



For a alarm and status signal conditioning and for interlock logic in analyzer shelter, the safety guard or monitoring system is requirement in the most project specification.

Accomplished via a PLC, Solid-state Logic or Relay

SAFETY GUARD SYSTEM

for Analyzer Shelter

DESCRIPTIONS:

The enclosure can be flameproof type which included pilot lamps and switches, or can be pressurization type which included(excluded) a touch screen panel. The controller can be selected upon relevant project specification such as Siemens, Allen-Bradley or others. The system can be composed to fail-safe application according to Safety Integrity Level(SIL) of the specification. The redundant application is also available, and the industrial communication option can choose.

This system is received the signal of gas detectors in shelter and stack, and then handled the signal via annunciator or visual and audible device, and transmit the alarm to upper system such as DCS or F&G. Also the system can detecting the entrance door status, temperature of shelter inside, differential pressure of shelter, HVAC's status and etc. Furthermore, it can receive/transmit the analyzer's signal such as analyzer system status, measured data signal.

Wellas Safety Guard System provide user-friendliness. Easily viewable Safety and Equipment status by pilot lamps or touch screen(Ex p type only), additional I/O point spare for the future and Design a program logic able to edit easily. Moreover the sufficiently provide commissioning and service.

Protect your safety with Wellas safety guard system from the hazardous atmosphere.

Consist of Qualified Components Internationally



Safety Guard System (PLC) for Analyzer Shelter

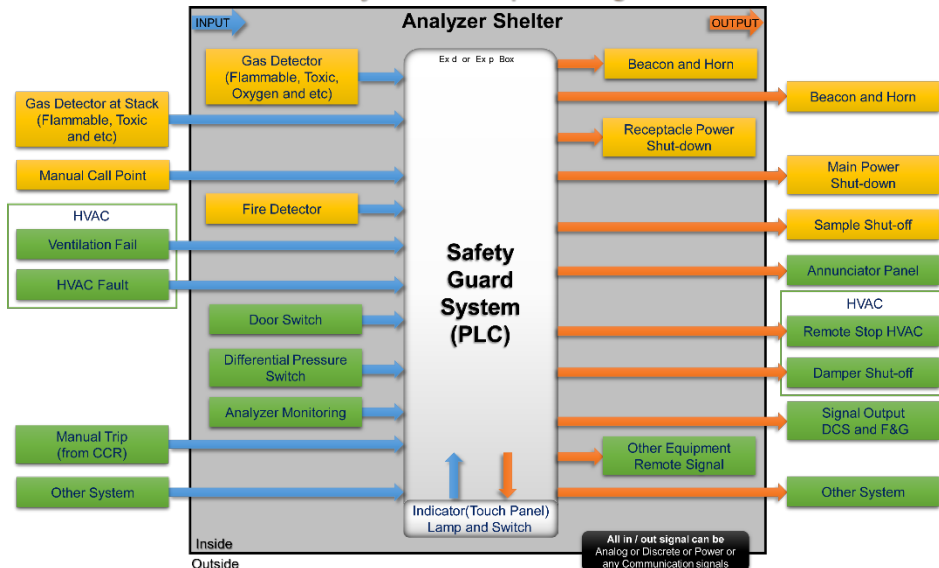
Features

- Design via customer's project specification
- Configuration up to SIL 2 of fail-safe application
- Ex d or Ex p Explosion proof type enclosure
- Any redundant options are available
- Touch screen panel mount option (only Ex p)
- Indicating lamps and alarm switches
- Various industrial communication modules
- Expandable Analog, Digital I/O point
- Safety and equipment alarms to DCS

Combination options

- HVAC System in sister product (Well-VAC™)
 - [Refer to Well-VAC™ product catalog – [Click Here](#)]
- Gas Detectors, Signaling unit and others
- Repeat Indicator Panel (Annunciator Panel)
- The PLC-based Stream Changer

Basic System Conceptual Diagram



This concept is subject to change depends on the project specification.

