

FG4 MultiBox

Quick Start Guide



Classification: Public, Author: RMC, 16.4.2024, for firmware version: **3.0**

HEAD OFFICE
Digiteq Automotive s.r.o.
Novodvorská 994/138
142 21, Prague 4
Czech Republic

CONTACTS
+420 239 046 750
info@digiteqautomotive.com
www.digiteqautomotive.com

BILLING INFORMATION
Company ID. No. 26 46 60 23
VAT ID No.: CZ 26 46 60 23
registered by the Municipal Court in
Prague, Section C, Insert 84128

MANAGEMENT BOARD
Wilhelm Schmitt
Pavel Štěpánek

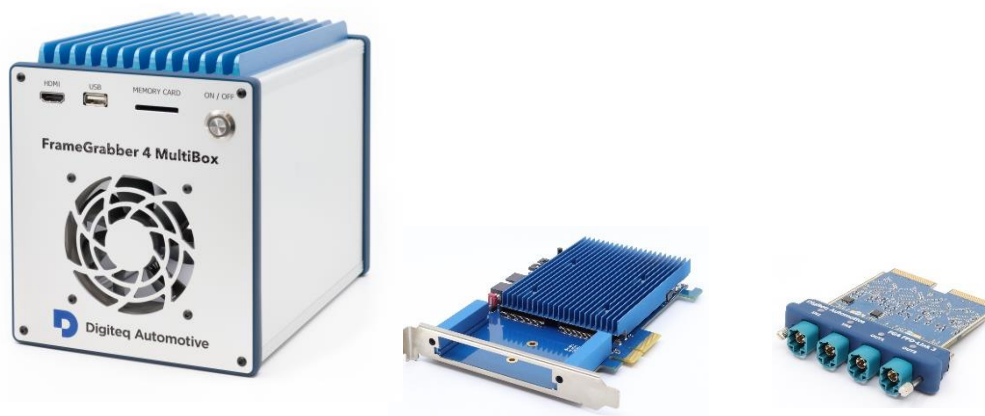
BANK ACCOUNT
Commerzbank Aktiengesellschaft
Jugoslávská 1, 120 21 Prague 2
Account No.: 10634787/6200 (EUR)
IBAN: CZ426200000000010634787
SWIFT: COBACZPXXXX

Content

Overview	3
Power	3
Connection to power supply	3
Power consumption and power supply requirements	3
Powering ON / OFF	3
LED Status	3
Ethernet connection	4
Default IP address	4
IP address and DHCP setup	4
Dashboard (Web UI)	5
Connected Hardware	5
Detected Hardware	5
How to	5
Video Inputs	6
Video Input Status	6
Interface Settings	6
Sinks	8
Video	8
Picture	9
Video Outputs	11
FPD-Link 3	11
GMSL 2/3	12
HDMI Preview	12
File Systems	13
Configuration backup and restore	13
Firmware update	14
Support Contact	15

Overview

The FG4 Multibox consists of FG4 Box, FG4 PCIe Card(s), and Interface Module(s).



Power

Connection to power supply

Use the included power cable to connect to the power supply or to your test bench sockets with banana plugs.

Power consumption and power supply requirements

The input voltage range is 10 to 30 Volts DC. The recommended power supply is 12 V / 8 A. (For detailed information see the main user manual.)

Powering ON / OFF

To turn on or off the Box, short-press the ON / OFF button.

LED Status

Basic color signals

Orange	Booting
Yellow	Checking / updating card firmware
Green	Normally running
Red	Error (app not running)
Dimmed blue	Standby (turned off)

Normally after pressing the ON / OFF button, the device's LED power-on sequence includes an orange light, followed by two yellow flashes, and then a solid green light. The device takes approximately 25 seconds to start up. (For detailed information see the main user manual.)

Ethernet connection

Default IP address

The default IP address of the web user interface is **192.168.1.200/24**.

IP address and DHCP setup

Open the web UI, go to "Other Settings" and change the "eth0" IP address to the desired value (e.g. 192.168.4.200). Enable "DHCP Client" for automatic IP assignment if needed. The "eth0" address must be in the same range as your DHCP server.

