

Drive Hub

Card Frame
Power Frame
Mini Pack

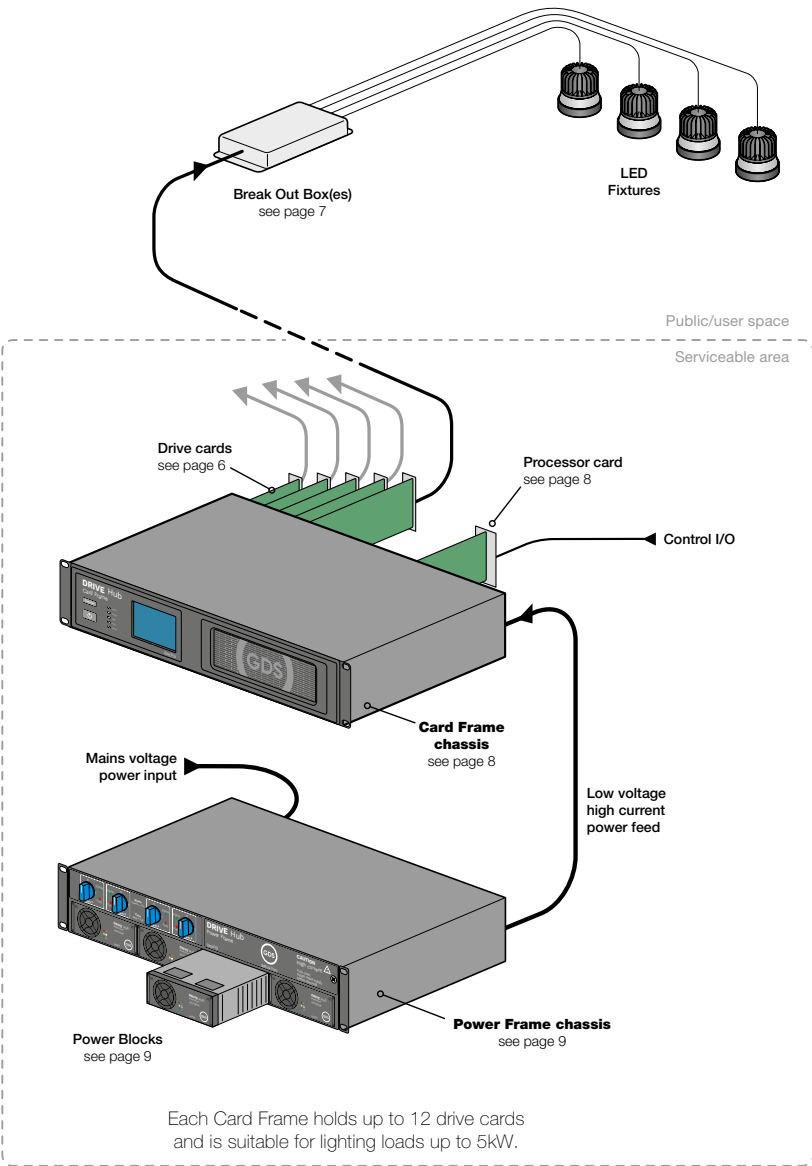
APPLICATION NOTE

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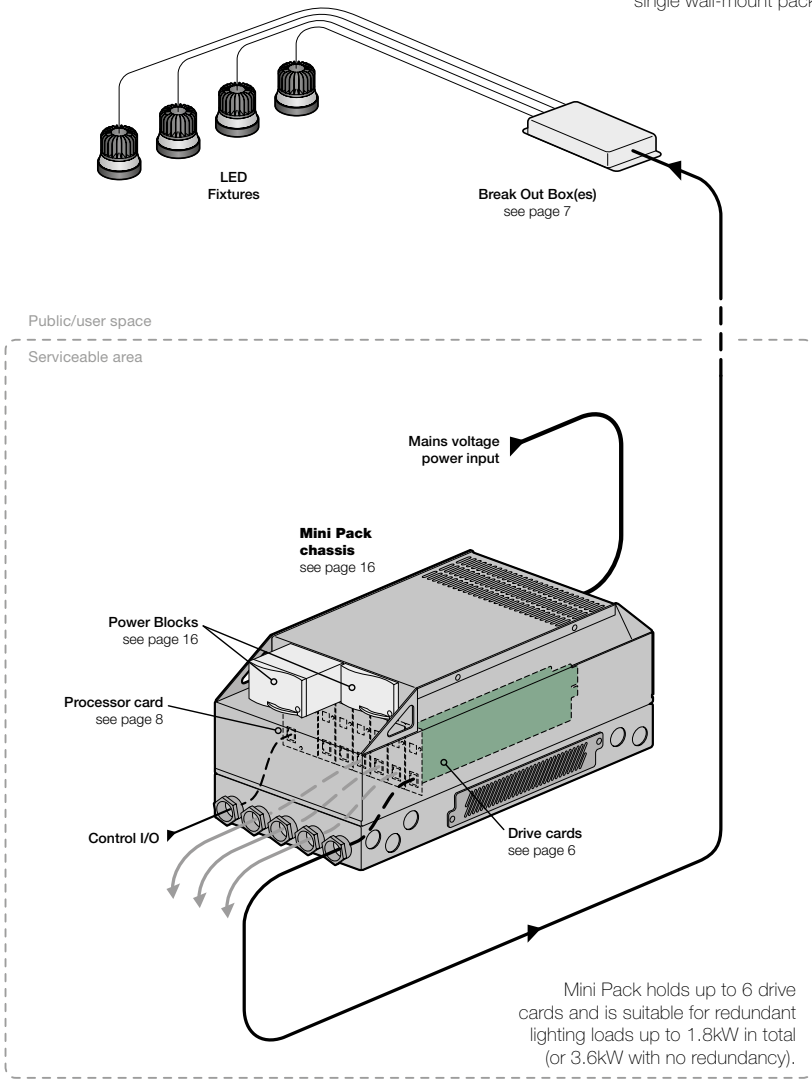
Drive Hub system

Drive Hub is a high capacity modular system, created to serve widely distributed LED fixtures from a central location.



Mini Pack

For smaller installations, where utility space is at a premium. Mini Pack combines elements of the Power Frame and Card Frame within a single wall-mount package.



Matching options

Matching options to installations

The Drive Hub system offers many options to help match the solution to the challenges and constraints of your installation. Drive cards (see page 6) and accompanying break out boxes (BOBs) (see page 7) are key to matching the supply to your demand:

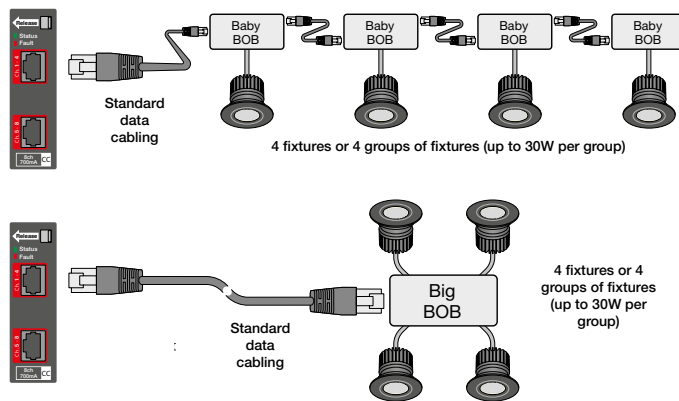
Multiple medium power fixtures

- **Drive card:** 8ch 700mA CC
- **Fixtures:** 8 x 30W (in total)
4 x 30W per run
- **Cabling:** CAT5e/6
- **Outlet:** Baby BOB,
Big BOB or
Cable BOB 4

Notes:

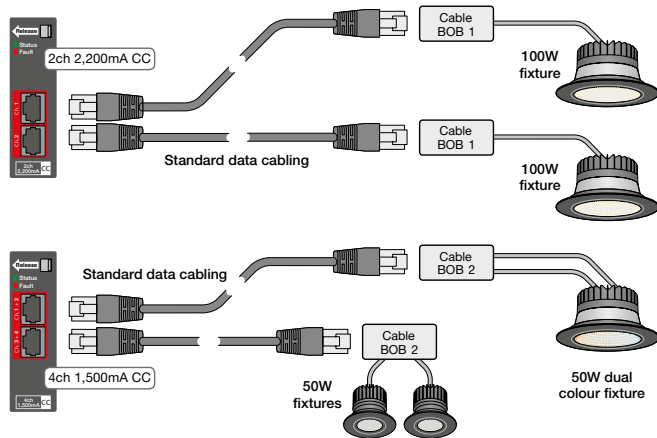
Use Baby BOB where fixture groups are widely distributed.

