

# NEBS Certified, Telco-Tough Shelves for High or Low Density Applications

## SpectraComm 5000 Shelf

SpectraComm 5000 shelves are the high density rackmount solution for service provider and enterprise environments, deploying up to 16 SpectraComm or UAS in each 4RU (7" high) NEBS and EMI-compliant shelf.

Blades plug into network interface, DTE and management bus connectors at the shelf backplane to support DSX-1, V.35, EIA-530, V.24, EIA/TIA-232, BNC, and HSSI interfaces for a total connectivity solution, with integral network management built in. This "SpectraCommonality" ensures that service interfaces, transmission product types and speeds, and business equipment connections meet your networking requirements.

SC 5000 shelves are AC- or DC-powered, with dedicated slots for one or two plug-in power supply modules. One supply supports a fully populated shelf of up to 16 blades. For critical, "always on" applications, a second supply provides load sharing and redundant power.

## SpectraComm 2000 Shelf

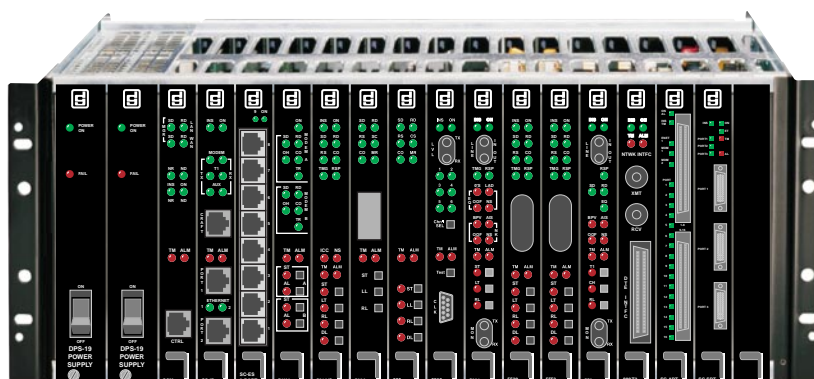
The SpectraComm 2000 is a NEBS and EMI-compliant shelf that offers maximum port density in a compact 1RU (1.75" high) footprint - ideal for central offices, remote offices, and cell sites.

One or two single-width SpectraComm or UAS blades can plug into the SC 2000 shelf, with integrated TIA/EIA-232F, V.35, or EIA-530 interfaces, network line, and craft connectivity provided for each capable device. When deployed with a SpectraComm IP router and a SpectraComm 9-port Ethernet switch, the SC 2000 shelf is certified as environmentally hardened for use in huts, CEVs, and other extreme environments.

The shelf's dual "hot-swappable" power supplies provide load sharing and redundant power, and can be replaced without interrupting service or powering down the shelf. These independent dual power supplies employ +24 VDC or -48 VDC power from cell sites and central or remote offices. An optional external AC "all range" Power Adapter supports 100 to 240 VAC power sources.

**Figure 1: SPECTRA-COMMONALITY:**  
**Shelf Systems & Application Blades**

**SC 5000  
 High Density  
 Shelf  
 (16-Slots)**



1 or 2  
 Power Supplies

Up to 16 Compatible GDC Blades  
 (Single-width or Multi-width)

Empty  
 Slot

**SC 2000  
 Low Density  
 Shelf  
 (2-Slots)**



Up to 2 Compatible GDC Blades  
 (Single-width Only)

1 or 2  
 Power Supplies

NOTE: The SC 5000 and SC 2000 shelves shown with SpectraComm blades installed.  
 GDC's SC and UAS network access blades are fully supported.



# SpectraComm SHELVES

## FEATURES & BENEFITS

### SC 5000 High Density Shelves

The SC 5000 high density shelf offers compact, high density rack-mounting for GDC's SpectraComm and UAS network access blades. It is certified complaint to the Bellcore NEBS Level III standard in North America.

