SIEMENS

SINAMICS S150

The Drive Solution for Sophisticated High-Rating Single Motor Drives

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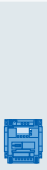
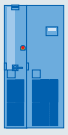
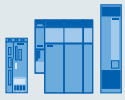
Answers for industry.

SINAMICS – the optimum drive for each and every application

The drive family for drive solutions that are fit for the future

Low voltage								DC voltage	Medium voltage
Basic Performance	General Performance				For basic servo applications	High Performance		For DC voltage applications	For applications with high power ratings
									
V20	G120C/G120P/ G120	G110D/G120D	G130/G150	G180	S110	S120	S150	DCM	GL150/GM150/ SM150/SL150
0.12 – 15 kW	0.37 – 250 kW	0.75 – 7.5 kW	75 – 2.700 kW	2.2 – 6.600 kW	0.12 – 90 kW	0.12 – 4.500 kW	75 – 1.200 kW	6 kW – 30 MW	0.8 – 85 MW
Pumps, fans, compressors, conveyor belts, mixers, crushers, textile machines	Pumps, fans, compressors, conveyor systems, mixers, crushers, extruders, single-axis positioning applications (G120)	Conveyor systems, single-axis positioning applications (G120D)	Pumps, fans, conveyor belts, compressors, mixers, crushers, extruders	Industry specific e.g. pumps, fans, compressors, extruders, mixers, crushers, kneaders, centri-fuges, separators	Single-axis positioning applications in machinery and plant building	Packaging, textile and printing machines, machine tools, plants, process lines and rolling mills	Test stands, cross cutters, centrifuges	Rolling mill drives, wire drawing machines, extruders, kneaders, cable railways and lifts, test stand drives	Pumps, fans, crushers, rolling mill lines, mine hoist drives, excavators, test stands, ship's drives, conveyor belts, blast furnace blowers
Common Engineering Tools									
DT Configurator – selection and configuration | SIZER – for simple planning and engineering | STARTER und Startdrive – for fast commisioning, optimizing and diagnostics*									

*Exception: V20 – does not require a selection and configuration tool; G180 is commissioned using the IMS software (Inverter Management Software)

The SINAMICS family offers the optimum drive for each and every drive application – and all of the drives can be engineered, parameterized, commissioned and operated in a standard fashion.

SINAMICS – fit for every application

- Wide range of power ratings from 0.12 kW to 120 MW
- Available in low-voltage and medium-voltage versions
- Standard functionality using a common hardware and software platform
- All of the drives can be engineered using just two tools:
  SIZER – for engineering
  STARTER – for parameterizing and commissioning
- High degree of flexibility and combinability

The new drive quality

SINAMICS S150 drive converter

High precision and dynamic response

SINAMICS S150 cabinet units are especially suited for variable-speed, single-axis drives with high demands placed on the performance, i.e. drives with

- High requirements regarding the dynamic performance
- Frequent braking cycles with high-braking energies
- Four-quadrant operation
- SINAMICS S150 offers high-performance closed-loop speed control with
- high precision and dynamic response.

Reliable solution for many applications

Variable-speed drives for high-performance process operations are especially applicable for machinery and plant construction in the process and production industries: Food and beverage, automobile and steel industries, underground/open-cast mining, marine engineering and cranes/conveyor technology profit

Competitive advantages for plant and machine builders

The self-commutated, pulsed infeed/regenerative feedback units employing IGBT technology in conjunction with a Clean Power filter guarantee an extraordinary line-friendly behavior, which sets itself apart as a result the following properties:

- Negligible line harmonics as a result of the innovative Clean Power filter (<< 1 %)
- The stringent limit values laid down in IEEE 519-1992 are maintained without any exceptions
- Energy recovery (four-quadrant operation)
- Tolerant with respect to line voltage fluctuations
- Operation on weak line supplies
- Reactive power compensation is possible (inductive or capacitive)
- High drive dynamic performance

Simple drive handling – from engineering through to operation as a result of the

- Compact and modular design with optimum service friendliness
- Straightforward engineering
- Simple installation, as the units are ready to be connected
- Fast, menu-prompted commissioning without complex parameterization

Significantly reduced: Space requirement and noise level

The SINAMICS S150 drive converter in a standard cabinet is especially quiet and compact because of its state-of-the-art IGBT power semiconductors together with an innovative cooling concept.

