Pyrodigital®

CONTROL & RELIABILITY

THE NEW PYRODIGITAL FiberCON

operating instructions

Pyrodigital®

CONTROL & RELIABILITY

pd@pyrodigital.com /// www.pyrodigital.com

PYRODIGITAL®
FiberCON
OPERATING INSTRUCTIONS

This document applies to the

Pyrodigital® FiberCON Bridge

Software Version 1.0

(April 2024).

Innovative Pyrotechnik GmbH

Steinwerkstr.2

71139 Ehningen, Germany

Pyrodigital®

CONTROL & RELIABILITY

INNOVATIVE PYROTECHNIK GMBH

RoHS Compliant

CE

!!! IMPORTANT !!!

Before operating the Pyrodigital® FiberCON Bridge, the owner **MUST send a notification** to Innovative Pyrotechnik GmbH that these operating instructions have been received. Please fill out and sign the following form and send a photograph or photo to:

pd@pyrodigital.com

Notification about Receipt of the Pyrodigital® FiberCON Bridge Operating Instructions.

Herewith, I confirm that a copy of the Operating Instructions for the Pyrodigital® FiberCON Bridge has been received by our company, either printed or in electronic form.

Device Serial Number: _____

Receiver (Company): _____

Date (mm/dd/yyyy): _____

Signer (Surname, Forename): _____

Signature: _____

WELCOME TO PYRODIGITAL®

Visit us on pyrodigital.com

or contact by email pd@pyrodigital.com.

Contents

Chapter 1

Feature Overview

The Pyrodigital® FiberCON Bridge is a robust, versatile and powerful Enhancement for digitally choreographed fireworks displays and special effect shows. The device provides the following features:

- Conversion between Pyrodigital Bus and Fiber
- Maximum transmission distance of 5 km (Multimode) and 40 km (Singlemode)
- Safety feature: Heartbeat signal monitoring between Master and Slave units
- Inherent Reboosting of network power, signal regeneration and galvanic isolation
- Full backwards-compatibility with prior Pyrodigital® devices (Firing Modules as well as Field Controllers)
- Intuitive design: No extensive training required to learn the new device.
- 2 years warranty
- Included charger
- Integrated battery status indicator

- Valve Regulated Lead-Acid (VRLA) batteries for reliable and safe performance and easy transportation. No lithium batteries.
- Device temperature monitoring

Chapter 2

Multi-Mode and Single-Mode Versions

The Pyrodigital FiberCon Bridge is a versatile and reliable device designed to meet your fiber optic communication needs. It is available in two versions: Multi-Mode and Single-Mode, catering to different application requirements and fiber cable types.

The FiberCon Bridge consists of two main components: the FiberCon Master and the FiberCon Slave. These units are connected via a fiber optic cable, which can be either Multi-Mode or Single-Mode, depending on the version you choose. It is important to note that the Multi-Mode and Single-Mode versions are not interchangeable or compatible with each other. This ensures optimal performance and signal integrity for your specific setup.

The Multi-Mode version is ideal for shorter distance applications and is compatible with Multi-Mode fiber cables. On the other hand, the Single-Mode version is perfect for longer distance transmissions and requires Single-Mode fiber cables. Both versions offer reliable and efficient data transmission, ensuring seamless communication between the FiberCon Master and FiberCon Slave units.

To accommodate your specific needs, both the Multi-Mode and Single-Mode versions of the Pyrodigital FiberCon Bridge are readily available from the manufacturer. Simply choose

the version that best suits your application, and you can be confident that you will receive a high-quality, purpose-built device designed to excel in your fiber optic communication setup.

Serial number prefixes for FiberCon Bridge versions and devices can be distinguished by the Serial Number Prefixes:

	FiberCon Master	**FiberCon Slave**
Single-Mode	FIM	FIS
Multi-Mode	FMM	FMS

Chapter 3

Technical Data

3.1 General Specifications

Type:	Pyrdigital FiberCon Bridge consisting of FiberCon Master Unit FiberCon Slave Unit
Manufacturer:	Innovative Pyrotechnik GmbH Steinwerkstr. 2, 71139 Ehningen Germany
Software Version:	1.0

3.2 Power Specifications

Internal Battery Type:	Valve Regulated Lead-Acid (VRLA) Battery
Internal Battery Voltage:	24 VDC (2x 12 VDC in series)
Total Internal Battery Capacity:	2.1 Ah
Maximum Charge Current:	0.56 Ah @ <29.4 VDC
External Power Supply Voltage:	28 VDC (use original supply only)
Operating Temperature:	-20°C to +85°C Electronics -20°C to +55°C Batteries

3.3 Pyrodigital Network Specifications

FiberCon Slave

Pyrodigital Network Output

Maximum Phase III Networksize:	40 Firing Modules
Maximum Phase III Networksize with External Power Supply connected:	128 Firing Modules
Phase III Network Output Voltage:	24 to 28 VDC
Maximum Current at Phase III Network Output (Power):	3 A (72 W @ 24 VDC, 84 W @ 28 VDC)

3.4 Optical Specifications

3.4.1 Single-Mode Version

Optical Fiber Connector:	Standard LC-Duplex or Neutrik opticalCON DUO
Optical Fiber Type:	Single-Mode
Typical Distance	40 km
Wavelength	
Typical (nm)	1310
TX Range (nm)	1290 to 1330
RX Range (nm)	1100 to 1650
Optical Power	
TX Range (dBm)	0 to -5
RX Range (dBm)	0 to -25
Link Budget (dB)	20
Dispersion Penalty (dB)	1

3.4.2 Multi-Mode Version

Optical Fiber Connector:	Standard LC-Duplex or Neutrik opticalCON DUO
Optical Fiber Type:	Multi-Mode 50/125 µm, 800 MHz 62.5/125 µm, 500 MHz
Typical Distance	5 km
Wavelength	
Typical (nm)	850
TX Range (nm)	840 to 860
RX Range (nm)	800 to 900
Optical Power	
TX Range (dBm)	0 to -5
RX Range (dBm)	0 to -20
Link Budget (dB)	15
Dispersion Penalty (dB)	1

Chapter 4

Introduction and Requirements

!!! ATTENTION !!!

ALWAYS ENSURE TO HAVE THE LATEST VERSION OF THIS DOCUMENT!
(You can find all documents on pyrodigital.com .)

4.1 The FiberCON

Pyrodigital® FiberCON Bridge is a Professional Level Tool. This tool, when combined with Pyrodigital® Field Controllers and the Pyrodigital® Phase III Firing System Network, becomes an integrated hardware system which provides means to fire industry standard pyrotechnic electric matches.

The Pyrodigital® FiberCON Bridge as a Professional Level Tool is designed, intended, and only to be used by Professional Pyrotechnic Operators in a controlled Professional Environment for the use with Pyrotechnical Products and Devices, Fireworks and Special Effects. The USER must ensure compliance with all relevant national and international laws and regulations, such as but not only explosive law, fire protection regulations and

safety clearances in force. *(For the United States of America: The surrounding area needs to be permitted by the Fire Authority having jurisdiction, in conjunction with UN 1.4S / UN 1.4G (Class C) or UN 1.3G (Class B) ONLY explosives that have been examined and have been issued Federal EX numbers by the US Department of Transportation. The Pyrodigital® FiberCON Bridge is not designed nor shall be used to ignite any Class A explosives or "High" Explosives.)*

If you do not understand this usage of the Pyrodigital® FiberCON Bridge, Pyrodigital® Field Controllers and the Pyrodigital® Phase III Firing System Network, or intend to use the Pyrodigital® FiberCON Bridge, Pyrodigital® Field Controllers and Pyrodigital® Phase III Firing System Network for any other purpose - STOP - do not proceed any further. Consult Innovative Pyrotechnik GmbH about cancellation of your order or a repurchase of your Pyrodigital® FiberCON Bridge.

4.2 Definitions - System Controller and System Network

For purposes of identification, and in these Operating Instructions, the Phase III System can be divided into two major components, The SYSTEM CONTROLLER and the SYSTEM NETWORK. For the purspose of these Operating Instructions, the FIELD CONTROLLER IS CALLED THE SYSTEM CONTROLLER.

The Pyrodigital® FIELD CONTROLLER (the FIELD CONTROLLER / SYSTEM CONTROLLER / FIRING COMPUTER) is what Controls the operation of the Pyrodigital® Phase III Firing System Network. The Pyrodigital® FIELD CONTROLLER is located at the Control Location, at the place where the operator or user controls the Fireworks Display, Special Effects or other Pyrotechnical Products or Devices.

The standard SYSTEM NETWORK composes the Pyrodigital® FiberCON Bridge, Firing Modules, the Interconnecting Cables and the Splitter Boxes. The Network connects to the Field Controller via the main Interconnecting Cable. This main Interconnecting Cable then

leads from the Field Controller to the input of the Pyrodigital® FiberCON Bridge Master that is connected via Fiberoptics with its slave device. The output of the Pyrodigital® FiberCON Bridge Slave is connected to the Splitter Box(es), which subsequently are connected with additional Interconnecting Cables to the Firing Modules.

The SYSTEM NETWORK may also be composed of other types of Pyrodigital® Phase III Output Devices, Firing Modules (as described above), or a combination of any of these.

The System Network may be also referred to as the Firing Network or simply the Network in these Operating Instructions. The Field Controller together with the System Network, including the Pyrodigital® FiberCON Bridge, may be referred to simply as the (Pyrodigital®) Firing System.

THESE OPERATING INSTRUCTIONS ONLY DESCRIBE THE HANDLING OF THE PYRODIGITAL® DRAGON ISO-BOOSTER.

FOR OPERATION OF OTHER PARTS OF THE SYSTEM NETWORK PLEASE REFER TO THE OPERATING INSTRUCTIONS FOR THE PYRODIGITAL® SYSTEM NETWORK. THE USER MAY ADDITIONALLY NEED TO REFER TO OPERATING INSTRUCTIONS FOR ANY OTHER PYRODIGITAL® OUTPUT DEVICES WHICH ARE IN USE IN THE SYSTEM NETWORK.

There are separate Operating Instructions:
1) for the System Network (composed of Firing Modules),
2) for other Phase III Firing Output Devices, and
3) for any other Pyrodigital System Devices

4.3 General Disclamer

The Pyrodigital® FiberCON Bridge and associated Pyrodigital® Phase III Firing System Network is intended for use by bonafide professional organizations only. You must have the expertise and background in professional pyrotechnics necessary to administer all aspects of Pyrotechnics Display, Pyrotechnical Products or Special Effects. This includes an understanding of the necessity of proper training and supervision of all employees handling the complex tasks relating to the use of the Pyrodigital Field Controller which is operating the Pyrodigital® System Network. Critical and unforeseeable factors beyond the control of the designers, authors, manufacturers, and distributors of this Firing System prevent them from eliminating all risks in conjunction with the use of the Pyrodigital® Firing System. Such risks include, but are not limited to: severe personal injury or death from unintentional and erratic electric ignition, failure of execution of a display or performance due to system failures. Such risks exist even though the Pyrodigital® Firing System is fit for use as stated in all advertising, brochures, and documentation, and even though all the instructions are followed. By proceeding with the use of the Pyrodigital® FiberCON Bridge operating within the Pyrodigital® Phase III Firing System Network you hereby assume all risks and liability resulting from the use thereof.

