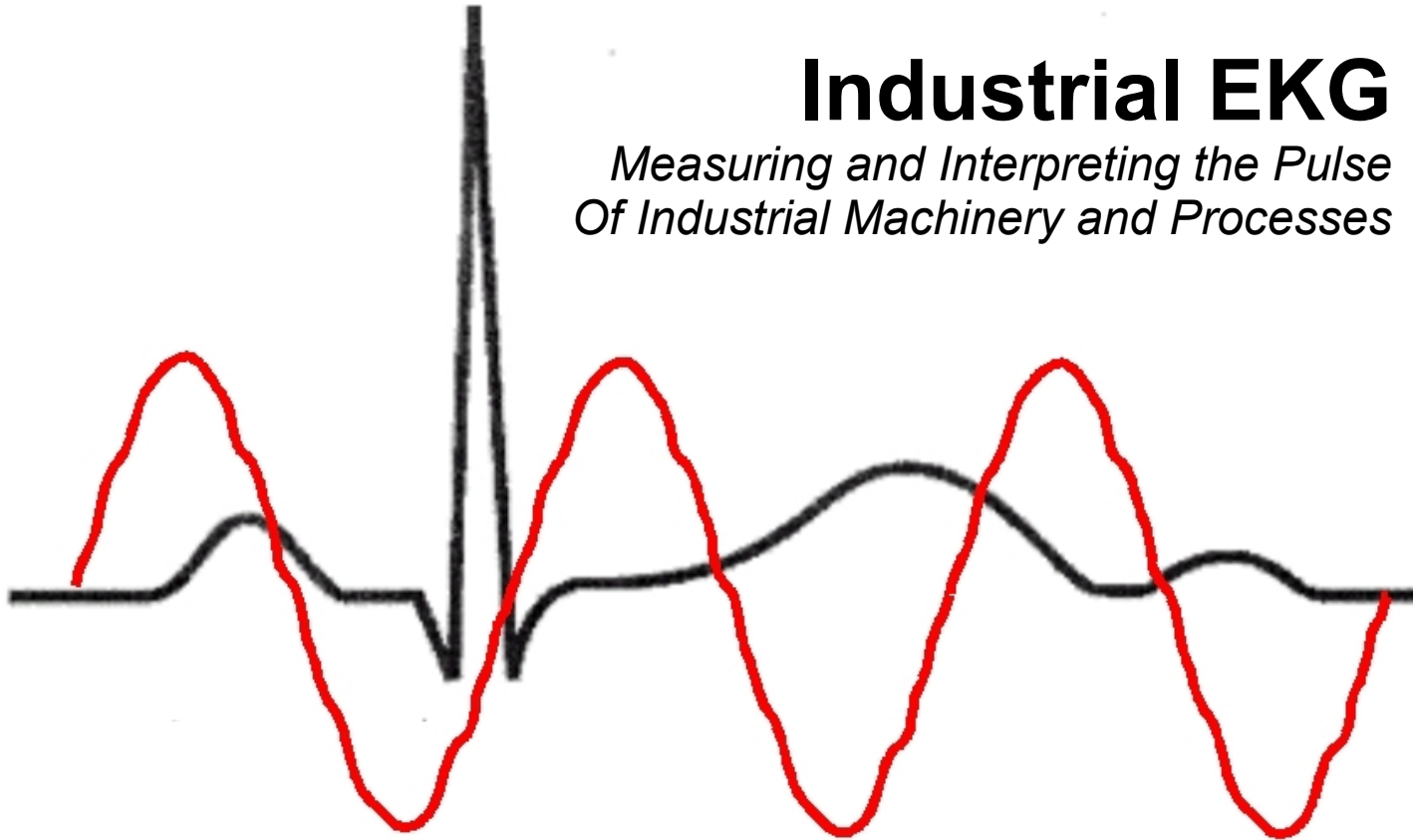


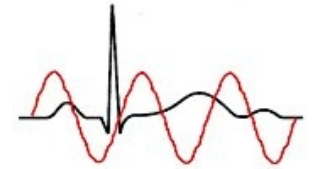
A Virtual On-Site Demo

Industrial EKG

*Measuring and Interpreting the Pulse
Of Industrial Machinery and Processes*



What We Do



We help you reduce energy and operating costs by using EKGs to monitor the health of industrial equipment instead of people, like industrial cardiologists.

