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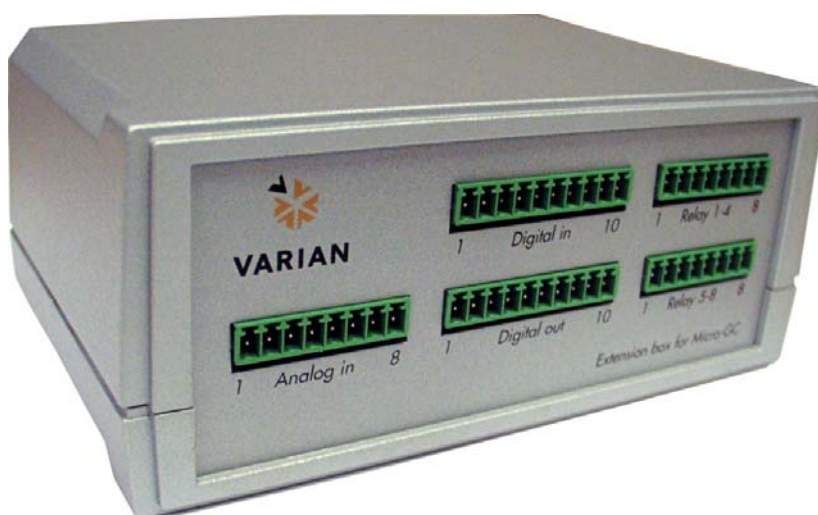


**Agilent Technologies**

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# Micro-GC Extension Box



## User Manual

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## Varian Analytical Instrument Warranty

### Hardware Products

All analytical instruments sold by Varian are warranted to be free from defects in material and workmanship for the periods specified and in accordance with the terms on the face of Varian's quotation or as otherwise agreed upon in writing between Varian and the Customer. The warranty period begins on the date of **shipment** from Varian to the original Customer. However, where installation is paid for by the Customer or included in the purchase price, the warranty period begins upon completion of installation. If the Customer schedules installation to start later than 30 days after delivery or if such delay is caused through the Customer's inability to provide adequate facilities or utilities or through failure to comply with Varian's reasonable pre-installation instructions or through other omissions by Customer, then the warranty period starts on the 31st day from date of shipment. Moreover Varian will charge the Customer for labor and other expenses involved in making multiple or follow-up installation service calls.

### Software Products

Where software is provided within the frame of a license agreement concluded between the Customer and Varian, any warranty shall be strictly in accordance with the terms of such agreement.

In the absence of a license agreement and unless an alternate warranty period is agreed upon in writing between Varian and the Customer, the warranty period is as specified on the face of Varian's quotation. Varian warrants such software products, if used with and properly installed on Varian hardware or other hardware as specified by Varian to perform as described in the accompanying Operator's Manual and to be substantially free of those defects which cause failure to execute respective programming instructions; however, Varian does not warrant uninterrupted or error-free operation.

### Remedies

The sole and exclusive remedy under hardware warranty shall be **repair** of instrument malfunctions which in Varian's opinion are due or traceable to defects in original materials or workmanship or, at Varian's option, **replacement** of the respective defective parts, provided that Varian may as an alternative elect to **refund** an equitable portion of the purchase price of the instrument or accessory.

Repair or replacement under warranty does not extend the original warranty period.

Repair or replacement under warranty claims shall be made in Varian's sole discretion either by sending a Customer Support Representative to the site or by authorizing the Customer to return the defective accessory or instrument to Varian or to send it to a designated service facility. The Customer shall be responsible for loss or damage in transit and shall prepay shipping cost. Varian will return the accessory or instrument to the Customer prepaid and insured. Claims for loss or damage in transit shall be filed by the Customer. To correct software operation anomalies, Varian will issue software revisions where such revisions exist and where, in Varian's opinion, this is the most efficient remedy.

### Limitation of Warranty

This **warranty does not cover** software supplied by the Customer, equipment and software warranted by another manufacturer or replacement of expendable items and those of limited life, such as but not limited to: Filters, glassware, instrument status lamps, source lamps, septa, columns, fuses, chart paper and ink, nebulizers, flow cells, pistons, seals, fittings, valves, burners, sample tubes, probe inserts, print heads, glass lined tubing, pipe and tube fittings, variable temperature dewars, transfer lines, flexible discs, magnetic tape cassettes, electron multipliers, filaments, vacuum gaskets, seats and all parts exposed to samples and mobile phases.

