Polished stainless steel for food and pharmaceutical applications

Powder-coated steel for corrosive environments

Uniclean 900

The electro-pneumatic controller for fully automated pH measurement and cleaning

Maximum availability of the point of measurement: Cleaning without interrupting the process, even when measuring directly in the pressure tank.

Since the sensor is not removed for cleaning, the process can continue un- interrupted. This allows problem-free measurements in a pressure tank or in the main pipe. Elaborate and lockable bypasses are eliminated and accuracy increases.

Low maintenance

Fully automated cleaning of the sensor with water or special cleaning solution at user-defined intervals with- out interrupting the process.
The cleaning solution is auto- matical- ly pumped into the cleaning chamber. You just have to top up the container.

Cost-efficient

Low-wear and low-maintenance pump with extremely low consump- tion of cleaning agent

Long sensor life – also in critical processes

When measuring in aggressive media or at high process temperatures, the sensor rests in the cleaning chamber and is only briefly moved into the process for measurement.
The cleaning chamber may be filled with water. This method decisively increases the sensor life.

Safe and easy measurement, even in strongly polluted media

Sensor cleaning and rinsing are performed at user-defined inter- vals. Cleaning solution and water are automatically pumped into the calibration chamber. Dismounting and manual cleaning of the sensor are not required..

Modern fieldbus integration

The interfaces to PROFIBUS PA or FOUNDATION Fieldbus allow the Uniclean system to be integrated directly in a field- bus network. Naturally also in hazardous locations.

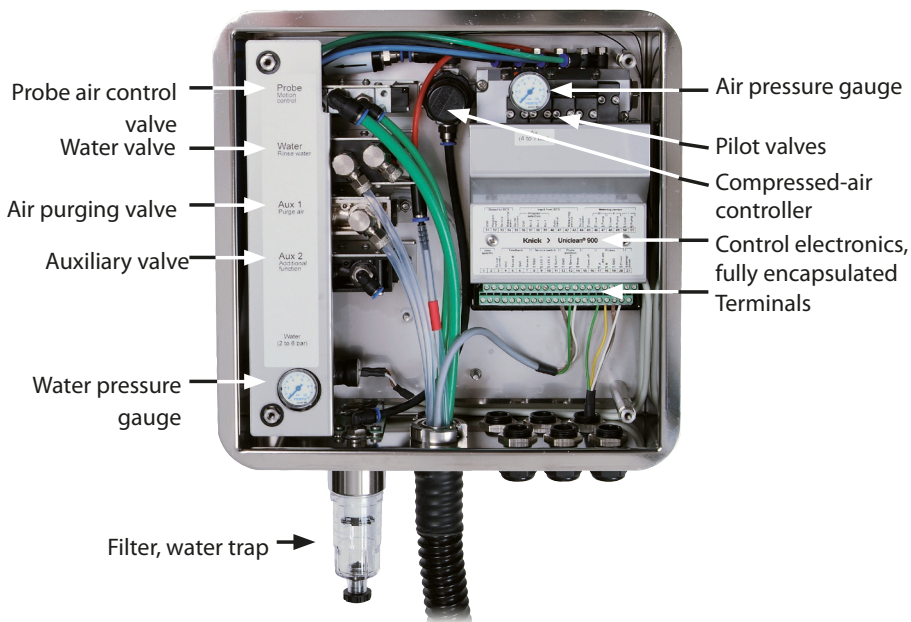**Universal adaptation to retractable fittings**

The modular structure of the Uniclean allows any retractable fittings to be used. Optimum functionality is achieved with the Ceramat and SensoGate sensor lock-gates

Clean and safe construction

All features for smooth, safe, and low-maintenance operation are provided as standard: water pressure gauge, air filter and water trap, integrated flood- ing sensor with alert message.

