

SINAMICS G120XA 数据表  
Data sheet for SINAMICS G120XA

订货号 : 6SL3220-1YD22-0UB0  
Article No. :



图像类似  
Figure similar

客户订单号 :  
Client order no. :  
西门子订单号 :  
Order no. :  
报价号 :  
Offer no. :  
注释 :  
Remarks :

物品号 :  
Item no. :  
托运号 :  
Consignment no. :  
项目 :  
Project :

额定数据  
Rated data

通用技术参数  
General tech. specifications

|                                 |                           |
|---------------------------------|---------------------------|
| 输入<br>Input                     |                           |
| 相位数<br>Number of phases         | 3 AC                      |
| 电源电压<br>Line voltage            | 380 ... 440 V +10 % -20 % |
| 电源频率<br>Line frequency          | 47 ... 63 Hz              |
| 额定电流 (LO)<br>Rated current (LO) | 11.50 A                   |

|                                                            |                                                                              |
|------------------------------------------------------------|------------------------------------------------------------------------------|
| 功率系数 λ<br>Power factor λ                                   | 0.75 ... 0.93                                                                |
| 偏移角 cos φ<br>Offset factor cos φ                           | 0.99                                                                         |
| 效率 η<br>Efficiency η                                       | 0.97                                                                         |
| 声压级 LpA(1m)<br>Sound pressure level (1m)                   | 63 dB                                                                        |
| 损耗功率 <sup>3)</sup><br>Power loss                           | 0.179 kW                                                                     |
| 滤波器等级 (集成式)<br>Filter class (integrated)                   | 未滤波<br>Unfiltered                                                            |
| EMC 类别 (含附件)<br>EMC category (with accessories)            | 不带<br>without                                                                |
| 安全功能"Safe Torque Off"<br>Safety function "Safe Torque Off" | 无 SIRIUS 设备 (例如 : 通过 S7-1500F )<br>without SIRIUS device (e.g. via S7-1500F) |

|                                                   |              |
|---------------------------------------------------|--------------|
| 输出<br>Output                                      |              |
| 相位数<br>Number of phases                           | 3 AC         |
| 额定电压<br>Rated voltage                             | 400 V        |
| 额定功率 IEC 400V (LO)<br>Rated power IEC 400V (LO)   | 5.50 kW      |
| 额定电流 400V (IN)<br>Rated current 400V (IN)         | 12.50 A      |
| 额定电流 380V (IN)<br>Rated current 380V (IN)         | 12.50 A      |
| 额定电流 (LO)<br>Rated current (LO)                   | 12.50 A      |
| 最大输出电流<br>Max. output current                     | 13.80 A      |
| 脉冲频率<br>Pulse frequency                           | 4 kHz        |
| 矢量控制时的输出频率<br>Output frequency for vector control | 0 ... 240 Hz |
| V/f控制时的输出频率<br>Output frequency for V/f control   | 0 ... 550 Hz |
| 过载能力<br>Overload capability                       |              |

通讯  
Communication

|                     |                                                                |
|---------------------|----------------------------------------------------------------|
| 通讯<br>Communication | USS, Modbus RTU, BACnet MS/TP<br>USS, Modbus RTU, BACnet MS/TP |
|---------------------|----------------------------------------------------------------|

低过载 (LO)  
Low Overload (LO)  
  
周期时间 300 s 中, 110%基本负载电流 IL, 持续时间 60 s  
110% base load current IL for 60 s in a 300 s cycle time

