

User Manual

Galaxis Showtechnik

PYROTEC

PFM Advanced USB Wireless Modem



Firmware V2.81
Revision date: March 23rd 2021

Batch No.: EUPFM100100, USPFM100100




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1 Introduction

1.1 Safety instructions

Observe all safety instructions in this documentation! Safety instructions warn of dangers when handling devices and provide information on how to avoid them. They are classified according to the severity of the danger and divided into the following groups:

<p>DANGER</p> 	<p>Danger signals dangers for persons. If you do not follow the instructions for avoiding the hazard, the hazard will certainly result in death or serious physical injury.</p>
<p>WARNING</p> 	<p>Warning indicates dangers for persons. If you do not follow the instructions for avoiding the hazard, the hazard is likely to result in death or serious injury.</p>
<p>CAUTION</p> 	<p>Caution indicates danger to persons. If you do not follow the instructions for avoiding the hazard, the hazard is likely to result in minor physical injury.</p>
<p>NOTICE</p>	<p>Note signals dangers for objects or data. If you do not follow the instructions for avoiding the hazard, the hazard will probably result in damage to property.</p>
<p>TIP</p>	<p>A tip provides additional or supplementary information.</p>

1.2 Requirements the operator has to fulfill and necessary qualification

This product may only be operated by persons of legal age. In Germany the user must be at least 18 years of age.

This product may only be used within the scope of a professional and occupational activity.

2 Illustrations

PFM Advanced - USB Wireless Modem

Illustration with control elements and indicators



2.1 Description of indicators and control elements

1	Info LED	Shows the current information of the device. After connecting to a PC, the LED flashes in white color (lamp test) for a short time. After this the LED lights green. Permanent green light means, that the Modem is ready to use. Blue means receiving protocols, red means transmitting of protocols. During High-Speed-Programming the LED switches fast between green and red.
2	Connector 'Antenna'	To connect the provided antenna.
3	Connection 'USB'	To connect the provided USB cable and to provide cable connection to the PC.


3 Driver Installation

To successfully install the drivers of the PFM Advanced Wireless Modem, please follow the instructions of the PDF file, which is on your Desktop after successful installation of the PYROTEC Composer software.

4 Basic operation of the device

4.1 Selection of the radio channel

During the driver installation, the PFM Advanced Wireless Modem will be set to radio channel 60 (applicable for both versions USA/Canada and EU). To change the radio channel, click in the Composer 'Extras', 'Options' and navigate to 'PFM Advanced'. Now you can choose if you want to use the EU or US version as well as the radio channel. You have to choose the same radio channel as set in your devices.

<p>WARNING</p>  <p>2.1.4</p>	<p>Unintentional triggering of a firing if the user is splitting a Galaxis firing system into two or more systems</p> <p>Simultaneous operation of systems that vary only in terms of different radio channels bear a safety risk.</p> <p>If you split your Galaxis firing system into two or more systems:</p> <ul style="list-style-type: none"> • Make sure that you have assigned different System IDs to the firing systems.
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European Version (and also various other countries):

There are 70 different frequencies available between 433.0500 MHz and 434.7750 MHz in steps of 25 kHz. Normally you should use the frequency that has been assigned by the manufacturer and only switch to another channel if the selected frequency is occupied.

The frequency 433.9250 MHz (radio channel 35) and the two neighboring channels should not be used. This is a heavily used standard frequency and radio interferences are likely to occur.

In the countries Azerbaijan, Georgia and Russia the European harmonization standards have not been completely implemented so far. If you have an application in these countries, please ask the manufacturer or the appropriate authorities in the specific countries if a license exempt usage is possible or if you can apply for a license or if the usage is prohibited.

Other regulations may apply in non-European countries. Please ask the manufacturer if you need more information about the usage of frequencies. Most non-European countries allow the frequencies used by us. For customers in the USA and Canada we provide devices with a different frequency band. Please see 'Version for USA/Canada'.

Version for USA/Canada:

There are 360 different frequencies available between 458.0000 MHz and 462.4875 MHz with a channel spacing of 12.5 kHz.

You need to choose a frequency which allows nationwide use and which is exempt from any duties. More information can be obtained from frequency coordinators, the authority who is in charge of frequency allocation or the manufacturer. Even if the duty-free and nationwide usage of specific frequencies is possible, you have to register as user at the FCC before operating the devices. Upon your request we will provide the contact details of a competent frequency coordinator who will support you in this process.

Alternatively, you can apply for a license. In that case you will get a frequency assigned by a frequency coordinator. The disadvantage of a license is that the usage of the assigned frequency is only allowed in a certain region. You are allowed to use this frequency in a specific radius only. Every usage outside of this radius demands an additional license, except you are using a nationwide frequency (see above).

4.2 Programming of the devices

To program your devices after finishing the script, click in the Composer "PFM Advanced" and "PFE Advanced and G-Flame - Remote Access". You can either program the devices separately via Normal- or High-Speed-Programming, or via batch programming with Normal- or High-Speed-Programming. For the batch programming simply mark the devices you would like to program and choose the relevant option. In the Log-List on the right side, you will be informed about the current steps of the programming.

TIP

More information about remote programming can be found in the manual of the PYROTEC Composer.

5 Compatibility and Firmware Revision History

This device communicates with:

- PFE Advanced 10/100
- G-Flame

The firmware of the devices is continuously developed. Information about changes between different firmware versions is available on request. Please inform us about the version you are currently using. We will then send you an easy-to-understand extract from the firmware revision history.

