Powering Business Worldwide

DCD1M DC Distribution Installation and Operation Guide

Issue: IPN 997-00012-65B
Issue Date: September 2009

Eaton Corporation
Telecommunications Power Solutions
www.eaton.com/telecompower
DCinfo@eaton.com

About This Guide

Scope

This guide covers installation, operation and maintenance of the DCD1M DC Distribution.

Audience

This guide is intended for use by:

- Electronic equipment installers competent in:
  - installing and commissioning dc power systems
  - safe working practices for dc powered equipment
  - the relevant local electrical safety regulations and wiring standards
- Electronic equipment operators and maintenance staff competent in:
  - operation of dc power systems
  - safe working practices for dc powered equipment

Related Information

- RM3-400/410/420 DC Power System Installation and Operation Guide - IPN 997-00012-62

Reporting Problems with this Guide

Please use this email address to report any problems you find in this guide:

Eaton DC Product Marketing Communications
EMAIL: DCMarketingNZ@eaton.com

For Further Information and Technical Assistance

For further information and technical assistance see Worldwide Support on page 35.

IPN 997-00012-65B September 2009

Table of Contents

IPN 997-00012-65B September 2009

General Description

Overview

DCD1M DC Distribution

Model Numbers

	Load Circuit Breakers	Battery Circuit Breakers	Load and Battery Fuse Fail Detection	Current Shunt	Battery Low Voltage Disconnect (LVD) Contactor
DCD1M-00	Up to 10	1 or 2	-	-	-
DCD1M-01	Up to 10	1 or 2	✓	✓	✓

The DCD1M DC Distribution is a compact 1U, 19-inch rack mount dc distribution module with up to 10 load circuit breakers, two battery circuit breakers and two battery connectors.

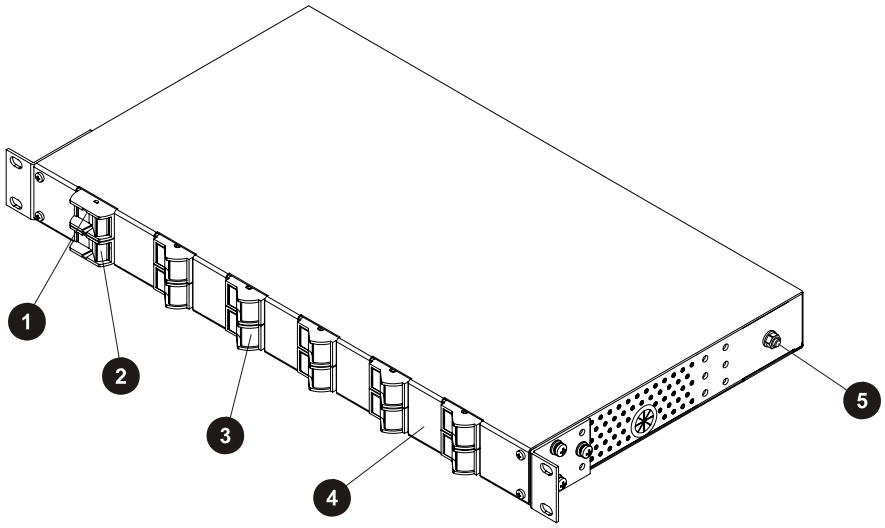
The DCD1M-01 model is designed for connection to a dc power system fitted with an Eaton system controller and I/O board. It includes:

- load fuse fail detection which provides an alarm when a load circuit breaker (with equipment connected) is in the OFF (O) position
- battery fuse fail detection which provides an alarm when a battery circuit breaker is in the OFF (O) position
- a current shunt
- a battery low voltage disconnect (LVD) contactor.

The DCD1M DC Distribution is designed for connection to a positive earth dc power system. Contact Eaton for instructions to convert it for use with a negative earth dc power system. See Worldwide Support on page 35.

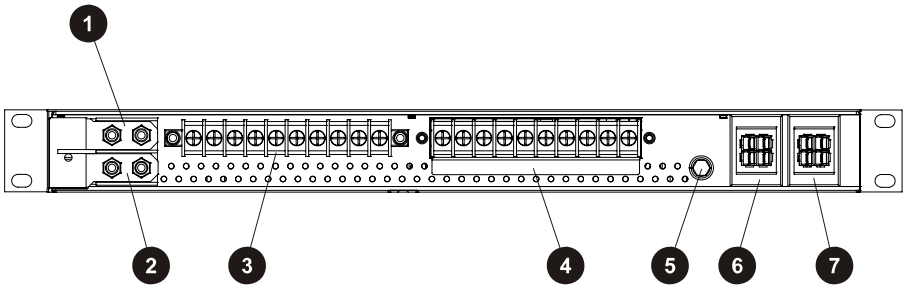
IPN 997-00012-65B September 2009

Front View



1. Battery circuit breaker 1 (connected to battery connector 1 on rear)
2. Battery circuit breaker 2 (connected to battery connector 2 on rear)
3. Load circuit breakers 1-10 (connected to load terminal 1-10 on rear)
4. Circuit breaker cover
5. Telecom ground terminal (M5)

Rear View



1. Live dc input terminal (M6)
2. Common dc input terminal (M6)
3. Live dc output terminals 1-10 (connected to load circuit breakers 1-10 on front)
4. Common dc output terminals 1-10
5. Output common-ground screw (see details on page 13)
6. Battery connector 2 (connected to battery circuit breaker 2 on front)
7. Battery connector 1 (connected to battery circuit breaker 1 on front)

Low Voltage Disconnect (DCD1M-01 model only)

The DCD1M-01 model is fitted with a Low Voltage Disconnect (LVD) contactor.