The Pyrodigital® FiberCON Bridge is a device only to be used in professional pyrotechnics, to fire suitable electric matches as part of fireworks displays or special effects or other pyrotechnical products and devices. The Pyrodigital® FiberCON Bridge is intended and designed exclusively for the purpose of firing pyrotechnic products and devices, special effects and fireworks, and may only be used for this purpose. The Pyrodigital® FiberCON Bridge is part of a Pyrodigital® Phase III Firing System Network, and may only be used with other original Pyrodigital® equipment recommended by Pyrodigital® (Innovative Pyrotechnik GmbH). Pyrodigital® Phase III Firing System Network is interconnected using Phase III network cables recommended by Pyrodigital® (Innovative Pyrotechnik GmbH). The user must have specialist knowledge of the Pyrodigital® Phase III network and the Pyrodigital® field controller used. This is required to set up Phase III networks

and to operate the Pyrodigital® FiberCON Bridge. The Pyrodigital® FiberCON Bridge is designed and intended solely for professional use by trained and authorized pyrotechnicians, and may only be operated by such personnel. The Pyrodigital® FiberCON Bridge may only be used by professional and authorized pyrotechnicians in conditions and environments that are approved by the authorities having jurisdiction. The designers, engineers, authors, manufacturer and sales partners of Pyrodigital® assume no liability for critical and unforeseeable factors outside their control related to the handling of the Pyrodigital® FiberCON Bridge and the resulting risks. These risks include but are not limited to severe personal injury or death due to unintentional or incorrect firing of electric matches, operating errors and incorrect execution due to system errors during a fireworks display or performance or generally the usage of pyrotechnical products. Such risks exist even though the Pyrodigital® FiberCON Bridge is suitable within reason for all applications indicated in advertising material, brochures and documentation. This is also the case even when all instructions and guidelines for use, including those for the Pyrodigital® FiberCON Bridge, are observed. ENSURING SAFETY IS YOUR RESPONSIBILITY, and is outside of the control of Innovative Pyrotechnik GmbH (Pyrodigital®). By purchasing and/or using Pyrodigital® products, both the buyer and user assume full responsibility for all risks and liabilities resulting from the use of the Pyrodigital® FiberCON Bridge. Furthermore, they also agree to indemnify Innovative Pyrotechnik GmbH (Pyrodigital®) and its sales partners against any claims resulting from injuries, loss and any damages caused directly or indirectly through the use of Pyrodigital® FiberCON Bridge, as well as damages caused by failure. Innovative Pyrotechnik GmbH (Pyrodigital®) assumes no guarantee or liability for repairs or modifications to the device that are not performed or authorized by Innovative Pyrotechnik GmbH (Pyrodigital®), as well as for the resulting risks. Each sales partner is also bound to the conditions described here for the purposes of sales.

WARNING - EXTREME DANGER

Specific Procedures pertaining to the Use and Operation of the Pyrodigital® FiberCON Bridge are outlined in these Operating Instructions. Deviation from any of the Procedures outlined in these Operating Instructions are specifically forbidden and absolutely not recommended by Innovative Pyrotechnik GmbH. Injury or Death to yourself and others, as well as property damage, could result from deviations to the Procedures as outlined in the Operating Instructions. Any deviation from the Procedures as outlined in these Operating Instructions are clearly at your own risk.

4.4 About the Operating Instructions Document

WARNING - CAUTION

IT IS INTENDED AND REQUIRED THAT EACH AND EVERY OPERATOR RESPONSIBLE FOR THE USE OF THE PYRODIGITAL® FIBERCON SHALL HAVE THEIR OWN COPY OF THESE OPERATING INSTRUCTIONS. EACH OPERATOR'S OPERATING INSTRUCTIONS SHOULD BE WITH EACH OPERATOR WHILE OPERATIONS INVOLVING THE USE OF THE PYRODIGITAL® DRAGON ISO-BOOSTER ARE ONGOING.

To request additional copies of these Operating Instructions contact Innovative Pyrotechnik GmbH. There is a nominal charge to cover printing costs. These Operating Instructions, in its entirety, are a technical reference for the operation of the Pyrodigital® FiberCON Bridge.

No part of the Operating Instructions is in any sense a tutorial, instruction guide, or educational text for learning about Display Fireworks Operations, Pyrotechnic Special Effects Operations, or the subject of safely handling explosives or pyrotechnical materials. It is assumed and required that you bring this experience and prior knowledge with you BEFORE you attempt to read or understand the subject matter of these Operating Instructions.

Like all technical references on a specific advanced subject, these Operating Instructions immediately concerns itself with the subject matter and may dispense with or not include explanations of foundations or basic knowledge regarding the subject. It is assumed that the reader is already familiar with such foundations and background, and additionally it is assumed that the reader is familiar with A UNIQUE TECHNICAL LEXICON, OR TERMINOLOGY, THAT IS GENERALLY ACCEPTED IN THE INDUSTRY.

If you find yourself at a loss to understand the technical terms used in these Operating Instructions, or you are unclear as to the general subject matter, then this should be your clue that you DO NOT have the necessary background or qualifications to proceed.

In this case STOP! PROCEED NO FURTHER! Show your supervisor this paragraph and explain your doubts about your prior knowledge and abilities. If you have no Supervisor, then contact Innovative Pyrotechnik GmbH directly and obtain clarification or further assistance before proceeding.

4.5 Customer Support

If you are having difficulty in operating the Pyrodigital® FiberCON Bridge, please:

1. Re-read the sections of these Operating Instructions, or other supporting User Guides and Operating Instructions, concerning the area you are having difficulty with.

2. Assuming that you are in an inert Test Environment, try some other actions to try and work through your difficulty. Since you are in an inert Test Environment, do not worry about making mistakes, you can't break anything or fire any live material. We

all learn from mistakes and if you are not practicing with the Pyrodigital® Phase III Firing System in an inert Test Environment, then you are not learning as intended.

3. You may wish to consult with your Supervisor or other Experienced Users of Pyrodigital® Equipment.

4. Contact us at Innovative Pyrotechnik GmbH: pd@pyrodigital.com

4.6 Operator and Site Requirements

The procedures, functions, and all information outlined and described in these Operating Instructions assume certain requirements concerning the 1) Operator in Charge, or user, who is operating the Pyrodigital® Firing System or directly responsible for the System Operator if he/she is not the System Operator, or user, and 2) the physical site at which the Firing Operations take place. It is, assumed that in all cases, the System Operator, or user, is a working member of a professional team that prepares for, sets up, and executes Display Fireworks or Special Effects. It is assumed that these operations, including the Operation of the Pyrodigital® FiberCON Bridge are supervised and controlled in a Top Down fashion by a Master or Journeyman Pyrotechnician who has substantial qualifications and experience in these operations. The Pyrodigital® FiberCON Bridge and all components relating thereto are Professional Level Tools, designed for and intended to be used by working, fully qualified, and extensively experienced Master Pyrotechnicians. These Operating Instructions will only cover the operation of the Pyrodigital® FiberCON Bridge. The user MUST also refer to the Operating Instructions for Pyrodigital® Phase III Firing System Network composed of Pyrodigital® Firing Modules. Additionally the user may need to refer to Operating Instructions for other Pyrodigital® output devices, if such devices are used.

These Operating Instructions will NOT cover specific information relating to general Safety related background material in handling explosive products including pyrotechnic materials. These Operating Instructions assume that the user has prior knowledge and

experience and that the user brings that knowledge and experience with him/her as he/she reads these Operating Instructions and gains understanding of how to use the Pyrodigital® FiberCON Bridge. If you do not have this prior experience you should stop here. Proceed no further. Explain to your supervisor or to Innovative Pyrotechnik GmbH that you do not have the necessary qualifications to proceed with operation of the Pyrodigital® Firing System.

This prior knowledge and experience are assumed to exist and remain up to date regarding the person responsible for use of the Pyrodigital® Firing System. This person will hereafter be called "the Operator" or "the Operator in Charge" or "the System Operator", or simply "the User". It will be your responsibility, as the Operator in Charge, to continuously monitor and insure that at every site at which the Pyrodigital® Firing System may be in use, this set of assumed conditions exists, and further that it does not change or deteriorate over time.

WARNING - EXTREME DANGER

IT WILL NOT BE POSSIBLE TO SAFELY OPERATE AT ANY SITE ON WHICH THE INITIAL SET OF ASSUMPTIONS, OR CONDITIONS IS NOT IN PLACE. SEVERE BODILY HARM, INJURY OR DEATH TO YOURSELF, YOUR CO-WORKERS, AND INNOCENT BYSTANDERS MAY OCCUR FROM IRRESPONSIBLE OPERATIONS WITH LIVE PROFESSIONAL DISPLAY FIREWORKS AND SPECIAL EFFECTS PYROTECHNICS.

Make sure that you are qualified as explained in the following and preceding paragraphs. If you do not feel to posses the proper qualifications as outlined above and below you should not proceed with attempting operation of the Pyrodigital® FiberCON Bridge or the Pyrodigital® Firing System. Contact your Supervisor or Innovative Pyrotechnik GmbH and let clarify any questions that you may have before taking it upon yourself to

proceed. General Safety knowledge is gained through familiarity with applicable laws and regulations, as well as field experience under the supervision of a competent Pyrotechnics Operator.

Electrical Firing Safety is considered as part of General Safety Knowledge. Safety is a conscious effort to prevent accidents through intelligent understanding of the hazards involved. Anyone responsible for operating the Pyrodigital® Firing System must have at least the following prior qualifications:

1. A valid license/allowance for operating pyrotechnics from the authorities having jurisdiction. *(For the United States of America: A state Explosives, Pyrotechnician, or Special Effects License.)*

2. A minimum of two years prior experience under the direct supervision of Professional Operators or an adequate education.

For the United States of America:

The physical site at which any operations take place must have at least:

1. *Have been permitted by the local authority having jurisdiction.*

2. *Be covered by a general liability insurance policy that names the display operator and the system operator.*

3. *The display items must be UN 1.4S / UN 1.4G (Class C) or UN 1.3G (Class B) Display Pyrotechnics ONLY, and these items must have been examined by the US Department of Transportation and have been issued Federal EX Numbers.*

4.7 Safety and General Guidelines

WARNING - EXTREME DANGER

The Purpose of the Pyrodigital® Phase III Firing System is to cause initiation of industry standard pyrotechnic electric matches to ignite Firework Products and Pyrotechnical Products in Displays or Pyrotechnic Special Effects. If you do not understand this usage or intend to use the Pyrodigital® Phase III System for any other purpose do not use the Pyrodigital® Phase III Firing System.

WARNING - EXTREME DANGER

Fireworks, Pyrotechnical Products and Special Effects Materials are Explosives which can and may cause personal injuries or death to yourself and other people including spectators or innocent bystanders, in addition to property damage. The use of the Pyrodigital® Phase III Firing System in no way alleviates any safety, legal, or moral responsibilities including but not limited to the use, loading, transportation, storage, or discharge of Fireworks, Pyrotechnical Products or Special Effects. The user must be fully competent and assumes all responsibility and liability in both the use of pyrotechnic devices and the use of the Pyrodigital® Phase III Field Controller operating the Pyrodigital® Phase III Firing System Network. If you are not qualified, or have any doubt as to your qualification, do not use any part of the Pyrodigital® Phase III System. Seek professional assistance and be aware of and follow all safety procedures including compliance with all international, national and federal authorities, state, and Local Laws and/or Laws in the Country in which you are using the Pyrodigital® Phase III Firing System.

SAFETY IS YOUR RESPONSIBILITY and is beyond the control of the designer, manufacturer, seller, or their agents.

