



Honeywell Romania **HPS Bucharest**

GES overview

May 2014

Honeywell

A bit of History....

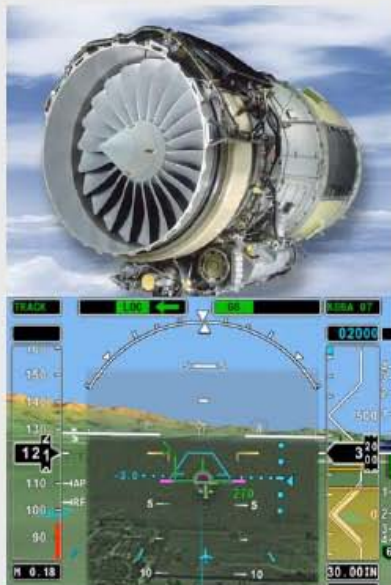
- **1885** -- an inventor named **Albert Butz** patented the **furnace regulator and alarm**.
- **1904**, a young engineer named **Mark Honeywell** was perfecting the **heat generator** as part of his plumbing and heating business. Two years later, he formed the **Honeywell Heating Specialty Co. Incorporated**, specializing in hot water heat generators.
- **1942**, the company invented the **electronic autopilot**, which proved to be critically important to the U.S. war effort.
- **1953**, the company introduced the T-86 "Round" **thermostat** one of the world's most recognizable designs, it remains in production today and adorns the walls of more households around the world than any other thermostat.
- **1955** - a JV called Datamatic Corporation = Raytheon Corp. + Honeywell's built the **computer business** D-1000, weighed 25 tons, took up 5,574 sqm, and cost \$1.5 million.
- **1963** was registered **Honeywell Inc.**, even though it had been casually referred to as such for nearly 40 years.
- **1969** Honeywell instruments helped U.S. astronauts Neil Armstrong and Edwin "Buzz" Aldrin land on the moon.



Honeywell's Strategic Business Groups

Honeywell

Aerospace



Phoenix, AZ
headquarters

\$12 billion sales*

Automation and Control Solutions



Minneapolis, MN
headquarters

\$16.6 billion sales*

Performance Materials and Technologies



Morristown, NJ
headquarters

\$6.8 billion sales*

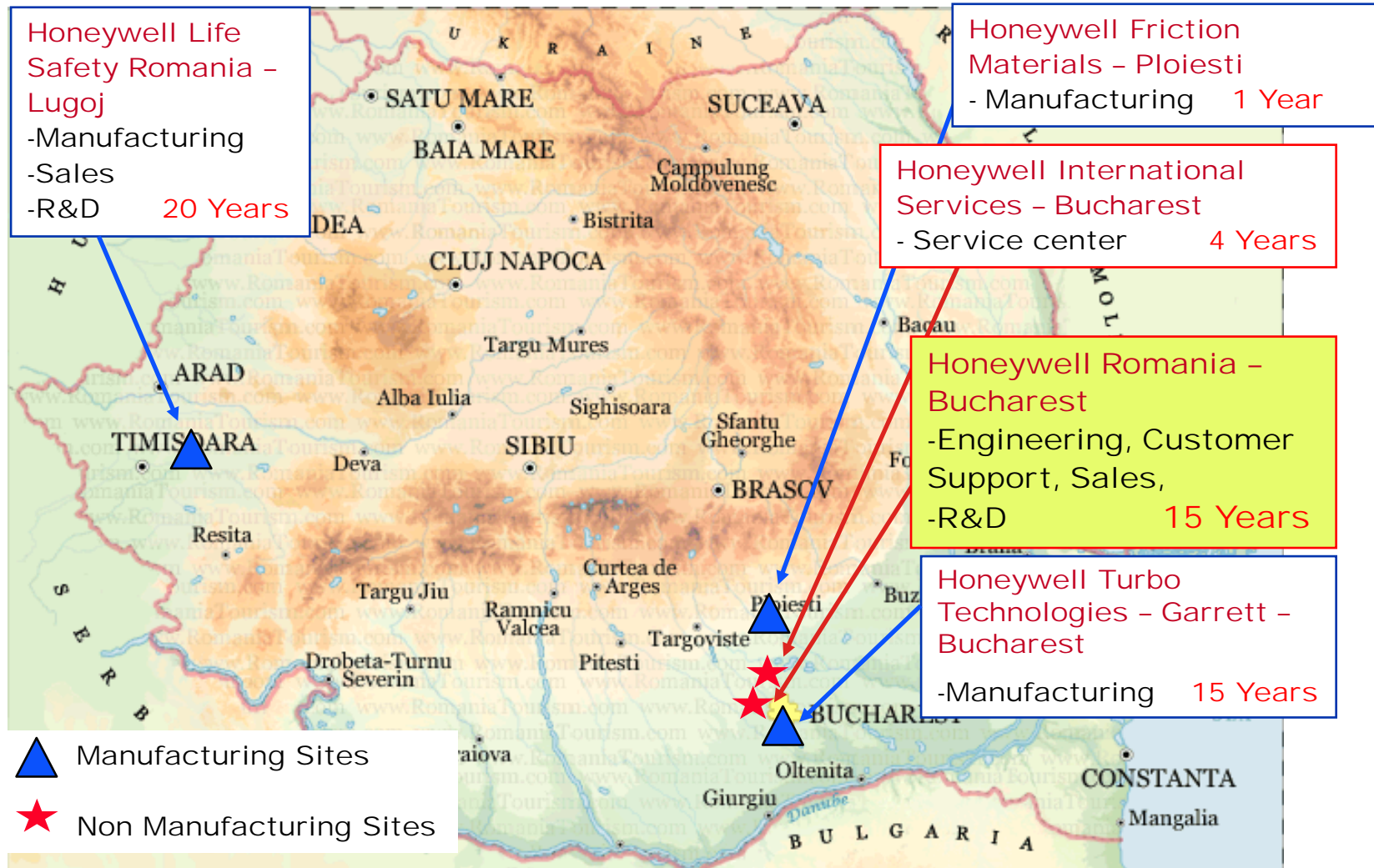
Transportation Systems



Rolle, Switzerland
headquarters

\$3.8 billion sales*

Honeywell Presence in Romania



Honeywell is very present in Romanian economy, being one of the big Romanian exporters

Business presence since 1992

HPS / ECC / HLS / HBS / HSM / ACS

Registered as Honeywell Romania S.R.L.

in 1998

Process Controls



Distributed Control



Sales

Research & Development

Engineering

Project Management

Customer services:

- *Technical*
- *Administrative*
- *Finance*
- *Marketing*
- *Logistic*
- *Sales support*

