DCE Accessories

DCE PSU 240 IP
DCE Data Splitter/Booster IP

Safety, Installation and User Manual

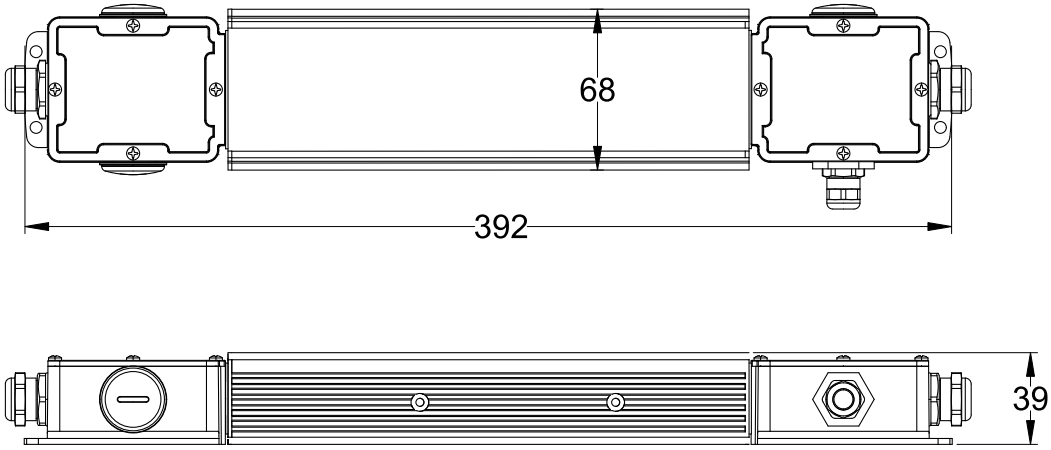
DCE PSU 240 IP

DCE Data Splitter/Booster IP

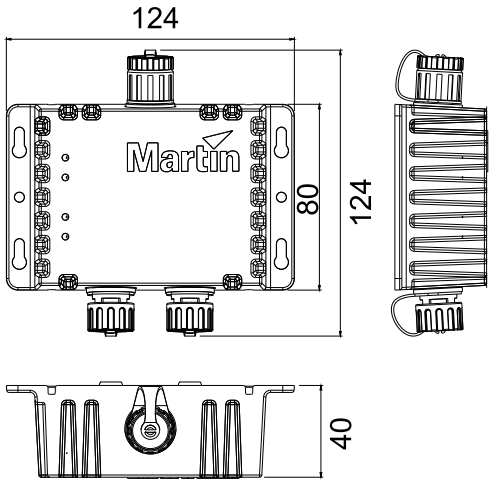
Martin®

Dimensions

DCE PSU 240 IP



DCE Data Splitter/Booster IP



All measurements are in millimeters

HARMAN PROFESSIONAL DENMARK ApS, Olof Palmes Allé 44, 8200 Aarhus N, Denmark

HARMAN PROFESSIONAL, INC., 8500 Balboa Blvd., Northridge CA 91329, USA

www.martin.com

Contents

Safety information

WARNING!

Read the safety precautions in this section before installing, operating or servicing this product.

The following symbols are used to identify important safety information on the product and in this manual:

Warning!

Safety hazard. Risk of severe injury or death.

Warning!

Hazardous voltage. Risk of lethal or severe electric shock.

Warning!

Fire hazard.

Warning!

Burn hazard. Hot surface. Do not touch.

Warning!

See user documentation.

Warning! This product presents risks of severe injury or death due to fire and burn hazards, electric shock and falls if the safety precautions in this manual are not followed. Read this manual before installing, operating or servicing the product. Follow the safety precautions given not only in this user manual but also in the manuals of all the devices you connect to the product. Observe all warnings given in the manuals and printed on devices.

The products in the DCE Accessory family are for professional use only. They are not for household lighting applications. They must be installed and serviced by professional technicians only. Respect all locally applicable laws, codes and regulations when installing, operating or servicing the products.