4.8 Safety

It is beyond the scope of these instructions or these Operating Instructions to give general safety instructions pertaining to the use of Pyrotechnial Products and Devices, Fireworks and Special Effects, including but not limited to storage, handling, transportation, discharge, disposal, and compliance with all applicable laws. General safety knowledge is gained through familiarity with applicable Laws and field experience under the supervision of a competent pyrotechnic operator.

ELECTRICAL FIRING SAFETY IS CONSIDERED AS GENERAL SAFETY KNOWLEDGE.

Specific Safety procedures applicable to the use of Phase III Firing System are highlighted throughout these Operating Instructions. These Safety related warnings or procedures are indicated as:

WARNING - CAUTION
WARNING - DANGER
WARNING - EXTREME DANGER

OBEY THESE SAFETY PROCEDURES. These specific procedures cannot guarantee Safety. Safety is a conscious effort to prevent accidents through intelligent and thorough understanding of the hazards involved. If you do not know what you are doing and the consequences of your actions do not proceed.

4.9 Additional General Safety Guidelines

WARNING - EXTREME DANGER

These Additional General Safety Guidelines cannot, in any way, be considered as complete and are only presented here to remind the user of the potential hazards and precautions, of which the user should already be intimately aware.

Having the Pyrodigital® FiberCON Bridge or the Pyrodigital® Phase III Firing System in a safe or non armed condition does not mean that anything is SAFE.

- Electric matches are very sensitive devices and can ignite when subjected to friction, external impact, and sufficient electrical energy. Some potential sources of electrical energy are static discharges (human, dust, snow, & electrical storms) and radio frequency energy from TV, microwave, and radio transmitters, as well as the applied electrical energy used to initiate the electric match.

- Keep your electric matches shunted (leg wires (shorted) twisted together) until actual connection into the circuit.

- Do not pull on the leg wires of an electric match - separation of the match head from the leg wires can cause initiation of the electric match.

For the United States of America:

- *Keep your electric matches stored in a sealed METAL container located remote from all other pyrotechnic material (the METAL of the container provides radio frequency shielding).*

- *Don't allow Radio transmitters (police, fire, communications, etc.) within 50 feet as a standard safety procedure. Consult IME (Institute of Makers of Explosives)*

publication # 20 "Safety Guide for the Prevention of Radio Frequency Radiation Hazards" for safe distances at known transmitter power and frequencies.

If one assumes that any one of the electric matches may ignite at any time for whatever reasons, then one can plan safe handling and deployment procedures which will minimize injuries and eliminate any possible fatality should any such ignition occur.

4.10 Practice and Inert Testing

It is required that the user gain total familiarity with the complete Pyrodigital® Phase III Firing System BEFORE ANY LIVE PYROTECHNICS ARE FIRED OR EVEN PRESENTED.

WARNING - EXTREME DANGER
DO NOT OPERATE THE DRAGON ISOBOOSTER OR THE PHASE III FIRING SYSTEM IN A LIVE FIRING ENVIRONMENT UNLESS YOU ARE COMPLETELY FAMILIAR WITH ALL OPERATING PROCEDURES AND WARNINGS IN THESE OPERATING INSTRUCTIONS, PLUS THE OPERATING INSTRUCTIONS FOR THE PYRODIGITAL® PHASE III SYSTEM NETWORK, PLUS THE OPERATING INSTRUCTIONS FOR ANY OTHER PYRODIGITAL® OUTPUT DEVICES THAT YOU ARE USING (other than standard Firing Modules which are covered in the Pyrodigital® Phase III System Network Operating Instructions mentioned above). DEATH, INJURY, AND PROPERTY DAMAGE MAY OCCUR IF YOU DO NOT KNOW EXACTLY HOW TO OPERATE THE PHASE III FIRING SYSTEM.

The user is expected and encouraged to operate the complete Pyrodigital® Phase III Firing System in an inert Test Environment in which no Pyrotechnic Material is present.

At first, the user may gain familiarity with the Pyrodigital® FiberCON Bridge by operating the Field Controller and FiberCON Bridge by itself, with no external connections. Soon however, the user must connect at least one Firing Module (or other Pyrodigital® Output Device) to the FiberCON Bridge. This will allow the user to gain familiarity with the functions of the FiberCON Bridge.

Your System originally came with test lamps that are to be used as simulated electric matches so that you may practice Firing repeatedly without actually igniting any Pyrotechnic Material. **Test lamps are available from Innovative Pyrotechnik GmbH. Additional or replacement test lamps may be obtained from Innovative Pyrotechnik GmbH.** Many options are available for inert Testing with simulated electric match test lamps. Initially the user may be comfortable inert testing (with test lamps) with only one Firing Module connected to the FiberCON Bridge. At some point the user should layout and connect the full Phase III Firing System to become familiar with all aspects of the complete System. The user should inert test and simulate every procedure and function as outlined in these Operating Instructions PLUS the Operating Instructions for the System Network and the Operating Instruction for any other Phase III Output Devices which are used.

IF YOU HAVE ANY QUESTIONS, OR DO NOT UNDERSTAND ANYTHING WHATSOEVER RELATING TO THE OPERATION OF THE PYRODIGITAL® FIRING SYSTEM; PLEASE CONTACT PYRODIGITAL IMMEDIATELY FOR CLARIFICATION.

Innovative Pyrotechnik GmbH is available at: pd@pyrodigital.com

4.11 Further Documents

To operate Phase III Networks, it is also mandatory to be familiar with the Phase III System Network User's Guide and the operating instructions and/or user's guides of all equipment in use, e.g. the operating instructions of the Firing Modules Model A (FM-A). (You can find all documents on pyrodigital.com .)

