GpH141 DIN Rail Isolated pH/ORP Transmitter

FEATURES

- **THE INPUT HAS EXTREMELY HIGH IMPEDANCE, PROTECTED UP TO +/-100 VDC**
- **THE INPUT CAN BE CONFIGURED ON THE FIELD FOR pH OR ORP (-1.0V TO + 1.0 V)**
- **INPUT FOR Pt1000 RTD FOR TEMPERATURE COMPNESATION. OR THE COMPENSATION CAN BE DISABLED**
- **FACTORY CALIBRATION OR CHANGE GAIN AND OFFSET WITH 2 TRIMMERS**
- **THE OUTPUT CAN BE CONFIGURED ON THE FIELD FOR ACTIVE / PASSIVE 2 WIRE 0-20 mA, 4-20 mA, 0-5V, 0-10V, 1-5V, 2-10V**
- **THE POWER IS ISOLATED FROM BOTH INPUT AND OUTPUT**
- **THE INPUT IS ISOLATED FROM THE OUTPUT**
- **HIGH ACCURACY AND RESOLUTION**
- **NO PROGRAMMING REQUIRED. ALL CONFIGURATIONS ARE DONE BY JUST CHANGING A FEW DIP SWITCHES AND WIRING**
- **HIGH PROTECTION ON BOTH INPUT AND OUTPUT**
- **ISOLATION VOLTAGE > 1000 VDC**
- **ISOLATION RESISTANCE > 100 Mohm @ 500 VDC**
- **NEEDS 21.6 – 26.4V DC POWER**
- **QUICK AND SIMPLE WIRING**
- **LxWxH = 90x17.5x56 mm (3.55”x0.69”x2.21”)**
- **WEIGHT = 58 g (2 oz)**

APPLICATIONS

- **INDUSTRIAL SIGNALS ISOLATION**
- **INDUSTRIAL CONTROL**
- **MEASUREMENT APPLICATIONS**
- **SCADA**

1. DESCRIPTION

GpH141 is a isolated pH/REDOX/ORP transmitter. The input can be configured for pH or for -1.0 V to +1.0 V to measure ORP or any other voltage within this range. It has extremely high impedance and it is protected up to +/- 100 VDC.

The output can be configured for active / passive, 0-20 mA, 4-20 mA, 0-5V, 0-10V, 1-5V and 2-10V. When active the output provides isolated, regulated, filtered and protected 24V DC to the current loop.

A Pt1000 RTD input can provide temperature compensation. The compensation can also be disabled.

Two trimmers can help adjust and recalibrate old or lower quality probes. The trimmers can also be disabled so the factory calibration be used.

All configurations are done by changing a few DIP switches and / or the wiring. It can be done at any time on the field without the need of any special tools or calibrators.

The power is isolated from the input and from the output. It has to be 21.6 – 26.4V DC.

With its high accuracy, DIN rail mounting, very small size, slim design, high isolation and functionality GpH141 is an excellent choice for isolating pH, ORP and other sensor signals.

2. ABSOLUTE MAXIMUM RATINGS *

Power	26.4V DC
Operating temperature	0 to 50 °C
Voltage to the input	100 VDC both polarities
Output voltage, when passive	40 V DC

NOTE: Stresses above those ratings may cause permanent damage to the device.

3. CHARACTERISTICS

Parameter	Conditions	Min	Typical	Max	Units
Power					
Voltage	24V DC regulated and filtered is strongly recommended	21.6	24	26.4	V DC
Consumption	24.0 V DC, output at 20 mA		14		mA
Input					
Input voltage range	0 to 50 °C	-1.1		1.1	V DC
Input impedance	0 to 50 Hz	1.00E+12			ohm
Output, 4-20 mA	Loop power, passive, 2 wire				
Output Range	0-100 % output = 0.00 – 14.00 pH, or -1.000 V to + 1.000 V, DIP switch for factory calibration				
Power supply, if passive	0 to 50 °C, Note 1	4.5		36	V DC
Maximum load, passive	36V external power to the loop, Note 1	1575			ohm
Maximum load, active	no external power to the loop, Note 1	925			ohm
Resolution	0 to 50 °C, 4.5 – 36 V		5		uA
Error	250 ohm load, 24 V, 25 °C		0.05		% FS
Temperature coefficient	0 to 50 °C, 24 V		35		ppm/°C
Output, 0–5/10 V	No external power required, 2 wire				
Resolution			1.25 / 2.5		mV
Minimum load for 0-5V		500			kohm
Minimum load for 0-10V		1			Mohm
Temp. Comp. Input	If temp. comp. is disabled this input can be left open				
Sensor	Pt1000 RTD with alpha 0.00385, two wire				
Isolation voltage	Input to output, input to power, output to power	1000			VDC
Isolation resistance	Input to output, input to power, output to power, @ 500 VDC	100			Mohm

Note 1: The minimum voltage for the 4-20 mA passive output to operate is V = 4.5 + R load [ohm] * 0.020 [V DC]
For a GpH141 with a load of 250 ohm, the minimum voltage would be 9.5 V DC.
When active the output can work with a load up to 925 ohm

4. APPLICATION

4.1. MECHANICAL

Mounting GpH141 on the DIN rail requires an area of 98 x 17.5 mm (3.86” x 0.69”).

