# Combitronic operating guide Technical description

# Combitronic CT03C, CT03M, CT05C, CT05M Standard and Deluxe versions



Eberspächer

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# Concept of this Manual

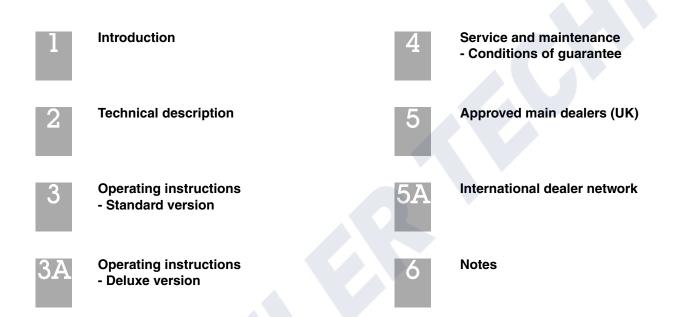
This manual aims to provide all the necessary information to assist with the operation of Eberspächer Combitronic CT03C, CT03M, CT05C, CT05M heaters.

The manual also includes warranty and technical information for future reference.

This manual has been divided into chapters for quick and easy reference as listed below.

# Please Note!

Additional safety and statutory information is to be found within the technical description and operating instruction manuals that accompany this manual. If you require information specific to your installation, which is not included in our manuals, please contact Eberspächer.





# Special Text Structure, Presentation and Picture Symbols

This manual uses special text structures and picture symbols to emphasise different contents. Please refer to the examples below for the corresponding meanings and associated actions.

#### **Picture Symbols**

# §

**Regulation!** 

This picture symbol with the remark "Regulation" refers to a statutory regulation. Failure to comply with this regulation results in expiry of the type of permit for the heater and preclusion of any Guarantee and liability claims on J. Eberspächer GmbH & Co, KG.

# Danger!

This picture symbol with the remark "Danger!" refers to the risk of a fatal danger to life and limb. Failure to comply with these instructions can result in severe injuries or even death under certain circumstances.

# Caution!

This picture symbol with the remark "Caution!" refers to a dangerous situation for a person and/or the product. Failure to comply with these instructions can result in injury to people and/or damage to machinery.

## **Please Note!**

These remarks contain application recommendations and useful tips for installation of the heater.

# Safety Instructions for Installation and Operation!



- Only the control elements approved by Eberspächer must be used to operate the heater. The use of other control elements can cause malfunctions.
- Repairs by unauthorised third-parties or with non original spare parts, are dangerous and therefore not allowed.
- The following measures are not allowed:
  - Changes to components relevant to the heater;
  - Use of third party components not approved by Eberspächer;
  - Nonconformities in installation or operation from the statutory regulations, safety instructions or specifications relevant to safe operation, as stated in the installation instructions and operating instructions. This applies in particular to the electrical wiring, fuel supply, combustion air system and exhaust system.
- Only original accessories and original spare parts must be used during installation or repairs.
- When carrying out electric welding, the battery should be disconnected to protect the controller.
- The heater must not be operated where there is a risk of an accumulation of flammable vapours or dust.
- The battery isolator switch must not be turned off until the heater has completed its cooling cycle.
- The heater must be switched off when refuelling.



Please read carefully the following instructions, these have been compiled to assist you with every aspect of operating your heater. Special attention is required to the Safety or Caution areas, which are found at the end of each section.

To ensure maximum performance from your heater and for your own safety, please adhere to the following instructions closely, being aware that in the unlikely event of a heater failure during the warranty period, that warranty may be rejected if the heater is not installed or operated in accordance with these instructions.

When installing the heater, for your own safety, please use all necessary personal protection/safety equipment where required.



# Technical description

The Combitronic range of heaters are diesel fuelled blown hot air and hot water heating systems. With varying outputs, control options and 230v AC devices there will be a product within the range to suit your vehicles needs.

The model type is specified by code and is explained as follows:

| СТ | Refers to Combitronic.   |
|----|--|
| 03 | 3.5kW maximum output at 0°C for<br>accomodation heating.               |
| 05 | 5.0kW maximum output at 0°C for<br>accomodation heating.               |
| М  | Modular version for internal mounting.                                 |
| С  | Compact version for external mounting.                                 |
| S  | Standard controls with mode selection and dial temperature control.    |
| D  | Deluxe controls with 230v air heating and full function control panel. |

Therefore, a CT05CD is a 5kW blown air system with an additional 230v AC blown air function using the Deluxe control interface.

All heaters in the range offer the latest PWM technology for smooth fan control with high efficiency heat exchangers for fast heat-up times of the vehicle interior and hot water.

Typically, hot water will be achieved after approximately 15 minutes with a recovery time of 10 minutes.

To choose the correct system for your vehicle, the CT03 range is designed for vehicles up to 5.5 metres, the CT05 should be used for vehicles were the length exceeds 5.5 metres.

All Combitronic heaters can be used while stationary or on the move, providing an adequate supply of diesel and DC electrical power is available.