Chapter 5

Device Overview

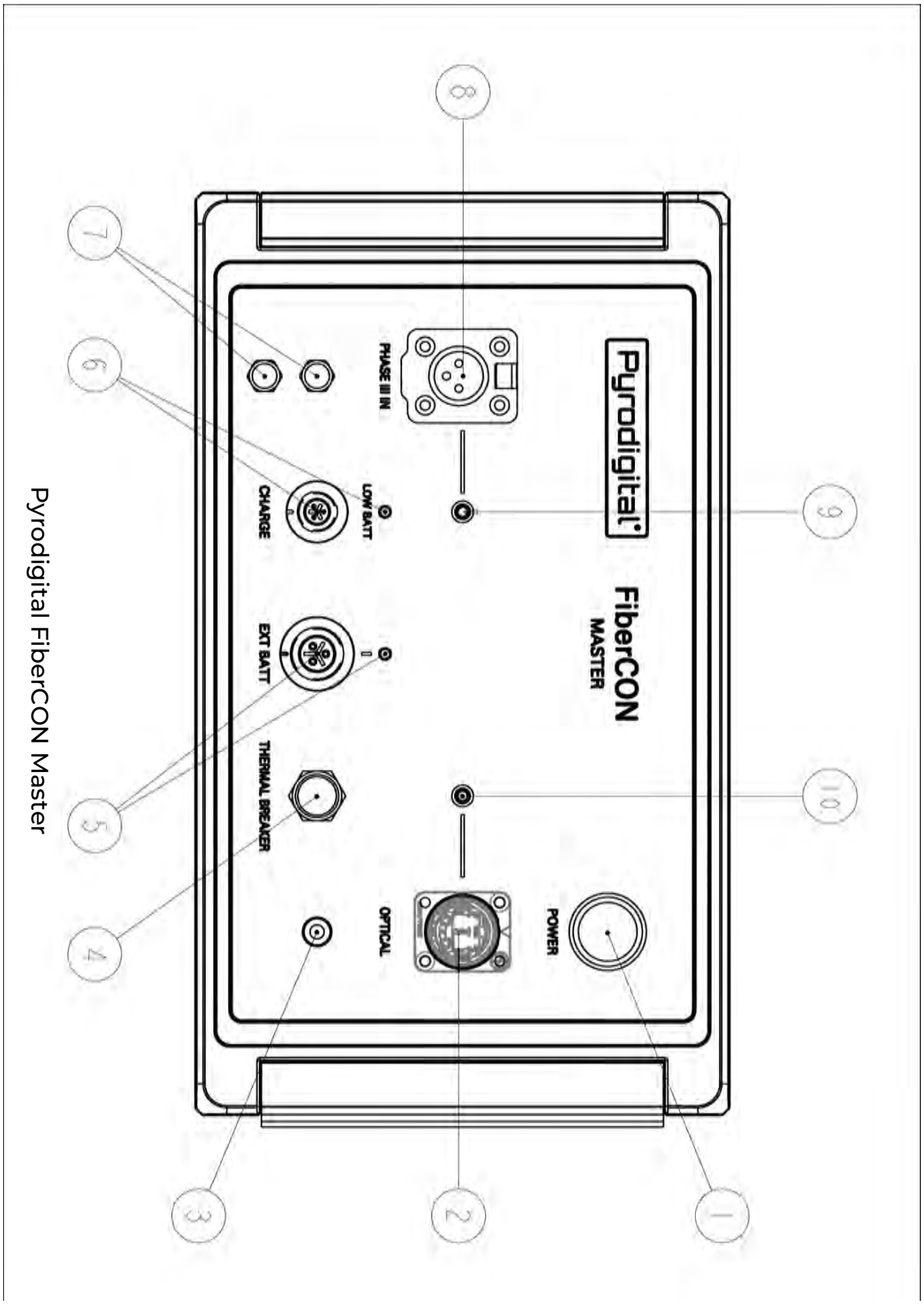
5.1 Device Top View

Pyrodigital FiberCON Master

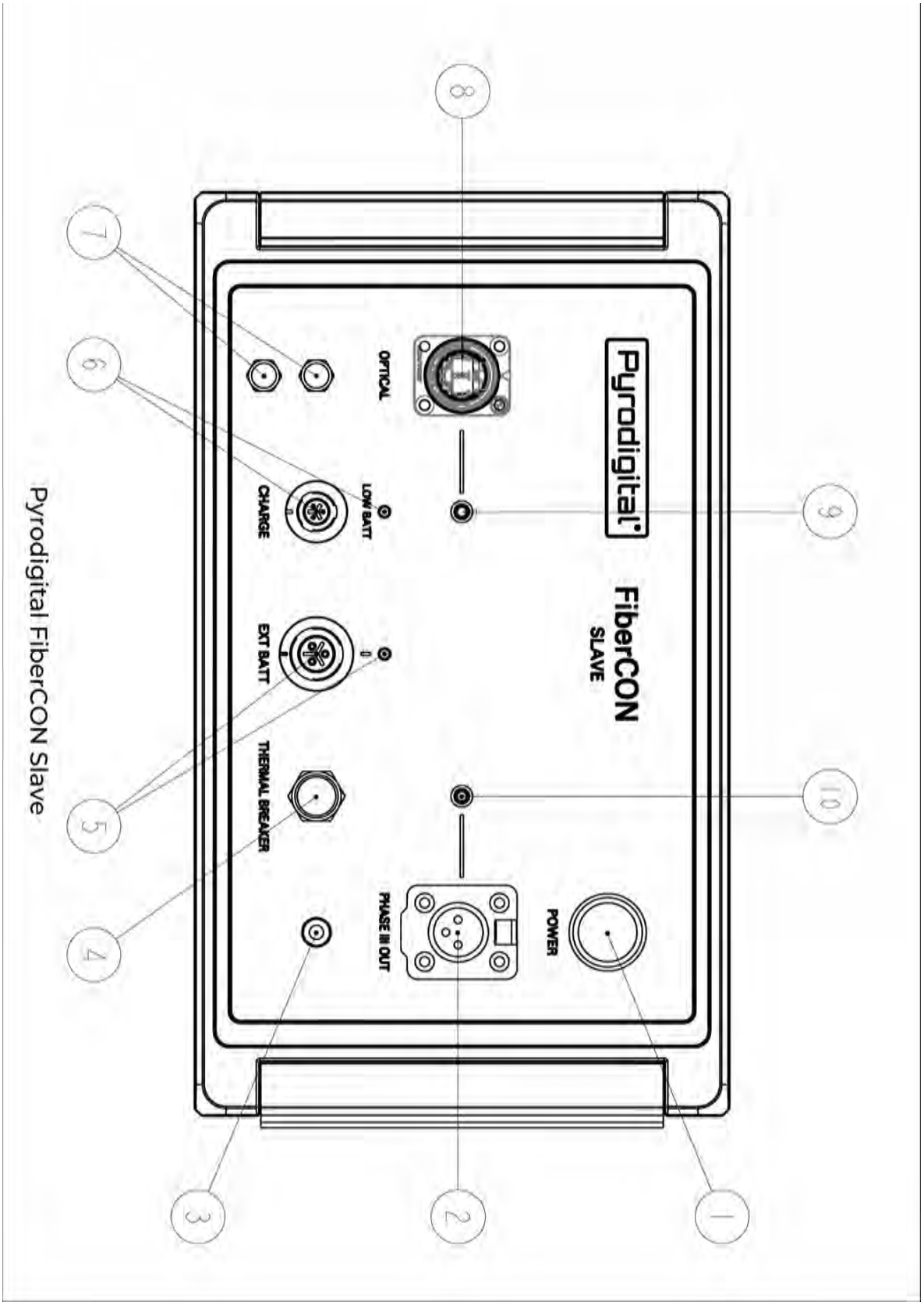
Pyrodigital FiberCON Slave

5.2 Front Panel

1. **Power Switch** - Turn the device on and off
2. **Master: Optical Output**
   Slave: Phase III Network Output
3. **Status LED** - Indicates wether the device is turned on or off
4. **Thermal Circuit Breaker** - Protects the Phase III Network Output
5. **External Battery Socket** - Connect endorsed External Power Supply here; The External Power Supply Status LED indicates if an external supply voltage is present
6. **Charge Socket** - Connect endorsed battery charger here; The Battery Status LED indicates the charge state of the battery
7. **Protective Vents** - Vents are used for pressure and moisture regulation
8. **Master: Phase III Network Input**
   Slave: Optical Input
9. **Input Monitor Indicator** - gives information about Input
10. **Output Monitor Indicator** - gives information about Output



Pyrodigital FiberCON Master


Pyrodigital FiberCON Slave
Pyrodigital
FiberCON
SLAVE
OPTICAL
CHARGE
LOW BATT
EXT BATT
THERMAL BREAKER
PHASE III OUT
POWER
1
2
3
4
5
6
7
8
9
10

5.3 Side Plates

11. Type Plate with Serial Number

12. Battery Plate

13. FCC Compliance Statement

14. Laser Warning

11


INNOVATIVE PYROTECHNIK
CE
RoHS Compliant
Type: Pyrodigital FiberCON Master
24V ⎓ 2,1 Ah
Made in Germany
S/N: FIM1C4A001
INNOVATIVE PYROTECHNIK
CE
RoHS Compliant
Type: Pyrodigital FiberCON Slave
24V ⎓ 2,1 Ah
Made in Germany
S/N: FIS1C4A001

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NO LITHIUM BATTERIES INSIDE!
Battery Technology: Valve Regulated Lead Acid (LRVA)
Batteries satisfy special provision 238 added UN No.2800 (non-spillable)
and IATA satisfies this batterie with special provision A 48, A 67, A 164
prescribed in DANGEROUS GOODS REGULATIONS.
Read the operating instructions before servicing,
exchanging batteries or fuses.
No further user-serviceable parts inside!

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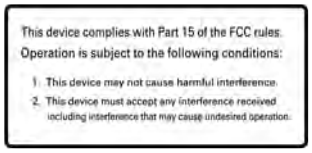
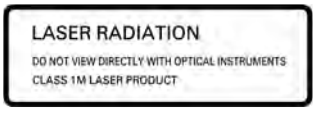

This device complies with Part 15 of the FCC rules.
Operation is subject to the following conditions:
1. This device may not cause harmful interference.
2. This device must accept any interference received
including interference that may cause undesired operation.

14


LASER RADIATION
DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS
CLASS 1M LASER PRODUCT

Chapter 6

Basic Operations Overview

6.1 Purpose of the FiberCON Bridge

The FiberCon Bridge is a solution designed to facilitate long-range communication in Pyrodigital systems by converting the Pyrodigital Bus to Fiber and vice versa. Comprising two distinct devices, the FiberCon Master and FiberCon Slave, this innovative bridge enables seamless, reliable, and safe transmission of signals over fiber optics.

The FiberCon Bridge is an ideal solution for long cable runs in fixed installations for example, where reliable and efficient communication networks are essential, such as theme parks, stadiums, and large buildings. It can capitalize on existing built-in fiber connections, allowing for seamless integration and enhanced performance. This setup can make sense when:

- The connection from the Field Controller to the Firing Modules
  is a very long cable run

- Firing Modules might get electrical contact to the trussing or stage itself at music festivals or concert tours

- The quantity of Firing Modules at the end of the cable run is high

- Older Firing Module types (FM1, FM2, FM3, FM4, FM5, FM7)
  and older Field Controller type (FC1, FC3) are used

Note: A Pyrodigital® FiberCON Bridge in combination with Pyrodigital® FM-A Firing Modules can handle way longer cable runs than the older legacy system.

6.2 Basic Operation

WARNING - EXTREME DANGER
DO NOT CONNECT ANY PHASE III NETWORK OR OPTICAL CABLES WHILE THE FiberCON SLAVE OR MASTER IS SWITCHED ON UNDER ANY CIRCUMSTANCES.

WARNING - EXTREME DANGER
NEVER PLUG A PHASE III NETWORK CABLE IN TO THE FiberCON MASTERS INPUT, WHILE THE SAFETY KEY OF THE FILED CONTROLLER IS IN ARM OR CHECK POSTION, AND THEREFOR THE PHASE III OUTPUT OF THE FIELD CONTROLLER IS POWERED UP, UNDER ANY CIRCUMSTANCES

The Basic Operation of the FiberCON System is:

1. Connect the Phase III Network Cable leading to the Splitters and Firing Modules to the Phase III Output of the FiberCON Slave
2. Connect the Optical Cable to the Optical Input of the FiberCON Slave device
3. Connect the Optical Cable to the Optical Output of the FiberCON Master device
4. Then connect the Phase III Network Cable of the Field Controllers output to the Phase III Input of the Pyrodigital® FiberCON Bridge Master last
5. Turn the Devices on
6. During the Bootup of the FiberCON Bridge, the Status LED turns purple

7. Wait till the Status LED turns statically blue

The Pyrodigital® FiberCON Bridge system is now operational and ready for use.

Chapter 7

Phase III Network Terminals

7.1 Phase III Input

The Phase III Network Input of the Pyrodigital® FiberCON Bridge Master is a galvanically isolated input. This Network Input manages PHASE III operations of the Phase III Network connected to the outputs of the FiberCON Slaves.

WARNING - EXTREME DANGER
NEVER POWER UP THE PHASE III NETWORK INPUT OF A PYRODIGITAL® FIBERCON BRIDGE UNLESS IT IS SAFE TO DO SO. POWERING UP THE PHASE III NETWORK INPUT WILL CAUSE THE DOWNSTREAM PHASE III NETWORK TO GET POWERED UP AS WELL. MAKE ABSOLUTELY SURE THAT THE FIRING AREA IS CLEAR OF ALL PERSONNEL AND THAT IT IS SAFE TO PROCEED BEFORE APPLYING POWER TO THE PHASE III NETWORK INPUT OF A PYRODIGITAL® FIBERCON BRIDGE, E.G. BY ARMING THE SAFETY ARM KEY OF A PYRODIGITAL® FIELD CONTROLLER. ALSO DO NOT ARM THE SAFETY ARM KEY OF OF A PYRODIGITAL® FIELD CONTROLLER UNLESS INSTRUCTED TO DO SO BY ITS DISPLAY.

7.1.1 Input Monitor

The Phase III Network Input Indicator of the FiberCON Bridge Master will turn green when the Phase III Network Input is powered up.
When a valid FIRE COMMAND or CHECK STATUS COMMAND is received on the Phase III Network Input, the Phase III Network Input Indicator of the FiberCON Bridge Master will blink yellow. If a reply is found for a CHECK STATUS, the Phase III Network Input Indicator will turn solid yellow.

7.2 Phase III Output

The Pyrodigital® FiberCON Bridge Slave is equipped with a powerful, galvanically isolated Phase III Network Output, that uses the same output technology as in every FCA or FCE Pyrodigital Field Controller.

7.2.1 Output Monitor and Circuit Breaker

The internal Phase III Network Output Driver of the FiberCON Bridge Slave includes a secondary micro-controller that monitors the connected Pyrodigital® Phase III Network. This monitor measures the drawn current and the supply voltage applied. It also controls the Monitor Indicator LED (red - green - yellow) to provide the operator with visual feedback about the state of the Phase III Network Output.
When the Phase III Network Output is powered up, the Output Monitor Indicator illuminates GREEN. If the current drawn exceeds the thermal circuit breaker's limit, the breaker trips, disconnecting the Phase III Network Output from power.
NOTICE: IF THE THERMAL CIRCUIT BREAKER POPS, IT REQUIRES SOME TIME TO COOL DOWN BEFORE IT CAN BE RESET BY PRESSING IT IN. THIS CAN TAKE UP TO A MINUTE.
The monitor also indicates with a yellow flash whenever fire commands or check status requests are sent out on the Phase III Network Output. Additionally, during a Status

Check, the Monitor Indicator will turn solid yellow when a Firing Module with the requested address is found.

Chapter 8

Battery, Power and Fuses

8.1 General Information

WARING - LIABILITY AND WARRANTY RELEVANT

This chapter describes the procedure to exchange the batteries and to replace the fuses. The User must strictly follow the given instructions. Not following the instructions, using non-original parts, manipulation of non-user-serviceable parts or not performing servicing as required, will render the warranty void and the liability will be excluded. The only user-serviceable parts are the batteries, the main fuse, the expansion fuse and the charger fuse.

The Pyrodigital® FiberCON Bridge is powered by two 12V Valve Regulated Lead-Acid (VRLA) Batteries. This battery type provides high reliability and the power required to drive the Pyrodigital® Phase III Network. This battery is very robust and is accepted for flight transportation. The Pyrodigital® FiberCON Bridge does NOT HAVE LITHIUM BATTERIES OR LITHIUM-ION BATTERIES INSIDE. The two batteries are in series

and provide 24 VDC to the FiberCON Bridge.

IMPORTANT: The VRLA Batteries need to be replaced every 2 years. This is a natural property of the batteries. The replacement of batteries is excluded from the warranty for the Pyrodigital® FiberCON Bridge given by Innovative Pyrotechnik GmbH. The lifetime of the batteries strongly depend on the handling by the user and is restiricted.

