
Translation of the Original Operating Instructions

# IC1000

## Interface adapter

Catalog No.
525-200

From software version
V1.11

jiqn22en1-01-(2205)

INFICON GmbH
Bonner Strasse 498
50968 Cologne, Germany

# Table of contents

# 1 About this manual

This document applies to the software version stated on the title page.

Product names may occur in the document, which are added for identification purposes only and belong to the respective owner of the rights.

## 1.1 Other associated documents

| | |
|---|---|
| Operating manual of the connected leak detector | |
| Operating manual of the connected BM1000 | jiqb10 |
| Ecotec-E3000 Protocol-Descriptions | kins22 |

## 1.2 Warnings

**⚠ DANGER**

**Imminent hazard resulting in death or serious injuries**

**⚠ WARNING**

**Hazardous situation resulting in potential death or serious injuries**

**⚠ CAUTION**

**Hazardous situation resulting in minor injuries**

**NOTICE**

**Hazardous situation resulting in damage to property or the environment**

## 1.3 Target groups

This instruction manual is intended for operators and technically qualified personnel with experience in leak detection technology and the integration of leak detectors in leak detection systems. In addition, the installation and use of the device require knowledge of electronic interfaces.

## 1.4 Dangers

The measuring instrument was built according to the state-of-the-art and the recognized safety regulations. Nevertheless, improper use may result in risk to life and limb on the part of the user or third parties, or damage to the unit or other property may occur.

- Reverse polarity of the power supply (plus / minus at nominal voltage)
- Connection of a voltage supply that is too high > Nominal voltage
- Connection of an AC power supply
- Connection of a voltage supply that is too low < Nominal voltage
- Connecting a non-compatible device to the RS232 interface
- Connecting a non-compatible device to the LD interface
- Assignment of the actually unused RS485 terminals
- Use in radioactive areas
- Operation under unsuitable ambient conditions
- Use outside the technical specifications.
- Use of wrong cables and wires

# 2 Safety

## 2.1 Intended use

The IC1000 is an interface adapter between a leak detector and a BM1000.

► Operate the device only according to this instruction manual.

## 2.2 Duties of the operator

- Read, observe, and follow the information in this manual and in the work instructions provided by the owner. This concerns in particular the safety and warning instructions.
- Always observe the complete operating instructions for all work.
- If you have any questions about operation or maintenance that are not answered in this manual, contact customer service.

## 2.3 Owner requirements

The following notes are for companies or any person who is responsible for the safety and effective use of the product by the user, employees or third parties.

### Safety-conscious operation

- Operate the device only if it is in perfect technical condition and has no damage.
- Only operate the device properly in accordance with this instruction manual, in a safety and risk conscious manner.
- Adhere to the following regulations and observe their compliance:
  - Intended use
  - Universally valid safety and accident prevention regulations
  - International, national and local standards and guidelines
  - Additional device-related provisions and regulations
- Only use original parts or parts approved by the manufacturer.
- Keep this instruction manual available on site.

## Personnel qualifications

- Only instructed personnel should be permitted to work with and on the device. The instructed personnel must have received training on the device.
- Make sure that authorized personnel have read and understood the instruction manual and all other applicable documents, see “Other associated documents [▶ 4]“.

# 3 Scope of delivery, transport, storage

## Scope of delivery

| Item | Quantity |
|---|---|
| IC1000 | 1 |
| Data cable | 1 |
| Set of cables | 1 |
| Operating manual | 1 |

► Check the scope of delivery after receipt of the product to make sure it is complete and to check for external damage.

## Transport

**NOTICE**

**Damage due to unsuitable packaging material**

Transport in unsuitable packaging material can damage the device.

► Keep the original packaging.

► Only transport the device in its original packaging.

## Storage

► Always store the device in compliance with the technical data, see "Technical Data".

**See also**

Technical data [▶ 13]

# 4 Description

**NOTICE**

**Interference due to emission of high frequencies**

**Devices in the immediate vicinity may be disturbed.**

► Do not use the device in living areas.

► Only use the device in rooms that are closed on all sides and dry.

**NOTICE**

**The IC1000 does not perform a safety function**

**In the event of strong electromagnetic interference, communication may be distorted.**

Regularly check the function of the device.

