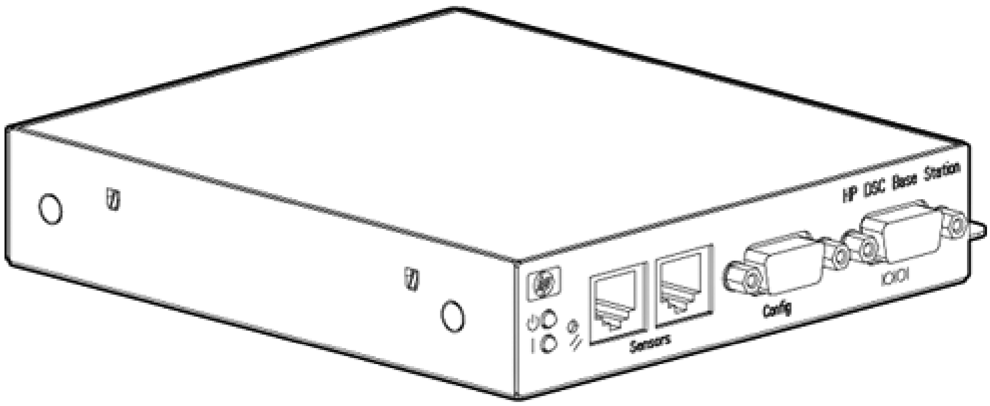
Overview

DSC Base Station



The new HP Dynamic Smart Cooling (DSC) technology helps you tackle one of the most critical issues in today's data centers - power and cooling. DSC will enable you to change data center energy costs from a fixed to a variable cost, significantly increase your IT scaling headroom, and ensure complete confidence that you're running a much more efficient data center - helping you drive towards a more adaptive infrastructure.

Why Dynamic Smart Cooling?

- Increase cooling capacity up to 80% of rated CRAH/CRAC utilization from typical 30–50% utilization.
- Energy savings: Reduces cooling costs by up to 45% (depending on cooling plant)
- Resiliency: Ensures automatic re-tuning if changes or disturbances threaten air-conditioning reliability
- Increased efficiency: Supports higher rack operating temperature due to quick response times; enables higher chilled water temperature for energy savings
- Computer room air conditioners (CRAC) consolidation: Enables fewer CRACs for same level of reliability with usage flexibility for increased savings
- Flexibility: Choose to apply increased savings to IT scalability or other critical data center needs

HP Dynamic Smart Cooling bridges the legacy gap between IT and facilities managers for significant cost savings to create a more adaptive infrastructure. Typically, IT equipment has simply existed within the data center, with power and cooling capacity increasingly limiting the ability to efficiently deploy new technologies. For the first time, Dynamic Smart Cooling - the latest HP innovation produced from over a decade of research efforts - enables the equipment to interact with the facilities that support the data center, driving maximum efficiency.

NOTE: For more information please see:

- http://www.hp.com/go/dsc
- http://www.hp.com/go/btc

At a Glance

HP Dynamic Smart Cooling includes a DSC Energy Manager Control Node, DSC Base Stations and DSC Intake Sensors. Additionally, DSC Exhaust Sensors may be added to enhance DSC's capabilities by allowing the detection of no flow, reverse flow or low load conditions.

For additional information please visit: http://www.hp.com/go/dsc and http://www.hp.com/go/btc

Protected by HP Services and a three-year, on-site limited global warranty. Certain restrictions and exclusions apply.

Product Features

HP DSC Energy Manager Control Node	As the brains of the operation, the DSC Energy Manager Control Node is a HP ProLiant DL380 G5 running Microsoft Windows Server 2003, Microsoft SQL Server 2005 and HP DSC Energy Management software. The DSC Energy Manager Control Node communicates with the facility's Computer Room Air Conditioners to provide only the amount of cooling required at a point in time, and no more.
HP DSC Base Station	HP DSC Base Stations are assigned to individual racks and collect temperature data from DSC Intake and Exhaust Sensors associated with that rack. The DSC Base Station then reports that information every 15 seconds to the DSC Energy Manager Control Node.
HP DSC Intake & Exhaust Sensors	HP DSC Intake & Exhaust Sensors are arrays of thermal sensors. DSC Intake Sensors are installed in front of a rack, while the optional DSC Exhaust Sensors are installed at the rear of the rack. The intake sensors allow DSC to determine if the air going into a rack is cool enough for the rack's load. The optional exhaust sensors extend DSC capabilities by allowing DSC to detect no flow, reverse flow or low load conditions.

