

HEP-2 HEP-2-Zxxxx Portable High-Energy Hand-Held Igniter (Battery Powered)

OPERATING MANUAL



HEP-2 with flexible cable in front of the ignition electrode and short ignition tip HE-S



HEP-2-Zxxxx with fixed ignition electrode and screwed-on ignition tip HE-S

The operating instructions must be read carefully before installation, commissioning and maintenance. Instructions must be observed and the operating manual must be kept for later use!



Operating Manual Portable High-Energy Hand-Held Igniter HEP-2		
Document Name	CU-124 Operating Manual HEP-2	
	Edition of the manual:	First edition: 05/23/2022
		Revision Status: A
Last Update		

The texts and illustrations have been prepared with the greatest care. Fireeye (and the authors) cannot accept any legal or any other liability for possibly remaining, incorrect or incomplete information and their consequences.

Without prior written permission of Fireeye, the documentation or parts thereof may not be reproduced, copied or lent or passed on to third parties.

Fireeye, as supplier of the described portable high-energy hand-held ignition device described, reserves the right to change the equipment and design of the device modules or individual assemblies at any time - even without prior notice. The actual availability results from the individual offer created in each case.

No notification will be made if contents are changed.

Illustrations may deviate due to the representation of customer-based special solutions or further developments; no claim to the delivery of identical products is derived from this.



SAFETY INSTRUCTIONS AND PROTECTIVE MEASURES

Safety during operation and use:

Improper handling can lead to considerable personal injury and damage to property.

Work on the portable high-energy hand-held ignition device may only be carried out by appropriately trained operating personnel or a qualified electrician.

Operator is a person who is responsible for installing, operating, setting up, maintaining, cleaning, repairing or transporting equipment and machines so that they can recognize and avoid hazards.

A qualified electrician within the meaning of the accident prevention regulation is someone who, based on their technical training, knowledge and experience as well as knowledge of the relevant regulations, can assess the work assigned to them and recognize possible dangers.

The High Energy Portable Igniter (or any part thereof) is not intended for climbing or standing on.

Electromagnetic interference may occur during the ignition period.

Safety during storage, assembly, installation and maintenance:

Proper and safe operation of the device requires proper transport, professional storage, installation and assembly as well as careful operation.

There is a risk of fatal injury when touching live components, so regular visual inspections must be carried out by the user. The visual inspection is limited to the intactness of the connected cables, mechanical connections, and the tightness of the screws. Compliance with the permissible ambient temperatures must be checked.

During ignition, 2kV are applied to the ignition electrode. **There is a danger to life if touched!**

The portable high-energy hand-held ignition device may only be operated in the combustion chamber with the lid of the ignition unit closed (and with an undamaged cable, depending on the version) and the ignition electrode installed.

A voltage of 2kV is generated in the ignition unit. If damage is found, the ignition system must be taken out of service and sent in for repair. Before inspection work, the power supply must be switched off.

The portable high-energy hand-held ignition device requires at least 120 seconds. After this time you can work on the device

There is a risk of burns after pulling the ignition electrode out of the combustion chamber. All components such as internal parts and the ignition electrode must be cooled down to ambient temperature before removal. The use of protective gloves and protective work clothing is required.

Protective gloves must be worn when installing the ignition tip. In addition, the risk of crushing when screwing in is pointed out.

LIMITATIONS OF LIABILITY

The manufacturer accepts no liability for damage due to:

1. Non-compliance of these operating instructions
2. Improper use
3. Use by unqualified or appropriately trained personnel
4. Unauthorized technical and mechanical modifications
5. Use of unapproved replacement parts
6. Use of defective and/or improperly repaired devices or parts
7. Repairs by external companies



TABLE OF CONTENTS

Safety instructions and protective measures.....	3
Limitations of liability.....	3
Image directory.....	4
General	5
Description	5
Necessary components for a complete system	6
Assembly Instructions	7
Applications.....	9
Loading process.....	10
Replacing the batteries	11
Technical specifications.....	12
Accessories and spare parts	13
Warranty	14
Liability	14

PICTURE DIRECTORY

Individual components HEP-2 with flexible cable in front of the ignition electrode.....	6
Individual components HEP-2-Zxxxx with fixed ignition electrode	8
Handle top view.....	9
The ignition start (Ignition)	9
Displays while charging	10
The polarities must be observed when changing the battery.....	11



GENERAL

The operating instructions must be read carefully before commissioning. The device generates a life-threatening voltage of 2kV. Failure to do so may result in personal injury and/or mechanical destruction.

