Minitek® 12VHPWR Connector System

Amphenol introduces the Gen 5, Minitek® 12VHPWR connector system. This new introduction CEM 5.0 PCI Express® 12 V–2x6 auxiliary power connector and cable assembly support the 600 W GPU cards. The 12 V–2x6 auxiliary power connector is not designed to mate with legacy PCI Express® 2x3 and 2x4 12 V Auxiliary Power connectors. The 12VHPWR connector power pins have a 3.00 mm pitch, while the contacts in a legacy 2x3 and 2x4 connector lie on a larger 4.20 mm pitch. New PCIe® Connector System (CEM5) is designed for power applications with current rating up to 9.5 A/pin (12 pins energized) and the 4 signal pins supporting signal transmission.

- Rated current up to 9.5 A per contact with all 12 power contacts
- Fully isolated terminals
- Positive locking on housing with low thumb latch operation
- Low level contact resistance: 5 mΩ max.; Side band: 10 Ωm max.

TARGET MARKETS

FEATURES

BENEFITS

FEATURES	BENEFITS
High current alloy material used for contacts	Rated up to 9.5 A per contact with all 12 power contacts and 4 signal contacts loaded
Fully isolated terminals	Prevents terminals from potential damage during operation
Positive locking on housing with low thumb latch operation	Ensures secured mating retention
Fully polarized housings	Prevents accidental mismating
High retention force in housing	Well secured terminals in housing
UL 94 V–0 flammability rated Nylon material	High flammability rating
RoHS compliant and lead–free	Meets environmental, health, and safety requirements

TECHNICAL INFORMATION

MATERIAL

- Header Pin: High conductivity Copper Alloy and Copper Alloy with Tin and Gold plating
- Housing: Nylon 66 and LCP, Black, UL 94 V-0
- Crimping Terminal: High conductivity Copper Alloy and Copper Alloy with Tin and Gold plating

MECHANICAL PERFORMANCE

- Insertion Force PWR:
  - High Insertion Force Terminal: 8.0 N max.
  - Low Insertion Force Terminal: 4.1 N max.
- Insertion Force Side Band:
  - Insertion force: 3.0 N max.
- Withdrawal Force PWR:
  - High Insertion Force Terminal: 2.4 N min.
  - Low Insertion Force Terminal: 0.6 N max.
- Withdrawal Force Side Band:
  - Withdrawal Force: 3.0 N max.
- Durability: 50 mating cycles
- Wire Pullout Force: Refer to product specifications

ELECTRICAL PERFORMANCE

- Low Level Contact Resistance:
  - PWR: 5 mΩ max.
  - Side Band: 10 mΩ max.
- Insulation Resistance: 1000 MΩ min.
- Voltage Rating: 12 V DC
- Current Rating: 9.5 A (Power)/1 A (Signal)
- Dielectric Withstand Voltage: 2200 V AC
- Temperature Rise: 30 °C max.

PACKAGING

- PCB Header: Tray, Tape & Reel
- Cable Housing: Bulk
- Terminal: Reel

APPROVALS & CERTIFICATION

- Glow Wire Ignition Temperature (GWIT) per IEC 60695-2-13
- Glow Wire Flammability Index (GWFI) per IEC 60695-2-12

SPECIFICATION

- UL File Number: E66906
- CSA File Number: E66906
- Amphenol Product Specification: GS-12-1702
- Amphenol Application Specification: GS-20-0704
- Amphenol Packaging Specification: GS-14-2802
- Product Drawing: Please refer the below table

ENVIRONMENTAL

- Operating Temperature Range: -40 °C to +105 °C

  *Includes 30°C terminal temperature rise at rated current

TARGET MARKETS/APPLICATIONS

AI and Cloud
Gaming Consoles
Graphic Interface
Networking

Computing System
Server and storage

PART NUMBERS

Find part number details using the search box on www.amphenol-cs.com

Type	Description	Product Series	Drawing Number
Dual Row Headers	PCIe® CEM-5 Right Angle through hole hybrid header with Snap-fit peg	10160920	10160920
	PCIe® CEM-5 Vertical through hole hybrid SMT header	10176941	10176941
	PCIe® CEM-5 Right Angle through hole hybrid header with Round peg	10163894	10163894
	PCIe® CEM-5 Right Angle through hole hybrid header with Metal board lock	10164279	10164279
	PCIe® CEM-5 Right Angle through hole hybrid header with Snap-fit peg	10174235	10174235
	PCIe® CEM-5 Vertical through hole hybrid header with locating peg	10161122	10161122
	PCIe® CEM-5 Vertical through hole hybrid header with locating peg, dark black	10166200	10166200
	PCIe® CEM-5 Vertical through hole hybrid header without locating peg	10171623*	10171623*
Dual Row cable housings	PCIe® CEM5 STD Receptacle Housing	10161719	10161719
	PCIe® CEM5 Receptacle Housing without bottom Rib	10168565	10168565
	PCIe® CEM5 Receptacle Housing without side Rib	10171526*	10171526*
Terminals	Receptacle PWR terminal, High Insertion force	10132447	10132447
	Receptacle PWR terminal, Low Insertion force	10166702	10166702
	Receptacle Signal terminal	10161952	10161952

*Not yet tooled up

*Amphenol supports PCIe® CEM-5 Pigtails and Cable assemblies on request

TOOLING INFORMATION

APPLICATORS

Terminal Part Number	AWG Range	Semi-Auto Crimping Machine	Fully-Auto Pneumatic Crimping Applicator	Fully-Auto Mechanical Crimping Applicator
10132447-111PLF 10132447-121PLF 10132447-131PLF 10132447-141PLF	16 AWG – 20 AWG	10159974-002	10159975-002	10159976-002
10166702-111PLF 10166702-121PLF 10166702-131PLF 10166702-141PLF	16 AWG – 20 AWG			
10161952-1210LF 10161952-2210LF 10161952-3210LF 10161952-4210LF 10161952-5210LF	28 AWG	10164100-001	10164101-001	10164102-001

HAND CRIMP TOOL

Terminal Part Number	AWG Range	Hand Crimp Tool Part Number
10132447-111PLF 10132447-121PLF 10132447-131PLF 10132447-141PLF	16 AWG – 20 AWG	10159387-002
10166702-111PLF 10166702-121PLF 10166702-131PLF 10166702-141PLF	16 AWG – 20 AWG	
10161952-1210LF 10161952-2210LF 10161952-3210LF 10161952-4210LF 10161952-5210LF	28 AWG	10163639-001

EXPLORE THE PRODUCT DETAILS ONLINE
Scan Now ▶

BCSMTK12VHPWR0226A4