Heraeus

DigiTemp-E Wireless

Temperature measurement in molten metals

Electro-Nite

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DigiTemp-E Wireless

The ever-increasing demands on measurement technology require the integration of new electronics hardware, interfaces, and in particular the software.

The innovative DigiTemp-E Wireless instrument fully meets these expectations. Its features are reliability, ease of use, and flexibility in application.

The DigiTemp-E Wireless measures and analyzes the temperature in steel, iron, and non-ferrous melts. Sensors are connected to the instrument through wired lances or with manually operated QUBE wireless lances.

Temperature measurement using wireless transmission

With DigiTemp-E Wireless you can receive the temperature measurement results wirelessly.

Located near the handle of the optional QUBE measurement lance is the QUBE T battery-powered wireless transmission module, which transfers the temperature measurement data directly to the DigiTemp-E Wireless instrument.

Up to 1000 measurements can be taken using the QUBE T with its long-life lithium ion batteries. The batteries are charged using the dedicated charging station.

Safety-related benefits

- no cables lying around
- no repairs in security restricted and hazardous environments

Cost-relevant advantages

- no wiring or cable connection between the submersible measuring probe and measuring instrument
- no attachment of cable conduit/terminal blocks

QUBE T

1: QUBE T transmitter
2: QUBE T handle
3: QUBE T battery and charging station

Standard features of the DigiTemp-E Wireless

- wireless receiver for the QUBE T wireless measurement lance
- non-reflecting 45mm display with wireless connection and signal strength indication
- LED measurement sequence signals
- high measurement accuracy by high-resolution A/D converter
- universal application using a wide range power supply
- curves for thermocouple types S, R, B, K and D
- measurement error detection and interpretation
- automatic test measuring recognition
- four pre-programmed data telegrams, three additional data telegrams freely programmable using Ethernet

In addition to the conventional immersion temperature measurement in molten steel, the DigiTemp-E Wireless can be adapted for other measurement tasks in molten steel.

This is done by using a menu inside the instrument to set parameters for different measurement sensors used for immersion temperature measurements in:

- steel, iron, and non-ferrous melts with Positherm® disposable probes;
- iron melts with Multi-Stik® reusable probes; and
- non-ferrous metal and aluminium.

The functional operation of the instrument is easy and fully automated and also features:

- password-protected device configuration using an internal LCD and buttons; and
- backup and restore of the instrument parameters using an integrated and removable memory.

You can set instrument parameters and select data telegrams using an LCD interface inside the instrument.

The parameterization is password protected, so that only authorized personnel can perform this task. Parameters can be set for:

- evaluation tolerances;
- thermocouple calibration type;
- measurement times;
- data Interfaces;
- start conditions;
- calibration offset; and
- bath level.

You can also set instrument configuration parameters using a web browser.

The DigiTemp-E Wireless has three user-oriented data interfaces and four control outputs as standard.

Standard interfaces and outputs

- measurement data output using a V24 interface or serial TTY 20mA interface for PLC and peripheral devices;
- mA output with follow mode;
- Ethernet interface;
- bath level;
- wireless receiver unit; and
- control outputs for signalisation and PLC.

