

PROJECT TITLE:					 GREEN QUBIC ENGINEERING & MINING CO.	
TARAZ BITUMEN PLANT PROJECT						
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Control System I/O List	TRZ-IN-LS-705			00		
Control System I/O List						
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Control System I/O List			TRZ-IN-LS-705							00							
Item No.	Item Tag	Description	Service	Location	Source	Destination	IO Type	Signal Type	IS/NIS	Power	Logic	Line / Equipment No.	Alarm (Low Low)	Alarm (Low)	Alarm (High)	Alarm (High High)	Remarks
1	HST-101A	Start Command	VACUUM BOTTOM UNLOADING PUMP (P-101A)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-101A	-	-	-	-	-
2	HSP-101A	Stop Command	VACUUM BOTTOM UNLOADING PUMP (P-101A)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-101A	-	-	-	-	-
3	XLLR-101A	Local/Remote Status	VACUUM BOTTOM UNLOADING PUMP (P-101A)	MCC	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-101A	-	-	-	-	-
4	XLF-101A	Fault/Unavailable Status	VACUUM BOTTOM UNLOADING PUMP (P-101A)	MCC	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-101A	-	-	-	-	-
5	XLRS-101A	Running/Stop Status	VACUUM BOTTOM UNLOADING PUMP (P-101A)	MCC	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-101A	-	-	-	-	-
6	HST-101B	Start Command	VACUUM BOTTOM UNLOADING PUMP (P-101B)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-101B	-	-	-	-	-
7	HSP-101B	Stop Command	VACUUM BOTTOM UNLOADING PUMP (P-101B)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-101B	-	-	-	-	-
8	XLLR-101B	Local/Remote Status	VACUUM BOTTOM UNLOADING PUMP (P-101B)	MCC	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-101B	-	-	-	-	-
9	XLF-101B	Fault/Unavailable Status	VACUUM BOTTOM UNLOADING PUMP (P-101B)	MCC	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-101B	-	-	-	-	-
10	XLRS-101B	Running/Stop Status	VACUUM BOTTOM UNLOADING PUMP (P-101B)	MCC	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-101B	-	-	-	-	-
11	HST-101C	Start Command	VACUUM BOTTOM UNLOADING PUMP (P-101C)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-101C	-	-	-	-	-
12	HSP-101C	Stop Command	VACUUM BOTTOM UNLOADING PUMP (P-101C)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-101C	-	-	-	-	-
13	XLLR-101C	Local/Remote Status	VACUUM BOTTOM UNLOADING PUMP (P-101C)	MCC	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-101C	-	-	-	-	-
14	XLF-101C	Fault/Unavailable Status	VACUUM BOTTOM UNLOADING PUMP (P-101C)	MCC	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-101C	-	-	-	-	-
15	XLRS-101C	Running/Stop Status	VACUUM BOTTOM UNLOADING PUMP (P-101C)	MCC	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-101C	-	-	-	-	-
16	TT-1001	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-101)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-101	-	-	-	-	-
17	TI-1001	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-101)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-101	X	X	X	X	-
18	TT-1003	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-101)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-101	-	-	-	-	-
19	TI-1003	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-101)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-101	X	X	X	X	-
20	LIT-1001	Level Indication Transmitter (DP)	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-101)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-101	-	-	-	-	-
21	LI-1001	Level Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-101)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-101	X	X	X	X	-
22	TT-1005	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-102)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-102	-	-	-	-	-
23	TI-1005	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-102)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-102	X	X	X	X	-
24	TT-1007	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-102)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-102	-	-	-	-	-
25	TI-1007	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-102)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-102	X	X	X	X	-
26	LIT-1002	Level Indication Transmitter (DP)	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-102)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-102	-	-	-	-	-
27	LI-1002	Level Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-102)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-102	X	X	X	X	-