This **warranty shall be void** in the event of accident, abuse, alteration, misuse, neglect, breakage, improper operation or maintenance, unauthorized or improper modifications or tampering, use in an unsuitable physical environment, use with a marginal power supply or use with other inadequate facilities or utilities. Reasonable care must be used to avoid hazards.

**This warranty is expressly in lieu of and excludes all other express or implied warranties, including but not limited to warranties of merchantability and of fitness for particular purpose, use or application, and all other obligations or liabilities on the part of Varian, unless such other warranties, obligations or liabilities are expressly agreed to in writing by Varian.**

### Limitation of Remedies and Liability

The remedies provided herein are the sole and exclusive remedies of the Customer. In no case will Varian be liable for incidental or consequential damages, loss of use, loss of production or any other loss incurred.

## Safety Information

### Information

In accordance with Varian's commitment to customer service and safety, this Micro-GC Extension Box and its accompanying documentation (NEN 5509) complies with the CE specifications and the safety requirements for electrical equipment for measurement, control, and laboratory use (CEI/IEC 1010-1).

*This device has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.*

*Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*

To prevent any injury to the user or any damage to the instrument it is essential that you read the information in this chapter.

If this manual is not in your native language and if you have problems understanding the text, we advise you to contact your Varian office for assistance. Varian cannot accept responsibility for any damage or injury caused by misunderstanding of the information in this manual.

### Operating Instructions

This instruction manual is provided to help you establish operating conditions, which will permit safe and efficient use of your equipment.

Special considerations and precautions are also described in the manual, which appear in the form of **NOTES**, **CAUTIONS**, and **WARNINGS** as described below (next page).

It is important that you operate your equipment in accordance with this instruction manual and any additional information, which may be provided by Varian. Address any questions regarding the safe and proper use of your equipment to your local Varian office.



### NOTE

Information to aid you in obtaining optimal performance from your instrument.



### CAUTION

Alerts you to situations that may cause moderate injury and/or equipment damage, and how to avoid these situations.



### WARNING

Alerts you to potentially hazardous situations that could result in serious injury, and how to avoid these situations.

#### Warning Symbol



**WARNING:**  
**Shock hazard**



**WARNING:**  
**Burn hazard**



**Instruction**  
**Manual**



**Protective**  
**Conductor terminal**



**Radioactive**  
**hazard**



**Skin puncture**



**Static discharge**  
**Warning**



**Do not touch**

#### Warning Description

Indicates dangerous voltage: (terminals fed from the interior by voltage exceeding 1000V must be so marked.)

Indicates parts that may cause burns when touched

Indicates that the user should refer to the manual before operating the equipment.

For protection against electrical shock in case of a fault. Used with field wiring terminals to indicate the terminal, which must be connected to ground before operating equipment.

Indicates that the instrument contains radioactive components, which may cause personal injury when handled incorrectly.

Indicates sharp or suddenly moving parts such as injection needles that may cause injury.

Indicates instrument contains parts that can be damaged by electrostatic discharge. Take care for proper grounding before handling.

Touching this item may result in damage to the instrument or personal injury.

## General Safety Precautions

**NOTICE:** This instrument has been tested per applicable requirements of EMC Directive as required to carry the European Union CE Mark. As such, this equipment may be susceptible to radiation/interference levels or frequencies, which are not within the tested limits.



This instrument is designed for chromatographic analysis of appropriately prepared samples. It must be operated using appropriate gases and/or solvents and within specified maximum ranges for pressure, flows, and temperatures as described in this manual. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.



It is the responsibility of the Customer to inform Varian Customer Support Representatives if the instrument has been used for the analysis of hazardous biological, radioactive, or toxic samples, prior to any instrument service being performed or when an instrument is being returned to the Service Center for repair.

