

TEKHNE TK-100 Dewpoint Transmitter

Users Manual



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**Thank you for purchasing TEKHNE TK-100
Dewpoint Transmitter.**

**This Transmitter is delivered to you with complete
set for continuous, on-line dew point measurement
in a gas over an range of -100 to +20 °C dew point.**

**Please read this manual carefully for the operation
of this TK-100 Transmitter.**

1. PACKING

The TK-100 Transmitter contains the following standard components. At first, please check the followings are present in the packing box:

- TK-100 Transmitter
- Sensor cable
- Sensor block (option)

And the following documents are also contained:

- Certificate of Calibration
- User manual (this paper)

2. INSTALLATION

2.1 Sensor Cable Connections

The sensor cable should be connected to the monitor by its three terminated wires as shown in the following table. The sensor connector terminations are shown for reference.

Function	Power supply (+24 V)	Output (4-20mA)	Ground
	Red Wire	Green Wire	Black Wire
Sensor Connector (Pre-wired)	Pin 3	Pin 1	Pin (GND)

The standard cable length is 2 meter. Cable can be longer upon request from Tekhne Corporation. Otherwise, users can provide their own cable with the requirements listed under Technical Specifications, in Appendix 1.

2.2 TK-100 Transmitter Installation

Remove the plastic protective cap from sensor before installation and retain for future use. The sensor has a 5/8"-18 UNF mounting thread and can be mounted either in the supplied flow-through sensor sampling block or directly inserted to a pipe or duct. The bonded seal provided is designed for operation at pressures up to 30 MPa when the sensor is fitted using the 5/8" -18 UNF mounting thread and should be placed over the sensor before it is screwed into the sampling location. When connected to a stainless steel tubing system, the sensor and sampling block need no additional support. However, if PTFE tubing is used, it may be necessary to secure the sampling block using a suitable spring clip or clamp. Tekhne recommend a gas flow rate of 1 to 5 liter/minute when the sensor is mounted in the standard sampling block. For direct insertion applications, gas flow can be from static to 10 meter / second.

3. OPERATION

Operation of the TK-100 Transmitter is very simple and easy. But for such simple and easy measurement, following precautions are important to protect the sensor from damage.

3.1 Background Gases

The TK-100 Transmitter is suitable for measurement of the moisture content of a wide variety of gases. Corrosive gas to ceramics are suitable for the measurement by the TK-100 Transmitter. For other gases, please consult to Tekhne Corporation or its agent.

3.2 Sampling

Representation of the measuring gas:

In order that the TK-100 Transmitter is measuring the dew point which is representing the sampling gas, it is better the measurement point is as close as possible to the sampling point.

Also, prevent liquid by never sampling from the bottom of a pipe.

Dead Space in Sample Lines:

In order to the fast and accurate measurement, reduce dead space for gases in sample lines. Such dead space causes moisture entrapment points.

Particulate Matters or Oil:

Particulate matters or oil should be prevented, which will reduce response speed or, at worst, break the sensor. Using in-line filters is recommended in any case where the sensor is used.

Tubing and Fittings:

Using stainless steel tubing and fittings are best for accurate and fast measurement. This is particularly important at low dew point since other materials have hygroscopic characteristics and adsorb moisture on the tube walls, slowing down response and giving false readings. Where stainless steel tubing is not practical, PTFE tubing are recommended.

If any questions occurs, please consult with Tekhne Corporation for technical advice.

4. MAINTENANCE

The TK-100 Transmitter is simple for the use. Maintenance necessary is confined to regular re-calibrations of the TK-100 transmitter. This work can only be done by exposure of the moisture sensor to sample gases of known moisture content. Calibration services are traceable to the National Physical Laboratory (UK), the National Institute of Standards and Technology (USA) are provided by Tekhne Corporation. In most applications, annual re-calibration ensures that the stated accuracy of the TK-100 Transmitter is maintained. Also Tekhne Corporation is offering the sensor tile change service. Even if the sensor tile is not operating while sensor body is working properly, it may be possible to recover by changing sensor tile. In such case, Tekhne Corporation is welcome to change sensor tiles with reasonable cost. Please consult this point with Tekhne Corporation or its agent.

APPENDIX 1 TECHNICAL SPECIFICATIONS

Type:	Tekhne TK-100 Dewpoint Transmitter	
Calibration range:	-100 to +20 °C dew point.	
Power Supply:	12 to 28 V DC	
Output:	4-20 mA current source over the entire dew-point range	
Interchangeability:	Fully interchangeable sensors.	
Accuracy:	±2.0 °C dew point	
Temperature:	Gas Temperature	-20 to +60 °C
	Storage Temperature	-40 to +75 °C
Temperature coefficients:	Temperature compensated.	
Operating pressure:	10 ⁻⁶ torr a vacuum to 30 MPa.	
Flow rate:	1 to 5 liter/minute mounted in standard sampling block 0 to 10 meter/second direct insertion	
Traceable certification:	-90 to +20 °C dew point traceable to the National Physical Laboratory; -75 to +20 °C dew point traceable to NIST (USA) [For dew points < -90 °C: Direct reference to a fundamental cooled mirror dew point meter]	
Weight:	0.15 Kg	
Sensor cable:	Cable, screened twisted pair (x2), 7/0.2 type 1, common drain. Max length 1,000 meters.	

APPENDIX 2 TEKHNE CORPORATION CONTACT DETAILS

Customer Service

For advice on this, or any other Tekhne products, please feel free to contact us on any of the numbers below or alternatively visit our Web Site: www.tekhne.co.jp.

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