

# KHARAFI NATIONAL CALIBRATION LABORATORY







**WELCOME TO**  
**KHARAFI NATIONAL**  
**CALIBRATION LABORATORY**



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# INTRODUCTION

Kharafi National's Calibration Laboratory has the right equipment, procedures and staff for providing calibration and maintenance services for a wide range of monitoring and measuring devices.

The Calibration Laboratory is fully equipped to:

- Inspect, Maintain and Calibrate a Wide Range of Instruments
- Conduct In-House and On-Site Calibration Services
- Arrange Third Party Calibration of Specialized Instruments

Each operational area in Kuwait, the UAE and Egypt has its own calibration laboratory which ensures that monitoring and measuring devices are accurate and maintained. All measuring and monitoring devices are purchased, owned, maintained and regularly calibrated by Calibration Laboratory which ensures quality, accuracy and reliability.

## Calibration Services

The Calibration Laboratory is equipped with master calibrators traceable to National and International standards, calibration software and supporting reference standards. Fully trained engineers, technicians and support staff ensure high-quality service in supporting the equipment.

The Calibration Laboratory provides:

- More than 5,500 different types of Monitoring and Measuring Devices

- More than 1000 Fluke MET/CAL procedures to calibrate instruments, in addition to manual calibration procedures
- Infrared Thermal Imaging, for Predictive Maintenance
- Power Quality Analyzer for measuring all Electrical Parameters

Instrument calibration can be performed on-site if required. Third-party calibrations of specialized instruments can be arranged if in-house resources are not available.

The Calibration Laboratory also undertakes various other on-site services on behalf of customers.

## Types of Measuring and Monitoring Devices

Kharafi National's Calibration Laboratory operates using master instruments in accordance with ISO 9001:2008 and ISO 10012 International standards and provide calibration and maintenance services for the following groups of instruments:

- Electrical
- Mechanical
- Pressure
- Temperature
- Humidity
- Chemical



Equipment: 10/2007/004 1231 800017 - (Nov 2006)  
Model: **Smart Station 4** Revellin G 3.3C  
For: **20 Bed Intensive ICU**  
Tel: 0852 301187 - Fax: 0852 301188  
Email: [www.knowl@knowl.com](mailto:www.knowl@knowl.com)

Pressure Monitor  
MP-1000  
MP-1000  
MP-1000

PRESSURE INDICATOR  
HP-O-OUTLET



Pressure Monitor  
MP-1000  
MP-1000



PRESSURE INDICATOR  
MP-O-INLET  
+ 0.2 BAR

PRESSURE INDICATOR  
MP-O-OUTLET  
+ 1.1 BAR

PRESSURE INDICATOR  
LP-O-OUTLET  
+ 0.2 BAR



PRESSURE REGULATOR  
MP-O-INLET  
+ 0.2 BAR

PRESSURE REGULATOR  
MP-O-OUTLET  
+ 0.2 BAR

PRESSURE REGULATOR  
LP-O-OUTLET  
+ 0.2 BAR





# LABORATORY EQUIPMENT

The Calibration Laboratory is equipped with master measuring and calibration equipment. Monitoring and measuring devices are calibrated against measurement standards traceable to National or International measurement standards.

## Electrical

Fluke 5500A Multiproduct Calibrator  
Fluke 5520A Multiproduct Calibrator  
Fluke 8508A 8 ½ Digital Multimeter  
Agilent 34401A 6 ½ Digital Multimeter  
Tektronix TDS220 100 MHz Oscilloscope  
HP 53131A Universal Counter  
Vitretek 4670A Precision HV Meter up to 70 kV  
DVR-150 AC/DC High Voltage Divider 150kV  
IET Labs VRS-100 High Resistance Std  
Time Electronics Decade Resistance & Capacitance Boxes

