

Temperature

On-Line

Temperature Measurement

Measuring · Monitoring · Controlling

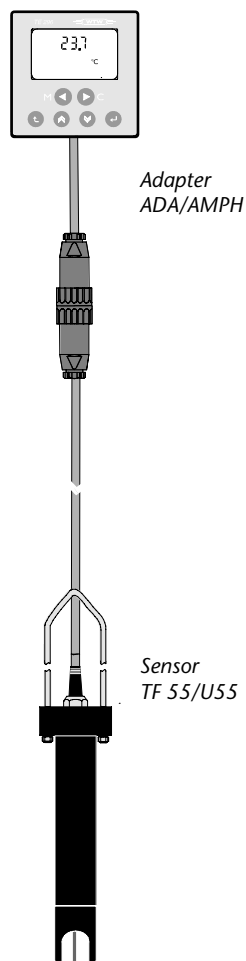
- Industrial Applications
- Process Monitoring
- Water Treatment
- Wastewater Facilities
- Pharmaceutical Plants
- Food Industry



Whether it is a question of wastewater treatment, drinking water conditioning, chemical process technology or, generally, many industrial processes, temperature always plays an important part due to its effect on chemical and biological reactions.

Therefore, it is necessary in all fields of industrial analysis to use appropriate measuring instruments in order to determine this key parameter precisely and reliably.

Temperature Sensors (NTC)



TF 55

Precise and rugged temperature sensor with 3-conductor technique, dual thermistor system, teflon-coated stainless steel body. Requires a submersible extension pipe, Model U 55, for mounting; electrical connection is made via a 7-pole threaded diode-connector.

Measuring Range: -5 °C to +60 °C

Accuracy: ±0.1 K

U 55

Submersible PVC extension pipe, 40 mm diameter, armouring length of 550 mm. Includes 6.5 m connecting cable with watertight plug and holder. Operating temperature of assembly is limited to 50 °C.

TFK 150

Teflon-coated temperature sensor for measurement in aggressive media; 1 m connecting cable with 2 watertight banana plugs.

Measuring Range: -5 °C to +100 °C

Diameter 6 mm

TFK 325

Similar to Model TFK-150-1, but with stainless steel body for measurement in aqueous solutions.

Measuring Range: -5 °C to +100 °C

Diameter 4 mm

TFK 325-EST

Temperature sensor with R 1/2": NPT threaded collar and weld-in socket for installation in pipes. Includes 1.5 m connecting cable with 2 watertight banana plugs.

Measuring Range: -5 °C to +100 °C

Pressure Range: 14 bar max.

Ordering Information Temperature Sensors, Accessories

	Description	Order No..
TF 55	Temperature sensor with dual thermistor system	405 287
U 55	PVC extension pipe with stainless steel handle	302 320
TFK 150	Temperature sensor for measurement in aggressive media (also available with 1.5 m and 4 m cable lengths)	102 274
TFK 325	Temperature sensor for measurement in aqueous solutions, cable length 1 m	102 280
TFK 325-3	Same as TFK 325, but cable length 3 m	102 282
TFK 325-6	Same as TFK 325, but cable length 6 m	102 289
TFK 325-EST	Temperature sensor for installation in pipework, cable length 1.5 m	102 281
TFK 325-EST-3,0	Same as TFK 325-EST, but cable length 3 m	102 287
TFK 325-EST-6,0	Same as TFK 325-EST, but cable length 6 m	102 288
ADA/AMPH	Adapter for direct connection of TF 55 / U 55 to TE 296 monitor	108 592
KI/TE 170	Junction box to connect sensors to remotely installed monitors	405 910

General information

about Quadroline® instruments
can be found on pages 194 – 195

QuadroLine® Temperature Monitor

TE 296



Features

- Built-in lightning protection
- Increased EMC standard
- Galvanically isolated inputs and outputs
- 2 programmable relays
- 96 x 96 mm format for panel mounting
- RS 485 interface
- PROFIBUS DP gateway available
- 24 VAC / VDC versions
- Connection of NTC or Pt 100 3-conductor temperature sensors (linearization according to IEC 751)
- Wide temperature measuring range

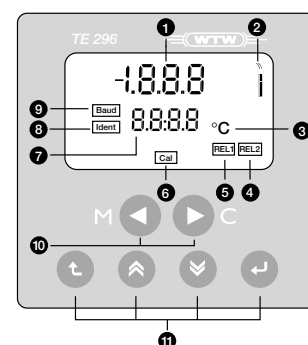
Control Functions

The monitor features two programmable control functions: ON/OFF and **Proportional** control. With the proportional controller, the user has the choice between a **pulse-width modulated** and **frequency modulated** control algorithm.

When the **pulse-width modulated mode** is chosen, the relay output is clocked whereby the duty cycle factor is proportional to the deviation of the measured value from the selected setpoint.

With the **frequency modulated mode**, the frequency of the relay output is proportional to the deviation of the measured value from the setpoint; the pulse width is fixed.

Both the proportional band and the time periods are user-adjustable to fine tune the control function.



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|---------------------------------|---|
| 1 Temperature display | 7 Operator guidance |
| 2 Sensor defect indicator | 8 IDENT No. / RS 485 operation |
| 3 Unit of measure: °C | 9 Baud rate / RS 485 interface |
| 4 Relay 2 closed | 10 Keys for measuring and calibration modes |
| 5 Relay 1 closed | 11 Function keys for setup and programming |
| 6 Temperature correction active | |