## **Technical Specification**

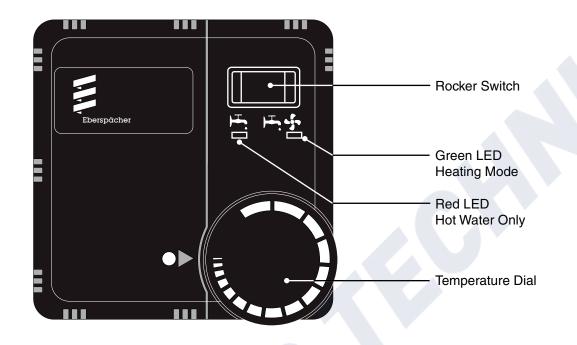
|  | СТОЗ  | CT03 - D | СТ05  | CT05 - D |
|--|-------|----------|-------|----------|
| Air Heating Output (W)                 |       |          |       |          |
| Diesel (maximum)                       | 3,500 | 3,500    | 5,000 | 5,000    |
| Mains 230v (maximum)                   | -     | 1,500    | -     | 1,800    |
| Air Heating Output (W)                 |       |          |       |          |
| Diesel (minimum)                       | 500   | 500      | 800   | 800      |
| Mains 230v (minimum)                   | -     | 500      | -     | 800      |
| Water Heating Output (W)               |       |          |       |          |
| Diesel (maximum)                       | 1,000 | 1,000    | 1,000 | 1,000    |
| Mains 230v (maximum)                   | 1,000 | 1,000    | 1,000 | 1,000    |
| Fuel Consumption (I/hr)                |       |          |       |          |
| Minimum                                | 0.1   | 0.1      | 0.1   | 0.1      |
| Maximum                                | 0.62  | 0.62     | 0.62  | 0.62     |
| Electrical Power Consumption (W)       |       |          |       |          |
| Minimum                                | 23    | 23       | 28    | 28       |
| Maximum                                | 85    | 85       | 106   | 106      |
| Electrical Power Consumption (W)       |       |          |       |          |
| At start                               | 100   | 100      | 100   | 100      |
| Fan Air Throughput (m <sup>3</sup> /h) |       |          |       |          |
| Minimum                                | 50    | 50       | 80    | 80       |
| Maximum                                | 280   | 280      | 460   | 460      |

Technical data is based on zero restrictions.

# 3 Operating instructions



#### Standard Version



#### **To Start Heating Hot Water Only**

Press the rocker switch to the left position.

The red LED will illuminate.

The Combitronic will commence its start cycle and provide heating to the water system. After approximately 15 minutes the thermostat in the water tank will switch off the Combitronic until either the water cools or is used.

The red LED will remain illuminated at all times.

#### **To Start Heating and Hot Water**

Press the rocker switch to the right position.

The red and green LED's will illuminate.

The Combitronic will commence its start cycle and provide heating to the hot water system.

Once the system has reached 35°C the main heating fan will briefly start at full speed then reduce to a low setting.

A gradual increase in fan speed will commence until the set temperature has been achieved.

The fan will now regulate in smooth stepless modulation phases to maintain the set temperature.

Both the red and green LED's will remain illuminated at all times.

#### **Adjusting Set Temperature**

The temperature dial should be set at a half way point for initial operation.

Small adjustments should be made to increase or decrease the set temperature.

Allow several minutes for temperature stabalisation before readjusting.

#### Switching the System Off

Press the rocker switch to the central position.

All LED's will be off.

The main heating fan will switch off and the Combitronic will commence its 3 minute shut down cycle.

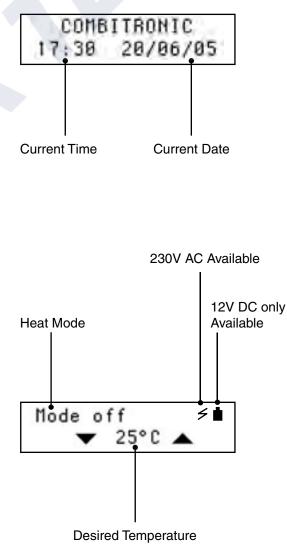
## Please Note!

All functions can be used whilst stationary or on the move.

# **3A** Operating instructions - Deluxe









# Operating instructions - Deluxe



## To Turn Panel On / Off

Press and hold  $\bigcirc$  for 2 seconds. The panel will be switched on or off in turn.

The panel uses minimal electrical power and may be left on, however, turning the panel off will avoid any accidental key presses.

# Toggle Display

The "Combitronic Screen" displays the current time and date. Press the  $\checkmark$  key and the display will change to the "Mode Screen". Now the heating mode, power source and desired temperature will be displayed.

After 30 seconds the display will revert back to the "Combitronic Screen".

## To Start Heating (Hot Water Only)

Press F, the red indicator will illuminate.

Using diesel fuel or 230V AC, the domestic water will start to heat up. This process should take between 10 and 15 minutes from cold. Once hot an integral thermostat will monitor the water temperature and reheat when required.

## **To Start Heating (Accommodation)**

Press <u>III</u> the red indicator will illuminate. If using diesel, the hot water indicator will also illuminate.

