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solutions

Network
Transmission

KTI
NETWORKS

INDEX

1. INTRODUCTION

1.1 Introduction to transmission devices

Almost all security data generated are transmitted via the Ethernet protocol, whether CCTV images, access controls, etc.

The importance of good communications infrastructure is critical Ethernet, to ensure that the information generated by the various devices is sent over the network in complete safety.

KTI Networks designs and manufactures switches and converters since 1983, being one of the leaders in the market Networking Industrial thanks to the expertise it has.

1.2 Basics

KTI Networks: It offers a wide range of products designed to cover any needs. But before we clarify the nomenclature we use in this presentation.

Fast Ethernet: It is a standard Ethernet transmission where the maximum is 100Mbps.

Giga Ethernet: It is the standard where maximum 1000Mbps or 1Gbps speeds are achieved, and the cable installed must be cat5e or cat6.

PoE: Power over Ethernet is a standard which can power devices through the cabling infrastructure computer network without exceeding the standard 100m. We must bear in mind that the PoE standard CCTV is a voltage of 48Vdc and power (W) depend on each switch, PoE injector or independent (and can reach 90W).

Slots or ports: All devices connected to a LAN or WAN ports or mouths have, in the case of two switch vary, even tens, may be copper (RJ45) speeds Fast or Giga Ethernet and **SFP** which are inserted ports where a Transceivers to connect the computers through optical fiber.

1.2 Basics

Fiber (MM / SM): Besides copper cable, for decades it used and increasingly, fiber optics as means of transmission of signals and data as it can achieve a higher rate of information transfer, greater distance without intermediate devices, and is immune to electromagnetic interference. Two types exist, **MultiMode** or **SingleMode** (Monomode).

Layer or L2 / L2 +: Depending on the level of management we need for each installation, we choose devices or L2 + L2. The difference between each of these levels lies in the features available when your configuration. Our teams L2 and L2 + allow installations star and ring. Within management options, there are a lot of protocols that can be adjusted for optimal network performance.

VLAN: Within the typology and way of doing or physically interconnect the network described above, it can be segmented logically separated networks and can set their routes through the switch.
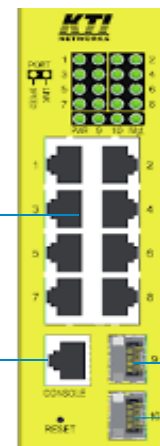
1.2 Basics

Visual examples explained.

KGS-1060-HP

100m

8 * 10/100 / 100M RJ-45-8 PoE PSE + ports

Data + Power hi-PoE

one* Console port

2 * 100 / 1000M (SFP) fiber Optics

Type star

Fiber

KGS-1060-HP

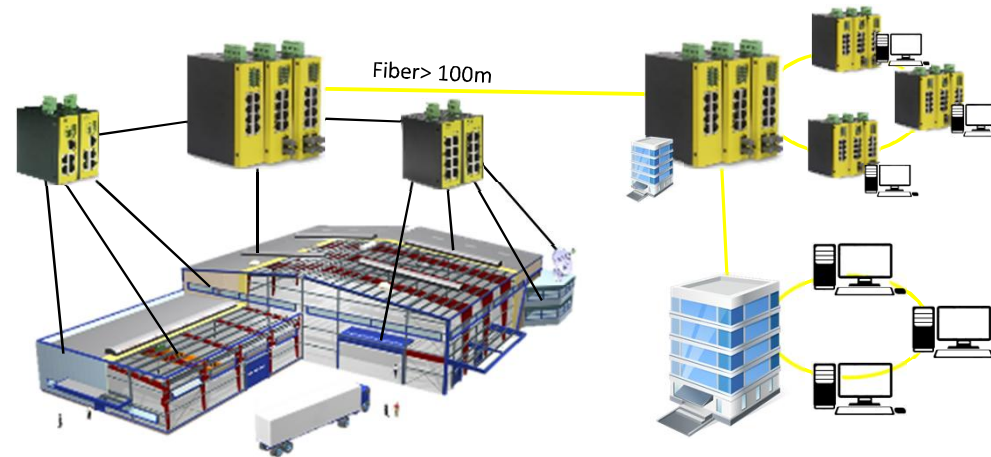KGS-2461

Ring type

Fiber

Fiber

KGS-1060-HP

KGS-2461

KGS-1060-HP
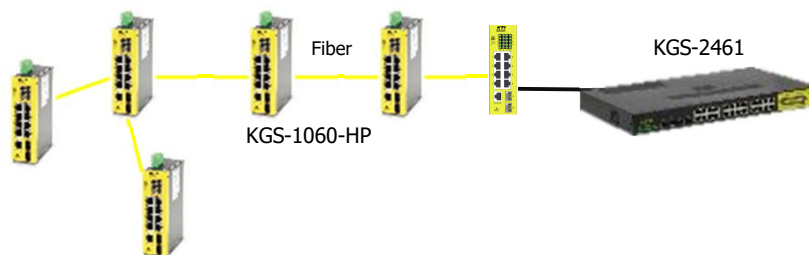
1.2 Star configuration

Switches have a function of interconnecting several devices, such as shown in the following example: Industrial Building.

Switches need to control the entire operation of the warehouse, which can be distributed across multiple switches, from the main switch. Which in turn can be connected through another switch by Fiberopitc headquarters, located at a great distance and provide service to the electronics necessary.

* Some of the most common applications are: Industrial buildings, airports, sports complexes, seaports ...

1.2 Ring configuration

Switches have a function of interconnecting several devices, such as shown in the following example: Solar Parks.

Need to control switches solar panels to control the security camera enclosure, for the operation of the safety barrier and finally a switch that connects the various switches with main one.

* Some of the most common applications are: Eólicas plants, industrial buildings, warehouses, railway stations ...
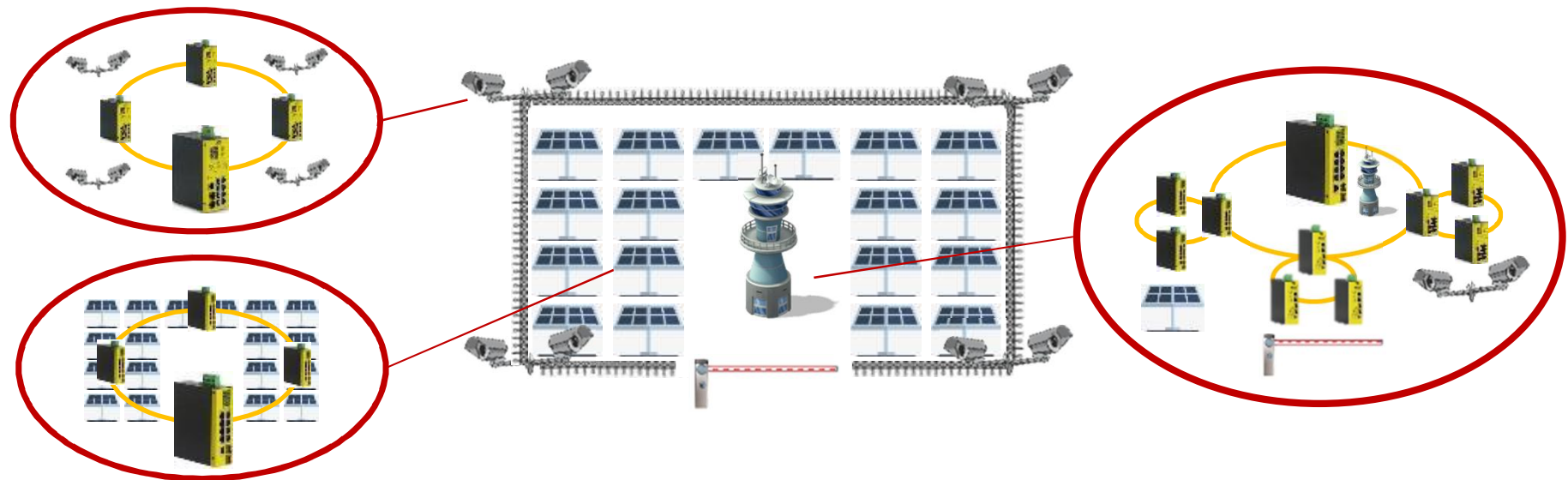
1.3 Why use the SWITCH KTI Networks?

