WTW

INSTRUCTION MANUAL

Connection Boxes

KI/pH
KI/pH/T

WISSENSCHAFTLICH-TECHNISCHE WERKSTÄTTEN G. M. B. H.
Dr. rer. nat. K. Slevogt · D-8120 Weilheim i. OB · Trifthofstraße 57a · ☎ (08 81) 183-0 · Teletex 881 803

Contents

Page

Instruction manual for connection boxes KI/pH and KI/pH/T

1 Technical data 1

1.1 Connection box KI/pH 1
1.2 Connection box KI/pH/T 1
1.3 Operating data 1

2 Applications 2

2.1 General 2
2.2 High resistance pH-primary element 2
2.3 Temperature compensation 2
2.31 Connection box KI/pH 2
2.32 Connection box KI/pH/T 3
2.4 Pre-amplifier with galvanic separation 3
2.5 Examples of application 4
2.51 pH (Redox)-combined electrode in flow-through beaker (e.g. water treatment installation) 4
2.52 pH-insertion probes 4

3 Fastening possibilities of connection boxes KI/pH and KI/pH/T 5

1. Support mounting to SS 160 5
2. Tube mounting 5
3. Wall mounting 5

Page

4 Connection seizing for connection boxes KI/pH and KI/pH/T 6

5 Seizing and connection K 160 with cable EK/AG 7

6 Wiring schemes for 19"-measuring instruments (219-range) 8

6.1 pH-measurement without automatic temperature compensation 8

6.1.1 Connection box KI/pH with 19"-measuring instrument pH 219 (R)

6.1.2 Connection box KI/pH with switchboard housing G 72 and 19"-measuring instrument pH 219 (R) 9

6.2 pH-measurement with automatic temperature compensation 10

6.2.1 Connection box KI/pH/T with 19"-measuring instrument pH 219 (R) 10

6.2.2 Connection box KI/pH/T with switchboard housing G 72 and 19"-measuring instrument pH 219 (R) 11

7 Pin designation 32-polar terminal strip to 19"-measuring instrument 12

Instruction manual for connection boxes KI/pH and KI/ph/T

1 Technical data

1.1 Connection box KI/pH

Connection box with integrated pre-amplifier with galvanic separation, necessary for connection of high ohmic pH-primary elements to 19"-pH-measuring instruments (pH 219/pH 219 R) or pH-field-measuring instruments (pH 160/pH 160 R).

1.2 Connection box KI/pH/T

Similar to connection box KI/pH, but with additional connecting socket for temperature sensor for automatic temperature compensation (TFK 530...).

1.3 Operating data

Transmission ratio of the impedance transformer	1:1
Input resistance	$> 5 \cdot 10^{12}$ ohms
Temperature range	0 ... +50 °C
Admissible ambient temperature	-20 ... +60 °C
Protection class	3 (protecting low-tension)
Isolation group	B, acc. to VDE 0110
Protection system	IP 65 (indoor installation)
Dimensions	160 x 54 x 80 mm
Weight	0.35 kg

2 Applications

2.1 General

The connection boxes KI/pH and KI/pH/T with integrated pre-amplifier with galvanic separation are necessary for connection of high resistance pH-primary elements to 19"-pH-measuring instruments or pH-field measuring instrument.

2.2 High resistance pH-primary elements

All pH-combined electrodes with screw cap connection (S 7 und S 8) and pH-insertion probes for screw cap electrodes via a high resistance concentric connection cable type AS 7-S (1 m long) or AS 7-S ... for other cable lengths.

2.3 Temperature compensation

2.31 Connection box KI/pH

The connection box KI/pH is used in case of constant temperature of the measuring sample.

The temperature compensation is done manually at the measuring instrument. Please refer to the instruction manual.

Alternatively for pH 160/pH 160 R only:

The pH-adaptor ADP/pH is a pre-amplifier without galvanic separation built in a 7-polar plug.

It can be used alternatively in combination with high resistance pH-primary elements (refer to 2.2).

2.32 Connection box KI/pH/T

The connection box KI/pH/T is necessary for automatic temperature compensation at high temperature variations in the measuring sample.

The connection box is equipped with a socket for connection of a temperature sensor (TFK 530, TFK 530- ...).

If the temperature sensor is disconnected the temperature compensation can be performed manually.

In case of changing from automatic temperature compensation to manual temperature compensation the sliding switch should be switched over at the measuring transformer. Please refer to the corresp. instruction manual.