} with MET/CAL  
7.2 Software

## Mechanical

Mitutoyo - Gauge Block Sets (Metric and Imperial)  
Steel Angle Set  
Scale and Tape Calibration Unit  
Mitutoyo - Metric Calibration Tester  
Mitutoyo - HMC 1000H Check Master  
Mitutoyo - CD 300 Depth Micro Checkers  
Norbar - Torque Tool Tester 7.5-1500 Nm  
Dynamic Inst. - DI803 Vibration Transducer Tester  
Troemner- Weight Set 1mg to 100kg, OIML Class F1  
Tru-Stone - Granite Surface Plate, Grade AA  
PCWI - Coating Thickness Gauge Std.  
Airflow - UA30 Ultrasonic Anemometer

## Pressure

Budenberg - 580DX Hydraulic Dead Weight Tester 1-700 bar, Class A  
Budenberg - 554A Pneumatic Dead Weight Tester 0.2 to 25 bar, Class A  
Budenberg - 551A Pneumatic Dead Weight Tester -1 to 1 bar, Class A  
Druck - Pressure Bench 0 to 2, 20, 70 bar  
Druck DPI104 Digital Pressure Indicator, 0-1000 Bar

## Temperature

Hart Scientific - 1560 Black Stack Thermometer (-260° C to 962° C) with Standard 5626 PRT probe (-200°C to 661°C)  
High Temperature Standard 5624 PRT probe (0°C to 1000°C)  
Secondary 5608 PRT probe (-200°C to 500°C)  
Hart Scientific - 1521 Thermometer (-200° C to 960° C) with Reference 5612PRT probe  
Hart Scientific - 9132 Infrared Calibrator (50° C to 500° C)  
Hart Scientific - 7340 Bath Calibrator (-40°C to 150° C)  
Hart Scientific - 6330 High Precision Bath (35°C to 350°C)  
Techne - LCB5 Bath Calibrator (25° C to 250° C)  
Hart Scientific - 9173 Dry Metrology Well (50°C to 700°C)  
Isotech - Pegasus 1200B, Dry Block Calibrator (150° C to 1200° C)

## Humidity

Vaisala - HMK-15 Humidity Calibrator

## Chemical

Calibration Gases H<sub>2</sub>S, Cl<sub>2</sub>, CH<sub>4</sub>, C<sub>4</sub>H<sub>10</sub>, CO, O<sub>2</sub>





# CAPABILITIES

The Kharafi National Calibration Laboratory operates using the leading master instruments, in accordance with International Standard ISO 9001:2008, to provide calibration and maintenance services for the following group of Instruments:

## Electrical

Multimeter	Current Injection Test Set
Clamp Meter	Holiday Detector
Insulation Resistance Tester	Decade Resistance Box
Earth Resistance Tester	LCR Meter
Loop Tester	Oscilloscope
Process Calibrator	Digital Tachometer
Circuit Breaker Test Set	Phase Sequence Indicator
Oil Test Set	Frequency Meters & Pulse Generator
Relay Test Set	
High Voltage Test Set	

## Pressure

Dead Weight Tester	Pressure Recorder
Pressure Calibrator	Pressure Transducer
Pressure Indicator	Pressure Transmitter
Manometer	Pressure Switch
Pressure Gauge	Vacuum Gauge

## Humidity

- Whirling Hygrometer
- Humidity Recorder
- Humidity Meter

## Mechanical

### Dimension:

- Vernier Caliper
- Micrometer
- Dial Gauge
- Depth Gauge
- Feeler Gauge
- Measuring Tape
- Steel Scale

### Others:

- Torque Wrench
- Coating Thickness Gauge
- Vibration Meter
- Weighing Balance
- Standard Weights
- Tachometer (Mechanical)
- Angle Measuring Devices

## Temperature

- Temperature Calibrator
- Temperature & Humidity Meter
- Thermometers (all kinds)
- RTD & TC Meters & Calibrator
- Dry Block Calibrator
- Liquid Bath Calibrator
- PT100 Probe
- TC Probe
- Temperature Controller
- Temperature Transmitter

