



UTM-00265 | DigiShot 300RF Blaster | Rev 15
SVN 2772

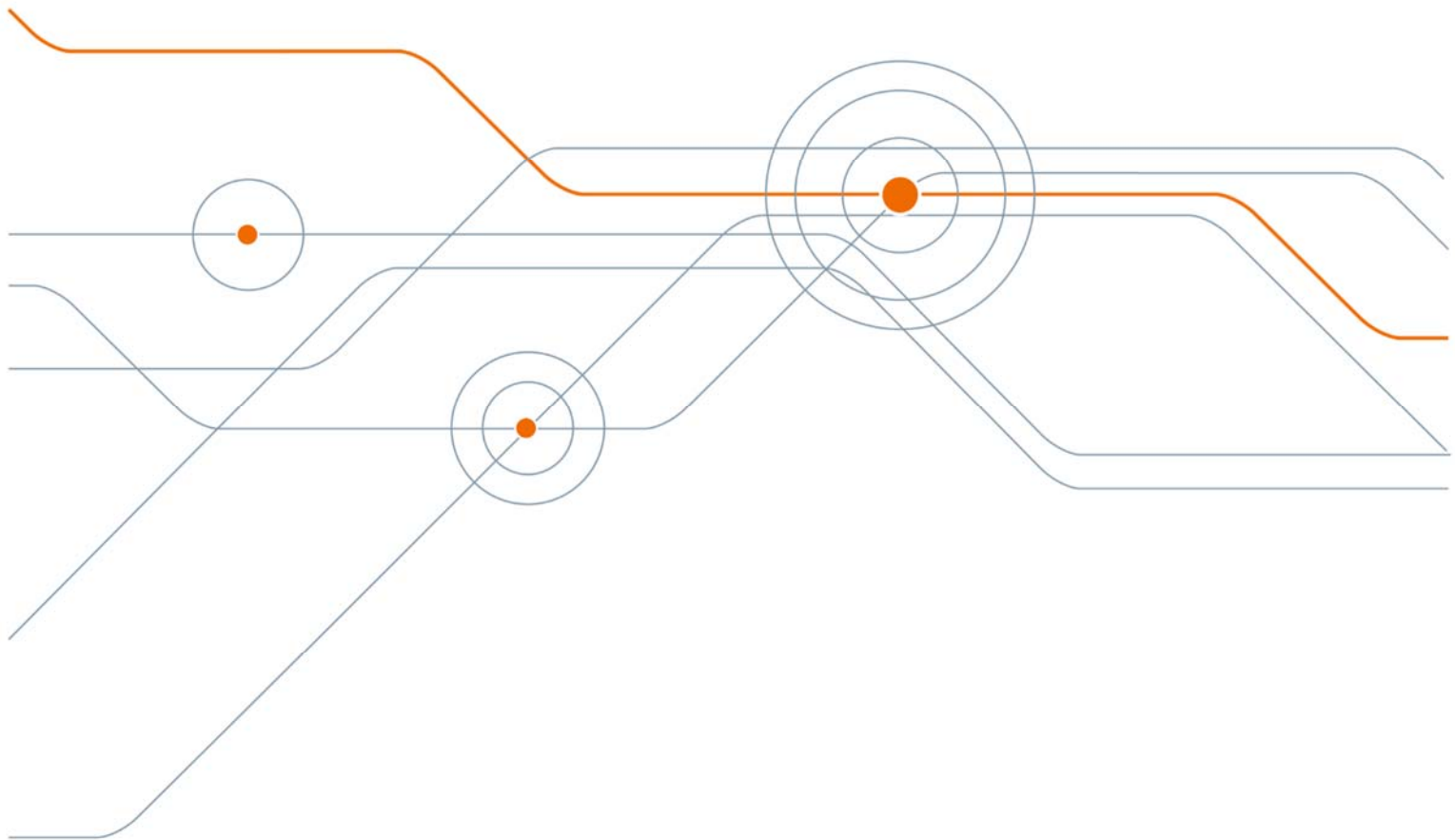


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1 USERS OF THIS MANUAL

DetNet endeavours to upgrade software to comply with new challenges and needs faced by users in the market. As new software becomes available, the DetNet version control policy requires that all control equipment be upgraded to ensure support is provided on the latest software version installed on equipment as deployed on customer sites.



This manual is only to be used for the DigiShot® System and the applicable software version as displayed.

1.1. End User

1.1.1. Requirements

- ☒ Only trained personnel, and personnel found competent, are allowed to operate the system.
- ☒ Users of the system shall be aware of the recommended procedures for using the System as per manufacturer's recommendations.
- ☒ These recommendations do not supersede the method as required by local mine, explosives or statutory regulations/procedures/codes of practise regarding the use of detonators. In such cases, the MOST STRINGENT set of rules between the mine, explosives or local regulations/procedures/codes of practise and the manufacturer must be followed.

1.2. Training

Training and software upgrades shall only be performed by a DetNet SA subject matter expert. Contact the DetNet head office for additional information.



ALL USERS OPERATING THE BCU SYSTEM SHALL HAVE SUCCESSFULLY COMPLETED THE SPECIFIC TRAINING BEFORE PERFORMING ANY WORK WITH THE DEVICE(S).

1.3. Information

Refer to <http://www.detnet.com/> for additional detail and documentation.

2 DigiShot® System Product Safety



ELECTRONIC DETONATORS ARE TOTALLY DIFFERENT TO CONVENTIONAL ELECTRIC DETONATORS AND ABSOLUTELY NO CONNECTION WITH CONVENTIONAL ELECTRIC DETONATORS OR ANY OTHER ELECTRONIC DETONATORS IS POSSIBLE AS IT CAN LEAD TO UNINTENDED INITIATION. ALL USERS OPERATING THE ELECTRONIC INITIATION SYSTEM SHALL HAVE SUCCESSFULLY COMPLETED THE SPECIFIC TRAINING BEFORE PERFORMING ANY WORK WITH THE DEVICE(S). DO NOT USE ANY DEVICES OTHER THAN THOSE SPECIALLY DESIGNED FOR THIS TYPE OF ELECTRONIC DETONATOR. REFER TO OPI-00202 FOR THE RECOMMENDED PRACTICE TO HANDLE MISFIRES

The 4G detonator contains a new ASIC in the detonator and although look and feel is the same as the 3G detonator, it is a new product that can be used in conjunction with the system and will not affect any use of the equipment.

2.1. DetNet Safety Philosophy

DetNet safety philosophy is to design, manufacture and provide control equipment, detonators and accessories to the highest safety standards.

- ☒ SmartKeys remains in possession of the accountable person, and should only be used to authorize the blast process at such a time as stipulated by the Mine after completion of the required Risk Assessment.
- ☒ All products must conform to local and international standards before it is sold for use.
- ☒ DetNet complies to ISO 9001, SANS 551:2009, CEN/TS 13763-27 which is acceptable to countries we operate in; in countries not subscribing to the above marks, we advise users to engage with DetNet to ensure that all equipment comply to local regulations.

2.2. User Safety

Safety is ensured when the user supplements the product's in-built safety systems through adequate training in the safe use of the product:

- ☒ Induction training
- ☒ Refresher training

DetNet continuously upgrades software to make our products more user friendly and to ensure that users stay abreast on latest developments, it is important that users get trained on the relevant changes before their equipment is updated.

2.3. Transportation, Storage and Handling

Equipment 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.

2.4. Maintenance Schedule

All equipment in the field will need to be returned to DetNet, or its repair centres, for service at the following intervals:

- ☒ Handheld Equipment (Tagger, etc.) – 18 Months.
- ☒ Other equipment (Excluding accessories) – 24 Months.

2.5. Information in case of emergency

Refer to <http://www.detnet.com/> for additional detail and documentation.

2.6. Warning, Caution, and Note Statements

WARNING, **CAUTION**, and **NOTE** statements are used throughout this manual to emphasise important and critical information. Observe these statements to ensure safety and to prevent product damage. The statements are defined as follows:



A WARNING MEANS THAT INJURY OR DEATH IS POSSIBLE IF THE INSTRUCTIONS ARE NOT OBEYED.

Warnings draw special attention to anything that could injure or kill the reader/user. *Warnings* are generally placed before the step in the procedure they relate to. Warning messages are repeated wherever they apply.



A CAUTION MEANS THAT DAMAGE TO EQUIPMENT IS POSSIBLE.

Cautions draw special attention to anything that could damage equipment or cause the loss of data and will normally describe what could happen if the caution is ignored. *Cautions* are generally placed before the step in the procedure they relate to.



Notes are added to provide additional information.

Notes are used to emphasise important information by visually distinguishing this from the rest of the text. Notes can contain any type of information except safety information, which is always placed in cautions or warnings.

2.7. DISCLAIMER

This document contains restricted information for company and channel partners' application only. Should any of the restricted information contained in this document be disclosed to any third party either intentionally or unintentionally, DetNet South Africa will not be held responsible, accountable or liable for any resulting event and or issue.

2.8. RF Compliance - FCC (USA) and ICES (Canada)

2.8.1. Unauthorised Changes

DetNet South Africa has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.

DetNet South Africa n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peuvent annuler le droit d'utilisation de l'appareil par l'utilisateur.

2.8.2. Radio Interference

This device complies with Part 15 of the FCC Rules and Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

2.8.3. RF Exposure

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body. Antenna gain must be below 30 dBm

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

*Cet appareil est conforme aux limites d'exposition aux rayonnements de la IC pour un environnement non contrôlé. L'antenne doit être installé de façon à garder une distance minimale de 20 centimètres entre la source de rayonnements et votre corps. Gain de l'antenne doit être ci-dessous 30dBm
L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec à autre antenne ou autre émetteur.*

2.8.4. FCC Class B digital device notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

2.8.5. Labelling Requirements for the Host device

The host device shall be properly labelled to identify the modules within the host device. The certification label of the module shall be clearly visible at all times when installed in the host device, otherwise the host device must be labelled to display the FCC ID and IC of the module, preceded by the words "Contains transmitter module", or the word "Contains", or similar wording expressing the same meaning, as follows:

Contains FCC ID: 2ARNH-14521010

L'appareil hôte doit être étiqueté comme il faut pour permettre l'identification des modules qui s'y trouvent.

L'étiquette de certification du module donné doit être posée sur l'appareil hôte à un endroit bien en vue en tout temps. En l'absence d'étiquette, l'appareil hôte doit porter une étiquette donnant le FCC ID et le IC du module, précédé des mots « Contient un module d'émission », du mot « Contient » ou d'une formulation similaire exprimant le même sens, comme suit :

Contains IC: 24476-14521010

2.8.6. CAN ICES-3 (B) / NMB-3 (B)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de classe B est conforme à la norme canadienne ICES-003.

3 DigiShot® Blaster

The DigiShot® Blaster is used to test, program and blast strings of DigiShot® detonators.

The DigiShot® Blaster is capable of handling a maximum of:

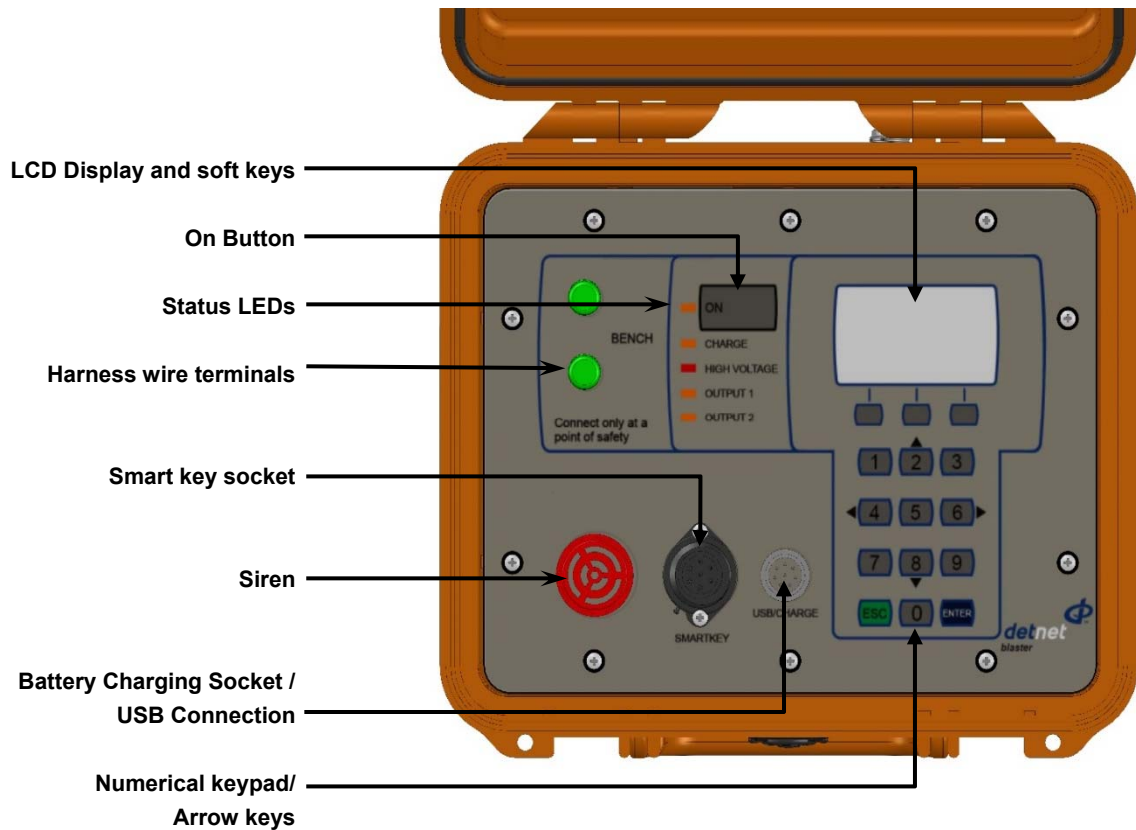
- ☒ 300 detonators depending on down-line wire length in Stand Alone Mode, or
- ☒ 600 detonators in a Wire Synchronised Blast using 2 DigiShot® Blasters, or
- ☒ 300 detonators in RF Mode.

The DigiShot® Blaster is a battery operated unit enclosed in a water resistant enclosure and requires regular charging and maintenance to ensure operational functionality.

The functions of the DigiShot® Blaster are:

- ☒ To test, program and blast all the connected DigiShot® detonators.
- ☒ To initiate the blast directly in Local or stand-alone blasting by inserting a Red Smart key.
- ☒ To initiate the blast remotely in RF mode by inserting a Red Smart Key in the Base station and Yellow Smart key in the Bench Box.
- ☒ To initiate a blast in Wire Synchronised mode by inserting a Red Smart key in the Master and a Red Smart key in the Slave.
- ☒ To assign detonator delay times to each detonator according to a pre-determined blast plan.