Scanning and Mobility



Buildings



Instant Alert



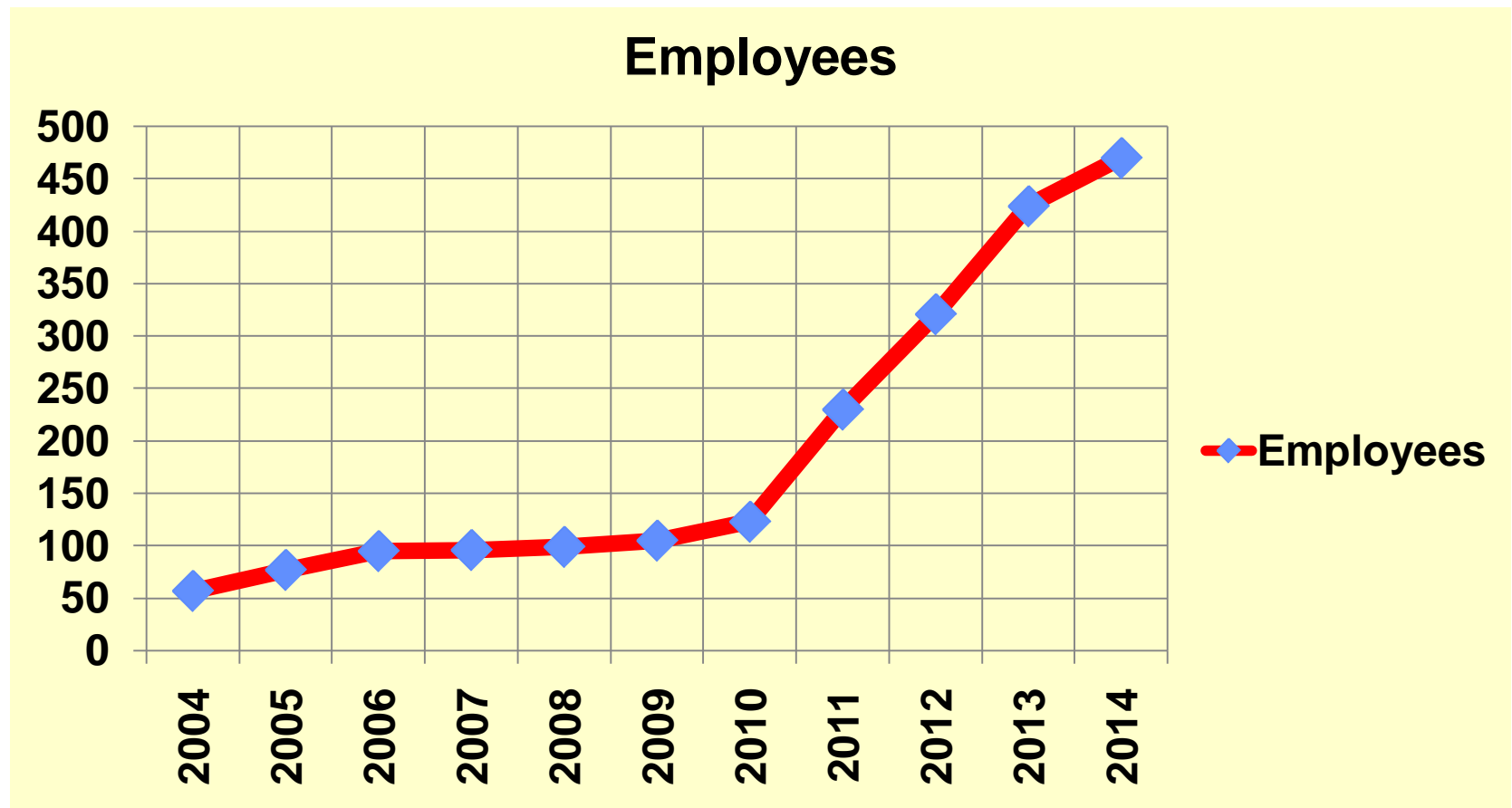
Honeywell Bucharest site Overview



Honeywell Romania



Honeywell Romania HC Growth



Average age 32 years !

Quality and performances of the local specialists attract more and more Honeywell to Romania

- **Honeywell is an exceptional place to start your career**
 - **Challenging Work**
 - **Competitive Rewards**
 - **Great People**
 - **Career Development**
 - **Continuous Learning**



People is one of the five Honeywell initiatives, continuously in the attention of the company

