1-Port 10/100/1000T Ethernet to VDSL2 Converter w/ G.vectoring

200/200Mbps Downstream/Upstream, High-performance Gigabit Ethernet over Phone Wire Solution

PLANET VC-231G, a new-generation and high-performance Gigabit Ethernet-over-VDSL2 Converter with the brand-new VDSL2 Super Vector 35b profile, works well with a pervasive telephone line network with a symmetric data rate of up to **200/200Mbps (G.INP, Sym, 8dB)** over a distance of **200m and 21/13Mbps** over a long distance of **1.4km**. It is based on the two-core networking technology, **Gigabit Ethernet and VDSL2** (Very-high-data-rate Digital Subscriber Line 2). The VDSL2 technology offers absolutely the fastest data transmission speed over the existing copper telephone lines without the need of rewiring.

High-performance Ethernet over VDSL2

Via the latest VDSL2 technology, PLANET VC-231G offers high-speed access to Internet, up to 200Mbps for both upstream and downstream data transmissions. With integrated support for the ITU-T's new **G.993.5 vectoring technology**, the VC-231G works in conjunction with vectoring-enabled DSLAMs to remove crosstalk interference and improve maximum line bandwidth across the existing copper infrastructure.

Implementing with Existing Telephone Copper Wires

The VC-231G is also a Long Reach Ethernet (LRE) converter providing one RJ45 Ethernet port and one RJ11 phone jack, which is for VDSL2 connection. Use the additional splitter from the package of the VC-231G to share the existing phone line with POTS, thus replacing the existing copper wiring is not necessary. Just plug the VC-231G with the additional splitter into the existing RJ11 telephone jack and a high-performance VDSL2 network can be connected. It is ideal for use as an Ethernet extender to an existing Ethernet network.

- Supports ITU-T G.993.2 **VDSL2 Profile 17a/30a/35b**
- Supports ITU-T G.993.5 G.vectoring and G.INP
- DMT-based coding technology
- Additional splitter to share voice and data
- CO/CPE mode selectable via DIP switch
- Selectable target band plan and SNR margin
- Up to 200/200Mbps bandwidth (in **G.INP**, **Sym**, **8dB** mode)
- 1 10/100/1000BASE-T LAN ports.
- Complies with IEEE 802.3, 10BASE-T, IEEE 802.3u, 100BASE-TX, IEEE 802.3ab 1000BASE-T and IEEE 802.3x, flow control Ethernet standards
- Half duplex back pressure and IEEE 802.3x full duplex pause frame flow control
- One RJ11 connector for VDSL port with VDSL connection
- Voice and data communication can be shared simultaneously based on the existing telephone wire
- Supports IEEE 802.1Q VLAN tag transparency
- VDSL2 standalone transceiver for simple bridge modem application
- Advantage of minimum installation time (Simply by Plug-and-Play)
- Supports extensive LED indicators for network diagnosis
- Co-work with PLANET media converter chassis (MC-700/ MC-1500/ MC-1500R/MC-1500R48)
- Compact in size and easy to install

Delivering High-demanding Service Connectivity for ISP/Triple Play Devices

The VC-231G provides an excellent bandwidth demand for the triple play devices for home entertainment and communication. With the asymmetric data transmission of **316/60Mbps (G.INP, Asym, 8dB)**, the VC-231G enables many multi-media services to work on the local Internet, such as VoD (video on demand), voice over IP, video phone, IPTV, Internet caching server, distance education, and so on.

Easy and Flexible Installation

The Ethernet-over-VDSL2 converter comes with a plug-and-play design and is fully compatible with all kinds of network protocols. Moreover, the operating status of each individual port and the whole system can be watched via the rich diagnostic LEDs on the front panel. The VC-231G offers two modes, **CPE** and **CO**, for application -- CPE mode is used at client side and CO mode is at central side. The CPE or CO mode can be adjusted by using a built-in DIP switch. For point-to-point connection, a CPE mode VC-231G and a CO mode VC-231G must be set up as one pair of converters to perform the connection.

