

DensePak™ Series Overview



Rectifier Bays: **HVR SERIES** - 480VAC Input **LVR SERIES** - 208VAC Input
Up to five rectifier bays can be paralleled on a common bus structure to provide up to 10,000 Amps.

PDF SERIES
Primary Distribution Frame and Controller

SDF SERIES
Secondary Distribution Frame

Description

The DensePak™ Power System combines high power-density, ease of installation, and system flexibility, providing a very cost effective total solution. This centralized DC power plant is designed for large central office, point-of-presence, and data center DC applications. A complete system is comprised of modular rectifier bays, a master distribution bay with remote and local access controller, and scalable auxiliary primary distribution bays. The SDF Series of secondary distribution frames are available to further distribute current to individual loads.

Features

- ▶ Up to 10,500 amps using five rectifier bays and three primary distribution frames.
- ▶ 480 or 208VAC three-phase and 230VAC single-phase inputs.
- ▶ Extensive monitoring and control functionality includes branch current monitoring to control/monitor current source to co-locate customers.
- ▶ Modular & expandable architecture incorporates hot-swappable rectifiers.
- ▶ Scalable bus structure reduces installation time.
- ▶ Power factor corrected rectifiers have less than 5%THD.
- ▶ Certifications include NEBS Level 3 and UL1801. Complies with zone four seismic standards.
- ▶ Individual fuse and circuit breaker current monitoring.



HVRB and LVRB Rectifier Bays

The HVRB rectifier bay utilizes a 480VAC three-phase input. The LVRB rectifier bay utilizes a 208 VAC three-phase or 230VAC single-phase input. Both models can provide up to 2100 amps of output current per rectifier bay, adjustable from 50.5 to 58.5VDC. Up to five rectifier bays can be paralleled to deliver 10,000 amps using three PDF series primary distribution frames. Additional rectifier bay features include:

- ▶ Less than 5% THD.
- ▶ Power factor corrected, hot-swappable rectifiers.
- ▶ Extremely high power density saves critical floor space.
- ▶ Field expandable and upgradeable.
- ▶ 10,000-amp internal DC bus capacity.
- ▶ Onboard controllers monitor system voltage, current, and alarm status.
- ▶ Minimal heat dissipation due to high efficiency design reduces cooling requirements, increases MTBF, and minimizes power usage.



Mirador Integrated Controller

The Mirador Power Plant Controller is factory installed as an integral component in the master primary distribution frame. The Mirador offers modular construction, extensive monitoring and control capabilities, a wide range of connectivity options, and a comprehensive set of software functions.



Additional Mirador controller features include:

- ▶ A large LCD display, touch-keys, and LED's are provided for user interface and local monitoring.
- ▶ Form "C" alarm outputs indicate major, minor, OV/UV, and fuse alarms.
- ▶ Ethernet (ASCII), RS232, and modem outputs are provided for remote monitoring and control.
- ▶ Optional software can be provided to expand the monitoring and interface capabilities via SNMP or TCP/IP links.

Please refer to the Mirador controller data sheet for additional information.

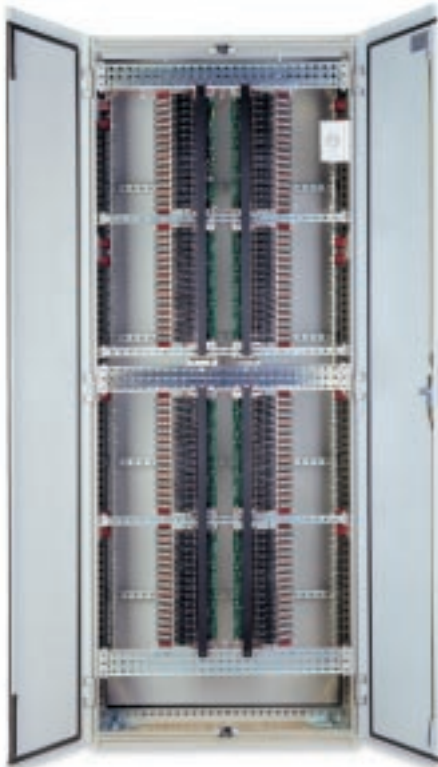
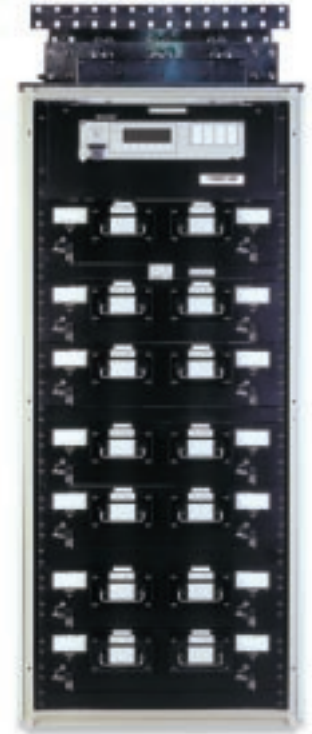
DensePak™ Series

PDF Series Primary Power Distribution Frames

The PDF Series of primary distribution frames can be configured as a master or auxiliary distribution frame and is available with fuses or circuit breakers, or a hybrid combination of fuses and breakers. The PDF series has an integral 10,000-amp DC power bus for direct connection to rectifier bays and auxiliary primary distribution frames.

Other PDF Series features include:

- ▶ Integral Mirador controller for use as a master primary distribution frame.
- ▶ Form “C” breaker alarm contacts and an audible alarm provide notifications of alarm conditions.
- ▶ Configurable for redundant or non-redundant operation.
- ▶ Rear-access tiered bus structure and adjustable cable braces for ease of installation.
- ▶ Auxiliary PDF’s facilitate additional power distribution flexibility by providing an additional seven sets of 600 amp dual fuse pullouts or circuit breakers.



