



# Emissions Tester CCP800 series

## Maintenance Guide

I324565 Issue B



# 1 Vehicle Exhaust Gas Analyser (VEGA) Maintenance

## 1.1 Water Trap

Do not use any chemical based products to clean the water trap. Soapy water and gently airline.



### Daily

Check pipe and probe tip for damage. Gently with an airline blow down the probe to remove any blockages or moisture. Don't leave the sample hoses on the workshop floor when not in use, always return them to the trolley. If unmaintained this may cause low flow errors, leak test failures and/or terminal gas bench errors.

## 1.3 Filter Bowls

Do not use any Chemical based products to clean the water trap. Soapy water and gently airline.



### Daily

Remove any moisture from the water trap and check that the 'o' rings are not damaged or pinched.

Add a small amount of inert silicone petroleum jelly around the top of the water trap where the o ring sits. This may cause terminal gas bench failure and possible low flow issues if maintenance is not carried out correctly.

### Weekly

Remove excess moisture from all filter bowls (Replace filter weekly if required) and check that the o rings are not damaged or pinched. Add a small amount of inert silicone petroleum jelly around the top of the water trap where the o ring sits to help create a seal. This may cause terminal gas bench failure and possible low flow or contamination issues if maintenance is not carried out correctly.

## 1.2 Sample Probe

Do not use any chemical based products to clean the water trap. Soapy water and gently airline.



## 1.4 O2 Sensor



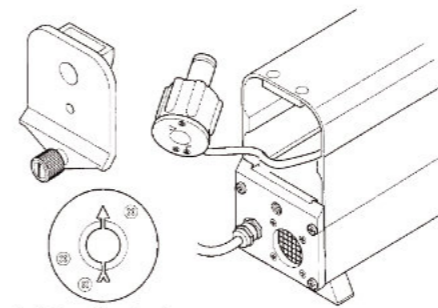
### Annually

O2 sensor will need to be checked and/or replaced every 6 - 12 months depending on your usage. It is recommended that you keep a spare available on site.

# 2 Diesel Smoke Meter (DSM) Maintenance

## 2.1 Clean Optics

Do not use chemical based cleaning products on the optics



Note orientation of lens housing (arrow up)

### Monthly

Remove dirt from the lens with a clean cloth or alcohol wipe. If unmaintained this may cause zero drift issues. More detail available in the operators manual.

## 2.2 Smoke Head Cable (cable version)

Always return to the cradle when not in use.

### Daily

Ensure cable is kept clean and unkinked. Failure to maintain may cause communication problems.

## 2.3 Clean Charging Pins (Bluetooth Version)

Always return to the cradle when not in use.

### Weekly

Clean the charging pins at least once a week to avoid corrosion. If unmaintained you may have communication issues and/or early life battery failure.

## 2.4 Sample Pipe

### As required

Under normal circumstances the sampling head does not require cleaning. If a sampling pipe becomes restricted with deposits, the test results can be affected. To clean a sampling pipe, remove the sample probe from the smoke head. Blow through the sample pipe only, using compressed air.

**DO NOT BLOW THROUGH THE SMOKEHEAD.**

### 3 CCP800 series Trolley & Ancillaries Maintenance

#### 3.1 Trolley Power

**Daily**

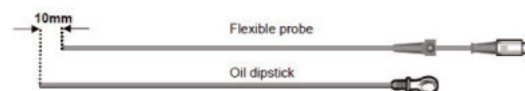
At the end of the day shut down the PC and then turn the power off using the switch on the side of the trolley leaving the unit plugged in and switched on at the mains. Failure to follow this process may lead to poor charge in the batteries and not enough to complete a test.

#### 3.2 Bluetooth Oil Temp Probe



Always return the probe back to the holster when not in use. Failure to follow this process may lead to poor charge in the batteries and not enough to complete a test.

#### 3.3 Oil Temp Probe Length



Always adjust the probe to the correct length prior to starting a test, it should be 10mm shorter than the dipstick. Failure to follow this process may cause not only probe but engine damage.

#### 3.4 RPM Device (Battery Tach)



To minimise the risk of unstable readings load the battery by turning on headlights, fog lights etc. Keep the cabin fan off as this may introduce interference. Some modern vehicles may not be detected due to "smart charging systems" cutting the charge when the battery does not require it. This is not a fault with the equipment.

