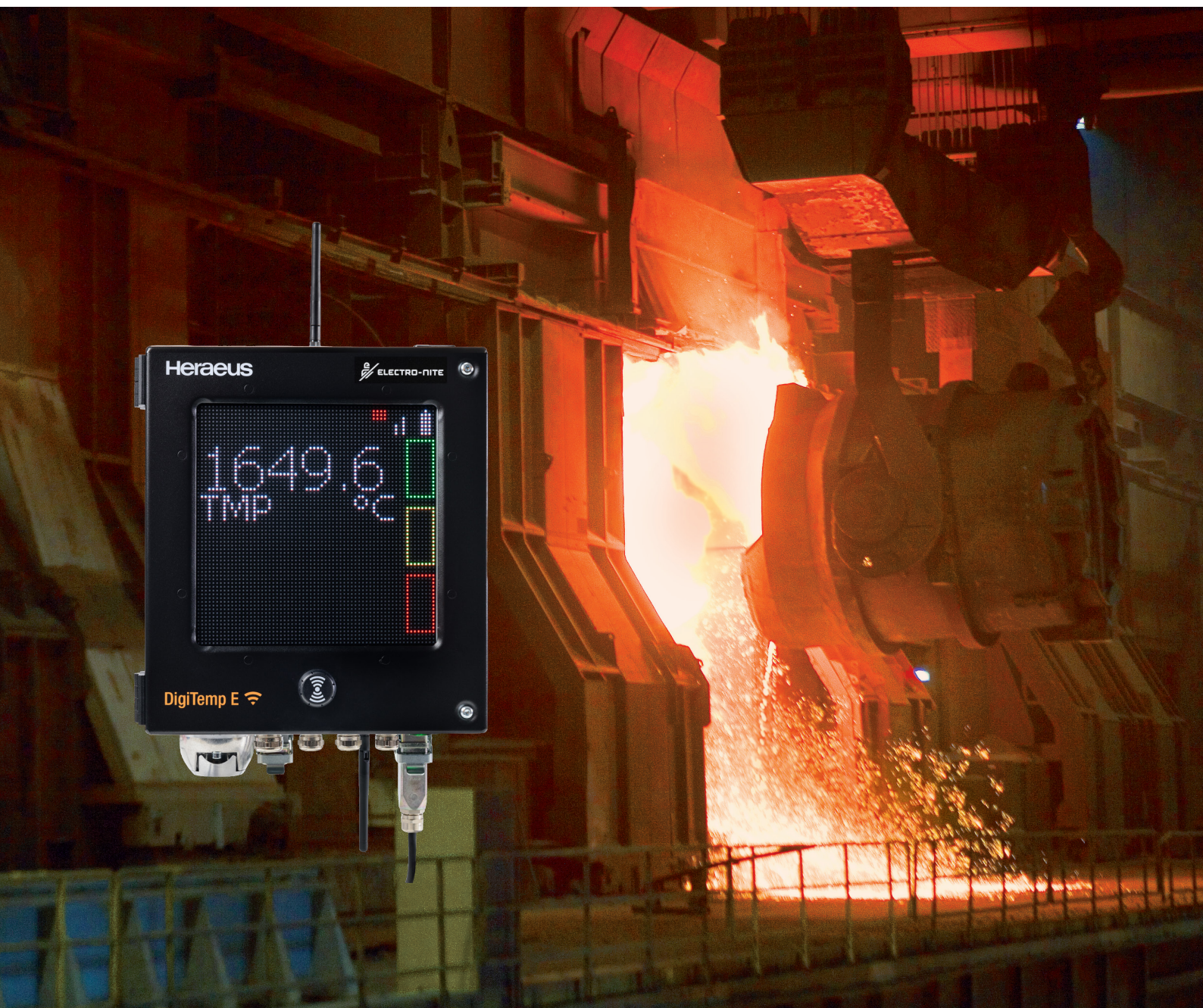




E5 DigiTemp Instrument

Temperature measurement in molten metals

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

The new E5 DigiTemp instrument fully meets these expectations. Its feature is the new impressive design which characterized by innovative evolution, resulting in superior reliability, operating convenience and flexibility.

