Model : ATZ NET-KS-USB-C-LED-xx (xx=Colour: WH/BK)

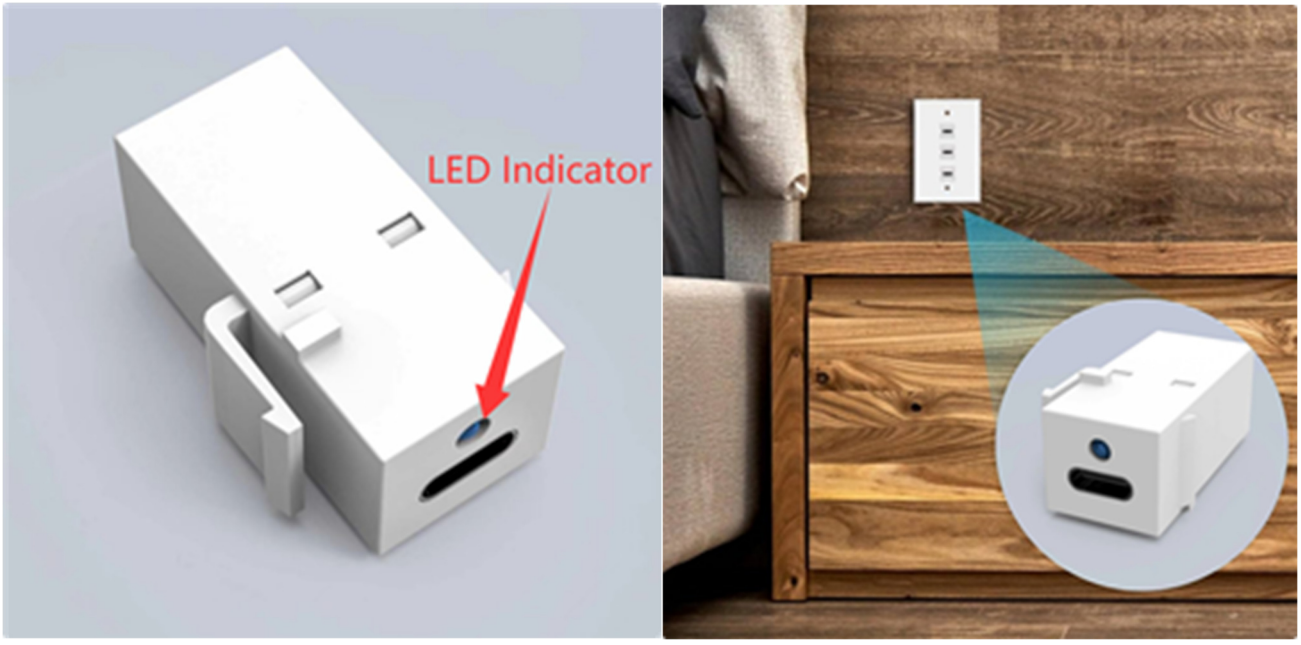
Description: USB-C Keystone Adapter 24-Pin CC/SBU signals intact, USB4(40GB),DP Alt-Mode,PD100W.

Your Trusted Connectivity Solutions!



This USB-C Adapter was specifically developed to address a common industry shortcoming, and standard C-to-C cables often fail to automatically detect insertion orientation or link status when used in panelmount applications. Featuring a 24-pin full-pin-through design, it maintains complete signal integrity including critical CC and SBU lanes—and fully supports USB 2.0, USB 3.2 Gen1/Gen2, USB4, DP Alt Mode, and USB Power Delivery (PD) protocols. The built-in LED status indicator provides real-time visibility of connection and power status, drastically simplifying on-site verification and troubleshooting. Constructed with a flameretardant PC housing and an integrated snap-fit mechanism, it ensures robust mechanical connectivity and quick installation across various panel cutouts. It is ideally suited for device debugging, interface extension, functional conversion, and test fixtures.

In the USB-C cable's installation, people can quickly judge whether the entire connection is ok or fail by checking the Keystone's LED light is on or off.



