Heraeus

Electro-Nite

Checkmate IV Celox
Checkmate IV QuiK-Cup

Checking of correct instrument function and calibration with one instrument

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Temperature and oxygen measurements, as well as thermal analysis, are an indispensable component in the processing and quality control in steelmaking, iron and nonferrous melting applications.

The instruments used to measure temperature, oxygen activity and thermal analysis are often used under extreme ambient temperature conditions. This requires frequent checks of the equipment functionality and calibration using the Checkmate IV.

With the Checkmate IV instrument, Heraeus Electro-Nite has further developed a measuring instrument, which carries out these functional checks and calibration test fast and reliably.

Checkmate IV has a robust, shock-resistant housing, is portable, and independently powered by batteries making it ideal for easy use under aggressive shop-floor conditions.

By using the appropriate plug-in adapters, the connection from Checkmate IV to the different instruments can be made via the lances and cables to ensure accurate calibration and correct functioning throughout the entire measuring system.

Checkmate IV operation is controlled by four large function keys. The actual test sequence runs automatically by intuitive menu and the test results are shown immediately on the display.

- Quick and easy check of complete system
- High calibration accuracy
- Portable application by use of batteries
- Quick changeable batteries by lateral battery compartment with quick closure
- Shock-resistant metal housing
- Rugged, large industrial keypad

Checkmate IV

Two types of Checkmate IV are available:
- Checkmate IV Celox
- Checkmate IV QuiK-Cup

Checkmate IV Celox
Checkmate IV Celox confirms the correct working equipment functionality and calibration of temperature and oxygen measuring instructments.
At the same time the precise calibration of the measuring instruments can be verified by programmable, fixed temperature and EMF values. Alternatively, it is possible to simulate a slag curve.

In the "Insulation Check" mode, Checkmate IV Celox examines fast and clearly the electrical conductor and the contact system of the immersion lance for its insulation resistance. The detailed test result is indicated on the display.

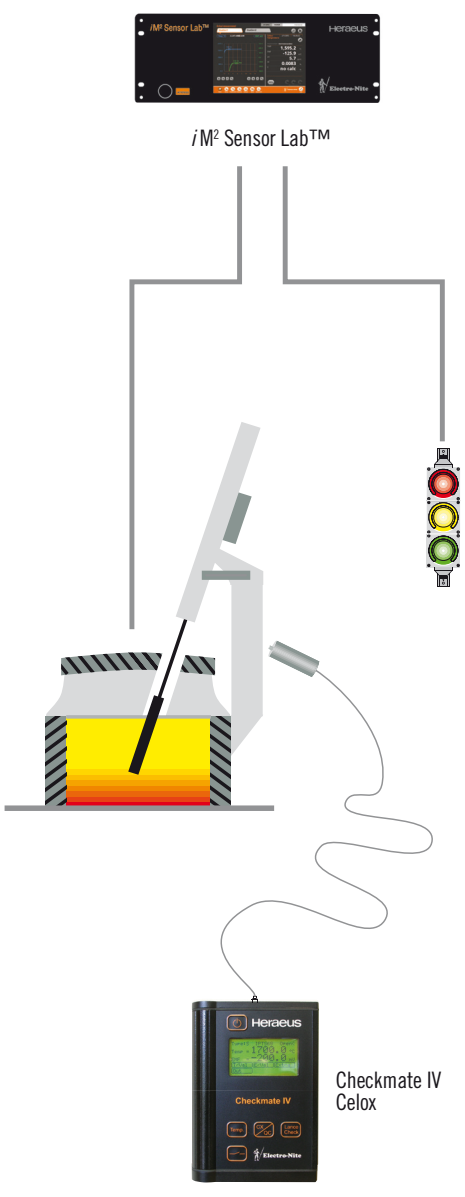
Checkmate IV QuiK-Cup
The Checkmate IV QuiK-Cup determines the equipment functionality and calibration of temperature measuring instruments and thermal analysis equipment. In the same test mode these instruments are calibrated with programmable, fixed temperature values.

With three cooling curves, simulated by the Checkmate IV QuiK-Cup, an extended function test is carried out to confirm reliable detection of the critical arrest points from the cooling curve. The mode "Insulation Check" is identical for both instruments, Checkmate IV QuiK-Cup and Checkmate IV Celox.

