



Inspired by  
**temperature**

**Flow Rate Measurement  
and Control**  
Unichiller

**Manual**

**huber**

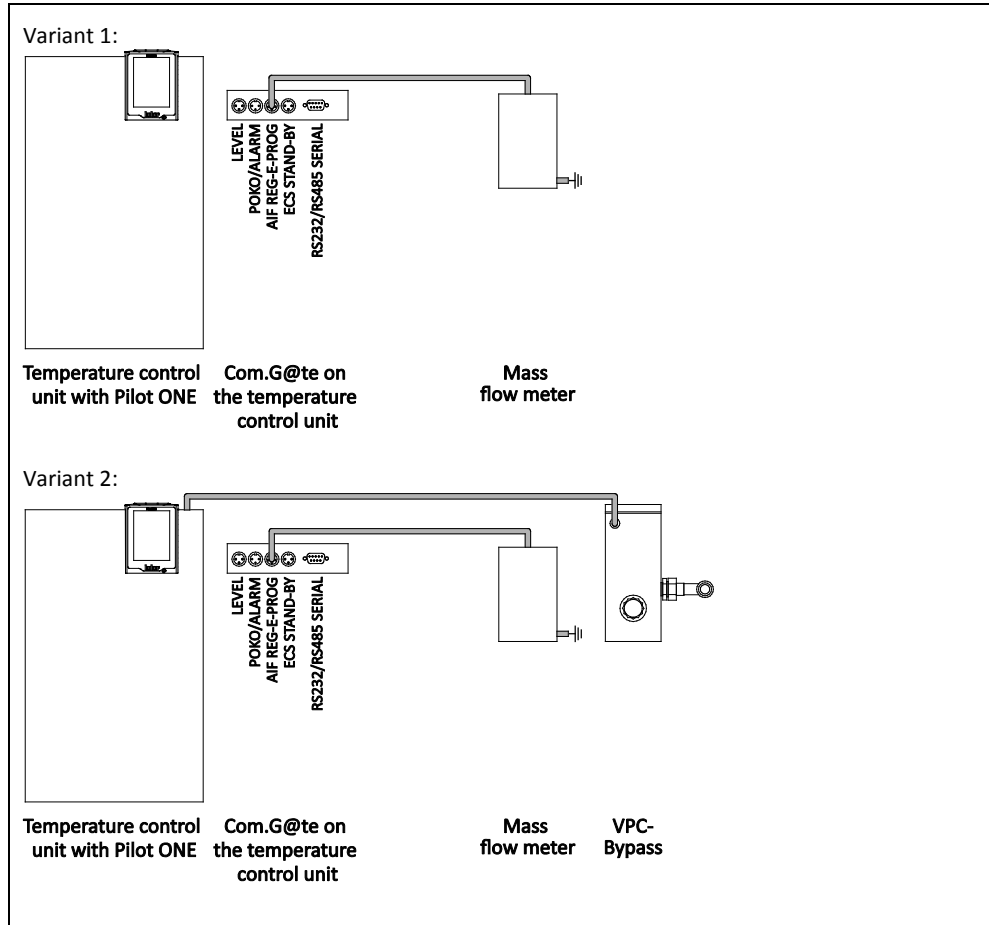


# Flow Rate Measurement and Control

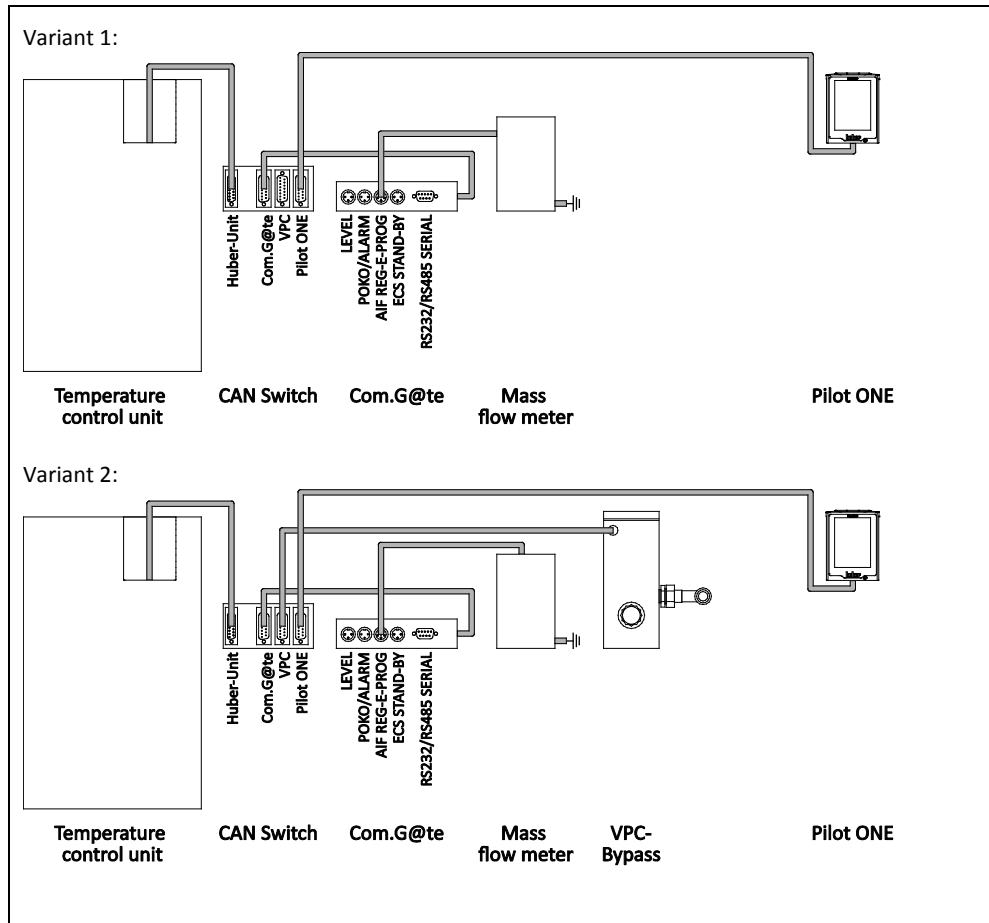
VALID FOR:

Unichiller® Models

Standard configuration  
variants overview



Variants overview for  
remote operation



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## 1 Application

Depending on the temperature control unit model and accessories, Huber provides various variants for flow rate measurement and control.

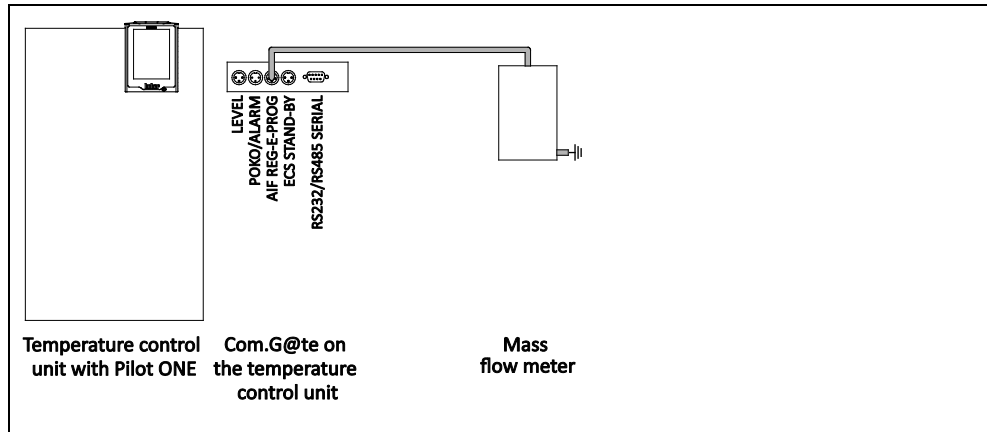
This manual describes the individual variants including hardware requirements, commissioning, functional description and setup mode.

## 2 Standard configuration

### 2.1 Variant 1 (flow rate measurement)

For temperature control units **with or without** a speed-controlled pump.

Schematic representation of variant



Prerequisites:

Required hardware	Required documentation
Temperature control unit	Operation manual of the temperature control unit
Com.G@te	Operation manual of the temperature control unit
Mass flow meter	Operation manual of the mass flow meter
Connecting cables	–



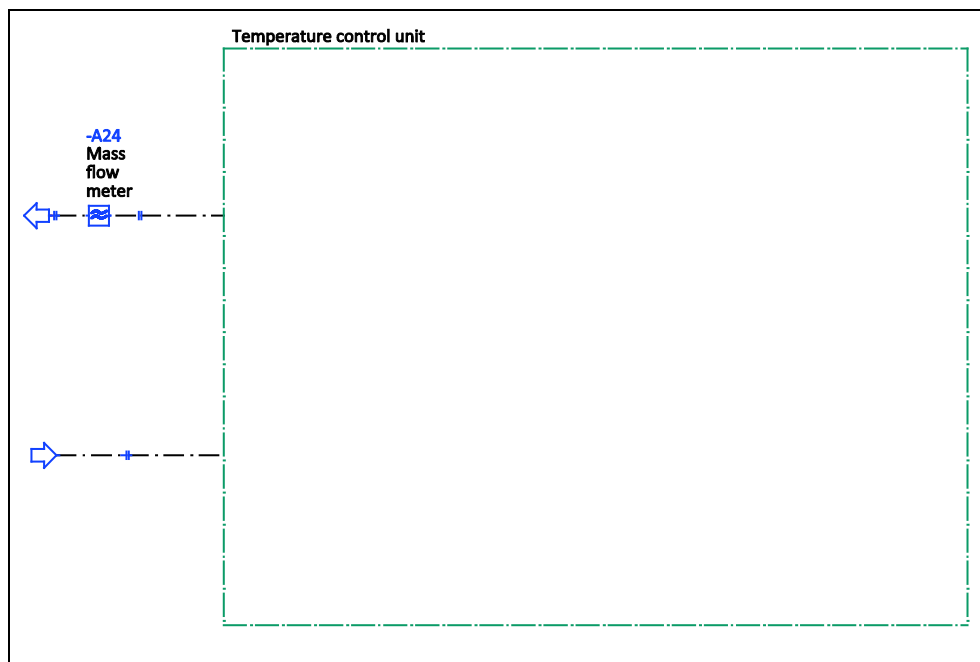
## 2.1.1 Commissioning

Commission the temperature control unit as described in the operation manual (Section »**Commissioning**«). Also follow the operation manual of the mass flow meter.

