Inspired by
temperature

- Remote control using Pilot ONE®
- Remote control using PC or Pilot ONE®

For indoor and outdoor use

Technical Bulletin

huber

- **Remote control using Pilot ONE®**

- **Remote control using PC + Pilot ONE®**
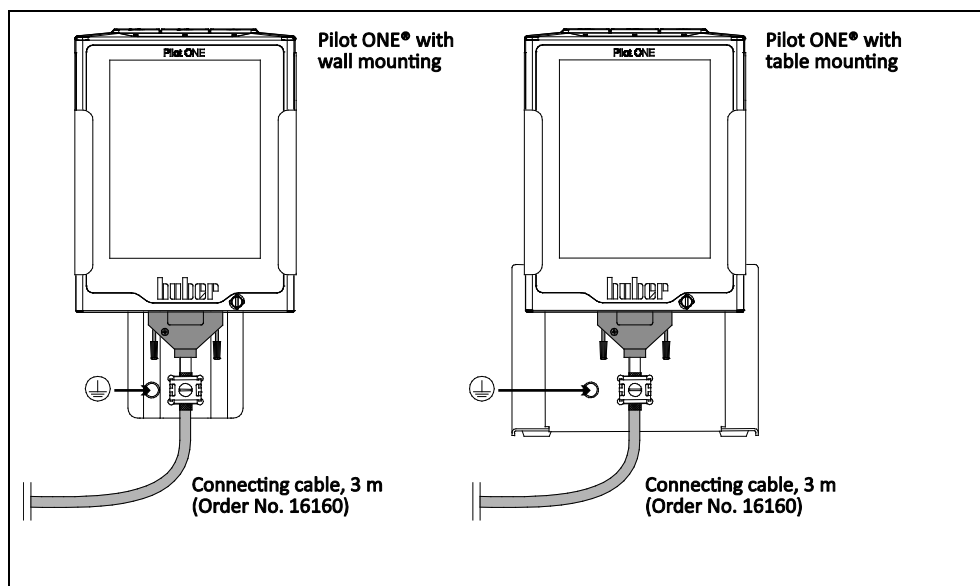
For indoor and outdoor use

1 Remote control using Pilot ONE®
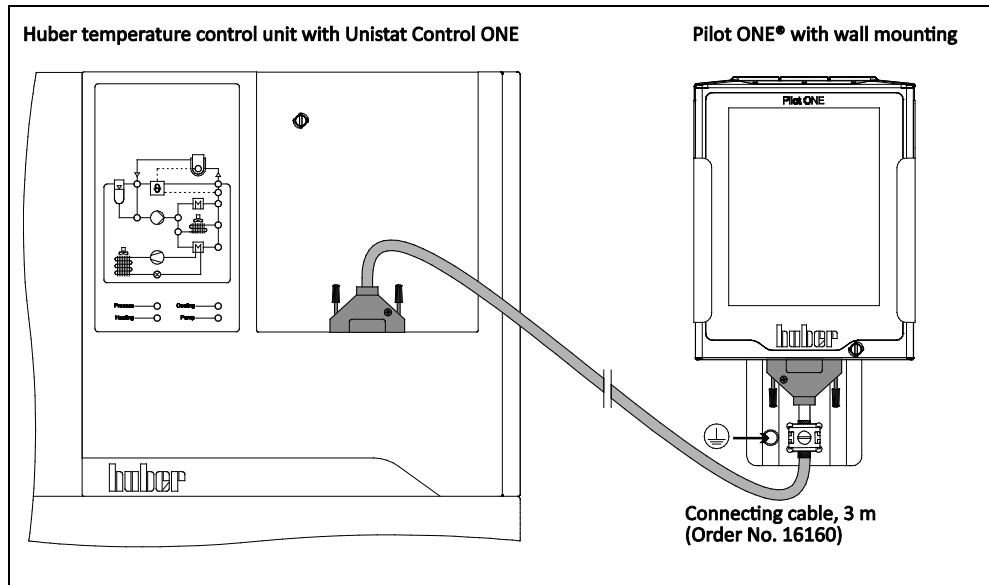
1.1 Valid for indoor and outdoor use

Some temperature control tasks make it necessary to place the control panel Pilot ONE closer to the application. Temperature control units designed for outdoor use have the control panel Pilot ONE mounted within the electrical cabinet. By default, the control panel Pilot ONE can be detached from the Unistat Control ONE and used as a wired remote control. The protection class of the electrical components of Pilot ONE (without protective housing) is IP20.