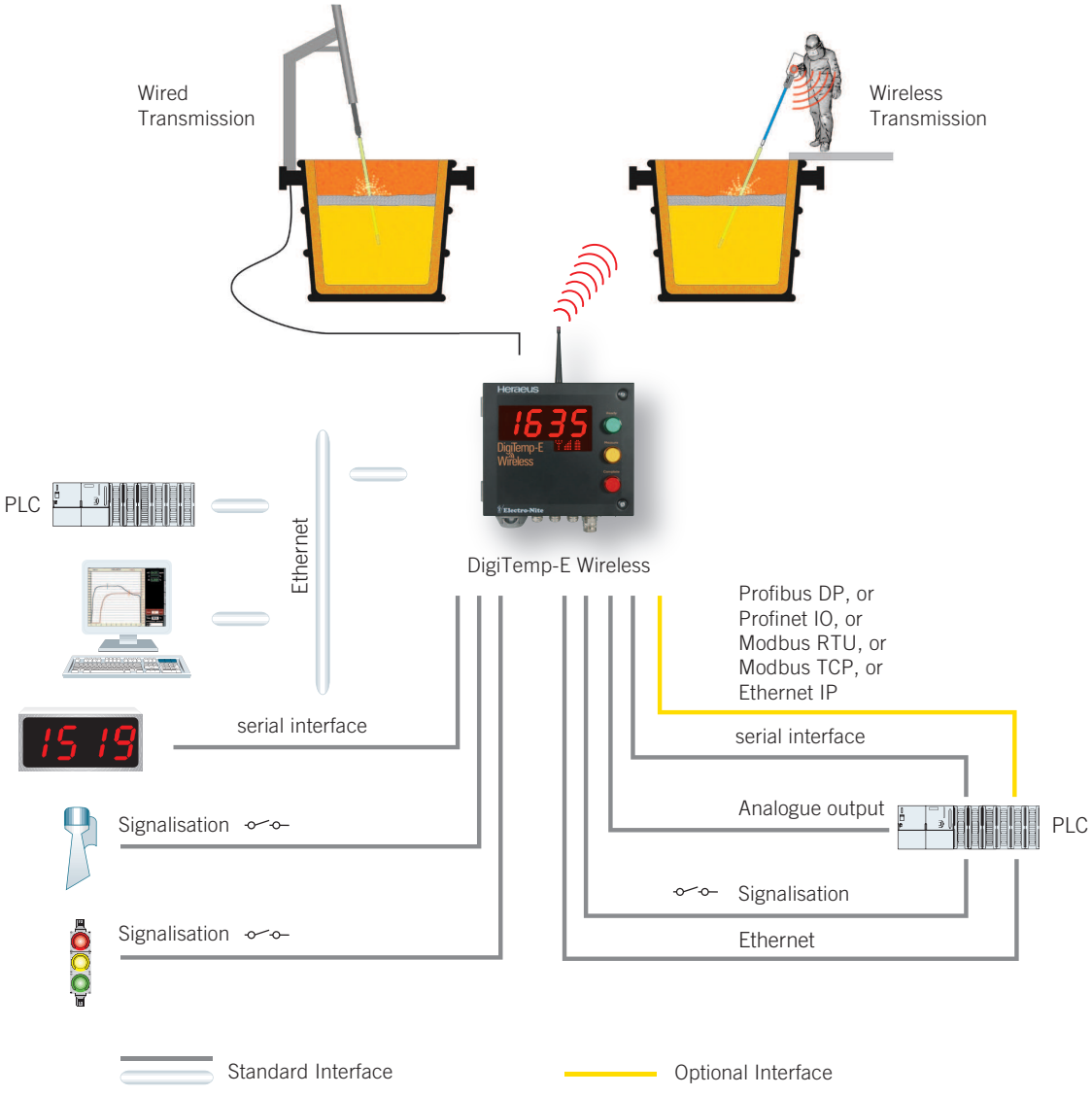
The standard Ethernet interface and the optional fieldbus interfaces allow the equipment to operate on the network.

The instrument can detect bath level in molten steel and iron when in wired operation. This is done using our Positherm® immersion thermocouple connected to an automatic lance. Machine-specific installations are not needed with this method of bath level detection.

Option for one extension module

- second serial TTY 20 mA interface, or
- Profibus DP, or
- Profinet IO, or
- Modbus RTU, or
- Modbus TCP, or
- Ethernet IP, or
- two-channel mA output, or
- second V24 interface

DigiTemp-E Wireless with standard interfaces and optional interfaces



MeltControl 2020 software

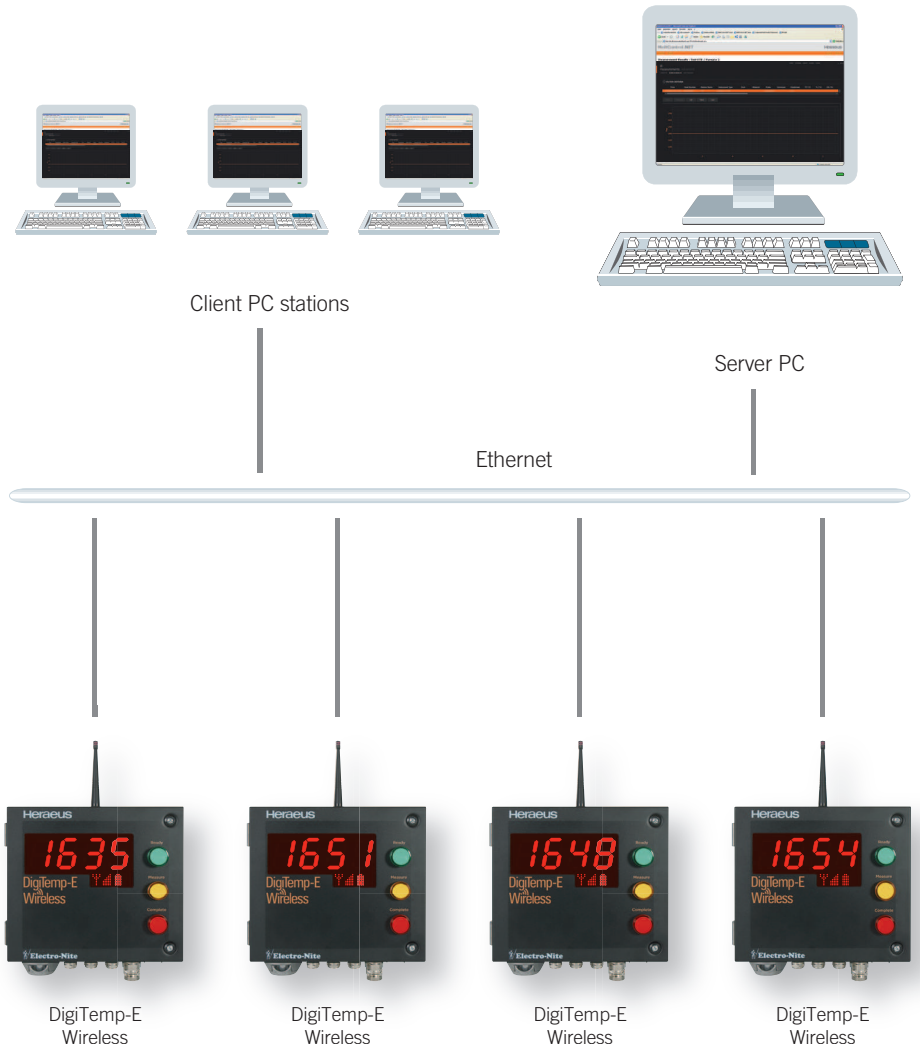
The DigiTemp-E Wireless instruments can be networked with a PC using an Ethernet interface.