ADSL2+ Fallback

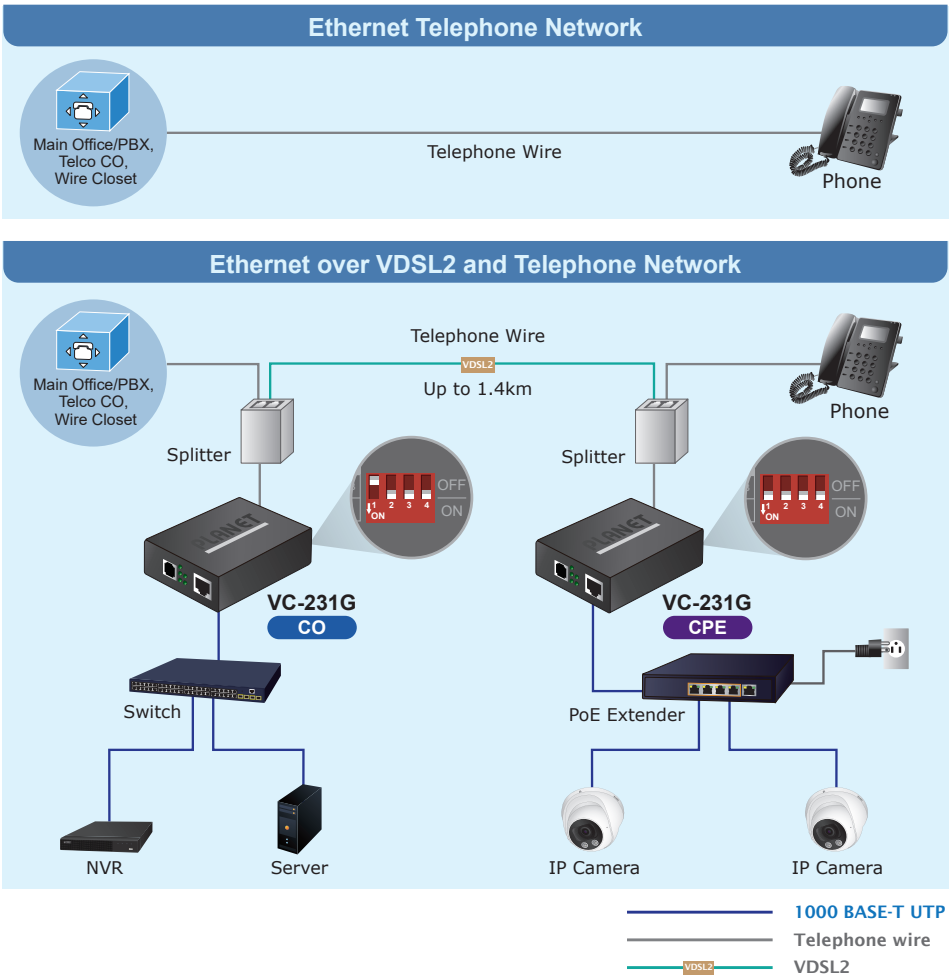
For those ISPs that still provide ADSL broadband service, the VC-231G can support transmission rates up to 24Mbps downstream and 1Mbps upstream with the ADSL2+ technology. The VC-231G establishes a connection with ISP and can be also directly switched over to VDSL2 after the ISP network upgrade.

Applications

Ethernet Distance Extension

Two VC-231G converters can act as a standalone pair which is good for Ethernet distance extension over the existing telephone wires. With just one pair of AWG-24 copper wires, two Ethernet networks can be easily connected to each other with a maximum data transmission rate of 200Mbps. The telephone service can still be used while the VC-231G CO/CPE is in operation. The two solutions listed below are typical applications for the Ethernet over VDSL2 bridge.