SDF Series Secondary Power Distribution Frames

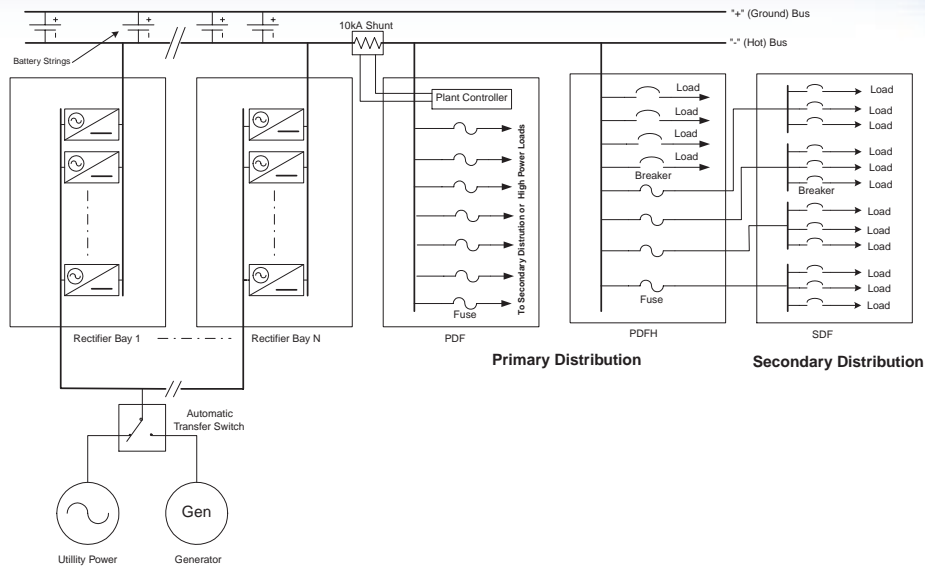
Each SDF secondary distribution frame can distribute up to 1200 amps from the PDF to the loads. Power distribution can be segmented into 600 amp A & B circuits. Two bus sections for A and two bus sections for B provide further distribution segmentation by allowing each section to be individually fed from a 600 amp PDF fuse or circuit breaker. The SDF will accept up to 120 CBK-MTA mid-trip circuit breakers (5 to 150 amp). These breakers are front accessible for either A or B feeds without affecting system operation.

- ▶ Supports up to 120 front access, hot pluggable, mid-trip alarm circuit breakers.
- ▶ Top or bottom feed allows for quick configuration for any site requirement.
- ▶ Form “C” breaker alarm contacts and an audible alarm provide notification that a breaker has tripped.
- ▶ A timer-controlled override is available to shut off the audible alarm while a tripped breaker is being located and reset.
- ▶ The SDF is universally compatible with power plants from all manufacturers.

DensePak™ Series

Overview

TYPICAL PLANT DIAGRAM



ORDERING INFORMATION:

HVRB	Models	Description
	HVRB19	Rectifier Bay (480VAC)
	HVR48/100	100A Modular Rectifier
	I2A0284-000	Blank Rectifier Panels
LVRB	Models	Description
	LVRB19	Rectifier Bay (208VAC)
	LVR48/60	60A Modular Rectifier
	I0N2000-000	Blank Rectifier Panels
PDF	Models	Description
	PDF-MCA-7-600DF	PDF with Mirador controller, and 7 dual fuse panels, fuse rating up to 600 amps.
	PDF-AX-7-600DF	PDF auxiliary bay with 7 dual fuse panels, fuse rating up to 600 amps.
	PDF-MCA	PDF with Mirador controller, and positions for 7 dual-position breaker panels. Breakers available from 125 to 600 amps.
	PDF-AX	PDF with positions for 7 dual-position breaker panels. Breakers available from 125 to 600 amps.
	DBPD-xxx (xxx are amps rating)	2-position breaker panel for PDF-MCA or PDF-AX. Ratings available between 125 and 600 amps.
	PDFH-MCA-4-600DF	PDF with Mirador controller, 48 small breaker positions (5 to 150 amp), and 4 dual fuse panels, fuse rating up to 600 amps.
	PDFH-AX-4-600DF	PDF with 48 small breaker positions (5 to 150 amp), and 4 dual fuse panels; fuse rating up to 600 amps.
	CBK-MTA-xx (xx are amps rating)	Mid-trip breakers for use with PDFH frames, sizes available from 5 to 150 amps.
SDF	Models	Description
	SDF-1200-60DBK	120-position secondary distribution frame
	CBK-MTA-xxx	Breaker kits, xxx = breaker rating, 5 to 150 amp
	SDF-BC-KIT	Bus Connector kit

Note: Please contact Power-One for additional configurations.

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Powering Communications

Revised: 6/01 DPS601-A

DensePak™ Series HVRB Rectifier Bay



480 VAC
Three-Phase Input

Up to 2100 Amps/Bay Output

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DensePak™
Systems

480 Vin
Rectifiers

208 Vin
Rectifiers

Primary Distribution
& Controllers

Mirador
Controller

Secondary
Distribution



HVRB

Rectifier Bay

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The HVRB rectifier bay utilizes a 480VAC three-phase input and can provide up to 2100 amps of output current per rectifier bay, adjustable from 48.6 to 56.1VDC. Up to five rectifier bays can be paralleled to deliver 10,500 amps using three PDF series primary distribution frames.