- You can use the special connection cable (Order No. 16160) with 3 m cable length. You can request solutions with cable lengths over 3 m. The responsible body is to verify the EMC compliance of the entire system and must check it during commissioning.
- Fiber optic cables can be used for the remote control via Pilot ONE. You will need the special fiber optic cable set (available on request). This set includes two connection extensions and two converters. Again, the responsible body is to verify the EMC compliance of the entire system and must check it during commissioning.
- The line must be routed to ensure the best possible shielding and spatial separation from cables subject to interference (e.g. power lines, frequency converters, etc.). The shielding must always be connected on both sides. The shielding of the temperature control unit is already installed at the factory.
- A functional earth must be connected to the pin with the "Functional earth" symbol when using the optional wall or table mount (Order No. 9493 or 9494) for Pilot ONE. The connection with the contact surface for the functional earth must be as large as possible (low resistance, low impedance).
- Communication via the RS232 interface requires the optional Com.G@te.
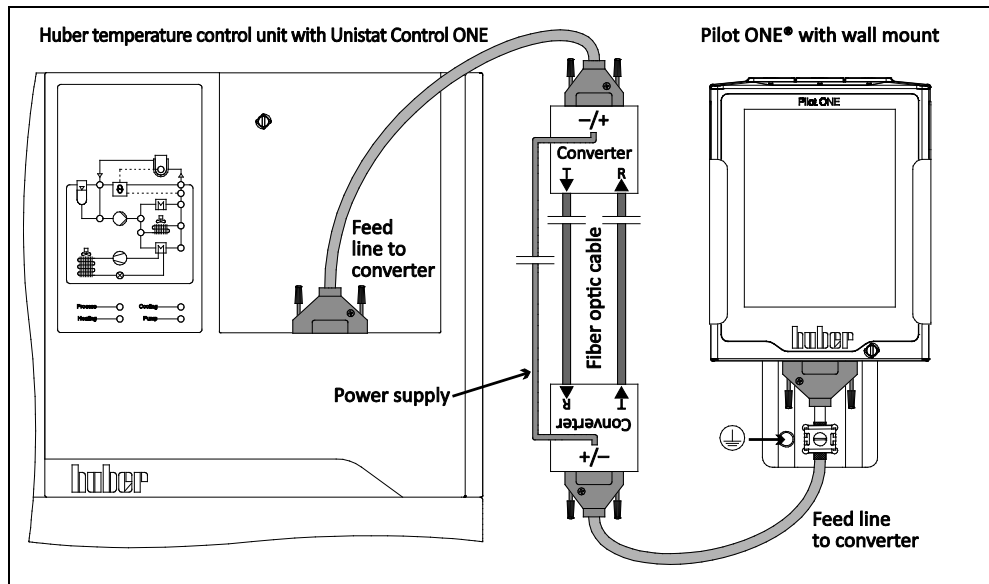- For more information on electromagnetic compatibility see www.huber-online.com.

Indoor use:
Installation of Pilot ONE using a wall or table mount

Pilot ONE® with wall mounting

Pilot ONE® with table mounting

Connecting cable, 3 m (Order No. 16160)

Connecting cable, 3 m (Order No. 16160)

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Indoor use **up to** 3 m: Remote control via Pilot ONE – using a connecting line

Huber temperature control unit with Unistat Control ONE

Pilot ONE® with wall mounting

Connecting cable, 3 m
(Order No. 16160)

Indoor use **more than** 3 m: Remote control via Pilot ONE - using a fiber optic cable connection

