

ÖKOSTART®

the electronic starter for all types of fluorescent lamps

The safer, everlasting
starter that doubles
Lamp life !



- all starters have VDE- / ENEC- and UL/CSA-Certification

- 10 years Guarantee

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M + R 
Multitronik GmbH

10 Years Guarantee



ÖKO6 - the most popular starter for single lamps

ÖKOSTART® ÖKO6 is an electronic starter for all 4-125 Watt single fluorescent lamps. Single lamps dominate the lamp market up to 70%. This is one of the reasons that ÖKO6 is the most common starter for all single lamps.

All glow-bottle-starters like ST111, ST171, ST173, S10 can be replaced easily with this starter. ÖKO6 is suitable for temperatures down to -20°C and starts even lamps in outdoor areas safely and reliably.

Applications: In- and outdoor, airports, factories, stations, offices, sportshalls, ...

Suitable for the following lamp types :

4-125 Watt (Linear T5/T8/T12), 10-38W 2D (TC-DD), 11W PLS (TC), 10-26W PCL (TC-D), 18-36W PLL (TC-L), 22-60W circular-Tube, 40-65W U-Tube

Suitable for inductive and capacitive circuits

Operating voltage: 200 - 250 Vac 50/60Hz

Operating temperature: -20°C bis +100°C

Preheat time: approx. 2.3 seconds nominal at +20°C



ÖKO2 - the starter for twin series

ÖKOSTART® ÖKO2 is developed for the use in twin series lamps from 4-22 Watt. Single lamps up to 22 Watt can also be ignited with this starter. Use ÖKO2 for in- and outdoor-applications (to -20°C). All glow-bottle-starters like ST151, ST172, S2 can be replaced easily with ÖKO2.

Applications: In- and outdoor, factories, stockrooms, offices, stations, airports, sportshalls, ...

Suitable for the following lamp types :

4-22Watt (Linear 4-20W) Single/Tandem T8/T12, 5W PLS (TC), 7-9W PL-S, 18W PL-L, 22W Circular-Tube (only Single lamps)

Suitable for inductive and capacitive circuits

Operating voltage: 110 - 250 Vac 50/60Hz

Operating temperature: -20°C to +100°C

Preheat time: approx. 2.8 seconds nominal at +20°C



FRIGOSTART® - the ice cold starter

FRIGOSTART® FS6 likes it cold! It enables the start at temperatures down to -40°C (optional down to -50°C) of all fluorescent tubes up to 125 Watt.

Sure you can also use FRIGOSTART indoor at normal room temperatures.

Applications:

Deep freezing rooms, cooling-rooms, coldstore-rooms, railway-stations, outdoor-lightadvertisement, streetlamps, ...

Suitable for the following lamp types :

4-125W T8/T12 Single, 18-36W PL (TC-L)

Suitable for inductive and capacitive circuits

Operating voltage: 200 - 250 Vac 50/60Hz

Operating temperature: -40°C to +100°C

Preheat time: approx. 2.5 seconds nominal at +20°C





TURBiO® - the fastest starter

TURBiO® is the quickest starter of our ÖKOSTART®-family. It is suitable for lamps up to 65 Watt. Principally you will use TURBiO® at home. With a starting time of only 0.4 seconds at normal room temperature of +20°C, it will provide you quickly with light wherever you need it: Bathrooms, stairwells, kitchens.

Applications :

For household purposes only, like, bathrooms, corridors, stairwells and kitchens.

Suitable for the following lamp types

4-65 W (Linear T5/T8/T12),
10-38 W 2D (TC-DD), 5-11 W PLS (TC),
16-26 W PLC (TC-D), 18-36 PLL (TC-L),
22-60 W Circular- and U-Tube,

Only suitable for inductive circuits without capacitors for serial compensation

Operating voltage: 200 - 250 Vac 50/60Hz

Operating temperature: -5°C to +100°C

Preheat time: approx. 0.4 seconds nominal at +20°C



ÖKO97- the new generation

The ÖKO97 combines the speed of TURBiO® with the safety of ÖKO6 and ignite the lamps event at frost temperatures within 0.4 seconds. So this starter is suitable for industrial applications like car parks, parking decks and underground garages. ÖKO97-T was designed for applications with low switching frequency or ambient temperatures above +70°C.

Applications:

ÖKO97: underground garage, parking decks, stairways

ÖKO97-T: tunnel, safety or emergency lighting applications

Suitable for the following lamp types:

4-58 W Linear T5/T8/T12, 10-38 W 2D (TC-DD),
5-11 W PLS (TC), 10-26 W PLC (TC-D), 18-36 W PLL (TC-L),
18-58 W Circular- and U-Tube (T-R, T-U)

Only suitable for inductive circuits without capacitors for serial compensation

Operating voltage: 200 - 250 Vac 50/60Hz

Operating temperature: -20°C to +100°C

Preheat time: within 0.4 seconds nominal at +20°C



SOLARSTART - the sunny starter

SOLARSTART ÖKO8 and ÖKO82 were designed for special use in tanning beds and provide an absolute harmonic and simultaneous start without flickering.

This method is on one hand very acceptable for your customers and on the other hand it will extend the lifetime of your expensive UV-tubes and reduce the maintenance and replacement of the tubes to a minimum. By using ÖKO8 and ÖKO82 you will minimize black ends of the lamps, the blast of the paste of the cathodes will be avoided.

These starters are the ideal replacement for S12 and ST191.