When the contactor is controlled by a system controller (not included) it will disconnect the batteries at the end of the battery runtime. This is to prevent damage from deep discharge which may shorten the battery service life.

An audible click will be heard when the LVD operates or releases (whether or not batteries are connected). This is normal.

For further information refer to Low Voltage Disconnect (LVD) in the System Controller Operation Handbook.

IPN 997-00012-65B September 2009

Overview

Warnings

This section contains important warnings. Read these warnings before installing or operating the DCD1M.

Electrical Safety

- The case of the DCD1M DC Distribution is a fire enclosure as specified in UL 60950-1. The DCD1M DC Distribution can be installed in an enclosed cabinet or an open relay rack.
- The DCD1M may be powered from multiple dc sources (dc supply and batteries). All power sources must be isolated before internally servicing the equipment.
- The dc input must be protected by a branch circuit rated over-current protection (110A max.) disconnect device.
- A registered electrician (or suitably qualified person) must check the integrity of the installed cabling, BEFORE the dc power system is powered up.
- Tasks must be performed in the sequence documented in this guide.

Hazardous Energy Levels

- Rectifiers and batteries contain hazardous energy levels. Only personnel trained and experienced in dc power systems are to service/maintain this equipment.
- Always use insulated tools.
- Do not short-circuit the live and common bus bars or cables.

Servicing and Maintenance

- The DCD1M DC contains hazardous voltages and hazardous energy levels. Before undertaking any maintenance task refer to the Warnings on page 6.
- If a maintenance task must be performed on a "live" system then take all necessary precautions to avoid short-circuits or disconnection of the load equipment, and follow any "live-working" instructions applicable to the site.
- Only perform the maintenance tasks described in the Maintenance chapter. All other tasks are classified as Servicing. Servicing must only be performed according to specific instructions and only by personnel authorized by Eaton. This includes disassembly and/or servicing of any modules.
- For further information on Servicing contact your local Eaton dc product supplier, or refer to the contact details on page 35.

Batteries

- Batteries can present a risk of electric shock or burns from high short-circuit current.
- Do not alter any battery module cables or connectors.
- Do not place any metal objects in or near the connectors.
- VRLA lead acid batteries can emit explosive gases and must be installed with adequate ventilation. Do not install batteries in a sealed room or cabinet.
- Do not attempt to disassemble battery modules. Return them (in their original packaging) with a completed Equipment Incident Report on page 33.
- Only dispose of battery modules according to Battery Disposal and Recycling.

- Check the battery recharge dates on the shipping carton labels. Do not use the batteries if the date has expired and the batteries were never recharged. Contact your battery supplier.
- Batteries are heavy. Two people may be required to lift a module.
- Batteries must be installed at the bottom of the rack.

IPN 997-00012-65B September 2009

Location and Environment

- The DCD1M must be installed in a Restricted Access Location (dedicated equipment rooms, equipment closets, or similar) in accordance with the U.S. National Electric Code (NEC), ANSI/NFPA No. 70, and according to the applicable local codes.
- The DCD1M is not suitable for use in a computer room as defined in the Standard for Protection of Electronic Computer/Data Processing Equipment, ANSI/NFPA 75.
  Ne peut être utilisé dans une salle d'ordinateurs telle que définie dans la norme ANSI/NFPA 75 Standard for Protection of Information Technology Equipment.
- For ease of access and to maintain optimum system cooling observe the clearances stated on page 13.
- Ensure the ambient temperature and humidity are within the ranges in the Specifications.
- Dust build-up within the DCD1M may cause premature failure. In dusty environments filter the ventilation air entering the equipment room. Ensure regular cleaning of the air filters.
- Do not allow water or any foreign object to enter the DCD1M. Do not place objects containing liquid on top of or near the unit.

Telecom Ground and dc Supply Bond to Chassis

- CAUTION: This equipment has a connection between the earthed conductor of the dc supply circuit and the earthing conductor.
  Cet appareil comporte une connexion entre le conducteur relié à la terre du circuit d'alimentation c.c. et son conducteur de terre.
- All of the following installation conditions must be met:
  - This equipment shall be connected directly to the dc supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the dc supply system earthing electrode conductor is connected.
  - This equipment shall be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same dc supply circuit and the earthing conductor, and also the point of earthing of the dc system. The dc system shall not be earthed elsewhere.
  - The dc supply source shall be located within the same premises as this equipment.
  - Switching or disconnecting devices shall not be in the earthed circuit conductor between the dc source and the point of the connection of the earthing electrode conductor.
- *Ce matériel doit être raccordé directement au conducteur de la prise de terre du circuit d'alimentation c.c. ou à une tresse de mise à la masse reliée à une barre omnibus de terre laquelle est raccordée à l'électrode de terre du circuit d'alimentation c.c. Les appareils dont les conducteurs de terre respectifs sont raccordés au conducteur de terre du même circuit d'alimentation c.c. doivent être installés à proximité les uns des autres (p.ex., dans des armoires adjacentes) et à proximité de la prise de terre du circuit d'alimentation c.c. Le circuit d'alimentation c.c. ne doit comporter aucune autre prise de terre. La source d'alimentation du circuit c.c. doit être située dans la même pièce que le matériel. Il ne doit y avoir aucun dispositif de commutation ou de sectionnement entre le point de raccordement au conducteur de la source d'alimentation c.c. et le point de raccordement à la prise de terre.*

Inspecting the Equipment and Reporting Damage

Unpack the equipment and inspect it carefully for possible damage that may have occurred while in transit. Do not use any damaged equipment.

Report any damage immediately, using a completed Equipment Incident Report on page 33.

