

ANALOGIC 0-10 VDC INPUT DEVICE

FOR BUDERUS SSB BOILERS



BOSCH

Installation and Service Instructions for Contractors

6720819841 (2016/04) US



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1 Key to symbols and safety instructions

1.1 Key to symbols


Warnings

| | |
|---|---|
|  | <p>Warnings in this document are identified by a warning triangle printed against a grey background.</p> <p>Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.</p> |
|---|---|

The following keywords are defined and can be used in this document:

- **DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION** indicates a hazardous situation which, if not avoided, could result in minor to moderate injury.
- **NOTICE** is used to address practices not related to personal injury.

Important information

| | |
|---|--|
|  | <p>This symbol indicates important information where there is no risk to people or property.</p> |
|---|--|

2 Connection to the boiler

In the following figure is shown an overview of connectors and components.

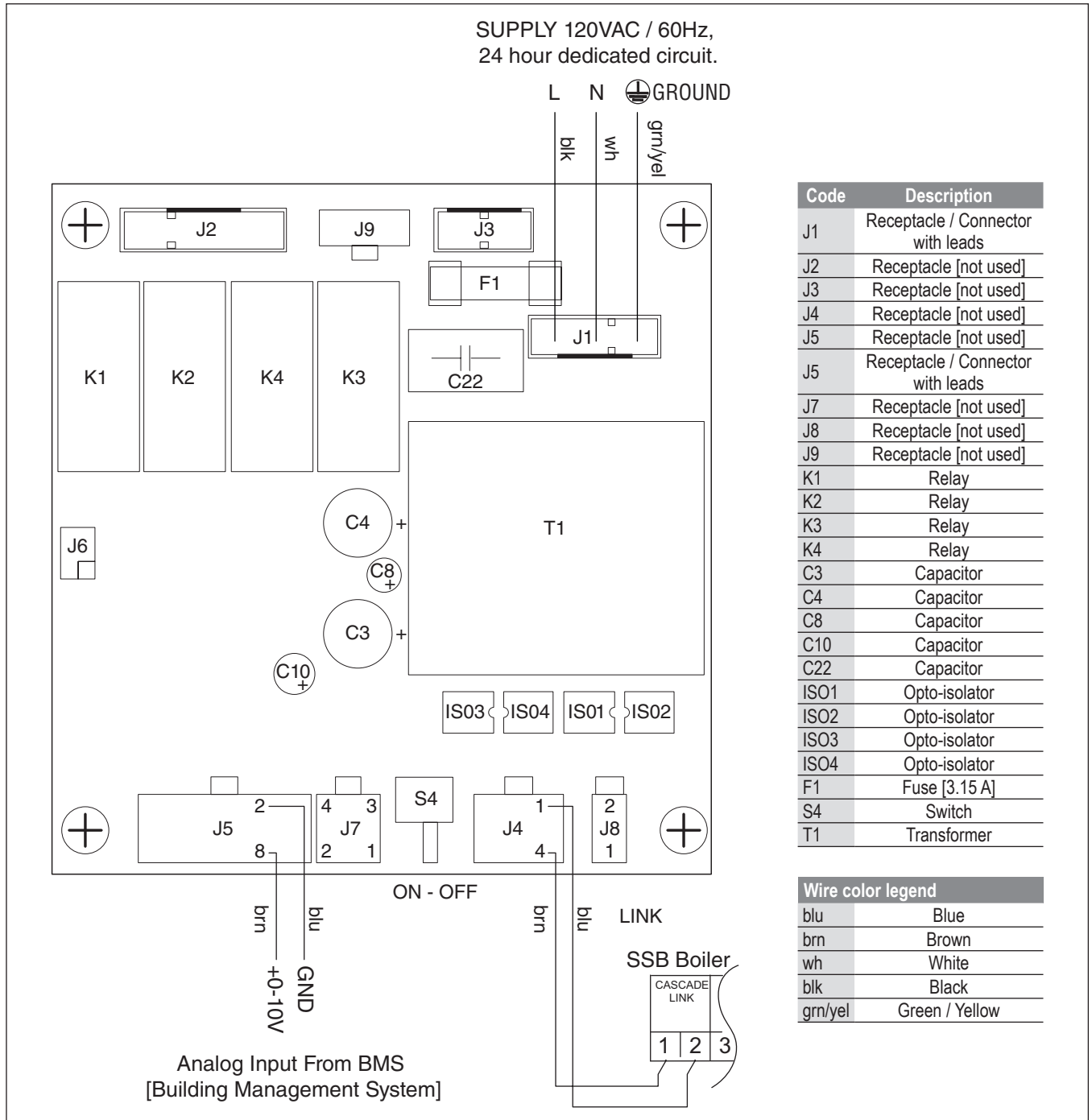


Fig. 1 Connectors and components diagram

NOTICE: This control may be mounted remotely from the boiler. Please make sure this control is not subjected to high heat, excessive moisture, or dust. All wiring shall be accomplished by a licensed electrician according to Federal, State and/or local codes.

To connect the cables follow these instructions:

- Connect the “Analog input” cable to the 0-10 VDC output device considering that the brown cable [brn] is for the positive.
- Connect the “Link” cable to the terminal 1-2 of the boiler (“cascade link” connection, see the boiler installation manual for details) considering that the polarity is **NOT** important.
- Connect the “Supply” cable [Wire per National, Federal, State and/or local codes].

3 Use of the device for a single boiler application

3.1 Central Heating with Analog Input Control of setpoint

With this configuration it is possible to manage via a 0-10 VDC analog signal the setpoint of the boiler.

The parameters involved are the following:

| N. | Description | Comment |
|----|---------------------------|---------------------------------|
| 1 | Central Heating (CH) Mode | This parameter must be set to 4 |
| 23 | Design Supply Min Limit | Min setpoint temperature |
| 24 | Design Supply Max Limit | Max setpoint temperature |

Tab. 1 Parameters

The functioning of the boiler depending on the voltage output is shown in the following picture:

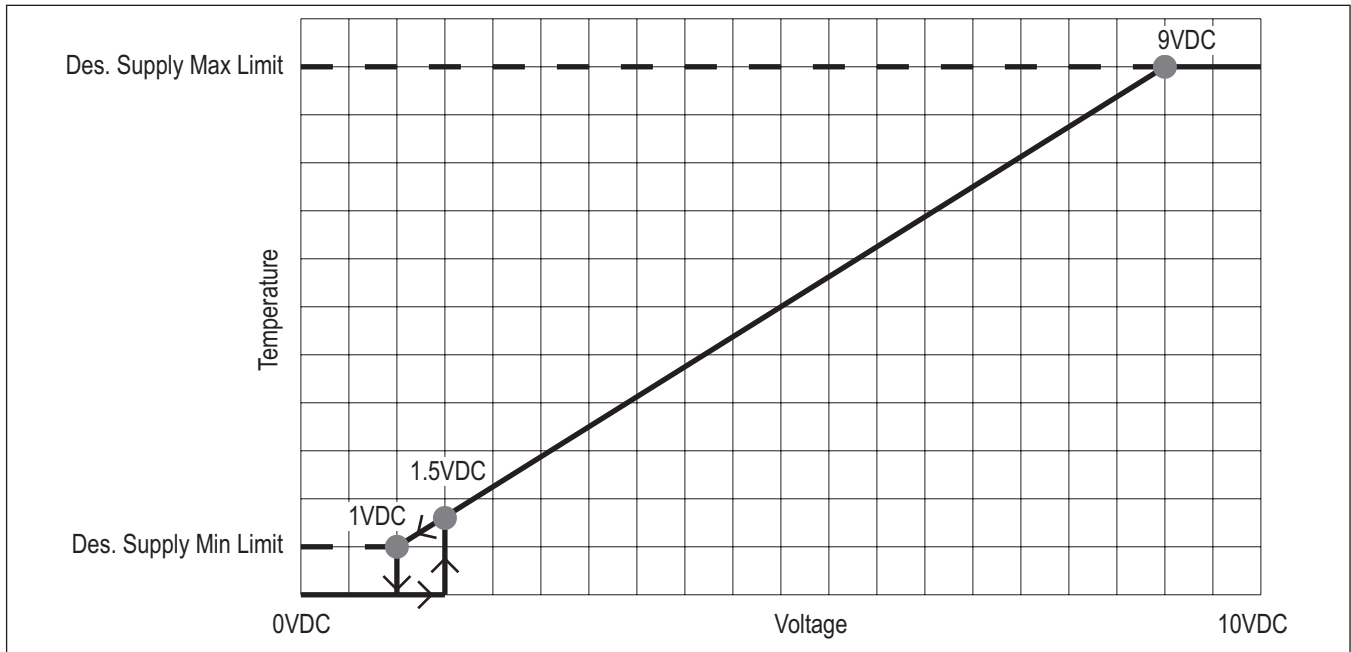


Fig. 2 Voltage output diagram

- The setpoint of the boiler is linearly controlled into the voltage interval of 1VDC to 9VDC from a minimum value equal to Par. 23 to a maximum value equal to Par. 24.
- For a voltage between 9VDC and 10VDC the setpoint is in any case set to the maximum value.
- The boiler starts when the voltage is higher than 1.5VDC and turns off when the voltage is lower than 1VDC.

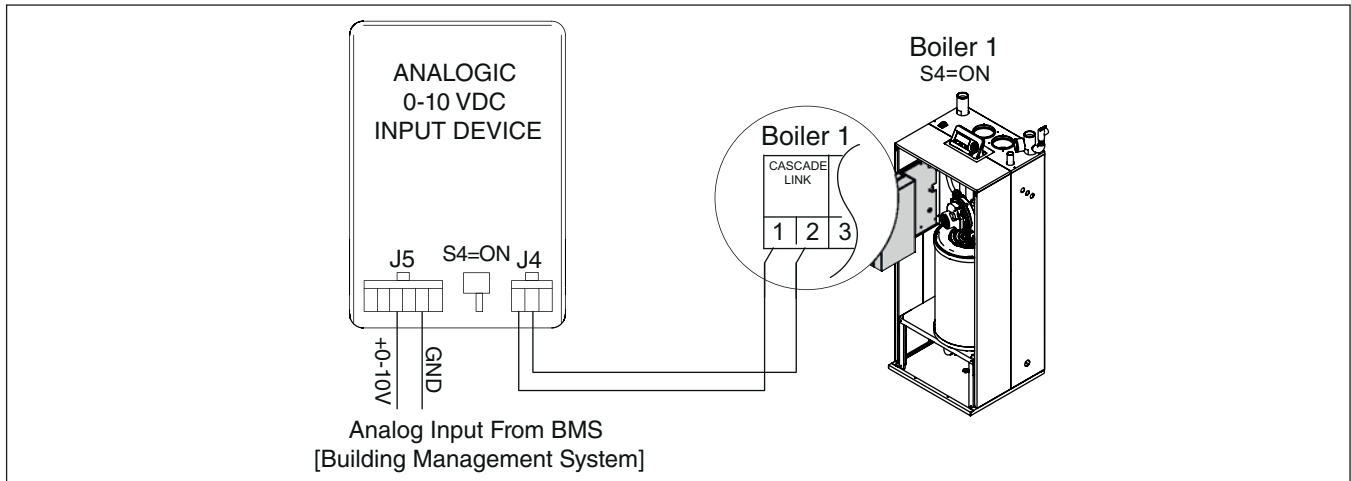


Fig. 3 Basic interface

3.2 Central Heating with Analog Input Control of Modulation Rate

With this configuration it is possible to manage via a 0-10 VDC analog signal the power of the boiler.

