

SINAMICS G150 Cabinet Units

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SINAMICS G150 Cabinet Units

The universal converter for high power ratings

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> General description

SINAMICS G150 cabinet units have been designed for variable-speed drives in machine building and plant construction. They have been specially tuned to the requirements of drives with quadratic or constant load characteristics with medium performance requirements without regenerative feedback. The control accuracy of the sensorless vector control is suitable for most applications, and additional actual speed value encoders are therefore superfluous. SINAMICS G150 offer an economical drive solution which can be matched to the respective customer requirements by a wide range of components and options.



> Technical data overview

Brief overview

Electrical data

| | |
|--------------------------|-----------------------|
| Supply voltages: | Output ranges: |
| 3AC 380 to 480 V | 110 to 900 kW |
| 3AC 500 to 600 V | 110 to 1000 kW |
| 3AC 660 to 690 V | 75 to 2700 kW |
| Supply systems: | TN/TT or IT |
| Line frequency: | 47 to 63 Hz |
| Output frequency: | 0 to 300 Hz |

| | |
|----------------------------------|---|
| Control method: | Vector control with encoder or V/f control |
| Fixed frequencies: | 15 fixed frequencies plus 1 basic frequency, programmable |
| Skipped frequency bands: | 4, programmable |
| Customer terminal block: | Digital inputs/outputs Analog inputs/outputs Inputs for motor temperature evaluation Variable number |
| Communications interface: | PROFIBUS DP as standard |
| Braking mode: | Braking Module optional |
| Degree of protection: | IP20, optionally IP21, IP23, IP54 |
| Type of cooling: | Internal fan (forced air cooling) |
| Noise level : | ≤ 72 dB (A) with 50 Hz line frequency |
| Cabinet system: | Rittal TS 8 |
| Conformity: | CE |
| Software functions: | - Automatic restart following interruptions in operation as a result of a power failure - Smooth connection of converter to rotating motor - Kinetic buffering Automatic motor identification for control optimization - Programmable ramp-up/down times - Ramp smoothing |
| Protection functions: | Thermal monitoring of motor and power sections Undervoltage, overvoltage, earth fault, short-circuit, stall prevention |
| Safety functions: | STO, SS1 > (Integrated safety functions with drives) |
| Suitable motors: | Induction motors |

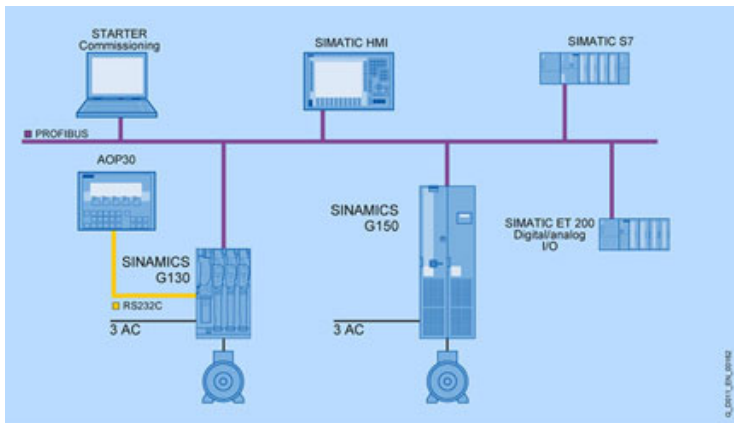
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Features

SINAMICS G150 are ready-to-connect AC/AC converters in a standard control cabinet. A comprehensive range of options permits adaptation to respective requirements. They are available with cabinet widths from 400 mm upwards in intervals of 200 mm, in various degrees of protection up to IP54, and with two design versions.

Version A offers sufficient space for all available options. Different designs permit the power supply and motor connections to be located at the top or bottom. This results in high flexibility for the plant installation.

Version C is an extremely space-saving version envisaged for applications where the power supply components are accommodated in a central low-voltage distribution and need not be provided again in the control cabinet. The user-friendly AOP30 operator panel is fitted as standard in the cabinet door for both versions.



Configuration example with SINAMICS G150 and SIMATIC S7

SINAMICS G150 Clean Power - the cost-effective solution for line-friendly operation

SINAMICS G150 Clean Power is the simple and cost-effective response to the increasing requirements placed on current and voltage quality. This solution, which is fully integrated in the control cabinet, combines the advantages of rugged 6-pulse rectifier technology with an innovative, passive Line Harmonics Filter (LHF compact). This concept sets itself apart as a result of its simplicity, compactness, high reliability and energy efficiency as well as its price-performance ratio. Regarding its harmonic values, SINAMICS G150 Clean Power is the ideal response to the trend towards increasingly higher line supply quality. It easily complies with standard IEEE519, with the most stringent international requirements placed on line harmonics generated by frequency converters - and this even for weak line supplies.

dv/dt filter compact plus VPL - space and cost saving for motor-friendly voltages

SINAMICS G150 units are available with a dv/dt filter compact plus VPL (Voltage Peak Limiter). This limits both the voltage rate-of-rise dv/dt as well as also the peak voltages to the stringent limit values specified in Standard IEC 60034-25. This reduces the stress on the motor insulation and extends the motor service life.

Especially interesting when it comes to retrofit projects: Using this filter, motors that were originally not designed for converter operation can be fed from a frequency converter.

The dv/dt filter compact plus VPL saves so much space that it can be completely integrated into the electrical cabinet - even for large power ratings. Further, it is extremely energy-efficient: The "cut-off" voltage peaks are not wasted as thermal energy in resistors, but are fed back into the voltage DC link.

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Customer benefits

Particularly quiet and compact converters using state-of-the-art IGBT power semiconductors and innovative cooling solution.

Maximum servicing friendliness with easy accessibility to all modules.

Problem-free interfacing into automation solutions using a standard PROFIBUS interface and various analog and digital interfaces.

Increase in plant availability through easy, fast replacement of individual modules and power components.

Simple start-up and parameterization using interactive menus on the user-friendly AOP30 operator panel with LCD incorporating graphics capability and plain text display.

Energy Saving: If the motor is not required it can be completely shut down using this function. This is done automatically if the system deviation of the technology controller lies below a defined limit value for a time that can be parameterized.

Enhanced Energy Saving: This function can be used to extend the time for which the drive converter is powered down as a result of the Energy Saving function - in order to save more energy and to avoid unnecessarily starting and stopping the pumps. And an additional spin-off - the pipes are also purged.

MaintenanceCleaning: A constant flow rate means that suspended particles in the liquids being pumped can be deposited over time. This can reduce the effective pipe diameter or even block the pumps. The MaintenanceCleaning function is used to briefly increase the pump speed to counteract this sediment build-up.

Wall Deposits Prevention: If tank levels are kept constant over a longer period of time in wastewater treatment systems deposits occur at the edge of the tank. To avoid these deposits, the WallDeposits-Prevention function always varies the set point for the technology controller so that the tank level is permanently raised and lowered.

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Typical applications

It is advantageous to use variable-speed drives wherever bulk, liquid or gaseous materials have to be moved, transported, pumped or compressed. Such applications basically include:

Pumps, fans, compressors

Moving: Belt conveyors, ship's drives

Processing: Mills, mixers, kneaders, crushers, agitators, rotary furnaces, extruders

> Branch Chemical Industry

> Branch Oil & Gas

> Branch Water / Waste water

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