Uniclean 900

Inside View

Probe air control valve
Water valve
Air purging valve
Auxiliary valve
Water pressure gauge
Filter, water trap

Air pressure gauge
Pilot valves
Compressed-air controller
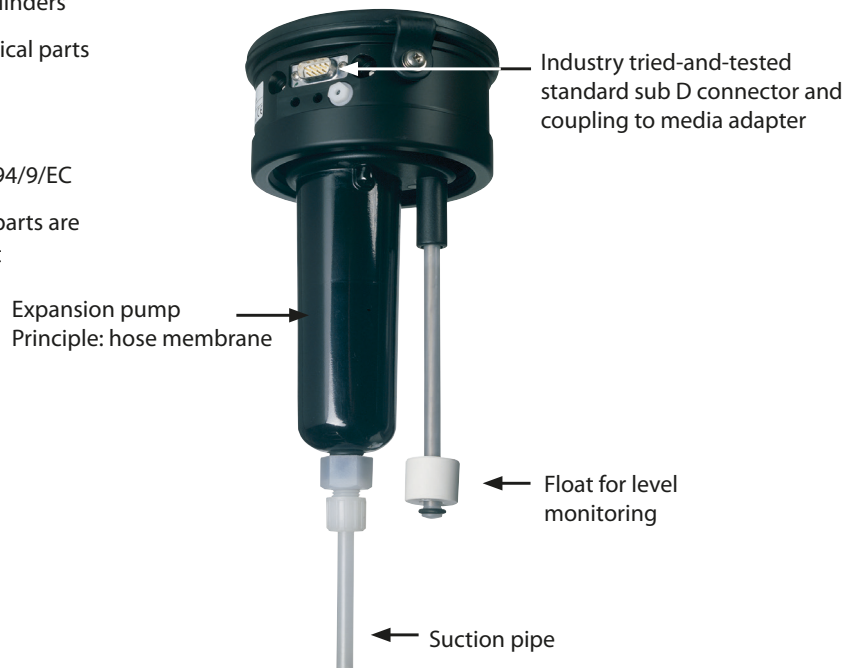Control electronics, fully encapsulated
Terminals

The valve units are expandable.

Facts

– consistent enclosure concept for all devices

– modular design, adaptable to virtually every measuring task

– easy assembly and retrofitting

– hygienic version (polished stainless steel) or corrosion-proof (powder-coated steel)

– low maintenance effort due to innovative pump technology and extremely low consumption of media

– time-controlled cleaning

– cleaning with water and additional cleaning solution

– reduced maintenance effort due to automatic cleaning

– no disruption of production for cleaning the sensor – operation in hazardous locations Zone 1 (all system components)

– longer sensor life due to short-time measurement and regular cleaning

– immediate readiness for measurement after production interruption since sensor is safely stored in liquid

– safety ensured by monitoring of the compressed air and water supply, the probe position and the cleaning solution level

New, Innovative Pump Design for Low Maintenance Costs

– no usual pistons/cylinders

– no moving mechanical parts

– no wear

– no stored energy
  as defined in ATEX 94/9/EC

– all process-wetted parts are
  chemically resistant

Industry tried-and-tested
standard sub D connector and
coupling to media adapter

Expansion pump
Principle: hose membrane

Float for level
monitoring

Suction pipe

Modular Flexibility for Very Simple Adaptation

– The cleaning solution container (3.5 l) is a replaceable active, self-sustaining unit with integrated pump:
  easy refilling of cleaning agent, without removing the pump

– The pump unit is automatically recognized by the system.

– The closure consists of a conveyor cap with funnel and buttoned lid.

– This innovative construction provides previously unknown flexibility and service friendliness.
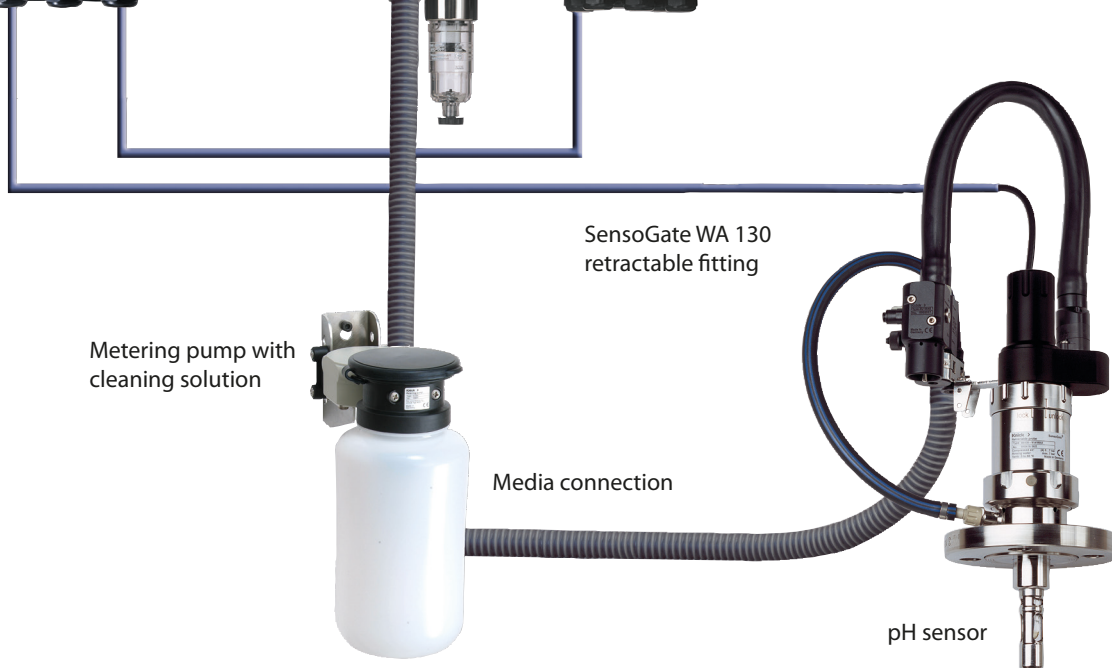

