

Class D
Mono
Car Amplifier

ICE-800D
ICE-1500D
ICE-3500D

OWNERS MANUAL
Digital Mono Car Amplifier

INTRODUCTION:

SPL Dynamics ICE - series Class D subwoofer amplifiers provide high performance sound reinforcement for your car audio system without compromise.

To achieve optimum performance, it is highly recommended that you read this Owner's Manual before installation, Check also our web-pages to have more information about different system configurations.

WARNING

High power audio systems in the vehicle are capable of generating "Live Concert" high levels of sound pressure. Continued exposure to excessively high volume sound levels may cause hearing loss or damage. Also operation of motor vehicle while listening to audio equipment at high volume levels may impair your ability to hear external sounds as horns, warning or emergency vehicles. For safety driving Consumer Electronics recommends at lower sound levels while driving.

MOUNTING YOUR AMPLIFIER

The mounting position your amplifier has a great effect on its ability to dissipate heat generated during normal operation. It has a large heat sink for heat dissipation and also designed with a thermal shutdown circuit. Any configuration, which allows moving air to be directed over the cooling fins will improve heat dissipation dramatically. DO NOT enclose the amplifier in a small box or cover it so that air cannot flow around the fins.

Temperatures in the car trunks have been measured as high as 79 degrees Celsius in the summer. To achieve maximum flow in enclosed trunk, mount the car amplifier to vertical position.

DESIGN FEATURES

- ☑ Double side FR-4 PCB, high quality SMD components
- ☑ High power, High efficiency design
- ☑ Full MOSFET circuit design
- ☑ Low pass filter and subsonic adjustable
- ☑ Bassboost frequency and level adjustable
- ☑ Easy bridging, optional remote gain control
- ☑ Overload, shortcircuit, thermal, low voltage protection
- ☑ Passed RoHS, E-mark certification

1 Speaker connection

Connect your speakers correctly which means plus to plus and minus to minus. Never connect speaker cables with chassis ground directly. It may destroy your amplifier.

We recommend minimum AWG 16#(1,5mm²) speaker cable. The detailed connection ways are shown in page 8~10.

2 +12V Battery Terminal

The +12 Volt power cable must be connected with a fuse in line near the battery+ terminal. Please see the table 1 in page 7 to select cable and fuse.

3 REM

Remote terminal. The remote cable must be connected with source unit remote terminal so that the amplifier will switch on and off automatically with source unit. If there are two or more amplifiers connected to this terminal it might be necessary to add an additional relay.

4 GND

Chassis ground terminal. The chassis ground cable must be connected very tight on a nearby massive and electric conductive place. Please connect chassis ground near amplifier with same gauge as power cable.

5 Gain

Gain control regulates the sensitivity of amplifier to match the signal output voltage of your source unit. The gain control is not a volume adjustment. Use high quality CD music and increase the volume of your source unit to 75%. Position the gain at the minimum and then increase gain slowly (clockwise). Stop at the first sign of distortion, then lower the gain a little (counter clockwise) to achieve clear undistorted music at the maximum level.

6 RCA audio-input

These RCA audio-inputs connect with your source unit RCA outputs. Please use car audio RCA cables, otherwise it may be disturbed. Keep these cables as short as possible. To avoid disturbances from your car electronics, please don't close the existing car cables when you install the RCA cables. If your source unit has only one set output, please use a suitable Y-RCA adaptor. If your source unit has only speaker outputs, you should use a HIGH-LOW level adaptor.

7 Remote Bass Level Control (Optional)

You can adjust volume in driver seat via the remote control. The remote control is optional.