## Chemical

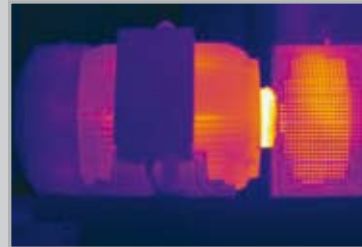
- Single Gas Monitor
- Multi Gas Monitor
- pH Meter
- Conductivity Meter





Thermal Imaging Camera

INFRARED VIEW



NORMAL VIEW



Problem in motor coupling



LV fuse carrier problem

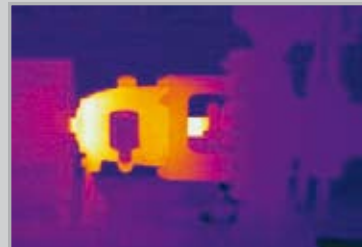
INFRARED VIEW



NORMAL VIEW



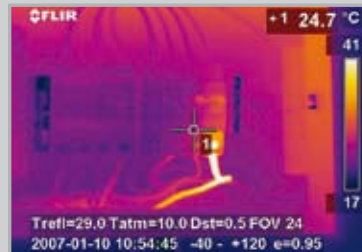
Problem in busbar termination



Problem in pump coupling



Problem in motor fan bearing



Problem in LV termination

# INFRARED THERMAL IMAGING

Kharafi National Calibration Laboratory has acquired the state of art Thermal Imaging Camera “FLIR ThermaCAM P60”, an advance tool in predictive and preventive maintenance. Infrared thermography is Non Contact (remote sensing), two dimensional and real time.

Trained and certified Engineers and Technicians are available for Onsite Inspection, analysis and Report issuance for Predictive/ Preventive maintenance and troubleshooting in numerous applications. We offer Onsite services in following areas but not limited to:

## Electrical

- High voltage Equipment such as Breakers, Bus bars, Transformers for Hot connections, Load imbalances etc.
- Finding hidden problems in thousands of connections/ terminations in control and low voltage panels.
- Motor winding, shaft and bearings.
- Over heated conductors on printed circuits boards.

## Buildings

- Building cool/ heat loses
- HVAC Unit problems

## Mechanical

- Flange leaking in pressurized tanks / pipe lines.
- Pump bearing, coupling misalignment.
- Mechanical friction.
- Tank sediment / Sediment along the length of pipe
- Valve condition in petrochemical industry etc.
- Insulation defects, Sediment in Pipeline.
- Fluid flow problem.

For newly installed / repaired equipment collecting ‘Base line data’ (ideal working conditions) and regularly monitoring the equipment condition as Predictive / Preventive maintenance to avoid break down and loss of production.

Equipment condition as Predictive / Preventive maintenance to avoid break down and loss of production.



# ON-SITE SERVICES

To ensure complete client satisfaction, Calibration Laboratory provides service with a high degree of technical skill and competitive prices.

We provide Instrumentation Support either in our laboratory or on-site to suit our clients' requirements within the following sectors:

- Oil
- Gas
- Petrochemical
- Power
- Environment

Our capabilities for on-site measurement services include a wide variety of tests:

## Electrical

- Testing & Validation of Welding Machines
- Testing & Calibration of Welding Oven and Portable Electrode Drying Oven
- Power Quality Measurement of all Electrical Parameters