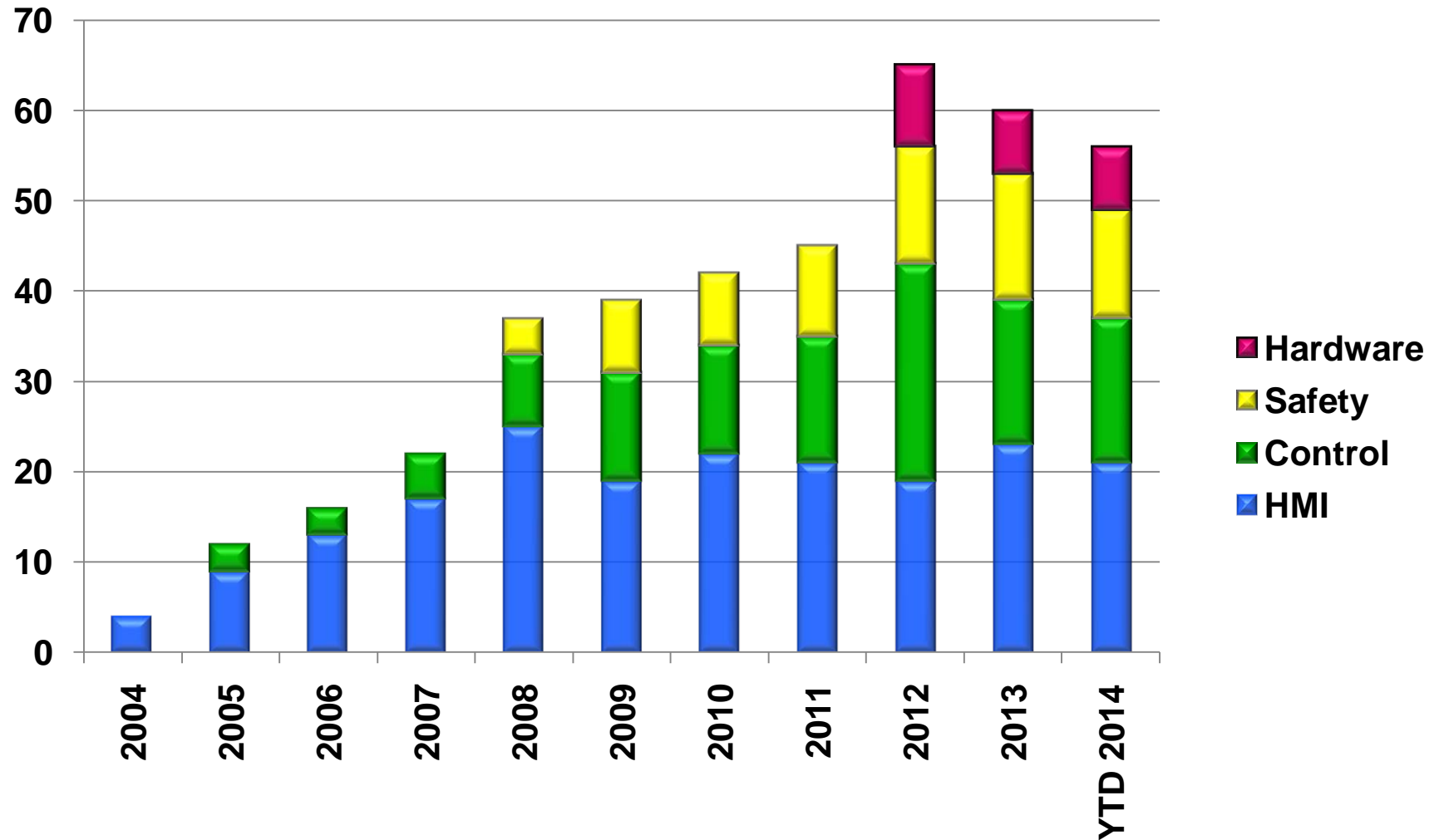


Global Engineering Services GES overview

May 2014

Honeywell

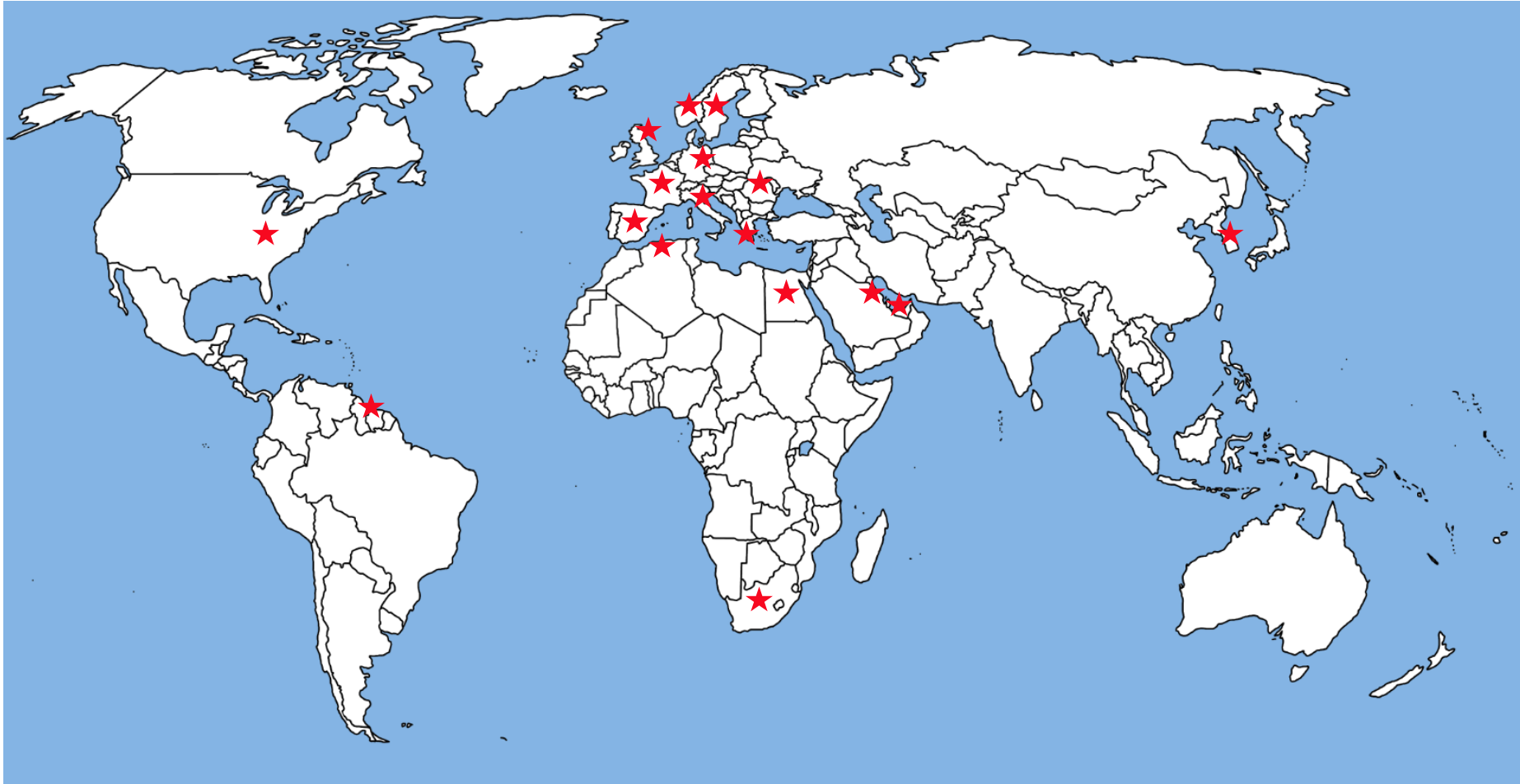
GES Romania HC evolution by disciplines



Year by year the HC changed in all disciplines very much related to the projects we had

GES Romania presence in the World

Honeywell



Everywhere in the world the activity of our engineers was highly appreciated by the clients



Refineries



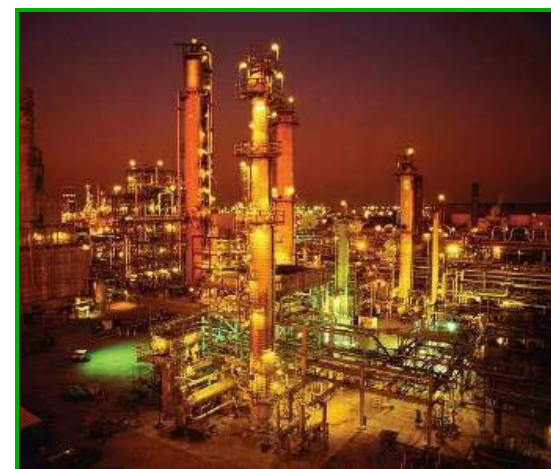
Chemicals

- Experion core functionality
- Experion Applications
-
- Interfaces
-
- Batch Solutions
-
- Hybrid Controller
-
- C300 Controller
-
- Icon Consoles
-
- TDC 3000
-
- TDC 2000
-
- TPS
-
- Plantscape
-
- QCS/CWS
- Turbine Control Solution
- Digital Video Manager
-
- Uniformance PHD
-
- OMPPro
-
- Cyber security
-
- HMI
-
- Handhelds
-
- Metersuite
- Fail Safe Controller
-
- Safety Manager
- Field Device Manager
-
- Procedural