8 LPF(Low Pass Filter)

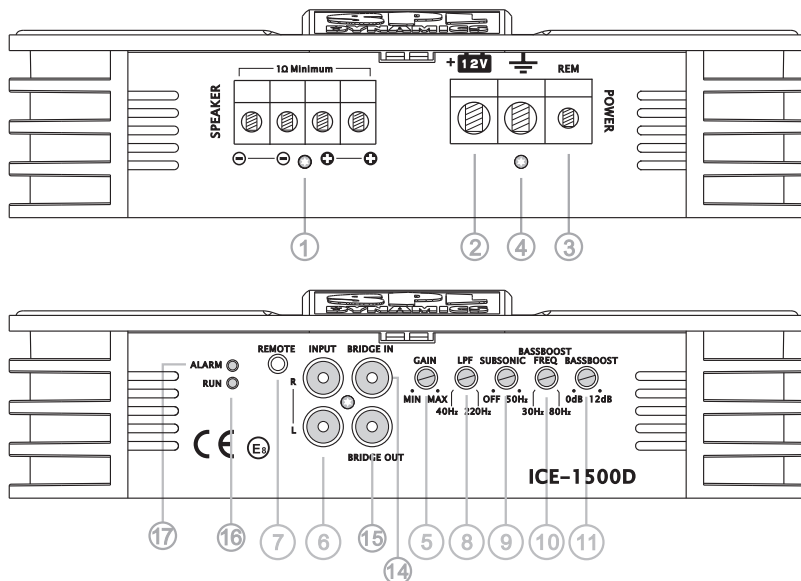
Filter out high frequency higher than 40Hz to 220 Hz that the woofer can't play. Adjust this knob to match the woofer's frequency response.

9 SUBSONIC

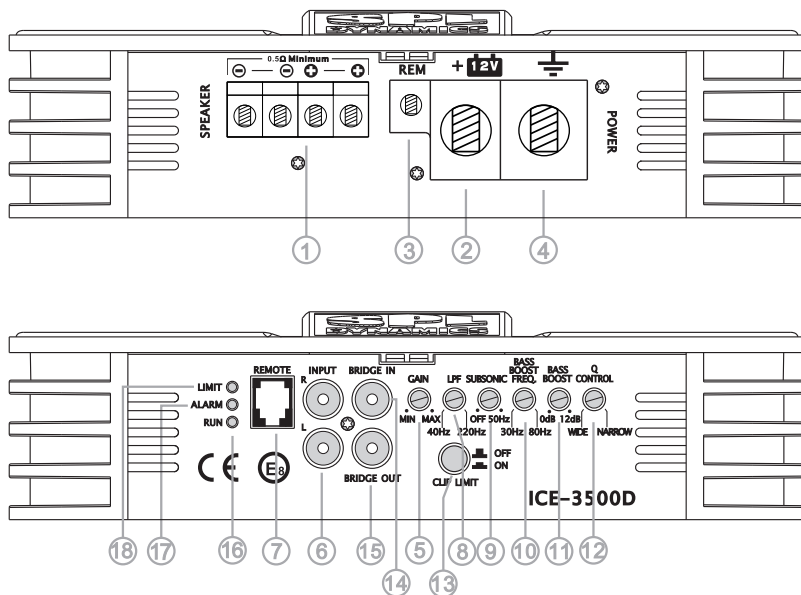
It is the opposite of the LPF. It can filter out unwanted low frequency lower than 10Hz (OFF) to 50Hz. This function will increase the power handling of your woofers.

AMPLIFIER FUNCTIONS

ICE-800D/ICE-1500D



ICE-3500D



10 BASSBOOST FREQ

This knob controls the boosted center frequency. The frequency can be adjusted from 30Hz to 80Hz according to your car audio system performance. (Eg. When you adjust this knob to 50Hz, amplifier will boost the frequency around 50Hz.) This function should be adjusted combining with bassboost level tuning.

11 BASSBOOST

This knob adjust the boost level of the bassboost center frequency. It can be adjusted from 0 to 12dB. Combining with bassboost frequency, you can accurately match the amplifier performance to woofer response.

12 Q-Control

This knob adjust the curve shape of bassboost. Turn it to narrow side will make the boosted frequency narrow and sharp, turn it to wide side will extend the boosted frequency range. Combining with bassboost frequency and bassboost level adjusting, you can achieve a perfect bass response matching your system.

13 CLIP LIMIT Switch

This switch control the output clip limit on/off. When switched on, the amplifier will control the output level at clip point and reduce the distortion. This will keep your amplifier at a low distortion at clipped signal.

14 BRIDGE In

This RCA jack receives signal from the master amplifier when this amplifier is bridged as slave. DO NOT use input jacks when the amplifier is working as slave. All the functions will be adjusted by the master amplifier. Please see the drawing of bridging in page 10.

15 BRIDGE OUT

This RCA output send out bridge signal to another same X-series amplifier in bridging configuration. All the functions will be adjusted by the master amplifier. Please see the drawing of bridging in page 10.

