# 3571-0100 IFLEX User Guide

**BOSCH**

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## CONTENTS

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# Introduction

This product is intended for the use of automotive manufacturers and automotive component manufactures in the area accessible only to skilled persons and trained persons with the proper authorization.

The IFLEX portable device provides computing resources, industry standard wireless network connectivity and industry standard vehicle communication interfaces compatible with modern vehicle off-board communication interfaces.

The IFLEX product range is targeted at medium to high volume manufacture of vehicle and vehicle sub-assemblies.  The principal operations of the device are to identify the vehicle's target configuration, select and download the appropriate programming data, program the vehicle components, then test the vehicle's electrical functionality.  Test results are stored and made available for upload to the host network. Other use cases include diagnostic rectification and vehicle dynamic test cells.

The IFLEX product supports the Grade-X application runtime environment and provides a standard Microsoft Windows environment for 3rd party application software and a standard D-PDU API interface for 3rd party vehicle communications software

Design emphasis is on performance, low power consumption and ergonomics enabling shorter cycle times, reduced electrical stress on vehicle power resources and reduced physical strain on users.  This leads to overall benefit in terms of increased productivity and reduced down-time

# IFLEX Unit Part Numbers

| Item number | Item name | VCI type | Cable Length | Type | Touch Screen |
|---|---|---|---|---|---|
| 3571-0100-31 | IFLEX Direct 1.5M Intrusive | None | 1.5M | Plus | Yes |
| 3571-0100-32 | IFLEX Direct  2.0M intrusive | None | 2.0M | Plus | Yes |
| 3571-0100-34 | IFLEX Direct 1.5M non Intrusive | None | 1.5M | Plus | Yes |
| 3571-0100-50 | IFLEX Plus TMVCI 1M Intrusive | Bosch DoIP | 1M | Plus | Yes |
| 3571-0100-51 | IFLEX Plus TMVCI 1.5M intrusive | Bosch DoIP | 1.5M | Plus | Yes |
| 3571-0100-52 | IFLEX Plus TMVCI 2M Intrusive | Bosch DoIP | 2.0M | Plus | Yes |
| 3571-0100-53 | IFLEX Plus TMVCI 1M non intrusive | Bosch DoIP | 1M | Plus | Yes |
| 3571-0100-54 | IFLEX Plus TMVCI 1.5M non intrusive | Bosch DoIP | 1.5M | Plus | Yes |
| 3571-0100-55 | IFLEX Plus TMVCI 2.0M non intrusive | Bosch DoIP | 2.0M | Plus | Yes |
| 3571-0100-56 | IFLEX Plus TMVCI J1939 | Bosch DoIP | 1.5M | Plus | Yes |
| 3571-0100-60 | IFLEX Std TMVCI 1M Intrusive | Bosch DoIP | 1M | Standard | No |
| 3571-0100-61 | IFLEX Std TMVCI 1.5M intrusive | Bosch DoIP | 1.5M | Standard | No |
| 3571-0100-62 | IFLEX Std TMVCI 2.0M intrusive | Bosch DoIP | 2.0M | Standard | No |
| 3571-0100-70 | IFLEX Plus GVCI 1M Intrusive | GVCI | 1M | Plus | Yes |
| 3571-0100-71 | IFLEX Plus GVCI 1.5M intrusive | GVCI | 1.5M | Plus | Yes |
| 3571-0100-72 | IFLEX Plus GVCI 2.0M intrusive | GVCI | 2.0M | Plus | Yes |
| 3571-0100-73 | IFLEX Plus GVCI 1M non intrusive | GVCI | 1M | Plus | Yes |
| 3571-0100-74 | IFLEX Plus GVCI 1.5M non intrusive | GVCI | 1.5M | Plus | Yes |
| 3571-0100-75 | IFLEX Plus GVCI 2.0M non intrusive | GVCI | 2.0M | Plus | Yes |
| 3571-0021-01 | IFLEX  Single Docking Station | | | | |

# Safety Notices

## How to identify Safety Notices

The safety alert symbol is used to identify safety information about hazards that can result in personal injury or damage to the product.

A signal word (DANGER, WARNING, CAUTION, and NOTICE) is used with the safety alert symbol to indicate the likelihood and potential severity of injury or damage. In addition a hazard symbol may be used to represent the type of hazard.