With the measurement data software installed on the PC, you can remotely analyse and save the measurement sequences, results, and curves of the DigiTemp-E Wireless instrument.

DigiTemp-E Wireless instrument parameters can also be set using MeltControl 2020.

MeltControl 2020 is a server application and can be used with Windows® 7.

MeltControl 2020 Software: Measurement data system



Technical data

DigiTemp-E Wireless

Measurement application	dip-temperature measurement bath level detection	continuous temperature measurement	measurement application selected on the internal LCD only in wired operation
Measurement input	1 analog input channel	galvanically isolated	
Measurement rate	10 samples/second		
Input range	temperature:	type S: 200°C to 1760°C type R: 200°C to 1760°C type B: 200°C to 1820°C type K: 200°C to 1370°C type D: 200°C to 2300°C	arithmetically linearised according to IEC 584, IPTS68, IPTS48, or ITS90 according to ASTME 988
Accuracy	temperature ±1°C	at 0°C to 50°C ambient temperature	in measurement range > 400°C
Temperature plateau detection	plateau length 0.1s to 5s, adjustable in 0.1s steps	window height 0.2°C to 10°C, adjustable in 0.1°C steps	
Measurement circuit monitoring	automatic thermocouple break detection	automatic sensor recognition	
Offset adjustment	±5°C		
Start conditions	temperature 200°C to 1200°C, adjustable in 50°C steps		
Maximum measurement time	6s to 60s	selectable	
Trace analysis	plateau query with error measurement interpretation		
Display	4-digit 7-segment LED, 45mm digit heigh	matrix display for wireless signal and battery strength	T °C or T °F optional heat number input board
Temperature display	in °C or °F		
Display resolution	1°C/1°F	4-digit display with floating decimal point	
Measurement sequence display	ready, measure, complete	green, yellow, and red LEDs	
Signal outputs	four potential-free PhotoMOS solid state relays with two common 500mA FF fuses: one for horn and one for measurement sequence (green, yellow, red).	maximum 250V AC/DC, maximum 500mA, maximum 60W/VA	status signals also available using serial communication ports TTY, Ethernet, Profibus (optional)
Standard data outputs	TTY 20mA, serial, or V24 interface Ethernet mA output bath level detection	protocol: CTS, 3964, 3964R, STX ETX BCC, STX BCC ETX TCP/IP Client Server 0/4-20mA 'Horn' contact	or no protocol only for wired operation with autolances

Additional interfaces/options	second serial TTY 20 mA interface, or second V24 interface, or Profibus DP, or Profinet IO, or Modbus RTU, or Modbus TCP, or Ethernet IP interface, or mA output	0/4-20mA	2-channel
Data telegrams	four selectable and three freely programmable	programmable using a web browser	
Housing, dimensions, and weight	metal housing for wall mounting, weight: approx. 7.5kg	IP 55 protection, coating RAL 9005	dimensions: H=230mm, W=260mm, D=150mm
Operating data	power supply 90 to 264V AC, 47 to 63Hz	power consumption maximum 34VA	ambient temperature 0 to +50°C

QUBE T

1. QUBE T Transmitter		
Measurement application	temperature, oxygen, and carbon measurements	
Transmission	2.4GHz	antenna installed inside the housing
Input range	type S, R, B, K, D	arithmetically linearised according to IPTS68, IPTS48 or ITS90
Displays	built-in display for measurement place	selectable or programmable using pushbutton
Housing	interlock for display and battery	IP 65 protection
2. QUBE Handle		
Design	ergonomic design with molded, rubber grip	
3. Battery and charging station		
Battery	long-life lithium ion built-in fuel gauge, up to 1000 measurements possible	rechargeable
Charging station	fast charge with feedback LEDs and self-cleaning blade contacts	

Further technical details on request, deviations from illustrations and technical data indicated reserved.

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