Medienadapter

Container with integrated
metering pump

Uniclean 900

Overview - The Complete System

Protos II 4400
process analysis system

Uniclean 900
controller

SensoGate WA 130
retractable fitting

Metering pump with
cleaning solution

Media connection

pH sensor

Specifications

Compressed air	Compressed air quality to ISO 8573-1:2001		Quality class 5.3.3
	Solid contaminants	Class 5 (max. 40 µm, max. 10 mg/m^3)	
	Water content	for temperatures ≥ 15 °C	Class 4 With operating temperatures > 15 °C a pressure dew point of max 3 °C is permitted
		for temperatures 5 ... 15 °C	Class 3 Pressure dew point −20 °C (or below)
	Oil content	Class 3 (max. 1 mg/m^3)	
	Permitted pressure range	4 ... 10 bar	
	Operating pressure for retractable fittings	4 ... 7 bar	
	Pressure monitoring	Automatic monitoring, message	
	Connection	G ¼" female thread	
	Air consumption	Max. 300 L/min during probe movement	
	Min. air temperature	5 °C	

Rinse water	Filtered 100 µm	
	Permitted pressure range	2 ... 6 bar
	Temperature range	5 ... 65 °C
	Pressure monitoring	Automatic monitoring, message
	Connection	G ¼" female thread / G ¾" male thread

Media adapter	Port for metering pump	
	Material	PP, PE, EPDM, (optional FKM)
	Ingress protection	IP 65
	Mounting	Wall or pipe mounting (Option)
	Weight	approx. 2 kg

Metering pump	For cleaning agent		
	Bottle	3.5 L	
	Max. lifting height	10 m	
	Displaced volume	Approx. 25 cm^3/stroke	
	Level monitoring	Uniclean network diagram as well as NAMUR messages: Maintenance request and failure	
	Material	PP, PE, EPDM (opt. FKM), check valves: glass, HC4	
	Ingress protection	IP 65	
	Dimensions	150 x 150 x 340 mm	with 3.5-L bottle
	Weight	approx. 1.5 kg (with empty 3.5-L bottle)	

Uniclean 900

Specifications

Power	Supplied via Protos module PHU 3400(X)-110	6.8 V (±10 %)/15 mA
	or external power supply source	15 ... 30 V / 20 mA
	Connection	Terminals, conductor cross section max 2.5 mm² (preassembled connecting cable to Protos, length 10 m)

RS 485	communication with Protos module PHU 3400(X)-110 or external host computer (e.g. DCS)	
	Transmission	1200 bauds / 8 data bits /1 stop bit / parity odd
	Protocol	HART Rev. 5
	Connection	Terminals, conductor cross section max 2.5 mm² (preassembled connecting cable to Protos, length 10 m)

DCS input (passive) Measuring / Service	Measuring / Service		
	Switching voltage	0 … 2 V AC/DC	inactive (measuring)
		10 … 30 V AC/DC	active (service)
	Connection	terminals, conductor cross section max. 2.5 mm²	