> **DANGER**
> Indicates the presence of an imminient hazard that will result in serious personal injury or death if not avoided.

> **WARNING**
> Indicates the presence of a potentially hazardous situation that could result in minor personal injury or serious personal injury or death if not avoided

> **CAUTION**
> Indicates the presence of a hazard that could cause damage to the unit or, a vehicle or other equipment, or that might corrupt software if the hazard is not

## Important Safety Instructions

All users of this equipment must read and understand all safety notices. This equipment has been designed, manufactured and tested to meet the requirements of relevent international standards. However, as with any apparatus, care must be taken in its installation and use

> **WARNING**
> **DO NOT** Use the equipment outside the supplier specification.
> **DO** Use the equipment only as described in this manual. Only use manufacturer recommended attachments. Use of non-recommended parts may invalidate the equipment warranty.
> **DO** Use this equipment in accordance with the operating procedures. For further details on operating this equipment or any details relating to

> **WARNING**
> The Bosch IFLEX must not be operated by the driver of a moving vehicle.

> **WARNING**
> DO NOT Operate equipment with damaged cables, or if the equipment has been dropped or damaged, until the unit has been examined by qualified service personnel.
> DO NOT Remove any fixed covers unless you are authorised or qualified to do so for the preparation of this equipment.
> DO Switch the equipment off before carrying out maintenance and cleaning

> **WARNING**
> This is a Class A product. In a domestic environment this product may cause radio interference in which case you (the user) may be required to take adequate measures.This product has been designed and tested primarily for use in a commercial / light industrial environment. It has been tested for higher levels of RF field immunity up to those levels required for automotive products, BUT, in safety critical applications, its use in the proximity of the following operating devices must be avoided: mobile telephones, amateur radio, emergency services and CB transceivers, other forms of mobile radio communications, TV / radio broadcast and relay transmitters, radar transmitters and similar devices.The wireless LAN enabled

> **WARNING**
> To reduce the risk of electric shock, do not use on wet surfaces or expose to rain.

**CAUTION**
During intensive use it is recommended that operators wear lightweight nitrile coated cotton fabric gloves to improve overall handing comfort and safety.
The cable should not be used to carry the unit. During transportation and stowage, the cable should be wrapped around the unit in the grooves provided at each corner.  The DLC plug can be parked in the magnetic dock on either side of the unit.

**Warning**
To reduce the risk of fire, do not operate this equipment near open containers of flammable liquid (such as gasoline). Do not allow the product to operate below or within 400mm (18 inches) of garage floor level.

**CAUTION**
Button and Touch Screen
Avoid using sharp objects such as screwdriver or keys to activate the Touch Screen or keypads as this leads to rapid wear and early failure.

**CAUTION**
Magnets
The connector docking feature incorporates powerful magnets.  Care should be taken to avoid close proximity with magnetic media or other ferrous objects.  Media could suffer loss of data. Objects such as steel tools could be strongly attracted and cause pinch injury to unprotected skin.

**DANGER**
This product contains a Lithium-Ion battery pack and a Lithium cell.  Care should be taken not to damage, disassemble or use the battery pack or cells outside the recommended use case and maintenance methods.
Only genuine Bosch replacement battery packs and cells should be used.
End of life battery packs and Lithium cell should be disposed of in consideration of the environment and according to local regulations

**Li-ion**

**DANGER**
The product includes a class 2 laser light device as part of the barcode scanner feature.  Do not stare into the beam.  The laser is already adjusted to comply with safety regulations.
**Caution:**  Use of controls or adjustments or performance other than those recommended by the manufacturer may result in hazardous radiation exposure.
**Note:** This warning states that altering the inner parts or settings of the laser engine in a way not specified in the manufacturer's user guide may cause light levels to exceed the Class 2 limits.  This issue should not be encountered when using Bosch-approved service procedure, genuine parts and driver software from Bosch.

**CAUTION**
Connector Latch
Some models include a cable-mounted connector with a retaining latch feature. The release button must always be depressed to release the cable. Do not pull on the cable or use force to withdraw the connector as this can result in damage to the vehicle connector and the cable.

## Batteries

Genuine Bosch Lithium-Ion main battery replacements are available direct from Bosch.

Always use genuine replacements.  Bosch part number: 3571-0007-01

Refer to Service and Support section for the procedure for battery replacement.

