



# pHix® Compact, v.3

PH, TEMPERATURE AND REDOX MEASUREMENT

4.10

## ...next generation

### General

This next generation features Modbus RS 485 output as well as analog 4-20 mA signal. Slope and linearity are both improved, and firmware upgrades are now possible due to the RS 485 Modbus communication protocol. The new design in fortron PPS 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
- 4-20 mA output
- RS 485 Modbus output
- Unique and simple buffer adjustment
- Constructed in reinforced PPS and/or stainless steel
- Automatic buffer sequence
- Very resistant to 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



### DATASHEET

EN 4.10 PHIX DATASHEET 2006

**mjk**  
a xylem brand

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## Specifications

pHix® Compact, v.3   pH/Redox and temperature transmitter	
Measuring 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	0,75 % 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	Fortron PPS and/or stainless steel (EN 1.4404 / AISL316L)
Storage temperature	0 ... +50° C
Supply voltage	10-28 V DC. 2-wire supply
Output signal	2-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 mm <sup>2</sup> / 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	EN61326-1 EN61326-2-3

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, +/- 0.2 pH	7,00 pH, +/- 0.2 pH	n/a
Response time	t95 - 5 sec.	t95 - 5 sec.	t95 - 5 sec.
Pressure	0-100 psig / 0-6,8 bar	0-100 psig / 0-6,8 bar	0-100 psig / 0-6,8 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

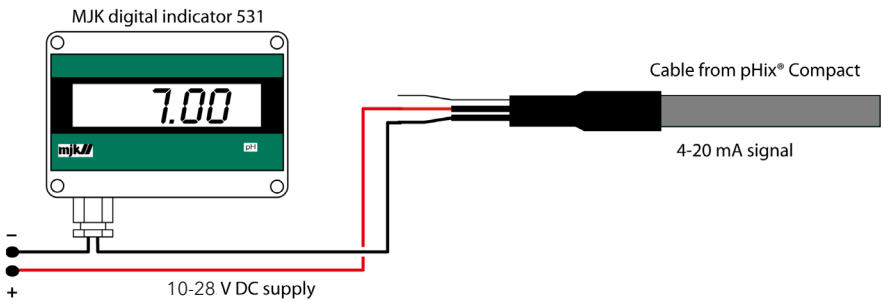


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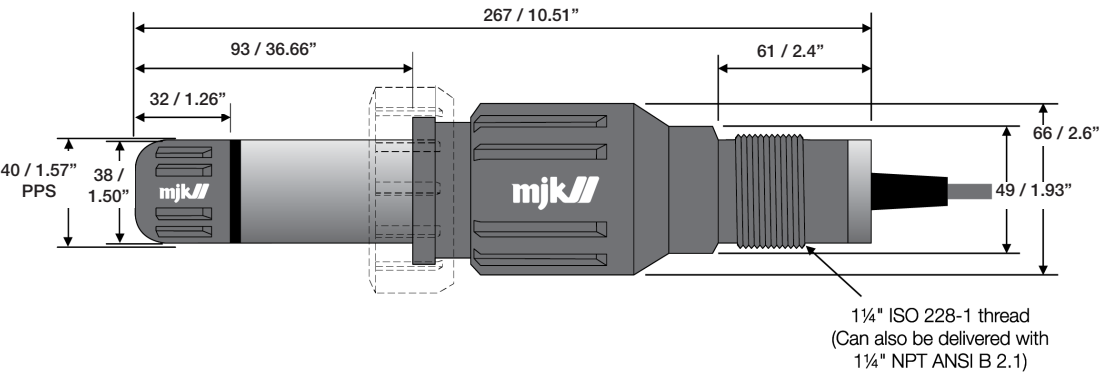
## Connection example

