ems kontrol ST-201 Duct Type Temperature and Humidity Transmitter User Manual

Contents

ems kontrol ST-201 Duct Type Temperature and Humidity Transmitter

Product Information

The EMS Kontrol Temperature and Humidity Transmitter precisely measures temperature and relative humidity values and outputs them as analog signals. It operates with a supply voltage between 12 V DC and 24 V DC.

General Features

- Accurate and Precise Measuring
- Analog Output
- Long Operating Life
- Cleanable Filter
- Easy Assembling
- IP 67 Plastic Case (Excluding Sensor)

Areas of Use:
Common applications include HVAC systems, poultry automation and farms, cold storage facilities, incubation rooms, food storage areas, air conditioning cabinets, clean rooms, and laboratories.

Safety Rules:
If the device is to be used outside the operating temperature range, inform the manufacturer and obtain approval.

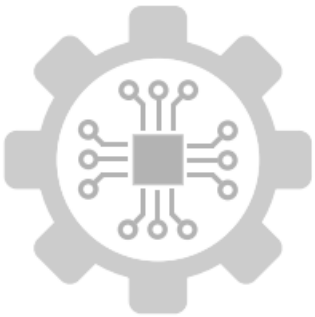
Modbus RTU Communication Structure
For Modbus communication, RS485 Baud rate defaults to 9600. Stop bit:1, Parity: NONE. Default Slave ID is 82. Temperature values are stored in the holding register at address 2 (40003) and humidity values at address 3 (40004).

Changing Slave ID and Baud Rate:
To change Slave ID or Baud rate via Modbus communication, write the desired values to the respective registers (40001 for Slave ID, 40002 for Baud rate) as per the provided table.

DUCT TYPE TEMPERATURE AND HUMIDITY TRANSMITTER

ST-201/241/261 USER MANUAL

www.emskontrol.com



Product Code	Output Signal
ST-201	0-10 V
ST-241	4-20 mA
ST-261	Modbus RTU

WHAT IS IT?
Temperature and hum d ty transm tter prec sely measures temperature and relat ve hum d ty values and outputs them as analog.

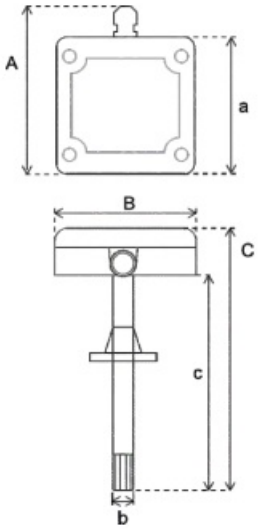
HOW DOES IT WORK?
It can operate with a supply between 12 V DC and 24 V DC. Measurement values are taken from the analog output terminals and transferred to the
des red locat on..

GENERAL FEATURES
Accurate and Precise Measuring, Analog Output, Long Operating Life, Cleanable Filter, Easy Assembling, IP 67 Plastic Case (Excluding Sensor)

AREAS OF USE
HVAC Applications, Poultry Automation and Poultry Farms, Cold Storage, Incubation Rooms, Food Storage, Air Conditioning Cabins, Clean Rooms and Laboratories.

RULES TO BE CONSIDERED FOR SAFETY

1. Always read the user manual before using the device and the apparatus.
2. Damages caused by opening, breaking or misuse of the plastic parts of the device and its apparatus are considered out of warranty.
3. Keep the dev ce and ts apparatus away from external nfluences such as l qu d, h gh dust, h gh temperature, etc. and protect them.
4. Do not expose the device cables to any jamming and pressure.
5. Disconnect the electrical power when your device s not used for a long time.
6. Our dev ces and apparatus should be used by paying attention to the points in the user manual. In case of damages and malfunctions arising from external use liquid contact, falling to the ground, etc.) ask for help from the service.
7. Failures due to electrical connection errors and electrical voltage or current errors are not covered by the warranty.



