

**Model FS-HD4301VPA**

## Features

### Single Channel HD Video, Power & Audio Transmitter & Receiver (12V/24V DC/AC)

- Real-time transmission over UTP cat5e/6
- NTSC, PAL & SECAM video format compatible
- Compatible with all HD-TVI, HD-CVI, AHD & CVBS analog cameras
- Color video max up to 440m(1443ft) for HD-CVI 720P camera  
If you adjust saturation of DVR, max up to 480m(1574ft)  
Color video max up to 220m(721ft) for HD-CVI 1080P camera
- Color video max up to 190m(623ft) for Hikvision TVI 720P camera  
Color video max up to 190m(623ft) for Hikvision TVI 1080P camera
- Color video max up to 210m(688ft) for TVT HD-TVI 720P camera  
Color video max up to 230m(754ft) for TVT HD-TVI 1080P camera
- Color video max up to 300m(984ft) for AHD 720P camera  
Color video max up to 240m(787ft) for AHD 960P camera  
Color video max up to 220m(721ft) for AHD 1080P camera
- Audio signal up to 600m (1968ft).
- Male BNC with extended 5.9inch(150mm)mini-coax pigtail
- RJ45 Jack for UTP cable
- Built-in TVS (Transient Voltage Suppressor) for surge protection
- Wave Filter Design, Anti-Static Design
- Lightning protection design Grade: III
- 60 dB crosstalk and noise immunity
- Exceptional interference rejection
- ABS engineering plastic housing



## Overview

The FS-HD4301VPA is video, power & audio transmitter and receiver that allows the transmission of real-time CCTV HD video, power and audio signal via one cost-effective Unshielded Twisted Paired (UTP) cable. Baseband (composite) signals of any type are supported.

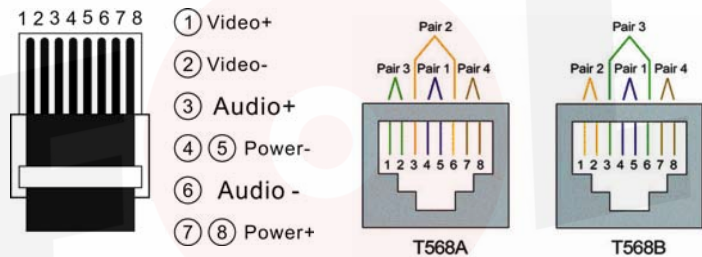
The FS-HD4301VPA is compatible with all HD-TVI, HD-CVI and AHD analog camera. Used in pairs, the FS-HD4301VPA eliminates costly and bulky coaxial cable.

The superior interference rejection and low emissions of the FS-HD4301VPA allow video signals to coexist in the same wire bundle as telephone, datacom, or low-voltage power circuits. This allows the use of a shared or existing cable plant. The FS-HD4301VPA is built-in surge suppressor to protect video equipment against damaging voltage spikes. Its crosstalk and noise immunity ensure quality video signals.

## Wire and Cable Recommendations

The FS-HD4301VPA is recommended to use with Unshielded Twisted Paired (UTP) wiring from 24AWG through 22AWG..Individually shielded pairs should be avoided, as they reduce the operating range of the systems drastically. Multi-pair cable (25-pair or more) with an overall shield are acceptable. Video signals can coexist in the same wire bundle as telephone, datacom, or low-voltages power circuits. While video may be routed through telephone punch-down block terminals, any bridge-taps, also called T-taps and any resistive, capacitive or inductive devices **MUST BE** removed from the pair.

For more specific information regarding wire types, gauges and proper installation techniques, please contact us for technical assistance.



## EIA/TIA-568A Wiring Specifications

Wire	Pin #	Configuration
Green White	1	Video (+)
Green	2	Video (-)
Orange White	3	Audio(+)
Blue	4	Power (-)
Blue White	5	Power (-)
Orange	6	Audio (-)
Brown White	7	Power (+)
Brown	8	Power (+)

## EIA/TIA T-568B Wiring Specifications

Wire	Pin #	Configuration
Orange White	1	Video (+)
Orange	2	Video (-)
Green White	3	Audio(+)
Blue	4	Power (-)
Blue White	5	Power (-)
Green	6	Audio (-)
Brown White	7	Power (+)
Brown	8	Power (+)

## Power Distance Chart ( over one UTP cable, one pair for video, two pairs for power, one pair for data)

Camera Type	HD-CVI 720P			
	12V DC	15V DC	18V DC	24V DC
Power Supply Voltage	12V DC	15V DC	18V DC	24V DC
Voltage at the Camera	8.2V DC	8.2V DC	8.2V DC	8.2V DC
100mA camera	450m	>450m	>500m	>500m
200mA camera	180m	350m	>450m	>500m
300mA camera	110m	225m	350m	>450m
400mA camera	85m	160m	260m	410m
500mA camera	70m	125m	190m	330m
600mA camera	55m	110m	160m	230m
800mA camera	40m	85m	115m	190m
1000mA camera	30m	65m	95m	155m

