6 Interfaces and software update

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6.1 Interfaces at the “Pilot ONE®” controller

NOTE

The Pilot ONE controller is not operated behind a firewall
PROPERTY DAMAGE
- Operate the Pilot ONE controller exclusively behind a firewall if the local sub-network is connected to the Internet or to a different highly-susceptible network.
- The applicable IT rules must be observed in order to attain adequate security for the LAN!

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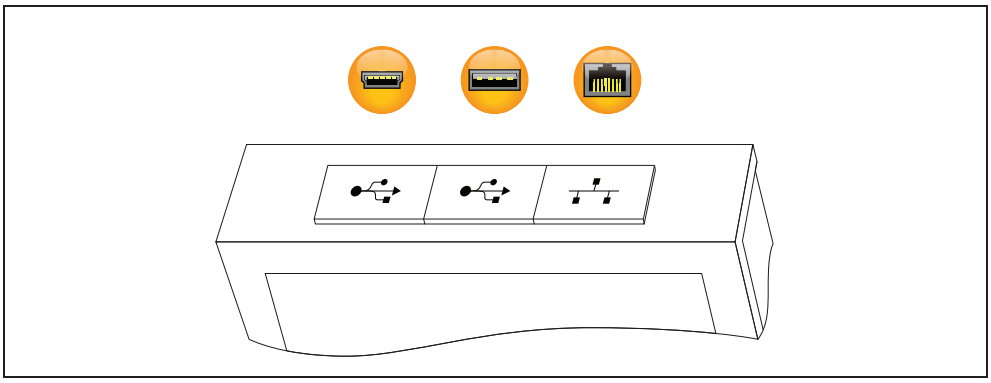
Standard interfaces at the “Pilot ONE” top side



6.1.1 10/100 Mbps Ethernet for RJ45 network sockets

This is a fast and flexible interface. Standard 10/100 Mbps interface (Fast Ethernet), can be connected to any existing Ethernet network. Because this interface can also be connected to very large networks, the IT “Best Practices” (firewall) must be observed.

Usage:
Also - to be able to communicate with the “Pilot ONE” controller - the communication enable must be issued. This is an additional safety feature that prevents persons - possibly unintentionally - connecting to the wrong machine and implementing incorrect temperature control specifications. The following restrictions are possible:

- deactivated
- always active (PLC)
- 12h active
- 10min active

If “10min active” is selected, for example, the connection must be established within 10 minutes of the confirmation at the controller. If it is not, the connection attempt will be denied.

6.1.2 USB-2.0 interface

6.1.2.1 USB-2.0 interface, host

USB-2.0 connection (for connector A), e.g. for data memories.

6.1.2.2 USB-2.0 interface, device

USB-2.0 connection (for Mini-B connector) for communicating with a computer.

6.2 Interfaces at the “Unistat® Control ONE”

6.2.1 Interfaces at the “Unistat® Control ONE” side

NOTE

Connecting to the interfaces at the temperature control unit during operation
DAMAGE TO THE INTERFACES
- ➢ If devices are connected to the interfaces of the temperature control unit during operation, the interfaces will be destroyed.
- ➢ Make sure before you connect that the temperature control unit and the device to be connected are switched off.

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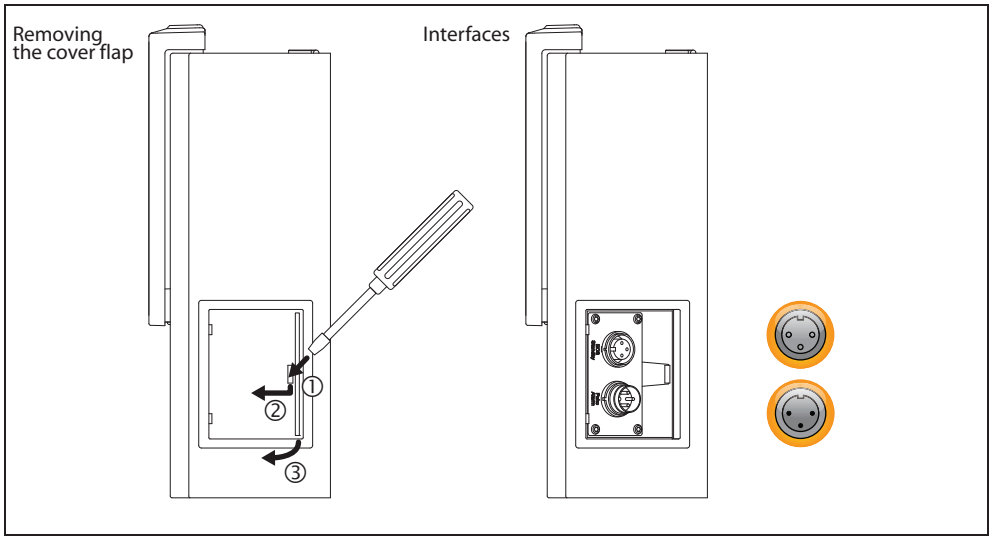
Standard interfaces at the “Unistat Control ONE” side



6.2.1.1 Removing the cover

PROCEDURE

- ➢ Insert a screwdriver into the opening.
- ➢ Prise of the cover to the left and away from you.