Our uniqueness:

- we don't need sensors on the monitored machines, no cables to install;
- an experience database of over 10 million motors to compare your equipment against;
- multiple monitors in one product – energy efficiency & consumption, power line condition, electrical and mechanical motor condition; and mechanical condition of driven equipment;
- we *directly* measure how even mechanical faults like unbalance, misalignment, and loose connections waste energy dollars, making ROI calculation fast, easy, clear and unambiguous.

The Test Site



Reverse Osmosis Water Purification System
700-room Resort Hotel

The System Being Tested



The long silver horizontal tube contains the 480V, 65A Integral Motor & High-Pressure Pump to be tested using a temporary installation.



The Equipment Room



The IEKG Demo Kit



A Current Transformer



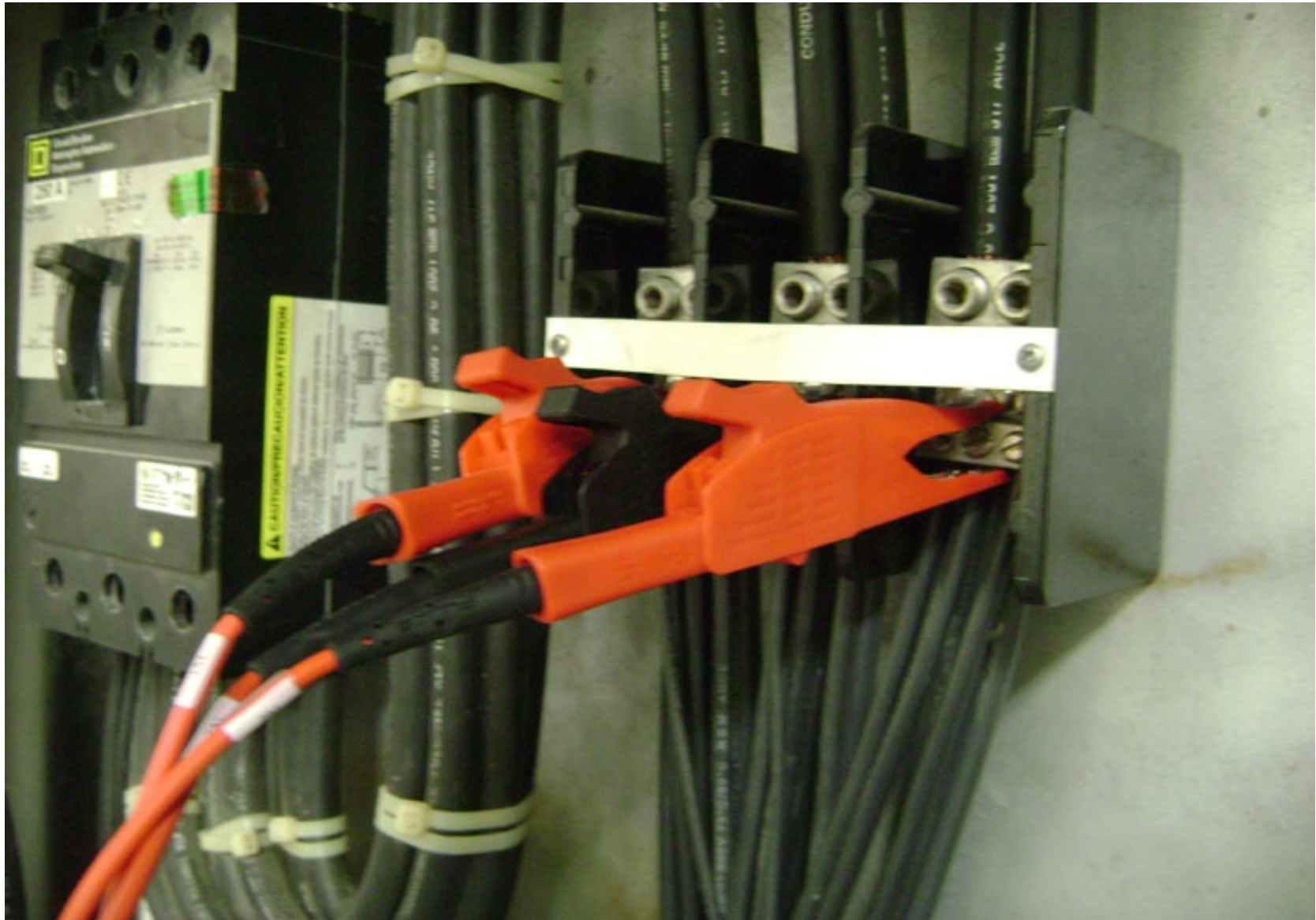
Split-core to facilitate quick and easy temporary installation.



