

Technology Function ‘Transparent Machine’

Digital machine information without additional sensors



Continuous monitoring and evaluation of machine parameters gives the operator indications of deviations from the setpoint condition. A possibly imminent machine failure can thus be prevented in good time.

The Jenaer Antriebstechnik (JAT) servo amplifiers are ready for the digital factory and offer full system transparency.



Software function of JAT servo amplifiers

Less programming effort
Fieldbus traffic and control relief



Free additional benefit

Usable on listed devices through software update
Thus easy retrofitting for existing machines



Performance capturing

Stress evaluation
Use-dependent maintenance saves times and avoids standstills



Movability analysis

Example: Detection of sluggishly moving axes
Timely implementation of corrective measures



Energy figure capturing

Permanent access to energy output, energy loss,
instantaneous power, etc.

Supported servo amplifiers:

ECOVARIO® 114(D)
ECOVARIO® 214
ECOVARIO® 414
ECOVARIO® 616(D)
ECOMODUL

Supported compact servo drives:

ECompact® E100

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→ Monitoring: Performance

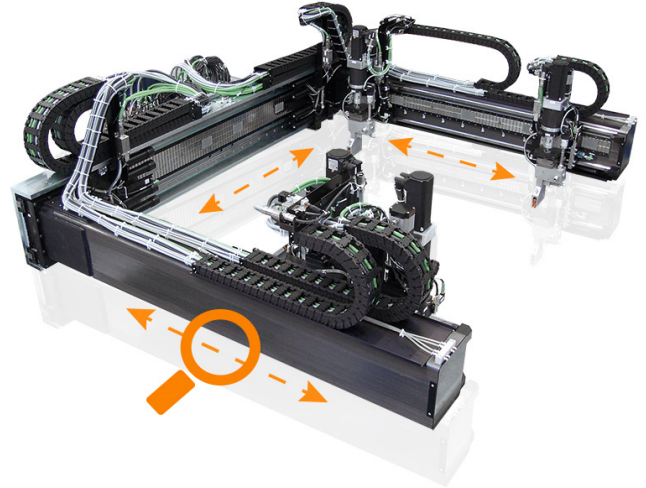
To assess the load on the machine or subsystem, the mileage is recorded in order to deduce the required maintenance intervals.

The aim is not a maintenance across board, but a usage-dependent maintenance and thus the avoidance of unnecessary downtime.

The user can draw conclusions on the use of the following data:

- Travel time (depending on direction)
- Track (depending on direction)
- Number of direction changes
- Number of brake locks from the movement

For each of these properties, a total and a section counter is available. The section counter is similar in function to the trip odometer in the car. All counters can be reset independently of each other. For the section counters, limit values can be specified, above which a warning is given.

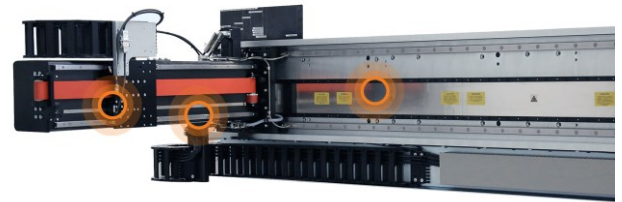


→ Monitoring: Movability

The detection of mechanical changes on the machine or the subsystem over time by analysis of stiffness is the basis for maintenance-specific specifications of the machine manufacturer.

To assess the running properties of the machine, the average current is detected, which is delivered to the machine in a predetermined position range. The user has the option to store a reference value for the corresponding position area and to record comparison values at later times. If the value detected during a comparison run exceeds or falls below the reference value beyond certain tolerance thresholds, then the associated warning is issued. Position range and tolerance thresholds for both exceeding and falling below the reference value are freely selectable by the user.

In total, four such position ranges are available. For each position range, one reference value and five comparison values can be recorded.



→ Monitoring: Energy figures

To assess the energy figures of the machine, the following data is provided:

- Power at the motor shaft
- Power loss of motor and servo amplifier
- Total energy output of the motor
- Energy loss at the ballast resistor

All values are available as instantaneous values and cumulative values. The accumulated values and the counter data are stored cyclically.