4.2. ELECTRICAL

Here are the terminals of GpH141

Power: 1 is NC (no connect)
2 is 24V DC "+"
3 is 24V DC "-"

Use regulated 24V DC power. The voltage must be between 21.6 and 26.4V DC.

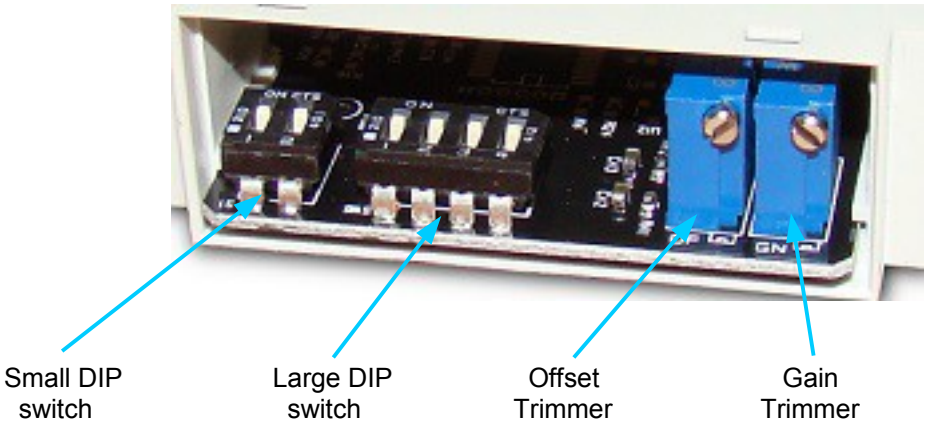
Input: BNC connector

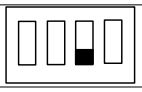
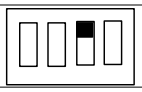
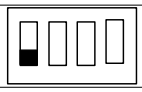
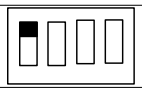
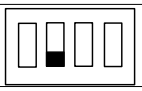
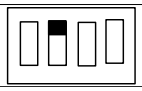
Output: 10 is Output power "+", when active
11 is Out "+"
12 is Output ground (common)

Pt1000 RTD: 7 and 8. Keep the wires as thick and short as possible

4.2.1. CONFIGURING THE INPUT

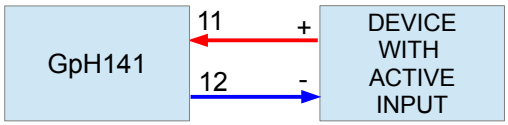
There are 2 DIP switches and 2 trimmers on this device under the small cover on the top of the enclosure.



INPUT SIGNAL	*LARGE DIP SWITCH*
pH	
REDOX/ORP	
Factory Calibration	
Trimmers	
No temperature compensation	
Connect Pt1000 RTD	

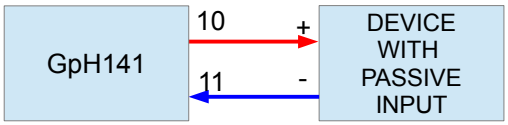
4.2.2. WIRING AND CONFIGURING THE OUTPUT

4.2.2.1. WIRING THE OUTPUT TO A DEVICE WITH AN ACTIVE INPUT



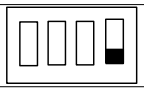
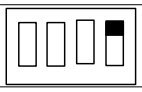
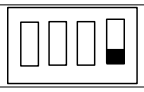
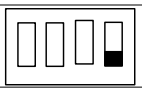
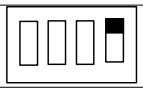
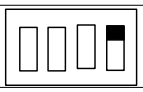
0-20 mA, 4-20 mA only

4.2.2.2. WIRING THE OUTPUT TO A DEVICE WITH AN PASSIVE INPUT



0-20 mA, 4-20 mA, 0-5 V, 0-10 V, 1-5 V, 2-10 V

4.2.2.3. DIP SWITCHES RELATED TO THE OUTPUT

OUTPUT SIGNAL	*LARGE DIP SWITCH*	*SMALL DIP SWITCH*
0-20 mA		
4-20 mA		
0-5 V		
0-10 V		
1-5 V		
2-10 V		

5. ORDERING

For ordering please use the G Instruments part number 30526.

IMPORTANT NOTICE

G Instruments reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products at any time without notice.

Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete.

G Instruments does not assume any liability arising from the use of any device or circuit described herein, nor does it convey any license under its patent rights or the rights of others.

Customers are responsible for their products and applications using G Instruments devices. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

G Instruments products are not authorized for use as critical components in life support devices or systems without express written approval of G Instruments.

Trademarks and registered trademarks are the property of their respective owners.