Huber temperature control unit with Unistat Control ONE

Pilot ONE® with wall mount

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Converter

T   R

Feed line to converter

Fiber optic cable

Power supply

R   T

Converter
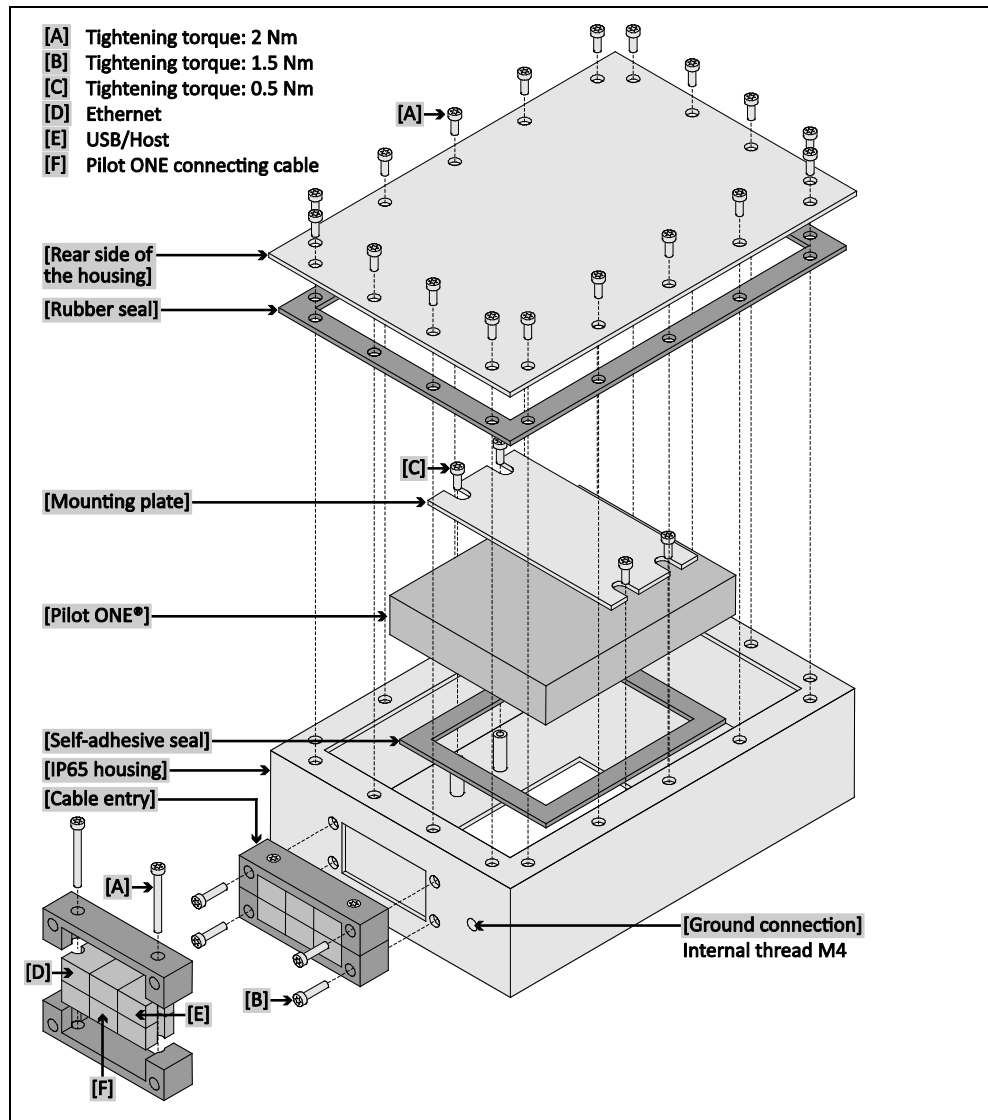
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Feed line to converter

Obligations of the responsible body

➢ Shielding connected on both connection sides.
➢ Testing signal immunity when using cable lengths > 3 m

1.2 Valid for indoor and outdoor use in optional IP65 housing

Schematic representation of the optional IP65 housing with Pilot ONE

[A] Tightening torque: 2 Nm
[B] Tightening torque: 1.5 Nm
[C] Tightening torque: 0.5 Nm
[D] Ethernet
[E] USB/Host
[F] Pilot ONE connecting cable

[Rear side of the housing]
[Rubber seal]
[Mounting plate]
[Pilot ONE®]
[Self-adhesive seal]
[IP65 housing]
[Cable entry]
[Ground connection] Internal thread M4

The optional Pilot ONE housing has a protection class IP65 according to DIN EN 60529. Thus, the housing protects the pilot ONE against dust and splash water. Refer to the Operation Manual of your temperature control unit for ambient conditions. No frequency converter may be located in the immediate vicinity of the IP65 enclosure at the place of installation. The tightened bolts must be protected with an anti-corrosive coating.