6 Troubleshooting

If you encounter problems during programming or remote access, e. g. the message box 'Error during programming', close the access tab in the Composer and disconnect the PFM Advanced from your computer by simply unplugging the cable connection. Wait a few seconds and reconnect the PFM Advanced. Now you can access the PFM Advanced again. If this does not work, close again all access tabs in the Composer and the Composer itself and all other programs and restart your computer.

If the error appears again or the connection becomes disrupted frequently, you need to check if the driver is successfully installed. An incorrectly installed driver or driver conflicts lead to problems and the function of the PFM Advanced can be impaired.

TIP	To check if the driver is successfully installed, open the hardware manager and search for PFM Advanced. You will see two drivers, one under 'USB' and the other under 'COM-Port'. Both are correctly installed if no yellow exclamation mark is being displayed next to the device name. The entry 'PFM Advanced' under 'COM Port' should be deactivated to avoid access problems.
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TIP	If the error remains after checking the drivers and a potential reinstalling of the drivers, close all running applications and restart your computer. This maintains that the previous installations become effective.
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7 Warranty

The warranty period is 24 months.

If there is any defect during in this period please pack the device properly and send it to the manufacturer with carriage paid to have it repaired free of charge. Please do not forget to attach a description of the symptoms, which have occurred.

Warranty is excluded if the device was damaged due to wrong usage or excessive stress.

Unauthorized repairs and the use of non-original parts will void all warranty, guarantee and product liability claims with immediate effect.

8 Damages caused by misuse, maloperation, malfunction

The devices have been solely designed for programming receivers and controllers remotely from the computer. Discuss all other applications with the manufacturer before usage and inquire written permission. In case that one of the events stated above has happened we are only liable if the causation was within our range of influence. The devices have been developed, manufactured and tested to the best of our knowledge and belief.

9 Technical data

Radio parameters EU version	<p>Frequency Band: 433.05 - 434.79 MHz Maximum radio-frequency power transmitted: ≤ 10 mW Channel Spacing: 25 kHz Number of radio channels: 70 (433.050 - 434.775 MHz) Modulation: FM narrow band Frequency Shift: ± 3 kHz Duty Cycle: $< 10\%$ Radio equipment class according to 2014/53/EU (RED): 1 Radio equipment type: non-specific short-range device, transmitter and receiver (Transceiver) Receiver Category according to ETSI EN 300 220 V3.1.1: demanded by the application: 3 (lowest performance level), fulfilled by the device up to SN PFM100XXXX201: 1.5 (second-best performance level), fulfilled by the device starting at SN PFM100XXXX202: 1 (best performance level); The receiver category indicates how well the device can still receive radio protocols when strong signals are present on frequencies below and above the used frequency (blocking). Receiver Principle: Double superheterodyne Receiver Sensitivity: -119 dBm @ 12 dB SINAD Wave Length: 70 cm Standard antenna included in delivery: Center Frequency: 434 MHz Radiation Pattern: omnidirectional Radiator Length: $\lambda/4$, not coiled Antenna Gain: 0.00 dBd, 2.15 dBi</p>
Radio parameters US version	<p>Frequency Range: 458 - 462.5 MHz License: FCC Part 90, FCC-ID: V9X-LMD400R Maximum radio-frequency power transmitted: ≤ 10 mW Channel Spacing: 12.5 kHz Number of radio channels: 360 (458.0000 - 462.5000 MHz) Modulation: FM narrow band Frequency Shift: ± 3 kHz Receiver Principle: Double superheterodyne Receiver Sensitivity: -119 dBm @ 12 dB SINAD Wave Length: 65 cm Standard antenna included in delivery: Center Frequency: 460 MHz Radiation Pattern: omnidirectional Radiator Length: $\lambda/4$, not coiled Antenna Gain: 0.00 dBd, 2.15 dBi</p>
Protocol parameters	<p>half-duplex, PCM with Manchester coding, Checksum: 40 Bit CRC, data rate approx. 2,500 bps</p>
Temperature range	<p>Transport und storage: -30 to $+70^{\circ}\text{C}$ Operation: -20 to $+65^{\circ}\text{C}$ The maximum temperature difference between devices must not exceed 60 K in order to enable unimpaired radio communication.</p>
Humidity	<p>10 - 90% rH, no condensation</p>
Allowable altitudes above sea level	<p>Storage and transport: -500 to 12,500 m Operation: -500 to 4,000 m</p>
Protection class	<p>III</p>

Dimensions (L x W x H) and weight, each without antenna:

102-54-42 mm; 114 g

Power supply:

5.0 VDC via USB Port of a PC

Supplied accessories, included in delivery:

- 1 Standard antenna
- 1 USB cable
- 1 User manual

10 Accessories

Below is a list of original accessories that can be obtained from the manufacturer or authorized distributors at any time. The device may only be operated with these original accessories. Otherwise, all claims arising from warranty, guarantee and product liability will become void with immediate effect.

Item No.:	Description:
1341	Antenna extension cable 1m
1342	Antenna extension cable 2m
1345	Antenna extension cable 5m
1343	BNC-BNC adaptor
1320	Standard antenna
1322	Superscan 71, high gain antenna. Only approved for being used in receiving mode!

11 CE marking of the EU version

The EU version of this device is marked with the CE logo:



Each device intended for operation in the EU is accompanied by an EU Declaration of Conformity.

12 Address of the manufacturer and contact details for requesting an EU declaration of conformity

Galaxis Showtechnik GmbH
 Lohgerberstr. 2
 84524 Neuötting
 Germany

Tel.: +49 / 8671 / 73411
 Fax: +49 / 8671 / 73513

Homepage: www.galaxis-showtechnik.de
 E-Mail: info@galaxis-showtechnik.de

Please use these contact details if you want to request an EU declaration of conformity.

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