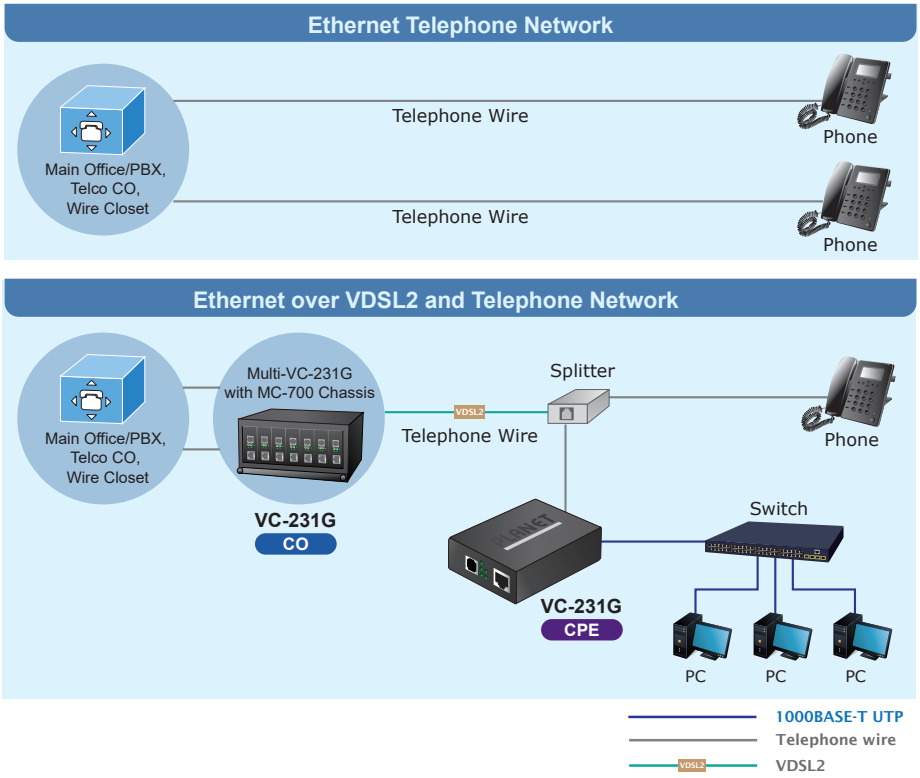
LAN to LAN Connection



MTU/MDU/Hospitality Solution

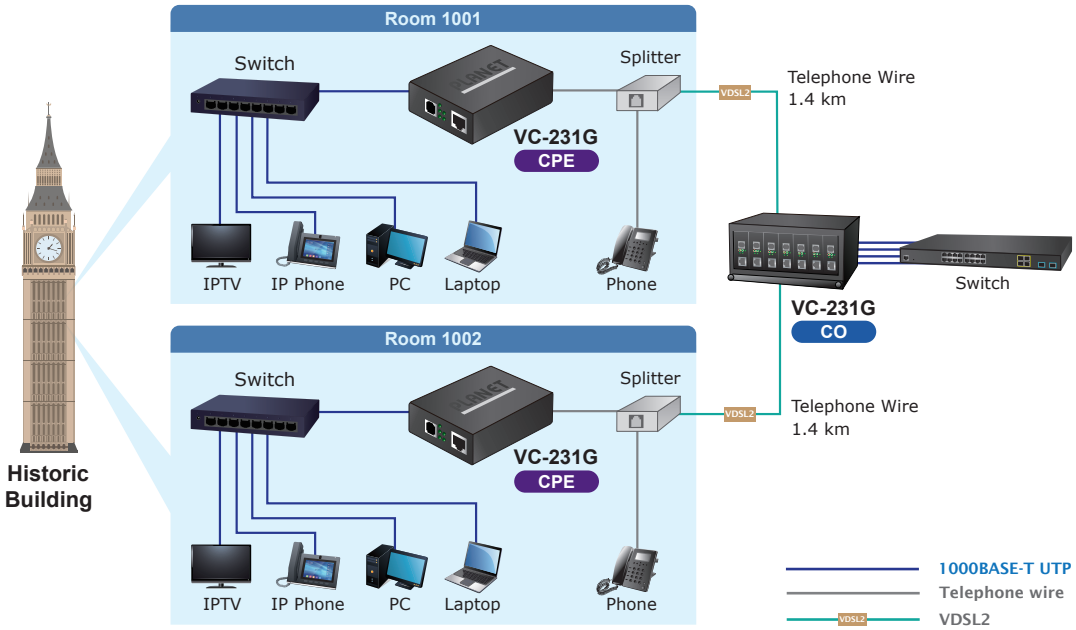
The VC-231G is a perfect solution to quickly providing cost-effective yet high-speed network services to multi-unit buildings such as residential buildings (multi-dwelling units), commercial (multi-tenant units) buildings, hotels and hospitals. By utilizing the existing telephony infrastructure, a new network installation can be easily built, without requiring new wiring. With a transmission rate of up to **316/60Mbps (G.INP, Asym, 8dB)**, VoD, IP telephony and various broadband services can be easily provided.

