



# DigiShot™ Plus Technical Data Sheet

## Product Description

DigiShot™ Plus is an easy-to use, reliable electronic initiating system primarily for use in surface blasting applications. The DigiShot™ Plus system includes wireless remote blasting capability.

## Technical Data

### DigiShot™ Plus V8 Tagger

The DigiShot™ Plus Tagger is used for on-bench operations such as assigning detonator locations, testing for leakage and testing detonators. The tagger is intrinsically safe – maximum battery voltage is below blasting voltage and the tagger cannot issue the encrypted blasting command.

Applicable standards	SANS 1717-1: The South African National Standard for: The design and specifications approval of EDD initiation systems for use in mining and civil blasting applications. CEN TS13763-27: European CEN-Testing specification for Explosives for civil uses – Detonators and relays.
Temperature Limits	-20°C to +70°C -4°F to +158°F (Tagger LCD when exposed for 1 hour)
Battery	User replaceable 9V Alkaline Recommend Energiser or Duracell for normal operating temperatures or Lithium Thionyl Chloride for low temperature operation.
Weight	Approximately 600 g / 1.32 lbs.
Display	128 x 64 mm / 5.04 x 2.52 in LCD with backlight
Keypad	Tactile touch pad with numeric and soft-keys
External Connectors	2 Terminals to connect to 2 wire detonator harness Custom USB connector. Replaceable Tagger to Detonator Connector Adapter to connect to detonators.
Operating time from a fresh battery	Approximately 6 hours at 25°C (77°F). Operating time is influenced by detonator load, backlight settings and operation temperature. At low temperatures battery life may be reduced significantly.
Software upgrade	Via a PC and a custom USB cable
Water resistance	Splash proof (IP 55)

## CE4 Tagger

The CE4 Tagger is used for on bench operations such as assigning detonator locations testing communication, leakage of detonator installation and verification of desired blast layout. The tagger is inherently safe maximum – battery voltage is below minimum required blasting voltage (culling voltage) and the tagger cannot issue the encrypted blasting command (i.e. ARM and FIRE commands).

Applicable standards	SANS 55: The South African Standard for design and specifications approval of EDD initiation systems for use in mining and civil blasting applications. CEN 13763-27: European CEN- Testing specification for Explosives for civil uses – Detonators and relays.
Temperature limits (Operational) (Tagger LCD when exposed for 1 hour)	-30°C to +60°C -22°F to +140°F
Battery - Internal, not field replaceable	3.7V Lithium Polymer (MSD-91)
Battery – External battery pack, not included	6 x 1.5V AA Alkaline or 6 x 1.2V Ni-MH / Ni-Cd
Weight of tagger and head	213mm (L) 88 mm (W) 38mm (H)
Weight of external battery	180mm (L) 85mm (W) 27mm (H)
Display (Active LCD area with backlight)	128 pixels x 128 pixels / 44.78 x 44.78mm
Keypad	Backlit tactile silicone keypad with alphanumeric keys.
External Connectors	A series of detonator connections exist for different application purposes. Replaceable Tagger to detonator connector head. USB Connector for data extraction and charging.
Operating time from a fully charged battery	Approximately 10 hours at 25°C (77°F). Operating time is influenced by detonator load, backlight settings and operation temperature. At temperatures below -15°C (5° F) battery life may be reduced significantly.
Software upgrade	Software upgrade is via the USB connector on the Tagger, and a flash drive.
Water resistance	IP 57

### DigiShot™ Plus Bench Box/Base Station

The DigiShot™ Plus Bench Box/Base Station is used to initiate the blast from a point of safety. It stores the detonator timing plan and utilizes a Smart Key during the blasting process. The unit can be programmed in Bench Box or Base Station mode.

Applicable standards	SANS 1717-1: The South African National Standard for: The design and approval of EDD initiation systems for use in mining and civil blasting applications. CEN TS13763-27: European CEN-Testing specification for Explosives for civil uses - Detonators and relays.
Temperature Limits	-20°C to +70°C -4°F to +158°
Battery	Non-user replaceable rechargeable 12V 2.3Ah lead acid battery
Weight	Approximately 10.5 kg / 23.15 lbs.
Keypad	Display 128 x 64 mm / 5.04 x 2.52 in LCD with backlight Tactile touch pad with numeric and soft-keys
External Connectors	2 Terminals to connect to 2 wire detonator harness Smart Key connector Custom USB, sync-link and charging connector
Operating time from a fresh battery	Approximately 6 hours at 25°C (77°F). Operating time is influenced by detonator load, backlight settings and operation temperature.
Software upgrade	Via a PC and a custom USB cable
Water resistance	Splash proof (IP 54)

