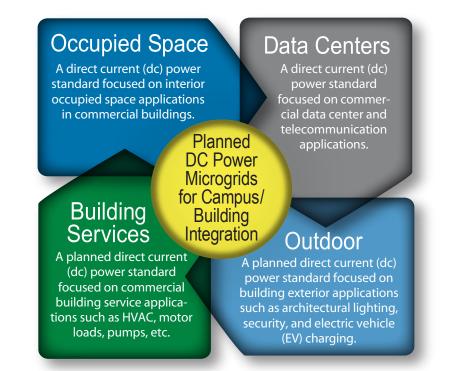


DC Microgrids

Advanced Power Distribution Platforms for Flexibility, Savings & Sustainability in Buildings





VISION: DC MICROGRIDS FOR BUILDINGS

We believe that ongoing and increasing demand for improved reliability and energy efficiency across all areas of commercial buildings provides the need for the EMerge Alliance family of power distribution standards.

The EMerge Alliance vision is:

- An open architecture
- Reduction or elimination of ac to dc conversions between power sources and digital devices
- Power conversion and distribution in dc form
- DC power as a key component for zero net energy buildings
- More direct and efficient integration of on-site dc generation sources such as solar photovoltaics, wind, and other alternative sources
- A modular approach for incremental standards application in one or more areas of hybrid powered buildings





QUICK FACTS

- Non-profit, open industry association
- · More than 100 member organizations
- Promotes the adoption of safe dc power distribution through the development of technical application standards
- Forms a family of application/area-specific dc microgrids that, when interconnected, create a resilient and versatile building or campus energy network. Each semi-autonomous microgrid can operate with or without the need for connectivity to a higher-order supervising microgrid
- Open standards integrate power, infrastructure, peripherals, and controls in common microgrid platforms
- EMerge Alliance applications standards:
 - EMerge Alliance Occupied Space Standard
 - EMerge Alliance Data/Telecom Center Standard
- Provides an online registry for commercial products that can be specified for EMerge Alliance standards
- Promotes dc microgrid technology though strategic industry partnerships and participation in professional engineering trade forums
- Assists in the deployment of projects demonstrating use of EMerge Alliance Standards



Membership applications: www.EMergeAlliance.org/join



Data Centers

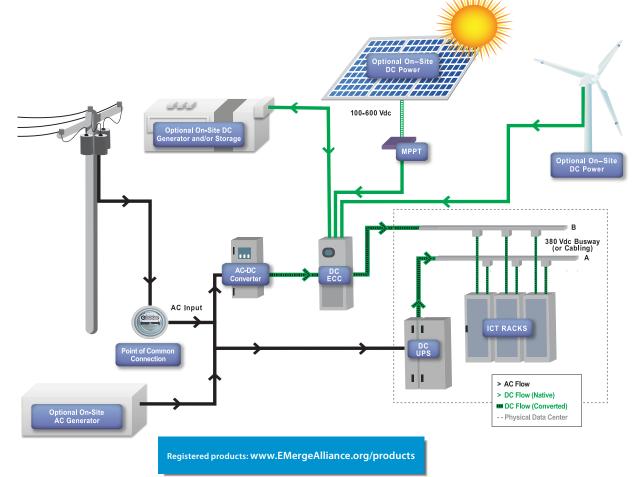
DATA/TELECOM CENTERS

The EMerge Alliance Data/Telecom Center Standard defines low voltage dc power distribution system requirements for use in data centers and telecom central offices

Data/Telecom Centers designed in compliance with EMerge Standards provide the following benefits:

- Improved reliability and safety in a smaller footprint
- Lower capital, operating and total cost of ownership
- Increased energy efficiency and equipment utilization
- Connects directly or through building microgrid to on-site renewable generation and storage

EMerge Alliance Registered Products for the Data/Telecom Center Standard are listed on the Alliance website product registry.