Multi-LAN Connection



Last Mile of FTTx Deployment

The VC-231G is an ideal solution for FTTx (Fiber to the Building, Fiber to the Campus or Fiber to the Node) applications. It supports high-bandwidth VDSL2 over the existing telephone wires in the "**last mile**" from the ISP/telecom/service provider's fiber node to the buildings and customers' apartments. The 10/100/1000Mbps port of the VC-231G can be directly connected to a PC or Ethernet devices such as Ethernet switches or broadband routers. It is excellent for phone line network built under Internet because every room or house can use the existing phone line to transmit data through the Internet and the whole building can share the Internet to the wider area network at a minimum cost.



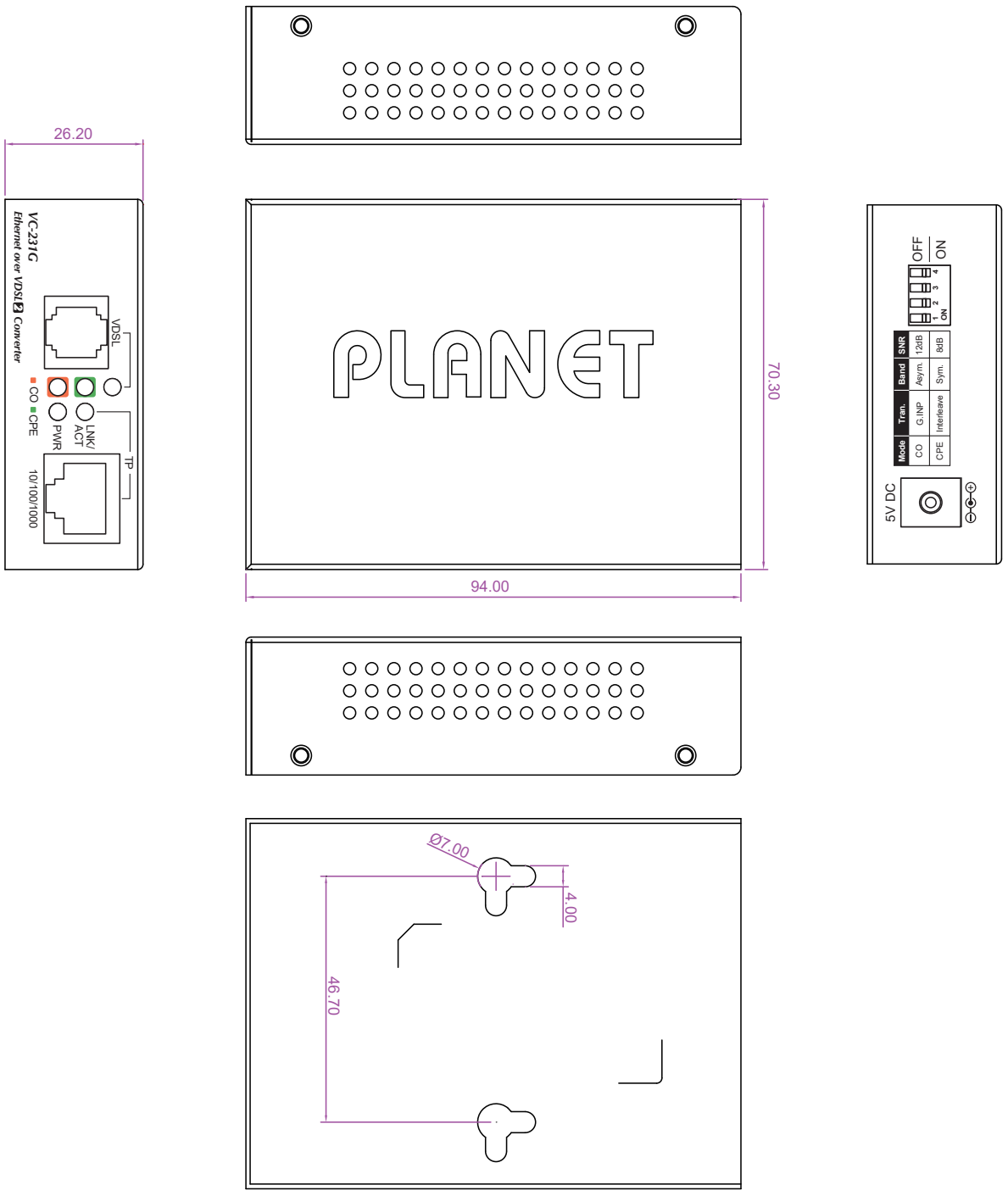
Specifications

Product	VC-231G
Hardware Specifications	
Hardware Version	2
LAN Ports	1 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
VDSL Port	1 VDSL2 RJ11 female phone jack Twisted-pair telephone wires (AWG-24 or better) up to 1.4km
DIP Switch & Functionality	4-position DIP switch ■ CO or CPE mode selectable ■ Selectable G.INP and interleaved mode ■ Selectable target Band plan ■ Selectable target SNR mode