Scope of supply:
- Pilot ONE in IP65 housing
- Wall mount (including mounting hardware)
- Cable sleeves (in IP65 housing); KT4 (#53151) for USB/Host and connecting cable up to 3 m;
- KT6 (#53152) for Ethernet; KT10 (#53154) for connecting cable over 3 m
- Spare rubber seal (in IP65 housing)
- Spare self-adhesive seal (in IP65 housing)

1.2.1 Attach the Pilot ONE in the IP65 housing to the wall bracket

Grounding concept type "S"
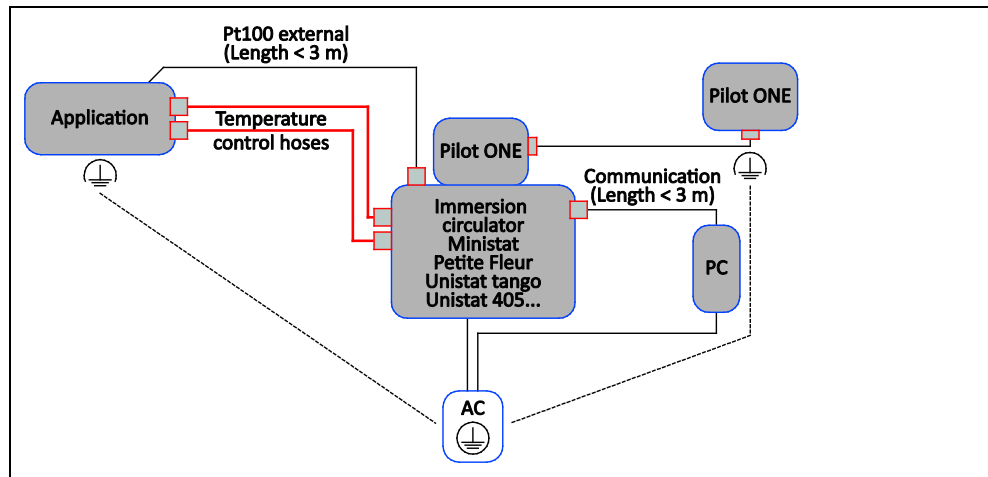
Grounding concept type "M"
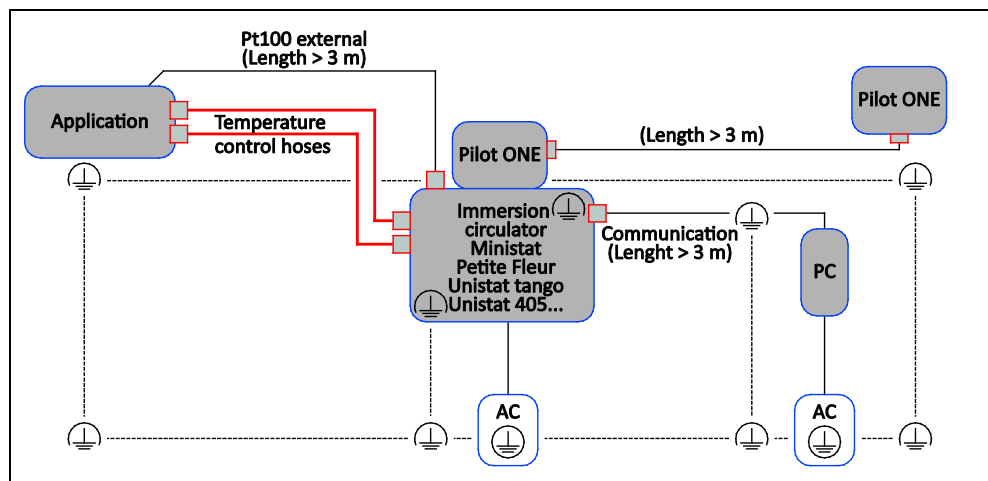
Ensure there are no unwanted electrical currents (e.g. via metallic temperature control hoses; braid of signal lines) between the IP65 housing, the temperature control unit and the periphery during installation. This requires the correct selection of a grounding concept that is suitable for the system. The concept "S" (star-shaped) is recommended for short cable routes. The concept "M" (mesh-like) is recommended for longer cable routes. For more information on electromagnetic compatibility see www.huber-online.com.

Protect against electrostatic discharge when connecting applications to the temperature control unit (e.g. reactors with agitators, but also during filling with thermal fluid). It is recommended to select the cable cross-section of round cables / round strands as wide as possible. The use of broad ground straps is ideal.

This is why all connections must be regularly checked for function. The connection with the contact surface for the functional earth must be as large as possible (low resistance, low impedance). To do so, use the [ground connection] on the IP65 housing.