DESCRIPTION

The portable high-energy hand-held ignition device consists of electronics, a 2kV ignition generator and an integrated battery charger. The HEP-2 series is used for the safe ignition of gas and light oil burners, e.g. in refineries, the steel industry and in the petrochemical industry. The device is switched ready for operation via a latching switch. The ignition is started with a button

The device has an LED status indicator and informs the user when the device needs to be recharged.

Two versions are available:
See individual drawings enclosed

1. The HEP-2 is supplied with a pluggable ignition cable, a junction box and the ignition lance with a replaceable ignition tip. The user can determine the required overall length during the initial assembly by using extension tubes.
2. The HEP-2-Zxxxx version is available with a fixed ignition lance in two different ignition lance lengths. The ignition tips, which can be ordered separately, are interchangeable.

A power cord and carrying strap are supplied with each HEP-2.



WARNING: ATTENTION HIGH VOLTAGE!



Before mounting, replacing the ignition tip or opening the ignition unit, it is absolutely necessary to switch off the high-energy ignition unit in order to prevent unintentional ignition. Due to the discharge time of the capacitors, work on the ignition electrode as well as opening the cover may be carried out at the earliest 120 seconds after the supply voltage has been switched off.

In addition, at least the safety instructions on page 3 must be observed.
The electrical connection may only be carried out by a qualified electrician.

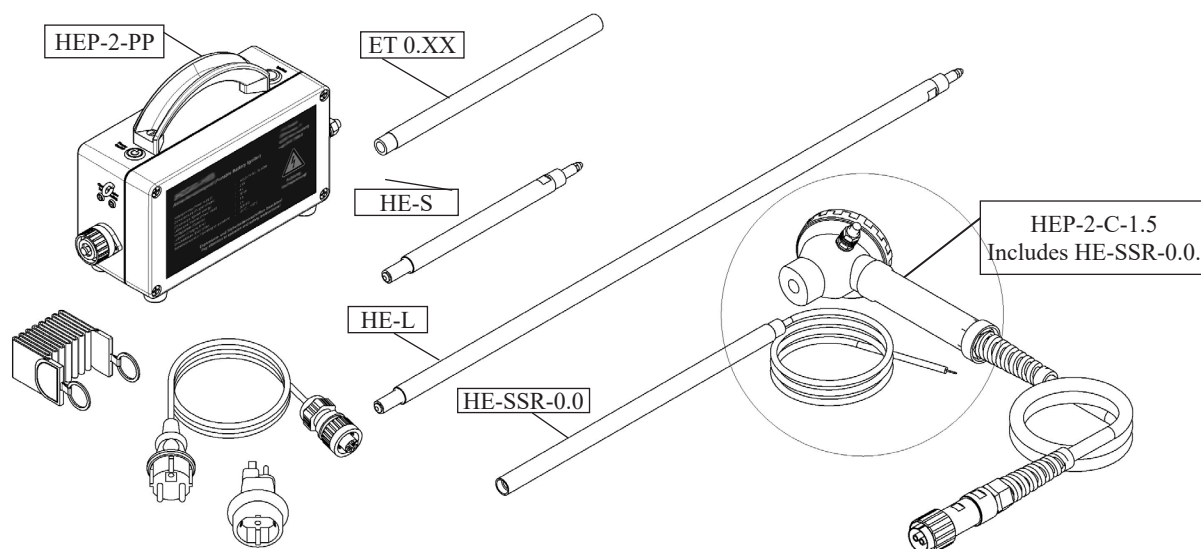
NECESSARY COMPONENTS FOR A COMPLETE SYSTEM

Individual components of HEP-2 with flexible cable in front of the ignition electrode
HEP-2 (Highest level, complete system)