The Lithium Coin cell is not user-replaceable.



## Charging

The IFLEX includes an internal battery charge regulator.  This operates in conjunction with dedicated AC powered charging accessories supplied by Bosch.  Only Bosch approved charging accessories should be used.

The IFLEX can also receive charging power from the vehicle directly through the DLC cable. When using the DLC cable, always ensure it is routed safely in such a manner that it will not interfere with safe operation of the vehicle functions. Take care not to trip on the cable when entering and exiting the vehicle.

It is not recommended to connect the DLC cable to a power source while the IFLEX is also connected to AC powered charging accessories.  No damage will result however the application software may not perform optimally under such conditions.

The type of battery used does not suffer from "memory effect" and does not need cyclic conditioning or specific pre-conditioning other than initial charging.  It is recommended to target the charge level around 30% to 70% for optimal battery pack life.

## Barcode scanner laser

The product includes a class 2 laser light device as part of the barcode scanner feature.  Do not stare into the beam.  The laser is already adjusted to comply with safety regulations.

**Caution:**  Use of controls or adjustments or performance other than those recommended by the manufacturer may result in hazardous radiation exposure.

**Note:** This warning states that altering the inner parts or settings of the laser engine in a way not specified in the user-guide may cause light levels to exceed the Class 2 limits.  This issue should not be encountered when using Bosch-approved service procedure, genuine parts and driver software from Bosch.

## Handling

During intensive use it is recommended that operators wear lightweight nitrile coated cotton fabric gloves to improve overall handing comfort and safety.

The cable should not be used to carry the unit. During transportation and stowage, the cable should be wrapped around the unit in the grooves provided at each corner.  The DLC plug can be parked in the magnetic dock on either side of the unit.

## Button and Touch Screen

Avoid using sharp objects such as screwdriver or keys to activate the Touch Screen or keypads as this leads to rapid wear and early failure.

## Magnets

The connector docking feature incorporates powerful magnets.  Care should be taken to avoid close proximity with magnetic media or other ferrous objects.  Media could suffer loss of data. Objects such as steel tools could be strongly attracted and cause pinch injury to unprotected skin.

## Fire prevention

During connection of the DLC plug to a power source, or docking of the unit onto the charging accessory, some electrical sparking can occur, this is to be expected. To avoid fire risk it is recommended not to connect or disconnect the equipment following a fuel spill or where combustible vapour may be present. As a further precaution, it is recommended that power connections and charging accessories should be installed maintained and used at least 500mm above floor or grade level.