FRAME GRABBER 4

MULTIBOX

- Dashboard
- SETTINGS:
 - Video Inputs
 - Video Outputs
 - CAN
 - Timers
 - Triggers
 - Other Settings
 - File Systems
 - Log

Digiteq Automotive

Other Settings

ADD NETWORK DEVICE

eth0

Enabled: ☒

ADDRESSES:

Address: 192.168.1.200/24
Scope: Global ▼

+
-

NAMESERVERS:

Address: 192.168.1.1

+
-

ROUTES

Destination: 0.0.0.0/0
Gateway: 192.168.1.1
Metric: 0
Scope: Global ▼

+
-

DHCPv4 Server: ☐

Pool offset: 100

Pool Size: 32

DHCP Client: ☒

Type: IPv4 ▼

Metric: 1024

Dashboard (Web UI)

The dashboard is the main page of the web user interface.

FRAME GRABBER 4 MULTIBOX

- Dashboard
- SETTINGS:
 - Video Inputs
 - Video Outputs
 - CAN
 - Timers
 - Triggers
 - Other Settings
- File Systems
- Log

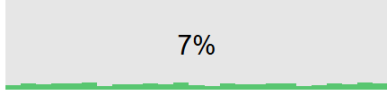


Dashboard

16. 4. 2025 10:08:53 GMT+2

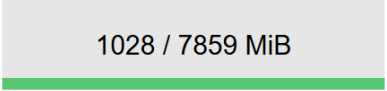
Firmware version: 3.0
CPU temperature: 40 °C
Serial number: 010-001-001-001

CPU:



7%

RAM:



1028 / 7859 MiB

Connected Hardware:

FPD LINK 3

S/N: 001-031-002-053
SLOT 2



IN1

OUT1

IN2

OUT2

ABT SOURCE ABT OUTPUT

 Recording ABT SOURCE

GMSL VAR1

S/N: 001-031-003-005
SLOT 4



IN1

OUT1

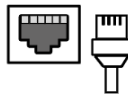
IN2

OUT2

FID

ETH0

UP



192.168.4.200/24
192.168.4.16/24 dhcp
fe80::4ab0:2dff:fe48:d0a1/64

MMCBLK2P1

MY_SD_CARD



MMCBLK2P1

Used: 0/14GiB

UNMOUNT

SDA1

SATADISK



SDA1

Used: 103/457GiB

UNMOUNT

SDB1

MY_USB_DISK



SDB1

Used: 0/3GiB

UNMOUNT

Connected Hardware

- The installed PCIe cards, module types, and their current Input/Output status
- Ethernet device(s) status (current IP address)
- Mounted storage devices

Detected Hardware

- Storage devices to mount

How to

- Tooltips with link ("Learn More") to the **main documentation – user manual**

Video Inputs

In this section, configure the parameters for video inputs. The displayed settings depend on the installed interface module type.

If the input is enabled, the video signal is received from the FG4 PCIe Card for further processing in the FG4 MultiBox.

Video Input Status

Shows detected parameters of the incoming video signal.

Interface Settings

FPD-Link 3

Configure input video signal parameters to match your signal source.

Frequency range – set according to the detected PCLK frequency. If OLDI Line Width is “Single”, use the PCLK frequency as is. If OLDI Line Width is “Dual”, divide the detected frequency by 2.

Example: Detected PCLK is 70123 kHz (70 MHz). Set to over 50 MHz if OLDI Line Width is single. Set to under 50 MHz if OLDI Line Width is dual.

GMSL 2/3

Configure input video signal parameters to match your signal source. The basic GMSL parameters such as “GMSL FEC” or “GMSL Mode” must be entered for correct video decoding.