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Here are key features of the USB-C Keystone Adapter:

✓ **24-pin full passthrough** —— Supports USB4, USB 3.2 Gen1 & Gen2, USB 2.0, DP-Alt-Mode and PD.
✓ **Built-in LED indicator** —— Lights up only when both cables are correctly connected (If the LED is OFF → something's wrong with the connection).
✓ **No more flipping cables blindly** —— The LED tells you instantly if the connection is good, saving huge time during installation or troubleshooting.
✓ **Tool-free snap-in design** —— Fits standard wall plates and panels

Unlike traditional keystones, ours gives you **Visual Confirmation** to know if the cables connected, no need any extra tools – perfect for installers, test benches, and in-wall extensions.

Features:

- True 24-Pin Design Keeps CC/SBU signals intact, guaranteeing support for both directions (fast charging [PD] and video [Alt Mode]).
- Supporting up to 5A current and compatible with USB PD 100 W or higher (Pass Through)
- Built-in LED provides instant visual confirmation of connection establishment and power status.
- Bidirectional passive adapter with plug-and-play functionality, requiring no additional drivers and supporting bidirectional data and power flow.
- Bridge two Type-C cables to extend the signal range. It is compatible with all standard plug-in wall panels.
- The base features a stainless steel housing with a plug-out lifespan of ≥10,000 cycles and gold-plated contact terminals measuring ≥15 μm.
- Its compact structure enables wall or desktop wiring, while the streamlined design of compact expansion ports facilitates installation in confined spaces and portable use.
- Operating temperature ranges from-20°C to +80°C, suitable for various environmental conditions.
- Application: Ideal for device debugging, interface extension, functional adaptation, and automated test fixtures (ATE).

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Performance Parameters:

The performance parameters of this USB Type-C adapter (with an LED status indicator) are shown in the following table:

Parameter	Specification
Interface type	USB Type-C Female Socket × 2 (24 Pin Full Function)
Transport protocol	USB 2.0 / USB 3.2 Gen1 / USB 3.2 Gen2 / USB 4.0 / DP Alternative Mode / PD Charging
Data Transmission Rate	Supports USB4 speeds up to 40 Gbps with full backward compatibility for USB 3.2 and 2.0. Ensure the host connects to the [Full-Function Port]—the LED will light up to confirm. Actual performance varies based on your cable and device capabilities
Power Specifications	Supporting up to 5A current and compatible with USB PD 100 W or higher (Pass Through)
Power Support	Supporting up to 100W power output or more
LED	1 × Monochromatic LED • Standby/Unconnected: Off • Connection successful/Data ready: Blue light on continuously • Operating voltage of the LED: 2.8 V–3.6 V; Power consumption ≤ 20 mA
Transmission distance	The adapter itself has no transmission distance limit; the total link is constrained by cable specifications and depends on your connected devices.

Absolute Maximum Rating Value:

Parameter	Symbol	Unit	Numeric value		Remarks
			Least value	Crest value	
Transmission voltage	Vcc	V	0	20	nil
Storage Temperature	Tstg	℃	-40	85	nil
Relative Working Humidity	RH0	%	5	95	nil

Interface Definition:

Type-C Male Port Pin Mapping (24-Pin Full Through-Through)

This product features a 24-pin full-pin configuration with continuous connections, where the male and female pin configurations are perfectly mirrored to ensure reliable insertion detection and high-speed signal integrity.

Pin Number	Signal Name	Function declaration	Direct Access Method
A1 / B12	GND	Landing	Direct connection
A2 / A3	SSTX+ / SSTX-	Ultra-high-speed differential transmission pair	Direct connection (TX to TX)
A4 / B9	VBUS	Power bus	Direct connection; the LED driver draws power from this connection point.