- HEP-2-PP - Portable high-energy hand-held ignitor with device plug, mains cable and carrying strap
- HEP-2-C-1.5 - Ignition cable with handle, ignition tip adapter with high-voltage cable
- HE-SSR-0.0 - Ignition tip adapter

Must be ordered separately:

- HE-S / HE-L - Ignition tip short / long (to be selected depending on the required overall length)
- ET 0.0X - Extension tube (to be selected depending on the required total length)



Adjustment of the immersion depth of the ignition electrode above 525mm is made by using optional extension tubes ET 0.XX and selecting ignition tips HE-S (screwed in 200mm) or HE-L (screwed in 675mm).
Please note that the red high voltage cable is shortened to the required length in the junction box only after all components have been assembled.

NOTICE:

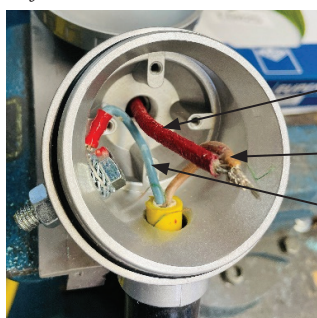
Due to the pre-assembled high-voltage cable, the electrode length is usually 3 m and can be longer if required.
In this case, please contact Fireye.

ASSEMBLY INSTRUCTIONS

If the optionally available extension tubes are used, the extension tube is first screwed into the thread of the junction box. Then the cover of the junction box is unscrewed. The red high-voltage cable from the ignition tip adapter is pulled through the extension tubes into the junction box. The ignition tip adapter is then screwed into the extension tube. If no extension tube is used, the ignition tip adapter is screwed directly into the junction box.

The red high-voltage cable is to be shortened in the junction box so that approximately 8 cm (measured from the bottom of the junction box) remain. The insulation is stripped down to about 1 cm at the ends of the red and brown lines. The wires of the high-voltage cables are inserted into the rotary connector (supplied with the junction box) up to the stop and contacted by turning the connector clockwise.

Before:

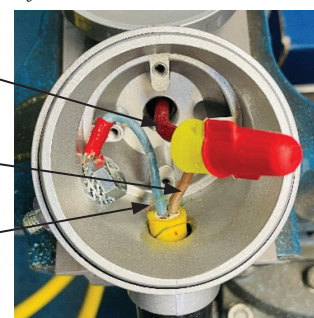


High Voltage Cable (Red)
from the ignition electrode

High voltage cable (brown)
from the ignition unit

Ground connection (blue)
to the ignition unit

After:



The cover of the junction box is screwed on again in the last step.

The ignition tip HE-S or HE-L has to be screwed into the ignition tip adapter.

For personal protection and for later use, it is recommended to connect a protective conductor (minimum cross-section 4mm²) to the external PE connection bolt of the junction box with a grounding clamp for connecting the ground potential to the burner (see installation instructions described below).

Protective conductor assembly

The insulation of the PE wire must be offset by approx. 8mm at the end. The supplied yellow ring cable lug

(4 mm²) is fitted here with crimping pliers (model for insulated ferrules with forced lock). The yellow ferrule is placed on the external grounding bolt on the housing and secured with the washer and serrated lock washer and a nut.

