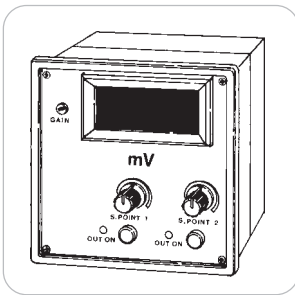




This manual contains important safety information about installation and use of this equipment. Ignoring this information could result in injuries or damages.



It is strictly forbidden to use this equipment with radioactive chemicals !



“ JRH ” CONTROLLER OPERATING MANUAL

Read carefully!



ENGLISH Version

R1-04-03



“JRH” series instruments comply with the following European regulations:

EN60335-1 : 1995, EN55014, EN50081-1/2, EN50082-1/2, EN6055-2, EN60555,3

Based on directive CEE 73/23 c 93/68 (DBT Low voltage directive) and directive 89/336/CEE (EMC Electromagnetic Compatibility)



GENERAL SAFETY GUIDELINES

Danger!

In emergencies the instrument should be switched off immediately! Disconnect the power cable from the power supply!

When using instrument with aggressive chemicals observe the regulations concerning the transport and storage of aggressive fluids!

When installing outside European Community, always observe national regulations!

Manufacturer is not liable for any unauthorized use or misuse of this product that can cause injury or damage to persons or materials!

Caution!

Instrument must be accessible at all times for both operating and servicing. Access must not be obstructed in any way!

Feeder should be interlocked with a no-flow protection device.

Instrument and accessories must be serviced and repaired by qualified and authorized personnel only!

Always read chemical safety datasheet!

Always wear protective clothing when handling hazardous or unknown chemicals!

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GENERAL DESCRIPTION

The JRH instrument measures REDOX (mV) potential e.g. measuring Redox and chlorine levels in industrial control processes. It also provides two ON-OFF set point and a current signal of between 0÷20 mA, proportional to the value appearing on display. The instrument is housed in an IP50 ABS plastic case and designed for a panel installation. All the electrical connection and the probe connection have been placed on the back panel. Max overall dimensions are 96x96x150 mm.

ELECTRICAL WIRINGS

Electrical wirings are made on the instrument through the green terminal block in the rear panel shown in fig. 1 :

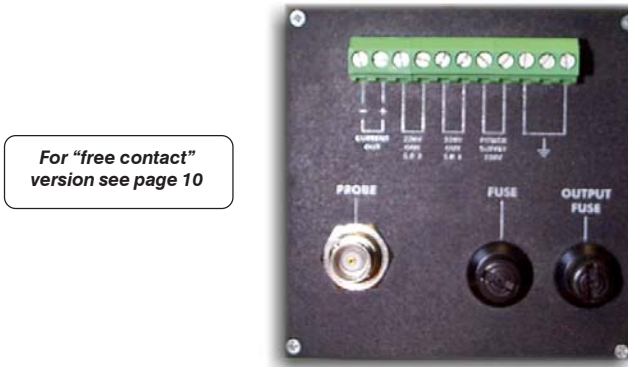


Fig. 1

“**Current Out**” 0÷20mA current output proportional to the instrument reading. (Different output ranges available)

“**220 Out S.P.2**” set point 2 220Vac output (Max 5A)

“**220 Out S.P.1**” set point 1 220Vac output (Max 5A)

“**Power Supply 220V**” power supply

“ \perp ” ground terminals (needed for correct functioning)

“**PROBE**” Redox (ORP) probe

“**FUSE**” instrument protection fuse (200mA T 5x20)

“**OUTPUT FUSE**” set point 1 and set point 2 protection fuse (1A T 5x20 standard, Max 3.15A T 5x20)

Redox-METER ADJUSTMENT

Once connected the ORP probe to the instrument this adjustment is needed. Proceed as follows:

- Supply power to the instrument (220 Vac \pm 10%).
- Set the ($^{\circ}$ C) marked knob to the buffer solution temperature using the instrument without automatic temperature compensation. Install the temperature probe (refer to next section of this manual) using the instrument with the automatic temperature compensation. Dip temperature probe in the buffer solution while following with this procedure.