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Designed for Fast Installation and Upgrading

- ▶ An integral copper-plated bus allows for simple and easy addition of plant capacity by simply bolting additional rectifier bays in parallel.
 - ▶ The HVRB is delivered pre-wired from the AC input junction box to the rectifier backplanes.
 - ▶ Modular architecture is field expandable and upgradeable.
 - ▶ Rectifiers are hot-swappable, true plug-and-play; no adjustments required.
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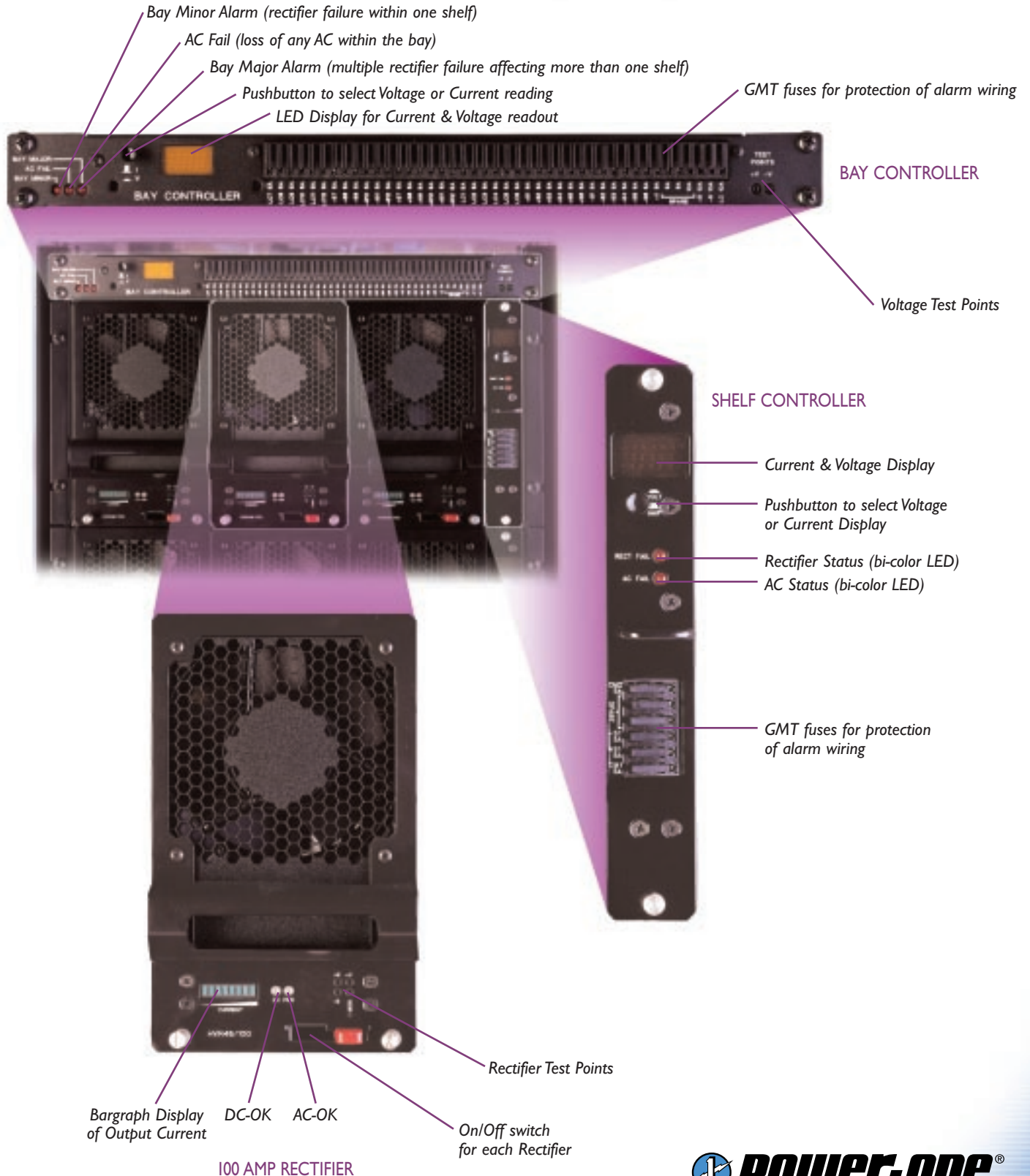
Reduced Operating Costs and High Reliability

- ▶ Low Total Harmonic Distortion (THD) <5% eliminates the need for oversizing backup generators.
 - ▶ Near unity power factor reduces input harmonic current draw, which minimizes cable and fuse/circuit breaker sizing.
 - ▶ Extremely high power density saves critical floor space.
 - ▶ Minimal heat dissipation due to high efficiency design reduces cooling requirements, increases MTBF, and minimizes power usage.
-

Extensive Protection and Alarm Features

- ▶ Overvoltage shutdown capability is the highest guarantee of protection for the telecom equipment being powered.
- ▶ Plant controller offers a user-selectable overvoltage shutdown limit.
- ▶ Onboard controllers monitor system voltage, current, and alarm status.

DensePak™ Series HVRB Rectifier Bay



DensePak™ Series HVRB Rectifier Bay

TECHNICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS:

Input Voltage Range	432-528VAC, 3-phase, 47-63 Hz
Input Current for each shelf of three rectifiers	23A per phase, full load, nominal
Input Circuit Breaker (min.)	30A, per shelf
Inrush Current for each shelf of three rectifiers	27A peak @ 480VAC
Output (bay)	54VDC @ 2,000A (N+1), 2,100A max.
Output Voltage Range	48.6 to 56.1VDC
Current Limiting	Constant current up to 105% of the output rectifier current rating (15-second current walk-in at startup)
Power Factor	0.99 @ full load
Total Harmonic Distortion	<5% (3% typical) @ full load
Output Load Regulation	0.4% (0-100% load)
Output Line Regulation	0.4% over entire input range
Efficiency	90% Rectifier
Short Circuit Current	<80% of full load current
Overvoltage Protection	56.5V normal (dual protection)

STANDARDS:

UL 1950, UL 1801, FCC parts 15 level A, EN55022 (CISPR22) Level A, IEC/EN 6100-4-2,3,4,5 and 6, NEBS (Bellcore GR-1089-core, and GR-63-core, level 3)

MECHANICAL SPECIFICATIONS:

Dimensions (H x W x D)	HVRB19 84" x 23.5" x 31" (213.4cm x 56.7cm x 78.7cm) HVR48/100 8"x 5"x 13.75" (20.3cm x 12.7cm x 34.9cm)
Weight	HVRB19: 1,250 lb (with 21 rectifiers installed), HVR48/100 (19 lb)
Seismic Rating	Zone 4 certified
Color	Texture black gloss (shelf & rectifiers) Texture light grey gloss (HVRB19 cabinet)
Floor Mounting	Full-size floor drilling templates provided
Battery & Return Lugs	Dual hole spacing, 1.75" center-to-center, 8 pairs of lugs supported

ENVIRONMENTAL:

Temperature Range	0-40°C operating, -50 to +85°C storage for HVR48/100
Humidity	10-90% RH, operating, 5-95% storage, non-condensing
Temperature Coefficient	±0.0008%/°C from 0-50°C after one hour warm-up
Altitude Range	-200 feet to +8,000 feet AMSL
Heat Dissipation /BTU per hour per Rectifier	2,500 BTU's per hour at full load

Note: All specifications are subject to change without notification.

