

Orion Kiln Control Solution – January 2010

	Base Price
FDC - 2010- K5C - <input type="checkbox"/> - <input type="checkbox"/>	\$3,380
1 2	
1 Optional Analog Input and Output	
0: None	n/c
1: One Analog Input module with 2 analog inputs and one linear 4-20 mA output	\$357
2: Two Analog input modules; each have 2 analog inputs and one linear 4-20 mA output.	\$714
3: Three Analog input modules; each have 2 analog inputs and one linear 4-20 mA output.	\$1,071
2 Optional Assembly and telephone support	
0: None or left blank	n/c
1: Components mounted & wired on DIN Rail	\$125
2: same as #1 and telephone support:	contact factory

Part Number and Price Examples below - see p. 2 for notes

Kiln Only Systems: FDC-2010-K5C-0 \$3,380
 4-temperature inputs: 1-wet bulb, 2-dry bulbs and 1-Core temperature sensor.

Sterilizer Only Systems: FDC-2010-K5C-0 \$3,380
 4-temperature inputs: 1 chamber and 3-cores sensors.

Note: Kiln & Sterilizer only control systems (additional sensors):
 Three additional temperature input modules (6 inputs) may be specified: Kiln-only configurable as core sensors; Sterilizer-only as "monitor only". Part number with 2 additional modules (4 additional inputs): FDC-2010-K5C-2 \$4,094

Combination Kiln-Sterilizer: FDC-2010-K5C-2 \$4,094
 8-temperature inputs: (5 are core temperature sensors)

- Kiln Function: 1-wet bulb, 2-dry bulbs and 5-Core temperature sensors for use in Kiln
 - Kiln action may use Core sensors (5-total) as monitor and/or with Core control logic during Kiln Drying.
- Sterilize Function: 3-Core sensors for Sterilizer logic control and 1 of the 2 remaining core sensors may be used as monitor only, allowing system a total of 4-core temperature sensors.
 - Sterilize action uses Dry bulb #1 & #2 as chamber temperature sensor based upon fan direction.

System with Maximum of 10 Temperature Sensors

The last digit in the matrix provides 2-additional temperature inputs for a total of 10 temperature inputs.

- Part number with 10 temperature inputs:
 - FDC-2010-K5C-3 \$4,451
- Kiln Function (not configured as combination unit):
 - The 9th & 10th inputs configurable as monitor and/or with Core control logic.
- Sterilizer Control (not configured as combination unit)
 - The 9th & 10th inputs configurable as monitor only; total 3-core with logic and 6-monitor only.
- Combination Kiln-Sterilizer; 9th & 10 inputs configurable:
 - Kiln Control as monitor and/or with Core control logic providing a total of 7-monitor points.
 - Sterilizer Control the 9th & 10th inputs are monitor only totaling 6-monitor only.

Base System Includes:

FDC-2010-TV3 5.7" TFT CE Color Touch Screen with a combined Kiln-Sterilizer (KS-K5C) Application Software on 1GB CF Card and one 2GB I-Stick Memory Card

- Power Supply 24VDC 60 watt: [PS5R-SD24 24VDC/60Watt]
- CPU Control Module with 6 digital outputs, 8 digital inputs and components below.
 - CPU Control Module [FC5A-D16RS1]
 - Analog Input Module (Qty 2) [FC4A-L03AP1]
 - 8 digital 24VDC Input Module [FC4A-N08B1]
 - 16 relay output module (2 amps) [FC4A-R161]
 - RS485 Modbus 2 wire connector [FC4A-HPC3]
 - 64KB Memory Cartridge [FC4A-PM64]
 - Real Time Clock Module [FC4A-PT1]
 - Time Delay Relay & Socket [GE1A-C10MA110 / SR2P-06]
- Connecting Cable - Display to CPU Control Module 8-foot length [CA-2011-8]
- Low Frequency Ferrite Beads for Analog Inputs 4 beads standard, one/ input [LFBead-240-2282-ND]
- Base System Temperature Inputs: [FC4A-L03AP1]
 Two input modules each with 2 RTD or Type J inputs and one OEM configurable 4-20mA PID output (total 4-inputs & 2-outputs). The input type is a global setting for RTD or Type J thermocouple.
- Base System Analog Outputs: Two analog [4-20mA] outputs OEM configurable for Heat, Spray, Vent PID control, Fan control and/or retransmission of Dry & Wet bulb setpoints or temperature values.
 - One linear analog output with each analog RTD input card [2 RTD inputs]. [FC4A-L03AP1]
- Relay Outputs: Control, Alarm & Event outputs total 22 relays. Refer to Manual for control outputs, alarms, etc.
 - 6 Relays on CPU Control Module
 - 16 Relays on Relay Module [FC4A-R161]
 - When linear PID outputs are not used; Heat and Spray control have 1 relay each, Vent has 3 relays for single to three-stage vent control and Fan has two relay outputs [Forward & Reverse].
- Digital Inputs: Quantity 15 24VDC normally open digital inputs. [8 on CPU and 7 on FC4A-N08B1 Digital Input Module.]
 - Digital Inputs can be named and a time delay may be configured before input is recognized as closed.
 - Up to 5 Digital Inputs may be configured to turn on or off any of the up to 25 Events configured for each Stage or in Manual Control Mode.
 - An Alarm is logged and Relay Q10 is energized anytime a configured digital alarm input is closed or temperature sensor failure occurs.

