

Fast2 User's manual
Fast2 Firmware version 1.10.16
Agora Controller Software version 1.2.X

Fast



AGORA

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In accordance with the company policy of continuous upgrade and products improvement, specifications and functions are subject to change without prior notice. This document was true at the time of writing, please contact our local distributor or visit our website to date with the latest updated versions.

IMPORTANT SAFETY INSTRUCTIONS



This symbol signifies the presence of uninsulated dangerous voltage within the product's enclosure that may be sufficient to constitute a risk of electric shock for persons.



This symbol is intended to alert the user to the presence of important operating and maintenance instructions in the literature joined to this product, particularly in this document.

- 1 Read these instructions.
- 2 Take in consideration.
- 3 Follow all instructions.
- 5 Do not use this device near water.
- 6 Clean only with a dry cloth
- 7 Do not close any ventilation or air-cooling reserved space.
- 8 Install in accordance with the manufacturer's instructions.
- 9 Do not install near any heat source as radiators, or other devices that produce heat.
- 10 Do not remove the grounding electrical connection. This device must be powered with three ways IEC 13 shucko (L/N/G).
- 11 Only use fixations and accessories specified by the manufacturer.
- 12 Unplug this device during maintenance service and when one of its hoods is removed.
- 13 Unplug this device when unused for long periods.
- 14 Use one or two twice power cords to disconnect the device from the mains. The device is not equipped of main power switch.
- 15 To reduce the risk of electric shock or fire, do not expose this device to rain, water, or any liquids and ensure that no objects which contains liquids are placed on the equipment.



EC DECLARATION OF CONFORMITY

1. Product identification: FAST2-HRPS-OPTKMM-OPTKSM
2. Name and address of the manufacturer or his authorized representative: AGORA SAS

43, Avenue de Châtelleraut – 86440 MIGNE-AUXANCES - FRANCE
3. This declaration of conformity is issued under the sole responsibility of the manufacturer:
AGORA SAS
4. Object of the declaration:
 - Fast2
 - HDMM/OC: Optical fiber DUAL OpticalCon NEUTRIK - Multimode - on front
 - HDSM/OC: Optical fiber DUAL OpticalCon NEUTRIK - Singlemode - on front
 - HQMM/OC: Optical fiber QUAD OpticalCon NEUTRIK - Multimode - on front + recovery of fiber 3/4 on the rear panel OC DUAL
 - HQMM/OC: Optical fiber QUAD OpticalCon NEUTRIK - Singlemode - on front + recovery of fiber 3/4 on the rear panel OC DUAL
 - HRPS: Redundant Power supply option for Fast series

5. The object of the declaration described in point 4 is in conformity with the relevant Union harmonization legislation:

- Low voltage Directive 2014/35/EU of 26 February 2014
- Electromagnetic Compatibility Directive 2014/30/EU of 14 October 2014
- Radio Equipment Directive (RED), 2014/53/EU of 22 May 2014
- ROHS2 Directive 2011/65/EU of 7 January 2011

6. References to the relevant harmonized standards used, or references to the specifications in relation to which conformity is declared:

- 2004/108/EC: EMC Directive
- 2006/95/EC: Low voltage Directive

Signed for and on behalf of:

MIGNE-AUXANCES – FRANCE – March 31st, 2021

David ROCHER, CEO



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CHAPTER 1: Getting Started

Before installing, setting up or operating this equipment, make sure you have read and fully understand all of the “IMPORTANT SAFETY INSTRUCTIONS” at the end of this document.

Important: You must set up the IP address and netmask of your computer (PC Windows 10 32/64 bits or MAC OS X) before using it for the first time.

Unpacking

Carefully unpack your Fast equipment package. Then, inspect the device for any signs of damage that may have occurred during transit and notify the courier immediately if you discover any. Please retain the original packing in case you should need to return the equipment to the manufacturer or supplier, or transport or ship the unit later.

Installation

When installing the unit, take the following into consideration.

- Do not install the equipment in places of poor ventilation.
- Do not install this equipment in a location subjected to excessive heat, dust, or mechanical vibration.