Use Big BOB where fixture groups are in the same vicinity.



High power fixtures

- **Drive card:** 2ch 2,200mA CC
or
4ch 1,500mA CC
- **Fixtures:** 1 x 100W or
2 x 50W per run
also useful for
Colour tune fixtures
- **Cabling:** CAT5e/6
- **Outlet:** Cable BOB 1 or
Cable BOB 2

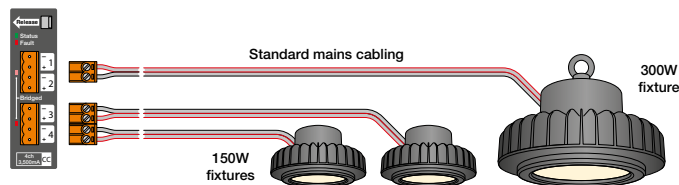


Ultra high power fixtures

- **Drive card:** 4ch 3,500mA CC
- **Fixtures:** 2 x 300W or
4 x 150W
- **Cabling:** 2-core mains cable
- **Outlet:** Direct to fixture

Note:

Two 3,500mA channels can be bridged to support 300W fixtures.



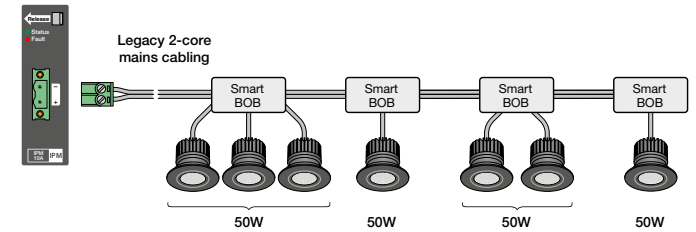
Matching options to installations (continued)

Fixtures on legacy wiring

- **Drive card:** IPM 10A
- **Total load:** Up to 500W
- **Cabling:** 2-core mains
- **Outlet:** Smart BOB 1

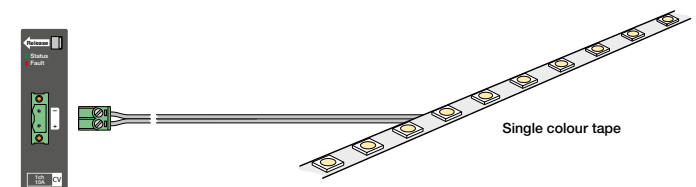
Note:

Four separate channels provided on common 2-way legacy cable using encoded dimming signals.



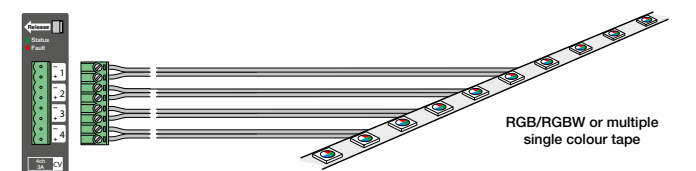
LED strip fixtures (single colour)

- **Drive card:** 1ch 10A CV
- **Total load:** Up to 10A
- **Cabling:** Standard cable
- **Outlet:** Direct to fixture



LED strip fixtures (RGB/W or multiple single colour)

- **Drive card:** 4ch 3A CV
- **Total load:** Up to 3A (x4)
- **Cabling:** Standard cable
- **Outlet:** Direct to fixture



Order codes

Drive Cards

2ch 2,200mA CC	DHDC2CHCC2.2
4ch 1,500mA CC	DHDC4CHCC1.5
4ch 3,500mA CC	DHDC4CHCC3.5
8ch 700mA CC	DHDC8CHCC0.7
1ch 10A CV	DHDC1CHCV10
4ch 3A CV	DHDC4CHCV3
IPM 10A	DHDCIPM

Break Out Boxes (BOB)

Baby BOB	DHBAB
Big BOB	DHBIB
Cable BOB 1	DHBC1
Cable BOB 2	DHBC2
Cable BOB 4	DHBC4
Smart BOB 1	DHBSM1CHCC1.0

For a complete list of order codes, see page 20.

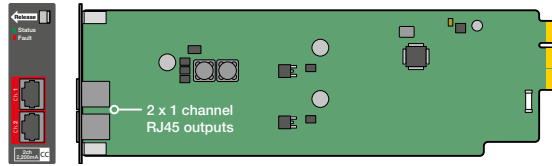
[Summary of drive cards](#)

[Summary of BOBs](#)

Summary of drive cards

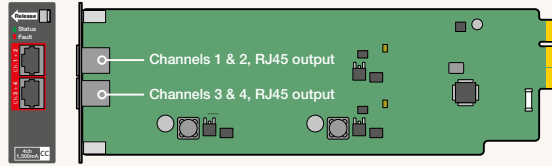
2ch 2,200mA CC

Type: Constant Current (CC)
Order code: DHDC2CHCC2.2
Channels: 2
Connections: 2 x RJ45
Load/channel: 2,200mA



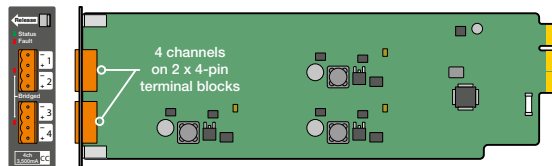
4ch 1,500mA CC

Type: Constant Current (CC)
Order code: DHDC4CHCC1.5
Channels: 4
Connections: 2 x RJ45
Load/channel: 1,500mA



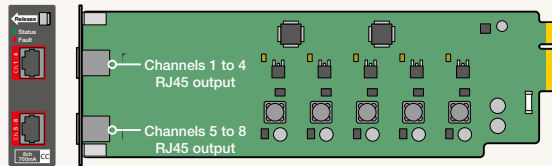
4ch 3,500mA CC

Type: Constant Current (CC)
Order code: DHDC4CHCC3.5
Channels: 4
Connections: 2 x Weidmüller® 4-pin terminal
Load/channel: 3,500mA



8ch 700mA CC

Type: Constant Current (CC)
Order code: DHDC8CHCC0.7
Channels: 8
Connections: 2 x RJ45
Load/channel: 700mA



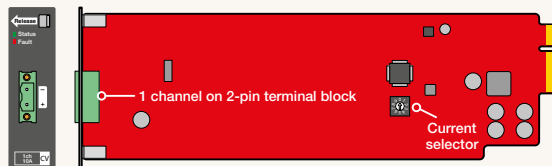
IPM 10A

Type: IPM
Order code: DHDCIPM
Channels: 4 encoded in 2-way cable
Connections: 1 x Phoenix® 2-pin terminal
Output voltage: 48VDC



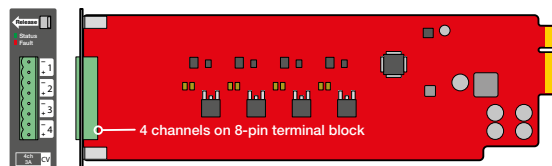
1ch 10A CV

Type: Constant Voltage (CV)
Order code: DHDC1CHCV10
Channels: 1
Connections: 1 x Phoenix® 2-pin terminal
Output voltage: 48VDC



4ch 3A CV

Type: Constant Voltage (CV)
Order code: DHDC4CHCV3
Channels: 4
Connections: 1 x Phoenix® 8-pin terminal
Output voltage: 48VDC

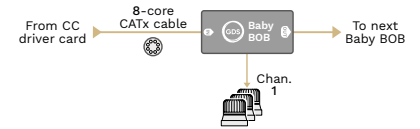


Summary of Break Out Boxes (BOB)

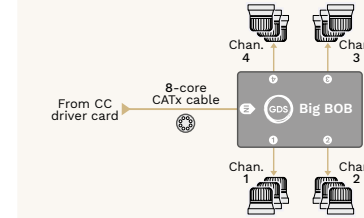
Baby BOB [Order code: DHBAB]

Best suited to serve fixture groups which are widely distributed. Each Baby BOB extracts just one channel from the CAT5e/6 feed cable and passes the remainder to the next Baby BOB via a new length of CAT5e/6 cable.