The modular backplane consists of a network interface for analog or digital service connectivity (Zone 1), a bus interface for power distribution and transport of diagnostic and control signals (Zone 2), and a DTE interface for V.24/EIA/TIA-232-E or V.35 connectivity to terminal devices (Zone 3). Twelve models of the SC 5000 shelf provide a complete offering of backplane configurations and power solutions.

- Formed sheet metal housing complies with EIA 310-D standards for racks, panels, and associated equipment.
- Can be installed in standard 19-, 23-, and 26-inch racks and cabinets.
- NEBS Certified for use in interior Telco environments (GR-63-CORE, Level III, GR-1089-CORE)
- Accommodates up to 16 front-loading plug-in blades, with two dedicated slots for power supply modules.
- Accepts any single blade or multi-slot device from GDC's SpectraComm and UAS families of network access blades.
- Blades can be installed or extracted without powering down the shelf (hot-swappable).
- Plug-in AC power supply modules available are 100/117 VAC (47-63 Hz) or 220/240 VAC (47-63 Hz).
- Plug-in DC power supply modules available are: -48 and -60 VDC (station battery designed to meet Conducted Emissions requirements in Bellcore 1089).
- Can be configured as a dual shelf to provide an additional sixteen slots, with shared management access, load sharing and power redundancy.
- Removable backplane connector panels provide modular or mass term connectors for network and terminal equipment.
- Integral network management platform supports the optional SpectraComm Manager (SCM), an SNMP proxy agent for configuring, diagnosing and monitoring installed blades. The SCM also provides Ethernet, serial, and dial backup interfaces for capable blades installed in single or dual shelf systems.
- Optional peripheral equipment includes Fuse and Alarm Panels, Fan Trays, Air Baffles, and blank panels
- Optional Alarm Card activates local and remote customer alarm systems for audible/visual alerts to power failures in shelves with two or more power modules.

### SC 2000 Low Density Shelves

The SpectraComm 2000 is a low density, rack-mountable shelf designed for the space limitations of remote cabinets or Central Offices. Certified NEBS Level III compliant for hardened environments, the shelf is equipped with single or dual power supplies and provides the same network and DTE interface connectivity found on the SpectraComm 5000 high density shelf.

The SC 2000 can hold any two single-slot blades from GDC's wide range of SpectraComm or UAS families of network access blades.

- Formed sheet metal housing complies with EIA 310-D standards for racks, panels, and associated equipment.
- Can be installed in standard 19-, 23-, and 26-inch racks and cabinets.
- Rack or wall mountable using provided brackets
- NEBS Certified for use in interior Telco environments (GR-63-CORE, Level III, GR-1089-CORE) and in hardened environments
- Accommodates one or two single-slot plug-in blades for wide band and narrow band applications.
- Blades can be installed or extracted without powering down the shelf (hot-swappable).
- Uses one or two low power consuming DC power supply modules (two modules provide redundant power).
- Supports optional AC "All Range" Power Adapter for employing 100 to 240 VAC power sources.
- Minimal downtime for field upgrades and repairs
- Rear panel connectors provide a signal and chassis ground connection point and alarm relay outputs.
- For each slot, the rear panel provides a DB25 connector for DTE (business) equipment, and modular connectors for network interfaces. Two modular craft ports support capable devices.
- Accepts any single-slot blade from GDC's SpectraComm and UAS family of network access products.