PROCEDURE

➢ Use the supplied mounting hardware to mount the wall bracket.
➢ Connect the line extending from the [IP65 housing] with the temperature control unit.
➢ Connect the [ground connection] with the building's grounding point.
➢ Attach the [IP65 housing] to the mounted wall bracket.

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1.2.2 Exchange the Pilot ONE in the IP65 housing

The [rubber seal] below the [rear side of the housing] and the [self-adhesive seal] between Pilot ONE and the IP65 housing must be replaced if the Pilot ONE needs to be replaced. Note the different tightening torques ([A], [B] + [C]) of the screws used. Make sure not to mix the disassembled screws.

PROCEDURE

➢ Switch off the temperature control unit.
➢ Disconnect the temperature control unit from the current supply.
➢ Disconnect the temperature control line from the Pilot ONE at the temperature control unit ([IP65 housing]).
➢ Remove the line connected to the [ground connection].
➢ Take the [IP65 housing] from the wall bracket.
➢ Turn the [IP65 housing] around and place it face down on a dry and flat surface. The [rear side of the housing] of the [IP65 housing] must be visible. Note that the Pilot ONE is no longer protected against dust and splash water when the [IP65 housing] is opened.
➢ Remove all screws from the [rear side of the housing].
➢ Remove the [rear side of the housing].
➢ Remove the [rubber seal].
➢ Remove the line connected to the [Pilot ONE].
➢ Remove all screws from the [mounting plate].
➢ Remove the [mounting plate].
➢ Remove the [Pilot ONE] from the [IP65 housing]. This step can be made more difficult by the [self-adhesive seal] located under the Pilot ONE. Pull the [Pilot ONE] out and upwards.
➢ Completely remove the old [self-adhesive seal] from the inside of the [IP65 housing]. Use a spatula and afterwards some white gas.
➢ Attach the new [self-adhesive seal] onto the clean and dust free inner side of the [IP65 housing]. Make sure that the new [self-adhesive seal] does not project into the housing opening for the touchscreen.
➢ Mount the new [Pilot ONE] onto the clean and dust-free [self-adhesive seal] in the [IP65 housing]. Use the mounted angle for the alignment.
➢ Place the [mounting plate] onto the [Pilot ONE] and screw it tight with the screws removed before. Tighten the screws crosswise with the permitted tightening torque [C] only.
➢ Connect the cable to the temperature control unit with the new [Pilot ONE].
➢ Accurately place the new [rubber seal] onto the clean and dust-free [IP65 housing]. The new [rubber seal] must not be damaged by screws.
➢ Accurately place the new [rear side of the housing] onto the clean, dust-free and new [rubber seal].
➢ Firmly tighten the [rear side of the housing] to the [IP65 housing] with the screws removed before. Tighten the screws crosswise with the permitted tightening torque [A] only.
➢ Connect the line extending from the [IP65 housing] with the temperature control unit.
➢ Connect the [ground connection] with the building's grounding point.
➢ Attach the [IP65 housing] to the mounted wall bracket.
➢ Connect the temperature control unit to the power supply.
➢ Switch the temperature control unit on.

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1.3 Additionally applicable for outdoor use

⚠️ **DANGER** | **Lines outside of buildings without lightning protection**
DEATH BY LIGHTNING
➢ All guidelines concerning internal and external lightning protection must be observed and adhered to: Assembly, installation, maintenance and operation.
➢ All grounding provisions must also be respected and adhered to.

Metric cable entries are mounted at each electrical cabinet. Small parts required for the cable entries are included and located in the electrical cabinet. Ground bolts are attached to the housing of the temperature control unit. You **must** connect the functional ground to this bolt.

The use of a VPC bypass in conjunction with an outdoor installation is **not** possible.

The interfaces POKO ONE, ONE ECS and Pt100 at the Unistat Control ONE are retained. They are located inside the electrical cabinet. The optional Com.G@te is also located in the electrical cabinet, as necessary.

All guidelines, standards and laws for outdoor installations must be observed. Also pay attention to the internal and external lightning protection as well as cable routing, cable wiring, cable protection and equipment installation.

