

SIEMENS



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Matched drive-motor combination package

Integrated Drive Systems — SINAMICS V20 and SIMOTICS GP100A

Answers for industry.

Why choose Siemens for your integrated drive system?

Integrated Drive Systems transform standard motors and drives into a strong competitive advantage by improving efficiency, reliability and productivity while minimizing your total operating cost.

The secret to this advantage is the integration, which optimizes how the motor and drive work together. This enables the motor and drive to be perfectly matched and deliver an optimal level of performance.

We realize every application is unique — with its own challenges and requirements. This is why Siemens partners with manufacturers from a system's initial design through installation and maintenance. Working together with Siemens Totally Integrated Automation (TIA), the time to engineer an Integrated Drive System may be reduced by up to 30 percent — saving both money and valuable implementation time.

Here are 10 reasons to buy

- 1 Faster project execution — Siemens provides you with a complete, integrated drive-motor package solution from a single-source.
- 2 Two-year warranty, which is standard with the purchase of a matched drive-motor package.
- 3 Easy system selection — simply select the desired drive-motor combination part number from the price list on page 6.
- 4 Less paperwork and easier handling — the drive and motors are packaged and shipped together on a common pallet — and then invoiced together.
- 5 Optimal integration for drive and motor combinations that are power-matched for 480V high-overload operation through 20 hp.
- 6 The basic operator panel is standard for easy setup using SINAMICS V20 Startguide.
- 7 Pre-defined macros are provided via the SINAMICS V20 AC drive for easy setup when connected to pump, fan, compressor and conveyor applications.
- 8 High reliability from rugged cast-aluminum SIMOTICS GP100A motors with inverter-duty ratings (4:1 speed range for constant torque, 20:1 speed range for variable torque).
- 9 Communication selections include RS485 with USS and MODBUS protocols.
- 10 Peace-of-mind — thanks to a global support hotline and a comprehensive service network of factory-trained repair specialists for the drive-motor package.

SINAMICS V20 features and benefits

The SINAMICS V20 is a simple, versatile and cost-effective drive system for basic applications such as pumps, fans, compressors, conveyors and material handling in the power range from 1/6–20 hp. It sets itself apart with its quick commissioning, ease-of-operation and robustness. The V20's unique features and benefits, when paired with our SIMOTICS GP100A motor, makes this drive-motor solution ideal for stand-alone applications.

Easy-to-install

- Side-by-side mounting and flexible device installation for both push-through and wall mounting allow for smaller cabinets to be used
- Connection ports for USS and Modbus RTU at terminals for easy integration into automation systems
- Integrated braking chopper for 10–20 hp applications increases braking performance
- Out-of-the-box operation and basic commissioning through the operator panel



Easy-to-use

- Use of the parameter loader can install up to 100 parameters with the microSD card through the operator panel
- Parameter cloning can be done without the power supply and easily transferred to other drives
- Built-in application and connection macros to simplify I/O configuration
- Keep Running Mode provides stable and uninterrupted operation in case of unstable line supplies
- Wider voltage range, advanced cooling design and coated PCB increase robustness in tough environments
- Optimum interaction with SIMATIC controllers and SIMOTICS motors



Easy-to-save money

- ECO mode ensures that motor current is automatically adapted to load state
- Hibernation mode — the drive and motor only operate when the system needs it
- DC coupling allows the braking energy to be recovered (DC coupling allows pairs of identical drives to optimally share resources)
- Energy-savings can be shown in kWh, CO² or even the local currency



SIMOTICS GP100A features and benefits

The line of SIMOTICS GP100A aluminum frame motors is not an evolution in motor design, but a total revolution. This distinctive line of SIMOTICS NEMA-frame motors is based upon 14 decades of Siemens motor design leadership, manufacturing expertise and application knowledge — combined with innovative and elegant new technologies to provide maximum value.

The GP100A precision die-cast aluminum frame with removable feet represents a major step forward in motor design innovation. SIMOTICS GP100A forms a complete system to reduce your total-cost-of-operation. These aluminum frame motors are a line of motors that offers the ultimate in rugged construction, cool operation, high-performance and application flexibility with power range from 1–20 hp.

Advanced design

- Epoxy enamel-coated cast aluminum frame provides optimum heat dissipation
- Cooling fan and fan cover for optimal air flow
- Non-hygroscopic Class-F insulation system with NEMA Class-B temperature rise
- Windings are Corona Inception Voltage (CIV) certified to mitigate voltage spikes
- Condensation drain holes on the motor frame and the end of the motor
- Oversized polyurea-based lubrication for life bearings



Customer benefits

- High structural strength-to-weight ratio
- Superior operating performance and energy efficiency thanks to reduced heat generation
- Application flexibility
- Long service life

Installation and maintenance

- Removable feet allow for F1, F2 and F3 mounting
- C-flange or D-flange construction
- Permanently marked leads
- Oversized cast-iron conduit box that is diagonally split, neoprene gasketed and rotatable in 90° increments



Customer benefits

- Mounting flexibility that doesn't require motor disassembly
- Various assembly setups for couplings or gearboxes
- Easy connections provided to the application

SINAMICS V20 technical specifications

Power, control and communication	
Voltage	1AC 230V: 1AC 200V ... 240V (-10% ... + 10%) 3AC 400V: 3AC 380V ... 480V (-15% ... + 10%)
Maximum output voltage	1AC 230V: 240V 3AC 400V: 480V
Supply frequency	50 / 60 Hz
Line supply type	TN, TT, IT, TT earthed line
Power range	1AC 230V 0.12 ... 3.0 kW (1/6 ... 4 hp) 3AC 400V 0.37 ... 15.0 kW (1/2 ... 20 hp)
Overload	150% rated output current for 60 s, cycle time 600 s
Output frequency	0 ... 599 Hz resolution: 0.01 Hz
Efficiency factor	98%
Control modes	Voltage / frequency control mode: linear V/f, square law V/f, multi-point V/f Flux current control mode: FCC
Communication	USS / MODBUS RTU

