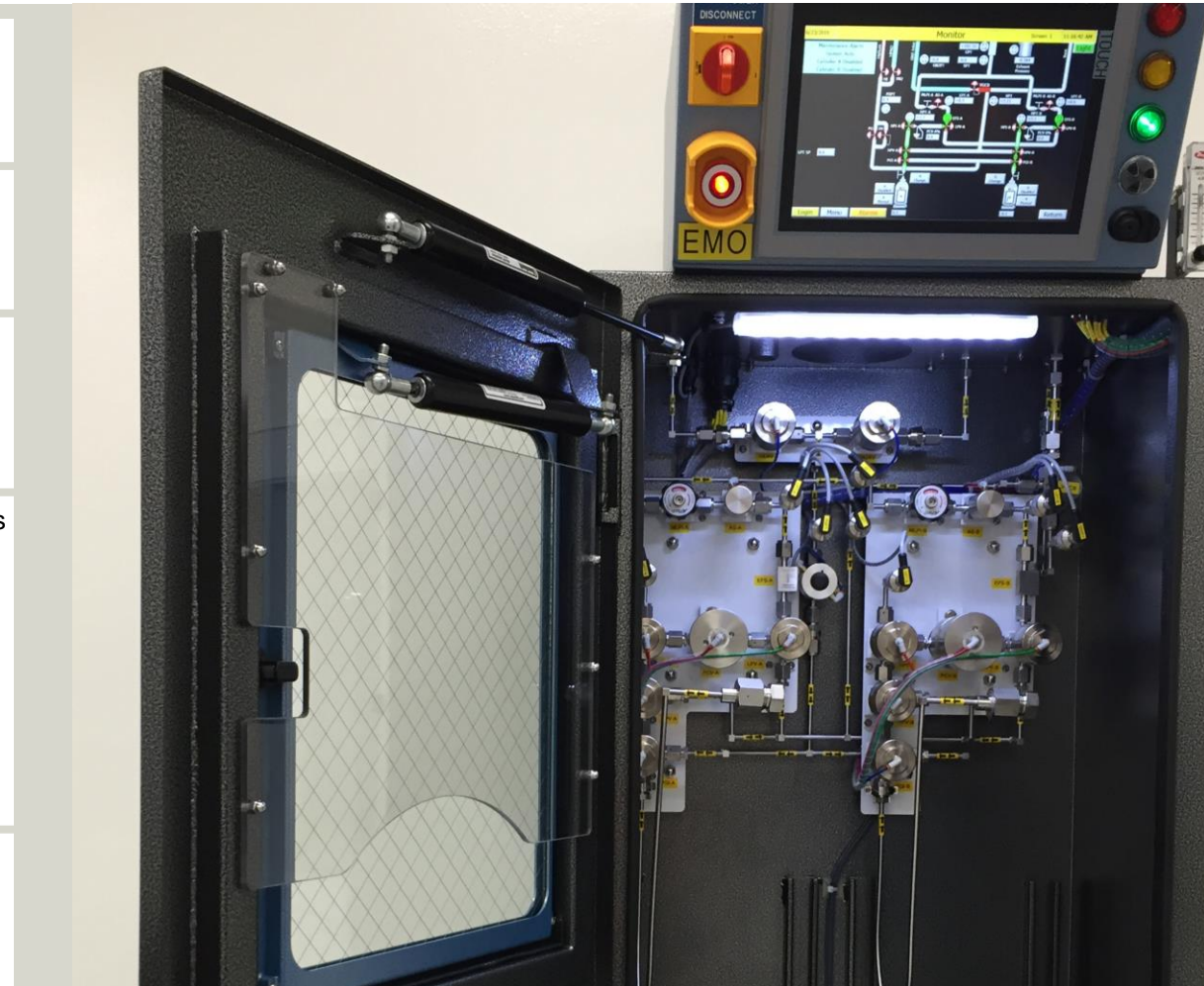
Saving in engineering cost

ET 200SP & TIA Portal; Option Handling

# Diversified Fluid Solutions, Gas Delivery System for Semiconductor industry

## Increased Control and Connectivity for Gas Distribution in the Semiconductor Market

<b>Customer profile</b>	Diversified Fluid Solutions, Boise, ID USA, global manufacturer of High Purity Gas and Chemical Blending and Distribution systems for the semiconductor industry, Website: <a href="https://www.dfsolution.com/">https://www.dfsolution.com/</a>
<b>Project information</b>	Development of a new Gas Cabinet for the semiconductor industry that utilizes a state of the art PLC and HMI platform to give the customer 100% visibility of the all operational parameters, automated pressure control and operation of the cabinet
<b>Customer objectives</b>	<ul style="list-style-type: none"> <li>• Increase the machine transparency and control</li> <li>• Reduce maintenance and service time / costs</li> <li>• Realize a new &amp; modern solution within the small space of existing gas cabinets (for retro-fits)</li> <li>• Increase engineering efficiency and reduce costs</li> </ul>
<b>Siemens' solution</b>	<ul style="list-style-type: none"> <li>• Realization of an automated gas pressure control, using the complex algorithms and integrated technological functions of the ET 200SP CPU</li> <li>• the SIMATIC Sm@rt Server function of the SIMATIC Comfort Panels allow a plant-wide or even worldwide visibility and accessibility of all operational parameters via network / the internet</li> <li>• With the Option Handling function of the ET 200SP and TIA Portal only one project has to be configured to provide solutions for multiple unique customer requirements</li> <li>• Due to the small footprint of the ET 200SP the new solution can easily be fitted into existing, very compact gas cabinets for retro-fit projects</li> </ul>
<b>Customer value</b>	<ul style="list-style-type: none"> <li>• Service &amp; maintenance costs could be reduced by 30%</li> <li>• Saving in engineering time and costs</li> <li>• Increase in transparency and availability</li> <li>• Increase in flexibility and security</li> </ul>



# Diversified Fluid Solutions, Gas Delivery System for Semiconductor industry

## Increased Control and Connectivity for Gas Distribution in the Semiconductor Market

### Project Information

Development of a new Gas Cabinet to give the customer full visibility of all operational parameters, automated pressure control and operation of the cabinet



OEM

Boise, ID USA

### Products Used

Previous system	Now
Rockwell	S7-1510 PN
Rockwell	ET 200SP
Rockwell	TIA Portal
Rockwell	Comfort Panel

### Customer challenges

**1. High maintenance and service costs due to the gas pressure control having to be done manually**

**2. Low machine transparency**

**3. Customers have different unique requirements concerning the functionality of the gas cabinet**

### Customer benefits

**1. Reduction of service costs by 30%...**  
... by realizing an automated pressure control using the complex algorithms and integrated technological functions of the ET 200SP CPU

**2. Increase in availability...**  
... due to the secure worldwide visibility and accessibility of all operational parameters via SIMATIC Sm@rt Server

**3. Saving in engineering cost...**  
... with the option handling function of the ET 200SP and TIA Portal, allowing multiple configurations with only one project

### Product/solutions

**1. ET 200SP CPU; technology integrated**

**2. Comfort Panel (sm@rt server)**

**3. ET 200SP & TIA Portal; Option Handling**

# Thank You!

Siemens Ltd. Digital Industries

8F, No. 3, Park Street Nangang District Taipei | Taiwan

Service Hotline: +886 800 202 808

Service Email: [adscs.taiwan@siemens.com](mailto:adscs.taiwan@siemens.com)

[www.siemens.com.tw/di](http://www.siemens.com.tw/di)