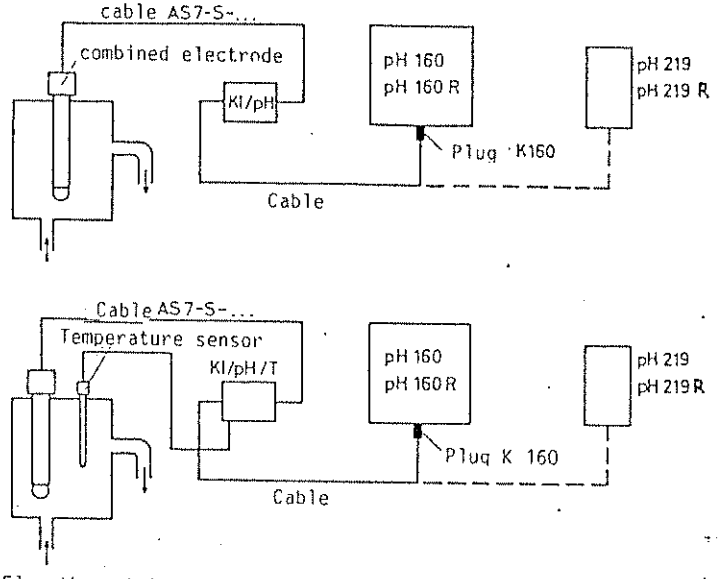
2.4 Pre-amplifier with galvanic separation

The pre-amplifier with galvanic separation in the connection boxes KI/pH and KI/pH/T is necessary for the connection to consuming devices with earth-connected input (recorder, calculator, etc.) and in case of disturbance potentials in the sample.

Attention: In case of connection of consuming devices to the measuring instruments consider the right polarisation.

2.5 Examples of application

2.51 pH (Redox)-combined electrode in flow-through beaker (e.g. water treatment installation)

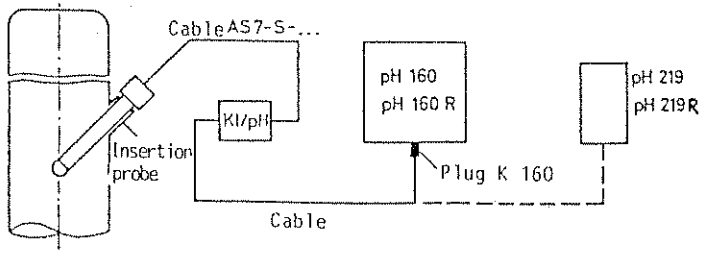


Flow-through beaker with primary element

Field measuring instrument

19"-measuring instrument

2.52 pH-insertion probe



Tubing or vessel with insertion probe

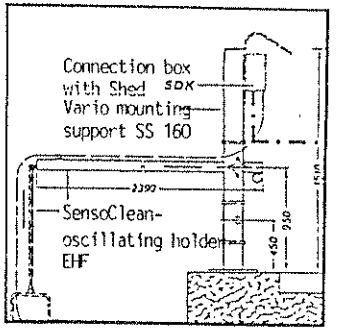
Field measuring instrument

19"-measuring instrument

3 Fastening possibilities of connection boxes KI/pH and KI/pH/T

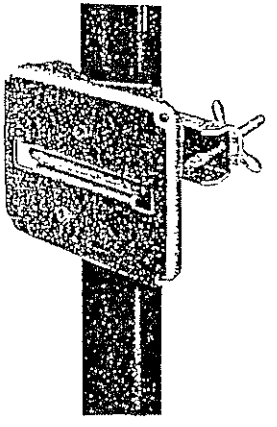
1. Support mounting to SS 160:

- Screw on shed to support
- Screw on connection boxes KI/pH or KI/pH/T with fixing screws (in connection box) to shed



2. Tube mounting

Easy installation of the connection boxes KI/pH and KI/pH/T together with the shed to vertical or horizontal installed tubes (25 to 60 mm outer diameter of tubes) by mounting kit MSRK.

