

Conductivity Probe

# **BID 5300-T**

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## **Installation and Operating Instructions**

**EN**

English



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## 1. SAFETY INFORMATION

Installation, commissioning and maintenance of this device must be done by a qualified personnel in compliance with the operating instructions. Otherwise device and related equipments may be damaged and personnel may be injured. General installation and safety instructions for pipeline and plant construction, as well as the proper use of tools and safety equipment must also be complied with.

National and local regulations must be taken into consideration.



### **Warning!**

Please make sure to remove the main supply before installation. Otherwise this may cause damage to the product, personal injuries or even death

### **1.1 Tools**

Before starting work, make sure that you have suitable tools and consumables available.

### **1.2 Temperature**

Let the temperature to cool down after isolation to avoid danger of burns.

### **1.3 Freezing**

Required precautions must be taken at the places where they may be exposed to temperatures below freezing point.

### **1.4 Lighting**

Make sure there is enough lighting, particularly where detailed or tough work is required.

### **1.5 Pressure**

Make sure that any pressure is isolated and safely vented to atmospheric pressure. Do not assume that the system has depressurised even when the pressure gauge indicates zero.

### **1.6 Access**

Before attempting to work on the product, safe Access must be ensured. If necessary, lifting gear should be used.

### **1.7 Residual hazards**

The external surface of the product may be very hot. If used at the maximum operating conditions according to the specs, the surface temperature of some products may reach temperatures of 239°C.

### **1.8 Hazardous environment**

Plant rooms are usually explosion risk areas. There may be lack of oxygen, dangerous gases extremes of temperature, hot surfaces, fire hazard excessive noise, moving machinery.

### **1.9 Suitable protective clothing**

In order to be protected against the hazards of chemicals, high temperature, radiation, noise, falling objects, and dangers to eyes and face, anyone around requires protective clothing suitable in the plant room.

### **1.10 Hazardous liquids or gases**

Be aware of that it cannot be known what may have been in the pipeline at previous usage. Consider: flammable materials, substances hazardous to health, extremes of temperature.

### **1.11 Supervision**

All work must be carried out or be supervised by a suitably competent person. Installation and operating personnel should be trained in the correct use of the product according to the Installation and Operation Instructions.

### **1.12 Disposal**

Unless otherwise stated in the Installation and Operation Instructions, this product is recyclable and no ecological hazard.

### **1.13 Returning products**

When returning products to Vira Isı ve Endüstriyel Ürünler A.Ş the customers must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk.

