THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

[Claim 1]

A valve united sprinkler comprising:

an open sprinkler head that is connected to a fire extinguishing solvent storage to sprinkle the solvent;

a sprinkler valve that is located between the solvent storage and the sprinkler head to open up the sprinkler head;

a sprinkler sensor that is located near the sprinkler head to detect a fire; and

a sprinkler controller that controls only the sprinkler valve and makes the sprinkler valve operate,

wherein the sprinkler controller comprises:

a plurality of external detector signal input pins that are communicatively connected to a plurality of external detectors, that are not part of the sprinkler but are located near the sprinkler to detect a fire, in order to receive fire detection signals from the external detectors.

a fire alarm signal output pin through which to output a fire alarm signal generated from the fire detection generated from the fire detection signals to a control panel;

a fire extinguishing signal input pin through which to receive a fire extinguishing signal generated by the control panel in response to depression of a fire extinguishing button of the control panel after a fire has been recognized by an operator that presses the fire extinguishing button; and

a sprinkler sensor signal input pin through which to receive a sprinkler sensor signal from the sprinkler sensor that is attached to the sprinkler and detects a fire;

wherein the sprinkler controller activates the sprinkler valve in response to determining that (i) at least one of the fire detection signals generated by the external detectors indicates a fire is detected and (ii) the fire extinguisher signal indicated a fire has been recognized or the sprinkler sensor signal indicates a fire is detected.

wherein the sprinkler controller generates the fire alarm signal indicating that a fire is detected in response to determining that (i) at least one of the fire detection signals generated by the external detectors indicates a fire is detected or (ii) the sprinkler sensor signal indicates a fire is detected.

[Claim 2 ]

The valve united sprinkler according to claim 1, wherein the sprinkler controller activates the sprinkler valve in response to determining that (i) the fire extinguishing signal indicates a fire has been recognized and (ii) the sprinkler sensor indicates that a fire is detected.

[Claim 3]

The valve united sprinkler according to claim 1 or 2, wherein the sprinkler controller prevents the sprinkler valve from being activated in response to determining that a test signal indicates that the valve united sprinkler is being tested.

[Claim 4]

An early fire extinguishing system using a valve united sprinkler, the early fire extinguishing system comprising:

a plurality of external detectors that are not part of any valve united sprinkler but are located near the sprinkler to detect a fire;

a plurality of valve united sprinklers each comprising:

a plurality of external detector signal pins that are connected to the external detectors, to receive fire detection signals from the external detectors;

a fire alarm signal output pin through which to output a fire alarm signal generated from the fire detection signals to a control panel;

a fire extinguishing signal input pin through which to receive fire extinguishing signal generated by the control panel in response to depression of a fire extinguishing button of the control panel after a fire has been recognized by an operator that presses the fire extinguishing button; and

a sprinkler sensor signal input pin through which to receive a sprinkler sensor signal from the sprinkler sensor that is attached to the sprinkler;

a signal distributor to receive the fire alarm signals from the valve united sprinklers and to transmit the fire alarm signals to the control panel; and

the control panel to receive the fire alarm signals from the signal distributor, the control panel comprising:

a controller that includes a fire alarm unit that alarms an occurrence of the fire as sound, a display that displays a location of a fire, a fire extinguishing signal input unit that generates the fire extinguishing signal; and

a stop signal input unit that send the fire extinguishing signal to an anti-freezing intermediate valve and a ventilation fan, both of which are activated by the fire extinguishing signal;

wherein the sprinkler controller activates the sprinkler valve in response to determining that (i) at least one of the fire detection signals generated by the external detectors indicates a fire is detected and (ii) the fire extinguishing signal indicates a fire has been recognized or the sprinkler sensor signal indicates a fire is detected.

wherein the sprinkler controller generates the fire alarm signal indicating that a fire is detected in response to determining that (i) at least one of the fire detection signals generated

by the external detectors indicated a fire is detected or (ii) the sprinkler sensor signal indicated a fire is detected.

[Claim 5]

The early fire extinguishing system of claim 4, wherein the signal distributor transmits a signal that activates an indoor gas circuit breaker when the signal distributor receives one or more fire alarm signals.

[Claim 6]

The early fire extinguishing system of claim 4 or 5, further comprising an emergency telephone network that operates during occurrence of a fire to and connects a house where a fire broke out and a senior management agency.