☐ *Keep the original packaging to use if any item needs to be returned for replacement or repair.*

IPN 997-00012-65B September 2009

Overview

Installation Tasks

Before starting the installation, review the following information:

- Required Equipment and Tools on page 29
- Warnings and Cautions on page 6
- Inspecting the Equipment and Reporting Damage on page 7

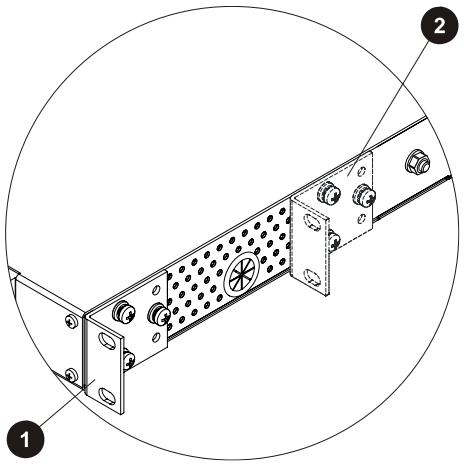
Complete the Installation tasks in the following order:

Task	Description	Reference
1	Customize the DCD1M	See details on page 10
2	Mount the DCD1M in the Rack	See details on page 13
3	Connect the Input Cables	See details on page 15
4	Connect the Output Cables	See details on page 16
5	Connect the Battery Cables (if required)	See details on page 18
6	Startup	See details on page 19

Task 1 - Customize the DCD1M

Step 1 - Check position of mounting brackets

DCD1Ms are pre-assembled with 19-inch rack-mounting brackets as shown in the following diagram. If required, the brackets can be moved to alternative positions to reduce the effective depth of the unit.



1. Rack-mounting bracket
2. Alternative bracket mounting positions

IPN 997-00012-65B September 2009

Step 2 - Install battery circuit breaker(s) (if required)

Ignore this task if:

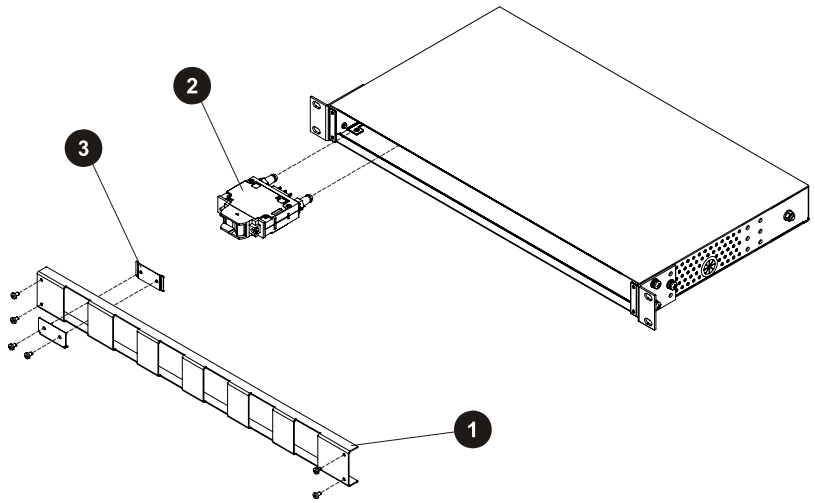
- The battery circuit breakers are already fitted, or
- No batteries will be connected.

The DCD1M has two battery connectors. Fit a battery circuit breaker for each battery connector to be used.

See Electrical Specifications on page 27 for the battery circuit current rating.

1. See Spare Parts on page 29 for circuit breaker types and purchasing information.
2. Select battery circuit breaker(s) so that the total load current at 48V is less than 80% of the circuit breaker rating(s).

   When the battery is supplying the load the battery voltage will slowly decrease and the battery current will increase (because of the constant power characteristic of the load equipment). To avoid nuisance tripping, the battery circuit breaker(s) must be rated to carry the current at the lower battery voltage.
3. Remove the circuit breaker cover.
4. Plug in the battery circuit breaker(s).
5. If only one circuit breaker is fitted then fit a circuit breaker blank cover to cover the unused position.
6. Switch the circuit breaker(s) to the OFF (O) position.



❶ Circuit breaker cover

❷ Battery circuit breaker (1 of 2 shown)

❸ Circuit breaker blank cover (to cover unused circuit breaker position 2 if required)

Step 3 - Install load circuit breakers (if required)

Ignore this task if the load circuit breakers are already fitted.

Select the required load circuit breakers from the following list (see position restrictions in point 2):

Circuit breaker rating	Maximum load current
6A	4.8A
10A	8A
15A	12A
20A	16A
25A	20A
30A	24A

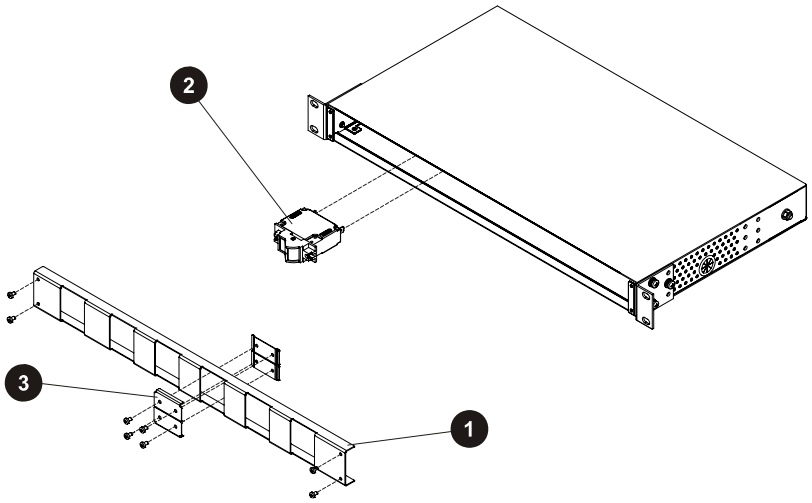
See Spare Parts on page 29 for circuit breaker types and purchasing information. The current rating of the circuit breakers must be derated to 80%.