The Pyrodigital® FiberCON Bridge has three internal fuses besides the externally accessible thermal circuit breakers. The main fuse (Mini Blade Fuse 20A 32V slow type) that secure the overall circuitry, the charger fuse (Cartridge Fuse 0.75A 350V 5x15mm slow type) that secures the CHARGE socket, and the External Battery Supply Fuse (Mini Blade Fuse 20A 32V slow type) that secures the Ext Batt socket.

To replace the batteries and/or the fuses please follow the instructions in the corresponding following sections of this chapter.

8.2 Charge State Indicator

The Pyrodigital® FiberCON Bridge is equipped with a Charge State Monitoring System that monitors the battery voltage, the drawn current from the battery, as well as the battery temperature. Using all these parameters the Charge State Monitoring System calculates the charge state of the battery. The charge state is indicated during bootup by the LOW BATT LED. The count of flashes indicates the charge state of the batteries. During Operation the charge state of the batteries is not indicated. Still the Charge State Monitoring System is active. If the charge state drops below 10% during operation the LOW BATT Warning LED lights up.

The number of times the LED blinks indicates the charge state of the batteries as follows:

- 4 times: 100% to 75%
- 3 times: 74% to 50%
- 2 times: 50% to 25%
- 1 times: 24% to 10%
- constantly on: 10% to 0%

WARING - DANGER
If the battery voltage is too low, correct functioning of the FiberCON Bridge can not be assured. If the Indicator LED is illuminated, charge the device (less than 10% charge state).

Note: When the charge state is below 0%, it means the battery is discharged beyond its operating range. Excessive discharge damages the batteries, shortens their lifespan, and irreversibly reduces their capacity.

8.3 Charging the Battery

The integrated batteries need to be charged using an appropriate charging device for 24 VDC Valve Regulated Lead-Acid (VRLA) Batteries. This charger needs to get plugged into the "CHARGE" socket on the bottom left of the FiberCON Bridge front panel. The maximum charge current for the FiberCON Bridge is 0.56 Ampere. Only use charging devices endorsed by Innovative Pyrotechnik GmbH. The FiberCON Bridge comes with an appropriate charging device that provides a universal input voltage range (100-240 VAC, 50-60 Hz). Contact us at Innovative Pyrotechnik GmbH or our sales partners if you

require another than the delivered mains cable to connect your charger to the mains or if you require additional chargers.

It is not permitted to charge the batteries while operating the FiberCON Bridge. In general, chargers cannot detect a fully charged battery when at the same time current is drawn from the battery. As the battery will never be detected as being fully charged, chargers will not stop to sink current into the battery, even though the batteries are already full. This will drastically reduce the lifetime of the batteries! For less robust battery types than the integrated and very robust VRLA Batteries, overcharging can be extremely dangerous. However, even though the VRLA Batteries are appropriately sized to be harmless even for overcharging, any overcharging MUST be prevented.

WARNING - CAUTION

Do not charge the Pyrodigital® FiberCON Bridge while the device is powered up!

8.4 Opening the FiberCON

WARING - LIABILITY AND WARRANTY RELEVANT

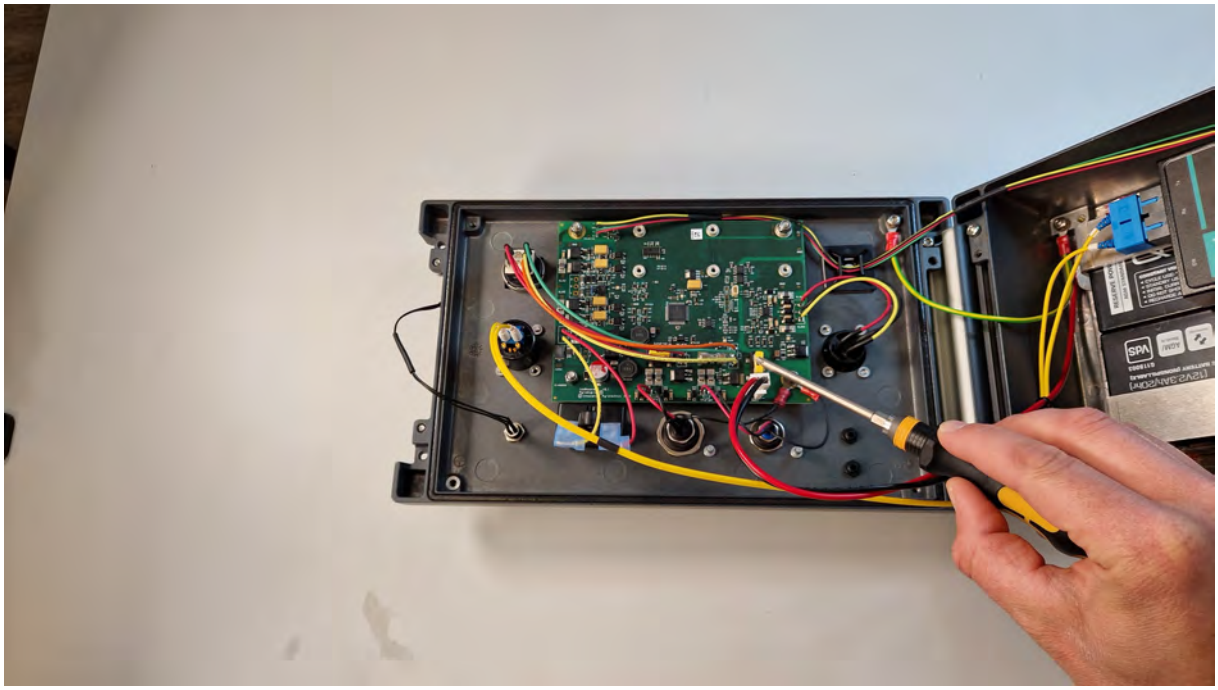
This section describes the procedure to open the Pyrodigital® FiberCON Bridge. The User must strictly follow the given instructions. Not following the instructions, using non-original parts, manipulation of non-user-serviceable parts or not performing servicing as required, will render the warranty void and the liability will be excluded.

Always ensure to work in an ESD safe environment whenever the Pyrodigital® FiberCON Bridge needs to be opened or is open! Properly ground yourself and the ESD mat underneath the device. Never open the FiberCON Bridge outside of an ESD safe environment. Please ask Innovative Pyrotechnik GmbH or your local vendor for advice, if you are unsure about ESD safe environments. Place the FiberCON Bridge on an ESD safe underground, e.g. an ESD mat. Ensure the ESD mat has a proper 1 MOhm connection to earth ground.

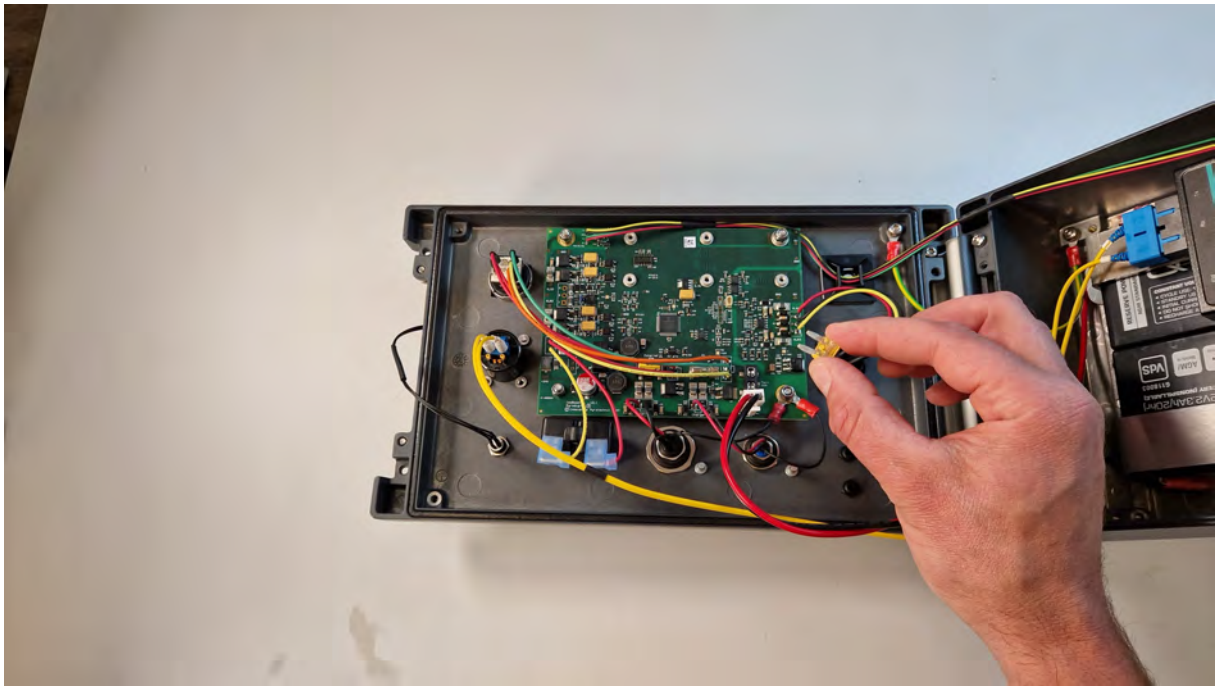
First, flip the right cover to the side, to access the two screws underneath.

Unscrew the two screws that secure the lid. Flip the lid open.

This is the position of the Mainfuse and the battery connector.



Detach the main fuse.



You successfully opened the Field Controller.

8.5 Replacing the Batteries

WARING - LIABILITY AND WARRANTY RELEVANT

This section describes the procedure to replace the batteries of the Pyrodigital® FiberCON Bridge. The User must strictly follow the given instructions. Not following the instructions, using non-original parts, manipulation of non-user-serviceable parts or not performing servicing as required, will render the warranty void and the liability will be excluded. The only user-serviceable parts are the batteries, the main fuse, the charger fuse and the External Power Supply Fuse.

IMPORTANT: As mentioned above, the VRLA Batteries need to be replaced every 2 years. This is a natural property of this battery type. The replacement of batteries is excluded from the warranty of the Pyrodigital® FiberCON Bridge given by Innovative Pyrotechnik GmbH. The lifetime of the batteries is naturally restricted and strongly depends on the handling by the user.

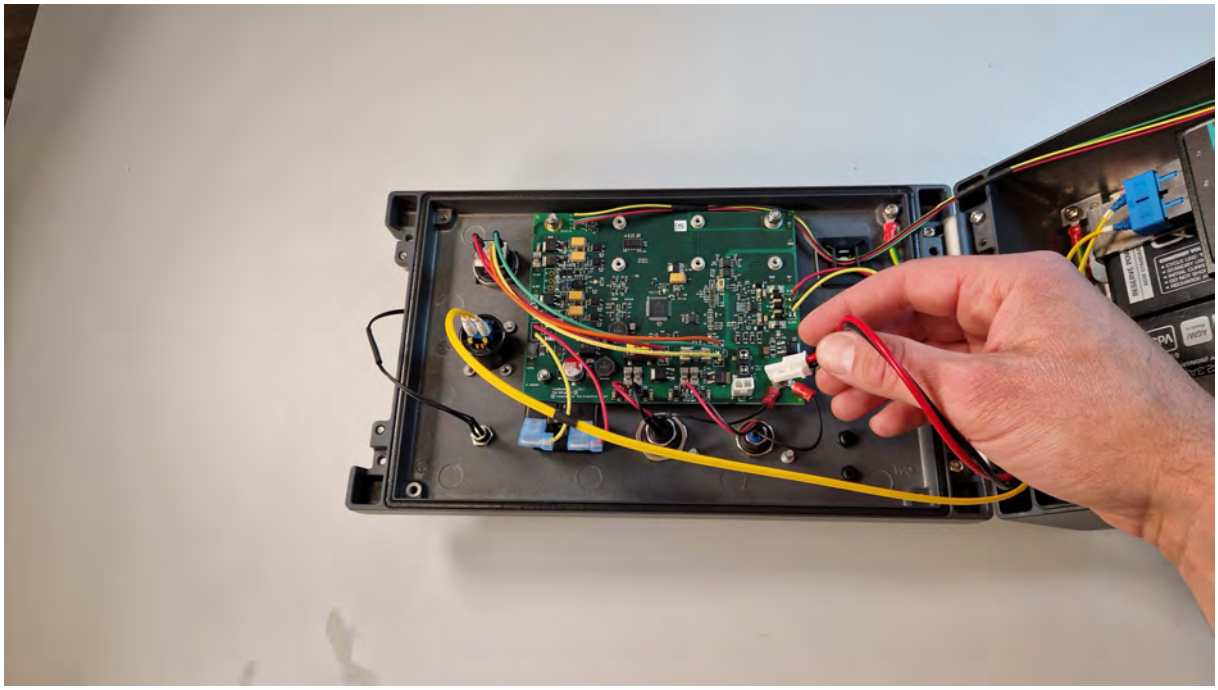
IMPORTANT: ONLY USE BATTERY ENDORSED BY INNOVATIVE PYROTECHNIK GMBH FOR BATTERY REPLACEMENT.