Refer any service operation that is not described in this user manual to Martin® Service or an authorized Martin Service partner.

Install, operate and service Martin products only as directed in their user documentation, or you may create a safety hazard or cause damage that is not covered by product warranties.

Follow the safety precautions listed in the following section and observe all warnings in this manual and printed on the product.

The latest version of this User Manual is available for download from the Martin website at www.martin.com. Before you install, operate or service the product, check the Martin website and make sure that you have the latest user documentation for the fixture. Document revisions are indicated at the bottom of page 2.

Technical Support

If you have questions about how to install or operate the fixture safely, please contact Harman Professional Technical support:

For technical support in North America, please contact:
HProTechSupportUSA@harman.com
Phone: (844) 776-4899

For technical support outside North America, please contact your national distributor.

Protection from electric shock

Ensure that these products are electrically connected to ground (earth).

Use only a source of mains power that complies with local building and electrical codes and has both overload and ground-fault (earth-fault) protection.

Socket outlets or external power switches used to supply these products with power must be located near the product and easily accessible so that the product can easily be disconnected from power.

Provide a means of locking out AC mains power so that power to the installation can be shut down and made impossible to reapply, even accidentally, during work on the installation.

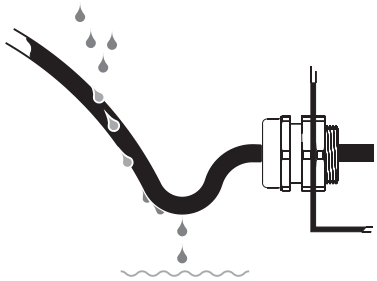
Isolate the product from power immediately if the power plug or any seal, cover, cable, or other component is damaged, defective, deformed or showing signs of overheating. Do not reapply power until repairs have been completed.

Do not expose connectors or cable glands to stresses caused by lengths of cable hanging from them or by tight cable bends. Support the weight of cables running to and from products.

Keep the supplied caps on all unused connectors to protect from humidity. Leave caps hanging on their tethers while using connectors so that the caps can easily be re-installed.

DCE Data Splitter/Booster IP and DCE PSU 240 IP products are IP66-rated and may be used in permanent indoor and outdoor installations. Do not expose these products to high-pressure water jets from any direction.

When installing cable, create a ‘drip loop’ (see illustration on right) so that the cable arrives at cable glands or connectors from below.



Drip loop

Do not allow water to pool around the pressure equalization valve of an IP65 or IP66-rated product. Make a visual check of the pressure equalization valve periodically. If a valve appears to be dirty it may be blocked. Consult your Martin supplier for replacement.

Before using a device, check that all power distribution equipment and cables are in perfect condition and rated for the electrical requirements of all connected devices.

Disconnect products from AC mains power and ensure that power cannot be reconnected before carrying out any installation or maintenance work and when the product is not in use.

Do not connect products to mains power in a daisy chain that will exceed the electrical ratings of any device, cable or connector in the chain.

Check and respect the directions given in the user manuals of all the devices that you intend to connect to a DCE accessory product. Pay particular attention to the instructions and warnings that apply to:

- system layout,
- connections to other devices,
- specified cables,
- maximum cable lengths, and
- maximum number of devices that can be connected.

The external diameter of the cables used to connect DCE PSU 240 IP products to power and data must be suitable for the cable glands provided, or water can enter the product and create a safety hazard or cause damage. The cables must have the following external diameter:

- AC mains power in: EU 8-13 mm (0.32-0.51 in.), USA/Canada 8.5-13 mm (0.34-0.51 in.)
- Hybrid (48 VDC power and data) out: 6.5-10.5 mm (0.26-0.41 in.)

- Network data in: 5-8 mm (0.2-0.32 in.)