Allow for adequate ventilation around the equipment, making sure that its vents are not obstructed. To prevent excessive heating of the equipment, avoid mounting it directly above power amplifiers or other devices that radiate significant amounts of heat, such as radiators and heaters. Keep the equipment out of direct sunlight.

- This 1U rack unit is designed for mounting in any 19” EIA standard rack. . Four rack-mount holes in the front panel are provided for rack mounting and are designed to fully support the weight of the unit in the rack. **Avoid over-tightening the rackmount screws, as this could damage the front panel.**

Handling the Equipment

Completely isolate the equipment electrically and disconnect all cables from the equipment before moving it. When lifting or moving the equipment, always take its size and weight into consideration.

EMC Regulatory Statements

Europe CE (EN55022)

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

U.S.A.FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area may cause interference in which case the user will be required to correct the interference at his own expense.

Canada

This product complies with Class A Canadian EMC requirements. CAN ICES-3 (A) / NMB-3 (A)

Changes or modifications not expressly approved by Agora could void the user's authority to operate the equipment.

Australia/New Zealand

This product complies with Australia/New Zealand EMC Class A requirements.

Electric fields

Caution: In accordance with Part 15 of the FCC Rules & Regulations, "... changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment."

These are safety class I products and have protective earth terminals. There must be an uninterruptible safety earth ground from the main power source to the product's input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, disconnect the power cord until the ground has been restored.

For LAN cable grounding:

- If your LAN covers an area served by more than one power distribution system, be sure their safety grounds are securely interconnected.
- LAN cables may occasionally be subject to hazardous transient voltages (such as lightning or disturbances in the electrical utilities power grid). Handle exposed metal components of the network with caution.

In accordance with EN 60950-1 the base of power socket must be installed near the equipment and must be free of access for the disconnection of the power supply in case of danger.

About this manual

This is the operator manual for the Fast2 unit and the Agora Controller. It is intended to help get your units installed and in operation as quickly as possible by giving you unpacking, installation, connection, configuration and setting up instructions.

To help familiarize you with the units, there is a description of the front and rear panels, along with easy-to-follow user instructions.

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OpticalCon is registered trademark of Neutrik Group in Liechtenstein

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Chapter 2: General Information

Thank you for purchasing an Agora Fast2. The Fast2 System is a user-friendly, high-performance, dual network switch especially designed to meet the requirements of AV IT professional's applications. GHOST, FAST2 and H1 units complement each other. All these devices can coexist in the same network topology. Your Fast2 was developed by Agora to offer AV professionals a high-performance dual network switch equipment, designed to provide no-compromise network builder and an easy-to-use interface to build the most complex networked system in a minimum of time. All this is backed up, of course, by five years warranty for all materials and accessories. Finally, enjoy your Fast2 dual network switch system!

About

The **Fast2 System** provides:

- One fully configurable “**Primary**” switch with by default:
 - 5 User ports (4 Ethercon™ on the front panel (P1 to P4) and 1 Ethercon™ on the rear panel (P5)
 - 1 Control Port on the rear panel (P6).
 - 2 Transmit ports for units interconnexion:
 - T1: Optional Gigabit 1000BaseX OpticalCon™ or SmartBeam™ Duo ports
in Single mode or Multimode (chosen at purchase)
 - T3: Gigabit Ethercon™ port on the front panel.
- One fully configurable “**Secondary**” switch with by default:
 - 6 User ports (4 Ethercon™ on the front panel (S1 to S4) and 2 Ethercon™ on the rear panel (S5,S6)
 - 2 Transmit ports for units interconnexion:
 - T2: Optional Gigabit 1000BaseX OpticalCon™ Duo ports
in Single mode or Multimode (chosen at purchase)
 - T4: Gigabit Ethercon™ port on the front panel.
- One configurable Gigabit ethernet **internal link** between Primary and Secondary switches.
- 250 User Groups manageable by Agora Controller software (from 1.10.16 firmware)
- A Status LED and one Traffic LED is appointed on each port. The front panel User ports are appointed of an ID LED fully manageable in the Agora Controller.
- Port roles:
 - All ports have fixed roles (User or Transmit), except:
 - S5 and S6 ports: can be either User or Transmit ports.
 - P5 and P6 port: can be either User, Transmit or Control port.