The steps below must be performed as well.

### 2.1.1.1 Installing the mass flow meter

Schematic representation of the temperature control unit



## PROCEDURE

- Install the mass flow meter in the building. Proceed as described in the operation manual of the mass flow meter.
- Install the mass flow meter in the thermal fluid circuit. Proceed as described in the operation manual of the mass flow meter. See above figure »**Schematic representation of the temperature control unit**«.

### 2.1.1.2 Connecting connections

## PROCEDURE

- Connect the mass flow meter to the jack >**AIF Reg-E-Prog**< on the Com.G@te unit.
- Connect the flow rate meter with the building's power supply.

## 2.1.2 Description of function

The mass flow meter detects and outputs the flow rate of the thermal fluid. You cannot control the flow rate in this variant.

## 2.1.3 Setup mode

Install the temperature control unit as described in the operation manual (Section »Setup mode«). Also follow the operation manual of the mass flow meter.

The steps below must be performed as well.

### 2.1.3.1 Mass flow meter

Depending on the mass flow meter used, readings are output as current or voltage. Follow these steps to calibrate the mass flow meter on the Pilot ONE.

## PROCEDURE

- Go to the “Categories Menu”.
- Tap on the category “Interfaces”.
- Tap on the category “Analogue Interface”.
- Tap on the sub-category “Input”.
- Tap on the sub-category “Current/Voltage switch”.
- Depending on the mass flow meter used, tap on the entry “Current” or “Voltage”.
- Confirm your choice by tapping on “OK”.
- Tap the required entry “Trigger an alarm” or “No alarm”.
- Confirm your choice by tapping on “OK”.
- Tap on the sub-category “Input Funct./Measuring range”.
- Tap on the entry “Thermofluid flow”.
- Confirm your choice by tapping on “OK”.
- Enter the min. value, using the numeric keypad that appears. Refer to the documentation of the mass flow meter for the min. value.
- Confirm your entry by tapping on “OK”.
- Enter the max. value, using the numeric keypad that appears. Refer to the documentation of the mass flow meter for the max. value.
- Tap on the sub-category “Adjustment”.
- Tap on the entry “Adjust current value”.
- Confirm your choice by tapping on “OK”.
- Tap on the entry “Adjust low value”.
- Confirm your choice by tapping on “OK”.
- Read the Note and confirm by tapping on “OK”.
- Enter the value, using the numeric keypad that appears. The value is displayed on the mass flow meter.
- Confirm your entry by tapping on “OK”.
- Tap on the sub-category “Adjustment”.
- Tap on the entry “Adjust current value”.
- Confirm your choice by tapping on “OK”.
- Tap on the entry “Adjust high value”.
- Confirm your choice by tapping on “OK”.
- Read the Note and confirm by tapping on “OK”.
- Enter the value, using the numeric keypad that appears. The value is displayed on the mass flow meter.
- Confirm your entry by tapping on “OK”. The mass flow meter has been calibrated.
- Continue with the instructions in the operation manual of the temperature control unit.

## 2.1.4 Shutting down

Shut down the temperature control unit as described in the operation manual (Section »**Shutting down**«). Also follow the operation manual of the mass flow meter.

The steps below must be performed as well.

### 2.1.4.1 Disconnecting connections

#### PROCEDURE

- Disconnect the flow rate meter from the building's power supply.
- Disconnect the mass flow meter from the jack >AIF Reg-E-Prog< on the Com.G@te unit.

### 2.1.4.2 Deinstalling the mass flow meter

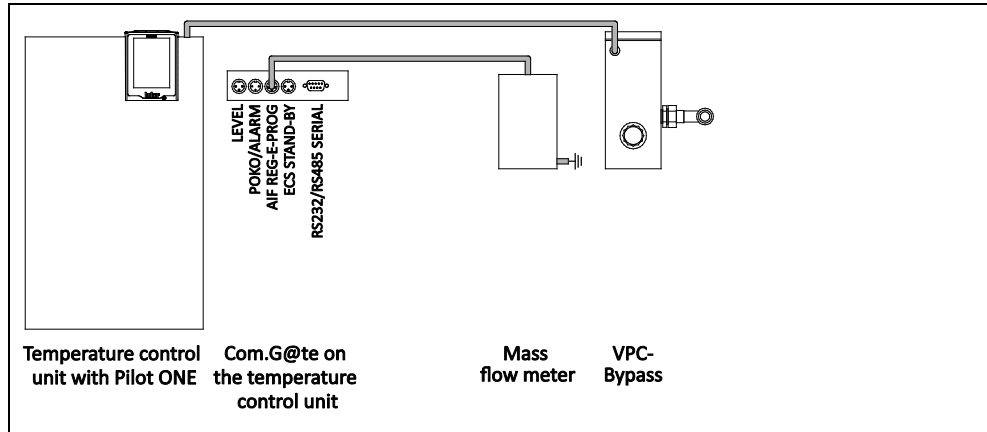
#### PROCEDURE

- Deinstall the mass flow meter from the thermal fluid circuit. Proceed as described in the operation manual of the mass flow meter.
- Deinstall the mass flow meter from the building. Proceed as described in the operation manual of the mass flow meter.