DCS



Power Plants



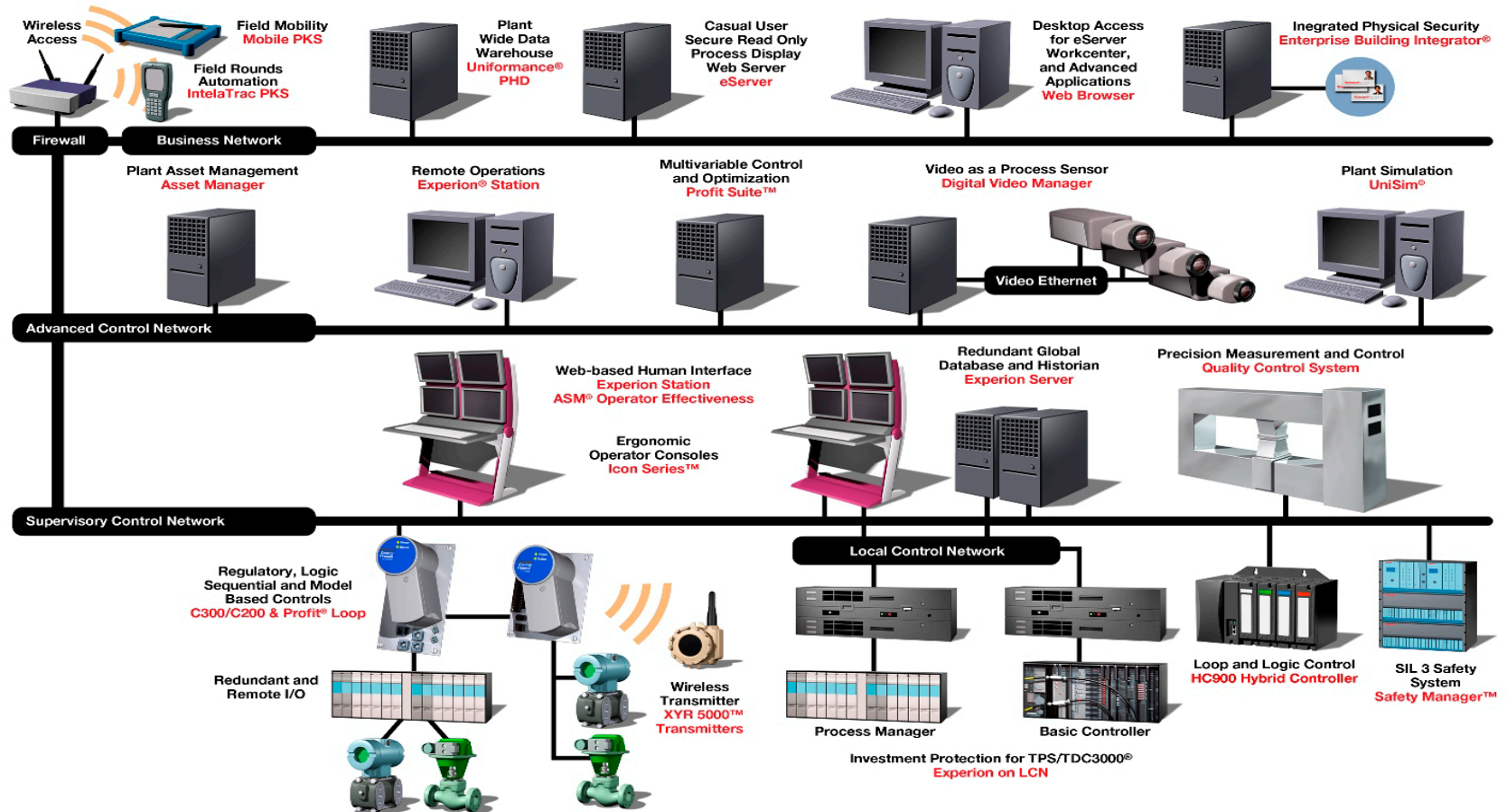
Petro-Chemistry

Being the core of all processes control we are approaching all industries

Experion Process Knowledge System

Advanced Solutions activity

GES activity



For more information about Honeywell's products and services, visit our website www.honeywell.com/ps or contact your Honeywell account manager at 877.466.3993 or 602.313.6665.
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Advanced Solutions can help business

Honeywell

Safety



Is my plant as safe as it could be from process incidents?

Reliability



How can I maintain my assets to ensure they are truly reliable?

Efficiency



Is my supply chain properly aligned for faster and better decision making?

Sustainability



Can I extend asset lifecycle, optimize performance and protect the environment?

Software Solutions for Better Safety, Reliability, Efficiency and Sustainability

Advanced Software Solutions Can Help

Honeywell

- Honeywell is the world's largest provider of advanced software and services to the process industries*
- No other industry provider can match our broad portfolio of applications and services
- No other industry provider has the strength of over 1500 experts with over 15,000 man years of experience
- No other partner has the consulting capabilities to help you unlock value in your plant (>\$5B US in measurable benefits has been added to our customers' bottom-line)



Global

Local

Experienced

Broadest Portfolio

Multiple Industries

*According to 2010 ARC Advisory Group report

Unique Domain Expertise & Industry Proven Technology



Ergonomic Operator Console

These process controllers (C200 and C300) are based on Honeywell's proven CEE – Control Execution Environment.