Safety Guard System (Standard)			CAUSE AND EFFECT CHART																							
EFFECT CAUSE			ALARM ANNUCIATOR LAMP								VISUAL & AUDIBLE							ACTION				DCS (NC)				
			NORMAL OPERATION (GREEN OFF)	OXYGEN DEFICIENCY DETECTED IN SHELTER (YELLOW)	FLAMMABLE GAS DETECTED IN SHELTER (BLUE)	TOXIC (H2S) GAS DETECTED IN SHELTER (AMBER)	LOSS OF SHELTER PRESSURIZATION (RED)	FIRE DETECTED IN SHELTER (RED)	DOOR OPEN (RED)	VENTILATION FAIL (RED)	HVAC FAULT (RED)	BEACON OXYGEN DEFICIENCY ALARM	BEACON FLAMMABLE ALARM	BEACON TOXIC ALARM	BEACON FIRE ALARM	HORN TONE 1 FLAMMABLE ALARM	HORN TONE 2 TOXIC ALARM	HORN TONE 3 FIRE ALARM	RECEPTACLE SHUT-OFF	DAMPER SHUT-OFF (VENTILATION)	HVAC SHUTDOWN	CLOSE SAMPLE SHUT-OFF VALVE (FIRE)	ANALYZER SHELTER SAFETY COMMON ALARM	ANALYZER SHELTER EQUIPMENT COMMON ALARM		
ITEM	FROM	INPUT																								
1	SMOKE DETECTOR	FIRE DETECTED IN SHELTER	A						A*										A	A	A	A	A			
2	MANUAL CALL POINT	FIRE DETECTED IN SHELTER	A						A*										A	A	A	A	A			
3	OXYGEN DEFICIENCY DETECTOR	OXYGEN DEFICIENCY DETECTED IN SHELTER (19%)	A	A*															A					A		
4	FLAMMABLE GAS DETECTOR	FLAMMABLE GAS DETECTED IN SHELTER (10% LEL)	A		A*														A					A		
5	FLAMMABLE GAS DETECTOR	FLAMMABLE GAS DETECTED AT AIR INTAKE (10% LEL)	A		A*														A	A				A		
6	TOXIC (H2S) GAS DETECTOR	TOXIC (H2S) GAS DETECTED IN SHELTER (10 PPM)				A*													A					A		
7	TOXIC (H2S) GAS DETECTOR	TOXIC (H2S) GAS DETECTED AT AIR INTAKE (10 PPM)	A			A*													A					A		
8	DIFFERENTIAL PRESSURE SWITCH	LOSS OF SHELTER PRESSURIZATION	A					A*											A					A		
9	HVAC	LOSS OF VENTILATION FLOW (VENTILATION FAIL)	A																A					A		
10	HVAC	SHELTER TEMPERATURE HIGH (HVAC FAULT)	A																A						A	
11	DOOR SWITCH	DOOR OPEN (MAIN AND EMERGENCY DOOR)	A																A						A	
12	CCR	MANUAL TRIP	A																A	A	A	A			A	
13	SYSFETY GUARD SYSTEM (PLC)	ACKNOWLEDGE SWITCH (PUSH BUTTON)		O	O	O	O	O	O	O	O	O	O	O	O											
14	SYSFETY GUARD SYSTEM (PLC)	ALARM RESET SWITCH (PUSH BUTTON)	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R*	R	R	R	R	R	R	
15	SYSFETY GUARD SYSTEM (PLC)	LAMP TEST SWITCH (PUSH BUTTON)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	

This C&E Chart is subject to change depends on the project specification.

Notes:
 A = Immediate action / annunciation upon activation of initiator.
 A* = Lamp flickering upon activation of initiator.
 O = Horn silence / stop the flickering lamp and then lamp is ON upon activation of initiator.
 R = Cancel action upon activation of initiator.
 R* = Cancel action after one fresh air change upon activation of initiator.

LINE	CONDITION	PB OPERATION	SEQUENCE STATE	VISUAL DISPLAY	ALARM AUDIBLE DEVICE	REMARKS
1	NORMAL	-	NORMAL	OFF	SILENT	
2	ABNORMAL	-	ALARM	FLASHING	AUDIBLE	LOCK-IN
3A	ABNORMAL	ACKNOWLEDGE	ACKNOWLEDGED	ON	SILENT	MAINTAINED ALARM
3B	NORMAL	ACKNOWLEDGE	TO LINE 4			MOMENTARY ALARM
4	NORMAL	-	NORMAL	OFF	SILENT	AUTOMATIC RESET
5	OPERATION TEST	LAMP TEST	TEST	ON	OFF	LAMP TEST

LINE	CONDITION	PB OPERATION	SEQUENCE STATE	VISUAL DISPLAY	ALARM AUDIBLE DEVICE	REMARKS
1	NORMAL	-	NORMAL	OFF	SILENT	
2	ABNORMAL	-	ALARM	FLASHING	AUDIBLE	LOCK-IN
3	ABNORMAL OR NORMAL	ACKNOWLEDGE	ACKNOWLEDGED	ON	SILENT	MANUAL RESET REQUIRED
4A	ABNORMAL	RESET	TO LINE 3			
4B	NORMAL	RESET	NORMAL	OFF	SILENT	MANUAL RESET
5	OPERATION TEST	LAMP TEST	TEST	ON	OFF	LAMP TEST

Other annunciator sequence by request.