DCS input (passive) Auto / Manual	Automatic function blocked		
	Switching voltage	0 … 2 V AC/DC	inactive (automatic intervals enabled)
		10 … 30 V AC/DC	active (automatic intervals blocked)
	Connection	terminals, conductor cross section max. 2.5 mm²	

DCS inputs (passive) Bin1 ... 3	Program start 1 ... 6		
	Switching voltage	0 … 2 V AC/DC	inactive
		10 … 30 V AC/DC	active
	Connection	terminals, conductor cross section max. 2.5 mm²	

DCS outputs (passive) (Program runs, Service, Measuring/Alarm)	check-back signals	Service, measuring, program electronic relay contacts, floating, inter-connected
	Voltage drop	< 1,2 V
	Connection	terminals, conductor cross section max. 2.5 mm²

Explosion protection	See EU Type Examination Certificate and EU Declaration of Conformity or www.knick.de	
EMC	EN 61326	
Lightning protection	EN 61000-4-5	Installation Class 2
Protection against electric shock	according to EN 61010	

Specifications

Ambient conditions	Ambient temperature	+2 … +55 °C (Ex: +2 … +50 °C) (different temperature range on request)	
	Transport/Storage temperature	−20 … +70 °C	
	Relative humidity	10 … 95 %, not condensing	
	Housing	Uniclean 900 S	Stainless steel A2, polished
		Uniclean 900 C	Stainless steel A2, coated
	Mounting	Wall mounting	Pipe mounting (Option)
	Dimensions	W x H x D	approx. 320 x 400 x 120 mm
	Ingress protection	IP 65/NEMA 4X	
	Cable glands	6 cable glands M20 x 1.5 knockouts for NPT ½" or Rigid Metallic Conduit	
	Weight	approx. 8.5 kg	

Uniclean 900

Product Range

Basic Unit — Uniclean **900 -** ⬚⬚⬚⬚⬚⬚⬚⬚ – ⬚⬚⬚

Feature	Option	Code
Explosion protection	For ATEX/IECEx/Nepsi Zone 1	X
	Without	N
Housing	Steel, coated	C
	Stainless steel, polished	S
Media connection (water rinsing)	5 m (gasket material: FKM)	1 · 0 · 0
	10 m (gasket material: FKM)	2 · 0 · 0
	15 m (gasket material: FKM)	5 · 0 · 0
Media connection (water rinsing + cleaner)	5 m (gasket material: FKM)	3 · 1/A
	10 m (gasket material: FKM)	4 · 1/A
	14 m (gasket material: FKM)	7 · 1/A
	17 m (gasket material: FKM)	6 · 1/A
	5 m (gasket material: EPDM)	C · 1/A
	10 m (gasket material: EPDM)	D · 1/A
	14 m (gasket material: EPDM)	G · 1/A
	17 m (gasket material: EPDM)	F · 1/A
Media interface	With (interface for standard probes)	1
	Without (for WA 130, 150, 154, 160)	0
Media adapter with port	With (gasket material: FKM)	1
	With (gasket material: EPDM)	A
	Without	0
Port	Metering pump with empty 3.5-L bottle (EPDM)	2
	Metering pump with empty 3.5-L bottle (FKM)	B
	Not equipped	0
Supplementary air purging kit	With	C
	Without	N
Supplementary ext. valve kit	With	E
	Without	N
Special variant	Without	0 · 0 · 0
	With protective cabinet, non-Ex	1 · 0 · 0
	With protective cabinet and heater, non-Ex	2 · 0 · 0
	With protective cabinet, Ex	3 · 0 · 0
	With protective cabinet and heater, Ex	4 · 0 · 0

Accessories for Uniclean 900

Accessories	Order No.
Pipe-mount kit for Uniclean 900	ZU 0601
Pipe-mount kit for media adapter	ZU 0606
Connection kit for Uniclean 900 (water and air)	ZU 0656
Chemical pump (Aux 2 / ZU 0588 ext. valve kit required)	ZU 0741
Additional cleaner connection	ZU 0956