## 2. GENERAL INFORMATIONS

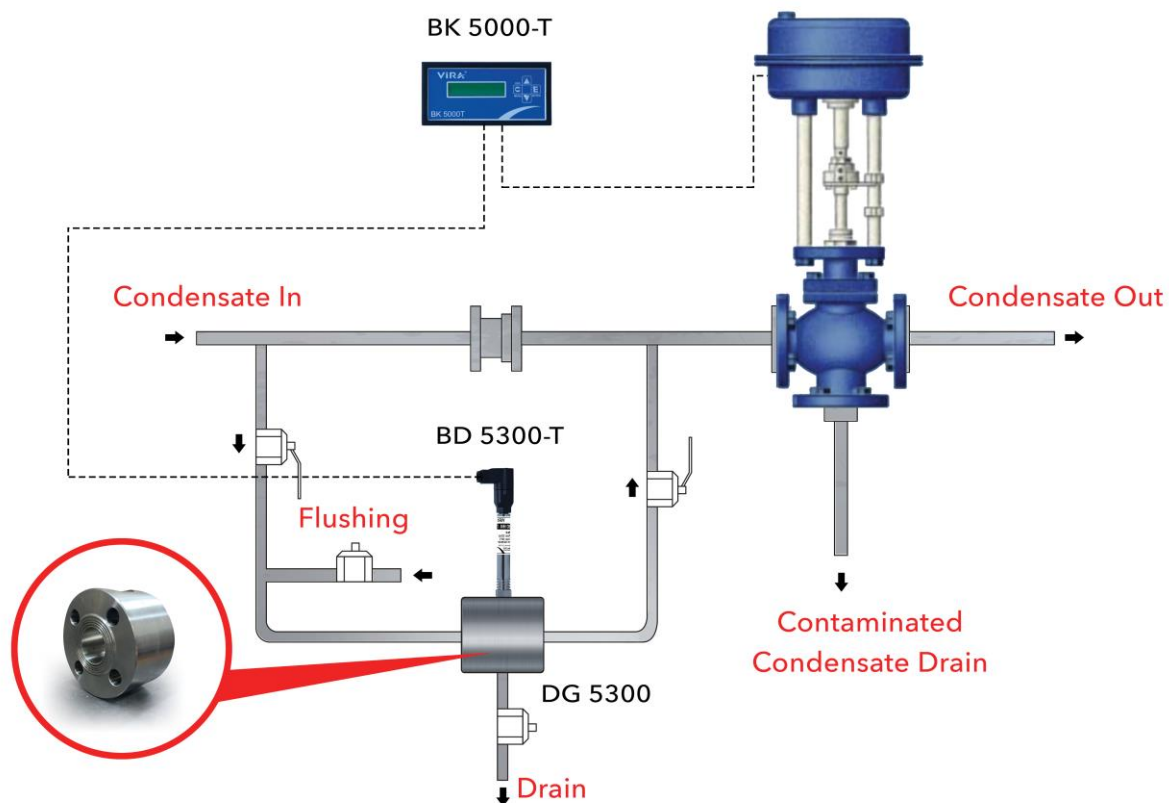
### 2.1 Description

Condensate is very valuable for steam producing plants and needs to be recycled. It must be ensured that the returned condensate is clean. Leakage in one of the devices used for heat transfer may cause the heated fluid to mix into the condensate water. The condensate contamination control system monitors and displays the conductivity of the condensate. It automatically diverts the condensate to drain by a 3 way valve instead of back to the boiler system. When the conductivity drops to the desired level, the condensate is allowed to return to the boiler system, thus minimizing heat and water wastage, as well as avoiding the possibility of contaminating the feedwater.

**Note:** Vira BS3-T system can only detect changes in conductivity, it does not detect the presence of contaminants that do not affect conductivity, such as oils, fats, and sugars.

#### User Benefits;

- Avoids boiler damage and product contamination.
- Temperature compensation feature gives accurate results regardless of condensate temperature.
- Minimizes energy wastage.
- Conserves expensive treated water.



**Figure 1:** BS3-T System Application

### 3. TECHNICAL SPECIFICATIONS

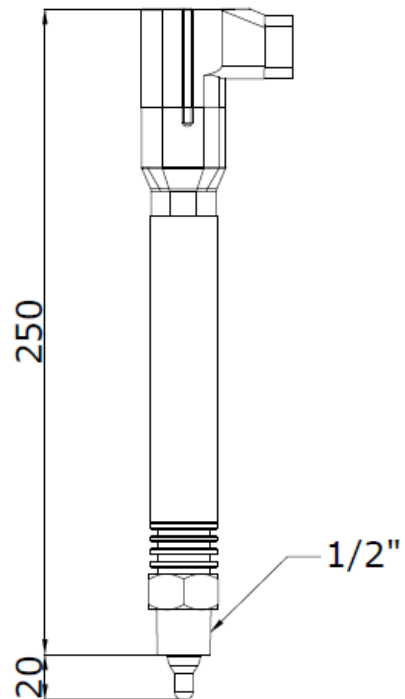
Conductivity Probe BD 5300-T is a probe that works according to the conductivity measurement principle. Its standard length is 20 mm which fits in probe body. If the length will be a custom size, it must be stated in the order.

