pHix® Compact, v.3

PH, TEMPERATURE AND REDOX MEASUREMENT

...next generation

General

This version features analog 4-20 mA or Modbus RS 485 signal output. Furthermore, firmware upgrades are now possible due to the RS 485 Modbus communication protocol. The new design in PPS Fortron makes the pHix® Compact v.3 almost 100% corrosion resistant.

In addition to measurements in wastewater applications, due to the new rough materials and long-term stability of the sensor and electrode, the pHix® Compact v.3 is now very suitable for pH measurement in waste & drinking water applications, marine applications, process applications, industry applications and aquaculture applications. The advanced and unique design of pHix® Compact v.3 ensures that your work is done fast, easy and with high accuracy.

The compact design offers a union in one end, and male thread in the other. This makes it easy to mount pHix® Compact v.3 in pipelines or immersed in open tanks. MJK offers a wide range of fitting and mounting accessories. The double-junction electrode is developed especially for pHix® Compact v.3 and will provide significantly higher impedance, increased electrolyte volume, increased junction area and a longer lifetime compared to most traditional electrodes. New pHix Link application tool for setup, calibration, electrode diagnosis and troubleshooting is connected easily using a standard Windows laptop over the build-in serial communication.

Features

- Compact design; electrode, fitting and transmitter in one
- Built-in temperature transmitter
- 2 x 4-20 mA for pH and temperature or RS 485 Modbus output
- Unique and simple buffer adjustment
- Constructed in PPS Fortron and/or stainless steel
- Automatic buffer recognition
- Very resistant towards clogging
- Suitable for acid/alkalic fluids.

Application

- Waste water applications
- Drinking water applications
- Aqua culture applications
- Marine applications
- Industry applications
- Process applications
- Raw water pipes

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Specifications

pHix® Compact, v.3	pH/Redox and temperature transmitter	
Meassuring range, pH and mV	2-12 pH / -1000...+ 1000 mV
Input impedance	$> 10^{12} \Omega$
Operating temperature range	0 … +60° C
Resolution pH	0,01 pH
Resolution redox	1 mV
Resolution temperature	0,1° C
Accuracy pH	± 0,1 pH
Repeatability pH	Max ± 0,02 pH
Accuracy redox	1 % of measuring range
Repeatability redox	Max 0,2 % of measuring range
Accuracy temperature	± 1° C of actual measurement
Response time pH	Approx. 10 seconds
Response time temperature	95% in less than 60 seconds (when sensor is fully submerged)
Temperature compensation	Built-in sensor. Entire operating range
Materials	PPS Fortron and/or stainless steel (EN 1.4404 / AISL316L)
Storage temperature	0 … +50° C
Supply voltage	10-28 V DC. 2-wire supply
Output signal	4-wire 4 - 20 mA (passive transmitter) for pH and temperature Standard scaled: 0-14 pH/ -1000...+1000mV and 0 - 50 °C (32-122 °F) Digital signal: RS485 ModBus
Cable	3 x 2 x 0,34 mm2 / AWG 22, shielded, PUR insulation
Cable length	6 meter (19.7 ft.)
Weight	1,8 kg / 3,97 lb
Enclosure	IP 68 to IEC 529 (10 m) / 5 bar pipe mounted, NEMA 6x
CE approvals	IACS E10 BS2586:1979; §11, §12.1, §12.2

Notice: pHix® Compact holds standard warranty. The changeable sensors are consumable, hence they hold a limited warranty.

Electrodes			
	160310 pH electrode	160311 pH electrode	160312 Redox/ORP electrode
Membrane	Glass	Glass	Platinum
Reference system	Ag/AgCL, 3.5M KCl	Ag/AgCL, 3.5M KCl	Pt/KCL, 3.5M KCl
Reference system material	PTFE	PTFE	PTFE
Impedance	200-500 MΩ @ 25° C	200-500 MΩ @ 25° C	n/a
Measuring range	2-12 pH	2-12 pH	-1000 / +1000 mV
Temperature range	0-70° C / 32-158° F	0-70° C / 32-158° F	0-70° C / 32-158° F
0-point pH	4,60 pH, +/- 0.25 pH	7,00 pH, +/- 0.25 pH	n/a
Response time	t95 - 5 sec.	t95 - 5 sec.	t95 - 5 sec.
Pressure	0-75 psig / 0-5,0 bar	0-75 psig / 0-5,0 bar	0-75 psig / 0-5,0 bar
Recom. storage temp.	25° C / 77° F	25° C / 77° F	25° C / 77° F