Outdoor use **up to** 3 m: Remote control via Pilot ONE – using a cable connection
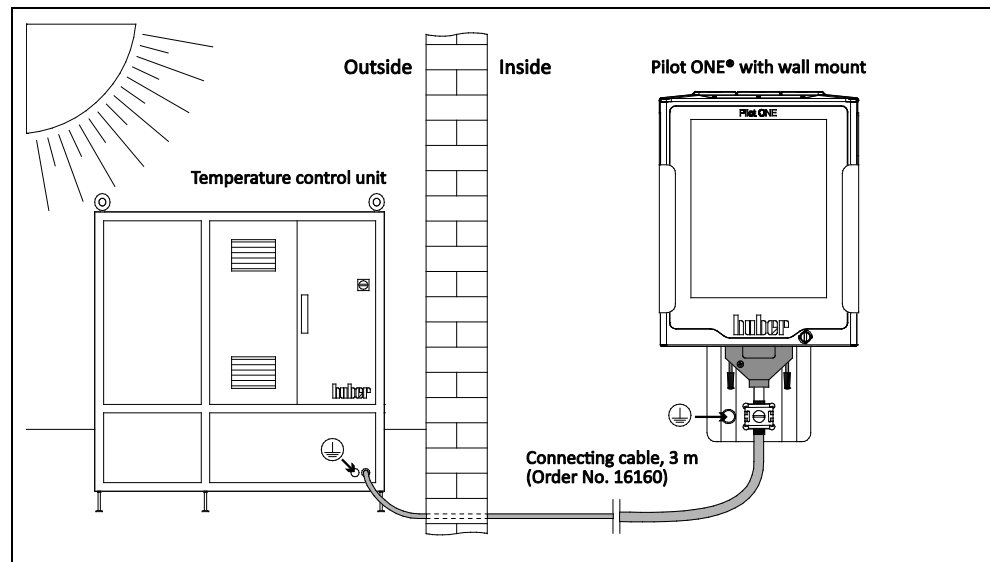
Indoor use **more than** 3 m: Remote control via Pilot ONE - using a fiber optic cable connection