1 High quality devices

2 optimal performance for CCTV

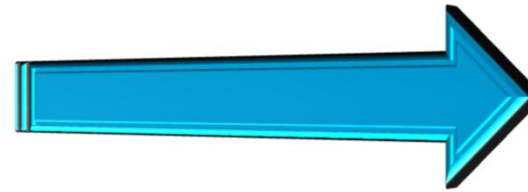**3** Industrial design

4 Stress tests

1.3 Why use the SWITCH KTI Networks?
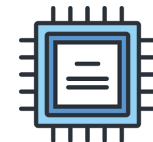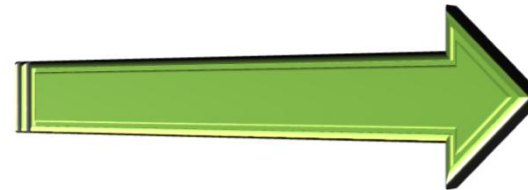
1   **High quality devices**

KTI's commitment to security installations is maximum, guaranteeing the high quality of their devices running CCTV connections in any environment.

5 Controls Quality

High quality Components

High performance power units

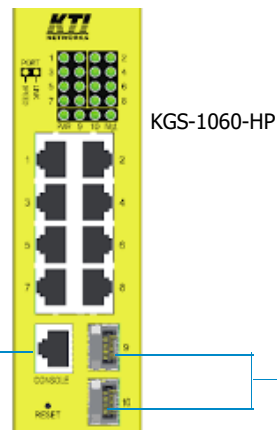## 1.3 Why use the SWITCH KTI Networks?

2 optimal performance for CCTV

IEEE 802.3x protocols QoS (Quality of service) Added to the Jumbo frames 10056 length up allow maximum efficiency manage video installations.

KGS-1060-HP

1 * 1000M G Uplink

1 * 1000M SF Uplink

If a large data traffic, the switch communicate with the IP camera to resend the data if necessary.

KGS-2461

Flow control

1.3 Why use the SWITCH KTI Networks?

3 **Industrial design**

KTI switches are designed to work in harsh and hostile environments, supporting a high-level power supply and extreme temperatures, providing no moving parts and options to attach it to any surface.

There are even devices with IP65 / IP67 protection allows installed outdoors without cabinet.
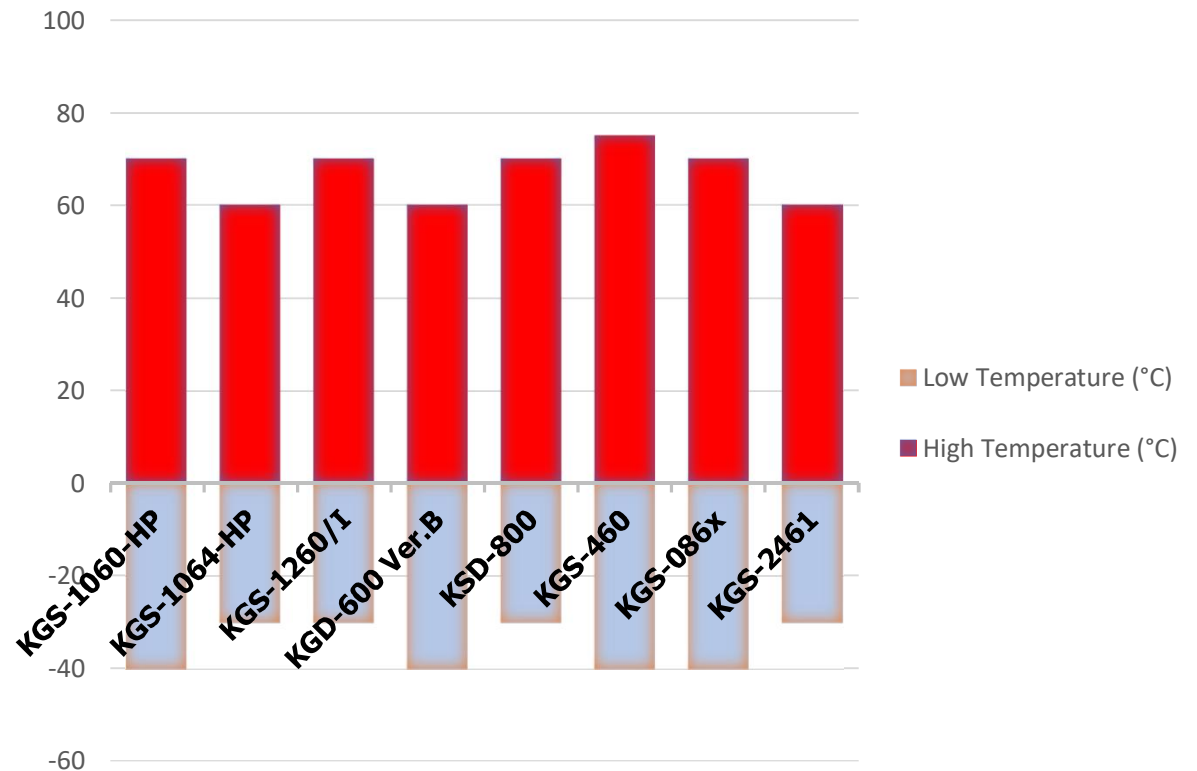
1.3 Why use the SWITCH KTI Networks?

4 **Stress tests**

Of the five quality controls carried KTI, four of them spend 100% of devices and only one of them is random.