At the fourth Baby BOB in the line, the final channel is delivered to the attached fixture (or group of fixtures). Each Baby BOB is internally identical and no configuration is required. The channel (1 to 4) used by each fixture is determined purely by the order of its connection.



Compatible with drive card: 8ch 700mA CC.



Big BOB [Order code: DHBIB]

Best suited to supply fixture groups which are located in the same vicinity. Channels are transferred using the four twisted pairs of standard CAT5e/6 cabling.

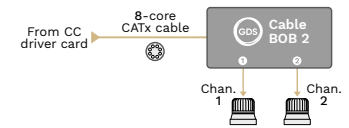
A variant of this module, known as the 'Emergency BOB' is available which has a Wago® picoMAX® input socket (rather than an RJ45) in order to allow a larger fire-proof feed cable to be connected.

Compatible with drive card: 8ch 700mA CC.

Cable BOB [Order codes: DHBC1 / DHBC2 / DHBC4]

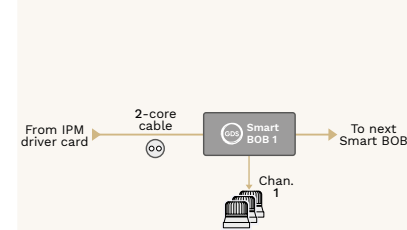
Available in three versions, Cable BOBs fulfil a number of roles:

- Cable BOB 1** allows higher power fixtures, up to 100W, to be safely fed via CAT5e/6 cabling. In combination with the 2ch 2,200mA drive card, the Cable BOB 1 combines all of the wire pairs within standard CAT5e/6 to deliver high current without exceeding limits. Two Cable BOB 1 modules can be used with each drive card.
- Cable BOB 2** works with the 4ch 1,500mA drive card to provide two channels, either to two separate 50W fixtures or a single colour mixing fixture (with dual 50W channels). Two Cable BOB 2 modules can be used with each drive card.
- Cable BOB 4** is matched to the 8ch 700mA drive card to deliver four 30W channels. Two Cable BOB 4 modules can be used with each drive card to transfer the full 8 channels.



Compatible with drive cards:

- Cable BOB 1 : 2ch 2,200mA CC.
- Cable BOB 2 : 4ch 1,500mA CC.
- Cable BOB 4 : 8ch 700mA CC.



Compatible with drive card: IPM 10A.

Smart BOB [Order code: DHBSM1CHCC1.0]

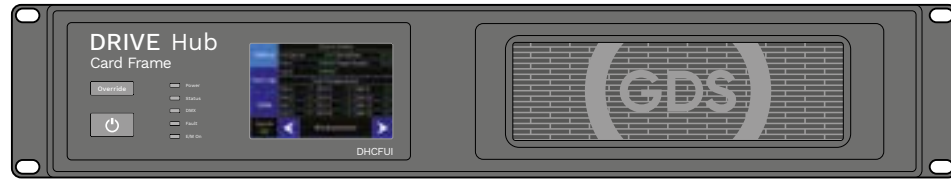
Closely allied with the IPM drive card, these are ideally suited for installations where a re-wire between the supply room and LED fixtures would be too disruptive and/or expensive to carry out. Instead, these cleverly synchronised units allow the existing mains cabling (that previously fed legacy incandescent fixtures) to be re-purposed as multi-channel low voltage feeds to replacement LED fixtures.

The IPM drive card encodes control signals for four separate channels onto a single 2-core legacy cable, together with a 10A DC supply current, to provide a 500W combined feed. Multiple Smart BOBs can then be attached along the common 2-core cable, each of which can break out a chosen channel to drive an LED fixture (or group of fixtures) up to 50W. More than four Smart BOBs can be used on a cable (with some sharing the same control channels) providing the overall power draw does not exceed 500W. Configuration buttons on each Smart BOB allow the installer to choose the required control channel and fixture current requirements.

Card Frame

A 19" rack mounted chassis with 12 slots for hot-plug drive cards, intelligent cooling and system-wide monitoring.

Front panel



Power control, override button and status indicators

3.5" touch panel display provides status reports and allows various settings to be altered

Easy-clean intake filter with magnetic catches

Rear panel



48VDC power input from Power Frame via Anderson® SB120 connector

12 actively-cooled slot locations.

Hot-plug ability allows drive cards to be replaced while power is still applied.

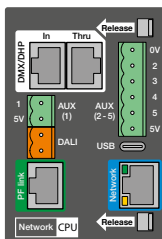
Card Frame interfacing

DMX/DHP

These In and Thru ports process two signal types: Incoming DMX from external control systems as well as DHP (Drive Hub Protocol), an RS485-based link which allows multiple DMX universes to be transferred between daisy-chained Card Frames. The DHP link can also transfer multiple universes received via the network port.

DALI

Provides a useful input link with external lighting control systems. The 64 DALI channels can be applied to any of the Card Frame channels.



Auxiliary ports

One auxiliary input, plus four additional ports that can operate either as inputs or outputs. These allow easy integration with external control systems, such as daylight sensors, HVAC and fire alarms.

Network

Present only on Network processor cards, this port allows Ethernet-based control protocols to be transceived. The network link can also be used to issue status reports to external monitors (see right).

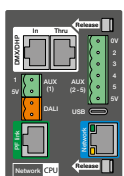
PF link

This communications port allows the Card Frame and Power Frame units to be linked for integrated monitoring.

Processor card types

Network card

As discussed above, this processor card carries the full complement of I/O links to provide maximum connectivity.



Local card

This reduced functionality unit is used in Card Frames that are assigned to a secondary role. This card lacks the Network connection and provides a single auxiliary input port.

This card lacks the Network connection and provides a single auxiliary input port.

Condition reporting

All Card Frame and Power Frame units carefully monitor many aspects of their own operation. In isolation this allows units to modify their own behaviour accordingly, such as increasing their cooling fan speeds or throttling output intensities to maintain safe operating limits, thus helping to prevent catastrophic failures.

Additionally, a Card Frame equipped with a Network processor card can accumulate condition reports:

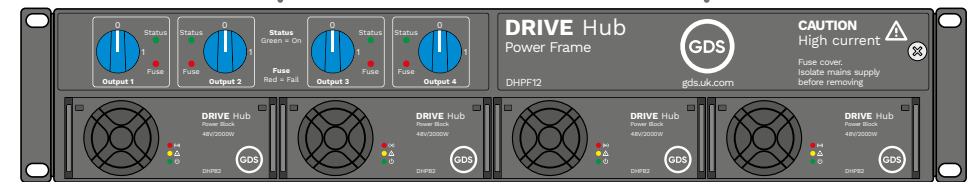
- from Card Frame units with Local processor cards (using the DMX/DHP links), and
- from Power Frame units using the PF link connection.

For additional overall system monitoring, the Network-equipped Card Frame can be configured to communicate with remote systems using SNMP or email protocols. Any report parameters can be set to automatically trigger warnings when they exceed safe levels.

Power Frame

A dedicated high-efficiency rectifier system, providing stable low voltage, high current feeds to multiple Card Frames. Power conversion is handled by multiple Power Blocks (in 2kW or 3kW capacities), which are arranged in a hot-swappable redundant array to ensure continuity of supply in the event of any hardware failure.

Front panel



The control panel provides power isolation for the four output ports plus status indications.

User replaceable fuses are located behind this panel to provide protection to the four output ports. Front panel access allows quick access.

Four separate Power Block rectifiers allow the Power Frame to be configured as a redundant array, in the manner that best suits the installation.