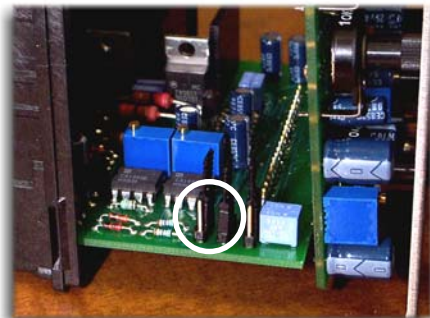
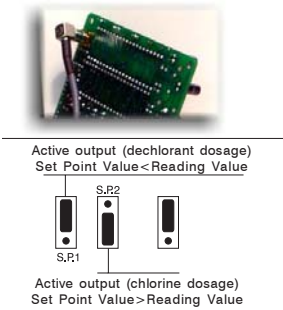


Abundantly rinse electrode with water and dry it shaking before dip the electrode in the buffer solution in order to avoid solution contamination.

- Dip the electrode in a 650mV (BSD) buffer solution and shake it. Wait one minute to stabilize the instrument reading, and adjust ZERO screw to have on the instrument display the buffer solution reading.
- Put in place the ORP electrode on the PED or PEA probe holder. Both ORP and temperature probes can be installed in the PED probe holder.
- In order to reduce probes maintenance a 100 micron filter (FIL) can be installed at the probe holder input.

SET-POINT ADJUSTMENT

Setted set point 1 (or set point 2) is showed on the instrument display pressing the “SetPoint 1” (or SetPoint2”). Keep pressed “SetPoint 1” (or SetPoint2”) and use the correspondent knob to change its current setting. “SetPoint 1” and “SetPoint2” yellow LEDs are on when the correspondent 220V output are enabled. A free of voltage contact (N.O.) is available upon demand on “220 Out S.P.1” and “220 Out S.P.2”. “220 Out S.P.1” and “220 Out S.P.2” are active when the ORP reading of the instrument is lower than the correspondent set point value, or “220 Out S.P.1” and “220 Out S.P.2” are active when the ORP reading of the instrument is higher than the correspondent set point value depending on internal jumper settings. Refer to the followings to locate these jumpers and their configuration.



FREE CHLORINE METER ADJUSTMENTS

Once connected the ORP probe to the instrument this adjustment is needed. Proceed as follows:

- Supply power to the instrument (220 Vac \pm 10%).
- Set the ($^{\circ}$ C) marked knob to the buffer solution temperature using the instrument without automatic temperature compensation. Install the temperature probe (refer to next section of this manual) using the instrument with the automatic temperature compensation. Dip temperature probe in the buffer solution while following with this procedure.

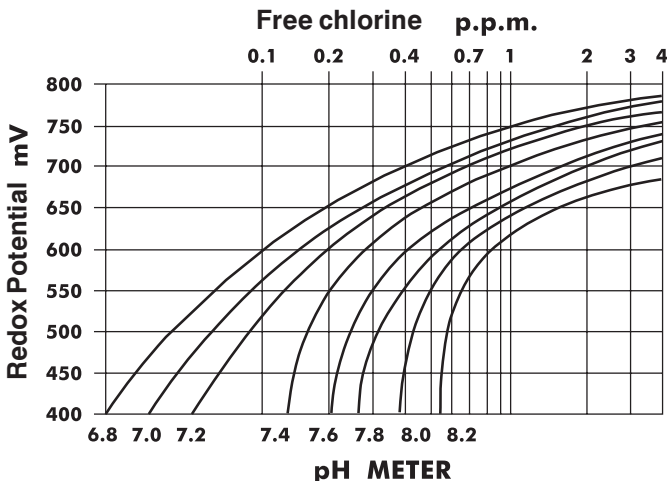


Abundantly rinse electrode with water and and dry it shaking before dip the electrode in the buffer solution in order to avoid solution contamination.