### 4 Vehicle Exhaust Gas Analyser (VEGA) Fault Finding

#### 4.1 Leak Test Failure

The system is drawing in air, possible causes of a leak test failure are faulty joints, particularly in sample probe/hose assembly and between the two filter bowls. Damaged 'O' ring seals of filter bowls, particularly if filters have just been changed.

#### 4.2 Checks

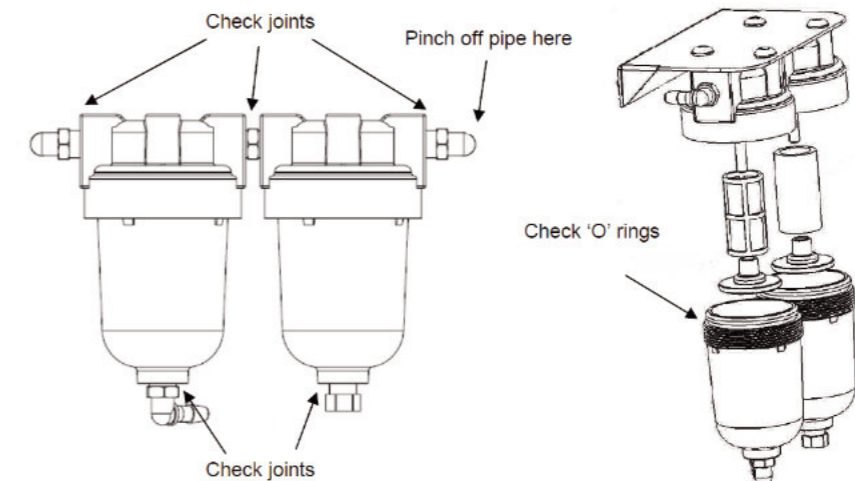
- Pump operation - Is the pump running?
- Disconnect sample hose from the gas analyser
- Block the sample inlet and re-test
- If problem cured, inspect joints for leaks/damage
- Ensure flexible probe is not damaged
- In cases of extreme exhaust gas temperature the PTFE liner may melt and cause leak test failure

#### 4.3 Sample probe/hose assembly



- If the test still fails, 'pinch off' the pipe immediately after the gas filter bowl (see Fig 3. overleaf) and retest.
- If problem cured, check all joints on sample inlet and filter bowl assembly, particularly the bowl to bowl adapter.
- Unscrew filter bowls and ensure the 'O' rings are in good condition and have not been 'pinched' during assembly.

Fig. 3



## 5 Battery Smoke Meter (DSM) Fault Finding

### 4.4 Gas Analyser not communicating

- Check mains supply OK and the analyser module is switched on
- Check communication cable
- Check platform Config for conflicts

### 4.5 LHC Residue Test Failure

- Check sample probe in free air, blow out sample probe & pipe assembly if required
- Change gas filters if heavily contaminated and wash filter bowls with warm soapy water

### 4.6 Low Gas Flow

Ensure that the filters have been removed and cleaned or replaced, sample probe has been checked for damage and blockages.

### 4.7 High Lambda Readings

The system is drawing in air, please ensure the following – All filter bowls are undamaged and sealed (hand tight and a little bit, do not over tighten or you will damage the o ring). Sample probe and pipe are undamaged and connections are tight.

### 4.8 Remove Probe from Exhaust message (at beginning of an MOT test)

Check the O<sub>2</sub> sensor two pin connector is still connected and the millivolt reading is no less than 7 millivolts.

### 5.1 Battery Charging

The DX260-1BT wireless Smoke head contains a Multi-Cell Rechargeable Battery designed to give a maximum of 1.5 hours endurance from a full charge.

The smoke head must always be replaced on the charging cradle in between tests.

It is also strongly recommended that the batteries be completely discharged on a monthly basis by setting the program to Live Readings with the smoke head off the charger.

Please note that rechargeable batteries have a finite lifespan, therefore the battery pack will need to be replaced periodically if the smoke head is no longer sustaining sufficient charge for correct operation.

### 5.2 LED Indication

Smoke head removed from charging cradle:

- **LED 'On' continuously:** Smoke head is running on internal battery
- **LED pulsing 'ON' for 2 seconds, 'OFF' for 0.5 seconds:** Smoke head battery has reached a Low Voltage condition, and has less than 10 minutes life left before auto-shutdown.
- **LED 'OFF':** Low Voltage condition. Smoke head will auto shut down. No more testing possible until smoke head battery has been recharged.