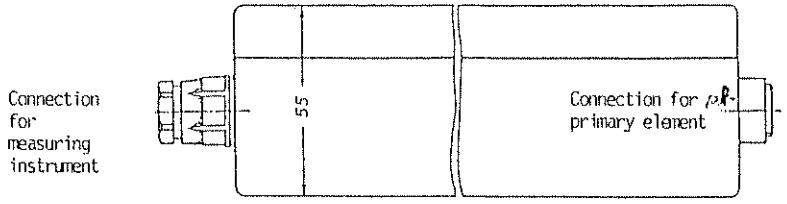


3. Wall mounting

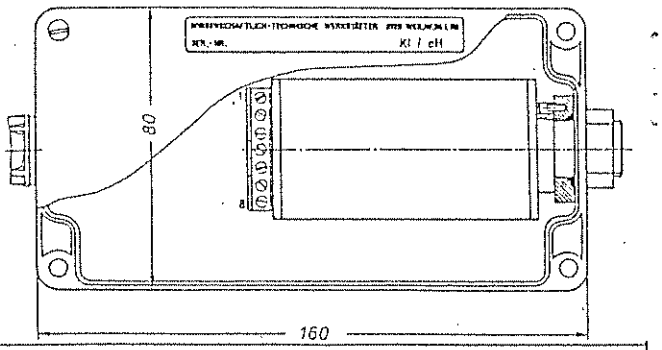
Wall mounting can be done as well. Please use drill holes in the shed in combination with countersunk screws for wall mounting.
For installation
2 dowels S 8 and
2 countersunk screws 6 x 40
are needed

Attention: Shed SDK is needed for support or tube mounting.

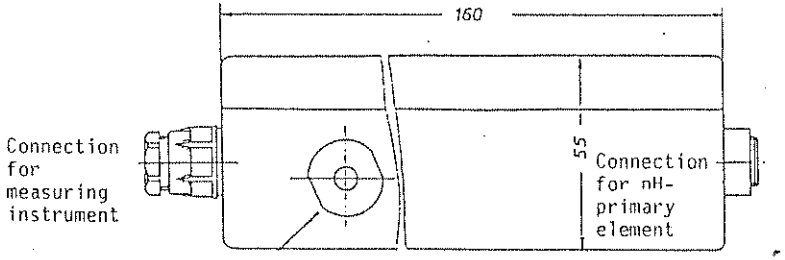
4. Connection seizing for connection boxes KI/pH and KI/pH/T



Clamp	Designation
1	- Output
2	+ Output
3	+ Supply 24V
4	- ± 20 %
5	not lined
6	not lined
7	not lined
8	not lined

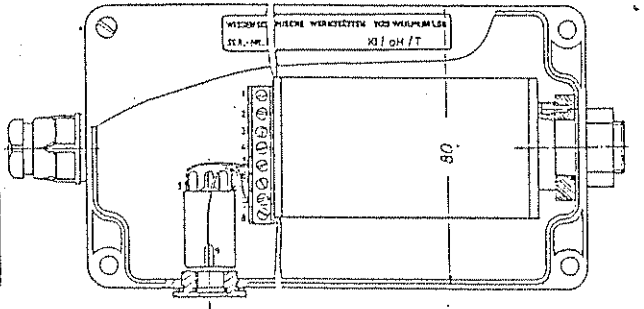


Connection box KI/pH



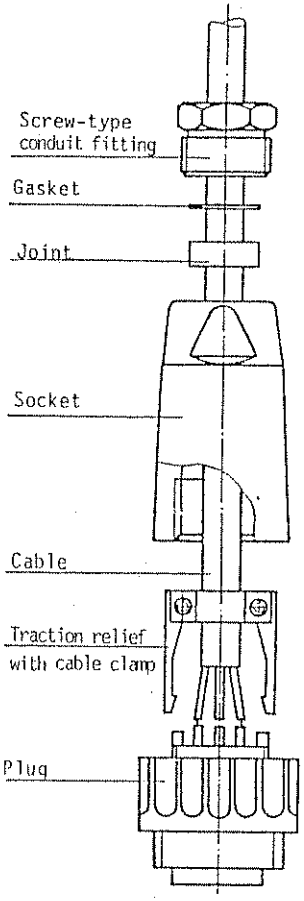
Connection for temperature sensor for automatic temperature compensation

Clamp	Designation
1	- Output
2	+ Output
3	+ Supply 24 V=
4	- ± 20 %
5	NTC 1
6	NTC1/NTC2
7	NTC 2
8	not lined



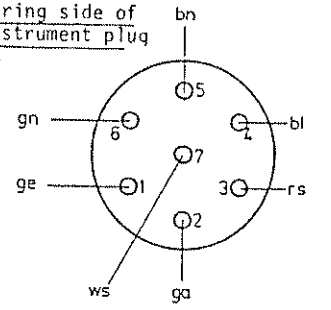
Connection box KI/pH/T

5 Seizing and connection of plug K 160 with cable EK/AG



Screw cable clamp softly on the traction relief. Put on to the cable screw-type conduit fitting, gasket, joint, and socket.
Sold cable with plug

Wiring side of instrument plug



Lock traction relief and tighten cable clamp.
Screw on socket to plug.

Joint must be fixed vertically!

Screw into joint cable screwing with rubber washer and gasket.