For information about endorsed batteries contact our local sales partners or us directly at Innovative Pyrotechnik GmbH: pd@pyrodigital.com.

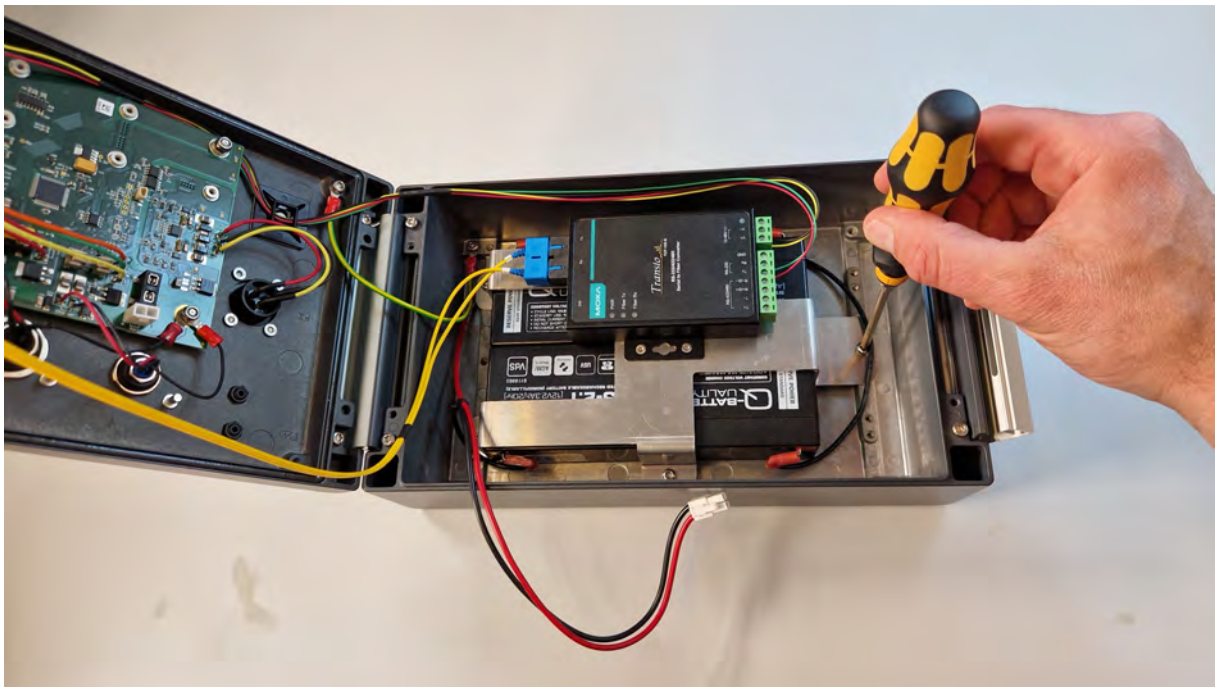
WARING - DANGER / CAUTION If you do not feel confident replacing the batteries or if you have any doubts, don not hesistate to contact us at Innovative Pyrotechnik GmbH: pd@pyrodigital.com. We will assist you, conduct or arrange the battery replacement for you.

To replace the batteries first follow the instruction to open the Pyrodigital® FiberCON Bridge in the previous section Opening the FiberCON. Then strictly follow the procedure described in this section and finally close the device like described in the following section Closing the FiberCON.

Unplug the Battery Main Cable from the main PCB.



Use a TX20 screwdriver to unscrew the battery holder. All housing screws are accessible while leaving the Fiber Converter attached to the battery holder. Ensure the Fiber Converter and its mounting block remain connected to the battery holder.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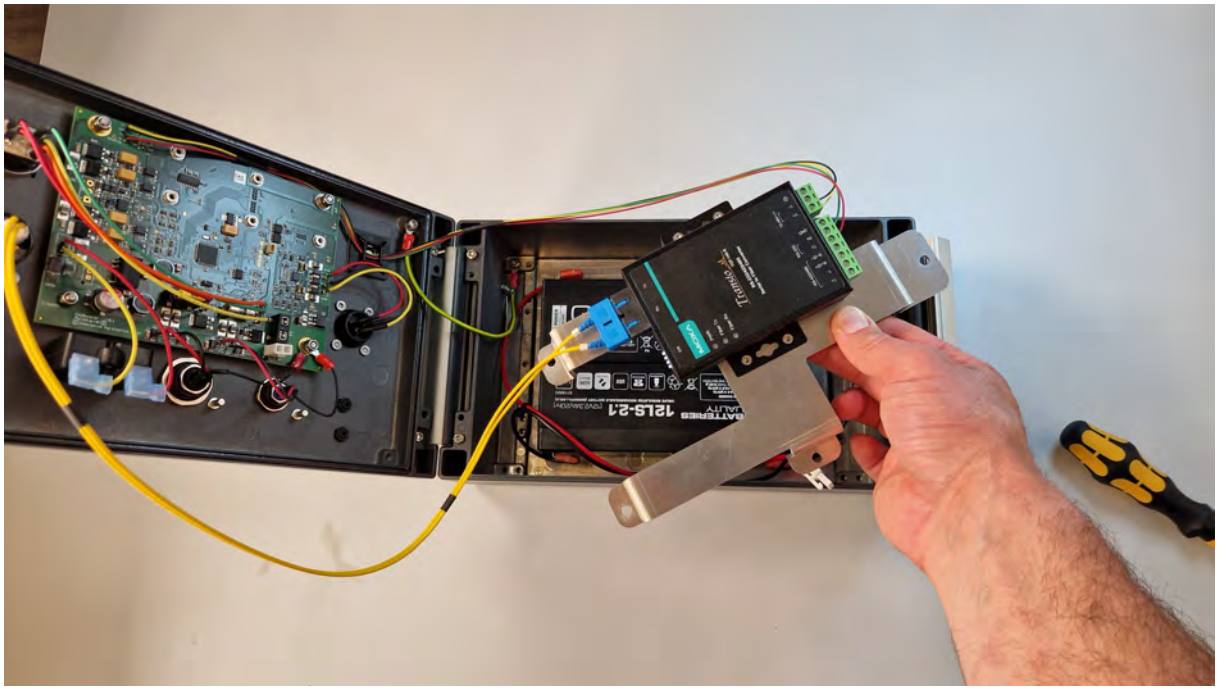
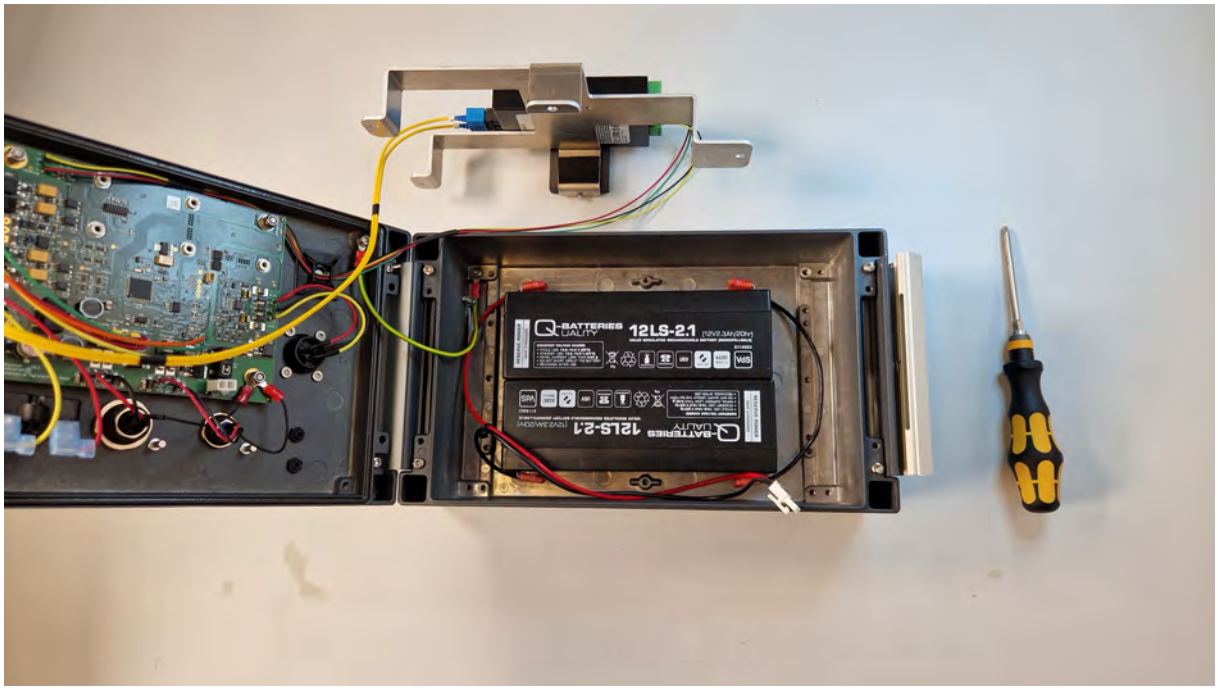
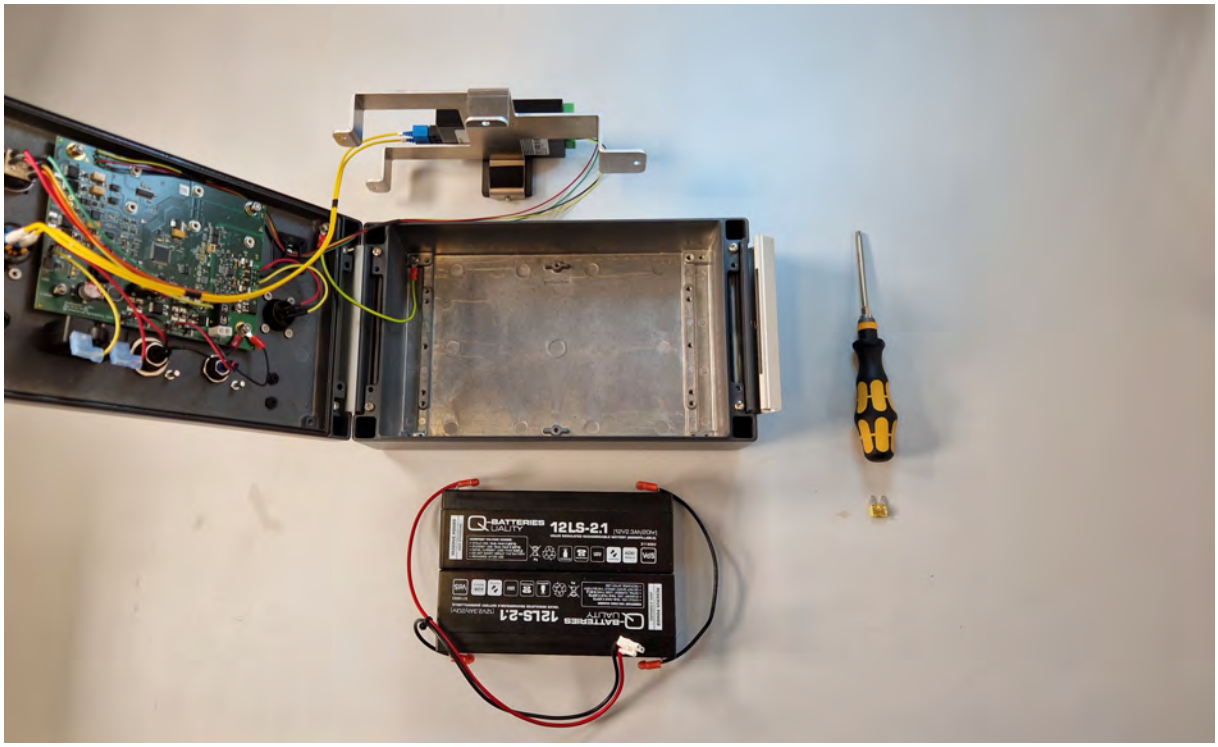
Remove the battery holder with all cables still connected to the Fiber Converter.