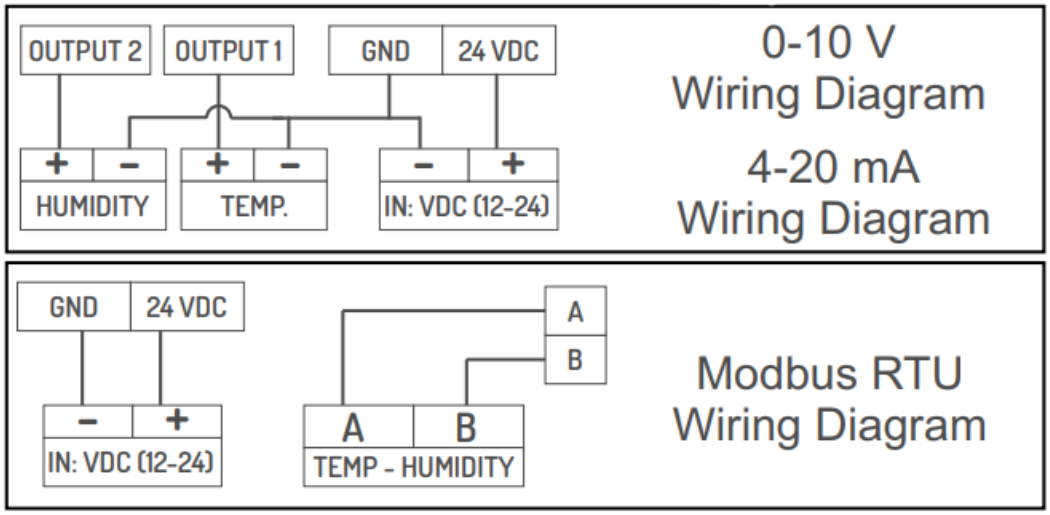
Sizes	
A	102 mm
B	80 mm
C	229 mm
a	80 mm
b	15 mm
c	191 mm

Technical Data	
Product Name:	Duct Type Temperature and Hum d ty Transm tter
Supply Voltage:	12-24 V DC
Output:	0-10 V / 4-20 mA / Modbus
Measurement Range (Temperature):	0 – 50°C / (-20) – (+80)°C
Prec s on (Temperature):	± 0,1 °C
Accuracy (Temperature):	± 0,3 °C
Measurement Range (Hum d ty):	0 – 100 %
Prec s on (Hum d ty):	± % 1
Accuracy (Hum d ty):	± % 3
Operating Temperature:	(-10°C) – (+55°C)
Storage Temperature:	(-20°C) – (+60°C)
Protect on Class:	IP 67 (Excluding Sensor)

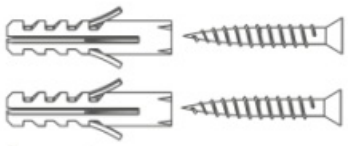
If the device s to be used outside the operating temperature, the manufacturer must be nformed and approval must be obta ned.

INSTALLATION

1. Unpack the product and open the top cover.
2. Make cable connections accordingly.



3- If the product w ll be mounted on the wall, you can use the screws and dowels n the package.



4- It starts measuring 30 seconds after the product s energized. It's recommended that the product remains in the environment for at least 5 minutes to get healthy measurement values..
5- It s recommended to use shielded cable as communication cable as well to prevent communication signals from being affected by external nfluences.
6- Since the communication on cable will create resistance, check the measurement values again after cable installation.

MODBUS RTU COMMUNICATION STRUCTURE

- RS485 Baud rate value n Modbus communication on s 9600 by default. Stop b t:1, Par ty: NONE.
- Default Slave ID s 82.
- Temperature values s kept in the holding register at address 2 (40003) and humidity values are kept in the holding register at address 3 (40004). Temperature and hum d ty nformat on can be obta ned by reading these registers.