To connect a DCE PSU 240 IP device to AC mains power – or to connect DCE PSU 240 IP devices to AC mains power in a chain that takes power from one source – use minimum 18 AWG or 1.0 mm^2 conductor size power input cable that is suitable for the current draw, environment and application. In the USA and Canada the cables must be UL/CSA-listed, hard usage type SJTW, SJOOW or better. In the EU the cables must be type H05RN-F, H07RN-F or better.

If you connect DCE PSU 240 IP devices to AC mains power in a chain that takes power from one source, respect the following limits:

- When operating at 100-120 V~ do not link more than five (5) devices in total in a chain.
- When operating at 200-240 V~ do not link more than twelve (12) devices in total in a chain.

When power is first applied to the DCE PSU 240 IP, there is a half-cycle RMS inrush current of 12.98 A.

The DCE PSU 240 IP has a maximum earth-leakage current of 0.264 mA.

Protection from burns and fire

Do not operate a device in this range of products if the maximum ambient temperature (T_a max.) exceeds the levels shown below:

- DCE PSU 240 IP: 40° C (104° F)
- DCE Data Splitter/Booster IP: 55° C (131° F)

The surface of the products can reach the following maximum temperatures during operation.

- DCE PSU 240 IP: 76° C (169° F)
  at full load, ambient temperature 40° C (104° F)
- DCE Data Splitter/Booster IP: 61° C (142° F)
  at full load, ambient temperature 55° C (131° F)

Protection from injury

Fasten the product securely to a fixed surface or structure when in use. The product is not portable when installed.

Ensure that any supporting structure and/or hardware used can hold at least six (6) times – or more if required by local regulations – the weight of all the devices and other items that they support.

Use rigging hardware and fasteners that are in perfect condition, approved for the weight that they will support, and suitable for their application and the installation environment. Do not use safety cables as the primary means of support.

If you install the DCE Data Splitter/Booster IP on a truss or similar tubular structure using a rigging clamp in a location where it may cause injury or damage if it falls, install as directed in this manual a secondary attachment such as a safety cable that will hold the product if a primary attachment fails. The secondary attachment must be approved by an official body such as TÜV as a safety attachment for the weight that it secures, must comply with EN 60598-2-17 Section 17.7.4 and must be capable of bearing a static suspended load that is six (6) times – or more if required by local regulations – the weight of the product and all installed accessories.

Check that all external covers and rigging hardware are securely fastened.

Block access below the work area and work from a stable platform whenever installing, servicing or moving an overhead product.

Do not operate a product with missing or damaged covers.

In the event of an operating problem, stop using the product immediately and disconnect it from power. Do not attempt to use a product that is obviously damaged.

Do not modify the product in any way not described in this manual. Install genuine Martin parts only.

Refer any service operation not described in this manual to Martin Service or one of its authorized agents.

Introduction

Thank you for selecting a product from the Martin® DCE* range. These devices support all Martin Creative LED fixtures fitted with hybrid DCE connectors. The following products are available:

- **DCE PSU 240 IP** – for powering Martin Creative LED fixtures without the advanced features offered by the P3 PowerPorts (see the information on Martin P3 PowerPorts on the Martin website at www.martin.com)
- **DCE Data Splitter/Booster IP** – for extending the distance between the P3 PowerPort or DCE PSU 240 IP and Martin Creative LED fixtures and/or for splitting chains of fixtures.

These products will forward any Art-Net, sACN or Martin P3 data to the Martin Creative LED fixtures connected to them.

For possible system layouts when using DCE devices with Martin Creative LED fixtures, please see the user documentation for those products. Martin user documentation is supplied with products and available for download from the Martin website at http://www.martin.com, where you can also find the latest specifications, firmware updates and support information for all Martin products.

**The name DCE is used to indicate DC power plus Ethernet.*

Unpacking

The following items are included with devices.