3.1. DigiShot® Blaster Components



3.1.1. Communication Interface

Multi-purpose USB Socket

- ☉ Used to upgrade software
- ☉ Used to connect an external mains charger to charge the internal 12V battery
- ☉ Synchronisation link cable connection for Linked Blasts




3.1.2. Blasting Interface

- ☉ Siren – Warning Siren, sounds during Arming and Firing cycle
- ☉ Smart Key Socket – Used to insert Smart key for Blasting.



3.1.3. Detonator Interface

Harness wire terminals can accommodate a maximum of 300 detonators.

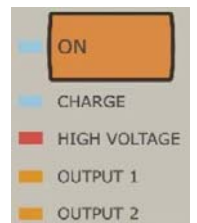


Always keep harness wire ends short and neatly trimmed. When connecting the harness wire to the harness wire terminal, ensure that no excess un-insulated harness wire is protruding past the terminals as the harness wire could create a short circuit should it come into contact with the face plate of the Blaster.



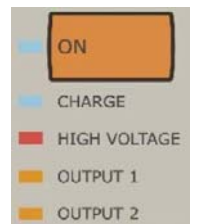
3.1.4. ON key

The On key is used to power ON the DigiShot® Blaster. To save battery power, the DigiShot® Blaster turns off automatically after a pre-set period of idle operation. The auto power-off time can be adjusted as detailed in the Setup and Configure DigiShot® Blaster section. A menu item selection is used to power the unit off.



3.1.5. Status LEDs

Charge LED - Illuminated LED indicates the battery is being charged.
 High Voltage LED – Illuminated LED indicates the DigiShot® Blaster is ARMED for blasting when Smart key is inserted.
 Output 1 – Not used.
 Output 2 – Indicates RF communication when illuminated.



3.1.6. LCD Display and Soft Keys

The LCD screen can display up to thirteen lines of text at a time, each with a maximum of 25 characters. All Errors and Status reports are displayed on the LCD Display. The Soft keys will activate functions that appear above the soft key on the LCD screen as an option in a menu.



3.1.7. Numerical keys

The Numerical keys are used to navigate the menus.

Navigation keys

The Navigational ↑ ↓ ← → keys are used to navigate during actions where one may need to move left, right, up or down in an active screen.

ENTER key

The Enter key is used to accept an on-screen activity/option.


Esc key


The Esc key is used to cancel and escape out of selected options. **Smart Keys**


- ☒ Smart Keys provide a physical electrical link without which the blast voltage cannot be routed to the detonators.



- ☒ The Smart Keys house electronic devices which store the required blast command.
- ☒ SmartKeys are used to authorise and initiate a blast.

	<p>ALWAYS keep the Smart Key and pin locked away in a secure place when not in use.</p> <p>ALWAYS place the Smart Key and the DigiShot® Blaster in direct control of the responsible DigiShot® Blaster on the blast.</p> <p>ALWAYS inform the supervisor and supplier immediately if a Smart Key is lost or damaged.</p> <p>Smart Keys are classified as a blast key and must be handled in accordance with Local legislation requirements.</p> <p>Should a Smart Key be inserted into the Blaster when not expected, a REMOVE KEY warning will be displayed. Also, operation of the DigiShot Blaster with RF will not be possible if the Smart Key is inserted at the moment when the Blaster is switched ON. The Smart key must therefore be removed from the DigiShot Blaster with RF before switching it ON</p>
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	<p>NEVER INSERT THE SMART KEY INTO THE DIGISHOT® BLASTER WHEN IN IDLE MODE, UNLESS IT IS INTENDED TO INITIATE A BLAST AND PROMPTED BY THE SOFTWARE TO DO SO.</p> <p>NEVER USE A FAULTY OR DAMAGED SMART KEY. IT MUST BE RETURNED TO THE ORIGINAL SUPPLIER FOR DESTRUCTION.</p> <p>NEVER STORE THE SMART KEY AND BLASTING PASSWORD TOGETHER.</p> <p>NEVER DIVULGE THE BLASTING PASSWORD/S TO ANOTHER PERSON. ONLY THE CERTIFIED USER TO WHOM THE SMART KEY WAS ALLOCATED SHOULD KNOW THE PASSWORD.</p> <p>A BLAST CANNOT BE INITIATED WITHOUT THE SMART KEY.</p>
--	--

	<p>The operation and use of the Orange Blast key must be used in accordance with the Mine blast Procedures. Grace time is standardised to a minimum period of 2 minutes and a maximum of 45 minutes regardless of whether the key is used on a FIXED or PORTABLE BCU. The Mine shall advise and provide a formal notification to DetNet for the Smart Key time to be programmed (Typically the ORANGE key as it does not have FIRE buttons) with longer grace times, but not less than 2 minutes.</p>
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Three types of SmartKeys are available as detailed below:

3.1.8.1. Red SmartKey

Red SmartKey initiates Local Blasting. This key is password protected and requires a PIN after key is inserted. Once the system has armed the user will need to press both FIRE buttons to send the blast command. The Red SmartKey is also used at the Base Station when conducting RF blasting.



3.1.8.2. Orange SmartKey



DUE TO THE AUTOMATIC INITIATION NATURE OF THE ORANGE KEY, THE USER MUST AT ALL TIMES BE AWARE OF THE CORRECT EVACUATION ROUTE FROM THE BCU TO A POINT OF PERSONNEL SAFETY WHEN HAVING TO MOVE AWAY FROM THE BCU BEFORE BLASTING.

AN APPLICATION RISK ASSESSMENT TO EVALUATE THE USE OF THE ORANGE SMARTKEY OPERATION AND ACCESS CONTROL PRIOR TO COMMENCING WITH A BLAST SHALL BE CONDUCTED BY THE MINE AND PROCEDURES WILL BE IN PLACE DETAILING THE MANAGEMENT OF ACCESS CONTROL.

The Orange SmartKey initiates Local Blasting and requires only a PIN after key is inserted. After a grace period, the Orange SmartKey will cause the BCU to Program, Arm and Fire without any further user input i.e. no Fire buttons appear. Orange SmartKey is used in standalone or NO LINK mode only.



The operation and use of the Orange Blast key must be used in accordance with the Mine blast Procedures. The minimum time allowed is 2 minutes and the maximum is 45 minutes that the Orange key can be programmed. The Mine to advise and provide a formal notification to DetNet for the time to be programmed.

3.1.8.3. Yellow SmartKey

The Yellow SmartKey is used to initiate Centralised Blasting on a BCU connected to a Centralised Blasting Network. This is the only key that will be allowed to be inserted after a BCU is locked by the Surface Blast Controller. Note that a Surface Blast Controller lock that is issued from the controlling PC on surface is different to a detonator count lock, which is local to a particular BCU. No PIN is required for the Yellow key.

Yellow SmartKey is used in standalone or NO LINK mode only.



3.1.9. RF Antennae

The 2.4 GHz antennae provide wireless communication between the Base Station and Blaster. This will enable the user to move up to 1 Km away from the bench without the need of cables over this distance.



Range- 1Km direct line of sight. Note that this is the blue antenna as opposed to the grey antenna (900 MHz) which is distributed with other products



2,4GHZ AERIAL HAS TO BE USED WITH CAUTION TO NOT INTERFERE WITH WIRELESS NETWORKS IN THE SURROUNDING AREAS.

3.1.10. Wire Sync Cable

The wire sync cable is used to connect two DigiShot® blasters in order to blast two channels of detonators.



The DigiShot® Blasters must be configured in a master-slave configuration before blasting

4 Setup and Configuring DigiShot® Blaster

4.1. Charging the DigiShot® Blaster



THE DIGISHOT® BLASTER MUST NOT BE CONNECTED TO THE DIGISHOT® DETONATORS OR THE LEAD-IN HARNESS WIRE WHILST THE DIGISHOT® BLASTER IS CONNECTED TO A DIGISHOT® CHARGER.

- ☒ Switch off the DigiShot® Blaster.
- ☒ Connect charger to DigiShot® Blaster.
- ☒ Connect DigiShot® charger to correct power supply.



4.2. Power ON DigiShot® Blaster



The Power ON screens displayed may differ as the DigiShot® Blaster will default to the last mode setting during the previous shut down

4.2.1. Power ON DigiShot® Blaster in Wire Link or No link Mode

1. Press **ON** key.
2. System name displayed.
3. Software version number displayed.

```
DIGISHOT BLASTER
VERSION 2753
```

4. Use the numerical keypad to enter password.
5. Press **ENTER** to continue.

The DigiShot® Blaster is protected from unauthorised use by an assigned password, which is supplied by the manufacturer. The user must change the default password assigning a new unique password that is only known by the user.

```
DIGISHOT BLASTER
PASSWORD? ****
```

6. Internal Battery level displayed briefly.

```
BAT LEVEL: 84%
```

7. Main Menu displayed.

```
DIGISHOT BLASTER
1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF
```

4.2.2. Power ON DigiShot® Blaster in RF Link Mode

1. Press **ON** key
2. System name displayed (RF Base or RF Bench depending on previously selected mode).
3. Software version number displayed.

DIGISHOT RF BASE
VERSION 2753

DIGISHOT RF BENCH
VERSION 2753

4. Use the numerical keypad to enter password.
5. Press **ENTER** to continue.
The DigiShot® Blaster is protected from unauthorised use by an assigned password, which is supplied by the manufacturer.

DIGISHOT RF BASE
PASSWORD? ****

DIGISHOT RF BENCH
PASSWORD? ****



The user must change the default password and assign a new unique password that is known by the user only. (Refer to Main Password section in this manual)

6. Internal Battery level displayed briefly.

BAT LEVEL: 84%

7. Main Menu displayed.

DIGISHOT RF BASE
1. CONFIGURE/SETUP
2. RETURN TO CTRL
3. PROGRAM
4. POWER OFF

DIGISHOT BLASTER
1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

4.3. Power OFF DigiShot® Blaster

1. From the Main Menu

- ☞ Press **7** on the keypad to select **Power OFF** if in Bench Box mode, or
- ☞ Press **4** on the keypad to Power Off if in Base Station Mode.
- ☞ The DigiShot® Blaster will switch off.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

DIGISHOT RF BASE

1. CONFIGURE/SETUP
2. RETURN TO CTRL
3. PROGRAM
4. POWER OFF



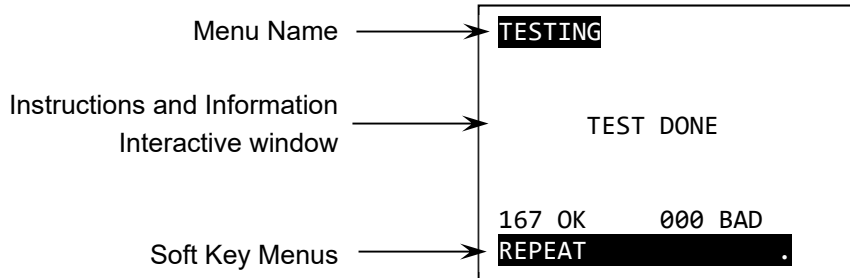
The DigiShot® Blaster will also switch off when ESC is pressed after the blaster was switched on but before the pin was entered.

4.4. Menu Navigation

- ☞ Use the numerical keypad to select menu options.
- ☞ Use the soft keys to select soft menu options.
- ☞ Use **ENTER** key to confirm an instruction.
- ☞ Use **ESC** key to cancel an instruction.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF



4.5. Internal DigiShot® Blaster Temperature and Battery Voltage

The internal temperature is displayed to enable the user to observe when heating is required.

1. Display Main Menu

Press **6** on the keypad to select **Configure/Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Configure/Setup Menu

Press **6** on the keypad to select **Advanced Options**.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS

3. Under Advanced Option Menu

Press **3** on the keypad to select **Battery/Temp**.

ADVANCED OPTIONS

1. UPGRADE SOFTWARE
2. TUNE AUTOSEARCH
3. BATTERY/TEMP
4. DEBUG
5. LANGUAGE
6. PASSWORDS
7. USE STARTER DETS

4. Internal Temperature is displayed

TEMPERATURE: 26 °C
BAT LEVEL: 95%

Refer to Heating in Setup and Configuration section for further information when working in sub-zero temperatures heating of the DigiShot® Blaster is required.
 The DigiShot® Blaster will switch off when the battery capacity indicator registers 0%
 Never completely drain the battery voltage as it will reduce the lifespan of the battery

5. Battery charge level will be displayed

Press **ESC** to exit.

4.6. Date and Time

This function enables the user to set date and time on the DigiShot® Blaster.

1. Display Main Menu

- ☞ Press **6** on the keypad to select **Configure/Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Configure/Setup Menu

- ☞ Press **1** on the keypad to select **Set Date/Time** Option.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS

3. Date and time

- ☞ Use numerical keys to input the required value and press **ENTER** to confirm each value as detailed below:

- Year;
- Month;
- Day;
- Hour – 24 hours;
- Minute;
- Seconds.

```
YEAR? 2017
MONTH? 9
DAY? 26
HOUR? 13
MINUTES? 49
SECONDS? 46
```

- ☞ Press **ESC** to make a correction.

4.7. Backlight and Auto Shutdown

Backlight: After a period of inactivity, the screen's backlight turns OFF to conserve battery power. The user can set the idle time before the backlight automatically turns OFF.

Auto Shutdown: The DigiShot® Blaster automatically turns off after a period of inactivity to conserve battery power. The user can set the idle time within a 2 to 60 minute range before the DigiShot® Blaster switches off automatically.

1. Display Main Menu

☞ Press **6** on the keypad to select **Configure/Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Configure/Setup Menu

☞ Press **2** on the keypad to select **Backlight/Power** Option.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS

3. Backlight

Use the Soft Keys to select **Always On** or **Enter Time** option.

Use numerical keys to enter the required idle time in minutes before the backlight switches off.

- Min – 1 minute
- Max – 30 minutes

Press **ENTER** to confirm.

Press **ESC** to make a correction.

TIME IN MINUTES
BACKLIGHT: 15

ALWAYS ON **ENTER TIME**

4. Power

Use numerical keys to enter the idle time in minutes before the DigiShot®

Tagger automatically switches off.

- Minimum – 2 minutes
- Maximum – 60 minutes

Press Esc to correct.

Press **ENTER** to confirm.

TIME IN MINUTES
BACKLIGHT: 25
SET TO ALWAYS ON
POWER? 10

4.8. Select Side

The Select Side function provides the user the option of setting the detonators either on a specific side, or both sides of the Initiation Point.

