INT-TCP/IP-V2-P2P

GATEWAY INTERFACE

MADE IN PORTUGAL - EU

GLOBAL FIRE EQUIPMENT S.A.
Parque Industrial Municipal da Barracha, 8150-017 São Brás de Alportel - PORTUGAL | Tel: +351 289 896 560
Email: info@globalfire-equipment.com | **Technical Support:** techs@globalfire-equipment.com | **www.globalfire-equipment.com**

CONFIGURATION MANUAL

GENERAL DESCRIPTION

The INT-TCP/IP-P2P-GATEWAY interface provides numerous advanced features and functionalities to Chameleon Panels (G-One, GEKKO, OCTO+ & CHAMELEON Rep). With the interface, panel-to-panel networking can be easily integrated. In this document, we will describe how to use the INT-TCP/IP-V2 interface for networking and how to configure it properly.

One of the primary advantages of this interface is its advanced hardware, which makes it simple to integrate with existing LANs through Wi-Fi or an optional Ethernet cable. Furthermore, an SD card socket enables easy firmware upgrades whenever necessary.

Another added feature is the ability to configure the interface in one of three mode types: PANEL to PANEL network, MODBUS, ODYSSEY, or ESPA.

To configure the interface, you only need to access the user-friendly configuration web page directly via Wi-Fi AP mode. Ensure that the interface is in Access Point mode, and you're ready to proceed.

TECHNICAL SPECIFICATIONS

INT-TCP/IP-V2-P2P-GATEWAY	
SUPPLY VOLTAGE	20 to 30V DC
SUPPLY CURRENT	28 mA
CONFIGURATION MODE	Panel to Panel networking, ODYSSEY, Modbus, or ESPA
COMMUNICATION CONNECTOR	Ethernet RJ45, Wi-Fi 2.4Ghz, BLE (Bluetooth Low Energy as future dev)
INPUT	Reset as default (advanced configurations)
OPERATING TEMPERATURE	-10°C to 50°C
DIMENSIONS	90 (C) x 40 (A) mm
WEIGHT	24 g
COMPATIBILITY	*Windows XP/7/8/10, MacOS, Linux, Android, IOS*
PANEL COMPATIBILITY	OCTO+, G-One, GEKKO, NODE+ and CHAMELEON REP
RJ45 CABLE	Cat 5e/ Cat6
WEB BROWSER ACCESS	Google Chrome or Firefox

CHAMELEON PANEL-TO-PANEL NETWORKING

In the networking process, it is crucial to ensure that the **Initiator** channel successfully connects with the **Listener** channel. Each interface typically consists of one of each channel type. To achieve this, the channels must be linked sequentially, with CH1 being connected to CH2.

CH 2   CH 1

While Ethernet cables are the preferred choice for establishing network connectivity, in situations where a LAN is not available, a wifi connection can be used as an alternative means of achieving connectivity, refer to Wifi connection limitations for more details.
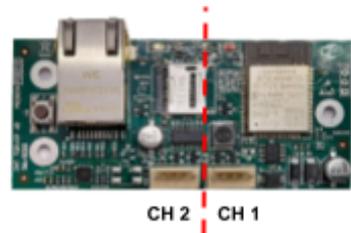
Important: Network Configuration Recommendation.

Configuring the device with a fixed IP address ensures that it maintains a consistent network identity and eliminates the possibility of IP address conflicts or unexpected changes in network settings. This approach provides a reliable and predictable network connection, particularly in environments where network stability and security are paramount.

By using a fixed IP address, you can have better control over the network configuration, making it easier to manage and troubleshoot any network-related issues. It also facilitates seamless integration into existing network infrastructures.

To set up the device with a fixed IP address, please refer to the configuration guides provided in this manual. The documentation will guide you through the necessary steps to assign a specific IP address to the device.