## CAUTIONS

1. Disconnect the instrument from all power sources before removing protective panels to avoid exposure to potentially dangerous voltages.
2. When it is necessary to use a non-original power cord plug, make sure the replacement cord adheres to the color-coding and polarity described in the manual and all local building safety codes.
3. Replace faulty or frayed power cords immediately with the same type and rating.
4. This instrument should be placed in a suitable location with sufficient ventilation to remove gases and vapors. Space around the instrument must be sufficient to enable cooling of the instrument.
5. Before plugging the instrument in or turning the power on, always make sure that the voltage and fuses are set appropriately for your local power source.
6. Do not turn on the instrument if there is a possibility of any kind of electrical damage. Instead, disconnect the power cord and contact your Varian office.
7. The supplied power cord must be inserted into a power outlet with a protective earth ground connection. When using an extension cord, make sure that the cord is also properly grounded.
8. Do not change the external or internal grounding connections as this could endanger you and/or damage the instrument.

9. The instrument is properly grounded when shipped. You do not need to make any changes to the electrical connections or to the instrument chassis to ensure safe operation.
10. When working with this instrument, follow the regulations for GLP (Good Laboratory Practice). Take care to wear safety glasses and appropriate clothing.
11. Do not place containers with flammable liquids on this instrument. Spillage of the liquid over hot parts may cause fire.
12. Never try to repair or replace any component that is not described in this manual without the assistance of a Varian service engineer. Unauthorized repairs or modifications will result in rejection of warranty claims.
13. Always disconnect the AC power cord before attempting any type of maintenance.
14. Use proper tools when working on the instrument to prevent danger for you and/or damage to the instrument.
15. The customer should not attempt to replace any fuses in this instrument.
16. Damage can result if the instrument is stored under unfavorable conditions for prolonged periods (e.g. subject to heat, water, etc.).
17. This unit has been designed and tested in accordance with recognized safety standards and designed for indoors use only.
18. If the Extension Box is used in a manner not specified by the manufacturer, the protection provided by the instrument may be impaired.
19. Substituting parts or performing any unauthorized modification to the instrument may result in a safety hazard.
20. Changes or modifications not expressly approved by the responsible party for compliance could void the user's authority to operate the equipment.

## Spare Parts Availability

It is the policy of Varian to provide operational spare parts for any instrument and major accessory for a period of seven (7) years after shipment of the final production run of that instrument. Spare parts will be available after this seven (7) year period but on an *as available* basis. Operational spare parts are defined as those individual electrical or mechanical parts that are susceptible to failure during their normal operation. Examples include relays, lamps, temperature probes, detector elements, motors, etc. Sheet metal parts, structural members or assemblies and castings, printed circuit boards, and functional modules are normally capable of being rebuilt to like-new condition throughout their useful life and therefore will be supplied only on an *as available* basis after the final production run of the instrument.

## Service Availability

Varian provides a variety of services to support its customers after warranty expiration. Repair service can be provided by attractively priced service contracts or on a time and material basis. Technical support and training can be provided by qualified personnel on both a contractual or as-needed basis.

## Varian Analytical Instruments Sales Offices

For Sales or Service assistance and to order Parts and Supplies, contact your local Varian office.

**Argentina**  
Buenos Aires  
Tel. +54.11.4.783.5306

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Mulgrave, Victoria  
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**Austria**  
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**Benelux**  
Middelburg  
Tel. +31.118.671500

**Brazil and Latin America (S)**  
São Paulo  
Tel. +55.11.32380400

**Canada**  
Mississauga, Ontario  
Tel. 800.387.2216

**China**  
Beijing  
Tel. +86.106310.8550

**Europe**  
Middelburg, The Netherlands  
Tel. +31.118.671.000

**France**  
Les Ulis Cédex  
Tel. +33.1.6986.3838

**Germany**  
Darmstadt  
Tel. +49.6151.7030

**India**  
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**Italy**  
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Tel. +39.011.997.9111

**Japan**  
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**Korea**  
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Tel. +82.333.665.5171

**Mexico and Latin America (N)**  
Mexico City  
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**Russian Federation**  
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**Spain**  
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Steinhausen  
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**United Kingdom and Ireland**  
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Tel. +1.800.367.4752 (LC)



**VARIAN**

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## Introduction



Congratulations and thank you for purchasing the Varian BV Micro-GC Extension Box. The Micro-GC Extension Box is used to bring the Micro-GC more additional in-outputs.