The heat exchangers within the Combitronic begin to preheat and therefore a delay should be expected before the heating fan begins to convey warm air to the outlets.

Using diesel fuel, mains or both, the Combitronic will begin to heat the accommodation to the temperature selected. As set point approaches the fan will begin its regulation phase until the desired temperature has been reached.

## To Stop Heating (Hot Water Only)

Press F, the red indicator will go off.

The Combitronic will cease heating the hot water.

## To Stop Heating (Accommodation)

Press <u></u>, the red indicator will go off.

After a short cool down cycle, the Combitronic will cease heating the accommodation.

#### **Adjusting the Desired Temperature**

While in either the Combitronic or Mode screen, press either • or •. The desired temperature is adjusted by one degree higher or lower.

## **Setting the Hot Water Mode**

Press ⑦ to enter the "Settings Menu". Press until "Water Mode" is displayed. Press . Use the or key to toggle between the three hot water modes.

Diesel Uses only diesel fuel to heat the domestic hot water.
230V Uses only the 230V AC mains hook up to heat the domestic hot water.
Auto Uses both diesel fuel and 230V AC for faster warm up of the domestic hot water.

Press 🚽 to exit.

Caution!

Auto and 230V mode should not be selected if the domestic water system has been drained.

## **Setting the Heating Mode**

Press ⑦ to enter the "Settings Menu". Press until "Heat Mode" is displayed. Press u. Use the or key to toggle between the three heating modes.

| Diesel | Uses only diesel fuel to heat the accommodation.                                 |
|--------|--|
| 230V   | Uses only the 230V AC mains hook up to heat the accommodation.                   |
| Auto   | Uses both diesel fuel and 230V<br>AC for faster warm up of the<br>accommodation. |

Press 🚽 to exit.

# Please Note!

In 230V AC mode, only 1500W of heat will be available.



# A Operating instructions - Deluxe

#### **Economy Mode**

Ideal as a night time mode, the economy mode turns off the diesel heating and uses mains only to try to maintain the desired temperature.

The reduced heating power may make it impossible to reach the desired temperature, however, a comfortable level of background heating will be provided.

Press @, the red indicator will illuminate.

## **Please Note!**

The Economy Mode is a MAINS ONLY FUNCTION.

#### **Frost Mode**

Should the internal temperature fall to 0°C or less the Combitronic will operate. The internal temperature will be kept above 5°C and the hot water heated periodically to prevent it freezing.

Press 🌸 , the red indicator will illuminate.

## **Please Note!**

The Frost Mode is a MAINS ONLY FUNCTION.



230V AC must be available and this mode should only be used if the domestic water system has not been drained.

## **Setting the Current Time**

Press ⑦ to enter the "Settings Menu".

Press 🚽 .

Use the  $\checkmark$  or  $\checkmark$  key until "Time Set" appears on the display.

Press 🚽 .

Use the 🔺 or 🕶 to toggle 12 / 24 hour clock mode.

Press 🚽 .

Use the  $\blacktriangle$  or  $\checkmark$  to toggle hours.

Press 🚽 .

Use the  $\blacktriangle$  or  $\blacktriangledown$  to toggle minutes.

Press 🚽 to exit.

# Setting the Current Date

Press ⑦ to enter the "Settings Menu".

Press 🚽 .

Use the  $\blacktriangle$  or  $\blacktriangledown$  key until "Date Set" appears on the display.

Press 📣 .

Use the 🔺 or 🖛 to adjust the day of the week.

Press 🚽 .

Use the 🔺 or 🔻 to adjust the month.

Press 🚽 .

Use the 🔺 or 🕶 to adjust the calendar day.

Press 🚽 .

Use the 🔺 or 🕶 to adjust the year.

Press 🚽 to exit.

#### Setting the Timer

Press ⑦ to enter the "Settings Menu".

Press 🚽 .

Use the  $\blacktriangle$  or  $\checkmark$  key until "Timer Set" appears on the display.

Press 🚽 .

Use the  $\blacktriangle$  or  $\checkmark$  to adjust the Time ON hours.

Press 🚽 .

Use the  $\blacktriangle$  or  $\checkmark$  to adjust the Time ON minutes.

Press 🚽 .

Use the  $\blacktriangle$  or  $\checkmark$  to adjust the Time OFF hours.

Press 🚽 .

Use the  $\blacktriangle$  or  $\checkmark$  to adjust the Time OFF minutes.

Press 🚽 to exit.



# Operating instructions - Deluxe



#### **Activating the Timer**

Press (), the red indicator will illuminate.

Select heating, hot water or both using 💹 🚝.

The heating will now operate at the pre set times.

To stop the timer function press ().

## **Setting the Alarm Time**

Press (?) to enter the "Settings Menu".

Press 🚽 .

Use the 🛋 or 🔝 key until "Alarm Set" appears on the display.

Press 🚽 .

Use the 🗻 or 🐨 to adjust the hours.

Press 🚽 .

Use the 👗 or 👻 to adjust the minutes.