DCE PSU 240 IP

- This user manual
- Blanking plugs in all pre-installed cable glands
- Wago and splice connectors for all connections

DCE Data Splitter/Booster IP

- This user manual

Accessories and related items

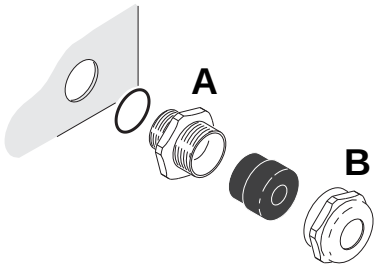
Martin can supply a comprehensive range of cables, connectors, rigging hardware and other accessories for the products in the DCE product range. The accessories listed in the **Specifications** sections of the DCE product pages on the Martin website at www.martin.com give details. Your Martin supplier will also be happy to help if you would like assistance with assessing your needs and ordering.

Installing with cable glands

Where cable glands are used for cable entry, follow the instructions in this section to ensure that the product's IP66-rating is maintained.

To install a cable using a cable gland:

1. Ensure that the installation is isolated from power.
2. See illustration on right. On the DCE PSU 240 IP, the cable entry **A** on cable glands is glued to the device's housing, so do not try to turn it. Loosen the compression nut **B** on the cable gland.
3. Pass the cable through the cable gland and into the device. When you have finished making the connections inside the device, tighten the compression nut **B** until the cable is held securely in the gland.



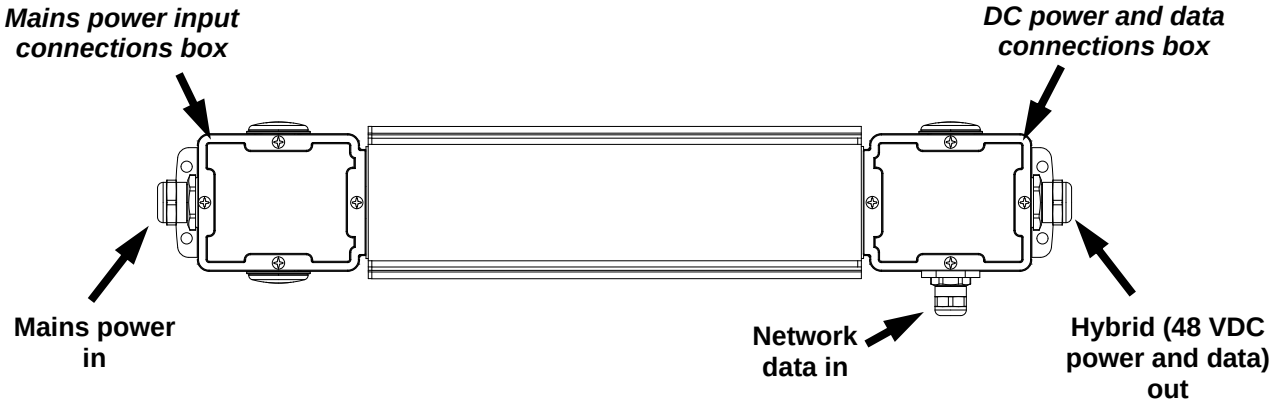
Cable gland

Support the weight of cables to ensure that no length of cable is left hanging from a cable gland. Create 'drip loops' so that cables arrive at cable glands from below.

DCE PSU 240 IP

Overview

AC mains power, 48 VDC power and network data connections are made inside the connections boxes at each end of the device.



DCE PSU 240 IP

Installing

Read the ‘Safety Information’ section starting on page 4 before installing, applying power to or operating the device.

The IP66-rated DCE PSU 240 IP is designed to be mounted on a flat surface in any orientation with four screws or other suitable fasteners. Holes for fasteners are provided in each corner of the device.