The DLC cable connector is protected by a self-resetting overcurrent protection device.  In the event of a short circuit, the fuse will limit the current to protect the equipment.  Do not tamper, modify bypass or replace this fuse with another device. Refer to Bosch Service department for service of the cable and connector assembly.
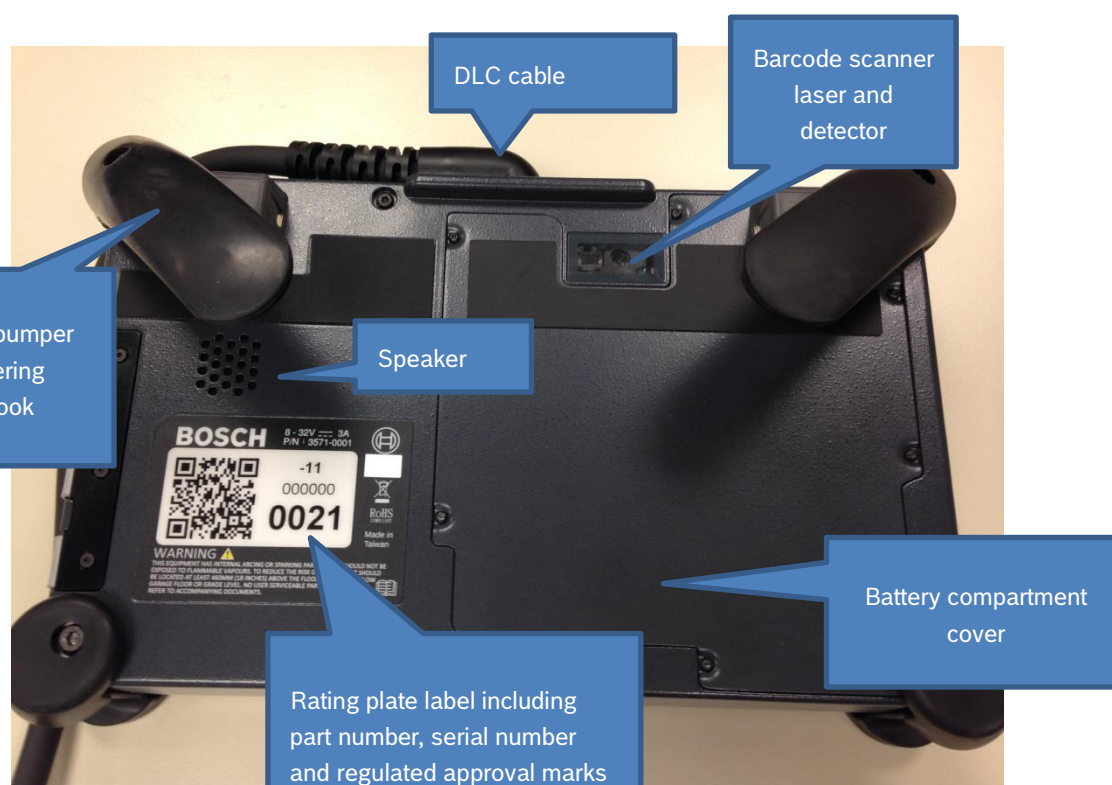
Charging accessories are equipped with internal over current protection circuits.  In the event of a short circuit the internal circuit acts to limit the current to a safe level.  Do no tamper, modify or bypass the internal power supply module or replace with another device.  Refer to Bosch Service department for service.
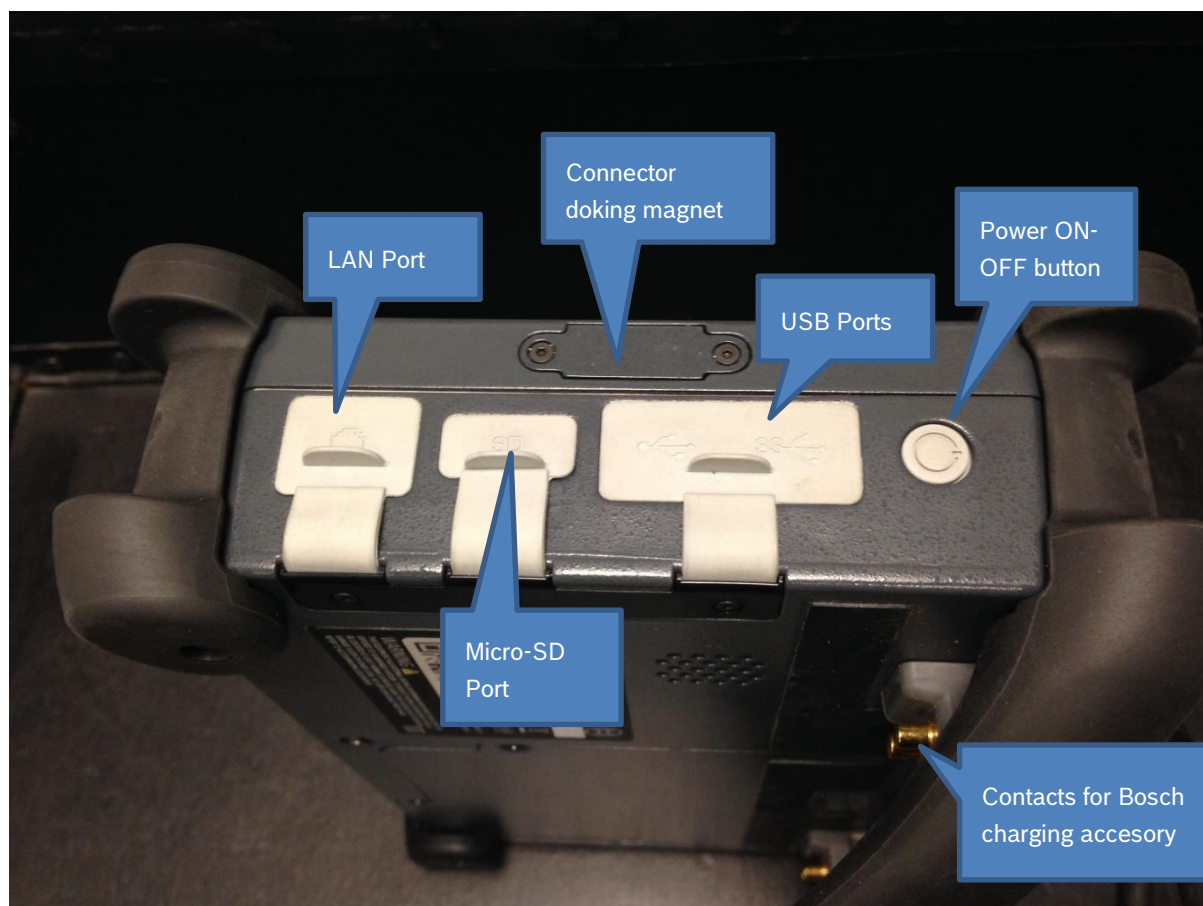
## Environment