The E5 DigiTemp measures and displays the temperature in steel, iron, and non-ferrous melts. Sensors can be connected to the instrument either wirelessly via the Qube-T lance or through conventional wired lances.

Temperature measurement using wireless transmission

The QUBE wireless suite eliminates the need for expensive cabling between the measuring lance and the instrument in the control room. This results in improved safety and measurement reliability, while reducing overall costs.

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 accident risks through cables lying around
- no maintenance in security restricted and hazardous environments

Cost-relevant advantages

- no cable connection between the submersible measuring probe and measuring instrument, cost savings for repairing of damaged cables

Reliability

- Reduces issues commonly associated with wired measuring lines, such as inadequate cable insulation, cable damage, etc.



E5 DigiTemp Instrument



QUBE T

- 1: QUBE T transmitter
2: QUBE T handle

- 3: QUBE T battery and
charging station



Standard features of the E5 DigiTemp

- wireless module for communication with wireless QUBE T measuring lance
- analogue input for wired measurement lance
- 190x190 mm RGB led display
- measurement sequence signals
- high measurement accuracy by high-resolution A/D converter
- universal application using a wide range power supply
- working with thermocouples S, R and B types
- measurement error detection and interpretation
- automatic test measuring recognition
- five pre-programmed data telegrams, one input telegram and 4 freely programmable telegrams using the Level 2 configurator.

In addition to the conventional immersion temperature measurement in molten steel, the E5 DigiTemp instrument 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 melts with Positherm® disposable probes
- iron melts with Multi-Stik® reusable probes, and
- non-ferrous metal.

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, storing of 1000 measurements (with measurement traces) using a removable micro SD card. The measurement history is also reachable via FTP connection.

You can set instrument parameters and select data telegrams using an OLED 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.

E5 DigiTemp has three user-oriented data interfaces and two control outputs as standard. It has the ability to communicate with external devices using a wide range of communication interfaces.