Each unit that leaves our factory has passed the toughest tests that will allow them to reach up to 429,428 MTBF hours of full operation without failure.
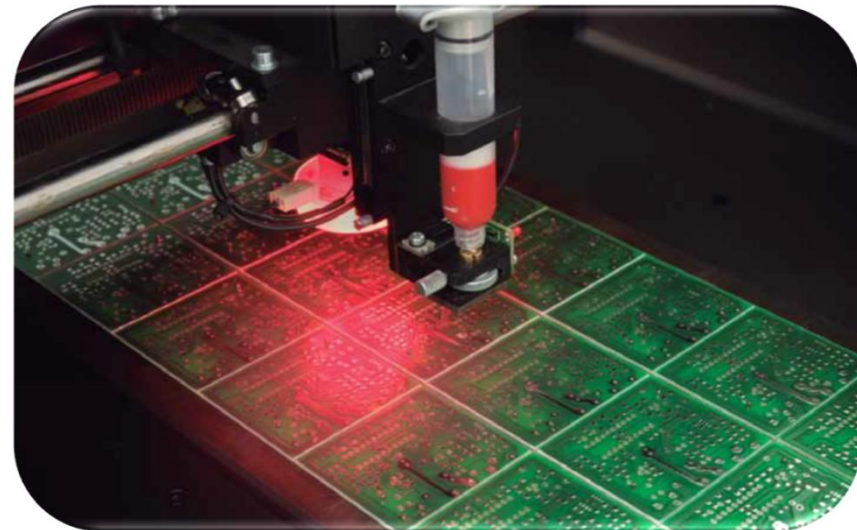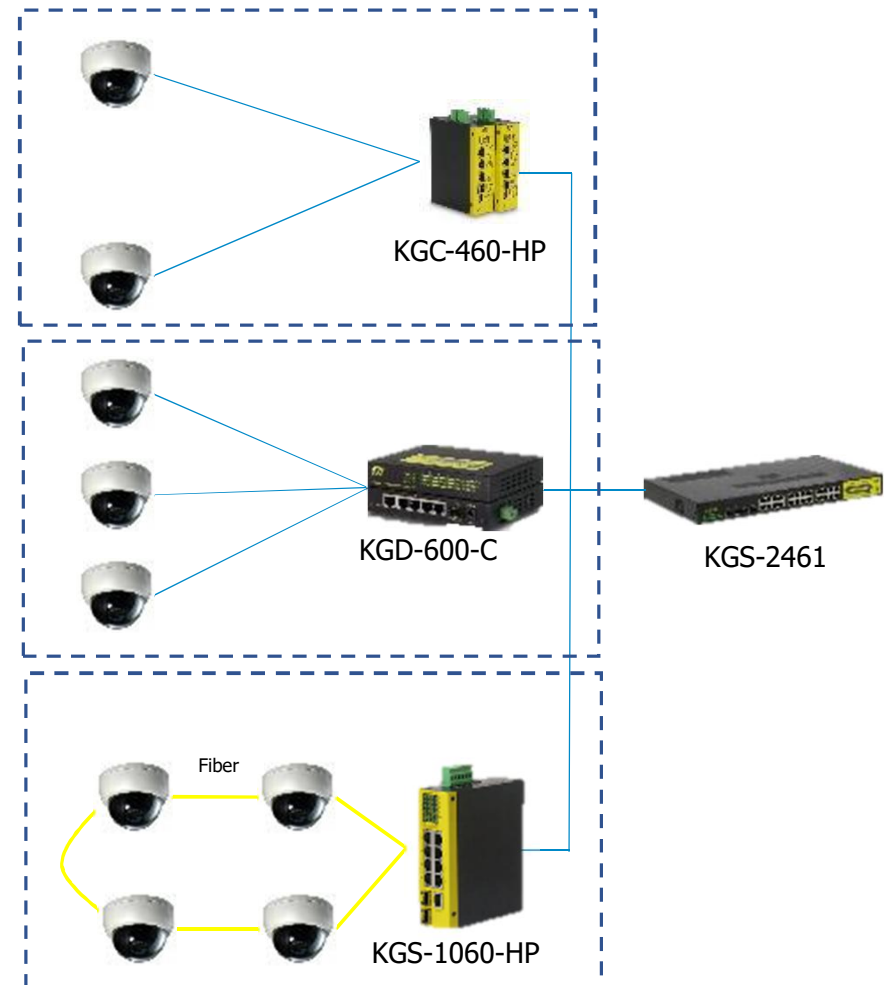
2. PoE SOLUTIONS

2.1 Introduction PoE Switch

KTI separates its product range depending need or scaling installation, classifying according to the following parameters:

- Manageable
- PoE
- Fiber Optics
- With the possibility of ring
- Outdoor & indoor

KGC-460-HP

KGD-600-C

KGS-2461

Fiber

KGS-1060-HP

2.2 Gama PoE

KTI Product Information: KGS-1060-HP

Industrial range
High Electrical Protection
Wide temperature range
Industrial electronics

Standard PoE
IEEE 802.3, 802.3ab, 802.3z,
802.3x, 802.1x, 802.1w, 802.1D,
802.1Q, 802.3at, 802.3af

Video Supported
QoS - 8 QoS classes, Tag-based &
DSCP-based classification

KGS-1060-HP

8 * 10/100 / 100M RJ-45-8 PoE PSE + ports

1 * Console

2 * 100 / 1000M (SFP)

2.2 Gama PoE

Product information KTI: KGS-1260 / I (Manageability)
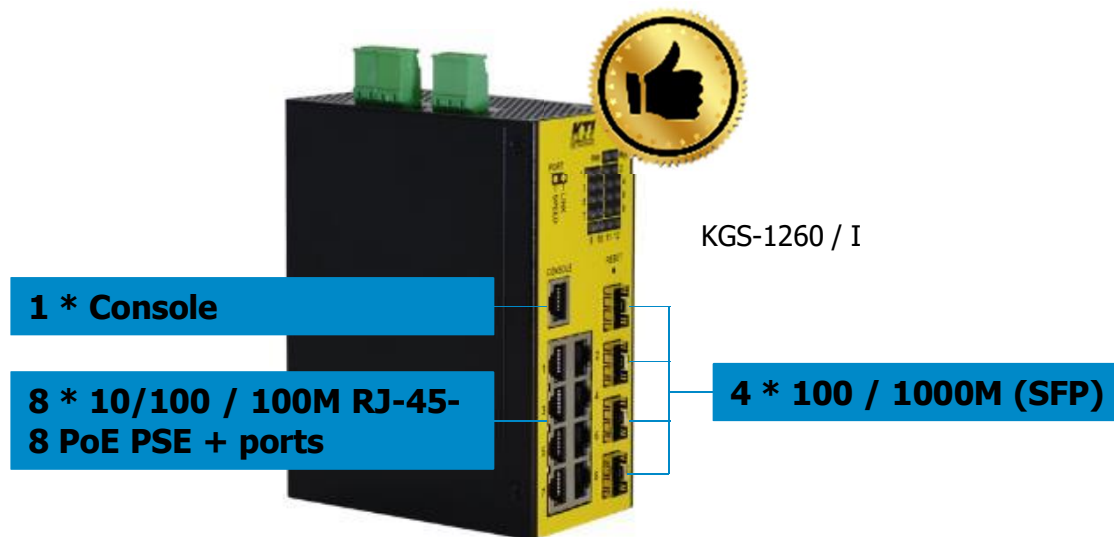
KGS-1260 / I