3 CTs Installed on Motor Leads



3 Voltage Connections



Notice:



*No Sensors
On the
Motor or Pump !*

5 Minutes of Setup...



...Confirm Nameplate Data...

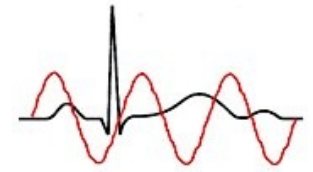


The screenshot shows the 'MCM Configuration Tool 2.0' interface. The 'Address' dropdown menu is highlighted with a red circle and shows the value '1'. The 'Settings' dialog box is open, displaying a list of parameters and their values. The 'Nominal voltage' parameter is highlighted in blue, and its value '255.0000' is shown in the 'Update' field at the bottom of the dialog.

Parameter	Value
Input threshold	6.0000
Frequency threshold	15.0000
Magnitude threshold	15.0000
Nominal voltage	251.0000
Nominal current	67.0000
Powerfactor tolerance	0.0200
Gain tolerance	0.0200
Connection type	1
Voltage balance threshold	10.0000
Current balance threshold	20.0000
Voltage level	10.0000
Current level	50.0000
Voltage min. level	15.0000
Current min. level	15.0000
Default variance	0.0001
Status threshold	4.0000
Default cluster size	200
Window length	14
Harmonic channel	2
Display harmonics	1
Int thres. PSD	7.0000
PSD level size	4.0000
Residual threshold	0.5000

Update Read OK

Wait for Initial Learn Period...



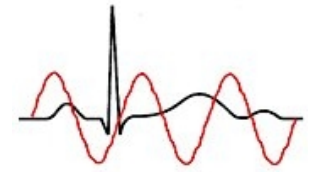
The screenshot shows the MCMScada software interface. The title bar reads "MCMScada with Diagnostics". The menu bar includes "File", "View", "Operations", "Settings", "Log", "License", and "Help". The toolbar contains several icons for navigation and control. On the left, a tree view shows a hierarchy: "DAD-EMACHIN" (with a red house icon), "JOEBARNES" (with a computer icon), and "Crown P" (with a gear icon). The main area is a table with the following columns: "Name", "Mode", "Status", "Irms(Amp)", "Vp-p(Volt)", "Power Fac...", "Active Po...", "Reactive P...", "THD(%)", and "IImbalan...". One row is highlighted in blue, showing "High Pressure Pump #1" in the "Name" column and "OFF" in the "Mode" column. The "Status" column for this row is highlighted in red. In the bottom right corner, the text "Artesis MCMScada Motor Condition Monitor Remote Monitoring & Control" is displayed. The taskbar at the bottom shows "JOEBARNES-PC" and "User" with a taskbar number of "1".

Name	Mode	Status	Irms(Amp)	Vp-p(Volt)	Power Fac...	Active Po...	Reactive P...	THD(%)	IImbalan...
High Pressure Pump #1	OFF								

Artesis
MCMScada
Motor Condition Monitor
Remote Monitoring & Control

JOEBARNES-PC User 1

... Initial Diagnosis: OK.

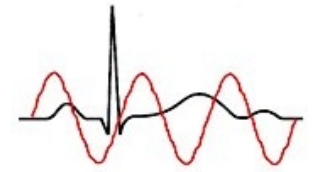


- Power Line Supply – OK
- Electrical – OK
- Motor Mechanical – OK
- Pump Mechanical - OK

EQUIPMENT STATUS		ELECTRICAL STATUS	
OK	Loose Foundation / Components	OK	Power Line Supply
OK	Unbalance/Misalignment/Coupling/Bearing	OK	Active Power
OK	Vane / Trans. Element / Driven Equipment	OK	Reactive Power
OK	Bearing	OK	Vrms [V]
OK	Rotor	OK	Irms [A]
OK	Loose Windings / Stator / Short Circuit	OK	V Imbalance
OK	Internal Electrical Fault	OK	I Imbalance
OK	External Electrical Fault	OK	Frequency
OK	Other	OK	THD [%]
OK	Line Status	OK	3th Harmonic
OK	Load Status	OK	5th Harmonic
OK		OK	7th Harmonic
OK		OK	9th Harmonic
OK		OK	11th Harmonic
OK		OK	13th Harmonic
OK	The equipment is working as expected.	OK	Electrical vibration

WORK REQUESTS
OK: The equipment is working as expected.