1. Remove the circuit breaker cover.
2. Plug in the load circuit breakers according to following restrictions:

Top row (1-2):	6A, 10A or 15A only
Top row (3-5):	6A, 10A, 15A, or 20A only
Bottom row (6-7):	6A, 10A or 15A only
Bottom row (8-10):	any value (6-30A)

3. Fit circuit breaker blank covers in all unused positions.
4. Replace the circuit breaker cover.
5. Switch the circuit breakers to the OFF (O) position.

IPN 997-00012-65B September 2009



1. Circuit breaker cover
2. Battery circuit breaker (1 of 10 shown)
3. Circuit breaker blank covers (to cover unused circuit breaker positions as required)

Procedure complete

Task 2 - Mount the DCD1M in the Rack

Step 1 - Check clearances

The DCD1M requires the following clear space:

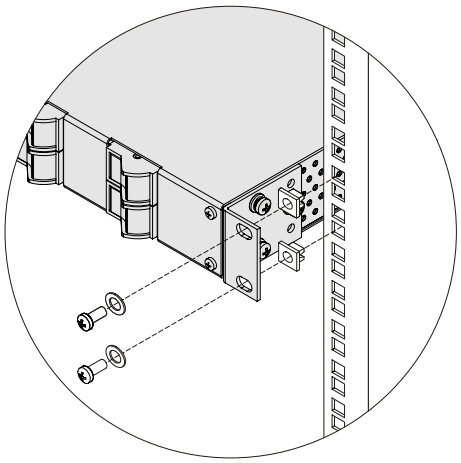
Front:	adequate space for access to circuit breakers
Rear:	adequate space for ventilation and access to input and output terminals, and battery connectors
Below:	adequate space for ventilation and to route wires connected to the output terminals (recommended 1U minimum). No heat source greater than 50°C below the DCD1M.
Right-hand Side:	if required, adequate space for access to the telecom ground terminal.

Step 2 - Mount the DCD1M

Ensure the bottom (perforated) panel is facing down.

1. Fit cage nuts to match the screw holes in the rack mounting brackets.
2. Attach the DCD1M using the rack mounting screws as shown.
3. Tighten the screws.

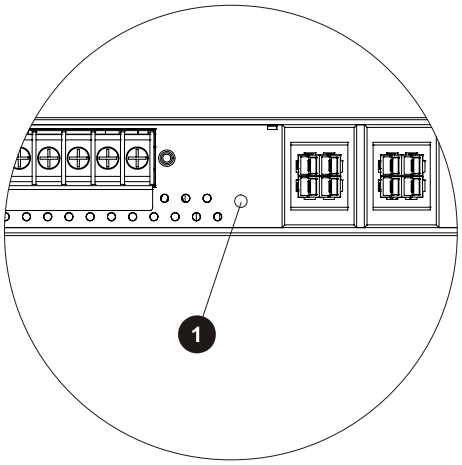
For 23" wide racks use the optional 23" mounting brackets. See Spare Parts on page 29.



Step 3 - Set Output to Floating (if required)

☐ *Ignore this step if the dc common output is to be connected to ground.*

If the equipment to be powered requires that the dc output of the DCD1M is "floating" (not connected to ground), then remove the output-ground screw. Go to Step 5.



❶ Output-ground screw removed for "floating" output.

Step 4 - Connect Output Common to Ground

☐ *Ignore this Step if the dc output of the DCD1M is "floating" (see previous Step)*

If the equipment to be powered requires that the dc output common must be bonded to ground, then:

1 Leave the output-ground screw in place.

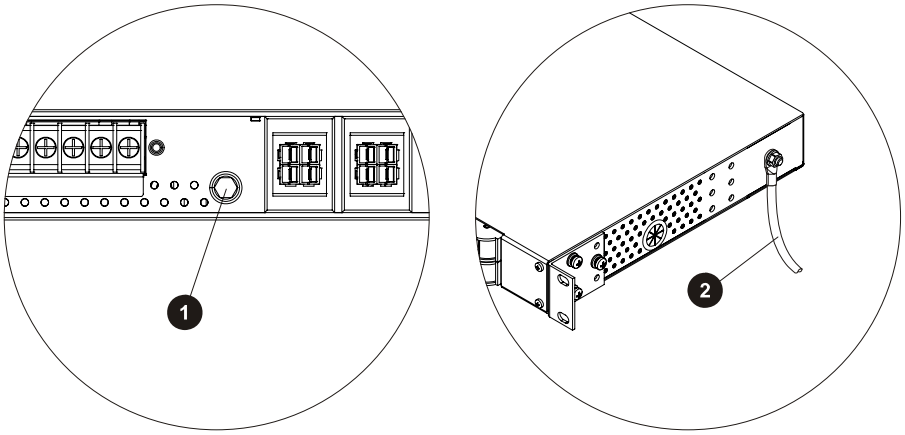
2 If the building is fitted with a telecom ground bar (usually only at telecom communications installations) then also:

- Connect a telecom ground link cable from the telecom ground terminal to the telecom ground bar (as shown in the following diagram).
- Use:

Wire:	Multi-strand, copper conductor, 1 AWG with green/yellow insulation
Strip length:	5/8" (16mm)
Crimp lug:	FCI-Burndy type YAV1C-L1
Crimp tool:	FCI-Burndy type MY29-11 (Die index 42)

- Tighten terminal to 20 in-lb (2.3Nm).

IPN 997-00012-65B September 2009



❶ Output-ground screw in place for output common connected to ground.