If the smoke head has received no communication from host computer for over 6 minutes it will go into 'Sleep' mode. Return the smoke head to the charging unit to invoke a response.

If the smoke head is taken outside its maximum operating range of about 100 metres, and wireless communication is no longer possible, after 6 minutes the smoke head will go into 'Sleep' mode.

To recover from 'Sleep' mode, the smoke head should be put back in its charging cradle, and the LED function observed.

Smoke head returned to Charging Cradle:

- **FAST CHARGE (2.5 flashes per second):** The Smoke head is in 'Fast Charge' Mode. The battery should fully charge within 1.5 hours
- **TOP-UP CHARGE (1 flash per second):** The Fast Charge cycle has completed and the battery is being brought to full charge
- **SLOW CHARGE (1 flash every 2 seconds):** The Smoke head battery is in 'Slow Charge' mode, the charging rate determined by either terminal voltage or, battery cell temperature

### 5.3 Battery Charging cont.

- **TRICKLE CHARGE (1 flash every 3 seconds):** LED Flashing ON/OFF shows the smoke head battery is in 'Trickle-Charge' mode indicating that the batteries are fully charged.

### 5.4 Fault Diagnosis:

- **FAST FLICKER (8 flashes per second or more):** The smoke head has detected poor charging contacts. Clean the contacts on both the cradle and the smoke head feet and replace on charger
- **LED NOT ILLUMINATED:** Return the Smoke head to Charging Cradle. LED should display according to Charging level required.
- **LED NOT ILLUMINATED WHEN SMOKEHEAD IS ON CHARGING CRADLE:** Check that the smoke head is correctly seated on the charging cradle. The smoke head has twin connectors on each insulated foot, and may be connected either way round.

Check the charging cradle is connected to the 240V AC mains

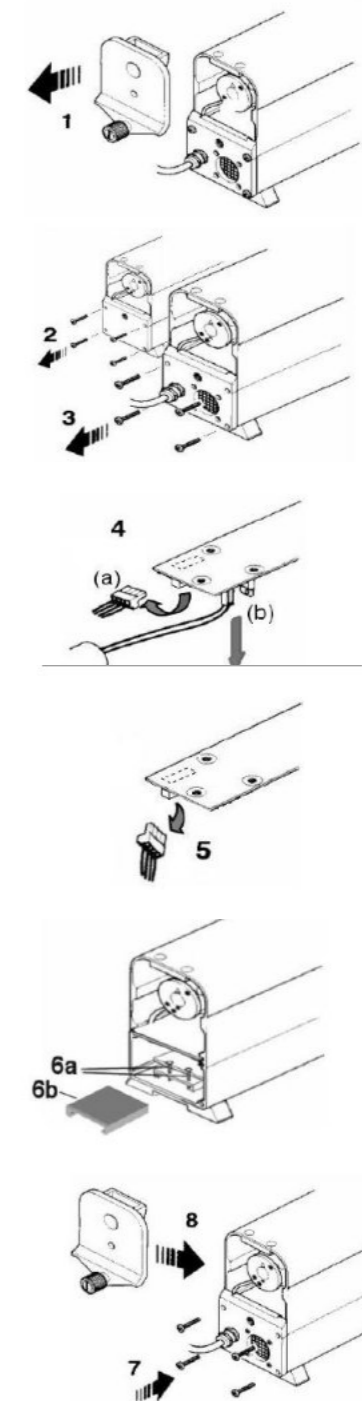
Check that the sprung connectors that transmit the charging current on the charging cradle are clean and not stuck in a depressed condition.

Check that the charging connectors on the insulated mounts on underside of the smoke head are clean and free of dirt and obstructions.

To check the charging voltage at the charging cradle:

- Connect a digital multi-meter set to measure up to 30V DC to the two charging
- Connectors on the charging cradle and depress the central charging switch
- A voltage of 28V to 30V DC should register on the multi-meter display

### 5.5 Battery Replacement



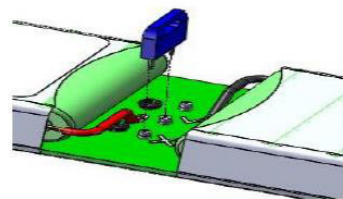
**Removal:-**

- Unscrew the knurled knob (1) and open up both end caps.
- Remove the four pan head screws (2) & (3) securing both end plates and carefully ease the plates clear of the housing
- At the fan end, disconnect the 2-pin battery plug (4a) and the 2-pin fan plug (4b)
- At the probe end, disconnect the 3-pin plug (5)
- Depending on which version you have either - loosen the two screws (6a) or remove the plastic spacer (6b) securing the battery pack
- Discard the two securing screws or the plastic spacer- they are no longer required