1. From Main Menu

- ☛ Press **6** on the keypad to select **Configure/Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Configure/Setup Menu

- ☛ Press **3** on the keypad to select the **Select Side** Option.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS

3. Select Sides

Use the SOFT KEYS to select:

- ☛ Left Soft Button to select Left Only;
- ☛ Centre Soft Button to select Both Sides;
- ☛ Right Soft Button to select Right Only.
- ☛ Press **ENTER** to confirm.
- ☛ Press **ESC** to exit.

SELECT SIDE AND ENTER
 BOTH SIDES
 LEFT ONLY
 RIGHT ONLY



When only one side is specified, the other side should not be tagged as timing and blasting will not be possible and the user will have to retag.

4.9. Contrast

The Contrast function enables the user to adjust the LCD screen brightness. Contrast adjustment may be required in extreme environmental conditions.

1. Display Main Menu

- ☞ Press **6** on the keypad to select **Configure/Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Configure/Setup Menu

- ☞ Press **4** on the keypad to select **Contrast** Option.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS

3. Contrast

- ☞ Use the arrow keys (**↑**,**↓**) to adjust contrast.
- ☞ Press **ENTER** to confirm.
- ☞ Press **ESC** to exit.

TO ADJUST CONTRAST
PRESS UP/DOWN
ESCAPE TO QUIT

4.10. Heating

Pre-heating the DigiShot® Blaster to a higher internal temperature will enable it to function for longer periods in sub-zero temperature environments.

1. Display Main Menu

- ☛ Press **6** on the keypad to select **Configure/Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Configure/Setup Menu

- ☛ Press **5** on the keypad to select **Heating** Option.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS

3. Heating

- ☛ Press **1** to Preheat 10°C
- ☛ Press **2** to Preheat 20°C
- ☛ Press **3** to Preheat 30°C
- ☛ Press **4** to display Temperature

HEATING MENU

1. PREHEAT 10 DEG C
2. PREHEAT 20 DEG C
3. PREHEAT 30 DEG C
4. SHOW TEMPERATURE

4.11. Tune Autosearch

Autosearch allows the user to tune the search parameters for more efficient use. Tuning Autosearch parameters will allow Autosearch to search beyond bad or missing holes and/or bad or missing rows. Tune Autosearch can be set to search beyond known problems or Autosearch could stop searching prior to finding all DigiShot® detonators connected beyond a problem. However, correlating between tagged detonators and planned detonators indicated on the blast plan is important to ensure all detonators are tagged.

1. Display Main Menu

☞ Press **6** on the keypad to select **Configure/Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Configure/Setup Menu

☞ Press **6** on the keypad to select **Advanced Options**.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS

3. Advanced Options

☞ Press **2** on the keypad to select **Tune Autosearch**.

ADVANCED OPTIONS

1. UPGRADE SOFTWARE
2. TUNE AUTOSEARCH
3. BATTERY/TEMP
4. DEBUG
5. LANGUAGE
6. PASSWORDS
7. USE STARTER DETS

4. Max Bad Detonators?

☞ Use numerical keys to enter maximum consecutive bad detonators to be bypassed.

☞ Press **ENTER** to confirm.

MAX BAD DETS ? 2



Maximum of 15 detonators per hole.

5. Max Bad Holes?

- ☒ Use numerical keys to enter maximum consecutive bad holes to bypass.
- ☒ Press **ENTER** to confirm.
- ☒ Press **ESC** to exit.

MAX BAD HOLES ? 5



Maximum of 127 holes per side.



AUTOSEARCH WILL NOT SEARCH BEYOND THE SPECIFIED NUMBER OF CONSECUTIVE BAD DETONATORS IN A HOLE IRRESPECTIVE OF THERE BEING DETONATORS CONNECTED.
AUTOSEARCH WILL NOT SEARCH BEYOND THE SPECIFIED NUMBER OF CONSECUTIVE BAD HOLES IRRESPECTIVE OF THERE BEING HOLES ON THE ROW.
ENSURE TO CORRELATE THE BLAST PLAN WITH THE NUMBER OF HOLES, ROWS AND DETONATORS PER HOLE TO ENSURE THAT ALL DETONATORS ARE ACCOUNTED FOR.

4.12. Language

The language function enables the user to select a language preference for the DigiShot® Blaster menus.

1. Display Main Menu

- ☞ Press **6** on the keypad to select **Configure/Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Configure/Setup Menu

- ☞ Press **6** on the keypad to select **Advanced Options**.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS

3. Advanced Options

- ☞ Press **5** on the keypad to select **Language**.

ADVANCED OPTIONS

1. UPGRADE SOFTWARE
2. TUNE AUTOSEARCH
3. BATTERY/TEMP
4. DEBUG
5. LANGUAGE
6. PASSWORDS
7. USE STARTER DETS

4. Language


- ☞ Use the keypad to toggle between:
 - ☞ English;
 - ☞ Spanish;
 - ☞ French.
- ☞ Press **ENTER** to select the required language or press **ESC** to leave unchanged.
- ☞ Press **ESC** to exit.

PICK LANGUAGE
ENGLISH

4.13. Change Password

The DigiShot® Blaster is protected from unauthorised use by a password. A specific password supplied by the manufacturer is assigned to the DigiShot® Blaster. The user must change the default password and assign a new unique password that is known to the user only before starting to use the Blaster.


1. From the Main Menu

 Press **6** on the keypad to select **Configure/Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Configure/Setup Menu

 Press **6** on the keypad to select **Advanced Options**.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS


3. Advanced Options

 Press **6** on the keypad to select **Passwords**.

ADVANCED OPTIONS

1. UPGRADE SOFTWARE
2. TUNE AUTOSEARCH
3. BATTERY/TEMP
4. DEBUG
5. LANGUAGE
6. PASSWORDS
7. USE STARTER DETS

4. Change Passwords

 Press **1** on the keypad to select **Main Password** Option.

CHANGE PASSWORDS

1. MAIN PASSWORD
2. DEBUG PASSWORD
3. KEY PASSWORD



The Debug password and Key password (PIN) can also be changed as detailed below

5. Main Password

- ☞ Use numerical keys to enter the old password.
- ☞ Press **ENTER** to confirm.

OLD PASSWORD? ****

- ☞ Use numerical keys to enter the new password.
- ☞ Press **ENTER** to confirm.

NEW PASSWORD? ****
MAX PIN IS 65535

4.14. Use Starter Dets

The DigiShot® Blaster will allow blasting of Starter detonators.

1. From the Main Menu

- ☞ Press **6** on the keypad to select **Configure/Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Configure/Setup Menu

- ☞ Press **6** on the keypad to select **Advanced Options**.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS

3. Advanced Options

- ☞ Press **7** on the keypad to select **Use Starter Dets**.

ADVANCED OPTIONS

1. UPGRADE SOFTWARE
2. TUNE AUTOSEARCH
3. BATTERY/TEMP
4. DEBUG
5. LANGUAGE
6. PASSWORDS
7. USE STARTER DETS

4. Use Starter Dets?

- ☞ Use numerical keys to toggle between **YES** and **NO**.
- ☞ Press **ENTER** to confirm.

USE STARTER DETS?
SELECT Y/N AND ENTER
YES

4.15. Select Comms Link (Blast Mode)

4.15.1. No Link (Standalone Wire) Mode

1. From Main Menu

Press 6 on the keypad to select **Configure Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Configure Setup Menu

Press 7 on the keypad to select **Comms Setting**.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTINGS

3. From Comms Settings Menu

Press 1 on the keypad to select **Comms Link**.

COMMS SETTINGS

1. COMMS LINK

4. From Communications Link Menu

Press 3 on the keypad to select **NO LINK***

COMMUNICATIONS LINK

1. RF LINK
2. WIRE LINK
3. NO LINK*



The DigiShot® Blaster needs to be restarted to apply the updated communications link.

5. Press any key to shut down.

6. Power up the DigiShot® Blaster.

7. The DigiShot® Blaster will start in the selected Standalone (No Link) mode.

YOU MUST TURN OFF AND ON AGAIN FOR THE CHANGE TO TAKE EFFECT

PRESS ANY KEY

4.15.2. Wire Link Mode

1. From Main Menu

☞ Press 6 on the keypad to select **Configure Setup**.

DIGISHOT BLASTER

- 1. BLAST LAYOUT
- 2. SET TIMES
- 3. VIEW DESIGN
- 4. PROGRAM/ARM/FIRE
- 5. TEST DETONATORS
- 6. CONFIGURE/SETUP
- 7. POWER OFF

2. From Configure Setup Menu

☞ Press 7 on the keypad to select **Comms Setting**.

CONFIG/SETUP MENU

- 1. SET DATE/TIME
- 2. BACKLIGHT/POWER
- 3. SELECT SIDE
- 4. CONTRAST
- 5. HEATING
- 6. ADVANCED OPTIONS
- 7. COMMS SETTINGS

3. From Comms Settings Menu

☞ Press 1 on the keypad to select **Comms Link**.

COMMS SETTINGS

- 1. COMMS LINK

4. From Communications Link Menu

☞ Press 2 on the keypad to select **Wire Link***.

COMMUNICATIONS LINK

- 1. RF LINK
- 2. WIRE LINK*
- 3. NO LINK



The DigiShot® Blaster needs to be restarted to apply the updated communications link.

5. Press any key to shut down.

6. Power up the DigiShot® Blaster.

7. The DigiShot® Blaster will start in the selected Wire Link mode.

YOU MUST TURN OFF AND ON AGAIN FOR THE CHANGE TO TAKE EFFECT

PRESS ANY KEY



Repeat the above procedure on both Blasters in DigiShot® Wire Link mode and then proceed to select Master and Slave settings.

4.15.3. Select RF Mode

1. From Main Menu

☞ Press 6 on the keypad to select **Configure Setup**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Configure Setup Menu

☞ Press 7 on the keypad to select **Comms Setting**.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTING

3. From Comms Settings Menu

☞ Press 1 on the keypad to select **Comms Link**.

COMMS SETTINGS

1. COMMS LINK

4. From Communications Link Menu

☞ Press 1 on the keypad to select **RF Link**.

COMMUNICATIONS LINK

1. RF LINK*
2. WIRE LINK
3. NO LINK

5. From Mode Menu

- ☞ Press **1** on the keypad to select **Base Station**, or
- ☞ Press **2** on the keypad to select **Bench Box** as required

MODE

1. BASE STATION
2. BENCH BOX

The DigiShot® Blaster needs to be restarted to apply the updated communications link

6. Press any key to shut down
7. Power up the DigiShot® Blaster in either:
 - ☞ DigiShot RF Bench mode, or
 - ☞ DigiShot RF Base Station mode as selected.

YOU MUST TURN OFF AND ON AGAIN FOR THE CHANGE TO TAKE EFFECT

PRESS ANY KEY

4.15.4. Bench RF Channel and Key Setup

1. From Main Menu

- ☞ Press **6** on the keypad to select **Configure Setup**.

DIGISHOT RF BENCH

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Configure Setup Menu

- ☞ Press **7** on the keypad to select **Comms Setting**.

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTING

3. From Comms Settings Menu

- ☞ Press **2** on the keypad to select **Set RF Channel**

COMMS SETTINGS

1. COMMS LINK
2. SET RF CHANNEL
3. SET RF KEY

- ☞ Insert RF channel number (1 to 55)
- ☞ Press enter

RF CHANNEL? 1

4. From Comms Settings Menu
- ☞ Press **3** on the keypad to select **Set RF Key**

COMMS SETTINGS
1. COMMS LINK
2. SET RF CHANNEL
3. SET RF KEY

- ☞ Insert RF Key number
- ☞ Press enter

KEY? 01234567890123

- ☞ Press any key to turn off for change to take effect

KEY? 01234567890123

YOU MUST TURN OFF AND ON AGAIN FOR THE CHANGE TO TAKE EFFECT

PRESS ANY KEY

4.15.5. Base RF Channel and Key Setup

1. From Main Menu

☞ Press **ESC** on the keypad to select Main menu.

DIGISHOT RF BASE

PRESS ESC FOR MAIN
BAT LEVEL: 84%

2. From Configure Setup Menu

☞ Press **1** on the keypad to select **Configure / Setup**

DIGISHOT RF BASE

1. CONFIGURE/ SETUP
2. RETURN TO CTRL
3. POWER OFF

3. From Configure Setup Menu

☞ Press **7** on the keypad to select **Comms Setting.**

CONFIG/SETUP MENU

1. SET DATE/TIME
2. BACKLIGHT/POWER
3. SELECT SIDE
4. CONTRAST
5. HEATING
6. ADVANCED OPTIONS
7. COMMS SETTING

4. From Comms Settings Menu

☞ Press **2** on the keypad to select **Set RF Channel**

COMMS SETTINGS

1. COMMS LINK
2. SET RF CHANNEL
3. SET RF KEY

☞ Insert RF channel number (1 to 55)

☞ Press enter

RF CHANNEL? 1

5. From Comms Settings Menu

☞ Press **3** on the keypad to select **Set RF Key**

COMMS SETTINGS
1. COMMS LINK
2. SET RF CHANNEL
3. SET RF KEY

☞ Insert RF Key number

☞ Press enter

KEY? 01234567890123

☞ Press any key to turn off for change to take effect

KEY? 01234567890123

YOU MUST TURN OFF AND ON
AGAIN FOR THE
CHANGE TO TAKE EFFECT

PRESS ANY KEY

5 Blast Layout

5.1. Erase Layout

Blast plans are stored in the DigiShot® Blaster memory. Before starting a new blast plan, ensure that memory is cleared of all previous inputs to avoid conflicts with the new detonator list that must be created for the new blast.

1. From Main Menu

- ☞ Press **1** on the keypad to select **Blast Layout**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Blast Layout Menu

- ☞ Press **1** on the keypad to select **Manual Layout Option**.

BLAST LAYOUT MENU

1. MANUAL LAYOUT
2. AUTOSEARCH
3. VIEWSHOT LAYOUT

3. From Manual Layout Options Menu

- ☞ Press **1** on the keypad to select **Erase Layout**.

MANUAL LAYOUT MENU

1. ERASE LAYOUT
2. ADD SPECIALS
3. SET DETS/HOLE
4. LAYOUT HOLES
5. ERASE ROW
6. ADD DETONATOR
7. BLAST SUMMARY

4. From Erase Layout? Menu

- ☞ Use numerical keys to toggle between **YES** and **NO**.
- ☞ Press **ENTER** to confirm.

ERASE LAYOUT ?
SELECT Y/N AND ENTER
NO

5.2. Add Specials

The system is designed to deal with detonators that do not form part of the normal row and hole based layout. These out of pattern holes or out of sequence holes are referred to as Specials and are treated as a separate type class of hole and numbered sequentially and subsequently assigned absolute delays from the DigiShot® Blaster.