## Pressure & Vacuum

- Pressure / Vacuum Gauges, Recorders and Transducers

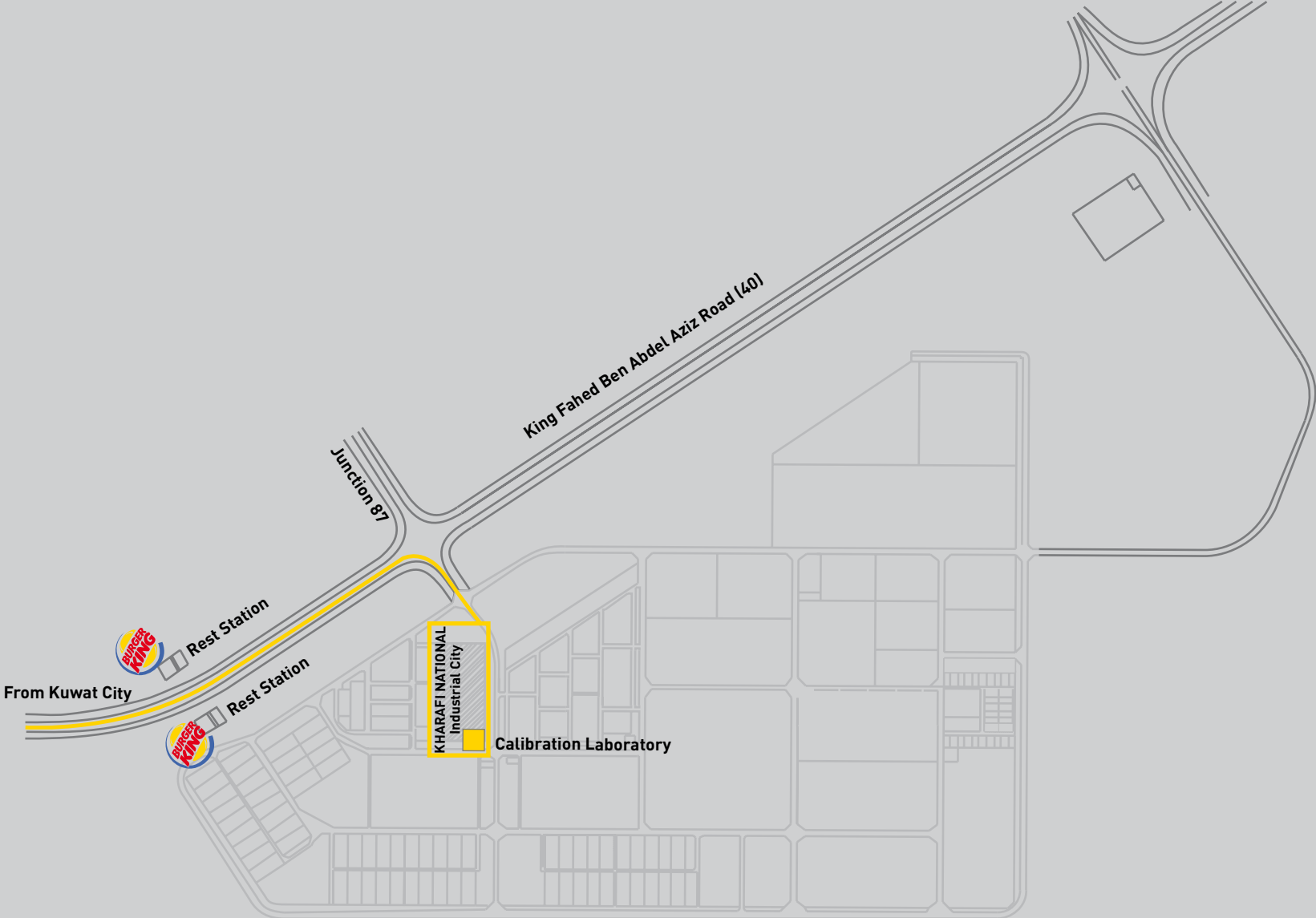
## Temperature

- Thermocouple and RTD
- Transducers & Transmitters
- Temperature Controllers

## Special Purpose

- Radio Detection—Locating Underground Pipes,Cables, etc.
- Testing & Gas Detecting and Environmental Monitoring
- Testing Sound & Ultrasound Levels

# LOCATION MAP



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