Press 🚽 to exit.

#### Activating the Alarm

Press 🔔 the red indicator will illuminate.

When the current time is the same as the alarm time, the alarm will sound.

To stop the alarm, press any key.

The red indicator will go out.

## Turning the Button Beeps On / Off

Press (?) to enter the "Settings Menu".

Press 🚽 .

Use the  $\checkmark$  or  $\checkmark$  key until "Button Beeps" appears on the display.

Press 🚽 .

Use the 🔺 or 🕶 to select on or off.

Press 🚽 to exit.

#### Changing the Display Settings - Contrast / Brightness

Press ⑦ to enter the "Settings Menu".

Press 🚽 .

Use the  $\blacktriangle$  or  $\blacktriangledown$  key until "Display" appears on the display.

Press 🚽 .

Use the  $\blacktriangle$  or  $\blacklozenge$  key until "Contrast" appears on the display.

Press 🚽 .

Press and HOLD the  $\checkmark$  or  $\checkmark$  key to adjust the display contrast.

Press 🚽 to exit.

#### Changing the Display Settings - Backlight Time Delay

The Backlight time delay is the amount of time that the screen will remain illuminated after any button press.

Press 🕐 to enter the "Settings Menu".

Press 🚽 .

Use the  $\checkmark$  or  $\checkmark$  key until "Display" appears on the display.

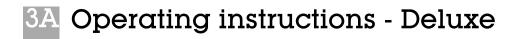
Press 🚽 .

Use the  $\blacktriangle$  or  $\checkmark$  key until "Backlight" appears on the display.

Press 🚽 .

Use the  $\blacktriangle$  or  $\checkmark$  key to adjust the delay between 15 seconds, 30 seconds, 1 minute and 2 minutes.

Press 🤳 to exit.



#### Changing the Display Settings – Timeout Delay

The Timeout delay is the amount of time before the display reverts back to the "Combitronic Screen".

Press (?) to enter the "Settings Menu".

Press 🚽 .

Use the  $\blacktriangle$  or  $\blacktriangledown$  key until "Display" appears on the display.

Press 🚽 .

Use the  $\blacktriangle$  or  $\clubsuit$  key until "Timeout" appears on the display.

Press 🚽 .

Use the a or v key to adjust the delay between Never, 30 seconds, 1 minute and 3 minutes.

Press 🚽 to exit.

#### **Draining the Domestic Water from the Panel**

An optional valve can be installed by your motorhome or Eberspächer dealer that will allow the domestic water to be drained from the panel.

Ensure the water pump is switched on.

Press ⑦ to enter the "Settings Menu".

Press 🚽 .

Use the  $\checkmark$  or  $\checkmark$  key until "Purge" appears on the display.

Press 🚽 .

Press and HOLD A key to open the drain valve.

Keep the button pressed until the sound from the pump changes.

Press 🚽 to exit.

# 4 Service and maintenance



Eberspächer recommend the Combitronic should be serviced every 12 months.

It is also advisable to operate the system every few months to prevent seizure of moving parts.

Eberspächer will cover parts and labour during the warranty period. Eberspächer will not cover wear and tear items such as fuses and filters or dealer / customer travel costs (see Conditions of Guarantee).

The ignition glow pin will be covered under warranty for a period of twelve months.

# Eberspächer (UK) Ltd. Conditions of Guarantee for Eberspächer Heaters

Eberspächer (UK) Limited guarantee their heaters and associated parts for a period of twelve months to include parts and labour. The period of guarantee starts with the date of original purchase, the date of installing the heater into an original equipment machine or the date which the new vehicle is registered, licensed or placed in service. Glow pins carry a twelve month guarantee.

Guarantee will be honoured only if the installation has been carried out according to the Eberspächer instructions in force at the time and that the installation is carried out by an authorised Eberspächer distributor/ dealer or recognised original equipment manufacturer or their agent. It is appreciated that to assist with warranty records the guarantee material enclosed with each heater is completed and copies returned to Eberspächer (UK) Limited for completion of internal records.

Heater and parts guarantee is conditional on the appliance being used only in those conditions for which it was originally designed and will not take account of problems experienced through a shortage of D.C. electrical power, fuel or disregard to the installation or operating instructions.

The guarantee covers exclusively only those parts of delivery by Eberspächer (UK) Limited.

Change of ownership of the appliance does not affect

the guarantee obligation. These obligations do not exist, however when the fault originally developed was connected with:

- A user or customer not having given notice at once that a fault had developed and providing Eberspächer (UK) Limited or their distributors/ dealers the opportunity of rectification.
- Failure of the unit through fair wear and tear applying primarily to fuses.
- Failure of the appliance through abuse, unreasonable treatment or the use for which the appliance was not designed.
- Installation of parts into or in conjunction with the appliance which are not approved or sanctioned by the manufacturer or his distributors/dealers and agents.
- Changes in the appliance in a way which the manufacture has not agreed or sanctioned.
- Installation faults which conflict with Eberspächer (UK) Limited specifications.