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| 输入/输出<br>Inputs / outputs                                                                                                                                                              |                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| 数字量输入 - 标准<br>Standard digital inputs                                                                                                                                                  |                                        |
| 数量<br>Number                                                                                                                                                                           | 6                                      |
| 开关电平: 0 → 1<br>Switching level: 0 → 1                                                                                                                                                  | 11 V                                   |
| 开关电平: 1 → 0<br>Switching level: 1 → 0                                                                                                                                                  | 5 V                                    |
| 最大接通电流<br>Max. inrush current                                                                                                                                                          | 15 mA                                  |
| 故障安全数字量输入<br>Fail-safe digital inputs                                                                                                                                                  |                                        |
| 数量<br>Number                                                                                                                                                                           | 0                                      |
| 数字量输出<br>Digital outputs                                                                                                                                                               |                                        |
| 作为继电器转换器的数量<br>Number as relay changeover contact                                                                                                                                      | 4                                      |
| 输出 (欧姆负载)<br>Output (resistive load)                                                                                                                                                   | DC 30 V, 1.0 A                         |
| 作为晶体管的数量<br>Number as transistor                                                                                                                                                       | 0                                      |
| 模拟量/数字量输入<br>Analog / digital inputs                                                                                                                                                   |                                        |
| 数量<br>Number                                                                                                                                                                           | 2 (压差输入端)<br>2 (Differential input)    |
| 分辨率<br>Resolution                                                                                                                                                                      | 12 位                                   |
| 作为数字量输入的接通阈值<br>Switching threshold as digital input                                                                                                                                   |                                        |
| 0 → 1                                                                                                                                                                                  | 4 V                                    |
| 1 → 0                                                                                                                                                                                  | 1.6 V                                  |
| 模拟量输出<br>Analog outputs                                                                                                                                                                |                                        |
| 数量<br>Number                                                                                                                                                                           | 2 (电位相关输出端)<br>2 (Non-isolated output) |
| PTC/ KTY接口<br>PTC/ KTY interface                                                                                                                                                       |                                        |
| 1 个电机温度传感器输入端，可连接的 PTC 传感器，KTY, PT1000和Thermo-Click，准确度在 ±5 °C 内<br>1 motor temperature sensor input, sensors that can be connected: PTC, KTY, PT1000 and Thermo-Click, accuracy ±5 °C |                                        |

| 闭环控制方式<br>Closed-loop control techniques                    |                                                                                                   |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| V/f线性/平方/可参数设置<br>V/f linear / square-law / parameterizable | 是<br>Yes                                                                                          |
| V/f，带磁通电流控制（FCC）<br>V/f with flux current control (FCC)     | 是<br>Yes                                                                                          |
| V/f ECO 线性/平方<br>V/f ECO linear / square-law                | 是<br>Yes                                                                                          |
| 矢量控制，无编码器<br>Sensorless vector control                      | 是<br>Yes                                                                                          |
| 矢量控制，带编码器<br>Vector control, with sensor                    | 否<br>No                                                                                           |
| 转矩控制，无编码器<br>Encoderless torque control                     | 是<br>Yes                                                                                          |
| 转矩控制，带编码器<br>Torque control, with encoder                   | 否<br>No                                                                                           |
| 环境条件<br>Ambient conditions                                  |                                                                                                   |
| 喷漆标准<br>Standard board coating type                         | IEC 60721-3-3: 2002 规定的 3C2 级<br>Class 3C2, according to IEC 60721-3-3: 2002                      |
| 冷却<br>Cooling                                               | 通过集成的风扇进行空气冷却<br>Air cooling using an integrated fan                                              |
| 冷却空气需求<br>Cooling air requirement                           | 0.009 m³/s (0.325 ft³/s)                                                                          |
| 安装高度<br>Installation altitude                               | 1,000 米 (3,280.84 ft)                                                                             |
| 环境温度<br>Ambient temperature                                 |                                                                                                   |
| 运行<br>Operation                                             | -20 ... 60 °C (-4 ... 140 °F)                                                                     |
| 运输<br>Transport                                             | -40 ... 70 °C (-40 ... 158 °F)                                                                    |
| 存放温度<br>Storage                                             | -40 ... 70 °C (-40 ... 158 °F)                                                                    |
| 相对空气湿度<br>Relative humidity                                 |                                                                                                   |
| 运行，最大<br>Max. operation                                     | 95 % 40 °C (104 °F) 时，禁止发生凝露和结冰<br>95 % At 40 °C (104 °F), condensation and icing not permissible |