- Measure the pH of the water to be treaten. This value is needed to make the conversion from Redox potential (mV) to free chlorine p.p.m.
- Dip the electrode in a buffer solution prepared with water to be treaten and chlorine in a concentration close to the working solution and shake it. Wait one minute to stabilize the instrument reading. Adjust the ZERO screw to have on the instrument display the reading of the value corresponding to the prepared buffer solution, use the following table to calculate it.
- Put in place the ORP electrode on the PED or PEA probe holder. Both ORP and temperature probes can be installed in the PED probe holder.
- In order to reduce probes maintenance a 100 micron filter (FIL) can be installed at the probe holder input.



Use only water to be treaten to prepare the buffer solution. Different water can change redox response up to \pm 50mV



ELECTRODE CLEANING

Electrode cleaning should be performed on a monthly basis to ensure a good and repeatable instrument reading. Dip for five minutes the pH electrode in HCl to clean it and then rinse abundantly with fresh water. pH electrode must be kept always wet in the protection solution used for shipping while stored unused. A buffer solution at pH 4.00 added of 1/100 KCL is a good substitute for the protection solution when it is not available. City water can substitute the protection solution for short times. Unproper dry storing can be recovered keeping the probe dip in the reference solution mentioned above for a couple of hour, slow reading of the probe after recovery means unsuccessfully recover and the probe should not be used.



Do not use distilled water for pH electrode storing, pH electrodes are not covered by warranty.

CURRENT OUTPUT

A $0 \div 20mA$ current signal proportional to the $0 \div 1000mV$ instrument reading is available at the "Current Out" terminals. Maximum terminals load: 330 Ohm. **Current signal without galvanic isolation. Optional galvanic isolation available upon demand.**

ACCESSORIES

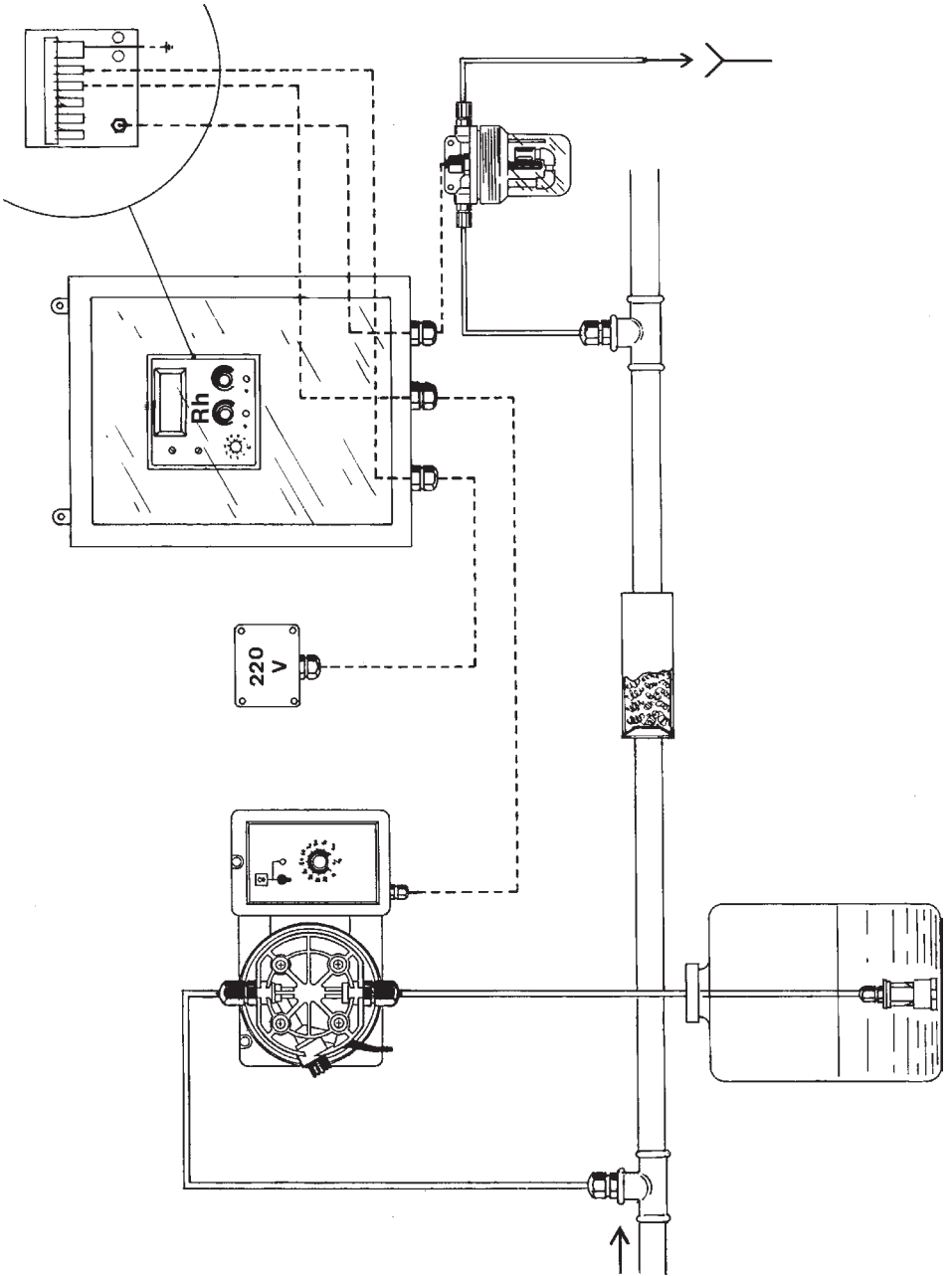
N. 2 Instrument mounting bracket
N. 1 5x20 1A (T) Fuse
N. 1 5x20 200mA (T) Fuse
N. 1 Instruction Manual