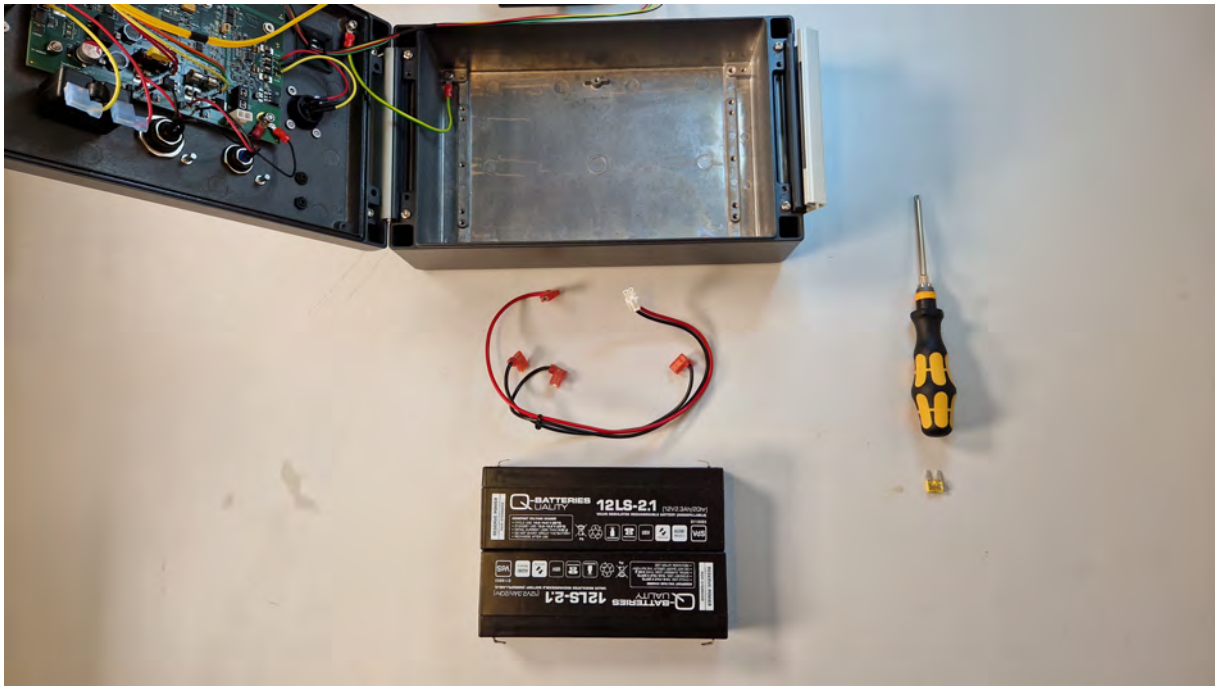
Position it next to the raptor like shown in the picture below.



Now, take out the two batteries with its cables still attached.



Unplug the Battery Interconnection Cable. Afterwards detach the Battery Main Cable.



Replace the old batteries for endorsed ones by Innovative Pyrotechnik GmbH (Always endorsed: Q-Batteries 12LS-2.1). Use self-adhesive EPDM Sponge Rubber Foam to fill the small gap inbetween the batteries and holder to secure pressure to the holder.
To connect the replaced batteries

1. Plug in the Battery Interconnection Cable to the positive pole on the right hand side of the battery in front.

2. Plug in the Battery Interconnection Cable to the negative pole on the right hand side of the rear battery.

3. Plug in the red Battery Main Cable to the positive pole on the left hand side of the rear battery.

4. Plug in the black Battery Main Cable to the negative pole of the left hand side battery in front.

Now reverse the actions. Put the two batteries back into the device, with the cabling already attached. Place the holder on top and secure it with M4x8 TX20 screws. Then connect the Battery Main Cable to the socket on the electronics.

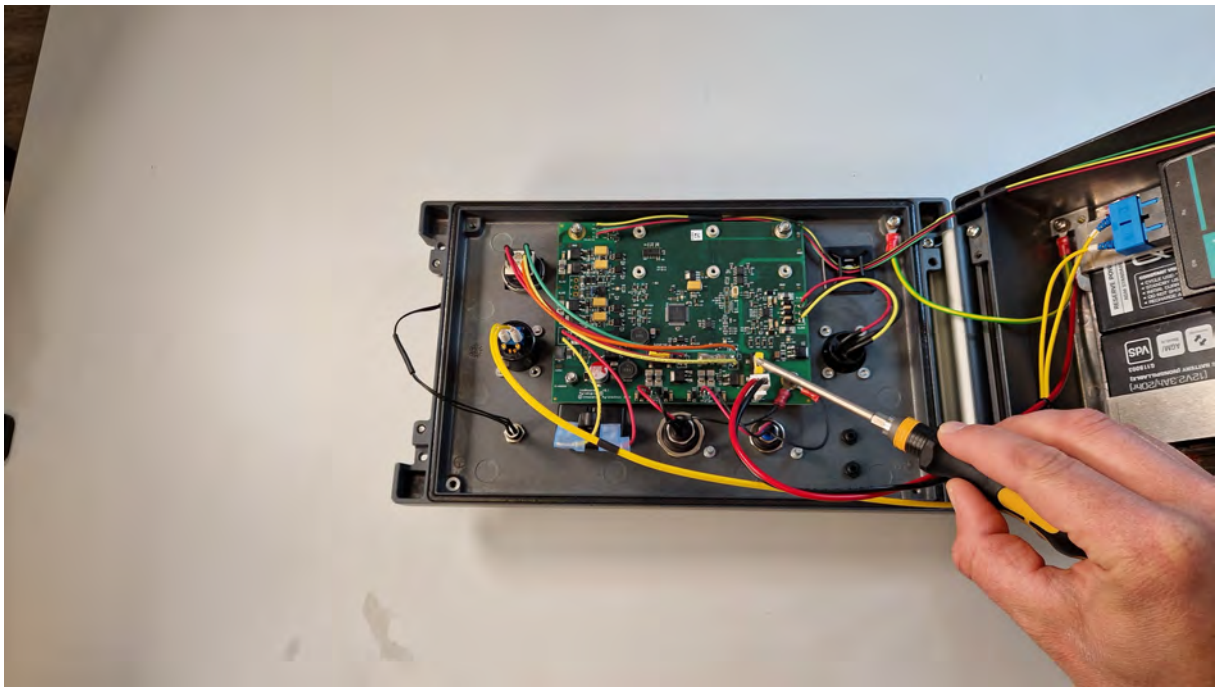
You successfully replaced the batteries. Now close the device following the instructions in section Closing the FiberCON.

8.6 Replacing the Main Fuse

WARING - LIABILITY AND WARRANTY RELEVANT

This section describes the procedure to replace the main fuse of the Pyrodigital® FiberCON Bridge. The User must strictly follow the given instructions. Not following the instruction, using non-original parts, manipulation of non-user-serviceable parts or not performing servicing as required, will render the warranty void and the liability will be excluded. The only user-serviceable parts are the batteries, the main fuse, the charger fuse and the External Power Supply Fuse.

To replace the Main Fuse first follow the instructions to open the Pyrodigital® FiberCON Bridge in the previous section Opening the FiberCON. Then strictly follow the procedure described in this section and finally close the device like described in the following section Closing the FiberCON.



This is the location of the Main Fuse. If you strictly followed instructions, the Main Fuse is already unplugged. Replace it for a new fuse (Mini Blade Fuse 20A 32V slow type). If you are not sure whether the Main Fuse is gone or not, use a common multimeter to test the fuse for continuity. If you cannot find continuity, the fuse is gone and needs to be replaced. You find one Replacement Fuse in the flightcase of your Field Controller (in case you ordered the flightcase directly from Innovative Pyrotechnik GmbH). Take this fuse and put it into the holder of the Main Fuse. Do not forget to refill the SPARE FUSES, so you always have a spare with you.

Proceed with the procedure to close the device like described in section 8.9 'Closing the FiberCON'.

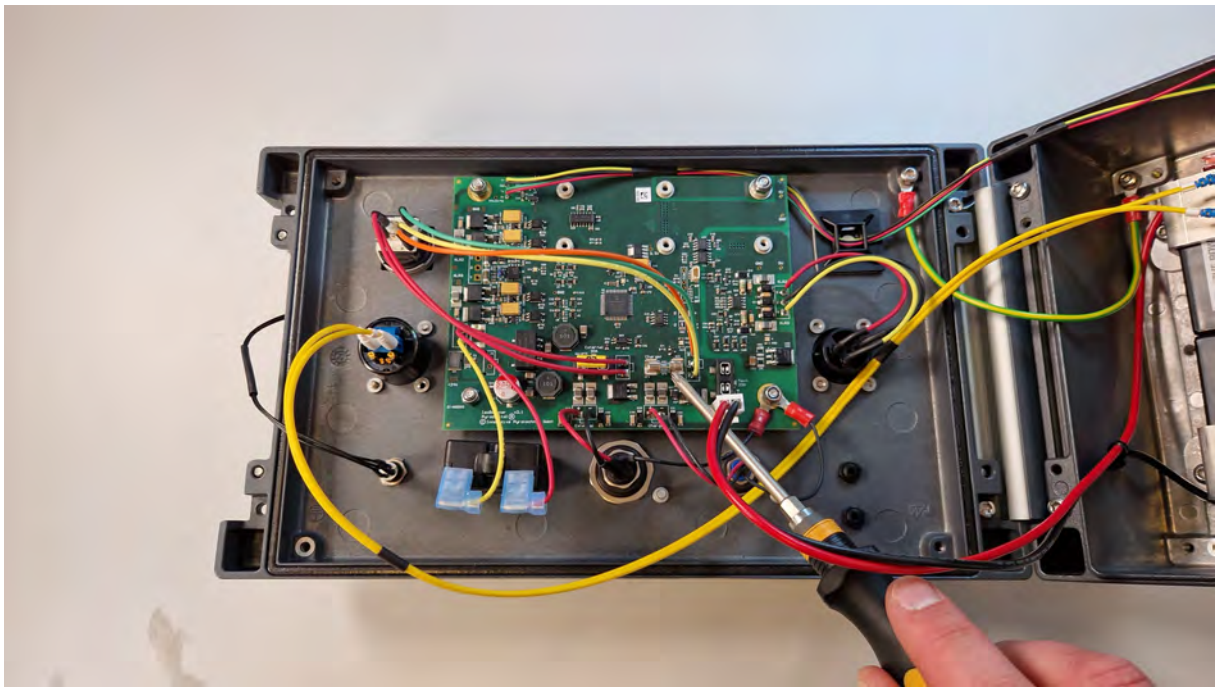
If you need spare fuses, please contact us at Innovative Pyrotechnik GmbH.

