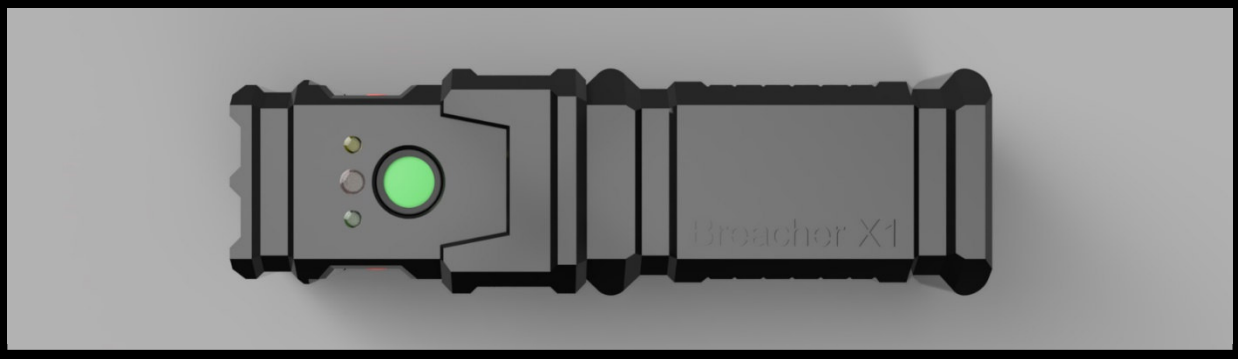
Breacher

Manual 1.0

As of October 2020



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PREAMBLE

Dear Explo-Customer,

Please read through this document before usage of the devices. It contains many informations which will help you with using the system.

We ask you to adhere to the safety and usage guidelines we have listed.

Should you have any questions or should any unclarities arise during the usage of the devices, that can’t be answered by this manual, please do not hesitate to contact us either by mail or by phone.

We wish you a lot of fun with your new ignition device.

Your Explo Team

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1 OVERVIEW OF THE BREACHER X1

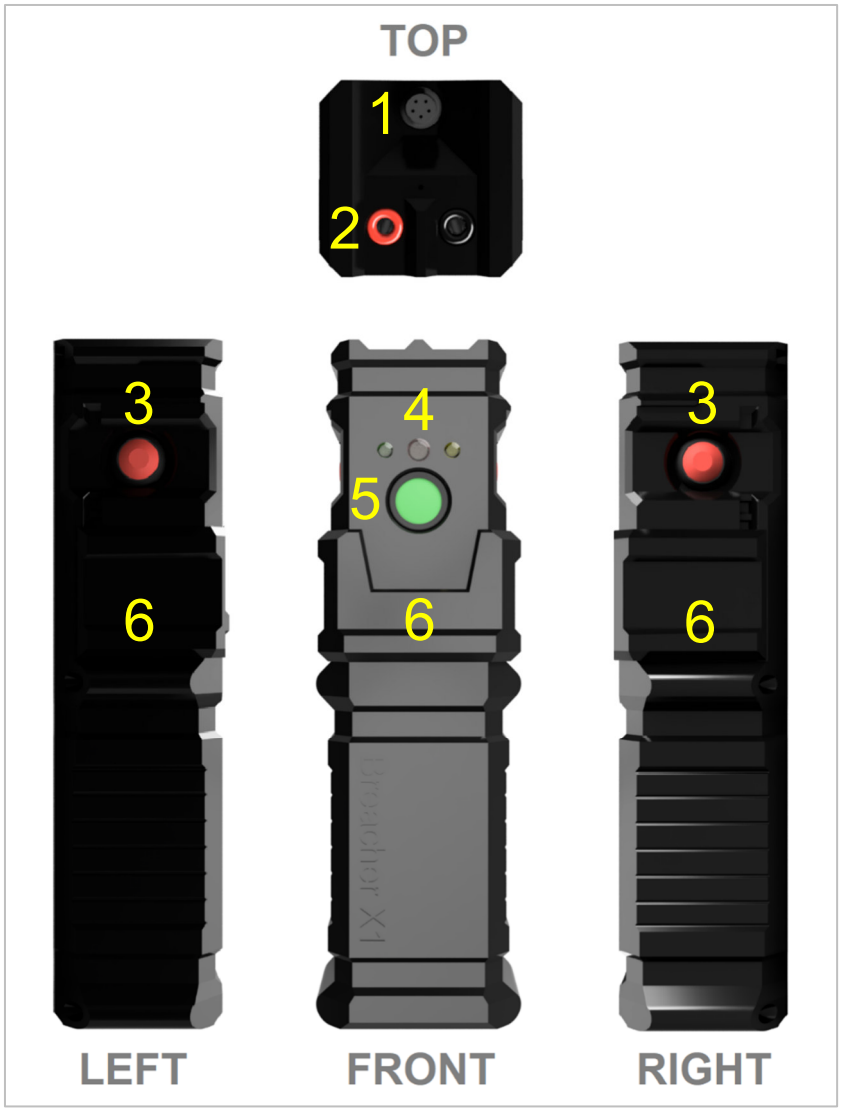
The Breacher X1 is a special detonating device, to manually ignite a single HU-ignitor (Ignitor type IV), or of a Shock-Tube-Adapter for Hose-ignitions. This device has been specially developed to be used with ignition loads for tactical enterings (Explosive Breaching).