Deployment Service	The required deployment service for HP Dynamic Smart Cooling is ordered via part number HF801A1 and requires a price to be entered since this is a custom bid service. The price is available in the final quote that was provided to the customer and must be entered at the time the order was placed.
Assessment Service	The HP DSC Thermal Assessment is ordered, and invoiced, separately under part number HA536A1. This provides an analysis comparing industry/HP best practices to the customer's current data center environment and readiness for Dynamic Smart Cooling. In addition, HP will perform 3D modeling of the entire data center supply and return air flows and will provide a written report that includes observations, thermal model results, DSC readiness results, and recommendations for improvement.

Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of service providers. Hardware diagnostic support and repair is available for three years from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

NOTE: DSC Limited Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support. This warranty supports the DSC Energy Manager Control Node, DSC Base Station and DSC Intake & Exhaust Sensors. HP DSC Energy Management Control Software includes 1 year next business day support.

HP services provide continuous care and support expertise with committed response designed to meet your IT and business needs.

HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a HP Dynamic Smart Cooling support offer to help you speedily deploy and maximize system uptime.

Available Support Upgrades:

- Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years.
- 4-Hour On-site Service, 5-Day x 13-Hour Coverage, 1 or 3 Years.
- 4-Hour On-site Service, 7-Day x 24-Hour Coverage, 1 or 3 Years.

NOTE: Each HP DSC Base Station supports one Intake Sensor Array and typically one base station is placed at every second rack in a data center. Universal sensors are for non-HP racks.

HP DSC Configuration

NOTE: Determine quantity of HP DSC Base Station and Intake Sensor Arrays to purchase and choose the HP DSC Energy Manager Control Node that supports at least that quantity.

Required Options (one of the following from each category unless otherwise noted)

HP DSC Energy Manager Control Nodes	HP DSC Energy Manager Control Node Unlimited (1000 base stations)	AJ350A
	HP DSC Energy Manager Control Node Large (500 base stations)	AJ353A
	HP DSC Energy Manager Control Node Medium (250 base stations)	AJ352A
	HP DSC Energy Manager Control Node Small (125 base stations)	AJ351A
	NOTE: Order only one DSC Energy Manager Control Node per managed area. A managed area is typically one room of a data center.	
HP DSC Base Stations	HP DSC Base Station. Single	AH979A
	HP DSC Base Station. Bulk	AH980A
	NOTE: Bulk packs contain 20 base stations.	
HP DSC Intake Sensors	HP DSC Intake Sensors (Unv.). Single	AH981A
	HP DSC Intake Sensors (Universal). Bulk	AH982A
	HP DSC Intake Sensors (10k). Single	AH983A
	HP DSC Intake Sensors (10k). Bulk	AH984A
	NOTE: HP DSC Intake Sensors (10k) are only for HP 10k G1 & G2 42U & 47U racks. All other racks use the DSC Intake Sensors (Universal). NOTE: DSC Exhaust Sensors are also available to extend the capabilities of DSC NOTE: Order the same quantity of sensors as base stations. Bulk packs contain 20 units.	
HP DSC Exhaust Sensors	HP DSC Exhaust Sensors, Single	AH985A
	HP DSC Exhaust Sensors, Bulk	AH986A
	NOTE: Exhaust sensors extend the capabilities of DSC by allowing it to detect no flow, reverse flow and low load conditions.	

Related Options

HP Rack 10000 G2 Series (Graphite Metallic)	10642 G2 (42U) Rack Cabinet – Pallet	AF001A
	10642 G2 (42U) Rack Cabinet – Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet – Crated	AF003A
	10642 G2 (42U) Rack Cabinet, with Extension – Shock Pallet	AF004A
	10642 G2 (42U) Rack Shock Pallet- for field racking (NA only)	AF007A
	10636 G2 (36U) Rack Cabinet – Shock Pallet	AF011A
	10636 G2 (36U) Rack Cabinet – Crated	AF012A
	10636 G2 (36U) Rack Cabinet, with Extension – Shock Pallet	AF013A
	10636 G2 (36U) Rack Cabinet, without door – Shock Pallet	AF014A
	10647 G2 (47U) Rack Cabinet – Pallet	AF031A
	10842 G2 (42U) Rack Cabinet Shock	AF042A
	10842 G2 (42U) Rack Cabinet Pallet	AF041A

NOTE: Please see the Rack 10000 G2 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.