The parameters involved are the following:

| N. | Description | Comment |
|----|---------------------------|--|
| 1 | Central Heating (CH) Mode | This parameter must be set to 5 |
| 24 | Design Supply Max Limit | This parameter sets the setpoint of the boiler |
| 92 | Fan Speed Maximum | This parameter sets the maximum power |
| 93 | Fan Speed Minimum | This parameter sets the minimum power |

Tab. 2 Parameters

The functioning of the boiler depending on the voltage output is shown in the following picture:

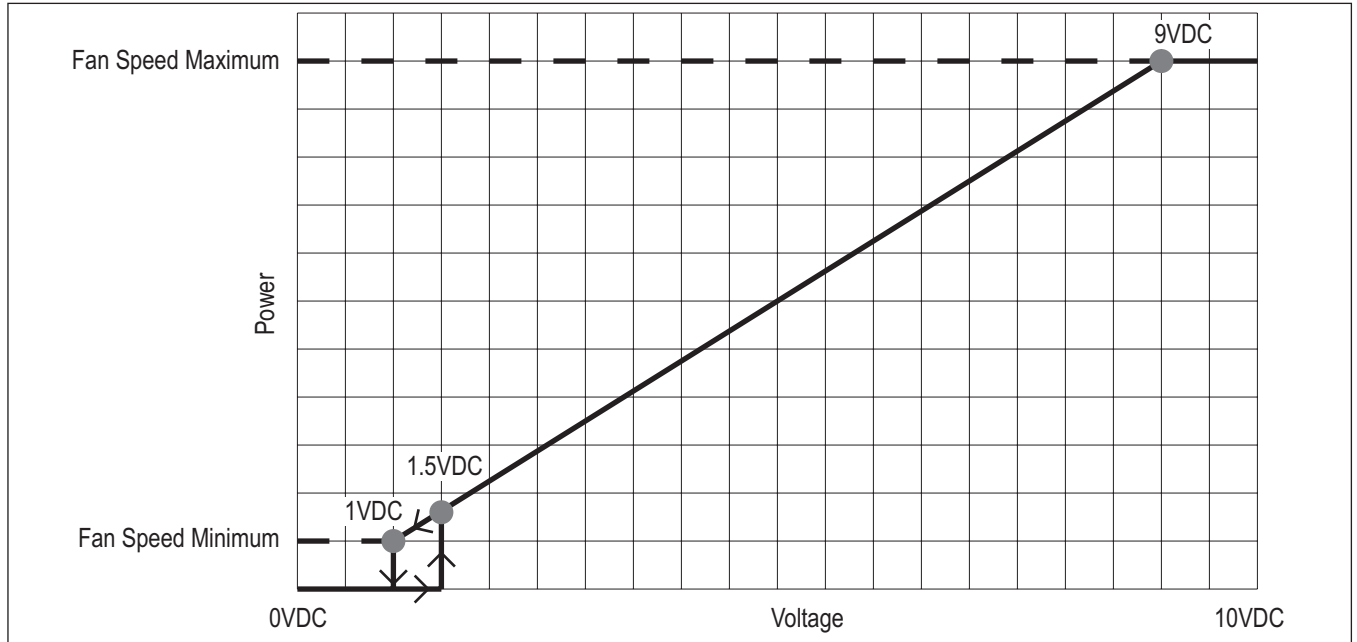


Fig. 4 Voltage output diagram

- The power of the boiler is linearly controlled into the voltage interval of 1VDC to 9VDC from a minimum value defined by the Par. 93 to a maximum value defined by the Par. 92.
- For a voltage between 9VDC and 10VDC the power is in any case set to the maximum value.
- The boiler starts when the voltage is higher than 1.5VDC and turns off when the voltage is lower than 1VDC.
- The setpoint of the boiler is in any case controlled by the system. The value of the setpoint is defined by the Par. 24. If during the supply temperature becomes higher than the setpoint the boiler starts to modulate ignoring the power adjustment supplied via the analog control.