Review some details...



Diagnostic

EQUIPMENT STATUS		ELECTRICAL VALUES	
OK	Loose Foundation / Components	OK	Power Factor 0.87
OK	Unbalance/Misalignment/Coupling/Bearing	OK	Active Power [kW] 36
OK	Vane / Trans. Element / Driven Equipment	OK	Reactive Power [kVar] 20
OK	Bearing	OK	Vrms [V] 255
OK	Rotor	OK	Irms [A] 54
OK	Loose Windings / Stator / Short Circuit	OK	V Imbalance[%] 0.57
OK	Internal Electrical Fault	OK	I Imbalan
OK	External Electrical Fault	OK	Frequen
OK	Other	OK	THD [%]
OK	Line Status	OK	3th Har
OK	Load Status	OK	5th Har
		OK	7th Har
		OK	9th Har
		OK	11th Har
		OK	13th Har
OK	The equipment is working as expected.	OK	Electrical va

WORK REQUESTS

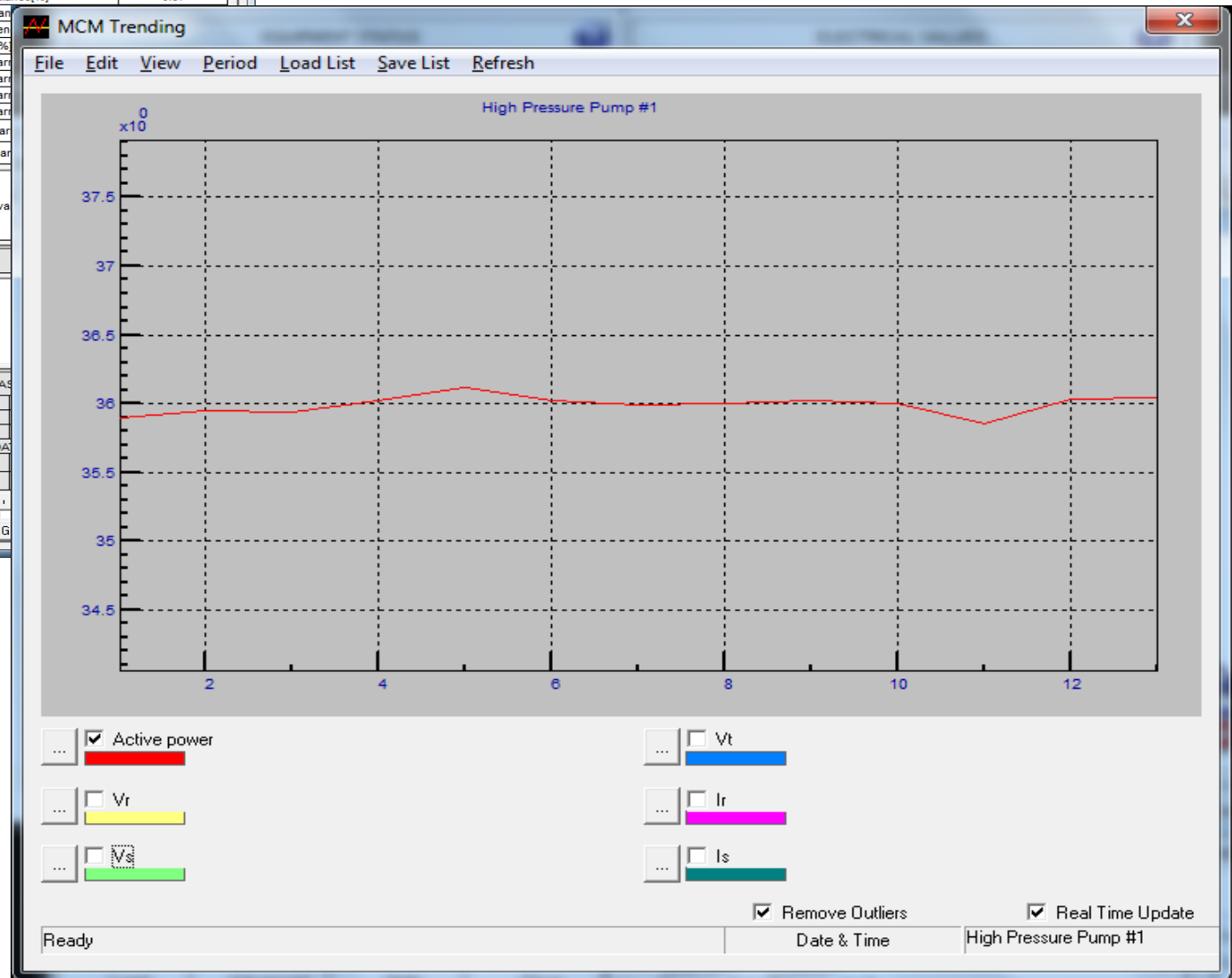
OK: The equipment is working as expected.

