

UPAC LT™

BOILER COMBUSTION CONTROL SYSTEM

CONTROL SYSTEM SELECTIONS

The strategies are field selectable from the 12.1" touch screen. System selections include:

Control System 1 Control Loops:

- Boiler master or submaster.
- Parallel positioning.
- O₂ Trim with addition of O₂ analyzer.
- Gas valve control, selectable.
- Oil valve control, selectable.
- FD damper control.
- FGR control, selectable.
- VFD control, selectable.

Control System 2 Control Loops:

- Boiler master or submaster.
- Parallel positioning.
- O₂ Trim with addition of O₂ analyzer.
- Gas valve, selectable.
- Oil valve, selectable.
- FD damper.
- Two element feed water control (water level and steam flow).

COMMUNICATIONS (STANDARD/OPTIONAL)

The UPAC LT™ is designed to interface with Burner Management Systems and with Hays Cleveland Computer Work Stations (SCADA) or Building Automation Systems. The UPAC LT™ accepts Modbus input from a burner management system (BMS) and displays its current status.

- Communications to BAS include RS 485 Modbus Slave RTU, Standard OPC 10bT LAN, BACnet Gateway Option, LonWorks Gateway Option.
- Communications off-site include Ethernet Gateway Web-Server and Cell Data Industrial Modem Options.

ECONOMICAL COMBUSTION CONTROL PACKAGE

The UPAC LT™ incorporates the power of PAC technology in a pre-engineered boiler combustion control package. PAC technology is the latest technology, exceeding the capability of PLC and multiple loop technology.

With the success of HC's plant wide control system, UPAC™, we identified the need for a system specific to boiler control applications incorporating the same accuracy, fuel savings and safety strategies as UPAC™. UPAC LT™ is designed to maximize the return on investment for linkageless parallel positioning with O₂ trim. UPAC LT™ incorporates the unique HC fuel/air safety strategies, including fuel/air ratio cross-limiting and deviation-limiting with a dedicated system fault. Alarm outputs are available for annunciators or panel lights for actuator (servomotor) fail, high/low steam pressure and high/low flue gas temperature, and a low O₂ alarm. Two packaging options are available (surface mount cabinet and open mount).



Hays Cleveland's UPAC™ Control System is now available in a pre-engineered package, UPAC LT™.

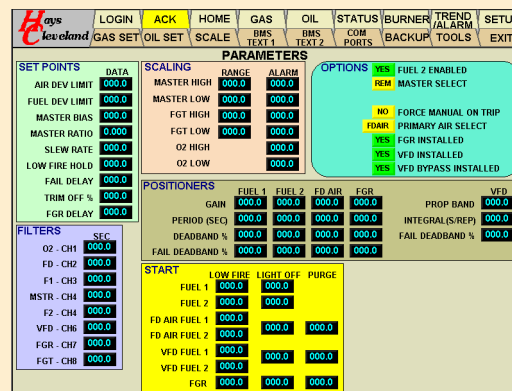
POWER IN SIMPLICITY

The system includes only four major components: the CPU, expansion module, 12.1" touch screen and relays. Having only four major components keeps maintenance costs low, plus troubleshooting is easy!

The 12.1" touch screen is used during startup, commissioning and operations. The unit is menu driven with graphical displays of boiler, control and set up parameters, alarms, trends, controller face plates, and control strategy selection. The control software is non proprietary, IEC 61131-3 (unlike many PLC systems).

TOTAL CONTROL PACKAGE

The system is easily integrated with any industrial steam or hydronic boiler. Hays Cleveland has numerous servomotor and actuators, O₂ analyzers, transmitters and sensors to match the UPAC LT™ to any boiler capacity. Direct coupled (linkageless) servomotors and actuators are available with torques of 140 in lbs to 1200 in lbs and higher.