ORDERING INFORMATION:

HVRB19	Rectifier Bay
HVR48/100	Rectifier Module
HVR-BP	Rectifier Blank Panel

Note: Please contact Power-One for additional configurations.



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Revised: 6/01 DPH601-A



DensePak™ Series LVRB Rectifier Bay



208 VAC
Three-Phase Input
OR
230 VAC
Single-Phase Input

Up to 2100 Amps/Bay Output

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DensePak™
Systems

480 Vin
Rectifiers

208 Vin
Rectifiers

Primary Distribution
& Controllers

Mirador
Controller

Secondary
Distribution



LVRB

Rectifier Bay

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The LVRB rectifier bay utilizes a 208VAC three-phase or 230VAC single-phase input and can provide up to 1980 amps of output current per rectifier bay, adjustable from 48.6 to 56.1VDC. Up to five rectifier bays can be paralleled to deliver 9,900 amps using three PDF series primary distribution frames.

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Designed for Fast Installation and Upgrading

- ▶ An integral copper-plated bus allows for simple and easy addition of plant capacity by simply bolting additional rectifier bays in parallel.
 - ▶ The LVRB is delivered pre-wired from the AC input junction box to the rectifier backplanes. Just terminate the AC feeds at the junction box and plug in the hot-swap rectifier.
 - ▶ Modular architecture is field expandable and upgradeable.
 - ▶ Rectifiers are hot-swappable, true plug-and-play; no adjustments required.
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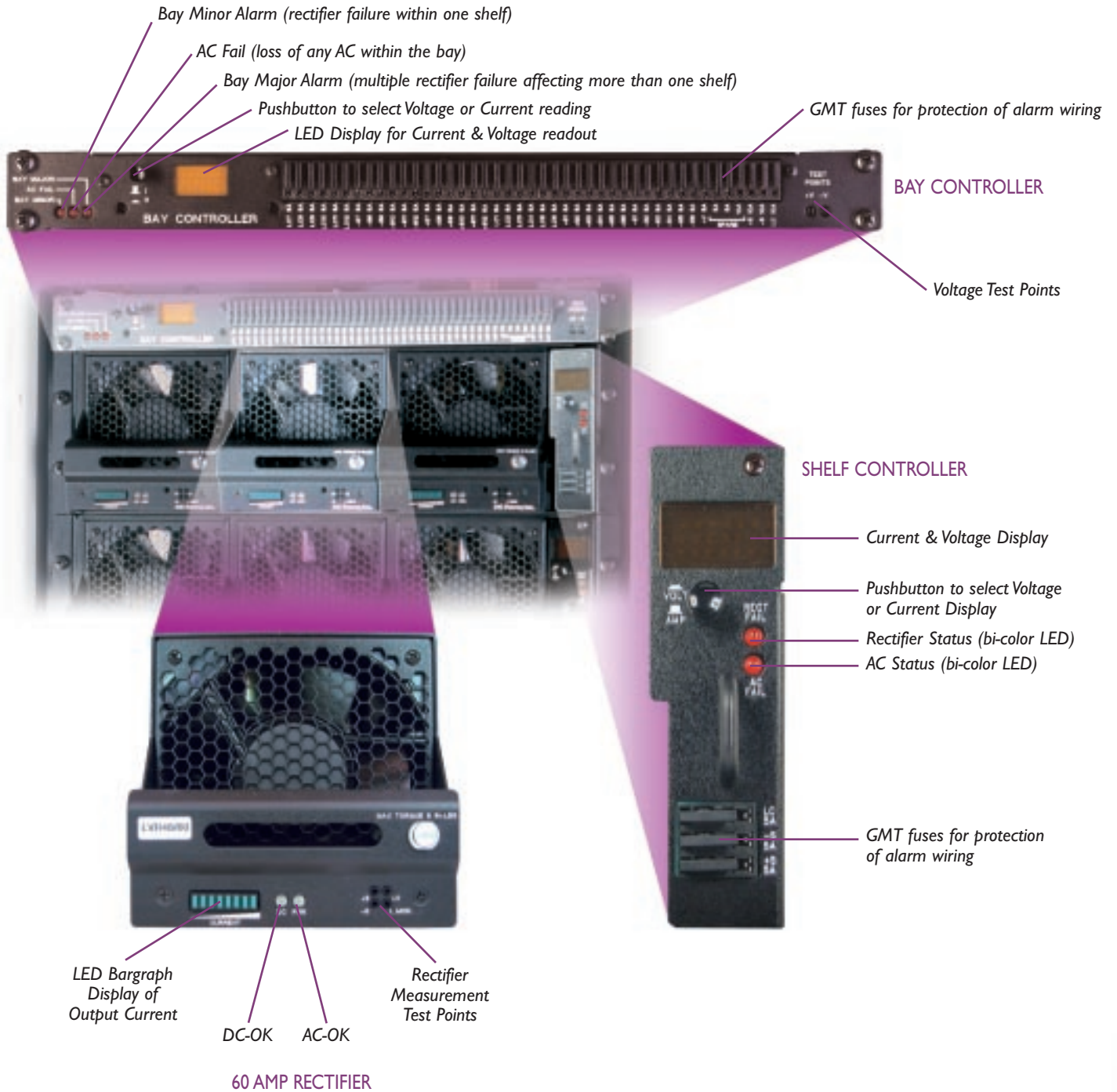
Reduced Operating Costs and High Reliability