16 Run Indicator

This LED will light up when amplifier work properly. It will flash or shut down once amplifier in self-testing or malfunction.

17 Alarm Indicator

This LED will light up if amplifier has detected a fault or has shut down to protect itself from permanent damage. This may caused by one of the following: excessive heat, reverse polarity, short circuit or overload. If this happens please shut off the amplifier and check problem.

18 Limit Indicator

This LED will light up when output clipped or amplifier get over heat. When limit indicator light up, the amplifier will hold or reduce output power to protect subwoofer and amplifier. Please turn down volume or cool down the amplifier when this indicator light up continually.

PRE INSTALLATION

- Please prepare sufficiently to layout your car space before installation. We recommend to have the installation done by an Authorized SPL Dynamics Dealer.
- Use good insulated power cable to endure longterm use with high electric current. The +12 Volt power cable must be connected with a fuse in line near 20cm of battery+ terminal. Required current, power cable and proper external fuse listed as following.

Table 1

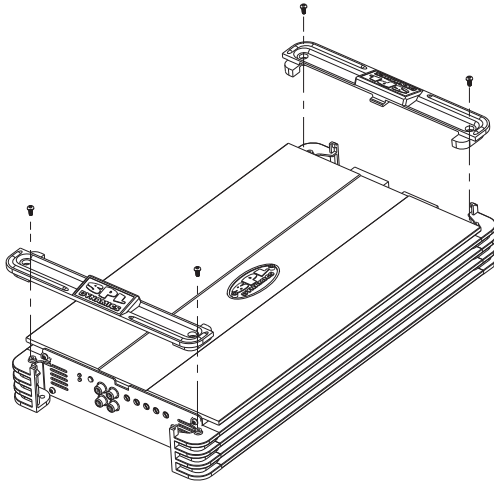
Model	Fuse	Cable
ICE-800D	80A	20mm ² (AWG 3-4)
ICE-1500D	150A	35mm ² (AWG 2)
ICE-3500D	300A	50mm ² (AWG 0)

- Please use car audio RCA cables, otherwise it may be disturbed. Keep these cables as short as possible. To avoid disturbances from your car electronics, please don't close the existing car cables when you install the RCA cables.
- Don't expose any cables out of car. Please take care insulated cables to avoid be damaged when cables pass through metal, rubber and plastic etc. Don't install cables too tight.
- The ground cable should be connected directly with the chassis of your vehicle which should be metal to metal ground point connection.
- The amplifier must be mounted securely at a solid, dry and low vibration surface in the trunk or passenger area. Fix the amplifier in an open air area to insure proper heat dissipation. Fix the amplifier in a place where can access easily to set input controllers.

INSTALLATION

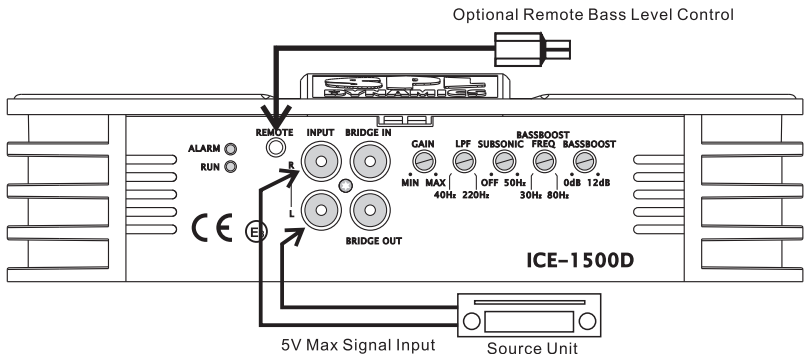
1. choosing a flat and good condition for heating place to install amplifier.

2. Using attached hexagon wrench to remove the end cap on the amplifier as below picture showing.
3. Using attached screws to fix the amplifier to the chosen place.
4. Connecting power and speaker referring to Output Wiring Diagram.
5. Reset the end cap to the amplifier.



