LINK®
American Cabling

CommunityLINK

SMART OUTDOOR CONNECTIVITY SOLUTION

CCTV TODAY. SMART COMMUNITY TOMORROW.

ONE INFRASTRUCTURE.
MULTIPLE COMMUNITY SERVICES.

- **CCTV** — Safety & Security
- **Public Address** — Clear Communication
- **Wi-Fi** — Connectivity for All
- **Smart Lighting** — Efficient Municipality
- **IoT** — Smart Services



RELIABLE INFRASTRUCTURE

BETTER COMMUNITY SERVICES

SUSTAINABLE GROWTH

BRIGHTER LIVES TOGETHER

01 / THE OUTDOOR CHALLENGE

Outdoor reliability is a system problem, not a single product problem.

Long distance, heat, humidity, unstable power and lightning exposure all influence the design. The answer is a coordinated infrastructure.

LONG DISTANCE

Use fiber as the distributed backbone for long outdoor runs

HEAT & HUMIDITY

Cabinet temperature, moisture, condensation and UV exposure matter.

LIGHTNING & SURGE

Power and exposed copper paths can carry transient energy.

POWER QUALITY

Remote field locations may face outages, voltage variation and grounding issues.

MAINTENANCE

A repeatable node design reduces troubleshooting time and field variation.

FUTURE EXPANSION

The same backbone can later support PA, Wi-Fi, lighting and sensors.

THE DESIGN RESPONSE

FIBER	INDUSTRIAL POE	SNAPNODE	PROTECTION
Distance + isolation	Data + power	Modular field node	Layered defense

Design principle: Use fiber between distributed outdoor nodes. Keep copper/PoE runs local to nearby devices. Protect incoming power and exposed copper interfaces. Bond and ground the installation correctly.

02 / SYSTEM ARCHITECTURE

From Control room to every pole one repeatable architecture.

The solution is deliberately modular so it is easier to specify, install, maintain and expand.

1.CONTROL CENTER	2.FIBER BACKBONE	3.SNAPNODE	4.EDGE DEVICES
NVR / VMS + Core + ODF	Single-mode OSP	Fiber + PoE + Protect	CCTV + PA + Smart

Architecture Logic

BACKBONE	**Fiber Optic**	Connects long-distance outdoor nodes without a Long conductive data path
EDGE	**Outdoor copper / PoE**	Short local runs from node to camera, speaker or Other IP device.
POWER	**AC input + protected distribution**	Protection is concentrated and serviceable inside each outdoor node.
MANAGEMENT	**VLAN / monitoring**	Separates services and simplifies operation where Supported

WHY THIS ARCHITECTURE WORKS

Fiber handles distance and helps break conductive communication paths between field locations. Industrial PoE switches provide local Ethernet and power. SnapNode becomes a standardized service point for fiber termination, power, protection and maintenance.

Choose the cable by installation method.

The backbone cable must match the mechanical and environmental conditions of the route not simply the fiber count.

	RECOMMENDED CABLE	DESIGN FOCUS
AERIAL / POLE	ADSS or purpose-built aerial outdoor fiber	Span, tensile load, wind, UV exposure and attachment hardware.
UNDERGROUND DUCT	Outdoor duct fiber with water blocking design	Pulling tension, bend radius, water ingress and route access
DIRECT BURIAL	Direct-burial / armored outdoor fiber	Mechanical protection, armor construction, grounding approach and soil conditions

CABLE SELECTION CHECKLIST

ROUTE	CAPACITY	MECHANICAL	ENVIRONMENT
Aerial / duct / burial	Fiber count + spare	Tension + bend radius	Water + UV + rodents

RECOMMENDED BACKBONE CONCEPT

Use single mode fiber where distance, scalability and future bandwidth are priorities. Reserve spare fibers where practical so additional nodes or services can be introduced without replacing the backbone.

Turn every field cabinet into a standardized, modular service point.

SnapNode is the field platform at the heart of CommunityLINK standardized snap in modules for fiber, industrial networking, power and coordinated protection.

NODE FUNCTION

FIBER IN	TERMINATE	SWITCH	PROTECT	POE OUT
Backbone	Splice / ODF	Industrial PoE	SPD + Ground	Field devices

OPEN MODULAR NODE ARCHITECTURE

FIBER MODULE
Snap-in fiber termination and splice management for fast service access.

PoE MODULE
Industrial PoE switching sized for ports, PoE budget and fiber uplink.

POWER MODULE
Protected AC distribution, circuit protection and power supply / UPS options.

SURGE MODULE
Coordinated AC and PoE/Ethernet surge protection where required.

BONDING MODULE
Defined bonding point with short, low impedance protective paths.

CABINET PLATFORM
Outdoor enclosure with standardized mounting interfaces for clean expansion.

PLUG-ON • CONFIGURE • SERVICE • EXPAND

Keep the backbone fiber. Keep the last connection simple.

