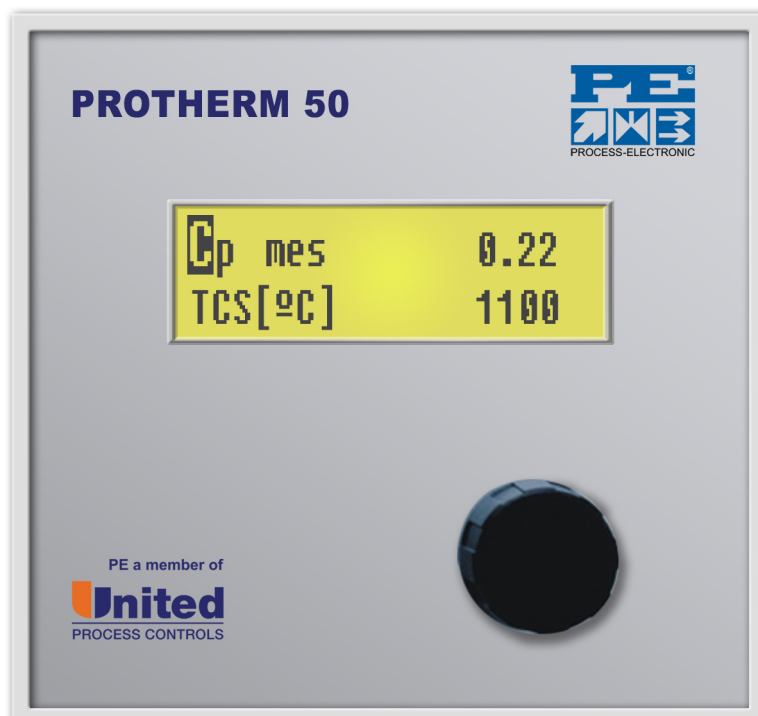


PROTHERM 50

High-Accuracy Controller for Heat Treating Processes



PROTHERM 50 Universal Controller

General description

The Protherm 50 is used for calculating and controlling residual oxygen, partial pressures of oxygen, temperature, nitriding depth or the carbon potential. An oxygen probe, a Lambda probe or a CO₂ analyzer can be attached for taking readings and calculating the parameters. The device is operated by means of a turn/push button. The controller can be configured through a serial connection. With the integrated CANbus or the optional Profibus DP or Mod/J bus interfaces the device can be also attached to common PLC controllers.

Measurements

Three high-precision analog inputs

- Carbon potential: EMF (electromotive force), temperature, CO (optional)
- Temperature: two regulated channels, differential measurements
- Nitriding potential (with iNS - Intelligent nitriding sensor): EMF, temperature
- Control of O₂: EMF, temperature, oxygen sensor or lambda

Calculation

A gas mixture model is used for determining process specific values such as oxygen content (log(pO₂)), carbon potential (CP), water vapor (H₂O), dew point (TP), CO₂-value, K_O, K_C, K_H and K_N.

Control

PID regulating algorithm optimized for carbon potential, temperature, oxygen partial pressure, residual oxygen from 0-100% or, according to the case, in ppm, KC, KH and KN.

The controller is equipped with an auto-tuning function, calibration curves and an integrated cleaning algorithm for the sensor.

Five freely configurable relays are available to continuously control the input/output signals. In addition, the output signals can be connected by interfaces or directly by CANbus units.

Configuration

The parameter setting is carried out via a special PC software for Windows[®]. A configuration list can be printed. The configuration can also be done over a modem.

Technical Data

- Dimensions: 96 mm x 96 mm, depth 230 mm
- Power supply 24 V DC/150 mA
- 3 x analog inputs (mV and thermocouples)
- 3 x digital inputs
- 5 x freely configurable relays
- Max. ambient temperature 55°C
- 9 pole SUB-D connecting plug
- Integrated CANbus module; 125 Kbytes at approx. 500 m
- optional PROFIBUS-DP or J/Modbus interface available



Atmosphere Rack — Complete set for Oxygen Probes