Governing Me	MBERS						
	Johnson Controls		Power Systems	OSRA SYLVANI	A (PHILIPS	
Participating Members							
	cuity Brands.	APP	BOSCH Invented for life	cisco.	COOPER	CRESTR	ON ADELTA
DTE Energy	Duke Energy _®	Eltek AS	EMERSON	(ge)		HermanMil	ler (
	intel	JUNIPEC.	PANDUIT	• Ro	ng energy	sensor switch	SL Power Electronics
SOUTHERN CALIFORNIA EDDISON® AN EDBON INTERNITIONAL® Conjent	Steelcas	Se' S	SOLUTIONS		tr		validusdc
	Members						
		RIC POWER RCH INSTITUTE	ctinus	SNEX	<u>TÉNERGY</u>	Pika Energy	/ SCTE
General Members							
amatis	EVERLAST LIGHTING	FOCAL POINT	Mine	bea	心NEi	INNOVATIVE LED LIGHTING In NOVATIVE LED LIGHTING In Röbbr Stevanski fic	Changing the Shape of Power
SEMI-MATERIALS		dison°	LEDing EDGE [~]		niversal hting Technologies	USA Lighting	چَ ^{تَ} <i>WattStopper</i> ۲ اegrand
Liaison Members							
	Battelle Mem	orial Institute	CABA C	CVTA	ENERGY	PEAK enocean all	iance Philos
ERNEST DRLANDO LAW DERKELEV NATIONAL L		PENNSTA v Excellence	TE University Park		Underwriters Laboratories		ZigBee * Control your world
SUPPORTING ME	EMBERS						
The Hermanisation Equation Interconnection Consultant		(DSA	€EC	CHOLA			Billectrical Design, P.C.
JLC • Lech	LIGHTING SINFROY CEPOT	LUCIFER LIGHTING COMPANY	Compus	m∂RST/	eople Power		Pulse
projectf rog ^{\$\$}	SOLAR 51		NDARD LAR Strategie	c Energy Solutions	③	TDK-Lambda	workscape



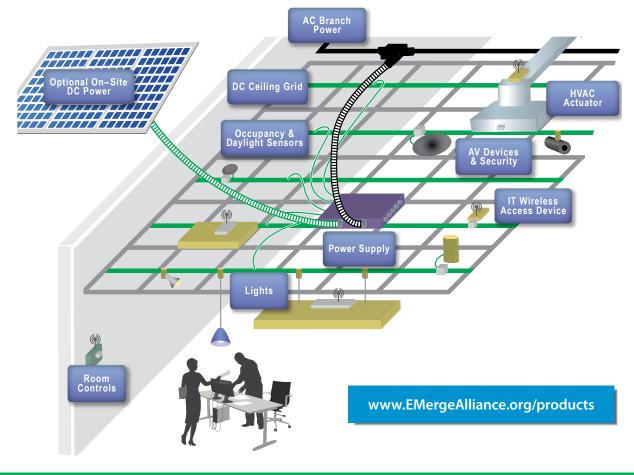
OCCUPIED SPACE

EMerge Alliance Occupied Space Standard defines low voltage dc power distribution system requirements for use in commercial building interiors

Occupied Space designed in compliance with EMerge Standards provide the following benefits:

- Safe, flexible, plug'n play low voltage dc power distribution for commercial building interiors
- Power, infrastructure, peripherals (such as lighting), and controls on a common platform
- Hybrid ac-dc power for design efficiency and sustainability
- Connects directly or through building microgrid to on-site renewable generation and storage

EMerge Alliance Registered Products for the Occupied Space Standard are listed on the Alliance website product registry.





Join Today

The EMerge Alliance is representative of the many organizations impacting the commercial building arena.

2400 Camino Ramon, Suite 375, San Ramon, CA 94583 Phone: 925. 275. 6617 | E-FAX: 925. 884. 8668

www.EMergeAlliance.org Media Contact: media@EMergeAlliance.org Membership Contact: info@EMergeAlliance.org

Copyright © EMerge Aliance. All rights reserved.

Occupied Space

A direct current (dc) power standard focused on interior occupied space applications in commercial buildings.

Data Centers

A direct current (dc) power standard focused on commercial data center and telecommunication applications.

Building Services

A planned direct current (dc) power standard focused on commercial building service applications such as HVAC, motor loads, pumps, etc. ION Outdoor A planned direct current (dc) power standard focused on building exterior applications such as architectural lighting, security, and electric vehicle (EV) charging.

VISION: DC MICROGRIDS FOR BUILDINGS

Planned

DC Power Microgrids for Campus/

Building

Integration

We believe that ongoing and increasing demand for improved reliability and energy efficiency across all areas of commercial buildings provides the need for the EMerge Alliance family of power distribution standards.

The EMerge Alliance vision is:

- An open architecture
- Reduction or elimination of ac to dc conversions between power sources and digital devices
- · Power conversion and distribution in dc form
- DC power as a key component for zero net energy buildings
- More direct and efficient integration of on-site dc generation sources such as solar photovoltaics, wind, and other alternative sources
- A modular approach for incremental standards application in one or more areas of hybrid powered buildings





QUICK FACTS

- Non-profit, open industry association
- More than 100 member organizations
- Promotes the adoption of safe dc power distribution through the development of technical application standards
- Forms a family of application/area-specific dc microgrids that, when interconnected, create a resilient and versatile building or campus energy network. Each semi-autonomous microgrid can operate with or without the need for connectivity to a higher-order supervising microgrid
- Open standards integrate power, infrastructure, peripherals, and controls in common microgrid platforms
- EMerge Alliance applications standards:
 - EMerge Alliance Occupied Space Standard
 - EMerge Alliance Data/Telecom Center Standard
- Provides an online registry for commercial products that can be specified for EMerge Alliance standards
- Promotes dc microgrid technology though strategic industry partnerships and participation in professional engineering trade forums
- Assists in the deployment of projects demonstrating use of EMerge Alliance Standards