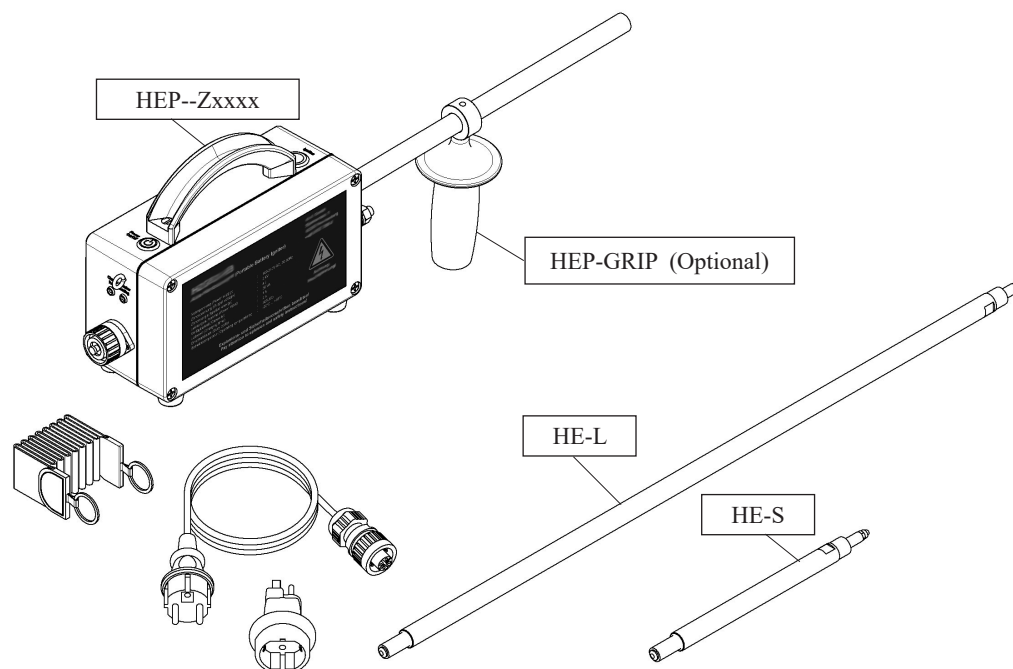
On the other side of the PE cable, a grounding clamp should be connected to metal surfaces grounded on the system side for easy handling to ensure good contact.

A ready-made PE cable with mounted grounding clip is available as an accessory (HEP-2-CLIP).

INDIVIDUAL COMPONENTS HEP-2-Zxxx WITH FIXED IGNITION ELECTRODE

See bottom of page 12 for further details.

- HEP-2-Zxxxx - Portable high-energy hand-held ignitor with mains cable and carrying strap
 HE-S / HE-L - Ignition tip short / long (to be selected depending on the required overall length)



(Representation with optionally available grab handle HEP-2-GRIP)

The ignition unit is already pre-assembled. Only the ignition tip HE-S or HE-L has to be screwed in.

For personal protection and for later use, it is recommended to connect a protective conductor (minimum cross-section 4mm²) to the external PE connection bolt of the junction box with a grounding clamp for connecting the ground potential to the burner (see installation instructions described below).

Protective conductor assembly

The insulation of the PE wire must be offset by approx. 8mm at the end. The supplied yellow ring cable lug (4 mm²) is fitted here with crimping pliers (model for insulated ferrules with forced lock). The yellow ferrule is placed on the external grounding bolt on the housing and secured with the washer and serrated lock washer and a nut.

On the other side of the PE cable, a grounding clamp should be connected to metal surfaces grounded on the system side for easy handling to ensure good contact.

A ready-made PE cable with mounted grounding clip is available as an accessory (HEP-2-CLIP).