Standard interface

- Ethernet TCP/IP

Standard outputs

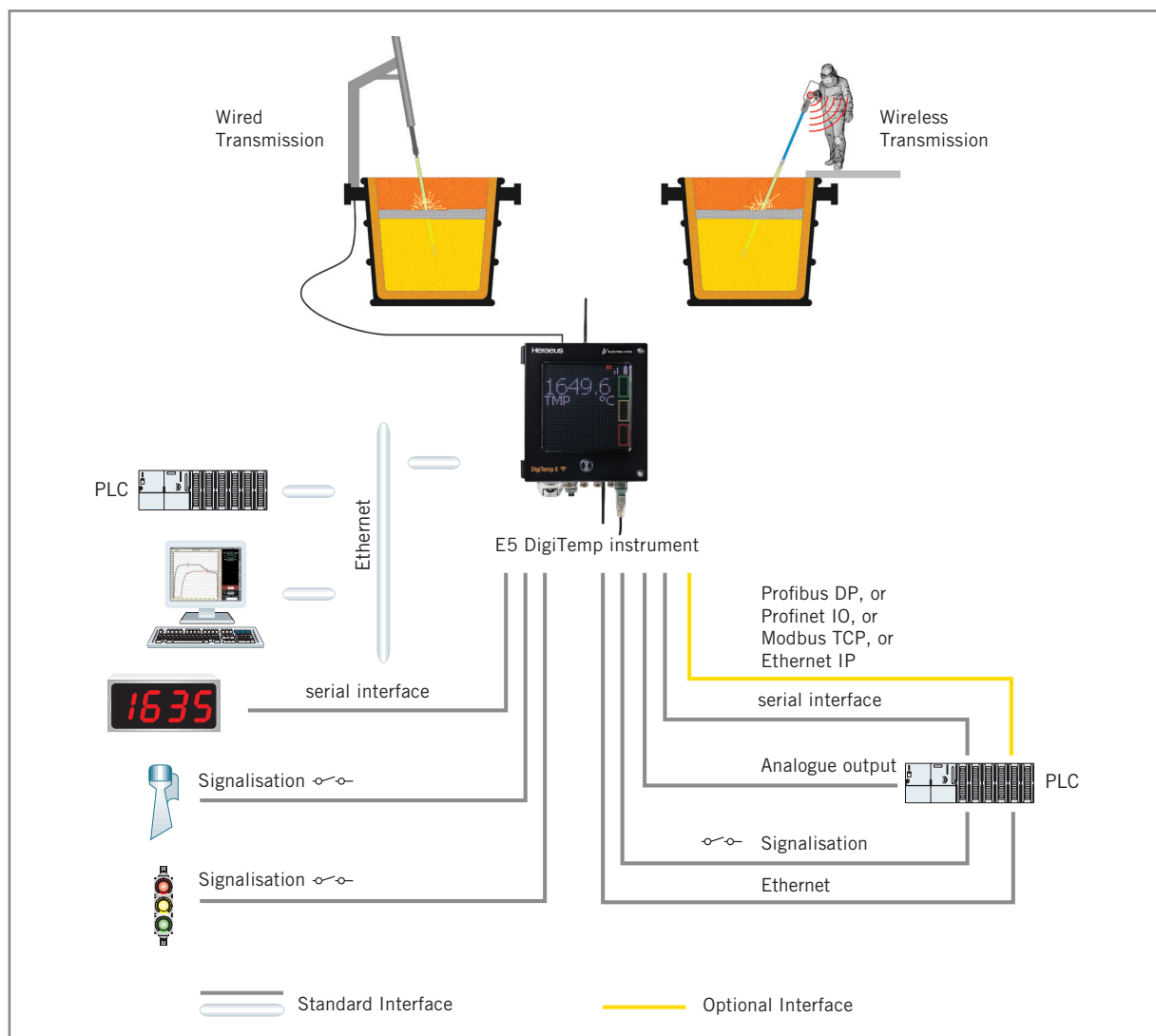
- bath level in wired operation,
- wireless module, and
- outputs for external signalization.

Option for one extension module

- TTY
- Profibus DP, or
- Profinet IO, or
- Modbus TCP, or
- Ethernet IP, or
- 0/4-20 mA
- RS 232

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.



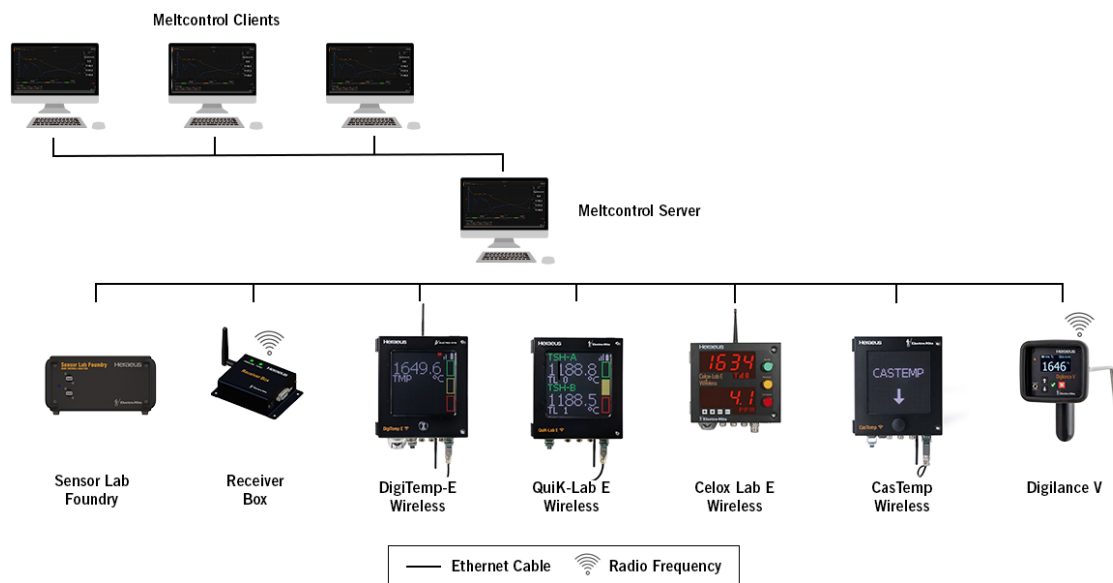
E5 DigiTemp with standard interfaces and optional interfaces



