

General safety regulations when using the G-Flame

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This section is about general safety regulations. You need to mind also the other safety instructions given elsewhere in this manual. Furthermore you need to observe the safety distances mentioned in the relevant chapters.

The safety rules enlisted in this manual are referring to the G-Flame only. For the other devices in our product range there is another version of safety regulations which can be found in the user manual of the particular devices.

The following instructions are for your understanding about important and basic safety principles.

Our general safety requirements are based on our own experience plus the contact and feedback from our customers. These rules allow the safe and successful usage of all components of our wireless firing systems. With proceeding development of our products, we will continuously revise and adapt the safety standards in conclusion with your notifications and support.

The following safety regulations are part of all our operation manuals within our product range. These regulations are also available in printed form and can be downloaded via our internet homepage at any time. Please forward these instructions to any relevant persons in your company dealing with this topic.

Any technical device can potentially cause a fault. This could be encouraged through: wrong usage, unit damage, unit aging as well as the wear and tear of the unit. This fundamental thesis was the basic principle when writing these instructions.

The usage of effect devices to generate flame balls and flame columns, especially in indoor and outdoor venues or places of public assembly, can be hazardous and bears many potential risks, such as severe damage to property or personal injury and due to that it of utmost importance to follow all safety instructions whenever the product is being used.

1. Never use the devices if you have not completely read and understood the user manual.
2. Never order somebody to use devices in a potentially risky application if this person is not absolutely reliable or does not have sufficient technical knowledge.
3. The operator who is in charge for the safety has to have complete overview over all devices during the whole application. In addition he has to be able to take action in the technical control of the system at any time if a potentially dangerous situation is arising. Please refer to the sections in this manual where the 'emergency off' functions are being explained.

4. For the usage of the device in places of public assembly an approval by the authorities that are responsible for the fire prevention is necessary.
5. If flame effects are being used no easily inflammable materials should be present in general. In places of public assembly this kind of material is normally forbidden by the legislator. By the usage of flame retardant spray these materials can be rendered hardly inflammable.
6. Smoking or open fire is strictly prohibited within the safety zone! Keep off any other sources of ignition.
7. Depending on the type, size and quantity of the effects that are being used and depending on the local conditions, allocate the necessary fire prevention and first aid measurements.
8. In all cases respect and follow any national and technical regulations as well as the operation manuals respective to the devices in use.
9. Ensure that the devices are standing securely and that the position or tilt can not vary during the application. Depending on the circumstances it can be necessary to mount the devices e.g. by using screws. Please mind the chapter in this user manual which is dealing with the mounting of the devices on truss elements.
10. Ensure that the device is not covered by anything and that the fuel can be easily exhausted through the nozzle. Furthermore ensure that no foreign objects like e.g. confetti or streamers enter the burning chamber.
11. Arm (switch on) the devices as shortly as possible before the effect and disarm (switch off) them immediately after the effect. Optionally this can be achieved either by using the emergency off input or the main switch or the hazard zones or the DMX safety channel. The hazard zones can be turned off and on either by a wireless command or by using serial data cables. As soon as the devices are armed or respectively ready to fire they must be constantly supervised by the responsible operator.
12. Ensure that no heat sources like strong spotlights are pointed towards the devices or the gas cartridges or the gas bottles.
13. Make sure that non authorized persons can not gain access to the effect and control devices.
14. The safety boundary distances required by the manufacturer and authorities are to be respected. Secure the area so that non authorized persons cannot gain access to the same.
15. The operation manuals and safety instructions of the manufacturer of the effect and control devices must be observed at all times. If in doubt these must be discussed with the relevant safety organisations.

16. The effect and control devices are only allowed to be used according to the defined applications. Only use fuels that have been approved by the manufacturer.

17. The components of our firing system are to be covered or encased against burn-off cinders or weather conditions where necessary. Electrical contacts should be protected against corrosion, soiling and damage plus they should be cleaned regularly.

18. We recommend to have our products inspected every one to two years. Along with the testing of the rechargeable battery, a visual test as well as a functional test will prove that the operational safety standards are still met.

19. Do not use damaged equipment. If a damage is found, immediately send the device back to the manufacturer for professional repair. Our warranty for the proper function for our equipment is only for components of our system, which have no damage.

20. Any changes in or to the devices as well as repair work on the units other than that through the manufacturer will invalidate any warranty claims and our product liability will be void. Should repair of the units be necessary, then we do require a detailed report of the problem.

