

INPUTS					OUTPUTS		DESCRIPTION		DEVICE TAG	
DESCRIPTION	DEVICE TAG	ALARM TAG	SETPOINT							
<b>DISCRETE INPUTS</b>										
1	MAIN PLC ESD PUSHBUTTON	ESD_001	ESD_001.O_AlmSD	TRUE	(0=Alarm)	I	I	CL	SD	
2	LEFT REMOTE ESD PUSHBUTTON	ESD_002	ESD_002.O_AlmSD	TRUE	(0=Alarm)	I	I	CL	SD	
3	RIGHT REMOTE ESD PUSHBUTTON	ESD_003	ESD_003.O_AlmSD	TRUE	(0=Alarm)	I	I	CL	SD	
4	SKID ESD PUSHBUTTON	ESD_004	ESD_004.O_AlmSD	TRUE	(0=Alarm)	I	I	CL	SD	
5	Trailer 1 Block Valve: Open Limit	XY_001.ZSO		TRUE	(1=Open)	I	I	CL	SD	
6	Trailer 1 Block Valve: Closed Limit	XY_001.SZC		TRUE	(1=Closed)	I	I	CL	SD	
7	Trailer 2 Block Valve: Open Limit	XY_002.ZSO		TRUE	(1=Open)	I	I	CL	SD	
8	Trailer 2 Block Valve: Closed Limit	XY_002.SZC		TRUE	(1=Closed)	I	I	CL	SD	
9	Trailer 3 Block Valve: Open Limit	XY_003.ZSO		TRUE	(1=Open)	I	I	CL	SD	
10	Trailer 3 Block Valve: Closed Limit	XY_003.SZC		TRUE	(1=Closed)	I	I	CL	SD	
11	Running On Backup Power	USA_001	USA_001	TRUE	(0=Alarm)	I	I	T8	T8	
12										
13										
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26	<b>ANALOG INPUTS</b>									
27	Trailer 1 Inlet Pressure: High-High	PIT-121	PT_121.O_HH_AlarmL	4200 PSig	(0-5000 PSig)	I	I	CL	CL	
28	Trailer 1 Inlet Pressure: High	PIT-121	PT_121.O_H_AlarmL	4000 PSig		I	I			
29	Trailer 1 Inlet Pressure: Low	PIT-121	PT_121.O_L_AlarmL	300 PSig		I	I			
30	Trailer 1 Inlet Pressure: Low-Low	PIT-121	PT_121.O_LL_AlarmL	250 PSig		I	I	T1	CL	
31	Trailer 1 Inlet Pressure: Fault	PIT-121	PT_121.O_PV_Fault			I	I	CL	CL	
32										
33	Trailer 2 Inlet Pressure: High-High	PIT-122	PT_122.O_HH_AlarmL	4200 PSig	(0-5000 PSig)	I	I	CL	CL	
34	Trailer 2 Inlet Pressure: High	PIT-122	PT_122.O_H_AlarmL	4000 PSig		I	I			
35	Trailer 2 Inlet Pressure: Low	PIT-122	PT_122.O_L_AlarmL	300 PSig		I	I			
36	Trailer 2 Inlet Pressure: Low-Low	PIT-122	PT_122.O_LL_AlarmL	250 PSig		I	I	T1	CL	
37	Trailer 2 Inlet Pressure: Fault	PIT-122	PT_122.O_PV_Fault			I	I	CL	CL	
38										
39	Trailer 3 Inlet Pressure: High-High	PIT-123	PT_123.O_HH_AlarmL	4200 PSig	(0-5000 PSig)	I	I	CL	CL	
40	Trailer 3 Inlet Pressure: High	PIT-123	PT_123.O_H_AlarmL	4000 PSig		I	I			
41	Trailer 3 Inlet Pressure: Low	PIT-123	PT_123.O_L_AlarmL	300 PSig		I	I			
42	Trailer 3 Inlet Pressure: Low-Low	PIT-123	PT_123.O_LL_AlarmL	250 PSig		I	I	T1	CL	
43	Trailer 3 Inlet Pressure: Fault	PIT-123	PT_123.O_PV_Fault			I	I	CL	CL	
44										
45										
46										
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48										
49										
50										


