INGESYS® CMS determines the machine condition, anticipating the appearance of functional anomalies by the analysis of vibrations, temperature, oil condition, etc.

**Main Features:**
- Modular design (up to 8 modules) to support application customization
- Wide range of input modules for data collection (IEPE accelerometers, Velocity and position probes, 0-10V, 4-20mA signals, Temperature sensors)
- Data collection through communication interfaces (MODBUS TCP, CAN, RS232, RS485)
- Parameter triggered data collection on user defined machine operation states
- Advanced diagnosis and analysis utilities
- Central monitoring of plant machines
- Automatic or manual customizable report generation
- Embedded Server for web visualization
- Email or text message alerts for plant personnel

**INGESYS® CMS Tool Suite**, powerful diagnosis & analysis software utilities, for an easy and accurate detection of upcoming failures

**Benefits:**
- Early detection of upcoming damages
- Maintenance program optimization
- Downtimes reduction
- Spare parts saving
- Plant lifetime extension
## Main Characteristics

### Signal processing
- **RMS, Vpp, Vp, Minimum, Mean, Crest Factor, Kurtosis, Angle Delta**
- **Time Waveform, FFT, Envelope, Envelope FFT, Order analysis**
- Accelaration, Velocity, Displacement
  - g, m/s², mm/s², m/s, mm/s, mm, um, V, mA, kNm, u
  - 375Hz to 48kHz [7 steps]
  - 125Hz to 20kHz [7 steps]
  - 0.1 - 2000Hz [7 options]
  - 100, 200, 400, 800, 1600, 3200
  - 128, 256, 512, 1024, 2048, 4096, 8192, 16384
  - Hamming, Hanning, Rectangular
- Maximum Value, Middle Value, No Avg.
  - Linear, Exponential, No Avg. [Signal number:1 to 64]
  - 0, 25, 50, 67, 75 %
  - From 750Hz to 11,000Hz [7 options]
  - From 375Hz to 12,000Hz [6 options]
  - Order-based signal [Rotational speed value required]

### Diagnosis
- Machine operation state
- Register triggering
- Definition
- Levels
- Threshold value configuration
- Actions
- Defined using data sources [Analysis in similar operation conditions]
- User defined
- Per parameter and state [Watching within a value range and state]
- Error, Preamble, Alarm
- Absolute, Relative, Statistic Value [Threshold value definition wizard]
- User configurable per notification level [Create register file, log generation, activate DO]

### Data storage
- Storage capacity & duration
- Recording retrieval to DB
- External Compact Flash (64MB to 2GB) [At least up to 3 months (1 record/day with 40 signals, 40 characteristic values)]
- Automatic [Upon link reestablishment]

### Analog inputs
- Accelerometer channels
- Up to 64 (IEPE/ICP sensors (8 sensors per module))
- In groups of 8 sensors
- Sensor drive current
- 4mA @ 24V
- A to D conversion
- 24 bit
- Self-diagnosis
- sensor signal level diagnosis
- Configurable gain
- 0, 3, 6, 9, 12, 20, 23, 26, 29, 32 dB
- Sensitivity
- 10Vpp
- Dynamic range
- 106.5dB
- Usefull band
- 0.5Hz a 21Khz
- General analog inputs channel
- Up to 128 (Voltage (0-10V, +10V, etc.), Current (4-20mA))
- Resolution
- 16 bits
- Value refreshing period
- < 1ms
- Connection type
- Differential
- Temperature channels
- Up to 128 [Different options (PT100, NTC, etc.)]
**Communication**

- **Serial data input Protocols**: RS232, RS485, MODBUS RTU
- **Network communication Protocols**: Ethernet v2.0, TCP/IP, 10/100BaseT, RJ45, MODBUS TCP

**Counter inputs**

- **Number of channels**: Up to 8
- **Resolution**: 32 bits
- **Input signal type**: High side drive to 24V or HTL

**Digital input/outputs**

- **Number of channels**: Up to 64 (Configurable as input or output)
- **Signal type**: High side drive to 24V or HTL
- **Output maximum current**: 250mA

**Status indications**

- **System status**: 3 x LED (Status: PWR, ON, OK)
- **I/O status**: 2 x LED (ON: Module status, OK: Signal status)

**Power supply**

- **Voltage**: 24Vdc, 88-300Vdc / 85-250Vac

**Mechanical & Environmental**

- **Mounting**: Panel Mount
- **Size**: Min. 156x176.7x150.5 / Max. 391.75x176.7x150.5 (Configuration dependent (W mm x H mm x D mm))
- **Operating temperature range**: 0ºC to +60ºC / -40ºC to +70ºC (Standard range/ Extended range)
- **Storage temperature range**: -40ºC to +85ºC
- **Operating & storage humidity**: 5% - 95%
- **EMC**: CE marking (Electromagnetic Compatibility)

**Analysis and Diagnosis Software**

- **Name**: INGESYS® CMS Tool Suite
- **Configuration Tool**: Object Oriented
- **Hierarchical structure**
- **Data Synchronization**: Automatic data synchronization
- **Standard file transfer protocol**
- **Visualization & Analysis**: Fleet status information screens
- **Postprocessing functions**
- **Specific cursors**
- **Different view modes**
- **Web visualization**
- **Reports**: Automatic report generator
- **Slim Data Manager**: Backup, Restore, Compression

**Contact Information**

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