



# NXD410TS TOUCHSCREEN INSTALLATION GUIDE

USED WITH PPC4000 and  
NXF4000 FUEL AIR RATIO  
CONTROLLER

## DESCRIPTION

The NXD410TS Touch Screen User Interface provides the means to setup, monitor and display all information from the PPC4000 and NXF4000 Control and connected accessories. The NXD410TS is a 4.3" widescreen TFT color touchscreen. The NXD410TS is panel mounted and connects directly to the PPC4000 and NXF4000 using cable part number 59-561 available by the foot.

Refer to Bulletin PPC-4001 for a complete description of the PPC4000 control system or for NXF4000 See Bulletin NXF-4001.

## SPECIFICATIONS

	NXD410TS
<b>Supply Voltage:</b>	24 Vdc (18 to 30 Vdc)
<b>Power Consumption:</b>	0.60A at 24Vdc (max.)
<b>Temperature Rating:</b>	32°F to 122°F (0°C to +50°C)
<b>Protection Category:</b>	Indoors use only, IP40
<b>Unit Dimensions:</b>	Faceplate LxH 129x88 mm (5.1"x(3.45" Cutout AxB 106.5x73.025 mm (4.19"x(2.875" allow 1.725" (43.8mm) depth clearance
<b>Interface Method:</b>	RS485, 57600 Baud
<b>Shipping Weight:</b>	Approx. 0.9 lbs. (0.41 Kg)



**NOTE:** Proper operation of the NXD410TS Touchscreen display requires a PPC4000 with an Engineering code of 9 or greater or a PPC4000 running main firmware revision v3.7 or greater.

Due to limitations of Modbus RTU, only one master can exist on the Modbus interface. The NXTSD4xx Touchscreen display is considered the master of the bus and the Modbus system should be configured such that the Touchscreen display is the only device speaking to the PPC4000(s) on the bus.



## Standards and Approvals:

UL File # XAAF.MP1537 (USA)  
XAAF7.MP1537 (Canada)

The products have been designed for use in an industrial environment in compliance with the 2014/30/EU EMC Directive, 2014/35/EU LV Directive, and 2011/65/EC RoHS Directive.

The products have been designed in compliance with:

EMC – EN 60950-1:2006  
Emissions – EN 55032:2015  
Immunity – EN 55035:2017

The installation of these devices into the residential, commercial and light-industrial environments is allowed only in the case that special measures are taken in order to ensure conformity to EN 61000-6-3.

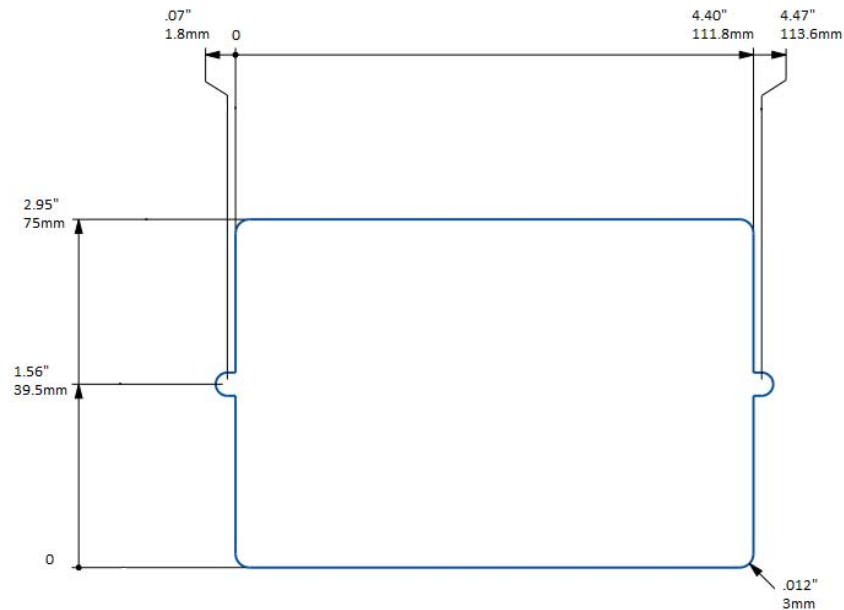
The products are in compliance with the Restrictions on Certain Hazardous Substances (RoHS) Directive 2011/65/EC. (RoHS compliant)

In compliance with the above regulations the products are CE marked.