6.2.1.2 Jack ECS ONE (External Control Signal) standby

Enable signal **ECS** (external control signal) for starting/stopping the temperature control process.

Activation via a floating contact. Contacts 1 and 3 are internally bypassed. **ECS** is energized when E1 and E2 are connected by an external floating contact.

The functionality of the **ECS** is determined via the “interfaces” category.

The following variants are offered:
- Off: **ECS** has no effect (factory setting).
- 2nd setpoint: The “2nd setpoint” is transferred as soon as **ECS** is active.
- Standby: **ECS** acts on the temperature control process **(On/Off)**.

Pin assignment

Pin	Signal
1,3	E2
2	E1

6.2.1.3 Conccector POKO ONE (floating contact) alarm

Signal contact for external monitoring.

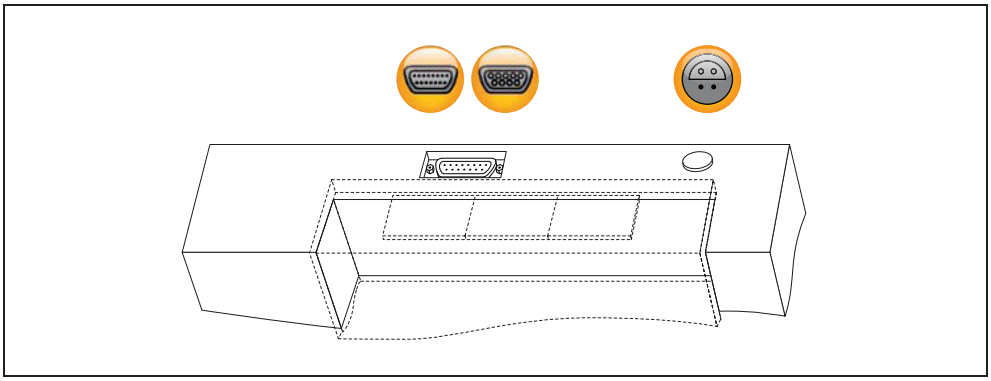
Observe the function options that PoKo offers in the “interfaces” category. The floating contact (PoKo) signals the temperature control unit state via the contact position. A closed working contact denotes standby. In case of a fault or malfunction, the working contact is opened (this applies for the normally open contact between Pin 1 and Pin 2).

The connection is executed as a floating changeover contact.
Normally open contact between Pin 1 and Pin 2.
Normal closed contact between Pin 2 and Pin 3.
Contact load: 1 A at 24 V DC

INFORMATION With the floating contact, use only sheathed lines!

6.2.2 Interfaces at the “Unistat® Control ONE” top side

Standard interfaces at the “Unistat Control ONE” top side



6.2.2.1 Service interface

This interface is used by the service engineers of Peter Huber Kaeltemaschinenbau GmbH exclusively for service purposes. An adapter cable connects this interface to a RS232/RS485 serial jack.

6.2.2.2 Jack RS232/RS485 serial (with adapter cable)

A PC, a SPS or a Process Control System (PCS) can be connected to this jack for remote control of the controller electronics. Alternatively, a connection to a RS485 bus is possible. Before plugging in the cable, check the settings in the “interfaces” category and adjust if necessary.

Pin assignment

Pin	Signal	Description
Wiring RS232		
2	RxD	Receive Data
3	TxD	Transmit Data
5	GND	Signal GND
Wiring RS485		
6	A with 120 Ohm final resistance	
7	A	
8	B	

6.2.2.3 Connection jack for Pt100 process controller sensor

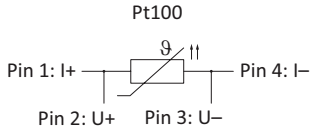
A temperature sensor located in the connected application (Pt100, 4-wire technology, Lemosa connector) is connected to the Pt100 connection jack. The external actual temperature is then recorded and the operating temperature of the temperature control unit is permanently calculated and adjusted.

INFORMATION

Depending on the operating temperature, isolation losses and exothermic heat, the operating temperature (flow temperature) at the application can be significantly less than the setpoint for the application. In this context, the safety-critical thresholds for the temperature control fluid must be strictly observed.