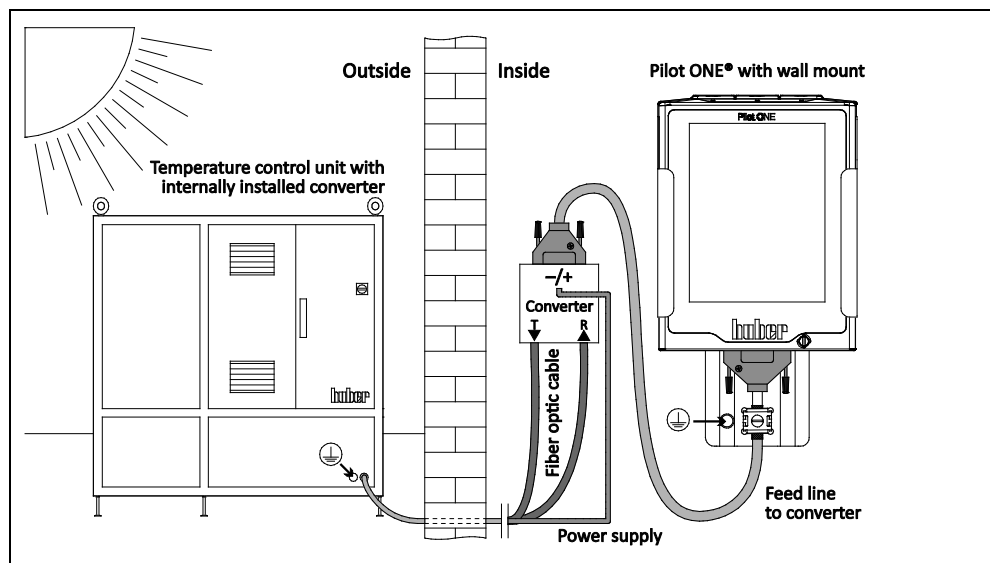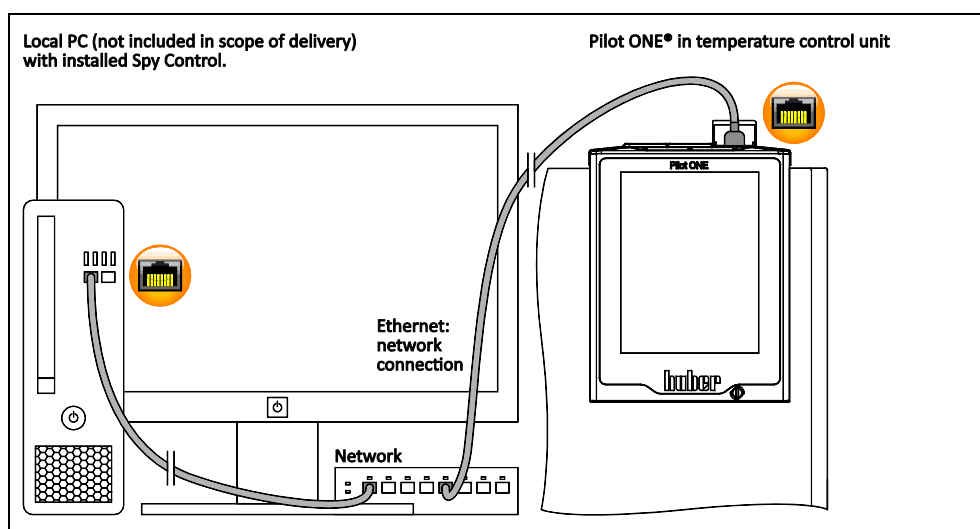
2 Remote control of the temperature control unit via a PC
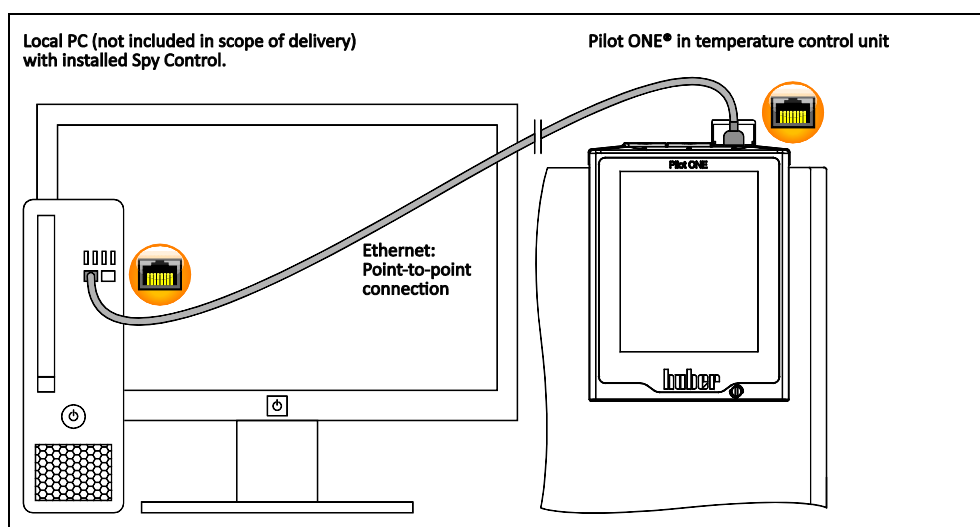
2.1 Valid for indoor and outdoor use

