Box	Cable	pin	output
1	1	1	Tower 0 regulator temp; thermocouple 0
1	1	3	Tower 0 thermocouple 2
1	1	5	Tower 0 thermocouple 3
1	1	7	Tower 0 thermocouple 1
1	1	9	Tower 0 regulator voltage
1	1	11	
1	1	13	Tower 1 regulator temp; thermocouple 0
1	1	15	Tower 1 thermocouple 2
1	1	17	Tower 1 thermocouple 3
1	1	19	Tower 1 thermocouple 1
1	1	21	Tower 1 regulator voltage
1	1	23	Tower 2 regulator voltage
1	1	25	Tower 2 regulator temp; thermocouple 0
1	1	27	Tower 2 thermocouple 2
1	1	29	Tower 2 thermocouple 3
1	1	31	Tower 2 thermocouple 1
1	2	1	Tower 3 regulator temp; thermocouple 0
1	2	3	Tower 3 thermocouple 2
1	2	5	Tower 3 thermocouple 3
1	2	7	Tower 3 thermocouple 1
1	2	9	Tower 3 regulator voltage
2	3	1	Tower 4 regulator temp; thermocouple 0
2	3	3	Tower 4 thermocouple 2
2	3	5	Tower 4 thermocouple 3
2	3	7	Tower 4 thermocouple 1
2	3	9	Tower 4 regulator voltage
2	3	11	
2	3	13	Tower 5 regulator temp; thermocouple 0
2	3	15	Tower 5 thermocouple 2
2	3	17	Tower 5 thermocouple 3
2	3	19	Tower 5 thermocouple 1
2	3	21	Tower 5 regulator voltage

new thermocouple boxes pin designations for 34 pin connectors

Note that in the full setup, cables 2 and 3 are joined into one cable near the PLC, so that only two cables are fed into the PLC. The numbering is continuous and in the order shown here, i.e. cable 3 pin 1 would end up as pin 11 on the combined cable.