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Data sheet 6AG1210-1PE28-2AL0



SIPLUS G120 PM240-2 IP20-FSE-A-400V 45 kW based on 6SL3210-1PE28-8AL0 with conformal coating, -20…+50 °C, with integrated class A filter with integrated braking chopper 380-480 V 3 AC +10/-20% 47-63 Hz power high overload: 37 kW at 200% 3 s,150% 57 s,100% 240 s power low overload: 45 kW at 150% 3 s,110% 57 s,100% 240 s 551x 275x 237 (HxWxD), FSE design, degree of protection IP20 without CU and operating unit released as of CU FW version V4.7 HF8

General information	
Product type designation	PM240-2
Product version	FSE 45 kW
Design of the converter	FSE
based on	6SL3210-1PE28-8AL0
Protection function	
● Undervoltage protection	Yes
● Overvoltage protection	Yes
● Overload protection	Yes
● Ground-fault protection	Yes
● Short-circuit protection	Yes
● Stall protection	Yes
● With blocked rotor	Yes
● Temperature monitor for motor	Yes
● Temperature monitor for converter	Yes
● Parameter locking	Yes
Input voltage	
Type of input voltage	AC
Mains filter	
● present	Yes
● Design of line filter	Class A
Input current	
Input current with low overload	86 A
Input current with high overload	78 A
Output voltage	
Output voltage in relation to input voltage, min.	0 %
Output voltage in relation to input voltage, max.	95 %
Pulse frequency	4 kHz
Output current	
Output current, max.	150 A
Output current without overload	90 A
Output current with low overload	90 A
Output current with high overload	75 A
Power loss	
Power loss, max.	1.201 kW
Power loss of the CDM in standby mode	32 W
Power loss of the CDM at the operating point (0/25)	406 W
Power loss of the CDM at the operating point (0/50)	543 W
Power loss of the CDM at the operating point (0/100)	955 W

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Power loss of the CDM at the operating point (50/25)	431 W
Power loss of the CDM at the operating point (50/50)	599 W
Power loss of the CDM at the operating point (50/100)	1 098 W
Power loss of the CDM at the operating point (90/50)	674 W
Power loss of the CDM at the operating point (90/100)	1 323 W
Relative power loss of the CDM at the operating point (0/25)	0.65 %
Relative power loss of the CDM at the operating point (0/50)	0.87 %
Relative power loss of the CDM at the operating point (0/100)	1.53 %
Relative power loss of the CDM at the operating point (50/25)	0.69 %
Relative power loss of the CDM at the operating point (50/50)	0.96 %
Relative power loss of the CDM at the operating point (50/100)	1.76 %
Relative power loss of the CDM at the operating point (90/50)	1.08 %
Relative power loss of the CDM at the operating point (90/100)	2.12 %
Ratio of converter losses / reference converter losses at the operating point (90/100)	55.37
IE class of the CDM	IE2
Power electronics	
emitted active power with low overload	45 kW
emitted active power with high overload	37 kW
active power output with low overload [hp]	60 hp
active power output with high overload [hp]	50 hp
apparent power output	62.4 kVA
Efficiency	0.98
Type of duty cycle duration with low overload	1.1x rated output current (i.e. 110 % overload) for 57 s with a cycle time of 300 s; 1.5x rated output current (i.e. 150 % overload) for 3 s with a cycle time of 300 s
Type of duty cycle duration with high overload	1.5x output current rating (i.e. 150 % overload) for 57 s with a cycle time of 300 s; 2x output current rating (i.e. 200 % overload) for 3 s with a cycle time of 300 s
Cooling method	Internal air cooling
Cooling air flow	0.083 m³/s
Short-time withstand current (SCCR) of the entire control cabinet in accordance with UL 508A	65 kA
Isolation	
Degree of pollution	2 according to EN 61800-5-1
Degree and class of protection	
IP degree of protection	IP20
Equipment protection class according to EN 61800-5-1	Class I (with protective bonding circuit) and Class III (PELV)
Touch protection according to EN 61800-5-1	Assuming use as prescribed
Standards, approvals, certificates	
Certificate of suitability	CE / TÜV
Standard for EMC according to EN 61800-3	the EMC product standard EN 61800-3 does not apply directly to a frequency inverter but to a PDS (Power Drive System), which comprises the complete circuitry, motor and cables in addition to the inverter
Ambient conditions	
Ambient temperature during operation	
● min.	-20 °C; = Tmin
● max.	50 °C; = Tmax
Ambient temperature during storage/transportation	
● Storage, min.	-25 °C
● Storage, max.	55 °C
● Storage, min. [°F]	-13 °F
● Storage, max. [°F]	131 °F; Class 1K3 acc. to EN 60721-3-1
● Transportation, min.	-40 °C
● Transportation, max.	70 °C
● Transport, min. [°F]	-40 °F
● Transport, max. [°F]	158 °F; Class 2K3 according to EN 60721-3-2
Altitude during operation relating to sea level	
● Installation altitude above sea level without derating, max.	1 000 m
Relative humidity	
● Operation, max.	98 %