## INSTALLATION

The NXD410TS is a panel mounted devices. Use the panel cutout template shown below. Note: Mounting hardware included. (2X M4X25mm studs, 2X M4 Thumb nuts)

**FIGURE 1.** Panel Cutout



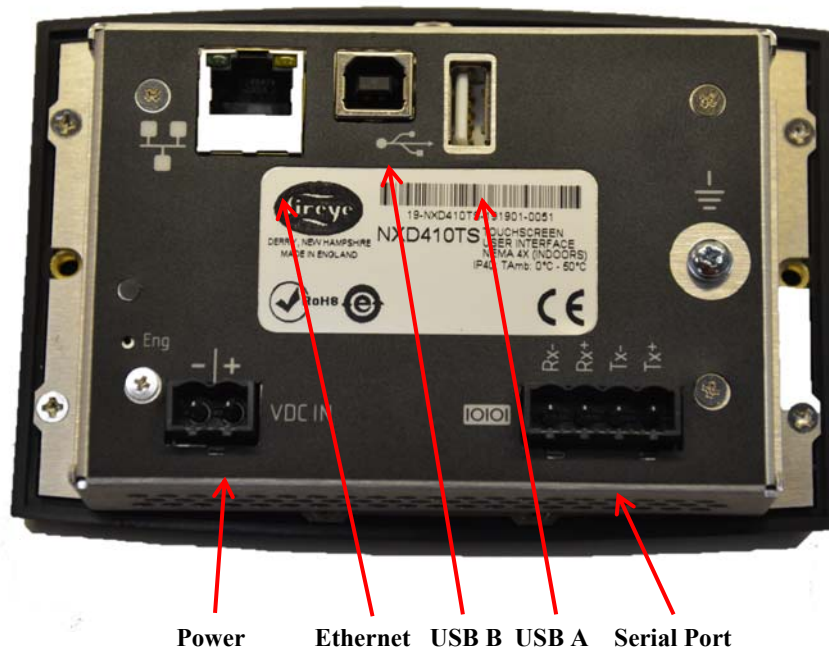
## NXD410TS CONNECTION TO PPC4000/NXF4000

NXD410TS VDC IN	TO PPC/NXF4000	Description
VDC IN pin 2 (VDC+)	P2.1	24 VDC POWER (Red)
VDC IN pin 1 (VDC-)	P2.6	24 VDC RETURN (Black)
NXD410TS IOIO		Description
Tx+	P12.10	Display Tx (yellow)
Tx-	P12.9	Display Ty (Blue)
Rx+	P12.7	Display Ra (Orange)
Rx-	P12.8	Display Rb (Brown)
GND Screw	CHASSIS	Drain wire GND (Shield)

Note: Ethernet, USB B and USB A ports are not active.

Note: All connection colors represent Fireeye cable part number 59-561 and is available by the foot.

FIGURE 2.



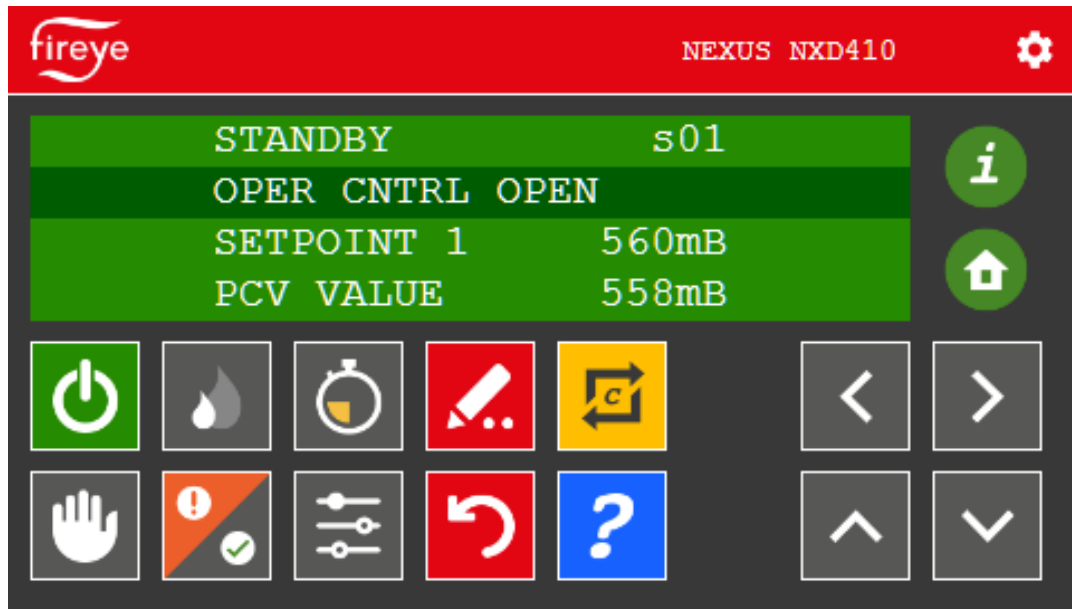


## DISPLAY CONFIGURATION

The following information outlines button functions of the NXD410TS touch Screen display.