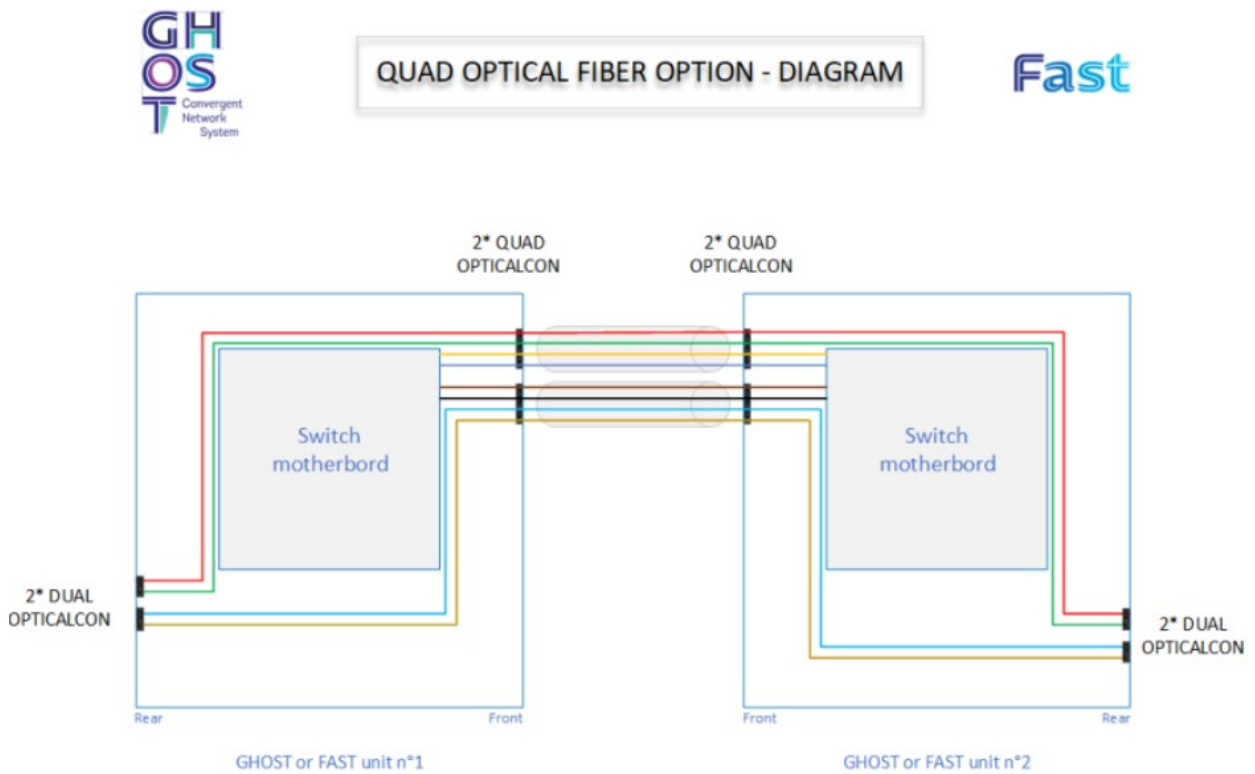
The units can be equipped in option by a redundant power supply unit.

Optical fiber ports must be connected in Single mode OR Multimode.

UNDER **NO** CIRCUMSTANCES A MULTIMODE PORT CAN BE CONNECTED TO A SINGLE MODE.

OpticalQuad™ option (chosen at purchase): Unused dual fibers are reported to the Back panel on an OpticalCon Duo port.

