# Ethernet Extender
User Manual

VerB 1.4

This Ethernet extender consists of one SV–Unit and one IPC–Unit. It can transfer Ethernet signal of IPC–Unit to carrier signal through coaxial cable or network cable and extend to SV–Unit, then transfer carrier signal to Ethernet signal and transmit power synchronously. SV–Unit could use 54V DC power adapter or PoE power supply, which fully meets the needs of long distance Ethernet signal transmission and power supply. It is widely used in coaxial cable and network cable mixed wiring security surveillance and network rebuilding project.

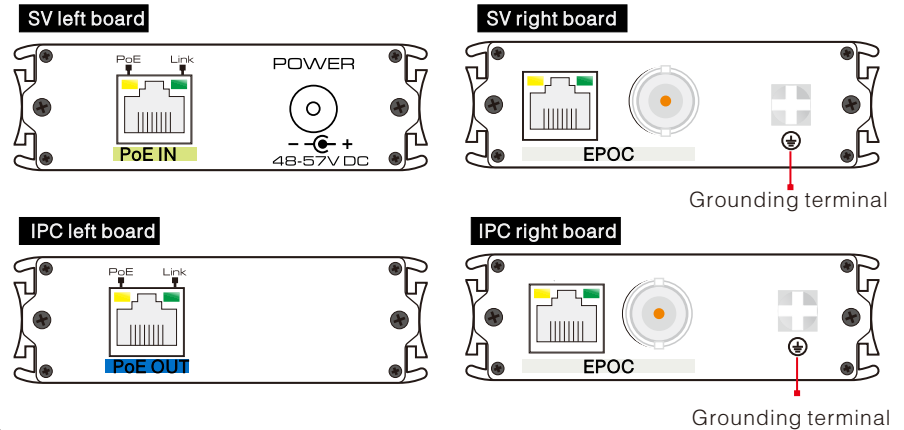**Application (POE power supply & DC power supply)**
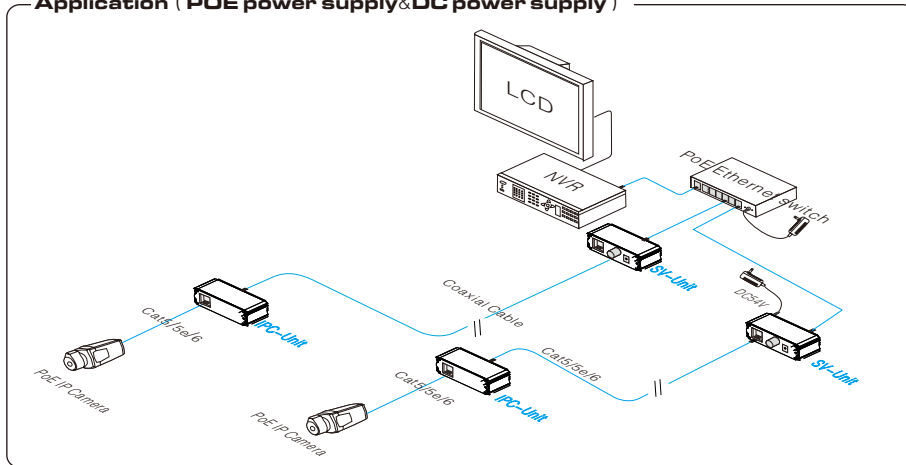
■ Feature

- The equipment consists of two parts: SV–Unit and IPC–Unit. SV–Unit has 48–57V DC port, one PoE input port and two output ports: BNC and RJ45; IPC–Unit has two input ports: BNC and RJ45, one PoE output port;
- Adopt advanced transmission and power supply technology, can transmit Ethernet signal and power signal up to 500m through coaxial cable and transmit Ethernet signal and power signal up to 400m Through network cable;
- Ethernet delay less than 1ms; Meet the requirement of point to point application;
- Standard: IEEE802.3 10BASE–T, IEEE802.3u 100BASE–TX, IEEE802.3af/at;
- Protection: excellent circuit isolation protection, superior product anti–thunder ,and anti–interference ability;
- Appearance: solid and delicate, meet MIT rack installation standard;
- Installation: plug–and–play, no setting required.

⚠ Notice

1) Please use 75–5 standard or above coaxial cable and Cat5e/6 cable to get the longest transmission distance!
2) BNC and Rj45 port can't be available at same time.

■ Board diagram

SV left board

PoE   Link

POWER

PoE IN

48-57V DC

SV right board

EPOC

Grounding terminal

IPC left board

PoE   Link

PoE OUT

IPC right board

EPOC

Grounding terminal

⚠ Notice：

Device must be connected with lightning protection grounding; otherwise protection level will be reduced; please use above 20AWG wire to connect the grounding terminal.

