Capable Controls *inc.*

ORDERING INSTRUCTIONS
2X SERIES UNIVERSAL INTERMITTENT PILOT IGNITION CONTROL

Application

The 2X Universal Intermittent Pilot Ignition Control is a microprocessor based ignition control. The microprocessor provides reliable software control of all timings and drives a diagnostic led. It is designed for direct burner supervision and can be used with all gases.
It provides ignition sequence, flame monitoring, and safety shutout for intermittent pilot boilers, furnaces and other heating appliances with or without automatic vent damper. The control replaces many existing intermittent pilot ignition controls..

Six hardware configurations are available to match the application. Retry time (none, 5 min, 60min) and trials (1, 3 or continuous), inter-purge time (none to 4 minutes), pre-purge time (none to 4 minutes) and trial time (4 to 120 seconds) are factory programmed. The standard values can be matched to almost any existing control.

Specifications:

Electrical ratings:	Voltage	24VAC 50/60 Hz
	Pilot valve	1A maximum
	Main valve	2A maximum
	Operating current	0.2A
	Wiring connections	1/4” male spade
Environmental:	-40 to +170 degrees F (-40 to +77 C)	
Humidity:	To 90% non-condensing	
Flame failure response time:	1 second maximum	
Minimum flame current required:	0.15 microamperes	
Type of gas:	Natural, LP, or manufactured	
Recommended Spark Gap:	0.2 inches maximum, use noise suppression (resistive) wire only	

The 2xxxxx control is not position sensitive. It may be mounted in any position with #6 sheet metal or machine screws. Mounting holes are on 4 - 1/4 by 2 - 5/8 centers. See figure 1 below.

Power must be provided from a properly sized 24 volt class 2 transformer. All wiring must be done in accordance with both local and national electrical code. All wiring and initial operation must be performed by a qualified service technician.

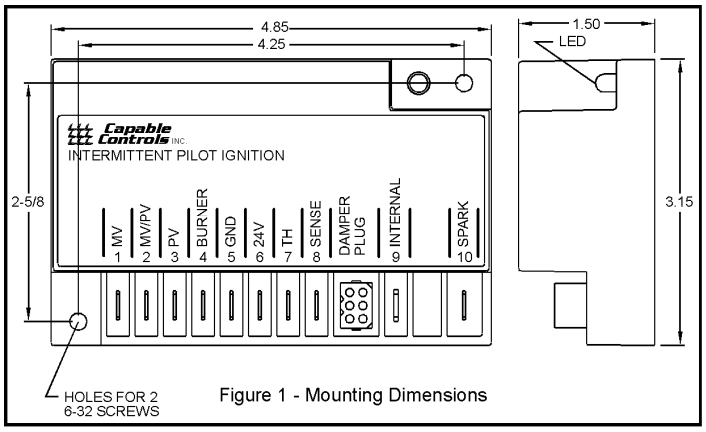

Figure 1 - Mounting Dimensions

The high voltage spark cable should be of the noise suppression type rated for at least 15kV and must not be in continuous contact with a metal surface. If separate flame sense probe is used, the sense wire must be separated from the high voltage wire by a minimum of 1/4".

Selecting Model Number

The model number consists of 2 followed by 5 option digits in a 2abcde format. Note that some digits use hexadecimal coding 0 – 9, A B C D E F to allow more selections.

The first option digit (a) selects one of six hardware configurations available.

Models differ in number of terminals provided but function identically. Units with damper plug are supplied with shorting plug for use if vent damper is not actually connected. universal sense units are supplied with a jumper for internal flame sense.

2**1**xxxx = internal sense (1 rod) , no damper plug
2**2**xxxx = external sense (2 rod), no damper plug
2**3**xxxx = universal sense (1 or 2 rod jumper selected), no damper plug
2**4**xxxx = internal sense (1 rod) , with damper plug
2**5**xxxx = external sense (2 rod), with damper plug
2**6**xxxx = universal sense (1 or 2 rod jumper selected), with damper plug

Model	21xxxx	22xxxx	23xxxx	24xxxx	25xxxx	26xxxx
Damper plug	No	No	No	Yes	Yes	Yes
TH terminal	No	No	No	Yes	Yes	Yes
Sense terminal	No	Yes	Yes	No	Yes	Yes
Internal terminal	No	No	Yes	No	No	Yes

The second option digit (b) selects the factory set retry time if flame fails to light and number of trials

2x**0**xxx = none lockout after one trial time
2x**1**xxx = 5 minutes continuous retry – no lockout
2x**2**xxx = 60 minutes continuous retry – no lockout
2x**3**xxx = 5 minutes 3 tries then lockout
2x**4**xxx = 60 minutes 3 tries then lockout

The third option digit (c) selects the factory set inter-purge (recycle time) on loss of flame. Controls (0 – B) use recycle on flame loss the main and pilot valves both turn off for the inter-purge time then a new trial for ignition starts.
Option F is re-ignition on flame loss only the main valve turns off and spark and new trial time start immediately.

2xx**0**xx = none approx. 0.7 seconds
2xx**1**xx = 5 second inter-purge
2xx**2**xx = 10 second inter-purge
2xx**3**xx = 15 second inter-purge
2xx**4**xx = 20 second inter-purge
2xx**5**xx = 25 second inter-purge
2xx**6**xx = 30 second inter-purge
2xx**7**xx = 35 second inter-purge
2xx**8**xx = 40 second inter-purge
2xx**9**xx = 45 second inter-purge
2xx**A**xx = 60 second inter-purge
2xx**B**xx = 4 minute inter-purge
2xx**F**xx = re-ignition

The fourth option digit (d) selects the factory set pre-purge time.

2xxx**0**x = no pre-purge (1 sec. startup delay)
2xxx**1**x = 10 second pre-purge
2xxx**2**x = 15 second pre-purge
2xxx**3**x = 30 second pre-purge
2xxx**4**x = 45 second pre-purge
2xxx**5**x = 60 second pre-purge
2xxx**6**x = 4 second pre-purge
2xxx**7**x = 8 second pre-purge
2xxx**8**x = 4 minute pre-purge

The fifth option digit (e) selects the factory set trial time.

2xxxx**1** = 5 second trial time
2xxxx**2** = 10 second trial time
2xxxx**3** = 15 second trial time
2xxxx**4** = 20 second trial time
2xxxx**5** = 25 second trial time
2xxxx**6** = 30 second trial time
2xxxx**7** = 60 second trial time
2xxxx**8** = 90 second trial time
2xxxx**9** = infinite trial time no lockout
2xxxx**A** = 4 second trial time
2xxxx**B** = 8 second trial time
2xxxx**C** = 50 second trial time
2xxxx**D** = 85 second trial time

Some Examples

Model 210008 = internal sense, no damper plug, no retry, 1 sec pre-purge, 90 sec trial time
Model 220034 = external sense, no damper plug, no retry, 30 sec pre-purge, 20 sec trial time
Model 261017 = universal sense, damper plug, 5 min retry, 10 sec pre-purge, 60 sec trial time