Spare Parts for Uniclean 900

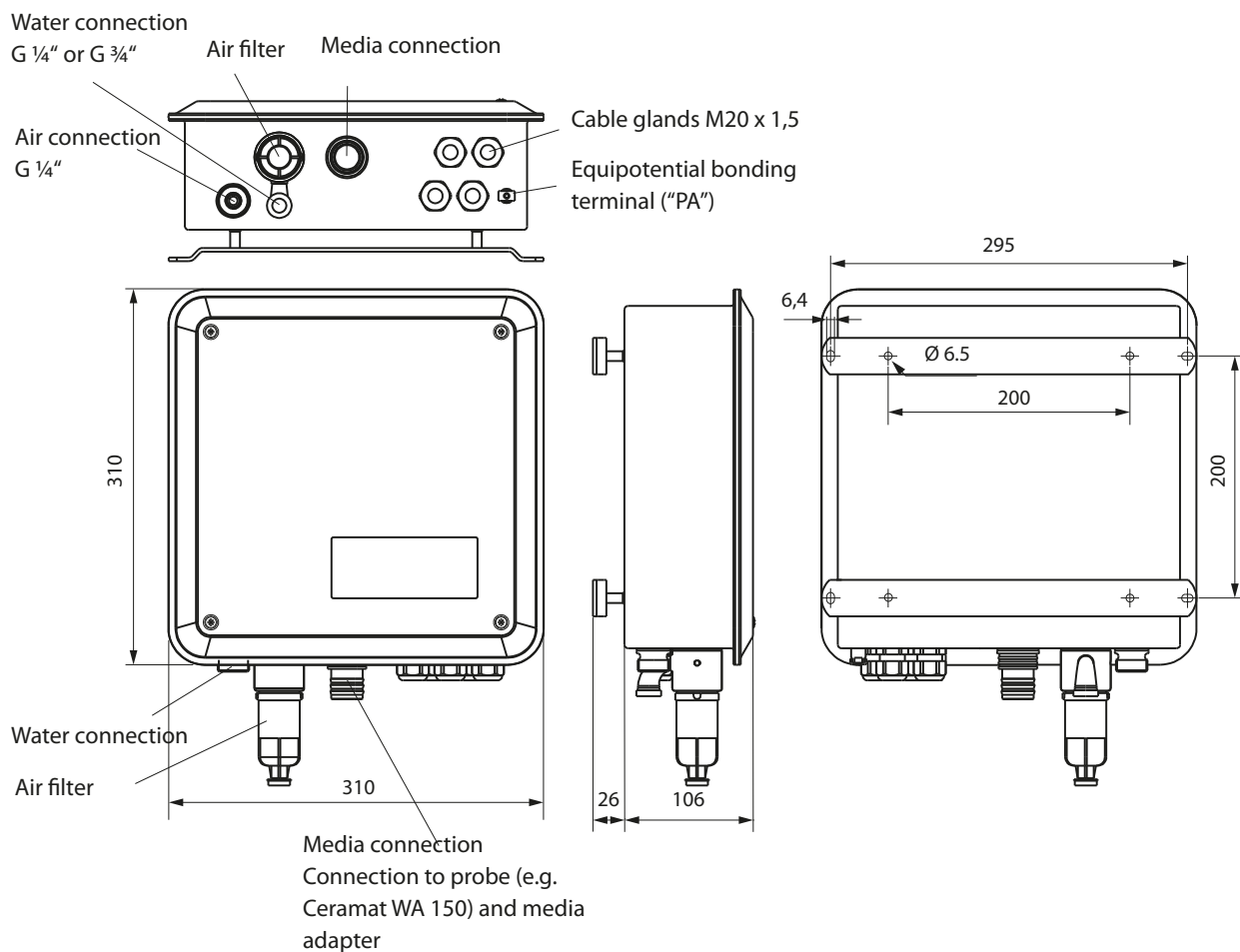| Spare Parts + Retrofit Parts for Uniclean 900	Order No.	EUR
Media connection, rinse, 5 m (FKM gaskets)	ZU 0572/1	986,00
Media connection, rinse 5 m (EPDM gaskets)	ZU 0572/2	986,00
Media connection, rinse, 10 m (FKM gaskets)	ZU 0573/1	1.289,00
Media connection, rinse 10 m (EPDM gaskets)	ZU 0573/2	1.289,00
Media connection, rinse, 15 m (FKM gaskets)	ZU 0652/1	2.069,00
Media connection, rinse 15 m (EPDM gaskets)	ZU 0652/2	2.069,00
Media connection, rinse + clean, 5 m (FKM gaskets)	ZU 0574/1	1.589,00
Media connection, rinse + clean, 5 m (EPDM gaskets)	ZU 0574/2	1.589,00
Media connection, rinse + clean, 10 m (FKM gaskets)	ZU 0575/1	2.069,00
Media connection, rinse + clean, 10 m (EPDM gaskets)	ZU 0575/2	2.069,00
Media connection, rinse + clean, 14 m (FKM gaskets)	ZU 0932/1	2.723,00
Media connection, rinse + clean, 14 m (EPDM gaskets)	ZU 0932/2	2.723,00
Media connection, rinse + clean, 17 m (FKM gaskets)	ZU 0653/1	3.216,00
Media connection, rinse + clean, 17 m (EPDM gaskets)	ZU 0653/2	3.216,00
Media interface for standard probes	ZU 0576	353,00
Metering pump (PP, FKM) with empty 3.5 L bottle	ZU 0580/1	1.374,00
Metering pump (PP, EPDM) with empty 3.5 L bottle	ZU 0580/2	1.188,00
Metering pump (PP, FKM) with empty 3.5 L bottle, Ex	ZU 0580 X/1	1.463,00
Metering pump (PP, EPDM) with empty 3.5 L bottle, Ex	ZU 0580 X/2	1.280,00
Supplementary air purging kit	ZU 0587	470,00
Supplementary Aux2 kit	ZU 0588	470,00
Media adapter (FKM gaskets)	ZU 0715/1	762,00
Media adapter (EPDM gaskets)	ZU 0715/2	762,00
Media adapter, Ex (FKM gaskets)	ZU 0715 X/1	833,00
Media adapter, Ex (EPDM gaskets)	ZU 0715 X/2	833,00
Pressure gauge replacement kit (water pressure indication)	ZU 0984	156,00