Examples of LAN or WI-FI supported networks

NETWORK SWITCH	WI-FI SWITCH
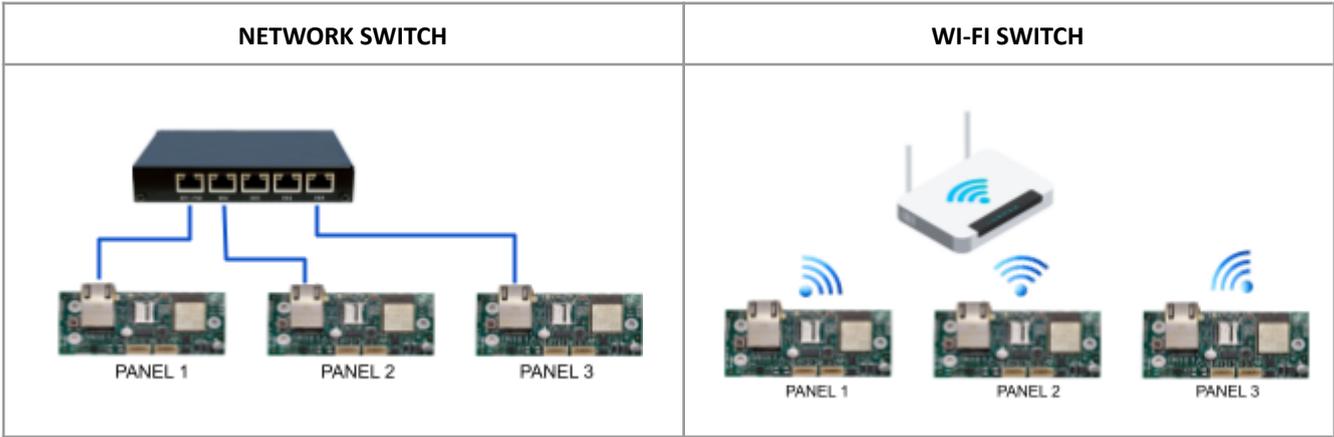
**Disclaimer:** Wi-Fi Connection Limitations

Please be aware that the Wi-Fi connectivity feature of the device operates exclusively on the 2.4GHz frequency band. It is important to note that the device does not support 5GHz Wi-Fi networks.

To ensure a stable and reliable connection, it is recommended to have a strong and consistent Wi-Fi signal strength in the area where the device is being used. This will help maintain a smooth and uninterrupted communication between the device and the Wi-Fi network.

In cases where the Wi-Fi signal is weak or unstable, it may result in intermittent connectivity issues or difficulty in establishing a connection. To mitigate these challenges, consider optimising the positioning of the device in relation to the Wi-Fi router or access point, or utilise Wi-Fi signal boosters or range extenders to enhance the signal coverage.

ODYSSEY AND MODBUS RTU CONNECTION

When using ODYSSEY, MODBUS, or ESPA protocols with the interface, it is crucial to configure the device as a **Listener**, selecting either CH1 or CH2 as the designated channel. Please note that **only one channel** can be used for ODYSSEY or MODBUS, and it is not possible to use both options simultaneously on a single interface.
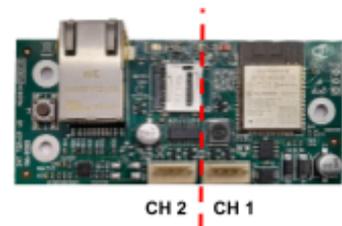
For a simplified setup process, we have provided an example for your reference.
It is important to emphasise that WIFI connections are not permitted for this configuration. Instead, LAN RJ45 connections should be used to establish a reliable and stable connection.

By adhering to these guidelines and using Ethernet cables for connectivity, you can ensure optimal performance and seamless integration of the interface with the designated protocols.
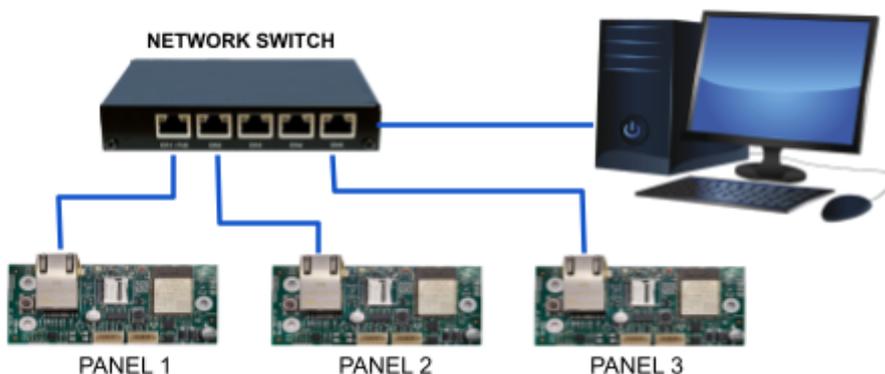
CONNECTION DIAGRAM