Check with immersion lance

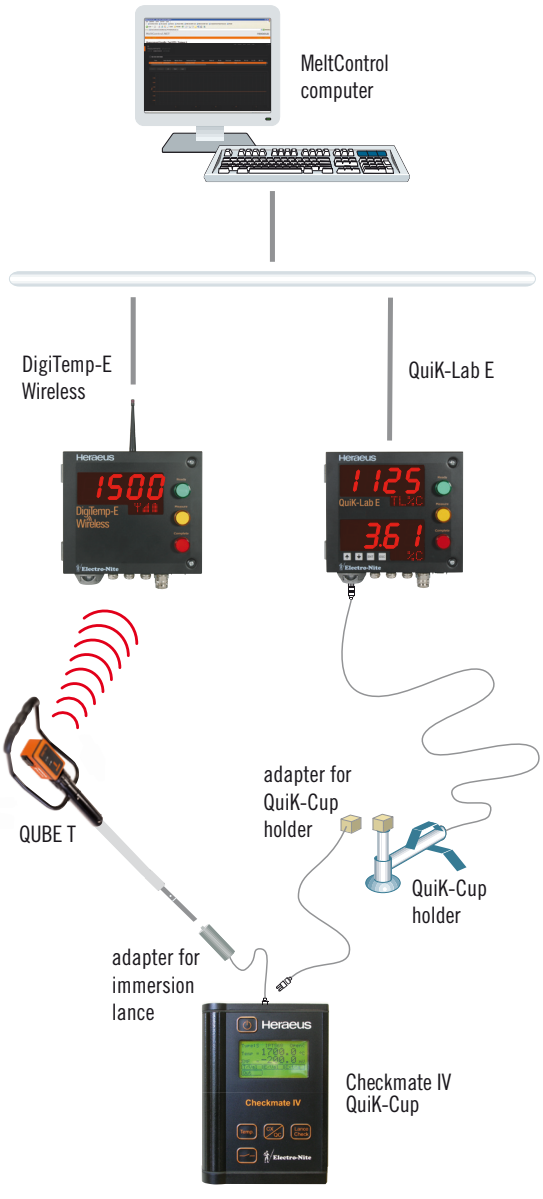
Check with QuiK-Cup holder

- instrument calibration of bath temperature and EMF
- instrument function test
- simulation of slag curves
- insulation check of immersion lances



Checkmate IV Celox in steel plants

- Instrument calibration of temperature
- Instrument function test
- Simulation of cooling curves
- Insulation check of immersion lances and QuiK-Cup holders



Checkmate IV QuiK-Cup in foundries

Technical data

Checkmate IV Celox

Item	Description
Operational functions	bath temperature/EMF simulation, insulation check, slag curve simulation
Calibration values	7 fixed temperature values, 7 fixed EMF values, optional 6 fixed EMF values and 1 slag curve
Thermocouple types	type S 50 to 1760 °C type R 50 to 1760 °C type B 100 to 1820 °C linearized acc. to IEC 584, IPTS 68/48, ITS 90
EMF range	EMF -600 mV to +300 mV
Temperature and EMF accuracy	temperature ±0.05 %, ±0.6 °C, EMF ±0.05 %, ±0.1 mV, at +18 °C to +28 °C ambient temperature
Reference temperature	0 °C with cold junction compensation
Display	LCD graphic display, 128 x 64 dots, with/without background illumination
Display resolution	temperature 0.1 °C, EMF 0.1 mV
Operation	menu controlled operation, foil keypad with 5 press bottom keys
Power supply	4 alkaline batteries type AA 1.5 V, load circuit with load capacity display
Ambient temperature	0 °C to +40 °C
Housing	aluminium housing, protection IP 40 with lateral battery compartment
Scope of delivery	incl. Positherm Celox lance adapter instrument adapters in various versions and carrying bag on request

Checkmate IV QuiK-Cup

Item	Description
Operational functions	temperature- and cooling curve simulation, insulation check
Calibration values	7 fixed values for “bath temperature”, 4 fixed values and 3 cooling curves for “thermal analysis”
Thermocouple types	type S 50 to 1760 °C type R 50 to 1760 °C type B 100 to 1820 °C type K 50 to 1370 °C linearized acc. to IEC 584, IPTS 68/48, ITS 90
Temperature accuracy	temperature ±0.05 %, ±0.6 °C, at +18 °C to +28 °C ambient temperature
Reference temperature	0 °C with cold junction compensation
Display	LCD graphic display, 128 x 64 dots, with/without background illumination
Display resolution	temperature 0.1 °C
Operation	menu controlled operation, foil keypad with 5 press bottom keys
Power supply	4 alkaline batteries type AA 1.5 V, load circuit with load capacity display
Ambient temperature	0 °C to +40 °C
Housing	aluminium housing, protection IP 40 with lateral battery compartment
Scope of delivery	incl. QuiK-Cup adapter and Positherm Celox lance adapter instrument adapters in various versions and carrying bag on request

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

Heraeus Electro-Nite
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