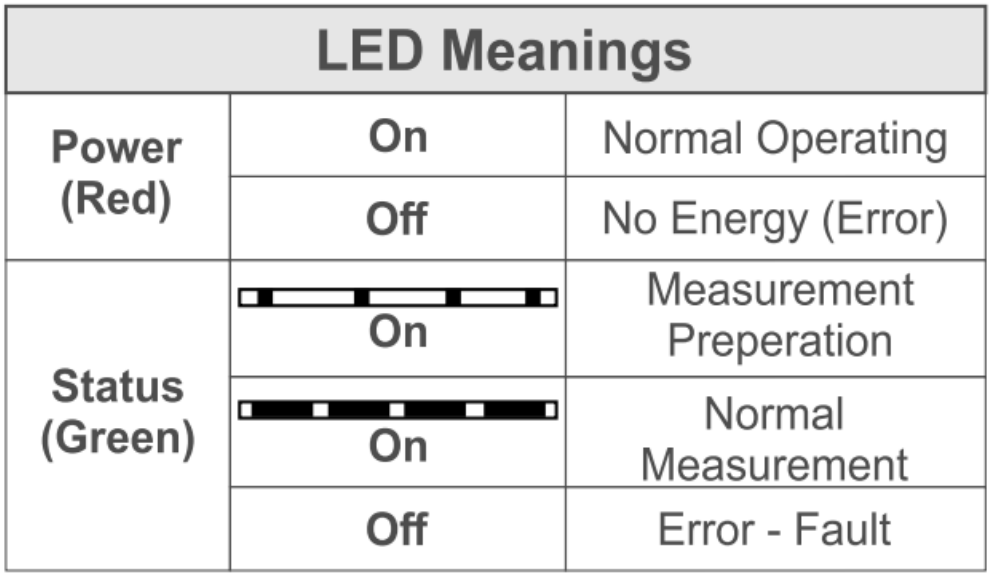
Register map and default values table:

Register	Address	Default Value	Read Write	Min. Value	Max. Value
Slave ID	0 (40001)	82	R/W	1	247
Baud rate	1 (40002)	3	R/W	0	8
Temp. Val.	2 (40003)	–	R	–	–
Hum. Val.	3 (40004)	–	R	–	–

Slave ID and Baud rate can be changed via a Modbus communication. For this, the desired Slave ID s written to the register with address 0 (40001), which is the register where the Slave ID s located. L kew se, f the Baud rate s to be changed, the Baud rate can be changed by writing the value for the desired Baud rate according to the table below in the register with address 1 (40002).

M n.	**Max.**
Value	**Value**
0	1200
1	2400
2	4800
3	9600
4	14400
5	19200
6	38400
7	57600
8	115200

Press and hold the “Cal brat on” button to reset the changes made to the Slave Id or Baud rate to the default values. Wait until the Status (green) LED turns off (approx. 30 seconds). After the LED turns off, the button s released. Thus, Slave ID and Baud rate are returned to the default values.



CALIBRATION

1. Temperature and humidity measurement, Calibration cannot be done on the product. Calibration s done at the product on site.
2. The need for Calibration due to the communication cable during use should be done on the control panel, not on the product.

USER MANUAL

DECLARATION OF CONFORMITY

- Headquarters and place of product on, Halkapınar Mah. 1376 Sok. Boran Plaza No:1/L Konak / İZMİR – TÜRKİYE, EMS KONTROL ELEKTRONİK VE MAKİNE SAN. TİC. A.Ş. declares that the product marked with CE, whose name and specifications are given below, covers the specified directives and provisions ons.