**NOTE**

**For problems or questions about your Micro-GC Extension Box, please contact your nearest Varian subsidiary or Varian representative.**

## Pre-installation requirements

In order to assure a quick, safe and uncomplicated installation, we kindly request you to make provisions as stated below before our Varian service engineer will install your instrument(s).

### Environmental requirements

- The Micro-GC Extension Box is intended for indoor use.
- The Micro-GC Extension Box should be protected from corrosive chemicals or gases, dust/particulate accumulation, and direct venting of air conditioners, heaters, furnaces or fans.

### Space requirements

- Allow sufficient bench space to permit installation of workstations, integrators and other Micro-GC equipment.
- Allow 10-20 cm of space at the sides and rear of the Micro-GC Extension Box to permit free air circulation.

### Micro-GC

The Micro-GC Extension Box need specific level of hard/software to function correct.

For problems or questions about the Micro-GC hardware/software, please contact your nearest Varian subsidiary or Varian representative.

### Power source

- The Extension Box is powered throughout the Micro-GC.

## Micro-GC Extension Box Installation

### Inspection

The Micro-GC Extension Box will arrive packed in one small box. Inspect the cartons carefully for damage or signs of rough handling. Report damage to the carrier and to your local Varian office.

### Unpacking

Unpack the Micro-GC Extension Box and accessories carefully and transfer to the work area, using proper handling techniques. Inspect the Micro-GC Extension Box and accessories carefully for damage or signs of rough handling. Report damage to the carrier and to your local Varian office.

Check the packing list to see if you have received all that you require.