The method used to provide power and communication to the interface is through a 5-way flat cable, which is connected to a 5-pin Molex connector located on the communication channels of the panels. Please note that this connection method may differ depending on the hardware variant of the panel.
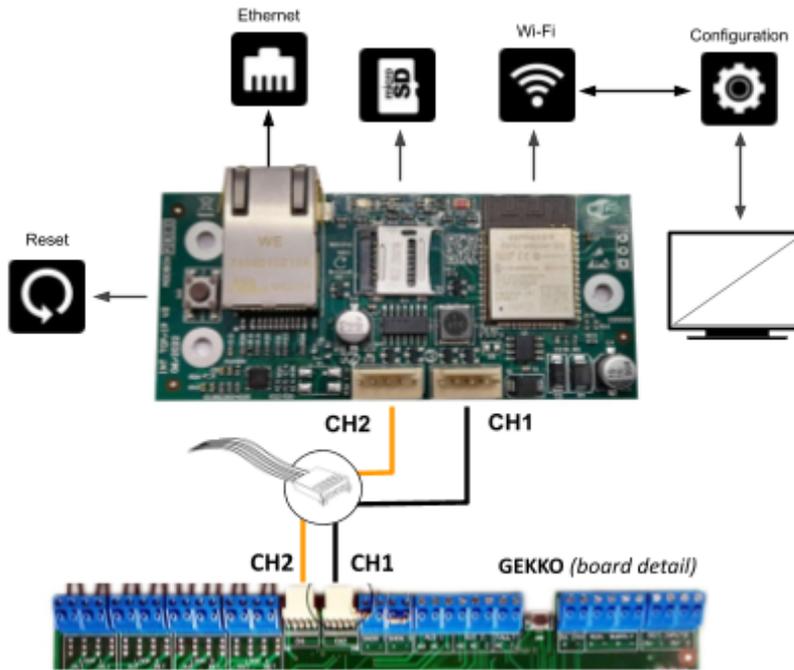
NOTE: The connections shown above are provided solely for illustrative purposes and represent an example of how flat cables may be connected to the boards.

PANEL CONFIGURATION

To use both communication channels, you will need to configure them according to the protocol you want to use. By default, both channels are set to "NONE," which is suitable for Chameleon panel-to-panel networking. It is important to note that in a Chameleon panel-to-panel network, both channels should be configured as "NONE" to ensure proper functionality.
However, if you need ODYSSEY or MODBUS output, you must select the appropriate protocol for the channel which will be used.

```
8-5-6 BMS Setup
Use ▲, ▼ and ▶ to configure
 CH1:NONE
  Warning: Panel will reboot at the end.
```
Panel to Panel Network

```
8-5-6 BMS Setup
Use ▲, ▼ and ▶ to configure
 CH2:ODYSSEY              ADD:01
  Warning: Panel will reboot at the end.
```
ODYSSEY

INTERFACE CONFIGURATION

LEDs Status and behaviour modes

START-UP MODE

Before any configuration is executed, the default startup behaviour of the interface ensures basic functionality.

INT-TCPIP-V2-P2P-GATEWAY	LED *Yellow*	LED *Red*	DESCRIPTION
Yellow Red	OFF	OFF	No power
	ON	ON	During start-up
	BLINKING	ON	Waiting for ethernet network
	Alternating ON/OFF		AP Mode

OPERATION MODE

The operation mode of the interface is characterized by the behaviour of its LED indicators. By understanding the LED patterns, users can gain insights into the interface's state, network connectivity, and channel status. Whether it is in Access Point mode, connected through Ethernet or Wi-Fi, or indicating the status of individual channels.