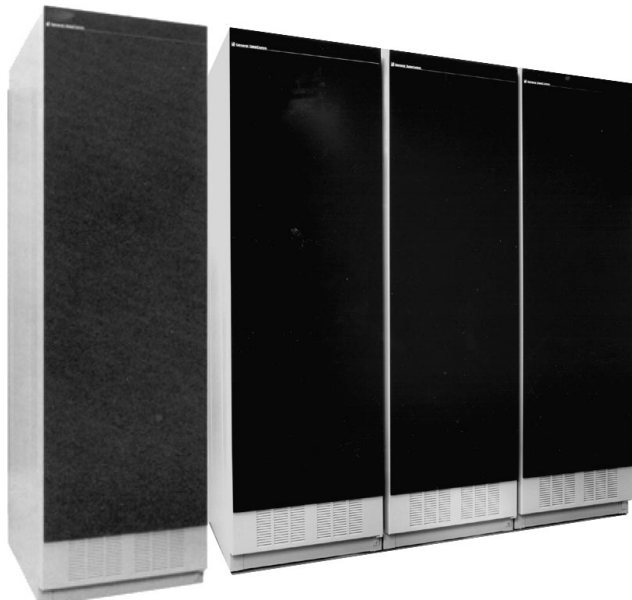


# SpectraComm SHELVES

## Total Packaging Solutions

SpectraComm high and low density shelves can be mounted in GDC's EP6-D cabinets and EP-5 shelf enclosures. Designed to conform with EIA 310-D standards for racks, panels, and associated equipment, the EP-6D and the EP-5 protect and consolidate your valuable communications resources at both branch and central site locations.

Front and rear openings provides easy access to cards, cables and connectors. Rapid heat dissipation via a combination of cooling vents, fans and optional blowers (for larger systems) prolongs the equipment life and ensures high reliability of all rack-mounted devices. Smoked acrylic front doors and chip-resistant textured paint give these durable, functionally designed cabinets a high level of aesthetic appeal. All cabinets and shelf enclosures comply with the current UL and EN standards for safety protection.



GDC Cabinets  
(Model EP-6D)



GDC Shelf Enclosure  
(Model EP-5)

## EP-6D Cabinets

EP-6 cabinets are 584 mm (23 in.) wide by 1,930 mm (76 in.) high by 610 mm (24 in.) deep, with 1,778 mm (70 in.) of vertical mounting space for accommodating EIA-standard 483 mm (19 in.) panel widths and 40 EIA-standard vertical panel heights. The EP-6 weighs 104.42 kg (230 lb.) and supports 136.2 kg (300 lb.) on the front mounting rails. Added support can be installed for heavier assemblies. Each cabinet can be joined on either side with other cabinets to construct multi-cabinet equipment bays in large installations.

The EP-6D provides 117 VAC power with a 300 CFM blower, three fans, a 10-position plug mold and a 20-amp circuit breaker. Front mounting rails are tapped for 10/32 machine screws, and adjustable rear untapped mounting rails have EIA RS-310 spacing. EP-6 cabinets organize and protect your equipment and cabling, creating a clean and orderly installation in place of computer room clutter.

## EP-5 Shelf Enclosures

The EP-5 is a strong, durable single-shelf cabinet designed to house one 16-slot SpectraComm high density shelf, providing compact and attractive housing and resource consolidation for office environments. Measuring 536 mm (21.1 in.) wide by 238 mm (9.38 in.) high by 349 mm (13.75 in.) deep, the EP-5 fits easily on a desk or table top. Two or more EP-5 shelf enclosures can be stacked for maximum use of space in larger installations.

The EP-5 employs 120 VAC power, and has excellent heat dissipation with side-panel fan to ensure proper ventilation. A release mechanism on the plexiglas front door allows easy access to the plug-in blade front panels. Access to all cables is through the rear panel. Rubber feet provide shock protection.

## Peripheral Equipment

SpectraComm shelves, cabinets, and shelf enclosures support a wide variety of optional accessories and peripherals, such as cables, adapters, air baffles, power distribution and cooling systems, fans, cable trays, retaining bars, redundant power solutions, and circuit breaker panels.

## SC 5000 Physical Specifications

Blade Capacity:  
16 slots accept up to 16 single or multi-width SpectraComm or UAS network access blades.

Dimensions:  
Height: 7 inches (178 mm)  
Width: 19 inches (483 mm)  
Depth: 12 inches (305 mm)

Weight:  
18 lb (8.2 kg) empty shelf  
19.3 lb (8.8 kg) with one GPS-11 Power Supply  
20.6 lb (9.3 kg) with two GPS-11 Power Supplies

Shipping weight: (add 1 lb 5 oz.)