## 4.1 Function

### The system at a glance

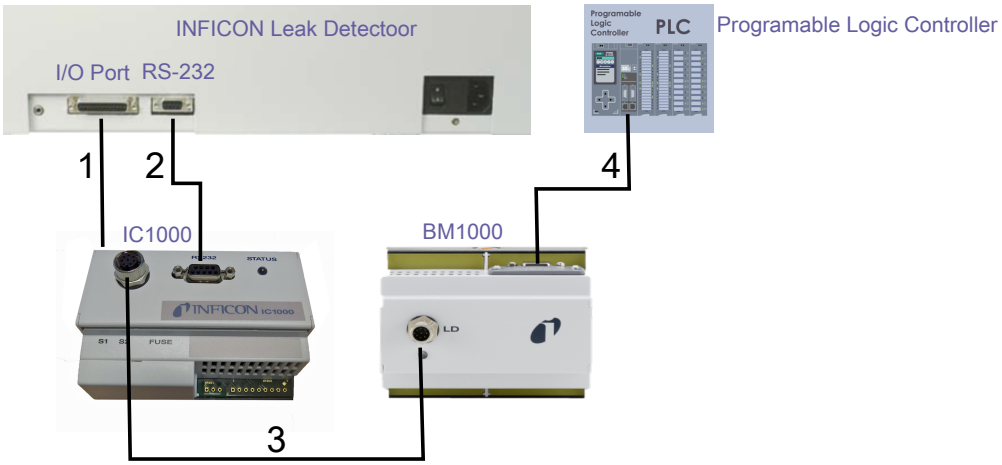



*Fig. 1:* The system at a glance

| | | | |
|---|---|---|---|
| 1 | Power supply 24 V DC | 2 | Serial cable |
| 3 | Data cable | 4 | Fieldbus cable |

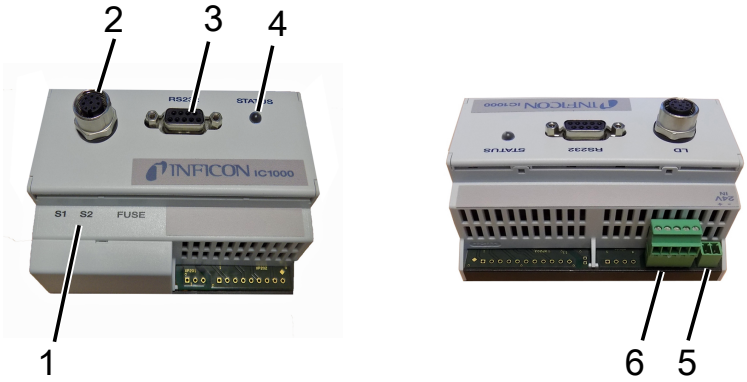
The IC1000 is an interface between a leak detector and a BM1000.

It allows the BM1000 to be used on a leak detector without LD interface (M12 connector).

A prerequisite is that the leak detector has an RS232 interface that can handle the LD protocol with 19200 or 38400 baud.

For this purpose, the IC1000 has an RS-232 port for connection to the leak detector and an LD interface for connection to the BM1000. this only applies to the ECOTEC E3000 from software version V3.33.

## 4.2 Structure of the IC1000




| | | | |
|---|---|---|---|
| 1 | DIP switch cover and fuse | 4 | Status LED |
| 2 | BM1000 connection | 5 | 24 V IN, 24 volt Input |
| 3 | RS232, connection leak detector | 6 | RS485 (not used) |

**DIP switch and fuse**

Under the cover there is a fuse (0.75 A, Schurter 7010.9800.xx) for the power supply of the BM1000 via LD interface of the IC1000.

Also two DIP switch blocks (S1 and S2). The baud rate for the LD protocol on the RS232 interface can be selected via DIP switch S2 / 1 on the IC1000.

The IC1000 supports 19200 or 38400 baud (8 data bits, no parity, 1 stop bit, no hardware flow control).

S2 / 1 = On means 38400 baud.

S2 / 1 = Off means 19200 baud.

All other switches must be OFF for proper operation.

**LD port**

Connection for BM1000

**RS232**

Connection for leak detector

Galvanic isolation (max. 60 V DC, 25 V AC against GND)

Pin assignment:

| Pin | Name |
|---|---|
| 2 | TxD |
| 3 | RxD |
| 5 | GND |

Connect the leak detector to the supplied cable via this connection.