INT-TCPIP-V2-P2P-GATEWAY	LED *Yellow*	LED *Red*	DESCRIPTION
Yellow Red	OFF	OFF	No power
	ON	ON	During start-up
	BLINKING	ON	Detected ethernet network
	ON	BLINKING	Detected WIFI network
	BLINKING 8HZ		Normal Mode
	BLINKING 1HZ		No communication. No Internet
	OFF	OFF	If a channel is set as Disabled
ODYSSEY, MODBUS, or ESPA *NOTE: only one channel can be used*	BLINKING 8HZ	BLINKING 8HZ	Normal mode. The LED pattern may change depending on the channel used
FIRMWARE UPDATE	ON		SD card fitted and during update

Configuration using Wi-Fi with the module in AP MODE

Ensure to follow the instructions in the manual to configure your interface properly and avoid connecting the Ethernet cable until the configuration process is completed. This will help ensure a successful and smooth setup of your device.

<div style="border: 2px solid red; padding: 10px;">

ATTENTION:
It is important to note that the Ethernet cable should not be connected during or before the configuration procedure.

</div>

1. Before starting, make sure the panel supply is OFF.

2. Connect the interface flat cables to both panel communication channels.

3. Turn the power ON, wait, during start-up both the Yellow and Red LEDs will turn ON briefly.

4. Once the above routine is completed, the Yellow LED will start flashing, and the Red LED will remain fixed. This indicates that the interface is now ready and waiting.

5. Press the "Reset" button for approximately 5 seconds. Both LEDs will start flashing alternatively. At this point, the interface is ready to be configured via AP (Access Point) mode.

6. Search for the interface's MAC address "GFE-gw-XX:XX:...:XX" in your Wi-Fi networks using your personal device (such as a computer, tablet, or mobile phone).
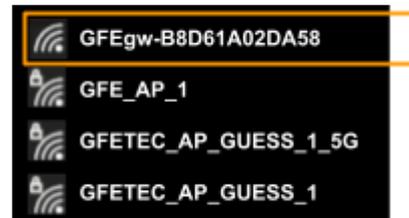
As an example in the image above there is one interface connected (MAC address), select the interface to your Wi-Fi network, It's an open Wi-Fi network without needing a password.

7. Once a connection has been established with the interface's "GFEgw" MAC address, open a Web Browser and enter the IP address of the configuration page, which is
http://192.168.4.1/

Wait a few seconds for the page to load, and you can begin your configuration.
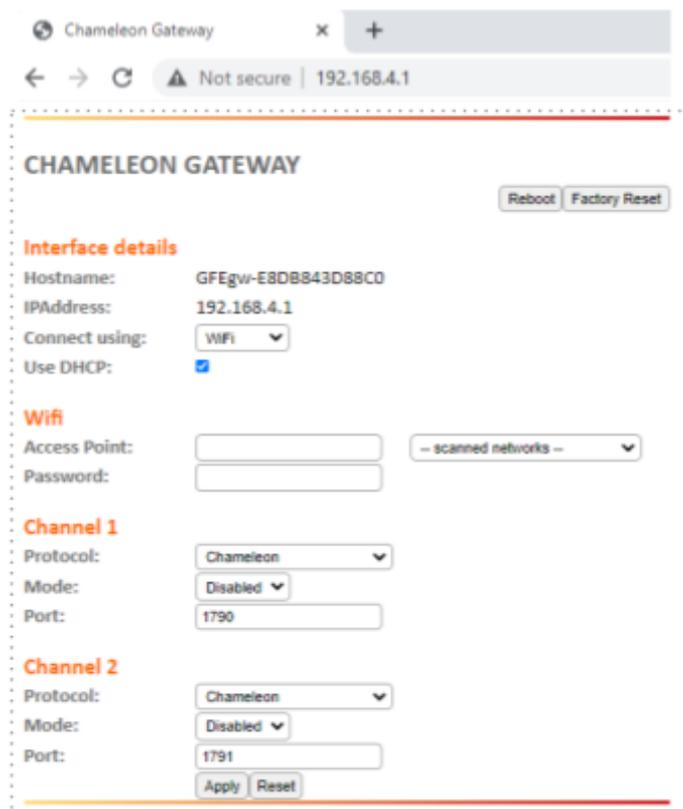
CONFIGURATION PAGE DETAILS

1. **CONNECT USING:** From the drop-down menu, you can choose the type of connection you want to use, either WIFI or Ethernet cable RJ45.

2. **DHCP**: Normally activated by default.

