What is claimed is:

1. A method for detection and ignition, comprising:

providing a flame rod having a first end at a flame location of a burner;

covering a portion of the flame rod with an insulator at a predefined distance from the first end of the flame rod;

determining whether there is a flame at the burner by detecting a voltage, if any, on the flame rod caused by a field of ionization gas of a flame; and

igniting the burner with a voltage spark on the flame rod to start a flame at the burner; and

wherein the insulator eliminates effects of moisture to prevent an electrical malfunction of the flame rod which makes the flame rod inoperable relative to detecting a voltage on the flame rod caused by a field of ionization gas of a flame or relative to igniting the burner with a voltage spark.

2. The method of claim 1, further comprising:

attaching a coupling to the insulator with a high temperature braze or weld; and

attaching the flame rod to the coupling with a high temperature braze or weld; and

wherein:

a high temperature braze or weld endures temperatures up to 1100 degrees C;

the insulator comprises a material tolerant of temperatures up to 1100 degrees C.; and

the flame rod comprises a conductive material tolerant of temperatures up to 1100 degrees C.

3. The method of claim 1, wherein the insulator comprises a corrugated outside surface.

4. The method of claim 1, wherein:
the insulator is at a predetermined distance from the burner; and
the insulator is virtually instantly self-drying when the burner has a flame.

5. The method of claim 1, wherein:
the insulator is at a predetermined distance from a flare stack; and
the insulator is virtually instantly self-drying when the flare stack has a flame.

6. A detection and ignition system comprising:
a flame rod;
an electrically insulating sleeve situated around a portion of the flame rod at a first end;
an electrical switch connected to the first end of the flame rod;
a signal amplifier connected to the switch; and
an electrical spark source connected to the switch; and
wherein:
the switch comprises a first position and a second position;

the first position connects the amplifier to the flame rod;

the second position connects the electrical spark source to the flame rod; and

the insulating sleeve prevents precipitation from electrically affecting the flame rod.

7. The system of claim 6, wherein:

the flame rod has a second end situated at a pilot burner;

the flame rod can ignite the pilot burner with an electrical spark; and

the flame rod can detect a flame at the pilot burner from a field of ionized gas created by the flame which causes a voltage to appear on the flame rod.

8. The system of claim 6, wherein the electrically insulating sleeve comprises a corrugated external surface.

9. The system of claim 6, wherein:

the second end of the flame rod comprises a dual mode;

the dual mode comprises a detection mode and an ignition mode;

the amplifier is connected by the switch to the first end of the flame rod in the detection mode; and

the electrical spark source is connected by the switch to the first end of the flame rod in the ignition mode.

10. The system of claim 6, wherein the sleeve comprises a ceramic material.

11. The system of claim 6, further comprising:
a cable connecting the switch to the first end of the flame rod; and
the cable is tolerant of temperatures up to 1100 degrees C; and
wherein the flame rod comprises a steel alloy.

12. The system of claim 11, wherein:
the connection of the cable at the first end of the flame rod is achieved with a high temperature braze or weld; and
a high temperature braze or weld endures temperatures up to 1100 degrees C.

13. A detection and ignition system for comprising:
a first elongated piece of metal;
an elongated insulator having a first end attached to a first end of the first elongated piece of metal; and
a second elongated piece of metal having a first end attached to a first end of the first elongated piece of metal and situated through a hole in the elongated insulator; and
wherein:
the first elongated piece of metal, the second elongated piece of metal and the elongated insulator are tolerant of temperatures up to 1100 degrees C.;
the first elongated piece of metal can convey a signal voltage indicating a flame in a pilot burner;

the first elongated piece of metal can convey an ignition voltage for lighting a flame at the pilot burner; and

the elongated insulator is situated within a predetermined distance from the pilot burner having a flame for virtually instantaneous moisture removal from the elongated insulator.

14. The system of claim 13, wherein the insulator has an eternal surface which comprises indentations in the surface for a larger external surface than the external surface without the indentations.

15. The system of claim 13, further comprising:

a selector switch connected to a second end of the second elongated piece of metal;

an amplifier connected to the selector switch; and

a ignition voltage source connected to the selector switch; and

wherein:

the selector switch can connect the amplifier or the ignition voltage source to the second end of the second elongated piece of metal;

the selector switch indicates a selection of a flame detection mode or a flame ignition mode;

the amplifier amplifies a voltage created on the first elongated piece of metal by a field of ionization gas from a flame of the pilot burner;

the ignition voltage source provides a spark for igniting a flame at the pilot burner; and

a second end of the first elongated piece of metal is proximate to the pilot burner sufficient for

igniting a flame at the pilot burner and for detecting the voltage created by the field of ionization gas from the flame at the pilot burner.