Each Power Block measures multiple metrics, such as: input and output voltages, output current, internal temperature and airflow. These important details can be reported through to the Card Frame as part of the system-wide monitoring service.

Power feeds

Power Frames accept single phase or 3-phase mains inputs and provide up to 12kW of low voltage, high current supply to multiple Card Frame units.

** Dependent on Power Block capacities.*

Power Blocks

Power Blocks are reactive to system loads and operate only when they are needed, thus raising overall efficiency and saving power.

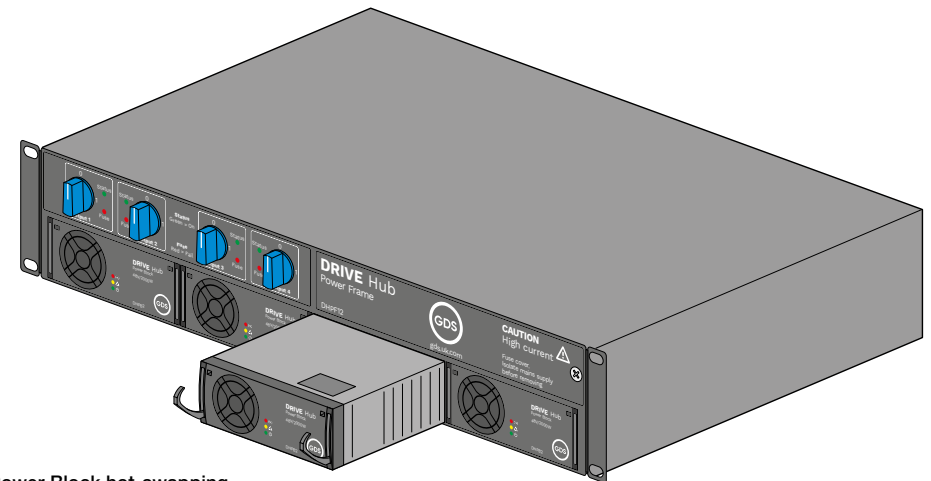
Fans are only used when required and run quietly.

Extremely efficient (up to 98%) PSU technology means less heat generation and greater power output.

Monitoring

The Power Frame features intelligent monitoring functions to ensure that internal temperatures, voltage and current levels are kept under continual watch.

Via the PF link with the primary Card Frame, email notifications can sent on-site, or to the GDS service centre, as soon as a Power Block requires replacement.



Power Block hot-swapping

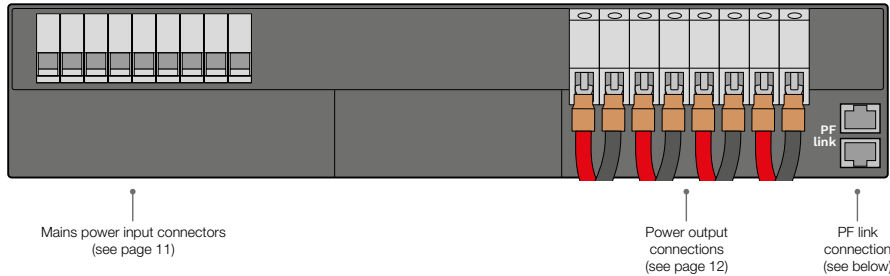
Power blocks can be swapped easily with limited knowledge by site personal, without turning the system off.

[See typical applications](#)

Power Frame rear panel connections

The rear panel of the Power Frame module comprises the mains power input, high capacity DC power outputs and also the PF link communications connectors.

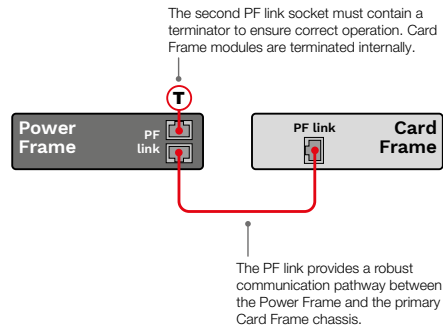
Rear panel



PF link connection

The PF link provides an essential communication link between the Power Frame and primary Card Frame chassis. This link allows the Card Frame to receive status reports from the Power Frame and, where necessary, also issue commands to the Power Frame.

See also "Condition reporting" on page 8.



Order codes

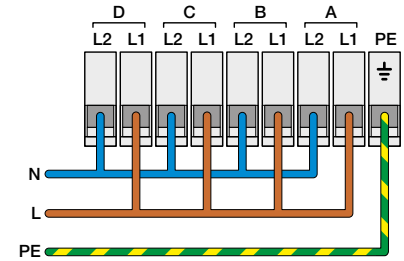
Code	Item description
Power Frame	
DHPF12	Power Frame, 12kW (No power blocks, 2U 19" Module)
Power Blocks	
DHPB2	Power Block, 2kW
DHPB3	Power Block, 3kW
Card Frames	
DHCFUI	12 Slot Card Frame, with user interface (no drive or processor cards)
DHCF	12 Slot Card Frame, without user interface (no drive or processor cards)
Processor Cards	
DHPCN	Processor Card, Network
DHPCL	Processor Card, Local
Services	
DHSETCF	GDS factory pre-configure service, per 12 slot 4kW card frame

For a complete list of order codes, see page 20.

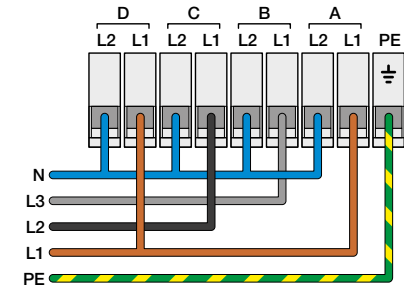
Power Frame input connections

The mains power input connections are located on the left side of the rear panel. Power Frame units can accept single- and three- phase supplies, as best suits the installation requirements:

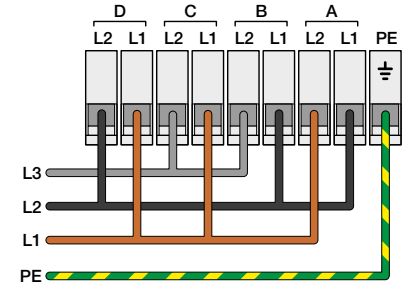
Mains (One-phase, 230VAC)



Y Mains (Three-phase + neutral, 400VAC)

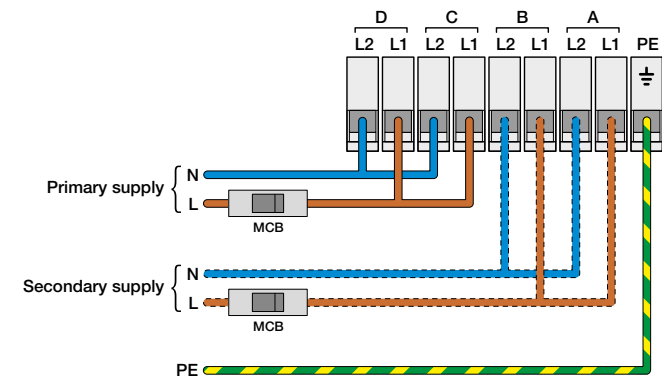


Δ Mains (Three-phase, 230VAC)



Connecting separate supplies

To provide a further level of redundancy it is common to provide two or more separate mains supplies to each Power Frame unit via separate MCBs, with one of them being from a maintained source, if necessary:



Recommended external MCB specifications

(Power Frame with 4 x 2kW Power Blocks)

Mains input type	Current max per input		MCB size	
	205VAC ¹	185VAC ¹	205VAC ¹	185VAC ¹
TN net (Y) 3 phase 400VAC + N	21.5A	24A	25A	25A
IT net (Δ) 3 phase 230VAC	28.4A	31.7A	32A	32A
3 x 1 phase 230VAC	21.5A	24A	25A	25A
1 x 1 phase 230VAC	43A	47.9A	50A	50A

(Power Frame with 4 x 3kW Power Blocks)

Mains input type	Current max per input		MCB size	
	205VAC ²	185VAC ²	205VAC ²	185VAC ²
TN net (Y) 3 phase 400VAC + N	32.9A	38.3A	50A	50A
IT net (Δ) 3 phase 230VAC	43.5A	50.7A	50A	60A
1 phase 230VAC	65.8A	76.6A	80A	100A

Note: Full power is only available with line voltages greater than 185V. If the line voltage falls below this level, the outputs for each 2kW and 3kW Power Block will be automatically de-rated to 850W and 1000W, respectively.