Industrial PoE provides a practical edge platform for cameras, speakers and other IP devices in distributed outdoor installations.

FIBER UPLINK
Connect each outdoor node directly to the optical backbone.

PoE OUTPUT
Carry Ethernet data and DC power on the short local device cable.

INDUSTRIAL DESIGN
Select by actual cabinet temperature and environmental conditions.

MANAGED NETWORK
Use VLAN, monitoring and redundancy where supported.

PoE BUDGET
Size total and per port power for fixed, IR, and PTZ cameras or IP speakers.

SERVICEABILITY
Standardize switch families to simplify spares and troubleshooting.

SIZE THE NODE - NOT JUST THE SWITCH

PORTS	PoE	TEMP.	UPLINK
Device count + spare	Per port + total budget	Cabinet operating range	Fiber/ SFP / topology

EXAMPLE SERVICE SEPARATION

VLAN 10 - CCTV • **VLAN 20 - Public Address** • **VLAN 30 - Management**

Product selection note: Confirm port count, PoE class, uplink type, operating temperature and management requirements before selecting the actual LINK Industrial PoE model.

06 / MULTI-LAYER SURGE PROTECTION

Protect the system at every electrical entry path.

No single device eliminates lightning risk. The objective is to reduce exposure and coordinate the paths that transient energy can take.

LAYER 1 / FIBER BACKBONE	Use fiber between nodes to avoid a long conductive data path in community backbone.
LAYER 2 / AC POWER SPD	Protect cabinet power entry with a properly selected low voltage SPD and overcurrent protection.
LAYER 3 / PoE / ETHERNET SPD	Where copper leaves the cabinet into an exposed run, consider a PoE compatible signal SPD.
LAYER 4 / GROUNDING & BONDING	Provides short, low impedance bonding paths and coordinated grounding for effective discharge.

LINK POE SURGE PROTECTOR FAMILY

Level 0 • Level 1 • Level 2 • Level 3

STANDARDS REFERENCE

IEC 62305 Series : Lightning protection principles, risk management, and system design.
IEC 61643-21 : Requirements and test methods for SPDs in telecommunications and signalling networks, including PoE.
IEC 61000-4-5 : Surge immunity testing methods for electrical and electronic equipment.

Engineering note: Final SPD type, rating, location, grounding and coordination must be engineered for the actual site power system, lightning exposure and equipment interfaces.

07 / APPLICATIONS & VALUE

BUILD the network once. Add services as the community grows.

A consistent outdoor backbone can support multiple IP-based services without redesigning the field architecture each time.

SECURITY	COMMUNICATION	CONNECTIVITY	SMART SERVICES
Village/ municipal CCTV	Public Address	Community Wi- Fi	Lighting / Sensors / IoT

APPLICATIONS

VILLAGE & MUNICIPAL CCTV
Distributed fixed/PTZ cameras with centralized monitoring.

PUBLIC ADDRESS
IP speakers or PA endpoints using the same network foundation.

SCHOOLS / CAMPUS
Outdoor surveillance, announcements and connectivity across buildings.

PARKS & PUBLIC SPACE
CCTV, Wi-Fi and future smart devices across open areas.

FACTORY PERIMETER
Long-distance fiber backbone with repeatable protected edge nodes.

FUTURE SMART SERVICES
Smart lighting, emergency call, environmental sensors and IP / IoT devices.

CommunityLINK

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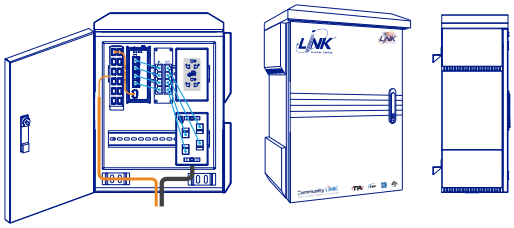
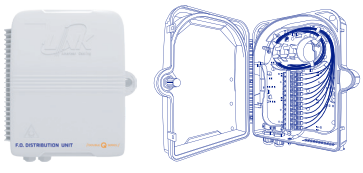
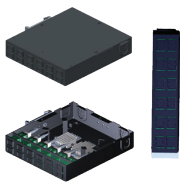
COM.LINK CABINET (OUTDOOR)



F.O. DISTRIBUTION UNIT
(INDOOR / OUTDOOR)



F.O. SPLICE PLUG-ON MODULE



PoE INDUSTRIAL SWITCH
PLUG-ON MODULE



COM.LINK PROTECTOR
PLUG-ON MODULE



PLUG-ON MODULE



PATCH CORD CAT 6



FIBER OPTIC PIGTAIL & PATCH CORD



WHY LINK

ONE DESIGN	EASIER SPECIFICATION	BETTER MAINTENANCE	FUTURE READY
Fiber + node + connectivity	Repeatable architecture	Standard field service points	Backbone for new services

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