28	TT-1009	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-103)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-103	-	-	-	-	-
29	TI-1009	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-103)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-103	X	X	X	X	-
30	TT-1011	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-103)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-103	-	-	-	-	-
31	TI-1011	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-103)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-103	X	X	X	X	-
32	LIT-1003	Level Indication Transmitter (DP)	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-103)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-103	-	-	-	-	-
33	LI-1003	Level Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-103)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-103	X	X	X	X	-
34	TT-1013	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-104)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-104	-	-	-	-	-
35	TI-1013	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-104)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-104	X	X	X	X	-
36	TT-1015	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-104)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-104	-	-	-	-	-
37	TI-1015	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-104)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-104	X	X	X	X	-
38	LIT-1004	Level Indication Transmitter (DP)	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-104)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-104	-	-	-	-	-
39	LI-1004	Level Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-104)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-104	X	X	X	X	-
40	TT-1017	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-105)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-105	-	-	-	-	-
41	TI-1017	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-105)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-105	X	X	X	X	-
42	TT-1019	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-105)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-105	-	-	-	-	-
43	TI-1019	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-105)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-105	X	X	X	X	-
44	LIT-1005	Level Indication Transmitter (DP)	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-105)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-105	-	-	-	-	-
45	LI-1005	Level Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-105)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-105	X	X	X	X	-
46	TT-1021	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-106)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-106	-	-	-	-	-
47	TI-1021	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-106)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-106	X	X	X	X	-
48	TT-1023	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-106)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-106	-	-	-	-	-
49	TI-1023	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-106)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-106	X	X	X	X	-
50	LIT-1006	Level Indication Transmitter (DP)	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-106)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-106	-	-	-	-	-
51	LI-1006	Level Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-106)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-106	X	X	X	X	-
52	TT-1025	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-107)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-107	-	-	-	-	-
53	TI-1025	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-107)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-107	X	X	X	X	-
54	TT-1027	Temperature Transmitter	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-107)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-107	-	-	-	-	-
55	TI-1027	Temperature Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-107)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-107	X	X	X	X	-
56	LIT-1007	Level Indication Transmitter (DP)	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-107)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	TK-107	-	-	-	-	-
57	LI-1007	Level Indication	VACUUM BOTTOM & BITUMEN STORAGE TANK (TK-107)	CCR-HMI	-	-	-	Software	NIS	-	-	TK-107	X	X	X	X	-
58	HST-201A	Start Command	BITUMEN LOADING PUMP (P-201A)	Field	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-201A	-	-	-	-	-