## 2.2 Variant 2 (flow rate control)

For temperature control units **with or without** a speed-controlled pump.

Schematic representation of variant



Prerequisites:

Required hardware	Required documentation
Temperature control unit	Operation manual of the temperature control unit
Com.G@te	Operation manual of the temperature control unit
Mass flow meter	Operation manual of the mass flow meter
VPC-Bypass	Installation guide for the VPC-Bypass
Connecting cables	–

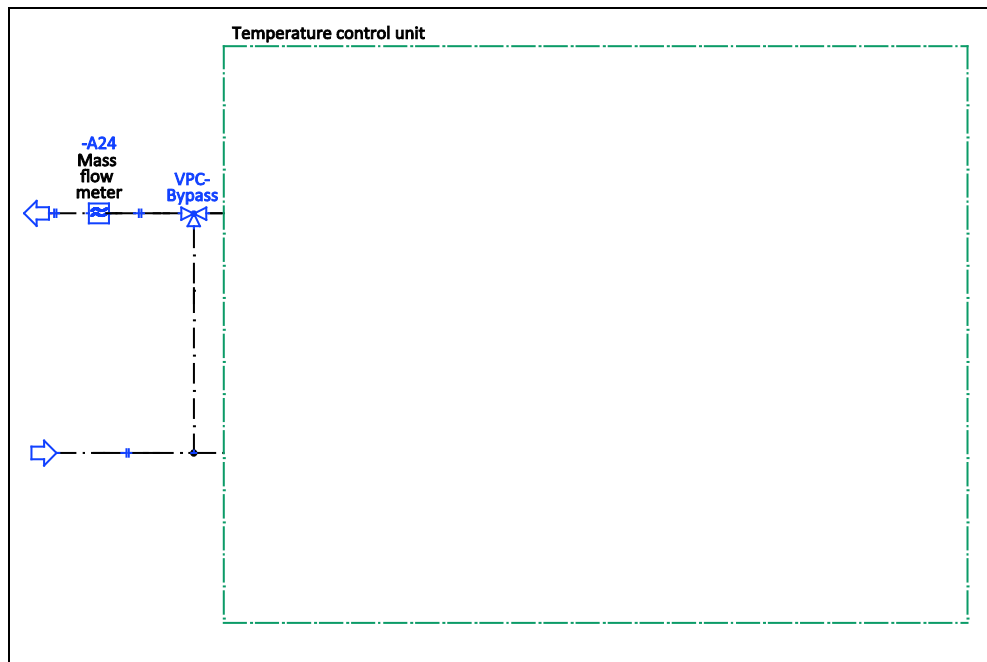
## 2.2.1 Commissioning

Commission the temperature control unit as described in the operation manual (Section »**Commissioning**«). Also follow the installation guide of the VPC-Bypass and the operation manual of the mass flow meter.

The steps below must be performed as well.

### 2.2.1.1 Installing VPC-Bypass and mass flow meter

Schematic representation of the temperature control unit



## PROCEDURE

- Install the mass flow meter in the building. Proceed as described in the operation manual of the mass flow meter.
- Install the VPC-Bypass and the mass flow meter in the thermal fluid circuit. Proceed as described in the corresponding operation manuals. See above figure »**Schematic representation of the temperature control unit**«.

### 2.2.1.2 Connecting connections

## PROCEDURE

- Connect the connection >**Control cable to temperature control unit**< on the VPC Bypass with the jack >**RS232 Serial (with adapter cable)**< on the temperature control unit.
- Connect the mass flow meter to the jack >**AIF Reg-E-Prog**< on the Com.G@te unit.
- Connect the flow rate meter with the building's power supply.

## 2.2.2 Description of function

The mass flow meter detects the flow rate of the thermal fluid. In this variant, the flow rate is controlled by the VPC-Bypass.

## 2.2.3 Setup mode

Install the temperature control unit as described in the operation manual (Section »Setup mode«). Also follow the installation guide of the VPC-Bypass and the operation manual of the mass flow meter.

The steps below must be performed as well.

### 2.2.3.1 Mass flow meter

Depending on the mass flow meter used, readings are output as current or voltage. Follow these steps to calibrate the mass flow meter on the Pilot ONE.

