



Water Level/Draft Control Simplified

The latest addition to the NEXUS™ parallel positioning control family adds dual functionality of Drum Level and Draft Control to the already feature packed 6000 series.



NXEXP300 Shown with Optional NXDBWLC daughterboard Installed

Features & Benefits

- **Boiler Water Level¹**
One, two or three element boiler water level control via 4-20mA inputs from field devices. Feed pump VFD and pump sequencing is also included.
- **SEQUENCE DRAFT CONTROL²**
Built in sequence draft control controls the boiler outlet damper through prepurge, light off and operation reducing standby and operating losses.
- **TOTAL DISSOLVED SOLID³**
Industry standard TDS probe provides the option to control surface blow down based on TDS levels set by operators.
- **FLEXIBILITY**
Utilize proven Fireeye CANbus servomotors or industrial 4-20mA current or I/P feed water valves.
- **WIRING**
International voltage setting and simple four wire CANbus interconnections make wiring a snap. Safety relay contacts can be easily inserted into the existing control wiring.
- **RELIABLE OPERATION**
Proven hardware with more than five years of in field service has been reconfigured to provide these additional features.
- **APPROVALS**
UL, FM, CE, SIL LEVEL 2, SIL Level 3 pending review.

Overview

The NXEXP300 when combined with the Fireeye PPC6000¹ or NX6100 parallel positioning system adds basic Water (Drum) Level Control, Sequence Draft Control and Expanded Digital Inputs.

Basic water level control using a Fireeye CANbus servomotor and suitable valve can be controlled by one, two or three elements of the boiler system; drum level, steam flow, feed water flow.

Sequence draft control is also standard with the NXEXP300. Utilizing a suitably ranged differential pressure sensor and Fireeye CANbus servomotor, controlling the boiler outlet damper through pre-purge, light off and run couldn't be easier.

Also included are an additional seven low voltage and two line voltage safety rated digital inputs. These inputs provide additional safety interlock annunciation as well as position proving inputs for outlet dampers, combustion air make-up dampers and/or user defined options.

The NSDBWLC optional daughterboard expands the basic water level control to include measurement and control of boiler total dissolved solids (TDS) using industry standard TDS probes³. The NXDBWLC has inputs for the TDS probe as well as an RTD (PT100) type boiler temperature sensor. If no PT100 is available, the NXDBWLC relies on the standard saturated steam table in its memory. TDS's are controlled by surface and or bottom blow down. A full range options allows flexibility to meet most boiler requirements.

Specifications and Performance

The Fireye NEXUS™ NXEXP300 is a microprocessor based, expansion module for use with the Fireye Nexus PPC6000¹ or integrated NX6100 series of parallel positioning controls. The NXEXP300 expands the capability of the parallel positioning system by adding valuable safety rated digital inputs, sequence draft control, boiler water level control and total dissolved solids (TDS) surface and bottom blow down control. The small (5”L x 8.5”W x 3.75H) footprint, adjustable voltage (120/230, 50/60 hz.) and simplified wiring provide easy retrofit to existing Fireye systems.



NXEXP300 Shown with Optional NXDBWLC daughterboard Installed

NXEXP300 Expansion Module

The NXEXP300 expands the capability of the NX6100/PPC6000¹ with seven low voltage, safety rated, digital inputs along with two line voltage, safety rated digital inputs. When configured via available option parameters, these inputs can be used to simply annunciate conditions, or, shut the boiler down.

Sequence draft control is built into the NXEXP300 to control the boiler outlet damper. When combined with an appropriate differential pressure sensor, Fireye servomotor or third party actuator, the outlet damper will modulate and maintain the manufacturers’ outlet draft set point. The damper can be controlled with a Fireye CANbus driven servo motor or, a third party actuator capable of accepting a 4-20mA signal. Analog control requires optional NXDBWLC daughter board or optional NXDBVSD daughter board in main control. Maximum input impedance of actuators is 250 ohms. The boiler outlet damper is controlled during stand by, pre-purge, ignition and operation to provide a consistent outlet draft for improved combustion performance and reduced stand by losses.

NXDBWLC Water Level Daughterboard

The option NXDBWLC expansion daughter board enhances the capability of the Nexus™ system by optimizing boiler water quality and level. The results are; higher quality steam and reduced boiler water side scaling.

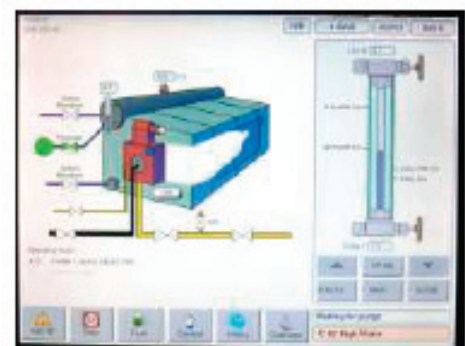
The NXDBWLC includes an input for the measurement of Total Dissolved Solids (TDS) which in turn controls a surface, bottom or combination of, blow down valves. A fully programmable operating scheme allows each site to be custom configured based on water and operating conditions. Provisions are made for connecting a PT100 RTD temperature sensor or the system can use a built in steam table for estimating water temperature compensation. The NXDBWLC includes one analog output for controlling either the boiler feed water valve or sequence draft damper. The maximum input impedance of the actuators must not exceed 250 ohms.



NXDBWLC Daughterboard

Other Enhancements:

- **Oxygen Trim.** 20+ Year Proven Oxygen Probe Technology
- **VFD.** Daughterboard for PPC6000/NX6100 Provides Two VFD Channels Plus Modbus RTU



Actual Screen Shot



NXO2PK4 Oxygen Probe

¹ Requires Optional NXTSD104 Display ² Required field sensors not supplied by Fireye ³ TDS probe by others, consult Fireye