EQUIPMENT INFORMATION		DATABASE	
Equipment Name	High Pressure Pump #1	Start Date	
Equipment Type	Pump	End Date	
Nominal Voltage [V]	240	Number of Data Points	
Nominal Current [A]	67	Database Range	
Rotation Spd. [rpm]	3000	Number of Data Points	
MCM Address	1		

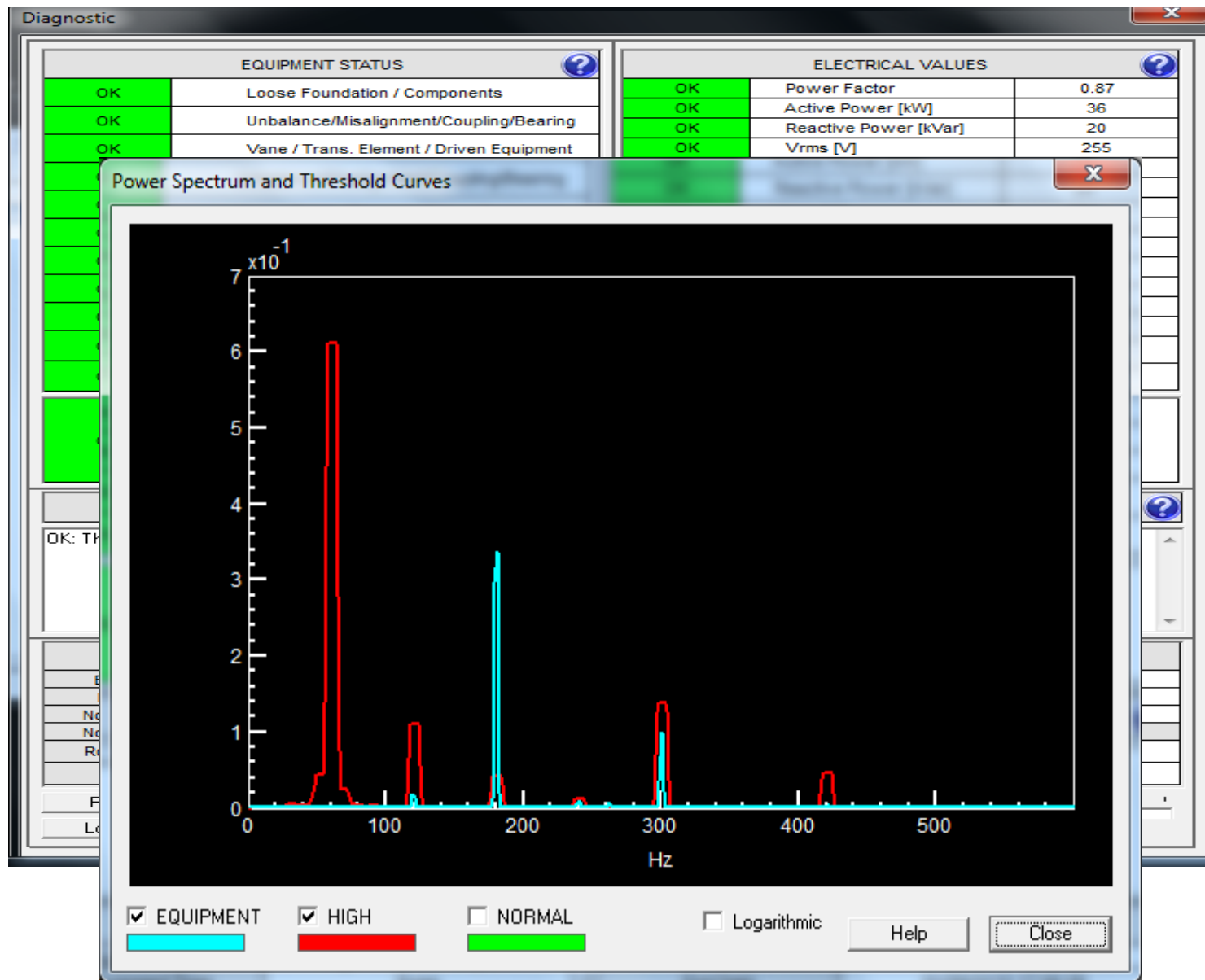
Plot Report Clear Selection PSD

Load Advanced Help Close

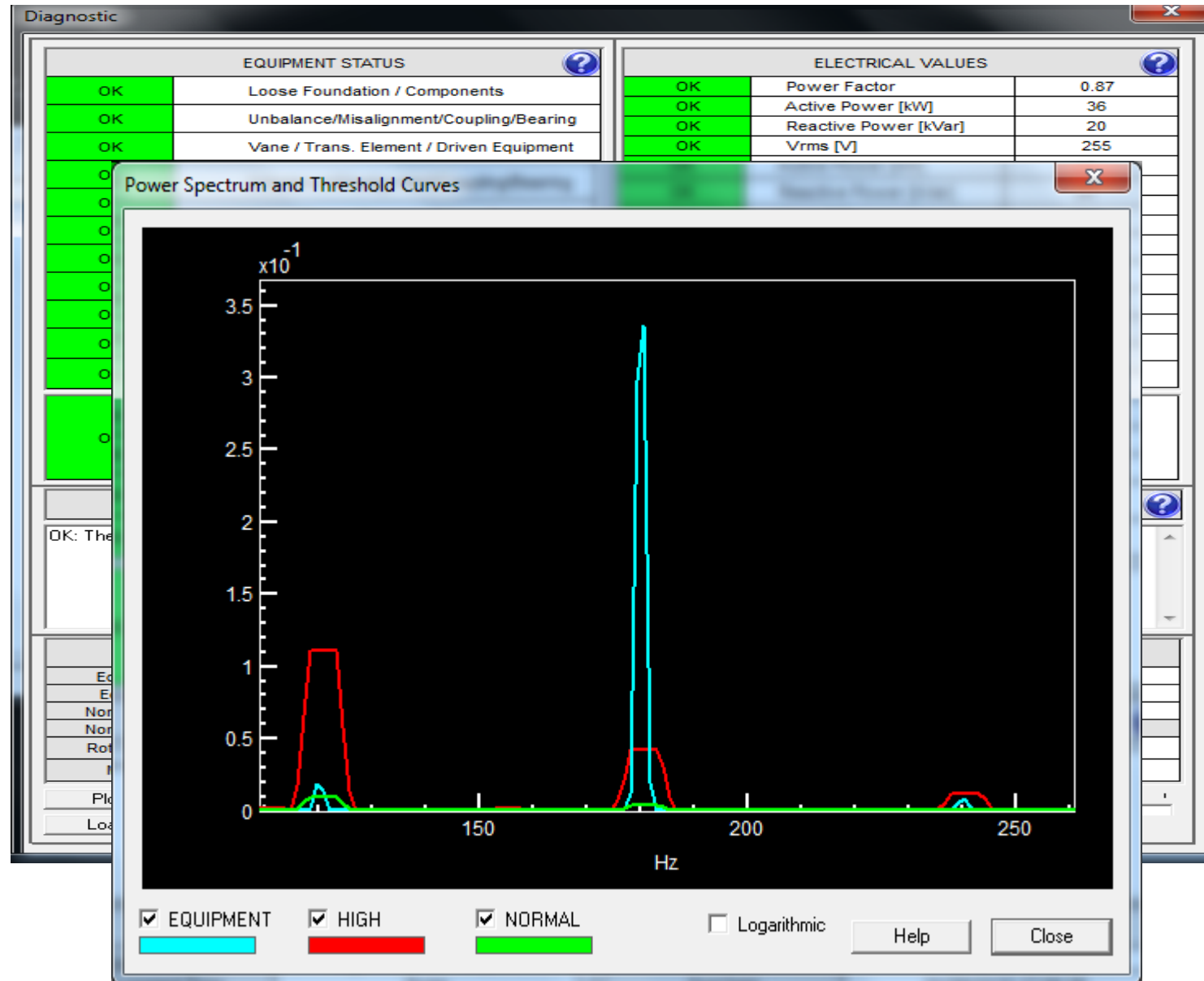
Step 1 Goto 14



...More Details...