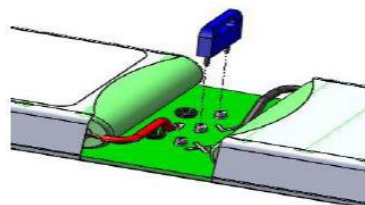
**Note:**

The orientation and remove the battery pack. Do not remove by pulling the cables, and ensure the connectors do not foul any components during removal of the board.

Move the activation link from the transit position Fig. 1 to the live position Fig. 2.



**Fig. 1 - Activation link - Transit position**



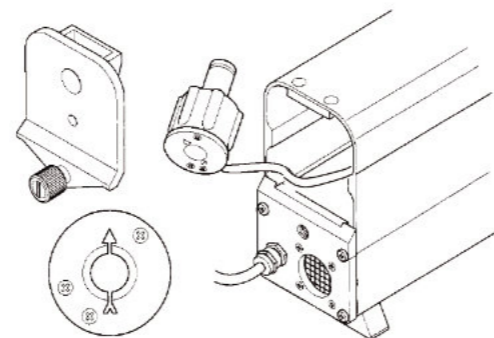
**Fig. 2 – Activation link – Live position**

**Replacement:**

- Your new battery pack is supplied with the activation link in the 'transit' position (marked 'X') see Fig. 1. This must be moved to the 'Live' position (Marked 'V') to activate the battery before it is installed into your smoke head, see Fig. 2
- Slide the new battery pack into position (note orientation)
- Re-connect the 2-pin plug (4a), the 2-pin plug (4b), and the 3-pin plug (5)
- Relocate the end plates to the smoke head and loosely secure with 4 pan head screws (7)
- Check that the lens housings are fully located, then fit the end caps and secure with the knurled knob. Fully tighten the knurled knob then slacken half a turn (8)
- Push the end plate upwards as far as it will go, and then fully tighten the 4 pan head screws.
- Fully tighten the knurled knob on the end caps

**5.6 Lens Cleaning**

Two lenses are fitted in the smoke head, one at either end. The smoke meter checks the cleanliness of the lenses at the start of each test, and the PC will provide a warning when cleaning is required.



Note orientation of lens housing (arrow up)

New orientation of lens housing (arrow up)

**5.7 Accessing a lens**

- If fitted, remove the sampling pipe
- Unscrew the knurled knob at the sampling pipe end of the sampling head and remove the end cap.
- Carefully pull out the lens housing and wipe the lens with a soft cloth (if required, a little methylated spirit will assist cleaning)

- Refit the lens housing with the arrow pointing upwards (a little silicon grease on the 'O' ring will assist fitment – but do not get on lens!)
- Refit the end cap and tighten the knurled knob