**Status LED**

| Color | Status | Meaning |
|---|---|---|
| Red | illuminates | Device not functional or defective |
| Red | flashes | Not ready for operation, communication to leak detector is not available |
| Cyan | illuminates | Ready for operation; communication to leak leak detector available |
| Green | Flashes quickly | Boot loader active, ready for software update |
| Green | Flashes slowly | Data reception on RS232 |
| Yellow | Flashes slowly | Data reception on RS485 |
| – | off | No operating voltage |

**24V IN**

## 24 V input

Pin assignment:

| Pin | Name |
|---|---|
| + | + 24V |
| - | GND |

The voltage supply is normally provided by the leak detector.

Use the appropriate cable from the supplied cable set for this purpose.

## 4.3 Technical data

| Mechanical data | |
|---|---|
| Dimensions (L × W × H) | 107.6mm x 89.7mm x 76.6mm |
| Weight | 0.5 kg |

| Electrical data | |
|---|---|
| Protection class | EN 60529 IP20<br>UL 50E type 1 |
| Nominal voltage | 24 V DC voltage |
| Nominal current | < 0.5 A |
| Overvoltage category | II |

The power supply must meet the requirements for energy-limited circuits according to DIN EN 61010-1.

| Ambient conditions | |
|---|---|
| Max. height above sea level | 2000 m |
| Max. relative humidity above 40 °C | 50 % |
| Max. relative humidity from 31°C to 40°C | 80% to 50% (decreasing linearly) |
| Max. humidity up to 31 °C<br>no condensation | 80% |
| Max. storage temperature | -20°C … 60°C |
| Permissible ambient temperature (during operation) | 5°C … 50°C |
| Degree of contamination | II |

## 4.4 Cleaning the device

The housing of the device is composed of synthetic material.

1. Switch off the device and disconnect from the mains.
2. When cleaning the housing, use an agent accepted for synthetic surfaces (for example a light household cleaner). Do not use any solvents that attack synthetic materials.

# 5 Installation and removal

## 5.1 Mount IC1000 and DIN-TS35 top-hat rail

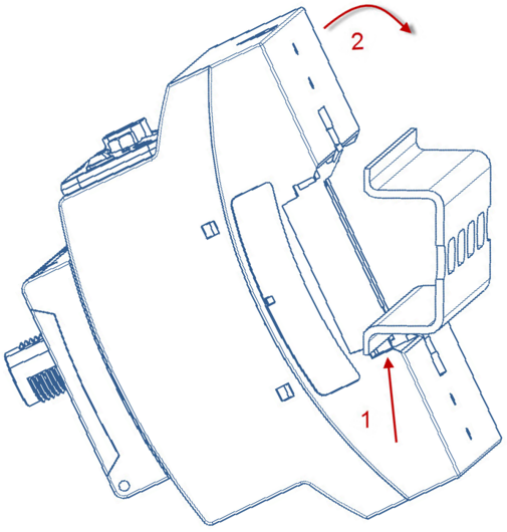



*Fig. 2:* Mount IC1000

1. Hook device on top hat rail at bottom.
2. Press device onto top hat rail at top.

## 5.2 Establish connections

### Connect IC1000 with leak detector

Connect the RS232 and 24V IN ports to the leak detector using the cables supplied in cable set 200010785.

If for some reason you want to operate the IC1000 with a separate 24 V supply voltage, observe the following note:

**NOTICE**

The device must be supplied with a circuit that meets the requirements of "Energy-limited circuits" of DIN EN 61010-1 (VDE 0411-1).

### Connect IC1000 with BM1000

Use the data cable to connect the LD connector on the IC1000 to the LD connector on the BM1000.

| Length (in meters) | Catalog number |
|---|---|
| 0.5 | 560-334 |
| 2 | 560-332 |
| 5 | 560-335 |
| 10 | 560-340 |

*Table 1:* Data cable

**NOTICE**

The data cables cannot be connected in series.

The voltage supply is normally provided by the leak detector. The length must not exceed 30 meters.

Do not use other cable lengths.

Then make the necessary settings on the leak detector. Refer to instructions of the leak detector.