¹ Maximum currents are shown at reduced voltages while still maintaining a 2kW output, prior to automatic de-rating of outputs.

² Maximum currents are shown at reduced voltages while still maintaining a 3kW output, prior to automatic de-rating of outputs.

Specifications are subject to change without notice

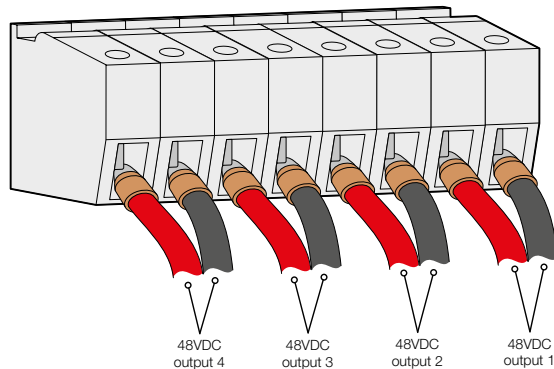
Power Frame output connections

The output connections are located on the right side of the rear panel. Four pairs of output connections are available for linking with separate Card Frame units.



IMPORTANT: The outputs are high current DC feeds and care must be taken. Cables used must be CSA-rated and of sufficient cross-sectional area to safely handle the peak load.

The far end of each cable pair must be terminated with an Anderson® SB120 connector for attachment to each Card Frame.



Power Frame Power Block specifications

	Power Block 2kW	Power Block 3kW
Inputs		
Voltage (nominal range)	185 - 264 VAC	206 - 264 VAC
Voltage (operating range)	85 - 264 VAC	
Frequency	45 - 66 Hz	
Maximum current	11.6 A _{RMS}	16 A _{RMS}
Protection	Fuse in Live, varistor for transient protection, shutdown when V_{IN} is out of range	

Outputs

Voltage (default)	53.5 VDC	
Voltage (adjustable range)	43.2 ¹ - 57.6 VDC	
Max power, nominal input	2000 W	3000 W
Max power, de-rated @ $V_{IN} = 85$ VAC	850 W	1000 W
Max current, @ $V_{OUT} = 48$ VDC	41.7 A	62.5 A
Current sharing	$\pm 5.0\%$ of max current	
Static voltage regulation (10-100% load)	$\pm 0.5\%$	
Dynamic voltage regulation	$\pm 5.0\%$ for 10-90% or 90-10% load variation, regulation time < 50ms	
Hold up time (3000W load)	>10ms; output voltage > 42 VDC	
Ripple	<150 mV _{PP} , 30 MHz bandwidth	
Protection	Overvoltage shutdown, short circuit proof, high temperature, hot plug-in inrush current limiting, fuse	

Other details

Peak Efficiency	97.8 %	
Isolation	3.0 kVAC – input to output 1.5 kVAC – input to protective earth 0.5 kVDC – output to protective earth	
Alarms (Red LED)	Low mains shutdown, High and low temperature shutdown, Rectifier Failure, Overvoltage shutdown on output, Fan failure, Low voltage alarm, CAN bus failure	
Warnings (Yellow LED)	Rectifier in power de-rate mode, Remote current limit activated, Input voltage out of range, flashing at overvoltage	
Normal (Green LED)	Input and output ok	
MTBF (Telcordia SR-332 Iss.3 method II Case L1)	1,900,000 hours	
Operating temperature (5 - 95% RH non-cond.)	-40 - 75°C [-40 - 167°F]	
Max output power de-rates above temp / to	45°C [+113°F] / 1350 W	45°C [+113°F] / 1800 W ²
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing	
Dimensions [WxHxD] / Weight	109 x 41.0 x 327mm [4.25 x 1.61 x 13"] / 2.050 kg [4.5lbs]	

Design standards

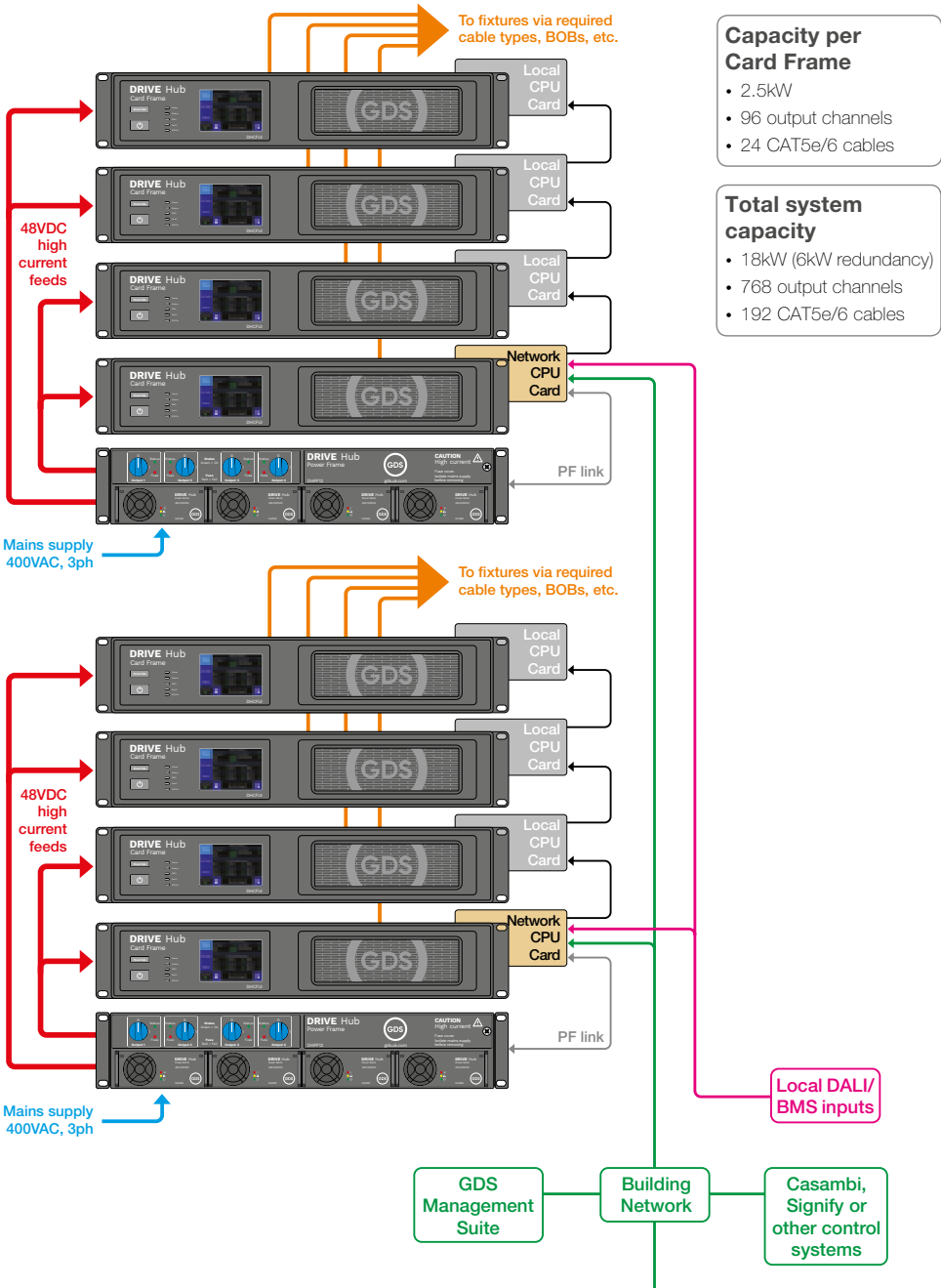
Electrical safety	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013, UL 60950-1:2014
EMC	EN 61000-6-1:2019, -6-2:2019, -6-3:2007 + A1:2011, -6-4:2019 ETSI EN 300 386 V.2.1.1, FCC CFR 47 Part 15:2013
Environment	ETSI EN 300 019: 2-1 (Class 1.2) & 2-2 (Class 2.3) EU 2015/863 (RoHS) & 2012/19/EU (WEEE) Normal operating conditions as per IEC 62040-5-3:2016 clause 4.2. Other operating conditions as per IEC 62040-5-3:2016 clause 4.3, must be advised

