

Frost Type & Protection Capacity

1. Against which frost types is your system effective?
 - Radiative frost yes
 - Advective frost (windy conditions) yes
2. What is the minimum temperature (°C) the system can protect against?
-6°C in normal conditions, -3,5 when weather is extreme
3. What is the average temperature increase at bud level during a frost event?
Depends, between 2 and 18 degrees
4. Do you have performance data from real frost events (graphs or case studies)?
We have more than 100 satisfied clients,

Heating Capacity and Coverage

1. For an area of approximately 1,000 m², how many meters of infrared tube are required?
Depends on the distance between the rows, if the rows are at 1 meter you need 1000 meters of frolight, if they are at 2 meters, only 500 meters needed.
2. What row spacing assumptions should we use (e.g., 2.5 m / 3 m)?

Doesn't matter – any will do
3. What heating power (W/m) do the tubes provide? 15W/m
4. Is the system technically efficient for small-scale (partial row) installation?
I don't really understand the question, you need to cover all crops, so not one row and another not for example The tubes need to be max 15 cm away from crop
5. What minimum area is recommended for optimal system efficiency? The unit is designed for 1200 meters of Frolight, so that's the most economical option

Energy Requirements (for 1,000 m²)

1. What is the total installed power (kW) for 1,000 m²? 15kw
2. What is the expected electricity consumption (kWh) during a typical frost night? 15x 6h = 90kWh
3. What generator size (kVA) would be required for this area? 20kVA
4. Can it operate with solar + battery backup? no
5. Does the system support automatic generator start? Yes we have our own

Investment Cost (for 1,000 m²)

1. What is the estimated total investment cost for 1,000 m² (complete system)? 5000
2. What components are included in this price? See quote
3. What are the shipping costs to Armenia? See quote
4. What is the delivery time? Direct, so transit time to Armenia

Installation & Maintenance

1. Is special technical expertise required for installation?
2. Do you provide remote technical support?
3. Estimated annual maintenance cost?
4. Expected lifetime of tubes and control unit?

Additionally, we would appreciate your guidance on the following:

From your experience, is 1,000 m² sufficient to realistically demonstrate system performance under frost conditions?

ICARE

- You indicated that the system protects vines down to -3.5°C. However, we would like to better understand the actual temperature increase at bud level. For example, if the air temperature is -4°C, what would be the approximate temperature at the bud level?
- How effective is the system when frost is accompanied by wind (advective frost)? How does wind speed affect the level of protection?
- What is the electricity consumption of the system? We would appreciate an approximate calculation of the installed power (kW) and electricity consumption (kWh) during a typical frost night for an installation covering about 1,000 m².
- What are the power supply requirements for the system? Is there any limitation regarding the distance between the system and the electricity source ?
- What is the service capacity of one master unit?
Specifically, how many meters of infrared tube or vineyard row length can be controlled by a single master unit?

Frolight

First of all I want to say that we can never talk black on white. Frost is a very special weather condition influenced by many factors.

Frolight heats the plants and the water inside of them. So the stadium of the plant and the humidity are key factors. The Air temperature is less relevant.

Frolight will work at -6 degrees with no wind and normal humidity. It will not work at -4 with heavy rain and strong winds.

There's no formula that is 100 percent reliable

Frolight uses 15 watts per meter,

So for 1000 meters you need 15kW

You need a CEE connection of 32A -5P

400V+N+PE

One master unit or slave is 1200 meters maximum.