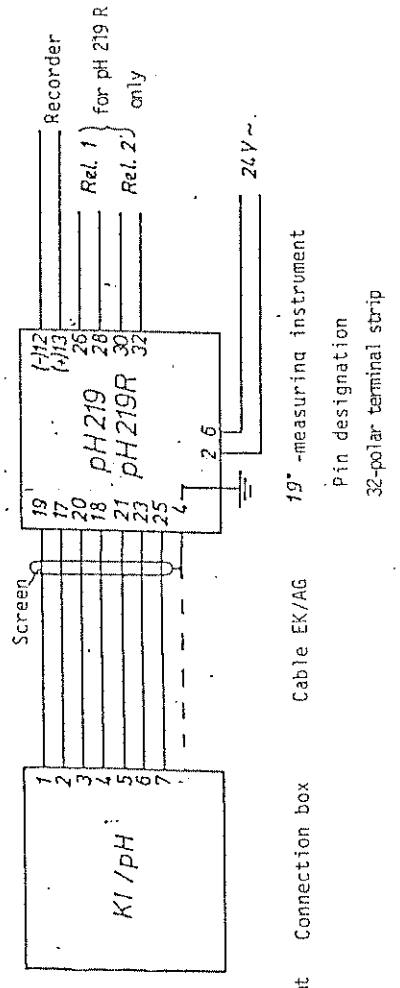
PS: The plug K 160 is only needed for connection to the field measuring instrument pH 160 (R).

6 Wiring schemes for 19"-measuring instruments (type 219)

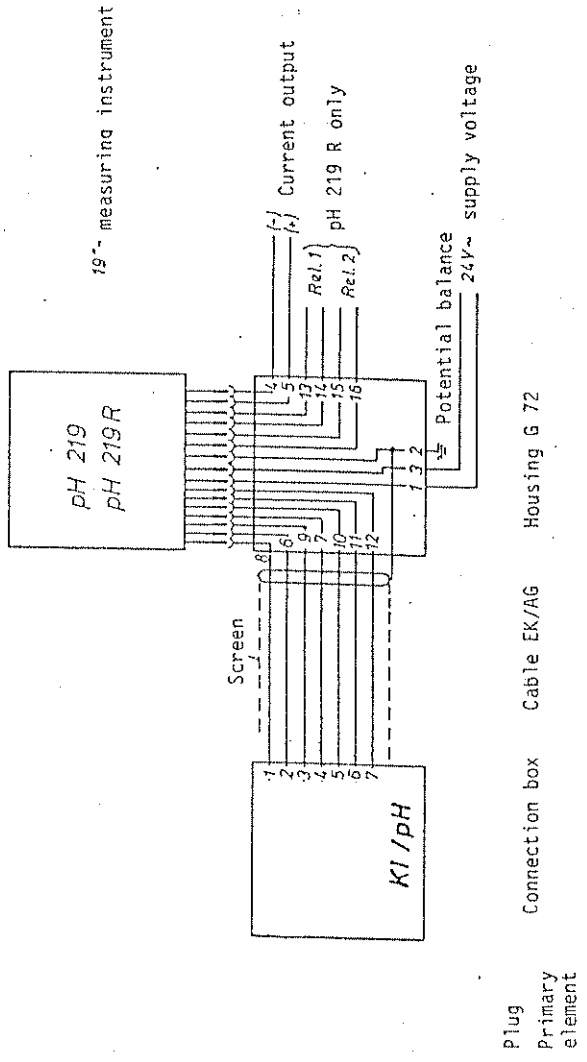
6.1 pH-measurement without automatic temperature compensation