¹ Stand-by / test operation ($V_{OUT} < 48$ VDC) limited for $V_{IN} > 230$ VAC

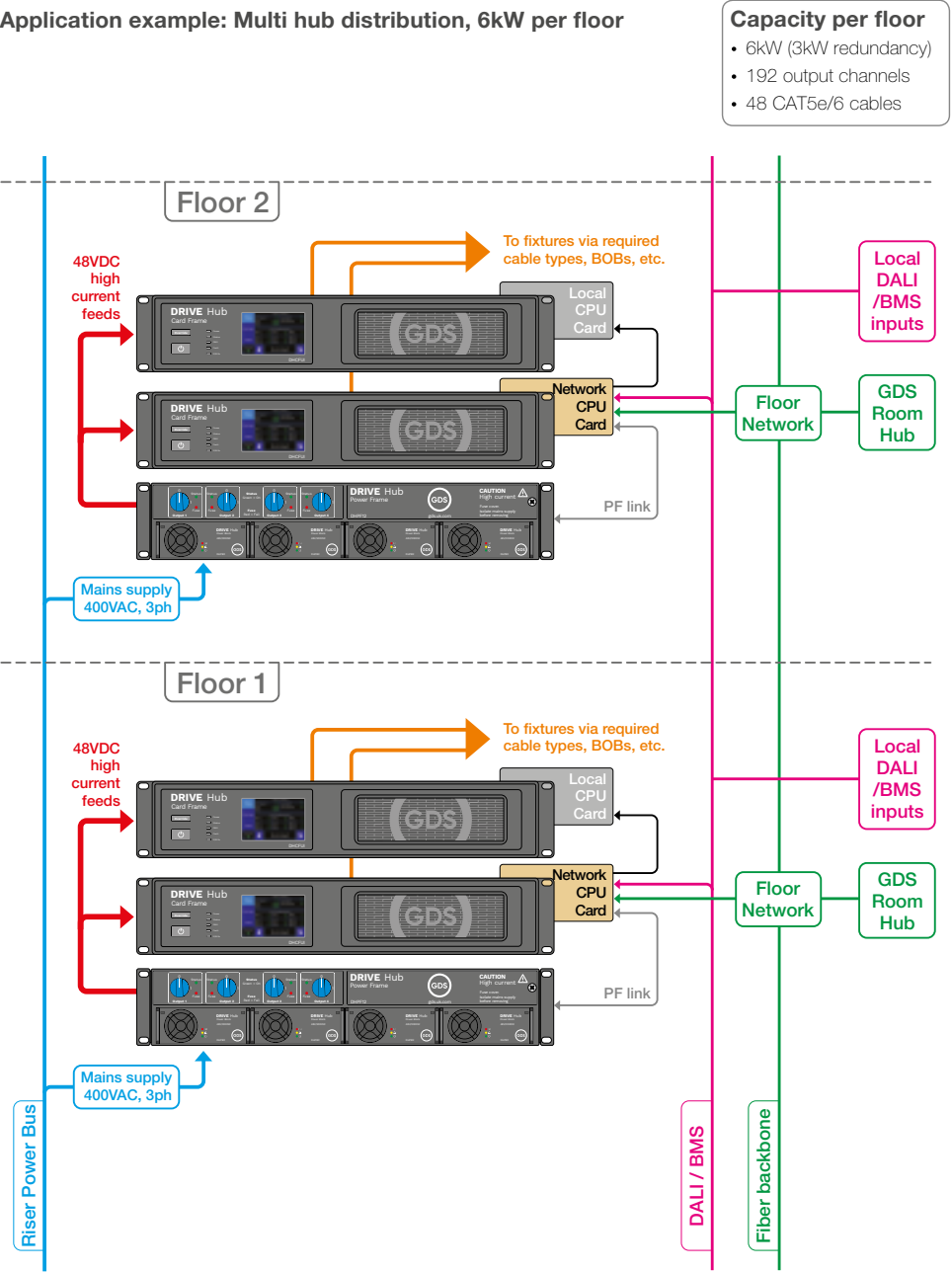
² When input mains voltage is below 210 V_{RMS} temperature derating will start at 40 °C and 1500 W will be available at 75 °C

Specifications are subject to change without notice

Application example: 18kW single hub distribution (with 6kW redundancy)

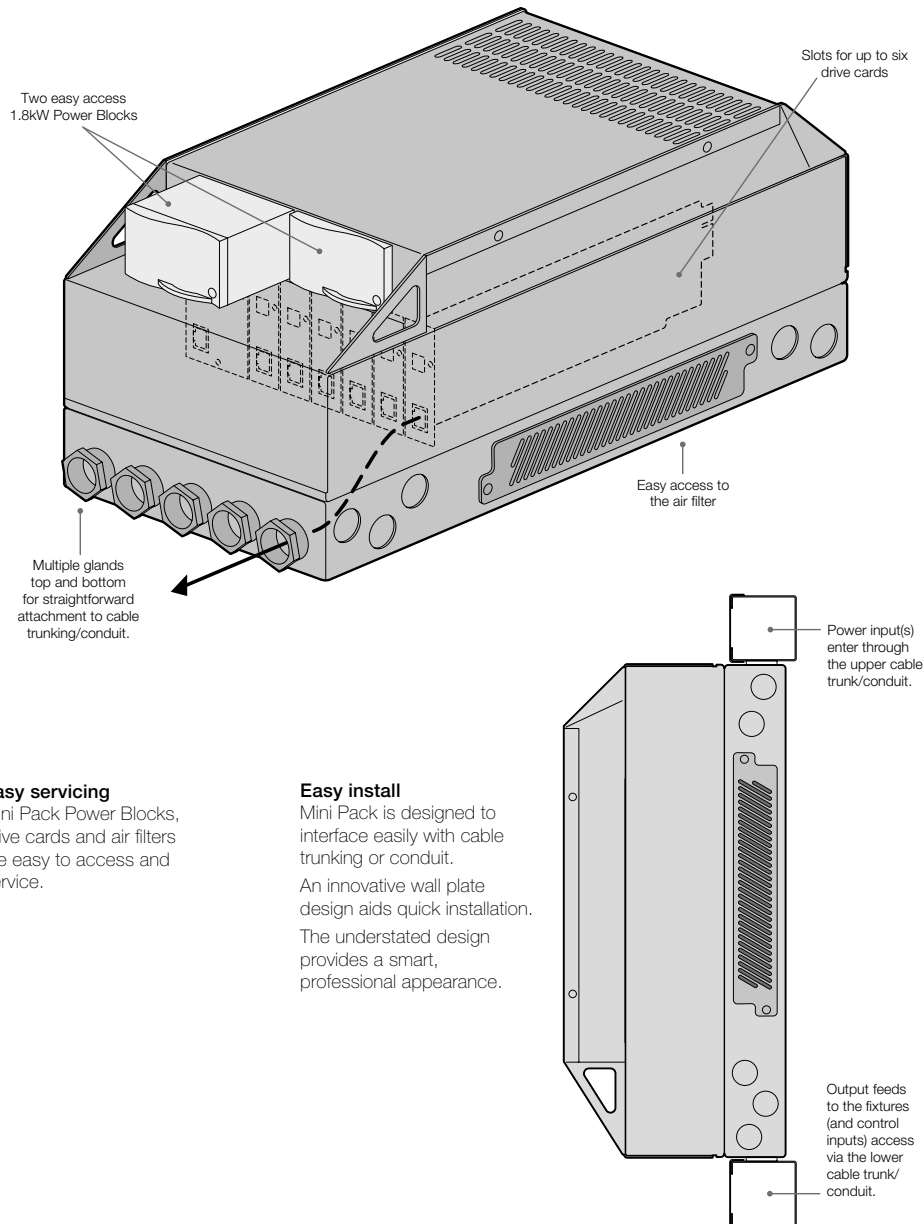


Application example: Multi hub distribution, 6kW per floor



Mini Pack

Created to serve smaller installations where space is at a premium and fixture power requirements are lower. The Mini Pack measures just 200 x 400 x 180mm and can be configured with a maximum output of 3.6kW; or 1.8kW when set up as a redundant array.