Uniclean 900

Service Parts for Uniclean 900

Service Parts for Uniclean 900	Order No.	EUR
Air pressure switch	ZU 0632	187,00
Water pressure switch	ZU 0633	194,00
Probe valve, complete	ZU 0634	381,00
Water valve	ZU 0714	420,00
Sensor dismount guard, complete	ZU 0644	391,00
Air purge valve, complete	ZU 0636	215,00
Aux 2 valve, complete	ZU 0637	228,00
Piezo valve for valve block	ZU 0638	391,00
Gasket for port at media adapter (EPDM)	ZU 0639	11,00
Filter insert (5 ... 10 µm)	ZU 0640	37,00
Replacement filter housing	ZU 0641	85,00
Electronics module, tested, encapsulated	ZU 0716	982,00
Electronics module, tested, encapsulated, Ex	ZU 0716 X	1.069,00
Small parts kit	ZU 0643	63,00
Multiplug service set, FKM gaskets	ZU 0812/A	148,00
Multiplug service set, EPDM gaskets	ZU 0812/B	148,00
Reed switch, short (service part for multiplug)	ZU 0813/1	116,00

Dimension Drawings

Wall Mounting

Water connection
G ¼" or G ¾"

Air connection
G ¼"

Air filter

Media connection

Cable glands M20 x 1,5

Equipotential bonding
terminal ("PA")

295

6,4

Ø 6.5

200

200

310

310

26   106

Water connection

Air filter

Media connection
Connection to probe (e.g.
Ceramat WA 150) and media
adapter

All dimensions in mm.

Uniclean 900

Dimension Drawings

Pipe mouting

Air filter   Media connection

Air
connection
G ¼"

Cable glands M20 x 1,5

Equipotential bonding
terminal ("PA")

Water
connection
G ¼" or G ¾"