SINAMICS S150

- Vector control for the highest precision
- Active Infeed minimizes harmonics fed back into the line supply
- Simple to engineer, simple to handle
- Quiet
- Compact
- Can be easily integrated into higher-level automation solutions

SINAMICS S150 – precision drive with energy-saving and line-friendly technology

To efficiently use energy

For applications where the associated drives operate regeneratively as a result of frequent braking cycles and with high energy levels when braking, then it makes a lot of economic sense to regenerate this energy into the line supply. This is significantly more cost-effective than to convert the energy into heat, for example, using a braking chopper. SINAMICS S150 offers the best prerequisites because not only is it capable of regenerative feedback without any restrictions, but it does this with the highest precision and dynamic response.

Consequentially line-friendly

By impressing almost sinusoidal line currents, the harmonic losses known from conventional drive converters in the line transformer, low-voltage distribution and line feeder cables are avoided. Further, SINAMICS S150 does not cause any basic fundamental reactive power. This is because the line power supply factor cos φ is 1 independent of the load. However, SINAMICS S150 has an especially interesting positive feature as it can feed inductive or capacitive reactive current into the line supply over wide limits. This allows loads causing reactive power that are operating in parallel to be compensated, thus reducing expensive reactive power drawn from the public utility company.

As standard, SINAMICS S150 is supplied with an integrated EMC filter for the second environment (C3) according to EN 61800-3. This means that the drive converter doesn't result in any inadmissible noise even in the high-frequency range.

Precision and force for every production

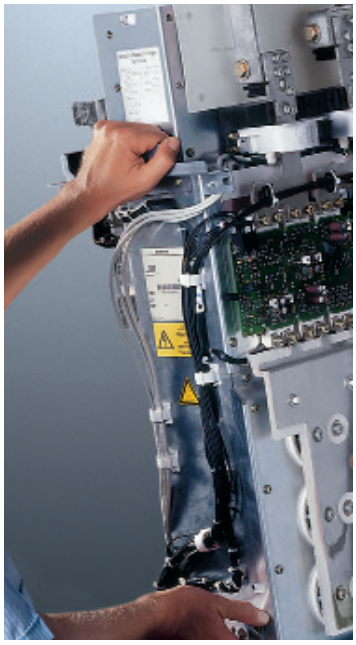
The optimized inverter functionality of the SINAMICS S150 allows high-precision closed-loop speed and torque control with and without an encoder. Further, the DC link voltage of the SINAMICS S150 is controlled to maintain it at a constant level.
This decouples the motor from the effects of the line supply voltage.
This means that the highest machine precision is guaranteed, even when the drive system is connected to weak line supplies. This makes this drive the ideal solution, for example, for test stands, centrifuges, elevators, crosscutters, shears, conveyor belts, presses and cable winches.

Completely seamless: Totally Integrated Automation

High precision and fast processes profit because the intelligence has been shifted into the drive – even for large drives! This is because as the degree of automation increases, then it is essential that the drive system is integrated into the higher-level automation environment. It goes without saying that SINAMICS S150 is part of Totally Integrated Automation (TIA), the unique, common automation platform from Siemens. Totally Integrated Automation sets standards regarding integrated engineering, data management and communications.

The new level of simplicity

Planning, commissioning and operator control the easy way



SIZER –
minimizes engineering costs

The SIZER for Siemens Drives engineering software decisively simplifies the engineering of low-voltage drive systems: Starting from your application, the tool supports you step-by-step when defining the mechanical system as well as when selecting and dimensioning converters, motors and gear units. The tool also allows additional system components to be configured along with the open-loop/closed-loop control.