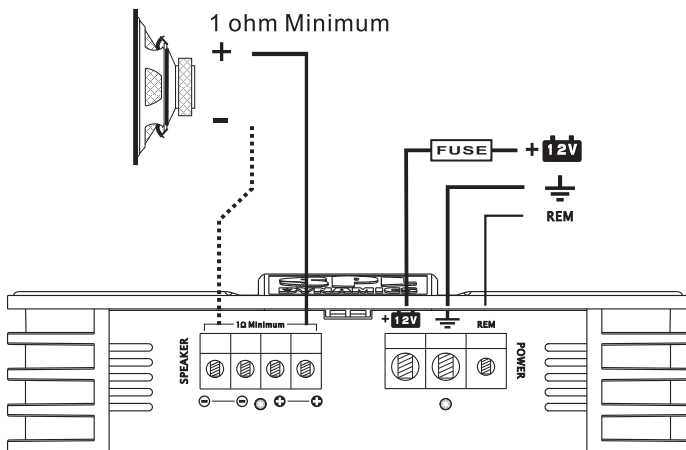
INPUT WIRING CONFIGURATION

(ICE-800D/ICE-1500D/ICE-3500D)

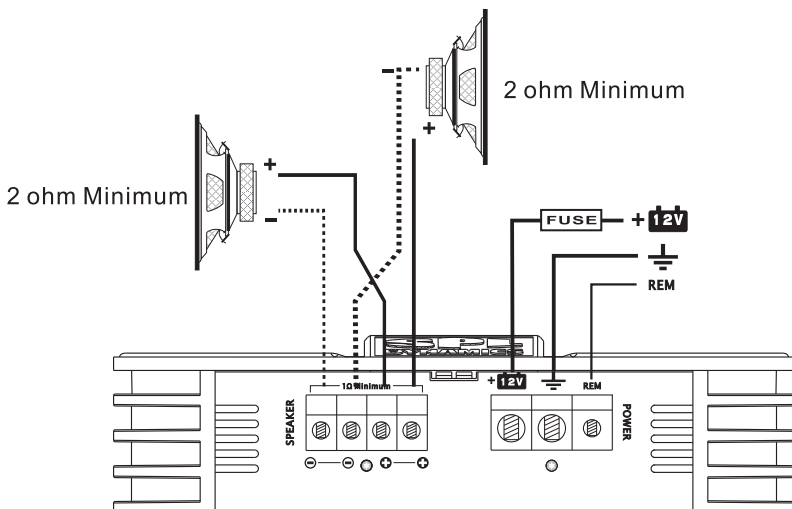


OUTPUT WIRING CONFIGURATION

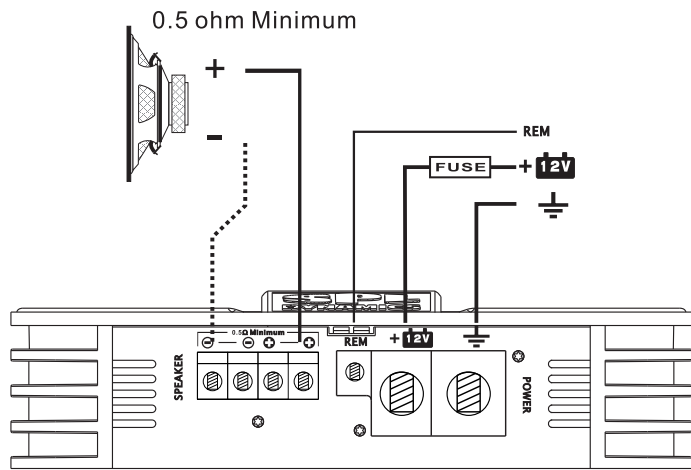
- One Subwoofer Wiring
(ICE-800D/ICE-1500D)



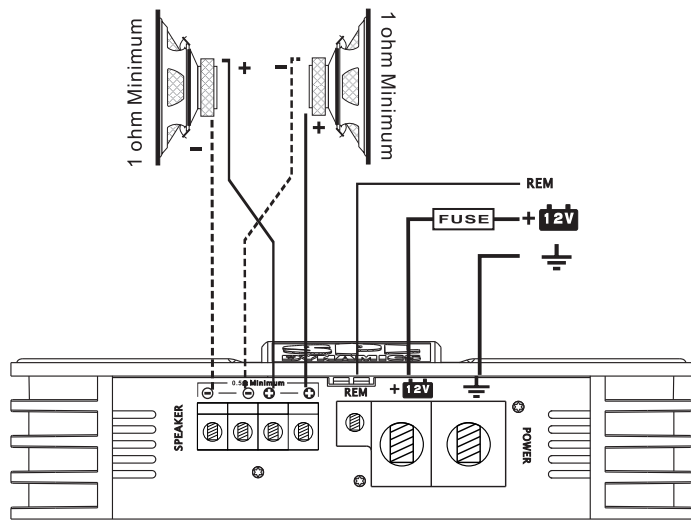
- Two Subwoofers Wiring
(ICE-800D/ICE-1500D)