Brand: EMS KONTROL

- Product Name: ST- 2XX
- Product Type: Duct Type Temperature and Humidity Transmitter
- Compatible D rect ves:
- Elektromagnet c Compat b l ty D rect ve 2014/30/EU (EMC EN 61000-6-3: 2007 + A1: 2011, EN 61000-6-1: 2007)
- **Low Voltage Directive**
- 2014/35/EU (LVD EN 60730-2-9:2010, EN 60730-1:2011)
- **Additional information on:** This product can be used in combination with other devices, and compliance with the directives covers only the product. EMS KONTROL s not responsible for the compliance of the entire system with the directives.
- This declaration s not valid f the product's modified without our approval.

CE RED

EMS KONTROL ELEKTRONİK
VE MAKİNE SAN. TİC. A.Ş.
Halkapınar Mahallesi 1376 Sk.Boran Plaza
No:1L Konak / İZMİR
EGE V D. 334 104 4628
Mersis No 0334104462800001

WARRANTY TERMS

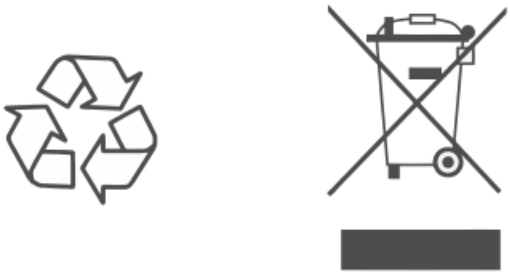
1. The warranty period of the devices and apparatus starts from the invoice date and is guaranteed for 2 years against manufacturing defects.
2. Devices and apparatus are delivered to the customer in working condition in our company. On-site commissioning is subject to service fee.
3. The repair of the devices and apparatus under warranty is carried out in our company as a result of sending

them with the transportation company contracted by our company. In on-site services, transportation and accommodation expenses of the service personnel belong to the customer. The cost of the working time spent on the road is added to the service fee and the collection is made in advance.

4. Maintenance of devices and apparatus is done in our company. Transportation and transportation fees of the devices and apparatus to and from our company for maintenance belong to the customer.
5. In case of malfunction of the devices and apparatus whose warranty period continues, whether the malfunction is caused by the fault of the customer or the manufacturer, is tested in our company and reported with the report to be issued by our company.
6. In case of detection of manufacturer-induced faults of the devices and apparatus whose warranty period continues, the customer may request a replacement or may request that the repair costs of the devices and apparatus be fully covered by the manufacturer, provided that it does not exceed the product price.
7. In the event that the faults of the devices and apparatus whose warranty period continues are determined to be caused by the customer, all costs belong to the customer.
8. If the customer does not indicate that he/she is aware of the defects in the devices and apparatus from the date the warranty period starts or in cases where he/she is expected to be aware, he/she cannot benefit from Article 6.
9. Failures arising from the use of devices and apparatus contrary to the points in the user manual are not covered by the warranty.
10. Devices and apparatus are not covered by the warranty if they are beaten, broken or scratched by the customer.
11. Damages caused by the use of devices and apparatus of other brands and models without the approval of the manufacturer are not covered by the warranty.
12. Errors caused by rusting, oxidation and liquid contact due to working in dusty/acidic/humid environments are not covered by the warranty.
13. Damages that may occur during transportation of devices and apparatus are not covered by the warranty. If the customer wishes, he/she can have transportation insurance.
14. Damages caused by mains voltage / faulty electrical installation are not covered by the warranty.
15. Devices and apparatus are not covered by the warranty in case of malfunctions caused by force majeure such as fire, flood, earthquake, etc.
16. All parts of the devices and apparatus, including all parts, are covered by our company’s warranty.
17. If the devices and apparatus malfunction within the warranty period, the time spent in repair shall be added to the warranty period. The repair period of the goods shall not exceed 20 working days. This period starts from the date of notification of the malfunction of the goods to the service station, in the absence of a service station, to the seller, dealer, dealer, agent, representative, importer or manufacturer – manufacturer of the goods. It is possible for the consumer to notify the malfunction by telephone, fax, e-mail, registered letter with return receipt or similar means. However, in case of dispute, the burden of proof belongs to the consumer. If the malfunction of the goods is not resolved within 20 business days, the manufacturer, manufacturer or importer; until the repair of the goods is completed, another good with similar characteristics must be allocated to the use of the consumer.
18. Despite the consumer’s right to repair the goods; -Provided that it is within the warranty period from the date of delivery to the consumer, it fails at least four times within a year or six times within the warranty period determined by the manufacturer-manufacturer and/or importer, as well as the fact that these failures make the inability to benefit from the goods continuous, -Exceeding the maximum time required for repair, -If it is determined that it is not possible to repair the malfunction with the report to be issued by the service station of