Please note the guarantee does not cover fair wear and tear and no liability will be accepted for defects caused or service required through such use.

The information detailed within our conditions of guarantee does not effect your statutory rights.

# 5 Approved main dealers (UK)

| Southern England            | Company Address   | Phone                              |                           |
|-----------------------------|---|------------------------------------|---------------------------|
| Bedfordshire /<br>N. London | Auto Electrical Services Ltd<br>Harmill Industrial Estate, Grovebury Road, Leighton Buzzard                   | (01525) 372 330                    | Vehicle/marine specialist |
| Berkshire                   | Thames Valley Electro Diesel (Reading) Ltd,<br>Unit 5, Hyperion Way, Rose Kiln Lane, Reading                  | (01189) 751 199                    | Vehicle/marine specialist |
| Buckinghamshire /<br>Thames | Espar Ltd<br>Harleyford Marina, Harleyford, Marlow  | (01628) 471 368                    | Vehicle/marine specialist |
| Hampshire / Dorset          | Krueger (New Milton) Ltd<br>16 Queensway, Stem Lane Industrial Estate, New Milton<br>Krueger (Portsmouth) Ltd | (01425) 619 869<br>(02392) 665 005 | Vehicle/marine specialist |
|                             | Unit 2, Venture Lane Industrial Estate, Limberline Road,<br>Hilsea, Portsmouth                                | (02392) 699 059                    |                           |
| Kent                        | South Eastern Auto Electrical (Maidstone) Ltd<br>Wharf Road, Tovil, Maidstone                                 | (01622) 690 010                    | Vehicle/marine specialist |
|                             | South Eastern Auto Electrical Services (Erith) Ltd<br>Unit 26, Manford Industrial Estate, Erith               | (01322) 342 277                    | Vehicle/marine specialist |
| S.E. London                 | A23 Engineering<br>Unit 8, Blackheath Business Centre, 87B Blackheath Hill,                                   | (0208) 469 4033                    | Vehicle specialist        |
|                             | London  |                                    |                           |
| W. London                   | Lunalectric Ltd<br>Unit 11, Elder Way, Waterside Drive, Langley   | (01753) 544 118                    | Vehicle specialist        |
| Surrey                      | Reader Air Conditioning<br>Unit 3, Boundary Business Park, Boundary Way, Woking                               | (01483) 726 300                    | Vehicle specialist        |
|                             | Transport Maintenance<br>Wood Street Service Station, Wood Street Village, Guildford                          | (01483) 235 401                    | Vehicle specialist        |
| Sussex                      | F. M. E<br>The Boatyard, Brighton Marina, Brighton<br>F. M. E   | (01273) 601 779                    | Marine specialist         |
|                             | Sovereign Harbour Marina, Pevensey Bay Road, Eastbourne   | (01323) 470 211                    | Marine specialist         |
| Midlands<br>Cambridgeshire  | C F Parkinson (Peterborough) Ltd  | (01733) 311 222                    | Vehicle specialist        |
| Cambridgeshire              | Vicarage Farm Road, Peterborough  | (01755) 511 222                    |                           |
| Derbyshire                  | Derby Auto Electrical Services<br>11 Canal Street, Derby  | (01332) 203 592                    | Vehicle specialist        |
| Herefordshire               | Lucas Service (Hereford) UK Ltd<br>Mortimer Road, Hereford  | (01432) 267 678                    | Vehicle specialist        |
| Leicestershire              | Electromotive Components Ltd<br>39 Barbara Ave, Leicester   | (07831) 685 585                    | Vehicle specialist        |
| Lincolnshire                | <b>C F Parkinson (Boston) Ltd</b><br>Marsh Lane, Riverside Industrial Est, Boston                             | (01205) 363 008                    | Vehicle specialist        |
|                             | C F Parkinson (Lincoln) Ltd<br>Outer Circle Road, Lincoln   | (01522) 530 176                    | Vehicle specialist        |
| Nottinghamshire             | C F Parkinson (Mansfield) Ltd<br>176 Nottingham Road, Mansfield   | (01623) 625 682                    | Vehicle specialist        |
|                             | C F Parkinson (Newark) Ltd<br>Brunel Drive, Northern Industrial Estate, Newark                                | (01636) 672 631                    | Vehicle specialist        |
|                             | C F Parkinson (Nottingham) Ltd<br>80 Castle Boulevard, Nottingham   | (0115) 947 6624                    | Vehicle specialist        |
| Northamptonshire            | Northampton Diesel & Electrical Services<br>25-29 Gambrel Road, Northampton                                   | (01604) 755 321                    | Vehicle specialist        |
| Shropshire                  | <b>CPC Auto Electrics</b><br>Sommerfield Road, Trench Lock 3, Trench, Telford                                 | (01952) 249 832                    | Vehicle specialist        |
| Staffordshire               | H Bowers Ltd<br>Normacot Road, Longton, Stoke-on-Trent  | (01782) 599 990                    | Vehicle/marine specialist |
| Cannock                     | J D Boat Services<br>The Wharf, Watling Street, Gailey  | (01902) 791 811                    | Marine only               |
| Warwickshire                | Carwood Motor Units Ltd<br>Herald Way, Binley, Coventry   | (024) 764 49 533                   | Vehicle specialist        |

