



Smart Grid Cleaning Device Anti-bird Device

SUZHOU USILAND OPTRONICS CO.,LTD

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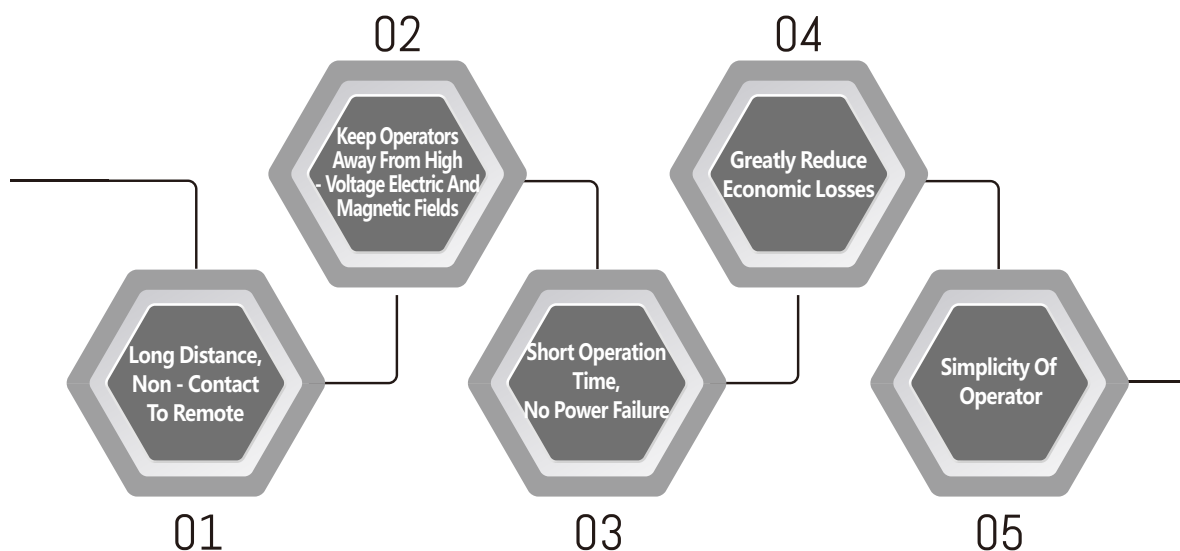
COMPANY PROFILE

With rapid development of the global economy, electricity has become an indispensable energy resource. High-voltage power lines transmit steady streams of electrical energy to every corner of the world. The safe maintenance of these high-voltage power lines has become a top priority. Kites, cloth strips, balloons, and plastic bags often become entangled with the power lines, and if this is not handled in a timely manner, it is likely to cause trip events, resulting in a power outages. The removal of foreign objects caught on power lines has always presented a challenge in the maintenance of electric power grids.

Standard methods of foreign object removal for power lines include manual removal by ascending the towers, unmanned aerial vehicles, and manual removal with insulated aerial platforms. Such methods have following disadvantages: long working hours, high costs of human and material resources, low efficiency, and significant safety risks.

In this context, Usiland successfully developed the Grid foreign matter laser cleaning equipment to response the market demand.

Our Advantages



Smart Grid Cleaning Device

Seven Advantages

1. A wide variety range of product, 50-600W on power, 30-240m of effective working distance
2. No damage for electric wires
3. Easy to operate and control
4. Safety and fast, melting time within 5-10 seconds
5. Lithium battery can work 2 hours with full load.
6. Adapting variety environment: windy, rainy, snowing or nighttime etc.
7. Removes common foreign objects such as kites, fishing lines, paper cloth, hemp rope, honeycombs bird nests and tree branched.

The current status of traditional methods for removing:

- Tower lever
- Bucket arm car
- Skip hoist

Disadvantages of traditional methods for removing:

- Safety hazard of live working
- Take long time
- More manpower and material resources required
- Unrealizable for online remote operating

Working principle

The high energy of the laser is used to instantaneously ablate the foreign matter wound on the high voltage line without damaging the transmission line. If there is foreign matter hanging on the guide ground line of the transmission line, the operator can aim at the target by sighting device, controlling the laser to emit laser, melt the foreign matter by burning for a few seconds, then close the laser, completing the entire live processing of foreign matter.