What is claimed is:

1. A method for detection and ignition, comprising:

providing a flame rod having a first end at a flame location of a burner;

covering a portion of the flame rod with an insulator at a predefined distance from the first end of the flame rod;

attaching a coupling to the insulator with a high temperature braze or weld;

attaching the flame rod to the coupling with a high temperature braze or weld;

determining whether there is a flame at the burner by detecting a voltage, if any, on the flame rod caused by a field of ionization gas of a flame; and

igniting the burner with a voltage spark from the flame rod to start a flame at the burner; and

wherein

the insulator comprises a material tolerant of temperatures up to 1000 degrees C.;

the insulators eliminates effects of moisture to prevent an electrical malfunction of the flame rod which makes the flame rod inoperable relative to detecting a voltage on the flame rod caused by a field of ionization;

a high temperature braze or weld ensures temperatures up to 1000 degrees; and

the flame rod comprises a conductive material tolerant of temperatures up to 1100 degree C.

2. The method of claim 1, wherein the insulator comprises a corrugated outside surface.

3. The method of claim 1, wherein:

the insulator is at a predetermined distance from the burner; and

the insulator is virtually instantly self-drying when the burner has a flame.

4. The method of claim 1, wherein:

the insulator is at a predetermined distance from a flare stack; and

the insulator is virtually instantly self-drying when the flare stack has a flame.

5. A detection and ignition system comprising:

a flame rod;

an electrically insulating sleeve situated around a portion of the flame rod at a first end;

an electrical switch connected to the first end of the flame rod;

a signal amplifier for indicating an ionization field on the flame rod, the signal amplifier connected to the switch; and

an electrical spark source connected to the switch; and

wherein:

the switch comprises a first position and a second position;

the first position connects the amplifier to the flame rod;

the second position connects the electrical spark source to the flame rod; and

the insulating sleeve prevents precipitation from electrically affecting the flame rod.

6. The system of claim 5, wherein:

the flame rod has a second end situated at a pilot burner;

the flame rod can ignite the pilot burner with an electrical spark; and

the flame rod can detect a flame at the pilot burner from a field of ionized gas created by the flame which causes a voltage to appear on the flame rod.

7. The system of claim 5, wherein the electrically insulating sleeve comprises a corrugated external surface.

8. The system of claim 5, wherein:

the second end of the flame rod comprises a dual mode;

the dual mode comprises a detection mode and an ignition mode;

the amplifier is connected by the switch to the first end of the flame rod in the detection mode; and

the electrical spark source is connected by the switch to the first end of the flame rod in the ignition mode.

9. The system of claim 5, wherein the sleeve comprises a ceramic material.

10. The system of claim 5, further comprising:

a cable connecting the switch to the first end of the flame rod; and

the cable is tolerant of temperatures up to 1100 degrees C; and

wherein the flame rod comprises a steel alloy.

11. The system of claim 10, wherein:

the connection of the cable at the first end of the flame rod is achieved with a high temperature braze or weld; and

a high temperature braze or weld endures temperatures up to 1100 degrees C.

12. A detection and ignition system for comprising:

a first elongated piece of metal;

an elongated insulator having a first end attached to a first end of the first elongated piece of metal; and

a second elongated piece of metal having a first end attached to a first end of the first elongated piece of metal and situated through a hole in the elongated insulator; and

wherein:

the first elongated piece of metal, the second elongated piece of metal and the elongated insulator are tolerant of temperatures up to 1100 degrees C.;

the first elongated piece of metal can convey a signal voltage indicating a flame in a pilot burner;

the first elongated piece of metal can convey an ignition voltage for lighting a flame at the pilot burner; and

the elongated insulator is situated within a predetermined distance from the pilot burner having a flame for virtually instantaneous moisture removal from the elongated insulator.

13. The system of claim 12, wherein the insulator has an eternal surface which comprises indentations in the surface for a larger external surface than the external surface without the indentations.

14. The system of claim 12, further comprising:

a selector switch connected to a second end of the second elongated piece of metal;

an amplifier connected to the selector switch; and

a ignition voltage source connected to the selector switch; and

wherein:

the selector switch can connect the amplifier or the ignition voltage source to the second end of the second elongated piece of metal;

the selector switch indicates a selection of a flame detection mode or a flame ignition mode;

the amplifier amplifies a voltage created on the first elongated piece of metal by a field of ionization gas from a flame of the pilot burner;

the ignition voltage source provides a spark for igniting a flame at the pilot burner; and

a second end of the first elongated piece of metal is proximate to the pilot burner sufficient for igniting a flame at the pilot burner and for detecting the voltage created by the field of ionization gas from the flame at the pilot burner.