# 5 Approved main dealers (UK)



| Midlands            | Company Address  | Phone                |                           |
|---------------------|--|----------------------|---------------------------|
| West Midlands       | Carwood Motor Units Ltd<br>Units 3-4, Willow Ct. Smethwick, Birmingham                                       | (0121) 552 9524      | Vehicle specialist        |
|                     | Lucas Tipton   | (0121) 557 9601      | Vehicle specialist        |
|                     | Unit 23, Coneygre Industrial Estate, Birmingham New Road,  |                      |                           |
| Northern England    | Tipton   |                      |                           |
| Cheshire / N. Wales | T.C.L  | (0151) 355 2101      | Vehicle/marine specialist |
|                     | Rossfield Road, Rossmore Trading Estate, Ellesmere Port  |                      |                           |
| Cumbria             | Cumbria Auto Electrical Services Ltd<br>Kingstown Broadway, Kingstown Trading Estate, Carlisle               | (01228) 531 707      | Vehicle/marine specialist |
| Greater Manchester  | <b>A.E.S. (Manchester) Limited</b><br>16 Huntsman Drive, Northbank Industrial Estate, Irlam,                 | (0161) 777 6262      | Vehicle/marine specialist |
|                     | Manchester   |                      |                           |
|                     | PF Jones (Diesel Services) Ltd<br>Nuttall St, Old Trafford, Manchester                                       | (0161) 872 4755      | Vehicle specialist        |
| Lancashire          | Ribblesdale Auto Electrics Ltd<br>Marsh Lane, Preston  | (01772) 555 011      | Vehicle/marine specialist |
| North Yorkshire     | Yortec (York)<br>58 Layerthorpe, York  | (01904) 654 513      | Vehicle specialist        |
| South Humberside    | <b>C F Parkinson (Grimsby) Ltd</b><br>Estate Road Number 1, South Humberside Industrial Estate,<br>Grimsby   | (01472) 358 758      | Vehicle specialist        |
| South Yorkshire     | Sheffield Tachograph and Tail Lift Services Ltd<br>Unit 4, Thornhill Industrial Park, Hope Street, Rotherham | (01709) 839<br>000/1 | Vehicle specialist        |
|                     | Lucas Service (Doncaster) UK Ltd<br>Unit 9, Ten Pound Walk, Doncaster  | (01302) 342 194      | Vehicle specialist        |
| Teeside             | Auto Electrics (Teesside) Ltd<br>Thornaby House, Thornaby Place, Thornaby                                    | (01642) 607 901      | Vehicle specialist        |
| Tyne and Wear       | Thursby Automotive Electrical Services<br>Rutland Street, Sunderland   | (0191) 565 8734      | Vehicle specialist        |
|                     | Auto Electrical Solutions<br>Hay Street, Sheepfold Ind Estate, Sunderland                                    | (0191) 567 4040      | Vehicle specialist        |
| West Yorkshire      | Automotive Electrical Ltd<br>Hopton Works, Station Road, Mirfield  | (01924) 495<br>726/7 | Vehicle/marine specialist |
| Cambridgeshire      | Lucas Service (Cambridge) UK Ltd<br>150 Cowley Rd Businness Park, Cowley Rd                                  | (01223) 315 931      | Vehicle specialist        |
| East Anglia         |  |                      |                           |
| Essex               | Colchester Fuel Injection Ltd<br>Haven Road, Colchester  | (01206) 862 049      | Vehicle/marine specialist |
| Norfolk             | Panks Auto Electrical<br>15 Heigham Street, Norwich  | (01603) 629 967      | Vehicle/marine specialist |
| Suffolk             | Lucas Service (Ipswich) UK Ltd<br>No. 7 Arkwright Road, Hadleigh Road Industrial Estate,<br>Ipswich          | (01473) 215 931      | Vehicle specialist        |
| South West England  | · ·  |                      |                           |
| Avon                | Halls Auto Electrical Limited<br>Unit 16, Dean Road, Great Western Business Park, Yate                       | (01454) 319 722      | Vehicle/marine specialist |
|                     | Lucas Service (Bristol) UK Ltd<br>Short Street, Bristol  | (0117) 977 0772      | Vehicle specialist        |
| Devon / Cornwall    | <b>Espar Limited</b><br>Eastern Hanger, Plymouth Yacht Haven, Mount Batten,<br>Plymouth                      | (01752) 491 900      | Vehicle/marine Specialist |
| Gloucestershire     | Lucas Service (Gloucester) UK Ltd<br>Sparrows Wharf, Bristol Road, Gloucester                                | (01452) 524 951      | Vehicle specialist        |
| Somerset            | Hickley Valtone<br>Castle Street, Tangier, Taunton   | (01823) 328 600      | Vehicle/marine specialist |
| Wiltshire           | Masons<br>Unit 6 - 14, Windmill Farm, Common Hill, Cricklade, Swindon  | (01793) 752 697      | Vehicle specialist        |