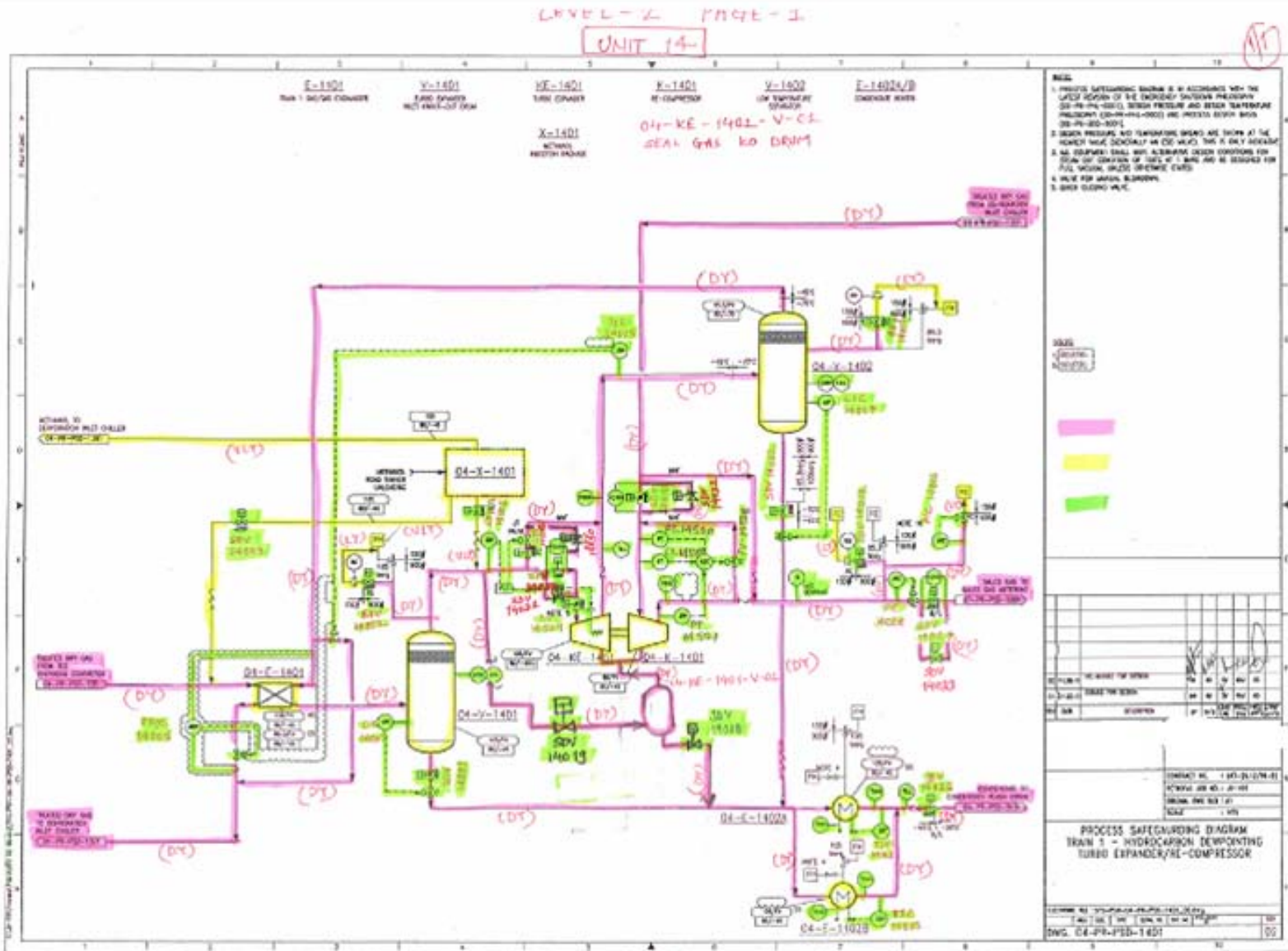


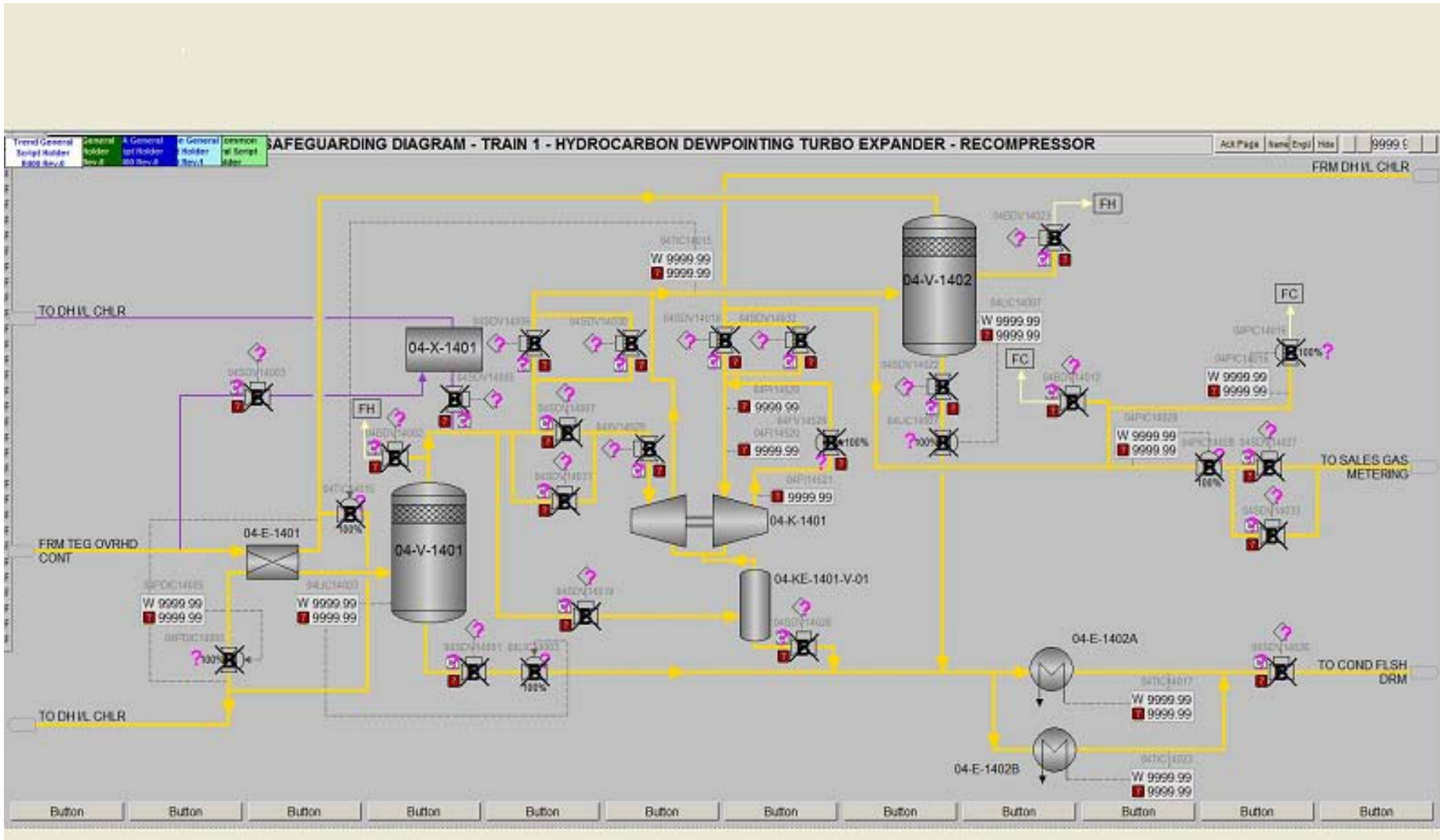
Safety Manager plus RUSIO

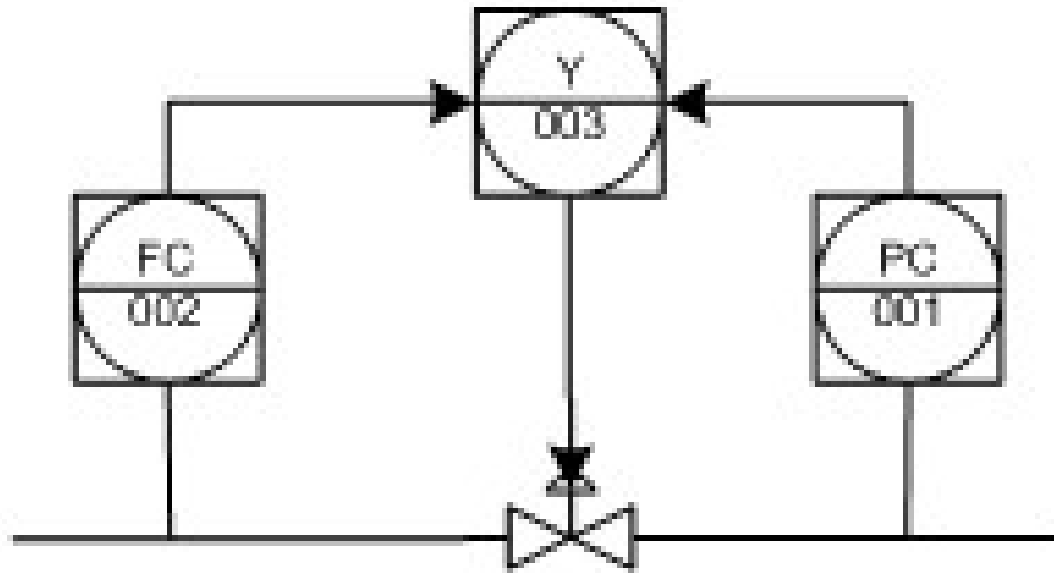


The Master Logic is a world class modern day PLC, fully conforming to the IEC 61131-3 standard for PLC programming.

