



ECMS-1

EMPATH™



MotorDoc LLC
Doing what everyone else just talks about

EMPATH Continuous Monitoring System—Single Machine



Continuous monitoring of power quality, machine condition and efficiency, and driven equipment.

Detects stator defects including winding stresses, missing wedges, rotor defects such as broken rotor bars, static and dynamic eccentricity which identify driven equipment and alignment faults, bearing defects, coupling faults, fans/pumps/gearbox/belt issues.

Detects issues in AC/DC motors, AC/DC generators, machine tool and robot motors and steppers, VFD, transformers, hybrid vehicles, wind generation and powertrain, DC drives, and more.

Sends warnings and alarms via email, SMS, or other conditions and can be linked to SCADA, PI and similar systems for inclusion in complete solutions.

Single motor or transformer monitoring all three phases Voltage and Current

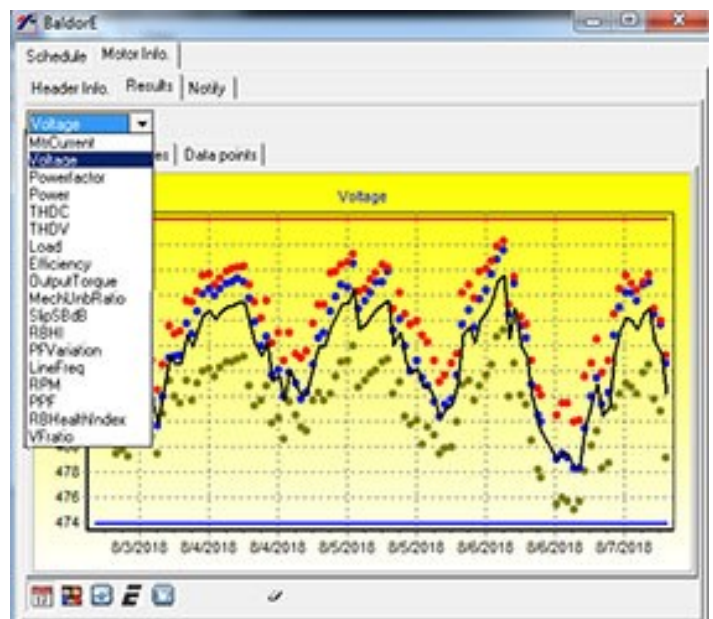
Mix or match with ECMS for up to 100 hardware systems per software instance

Inputs provided by ePlugs with up to 600 Vac and 1000 Amps direct or higher with data from site CTs and PTs

Data I/O over Ethernet (Cat 5e)

Power supply 110/220 V, 50-60 Hz

Each system comes complete including ECMS-1, software and ePlug kit.





Detect issues in variable frequency drive systems from loose connections to winding stresses related to VFD defects.

Detect on and off-shore wind turbine control, generator, gearbox, main bearing and blade defects automatically.

Detect DC motor, drive and driven equipment defects remotely.

Detect AC/DC elevator control, motor and geared/gearless components prior to component failure.

See the entire system in one sensor—the motor or transformer.

EMPATH and ECMS software are inter-changeable for single use of data collection, ECMS and ECMS-1 common databases

Software is Windows 7 or greater server or computer compatible

Outputs are in text format for easy mapping to monitoring systems

Data and databases are reverse-compatible

Server-Client one-way TCP/IP for security—utilizes server security

Compatible with wireless VPN routers for WiFi and cellular systems

Built-in motor and bearing database within the software



Header: MTR_000(LC)

Calc Info | Bearing Info | Test Info | Plant Info | Comment

Tested Equipment: Induction

Number of phases: 3

Acquired C phases: 3

Acquired V phases: 3

Analyze: C+V

Driven Equipment: Pulley-belt

Number of gears: 4

Pulley-Belt [inch]: Pulley-1: 11.300, Belt Len: 134.290, Pulley-2: 23.800

Motor Enclosure: TEFC

Motor Eff Level: Energy Eff

Override Line Freq: 60 Hz

Power	150.00	HP
Continuous RPM	1785.0	Rpm
Voltage	460.0	Volt
Full Ld Curr.	170.00	Amp
No Ld Curr.	3.00	Amp
Torque	441.2	FLLb
Rotor bars	58	
Stator slots	72	
Poles	4	
CT Ratio	1.000	
PT Ratio	1.000	
Efficiency	-1.000	
Power Factor	-1.000	
Service Factor	115	

Motor dBase |

INDUCTION MOTOR [LF: 60 HZ]

Results	Time	Freq	Phasors	Extras			
			Pho-1	Pho-2	Pho-3	Total	Units
Power factor	0.849	0.863	0.852	0.854			
Real Pwr	96.8	96.8	95.6	108.1		108.1	KW
Reactive Pwr	23.0	21.5	21.9	66.4		66.4	KVAR
Apparent Pwr	43.4	42.6	41.8	127.8		127.8	KVA
Running Crt	158.3	156.5	153.5	156.1			Amp
Line Voltage	473.0	471.3	473.3	472.5			Volt

Horse Power

Motor output

Motor load: 92.0 %

Motor efficiency: 94.3 %

Motor output torque: 393.93 FLLb

Motor output power: 100.03 KW

*Note: Motor load value is based on power

Induction Motor [LF: 60 HZ]

Results	Time	Freq	Phasors	Extras
Power factor			OK	
Current			OK	
Voltage			OK	
Load			OK [Ld:92.0%]	
Vr-GND ref NOT neutral			OK	
Rotor			OK [C:2]	
Air gap			OK	
Harmonic distortion			OK	
Misalignment/Unbalance			OK	
Bearing/Unidentified			OK	
Belt slip			OK (max: 111.988 %)	
Inter-turn short			OK	
Bottom line			OK	

*Note: Noise floor is -79 db

**Note: Sub-synch. peaks detected in demod data



Contact: info@motordoc.com for more information

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