Pin assignment

Pin	Signal
1	I+
2	U+
3	U–
4	I–



6.3 Interfaces at the Com.G@te® (optional)

NOTE

Connecting to the interfaces at the temperature control unit during operation
DAMAGE TO THE INTERFACES

- If devices are connected to the interfaces of the temperature control unit during operation, the interfaces will be destroyed.
- Make sure before you connect that the temperature control unit and the device to be connected are switched off.

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NOTE

Voltage > 60 Volt (AC) and > 40 Volt (DC)
DAMAGE

- There is a risk of damage to the **>Com.G@te<** [46].
- To guarantee the function of the **>Com.G@te<** [46], connect only components with voltages of below 60 Volt (AC) and 40 Volt (DC).

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Com.G@te external interfaces: LEVEL, POKO, AIF, ECS, RS232/RS485 (f. l. t. r.)

Com.G@te internal Interfaces: POKO, AIF, ECS, RS232/ RS485 (f. l. t. r.)

If the **>Com.G@te<** [46] is not connected, proceed as follows.

PROCEDURE

- Switch off the temperature control unit.
- Plug the **>Com.G@te<** [46] into the slot provided.
- Switch on the temperature control unit. “Unistat Control ONE” detects the new component. The **>Com.G@te<** [46] is operable.

INFORMATION

Note that you can replace the **>Com.G@te<** [46] only when the temperature control unit is switched off.
In the “interfaces” category, you can change the settings of the individual functions such as PoKo, analogue interface and RS232/RS485.

You can order the **>Com.G@te<** [46] under Order No. 6915. An existing **>Com.G@te<** [46] can be extended using a connection cable (Order No. 16160).

6.3.1 Jack LEVEL (Com.G@te® external only)

For level monitoring in the **>Inspection glass<** [23].

This connection enables you to connect an external float switch (Order No. 6152), which is positioned in the **>Sight glass<** [23], for monitoring the level of your externally closed application.

Pin assignment

Pin	Description
1	Level test (bypass via contact 2 → “absence”)
2	Level – (GND)
3	Level + (normally open contact)

6.3.2 Connector POKO (floating contact) alarm

Signal contact for external monitoring.

Observe the function options that PoKo offers in the “interfaces” category. The floating contact (PoKo) signals the temperature control unit state via the contact position. A closed working contact denotes standby. In case of a fault or malfunction, the working contact is opened (this applies for the normally open contact between Pin 1 and Pin 2).

The connection is executed as a floating changeover contact.
Normally open contact between Pin 1 and Pin 2.
Normal closed contact between Pin 2 and Pin 3.
Contact load: 1 A at 24 V DC

INFORMATION

With the floating contact, use only sheathed lines!

6.3.3 Jack AIF Reg-E-Prog

The analogue interface has one programmable input channel and 3 output channels.

The analogue interface of Com.G@tes® is programmed in the “interfaces” category.

Pin assignment

Pin	Description	Signal	
1	Current output, T external	0/4-20 mA or 0-10 V	If using 0 - 10 V, integrate a 500 Ω resistor.
2	Current output, setpoint	0/4-20 mA or 0-10 V	
3	GND for analogue outputs	GND	
4	Analogue input (programmable)	0/4-20 mA or 0-10 V	If using 0 - 10 V, integrate a 500 Ω resistor.
5	Current output, freely programmable	0/4-20 mA or 0-10 V	
6	GND for analogue input	GND	

6.3.4 Jack ECS (External Control Signal) standby

Enable signal **ECS** (external control signal) for starting/stopping the temperature control process.

Activation via a floating contact. Contacts 1 and 3 are internally bypassed. **ECS** is energized when E1 and E2 are connected by an external floating contact.

The functionality of the **ECS** is determined via the “interfaces” category.

The following variants are offered:
- Off: **ECS** has no effect (factory setting).
- 2nd setpoint: The “2nd setpoint” is transferred as soon as **ECS** is active.
- Standby: **ECS** acts on the temperature control process **(On/Off)**.

Pin assignment

Pin	Signal
1,3	E2
2	E1

6.3.5 Jack RS232/RS485 serial

A PC, a SPS or a Process Control System (PCS) can be connected to this jack for remote control of the controller electronics. Alternatively, a connection to a RS485 bus is possible. Before plugging in the cable, check the settings in the “interfaces” category and adjust if necessary.

Pin assignment

Pin	Signal	Description
Wiring RS232		
2	RxD	Receive Data
3	TxD	Transmit Data
5	GND	Signal GND
Wiring RS485		
6	A with 120 Ohm final resistance	
7	A	
8	B	

6.4 Firmware update

An instruction for running a firmware update can be found at www.huber-online.com.