**NOTE:**  
1. Running on Backup Power / Will alarm immediately and delay 30min before SD  
2. Trailer Block Valves will Delay Close (5sec) on Respective PT\_12X.O\_LL\_AlarmL  
3. ESD\_004 is disabled. \*\*As per updated LPI approved C&E.  
4. All Block Valve Indication alarms are disabled. \*\*As per updated LPI approved C&E.  
5.  
6.  
7.  
8.

**LEGEND**  
OP - OPEN  
CL - CLOSE  
X - DE-ENERGIZE  
O - ENERGIZE  
A - AUTO MODE  
M - MANUAL MODE  
I - INDICATION  
SD - SHUTDOWN  
T1 - 5 Second Time Delay  
T2 - 10 Second Time Delay  
T3 - 15 Second Time Delay  
T4 - 30 Second Time Delay  
T5 - 60 Second Time Delay  
T6 - 2 Min Time Delay  
T7 - 5 Min Time Delay  
T8 - 30 Min Time Delay  
T9 - 1 Hour Time Delay  
T10 - 8 Hour Time Delay  
T11 - 3 Hour Time Delay

REV	DATE	DESCRIPTION	ENG	BY	CHK
3	7/06/2024	AS-BUILT FROM PLC PROGRAM		MB	MB

**STAMPS**

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<b>CLIENT</b> LIBERTY POWER INNOVATION		<b>PROJECT DESC.</b> TULSA PRS 101	
		<b>DRAWING DESC.</b> CAUSE AND EFFECT SHUTDOWN KEY	
		<b>LOCATION.</b> ORLA, TEXAS	
<b>SCALE</b> N.T.S.	<b>DATE</b> (YYYY-MM-DD) 2024-06-07	<b>DRAWING NO.</b>	<b>PAGE #</b> 1
			<b>REV.</b> 3