1. From Main Menu

☞ Press **1** on the keypad to select **Blast Layout**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Blast Layout Menu

☞ Press **1** on the keypad to select **Manual Layout** Option.

BLAST LAYOUT MENU

1. MANUAL LAYOUT
2. AUTOSEARCH
3. VIEWSHOT LAYOUT

3. From Manual Layout Options Menu

☞ Press **2** on the keypad to select **Add Specials**.

MANUAL LAYOUT MENU

1. ERASE LAYOUT
2. ADD SPECIALS
3. SET DETS/HOLE
4. LAYOUT HOLES
5. ERASE ROW
6. ADD DETONATOR
7. BLAST SUMMARY

4. From Add Specials? Menu

☞ Use numerical keys to enter number of special detonators.

☞ Press **ENTER** to confirm.

SPECIALS? 5

5.3. Set Number of Detonators per Hole for decking purposes

This function enables the user to perform multi-deck blasting parameters.

In a blast plan, a hole can be setup for decking of up to a maximum of 15 DigiShot® detonators per hole. Decking allocation refers to the position of a DigiShot® detonator inside a hole.

1. From Main Menu

- ☞ Press **1** on the keypad to select **Blast Layout**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Blast Layout Menu

- ☞ Press **1** on the keypad to select **Manual Layout** Option.

BLAST LAYOUT MENU

1. MANUAL LAYOUT
2. AUTOSEARCH
3. VIEWSHOT LAYOUT

3. From Manual Layout Options Menu

- ☞ Press **3** on the keypad to select **Set Dets/Hole**.

MANUAL LAYOUT MENU

1. ERASE LAYOUT
2. ADD SPECIALS
3. SET DETS/HOLE
4. LAYOUT HOLES
5. ERASE ROW
6. ADD DETONATOR
7. BLAST SUMMARY

4. From Dets/Hole? Menu

- ☞ Use numerical keys to enter number of detonators per hole.
- ☞ Press **ENTER** to confirm.

DETS/HOLE? 2

5.4. Layout Holes

The Layout Holes function enables the user to add holes to the original blast layout. Holes are added in the row and side specified and apply the number of detonators per hole that was previously set by the user.

1. From Main Menu

- ☞ Press **1** on the keypad to select **Blast Layout**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Blast Layout Menu

- ☞ Press **1** on the keypad to select **Manual Layout** Option.

BLAST LAYOUT MENU

1. MANUAL LAYOUT
2. AUTOSEARCH
3. VIEWSHOT LAYOUT

3. From Manual Layout Options Menu

- ☞ Press **4** on the keypad to select **Layout Holes**.

MANUAL LAYOUT MENU

1. ERASE LAYOUT
2. ADD SPECIALS
3. SET DETS/HOLE
4. LAYOUT HOLES
5. ERASE ROW
6. ADD DETONATOR
7. BLAST SUMMARY

4. From Dets per Hole? screen

- ☞ Use numerical keys to enter number of detonators per hole.
- ☞ Press **ENTER** to confirm.

DETS/HOLE? 2

5. From Layout Holes screen

- ☒ Press any key to toggle between **LEFT** and **RIGHT**.
- ☒ Press **ENTER** to confirm.

SELECT L/R AND ENTER
LEFT



Refer to the Config/setup menu to select side if both sides are to be used.

6. From Which Row? screen

- ☒ Use numerical keys to enter Row Number.
- ☒ Press **ENTER** to confirm.

WHICH ROW? 1

7. From Number of holes? screen

- ☒ Use numerical keys to enter number of holes.
- ☒ Press **ENTER** to confirm.

HOLES? 20

8. Blast summary displays the new blast layout which includes the new holes that were added to the particular row.

ROW	DL	HL	HR	DR
1	0	0	0	0
2	0	0	0	0
3	100	25	25	100
SPECIAL DETS				50
STARTER DETS				002
TOTAL DETS				252
PREV		LIST		NEXT

5.5. Erase Rows

The Erase Rows function enables the user to erase rows that have been incorrectly added.

1. From Main Menu

- ☛ Press **1** on the keypad to select **Blast Layout**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Blast Layout Menu

- ☛ Press **1** on the keypad to select **Manual Layout Option**.

BLAST LAYOUT MENU

1. MANUAL LAYOUT
2. AUTOSEARCH
3. VIEWSHOT LAYOUT

3. From Manual Layout Options Menu

- ☛ Press **5** on the keypad to select **Erase Row**.

MANUAL LAYOUT MENU

1. ERASE LAYOUT
2. ADD SPECIALS
3. SET DETS/HOLE
4. LAYOUT HOLES
5. ERASE ROW
6. ADD DETONATOR
7. BLAST SUMMARY

4. From Erase Row screen

- ☛ Use numerical keys to toggle between **LEFT** and **RIGHT**.
- ☛ Press **ENTER** to continue.

SELECT L/R AND ENTER
LEFT

5. From Row? screen

- ☛ Use numerical keys to enter row number.
- ☛ Press **ENTER** to continue.

ROW? 3

ERASED 100 DETS

6. Number of detected detonators being erased will be displayed.

- ☛ Press **ENTER** to confirm.

5.6. Add Detonator

The Add Detonator function enables the user to individually add detonators to the blast plan. This function may be used to add individual detonators back into a design that was incorrectly erased from the plan. Alternatively, this function may be used to add a detonator to a hole somewhere in the middle of the plan where the layout holes tool would not be suitable.

1. From Main Menu

☞ Press **1** on the keypad to select **Blast Layout**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Blast Layout Menu

☞ Press **1** on the keypad to select **Manual Layout** Option.

BLAST LAYOUT MENU

1. MANUAL LAYOUT
2. AUTOSEARCH
3. VIEWSHOT LAYOUT

3. From Manual Layout Options Menu

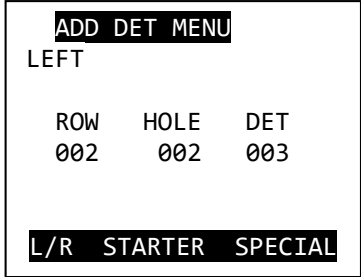
☞ Press **6** on the keypad to select **Add Detonator**.

MANUAL LAYOUT MENU

1. ERASE LAYOUT
2. ADD SPECIALS
3. SET DETS/HOLE
4. LAYOUT HOLES
5. ERASE ROW
6. ADD DETONATOR
7. BLAST SUMMARY

4. From Add Detonator Menu

- ☒ Change sides of Inflection Point.
 - Press soft key under **L/R** to toggle between Left and Right



5. Row Allocation

- ☒ Row numbers have to be manually changed.
 - Press 1 key to increase row number.
 - Press 7 key to decrease row number.

6. Hole Allocation

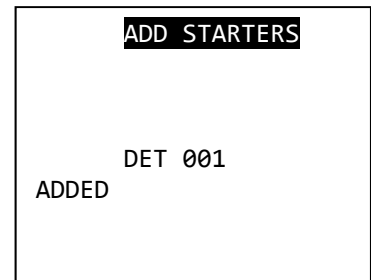
- ☒ Increase or decrease Hole Allocation as required
 - Press 2 key to increase hole number manually.
 - Press 8 key to decrease hole number manually.

7. Deck Allocation

- ☒ Increase or decrease the number of the dets in the hole as required.
 - Press 3 key to increase the number of the dets in the hole manually.
 - Press 9 key to decrease the number of the dets in the hole manually.

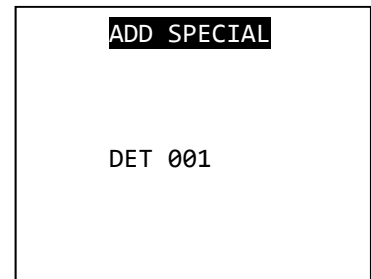
8. Starter Detonators

- ☒ Press soft key under **STARTER**.
- ☒ Press **2** key to increase the number of starter detonators.
- ☒ Press **8** key to decrease the number of starter detonators.
- ☒ Enter the actual starter detonator number
- ☒ Press ENTER and the detonator will be added
- ☒ If the detonator already exists in the det list, the message LOCATION EXISTS will be displayed
- ☒ **ESC** to return to ADD DETS menu.



9. Special Detonators

- ☒ Press soft key under **SPECIAL** to display Add Special Menu.
- ☒ From Add Special Menu, Increase or decrease number of special detonators as required
 - Press 2 key to increase the number of special detonators.
 - Press 8 key to decrease the number of special detonators.
- ☒ **ESC** to return to ADD DETS menu.



Always ensure that all holes are accounted for and marked on the blast plan.

5.7. Blast Summary

The Blast Summary function enables the user access a summary of the stored detonator list.

1. From Main Menu

- ☞ Press **1** on the keypad to select **Blast Layout**.

```

DIGISHOT BLASTER
1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF
    
```

2. From Blast Layout Menu

- ☞ Press **1** on the keypad to select **Manual Layout** Option.

```

BLAST LAYOUT MENU
1. MANUAL LAYOUT
2. AUTOSEARCH
3. VIEWSHOT LAYOUT
    
```

3. From Manual Layout Options Menu

- ☞ Press **7** on the keypad to select **Blast Summary**.

```

MANUAL LAYOUT MENU
1. ERASE LAYOUT
2. ADD SPECIALS
3. SET DETS/HOLE
4. LAYOUT HOLES
5. ERASE ROW
6. ADD DETONATOR
7. BLAST SUMMARY
    
```

4. Blast Summary

- ☞ Overall summary of all detonators connected.

- Row – Row number;
- DL – Total detonator Left;
- HL – Total holes Left;
- HR – Total holes Right;
- DR – Total detonators Right;
- Special Dets – Total Out of Pattern detonators;
- Starter Dets – Total Starter detonators
- Total Dets – Total detonators count.

- ☞ Press soft key under **PREV** to view previous screen.
- ☞ Press soft key under **NEXT** to view next screen.
- ☞ Press soft key under **LIST** to display the detonator list.
- ☞ Press **ESC** to exit.

```

ROW DL HL HR DR
1 0 0 0 0
2 0 0 0 0
3 100 25 25 100
SPECIAL DETS 100
STARTER DETS 2
TOTAL DETS 300
PREV LIST NEXT
    
```

5.8. Autosearch

Autosearch is a convenient automated function to read the location information from the connected DigiShot® detonators to create a blast plan. A new blast plan/detonator list is created and all previous blast plans and detonator lists will be erased. This function is normally used when there are no preloaded blast plans in the DigiShot® Blaster or when the blast plan changes between blasts.

1. From Main Menu

Press **1** on the keypad to select **Blast Layout**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Blast Layout Menu

Press **2** on the keypad to select **Autosearch** Option.

BLAST LAYOUT MENU

1. MANUAL LAYOUT
2. AUTOSEARCH
3. VIEWSHOT LAYOUT

3. Autosearch Warning

WARNING

AUTOSEARCH REWRITES
THE DET LIST

WARNING

TOO MANY DETS

ENTER ACCEPTS. ANY
OTHER KEY ABORTS



Always Autosearch does not erase the locations tagged to the DigiShot® detonator, only the detonator list stored on the DigiShot® Blaster.
When using Autosearch, a DigiShot® Blaster can only detect and store a maximum of 300 DigiShot® detonators.
When Autosearch finds in excess of the allowed 300 dets, a warning will be displayed prompting the user to either accept or abort. Acknowledging this warning will allow the user, at his own risk, to add more detonators to the channel (Up to a maximum of 450 detonators)

Autosearch prompts the users to set parameters to restrict search areas within set parameters.

Enter Autosearch Parameters:

Use numerical keys to enter start row number.

- ☞ Press **ENTER** to continue.
- ☞ Use numerical keys to enter last row number.
- ☞ Press **ENTER** to continue.

START ROW? 1

LAST ROW? 8

- ☞ Use numerical keys to enter maximum detonators per hole to search for.
- ☞ Press **ENTER** to continue.
- ☞ Use numerical keys to enter largest special ID tagged to search for.
- ☞ Press **ENTER** to continue.

MAX DETS/HOLE? 4

MAX SPECIAL #? 100

Autosearch will search from the first row to the last row and for up to the maximum number of special detonators and recreate a new detonator list from the search results.



Autosearch will not search outside the specified parameters; detonators connected outside the specified parameters will not be found or added to the detonator list. Ensure that all detonators are accounted for by comparing the blast plan with the detlist

The DigiShot® Blaster will display all detonators found within the parameters.

```
AUTOSEARCHING...
RIGHT

ROW HOLE DET
001 001 001

91%
```

```
VIEW DESIGN MENU
1. LIST DETONATORS
2. LIST MISSING
3. LIST NEW DETS
4. LIST BAD STATUS
5. BLAST SUMMARY
6. VIEW LAST DET
```



Ensure all possible parameters are included or else the total actual detonators will differ from the tagged amount of detonators. Autosearch can search beyond bad or missing holes and/or bad or missing rows, dependent on how the DigiShot® Blaster was setup for Autosearch. Refer to Tune Autosearch section for further information

5.9. Autosearch Error

The error is displayed when there is a side discrepancy and an error message will be displayed.

	<p>Autosearch option will not be accessible until the side error has been corrected.</p>
--	---

1. From Main Menu

- ☞ Press **1** on the keypad to select **Blast Layout**.

<p>DIGISHOT BLASTER</p> <ol style="list-style-type: none"> 1. BLAST LAYOUT 2. SET TIMES 3. VIEW DESIGN 4. PROGRAM/ARM/FIRE 5. TEST DETONATORS 6. CONFIGURE/SETUP 7. POWER OFF

2. From Blast Layout Menu

- ☞ Press **2** on the keypad to select **Autosearch** Option.

<p>BLAST LAYOUT MENU</p> <ol style="list-style-type: none"> 1. MANUAL LAYOUT 2. AUTOSEARCH 3. VIEWSHOT LAYOUT

3. WARNING

- ☞ Press the **CONT.** soft key to select continue
- ☞ Resolve side discrepancy:
- ☞ Retag the detonators on the wrong side so they appear on the side selected.
- ☞ Change mode to BOTH SIDES to accommodate additional detonators.