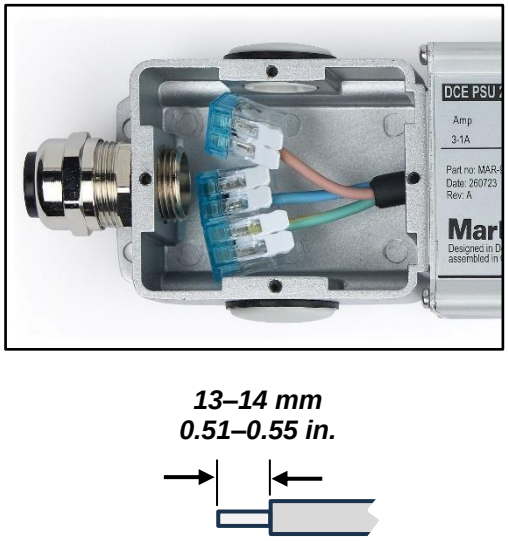
Connecting

To connect the device to mains power, to network data and to a hybrid (DC power and data) daisy-chain of Martin creative LED fixtures, make connections as directed below.

AC mains power

1. Check that mains power to the installation is shut down and cannot be reapplied during installation work.
2. Remove the four screws from the mains power input connections box and remove the cover.
3. See the instructions on installing with cable glands in the previous section of this manual. The cable entries are glued into the housing, so do not try to turn them. Loosen the mains power input cable gland compression nut and pass the mains power input cable through the nut and cable gland and into the connections box.
4. See illustration on right. Strip 13–14 mm (0.51–0.55 in.) of insulation from the power cable wires and fasten the wires into the quick-connectors following the color coding of the wires that are already in the device:
   - Live to brown
   - Neutral to blue
   - Ground/earth to yellow or green/yellow.

   To fasten a wire into a quick-connector, lift up the lever on the quick-connector, insert the bare wire end into the connector, then push the lever down to grip the wire. Check that the wire is held securely.



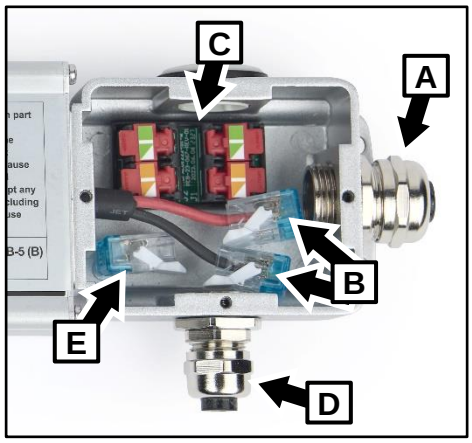
AC mains power input connections

If you need to release a wire, lift up the lever on the quick-connector.

5. Tighten the compression nut on the cable gland until the mains power input cable is held tightly.
6. To obtain extended protection from humidity, consider filling the connections box with potting compound.
7. Check that the seal is dry and in perfect condition, then reinstall the seal and the cover on the mains power input connections box so that the box is sealed against the entry of water and moisture.

Network data and DC power

1. Remove the four screws from the DC power and data connections box and remove the cover.
2. See the instructions on installing with cable glands in the previous section of this manual. The cable entries are glued into the housing, so do not try to turn them. Loosen the compression nuts on the two cable glands.
3. See illustration on right. Take the hybrid (data and DC power) output cable for the chain of lighting fixtures and pass it through the hybrid cable gland **A** and into the connections box.
4. Strip enough insulation from the DC power cable wires to ensure correct conductivity inside the quick-connectors without leaving any bare copper visible outside the connectors. Fasten the wires into the quick-connectors **B** as follows:
   - Positive (+) to red
   - Negative (-) to black.
5. There are four data wires colored orange, orange/white, green and green/white in the hybrid output cable. Do not strip insulation from these wires. Untwist the wires, lift the levers in the data quick-connectors **C** and slide the wires into the connectors, respecting the green/green-white/orange/orange-white color coding of the wires and the connectors. Push the levers on the connectors all the way down firmly and check that the wires are held securely.