the company's service station, if the service station is not available, respectively by one of its dealer, dealer, agency, representative, importer or manufacturer- manufacturer, it may request a refund or a price reduction at the rate of defect.

19. Customer may file complaints and objections to consumer courts or consumer arbitration committees.
20. The warranty certificate must be kept by the customer during the warranty period. In case of loss of the document, a second document will not be issued. In case of loss, repair and replacement of devices and apparatus will be made for a fee.



This device is a Waste Electrical and Electronic Device according to the directives applied in Europe 2002/96/EC. (WEEE) Before scrapping or throwing away this device, you must prevent its potential negative consequences for the environment and human health. Otherwise it would be inappropriate waste. This symbol on the product is intended to warn that the product should not be treated as household waste and should be delivered to electrical and electronic waste collection points. Disposal of the product must be done in accordance with local environmental regulations. You can obtain detailed information from authorized units on how to destroy, reuse and recycle the product.

Manufacturer's Title: EMS KONTROL ELEKTRONIK VE MAKINE SAN. VE TIC. A.S.

- Address: Halkapinar Mah. 1376 Sokak Boran Plaza No:1/L Konak / Izmir-TÜRKiYE
- Telephone: 0 (232) 431 2121
- E-Mail: **info@.emskontrol.com**

Company Stamp:

Product's

- **Type:** Duct Type Temperature and Humidity
- **Transmitter**
- Brand: EMS Kontrol
- **Model:** ST-2XX
- **Warranty Duration:** 2 Years
- **Maximum Repair Time:** 20 Days

- **Banderol and Serial Number:**

Vendor Company

- **Title •**
- **Address•**
- **Telephone•**
- **Faks•**
- **E-Mail•**
- **Invoice Date and Number**
- **Delivery Date and Place•**
- **Signature of Authorised Person•**
- **Company Stamp**

Product's

- **Type:** Duct Type Temperature and Humidity
- **Transmitter**
- **Brand:**
- **Model:**
- **EMS KONTROL**
- **ST-2XX**

EMS Kontrol reserves the right to make changes and improvements to the product specifications and user manual.

- For all changes, please visit **emskontrol.com**.

www.emskontrol.com

FAQs

1. What is the measurement range for humidity?

The measurement range for humidity is from 0% to 100%.

2. What are the common areas of use for this transmitter?

This transmitter is commonly used in HVAC applications, poultry automation and farms, cold storage facilities, incubation rooms, food storage areas, air conditioning cabinets, clean rooms, and laboratories.

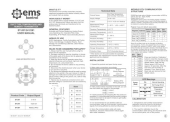
3. How long does it take for the product to start measuring after being energized?

The product starts measuring after approximately 30 seconds of being powered on.

4. How can I change the Slave ID or Baud rate for Modbus communication?

To change the Slave ID or Baud rate, write the desired values to the corresponding registers using Modbus communication.

Documents / Resources

	ems kontrol ST-201 Duct Type Temperature and Humidity Transmitter [pdf] User Manual ST-201, ST-241, ST-261, ST-201 Duct Type Temperature and Humidity Transmitter, ST-201, Duct Type Temperature and Humidity Transmitter, Temperature and Humidity Transmitter, Humidity Transmitter, Transmitter

References

- User Manual