**NOTE:**

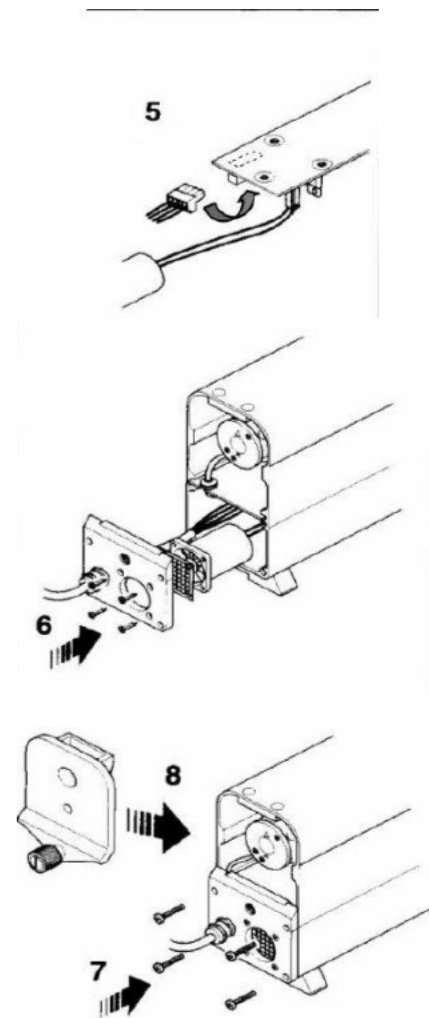
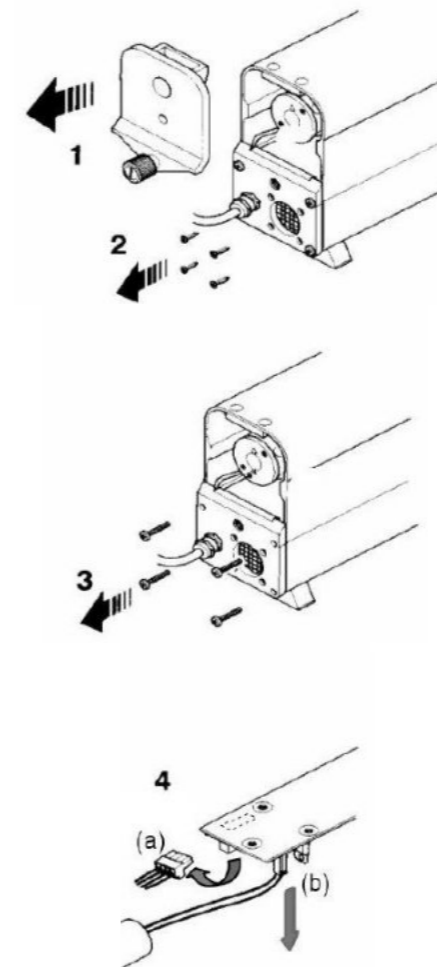
Ensure the end cap locates fully against the body of the sampling head before tightening the knob. If not correctly located, the lens housing is probably not fully home.

1. Clean the lens at the other end of the smoke head in the same way.

**NOTE:**

The end cap for the sampling pipe must be fitted at the end away from the sampling head cable.

**5.8 Cable & Fan Removal**



Should the cable become damaged and require renewal, the procedure is as follows:

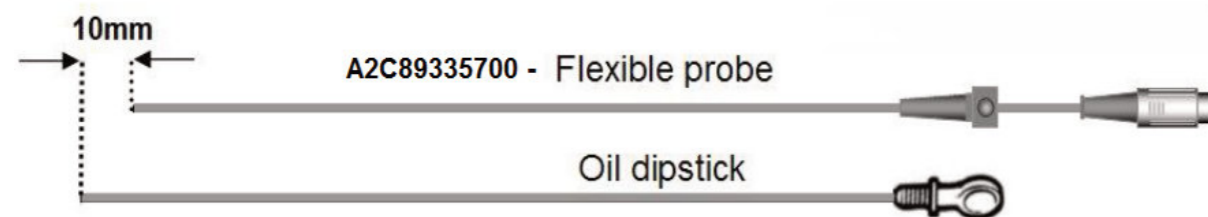
- Unscrew the knurled knob (1) and remove the end cap
- Remove the four countersunk screws (2) which secure the internal fan and grille to the smoke head end plate
- Remove the four pan head screws (3) securing the end plate and carefully ease the plate clear of the housing
- Disconnect the 4-pin multi-plug (4a). If carrying out a fan replacement disconnect the 2-pin plug (4b) and replace the fan. Carefully fit the fan and fan grille to the end plate (4 countersunk screws)
- Remove the 4 wires from the 4-way plug. Undo the metal cable clamp from the end plate. Loosen the cable gland strain relief and remove the cable from the end plate
- Re-fit the new cable through the cable gland strain relief and secure to the end plate with the metal clamp (Important: secure the clamp on the earth braid of the cable). Re-fit the 4-way plug. Ensure the

- cable gland strain relief is tightened
- Connect the 4-pin multi-plug (4a) and the 2-pin plug (4b)
- Locate the end plate to the smoke head (cable on left hand side) and loosely secure with the four pan head screws
- Check that the lens housing is fully in, then fit the end cap and secure with the knurled knob. Fully tighten the knurled knob then slacken half a turn
- Push the end plate upwards as far as it will go, and then fully tighten the 4 pan head screws
- Fully tighten the knurled knob on the end cap

**5.9 Adjusting Oil Temperature Probe Length**

Before testing, the probe must be adjusted to the correct length as follows:

Lay it alongside the vehicle dipstick (see illustration) and adjust the position of the depth stop until the effective length of the probe is approximately 10mm shorter than the dipstick.