Safety Guard System (PLC) Configuration		Requirement Check Sheet
Configuration	<input type="checkbox"/> Safety Guard System <input type="checkbox"/> Alarm Annunciator Panel <input type="checkbox"/> HVAC Control <input type="checkbox"/> Stream Changer <input type="checkbox"/> Others: _____	
Programmable Logic Controller	<input type="checkbox"/> Included <input type="checkbox"/> None (Relay Configuration)	
Safety Integrity Level (SIL)	<input type="checkbox"/> Non SIL <input type="checkbox"/> SIL 1 <input type="checkbox"/> SIL 2 <input type="checkbox"/> SIL 3(option) <input type="checkbox"/> TUV (AK): _____	
Controller Brand	<input type="checkbox"/> Siemens <input type="checkbox"/> Allen-Bradley <input type="checkbox"/> Others: _____ / <input type="checkbox"/> Model: _____	
Redundant Required	<input type="checkbox"/> None <input type="checkbox"/> Controller <input type="checkbox"/> I/O <input type="checkbox"/> Communication <input type="checkbox"/> Power <input type="checkbox"/> Whole System <input type="checkbox"/> Others: _____	
Communication Module	<input type="checkbox"/> None <input type="checkbox"/> Analog - 4~20mA <input type="checkbox"/> RS485 - Modbus <input type="checkbox"/> Ethernet - TCP/Ethernet/IP <input type="checkbox"/> Others: _____	
Main Power Supplies	<input type="checkbox"/> 120VAC <input type="checkbox"/> 230VAC 1-Phase / <input type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz <input type="checkbox"/> Others: _____	
Equipment Power Supplies	<input type="checkbox"/> Standard Controller, I/O and Equipment - 24VDC <input type="checkbox"/> Others: _____	
Enclosure Type	<input type="checkbox"/> Ex d (Flameproof) <input type="checkbox"/> Ex p (Pressurization) <input type="checkbox"/> Others: _____	
Annunciator (Indicator)	<input type="checkbox"/> Pilot Lamp and PB Switch <input type="checkbox"/> HMI - Touch Screen Panel <input type="checkbox"/> Glass Window with PB Switch <input type="checkbox"/> Gas Detector indicator	
I/O Point	<input type="checkbox"/> Standard D/I - 30ch D/O - 26ch, A/I - 10ch	
Customize	Analog Input	<input type="checkbox"/> None <input type="checkbox"/> 4 Ch <input type="checkbox"/> 8 Ch <input type="checkbox"/> 16 Ch <input type="checkbox"/> 24 Ch <input type="checkbox"/> 32 Ch <input type="checkbox"/> Others: _____
	Digital Input	<input type="checkbox"/> None <input type="checkbox"/> 4 Ch <input type="checkbox"/> 8 Ch <input type="checkbox"/> 16 Ch <input type="checkbox"/> 24 Ch <input type="checkbox"/> 32 Ch <input type="checkbox"/> Others: _____
	Analog Output	<input type="checkbox"/> None <input type="checkbox"/> 4 Ch <input type="checkbox"/> 8 Ch <input type="checkbox"/> 16 Ch <input type="checkbox"/> 24 Ch <input type="checkbox"/> 32 Ch <input type="checkbox"/> Others: _____
	Digital Output	<input type="checkbox"/> None <input type="checkbox"/> 4 Ch <input type="checkbox"/> 8 Ch <input type="checkbox"/> 16 Ch <input type="checkbox"/> 24 Ch <input type="checkbox"/> 32 Ch <input type="checkbox"/> Others: _____
Logic Software	<input type="checkbox"/> Included <input type="checkbox"/> None	
Dry Contact Signals (DCS or F&G or ESD)	<input type="checkbox"/> Safety Common Alarms to DCS <input type="checkbox"/> Individual Safety Alarms to DCS <input type="checkbox"/> Fire Detection Alarm to F&G <input type="checkbox"/> Equipment Common Alarms to DCS <input type="checkbox"/> Individual Equipment Alarms to DCS <input type="checkbox"/> Gas Detection Alarm to F&G <input type="checkbox"/> Shut-down Signal from ESD <input type="checkbox"/> Others: _____	

NOTE. The specification are subject to change without notice
 Need Gas Detector information and Logic requirement, if any
 Other specifications by request.