The IFLEX family is intended for use inside a factory and/or inside a vehicle.  It is not intended for use outdoors exposed adverse weather conditions.

For use in tropical regions or other high ambient temperature situations a cooling fan accessory pack option is available. Refer to Bosch Service for applicability.

# Identification of controls and features



DLC cable

Barcode scanner laser and detector

Corner bumper and steering wheel hook

Speaker

Battery compartment cover

Rating plate label including part number, serial number and regulated approval marks



IRDA detector and LED status indicator

Alpha numeric Keypad

Function Keypad

Touch Screen (certain models only)

LAN Port

Connector doking magnet

Power ON-OFF button

USB Ports

Micro-SD Port

Contacts for Bosch charging accesory

# Getting started

## *Unpacking*

The product should be carefully unpacked and the carton should be either retained or disposed of with consideration for the environment and according to local regulations. It is preferable to retain the carton in case of shipping return for service or repair.

## *Installation of battery*

The unit is supplied with the battery packed separately for user installation. Instructions and tools are provided in the carton.

Refer to installation guide, Bosch part number 3571-9000-00 for installation of battery.

## *Initial charging*

It is recommended that the IFLEX is initially charged to at least 90% before first use. Please use Bosch accessory charging equipment for optimised charge rate or charge from the vehicle using the DLC cable connection.

## *Switch on*

The IFLEX can be switched on and off using the Power button.
A short press of duration less than 5s will start the unit from cold or resume from a sleep state
A longer press greater than 5s and less than 10s will shut down the unit in a controlled manner (recommended).
A press longer than 10s will on release, cause a forced hardware shutdown. This feature is not recommended for regular use and should only be used for essential recovery in the event that the recommended shutdown method is unresponsive.  There is a possibility that the data on the C drive could become corrupted.

After switch on, the unit will boot to Microsoft Windows ™ desktop or a dedicated application according to the model.

## *User software installation*

Refer to the vendor's installation instructions for installation of software.

Software can be installed using the LAN port, Wireless interface, USB port, micro SD card according to the vendor instructions.

It is recommended that the unit is docked on the Bosch accessory charging equipment to provide a reliable power source during software installation.

Software installation and other maintenance should be performed in a suitable environment with an ambient temperature in the range 0C to 40C.

# Recommendations for use

## *Power states*

It is recommended to set the Microsoft Windows ™ power management to "balanced" and set the LCD backlight to shut down after 3 minutes of inactivity.

It is recommended to configure the user software to shut down internal peripheral devices when not in use, for example VCI subsystem, LAN, USB and micro-SD card. This applies for all use modes, on vehicle, mobile and when docked on the Bosch accessory charging equipment.  Typically the application software should be configured to achieve this automatically.

These measures minimise environmental impact through increased power efficiency from AC sources and minimises stress on the vehicle battery. Furthermore unit internal operating temperature and overall life of the equipment is improved.

## *Charge discharge duty cycle*

To maintain a useful charge level in the battery it is recommended to always return the IFLEX unit to the Bosch accessory charging equipment when IFLEX is not in use.

## *Screen brightness*

The IFLEX product is designed for indoor use.  The LCD screen is capable of brightness levels up to 200 nit however such high brightness levels are not normally necessary and too bright for indoor conditions. The default recommendation for LCD backlight brightness level is 40 to 60 nit (20 to 30% on the brightness adjustment bar).