FRAME GRABBER 4

MULTIBOX

Dashboard

SETTINGS:

- Video Inputs
- Video Outputs
- CAN
- Timers
- Triggers
- Other Settings

File Systems

Log



Video Inputs

● ABT SOURCE
SLOT 2 / IN1
● SLOT 2 / IN2
● FID
SLOT 4 / IN1
● SLOT 4 / IN2

Custom Name: FID

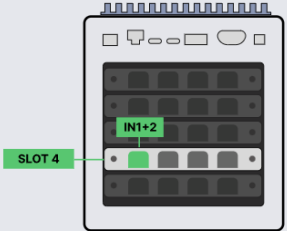
DEVICE NAME: fg4_001-031-003-005_i0

Card S/N: 001-031-003-005

Video Stream: tcp://192.168.4.16:51010

Enabled

☒



Input Status

GMSL2/3		
Active Video Width: 1920 px HSync Polarity: Active Low HSync Width: 25 px HBack Porch: 32 px HFront Porch: 36 px	Active Video Height: 568 px VSync Polarity: Active Low VSync Width: 2 lines VBack Porch: 5 lines VFront Porch: 10 lines	Calculated Frame Rate: 60.03 fps PCLK Frequency: 70724 kHz Link Status: Locked Stream Status: Detected

Interface Settings

GMSL2/3

Color Mapping:	SPWG VESA	OLDI Line Width:	Dual	Frequency Range:	Under 50 MHz
VSync Gap Length:	2	HSync Gap Length:	1000		
GMSL Mode:	12 Gb/s	GMSL Stream ID:	1	GMSL FEC:	Enabled

For the GMSL 2/3 Interface variant 1, ensure that the parameters for both inputs IN1 and IN2 are identical, except for the Stream ID value. The daisy-chain output will not function if the parameters do not match.

For the GMSL 2/3 Interface variant 3, inputs IN1 and IN2 operate independently. DCH1 output corresponds to IN1, and DCH2 output corresponds to IN2.

Sinks

For each video input, there are two “sinks” available:

- VIDEO - Sends a video stream via the TCP port and saves it to a file.
- PICTURE - Takes a screenshot, sends it via the TCP port, and saves it to a file.

Video

Enable this feature to send a video over the TCP port as a Video Transport Stream or to save it to the internal storage (SATADISK).