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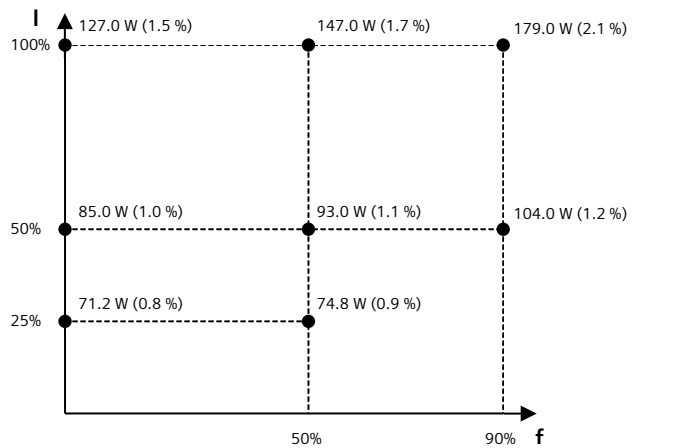
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| 接口                             |                          |
|--------------------------------|--------------------------|
| Connections                    |                          |
| 信号电缆                           |                          |
| Signal cable                   |                          |
| 接口横截面                          | 0.15 ... 1.50 mm²        |
| Conductor cross-section        | (AWG 24 ... AWG 16)      |
| 电源侧                            |                          |
| Line side                      |                          |
| 规格                             | 螺钉型接线端子                  |
| Version                        | screw-type terminal      |
| 接口横截面                          | 1.50 ... 6.00 mm²        |
| Conductor cross-section        | (AWG 16 ... AWG 10)      |
| 电机侧                            |                          |
| Motor end                      |                          |
| 规格                             | 螺钉型端子                    |
| Version                        | Screw-type terminals     |
| 接口横截面                          | 1.50 ... 6.00 mm²        |
| Conductor cross-section        | (AWG 16 ... AWG 10)      |
| 直流母线（用于制动电阻）                   |                          |
| DC link (for braking resistor) |                          |
| PE 端子                          | 在带有 M4 螺丝的外壳上            |
| PE connection                  | On housing with M4 screw |
| 最大电机电缆长度                       |                          |
| Max. motor cable length        |                          |
| 屏蔽                             | 150 米 (492.13 ft)        |
| Shielded                       |                          |
| 非屏蔽                            | 300 米 (984.25 ft)        |
| Unshielded                     |                          |
| 机械数据                           |                          |
| Mechanical data                |                          |
| 防护等级                           | IP20 / UL 开放式            |
| Degree of protection           | IP20 / UL open type      |
| 外形尺寸                           | FSB                      |
| Frame size                     |                          |
| 净重                             | 5.6 kg (12.35 lb)        |
| Net weight                     |                          |
| 外形尺寸                           |                          |
| Dimensions                     |                          |
| 宽度                             | 100 mm (3.94 in)         |
| Width                          |                          |
| 高度                             | 275 mm (10.83 in)        |
| Height                         |                          |
| 深度                             | 209 mm (8.23 in)         |
| Depth                          |                          |

<sup>3)</sup> 典型值。更多信息请参见本数据单页的"变频器损耗 IEC 61800-9-2"。

Typical value. More information can be found in the element group "Converter losses to IEC 61800-9-2" in this datasheet.

| 标准                                                   |                                                             |
|------------------------------------------------------|-------------------------------------------------------------|
| Standards                                            |                                                             |
| 符合标准                                                 | CE, EAC, RCM, RoHS II                                       |
| Compliance with standards                            | CE, EAC, RCM, RoHS II                                       |
| CE 标志                                                | EMV 准则 2004 / 108/EG, 低压准则 2006/95/EG                       |
| CE marking                                           | EMC Directive 2004/108/EC, Low-Voltage Directive 2006/95/EC |
| 符合IEC61800-9-2的变频器损耗*                                |                                                             |
| Converter losses to IEC61800-9-2*                    |                                                             |
| 效率等级                                                 | IE2                                                         |
| Efficiency class                                     |                                                             |
| 对比参考变频器（90% / 100%）                                  | 35.4 %                                                      |
| Comparison with the reference converter (90% / 100%) |                                                             |



百分比值给定了以变频器额定视在功率为基准的损耗。

The percentage values show the losses in relation to the rated apparent power of the converter.

该图显示了相对转矩电流 (I) 超过相对电机定子频率 (f) 时间点（根据标准 IEC61800-9-2）上的损耗。这些值适用于不带选项/附件的基本型变频器。

The diagram shows the losses for the points (as per standard IEC61800-9-2) of the relative torque generating current (I) over the relative motor stator frequency (f). The values are valid for the basic version of the converter without options/components.

\*计算值

\*calculated values