● ICE-3500D One Subwoofer wiring

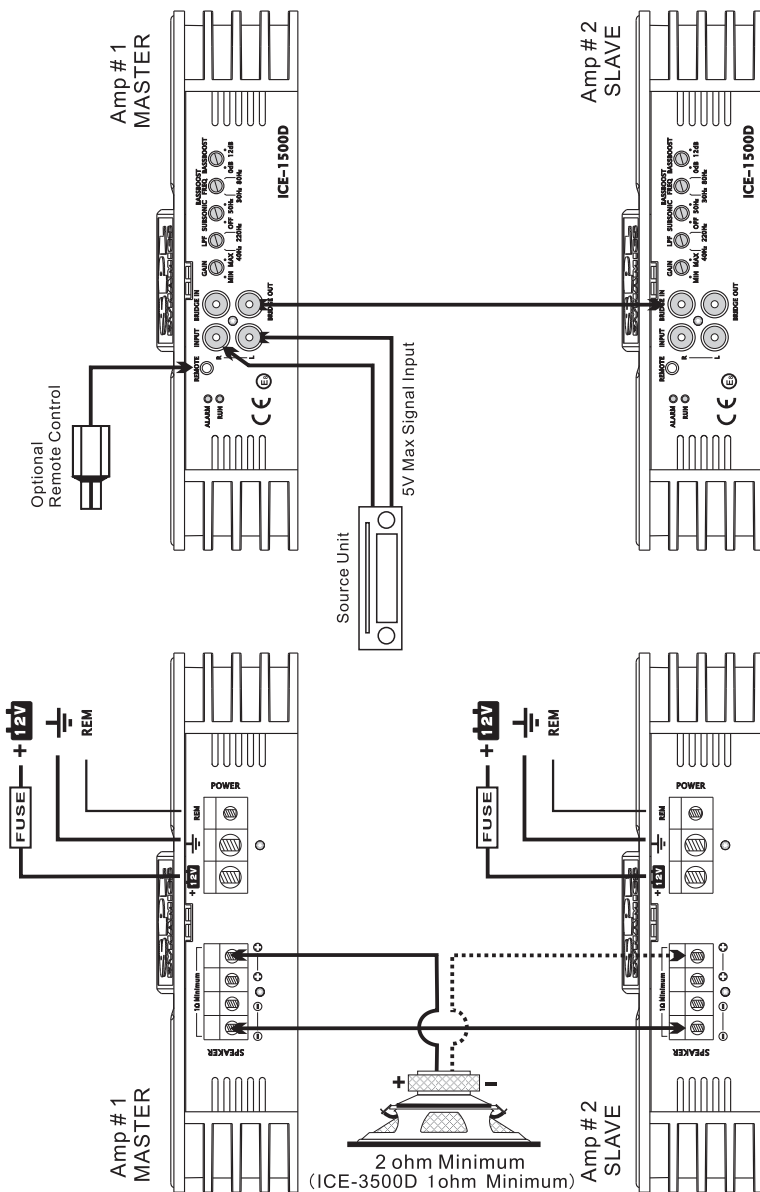


● ICE-3500D two Subwoofer wiring



BRIDGING

(ICE-800D/ICE-1500D/ICE-3500D)



IMPORTANT

- When bridging two amplifiers you should use same model amplifiers.
- Please make sure the negative speaker terminal of two amplifiers are connected by the same gauge cables as the positive terminal being used when bridging.
- DO NOT connect any signal cables to the input RCA jacks when bridged as slave unit.
- All the functions will be disabled on slave amplifier when bridged. It will be adjusted by the master amplifier.