Electrical connections

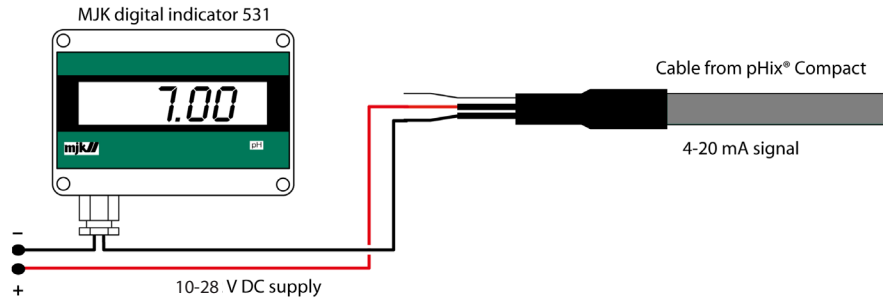| Connections			
No.	Designation	Colour	Channel
1	(+) 10-28 V DC	Red	Supply
2	(−) 4-20 mA	Black	pH or redox signal
3	(+) 10-28 V DC	White	Supply
4	(−) 4-20 mA	Grey	Temp signal
5	RS 485 B	Yellow	ModBus com. B
6	RS 485 A	Green	ModBus com. A

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Connection example pH signal

MJK digital indicator 531

7.00

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Cable from pHix® Compact

4-20 mA signal

−

+ 10-28 V DC supply

Dimensions mm & inch

267 / 10.51"

93 / 36.66"

32 / 1.26"

61 / 2.4"

66 / 2.6"

40 / 1.57" PPS

38 / 1.50"

49 / 1.93"

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1¼" ISO 228-1 thread
(Can also be delivered with
1¼" NPT ANSI B 2.1)

Accessories fittings

Order no. 155268 ISO

Pipe for submersion
PVC Pipe
ISO / NPT
50mm / 2"

Extension for universal bracket,
order no. 200215

Wall bracket,
order no. 200210

Order no. 155246 ISO

1¼" RG
(ISO 228-1)
or
1¼" NPT
(ANSI B.2.1)

Universal bracket,
order no. 200205

72 / 2,83"