Easy servicing

Mini Pack Power Blocks, drive cards and air filters are easy to access and service.

Easy install

Mini Pack is designed to interface easily with cable trunking or conduit. An innovative wall plate design aids quick installation. The understated design provides a smart, professional appearance.

[See typical applications](#)

Mini Pack Power Block specifications

Power Block 1.8kW

Inputs

Voltage (nominal range)	195 - 277 VAC
Voltage (operating range)	85 - 305 VAC
Frequency	45 - 66 Hz
Maximum current	9.9 A _{RMS}
Power factor	> 0.99 at 50% load or more
Protection	Fuse in L & N, varistor for transient protection, shutdown when V_{IN} is out of range

Outputs

Voltage (default)	53.5 VDC
Voltage (adjustable range)	43.5 - 57.6 VDC
Max power, nominal input	1800W
Max power, de-rated @ $V_{IN} = 85$ VAC	700W ¹
Max current, @ $V_{OUT} = 48$ VDC	37.5 A
Hold up time, maximum output power	>10ms; output voltage > 42 VDC
Current sharing (10 to 100% load)	±5.0% of maximum current
Static voltage regulation (10 to 100% load)	±0.5%
Dynamic voltage regulation	±5.0% for 10-90% or 90-10% load variation, regulation time < 50ms
Ripple	<150 mV _{pp} , 30 MHz bandwidth
Protection	Overvoltage shutdown, short circuit proof, high temperature, ORing FET

Other details

Peak Efficiency	96 %
Isolation	3.0 kVAC – input to output 1.5 kVAC – input to protective earth 710 VDC – output to protective earth
Alarms (Red LED)	Low/high input voltage shutdown, High and low temperature shutdown, Rectifier Failure, Overvoltage shutdown on output, Fan failure, Low output voltage alarm, CAN bus failure
Warnings (Yellow LED)	Rectifier in power de-rate mode, Remote current limit activated, Input voltage out of range, flashing at overvoltage, loss of CAN communication with controller
Normal (Green LED)	Input and output ok
MTBF (Telcordia SR-332 Iss.3 method II Case L1)	> 300,000 hours (@ $T_{ambient} : 25^{\circ}C$)
Operating temperature (5 - 95% RH non-cond.)	-40 to +85°C [-40 to +185°F]
Max output power de-rates above temp / to	55°C [+113°F] / 1000W @85°C (185°F)
Storage temperature	-40 to +85°C (-40 to +185°F), humidity 0 - 99% RH non-condensing
Altitude	4000m (~13,000 ft)
Dimensions [WxHxD] / Weight	72 x 41.5 x 217mm [2.83 x 1.63 x 8.54"] / < 850 kg [1.9lbs]

Design standards

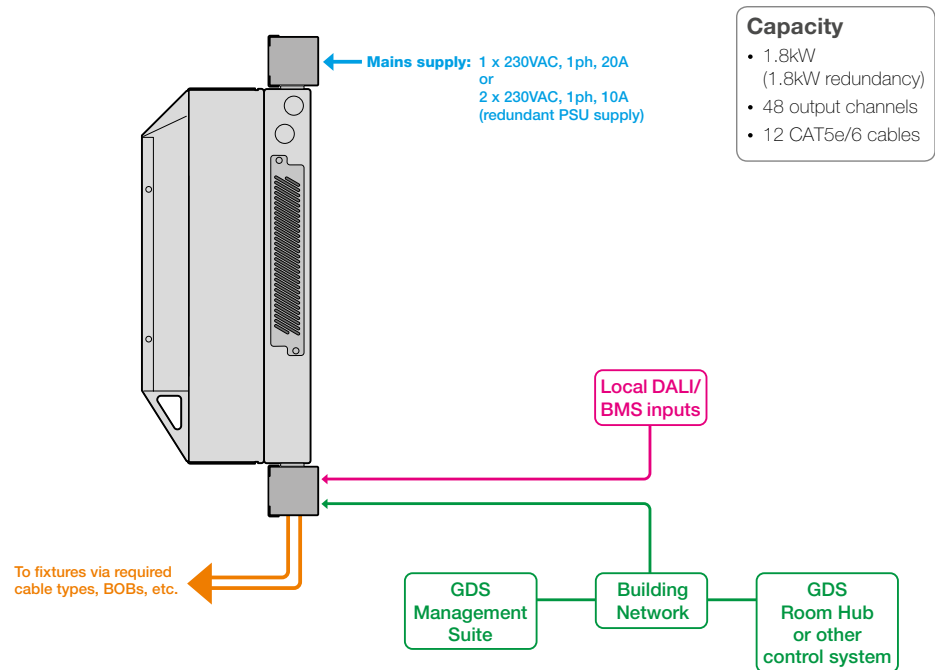
Electrical safety	EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013, UL 60950-1:2019, IEC 60950-1:2013
EMC	EN 61000-6-1:2019, -6-2:2019, -6-3:2007/A1:2011, -6-4:2019 ETSI EN 300 386 V.2.1.1, FCC CFR 47 Part 15:2020 (parts of)
Marine	DNVGL-CG-0339 ²
Environment	ETSI EN 300 019: 2-1 (Class 1.2) & 2-2 (Class 2.3) Normal operating conditions as per IEC 62040-5-3:2016 clause 4.2. Other operating conditions as per IEC 62040-5-3:2016 clause 4.3, must be advised EU 2015/863 (RoHS) & 2012/19/EU (WEEE), IEC 63000:2018

¹ Power derating 415W@ 15Hz and 450W@16 2/3 Hz

² Only valid for pn 241122.105M and 241122.125M

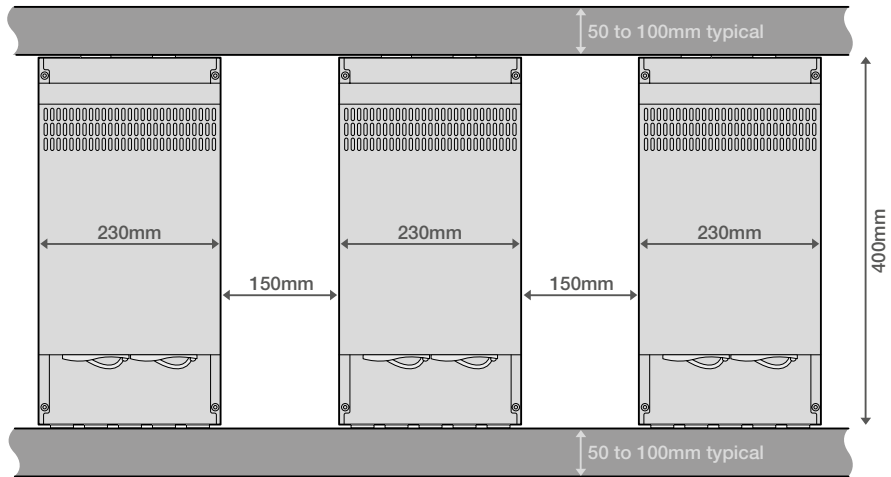
Specifications are subject to change without notice