## 5.3 Remove the IC1000 from the DIN-TS35 top hat rail

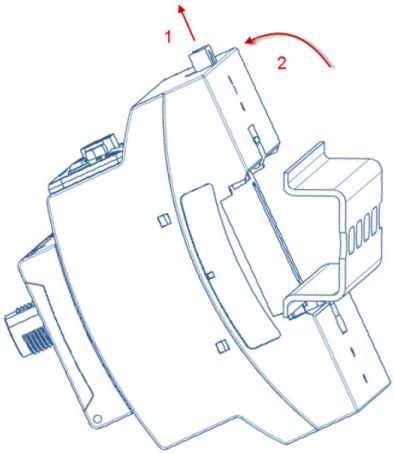



*Fig. 3:* Remove IC1000

1. Use the flat-tip screwdriver to pull out the locking device.
2. Pull the device off of the top hat rail.

# 6 Decommissioning

## 6.1 Disposing of the device

The device can either be disposed of by the operator or be sent to the manufacturer. The device consists of materials that can be recycled. This option should be exercised to prevent waste and also to protect the environment.

During disposal, observe the environmental and safety regulations of your country.

Device cannot be disposed of as normal domestic waste.

## 6.2 Returning the device for maintenance, repair or disposal

**⚠ WARNING**

**Danger due to harmful substances**

Contaminated devices could endanger health. The contamination declaration serves to protect all persons who come into contact with the device. Devices sent in without a completed Declaration of Contamination will be returned to the sender by the manufacturer.

► Fill in the declaration of contamination completely.

1. Contact the manufacturer and send in a completed declaration of contamination before return shipment.
   ⇨ You will then receive a return number and the shipping address.
2. Use the original packaging when returning.
3. Before shipping the instrument, attach a copy of the completed contamination declaration to the outside of the package.

# Declaration of Contamination

The service, repair, and/or disposal of vacuum equipment and components will only be carried out if a correctly completed declaration has been submitted. Non-completion will result in delay.
This declaration may only be completed (in block letters) and signed by authorized and qualified staff.

**1 Description of product**

Type _____
Article Number _____
Serial Number _____

**2 Reason for return**

_____
_____
_____

**3 Operating fluid(s) used** (Must be drained before shipping.)

_____
_____

**4 Process related contamination of product:**

| | | |
|---|---|---|
| toxic | no ❑ 1) | yes ❑ |
| caustic | no ❑ 1) | yes ❑ |
| biological hazard | no ❑ | yes ❑ 2) |
| explosive | no ❑ | yes ❑ 2) |
| radioactive | no ❑ | yes ❑ 2) |
| other harmful substances | no ❑ 1) | yes ❑ |

The product is free of any substances which are damaging to health yes ❑

1) or not containing any amount of hazardous residues that exceed the permissible exposure limits

2) Products thus contaminated will not be accepted without written evidence of decontamination!

**5 Harmful substances, gases and/or by-products**

Please list all substances, gases, and by-products which the product may have come into contact with:

| Trade/product name | Chemical name (or symbol) | Precautions associated with substance | Action if human contact |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

**6 Legally binding declaration:**

I/we hereby declare that the information on this form is complete and accurate and that I/we will assume any further costs that may arise. The contaminated product will be dispatched in accordance with the applicable regulations.

Organization/company _____
Address _____ Post code, place _____
Phone _____ Fax _____
Email _____
Name _____

Date and legally binding signature _____

Company stamp

Copies:
Original for addressee - 1 copy for accompanying documents - 1 copy for file of sender

# 7 Appendix

## 7.1 Accessories

| Length (in meters) | Catalog number |
|---|---|
| 0.5 | 560-334 |
| 2 | 560-332 |
| 5 | 560-335 |
| 10 | 560-340 |

*Table 2:* Data cable

**NOTICE**

The data cables cannot be connected in series.

The voltage supply is normally provided by the leak detector. The length must not exceed 30 meters.

# 7.2 CE Declaration of Conformity

## *EU Declaration of Conformity*

We – INFICON GmbH - herewith declare that the products defined below meet the basic requirements regarding safety and health and relevant provisions of the relevant EU Directives by design, type and the versions which are brought into circulation by us. This declaration of conformity is issued under the sole responsibility of INFICON GmbH.