How to Order UPAC LT™

Model C-07050-B0- A - B - C - D - E - F - G - H - I - Z

A Packaging Options	
A1	Open-mount
A2	Surface-mount; NEMA 4
B System Control Strategy	
B1	Control System 1
B2	Control System 2
C Gas Valve Servo Motor/Actuator	
C0	None
C1	140 in-lbs torque; 10 mm round shaft
C2	200 in-lbs torque; 10 mm round shaft
C3	310 in-lbs torque; 12 mm round shaft
C7	140 in-lbs torque; 3/8 inch square shaft
C8	200 in-lbs torque; 3/8 inch square shaft
C9	310 in-lbs torque; 3/8 inch square shaft
C10	For actuators with torque ratings not listed above, consult Hays Cleveland.
D Oil Valve Servo Motor/Actuator	
D0	None
D1	140 in-lbs torque; 10 mm round shaft
D2	200 in-lbs torque; 10 mm round shaft
D3	310 in-lbs torque; 12 mm round shaft
D7	140 in-lbs torque; 3/8 inch square shaft
D8	200 in-lbs torque; 3/8 inch square shaft
D9	310 in-lbs torque; 3/8 inch square shaft
D10	For actuators with torque ratings not listed above, consult Hays Cleveland.
E Third Fuel (N/A)	
E0	None
F FD Damper Servo Motor/Actuator	
F1	140 in-lbs torque; 10 mm round shaft
F2	200 in-lbs torque; 10 mm round shaft
F3	310 in-lbs torque; 12 mm round shaft
F4	140 in-lbs torque; 3/8 inch square shaft
F5	200 in-lbs torque; 3/8 inch square shaft
F6	310 in-lbs torque; 3/8 inch square shaft
F7	For actuators with torque ratings not listed above, consult Hays Cleveland.
G FGR Damper Servo Motor/Actuator	
G0	None
G11	140 in-lbs torque; 10 mm round shaft
G12	200 in-lbs torque; 10 mm round shaft
G13	310 in-lbs torque; 12 mm round shaft
G14	140 in-lbs torque; 3/8 inch square shaft
G15	200 in-lbs torque; 3/8 inch square shaft
G16	310 in-lbs torque; 3/8 inch square shaft
G17	For actuators with torque ratings not listed above, consult Hays Cleveland.

H VFD Drive Controller	
H1	7.5 hp, 240 V (P/N C07050B0H1)
H2	10 hp, 240 V (P/N C07050B0H2)
H3	15 hp, 240 V (P/N C07050B0H3)
H4	20 hp, 240 V (P/N C07050B0H4)
H5	25 hp, 240 V (P/N C07050B0H5)
H6	30 hp, 240 V (P/N C07050B0H6)
H7	40 hp, 240 V (P/N C07050B0H7)
H8	50 hp, 240 V (P/N C07050B0H8)
H9	7.5 hp, 480 V (P/N C07050B0H9)
H10	10 hp, 480 V (P/N C07050B0H10)
H11	15 hp, 480 V (P/N C07050B0H11)
H12	20 hp, 480 V (P/N C07050B0H12)
H13	25 hp, 480 V (P/N C07050B0H13)
H14	30 hp, 480 V (P/N C07050B0H14)
H15	40 hp, 480 V (P/N C07050B0H15)
H16	50 hp, 480 V (P/N C07050B0H16)
H99	Customer specified custom VFD.
I Auxiliary Equipment	
I0	Customer Supplied Transmitters
I1	Boiler Water Temperature Transmitter with 2.5" insertion RTD.
I2	Boiler Water Temperature Transmitter with 4.5" insertion RTD.
I3	Boiler Steam Pressure Transducer, 0-30 psig.
I4	Boiler Steam Pressure Transducer, 0-100 psig.
I5	Boiler Steam Pressure Transducer, 0-300 psig.
I6	Boiler Steam Pressure Transmitter, Hart Smart, 10-300 psig.
I7	Boiler Flue Gas Temperature Transmitter with 12" insertion RTD.
I8	Boiler Flue Gas Temperature Transmitter with 18" insertion RTD.
I9	Web Server-Ethernet Gateway.
I10	Cell Data Industrial Modem.
I11	Modbus to BACnet Gateway.
I12	Modbus to LonWorks Gateway.
Z Engineering Services	
Z00	Standard Engineering Services (included).
Z01	Project-specific Engineering Services.

Hays Cleveland Representative:

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