Sinks

VIDEO
PICTURE

Enabled
☒

Muxer

Allocated Capture Buffers: 64
Timestamp: monotonic

Encoder

h264

Bit Rate: 8388 kb/s
Bit Rate Peak: 0 kb/s
IDR Interval: 13

I-Frame Interval: 16
Profile: Baseline

File Writer
☒
Server

Path: mounts:/sda1/video/IN1/
SELECT FOLDER

Enqueued Output Buffers: 64

Force Key Frame: ☒

Wait for Key Frame: ☐

Port: 51006

Enqueued Output Buffers: 32

Force Key Frame: ☒

Wait for Key Frame: ☐

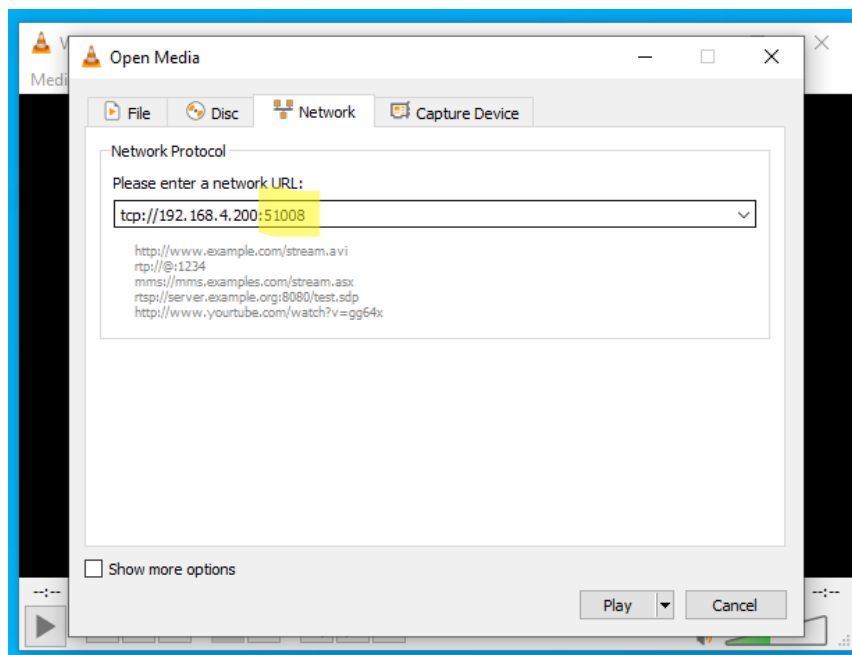
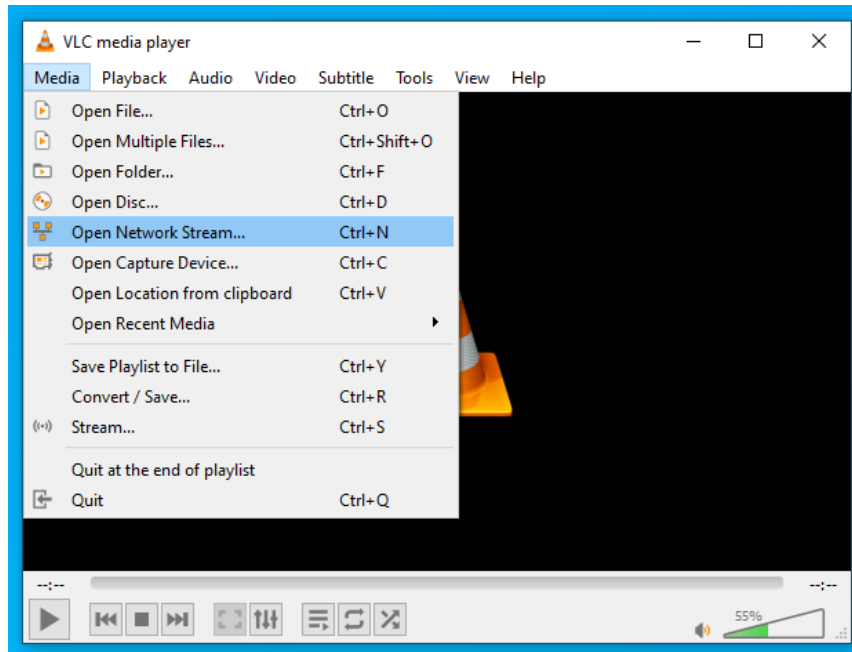
To begin recording the video, turn on the "File Writer" and click "Update settings".

To stop the recording, switch off the "File Writer" and click "Update settings".

The recorded video file with the extension *.ts will be saved in a path you selected and can be accessed from the "File Systems" section in the main menu.

The TCP Video Transport Stream can be played on a computer on the same LAN network using VLC player. Follow these steps:

- 1) Click on "Open Network Stream,"
- 2) Enter the network URL in the format for example: "tcp://192.168.1.200:51008".
- 3) Play



Picture

Enable this feature to capture the images (.png) from FG4 input.

In triggered mode, a single image is captured only if the “Trigger Image” event occurs or if the “Trigger Image Now” button is pressed.

If not in Triggered mode, the images will be captured continuously. For example, at 60 fps, 60 images per second will be processed.

If the Images are to be saved, enable the "File Writer" and select a path.

If the Ring Buffer is enabled, the number of stored image files will be limited to the specified amount.

The last image could be get via a specified TCP port.

Sinks

VIDEO

PICTURE

Enabled

Triggered Mode

Encoder

Allocated Capture Buffers:

64

Compression:

6

Timestamp type:

Monotonic

Filter:

None

Threads:

2

File Writer

Path:

mounts:/sda1/img/IN1/

SELECT FOLDER

Enqueued Output Buffers:

64

RING BUFFER

Enabled:

Size:

500

Server

Port:

51005

Enqueued Output Buffers:

32

Video Outputs

In this section, configure the parameters for video outputs. The displayed settings depend on the installed module type.

FRAME GRABBER 4 MULTIBOX

- Dashboard
- SETTINGS:
 - Video Inputs
 - Video Outputs**
 - CAN
 - Timers
 - Triggers
 - Other Settings
- File Systems
- Log

Digiteq Automotive

Video Outputs

●

ABT OUTPUT
SLOT 2 / OUT 1

●

SLOT 2 / OUT 2

●

SLOT 4 / OUT 1

●

SLOT 4 / OUT 2

Custom Name:

DEVICE NAME:

fg4_001-031-002-053_o0

CARD S/N:

001-031-002-053

FPD-Link III

Display Width:	1280	Display Height:	640	Frame Rate Limit:	0
Video Source:	IN 1	PCLK Frequency:	60952		
HSync Polarity:	Active low	VSynC Polarity:	Active low		
HSync Width:	40	VSynC Width:	20		
HBack Porch:	50	VBack Porch:	31		
HFront Porch:	50	VFront Porch:	30		
FPDL3 Output Width:	Single		IMPORT SETTINGS		

Signal Generator

Send to FG4 Output

Source:

Video File:

FPD-Link 3

Specify the desired FPD-Link 3 output signal parameters.

