Temperature & Humidity Transmitter
AF3020A User Manual

1 Product Overview

AF3020A--the pipelined wireless voltage-type temperature and humidity transmitter, adopts the AM2305 capacitive digital temperature and humidity sensor as the humidity measuring component. With stable and reliable signal processing circuit, the temperature and humidity in the environment is converted into a standard signal. Using the selection of high quality integrated digital temperature and humidity sensor, the transmitter ensures the long term stability, low delay, and strong anti pollution ability of chemical, and excellent repeatability. The AF3020 can be widely used in meteorology, national defense, scientific research, post and telecommunications, tobacco, chemical industry, environmental protection, file cultural relics preservation, health care, hotels, food and any other that needs of air temperature and humidity measurement and control applications.

2 Product highlight

Long-term stability, wide measuring range, high and low temperature and humidity measurement accuracy, small volume, light weight, high precision and fast response.
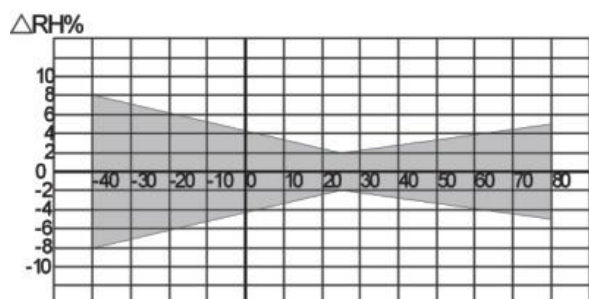
3 Sensor Performance

3.1 Relative Humidity (%RH)

Parameter	Condition	Min	Typ.	Max	Units
Resolution			0.1		%RH
Measuring range	25℃	0	±2	99.9	%RH
Drift	Typical		0.5		%RH/yr
Response time			8		s
Storage range				90	%RH

3.2 Temperature (℃)

Parameter	Condition	Min	Typ.	Max	Units
Resolution			0.1		℃
operating range		-40	±0.3	80	℃
Drift	Typical		0.1		℃/yr

Response time			8		s
Storage range		0		60	℃

Figure 1 Relative Humidity error
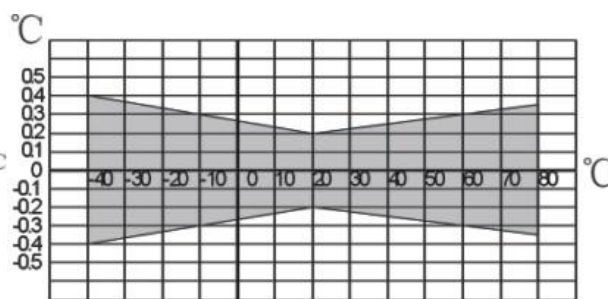
Figure 2 Relative Temperature error

The measured value of the product may be subject to the following factors:

1. The temperature error

◎Placed in a test environment in settling time is too short.

◎Near sources of heat, cold source, or directly at the sun.

2. The humidity error

◎Placed in a test environment in settling time is too short.

◎Prohibited for a long time in the steam, spray, curtain or condensing environments.

3. Pollution

◎In dust or other environmental pollution, the product must be cleaned regularly.

3.3 Other specifications

1) Power consumption: ≤4mA

2) Supply voltage: 18~36VDC

3) Power-on time: 3s
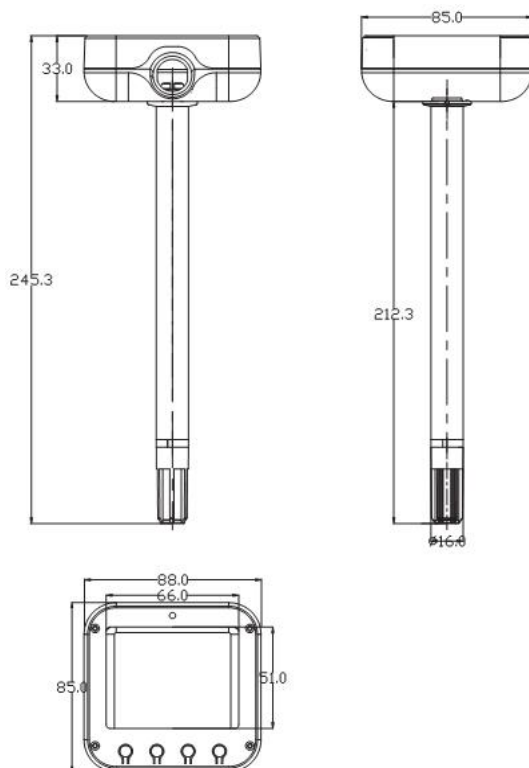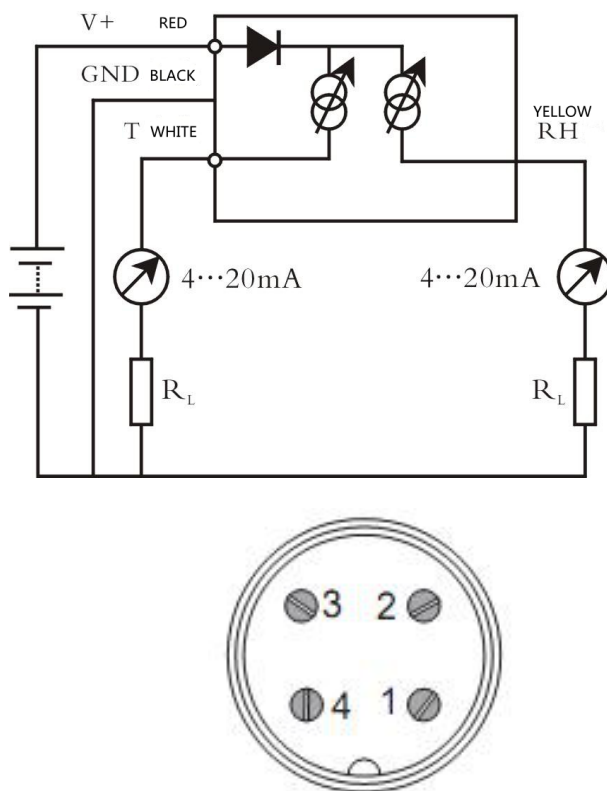
4) Current output: 4~20mA