- DHCP Configuration for Interface Pairing

    To ensure correct functionality, please note the following when pairing your TCPIP interface with other interfaces:

    A. DHCP is essential: Each TCPIP interface(s) requires a DHCP (Dynamic Host Configuration Protocol) for proper configuration and pairing with other interfaces.
    B. Obtain DHCP details: Contact your network administrator to obtain the DHCP details for your interfaces.
    C. Configure TCPIP interface: Access the TCPIP interface settings and enter the DHCP details obtained in Step 2 to establish accurate pairing.

NOTE: Failure to configure the TCPIP interface with the correct DHCP details may result in pairing and communication issues.

- When DHCP is turned off, a static IP box will be displayed.

3. **WI-FI:** If the Wi-Fi option is selected, use the drop-down menu, then select the access point you want to connect to and enter the Wi-Fi password.

IMPORTANT NOTE: Ensure a stable and reliable connection, it is recommended to have a strong and consistent Wi-Fi signal strength in the area where the device is being used.

4. **STATIC IP:** To configure a static IP address, make sure to enter the following information correctly:
    - **IP Address**: enter a valid IP address
    - **Subnet Mask**: enter the subnet mask
    - **DNS Server**: enter the primary DNS server address
    - **Gateway**: enter a valid gateway address

*IMPORTANT NOTE: Check that all information is accurate before proceeding.*

5. **PROTOCOL:** Choose the appropriate protocol for each channel from the drop-down menu. Note that each channel can have a unique configuration. Configure the panel's BMS channel with the same protocol output to ensure proper communication. The available options include

    - **Chameleon**: Panel-to-panel Network, Port **1790**.
    - **Short msg**- Espa 4.4.4: ESPA 4.4.4 messaging protocol
    - **Modbus / RTU**: Modbus protocol
    - **Odyssey**- Graphical monitoring software, **Port 10001** must be configured. Please refer to the example.
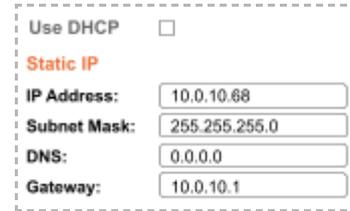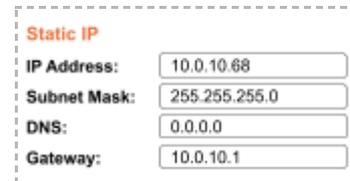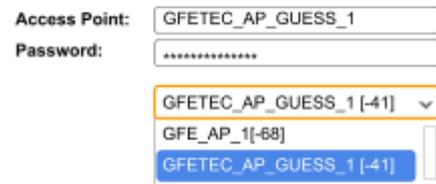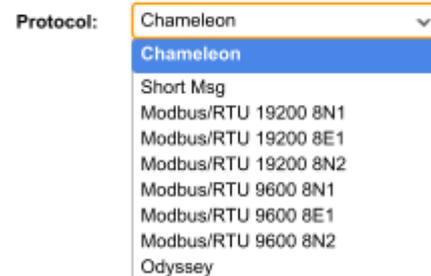
6. **MODE:** Choose the binding mode options: Disabled (OFF), Initiator (TX), or Listener (RX). This allows you to set up and connect interfaces together. To establish the connection, the Initiator connects to the Listener.
The channels are connected in a daisy chain manner, where CH1 connects to CH2.

By configuring the Initiator and Listener interfaces in this way, you can create a communication link between them, with the Initiator transmitting data to the Listener.

- **Disabled (OFF)** Channel not in use. Can be individually programmed.

- **Initiator (transmitter)** The configuration of the channel that will act as the main or primary transmitter. You need to enter the IP address or "peer hostname" of the interface you want to connect to, which is the IP address of the Secondary interface configured as the Listener.

- **Listener (receiver)** Refers to the configuration of the channel that will receive data from the Initiator or sending interface. It is configured as the main or primary receiver.

IMPORTANT NOTE: To ensure seamless communication between channel interfaces, it is crucial to confirm that the PORT setting is identical on both ends. Typically, the default port for this purpose is 1790. Therefore, it is recommended to verify that the PORT settings are consistent to prevent any potential issues or discrepancies during data transmission.

1. Panel-to-panel example:

2. Odyssey protocol example:

Configuration Example for a two-panel-to-panel network
In this scenario, we connect two panels using a closed-loop topology. To establish the connection, we should set up Panel 1» CH1 as the **initiator** and Panel 1» CH2 as the **listener**. For further details on the configuration, please refer to the example provided.