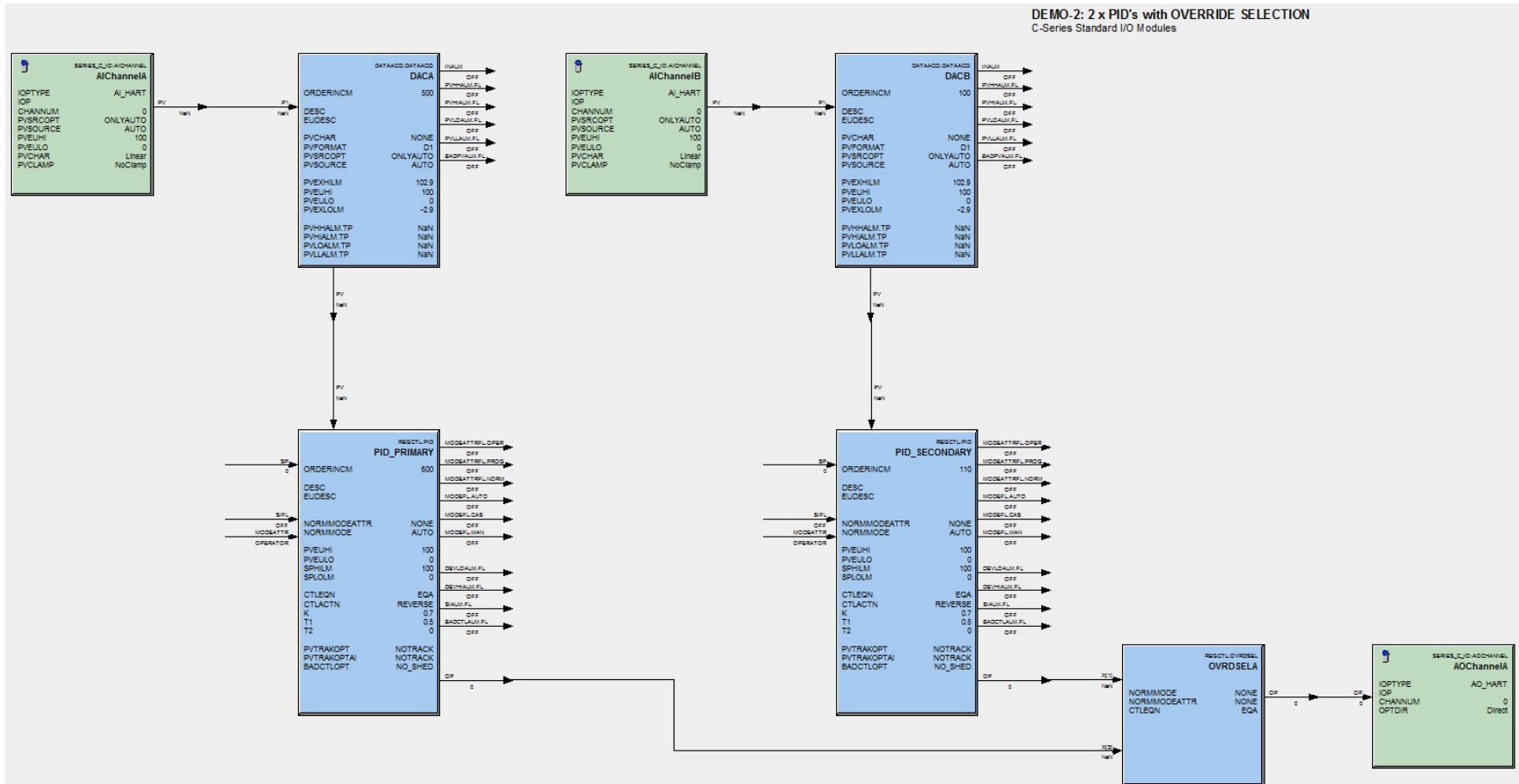
Mark up P&ID







Control PID's with Override Selection



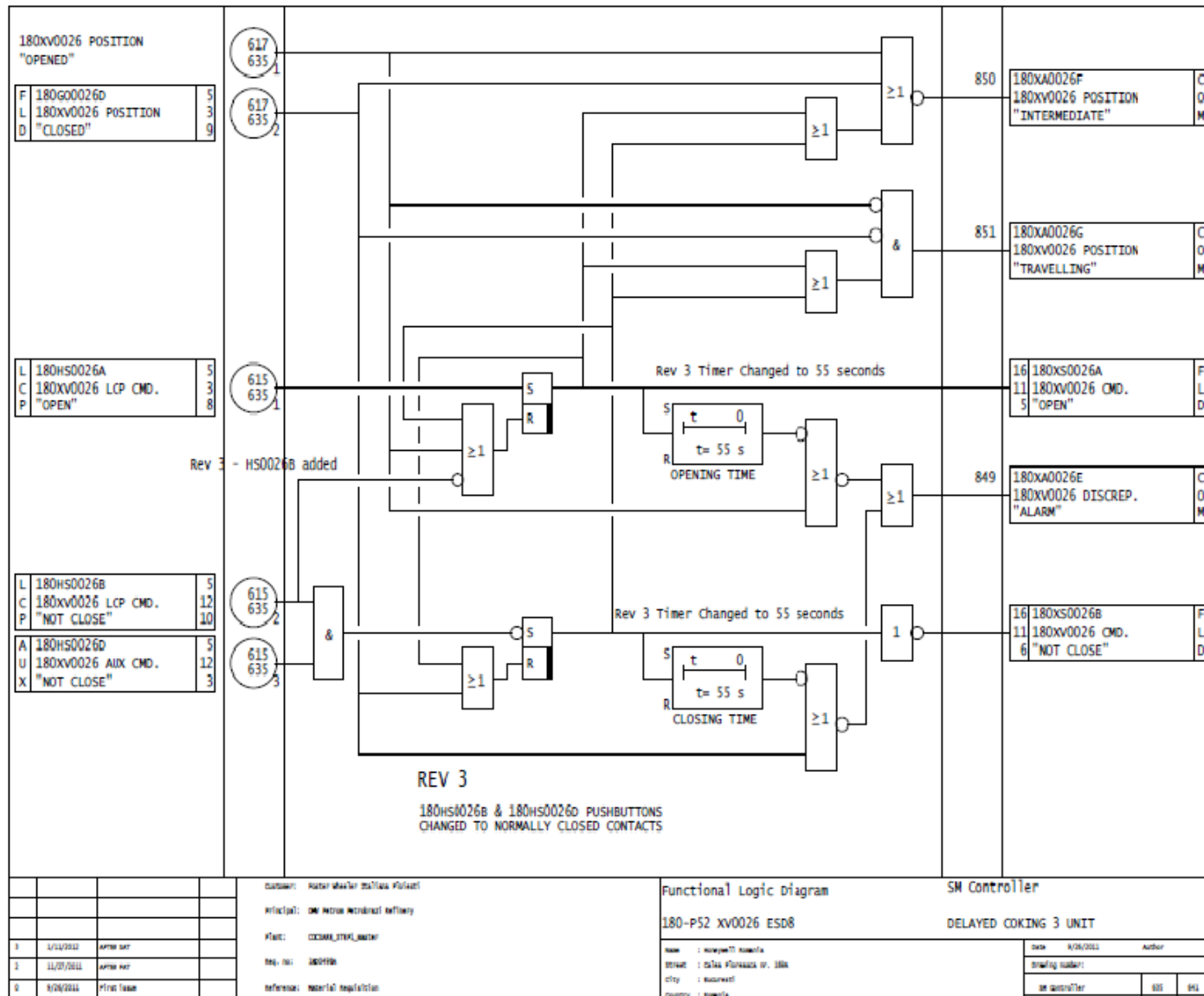
Cause & Effect Matrix

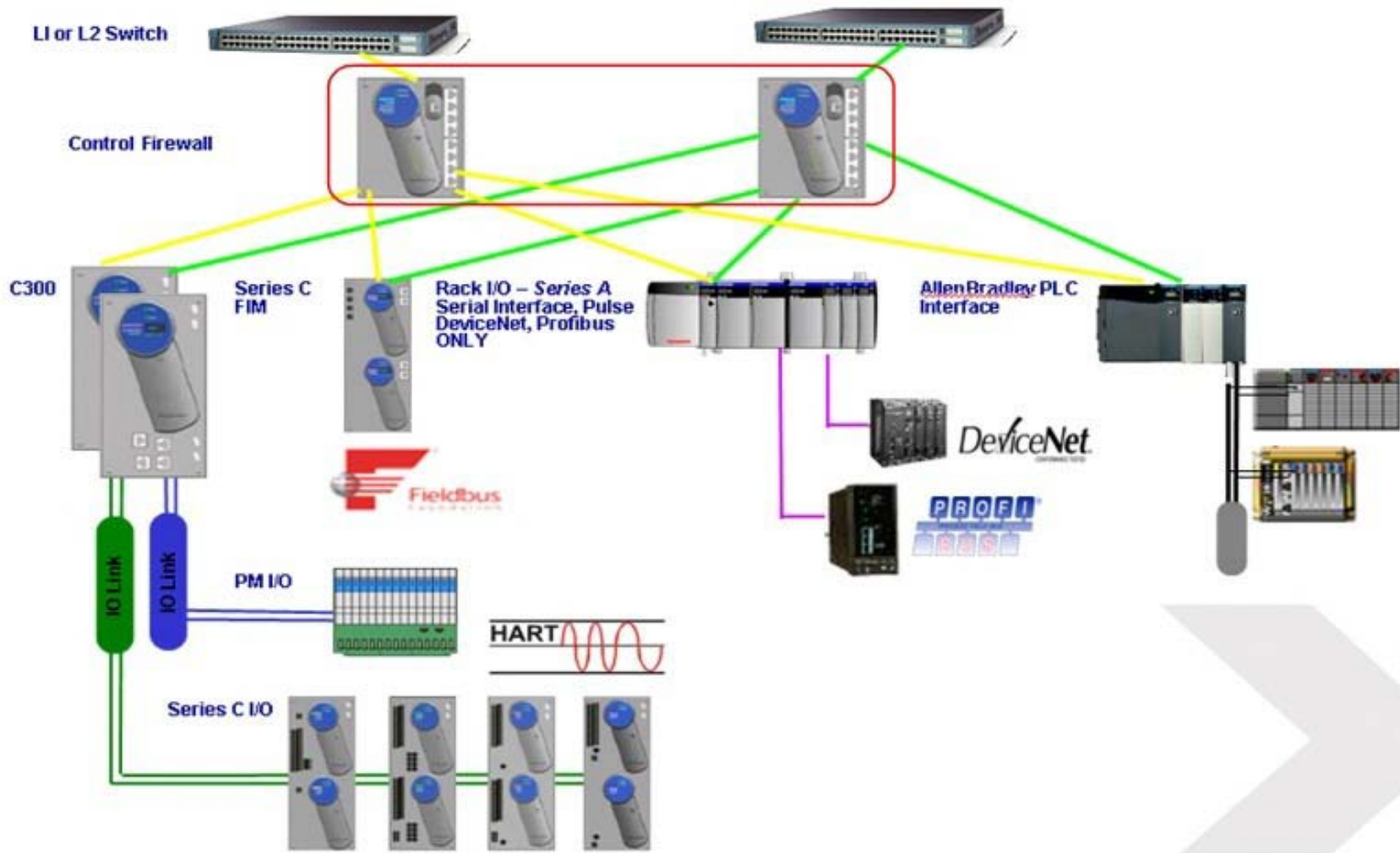
FEED HEATER SAFEGUARDING SYSTEM						OUTPUTS										LEGEND											
LOGIC No	TAG No	SERVICE	INITIATOR	LOCATION	PMID No	VOTING	Note	123UJZ-10	123UJZ-11	123UJZ-20	123UJZ-21	123UJZ-30	123UJZ-31	123UJZ-32	123UJZ-33	123UJZ-34	123UJZ-35	123UJZ-36	123UJZ-37	123UJZ-12	123UJZ-40	123UJZ-41	PROCESS ELEMENT	OUTPUT ELEMENT	PROCESS ELEMENT	RESET ACTION	
UJZ-100																											
	123-JG421	FLAME FAILURE BURNER 1	NO FLAME	F	H10-R04				X																		
	123-JG422	FLAME FAILURE BURNER 2	NO FLAME	F	H10-R04																						
	123-JG423	FLAME FAILURE BURNER 3	NO FLAME	F	H10-R04									X													
	123-JG415	PILOT FLAME FAILURE BURNER 1	NO FLAME	F	H10-R04			X																			
	123-JG416	PILOT FLAME FAILURE BURNER 2	NO FLAME	F	H10-R04					X																	
	123-JG417	PILOT FLAME FAILURE BURNER 3	NO FLAME	F	H10-R04								X														
	123-JG419A/B	NO PILOT FLAME DETECTED	NO FLAME	F	H10-R04		3																				
	SEE NOTE 2	LESS THAN 3 BURNERS IN OPERATION	NO FLAME	F	H10-R04		2																				
	SEE NOTE 2	LESS THAN 2 BURNERS IN OPERATION	NO FLAME	F	H10-R04		2																				
	SEE NOTE 2	NO BURNER IN OPERATION	NO FLAME	F	H10-R04		2,3																				
	SEE NOTE 2	NO BURNER & HEALTHY FOR GAS FIRING	NO FLAME	F	H10-R04		2																				