Phone Port	Additional splitter for POTS connection
Dimensions (W x D x H)	94 x 70.3 x 26.2 mm
Weight	196g
Power Requirements	DC 5V, 2A external power
LED Indicators	■ 1 x power: Green ■ 1 x 10/100/1000BASE-T LNK/ACT: Green ■ 1 x VDSL: Green ■ 1 x CO: Green ■ 1 x CPE: Green
Housing	Metal
Switch Specifications	
Switch Processing Scheme	Store-and-Forward
Address Table	1K entries
Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex
Maximum Packet Size	1522bytes
Standards Conformance	
VDSL Compliance	**DSL-DMT** ■ ITU-T G.993.1 VDSL ■ ITU-T G.997.1 ■ ITU-T G.993.2 VDSL2 (Profile 17a/30a/35b support) ■ ITU-T G.993.5 **G.vectoring** ■ ITU-T G.998 ■ G.INP
ADSL Compliance	**Capable of ADSL2/2+ standard** ■ ITU G.992.3 G.dmt.bis ■ ITU G.992.5 G.dmt.bisplus **Data Rate: Up to 24Mbps**
Standards Compliance	IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE 802.3x Full-duplex flow control IEEE 802.1p Class of Service ITU-T G.993.1 VDSL ITU-T G.997.1 ITU-T G.993.2 VDSL2 (Profile 17a/30a/35b support) ITU-T G.993.5 G.Vectoring & G.INP ITU-T G.998
Regulatory Compliance	FCC Part 15 Class A, CE
Environment	
Temperature	Operating: 0~50 degrees C Storage: -10~70 degrees C
Humidity	Operating: 5~95% (non-condensing) Storage: 5~95% (non-condensing)