Configuration example for ODYSSEY or Modbus

7. Press the "APPLY" button to save your configured settings. Press RESET to restart the configuration. The interface will restart with the configured settings. The LEDs will flash when the interface connects, see LED behavior table.

IMPORTANT NOTE: **Double-check that all information is accurate before proceeding.**

8. This setting provides the option to either reboot or perform a factory reset on the interface parameters. It's important to note that selecting a factory reset will permanently erase all previously programmed parameters.

9. After connecting to Wi-Fi or Ethernet, you can access the IP on the network and reconfigure any incorrect settings. This can be achieved by entering the assigned IP address in a web browser, you will have access to the device's configuration interface, where you can make adjustments and changes as needed.

Reset button functions

The reset button on the device can be used for restarting the board or deleting settings.

To reset the interface, follow these steps:

1. During normal operation, locate the "Reset" button on the device.
2. Press the "Reset" button once. As a result, both the Yellow and Red LEDs will turn ON briefly. After pressing the button, the interface will automatically restart.
3. The interface will then detect the type of network you are using, whether it's Ethernet or Wi-Fi.
4. Once the detection is complete, the interface will continue to operate in normal mode.

By following these steps, you can successfully reset the board and have the interface continue its operation in the detected network mode.

To perform a factory reset and delete previous settings, please follow these steps:

1. During any operation mode, press and hold the "Reset" button for approximately 5 seconds. You will notice that both the Yellow and Red LEDs will turn ON briefly.
2. Once the above routine is completed, the Yellow LED will start flashing, and the Red LED will remain fixed. This indicates that the interface is now ready, and the previous settings have been erased.
3. Afterward, press and hold the "Reset" button again for approximately 5 seconds. Both LEDs will start flashing alternatively. At this point, the interface is ready to be configured via AP (Access Point) mode.
4. To configure the interface, access your device's Wi-Fi settings and locate the MAC address associated with the interface. Connect to this network using the provided MAC address.
5. Once connected, open a web browser and start the configuration process by entering the appropriate URL.

ATTENTION:
It is crucial that you do not rename or change the name of the firmware update file, as this can cause issues with the update process. It is also important that you do not turn off the power to the interface while the firmware is updating, as this can cause the interface or micro SD card to malfunction. Please follow these guidelines carefully to ensure a successful firmware update.

Firmware update by micro SD card

To update your GFE interface's firmware, it is recommended to use a good branded micro SD card formatted in FAT32.
Follow these steps:

1. Download the updated firmware file "gfegateway_fw.bin" and save it to the micro SD card.
2. Turn off the interface's power and insert the micro SD card into its socket.
3. Turn on the interface's power. If the file is valid, the update will start automatically.
4. Wait for a few seconds. During the update process, the red LED will always be on and the yellow LED will also be on until the update is complete. The update file will be automatically deleted from the card at the end of the process.
5. Once the update is complete, the interface will automatically restart and the LEDs will start flashing.
6. Turn off the interface's power.

FREQUENTLY ASKED QUESTIONS - DIAGNOSTIC

PROBLEM	CAUSE	SOLUTION
Connection error	Cannot connect panels	- Check Initiator and listener definitions - Check if the port 1790 is defined - Check BMS menu in panel
Cannot login to AP Mode	Interface cannot be found in the local network.	Remove interfaces power, wait a few seconds and try again
All LEDs are OFF	Channels are defined as disabled	Check if the parameters for the each channel are correctly
Interface does not detect any Wi-Fi networks during programming	it's not possible to connect to a Wi-Fi network. Network strength signal is too weak, nor is visible	Change interface location and check for Wi-Fi network strength
Programmed the connection to cable, but the Red LED is fixed and the Yellow LED flashing	No RJ45 cable is fitted or the interface is not configured	Check if there is an ethernet cable connection. Check the settings in configuration page
Yellow and Red LED are flashing at a 1Hz rate	The interface has lost connection	Wait a few moments; Press the reset button to restart the interface
Fail to update interfaces firmware	Wrong firmware file	Check if you have the correct firmware file. Do not change the file name
Lost connection after RESET to switch	During normal operation, if the switch is pressed, the interface will also RESET	Press the interface RESET button. Wait for the interface to restart