Application





Cyclone 100
Most convenient
Small size: Backpack, 20kg



Cyclone 200
Accurate sighting
Hot sale at power grid,
rail transit



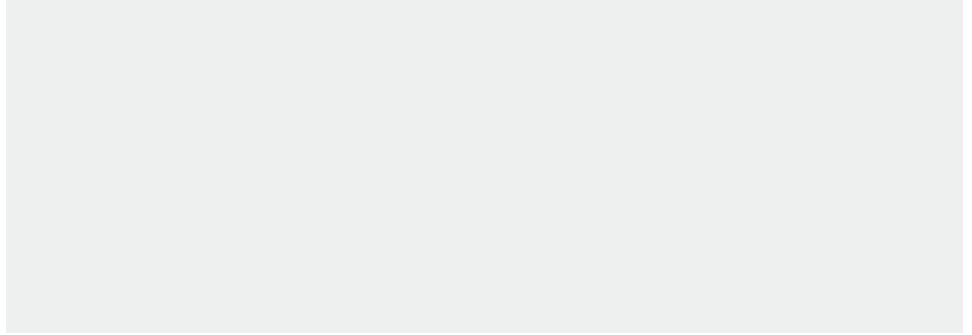
Cyclone 300
Long working distance:
around 200m
Hot sale at power grid,
rail transit



Cyclone 600
Expert for cutting
tree barrier
Effective cut:
10cm Branches in diameter

Introduction To Power Grid Products

Description	Cyclone 50	Cyclone 100	Cyclone 200	Cyclone 300	Cyclone 600
Size (h x w x d) [mm ³]	Approx 312*495*447	Approx 515*360*245	Approx 647*495*312	Approx 647*495*312	Approx 810*540*310
Weight (approx.) [kg]	<3	20	50	50	80
Cooling system	Air cooling system	Air cooling system	Air cooling system	Air cooling system	Air cooling system
Laser power [W]	50	100	200	300	600
Wavelength [nm]	1064	1064	1064	1064	1064
Power supply (incl. quick charger)	24V DC	24V DC	24V DC	24V DC	220V AC
Maximal power consumption [W]	50	300	800	900	4500
Min / Max ambient temperature [°C]	-10 -40°	-10 -40°	-10 -40°	-10 -40°	-10 -40°
Humidity [%]	10 – 95	10 – 95	10 – 95	10 – 95	10 – 95
Laser class	IV	IV	IV	IV	IV
Max Working distance [m]	30	90	180	300	240
Fiber length [m]	2	2	2	2	2
pointing accuracy [″]	0.6	0.6	0.6	0.6	0.6
Battery life [H]	2	2	2	2	2
Output bandwidth	3	3	3	3	3



COMMON PROBLEMS

Q: What kind of foreign matters can be removed ?

A: Mainly used to remove kites, branches, balloons, honeycomb, bird's nest, advertising cloth and other foreign matter, high-speed railway operation and maintenance of foreign matter removal does not need power

Q: Can it be used on rainy days?

A: The grid foreign matter laser remover is basically not affected by the weather (except for heavy rain and heavy fog), but rain prevention measures is preferable

Q: Will the laser damage the wire?

A: The melting point of the wire (bare wire) is 670 ° C - 720 ° C, while the melting point of the foreign matter is about 300 ° C, and the thermal energy of this wavelength is mostly scattered on the metal material, and is not easily absorbed by the bare wire. The whole process lasts for 3 to 5 seconds.

Q: Whether laser does harm to human body ? How avoid accidentally damage?

A: A laser is an energy - focused, directional, non - dispersive light, In principle, laser is not harmful to human being, But in practice, Laser protective glasses are required, to avoid accidentally penetrating glasses and causing damage
Laser removal efficiency
The common foreign body, kite line or cloth will take 2-10s , plastic film will be 10-15 min.

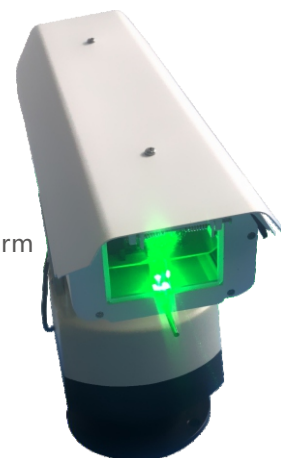
Q: Is there any foreign matter can't work ?

A: This device can remove the nonmetal matters, No effect on metal foreign bodies

Anti-bird Device

Five Advantages

- 1. In various fields
- 2. Coverage reaches 2000 meters
- 3. Unattended operation
- 4. Safety first
- 5. High intelligence auto operation supported by cloud platform
 - A), Automatic cruise
 - B), Speed Adjustable
 - C), Auto start-stop
 - D), Timing operation
 - E), MemorableF),self-checking function
 - F), Wireless remote control



Working principle

For birds, Vision is the most sensitive organ, they regard the beam light shining as a dangerous signal, that's the key inspiration of our production named Eagle I which exactly according to bionics principle, Launching the laser light to make the birds scared. unadapted, so they will fly away immediately to avoid this beam light but without any harming.

Description	Eagle I
Laser power [W]	1
Beam outlet diameter [mm]	40
Wavelength [nm]	520
Working distance [m]	"100-500m (Daytime)2000m+ (Night)"
Power supply mode	Solar pannel
Working temperature	-25 ~ 50

Application



COOPERATION CUSTOMER



CERTIFICATE