See Diagram below:



Chapter 3: Fast2 architecture

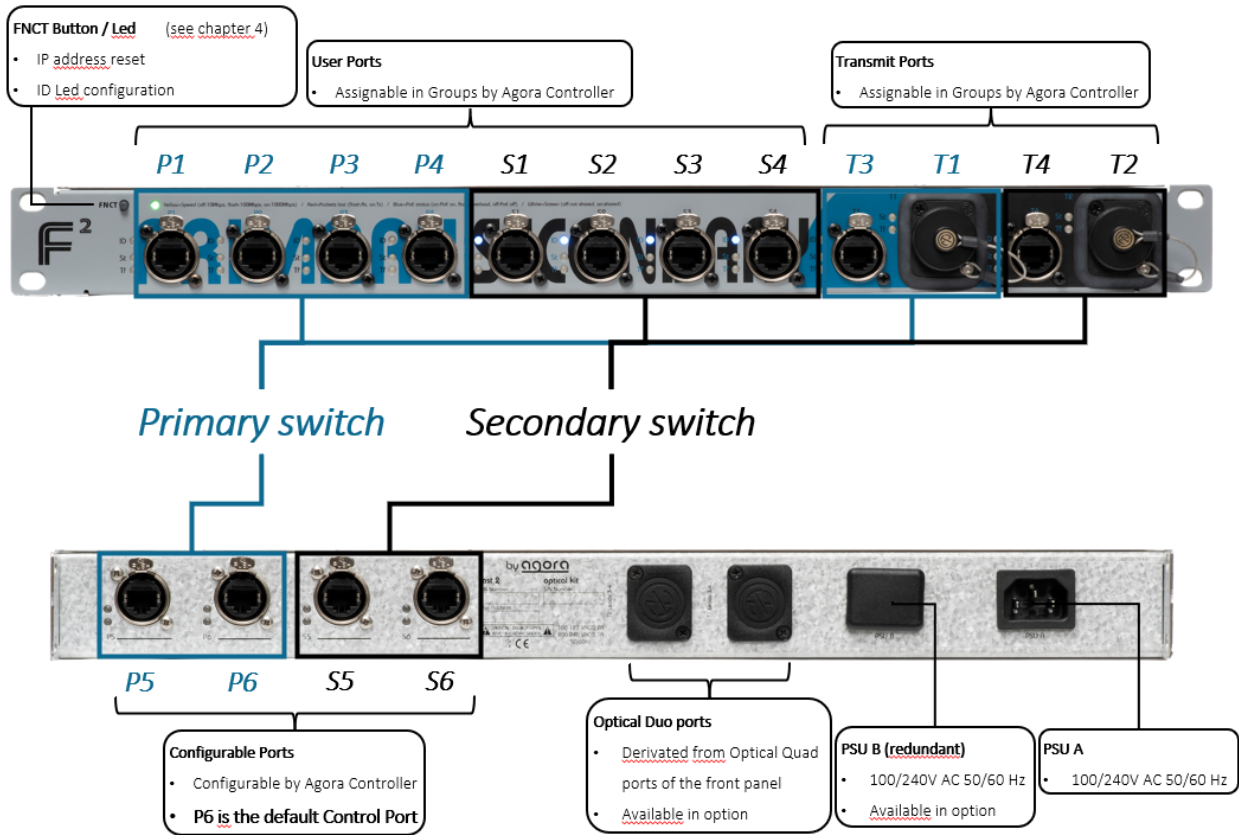


Fig.1 External configuration

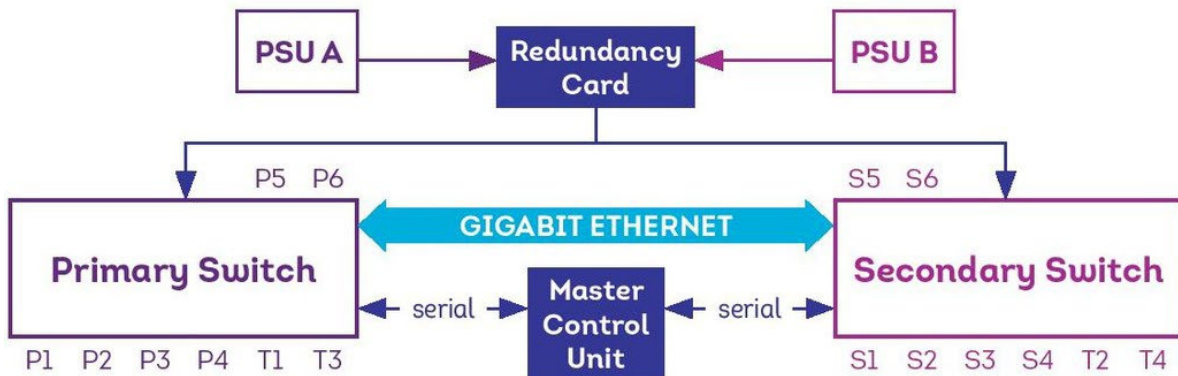


Fig.2 Internal configuration

Chapter 4: Configure Fast2

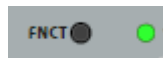
Connect your computer to a Control Port. **P6** is the default control port

For general connection and configuration of Agora devices, please refer to the Agora Controller User's manual at <https://www.ghost-network.com/support-downloads/>



Fig.3 Fast2 in Agora Controller

FNCT Button / Device LED



Fixed **Green** LED: Normal status, User Ports ID LEDs show User Groups colours.

Flashing **Green** LED: Identify device with Agora Controller

Flashing **Blue** LED: Service mode during Firmware Upgrade

From Fixed **Green** LED:

- Press FNCT Button once:
 - Yellow** LED: User Ports Status LEDs show Port speed:
None = 10Mbps, Flashing= 100Mbps, Fixed=1000Mbps
- Press FNCT Button twice:
 - Red** LED: not implemented
- Long Press FNCT Button TWICE:
 - White** flashing LED: Press once to Reset the IP address at 192.168.1.101/24

Fast2 Internal Link mode

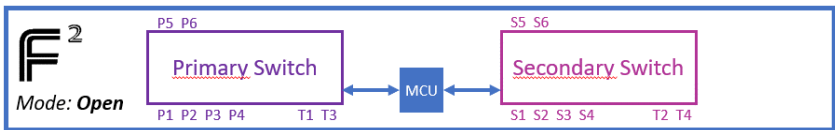
Fast2 has to be considered differently from Ghost and H series as it is a “dual switch” device.

The Master Controller Unit (MCU) is in charge of Function Button and DeviceLED, Ports ID/Status/Traffic LEDs