59	HSP-201A	Stop Command	BITUMEN LOADING PUMP (P-201A)	Field	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-201A	-	-	-	-	-
60	XLLR-201A	Local/Remote Status	BITUMEN LOADING PUMP (P-201A)	Field	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-201A	-	-	-	-	-
61	XLF-201A	Fault/Unavailable Status	BITUMEN LOADING PUMP (P-201A)	Field	MCC	PLC	DI-S	Dry Contact	NIS	24 VDC	-	P-201A	-				

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Item No.	Item Tag	Description	Service	Location	Source	Destination	IO Type	Signal Type	IS/NIS	Power	Logic	Line / Equipment No.	Alarm (Low Low)	Alarm (Low)	Alarm (High)	Alarm (High High)	Remarks
80	XLLR-203A	Local/Remote Status	REACTOR LOADING PUMP (P-203A)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-203A	-	-	-	-	-
81	XS-203A	Speed Feedback Status	REACTOR LOADING PUMP (P-203A)	MCC	MCC	DCS	AI-S	4~20mA	NIS	24 VDC	-	P-203A	-	-	-	-	-
82	XLF-203A	Fault/Unavailable Status	REACTOR LOADING PUMP (P-203A)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-203A	-	-	-	-	-
83	XL-203A	Running Status	REACTOR LOADING PUMP (P-203A)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-203A	-	-	-	-	-
84	SY-203A	Speed Controller Command	REACTOR LOADING PUMP (P-203A)	PLC	PLC	MCC	AO-S	4~20mA	NIS	24 VDC	-	P-203A	-	-	-	-	-
85	HST-203B	Start Command	REACTOR LOADING PUMP (P-203B)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-203B	-	-	-	-	-
86	HSP-203B	Stop Command	REACTOR LOADING PUMP (P-203B)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	I-09/I-010	P-203B	-	-	-	-	-
87	XLLR-203B	Local/Remote Status	REACTOR LOADING PUMP (P-203B)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-203B	-	-	-	-	-
88	XS-203B	Speed Feedback Status	REACTOR LOADING PUMP (P-203B)	MCC	MCC	DCS	AI-S	4~20mA	NIS	24 VDC	-	P-203B	-	-	-	-	-
89	XLF-203B	Fault/Unavailable Status	REACTOR LOADING PUMP (P-203B)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-203B	-	-	-	-	-
90	XL-203B	Running Status	REACTOR LOADING PUMP (P-203B)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-203B	-	-	-	-	-
91	SY-203B	Speed Controller Command	REACTOR LOADING PUMP (P-203B)	PLC	PLC	MCC	AO-S	4~20mA	NIS	24 VDC	-	P-203B	-	-	-	-	-
92	HST-301A	Start Command	REACTOR UNLOADING PUMP (P-301A)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-301A	-	-	-	-	-
93	HSP-301A	Stop Command	REACTOR UNLOADING PUMP (P-301A)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-301A	-	-	-	-	-
94	XLLR-301A	Local/Remote Status	REACTOR UNLOADING PUMP (P-301A)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-301A	-	-	-	-	-
95	XS-301A	Speed Feedback Status	REACTOR UNLOADING PUMP (P-301A)	MCC	MCC	DCS	AI-S	4~20mA	NIS	24 VDC	-	P-301A	-	-	-	-	-
96	XLF-301A	Fault/Unavailable Status	REACTOR UNLOADING PUMP (P-301A)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-301A	-	-	-	-	-
97	XL-301A	Running Status	REACTOR UNLOADING PUMP (P-301A)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-301A	-	-	-	-	-
98	SY-301A	Speed Controller Command	REACTOR UNLOADING PUMP (P-301A)	PLC	PLC	MCC	AO-S	4~20mA	NIS	24 VDC	-	P-301A	-	-	-	-	-
99	HST-301B	Start Command	REACTOR UNLOADING PUMP (P-301B)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-301B	-	-	-	-	-
100	HSP-301B	Stop Command	REACTOR UNLOADING PUMP (P-301B)	PLC	PLC	MCC	DO-S	Relay	NIS	24 VDC	-	P-301B	-	-	-	-	-
101	XLLR-301B	Local/Remote Status	REACTOR UNLOADING PUMP (P-301B)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-301B	-	-	-	-	-
102	XS-301B	Speed Feedback Status	REACTOR UNLOADING PUMP (P-301B)	MCC	MCC	DCS	AI-S	4~20mA	NIS	24 VDC	-	P-301B	-	-	-	-	-
103	XLF-301B	Fault/Unavailable Status	REACTOR UNLOADING PUMP (P-301B)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-301B	-	-	-	-	-
104	XL-301B	Running Status	REACTOR UNLOADING PUMP (P-301B)	MCC	MCC	DCS	DI-S	Dry Contact	NIS	24 VDC	-	P-301B	-	-	-	-	-
105	SY-301B	Speed Controller Command	REACTOR UNLOADING PUMP (P-301B)	PLC	PLC	MCC	AO-S	4~20mA	NIS	24 VDC	-	P-301B	-	-	-	-	-
106	TT-1029	Temperature Transmitter	Temperature of Inlet Exchanger 1	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	4"	-	-	-	-	-
107	TI-1029	Temperature Indication	Temperature of Inlet Exchanger 1	CCR-HMI	-	-	-	Software	NIS	-	-	-	-	-	-	-	-
108	TT-1031	Temperature Transmitter	Temperature of Inlet Exchanger 2	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	4"	-	-	-	-	-
109	TI-1031	Temperature Indication	Temperature of Inlet Exchanger 2	CCR-HMI	-	-	-	Software	NIS	-	-	-	-	-	-	-	-