## *Keypads*

The keypad is intended for high occurrence user input.  Do not use a sharp object to activate the button. Normal finger pressure should be used.

## *Touch Screen*

Some models incorporate a Touch Screen for menu navigation. Do not use sharp objects as these will damage the touch screen. Use light finger pressure or a proper stylus recommended for touch screens.

## *Cable and DLC connector*

The cable is used for data connection and power supply from a vehicle diagnostic port.

The cable includes a rotating feature to allow safe routing of the cable for Left Hand Drive and Right Hand Drive vehicles.  The cable can be wrapped around the IFLEX unit when not in use.  A slot is provided in the corner bumpers for convenient cable wrapping. A magnet feature on each side of the case will provide attractive force where the connector can be stowed.

Some models have an indicator LED in the DLC plug.  This LED illuminates when power is available from the vehicle and helps to confirm a good connection has been made.

Some models have a sprung latch which engages with a corresponding feature on the vehicle connector. A release button is provided which must be depressed and held in while withdrawing the connector.  The connector can be mated without pressing the button.

## *Infra-Red sensor*

An Infra-red sensor is located under the semi-transparent cover on the top of the unit. This sensor is responsive to a low intensity coded Infra-red signal.  A Bosch accessory device can be used to transmit a coded signal to the unit.  This can be used to wake the unit from a low power state or for the purposes of location awareness.  When using this feature the top of the unit should not be covered or obstructed in any way.

## *LED Status indicator*

The semi-transparent cover houses a 3 colour LED indicator.  This indicator is configurable to respond to user application software and is typically used to indicate pass/fail indication, charging state indication, busy indication or to indicate the need for operator intervention.

## *External Ports*

Four ports are provided for occasional maintenance operations.  During regular use of the equipment these ports should remain covered with the protective rubber cover in place.

## LAN port

A RJ45 connector supports 10/100/1000 Base T Ethernet.

Adjustment of LAN settings should be done with caution as the operation of internal LAN devices could become compromised as a result.

## USB ports

A USB type A connector with black coloured insert supports USB2.0 High Speed.

A USB type A connector with blue coloured insert supports USB 2.0 High Speed and USB3.0

## Memory card

A memory card socket supports the micro-SD format. The socket has a latch of the push-push type.

## Docking Station

An external charging station is available (3571-0021-01) note "This equipment is not suitable for use in locations where children are likely to be present

# Product Specification

External power supply:  10 to 32V DC,  3A

Operating temperature range: 0C to 50C

Refer to IFLEX-SPEC-0012 (VCATS version)

.

# Certification

Product Part Number 3571-0100 is certified for use in the following countries:

United Kingdom

| ! (book icon) | UK |
|---|---|

USA

China

European Union:  All states as per the table

| AT | BE | BG | CH | CY | CZ |
|---|---|---|---|---|---|
| DE | DK | EE | EL | ES | FI |
| FR | HR | HU | IE | IS | IT |
| LI | LT | LU | LV | MT | NL |
| NO | PL | PT | RO | SE | SI |
| SK | TR |  |  |  |  |

The frequency and maximum transmitted power in EU are listed as below,

**WLAN**

2412 - 2472 MHz: 20.00 dBm

5180 - 5240 MHz: 19.50 dBm

5260 - 5230 MHz: 16.50 dBm

5500 - 5700 MHz: 16.50 dBm

**Bluetooth**

BT-BDR mode: 9.70 dBm

BT-EDR mode: 6.00 dBm

BT-LE mode: 5.50 dB

WLAN 5GHz:   Operations in the 5.15-5.35GHz band are restricted to indoor usage only.

Warning: Operation of this equipment in a residential environment may cause radio interference

警告：在居住环境中，运行此设备可能会造成无线电干扰。

This equipment is not suitable for use in locations where children are likely to be present.

This device is for professional use only.

-   NOTE Professional equipment is sold through special sales channels.

## Warming Statement | 警語

EMC (KN 32/35) Class A device only

| 사 용 자 안 내 문 |
|---|
| 이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다. |
| ※ 사용자 안내문은 "업무용 방송통신기자재"에만 적용한다. |

## Service and Support

Please refer to IFLEX-TECH-0071 – IFLEX Maintenance Guide.doc

In the event of component failure, excessive wear or accidental damage, the equipment should not be used. Please consult Bosch Service.

### *Contact details*

**Registered Office**
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