<p>WARNING</p> <p>SIDE SETUP FOR LEFT ONLY DETS ALSO FOUND ON RIGHT PLEASE RECTIFY FIRST</p> <p style="text-align: right;">CONT.</p>
--

5.10. ViewShot Layout

The error is displayed when there is a side discrepancy, the following error A ViewShot Plan may be downloaded to the Blaster. The actual number of detonators and the layout will need to match the ViewShot plan. On the Blaster, select In Blast Layout and then ViewShot layout

- ☞ In ViewShot, select Compatibility mode DigiShot 300S.
- ☞ In ViewShot select File and Send to Device and select the rows to be transferred.
- ☞ Ensure that the device selected is 300S.
- ☞ Ensure that the port is rescanned and correct.
- ☞ The press Send on the ViewShot menu
- ☞ The number of dets transferred will appear on the Blaster as in the diagram

<p>VIEWSHOT MODE PRESS ESC TO EXIT</p> <p>C 0 S 0 D 0 70 DETS</p>

6 Set Times

6.1. Time a Blast

This function enables the user to automatically set the inter-hole time of detonators for a selected style blast design

1. From Main Menu

☞ Press 2 on the keypad to select Set Times.

DIGISHOT BLASTER

- 1. BLAST LAYOUT
- 2. SET TIMES
- 3. VIEW DESIGN
- 4. PROGRAM/ARM/FIRE
- 5. TEST DETONATORS
- 6. CONFIGURE/SETUP
- 7. POWER OFF

2. From Time Dets Menu

☞ Press 1 on the keypad to select **Time Blast**.

TIME DETS MENU

- 1. TIME BLAST
- 2. TIME SPECIALS
- 3. TIME A ROW
- 4. TIME ROW BY ROW
- 5. TIME STARTERS

3. Between Rows?

- ☞ Use numerical keys to enter between rows delay in milliseconds.
- ☞ Press **ENTER** to continue.

BETWEEN ROWS? 25

BETWEEN HOLES? 17

4. Between Holes?

- ☞ Use numerical keys to enter the delay, in milliseconds, between holes.
- ☞ Press ENTER to continue.

5. Multi deck?

- ☞ Each detonator in a multi decked hole will require the individual offset of timing to be set.
- ☞ Use numerical keys during decking to enter offset delay in milliseconds between the absolute hole timing and the detonator time.
- ☞ Press ENTER to continue.

DET 001? 0

- ☞ Use numerical keys during decking to enter offset delay in milliseconds between the absolute hole timing and the detonator time.
- ☞ Press **ENTER** to continue.

DET 002? 5

6. Left Stagger?

The stagger function is used to offset the firing times for the left and/or right side of the blast. This will delay the left or the right side of the blast by the additional time entered.

- ☒ Use numerical keys to enter the left stagger delay in milliseconds.
- ☒ Press **ENTER** to continue.

L STAGGER? 5

7. Right Stagger

- ☒ Use numerical keys to enter right stagger delay in milliseconds.
- ☒ Press **ENTER** to continue.

R STAGGER? 5

8. The Time Dets Menu will be displayed.

- ☒ Press **ESC** to continue.

SETTING TIMES...

L 1 1 1 2400

TIME DETS MENU

1. TIME BLAST
2. TIME SPECIALS
3. TIME A ROW
4. TIME ROW BY ROW
5. TIME STARTERS

6.2. Time Specials

This function enables the user to add delays to out of pattern detonators – Specials detonators.

1. From Main Menu

- ☞ Press **2** on the keypad to select **Set Times**.

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From Time Dets Menu

- ☞ Press **2** on the keypad to select **Time Specials**.

TIME DETS MENU

1. TIME BLAST
2. TIME SPECIALS
3. TIME A ROW
4. TIME ROW BY ROW
5. TIME STARTERS

- ☞ Use numerical keys to enter the delay of this special detonator in milliseconds.

- ☞ Press **NEXT** to continue to next special detonator.

SPECIAL TIMES....

SPECIAL 1 ??????

SPEC 1 TIME? 125

PREV

NEXT

6.3. Time a Row

The time a row function is used to enable the user to set inter-hole timing between holes in a specific row.

1. From Main Menu

☞ Press **2** on the keypad to select **Set Times**.

```
DIGISHOT BLASTER
1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF
```

2. From Time Dets Menu

☞ Press **3** on the keypad to select **Time A Row**.

```
TIME DETS MENU
1. TIME BLAST
2. TIME SPECIALS
3. TIME A ROW
4. TIME ROW BY ROW
5. TIME STARTERS
```

3. Row?

☞ Use numerical keys to enter row number.

☞ Press **ENTER** to continue.

```
WHICH ROW? 3
```

4. Side of Initiation Point?

☞ Press any key to toggle between LEFT and RIGHT.

☞ Press **ENTER** to continue.

```
WHICH ROW? 3SELECT L/R
AND ENTER
LEFT
```

5. Start Time?

☞ Use numerical keys to enter start time in milliseconds.

☞ Press **ENTER** to continue.

```
START TIME? 0
```

6. Between Holes?

- ☞ Use numerical keys to enter between-hole delay in milliseconds.
- ☞ Press **ENTER** to continue.

BETWEEN HOLES? 25

7. Decking?

Each detonator in a multi decked hole will require it's time to be individually set.

- ☞ Use numerical keys during decking to enter offset delay in milliseconds between the absolute hole timing and the detonator time.
- ☞ Press **ENTER** to continue

DET 001? 0

- ☞ Use numerical keys to enter first hole number.
- ☞ Press **ENTER** to continue.
- ☞ Use numerical keys to enter last hole number.
- ☞ Press **ENTER** to continue.

FIRST HOLE? 1

LAST HOLE? 25

By default the first and last holes default to choosing the complete row, but a subset of a row can be timed if desired.

8. Decrement?

- ☞ Press any key to toggle between Yes and No.
- ☞ Press **ENTER** to continue.

DECREMENT?
SELECT Y/N AND ENTER
NO

ROW TIMES

L 3 8 3 8100 1

6.4. Time Row by Row

The time a row function is used to enable the user to set inter-hole timing between holes in a specific row.

1. From Main Menu

☞ Press **2** on the keypad to select **Set Times**.

DIGISHOT BLASTER

- 1. BLAST LAYOUT
- 2. SET TIMES
- 3. VIEW DESIGN
- 4. PROGRAM/ARM/FIRE
- 5. TEST DETONATORS
- 6. CONFIG/SETUP
- 7. POWER OFF

2. From Time Dets Menu

☞ Press **4** on the keypad to select Time **Row by Row**.

TIME DETS MENU

- 1. TIME BLAST
- 2. TIME SPECIALS
- 3. TIME A ROW
- 4. TIME ROW BY ROW
- 5. TIME STARTERS

3. Between Holes?

☞ Use numerical keys to enter between-hole delay in milliseconds.

☞ Press **ENTER** to continue.

BETWEEN HOLES? 17

4. Stagger?

The stagger function is used to offset the initiating times for the left and/or right side of the blast in a specific row. This will delay the left or the right side of the blast by the additional time entered.

☞ Use numerical keys to enter the left stagger delay in milliseconds.

☞ Press **ENTER** to continue.

L STAGGER? 5

5. Row Delay?

☞ Use numerical keys to enter the row starting delay in milliseconds.

☞ Press **ENTER** to continue.

☞ Repeat procedure for following rows.

SETTING TIMES

ROW 1 TIME? 0

6.5. Time Starters

The Time Starters function is used when “Use Starter Dets” is enabled from Advanced Options, it allows timing of Starter detonators. All Starter dets are to be timed individually according to the Starter det number.

1. From Main Menu

☞ Press **2** on the keypad to select **Set Times**.

```
DIGISHOT BLASTER
1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIG/SETUP
7. POWER OFF
```

2. From Time Dets Menu

☞ Press **5** on the keypad to select **Time Starters**.

```
TIME DETS MENU
1. TIME BLAST
2. TIME SPECIALS
3. TIME A ROW
4. TIME ROW BY ROW
5. TIME STARTERS
```

3. For each Starter det, use numerical keys to enter the delay in milliseconds for this Starter detonator.

☞ Press **NEXT** to continue to next Starter detonator to be timed.

```
TIME STARTER DETS
STARTER      1 ??????

STARTER 1 TIME: 0

PREV                NEXT
```

4. When all the Starter dets have been timed, the Time Dets menu will reappear.

6.6. Set Time Error

The error is displayed when there is a side discrepancy, the following error message will be displayed. Set Time menu will not be accessible until the side error has been corrected.

1. From Main Menu

- Press **2** on the keypad to select **Set Times**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. WARNING

- Press **CONT.** soft key to select continue
- Resolve side discrepancy:
- Retag the detonators on the wrong side so they appear on the side selected
- Change mode to **BOTH SIDES** to accommodate additional detonators. Refer to Config/setup menu to **SELECT SIDE**

WARNING

SIDE SETUP FOR
LEFT ONLY
DETS ALSO FOUND ON
RIGHT
PLEASE RECTIFY FIRST

CONT.

7 View Design

7.1. Detonator List

This function enables the user to display the stored detonator list in full detail including the location and timing of each DigiShot® detonator.

Individual detonators can be edited from the detonator list.

1. From Main Menu

- ☛ Press **3** on the keypad to select **View Design**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From View Design Menu

- ☛ Press **1** on the keypad to select **List Detonators**

VIEW DESIGN MENU

1. LIST DETONATORS
2. LIST MISSING
3. LIST NEW DETS
4. LIST BAD STATUS
5. BLAST SUMMARY
6. VIEW LAST DET

3. Detonator List

- ☛ Side – Side that detonators are connected to (L or R)
- ☛ Row – Row number
- ☛ Hole – Hole number
- ☛ Det – Detonator number in hole
- ☛ Time – Time delay allocated to detonator
- ☛ Press the soft menu **PREV** to view previous screen
- ☛ Press the soft menu **NEXT** to view next screen
- ☛ Press **2** on the keypad to scroll up one line at a time
- ☛ Press **8** on the keypad to scroll down one line at a time
- ☛ Press the soft menu **EDIT** to change detonator information

ROW	HOLE	DET	TIME
L	3	1	1 6000*
L	3	1	2 6005
L	3	1	3 6010
L	3	1	4 6015
SPECIAL		1	125
STARTER		1	0
PREV		EDIT	NEXT

4. From Change Det Menu

- ☛ Add Det, Delete Det, Change Time or Mark as Last det.

CHANGE DET MENU

1. ADD DET
 2. DELETE DET
 3. CHANGE TIME
 4. MARK AS LAST DET
- | ROW | HOLE | DET | TIME |
|-----|------|-----|--------|
| L | 3 | 1 | 1 6000 |

7.2. List Missing Detonators

This function enables the User to view missing detonators found during testing. After the User performed a Test function, the Blaster will display the View Design Menu.

1. From Main Menu

☛ Press **3** on the keypad to select **View Design**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From View Design Menu

☛ Press **2** on the keypad to select **List Missing** Detonators

VIEW DESIGN MENU

1. LIST DETONATORS
2. LIST MISSING
3. LIST NEW DETS
4. LIST BAD STATUS
5. BLAST SUMMARY
6. VIEW LAST DET

3. Missing Detonators found will be displayed. If no missing detonators were found, LIST EMPTY will be displayed.

ROW	HOLE	DET	TIME
L 3	1	1	117

PREV NEXT

LIST EMPTY
PRESS ANY KEY

7.3. List New Detonators

This function enables the User to view new detonators found during testing. After the User performed a Test function, the Blaster will display the View Design Menu.

1. From Main Menu

☛ Press **3** on the keypad to select **View Design**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From View Design Menu

☛ Press **3** on the keypad to select **List New Detonators**

VIEW DESIGN MENU

1. LIST DETONATORS
2. LIST MISSING
3. LIST NEW DETS
4. LIST BAD STATUS
5. BLAST SUMMARY
6. VIEW LAST DET

3. New Detonators found will be displayed. If no new detonators were found, LIST EMPTY will be displayed.

ROW	HOLE	DET	TIME
L 3	1	1	?????

PREV
NEXT

LIST EMPTY
PRESS ANY KEY

4. ESC from View Design Menu

- Blaster will prompt adding new detonators found to list
- Use Yes or No Soft Keys to select option

NEW DETS FOUND
DO YOU WANT TO
ADD TO THE LIST?

YES
NO

7.4. List Bad Status

This function enables the User to view bad status of detonators found during testing. After the User performed a Test function, the Blaster will display the View Design Menu.

1. From Main Menu

- ☛ Press **3** on the keypad to select **View Design**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From View Design Menu

- ☛ Press **4** on the keypad to select **List Bad Status**

VIEW DESIGN MENU

1. LIST DETONATORS
2. LIST MISSING
3. LIST NEW DETS
4. LIST BAD STATUS
5. BLAST SUMMARY
6. VIEW LAST DET

3. List Bad Status

- ☛ Blaster will display Bad Status. If no detonators with bad status were found, LIST EMPTY will be displayed.
- ☛ Use Previous or Next Soft Keys to select option
- ☛ Press ESC to exit

ROW	HOLE	DET	TIME	
L	3	1	1	?????
PREV		NEXT		

LIST EMPTY
PRESS ANY KEY

7.5. Blast Summary

The Blast Summary is a summary of the stored DigiShot® detonators, indicating the number of detonators and holes per row on each side of the centre line.

1. From Main Menu

- ☛ Press **3** on the keypad to select **View Design**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIG/SETUP
7. POWER OFF

2. From View Design Menu

- ☛ Press **5** on the keypad to select **Blast Summary**

VIEW DESIGN MENU

1. LIST DETONATORS
2. LIST MISSING
3. LIST NEW DETS
4. LIST BAD STATUS
5. BLAST SUMMARY
6. VIEW LAST DET

3. Blast Summary

- ☛ Row – Row number
- ☛ DL – Total detonator Left
- ☛ HL – Total holes Left
- ☛ HR – Total holes Right
- ☛ DR – Total detonators Right
- ☛ Special Dets – Total Out of Pattern detonators
- ☛ Starter Dets – Total Starters used
- ☛ Total Dets – Total detonators count
- ☛ Use the soft menu **PREV** to view previous screen
- ☛ Use the soft menu **NEXT** to view next screen
- ☛ Use the soft menu **LIST** to view detail
- ☛ Press to **ESC** to exit

ROW	DL	HL	HR	DR
1	0	0	0	0
2	0	0	0	0
3	100	25	25	100
SPECIAL DETS			100	
STARTER DETS			000	
TOTAL DETS			300	
PREV		LIST	NEXT	

7.6. View Last Det

The View Last Det is an option to view the last detonator on the blaster

1. From Main Menu

☞ Press **3** on the keypad to select **View Design**

DIGISHOT BLASTER
1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. From View Design Menu

☞ Press **6** on the keypad to select **View Last Det**

VIEW DESIGN MENU
1. LIST DETONATORS
2. LIST MISSING
3. LIST NEW DETS
4. LIST BAD STATUS
5. BLAST SUMMARY
6. VIEW LAST DET

3. When a Last Det has **NOT** been set, the last det menu will display this information.

LAST DET NOT SET
PRESS ANY KEY

4. When a Last Det has been set, the last det menu will display the location of the last detonator

ROW	HOLE	DET	TIME
L	1	10	1 3417

PREV	NEXT
------	------

8 Test Detonators

8.1. Test All

The Test All function is used to test the integrity of the blast and will only test DigiShot® detonators connected on the surface harness wire and that are listed in the detonator list on the DigiShot® Blaster.