MeltControl software

E5 DigiTemp 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 E5 DigiTemp instrument.

E5 DigiTemp instrument parameters can also be set using MeltControl. MeltControl is the digital analysis and data visualization tool for melt quality control that gives engineers and managers access to all data. It logs and displays realtime measurement curves from all Heraeus Electro-Nite instruments.



MeltControl software: Measurement data system

Technical data

E5 Digitemp

Item	Description		
Measurement application	dip-temperature measurement		
	bath level detection		only in wired operation
Measurement input	1 wireless input channel, or 1 analogue input channel	galvanically isolated	
Measurement rate	10 steps/second		
Measurement input range	temperature:	type S: 200°C to 1760°C type R: 200°C to 1760°C type B: 200°C to 1820°C	arithmetically linearised according to IEC 584, IPTS 68, IPTS 48, or ITS 90
Accuracy	temperature $\pm 1^\circ\text{C}$	at 0°C to 50°C ambient temperature	
Temperature plateau detection	plateau length 0.1s to 5s, adjustable in 0.1s steps	window height 0.2°C to 10°C, adjustable in 0.1s steps	in measurement range > 400°C
Measurement circuit monitoring	automatic thermocouple break detection		
Offset adjustment	$\pm 5^\circ\text{C}$ adjustable in 0.1°C steps		
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	programmable 64x64 RGB LED display		T °C or T °F optional heat number input
Temperature display	in °C or °F		
Display resolution	1°C/1°F		
Measurement sequence display	ready, measure, complete	green, yellow, and red on RGB display	
Signal outputs	four potential-free PhotoMOS solid state relays with two common 500 mA FF fuses: one for horn or bath level detection and three for measurement sequence (green, yellow, red)	maximum 250 V AC/DC, maximum 500 mA, maximum 60W/VA	status signals also available using Ethernet or optional interfaces: RT industrial protocols or serial.

Standard data outputs	TTY 20mA, optional	protocol: CTS, STX ETX BCC, STX BCC ETX	or no protocol
	Ethernet mA output, optional bath level detection	TCP/IP Client/Server 0/4-20mA 'horn' contact	only for wired operation with autolances
Additional interfaces/ options	TTY 20 mA interface, Profibus DP, or Profinet IO, or Modbus TCP, or Ethernet IP interface, mA output		
Data telegrams	five selectable and 4 freely programmable, one input telegram	0/4-20mA programmable using Level 2 configurator	
Housing, dimensions, and weight	metal housing for wall mount- ing, weight: approx. 7.5kg		dimensions: H = 310mm, W = 275mm, D = 147mm
Operating data	power supply 90 to 264 V AC, 47 to 63 Hz	power consumption maximum 34 VA	ambient temperature -10 to +55°C

Qube T

Item	Description	
1. QUBE T transmitter		
Measurement application	temperature	
Transmission	2.4 GHz	antenna installed inside the housing
Input range	type S, R, B	arithmetically linearized according to IPTS68, IPTS48 or ITS90
Display	built-in display for measurement place	selectable
Housing	interlock for display and battery	IP 65 protection
2. QUBE T handle		
Design	ergonomic design with molded rubber grip	
3. QUBE T 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.
The transmission module meets the standard ETSI EN 300 328 V1.8.1

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