❷ Telecom ground link cable to the telecom ground bar (if required).

Step 5 - Connect control/alarm cables (DCD1M-01 Model only)

The DCD1M-01 model is only designed to be connected to a dc power system with an Eaton SC100 or SC200 system controller and input/output board.

1. Connect the LVD control cable (MTA 156 connector) to either XH4 (LVD channel 1) or XH5 (LVD channel 2) on the input/output board.
2. Connect the current shunt sense cable (RJ45 connector) to XH6 on the input/output board.
3. Connect the fuse fail alarm cable (RJ45 connector) to YH3 on the input/output board.

Refer to the dc power system Installation and Operation Guide for instructions on access to the input/output board.

Procedure complete

Task 3 - Connect the Input Cables

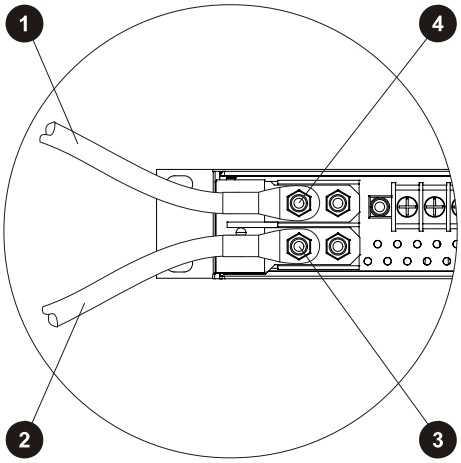
Step 1 - Remove the dc terminal cover

Step 2 - Connect dc input cables to the DCD1M

1. Use:

Wire:	Multi-strand, copper conductor, 1 AWG
Strip length:	5/8" (16mm)
Crimp lug:	Thomas & Betts type 54108NT
Crimp tool:	Thomas & Betts type TBM6S (Die 13474/13477 green)

2. Route the cables to the rear of the DCD1M and connect as shown in the following diagram.
3. Tighten terminals to 36 in-lb / 4.1Nm.



1. Live dc input cable from dc power system
2. Common dc input cable from dc power system
3. Common dc input terminal
4. Live dc input terminal

Step 3 - Replace the dc terminal cover (if required)

Leave the dc terminal cover off, if dc output cables are to be connected next.

Step 4 - Connect the cables at the dc power system

1. Ensure that the dc input to the DCD1M is protected by a branch circuit rated over-current protection (110A max.) disconnect device.
2. Ensure the dc output from the dc power system is off.
3. Follow the instructions for cable connection provided by the dc power system supplier/manufacturer.

Procedure complete

Task 4 - Connect the Output Cables

Step 1 - Remover the dc terminal cover

IPN 997-00012-65B September 2009

Step 2 - Select cable size

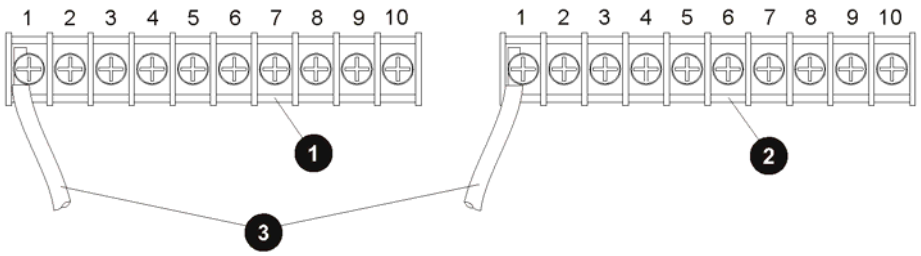
Select the required dc output cable size from the following table, according to each circuit breaker rating:

Circuit breaker rating	Maximum load current	Cable size*
6A	4.8A	14AWG / 1.5mm²
10A	8A	
15A	12A	
20A	16A	12AWG / 2.5mm²
25A	20A	10AWG / 4mm²
30A	24A	

** These cable sizes are calculated to limit the voltage drop to 1.0V or less at the maximum current for a distance of up to 12feet / 3.6m from the DCD1M to the load equipment. For greater distances increase the cable size.*

Step 3 - Connect dc output cables

1. Route the cables to the rear of the DCD1M.
2. Connect the first common cable to the LOAD COMMON terminal 1.
3. Connect the first live cable to the LOAD terminal 1 (connected to load circuit breaker 1).
4. Repeat for all other cables.
5. Tighten all terminals to 9 in-lb / 1Nm.



1. Live output terminals (terminal numbers correspond to the load circuit breaker numbers)
2. Common output terminals
3. Live and Common cables to load equipment

Step 4 - Check terminations, secure cables and test insulation

1. Check all terminations are correct and are tightened.
2. Secure the cables with cable ties to ensure there will be no strain on the terminals.
3. Test the insulation resistance of the cables.

Step 5 - Connect the cables at the equipment to be powered

Follow the instructions provided by the equipment supplier/manufacturer.

Step 6 - Replace dc terminal cover

Procedure complete

Task 5 - Connect the Battery Cables (if required)

Step 1 - Switch OFF (O) the battery circuit breakers

Step 2 - Connect battery cables to batteries

1. Refer to the battery supplier's instructions for connectors.
   See Spare Parts on page 29 for Eaton battery connection cable.
2. Be careful to connect to the correct polarity.

Step 3 - Test and secure cables

1. Check all terminations are correct and are tightened.
2. Secure the cables with cable ties to ensure there will be no strain on the terminals.
3. Test the insulation resistance of the cables.

Step 4 - Plug the battery cables into the battery connectors

Procedure complete

IPN 997-00012-65B September 2009

Task 6 - Startup

Step 1 - Check installation

Check to confirm installation work is complete before progressing further.