1. Display Configuration Fundamentals.  
The NXD410TS display allows the installer or technician to configure/maintain operation of PPC4000/ NXF4000 controller within the associated burner environment. Please refer to bulletin PPC-4001 for further control setup information for the PPC4000. Please refer to bulletin NXF-4001 for further control setup information for the NXF4000.

**FIGURE 3.** Main Screen Button Definitions



1. Burner on/off button. Green = Burner on, Gray = Burner off  
This setting allows the control to turn the burner ON/OFF using the digital input. The operation of this setting is impacted by the keypad Burner ON/OFF key.



2. Sequence lead/lag control. Green = Lead mode, Gray = Lag mode  
This feature allows the user to select a sequencing master (lead boiler) in a sequencing chain. Sequencing must be configured properly in the sequencing menu in order to select the feature via the digital input.



3. Reset. For resting a locked out condition.  
When active, the digital input allows the user to remotely reset the control during a lockout event. Note: When using this display with the PPC4000, the reset button will reset the unit with no limitations. When using this display with the NXF4000, the reset button will be limited to no more than 5 reset attempts in a 15-minute window. After that 5th reset, the unit can no longer be reset. To overcome this reset limitation you must recycle the power or insert an SD card. If an SD card is already inserted, it must be removed and reinserted to reset the reset this limitation.



4. Low Fire. Green = Low Fire Hold, Gray = Normal fire modulation based on real demand. This setting allows the control to maintain a low fire modulation rate using the digital input. The operation of this setting is impacted by the keypad Low Fire key.



5. Auto/manual modulation mode  
This setting gives the user the ability to place the control in Manual Modulation Mode. Manual adjustment of the modulation rate can further be done using the keypad or via Modbus. The operation of this setting is impacted by the keypad AUTO/MAN key.



6. Dual function- Check/run and fault information  
This setting gives the user the ability to enable or disable the RUN/CHECK operation via the digital input. See the BURNER CONTROL SETUP (See Bulletins PPC-4001 or NXF-4001) section for information on run/check operation. This also allows the user to retrieve Fault History Display.



7. Commissioning Mode  
Go to the Commissioning or Adjust Ratio Mode. LED illuminates when C-MODE is enabled (after passcode enabled). While in Commissioning Mode or Adjust Ratio Mode, hitting C-Mode is used to correctly terminate Commissioning and Adjust Ratio Mode.



8. Jump to set point adjust menu  
This function allows direct access to the set point menu for set-point, Cut In, Cut Out, P-Band and other Set-point setup parameters.



9. Begin modify/save changes  
Modify "Green" enters modify mode. UP/DOWN arrows are used to modify current value. SAVE "Red" Save/ enters current parameters being entered.



10. Information  
Show summary of servos positions, VFD speed, DI activations and other top level data.



11. Home  
From anywhere and in any menu or submenu, immediately suspends any modify mode if enabled and directs user to default or main screen.



12. Navigation up/raise setting  
Move up to the previous menu item. When in MODIFY mode, used to increment numerical value.



13. Navigation down/lower setting  
Move down to the next menu item. When in MODIFY mode, used to decrement numerical value.



14. Navigation Backwards  
Move back one menu layer to navigate with in the menu.



15. Navigation Forwards  
Move forward one menu layer to navigate with in the menu. This function is also used to advance within the combustion curve.



16. Help

The help menu provides detailed information on the buttons and feature shown on this display.

The main display area will change color dependent upon mode as the information shown changes. This is in priority order – e.g. a lockout background color (red) will supersede commissioning mode (yellow):

- a. Green – normal
- b. Yellow - Adjust ratio/commissioning mode
- c. Red – Lockout



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**WARNING: THE INAPPROPRIATE SELECTION OR APPLICATION OF A SYSTEM SETTING COULD RESULT IN AN UNSAFE CONDITION HAZARDOUS TO LIFE AND PROPERTY.** Selection of the proper settings for a particular application should be made by a competent professional, such as a Boiler/Burner technician licensed by a state or government agency, engineering personnel of the burner, boiler or furnace manufacturer (OEM) or in the performance of duties based on the information from the OEM.



The equipment described in this manual is capable of causing property damage, severe injury, or death. It is the responsibility of the owner or user to ensure that the equipment described is installed, operated and commissioned in compliance with the requirements of all national and local codes.

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