

Frostmate is an integrated frost risk management system that reduces the risk of frost damage to an orchardist's crop. A sophisticated control and monitoring system constantly monitors the orchard environment combining both temperature and humidity to deliver a reliable prediction of frost conditions. When frost damage is imminent, the Frostmate automatically initiates the timely delivery of water spray to the area at risk, raising the humidity level. Water delivery is maintained in a continuous cycle to the affected zones until the frost conditions have abated, ensuring better crop protection and conserving resources such as water and power.

Frostmate is the only frost protection system that combines environmental monitoring with automatic irrigation control. This allows the orchardist to sleep easy during potential crop damage conditions. But, for orchardists who want to be kept aware of current conditions, the Frostmate can alert them to potential crop damage conditions via text message to a mobile phone over the GPRS network.



APPLICATION FUNCTIONS

Frostmate-MACRO

RELAY OUTPUTS

TIMERS

SERIAL OUTPUTS

REGISTER RESETS

CALCULATIONS

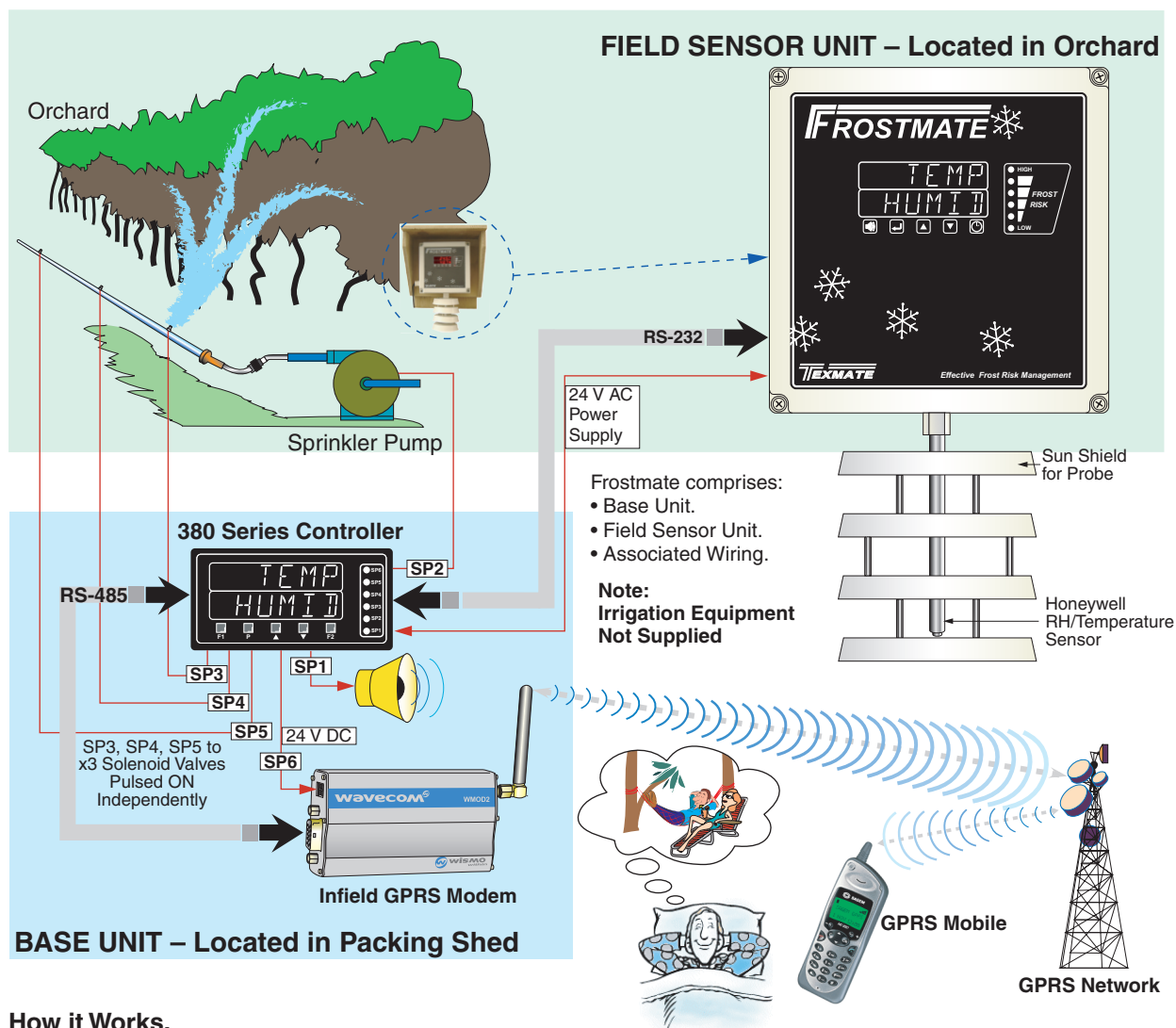
SEQUENCE CONTROLS

TEXT MESSAGING

INPUTS

HUMIDITY TEMPERATURE

TEMPERATURE RTD



How it Works.

The system consists of two boxed units. The field unit contains a temperature and relative humidity probe connected to a Tiger 320 Series controller and is based in the orchard. Both temperature and humidity are displayed at the same time on the dual display. Annunciators display the frost risk in six levels ranging from low to high.

The base unit contains a Tiger 380 Series controller directly connected to a GPRS modem via RS-232 and is based in the packing shed or some other control area. 24 V AC power is supplied to the base unit controller from a transformer. The base unit controller then supplies 24 V AC power to the field unit controller and powers the GPRS modem with 24 V DC.

The combination of temperature and relative humidity input is displayed on the field unit controller and transferred via RS-485 to the base unit controller where it is also displayed. Once the humidity compensated temperature alarm is reached, setpoint SP2 starts the sprinkler pump in the orchard. Sprinkler valves, are then pulsed ON at a defined rate in a zoned sequence until the frost danger has passed.