	<p>Detonators connected to the surface harness wire, which are not in the detonator list, will be ignored (Use Autosearch to locate newly connected detonators). The detonator list will not be altered during testing.</p> <p>During Test All, the DigiShot® Blaster will detect any untagged detonators connected to surface harness wire and an error will be displayed.</p>
--	---

1. From Main Menu

☞ Press **5** on the keypad to select **Test Detonator**

<p>DIGISHOT BLASTER</p> <ol style="list-style-type: none"> 1. BLAST LAYOUT 2. SET TIMES 3. VIEW DESIGN 4. PROGRAM/ARM/FIRE 5. TEST DETONATORS 6. CONFIGURE/SETUP 7. POWER OFF

2. From Test Dets Menu

☞ Press **1** on the keypad to select **Test All/List**

<p>TEST DETS MENU</p> <ol style="list-style-type: none"> 1. TEST ALL/LIST 2. TEST ROW/LIST 3. LEAKAGE TEST 4. CHECK PATTERN
--

3. Test All Dets

- ☞ Test all detonators, results displayed.
- ☞ Level – 80%– Signal strength from detonators

<p>TESTING</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"></td> <td style="width: 10%;">ROW</td> <td style="width: 10%;">HOLE</td> <td style="width: 10%;">DET</td> <td style="width: 10%;"></td> </tr> <tr> <td>L</td> <td>10</td> <td>17</td> <td>1</td> <td>3417</td> </tr> </table> <p>167 OK 000 BAD 80%</p>		ROW	HOLE	DET		L	10	17	1	3417
	ROW	HOLE	DET							
L	10	17	1	3417						

4. Test Result

- Good – 167 good detonators connected
- Bad – 0 bad detonators connected

<p>TESTING</p> <p>TEST DONE</p> <p>167 OK 000 BAD REPEAT</p>
--

	<p>When the signal strength is below 60%, the signal is considered to be weak.</p>
--	---

8.2. Test Row

The Test Row function is used to test the integrity of a row and will only test DigiShot® detonators connected onto the surface harness wire and listed in the detonator list on the DigiShot® Blaster for that row.



Detonators connected to the surface harness wire on that row, which are not in the detonator list, will be ignored (use Autosearch to locate newly connected detonators). During Test Row, the DigiShot® Blaster will detect any untagged detonators connected to surface harness wire and an error will be displayed.

1. From Main Menu

- ☞ Press **5** on the keypad to select **Test Detonator**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under View Design Menu

- ☞ Press **2** on the keypad to select **Test Row/List**
- ☞ Use numerical keys to enter row number
- ☞ Press **ENTER** to continue

TEST DETS MENU

1. TEST ALL/LIST
2. TEST ROW/LIST
3. LEAKAGE
4. CHECK PATTERN

3. Row parameters

- ☞ Use numerical keys to enter row number
- ☞ Use numerical keys to toggle between required sides:
- ☞ Left only
- ☞ Right only
- ☞ Both Sides
- ☞ Press **ENTER** to continue
- ☞ Select Start Row and End Row
- ☞ Press **ENTER** to continue

4. Test Row

- ☞ Test row of detonators, results displayed.
- ☞ Good – 167 good detonators connected
- ☞ Bad – 0 bad detonators connected
- ☞ Level – 80%– Signal strength from detonators
- ☞ Press **ENTER** to exit

```
TESTING

ROW HOLE DET
L 10 17 1 3417

167 OK      000 BAD
80%
```

5. Test Result

```
TEST ALL DETS

TEST DONE

017 OK      000 BAD
REPEAT .
```



When the signal strength is below 60%, the signal is considered to be weak.

8.3. Leakage Test

This enables the user to determine the total leakage reading as well as the total current consumption of the connected DigiShot® detonators in milliamps.

	<p>High leakage can result in misfires as the DigiShot® detonators may not receive the blast voltage as a result of the leakage. Low leakage is in the range of 0 – 0.5mA Leakage in the range of 0.55-1mA should be addressed if possible. All possible action to repair leakage above 1mA should be taken as it may result in detonator voltage starvation at high voltage, which could result in misfires.</p>
--	--

1. From Main Menu

☞ Press **5** on the keypad to select **Test Detonator**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

2. Under Test Dets Menu

☞ Press **3** on the keypad to select **Leakage** option

TEST DETS MENU

1. TEST ALL/LIST
2. TEST ROW/LIST
3. LEAKAGE
4. CHECK PATTERN

3. Leakage and Current consumption menu

☞ Press **any key** to exit

LEAKAGE 0.12mA
CURRENT 0.06mA

	<p>After Arming, and also when reprogramming, the Base Station will monitor the leakage on the Bench Box. Should the leakage increase to more than 0.5mA, a HIGH LEAKAGE warning will be displayed on the Base Station. This can be overridden by pressing any key.</p>
--	--

8.4. Check Pattern

This Check Pattern function is used to search for faulty, missing, starter and newly connected DigiShot® detonators and compare the results of this search against the stored detonator list.

Check Pattern will run with minimal user input. The boundaries of the test are obtained from the detonator list.

1. From the Main Menu

Press **5** on the keypad to select **Test Detonators**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIG/SETUP
7. POWER OFF

2. Under Test Dets Menu

Press **4** on the keypad to select **Check Pattern**

TEST DETS MENU

1. TEST ALL/LIST
2. TEST ROW/LIST
3. LEAKAGE
4. CHECK PATTERN

3. DigiShot® Blaster searches within the detonator list parameters as found on the Blaster and no further user input is required

CHECKING PATTERN...
LEFT

ROW	HOLE	DET
7	5	1

91%

4. DigiShot® Blaster will display Check Good if no deviations were found or display a warning that discrepancies were found. (More dets found than in the det list)

Press soft key to continue

CHECK GOOD

CONTINUE

WARNING

DISCREPENCIES FOUND

CONTINUE

5. Blaster will prompt adding new detonators found to list

Use Yes or No Soft Keys to select option

NEW DETS FOUND
DO YOU WANT TO
ADD TO THE LIST

YES

NO

6. Should the addition of newly connector detonators cause the detonator list to contain more than 300 detonators, a warning will be displayed prompting the user to either accept or abort.

WARNING

TOO MANY DETS

ENTER ACCEPTS. ANY
OTHER KEY ABORTS



ACKNOWLEDGING THIS WARNING WILL ALLOW THE USER, AT HIS OWN RISK, TO ADD MORE DETONATORS TO THE CHANNEL (UP TO A MAXIMUM OF 450). MORE THAN 300 DETONATORS MAY CAUSE BREAKDOWN IN COMMUNICATION AND INCREASED LEAKAGE.

7. DigiShot® Blaster displays the View Design Menu screen providing an option to view the result by selecting the required option as follows:

- List Detonators;
- List Missing;
- List New Dets;
- List Bad Status;
- Blast Summary;
- View Last Det;

VIEW DESIGN MENU

1. LIST DETONATORS
2. LIST MISSING
3. LIST NEW DETS
4. LIST BAD STATUS
5. BLAST SUMMARY
6. VIEW LAST DET

9 Program Detonators

9.1. Program All

The program all function enables the user to program each detonator with the required timing according to the blast plan in the DigiShot® Blaster. During programming the DigiShot® Blaster will detect any untagged detonators connected to surface harness wire and an error will be displayed.

1. From Main Menu

- ☞ Press **4** on the keypad to select **Program/Arm/Fire**

```
DIGISHOT BLASTER
1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF
```

2. Should last detonator not have been set, the DigiShot® Blaster will display a warning message.

- ☞ Select **YES** to allow the Blaster to automatically set the first detonator and the last as the last detonators.

```
WARNING
LAST DET NOT SET.
TO AUTOMATICALLY
SELECT LAST DETS
PRESS YES OR TO
SELECT MANUALLY
PRESS NO
YES NO
```

- ☞ If **NO** is selected the Blaster will display the detonator list
- ☞ Scroll to the required last det and press **EDIT**

```
ROW HOLE DET TIME
L 3 1 1 6000*
L 3 1 2 6005
L 3 1 3 6010
L 3 1 4 6015
L 3 2 1 6020
SPECIAL 1 125
PREV EDIT NEXT
```

3. From Change Det Menu

- ☞ Press **4** on the keypad to select Mark as Last Det.
- ☞ When selected, the screen will flash a last det set message

```
CHANGE DET MENU
1. ADD DET
2. DELETE DET
3. CHANGE TIME
4. MARK AS LAST DET
ROW HOLE DET TIME
L 3 1 1 6000
```

- ☞ Note that Option 4 will change from “MARK AS LAST DET” and displayed as “CLEAR AS LAST DET”
- ☞ Press **ESC** on the keypad twice to return to Program/Fire Menu screen

```

CHANGE DET MENU
1. ADD DET
2. DELETE DET
3. CHANGE TIME
4. CLEAR AS LAST DET
   ROW HOLE DET TIME
L   3   1   1   6000
    
```

4. Program/Fire Menu

- ☞ Press **1** on the keypad to select Program All

```

PROGRAM/FIRE MENU
1. PROGRAM ALL
2. ARM/FIRE DETS
3. TIME DELAY BLAST
    
```



Any Programming errors will be displayed

- ☞ Press **ENTER** on the keypad to continue

```

PROGRAMMING....

   ROW HOLE  DETS TIME
L   7   5   1  980

90%
    
```

```

PROGRAM DONE
0 RETRIES
0 ERRORS
FROM 300 DETS

ENTER TO CONTINUE
    
```



Detonators will not be programmed unless all programming errors have been resolved
See Troubleshooting error messages for programming errors.
If there is any possibility that adjacent detonators could be mechanically damaged by the previous detonator, it is advised programming them with a Zero inter-hole delay
After programming all detonators, a background scan will test all programmed detonators, ensuring that programmed detonators states do not change. Should any detonator state change, an error will be displayed.
Refer to Troubleshooting Error code for causes and remedial actions.

9.2. Programming Error

The error is displayed when there is a side discrepancy and a warning message will be displayed. The Programming menu will not be accessible until the side error has been corrected.

1. From Main Menu

- Press **4** on the keypad to select **Program/Arm/Fire** option

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIG/SETUP
7. POWER OFF

2. WARNING

- Press **ENTER** on the keypad to select continue
- Resolve side discrepancy:
- Retag the detonators on the wrong side to be displayed on the side selected
- Change mode to BOTH SIDES to accommodate additional detonators.

WARNING

SIDE SETUP FOR
LEFT ONLY
DETS ALSO FOUND ON
RIGHT
PLEASE RECTIFY FIRST

CONT.

- Connect Fail will be displayed when no detonators are connected

10 Blasting

The DigiShot® Blaster is capable of blasting in the modes as follows:

- ☒ Blast in Standalone mode (No Comms Link);
- ☒ Time Delay Blast mode using an Orange Smart Key;
- ☒ Blast in Wire Sync mode;
- ☒ Blast in RF Link mode.

When preparing to blast in any of the modes, the following actions need to be performed:

1. Connect detonators to the DigiShot® Blaster.

2. From Main Menu

- ☒ Press **1** on the keypad to select **Blast Layout**

DIGISHOT+ BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

3. From Blast Layout Menu

- ☒ Press either **1** on the keypad to select **Manual Layout** or press **2** on the keypad to select **Autosearch** Option (as detailed in this manual) to obtain a complete list of detonators

BLAST LAYOUT MENU

1. MANUAL LAYOUT
2. AUTOSEARCH
3. VIEWSHOT LAYOUT

4. From Main Menu

- ☒ Press **2** on the keypad to select **Set Times**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

5. From Time Dets Menu

- ☒ Press **1** on the keypad to select **Time Blast** and complete Blast Timing as detailed in this manual

TIME DETS MENU

1. TIME BLAST
2. TIME SPECIALS
3. TIME A ROW
4. TIME ROW BY ROW
5. TIME STARTERS

10.1. Blast in Standalone Mode (No Comms Link)

Blasting in a Direct/Standalone mode enables the user to blast directly from a DigiShot® Blaster using a red Smart Key.

	<p>BLASTING IN STANDALONE MODE SHOULD ONLY BE PERFORMED FROM A POINT OF SAFETY. IN CASE OF MISFIRES, THE MINIMUM ADVISABLE RE-ENTRY PERIOD IS TEN MINUTES AFTER DISCONNECTING OF THE LEAD WIRES, HOWEVER SITE SPECIFIC LEGAL COMPLIANCE TAKES PREFERENCE SHOULD RE-ENTRY TIME EXCEED 10 MINUTES.</p> <p>THE MINE OR LOCAL LEGAL PROCEDURES FOR THE BLASTING AT THE DESIGNATED SITE MUST BE ADHERED TO. THESE SITE-SPECIFIC RULES MUST BE REFERRED TO BEFORE ATTEMPTING TO BLAST. RISK ASSESSMENTS MUST BE PERFORMED IN CONJUNCTION WITH THE CUSTOMER AND A COMPLETE SET OF PROCEDURES DRAFTED TO ENSURE ALL POSSIBLE RISKS ARE COVERED</p> <p>THERE IS A SHUTDOWN TIMER FEATURE THAT WILL TURN THE BOX OFF AFTER 1 HOUR, REGARDLESS WHETHER THERE WAS A BLAST OR NO BLAST EVENT.</p> <p>THERE IS A SHUTDOWN TIMER FEATURE THAT WILL TURN THE BOX OFF AFTER 1 HOUR, REGARDLESS WHETHER THERE WAS A BLAST OR NO BLAST EVENT.</p>
--	--

1. From Main Menu

Press **4** on the keypad to select **Program/Arm/Fire**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

LAST DET WARNING

Press **Yes** to continue

WARNING	
LAST DET NOT SET. TO AUTOMATICALLY SELECT LAST DETS PRESS YES OR TO SELECT MANUALLY PRESS NO	
YES	NO

	<p>The detonator furthest from the Blaster in wire length will usually be marked as “Last Det”. This feature is not available when blasting in wire link mode. Verify if Last Detonator is set from the View Design Menu. Last Detonator can be set from the Detonator List in View Design.</p>
--	--

Just before blasting takes place, the voltage drops and the Blaster tests for the defined last detonator. Should the last detonator not be confirmed, the blaster will display a warning and present the user with the option of either aborting the blast or continuing.