<b>Max. operating pressure</b>	: 32 bar g
<b>Nominal pressure</b>	: PN40
<b>Max. operating temperature</b>	: 239 °C
<b>Conductivity measuring range</b>	: 10 - 10000 $\mu\text{S}/\text{cm}$
<b>Connection</b>	: 1/2" BSP Screwed
<b>Wiring</b>	: 5x1 mm <sup>2</sup> shielded cable
<b>Lengths (L)</b>	: 20 mm

**Note:** It can be produced in desired length.

#### Materials:

<b>Socket</b>	: Polyamid
<b>Probe Body</b>	: Stainless Steel
<b>Electrode</b>	: Stainless Steel
<b>Insulation</b>	: PTFE

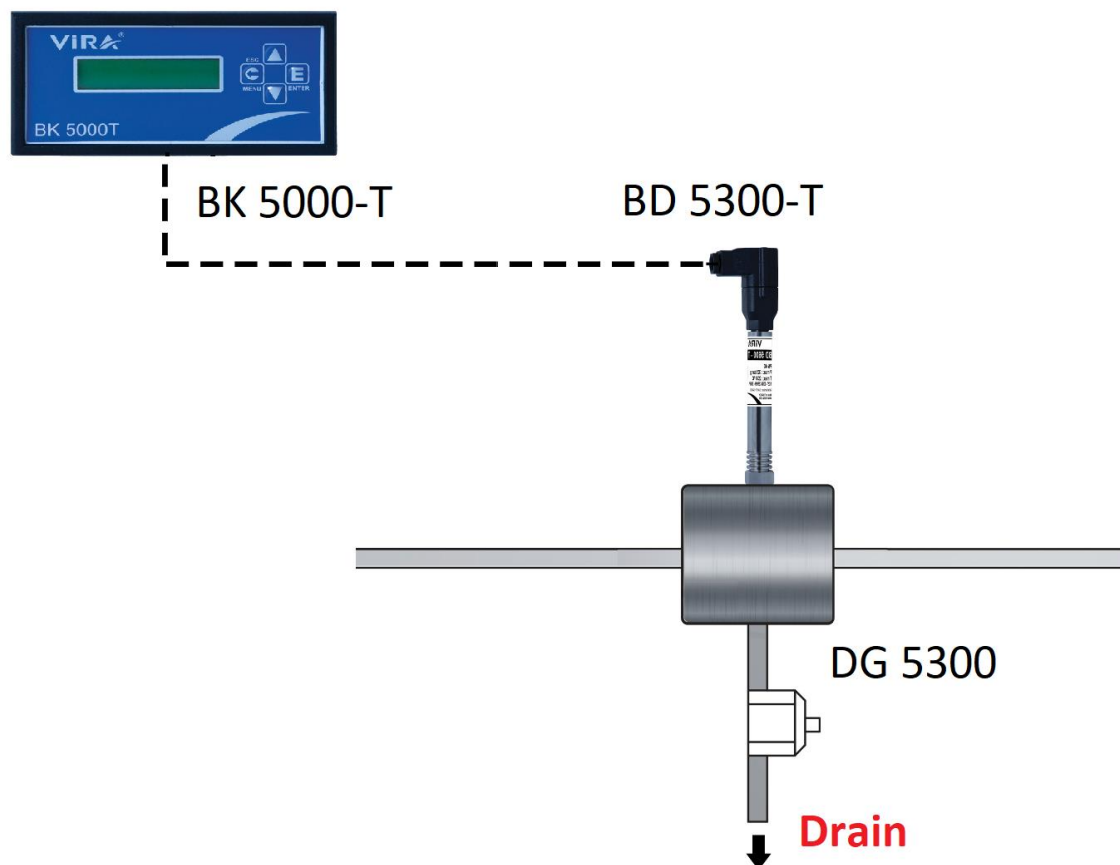


**Figure 2:** BD 5300-T  
Conductivity Probe

## 4. INSTALLATION and WIRING

### 4.1 Installation

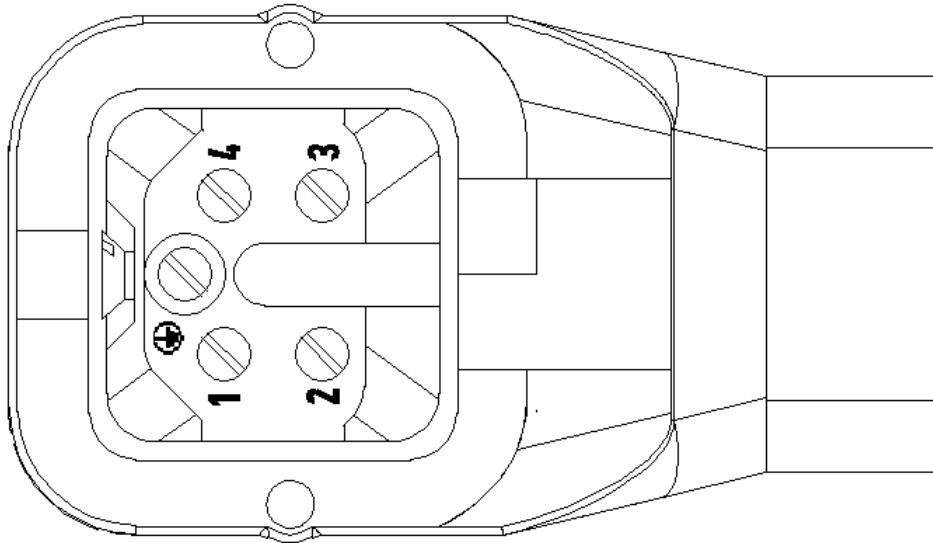
The Conductivity Probe BD 5300-T should be placed vertically in the probe body DG 5300. There is a 1/4 " drain connection under the probe body. Make sure that the necessary pipe and valve connections are made here. When drain is required, the operation can be performed by opening the valve in the drain line.



**Figure 3:** Installation of BD 5300-T Conductivity Probe

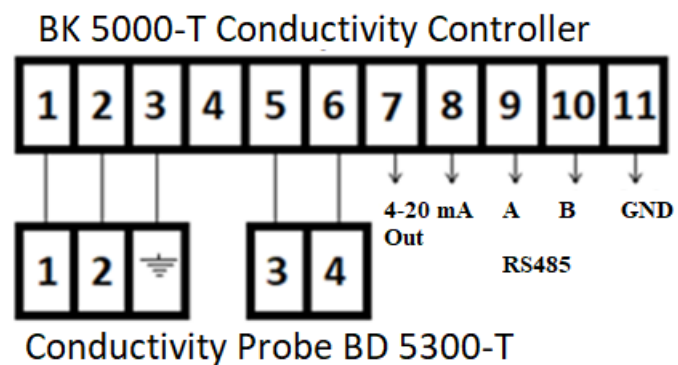


## 4.2 Wiring



**Figure 4:** Cable connector of conductivity probe

Remove the screws on the cable connector and remove the male. Make the cable connections between BK 5000-T and BD 5300-T cable connector with 5x1 mm<sup>2</sup> screened cable like in Figure 4.