pH signal



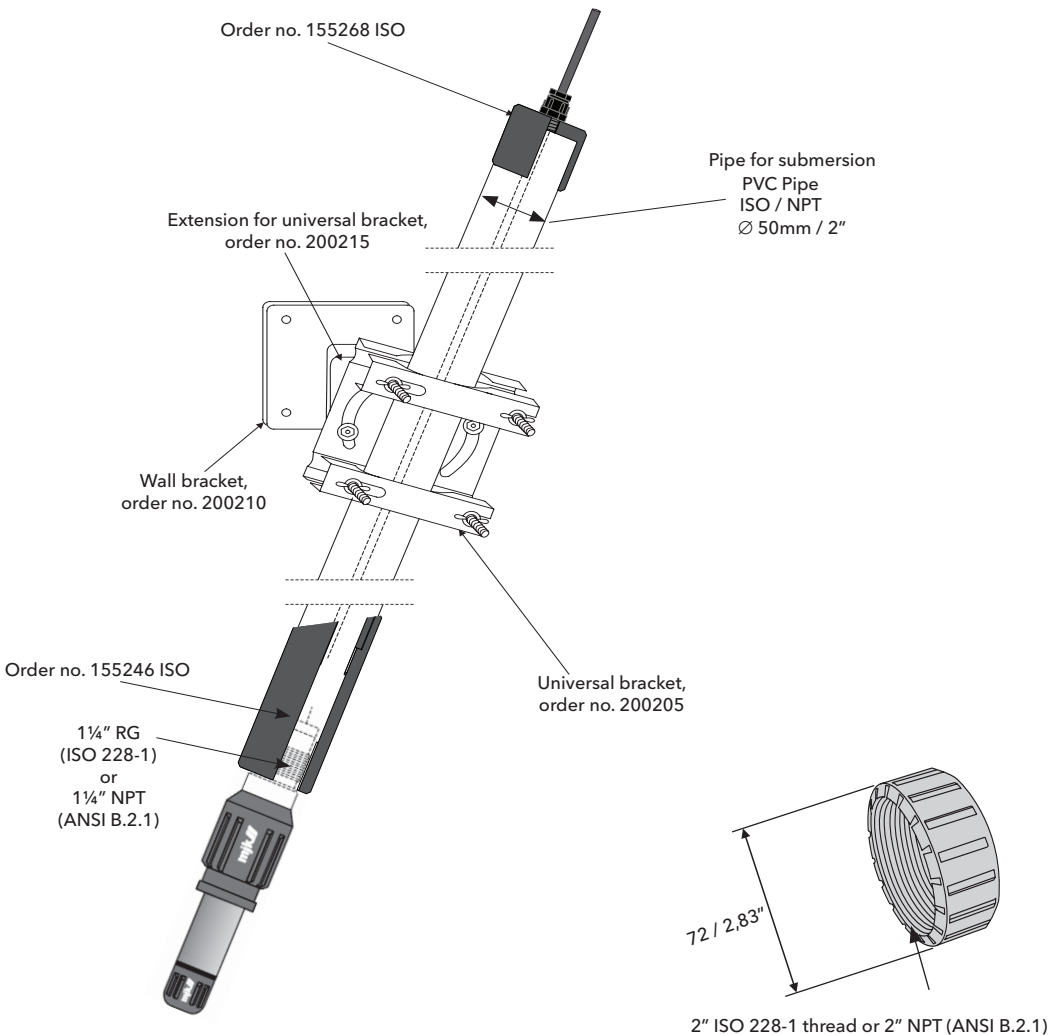
## Dimensions

mm & inch



## Accessories

fittings



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## Software

840155 pHix Link for Windows is for support of the pHix® Compact series. Use with 203992 PC interface.

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

With this software, you can access the following:

- Information (pH, Redox and temperature range, version of software, etc.)
- Indication of current pH and temperature display 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.](#)



## Calibration and 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: It is also possible to use the cap without cotton/sponge.

## Accessories liquids

pH buffer fluid.  
pH values 4, 7 and 10 for calibration



KCL fluid.  
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 4,00 - 0,25 l
163034	pH buffer, pH 7,00- 0,25 l
163036	pH buffer, pH 10,00- 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 0,34mm² (AWG22) shielded twisted pair



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