

TREMEX ACTIVATOR-D

The digital activator for lead acid batteries

Description

Almost everyone knows the problem: In the winter the car battery is suddenly weak or even failure. After a few minutes you can possibly try another startup. A typical chemical reaction of lead acid battery is sulfation which prevents the necessary energy flow. Sulfation reduced by the surface of the lead electrodes plaques the energy density and as a result the current flow. Ultimately, the current flow will be reduced to a value that no longer can appear economically sensible use of the battery; it delivers just too little energy. Such a battery needs to be replaced. This applies to automotive and solar batteries, as well as other applications with lead-acid batteries and lead-acid batteries

ACTIVATOR D can stop the sulfation of the lead electrodes slowly or leads to a regress when it is connected directly to the battery. ACTIVATOR D acts like a switch that bridges the battery pole in a defined, very short period of time. These specifically induced short pulses continuously cause the detachment of the plaque and thus a decrease in sulfation. These pulses are measured in time so short that the load on the battery is very low. The effect is low internal resistance and thus a significantly higher capacity of the battery



It should be noted that this effect can only be achieved over a longer period, the pulses occur in very short and wide intervals in order to reduce the load on the battery to a minimum. In this case a new battery, the delays the plaque, the capacity can be used longer. In an already sulfated battery capacity increase is possible by the fall of this chemical reaction. In the normal case, a recovery effect is observed; the battery can provide a higher energy density again.

Connection of the lead acid battery

Connect the terminal of the blue cable to the negative terminal and the terminal of the red cable to the positive terminal of the battery. Please pay attention to correct polarity!

When connected to the lead-acid battery, all LEDs light up briefly to signal a readiness for operation. The first impulse is always generated even after 5 seconds (if no undervoltage is detected), all subsequent pulses are generated depends on the configuration data.

The internal power consumption of the activator D is very low at approximately 0.5mA. As an example, a 60Ah car battery, this would be discharged only after about 130,000 hours by ACTIVATOR D, which corresponds to about 15 years. The energy for the light emitting diodes during the pulse is provided almost exclusively by capacitors which are charged gently during the pulse pauses.

LEDs in ACTIVATOR-D

	All LEDs are switched off. ACTIVATOR D is located in the power-saving mode and waits for the next pulse.
	The battery is charged about 100%, pulses are generated
	The battery is partly discharged, pulses are generated
	The battery is heavily discharged, pulses are generated
	The battery is deeply discharged, pulses are generated
	Undervoltage detected, no pulses are generated
	All LEDs flash briefly when ACTIVATOR-D is connected to the lead-acid battery.

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Technical details

Maximum operating voltage:	16 Volt
Current consumption in pulse mode:	ca. 0.5 mA (all LEDs are switched off)
Pulse duration:	200 µsec
Pause between the pulses:	30 sec
Reverse polarity protection:	Ja
Pulse current:	ca. 60A (12 Volt) for max. 500 µsec
LEDs:	3 x yellow, 1 x RGB
Micro controller:	Low-Power, 32-Bit Cortex-M0+
Connection cable:	Ca. 25-30cm (red, blue) with cable lugs (6mm)

Important information

Please use ACTIVATOR D only with lead-acid batteries! Other batteries, such as NiCd, NiMh, LiPo can be damaged or disturbed

If a charger is connected to the lead-acid battery, ACTIVATOR D should be removed. The charger could be disturbed by the short pulses.

Pay attention to correct polarity when connecting the ACTIVATOR D to the lead acid battery. Red is positive, Blue is negative. However, Ver-polarity may be due to existing protection diodes in the activator-D do not lead to damage of lead-acid battery or of the activator D.

References

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Liability notice

The manufacturer assumes no liability for damages that may arise from application of the activator D.

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WEE-Reg.Nr. DE 51673403