The Breacher is activated via an activator button and charges the internal capacitor within 30seconds. Ignition is then made by pressing both firing buttons.

As a power supply, three 3V CR123 batteries are used. Battery status, connectivity and the status of the Capacitor are displayed via three LEDs. A movable cover protects against unwanted activation of the buttons.

2 COMPONENTS OF THE BREACHER X1

2.1 OVERVIEW BREACHER X1 FRONT / SIDE / TOP



Components of the Breacher Front / Side / Top	
1	Programming socket with cover
2	Ignition sockets
3	Firing buttons
4	Status display
5	Activation button
6	Protective cover (movable)

2.2 OVERVIEW BREACHER X1 BACK

Components of the Breacher X1 Backside	
1	Label
2	Battery slot
3	Cover for the battery slot

2.3 DESCRIPTION OF THE COMPONENTS

2.3.1 PROGRAMMING SOCKET WITH COVER

Here, a firmware update can be made with a separately available Bootloader-programming cable. We recommend only letting trained personnel do so with the Breacher X1.

2.3.2 IGNITION SOCKETS

By using 4mm banana plugs, ignitors can be connected to these sockets. The sockets are colour coded (red = Plus, black = minus).

2.3.3 FIRING BUTTONS

These buttons are used for a manual ignition. Both buttons fulfil the same role in this case.

2.3.4 STATUS DISPLAY

The status display is fitted with three LEDs, which will give you the following feedback:

Status display of yellow LED during startup (Battery)	
3x Flashing	Battery above 50%
2x Flashing	Battery 20% - 50%
Permanent Flashing	Battery below 20% (Change!)

Status display of yellow LED during use (Battery)	
Continually lit	Battery okay
Continually flashing	Battery below 20% (Change!)

Status display of green LED during use (Connectivity)	
Continually lit	Ignition channel is connected
Permanent flashing	Channel is connected, but low impedance (<1Ω)
Not lit	No connection or impedance too high

Status display of red LED during use (Capacitor charge)	
Not lit	Capacitor is charging
Continually lit	Capacitor is fully charged
Flashing (while pressing a button)	First firing button is pressed, ready for ignition

Status display of all LEDs during use	
1-minute of flashing	30 minute Auto-Off-Function in one minute

2.3.5 ACTIVATION BUTTON

This green button is used to activate the device (short push), or to deactivate (pressing and holding).

Additionally the activation button can be pressed shortly during use, to check the battery status. It will be shown by flashing of the yellow LED (see chapter Status display).

2.3.6 PROTECTIVE COVER (MOVABLE)

A movable cover with locking points in open and closed position is used to cover all buttons, to prevent involuntary activations.

2.3.7 LABEL

Shows different informations about the product.

2.3.8 BATTERY SLOT AND COVER FOR BATTERY SLOT

A plastic cover with crosshead screws covers the battery slot of the three 3V CR123 batteries needed for usage.

We recommend using batteries with 1.400mAh or higher. Always carry a set of spare batteries.

An alternate build for a LiPo-battery (7,4V) with a changer or fort wo 9V block batteries can be offered if you are interested.

2.3.9 OPTIONAL: SHOCK-TUBE-ADAPTER

The Shock-Tube-Adapter of the company explo allows detonations of hose ignitors with 3mm or 2mm hoses, and is an alternative to detonations using detonating ignitors.

With a plug distance of 19,5mm, the adapter can be easily connected to the ignition sockets of the Breacher X1.

3 USING THE BREACHER X1

3.1 CONNECTING IGNITORS

To connect ignitors, use the supplied 4mm banana plugs. These can be connected to the ignition sockets of the Breacher.