### Packing list

Extension Box



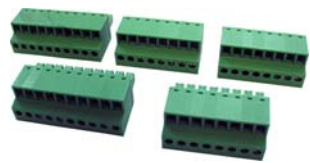
Cable, 25 pins



Cable, 15 pins



Cable connectors



CD-Rom



Package contents slip



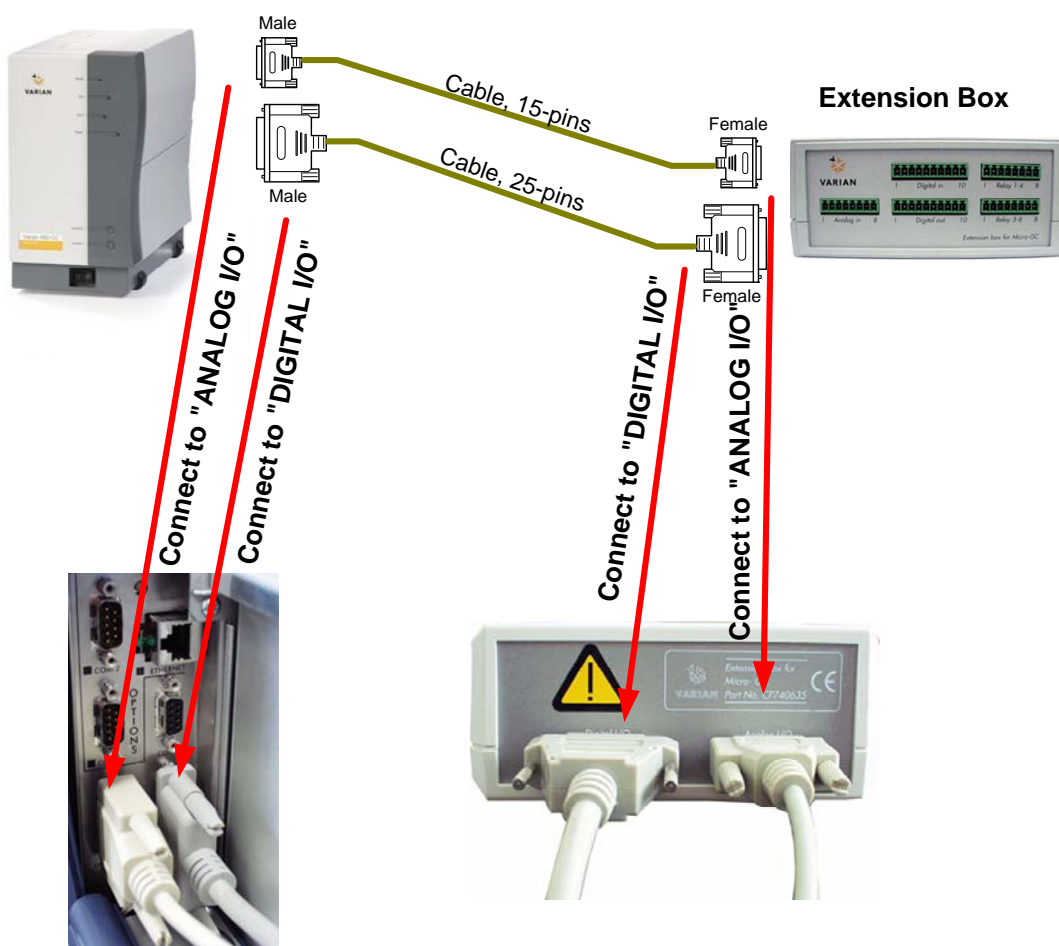
## Connect Extension Box



Switch the Micro-GC off, remove the power cable before connecting any cable.

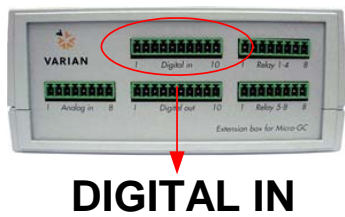
To connect the Extension Box to the Micro-GC use the included cables and connect according the picture below.  
Always connect both cables!

### 490-GC Micro-GC

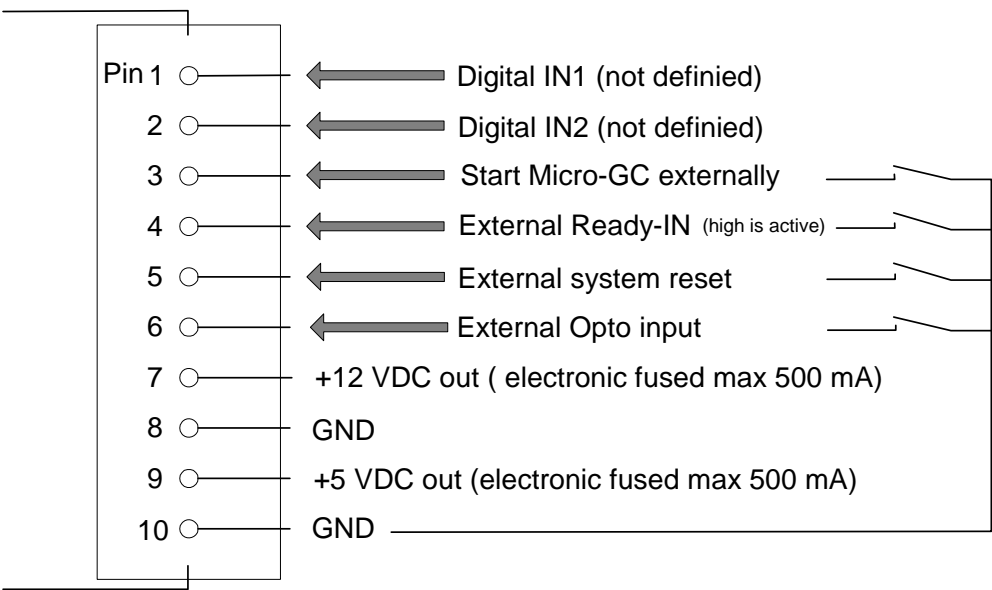


External connections

Digital IN



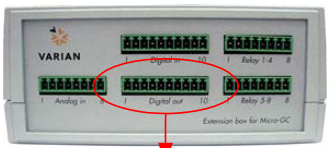
DIGITAL IN



The Micro-GC reacts, when “Digital IN” signals will be connected to Ground (GND).

