



No. DGMS(Tech.)/ S&T/Circular No.14 Dhanbad,

dated 21/08/2026

To

All Mine Owners, Agents and Managers;

Subject: Guidelines for the use of permitted e-Detonator in underground mines.

1.0 BACKGROUND:

- 1.1 The Government has expressed concerns regarding the dangerous nature of electric detonators, particularly in view of the frequent seizure of illicit explosives by security agencies and the associated public safety and national security concerns.
- 1.2 In this regard, the Ministry of Commerce and Industry, Department for Promotion of Industry and Internal Trade (DPIIT) had issued Gazette Notification No. S.O. 4255(E) dated 29th September 2023, regarding the phased discontinuation of electric detonators.
- 1.3 The above measure has resulted in changeover towards the safer technology which pushed the industry to transition towards the heavily trackable electronic alternatives i.e., electronic detonator. Electronic detonator systems incorporate enhanced traceability and security features, including manufacturer-specific software, password-protected access and user authentication mechanisms, thereby reducing the possibility of unauthorized use or initiation.

2.0 INTRODUCTION:

- 2.1 Electronic detonators are modern, fully programmable devices capable of two-way communication. Each detonator contains a circuit board that can be programmed to initiate at a precisely defined time within a firing sequence. Electronic detonators are usually programmed individually using a handheld logger or programmer and are initiated through a firing unit (e-Exploder).
- 2.2 The electronic detonator systems can be fitted or broadly classified into two categories: pre-programmed electronic detonators (or fixed-delay detonators) and programmable-delay detonators. In pre-programmed electronic detonators, the delay time is programmed at the factory before dispatch, and the user cannot change it. These detonators are normally numbered or coded in such a way that the user can identify their intended delay time. In programmable-delay detonators, the delay time is programmed prior to blasting using a logger, programmer, or firing unit.

- 2.3 Electronic detonators improves blasting safety, reduce ground vibrations, and, enhance rock fragmentation during mining and infrastructure projects. They provide millisecond-level delay precision that older pyrotechnic or shock-tube systems cannot match, helping operations near civilian areas limit noise and flyrock. An electronic detonator is an initiation device in which the delay timing and firing are controlled by an electronic circuit or microchip that is activated by an appropriate electronic initiation signal or stimulus.
- 2.4 Subsequently, the standards prescribing the requirements, methods of sampling and tests of electronic detonators were developed and notified as IS 18462:2023.
- 3.0 The following guidelines to be followed & ensured for safe use of Permitted Electronic Detonator:
- 3.1 Permitted electronic detonators shall strictly conform in every respect with the construction, physical characteristics and other applicable requirements prescribed under IS 18462:2023 and the conditions specified in the relevant approval/test report. The e-Exploder shall be uniform in design and construction, and shall strictly conform to the technical and safety standards specified under IS 19359:2026.
- 3.2 The total electrical resistance of the circuit shall not be less than 1000 ohms and the short circuit capability of the logging equipment shall not be more than 50 mA.
- 3.3 The permitted electronic detonators intended for use in underground coal mines or metalliferous (where Regulation 142 of the MMR 1961 attracts) mines shall have adequate Gas Incendivity capability to prevent ignition.
- 3.4 The mechanical strength of lead-wires, connections, crimps and closures shall have adequate strength to prevent detonation, leading wire shall not break and pulled out from the shell during the handling & charging.
- 3.5 The detonators shall be packed substantially before delivery to the user and the user must keep detonators in their original packaging until immediately prior to use. The packing shall conform to the provisions of Explosives (Amendment) Rules, 2019.
- 3.6 Marking: Each package shall be marked with the following information:
a) Name, grade, type and strength of the material;
b) Number of pieces in the package;
c) Manufacturer's name and/or his recognized trade-mark, if any; and
d) Date of manufacture and lot number to enable the batch of manufacture to be traced from records.
(e) The marking shall further be in conformity to the provisions of Explosives (Amendment) Rules, 2019.
- 3.7 The cases of detonators of same grade, same type and belonging to the same batch of manufacture shall be grouped together to constitute a lot.
- 4.0 The general conditions for use of Permitted Electronic Detonator and Electronic Exploder (Electronic Blasting System) shall be as follows:

- 4.1 In electronic blasting system, the initiation of permitted electronic detonator shall be done by using Electronic Exploder of same manufacturer and compatible with each other. In no case, initiation of permitted electronic detonators shall be done by the Electronic Exploder of another manufacturer.
- 4.2 The blasting/short-firing shall be conducted under the supervision of not below the rank of Overman Certificate of Competency (UR) under the Coal Mines Regulations, 2017 or under the supervision prescribed as per the solid blasting conditions with respect to the degree of gassiness of the seam, whichever is more. In case of metalliferous mines not below the rank of Foreman Certificate of Competency (UR) under the Metalliferous Mines Regulations, 1961 or any other equivalent/corresponding certificate of competency.
- 4.3 Before using the electronic detonators, each detonator shall be subjected to the test for proper functioning using approved Electronic Exploder of same manufacturer.
- 4.4 Use approved loggers or testers to verify network continuity and signal communication before arming.
- 5.0 **Training:** The users shall be trained in use of the e-Detonator in the field by supplier before its use in the mine, and regular maintenance of the e-Exploder shall be carried out by the trained Service Engineer and appointed & ensured by the manufacturer.
- 5.1 Persons engaged in use of the permitted electronic detonator & Electronic Exploder shall be suitably trained and duly authorized by the manager of the mine.
- 5.2 The Standard Operating Procedure (SOP) shall be prepared for transport, storage, handling, charging, use and firing of permitted electronic detonator and the same shall be implemented during handling & use of the permitted electronic detonator and e-Exploder in the mine. Further, the Standard Operating Procedure (SOP) shall be handed over to the concerned competent persons, supervisors and officials.
- 6.0 The following additional conditions shall also be maintained without deviation:
- 6.1 Manager shall maintain a copy of the instruction manual dealing with the methods of handling, care and limitations of use in the mine office and shall provide to the concerned persons.
- 6.2 Manager shall also maintain a copy of the extract of the conditions and special conditions, if any, recommended in the test report of the Permitted Electronic Detonator with regard to the safe handling and usage of Permitted Electronic Detonator and shall provide to the concerned persons.
- 6.3 All the conditions of the Solid Blasting permission of the concerned mine shall be complied with during the blasting operation.

- 6.4 Owner/Agent/Manager shall prepare site specific Standard Operating Procedure (SOP) for the handling and use of permitted electronic detonators and electronic exploders, and the same shall be strictly implemented during their use in the mine.
- 6.5 Any accident, injuries including loss of lives or properties caused due to defects or malfunctioning of this product shall be adequately indemnified by the manufacturer in agreement with the user (s) and such incidents shall be intimated to this Directorate.
- 6.6 All precautions in accordance with the relevant provisions of the Coal Mines Regulations, 2017 and Metalliferous Mines Regulations, 1961 applicable for transport, storage, handling, charging, use and firing of the explosives in underground coal mines shall be observed.
- 6.7 Further, all operations using e-Detonator shall be carried out in strict compliance with the Coal Mines Regulations, 2017, Metalliferous Mines Regulations, 1961 and the provisions notified under the OSH & WC Code, 2020 which includes subsequent amendments.
- 7.0 All the Owners/Agents/Managers are therefore advised to ensure strict compliance with the above guidelines while using permitted e-Exploder and e-Detonator in underground mines.



(Ujjwal Tah)
**Director General of Mines Safety/
Chief Inspector-cum-Facilitator of Mines**