Hardware Control Options

- Optional Temperature Inputs/Analog Outputs [FC4A-L03AP1]
 - Total of 6 optional temperature inputs maximum; [3-modules with 2-inputs and 1-output /module]. System maximum is 10-temperature inputs and 5-analog outputs. (Base system includes 2-modules; 4 temperature inputs & 2 analog outputs)
- OEM Configuration
 - Analog Outputs configurable for control or retransmission of Kiln Dry/Wet bulb or Sterilizer chamber setpoint and/or temperature values
- Assembly & Telephone support:
 - All components installed on DIN rail with appropriate wiring between components
 - System Start up telephone support for end users

Order Matrix Notes

Note – Order Codes 1 through 3:

When specifying order codes 1 through 3, the preceding Temperature Input / Analog Output module must also be specified.

Example: If Order Code 2 for an optional Input / Output module is specified, order Code 1 must also be specified as having an Input / Output module. In this case order codes 1 & 2 must both be “1” totaling 4 analog inputs [4-20mA input] with one analog output per module for a total of 2 Analog [4-20mA] outputs.

Configurable Analog Outputs [4-20mA]: the two analog outputs provided as standard and up to three optional analog outputs [5 maximum] are configurable by the Kiln OEM as one of the following:

- PID Control Output for Heat, Spray and/or Vent
- Fan Control output set as a percent output.
- Retransmission of active Kiln Dry Bulb, Wet Bulb or Sterilizer chamber setpoint and/or temperature values. If the control system is a combination Kiln-Sterilizer while in Sterilize function the Sterilizer’s Chamber and Kiln Dry Bulb #1 are the same sensor.

Options:

Manuals:

FDC-2010-K5C_Operators_Manual_v2.x. \$40
FDC-2010-K5C_OEM_Configuration_Manual \$30

Manuals above are available on our site at the link
<http://www.futuredesigncontrols.com/KilnFDC2010K5C.html>

ISTICK-PANEL: USB Panel Mount Adapter for Memory I-Stick or Printer Connection \$40

ISTICK-4X-CVR: Nema 4X USB Panel Mount Adapter \$60

KilnView Software:

PC communication to Orion Control System \$2,500

SNA-10A: RS232 to RS485 Converter connects PC RS232 Serial connection to Orion RS485 \$145

DB9M-DB9F-6ft: \$20

Cable [6 ft] to connect SNA10A to PC serial port

Printer: HP 6540 inkjet printer \$159

High & Low Frequency Ferrite Beads

Low Frequency Ferrite Bead is included for each analog input to provide additional protection for electrical “Noise” typically created by Variable Speed Drives. High Frequency Ferrite beads are optionally available.

LFBead-240-2282-ND: Low Frequency Ferrite Beads \$10

HFBead-240-4279-ND: High Frequency Ferrite Beads \$10

Software Licensing

Future Design Controls “Software” provided with the Control Module and the Color Touch Screen display is protected by copyright laws, international copyright treaties, intellectual property laws and treaties. For further information refer to the Kiln Control System manual.

This SOFTWARE is licensed at no charge to the end user as long as all Control Module & Display components are supplied by Future Design Controls whether as a new control system or if and when replacement parts are required. Software ownership and rights remain with Future Design Controls. Future Design Controls may terminate this License for failure to comply with these terms & conditions.

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