## PROCEDURE

- Go to the “Categories Menu”.
- Tap on the category “Interfaces”.
- Tap on the category “Analogue Interface”.
- Tap on the sub-category “Input”.
- Tap on the sub-category “Current/Voltage switch”.
- Depending on the mass flow meter used, tap on the entry “Current” or “Voltage”.
- Confirm your choice by tapping on “OK”.
- Tap the required entry “Trigger an alarm” or “No alarm”.
- Confirm your choice by tapping on “OK”.
- Tap on the sub-category “Input Funct./Measuring range”.
- Tap on the entry “Thermofluid flow”.
- Confirm your choice by tapping on “OK”.
- Enter the min. value, using the numeric keypad that appears. Refer to the documentation of the mass flow meter for the min. value.
- Confirm your entry by tapping on “OK”.
- Enter the max. value, using the numeric keypad that appears. Refer to the documentation of the mass flow meter for the max. value.
- Tap on the sub-category “Adjustment”.
- Tap on the entry “Adjust current value”.
- Confirm your choice by tapping on “OK”.
- Tap on the entry “Adjust low value”.
- Confirm your choice by tapping on “OK”.
- Read the Note and confirm by tapping on “OK”.
- Enter the value, using the numeric keypad that appears. The value is displayed on the mass flow meter.
- Confirm your entry by tapping on “OK”.
- Tap on the sub-category “Adjustment”.
- Tap on the entry “Adjust current value”.
- Confirm your choice by tapping on “OK”.
- Tap on the entry “Adjust high value”.
- Confirm your choice by tapping on “OK”.
- Read the Note and confirm by tapping on “OK”.
- Enter the value, using the numeric keypad that appears. The value is displayed on the mass flow meter.
- Confirm your entry by tapping on “OK”. The mass flow meter has been calibrated.
- Continue with the instructions in the operation manual of the temperature control unit.

### 2.2.3.2 VPC-Bypass

Adjust the Required Setting when using VPC-Bypass in Pilot ONE. See the operation manual of the temperature control unit in section »**Sub-category fluid properties**«.

### 2.2.4 Shutting down

Shut down the temperature control unit as described in the operation manual (Section »**Shutting down**«). Also follow the installation guide of the VPC-Bypass and the mass flow meter.

The steps below must be performed as well.

#### 2.2.4.1 Disconnecting connections

##### PROCEDURE

- Disconnect the flow rate meter from the building's power supply.
- Disconnect the connection >**Control cable to temperature control unit**< on the VPC Bypass from the jack >**RS232 Serial (with adapter cable)**< on the temperature control unit.
- Disconnect the mass flow meter from the jack >**AIF Reg-E-Prog**< on the Com.G@te unit.

#### 2.2.4.2 Deinstalling VPC-Bypass and mass flow meter

##### PROCEDURE

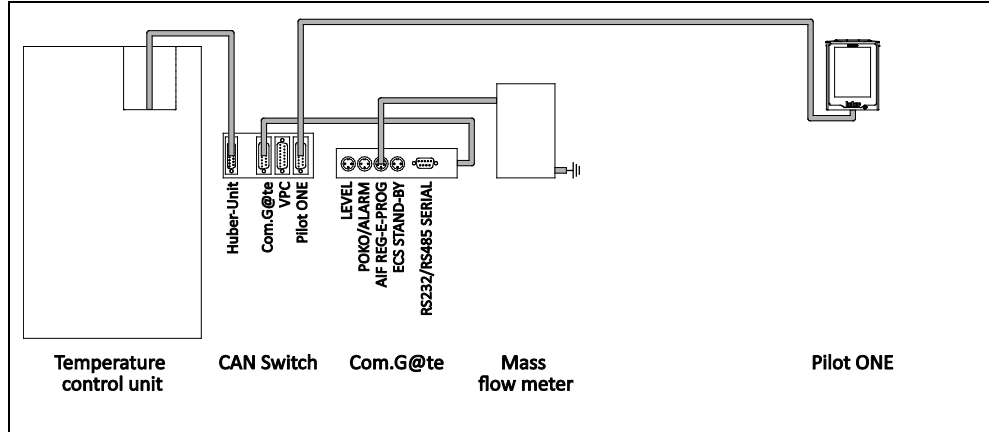
- Deinstall the VPC-Bypass and the mass flow meter from the thermal fluid circuit. Proceed as described in the corresponding operation manuals.
- Deinstall the mass flow meter from the building. Proceed as described in the operation manual of the mass flow meter.

### 3 Configuration: Remote operation

#### 3.1 Variant 1 (flow rate measurement)

For temperature control units **with or without** a speed-controlled pump.

Schematic representation of variant



Prerequisites:

Required hardware	Required documentation
Temperature control unit	Operation manual of the temperature control unit Technical bulletin "Remote control using Pilot ONE"
Com.G@te	Operation manual of the temperature control unit
CAN Switch	–
Mass flow meter	Operation manual of the mass flow meter
Connecting cables	–