To use the same output parameters as detected on input, click the “Import Settings” button to retrieve signal parameters from IN1 or IN2.

Note: If the video source is set to the native Signal Generator (“Generator OUT1” for OUT1 or “Generator OUT2” for OUT2), then “Send to FG4 Output” is enabled automatically.

GMSL 2/3

Interface "GMSL 2/3 variant 1": As the output back to the display(s) use the Daisy Chain output, marked as "DCH1" on the interface module, instead of outputs "OUT1" or "OUT2".

Note: The separate GMSL 2/3 Outputs OUT1 and OUT2 are currently not implemented yet.

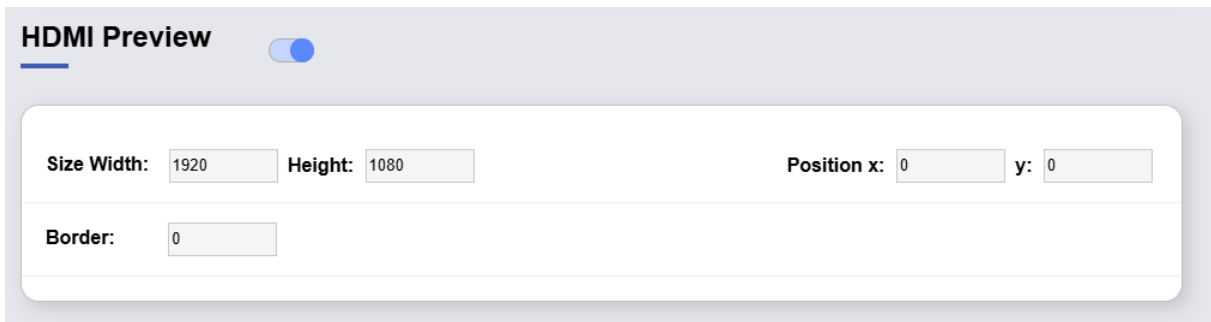
Interface "GMSL 2/3 variant 3": As the output back to the display(s), use the Daisy Chain output, marked as "DCH1" for IN1 or "DCH2" for IN2.

HDMI Preview

The HDMI Preview function allows to send a video directly to the monitor screen.

At the input, the HDMI Preview sends the captured signal of the input.

At the output, the HDMI Preview sends the signal from the native Signal Generator ("Generator OUT1" for OUT1 or "Generator OUT2" for OUT2).