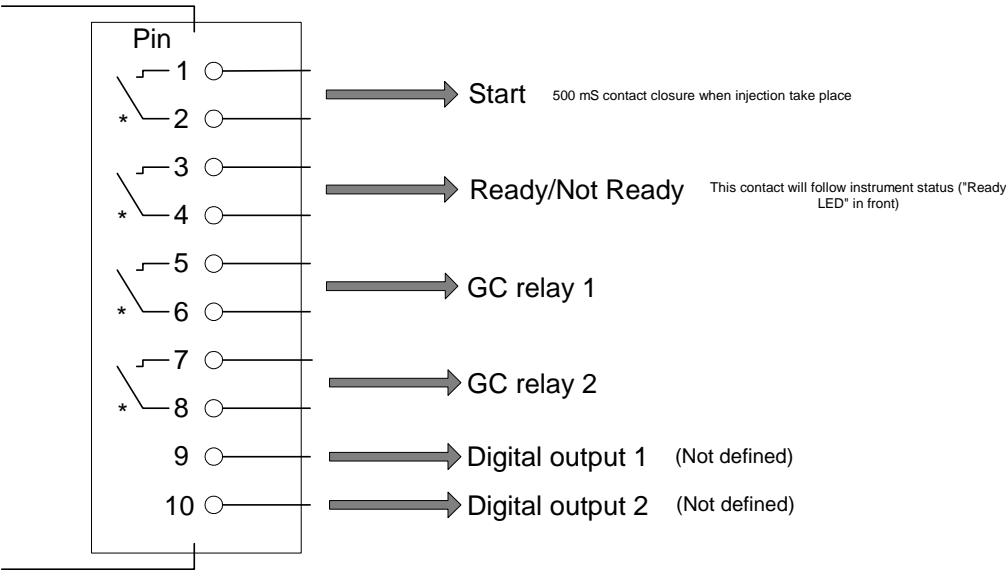


Digital OUT



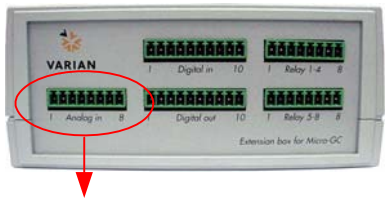
DIGITAL OUT

DIGITAL OUT



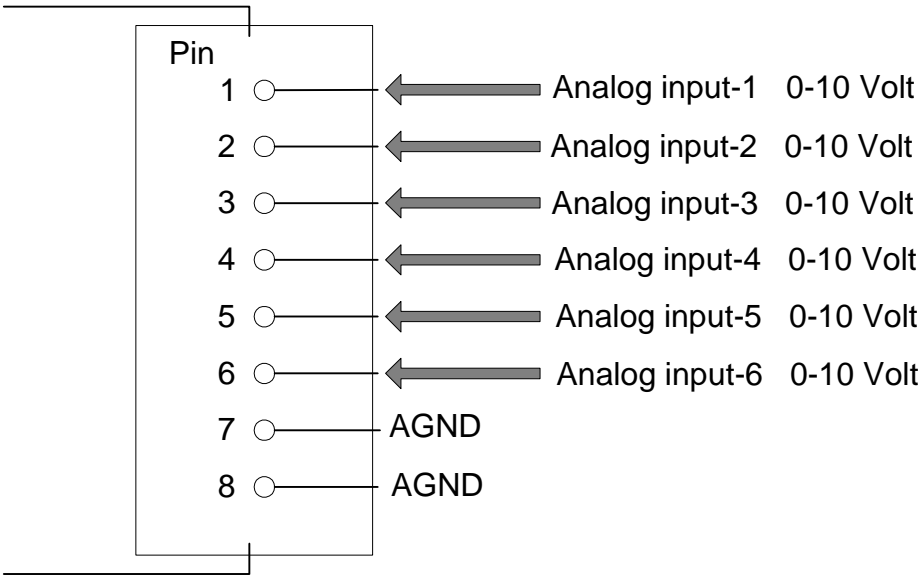
\* All relay contacts: maximum 1A-24 VDC