## Environmental Specifications

### Non-Operating

Temperature -40 deg. to 185 deg. F (-40 deg. to 85 deg. C)  
Altitude: 0 ft. to 40,000 ft. (0 m to 12,191 m)

### Operating

32 deg. to 122 deg. F (0 deg. to 50 deg. C)  
Relative Humidity: 5% - 95% non-condensing  
Altitude: 0 ft. to 10,000 ft. (0 m to 3,047 m).  
Derate by 1 deg. C/1000 ft. above sea level.

## Compliance & Compatibility

Safety: UL Approved  
EMI: FCC Part 15 Approved  
Telco: FCC Part 68  
NEBS Level III Certified  
Fire Resistant Materials: UL94V0  
Quality Assurance: ISO 9001: 2000 Certified

## Physical Interfaces

### Network Interface (Zone 1)

Modular shelves (Models 1, 2, 3, and 10):  
Two 8-slot dual RJ45 connector panels (32 modular jacks, two per slot)

Mass Termination shelves (Models 4, 5, 6, 11)  
16-slot 50-pin/wirewrap connector panel (6 Amphenol connectors)

Mass Termination shelves (Models 7, 8, 9, 12)  
16-slot 50-pin/Universal connector panel (4 Amphenol connectors)

### Internal Bus (Zone 2)

50-pin power bus (signal, ground, management and power distribution to and from plug-in blades)

### Business Equipment (DTE) (Zone 3)

Sixteen DB25 female EIA/TIA-232-E/V.24 connectors; optional V.35 connectors (one per slot)

## SC 5000 Power Specifications

Power (AC or DC), voltage, frequency, and fusing determined by the SC 5000 shelf model and the installed power supply modules.

### Power Consumption

7.6 Watts (one GPS-11/GPS-11E Module)  
10.0 Watts (two GPS-11/GPS-11E Modules)

### Heat Dissipation

25.94 BTU/Hr (one GPS-11/GPS-11E module)  
34.13 BTU/Hr (two GPS-11/GPS-11E modules)

### Power Supply Modules

Module Capacity (GPS-11, GPS-11E, DPS-19):  
Two slots accept one or two of each model power supply module; two modules provide redundant DC power, up to four modules for dual shelf.

Dimensions (GPS-11, GPS-11E, DPS-19):

Height: 178mm (7 in.)  
Width: 32 mm (1.25 in.)  
Depth: 247 mm (9.75 in.)  
Weight: 0.68 kg (1.5 lbs)

### GPS-11 AC (North America) Module

Input Power:  
90 to 129 VAC (100 to 120 nom.), 50/60 Hz

Output Power:  
+5V 16A max, +12V 1.67A, -12V 1.67A

Total Power: 96W max.  
Load Number: 16.0 max.

Input Connection: 3-prong IEC Type

### GPS-11E AC (International) Module

Input power:  
175 to 264 VAC, (220 to 240 nom.) 50/60 Hz

Output Power:  
+5V 16A, +12V 1.67A, -12V 1.67A

Total Power: 96W max.  
Load Number: 16.0 max.

Input Connection: 3-prong IEC Type

### DPS-19 DC Power Module

Input Power: 42 to -70 VDC, (-48 VDC nom.),  
-42 to -56 VDC, 3A DC max. input current

Output Power:  
+5V 16A, +12V 3.33A, -12V 3.33A

Total Power: 96W max.  
Load Number is 16.0 max

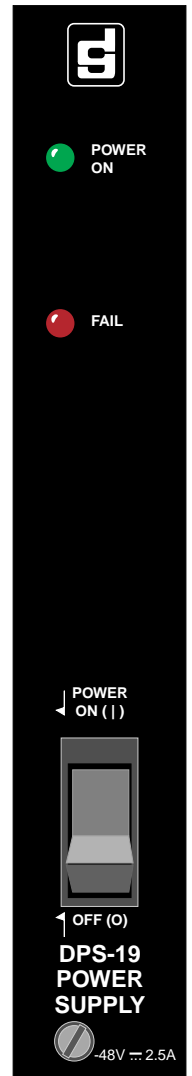
Input Connection:

Screws (14 AWG wire) or spring-loaded terminal block (12 AWG wire, max.)