<p>READY TO FIRE- 34DETS HARNESS BREAK ERROR STANDLONE VOLTAGE 25.588 V LEAKAGE 0.07mA CURRENT 0.23mA 83 SECONDS LEFT</p>

2. From Program/Fire Menu

☞ Press 1 Program All

```
PROGRAM/FIRE MENU
1. PROGRAM ALL
2. ARM/FIRE DETS
3. TIME DELAY BLAST
```

☞ Programming

```
PROGRAMMING....

ROW HOLE  DETS TIME
L  7   5   1  980

90%
```

3. Program done

☞ Press ENTER to continue

```
PROGRAM DONE
0 RETRIES
0 ERRORS
FROM 160 DETS

ENTER TO CONTINUE
```

4. From Program/Fire Menu

☞ Press 2 on the keypad to select **Arm/Fire Dets**

```
PROGRAM/FIRE MENU
1. PROGRAM ALL
2. ARM/FIRE DETS
3. TIME DELAY BLAST
```



Any Programming errors will be displayed.

5. Insert Red Smart Key

☞ Use numerical keys to enter Smart Key Pin

☞ Press **ENTER** to continue

```
INSERT RED KEY
```

```
INSERT RED KEY

PIN? *****
```

- ☒ Grace period – The time allowed for all personnel to move to a point of safety before the voltage is raised. The minimum Grace period is 2 minutes but can be programmed by the manufacturer to a suitable time as determined during the Operational Risk assessment by the customer and must be specified in writing when ordering Smart keys.
- ☒ Charging period – during the 30 second charging period, the blast voltage is raised to charge the capacitors of the detonators to the specified blast voltage.
- ☒ Ready to fire – a 90 second window is allowed to initiate the blast.
- ☒ Should this time be exceeded, the DigiShot® Blaster will stop the blasting and the process will need to be restarted from the programming stage.
- ☒ Press both FIRE soft keys simultaneously and release immediately.

```

CHARGING  32

VOLTAGE  25.62 V
LEAKAGE  0.08 mA
CURRENT  0.24 mA

```

```

READY TO FIRE-10 DETS

VOLTAGE  25.62 V
LEAKAGE  0.08 mA
CURRENT  0.24 mA
90 SECONDS LEFT

FIRE FIRE

```

OPERATORS MUST TAKE CARE DURING INITIATING A BLAST TO ENSURE THAT THEIR FINGERS ARE RELEASED FROM THE FIRE BUTTONS IMMEDIATELY AFTER PRESSING TO PREVENT POTENTIAL ELECTRICAL SHOCK THAT COULD OCCUR AS A RESULT OF AN ELECTROMAGNETIC PULSE (EMP) GENERATED BY THE BLAST.

```

FIRE KEYS PRESSED

RELEASE
AND STAND CLEAR

```

```

FIRE KEYS RELEASED

```

Note that there is a short delay between the release of the fire keys and the time of detonators firing.

- 6. Blast command sent to detonators, remove Smart Key and press any key to shut DigiShot® Blaster down.


```

BLAST COMMAND SENT
REMOVE KEY AND
TURN OFF
PRESS ANY KEY

```

10.2. Time Delay Blast (Orange Key)

Blasting in a Time Delay Blast mode enables the user to blast directly from a DigiShot® Blaster using an Orange Smart Key.

	<p>BLASTING IN TIME DELAY BLAST MODE SHOULD ONLY BE PERFORMED FROM A POINT OF SAFETY. IN CASE OF MISFIRES, THE MINIMUM ADVISABLE RE-ENTRY PERIOD IS TEN MINUTES AFTER DISCONNECTING OF THE LEAD WIRES, HOWEVER SITE SPECIFIC LEGAL COMPLIANCE TAKES PREFERENCE SHOULD RE-ENTRY TIME EXCEED 10 MINUTES.</p> <p>THE MINE OR LOCAL LEGAL PROCEDURES FOR THE BLASTING AT THE DESIGNATED SITE MUST BE ADHERED TO. THESE SITE-SPECIFIC RULES MUST BE REFERRED TO BEFORE ATTEMPTING TO BLAST. RISK ASSESSMENTS MUST BE PERFORMED IN CONJUNCTION WITH THE CUSTOMER AND A COMPLETE SET OF PROCEDURES DRAFTED TO ENSURE ALL POSSIBLE RISKS ARE COVERED</p>
---	--

1. From Main Menu


- Press 4 on the keypad to select **Program/Arm/Fire**

<p>DIGISHOT BLASTER</p> <ol style="list-style-type: none"> 1. BLAST LAYOUT 2. SET TIMES 3. VIEW DESIGN 4. PROGRAM/ARM/FIRE 5. TEST DETONATORS 6. CONFIGURE/SETUP 7. POWER OFF

2. LAST DET WARNING

- Press **Yes** to continue

<p>WARNING</p> <p>LAST DET NOT SET. TO AUTOMATICALLY SELECT LAST DET PRESS YES OR TO SELECT MANUALLY PRESS NO</p> <p>YES NO</p>

	<p>The detonator furthest from the Blaster in wire length will usually be marked as “Last Det”. This feature is not available when blasting in wire link mode. Verify if Last Detonator is set from the View Design Menu. Last Detonator can be set from the Detonator List in View Design.</p>
---	--

3. From Program/Fire Menu

- Press 1 Program All

<p>PROGRAM/FIRE MENU</p> <ol style="list-style-type: none"> 1. PROGRAM ALL 2. ARM/FIRE DETS 3. TIME DELAY BLAST

4. Programming

```
PROGRAMMING . . .

ROW HOLE DETS TIME
L 7 5 1 980

90%
```

5. Program done

- Press ENTER to continue

```
PROGRAM DONE
0 RETRIES
0 ERRORS
FROM 160 DETS

ENTER TO CONTINUE
```

6. From Program/Fire Menu

- ☒ Press **3** on the keypad to select **Time Delay Blast**

```
PROGRAM/FIRE MENU
1. PROGRAM ALL
2. ARM/FIRE DETS
3. TIME DELAY BLAST
```

Any Programming errors will be displayed.

7. Insert Orange Smart Key

- ☒ Use numerical keys to enter Smart Key Pin
- ☒ Press **ENTER** to continue

```
INSERT ORANGE KEY
```

```
INSERT ORANGE KEY

PIN? *****
```

- ☒ Warning and the time that it will take for the Blaster to automatically blast without user pressing any fire buttons will be displayed.
- ☒ The firing time can vary from 2 minutes to 45 minutes as factory set into the Orange key.

```
WARNING
BLAST WILL FIRE
AUTOMATICALLY IN:
00:02:32
PLACE UNIT ONLY AT
A POINT OF SAFETY.
ENTER ACCEPTS. ANY
OTHER KEY ABORTS
```

```
FIRE IN 00:02:32

VOLTAGE 27.03 V
LEAKAGE 1.26 mA
CURRENT 2.85 mA

BATTERY LEVEL: 90%
```

- ☛ The Blaster display will change to charging when 32 seconds is left before blasting

CHARGING 32
VOLTAGE 25.62 V
LEAKAGE 0.03mA
CURRENT 0.30mA

READY TO FIRE-10 DETS
VOLTAGE 25.62 V
LEAKAGE 0.03 mA
CURRENT 0.30 mA
89 SECONDS LEFT

- 8. Blast command sent to detonators, remove Smart Key and press any key to shut down the DigiShot® Blaster.

BLAST COMMAND SENT
REMOVE KEY AND
TURN OFF
PRESS ANY KEY

10.3. Blast in Wire Link mode

Synchronised Blasting enables blasting from two DigiShot® Blasters using the Sync Link cable between DigiShot® Blasters.

A maximum of one Slave and one Master DigiShot® Blaster can be used in Synchronised Blasting, each requiring a Red key to blast.

	<p>Ensure that Wire Link mode is selected on both the DigiShot® Blasters.</p>
--	--

1. From Main Menu

Press **4** on the keypad to select **Program/Arm/Fire**

<p>DIGISHOT BLASTER</p> <ol style="list-style-type: none"> 1. BLAST LAYOUT 2. SET TIMES 3. VIEW DESIGN 4. PROGRAM/ARM/FIRE 5. TEST DETONATORS 6. CONFIGURE/SETUP 7. POWER OFF

2. From Program/Fire Menu

Press **1** Program All

<p>PROGRAM/FIRE MENU</p> <ol style="list-style-type: none"> 1. PROGRAM ALL 2. ARM/FIRE DETS 3. TIME DELAY BLAST

Programming

<p>PROGRAMMING</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">ROW</th> <th style="text-align: left;">HOLE</th> <th style="text-align: left;">DETS</th> <th style="text-align: left;">TIME</th> </tr> </thead> <tbody> <tr> <td>L 7</td> <td>5</td> <td>1</td> <td>980</td> </tr> </tbody> </table> <p>90%</p>	ROW	HOLE	DETS	TIME	L 7	5	1	980
ROW	HOLE	DETS	TIME					
L 7	5	1	980					

Program done

Press ENTER to continue

<p>PROGRAM DONE</p> <p>0 RETRIES</p> <p>0 ERRORS</p> <p>FROM 160 DETS</p> <p>ENTER TO CONTINUE</p>

3. From Main Menu

☞ Press **4** on the keypad to select **Program/Arm/Fire**

DIGISHOT BLASTER

1. BLAST LAYOUT
2. SET TIMES
3. VIEW DESIGN
4. PROGRAM/ARM/FIRE
5. TEST DETONATORS
6. CONFIGURE/SETUP
7. POWER OFF

4. From Program/Fire Menu

☞ Press **2** on the keypad to select **Arm/Fire Dets**

☞ Press **ENTER** on the keypad to continue

PROGRAM/FIRE MENU

1. PROGRAM ALL
2. ARM/FIRE DETS



Repeat the above procedure on both the Blasters in DigiShot® Wire Sync mode and then proceed to select Master and Slave settings.

5. From Select Blast Mode Menu

☞ Press **2** on the keypad to place the other DigiShot® Blaster in **Slave** mode

SELECT BLAST MODE

1. MASTER
2. SLAVE

Warning will prompt user to ensure slave is connected and ready

WARNING

MAKE SURE SLAVE IS CONNECTED AND READY

6. Both the Master and the Slave DigiShot® Blasters will prompt user to insert RED Smart Key

- ☞ Insert Red Smart Key
- ☞ Use numerical keys to enter Smart Key Pin

INSERT RED KEY

INSERT RED KEY
PIN *****

- ☞ Press **ENTER** to continue with Master

SLAVE 1 IS
WAITING FOR MASTER

On master

7. From Program/Fire Menu

- ☞ Press **2** on the keypad to select **Arm/Fire Dets**
- ☞ Press **ENTER** on the keypad to continue

PROGRAM/FIRE MENU
1. PROGRAM ALL
2. ARM/FIRE DETS



Repeat the above procedure on both the Blasters in DigiShot® Wire Sync mode and then proceed to select Master and Slave settings.

8. From Select Blast Mode Menu

- ☞ Press **1** on the keypad to place one DigiShot® Blaster in **Master** mode.

SELECT BLAST MODE
1. MASTER
2. SLAVE

Connect the Sync Link cable between the Master and Slave DigiShot® Blasters

Warning will prompt user to ensure slave is connected and ready

WARNING

MAKE SURE SLAVE IS CONNECTED AND READY

- 9. Insert RED Smart Key
 - ☞ Use numerical keys to enter Smart Key Pin
 - ☞ Press **ENTER** to continue

INSERT RED KEY

INSERT RED KEY
PIN? *****

- 10. Charging mode – during the 30 second charging period, the blast voltage is raised and the detonator’s capacitors are charged to the specified blast voltage

CHARGING 25

VOLTAGE 25.62 V
LEAKAGE 0.03mA
CURRENT 0.30mA



High Voltage LEDs will illuminate on both the Master and Slave Blasters during.

- 11. Ready to fire – Only the MASTER DigiShot® Blaster will display the FIRE soft keys and allow a 90 second window to push both **FIRE** soft keys simultaneously and release immediately. When DigiShot® Blaster times out, the process will have to be restarted from programming onwards.

READY TO FIRE NOW
200 DETS
VOLTAGE 25.39 V
LEAKAGE 0.32mA
CURRENT 0.25mA
83 SECONDS LEFT
FIRE **FIRE**

READY TO FIRE
180 DETS

VOLTAGE 25.62 V
LEAKAGE 0.26mA
CURRENT 1.30mA



Note that there is a short delay between the release of the fire keys and the time of detonators firing.

- 12. Blast command sent to detonators, remove Smart Key and turn DigiShot® Blaster off.

FIRE KEYS PRESSED
RELEASE AND STAND CLEAR

BLAST COMMAND SENT
REMOVE KEY AND TURN OFF
PRESS ANY KEY

	<p>OPERATORS MUST TAKE CARE DURING INITIATING A BLAST TO ENSURE THAT THEIR FINGERS ARE RELEASED FROM THE FIRE BUTTONS IMMEDIATELY AFTER PRESSING TO PREVENT POTENTIAL ELECTRICAL SHOCK THAT COULD OCCUR AS A RESULT OF AN ELECTROMAGNETIC PULSE (EMP) GENERATED BY THE BLAST.</p> <p>ANY VOLTAGE ERRORS WILL CAUSE THE BLAST TO BE ABORTED</p>
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10.4. Blast in RF mode

Blasting in a RF mode enables the user to blast from one DigiShot® Blaster to another using a radio frequency wireless link. The DigiShot® Blaster used at the remote point must be set up as a Base Station and the DigiShot® Blaster connected to the detonators must be set up as a Bench Box. The Base Station will require a red Smart Key to trigger the blast and the Bench Box will require a yellow Smart Key in order to blast.

The Smart Keys must be a matched pair equipped with the same pin.



WHEN BLASTING IN RF MODE ENSURE THAT THE BASE AND BENCH BLASTING DEVICES ARE CONFIGURED WITH UNIQUE RF ENCRYPTION KEYS AND ON A RF DIFFERENT CHANNEL TO ALL OTHER ACTIVE BLASTING DEVICES IN THE AREA. EACH SET OF BASE AND BENCH BLASTERS MUST HAVE UNIQUE RF SETTINGS TO ANY OTHER, TO PREVENT CROSS-TALK AND THE POSSIBILITY OF FIRING OF THE INCORRECT SHOT.