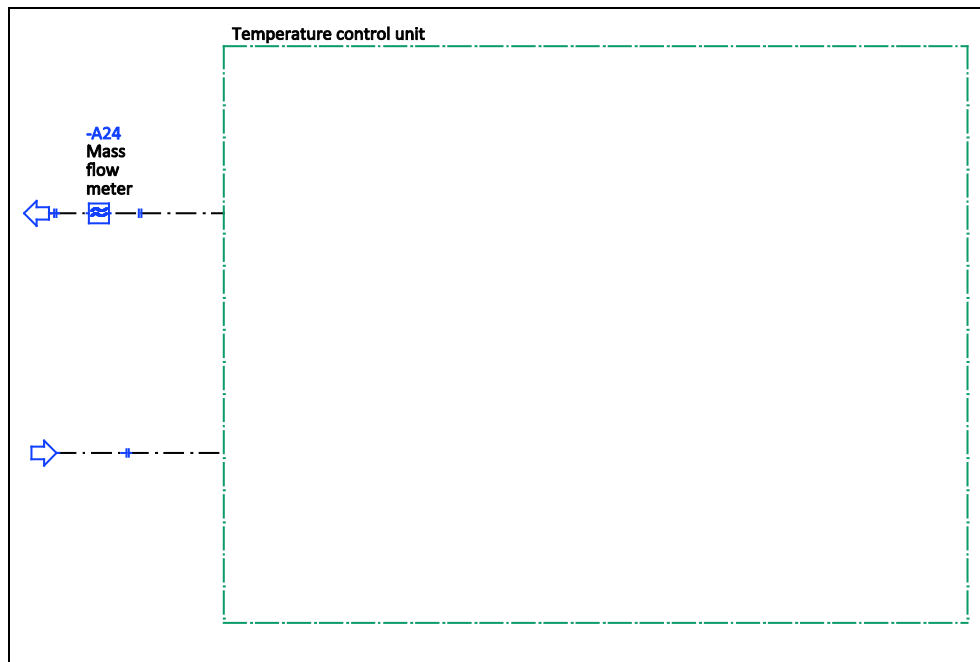
### 3.1.1 Commissioning

Commission the temperature control unit as described in the operation manual (Section »**Commissioning**«). Also follow the operation manual of the mass flow meter and the technical bulletin “Remote control using Pilot ONE”.

The steps below must be performed as well.

#### 3.1.1.1 Installing the mass flow meter

Schematic representation of the temperature control unit



### PROCEDURE

- Install the mass flow meter in the building. Proceed as described in the operation manual of the mass flow meter.
- Install the mass flow meter in the thermal fluid circuit. Proceed as described in the operation manual of the mass flow meter. See above figure »**Schematic representation of the temperature control unit**«.

#### 3.1.1.2 Connecting connections

### PROCEDURE

- Connect the jack >**Huber-Unit**< on the CAN Switch to the jack >**RS232 Serial (with adapter cable)**< on the temperature control unit.
- Connect the jack >**Pilot ONE**< on the CAN Switch to the bottom jack on the Pilot ONE.
- Connect the jack >**Com.G@te**< on the CAN Switch to the jack on the side of the Com.G@te unit.
- Connect the mass flow meter to the jack >**AIF Reg-E-Prog**< on the Com.G@te unit.
- Connect the flow rate meter with the building’s power supply.

### 3.1.2 Description of function

The mass flow meter detects and outputs the flow rate of the thermal fluid. You cannot control the flow rate in this variant. The operation of the temperature control unit is controlled via Pilot ONE, which is a separate unit from the temperature control unit.

### 3.1.3 Setup mode

Install the temperature control unit as described in the operation manual (Section »Setup mode«). Also follow the operation manual of the mass flow meter.

The steps below must be performed as well.

#### 3.1.3.1 Mass flow meter

Depending on the mass flow meter used, readings are output as current or voltage. Follow these steps to calibrate the mass flow meter on the Pilot ONE.

### PROCEDURE

- Go to the “Categories Menu”.
- Tap on the category “Interfaces”.
- Tap on the category “Analogue Interface”.
- Tap on the sub-category “Input”.
- Tap on the sub-category “Current/Voltage switch”.
- Depending on the mass flow meter used, tap on the entry “Current” or “Voltage”.
- Confirm your choice by tapping on “OK”.
- Tap the required entry “Trigger an alarm” or “No alarm”.
- Confirm your choice by tapping on “OK”.
- Tap on the sub-category “Input Funct./Measuring range”.
- Tap on the entry “Thermofluid flow”.
- Confirm your choice by tapping on “OK”.
- Enter the min. value, using the numeric keypad that appears. Refer to the documentation of the mass flow meter for the min. value.
- Confirm your entry by tapping on “OK”.
- Enter the max. value, using the numeric keypad that appears. Refer to the documentation of the mass flow meter for the max. value.
- Tap on the sub-category “Adjustment”.
- Tap on the entry “Adjust current value”.
- Confirm your choice by tapping on “OK”.
- Tap on the entry “Adjust low value”.
- Confirm your choice by tapping on “OK”.
- Read the Note and confirm by tapping on “OK”.
- Enter the value, using the numeric keypad that appears. The value is displayed on the mass flow meter.
- Confirm your entry by tapping on “OK”.
- Tap on the sub-category “Adjustment”.
- Tap on the entry “Adjust current value”.
- Confirm your choice by tapping on “OK”.
- Tap on the entry “Adjust high value”.
- Confirm your choice by tapping on “OK”.
- Read the Note and confirm by tapping on “OK”.
- Enter the value, using the numeric keypad that appears. The value is displayed on the mass flow meter.
- Confirm your entry by tapping on “OK”. The mass flow meter has been calibrated.
- Continue with the instructions in the operation manual of the temperature control unit.

### 3.1.4 Shutting down

Shut down the temperature control unit as described in the operation manual (Section »**Shutting down**«). Also follow the operation manual of the mass flow meter and the technical bulletin “Remote control using Pilot ONE”.

The steps below must be performed as well.