- ▶ Low Total Harmonic Distortion (THD) <5% eliminates the need for oversizing backup generators.
 - ▶ Near unity power factor reduces input harmonic current draw, which minimizes cable and fuse/circuit breaker sizing.
 - ▶ Extremely high power density saves critical floor space.
 - ▶ Minimal heat dissipation due to high efficiency design reduces cooling requirements, increases MTBF, and minimizes power usage.
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Extensive Protection and Alarm Features

- ▶ Overvoltage shutdown capability is the highest guarantee of protection for the telecom equipment being powered.
 - ▶ Plant controller offers a user-selectable overvoltage shutdown limit.
 - ▶ Onboard controllers monitor system voltage, current, and alarm status.
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DensePak™ Series LVRB Rectifier Bay



DensePak™ Series LVRB Rectifier Bay

TECHNICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS:

Input Voltage Range	180-264VAC, three-phase or single-phase, 47-63 Hz
Input Current for each shelf of three rectifiers	37A per phase (three-phase), 64A per phase (single-phase)
Input Circuit breaker rating (min.)	50amp for three-phase, 100amp for single-phase
Inrush Current for each shelf of three rectifiers	90A peak @ 230VAC
Output (bay)	54VDC @ 1,920A (N+1), 1,980A max
Output Voltage Range	48.6 to 56.1VDC
Current Limiting	Constant current up to 105% of the output rectifier current rating (15-second current walk-in at startup).
Power Factor	0.99 @ full load
Total Harmonic Distortion	<5% (3% typical) @ full load
Output Load Regulation	0.4% (0-100% load)
Output Line Regulation	0.2% over entire input range
Efficiency	90% Rectifier
Short Circuit Current	110% of full load current, automatic recovery on removal of short
Overvoltage Protection	56.5V normal (dual protection)

STANDARDS:

UL 1950, UL 1801, FCC parts 15 level A, EN55022 (CISPR22) Level A, IEC/EN 6100-4-2,3,4,5 and 6, NEBS (Bellcore GR-1089-core, and GR-63-core, level 3)

MECHANICAL SPECIFICATIONS:

Dimensions (H x W x D)	LVRB19 84" x 23.5" x 31" (213.4cm x 56.7cm x 78.7cm) LVR48/60 5" x 5" x 13.5" (12.7cm x 12.7cm x 34.3cm)
Weight	LVRB19: 1,300 lb (with 33 rectifiers installed), LVR48/60 (12.5 lb)
Seismic Rating	Zone 4 certified
Color	Texture black gloss (shelf & rectifiers) Texture light grey gloss (LVRB19 cabinet)
Floor Mounting	Full-size floor drilling templates provided
Battery & Return Lugs	Dual hole spacing, 1.75" center-to-center, 8 pairs of lugs supported

ENVIRONMENTAL:

Temperature Range	0-50°C operating, -50 to +85°C storage for LVR48/60
Humidity	10-90% RH, operating, 5-95% storage, non-condensing
Temperature Coefficient	±0.0008%/°C from 0-50°C after one hour warm-up
Altitude Range	-200 feet to +8,000 feet AMSL
Heat Dissipation /BTU per hour per rectifier	1,550 BTU's per hour at full load

Note: All specifications are subject to change without notification.

ORDERING INFORMATION:

LVRB19	Rectifier Bay
LVR48/60	Rectifier Module
ION2000-000	Rectifier Blank Panel

Note: Please contact Power-One for additional configurations.

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Revised: 6/01 DPL601-A



DensePak™ Series PDF Primary Distribution Frames



Available
with Fuses and
Circuit Breakers for
Master and Auxiliary
PDF Applications

 **Power-one**®
Powering Communications

DensePak™
Systems

480 Vin
Rectifiers

208 Vin
Rectifiers

Primary Distribution
& Controllers

Mirador
Controller

Secondary
Distribution



PDF Series

Primary Distribution Frames

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The PDF Series can be configured for use as a master or auxiliary primary distribution frame. Each PDF can handle up to 3300 amps. Additional distribution frames can be added for more power distribution. The output of the PDF can power loads, or can be fed to secondary distribution frames (SDF).

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The PDF Series is available with fuses or circuit breakers, or a hybrid combination of fuses and breakers. Fuses and circuit breakers from 5 amps to 600 amps can be accommodated. A standard configuration includes seven dual-feed, pull-out fuses or circuit breakers, rated up to 600 amps each. The seven “A” and seven “B” distribution feeds include integral current monitoring and fuse alarms. Hybrid configurations provide a combination of 48 smaller breakers and eight large fuses or breakers.

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Designed for Flexibility and Fast Installation and Upgrading

- ▶ An integral 10,000-amp copper-plated bus facilitates fast connections to rectifier bays and other PDF's.
 - ▶ Fuse blocks and circuit breakers are configurable as redundant or non-redundant.
 - ▶ A tiered bus structure and adjustable cable braces provide quick installation of cables up to 750 MCM.
 - ▶ Circuit breakers and fuses are front accessible for quick replacement or resetting.
-

Monitoring and Control

- ▶ Fuse-protected analog ammeters display fuse or circuit breaker load current.
 - ▶ Each large circuit breaker/fuse distribution point has a 1kA shunt to report amperage to the controller. Alarm thresholds are user programmable to provide notification of maximum desired currents.
 - ▶ Form “C” breaker alarm contacts and an audible alarm provide notification of alarm conditions.
 - ▶ Tri-color LED's indicate if fuses/breakers are operational, not installed, or blown/tripped.
 - ▶ An alarm override switch allows for disabling branch status alarm for maintenance purposes.
 - ▶ Two controller options: Mirador and DMAC-10K.
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DensePak™ Series PDF Primary Distribution Frames

Master PDF Configuration

The PDF Series is available for use as a master power distribution frame by installing either the Mirador or the DMAC-10K controller.