APPLICATION

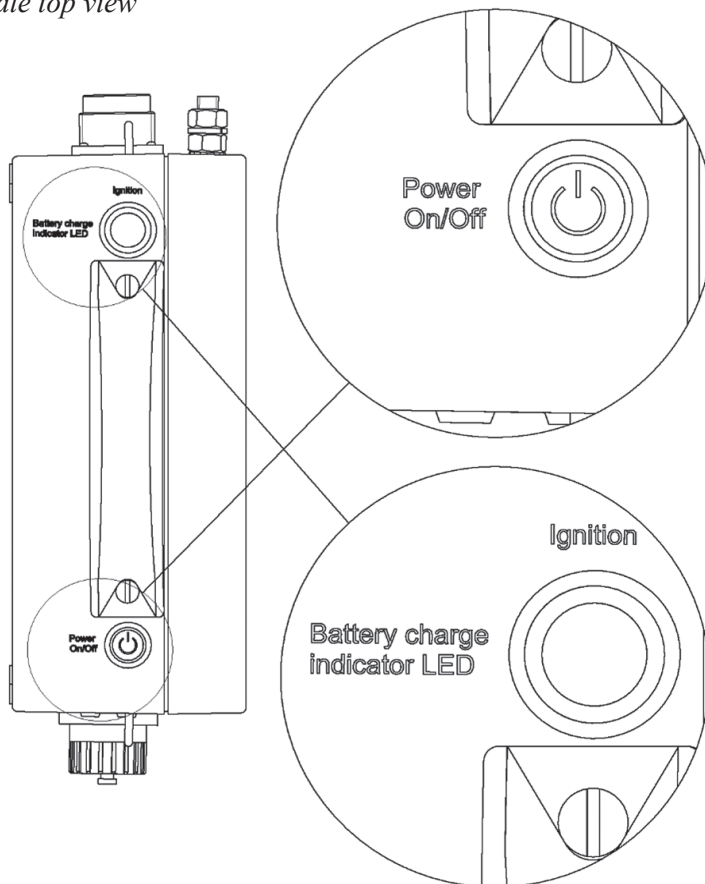


Caution! Hot Surface Possible!

Danger of burns: The ignition rod may be hot after being pulled out of the combustion chamber and also after ignition has taken place - wear protective gloves.

Before commissioning, potential equalization should be carried out between the grounding bolt on the housing and the front panel of the burner, for example with the optionally available potential equalization line (at least 4 mm² PE cable with grounding clamp, length 3m).

Handle top view



Switching the device on and off (Power On/Off)

The device is switched on and ready for operation by pressing the latching switch on the top of the device.

In the On state, the background LED lights up in white.

Push the electrode of the portable ignition device into the combustion chamber.

The ignition start (Ignition)

To ignite, the “ Ignition “ button (in front of the handle on the side of the ignition lance) must be pressed.

If the ring light turns red (Battery charge indicator LED), the battery level is too low and the batteries must be recharged.

Once the mixture has ignited, stop pressing the button to stop the ignition. After withdrawing the ignition electrode from the combustion chamber, press the white-framed Power On/Off switch on the top of the device again to shut down the device.

Attention!

The device is not suitable for continuous ignition!

LOADING PROCESS

ATTENTION!

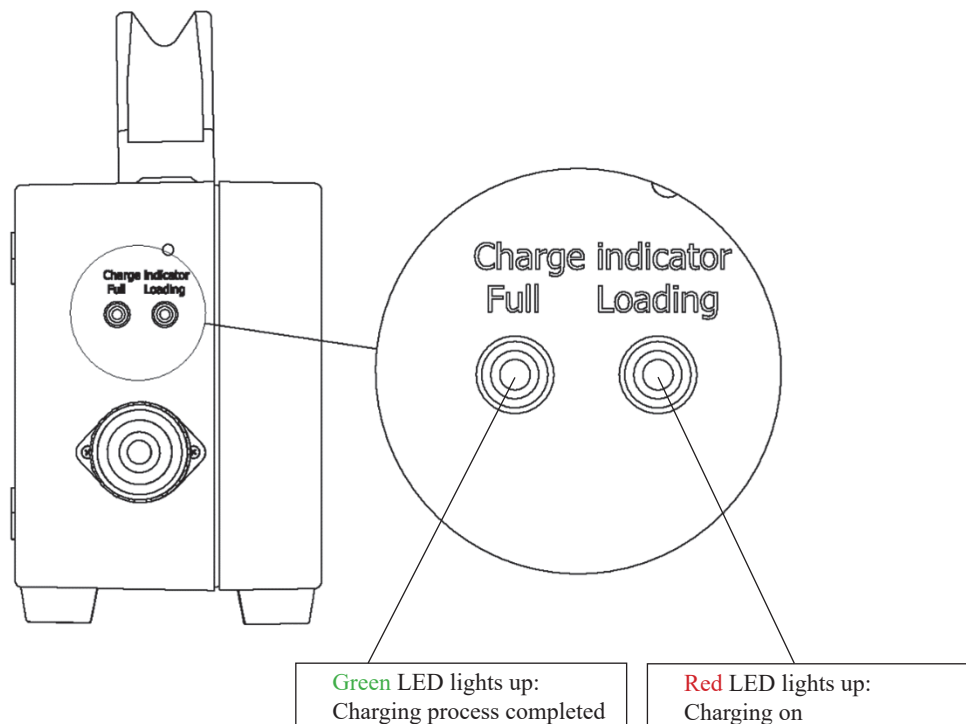
Before each charging process, the connection cable and the plug connection must be checked for damage. A defective charging cable must not be used and must be replaced. If any damage is detected, the device must be sent to the manufacturer for repair