DC power and data connections box

6. For the data input cable gland **D**, two different inserts are supplied with the product. Use the smaller insert for data cables with an outer diameter of 5-6 mm. Use the larger insert for data cables with an outer diameter of 6-8 mm. Pass the network data input cable through the data input cable gland **D** and into the connections box. Fasten the data input wires into the quick connectors **C** as described above for the hybrid cable data wires.
7. Take the shield conductors in the network data input cable and in the hybrid output cable and fasten them into the common shield quick-connector **E**.
8. Tighten the compression nuts on the hybrid cable output and network data input glands **A** and **D** until the cables are held tightly.
9. To obtain extended protection from humidity, consider filling the connections box with potting compound.
10. Check that the seal is dry and in perfect condition, then reinstall the seal and cover on the DC power and data connections box so that the box is sealed against the entry of water and moisture.

DCE Data Splitter/Booster IP

Overview

The IP66-rated DCE Data Splitter/Booster IP lets you split a hybrid DC power and data daisy-chain link into two branches and/or amplify the data signal to let you extend the hybrid cable.

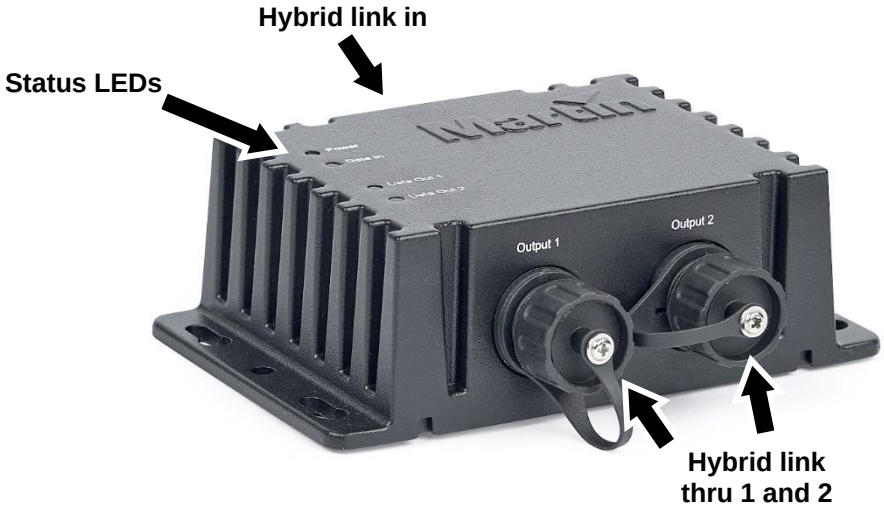
The normal maximum length for a hybrid cable is 90 m (295 ft.). The DCE Data Splitter/Booster IP lets you extend the hybrid cable by another 90 m (295 ft.). It is possible to extend the hybrid cable in this way by adding two Splitter/Boosters to the link, giving a maximum total hybrid cable length of 270m (885 ft.).

The DCE Data Splitter/Booster IP has one DCE-type hybrid (DC power and data) input connector and two DCE-type hybrid output connectors. All connectors are IP66-rated.

Status LEDs

The DCE Data Splitter/Booster IP has four status LEDs:

- The device's POWER IN status LED lights green to indicate that the device is receiving DC power via the Hybrid input cable.
- The device's DATA IN, DATA OUT 1 and DATA OUT 2 status LEDs light amber to indicate a correct data link and flash when there is data transmission.



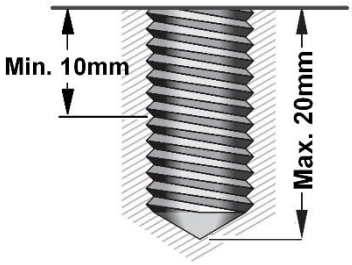
Installing

Read the 'Safety Information' section starting on page 4 before installing, applying power to or operating the device.

There is a pressure equalization valve on the bottom of the DCE Data Splitter/Booster IP (see illustration on right). Do not immerse or block this valve. Do not install the device in a location where the valve may become immersed in water. Make sure that there is sufficient drainage from the installation location.