Membership applications: www.EMergeAlliance.org/join



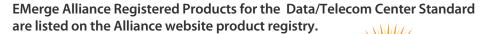
DATA/TELECOM CENTERS

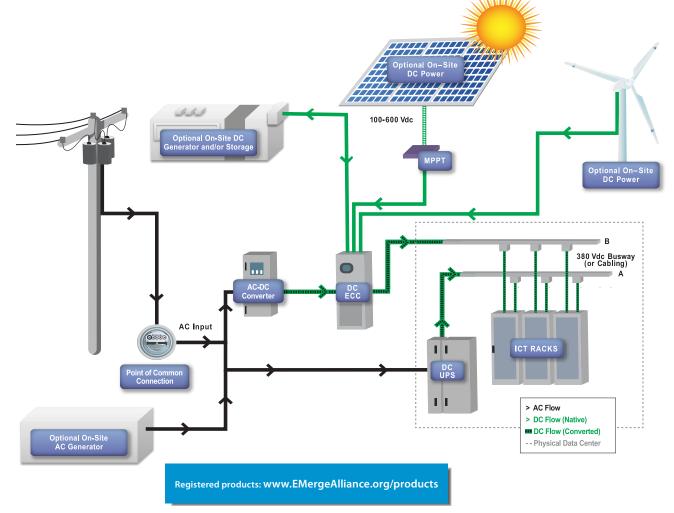
The EMerge Alliance Data/Telecom Center Standard defines low voltage dc power distribution system requirements for use in data centers and telecom central offices

Data Centers

Data/Telecom Centers designed in compliance with EMerge Standards provide the following benefits:

- Improved reliability and safety in a smaller footprint
- Lower capital, operating and total cost of ownership
- Increased energy efficiency and equipment utilization
- Connects directly or through building microgrid to on-site renewable generation and storage









Join Today

The EMerge Alliance is representative of the many organizations impacting the commercial building arena.

2400 Camino Ramon, Suite 375, San Ramon, CA 94583 Phone: 925. 275. 6617 | E-FAX: 925. 884. 8668

www.EMergeAlliance.org

Media Contact: media@EMergeAlliance.org Membership Contact: info@EMergeAlliance.org

Copyright © EMerge Aliance. All rights reserved.



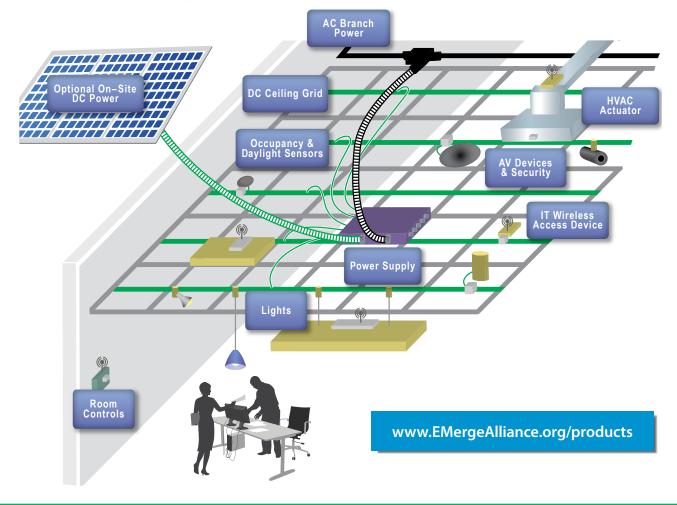
OCCUPIED SPACE

EMerge Alliance Occupied Space Standard defines low voltage dc power distribution system requirements for use in commercial building interiors

Occupied Space designed in compliance with EMerge Standards provide the following benefits:

- Safe, flexible, plug'n play low voltage dc power distribution for commercial building interiors
- Power, infrastructure, peripherals (such as lighting), and controls on a common platform
- Hybrid ac-dc power for design efficiency and sustainability
- Connects directly or through building microgrid to on-site renewable generation and storage

EMerge Alliance Registered Products for the Occupied Space Standard are listed on the Alliance website product registry.





Join Today

The EMerge Alliance is representative of the many organizations impacting the commercial building arena.

2400 Camino Ramon, Suite 375, San Ramon, CA 94583 Phone: 925. 275. 6617 | E-FAX: 925. 884. 8668

www.EMergeAlliance.org

Media Contact: media@EMergeAlliance.org Membership Contact: info@EMergeAlliance.org

Copyright © EMerge Aliance. All rights reserved.