The rechargeable battery (three individual cells) of the hand-held ignition device is charged via the supplied mains cable. Ignition is not possible during the charging process. Depending on the state of charge of the battery, this process can take up to 2 hours. After charging, the hand-held ignition device must be disconnected from the mains.

If the ignition spark is very weak and the red background LED on the ignition button lights up, the battery should also be charged. If batteries are allowed to drop below 3.0 volts, they can be permanently damaged.

Displays while charging

The charge status displays are located on the back of the hand-held ignition device.



When not in use, the device must be disconnected from the mains after the charging process has been completed. To ensure full battery capacity, we recommend recharging the hand-held ignitor at intervals of approx. two months and then disconnecting it from the mains again.

BATTERY REPLACEMENT

The batteries may only be replaced by a qualified electrician.



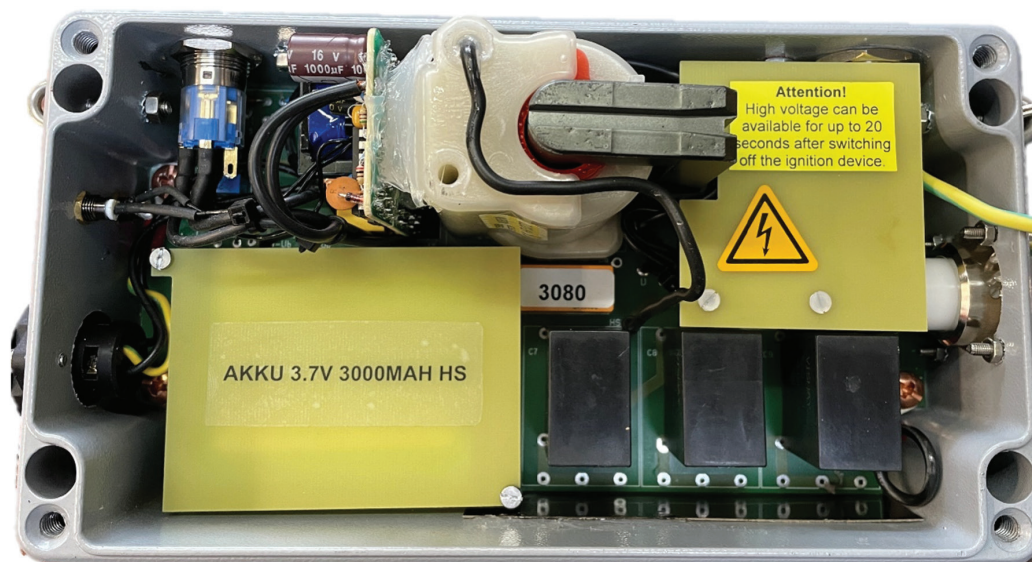
WARNING: ATTENTION HIGH VOLTAGE!