Camera Type	HD-CVI 1080P			
	12V DC	15V DC	18V DC	24V DC
Power Supply Voltage	12V DC	15V DC	18V DC	24V DC
Voltage at the Camera	9.5V DC	9.5V DC	9.5V DC	9.5V DC
100mA camera	150m	>250m	>250m	>250m
200mA camera	130m	250m	>250m	>250m
300mA camera	85m	180m	>250m	>250m
400mA camera	60m	135m	210m	>250m
500mA camera	45m	105m	170m	>250m
600mA camera	35m	90m	135m	250m
800mA camera	20m	65m	100m	185m
1000mA camera	15m	50m	85m	145m

**Note:**

1. The transmitter and receiver must use the same wiring.
2. If you adjust saturation of DVR, video transmission distance could be farther. (HD-CVI 720P: max up to 470m(1542ft))
3. If chromatic aberration occurs within 30 meters, please also adjust saturation, the picture will recover perfectly automatically.(only for HD-CVI 1080P)
4. The above data is only the result of laboratory test; actual distance will depend on the camera's inrush and operating current, minimum operating voltage, the wire's quality and environmental factors.

Camera Type	AHD 720P / 960P / 1080P			
Power Supply Voltage	12V DC	15V DC	18V DC	24V DC
Voltage at the Camera	10V DC	10V DC	10V DC	10V DC
50mA camera	250m	350m	>350m	>350m
100mA camera	180m	300m	>350m	>350m
200mA camera	95m	250m	350m	>350m
300mA camera	60m	160m	250m	>350m
400mA camera	45m	115m	195m	>350m
500mA camera	35m	95m	150m	350m
600mA camera	<30m	80m	130m	245m
800mA camera	<30m	60m	95m	175m
1000mA camera	<30m	45m	80m	135m

Camera Type	HD-TVI 720P / 1080P			
Power Supply Voltage	12V DC	15V DC	18V DC	24V DC
Voltage at the Camera	>9.2V DC	>9.2V DC	>9.2V DC	>9.2V DC
100mA camera	180m	270m	>300m	>300m
200mA camera	140m	230m	>270m	>300m
300mA camera	95m	180m	230m	>300m
400mA camera	70m	130m	180m	>270m
500mA camera	55m	110m	170m	250m
600mA camera	45m	95m	145m	210m
800mA camera	30m	70m	110m	180m
1000mA camera	20m	50m	90m	140m

## Technical Specifications

Model		FS-HD4301VPA		
Product Name		Single Channel HD Passive Video, Audio and Power Transmitter & Receiver		
Applied Devices		CCTV cameras, monitors, DVR, switchers, IP encoders, and other CCTV equipment		
Video	Video Format	PAL, NTSC, SECAM		
	Operating Frequency	DC to 42MHz		
	Max Distance	HD-TVI 720P: 190m	HD-CVI 720P: 440m	AHD 720P: 300m
		HD-TVI 1080P: 190m	HD-CVI 1080P: 220m	AHD 960P: 240m AHD 1080P: 220m
	Common-mode/Differential-mode rejection	15KHz to 42MHz 60 dB typ		
	Impedance	Coax, Male BNC 75Ω unbalanced UTP, RJ45 100Ω balanced		
	Attenuation	1.5 dB typ Max		
Wire Type	Network Wiring	One Unshielded Twisted Pair (for each video signal) 24-16 AWG (0.5-1.31mm)		
	Category Type	2 or better		
	Impedance	100 ± 20 ohms		
	DC Loop Resistance	52 ohms per 1,000ft (18 ohms per 100m)		
	Differential Capacitance	19 pF/ft max (62 pF/m max)		
Power	Power Input	No external power required		
	Power transmission	12V/24V,DC/AC, via UTP cat5e/6, please refer to power distance chart above		
Audio Signal	Transmission distance	Up to 984ft(300m) via UTP cat5e/6		
Connector	Video input/output	Male BNC connector		
	Video input/output	RJ45 Jack		
Protection	Surge Protection	renewable solid state surge protection		
	Video Input	2KV(common mode), 10/700us IEC6100-4-5/1955(GB/T 1726, 5-1999)		
	Video Output	2KV(different mode), 10/700us IEC6100-4-5/1955(GB/T 1726, 5-1999)		
Mechanical	Housing	ABS engineering plastic		
	Body Color	Black		
	Dimensions(L*W*H)	60.4*29*20.4mm (BNC connector & cable excluded)		
	Net Weight	65g		
Environmental	Operating Temperature	-20° ~ 70° C		
	Relative Humidity	0~95% (non-condensing)		

## Applications

- Security Monitoring System
- Multimedia Network Teaching System
- Medical Monitoring Display System
- Industrial Automation Control System
- Banking, securities, financial information display system
- Remote Network Server Monitoring
- Department Store Security
- Casino Security
- Hospitals, Airports and banks
- School Campuses

## Application Diagram