Overall, one HU-ignitor can be connected, or alternatively one Shock-Tube-Adapter to detonate hose-ignitions.

Any ignitors, or Shock-Tube-adapters may only be connected if no persons or objects remain in the vicinity of the connected load. The Breacher must be switched off while doing so.

3.2 ACTIVATION

To activate the device, the protective cover must be slid downwards, to show the green activation button. A short push will activate the device. During the startup, the yellow LED will indicate the battery status and then be lit permanently.

The cover can be slid back in place until the ignition will be made, if wanted.

We recommend carrying a set of spare batteries with you.

3.3 CHECK FOR IGNITION READINESS

Before checking vor ignition readiness, ensure no persones linger in the vicinity of the load that’s connected to the Breacher. Also refrain from touching the ignition wires.

The capacitors will be charged immediately after checking the batteries. This will take about 30 seconds on first use. Ignition readiness will then be displayed by a permanently lit red LED.

Using the green LED, you can check if the ignitor has been connected successfully. Should it not be lit or flashing, you need to check your ignitor, since no connection is being made, and thus no ignition is possible.

3.4 IGNITION

If ignition readiness has been ensured, you can start the ignition. One of the red firing buttons needs to be pressed and held. The red LED will now begin to slowly flash. The capacitor will be buffered as well, to guarantee full ignition energy.

Should the red LED start to flash more rapidly (after about a second), ignition can be made by additionally pressing the second firing button.

After ignition, the Breacher will automatically switch off.

Should the second button be pressed to quickly, no ignition will be made. Further, no ignition will be made if the first button has been let go of, or if it has been held for more than 5 seconds.

Should the red LED not flash, regardless of the firing button being held, it could be that the impedance at the ignition sockets is too high. Check the green connectivity LED for further infos.

3.5 DEACTIVATION WITHOUT IGNITION AND AUTO-OFF-FUNCTION

To deactivate the non-ignited device, the green activation button must be pressed and held for 3 seconds.

Alternatively, the Breacher will deactivate after 30 minutes of inactivity. This Auto-Off-Function will be indicated a minute before deactivation, by a permanent flashing of all LEDs, and can be canceled by pressing any of the buttons.

4 SAFETY FEATURES

The Breacher X1 features many safety aspects.

4.1 IGNITION VOLTAGE MEASUREMENT

The Breacher X1 checks the ignition voltage continuously, and ignition readiness is only made, if the capacitor charges to the needed voltage. This guarantees that the energy needed to ignite a HU-ignitor (Limit resistance of 1 Ohm), is always available.

4.2 SHOCK RESISTANT

The internal layout for the ignition is not only made with electromechanical elements, but also with electrical components. This prevents any involuntary ignitions by any sudden mechanical stress of the Breacher (Shock resistance).

4.3 AUTO-OFF-FUNCTION

An automated deactivation of the Breacher is made after 30 minutes of inactivity, and protects it from draining the batteries.

5 SAFETY NOTES

The device may only be used by trained personell, and only to ignite ignitors or Shock-Tube-Adapter. The general safety guidelines for the usage of detonators are to be adhered.

While connecting the ignitors, no persons may linger in the vicinity of the connected detonation loads. Works at the ignitor, or detonation load may only be made while they are disconnected from the device.

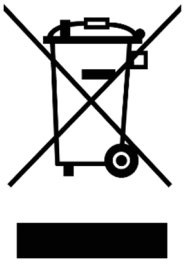
Never let a Breacher, that is connected to any kind of ignition material out of your sight.

6 TECHNICAL DATA

Here you can find the technical data of the Breacher X1:

Breacher X1	
Measurements	210 x 65 x 55 mm
Weight	300g
Case	Plastic case
Power supply	3x 3V CR123 (Standard) 1x 7.4V LiPo-Battery (optional) 2x 9V-Block-Battery (optional)
Usage period	About 120 ignitions (at 3x 3V CR123 min. 1.400mAh)
Temperature range	-25°C to +60°C
Channels	1 channel
Ignition voltage	700V / 110uF (26,95Ws)
Maximum ignitors	1 HU-ignitor (1Ω), or 1x Shock-Tube-Adapter

7 DISPOSAL



This device may not be disposed of in regular home trash, according to the European WEEE-guidelines. Please dispose of this product at a fitting trash dump for electro- and electronical old devices.

Alternatively you can send us your old devices for disposal at no charge.

Should you have any questions about the correct disposal, please do not hesitate to contact us.