Before opening the ignition unit, it is **absolutely necessary** to disconnect the main connection and secure it against being switched on again. Check whether the power switch is switched off (signal dark). (background LED off).

Due to the discharge time of the capacitors, both work on the ignition electrode or opening the cover of the ignition unit may be carried out at the earliest 120 seconds after the supply voltage has been switched off and the unit has been switched off (Power Off).

The housing cover is removed using the four screws (on the side of the type plate). Beware of live parts! It must be ensured that the PE connection between the two housing parts is not interrupted.



The polarities must be observed when changing the battery



To avoid compensating currents, all batteries must always be replaced at the same time. When installing the housing cover, make sure that the PE connection between the housing parts is not pinched. After replacing the batteries, the housing cover must be attached again with the four previously loosened screws.

Proper operation can only be guaranteed with the batteries installed by the manufacturer.

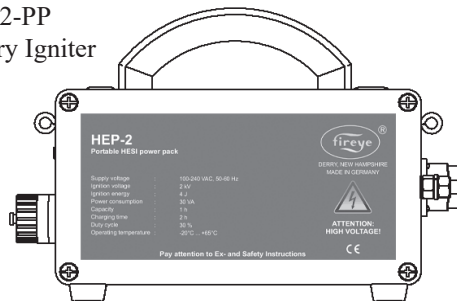


TECHNICAL DATA

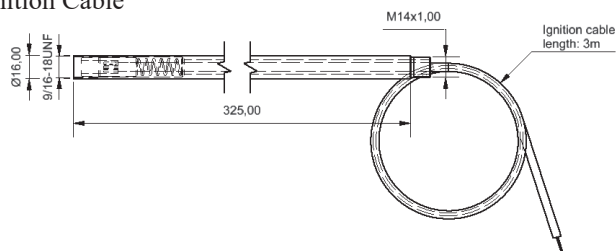
Ignition Voltage:	2kV
Ignition frequency:	3 sparks/sec
Ignition energy:	4 J / spark
Maximum ignition duration:	180 s (ED 30%)
Max. current consumption during charging:	1.0 A
Supply voltage: (For charging the batteries)	100 - 240 V, 50/60 Hz
Operational availability:	approx. 1 hour
Charging time:	approx. 2 hours
Protection class of the housing:	IP 54
Permissible operating temperatures:	
Control unit:	- 20 °C to + 65 °C
Ignition electrode (tip):	+ 650 °C, briefly up to + 800 °C
Dimensions basic device (L x W x H):	
HEP-2:	280 x 90 x 180 mm
HEP-2-Zxxxx:	605 x 90 x 180 mm
Housing material:	Die-cast aluminum, powder-coated
Weight basic device:	
HEP-2 (remote ignition electrode)	approx. 2.7 kg (varies depending on length)
HEP-2-Zxxxx (fixed ignition electrode)	approx. 3.1 kg (varies depending on length)
Possible ignition electrode total lengths	
HEP-2 (Length without firing tip):	325 mm
Total insertion depth through use of extension tubes:	
525mm	with HE-S (200 mm)
725 mm	with ET 0.02 (200 mm) and HE-S (200 mm)
825 mm	with ET 0.03 (300 mm) and HE-S (200 mm)
925 mm	with ET 0.04 (400 mm) and HE-S (200 mm)
1000 mm	with HE-L (675mm)
1125 mm	with ET 0.06 (600 mm) and HE-S (200 mm)
1225 mm	with ET 0.07 (700 mm) and HE-S (200 mm)
1325 mm	with ET 0.08 (800 mm) and HE-S (200 mm)
1400 mm	with ET 0.04 (400 mm) and HE-L (675 mm)
1500 mm	with ET 0.05 (500 mm) and HE-L (675 mm)
HEP-2-Zxxxx:	xxxx is a placeholder for the total electrode length
	0725 for 725 mm with HE-S
	1000 for 1000mm with HE-L
Ignition electrode diameter:	16 mm