The internal gigabit Ethernet link has 3 possible configuration modes:

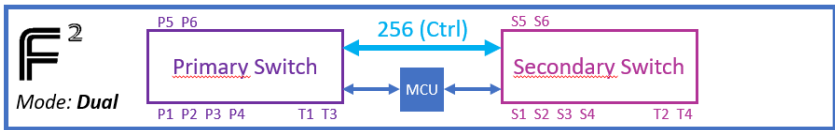
- OPEN

Internal link between Primary and Secondary switch is **deactivated**.



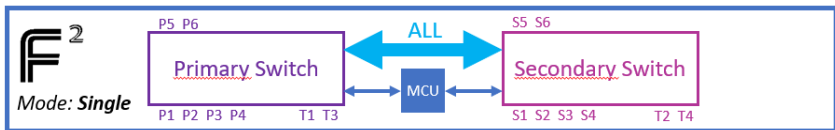
- DUAL

Only Ctrl Group (VLAN 256) is transmitted between Primary and Secondary switches for **Software Control**



- SINGLE

All User Groups (All VLANs) are transmitted between Primary and Secondary switches



Important notes:

- IP addresses:
The Secondary IP address is automatically configured from the Primary IP address adding 1 to the last Byte.
i.e Primary IP address: 192.168.1.101/24 gives Secondary IP address: 192.168.1.102/24
- Agora Controller DO NOT allow control of an “half-discovered” Fast2. Both Primary and Secondary have to be discovered among the VLAN 256.

When OPEN mode is selected, the Secondary unit CANNOT be not directly controlled from the Primary unit of the same device.

In this case the Secondary unit has to be reached by its transmit ports from another Agora device (Ghost, H1, Fast in Dual or Single mode)

Tip: an Ethernet cable can also be plugged between T3 and T4 to simulate Dual mode.

- Multiple DUAL and/or SINGLE Fast2 topologies have to be used with care as the internal links between Primary and Secondary units participate in RSTP protocol.