2" ISO 228-1 thread or 2" NPT (ANSI B.2.1)
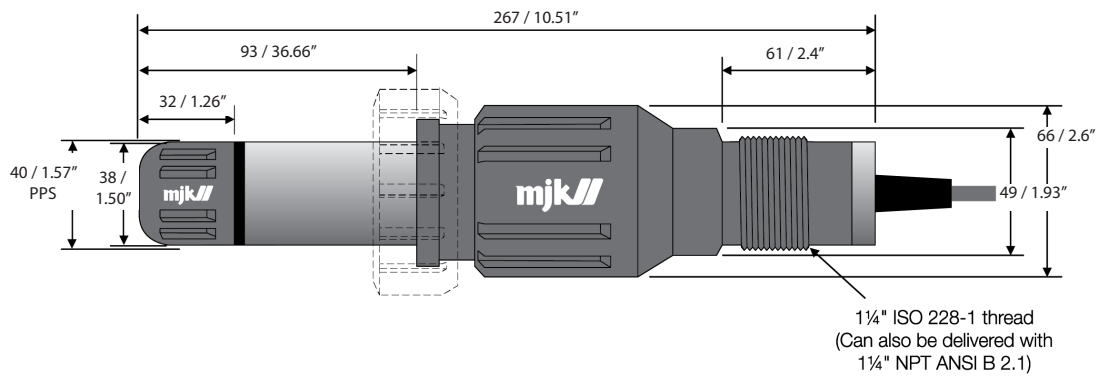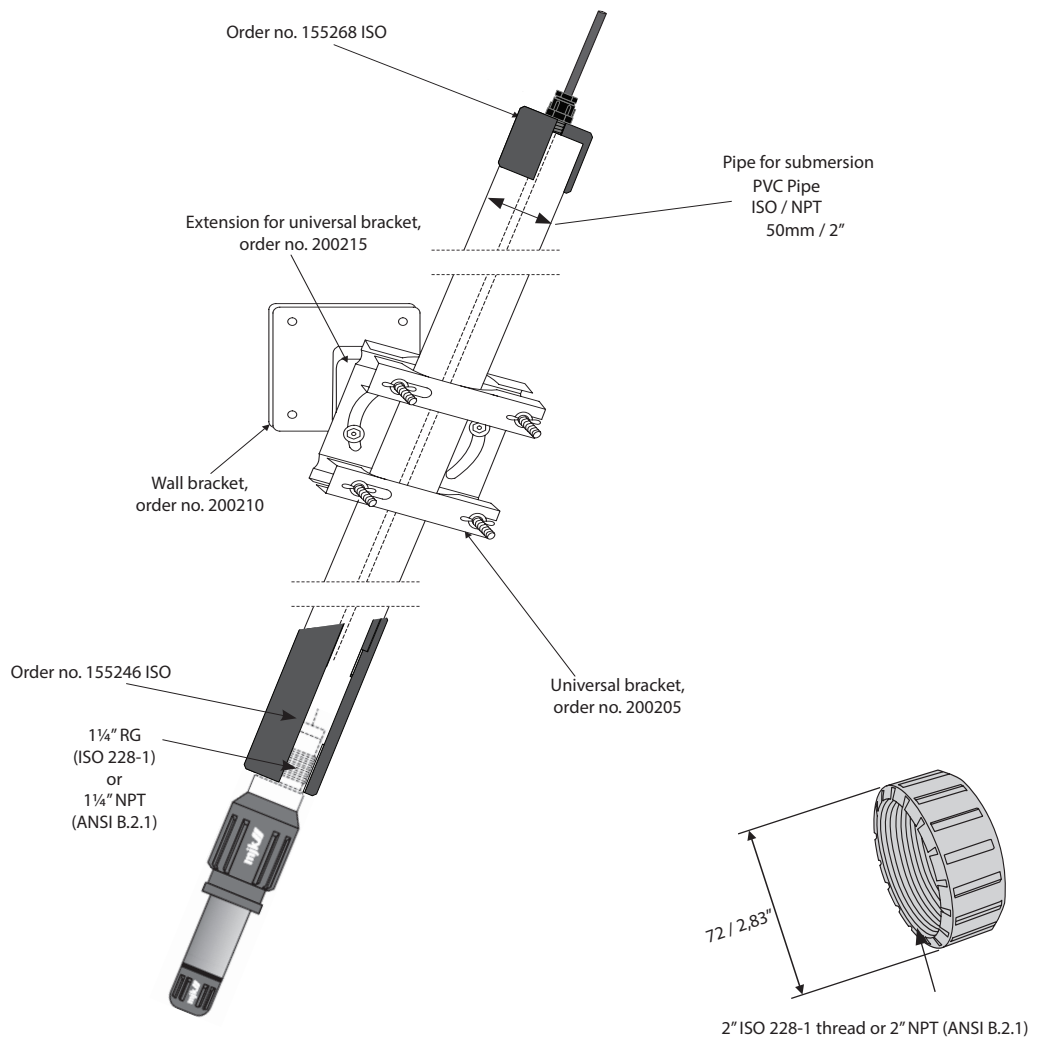
Software	840155 pHix Link for Windows is for support of the pHix® Compact series. Use with 203992 PC interface.

This new 3rd version of pHix® Compact is now equipped with Modbus RS 485 communication.

With this software, you can also access the following:

- Information (pH, Redox and temperature range, version of software, etc.)
- Indication of current pH and temperature and measurement range
- Display of current sensor data
- Configuration and setup
- Configuration of ID number (ModBus)

[Click here to download pHix Link - the application is free of charge.](#)
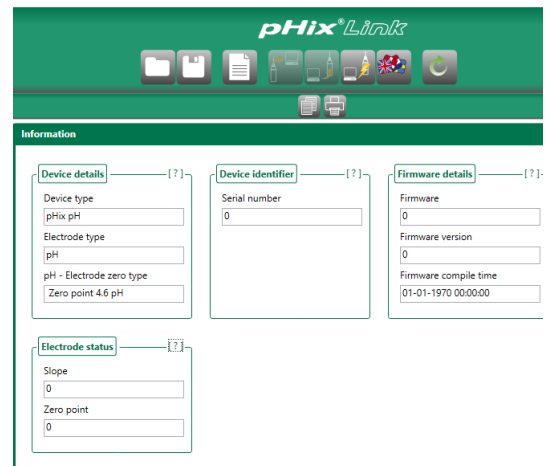
Correct storage	Electrodes are consumables; the lifetime of a pH electrode will vary depending on the pH value and temperature of the media in which it is submerged.