ACCESSORIES AND SPARE PARTS

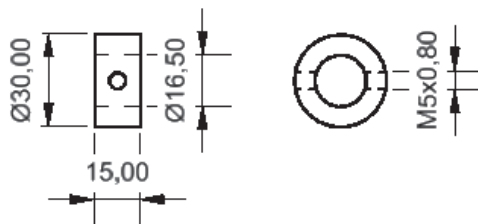
- Order no.: HEP-2-PP
Portable Battery Igniter



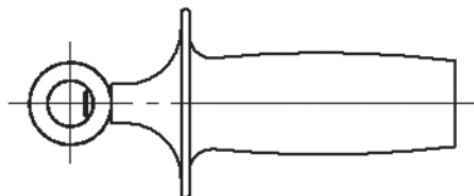
- Order no.: HE-SSR-0.0
Ignition Cable



- Order no.: HEP-SR
Spacer Ring with 16.5mm inner diameter and Allen screw for locking



- Order no.: HEP-2-GRIP
Grip Handle



- Order no.: HEP-BP
The set consists of three flat-top Li-Ion single batteries 3.7V, 3000 mAh.

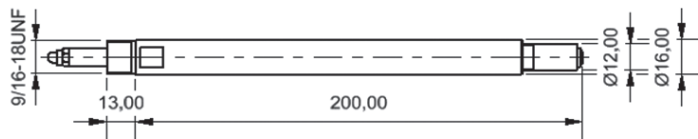




ACCESSORIES AND SPARE PARTS (continued)

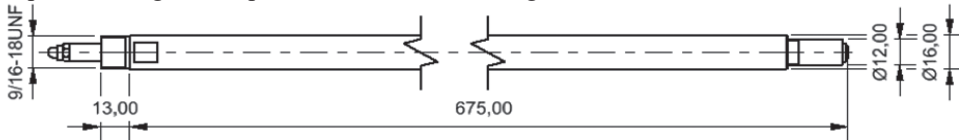
- Order No.: HE-S

Replacement ignition tip, screwed in 200 mm long



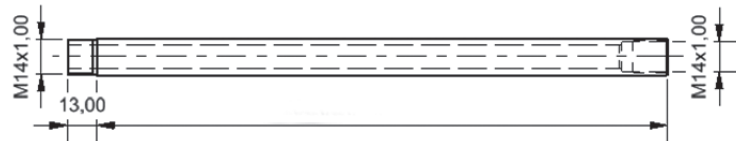
- Order No.: HE-L

Replacement ignition tip, screwed in 675 mm long



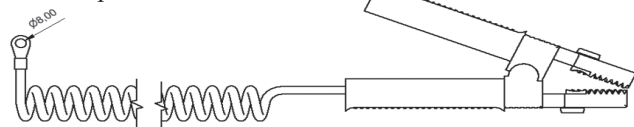
- Order No.: ET 0.0X

Extension tube (see technical data for selection of different lengths)



- Order no.: HEP-2-CLIP

PE - compensation line



NOTICE

When Fireye products are combined with equipment manufactured by others and/or integrated into systems designed or manufactured by others, the Fireye warranty, as stated in its General Terms and Conditions of Sale, pertains only to the Fireye products and not to any other equipment or to the combined system or its overall performance.

WARRANTIES

FIREYE guarantees for one year from the date of installation or 18 months from date of manufacture of its products to replace or repair (Fireye's option) any product or part thereof (except lamps and photocells) which is found defective in material or workmanship or which otherwise fails to conform to the description of the product on the face of its sales order. THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES AND FIREYE MAKES NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED. Except as specifically stated in these general terms and conditions of sale, remedies with respect to any product or part number manufactured or sold by Fireye shall be limited exclusively to the right to replacement or repair as above provided. In no event shall Fireye be liable for consequential or special damages of any nature that may arise in connection with such product or part.

Fireye, Inc.
3 Manchester Road
Derry, New Hampshire 03038 USA
Fireye.com

CU-124
May 23, 2022