1 * Console

8 * 10/100 / 100M RJ-45- 8 PoE PSE + ports

4 * 100 / 1000M (SFP)

Industrial range
High Electrical Protection
Wide temperature range
Industrial electronics

Standard PoE
IEC 61850-3, IEEE 1613, IEEE 802.3, 802.3ab, 802.3z, 802.3x, 802.1x, 802.1w, 802.1D, 802.1Q

Video Supported
QoS, 802.1Q / MAC-based / Protocol-based / Private / IP subnet VLAN, Port Isolation

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2.2 Gama PoE

KTI Product Information: KGS-1064-HP

Industrial range
High Electrical Protection
Wide temperature range
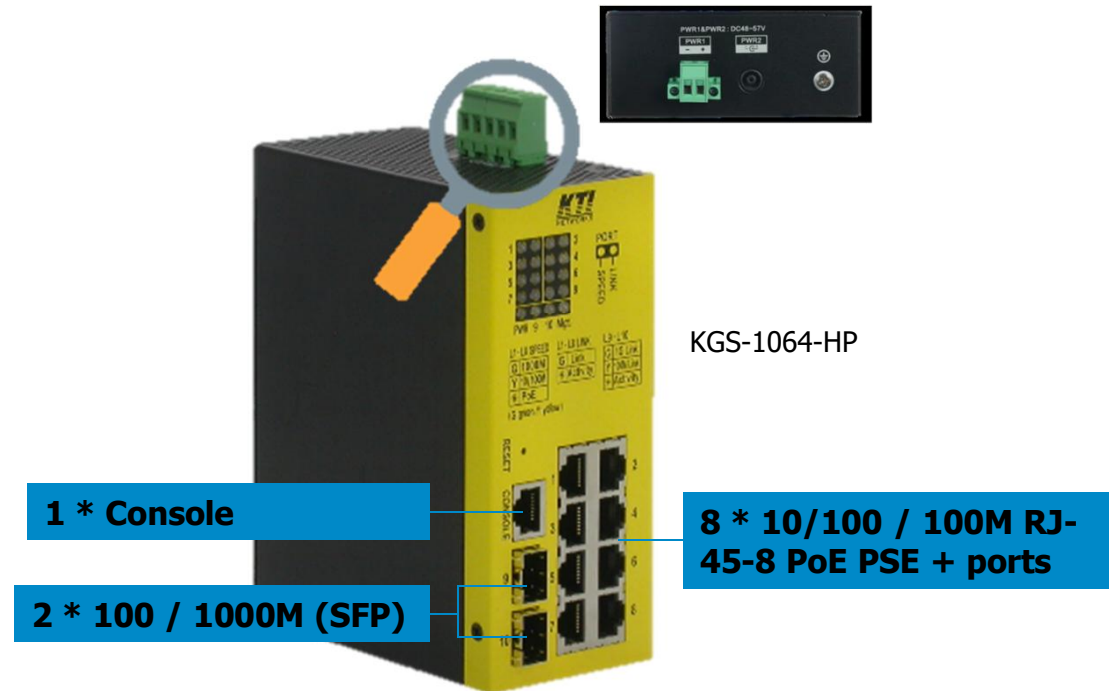Industrial electronics

Standard PoE
IEEE 802.3at, IEEE 802.3, 802.3ab, 802.3z, 802.3x, 802.3at, 802.1x, 802.1w, 802.1D, 802.1Q

Video Supported
QoS, 802.1Q / MAC-based / Protocol-based / Private / IP subnet VLAN, Port Isolation

KGS-1064-HP

1 * Console

8 * 10/100 / 100M RJ-45-8 PoE PSE + ports

2 * 100 / 1000M (SFP)

2.3 PoE Solutions - Example

KTI product information: KGS-1060-HP (Manageable) & KGS-2461
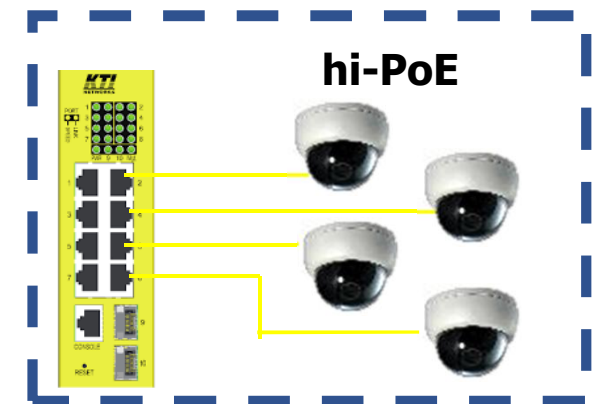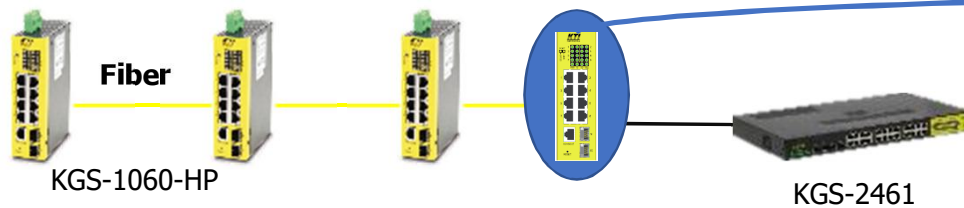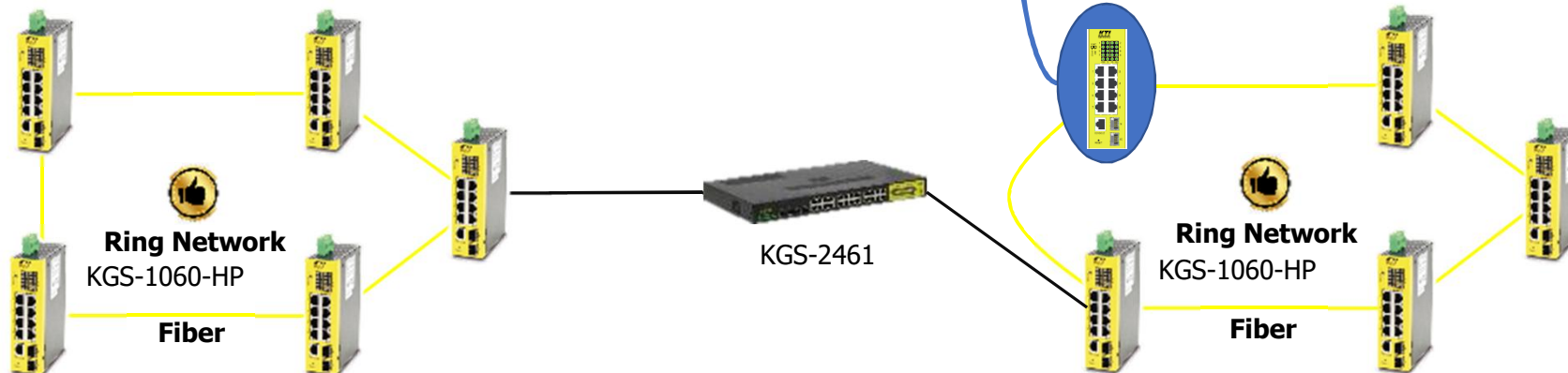
hi-PoE