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A5	CC1	Configuration Channel 1	Direct connection; the LED control logic access point is connected as well.
A6 / A7	D+ / D-	USB 2.0 Differential Pair	Direct connection
A8	SBU1	Use Border 1	Direct connection
A9 / B4	VBUS	Power bus	Direct connection
A10 / A11	SSRX- / SSRX+	Ultra-high-speed differential reception pair	Direct connection
A12 / B1	GND	Landing	Direct connection
B2 / B3	SSRX+ / SSRX-	Ultra-high-speed differential reception pair	Direct connection
B5	CC2	Configuration Channel 2	Direct connection: The LED control logic access point is connected as well.
B6 / B7	D- / D+	USB 2.0 Differential Pair	Direct connection
B8	SBU2	Sideband 2 used	Direct connection
B10 / B11	SSTX- / SSTX+	Ultra-high-speed differential transmission pair	Direct connection

Instructions for Connecting LED Control Pins:
CC Detection: When both ends of the adapter are connected with external cables, the LED will illuminate if the CC connection is correct. If the LED does not light up, reverse the connections at each end until the LED lights up—this confirms proper connection and indicates that the connection has been established, thereby activating the connection indicator light.

Structural Dimensions:

Interface Layout
Interface spacing: Dual female ports arranged symmetrically and centered.
LED location: Featuring a 3.0 mm diameter LED chip on the same side as socket A.
Mounting method: One side of the housing features a snap-fit groove for panel fixation.

Materials and Manufacturing Processes:
Shell: PC (Color: White).
Internal support: high-temperature nylon , flame rating UL94-V0.
Terminal material: Nickel-plated shell and 15μ" gold-plated contacts
PCB: Six-layer board design with impedance controlled at 90 Ω ± 10%

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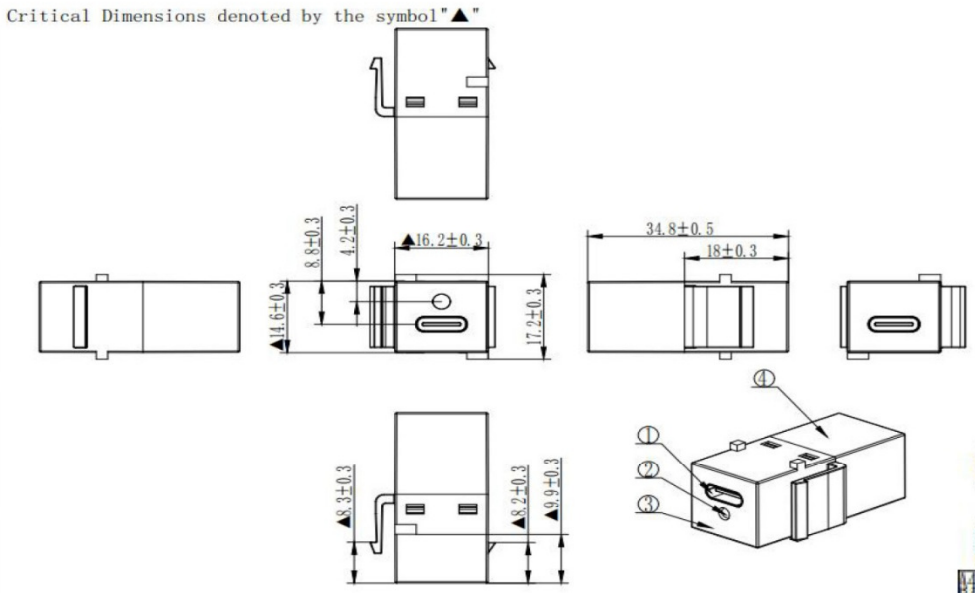
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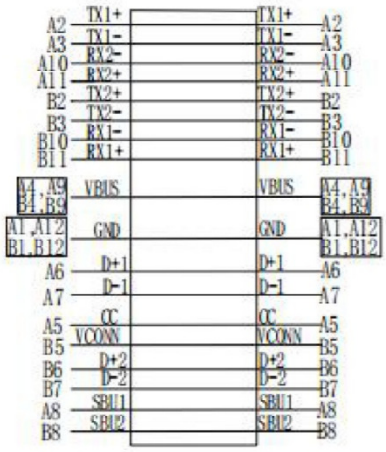
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External Dimensions:





Notes:
1. The Material meets the requirement of RoHS

Specifications:

1x ABS Back Cover
1x ABS Front Cover
1x LED (TLDR5400 Green)
1x Type C/F to C/F Module (connector Shell Nickel plated

Working Principle

Basic Connection Logic:
A passive, non-protocol adapter enabling transparent transmission via 24-pin direct mapping.
Data Channels- Direct pass-through for USB 2.0 (D+/D-), USB 3.x/4 (SSTX/SSRX), and SBU signals.
Power Channel- Direct connection between VBUS and GND, delivering the agreed-upon power voltage and current between devices.
Configure Channel- CC1/CC2 continuity ensures Source/Sink role ID, orientation detection, and PD communication.