6.1.1 Wiring scheme of connection box KI/pH with 19"-measuring instrument pH 219 (R)

installation acc. to 2.2.1.3, page 3



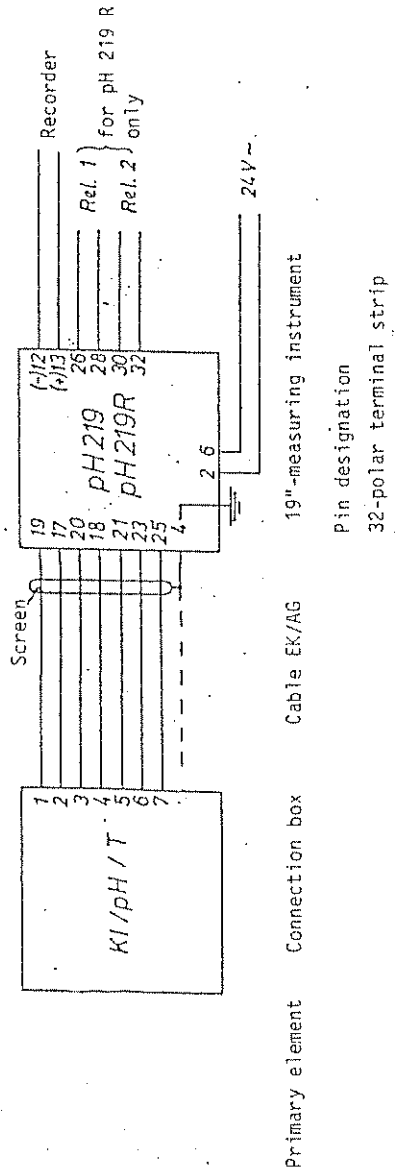
6.1.2 Wiring scheme of connection box KI/pH with switchboard housing G 72 and 19"-measuring instrument pH 219 (R)



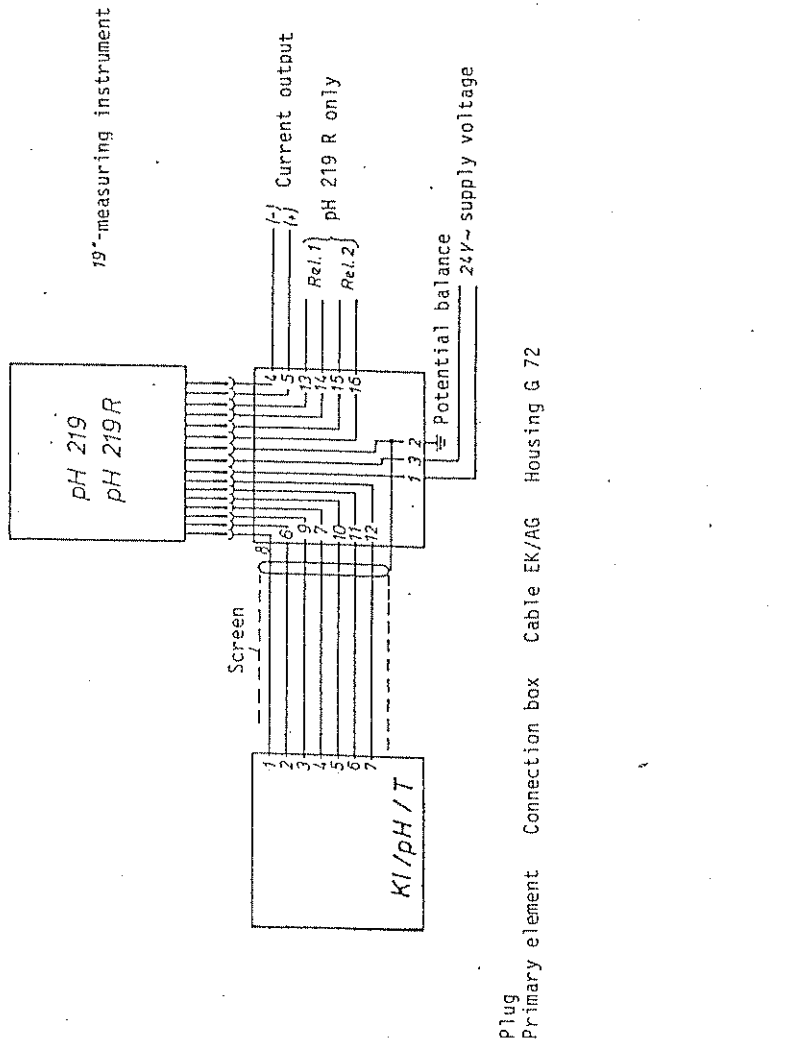
6 Wiring schemes for 19"-measuring instruments (type 219)

6.2 pH-measurement with automatic temperature compensation

6.2.1 Wiring scheme for connection box KI/pH/T with 19"-measuring instrument pH 219 (R)



6.2.2 Wiring scheme of connection box KI/pH/T with switchboard housing G 72 and 19"-measuring instrument pH 219 (R)



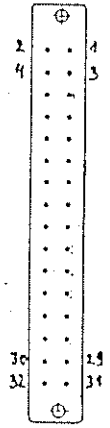
7 Pin designation 32-polar terminal strip at 19"-measuring instrument

The pin designation at the 32-polar terminal strip at 19"-measuring instruments may vary:



32/32

Connection side



32/32

Connection side

In all instruction manuals for WTW-19"-measuring instruments the pin designation (numbering of pins 1,2,3 ... 30,31,32) is maintained.

Subject to change without notice!

06/89