8.7 Replacing the Charger Fuse

WARING - LIABILITY AND WARRANTY RELEVANT

This section describes the procedure to replace the charger fuse of the Pyrodigital® FiberCON Bridge. The User must strictly follow the given instructions. Not following the instructions, using non-original parts, manipulation of non-user-serviceable parts or not performing servicing as required, will render the warranty void and the liability will be excluded. The only user-serviceable parts are the batteries, the main fuse, the charger fuse and the External Power Supply Fuse.

To replace the Charger Fuse first follow the instructions to open the Pyrodigital® FiberCON Bridge in the previous section Opening the FiberCON. Then strictly follow the procedure described in this section and finally close the device like described in the following section Closing the FiberCON.



This is the location of the Charger Fuse. Gently lift the fuse using a non-scratching tool, e.g. a wooden pencil. Do not use metal tools! You could harm the Printed Circuit Board (PCB) underneath the fuse. Then replace it for a new one (Fine Wire Fuse 750mA 350V 5mm x 15mm slow type). If you are not sure whether the Charger Fuse is gone or not, use a common multimeter to test the fuse for continuity. If you cannot find continuity, the fuse is gone and needs to be replaced. You find a Replacement Fuse in the flightcase of your Field Controller (in case you ordered the flightcase directly from Innovative Pyrotechnik GmbH). Take this fuse and put it into the holder of the Charger Fuse. Do not forget to refill the SPARE FUSES, so you always have a spare with you.

Proceed with the procedure to close the device like described in section 8.9 'Closing the FiberCON'.

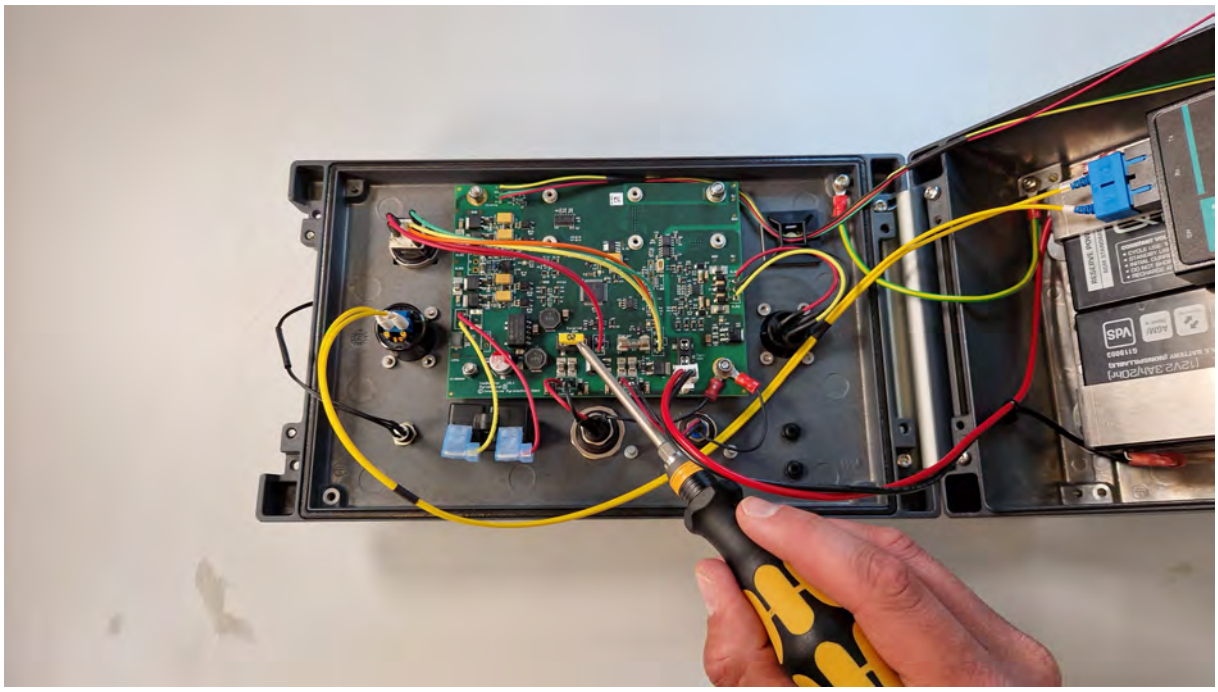
If you need spare fuses, please contact us at Innovative Pyrotechnik GmbH.

8.8 Replacing the External Power Supply Fuse

WARING - LIABILITY AND WARRANTY RELEVANT

This section describes the procedure to replace the expansion fuse of the Pyrodigital® FiberCON Bridge. The User must strictly follow the given instructions. Not following the instructions, using non-original parts, manipulation of non-user-serviceable parts or not performing servicing as required, will render the warranty void and the liability will be excluded. The only user-serviceable parts are the batteries, the main fuse, the charger fuse and the External Power Supply Fuse.

To replace the External Power Supply Fuse first follow the instructions to open the Pyrodigital® FiberCON Bridge in the previous section Opening the FiberCON. Then strictly follow the procedure described in this section and finally close the device like described in the following section Closing the FiberCON.



This is the location of the External Power Supply Fuse. If the fuse is gone, replace it (Mini Blade Fuse 20A 32V slow type). If you are not sure whether the External Power Supply Fuse is gone or not, use a common multimeter to test the fuse for continuity. If you cannot find continuity, the fuse is gone and needs to be replaced.

In case you need a fuse to replace the External Power Supply Fuse, you can find a spare fuse in the flightcase of your FiberCON Bridge (in case you ordered the flightcase directly from Innovative Pyrotechnik GmbH). Take this fuse and put it into the holder of the External Power Supply Fuse. Do not forget to refill the SPARE FUSES, so you always have a spare with you.

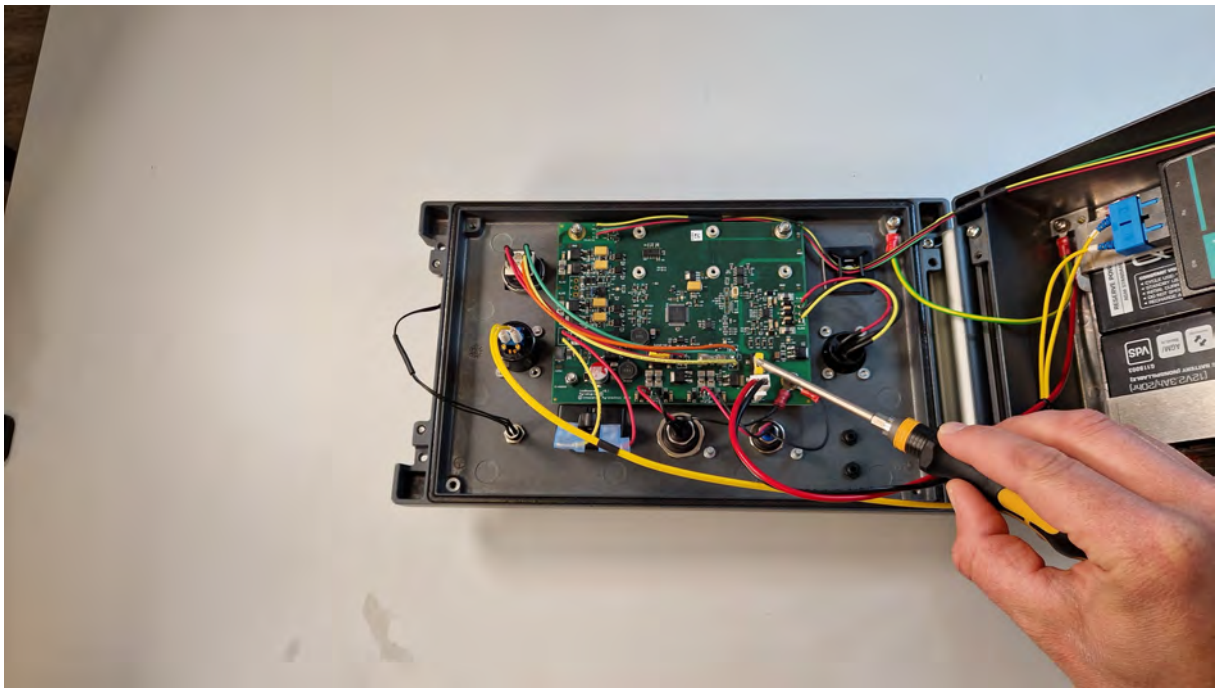
Proceed with the procedure to close the device like described in section Closing the FiberCON.

If you need spare fuses, please contact us at Innovative Pyrotechnik GmbH.

8.9 Closing the FiberCON

WARNING - LIABILITY AND WARRANTY RELEVANT

This section describes the procedure to close the Pyrodigital® FiberCON Bridge. The User must strictly follow the given instructions. Not following the instructions, using non-original parts, manipulation of non-user-serviceable parts or not performing servicing as required, will render the warranty void and the liability will be excluded. The only user-serviceable parts are the batteries, the main fuse, the charger fuse and the External Power Supply Fuse.



Plug in the Main Fuse before closing the device. Now close the lid. Make sure, that no cables are getting caught and pinched in between the lid and the bottom part of the housing, while closing the lid.

Push the lid down gently while tightening the two screws on the right, then close the cover.

You successfully closed the Field Controller.

8.10 External Battery Supply

The Pyrodigital® FiberCON Bridge provides the "EXT BAT" External Power Supply socket on its front panel. This socket can be used to connect an external power source to the FiberCON Bridge. Universal power supplies (100-240 VAC, 50-60 Hz) for the FiberCON Bridge are available at Innovative Pyrotechnik GmbH. Please contact us or our sales partners for more information.

The External Power Supply supplies the complete FiberCON Bridge and all connected devices of the Pyrodigital® Phase III Firing System Network. Only for short high peak current (e.g. during firing) the internal battery will spare in. However, the energy drawn during these short current peaks is very low and can almost be neglected. Using the External Power Supply, provides a hybrid-supply of the FiberCON Bridge. In the event of

a power shortage for the mains, the FiberCON Bridge automatically turns over to the internal battery. Therefore, even if you use the External Power Supply keep the internal batteries charged. The self-discharge rate of the VRLA battery technology is roughly 3% per month. So even if you do not make use of the battery, you need to recharge it from time to time (like every battery).

Pyrodigital®

CONTROL & RELIABILITY

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