Applications: UV-lamps, tanning beds

Suitable for the following lamp types

ÖKO8: 4-180 W (Linear T5/T8/T12)

ÖKO82: 180-230 W

Operating voltage: 200 - 250 Vac 50/60Hz

Operating temperature: -5°C to +85°C

Preheat time: approx. 2.4 seconds nominal at +20°C

General Informations:

Canister	Polycarbonate, flame retardant UL-VO rated
Safety shutdown	Within approx. 3.5 sec. at +20°C
Pins	Nickel plated brass
Pulse height	1.500 V max.

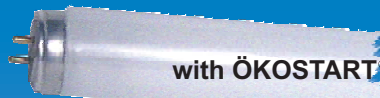
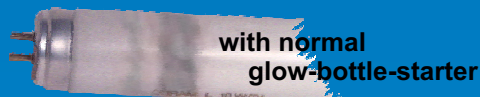
Important Details:

To avoid that the Electrolyte-capacitors in our starters dry out the storage time should not exceed 4 months. Furthermore we recommend a regular switch on/off of the starters, as very low switching cycles (less than once per day) may cause malfunction or total fail out. For these application with low switching frequency or high ambient temperature above +70°C we offer a special version (suffix-T).

Guarantee:

The guarantee of 10 years refers to operation of the starter in ambient temperature of +40°C and respecting the above mentioned instructions.

The Job:

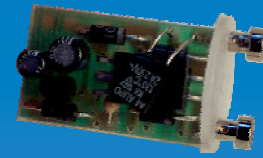


- Flickerfree and smooth start of fluorescent lamps
- Reduction of costs for maintenance and replacement

Function

Lifetime of a fluorescent lamp is dictated by the life of its cathode filament assemblies. With using ÖKOSTART®, the cathodes are pre-heated continuously until they reach full emission temperature. At the end of this pre-heating-period the cathodes will be emitting freely over the entire area and a low energy impulse is then delivered across the tube to achieve ignition. This intelligent function saves the cathodes from early erosion and gives them a longer life. The blast of the paste of the cathodes will be avoided and you will no longer have black spots at the end of your tubes as you always have with the standard glow-bottle-starter. Once the lamp is running, a safety monitor comes into force, constantly measuring the power being used by the lamp. In the event of an abnormality, which can occur when a ballast starts to fail or with a major supply irregularity or at the end of the lamp-life, ÖKOSTART's safety monitor will disconnect the circuit and avoid overheating or damage to other circuit components. (For more information please ask for our detailed description and datasheets or visit our homepage www.palmstep.com)

The Solution:



ÖKOSTART® is an economic and environmentally friendly starter. Due to its smooth and flickerfree start, the lamps live longer and maintenance cycle time will be extended.

Key Benefits

- Absolute flicker free and smooth start
- No more black spots at the end of the tubes
- Full thermal & constant circuit safety monitor
- Very low EMI (less than -70 dB comparing to glow-bottle-starter) during the start
- Reliable softstart even under extreme conditions like temperatures down to -40°C and reduced supply voltage to 190 Volt
- ÖKOSTART® extends the lifetime of the tubes and the waste of mercury is reduced
- Tubes last twice as long
- Automatic safety shut down when lamp failed
- Lamp condition monitor with full safety shutdown protects the whole systems from failure.
- Reduces costs for replacement and maintenance
- Starters don't need to become changed or resetted when you renew the tubes
- ÖKOSTART® has an ENEC kitemark certified by the German VDE
- UL/CSA-Approval

Soft instant lampstart

When switching on a lamp with ÖKOSTART®, the cathodes are heated continuously at a low voltage until they reach their full emission temperature. The time is automatically adjusted by the starter according to the ambient conditions. At the end of the pre-heating period the cathodes will be emitting freely over their entire area and a low energy impulse is then delivered across the tube to achieve ignition. ÖKOSTART® avoids flickering during the start as you know it from standard glow-bottle-starter. TURBiO® provides a quick start, FRIGOSTART® enables reliable start under low temperatures down to -40°C and SOLARSTART is developed for UV-lamps in tanning beds.

Environmental benefits

Fluorescent Tubes contain mercury and are therefore hazardous and toxic waste. By doubling the lifetime of the tubes, hazardous waste and pollution is halved and therefore the environment is protected.

Safety and Security

One of the main features is, that ÖKOSTART® is designed, that it never will exceed the specification of your lamps. Ballast and capacitors will be handled very smoothly and operated always within the specified limits. If the tube fails, ÖKOSTART® shuts down the entire circuit and avoids overheating and damage of the ballast or any other components in the whole circuit. In case a lamp or another part is faulty, the security systems guarantees a shutdown. Flickering of defect tubes will also be avoided.

Maintenance costs

Costs for maintenance are reduced to a minimum, because ÖKOSTART® enables a regular change of the tubes when the light efficiency decreases below acceptable limits. Normally this happens after approx. 6 years! Unscheduled maintenance is not necessary! You don't need to change or reset the starter if you replace a tube as you have to do it with standard glow-bottle- or "red-buttoned" CIS-starters.

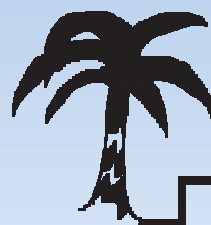
Lifetime of tubes

Due to the complete pre-heating and low energy pulse, the cathodes are not stressed and suffer no measurable wear during the start cycle. The lamp burn as many hours as if they were operated continuously without re-starting and the efficiency-level will be held for the whole lifetime of the lamps.

Guarantee

Due to our longlasting experience in development and production of the ÖKOSTART® we give you a quibble-free **guarantee of 10 years** for each Starter !

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