Application example: Mini Pack compact installation

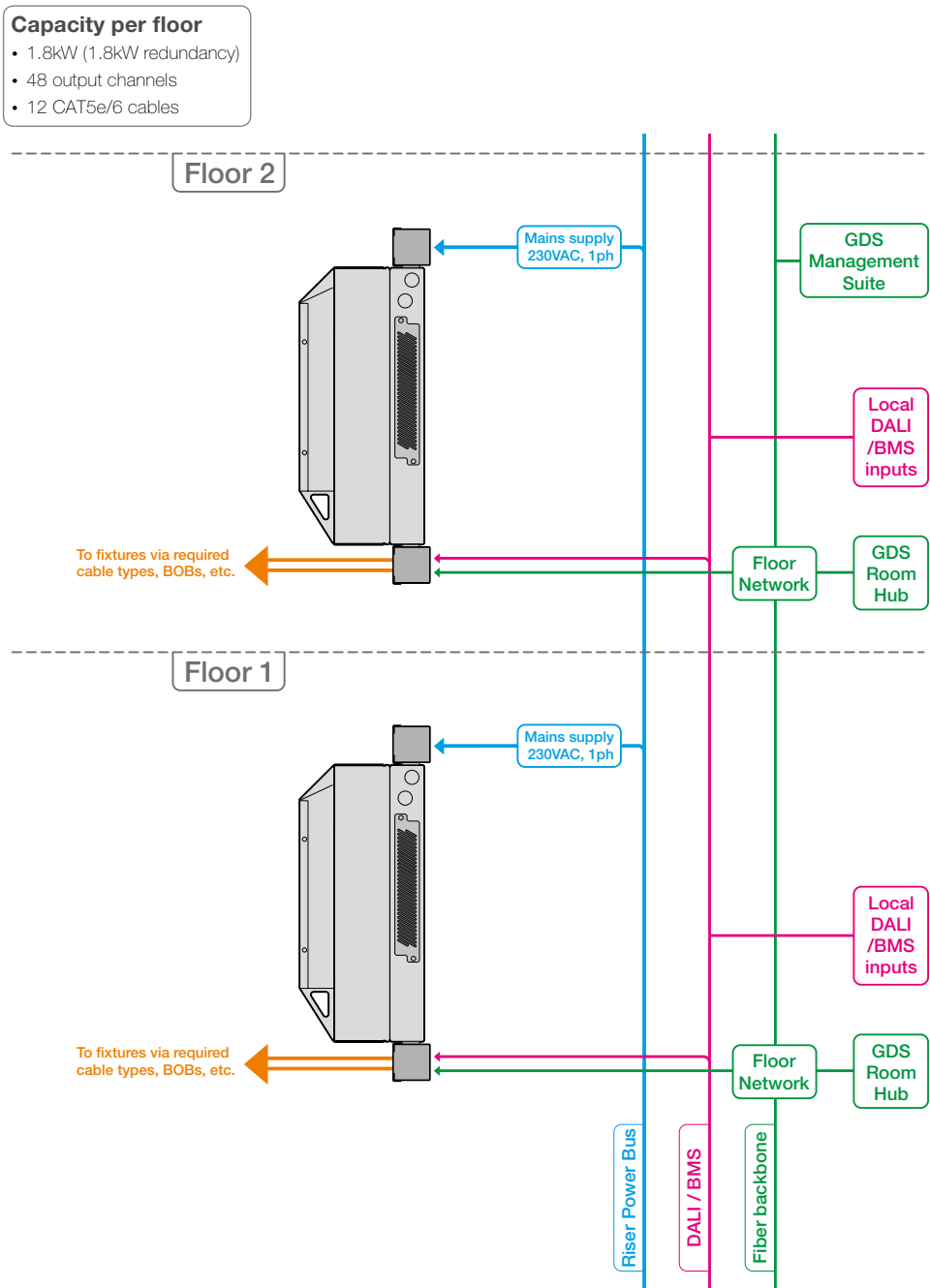


Space savers

Thanks to their compact dimensions and efficient cooling systems, multiple Mini Packs can be wall mounted within even the smallest service area.



Application example: Mini Pack multi-hub distribution, 1.8kW per floor



Order codes

Code	Item description
Power Frame	
DHPF12	Power Frame, 12kW (No power blocks, 2U 19" Module)
Power Blocks	
DHPB1.8	Power Block, 1.8kW (Mini Pack Only)
DHPB2	Power Block, 2kW (Power Frame Only)
DHPB3	Power Block, 3kW (Power Fame Only)
Card Frames	
DHCFUI	12 Slot Card Frame, with user interface (no drive or processor cards)
DHCF	12 Slot Card Frame, without user interface (no drive or processor cards)
Mini Pack	
DHMP6	Mini Pack, 6-slot fully integrated wall mounting chassis (no drive or processor cards)
Drive Cards	
DHDC2CHCC2.2	Drive Card, 2ch 2,200mA CC
DHDC4CHCC1.5	Drive Card, 4ch 1,500mA CC
DHDC4CHCC3.5	Drive Card, 4ch 3,500mA CC
DHDC8CHCC0.7	Drive Card, 8ch 700mA CC
DHDC1CHCV10	Drive Card, 1ch 10A CV
DHDC4CHCV3	Drive Card, 4ch 3A CV
DHDCIPM	Drive Card, IPM 10A
Processor Cards	
DHPCN	Processor Card, Network
DHPCL	Processor Card, Local
Break Out Boxes (BOB)	
DHBAB	Baby BOB
DHBIB	Big BOB
DHBC1	Cable BOB 1
DHBC2	Cable BOB 2
DHBC4	Cable BOB 4
DHBSM1CHCC1.0	Smart BOB 1
Accessories	
DHACPC2	DC power cable 2m, red/black 25mm ²
DHACRSK	19" rear supporting kit
DHACF60	60A GDS fuse module for Power Frames and MiniPack
DHACF100	100A GDS fuse module for Power Frames and MiniPack
Services	
DHSETMP	GDS factory pre-configure service, Mini Pack
DHSETCF	GDS factory pre-configure service, per 12 slot 4kW card frame

Specifications

Power Frame	
Input voltage:	185 to 300VAC (50/60Hz) 230VAC Single phase; 230VAC 3 phase (Δ); 230/400VAC 3 phase (Y)
Output voltage:	48VDC
Maximum power:	12kW
Operation temp.:	-40°C to 60°C
Storage temp.:	-40°C to 85°C
Environmental rating:	IP20
Card Frame	
Input voltage:	24 to 60VDC
Maximum current:	100A
Standby power:	0.38W
Operation temp.:	0 to 50°C
Storage temp.:	-20 to 70°C
Environmental rating:	IP20

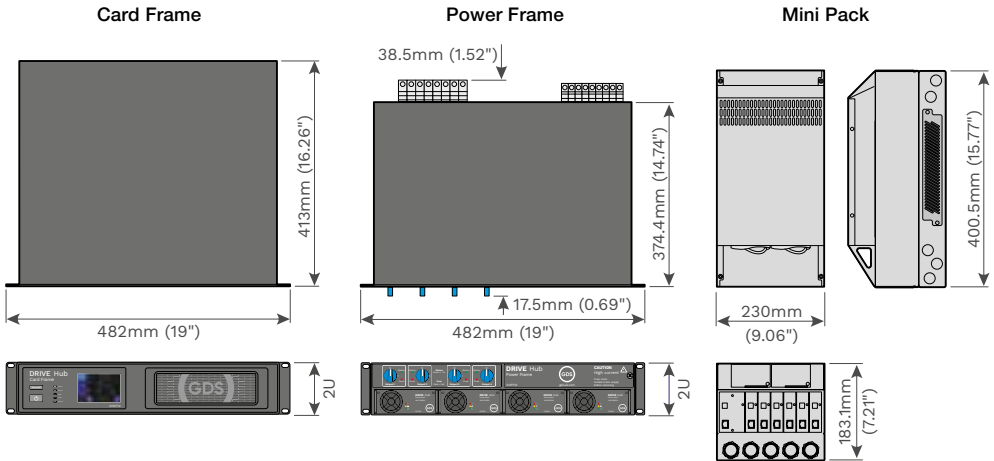
Note: Power Frames can operate at lower input voltages, however, the maximum power outputs will be suitably derated.

Specifications are subject to change without notice.

Certifications



Dimensions



Contact

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