21. Please make sure when lending or renting out the equipment, that no damage has occurred during the rental period of the units. Advise your staff, that it is very important to report any possible damage of the units immediately. Customers, which have borrowed or rented the equipment are hereby informed, that it is their duty to report any damage found or suspected on the unit when returning such.

22. When transporting the devices make sure that the packing is sufficient and check the devices after each transport if they have been possibly damaged.

23. Wire connections from the control units to the G-Flame are always to be insulated and must comply with the technical standards. At the same time avoid wire damage, for example through heat, cable twisting, cable pinching and burn-off cinders or through forced piercing. All cables must be checked before each use on it's faultless construction. When using used wires we do recommend a continuity and short circuit test between each insulated connection before using it again.

24. Avoid potential equalizing currents. Please note that these currents can occur between conductive parts of a building or between conductive parts of a building and earth potential. Due to that control lines should not have electrical contact to conductive structures or parts of a building. Potential equalizing currents on the shielding of cables or on control lines can cause malfunction.

25. Please be aware of the fact that through the gas flames ionized gases are created. The thereby produced ions increase the conductivity within the air. This ionization process can cause an electrical arcing especially within the vicinity of high voltage overland cables. This may lead to lethal consequences for the user and other persons. Please note that wind conditions can be totally different a few meters above the ground.

26. Please assure that the effect can only be initiated through the operator. Keep the control unit under lock and key! Within our safety concept, all firing systems are set with individual codes, which inhibit unintended and accidental firing through third parties. If requested we can also supply systems with the same coding. This may be necessary if in a company more than one transmitter is used or when companies exchange the units between each other. It is possible to teach in the G-Flame to any PFC Advanced to enable customers to easily exchange devices.

27. With our using the key code numbers 901 and 311, we are using a standard key code, which can also be found in other products. On a customer's request we can also supply other key codes.

28. Please ensure that the relevant safety distances are met by everybody. The safety margins are to be kept as from the beginning of the project until the operator releases the area after switching off the devices and shutting off the fuel supply.

29. In the interest of your own safety always use a sufficient length of control cable.

30. During testing and firing of the devices no persons or animals are allowed in the hazard area. Furthermore no materials that are heat-sensitive or that can catch fire are allowed in the same.

31. When the fuel is burning carbon dioxide is generated which is a suffocative gas if the concentration in the air is sufficiently high. Due to that ensure proper ventilation. If in doubt use CO₂ warning devices.

32. To burn the fuel oxygen from the air is necessary. Do not use the device if the oxygen of the air is no longer present, e.g. if carbon dioxide or nitrogen is being used to generate low fog on stages. At least from the lowest part of the burning chamber upwards a sufficient amount of oxygen must be present because otherwise the fuel can not be ignited.

33. In applications that are critical in terms of safety you should consider safety measurements already during the setup how to safely dismantle the installation.

34. For any safety relevant questions please either contact the manufacturer or closely discuss these with the authorities in charge.

35. Use and transport the device only if the lid is closed.

36. Rehearse the planned effect and the whole course of action several times together with all people that are involved, like artists, actors, participants, technicians and staff members of the security agency etc. and ensure that all possible hazards are ruled out. If this is not possible the effect must be cancelled. Inform all participants about the function of the warning LED "Attention, device armed" on the device.
37. Utmost care must be taken if material that can easily catch fire are present such as costumes, decoration material, fabrics or props etc.
38. If the smell of gas, leakages, flow noise or leaked fuel (gasiform or liquid) is noticed it is not allowed to put the device into operation and the hazard area has to be cleared, left and barricaded immediately. The fuel supply has to be shut off immediately in these cases.
39. Never bow over the device or put parts of your body above or respectively before the burning chamber if the device is switched on and always keep at least the safety distance that is required so that no dangerous situation can arise.
40. Avoid forces to the quick coupler in the device such as: drag forces, pushing and pulling forces and sidewise forces in all directions. If a gas hose is connected do not pull at the hose, no matter in which direction.
41. If a device did not function properly in an application it is not allowed to use it again until it has been repaired and checked by the manufacturer.
42. The system of the device must be depressurized before the cartridge holder or the hose is being removed. This is achieved by opening the valves while the fuel supply is shut off. Close the blue valves of the cartridge holder or respectively the shut-off valve of the gas bottle and fire the G-Flame again and again until no more gas is set free by the nozzle.
43. In case that the G-Flame is used to generate a continuous flame (several minutes burning time) the burning chamber and the top side of the G-Flame should be covered with suitable heat protection plates in order to prevent damages due to heat. This applies to various kinds of flame bars and for the standard nozzles as well.
44. Before every usage you should check if the filter is fastend tightly. It should be fastended hand-tight.