Please refer to the technical note “*Rapid Spanning Tree Protocol: Best practice for redundancy on Ethernet AV networks*” and see also Chapter 5 for topologies examples.

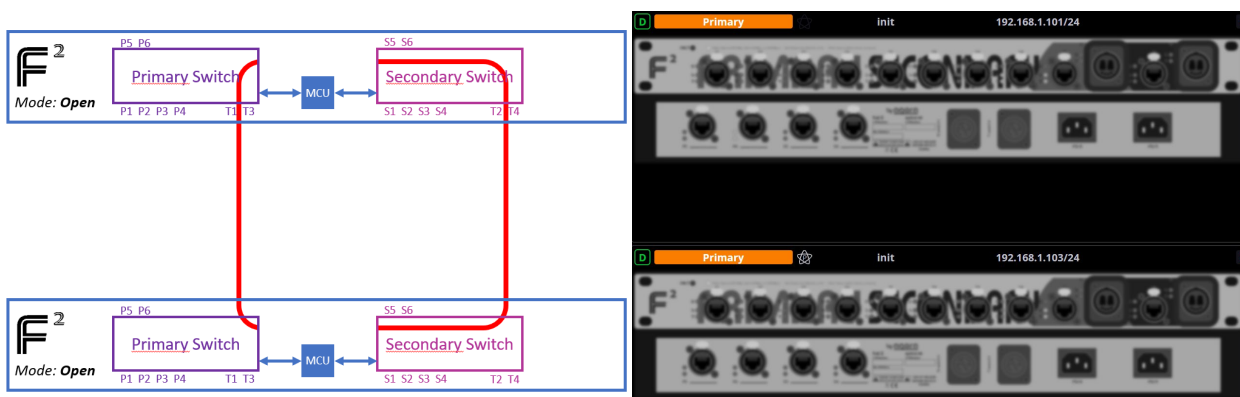


Fig.3 Full Open mode

Agora Controller cannot control Secondary units.

Devices stay Offline (Primary status)