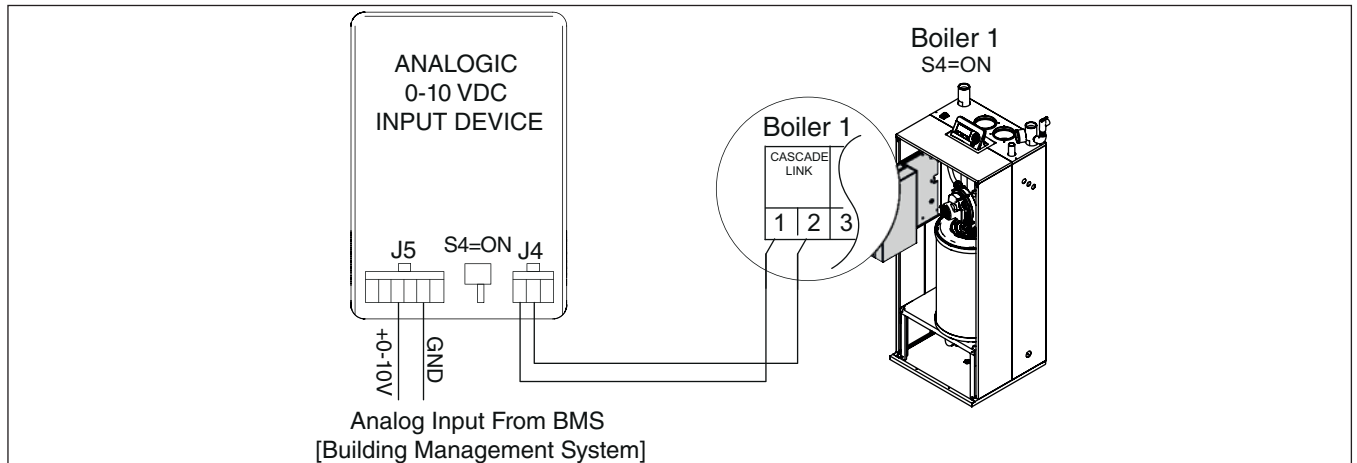


Fig. 5 Basic interface

4 Use of the device for a cascade system

In a cascade system you can only use the control setpoint via the 0-10 VDC analog device.

The parameters involved are the same illustrated in paragraph "3.1 Central Heating with Analog Input Control of setpoint" for a single boiler:

| N. | Description | Comment |
|----|---------------------------|---------------------------------|
| 1 | Central Heating (CH) Mode | This parameter must be set to 4 |
| 23 | Design Supply Min Limit | Min setpoint temperature |
| 24 | Design Supply Max Limit | Max setpoint temperature |

Tab. 3 Parameters

The functioning of the cascade depending on the voltage output is shown in the following picture:

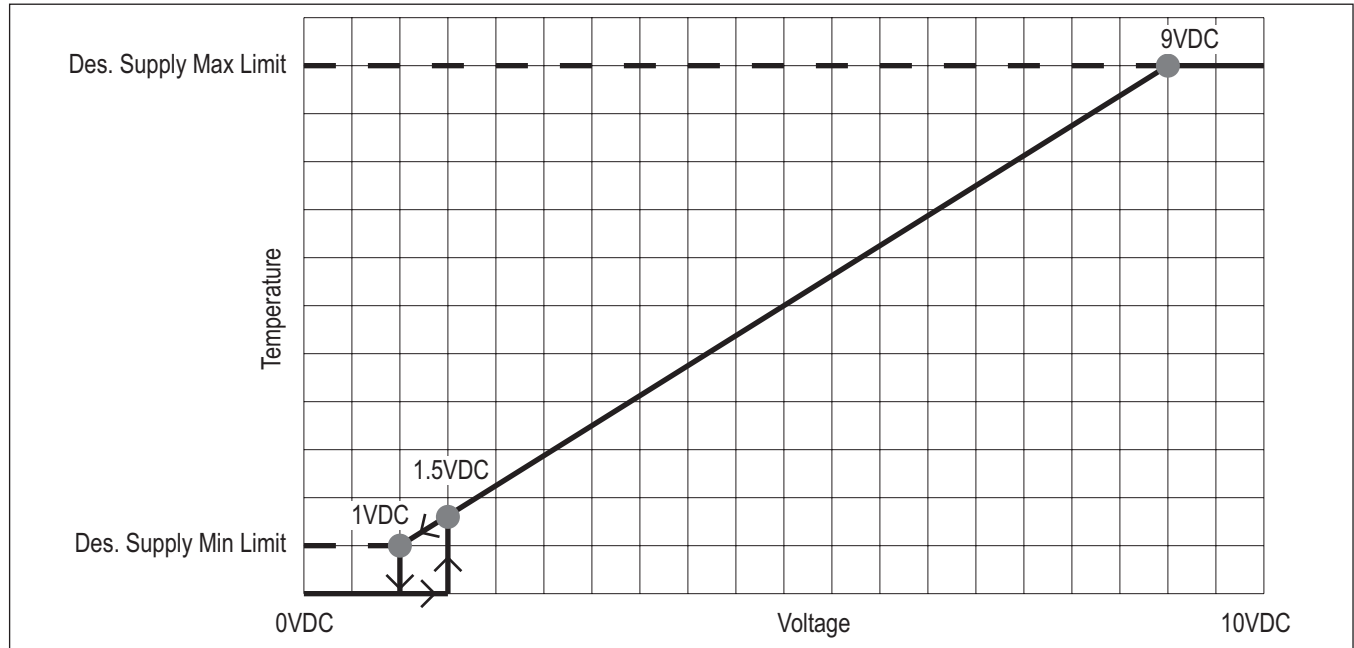


Fig. 6 Voltage output diagram

- The setpoint of the cascade system is linearly controlled into the voltage interval of 1VDC to 9VDC from a minimum value equal to Par. 23 to a maximum value equal to Par. 24.
- For a voltage between 9VDC and 10VDC the setpoint is in any case set to the maximum value.
- The cascade starts when the voltage is higher than 1.5VDC and turns off when the voltage is lower than 1VDC.

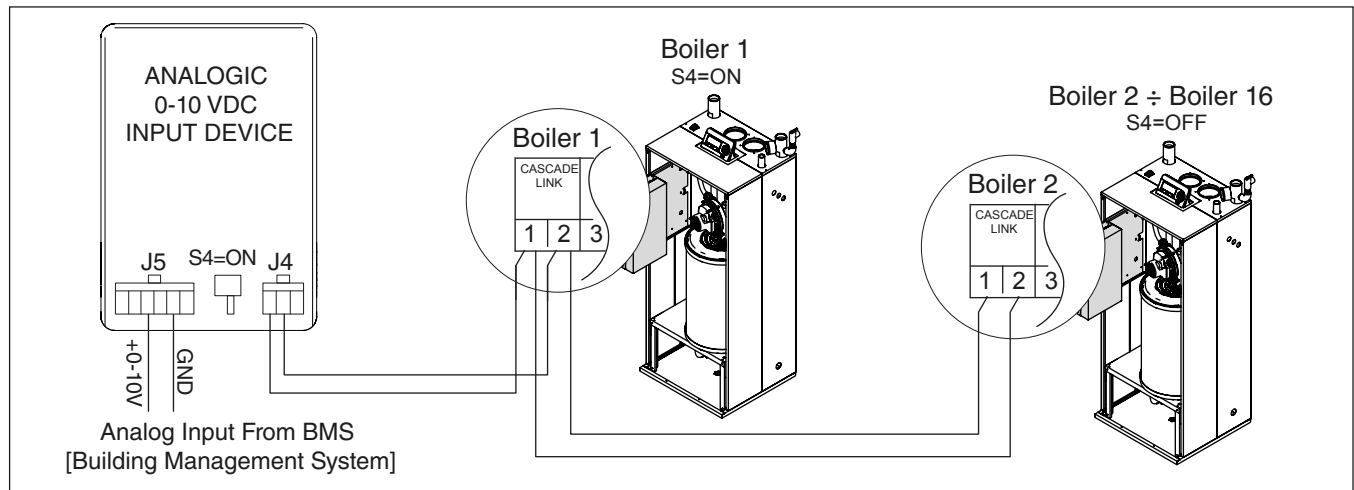


Fig. 7 Basic interface

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