LED Indicator Logic:
The LED drive circuit is an independent auxiliary circuit that does not interfere with main signal transmission.

Testing conditions	LED state	Meaning
Both ends not inserted or single end inserted	Off	No connection

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Both ends inserted, CC not connected correctly	Off	Connection not established correctly; you need to reverse the connection wires at both ends. When the LED light is on, it is the correct connection
Both ends are inserted, and the CC handshake is successful	Blue light on	Power channel activated; a data connection has been established

Applications:

Device Debugging: Connects two devices for data transfer, firmware flashing, and protocol analysis.
Panel Integration: Acts as a transition module in test fixtures or panels, protecting native ports and extending insertion lifespan.
Power Testing: Links PD chargers to devices for power delivery and monitoring (VBUS/V/I).
Extension: Supports DP Alt Mode for video/audio pass-through between hosts and displays (no protocol conversion).
Production Test: Standardized interface module for line testing and aging racks, with visual LED status.

Keystone Installation Guide:

-It works with standard keystone wall plates and a USB-C cable
-The USB Type-C Keystone Jack Insert is vertically oriented
-Hook the bottom lip into the cut-out while holding the keystone insert at a slight angle.
-Rotate the insert upward to snap the retaining clip on the top into the cut-out until it snaps into place.
-Connect an USB Type-C adapter to route cables in tight spaces

Installation Steps:

-Pre-test: Before permanent installation, connect the module to a cable and test for proper connectivity.
-Diagonal insertion: Insert the module's bottom tab into the panel opening while maintaining a slight tilt angle.
-Press fully: Turn the module upward to push the top locking clip into the opening until you hear a "click" sound indicating secure engagement.
-Cabling connection: When wiring in narrow spaces, use a USB Type-C adapter for assistance.

Final Assembly:

-Run the USB-C cable through the wall
-Connect one end of the USB-C cable to your target input/output
-Connect the other end to this USB-C keystone jack and snap it into the back of the keystone wall plate
-Connect a USB device to this USB-C keystone jack

Q&A:

Q1: Does the power rating depend on the order of the cables connected?
A1: No. The supported power rating is determined by the cable plugged into the Host (Source) side: Ex: Host →100W Cable → Adapter → 60W Cable → Device Output: PD100W or Host → 60W Cable → Adapter → 100W Cable → Device Output: 60W

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Q2: Does this adapter support power amplification? What considerations should be made regarding heat dissipation?
A2: This component does not support power amplification and is a passive through-pass device. When the current approaches 5 A or the power exceeds 100 W, monitor the case temperature rise to prevent overheating during prolonged full-load operation.

Q3: Which protocol conversions or feature enhancements does it support?
A3 Does not support protocol conversion (e.g., USB to HDMI, PD boost/bump). It only provides direct connectivity between the physical layer and the line layer; ensure both devices support the same protocol specification.

Q4: If both ends of the cable carry E-MARKER/E-Marker chips, will there be any impact?
A4: Possible. Due to the direct CC channel connection, some devices may experience abnormal recognition if both ends carry E-Markers. It is recommended for use primarily in scenarios with direct device connections or single-end wired or single-end E-Marker configurations.

Q5: Can the adapter change the insertion direction logic (forward/reverse)? What should I do if the LED displays an error?
A5: The Type-C male port supports both forward and reverse insertion, but the dual-male adapter does not change the original orientation of the cable or device. If functionality is incorrect, try reversing one of the male connectors to establish proper connection (the LED should display normal/normal).

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