Type star

KGS-1060-HP

Fiber

KGS-2461

Ring type

Ring Network
KGS-1060-HP

Fiber

KGS-2461

Ring Network
KGS-1060-HP

Fiber

2.3 PoE Solutions - Example

KTI Product Information: KGS-1260 / I

RS-232 Console

KGS-1260 / I

1 * Console

8 * 10/100 / 100M RJ-45- 8 PoE PSE + ports

4 * 100 / 1000M (SFP)
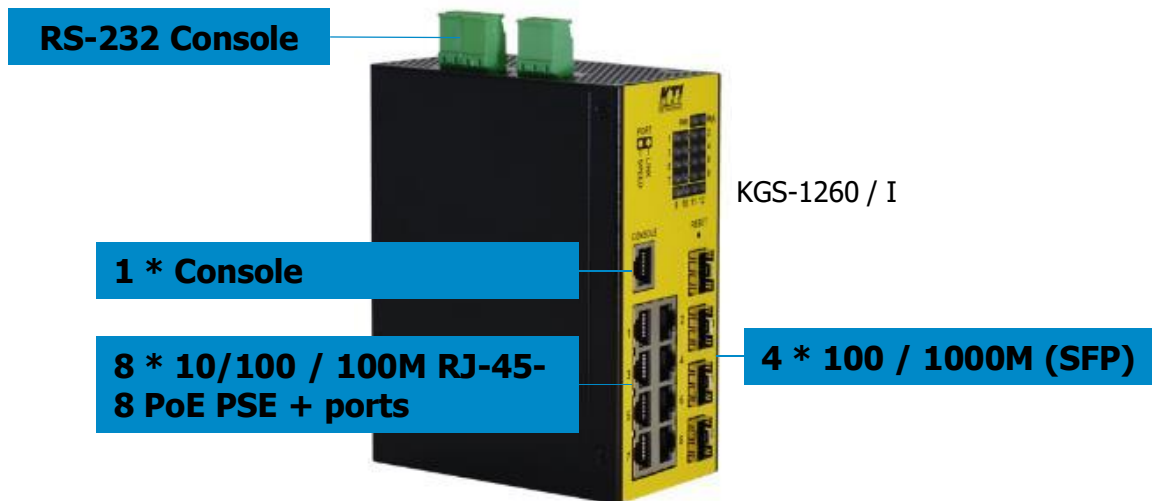
➢ Designed especially for environments of electrical substations

➢ Effective CCTV environments

➢ Legislation complies with IEC 61850-3 & power stations IEEE 1613

➢ -30 ° C ~ + 70 ° C wide temperature range

The KGS-1260 is a Gigabit Ethernet industrial switch manageable 12 ports. Its 4 FO ports allow you to be in a ring and also connect more than 2 devices at distances greater than 100m. The solid and fully sealed metal housing design, fanless and efficient heat dissipation at the surface, facilitate the transmission of video and data in environments from -30 to +70.

2.4 Switch and injectors PoE

Gigabit Switch Range PoE and injectors PoE.

KSD-541-HP
Industrial 5-port L2 Fast
Ethernet Switches
with 1 SFP Slot PoE + PSE
and 4 Ports

KGS-0800-4HP
8-port Gigabit Ethernet Switch
with 4 PoE + PSE Ports

KGS-2422-B
Managed 24-Port Modular L2 /
L3 Gigabit Ethernet
100BASE-FX Switches With
Support

KPOE-200
Industrial High-Power Single-Port
Mid-span PoE Injector ++

KPW-T4SP
Industrial High Power PoE
Splitter ++

KGS-0800-4HP
Industrial Managed 10-Port
L2 Gigabit Ethernet
Switches
with 2 dual-speed SFP Slots
and 4 PoE + PSE Ports

KGS-086x Series
IP65 / 67 Managed Gigabit
Ethernet and
Fast Ethernet L2 + PoE
Switches With Options

KPW-T2P25
Industrial IEEE 802.3at High
Power PoE Splitter

KPOE-800-HP
Industrial 8-port mid-span
Power over Ethernet Injector

3. SWITCH MODULAR

3.1 Switch modular

DVI Video Cable

Multi service video Transceiver

NVR

Smart Printer

DSS Client   DSS Client

router
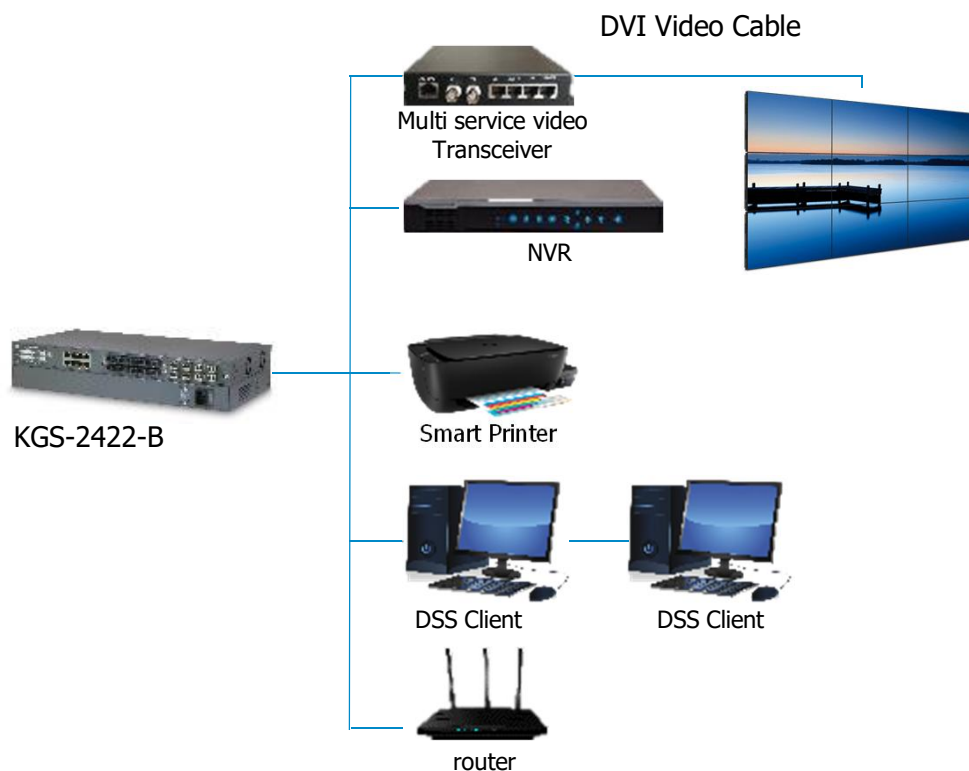
KGS-2422-B

KTI offers a wide range of products to suit the need or scaled installation.