**Figure 5:** Wiring between controller and probe

**Not:** Connect cable screen (shield) to only probe side using  $\oplus$  terminal. **Left the controller side of screen unconnected.**

## 5. COMMISSIONING



### **Warning!**

Probe cable must be screened type cable and an external ground shall not be connected in the 3rd terminal input of the controller ,

- Once the system has reached the rated pressure and temperature, take a water sample from the condensate as appropriate and perform conductivity calibration of the BK 5000-T.
- To obtain a proper water sample, VIRA NK-20 sample cooler is advised.
- For more information on calibration, please refer to the BK 5000-T Conductivity Controller Installation and Operation Manual.

## 6. MAINTANANCE



### **Warning!**

Before unmount the probe, boiler pressure must be reduced to atmospheric pressure (0 bar g) and boiler temperature must be at a safe level.

Do not unmount the probe before disconnect the cables. Otherwise cables may be damaged.

Conductivity probe must be unmounted approximately 6 month periods and probe tip must be checked. If necessary tip must be cleaned gently without damage the tip insulation sleeving.

It is recommended to make function tests regularly.

When any fault situation occurs or maintenance is necessary, please contact with “**Vira Isı Service Department**”.

## **Vira Isı ve Endüstriyel Ürünler A.Ş.**

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**NOTES**

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