### Detonator

Dynamic Shock Resistance	<=15954.15 Psi / 110 MPa
ESD Resistance	>1 Joule Energy @ 30KV
RF Immunity	Passes CEN TS 13763-27
<b>Detonator Shell:</b> South Africa North American	Copper: L: 93.5mm - 94.5mm, OD: 7.49mm - 7.54mm Copper: L: 93.5mm - 94.5mm, OD: 7.49mm - 7.54mm L: 3.68 – 3.72in, OD: 0.295 -0.297in
Applicable standards.	SANS 1717-1: The South African National Standard for: The design approval of EDD initiation systems for use in mining and civil blasting applications. CEN TS13763-27: European CEN-testing specification for Explosives civil use – Detonators and relays.
Detonator Strength	8D (South African Strength Definition) #12 (North American Strength Definition)
Base Charge	PETN
Net Explosives Quantity (NEQ )	1g/detonator
Timing	Programmable
Wire	Rugged, light green, over extruded
Connector	Rugged, water resistant
Elongation	< 3% (Steel); <25% (Copper)
Tensile Strength	>500 N / 112 lbs (Steel); >200 N / 45 lbs (Copper) @ 21° C / 70° F
Abrasion Strength	Passes CEN TS 13763-27
Detonator Shell Marking	Dangerous – Blasting Cap - Explosive Danger – Detonateur - Explosif
In-Hole Sleep time (Polyethylene)	A maximum of 7 days (when tested in 100% diesel, 500Kpa pressure and starting temperature of 60°C/140°F - end temperature of (25°C / 177°F)
Accuracy	± 1ms for blast durations of less than 5 seconds
Detonator Temperature Limits	-40°C to +80°C -40°F to +176°F
* Detonator is suitable for hot emulsion application.	

Maximum number of detonators per blast will reduce if average downline lengths exceed 46m / 150ft.

### Transportation, Storage and Handling

DigiShot™ Plus must be transported, stored, handled and used in conformity with all federal, state, provincial and local laws and regulations. Control equipment and accessories should be handled with due care and not dropped, mishandled, subjected to excessive vibration or exposed to any chemical agents. Connectors should be kept clean and the equipment must be kept in a safe environment to avoid misappropriation or misuse.

### Control Equipment Packaging

#### DigiShot™ Plus Bench Box/Base Station

Outer packaging	Cardboard box Double faced
Inner packaging	6 Polystyrene insert
Gross Mass	10kg
Dimensions	525 x 375 x 252mm
Compliance	SABS 1560:1992 specification

#### DigiShot™ Plus Tagger

Outer packaging	Cardboard box Double faced
Inner packaging	Pelican case PC/1450-150
Gross Mass	6kg
Dimensions	500 x 435 x 275mm
Compliance	SABS 1560:1992 specification

### DigiShot™ Plus Detonator Packaging

UN Shipping Classification	1.1B (manufactured in South Africa) 1.4B (manufactured in North America) 1.4S (manufactured in South Africa)
Detonator Configurations	Shrink wrapped coil
Cable Colour	Lime Green
Connector	Transparent

### Wireless Link Specifications

Remote Frequency Bands South Africa	902 – 928 MHz
USA/Canada	902 – 928 MHz
Australia	915 – 928 MHz
Europe	2400-2483.5 MHz
RF Technology	Frequency Hopping Spread Spectrum (FHSS)
Transmitter Output Power	Variable up to 1 000 mW
Antenna Gain	2 dBi
Regulatory	FCC - 15.247

### System Limits

Maximum Total Delay Time	20 000 milliseconds
Maximum Number of Detonators	1800 (Single Blaster mode)
Max. No. of rows	63 Rows

Max. No. of Decks supported	15 Decks
Max. No. of Detonators per row, per side.	127
Maximum Number of Detonators - RF mode	4 Bench Boxes may be linked together for blasts up to 7200 detonators via a synchronised blast from a Base Station
Maximum Lead-in wire plus surface harness	Should not exceed 2500m / 2734yds
Maximum Number of synchronized Bench Boxes, RF mode	4
Maximum Number of Bench Boxes, Leaky Feeder mode	4
Maximum Number of Bench Boxes, Wirelink mode	1

### DigiShot™ Plus Accessories

Tagger to Detonator Connector Adapter	The Pogo-Pin Detonator Connector Adapter is a user replaceable connector that is used to connect the tagger to a detonator.
Tagger Pouch	The Tagger Pouch is a cordura/polar fleece pouch used to insulate the Tagger from the environmental conditions during cold or wet temperature operation.
Smart Key	The Smart Key provides a coded blast command for the detonators and has a user-specific password.
Charger	The charger is used to recharge the Bench Box/Base Station. It accepts 110 or 220V AC input at 50/60Hz. It must only be used indoors at room temperature. Charging time will vary depending on the state of the battery.
Harness Wire	0.63mm (or 22 gauge in North America) twisted pair copper wire with PVC or Polyethylene insulation available in 200 m / 219 yds. and 500 m / 547 yds. reels. (Country dependant)
Omni-Directional Antenna	Antenna are provided in 2 different colours: Grey antenna for the frequency Range 902 – 928 MHz Blue antenna for the frequency Range 2400-2483.5 MHz

### Special Instructions

DigiShot™ Plus should only be used by users who have completed both product specific training successfully and who comply with the applicable local regulatory requirements. DigiShot™ Plus control equipment and detonators are ONLY suitable for use within the DigiShot™ Plus system – no other equipment should be connected to DigiShot™ Plus detonators and no DigiShot™ Plus equipment should be connected to a non DigiShot™ Plus detonator of any type. The Smart Key should always be under the direct control of the appointed blast supervisor.

### Other

DigiShot™ Plus control equipment batteries should be kept in a charged state. If the equipment is to be stored for long periods the batteries may require charging at 3 monthly intervals or need to be removed or replaced before equipment is used operationally. All equipment in the field must be returned to DetNet or its approved repair centres for service in the following intervals:

Handheld equipment (Taggers, etc.): 18 months  
Other equipment (excl. accessories): 24 months

### Product Disclaimer

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