Confirm that:

1. All cabling is installed, securely tied and correctly insulated
2. Input, output and battery cabling have the correct polarity
3. A registered electrician or other suitable approved person has checked the integrity of the installed cabling
4. All panels are in place and all empty circuit breaker positions are covered with blank covers
5. All circuit breakers are switched OFF (O).
6. The output of the dc power system is OFF.

Step 2 - Switch on the dc supply to the DCD1M

Follow the instructions provided by the dc power system supplier/manufacturer.

DCD1M-01 Model only:

1. The LVD contactor may operate (a loud click will be heard) when dc power is switched on.
2. Refer to the Eaton SC200 or SC100 system controller Operation Handbook for instructions on how to configure the LVD.

The LVD must be operated for the batteries to be connected to the load equipment.

Step 3 - Switch ON (I) the battery circuit breaker(s) (if required)

Ignore this step if no batteries are connected.

1. Follow the battery suppliers instructions for charging the batteries.
2. Switch on the battery circuit breaker(s).
3. Check the battery current. The actual value depends on the state of charge of the batteries.
4. **DCD1M-01 Model only:** Check the *Battery Fuse Fail* alarm clears.

All battery circuit breakers (including any unused circuit breakers) must be switched ON (I) to clear the alarm.

Step 4 - Connect power to load equipment

1. Follow the equipment suppliers instructions for starting the equipment.
2. Switch on the load circuit breakers.
3. Check the equipment powers up.
4. **DCD1M-01 Model only:** Check the *Load Fuse Fail* alarm clears.

   Only load circuit breakers with equipment connected must be switched ON (I) to clear the alarm.

Procedure complete

IPN 997-00012-65B September 2009

Overview

- The DCD1M contains hazardous voltages and hazardous energy levels. Before undertaking any maintenance task refer to the Warnings on page 6.
- If a maintenance task must be performed on a "live" system then take all necessary precautions to avoid short-circuits or disconnection of the load equipment, and follow any "live-working" instructions applicable to the site.
- Only perform the maintenance tasks described in the Maintenance chapter. All other tasks are classified as Servicing. Servicing must only be performed according to specific instructions and only by personnel authorized by Eaton. This includes disassembly and/or servicing of any modules.
- For further information on Servicing contact your local Eaton dc product supplier, or refer to the contact details on page 35.

Troubleshooting

Use the table to troubleshoot minor installation and operational problems. For additional assistance see Worldwide Support on page 35. Return items for replacement or repair with a completed Equipment Incident Report on page 33.

Problem	Possible Cause	Required Action
Battery Fuse Fail alarm on system controller (DCD1M-01 model only).	Battery circuit breaker OFF (O).	Check the battery circuit breakers.
Load Fuse Fail alarm on system controller (DCD1M-01 model only).	Load circuit breaker with equipment connected is OFF (O).	Check the load circuit breakers.
DCD1M has no dc output	Load circuit breaker is OFF (O).	Check the load circuit breakers.
	No dc supply from dc power system	Check dc power system output.
DCD1M has no battery input	Battery cable disconnected.	Check all battery module cables.
	Battery circuit breaker is OFF (O).	Check the battery circuit breakers.
DCD1M has no battery input (DCD1M-01 model only)	LVD has disconnected the battery due to low voltage.	Normal operation. The battery will be automatically reconnected when power is restored to recharge the battery.
	LVD is *Disabled* or has incorrect configuration.	Check LVD configuration in the system controller.

IPN 997-00012-65B September 2009

Replacing or Adding a Circuit Breaker

Circuit breakers can be replaced or added without switching off the dc power system.

Removing a Circuit Breaker

Step 1 - Disconnect the load or battery (if required)

- If removing a load circuit breaker:
  - Switch off the equipment (if any) connected to the load circuit breaker.

    Refer to the equipment supplier's instructions on switching off equipment.
  - Switch OFF (O) the load circuit breaker

    DCD1M-01 Model only: A Load Fuse fail alarm will appear if any equipment is connected to the circuit breaker.
- If removing a battery circuit breaker:
  - Switch OFF (O) the battery circuit breaker.

    DCD1M-01 Model only: A Battery Fuse Fail alarm will appear.
  - Unplug the battery cable (if any) connected to the circuit breaker.

Step 2 - Remove circuit breaker cover

Step 3 - Pull out the circuit breaker

DCD1M-01 Model only: Any Fuse Fail alarm will clear.

Step 4 - Plug in new circuit breaker or replace cover

Either:

- See instructions in following section for installing a new circuit breaker, or
- Fit a circuit breaker blank cover and replace the circuit breaker cover.

Procedure complete

Installing a Circuit Breaker

Step 1 - Disconnect the load or battery

- If installing a load circuit breaker then switch off the equipment (if any) connected to the circuit breaker.

  Refer to the equipment supplier's instructions on switching off equipment.

- If installing a battery circuit breaker then unplug the battery (if any) connected to the circuit breaker.

Step 2 - Remove circuit breaker cover

Step 3 - Plug in the circuit breaker

DCD1M-01 Model only:

- For a battery circuit breaker a *Battery Fuse Fail* alarm will occur at the system controller.
- For a load circuit breaker a *Load Fuse Fail* alarm will occur at the system controller if equipment is connected to the circuit breaker.

Step 4 - Replace circuit breaker cover

Step 5 - Connect load equipment or battery (if required)

1. Switch the circuit breaker to the OFF (O) position.
2. Connect the load equipment or battery (if required):
   - For a load circuit breaker, connect the cables to the load terminals (see details on page 16), or
   - For a battery circuit breaker, plug in the battery cable (see details on page 18).