A PDF with a Mirador controller can provide user-programmable rectifier voltage control and can monitor the status of up to 40 fuses or circuit breakers. It can also provide remote reporting of all conditions being monitored. Additional Mirador features include:

- ▶ A large LCD display, touch-keys, and LED's for local monitoring.
- ▶ Form "C" alarm outputs notify of major, minor, OV/UV, and fuse alarms.
- ▶ Ethernet (ASCII), RS232, RS485, and modem communications are provided for remote monitoring and control.
- ▶ Optional software can be provided to expand the monitoring and interface capabilities via SNMP or TCP/IP links.
- ▶ Please refer to the Mirador Controller data sheet for additional information.



This PDF master incorporates a Mirador Controller and 600-amp pull-out fuse blocks.

The DMAC-10K controller is designed for applications not requiring the extensive capabilities of the Mirador controller. Front panel LED's and test points provide local reporting of plant output voltage and current. Remote monitoring is provided by a series of form "C" alarms. Additional features include an equalize timer to preset the duration of battery test and equalization cycles.

The PDFH Hybrid Distribution Frame

The PDFH provides a greater level of flexibility in power distribution by accommodating up to 48 single-pole circuit breakers (5 to 150 amps) and 8 fuses or circuit breakers up to 600 amps each. The 48 single-pole circuit breakers can be configured as 24 "A" and 24 "B" breaker positions. The eight larger circuit breakers can be configured as four "A" and four "B" breaker positions.

This unique configuration provides cost and space savings when there is a requirement to feed local loads with low current circuit breakers since the need for an SDF near the power plant is eliminated. The PDFH option is available for PDF's used in either master or auxiliary applications.



The PDFH provides unsurpassed flexibility, accommodating up to 48 single-pole circuit breakers and 8 circuit breakers or fuses up to 600 amps each.

DensePak™ Series

PDF Primary Distribution Frames

TECHNICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS:

Input Operating Voltage	-54VDC (nominal)
Maximum Current per Bay	3300 amps
Outputs	PDF: 600A max. (7 pairs) PDF-AX: 600A max. (7 pairs) PDFH: 600A max. (4 pairs) and 24 pairs (A&B) circuit breakers (5-150 amps)
Interrupt Rating	100kA for fuse configurations, 25kA for breaker configurations, 50kA for small breakers

STANDARDS:

UL 1950, ULI 801, CSA, FCC parts 15 level A, EN55022 (CISPR22) Level A, IEC/EN 6100-4-2,3,4,5 and 6, Bellcore GR-1089-core, NEBS (Bellcore GR-1089-core, and GR-63-core, level 3)

MECHANICAL SPECIFICATIONS:

Dimensions (H x W x D)	84" x 31.45" x 31" (213.4cm x 79.9cm x 78.7cm)
Weight	PDF 970 lbs, PDF-AX 920 lbs, PDFH: 850 lbs, PDFH-AX: 800 lbs
Seismic Rating	Zone 4 tested and certified
Color	Texture black gloss (shelf & rectifiers) Texture light grey gloss (cabinet)
Floor Mounting	Four bolts and full-size floor drilling templates provided
Load & Return Lugs	Dual hole spacing, 1.75" center-to-center, 14 pairs of lugs supported, 1" center-to-center on hybrid 5 to 150 amp breakers.

ENVIRONMENTAL:

Temperature Range	0-50°C operating, -50 to +85°C storage
Humidity	10-90% RH, operating, 5-95% storage, non-condensing

Note: All specifications are subject to change without notification.

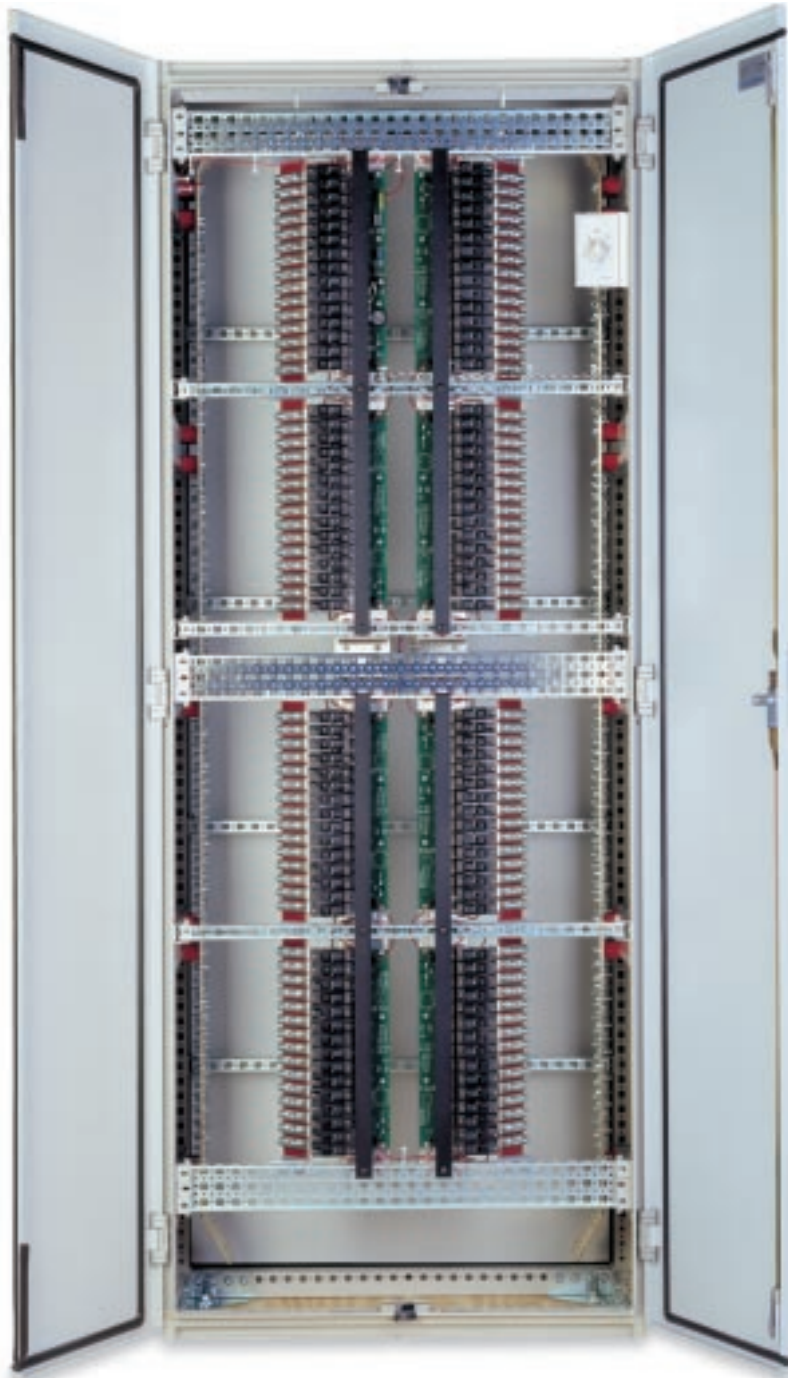
ORDERING INFORMATION:

PDF-MCA-7-600DF	PDF with Mirador controller, and 7 dual fuse panels, fuse rating up to 600 amp
PDF-AX-7-600DF	PDF auxiliary bay with 7 dual fuse panels, fuse rating up to 600 amps
PDF-MCA	PDF with master controller, and positions for 7 dual-position breaker panels. Breakers available from 125 to 600 amps
PDF-AX	PDF with positions for 7 dual-position breaker panels. Breakers available from 125 to 600 amps.
DBPD-xxx (xxx are amps rating)	2-position breaker panel for PDF-MCA or PDF-AX. Ratings available between 125 and 600 amps.
PDFH-MCA-4-600DF	PDF with master controller, 48 small breaker positions (5 to 150 amps), and 4 dual fuse panels, fuse rating up to 600 amps.
PDFH-AX-4-600DF	PDF with 48 small breaker positions (5 to 150 amps), and 4 dual fuse panels; fuse rating up to 600 amps.
CBK-MTA-xxx (xxx are amps rating)	Mid trip breakers for use with PDFH frames, sizes available from 5 to 150 amps.

Note: Please contact Power-One for additional configurations.



DensePak™ Series SDF Secondary Distribution Frames



Supports
up to 120
Front Access,
Hot Pluggable,
Mid-Trip Alarm
Circuit Breakers.

DensePak™
Systems

480 Vin
Rectifiers

208 Vin
Rectifiers

Primary Distribution
& Controllers

Mirador
Controller

Secondary
Distribution

DensePak™ Series

SDF Secondary Distribution Frames

Features

- Distribution capacity configurable as four independent quadrants at 600 amps each (A1, A2, B1 & B2) or two sides configured as 600 amps each (A & B) to support up to 120 breakers.
- Top or bottom feeds provide quick configuration for any site requirement.
- Form "C" breaker alarm contacts and an audible alarm provide notification of tripped breakers.
- A timer-controlled override is available to shut off the audible alarm while a tripped breaker is being located and reset.
- The SDF is universally compatible with power plants from all manufacturers.
- Locking cabinet provides security in telecom and data centers.
- Rugged design complies with zone 4 seismic standards.

TECHNICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS:

Each Input, "A" or "B"	42 - 60VDC @ 1,200A Max.
Output Circuit Breaker Rating	5 to 150A, max., 120 positions

STANDARDS:

UL 1950, and CSA, NEBS (Bellcore GR-1089-core, and GR-63-core, level 3)

MECHANICAL SPECIFICATIONS:

Dimensions (H x W x D)	74" x 31.45" x 15.35"
Weight (1/2 populated with breakers)	425 lbs
Floor Mounting	Bolted to floor with four bolts
Load-Lugs	Two hole, 1" center-to-center spacing
Feed-Lugs	Two hole, 1.75" center-to-center (2 pairs per feed)
Seismic Rating	Zone 4 Compliant
Color	Grey Gloss

Note: All specifications are subject to change without notification.

ORDERING INFORMATION:

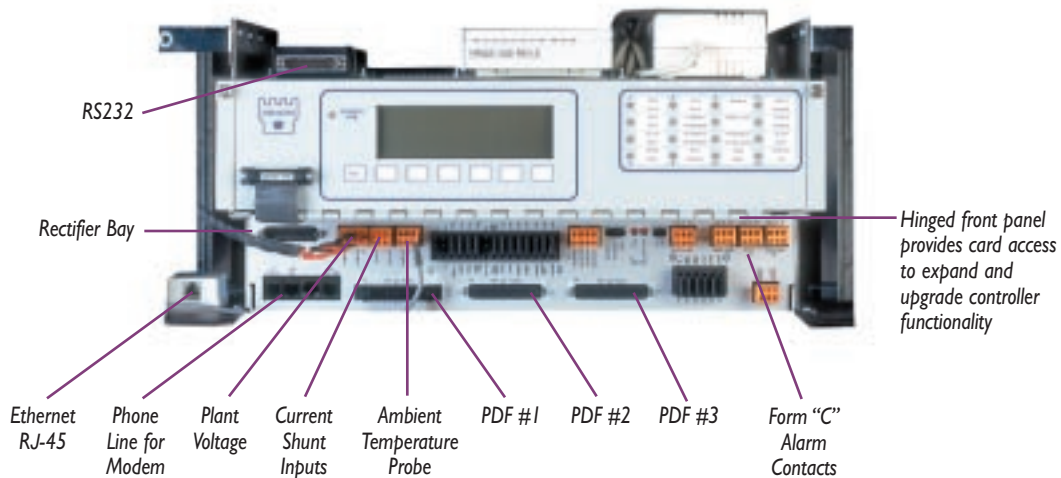
SDF-1200-60DBK	120-position secondary distribution frame
CBK-MTA-xxx	Breaker kits, xxx = breaker rating, 5 to 150 amp
SDF-BC-KIT	Bus connector kit for combining quad feed into dual feed

Note: Please contact Power-One for additional configurations.