Description：

LED Status	POE IN/POE OUT RJ45		EPOC RJ45
	Yellow Light	Green Light	Yellow /Green Light
Flash	/	Indicate communicating	/
On	Indicate POE output,DC power supply	Indicate cable connecting	Indicate cable connection normal

■ Installation steps

Please check the following items before installation. If any missing, please contact the dealer.

- Ethernet Extender (IPC Unit or SV Unit)   1 pcs
- MIT Hanger   2 pcs
- User manual   1 pcs

Please follow below installation steps

1) Please turn off the signal source and the device's power, installation with power on may damage the device;
2) Check if the network cable and other transmission line that will be used is occupied by other device;
3) Use a network cable to connect PoE IN port of SV–Unit and PoE Ethernet switch (if it's not PoE equipment, then need to use 48–54v power adapter), use another network cable or coaxial cable to connect EPOC port of SV–Unit with EPOC port of IPC–Unit;
4) Use a network cable to connect IP camera with PoE out port of IPC–Unit;
5) Check if the installation is correct and device is good, make sure all the connection is reliable and power up the system;
6) Make sure the network is normal.

■ Specification

Item		Description
Power	Power Supply	PoE power or DC power
	Voltage Range	DC 48V ~ 57V
	Power Consumption	< 2W
Ethernet Port Parameters	Ethernet Ports	EPOC: 0–－100Mbps Ethernet: 10/100Mbps Transmission bandwidth changes with transmission distance, please refer to table 1
	Transmission Distance	EPOC Coaxial Cable: 0–500m(Max) EPOC Network Cable: 0–400m(Max)
	Transmission Medium	75–5 above Coaxial Cable and Cat5e/6
	PoE Standards	Support IEEE802.3af, IEEE802.3at
	PoE Power Method	Support End–span and Mid–span
Ethernet Features	Ethernet Standards	IEEE802.3 10BASE–T, IEEE802.3u 100BASE–TX
	Ethernet Delay	< 1ms
Status	LED Indicators	PoE IN/OUT Port: One indicates PoE power supply or DC power status(RJ45 yellow), one indicates Ethernet signal transmission(RJ45 green); EPOC Port: indicates signal transmission(RJ45 yellow/green)
Protection Level	ESD Protection	1a Contact Discharge level 3 1b Air Discharge level 3 Per: IEC61000–4–2
	Surge Immunity (Communication Ports)	Per: IEC61000–4–5 level 3
Operation Environment	Working Temperature	IPC:–40℃~70℃ , SV:0℃~55℃
	Storage Temperature	–40℃~85℃
	Humidity(No–Condensing)	0~95%
Mechanical	Dimension(L × W × H)	63.2mm × 82mm × 25mm
	Material	Aluminum
	Color	Black
	Weight	IPC:153g; SV:154g

Specification change will not be noticed

■ Trouble Shooting

Please find the following solution when the device doesn't work

● Please confirm if the installation according to factory installation request;

● Please confirm if the RJ45 cable order is in accordance with the EIA/TIA568A or 568B industry

  standards;

● The maximum transmission distance depends on the signal source and cable quality, please do not

  exceed the maximum transmission distance;

● Please replace a failure device with a proper one to check if the device is broken;

● If the problem still exists, please contact the factory.

Table 1:

Power Supply		PoE Ethernet Power Supply		54V DC Power Supply	
SV<–>IPC Cable		75–5	CAT5E	75–5	CAT5E
100m	Bandwidth (Mbps)	92.6	91.2	92.6	91.2
	Load Capacity (W)	16.1	17.2	23	23
200m	Bandwidth (Mbps)	91	84.2	91	84.2
	Load capacity (W)	10	12	17	22
300m	Bandwidth (Mbps)	90.8	74.5	90.8	74.5
	Load Capacity (W)	8	9.1	12	16
400m	Bandwidth (Mbps)	90.5	55.7	90.5	55.7
	Load Capacity (W)	5	6.5	10	12
500m	Bandwidth (Mbps)	83.7	/	83.7	/
	Load Capacity (W)	4.5	/	8	/

Picture 1:

PoE Switch —100m→ SV — IPC —1m→ Load

54V Power → SV — IPC —100m→ Load
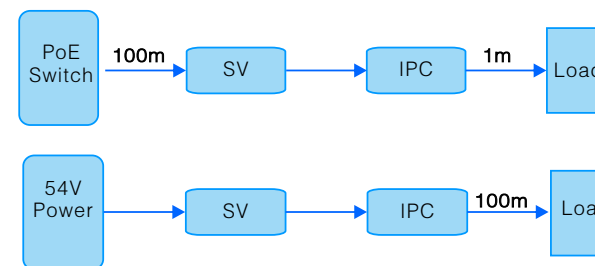
Instruction: The test data in table 1 is required under lab environment by the test method in picture 1. In actual case, there maybe some differences due to different cable and environment