#### 3.1.4.1 Disconnecting connections

##### PROCEDURE

- Disconnect the flow rate meter from the building’s power supply.
- Disconnect the jack >Huber-Unit< on the CAN Switch from the jack >RS232 Serial (with adapter cable)< on the temperature control unit.
- Disconnect the jack >Pilot ONE< on the CAN Switch from the bottom jack on the Pilot ONE.
- Disconnect the jack >Com.G@te< on the CAN Switch from the jack on the side of the Com.G@te unit.
- Disconnect the mass flow meter from the jack >AIF Reg-E-Prog< on the Com.G@te unit.

#### 3.1.4.2 Deinstalling the mass flow meter

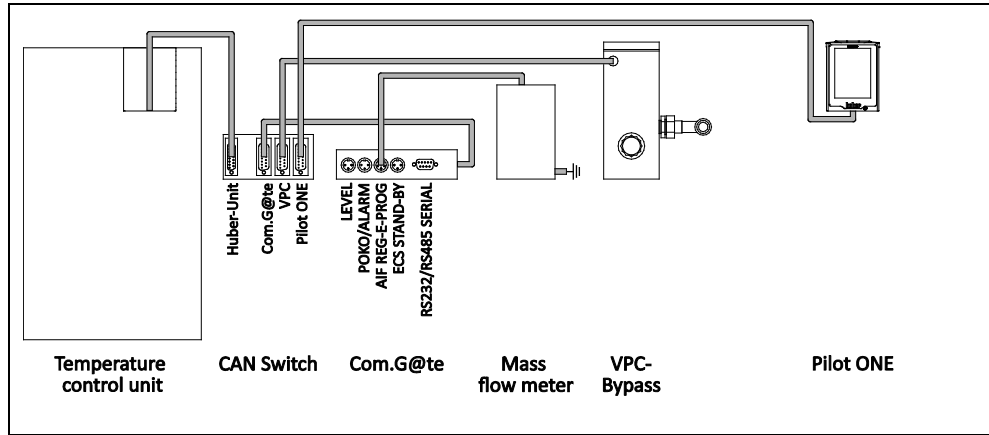
##### PROCEDURE

- Deinstall the mass flow meter from the thermal fluid circuit. Proceed as described in the operation manual of the mass flow meter.
- Deinstall the mass flow meter from the building. Proceed as described in the operation manual of the mass flow meter.

### 3.2 Variant 2 (flow rate control)

For temperature control units **with or without** a speed-controlled pump.

Schematic representation of variant



Prerequisites:

Required hardware	Required documentation
Temperature control unit	Operation manual of the temperature control unit Technical bulletin "Remote control using Pilot ONE"
Com.G@te	Operation manual of the temperature control unit
CAN Switch	–
Mass flow meter	Operation manual of the mass flow meter
VPC-Bypass	Installation guide for the VPC-Bypass
Connecting cables	–

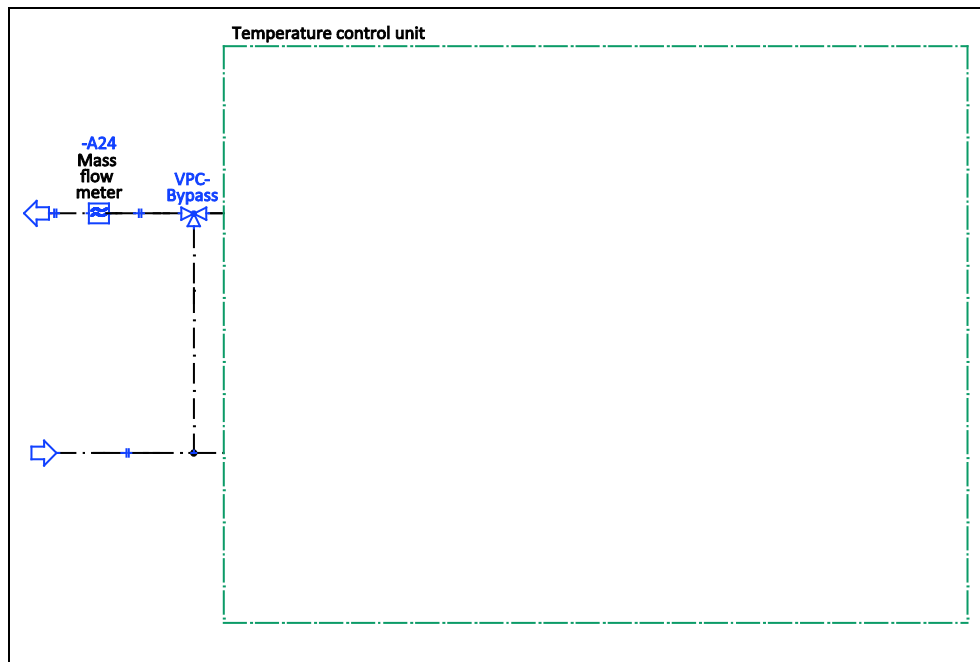
### 3.2.1 Commissioning

Commission the temperature control unit as described in the operation manual (Section »**Commissioning**«). Also follow the installation guide of the VPC-Bypass, the operation manual of the mass flow meter and the technical bulletin "Remote control using Pilot ONE".

