

Equipment	Process variable	Priority	Regular alarm	Executive alarm	Operator action
Reactor (R201)	Temperature	P1	High (TAH201)	High-high (TZAHH204)	Manually increase the cooling water via FCV-201
		P2	Low (TAL201)		Manually decrease the cooling water via FCV-201
	Pressure	P1	High (PAH201)	High-high (PZAHH203)	Manually reduce the opening of PCV-201
		P2	Low (PAL201)		Manually increase the opening of PCV-201
	Liquid flow	P2	High (FAH202)	High-high (FZAHH213)	Manually decrease pump P201 speed
		P3	Low (FAL202)		Manually increase pump P201 speed
	Gas flow	P1	High (FAH203)	High-high (FZAHH206)	Manually decrease fan F201 speed
		P3	Low (FAL203)		Manually decrease fan F201 speed
	Level	P2	High (LAH208)	High-high (LZAHH201)	Manually increase the liquid outlet flow rate via FCV-203
		P3	Low (LAL208)		Manually decrease the liquid outlet flow rate via FCV-203
	Cooling water flowrate	P1	Low (FAL201)	Low-low (FZALL204)	Manually increase the cooling water flow rate via FCV-201
		P3	High (FAH201)		Manually decrease the cooling water flow rate via FCV-201
	Cooling water temperature	P1	High (TAH203)	High-high (TZAHH205)	Manually increase the cooling water flow rate via FCV-201
		P3	Low (TAL203)		Manually decrease the cooling water flow rate via FCV-201
	Gas temperature	P1	High (TAH202)	High-high (TZAHH214)	Manually decrease heat duty of electric heater H201
		P2	Low (TAL202)		Manually increase heat duty of electric heater H201
	Liquid temperature	P1	High (TAH212)	High-high (TZAHH215)	Manually decrease heat duty of electric heater H202
		P2	Low (TAL212)		Manually increase heat duty of electric heater H202
	Gas pressure	P1	High (PAH203)	High-high (PZAHH205)	Manually reduce the opening of PCV-201
		P2	Low (PAL203)	Low-low (PZALL-213)	Manually increase the opening of PCV-201
	Liquid pressure	P1	High (PAH209)	High-high (PZAHH210)	Manually decrease pump P201 speed
		P2	Low (PAL209)		Manually increase pump P201 speed
Recycle	Pressure	P1	High (PAH202)	High-high (PZAHH212)	Manually open FCV-202 to vent all the recycle
		P3	Low (PAL202)		Manually increase fan F201 speed
	Flowrate	P1	High (FAH207)	High-high (FZAHH219)	Manually decrease FCV-202 opening
		P3	Low (FAL207)		Manually increase FCV-202 opening
Pump (P201)	Liquid flow	P2	High (FAH211)		Manually decrease inlet flow rate via V206
		P1	Low (FAL211)	Low-low (FZALL205)	Manually increase inlet flow rate via V206
	Temperature			High-high (TZAHH206)	
Fan (F201)	Flowrate	P2	High (FAH214)		Manually decrease gas inlet flow rate via V202
		P3	Low (FAL214)		Manually increase gas inlet flow rate via V202
Heater (H201)	Temperature	P2	High (TAH211)		Manually decrease heat duty of electric heater H201
		P3	Low (TAL211)		Manually increase heat duty of electric heater H201
Heater (H202)	Temperature	P2	High (TAH212)		Manually decrease heat duty of electric heater H202
		P3	Low (TAL212)		Manually increase heat duty of electric heater H202
Pressure reduction valve (PCV-201)	Liquid Flow	P2	High (FAH212)		Manually decrease the liquid outlet flow rate via FCV-203
		P3	Low (FAL212)		Manually increase the liquid outlet flow rate via FCV-203
Distillation Column (S201)	Temperature	P1	High (TAH207)	High-high (TZAHH209)	Manually decrease steam flowrate to reboiler via FCV-207
		P2	Low (TAL207)		Manually increase steam flowrate to reboiler via FCV-207
	Pressure	P1	High (PAH206)	High-high (PZAHH208)	Manually adjust FCV-205 to purge more gas
		P2	Low (PAL206)	Low-low (PZALL211)	Manually adjust FCV-205 to purge less gas
	Level	P1	High (LAH202)		Manually adjust FCV-208 to increase bottoms flowrate
		P3	Low (LAL202)		Manually adjust FCV-208 to decrease bottoms flowrate
Distillation Condenser (H203)	Cooling flowrate	P3	High (FAH208)		Manually adjust FCV-204 to decrease cooling flowrate
		P1	Low (FAL208)	Low-low (FZALL210)	Manually adjust FCV-204 to increase cooling flowrate
	Pressure	P1	High (PAH212)		Manually adjust FCV-205 to purge more gas
		P2	Low (PAL212)		Manually adjust FCV-205 to purge less gas
	Cooling water temperature	P1	High (TAH208)	High-high (TZAHH210)	Manually adjust FCV-204 to increase cooling flowrate
		P3	Low (TAL208)		Manually adjust FCV-204 to decrease cooling flowrate
Distillation Reboiler (H204)	Level	P1	High (LAH205)	High-high (LZAHH206)	Manually adjust FCV-208 to increase bottoms flowrate
		P1	Low (LAL205)	Low-low (LZALL207)	Manually adjust FCV-208 to decrease bottoms flowrate
	Flow of saturated steam	P2	High (FAH218)		Manually adjust FCV-207 to decrease steam flowrate
		P2	Low (FAL218)		Manually adjust FCV-207 to increase steam flowrate
	Flow of bottoms stream	P2	High (FAH217)		Manually adjust FCV-208 to decrease bottoms flowrate
		P2	Low (FAL217)		Manually adjust FCV-208 to increase bottoms flowrate
Distillation Accumulator Tank (S204)	Level	P1	High (LAH203)	High-high (LZAHH204)	Manually adjust FCV-206 to increase distillate flowrate
		P3	Low (LAL203)		Manually adjust FCV-206 to decrease distillate flowrate
	Flow of tops stream	P2	High (FAH216)		Manually adjust FCV-206 to decrease distillate flowrate
		P2	Low (FAL216)		Manually adjust FCV-206 to increase distillate flowrate