INTERLOCK CAUSE & EFFECT DIAGRAM

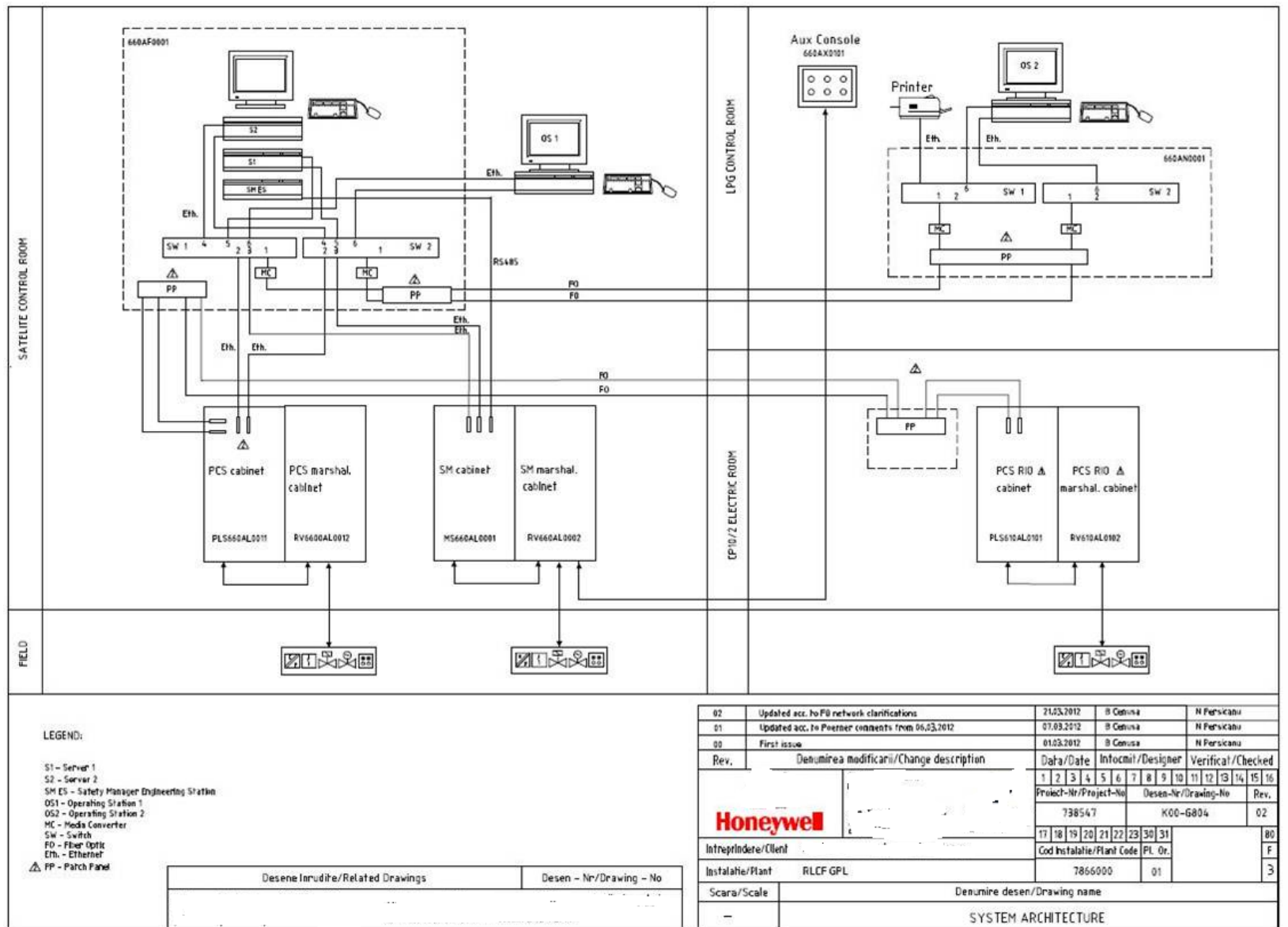
LEGEND	
Initiator	
Init	
HI = High-High	
H = High	
L = Low	
LL = Low-Low	
Description	
LL = Liquid Level	
F = Flow	
T = Temperature	
P = Pressure	
DP = Differential Pressure	
Z = Valve Position	
PS = Push Button	
Location	
F = Field	
R = Instrument rack	
IP = Local panel	
CP = Control panel	
MCC = Motor control center	
System Output	
E = Energize	
D = Deenergize	
O = Open contact	
C = Contact close	
ACT = Actuate	
Output Element	
SOV = Solenoid valve	
MOV = Motorized valve	
MSST = Motor start	
MSOP = Motor stop	
Process Element	
V = Valve	
O = Open C = Close	
P = Pump K = Compressor	
M = Motor	
ST = Start SP = Stop	
Reset Action	
M = Manual reset	
S = System reset	
A = Auto reset	
L = Local	
R = Remote	
HOLDS	
1	
2	
3	
4	
5	