Chapter 5: Fast2 topologies examples

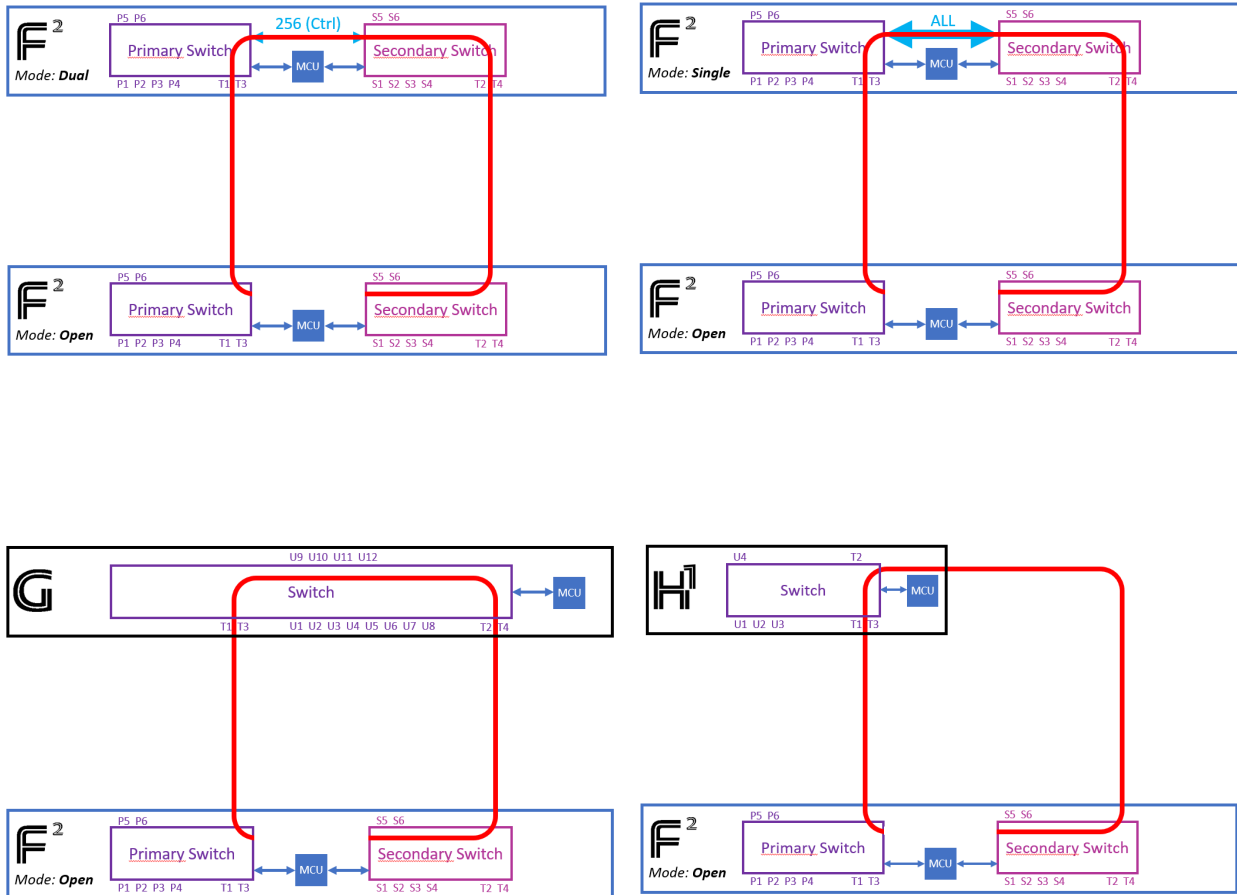


Fig.4 Only one Dual or Single device: Valid loop-free topology

Ghost and H1 series can be considered as a Single Device



Fig.5 Only one Dual or Single device: Valid loop-free topology

Ghost and H1 series can be considered as a Single Device



Fig.6 Multiple Dual and/or Single devices: **Looped topology**

RSTP configuration has to be considered in order to define the active and alternate links