The DCE Data Splitter/Booster IP can be mounted on a flat surface in any orientation using a minimum of two screws or similar fasteners. Holes for fasteners are provided in flanges on each side of the device. Use fasteners that are suitable for the application and for the installation environment.

Installing using a rigging clamp

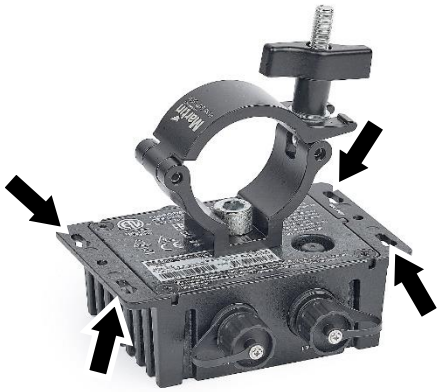


See illustration on right. The DCE Data Splitter/Booster IP also has an M10 threaded hole in its base (arrowed). You can use this hole to fasten a rigging clamp, for example, to the device.

Check that any bolt used will protrude minimum 10 mm and maximum 20 mm protrusion into the device when it is installed.

Fasten the device to a lighting truss by fastening the rigging clamp securely to the truss. Make sure that the weight of cable runs is supported so that lengths of cable do not hang from connectors. If the device may cause injury or damage if it falls, secure it with a safety cable as described below.

Securing with a safety cable



If you install the DCE Data Splitter/Booster IP using a rigging clamp in a location where it may cause injury or damage if it falls, attach a safety cable that is approved for the weight of the device to one of the device's mounting holes (arrowed in illustration on right) and anchor the safety cable securely (by looping it around the rigging truss, for example).

Remove as much slack as possible from the safety cable, looping it more than once around the truss if necessary. Make sure that the safety cable will catch the device if the rigging clamp fails.

Making connections

The DCE Data Splitter/Booster IP has cable connectors for one hybrid input cable and two hybrid output cables. All connections support hot-plugging.

Keep the connector caps installed on unused connectors at all times to maintain a seal against humidity and dirt.

Service and maintenance

Warning! Read *"Safety Information" on page 4* before carrying out service or maintenance work.

Disconnect all devices from AC mains power before servicing.

Refer any service operation not described in this user manual to Martin Service or an authorized Martin service agent.

Important! Excessive dirt buildup causes overheating and will damage the product. Damage caused by inadequate cleaning is not covered by the product warranty.

The user will need to clean the device periodically. other service operations must be carried out by Martin Professional or an authorized Martin service agent.

Installation, on-site service and maintenance can be provided worldwide by the Martin Professional Global Service organization and its approved agents, giving owners access to Martin's expertise and product knowledge in a partnership that will ensure the highest level of performance throughout the product's lifetime. Please contact your Martin supplier for details.

Cleaning

Cleaning schedules vary greatly depending on the operating environment. It is therefore impossible to specify precise cleaning intervals. Check products frequently and clean when necessary.

To clean a DCE accessory:

1. Shut down power to the installation and allow devices to cool for at least 15 minutes.
2. Wipe the outside of the device with a cloth lightly moistened in a mild detergent solution. You can rinse an IP66-rated device with water, but do not direct a high-pressure water jet at the device. Do not use any product that contains abrasives or solvents.
3. Dry the device with a soft cloth before reapplying power.

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Supplier's Declaration of Conformity

These devices comply with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Canadian Interference-Causing Equipment Regulations

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Règlement sur le Matériel Brouilleur du Canada

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le Matériel Brouilleur du Canada.

EU Declaration of Conformity

An EU Declaration of Conformity covering these products is available for download from the product's area of the Martin website at www.martin.com.

Disposing of the product

Martin products are supplied in compliance with Directive 2012/19/EC of the European Parliament and of the Council of the European Union on WEEE (Waste Electrical and Electronic Equipment), where applicable.

Help preserve the environment! Ensure that this product is recycled at the end of its life. Your supplier can give details of local arrangements for the disposal of Martin products