The steps below must be performed as well.

#### 3.2.1.1 Installing VPC-Bypass and mass flow meter

Schematic representation of the temperature control unit



### PROCEDURE

- Install the mass flow meter in the building. Proceed as described in the operation manual of the mass flow meter.
- Install the VPC-Bypass and the mass flow meter in the thermal fluid circuit. Proceed as described in the corresponding operation manuals. See above figure »**Schematic representation of the temperature control unit**«.

#### 3.2.1.2 Connecting connections

### PROCEDURE

- Connect the jack >Huber-Unit< on the CAN Switch to the jack >RS232 Serial (with adapter cable)< on the temperature control unit.
- Connect the jack >Pilot ONE< on the CAN Switch to the bottom jack on the Pilot ONE.
- Connect the jack >Com.G@te< on the CAN Switch to the jack on the side of the Com.G@te unit.
- Connect the jack >VPC< on the CAN Switch to the jack >Control cable temperature control unit< on the VPC-Bypass.
- Connect the mass flow meter to the jack >AIF Reg-E-Prog< on the Com.G@te unit.
- Connect the flow rate meter with the building's power supply.

### 3.2.2 Description of function

The mass flow meter detects the flow rate of the thermal fluid. In this variant, the flow rate is controlled by the VPC-Bypass. The operation of the temperature control unit is controlled via Pilot ONE, which is a separate unit from the temperature control unit.

### 3.2.3 Setup mode

Install the temperature control unit as described in the operation manual (Section »Setup mode«). Also follow the installation guide of the VPC-Bypass and the operation manual of the mass flow meter.

The steps below must be performed as well.

#### 3.2.3.1 Mass flow meter

Depending on the mass flow meter used, readings are output as current or voltage. Follow these steps to calibrate the mass flow meter on the Pilot ONE.

### PROCEDURE

- Go to the "Categories Menu".
- Tap on the category "Interfaces".
- Tap on the category "Analogue Interface".
- Tap on the sub-category "Input".
- Tap on the sub-category "Current/Voltage switch".
- Depending on the mass flow meter used, tap on the entry "Current" or "Voltage".
- Confirm your choice by tapping on "OK".
- Tap the required entry "Trigger an alarm" or "No alarm".
- Confirm your choice by tapping on "OK".
- Tap on the sub-category "Input Funct./Measuring range".
- Tap on the entry "Thermofluid flow".
- Confirm your choice by tapping on "OK".
- Enter the min. value, using the numeric keypad that appears. Refer to the documentation of the mass flow meter for the min. value.
- Confirm your entry by tapping on "OK".
- Enter the max. value, using the numeric keypad that appears. Refer to the documentation of the mass flow meter for the max. value.
- Tap on the sub-category "Adjustment".
- Tap on the entry "Adjust current value".
- Confirm your choice by tapping on "OK".
- Tap on the entry "Adjust low value".
- Confirm your choice by tapping on "OK".
- Read the Note and confirm by tapping on "OK".
- Enter the value, using the numeric keypad that appears. The value is displayed on the mass flow meter.
- Confirm your entry by tapping on "OK".
- Tap on the sub-category "Adjustment".
- Tap on the entry "Adjust current value".
- Confirm your choice by tapping on "OK".
- Tap on the entry "Adjust high value".
- Confirm your choice by tapping on "OK".
- Read the Note and confirm by tapping on "OK".
- Enter the value, using the numeric keypad that appears. The value is displayed on the mass flow meter.
- Confirm your entry by tapping on "OK". The mass flow meter has been calibrated.
- Continue with the instructions in the operation manual of the temperature control unit.

### 3.2.3.2 VPC-Bypass

Adjust the Required Setting when using VPC-Bypass in Pilot ONE. See the operation manual of the temperature control unit in section »**Sub-category fluid properties**«.

### 3.2.4 Shutting down

Shut down the temperature control unit as described in the operation manual (Section »**Shutting down**«). Also follow the installation guide of the VPC-Bypass, the operation manual of the mass flow meter and the technical bulletin "Remote control using Pilot ONE".

The steps below must be performed as well.

#### 3.2.4.1 Disconnecting connections

##### PROCEDURE

- Disconnect the flow rate meter from the building's power supply.
- Disconnect the jack >Huber-Unit< on the CAN Switch from the jack >RS232 Serial (with adapter cable)< on the temperature control unit.
- Disconnect the jack >Pilot ONE< on the CAN Switch from the bottom jack on the Pilot ONE.
- Disconnect the jack >Com.G@te< on the CAN Switch from the bottom jack on the Com.G@te unit.
- Disconnect the jack >VPC< on the CAN Switch from the jack >Control cable temperature control unit< on the VPC-Bypass.
- Disconnect the mass flow meter from the jack >AIF Reg-E-Prog< on the Com.G@te unit.

#### 3.2.4.2 Deinstalling VPC-Bypass and mass flow meter

##### PROCEDURE

- Deinstall the VPC-Bypass and the mass flow meter from the thermal fluid circuit. Proceed as described in the corresponding operation manuals.
- Deinstall the mass flow meter from the building. Proceed as described in the operation manual of the mass flow meter.

# Inspired by **temperature** designed for you

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