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DensePak™ Series Mirador Controller



Description

When installed in a PDF Series primary distribution frame, the Mirador controller provides historical, statistical, and real-time information describing power plant operating conditions and performance. This modular controller offers extensive monitoring and controller capabilities, a wide range of interfaces, and comprehensive software.

The Mirador's primary distribution current monitoring and alarming is ideal for use in co-locate situations where a limited amount of current has been purchased and allows the user to determine how much current has been supplied through any of the distribution fuses or circuit breakers.



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Connectivity and User Interfaces

- ▶ Installed within the PDF master primary distribution frame.
- ▶ Multi-level password protected access.
- ▶ Programmable calling features automatically notify network operations centers when user-specified conditions occur.
- ▶ Front accessible, hot-swappable control cards.
- ▶ RS232, modem, and Ethernet (LAN/WAN) ports.
- ▶ Optional PC-based power plant management software.



Mirador controller installed in Power-One PDF

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Controller Functions

- ▶ Plant voltage control.
- ▶ Timer-controlled battery equalization.
- ▶ Optional temperature compensation for optimized battery life.

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Extensive Local and Remote Monitoring Capabilities

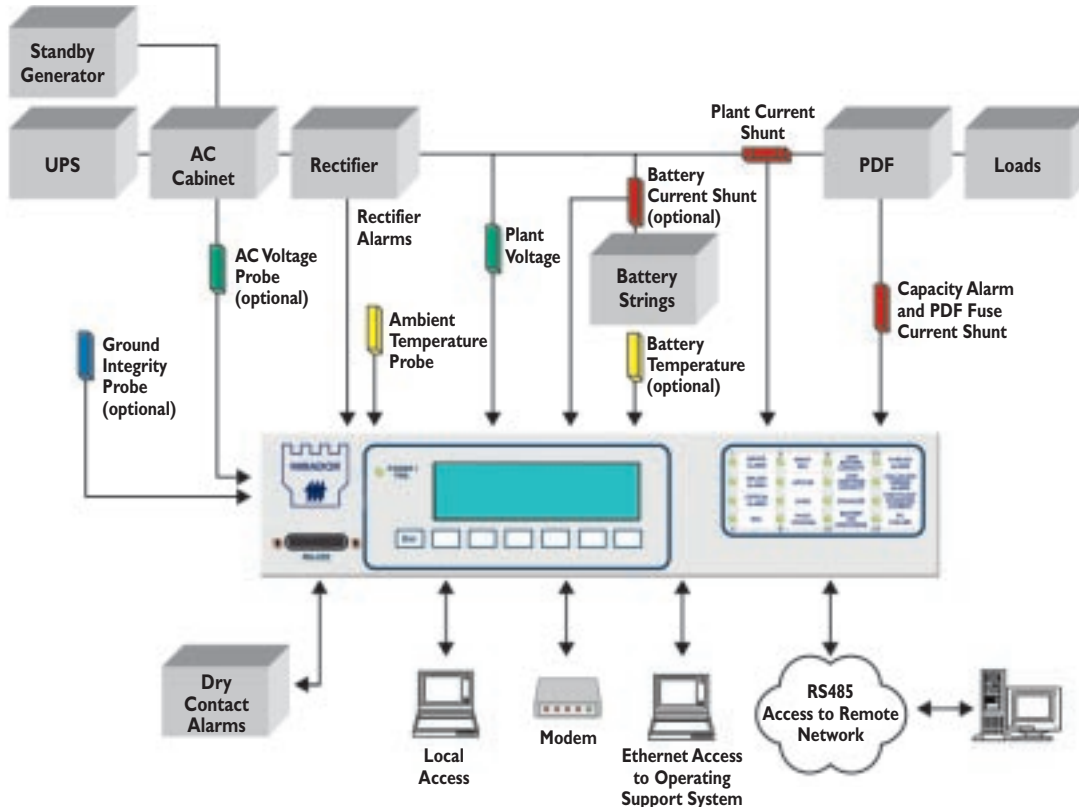
- ▶ Alarm condition reporting and logging (256 to 512 events depending on file).
 - ▶ Current monitoring and capacity alarms for up to 40 primary distribution circuits from one master and two auxiliary PDF's. User-programmable thresholds report when capacity has been reached.
 - ▶ Plant capacity alarm notifies service personnel when user-programmable output current threshold has been reached.
 - ▶ Ambient temperature monitoring and alarms.
 - ▶ Form "C" contacts - Major, Minor, OV/UV and Fuse/Breaker alarms are standard. An additional 12 relay contacts are available by request.
 - ▶ Standard LED's include: Major, Minor, AC Fail, UV/OV, Fuse, High Battery Temperature, High Ambient Temperature, Plant Capacity, Equalize, Battery Test, Temperature Compensation, Cable Alarm, Fuse Capacity, Temperature Compensation Fail, and Controller Fail.
 - ▶ Options include: AC voltage and current monitoring, ground current monitoring, battery temperature monitoring and alarms, battery string voltage and current measurement/alarm.
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DensePak™ Series Mirador Controller

System Architecture

The Mirador's distributed multi-processor architecture employs a CPU card, up to ten I/O cards, and analog, binary/event, and output cards.

- ▶ The CPU card is the central processing unit that controls the I/O cards and communication ports.
- ▶ The analog card provides 18 analog input channels and is used to measure real time parameters such as AC and DC voltages and currents, and temperature.
- ▶ The event card's 48 programmable binary-input channels detect equipment status and are activated by analog voltages.
- ▶ The output card provides up to 32 programmable output channels and can be used for equipment control or to issue alarms. This card utilizes two sets of 16 output SPST (2 amp @ 30VDC) relays.



DensePak™ Series Mirador Controller

Optional
IRIS Software

IRIS is a PC-based software solution providing users with the ability to retrieve, store, analyze, and visualize the field data collected by the Mirador controller.



Note: All specifications are subject to change without notification.

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