INPUTS					OUTPUTS		DESCRIPTION		DEVICE TAG	
DESCRIPTION	DEVICE TAG	ALARM TAG	SETPOINT							
51	Inlet Manifold Pressure: High-High	PIT-102	PT_102.O_HH_AlarmL	User Defined (0-5000 PSig)	I	I				
52	Inlet Manifold Pressure: High	PIT-102	PT_102.O_H_AlarmL	User Defined	I	I				
53	Inlet Manifold Pressure: Low	PIT-102	PT_102.O_L_AlarmL	350PSig	I	I				
54	Inlet Manifold Pressure: Low-Low	PIT-102	PT_102.O_LL_AlarmL	250PSig	I	I				
55										
56										
57	Inlet Manifold Temperature: High-High	TIT-103	TT_103.O_HH_AlarmL	User Defined (-40,212F)	I	I				
58	Inlet Manifold Temperature: High	TIT-103	TT_103.O_H_AlarmL	User Defined	I	I				
59	Inlet Manifold Temperature: Low	TIT-103	TT_103.O_L_AlarmL	-35°F	I	I				
60	Inlet Manifold Temperature: Low-Low	TIT-103	TT_103.O_LL_AlarmL	-40°F	I	I				
61										
62	Stage 1 Downstream Pressure: High-High	PIT_105	PT_105.O_HH_AlarmL	1800PSig (0-3000 PSig)	I	I				
63	Stage 1 Downstream Pressure: High	PIT_105	PT_105.O_H_AlarmL	1700PSig	I	I				
64	Stage 1 Downstream Pressure: Low	PIT_105	PT_105.O_L_AlarmL	User Defined	I	I				
65	Stage 1 Downstream Pressure: Low-Low	PIT_105	PT_105.O_LL_AlarmL	User Defined	I	I				
66										
67	Stage 2 Downstream Pressure: High-High	PIT_108	PT_108.O_HH_AlarmL	810PSig (0-3000 PSig)	I	I				
68	Stage 2 Downstream Pressure: High	PIT_108	PT_108.O_H_AlarmL	770PSig	I	I				
69	Stage 2 Downstream Pressure: Low	PIT_108	PT_108.O_L_AlarmL	User Defined	I	I				
70	Stage 2 Downstream Pressure: Low-Low	PIT_108	PT_108.O_LL_AlarmL	User Defined	I	I				
71										
72	Outlet Pressure: High-High	PIT_126	PT_126.O_HH_AlarmL	270PSig (0-1500 PSig)	I	I				
73	Outlet Pressure: High	PIT_126	PT_126.O_H_AlarmL	240PSig	I	I				
74	Outlet Pressure Low	PIT_126	PT_126.O_L_AlarmL	User Defined	I	I				
75	Outlet Pressure Low-Low	PIT_126	PT_126.O_LL_AlarmL	User Defined	I	I				
76										
77	Outlet Temperature: High-High	TT_127	TT_127.O_HH_AlarmL	150°F (-40,212F)	I	I				
78	Outlet Temperature: High-High	TT_127	TT_127.O_H_AlarmL	140°F	I	I				
79	Outlet Temperature: Low	TT_127	TT_127.O_L_AlarmL	40°F	I	I				
80	Outlet Temperature: Low-Low	TT_127	TT_127.O_LL_AlarmL	32°F	I	I				
81										
82	BMS Fuel Gas Pressure: High-High	PIT_119	PT_119.O_HH_AlarmL	225PSig (0-1500 PSig)	I	I				
83	BMS Fuel Gas Pressure: High	PIT_119	PT_119.O_H_AlarmL	200PSig	I	I				
84	BMS Fuel Gas Pressure: Low	PIT_119	PT_119.O_L_AlarmL	75PSig	I	I				
85	BMS Fuel Gas Pressure: Low-Low	PIT_119	PT_119.O_LL_AlarmL	68PSig	I	I				
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**NOTE:**  
1. PT\_102.O\_LL\_AlarmL - Will close the active trailer block / bypass valves and open the next available trailer.  
2. TT\_103.O\_LL\_AlarmL - Will close the active trailer block / bypass valves and open the next available trailer.  
3.  
4.  
5.  
6.  
7.  
8.

**LEGEND**  
**OP** - OPEN  
**CL** - CLOSE  
**X** - DE-ENERGIZE  
**O** - ENERGIZE  
**A** - AUTO MODE  
**M** - MANUAL MODE  
**I** - INDICATION  
**SD** - SHUTDOWN  
**T1** - 5 Second Time Delay  
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**T3** - 15 Second Time Delay  
**T4** - 30 Second Time Delay  
**T5** - 60 Second Time Delay  
**T6** - 2 Min Time Delay  
**T7** - 5 Min Time Delay  
**T8** - 10 Min Time Delay  
**T9** - 1 Hour Time Delay  
**T10** - 8 Hour Time Delay  
**T11** - 3 Hour Time Delay

REV	DATE	DESCRIPTION	ENG	BY	CHK
3	7/06/2024	AS-BUILT FROM PLC PROGRAM		MB	MB

**STAMPS**


<b>CLIENT</b> LIBERTY POWER INNOVATION		<b>PROJECT DESC.</b> TULSA PRS 101	
		<b>DRAWING DESC.</b> CAUSE AND EFFECT SHUTDOWN KEY	
		<b>LOCATION.</b> ORLA, TEXAS	
<b>SCALE</b> N.T.S.	<b>DATE</b> (YYYY-MM-DD) 2024-06-07	<b>DRAWING NO.</b>	<b>PAGE #</b> 2
			<b>REV.</b> 3