The KGS-2422-B is a modular switch, we can set our step, choosing the number of ports copper / fiber and the speed (10/100/1000 / 10G).

In this way we can have up to 24 ports FO, it is an increasingly demanded requisitioned.

Certainly a new strategy at the request of customers that opens a lot of business to the letter.

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3.1 Options modular switch

Modular switch options KGS-2422-B:

- Gigabit Ethernet switch modular L2 / L3 24 ports supporting 100Base-FX

- Combine multitude of options

- Unique feature allows to install modules 10Gb

KGS-2422-B-x-24F-T
24 x 100M MM ST

KGS-2422-B-x-24F-C
24 x 100M MM SC

KGS-2422-B-x-24F-SL2
24 x 100M SM SC

KGS-2422-B-x-2U22F-T
22 x 100M MM ST
+ 2 Uplink copper

KGS-2422-B-x-2U22F-C
22 x 100M MM SC
+ 2 Uplink copper

KGS-2422-B-x-2U22F-SL2
22 x 100M SM SC
+ 2 Uplink copper

KGS-2422-B-x-24G
24 x 100/1000M SFP

KGS-2422-B-x-4U20G
20 x 100/1000M SFP
+ 4 Uplink copper

KGS-2422-B-x-8U16G
16 x 100/1000M SFP
+ 8 Uplink copper

3.2 Range modular switch

KTI Product Information: KGS-2461 & KGS-2422

KGS-2461

KGS-2422-B

Interconnections
20x10 / 100 / 1000Mbps Gigabit copper port
4x10 / 100 / 1000Mbps copper & SFP Combo port

Interconnections
24x10 / 100 / 1000Base-FX copper Gigabit port
Fully modular design with 3x8-port module slots

Features
Provides L2 Gigabit switching at full wire speed
Provides L3 switching functions for IPv4 / IPv6

Features
Provides L2 Gigabit switching at full wire speed
Provides L3 switching functions for IPv4 / IPv6

Management
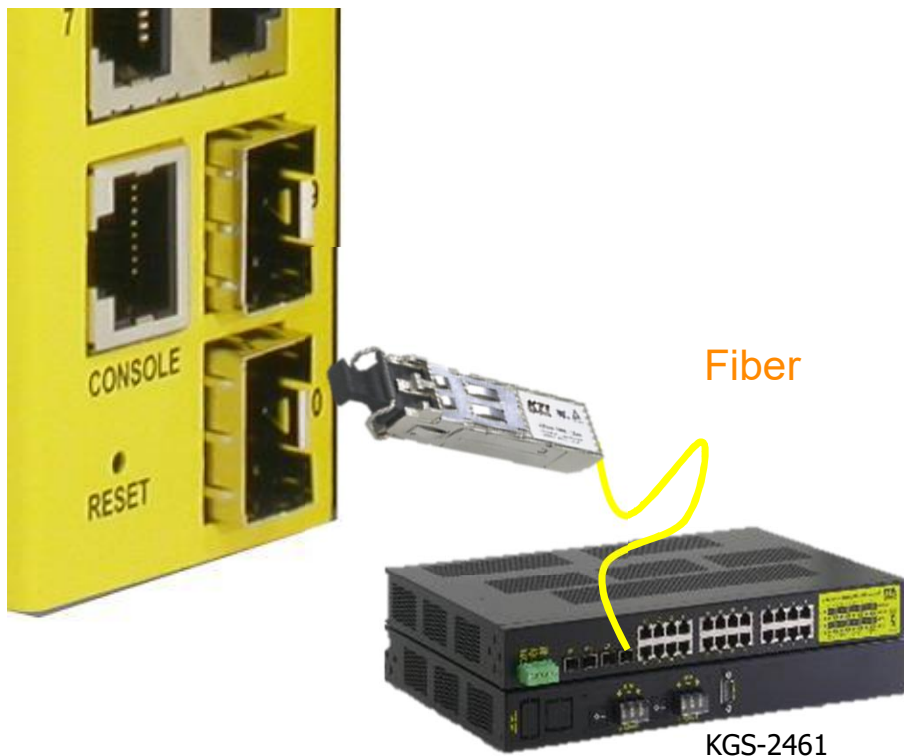Web / Telnet / SSH / HTTPS / SNMP / CLI interfaces

Management
Web / Telnet / SSH / HTTPS / SNMP interfaces

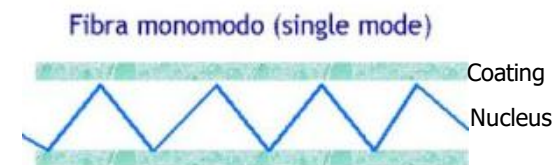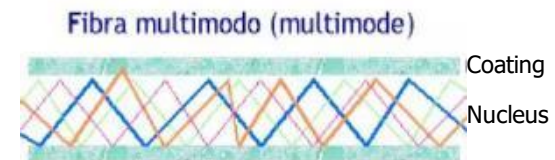# 4. Small Form-Factor Pluggable (SFP)

4.1 Module SFP

KTI provides a variety of optional Small Form-Factor Pluggable (SFP), also known as Mini-GBIC Transceivers for switches equipped with SFP connectors.

It has sufficient for performing any installation or project variety.

Single-Mode : Transmit information via an optical wave.

Multi-Mode: Transmit the information by several optical waves.

Fiber

KGS-2461

Fibra monomodo (single mode)

Coating

Nucleus

Fibra multimodo (multimode)

Coating

Nucleus

4.1 Range modules SFP

SPF modules for different types of fiber optics.

Single-mode

All SFP modules

They work with a wide range of temperature from -40 ° C ~ + 85 ° C

Multi-mode

SFP-10G-ER-A

10G Single-mode SFP +, 1550nm, LC, 40km, DDM
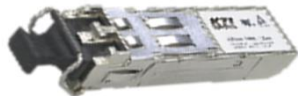
SFP-GLS-110-A

Gigabit Single-mode SFP, 1550nm, LC, 110km

SFP-GLSD-70A-A

Gigabit Single-mode SFP, 1550nm, LC, 110km

SFP-10G-ER-A

10G Multi-mode SFP +, 850nm, LC, 300m *[one], DDM

SFP-GLM-AA

Industrial Gigabit Multi-mode SFP, 850nm, LC, 550m

SFP-GLMD-A

Gigabit Multi-mode SFP, 850nm, LC, 550m, DDM

*[one] OM3 Fiber

5. ACCESSORIES

5.1 Introduction Accesories

Safety deposit boxes, wall mounting brackets, magnetic plates: the perfectly matched accessories increase the possible applications of the KTI products.