# 5 Approved main dealers (UK)

| Scotland         | Company Address   | Phone                  |                           |
|------------------|---|------------------------|---------------------------|
| Ayrshire         | DDZ Marine Ltd<br>Largs Yacht Haven, Irvine Rd, Largs                                   | (01475) 686 072        | Vehicle/marine specialist |
| Grampian         | Turner Diesel Ltd<br>Unit 1a, Dyce Industrial Park, Dyce, Aberdeen                      | (01224) 723 925        | Vehicle/marine specialist |
| Highland         | Caley Marina<br>Canal Road, Muirtown, Inverness   | (01463) 236 539        | Vehicle/marine specialist |
|                  | Lucas Service (Inverness) (UK) Ltd<br>Unit 5, 17 Harbour Road, Longman South, Inverness | (01463) 224 855        | Vehicle specialist        |
| Lothian          | Fulton Auto Electrics<br>15 West Bowling, Green St, Edinburgh                           | (0131) 555 0396        | Vehicle/marine specialist |
| Wales            |   |                        |                           |
| Glamorgan        | Tanner Electrics           Whittle Road, Leckwith Industrial Estate, Cardiff            | (029) 202 25 580       | Vehicle/marine specialist |
| Gwynedd          | Lucas Service (Caernarfon) UK Ltd<br>South Road, Caernarfon                             | (01286) 672 888        | Vehicle specialist        |
| Powys            | Grooms Industries<br>Pool Road, Newtown   | (01686) 626 731        | Vehicle specialist        |
| South Glamorgan  | Lucas Service (Cardiff) UK Ltd<br>Unit 2c, Glynstell Close, Hadfield Road, Cardiff      | (029) 202 28 361       | Vehicle specialist        |
| West Glamorgan   | Shorts Auto Electrical (Swansea)<br>43-49 Station Road, Landore, Swansea                | (01792) 469 595        | Vehicle/marine specialist |
| Eire             |   |                        |                           |
| Dublin           | Balinllough Refrigeration<br>M50 Busines Park, Ballymount Avenue, Dublin 12             | (00353) 146 0322       | Vehicle specialist        |
|                  | Metalcove Marine Ltd<br>2 Pembroke Street, Off Irishtown Road, Dublin                   | (00353) 166 86<br>046  | Marine only               |
| Naas             | Coldchain<br>Maudlins Industrial Estate, Naas   | (00353) 458 74<br>788  | Vehicle specialist        |
| Co. Clare        | Shannon Castle<br>Williamstown Harbour, Whitegate                                       | (00353) 619 27<br>042  | Marine specialist         |
| Co. Cork         | Union Chandlery Ltd<br>4-5 Penrose Quay, Cork   | (00353) 214 554<br>334 | Marine specialist         |
| Northern Ireland |   |                        |                           |
| Belfast          | <b>C J Collins</b><br>4 Ballymena Road, Doagh, Ballyclare                               | (028) 933 52 556       | Vehicle/marine specialist |
| Channel Islands  |   |                        |                           |
| Guernsey         | Island Marine<br>Griffiths Yard, Rue Du Chateau, Northside, Vale                        | (01481) 294 294        | Marine specialist         |
| Jersey           | Express Electrix Ltd<br>Lucas House, Tunnell Street, St Helier                          | (01534) 880 660        | Vehicle/marine specialist |

# 5A International dealer network



#### Argentina

Trimer S.A. P.O. Box 1772 RA - 1425 Buenos Aires Phone (11) 47 77 45 77 Fax (11) 47 77 45 88 trimer@trimer.com.ar

#### Austria

Eberspächer Ges. m. b. H. Richard-Strauss-Str. 4 A-1232 Wien Phone (1) 6 16 16 46 Fax (1) 6 16 16 46 42 E-Mail: verkauf@eberspaecher.vienna.at

#### **Belgium and Luxembourg**

Eberca bvba Researchpark Haasrode Esperantolaan 2 B - 3001 Leuven-Haasrode Phone + 32 (0) 16 40 25 00 Fax + 32 (0) 16 40 05 15 E-Mail sales@eberspaecher.be

Bosnia-Herzegovina & Macedonia >> See Eberspächer Austria

#### Byelorussia

**ZÃO Belvneshinvest** per.1-yj Izmajlowskij, 51/2 BY-220131 Minsk Phone (01 72) 62 40 75, 37 14 37, 37 14 04 Fax (0172) 62 40 75 E-Mail: bvi@belpak.bv

#### Canada and USA

Espar Products Inc. 6435 Kestrel Road CDN-Mississauga, Ontario L5T 128 Phone (9 05) 670 09 60 Fax (9 05) 6 70 07 28

#### Chile

NAUTICENTRO LTDA. Tomas Moro 135 Las Condes - Santiago Phone (02) 201 49 66 Fax (02) 201 56 35