IPN 997-00012-65B September 2009

Step 6 - Switch on circuit breaker

- For a load circuit breaker:
  - Switch the load circuit breaker to the ON (I) position.
  - Follow the equipment suppliers instructions for starting the equipment.
  - DCD1M-01 Model only: Check the *Load Fuse Fail* alarm clears.

  Only load circuit breakers with equipment connected must be switched ON (I) to clear the alarm.
- For a battery circuit breaker:
  - Follow the battery supplier's instructions for charging the batteries.
  - Switch the battery circuit breaker to the ON (I) position.
  - Check the battery current. The actual value depends on the state of charge of the batteries.
  - DCD1M-01 Model only: Check the *Battery Fuse Fail* alarm clears.

  All battery circuit breakers (including any unused circuit breakers) must be switched ON (I) to clear the alarm.

Procedure complete

IPN 997-00012-65B September 2009

Electrical

Load power	4080W (maximum)
Voltage range	43 - 58V dc (including tolerances)
Current range	94.9A (43V) - 70.4A (58V)
Polarity	Positive earth (common). *Contact Eaton for instructions to convert a DCD1M for use with a negative earth dc power system. See Worldwide Support on page 35.*
Grounding	Common-ground or Floating
Load terminals	
Number of circuits	Up to 10
Terminal type and wire size	Screw terminals, maximum 10 AWG/4mm²
Load circuit breakers	
Number and rating	Up to 10, 6 - 30A*. See details on page 29.
Battery connectors	
Number of circuits	Up to 4 (2 per connector)
Current	21.25A maximum each circuit (85A total @ 48V)
Connector type and wire size	Anderson Powerpole® PP45, maximum 10 AWG/4mm²
Battery circuit breakers	
Number and rating	1 or 2 x 40A, 50A or 60A See details on page 29.
Interrupt rating	5000A

**Position restrictions apply. See Customize the DCD1M on page 10.*

Environment

Ambient Temperature Range	-40°C to 50°C [-40°F to 122°F]
Relative Humidity *(operating and storage)*	<95% (non condensing)

Dimensions

All models (H, W, D*)	1U, 19" or 23" mounting, 11" [280 mm]

** Additional access space is required. See details on page 13.*

Weight

DCD1M-00	4.1kg [9.1 lb]*
DCD1M-01	4.4kg [9.8 lb]*

** including all circuit breakers.*

IPN 997-00012-65B September 2009

Safety Equipment

Use approved safety equipment as required by local health and safety regulations including (but not restricted to):

- Safety glasses
- Safety gloves
- Safety footwear
- Appropriate handling equipment for batteries and other heavy items
- Appropriate platform(s) and access for working at height (if required)

Essential Tools

Standard electrical toolkit with insulated tools, plus:

- Torque wrench
- Torque screwdriver with insulated handle
- Digital multimeter
- Insulation tester

Spare Parts

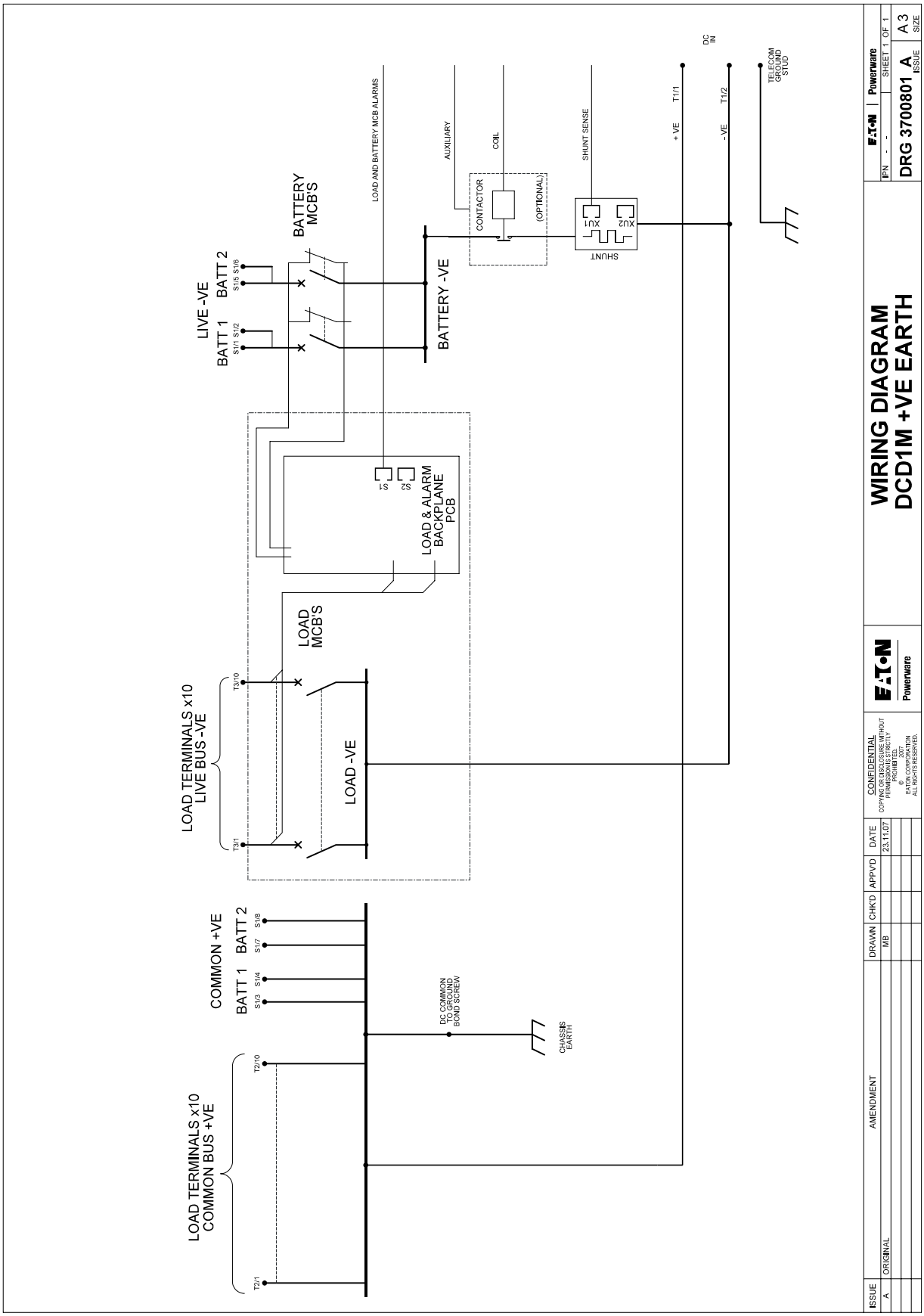
Item	Description	Part Number
1	Battery circuit breakers (80V dc)	
	40A (maximum current 32A):	Heinemann ACG1R-B39-AJB-20-D-AU-52-40-251
	50A (maximum current 40A):	Heinemann ACG1R-B39-AJB-20-D-AU-52-50-251
	60A (maximum current 48A):	Heinemann ACG1R-B39-AJB-20-D-AU-52-60-251
2	Load circuit breakers (80V dc)	
	6A (maximum load current 4.8A):	Heinemann JC1S-B3-AI-05-D-DU-6-2
	10A (maximum load current 8A):	Heinemann JC1S-B3-AI-05-D-DU-10-2
	15A (maximum load current 12A):	Heinemann JC1S-B3-AI-05-D-DU-15-2
	20A (maximum load current 16A):	Heinemann JC1S-B3-AI-05-D-DU-20-2
	25A (maximum load current 20A):	Heinemann JC1S-B3-AI-05-D-DU-25-2
	30A (maximum load current 24A):	Heinemann JC1S-B3-AI-05-D-DU-30-2
3	Battery connection cable, 10AWG, 4-core, Powerpole to ring crimp lugs, 2m (78") long	Eaton CKBATT-01
4	EPS-Battery connection cable, 10AWG, multi-core, Powerpole to 5-pin EBM plug, 2m (78") long.	Eaton CKBATT-02
5	Input cable crimp lugs	See details on page 15.
6	23" rack mounting bracket (two required)	Eaton 621-04998-29