PCI Adapters: PCI cards for desktops

Brackets: fasteners Rack, Din-Rail and Wall

Chassis: To converters Fiber Optic copper management and sharing redundant power supply

Plastic of Fiber (POF): range switches and converters for plastic fiberoptic

5.2 Range accessories

PCI Adapter	Supports	Chassis	POF (Plastic Fiber)

PCI Adapter

KG-500F-B
1000BASE-X Gigabit Ethernet PCI Adapters With SFP Support

KF-221FX-C
1000Base-FX Fast PCI Ethernet Adapter

KF-221FX-C
10/100 / 1000Base-T Gigabit Ethernet PCI Adapter

Supports

KSD-6PB
Panel mounting for:
KGD-600, KSD-541, KSD-541-P

PMB-241
Panel mounting for:
KFC-241

WMB-0820
Wall mounting for:
KFS-2621, KS-1080, KGS-0820, KPOE-800

Chassis

KCR-4MC
4-Slot Media Converter Chassis 1U for 19 "Rack Installation

KC-1300
Managed Media Converter Chassis Center

POF (Plastic Fiber)

KCD-303P-A
Industrial 3-Port Fast Ethernet Media Converter POF Switches

KCD-303P-B
Industrial 3-Port Fast Ethernet Media Converter POF Switches

5.3 Switch & Converters Introduction

KTI has a trading range *entry level* in response to indoor installations. The range of options is as wide as in the industrial area and with the same quality.

5.4 Range switch & Converters

Standard switch | Standard converter

KGS-810F-B
Web Smart 8-port L2 Gigabit Ethernet Switch With one GbE SFP Port

KGS-500
5-Port 10/100 / 1000Base-T Gigabit Ethernet Switch L2

KGS-510F-D
6-Port Managed L2 Gigabit Ethernet Switches with 1 dual-speed SFP Slot

KS-108F-B
7-Port 10/100 Fast Ethernet L2 Switches with 1 Fiber Connection

KS-115FM-V
Web Smart Managed 4-port 10/100 L2 Fast Ethernet Switches with 1 Fiber Connection

KS-117FM-V
Web Smart Managed L2 6-Port 10/100 Fast Ethernet Switches with 1 Fiber Connection

KGC-311
Multimode to Single Mode Optical Fiber Media Converters

KGC-200
10/100 / 1000Base-T to Dual-speed Fiber Media Converters

KGC-300
1000Base-T to 1000Base-X Gigabit Media Converters

KC-300D
10 / 100Base-TX to 100Base-FX Media Converters

KGC-310M-C
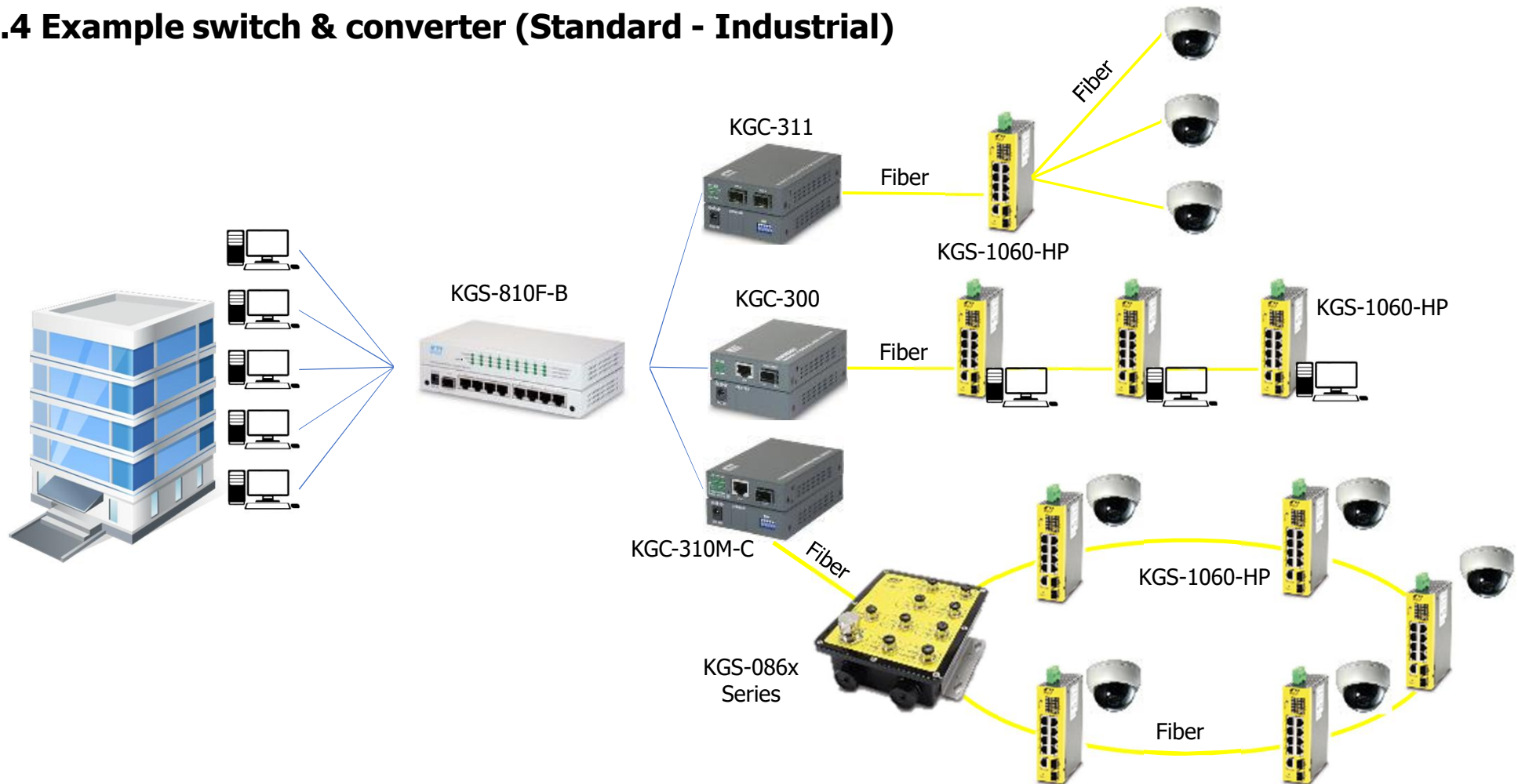Managed 10/100 / 1000Base-T to Dual-speed Fiber Media Converters