Mounting and environment	
Degree of protection	IP20
Mounting	Wall mounting, side-by-side mounting, push-through mounting for FSB, C and D
Cooling	<ul style="list-style-type: none"> FSA up to 0.75 kW: convection cooling FSA, FSB, FSC, FSD: power electronics cooled using heat sinks with external fan
Ambient temperature	In operation <ul style="list-style-type: none"> 0 ... 60° C (32 ... 140° F) 40 ... 60° C (104 ... 140° F) with derating Storage <ul style="list-style-type: none"> -40 ... 70° C (-40 ... 158° F)
Relative humidity	95% (non-condensing)
Altitude	<ul style="list-style-type: none"> Up to 4,000 m above sea level 1,000 ... 4,000 m: output current derating 2,000 ... 4,000 m: supply voltage derating
Motor cable length	<ul style="list-style-type: none"> Unshielded cable: 50 m Shielded cable: 25 m; 10 m for FSA filtered version Longer motor cables possible with output reactor (see options)
Dynamic braking	Option module for FSA, FSB and FSC; integrated for FSD

Performance specifications — SIMOTICS GP100A motors	
Power range	1–20 hp
Mechanical size range	143T to 256T
Service factor	1.15 sine wave Class-B @1.05F Class-F @1.15SF
Insulation class	F
Voltage	3-phase; 60Hz, 460V
Efficiency standards	Meets or exceeds NEMA Premium® efficiency standards
Motor speed designs at rated 60Hz	3,600 rpm 2-pole / 1,800 rpm 4-pole
Electrical designs	NEMA design B
VFD rated (Alum. and CU rotor)	Variable torque VT 20:1 frames 143T–256T CT 4:1 frame 143T–256T

Price list

RS485 / USS / MODBUS — Standard foot-mounted

SIMOTICS GP100 A— 460V				SINAMICS V20		Drive and motor package	
HP	RPM	Frame	FLA	Frame size	Amps	Part number	List price
1	3600	143T	1.4	A	2.2	A6X30087689	\$970
1	1800	143T	1.4	A	2.2	A6X30087690	\$970
1.5	3600	143T	2.0	A	3.1	A6X30087731	\$1,013
1.5	1800	145T	2.1	A	3.1	A6X30087733	\$1,040
2	3600	145T	2.5	A	4.1	A6X30087734	\$1,118
2	1800	145T	2.8	A	4.1	A6X30087735	\$1,120
3	3600	182T	3.8	A	4.8	A6X30087739	\$1,246
3	1800	182T	4.0	A	4.8	A6X30087741	\$1,264
5	3600	184T	6.0	B	8.24	A6X30087771	\$1,551
5	1800	184T	6.5	B	8.24	A6X30087772	\$1,491
7.5	3600	213T	8.8	C	11	A6X30087773	\$1,918
7.5	1800	213T	9.7	C	11	A6X30087774	\$1,890
10	3600	215T	11.5	D	16.5	A6X30087775	\$2,309
10	1800	215T	12.5	D	16.5	A6X30087776	\$2,309
15	3600	254T	17.5	D	21	A6X30087777	\$2,924
15	1800	254T	19.0	D	21	A6X30087778	\$2,897
20	3600	256T	22.5	D	31	A6X30087779	\$3,539
20	1800	256T	25.0	D	31	A6X30087780	\$3,459

RS485 / USS / MODBUS — C-Flagged

SIMOTICS GP100 A— 460V				SINAMICS V20		Drive and motor package	
HP	RPM	Frame	FLA	Frame size	Amps	Part number	List price
1	3600	143TC	1.4	A	2.2	A6X30087781	\$1,064
1	1800	143TC	1.4	A	2.2	A6X30087782	\$1,064
1.5	3600	143TC	2	A	3.1	A6X30087783	\$1,105
1.5	1800	145TC	2.1	A	3.1	A6X30087784	\$1,133
2	3600	145TC	2.5	A	4.1	A6X30087785	\$1,213
2	1800	145TC	2.8	A	4.1	A6X30087786	\$1,214
3	3600	182TC	3.8	A	4.8	A6X30087787	\$1,379
3	1800	182TC	4	A	4.8	A6X30087788	\$1,397
5	3600	184TC	6	B	8.24	A6X30087789	\$1,693
5	1800	184TC	6.5	B	8.24	A6X30087790	\$1,630
7.5	3600	213TC	8.8	C	11	A6X30087801	\$2,064
7.5	1800	213TC	9.7	C	11	A6X30087802	\$2,036
10	3600	215TC	11.5	D	16.5	A6X30087803	\$2,456
10	1800	215TC	12.5	D	16.5	A6X30087804	\$2,456
15	3600	254TC	17.5	D	21	A6X30087805	\$3,123
15	1800	254TC	19	D	21	A6X30087806	\$3,090
20	3600	256TC	22.5	D	31	A6X30087807	\$3,748
20	1800	256TC	25	D	31	A6X30087808	\$3,666

Accessories

Part name	Part number
SINAMICS Operator Panel Door Mounting Kit (with 3M Connection Cable)	6SL3256-0VP00-OVA0
SINAMICS V20 BOP Interface	6SL3255-OVA00-2AA0
SINAMICS V20 Remote BOP	6SL3255-OVA00-4BA0
Parameter loader	6SL3255-OVE00-OUA0
SINAMICS Memory Card (SD)	6SL3054-4AG00-2AA0
Braking module, 1AC 230V: 8 A; 3AC 460V: 7 A	6SL3201-2AD20-8VA0