#### China

J. Eberspaecher GmbH Co. KG Beijing Representative Office Unit 0710 Landmark Tower 2 8 North Dongsanhuan Road, Chaoyang District Beijing 100004, PRC Phone: (0086) 10-65 90 04 78 Fax: (0086) 10-65 90 05 76 Email: eberspaecher@sina.com

#### Croatia

Termobil d.o.o Kukuljanovo 66 HR - 51223 ·krljevo Tel. (51) 25 19 35 Fax (51) 25 13 34

#### **Czech Republic**

**Eberspächer spol.sr.o.** Jeremiásova 870 - areál IPS CZ-15543 Praha 5 Phone 0042/235 520 548-50 Fax 0042/235 520 537

#### **Denmark and Iceland**

**Robert Bosch A/S.** Telegrafvej 1 DK-2750 Ballerup Phone (44) 89 89 89 Fax (44) 89 86 80

#### Estonia

Hesyco Group OÜ Mäo 72752 Järvamaa Tel.: (38) 48 890/891 Fax: (38) 48 892

#### Finland

Wihuri Oy Autola Manttaalitie 9 FIN-01510 Vantaa Phone (09) 82 58 51 Fax (09) 82 58 52 07

#### France

Eberspächer S.A.S. Z.A.C. la Clé Saint Pierre 3, rue Blaise Pascal F-78996 Elancourt Cedex Phone (01) 30 68 54 54 Fax (01) 30 68 54 55

#### Greece

Marconi Hellas S.A. 15 Karaoli & Souliou Str. GR-14343 N.Halkidona - Athens Phone (210) 2520996 Fax (210) 2528854 E-Mail: marconihellas@in.gr

#### Hungary

Austropannon KFT Fö u. 96 H-9081 Györujbarat Phone (96) 5 43 333 Fax (96) 45 64 81 E-Mail: austropannon@matavnet.hu

#### Iran

Overseas Techno Trading Co. Import Export & Technical Consultancy No: 16 Third St. KHALED ESTOMBOLI Ave. Theran IRAN Phone 0098 - 218720951 Fax 0098 - 218712576

#### Italy

**Ofira Italiana SpA.** Via Eritrea 20 F I-25126 Brescia Phone (0 30) 37 93 - 1 Fax (0 30) 4 51 88

#### Latvia

TransBaltic Trading Corp. Maskavas iela 449 LV-1063 Riga Phone (7) 26 63 23 Fax (7) 18 79 67

#### Lithuania UAB Leopolis

**UAB Leopolis** Paneriu 51 LT-2055 Vilnius Phone (2) 63 44 30 Fax (2) 23 35 37

#### Moldova

**TC - IUSTINIAN** 140 Hinchesti Str., of. 9 MD-2070 Kishinev Republik Moldova Phone (03732) 727883, 738710 Fax (03732) 727883

#### Netherlands

Eberca b.v. Benjamin Franklinstraat 10 NL-3261 L.W. Oud- Beijerland Phone (0 18 66) 2 19 55 Fax (0 18 66) 2 18 18 E-Mail: info@eberca.nl

#### Norway

Robert Bosch Norge A/S Trollasveien 8 N-1414 Trollasen Phone (66) 81 70 00 Fax (66) 80 63 27

Poland Eberspaecher Sp. zo. o. Wysogotowo k. Poznania ul. Okrezna 17 PL-62 081 Przezmierowo Phone (0 61) 81 61 850 Fax (0 61) 81 61 860

Rumania >> See Eberspächer Austria

#### Russia

Company OKMA ul. Verchnaya Krasnoseljskaya, 2 RUS-107140 Moskau Phone (0 95) 9 37 59 79 Phone (0 95) 2 64 02 66 Phone (0 95) 2 64 46 65 Fax (0 95) 9 37 59 79

## Slovakian Republic

Molpir spol.s.r.o. SNP 129 SK - 91904 Smolenice Phone (07) 431 91 218 Fax (07) 431 91 220

Slovenia

**Prebil d.o.o.** Opekarska 14 SL - 1000 Ljubljana Tel. (01) 2 83 87 65 Fax (01) 2 83 87 77

#### Spain and Portugal Pedro Sanz Clima S.L.

Avda. Ingeniero Alfonso Peña Boeuf, 10 E-28022 Madrid Phone (91) 7 48 07 85 Fax (91) 3 29 42 31

#### Sweden

Svenska Eberspächer AB Flygfältsgatan 10 S-12823 Skarpnäck Phone (08) 683 11 00 Fax (08) 7 24 90 40

#### Switzerland

**Technomag AG** Sternenfeldstraße 17 CH-4127 Birsfelden Phone (0 61) 3 78 91 51 Fax (0 61) 3 73 35 90

#### Turkey

Acsa Otomotiv San.Tic.Ltd. Org. Sanayi Sitesi Dolapdere Koop. 3 Ada No. 2 TR-Ikitelli / Istanbul Phone (0212) 549 86 31, 549 73 14 Fax (0212) 549 33 47

#### Ukraine

GERUK & K ul. Vernigory 15 UA 257008 Tscherkassy Phone (04 72) 63 87 47 Fax (04 72) 63 87 47

USA >> see Canada





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