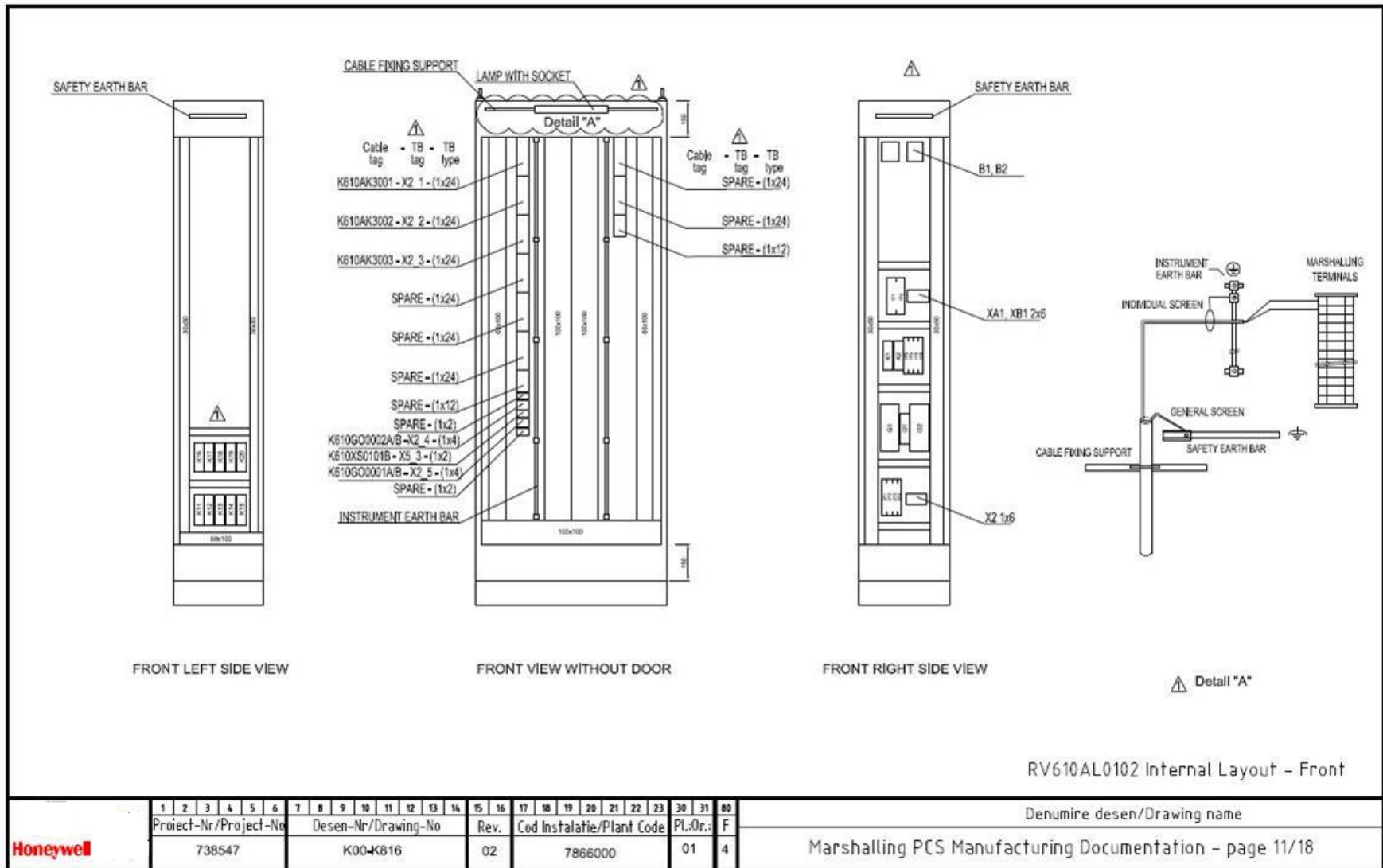
Safety Manager Output Logic

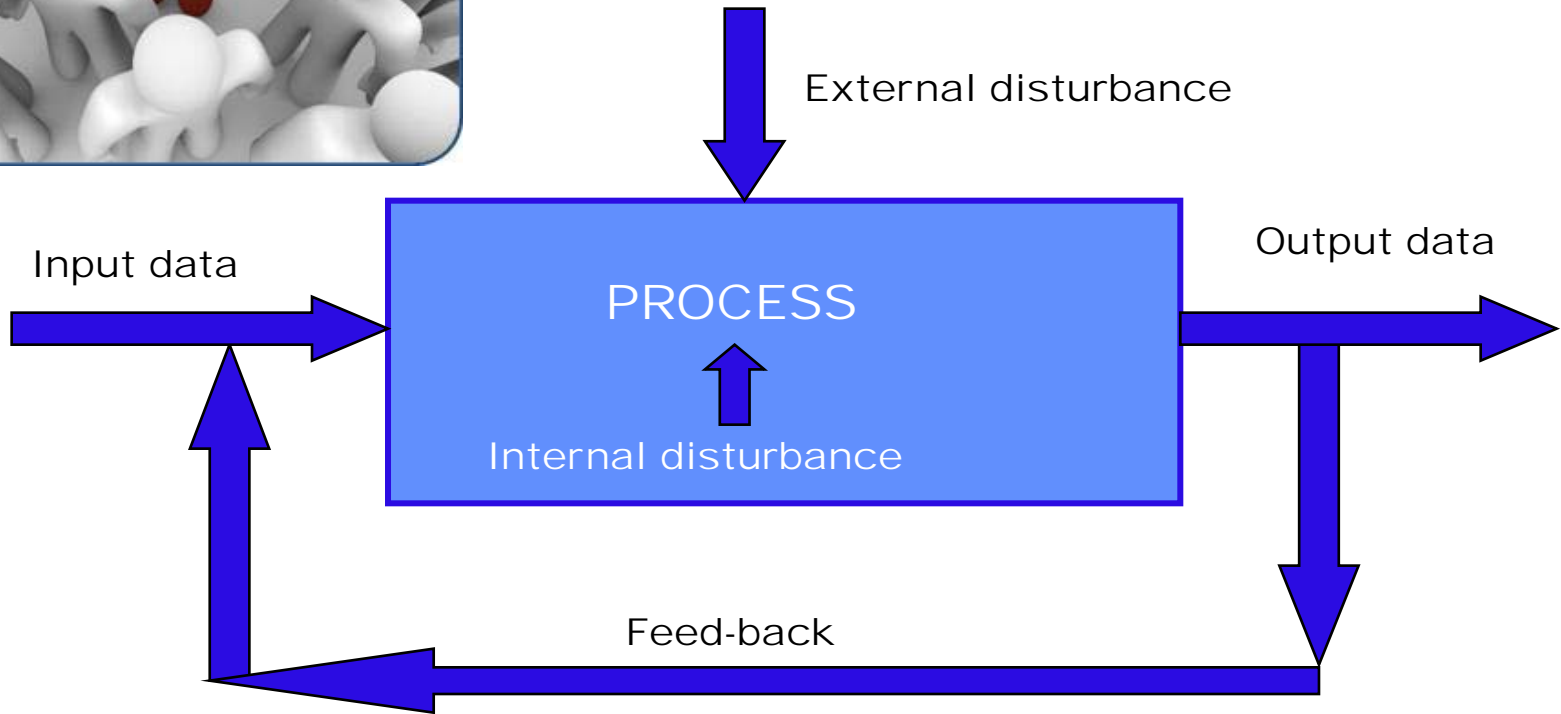




System architecture







Feed back loop

Implementarea unui sistem complet de conducere a unei instalații reale dintr-o rafinărie utilizând arhitectura Honeywell Experion PKS și Safety Manager.

Fiecare student va aborda toate disciplinele implicate în dezvoltarea unui proiect de implementare software pentru o instalație dintr-o rafinărie, după următorul program:

- Săptămâna 1 : Introducere în Honeywell și noțiuni generale despre soluțiile de automatizare ale proceselor industriale
- Săptămâna 2-4 : Honeywell Safety Manager – Emergency Shutdown System - dezvoltarea aplicației și comunicația SCADA
- Săptămâna 5-7 : Honeywell C300 – implementarea strategiilor de control
- Săptămâna 8-10 : HMI (Human Machine Interface) – elaborarea interfeței operator a procesului industrial studiat
- Săptămâna 11 : Teste de integrare și funcționalitate

Thank you for your attention !