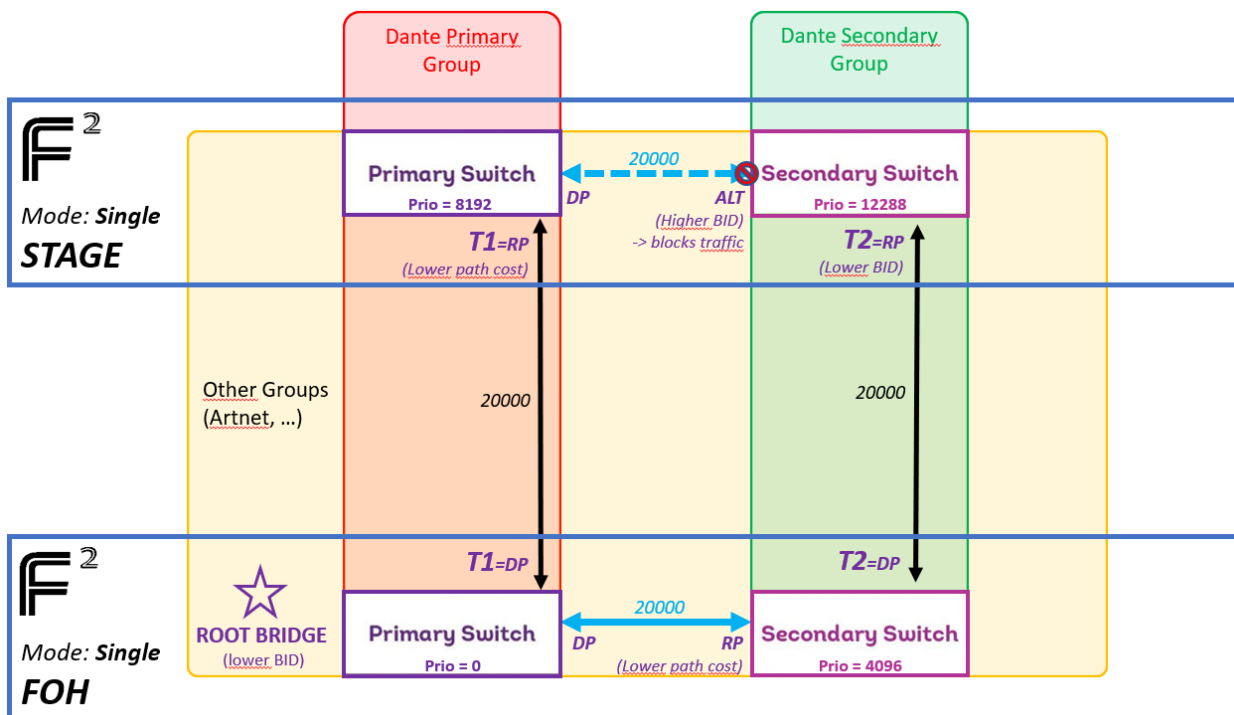


Fig.7 Fast2 Single mode

Example of Redundancy management for AV & Remote protocols

Dante “seamless” redundancy :

- Dante Primary is assigned on Primary units
- Dante Secondary is assigned on Secondary units
- Redundancy is guaranteed by Dante end points

Other protocols redundancy:

- Guaranteed by RSTP (few seconds convergence)
- Adjust Bridge priorities in order to force the Fast2 B internal link to be deactivated.

For further details, see Technical Note *“Rapid Spanning Tree Protocol : Best practice for redundancy on Ethernet AV networks”*

GENERAL

Size W x D x H (mm)	400 x 482.6 x 43.6
Weight (without options)	3.8 kg
Power consumption	100-127 VAC / 3.2 A 200-240 VAC / 1.6 A
Power supply	100/240 VAC 50/60Hz
Idle power ¹	8 W
Maximum power rating ²	17 W
Storage temperature / Humidity	-40° à 70°C / 10-90% without condensation
Operating temperature / Humidity	0° à 40°C / 10-90% without condensation
Température de Stockage / Humidité	-40° à 70°C / 10-90% without condensation
Altitude	Up to 10 000 ft (3 000 m)
Acoustic	Without fan

CONNECTIVITY & INTERFACE

Front Panel	8 x 10 Base-T / 100 Base-TX / 1000 Base-T Ethercon ports (4 primary / 4 secondary) 2 x 10 Base-T / 100 Base-TX / 1000 Base-T Ethercon® ports (1 primary / 1 secondary) 2 x 10 Base-T / 100 Base-TX / 1000 Base-T OpticalCon® Duo ports (1 primary / 1 secondary) 3 LEDs (STATUS, TRAFFIC, ID) on each Ethercon® port 2 LEDs (STATUS and TRAFFIC) on each OpticalCon® port 1 x Multipurpose LED 1 x Configuration and navigation function switch
Rear Panel	4 x 10 Base-T / 100Base-TX / 1000 Base-T Ethercon ports (2 primary / 2 secondary) 1 x Power cord
Software	Telnet protocol for up to 100 devices connected Offline editor mode Service and maintenance window

PROCESSING

Motherboard	1 x ARM9E: 800 MHz 2x 64 Mo – DDR3 SDRAM 128 Mo flash memory Dataflow: up to 2 x 14.9 Mpps Switching capacity: 2 x 20 Gbps
Network	99 x Groups available Capacity of 2 x 8 K MAC Address IEEE 802.1p Qos

PACKAGE & WARRANTY

Package includes	1 x Fast 2 engine 1 x IEC13 power cord
Warranty	5 years parts and service

Chapter 6: Service and maintenance information

Routine Maintenance

To help keep your Fast2 unit in good working order and to make sure it gives you optimum performance, we recommend that you carry out the following at monthly intervals:

- Clean the unit (see “Cleaning” below).
- Check the controls for freedom of operation.
- Check the functionality of all controls, that is, control knobs, pushbuttons, and LEDs.

You can carry out a visual check of all illuminated items (LEDs etc.) by switching the unit off and then on again, as they should all illuminate during power up.

- Check the functionality of the equipment.

Cleaning

Switch off the unit and electrically isolate it from the mains *before* cleaning. Clean the Fast2 device using a dry, lint-free cloth. Do not use harsh abrasives or solvents. When cleaning the unit, take great care not to damage control knobs, pushbuttons etc.