STARTER –
speeds up commissioning

The STARTER commissioning tool supports you when parameterizing, commissioning, troubleshooting and when service is required. A real highlight: Using STARTER, you can import all of the relevant data from the electronic type plates of the drive components. This speeds up parameterization, helps avoid possible incorrect entries and therefore significantly reduces your costs. You can check your parameterization and automatically optimize it using the integrated test functions. Setpoints and actual values can be traced and displayed in the and frequency domains. Further, STARTER offers a graphic configuring interface. This provides a good overview, simple handling and allows safety acceptance reports to be automatically generated.

Digital DRIVE CLiQ interface:
Simply connect up!

Seamless communications between the various components is a prerequisite for a modular drive system. The standard digital interface is known as DRIVE CLiQ and connects, as serial interface, the components in the cabinet and the motors.

SINAMICS S150: Extensive range of options (excerpt)

- Main breaker including fuses or circuit-breaker
- Motor temperature evaluation functions for PTC thermistors and PT 100
- EMERGENCY STOP, Category 0 or 1
- Extended customer terminal strip
- Power supply for external auxiliaries (e.g. a separately driven fan for the motor)
- Various mechanical options such as increased degree of protection up to IP54
- Line supply and motor connection from the top
- Options for the output, such as motor reactor, sinusoidal filter or dv/dt filter

Can be intuitively handled – thanks to the menu prompting

The user-friendly operator panel of the SINAMICS S150 drive converter provides a menu-prompted interface with plain text display. This reduces the number of operator errors and allows the drive to also be commissioned without the manual. Using the graphics-capable displays, analog setpoints and actual values can be displayed as bar diagram – allowing important drive operating quantities to be sensed at a glance.

Modular and compact

The SINAMICS S150 drive cabinet was consequentially designed with function blocks and modules to ensure good accessibility so that parts and components can be quickly replaced. This means the highest degree of service friendliness but at the same time an extremely small footprint.

SINAMICS S150		
Rated power[1]	Rated output current	Dimensions[2]
P [kW]	I_N [A]	W x D x H [mm]
Voltage 380–480 V		
110	210	1,400 x 600 x 2,000
132	260	1,400 x 600 x 2,000
160	310	1,600 x 600 x 2,000
200	380	1,800 x 600 x 2,000
250	490	1,800 x 600 x 2,000
315	605	2,200 x 600 x 2,000
400	745	2,200 x 600 x 2,000
450	840	2,200 x 600 x 2,000
560	985	2,800 x 600 x 2,000
710	1,260	2,800 x 600 x 2,000
800	1,405	2,800 x 600 x 2,000
Voltage 500–690 V		
75	85	1,400 x 600 x 2,000
90	100	1,400 x 600 x 2,000
110	120	1,400 x 600 x 2,000
132	150	1,400 x 600 x 2,000
160	175	1,600 x 600 x 2,000
200	215	1,600 x 600 x 2,000
250	260	1,600 x 600 x 2,000
315	330	1,600 x 600 x 2,000
400	410	2,200 x 600 x 2,000
450	465	2,200 x 600 x 2,000
560	575	2,200 x 600 x 2,000
710	735	2,800 x 600 x 2,000
800	810	2,800 x 600 x 2,000
900	910	2,800 x 600 x 2,000
100	1,025	2,800 x 600 x 2,000
1,200	1,270	2,800 x 600 x 2,000

1) Rated power of a typical 6-pole standard induction motor based on IL for 3-ph. 500 or 690 V AC, 50 Hz.
2) The cabinet height is increased by 250 mm for degree of protection IP21, by 400 mm for degree of protection IP23, IP43, IP54 and by 405 mm for the options for line or motor connection from the top.

There’s more to it

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Discover in detail how SINAMICS drives boost your competitive edge and improve your time to profit.

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