Service and Support Offerings (HP Care Pack Services)

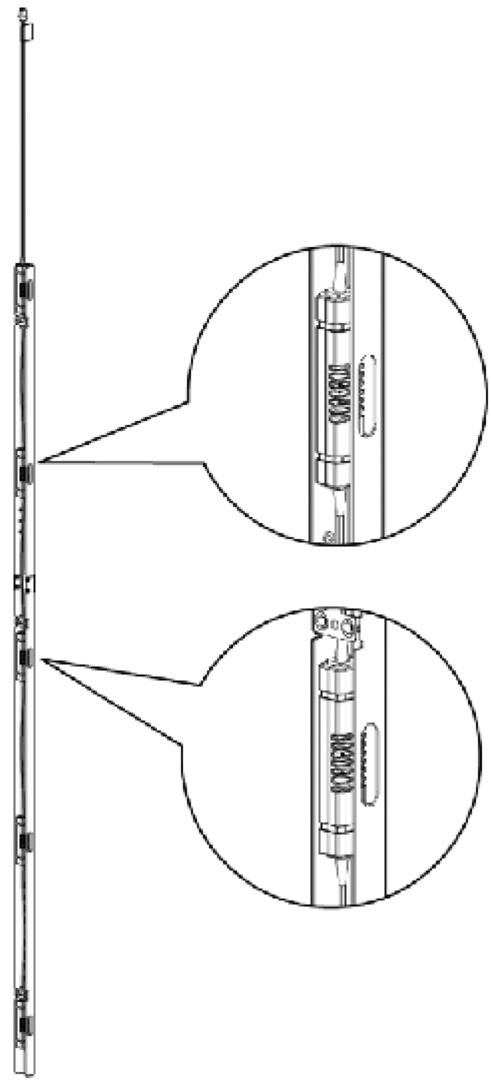
NOTE: It is highly recommended that the HP DSC Base Stations and Energy Managers have the same support level.

For the HP DSC Energy Managers, HP support services are mandatory. Customers must choose from one of the HP Care Pack services below:

HP DSC Energy Manager Services

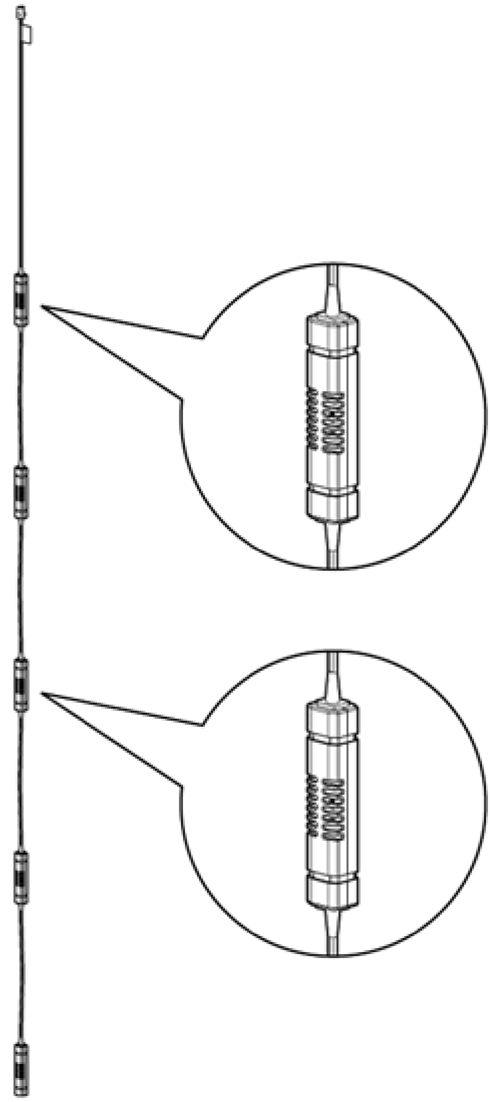
HP 1y SW Support	HA106A1#4YU
HP 1y Support Plus SVC	HA109A1#4YU
HP 1y Support Plus 24 SVC	HA110A1#4YU
HP 3y SW Support	HA106A3#4YU
HP 3y Support Plus SVC	HA109A3#4YU
HP 3y Support Plus 24 SVC	HA110A3#4YU