In case of any products changes made, this declaration will be void.

Designation of the product:

**Interface-Adapter**

Models: **IC1000**

Catalogue numbers:

**525-200**

The products meet the requirements of the following Directives:

- ***Directive 2014/35/EU (Low Voltage)***
- ***Directive 2014/30/EU (EMC)***
- ***Directive 2011/65/EU (RoHS)***

Applied harmonized standards:

- ***EN 61010-1:2010+A1:2019***
- ***EN 61326-1:2013***
  ***Class A according to EN 55011:2016+A1:2017***
- ***EN IEC 63000:2018***

Cologne, May 30th, 2022

i.V.

H. Bruhns, Vice President LDT

Cologne, May 30th, 2022

pro

W. Schneider, Research and Development

**INFICON GmbH**
Bonner Strasse 498
D-50968 Cologne
Tel.: +49 (0)221 56788-0
Fax: +49 (0)221 56788-90
www.inficon.com
E-mail: leakdetection@inficon.com

# UK Declaration of Conformity

We – INFICON GmbH - herewith declare that the products defined below meet the basic requirements regarding safety and health, and relevant provisions of the relevant legislation by design, type and the versions, which are brought into circulation by us. This declaration of conformity is issued under the sole responsibility of INFICON GmbH.

In case of any products changes made, this declaration will be void.

Designation of the product:

**Interface-Adapter**

Models: **IC1000**

Catalogue numbers:

**525-200**

The products meet the requirements of the following Directives:

- ***S.I. 2016 No. 1091 (EMC)***
- ***S.I. 2012 No. 3032 (RoHS)***

Applied harmonized standards:

- ***EN 61326-1:2013***
  ***Class A according to EN 55011:2016+A1:2017***
- ***EN IEC 63000:2018***

Cologne, May 30th, 2022

i.V. Bruhns

H. Bruhns, Vice President LDT

Cologne, May 30th, 2022

pro W. Schneider

W. Schneider, Research and Development

**INFICON GmbH**
Bonner Strasse 498
D-50968 Cologne
Tel.: +49 (0)221 56788-0
Fax: +49 (0)221 56788-90
www.inficon.com
E-mail: leakdetection@inficon.com

## 7.3 RoHS

**Restriction·of·Hazardous·Substances·(China·RoHS)**

**有害物质限制条例（中国·RoHS）**

| ¤ | IC1000:·Hazardous·Substance<br>IC1000：有害物质 | | | | | |
|---|---|---|---|---|---|---|
| Part·Name<br>部件名称 | Lead<br>(Pb)<br>铅 | Mercury<br>(Hg)<br>汞 | Cadmium<br>(Cd)<br>镉 | Hexavalent<br>Chromium<br>(Cr(VI))<br>六价铬 | Polybrominated<br>biphenyls·(PBB)<br>多溴联苯 | Polybrominated<br>diphenyl·ethers··<br>(PBDE)<br>多溴联苯醚 |
| PCB·Mainboard<br>PCB主板 | X | O | O | O | O | O |
| PCB·Interface·board<br>PCB接口板 | X | O | O | O | O | O |
| Cable·Connectors<br>电缆借口 | X | O | O | O | O | O |

This·table·is·prepared·in·accordance·with·the·provisions·of·SJ/T·11364.·
本表是根据·SJ/T·11364·的规定编制的。·

O:·Indicates·that·said·hazardous·substance·contained·in·all·of·the·homogeneous·materials·for·this·part·is·below·the·limit·requirement·of·GB/T·26572.·
O：表示该部件所有均质材料中所含的上述有害物质都在·GB/T·26572·的限制要求范围内。·

X:·Indicates·that·said·hazardous·substance·contained·in·at·least·one·of·the·homogeneous·materials·used·for·this·part·is·above·the·limit·requirement·of·GB/T·26572.·
X：表示该部件所使用的均质材料中，至少有一种材料所含的上述有害物质超出了·GB/T·26572·的限制要求。

(Enterprises·may·further·provide·in·this·box·technical·explanation·for·marking·"X"·based·on·their·actual·circumstances.)
（企业可以根据实际情况，针对含“X”标识的部件，在此栏中提供更多技术说明。）

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