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● Condensation permissible	No
Vibrations	
● Vibration frequency with constant acceleration during operation according to EN 60068-2-6, min.	10 Hz
● Vibration frequency with constant acceleration during operation according to EN 60068-2-6, max.	200 Hz; Constant acceleration = 9.81 m/s² (1 g)
● Vibration frequency with constant deflection during operation according to EN 60068-2-6, min.	13 Hz
● Vibration frequency with constant deflection during operation according to EN 60068-2-6, max.	58 Hz; Constant deflection 0.075 mm
● Oscillation frequency during transport in accordance with EN 60721-3-2	Class 2M3
Shock testing	
● Shock load during operation	(15x g)/11 ms
● Shock acceleration during operation according to EN 60068-2-27	147 m/s²
● Shock acceleration during transport according to EN 60721-3-2	Class 2M3
Resistance	
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	No
Usage in industrial process technology	
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
● Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability
● Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life
● Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A	Yes; Conformal coating, Class A
Cables	
Cable length for motor, shielded, max.	200 m
Cable length for braking resistor, max.	10 m
Connection method	
Design of electrical connection of motor	Screw terminals
● connectable cable cross-section for motor supply line, min.	25 mm²
● connectable cable cross-section for motor supply line, max.	70 mm²
● Connectable conductor cross-section for AWG cables, min.	4
Type of electrical connection for mains supply line	Screw terminals
● connectable cable cross-section for mains supply line, min.	25 mm²
● connectable cable cross-section for mains supply line, max.	70 mm²
● Connectable conductor cross-section for AWG cables, min.	4
Type of electrical connection for supply cable to braking resistor	Screw terminals
● Connectable cable cross-section for supply cable to braking resistor, min.	10 mm²
● Connectable cable cross-section for supply cable to braking resistor, max.	35 mm²

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● Connectable conductor cross-section for AWG cables, min.	8
● Connectable conductor cross-section for AWG cables, max.	2
Design of electrical connection for the PE conductor	Screw terminals
Dimensions	
Width	275 mm
Height	551 mm
Depth	237 mm
Weights	
Weight (without packaging)	28 kg
Other	
Sound pressure level (1 m), max.	70.6 dB
Brake design	DC braking, compound braking, resistance braking with integrated brake chopper (for size FSGX optional)

Classifications

	Version	Classification
eClass	14	27-02-31-01
eClass	12	27-02-31-01
eClass	9.1	27-02-31-01
eClass	9	27-02-31-01
eClass	8	27-02-31-01
eClass	7.1	27-02-31-01
eClass	6	27-02-31-01
ETIM	10	EC001857
ETIM	9	EC001857
ETIM	8	EC001857
ETIM	7	EC001857
IDEA	4	4139
UNSPSC	15	39-12-10-07

Approvals / Certificates

General Product Approval			Functional Saftey	Test Certificates
Manufacturer Declaration	CE EG-Konf.	China RoHS	TUEV	TUEV

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