DSC Intake Sensor for HP 10k Series Racks



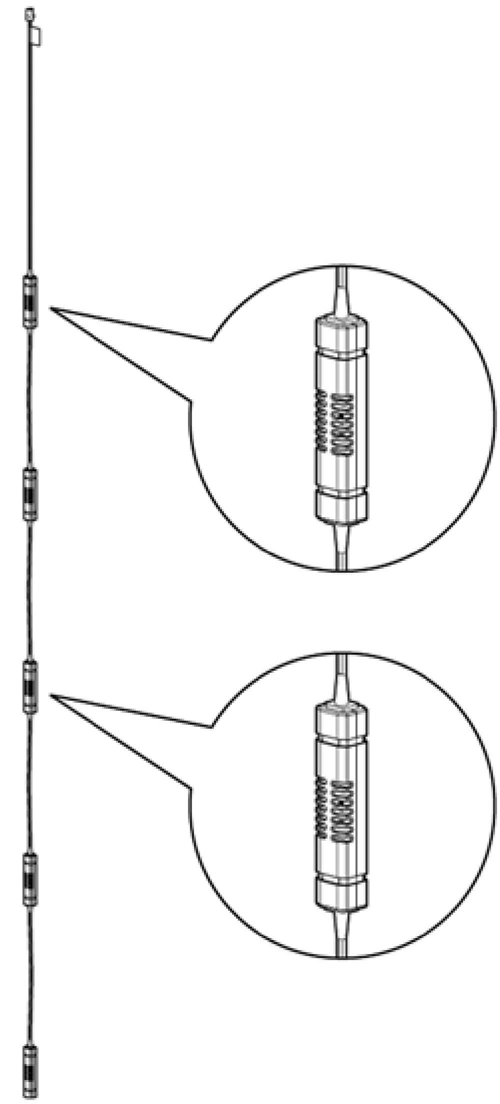
NOTE: DSC Intake Sensor Arrays for HP 10k Series Racks are mounted at the front of the rack. Each array consists of five thermal sensors.

DSC Intake Sensors (Universal)



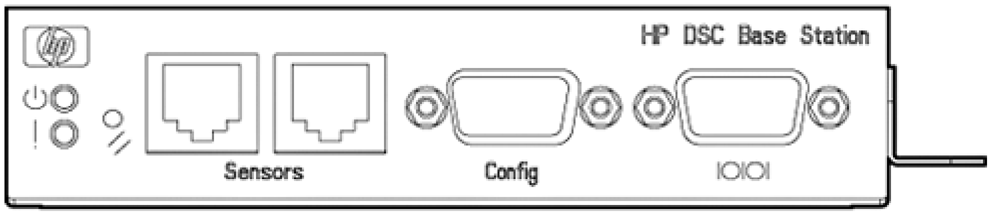
NOTE: DSC Universal Intake Sensor Arrays work with many third party non-HP racks. Like the arrays for the HP 10k Series racks, they are installed at the front of the rack and consist of five thermal sensors per array.

DSC Exhaust Sensors



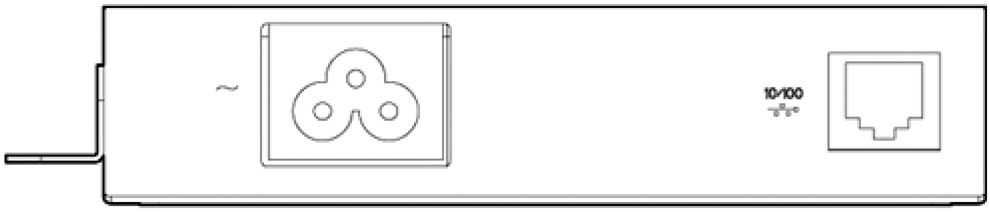
NOTE: DSC Exhaust Sensors mount at the rear of racks, and like the intake sensors, consist of five thermal sensors. Exhaust sensors are not required for DSC to function properly. They are an option that extends the capabilities of DSC to enable the DSC Energy Manager to detect no flow, reverse flow or low load conditions in racks equipped with the exhaust sensors.

DSC Base Station – Front Panel View



Technical Specifications

DSC Base Station – Rear Panel View



Each DSC Base Station supports up to two sensor arrays: one intake sensor and one exhaust sensor. Only one base station is assigned per monitored rack. Typically, every second rack in a data center would be monitored and have a base station assigned to it.

HP DSC Base Station	Shipping Dimensions	Height	4.0in (102 mm)
		Width	8.13 (207 mm)
		Depth	10.63in (270 mm)
	Weight	Unboxed	2.2 lb (1.0 Kg)
		Shipping	2.85 lb (1.3 Kg)
	Temperature Range	Operating	50° to 158° F (10° to 70° C)
		Non-Operating	-4° to 158° F (-20° to 70° C)
	Relative Humidity (non-condensing)	Operating	10% to 90%
		Non-Operating	5% to 95%
	Wet Bulb Temperature	Non-Operating	101.7° F (38.7° C)
Power	Input Characteristics	Input voltage	90 - 264Vrms
		Input frequency	47 - 63Hz
		Input current	1.5A at 100VAC
		Inrush Current	100A at 240VAC
		Leakage Current	Less than 3.5mA at 250VAC/60Hz
	Power Supply	Input Power Connection	C5
		Type	On-board AC/DC

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Technical Specifications