**Analog IN**

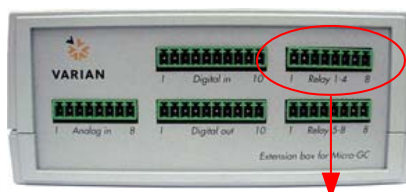


**ANALOG IN**

**ANALOG IN**

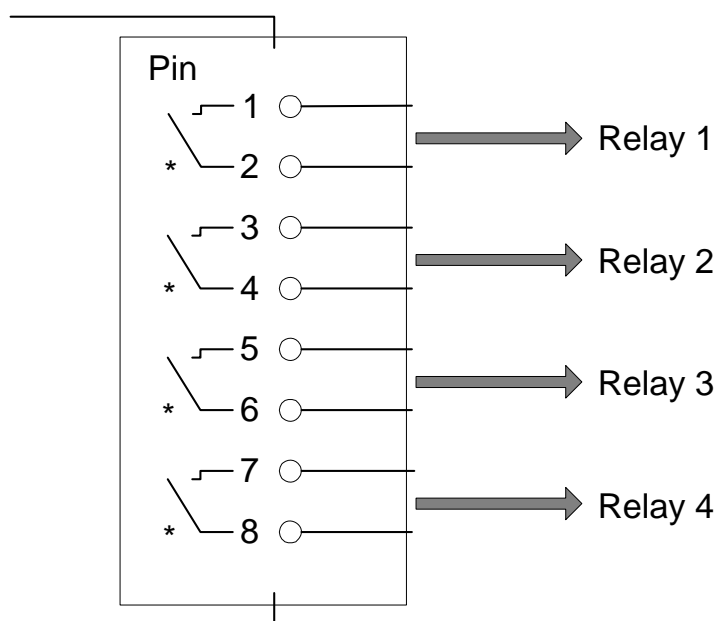


## Relay 1-4



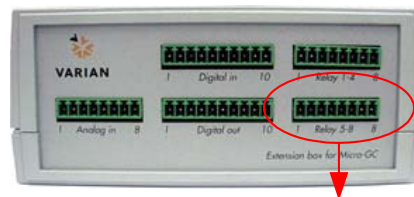
## RELAY 1-4

## RELAY 1-4



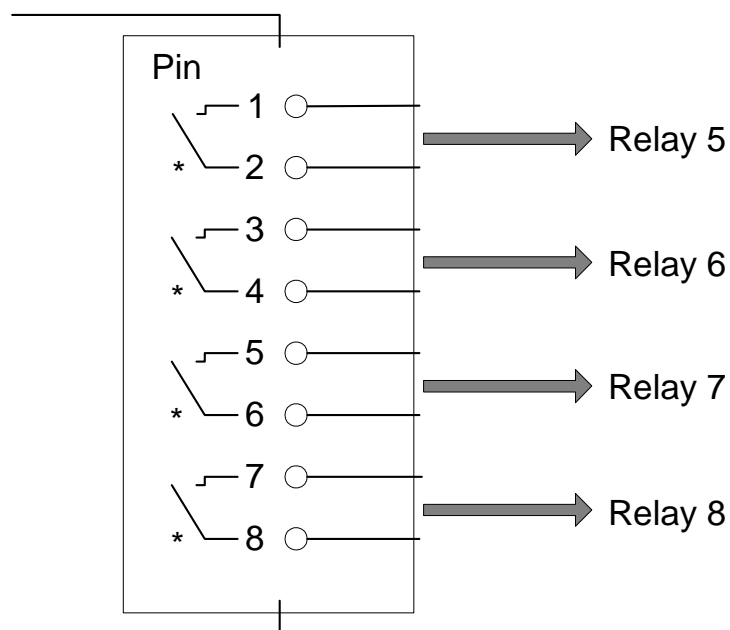
\* All relay contacts: maximum 1A-24 VDC

## Relay 5-8



## RELAY 5-8

## RELAY 5-8



\* All relay contacts: maximum 1A-24 VDC

## Shipping instructions

If the Micro-GC Extension Box for any reason must be sent back to the factory it is very important to follow the additional shipping instructions:



### NOTE

1. Include all cables.

## Cleaning instructions

To keep the Micro-GC Extension Box surface clean refer to the remarks given below:

- Clean only when Micro-GC Extension Box is disconnected from the Micro-GC or other equipment.
- Use a soft (no hard or abrasive) brush to carefully brush away all dust and dirt.
- If the outer case is dirty (never clean the inside!) clean it with a soft, clean cloth dampened with mild detergent.
- Be careful not to get water on the electronics components.
- Do not use compressed air to clean.

## Disposal instructions

Disposal must be carried out in accordance with all (environmental) regulations applicable in your country.