Some temperature control tasks make it necessary to control the temperature control unit via the control panel Pilot ONE on a PC. For this purpose there is an Ethernet interface located at the Pilot ONE as a standard. Temperature control units designed for outdoor use have the control panel Pilot ONE mounted within the electrical cabinet.

- You need a PC with an Ethernet interface and SpyControl installed to remotely control a temperature control unit via the control panel Pilot ONE. The responsible body is to verify the EMC compliance of the entire system and must check it during commissioning.
- The line must be routed to ensure the best possible shielding and spatial separation from interfering signals (e.g. power lines, frequency converters, etc.). The shielding must always be connected on both sides. The shielding of the temperature control unit is already installed at the factory.

Indoor use:
Remote control of the temperature control unit via a PC - by using an Ethernet point-to-point connection

Indoor use:
Remote control of the temperature control unit via a PC - by using an Ethernet network connection

Obligations of the responsible body

➢ Shielding connected on both connection sides.
➢ Testing signal immunity when using cable lengths > 3 m

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2.2 Additionally applicable for outdoor use

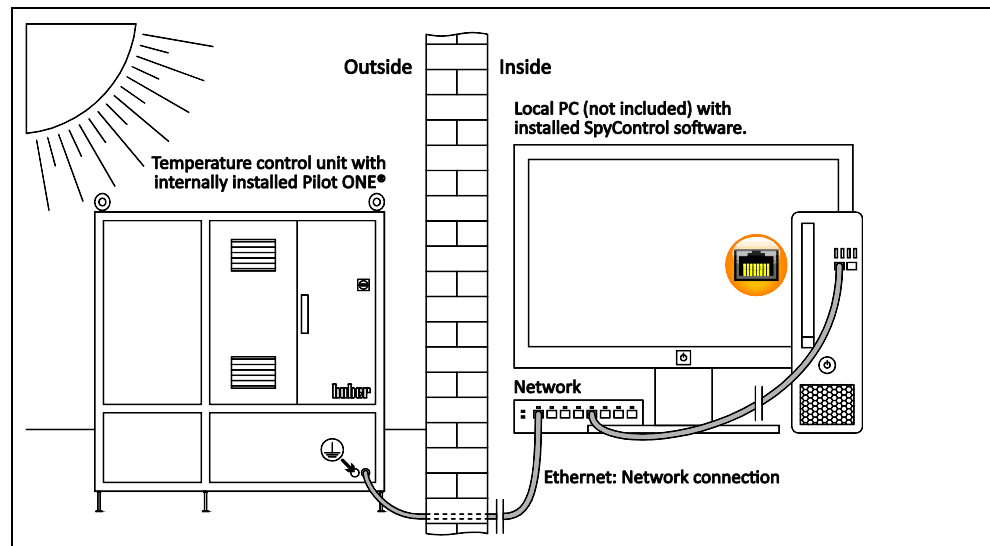| ⚠ DANGER	**Lines outside of buildings without lightning protection** **DEATH BY LIGHTNING** ➢ All guidelines concerning internal and external lightning protection must be observed and adhered to: Assembly, installation, maintenance and operation. ➢ All grounding provisions must also be respected and adhered to.

Metric cable entries are mounted at each electrical cabinet. Small parts required for the cable entries are included and located in the electrical cabinet. Ground bolts are attached to the housing of the temperature control unit. You **must** connect the voltage equalizing cable to this bolt.

The use of a VPC bypass in conjunction with an outdoor installation is **not** possible.

The interfaces POKO ONE, ONE ECS and Pt100 at the Unistat Control ONE are retained. They are located inside the electrical cabinet. The optional Com.G@te is also located in the electrical cabinet, as necessary.

All guidelines, standards and laws for outdoor installations must be observed. Also pay attention to the internal and external lightning protection as well as cable routing, cable wiring, cable protection and equipment installation.

Outdoor use: Remote control of the temperature control unit via a PC - by using an Ethernet point-to-point connection

Outdoor use: Remote control of the temperature control unit via a PC - by using an Ethernet network connection

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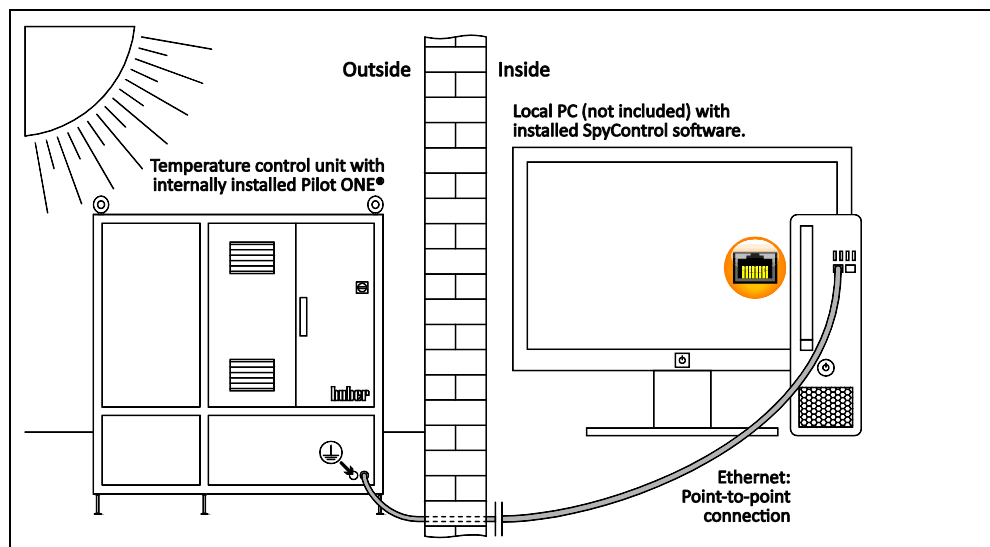
Inspired by **temperature**
designed for you

-125 °C ...+425 °C

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