IF A BLAST IS ABORTED OR THE VOLTAGE HAS BEEN RAISED, THE MINIMUM RE-ENTRY PERIOD IS TEN MINUTES AFTER DISCONNECTING THE LEAD-IN WIRES. HOWEVER, SITE SPECIFIC LEGAL COMPLIANCE TAKES PREFERENCE SHOULD RE-ENTRY TIME EXCEED 10 MINUTES. THE MINE OR LOCAL LEGAL PROCEDURES FOR THE BLASTING AT THE DESIGNATED SITE MUST BE ADHERED TO. THESE SITE-SPECIFIC RULES MUST BE REFERRED TO BEFORE ATTEMPTING TO BLAST



Refer to the section titled Select RF Mode for detail on changing between Base Station and Bench Box if required. Ensure that RF Channel and RF key on both Bench and Base are the same before commencing with blast.

1. From Program/Fire Menu

- ☞ Press 2 on the keypad to select Arm/Fire Dets once the detonators have been programmed.

PROGRAM/FIRE MENU

- 1. PROGRAM ALL
- 2. ARM/FIRE DETS



Any Programming errors will be displayed

2. Insert a Yellow Smart Key on the Bench Box

- ☞ Use numerical keys to enter Smart Key Pin
- ☞ Press **ENTER** to continue

INSERT YELLOW KEY

INSERT YELLOW KEY
PIN? *****

- Grace period – The time allowed for all personnel to move to a point of safety before the voltage is raised. The minimum Grace period is 2 minutes. This can be programmed by the manufacturer to a suitable time as determined during the Operational Risk assessment by the customer and must be specified in writing when ordering Smart keys.

```
GRACE 00:01:59
VOLTAGE 8.46 V
LEAKAGE 0.36 mA
CURRENT 0.30 mA
BAT LEVEL: 78%
```

```
CHARGING 25
VOLTAGE 25.42 V
LEAKAGE 0.07mA
CURRENT 0.30mA
```

- During the grace period, the user(s) may proceed to the remote location from where the Base Station will be operated.

- Ready to fire – a 90 second window is allowed to initiate the blast. Should this time be exceeded, the DigiShot® Blaster will stop the blasting and the process will need to be restarted from the programming stage.

```
REMOTE FIRING READY
160 DETS
VOLTAGE 48.46 V
LEAKAGE 1.35 mA
CURRENT 1.25 mA
TIME LEFT: 00:52:29
EXT BAT LEVEL: 69%
```



The Base Station will display the various modes that the Bench Box is subjected to in real time when connected.
The Base Station will automatically connect to the Bench Box via RF when powered ON without user intervention if settings are correct and RF antennae are connected.

- Only after the Yellow Key was activated and the grace period completed on the Bench will the Base Station be placed in **Ready to Arm** mode.

Press the **ARM** soft key

```
MODE: READY TO ARM/
DETS: 160 ERROR N
VOLTAGE: 08.46 V
COMMS: 100% BAT: 69%
TIME LEFT: 00:56:23
MENU ARM
```

- Insert Red Smart Key into the Base Station
 - Use numerical keys to enter Smart Key Pin
 - Press ENTER to continue

```
INSERT RED KEY
```

```
INSERT RED KEY
PIN? *****
```

- Charging mode – during the 30 second charging period, the blast voltage is raised and the detonator’s capacitors are charged to the specified blast voltage

9. Arming

- ☞ Shortly before blasting takes place, the detonator voltage drops and the Blaster tests for the defined last detonator.
- ☞ Press ENTER to continue

```
MODE: ARMING 00:00:45
DETS: 160 ERROR N
VOLTAGE: 25.62 V
COMMS: 98% BAT: 69%
TIME LEFT: 00:01:23
```

MENU

```
TESTING THE LAST DET
HARNES BREAK ERROR
POSSIBLE MISFIRES
ENTER TO CONTINUE
ESCAPE TO ABORT
56 SECONDS LEFT
```

10. After ENTER was pressed, the screen will display Mode as Armed, and Fire Buttons available.

```
MODE: ARMED
DETS: 160 ERROR N
VOLTAGE: 25.62 V
COMMS: 98% BAT: 69%
TIME LEFT: 00:00:23
```

FIRE FIRE

11. Press both FIRE soft keys simultaneously and release immediately

```
FIRE KEYS PRESSED

RELEASE
AND STAND CLEAR
```



Note that there is a short delay between the release of the fire keys and the time of detonators firing.



OPERATORS MUST TAKE CARE DURING INITIATING A BLAST TO ENSURE THAT THEIR FINGERS ARE RELEASED FROM THE FIRE BUTTONS IMMEDIATELY AFTER PRESSING TO PREVENT POTENTIAL ELECTRICAL SHOCK THAT COULD OCCUR AS A RESULT OF AN ELECTROMAGNETIC PULSE (EMP) GENERATED BY THE BLAST.

12. Information screen will displayed.

- ☞ Blast command sent to detonators, remove Smart Key and press any key to shut DigiShot® Base Station down.

```
BLAST COMMAND SENT
REMOVE KEY AND
TURN OFF
PRESS ANY KEY
```


10.5. Aborting / Disarming the Blast

There is a difference between Aborting and Disarming the blast when performing RF blasting as follows:

- ☞ Aborting the blast ends the process completely as the Bench Box is made safe and the user is forced to power down.
- ☞ Disarming the blast allows the Bench Box to drop the detonator voltage and revert back to the Ready to Arm state. This will enable the user to re-arm remotely from the Base Station.

Abort the blast after arming by any one of the following methods:

- ☞ Press ESC key
- ☞ Remove Smart Key
- ☞ If the “Fire” command is not sent within 90 second window, the blast will abort automatically (time out).

```

ABORTED
CAUSE
ABORT PRESSED
OLD STATE:
ARMING
PLEASE TURN OFF
    
```

10.5.1. Aborting during an RF blast

- ☞ Press ESC on the Bench Box after arming
- ☞ Remove Smart Key on either Bench Box or Base Station

When aborting a blast, always remove Smart Key and then shut down the DigiShot® Blaster. If Smart Key is present when powering on the DigiShot® Blaster, it will start up with an error and will not continue until the DigiShot® Blaster has been re-set by removing the Smart Key and reinstalling it again.

```

BLAST WAS ABORTED
REMOVE KEY AND
TURN OFF
PRESS ANY KEY
    
```

	<p>WHEN THE ABORT MESSAGE IS DISPLAYED, TURN THE DIGISHOT® BLASTER OFF AND RESTART FROM PROGRAMMING OF DETONATORS.</p> <p>RISK ASSESSMENTS MUST BE PERFORMED IN CONJUNCTION WITH THE CUSTOMER AND A COMPLETE SET OF PROCEDURES DRAFTED TO ENSURE ALL POSSIBLE RISKS ARE COVERED.</p> <p>RE-ENTRY PROCEDURE MUST BE ADHERED TO.</p>
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10.5.2. Disarming during an RF blast

- ☞ Press ESC on the Base Station after arming
- ☞ Fire window expiry (If the “Fire” command is not sent within 90 second window, the blast will time-out automatically).

11 Specifications

11.1. Number of Detonators

A maximum of 300 detonators (dependent on down-hole wire length) can be accommodated per DigiShot® Blaster.

Maximum of 2 DigiShot® Blasters connected together.

Maximum number of detonators per hole: 15

Maximum number of detonators per row side: 127

Maximum number of rows: 63

Maximum number of Special detonators (For out-of-pattern holes): 255

Maximum number of Starter detonators: 50 (NetShock have ID's on labels. Note: Do NOT use detonators with the same ID)

11.2. Maximum delay times and increments

Detonators can be programmed from 0ms with 1ms increments to a maximum delay of 20 000ms.

The blast duration can be a maximum period of 20 000ms.

11.3. Temperature Limitations

The following temperature limitations apply to the DigiShot® Blaster:

☐ -10°C to +55°C

☐ +14°F to +131°F

The DigiShot® Blaster should never be exposed to direct sunlight for longer than an hour.

11.4. Battery Life

Battery life is influenced by the conditions in which the DigiShot® Blaster operates.

When the battery level of the DigiShot® Blaster is below 11.2 V the box will turn off automatically to protect the battery. The DigiShot® Blaster has a non-user replaceable 12 V/2.3 Ah rechargeable battery. The units must be switched off whilst charging as charging will not take place if switched on. Detonators should not be connected while charging. The DigiShot® Blaster should be charged for at least five hours prior to a blast. The battery lasts 5-7 hours depending on condition of the battery and usage of the system – when constantly testing detonators, more power is used than when the box is idle.

Never allow the DigiShot® Blaster battery to discharge completely for a period of more than 1 month as this may cause permanent damage to the battery.

An advised method of testing the battery quality on a regular basis as part of battery maintenance procedure is to switch the Blaster On with a fully charged battery and leaving it for at least 20 minutes to operate without any detonators connected.

If the Blaster is still operational after the specified 20 minutes it can be assumed that the battery quality is still good.

11.5. Storing DigiShot® Blaster

Store the DigiShot® Blaster in a cool, dry place, with an ambient temperature of approximately 21°C.

11.6. Cleaning DigiShot® Blaster

Clean the DigiShot® Blaster by wiping it gently with a soft, dry cloth.

Dust on the screen should be blown off before gently wiping with a soft, dry cloth to avoid scratches. Ensure all terminals and connectors are clean and dust free.

11.7. Electrostatic Discharge, Over Voltage, Over Current and EMP Immunity

The system is designed to be immune to Radio Frequency Interference within limits (RF) – SANS 1717-1 and CENTS 13763-27 - but it is advised that two-way radios be kept at least 5m away from control equipment during Programming, Arming and Firing as communication between the DigiShot® Blaster and detonators may be corrupted by this interference.

11.8. Inherent Safety

The DigiShot® Blaster is not inherently safe and should not be connected to the blast whilst people and equipment are still on the bench. These units are able to produce the required blasting voltage and the units are able to produce the “fire” signal when the red Smart key is used. Risk assessments should include arming and blasting procedures.



ELECTRONIC DETONATORS ARE TOTALLY DIFFERENT TO CONVENTIONAL ELECTRIC DETONATORS AND ABSOLUTELY NO CONNECTION WITH CONVENTIONAL ELECTRIC DETONATORS OR ANY OTHER ELECTRONIC DETONATORS IS POSSIBLE AS IT CAN LEAD TO UNINTENDED INITIATION. ALL USERS OPERATING THE ELECTRONIC INITIATION SYSTEM SHALL HAVE SUCCESSFULLY COMPLETED THE SPECIFIC TRAINING BEFORE PERFORMING ANY WORK WITH THE DEVICE(S). DO NOT USE ANY DEVICES OTHER THAN THOSE SPECIALLY DESIGNED FOR THIS TYPE OF ELECTRONIC DETONATOR.

11.9. Safety Warnings

Dirt on the terminal posts can prevent the DigiShot® Blaster from functioning.

Do not expose the battery to an open flame or excessive heat.

Do not apply pressure to the LCD screen, as this could cause damage or malfunction.

Should the LCD screen break, care should be taken to avoid injury from broken screen cover and to prevent liquid crystal from the screen touching the skin or entering the eyes and mouth.

12 Troubleshooting Error Codes

ERROR	DESCRIPTION
STR__DETS_NOT_PROGRAMMED	Detonator's not programmed before arm/blast.
STR_WARNING__	Warning Message for Autosearch and Check Pattern
STR_BAD_2MODE_	Program value check: Bad 2wire mode
STR_BAD_DET_TIME	Program value check: Detonator calibration time out of limits
STR_BAD_FUSE_	Program value check: Detonator fuse bad (resistance too high / low)
STR_BAD_RCSET_	Program value check: Detonator set to wrong oscillator value (RC / XTAL)
STR_BLAST_WAS_ABORTED	Blast was aborted due to error or human intervention
STR_CAL_RD_FAIL_	Calibrate time read failure
STR_CONNECT_FAIL	Could not connect to detonator
STR_d_ERRORS	Number of programming errors
STR_DET_LIST_CORRUPT	Detonator list corrupt
STR_DET_TIMES_NOT_SET_YET	Programming not permitted with detonators times = 0xffff
STR_DISCREPANCIES	Discrepancies found after running Check Pattern
STR_DUP_ID	Duplicate detonator reply; two or more detonators with the same ID
STR_EEPROM_CORRUPTION	EEPROM corruption, CRC fail
STR_ERROR	General error screen
STR_EXTRA_DET_FOUND	Extra detonator found in boundary search
STR_FAIL	General FAIL message
STR_FAIL_ACCEPT_ERROR	FAIL message requiring user press RETRY or CONTINUE
STR_FAIL_TO_CALIBRATE	Failure to calibrate device for current measurements
STR_FAILED_d	Failed on writing data to the Smart key
STR_FIRING_TIME_0MS	Warning if more than 4 detonators have 0ms firing time
STR_HIGH_LEAKAGE_	High leakage warning
STR_HIGH_LEAKAGE_d	High leakage warning with value when tagging
STR_ID_NOTSET_	Program value check: ID not set
STR_KEY_BAD_	Smart key CNC bad
STR_KEY_BAD_REINSERT	Smart key bad, reinsert
STR_KEY_COLOR_WRONG	Incorrect key inserted
STR_LOCATION_EXISTS	Location to-be-assigned to detonator already exists
STR_LOW_BATTERY	Power off due to low battery reading
STR_MISSING	Indicates missing detonator after retry
STR_NO_DETS_IN_LIST	Indicates that there are no detonators in the detonator list
STR_NO_DETS_ON_ROW	Indicates that there are no detonators in the specified row
STR_NO_SPECIAL_DETS	Indicates that there are no special detonators

ERROR	DESCRIPTION
STR_PROG_FAIL_	Program value check: CNT load and Cali done fail
STR_PROGRAM_ABORTED	Programming of detonators aborted
STR_RETAG_DET	Should the current tagged detonator be retagged with new ID?
STR_SCANNING_ERRORS	Scanning errors when ready to fire detonators
STR_SETTINGS_CORRUPT	Loaded settings corrupt on device start up
STR_SLAVE_1_NOT_READY	Slave 1 not ready, result from ping slaves
STR_SLAVE_2_NOT_READY	Slave 2 not ready, result from ping slaves
STR_SLAVE_3_NOT_READY	Slave 3 not ready, result from ping slaves
STR_SLAVE_NOT_READY	Slave not ready, result from ping slaves
STR_SORT_ERROR_d_d_	Detonator list sortation error
STR_STATUS_RD_FAIL_	Detonator status read fail when testing detonator
STR_TIME_RD_FAIL	Detonator time read fail when programming
STR_TIME_WRONG_	Detonator time incorrect
STR_TMPEEPROM_CORRUPT	Temporary EEPROM corrupt then reading detonator info
STR_UNKNOWNERROR	Unknown error while getting status
STR_WARNING	Warning message when program (0ms) or fire detonators (program error)
STR_WRONG_PRODUCT	When testing a detonator, logs wrong product. But should actually log when wrong product is tagged as well.