Environment		
Performance* (Downstream/Upstream)	**Interleave, Asym, 8dB** 200M ----> 260Mbps/56Mbps 400M ----> 180Mbps/53Mbps 600M ----> 111Mbps/48Mbps 800M ----> 68Mbps/39Mbps 1000M --> 53Mbps/18Mbps 1200M--> 42Mbps/8Mbps 1400M --> 24Mbps/4Mbps	**Interleave, Asym, 12dB** 200M ----> 267Mbps/57Mbps 400M ----> 161Mbps/49Mbps 600M ----> 93Mbps/46Mbps 800M ----> 56Mbps/33Mbps 1000M --> 47Mbps/14Mbps 1200M--> 34Mbps/8Mbps 1400M --> 30Mbps/6Mbps
	Interleave, Sym, 8dB 200M ----> 175Mbps/180Mbps 400M ----> 109Mbps/130Mbps 600M ----> 75Mbps/93Mbps 800M ----> 50Mbps/65Mbps 1000M --> 37Mbps/33Mbps 1200M--> 26Mbps/22Mbps 1400M --> 20Mbps/13Mbps	**Interleave, Sym, 12dB** 200M ----> 165Mbps/172Mbps 400M ----> 107Mbps/115Mbps 600M ----> 65Mbps/82Mbps 800M ----> 43Mbps/55Mbps 1000M --> 31Mbps/29Mbps 1200M--> 21Mbps/16Mbps 1400M --> 12Mbps/8Mbps
	G.INP, Asym, 8dB 200M ----> 316Mbps/60Mbps 400M ----> 185Mbps/56Mbps 600M ----> 110Mbps/51Mbps 800M ----> 68Mbps/38Mbps 1000M --> 51Mbps/18Mbps 1200M--> 39Mbps/10Mbps 1400M --> 37Mbps/6Mbps	**G.INP, Asym, 12dB** 200M ----> 291Mbps/60Mbps 400M ----> 161Mbps/51Mbps 600M ----> 91Mbps/44Mbps 800M ----> 55Mbps/34Mbps 1000M --> 47Mbps/15Mbps 1200M--> 35Mbps/8Mbps 1400M --> 32Mbps/2Mbps
	G.INP, Sym, 8dB 200M ----> 187Mbps/190Mbps 400M ----> 108Mbps/134Mbps 600M ----> 74Mbps/95Mbps 800M ----> 50Mbps/66Mbps 1000M --> 34Mbps/35Mbps 1200M--> 24Mbps/22Mbps 1400M --> 21Mbps/13Mbps	**G.INP, Sym, 12dB** 200M ----> 174Mbps/184Mbps 400M ----> 99Mbps/119Mbps 600M ----> 63Mbps/84Mbps 800M ----> 40Mbps/55Mbps 1000M --> 30Mbps/30Mbps 1200M--> 22Mbps/18Mbps 1400M --> 20Mbps/10Mbps

* The performance data above is for reference only. The actual data rate will vary on the quality of the copper wire and environmental factors.

Dimensions



Dimensions (W x D x H): 94 x 70.3 x 26.2 mm

Ordering Information

VC-231G	1-Port 10/100/1000T Ethernet to VDSL2 Converter (35b profile w/ G.vector)

Related Products

VC-231	Ethernet over VDSL2 Converter (1 x RJ45, 1 x VDSL2/RJ11-30a)
VC-231GP	1-Port 10/100/1000T 802.3at PoE+ Ethernet to VDSL2 Converter (30a profile w/G.Vectoring)
VC-232G	1-Port 10/100/1000T Ethernet over Coaxial Converter (35b profile w/ G.vector)
VC-234	Ethernet over VDSL2 Bridge (4 x RJ45, 1 x VDSL2/RJ11, 1 x Phone-30a)
VC-234G	Ethernet over VDSL2 Bridge (4 x RJ45, 1 x VDSL2/RJ11, 1 x Phone-30a w/G.Vectoring)
IVC-234GT	Industrial 1-Port BNC/RJ11 to 4-Port Gigabit Ethernet Extender
MC-700	7-Slot Media Converter Chassis
MC-1500	15-Slot Media Converter Chassis
MC-1500R	15-Slot Media Converter Chassis (AC Power)
MC-1500R48	15-Slot Media Converter Chassis (DC Power)

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