Line freq 2nd order a little high...



...but not a problem.



This motor has been doing nearly continuous duty for many years and is just beginning to show very slight winding degradation.

The levels are fine and there's no reason to take any further action.

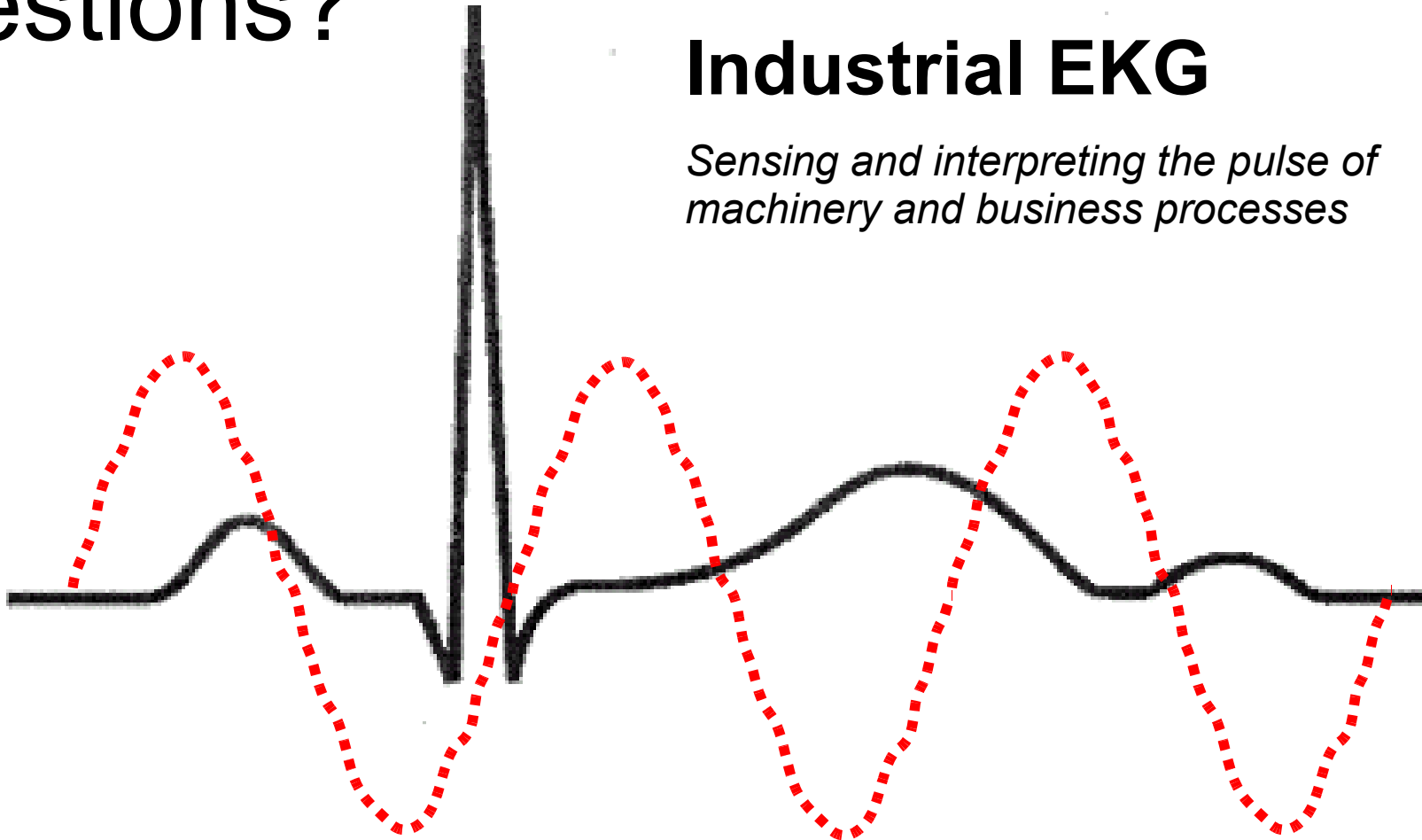
After monitoring this motor for a few days, a more detailed assessment would be available. But this quick check indicates all is OK.

Questions?



Industrial EKG

Sensing and interpreting the pulse of machinery and business processes



info@industrialekg.com