HDMI Preview ☒

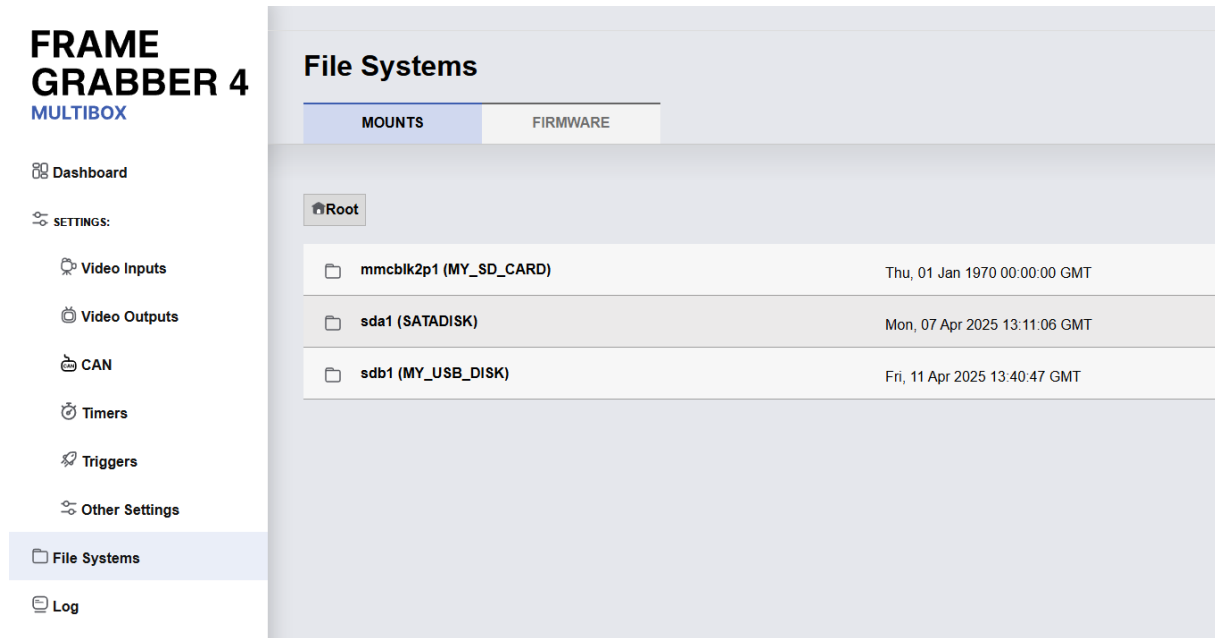
Size Width: **Height:** **Position x:** **y:**

Border:

If more previews are enabled, reduce the size and move the position. No resizing will occur if both the x and y values for Size are set to zero.

File Systems

Access to the connected storage devices or upload firmware update files.



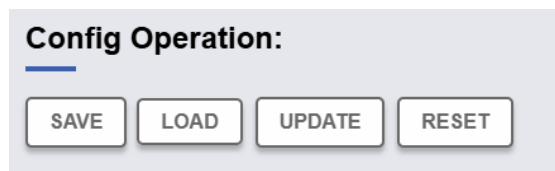
Mount Point	Mount Time
mmcbk2p1 (MY_SD_CARD)	Thu, 01 Jan 1970 00:00:00 GMT
sda1 (SATADISK)	Mon, 07 Apr 2025 13:11:06 GMT
sdb1 (MY_USB_DISK)	Fri, 11 Apr 2025 13:40:47 GMT

SATA Disk

The Box is equipped with a 500 GB SATA disk for storing videos, images, etc. It is mounted to the file system as “sda1”.

Configuration backup and restore

To backup all configuration settings, navigate to “Other Settings” and go to the “Config Operation” section of the page. You can then save the current configuration to a file or load the configuration from a previously saved file.



Firmware update

To update the firmware, go to the "File Systems" section, choose "Firmware," and click the "Upload file" button. Then, upload the "mgb4-install.tgz" file that was previously downloaded from the product website. To force firmware flashing after reboot, create the "mgb4-flash" flag file. To keep the configuration*, create the "mgb4-keep" file. After uploading the files, reboot the FG4 MultiBox by pressing the "REBOOT" button.

*Always backup the configuration before doing the Firmware update.

FRAME GRABBER 4 MULTIBOX

- Dashboard
- SETTINGS:
 - Video Inputs
 - Video Outputs
 - CAN
 - Timers
 - Other Settings
- Triggers
- File Systems**
- Log

Digiteq Automotive

File Systems

MOUNTS

FIRMWARE

This part of the file system is for firmware updates. For more detailed instructions, see [DOCUMENTATION](#)

Root
UPLOAD FILE

Otevřít
Tento počítač > Plocha > FG4_Box > FW > 1.0-build235
Prohledat: 1.0-build235

Uspořádat
Nová složka

Název	Datum změny	Typ	Velikost
mgb4-install.tgz	03.06.2024 14:17	Soubor TGZ	469 411 kB

Název souboru: mgb4-install.tgz

Všechny soubory (*.*)

Nahrát z mobilu
Otevřít
Zrušit

CREATE MGB4-FLASH
CREATE MGB4-KEEP

REBOOT

Support Contact

e-mail: support.products@digiteqautomotive.com

Website: https://products.digiteqautomotive.com/fg4_multibox/