Ø 30 … 65 mm
Pipe transverse or longitudinal

72

92

310

310

200

23

200

200

200

Water
connection

Air filter

Media connection
Connection to probe (e.g. Ceramat WA 150) and media adapter
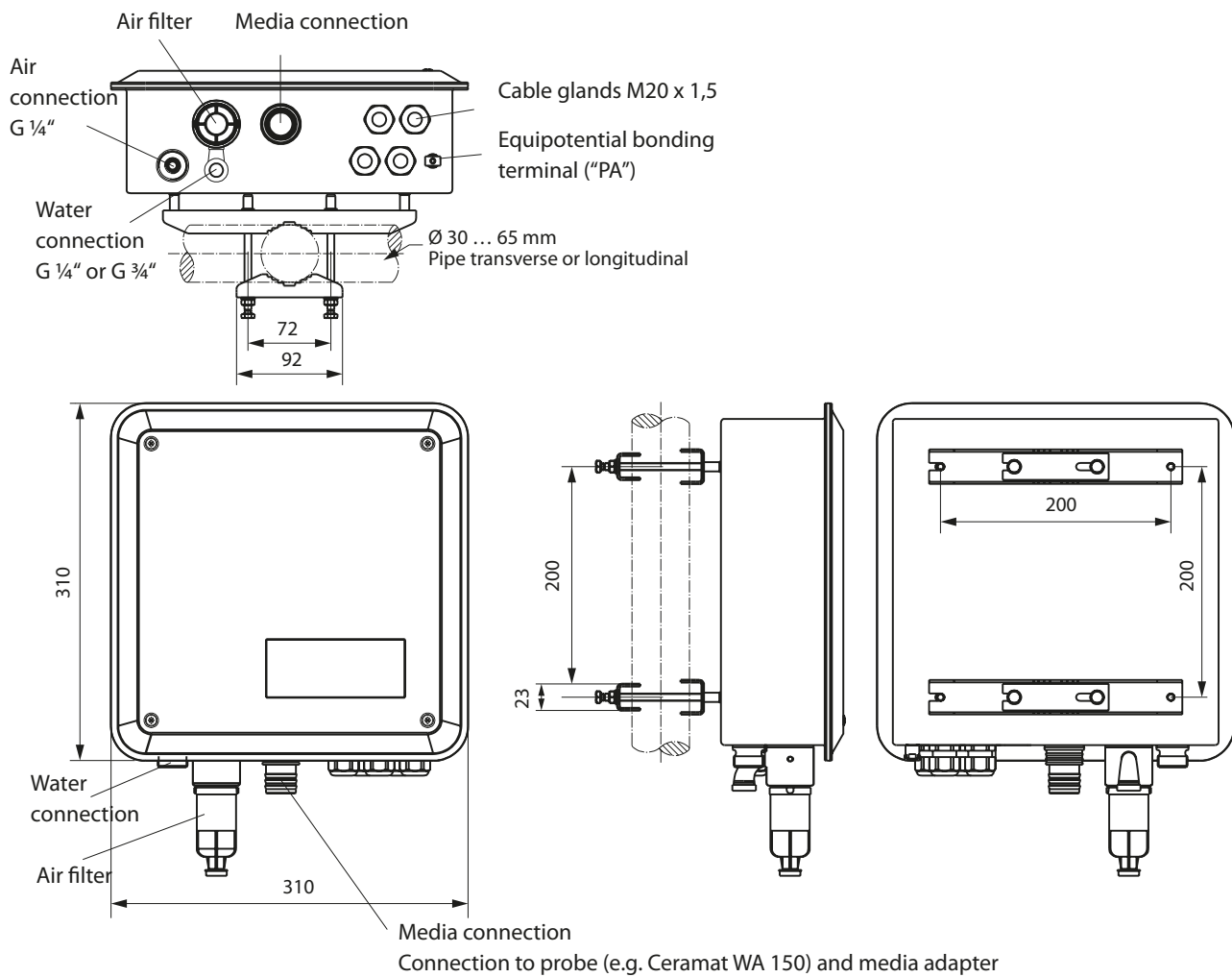
All dimensions in mm.

Dimension Drawings

Media adapter

All dimensions in mm.

Terminal Assignments

Valves / Monitoring

	GND	Reserve	GND	Auxiliary 2	GND	Auxiliary 1	GND	Water	GND	Probe	Not used	Not used	GND	Sense pressure (air)	Sense reserve	GND	Sense water	Not used	Not used	GND	Sense water stop
	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81

Output to DCS / Input from DCS / Metering pump

GND	Program runs	Service	Measuring/alarm	Do not connect	GND	Bin 3	Bin 2	Bin 1	Auto/manual	Measuring/service	Do not connect	GND bn	Level bu	Pump wh	Not used	Not used	Not used	Not used
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51

Knick › Uniclean® 900

ext. Start / Feedback / Probe position / Power off / Protos

Start	Start	Do not connect	GND	Sense B	GND	Sense A	Not used	Not used	Not used	Not used	GND bn	Service gn	Meas wh	Power off	A gn	B ye	GND bn	Power wh	External power
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21