Purchasing Information

Eaton	See contact details on page 35.
Heinemann	Your local electrical trade supplier or see contact details on page 35.
FCI-Burndy, Thomas & Betts	Your local electrical trade supplier.

IPN 997-00012-65B September 2009

Drawing Number	Issue	Title
DRG 3700801	A	Wiring Diagram DCD1M +ve Earth



EQUIPMENT INCIDENT REPORT

Please enter as much information as you can. Send the completed form, together with the item for repair to your nearest authorized service agent. NOTE: Only one fault to be recorded per form.

For further information contact your local Eaton dc product supplier or Eaton (see contact details on page 35). Or email: CustomerServiceNZ@eaton.com

Date: _____

Customer Information

Company: _____

Postal Address: _____

_____

Return Address: (Not PO Box) _____

_____

Telephone: _____ Fax: _____ Email: _____

Contact Name: _____

Location of Failure

Product code: _____ Serial number: _____ Document number: _____

System type installed in: _____ Serial number: _____

Site name or location: _____

Fault discovered

☐ Delivery ☐ Unpacking ☐ Installation

☐ Initial test ☐ Operation after _____ years ☐ Other _____

Failure source

☐ Design ☐ Manufacturing ☐ Documentation

☐ Transportation ☐ Installation ☐ Handling

☐ _____

Effect on system operation ☐ None ☐ Minor ☐ Major ☐ _____

INFORMATION (fault details, circumstances, consequences, actions)

_____

_____

_____

_____

_____

Internal use only.

Reference No: _____ RMA: _____ NCR: _____ Signature: _____ Date: _____

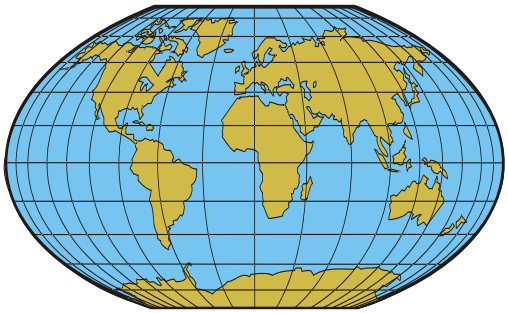
INFORMATION continued (fault details, circumstances, consequences, actions)

SG/03 ISS06

IPN 997-00012-65B September 2009

For product information and a complete listing of worldwide sales offices, visit Eaton's website at: **www.eaton.com/telecompower** or email: **DCinfo@eaton.com**

For technical support contact either your local Eaton dc product representative, the closest office from the following list, telephone **(+64) 3 343-7448,** or email **CustomerServiceNZ@eaton.com**



Australia	1300 877 359
Canada	1-800-461-9166
Central America	+52 55 9000 5252
China	+86-571-8848-0166
Europe / Middle East / Africa	+44-1243-810-500
Hong Kong / Korea / Japan	+852-2745-6682
India	+91-11-4223-2325
New Zealand	0800 DC Power (327-693)
Singapore / South East Asia	+65 6825 1668
South America	+54-11-4124-4000
South Pacific	+64-3-343-7448
Taiwan	+886-2-6600-6688 or free call 0800-038-168
United States of America (Toll Free)	1-800-843-9433

IPN 997-00012-65B September 2009

V

W

IPN 997-00012-65B September 2009