

# Motor Data The Software Sensor

Today, electric motors are the most numerous receivers in the commercial and industrial installations, just behind lighting systems. Their function of converting electrical energy into mechanical energy makes them particularly important economically, so no installation or machine designer, installer or operator can ignore them.

Chauvin Arnoux<sup>®</sup> has developed and integrated into its power and energy loggers an analytical and diagnostic environment for monitoring electric drives.

Based on a physical and statistical model, a software sensor capable of providing all the motor's electrical parameters was developed.

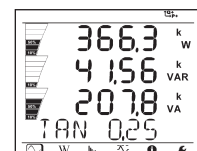
With the PEL family of loggers, in addition to power and energy measurements based on voltage and current measurements, you can obtain comprehensive instantaneous data such as the motor's rotation speed, efficiency and torque.

**The software sensor** developed by Chauvin Arnoux<sup>®</sup> includes a database containing the profiles of several hundred motors.

By entering the information indicated on the motor's nameplate, the technician performing electrical measurements on the motor will obtain the specifications of the motor in real time, without setting up any specific sensors.



MODEL NO.	DIO036AFG	
VOLTS	230/460	AMP. 7.8/3.9
HP 3	ENCL. TEFC (IP65)	FRAME NO. J83TC
F/L RPM 1760	MAX. AMB. 40 °C	SERVICE FACTOR 1.15
INS. H	TIME RATING CONT. DRG. DE. 6300W	NO. O.D.E. 6300W
3-PHASE	KVA CODE K	DESIGN B
Hz 60	EFFICIENCY 89.5%	
Asynchronous MOTOR 3-PHASE INDUCTION	LOW VOLTS	HIGH VOLTS
	PI	P2
	THERMAL PROTECTION CONNECT TO INTERLOCK	



## ANDROID application

The software sensor can be accessed with a smartphone or tablet, using the PEL family of loggers

**Download for free**



## Nameplate

Of Motor

## Measurements

Electrical Power

## Calculation 1

- Mechanical Power
- Efficiency

## Calculation 2

- Speed
- Mechanical Torque



**The efficiency** of an electric motor corresponds to the speed measured directly at the end of the shaft, after the slippage. It can be determined by calculating the ratio of the useful energy divided by the energy absorbed.

**The motor torque** is a rotation moment (expressed in Nm) applied to a shaft and owes its name to the way in which the action is obtained by means of two equal, opposite forces. A high torque provides high power.

**The rotation speed** of the motor is equal to the synchronous speed minus the slippage. The synchronous speed is equal to the frequency divided by the number of pole pairs.

### Software Sensor Specifications

**Power** up to 750 kW  
**Speed** up to 3600 RPM  
**Torque** up to 10,000 N.m

Alarms only  
Until you turn this off

END NOW

QT 2.509 kvar Inductive	<b>Efficiency</b> 55.80 %
ST 2.556 kVA	<b>Torque</b> 1.69 N.m
	<b>Rotor speed</b> 1496 RPM

Cos φT 0.199	Ep+ (Wh source) 770 Wh
PFT 0.186 Quadrant 1	Ep- (Wh load) 0 Wh
	Es+ (VAh source) 1552 VAh
	Es- (VAh load) 0 VAh



Users can view the results on their ANDROID device. The application is multilingual.

*Our products are backed by over 130 years of experience in test and measurement equipment, and encompass the latest international standards for quality and safety.*

# THE SMART CHOICE

FOR ELECTRICAL TEST & MEASUREMENT INSTRUMENTS

To learn more, contact us or visit our website: [www.aemc.com](http://www.aemc.com)

**Call the AEMC Instruments Technical; Assistance Hotline for immediate consultation with an applications engineer: (800) 343-1391**

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