The lifetime of the electrode is also depending on the electrode being kept moist when not in use. The optimal way of securing the electrode is to clean it thoroughly after use, and use the cap delivered with the electrode.

To keep the electrode moist under storage, use MJK's or any other 3 mol KCL solution. Place a cotton ball or a sponge in the cap*. Next, fill the cap with approx. 20 ml. KCL solution.

*Note: By filling approx. 20 ml. KCL solution in the cap, it is also possible to use the cap without cotton/sponge.

Accessories Buffer/storage solutions	pH buffer solution. pH values 4.01, 7.00 and 10.01 for calibration

KCL storage solution.
Used for keeping the cotton or sponge inlay moist. This lengthen the lifetime of the electrodes during storage.

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Order numbers Transmitter

pHix® Compact pH/Redox and temperature transmitter. Output 4-20mA/RS 485 ModBus. 6m/18 ft. cable	
Stainless steel 316 electrode holder. ISO Thread. Without electrode	
203160-4,6	pHix® Compact pH/temp. transm. (316) w/o electrode, 6m cable, ISO, 0=4,6pH
203160-7,0	pHix® Compact pH/temp. transm. (316) w/o elektrode, 6m cable, ISO 0=7,0pH
203160-Redox	pHix® Compact Redox/temp. transm. (316) w/o elektrode, 6m cable
Stainless steel 316 electrode holder. NPT Thread. Without electrode	
203161-4,6	pHix® Compact pH/temp transm. (316) w/o electrode, 18ft cable, NPT, 0=4,6pH
203161-7,0	pHix® Compact pH/temp transm. (316) w/o electrode, 18ft cable, NPT, 0=7,0pH
203161-ORP	pHix® Compact ORP/temp. transm. (316) w/o electrode, 18ft cable, NPT
PPS electrode holder. ISO Thread. Without electrode	
203170-4,6	pHix® Compact pH/temp. transm. (PPS) w/o electrode, 6m cable, ISO, 0=4,6pH
203170-7,0	pHix® Compact pH/temp. transm. (PPS) w/o elektrode, 6m cable, ISO 0=7,0pH
203170-Redox	pHix® Compact Redox/temp. transm. (PPS) w/o elektrode, 6m cable. ISO
PPS electrode holder. NPT Thread. Without electrode	
203171-4,6	pHix® Compact pH/temp transm. (PPS) w/o electrode, 18ft cable, NPT, 0=4,6pH
203171-7,0	pHix® Compact pH/temp transm. (PPS) w/o electrode, 18ft cable, NPT, 0=7,0pH
203171-ORP	pHix® Compact ORP/temp. transm. (PPS) w/o electrode, 18ft cable, NPT

Electrodes

pHix® Compact Electrodes	
160310	pH electrode 0=4,6pH 0-14 pH, 0-80° C
160311	pH electrode 0=7,0pH 0-14 pH, 0-80° C
160312	Redox / ORP electrode Pt/KCL -1000mV +1000mV -20 +80° C

Electrolyte cleaning and buffer solution	
163010	KCL solution 0.5 l, 3.0 mol
163032	pH buffer, pH 4.01 - 0,25 l
163034	pH buffer, pH 7,00 - 0,25 l
163036	pH buffer, pH 10.010 - 0,25 l
163040	Redox buffer 6 x 20ml +180mV Pt/Kalomel/+220mV PT-Ag/AgCL

Accessories

Fittings and accessories	
109113	MJK product-test certifikat. Must be requested upon order!
155200	Electrode fitting for pHix® Compact electrode
155246	pHix® sensor adaptor for immersion ISO
155254	pHix® adaptor for ball float, ISO
155260	PVC pipe 50mm - PN10 (ø50 x 2,4mm) per meter
155268	PVC CAP ISO 50mm w. PG9 Cable Glans
155272	Sensor immersion bundle kit for pHix® Compact w/ISO thread consisting of: 155246, 155268, 579055, 200205, 200210, 200215
200125	Field indicator 531, complete , 4-20mA loop powered
200205	Universal bracket
200210	Wall support for universal bracket
200215	Extension for universal bracket
202920	Cable length, not standard
521409	pHix® 2" Union nut, ISO thread, incl. seal
579055	PVC glue bottle with 120 grams
691077	pHix® cable 3 x 2 x 0,34mm^2 (AWG22) shielded twisted pair
203992	PC Interface (USB/RS485) for Expert™ 3400D/7060/7070/pHix® Compact

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ISO 9001:2015 CERTIFICATION ™ Intertek