110	TT-1033	Temperature Transmitter	Temperature of inlet Pre Heater PH-101A	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	4"	-	-	-	-	-
111	TI-1033	Temperature Indication	Temperature of inlet Pre Heater PH-101A	CCR-HMI	-	-	-	Software	NIS	-	-	-	-	-	-	-	-
112	PIT-1001	Pressure Indication Transmitter	Pressure of inlet Pre Heater PH-101A	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	I-001/I-002	4"	-	-	-	-	-
113	PI-1001	Pressure Indication	Pressure of inlet Pre Heater PH-101A	CCR-HMI	-	-	-	Software	NIS	-	-	-	X	-	-	X	-
114	TT-1035	Temperature Transmitter	Temperature of inlet Pre Heater PH-101B	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	4"	-	-	-	-	-
115	TI-1035	Temperature Indication	Temperature of inlet Pre Heater PH-101B	CCR-HMI	-	-	-	Software	NIS	-	-	-	-	-	-	-	-
116	PIT-1003	Pressure Indication Transmitter	Temperature of inlet Pre Heater PH-101B	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	I-004/I-005	4"	-	-	-	-	-
117	PI-1003	Pressure Indication	Temperature of inlet Pre Heater PH-101B	CCR-HMI	-	-	-	Software	NIS	-	-	-	X	-	-	X	-
118	TT-1037	Temperature Transmitter	Temperature of Exhaust Pre Heater PH-101A	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	I-003	PH-101A	-	-	-	-	-
119	TI-1037	Temperature Indication	Temperature of Exhaust Pre Heater PH-101A	CCR-HMI	-	-	-	Software	NIS	-	-	-	-	-	-	X	-
120	TT-1039	Temperature Transmitter	Temperature of Exhaust Pre Heater PH-101B	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	I-006	PH-101B	-	-	-	-	-
121	TI-1039	Temperature Indication	Temperature of Exhaust Pre Heater PH-101B	CCR-HMI	-	-	-	Software	NIS	-	-	-	-	-	-	X	-
122	TT-1041	Temperature Transmitter	Temperature of Outlet Pre Heater PH-101A	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	4"	-	-	-	-	-
123	TIC-1041	Temperature Indication Controller	Temperature of Outlet Pre Heater PH-101A	CCR	PLC	Field	AO-S	4~20mA	NIS	24 VDC	-	-	-	-	-	-	-
124	PIT-1005	Pressure Indication Transmitter	Pressure of Outlet Pre Heater PH-101A	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	I-007	4"	-	-	-	-	-
125	PI-1005	Pressure Indication	Pressure of Outlet Pre Heater PH-101A	CCR-HMI	-	-	-	Software	NIS	-	-	-	X	-	-	-	-
126	TT-1043	Temperature Transmitter	Temperature of Outlet Pre Heater PH-101B	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	4"	-	-	-	-	-
127	TIC-1043	Temperature Indication Controller	Temperature of Outlet Pre Heater PH-101B	CCR	PLC	Field	AO-S	4~20mA	NIS	24 VDC	-	-	-	-	-	-	-
128	PIT-1007	Pressure Indication Transmitter	Pressure of Outlet Pre Heater PH-101B	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	I-008	4"	-	-	-	-	-
129	PI-1007	Pressure Indication	Pressure of Outlet Pre Heater PH-101B	CCR-HMI	-	-	-	Software	NIS	-	-	-	X	-	-	-	-
130	XSOV-1001	Open Close Command	Natural gas	Field	PLC	Field	DO-S	Relay	NIS	24 VDC	I-009/I-010/I-001/I-002/I-003	2"	-	-	-	-	-
131	XZSO-1001	Limit Switch Open	Natural gas	Field	Field	PLC	DI-S	Dry Contact	NIS	24 VDC	-	2"	-	-	-	-	-
132	XZSO-1001	Limit Switch Close	Natural gas	Field	Field	PLC	DI-S	Dry Contact	NIS	24 VDC	-	2"	-	-	-	-	-
133	XSOV-1002	Open Close Command	Natural gas	Field	PLC	Field	DO-S	Relay	NIS	24 VDC	I-009/I-010/I-004/I-005/I-006	2"	-	-	-	-	-
134	XZSO-1002	Limit Switch Open	Natural gas	Field	Field	PLC	DI-S	Dry Contact	NIS	24 VDC	-	2"	-	-	-	-	-
135	XZSO-1002	Limit Switch Close	Natural gas	Field	Field	PLC	DI-S	Dry Contact	NIS	24 VDC	-	2"	-	-	-	-	-
136	PIT-1009	Pressure Indication Transmitter	AIR BLOWING VESSEL (REACTOR-101A)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	R-101 A	-	-	-	-	-
137	PI-1009	Pressure Indication	AIR BLOWING VESSEL (REACTOR-101A)	CCR-HMI	-	-	-	Software	NIS	-	-	-	-	-	-	X	-
138	TT-1045	Temperature Transmitter	AIR BLOWING VESSEL (REACTOR-101A)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	R-101 A	-	-	-	-	-
139	TI-1045	Temperature Indication	AIR BLOWING VESSEL (REACTOR-101A)	CCR-HMI	-	-	-	Software	NIS	-	-	-	-	-	-	-	-
140	TT-1047	Temperature Transmitter	AIR BLOWING VESSEL (REACTOR-101A)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	R-101 A	-	-	-	-	-
141	TI-1047	Temperature Indication	AIR BLOWING VESSEL (REACTOR-101A)	CCR-HMI	-	-	-	Software	NIS	-	-	-	-	-	-	-	-
142	TT-1049	Temperature Transmitter	AIR BLOWING VESSEL (REACTOR-101A)	Field	Field	PLC	AI-S	4~20mA	NIS	24 VDC	-	R-101 A	-	-	-	-	-
143	TI-1049	Temperature Indication	AIR BLOWING VESSEL (														