### Redundant Power Solutions

Models 10, 11, and 12 include redundant power. A second power supply module can be added to any model of the SC 5000 shelf to achieve power redundancy.

Optional DC Entry Module supports redundant power entry feeds to the DPS-19 power supplies.



Shown:  
DPS-19  
Front Panel



## SC 2000 Physical Specifications

Blade Capacity:  
Two slots accept up to two single-width SpectraComm or UAS network access blades.

Dimensions:  
Height: 1.72 in. (43.7 mm)  
Width: 19 in. (482 mm)  
Depth 10.60 in. (269.2 mm)

Weight: 10 lbs. (4.5 kg.) with two blades and two power modules

Shipping weight: (add 1 lb 5 oz.)

## Environmental Specifications

### Non-Operating

Temperature -40 deg. to 158 deg. F (-40 deg. to 70 deg. C)  
Altitude: -197 ft. to +10,000 ft. (-67 m to +3048 m)

### Operating

41 deg. to 104 deg. F (5 deg. to 40 deg. C)  
Relative Humidity: 5% - 95% non-condensing  
Altitude: -197 ft. to +10,000 ft. (-67 m to +3048 m)  
Derate by 1 deg. C/1000 ft. above sea level.

## Compliance & Compatibility

Safety: UL Approved  
EMI: FCC Part 15 Approved  
Telco: FCC Part 68  
NEBS Level III Certified  
Fire Resistant Materials: UL94V0  
Quality Assurance: ISO 9001: 2000 Certified

## Physical Interfaces

### Network Interface

Two RJ45 modular connectors (two per slot)

### Internal Bus

Used for management communications when SCM blade is installed.

### Business Equipment (DTE)

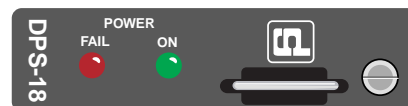
Two DB25 female EIA/TIA-232-E/V.24 connectors (one per slot)

### Craft (Term) Port

Two RJ45 8-pin modular connectors (one per slot for capable blades)

## SC 2000 Power Specifications

### DPS-18 DC Power Supply Modules



*DPS-18 Front Panel*

Module Capacity:

Accepts one or two DPS-18 Power Modules per shelf; two modules provide redundant DC power.

DPS-18 Dimensions:

Height: 178mm (7 in.)  
Width: 32 mm (1.25 in.)  
Depth: 228 mm (9 in.)  
Weight: 0.58 kg (1.3 lbs)

Input Power: +24, -48 VDC, or -60 nominal battery inputs

Output Power: +5VDC 2A, +12VDC 0.22A, -12VDC 0.22A

Fusing: Each power supply module has a 1.5-amp fuse.

Power Consumption: 18 Watts

Input Connection: Screws (14 AWG wire) or spring-loaded terminal block (12 to 16 AWG wire)

### AC Power Adapter

Adapter Capacity:

Accepts one or two AC Adapters per shelf.

One AC Adapter provides non-redundant DC power to the shelf; two AC Adapters provide redundant or fully redundant DC power.

Input Power: 100 to 240 VAC, 50/60 Hz at 1A

Output Power: 24VDC, 1.7A

Input Connection: 3-prong IEC Type

### Station Battery

Uses -48 VDC power from Telco source. Not for use with AC Adapters.

Input Connection: Screws (16 to 20 AWG wire)

### Redundant Power Solutions

A second power supply module can be added to the SC 2000 shelf at any time to achieve power redundancy.

Optional DC Entry Module supports redundant power entry feeds to the DPS-18 power supplies.