TROUBLE SHOOTING

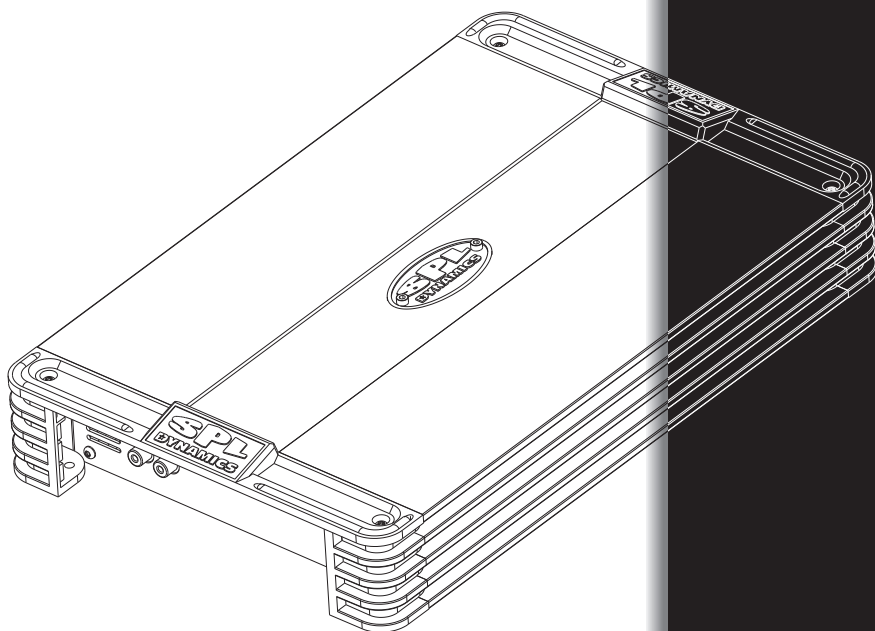
MALFUNCTION	SOLUTION
Power LED off	Check connections both at amplifier and at other ends Check positive and negative battery cables Check all fuse on amplifier Check remote voltage
No Output (Power LED on)	Check volume control on the source unit Check GAIN regulator on amplifier Check RCA cables and connections Check speaker cable and connections
Bass is weak	Subwoofers connected out of phase Dual voice coils on subwoofer wired out of phase Bass control on source unit is set on low Bad speaker connections
Amplifier switches on and off	Check chassis ground connection with amplifier Check cable terminals and battery terminals Low voltage from battery Check remote wire connection
Distorted Output	Source unit gain set too high Amplifier gain set too high Speaker(s) blown
No Output (Protect LED on)	Subwoofer short circuit or damage Amplifier over heat Amplifier overloaded Battery low voltage

If your amplifier is still malfunction after checking through the troubleshooting section, please contact our authorized SPL Dynamics dealer.

SPECIFICATION

MODEL	ICE-800D	ICE-1500D	ICE-3500D
RMS Power @ 4OHM (THD<1%)	320W	580W	700W
RMS Power @ 2OHM (THD<1%)	550W	980W	1300W
RMS Power @ 1OHM (THD<1%)	800W	1480W	2200W
RMS Power @ 0.5OHM (THD<1%)	NA	NA	3200W
Input Sensitivity	0.2 ~ 5V	0.2 ~ 5V	0.2 ~ 5V
LPF	40 ~ 220Hz	40 ~ 220Hz	40 ~ 220Hz
Frequency Response	10 ~ 220Hz	10 ~ 220Hz	10 ~ 220Hz
Subsonic Filter	10 ~ 50Hz	10 ~ 50Hz	10 ~ 50Hz
BassBoost Frequency	55Hz	30 ~ 80Hz	30 ~ 80Hz
BassBoost Level	0 ~ 12dB	0 ~ 12dB	0 ~ 12dB
BassBoost Q control	YES	YES	YES
THD at 4Ohm load 30% Rated Power	<0.15%	<0.15%	<0.15%
S/N Ratio	>70dB	>70dB	>70dB
Efficiency @ 4Ohm load, rated power	>85%	>85%	>85%
Minimum load	1 Ω	1 Ω	0.5 Ω
Optional remote control	YES	YES	YES
Bridging	YES	YES	YES
Over load system	YES	YES	YES
Overheat temperature protection	90C/194F	90C/194F	90C/194F
Measured with operation voltage	14.4V	14.4V	14.4V
Components & PCB	SMT & Double side board	SMT & Double side board	SMT & Double side board
DIMENSIONS(H x W x L) MM	53x228x344	53x228x436	53x228x566

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www.spldynamics.fi