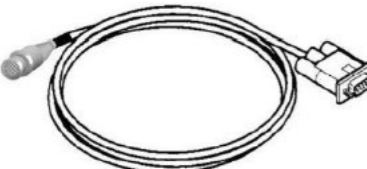

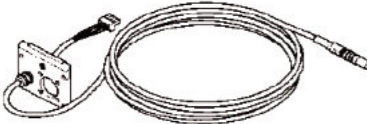

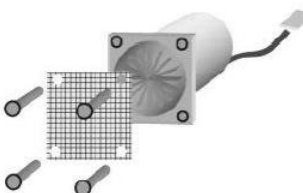




**WARNING:**  
 ENSURE THAT THE OIL TEMPERATURE PROBE IS SET TO THE CORRECT DIPSTICK LENGTH AND THAT IT IS CLEAN FROM DEBRIS BEFORE INSERTING INTO THE ENGINE. FAILURE TO DO SO MAY RESULT IN SERIOUS DAMAGE TO THE PROBE AND/OR ENGINE.

**6 Vehicle Exhaust Gas Analyser (VEGA) Consumables**

	<b>A2C88837300</b> Primary Filter 680EN1
	<b>A2C87827300</b> Gas Filter 680EN1
	<b>A2C1839470000</b> Gas Filter 682EN1
	<b>A2C1839450000</b> Water Filter 682EN1
	<b>A2C88114200</b> Pre-Filter 680EN1 & 682EN1
	<b>A2C88660300</b> Sample Probe End 680EN1 & 682EN1
	<b>A2C87844900</b> Sample Probe (Complete) 680EN1 & 682EN1
	<b>A2C88396300</b> Oxygen Sensor aka O2 Cell 680EN1 & 682EN1
	<b>A2C88028300</b> Filter Bowl O Rings 680EN1

## 7 Diesel Smoke Meter (DSM) Consumables

	<p><b>Sample Hose</b> A2C88171800 DX.260/270 Sample Hose</p>
	<p><b>Battery Tacho Power/Sensing cable</b> A2C87921500 CDSS3/4/6 Battery Tach</p>
	<p><b>Tacho Comms Cable</b> A2C89483300 CDSS6 COMMS CABLE 2M</p>
	<p><b>Battery Tacho Power/Sensing Cable</b> A2C89024000 CDSS6 Vehicle Socket Cable</p>
	<p><b>Cable – Smokehead Cable Assembly</b> A2C89189200 DX.260 Fixed Outlet Cable 10M</p>
	<p><b>Battery Pack</b> A2C88489000 DX.260BT Battery Pack</p>
	<p><b>Fan Kit</b> A2C88247300 DX.260 Fan Kit</p>
	<p><b>Oil Temperature Probes</b> A2C89335700 Oil Temperature Probe 0.75M A2C89424100 Oil Temperature Probe 2.5M</p>
	<p><b>Temperature Probe Adapters</b> A2C88830200 Wireless Probe Adapter A2C88694100 5m cabled Adapter</p>

## 8 Product Support

Apart from the routine maintenance and adjustments stipulated in this manual the equipment must not be tampered with in any way. All further servicing must be carried out only by an engineer from our Authorised Agents. Failure to observe these conditions will invalidate the Guarantee.

### 10.1 UK Customers

If you require a Service Engineer to attend ON SITE within the UK, for any of the following reasons:

- An equipment fault
- For machine calibration
- You need spare parts
- Equipment covered by this manual requires returning for factory overhaul.

### 10.2 Overseas Customers

Service and spare parts cover outside the UK is provided by the agent from whom your equipment was purchased.

## 9 Contact

### Sales

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salesorders@continental-corporation.com

### Support

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uksupport@continental-corporation.com

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36 Gravelly Industrial Park  
Birmingham  
B24 8TA  
United Kingdom



### Disposal of equipment

- Do not dispose of this equipment as miscellaneous solid municipal waste but arrange to have it collected separately.
- The re-use or correct recycling of electronic equipment (EEE) is important in order to protect the environment and the wellbeing of humans.
- In accordance with European Directive WEEE 2002/96/EC, special collection points are available for the delivery of waste electrical and electronic equipment.
- The public administration and producers of electrical and electronic equipment are involved in facilitating the processes of the re-use and recovery of waste electrical and electronic equipment through the organisation of collection activities and the use of appropriate planning arrangements.
- Unauthorised disposal of waste electrical and electronic equipment is punishable by law with appropriate penalties.

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