4 Dimensions

Figure 3 Dimension (Units: mm)

5 Electrical installation

The connector pin function illustrate in the table below:

Pin Mark	Function Description
1 (Red)	VDD(18~36V)
2 (Black)	GND
3 (Yellow)	Humidity current output
4 (White)	Temperature current output

Installation Order:

1. Connect the air interface of the 4 core wire to the 1, 2, 3, 4 feet of the transmitter connector;

2. The other end connect to the power supply and voltage test equipment or other equipment.

3. Power on after checking the wire connection, and check the transmitter output if normal.

4. Now the transmitter work normally.

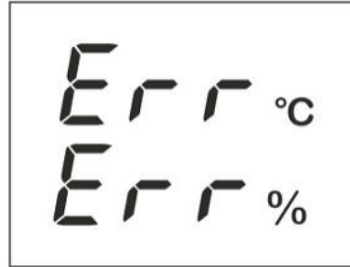# 6 Temperature measurement range Setting

Picture 4

Picture 5

Access the power supply, enter the main instrument interface, by long press the set key to set the temperature range of the maximum and minimum values, temperature range of the maximum and minimum set interface as shown in Figure 4 and Figure 5, press the up and down keys to set the upper and lower limits of the temperature range required by the user, set the back-end press ok key to save and exit settings.

In LCD products, LCD can display temperature and humidity data directly, and also display some status information and error information.
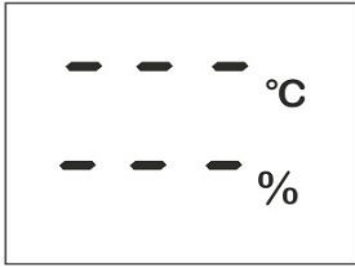
Picture 6

Picture 7

Picture 8

7 Input and Output

The measurement range of temperature current is shown below:

Measurement range	Current output range	Current dividing
0~50℃	4-20mA	0.32mA/℃
-20~80℃	4-20mA	0.16mA/℃
-40-60℃	4-20mA	0.16mA/℃

Note: The above parameters, if not specified, are under 25 degrees centigrade.

8 Temperature and humidity measurement settings conversion format

Temperature 0~50℃ setting conversion:

$$T(C) \quad \frac{\text{actual measurement current }(I_t)\text{-4mA}}{0.32}$$

Temperature -20~80℃ setting conversion:

$$T(C) \quad \frac{\text{actual measurement curent }(I_t)\text{-4mA}}{0.16} \quad 20$$

Temperature -40~60℃ setting conversion:

$$T(C) \quad \frac{\text{actual measurement curent }(I_t)\text{-4mA}}{0.16} \quad 40$$

Humidity setting conversion:

$$Humidity \ \%RH \quad \frac{\text{actual measurement current }(I_t)\text{-4mA}}{0.16}$$

9 License Agreement

1) Without the written permission of the company, it shall not copy or disseminate the

content of this specification in any form, nor shall it be disclosed to a third party.

2) The company and the third party have the ownership of the software, and the user can only use it after signing the contract or obtaining the software license.

3) The contents of this instruction manual are subject to change without prior notice.

10 Warning and Personal Injury

Do not apply this product to safety protection devices or emergency shutdown devices, and any other applications that may cause personal injury due to the malfunction of the product, unless otherwise authorized. Please refer to the product data sheet and Application guide before installation, processing, use, or maintenance of the product. Failure to comply with the recommendations may result in death and serious bodily harm. The company will not be liable for all damages resulting in personal injury or death, and avoid the company managers and employees, agents, distributors and other subsidiary may have any claim, including all the costs and compensation costs, legal fees etc.

11 Quality Assurance

The company provides quality assurance for 12 months for the original purchaser of the products (calculated from the date of shipment), in accordance with the technical specifications of the data book of the product published by the company. If the product is proved to have its own quality problems during the warranty period, the company will provide free maintenance or replacement. The user must meet the following conditions:

1) The purchaser must notify the company of the defect in writing within 14 days of discovery.

2) The purchaser shall pay the shipping charges for product mailed back to company.

3) The product should be within the warranty period.

The company is solely responsible for products that are defective in situations where the technical conditions of the product are met. The company applies its products to those special applications without any warranties or statements, as well as any commitment to the reliability of the products applied to products or projects.