TECNICAL FEATURES

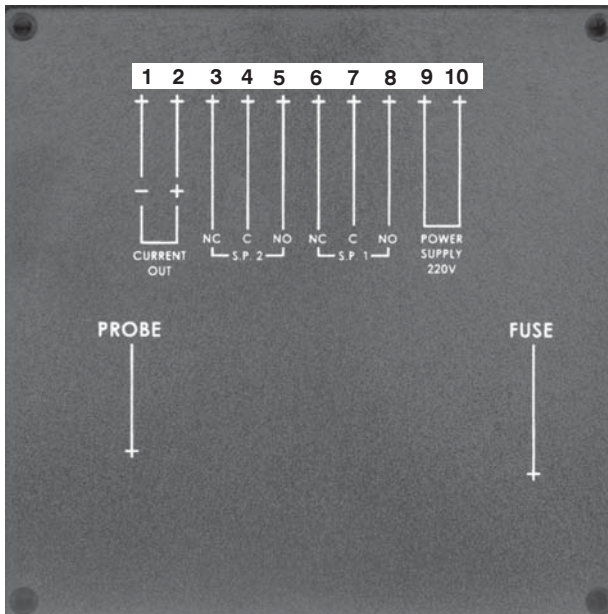
Power Supply :	220 Vac \pm 10%
Reading range :	0 \div 1000 mV
Resolution :	\pm 1 mV
Input Current :	20 femptoamps
Zero correction (Zero) :	\pm 100mV
Slope control (Slope) :	\pm 20%
Set-point hysteresys :	\pm 10 mV
Manual temperature setting range :	0 \div 80 °C
Power consumption :	3 Watt
Weight :	1 Kg
Protection :	IP50
Fuse:	200 mA
Outputs protection fuse :	1A
Working temperature :	0 \div 50°C



Technical features and drawings are subject to changes and modifications without any advice.



Free Contact Version

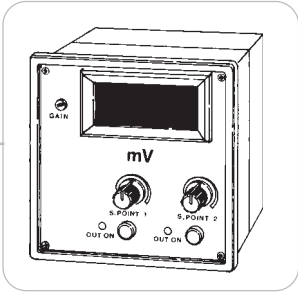


1 -2 “**Current Out**” 0÷20mA current output proportional to the instrument reading. (Different output ranges available)

3-4-5 “**Out S.P.2**” set point 2 free contact

6-7-8 “**Out S.P.1**” set point 1 free contact

9-10 “**Power Supply 220V**” power supply



When dismantling an instrument please separate material types and send them according to local recycling disposal requirements. We appreciate your efforts in supporting your local Recycle Environmental Program. Working together we'll form an active union to assure the world's invaluable resources are conserved.