KFC-200-B
10 / 100Base-TX to 100Base-FX Media Converters
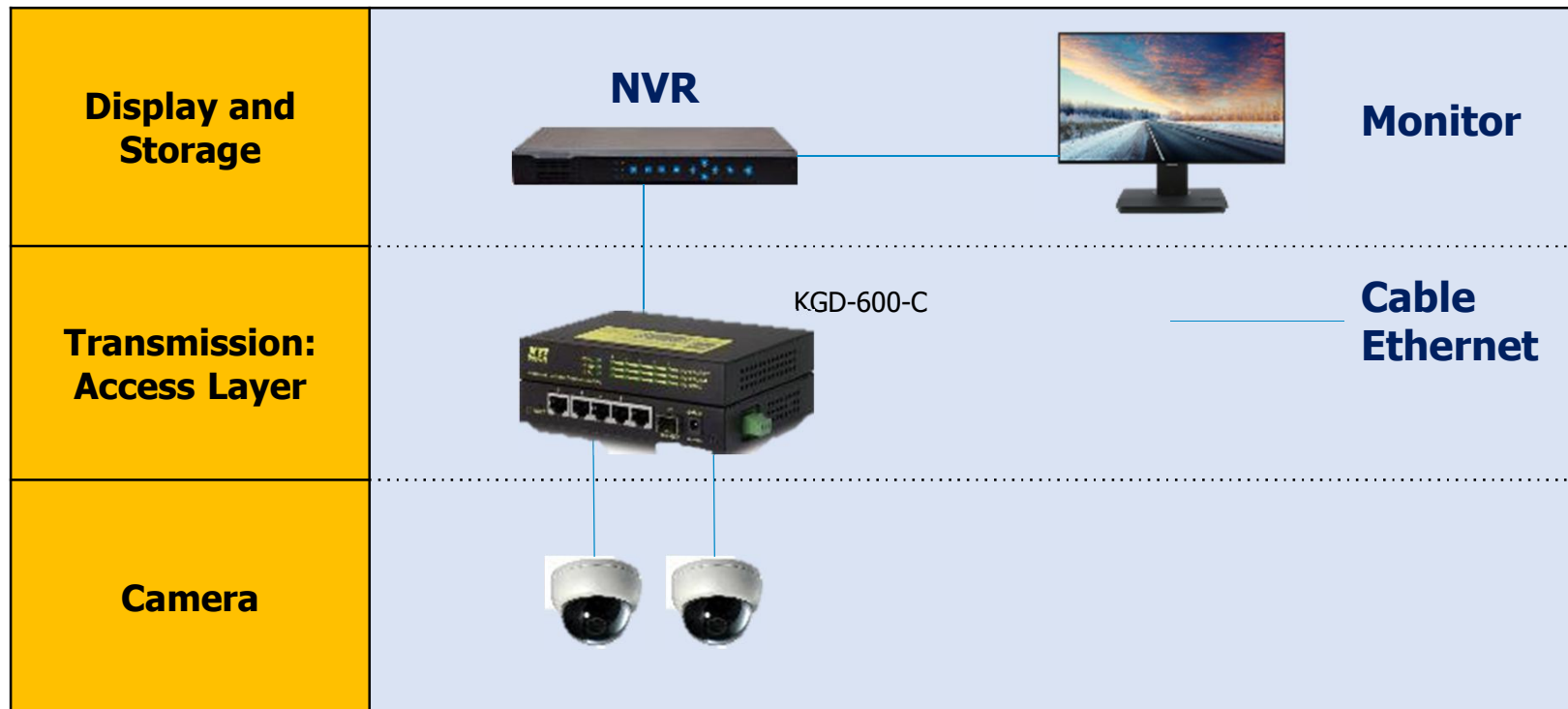
5.4 Example switch & converter (Standard - Industrial)

6. SWITCH EXAMPLES

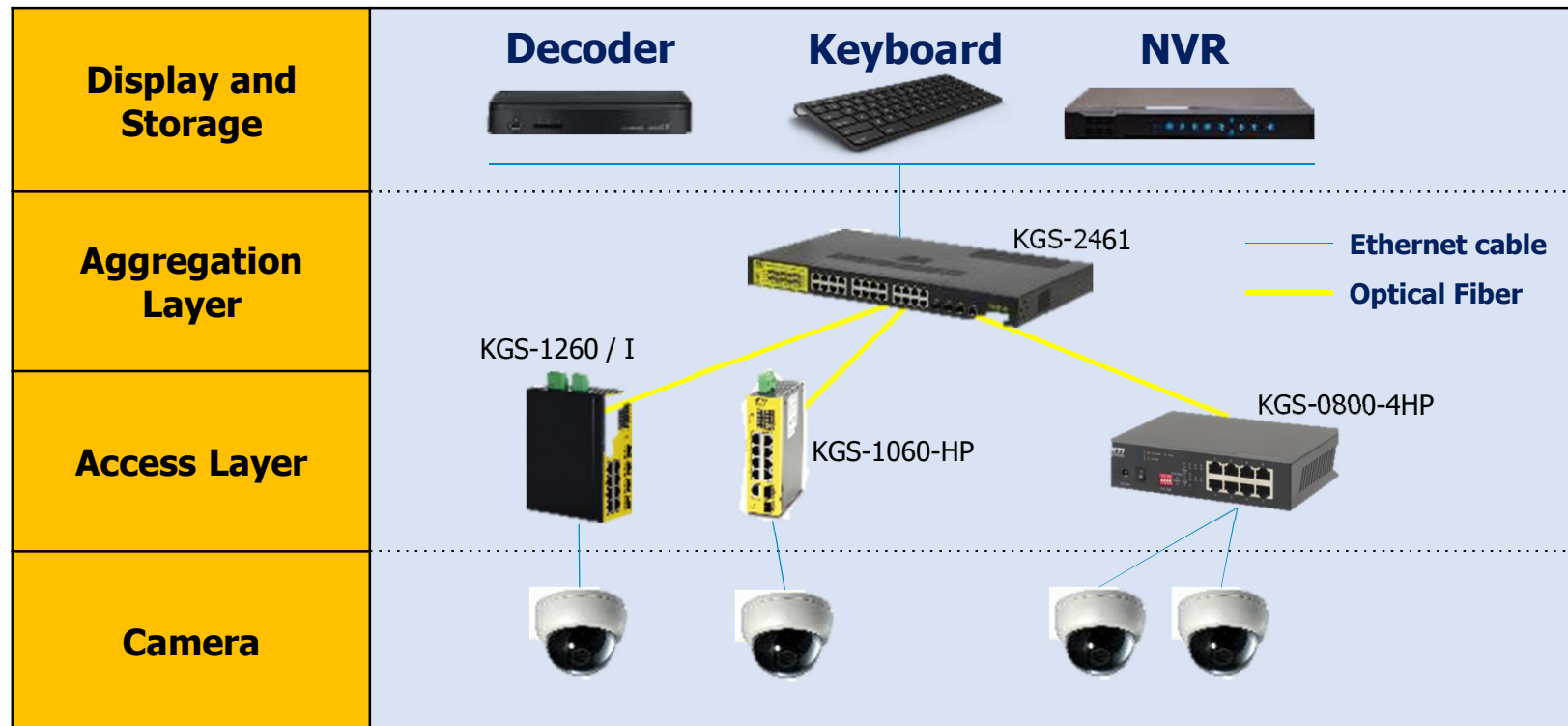## 6.1 Example 1

Small installation with a solution of <20 IPC's

6.2 example 2

Small installation with a solution of 50 to 100 IPC's

7. Doubts and questions

Thanks for your attention

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